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INTRODUCTION

IN introducing this, the thirty-second ("P") edition of our Catalogue, we have pleasure in announcing two new and interesting developments in our business.

Our New Factory. Hitherto we have employed no less than five different factories in the manufacture of our productions. Four of these have now been superseded by one large up-to-date factory which we have acquired at New Eltham.

It is quite needless to dwell on the great advantage of having all departments under one roof, but we have also taken advantage of the opportunity to reorganize completely all sections, and to renew the equipment.

All obsolete machinery has been scrapped and every device known to modern practice for the testing and adjusting of instruments has been installed, and we can now pride ourselves upon having the largest and best equipped factory of its kind in the Kingdom.

We have been fortunate in retaining the services of the majority of our old hands, and all of our highly-skilled workmen have moved with us, and now work under ideal conditions.

The net result of the change has been most gratifying, and is reflected in the increased efficiency and quality of our products.

All instruments are made throughout in our own works, from the ingot metal to the finished article.

Our Optical Glass Works are equipped with every improvement known to Science. Our range of six circular and eight straight-line Dividing Engines is the finest in the world, and every branch, such as the Foundry, Polishing, Plating, Silvering, Machining, Turning, Framing, Fitting, Cabinet-making, Wood-working, Adjusting, Testing, etc., is the last word in efficiency.

New Retail Establishment. Another development is the opening of a new retail establishment at Middlesbrough. This branch is primarily for the supply of marine instruments, but a good stock of all instruments will be kept for the benefit of our friends in the Midlands.

London Bridge Showroom. For the convenience of those customers who are in the vicinity of, or who can easily reach, our London Bridge Establishment, we have extended our Showrooms there and considerably enlarged the previously existing stock of all our productions, and greatly added to the photo printing equipment.

RECENT DEVELOPMENTS IN DESIGN.

Theodolites. There are various developments in design which call for comment, and among the first is the increased demand for telescopes of the internal focussing type, not only in this country, but from abroad.

The optical advantages of this system are well known, but in humid countries it has hitherto been considered impracticable, owing to loss of light consequent upon the bedewing of the internal lens.

Engineers from the most humid climates, however, are beginning to use internal focussing telescopes, but it is too early at this stage to say whether they will definitely supersede telescopes of the external focussing type.

For our part, we think that the demand for the latter will persist for some years to come for certain countries, and consequently we are still retaining them in our catalogue.

In our new 5-inch Standard Theodolite we have embodied all the latest improvements which have withstood the test of experience and practice in the field. These are described in detail in the preface to the Theodolite Section.

SPECIAL NOTE. Although our New Standard Theodolites represent our definite policy of design for the immediate future, there still exists a demand for our old patterns, and we make no apology for retaining some of them in our catalogue.

A new 4½-inch Precision Theodolite will be found on page 27. This is similar in all respects to P41, but meets the demand which has arisen for a smaller and lighter instrument of similar design.

Perhaps the most outstanding departure from orthodox design of recent years is the introduction of Micrometer instruments with mean-reading devices.

Two readings can be taken from the opposite sides of the circles of these instruments simultaneously, and are viewed side by side.

All readings are taken from one position in front of the instrument, with consequent saving of time.

An instrument of this type is described on pages 37 to 41.

This instrument differs radically from similar instruments by other makers, in that we have evolved a special reading system to suit an instrument of more or less orthodox design.

The net weight of our instrument is only 10½ lb., and the outside dimensions of the case 14×8×7 inches, an amazing reduction in both size and weight for an instrument reading to 5 seconds.

We have added a new Theodolite to our series of American pattern instruments to meet the need of those who favour this type of instrument, *vide* pages 28 and 29.

Levels.—Levels of the so-called "Precision" type are growing in favour. This category includes all Levels in which the Optical Axis or Line of Collimation is not permanently fixed in relation to the Vertical Axis, the final levelling being done by means of an individual levelling screw.

Our ordinary well-known Engineers' Dumpy Levels still hold the field as the best all-round level for ordinary work, and, in response to numerous requests, we have added a level of the Precision type to this series, *vide* page 77.

Levels with revolvable telescopes are gaining in popularity, especially since the introduction of our Improved Precision with revolvable telescope and reversible bubble. This can now be supplied with improved prismatic reading device, a full description of which will be found on page 31.

Our P390 Level meets the demand for a lightweight level of moderate price, having a revolvable telescope.

Bubbles. Spirit Levels have received their due share of attention by our research staff, and we have now installed an improved machine of our own design and manufacture, to grind the tubes.

We have also patented a new device for stabilizing the air bell. Our **Invar Bubbles** will withstand extremes of temperature from 5° below zero up to 120° Fahr., without any alteration in the length of the air bell. Although extremely sensitive they lose none of their steadiness when subjected to a high temperature, which is a very great advantage. This bubble should prove a great boon to Engineers and Surveyors who have to contend with extremes of heat and cold.

New Instruments. Among the new instruments the following are submitted as representing the most perfect of their class, both in performance and design. A full description and specification of each will be found in the appropriate pages.

New Standard Transit Theodolites, 5-inch American Pattern Transit with U-pattern Uprights, 4½-inch Precision Theodolite, 3½-inch Mean Reading Theodolite, 11-inch Engineers' Precision Level, Prismatic Optical Square, Telescopic Alidade, Universal Microscope, Pocket Microscope, Hand Liquid Yacht Compass, 4-inch Liquid Compass, Fuller Rule with scale of Logarithms and Sines, New Standard Pattern Slide Rules, Special Tropical Pattern Drawing Instrument Boxes, Gun-metal Edged Boards, Drawing Board Stand, Mort Cross Section Clinometer.

Drawing Instruments. We have now entirely discontinued the manufacture of the older type of needle-pointed instruments. By improved methods of manufacture we have succeeded in producing our Improved "B" point pattern at the same price, with resultant benefit to our customers.

We have further improved our first-quality Government Pattern Series by the addition of a centering device for the head. This device is extremely effective, but in no way impairs the efficiency of the joint. Up to the present, the difficulty has been to do this without dispensing with the bolt going right through the head, as other makers' patterns do, but this difficulty has been entirely overcome.

Drawing Instrument Cases. For some years we have been looking for a suitable material to make Drawing Instrument Cases that would withstand the ravages of the Tropics. This problem has been solved by the introduction of our Perma Series of Cases.

These cases are moulded in a non-hygroscopic material that is guaranteed not to warp. The recesses to hold the instruments are moulded into the material to avoid the necessity for velvet linings, which hold moisture and rust the instruments.

The material is non-inflammable and pest-proof. In appearance it closely resembles walnut, and the cases weigh practically the same as our wooden cases.

For those clients who prefer the velvet packings we are having a number of cases moulded without recesses, which can be packed in the usual way. These cases can also be utilized for customers who prefer to have their own sets made up.

Drawing Office Equipment. There are a number of additions in this section. A new series of Engineers' Boards with gun-metal straight edges, is offered at a very little increase on the price of the usual ebony-edge pattern. This series, we believe, will in time displace the orthodox pattern. The several advantages more than outweigh the trifling extra cost.

There are two new Drawing Board Stands. One is a light stand to take double elephant or antiquarian boards, and the other is for extra large boards. This stand enables boards up to 8 feet by 5 feet to be used from a standing position.

A Caution. In view of the many different designs and patterns of instruments which have reached the market of recent years, a word of caution to potential buyers is not out of place here.

Any manufacturer of repute can make instruments to give a good performance in a laboratory, but conditions in the field under which the instrument is to be used should be most carefully considered when the choice is made.

We ourselves are constantly in touch with Engineers and Surveyors all over the world, in an endeavour to extend our knowledge on the point and keep abreast of modern conditions.

Photo Copying Department. This department has been considerably enlarged and extended, and very extensive additions have been made to the equipment, particularly for the enlargement and reproduction of plans, from sketches, drawings, ordnance sheets and opaque originals of every kind. Deeds, manuscripts, typewritten matter, etc., etc., can be reproduced by return of post, and in the strictest confidence.

We undertake Engineers' Photo Copying by all processes. Urgent orders for Photo Copying should be sent direct to 13, Railway Approach, London Bridge, S.E.1, or 68, Queen Street, Glasgow.

Tracing, Colouring and Drawing. We have a staff of Draughtsmen at our London Bridge Establishment who can undertake tracing work, colouring, copying and draughtsmanship of any kind. Work is expeditiously and accurately carried out, and we invite you to avail yourself of this service.

Sensitized Papers for Photo Copying. We have introduced two new Dye Line Processes to the market, viz., Brounlyn and Blaklyn.

All reports relating to Blaklyn seem to indicate that this will fill the long-felt need for a Black Line Process for use in the Tropics, where a cheap Positive Black Line Process which can be easily operated has been eagerly sought for many years.

Drawing Office Materials. This department has also been strengthened by the addition of increased facilities for storing and dispatch at our new premises at Eltham.

We are now in an advantageous position to supply all the needs in Stationery for the Architect, Engineer, and Surveyor, at competitive prices.

We invite inquiries and shall be pleased to submit quotations.

Repairs. We undertake repairs to all kinds of surveying and drawing instruments, whether of our own or any other make, executing the work thoroughly and promptly. In the case of a theodolite or level being damaged when on urgent work, we can usually loan an instrument for use while it is being repaired.

The Policy of the Firm. For the information of new customers who may not be acquainted with our business methods, we may mention that *our one and only policy is to do everything in our power to ensure the satisfaction of our clients*, not only as regards the quality of our manufactures, but also in the matter of value, and in the efficiency and promptitude of our service. It is mainly due to our success in these directions that this business has for many years been the largest of its kind in the world. In pursuance of this policy we are prepared to take back or exchange, without question or demur, any new instrument of our manufacture that fails to meet with a customer's approval, provided only that we are notified, on receipt of the instrument, that it is returned unused and that it has not been specially made to order. *Further, if anything we supply to customers in the country is damaged in transit from us, either by rail or post, we are willing to make the same good without charge.*

These we believe to be guarantees of satisfaction such as have never been offered in this trade.

The Completeness of Our Service. We cater for every requirement in surveying and drawing instruments and materials, and invariably hold very large stocks ready for immediate dispatch. We can, and frequently have, shipped a complete equipment for an extensive survey within twenty-four hours from receipt of the order.

As instances of the great variety of choice we offer, we may mention that of the theodolites and levels alone we manufacture over a hundred and fifty different varieties and sizes, and usually keep many hundreds of these instruments in stock. We make over fifty different sets of drawing instruments, and stock over a thousand varieties of drawing scales.

Clients abroad need never be deterred from indenting for any article just because they cannot find it in our catalogue. Our buyers are at their service, and in an advantageous position to buy in any market and supply at current prices.

Agents Abroad. In order to give users of our instruments the greatest possible advantage as regards prices, it has been our policy to supply them direct, through merchants, instead of through the usual channel of retail dealers, and so save them the very considerable retail profits that it would be necessary to allow such establishments. Although this arrangement does effect a great saving in prices, yet it has the disadvantage that Engineers abroad have formerly been obliged to wait a considerable time to obtain instruments from this country, but we are pleased to state that we have now obviated this in many parts of the world by arranging with local dealers to take charge of consignments of suitable instruments on our behalf, so that supplies can be obtained without delay, at as near our home prices as possible. A list of the agents who have already been appointed and supplied with stocks will be found on page 8. Additional agencies in other countries will be arranged as opportunities offer.

Business Arrangements. The prices of all drawing and surveying instruments are specially arranged for the profession and are strictly net, exclusive of packing and carriage, but orders for drawing materials alone (pages 291 to 299 and 308 to 345) to the value of not less than £2 will be sent, carriage paid, to any railway station in Great Britain.

C.O.D. Articles sent by post, C.O.D., are sent free of C.O.D. charges for orders of not less than £2 and upward.

Accounts are only opened with established companies, corporations, and firms with satisfactory bankers' or London references. Accounts are in no case opened abroad, but orders sent to us direct for stock articles will be executed if accompanied by a remittance of not less than twenty-five per cent of the total value, with a minimum of £10, and the balance be paid against our bill at sight on the arrival of the shipping documents at the port of entry.

Important. When sending orders indirectly, through agents or merchants, it is of the greatest importance to **clearly state that Stanley's Instruments are required**, and so avoid the possibility of receiving inferior instruments of other makes which could only lead to disappointment.

A special Telegraphic Code will be found at the end of the catalogue.

This Section contains, as far as possible, a code word for each item in the catalogue, as well as special phrases to facilitate ordering.

As the words consist of only five letters each, any two of them may be transmitted as a single word if written continuously.

Business hours: 9 a.m. to 6 p.m.; Saturdays, 9 a.m. to 1 p.m.

Trade holidays, on which the business is closed: Good Friday, Easter Saturday and Monday, Whit-Monday, First Monday in August, Christmas Day, Boxing Day and the following day.

With thanks for past orders and kind recommendations, and soliciting the continuance of these favours.

We beg to remain,

Your obedient servants,

W. F. STANLEY & CO., LTD.

Signed on behalf of the Company)

H. J. Wallace

Chairman and Managing Director.

Please do not mutilate the catalogue, but quote the letter and number.

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- SINGAPORE – Motion, Smith & Son, Ltd., 15, Battery Road.

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We have pleasure in offering as references the following Offices and Departments, which we have had the honour of supplying with Instruments for, in most cases, over 50 years.

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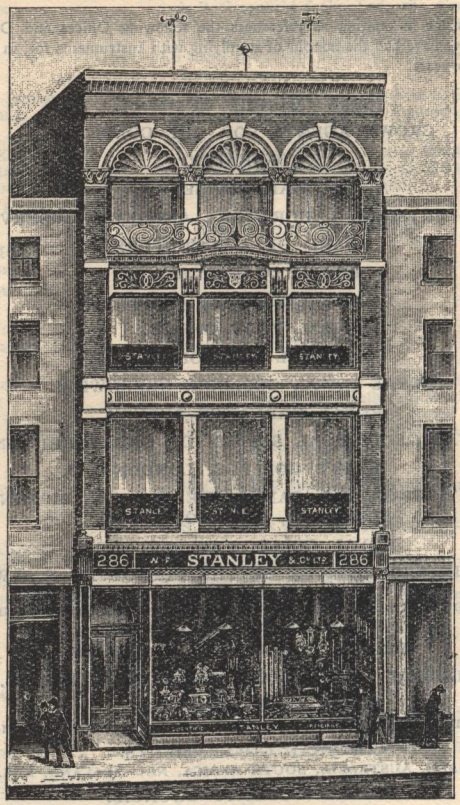

Head Offices and Showrooms :

286, High Holborn, London, W.C.1.

Stanley's Factories and Workshops.

Meteorological Instrument Works.

For the Manufacture of Anemometers, Barometers, Hydrometers, Hygrometers, Hypsometers, Rain Gauges, Sunshine Recorders, Wind Indicators, Thermometers, and Standard Meteorological Instruments.

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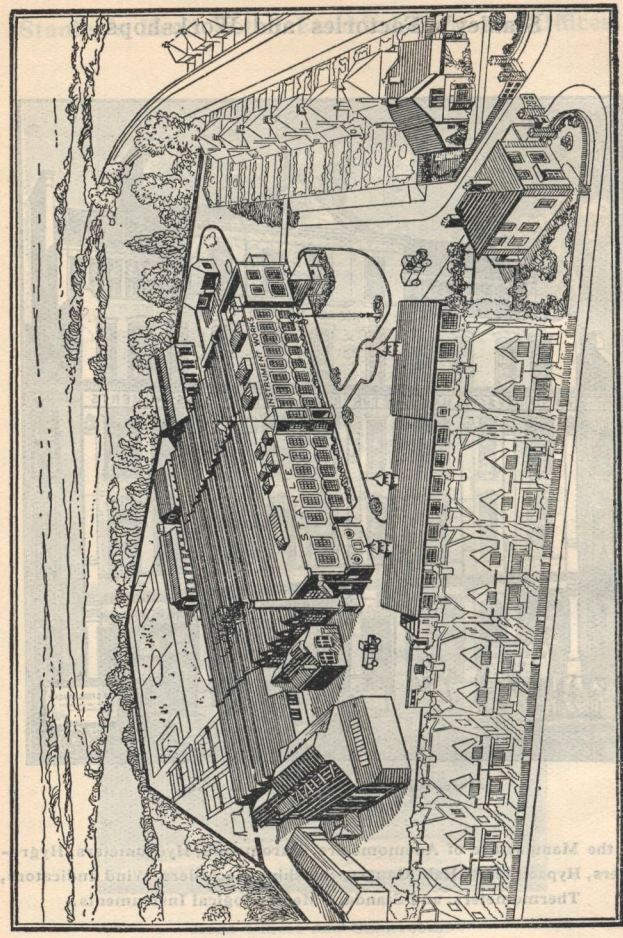
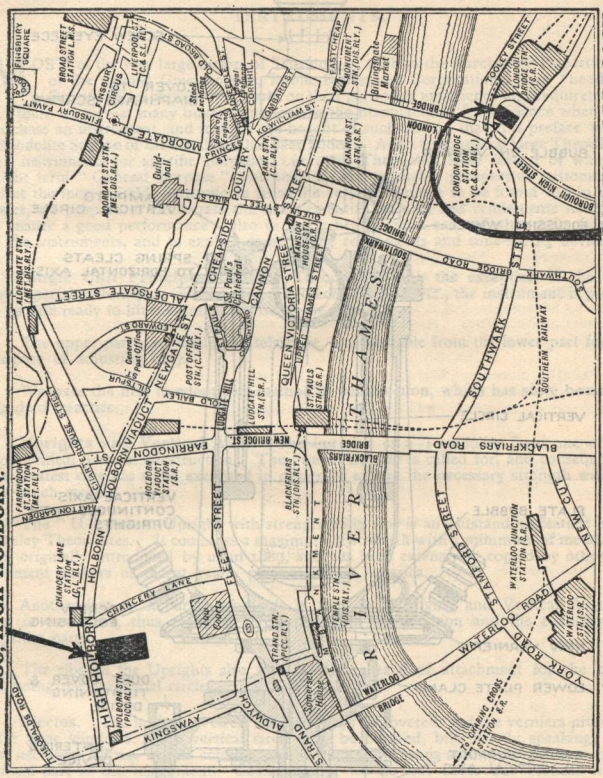
A Separate Catalogue is published of these Manufactures.



The Stanley Scientific Instrument Works, Avery Hill Road, New Eltham, S.E.9.

Map showing position of our London Retail Establishments.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WATERLOO BRIDGE
KINGSWAY
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Waterloo Bridge
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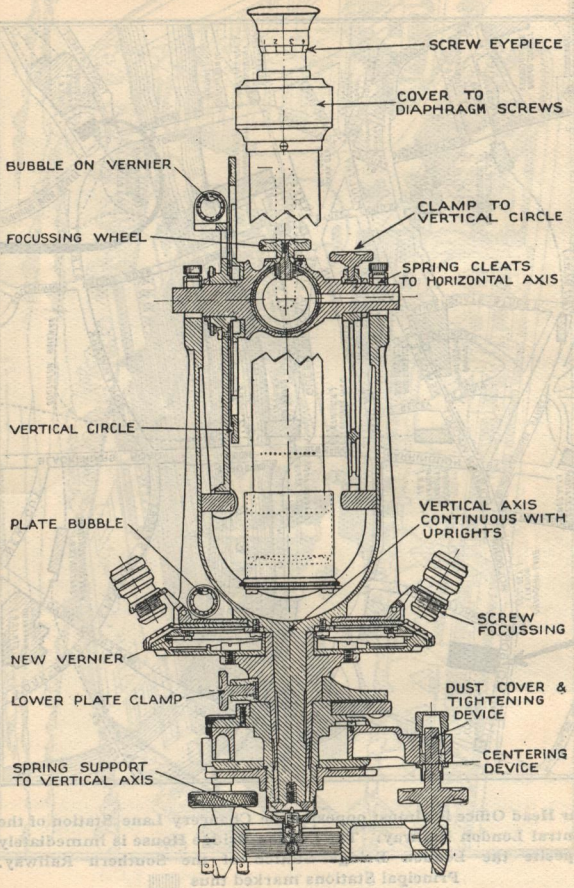
DRAWING ILLUSTRATING THE SEVERAL NEW FEATURES OF THE STANLEY STANDARD TACHEOMETER.



STANLEY TRANSIT THEODOLITES.

SOME NOTES ON THE OUTSTANDING FEATURES OF STANLEY INSTRUMENTS.

MOST of the very large buyers of Theodolites, such as the Purchasing Departments of the various Governments, Public Bodies and Corporations, have Theodolite Specifications of their own, based on their particular experience and requirements, but there are a great many buyers who look to the manufacturer for guidance when they purchase an instrument, and it is for the benefit of such buyers that this preface to the Theodolite Section of the Catalogue has been added. Apart from special large Theodolites and instruments for specific purposes, our main Theodolite sales consist of what we might term "General Purpose" instruments, and to enable prospective customers to select the most suitable instruments from the very wide range to be found within these pages, we propose to enumerate the most essential features and refinements necessary to ensure a good performance; also to touch briefly upon each of the main features of the instruments, and to explain some of the refinements and time-saving devices.

Single Unit Principle. All our Theodolites, with the exception of the very large special patterns, are made on the one-piece principle, viz., the instrument is packed in its case ready to lift out and screw on to the tripod.

The upper part, i.e., circle and telescope, is detachable from the lower part for the purpose of adjusting only.

We were the first to adopt this method of construction, which has since become a standard practice.

Uprights and Vertical Axis. The uprights of a Theodolite form one of the most critical parts in construction. The utmost rigidity is called for, and consequently the greatest care has to be exercised in design to ensure the necessary strength without too much weight.

The "U" pattern Upright with strengthening ribs is an outstanding feature of all Stanley Theodolites. It combines a maximum of strength with a minimum of metal. It was originally introduced by us in 1889, and has been extensively copied by other instrument makers of recent years, particularly in America.

Another feature of our instruments is that the Uprights and Vertical Axis are cast in one piece, thus resulting in simplicity in construction and the reduction of separate parts.

The ribs on the Uprights also form a ready means of attachment for the cover enclosing the horizontal circle.

Circles. The horizontal circle should always be covered, and the verniers provided with glass windows. The vertical circle may be covered, but, strictly speaking, it is not necessary for use in this country, and to enclose it means adding weight to a rather critical part of the instrument. Consequently, we do not cover our vertical circles on standard instruments, but the cover is quoted as an accessory.

Verniers. We have introduced a new and greatly improved method of arranging the Verniers to the Horizontal Circles of our Theodolites.

Instead of the verniers resting on the circle they read to the inner edge without touching, giving an absolutely clear reading free from parallax and without wear or friction. A glass cover is provided, which can be removed for cleaning.

Readers. Two types of readers are now available for vernier reading instruments.

1. The Orthodox Tubular Microscope type.
2. An Aplanatic Triplet, giving a wide field and which can be read at a distance of 6 inches.

This latter type costs a little more, but is specially recommended. It enables the instrument to be read comfortably without fear of upsetting the adjustment by accidentally touching with the head or hat, a great advantage in climates where a helmet is worn. (Particulars on page 58.)

All readers are now made screw focussing, and the disadvantages attendant on the old sliding fitting are entirely done away with.

Centering Device. All our Theodolites are now fitted with centering devices unless otherwise ordered. This device can be fitted either above the parallel screws or in the wall-plate. It is preferable to have this device over the parallel screws, as the centering can be effected without re-levelling the instrument. On the other hand, if fitted below the screws, it can be adapted to any instrument by merely substituting in place of the wall-plate.

Telescopes. Although we have adopted the internal focussing system for our standard Theodolites, many of our other patterns are still made external focussing. This system (a full description of the advantages of which is given on a later page) has many advantages, but it is by no means established that this is the best system for use under all conditions. Any of our telescopes that are external focussing can be made internal focussing, if desired, at a slightly increased cost.

Parallel Screws. We have adopted a form of tightening device for taking up any wear of the parallel screws, which also acts as a dust cover. This is very efficient, and the screws can actually be locked by merely tightening with the thumb and forefinger.

Clamp to Vertical Circle. This has now been transferred to the opposite side of the trunnion from the circle, with the clamping screw at the top, making it very easily accessible and in close proximity to the telescope focussing wheel.

Micrometer Theodolites. We have perfected and patented several very great improvements to our Micrometer Theodolites.

These can now be supplied with special patent transparent dividing, giving a very brilliant image in the microscope. Full particulars will be found on page 39.

Our Castings. Considerable importance attaches to the composition of the castings that are utilised for the manufacture of theodolites, and for this reason we prepare ours in our own extensive foundries at New Eltham. Our alloys are the result of many years of careful experiment, to determine the best possible mixtures for each particular purpose. Every precaution is taken to avoid the inclusion of impure metal, and porous or defective castings are never used in our work.

THE TELESCOPE.

The Optical Qualities. Great importance attaches to the optical quality of the telescope, as the working range of the instrument is dependent upon its efficiency. The object lens especially should be as perfect as possible, and to ensure this we manufacture ours entirely in our own optical works at New Eltham, subjecting each one to identically similar tests to those adopted by the **National Physical Laboratory.**

The Magnifying Power. The most suitable power for the telescope depends entirely upon the conditions under which the instrument is to be used, because increase

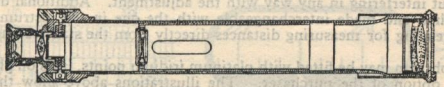
of power incurs a corresponding decrease in the field of view and illumination. Under the usual climatic conditions of this country or for underground use, a low power is most effective, because a good light is of more importance than high magnification, but in countries that have a very clear atmosphere with abundance of light, a high power is of advantage.

The magnifying power stated in the descriptions as being fitted to the various instruments are those we have found most suitable for work under average conditions, but if these are exceptionally favourable as regards light and clearness of the atmosphere, it is desirable to mention this when ordering, and request that a high-power eyepiece be fitted.

For Tacheometrical or Stadia Surveying the highest practicable power is always desirable, and for this reason an instrument with an extra long telescope (as described on page 30) is to be recommended. The large object-glass admits considerably more light, and so permits the use of a high-power eyepiece, even under adverse climatic conditions of visibility.

The Anallatic Telescope. This is a telescope fitted with an additional lens within the body in order to avoid the necessity of adding a " constant " for tacheometrical or stadia measurements. It is not recommended, as the lens entails loss of light and considerably reduces the effective power of the telescope, which is a great disadvantage in comparison with the slight saving effected. *The idea that this is more accurate than the ordinary or open form is entirely erroneous, See also reference to Tacheometers on page 21.*

THE INTERNAL FOCUSSING TELESCOPE.



We have already referred in the introduction to the internal focussing telescopes, and we have adopted this as standard to one or two of our new series of theodolites, notably P1 to 3, P41 and 42

Although the various advantages of the internal focussing telescope are familiar to many, it will not be out of place to enumerate them here.

In the internal focussing optical system the focussing is effected by means of an auxiliary lens, which travels by the usual rack and pinion movement inside the body of the telescope. This means that the overall length of the telescope remains constant for all distances, and there is no exposed draw-tube to oxidize. An additional advantage is that it can be more readily rendered dust-proof.

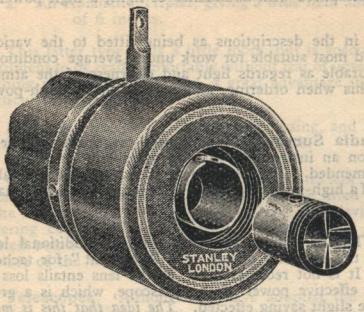
Optically, the internal system is very sound, and liability to collimation errors is considerably reduced.

Another feature peculiar to the internal focussing telescope is that the position of the internal lens can be so arranged that, with the telescope focussed at infinity, it is practically anallatic, and the instrument can be used as a tacheometer, without the addition of a constant.

As against the foregoing advantages, there is a liability that the internal lens may become bedewed and also of a certain loss of light, due to the internal lens. In all our internal focussing telescopes we have increased the effective aperture of the object-glass to counteract this.

Any instrument can be supplied with an internal focussing telescope, but if it is not included in the specification a slight extra cost is entailed and it must be mentioned on the order.

STANLEY'S IMPROVED INTERCHANGEABLE DIAPHRAGMS.



These improved diaphragms, *which were invented and originally introduced by us*, are a great improvement over the older types. They can be immediately removed for cleaning or repair by simply withdrawing them from their holders, and again replaced without interfering in any way with the adjustment. Additional diaphragms can also be supplied and made interchangeable with the one in the instrument. They all have stadia reading for measuring distances directly from the staff reading.

The diaphragm may be fitted with platinum iridium points, lines on glass, or spider's webs, at the option of the purchaser. The illustrations above show the usual types, and it is particularly requested that when ordering instruments, customers will kindly state which one they desire fitted.

The merits of the various forms may be summarised as follows :—

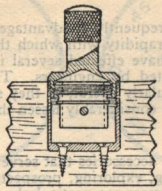
A.1 and A.2 Spider Webs. These are clear and good, but very delicate, being liable to sag with damp, or break by tension if long in the instrument to become very dry. Unless under special skill of the user, the re-webbing and adjustment must be done by an optician. When this form is fitted it is always advisable to order an additional diaphragm with points or lines on glass for temporary use in case of accident.

B.1 and B.2 Lines on Glass. These are accurate and permanent. The presence of the glass diaphragm obstructs a little light at all times, but the great defect is that it is liable to become bedewed by changes of temperature and requires cleaning. This may be done effectively with a cigarette paper. To fill in the lines breathe upon the face of the glass and then gently rub in with the cigarette paper some finely-scraped black lead from a soft pencil.

C. Platinum Iridium Points are the most satisfactory of all for general surveying ; they give an exact reading and are permanent, so that an instrument with points will remain in adjustment for many years. In case of dust on the points this can be gently removed with a camel-hair brush provided in the case. The only objection to this diaphragm is for astronomical observations, when intersecting lines are more convenient.

A diaphragm extractor is provided with all our instruments. This also acts as a holder for the spare diaphragm, and screws into a metal box which is firmly fixed in the case.

THE STANLEY SPARE DIAPHRAGM CONTAINER AND EXTRACTOR.



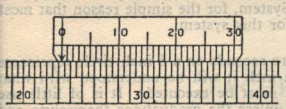
Showing method of packing in box.

Extractor with diaphragm.

MICROMETER-READING THEODOLITES.

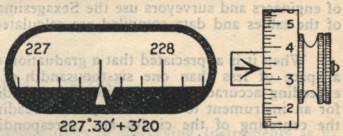
We estimate the accuracy of the micrometer through magnification, and the necessary refined workmanship, to be four to six times as great as the vernier reading, with the further advantage that the micrometer is much more certain, and easier to read.

This may be seen in the following illustration, the first of which shows a vernier and a portion of the graduated circle, while the second illustrates respectively the circle with its indicating point as viewed through the micrometer microscope and the micrometer head itself on which are read the supplementary minutes and seconds.



23°+12′

Vernier reading to one minute.



227°30′+3′20

Micrometer reading to 10 seconds.

With a vernier theodolite, the line on the vernier, which coincides with a line on the limb, has to be accurately determined in order to obtain the correct reading, and this is very difficult to do without extremely accurate focussing and even illumination, but with the micrometer-reading instrument it is merely necessary to turn the micrometer head until the pointer is exactly over the previous division on the circle, when the value of the movement is accurately shown on the micrometer head against the index.

In comparing the prices of these instruments, it should be remembered that a 5-inch micrometer-reading instrument is equal in accuracy to an 8-inch with verniers, and that the 4½-inch, P83, on page 32, is fully equal to a 6-inch of the old form.

MICROMETER-READING THEODOLITES WITH GLASS-EDGED CIRCLES.

There is no doubt that the micrometer would have largely superseded the vernier years ago, in spite of the extra price entailed, but for one great inherent disadvantage, viz., lack of light, consequent upon the use of high-power microscopes.

This disadvantage is entirely eliminated by the adoption of our patent transparent dividing of the circles. These were first fitted to our New Simultaneous-reading Theodolite, and are fully described on page 38. We have since discovered that they can be fitted with very great advantage to all ordinary micrometer theodolites.

VARIOUS TIME-SAVING DEVICES AND OTHER ACCESSORIES.

In these days of strenuous competition it is frequently of advantage to have various attachments fitted to theodolites to facilitate the rapidity with which they can be used, and we are pleased to be able to state that we have effected several improvements in this direction, which have been much appreciated by engineers. The quick-setting joints described on page 57 will be found particularly useful, as they save a great deal of time in "setting up" the instrument, and also considerably lessen the wear upon the levelling screws.

We have also brought out a number of other accessories that serve to greatly facilitate work of various descriptions, such as mining, exploring, prospecting, etc. These are fully described on pages 54 to 65, and customers are particularly recommended to refer to these before ordering.

The Graduation and Figuring of the Circles.

There are two systems of dividing circles in common use, viz. :—

The Sexagesimal System, where the circle is divided into 360°, and the

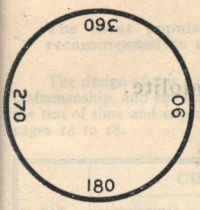
Centesimal or Grade System, where the circle is divided into 400 grades.

The latter system is favoured by some of the Latin countries, but by far the majority of engineers and surveyors use the Sexagesimal System, for the simple reason that most of the tables and data compiled are calculated for this system.

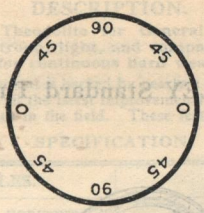
When it is appreciated that a graduation of 10 seconds on a 6-inch circle represents a space of less than one six-thousandth of an inch it will be understood with what exceeding accuracy and refinement the dividing must be executed. It is of little use for an instrument to have a very close reading unless the graduations themselves and the centering of the circles are correspondingly accurate. In inferior instruments one frequently finds great discrepancies in this respect. Our dividing engines have all been made throughout in our own workshops, and we think we may state without exaggeration that they are the nearest approach to absolute accuracy it has yet been possible to attain. Each one is built upon a solid foundation of concrete, is entirely automatic in action, electrically driven, and carefully compensated for temperature.

The graduations of all the higher-class instruments are cut upon solid silver instead of on silvered brass, as is a common practice, and (except a few of the smaller sizes) are figured at every five degrees, with vernier reading instruments, and at every degree on those fitted with micrometers. The figures on the micrometer reading instruments, of which there are 972 on each circle, are exceedingly minute, measuring less than one-hundredth of an inch in height. These are engraved by a special machine of our own invention and construction.

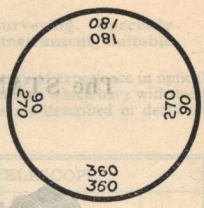
Unless otherwise ordered or mentioned in the description of the instruments, the horizontal circles are figured clockwise, the vertical circles are figured from 0 horizontally to 90 vertically, as shown in the following diagrams, from which the intermediate figures are omitted for clearness.



HORIZONTAL CIRCLE
STANDARD



VERTICAL CIRCLE
STANDARD



HORIZONTAL CIRCLE
CANADIAN PRACTICE

An exception is made in our Canadian Pattern Transits, which have a double set of figures reading both ways, inclined in opposite directions.

Any other method of figuring can be supplied if particulars are given when ordering. No additional charge is made unless more work is entailed, but a little delay is unavoidable with all instruments that have to be specially made or figured.

No extra charge for centesimal dividing.

TACHEOMETERS.

As there appears to be some doubt among users of Surveying Instruments as to what constitutes a Tacheometer, a few words on the subject may be of advantage.

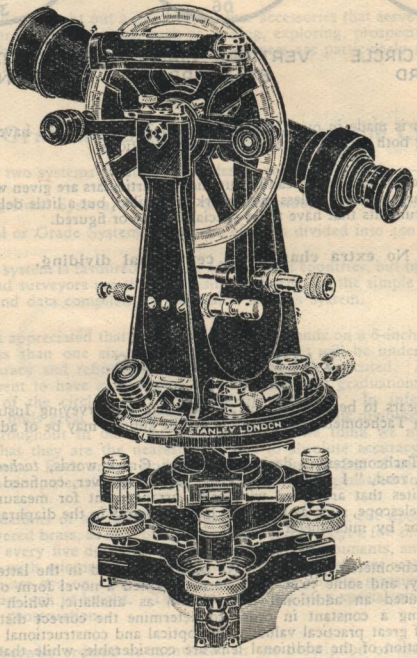
The word Tacheometer is derived from the Greek words, *tacheos* and *metro*, which, translated, read, " I measure quickly." It is, however, confined by custom to describe Theodolites that are fitted with some arrangement for measuring distances by means of the telescope, such as by stadia lines or points in the diaphragm, by use of auxiliary scales, or by micrometer screws.

The first Tacheometer appears to have been introduced in the latter part of the eighteenth century, and some years later Porro invented a novel form of telescope in which he introduced an additional lens, known as anallatic, which obviated the necessity of adding a constant in order to determine the correct distances. This, however, is not of great practical value, as the optical and constructional disadvantages from the introduction of the additional lens are considerable, while that of adding a constant to each measurement is quite trifling.

The idea that an anallatic telescope is an essential feature of a Tacheometer is quite mistaken, as the instrument was invented and in use long before the anallatic telescope was introduced, and at the present time it is estimated that for every Tacheometer supplied with an anallatic telescope, at least five hundred have the ordinary open form.

As Tacheometers with anallatic telescopes are still occasionally asked for, we continue to manufacture them, but owing to the disadvantages of the additional internal lens, it is anticipated that very soon they will be no longer called for.

The STANLEY Standard Theodolite.



P1 to P3.

DESCRIPTION.

The most popular Theodolite for General Surveying. Specially recommended as a strong, light, and compact instrument, suitable for continuous hard wear.

The design of this instrument is backed by nearly a century of experience in optical craftsmanship, and embodies all the latest improvements in design which have withstood the test of time and experience in the field. These features are described in detail on pages 14 to 18.

SPECIFICATION.

CAT. No.	CIRCLES.				TELESCOPE.				
	VERTICAL.		HORIZONTAL.		Focal Length in inches.	Diameter of O.G. in inches.	Focussing.	Angular Field.	Magnification.
	Diameter in inches.	Reading to	Diameter in inches.	Reading to					
P1 & 7	4	Mins.	4	Mins.	8	1.15	Internl.	1° 50′	×18
P2 & 8	5	20 Sec.	5	20 Sec.	9.25	1.5	Internl.	1° 45′	×22
P3 & 9	6	20 Sec.	6	20 Sec.	10	1.5	Internl.	1° 30′	×24

ACCESSORIES.

Dark glass for the eyepiece, plummet, screwdriver, adjusting pin, axis lubricant, spare diaphragm and book of instructions for use and adjustment are supplied with each instrument.

The Case is of well-seasoned mahogany, with combed joints, and carefully packed internally to support the instrument at every important part to minimise the risk of damage in transit.

The Stand usually supplied is the solid round form, No. P597 or P598, on page 92, but other forms may be substituted as shown on pages 91 to 93.

		£	s.	d.
P1	4-inch, with three levelling screws	48	0	0
P2	5-inch, „ „ „ „	50	0	0
P3	6-inch, „ „ „ „	58	0	0
P7	4-inch, „ four „ „	48	0	0
P8	5-inch, „ „ „ „	50	0	0
P9	6-inch, „ „ „ „	58	0	0

EXTRAS AND ALTERNATIVES.

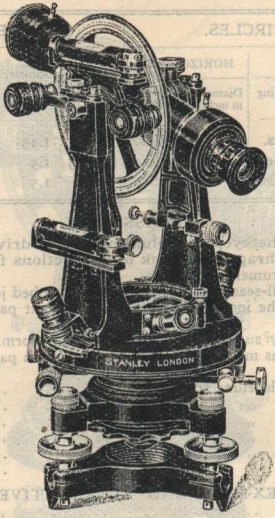
	£	s.	d.
Trough Compass	2	0	0
Quick-setting Spherical Joint, P220, *page 57, recommended*	2	10	0
Cover to Vertical Circle	3	0	0
Framed or Telescopic Stand in place of round form, 4-in., £1 10s.; *5-in. and 6-in.*	1	16	0
Overcase, leather, best quality, 4-in., £3; *5-in.*, £4; *6-in.*	5	0	0
Ditto, leather-bound waterproof canvas, 4-in., £2; *5-in.*, £2 15s.; *6-in.* ..	3	10	0

For other accessories, special fittings, etc., see pages 55 to 65.

APPROXIMATE WEIGHTS AND DIMENSIONS.

CAT. No.	WEIGHTS IN LBS.			DIMENSIONS OF CASE. INCHES.		
	Inst. only.	Case and Access.	Stand.	Length.	Breadth.	Depth.
P1&7	9¾	5¼	7½	15¼	6¾	6
P2&8	13¾	8¼	9	18	7¾	7¾
P3&9	17¾	9	10	17¾	9	8¼

The STANLEY Standard Theodolite, with CIRCULAR COMPASS.



P30 and P31.

APPROXIMATE WEIGHTS AND DIMENSIONS.

CAT. No.	WEIGHTS IN LBS.			DIMENSIONS OF CASE. INCHES.		
	Inst. only.	Case and Access.	Stand.	Length.	Breadth.	Depth.
P30&32	12	7½	7½	17¼	8¼	8
P31&33	16	10	9	18	9	8¼

STANLEY Standard Theodolites with CIRCULAR COMPASS.

To meet what is apparently a growing demand, we are making our new series of Circular Compass instruments in two sizes only, 4½ inch and 5½ inch, instead of the usual 4, 5, and 6 inch. Thus with our two first series of Theodolites we are able to meet the demand for practically any specification from the point of size.

These instruments are similar in general construction to those described on page 23, except that both clamps are housed below the horizontal plates, to allow sufficient room for the compass. This is of an improved form, with a floating bevelled dial, divided to half-degrees and reading by microscope.

We ourselves maintain that it is more accurate to take the magnified readings of a comparatively short needle than the open reading of a long needle; the apparent accuracy of the longer needle is offset by the increased oscillation and vibration.

By the method employed in this instrument, compass readings can be taken by estimation to ten minutes, quite easily.

The telescope is of the internal-focussing type, and has a **Subtense Diaphragm for measuring distances**, as described on page 18, to which please refer before ordering.

They have solid round form stands, as P597 on page 92, but other forms may be substituted, if desired.

CAT. No.	CIRCLES.				TELESCOPE.				
	VERTICAL.		HORIZONTAL.		Focal Length in inches.	Diameter of O.G. in inches.	Focussing.	Angular Field.	Magnification.
	Diameter in inches.	Reading to	Diameter in inches.	Reading to					
P30 & 32	4	30 Sec.	4½	30 Sec	8.25	1.3	Internl.	1° 50′	×18
P31 & 33	5	20 Sec.	5½	20 Sec.	9.25	1.5	Internl.	1° 45′	×22

ACCESSORIES.

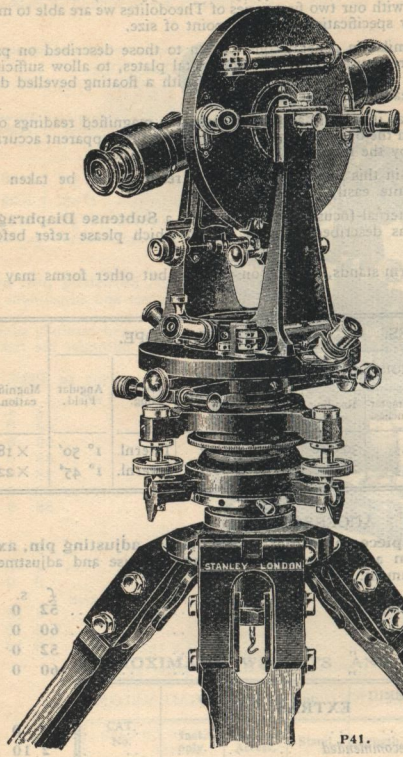
Dark glass for the eyepiece, plummet, screwdriver, adjusting pin, axis lubricant, spare diaphragm and book of instructions for use and adjustment are supplied with each instrument.

		£	s.	d.
P30	4½-inch, with three levelling screws	52	0	0
P31	5½-inch, ,, ,, ,, ,, ...	60	0	0
P32	4½-inch, ,, four ,, ,, ...	52	0	0
P33	5½-inch, ,, ,, ,, ,, ...	60	0	0

EXTRAS.

Cover to Vertical Circle	3	0	0
Quick-setting Spherical Joint, recommended	2	10	0

The STANLEY PRECISION Theodolite.



P41.

APPROXIMATE WEIGHTS IN LBS.

CAT. No.	Inst. only.	Case and Access.	Stand.
P41	12	7½	7½
P42	16	10	9

APPROXIMATE DIMENSIONS OF CASE IN INCHES.

P41	17½ × 8¼ × 8
P42	18 × 9 × 8½

DESCRIPTION.

CAT. No.	CIRCLES.				TELESCOPE.				
	VERTICAL.		HORIZONTAL.		Focal Length in inches.	Diameter of O.G. in inches.	Focussing.	Angular Field.	Magnification.
	Diameter in inches.	Reading to	Diameter in inches.	Reading to					
P41	5½	20 Sec.	5½	20 Sec.	9.25	1.5	Internl.	1° 45′	×22
P42	4	30 Sec.	4½	30 Sec.	8.25	1.3	Internl.	1° 5′	×18

See page 17, Notes on Telescopes.

The Verniers are attached on a new principle, by which the reading edge is not in contact with the graduated circle, although it appears to be perfectly so when readings are taken, and no parallax is produced.

Circle Covers. Both the horizontal and vertical circles are protected by metal covers, which are **sealed, and perfectly damp- and dust-proof.** The openings for the verniers are fitted with covers of parallel glass.

The Gradienter Screw is provided for measuring small gradients, also distances beyond which stadia readings can be taken.

The Spirit Levels. Two spirit levels are attached to the horizontal plate and one to the cover of the vertical circle. **They are all of the same size and accuracy and are all interchangeable.** A spare spirit level, ready mounted in its metal case, is provided in case of accident to replace any one on the instrument.

The Centering Adjustment is of our improved sliding-plate form, **above the levelling screws.**

The Compass is of circular form, with an aluminium bevelled flange reading by microscope to 15 minutes of arc, and by estimation to 5 minutes.

The Reading Microscopes are screw focussing, and are of a higher power than are usually provided, giving greater accuracy in reading, but with ample light and field of view.

The Stand, as shown in the illustration, is of a new design, very light and rigid. Adjustment is provided by which the bearings to the joints can be instantly tightened to any desired degree.

The Case is of solid mahogany and fitted with a leather sling strap for carrying. It is packed to take the instrument in one piece.

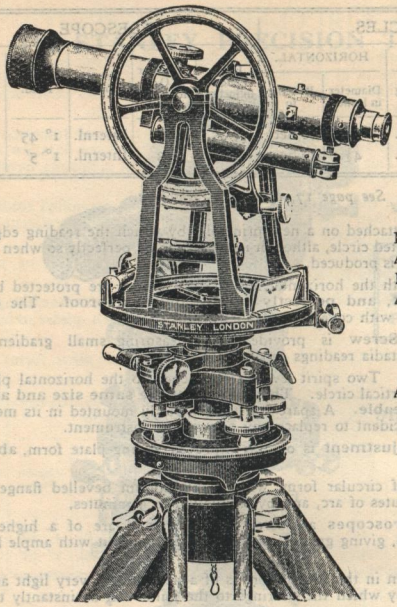
		£	s.	d.
P41	5½-inch instrument, complete with **tripod stand, plummet, adjusting pin, screwdriver and axis lubricant**	67	10	0
P42	Ditto, 4½-inch, as above, but without covered vertical circle	57	0	0

Either of the above can be supplied without the Quick-setting Joint at a reduction in price of £2 10s. 0d.

ACCESSORIES.

	£	s.	d.
Reflector to Main Bubble	1	10	0
Diagonal Eyepiece for taking astronomical observations or steep vertical sights	2	10	0
Electric Illumination to the axis of the telescope, consisting of dry battery in mahogany case, with switch, 2 metal filament lamps, etc.	2	10	0
Striding Level for testing the horizontal axis of the telescope ..	2	10	0
Auxiliary top and side Telescope for plumbing or transferring bearing down inclined or vertical shafts (see P210)	13	10	0
Solid Leather Overcase for the instrument box, 4½-inch, £3 12s. 6d.; 5½-inch	4	0	0
Telescopic Stand in place of the standard form usually supplied, extra	1	16	0

The STANLEY CANADIAN Theodolite.



Specification.

Diameter of O.G., 1.3 in.
Angular Field, 1° 50′.
Magnification, ×20.
Approximate Weight of—
Instrument, 12 lbs. 9 oz.
Case and Accessories, 8 lbs.
Stand, 8 lbs. 10 oz.
Approximate Size of Case, 17½×8×8 inches.

This instrument has been specially designed for engineering and surveying in the Colonies, where rapidity of work is of the utmost importance. The dividing is on solid silver, and figured to read both ways. The verniers are flush-reading and double-figured. The limb is entirely covered, and the verniers are protected by watertight glass covers, and have glass reflectors.

It has an inverting eyepiece and **Subtense Webbed Diaphragm for measuring distances,** Pattern A1, as described on page 18. The instrument has the four-screw levelling arrangement and an improved form of sliding stage for centering. The base plate has three small feet, so that, if desired, the transit may be used without the stand.

The tripod stand is of the "Split Leg" type, shown as P596, on page 92. This is very light and strong, and particularly suitable for use in climates having extreme heat or cold. Other forms may be substituted as stated on pages 91 to 93.

		£	s.	d.
P49	5-inch, reading to single minutes on both circles	52	0	0
P50	As above, but without the vertical circle	48	0	0

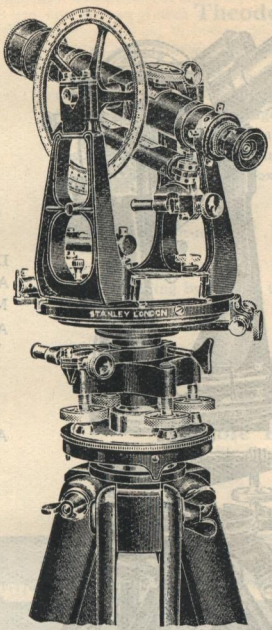
Either of the above with tribrach, instead of 4-screw levelling with sliding stage, at the same prices.

EXTRAS.

Leather Overcase to the instrument box, best quality	3	15	0
Internal Focussing	2	0	0
Deviation Compass	1	10	0
Gradienter Screw	2	5	0
Erecting Eyepiece	1	15	0

See also pages 60 to 64.

Canadian Pattern Theodolite with U-Pattern Uprights.



Specification.

Diameter of O.G., 1.3 in.
Angular Field, 1° 50′.
Magnification, ×20.
Approximate Weight of—
Instrument, 13 lbs. 8 oz.
Case and Accessories, 9 lbs. 10 oz.
Stand, 8 lbs. 10 oz.
Approximate Size of Case, 18×8×9 inches.

This instrument is similar in general construction to P49, except that it has U-pattern uprights. This modification of *our* original U-pattern has recently been introduced by American makers. The optical specification is the same, and any accessories quoted can be fitted equally well to this instrument.

PRICES.

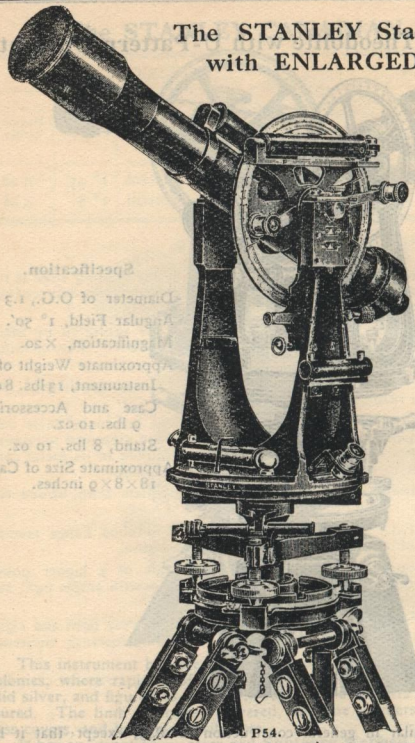
		£	s.	d
P52	5-inch, reading to single minutes on both circles	52	0	0
P53	As above, but without vertical circle	48	0	0
	Either of the above with tribrachs instead of 4-screw levelling with sliding stage at the same price.			

EXTRAS.

Leather Overcase to instrument box, best quality	3	15	0
Internal Focussing Telescope	2	0	0
Deviating Compass	1	10	0
Gradienter Screw	2	5	0

See also pages 60 to 64.

The STANLEY Standard Theodolite, with ENLARGED TELESCOPE.



P54.

Specification.

Diameter of O.G., 1.65 in.

Angular Field, 1° 20′.

Magnification, ×32.

Approximate Weight of—

Instrument, 24¾ lbs.

Case and Accessories, 16 lbs.

Stand, 9 lbs.

Approximate Size of Case, 19 × 14½ × 8½ inches.

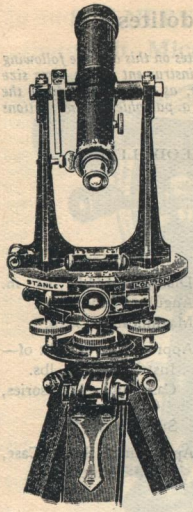
It has frequently been remarked by eminent surveyors that, no matter how excellent may be the optical quality of the telescopes that are usually fitted to theodolites, their precision does not equal that of the graduated circles, and that this particularly applies to tacheometers (or stadia measuring theodolites) in which distances are determined directly from staff readings without the use of a measuring chain.

The theodolite illustrated above is designed to overcome this objection. It has 6-inch circles reading by verniers to 20 seconds, and a telescope of 16-inch solar focus in place of the usual one of 10 inches, giving, with the normal eyepiece, a magnification of 32 diameters, or one of 42 diameters if a high-power eyepiece be supplied. The latter is, however, only to be recommended when the instrument is to be used under most favourable conditions of visibility.

The diaphragm may be of any of the styles described on page 18, and an additional one can be supplied, interchangeable with the one in the instrument.

The centering stage is fitted to the head of the stand, which is of our improved pattern, as P593, and of exceptional rigidity. It is provided with a cap to protect the metal-work when in transit.

		£	s.	d.
P54	Stanley's Improved Transit Theodolite for large stadia surveys, complete with trough compass and usual accessories	75	0	0



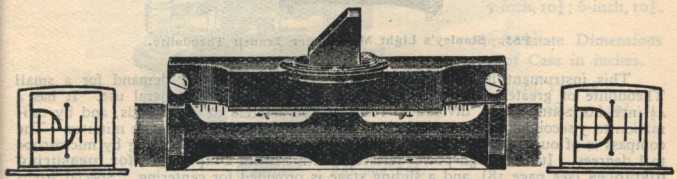
P68.

The STANLEY SIMPLE Theodolite.

Stanley's "Simple" Theodolite, suitable for architects and contractors, for small surveys, setting out work, etc., fitted with inner and outer centres, both with clamp and tangent adjustment; divided on gun-metal to read 1 minute of arc. The telescope has a locking pin for setting it level, and rack for focussing. In mahogany box, with ash tripod stand.

		£	s.	d.
P68	4-inch, gun-metal	14	15	0
P69	Ditto with 2½-inch vertical circle reading by vernier to 10 minutes	17	15	0

The Stanley Improved Prism Bubble Reader.



Bubble seen approaching coincidence.

P70.

Bubble coincident.

This is a method of reading the bubble by an optical system whereby half-views of each end of the bubble are seen in coincidence.

True coincidence can only be attained by exactly levelling the bubble. The advantages of the system are twofold :—

(1) The bubble can readily be observed from the eyepiece end of the telescope immediately prior to taking a sight.

(2) It doubles the accuracy of the bubble by elimination of all parallax and by exactly locating the air bell in the centre of the vial.

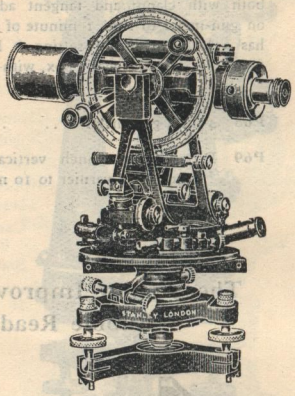
		£	s.	d.
P70	Price, extra to cost of the instrument	2	0	0

For Telegraphic Code see end of catalogue.

STANLEY Micrometer Theodolites.

We desire to call special attention to the Micrometer Theodolites on this and the following pages. Their accuracy is far greater than is possible with any instrument of the same size that reads by verniers. The method of reading is very simple, as will be seen from the explanation on page 19. Each instrument is accompanied by a pamphlet of instructions for use and adjustment.

STANLEY'S 4½-INCH MICROMETER THEODOLITES.



Specification.

Diameter of O.G., 1.15 in.
Angular Field, 1° 50′.
Magnification, × 18.
Approximate Weight of—
Instrument, 11 lbs.
Case and Accessories, 6¾ lbs.
Stand, 7 lbs. 8 oz.
Approximate Size of Case, 14×8×8 inches.

P83. Stanley's Light Micrometer Transit Theodolite.

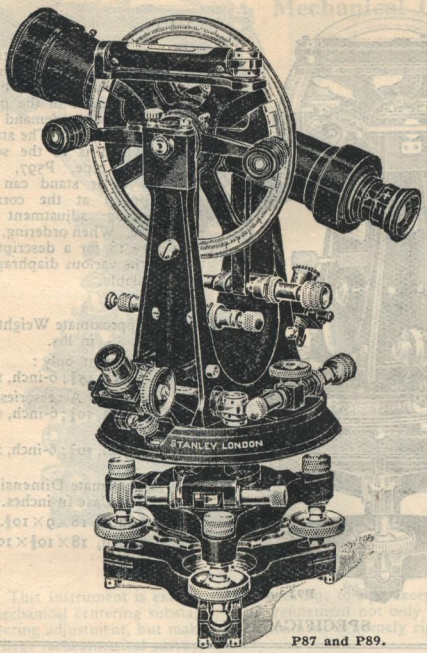
This instrument has been specially designed to meet the demand for a small Theodolite of greater accuracy than the instruments now in general use. It has a 4½-inch horizontal circle, divided to read by micrometers to 20 seconds, and by estimation to 5 seconds, and a vertical circle with verniers reading to single minutes. The compass is of our improved circular form, with bevelled flange, reading by microscope to ¼ degrees. It has a high-power telescope with **Stadia Diaphragm for measuring distances** (see page 18), and a sliding stage is provided for centering. Special attention has been given to the design and general construction of this instrument. The telescope supports and main centre are machined from a single solid casting. The horizontal circle of dividing is protected by a gun-metal cover; the levelling screws have adjustments both at top and bottom for taking up wear. It can be used without the stand when desired, and fits into its case in one piece.

It has a solid round form stand, as P598, on page 92, but other forms may be substituted as shown on pages 91 to 93. We specially recommend this as a very compact, light, and accurate transit theodolite, and we anticipate that it will, to a great extent, take the place of the much heavier 6-inch instruments now in general use.

		£	s.	d.
P83	Price, complete in mahogany case	57	10	0
P84	Same as above, but with micrometers to the vertical as well as the horizontal circle	63	0	0
Overcase to the instrument box, best quality leather		3	0	0
Ditto, waterproof canvas		2	0	0

For other accessories, see pages 61 to 64.

STANLEY STANDARD THEODOLITES, with Micrometers to one or both Circles.



P87 and P89.

These instruments conform to the standard of design laid down for our new Tacheometers, P2 and P3. The only difference is in the method of reading, which is by **micrometer** instead of vernier **to either one or both circles.**

Approximate Weights in lbs.

Instrument only :
5-inch, 14½; 6-inch, 17¾.

Case and Accessories :
5-inch, 11½; 6-inch, 15.

Stand :
5-inch, 10¾; 6-inch, 10¾.

Approximate Dimensions of Case in inches.
5-inch, 17×8½×11.
6-inch, 18×9×10¾.

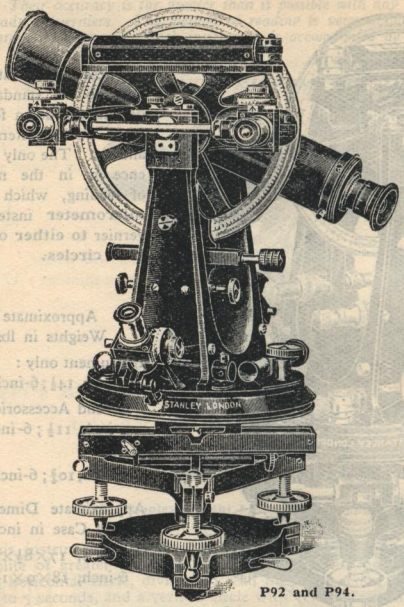
CAT. No.	CIRCLES. VERTICAL. Diam. in ins.	Reading by	Reading to	CIRCLES. HORIZONTAL. Diam. in ins.	Reading by	Reading to	TELESCOPE. Focal Length.	Focussing.	Diam. of O.G. ins.	Angular Field.	Magnification.	PRICE £ s. d.
P87	5	Vernr.	20″	5	Micro.	10″	9.25	Intnl.	1.5	1°45′	22	64 0 0
P88	5	Micro.	10″	5	Micro.	10″	9.25	Intnl.	1.5	1°45′	22	70 0 0
P89	6	Vernr.	20″	6	Micro.	5″	10.0	Intnl.	1.5	1°30′	24	69 0 0
P90	6	Micro.	5″	6	Micro.	5″	10.0	Intnl.	1.5	1°30′	24	75 0 0

EXTRAS.

	£ s. d.
Trough Compass	2 0 0
Leather Overcase for the instrument box	4 0 0

For other accessories, mining fitments, etc., see pages 55 to 65.

Transit Theodolite, with Micrometer Reading to one or both Circles and with Sliding Centering Movement.



P92 and P94.

This is our Original Pattern Micrometer Theodolite, which has been very popular in the past, and a steady demand for it still persists. The stand provided is of the solid round type, P597, but any other stand can be supplied at the corresponding adjustment in price. When ordering, see page 18 for a description of the various diaphragms available.

Approximate Weights in lbs.

Instrument only :
5-inch, 15¾; 6-inch, 19½.
Case and Accessories :
5-inch, 10¼; 6-inch, 13¾.
Stand :
5-inch, 10¾; 6-inch, 10¾.

Approximate Dimensions of Case in inches.

5-inch, 18×9×10¾.
6-inch, 18×10¾×10¾.

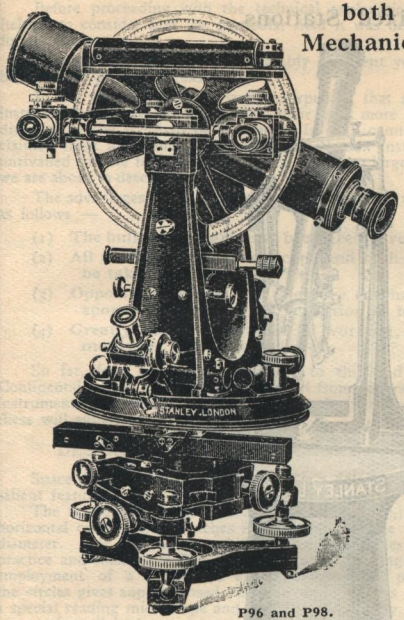
SPECIFICATION.

CAT. No.	CIRCLES. VERTICAL. Diam. in inches.	Reading by	Reading to	HORIZONTAL. Diam. in inches.	Reading by	Reading to	TELESCOPE. Focal Length	Focussing.	Diam. of O.G. in inches.	Angular Field.	Magnification.	PRICE
P91	5	Vernr.	20″	5	Micro.	10″	9.25	Exter.	1.5	1°45′	22	£64
P92	5	Micro.	10″	5	Micro.	10″	9.25	Exter.	1.5	1°45′	22	£70
P93	6	Vernr.	20″	6	Micro.	5″	10	Exter.	1.5	1.30	24	£69
P94	6	Micro.	5″	6	Micro.	5″	10	Exter.	1.5	1.30	24	£75

EXTRAS.

	£	s.	d.
Trough Compass	2	0	0
Leather Overcase for the instrument box, best quality	4	0	0
Quick-setting Joint, P220, page 57	2	10	0

Transit Theodolite, with Micrometer Reading to one or both Circles and with Mechanical Centering Stage.



P96 and P98.

Approximate Weights in lbs.

Instrument only :
5-inch, 17½ ; 6-inch, 22½

Case and Accessories :
5-inch, 13¾ ; 6-inch, 16¾

Stand :
5-inch, 10¾ ; 6-inch, 10¾

Approximate Dimensions of Case in inches.

5-inch, 19½ × 10¾ × 9½
6-inch, 21 × 11½ × 9¾

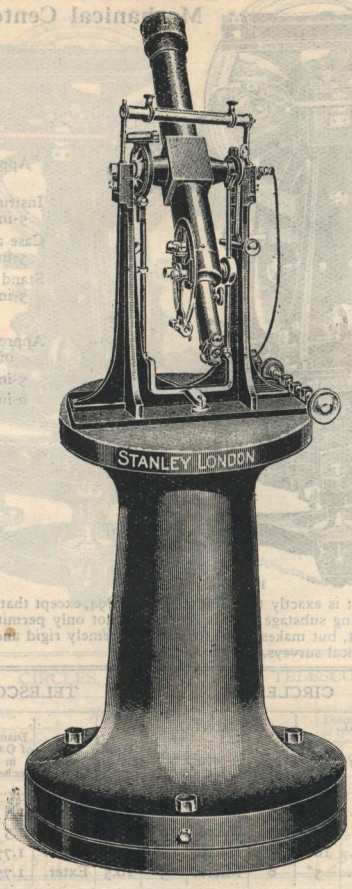
This instrument is exactly the same as P91 to P94, except that it is equipped with a mechanical centering substage. This refinement not only permits of a more precise centering adjustment, but makes the instrument extremely rigid and eminently suitable for large tacheometrical surveys.

CAT. No.	CIRCLES.						TELESCOPE.					PRICE
	VERTICAL.			HORIZONTAL.								
	Diam. in inches.	Reading by	Reading to	Diam. in inches.	Reading by	Reading to	Focal Length	Focussing.	Diam. of O.G. in inches.	Angular Field.	Magnification.	
P95	5	Vernr.	20″	5	Micro.	10″	9.25	Exter.	1.5	1°45′	22	£69
P96	5	Micro.	10″	5	Micro.	10″	9.25	Exter.	1.5	1°45′	22	£75
P97	6	Vernr.	10″	6	Micro.	5″	10.5	Exter.	1.75	1°45′	24	£74
P98	6	Micro.	5″	6	Micro.	5″	10.5	Exter.	1.75	1°45′	24	£80

EXTRAS.

	£	s.	d.
Trough Compass	2	0	0
Leather Overcase for the instrument box, best quality, 5-in., £4 10s. ; *6-in.*	5	0	0
Quick-setting Joint, P220, page 57	2	10	0

Large Astronomical Transit and Zenith Telescope for Fixed Stations.



P100.

P100 These instruments are only made to order; estimates and specification will be submitted on application. Enquiries should state size of telescope, reading required and how divided.

THE BRIEF HISTORY OF THE MEAN READING TYPE OF THEODOLITE.

Before proceeding with the technical explanation of this instrument it will be helpful to consider first the particular field it was designed to occupy and the reason for its conception.

Survey costs have risen considerably of recent years, and the amount of work to be done has greatly increased.

In the circumstances, it is not surprising that a demand has arisen for special instruments to assist surveyors to do their work more expeditiously without in any way diminishing the standard of accuracy. In this connection the Theodolite naturally claimed most attention. Although the orthodox instrument is, and always will be, unrivalled for the bulk of routine work, there is a large field for the instruments which we are about to describe.

The advantages which these instruments have over the usual type may be summarised as follows :—

(1) **The bulk and weight have been greatly reduced.**

(2) **All readings, i.e., of telescope and both circles and main bubble, can be taken from one position.**

(3) **Opposite readings of circles are mechanically meaned with corresponding accuracy and reduction of book work.**

(4) **Greatly increased speeds in working, due to the peculiarly easy method of reading the circles.**

So far, four instruments designed to this end have been produced, two of Continental origin and two British (apart from our own). Fundamentally, the British instruments are similar to the Continental ones, so a brief description of one of these will suffice.

DESCRIPTION OF THE CONTINENTAL INSTRUMENT.

Space does not admit of anything like a detailed description, but the following are salient features.

The instrument is an exceedingly compact one, having etched glass circles, the horizontal circle being 3 inches in diameter and the vertical circle being 2 inches in diameter. The use of etched glass for the circles is a departure from general practice and makes possible the use of a higher magnification of the dividing. The employment of a novel and elaborate system of prisms for lighting and reading the circles gives superimposed views of opposite sides of the circles, which are seen in a special reading microscope and optically meaned by displacing the light pencils by means of parallel plate micrometers.

Thus all readings can be taken from one position and only one booking for each circle is necessary.

Both circles are totally enclosed without windows for lighting, so that two separate prism-reflected light tracks have to be provided, one for lighting and one for viewing. From first to last, light entering the instrument has to pass through something like forty different refracting surfaces, the displacement of any one of which would upset the adjustment of the instrument.

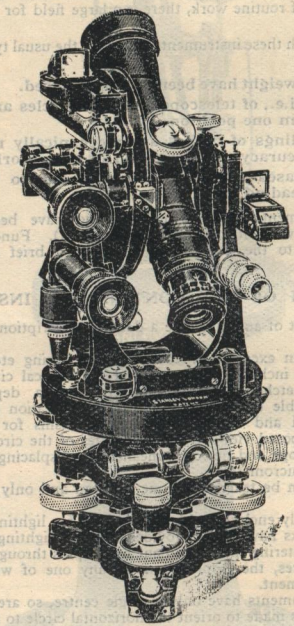
Three of these instruments have only a single centre, so are not repeating instruments, though provision is made to orient the horizontal circle to zero.

The whole system being so enclosed, bedewing of the various surfaces is inevitable in certain climates in course of time.

This instrument is certainly an example of optical ingenuity which must claim our admiration, but excellent as its performance is, its optical system is so involved that, should anything go wrong, it would be utterly impossible to take it down or repair it in the field. Surveyors abroad who have a repair service for the ordinary instrument would be unable to take advantage of it as far as this particular instrument is concerned, which is a very serious disadvantage.

The aim and design of this instrument has been most carefully considered by our technical staff, who finally decided to achieve the same end by different methods. Our aim has been to produce **an instrument of orthodox type** with all the advantages already enumerated, **in the most simple manner, and with the least possible number of refracting surfaces.**

The STANLEY Mean Reading Theodolite.



P105.

The STANLEY Patent Mean Reading Theodolite.

The Stanley Simultaneous Reading Tacheometer is an instrument of orthodox design apart from the following exclusive features :—

The patented circles are of **metal with glass periphery.** The glass periphery consists of a pair of glass plates cemented together and enclosing a film of silver which is divided. The divisions permit the passage of light through the silver from illuminating prisms to the microscope, where they appear as white light against a dark background. So efficient is this system of illuminated dividing that even in very poor lighting the circles can be read with ease, thus eliminating the chief trouble with all high-power microscope-reading theodolites.

Readings of opposite sides of the circles are viewed together and mechanically meaned by means of a special patented differential micrometer embodied in, but acting quite separately from, the ordinary tangent screw in a manner which is explained diagrammatically in Figures 1 and 2, page 41.

C, Diagram 1, is the glass periphery of one of the circles divided to 10 minutes. C 1 is an enlarged picture of the two images of the circle at A and B, just as they are seen in the reading microscope.

M is a differential micrometer combined with the tangent screw to the horizontal plate. This micrometer is used **solely for measuring the odd minutes and seconds,** and plays no part in pointing the telescope, which is done by the tangent screw head **T.** The micrometer head is divided into 5 parts to read the minutes, and further subdivided into 60 parts to read to 5 seconds.

When the circle is revolved the two images of the dividing as seen in the reading microscope will travel in opposite directions by exactly equal amounts, and the divisions will **coincide every five minutes. Coincidence can only be made when the index is either in line with a division or midway between two divisions.**

If for the moment we imagine the divisions in coincidence as if they were connected by lines drawn across the circle parallel to its diameter (see Diagram 2), it will be instantly realised that **two of the divisions only are diametrically opposite** (viz., separated by 180°). These two divisions are identified by the index.

The total reading is the reading on the circle to the nearest 10′, plus half the distance separating the divisions from coincidence. The function of the micrometer is to measure, and incidentally mean, this distance.

The movements of the circle being opposite and of equal amount, the readings are absolutely equal, and any errors due to eccentricity of the circle or inaccuracy of the dividing are **automatically meaned.**

To Read the Instrument. The micrometer is operated in the same manner as in an orthodox instrument. Either side of the circle can be read, and it will be found convenient to take the right side. Suppose the telescope to have been pointed and to read as Diagram 1. The micrometer (which should be at zero) is turned so that the next numerically lower division approaches the index and the divisions coincide.

If on coincidence the index is in line with a division, the circle will give the reading to the nearest 10′ (see Diagram 2), but if the index point is midway between two divisions (see Diagram 3), obviously an additional five minutes must be added. The odd minutes and seconds are then read off the micrometer head.

Reading of Diagram 2.

Circle reading	59° 40′
Plus reading on the Micrometer Head	4′ 35″
Total reading	59° 44′ 35″

The process of reading the vertical circle is exactly similar. Separate reading microscopes are provided for each circle, as it is considered better to have a perfectly clear view of the circle being used in the microscope. The microscope for the horizontal circle swings round so that it can be read from either side of the instrument.

Diagram 1 shows a pointing of the telescope before meaning. Diagram 2 shows the divisions in coincidence, reading as above.

It will be apparent that any movement of the micrometer alters the pointing of the telescope.

After the micrometer has been read, it should be returned to zero and this restores the position of the telescope. Both circles read direct to 5 seconds, but estimation to single seconds is easily possible. Meaning is effected by the circle without the movement of any optical part; this is the only true meaning, as when meaning is made by the movement of the optical system it is not possible to distinguish between the circle error and errors of the movable parts.

CAT. No.	CIRCLES.				TELESCOPE.				
	VERTICAL.		HORIZONTAL.						
	Diameter in inches.	Reading to	Diameter in inches.	Reading to	Focal Length in inches.	Diameter of O.G. in inches.	Magnification.	Angular Field.	Focussing.
P105	3½	5 Sec.	3½	5 Sec.	6.25	1.15	16	2° 14′	Internl.

APPROXIMATE WEIGHTS IN LBS.			APPROX. DIMENSIONS OF CASE IN INCHES			PRICE
Inst. only.	Case and Access.	Stand.	Length.	Breadth.	Depth.	
10½	6½	9	14	8	7	£80

The STANLEY Mean Reading Theodolite.

DIAGRAMS TO EXPLAIN THE METHOD OF READING.

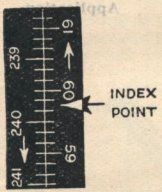


DIAGRAM 3.

Showing divisions coinciding with index midway between two divisions.

Circle reading 59° 45′ plus micrometer reading.

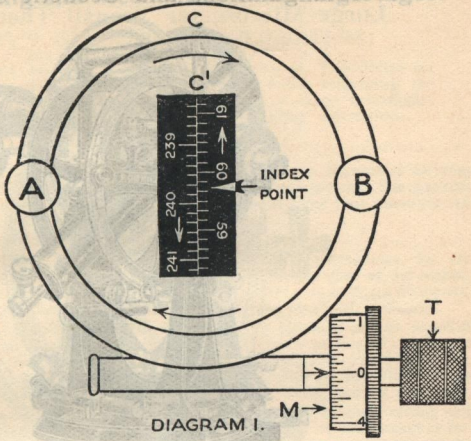


DIAGRAM 1.

Before coincidence

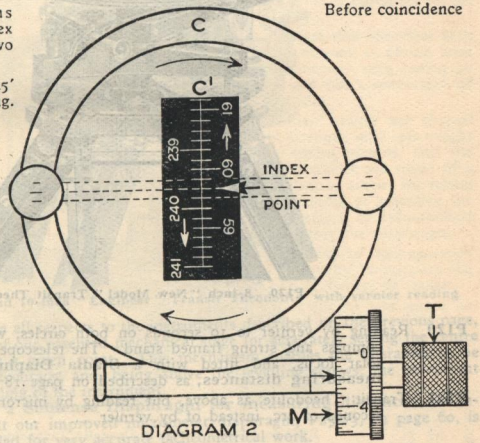
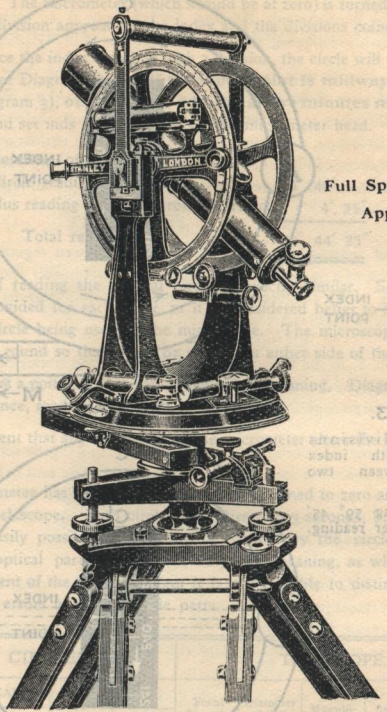


DIAGRAM 2

Circle reading	59° 40′
Micrometer reading	4′ 35″
Total reading	59° 44′ 35″

8-inch Transit Theodolites, suitable for Large Triangulations and Geodetic Surveys.



Full Specification on Application.

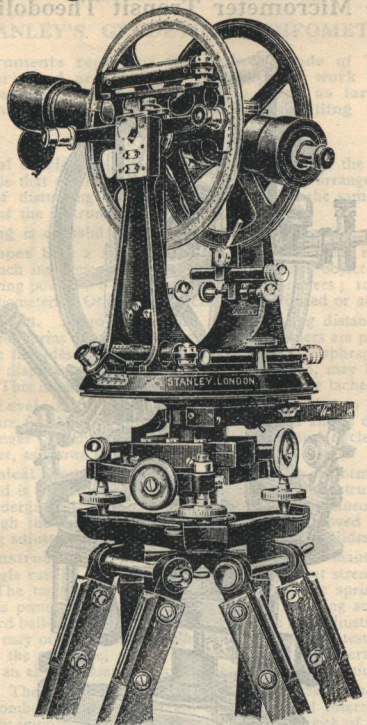
P120 8-inch "New Model" Transit Theodolite.

		£	s	d
P120	Reading by vernier to 10 seconds on both circles, with trough compass and strong framed stand. The telescope is 15-inch solar focus, and fitted with a **Stadia Diaphragm for measuring distances,** as described on page 18	92	10	0
P121	Transit Theodolite as above, but reading by micrometers to 2 seconds of arc, instead of by vernier	130	0	0

EXTRAS.

Sliding Centering Stage to either of the above	8	0	0
If fitted Striding Level and Diagonal Eyepiece (as illustrated), and electric illumination to horizontal axis	8	0	0

8- and 10-inch "Engineer" Transit Theodolites, with Vernier Reading and Mechanical Centering Stages.



P122 and P123. 8- and 10-inch "Engineer" Transit Theodolite with vernier reading

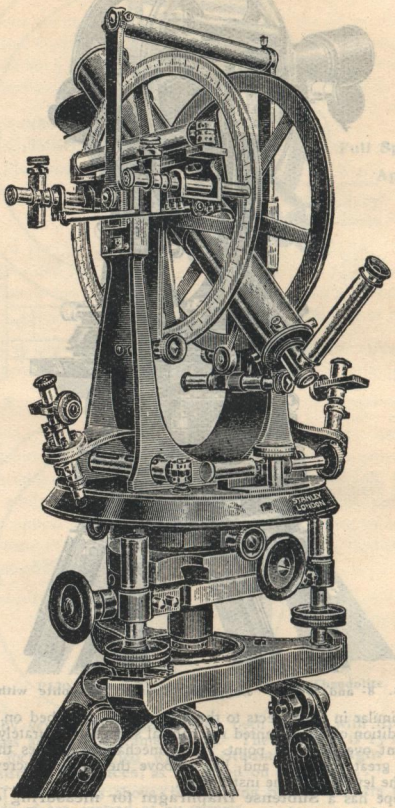
These are similar in all respects to the instruments described on the previous page, but have the addition of our patented mechanical stage for accurately setting the centre of the instrument over a given point. This mechanism enables the operation to be performed with great accuracy, and, being above the levelling screws, the movement does not affect the levelling of the instrument.

The telescope has a **Subtense Diaphragm for measuring distances**, as described on page 18, but our improved micrometer diaphragm, P232/3, on page 60, is particularly recommended for very accurate tacheometrical work.

		£	s.	d.
P122	8-inch, reading on both circles to 10 seconds	101	0	0
P123	10-inch, " " " 10 "	148	0	0
Best quality Overcases to the instrument boxes, 8-in., £13 10s.; 10-in. ..		15	0	0

For other accessories, special dividing, etc., see pages 55 to 65.

STANLEY
Large Micrometer Transit Theodolites.



P124 to P127. Stanley's Geodetic Tacheometer.

Large Micrometer Transit Theodolites, with Micrometer Reading.

STANLEY'S GEODETIC TACHEOMETERS.

These instruments represent the highest grade of Theodolite (or Tacheometer), and are specially designed for work requiring the greatest possible accuracy in surveying, such as large triangulation, geodetic surveys, or extensive tunnelling operations.

GENERAL DESCRIPTION.

Two Vertical Circles are fitted, the one on the left of the illustration carrying the divisions, while that on the right is used for the clamp arrangement; this prevents any possibility of disturbing the reading circle, and at the same time preserves the accurate balance of the instrument.

The Dividing is on solid silver, figured at every degree.

The Telescopes have a 15-, 16- and 18-inch solar focus respectively, for the 8-, 10- and 12-inch instruments, with 1⅞-, 2- and 2½-inch object-glass of the highest quality. Magnifying powers: 8-inch instrument, 37 diameters; 10-inch, 42 diameters, and 12-inch, 45 diameters. Other powers can be substituted or added, if desired.

The Diaphragm. Improved subtense for measuring distances can be supplied in any of the various forms described on page 18. Customers are particularly requested to state which one they desire fitted. Additional or spare diaphragms can be supplied, or the micrometer diaphragm, P232/3, described on page 60, may be substituted at an additional cost. This is particularly recommended for large tacheometrical surveying.

The Spirit Levels are of the finest quality, fully divided to facilitate setting and adjustment, and are fitted in an improved manner, which allows of contraction or expansion from changes of temperature. That of the vertical circle is mounted on the arms of the vernier, as shown in the illustration.

The Mechanical Stage for centering enables one to perform this operation with great accuracy, and is particularly convenient for setting the instrument to plumb lines when working underground, as it can be manipulated simultaneously with taking an observation through the telescope. We have recently improved the construction of this part by fitting adjustments for taking up any wear in the slides.

General Construction. The telescope supports and main centre are shaped out of a solid single casting of hard gun-metal, giving great strength with less weight than formerly. The tangent adjusting screws work against spring pistons, and the horizontal circle is protected by a metal flange. The levelling screws are made of a special alloy of hard bell-metal, and fitted with dust caps and adjusting screws for taking up any wear that may occur. A striding level is provided for testing or adjusting the horizontal axis of the telescope, also a diagonal eyepiece for vertical or astronomical observations, and an electric lamp and axis reflector for illuminating the diaphragm.

The Case. The instruments are packed in two cases made of well-seasoned mahogany with combed joints. These are carefully fitted internally to support the instrument at every important point, so as to minimise the risk of damage in transit.

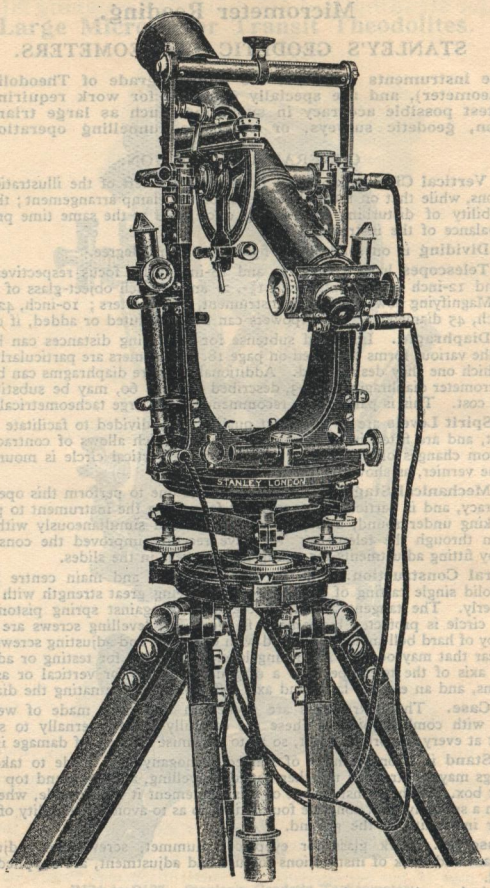
The Stand is strongly made of framed mahogany, and made to take apart, so that the legs may be strapped together flat for travelling, and the stand top kept in the instrument box. With an instrument of this refinement it is advisable, when possible, to use it on a specially built concrete foundation, so as to avoid the liability of error from softness or instability of the ground.

Accessories. Dark glass for eyepiece, plummet, screwdriver, adjusting pin, axis lubricant and book of instructions for use and adjustment, are supplied with each instrument.

		£	s.	d.
P124	8-inch, reading by micrometer to 2 seconds on both circles ..	138	10	0
P125	10-inch, " " 2 " " " ..	180	0	0
P126	10-inch, " " single seconds	192	0	0
P127	12-inch, " " " "	215	0	0

For other accessories, special dividing, etc., see pages 55 to 65.

STANLEY'S "Talcott" Transit.



P128. 6-inch Geodetic Transit.

EXTRACT FROM A LETTER FROM THE SURVEYOR-GENERAL OF CANADA :—

"The 6-inch Talcott Transits have been thoroughly tested. The accuracy of the results is remarkable. The telescopes are particularly fine and exceed my expectations."

STANLEY'S Geodetic Transit, Talcott System.

P128 STANLEY'S GEODETIC TRANSIT, Talcott system, for determining latitude by difference of zenith distances, for astronomical and general geodetic survey work, as designed by the late Dr. E. Deville, LL.D., Surveyor-General of Canada.

SPECIFICATION.

Horizontal Circle, 6-inch, divided on silver, reading by micrometers to 5 seconds.

Vertical Circle, 4-inch, divided on silver, reading by vernier to 1 minute.

Zenith Spirit Level graduated to 2 seconds of arc, detachable and interchangeable with small level for ordinary use.

Striding Level for the horizontal axis.

Telescope, 14-inch solar focus, with extra large object-glass, so that observations may be taken of stars up to the sixth magnitude.

Diaphragm. Revolving micrometer, as described on page 60.

Electric Illumination to limb micrometers and diaphragm, also for reading the zenith spirit level, complete with wiring, rheostat, 6 lamps and generator.

Eyepieces, Astronomical. One ordinary and 1 diagonal.

A Reversing Stop is provided to the horizontal circle, by means of which the upper part can be revolved 180° without the necessity of reading the graduations on the limb.

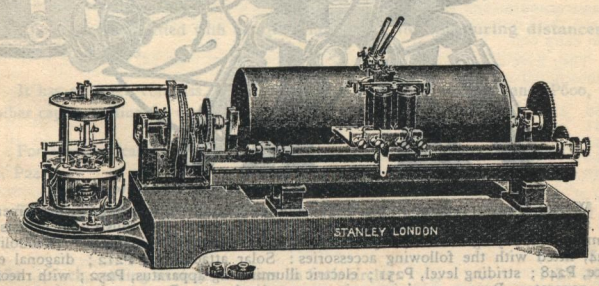
General Construction is of the highest possible quality, the supports of the telescope and main centre are made from a single solid casting of hard gun-metal; the horizontal circle is covered to protect from injury, and the levelling screws are adjustable for wear.

Case. Solid mahogany, carefully packed internally, with solid leather overcase.

Stand. Strong framed mahogany, with sliding top for centering.

		£	s.	d.
P128	Complete	155	0	0

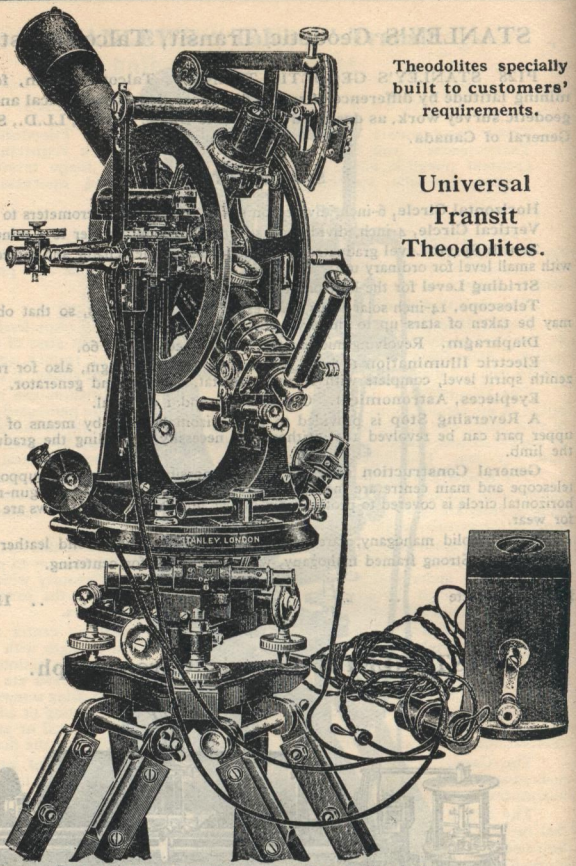
STANLEY'S Electric Chronograph.



P129 Electric Chronograph, of best workmanship, with highest-class clockwork movement, 2 stylographic pens with screw carriage, with cylinder with two-speed gearing .. .. **Price on Application**

Theodolites specially built to customers' requirements.

Universal Transit Theodolites.

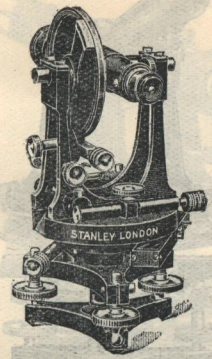


P131. Stanley's Patent Universal Transit Theodolite.

We are always prepared to build Theodolites specially to customers' requirements, and shall be pleased to submit quotations on application. The illustration depicts an example, embodying one of our patent Micrometer Reading "Engineer" Theodolites, P124, fitted with the following accessories: Solar attachment, P212; diagonal eye-piece, P248; striding level, P251; electric illuminating apparatus, P252; with rheostat and generator, P253; revolving micrometer diaphragm, P232; telescopic compass, P227; aluminium cover to the vertical circle, P241, and framed stand.

		£	s.	d.
P131	6-inch instrument complete, as above, reading to 5 seconds ..	**153**	**0**	**0**
P132	8-inch „ „ „ „ 2 „ ..	**190**	**0**	**0**

STANLEY Explorer Theodolite.



P134 to P136. The "Explorer" Light Transit Theodolite.

A new design, specially constructed for surveying in mountainous or remote districts, or for any work where an exceedingly light instrument is required. The "body" of the instrument is made of our special aluminium alloy, but the centres and working parts are of hard gun-metal. The dividing is on solid silver, and reads to single minutes on both circles. The usual clamp and tangent adjustments are fitted to all movements, and the work throughout is of the very highest quality.

The telescope is fitted with **Stadia Diaphragm for measuring distances**, as described on page 18.

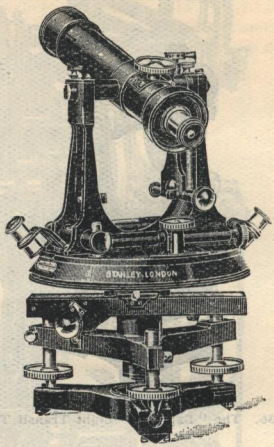
It has a trough compass, and is fitted with a compact sliding stand, P600, with leather caps and sling for carrying.

For astronomical observations a diagonal eyepiece is necessary, as shown on page 63, P247.

The weight of the instrument complete is 3½ lbs., and that of the stand, 4½ lbs.

		£	s.	d.
P134	4-inch, reading to single minutes on both circles	37	10	0
P135	Ditto, fitted with sliding stage for centering	39	15	0
P136	3-inch theodolite, as P134, but in gun-metal. A very strong, compact and light instrument, suitable for hard work	35	0	0

STANLEY Railway Theodolites.



P140 to P142. "Railway" Transit Theodolite.

These instruments have been specially designed for measuring horizontal angles. They have no vertical circle and no centering stage, although these can be provided at additional cost, as stated below.

The telescope transits the eyepiece end only, consequently the uprights are much shorter, making the instrument lighter and exceptionally compact and rigid.

The telescope has a **Stadia Diaphragm**, as described on page 18, **for checking measurements**, and is fitted with a clamp and tangent for vertical adjustments. If desired, these instruments may be fitted with a small vertical circle reading to 10 minutes, at an extra cost.

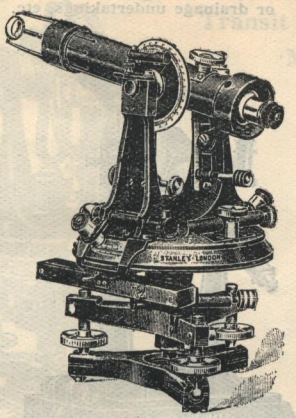
They have solid round form stands, as P597-8, on page 92, but other styles may be substituted as shown on pages 91 to 93.

		£	s.	d.
P140	4-inch, reading to 1 minute	37	10	0
P141	5-inch, „ 1 „ or ½-minutes	40	0	0
P142	6-inch, „ 20 seconds	43	10	0
P144	5-inch, with micrometers instead of verniers, reading to 10 seconds	61	10	0
P145	6-inch, „ „ „ „ „ 5 „	66	10	0

Any of the above can be made with four- instead of three-screw levelling arrangement at the same prices.

EXTRAS.	£	s.	d.
*Trough Compass .. ..

STANLEY Colliery Transit Theodolite.



P148 and P149. Colliery Transit Theodolite.

This instrument is specially designed for colliery surveying. It is exceedingly strong, and is built very low for use in confined workings. It has a good telescope, which transits the eye end, and has a **Subtense Diaphragm**, as described on page 18. It is fitted with a miniature vertical arc, reading by vernier to 10 minutes. A trough compass is supplied and is attached to the upper plate of the instrument so as to move with the verniers. A front reflector for illuminating the diaphragm is also provided, and it is fitted with an adjustable sliding tripod stand, as P599 or P601, on page 92, with leather carrying straps and slings.

The telescope supports and centre are shaped from a single casting of hard gun-metal. The horizontal circle is protected by a metal cover, and the levelling screws are adjustable for wear.

		£	s.	d.
P148	5-inch, horizontal circle reading to single or ½-minutes, vertical to 10 minutes	51	0	0
P149	6-inch, horizontal circle reading to 20 seconds, vertical circle to 10 minutes	55	0	0

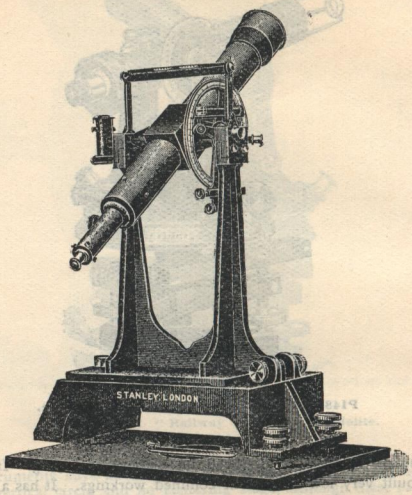
EXTRAS.

Sliding Centering Stage, recommended	2	5	0
Diagonal Eyepiece	2	0	0
Striding Level	2	10	0
Leather Overcase to the instrument box, 5-in., £3 15s. od.; *6-in.*... ..	4	10	0

For other accessories, see pages 55 to 65.

30-inch Surveying or Astronomical Transit Instrument.

For running tunnels, traversing mountains, large water supply or drainage undertakings, etc.



P150. 30-inch Transit.

		£	s.	d
P150	**Transit Instrument.** Telescope 30-inch solar focus, object-glass 2½-inch clear aperture, 8-inch vertical circle reading to 10 seconds, clamp and tangent motion, striding level, etc. The stand is fitted with radial tangent to finally adjust to the meridian or required direction	76	10	0

ACCESSORIES.

P152	Complete iron stand and base plate for transferring telescope, etc., from one station to another without disturbance of original position	20	0	0
P153	Plumbing stands, with mechanical stage (see P760) .. .. each	21	10	0
P154	Winch, with rachet drum and 500 feet of coppered pianoforte wire, and 7-lb. plumbob for plumbing shafts	12	10	0

EXTRAS.

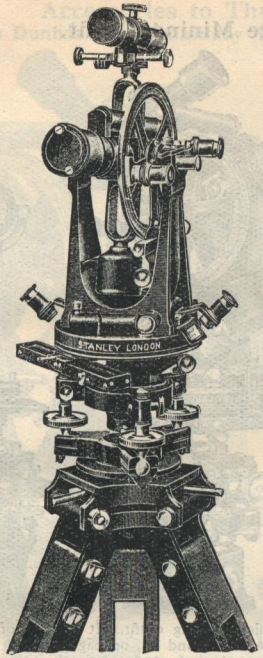
Electric illumination, with Reflector and Battery for astronomical observations or underground use.

Sighting Boards and Broad Arrow Boards, etc., to order.

Heavy Cast-iron Plumbobs up to 56 lbs.

For other Plummets, see page 99.

4-inch Transit Theodolite for Mining.



P164. A strong, light and compact instrument, specially suitable for mining work in the Colonies.

It is fitted with **Auxiliary Telescope**, for attaching to the top or side for sighting down vertical or inclined shafts, or steep gradients, as described on page 55.

Both horizontal and vertical circles are graduated on silver, and read by verniers to single minutes. The former has removable glass covers.

The Telescope is of the highest quality, with magnification power of 18 diameters to ensure good illumination underground. It is fitted with our improved interchangeable diaphragm of any of the types shown on page 18, to which it is desirable to refer before ordering.

A Trough Compass is provided, attached to the horizontal limb.

The Stand is of our new design, with **Sliding Centering Stage** in the head, allowing a movement of 1 inch. It has telescopic legs so that it can be used in shallow workings.

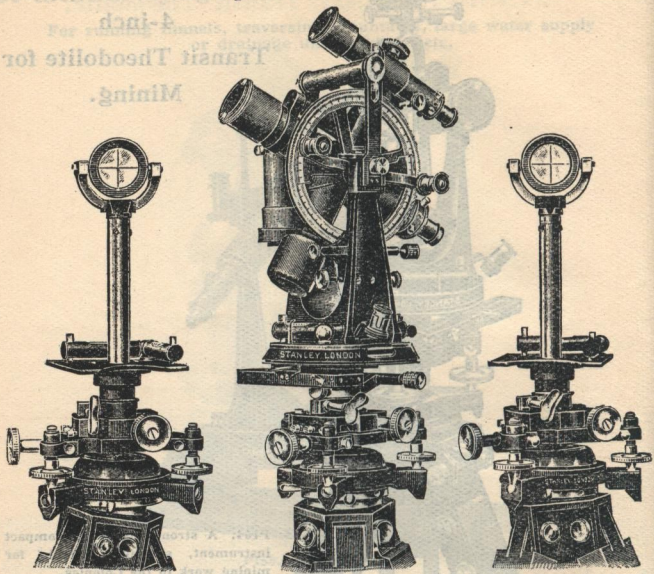
	£	s.	d.
P164 4-inch Mining Theodolite	70	0	0

EXTRAS.

Diagonal Eyepiece (P247, *page* 63)	1	15	0
Electric illumination to the telescope (P252, *page* 63)	2	10	0
Leather Overcase to the instrument box	3	0	0

For other accessories, see pages 55 to 65.

Complete Mining Outfit.



The above forms a very complete mining outfit. It consists of a highest-class **stadia-reading transit theodolite**, as P2 and P3, on page 22, with **patent quick-setting joint**, P220, **mechanical centering stage**, **trough compass**, **auxiliary top and side telescope** (see page 55), **diagonal eyepiece**, **illuminated axis**, and **striding level**. Also **two targets** with quick-setting joint and mechanical stage, cross bubbles and swivel sighting cross, as illustrated, or with points, or candle holders, if preferred. The **theodolite and targets** are all made with **lift-out centres** and are **interchangeable**.

They have our improved base plates, which permit their being used on any staging or fixing without the stands. They are supplied with three telescopic tripods, as P599 or P601, on page 92.

Each outfit is packed in two mahogany cases, apart from stands.

		£	s.	d.
P165	5-inch outfit, reading to minutes or ½-minutes	160	0	0
P166	6-inch „ „ 20 seconds	170	0	0

For price of Targets separately, see page 62.

If a larger range of sliding centering movement is desired, the stands can be fitted with sliding head, giving 1 inch extra movement (see page 65) .. .. each 1 15 0

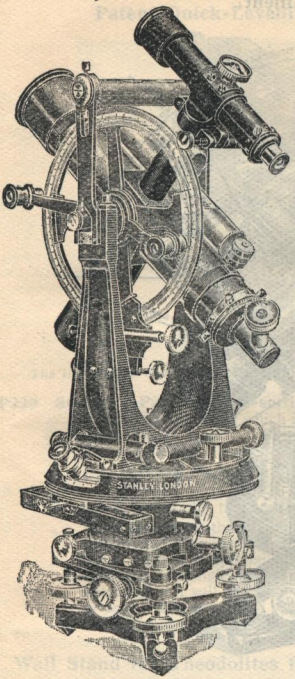
EXTRAS.

Leather Overcases (2), *best quality*, *5-in.*, £10 10s.; *6-in.* 12 0 0

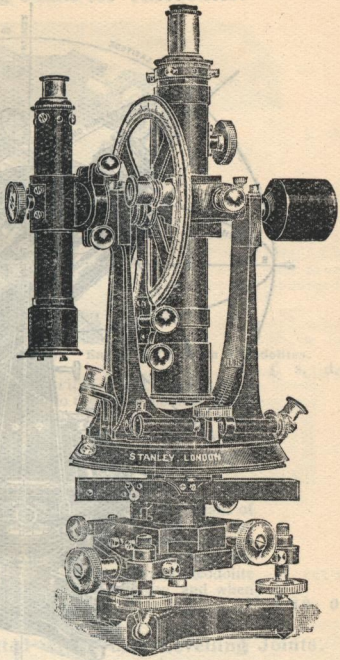
Before ordering, please refer to page 18 *on diaphragms; and for other accessories, see pages* 55 *to* 65.

Accessories to Theodolites.

Stanley's Dunbar-Scott Auxiliary Top and Side Telescope.



Telescope on Top.



Telescope at Side.

P210. For plumbing or transferring bearings down vertical or inclined shafts, or for taking any steep sights which cannot be read by the main telescope.

The particular feature of this type is its interchangeability with **top** or **side** positions, and the means provided to ensure **perfect adjustment** with the minimum of trouble, so that it requires no correction for eccentricity.

It has a centre that may be screwed to the threaded extension of either the horizontal axis or the vertical pillar of the main telescope. In either position it can be ranged quickly into alignment with the main telescope by two opposing screws. The Diaphragm has one web only, which is vertical when on top and horizontal when at the side.

The observation of steep horizontal angles is made with the auxiliary on top, and of precipitous vertical angles with the auxiliary on the side. A counter-balance is provided so that there is no strain upon the instrument.

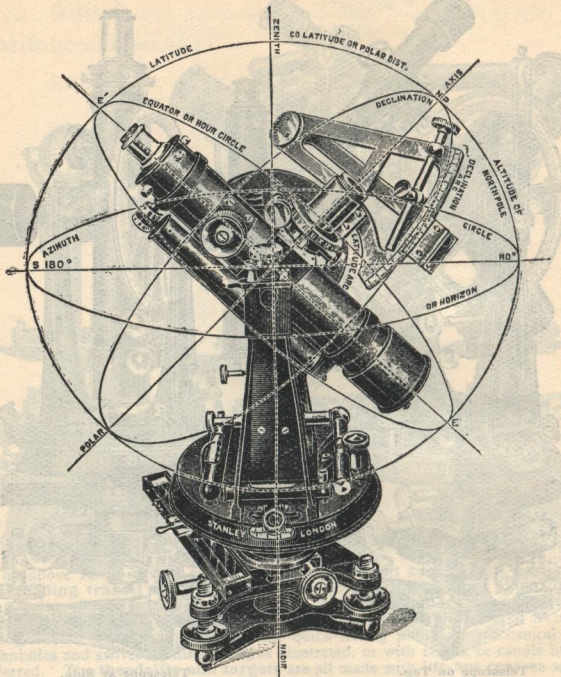
The whole attachment adds very little to the weight, the greater part being of aluminium, and is packed separately in the case so as not to interfere in any way with the instrument when not in use.

EXTRA.

	£	s.	d.
Fitted to any theodolite, 4-inch and larger, in course of construction	13	10	0

Accessories to Theodolites.

Solar Attachment.



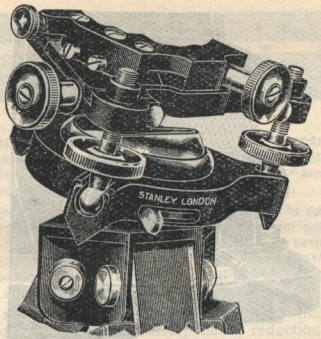
The Solar Attachment forms an additional part to a theodolite to enable the surveyor or engineer to establish the **True Meridian**, to determine the **Correct Latitude**, and to obtain **True Time** nearly; also **Mean Time**, and from this the **Longitude**. It possesses important advantages over the magnetic needle when used for surveys, as lines can be run and angles measured without regard to the diurnal variation or the effect of local attraction. From the position of the sun in the solar system we are able to obtain a direction absolutely unchangeable, to measure horizontal angles with a minuteness and accuracy unattainable with the best magnetic compass. Owing to the improved construction of our solar attachment we are enabled to fit the theodolite with a full vertical circle, thus making it a complete transit. A clamp and fine adjustment is fitted to the hour circle and declination arc, and quick-setting clamp and tangent to the solar arm.

		£	s.	d.
P212	If added to any new 5-inch or 6-inch instrument while in construction	18	10	0
P213	Complete upper part of theodolite, fitted with solar attachment, in separate case, so that it may be reserved for refined use only, 5-inch	45	0	0
P214	Ditto, ditto, 6-inch	50	0	0

Pamphlet on use of Solar Attachment free with instrument, or separately, post free, 1s.

Accessories to Theodolites.

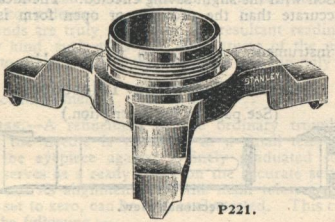
Patent Quick-Levelling Joints for Theodolites.



The illustration shows the Joint as fitted to our "Engineer" pattern Theodolites.

		£	s.	d.
P220	**Stanley's Patent Quick-setting Spherical Joint** consists of a ball and socket fitting which is built into the lower member of the theodolite or level. This permits the instrument to be tilted over at an angle. It is a very great boon and serves two purposes : (1) It permits the instrument to be readily set up on very uneven ground ; (2) It halves the time required for setting up. When setting up the instrument the ball is released by means of the levers. The instrument can then be readily tilted with the hands until it is approximately level in both meridians and re-clamped. A single turn of the parallel screws completes the operation. It will be found a valuable addition to any theodolite or level. No amount of wear will affect its stability, and when clamped it is as rigid as one piece of metal..	2	10	0

Wall Stand for Theodolites fitted with Quick-Levelling Joints.

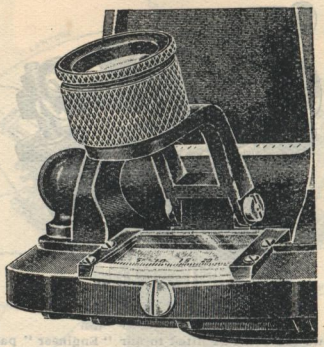


P221.

		£	s.	d.
P221	The illustration shows a convenient wall stand for instruments fitted with our quick-levelling joints, when used without their tripod. It allows the full range of movement of the quick-setting joint, and is of particular advantage when working underground in confined spaces	1	5	0

Accessories to Theodolites.

Vernier Readers.



P222 Aplanatic Readers can be supplied in place of the usual readers to any theodolites. They enable the vernier to be read at a distance of 6 inches, and greatly facilitate reading.

PRICES.	£	s	d.
They are interchangeable with our ordinary standard readers, price each		12	6
If ordered with instrument in place of the ordinary readers, extra per reader		7	6

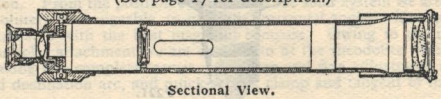
Anallatic Telescope.

P223 **Anallatic Telescope.**—This is a telescope fitted with an additional lens within the body in order to avoid the necessity of adding a "constant" for tacheometrical measurements. It is not recommended, as the lens entails considerable loss of light and reduces the effective power of the telescope, which is a great disadvantage in comparison with the slight saving effected. The idea that this is more accurate than the ordinary or open form is entirely erroneous.

Extra to any instrument **3 0 0**

Internal Focussing Telescope.

(See page 17 for description.)



Sectional View.

P224 Many of our Theodolites are fitted with internal focussing telescopes as standard. When it is not included in the specification any instrument can be so fitted at an extra charge of **2 0 0**

For Telegraphic Code see end of catalogue.

Accessories to Theodolites.

Compasses.

		£	s.	d.
P225	**Trough Compass** with specially hardened and tempered needle, carefully balanced, with sapphire centre, with adjustable flush-reading index, in brass box with glass cover, 4-, 5- and 6-inch ..	2	0	0
	Ditto, 8- and 10-inch	3	12	0

Unless otherwise specified or ordered this is attached in the customary manner to the lower plate of the horizontal circle, so that it is permanently set under the 360° or zero of the divided circle ; but if desired it can be fixed to the upper or vernier plate instead. The latter arrangement necessitates setting the vernier to 360° first on the circle in order to set the instrument by the compass at the first station, but it has the advantage that the compass can be utilised to check all or any of the following horizontal angles.

If the compass is **not required** with any theodolite in which it is included in the specification it may be omitted, and a corresponding reduction will be made in the price.

P226 The New Stanley Patent Prismatic-reading Trough Compass.

This is a trough compass of novel design which, although of smaller dimensions than the usual type, will give far more accurate results. It consists of a small trough compass with an edge-bar needle, and a special prismatic system whereby both ends of the needle are seen in coincidence.

When the two ends are truly coincident the resultant reading is free from instrumental errors of any kind, such as lack of straightness of the needle, parallax errors, etc., etc. It is fixed to the uprights of the theodolite and can only be fitted in the course of construction.

		£	s.	d.
P226	For any size of instrument	2	0	0

Telescopic Compass.—A refinement of the ordinary trough compass in which the needle is mounted in a small telescope and is read by the eyepiece against a finely graduated scale. The telescope serves as a ready check on the accurate setting of the compass, and its alignment with the main telescope, when the vernier is set to zero, can be very easily tested. This can only be fitted to the following :—

P227	Extra to 5- or 6-inch instruments	3	10	0
P228	,, 8-, 10- or 12-inch instruments	5	0	0

In most instruments this compass has to be fitted to the upright, as it requires rather more room than the trough compass.

Accessories to Theodolites.

Diaphragms.

The diaphragms usually fitted to our theodolites are described on page 18, to which reference should be made before ordering.

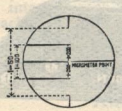
P230 **Spare Diaphragms** fitted with either webs, lines on glass or platinum points, with metal box and extractor, each £1 0 0

P231 **Patent Compensating Diaphragm.** This improved diaphragm is arranged to give the horizontal equivalents, or base measurements of stadia readings upon any inclination of surface without any calculation. All that has to be done is to set the micrometer head of the diaphragm to the angle of the sight, as shown on the vertical circle of the theodolite. This alters the setting of the subtense points so that the measurement as shown by the staff reading is the **horizontal equivalent of the distance; the angle of the staff and slope of the ground being compensated for.** The points are set to subtend 1 in 100, so that every 1/100th of a foot on the staff represents 1 foot of base, a simple "constant," which is the same for all distances, only having to be added to each reading. The diaphragm can be divided to give base reading from a vertical staff or one held at right angles to the line of sight as desired. It is only made with platinum points, as illustrated; it cannot be fitted with webs or lines.

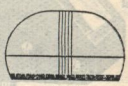
P231.

Extra cost to any 5-inch to 12-inch theodolite £6 10 0

It can only be fitted in course of construction **and spare or additional diaphragms cannot be supplied for instruments with this fitting.**



P232.



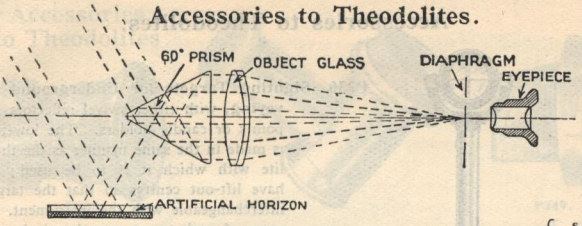
P233.

Improved Micrometer Subtense Diaphragm. Suitable for large subtense surveying, when it is desired to measure distances greater than those at which it is possible to read the fine graduations of the ordinary levelling staff, such as is usually used as a stadia rod. It is used in conjunction with a pair of sighting targets clamped on to the stadia staff, usually at 10 feet apart, and the distance is ascertained by measuring the distance between these targets, as they appear in the eyepiece of the telescope, by means of the micrometer attachment. The micrometer reads to 1/100,000 and is so arranged that the correct setting of the micrometer points on to the two targets can be verified, by inspection, **after the hands have left the instrument.** This ensures very great accuracy. A recent test with one of our 6-inch stadia reading theodolites, as P98 and this diaphragm, was found to give a resultant accuracy of 1/2,000th, or within 3 feet in the mile. The calculation involved is quite simple, and full instructions for use and a book of tables are supplied with each instrument. The diaphragm is made to revolve so that the stadia rod may be used either vertically or horizontally, and it is provided with a sliding motion to the eyepiece.

	£	s.	d.
P232 Extra cost to any 5-inch to 12-inch theodolite	13	10	0
P233 **Micrometer Diaphragm,** as above, with similar movements, but webbed for astronomical work	13	10	0

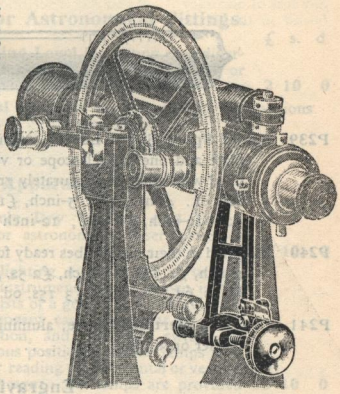
These Diaphragms can only be fitted in the course of construction and spares cannot be supplied.

Accessories to Theodolites.



	£	s.	d.
P234 **Prismatic Astrolabe Attachment to the Theodolite,** for determining local time and latitude simultaneously by star observation with extreme accuracy. It consists of an accurate equilateral 60° glass prism which fits in front of the object-glass of the telescope with an artificial horizon suitably arranged below it so that two images of a star can be observed, one direct and the other indirect. These images, when viewed in the telescope, approach and pass one another. The observation of the time at which the images of the star pass each other will give the instant at which the star attains the altitude of 60°.			
Price, extra to the cost of Theodolite	30	0	0
For Time of Flight Watches for use with the above see P1280 to P1282.			
Handbook of the Prismatic Astrolabe, with star tables for the preparation of observation programmes, by John Ball, O.B.E., D.Sc. and H. Knox Shaw, M.A., F.R.A.S.	15	0	

Gradienter Screw

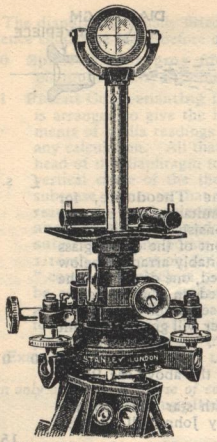


P235 **Gradienter Screw** for measuring distances or gradients. This is a micrometer screw adjustment to the vertical movement of the telescope for measuring distances. It is used in conjunction with sighting targets set up at the distant spot, by first setting the central line or point of the diaphragm to one of the targets and then moving it on to the other one by means of the gradienter screw, the distance being obtained by multiplying the length of the target by 100 and dividing this by the micrometer reading. This is not so accurate a method as the micrometer diaphragm described above, as the necessity of handling the instrument during the operation is a possible source of error.

To set out a gradient the telescope is first levelled, after which the screw is turned one complete revolution for every one per cent gradient required. For instance, to set a gradient of 1.35 per cent, the screw would require to be turned one complete revolution, and 35 divisions on the graduated head.

	£	s.	d.
Fitted to any of our stock pattern theodolites	2	5	0

Accessories to Theodolites.

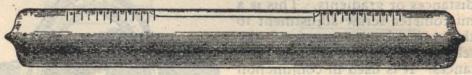


P236. With Small Reflector.

P236 Sighting Targets for Underground Surveying, with either swivel reflectors, plain points or candle holders. The lower part is made in the same manner as the theodolite with which it is to be used; both have lift-out centres so that the target is interchangeable with the instrument. The price of each target, complete in box with tripod stand, is one-third of the price of the particular theodolite (without accessories) for which it is made. If fitted with any extras, as quick-setting joint, additional cost of these is the same as to the instrument

	£	s	d
In addition to the Targets, the theodolite itself has to be made with the centre to lift out Extra	5	10	0

For candle and lamp holders, see page 69



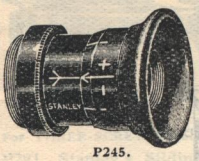
		£	s.	d.
P239	**Set of Spare Spirit Levels,** consisting of two for the horizontal plate and one for telescope or vernier arm, of the best quality, filled with ether and accurately ground and graduated for theodolites of . 4-inch, £1; 5-inch, £1 5s.; 6-inch, £1 10s.; 8-inch, £2, 10-inch, £2 10s., 12-inch	4	0	0
P240	Mounted in their metal tubes ready for attachment to the instrument: 4-inch, £1 18s.; 5-inch, £2 5s.; 6-inch, £2 12s. 6d., 8-inch, £3 2s. 6d., 10-inch, £3 15s. 0d.; 12-inch	5	10	0
P241	**Cover to Vertical Circle,** aluminium, with glass windows to the vernier openings	3	0	0

Engraving.

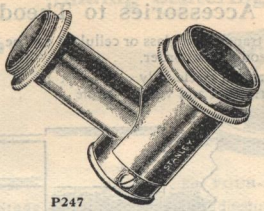
Name and Initials or large Initials only, on any surveying instrument ..	6	0	
Ditto, with Address	10	0	

For Telegraphic Code see end of catalogue.

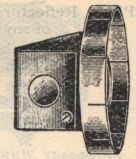
Accessories to Theodolites



P245.

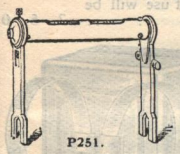


P247


P249.

		£	s	d.
P245	**Eyepieces.** One inverting eyepiece is provided with each instrument. Additional eyepieces of various power can be supplied, with helical screw adjustment as illustrated	1	4	0
P246	**Erecting Eyepiece,** showing objects upright instead of inverted. These are not quite so efficient as the inverting type, as the additional lenses necessary entail some loss of light and slightly curtail the field of view	1	15	0
P247	**Diagonal Eyepiece** for taking astronomical sights or steep vertical angles when the ordinary form cannot be used	2	10	0
P248	**Erecting Diagonal Eyepiece** as above, but arranged for seeing objects upright instead of inverted	3	0	0
P249	**Prism Cap to Eyepiece,** forming a simple diagonal when used over an ordinary eyepiece, suitable for steep vertical sights, but not for astronomical observations		17	6

For Aplanatic Reading Lenses instead of the usual reading microscopes, see page 58.


P251.

Mining or Astronomical Fittings.

		£	s.	d
P251	**Striding Level** for testing the adjustment of the horizontal axis or trunnions of the telescope ..	2	10	0
	Diagonal Eyepiece for astronomical observations (see P247)			

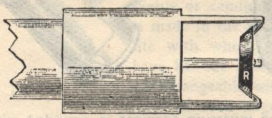
Illuminating Apparatus.

		£	s.	d.
P252	**Hollow Axis, Reflector, Electric Dry Battery and Lamp** for lighting the diaphragm, for astronomical observations or underground surveying	2	10	0
P253	**Hand Generating Sets.** This lighting arrangement is usually employed for the highest-class instrument, and is shown in the illustration on page 48. It consists of a generator for the electric current with volt meter, in mahogany case, a rheostat for regulating the amount of illumination, and three-way switch for directing the current in the various positions; electric lamps with fittings for attachment either for reading the horizontal or vertical circle, or illuminating the diaphragm. Six lamps are provided	13	10	0
P255	**Dry Battery Set, with Lamp,** for lighting the verniers underground or at night, complete with lamp, switch and flexible wire, in case		15	0
P256	Spare batteries, 4½-volt, triple, dry, each		1	0
P257	Spare metallic filament lamps, each			6

Accessories to Theodolites.

£ s. d.

P260 **Reflector** of translucent glass or celluloid can be fitted to the verniers of any theodolite to order.
If to the horizontal circle only 7 6
If to both horizontal and vertical circle 12 6



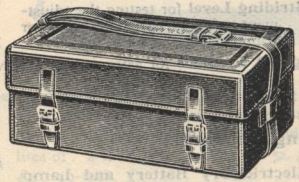
P261

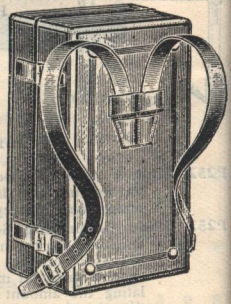
P261 **Front Reflector** to fit on to the object end of the telescope, with bevelled ring to reflect the light from a hand lamp through the object-glass on to the diaphragm 15 0

Certificates

P262 **Kew Certificates** for theodolites will be obtained at cost, when desired
Prices vary according to size and graduation .. .. .. At cost

Stadia or Beaman Arc. Any of our 5-inch and larger theodolites can be fitted to order with an auxiliary vertical stadia arc, provided for quickly determining the horizontal distances and differences in elevation directly from the stadia reading, thus disposing of the necessity for calculating rules or tables, and enabling the user to plot the corrected distances and heights as the work proceeds in the field. A great saving of time is effected in this way without any loss of accuracy. A detailed description and the method of use will be found in the Plane Table section 2 5 0





Leather Overcase for the instrument case. The prices of these, which vary according to the size, are referred to under the descriptions of the instruments. The smaller sizes have leather slings, but the larger ones are usually fitted with knapsack straps

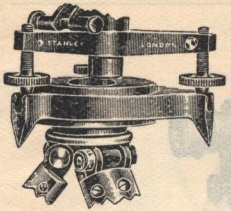
£ s. d.

P263 **Waterproof Canvas Overcase** for theodolite box (see instrument specification).

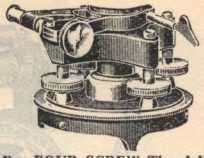
P264 **Waterproof Hood** for theodolites, to protect from rain when in the field, up to 6-inch instrument, **4s. 6d.**; 8-inch and 10-inch .. 7 6

For Telegraphic Code see end of catalogue.

Sliding Centering Stages.



For THREE-SCREW Theodolites.

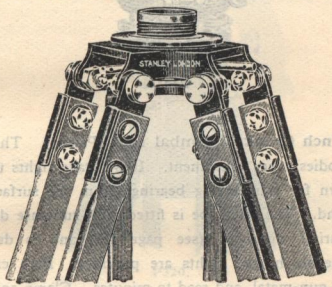


For FOUR-SCREW Theodolites.

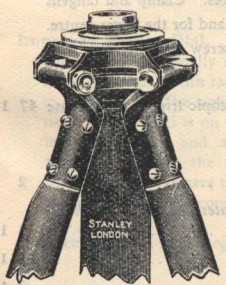
P291 Stanley's Sliding Stage for theodolites, for adjusting the centre of the instrument over a point. This form does not increase the size, clamps instantly, and allows about ¾-inch adjustment. It also permits the theodolite being used without the stand. It can be supplied to any theodolite, when not included in the specification, at an extra cost.

	£	s.	d.
To 4-inch, 5-inch, and 6-inch instruments	2	5	0
To 8-inch	8	0	0

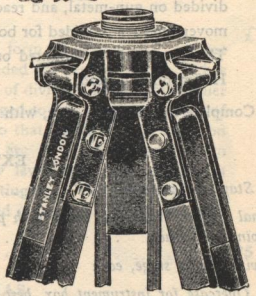
Improved Sliding Head to Stands.



To framed stand



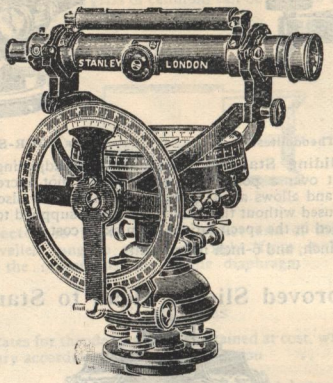
To round solid stand.



To telescopic stand.

P292 This is an improved centering head, allowing a movement of about 1 inch in any direction. It can be immediately clamped rigid.
Extra to cost of ordinary stand £1 15 0

Mining Dials.



P303

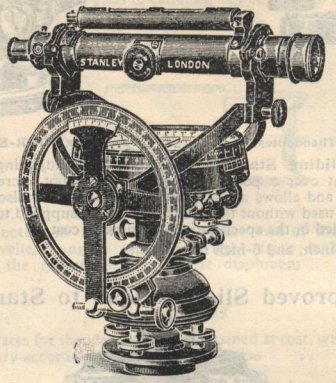
		£	s.	d.
P303	**Stanley's 6-inch Cranked Gimbal Dial** (Patent). This instrument embodies every refinement. It will take sights up to 90° up or down for transferring bearings from the surface to the underground. The telescope is fitted with subtense diaphragm for measuring distances (see page 18), and is detachable Interchangeable hinged sights are provided Both circles are divided on gun-metal, and read to minutes. Clamp and tangent movements are provided for both circles and for the lower centre. The instrument is mounted on a four-screw levelling unit with Hoffmann ball head.			
	Complete in mahogany case, with best telescopic tripod in pine case	47	10	0

EXTRAS.

Sliding Stage for centering	2	5	0
Additional Tripod Stands for above with parallel plates and Hoffmann head, in pine cases, each	9	10	0
Ditto, with sliding stage, each	11	15	0
Leather Overcase for instrument box, best quality	2	15	0
Ditto, leather-bound waterproof canvas	1	15	0

For Telegraphic Code see end of catalogue.

Mining Dials.



P303

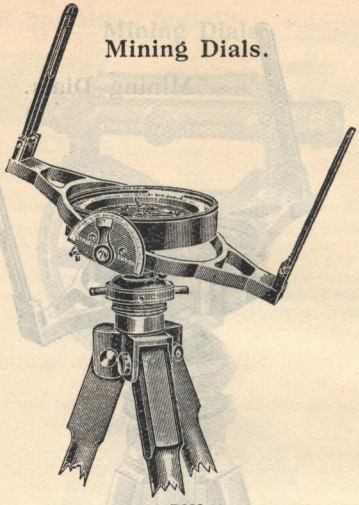
	£ s. d.
P303 Stanley's 6-inch Cranked Gimbal Dial (Patent). This instrument embodies every refinement. It will take sights up to 90° up or down for transferring bearings from the surface to the underground. The telescope is fitted with subtense diaphragm for measuring distances (see page 18), and is detachable Interchangeable hinged sights are provided Both circles are divided on gun-metal, and read to minutes. Clamp and tangent movements are provided for both circles and for the lower centre. The instrument is mounted on a four-screw levelling unit with Hoffmann ball head.	
Complete in mahogany case, with best telescopic tripod in pine case	47 10 0

EXTRAS.

Sliding Stage for centering	2 5 0
Additional Tripod Stands for above with parallel plates and Hoffmann head, in pine cases, each	9 10 0
Ditto, with sliding stage, each	11 15 0
Leather Overcase for instrument box, best quality	2 15 0
Ditto, leather-bound waterproof canvas	1 15 0

For Telegraphic Code see end of catalogue.

Mining Dials.

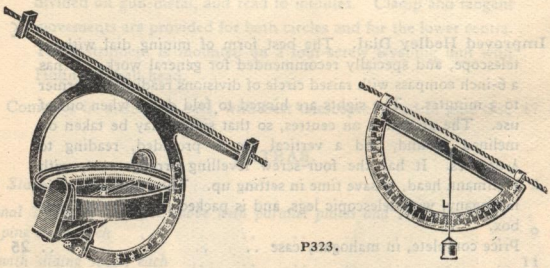


P322.

		£	s.	d.
P322	**Plain Hedley Dial.** This is the same as the one described on the previous page, but has jointed legs and ball joint for levelling, instead of sliding stand with Hoffmann head	22	10	0

EXTRAS

Additional Stands, in pine case, each	6	10	0
Leather Overcase for the instrument box, best quality	2	15	0

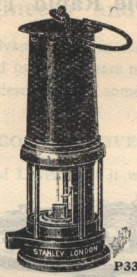


P323.

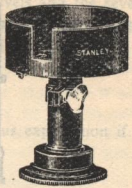
		£	s.	d.
P323	**Hanging Dial.** A very compact instrument for rough underground surveying. It has a 4½-inch needle with agate centre and reads to single degrees for both horizontal and vertical angles. A separate light clinometer is also provided, graduated to single degrees, complete in one mahogany case	14	10	0

Accessories for Mining Dials.

P331. Showing also part of holder.



P332.

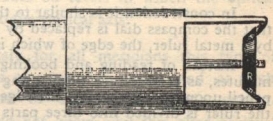


P333. Holder for P330 or P332.

		£	s.	d.
P330	**Sighting Lamp**, with electric dry battery, reflector, with cross lines on glass screen	1	2	6
P331	**Sighting Lamp**, oil, with strong copper body	1	1	0
P332	Ditto, safety, for use in gaseous mines	1	7	6
P333	Holder for either of above to fit the Hoffmann head or dial centres, adjustable for height	1	4	0
P334	Ditto, with cross bubbles	1	14	0
P335	Candle Holder, simple form, without bubbles	1	0	0

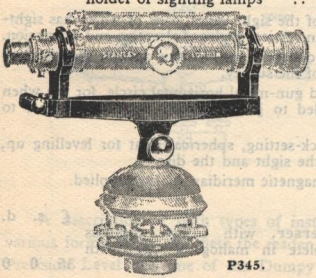
P340.

P342.



P344.

		£	s.	d.
P340	Plummet Lamp, mounted in gimbal, with chain for suspending ..	2	10	0
	For other Plummets, see P721 to 760.			
P342	Centre Level for setting up the auxiliary tripods, for the candle holder or sighting lamps		15	0



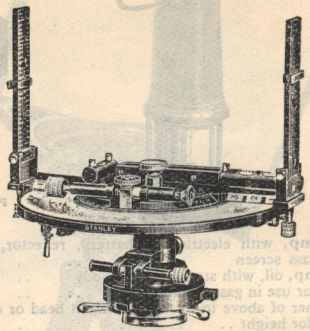
P345.

P344 Front Reflector, to go on to the object end of the telescope to illuminate the diaphragm underground .. 15 0

P345 Telescope Holder, to fit on the dial centre and carry the telescope, enabling it to be used as a Y level, in mahogany case 7 10 0

When ordering this for existing dials, the telescope, centre and levelling portions must be sent for fitting. We can only supply this to dials of our own make.

Stanley's Simple Rapid Traverser.



P346.

This instrument is recommended as one of the most convenient and expeditious means of making surface and underground surveys in connection with mining undertakings.

In construction it is similar to the ordinary type of miner's dial, with the exception that the compass dial is replaced by a flat white disc, and the sight vanes are connected by a metal ruler, the edge of which is coincident with the line of sight.

Instead of reading and booking the bearings of the various sights in degrees and minutes, as is necessary when using a dial or theodolite, these are simply marked with pencil upon the disc against the edge of the ruler. As will be seen from the illustration, the ruler is divided into three parts at each end, so that three distinct sets of bearings can be recorded upon a single disc. If additional bearings are required, the disc is readily removed and replaced by another one. When plotting the survey, the discs are placed upon the paper and the bearings are drawn in by means of a parallel ruler.

By this method of surveying the reading and the booking of horizontal angles is entirely obviated, which is a great convenience when working underground in bad light and in confined situations.

Vertical angles are measured by means of the sight vanes, each of which has sighting holes at top and bottom, and is graduated in vertical angles of elevation and depression.

The vertical angles and the measured distances are written against the bearings on the discs, which then supply every detail of the survey.

Within the removable disc is a graduated gun-metal horizontal circle, for use when greater accuracy is required. This is divided to ½-degrees, and reads by vernier to single minutes.

The instrument is provided with a quick-setting, spherical joint for levelling up, and clamp and tangent adjustment both to the sight and the disc.

A trough compass for determining the magnetic meridian is also supplied.

		£	s.	d.
P346	**Stanley's Simple Rapid Traverser**, with trough compass and six enamelled discs, complete in mahogany case, with telescopic tripod stand	**35**	**0**	**0**
	Additional Telescopic Tripod Stands, each	**6**	**10**	**0**

Stanley's Engineers' and Surveyors' Levels.

The very considerable advance made in the design of levels and the several new and novel features introduced in recent years make it necessary to preface this section of our catalogue with a brief description of some of the principles involved.

COMPARATIVE TYPES.

There are many classes of Levels, but it will simplify our explanation if we first divide them into two classes.

(1) The Dumpy type.

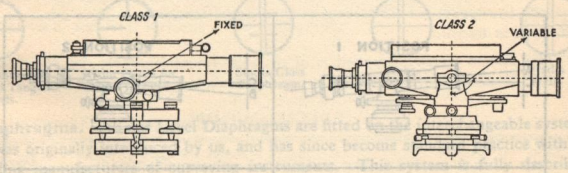
(2) The so-called Precision type.

Class 1. The Dumpy type includes all levels in which the optical axis or line of collimation is definitely fixed at right angles to the vertical axis, and therefore in operation the vertical axis has to be carefully and accurately adjusted so that it is truly vertical in all meridians.

This instrument calls for no technical explanation as the principle is familiar to all users of levels.

Class 2. The so-called Precision type includes all levels in which the optical axis or line of collimation is not fixed with respect to the vertical axis.

Instead of levelling the instrument accurately for all meridians this type of instrument is levelled approximately by means of a circular bubble and at each observation is finally levelled, by means of a special single screw, immediately prior to taking a reading. We do not know why this class of level should have been called "Precision"; we hold that all high-class levels are precision instruments.



A description of both types of instruments is given in the following pages in various forms, but it will help the reader to bear in mind that the difference between a Precision Level and one of the Dumpy type is the **fixation or otherwise of the line of sight and the vertical axis.** In the Dumpy Level it is a permanent fixture and in the Precision Level it is not. *A Precision Level has to be levelled for every sight.*

SPECIAL FEATURES.

Revolvable Telescope and Reversible Bubble.

There are two new features in design, common to certain instruments of both classes, which are of great importance, and which we will describe in detail. These are the **Revolvable Telescope** and **Reversible Bubble.**

The Revolvable Telescope. This feature consists of an arrangement whereby the telescope can be revolved in a mechanical axis through 180° about its axis of collimation, forming a perfect check on the coincidence of the optical axis and the mechanical axis.

It is a modification of the cradle system of the Y Level. The Y Level retained its popularity for so many years solely on account of the ease with which it could be checked for adjustment.

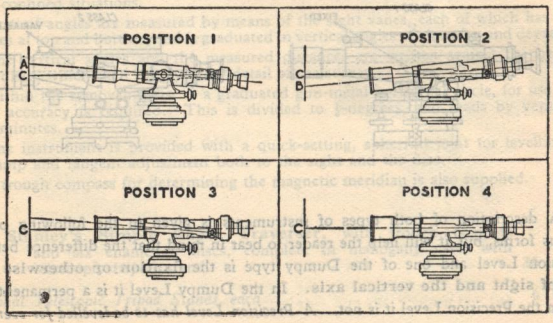
The Reversible Bubble. This is a bubble which, instead of being ground on one portion of the inner surface only, is ground all round in a special machine of our own invention. Its section at any point is a circle. It will be obvious that rotation of such a bubble about its axis, or about an axis parallel to its own axis, irrespective of the position of the air bubble, will cause no displacement of this latter.

Such a bubble, when used **in conjunction with the Revolvable Telescope,** will determine an absolutely level plane free from instrument errors, and **regardless of whether the instrument is in correct adjustment or not.**

To make the principle perfectly clear we will give one of the adjustments in detail. The adjustment referred to is for **parallelism of the optical axis and the bubble axis.**

Assuming that the instrument has been adjusted for coincidence of the optical and mechanical axis by revolving the telescope, the instrument can then be instantly checked for parallelism of the bubble axis and optical axis without the observer even changing his position, in the following manner :—

The telescope is levelled up and sighted on any point A, of a fixed object (see position 1). It is then revolved through 180° and levelled again. If out of adjustment it will point to a fresh position, say B. The true level reading is a point C, midway between



these two readings, as the telescope will point high and low by an amount equal to the error in parallelism of the mechanical axis and the bubble axis.

Obviously, it only remains to sight the telescope on C, and bring the bubble to the centre of its run by means of the adjusting screws, and the instrument is in adjustment.

By taking the mean of two readings, accurate levels can be established, even if the instrument is out of adjustment.

This form of level was originally designed and introduced by us, and has since been copied by other makers; it has also been called a Self-adjusting Level. This, of course, is not so. No level adjusts itself, **but this is more easily adjusted than any other.**

P410 and P411 are instruments embodying these two principles.

The claim made for these instruments is **rapid working, combined with extreme accuracy.**

There are some makers who hold the view that the Precision type of level will eventually supersede all others. We do not share this view, as we are convinced that the **Dumpy Level is definitely quicker to use for certain work,** especially if fitted with our patent "Quick-setting" joint, *vide* page 76, and Index. This view is supported by practical tests in the field by several engineers of great experience.

In Cross Sectioning and Contouring, involving a considerable number of readings from one position, the Dumpy Level definitely has the advantage over the Precision Level.

On the other hand the Precision Level has several advantages to offer when it comes to work of extreme accuracy, especially if it is allied with a revolvable telescope and reversible bubble.

The Improved Interchangeable Diaphragms.

Stadia Points for Clamp and Tangent Levels.

Stadia Points for ordinary Levels.

Stadia Glass Diaphragm.

Webs.

Stadia Webs

Diaphragms. All our Level Diaphragms are fitted on the interchangeable system, which was originally introduced by us, and has since become standard practice with all the leading manufacturers of surveying instruments. This system is fully described and illustrated on page 18.

Either web, glass, or point diaphragms can be supplied at the option of the purchaser. Unless otherwise ordered point diaphragms are supplied fitted in the instrument with a glass diaphragm as spare.

Diaphragms E, F, G, and J respectively are **stadia diaphragms for measuring distances.**

The Stanley Standard Engineers' Dumpy Level.

This instrument is, without doubt, one of the most popular and soundest designs of its type ever introduced to the market. It has a minimum of movable parts to get out of order. Its construction is so robust that it will remain in adjustment almost indefinitely under severe handling.

For **Railway, Roads, Contracting** work and all general levelling, it is the ideal instrument, and the great measure of popularity it has enjoyed for a considerable number of years shows no sign of diminishing.

DESCRIPTION.

The Telescope Body and Vertical Axis are shaped by special machinery from a single casting of hard gun-metal. The cast telescope body is cored out to a suitable thickness, so that, although of vastly greater strength and rigidity, it does not weigh so much as the old form of tubular body, collars and stage, while it does away with many separate pieces, which are usually soldered and screwed together.

The Telescope is of the highest quality, fitted with specially-selected lenses; a screw-focussing eyepiece with diopter setting is supplied with each instrument.

The Focussing Pinion is fitted to the side of the cast body, instead of to a tube, which adds greatly to its strength.

The Long Spirit Level is of the finest quality, fully divided to facilitate setting and adjustment.

Levelling Arrangement. Either three- or four-screw as desired. The parallel screws of all three-screw levels are fitted with our improved combined dust covers and tightening device. The operation of setting up is further facilitated by a special Setting Index for exactly indicating when the telescope is in line with any pair of levelling screws.

The Base Plate is provided with three small feet, so that the instrument may be used without the stand if desired.

The Diaphragms. Two of these are supplied with each instrument and can be of any of the various forms described on page 73. Customers are particularly requested to state which one they desire fitted.

The Case is of well-seasoned mahogany, with combed joints, and carefully packed internally to support the instrument at every important part, so as to minimise the risk of damage in transit.

The Stand usually supplied is of the solid round form, No. P597-8, on page 92, but other forms may be substituted at the difference in price shown.

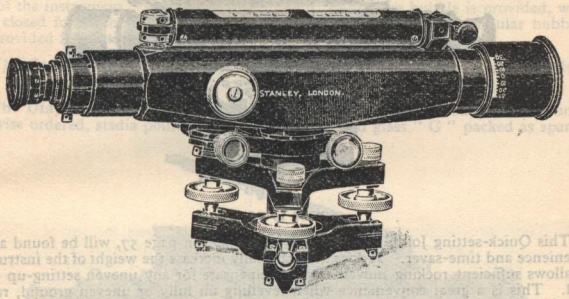
SPECIFICATION.

Focal Length in inches	Diameter or O.G. in inches	Magnification	Angular Field	Weight of Inst. in lbs.	Weight of case and Access.	Weight of Stands in lbs.	Dimensions of case in inches.
10	1.25	×17	2° 00′	6¼	5	9¼	13×8×6
12	1.50	×22	1° 40′	8	6½	10	17½×8×6½
14	1.67	×26	1° 30′	10½	8	10	18×9½×7

Note. Three-screw and four-screw instruments weigh practically the same. Add 1 lb. extra for ball locking plate.

STANLEY Engineers' Dumpy Levels.

(PATENTED.)



P351 to P353. "Engineers'" Level with THREE levelling screws.

PRICES.

		£	s.	d.
P351	10-inch, with three levelling screws, gun-metal	19	0	0
P352	12-inch, „ „ „ „ „	20	0	0
P353	14-inch, „ „ „ „ „	21	0	0
	Internal Focussing, extra to above prices	2	0	0
P361	10-inch, with four levelling screws, gun-metal	19	0	0
P362	12-inch, „ „ „ „ „	20	0	0
P363	14-inch, „ „ „ „ „	21	0	0
	Internal Focussing, extra to above prices	2	0	0

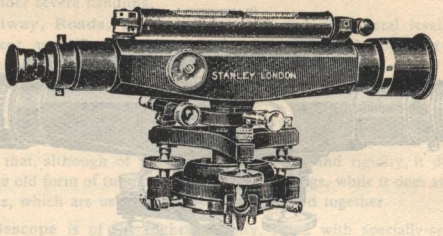
Accessories, see pages 78 and 90.

For Telegraphic Code see end of catalogue.

STANLEY "Quick-Setting" Engineers' Levels.

(PATENTED.)

Similar to those on page 75, but with the addition of the Stanley Patented Quick-setting Spherical Joint. Specially recommended.

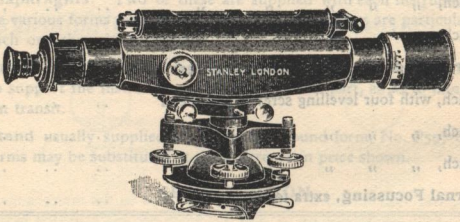


P367 to P369

This Quick-setting Joint, which is fully described on page 57, will be found a great convenience and time-saver. It does not materially increase the weight of the instrument, and allows sufficient rocking movement to compensate for any uneven setting-up of the stand. This is a great convenience when levelling on hilly or uneven ground, railway embankments, or in confined spaces. The joint enables one to set the instrument so nearly level that less than a single turn of the levelling screw suffices to complete the operation, saving much time, and greatly lessening the wear on the levelling screws.

PRICES.

		£	s.	d.
P367	10-inch, with three levelling screws, gun-metal	21	10	0
P368	12-inch, ,, ,, ,, ,,	22	10	0
P369	14-inch, ,, ,, ,, ,,	23	10	0
	Internal Focussing, extra to above prices	2	0	0



P374 to P376. With FOUR levelling screws.

For details of construction, Diaphragms, Stands, etc., see pages 73 and 74.

PRICES.

		£	s.	d.
P374	10-inch, with four levelling screws, gun-metal	21	10	0
P375	12-inch, ,, ,, ,, ,,	22	10	0
P376	14-inch, ,, ,, ,, ,,	23	10	0
	Internal Focussing, extra to above prices	2	0	0

Accessories, see pages 78 and 90.

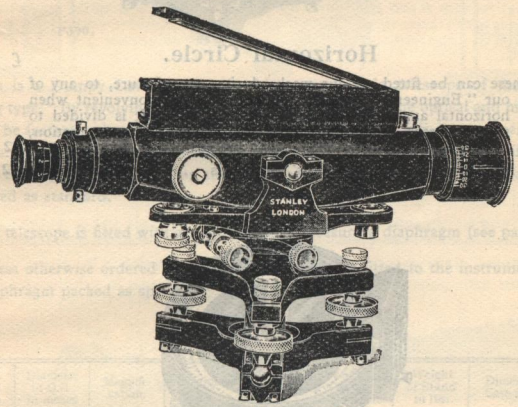
The STANLEY Precision Engineers' Level.

In response to numerous requests we have now added a Precision Model to our Engineers' Series. This is an 11-inch instrument of the internal focussing type, possessing several new features.

The side of the body has a dust-tight panel which permits access to the internal lens for cleaning purposes. The main bubble is housed in a metal box cast on to the body of the instrument. A full-length mirror for reading the bubble is provided, which when closed forms the lid of the box and protects the bubble. A circular bubble is also provided for setting up.

The Stand is of the solid round type, P597, page 92, but any of the stands on pages 91 to 93 can be supplied at a corresponding adjustment in price.

The Diaphragm. Any of the diaphragms on page 73 can be supplied, but unless otherwise ordered, stadia points "E" will be fitted and glass "G" packed as spare.



P378.

SPECIFICATION.

Focal Length in inches.	Diameter of O.G. in inches.	Magnification.	Angular Field.	Weight of Inst. in lb.	Weight of Case and Access. in lb.	Dimensions of case in inches.
11	1½	×22	3°	9½	5¼	14½×5¼×8

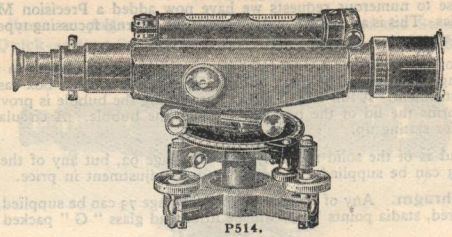
PRICE.

		£	s.	d.
P378	As illustrated	24	10	0
P379	Ditto, and with horizontal circle	25	10	0

EXTRA.

Leather Overcase	3	0	0
Quick-setting Joint (P220)	2	10	0

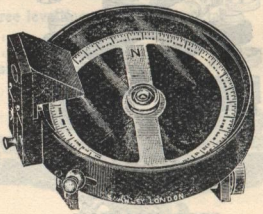
Accessories to any of the foregoing Levels.



P514.

Horizontal Circle.

		£	s.	d.
P380	These can be fitted, at our works during manufacture, to any of our "Engineers'" Levels, and will be found convenient when horizontal angles are required approximately. It is divided to single degrees, and reads by an index, and has a separate motion, so that it can be set and clamped to any position	2	0	0
	If fitted afterwards to customers' own levels	2	10	0



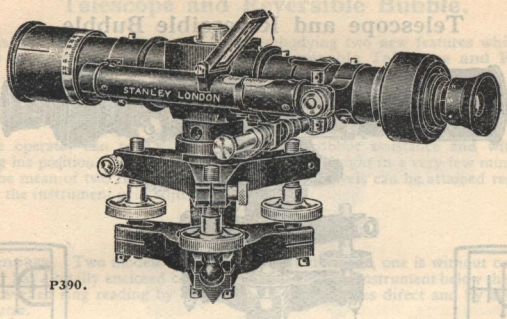
P380.

		£	s.	d
P381	Any of the foregoing Levels can be fitted with a 2½-inch detachable compass with prism reading, packed separately in the case, at an extra cost	3	0	0
P382	Framed stand in place of the ordinary round form, extra	1	16	0
P383	Telescopic sliding stand, ditto, ditto, extra	1	16	0
P384	Solid leather overcase, best quality, 10-inch, £2 15s.; 12-inch, £3 10s.; 14-inch	3	15	0
P385	Ditto, canvas, 10-inch, £1 15s.; 12-inch, £1 17s. 6d.; 14-inch ..	2	7	6
P386	Waterproof cover for Level, 10-, 12- & 14-inch, 5s.; 16- & 18-inch		7	6

For particulars of Diaphragms, see page 73.

Other accessories, see page 90.

The Stanley Dumpy Level with Revolvable Telescope.



P390.

This is a Dumpy Level equipped with a **revolvable** telescope of the internal focussing type. By revolving the telescope the coincidence of the optical and mechanical axes can be instantly checked (see page 72). The mechanical axis is permanently fixed at right angles to the vertical axis, and nothing short of structural damage will alter it. A patent Setting Index for locating the telescope over the parallel screws when setting up is fitted as standard.

The telescope is fitted with a stadia distance measuring diaphragm (see page 73).

Unless otherwise ordered a point diaphragm will be fitted to the instrument and a glass diaphragm packed as spare.

SPECIFICATION.

Focal Length in inches.	Diameter of O.G. in inches	Magnification.	Angular Field.	Weight of Inst. in lbs.	Weight of Case and Access. in lbs.	Weight of Stand in lbs.	Dimensions of Case in inches.
10	$1\frac{4}{16}$	×22	2°	6	5	8	13×7×6

	£ s. d.
P390 Complete, as illustrated, with solid round stand and mahogany case ..	**23 0 0**

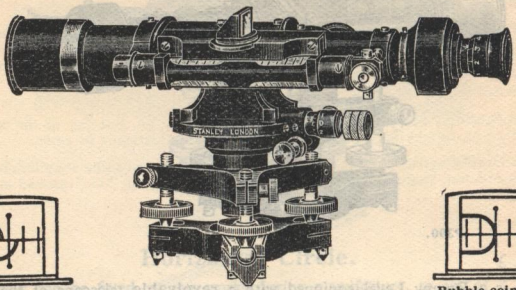
This instrument is light in weight, very compact, and can be instantly checked for adjustment. It is suitable for all general levelling.

EXTRAS.

	£ s. d.
Leather Case to box	**3 0 0**
Quick-setting Ball Joint, P220, *page* 57	**2 10 0**

For Telegraphic Code see end of catalogue.

The STANLEY Precision Level, with Revolvable Telescope and Reversible Bubble.



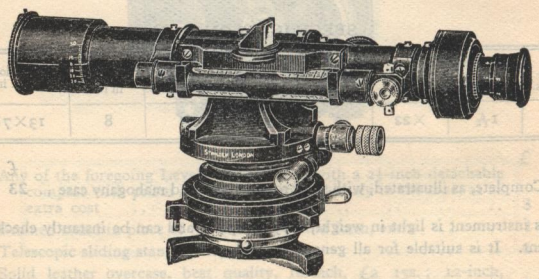
Bubble approaching coincidence.

Bubble coincident.

P410.

Focal Length in inches.	Diameter of O.G. in inches.	Magnification.	Angular Field.	Weight of Inst. in lbs.	Weight of Case and Accesss. in lbs.	Weight of Stand in lbs.	Dimensions of Case in inches.
10	$1\frac{5}{16}$	×22	2°	$6\frac{1}{2}$	$4\frac{1}{2}$	$7\frac{1}{2}$	$13\frac{1}{2}\times7\frac{1}{2}\times7$

Note. Instruments provided with a compass weigh 1 lb. more.



P412.

P412 This instrument is identical with P410 except that it has a ball joint instead of parallel screws for setting up.

For Telegraphic Code see end of catalogue.

The STANLEY Precision Level, with Revolvable Telescope and Reversible Bubble.

This is a high-grade Precision Level embodying two new features which are described in detail on page 72, viz., the **Revolvable Telescope and Reversible Bubble.**

The outstanding point about the instrument is the ease with which it can be checked for adjustment, or adjusted.

One operator can test all its adjustments without assistance and without even changing his position. Should it be out he can put it right in a very few minutes, or by taking the mean of two readings absolutely accurate levels can be attained regardless of whether the instrument is in adjustment or not.

DESCRIPTION.

Compass. Two models of this instrument are made, one is without compass and the other has a totally enclosed compass embodied in the instrument below the trunnions, with a bevelled ring reading by microscope to half-degrees direct and by estimation to 10 minutes.

Telescope. This is of the internal focussing type fitted with a subtense distance measuring diaphragm. Any of the diaphragms on page 73 can be fitted, but unless otherwise ordered the instrument will be fitted with a point diaphragm and a glass diaphragm will be packed in the case as spare.

As already explained in **the description on page 71,** it is not necessary to level the instrument accurately in all meridians, as it is finally levelled immediately before taking a reading by means of a special individual levelling screw.

This being so, we make a special instrument without parallel screws for **flying levels or work which does not entail the taking of a number of sights from any one station.**

When a number of sights have to be taken from each station, **the model with parallel screws is recommended.**

Bubbles. These are two in number, viz., a spot bubble for the initial levelling up with the ball joint or levelling screws and a long and very sensitive **Reversible Bubble** for finally levelling in the meridian of observation. This bubble is equipped with a prism-reading device, illustrated and described on page 31. This device enables the bubble to be observed from the eye end of the telescope and has the effect of doubling its accuracy.

The illustration opposite shows how the bubble appears in the prism.

This instrument is strongly constructed throughout in hard gun-metal, and is recommended for work of the highest precision.

	£	s.	d.
P410 or **P412**	32	0	0
P411 Ditto, with compass	35	10	0
P413 As P410 but with plain reflector to bubble	30	0	0
P414 As P412, ditto, ditto	30	0	0

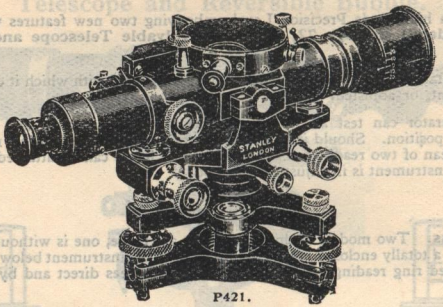
EXTRAS.

Leather Overcase	3	0	0
P410 *or* P413 *can be supplied with a ball joint as well as parallel screws at an extra cost of*	2	10	0

A detailed description, with directions for use, will be sent on application.

The Stanley India Pattern Level

WITH STANLEY PATENT MICROMETER.



P421.

This is a very high-grade Precision Level, made to the Indian Government specification, with certain improvements of our own. The tilting micrometer which reads to 1 in 100,000 is of a special pattern of our own invention, and the subject of a patent. It operates at right angles to the line of the telescope and is much more accessible than in the original design.

The telescope is of the internal-focussing type with a stadia distance measuring diaphragm. (Please see page 73 for various diaphragms.) Unless otherwise ordered the telescope is fitted with a point diaphragm and the spare diaphragm is on glass. Open sights are provided for preliminary alignment. The tribrach is fitted with a circular bubble for setting up and the main bubble is prism reading. This instrument is recommended for its robust construction and for very accurate work.

ACCESSORIES.

Circular detachable compass, waterproof hood, tommy pin, spare diaphragm.

SPECIFICATION.

Focal Length in inches.	Diameter of O.G. in inches.	Magnification.	Angular Field.	Weight of Inst.	Weight of Case and Access. in lbs.	Weight of Stand in lbs.	Dimensions of Box in inches.
11	1.65	×30	1° 12′	9 lbs. 6 oz.	7½	9	14×9×7

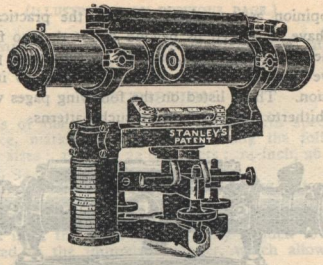
PRICES.

		£	s.	d.
P421	Level complete, as illustrated, with all accessories as per India Government specification, with detachable circular compass, stand similar to P580, but with framed legs, mahogany case	40	0	0
P422	Ditto, ditto, level only and with the tilting screw undivided except for a zero mark, without the compass, and with Stand P580 ..	28	2	0

EXTRAS AND ALTERNATIVES TO P422.

Spare Bubble (glass vial only)		12	0
Leather Overcase	3	3	0
Felt-lined Canvas Case	2	7	6
Waterproof Hood		9	6
Ball Joint, P220 (*this can only be fitted to* P422)	2	10	0

Stanley's Gradiometer (Patented).



P441.

An improved form of Level, with a gradiometric arrangement by which the telescope may be set to small vertical angles. Specially suitable for Railways, Drainage, Irrigation work, etc.

The Gradiometric Arrangement is effected by the telescope being mounted in trunnions, one being adjustable vertically; the amount of elevation or depression being indicated by means of an open extended scale on a drum, which can be conveniently and distinctly read without the use of a vernier. The drum may be graduated to read rise or fall, either from 1 in 12, to 1 in 1,200, or percentage gradients from .08 to 8. Please state when ordering which style of graduation is desired.

When the drum is at zero it forms a first-class level of the ordinary type. It is **a most rapid levelling instrument**, as the telescope can be set level instantly by simply turning the drum until the bubble is in the centre of its run, without any setting up whatever by the levelling screws.

For levelling on inclines the gradiometric arrangement saves a great number of settings up, as instead of levelling for every few feet rise or fall, the gradient of the total distance can be taken.

The distance can also be measured by means of the stadia diaphragm, and by reference to a gradient table the difference of level can at once be seen. If the drum is divided to percentage gradients no table is required, as the difference in height is whatever percentage of the distance the drum is set to when the distance reading is taken.

The distance can also be measured by means of the stadia diaphragm and the difference of level ascertained by simple calculations. If the drum is divided for percentage gradients the reading on the drum gives the difference in height per 100 feet, as measured by the stadia.

Telemetrical readings at great distances may also be taken with accuracy by this instrument.

The additional parts do not increase the size and add little to the weight.

It is fitted with a **Subtense Diaphragm for measuring distances**, and a clamp and tangent adjustment to facilitate setting the points to the graduations of the levelling staff.

		£.	s.	d.
P441	14-inch, complete with aluminium ring prism-reading compass, clamp and tangent, solid tripod stand, as P597, see page 92 ..	**36**	**0**	**0**

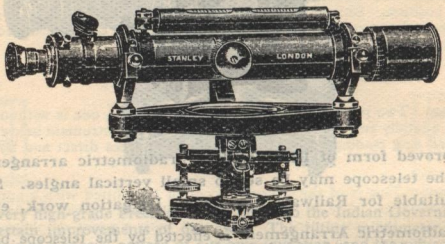
EXTRAS.

Framed Stand in place of the usual form	**1**	**16**	**0**
Overcase, best solid leather	**4**	**0**	**0**
Spirit Levels, set of three	**1**	**10**	**0**

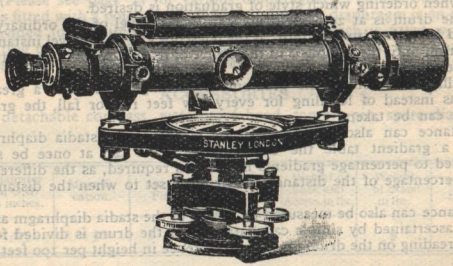
A detailed description, with directions for use, will be sent on application.

Stanley's Improved Y Levels.

Although our opinion as manufacturers, and the practical experience of many eminent Engineers, have convinced us beyond doubt that no form of Y level can be made so strong as the solid pattern, yet, as there is still a large public demand for such instruments, we have bestowed a great deal of attention to improving their general design and construction. Those listed on the following pages will be found free from many of the defects hitherto inseparable from such patterns.



P451 to P454. Improved Y Level, with compass and THREE levelling screws.



P465 to P468. Improved Y Level with compass and FOUR levelling screws.

We also manufacture several other types, such as the "**Reversible Level,**" largely used in India, and the "**Cushing Level,**" but with either of these patterns great care is necessary to avoid the disturbance of the instrument when reversing the parts for the purpose of adjustment.

The mere presence of the movable parts is a possible source of error, and ease of adjustment in such instruments invariably means equal liability of getting out of adjustment. For ordinary work it is more satisfactory, both practically and mechanically, to adopt a level of the Engineer pattern, which, owing to its extreme rigidity and absence of movable parts, may be considered to remain permanently in adjustment.

Stanley's Improved Y Levels.

(ILLUSTRATED ON PREVIOUS PAGE.)

The Y Level of improved design, representing the highest refinement of this type of instrument.

DESCRIPTION.

The Telescope is of the highest quality, fitted with specially-selected lenses, screw-focussing eyepiece, marked with diopters, giving the following magnification powers for the different sizes: 12-inch, 22 diameters; 14-inch, 26 diameters; 16-inch, 30 diameters; 18-inch, 34 diameters.

The Diaphragm. Improved Subtense for measuring distances, can be supplied in any of the various forms (see page 73). Customers are particularly requested to state which one they desire fitted. Additional or spare diaphragms can be supplied.

The Spirit Level is of the finest quality, fully divided to facilitate setting the adjustment, and is fitted in the improved manner, which allows of contraction or expansion from change of temperature.

The Stage and Centre are shaped from a single solid casting of hard gun-metal. The ordinary Y's are replaced by strong metal collars. These provide a much larger and more efficient bearing to the telescope, and overcome one of the great defects in the ordinary style of Y level. The telescope is held in its correct position by hinged clips fitted with lock screws.

A Clamp and Tangent is fitted, which will be found a great advantage in windy weather, enabling the extremities of the points to be brought conveniently to the edge of the graduations on the levelling staff.

Levelling Arrangement. Either three- or four-screw, as desired.

The Base Plate is provided with three small feet, so that the instrument may be used without the stand, if desired.

The instrument can be supplied either with or without compass. In the former cases, this is of our improved form, with floating aluminium ring, sapphire centre, lifter, and prismatic reader.

The Case is of well-seasoned mahogany, with combed joints, and carefully packed internally to support the instrument at every important part, so as to minimise the risk of damage in transit.

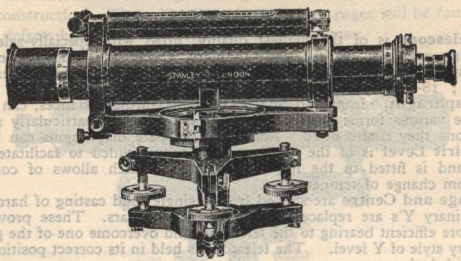
The Stand usually supplied is the solid round form, P597, on page 92, but other forms may be substituted, shown on pages 91-93.

		£	s.	d.
P451	12-inch, with compass, with three levelling screws	26	0	0
P452	14-inch, " " " " " "	28	0	0
P453	16-inch, " " " " " "	30	0	0
P454	18-inch, " " " " " "	33	0	0
P455	12-inch, without compass, with three levelling screws	24	10	0
P456	14-inch, " " " " " "	26	10	0
P457	16-inch, " " " " " "	28	10	0
P458	18-inch, " " " " " "	31	10	0
P465	12-inch, with compass, with four levelling screws	26	0	0
P466	14-inch, " " " " " "	28	10	0
P467	16-inch, " " " " " "	30	10	0
P468	18-inch, " " " " " "	33	0	0
P469	12-inch, without compass, with four levelling screws	24	10	0
P470	14-inch, " " " " " "	26	10	0
P471	16-inch, " " " " " "	28	10	0
P472	18-inch, " " " " " "	31	10	0

EXTRAS.

Framed Stand, P593, in place of the usual form, to any of above	1	16	0
Best quality leather Overcases to the above, 12-inch, £3 10s.; 14-inch, £3 15s.; 16-inch, £4 15s.; 18-inch	5	0	0
Waterproof Canvas Overcase, leather bound, 12-inch, £2 7s. 6d.; 14-inch, £2 10s.; 16-inch, £3 3s.; 18-inch	3	10	0

STANLEY Reversible Level.



P474 to P477.

This instrument has a telescope which can be withdrawn from a central socket and reversed in same for the purpose of setting the line of collimation at right angles to the vertical centre. This arrangement necessitates a slightly smaller object-glass, owing to its having to pass through the central socket. It has three-screw levelling arrangement, and the telescope is provided with screw-focussing eyepiece marked with diopters. The compass has a floating ring read by prism. Packed in mahogany case and with mahogany stand.

PRICES.

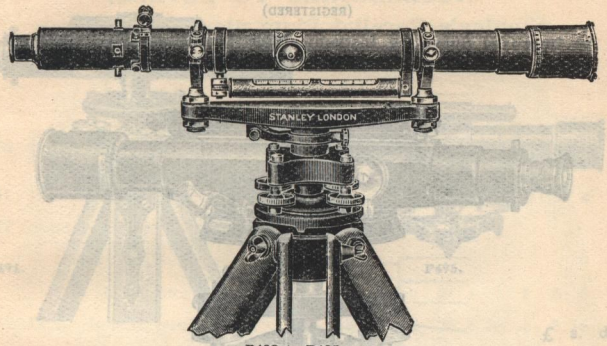
		£	s.	d.
P474	10-inch, with compass, with solid round stand	24	5	0
P475	12-inch, „ „ „ framed stand	26	0	0
P476	14-inch, „ „ „ „ „	29	0	0
P477	16-inch, „ „ „ „ „	32	0	0
P478	10-inch, without compass, with solid round stand	23	0	0
P479	12-inch, „ „ „ framed stand	24	5	0
P480	14-inch, „ „ „ „ „	27	0	0
P481	16-inch, „ „ „ „ „	30	0	0

Larger sizes made to order.

EXTRAS.

	£	s.	d.
Internal Focussing	2	0	0
Overcase, leather, best quality, 10-inch, £3 5s.*; 12-inch,* £3 10s.*; 14-inch,* £3 15s.*; 16-inch*	4	5	0
Overcase, waterproof canvas, leather bound, 10-inch, £2 5s.*; 12-inch,* £2 7s. 6d.*; 14-inch,* £2 10s.*; 16-inch*	2	15	0

STANLEY Canadian Pattern Y Levels.



P482 to P485.

Stanley's Canadian Pattern Y Level. A light and strong form of Y Level, specially designed for Railway or Civil Engineering in the Colonies.

DESCRIPTION.

The Telescope is of the highest quality, with specially-selected lenses, screw-focussing eyepiece divided with diopters, either inverting or erecting, giving the following magnification powers for the different sizes: 14-inch, 26 diameters; 16-inch, 30 diameters; 18-inch, 34 diameters; 20-inch, 38 diameters.

The Long Spirit Level is of the finest quality, fully divided to facilitate setting and adjustment, and is placed under the telescope to afford better protection under rough usage.

Levelling Arrangement. Four-screw, of an improved design made from a solid casting, which entirely overcomes the objection which existed hitherto in the liability of straining the centres through exerting too much pressure on the levelling screws.

The Base Plate is provided with three small feet, so that the instrument may be used without the stand if desired.

The Diaphragm. Improved Subtense for measuring distances, can be supplied in any of the various forms described on page 73. Customers are particularly requested to state which one they desire fitted. Additional or spare diaphragms can be supplied.

The Case is of well-seasoned mahogany, with combed joints, and carefully packed internally to support the instrument at every important part, so as to minimise the risk of damage in transit.

The Stand is the "split-leg" pattern, P596, page 92, which is generally used in Canada, with adjustments for tightening the head, also foot spurs for pressing the toes firmly into the ground.

PRICES.

		£	s.	d.
P482	14-inch, complete in mahogany case, with stand	26	10	0
P483	16-inch, " " " " "	28	10	0
P484	18-inch, " " " " "	31	10	0
P485	20-inch, " " " " "	34	0	0

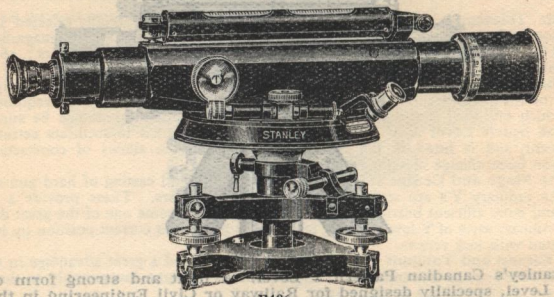
EXTRAS.

Overcases, leather, best quality, 14-inch, £4; 16-inch, £4 5s.; 18-inch, £4 10s.; 20-inch	5	0	0
Overcase, waterproof canvas, leather bound, 14-inch, £2 15s.; 16-inch, £3 5s.; 18-inch, £3 10s.; 20-inch	3	15	0

The Levolite.

(REGISTERED)

An Improved Surveying Instrument for Tunnelling and Irrigation or Railway Work.



P486.

The "Levolite" embodies the principal features of a Dumpy Level with the horizontal circle of a Theodolite.

The instrument consists of the lower portion of a theodolite of the highest refinement, with a horizontal circle divided on silver, surmounted by a powerful telescope, such as is fitted to our well-known "Engineer" Levels, thus combining the efficiency of both instruments without any loss of precision or convenience, effecting a considerable saving in expense and avoiding the necessity of having two instruments on the work.

Clamp and tangent adjustments are provided, also a sliding centering stage. The verniers are fitted at 30° to the telescope, to avoid the necessity of moving round to the side of the instrument to read the angles. The telescope has a stadia diaphragm for measuring distances, and the centre is marked for overhead plumbing.

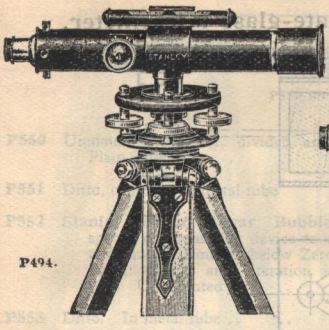
The instrument is particularly adapted for use on flat or gently undulating ground, such as is general in road and irrigation surveys, as horizontal angles are set out with all the accuracy of a theodolite, and differences of level are measured in the same manner and with the precision of a Dumpy Level. It also solves the problem of how to execute quickly and accurately contouring on the direct system.

It is packed in a mahogany case, and supplied with round form solid stand, P597, page 92, but any other form may be substituted (see pages 91-93).

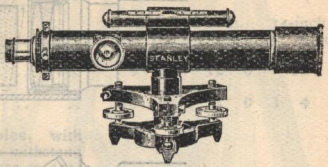
	PRICES.	£	s.	d.
P486	With 5-inch horizontal circle reading to 1 minute, and 12-inch telescope	35	0	0
P487	Ditto, with 6-inch horizontal circle reading to 20 seconds, and 14-inch telescope	37	10	0

	EXTRAS.			
	Overcase, leather, best quality, 12-inch, £3 10s.; *14-inch*	3	15	0
	Overcase, waterproof canvas, leather bound, 12-inch, £2 7s. 6d.; *14-inch* ..	2	10	0

STANLEY'S Levels (continued).



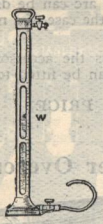
P494.



P495.

		£	s.	d.
P494	**Builders' Dumpy Level**, 9-inch. A thoroughly sound little level specially designed to be produced at the lowest possible cost. It has a 9-inch telescope with rack focussing and glass diaphragm. It is supplied in mahogany case, with tripod stand	7	15	0
P495	As above, but three-screw levelling	8	15	0
P496	If glass diaphragm required stadia reading, extra		10	0

Water Level.



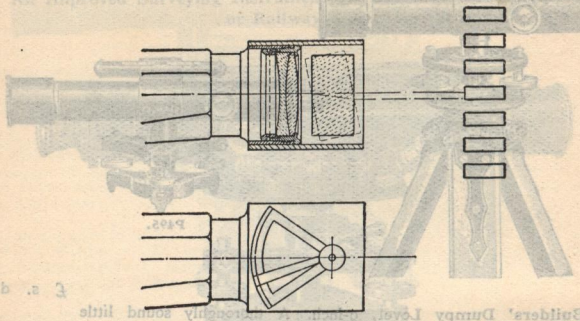
P502.

P502	**Water Level**, consisting of a pair of glass tubes, in brass casing, divided into inches and parts, with all necessary cocks, unions, etc. Particularly suitable for erecting heavy machinery or for ascertaining difference of level between positions	12	10	0
P503	India-rubber hose for connecting above, ¾-inch diameter, per foot run		1	0

For Telegraphic Code see end of catalogue.

ACCESSORIES TO LEVELS.

Stanley's Parallel Plate-glass Micrometer.



£ s. d.

P515 This is a device for accurately reading the staff to very fine limits. In practice it is of little use to sub-divide a staff closer than, say, 1/100th of a foot, as smaller divisions could not be resolved by the telescope over any great distance. It consists of a thick parallel plate of glass which is placed in front of the object-glass and can be rotated about its centre. When the plate is tilted the ray is refracted and moves in the vertical plane parallel to its original course. Thus the staff appears to be raised or lowered when it is viewed through the telescope.

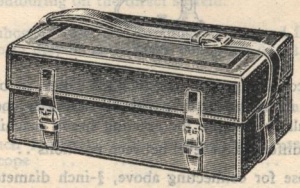
The angle of tilt is indicated on an arc, which is calibrated to sub-divide the staff. The arc can be divided to give a reading on the staff of .001, or, in the case of a metre staff, single millimetres can be read.

The illustration shows the accessory fitted to a Precision Engineers' Level, but it can be fitted to any level.

PRICE.

Extra to the cost of the instrument 6 0 0

Leather Overcases.



For Overcases for instrument cases, in either leather or canvas, see specifications of instruments.

For Telegraphic Code see end of catalogue.

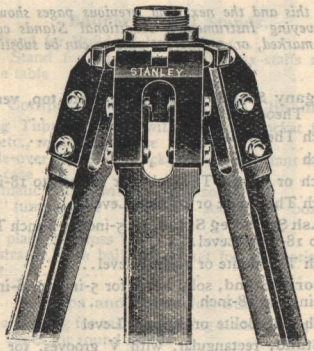
Spare Bubbles for Levels.

P550 for Levels.

		10-inch. £ s. d.	12-inch. £ s. d.	14-inch. £ s. d.
P550	Unmounted Bubbles, divided and figured. Plain patterns	9 0	12 0	15 0
P551	Ditto, complete in metal tube	18 0	1 1 0	1 4 0
P552	**Stanley Patent Invar Bubbles**, with special compensating device to withstand temperature from 5° below Zero to 120° Fahr. without any alteration in the air bell. Unmounted	3 0 0	3 3 0	3 6 0
P553	Ditto. In metal tube	3 9 0	3 12 0	3 15 0
P554	Unmounted Reversible Bubbles, one size only	—	1 2 0	—
P555	Ditto, complete in metal tube	—	1 11 0	—

Stands.

Any of the stands listed in the following pages may be substituted for those usually supplied at the corresponding increase or reduction in price.



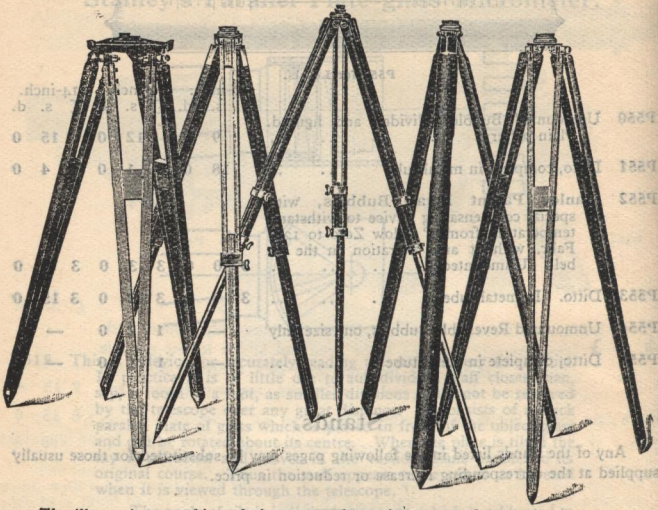
P580.

		£ s. d.
P580	**Stanley's New Pattern Tripod Stand**, solid mahogany legs, with specially fitted head, with screw to tighten all simultaneously	4 10 0

For Telegraphic Code see end of catalogue.

Stands.

P590–P592. P599, P600. P601, P602. P597, P598. P593, P594.

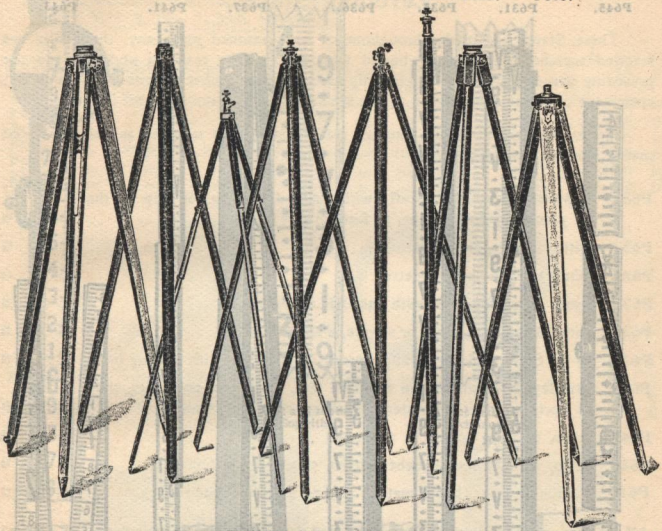


The illustrations on this and the next and previous pages show our various types of Tripod Stands for Surveying Instruments. Additional Stands can be supplied to any instrument at the prices marked, or a different pattern can be substituted at an extra cost of the difference in price.

		£	s.	d.
P590	**Framed Mahogany Stand,** with locking plate top, very strong, for 12-inch Theodolite	15	0	0
P591	Ditto, for 10-inch Theodolite	12	0	0
P592	„ „ 8-inch „	9	0	0
P593	„ „ 5-inch or 6-inch Theodolite or 12-inch to 18-inch Level	6	6	0
P594	„ „ 4-inch Theodolite or 10-inch Level	6	0	0
P595	**Mahogany or Ash Split-Leg Stand,** for 5-inch or 6-inch Theodolite or 12-inch to 18-inch Level..	4	10	0
P596	Ditto, for 4-inch Theodolite or 10-inch level..	4	4	0
P597	**Round Solid Form Stand,** solid head, for 5-inch or 6-inch Theodolite or 12-inch to 18-inch Level	4	10	0
P598	Ditto, for 4-inch Theodolite or 10-inch Level	4	4	0
P599	**Sliding Leg Stand,** rectangular, with V grooves, for 5-inch or 6-inch Theodolite or 12-inch to 18-inch Level	6	6	0
P600	Ditto, for 4-inch Theodolite or 10-inch Level..	6	0	0
P601	Ditto, round form, for 5-inch to 6-inch Theodolite or 12-inch to 18-inch Level..	6	6	0
P602	Ditto, for 4-inch Theodolite or 10-inch Level	6	0	0

Stands (continued).

P595–6. P608. P609. P610. P612. P605. P606.



Builders' Level Stands.

		£	s.	d.
P605	Round Leg Stand for Builders' levels, P494	1	7	6
P606	Cheap form Stand for circumferenters, cross staffs and cheapest form plane table	1	2	6

Prismatic Compass, Box Sextant, and Clinometer Stands.

P607	Nickel Sliding Tubular Stand, with ball and socket for prismatic compass, etc., with leather case	2	18	6
P608	With " tumble-over " ball and socket for box sextant or clinometer, in leather case	3	8	6
P609	Ordinary Prismatic Stand, with ball and socket	2	10	0
P610	Ditto, with " tumble-over " ball and socket for box sextant or clinometer	2	18	0
P611	Jacob's Staff, plain for cross staff, with iron shoe		5	6
P612	Ditto, as illustrated, with ball and socket for prismatic compass or clinometer	1	0	0

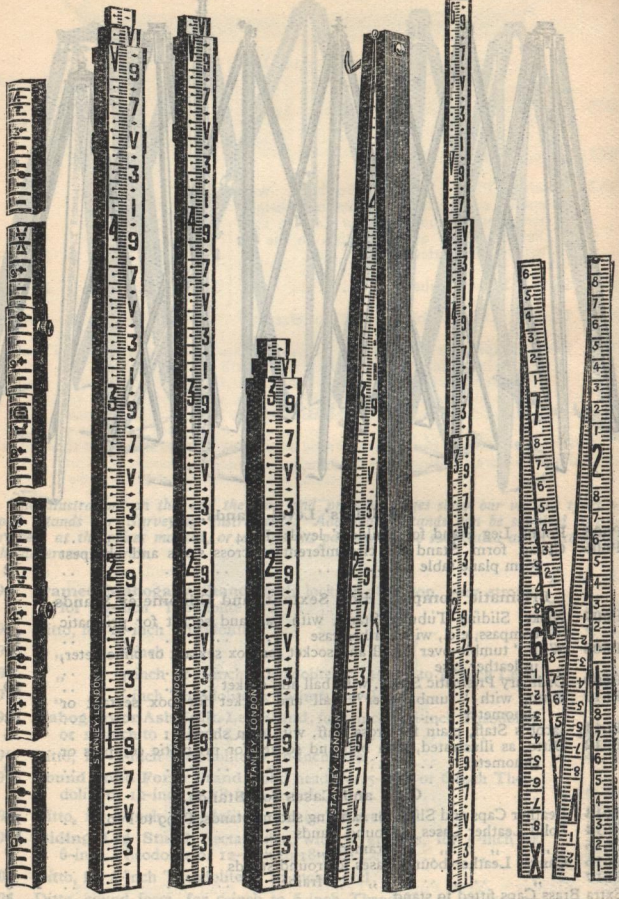
Caps and Cases for Stands.

P613	Leather Caps and Sling for carrying sliding stands, P599 to P602	1	10	0
P614	Solid Leather Cases for round stands	4	10	0
P615	" " " " framed "	6	0	0
P616	Canvas Leather-bound Cases for round stands	1	5	0
P617	" " " " framed "	2	0	0
	Extra Brass Caps fitted to stand		4	6

For Telegraphic Code see end of catalogue.

STANLEY Levelling Staves.

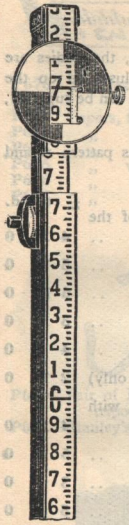
P645. P631. P635. P636. P637. P641. P643.



For particulars see following pages.

Intermediate figures are marked, although they are not shown in the illustrations.

Levelling Staves.



Feet and tooths
Sopwith.
A.

Feet and tooths
Tacheometrical.
B.

Feet and tooths
Inverted Sopwith.
C.

Feet, Inches,
and 8ths or tooths.
D.

Metres and
Centimetres.
E.

P646.

Intermediate figures are marked, although they are not shown in the illustrations.

Levelling Staves.

These Staves are made throughout of well-seasoned mahogany, the bodies are screwed together and strongly bound with brass. The readings illustrated on the preceding pages are those most generally used, but many other designs can be supplied, specimens of which can be seen at our showrooms.

Unless otherwise ordered, English reading staves are supplied as pattern A and metric ones as pattern E.

		£	s.	d.
P631	**Sopwith Levelling Staff,** with painted reading, as any of the preceding illustrations, 14 feet, or 4.25 metres	4	10	0
P632	Ditto, 16 feet, or 5 metres	5	15	0
P633	Ditto, 18 feet, or 5.75 metres	6	15	0
P635	Ditto, 9 feet 6 inches, with one slide only	3	15	0
P636	Ditto, 8 feet, for mines or sewers, 2 slides	4	5	0
P637	10-ft. Solid Folding Staff, strong, in pine (Sopwith reading only)	2	15	0
P641	**Stanley's Patent Mine Staff,** 6 feet, closing to 20 inches, with spring catches and waterproof sling case, very portable	4	15	0
P642	Ditto, 10 feet, closing to 32 inches	5	0	0
P643	Ditto, 10 feet, special light pattern, closing to 34 inches	3	3	0
P644	Similar to P641, but 2 metres, closing to 50 centimetres	5	0	0

All of the above are supplied with red intermediate repeat foot (or metre) figures.

P645	**Slip-Socket Scotch pattern Levelling Staff,** divided 1/10th or 1/20th feet, alternate red and black "feet" figures, best quality, 15 feet	3	3	0

Target Levelling Staff.

		£	s.	d.
P646	**Philadelphia Levelling Staff,** with target, 14 feet, 2-draw, graduated in feet, tenths and hundredths, with verniers reading to thousandths	5	0	0

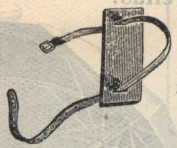
Staves repaired and repainted; any special design of staff made to order.

For Telegraphic Code see end of catalogue.

P670.

Levelling Staves

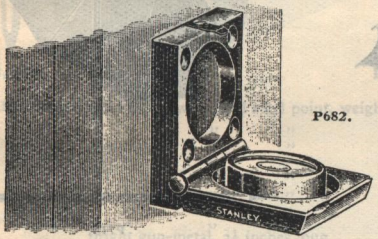
		£	s.	d.
P670	Staff reading, painted on strong waterproof fabric, 10 feet		15	0
	Other lengths made to order.			
P672	Papers, for re-papering staves, 14-ft. Sopwith pattern or metre ..		4	0
P673	" " " 16-ft. " " " " ..		5	0
P674	" " " 18-ft. " " " ..		6	0
P675	" varnished, with supply of glue and brush for fixing, 14-ft. ..		8	6
P676	" " " " " " " " " 16-ft. ..		10	0
P677	" " " " " " " " " 18-ft. ..		12	0



P680.

P681.

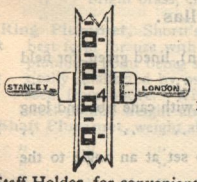
		£	s.	d
P680	Pair of Leather Straps and Pads, to fasten two staves or staff and tripod together. Per pair		5	6
P681	Stanley's Improved ditto. Per pair		9	0



P682.

P683.

		£	s.	d.
P682	Folding level for back of staff, gun-metal, with hermetically sealed bubble	1	2	6
P683	Detachable Level, for back of staff, hermetically sealed bubble ..		12	6



P686.

P687.

		£	s.	d.
P686	Staff Holder, for conveniently holding staff (detachable)		15	0
P687	Triangular Iron Plate, for use with staff on soft ground		4	6

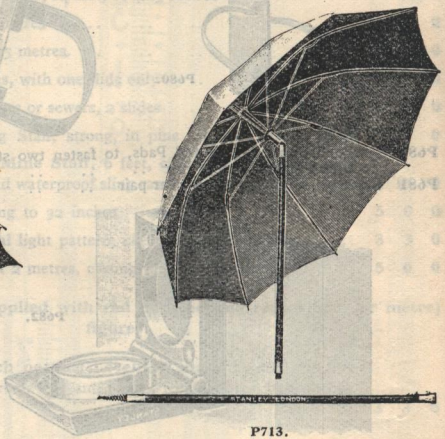
For Telegraphic Code see end of catalogue.

Cases for Levelling Staves.

		£	s.	d.
P690	Strong Waterproof Canvas Case, leather bound, for one 14-ft. staff		16	6
P691	Ditto, for one 16-ft. staff	1	1	6
P692	Ditto, for one 18-ft. staff	1	5	0

Instrument Umbrellas.

P710.



P713.

Tropical Umbrellas.

		£	s.	d.
P710	Tropical Umbrella, 36-inch diameter (open), lined green, for field work, as illustrated	1	0	0
P712	Ditto, 48-inch diameter (open), lined green, with cane ribs and long jointed stick, with plain steel spike	2	10	0
P713	54-inch diameter (open), with top joint to set at an angle to the stick, and screw spike, as illustrated	3	3	0

For Telegraphic Code see end of catalogue.

Engineers' Plummets.

P721 to P728.

P731.

P732.

P738, P739.

P741.

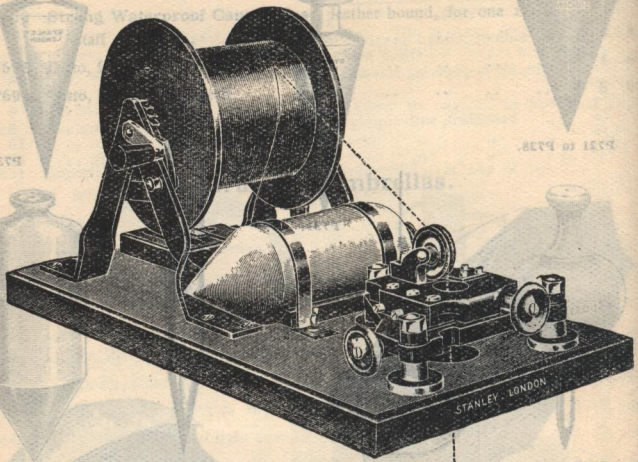
P736.

P742 to P747.

		£	s.	d.
P721	Plummet, solid brass, with hard steel point, weight about 2½ oz.		3	6
P722	,, ,, ,, ,, ,, 4 ,,		4	0
P723	,, ,, ,, ,, ,, 6 ,,		5	0
P724	,, ,, ,, ,, ,, 8 ,,		6	0
P725	,, ,, ,, ,, ,, 12 ,,		7	0
P726	,, ,, ,, ,, ,, 1 lb.		8	0
P727	,, ,, ,, ,, ,, 2 lbs.		13	6
P728	,, ,, ,, ,, ,, 4 ,,		18	6
P731	,, bright gun-metal, 3½ inches long ,, 4 oz.		4	6
P732	,, ,, ,, 4 ,, ,, 8 ,,		5	6
P733	,, ,, ,, 4½ ,, ,, 12 ,,		7	6
P736	,, hollow steel, filled with mercury ,, 8 ,,	1	1	0
P738	,, bright brass, cheaper model ,, 6 ,,		4	6
P739	,, ,, ,, ,, ,, 8 ,,		5	6
P741	Ring Plummet, Shortt's Patent, specially recommended as the best form for use with a theodolite for engineering work. The plumbing point being situated in the centre of the ring is practically unaffected by oscillation, and its exact position is readily seen from above. With gun-metal ring and strong hardened steel points, weight about 8 oz.		15	0
P742	Shaft Plummet, weight about 4½ lbs., cast iron		16	0
P743	,, ,, ,, ,, 4¾ lbs., brass	1	3	0
P744	,, ,, ,, ,, 7 lbs., cast iron	1	2	0
P745	,, ,, ,, ,, 7 lbs., brass	1	15	0
P746	,, ,, ,, ,, 28 lbs., cast iron	2	0	0
P747	,, ,, ,, ,, 56 lbs., cast iron	3	10	0

For Lamp Plummets, see page 69.

Stanley's Plumbing Apparatus.



P760.

		£	s.	d.
P760	**Stanley's Plumbing Apparatus,** for shafts, testing important buildings, etc. Strongly made with brass drum with iron ends and standards, containing about 500 feet of silver-plated steel wire, with winding handle and ratchet for fixing the plummet at the required height. The plummet is of cast iron, and weighs about 28 lbs. Mechanical stage for accurately adjusting it over the required spot is provided, the whole mounted upon a hard-wood base. In use the wire is passed over the small pulley which is mounted upon the mechanical centering stage, as shown by the dotted line in the illustration. This permits an adjustment of about ¾ inch, either forwards, backwards, sideways or obliquely	21	10	0

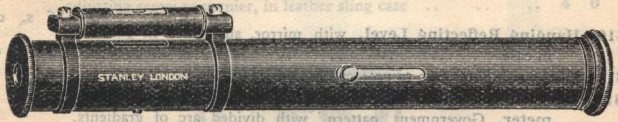
Heavier Plummets, up to 56 lbs., to order.

For Telegraphic Code see end of catalogue.

POCKET REFLECTING LEVELS, CLINOMETERS, ETC.

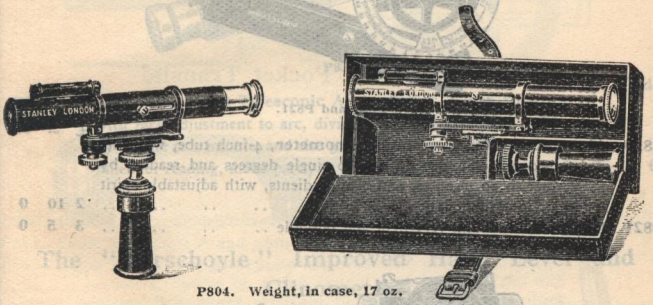
P800.

		£	s.	d.
P800	**Pocket Reflecting Level,** 4-inch, with improved sighted reflector, giving full sighting aperture, with ground spirit level		18	6
P801	Leather case for the above		2	6



P802.

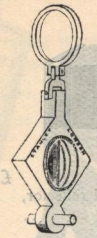
		£	s.	d.
P802	**Telescopic Reflecting Level,** similar to the above, but with telescope with rack and pinion focussing, enabling sights to be taken at greater distances, in leather case		3	3	0



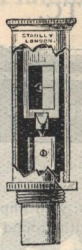
P804. Weight, in case, 17 oz.

		£	s.	d.
P804	**Stanley's Pocket Telescope Reflecting Level.** A very convenient instrument. The bubble is seen simultaneously with the object by means of a silver reflector inside the telescope. The socket is made to fit on to a stick or Jacob's Staff. It has a ball joint for setting level, rack and pinion focussing, and a milled screw under the stage for fine adjustment, in leather case . ..		4	10	0
P805	Jacob's Staff for above, as P611, page 93		5	6	

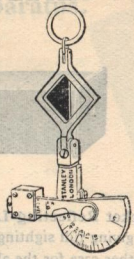
Reflecting Levels (continued).



P810.

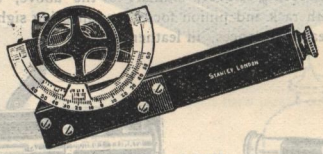


P811.



P812.

		£	s.	d.
P810	**Hanging Reflecting Level,** with mirror, suspended in gimbals, in case	2	10	0
P811	Ditto, with outer case to protect from wind	3	3	0
P812	**De Lisle Improved Combined Reflecting Level and Clinometer,** Government pattern, with divided arc of gradients, in leather case	4	15	0



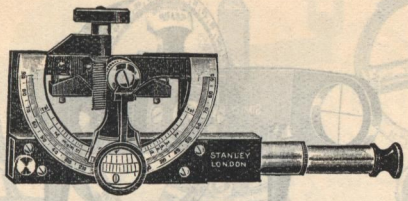
P820 and P821.

		£	s.	d.
P820	**Abney Reflecting Level and Clinometer,** 4-inch tube, with improved reflector, arc divided to single degrees and reading by vernier to 10 minutes, and also gradients, with adjustable spirit level, in leather case	2	10	0
P821	Ditto, in aluminium, very light and portable	3	5	0

P822.

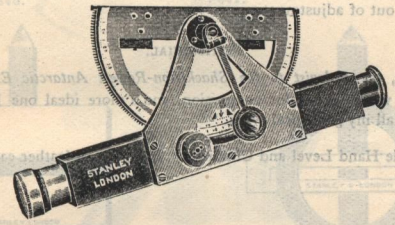
		£	s.	d.
P822	Ditto, as P820, but with magnetic compass	3	0	0

Reflecting Levels (continued).



P823.

		£	s.	d.
P823	**Abney Level,** Service pattern, with double draw to the tube and adjusting screw to vernier, in leather sling case	4	0	0



P826.

		£	s.	d.
P826	**Stanley's Improved Telescopic Abney Level,** 9-inch telescope, with rack adjustment to arc, divided to 30 minutes and reading by vernier to 1 minute, and also gradients, hinged adjustable magnifier for reading, made partly in aluminium, in leather sling case	7	0	0

The "Verschoyle" Improved Hand Level and Clinometer.

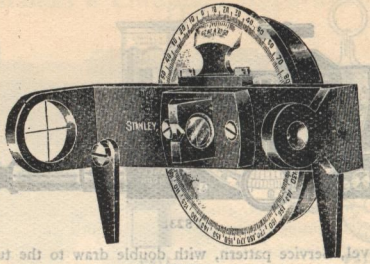
(PATENTED)

This Clinometer fulfils all the purposes of the usual types of hand levels and clinometers, with the advantage that horizontal angles can also be measured to 10 minutes.

A spirit level is mounted centrally inside the circular box at the back of the sighting arm. This is viewed through the reflecting prism shown in the centre of the illustration.

For Telegraphic Code see end of catalogue.

The " Verschoyle " Improved Hand Level and Clinometer (continued).



P830.

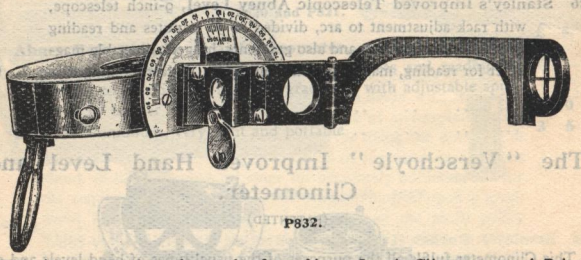
A point that distinguishes this instrument from all other well-known types at present on the market is that all delicate parts are enclosed, and only the very roughest usage will put it out of adjustment.

TESTIMONIAL.

Mr. Douglas, the geologist to the Shackleton-Rowett Antarctic Expedition writes : " The hand level was my constant companion, and a more ideal one I have not seen. I have used it in all my geological work."

	£	s.	d.
P830 Verschoyle Hand Level and Clinometer, complete in leather case ..	3	7	6

" Verschoyle " Pocket Transit.

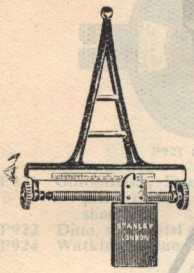


P832.

This instrument does the work of an Abney Level, Clinometer, and Prismatic Compass. It was designed by Mr. W. D. Verschoyle, a mining engineer of great experience, and has since become known as a very complete Pocket Surveying Instrument. By its use only one observation is necessary to obtain the vertical angle and magnetic bearing of any object.

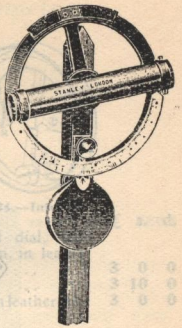
	£	s.	d.
P832 Verschoyle Pocket Transit, in leather case, divided to 10 minutes..	7	0	0

Road Tracers and Clinometers.



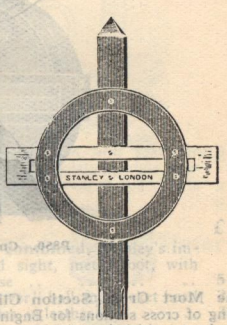
P840.

P842.



P845.

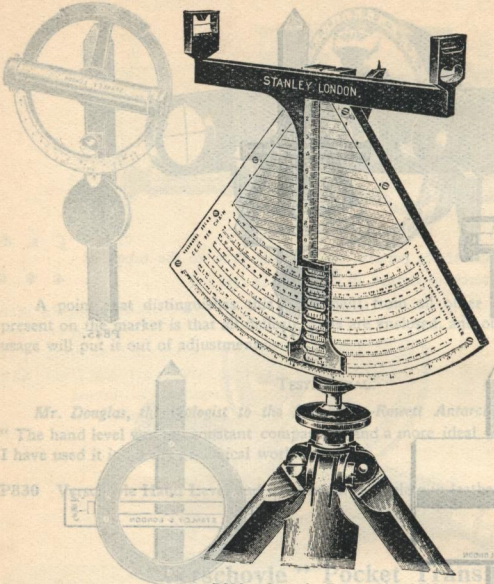
Target A (P842).



Target B (P844).

		£	s.	d.
P840	Road Tracer, sighted balance level and clinometer, in case	6	10	0
P841	Ditto, with target A and plain stand	8	0	0
P842	Road Tracer, Stanley-Bellamy improved, with rack and pinion on pendulum, divided on an arc instead of a straight scale, with sighting tube having reversible sliding shutters, so that back readings may be taken without unclamping or shifting the vernier and index, complete in mahogany case, with target A and stand, as illustrated	13	10	0
P844	Ditto, ditto, with target B and stand	14	0	0
P845	Clinometer and Road Tracer combined, Stanley-Bellamy patent, improved form, giving reading in degrees of arc as well as gradients, rack motion, with clamp and sighting tube with reversible sliding shutters, with target A and stand, as illustrated	14	10	0
P846	Ditto, ditto, with target B and stand	15	0	0

The Mort Cross Section Clinometer.



P850. Cmwth. Patent No. 16386.

The Mort Cross Section Clinometer is designed to simplify and expedite the taking of cross sections for Engineering surveys. It consists of a pair of sights at right angles to which is attached an arm which reads upon the graduated scales on a vertical sector. In use it is only necessary to take a sight and measure the distance, when the correct horizontal distance and the difference in height are directly read off on the scale, without any calculations whatever.

The instrument is capable of being more rapidly used than a Level or Theodolite, and being more compact, has the further advantage of portability. It is supplied with a light round-form mahogany tripod stand with ball and socket head.

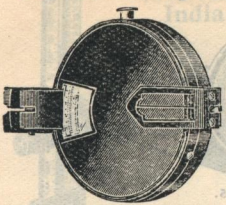
Descriptive pamphlet, with full directions for use, will be forwarded on application.

		£	s.	d.
P850	**Mort Cross Section Clinometer, Type "A," with scale graduated to show difference of Level in feet per Chain** ..	11	0	0
P851	Ditto, Type "B," with the scale showing the difference in per-centages, for use with 100-ft. chain or Metric System	11	0	0

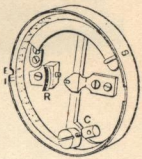
EXTRAS.

	Either of the above can be supplied with a horizontal circle reading to degrees at an extra cost of	1	15	0

Balance Circle and Rule Clinometers.

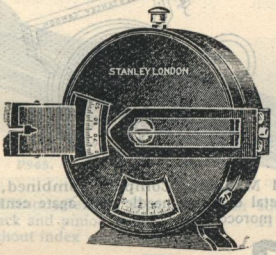


P921 and P922.



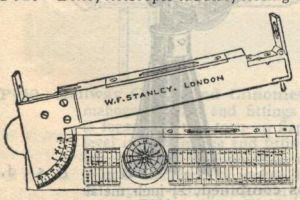
P924.—Interior.

		£	s.	d.
P921	**Clinometer,** Stanley's Balance Circle, 2½-inch card dial, with prism reading and hinged sight, very portable form, in leather sling case	3	0	0
P922	Ditto, with metal dial, for damp or tropical climates	3	10	0
P924	**Watkins' Balance Clinometer,** Government pattern, in leather case	3	0	0

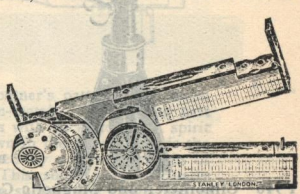


P925.

		£	s.	d.
P925	**Clinometer and Prismatic Compass combined,** Stanley's improved form, prism reading, hinged sight, metal foot, with 2½-inch metal dials, in leather sling case	5	0	0
P927	**Tripod Stand,** for same, with "tumble-over" ball and socket head	2	18	0
P928	Ditto, telescopic tubular, closing to 14 inches, in leather case	3	8	6



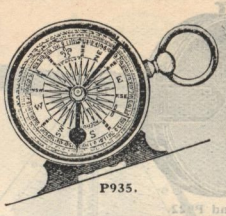
P931.



P932.

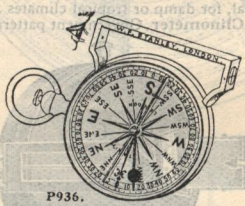
		£	s.	d.
P930	**Clinometer, Rule Form,** 6-inch, boxwood, with spirit level and compass, in morocco case	3	0	0
P931	Ditto, with two spirit levels and sights, as illustrated, in morocco case	4	0	0
P932	Ditto, improved form, best quality, flush-reading arc and gimballed compass, as illustrated, in morocco case	5	5	0

Clinometer Compasses.



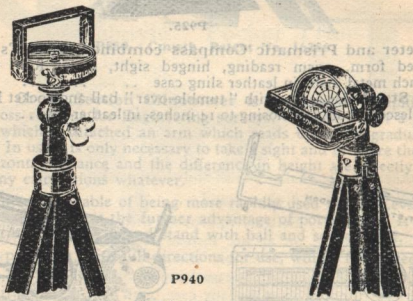
P935.

		£	s.	d.
P935	**Clinometer and Magnetic Compass combined**, watch size, with foot, metal dial, bar needle with agate centre and lifter, brass case with cap		17	6



P936.

		£	s.	d.
P936	**Clinometer and Magnetic Compass combined**, best quality with sight, metal dial, bar needle with agate centre and lifter, stoutly gilt, in morocco case	2	2	0

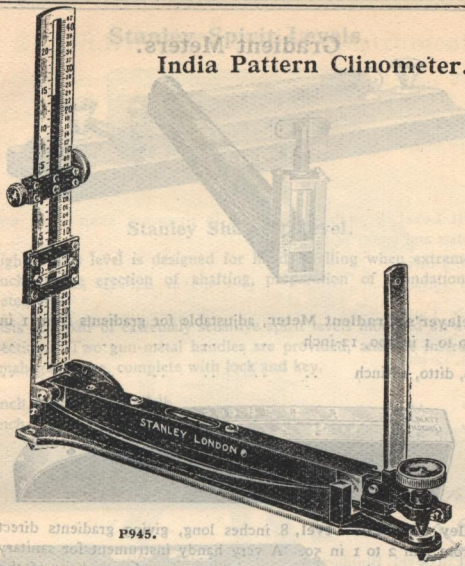


P940

		£	s.	d.
P940	**Clinometer and Magnetic Compass combined**, 2½-inch metal dial, bar needle with agate centre and lifter, hinged sights for taking either horizontal or vertical angles, with telescopic stand, as illustrated, but with round, tubular legs, both in leather cases	4	16	0
P941	Ditto, without stand	1	7	6

For other Magnetic Compasses, see pages 149 to 153; and Prismatic Compasses, pages 148 and 149.

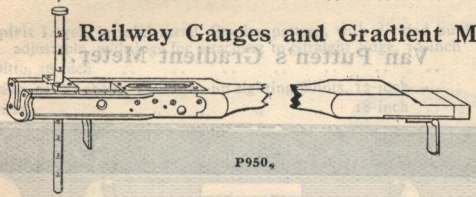
India Pattern Clinometer.



P945.

		£	s.	d.
P945	**India Pattern Clinometer,** as illustrated, with sliding sighting index, with rack and pinion movement	8	0	0
P946	As above, but without index	6	10	0

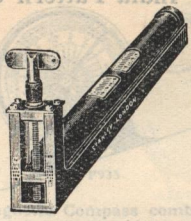
Railway Gauges and Gradient Meter.



P950.

		£	s.	d.
P950	**Railway Gauge and Clinometer,** Footner's pattern, in Spanish mahogany, with end fittings of gun-metal. The gauging part is formed of two turn-up flap pieces with back stops. A spirit level is sunk in the end fitting, shown in the figure towards the left hand. The clinometer is formed by a gun-metal pin of ¼-inch diameter, 9 inches long. This slides perpendicularly in a spring fitting sufficiently stiff to support the gauge, and is made to fall on the centre of the rail. The pin is divided into inches and eighths. When it is out of use it slides up the end of the gauge, and leaves the whole instrument convenient to carry	13	10	0
P951	Light Walking Stick Gauge, folding with spring joint	1	18	0
P952	British Railway Pattern, with graduated Spirit Level, mahogany, with cast end fittings	3	5	0

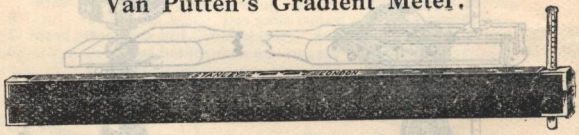
Gradient Meters.



		£	s.	d.
P953	**Platelayer's Gradient Meter,** adjustable for gradients from 1 in 30 to 1 in 200, 12-inch	3	0	0
P954	Ditto, ditto, 18-inch	3	16	0

		£	s.	d.
P960	**Stanley Gradient Level,** 8 inches long, giving gradients direct from 1 in 2 to 1 in 50. A very handy instrument for sanitary inspector and borough surveyor for giving the gradient of the outfall of sewers, etc...	1	5	0

Van Putten's Gradient Meter.

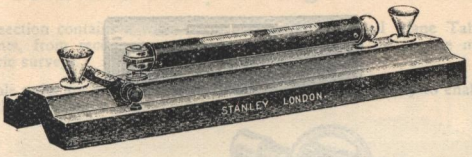


P961 and P962.

Consists of a long spirit level with a slide at one end capable of being fixed in any position by means of a set-screw. This slide is graduated on one side with gradients and on the other with inches and millimetres to show actual rise and fall. Gradients of any pipe, sewer, road or surface can be taken direct without calculations. The slide is adjusted until the bubble is central and clamped. The required gradient is then read off the slide.

		£	s.	d.
P961	4 feet long, showing 54 different gradients from 1 in 8 to 1 in 500 ..	2	15	0
P962	4 feet 10½ inches in length, for ascertaining the super-elevation of rails	3	3	0

Stanley Spirit Levels.



Stanley Shafting Level.

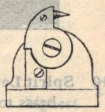
This highest class level is designed for hand levelling when extreme accuracy is required, such as the erection of shafting, preparation of foundations for heavy machinery, etc., etc.

It consists of a pair of extremely sensitive spirit levels mounted on a massive iron base of **V** section. Two gun-metal handles are provided, and the instrument is contained in a mahogany case, complete with lock and key.

		£	s.	d.
P970	12-inch, weight about 7¾ lb.	5	10	0
P971	18-inch, „ „ 18 „	7	5	0

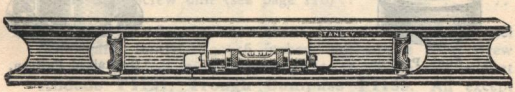
Stanley Mechanics' Levels.

P980 and P981.



Sight of P982 and P983.

		£	s.	d.
P980	Spirit Level, in solid metal, Stanley pattern, with divided bubble, adjustable, with lugs for attaching to Straight Edge, 12-inch ..	1	10	0
P981	Ditto, 18-inch	2	0	0
P982	Ditto, as the above, with turn-up sighting points, 12-inch	2	0	0
P983	Ditto, „ „ „ „ „ 18-inch	2	10	0

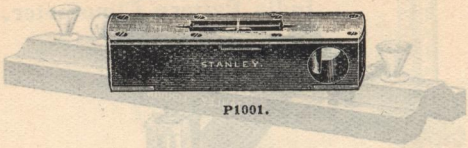


P984 and P986.

Combined Level and Plumb Rule, all metal, nickel plated, with adjustable ground bubbles, one level and two plumbs, with revolving protecting covers. With grooved bottoms for use with shafting.

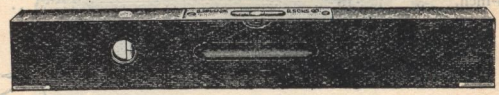
		£	s.	d.
P984	12-inch		18	0
P985	18-inch	1	1	6
P986	24-inch	1	5	0

Spirit Levels (continued).



P1001.

		£	s.	d.
P990	**Spirit Level,** boat-shape, mounted in rosewood, stout brass top plate and under tips, 6-inch		2	9
P991	Ditto, 9-inch		3	6
P992	Ditto, 12-inch		4	6
P1001	**Spirit Level,** with cross bubble, for plumbing, as illustrated, 6-inch		7	6
P1002	Ditto, 12-inch		10	6



		£	s.	d.
P1010	**Spirit Level, Builders',** hardwood stock 3 × ⅞ inches plumbing level, brass top plate, tipped bottoms, 36-inch		10	6
P1011	Ditto, ditto, 42-inch		11	6
P1012	Ditto, ditto, 48-inch		14	0

A.—Sunk Pattern.

B—Raised Pattern.

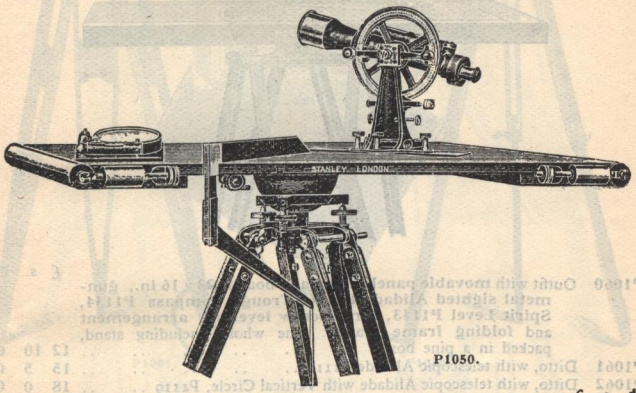
Circular Spirit Levels, mounted in brass cases, drilled with three holes for surface and recessed fittings.

		£	s.	d.
P1020	25-mm. overall, with 18-mm. stem, pattern A		4	6
P1021	28-mm. „ „ 20-mm. „ „ „		4	9
P1022	37-mm. „ „ 28-mm. „ „ „		9	0
P1023	25-mm. „ „ 18-mm. „ „ B		4	6
P1024	28-mm. „ „ 20-mm. „ „ „		4	9
P1025	37-mm. „ „ 28-mm. „ „ „		9	0

STANLEY Plane Tabling Instruments.

This section contains a wide range of apparatus for all Plane Table Surveying requirements, from reconnaissance and exploration work up to the more elaborate tacheometric surveys.

Suitable units are grouped together, and also listed separately to enable purchasers to select their particular requirements.

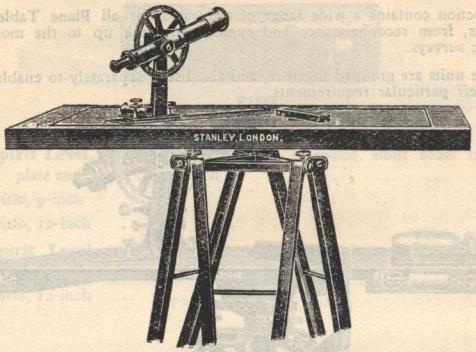


P1050.

		£	s.	d.
P1050	**Plane Table Outfit, highest quality,** comprising a highest quality **mahogany board,** 30×24 inches, fitted with spring roller paper holders and mounted on a ball-joint three-screw levelling unit. A clamp and tangent is provided for orienting the board, and the whole is supported by a solid mahogany framed stand. **Best quality Alidade P1121, Plumbing Bar and Plummet, Circular Compass with cross levels P1137.** All the apparatus, except the stand, is packed in a stained pine box	54	0	0
P1051	The above outfit, but fitted with a Johnson Head Stand in place of the three-screw unit (see page 116)	54	10	0
P1054	**Plane Table Outfit,** similar to above, but with a movable panel **mahogany board,** 23×16 inches, and simple three-screw levelling (no ball joint) orienting motion, clamp and tangent **Alidade P1121, Trough Compass P1135.** All except stand packed in pine case	33	10	0
P1055	Ball and Socket Stand to above, extra	2	10	0
P1056	**Plumbing Bar and Plummet,** extra	1	1	0
P1058	Outfit similar to P1054, but with **Johnson Head Stand** (see page 116)	36	5	0

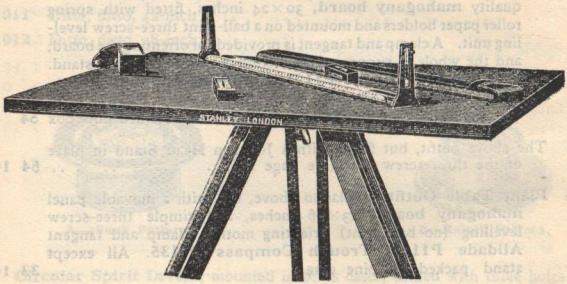
NOTE.—The movable panel board enables the paper to be clamped perfectly flat without the aid of drawing pins.

Plane Tables (continued).



P1061.

		£	s.	d.
P1060	Outfit with movable panel mahogany board, 23×16 in., gun-metal sighted Alidade P1116, Trough Compass P1134, Spirit Level P1143, three-screw levelling arrangement and folding frame stand. The whole, including stand, packed in a pine box	12	10	0
P1061	Ditto, with telescopic Alidade P1118	15	5	0
P1062	Ditto, with telescopic Alidade with Vertical Circle, P1119	18	0	0
P1063	Johnson Head Stand P1091, to any of the above, recommended ..	6	10	0



P1065.

		£	s.	d.
P1065	Simple outfit, comprising a mahogany board, 16×13 in., in canvas case, with Stand P606, boxwood Alidade P1110, Compass P1134 and Spirit Level P1143, in leather case ..	4	10	0
P1066	Ditto, with board 20×15 inches, of superior make, with Stand P1096	7	5	0
P1067	Ditto, with board 30×24 inches, ditto, ditto	10	0	0
P1068	Light folding and sliding Stand P1098, extra	3	0	0
P1069	Johnson Head Stand P1099, extra	5	15	0
P1070	Plumbing Bar and Plummet, extra	1	1	0

Plane Tables (continued).

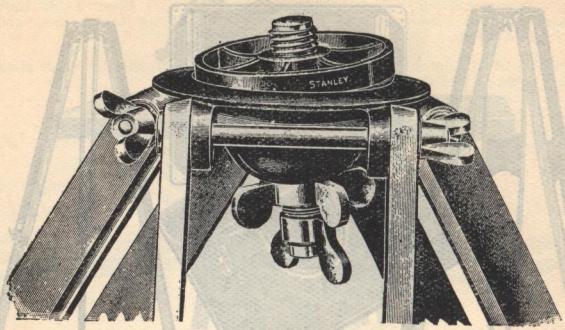
P1081. P1080.

		£	s.	d.
P1080	**Plane Table, Government Portable Pattern,** with sliding leg stand, Sequoia board, 18×18 inches, with **aluminium battens** fitted by an improved method to allow the board to expand and contract with atmospheric changes, aluminium corners and racer ring. Complete in **waterproof case** with **carrying strap, sliding stand** in oiled teak, as illustrated	10	0	0
P1081	**Plane Table, Government R.E. Pattern,** with Sequoia board, 18×18 inches, **aluminium battens** and racer ring, complete with waterproof case and carrying strap, with **oiled teak framed stand,** as illustrated	9	0	0

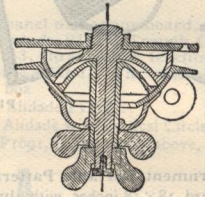
EXTRAS.

P1083	*Larger Board to* P1080 *or* P1081, 24×18 *inches*		15	0
P1084	*Ditto, ditto,* 24×24 *inches*	1	10	0
P1085	*Ditto, ditto,* 30×24 *inches*	2	0	0
P1086	*Johnson Head top, illustrated and described on page* 116 *to stand* P1081	2	15	0
P1087	*Extra stand only as* P1081	3	15	0
P1088	*Ditto, as* P1080	4	15	0

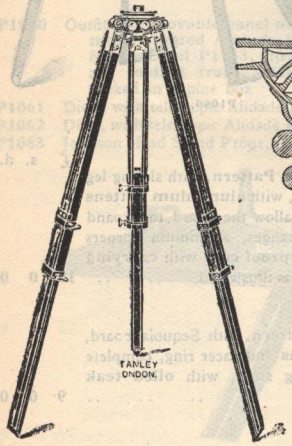
Plane Table Stands with Johnson Head.



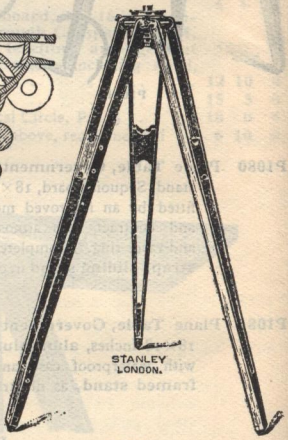
P1091.



Section.



P1093.



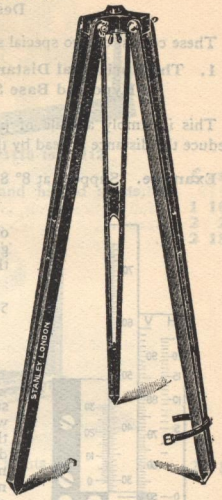
P1091.

The Johnson Head is a very robust and efficient device for levelling and orienting the plane table. It works so smoothly that a clamp and tangent slow-motion device is rendered unnecessary. Separate provision is made to lock the levelling and orienting movements.

		£	s.	d.
P1091	Stand in ash, split-leg type, as illustrated	6	10	0
P1092	R.E. pattern, crutch type, in oiled teak	6	10	0
P1093	Mahogany square-leg sliding stand, very rigid, as illustrated ..	9	5	0

Plane Table Stands.

P1099.



P1096.

		£	s.	d.
P1096	Simple split-leg stand, in ash, with mahogany top	2	10	0
P1098	Folding and sliding ash stand with aluminium top, very portable and very rigid; recommended for reconnaissance and exploration work	5	10	0
P1099	Ditto, with Johnson Head, but not aluminium	8	5	0

Note.—Heads of folding stands, P1098 and P1099, remain screwed to the board during transit.

The Beaman Stadia Arc.

The device known as the Beaman Stadia Arc is really very old, and consists of two auxiliary scales engraved on the vertical arc to resolve the inclined sight of the telescope into its two components, viz., the horizontal distance and difference in vertical height. At one time all theodolites were engraved with such scales, but they fell into disuse until they were revived by Beaman in 1906; since then they have once again become popular, more particularly with regard to plane tabling.

For Telegraphic Code see end of catalogue.

The Beaman Arc (continued).

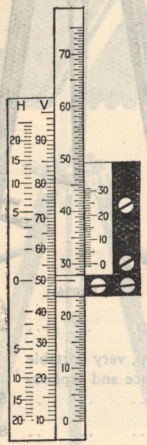
Description of Scales.

These consist of two special scales auxiliary to the usual scale of degrees, viz. :—

1. The Horizontal Distance Scale or, as it is sometimes called, the Difference of Hypo and Base Scale (H scale).

This is simply a scale of percentage corrections (always subtractive) necessary to reduce the distance as read by the stadia to true horizontal distance.

Example. Suppose at 8° 8′ the observed stadia interval to be 5.80 (580 feet).



Illustrations of Scales on P1130.

To obtain the true horizontal distance from the observed distance, the Diff. of Hypo and Base scale gives the percentage correction. At the above setting this scale will read 2 or 2%.

2% of 580 feet=11.6 feet.

580 − 11.6=568.4 feet, the true horizontal distance.

2. The Difference in Vertical Height Scale (V scale).

In using the difference of vertical height scale, only such inclinations of the telescope are used as will give a whole number scale reading, while the fractional part of the elevation is determined by the reading of the central diaphragm line on the staff. To obtain the desired multiple: Sight anywhere on the staff—it does not matter where—so that a whole number reading is obtained on the difference in vertical height scale, which is direct reading to indicate whether the telescope is elevated or depressed and has its zero numbered 50, therefore 50 has to be subtracted from the reading and the algebraic remainder used as the principle.

As an example, suppose the observed stadia interval to be 5.80 (580 feet) and to obtain a whole number for the vertical scale reading, the telescope is inclined so that the index line reads 64, at which setting the centre line of the diaphragm reads, say, 6.20 on the staff, then

64 − 50 = + 14.

14 × 5.8 = 81.2.

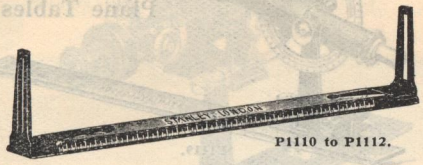
Therefore, the difference in elevation between the instrument and the base of the staff is :—

81.2 − 6.2 = 75 feet.

The Alidade (P1130) is divided to read angles of 30° elevation and 30° depression, and is figured from 0 at the bottom to 60° at the top, consequently when the telescope is level the vernier reads 30°. By figuring the arc in this manner it is at once seen whether a reading is plus or minus (up or down). This means that 30° must be deducted from all readings; thus, a reading of 45° less 30 would be plus 15. A reading of 15° less 30 would be minus 15, and so on. This is a practice that is quite familiar to most plane-table users.

	£ s. d.
P1100 Alidades with vertical circles which are not divided with Beaman Arc Scales in addition to the scale of degrees can be so divided at an increase in cost of	3 0 0

Alidades for Plane Tables.



P1110 to P1112.

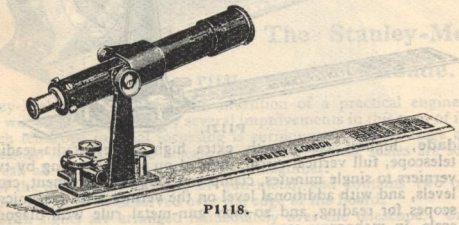
		£	s.	d.
P1110	Alidade, 12-inch, boxwood, with scales and hinged sights, in leather case	1	16	6
P1111	18-inch ditto	2	2	0
P1112	24-inch ditto	2	15	0

P1114.

P1114 **Alidade**, Col. Goulier's model, 8-inch, with sights **2 5 0**

P1116.

P1116 **Alidade**, gun-metal, 20-inch, with diagonal scale and detachable sights, in mahogany case **4 10 0**

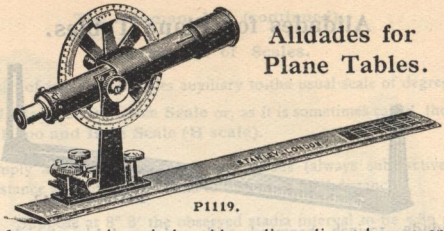


P1118.

P1118 **Alidade**, gun-metal, with stadia-reading telescope, cross levels and diagonal scale, in mahogany case **7 10 0**

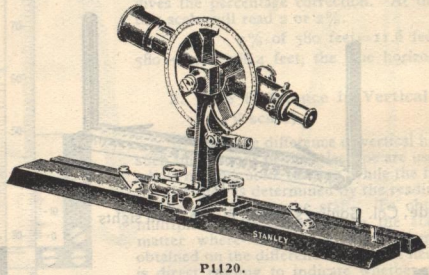
For Telegraphic Code see end of catalogue.

Alidades for Plane Tables.



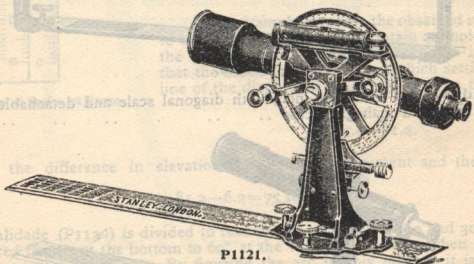
P1119.

		£	s.	d.
P1119	**Alidade,** gun-metal, 20-inch, with stadia-reading telescope and full vertical circle, cross levels and diagonal scale, in mahogany case	10	0	0



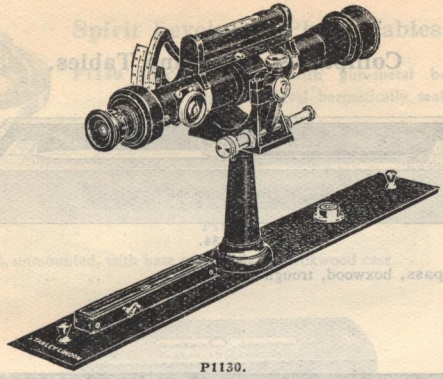
P1120.

P1120	**Alidade,** brass base with parallel bar, 18-inch, with gun-metal uprights and stadia-reading telescope, full vertical circle and clamp and tangent, cross levels and mahogany case	15	0	0



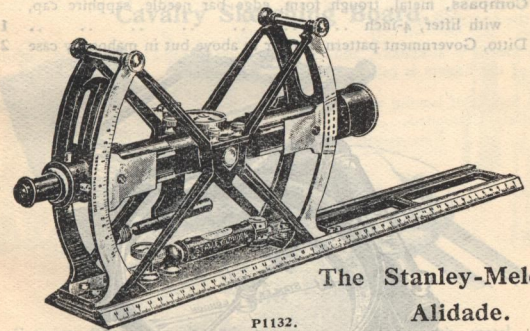
P1121.

P1121	**Alidade,** highest class, with extra high power stadia-reading telescope, full vertical circle, divided on silver, reading by two verniers to single minutes, clamp and tangent adjustment, cross levels, and with additional level on the vernier arms and micro-scopes for reading, and 20-inch gun-metal rule with diagonal scale, in mahogany case	27	10	0
P1122	Any of the above can be supplied with internal focussing telescope at an extra cost of	2	0	0



P1130.

		£	s.	d.
P1130	**The New Stanley Pillar Type Telescopic Alidade,** with 11-inch internal focussing telescope, Beaman Arc, detachable level, gun-metal straight edge and revolvable telescope for instantly checking the adjustments (see page 72). An instrument greatly favoured by oil prospectors	28	10	0
P1131	**Fixed Reader** with adjustable arm for reading the vernier in place of loose magnifier, extra	1	0	0



P1132.

The Stanley-Meldrum Alidade.

The Stanley-Meldrum Alidade is the invention of a practical engineer of long experience, and will be found to embody several improvements in this type of instrument.

The 12-inch telescope internal focussing is surmounted by four large arcs, which bear the two Beaman Arc scales and a scale of degrees. These scales are so large and open that they can all be read with ease without magnifier.

The base of the instrument is made of gun-metal, and contains two openings to enable precipitous angles to be observed over the edge of the board.

A pair of open sights are arranged immediately over the telescope. Can be used either topographically from a triangulated framework, or tacheometrically with staves for large-scale work over local areas.

		£	s.	d.
P1132	Instrument complete, in mahogany case	30	0	0

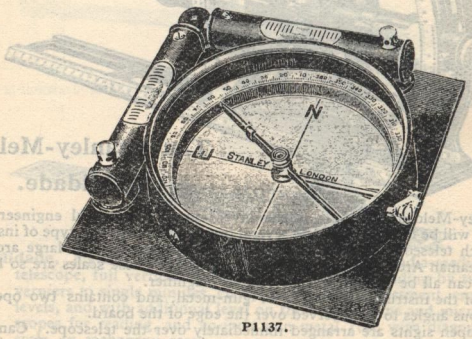
Compasses for Plane Tables.

P1134.

		£	s.	d.
P1134	**Compass,** boxwood, trough form, 4-inch		16	6

P1135.

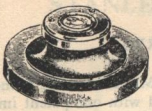
P1135	**Compass,** metal, trough form, edge bar needle, sapphire cap, with lifter, 4-inch	1	16	6
P1136	Ditto, Government pattern, similar to above but in mahogany case	2	5	0



P1137.

P1137	**Plane Table Compass,** circular, with cross bubbles, 3-inch bar needle, complete in leather case	3	15	0

Spirit Levels for Plane Tables.



P1140.

		£	s.	d.
P1140	Circular Level, with gun-metal base, carrying spirit level hermetically sealed, in case		12	6

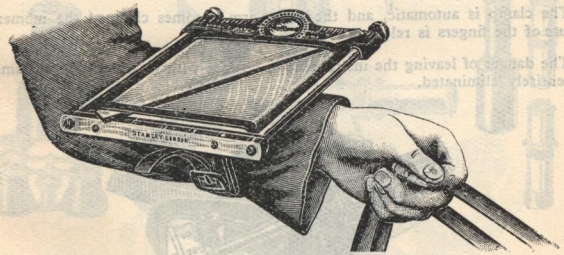
P1141.

P1141	Plain, unmounted, with base ground flat, in boxwood case		7	0

P1143.

P1143	Ditto, mahogany, with brass plate top, 4-inch		3	6

Cavalry Sketching Board.



P1145.

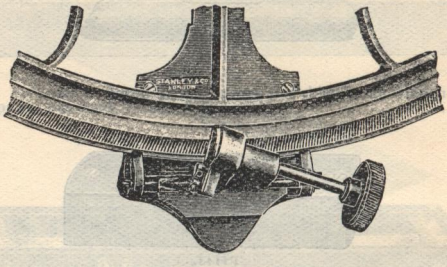
P1145	Cavalry Sketching Board, size $7\frac{1}{2} \times 5$ inches, with metal clinometer reading to single degrees, magnetic compass with bar needle, agate centre and revolving direction indicator, boxwood rule with rubber bands, and brass friction rollers for holding the paper. The edge of the board is divided with a scale of millimetres. The board is attached to the user's arm by means of a leather strap mounted on centre, which permits its being revolved to any bearing		3	0	0

For Telegraphic Code see end of catalogue.

STANLEY SEXTANTS.

SOME NEW AND EXCLUSIVE FEATURES.

Numerous modifications and improvements in our **Sextant Models** will be found in this section. The majority of our Sextants are now equipped with our patent improved endless tangent. A series of micrometer instruments has also been added.

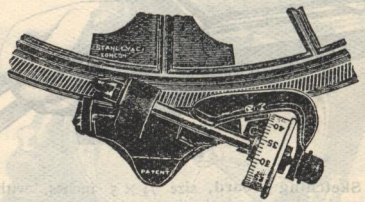


Endless Tangent Screw (Patent).

With latest patented refinements. The method by which the tangent screw engages the teeth is such that absolutely **no pull or pressure is applied to the centre axis of the instrument.**

The clamp is automatic, and the index arm becomes clamped the moment the pressure of the fingers is released.

The danger of leaving the instrument in its case with its index arm unclamped is thus entirely eliminated.

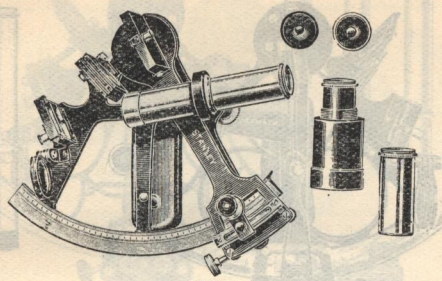


The Rapid-Reader Micrometer Tangent Screw (Patent).

This exerts no pull on the axis. The micrometer is easily manipulated and clamps automatically when released. The dividing of arc and micrometer head is so legible that it can be read at arm's length.

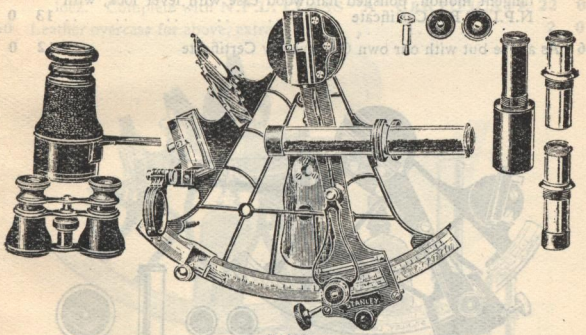
It is so accurate that it obtains N.P.L. CLASS "A" CERTIFICATES, the highest standard for accuracy.

STANLEY NAUTICAL AND SURVEYING SEXTANTS.



P1150.

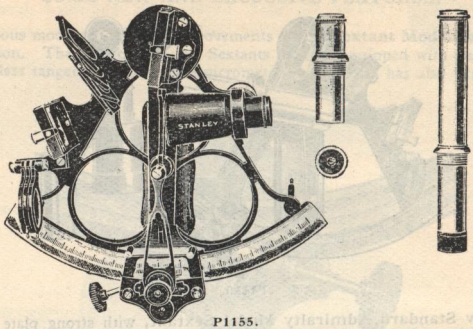
		£	s.	d.
P1150	**New Standard Admiralty Model Sextant,** with strong plate pattern frame and normal angle member, 6½-inch radius divided on silver to 140° of arc, reading by vernier to 12 seconds. Admiralty standard-size index and horizon mirrors, six neutral tint shades, full set of special telescopes to Admiralty specification, complete with N.P.L. CLASS "A" CERTIFICATE. In polished hardwood case..	16	0	0



P1152.

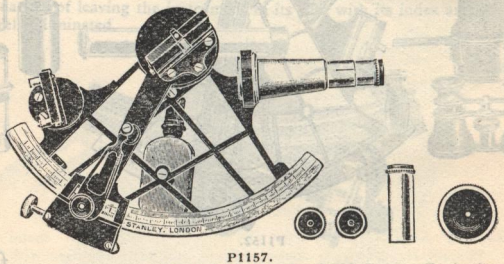
		£	s.	d.
P1152	**Stanley's Day and Night Sextant,** 8-inch radius, divided on silver to 150° of arc, reading by vernier to 10 seconds, extra large index and horizon mirrors, extra large neutral tint shades, cylindrical (elongating) lens to facilitate star observations, endless tangent motion and automatic clamp, telescopes with interrupted thread, sighting tube, and binoculars, two conically-fitted eye-shades. Complete with N.P.L. CLASS "A" CERTIFICATE, in polished hardwood case, and leather overcase ..	33	0	0
P1153	Ditto, ditto, without leather overcase	31	0	0

Nautical or Surveying Sextants.



P1155.

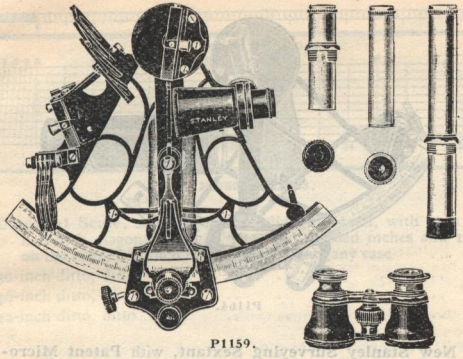
		£	s.	d.
P1155	**Stanley's No. 36E "Three Circle" Mate's Sextant,** 6½-inch radius, divided on silver to 150° of arc, reading by vernier to 10 seconds. **Accessories:** Inverting Achromatic Telescope, power ×6, star telescope, sight tube and one eye-shade, endless tangent motion, polished hardwood case with lever lock, with N.P.L. "B" Certificate	13	0	0
P1156	As above but with our own Observatory Certificate	12	0	0



P1157.

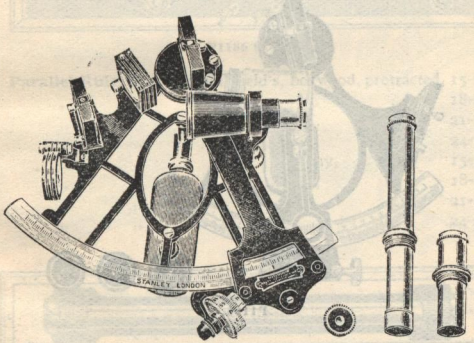
P1157	**Stanley's Sounding Sextant,** 6-in. radius, divided on silver to 150°, reading by vernier to 20 seconds, with best quality mirrors and capped adjustments. **Accessories:** Conical Achromatic Star Telescope, two eye-shades and sighting head. Complete in case, uncertified	10	5	6
	Additional high-power draw to telescope, extra		14	0
	If with Patent Endless Tangent Motion, extra	1	16	0

Nautical or Surveying Sextants.



P1159.

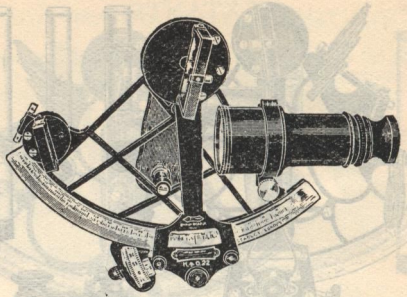
		£	s.	d.
P1159	**The Stanley Mark 3E "Bell" Sextant,** 7-inch radius, divided on silver to 150° and reading by vernier to 10 seconds. **Accessories:** Star Telescope, power ×3, Inverting Achromatic Telescope, powers ×6 and ×10, sighting tube, star binoculars and two eye-shades, with endless tangent motion, and packed in hardwood case polished inside and out, with lever lock. Complete with **N.P.L. CLASS "A" CERTIFICATE**	22	0	0
P1160	Leather overcase for above, extra	2	0	0



P1161.

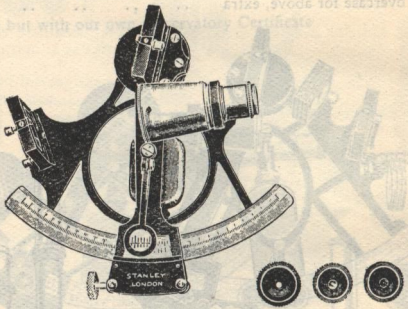
P1161	**The Stanley 150 Oval Sextant,** 7-inch radius, crystalline finish, with **Patent Micrometer Rapid-Reader Tangent Screw** (see page 124), divided on silver to single degrees of arc, and reading by micrometer to 10 seconds. **Accessories:** Conical Star Telescope, sighting tube, eye-shade. Complete in case	16	0	0
P1162	**Inverting Achromatic Telescope,** power ×6, as illustrated, extra	15	0	

Surveying Sextants.



P1164.

		£	s.	d.
P1164	**The New Stanley Surveying Sextant,** with **Patent Micrometer Rapid Reader,** 6-inch radius, divided on silver to 150° of arc, and reading by micrometer to 10 seconds, with 21-line O.G., Star Telescope ×5, latest Admiralty pattern. Complete in polished case (no certificate)	21	0	0

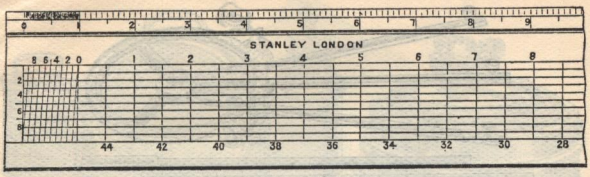


P1166.

P1166	**The Stanley Surveying or Traveller's Sextant,** 5-inch radius, divided on silver to 150° of arc and reading by vernier to 20 seconds, spring tangent adjustment. **Accessories :** Conical Star Telescope, two eye-shades, sighting head, spare index and horizon glasses (in small box), and screwdriver. Complete in polished case (no certificate)	10	0	0

For Telegraphic Code see end of catalogue.

Diagonal Scales.



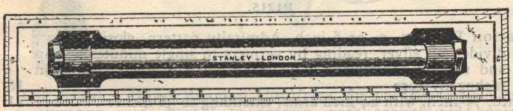
P1180 to P1183.

		£	s.	d.
P1180	Diagonal Scale, 24-inch, heavy solid gun-metal, with inch and half-inch diagonal scale on face, and divided inches and 10ths on the edge, first inch in 100ths, in mahogany case	5	10	0
P1181	30-inch ditto, ditto	6	0	0
P1182	36-inch ditto, ditto	6	10	0
P1183	42-inch ditto, ditto	7	10	0

Nautical or Chart Parallel Rules.

P1186 to P1193.

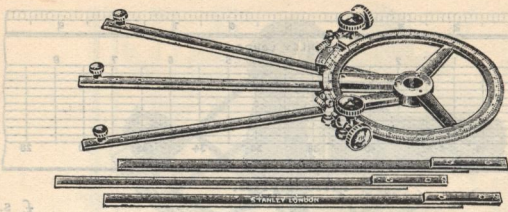
P1186	Parallel Rule, Bar, Captain Field's, boxwood, protracted, 15-inch						10	0
P1187	,,	,,	,,	,,	,,	18-inch	11	0
P1188	,,	,,	,,	,,	,,	21-inch	14	0
P1189	,,	,,	,,	,,	,,	24-inch	16	0
P1190	,,	,,	,,	ebony,	,,	15-inch	11	0
P1191	,,	,,	,,	,,	,,	18-inch	12	0
P1192	,,	,,	,,	,,	,,	21-inch	16	0
P1193	,,	,,	,,	,,	,,	24-inch	18	0



P1196.

P1196	Parallel Rule, Rolling, Admiralty pattern, 18-inch, with protracted transparent celluloid base and gun-metal bridge, as illustrated, in mahogany case	3	0	0
P1198	Chart Dividers, single handed, electrum, 6-inch		8	0

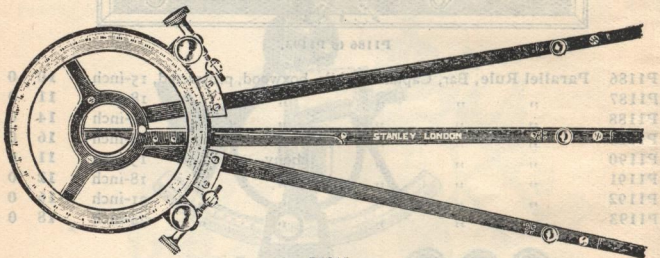
Station Pointers.



P1200.

		£	s.	d.
P1200	**Station Pointer,** 6-inch, gun-metal, engine-divided on silver, with two verniers reading to single minutes, clamp and tangent adjustments, with arms lengthening to 24 inches, in mahogany case	19	10	0
P1201	Ditto, 8-inch, with 24-inch arms, extending to 36 inches	24	0	0
P1202	Ditto, 10-inch, ditto, ditto	27	0	0
P1206	Ditto, as P1200, but divided on gun-metal and without the tangent adjustment to the clamps	13	10	0
P1207	Ditto, ditto, with 12-inch arms	12	0	0
P1208	**Six-inch Circle Transparent Station Pointer,** divided to degrees, reading to half-degrees, with centre pricker, 14-inch arms, complete in polished case	6	15	0
P1209	Second quality ditto, divided to degrees, with 14-inch arms	2	12	6

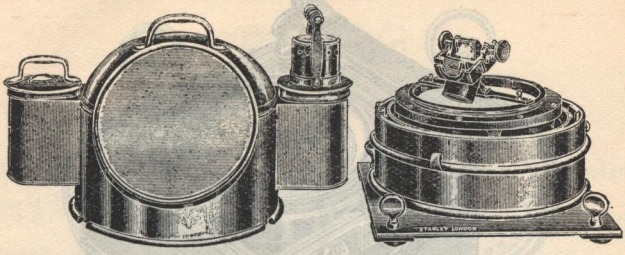
Admiralty Pattern Station Pointers.



P1215.

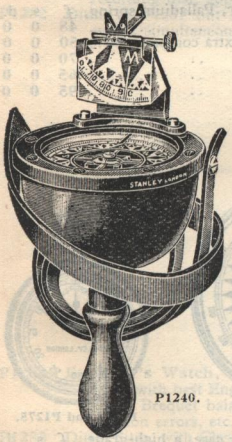
		£	s.	d.
P1215	**Station Pointer,** 5- or 6-inch, Admiralty pattern, closing to 3", divided on silver, reading by verniers to single minutes, clamp and tangent adjustment, with extension bars to 24 inches, in mahogany case	18	0	0
P1216	Ditto, 7½-inch, with 24-inch arms, extending to 36 inches	21	0	0
P1220	Ditto, 5- or 6-inch, as P1215, but divided on gun-metal to half-degrees, with index in place of verniers, without tangent screws, in mahogany case	13	10	0
P1221	Ditto, 7½-inch, with 24-inch arms, extending to 36 inches	16	0	0
	Also made left-handed, instead of right-handed, at the same prices.			
P1222	**Station Pointer, Cust's,** transparent celluloid, 7-inch		10	6

Binnacles and Compasses.

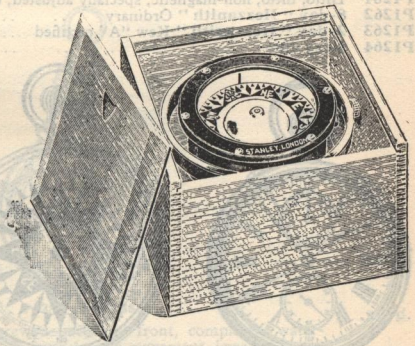


P1229.

		£	s.	d.
P1229	**Best Quality Brass Boat Binnacle**, with 6-inch bowl, "Free Action" Liquid Compass, and with prism card magnifier, two lamps in top (one oil and one electric, with dimmer)	13	13	0
P1230	**Polished Brass Round Boat Binnacle**, with one lamp, removable top and liquid compass, 4-inch	4	19	6
P1231	Ditto, with 5-inch compass	5	14	6
P1232	Ditto, with 6-inch compass	6	9	6



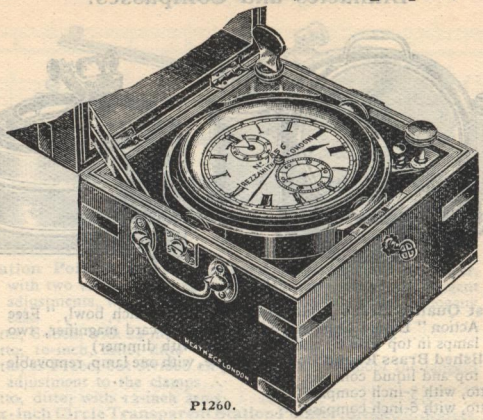
P1240.



P1246.

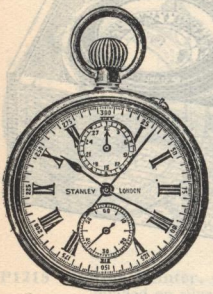
		£	s.	d.
P1240	**The Stanley Hand Bearing Compass**, for yachtsmen, 3-inch compass card divided to degrees, with special wide-angle magnified prism reading. Card, lubber line and bearing sight are illuminated with radio active paint. Packed in case, ready for instant use, complete with neck strap..	8	0	0
P1241	Ditto, ditto, with black radium painted card, in polished case ..	9	0	0
P1246	**Liquid Boat Compass**, with 4-inch card, mounted on gimbals, in slide lid oak case	2	0	0

Chronometers, Watches, Chronographs, Etc.



P1260.

		£	s.	d.
P1260	**2-day "Hezzanith" Marine Chronometer,** Palladium spring, plain balance	48	0	0
P1261	Ditto, ditto, non-magnetic, specially adjusted, extra compensated	50	0	0
P1262	8-day "Hezzanith" Ordinary	70	0	0
P1263	2-day "Hezzanith" Kew "A" certified	65	0	0
P1264	8-day ditto	95	0	0



P1270.

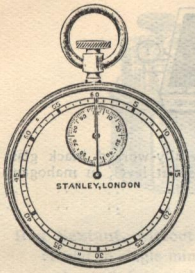
P1276.

P1274 and P1275.

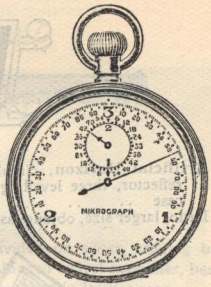
		£	s.	d.
P1270	**Surveyor's Keyless Chronograph,** in silver case, a high-grade instrument, Swiss movement	6	5	0
P1271	Ditto, ditto, in nickel case	4	10	0
P1274	**Stop Watch,** to register 1/5th of a second up to 30 minutes, nickel case, with continuous-action Swiss movement	3	15	0
P1275	Ditto, second quality, in nickel case (not continuous)	1	15	0
P1276	**Wireless Timer,** for obtaining bearings from rotating wireless signals, Swiss movement	2	12	6

For Electric Chronograph, see page 47.

Engineers' and Surveyors' Watches.

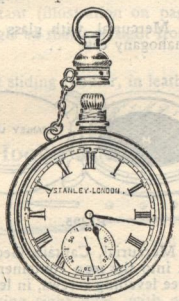


P1280.



P1281.

		£	s.	d.
P1280	**Time-of-Flight Watch,** Government pattern, for timing projectiles, star observation, etc., recording to 1/100th second, in special heavy case	50	0	0
P1281	Ditto, Swiss manufacture, usual watch form, with high-grade movement, 1/100th second fly-back action and 2-minute recording dial, approximately 2-inch diameter	9	15	0
P1282	Ditto, as P1281 but split seconds (two hands) for timing two events simultaneously	13	0	0

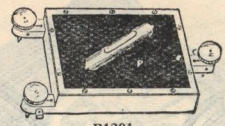


P1284 and P1285.

		£	s.	d.
P1284	**Explorer's Watch,** screwed back and front, completely watertight, with best English lever ¾-plate movement, jewelled in ten holes, Brequet balance springs, compensated and adjusted for position errors, etc.	45	0	0
P1285	Ditto, ditto, with Class "A" Kew Certificate	52	0	0
P1286	**Explorer's Watch,** in English-made case, as P1284, but with best quality Swiss bar movement, fully jewelled, compensated and adjusted for position errors	37	10	0
P1287	Ditto, ditto, with Class "A" Kew Certificate	44	10	0
P1288	**Watch,** reliable, in rolled gold open-face case	3	12	6
P1289	Ditto, in hunter case	4	10	0

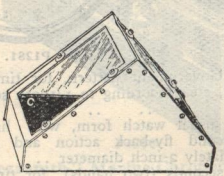
Other Gold and Silver Watches of the highest class, with or without Kew Certificates, to order. Railway, Turret and other Clocks to order.

Artificial Horizons.



P1291.

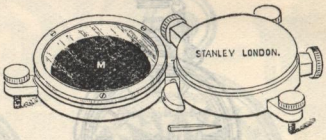
		£	s.	d.
P1290	**Artificial Horizon,** circular, with carefully-worked black glass reflector, three levelling screws and spirit level, in mahogany case	3	10	0
P1291	Ditto, larger size, oblong, as illustrated	4	10	6



P1293.

Sectional View of Mercury Bottle.

P1293	**Artificial Horizon,** Mercurial, with glass roof, iron bottle for mercury, etc., in mahogany case	7	10	0



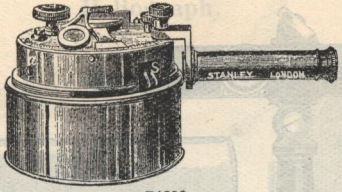
P1295.

P1295	**Artificial Horizon,** Mercurial, Captain George's, in which the mercury falls back into the iron container, and is not exposed to the air, with three levelling screws, in leather sling case ..	11	10	0

P1296.

P1296	**Artificial Horizon,** Mercurial, Stanley's improved form, in which the container is beneath the horizon box, making the instrument lighter and about half the size of the usual Captain George pattern, in leather sling case	6	6	0

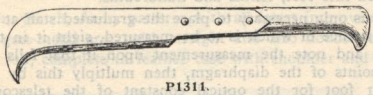
Box Sextants.



P1298.

		£	s.	d.
P1297	**Box Sextant,** without telescope, divided on silver, reading by vernier to single minutes to 120°, hinged swivel magnifier, best make, with first quality mirrors, complete in leather case ..	7	0	0
P1298	Ditto, as illustrated, with detachable telescope, dark sun-glass and two tinted shades, in sling leather case (recommended as the most useful instrument for general work)	7	15	0
P1299	**Box Sextant,** extra large, 4-inch size, reading to minutes, with double-draw telescope of 1-inch aperture and × 2½ magnification, giving twice the field of the above, complete in leather sling case	13	10	0
P1300	**Stand** for box sextant (illustration on page 93, P610), with top to set at any angle so that any sight from horizontal to vertical may be taken	2	18	0
P1301	Ditto, as above, but sliding tubular, in leather case (as P608) ..	3	8	6

Bill Hooks and Felling Axes.

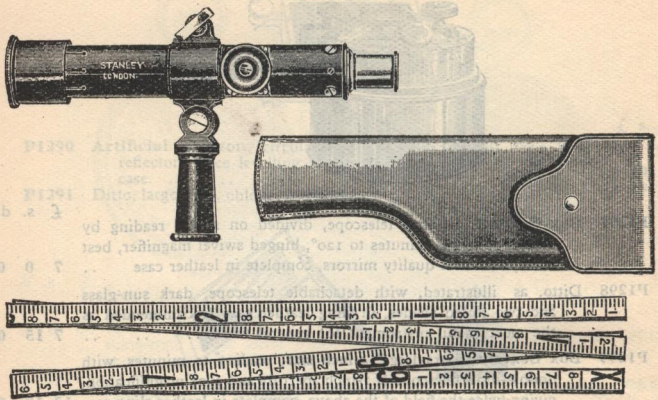


P1311.

		£	s.	d.
P1310	**Machete,** for clearing sight lines, with 20-inch steel blade and wood handle. Per doz.	1	5	0
P1311	**Bill Hook,** best quality, tempered steel blade, 8-inch. Per doz. ..	1	17	6
P1312	Ditto, 12-inch. Per doz.	2	17	6
P1313	**Felling Axe,** 3½-lb.. American pattern, with hickory handle. Per doz.	4	4	0
P1314	Ditto, 4½-lb. Per doz...	4	10	0
P1315	**Pioneer's Whistle,** very powerful, for signalling. Each		2	0
P1316	Ditto, double ended, two-note. Each		4	6
P1317	**Snake Lancets,** with wooden handle, containing permanganate of potash. Each		1	3

Subtense Telemeter.

(DISTANCE-MEASURING TELESCOPE.)

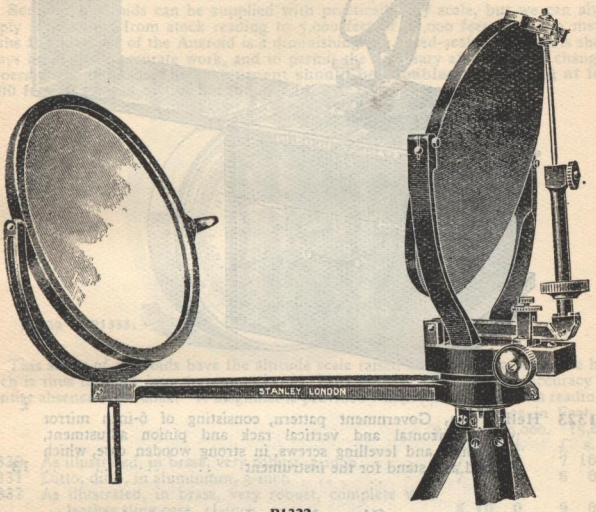


P1320.

		£	s.	d.
P1320	**Subtense Telemeter.** A convenient and accurate instrument for measuring distances without the use of a measuring chain. It consists primarily of a good 8-inch telescope with rack and pinion focussing, fitted with a diaphragm carrying two sharply-pointed indices. These are fitted at such a distance apart that the space observed between them upon a staff is always 1/100th of the distance it is away. The staff supplied with the instrument is 10 feet in length with four folds, for portability. It is divided into feet, tenths and hundredths. In use it is only necessary to place the graduated staff at the spot the distance of which is to be measured, sight it in the telescope and note the measurement upon it that falls between the points of the diaphragm, then multiply this by 100 and add 1 foot for the optical constant of the telescope. For instance, if 1 foot, 7 tenths and 2 hundredths are observed, the distance indicated is 172 feet + 1 foot for the optical constant, making altogether 173 feet. The telescope may be revolved so as to sight a staff held either vertically, horizontally or in an inclined position. The telescope is fitted with socket to fit on a Jacob Staff or wood stick and is supplied in leather case with loop for carrying on belt. Complete, with 10-foot reading staff	8	8	0
P1321	Jointed Jacob Staff, for above		9	6

For measurement of horizontal distances upon sloping ground, a clinometer is required for ascertaining the inclination of the sights. P922, *on page 107 is recommended for this purpose.*

Heliograph.



P1322.

		£	s.	d.
P1322	Heliograph, 5-inch, Army pattern, with all latest improvements, straight gun-metal arm, with straight and also double-jointed sighting rod, complete in leather case with shoulder and waist straps.			
	Spare parts, consisting of duplex mirror and signalling mirrors in aluminium boxes, adjusting screw for key bridge with safety screw and milled lock-nut, mirror springs, key springs, and adjusting tool, etc., are supplied.			
	Complete, with mahogany tripod stand	21	0	0

For Telegraphic Code see end of catalogue.

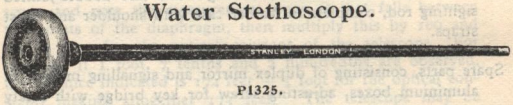
P1323.

		£	s.	d.
P1323	**Heliotrope,** Government pattern, consisting of 6-inch mirror with horizontal and vertical rack and pinion adjustment, sight hole and levelling screws, in strong wooden case, which is used as a stand for the instrument	13	0	0

Signalling Lamp.

P1324	**Signalling Lamp,** Morse code, japanned, for colza oil, B.O.T. pattern, with dark shutter and prismatic lens	2	10	0

Water Stethoscope.



P1325.

		£	s.	d.
P1325	**Water Stethoscope.** Used by various companies for detecting leakage or waste of water. The instrument consists of a stick carrying a sound box at the top. In use, the lower end of the stick is placed on the water pipe or main, and any flow of water may be detected by placing the ear to the sound box. For portability the top can be unscrewed and carried in the pocket and the remainder used as a walking stick	1	7	6

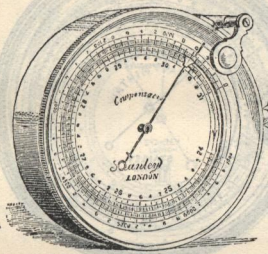
Geologists' Hammers.

Geologists' Hammers of all shapes and weights supplied to order.

Surveyors' Aneroid Barometers.

Customers are reminded that **all our Aneroids are made in our Meteorological Works at Hatton Garden, where we have been established for over 80 years.** During that time we have supplied instruments to many eminent explorers and reconnaissance parties, which have been the subject of very favourable comment.

Scales. Aneroids can be supplied with practically any scale, but we can always supply instruments from stock reading to 5,000 feet or 10,000 feet, or 3,000 metres. As the altitude scale of the Aneroid is a diminishing one, fixed-scale instruments should always be used for accurate work, and to permit the necessary allowance for change in temperature to be made, **the instrument should be capable of recording at least 2,000 feet in excess of the height at which it is to be used.**

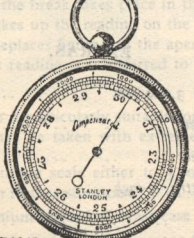


P1330 to P1333.

This series of Aneroids have the altitude scale raised and an indicator on the hand which is thus brought into the same plane. The result is an increase in accuracy due to entire absence of parallax. A magnifier is provided which further facilitates reading.

		Range in Feet. 5,000 or 10,000. £ s. d.	15,000 £ s. d.
P1330	As illustrated, in brass, very robust, 3-inch	7 0 0	7 10 0
P1331	Ditto, ditto, in aluminium, 3-inch	7 10 0	8 0 0
P1332	As illustrated, in brass, very robust, complete with leather sling case, 4½-inch	8 10 0	9 0 0
P1333	Ditto, ditto, in aluminium, 4½-inch	9 0 0	9 10 0
	Any of the above with altitude scale up to 3,000 feet only, extra		7 6

All above Aneroids are supplied in sling leather cases.

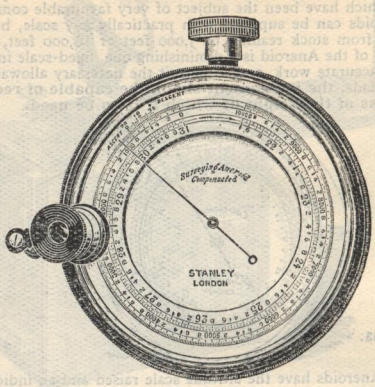


P1340.

		Range in Feet. 5,000 or 10,000 £ s. d.	15,000 £ s. d.
P1340	**Aneroid Barometer** similar to P1330, 3-inch series, but with a flush face and without reader, 3-inch, in brass, in morocco case	5 10 0	5 17 6

Any of the above can be supplied with equivalent metre scale without extra charge.

Surveyors' Aneroid Barometers, with Vernier Scale.



P1350.

		£	s.	d.
P1350	**Stanley High-grade Surveying Aneroid**, 5-inch, with altitude scale up to either 5,000 or 10,000 feet, silvered metal dial, rack operated vernier reading to single feet, reading microscope on revolving mount, complete in sling leather case	10	10	0
P1351	Ditto, ditto, 3-inch, reading to 2 feet	9	0	0

Altitude Scale arranged for mining, 4,000 feet above and 2,000 feet below sea level, at the same price.

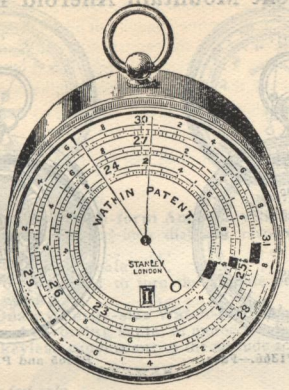
EXTRAS.

		£	s.	d.
P1352	*Altitude Scale up to 3,000 feet*		7	6
P1353	*Ditto, up to 15,000 feet*		15	0
P1354	*Ditto, up to 20,000 feet*	1	10	0
P1355	*Aluminium Cases, extra, 5-inch*	1	0	0
P1356	*Ditto, extra, 3-inch*		14	0

Any of the above Aneroids can be supplied with corresponding metric scales without extra charge.

See Note on Scales, page 139.

Surveyors' Aneroid Barometers.



P1360.

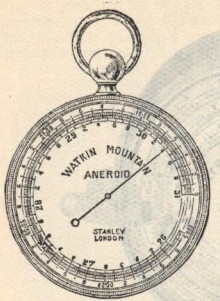
This instrument is the invention of Colonel H. S. Watkin, C.B., R.A. (the inventor of the range finder and many other instruments adopted by the English War Office), and has a very extended reading, consisting of three complete circles, in place of the usual single scale, with a hand or pointer sufficiently long to extend across them all. In order to show clearly which circle of scales should be read, there is an indicator attached to the movement of the instrument which causes a series of figures (I, II, III, corresponding with the three circles) to be exhibited through an aperture in the dial. For instance, when the instrument is in its normal state, the hand will point to the first, or outer circle, and the figure I will appear and remain in the aperture until the barometer falls to 27.8, where the break takes place in the circle, as will be seen in the illustration. The hand then takes up the reading on the second circle (where the break appears at 27.8) and figure II replaces figure I in the aperture, remaining there until the barometer falls to 25, when the reading is transferred to the third circle, and figure III appears in the aperture.

Its very open scale renders it particularly suitable for surveying, and the instrument is so sensitive that readings may be taken with extreme accuracy.

		£	s.	d.
P1360	Size 4½-inch, with altitude scale either to 5,000 feet, 10,000 feet, or 3,000 metres, in leather sling case	10	10	0
P1361	Ditto, light, in aluminium instead of brass case	11	0	0
P1362	As P1360, but with scale to 15,000 feet, 20,000 feet, or 5,000 metres	12	0	0
P1363	Ditto, in aluminium case	12	10	0

See Note on Scales, page 139.

Watkin Patent Mountain Aneroid Barometer.



P1365 and P1366.—Face.

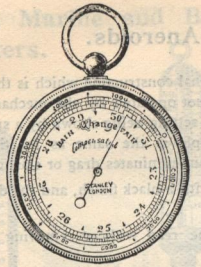
P1365 and P1366.—Back.

This instrument, of which both a front and back view is shown above, is the invention of Colonel H. S. Watkin. The special feature is that it can be put in and out of action as required, and when out of action is absolutely impervious to the influence of variations in atmospheric pressure. This relieves the strain on the mechanism of the aneroid, as it is only put into action when a reading is required. The lower portion of the vacuum-box, instead of being a fixture (as is the case with ordinary instruments) is allowed to rise, which is effected by attaching to the lower portion of the vacuum-box a screw arrangement, actuated by a fly-nut on the outside of the case. Under ordinary conditions this screw is released, and the vacuum-box put out of strain. When a reading is required, the fly-nut is screwed up as far as it will go, thus bringing the instrument into the normal condition in which it was graduated.

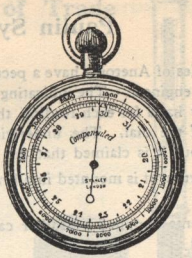
It has an aluminium case for lightness, is made in two sizes (3-inch and 4½-inch), and has a sling leather case.

		£	s.	d.
P1365	With altitude scale either to 5,000 feet, 10,000 feet, or 3,000 metres	12	0	0
P1366	With altitude scale either to 15,000 feet, 20,000 feet, or 5,000 metres	12	10	0

See Note on Scales, page 139.



P1370.

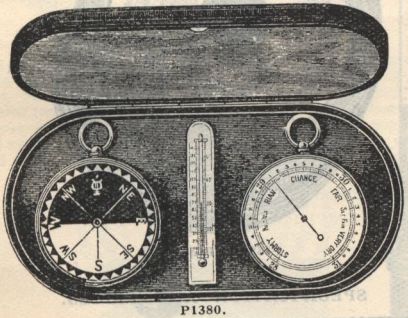


P1372.

		£	s.	d.
P1370	**Stanley Best Quality Watch-form Aneroid,** with fixed scale up to 5,000 or 10,000 feet, 1¾-inch dial and revolving pointer, complete in morocco case	3	0	0
P1371	Ditto, but with **revolving scale**	3	7	6
P1372	Ditto, with **revolving head** to turn the altitude scale, similar to a keyless watch	3	19	6
P1374	**Stanley Best Quality Large-size Watch-form Aneroid,** with 2½-inch dial and **revolving scale,** in morocco case	4	19	0
P1375	Ditto, but with **keyless movement** to the altitude scale.. ..	5	10	0

EXTRAS.

Altitude Scale up to 3,000 feet only		5	0
Ditto up to 15,000 feet		5	0



P1380.

		£	s.	d.
P1380	Travellers' Set, containing reliable watch aneroid, Singer's pearl-dial compass (divided to 360°) and ivory scale thermometer, in snap morocco case	6	18	6
P1381	Ditto, but with folding easel case and metal-dial compass	5	17	0
P1384	**Altimeter, for ascertaining maximum altitude.** This is similar to watch-form aneroid, but has an arrangement attached to the mechanism whereby the hand can advance, but cannot go back. After the maximum reading has been taken a small lever in the side is pressed, and the hand at once returns to the local height above sea level. This instrument is used on aeroplanes. Price, in morocco case, reading up to 5,000 feet..	5	10	0

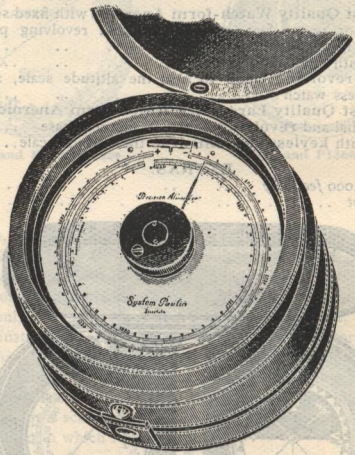
See Note on Scales, page 139.

Paulin System Aneroids.

This series of Aneroids have a peculiar internal construction which is the invention of a Swedish engineer. The indicating hand is not operated by the mechanism at all, but is set by hand for each reading, the correct setting being shown by a small pointer at the top of the dial. The underlying principle is the same as for the ordinary instrument, but it is claimed that the new system eliminates drag or elastic hysteresis.

The instrument is mounted in a brass case with a black finish, and the dial is silver-plated matt.

Instruments supplied in leather cases can be read without removing them from their case.



P1390 to P1392.

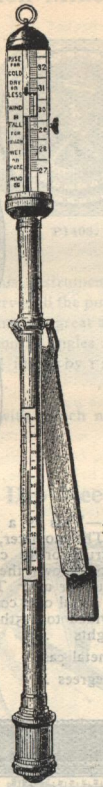
SPECIFICATION AND PRICES.

CAT. No.	DIAMETER.		HEIGHT.		WEIGHT.		RANGE.		Price.	Leather Case Extra.
	Inches.	Metre.	Ins.	Metre.	Ozs.	Grs.	Feet.	Metres.	£ s. d.	£ s. d.
P1390	4.57	116 mm.	2.4	61 mm.	23	650	−900 to +9700	−260 to +3000	8 0 0	1 2 0
P1391	3.2	81.5 mm.	2	51 mm.	11.3	320	−900 to +9700	−260 to +3000	6 0 0	16 6
P1392	4.57	116 mm.	2.4	61 mm.	23	650	−760 to +3600	−250 to +1075	11 0 0	1 2 0

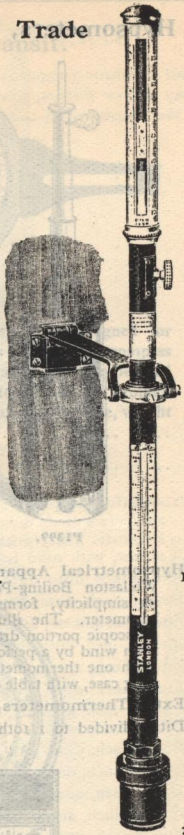
See Note on Scales, page 139.

Colliery, Marine and Board of Trade Barometers.

P1395.



P1396.

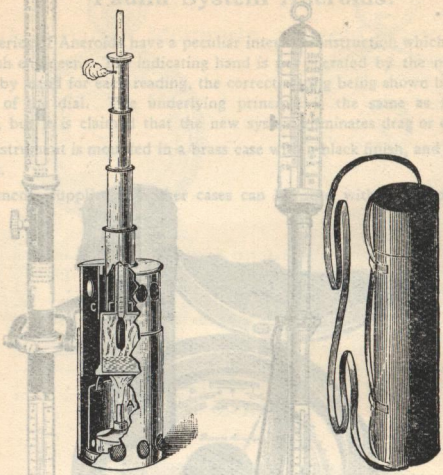


P1397.

		£	s.	d.
P1394	**Colliery or Pit Barometer,** Government Regulation pattern, with ¼-inch mercurial column, oak frame	4	10	0
P1395	Ditto, with thermometer	4	15	0
P1396	**Gun Marine Barometer,** constructed with especial reference to its employment in the Royal Navy during the discharge of the largest guns. It is found to withstand the most violent atmospheric concussions completely, and yields accurate readings	9	0	0
P1397	**Board of Trade Marine Standard Barometer,** as used by the Admiralty and the Meteorological Office. The cistern is of iron and the frame of brass. It is suspended by a stout brass arm in gimbals, to facilitate making correct observations at sea. The tube is contracted to prevent oscillation during storms ..	9	0	0

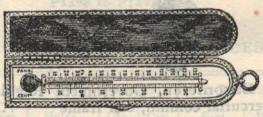
C*

Hypsometers, Travellers' Thermometers.



P1399.

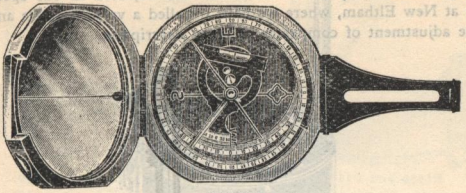
		£	s.	d.
P1399	**Hypsometrical Apparatus.**—This is a portable form of the Wollaston Boiling-Point Thermometer, and on account of its simplicity, forms a trustworthy check on the aneroid barometer. The illustration shows the instrument with the telescopic portion drawn out for use. The lamp is protected from wind by a perforated metal case covered with wire gauze. With one thermometer divided to 1/5th of degrees, in leather sling case, with table of heights	6	10	0
P1400	**Extra Thermometers,** in metal case		17	6
P1401	Ditto, divided to 1/10th of degrees	1	1	0



P1404.

P1404	**Travellers' Pocket Thermometer,** 4½-inch, ivory scale, in morocco case		12	6
P1405	Ditto, self-registering, maximum and minimum	1	5	0
P1406	**Swing Thermometer,** for temperature of air, 7-inch, divided on stem, from 0 to 130° Fahr., or equivalent centigrades, in rubber-lined brass case		13	6

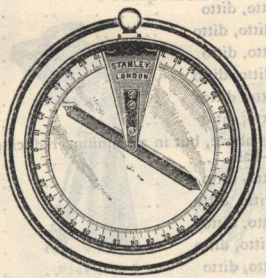
Brunton Mine Transit.



P1408.

		£	s.	d.
P1408	**Brunton Transit.** This instrument is specially designed for mine surveying; it serves all the purposes of a prismatic compass and clinometer, and has the great advantage that it can be used for measuring horizontal angles on steeply-sloping ground. Size, 2¾ inches by 2¼ inches by 1 inch, aluminium case, weight 8 oz., in leather case	6	12	6
P1409	Ditto, extra large size, with 3-inch needle, in case	7	12	6

Dip Needle.



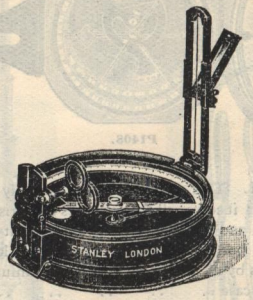
P1414.

P1414	**Dip Needle**, for locating iron ore, 3-inch, with best quality needle mounted between agate centres, with engraved circle of degrees, and ring handle	2	15	0
P1415	Leather sling case for the above		10	0

For Telegraphic Code see end of catalogue.

STANLEY Prismatic Compasses.

All our prismatic compasses are checked and adjusted in our special Compass Observatory at New Eltham, where we have installed a very complete and up-to-date plant for the adjustment of compasses of every description.



P1420 to P1433.

		£	s.	d.
P1420	**Prismatic Compass,** 2½-inch, best quality, bronzed brass case, aluminium circle divided to half-degrees, with agate centre and automatic lifter, prism reading, hinged shades and reversible mirror, with solid leather sling case	4	10	0
P1421	Ditto, 3-inch, ditto, ditto	5	0	0
P1422	Ditto, 3½-inch, ditto, ditto	5	10	0
P1423	Ditto, 4-inch, ditto, ditto	5	15	0
P1424	Ditto, 4½-inch, ditto, ditto	6	15	0
P1425	Ditto, 5-inch, ditto, ditto	7	10	0
P1426	Ditto, 6-inch, ditto, ditto	8	10	0
P1427	Ditto, 2½-inch, as above, but in aluminium, reducing the weight to less than one-half	5	9	0
P1428	Ditto, 3-inch, ditto, ditto	6	0	0
P1429	Ditto, 3½-inch, ditto, ditto	6	12	0
P1430	Ditto, 4-inch, ditto, ditto	6	18	6
P1431	Ditto, 4½-inch, ditto, ditto	8	2	0
P1432	Ditto, 5-inch, ditto, ditto	9	0	0
P1433	Ditto, 6-inch, ditto, ditto	10	4	0

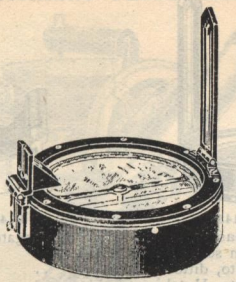
Prismatic Compass and Clinometer combined, see page 107.

These Compasses are measured on the divided circles and not over the outside of the box.

		£	s.	d.
P1435	Circular Bubbles can be fitted to any of the above Compasses at an extra cost of..		10	0

For Telegraphic Code see end of catalogue.

Prismatic Compasses (continued).



P1440.

Liquid Prismatic Compasses. The liquid damps the oscillation of the compass ring and gives it a very smooth action. Made in two sizes.

		£	s.	d.
P1440	3 inches overall, complete in solid leather case, without shades or mirrors	7	10	0
P1441	4 inches overall, ditto, ditto	9	15	0
P1442	Shades and mirrors, extra	1	10	0

This pattern cannot be supplied with bubbles.

Stands for Prismatic Compasses.

P1448.

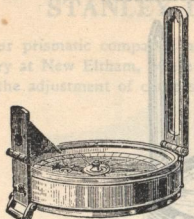
P1449.

P1450.

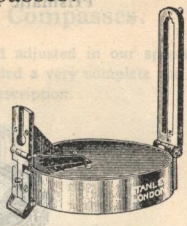
P1452.

		£	s.	d.
P1448	Nickel Tubular Sliding-leg Tripod, with ball-and-socket head	2	10	0
P1449	Ditto, with tumble-over head	3	0	0
P1450	Solid Round-form Mahogany Stand, with ball-and-socket head, as illustrated	2	10	0
P1451	Ditto, with tumble-over head	2	18	0
P1452	Jacob Staff, with ball-and-socket head	1	0	0
P1453	Staff only		5	6
P1454	Solid leather case for P1448 or P1449		8	6

Prismatic Compasses.



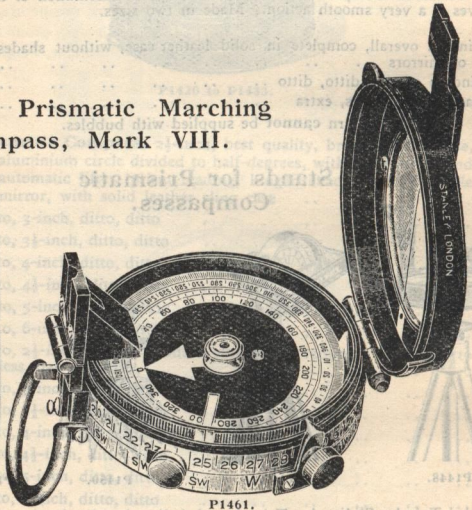
P1456 and P1457.



P1458 and P1459.

		£	s.	d.
P1456	**Prismatic Compass,** 2½-inch, card dial, agate centre, lifter, hinged sight, in solid leather sling case	3	0	0
P1457	Ditto, 3½-inch, ditto, ditto	4	0	0
P1458	Ditto, 2½-inch, ditto, Hutchinson's brass	3	0	0
P1459	Ditto, 2½-inch, ditto, ditto, aluminium	3	3	0

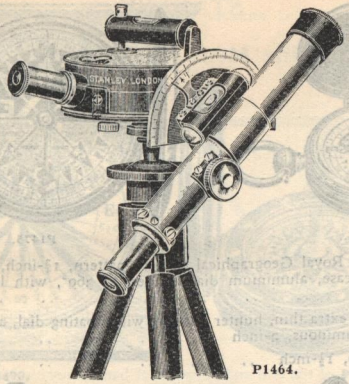
Service Prismatic Marching Compass, Mark VIII.



P1461.

		£	s.	d.
P1461	**Service Prismatic Compass,** as illustrated, but with automatic lifter, bronze case, luminous pearl dial, 1⅛-inch diameter, divided to single degrees, with prism reading. The glass cover is marked with an index line and fitted into a revolving bezel, which can be clamped in any position and reads on to the divided scale on the outside of the case. The hinged lid carries a glass with sighting line; this can be replaced by a piece of horsehair if broken. In leather case	4	0	0
P1462	Ditto, but with compass dial suspended in liquid	6	15	0

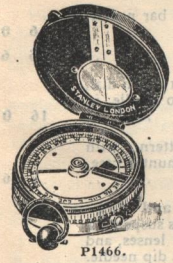
Prismatic Theodolite.



P1464.

		£	s.	d.
P1464	**Stanley's Geographer's Prismatic Theodolite,** consisting of 3-inch aluminium ring magnetic compass, reading by microscope to quarter-degrees, a vertical arc divided to half-degrees, a 5½-inch telescope and two spirit levels. It has a sliding tubular tripod stand closing to 14 inches, and a ball-and-socket adjustment for setting up. Both stand and instrument have sling leather cases. Weight of instrument, 14 oz.	18	10	0

Magnetic Compasses.



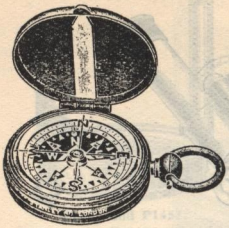
P1466.

P1467.

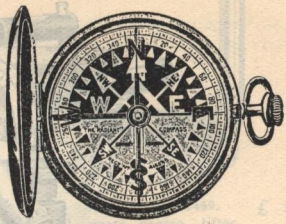
P1468.

		£	s.	d.
P1466	**Marching Compass,** 2-inch strong hunter case, luminous metal dial, glass cover with index reading to 5° on outside of the box, with sighted handle and sight line in cover, in leather case ..	2	8	6
P1467	Ditto, 2½-inch case, with luminous needle, and ring which can be set to any bearing, with sighted handle and sight line in cover, in leather case	2	8	6
P1468	**Royal Engineers' Pattern Liquid Surveying Compass,** 2½-inch, bronzed snap hunter case, sight line in lid	3	7	6

Magnetic Compasses (continued).

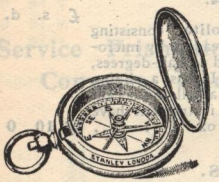


P1474.



P1475.

		£	s.	d.
P1474	**Compass**, Royal Geographical Society pattern, 1¾-inch, military hunter case, aluminium dial divided to 360°, with luminous points	1	4	0
P1475	**Compass**, extra thin, hunter pattern, with floating dial, automatic lifter, luminous, 2-inch		18	9
P1476	Ditto, ditto, 1½-inch		15	9

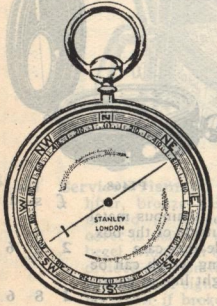


P1477 and P1478.

P1479.

P1480.

P1477	**Compass**, nickel hunter case, 1¾-inch metal dial, edge bar needle, agate centre with lifter	16	0	
P1478	Ditto, ditto, in gilt case	15	6	

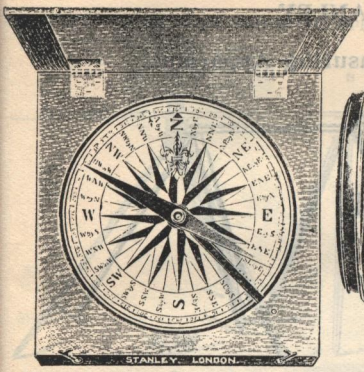


P1481 and P1482.

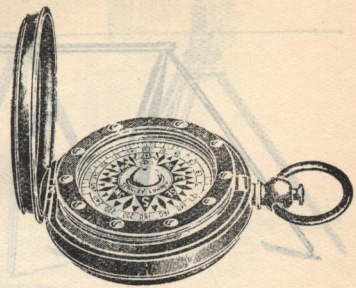
P1479	**Compass**, brass case, 1¾-inch dial, agate centre, lifter to needle, in morocco case	16	0	
P1480	**Compass**, Scout pattern, with floating dial, nickel hunter case, luminous points	6	6	
P1481	**Combined Compass and Magnifier.** The needle is suspended between two convex lenses, and can be also used as a dip needle. Oxidized case and luminous points, 1½-inch diameter ..	1	1	0
P1482	Ditto, ditto, gold plated	1	2	6

Yachts' and Ships' Compasses, Binnacles, etc., of every description; quotations on application.

Magnetic Compasses (continued).



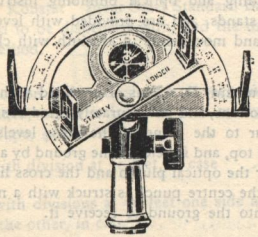
P1490.



P1484.

		£	s.	d.
P1484	**Liquid Compass,** 2-inch, oxidized hunter case, radium points and bubble trap	2	5	0
P1490	**Educational Compass,** as supplied to the leading educational authorities for the instruction of students; diameter of dial, 6½ inches	1	0	0

Semi-Circumferentors.



P1494.

		£	s.	d.
P1494	**Semi-Circumferentor,** French, 6-inch, double sights, for setting out land or buildings, in case, with plain tripod	5	0	0
P1495	Ditto, 8-inch, with level to take also levels and inclines	8	0	0

For Telegraphic Code see end of catalogue.

STANLEY

Base Line Measuring Apparatus.

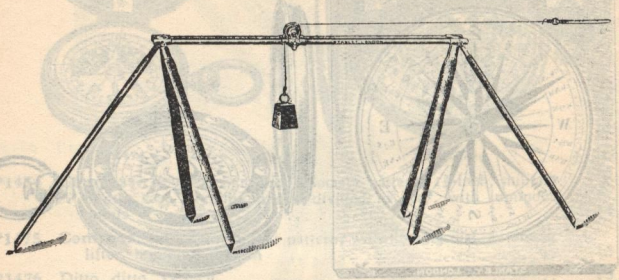


Illustration of one of the two end supports of band, showing tension weight, with cord running over the ball-bearing pulley.

P1510 This apparatus consists of two end supports (as illustrated above) for the "Konstat" Invar Steel Band, with adjustable pulleys, the band being stretched over these by weights.

Light intermediate stands, **B**, with rising cross-piece to adjust for height to support the tape to prevent catenary, usually used at about every 10 feet.

Two microscopic reading and optical plumbing instruments, **C, C.** These are mounted on rigid framed stands, and are provided with levelling screws, cross levels, transverse screw motions, and movements in azimuth with clamp and tangent motions and aligning telescopes.

One transferring instrument, **D.** This is provided with cross levels and levelling screws, screw transverse motions, and an accurately-fitted centre punch, having a movement exactly perpendicular to the plane of the cross levels. The centre punch has cross lines in a recess at the top, and is held off the ground by a spring. This transferring instrument is placed under the optical plumb and the cross lines brought exactly in the line of collimation, when the centre punch is struck with a mallet, and thus marks the plate or whatever is let into the ground to receive it.

	£	s.	d.
Price of apparatus complete, without band or intermediate stands	160	0	0
P1511 Intermediate Stands, **B**, each	2	10	0

We supplied similar apparatus to the above for the re-measurement of the Arc of Meridian.

For prices of "Konstat" Steel Bands, see page 155.

Base Line Measuring Apparatus (continued).

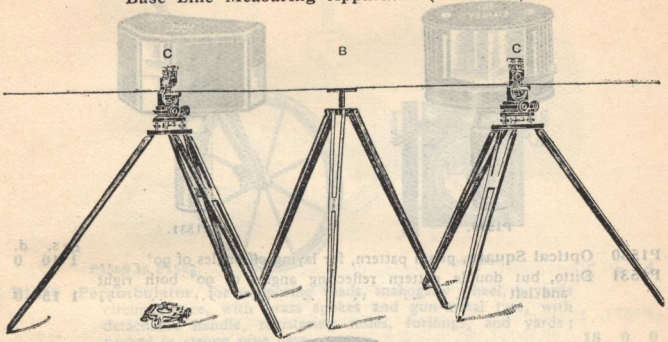


Illustration of the two plumbing instruments, C, C; transferring instrument, D; and one of the adjustable intermediate supports, B.

Standard "Konstat" Steel Bands, for Base Line Measurements.

The introduction of "Konstat" Invar Steel Standard Bands has enabled the complicated bars formerly used to be dispensed with, and the use of these bands has now become the recognised method.

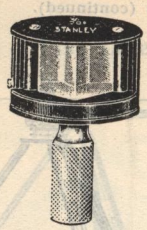
		£	s.	d.
P1520	**Standard** 100 feet, on reel, with shackle at each end for attaching to spring balance, which is included; in mahogany case with lever lock. Tape, ¼-inch wide	14	0	0
P1521	Ditto, 100 feet, with division at 50 feet, in case	15	0	0
P1522	Ditto, 100 feet, with divisions at 50 feet one side and 10, 20 and 30 metres on the other, in case	18	0	0
P1523	Ditto, 100 metres, with 300-feet and 100-metre divisions, in case ..	37	10	0

Quotations for other widths on application.

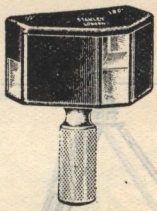
National Physical Laboratory certificates will be supplied, when desired, at COST *price.*

For Telegraphic Code see end of catalogue.

Optical Squares, Cross Staves, Etc.



P1530.



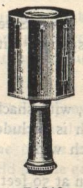
P1531.

		£	s.	d.
P1530	**Optical Square**, prism pattern, for laying off angles of 90° ..	1	10	0
P1531	Ditto, but double pattern reflecting angles of 90° both right and left	1	15	0

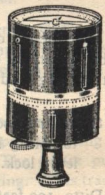
P1533.

P1533	**Optical Square**, to reflect 90°, in solid leather case	1	10	0
P1534	Ditto, adjustable, in solid leather case	2	5	0
P1535	Ditto, double, reflecting 90° in both directions, in solid leather case	4	4	0

P1541.



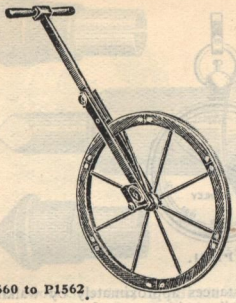
P1542.

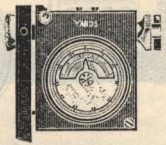


P1545.

P1540	**Cross Staff**, Stanley's open, with axis, in case	1	0	0
P1541	Ditto, ditto, with addition of circular magnetic compass for taking bearings, as illustrated	1	15	0
P1542	Ditto, French, octagonal, in case .. small 17/6 and large	1	1	0
P1543	Ditto, ditto, as above, with magnetic compass on top, large size ..	2	5	0
P1544	Ditto, ditto, circular, with rack and pinion, divided to take any angle, in case	3	10	0
P1545	Ditto, ditto, with compass, ditto	4	0	0
P1546	Tripod Stand to any of above	1	2	6
P1547	Plain Staff, shod with iron, for cross staff		5	6

Road Measuring Wheels (Perambulators).





Indicator.

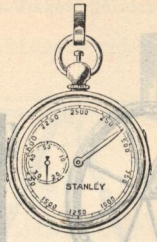
P1560 to P1562.

		£	s.	d.
P1560	**Perambulator**, for measuring roads, mahogany wheel, 2 yards circumference, with brass spokes and gun-metal tyre, with detachable handle, registering miles, furlongs, and yards; packed in strong pine case	18	0	0
P1561	Ditto, ditto, in metres	20	0	0
P1562	Ditto, ditto, in links	20	0	0

P1564 to P1566.

P1564	This **Perambulator** or Road Measurer has been designed to provide a specially light, accurate and reliable apparatus. It has a detachable handle, and the whole fits into a light pine case, which is quite portable. The wheel has a heavy gun-metal rim which is turned true, and is exactly two yards in circumference. It runs on ball bearings, and its semi-revolutions are recorded upon a very compact revolution counter, showing the number of single yards traversed by the wheel up to 99,999 yards. It forms the lightest and most simple and accurate apparatus for measuring distances on roads	8	0	0
P1565	Ditto, ditto, in metres	9	0	0
P1566	Ditto, ditto, in links	9	0	0

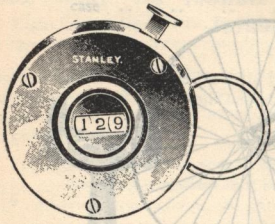
Pedometers and Passometers.



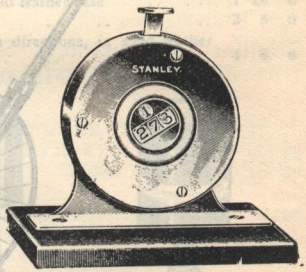
P1571.

		£	s.	d.
P1570	**Pedometer,** for measuring distances approximately by walking, recording ¼ miles up to 100 miles, with zero setting arrangement		12	6
P1571	**Passometer,** to measure distances by counting steps, registering up to 125,000, with zero setter		12	6

Tally Registers.



P1575.

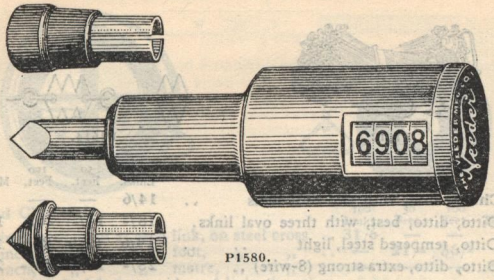


P1578.

		£	s.	d.
P1575	**Tally Register.** An extremely strong form of counter for all purposes. It operates by the simple pressure of a button, and will count up to 1,000		15	0
P1576	As above, but with four figures, counting up to 10,000	1	0	0
P1577	Ditto, mounted on stand for use on desk or table for recording telephone calls, etc., etc., three figures	1	1	0
P1578	Ditto, ditto, four figures	1	2	6

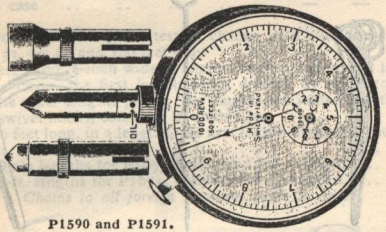
For Telegraphic Code see end of catalogue.

Revolution Counter.



P1580.

		£	s.	d.
P1580	**Revolution Counter,** to indicate up to 10,000. Suitable for high or low speeds, with two rubber-tipped sleeves. The shaft of this indicator runs free until the slight pressure engages the internal mechanism, as illustrated	1	1	0
P1581	**Revolution Counter,** cheaper form, with zero setting, complete in case with rubber tips, etc.		10	6



P1590 and P1591.

Chronograph and Revolution Counter Combined, for accurate speed tests on all classes of machinery, especially suitable for use in the textile industry. In operation this instrument is simplicity itself. There are only three things to attend to:—

1. To apply the instrument to the shaft.
2. Press the button to set it working.
3. Read the instrument, which gives the revolution rate per minute direct.

		£	s.	d.
P1590	Type No. 1, suitable for 500 revs. per minute and over	3	3	0
P1591	Type No. 2, for slow-running machinery, for speeds 1/10th of the above	3	3	0
P1592	German pattern, up to 10,000 revs.	1	16	0

Sieves.

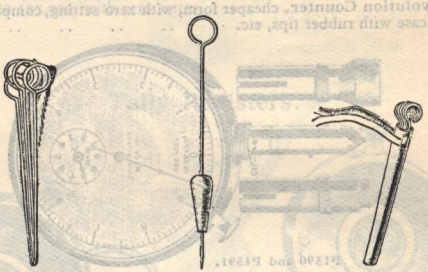
P1600	**Cement Sieves,** turned brass rims, 4 inches in diameter, with silk gauze, with various meshes from 2,500 to 40,000 per square inch, each .. .. £1 1s. to	1	10	0
P1601	Ditto, with wood rims, 8 inches in diameter, and brass mesh, 3½ inches deep, 400, 600, or 900 per square inch		8	6
P1602	Ditto, 1,600 or 2,500 per square inch		11	6
P1603	Set of 6 sieves, with japanned tin rims, 6 inches in diameter, mesh Nos. 100, 130, 150, 180, 240 and 300, with lid and receiver	1	4	0

Land Chains, Etc. (Tested).

P1612.

P1614.

		100 Links.	50 Feet.	100 Feet.	20 Metres.	25 Metres.
P1610	Chain, iron, with two oval links ..	14/6	—	—	—	—
P1611	Ditto, ditto, best, with three oval links.	18/-	14/-	20/-	18/-	22/-
P1612	Ditto, tempered steel, light	19/6	12/6	23/-	19/6	25/-
P1613	Ditto, ditto, extra strong (8-wire) .. .	25/-	16/6	30/-	25/-	35/-
P1614	Ditto, ditto, strong, inserted tellers ..	30/-	21/-	34/6	—	—
P1615	Ditto, 50-link, light steel	11/6	—	—	—	—



P1620. P1624. P1626.

		£	s.	d.
P1620	Arrows, set of 10, iron, 15-inch		3	0
P1621	Ditto, ditto, steel, 15-inch, recommended		3	6
P1622	Ditto, ditto, 18-inch		5	0
P1623	Ditto, ditto, 24-inch		6	0
P1624	Drop Arrow, as illustrated		4	0
P1625	Leather Strap, with buckle, for chain and arrows, best quality ..		1	3
P1626	Leather Quiver for Arrows, with straps, 15-in. 7/6, 18-in. 9/-, 24-in.		11	6
P1627	Extra set of Tellers for Chain		3	0
P1628	Extra pair of Handles for Chain		4	6
P1635	Vice, for repairing chains		18	0

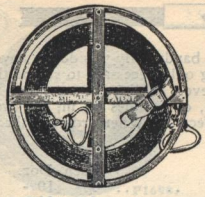
Chains repaired and adjusted.

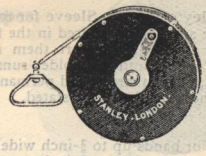
For standard steel bands and base line measuring apparatus see pages 154 and 155.

For Telegraphic Code see end of catalogue.

Steel Band Chains, Etc.

P1645 to P1647.





P1648 to P1651

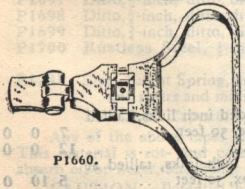
Steel Band Chains.	100 Links.	50 Feet.	100 Feet.	20 Metres.	25 Metres.
P1645 ⅛-inch, with stud at each link, on steel cross	31/6	—	—	—	—
P1646 ⅛-inch, ,, ,, foot, ,, ,,	—	21/-	36/-	—	—
P1647 ⅛-inch, ,, ,, metre, ,, ,,	—	—	—	30/-	35/-
P1648 ⅛-inch, etched feet one side and links the other, in metal case	46/6	38/6	60/-	—	—
P1649 ⅛-inch, ditto, feet one side, metres the other	—	—	—	48/-	57/6
P1650 ⅛-inch, ditto, feet, inches and 1/8ths one side and links the other, in metal case	50/-	43/-	68/6	—	—
P1651 ⅛-inch, etched feet, inches and 1/8ths one side and metres and millimetres the other, in metal case	—	—	—	60/-	72/6

		£	s.	d.
P1652	**Standard Steel Band**, for testing chains, with stud and line, at zero, 33, 50, 66 and 100 feet only	2	10	0
P1653	Light Steel Band, ¼-inch wide, 5 chains long, made up of 5 lengths of one chain, the first length being divided by studs to links and the other lengths plain; the lengths are joined together by steel swivel hooks, complete in metal case	2	17	6
P1654	Ditto, 300 feet long, in 3 lengths, the first length divided throughout to feet, in metal case	2	11	0
P1655	Extra 1-chain lengths for P1653, undivided 6/6, divided		15	0
P1656	Extra 100-ft. lengths for P1654, undivided 9/-, divided		17	0

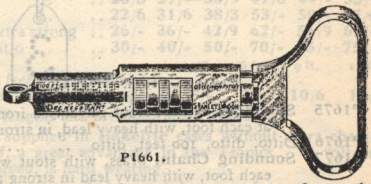
Chains to all foreign measures made to order.

P1658.

P1658	Spring Balance, for use with surveyors' chains, working up to 30-lbs. pull, showing half-pounds	1	2	6



P1660.



P1661.

		£	s.	d.
P1660	Littlejohn's Patent Handle for 66-ft. or 100-ft. band chain	1	10	0
P1661	Ditto, with sliding scale for temperature corrections	3	3	0

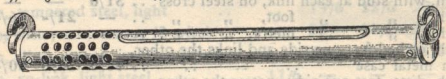
Stanley's Patent Repairing Sleeves.

P1665 to P1667.

Stanley's Patent Sleeve for repairing steel bands. By this device any band can be quickly and easily repaired in the field, it being only necessary to scrape the broken ends with a knife, and insert them into the sleeve. A lighted match is then held under the sleeve until the solder runs away from, or bubbles up in, the two holes at either end, when a strong and permanent join is effected. When ordering, the width and gauge of the band should be stated.

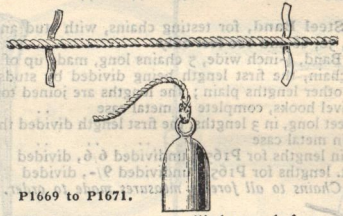
		Each	Doz.	Gross. £	s.	d.
P1665	For bands up to ¾-inch wide	1/-	10/-	5	8	0
P1666	,, ,, ½-inch ,, ...	1/6	16/-	8	0	0
P1667	,, ,, ⅝ or ¾-inch ,, ...	1/9	20/-	9	0	0

P1668.



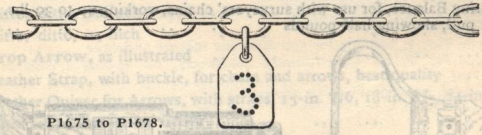
P1668 **Chain Thermometer**, in stout copper case, with hooks for suspending on the band, in leather outer case 1 12 6

Sounding Lines and Chains.



P1669 to P1671.

		£	s.	d.
P1669	**Sounding Line**, for coast survey, tallied at each foot and fathom, with weight, as illustrated, or any other pattern made, if preferred, 30 feet		12	6
P1670	Ditto, ditto, 50 feet	1	0	0
P1671	Ditto, ditto, 100 feet	2	5	0

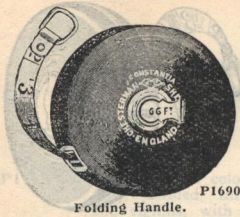


P1675 to P1678.

		£	s.	d.
P1675	**Sounding Chain**, stout galvanised iron, welded inch links, tallied at each foot, with heavy lead, in strong case, 50 feet	7	0	0
P1676	Ditto, ditto, 100 feet, ditto	12	0	0
P1677	**Sounding Chain**, brass, with stout welded inch links, tallied at each foot, with heavy lead in strong ash box, 50 feet	5	10	0
P1678	Ditto, ditto, 100 feet	7	0	0
P1679	**Sounding Chain**, brass, special light form for still water, with small brass stamped-out links, tallied at each foot, 50 feet ..	5	0	0

Surveyors' Tape Measures.

Chesterman's Linen Tapes.



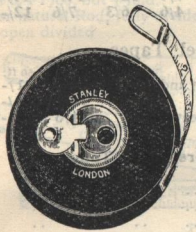
P1690.
Folding Handle.

P1692.
Flush Handle.

N.B.—Tapes will all vary in length by the moisture of the air. They are all tested to standard before delivery. Unless otherwise ordered, Feet Tapes are marked on the back in links, and Metre Tapes have English feet and inches on reverse side.

		33 ft.	50 ft.	66 ft.	100 ft.	20 met.	25 met.
P1690	Best " Constantia " linen, $\frac{5}{8}$-inch ..	9/6	11/6	13/6	18/6	13/6	16/-
P1691	Best metallic linen, $\frac{5}{8}$-inch	9/6	11/6	13/6	18/6	13/6	16/-
P1692	Either of the above, with flush handle ..	10/3	12/6	14/9	20/6	14/9	17/6
P1693	Refills for either of above	5/-	6/6	8/-	13/-	8/-	10/-

Chesterman's Steel Tapes.



P1695 to P1699.

P1701.

These Tapes are standard at 62° Fahrenheit.

The Feet Tapes are marked links, and the Metre Tapes in feet and inches on the reverse side, except in P1695, which is marked feet, inches and eighths, or metres only.

		33 ft.	50 ft.	66 ft.	100 ft.	20 met.	25 met.
P1695	Steel, $\frac{1}{4}$-inch wide, small, for pocket, marked on one side only, with flush handle ..	13/-	18/9	22/6	—	24/9	—
P1696	Steel, $\frac{3}{8}$-inch wide, with flush handle ..	17/-	22/6	27/-	38/3	37/3	46/3
P1697	Ditto, $\frac{1}{2}$-inch, ditto, ditto	20/3	27/-	33/9	47/6	44/-	53/-
P1698	Ditto, $\frac{5}{8}$-inch, ditto, ditto	22/6	31/6	38/3	53/-	50/-	57/6
P1699	Ditto, $\frac{3}{4}$-inch, ditto, ditto, extra strong ..	26/-	36/-	42/9	62/-	51/9	63/-
P1700	**Rustless Steel**, $\frac{1}{2}$-inch, ditto	30/-	40/-	50/-	70/-	63/-	75/-

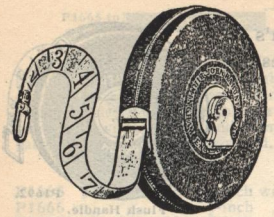
		3 ft.	6 ft.	9 ft.	12 ft.
P1701	Steel, Patent Spring, marked feet, inches and eighths, and metre and millimetres, in electrum stop case	5/-	7/6	10/6	13/-

Steel Tapes of special lengths and divisions made to order.

Any of the above tapes can be supplied in **Bakelite** cases without extra charge. This material is rot- and pest-proof, a great advantage in the Tropics. It will not absorb oil or water, and being reinforced, is hard wearing.

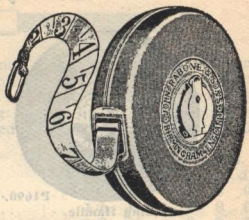
CAUTION.—Potential buyers are warned that **stainless steel tapes require rather more careful handling than carbon steel.** Stainless steel has a tendency to curl and is not homogeneous, with the result that hard or soft patches are apt to occur in it. In spite of this we sell a large number, although without guarantee.

Surveyors' Tape Measures (continued).



P1710.

Rabone's Linen Tapes.



P1712.

N.B.—Linen Tapes will all vary in length by the moisture of the air. They are all tested to standard before delivery. Unless otherwise ordered, Feet Tapes are marked on the back in links, and Metre Tapes have English feet and inches on reverse side.

		33 ft.	50 ft.	66 ft.	100 ft.	20 met.	25 met.
P1710	"Rigida" Linen, ⅜-inch wide	9/-	11/-	13/-	17/6	13/-	15/-
P1711	Best Metallic, ⅜-inch wide	9/-	11/-	13/-	17/6	13/-	15/-
P1712	Either of the above with flush handle	9/9	12/-	14/-	19/-	14/6	16/6
P1713	Refills for either of above	4/6	6/3	7/6	12/-	7/6	9/6

Rabone's Steel Tapes.

		33 ft.	50 ft.	66 ft.	100 ft.
P1720	⅜-inch, in Bakelite case, marked in feet and links ..	16/6	21/-	26/-	36/-
P1721	½-inch, in leather case, ,, ,, ,, ..	22/-	31/-	40/-	55/-
P1722	⅜-inch, in all-steel case, suitable for heavy wear ..	14/6	19/-	23/6	33/-

Repairs to Customers' own Tapes.

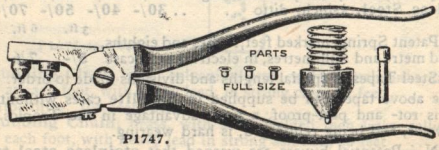
		£	s.	d.
P1731	First 2 feet fitted to own tape		1	3
P1732	,, 6 feet ,, ,, ...		1	9
P1733	,, 12 feet ,, ,, ...		2	9

Steel Tape Repairs.

P1740	Repairs to Steel Tapes, ⅜-inch wide, up to 1 foot, 2/6; up to 3 feet, 3/-												
P1741	,,	,,	,,	,,	½-inch	,,	,,	,,	3/-	,,	,,	4/-	
P1742	,,	,,	,,	,,	⅝-inch	,,	,,	,,	4/6	,,	,,	5/6	
P1743	,,	,,	,,	,,	¾-inch	,,	,,	,,	5/-	,,	,,	6/-	

Other lengths can be supplied at proportionate prices.

Repair Outfits.



P1747.

		£	s.	d.
P1747	Hand Punch and Riveter, with supply of rivets for repairing steel tapes	1	5	0
P1748	Box of 1,000 Rivets		6	6

Surveyors' Rods, Etc.

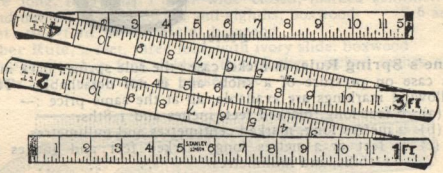
Two-fold Rods.

P1760.

		5 ft.	6 ft.	10 ft.	2 metres.
P1760	Jointed, natural colour or black, first quality, fully divided throughout in feet, inches and eighths, with engraved figures at feet, recommended	7/6	9/6	27/6	10/6
P1761	Ditto, ditto, fully divided first 12 inches only and remainder every 3 inches, engraved figures at feet	7/6	—	22/6	—
P1764	10 feet, as P1760, but with angle bar to convert rod into a 5-feet square, very useful for setting-out buildings				£2 5 0

Multi-fold Rods.

		5 ft.
	Similar to P1760, but 5-fold.	
P1770	Black or natural Rod, fully divided	15/6
P1771	Ditto, open divided	15/6

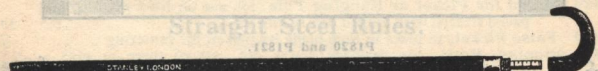


P1772.

		£ s. d.
P1772	Cheaper quality, 5 feet, 5-fold spring joints, stout boxwood, natural colour only	7 6

Sliding Rod. P1780.

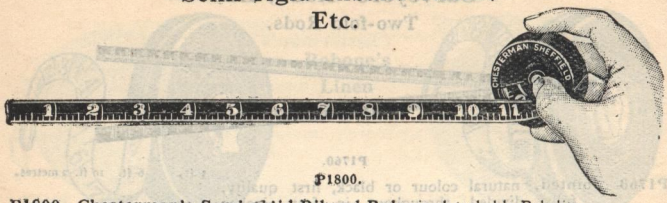
		£ s. d.
P1780	Sliding 5-feet rod, divided also to gauge openings	18 0
P1781	,, 10-feet ,, ,, ,, ,, ,, ...	2 5 0
P1782	Good Solid Leather Case, to hold a pair of 5-feet jointed rods ..	10 6
P1783	Ditto, with additional pocket to hold connecting ferrule	12 6
P1784	Long Ferrule, to connect up two 5-feet rods, to convert them into a temporary 10-feet rod	4 6



P1791.

		£ s. d.
P1790	Walking-stick, root bamboo, containing a stout single 5-feet rod ..	1 16 0
P1791	Ditto, malacca cane, with silver band and horn handle, ditto ..	2 12 6

Semi-rigid Riband Rules, Etc.



P1800.

		£	s.	d.
P1800	**Chesterman's Semi-rigid Riband Rule**, in detachable Bakelite case, in any of the following markings, which are etched into the steel :— (a) 72 inches only (b) 6 feet, in feet and inches, subdivided 1/8ths or 1/10ths. (c) 2 metres and English inches opposite. (d) 2 metres only. Any of the above markings.		10	0
P1801	Ditto, as above, 6 feet, in feet and inches, with feet in red		12	6

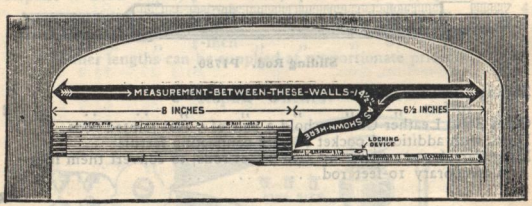
Please state marking required on your order.

P1810.

		£	s.	d.
P1810	**Rabone's Spring Rule**, in nickel case ; the rule springs back into its case on pressure of a knob, and is not detachable. The following markings are available, all at the same price :— (a) 6 feet long, marked feet, inches and 1/8ths. (b) 2 metres long, marked centimetres and millimetres (c) 6 feet or 2 metres long, marked feet and inches in 1/16ths, and millimetres.		7	6

Please state marking required on your order.

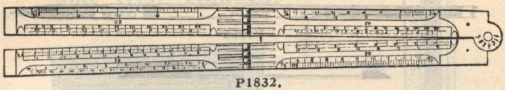
The Interlox Rule.



P1820 and P1821.

		£	s.	d.
P1820	An extremely handy rule for taking inside measurements ; when closed the 6-foot rule measures 8 × 2¼ × ¼ inch, and can be carried in the pocket		6	6
P1821	Ditto, but extending to 8 feet		7	6

Folding Pocket Rules.



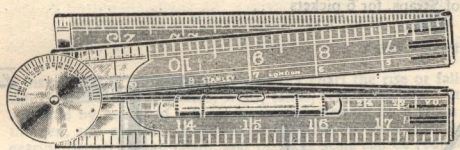
P1832.

These are accurately made of well-seasoned material; the ivory and best boxwood rules have electrum joints and plates. The width of all rules is the width when closed

		Ivory	Boxwood, 1st qual.	Boxwood, 2nd qual.
	1 foot, four-fold			
P1830	Plain pattern	13/6	3/-	—
P1831	Single bevel inside with architect's scales	20/-	9/6	—
P1832	Double bevel, with chain and architect's scales	25/-	—	—
	2 feet, four-fold.			
P1840	¾-inch, plain pattern	30/-	9/-	1/9
P1841	1-inch, single bevel inside, with architect's scales	45/-	10/6	7/6
P1842	1-inch, double bevel, with chain and architect's scales	48/-	14/-	9/6
P1843	1¼-inch, single bevel inside, with architect's scales	55/-	13/6	—
P1844	1¼-inch, double bevel, with chain and architect's scales	60/-	17/6	—

Metre Rules. Any of the above best quality rules can be supplied to order with one of the edges divided in millimetres instead of inches.

		£	s.	d.
P1850	**Metre** long, four-fold, 1 inch wide closed, marked centimetres and millimetres and inches and eighths, boxwood 7/6 and		3	6
P1851	**2 feet, two-fold Mechanic's**, boxwood		4	0
P1852	**Timber Rule**, 2 feet, three-fold, with ivory slide, boxwood	1	0	0
P1853	**Stainless Steel**, 1 foot, folding to 4 inches, etched inches and parts and millimetres, in pocket case		3	6



P1854.

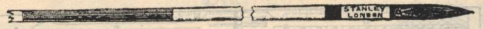
P1854	**Boxwood Rule**, 1⅛ inch wide, with protracted head and spirit level, 2 feet		8	6
P1855	5-feet **Zig-Zag**, or folding, boxwood rule with spring joints, with 10 folds, marked inches and 1/16ths both sides		1	3
P1856	6-feet ditto, with 12 folds		1	6
P1857	1-metre ditto, with inches and 1/16ths on reverse side		1	0

Solid Leather and Morocco Cases for Rules.

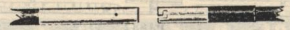
Straight Steel Rules.

P1858	**Steel Rule**, 1 foot, divided inches, in 8, 16, 32, and 64		2	0
P1859	Ditto, 1 foot, divided centimetres, millimetres, and halves one edge, and inches in 16, 32, and 64		2	6
P1860	Ditto, 1 foot, divided both sides, centimetres, millimetres, and halves, inches, 16, 32, 64, 10, 20, 50, 100, 12, 24, 48, 96		3	0

Pickets, Off-Set Poles and Boning Rods.



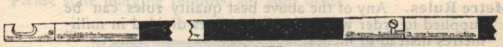
P1865



P1869

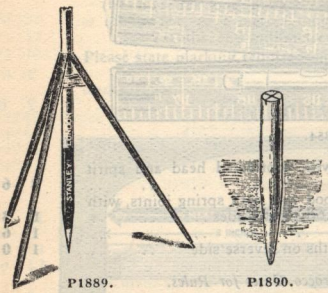
		£	s	d
P1865	Pickets, or Ranging Poles, with malleable iron strap shoes, painted in three colours—red, white, and black, 6 feet, per doz ..	3	10	0
P1866	Ditto, 8 feet	4	10	0
P1867	Ditto, 10 feet	6	0	0
P1868	Ditto, 2 metres, painted in half-metres	4	10	0
P1869	Any of the above can be supplied with one or more joints to take apart for packing, at an extra cost per doz. joints	2	14	0
P1870	Bamboo Ranging Poles, light and strong, 6 feet	3	10	0

P1876



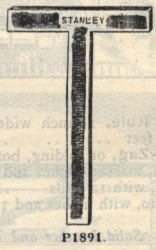
P1877

		£	s.	d.
P1875	Off-Set Rod, 10-link, shod, with point		7	0
P1876	Ditto, ditto, and hook for chain		12	0
P1877	Ditto, ditto, jointed		17	0
P1880	Flags, red and white, 12×9 inches .. .. .. per doz.		15	6
P1881	Ditto, ditto, 18×12 inches		18	6
P1885	Shoes, malleable iron, for pickets	1	0	0
P1886	Pair of Straps, for 6 pickets		2	6

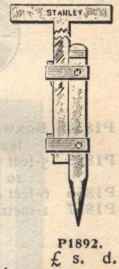


P1889.

P1890.



P1891.

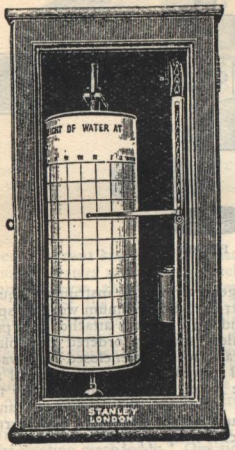


P1892.

		£	s.	d.
P1889	Stand for Picket or Ranging Pole, for use on hard ground or paved streets, with hinged legs to fold up		10	0
P1890	False Picket, to place in hole made by picket, for centering ..		7	6
P1891	Boning Rods, for drainage works, etc., set of three in pine, painted white, one divided at top and two plain	1	10	0
P1892	Ditto, with driving spurs	2	5	0

For Telegraphic Code see end of catalogue.

Mechanical Water-Level Recorders and Weir Gauges.



P1900 and P1901

P1905 and P1906

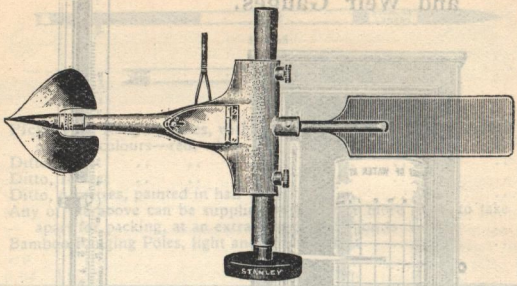
		£	s	d.
P1900	This instrument is designed to record on a chart the rise or fall of tide and of water in sewers, wells, tanks, reservoirs, etc. It is operated by means of a float, connected directly by a chain to the pen, and can be made to read full size, or by a system of gearing between float, chain, and pen, the scale can be reduced. It can also be used for measuring the flow through notches and over weirs; in this case the chart can be calibrated in gallons per day, cubic feet per hour, etc. The float is of copper, 12 inches in diameter by 3¼ inches deep. The Recorder is fitted into a wooden case and has a glass hinged door, provided with lock and key. Instrument complete, with 20-foot chain and float	30	0	0
P1901	Ditto, as above, but fitted into iron case	35	0	0

When ordering these instruments please state whether daily or weekly charts are desired.

Weir Gauges.

		£	s	d.
P1905	Weir Gauges, Symon's Hook Gauge, for measuring depth of water over a sill or rock, to ascertain quantity of flow, simple slide with vernier reading 100ths of an inch	3	10	0
P1906	Ditto, with improved screw adjustment to slide	4	10	0

Current Meters.



P1908.

		£	s.	d.
P1908	**Electrical Current Meter**, a general-purpose instrument equally suitable for slow or rapid currents, the minimum working speed being 2 in. (5 cm.) per second. In use it is attached to a piece of ¾-inch gas pipe and unless specially ordered no pole is supplied. The electric contact, which is enclosed in a water-tight chamber filled with oil to guard it against chemical and mechanical impurities in the water, gives signals at every fifty revolutions of the propeller. After use, the instrument can be completely dismantled without tools for cleaning. The current is provided by a dry cell (pocket lamp type).			

ACCESSORIES. Spare battery, 11 yards insulated double wire on wooden reel, ring with indicator to locate the instrument in the current, and set ring to predetermine depth of immersion.

WEIGHTS AND SPECIFICATIONS.

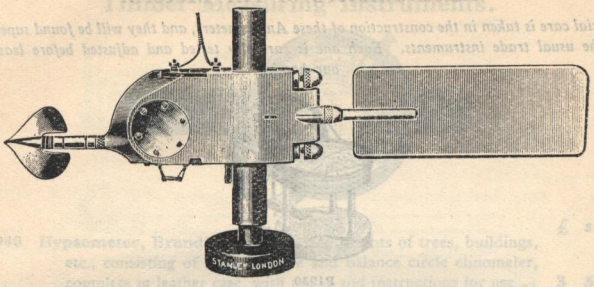
Diameter of propeller ..	5½ in.(13 cm.)
Overall length with rudder ..	23 in. (60 cm.)
Net weight, approximately ..	2 lb. (1.1 Kg.)
Weight of case and accessories	13 lb. (5.9 Kilos)
Dimensions of wooden case	18×11×6 in. (46×28×16 cm.)
Gross weight of instrument complete in packing case, approximately	20 lb. (9.5 Kilos)
Dimensions of packing case	20×12×9 in. (53×30×23 cm.)

	Price, in Aluminium	34	0	0
P1909	**Special Gun-metal Model**, to order only, similar to above, for use in salt or acidulated waters	39	0	0

Note.—Weights quoted do not apply to this instrument.

P1910	**Guide Pole**, oval, consisting of a steel pipe about 10 feet long, fitted with a bottom plate. The tube is provided along its length with holes at intervals of 2 inches (5 cm.). They are indexed to give the distance, in inches, from the bottom plate, and serve to ascertain the depth of immersion	4	15	0

Current Meters (continued).



P1920.

		£	s.	d.
P1920	**Electrical Current Meter.** This instrument is specially designed for use in waters which carry much grit and other impurities. It can, of course, also be used for measurements in pure waters. The body of the instrument is provided with an oil-filled chamber through which the propeller shaft is led and which also encloses the contact arrangement. A small piston exerts pressure on the oil in this chamber, this pressure being caused partly by the weight of the piston itself and partly by the water acting on the upper end of the piston. The piston tends to force the oil out of the chamber through the front bearing of the propeller shaft, thus causing a continuous small oil flow through the bearing, which prevents impurities in the water finding access to the rotating mechanism. One single filling of the oil chamber allows the instrument to run continuously for about a week. The instrument can be dismantled without tools, and has a minimum working speed of 5 in. (12 cm.) per second. The current is supplied by a dry cell. This model is equipped with a 10-foot (3-m.) pole, with a plate at the bottom end which acts as a rest, and also protects the propeller. The pole is not graduated, but can be supplied so at extra charge.			

ACCESSORIES. Spare battery, bottle of oil, 33 feet of double wire on reel, pole and plate.

WEIGHTS AND SPECIFICATIONS.

Diameter of propeller	3½ in. (9 cm.)
Length overall with rudder	28 in. (70 cm.)
Net weight	7 lb. (3.4 Kg.)
Weight of case and accessories (without pole)	9 lb. (4.3 Kg.)
Weight of pole	5½ lb. (2.6 Kg.)
Dimensions of wooden case	approx. 28 × 14 × 8 in. (71 × 35.5 × 20 cm.)
Gross weight, packed for dispatch	22 lb. (10 Kg.)
Overall dimensions of packing case	19 × 10 × 10 in. (47 × 26 × 26 cm.)
Dimensions of guide pole case	180 × 3¼ × 2¼ in.

Price, in Aluminium				58	10 0
P1921	Gun-metal model, to order only, for acidulated waters			69	10 0

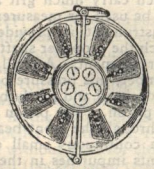
Note.—Weights quoted do not apply to this instrument.

Anemometers or Air Meters.

Special care is taken in the construction of these Anemometers, and they will be found superior to the usual trade instruments. Each one is carefully tested and adjusted before leaving our hands.

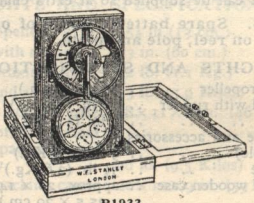
P1930

		£	s.	d
P1930	**Anemometer**, portable, original form, best make, reading to 10,000,000 feet, with zero setting, in case	5	10	0



P1931.

P1931	**Biram Anemometer**, 6-inch, circular, of superior make, tested for velocity of air, for mines, reading to 10,000,000 feet, with zero setting	7	10	0
P1932	Ditto, 3-inch, cheaper make, for less accurate work, admitting up to 5 per cent of error, reading to 10,000,000 feet	4	5	0



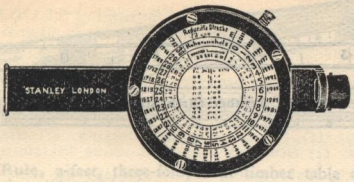
P1933.

P1933	**Stanley Ventilation Anemometer**, portable, tested, in mahogany case, reading to 10,000,000 feet, or equivalent metres, with zero setting	8	15	0

Recording Pressure Gauge.

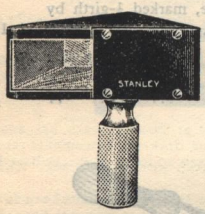
P1934	**Recording Pressure Gauge**, copper case, Regulation pattern, with charts	12	10	0

Timber Measuring Instruments.



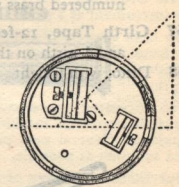
P1940.

		£	s.	d.
P1940	**Hypsometer, Brandis,** for measuring heights of trees, buildings, etc., consisting of sighting tube and balance circle clinometer, complete in leather case, with tables and instructions for use ..	3	5	0
P1941	**Dendrometer, Christen,** rule form, to work with 10-foot rod, for measuring heights		7	6



P1946.

P1945.



P1945.—Interior.

Stanley's Apomecometer. A simple and convenient instrument for approximately measuring heights of trees, buildings, etc. This is similar to an optical square, but reflects at 45° instead of at right angles. To use the instrument a sight is taken on to a spot near the foot of the tree, level with the observer's eye, then by walking forward or backward the position is ascertained where the top of the tree is seen by reflection in the Apomecometer simultaneously with this spot on the tree. The height of the tree is then equal to the distance of the observer from it, plus the height of the sighting spot above the ground.

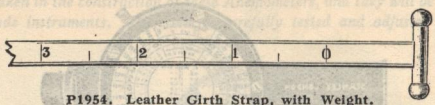
		£	s.	d.
P1945	In brass, size 2 inches by ¾ inch, in case, with instructions for use	2	2	0
P1946	**Prism Apomecometer,** similar in construction to the prism optical square, but deflecting 45°	1	10	0

Timber Rod.

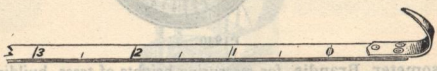
P1950	**Timber Rod,** 25 feet, for measuring height of standing timber, bamboo, in five lengths of 5 feet each, to join together, complete in canvas case	3	3	0

For Telegraphic Code see end of catalogue.

Timber Measures.



P1954. Leather Girth Strap, with Weight.

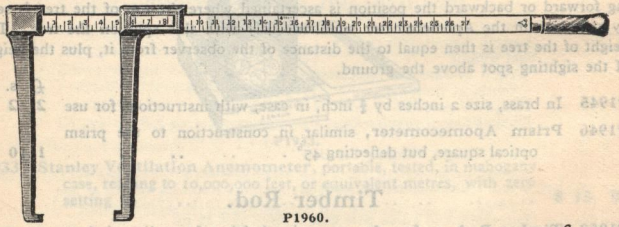


P1955. Leather Girth Strap with Clutch Hook.

		£	s.	d.
P1954	**Girth Strap** measure, leather, 13-feet, marked ¼-girth, with weight to throw round tree	1	4	0
P1955	Ditto, with hook instead of weight	1	5	0
P1956	Ditto, light form, 10-feet strap, ½-inch wide, marked ¼-girth by numbered brass studs, with weight	1	15	0
P1957	**Girth Tape**, 12-feet, linen, marked in feet and inches one side and ¼-girth on the other, with small hook, or ring		1	9
P1958	Ditto, with weight		3	6

P1959.

		£	s.	d.
P1959	**Timber Needle** for passing tape under fallen timber		9	0

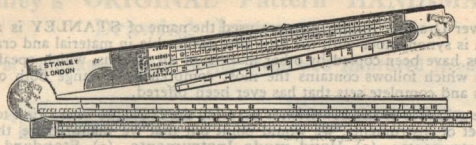


P1960.

		£	s.	d.
P1960	**Timber Calliper**, iron, with wood handle, measuring inches and quarters up to 27 inches	2	10	0

For Telegraphic Code see end of catalogue.

Timber Rule, Etc.

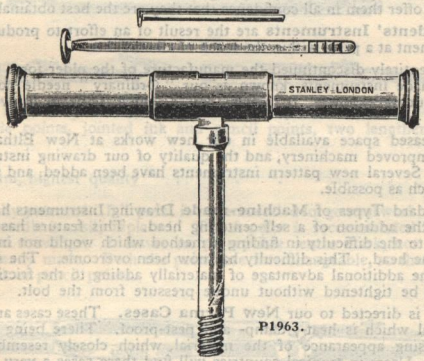


P1961.

		£	s.	d.
P1961	Timber Rule, 2-feet, three-fold, with timber table and ivory calculating slide	1	0	0

P1962.

P1962	Timber Marker, for the pocket, smooth horn handle . .		5	6



P1963.

P1963 **Pressler Borer**, for ascertaining the rate of growth of trees. The instrument consists of a hollow cylindrical boring tool having a screw cutter on the outside. This is screwed into the tree after the fashion of a carpenter's gimlet, and on being withdrawn brings with it the piece of wood which fills the hollow centre of the tool. An examination of this will show the distance apart of the " annual rings " of the trunk, and so indicate whether the tree is continuing to grow satisfactorily. The tool is usually inserted near the foot of the tree so as not to damage the marketable value of the trunk. Complete with book of instructions 3 3 0

Timber Books.

P1964	Hoppus' Timber Measuring Tables	2	0	
P1965	Timber Measuring Note Book, for recording measurements ..	3	6	

STANLEY'S Drawing Instruments.

Wherever Drawing Instruments are used the name of **STANLEY** is a household word which is synonymous with the very best obtainable in material and craftsmanship. Our patterns have been copied by other makers of all nations, which speaks for itself. The section which follows contains the most comprehensive range both of individual instruments and complete sets that has ever been offered.

For the guidance of any new friends perusing the catalogue with a view to purchasing their first set of instruments, we would point out that we manufacture three distinct types of instruments: (1) **Hand-made Instruments**, (2) **Standard Machine-made Instruments**, (3) **Students' Machine-made Instruments.**

Our Hand-made Instruments are substantially the same in design as when originally invented by the late Mr. Stanley in 1850. The great reputation which this firm enjoys was built up on this series, and in our view they are to-day the most perfect instruments, both in quality and design, obtainable. That this view is shared by many professional men all over the world is evidenced by the steadily increasing demand. The fact that we frequently receive sets forty and fifty years old to be done up as new is a wonderful tribute to their wearing properties.

The Standard Machine-made Instruments are made almost entirely by repetition machinery and are consequently cheaper than the hand-made types. Some people prefer them because they are lighter. For those who prefer this type of instrument we offer them in all confidence that they are the best obtainable.

The Students' Instruments are the result of an effort to produce a really good quality instrument at a price within the reach of all students.

We have entirely discontinued the manufacture of the older form of needle points to the hand-made instruments, known as our "Ordinary" needle points, as we can now produce our well-known "B" needle points, which are better in every way, at the same price.

The increased space available in our new works at New Eltham has enabled us to install improved machinery, and the quality of our drawing instruments remains unsurpassed. Several new pattern instruments have been added, and prices have been reduced as much as possible.

Our Standard Types of **Machine-made** Drawing Instruments have been further improved by the addition of a self-centering head. This feature has not been fitted before, owing to the difficulty in finding a method which would not interfere with the efficiency of the head. This difficulty has now been overcome. The method we have adopted has the additional advantage of materially adding to the friction of the head, enabling it to be tightened without undue pressure from the bolt.

Attention is directed to our **New Perma Cases.** These cases are moulded from a new material which is heat-, damp- and pest-proof. There being no coverings to wear, the pleasing appearance of the material, which closely resembles walnut, will last for years. Users in tropical countries will find these cases a very great boon.

For the present only one size of case can be supplied, which will take sets P2225, to P2227, and P2276 and P2279.

For those customers who desire to make up their own sets, we have cases without internal packings. These can be fitted with the usual velvet packings to take instruments as selected.

Stainless Instruments. Although we can produce any of our drawing instruments with the steel parts of stainless steel, we do not recommend the use of this material, except in very humid countries or places where the liability of attack from moisture or corrosive fumes is great. We buy the very finest stainless steel obtainable for our work, but even that does not compare with carbon steel for quality. **Stainless Steel is not homogeneous**, and is very difficult to temper properly. These disadvantages are more than counterbalanced by its very obvious advantages in the Tropics, **but not in this country.**

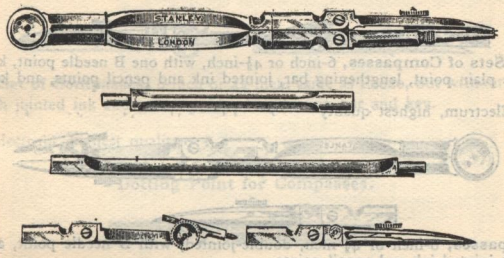
In the circumstances only a proportion of our instruments are listed in stainless steel; others can be made to order only.

Stanley's ORIGINAL Pattern HAND-MADE Drawing Instruments.

Half Sets of Compasses, with Sector Head and Improved Needle Points.

Section—Spring Point A.

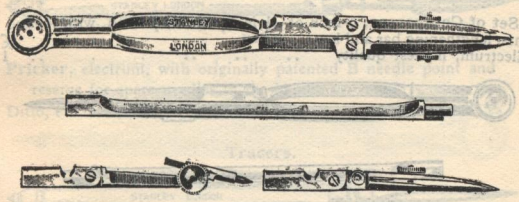
Front of Point—Needle Point B.



Half Set of Compasses, 6-inch or 4½-inch, double-jointed, with patented A and B needle points, jointed ink and pencil points, two lengthening bars and adjusting key.

		£	s.	d.
P2001	Electrum, highest quality	2	12	6

The originally patented "B" point is recommended for general work. It is firm and sound, and the needle is easily replaced. The A point is recommended for tracing or inking-in finished drawings. It leaves no perceptible centre mark, nor does it much enlarge one already made. Both the points are interchangeable, so that either can be used with the ink or pencil points.



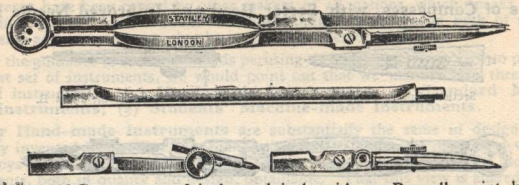
Half Set of Compasses, 6-inch or 4½-inch, same as the above, double-jointed, but with two B needle points, one detachable and one fixed, instead of A and B points, one lengthening bar, jointed ink and pencil points, and adjusting key.

		£	s.	d.
P2002	Electrum, highest quality	1	16	0

For Telegraphic Code see end of catalogue.

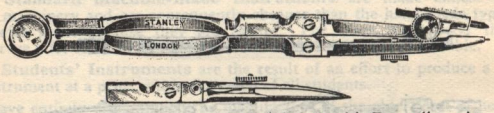
Stanley's Drawing Instruments.

Half Sets of Compasses, with Sector Head and Improved Needle Points (continued).



Half Sets of Compasses, 6-inch or 4½-inch, with one B needle point, knee-joint, detachable plain point, lengthening bar, jointed ink and pencil points, and key.

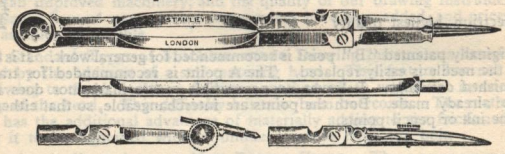
		£	s.	d.
P2004	Electrum, highest quality	1	14	6



Compasses, 6-inch or 4½-inch, double-jointed, with B needle point, and interchangeable jointed ink and pencil points.

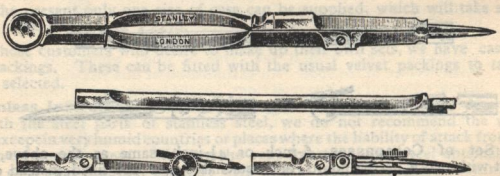
		£	s.	d.
P2005	Electrum, highest quality	1	11	0

Half Sets of Compasses, with Sector Head and Plain Points.



Half Set of Compasses, 6-inch or 4½-inch, double-jointed, with jointed ink and pencil points, lengthening bar and key.

		£	s.	d.
P2016	Electrum, highest quality	1	14	6

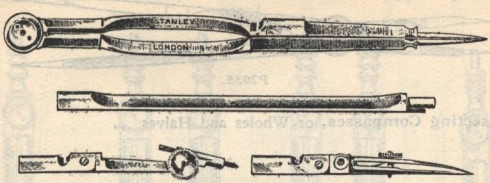


Half Set of Compasses, 6-inch or 4½-inch, same as the above, but with the detachable point without joint, with jointed ink and pencil points, lengthening bar and key.

		£	s.	d.
P2020	Electrum, highest quality	1	12	6
P2023	Ditto, 9-inch, for large details	3	0	0

Stanley's Drawing Instruments.

Half Set of Compasses, with Sector Head and Plain Points.



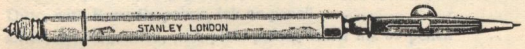
Half Set of Compasses, 6-inch or 4½-inch, same as P2020, but without the knee joints, with jointed ink and pencil points, lengthening bar and key.

		£	s.	d.
P2024	Electrum, highest quality	1	10	0

Dotting Point for Compasses.

P2026	Wheel Point, for making dotted circles, fitted to any of the foregoing, with box of wheels	14	6	

Prickers.

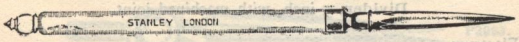


P2028.

P2029.

P2028	Pricker, electrum, with originally patented B needle point and reserve for spare needles in the handle	4	0	
P2029	Ditto, electrum, ordinary needle point, without reserve for needles	3	6	

Tracers.



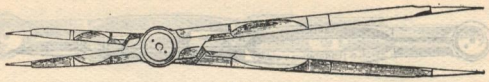
P2032.

P2031	Tracer, with ivory handle and agate point	4	0	
P2032	Ditto, ditto, steel point	3	0	
P2033	Ditto, ditto, steel point, cheaper quality	2	6	

For Telegraphic Code see end of catalogue.

Stanley's Drawing Instruments.

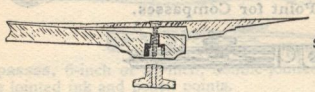
Bisecting Compasses.



P2035.

		£	s.	d.
P2035	Bisecting Compasses, or Wholes and Halves	1	10	0

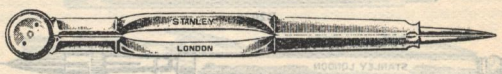
Dividers.



Section of the Hair Spring Adjustment.

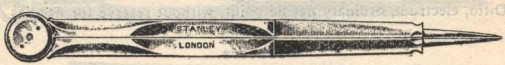
Divider, 5-inch or 4-inch, with sector-jointed head and Stanley's improved hair spring, as Section illustration.

		£	s.	d.
P2043	Electrum, highest quality		9	6



Divider, 5-inch or 4-inch, best plain, with sector head.

P2046	Electrum, highest quality	7	0	



Divider, 5-inch, with machined joint.

P2050	Electrum	6	6	
P2051	Brass	5	6	
P2052	Ditto, cheaper make	3	0	

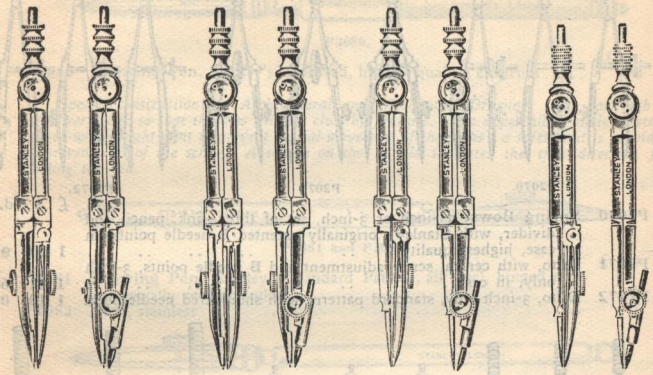
For Pocket and Sheath Dividers, see page 190

For Telegraphic Code see end of catalogue.

Bows—Stanley's Improved Patterns.

(Highest Quality Electrum.)

Bows do not have detachable points, so separate instruments are required for ink and for pencil.

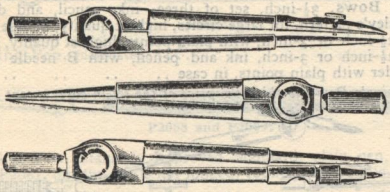


P2056. P2057. P2059. P2060.

		£	s.	d.
P2056	Bow, either ink or pencil, Stanley's improved construction, with sector head joint, double knee joints and combined A and B needle points (see page 177)		18	6
P2057	Ditto, with B needle points, ink or pencil		14	0
P2059	Ditto, double-jointed, with plain points, either ink or pencil ..		12	0
P2060	Ditto, plain, without knee joints, either ink or pencil		7	0

The above are in two sizes—large, about 3¾ inches ; small, about 3 inches.

Bows—New Cheap Form, in Brass.



P2062.

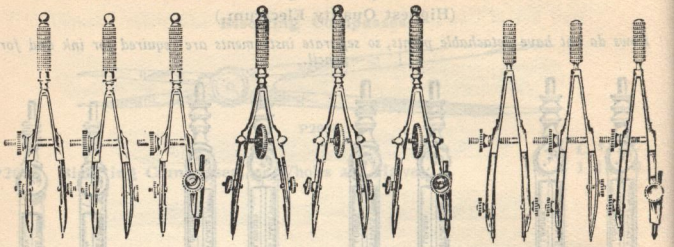
P2064.

P2063.

Large size (about 3¾ inches) only.

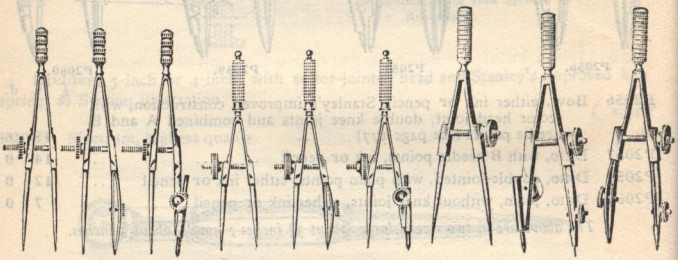
		£	s.	d
P2062	Bow, ink, without joints, plain points, 3-inch legs		3	6
P2063	Ditto, pencil, ditto		3	6
P2064	Ditto, divider, ditto		3	6
P2065	The above three bows, with pen P2086, in mahogany box		16	0

STANLEY Spring Bows.



P2070. P2071 P2072.

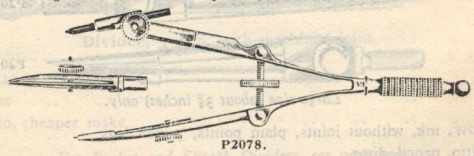
		£	s.	d.
P2070	Spring Bows, 2½-inch or 3-inch, set of three—ink, pencil, and divider, with Stanley's originally patented B needle points, in case, highest quality	1	10	0
P2071	Ditto, with central screw adjustment and B needle points, 3-inch only, in case..	1	11	6
P2072	Ditto, 3-inch only, standard pattern, with shouldered needle point	1	10	0



P2073 P2074. P2075.

		£	s.	d.
P2073	Spring Bows, 3½-inch, set of three—ink, pencil, and divider, Stanley's pattern, for large circles, highest quality, in case ..	1	10	0
P2074	Ditto, 2½-inch or 3-inch, with plain points, highest quality, in case	1	1	0
P2075	Ditto, 2½-inch or 3-inch, ink and pencil, with B needle points, divider with plain points, in case	1	1	6

A single Bow one-third the price of the set in case, except P2075.



P2078.

P2078	Large size Spring Bow for drawing circles up to 3½-inch diameter with interchangeable ink and pencil points			19 0
P2079	Velvet-lined case for above			4 0

STANLEY Drawing Pens.

These Drawing Pens are fitted with ivory handles, and have electrum mounts and the finest quality steel nibs.

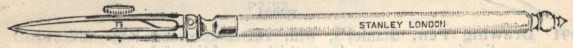
P2080.

		£	s.	d.
P2080	**Drawing Pen**, Stanley's improved, highest quality, electrum ..		8	6

Special construction for Architectural and Mechanical Drawing. The back nib is made very stiff, so that the nibs will not close by pressure. The upper nib is made of steel, hinged with a tight joint to prevent lateral movement of the limbs; a safety nut is provided to prevent loss of the screw. A square on the handle indicates the true direction for holding the pen.

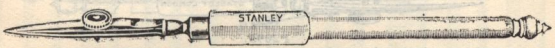
P2081 and P2082.

		£	s.	d.
P2081	**Drawing Pen**, Stanley's Standard Pattern, all steel, hinged nib, specially recommended		6	6
P2082	Ditto, stainless		7	6



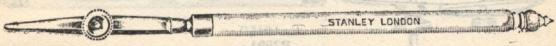
P2083.

		£	s.	d.
P2083	**Drawing Pen**, ordinary construction, hinged nib		5	0



P2084.

		£	s.	d.
P2084	**Drawing Pen**, Stanley's improved plain steel pen, similar to P2080, but the nib is not hinged		4	6



P2085.

		£	s.	d.
P2085	**Drawing Pen**, plain steel		3	6

P2088 and P2089.

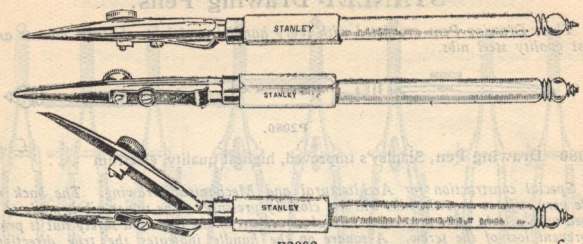
		£	s.	d.
P2086	**Drawing Pen**, Stanley's Improved Standard, plain pen, similar to P2081, but the nib is not hinged, round ivory handle ..		3	6
P2087	Ditto, stainless		4	3
P2088	Ditto, ebonite handle		3	0
P2089	Ditto, stainless		3	9

All the above are made in two sizes: large, about 6 inches long; small, about 5 inches.

Unless otherwise ordered large size will be supplied.

For Telegraphic Code see end of catalogue.

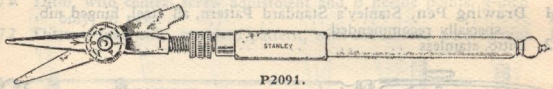
Drawing Pens (continued).



P2090.

		£	s.	d.
P2090	**"Eraut" Improved Drawing Pen**, 6-inch, highest quality, ivory handle		9	6

The particular advantage of the Eraut Ruling Pen is that the nibs can be instantly opened for cleaning, and closed again without affecting the adjustment of width of line.

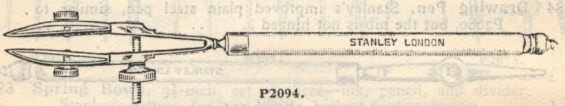


P2091.

P2091	**Drawing Pen**, Stanley's, with swivel nib and large indexed adjusting screw, to indicate thickness of line, 6-inch		8	6
P2092	Ditto, stainless		10	6

P2093.

P2093	**Drawing Pen**, double adjustment, to change from thin to shade line		11	6

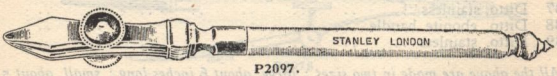


P2094.

P2094	**Road, or Double Pen**, for drawing parallel lines		9	6
P2095	Road, or Double Pencil		9	6

P2096.

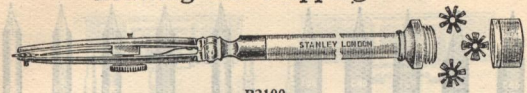
P2096	**Detail, or Diagram Pen**, for large drawings		7	6



P2097.

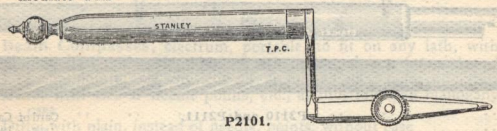
P2097	**Border Line Pen**, for ink or colour		9	6
P2098	**Drawing Pens**, set of four, in morocco case, P2091, P2081, P2084, P2085	1	7	6

Drawing and Mapping Pens.



P2100.

		£	s.	d.
P2100	**Wheel or Dotting Pen**, Stanley's original patent, for drawing dotted lines, with four wheels, to make dots only, dashes only, dashes with one intermediate dot, and dashes with two intermediate dots		11	6



P2101.

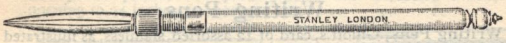
P2101	**Curve Pen**, Stanley's (cranked)		7	0

P2102.

P2102	**Curve Pen**, curved form (swivel)		5	0

P2103.

P2103	**Section Pen**, with adjustable point to indicate the distance apart of the lines		8	6



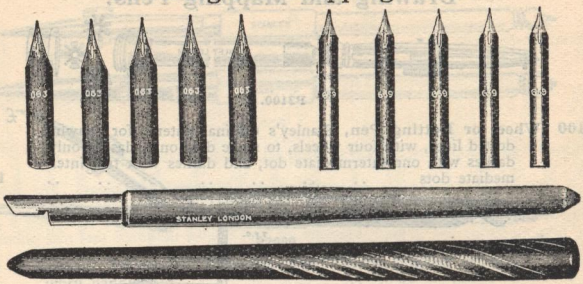
P2104.

P2104	**Lettering Pen**, Stanley's, for titling plans, etc.; this pen draws lines of equal thickness in any direction		8	6

P2105.

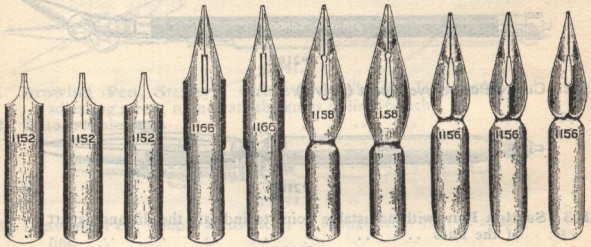
P2105	**Lettering Pen, Barch-Payzant**, for freehand lettering on drawings, etc.; the nib contains a well for holding the ink, in six grades, 1 to 6, for different thickness of line, each		6	6
P2106	**Holborn Crow Quills**, in cork handle, 3d. each, per doz. ..		2	9
P2107	**Lithographic Pen**, similar to P2085, but with longer nib, and specially hardened and tempered for working on stone ..		6	0
P2108	**Red Ink Pen**, similar to P2085, but made of solid electrum to avoid corrosion, with red ivory handle		4	0

Lettering and Mapping Pens.



P2110 and P2111.

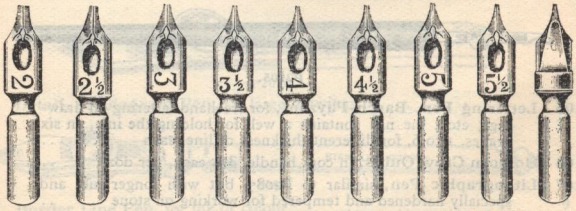
		Card of six.	Card of twelve.	Per gross.
P2110	Gillott's Mapping, Drawing, and Engineering Pens, No. 291	—	2/-	18/-
P2111	Gillott's Lithographic Crow Quill Barrel Pens, No. 659	1/3	2/-	18/-



P2112.

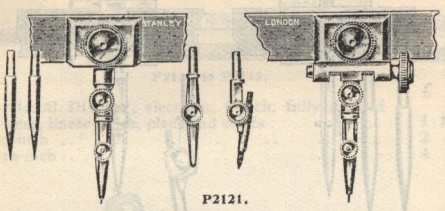
Writing Pens.

		£	s.	d.
P2112	**Writing Pens**, Gillott's, card of 12 assorted, stainless, as illustrated		1	0
P2113	Ditto, fine, No. 303, per gross		5	0
P2114	Ditto, fine, No. 170, per gross		4	0
P2115	Ditto, fine, medium or broad, No. 404, per gross		3	0
P2116	Ditto, Mitchell's superior "Swan-slip," per gross		3	0
P2117	Handles for any of the above, per dozen .. .. 1/6 and		2	6



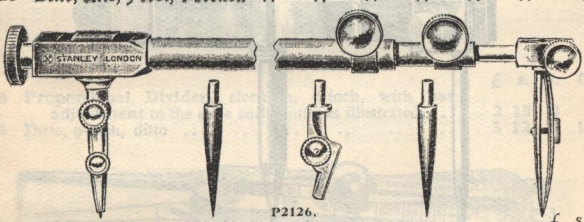
P2118	**Lettering or Round Writing Pens**, Gillott's, card of eleven, assorted			6
P2119	Ditto, ditto, box of three dozen, assorted		1	6

Beam Compasses or Trammels.



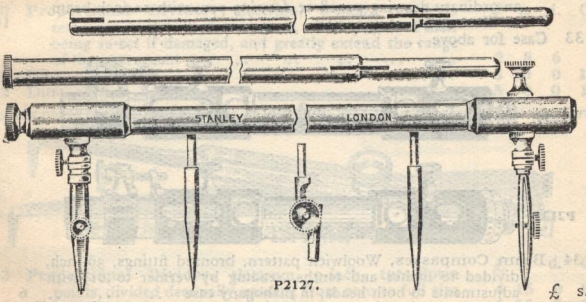
P2121.

		£	s.	d.
P2120	**Beam Compasses**, electrum, portable, to fit on any lath, with A and B needle points (see page 177), two plain points, ink and pencil points, and adjusting screw, in mahogany case	2	0	0
P2121	Ditto, with two B needle points, etc., as illustrated, in mahogany case	1	18	0
P2122	Ditto, with plain, instead of needle, points, without case	1	8	6
P2123	**Case**, mahogany, for P2122		5	6
P2124	**Laths**, for any of the above, 3-foot, plain		2	0
P2125	Ditto, ditto, 5-foot, T section		5	0



P2126.

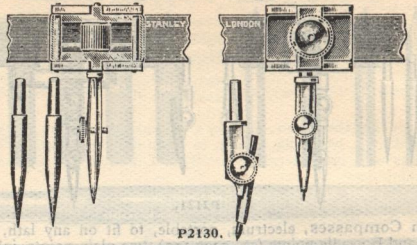
		£	s.	d.
P2126	**Beam Compasses, Sliding Tubular**, with B needle point, ink and pencil points, two plain points, and adjusting screw, opening to 24 inches, in morocco case	3	10	0



P2127.

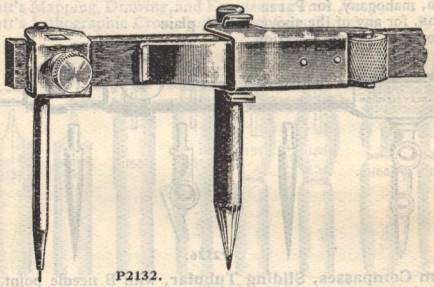
		£	s.	d.
P2127	**Beam Compasses**, new tubular pattern, with fine adjustment as illustrated, specially recommended, maximum radius 25 inches	3	5	0
P2128	Velvet-lined snap case for above		10	0

Beam Compasses (continued).



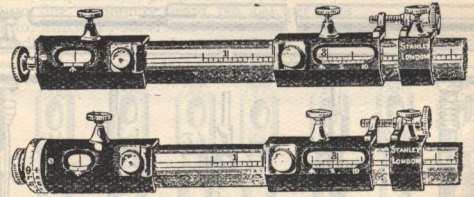
P2130.

		£	s.	d.
P2130	**Beam Compasses,** electrum, with improved roller adjustment, with one B needle point, two plain points, ink and pencil points, with 12-inch and 24-inch laths	1	10	0
P2131	Case for the above Beam Compasses and points		5	6



P2132.

P2132	**Beam Compass,** roller adjustment, the fixed head provided with a shouldered steel point and the adjusting head arranged to use an ordinary drawing pencil or drawing pen, with 12-inch beam, as illustrated		10	0
P2133	Case for above		6	3

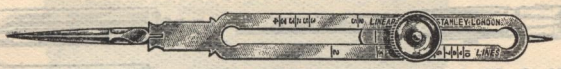


P2134.

P2135.

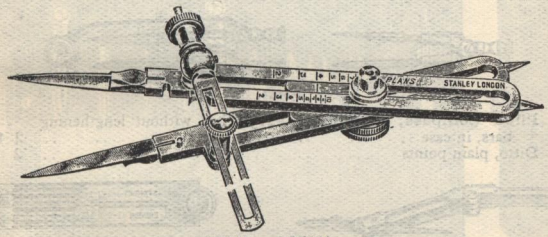
P2134	**Beam Compasses,** Woolwich pattern, bronzed fittings, 36-inch, divided to inches and tenths, reading by vernier to .01, with adjustments to both heads, in mahogany case	6	6	0
P2135	Ditto, ditto, with micrometer head and adjusting head, ditto ..	7	10	0
P2136	**Beam Compasses,** Ordnance pattern, 4-foot, reading to .01 inch	4	10	0
P2137	Ditto, ditto, with adjustment, not divided	5	0	0

Proportional Dividers.



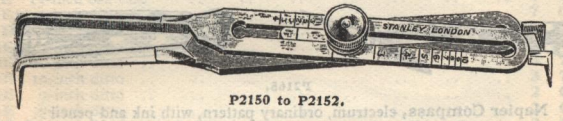
P2140 to P2143.

		£	s.	d.	Case
P2140	**Proportional Divider**, electrum, 6-inch, fully divided for lines, linear ratios, plans and solids	1	13	6	4/6
P2142	Ditto, 9-inch	2	5	0	7/6
P2143	Ditto, 12-inch	4	4	0	10/6



P2145 and P2146.

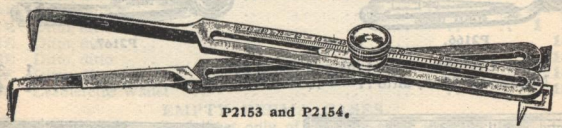
		£	s.	d.	Case
P2145	**Proportional Divider**, electrum, 6-inch, with bar **adjustment** to the slide and points, as illustrated ..	2	15	0	6/6
P2146	Ditto, 9-inch, ditto	3	12	6	10/6



P2150 to P2152.

		£	s.	d.	Case
P2150	**Proportional Divider**, electrum, 6-inch, Stanley's improved, with turn-down points, which permit of their being re-set if damaged, and greatly extend the range of the instrument	2	8	6	6/-
P2151	Ditto, 9-inch	3	10	0	10/6
P2152	Ditto, 12-inch	5	0	0	15/6

Any of the above can be divided decimally instead of with the usual scales at the same prices.

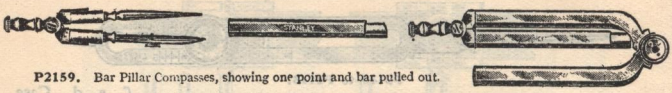


P2153 and P2154.

		£	s.	d.	Case
P2153	**Proportional Divider**, electrum, 9-inch, turn-down points, divided decimally, reading from zero to full size	4	15	0	10/6
P2154	Ditto, 12-inch	6	15	0	15/6

For Telegraphic Code see end of catalogue.

Pocket Compasses.

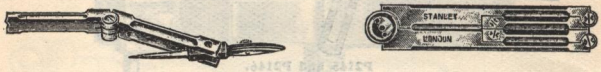


P2159. Bar Pillar Compasses, showing one point and bar pulled out.

		£	s.	d.
P2158	**Pillar Compasses**, electrum, forming pocket set of instruments, with lengthening bars, ink and pencil points to draw out, with B needle points, in case	3	10	0
P2159	Ditto, plain points, as illustrated	3	2	0

P2161.

P2160	**Pillar Compass**, electrum, as P2158, but without lengthening bars, in case	2	17	6
P2161	Ditto, plain points	2	5	6



P2163.

P2162	**Napier Compass**, electrum, Swiss pattern, but own manufacture, with B needle points, ink and pencil points, in case	2	5	6
P2163	Ditto, but with plain points	1	8	0

P2165.

P2164	**Napier Compass**, electrum, ordinary pattern, with ink and pencil points, B needle points, in case	2	11	6
P2165	Ditto, but with plain points	2	2	6

Pocket Dividers.

P2166.

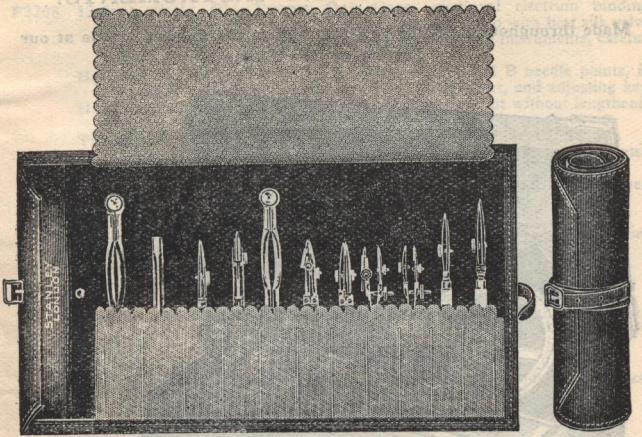
P2167.

P2166	**Pillar Divider**, without ink and pencil points	1	3	0
P2167	**Napier Divider**, ditto	1	4	0

P2168.

P2168	**Pocket Divider**, 3½-inch, with square sheath, divided with scales..		17	6
P2169	Ditto, with plain screw-on sheath		11	6

Empty Cases for Drawing Instruments.



		£	s.	d.
P2171	**Empty Pocket Roll-up Case,** Rexine, lined with velvet, with wash-leather pockets and flap, 8×16 inches when unrolled ..		7	6

The numbers are for the same cases as given on the following pages, adding "E."

P2208E	13-inch old brown oak case	14	0	0
P2209E	13-inch oak case	7	0	0
P2210E	13-inch ditto	7	0	0
P2211E	13-inch ditto	3	18	0
P2212E	13-inch ditto	3	7	6
P2213E	10-inch ditto	3	7	6
P2214E	10-inch ditto	3	7	6
P2215E	7-inch ditto	2	0	0
P2216E	7-inch ditto	2	0	0
P2217E	7-inch ditto	2	0	0
P2218E	7-inch walnut case	1	2	6
P2219E	7-inch oak case	1	2	6

The following cases are packed to hold 4½-inch instruments; if made in the larger size to contain 6-inch instruments, add 3s. 6d. to the price.

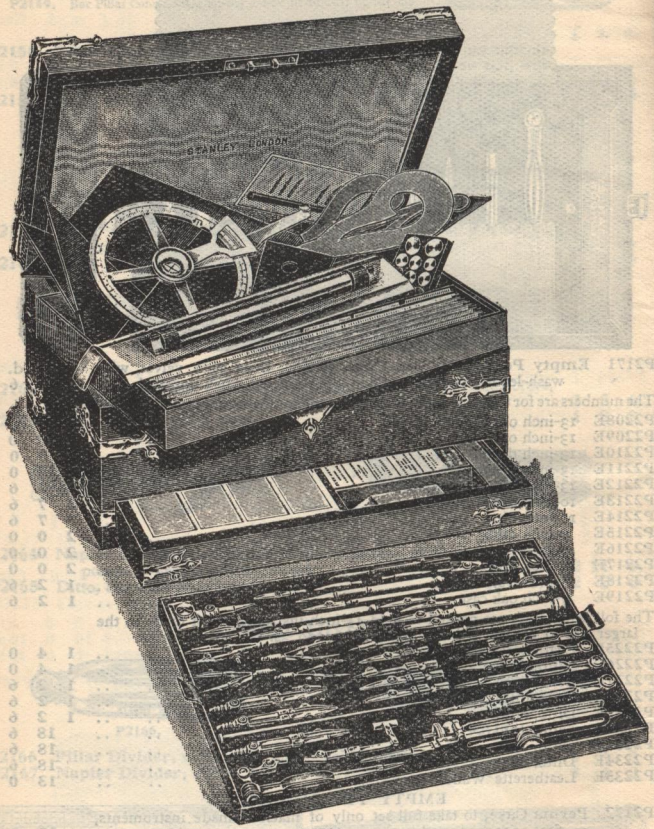
P2225E	Leather Pocket Case	1	4	0
P2226E	Ditto, ditto	1	4	0
P2227E	Ditto, ditto	1	2	6
P2230E	Ditto, ditto	1	2	6
P2231E	Ditto, ditto	1	2	6
P2232E	Ditto, ditto		18	6
P2233E	Ditto, ditto		18	6
P2234E	Ditto, ditto		18	6
P2235E	Leatherette Wallet		13	0

EMPTY PERMA CASES.

P2172	**Perma Case,** to take full set only of machine-made instruments, first or second quality		18	6
P2173	**Perma Case,** to take full set of hand-made instruments, first or second quality		18	6
P2174	**Perma Case,** with velvet packings; this case can be packed to take any variety of instruments, to order	1	5	0

CASES OF DRAWING INSTRUMENTS.

Made throughout from the raw material to the finished article at our Factory at New Eltham.



P2208.

Magazine Cases of Drawing Instruments.

P2208 **13-inch Solid Old Brown Oak Case**, mediæval electrum bindings. Mr. Stanley's design, Hobbs' lock with two keys, lined with best silk velvet, two trays, drawer for colours, containing the following instruments, carefully selected :—

Half Set of Compasses (P2001), 6-inch, with A and B needle points, ink and pencil points, two lengthening bars, wheel point, and adjusting key.
Half Set of Compasses (P2001), 4½-inch, as above, but without lengthening bars.
Triangular Compasses with sliding bar and elliptic fitting.
Proportional Compasses (P2146), 9-inch, fully divided, with bar adjustment.
Beam Compasses (P2120), with A and B needle points.
Dividers (P2046), 5-inch, best plain, and (P2043), 4-inch, with hair adjustment.
Bows (P2057), ink and pencil, with B needle points.
Ditto, ink, with A needle point.
Spring Bows (P2071), set of three—ink, pencil, and divider, B needle points.
Dotting Pen (P2100), with box of wheels.
Drawing Pens (P2080), with hinged nib, and (P2084) with plain nib.
Ditto (P2085), best plain steel, one each 4½-inch and 6-inch.
Road or Double Pen (P2094). **Road or Double Pencil** (P2095).
Pricker (P2028), with B needle point. **Tracer** (P2031), with agate point.
Crow Quills (P2111), six, with handle.
Brick Gauge (P2601), with four gauges.
Drawing Pins (P2636), one dozen.
Protractor (P2905), 6-inch, electrum, with vernier arm, reading to minutes.
Scales, set of six 12-inch Ivory Surveyor's, with Off-sets (P2403).
12-inch Ivory Architect's or Mechanical Engineer's Scale (P2512).
Parallel Rule (P2625), 12-inch, solid electrum.
Set Squares, four celluloid (P3055 to P3057), assorted.
French Curves, six Pearwood (P2746), assorted patterns.
The drawer contains twelve whole cakes of highest quality colours, stick of genuine Chinese ink, sable brushes, and palette.

	£	s.	d.
Price	53	10	0

The above is a most elegant and useful case, eminently suitable for public presentation.

P2209 **13-inch Electrum Bound Solid Oak Case**, lined with best silk velvet, with two trays, Hobbs' lock, drawer, etc., containing the following highest quality instruments :—

Half Set Compasses (P2001), 6-inch, with A and B needle points, ink and pencil points, two lengthening bars, and key.
Compasses (P2005), 4½-inch, with B needle point, and ink and pencil points.
Triangular Compasses, 5-inch, electrum.
Proportional Compasses (P2142), 9-inch, fully divided.
Beam Compasses (P2121), with B needle, ink, pencil, and two plain points.
Dividers (P2046), 5-inch, best plain, and (P2043), 4-inch, with hair adjustment.
Bows (P2057), ink and pencil, with B needle points.
Spring Bows (P2071), set of three, with B needle points.
Dotting Pen (P2100), with set of wheels.
Drawing Pens (P2080), with hinged nib, and (P2084), with plain nib.
Ditto, two (P2085), best plain steel.
Road or Double Pen (P2094).
Pricker (P2028), with B needle point. **Tracer** (P2031), with agate point.
Protractor (P2920), 6-inch, circular, electrum, reading to half-degrees.
Scales, six 12-inch, Boxwood, and Off-sets (P2401) or six Architect's or Engineer's Scales (P2414).
Parallel Rule (P2623), 12-inch, solid brass, rolling.
Set Squares, four celluloid (P3055 to P3057), assorted.
French Curves, six Pearwood (P2746), assorted patterns.
The drawer contains ten cakes of highest quality colour, Indian ink, brushes and palette.

	£	s.	d.
Price	29	10	0

Magazine Cases of Instruments (continued.)

P2210 **13-inch Solid Oak Case**, with electrum bindings, Hobbs' lock, lined with best silk velvet, with two trays and drawer for colours, containing the following highest quality instruments :—

Half Set of Compasses (P2002), 6-inch, with B needle points, lengthening bar, ink and pencil points, and adjusting key.

Compasses (P2005), 4½-inch, with B needle, and ink and pencil points.

Proportional Compasses (P2142), 9-inch, fully divided.

Beam Compasses (P2121), with B needle points, two plain, and ink and pencil points.

Divider (P2043), 5-inch, with hair adjustment.

Bows (P2057), ink and pencil, with B needle points.

Spring Bows (P2074), set of three, with plain points.

Drawing Pen (P2080), Stanley's improved construction.

Ditto (P2084), ditto, without hinge to nib.

Ditto (P2085), Stanley's best plain steel.

Dotting Pen (P2100), with set of wheels.

Road or Double Pen (P2094), for parallel lines.

Pricker (P2028), with B needle point.

Tracer (P2031), with agate point.

Scales, six 12-inch Boxwood Surveyor's, with Off-sets (P2401) or six Architect's or Mechanical Engineer's (P2414).

Parallel Rule (P2623), 12-inch, solid brass, rolling.

Set Squares (P3055 and P3056), 45° and 60°, celluloid.

French Curves, three Pearwood (P2746), assorted patterns.

Protractor (P2920), 6-inch, semi-circular, gun-metal.

The drawer contains ten cakes of best quality colours, stick of genuine Chinese ink, an assortment of first quality brushes, palette or slope tile with four slopes.

	£	s.	d.
Price	25	0	0

P2211 **13-inch Solid Oak Case**, two trays, Hobbs' lock, lined with silk velvet, containing the following electrum instruments of the highest quality :—

Half Set of Compasses (P2002), 6-inch, with B needle points, ink and pencil points, lengthening bar and adjusting key.

Proportional Compasses (P2140), 6-inch, fully divided.

Beam Compasses (P2122), with adjustment.

Divider (P2043), 5-inch, with hair adjustment.

Bows (P2057), ink and pencil, with B needle points.

Spring Bows (P2074), set of three—ink, pencil and divider, with plain points.

Drawing Pen (P2080), Stanley's improved construction.

Ditto, two (P2085), best plain steel.

Dotting Pen (P2100), with set of wheels.

Pricker (P2028), with B needle point.

Tracer (P2031), with agate point.

Drawing Pins (P2636), one dozen, with electrum heads and screwed-in points.

Scales, six 12-inch Boxwood, Surveyor's, with Off-sets (P2401), or six Architect's or Engineer's (P2414).

Parallel Rule (P2623), 12-inch, solid brass, rolling.

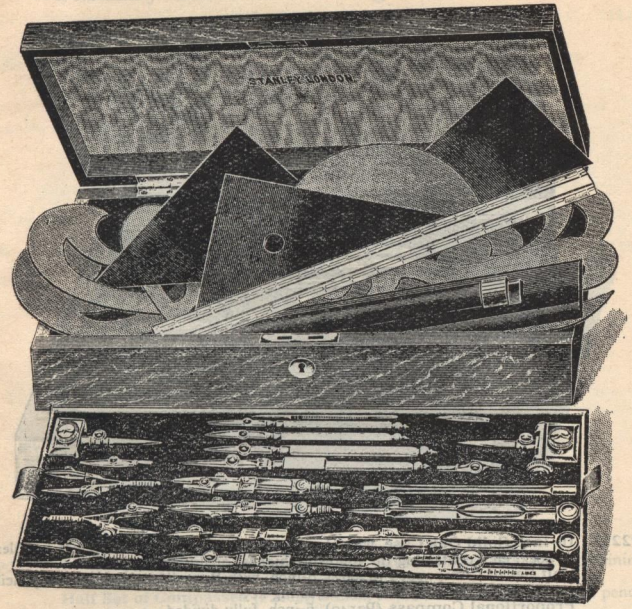
French Curves, three Pearwood (P2746), assorted patterns.

Set Squares, Celluloid (P3055 to P3057), one each 45°, 60°, and 67½°.

Protractor (P2920), 6-inch, semi-circular, gun-metal.

	£	s.	d.
Price	17	0	0

Magazine Cases of Instruments (continued).



P2212.

P2212 **13-inch Solid Oak Case**, lever lock, lined with silk velvet, containing the following electrum instruments of the highest quality :—

Half Set of Compasses (P2004), 6-inch, with one B needle point, detachable plain point, lengthening bar, ink and pencil points, and adjusting key.
Proportional Compasses (P2140), 6-inch, fully divided.
Beam Compasses (P2122), with adjustment.
Divider (P2043), 5-inch, with hair adjustment.
Bows (P2057), ink and pencil, with B needle points.
Spring Bows (P2074) set of three—ink, pencil and divider, with plain points.
Drawing Pen (P2080), Stanley's improved construction.
Two ditto (P2085), best plain steel.
Pricker (P2028), with B needle point.
Ivory Scale (P2537), 12-inch, oval section, containing eight scales.
Parallel Rule (P2619), 12-inch, ebony, rolling, with brass bridge.
Set Squares (P3061 and P3062), one each, 45° and 60°, vulcanite.
French Curves (P2746), three, Pearwood, assorted patterns.
Protractor (P2922), 6-inch, semi-circular, gun-metal.

	£	s.	d.
Price	15	0	0

A very useful and popular case for Architects and Mechanical Engineers.

10-inch Electrum-bound Cases of Instruments.

P2213.

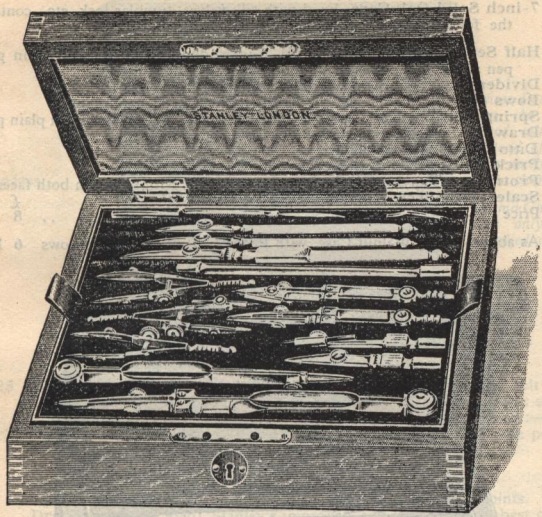
P2213 **10-inch Solid Oak Case**, with electrum bindings, lined with silk velvet, tumbler lock, etc., containing the following highest quality instruments :—
Half Set of Compasses (P2002), 6-inch, with B needle points, ink and pencil points, lengthening bar, and adjusting key.
Proportional Compass (P2140), 6-inch, fully divided.
Divider (P2043), 5-inch, with hair adjustment.
Bows (P2057), ink and pencil, with B needle points.
Spring Bows (P2070), set of three, with B needle points.
Drawing Pen (P2080), Stanley's improved construction.
Ditto (P2085), best plain steel.
Pricker (P2028), with B needle point.
Protractor (P2972), 6-inch, ivory, rectangular, and 6-inch ivory Architect's Scale (P2562).
Parallel Rule (P2619), 6-inch, ebony, rolling.

	£	s.	d.
Price	13	0	0

P2214 **10-inch Solid Oak Case**, with electrum bindings, lined with silk velvet, containing the following highest quality instruments :—
Half Set of Compasses (P2002), 6-inch, with needle points, lengthening bar, ink and pencil points, and adjusting key.
Beam Compasses (P2122), with adjustment, ink and pencil, and two plain points.
Divider (P2043), 5-inch, with hair adjustment.
Bows (P2057), ink and pencil, with needle points.
Spring Bows (P2074), set of three—ink, pencil, and divider, with plain points.
Drawing Pen (P2080), with hinged nib, and (P2085) ditto, plain steel.
Pricker (P2028), with B needle point.
Ivory Protractor (P2972), and two 6-inch Architect's or Engineer's Scales.

	£	s.	d.
Price	11	0	0

Ordinary Cases of Drawing Instruments.



P2215.

P2215 **7-inch Solid Oak Case**, lined with silk velvet, tumbler lock, etc., containing the following highest quality instruments :—
Half Set of Compasses (P2002), 6-inch, with B needle points, ink and pencil points, lengthening bar, and adjusting key.
Divider (P2043), 5-inch, with hair adjustment.
Bows (P2057), ink and pencil, with B needle points.
Spring Bows (P2070), set of three, with B needle points.
Drawing Pen (P2080), Stanley's improved construction.
Ditto (P2085), best plain steel.
Pricker (P2028), with B needle point.
Protractor (P2972), 6-inch, Ivory, rectangular
Scales, two 6-inch Ivory Architect's or Surveyor's.

	£	s.	d.
Price	9	0	0

P2216 **7-inch Solid Oak Case**, silk velvet, tumbler lock, etc., containing the following highest quality instruments :—
Half Set of Compasses (P2004), 6-inch, with one B needle point, detachable plain point, lengthening bar, ink and pencil points, and adjusting key.
Divider (P2043), 5-inch, with hair adjustment.
Bows (P2057), ink and pencil, with B needle points.
Spring Bows (P2074), set of three—ink, pencil, and divider, with plain points.
Drawing Pen (P2080), Stanley's improved construction.
Ditto (P2085), best plain steel.
Pricker (P2028), with B needle point.
Protractor (P2972), 6-inch, Ivory, rectangular.
Scales, two 6-inch Architect's or Surveyor's, Ivory.

	£	s.	d.
Price	8	10	0

Cases of Drawing Instruments (continued).

P2217 **7-inch Solid Oak Case**, lined with silk velvet, tumbler lock, etc., containing the following highest quality electrum instruments :—

Half Set of Compasses (P2016), 6-inch, double jointed, with plain points, pen and pencil points, lengthening bar, and adjusting key.
Divider (P2043), 5-inch, with hair adjustment.
Bows (P2059), ink and pencil, double jointed, with plain points.
Spring Bows (P2074), set of three—ink, pencil, and divider, with plain points.
Drawing Pen (P2080), with hinged nib.
Ditto (P2085), best plain steel.
Pricker (P2028), with B needle point.
Protractor (P2972), 6-inch, Ivory, rectangular, with scales on both faces.
Scales, two 6-inch, Ivory, Architect's or Surveyor's.

	£	s.	d.
Price	8	2	6

P2218 As above, but in Walnut Case, with P2024 half set and P2060 bows **6 10 0**

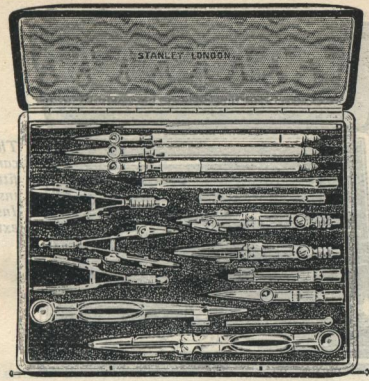
P2219.

P2219 **7-inch Solid Oak Case**, lined with silk velvet, tumbler lock, containing the following highest quality electrum instruments :—

Half Set of Compasses (P2024), 6-inch, sector-jointed, with ink and pencil points, lengthening bar, and adjusting key.
Divider (P2046), 5-inch, sector-jointed.
Bows (P2060), ink and pencil, Stanley's improved pattern.
Drawing Pens (P2082), with hinged nib, and (P2085), best plain steel.
Pricker (P2029), with needle point.
Protractor (P2971), 6-inch, Ivory, rectangular.
Scale, 6-inch, Ivory.

	£	s.	d.
Price	5	0	0

Pocket Cases of Drawing Instruments.



P2225.

These Pocket Cases can be supplied fitted with 6-inch, instead of 4½-inch, Instruments at an extra charge of 3/6.

Perma Cases, 6-inch size only, can be supplied at list price.

P2225 **Best Leather Case**, with rounded corners and edges, improved bolt fastening, flap for scales in the lid, and silver name plate, lined with best silk velvet, containing the following highest quality electrum instruments :—
Half Set of Compasses (P2001), 4½-inch, with A and B needle points; two lengthening bars, ink and pencil points, and adjusting key.
Divider (P2043), 4-inch, with hair adjustment.
Bows (P2057), 3-inch, ink and pencil, with B needle points.
Spring Bows (P2070), 2½-inch, set of three, with B needle points.
Drawing Pen (P2080), Stanley's improved, and (P2085) ditto, best plain steel.
Pricker (P2028), with B needle point.
Scale (P2561), 5-inch, Ivory, universal, containing 17 scales.
Protractor (P2972), 5-inch, Ivory, rectangular.
Price **£9 0 0**

P2226 **Best Leather Case**, as above, containing the following highest quality electrum instruments :—
Half Set of Compasses (P2002), 4½-inch, with B needle points, two lengthening bars, ink and pencil points, and adjusting key.
Divider (P2043), 4-inch, with hair adjustment.
Bows (P2057), 3-inch, ink and pencil, with B needle points.
Spring Bows (P2074), 2½-inch, set of three, with plain points.
Drawing Pen (P2080), Stanley's improved, and (P2085), ditto, best plain steel.
Pricker (P2028), with B needle point.
Scale (P2561), 5-inch, Ivory, universal, containing 17 scales.
Protractor (P2972), 5-inch, Ivory, rectangular.
Price **£7 15 0**

P2227 **Best Leather Case**, with bolt fastening, flap for scales in the lid, and electrum name plate, containing the following highest quality electrum instruments (illustrated next page) :—
Half Set of Compasses (P2004), 4½-inch, with B needle point, detachable plain point, lengthening bar, ink and pencil points, and adjusting key.
Divider (P2043), 4-inch, with hair adjustment.
Bows (P2057), 3-inch, ink and pencil, with B needle points.
Spring Bows (P2070), 2½-inch, set of three, with plain points.
Drawing Pen (P2080), Stanley's improved, and (P2085) ditto, best plain steel.
Pricker (P2028), with B needle point.
Protractor (P2972), 5-inch, Ivory, rectangular, with scales on both faces.
Price **£7 0 0**

Pocket Cases of Drawing Instruments (continued).

P2227.
(as on page 199.)

These Pocket Cases can be supplied fitted with 6-inch, instead of 4½-inch, Instruments at an extra charge of 3/6.

P2230 **Best Leather Case,** with bolt fastening, flap in lid for scales, and electrum name plate, containing the following highest quality electrum instruments:—

Half Set of Compasses (P2016), 4½-inch, with double knee joints, ink and pencil points, lengthening bar, and adjusting key.

Divider (P2043), 4-inch, with hair adjustment.

Bows (P2059), 3-inch, ink and pencil, with double knee joints and plain points.

Spring Bows (P2074), 2½-inch, set of three, with plain points.

Drawing Pen (P2083), with hinged nib, and (P2085) ditto, best plain steel.

Pricker (P2028), with B needle point.

Protractor (P2971), 5-inch, Ivory, with scales on both faces. £ s. d.

Price 6 12 6

P2231 **Best Leather Case,** with bolt fastening, flap in lid for scales, and electrum name plate, containing the following highest quality electrum instruments:—

Half Set of Compasses (P2020), 4½-inch, with sector head joint, ink and pencil points, lengthening bar, and adjusting key.

Divider (P2043), 4-inch, with hair adjustment.

Bows (P2060), 3-inch, ink and pencil, Stanley's improved, plain pattern.

Spring Bows (P2074), 2½-inch, set of three, with plain points.

Drawing Pen (P2083), with hinged nib, and (P2085), ditto, best plain steel.

Pricker (P2028), with B needle point.

Protractor (P2971), 5-inch, Ivory, with scales on both faces. £ s. d.

Price 5 15 6

Any of the foregoing Pocket Sets can be supplied in japanned tin, instead of usual cases, at the same prices.

Pocket Cases of Drawing Instruments (continued).

P2232.

These Pocket Cases can be supplied fitted with 6-inch, instead of 4½-inch, Instruments at an extra charge of 2/6.

P2232 **Best Leather Case**, with bolt fastening, flap for scales in the lid, and electrum name plate, containing the following highest quality electrum instruments :—

Half Set of Compasses (P2004), 4½-inch, with B needle point, detachable plain point, lengthening bar, ink and pencil points, and adjusting key.

Divider (P2043), 4-inch, with hair adjustment.

Bows (P2057), 3-inch, ink and pencil, with B needle points.

Drawing Pen (P2083), Stanley's improved construction, and (P2085) ditto, best plain steel.

Protractor (P2971), 5-inch, Ivory, rectangular, with scales on both faces.

Price £5 7 6

P2233 **Best Leather Case**, with bolt fastening, flap in lid for scales, and electrum name plate, containing the following highest quality electrum instruments :—

Half Set of Compasses (P2016), 4½-inch, with double knee joints, ink and pencil points, lengthening bar, and adjusting key.

Divider (P2043), 4-inch, with hair adjustment.

Bows (P2059), 3-inch, ink and pencil, with double knee joints and plain points.

Drawing Pen (P2083), with hinged nib, and (P2085) ditto, plain steel.

Protractor (P2971), 5-inch, Ivory, rectangular, with scales on both faces.

Price £5 2 6

P2234 **Best Leather Case**, with bolt fastening, flap in lid for scales, and electrum name plate, containing the following highest quality electrum instruments :—

Half Set of Compasses (P2020), 4½-inch, with sector head joint, ink and pencil points, lengthening bar, and adjusting key.

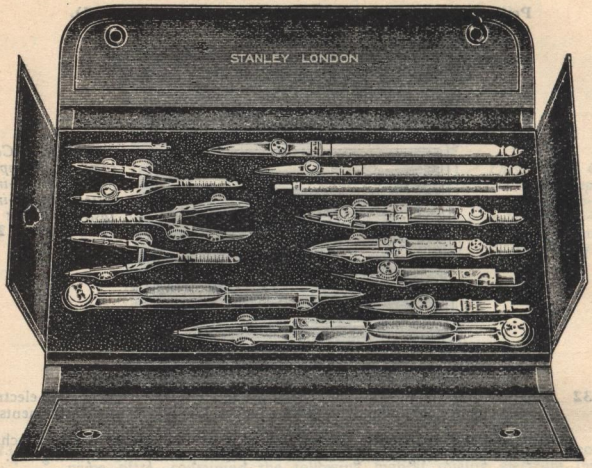
Divider (P2043), 4-inch, with hair adjustment.

Bows (P2060), 3-inch, ink and pencil, Stanley's improved plain pattern.

Drawing Pen (P2083), with hinged nib, and (P2085) ditto, best plain steel.

Protractor (P2971), 5-inch, Ivory, rectangular, with scales on both faces.

Price £4 7 6



P2235.

This set of instruments is on the lines of our well-known hand-made patterns, but the design and finish have been slightly modified to cheapen production, but nothing has been sacrificed that will impair their efficiency. They are recommended with every confidence for students and apprentices.

P2235 A reliable set of British-made Drawing Instruments at an exceptionally low price. Specially designed for the use of Students and Apprentices.

Leatherette Wallet Case, strongly made, lined with velvet, containing the following instruments in electrum :—

Half Set of Compasses, 6-inch, double jointed, with nut and bolt needle points, ink and pencil points, lengthening bar, and adjusting key.

Divider, 5-inch, with hair spring adjustment.

Bows, 3¾-inch, ink and pencil, double jointed, with nut and bolt needle points.

Spring Bows, set of three, 3-inch, ink, pencil and divider, with nut and bolt needle points.

Ruling Pen, 6-inch, with hinged nib and ivory handle.

Ditto, 5-inch, best quality plain steel with ivory handle.

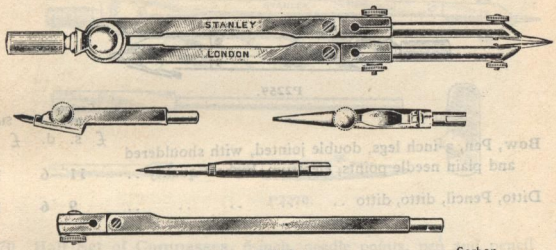
	£	s.	d.
Price	4	15	0

P2236 Ditto, as above, but in Perma Case 5 0 0

STANLEY'S GOVERNMENT STANDARD PATTERN Drawing Instruments.

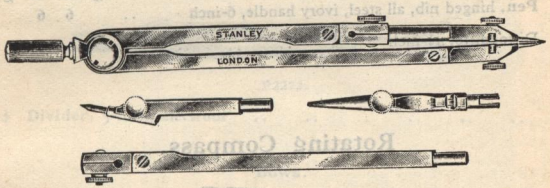
This series of high-grade instruments has been further improved by the addition of a self-centering head, which has been added without in any way interfering with the efficiency of the joint; in fact, the increased friction enables the requisite tightness of the limbs to be attained with less pressure from the bolt than before.

Half Sets of Compasses.



P2250.

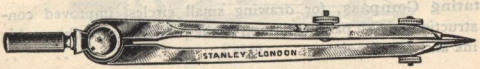
		Carbon Steel. £ s. d.	Stainless. £ s. d.
P2250	**Half Set of Compasses,** 6-inch, double jointed, with patented A and B needle points, ink and pencil points, lengthening bar and adjusting key, electrum, highest quality	1 15 0	—



P2251.

		£ s. d.	£ s. d.
P2251	**Half Set of Compasses,** 6-inch, double jointed, with reversible B point and shouldered needles, pen and pencil points, lengthening bar and adjusting key, electrum, highest quality	1 5 0	1 8 0
P2252	Ditto, without lengthening bar	1 1 6	—

Dividers.

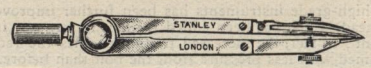


P2254.

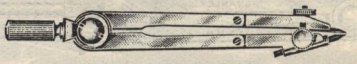
		£ s. d.	£ s. d.
P2254	**Divider,** with fine adjustment, 5-inch, electrum ..	9 6	10 3
P2255	Ditto, without fine adjustment, 6-inch, electrum ..	7 6	—

Government Standard Pattern (continued).

Bows.

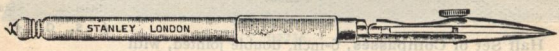


P2258.



P2259.

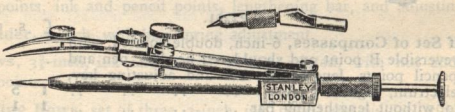
		Carbon Steel. £ s. d.	Stainless. £ s. d.
P2258	Bow, Pen, 3-inch legs, double jointed, with shouldered and plain needle points, electrum, highest quality ..	11 6	13 6
P2259	Ditto, Pencil, ditto, ditto	9 6	10 3



P2263 and P2264.

		£ s. d.	£ s. d.
P2263	Pen, hinged nib, all steel, ivory handle, 6-inch ..	6 6	7 6
P2264	Ditto, ditto, 4½-inch	6 6	7 6

Rotating Compass.



P2266.

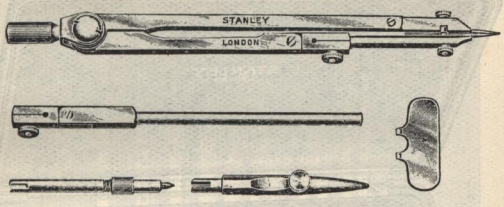
		£ s. d.
P2266	Rotating Compass, for drawing small circles, improved construction, giving parallel motion to the pen, with interchangeable ink and pencil points	12 6
P2267	Case for above	3 0

For Telegraphic Code see end of catalogue.

Government Standard Pattern Instruments, "B" Quality.

These instruments are a modification of the foregoing standard pattern to meet the demand for reliable instruments at a lower price.

Half Set.



P2270.

		£	s.	d.
P2270	Half Set of Compasses, 6-inch, needle points, pen and pencil points, lengthening bar and adjusting key, electrum	13	6	
P2271	Ditto, without lengthening bar	11	9	

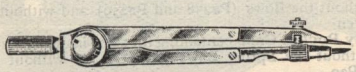
Dividers.

P2273.

		£	s.	d.
P2273	Divider, 5-inch, electrum	4	6	

Bows.

P2274.



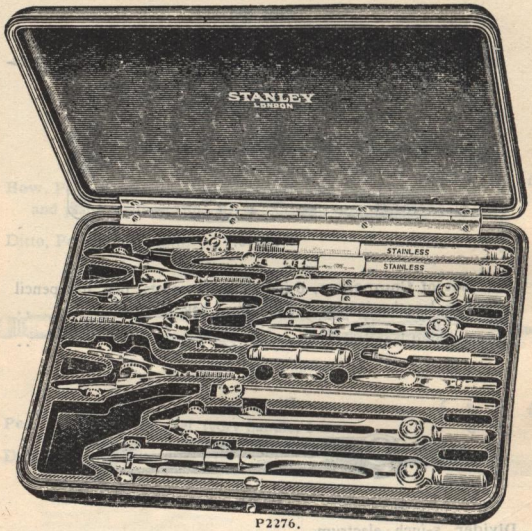
P2275.

		£	s.	d.
P2274	Bow, ink, 3-inch legs, double jointed, electrum	5	6	
P2275	Ditto, pencil, ditto, ditto	4	6	

GOVERNMENT STANDARD PATTERN
Cases of Drawing Instruments.

Although these instruments are produced by mass production methods to reduce costs, every care is taken in the finishing and assembling to ensure that they are in every way worthy of the name of STANLEY.

In future all **full sets only** of Standard Instruments will be supplied in the new "Perma" Cases described on page 176, unless specially ordered otherwise.



P2276.

P2276 **Perma Pocket Case**, containing the following first quality instruments:—
Compasses, 6-inch, double jointed, with shouldered needle points, pen and pencil points, and lengthening bar (P2251).
Divider, with fine adjustment (P2254).
Bows, pen and pencil, double jointed, with shouldered needle points (P2258 and P2259).
Spring Bows, pen, pencil and divider, with B needle points (P2071).
Ruling Pens, one each, 6-inch (P2091), and 5-inch (P2081).
Adjusting Key and box containing spare leads and needle points. £ s. d.
Price 5 10 0

P2277 **Mahogany Pocket Case** containing the same instruments (P2276), but without the Bows (P2258 and P2259) and without hinge to small Pen 4 4 0

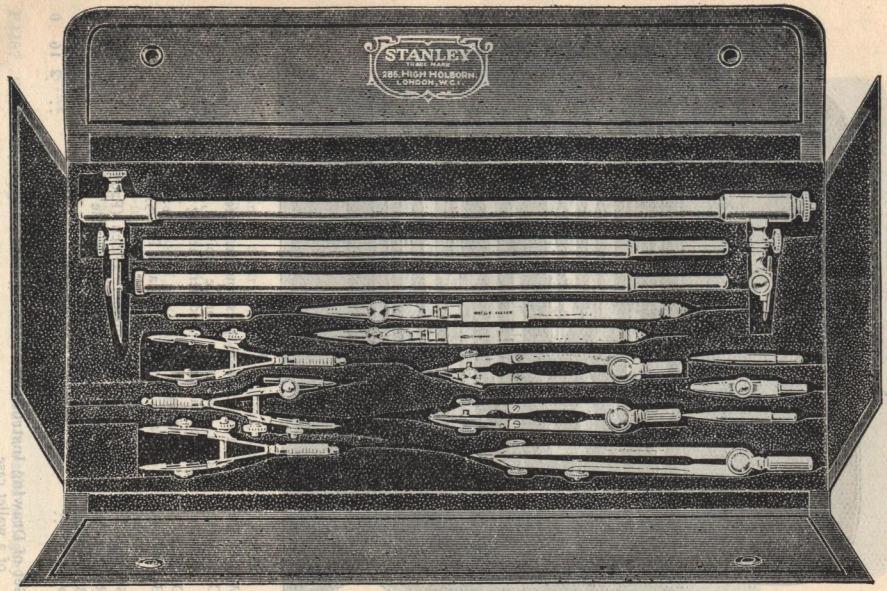
P2278 **Mahogany Pocket Case** containing the same instruments (P2276), but without the Spring Bows (P2071), and without hinge to small Pen 3 17 6

Stainless Instruments.

P2279 **Perma Case**, identically the same as P2276, but with all steel parts made of stainless steel 6 2 0

P2280 **Mahogany Case** as P2277, but with stainless instruments .. 4 14 6

P2281 **Mahogany Case** as P2278, but with stainless instruments .. 4 5 0

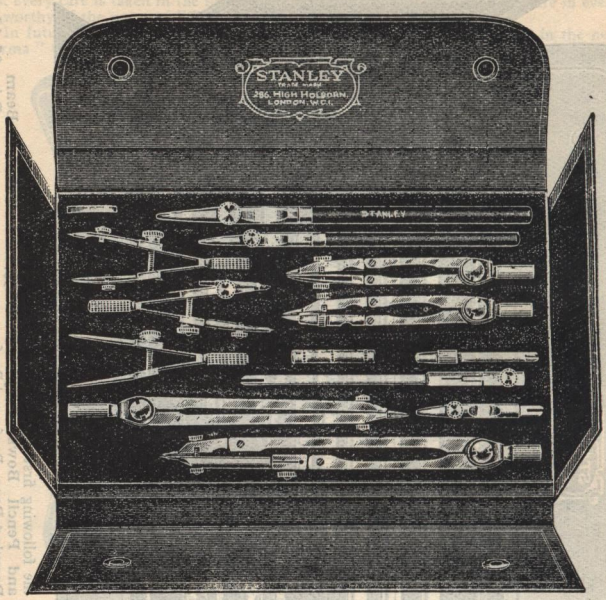


P2282.

P2282 **Wallet Case**, containing the following first quality instruments :—
Divider, P2254 ; **Pen and Pencil Bows**, P2258 and P2259, and **Tubular Beam Compasses**, P2127 ; **Drawing Pens**, P2263 and P2264. Price **£7 12 6**

P2283 **Wallet Case** as above, but with roller beam compass working on the same principle as P2130, on a duralumin bar extending to 28 inches radius. Price **£6 0 0**

Government Standard Pattern Instruments, "B" Quality in Cases.

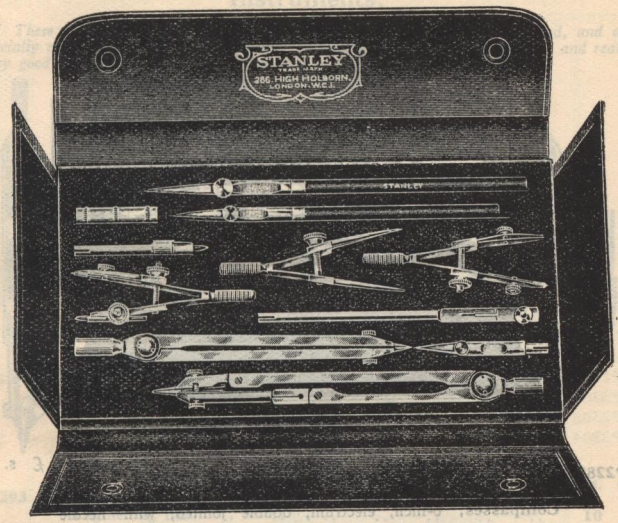


P2284.

		£	s.	d.
P2284	**Wallet Case**, velvet lined, with press-button fastenings. **Compasses**, 6-inch, electrum, double jointed, with needle points, pen and pencil points and lengthening bar (P2270). **Divider**, 5-inch, electrum (P2273). **Bows**, 3¾-inch, pen and pencil (P2274 and P2275), with needle points. **Spring Bows**, pen, pencil, and divider, 3-inch (P2075). **Ruling Pens**, 5-inch and 6-inch, with ebony handle (P2087). Box of leads and spare needles. Price	2	16	0
P2285	**Set of Drawing Instruments** as P2284, but in a Perma, instead of a wallet case. Price	3	8	6

For Telegraphic Code see end of catalogue.

Standard Pattern Instruments, "B" Quality (continued).

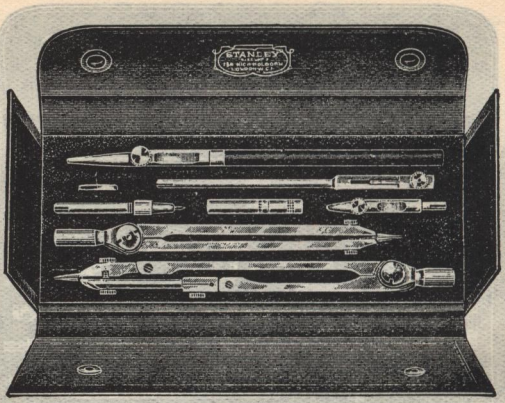


P2286.

		£ s. d.
P2286	**Wallet Case**, velvet lined, with press-button fastenings. **Compasses**, 6-inch, electrum, double jointed, with needle points, pen and pencil points and lengthening bar (P2270). **Divider**, 5-inch, electrum (P2273). **Spring Bows**, pen, pencil, and divider (P2075). **Ruling Pens**, 5-inch and 6-inch, with ebony handles (P2087). Box of leads and spare needles. Price	2 5 0
P2287	**Set of Drawing Instruments**, as P2286, but in a solid mahogany case	2 11 0

For Telegraphic Code see end of catalogue.

Standard Pattern Instruments, "B" Quality (continued).



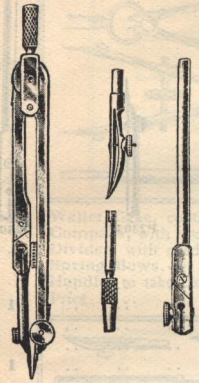
P2288.

		£	s.	d.
P2288	**Wallet Case,** velvet lined, with press-button fastening. **Compasses,** 6-inch, electrum, double jointed, with needle points, pen and pencil points and lengthening bar (P2270). **Divider,** 5-inch, electrum (P2273). **Ruling Pen,** 6-inch, with ebony handle (P2087). Box of leads and spare needles Price	1	5	0
P2289	**Set of Drawing Instruments,** as P2288 but in a solid mahogany case	1	9	0
P2290	**Wallet Case,** containing instruments as in P2288, but without divider	1	0	0
P2291	**Set of Drawing Instruments,** as P2290, but in a solid mahogany case	1	3	0

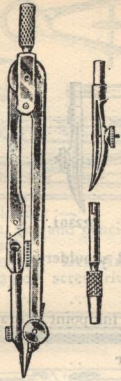
For Telegraphic Code see end of catalogue.

Stanley's Students' or Educational Drawing Instruments.

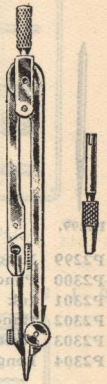
These instruments are not of our professional quality, but are very good, and are specially made to meet the requirements of students, at a very moderate price, and really very good work can be done with them.



P2293.



P2294.



P2295.

		£	s.	d.
P2293	**Compass,** with two needle points, pen and pencil points and lengthening bar		10	0
P2294	Ditto, without lengthening bar		8	3
P2295	**Compass,** with two needle points and pencil point only		6	8

P2296.

P2296	**Compass,** but with ink point instead of pencil point		7	6

P2297.

P2297	**Divider,** with needle points		4	10

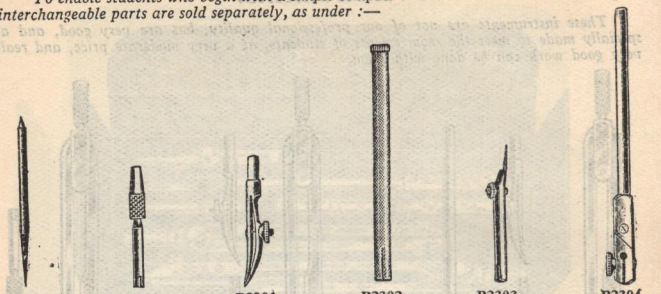
P2298.

P2298	**Drawing Pen**		3	0

For Telegraphic Code see end of catalogue.

Students' Drawing Instruments (continued).

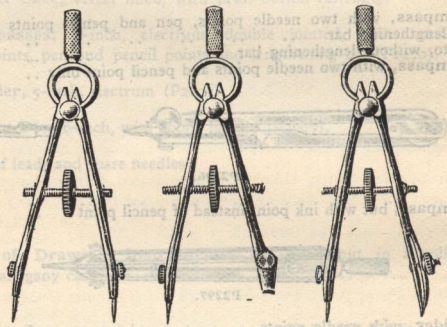
To enable students who begin with a simple compass to add to same to make it complete, interchangeable parts are sold separately, as under :—



P2299. P2300. P2301. P2302. P2303. P2304.

		£	s.	d.
P2299	Needle, plain and shouldered			3
P2300	Pencil Point			9
P2301	Ink Point		1	7
P2302	Handle, for using ink point as drawing pen			8
P2303	Needle Point			9
P2304	Lengthening Bar		1	9

Spring Bows.



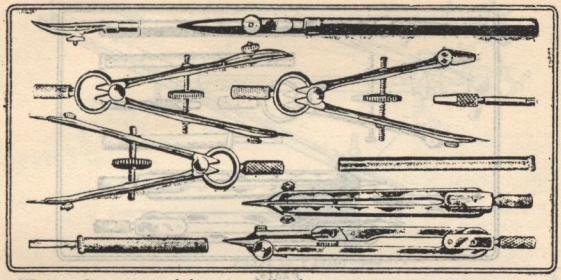
P2305. P2306. P2307.

P2305	**Spring Bow**, needle point, with central adjusting screw, divider		3	9
P2306	Ditto, pencil		3	9
P2307	Ditto, pen		5	0
P2308	**Spring Bow**, needle point, as above, but with ordinary side adjusting screw, divider		2	10
P2309	Ditto, pencil		2	10
P2310	Ditto, pen		4	0

Stanley's Students' or Educational Drawing Instruments.

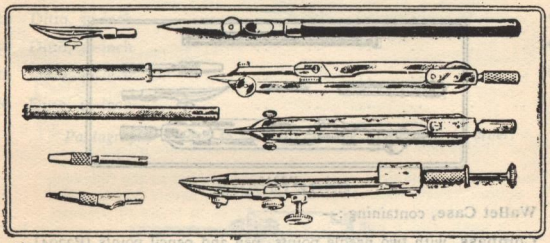
Packed in Velvet-lined Wallet Cases.

P2311.



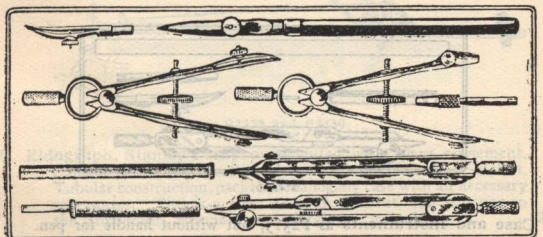
P2311 **Wallet Case,** containing the following :—
Compass, with two needle points, pen and pencil points (P2294).
Divider, with needle points (P2297).
Spring Bows, set of three (P2305-7). **Drawing Pen** (P2298).
Handle, to take compass pen (P2302), screwdriver.
Price £2 1 0

P2312.



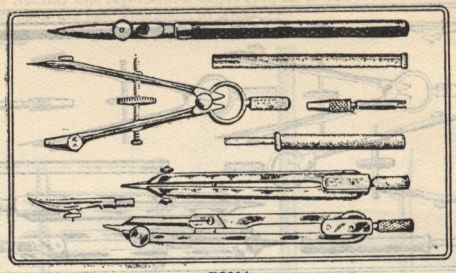
P2312 **Wallet Case,** containing :—
Compass, with two needle points, pen and pencil points (P2294).
Divider (P2297). **Rotating Bow** (P2266).
Handle, to use compass pen as drawing pen (P2302), and screwdriver. **Drawing Pen** (P2298).
Price £2 0 6

P2313.



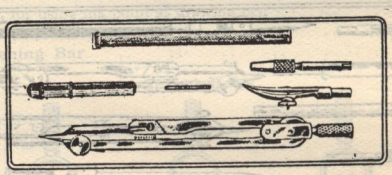
P2313 **Wallet Case,** as P2311, but without the divider spring bow. .. £1 16 0

Students' Instruments (continued).



P2314.

		£	s.	d.
P2314	Case, as P2311, but without ink and divider spring bows. Price	1	10	6

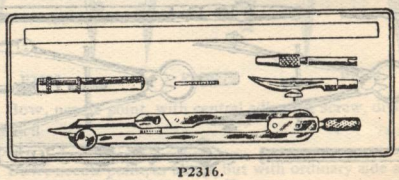


P2315.

P2315 **Wallet Case,** containing :—

Compass, with two needle points, pen and pencil points (P2294).
Handle, to use compass pen as drawing pen (P2302).
Box of leads and adjusting key.

Price 12 9

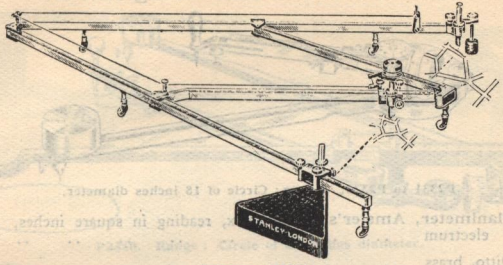


P2316.

P2316 Case and Instruments as P2315, but without handle for pen.

Price 11 9

Pantagraphs, Etc.

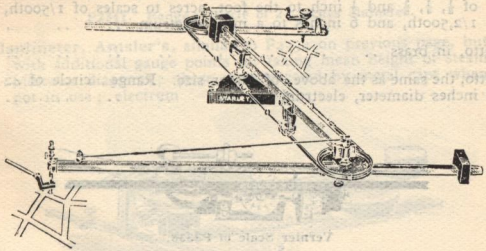


P2321 to P2326.

		£	s.	d.
P2321	**Pantagraph, Stanley's Improved.** These are very light and rigid, being of tubular construction throughout. They are fitted with all our latest improvements, and packed in mahogany case, with all necessary accessories. 18-inch	12	0	0
P2322	Ditto, 24-inch	13	0	0
P2323	Ditto, 30-inch	14	10	0
P2324	Ditto, 36-inch	16	0	0
P2325	Ditto, 42-inch	18	0	0
P2326	Ditto, 48-inch	21	0	0

Pantagraphs divided to decimals, as the Eidograph, to order.

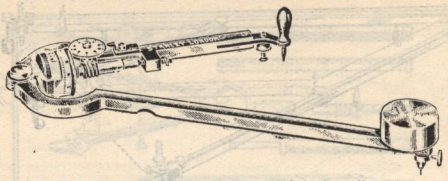
Eidographs.



P2329 and P2330.

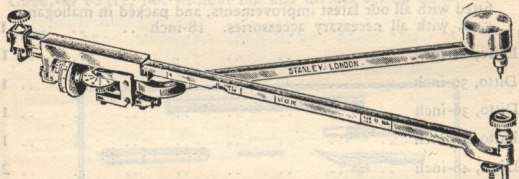
		£	s.	d.
P2329	**Eidograph, Stanley's Improved,** fitted with every refinement. Capable of working from equal size to reductions of one-eighth. Tubular construction, packed in mahogany case with all necessary accessories. This is a most exact instrument, and superior to the Pantagraph, especially for enlarging. 30-inch	25	10	0
P2330	Ditto, 36-inch	29	0	0

Planimeters for Measuring Areas.



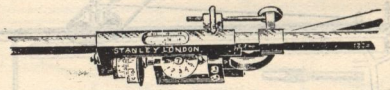
P2331 to P2333. Range: Circle of 18 inches diameter.

		£	s.	d.
P2331	**Planimeter, Amsler's,** fixed index, reading in square inches, electrum	2	16	0
P2332	Ditto, brass	2	15	0
P2333	Ditto, fixed index, reading in square centimetres, electrum ..	2	16	0



P2334 and P2335. Range: Circle of 24 inches diameter.

P2334	**Planimeter, Amsler's,** with sliding bar divided to the following scales: square inches, square centimetres, square feet to scales of $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ inch to the foot, acres to scales of 1/500th, 1/2,500th, and 6 inches to a mile, electrum	3	5	0
P2335	Ditto, in brass	3	1	0
P2336	Ditto, the same as the above, of larger size. Range . circle of 42 inches diameter, electrum	7	17	0

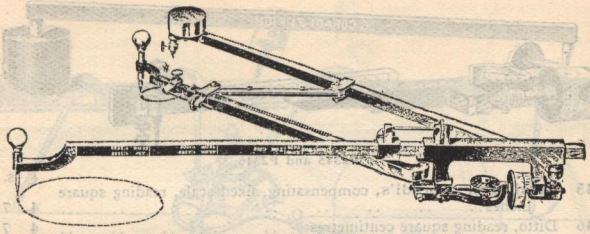


Vernier Scale of P2338.

P2338	**Stanley-Amsler Patented Compensating Planimeter,** similar to P2334, but with additional vernier scale for compensating for shrinkage of printed ordnance maps, with sliding bar graduated for the following scales: square inches, square centimetres, square feet to scales of $\frac{1}{8}$, $\frac{1}{4}$ and $\frac{3}{8}$ inch to the foot, acres to scales of 5 feet, 10 feet, 6 inches and 12 inches to a mile, also 1/500th and 1/2,500th	3	10	0

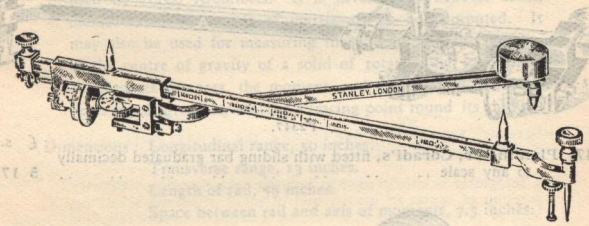
Full instructions with each instrument.

Planimeters (continued).



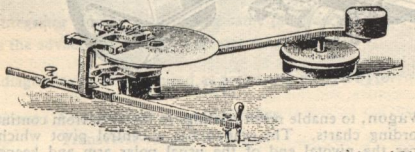
P2340. Range: Circle of 38 inches diameter.

		£	s.	d.
P2340	**Planimeter, Amsler's,** parallel braced, arranged for measuring very large and very small areas, divided to the following scales: square inches, square centimetres, square feet to scales of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, and $\frac{1}{16}$ inch to the foot, acres to scales of 6 inches to a mile and 1/2,500th	11	14	0



P2341. Range: Circle of 24 inches diameter.

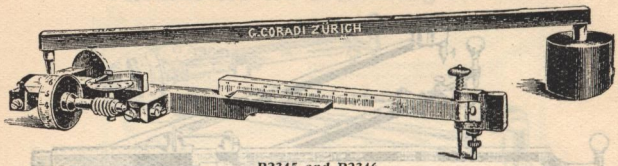
		£	s.	d.
P2341	**Planimeter, Amsler's,** similar to P2334 on previous page, but with additional gauge points for taking mean height of steam indicator diagrams; these are protected by metal caps when not in use; electrum	3	12	0



P2342. Range: Area enclosed between two concentric circles of 31 inches and 13 inches diameter respectively.

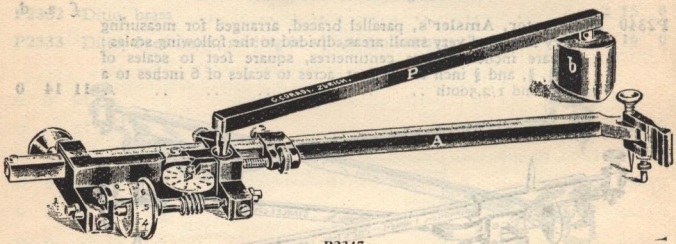
		£	s.	d.
P2342	**Planimeter, Amsler's,** with the roller working on a revolving disc instead of on the surface of the drawing. This is the most accurate form of planimeter, and permits measurements being taken on old or crinkled drawings, brass	27	18	0

Planimeters (continued).



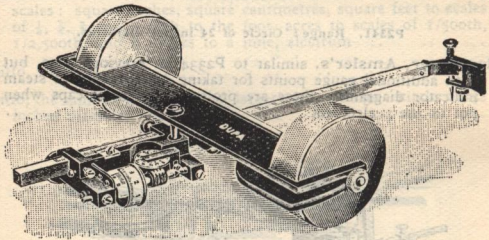
P2345 and P2346.

		£	s.	d.
P2345	**Planimeter, Coradi's,** compensating, fixed scale, reading square inches	4	7	6
P2346	Ditto, reading square centimetres	4	7	6



P2347.

		£	s.	d.
P2347	**Planimeter, Coradi's,** fitted with sliding bar graduated decimally to any scale	5	17	6

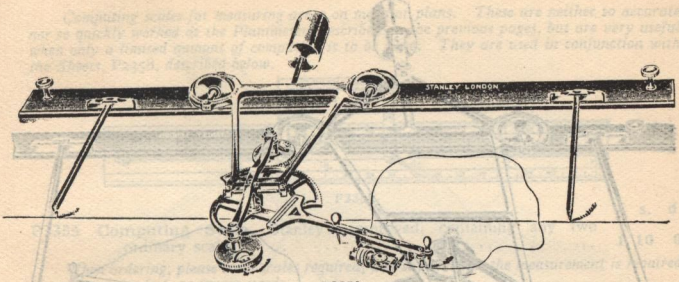


P2348.

		£	s.	d.
P2348	**Pole Wagon,** to enable mean readings to be taken from continuous recording charts. The wagon has a central pivot which replaces the pivotal end of the usual polar arm and keeps the horizontal course of the planimeter perfectly straight. A transverse movement of approximately 10 inches is possible. This accessory can be used for Planimeters P2345 to P2347.			
	Price, extra to cost of Planimeter	3	15	0

Full instructions with each instrument.

Integrators.



P2350.

£ s. d.

P2350 **Integrator, Amsler's.** This instrument is the one mostly used by Naval Architects. It is invaluable whenever areas, moments, and moments of inertia are to be computed. It may also be used for measuring the volume and the position of the centre of gravity of a solid of rotation by its profile. It measures the area, the moment, and the moment of inertia upon any diagram, by moving a tracing point round its outline.

Dimensions : Longitudinal range, 50 inches.
Transverse range, 13 inches.
Length of rail, 59 inches.
Space between rail and axis of moments, 7.5 inches.

Packed in two cases, complete with instructions for use 40 0 0

P2351 **Integrator, Amsler's,** as above, but larger size, and with three, instead of two, tracing points, viz., one fixed to the tracing arm, and two sliding ones.

This Integrator may be used for the same purpose as P2350, but it has the advantage of a much greater range.

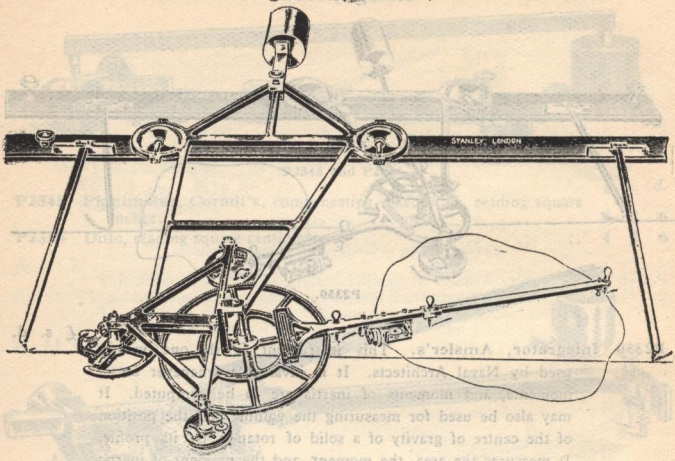
Small diagrams can be measured as accurately as by P2350.

Dimensions : Longitudinal range, 67 inches.
Transverse range, 26 inches.
Length of rail, 78 inches.
Space between rail and axis of moments, 13.5 inches.

Packed in two cases, with instructions for use 60 0 0

For Telegraphic Code see end of catalogue.

Integrators (continued).



P2352.

		£	s.	d.
P2352	**Integrator, Amsler's,** giving the area, the moment of inertia and also the moment of the 4th order.			

This Integrator is chiefly used in ballistic investigations. Volume, position of centre of gravity and moment of inertia about any axis of projectiles, guns, armoured turrets, flying wheels, and other solids of rotation can be measured by the profile.

The range, when measuring the moment and moment of inertia about a cross-axis depends on the shape of the profile. A cylinder 47 inches long and 8 inches in diameter, for example, is the longest cylinder of 8 inches in diameter that can be measured. The shorter the cylinder, the larger may be the diameter.

It is provided with four measuring rollers and with three tracing points.

Both the revolutions of the M roller and of the P roller, and consequently the value of the moment of the 4th order, may turn out to be negative, and this again happens when the greater part of the diagram lies outside the axis of moments.

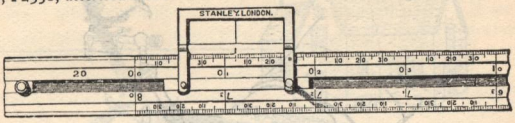
Dimensions : Longitudinal range, 67 inches.
Transverse range, 24 inches.
Length of rail, 78 inches.
Space between rail and axis of moments, 12.4 inches.

Packed in two cases, with instructions for use 90 0 0

For Telegraphic Code see end of catalogue.

Computing Scales.

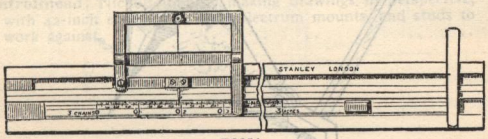
Computing scales for measuring areas on maps or plans. These are neither so accurate nor so quickly worked as the Planimeters described on the previous pages, but are very useful when only a limited amount of computing is to be done. They are used in conjunction with the Sheets, P2358, described below.



P2355.

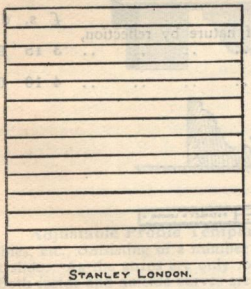
		£	s.	d.
P2355	**Computing Scale,** Stanley's improved, containing any two ordinary scales	1	10	0

When ordering, please state scales required, and say whether the measurement is required in acres, square feet, or square yards.

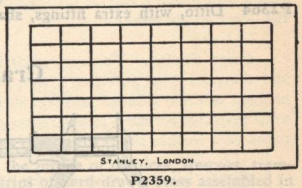


P2356.

		£	s.	d.
P2356	**Computing Scale,** Universal, as made for H.M. Tithe Commission Office, containing 1, 2, 3, 4, 5, 6 chains to the inch, 6 inches to the mile and 1/2,500 scales, complete in mahogany case	4	5	0
P2357	Extra scales made to fit into the above		5	0



P2358.

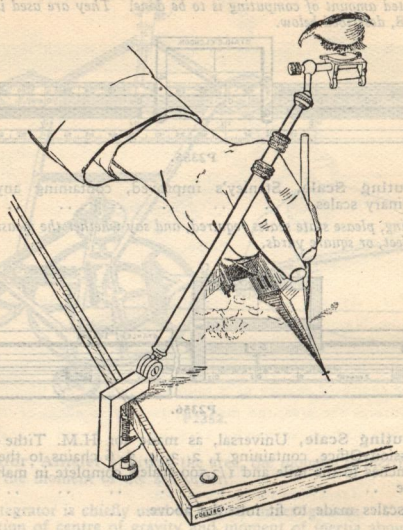


P2359.

		£	s.	d.
P2358	**Computing Sheets,** ruled on tracing cloth, for use with the above, with lines ¼, ⅛, or 1 inch apart; size 18×12 inches ..		4	6
P2359	**Computer,** transparent celluloid, for roughly estimating areas ruled in acre squares, to any scale; where necessary subdivided size 6×3 inches		6	6

Instruments for Outdoor Sketching.

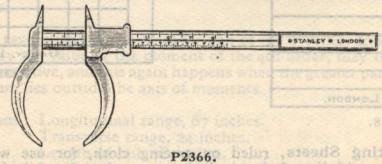
Camera Lucida.



P2363.

		£	s.	d.
P2363	**Camera Lucida,** for sketching objects of nature by reflection, in case	3	15	0
P2364	Ditto, with extra fittings, shades, etc.	4	10	0

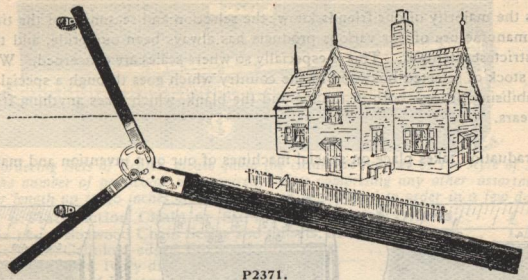
Craniometer.



P2366.

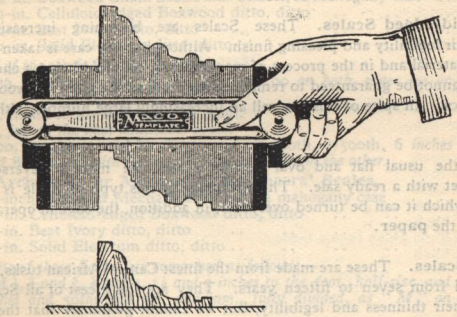
P2366 **Craniometer,** Professor Flower's, for measuring bones, skulls, etc., divided in inches and millimetres, opening to 9 inches, in velvet-lined morocco case 4 10 0

Centrolineads for Perspective Drawing.



P2371.

		£	s.	d.
P2371	**Centrolinead**, Nicholson's, for making drawings in perspective, with 42-inch ebony arm, with electrum mounts, and studs to work against	2	5	0



P2375.

Adjustable Profile Template, for taking the profile of cornices, frescoes, tramlines, etc., consisting of a number of very fine strips of hard-drawn brass assembled in a slide. As the strips are only .007 inch thick, the resultant curve is very smooth. Both inside and outside curves are faithfully recorded.

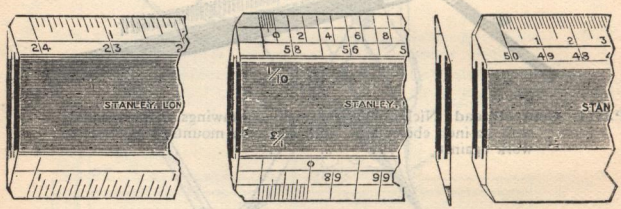
Standard Sizes and Prices.

		£	s.	d.
P2375	2-inch, weight, packed, 10½ oz.		10	6
P2376	4-inch, ,, ,, 1 lb. 6 oz.	1	1	0
P2377	6-inch, ,, ,, 2 lb.	1	10	0
P2378	9-inch, ,, ,, 8 lb. 6 oz.	4	0	0
P2379	12-inch, ,, ,, 12 lb. 14 oz...	7	10	0

STANLEY Engine-divided Drawing Scales.

As the majority of our friends know, the selection and seasoning of the timber used in the manufacture of our various products has always been our pride, and the subject of the strictest attention. This is especially so where scales are concerned. We have the largest stock of selected boxwood in the country which goes through a special seasoning and stabilising process both in the log and the blank, which takes anything from five to eight years.

Graduation takes place on special machines of our own invention and manufacture.



FLAT SECTION. OVAL SECTION. REVERSE BEVEL.

Celluloid-edged Scales. These Scales are becoming increasingly popular owing to their legibility and pleasing finish. Although every care is taken in the seasoning of the material and in the process of manufacture, celluloid being a chemically active substance cannot be guaranteed to remain so accurate as the plain boxwood, particularly in the Tropics. In spite of this, we sell an increasingly large number, although without guarantee.

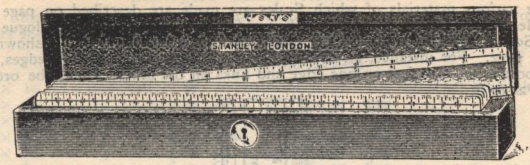
Beside the usual flat and oval section scales, we make a reverse bevel Scale which has met with a ready sale. The advantage of this type of Scale is the ease and speed with which it can be turned over, and, in addition, the edge in operation is always flat down on the paper.

Ivory Scales. These are made from the finest Central African tusks, sun bleached and seasoned from seven to fifteen years. They are the nicest of all Scales to use on account of their thinness and legibility, but we cannot guarantee that they will always keep perfectly accurate, as even after the long seasoning we give them there will sometimes be a further slight contraction when exposed to different atmospheric conditions.

Solid Electrum Scales. Where the greatest possible accuracy is required these are specially recommended. They are also very convenient for use as standards for testing the accuracy of the ordinary Scales in general office use.

Special Scales. The following list will be found to contain nearly all the Scales in general use, but any others can be **made to order** and forwarded within a few days. Orders for special Scales should state **Length, Material,** also **Section and Style of Figuring and Dividing,** as illustrated on the following pages.

Sets of Scales in Cases.



When ordering Sets of Scales, please quote the catalogue number of the style of Scales, and ALSO *the number of particular set required. Sets comprising any other assortment or of any other length up to 30 inches or one metre can be supplied to order in a few days.*

	Sets of 6 Flat Section Chain or Survey Scales with Offsets.	£	s.	d.
P2401	Six 12-in. Boxwood Chain Scales and Offsets, in mahogany case ..	1	12	6
P2402	Six 12-in. Celluloid-edged Boxwood ditto, ditto	2	18	0
P2403	Six 12-in. Best Ivory ditto, ditto	9	10	0
P2404	Six 12-in. Solid Electrum ditto, ditto	8	0	0
P2405	Six 6-in. Boxwood Scales without Offsets, in pocket case		15	6
P2406	Six 6-in. Celluloid-edged Boxwood ditto, ditto	1	7	6
P2407	Six 6-in. Best Ivory Scales ditto, ditto	3	5	0

The contents of the stock Sets of the above Scales are as follows :—
No. 1 Set, 10, 20, 30, 40, 50 *and* 60 *on both edges, as on page 227.*
No. 2 Set, ditto, chains to the inch with feet equal.
No. 3 Set, ditto, feet to the inch with links equal.

	Sets of 10 Flat Section Chain or Survey Scales with Offsets.			
P2409	Ten 12-in. Boxwood Chain Scales and Offsets, in mahogany case ..	2	15	0
P2410	Ten 12-in. Celluloid-edged Boxwood ditto, ditto	4	17	6
P2411	Ten 12-in. Best Ivory ditto, ditto	15	17	6
P2412	Ten 12-in. Solid Electrum ditto, ditto	13	7	6

The contents of the stock Sets are as follows :—
No. 6 Set, 10, 20, 30, 40, 50, 60, 70, 80, 90 *and* 100 *on both edges, as on page 227.*
No. 7 Set, ditto, chains to the inch with feet equal.
No. 8 Set, ditto, feet to the inch with links equal.
No. 9 Set, 10, 20, 30, 40, 50 *and* 60 *chains and* 1/2,500th, 1/500th, 6 *inches to a mile and* 88 *feet, all with feet on one edge and links on the other.*

	Sets of 6 Architects' or Mechanical Engineers' Scales.			
P2414	Six 12-inch Boxwood Mechanical Scales, in mahogany case ..	1	5	0
P2415	Six 12-in. Celluloid-edged Boxwood ditto, ditto	2	3	0
P2416	Six 12-in. Best Ivory ditto, ditto	8	0	0
P2417	Six 12-in. Solid Electrum ditto, ditto	6	13	0

The stock Sets of these Scales are comprised as follows:—
No. 12 Set, $\frac{1}{8}$ *and* $\frac{1}{4}$, $\frac{3}{8}$ *and* $\frac{3}{4}$, $\frac{1}{2}$ *and* 1, $1\frac{1}{2}$ *and* 3 *inches to the foot, half-size and full-size, inches and* 50*ths and cm. and mm., fully divided, as "M" on page 230.*
No. 13 Set, as above, but with the first four scales open divided, as "P" on page 230.

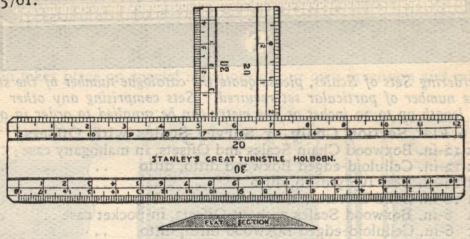
	Sets of 6 Metre Scales with Offsets.			
P2418	Six 12-in. Boxwood Metre Scales and Offsets, in mahogany case ..	1	12	6
P2419	Six 12-in. Celluloid-edged Boxwood ditto, ditto	2	18	0
P2420	Six 12-in. Best Ivory ditto, ditto	9	10	0
P2421	Six 12-in. Solid Electrum ditto, ditto	8	0	0

The stock Sets are comprised as follows :—
No. 15 Set, 1,000, 2,000, 3,000, 4,000, 5,000 *and* 6,000 *metres on both edges.*
No. 16 Set, ditto, ditto, with corresponding feet.
No. 17 Set, .001, .002, .003, .004, .005 *and* .006 *metres on both edges.*
No. 18 Set, ditto, ditto, with corresponding feet.

For empty cases to hold Scales, see page 236.

Engine-divided Scales.

The various materials of which Scales are made are described on page 224, to which please refer before ordering. When ordering, please state the catalogue number of the Scale required, and also the number of the scale required, as shown on the opposite page. For instance, an 18-inch Boxwood Scale with celluloid edges, divided to 1/2,500th scale with feet on one edge and links on the other, should be ordered as "One P2435/61."



Surveyors' Chain or Ordnance Scales and Offsets.

Flat section, fully divided, double figured, containing any two scales, having not more than sixty divisions per inch. (For list of stock Scales, see following page.)

		£	s.	d.
P2425	6-inch Plain Boxwood Scale		2	0
P2426	12-inch " " "		3	0
P2427	18-inch " " "		7	0
P2428	24-inch " " "		12	0
P2429	30-inch " " "		17	6
P2430	2-inch " " Offset		1	3
P2431	3-inch " " "		1	6
P2432	6-inch " " "		4	6
P2433	6-inch Celluloid-edged Boxwood Scale		4	0
P2434	12-inch " " " "		6	0
P2435	18-inch " " " "		12	0
P2436	24-inch " " " "		19	6
P2437	30-inch " " " "	1	8	0
P2438	2-inch " " " Offset		2	6
P2439	3-inch " " " "		3	0
P2440	6-inch " " " "		7	0
P2441	6-inch Best Ivory Scale		10	0
P2442	12-inch " " "	1	5	6
P2443	18-inch " " "	2	10	0
P2444	2-inch " " Offset		5	0
P2445	3-inch " " "		7	6
P2446	6-inch " " "		15	0
P2447	6-inch Solid Electrum Scale		10	0
P2448	12-inch " " "	1	1	0
P2449	18-inch " " "	2	5	0
P2450	2-inch " " Offset		4	6
P2451	3-inch " " "		5	6

Scales and Offsets having 70 to 100 divisions per inch.

P2454	6-inch Best Ivory Scale		11	0
P2455	12-inch " " "	1	7	6
P2456	2-inch " " Offset		5	6
P2457	6-inch Solid Electrum Scale		11	0
P2458	12-inch " " "	1	5	0
P2459	2-inch " " Offset		5	6

Surveyors' Scales (continued).

The following Surveyors' Chain and Ordnance Scales are **kept in stock**; for particulars see previous page.

Chain or Decimal Scales.

21	10× 10	To represent	1	or	10	chains or	10	or	100	feet, etc., per inch.
22	20× 20	,,	2	or	20	,,	20	or	200	,, ,,
23	30× 30	,,	3	or	30	,,	30	or	300	,, ,,
24	40× 40	,,	4	or	40	,,	40	or	400	,, ,,
25	50× 50	,,	5	or	50	,,	50	or	500	,, ,,
26	60× 60	,,	6	or	60	,,	60	or	600	,, ,,
27	70× 70	,,	7	or	70	,,	70	or	700	,, ,,
28	80× 80	,,	8	or	80	,,	80	or	800	,, ,,
29	90× 90	,,	9	or	90	,,	90	or	900	,, ,,
30	100×100	,,	10	or	100	,,	100	or	1,000	,, ,,
31	10×feet.	To represent	1	or	10	chains to the inch, with feet on the other edge.				
32	20× ,,	,,	2	or	20	,,	,,			,, ,,
33	30× ,,	,,	3	or	30	,,	,,			,, ,,
34	40× ,,	,,	4	or	40	,,	,,			,, ,,
35	50× ,,	,,	5	or	50	,,	,,			,, ,,
36	60× ,,	,,	6	or	60	,,	,,			,, ,,
37	70× ,,	,,	7	or	70	,,	,,			,, ,,
38	80× ,,	,,	8	or	80	,,	,,			,, ,,
39	90× ,,	,,	9	or	90	,,	,,			,, ,,
40	100× ,,	,,	10	or	100	,,	,,			,, ,,
41	10× links.	To represent	10	or	100	feet to the inch, with chains on other edge.				
42	20× ,,	,,	20	or	200	,,	,,			,, ,,
43	30× ,,	,,	30	or	300	,,	,,			,, ,,
44	40× ,,	,,	40	or	400	,,	,,			,, ,,
45	50× ,,	,,	50	or	500	,,	,,			,, ,,
46	60× ,,	,,	60	or	600	,,	,,			,, ,,
47	70× ,,	,,	70	or	700	,,	,,			,, ,,
48	80× ,,	,,	80	or	800	,,	,,			,, ,,
49	90× ,,	,,	90	or	900	,,	,,			,, ,,
50	100× ,,	,,	100	or	1,000	,,	,,			,, ,,
51	10×40									
52	20×50									
53	30×60									
54	10×20									
55	20×40									
56	40×80									
57	50×100									

Ordnance or Survey Scales.

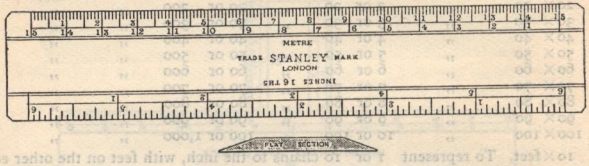
61	1/2,500th in feet one edge and links the other.	77	5 feet to a mile, feet both edges.
62	1/500th.	78	10 feet ,, ,, ,,
63	6 inches to a mile ,,	81	11×22 to the inch.
64	12 inches ,, ,,	82	22×44 ,, ,,
65	5 feet ,, ,,	83	33×66 ,, ,,
66	10 feet ,, ,,	84	44×88 ,, ,,
67	1/2,500th in links both edges.	85	22 feet to the inch, with links equal.
68	1/500th ,,	86	44 ,, ,, ,,
69	6 inches to a mile ,,	87	66 ,, ,, ,,
70	12 inches ,, ,,	88	88 ,, ,, ,,
71	5 feet ,, ,,	89	1/10,000th feet both edges.
72	10 feet ,, ,,	90	1/50,000th ,, ,, ,,
73	1/2,500th in feet both edges.	91	1/100,000th ,, ,, ,,
74	1/500th in feet ,,	92	1/250,000th ,, ,, ,,
75	6 inches to a mile, feet ,,	93	1/250,000th miles both edges.
76	12 inches to a mile, feet ,,	94	1/2,500th feet × 1/500th feet.
		95	1/1,250th feet with links equal.

For Code Words see end of catalogue.

Scales with any combination of the above dividings supplied without extra charge.

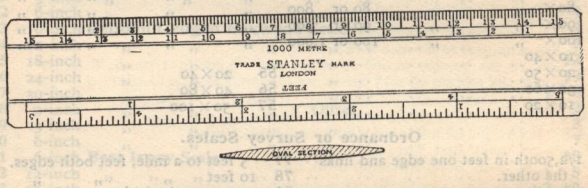
Metric Scales.

The various materials of which these Scales are made are described on page 224, to which please refer before ordering. When ordering, please state the catalogue number of the Scale required, and also the reference number of the style of dividing, as described on the opposite page.



Scale, flat section, fully divided, double reading, as list on opposite page, or containing any other two ordinary Metric Scales.

		£	s.	d.
P2461	30-centimetre, **Plain Boxwood**		3	0
P2462	50-centimetre ,, ,, ...		10	0
P2463	1-metre ,, ,, ...	1	10	0
P2464	30-centimetre, **Celluloid-edged Boxwood**		6	0
P2465	50-centimetre ,, ,, ...		16	6
P2466	1-metre ,, ,, ...	2	2	0
P2467	30-centimetre, **Best Ivory**	1	5	6
P2470	30-centimetre, **Solid Electrum**	1	1	0
P2471	50-centimetre ,, ,, ...	2	5	0



Metric Scale, oval section, fully divided, containing any two numbers as on the list opposite, or any four ordinary metre or English Scales.

		£	s.	d.
P2472	30-centimetre, **Plain Boxwood**		4	0
P2473	50-centimetre ,, ,, ...		11	6
P2474	1-metre ,, ,, ...	1	12	6
P2475	30-centimetre, **Celluloid-edged Boxwood**		10	0
P2476	50-centimetre ,, ,, ,, ...	1	0	0
P2477	30-centimetre, **Best Ivory**	1	7	6
P2479	30-centimetre, **Solid Electrum**	1	2	0
P2480	50-centimetre ,, ,, ...	2	5	0

Sets of Metre Scales, see page 225.

Any of the above Scales can be supplied at the same prices, open divided or single figured, similar to the illustration on page 230.

List of Flat Section Metric Scales kept in stock.

No.

101 1/25th, full-size, metres both edges.
102 1/50th ,, ,, ,, ,,
103 1/250th ,, ,, ,, ,,
104 1/500th ,, ,, ,, ,,
105 1/1,000th ,, ,, ,, ,,
106 1/2,000th ,, ,, ,, ,,
107 1/2,500th ,, ,, ,, ,,
108 1/3,000th ,, ,, ,, ,,
109 1/4,000th ,, ,, ,, ,,
110 1/5,000th ,, ,, ,, ,,
111 1/6,000th ,, ,, ,, ,,
112 1/25th, full-size, metres on one edge and feet on the other.
113 1/50th ,, ,, ,, ,, ,,
114 1/250th ,, ,, ,, ,, ,,
115 1/500th ,, ,, ,, ,, ,,
116 1/1,000th ,, ,, ,, ,, ,,
117 1/2,000th ,, ,, ,, ,, ,,
118 1/2,500th ,, ,, ,, ,, ,,
119 1/3,000th ,, ,, ,, ,, ,,
120 1/4,000th ,, ,, ,, ,, ,,
121 1/5,000th ,, ,, ,, ,, ,,
122 1/6,000th ,, ,, ,, ,, ,,
123 .001, full-size, metres on both edges.
124 .002 ,, ,, ,,
125 .003 ,, ,, ,,
126 .004 ,, ,, ,,
127 .005 ,, ,, ,,
128 .006 ,, ,, ,,
129 .001, full-size, metres on one edge and feet on the other.
130 .002 ,, ,, ,, ,, ,,
131 .003 ,, ,, ,, ,, ,,
132 .004 ,, ,, ,, ,, ,,
133 .005 ,, ,, ,, ,, ,,
134 .006 ,, ,, ,, ,, ,,
135 $\frac{1}{8}$ of an inch to the foot, with feet and inches on one edge and metres on other.
136 $\frac{1}{4}$,, ,, ,, ,, ,, ,, ,,
137 $\frac{3}{8}$,, ,, ,, ,, ,, ,, ,,
138 $\frac{1}{2}$,, ,, ,, ,, ,, ,, ,,
139 $\frac{3}{4}$,, ,, ,, ,, ,, ,, ,,
140 1 ,, ,, ,, ,, ,, ,, ,,
141 1$\frac{1}{2}$,, ,, ,, ,, ,, ,, ,,
142 3 ,, ,, ,, ,, ,, ,, ,,
144 Inches and 10ths and 20ths on one edge and millimetres on the other.
145 ,, 12ths on one edge and millimetres on the other.
146 ,, 16ths ,, ,, ,, ,,
147 ,, 50ths ,, ,, ,, ,,

Scales with any combination of the above dividings supplied without extra charge.

French and English Comparative Scales.

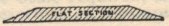
Comparative Scale, divided on the front, one edge inches and 16ths, and millimetres on the other. These are repeated in the centre of the scale for converting either measurement into the other. The back is divided with a comparative scale of kilos and lb. up to 390 lb. on the 12-inch and 590 lb. on the 18-inch scales.

		£	s.	d.
P2485	12-inch, best Boxwood		7	9
P2486	18-inch, ditto		14	6

For Telegraphic Code see end of catalogue.

Engineers' and Architects' Flat Section Scales.

The following illustrations show the various methods in which these Scales may be divided.



M.

Fully Divided, Double Reading.

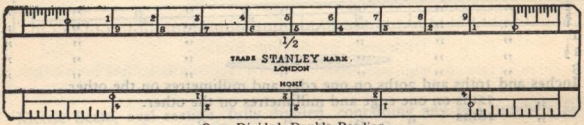
N.

Fully Divided, with Bisecting Back Reading.

O.

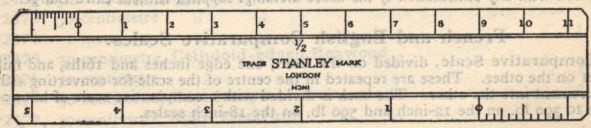
Fully Divided, Single Reading "Left to Right" (see footnote).

P.



Open Divided, Double Reading.

Q.



Open Divided, Single Reading "Left to Right" (see footnote).

Single Reading Scales can be supplied reading either from left to right or from right to left; the former is always supplied unless the latter is specified.

Engineers' and Architects' Flat Section Scales (continued).

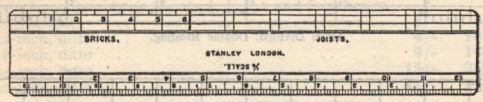
These may be divided in any of the methods illustrated on the previous page. When ordering, please state catalogue number of the Scale, the number of the graduation and the letter indicating the style of dividing and figuring required. Unless otherwise ordered, these Scales are supplied fully divided, double reading, as illustration "M."

		£	s.	d.
P2501	6-inch, Plain Boxwood		2	0
P2502	12-inch " "		3	0
P2503	18-inch " "		7	0
P2504	24-inch " "		12	0
P2505	30-inch " "		17	6
P2506	6-inch, Celluloid-edged Boxwood		4	0
P2507	12-inch " " "		6	0
P2508	18-inch " " "		12	0
P2509	24-inch " " "		19	6
P2510	30-inch " " "	1	8	0
P2511	6-inch, Best Ivory		10	0
P2512	12-inch " "	1	5	6
P2513	18-inch " "	2	10	0
P2514	12-inch, Solid Electrum	1	1	0
P2515	18-inch " "	2	5	0

These are kept in stock with the following Scales :—

No.
151 $\frac{1}{16}$ of an inch to the foot on both edges.
152 $\frac{1}{8}$ " " "
153 $\frac{1}{4}$ " " "
154 $\frac{3}{8}$ " " "
155 $\frac{1}{2}$ " " "
156 $\frac{3}{4}$ " " "
157 1 inch to the foot on both edges.
158 1$\frac{1}{2}$ inches " " "
159 3 " " " "
160 Half-size in inches and 16ths on both edges.
161 Full " " " 32nds " "
162 $\frac{1}{16}$ of an inch to the foot one edge and $\frac{3}{16}$ the other.
163 $\frac{1}{16}$ " " " $\frac{1}{8}$ "
164 $\frac{1}{16}$ " " " $\frac{5}{16}$ "
165 $\frac{1}{8}$ " " " $\frac{1}{4}$ "
166 $\frac{3}{8}$ " " " $\frac{3}{4}$ "
167 $\frac{1}{8}$ " " 1 inch on other.
168 1$\frac{1}{2}$ inches " " 3 inches "
169 Half-size in inches and 16ths one edge, full size in inches and 32nds the other.
170 $\frac{1}{32}$ of an inch to the foot one edge and $\frac{1}{16}$ the other.
171 Inches and 16ths (first and last inch 64ths) one edge and cms. and mms. the other.

Architects' Brick and Joist Scales.



		£	s.	d.
P2517	Scale, 12-inch, Stanley's bisecting, of one scale only, $\frac{1}{8}$ or $\frac{1}{4}$ inch to the foot, fully divided, one edge in feet and inches, two lines of figures, front reading left to right, back from centre each way (not as shown in illustration). Other edge divided to 4$\frac{1}{2}$ and 9 inches, for setting off brickwork; and 12 and 2$\frac{1}{2}$ inches, for joists, etc. Plain Boxwood		5	6
P2518	Ditto, Celluloid-edged		10	0
P2519	Ditto, Best Ivory	1	8	0
P2520	Ditto, Solid Electrum	1	2	0

When ordering, please state whether this is required to $\frac{1}{8}$ or $\frac{1}{4}$ scale.

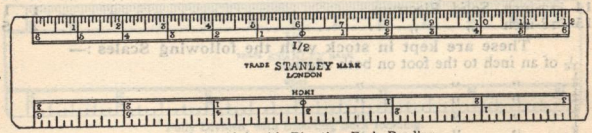
Engineers' and Architects' Oval Section Scales, with Four Scales.

Section of OVAL SECTION Scales.

R.

Fully Divided, Double Reading.

S.

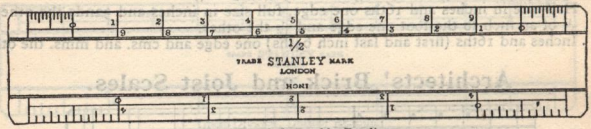


Fully Divided, with Bisecting Back Reading.

T.

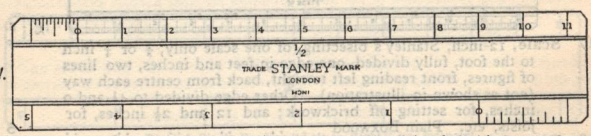
Fully Divided, Single Reading, "Left to Right" (see footnote).

U.



Open Divided, Double Reading.

W.



Open Divided, Single Reading, "Left to Right" (see footnote).

Scales with Single Reading can be figured from left to right or from right to left; the former is always supplied unless the latter is specified.

Engineers' and Architects' Oval Section Scales (continued).

Scales, oval section, divided as any of the illustrations shown on the previous page. When ordering, please state catalogue number, also the number of the Scale required and the letter indicating the style of dividing and figuring. (If these are not given, No. 201, Style R, will be supplied.) Any of the following Scales can be supplied with the feet sub-divided into 10ths, instead of inches; when these are required the word "decimal" should be added.

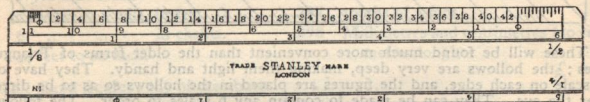
		£	s.	d.
P2525	6-inch, **Plain Boxwood**		3	0
P2526	12-inch ,, ,, ...		4	0
P2527	18-inch ,, ,, ...		9	0
P2528	24-inch ,, ,, ...		15	0
P2529	30-inch ,, ,, ...	1	1	0
P2530	6-inch, **Celluloid-edged Boxwood**		6	6
P2531	12-inch ,, ,, ,, ...		10	0
P2532	18-inch ,, ,, ,, ...		19	0
P2533	24-inch ,, ,, ,, ...	1	5	0
P2534	30-inch ,, ,, ,, ...	1	15	0
P2536	6-inch, **Best Ivory**		12	0
P2537	12-inch ,, ,, ...	1	7	6
P2538	18-inch ,, ,, ...	2	15	0
P2539	12-inch, **Solid Electrum**	1	2	0
P2540	18-inch ,, ,, ...	2	10	0

No. *The following Scales are kept in stock :—*

201 *Containing* $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$ *and* 1 *inch to the foot Scales.*

202 ,, $\frac{3}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$ *inches and* 3 *inches to the foot Scales.*

203 ,, $\frac{1}{2}$, $\frac{1}{4}$, *half and full-size Scales.*



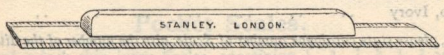
Oval Section Scale, containing 8 Scales, viz., 2 on each edge. When ordering, please state catalogue number and material.

		Box-wood.	Celluloid-edged.	Ivory.
P2545	6-inch, containing $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, $\frac{3}{8}$ $\frac{3}{4}$, $1\frac{1}{2}$ and 3 inches to the foot	3/-	6/6	12/-
P2546	12-inch, ditto	4/-	10/-	27/6
P2547	18-inch, ditto	9/-	19/-	55/-
P2548	24-inch, ditto	15/-	25/-	—
P2549	30-inch, ditto	21/-	35/-	—
P2550	6-inch, containing $\frac{1}{16}$, $\frac{1}{12}$, $\frac{1}{10}$, $\frac{1}{8}$, $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{3}$, 2 and 6 inches to the foot	3/-	6/6	12/-
P2551	12-inch, ditto	4/-	10/-	27/6
P2552	18-inch, ditto	9/-	19/-	55/-
P2553	24-inch, ditto	15/-	25/-	—
P2554	30-inch, ditto	21/-	35/-	—

		£	s.	d.
P2557	**Gunter's Scales**, 24-inch, boxwood	1	0	0
P2558	Ditto, brass	4	0	0

Scale Weight.

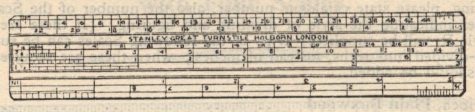
P2559.



P2559 Weight for holding Scale in position 2 6

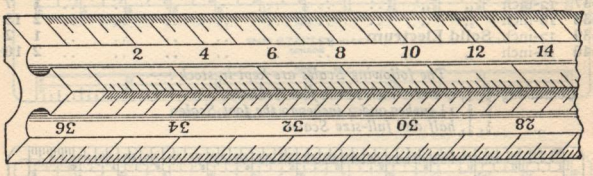
Universal Scales.

Old Form of Architects' Scale.



		Box.	Ivory.
P2561	Scale, 5-inch, old pattern, architects', containing 17 hand-cut scales	4/-	12/-
P2562	6-inch, ditto	4/6	15/-
P2563	12-inch, ditto	6/6	31/-
P2564	18-inch, ditto	12/-	63/-

Improved Triangular Scales.



These will be found much more convenient than the older forms of Triangular Scales; the hollows are very deep, making them light and handy. They have only one scale on each edge, and the figures are placed in the hollows so as to be directly under the eye. They can be made to contain any 6 scales to order. The following are the stock varieties:—

No.

251 With 10, 20, 30, 40, 50 and 60 divisions per inch (" chain " scale).

252 With $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 inch to the foot, fully divided.

253 With ditto, open divided.

254 With $\frac{1}{16}$, $1\frac{1}{2}$, 3 and 6 inches to the foot, also full-size inches and metre, fully divided.

255 With metre scales 1,000, 2,000, 3,000, 4,000, 5,000 and 6,000, fully divided.

256 With metre scales .001, .002, .003, .004, .005 and .006, fully divided.

		£	s.	d.
P2565	6-inch, Boxwood Triangular Scale		4	0
P2566	12-inch, ditto		6	0
P2567	6-inch, Celluloid-faced Boxwood Triangular Scale		8	0
P2568	12-inch, ditto		12	0
P2569	6-inch, Best Ivory Triangular Scale	1	0	0
P2570	12-inch, ditto	2	15	0
P2571	Offset Scale, 2-inch, with No. 251, 255 or 256 graduations, Boxwood		2	3
P2572	Ditto, Celluloid-faced		5	6
P2573	Ditto, Ivory		12	6

When ordering, please state catalogue number of Scale, also the number of the dividing required.

For Telegraphic Code see end of catalogue.

Card Scales.

Card Scales, 18 inches long, with one scale only on each, divided on one edge only, as below.

Suitable for rough work or educational purposes. They are not recommended for accurate drawings as, being printed, they cannot be guaranteed perfectly correct.

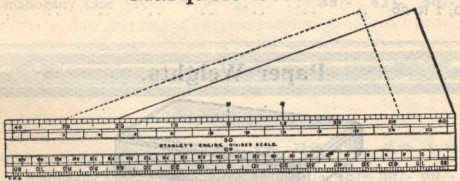
No.
261 1 chain to an inch.
262 2 chains ,,
263 3 ,, ,,
264 4 ,, ,,
265 5 ,, ,,
266 6 ,, ,,
267 10 feet to an inch.
268 20 ,, ,,
269 30 ,, ,,
270 40 ,, ,,
271 50 ,, ,,
272 60 ,, ,,
273 1/2,500th in feet.
274 1/2,500th in links.
275 1/500th in feet.
276 1/500th in links.
277 6 inches to a mile, in feet.
278 6 ,, ,, in chains.
279 44 feet to an inch.

No.
280 $\frac{1}{32}$ of an inch to the foot.
281 $\frac{1}{16}$,, ,, ,,
283 $\frac{1}{10}$,, ,, ,,
284 $\frac{1}{8}$,, ,, ,,
285 $\frac{3}{16}$,, ,, ,,
286 $\frac{1}{4}$,, ,, ,,
287 $\frac{3}{8}$,, ,, ,,
288 $\frac{1}{2}$,, ,, ,,
289 $\frac{3}{4}$,, ,, ,,
290 1 inch to the foot.
291 1½ inches ,,
292 2 ,, ,,
293 3 ,, ,,
294 4 ,, ,,
295 6 ,, ,,
296 Full-size, inches and 8ths.
297 100ths of a foot.
298 Millimetres and centimetres (50 centimetres long).

		£	s.	d.
P2575	**Card Scales**, any of the above			9
P2576	**Case** to hold 12 scales		4	6

Special Scales cannot be supplied in Card.

Marquois Scales.



P2577.

P2577	**Marquois Scales**, the set consisting of two 12-inch boxwood flat-scale rulers and one triangle, in mahogany case	16	6	
P2578	Ditto, Stanley's improved, with bevelled scales and divided triangle	1	0	0

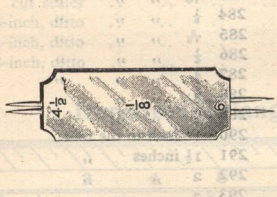
Pocket Scales.

P2580	Pair of 3-inch thin ivory Scales, containing $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1½ inches to the foot, also 20, 30, 40, and 50, in case	10	6	

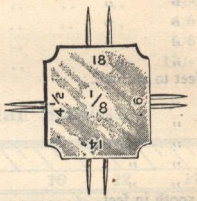
Empty Cases for Scales.

		£	s.	d.
P2583	Mahogany Case, to hold six 12-inch scales and offsets ..		6	6
P2584	Ditto, best quality, with lock		10	6
P2585	Ditto, ditto, to hold ten 12-inch scales and offsets		14	0
P2586	Ditto, to hold six 18-inch scales and offsets		18	6

Brick and Angle Gauges.



P2601 and P2602.



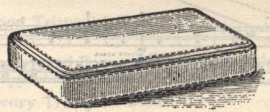
P2603 and P2604.

		£	s.	d.
P2601	Brick Gauge, to set off thicknesses of brickwork, two gauges, ¼-inch		4	6
P2602	Ditto, ⅛-inch		4	6
P2603	Ditto, with four gauges, ¼-inch		8	0
P2604	Ditto, ⅛-inch		8	0

When ordering, please state whether the Gauge is required for ⅛ or for ¼ inch to the foot drawings.

		£	s.	d.
P2605	Angle Gauge, for gauging lead, glass, zinc and wire		11	0
P2606	Wire Gauge, to read 1/10,000th inch by micrometer	2	15	0
P2607	Standard Wire Gauge, 1 to 36		12	6
P2608	Ditto, 1 to 26		8	6

Paper Weights.

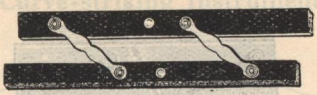


P2612.

		£	s.	d.
P2611	Paper Weight, circular, iron, plain, about 2 lb. each		2	6
P2612	Ditto, iron, leather covered, as illustrated, about 2 lb. each, size 5½×2½×¾ inch		5	6
P2613	Ditto, lead, leather covered, size 3×2×1 inch, about 1½ lb. each ..		4	0
P2614	Ditto, lead, leather covered, size 5½×2½×¾ inch, about 4 lb. each..		7	6

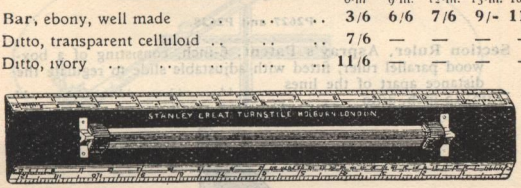
For Telegraphic Code see end of catalogue.

Parallel Rules.



P2615

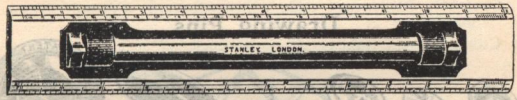
		6-in	9 in.	12-in.	15-in.	18-in.	24-in.
P2615	Bar, ebony, well made	3/6	6/6	7/6	9/-	11/6	16/6
P2616	Ditto, transparent celluloid	7/6	—	—	—	—	—
P2617	Ditto, ivory	11/6	—	—	—	—	—



P2620 and P2621

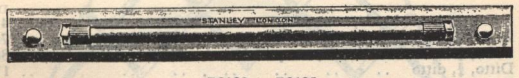
		6-in.	9-in.	12-in.	15-in.	18-in.	24-in.
P2619	Parallel **Rolling**, ebony, with brass bridge	16/6	18/6	21/-	25/-	30/-	40/-
P2620	Ditto, with divided celluloid edges and brass bridge	—	24/-	30/-	36/-	45/-	55/-
P2621	Ditto, ditto, electrum bridge	—	25/-	31/6	38/-	47/-	57/6

P2620 or **P2621**, with best African ivory, instead of celluloid edges, at an extra cost according to length.



P2622.

		9-in.	12-in.	15-in.	18-in	24-in.
P2622	Parallel **Rolling**, white opaque celluloid, divided edges, gun-metal bridge, in mahogany case	35/-	42/-	50/-	60/-	72/-



P2623 to P2625.

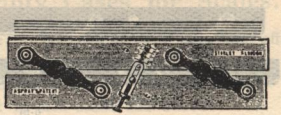
		6-in.	9-in.	12-in.	15-in.	18-in.	24-in.	30-in.	36-in.
P2623	Parallel **Rolling**, solid brass, in mahogany case ..	30/-	35/-	40/-	45/-	50/-	60/-	95/-	120/-
P2624	Ditto, solid bright gun-metal	32/6	37/6	42/-	47/6	55/-	67/6	100/-	130/-
P2625	Ditto, solid electrum, India pattern	—	37/6	42/-	47/6	55/-	67/6	100/-	130/-

These are strongly recommended. They are made entirely by machinery and supplied largely to the Government. 18, 24, 30 and 36-inch have lifting knobs.

These Rules may be divided to any scale at an extra cost according to length.

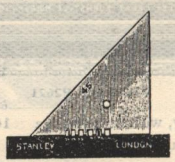
For Field's Nautical or Chart Parallels, see page 129; Sectioning Parallel, next page.

Section Rulers.



P2627 and P2628.

		£	s.	d.
P2627	**Section Ruler, Aspray's Patent,** 6-inch, consisting of a box-wood parallel ruler, fitted with adjustable slide to regulate the distance apart of the lines		8	0
P2628	Ditto, 12-inch, ditto		14	0



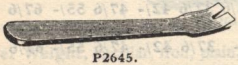
P2629.

P2629	**Sectioning Set-Square,** a 6-inch 45° celluloid set-square cut with slots of various widths, giving the usual sectional spaces, working in conjunction and with a guiding ruler carrying a pin		8	0

Drawing Pins.

P2630. P2631. P2632. P2633 and P2635. P2634 and P2636. P2637

		Doz.	Gross
P2630	**Drawing Pins,** steel, stamped out, per box of 100, with lifter ..	9d. box.	
P2631	Ditto, $\frac{1}{16}$ brass heads, common	4d.	3/-
P2632	Ditto, $\frac{1}{16}$ brass bevelled heads, tempered steel points	7d.	6/-
P2633	Ditto, $\frac{1}{8}$ brass dome heads, tempered steel screw-in points	8d.	7/6
P2634	Ditto, $\frac{1}{4}$, ditto	11d.	10/-
P2635	Ditto, $\frac{1}{2}$ electrum, ditto	10d.	9/6
P2636	Ditto, $\frac{1}{4}$, ditto	1/4	14/6
P2637	Ditto, $\frac{3}{8}$ brass heads, with handles	10d.	9/-



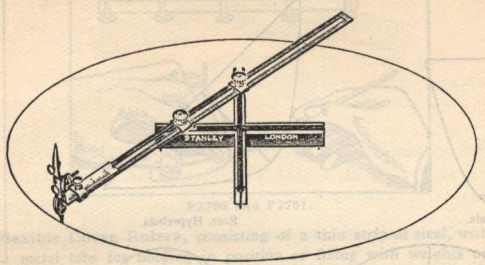
P2645.

P2647.

P2645	**Pin Lifter,** strong steel, for extracting drawing pins	1/-
P2647	**Horn Centre,** to save damaging the paper when drawing a number of circles or arcs from one centre	1/6

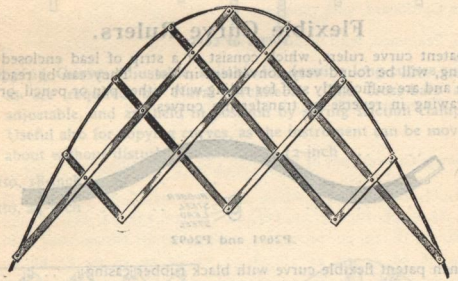
For Telegraphic Code see end of catalogue.

Elliptic Curve-striking Instruments, etc.



P2661

		£	s.	d.
P2661	**Elliptic Trammel**, with ink and pencil points, for ellipses of not less than four inches minor axis, in case, nickel, 2¾—12 inch ..	1	14	0
P2662	Ditto, 5—20 inch	1	17	6
P2663	Ditto, 8¼—32 inch	2	5	6

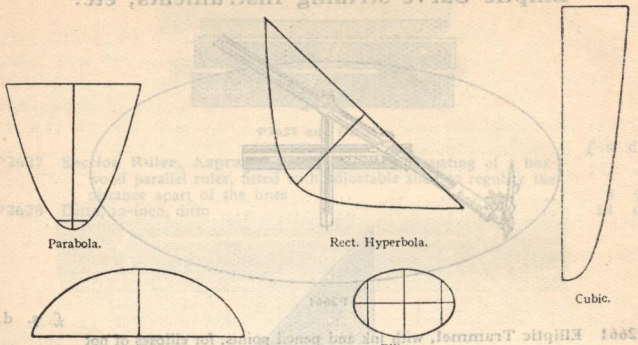


P2677.

P2677 **Adjustable Parabolic Curve**, with steel curve and brass lattice. This curve fills the demand for an instrument to draw parabolas of varying foci with a high degree of accuracy. By resting the tips against the tee-square, curves can be drawn with the vertical axis perpendicular to a given line 10 6

For Telegraphic Code see end of catalogue.

Mathematical Curves in Transparent Celluloid.



		£ s. d.
P2681	**Parabola** : Eqn. $y=x2$; unit 1-inch. Axis, focus, and latus rectum marked	1 6
P2682	**Hyperbola** (Rectangular) : Eqn. $xy=1$-inch. Axis marked ..	1 6
P2683	**Ellipse** : Major axis 3-inch, minor axis 2-inch. Axes and foci marked	1 6
P2684	**Cycloid** : Roulette of circle 2-inch diameter. Central ordinate marked	1 6
P2685	**Cubic** Curve : Eqn. $y=x3$; unit 1-inch	1 6

Flexible Curve Rulers.

These patent curve rulers, which consist of a strip of lead enclosed in a rubber or metal casing, will be found very convenient in use. They can be readily set to the desired curve and are sufficiently stiff for ruling with either pen or pencil, or to be moved about for drawing in reverse or transferring curves.

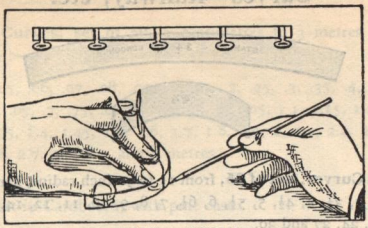
P2691 and P2692

		£ s d
P2691	7-inch patent flexible curve with black rubber casing	2 3
P2692	14-inch ditto	4 6

P2695

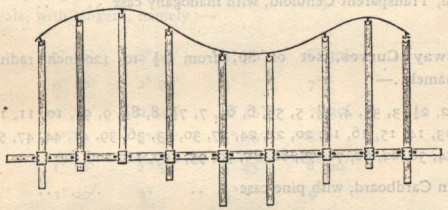
P2695	30-inch patent flexible curve, metal cased, with metal strip for ruling against	17 6

Curve Rulers (continued).



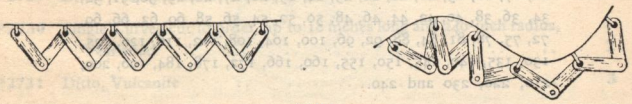
P2700 and P2701.

		£	s.	d.
P2700	**Flexible Curve Rulers,** consisting of a thin strip of steel, with metal tabs for holding in position or fixing with weights or drawing pins, 12-inch		2	4
P2701	Ditto, 18-inch		2	11



P2702 to P2704.

P2702	**Copying Curve,** adjustable, suitable for drawing long curves such as are required by Naval Architects. The cross-bars are adjustable, and are held in position by spring friction clamps. Useful also for copying curves, as the instrument can be moved about without disturbing the setting, 12-inch		5	3
P2703	Ditto, 18-inch		6	9
P2704	Ditto, 24-inch		8	3



P2706.

		£	s.	d.
P2706	**Self-Clamping Curve,** a steel strip with brass adjustment bars fitted with stiff friction hinges to retain position, 9-inch ..		3	6
P2707	Ditto, ditto, 12-inch		5	3
P2708	Ditto, ditto, 18-inch		7	0

Curves—Railway, etc.

Railway Curves, set of 25, from 1½ to 30-inch radius, namely :— 1½, 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 27 and 30.

		£	s.	d.
P2711	Set in Cardboard, with pine case	1	0	0
P2712	Ditto, Pearwood, with mahogany case	1	13	6
P2713	Ditto, Vulcanite, with mahogany case	3	0	0
P2714	Ditto, Transparent Celluloid, with mahogany case	3	0	0

Railway Curves, set of 50, from 1½ to 120-inch radius, namely .—

1½, 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 41, 44, 47, 50, 54, 58, 62, 66, 70, 75, 80, 85, 90, 95, 100, 110 and 120

P2715	Set in Cardboard, with pine case	2	0	0
P2716	Ditto, Pearwood, with mahogany case	3	3	0
P2717	Ditto, Vulcanite, with mahogany case	5	7	6
P2718	Ditto, Transparent Celluloid, with mahogany case	5	7	6

Railway Curves, set of 100, from 1 to 240-inch radius, namely :—

1, 1¼, 1½, 1¾, 2, 2¼, 2½, 2¾, 3, 3¼, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10, 10½, 11, 11½, 12, 12½, 13, 13½, 14, 14½, 15, 15½, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 63, 66, 69, 72, 75, 78, 81, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 125, 130, 135, 140, 145, 150, 155, 160, 166, 172, 178, 184, 190, 200, 210, 220, 230 and 240.

P2719	Set in Cardboard, with pine case	3	7	6
P2720	Ditto, Pearwood, with mahogany case	5	17	6
P2721	Ditto, Vulcanite, with mahogany case	9	15	0
P2722	Ditto, Transparent Celluloid, with mahogany case	9	15	0

Curves—Railway, etc. (continued).

Railway Curves, set of 50, 3 centimetres to 3 metres radius, namely :—

03, .04, .05, .06, .07, .08, .09, .1, .15, .2, .25, .3, .35, .4, .45, .5, 55, .6, .65, .7, .75, .8, .85, .9, .95, 1, 1.05, 1 1, 1.15, 1.2, 1.25, 1.3, 1.35, 1.4, 1.45, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, and 3 metres.

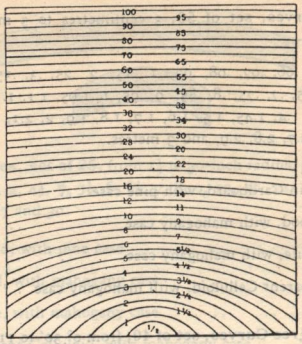
		£	s.	d.
P2723	Price per set in Cardboard, with pine case	2	7	6
P2724	Ditto, Pearwood, with mahogany case	3	10	0
P2725	Ditto, Vulcanite, with mahogany case	6	0	0
P2726	Ditto, Transparent Celluloid, with mahogany case	6	0	0

Railway Degree Curves, set of 40, from 0° 30′ to 11°, to 400 feet scale, with tangent, namely :—

0° 30′	2° 10′	3° 50′	6° 30′
0° 40′	2° 20′	4°	7°
0° 50′	2° 30′	4° 15′	7° 30′
1°	2° 40′	4° 30′	8°
1° 10′	2° 50′	4° 45′	8° 30′
1° 20′	3°	5°	9°
1° 30′	3° 10′	5° 15′	9° 30′
1° 40′	3° 20′	5° 30′	10°
1° 50′	3° 30′	5° 45′	10° 30′
2°	3° 40′	6°	11°

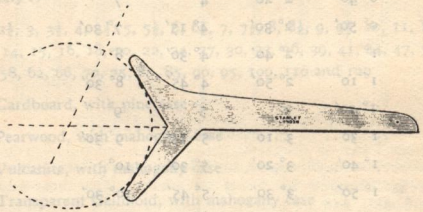
P2727	Price per set in Pearwood, with mahogany case	5	17	6
P2728	Ditto, Vulcanite, ditto	8	10	0
P2729	Ditto, Transparent Celluloid, ditto	8	10	0
P2730	Single Curves cut to order, up to 18 inches long and 240-inch radius, Pearwood		2	0
P2731	Ditto, Vulcanite		3	6
P2732	Ditto, Transparent Celluloid		3	6
P2733	Ditto, from 240 to 500-inch radius, Pearwood		3	6
P2734	Ditto, Vulcanite		5	0
P2735	Ditto, Transparent Celluloid		5	0

Curve Gauges, Curve Radiators, Corner Curves.



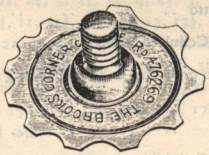
P2742 and P2743

		£ s. d
P2742	**Curve Gauge**, Celluloid, measuring 6×5, to find the radius of curvature of any curve ranging from ⅛-inch to 100-inch radius	5 6
P2743	Ditto, ditto, 11¼×6 inches, range 1½ inches to 240 inches... ..	16 0



P2744.

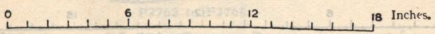
P2744	**Curve Radiator**, to erect perpendicular or find centre of any curve, Transparent Celluloid or Vulcanite	5 0



P2745

P2745	**Corner Curve**, a very convenient set of curves for drawing in the rounded corners of plans, etc. Each curve has straight tails so that it merges smoothly into the straight lines of the drawing. About 2-inch diameter. In Transparent Celluloid, with wood handle	1 2

French Architectural Curves.



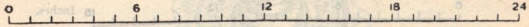
Approximate scale of the illustrations

P2746 **Pearwood.** All the above designs and many others are kept in stock. Any curve, 1 to 7, 6d.; 8 to 13, 9d.; 14 to 19, 1/3; 20 to 24, 2/- each.

P2747 **Vulcanite,** own make, as illustrated, 1, 1/9; 2 to 7, 2/6; 8 to 13, 3/-; 14 to 19, 4/-; 20 to 24, 5/- each.

P2748 **Transparent Celluloid,** own make, as above, 1, 1/9; 2 to 7, 2/6; 8 to 13, 3/-; 14 to 19, 4/-; 20 to 24, 5/- each.

Ship Curves.



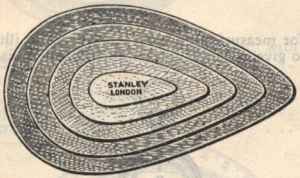
Approximate scale of the illustrations.

		Pearwood			Vulcanite			Transparent Celluloid		
		£	s.	d.	£	s.	d.	£	s.	d.
P2751	**Ship Curves,** Admiralty patterns, set containing Nos. 1 to 9 of the above ..		13	6	1	15	0	1	15	0
P2753	Ditto, set containing Nos. 1 to 15 of the above	1	3	0	2	15	0	2	15	0
P2754	Ditto, small Admiralty set of forty, as illustration, in mahogany case	3	7	6	7	10	0	7	10	0
P2755	Ditto, full set of eighty, containing all the above and forty others, in mahogany case	6	15	0	14	0	0	14	0	0
P2757	**Single Curves,** Nos. 1 to 8, 16 to 26, 29 to 39		2	0		4	6		4	6
	Ditto, Nos. 9 to 15, 27 and 40		3	0		7	0		7	0
	Ditto, No. 28		5	0		11	0		11	0

Yacht Curves.

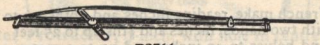
Approximate scale of the illustrations.

		£	s.	d.
P2761	**Yacht Curves**, set of twenty, Pearwood, a most useful set of curves for boat or yacht designing, in mahogany case	2	10	0



P2762 to P2765.

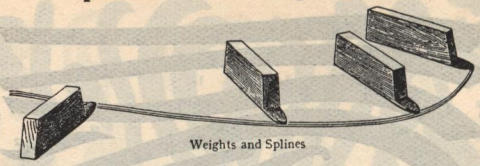
P2762	**Dixon Kemp's set of 5 Ship Curves**, Pearwood, ranging from 3 inches to 6 inches..		10	6
P2763	Ditto, large size (largest 12 inches long)		14	6
P2764	Ditto, Celluloid, as above, small		18	6
P2765	Ditto, ditto, large size	1	7	0



P2766.

P2766	**Stanley's Naval Architect's Adjustable Curve**, giving endless variety of very perfect curves	1	7	6

Splines, or Penning Battens.



Weights and Splines

		£	s.	d.
P2767	**Splines**, or Penning Battens, 25 varieties, 5 feet to 6 feet, in red pine, each		4	0
P2768	Ditto, ditto, 18 inches to 4 feet, in lancewood		2	0
P2769	Ditto, ditto, 4 feet to 5 feet, in lancewood		3	0
P2770	Ditto, set of twenty, lancewood, in 5-feet case	2	10	0

Splines accurately worked to given dimensions at prices double those of stock sizes.

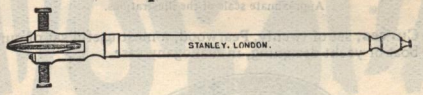
Ship Weights.

P2771	**Ship Weights**, Admiralty pattern, as illustrated above, covered with mahogany		16	0
P2772	Ditto, ditto, set of six in mahogany case	6	5	0

P2773.

P2773	**Ship Weights**, new pattern, 5 lb. weight, with mahogany base ..		9	0

Map Measurers.



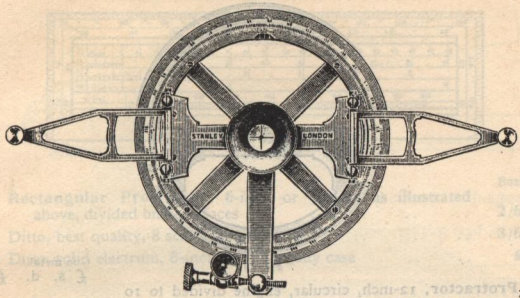
P2775.

P2775	**Opisometer**, for measuring on maps, improved, as illustration ..		7	6
P2776	Ditto, divided to give distances in feet, inches and 10ths	1	0	0

P2777 and P2779.

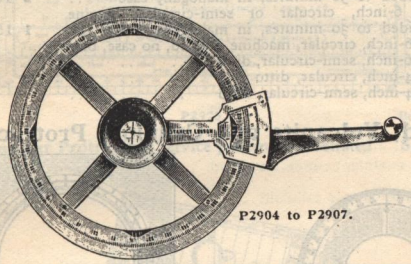
P2777	**Rotameter**, French make, reading inches and 16ths up to 40 inches		5	0
P2778	Ditto, small, with two hands, inches and $\frac{1}{8}$ths up to 25 feet		6	0
P2779	Ditto, inches and halves to 40 inches and up to 1 metre		6	0
P2780	Ditto, Stanley's improved, with zero setting and interchangeable dials, inches and halves, 6 inches to a mile in furlongs, $\frac{1}{1250}$ in poles, $\frac{1}{2500}$ poles	1	0	0

Metal Protractors.



P2900 and P2901

		£	s	d
P2900	**Protractor**, 6-inch, circular, with folding arms, clamp and tangent, divided on silver, reading by two verniers to minutes, in mahogany case, gun-metal	9	0	0
P2901	Ditto, in electrum	10	0	0



P2904 to P2907.

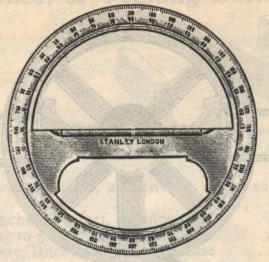
P2904	**Protractor**, 6-inch, circular or semi-circular, with vernier and arm, reading to minutes, in case, gun-metal	3	17	6
P2905	Ditto, in electrum	4	15	0
P2906	Ditto, 8-inch, circular or semi-circular, reading to minutes, in mahogany case, gun-metal	5	15	0
P2907	Ditto, in electrum	7	0	0

P2910.

P2910	**Tacheometer Protractor**, 9-inch, with hole in centre for pricker, and divided base for plotting from tacheometrical observations, in mahogany case, gun-metal	3	10	0

When ordering, please state scale to which the base is to be divided.

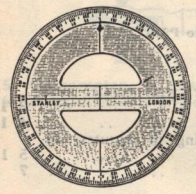
Metal Protractors (continued).



P2917.

		Gun metal. £ s. d.	Electrum £ s. d.
P2917	**Protractor**, 12-inch, circular, engine divided to 10 minutes, in mahogany case	3 15 0	4 10 0
P2918	Ditto, 9-inch, circular, engine divided to 30 minutes, in mahogany case	2 10 0	3 5 0
P2919	Ditto, 8-inch, circular or semi-circular, engine divided to 30 minutes, in mahogany case ..	2 10 0	3 5 0
P2920	Ditto, 6-inch, circular or semi-circular, engine divided to 30 minutes, in mahogany case ..	1 15 0	2 5 0
P2921	Ditto, 6-inch, circular, machine divided, no case, brass	17 6	
P2922	Ditto, 6-inch, semi-circular, ditto	12 6	
P2923	Ditto, 4-inch, circular, ditto	10 6	
P2924	Ditto, 4-inch, semi-circular, ditto	8 6	

Card, Vulcanite and Celluloid Protractors.

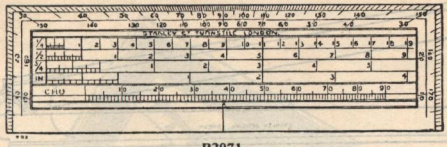


P2948 and P2949

P2957 and P2958.

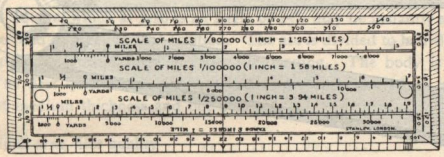
		£ s. d.
P2931	**Vulcanite**, circular, machine divided, 6-inch, as illustration (P2917)	1 0 0
P2932	Ditto, ditto, 9-inch	1 10 0
P2933	Ditto, ditto, 12-inch	2 2 0
P2939	**Celluloid**, white opaque, circular, machine divided, 6-inch, as illustration (P2917)	1 0 0
P2940	Ditto, ditto, 9-inch	1 10 0
P2948	**Transparent Celluloid**, circular, machine divided, in case, 6-inch	3 0
P2949	Ditto, ditto, 9-inch	7 6
P2950	Ditto, semi-circular, no case, 4-inch	9
P2951	Ditto, ditto, 6-inch	1 0
P2957	**Card**, circular, engine divided, with centre cut out, 12-inch ..	3 6
P2958	Ditto, ditto, 15-inch	4 6
P2959	**Packing Boards**, for sending this protractor by rail or post ..	1 0

Rectangular Protractors.



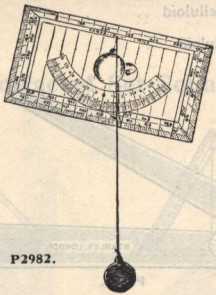
P2971.

		Box.	Ivory.
P2971	**Rectangular Protractor,** 6-inch or 5-inch, as illustrated above, divided on both faces	2/6	11/-
P2972	Ditto, best quality, 8 scales on front	3/6	12/-
P2973	Ditto, solid electrum, 6-inch, in mahogany case	£2 10	0



P2976.

		Box.	Ivorine.	Ivory.
P2976	**Rectangular Protractor,** Service pattern, as illustrated	5/6	2/-	18/6



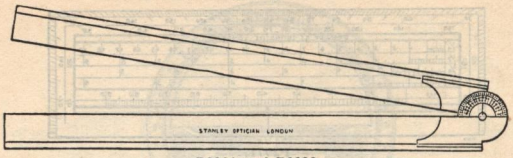
P2982.

		£	s.	d.
P2982	**Sandhurst Protractor,** 5½-inch, boxwood, with plummet for inclines, in leather case		18	6

Opaque and transparent celluloid protractors, military patterns, of all descriptions, supplied to order.

For Telegraphic Code see end of catalogue.

Isographs.

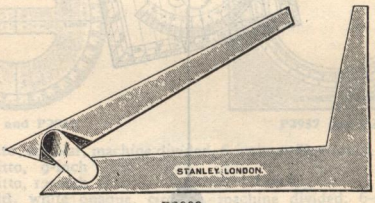


P3001 and P3002.

		£	s.	d
P3001	**Isograph**, boxwood, 6-inch or 12-inch, brass joint		7	6
P3002	Ditto, best quality, with electrum joint		10	0

P3005.

P3005	**Isograph**, Stanley's improved, with large arc and clamping screw, brass mounts, 12-inch, boxwood	18	6	
P3006	Ditto, white opaque celluloid	1	7	0
P3007	Ditto, transparent celluloid	1	7	0

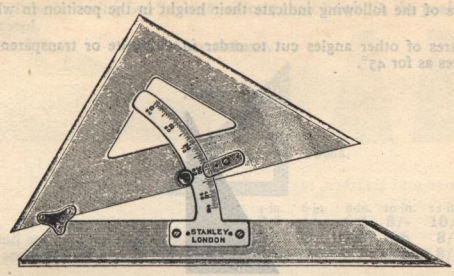


P3008.

P3008	**Clinograph or Adjustable Set-Square**, forming a right-angled set-square at one end and having a movable arm with tight friction joint at the other, 7-inch, pearwood	3	6	
P3009	Ditto, mahogany, ebony-edged	6	6	

For Telegraphic Code see end of catalogue.

Adjustable Set-Squares.

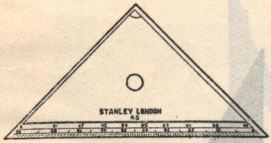


P3010 to P3012.

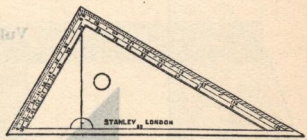
This Set-Square, which at zero is an angle of 45°, may be instantly set to any other angle up to 90° and clamped in that position. The arc is divided to half-degrees on white celluloid, with an improved form of index for reading. The body is of transparent celluloid. The first quality are extra stout and have bevelled edges, and the second quality are of medium thickness and not bevelled.

		£	s.	d.
P3010	7-inch arm, first quality		6	9
P3011	10-inch arm „ „		11	3
P3012	12-inch arm „ „		14	3
P3013	7-inch arm, second quality		5	3
P3014	10-inch arm „ „		8	6
P3015	12-inch arm „ „		12	0

Protracted Set-Squares.



P3021 and P3022.



P3023 and P3024.

		£	s.	d.
P3021	Protracted Set-Square, transparent celluloid, 45°, 6-inch ..		3	6
P3022	„ „ „ „ 45°, 8-inch ..		5	6
P3023	„ „ „ „ 60°, 8-inch ..		4	6
P3024	„ „ „ „ 60°, 10-inch ..		7	0

For other Set-Squares, see following pages.

Set-Squares.

The sizes of the following indicate their height in the position in which they are illustrated.

Set-Squares of other angles cut to order in vulcanite or transparent celluloid at the same prices as for 45°.

Pearwood.

P3052.

Pearwood Set-Squares, suitable for educational purposes, technical schools, etc.

		4-in.	6-in.	8-in.	10-in.
P3051	45°	9d.	1/-	2/-	—
P3052	60° and 30°	7d.	10d.	1/-	2/-
P3053	67½° and 22½°	7d.	10d.	1/-	—

Transparent Celluloid.

P3055.

P3056.

Transparent Celluloid Set-Squares, of best quality seasoned material.

		4-in.	6-in.	8-in.	10-in.	12-in.
P3055	45°	1/-	1/8	2/6	3/6	5/-
P3056	60° and 30°	8d.	1/-	1/8	2/6	3/6
P3057	67½° and 22½°	8d.	1/-	1/8	2/6	3/6

Vulcanite.

P3061.

P3062.

Vulcanite or hard rubber Set-Squares.

		4-in.	6-in.	8-in.	10-in.	12-in.	15-in.	18-in.
P3061	45°	1/4	1/9	2/8	3/9	5/6	10/6	—
P3062	60° and 30°	1/-	1/3	1/9	2/8	3/9	7/-	10/6
P3063	67½° and 22½°	1/-	1/3	1/9	2/8	3/9	7/-	10/6

Any of the above can be supplied bevelled at a small extra charge.

Set-Squares (continued).

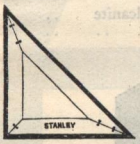
The sizes of the following Set-Squares indicate their height in the position in which they are illustrated.

Aluminium.

P3065.

		4-in.	6-in.	8-in.	10-in.	12-in.	15-in.	18-in.
P3065	45°	2/6	4/-	6/6	8/-	10/-	—	—
P3066	60° and 30°	2/6	2/6	4/6	6/6	8/-	10/-	15/-
P3067	67½° and 22½°	2/6	2/6	4/6	6/6	8/-	10/-	15/-

Framed Mahogany.



P3071.

P3072.

Framed Mahogany Squares, metal keyed, with ebony edges. If these are required bevelled it is particularly requested to state which way the bevelled edge should stand —to the right or to the left hand—when on the **T** square.

		4-in.	6-in.	8-in.	10-in.	12-in.	15-in.	18-in.
P3071	45°	5/-	5/-	7/-	8/-	10/-	15/-	21/-
P3072	60° and 30°	—	5/-	6/6	7/-	8/-	10/-	15/-
P3073	67½° and 22½°	—	5/-	6/6	7/-	8/-	10/-	15/-

P3075 to P3077.

		£	s.	d.
P3075	**Gallows Square**, for ship architecture, mahogany, 18-inch ..		18	0
P3076	Ditto, 24-inch	1	1	0
P3077	Ditto, 30-inch	1	10	0

Set-Squares (continued).

Slopes and Batters, etc.

P3081 to P3084.

		£	s.	d.
P3081	**Slopes and Batters,** set of 6, as above, for railway section, 4-inch, vulcanite		6	6
P3082	Ditto, 4-inch, celluloid		6	6
P3083	Ditto, set of 8, 6-inch, vulcanite		12	6
P3084	Ditto, set of 8, 6-inch, transparent celluloid		12	6

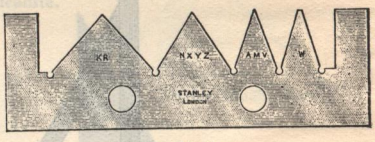
P3085 and P3086.

P3085	**Pitches for Roofs,** set of 6, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, vulcanite		8	6
P3086	Ditto, ditto, transparent celluloid		8	6

P3088.

P3088	**Hexagon Nut Angles,** equilateral and cottage, vulcanite, the pair		3	3
P3089	Ditto, ditto, transparent celluloid, the pair		3	3

P3091 and P3092.



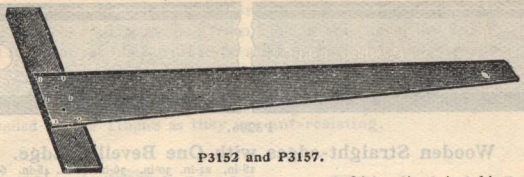
P3093.

		£	s.	d.
P3091	**Lettering Set-Squares,** giving angles for Roman, also wide and ordinary block letters, transparent celluloid, set of three		6	6
P3092	Ditto, in aluminium		10	6
P3093	Ditto, improved pattern, for block lettering only, in transparent celluloid		4	6

For Telegraphic Code see end of catalogue.

T Squares, etc.

Of Wood, seasoned ten to twenty years.

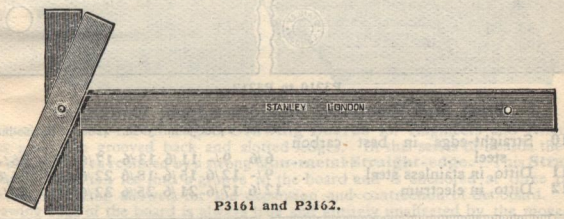


P3152 and P3157.

		18-in.	23-in.	31-in.	36-in.	42-in.	54-in.
P3151	**Stanley Square**, pearwood, improved ..	3/6	4/6	6/-	8/6	10/-	20/-
P3152	Ditto, best mahogany, ebony-edged ..	6/6	11/9	13/9	14/9	17/-	25/-
P3155	Ditto, as above, but with transparent celluloid edge in place of ebony ..	8/-	12/6	16/-	17/6	20/-	30/-
P3156	Brass tongue to stock of P3152 or P3155, extra	1/-	1/3	1/3	2/-	3/-	5/-

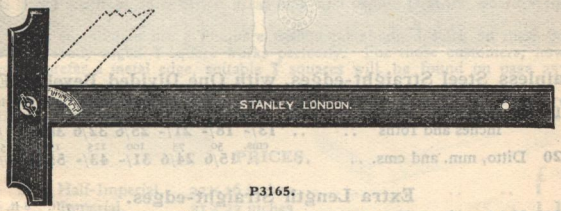
Extra Length T Squares.

		4-ft.	5-ft.	6-ft.	7-ft.
P3157	Mahogany, ebony-edged (as P3152)	20/-	36/-	60/-	80/-



P3161 and P3162.

		18-in.	23-in.	31-in.	36-in.	42-in.	54-in.
P3161	**T Square**, pearwood, shifting head ..	7/-	9/6	12/6	15/-	17/6	25/-
P3162	Ditto, solid ebony, shifting head ..	21/-	25/-	33/6	40/-	52/6	60/-



P3165.

		18-in.	23-in.	31-in.	36 in.	42-in.	54-in.
P3165	**T Square**, Isogon, shifting blade, mahogany, ebony-edged	12/6	14/6	18/-	20/-	23/6	35/-
	Charge for packing case for one or more Squares for the country	—	2/-	2/6	2/6	3/6	5/6

Metal T Squares.

		£	s.	d.
P3166	**T Square**, steel blade, gun-metal stock, 18-inch	1	7	6
P3167	Ditto, 24-inch	1	15	0
P3168	Ditto, 31-inch	2	2	0
P3169	Ditto, 42-inch	2	7	6

Straight-edges for Draughtsmen.

P3206.

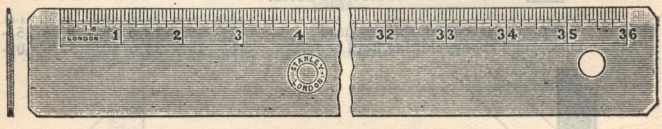
Wooden Straight-edges with One Bevelled Edge.

		18-in.	24-in.	30-in.	36-in.	42-in.	48-in.	60-in.	72-in.
P3205	Straight-edge, hardwood ..	1/3	1/9	3/-	3/6	4/-	5/-	7/-	10/-
P3206	Ditto, mahogany, with ebony edge, as illustrated	2/3	3/6	4/6	5/6	7/-	9/-	12/6	14/6
P3207	Cutting or Stationer's Rule, about ⅛-inch thick, in box-wood, brass bound	18/6	22/6	27/6	35/-	40/-	50/-	—	—

P3210 to P3212.

Steel and Electrum Straight-edges, Undivided.

		18-in.	24-in.	30-in.	36-in.	42-in.	48-in.	60-in.	72-in.
P3210	Straight-edge in best carbon steel	6/6	9/-	11/6	13/6	17/6	20/-	26/-	35/6
P3211	Ditto, in stainless steel	9/-	12/6	15/6	18/6	22/6	26/-	34/6	47/6
P3212	Ditto, in electrum	12/6	17/6	21/6	25/6	32/6	40/-	50/-	72/6



Stainless Steel Straight-edges, with One Divided Bevelled Edge.

		18-in.	24-in.	30-in.	36-in.	42-in.	48-in.	60-in.	72-in.
P3219	Straight-edge, divided one edge inches and 16ths	13/-	18/-	21/-	25/6	32/6	38/6	49/6	64/6
		cms. 50	75	100	125	150	175	200	
P3220	Ditto, mm. and cms.	15/6	24/6	31/-	43/-	55/-	65/-	75/-	

Extra Length Straight-edges.

		7-ft.	8-ft.	10-ft.
P3221	Hardwood	13/6	17/-	27/6
P3222	Steel, as P3210	42/6	57/6	100/-
P3223	Ditto, stainless, as P3211	60/-	82/-	142/6

Cases for Straight-edges.

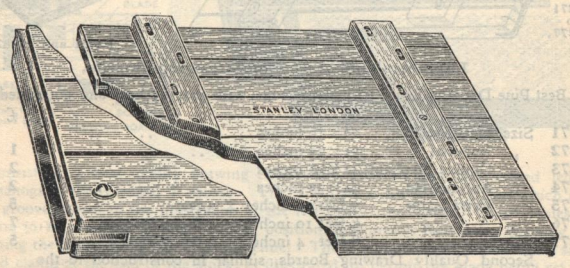
		18-in.	24-in.	30-in	36-in.	42-in.	48-in.	60-in.	72-in.	7-ft.	8-ft.	10-ft.
P3224	Deal, stained ..	6/-	6/6	7/-	8/-	9/-	10/-	12/6	17/-	22/6	25/-	32/6
P3225	Mahogany ..	9/-	10/6	12/-	15/-	16/6	19/6	24/-	30/-	34/-	37/6	47/6

Cases are particularly recommended for all metal Straight-edges.

STANLEY DRAWING BOARDS.

All our Drawing Boards are thoroughly well made, of the best material that can be procured, seasoned from four to six years, but from the nature of wood it is impossible for all to be alike or perfect in every respect.

Any of the Engineer's Drawing Boards listed in this catalogue can be supplied in cedar wood in place of pine at an extra charge of 10 per cent. Cedar boards are recommended for the Tropics as they are ant-resisting.



Stanley's Gun-metal Edged Drawing Boards for Engineers and Architects, in best pine with grooved back and slotted ledges. In this series of boards the usual ebony edge has been replaced by a strong **Gun-metal Straight-edge.** This **Straight-edge** is of **T** section let into a groove in the board and is anchored at three points, ample latitude being allowed for the expansion and contraction of the board. Thus the drawing edge of the board is always true and entirely unaffected by the movements of the board due to climatic changes, etc.

Although on the market for only a short time, the reception of this new pattern drawing board has been such that it must rank first in our Drawing Board section.

It is not essential to use a **T** square with a metal-edged stock on these boards, the ordinary ebony-edged **T** square works perfectly. For those customers, however, who would prefer a metal edge, suitable **T** squares will be found on page 257.

It will also be noticed that the prices of these boards are very little greater than those of the ebony-edged series.

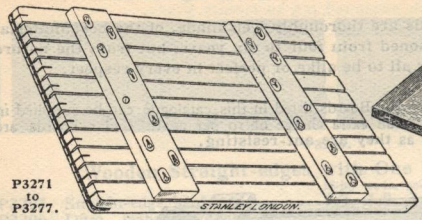
PRICES.

			£	s.	d.
P3254	Size, Half-Imperial,	23×16 inches	1	0	0
P3255	,, Imperial,	31×23 inches	1	11	6
P3256	,, Double Elephant,	42×29 inches	2	6	6
P3257	,, Antiquarian,	54×33 inches	3	0	0
P3258	,, Extra Large,	5 feet 10 inches × 3 feet	5	10	0
P3259	,, ,, ,,	5 feet 10 inches × 4 feet 2 inches	8	5	0
P3260	,, ,, ,,	8 feet 4 inches × 2 feet 7 inches	5	12	6

The charge for packings, for Drawing Boards for the country, at cost price, is as follows :— 23-inch, 2/6 ; 31-inch, 4/6 ; 42-inch, 6/6 ; 54-inch, 8/6. Packings are returnable.

If Drawing Board and T square are ordered at same time, the Board packing only is required.

Drawing Boards (continued).



P3271 to P3277.

P3281 and P3282.

Engineers' and Architects' Drawing Boards.

Best Pine Drawing Board with ebony edge, with grooved back and slotted ledges.

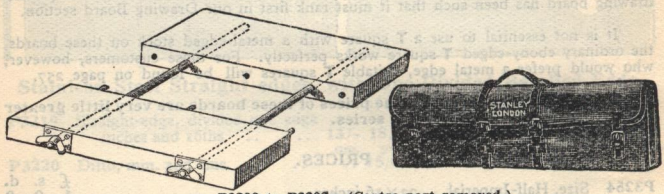
			£	s.	d.
P3271	Size, Half-Imperial,	23×16 inches		18	6
P3272	,, Imperial,	31×23 inches	1	7	6
P3273	,, Double Elephant,	42×29 inches	2	2	0
P3274	,, Antiquarian,	54×33 inches	2	15	0
P3275	,, Extra Large,	5 feet 10 inches × 3 feet	5	0	0
P3276	,, ,, ,,	5 feet 10 inches × 4 feet 2 inches	7	15	0
P3277	,, ,, ,,	8 feet 4 inches × 2 feet 7 inches	5	5	0

Second Quality Drawing Boards, similar in construction to the above, but without ebony edge.

P3278	Size, Half-Imperial,	23×16 inches		13	6
P3279	,, Imperial,	31×23 inches	1	0	0
P3280	,, Double Elephant,	42×29 inches	1	10	0

Clamped Pine Drawing Boards, suitable for schools and technical institutions.

			£	s.	d.
P3281	Size, Quarter-Imperial,	16×12 inches		4	6
P3282	,, Half-Imperial,	23×16 inches		7	6



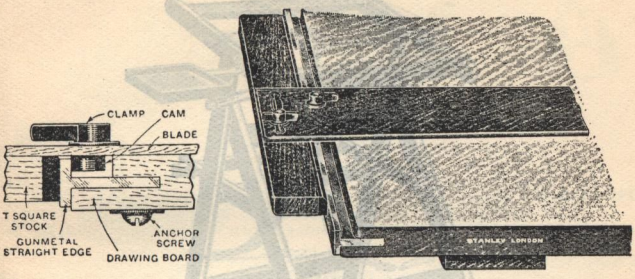
P3290 to P3292. (Centre part removed.)

Stanley's Portable Drawing Board, for travelling, especially for tropical climates, made in three detachable widths, to clamp together by steel rods, with strong waterproof case, as illustrated.

			£	s.	d.
P3290	Size, Imperial,	31×23 inches	4	0	0
P3291	,, Double Elephant,	42×29 inches	5	10	0
P3292	,, Antiquarian,	54×33 inches	10	0	0

For Telegraphic Code see end of catalogue.

STANLEY'S New Patent Gun-metal Edged Drawing Board, with Clamping T Square.



Consists of a best quality drawing board with grooved back and slotted ledges, with mahogany ebony-edged **T** square. The **T** square is fitted with a cam which runs in the groove shown in the illustration at the left end of the board. This enables the **T** square to be clamped instantly at any position, thus greatly facilitating drawing and permitting the board being used on an incline. The **T** square is also fitted with a small slot and clamp at the end of the stock, as illustrated, to permit the blade being set to a drawing to be traced or to which it may be required to make additions or alterations.

Drawing boards and **T** squares are interchangeable.

			£	s.	d.
P3301	Size, Half-Imperial,	23 × 16 inches, with **T** square	2	1	9
P3302	,, Imperial,	31 × 23 inches ,, ,,	2	15	3
P3303	,, Double Elephant,	42 × 29 inches ,, ,,	3	13	6
P3304	,, Antiquarian,	54 × 33 inches ,, ,,	4	15	0
P3305	,, Extra Large,	5 feet 10 inches × 3 feet	9	0	0
P3306	,, ,, ,,	5 feet 10 inches × 4 feet 2 inches	11	15	0
P3307	,, ,, ,,	8 feet 4 inches × 2 feet 7 inches	11	5	0

Gun-metal edged Board and Clamping T Square, as above, but with improved transparent celluloid in place of ebony edge to the **T** square (recommended).

			£	s.	d.
P3308	Size, Half-Imperial,	23 × 16 inches, with **T** square	2	2	6
P3309	,, Imperial,	31 × 23 inches ,, ,,	2	17	6
P3310	,, Double Elephant,	42 × 29 inches ,, ,,	3	16	6
P3311	,, Antiquarian,	54 × 33 inches ,, ,,	5	0	0

The stock of the **T** squares for P3301 to P3304 and P3308 to P3311 can be fitted with brass working edge instead of ebony at the following extra charge:—

		£	s.	d.
P3312	23 × 16 inches		1	3
P3313	31 × 23 ,,		1	3
P3314	42 × 29 ,,		3	0
P3315	54 × 33 ,,		5	0

This is undoubtedly the best form of drawing board and T square yet devised.

Drawing Board Stands.

In most of the drawing board stands on the market the board itself is an integral part of the stand. The stand illustrated above is introduced to meet the demand for a moderate-priced stand to accommodate clients' own boards. It will take either Double Elephant or Antiquarian boards and can be fitted with a crossbar, if necessary, to take an Imperial board. The board simply lifts on and off and is not screwed to the stand. It can be adjusted for **height and angle as desired.**

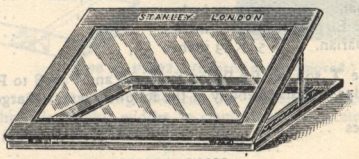
		£	s.	d.
P3320	Made in dark or light ash, complete with side tray	5	5	0

Note.—Please state on your order whether a light or dark finish is required.

EXTRA.

Crossbar to adapt the stand for Imperial boards			3	6

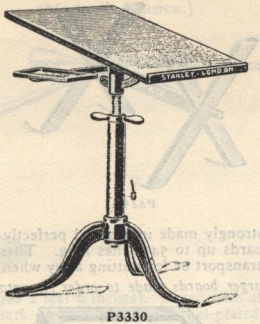
Attention is called to the series of gun-metal edged Boards, P3301 to P3311, on the previous page, which are particularly suitable for use with this stand



P3325 to P3327.

		£	s.	d.
P3325	**Tracing Board**, plate glass, rising frame, 23×16 inches	3	0	0
P3326	Ditto, 31×23 inches	4	4	0
P3327	Ditto, 42×29 inches	6	15	0

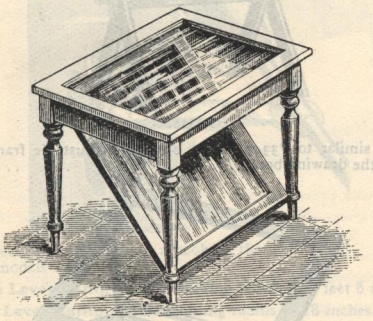
Adjustable Stands for Drawing Boards.



P3330

		£	s.	d.
P3330	**Stanley's Patent Adjustable Table** for drawing boards. This is strongly made in cast iron; it is adjustable for height from 2 feet 9 inches to 3 feet 9 inches, by a screw motion, and it will take drawing boards up to 54 inches in length. The board can be set at any angle from horizontal to almost vertical, and is quite rigid in all positions It is fitted with a small tray for instruments.	6	15	0

Tracing Tables.

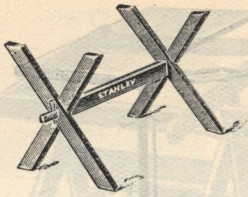


P3335 and P3336.

		£	s.	d.
P3335	**Tracing Table**, polished mahogany, with plate-glass top and reflecting mirror, complete, as illustration, 31×23 inches ..	15	0	0
P3336	Ditto, 42×29 inches	22	10	0
P3340	**Office Stool**	1	5	0

For Telegraphic Code see end of catalogue.

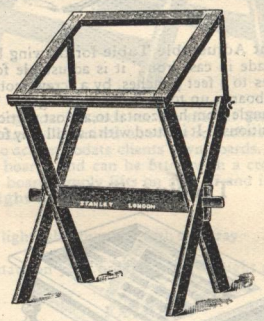
Trestles and Stands for Drawing Boards.



P3345.

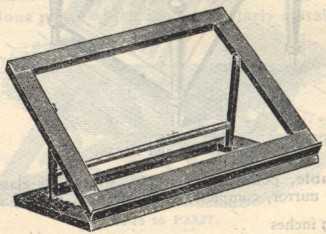
		£	s.	d.
P3345	**Trestles,** plain, strongly made in ash and perfectly rigid, suitable for drawing boards up to 54 inches long. These are made to take apart for transport or for putting away when out of use ..	2	10	0

Trestles for larger boards made to order ; quotations given.



P3346.

		£	s.	d.
P3346	**Trestles,** similar to P3345 above, but with adjustable frame for tilting the drawing board	3	15	0

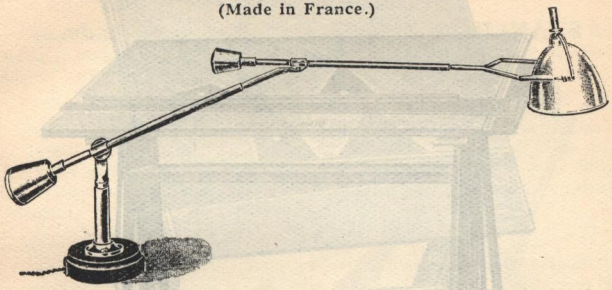


P3347.

		£	s.	d.
P3347	**Tilting Frame,** for use on a flat drawing table, suitable for boards up to 42 inches long ; when ordering, please state sizes of boards for which they are required		17	6

The "Draughtsman" Electric Lamp.

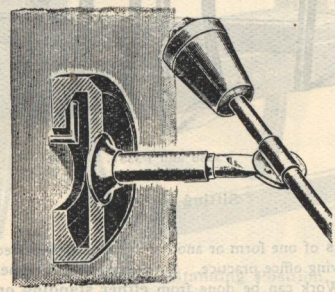
(Made in France.)



Double lever type (radius 2 feet 6 inches). Fitted with aluminium shade, 9 feet of flex and lamp socket adapters or wall plugs. Nickel-plated.

The ideal lamp for the draughtsman; can be used on a table or suspended from a hook on the wall.

The only lamp which will assume any and every position and remain there without adjustment. No screws to tighten, no nuts to loosen; a touch—and you have the light where you want it, perfectly poised and free from vibration.



Showing the method of attaching to a hook on the wall.
Made in two models:—

(1) **A Double Lever Lamp**, with a working radius of 2 feet 6 inches.

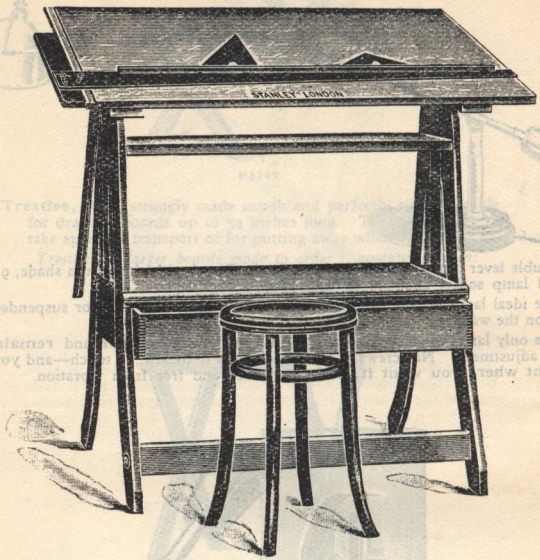
(2) **A Single Lever Lamp**, with a working radius of 18 inches.

PRICES.

		£	s	d
P3348	**Double Lever Lamp**, as illustrated, with 9 feet of flex, socket adapter or wall plug	3	10	0
P3349	**Single Lever Lamp**, complete with 9 feet of flex, socket adapter or wall plug	2	0	0

Please state on your order if a socket adapter or wall plug is required.

The STANLEY Drawing Table.



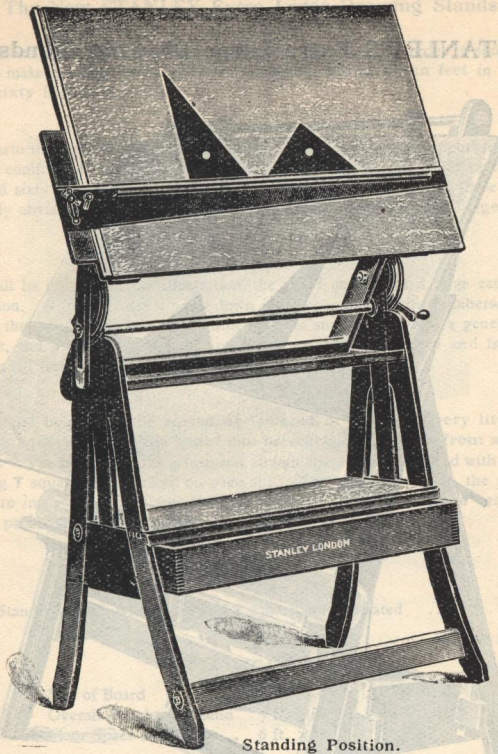
P3350 and P3351.

Sitting Position.

Drawing Stands of one form or another are rapidly superseding benches and flat tables in modern drawing office practice. **By decreasing fatigue they substantially increase output.** Work can be done from **either standing or sitting positions,** and the board can be moved to take advantage of any source of light. The stand illustrated is made throughout at our works at New Eltham of the finest seasoned timber.

Its main features are : Absolute rigidity—a balanced board which may be instantly placed and locked at any angle, from horizontal to vertical, and at any height, from sitting to standing position. The Drawing Board is of the **gun-metal edged type with clamping T square,** as described on page 261, Nos. P3301 to P3307. The blade of the **T** square has a working **edge of transparent celluloid,** which will be found a great convenience. It is also fitted with a ledge to hold pencils and support small articles of equipment not in immediate use. The top of the stand forms a tray, and a drawer and foot rest are embodied in the lower part of the frame. The whole stand can be easily dismantled for shipment. (See opposite page.)

The STANLEY Drawing Table (continued).



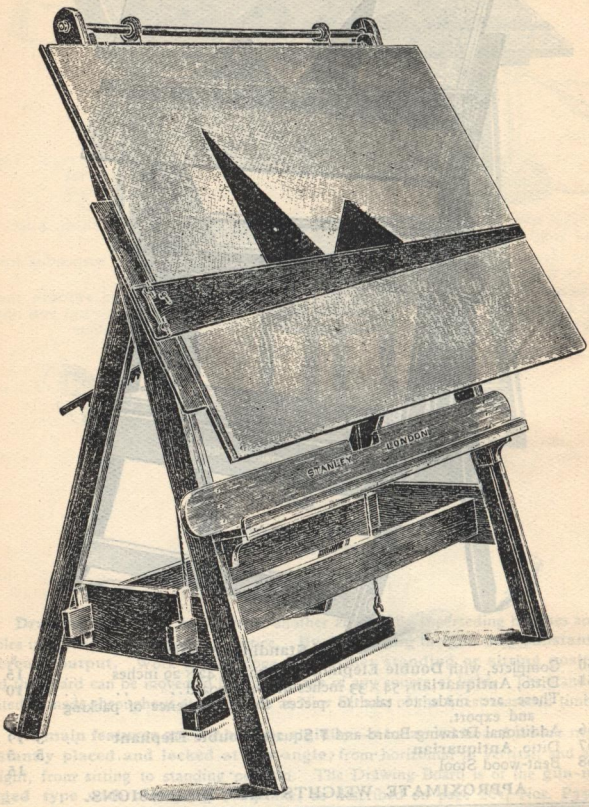
Standing Position.

		£	s.	d.
P3350	Complete, with **Double Elephant** size board, 42×29 inches ..	17	15	0
P3351	Ditto, **Antiquarian**, 54×33 inches drawing board..	22	10	0
	These are made to take to pieces for convenience of packing and export.			
P3356	Additional Drawing Board and **T** Square, **Double Elephant** ..	3	19	0
P3357	Ditto, **Antiquarian**	5	5	6
P3358	Bent-wood Stool		15	6

APPROXIMATE WEIGHTS AND DIMENSIONS.

Cat. No.	Weight.	Floor Space Occupied.	Overall Height, Standing Position.
P3350	1 cwt. 10 lbs.	4 feet × 2 feet 10 inches.	6 feet 3 inches.
P3351	1 cwt. 1 qr. 15 lbs.	4 feet × 2 feet 10 inches.	6 feet 6 inches.

STANLEY'S Extra Large Drawing Stands.



P3360.

For Telegraphic Code see end of catalogue.

The New STANLEY Extra Large Drawing Stands.

Occasions arise when it would be of great advantage, in order to show full-size details, to make drawings up to, and even exceeding, **six or seven feet** in length, by **fifty or sixty inches** in width.

Hitherto the difficulty has been to find a convenient means of support for the board to ensure comfortable working. It is quite obvious that no one could reach the back of a board sixty inches wide in a flat or slightly tilting position. All these difficulties are entirely obviated by the introduction of **our new series of very large Drawing Stands.**

As will be seen from the illustration, the stand consists of a large easel of stout construction. A frame slides up and down in grooves in the side members, to the top of which the board is hinged. The notched iron support provides a generous tilting movement, and a heavy counterpoise takes the weight of the board and frame which are suspended from pulleys.

Thus the board can be raised or lowered at will with very little effort, and every square inch of the board can be reached with ease from a standing position. The board is of the gun-metal straight-edge type, equipped with a clamping and tilting **T** square, as described on page 261. The board shown in the illustration is 5 feet 10 inches long by 4 feet 2 inches wide. The stand can be readily taken down and packed for transit.

PRICE.

		£	s.	d.
P3360	Stand complete with board and **T** square, as illustrated	27	10	0

SPECIFICATION.

Size of Board	5 ft. 10 in. × 4 ft. 2 in.
Overall Height of Stand	7 ft. 3 in.
Floor Space required ..	6 ft. × 4 ft.

WEIGHTS.

Board and Square	72 lbs.
Stand	80½ lbs.
Counterpoise	87½ lbs.
Total	240 lbs.

Prices for other sizes on application. Please give size of board required.

For Telegraphic Code see end of catalogue.

Chests of Drawers.

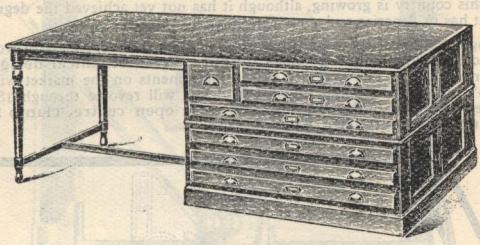
P3365 to P3374.

		£	s.	d.
P3365	Cabinet, with six drawers, Double Elephant size, drawers 3 inches deep, with back strips to prevent drawings curling up, whitewood, stained and polished	12	10	0
P3366	Ditto, Antiquarian size	16	0	0
P3367	Ditto, Double Elephant, with oak top, sides and front	14	5	0
P3368	Ditto, Antiquarian size	19	10	0
P3369	Ditto, Double Elephant, with mahogany top, sides and front ..	17	0	0
P3370	Ditto, Antiquarian size	23	10	0
P3371	Ditto, Double Elephant, oak throughout	15	17	6
P3372	Ditto, Antiquarian, ditto	21	5	0
P3373	Ditto, Double Elephant, mahogany throughout	19	10	0
P3374	Ditto, Antiquarian, ditto	26	5	0

For Telegraphic Code see end of catalogue.

Chests of Drawers, with Extension.

(The extension can be on either side.)



P3380 to P3382.

		£	s.	d.
P3380	**Cabinet**, with four drawers, 41×29×3 inches; two drawers, 30×29×3 inches; one drawer, 9½×29×6 inches; with extension for drawing board. All drawers fitted with back strips to prevent drawings curling up. Made in whitewood, stained and polished	16	5	0
P3381	Ditto, but with top, sides and drawer-fronts in solid mahogany, polished	23	10	0
P3382	Ditto, but in solid mahogany throughout, polished	26	10	0

EXTRAS to any of the foregoing (P3365 to P3382).

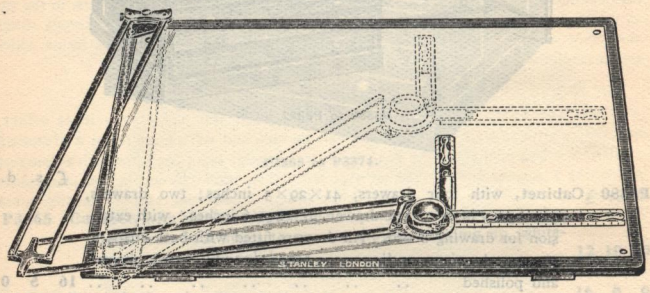
P3383	*Hinged Flaps for keeping drawings in position*	19	0	
P3384	*Locking Bar*	14	0	

For Telegraphic Code see end of catalogue.

STANLEY'S
Patent Parallel Braced Drafting Machine.

The **Drafting Machine** consists of a protracted head, about which revolves a square with two detachable scales permanently arranged at right angles. The whole unit is anchored to the drawing board by a parallelogram of steel bars, which keeps it parallel in any position. Stops are provided to lock the head automatically at all the angles most frequently required, viz., 30°, 45°, 60° and 90°. Thus the instrument combines all the functions of the **T square, set-square, parallel rule and protractor.** Its use in this country is growing, although it has not yet achieved the degree of popularity that it has in America and some Continental countries.

Although the **Drafting Machine** is not suitable for every class of work, when it can be used it undoubtedly **increases output.** For **mechanical designers** it has proved a great boon. The majority of the instruments on the market will only turn through 90°, but the instrument illustrated below will revolve through 180°, and has several other distinctive improvements, such as an **open centre, clamp for setting the drawing to a magnetic bearing,** etc.



It is made in three sizes to suit the following drawing boards :—

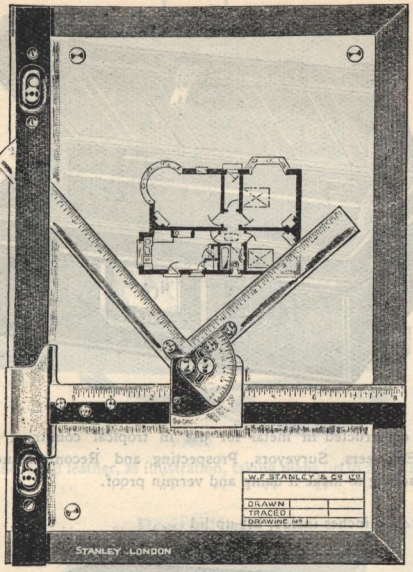
		£	s.	d.
P3390	Double Elephant, 42×29 inches	9	10	0
P3391	Imperial, 31×23 inches	9	10	0
P3392	Half-Imperial, 23×16 inches	9	10	0
	Scales for the above :—			
P3393	6-inch, 9/- ; P3394, 12-inch, 13/6 ; P3395, 18-inch, 17/6 ; P3396, 24-inch	1	4	0

These can be divided in any manner required, although it is most usual to supply a pair each carrying $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ and 1 inch scales, or a pair carrying $\frac{3}{4}$, $\frac{3}{8}$, $1\frac{1}{2}$ and 3 inch scales ; but ordnance, metric, or other dividing, either single or double figured, may be substituted at the same prices. When double figured scales are supplied it is only possible to cut one scale on each edge.

A pair of scales for the two smaller machines usually consists of one 6-inch and one 12-inch. For the largest one we usually supply one 12-inch and one 18-inch.

		£	s.	d.
P3397	**Straight-edges.** Mahogany, ebony-edged, fitted for the above, 24-inch		10	0
P3398	**Additional Base Plates.** One is required for each drawing board on which the machine is to be used		3	6
P3399	**Extension Arm.** This is required when it is desired to work up to the extreme left-hand edge of the board		5	6

The STANLEY Portable Drawing Unit.



P3400 to P3403.

This outfit consists of a pad of 20 sheets of paper on a plywood board and a drafting set which is the equivalent of a **T** square, parallel rule and protractor. The whole outfit is enclosed in a cardboard carrying case. Suitable for **Technical Representatives, Architects, Designers,** and anyone who requires portable drawing apparatus.

Refill Blocks of 20 sheets can be supplied either in tracing or cartridge paper.

DIMENSIONS AND PRICES.

Complete with drawing instruments in millboard case.

		£	s.	d.
P3400	9½ inches across × 13½ inches high	1	7	6
P3401	19½ inches across × 13½ inches high	1	18	6
P3402	27½ inches across × 19½ inches high	2	19	6
P3403	19½ inches across × 27½ inches high	2	19	6

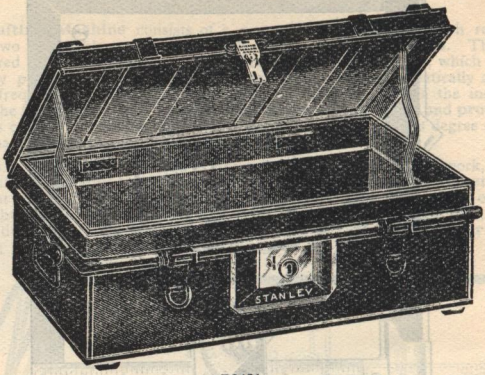
Refill Blocks of 20 Sheets.

		Size 1	2	3
P3410	Best quality white drawing paper	1/3	2/6	5/-
P3411	Thin white detail ditto	1/-	2/-	4/-
P3412	Medium unglazed tracing ditto	1/-	2/-	4/-

E*

Tropical Stationery Boxes.

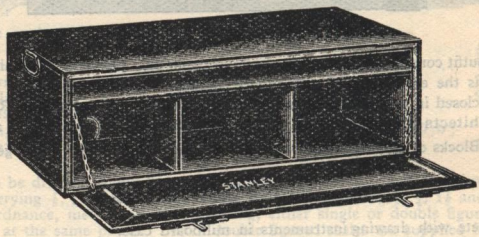
Made in our own Factory at New Eltham.



P3426.

Specially constructed in metal for use in tropical countries. Strongly recommended for Engineers, Surveyors, Prospecting and Reconnaissance Parties, etc., with rubber packing to make it damp and vermin proof.

		£	s.	d.
P3426	26×14×9 inches inside, lift-up lid	4	4	0



P3427.

This Trunk has a space at the top to take rolls of drawing paper, tracing cloth, etc., and pigeon-holes underneath to take office books, etc. The lid is inset with rubber to make it waterproof as far as possible.

		£	s.	d.
P3427	Bureau Pattern, with falling front and partitions, 34×9×14 inches inside	4	10	0

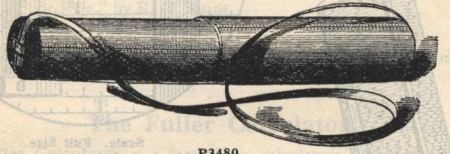
Quotations for special sizes and patterns on application.

Plan or Map Cases.

P3474 to P3478.

Plan Cases, stout japanned tin, with hinged lid, hasp and padlock, for office use.

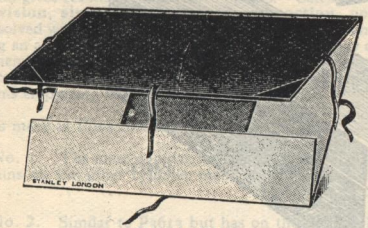
		£	s.	d.
P3474	22 inches long, 3½ inches diameter		10	6
P3475	27 inches „ 4 inches „		11	6
P3476	31 inches „ 4½ inches „		12	6
P3477	42 inches „ 4¾ inches „		14	0
P3478	53 inches „ 5 inches „		16	0
P3479	Galvanised iron, with brass screw-down watertight top for transport, 31 inches long, 4½ inches diameter	2	2	0



P3480

		£	s.	d.
P3480	Plan Case, solid leather, as illustration, taking plans up to 29 inches wide	2	10	0

Portfolios.

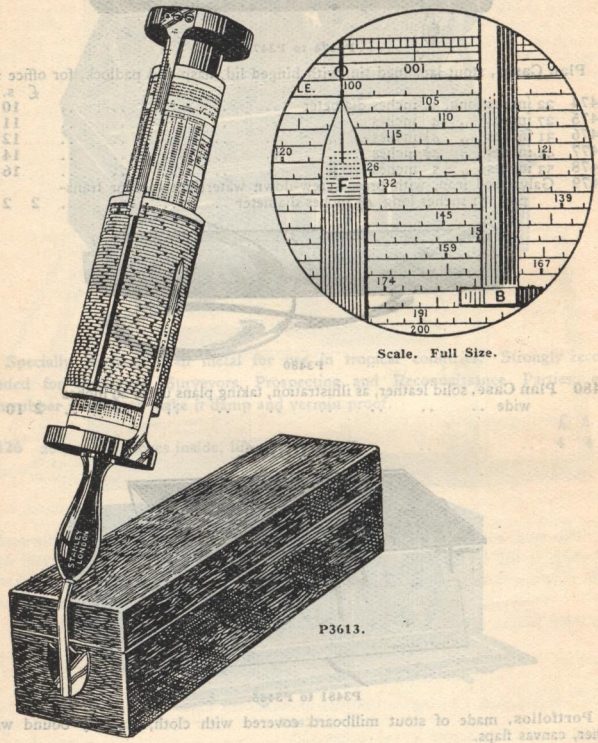


P3481 to P3485.

Portfolios, made of stout millboard covered with cloth, strongly bound with leather, canvas flaps.

		£	s.	d.
P3481	Size, 16×11 inches		10	6
P3482	„ 22×16 inches		16	6
P3483	„ 31×23 inches	1	3	6
P3484	„ 40×28 inches	1	10	0
P3485	„ 53×31 inches	2	7	6
	Portfolios similar to the above, but cheaper quality.			
P3490	Size, 31×23 inches		14	0
P3491	„ 40×28 inches	1	2	0

The FULLER Calculator.



Scale. Full Size.

P3613.

The simplest and quickest Calculator, giving an accuracy of at least 1-10,000.

For Telegraphic Code see end of catalogue.

Slide Rules and Logarithmic Calculators.

In every office, **professional, technical** or **commercial,** calculations exist which can be more efficiently solved by the **Slide Rule or Logarithmic Calculator** than by any other method.

This statement is no exaggeration, as might be inferred from the many who are unfamiliar with the advantages offered by these instruments.

Nevertheless, hundreds of thousands are enthusiastic users, and declare that one or other is indispensable.

The benefits of these instruments are within the reach of all, for the principles underlying their operation are of the simplest, and a little patient practice is all that is necessary to acquire facility in using them.

Those unfamiliar with this method of calculation would find it well worth their while to devote a few hours to reading one of the many textbooks on the subject, such as :—

		£ s. d.
P3520	Simple Instruction Booklet, post free	1 2
P3521	" The Slide Rule," by R. G. Blaine	3 6
P3522	" Slide Rule," by Pickworth	3 6

Slide Rules are made in many forms, and particulars of those in general use are given in the following pages.

The Fuller Calculator.

The Fuller Calculator is a logarithmic calculator. Its fundamental principle is specifically the same as the Mannheim Slide Rule, but it differs radically in mechanical construction.

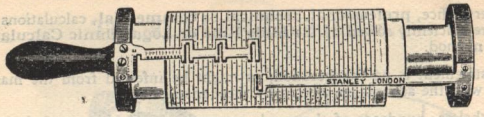
It is the most accurate of all logarithmic calculators. Although its overall length is only 17 inches and greatest diameter 3¼ inches, it is equivalent to a straight slide rule 500 inches long, and gives results in four or five figures. Calculations involving **multiplication** and **division, simple or combined, proportion, powers, roots, percentages,** can be solved with ease and rapidity. It is the simplest and quickest calculator in existence, giving an accuracy of at least **1 in 10,000,** and its low cost enables firms to equip individual members of the staff. It is extensively used in **Government Departments** and by **accountants, actuaries,** and in the various branches of the **engineering world,** several firms employing from fifty to one hundred.

The Fuller is made in three models .—

		£ s. d.
P3613	**Model No. 1.** The most popular, as supplied for general purposes, Contains on the inner cylinder many useful tables and various data	5 10 0
P3614	**Model No. 2.** Similar to P3613 but has on the inner cylinder in place of the tables, etc. (1) **a scale of logarithms** giving the log of any number, whether greater or less than unity, to at least four places ; (2) **a scale of sines of angles from 5° 35′ to 88°** correct to four places. With these scales **log sines** can be found to four places with one setting. This model is extremely useful for calculations involving trigonometrical functions ..	6 10 0
P3615	**Model No. 3.** The **Fuller-Bakewell** is similar to P3613, but has on the inner cylinder a scale of **cosines squared** and one of **sines × cosines.** This enables calculations to be performed affecting tacheometrical surveying	7 10 0

Descriptive Booklet on the " FULLER " post free upon application.

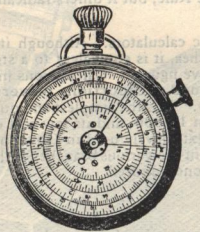
Barnard's Co-ordinate Calculator.



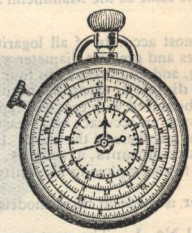
P3620.

		£	s.	d.
P3620	**Barnard's Co-ordinate Calculator** Similar to our well-known Fuller Calculator, but modified to calculate co-ordinates. About one-third of the calculating cylinder only is used for the logarithmic scale of numbers and the remaining portion carries the new scales, so that in addition to multiplication, division, proportion, continuous fractions, powers, roots and logarithms, the natural and logarithmic values of trigonometrical functions of any angle can be determined by inspection with the same accuracy as in numerical computation, while the products, quotients, etc., of these functions by lengths or numbers, integral or fractional, are obtained with equal ease, rapidity and precision. In mahogany case, with book of instructions ..	7	10	0

Boucher's Pocket Calculators.



P3622 (Front)



P3630 (Back).

		£	s.	d.
P3622	**Boucher's Pocket Calculator** This is about the size of an ordinary watch, and equivalent to a 10-inch slide rule. It has calculating scales on both faces. Those on the front dial give logarithmic numbers, sines and squares, or square roots. Those on the back give scale of equal parts, cubes and cube roots ..		17	6
P3623	Ditto, Presentation Model, in silver case	1	15	0
P3630	**Patent Stanley-Boucher Calculator.** This model is identical with P3622, but has an additional hand on the back to record complete revolutions of the dial (recommended)	1	0	0
P3631	Ditto, Presentation Model, in silver case	2	0	0

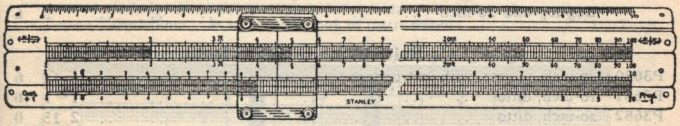
STANLEY'S Slide Rules.

We have recently completely reorganized the department responsible for the production of our slide rules, and offer the rules herein described with every confidence that they will bear favourable comparison with any other rule on the market.

Only the best timber is used in their manufacture, and the celluloid is specially seasoned and stabilized. All our rules are engine divided.

Standard Pattern

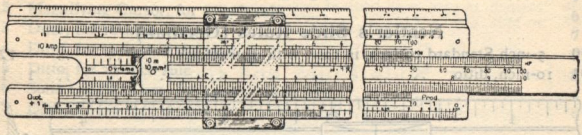
With usual A, B, C and D Scales on the face, and Logs Sines and Tangents under the slide. Scales of Inches and Millimetres on the edge



The Stanley Slide Rule, made of well-seasoned mahogany, faced with celluloid on both sides to prevent warping, and complete with frameless cursor.

		£	s.	d.
P3650	5-inch, in case, with instructions		14	6
P3651	10-inch, ditto	1	1	0
P3652	20-inch, ditto	2	15	0
P3653	10-inch Students' Slide Rule, A, B, C and D Scales only		10	6

Log-log Pattern.



The Stanley Log-log Slide Rule, for Electrical and Mechanical Engineers. In this rule the usual A, B, C and D Scales have been supplemented by the following scales :—

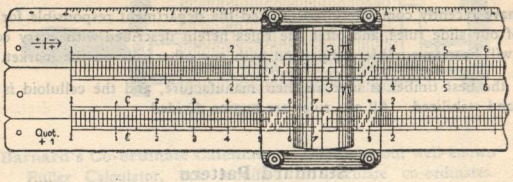
(1) Log-log.

(2) Efficiency of Motors and Dynamos.

(3) Potential Drop.

		£	s.	d.
P3660	10-inch, in case, with book of instructions	1	7	6

Magnifying Cursors for STANLEY Slide Rules.



Any of the slide rules can be supplied with magnifying cursors, as illustrated above, at the following prices extra to the cost of the rules.

	£	s.	d
5-inch and 10-inch		5	0
Log-log and 20-inch		5	6

P.I.C. British-made Slide Rule.

P3680	5-inch, in case, with instructions		14	6
P3681	10-inch, ditto	1	1	0
P3682	20-inch, ditto	2	15	0

Faber's Slide Rules (Bavarian).

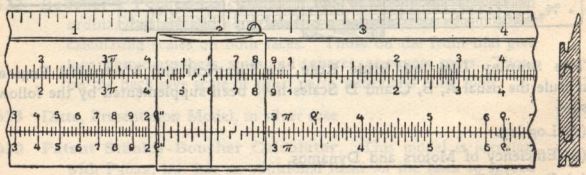
P3685	5-inch, Standard pattern, in case, with instructions		14	6
P3686	10-inch, ditto	1	1	0
P3687	20-inch, ditto	2	15	0
P3688	10-inch, Log-log pattern, ditto	1	11	6
P3689	20-inch, ditto	4	0	0

Hemmi Slide Rules (Japanese)

P3695	5-inch, Standard pattern, in case, with instructions		12	6
P3696	10-inch, ditto	1	1	0
P3697	20-inch, ditto	2	15	0
P3698	10-inch Log-log pattern, with reciprocal scale	1	10	0

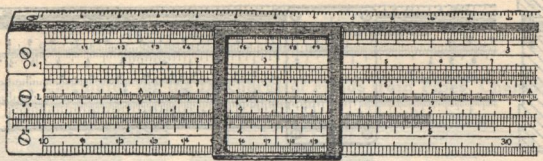
Nestler's Slide Rules (German).

P3700	5-inch Standard pattern, in case, with instructions		12	6
P3701	10-inch, ditto	1	1	0

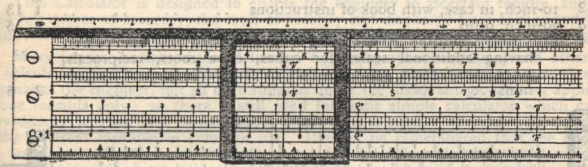


		£	s.	d.
P3705	**Nestler's Pocket Slide Rule.** A special thin model, made of solid ivorine, 5-inch, in case		10	6

Slide Rules (continued)



		£	s.	d.
P3706	**Nestler's "Precision" Slide Rule,** 10-inch. This is equivalent to a 20-inch rule of the usual type. It has a single logarithmic scale of numbers which commences on the upper edge of the slide and is continued on the lower, making the logarithmic unit 50 centimetres in length. The sine and tangent scales are similarly divided, so that great accuracy is obtained in all calculations In case, with book of instructions	1	7	6



		£	s	d.
P3707	**Nestler's "Reitz" Slide Rule,** 10-in., having scales of cubes and logarithms on the face, in addition to the usual scales, in case, with book of instructions	1	4	0
P3709	20-inch, Faber's "Reitz" pattern	3	10	0

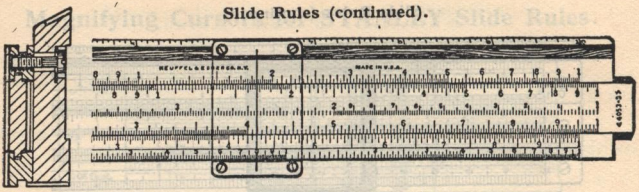
Cursors and Cases for Slide Rules.

P3710	Cursors, for 5-inch and 10-inch Standard pattern rule		3	6
P3711	Ditto, for Reitz, Precision and Log-log		4	6
P3712	Magnifying Cursor, for 5-inch rule		6	6
P3713	Ditto, for 10-inch ditto		7	0
P3714	Ditto, for 10-inch Reitz rule		7	6
P3715	Ditto, for 20-inch rule		8	6
P3716	Solid Leather Case, for 10-inch slide rule		4	6
P3717	Ditto, for 20-inch ditto		9	6

Books for use with the Slide Rules.

P3720	Stanley's Handbook on the Use of Slide Rules (a simple explanation of the principle and working of the rule, especially recommended for beginners)		1	0
P3721	"The Slide Rule," by R. G. Blaine		3	6
P3722	"The Slide Rule," by Pickworth		3	6
P3723	Instanter Decimal Tables, by O. Winzar, giving the decimal equivalents of all subdivisions of British money, weights, measures, Indian annas, net		3	0

Slide Rules (continued).



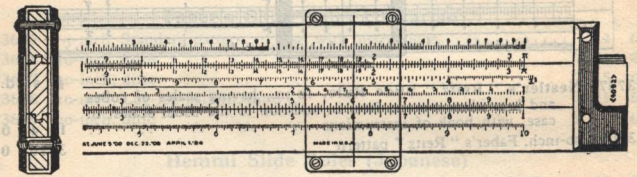
Keuffel & Esser Slide Rules (American).

Standard.

		£	s.	d.
P3730	10-inch, in case, with book of instructions	1	10	0
P3731	20-inch, ditto	3	15	0

Keuffel and Esser Polyphase Slide Rule. In addition to the regular scales, this pattern has a scale of cubes on the rule and an inverted scale down the centre of the slide, for calculating reciprocals.

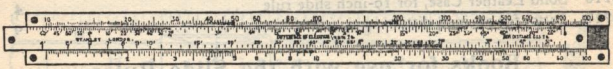
		£	s.	d.
P3732	10-inch, in case, with book of instructions	1	13	6
P3733	20-inch, ditto	4	5	6
P3734	**Polyphase Duplex Rule**, being a double-sided rule and cursor, having additional scales for cubes, cube roots, reciprocals, sines, tans, cotans, etc. 10-inch, in case, with book of instructions	2	5	0



Log-log Duplex Slide Rule, having in addition to the scales contained in the Polyphase Duplex, scales for hyperbolic, natural and decimal logs, and can be used for the many formulæ in electrical and mechanical engineering.

		£	s.	d.
P3736	10-inch, in case, with book of instructions	2	12	6
P3737	20-inch, ditto	6	0	0

Tacheometer Slide Rules and Calculators (British).



P3740.

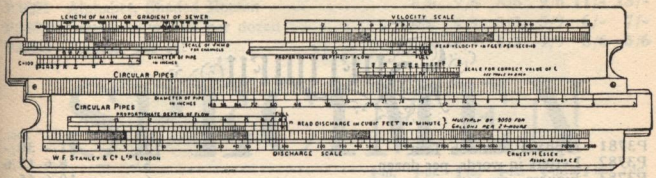
		£	s.	d.
P3740	**Tacheometer or Stadia Slide Rule**, Stanley's, 10-inch, celluloid-faced, with scales of $\frac{1}{2}$ sin 2a and $\cos^2$ for determining the horizontal equivalents and difference in height, directly from the stadia distance and vertical angle of the sight. These are both found from a single setting of the slide. For use with instruments sexagesimally divided to 360 degrees. In case, with instructions for use	1	5	0

For Fuller-Bakewell Tacheometer Rule (recommended), see P3615, *page* 277

Slide Rules for Special Purposes.

		£	s	d.
P3749	**Stanley's Rule for Calculating the Weights of Steel Plates.** Given the three dimensions, this rule will give the weight of any steel bar, plate, etc., at a single setting	1	15	0

The Essex Calculator for the Discharge of Fluids from Pipes, Channels and Culverts.



This Calculator is designed to enable the engineer to ascertain rapidly, and with some fair degree of accuracy, the rates of velocity and discharge from sewers and water mains, it can also be used to find the velocity of discharge in different forms of channel.

Many papers, books, tabulated lists of figures, graphic diagrams, and other aids for calculating the rates of velocity and discharge from pipes have been placed at the disposal of the engineer, but all have suffered under the disadvantage of being applicable to one formula only, so there is still need for some simple calculator which can be conveniently handled and carried about and which is readily adjustable to any or all of the different formulæ in common use. It must be remembered that the engineer has not only to decide which formula to use for the different classes of material and circumstances under his consideration, but he is frequently called upon to compare his results with those obtained by others using different formulæ.

Such facilities are readily presented with this calculator by means of the additional scale for the "correct value of C," upon the upper side, representing the variable co-efficient in Chezy's original formula $V = C\sqrt{rs}$, upon which all the later formulæ are based.

		£	s.	d
P3750	Boxwood, celluloid-faced, in case, with instructions for use ..	2	15	0
P3751	Ditto, cardboard		12	6

Cubing and Ship's Displacement Slide Rule.

		£	s	d.
P3752	**Cubing Slide Rule,** Sheppard's, with two slides, giving at sight square or cubic contents in feet and inches up to 100 cubic feet, specially designed for quantity surveyors, timber merchants, etc., with instructions for use, 12-inch	2	0	0
P3753	Ditto, 22-inch	2	15	0
P3754	**Froude's Ship's Displacement Slide Rule,** 24-inch.. ..	4	10	0

For Books on the Slide Rule see page 281

Hudson's Horse-power Computing Scale gives at sight: the I.H.P.; the size of engine for a given power; the piston speed due to any stroke and number of revolutions per minute; the ratio the high- and low-pressure cylinders of compound engines bear to each other; the proportion the "mean" bears to the "initial" pressure.

		£	s.	d.
P3755	Cardboard, size $4\frac{1}{2} \times 2\frac{1}{2} \times 1/16$th inch, in case, with instructions for use		6	6
P3756	Ditto, in opaque celluloid, in case	1	7	6

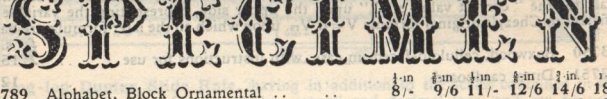
For Telegraphic Code see end of catalogue.

Copper Stencil Plates.

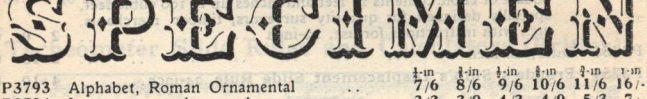
These plates are carefully cut in thin copper and are superior to the ordinary article. The Alphabets contain A to Z and &. The Figures contain 0 to 9 and No Headings for plans, address plates, scale or word plates, cut to order in any design, size, or style, the prices per dozen letters are shown below, under the various styles of lettering. Lower-case letters to P3781 and P3785 cost the same as the capitals to which they belong

		¼-in.	½-in	¾-in.	1-in.
P3781	Alphabet, Church Text	12/-	—	21/-	30/-
P3782	Letters in words, per dozen	5/-	—	8/6	12/6
P3783	Figures, per set	6/-	—	10/6	15/-

		¼-in	⅜-in	½-in	⅝-in.	¾-in.	1-in.
P3785	Alphabet, Old English	6/-	7/-	8/-	9/-	10/6	12/6
P3786	Letters in words, per dozen	4/-	4/6	5/-	5/6	6/-	7/-
P3787	Figures, per set	3/-	3/6	4/-	4/6	5/3	6/3



		¼-in	⅜-in	½-in	⅝-in	¾-in.	1-in
P3789	Alphabet, Block Ornamental	8/-	9/6	11/-	12/6	14/6	18/-
P3790	Letters in words, per dozen	3/6	4/-	4/9	5/6	6/3	8/-
P3791	Figures, per set	4/-	4/9	5/6	6/3	7/3	9/-



		¼-in	⅜-in.	½-in.	⅝-in.	¾-in.	1-in
P3793	Alphabet, Roman Ornamental ..	7/6	8/6	9/6	10/6	11/6	16/-
P3794	Letters in words, per dozen	3/3	3/9	4/3	4/9	5/3	7/-
P3795	Figures, per set	3/9	4/3	4/9	5/3	5/9	8/-

		¼-in	⅜-in.	½-in.	⅝-in.	¾-in	⅞-in.	1-in.
P3797	Alphabet, Plain Block	5/9	5/9	6/-	6/6	7/6	8/6	10/6
P3798	Letters in words, per dozen ..	2/9	2/9	2/9	3/-	3/3	3/9	4/9
P3799	Figures, per set	3/-	3/-	3/-	3/3	3/9	4/3	5/3

Copper Stencil Plates (continued).

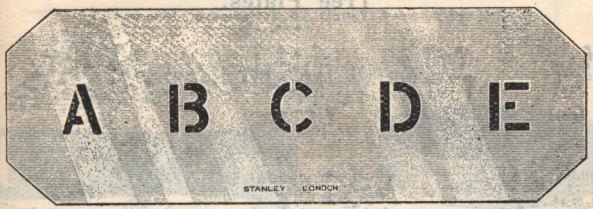
SPECIMEN

		¼-in.	⅜-in.	½-in.	⅝-in.	¾-in.	1-in.
P3801	Alphabet, Shaded Roman	6/6	7/6	8/6	9/6	11/-	13/-
P3802	Letters in words, per dozen	4/6	4/9	5/3	5/9	6/-	7/-
P3803	Figures, per set	3/3	3/9	4/3	4/9	5/6	6/6

SPECIMEN

		¼-in.	⅜-in.	½-in.	⅝-in.	¾-in.	1-in.
P3805	Alphabet, Plain Roman	5/9	5/9	6/-	6/6	7/6	8/6 10/6
P3806	Letters in words, per dozen	2/9	2/9	2/9	3/-	3/3	3/9 4/9
P3807	Figures, per set	3/-	3/-	3/-	3/3	3/9	4/3 5/3

Transparent Celluloid Stencil Plates.



Stencil Plates cut in thin transparent Celluloid. These are much more convenient to use than copper or brass plates, as the alignment and spacing can be accurately determined, and the effect distinctly seen as the word progresses. They are very strong, and will wear as long as Copper stencils.

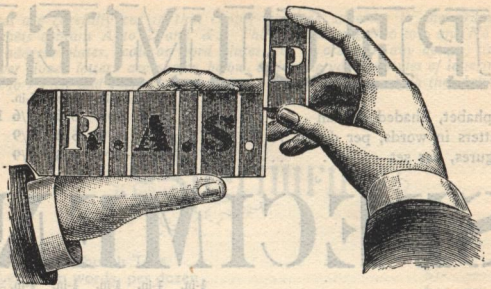
		¼-in.	⅜-in.	½-in.	⅝-in.	¾-in.	1-in.
P3811	Alphabet, Plain Block	6/-	7/-	8/-	9/-	10/-	11/- 13/-
P3812	Letters in words, per dozen, ditto ..	2/6	3/-	3/6	4/-	4/6	5/- 5/9
P3813	Figures, per set, ditto	3/-	3/6	4/-	4/6	5/-	5/6 6/6
P3814	Alphabet, Plain Roman	6/-	7/-	8/-	9/-	10/-	11/- 13/-
P3815	Letters in words, per dozen, ditto ..	2/6	3/-	3/6	4/-	4/6	5/- 5/9
P3816	Figures, per set, ditto	3/-	3/6	4/-	4/6	5/-	5/6 6/6

Zinc Stencil Plates.

Zinc Stencil Plates, for rough work or use on wood.

		1½-in.	2-in.	3-in.	4-in.
P3817	Alphabet, Plain Roman only (each letter on a separate plate)	4/6	6/-	8/6	11/6
P3818	Figures, set of, ditto	1/6	2/3	3/3	4/6

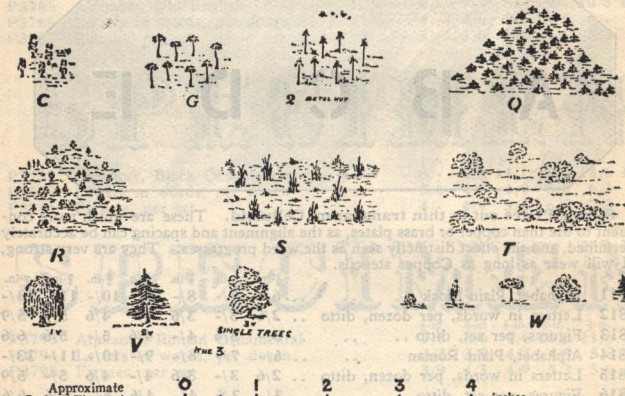
Interlocking Stencil Plates.



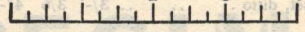
These plates save much time in stencilling, but they are not suitable for high-class work, as the spacing cannot be adjusted. They are put up in cases of 70 pieces, containing alphabets and figures. They are only made in plain Roman type, as illustration, and being die-cut, special plates cannot be supplied.

		½-in.	¾-in.	1-in.	1½-in.
P3821	Price per set, in compartment case	10/6	12/-	13/6	16/6

Tree Plates.



Approximate Scale of Illustrations.



inches.

		£	s.	d.
P3822	C, G, No. 2, IV, 2V, 3V, each		2	6
P3823	S and W..		2	6
P3824	V, Q, R, and T		4	6

Other specimens of Tree Plates will be sent on application.

Ornamental Stencil Headings.

P3825.

P3826.

P3827.

P3828

Approximate Scale of Illustrations. 0 1 2 3 4 5 6 inches.

Ornamental Headings for Plans, etc. These can be cut to any design at moderate prices. The illustrations above, which are drawn to scale, show a few of our stock designs, and are respectively :—

P3825, 10/- ; P3826, 3/6 ; P3827, 4/6 ; P3828, 7/6.

Stencil Ink and Brushes.

P3834.

P3831 to P3833.

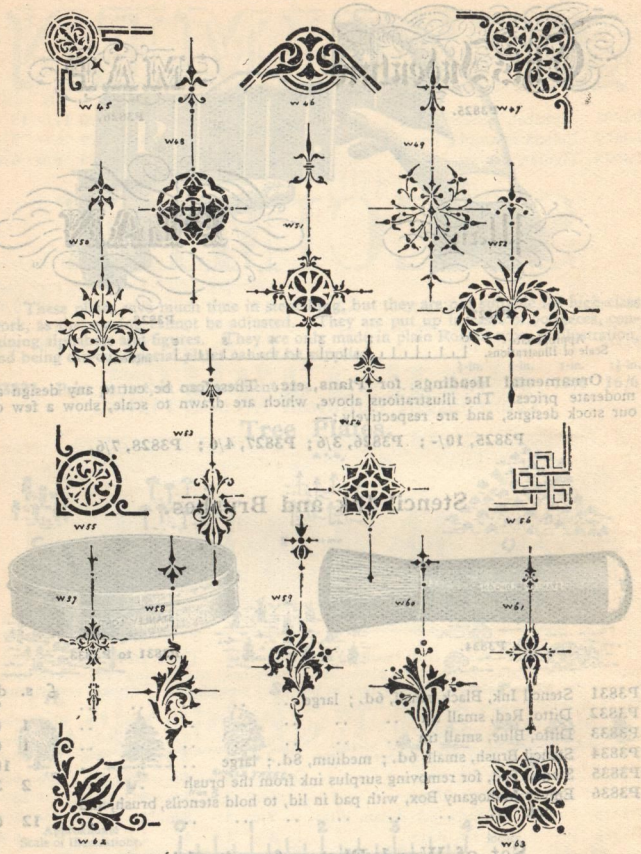
		£	s.	d.
P3831	Stencil Ink, Black, small, 6d. ; large			9
P3832	Ditto, Red, small tin		1	0
P3833	Ditto, Blue, small tin		1	0
P3834	Stencil Brush, small, 6d. ; medium, 8d. ; large			10
P3835	Stencil Pad, for removing surplus ink from the brush		2	3
P3836	Empty Mahogany Box, with pad in lid, to hold stencils, brush, and ink		12	6

Set of Word Plates for Architects.

ENTRANCE HALL

P3841 **Set of 40 Word Plates for Architects, as "Dining Room," "Bedroom," "Kitchen," etc., in fancy block as illustrated above, letters 1/16th inch, set 1 7 6**

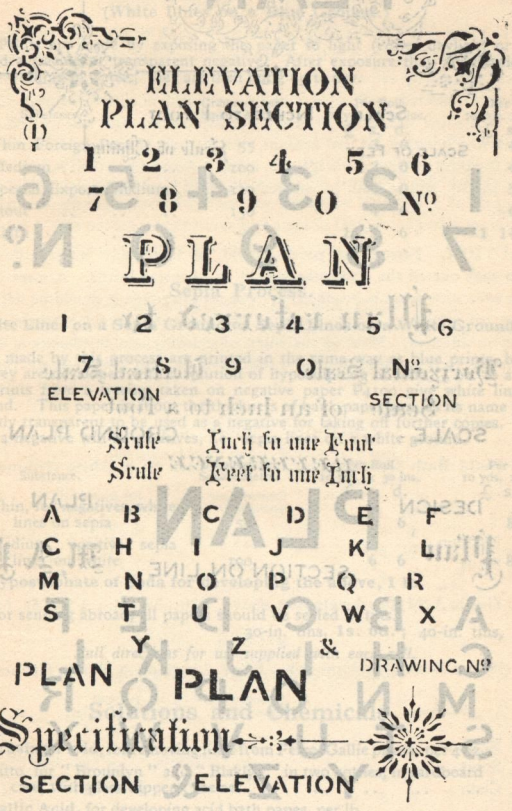
Stencil North Points and Corners.



These are kept in very many varieties, and other specimens will be sent on application.

		£	s.	d.
P3845	Small, size as shown by the scale		2	6
P3846	Large, the same plates as the above, but cut three times as large..		3	6

STANLEY'S Sets of Stencil Plates.



		£	s.	d.
P3850	No. 1 Set, containing all the Plates illustrated above..	1	5	0
P3851	Mahogany Box for the above		12	6

		£	s.	d.
P3852	**No. 2 Set**, containing all the Plates on the previous page, and also the above	2	17	6
P3853	Mahogany Box for the above		12	6
P3854	**No. 3 Set of Stencil Plates**, containing all those in the above two sets, and also many others, making a very complete supply for a drawing office. In mahogany case, with brush and ink	8	0	0

Scale of illustrations as on previous page.

Photo-Printing Papers, Cloths, etc.

Ferro-Prussiate Papers and Cloths for Blue Prints.

(White Lines on a Blue Ground.)

Blue Prints are made by exposing the paper to light (either daylight or electric arc) behind a tracing or transparent negative. After exposure they are developed by thoroughly washing in water; they are then hung up to dry.

	Substance.	Grammes per Square Metre.	Per Roll 10 yds. × 30 ins. £ s. d.	Per Roll 10 yds. × 40 ins. £ s. d.
P4100	Thin Foreign Post ..	55	3 0	4 0
P4101	Medium	100	3 0	4 0
P4102	Special Export Medium	110	4 0	5 3
P4103	Stout	150	4 6	6 0
P4106	Cloth	—	1 5 6	1 14 0

Sepia Process.

(White Lines on a Sepia Ground or Sepia Lines on a White Ground.)

Prints made by this process are printed in the same way as blue prints, but after washing they are developed with a solution of hyposulphate of soda (½ oz. to a pint of water). Prints from a tracing taken on negative paper P4100 give white lines on a sepia ground. This paper is about the thickness of bank paper and, as its name implies, is sufficiently transparent to be used as a negative for taking off further copies. Copies from such a negative will be positives, i.e., sepia lines on a white ground.

	Substance.	Grammes per Square Metre.	Per Roll 10 yds. × 30 ins. £ s. d.	Per Roll 10 yds. × 40 ins. £ s. d.
P4110	Thin, for negatives, white lines on sepia ..	50	6 6	8 6
P4111	Medium, positive, sepia lines on white	100	6 6	8 6
P4112	**Hyposulphate of Soda for developing the above, 1 lb.**			6

For sending abroad, all papers should be sealed in tins.
30-in. tins, **1s. 6d.**; 40-in. tins, **1s. 9d.**

Full directions for use supplied with each roll.

Solutions and Chemicals.

		£ s. d.
P4120	**Erasing Fluid**, for removing lines from Ferro-Gallic prints, per 4 oz.	1 6
P4121	Ditto, for "Brounlyn" and "Blaklyn," in two bottles, in cardboard case, with glass dippers, the set	2 6
P4123	**Gallic Acid**, for developing acid bath paper, per lb.	5 6
P4124	**Blue Print Ink**, for writing on blue prints, in five colours—Red, Yellow, Green, White and Violet, per 1-oz. bottle	1 3
P4125	**Intensifying Solution**, for improving and darkening the ground of Ferro-Prussiate prints	2 0
P4126	Ditto, dry, in powder, strongly recommended for export, 4 oz. ..	1 9
P4127	Ditto, ditto, 1 lb.	4 6

Photo-Printing Papers, Cloths, etc. (continued).

Ferro-Gallic Process.

(Black Lines on a White Ground.)

Ferro-gallic paper can be supplied either for water-bath or acid-bath development. The former is self-contained, with all the ingredients for development impregnated in the paper, and merely requires to be immersed in water after printing. The latter has the gallic acid omitted, and requires to be developed in a bath of acid. In the past the acid-bath paper was found to give a slightly blacker line, and we still have a few customers who prefer it on that account, but modern photo papers have so improved that it is doubtful if this advantage still exists. Apart from this, water-bath paper is easier to handle, and as both papers cost the same, the extra expense of buying acid is avoided.

CAUTION. Ferro-gallic paper should be thoroughly washed after development, to soak out all the acid, otherwise it will become brittle. A mere perfunctory spraying over with water is insufficient; whenever possible it should be left in running water for ten minutes. Great care must be exercised to avoid overheating if prints are dried in an oven. Most of the cases of cracking and brittleness of Ferro-gallic prints are due to either insufficient washing or too much heat in drying.

Ferro-Gallic Papers and Cloths.

(Acid Bath Development. Black Lines on a White Ground.)

	Substance.	Grammes per Square Metre.	Per Roll 10 yds. × 30 ins. £ s. d.	Per Roll 10 yds. × 40 ins. £ s. d.
P4130	Medium	110	5 3	7 0
P4131	Stout	210	10 6	14 0

Gallic Acid, for developing above, ½ lb., 3s. 0d.; 1 lb., 5s. 6d.

(Water Bath Development. Black Lines on a White Ground.)

	Substance.	Grammes per Square Metre.	Per Roll 10 yds. × 30 ins. £ s. d.	Per Roll 10 yds. × 40 ins. £ s. d.
P4132	Medium	110	5 3	7 0
P4133	Stout	210	10 6	14 0
P4134	Cloth	—	1 10 0	2 0 0

For sending abroad, all papers should be sealed in tins.
30-in. tins, 1s. 6d.; 40-in. tins, 1s. 9d.

Full directions for use supplied with each roll.

For Telegraphic Code see end of catalogue.

Dye Line Process.

Since the issue of our last catalogue we have introduced an entirely new process to the market, viz., DYE LINE. This process fills the need for a process which is as simple and cheap to operate as the Blue Print process, but giving a positive result. The Blue Print is, and probably always will be, unrivalled for rough workshop use, but it has the disadvantage that, being a negative result with a blue ground, it does not lend itself to alteration and cannot be coloured. Two Dye Line papers are offered in the following section—**Brounlyn** and **Blaklyn.** As their names imply, one gives a **brown line on a white ground** and the other gives a **black line on a white ground. Dye Line papers** are printed in precisely the same manner as blue prints, but require rather less exposure. This process has a further advantage in that, as the prints are damped on one side only, they are ready for use within a very short time.

Dye Line Positive Process Papers.

Developed by sponging the face with a special developer, a supply of which is enclosed with each roll, together with instructions for use.

Brounlyn.

(Brown Lines on a White Ground.)

	Substance	Per Roll 10 yds. × 30 ins. £ s. d.	Per Roll 10 yds. × 40 ins. £ s. d.
P4140	Medium paper, 110 grammes	3 0	4 0
P4141	Mounted paper	1 4 0	1 12 0
P4142	Cloth	1 4 0	1 12 0

Blaklyn.

(Black Lines on a White Ground.)

	Substance.	Per Roll 10 yds. × 30 ins. £ s. d.	Per Roll 10 yds. × 40 ins. £ s. d.
P4143	Medium paper, 110 grammes..	4 0	5 4
P4144	Mounted paper	1 5 0	1 13 4
P4145	Cloth	1 5 0	1 13 4

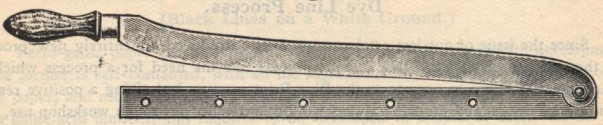
For sending abroad, all papers should be sealed in tins.
30-in. tins, **1s. 6d.**; 40-in. tins, **1s. 9d.**

Full directions for use supplied with each roll.

For Telegraphic Code see end of catalogue.

ACCESSORIES.

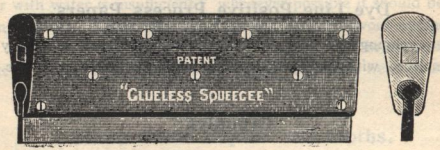
Trimming Knife.



This is a special knife made to screw on to the end of a bench or table for trimming drawings or prints. A most useful tool.

		£	s.	d.
P4146	Best quality, 18-inch, complete with set of screws for fixing ..	3	8	0
P4147	Ditto, 24-inch, ditto	4	10	0
P4148	Ditto, 30-inch, ditto	5	5	0
P4149	Ditto, 36-inch, ditto	6	0	0

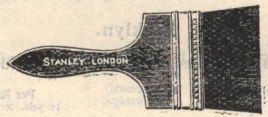
Squeegees.



P4150 and P4151.

P4150	Squeegees for draining prints, 12-inch	5	6	
P4151	Ditto, 15-inch	6	6	
P4152	New Rubber Blades for above, 12-inch	3	0	
P4153	Ditto, 15-inch	3	9	

Brushes.



P4154.

P4154	Flat Wide Brushes, for sensitising and developing prints, 3 inches wide, each	3	6	

Sponges.

P4155	Sponges, for applying developer of Dyeline prints, medium, each ..	2	6	
P4156	Ditto, ditto, large, each	5	0	

For Telegraphic Code see end of catalogue.

Photo-Printing Service Department.

We undertake the supply of photo copies of Engineers' and Architects' Plans by all processes and from any kind of originals. Plans received before ten in the morning are posted back the same evening. If desired, single copies can be supplied while messenger waits at our Establishment at 13, Railway Approach, London Bridge, and 68, Queen Street, Glasgow. Confidential documents can be copied at our London Bridge Depot in the presence of clients, to ensure secrecy. Tracings collected and delivered.

A scale of prices for the various processes will be found in the following pages.

STANLEY'S "True-to-Scale" Black Line Process for Copies from Tracings.

Of all the Photo-Printing Processes, the "True-to-Scale" Process is outstanding both for the excellence and durability of its results and for its adaptability.

The "**True-to-Scale**" process for making copies from tracings has the following advantages :—

The copies are absolutely permanent and not affected by light or damp. They can be made on any quality of paper, including Whatman's, also on tracing cloth, or opaque cloth for filing or workshop use. The results are superior to any other process. They are cheaper than prints by other black line processes for more than two prints off one tracing. The paper can be coloured precisely the same as an ordinary drawing. No water is used in their production, hence their keeping true to scale. Orders for quantities can be executed much more rapidly than by any other method.

This is the only process for copying on tracing cloth.

Red lines come out black, and blue come out as faint black lines. Good copies cannot be made from coloured drawings or tracings.

Copies may be had on Bristol Board if desired.

Copies on Cloth, being particularly sensitive to damp weather, cannot be guaranteed to keep true to scale.

Useful Hints on Making Tracings for Printing.

Never use blue lines in tracings, as they come out very faintly in any of these printing processes.

Tracings should be rolled, not folded.

Let the lines on tracings be very black. The denser they are the better the finished print. Our Black Drawing Ink, P4928, is specially suitable for this. Blue or grey tracing paper or cloth should be used, not yellow, as the latter increases the time necessary in printing, and does not give such good results.

Mounting, Tracing, Colouring, etc.

Mounting work of every description undertaken. Plans mounted, varnished, bound with silk ferret, etc., etc. Prices on page 300.

Tracings, Colourings, Enlargements or Reductions of Drawings made by competent draughtsmen, in strictest confidence, at moderate charges.

Cases and Tubes.

		£	s.	d.
P4158	**Light-tight Tin Cases** for above, recommended, as it is important to protect these papers from light or damp, 30-inch		1	6
P4159	Ditto, ditto, 40-inch		1	9
P4160	**Stout Card Tubes** for sending tracings by rail or post, 30-inch ..			4
P4161	Ditto, ditto, 40-inch			6

Photo-Printing Service (continued).

Schedule of Prices for "True-to-Scale" Prints where a Tracing is Supplied.

Size.	Medium Paper Up to 110 gram.		Stout Drawing Paper or Tracing Paper.		Opaque or Tracing Cloth or Cotton-Backed Paper, also Hand-Made Paper only where starred *.		Size.
	1st Copy	Ad. Cps.	1st Copy	Ad. Cps.	1st Copy	Ad. Cps.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
13× 8	1 2	6	1 4	9	2 3	1 8	13× 8
15×11	1 4	8	1 10	1 2	*2 9	*2 2	15×11
22×15	1 10	10	2 6	1 4	*3 8	*2 6	22×15
27×20	2 6	1 3	3 4	2 2	*5 0	*3 10	27×20
30×15	2 6	1 3	3 4	2 2	5 0	3 10	30×15
30×22	3 0	1 6	3 9	2 3	*5 9	*4 3	30×22
34×29	3 8	1 8	4 6	2 6	6 9	4 9	34×29
40×15	3 8	1 4	4 6	2 2	6 6	3 10	40×15
40×27	4 0	1 9	5 0	2 9	*7 6	*5 0	40×27
42×27	4 10	2 4	6 2	3 6	9 6	6 9	42×27
40×30	4 10	2 4	6 2	3 6	9 6	6 9	40×30
40×40	5 6	2 6	6 10	3 10	10 4	7 2	40×40
44×15	4 6	1 10	5 6	3 0	8 2	5 4	44×15
44×30	5 2	2 6	6 4	3 10	9 8	7 2	44×30
52×15	5 9	2 4	6 10	3 4	10 3	6 6	52×15
52×31	6 4	2 10	8 0	4 6	11 9	8 4	52×31
52×40	7 2	3 6	9 3	5 4	13 10	10 0	52×40
60×15	6 0	2 6	7 6	4 0	11 2	7 6	60×15
60×30	6 10	3 6	9 0	5 4	13 4	10 0	60×30
60×40	8 10	4 4	11 6	6 9	17 0	12 6	60×40
72×15	7 9	3 3	9 9	5 2	14 6	9 6	72×15
72×30	8 10	4 4	11 6	6 9	17 0	12 6	72×30
72×40	11 2	5 4	14 3	8 6	21 6	15 10	72×40
84×15	9 9	4 0	12 3	6 6	18 0	12 0	84×15
84×30	11 2	5 4	14 3	8 6	21 6	15 10	84×30
84×40	13 10	6 10	17 9	10 10	26 9	20 2	84×40
100×15	12 4	5 4	15 4	8 6	23 0	15 10	100×15
100×30	13 10	6 10	17 9	10 10	26 9	20 2	100×30
100×40	17 6	8 8	22 4	13 6	33 8	25 2	100×40
† Per ft. run 15 in. wide.	1 10	9	2 3	1 3	3 4	2 4	† Per ft. run 15 in. wide.
† Per ft. run 30 in. wide.	2 0	1 0	2 7	1 7	3 10	3 0	† Per ft. run 30 in. wide.
† Per ft. run 40 in. wide.	2 7	1 3	3 3	2 0	4 10	3 8	† Per ft. run 40 in. wide.

† Exceeding 100 inches in length.

All intermediate sizes charged at the next higher rate except where the measurement is only in excess by one inch one way, when such inch will be disregarded.

A number of small plans traced or drawn on one sheet will be charged as one print, if uncut. If customers order prints to be cut and trimmed, such prints are charged at their respective sizes.

A number of small tracings gummed or attached to form one tracing, will be charged as separate tracings.

If prints are made from originals on drawing paper, an extra charge will be made equal to the price of a first copy on stout cartridge paper, e.g., for "True-to-Scale" prints from a drawing on white cartridge paper 40×27 inches, an extra charge of 5s. will be made over and above the cost of the prints. For "True-to-Scale" copies from other opaque originals, such as Mounted Plans, Copies on Opaque Linen, etc., prices on application.

A reduction is given on orders for over 25 copies from any one tracing.

Photo-Printing Service (continued).

Schedule of Prices of Blue Prints, Ferro-Gallic, Brounlyn and Blaklyn Prints where a Tracing is Supplied.

Size.	Blue Prints.		Ferro-Gallic.		BROUNLYN Positive Photo Prints.		BLAKLYN Positive Photo Prints.		Size.
	Paper.	Cloth or Mounted.	Paper.	Cloth or Mounted.	Medium Paper.	Opaque Cloth or Mounted Paper.	Medium Paper.	Opaque Cloth or Mounted Paper.	
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	
13× 8	3	10	6	1 0	3	10	6	1 0	13× 8
15×11	4	1 4	9	1 6	4	1 4	8	1 6	15×11
22×15	6	2 0	1 2	2 6	6	2 0	10	2 3	22×15
27×20	8	3 0	1 8	3 6	8	3 0	1 3	3 3	27×20
30×15	8	3 0	1 8	3 6	8	3 0	1 3	3 3	30×15
30×22	10	3 9	2 3	4 6	10	3 9	1 6	4 0	30×22
34×29	1 0	5 0	2 6	5 0	1 0	5 0	1 8	5 4	34×29
40×15	10	3 9	2 3	4 6	10	3 9	1 4	4 0	40×15
40×27	1 2	5 2	2 10	6 0	1 2	5 2	1 9	5 6	40×27
42×27	1 6	6 9	3 9	7 10	1 6	6 9	2 4	7 6	42×27
40×30	1 6	6 9	3 9	7 10	1 6	6 9	2 4	7 6	40×30
40×40	1 9	7 4	4 0	8 6	1 9	7 4	2 6	8 0	40×40
44×15	1 4	5 8	3 2	6 6	1 4	5 8	1 10	6 0	44×15
44×30	1 9	7 4	4 0	8 6	1 9	7 4	2 6	8 0	44×30
52×15	1 6	6 9	3 8	7 10	1 6	6 9	2 4	7 2	52×15
52×31	2 0	8 3	4 10	9 9	2 0	8 3	2 10	9 2	52×31
52×40	2 4	10 2	5 9	11 10	2 4	10 2	3 6	11 0	52×40
60×15	1 9	7 4	4 2	8 6	1 9	7 4	2 6	8 3	60×15
60×30	2 4	10 2	5 9	11 10	2 4	10 2	3 6	11 0	60×30
60×40	3 0	12 8	7 2	14 10	3 0	12 8	4 4	13 9	60×40
72×15	2 4	10 2	5 6	11 10	2 4	10 2	3 3	10 6	72×15
72×30	3 0	12 8	7 2	14 10	3 0	12 8	4 4	13 9	72×30
72×40	3 9	16 0	9 0	18 8	3 9	16 0	5 4	17 6	72×40
84×15	3 0	12 8	7 2	14 10	3 0	12 8	4 0	13 3	84×15
84×30	3 9	16 0	9 0	18 8	3 9	16 0	5 4	17 6	84×30
84×40	5 0	20 3	11 6	23 8	5 0	20 3	6 10	22 3	84×40
100×15	3 9	16 0	9 0	18 8	3 9	16 0	5 4	17 6	100×15
100×30	5 0	20 3	11 6	23 8	5 0	20 3	6 10	22 3	100×30
100×40	6 2	25 4	14 6	29 6	6 2	25 4	8 8	27 9	100×40
† Per ft. run 15-in. wide.	7	2 4	1 4	2 8	7	2 4	9	2 7	† Per ft. run 15-in. wide.
† Per ft. run 30-in. wide.	9	3 0	1 8	3 4	9	3 0	1 0	3 4	† Per ft. run 30-in. wide.
† Per ft. run 40-in. wide.	1 0	3 8	2 2	4 4	1 0	3 8	1 3	4 1	† Per ft. run 40-in. wide.

† Exceeding 100 inches in length.

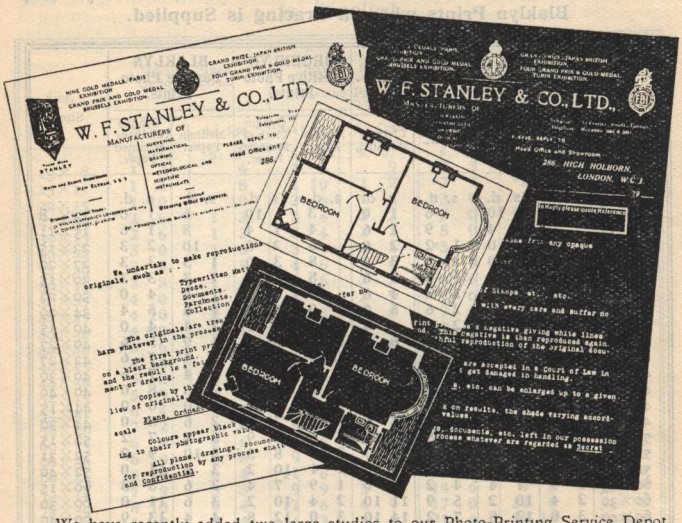
All intermediate sizes charged at the next higher rate except where the measurement is only in excess by one inch one way, when such inch will be disregarded.

A number of small plans traced or drawn on one sheet will be charged as one print, if uncut. If customers order prints to be cut and trimmed, such prints are charged at their respective sizes.

A number of small tracings gummed or attached to form one tracing, will be charged as separate tracings.

A reduction is given on orders for over 25 copies from any one tracing.

Photo-Printing Service Section.
Reproduction from Opaque Originals.



We have recently added two large studios to our Photo-Printing Service Depot at 13, Railway Approach, London Bridge. These have been equipped with the largest and most up-to-date installation in the country for the reproduction of opaque originals, such as :—

Plans and Drawings in any colour.
Deeds and Manuscripts.
Typewritten Matter.
Pencil Sketches and Drawings.
Music.
Extracts from Books.
Newspaper Cuttings or Advertisements, etc., etc.

Two Processes are available.

(1) **The Photostat Process**, for reproductions up to 23 × 18 inches **from any size original.**

(2) **The Projectograph Process**, for large reproductions from 27 × 20 inches up to 60 × 40 inches **without a join**, and for accurate enlargements and reductions to scale from

Plans, Ordnance Sheets, Maps, etc.

In addition to the foregoing we have other methods at our command, but the technique of this work has made such advances of recent years that it is quite impossible to describe all the methods employed.

We shall be pleased at any time to give estimates for the reproduction of any originals by the most economic method.

For Telegraphic Code see end of catalogue.

Reproduction from Opaque Originals.

Photostat Prints.

	First Copy.	Extra Copies.
	s. d.	s. d.
Photostat Prints, size 13×8 inches	2 0	1 4
Ditto, 15×11 inches	2 3	1 6
Ditto, 18×12 inches	2 6	1 8
Ditto, 22×15 inches	3 8	2 5
Ditto, 22×18 inches	4 0	2 8

Projectograph Prints.

For Extra Large Copies and Enlargements and Reductions to Scale.

Size of Copy in inches	Black Line Copies from Blue Prints, or White Line Copies on Black ground from Black Line Originals.		Black Line Copies from Black Line Originals. (Pencil or Ink.)		Enlargements or Reductions to Scale.		On Mounted Paper.	
	First Copy	Extra Copies	First Copy.	Extra Copies.	First Copy.	Extra Copies.	First Copy.	Extra Copies.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
27 × 20	4 6	3 0	8 0	3 0	12 0	4 6	13 4	5 10
30 × 22	5 0	3 4	8 6	3 4	12 9	5 0	14 5	6 8
34 × 29	6 6	4 4	10 6	4 4	14 0	6 0	16 4	8 4
40 × 27	7 6	5 0	11 6	5 0	14 5	6 3	17 1	8 11
40 × 30	8 0	5 4	12 0	5 4	15 0	6 8	18 0	9 8
44 × 30	9 8	6 6	14 0	6 6	17 6	8 2	20 10	11 6
52 × 31	12 0	8 0	18 6	8 0	23 2	10 0	26 10	13 8
52 × 40	16 6	11 0	22 6	11 0	28 2	13 9	33 2	18 9
60 × 30	16 0	11 0	22 6	11 0	28 2	13 9	32 6	18 1
60 × 40	24 0	16 0	28 0	16 0	35 0	20 0	40 8	25 8
	Larger sizes per square foot.		Larger sizes per square foot.		Larger sizes per square foot.		Larger sizes per square foot.	
	1 6	1 0	1 8	1 0	2 1	1 1	2 4	1 4

All intermediate sizes charged at the next higher rate except where the measurement is only in excess by one inch one way, when such inch will be disregarded.

A number of small plans traced or drawn on one sheet will be charged as one print, if uncut. If customers order prints to be cut and trimmed, such prints are charged at their respective sizes.

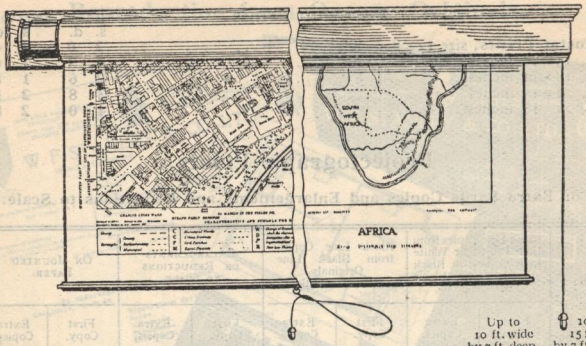
When submitting plans or sketches for enlargement or reduction, the alterations in thickness of the lines and the size of the figuring and lettering must not be lost sight of. When plans are to be reduced to any considerable extent, the figures may become unreadable and the lines very thin. In the same way, clients submitting plans for enlargement have sometimes expressed surprise to find that the lines have become thick.

Drawing Office Service.

We undertake all kinds of **Drawing and Tracing Work** for Engineers and Architects at our Establishment at **13, Railway Approach, London Bridge**, where we have a large Drawing Office exclusively devoted to this work

Original Drawings prepared from Sketches or Models. Drawings coloured, traced, inked in, duplicated, enlarged, reduced, etc., etc.

Mounting Plans, etc.



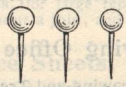
	Up to 10 ft. wide by 7 ft. deep	10 ft. to 15 ft. wide by 7 ft. deep.
	£ s. d.	£ s. d.
Mounting Plan or Survey Map on cloth, binding edges with silk ferret, supplying and fitting best quality spring roller, providing slat, two cords and **back board in whitewood, stained and polished oak or mahogany**, per foot, horizontal	1 0 6	1 12 0
Ditto, ditto, solid oak or mahogany backboard and slat, per foot, horizontal	1 2 6	1 14 0
Mounting Plan or Survey Map on cloth, binding edges with silk ferret, supplying and fitting best quality spring roller and mounting the whole in **solid mahogany or oak, totally enclosed cabinet case**, with slat, two cords, etc., per foot run	—	1 14 0

Estimates given for mounting a number of Maps in one case, for Board-rooms, Council Chambers, etc.

	£ s. d
Mounting Plans on Brown Holland or Union, per square foot	9
Ditto, on Cotton, per square foot	6
Supplying and fitting Slat and Roller up to 4 feet, per foot run	10
Ditto, up to 10 feet, per foot run	1 8
Sizing and Varnishing Plans and Maps up to 4 feet square, per square foot	2
Ditto, ditto, up to 10 feet square, per square foot	2½
Binding Edges of Plans with silk ferret, per yard	2 3

Estimates given for preparation of Parliamentary Plans by piecing up Ordnance Sheets, etc., etc., Mounting Competition Drawings on strainers or boards.

Coloured Map Tacks.



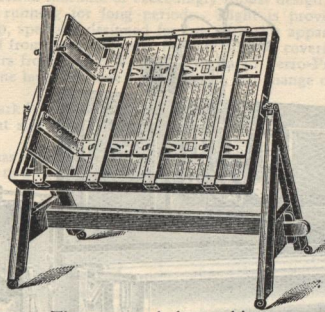
P4164.

	£ s. d.
P4164 Coloured Map Tacks, with spherical heads, enamelled in different colours, suitable for marking maps to indicate salesmen's territories, graphs, charts, and for various other purposes, supplied in **three sizes, in eighteen different colours**, and also **twelve other variations of colours**, with stripes, spots, etc., in boxes of 100 of any one colour, per box	3 0

PHOTO-COPYING EQUIPMENT.

Daylight Printing Apparatus.

For copying by Ferro-Prussiate, Ferro-Gallic or Dye-Line Process (see footnote).

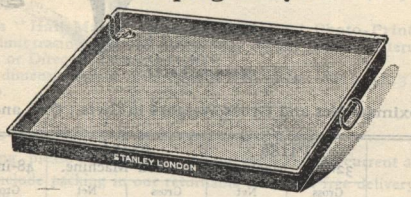


P4170 and P4171.

Printing Frames. These are made by machinery at our works at New Eltham, and will be found greatly superior to the usual trade article, being made from thoroughly seasoned ash, nicely finished, and fitted with thick plate-glass fronts. They are very strong and suitable for any climate. Size of front, clear :—

		£	s.	d.
P4165	23×16 inches, without stand	4	19	0
P4166	31×23 inches, ditto	6	0	0
P4167	41×28 inches, ditto	8	15	0
P4168	54×32 inches, ditto	12	10	0
P4170	41×28 inches, with **Stand**, to enable it to be set to any angle to the light, and to turn over for refilling (as illustrated)	13	2	6
P4171	54×32 inches, ditto, ditto, ditto	17	15	0

Developing Trays.



P4174 to P4176.

		£	s.	d.
P4173	**Extra Stout Zinc Tray**, 23×16 inches	1	1	0
P4174	Ditto, 31×23 inches, with waste plug	1	10	0
P4175	Ditto, 41×28 inches, ditto	1	16	0
P4176	Ditto, 54×32 inches, ditto	3	7	6

Zinc Canisters.

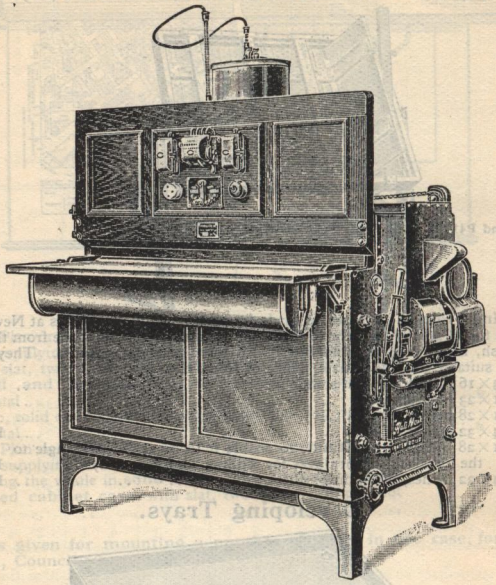
P4177	**Light-tight Zinc Canister**, for Sensitized Paper, 30-inch ..		1	9
P4178	Ditto, ditto, 40-inch		2	0

For any of these processes a transparent tracing is necessary to copy from, not the original drawing, and as every crease and mark shows on the printed copy, care should be taken not to fold the tracings.

Customers favouring us with their orders may bring a tracing and have a practical lesson in any of the above processes at our London Bridge branch.

Photo-Copying Equipment (continued).

The "Hall-Mark" Continuous Copier.



P4180 to P4182.

Approximate Net and Gross Weights in Cwts., Qrs. and Lbs.

	P4180 32-inch Machine.		P4181 42-inch Machine.		P4182 48-inch Machine.	
	Gross Weight.	Net Weight.	Gross Weight.	Net Weight.	Gross Weight.	Net Weight.
Case No. 1. Machine	6 3 14	4 0 19	7 1 24	4 1 16	9 0 10	5 1 4
Case No. 2. Lamp, Carriage, etc.	3 18	1 16	3 18	1 16	3 18	1 16
Case No. 3. Spares	2 18	6	2 24	8	1 0 12	14

The above table is for a machine complete with the following spares, which we strongly recommend for all export orders: One spare glass bend, one gross carbons, and six spare lamp-shades.

The "Hall-Mark" Continuous Contact Photo-Printer (continued).

The Machine we employ in our own Works.

This is a horizontal machine of exceedingly robust design, especially built to stand up to continuous running for long periods. Light is provided by one ten-ampere horizontal arc lamp, specially designed for use with this apparatus. The machine has a speed variation of from three to twelve feet per minute, covering the complete range of Plan Printing Papers from Gallic Waterbath to Rapid Ferro-Prussiate. Speed changes are controlled by one lever and one hand-wheel. No change of belts is necessary.

The "Hall-Mark" with its one ten-ampere lamp has a normal capacity equal to 250 double elephant size blue prints per hour.

No allowance has been made in the prices for fixing, as the machine merely requires to be connected up to a convenient current source.

All machines are delivered ready assembled and include combined circuit and regulating resistance (and choking coil in the case of alternating current), D.P. iron-clad switch and fuses and the following spares :—

One Glass Shade for arc lamp.
Three pairs of Carbons for arc lamp.
One pair Brushes for motor.
One Spanner.
One Oilcan.

PRICES.

		£	s.	d.
P4180	**32-inch "Hall-Mark" Continuous Contact Photo-Printer** to admit tracings up to 32 inches wide by any length—Alternating or Direct Current (see note)	144	0	0
	Overall dimensions, 5 ft. 10 in. high × 5 ft. 7 in. wide × 4 ft. 3 in. deep.			
P4181	**42-inch "Hall-Mark" Continuous Contact Photo-Printer** to admit tracings up to 42 inches wide by any length—Alternating or Direct Current (see note)	162	0	0
	Overall dimensions, 5 ft. 10 in. high × 6 ft. 5 in. wide × 4 ft. 3 in. deep.			
P4182	**48-inch "Hall-Mark" Continuous Contact Photo-Printer** to admit tracings up to 48 inches wide by any length—Alternating or Direct Current (see note)	189	0	0
	Overall dimensions, 5 ft. 10 in. high × 6 ft. 11 in. wide × 4 ft. 3 in. deep.			

NOTES.

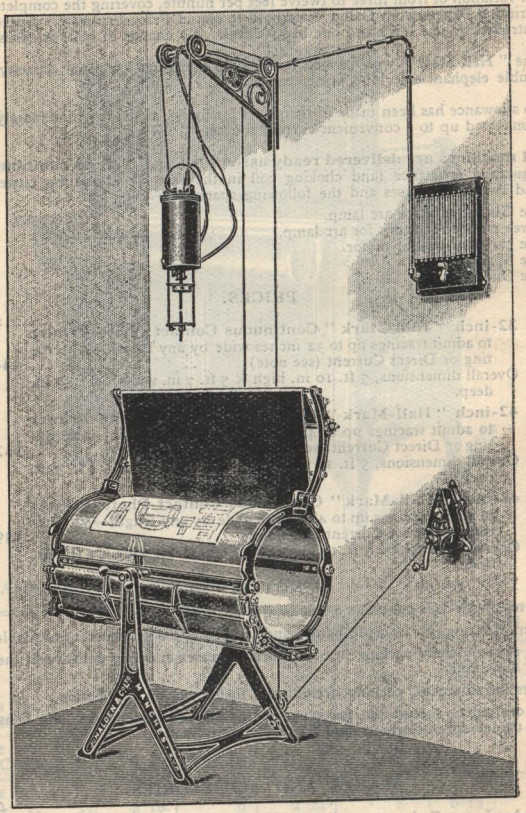
1. For machines over 250 volts a small extra charge is made.
2. When ordering, please state nature and voltage of electric current available.
3. The prices include packing in our returnable cases and free delivery in the United Kingdom.
4. Prices for shipment, packing, freight and insurance, on application.
5. For customers abroad the following spares are recommended : one Glass Bend, twelve dozen Carbons, and six spare Lamp Shades.

SPARES AND ACCESSORIES.

		£	s.	d.
P4184	Arc Lamp Carbons, per dozen		4	0
P4185	Arc Lamp Glasses, each		6	6
P4186	Canvas Blankets, each : 32-inch, £1 15s. ; 42-inch, £2 ; 48-inch..	2	2	6
P4187	Spare Glass Bends, 32-inch, £4 10s. ; 42-inch, £5 ; 48-inch ..	5	10	0

Photo-Copying Equipment (continued).

The "Halden" Duplex Radial Copying Frame.



P4188 to P4190.

The "Halden" Duplex Radial Copying Frame (continued).

A thoroughly sound engineering job. In operation the machine is vertical, the tilting arrangement is merely to facilitate inserting the tracing and cleaning the glass. No strength is required to tilt the frame, as it is perfectly balanced. A girl can work it.

The exposure is varied by a special governor-controlled escapement lowering gear which is absolutely silent in action.

PRICES.

Voltages from 100 to 250, complete with arc lamp and resistance, lowering gear, lamp bracket, wire rope, and floor pulley.

		£	s.	d.
P4188	**Duplex Radial Electric Frame**, to copy two tracings 40×27 inches	47	10	0
P4189	Ditto, ditto, 53×31 inches	55	10	0
P4190	Ditto, ditto, 60×40 inches	90	0	0
	The above prices are for use on Direct Current.			
	If required for Alternating Current, extra	3	0	0

SPARES AND ACCESSORIES.

P4193	Plate-glass Half Cylinders, each 40×27 inches	6	0	0
P4194	Ditto, 53×31 inches	9	10	0
P4195	Ditto, 60×40 inches	17	10	0
P4196	Spare Arc Lamp Glasses, each		5	0
P4197	Spare Carbons, solid or cored, per dozen, 12 in. × 13 mm. ..		7	3

NOTE. Solid Carbons should be used for Continuous Current. On Alternating Current one solid and one cored carbon should be used.

The above prices do **not** include fixing. If a mechanic is sent to instal the machine an extra charge of £2 10s. will be made to cover his time and travelling expenses.

The machine is packed complete in a returnable case, with a blue print and full instructions for fixing, to enable clients to make their own arrangement for erection, if desired.

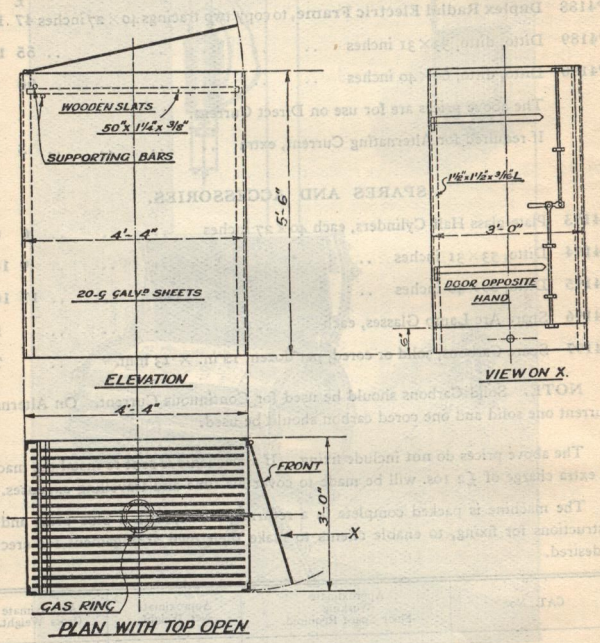
CAT. No.	Approximate Working Floor Space Required.	Approximate Net Weight.	Approximate Gross Weight.
		cwts. qrs. lbs.	cwts. qrs. lbs.
P4188	4 ft. 4 in. × 3 ft. 3 in.	2 3 0	8 3 0
P4189	5 ft. 0 in. × 3 ft. 3 in.	3 1 20	10 0 0
P4190	6 ft. 6 in. × 4 ft. 6 in.	6 1 4	16 2 0

The STANLEY Drying Oven for Blue Prints.

Consisting of a galvanised sheet-steel oven, 5 ft. 6 in. high × 3 ft. wide × 4 ft. 4 in. from front to back. Constructed with a framework of mild steel angles sheeted with galvanised steel sheets 20 G.

The top of the oven can be raised to permit the escape of saturated air, and the door is hung on wrought forged steel hinges and fitted with level, fastener and fastening rods.

The prints are clipped to wooden slats which are supported in the oven from one end only by **inserting between two cross-bars.** This simple device enables prints to be inserted and withdrawn quickly and with the minimum of labour. Heat is supplied by a gas-ring. The output is approximately 100 double elephant blue prints per hour, and about fifteen blue prints can be accommodated in the oven at one time.

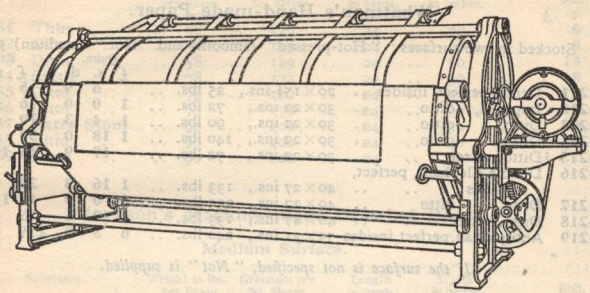


PRICES.

		£	s.	d.
P4198	Stove, as illustrated, complete with gas-ring, fifteen wooden slats and two dozen steel clips	15	0	0
P4199	Stove similar to above but electrically heated	20	0	0

Photo-Copying Equipment (continued).

The Rotary Blue Print Drying Machine.



Consists of an iron cylinder, gas or electrically heated, and covered with absorbent material. This cylinder revolves between two end frames and in contact with an absorbent blanket. The prints, which should have been squeegeed, are fed in between the blanket and the cylinder and come out dry. Power is supplied by a small motor. The machine should be supported upon a stout table or bench. Prints up to 40 inches wide and any length can be dried.

Output, approximate.—700 square feet per hour.

Consumption.—Electricity: 3.2 units per hour at 200 volts. Gas: 40 feet per hour at 1-inch pressure with ½-inch pipe supply.

The machine is delivered assembled complete. Any electrician can connect it up.

SPECIFICATION.

Size.	Weight.		Dimensions of Case.
	Gross.	Net.	
5 ft. 6 in. × 2 ft. 3 in. × 2 ft. 6 in.	3 cwts. 3 qrs. 22 lbs.	2 cwts. 1 qr. 5 lbs.	5 ft. 6 in. × 2 ft. 4 in. × 2 ft. 7 in.

PRICES.

		£	s.	d.
P4201	Heated by Gas and driven by a small electric motor	41	10	0
P4202	Heated by Electricity and driven by a small electric motor.. ..	45	10	0

Cases allowed for in full if returned Carriage Paid.

DRAWING OFFICE STATIONERY.

Drawing Paper in Sheets.

Whatman's Hand-made Paper.

Stocked in two surfaces: "Hot-pressed" (smooth) and "Not" (medium) grain.

				Quire. £ s. d.	Ream. £ s. d.
P4211	Demy, perfect, insides ..	20×15½ ins.,	25 lbs. ..	6 9	5 8 0
P4212	Imperial, ditto ..	30×22 ins.,	72 lbs. ..	1 0 0	16 0 0
P4213	Ditto, ditto ..	30×22 ins.,	90 lbs. ..	1 4 3	19 8 0
P4214	Ditto, ditto ..	30×22 ins.,	140 lbs. ..	1 18 0	30 8 0
P4215	Ditto, retree	30×22 ins.,	72 lbs. ..	17 9	13 16 6
P4216	Double Elephant, perfect, insides	40×27 ins.,	133 lbs. ..	1 16 3	29 0 0
P4217	Ditto, ditto ..	40×27 ins.,	235 lbs. ..	3 0 9	48 12 0
P4218	Ditto, retree	40×27 ins.,	133 lbs. ..	1 12 6	26 0 0
P4219	Antiquarian, perfect, insides	53×31 ins.,	240 lbs. ..	6 3 9	119 0 0

If the surface is not specified, "Not" is supplied.

"Unbleached" Arnold Hand-made Papers.

Stocked in two surfaces: "H.P." (smooth) and "Not" (medium).

				Quire. £ s. d.	Ream. £ s. d.
P4221	Imperial, perfect ..	30×22 ins.,	72 lbs. ..	15 8	14 2 6
P4222	Double Elephant, perfect	40×27 ins.,	133 lbs. ..	1 7 10	25 0 0

Hollingworth "Kent-made" Drawing Papers.

Stocked in two surfaces: "Hot-pressed" (smooth) and "Not" (medium) grain.

				Quire. £ s. d.	Ream. £ s. d.
P4225	Imperial	30×22 ins.,	72 lbs. ..	9 6	8 15 0
P4226	Ditto	30×22 ins.,	90 lbs. ..	12 6	11 10 0
P4227	Double Elephant ..	40×27 ins.,	130 lbs. ..	17 6	16 0 0

Cartridge Paper in Sheets.

P4230	Best quality Half Imperial	22×15 ins.,	31 lbs. ..	3 0	2 5 0
P4231	Ditto, Imperial	30×22 ins.,	72 lbs. ..	5 0	4 7 6
P4232	Ditto, Double Elephant	40×27 ins.,	130 lbs. ..	8 6	7 15 0

Joynson's Machine-made Paper.

An excellent paper for architectural or mechanical drawing. A complete list with samples will be sent on application.

Stocked in two surfaces—"Rolled" (smooth) and "Machine Finish" (medium) grain, except P4245, which is kept with medium surface only.

				Quire. £ s. d.	Ream. £ s. d.
P4240	Imperial	30 ×22 ins.,	72 lbs. ..	8 6	7 15 0
P4241	Ditto	30 ×22 ins.,	90 lbs. ..	10 6	9 15 0
P4242	Double Elephant ..	40 ×27 ins.,	140 lbs. ..	15 6	14 10 0
P4243	Ditto	40 ×27 ins.,	230 lbs. ..	1 5 6	24 10 0
P4244	Antiquarian	52½×30½ ins.,	250 lbs. ..	1 7 6	26 10 0
P4245	Emperor	72 ×48 ins.,	535 lbs. ..	2 17 0	55 10 0

Drawing Paper in Rolls.

First Quality British-made Rag Cartridge.

	Substance.	Weight in lbs. per Ream Imperial.	Grammes per Sq. Metre.	Length in yards.	Width in inches.	Roll. £ s. d.
P4251	Thin	58	129	24	30	6 6
P4252	Ditto	58	129	24	40	8 9
P4253	Ditto	58	129	24	60	13 0
P4254	Stout	78	172	24	30	8 6
P4255	Ditto	78	172	24	40	11 6
P4256	Ditto	78	172	24	60	17 0
P4257	Extra Stout	90	200	24	30	10 9
P4258	Ditto	90	200	24	40	14 4
P4259	Ditto	90	200	24	60	1 1 6

Joynson's Machine-made Drawing Paper.

Medium Surface.

	Substance.	Weight in lbs. per Ream Imperial.	Grammes per Sq. Metre.	Length in yards.	Width in inches.	Roll. £ s. d.
P4260	Medium	72	160	24	30	16 0
P4261	Ditto	72	160	24	40	1 1 0
P4262	Ditto	72	160	24	60	1 10 0

Whatman's Mounted Drawing Paper in Sheets.

		Sheet. £ s. d.
P4271	Whatman's "Insides" Imperial, 30×22 inches, mounted on Cotton	2 9
P4272	Ditto, ditto, Lined	3 2
P4273	Ditto, ditto, Mounted on Holland	4 5
P4274	Ditto, ditto, ditto, Lined	4 10
P4275	Ditto, ditto, Double Elephant, 40×27 inches, mounted on Cotton	4 4
P4276	Ditto, ditto, Lined	5 2
P4277	Ditto, ditto, Mounted on Holland	6 7
P4278	Ditto, ditto, ditto, Lined	7 5
P4279	Ditto, ditto, Antiquarian, 52×30 inches, mounted on Cotton	10 5
P4280	Ditto, ditto, Lined	11 7
P4281	Ditto, ditto, Mounted on Holland	14 2
P4282	Ditto, ditto, ditto, Lined	15 4

Special Sizes of Whatman's Mounted Paper.

		Square foot. £ s. d.
P4285	Whatman's "Insides," Double Elephant Paper, mounted in sheets of special sizes at square foot, mounted on Cotton	10
P4286	Ditto, ditto, Lined	1 1
P4287	Ditto, ditto, Mounted on Holland	1 2
P4288	Ditto, ditto, ditto, Lined	1 5
P4289	Ditto, ditto, Antiquarian, Mounted on Cotton	1 2
P4290	Ditto, ditto, Lined	1 5
P4291	Ditto, ditto, Mounted on Holland	1 6
P4292	Ditto, ditto, ditto, Lined	1 9

Arnold or Hollingworth hand-made papers, or cartridge, or Joynson's machine-made papers mounted to order.

Mounted Paper in Continuous Rolls.

		Width in ins.	Per yard.	Per Roll of 12 yards. £ s. d
P4301	Whatman's Double Elephant, all insides, on Cotton	26	—	2 8 0
P4302	,, ,, ,, ,, ,,	39	—	3 12 0
P4303	,, ,, ,, ,, ,,	52	—	4 19 0
P4304	,, ,, ,, ,, Holland	26	6/6	3 17 0
P4305	,, ,, ,, ,, ,,	39	10/-	5 18 0
P4306	,, ,, ,, ,, ,,	52	13/6	8 0 0
P4307	Cartridge Paper, best quality, on Cotton	30	3/-	1 10 0
P4308	,, ,, ,, ,, ...	40	4/-	2 0 0
P4309	,, ,, ,, ,, ...	54	—	3 12 6
P4310	,, ,, ,, ,, ...	60	—	4 0 0
P4311	,, ,, ,, Holland ..	30	—	2 14 0
P4312	,, ,, ,, ,, ...	40	—	3 12 0
P4313	,, ,, ,, ,, ...	54	—	5 10 0
P4314	,, ,, ,, ,, ...	60	—	5 17 6
P4315	Gummed Paper Mounted on Cotton, for mounting tracings on, 40 inches wide			2 17 0

Bristol Boards.

Best Quality.

		Inches.		2-sheet.	3-sheet.	4-sheet.	6-sheet.
P4320	Foolscap ..	15½×12½ ..	per doz.	4/-	6/-	8/-	12/-
P4321	Demy	18¾×14½ ..	,,	6/-	9/-	12/-	18/-
P4322	Medium ..	21 ×16¾ ..	,,	8/6	12/9	17/-	25/6
P4323	Royal	22½×18 ..	,,	10/-	15/-	20/-	30/-
P4324	Imperial ..	28½×21 ..	,,	18/-	27/-	36/-	54/-

Mounting Boards.

Best Quality.

Uncut Edges.

		Inches.		3-sheet.	4-sheet.	6-sheet.	8-sheet.	10-sheet.	12-sheet.
P4330	Royal	20×25	per doz.	4/-	6/-	8/-	10/-	13/-	16/-
P4331	Imperial	22×32	,,	5/-	7/-	10/-	14/-	18/-	23/-
P4332	Atlas	27×34	,,	—	12/-	18/-	23/-	29/-	35/-
P4333	Double Elephant	27×40	,,	—	—	20/-	28/-	36/-	43/-
P4334	Double Imperial	32×44	,,	—	—	26/-	36/-	45/-	55/-
P4335	Antiquarian ..	36×54	,,	—	—	69/-	93/-	116/-	139/-
P4336	Emperor ..	48×72	,,	—	—	118/-	159/-	198/-	238/-

Twenty per cent extra for less than half-dozen.

If the above boards are required trimmed, the size will be reduced by half an inch all round, i.e., each dimension will be reduced by one inch.

For Telegraphic Code see end of catalogue.

Prepared Tracing Papers.

British Made.

Best Quality Papers. Great care has been taken with the preparation of these papers. They will be found to be the very best of their respective kinds. They will take colour, ink and pencil, and are all suitable for sun printing. Samples sent free on application. Special quotations for large quantities.

		Length.	Width.	Per yard.	Roll. £ s. d.
P4427	Blue shade, unglazed, medium	20 yards	30 inches ..	—	8 6
P4428	,, ,, ,,	20 ,,	40 ,, ..	—	10 6
P4431	,, glazed, medium	20 ,,	30 ,, ..	6d.	7 6
P4432	,, ,, ,,	20 ,,	40 ,, ..	7d.	10 0
P4440	White, unglazed, medium	20 ,,	30 ,, ..	6d.	8 6
P4441	,, ,, ,,	20 ,,	40 ,, ..	8d.	10 6
P4442	,, ,, thick	20 ,,	30 ,, ..	9d.	11 6
P4443	,, ,, ,,	20 ,,	40 ,, ..	10d.	14 6
P4444	,, glazed, medium	20 ,,	30 ,, ..	—	7 6
P4445	,, ,, ,,	20 ,,	40 ,, ..	—	10 0

"Durax" Prepared Tracing Paper.

British Made.

A prepared Tracing Paper of the highest quality, with all-rag base. The rapid deterioration of certain classes of tracing papers is due mainly to their being made with a wood-pulp basis, which perishes and causes the paper to crumble. Papers having rag bases are more expensive, but last almost indefinitely. For all work where tracings have to be kept for reference purposes, or durability is desirable, "Durax" Tracing Paper is strongly recommended.

		Length.	Width.	Per Roll. £ s. d.
P4446	"Durax" Tracing Paper, cream shade, unglazed, medium	20 yards	30 inches ..	15 0
P4447	Ditto, ditto	20 ,,	40 ,, ..	1 0 0

Natural or Detail Tracing Papers.

German Manufacture.

These papers are made without greasy preparations of any kind, consequently, though slightly less transparent than prepared papers, they will keep very much longer without discoloration or becoming brittle. Specially recommended for export.

		Length.	Width.	Per Roll. £ s. d.
P4451	White, unglazed, thin	50 yards	30 inches	7 6
P4452	,, ,, ,, ...	50 ,,	40 ,, ...	10 0
P4453	,, ,, ,, ...	50 ,,	60 ,, ...	15 0
P4454	,, ,, medium	50 ,,	30 ,, ...	9 0
P4455	,, ,, ,, ..	50 ,,	40 ,, ...	12 0
P4456	,, ,, ,, ..	50 ,,	60 ,, ...	18 0
P4457	White, glazed, thin	50 ,,	30 ,, ...	10 6
P4458	,, ,, ,, ...	50 ,,	40 ,, ...	14 0
P4459	,, ,, medium	50 ,,	30 ,, ...	12 6
P4460	,, ,, ,, ...	50 ,,	40 ,, ...	16 0
P4465	Glass Tracing Paper, thin, very transparent	20 ,,	30 ,, ...	4 6

Made in Czecho Slovakia.

		Length.	Width.	Per Roll. £ s. d.
P4470	Medium, very tough and transparent	50 yards	30 inches ..	8 0
P4471	,, ,,	50 ,,	40 ,, ..	10 6

Detail Drawing Papers.

STANLEY'S British-made Detail Paper.

This paper is made on an all-rag base and is recommended for its toughness and durability—it will last almost indefinitely.

		Length.	Width.	Per Roll. £ s. d.
P4480	Thin	50 yards	30 inches	7 6
P4481	„	50 „	40 „	10 0
P4482	„	50 „	60 „	15 0
P4483	Medium	50 „	30 „	8 6
P4484	„	50 „	40 „	11 6
P4485	„	50 „	60 „	17 0
P4486	Stout	50 „	30 „	10 6
P4487	„	50 „	40 „	14 0
P4488	„	50 „	60 „	1 1 0

German Manufacture.

		Length.	Width.	Per Roll. £ s. d.
P4500	Thin, hard surface	50 yards	30 inches	6 6
P4501	„ „ „	50 „	40 „	9 0
P4502	Medium thickness	50 „	30 „	8 0
P4503	„ „	50 „	40 „	11 0
P4504	„ „	50 „	60 „	16 0

Good Photo copies can be made from any of the foregoing Detail Papers.

Carbonic and Blacklead Papers.

		Per Sheet.	Per Quire. £ s. d.
P4510	**Carbonic** Transfer Paper, size 22×18 inches ..	3d. ..	3 6
P4511	**Blacklead,** ditto, 30×20 inches	10d. ..	18 6

Sketching Blocks and Books.

		£ s. d.
P4520	**Blocks,** Whatman's best paper, 20 sheets, "Not" surface, thick paper, size 10×7 inches .. .. Each	3 0
P4521	Ditto, 14×10 inches .. .. „	5 6
P4522	Ditto, 20×14 „ .. .. „	18 0
P4523	**Book Blocks,** as above, with stiff covers, and inside pocket, leather back and corners, size 10×7 inches .. .. .. Each	5 0
P4524	Ditto, 14×10 inches .. .. „	9 0
P4525	Ditto, 20×14 „ .. .. „	1 19 6

		Each.	Per Doz.
P4530	**Blocks,** Thin Cartridge Paper, 50 sheets, medium surface, size 10×8 inches	2/9	30/-
P4531	Ditto, ditto, 13×8 inches	3/6	36/-
P4540	**Blocks,** Natural Tracing Paper, 100 sheets, size 10×8 inches	2/6	28/-
P4541	Ditto, ditto, 13×8 inches	3/6	36/-

For Telegraphic Code see end of catalogue.

Tracing Cloths (British Made).

Excelsior Tracing Cloth.

The highest and most transparent quality prepared.

		£	s.	d.
P4571	43 inches wide, dull backed, in rolls of 24 yards	4	10	6
P4572	*36 " " " " " 24 " export	3	17	3
P4573	30 " " " " " 24 "	3	7	9

* Supplied for export only.

Imperial Tracing Cloth.

Specially recommended.

A thoroughly reliable cloth of excellent and uniform quality, as used by most of the Government and Municipal Departments.

		£	s.	d.
P4576	54 inches wide, dull backed, in rolls of 24 yards	6	13	3
P4577	41/43 " " " " 24 "	4	6	9
P4578	38/40 " " " " 24 "	4	0	0
P4579	36 " " " " " 24 "	3	13	3
P4580	30 " " " " " 24 "	3	4	0
P4581	18 " " " " " 24 "	2	0	0

"Sagar's" Tracing Cloths can be supplied for export only at the same prices as "Imperial." Not made in 54-inch width.

Stanley Tracing Cloth.

Specially recommended for all purposes.

		£	s.	d.
P4585	54 inches wide, dull backed, in rolls of 24 yards	6	13	0
P4586	40 " " " " " 24 "	3	17	0
P4587	30 " " " " " 24 "	3	1	0

Standard Tracing Cloth.

A well-known brand, of good quality.

P4591	54 inches wide, dull backed, in rolls of 24 yards	6	12	0
P4592	40 " " " " " 24 "	3	18	6
P4593	30 " " " " " 24 "	3	3	3

Dowse's Tracing Cloth.

This is not quite so transparent as the above, but is a good cloth for general work.

		£	s.	d.
P4596	40 inches wide, dull backed, in rolls of 24 yards	3	16	0
P4597	36 " " " " " 24 "	3	9	3
P4598	30 " " " " " 24 "	3	0	0

Stanley's Workshop Tracing Cloth.

Specially recommended for workshop use.

P4601	40 inches wide, dull backed, in rolls of 24 yards	3	16	0
P4602	30 " " " " " 24 "	3	0	0

Tracing Cloths (continued).

Ruby Tracing Cloth.

A cloth of a cheaper grade produced on similar lines to "Excelsior."

		£	s.	d.
P4605	40 inches wide, dull backed, in rolls of 24 yards	3	16	0
P4606	30 " " " " " 24 "	3	0	0

"Arande" and "Economic" supplied at the same price as "Ruby."

"R.C." Tracing Cloths (British made.)

These cloths are very transparent, and can be used without chalking. They are extensively used.

Mansfield Tracing Cloth.

		£	s.	d.
P4610	54 inches wide, dull backed, in rolls of 24 yards	6	12	0
P4611	40 " " " " 24 "	3	18	6
P4612	36 " " " " " 24 "	3	12	3
P4613	30 " " " " " 24 "	3	3	3

Winchester Tracing Cloth.

P4617	40 inches wide, dull backed, in rolls of 24 yards	3	17	6
P4618	30 " " " " " 24 "	3	1	9

Stirling Tracing Cloth.

For many purposes this is the best of the cheaper brands.

P4621	40 inches wide, dull backed, in rolls of 24 yards	3	16	0
P4622	30 " " " " " 24 "	3	0	0

Clyde Tracing Cloth.

A very stout, though transparent cloth.

P4626	40 inches wide, dull backed, in rolls of 24 yards	3	16	0
P4627	30 " " " " " 24 "	3	0	0

Seconds Tracing Cloth can be supplied of all brands at approximately 25% reduction from the price of perfect. These are rolls having some slight defect, and therefore not suitable for first quality. They vary considerably, some being almost perfect and others more defective. Orders cannot always be executed from stock, as supplies vary.

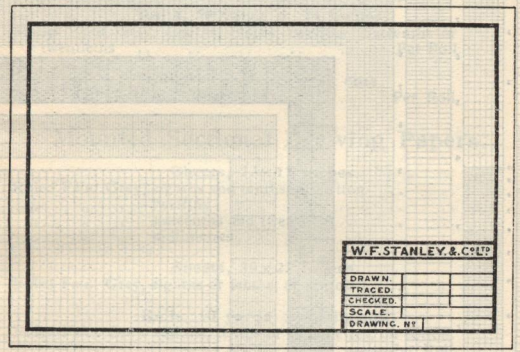
For Telegraphic Code see end of catalogue.

Tracing Cloth in Sheets.

The demand for Tracing Cloth in Cut Sheets is growing. Engineers find that considerable economy is effected by buying the cloth already cut, and, apart from this, it is a considerable help in the standardization of drawings. We shall be pleased to quote for cut sheets in any size.

Note.—Sheets can only be supplied from Perfect Cloth and not from Seconds.

Printed Tracing Cloth Sheets.



Cut Sheets of Tracing Cloth with Printed Borders.

Large buyers of Tracing Cloth will find it more economical to buy their cloth in sheets with the border and reference grid lithographed on. This secures standardization and enhances the appearance of the drawing. **Prices on application.**

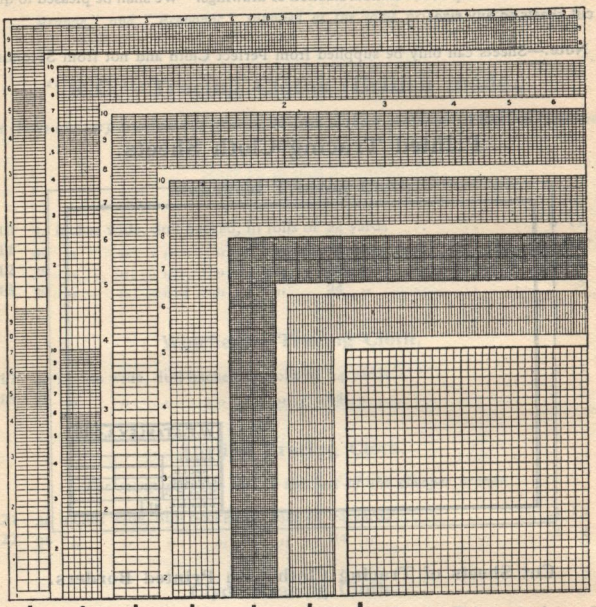
Note.—It is not an economical proposition to print less than 250 sheets.

N.B.—All tracing cloths, whether in rolls (perfect or seconds), or in sheets, are supplied at the minimum prices fixed by the manufacturers. They are all of British make.

Sectional Drawing Paper.

We stock a very large variety of Sectional Papers of every description, in **sheets, rolls, pads and books.**

We shall always be pleased to quote for special rulings for orders of not less than one ream.



Sectional inches and eighths.

Profile Paper.

Millimetre Sectional.

Log Paper 1 Cycle × Tenths.

Log Paper 1 Cycle × 1 Cycle.

Log Paper 2 Cycles × Tenths.

Log Paper 2 Cycles × 2 Cycles.

Sectional Drawing Papers (continued).

These Sectional Papers will be found very superior to the usual trade articles, both as regards quality of paper and ruling. The rolls of mounted paper are printed after mounting to avoid shrinkage.

Sheets, 23×18 inches.

		Per Quire.	Per Sheet.
P4650	Ruled Faint Grey, quarters, eighths and tenths	4/-	3d.
P4651	" " " twelfths	5/-	3d.
P4652	" " " sixteenths, twentieths	7/-	4d.
P4653	" " " millimetres	8/-	5d.

Sheets, 30×22 inches.

P4660	Ruled Faint Grey, eighths or tenths	7/- 4d.

Sheets, 40×27 inches.

P4662	Ruled Faint Grey, quarters, eighths or tenths	15/- 8d.

Rolls, 10 yards × 24 inches.

		£ s. d.
P4670	Ruled Faint Grey, eighths, tenths, twelfths, sixteenths or twentieths Per Roll	10 6

Rolls, 50 yards × 24 inches.

P4680	Ruled Faint Grey, eighths, tenths, twelfths, sixteenths or twentieths Per Roll	2 10 0

Rolls, 10 metres × 75 cms.

P4690	Ruled Faint Grey, millimetres Per Roll	10 6

Mounted Sectional Drawing Papers.

Sheets, 22×17 inches.

		Per Quire. £ s. d.
P4695	Ruled Faint Grey, eighths and tenths, on cotton	1 8 0
P4696	" " " twelfths	1 9 0
P4697	" " " sixteenths and twentieths	1 11 0
P4698	" " " millimetres	1 12 0

Sheets, 30×22 inches.

P4721	Ruled Faint Grey, eighths or tenths, on cotton	1 17 6

Rolls, 10 yards × 24 inches.

P4722	Ruled Faint Grey, eighths, tenths or millimetres, on cotton. Per Roll	1 15 6

Any of the above, *Rolls only*, Sectional Paper can be supplied with Bistre or Green ruling, instead of Grey, at the same price.

Sectional Tracing Papers.

Sheets, 23×18 inches.

		Per Quire. £ s. d.
P4730	Ruled with Red Lines, eighths, tenths	13 0
P4731	" " " " twelfths	15 0
P4732	" " " " sixteenths or twentieths	17 6
P4733	" " " " millimetres	1 1 0

Rolls, 10 yards × 24 inches.

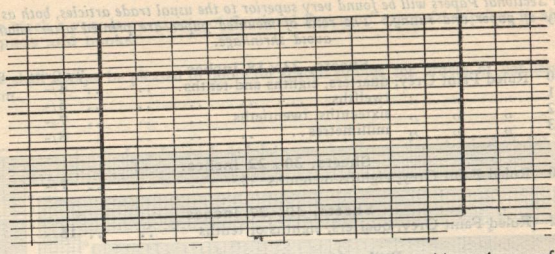
P4735	Ruled eighths or tenths Per Roll	15 0

Sectional Tracing Cloth.

Rolls, 10 yards × 24 inches.

P4736	Ruled eighths, tenths, twentieths or millimetres. Per Roll	2 10 0

Profile Papers.

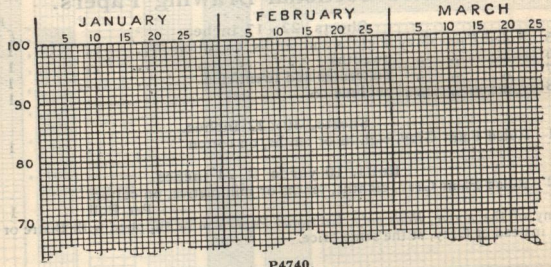


For plotting longitudinal sections of railways, roads, etc., without the use of scales. The ruling is to the scale of 20 feet to 1 inch horizontal, and 4 feet to 1 inch vertical.

In Rolls of 10 yards long × 22 inches wide.

		£	s.	d.
P4737	On stout drawing paper, ruled green lines		10	6
P4738	Ditto, on transparent Bond paper, ruled red lines		10	6
P4739	Stout paper, mounted on cotton	1	15	6

Business Record and Progress Chart.



P4740.

P4740 **Chart**, size 24×7 inches, useful for business records, divided to show each day of the year .. .. Each 6d.

Printed in Brown on Medium Paper.

P4760	Daily Progress, size 24 × 7 inch, capacity 1 year.	Per Sheet	6d.
P4761	Weekly ,, ,, 21½×13½ ,, ,, 3 years.	,,	9d.
P4762	Monthly ,, ,, 14 ×13 ,, ,, 10 ,,	,,	6d.
P4763	,, ,, ,, 21 ×19 ,, ,, 10 ,,	,,	8d.

Logarithmic Record and Progress Chart.

3 Cycles × Days and Months up to 1 Year. Per Sheet. Per Quire.

P4766 Daily Progress, size 16½×11 inches, ruled green on bank .. 4d. 7/6

Logarithmic Papers.

Logarithmic or, as it is sometimes called, **Ratio Paper**, is Sectional Paper with the lines spaced either one way or both in **Logarithmic Progression** instead of **Arithmetic Progression.** The net result of this is that fluctuations of curves indicate **percentage variations** instead of merely **numerical variations.**

The use of these papers is gradually being appreciated in this country, but has not yet reached anything like the proportion it has in some countries, notably America. **It offers the following advantages :—**

To the Mathematician.

Graphs of the type of $y = x^2$ plotted on log paper appear as straight lines instead of curves.

Figures of **any magnitude** can be plotted.

The relation of any two sets of figures of extremely diverse magnitude is clearly shown when plotted on the same sheet of log paper.

To the Statistician and Commercial Man.

Figures plotted on log paper vary on a **percentage basis.** The percentage relation between two sets of figures can be seen at a glance. Example : **Percentage costs on turnover.**

Only figures plotted on log papers show real trends, i.e., an ascending straight line on log paper shows a real and definite rate of increase. A similar graph plotted on ordinary squared paper is deceptive and leads to false conclusions ; it might mean a decreasing rate of growth.

Logarithmic Papers.

		Per Quire.	Per Ream. £ s. d.
P4771	Logarithmic Paper, ruled faint blue on medium cartridge, scale size, 10 inches square ; overall size, 15 inches square	4/6	4 0 0
P4772	Logarithmic Paper, ruled green on thin bank paper, scale size, 9×6 inches, size of sheet, 11×9 inches	3/-	2 17 0
P4773	Ditto, ditto, scale size, 15¼×9 inches ; size of sheet, 16½×11 inches	5/6	5 0 0

Stock Rulings.

Cartridge.	Bank Paper (8½×11 inches overall).	Bank Paper (16½×11 inches overall).
1 cycle × tenths.	2 cycles × tenths.	2 cycles × twelfths.
2 cycles × tenths.	3 cycles × twentieths.	3 cycles × twelfths.
1 cycle × 1 cycle.	2 cycles × 2 cycles.	3 cycles × 2 cycles.
2 cycles × 2 cycles.	1 cycle × twelfths.	
	4 cycles × tenths.	
	3 cycles × 2 cycles.	

1 cycle = 1—10. See illustration on page 316.

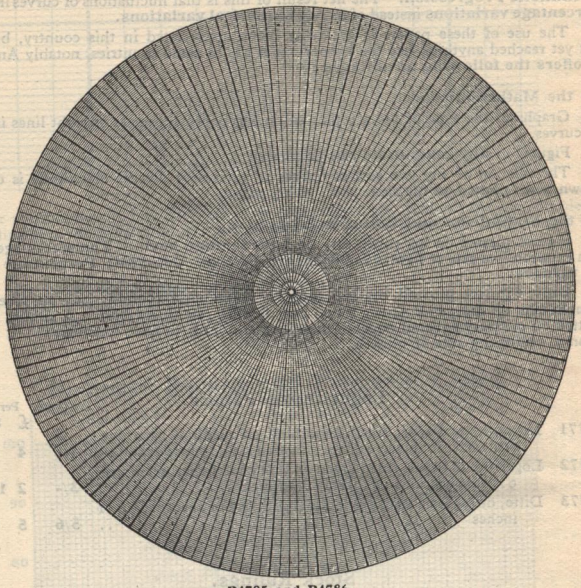
		£ s. d.
P4780	Sample Set of Sheets, consisting of four assorted Sheets on Cartridge Paper and four assorted Sheets of each size of Data Paper. Postage free	1 8
P4781	"Graphic Charts in Business," by Alan C. Haskell. A practical manual on the plotting of Graphs, Charts, Diagrams, etc., for the business man. Recommended. 442 pages. Price	1 1 0

Note.—We are constantly adding to our stock rulings of Log Paper. Clients not finding a suitable ruling above, are invited to submit particulars of their requirements.

Section Papers for Special Purposes.

Circular (Polar) Co-ordinate Paper.

For the plotting of Illuminating Curves and other purposes. Radius, 15 cm.



P4785 and P4786.

Concentric Circles are 1 mm. apart with centimetres marked in heavy lines.

In Pads of 50 sheets. Size 15½ × 15½ inches.

Printed from engraved Plate in Sepia, on :

		£ s. d.
P4785	Best Drawing Paper .. .. Per Pad	11 6
P4786	Best thin Plain Bank Paper, suitable for making Photo Prints. Per Pad	10 6

Triangular Co-ordinate Paper.

For the graphical expression of three variables composing a constant sum.

The Engraving is an equilateral triangle, each side 300 mm. long, divided into 150 equal parts ; these divisions are connected by rulings parallel to the side, every fifth line heavy.

Size of Sheets, 15¼ × 13¼ inches. Scale of Measurement, 300 mm.

Printed from Engraved Plate in Sepia, on :

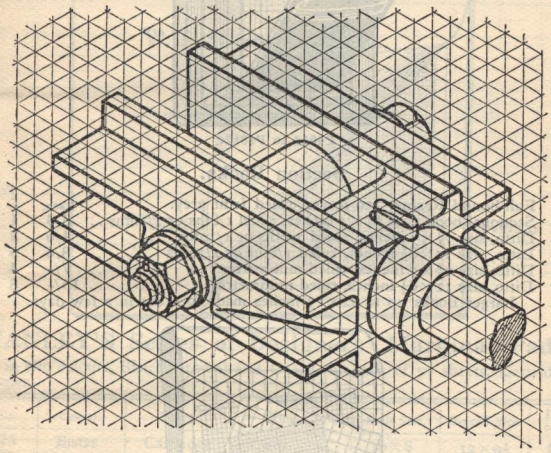
		£ s. d.
P4790	Best Drawing Paper .. .. Per Quire	4 6
P4791	Best thin Plain Bank Paper, suitable for making Photo Prints. Per Quire	4 0

Isometric Scaled Paper.

As used in Board of Trade Marine Engineers' Examinations. Isometric Paper is used for making **three dimensional drawings to scale.** Drawings on Isometric Paper are not true perspectives, but can be instantly and easily read by any layman, and **all dimensions can be clearly shown.**

They have the further advantage that **only one view has to be drawn** instead of three.

Dimensioned Pencil Sketches can be drawn on Isometric Paper in an emergency without the aid of tee-square or set-square.



P4800 to P4803.

Printed from Engraved Plates in Pale Blue.

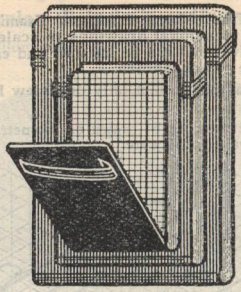
		Per Quire.	Per Ream.
P4800	Thin Bond Paper, 11½ × 8¾ inches	1/-	17/6
P4801	„ „ „ 17¾ × 11½ „	1/9	30/-
P4802	Thick Drawing Paper, 11½ × 8¾ inches	1/3	22/6
P4803	„ „ „ 17¾ × 11½ „	2/3	40/-

Tephigram Papers.

We maintain a stock of special Graph Papers designed by Sir Napier Shaw, the well-known meteorologist, for recording the pressure and temperature of the upper atmosphere.

		Per Quire.	Per Ream.
P4810	Form A, Pressure-temperature Logarithmic Paper, ruled in brown	4/6	80/-
P4811	Form B, Entropy Paper, ruled in blue, with Isobaric, Adiabatic and Saturation Point lines, super-printed in brown	4/6	80/-
P4812	Form C, Logarithmic Paper for Pressure and Temperature, Potential-temperature or Entropy, ruled in brown ..	4/6	80/-

Sectional Books and Blocks.

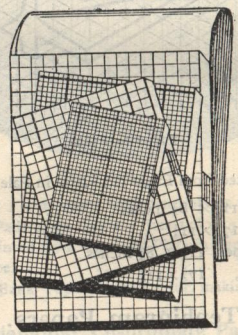


P4813 to P4817.

Section Books.

		Each.	Per Dozen. £	s.	d.
	Full bound Rexine, 100 leaves, ruled feint grey.				
P4813	Sectional book, size 6½×4 inches, ruled 1/8ths or 1/10ths ..	3/3	1	16	0
P4814	Ditto, size 7¾×5 inches, ruled 1/8ths or 1/10ths	4/6	2	10	0
P4815	Ditto, size 11×8½ inches, ruled 1/8ths or 1/10ths	8/6	5	0	0
P4816	Ditto, size 7¾×5 inches, ruled millimetres	7/-	4	0	0
P4817	Ditto, size 11×8½ inches, ruled millimetres	15/-	8	15	0

Larger Books up to 22×17 inches made to order in a few days.

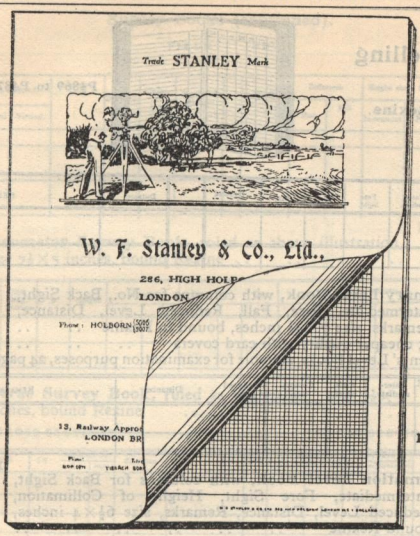


P4818 to P4822.

Section Blocks.

		Each.	Per Dozen. £	s.	d.
P4818	Ruled feint grey, 50 sheets, ruled 1/8ths or 1/10ths, 8½×5½ inches	1/9		18	6
P4819	Ditto, ditto, 11× 8½ inches	2/9	1	10	0
P4820	Ditto, ditto, 11× 8½ inches, ruled metrically	4/6	2	12	6
P4821	Ditto, ditto, 18×11½ inches, ruled 1/8ths or 1/10ths ..	5/-	2	17	0
P4822	Ditto, ditto, 18×11½ inches, ruled millimetres	9/-	5	0	0

Other sizes and patterns to order. For Surveying and other Books, see pages 324 and 325.



P4825 to P4864.

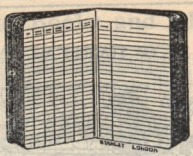
STANLEY'S Series of Designers' Marginal Pads.

Printed in two colours, Bistre (brown) and Green, in pads of 50 sheets, Cartridge or Bank Paper.

Cat. No.	Colour.	Paper.	Ruling.	Scale Size.	Overall Size.	Price, each.
P4825	Bistre	Cartridge	1/8th	10×8	12×9½	5/-
P4826	,,	,,	1/10th	,,	,,	5/-
P4827	,,	,,	Millimetre	,,	,,	5/-
P4828	,,	Bank	1/8th	,,	,,	4/6
P4829	,,	,,	1/10th	,,	,,	4/6
P4830	,,	,,	Millimetre	,,	,,	4/6
P4841	Green	Cartridge	1/8th	,,	,,	5/-
P4842	,,	,,	1/10th	,,	,,	5/-
P4843	,,	,,	Millimetre	,,	,,	5/-
P4844	,,	Bank	1/8th	,,	,,	4/6
P4845	,,	,,	1/10th	,,	,,	4/6
P4846	,,	,,	Millimetre	,,	,,	4/6
P4850	Bistre	Cartridge	1/8th	16×10	19×12	8/6
P4851	,,	,,	1/10th	,,	,,	8/6
P4852	,,	,,	Millimetre	,,	,,	8/6
P4853	,,	Bank	1/8th	,,	,,	8/-
P4854	,,	,,	1/10th	,,	,,	8/-
P4855	,,	,,	Millimetre	,,	,,	8/-
P4856	Green	Cartridge	1/8th	,,	,,	8/6
P4860	,,	,,	1/10th	,,	,,	8/6
P4861	,,	,,	Millimetre	,,	,,	8/6
P4862	,,	Bank	1/8th	,,	,,	8/-
P4863	,,	,,	1/10th	,,	,,	8/-
P4864	,,	,,	Millimetre	,,	,,	8/-

Field Levelling Books.

Full-bound Rexine.



P4869 to P4871.

No.	Back Sight.	Inter-mediate.	Fore Sight.	Rise.	Fall.	Reduced Level.		Distance.	REMARKS

		Each.	Per Dozen. £ s. d.
P4869	**Ordinary Level Book**, with columns for No., Back Sight, Intermediate, Rise, Fall, Reduced Level, Distance, Remarks, size 7×4½ inches, bound in Rexine	2/8	1 10 0
P4870	Ditto, cheaper quality with card covers	2/-	1 3 0
P4871	Students' Level Books, suitable for examination purposes, 24 pages	1/9	18 6

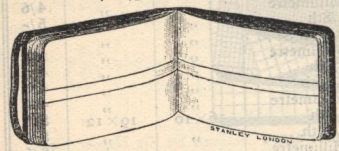
No.	Back-Sight.	Inter-mediate.	Fore-Sight.	Collima-tion.	Reduced Level.	Distance.	REMARKS.

		Each.	Per Dozen. £ s. d.
P4872	**Collimation Level Book**, with columns for Back Sight, Intermediate, Fore Sight, Height of Collimation, Reduced Level, Distance, Remarks, size 6½×4 inches, bound Rexine	2/3	1 6 0

day of

Back.	Intermediate.	Fore.	Rise.	Fall.	Distance. M	Distance. Chains.	Reduced Level.		Formation Levels.	Cutting.	Embankment.	Remarks.

		Each.	Per Dozen. £ s. d.
P4873	**Railway Engineers' Level Book**, ruled for Back, Intermediate, Fore Sight, Rise, Fall, Distance, Reduced Level, Formation Levels, Cutting, Embankment, Remarks, size 7×4½ inches, bound Rexine	2/8	1 10 0



Field Survey Books.

Full-bound Rexine with Elastic Band.

P4874 to P4880.

		Each.	Per Dozen. £ s. d.
P4874	Two red lines, size 6×4 inches	2/3	1 6 0
P4875	Single red line, size 6×4 inches	2/3	1 6 0
P4876	Two red lines with pencil pocket, size 8×4 inches	2/6	1 8 0
P4877	Single red line, ditto, size 8×4 inches	2/6	1 8 0
	Cheaper Quality, Quarter-bound, with Card Covers.		
P4878	Two red lines, size 8×4 inches	2/-	1 3 0
P4879	**Quantity Surveyors' Note Books**, bound as above, but with Dimensions Columns	2/-	1 3 0
P4880	**Students' Field Books**, suitable for examination purposes, 24 pages	1/6	16 0

Survey Books (continued).

FIELD BOOK

No. of Station.	Height of Instrument	No. of Point.	Angle Observed. Horizontal	Angle Observed. Vertical.	Reading of wires	Difference	Reading of Axial Wire.	Horizontal Distance	Height	Difference Rise.	Difference Fall	Height above Datum. Of the Instrument	Height above Datum. Of the Point.	REMARKS.
							A°							

	Each.	Per Dozen. £ s. d.
P4890 Tacheometer Survey Book, ruled as above illustration, size 7½×5 inches, bound Rexine	2/8	1 10 0

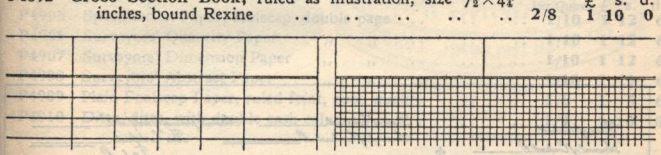
No. of Station.	Included Angle	Calculated Bearing.	Dif. Mag. Bearing.	θ	Length.	Latitude. +	Latitude. −	Dep. +	Dep. −	Co-ordinates. x +	Co-ordinates. x −	Co-ordinates. y +	Co-ordinates. y −	Remarks.

	Each.	Per Dozen. £ s. d.
P4891 Traverse Survey Book, ruled as illustration, size 7½×5 inches, bound Rexine	2/8	1 10 0

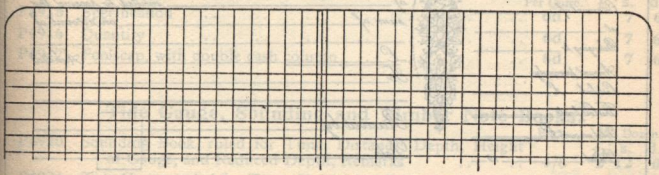
CROSS-SECTIONS CROSS SECTIONS

STATION	B.S	H.S	I.S	DISTANCE OUT Left	DISTANCE OUT Right	Elevation	Grade	Cut	Fill	AREAS Excavation	AREAS Embankment	CU. YARDS Excavation	CU. YARDS Embankment	REMARKS

	Each.	Per Dozen. £ s. d.
P4892 Cross Section Book, ruled as illustration, size 7½×4¾ inches, bound Rexine	2/8	1 10 0

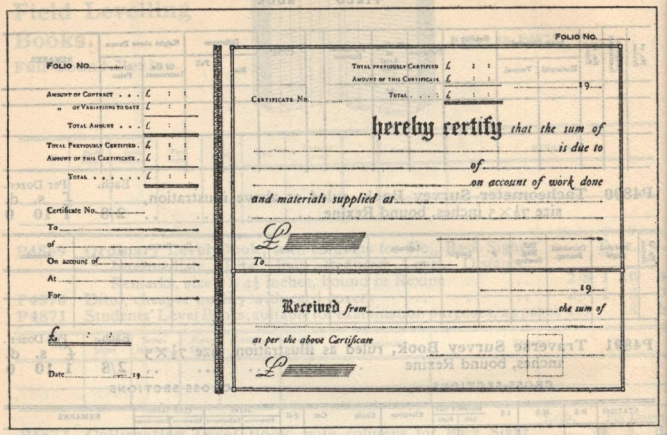


	Each.	Per Dozen. £ s. d.
P4893 Cross Section Book, extra quality, bound in sheepskin, very strong, as illustration, 7×5 inches	3/6	1 19 0
P4894 Ditto, ditto, in Rexine	2/8	1 10 0

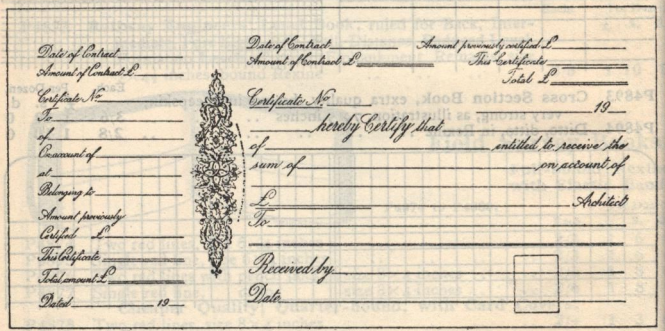


	Each.	Per Dozen. £ s. d.
P4895 Topography Book, 7½×4¾ inches, ruled quarter squares all over, with red line down centre of page, bound Rexine	2/-	1 3 0

Certificate Books.

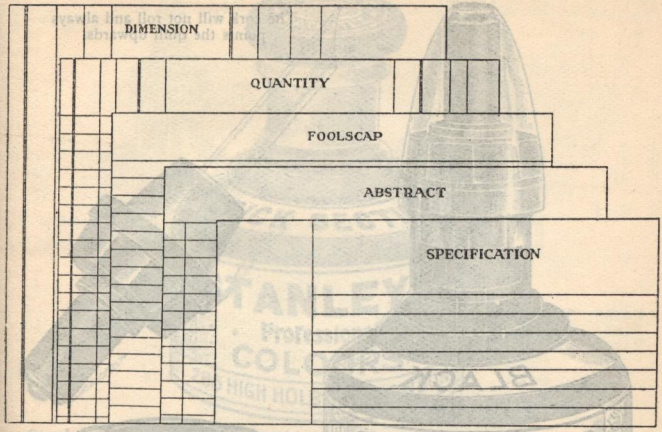


		£	s.	d.
P4900	Certificate Book for either Architect or Engineer, 50 certificates, size 13¾×8¾ inches	6	0	
P4901	Ditto, ditto, 100 certificates	8	6	



		£	s.	d.
P4902	Certificate Book, Architects' only, smaller size, 50 certificates, size 12×5¼ inches	2	6	

Specification and Other Papers.



Specification and Other Ruled Papers.

	Best Quality Blue Azure Laid Paper, feint ruled both sides.	Per Quire.	Per Ream. £ s. d.
P4905	Specification Paper, foolscap, double page	1/10	1 12 6
P4906	Surveyors' Quantity Paper ,, ,, ...	1/10	1 12 6
P4907	Surveyors' Dimension Paper ,, ,, ...	1/10	1 12 6
P4908	Surveyors' Abstract Paper ,, ,, ...	1/10	1 12 6
P4909	Plain Foolscap Paper, ruled feint, good quality	1/6	1 5 6
P4910	Ditto, ditto, with double cash column	1/9	1 10 0

Specification Papers.

	Single page, thin, for typing, ruled feint blue columns only.	Per Quire.	Per Ream. £ s. d.
P4915	Specification	6d.	7 6
P4916	Quantity	6d.	7 6
P4917	Foolscap, with double cash column	6d.	7 6

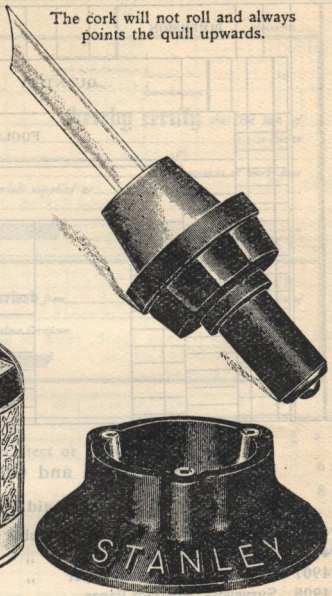
Tide Gauge, Sounding and Timber Note Books.

		Each.	Per Dozen. £ s. d.
P4920	Sounding Book, ruled for Time, Distance, Depth, Height of Gauge, and Reduced Depth, Remarks	4/6	2 12 0
P4921	Tide Gauge, ruled for Time, Height and Remarks	4/-	2 5 0
P4922	Timber Measuring, ruled for Description, No., Length of Tree, Quarter Girth, Solid Feet, Value per Foot, Value of Tree	4/6	2 12 0

STANLEY'S Waterproof Drawing Inks.

P4928 and P4929.

The cork will not roll and always points the quill upwards.



P4933 and P4934.

Stanley's Waterproof Drawing Inks, in sixteen colours, for permanent brilliancy. Made at our Works at New Eltham.

The Black is of exceptional density and is recommended for tracings to be duplicated by photo copying.

No. 1	Black.	No. 9	Orange.		
,, 2	Blue (Dimensions)	,, 10	Purple.		
,, 3	Brick Red.	,, 11	Scarlet.		
,, 4	Brown.	,, 12	Ultramarine.		
,, 5	Burnt Sienna.	,, 13	Vermilion		
,, 6	Carmine (Sections).	,, 14	Yellow.		
,, 7	Green.	,, 15	Violet.		
,, 8	Indigo.	,, 16	White.		

		Each.	Per Dozen. £	s.	d.
P4928	1-oz. bottle any of above colours	1/-		10	6
P4929	2-oz. ,, ,, ,, ,, ...	2/-	1	1	0
P4930	8-oz. ,, ,, ,, ,, ...	5/6		—	
P4931	16-oz. ,, ,, ,, ,, ...	10/-		—	
P4932	20-oz. ,, ,, ,, ,, ...	12/-		—	
P4933	Stanley's Drawing Ink Stand and Weight, to fit 1-oz. bottles	2/-		—	
P4934	,, ,, ,, ,, ,, 2-oz. ,,	2/6		—	

STANLEY'S Improved Professional Colours.

Stanley's Original Fluid Professional Colours, recommended for plans, details, and working drawings, saving an immense amount of time in getting colours ready. The colours are dipped directly from the bottle. The bottles contain 2 ozs. of colour. There is no waste. They are made up to represent as nearly as possible the conventional colours used in the profession. They will all temporarily mix with one another, but are not recommended for highly finished or exhibition drawings.

	Colour.	*To represent.*	Each.	Per Dozen. £ s. d.
P4940 No. 21	Brick Red	Brickwork in plan or section to be executed	2/-	1 1 0
„ 22	Prussian Blue	Flint work, lead or parts of brickwork to be removed by alterations.		
„ 23	Venetian Red ..	Brickwork in elevation.		
„ 24	Violet Carmine ..	Granite.		
„ 25	Raw Sienna	English timber (not oak).		
„ 26	Burnt Sienna	Oak, teak.		
„ 27	Indian Yellow.. ..	Fir timber.		
„ 28	Indian Red	Mahogany.		
„ 29	Sepia	Concrete works, stone.		
„ 30	Burnt Umber	Clay, earth.		
„ 31	Payne's Grey	Cast iron.		
„ 32	Payne's Grey and Indigo	Rough wrought iron.		
„ 33	Dark Cadmium or Orange	Gun-metal.		
„ 34	Gamboge	Brass.		
„ 35	Indigo	Wrought iron (bright).		
„ 36	Indigo and Lake ..	Steel (bright).		
„ 37	Hooker's Green ..	Meadow land.		
„ 38	Cobalt Blue	Sky effects.		
„ 39	Water Blue	Water.		
P4941	Polished Mahogany Case, containing 12 bottles, viz.: Black, Carmine, and Blue Inks, and 9 assorted colours, with brushes ..			2 5 0

Drawing Inks (continued).

P4955 and P4956

P4950 and P4952

Higgins' American Inks.

		£	s.	d.
P4950	Black, waterproof or general, ¾-oz. bottles		1	6
P4951	" " " 8-oz. "		12	0
P4952	¾-oz. bottles, colours as below :—			
	Carmine, Violet, Green, Brown, Indigo, Brick Red, Orange, Vermilion, Yellow, Scarlet, Blue		1	6

Gunther Wagner's Inks.

Made in Germany.

P4955	Black " Pelican " brand, per bottle, about 1 oz.		1	3
P4956	Colours, " Pelican," in 1-oz. bottles, as below :—			
	Yellow, Light Green, Cobalt Blue, Vermilion, Carmine, Prussian Blue, Brown, Scarlet, Violet, Burnt Sienna, Neutral Tint, Raw Sienna, Brick Red, Orange, Indigo, Ultramarine, Deep Green		1	3

The *coloured* inks can only be supplied for Export.

Genuine Chinese Inks in Sticks.

Imported Direct, and Warranted of the Finest Qualities Made.

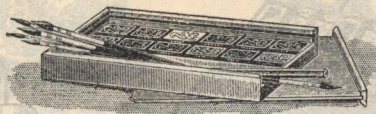
P4961.

P4962.

		£	s.	d.
P4960	**Chinese Ink**, finest selected, permanent qualities		2	6
P4961	Gilt Double Dragon, a fine ink		10	6
P4962	Hexagon Black, Yutshing, finest quality		5	0
P4963	Hexagon Double Dragon, 1/6th lb. (recommended, made specially for us at Yutshing)	1	1	0

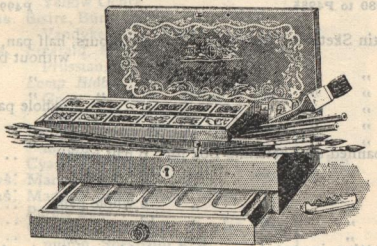
Water Colours in Boxes.

The colours in the following cases are of the finest quality, and selected especially to be suitable for Architects' and Engineers' Drawings. If Artists' colours are required, orders should specify this.



P4968.

		£	s.	d.
P4967	Mahogany Box, slide lid, containing 6 whole cakes and 2 brushes		8	6
P4968	" " 12 " " 3 "		16	3
P4969	" hinged lid, with lock, containing 12 whole cakes and 3 brushes	1	7	6

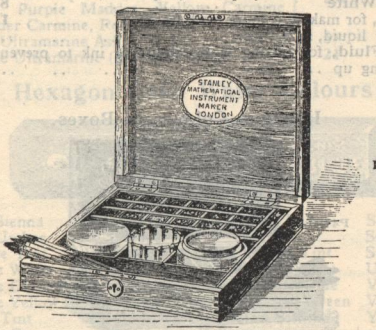


P4970.

P4970	Mahogany Box, with lock and drawer, containing 12 whole cake colours, 4 brushes, palette, etc.	1	12	6
P4971	Ditto, containing 18 whole cake colours, 4 brushes, etc.	2	0	0

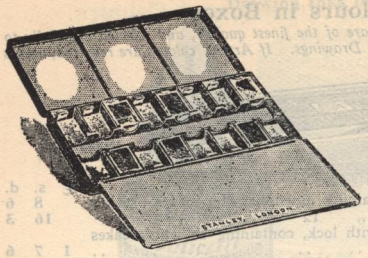
Best Quality Oak Cases of Colours.

These cases are made at our Eltham works, and are of superior quality to those generally supplied, and are more conveniently arranged for the profession.

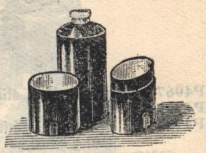


P4976.

		£	s.	d.
P4975	Oak Box, with 12 superior colours (Carmine, etc.)	3	3	0
P4976	Pollard Oak Box, with 18 superior colours, highly-finished case and extras	4	0	0
P4977	Ditto, with 24 ditto, ditto	4	15	0



P4980 to P4985.



P4992 and P4993.

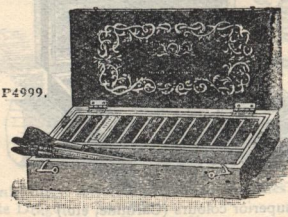
		£	s.	d.
P4980	Japanned tin Sketching Box, with 6 moist colours, half pan, without brushes		9	6
P4981	,, ,, ,, ,, 12 ,, ,, ,, ,,		15	6
P4982	,, ,, ,, ,, 18 ,, ,, ,, ,,	1	1	0
P4983	,, ,, ,, ,, 6 ,, ,, whole pan ,,		12	0
P4984	,, ,, ,, ,, 12 ,, ,, ,, ,,	1	1	0
P4985	,, ,, ,, ,, 18 ,, ,, ,, ,,	1	8	6
P4986	Empty japanned tin Sketching Box for 6 half pans		6	6
P4987	,, ,, ,, ,, 12 ,, ,, ...		9	0
P4988	,, ,, ,, ,, 18 ,, ,, ...		10	9
P4989	,, ,, ,, ,, 6 whole pans		7	6
P4990	,, ,, ,, ,, 12 ,, ,, ...		9	9
P4991	,, ,, ,, ,, 18 ,, ,, ...		11	6
P4992	**Water Bottles,** japanned tin, with detachable cups for sketching ..		3	4
P4993	,, ,, ,, oval shape		6	8

Oil and Water Colours in tubes, to order.

Chinese White, Ox Gall, Fixing Fluid.

P4994	**Chinese White** .. .. 8d. and	1	0	
P4995	**Ox Gall,** for making colours work freely .. .. 1/2 and	1	10	
P4996	,, ,, liquid, in bottles			9
P4997	**Fixing Fluid,** for mixing with colours or ink to prevent them washing up	1	6	

Hexagon Colours in Boxes.



P4999.

P4998	Box, containing 6 hexagon colours, 3 brushes and 2 drawing pencils		17	0
P4999	,, ,, 12 ,, ,, ,, and other fittings ..	1	16	0

Winsor & Newton's and Rowney's Water Colours.

P5000 to P5005.

			WINSOR & NEWTON'S. Whole Cakes Pans or Tubes.	WINSOR & NEWTON'S. Half Cakes or Pans.	ROWNEY'S. Whole Cakes Pans or Tubes.	ROWNEY'S. Half Cakes or Pans.
P5000	Reds.	Indian, Light, Venetian, Dragon's Blood	10d.	7d.	9d.	6d.
	Blues.	Antwerp, Prussian				
	Yellows.	Chromes (Deep, Lemon, Orange, Yellow), Gamboge, Raw Sienna, Yellow Ochre				
	Browns.	Bistre, Burnt Sienna, Burnt Umber, Vandyke, Raw Umber				
	Greens.	Emerald, Hooker's 1 and 2, Olive, Prussian, Sap				
		Lamp Black, Neutral Tint, Payne's Grey, Chinese White, Ivory Black, Steel, Mauve.				
P5001	Reds.	Crimson Lake, Scarlet Lake, Vermilion	1/6	9d.	1/3	8d.
	Blue.	Cyanine, Indigo				
	Yellows.	Mars				
	Browns.	Madder, Sepia, Warm Sepia				
		Purple Lake.				
P5002	Reds.	Orange Vermilion, Scarlet Vermilion, Spectrum Red	1/10	1/-	1/8	10d.
	Yellows.	Cadmium (Orange, Yellow), Indian, Spectrum				
	Blues.	Cobalt, French, French Ultramarine, Intense, Indian Purple				
		Spectrum Violet.				
P5003		Aureolin, Pink Madder, Scarlet Madder, Burnt Carmine, Pure Scarlet, Violet Carmine, Carmine, Purple Madder, Yellow Carmine, Madder Carmine, Rose Madder	2/9	1/6	2/6	1/3
P5004		Smalt, Ultramarine Ash	5/-	2/6	3/9	2/-
P5005		Genuine Ultramarine (dry cakes only)	21/-	10/6	21/-	10/6

Hexagon Cake Water Colours.

P5006.

					WINSOR & NEWTON'S OR ROWNEY'S.
P5006	Burnt Sienna	Emerald Green	Light Red	Sap Green	1/3
	Burnt Umber	Gamboge	Mauve	Sepia Tint	
	Carmine Tint	Hooker's Green	Neutral Tint	Steel	
	Chinese White	Indian Red	Payne's Grey	Ultramarine	
	Chrome Orange	Indian Yellow Tint	Prussian Blue	Vandyke Brown	
	Chrome Yellow	Intense Brown	Prussian Green	Venetian Red	
	Cobalt Tint	Lamp Black	Raw Sienna	Yellow Ochre	
P5007	Alizarin Crimson	Indian Yellow	Scarlet Lake		2/6
	Brown Pink	Indigo	Sepia		
	Crimson Lake	Purple Lake	Vermilion		
P5008	Cobalt	Intense Blue	Spectrum Violet		3/4
	Indian Purple	Spectrum Red	Spectrum Yellow		
	Indian Yellow, No. 2				
P5009	Carmine				5/-

Poster Colours.

In Sets of 12 Glass Pots.

P5010 to P5013.

Those who use poster colours for sketching, will find that these sets combine convenience with portability. They are also suitable for the artist whose accommodation is limited, and who desires to equip himself with a good representative range of colours.

P5010. Set A, containing :— Each, 6/-

Burnt Sienna	Dark Green	Scarlet Lake
Chinese White	General Red	Sepia Tint
Chrome Lemon	Ivory Black	Ultramarine Light
Cobalt Tint	Light Green	Ultramarine Deep

Single pots, larger size, 1 oz., 9d. ; 4 oz., 2/6.

P5011. Set B, containing :— Each, 6/-

Burnt Sienna	Dark Green	Orange Yellow
Chinese White	General Red	Scarlet Lake
Chrome Yellow	Ivory Black	Ultramarine Deep
Cobalt Tint	Light Green	Vandyke Brown

Single pots, larger size, 1 oz., 9d. ; 4 oz., 2/6.

P5012. Set C, containing :— Each, 6/-

Chrome Deep	Indian Red	Raw Sienna
Chrome Orange	Photo White	Sepia Tint
Emerald Tint	Poster Red	Venetian Red
Gamboge Tint	Prussian Blue	Yellow Ochre

Single pots, larger size, 1 oz., 9d. ; 4 oz., 2/6

P5013 Set D, containing — Each, 10/6

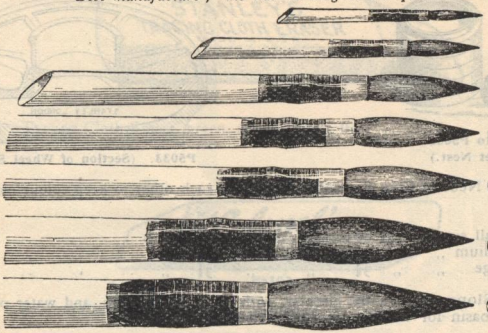
Alizarin Green	Geranium Lake	Spectrum Red
Alizarin Orange	Mauve, Blue Shade	Turquoise Blue
Crimson Lake	Poppy Red	Vermilion Tint
Emerald Green	Primrose Chrome	Violet Lake

Single pots, larger size, 1 oz., 1/3 ; 4 oz., 4/3

Any selection of colours may be obtained in these boxes and will be charged at the value of the colours selected

Water Colour Brushes of the Finest Quality.

Best manufacture, the hair is long in the quill.



P5022.

P5024 and P5025.

P5020 **Best Siberian (or Camel) Hair Brushes, in quills.**

Crow, No. 2	4d.	Large Goose, No. 8	1/-
Duck, ,, 4	5d.	Small Swan, ,, 10	1/3
Goose, ,, 6	6d.	Large Swan, ,, 12	1/9

P5021 **Best Siberian (or Camel) Hair Brushes, in tin ferrule.**

No. 2	4d.	No. 8	9d.
,, 4	5d.	,, 10	1/-
,, 6	6d.	,, 12	1/4

P5022 **Best Red Sable Water Colour Brushes, in quills.**

Crow, No. 2	5d.	Swan, No. 10	3/-
Duck, ,, 4	6d.	Large Swan, No. 12	5/-
Goose, ,, 6	1/-	Eagle, ,, 14	6/6
Large Goose, No. 8	1/6	Extra Eagle, ,, 16	7/6

P5023 **Best Red Sable Water Colour Brushes, in albata ferrule.**

No. 2	5d.	No. 10	2/6
,, 4	6d.	,, 12	4/-
,, 6	1/-	,, 14	6/9
,, 8	1/6	,, 16	10/6

P5024 **Softener**, or double brush, for shading, camel hair 2/-

P5025 Ditto, Red Sable, small, 2/6; middle, 3/6; large 6/6

P5026 **Broad Brushes, flat, for tinting, camel hair.**

½ inch wide	8d.	1½ inches wide	1/9
1 ,, ,,	1/3	2 ,, ,,	2/-
		3 inches wide	3/6

P5027 **Wash Brushes**, best Siberian hair, 2/-; large size 3/6

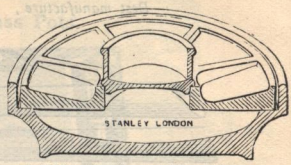
Writers', hog hair, and every description of artists' oil or water-colour brushes to order.

Case for Brushes.

		£	s.	d
P5028	**Cases for Brushes**, japanned tin with pull-off cover, with metal slide and rubber band to hold brushes	3	0	

Colour and Ink Palettes.

P5030 to P5032.
(Cabinet Nest.)



P5033. (Section of Wheel Slope.)

Cabinet Nest of Five Saucers, fitted over each other to keep colour moist when out of use.

		£	s.	d
P5030	Small size, height 2⅜ inches, diameter 2½ inches		2	0
P5031	Medium ,, ,, 3 ,, ,, 3½ ,,		3	0
P5032	Large ,, ,, 3⅝ ,, ,, 3½ ,,		4	0

Wheel Slope and Basin, circular, with slants for colours, and water pot in the centre with basin for washing brushes underneath.

		£	s	d.
P5033	Size, 7 inches diameter		8	6

P5036. (Section.)

P5034	**Ink or Colour Palette**, 4 inches diameter, with cover, glazed surface	3	3	
P5035	,, ,, ,, 4 ,, ,, ,, ,, matt ,,	3	3	
P5036	,, ,, ,, Pott's improved, glazed surface, 4 inches diameter, with sponge in the lid, will keep ink moist for one week	3	0	

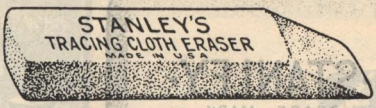
Saucers, single, glazed surface.

		Each	Dozen.
P5037	2½ inches diameter	3d.	2/6
P5038	3 ,, ,,	3½d.	3/-
P5039	4 ,, ,,	5d.	4/6

P5042. (Slope Tile.)

		£	s.	d
P5040	**Square Tile**, three slopes		1	0
P5041	,, ,, three deep slopes		1	3
P5042	,, ,, four ,, ,,		2	3
P5043	,, ,, six ,, ,,		3	0
P5044	**Water Glass**, 2½ inches diameter × 2⅜ inches high			6

India-rubber and Erasers.



P5101.

		Each.	Dozen.
P5101	Tracing Cloth Eraser, green, about 24 to 1 lb.	4d.	3/9

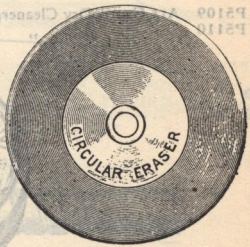
P5102.

		Each.	Dozen.
P5102	Tracing Cloth Eraser, Colonel, British made, large size	6d.	5/-

P5103.

		Each.	Dozen.
P5103	Stanley's Bevel Ink Eraser	4d.	3/9

P5104.



P5105.

		Each.
P5104	Improved Ink Eraser, square shape	5d.
P5105	Ink Eraser, thin, circular	3d.

For Telegraphic Code see end of catalogue.

Erasers (continued).

P5106.

P5108

		£	s.	d.
P5106	Stanley's Soft Pliable Rubber, grey, 8 to 1 lb. Each 8d.; per lb.		5	0
P5107	,, ,, ,, ,, ,, 12 to 1 lb. ,, 5d. ,,		5	0
P5108	Pencil Erasers, Tips. Per doz. 1 3; per gross		12	0

P5109 and P5110.

Made in U.S.A.

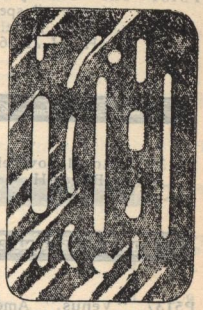
P5109	Art Gum, Dry Cleaner, for cleaning drawings, small. Each ..			6
P5110	,, ,, ,, ,, ,, ,, ,, large. ,, ..	1	0	

P5111.

P5111 **Stanley's Erasing Paste.** This is a solvent which instantly removes lines from tracing cloth, glazed tracing papers, etc., without impairing the surface. Per tin 1 3

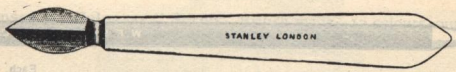
Erasers (continued).

P5112



P5113 and P5114.

		£	s.	d.
P5112	Sloan's Ink Eradicator, for removing ink and other stains from paper, tracing cloth, and other white materials, without leaving a trace to show where it has been used		1	6
P5113	Erasing Shield, thin steel, for erasing portions of drawings without detriment to the remainder			9
P5114	Ditto, ditto, larger size		1	0



P5116.

P5115	Erasing Knife, wood handle		2	0
P5116	,, ,, ivory handle		4	0

P5118.

P5117	"Bee-Gee" Glass Tracing Eraser, consisting of a brush of glass strands in a metal sheath. Erases ink rapidly and leaves a smooth surface (made in U.S.A.) Each		2	6
P5118	Cheaper pattern, as illustrated (made in Germany) ,,		1	0
P5119	Refills for either of above ,,			5

Hexagon Drawing Pencils.

		Each.	Dozen.	Gross.
P5131	The "Stanley." A very high-grade hexagonal drawing pencil, specially recommended for draughtsmen. British made. Nine degrees, BB, B, HB, F, H, 2H, 3H, 4H, 6H	3½d.	3/3	35/-

		Each	Dozen.	Gross.
P5135	"Royal Sovereign." British made. Nine degrees, BB to 6H	4d.	3/9	40/-

		Each.	Dozen.	Gross
P5137	"Venus." American made. Nine degrees, BB to 6H	4d.	3/9	40/-
P5138	"Koh-i-noor." Austrian manufacture. Nine degrees, BB to 6H	4d	3/9	40/-

		Each.	Dozen.	Gross
P5139	"Castell." German manufacture. Sixteen degrees, 6B to 8H	6d.	5/6	62/-

		Each.	Dozen	Gross
P5141	Stanley's round drawing pencil, of good quality, suitable for general office use. British made. Nine degrees, BB to 6H	2d.	1/10	20/-

All other well-known brands of pencils kept in stock

Artists' Pencils with Movable Lead.

		£	s.	d.
P5155	"Koh-i-noor," all degrees		1	6
P5156	"Venus" "		1	6
P5157	"Royal Sovereign." British made		1	6

Propelling Pencils.

		Each.
P5158	**Waterman's rigid point Propelling Pencil.** British made in Canada, black, chased or mottled, 5¼ inches	3/-
P5159	Ditto, ditto, with nickel clip	4/-

Copying Pencils.

		Each.	Per Dozen.
P5160	**"Royal Sovereign."** British made. With gilt cap, polished royal scarlet, medium degree only	4d.	3/9
P5161	**"British Preference."** Wolff's hard or medium	3d.	2/9
P5162	**"Venus."** British made. Hard or medium	4d.	3/9

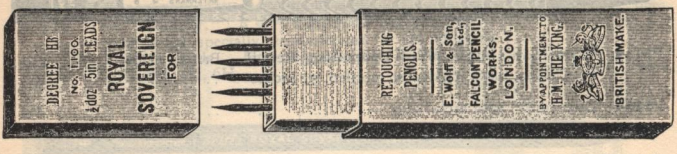
Coloured Pencils.

		Per Dozen. £ s. d.
P5165	**Dixon's Coloured Pencils.** Made in U.S.A. In 24 colours, and polished outside in corresponding colours	3 6
P5166	Ditto, 1 dozen assorted, in smartly finished linen-covered box, for presentation	5 0
P5167	**Johnson's "Colouray" Series.** British made. 12 colours, outsides polished corresponding colours	3 0

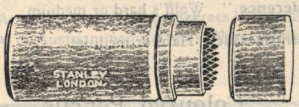
		£ s. d
P5170	**A. W. Faber's** two-ended red and blue Checking Pencils, each ..	2 0
P5171	Refills for above, in boxes of six, 3 red and 3 blue	8

		£ s. d.
P5175	**Warehouse Crayons,** hexagonal or round, in seven different colours, in boxes of twelve of one colour, per box	1 0

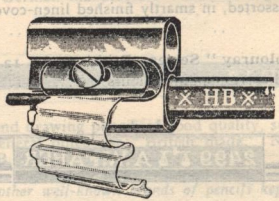
Refill Leads, etc.



		£	s.	d.
P5178	**Leads for Artists' Pencils.** Johnson's. British made. Degrees 1 to 5, per box of 6 of one degree		1	0
P5179	"Royal Sovereign." British made. Degrees, 4H, 3H, 2H, H, HB and B, per box of 6 of one degree		1	6
P5180	"Koh-i-noor." Made in Czecho-Slovakia. Seventeen degrees, per box of 6 of one degree		1	6



P5184	**Refill Leads,** for compasses, per box of 12			6
P5185	Ditto, ditto, per box of 24			9



P5186	**Pencil Sharpener,** Hardtmuth's. Made in Germany. Fitted with two blades, one to cut away the wood and one to sharpen the lead, complete in leather case		1	6
P5187	**Spare Blades** for the above, per pair			4

P5188	**Pencil Holder,** for using up short lengths of pencil, Hardtmuth's, each			3

Fountain Pens.

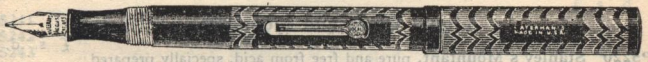
British (Made in Canada).

P5201.

		£	s.	d.
P5201	**Waterman's "Ideal."** The best and most reliable fountain pen, with gold nib to suit customer, chased barrel. Regular pattern	12	6	

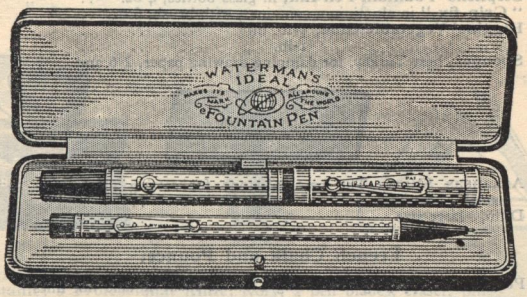
P5203.

P5203	**Fountain Pen,** safety pattern, can be carried in any position and will not leak. Chased barrel	17	6	
P5204	Ditto, with extra heavy gold nib	1	2	6



P5206.

P5206	**Fountain Pen.** Self-filling. The best form for the business man. Chased barrel	17	6	
P5207	Ditto, mottled barrel, fitted with 18-ct. gold-filled clip to cap, and gilt box lever	1	5	0

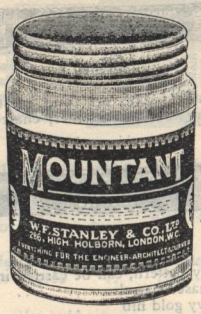


P5212.

P5209	**Presentation Set,** containing self-filling pen, and pencil, both with clips for the pocket, in case, chased barrels	2	2	0
P5210	Ditto, ditto, mottled barrels	2	5	0
P5212	Ditto, ditto, silver covered, as illustrated	3	3	0
P5213	Ditto, ditto, rolled gold covered	4	4	0

Miscellaneous.

P5222 to P5224.

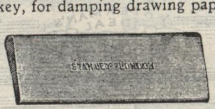


P5220 and P5221.

P5225.

Liquid Glues and Mountants.

		£	s.	d.
P5220	**Stanley's Mountant,** pure and free from acid, specially prepared for mounting photographs and for drawing office use, 4-oz. pots. Each		1	0
P5221	Ditto, ditto, 8-oz. pots .. .. ,,		1	9
P5222	**"Pastix" Paste,** for general office use, 6-oz. pots .. .. .. ,,		1	0
P5223	Ditto, ditto, 12-oz. pots .. .. ,,		1	6
P5224	Ditto, ditto, 24-oz. pots .. .. ,,		3	0
P5225	**Stephens' Blue-black Writing Ink,** in stone jars, 20 oz. ,,		2	3
P5226	**Stephens' Scarlet Writing Ink,** in stone jars, 20 oz. .. .. ,,		3	6
P5227	**Stephens' Fountain Pen Ink,** in glass bottles, 4 oz. .. .. ,,		1	0
P5230	**"Grip-fix,"** in aluminium container, with brush, 6 oz.		1	6
P5231	**Higgins' Vegetable Glue,** ½-lb. tin			10
P5232	,, ,, ,, 1-lb. ,, ...		1	6
P5233	**Sponges,** best Turkey, for damping drawing paper, 2/6 and ..		5	0



P5234	**Arkansas Slips.** The best oil-stone for setting instruments, small	2	6	
P5235	Ditto, large size	3	0	

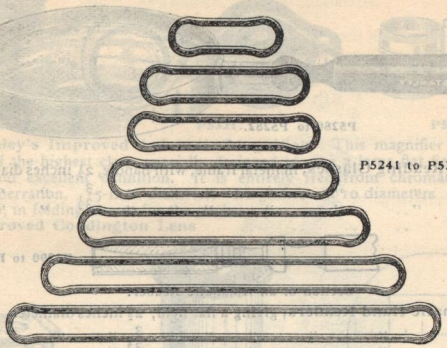
French Chalk and Pounce.

P5236	**Pounce,** for applying to Tracing Cloth to make it take ink lines, 2-oz. tin			8
P5237	Ditto, per packet, in tin box, with rubber	3	0	
P5238	**French Chalk,** in sprinkler tins (¼ lb.) .. .. .. Each	1	0	
P5239	,, ,, in plain tins for refilling above (1 lb.) .. ,,	1	0	

India-rubber Stamps of every description to order.

For Telegraphic Code see end of catalogue.

Miscellaneous (continued).



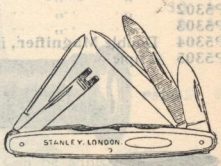
P5241 to P5244.

Rubber Bands. Finest quality. British made.

		£	s.	d.
P5241	**Thread Bands,** in boxes of 1 gross, 1¼ inches		1	2
P5242	,, ,, ,, ,, 1½ ,, ...		1	3
P5243	,, ,, ,, ,, 2 ,, ...		1	6
P5244	,, ,, ,, ,, 2½ ,, ...		1	9
P5247	Quarter-inch wide, in boxes of 1 gross, 2 inches		2	9
P5248	,, ,, ,, ,, ,, 2½ ,, ...		3	3
P5249	,, ,, ,, ,, ,, 3 ,, ...		3	8
P5250	,, ,, ,, ,, ,, 3½ ,, ...		4	0
P5253	Half-inch wide, in boxes of gross, 2 inches..		5	0
P5254	,, ,, ,, ,, ,, 3 ,, ...		7	0
P5257	**Package Bands,** ⅜ inch wide, in boxes of ¼ gross, 5 inches ..		3	6
P5258	,, ,, ,, ,, ,, ,, 6 ,, ..		4	0

P5264.

P5260.



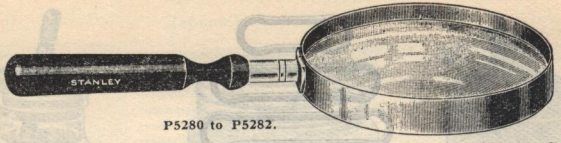
P5261.

		£	s.	d.
P5260	**Excise Ink Pot,** leather covered, with tab		2	6
P5261	**Stanley's Professional Knife,** ivory, 2 pen blades, eraser, pin lifter and file		10	6
P5262	**Pocket Knife,** ivory, with one blade and pin lifter only		5	0
P5263	Ditto, ivory, 2 good blades, 4/- and		5	0

		¾-in.	1¼-in.	2¼-in.	4-in.
P5264	**Double Lever Clips,** British made, per gross	13/6	16/6	34/-	45/-

Erasing Knives, see page 339.

Reading Glasses and Magnifiers.



P5280 to P5282.

		£	s.	d.
P5280	Hand Reading Glasses, in metal frame, with handle, 2½ inches diam.		4	6
P5281	,, ,, ,, ,, ,, ,, 3 ,, ,,		5	6
P5282	,, ,, ,, ,, ,, ,, ,, 3½ ,, ,,		7	6

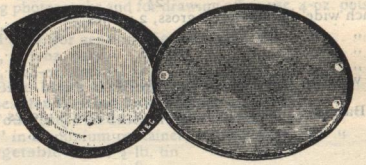
P5290 to P5294.

Section of an Aplanatic Reader.

P5290	Aplanatic Hand Readers, giving a flat field, 2½ inches diameter ..	8	0	
P5291	,, ,, ,, ,, ,, ,, 3 ,, ,, ..	9	6	
P5292	,, ,, ,, ,, ,, ,, 3½ ,, ,, ..	11	6	
P5293	,, ,, ,, ,, ,, ,, 4 ,, ,, ..	13	6	
P5294	,, ,, ,, ,, ,, ,, 4½ ,, ,, ..	16	6	

Made in France.

Magnifiers and Reading Glasses.

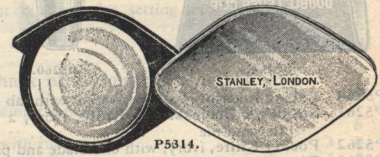


P5300 to P5303.

P5300	Pocket Magnifier, in folding vulcanite sheath, 1 inch diameter ..	1	6	
P5301	,, ,, ,, ,, ,, 1¼ inches ,, ..	2	0	
P5302	,, ,, ,, ,, ,, 1½ ,, ,, ..	3	0	
P5303	,, ,, ,, ,, ,, 2 ,, ,, ..	4	6	
P5304	Double Magnifier, in vulcanite sheath, with 2 lenses	3	0	
P5305	Triple ,, ,, ,, ,, 3 ,, ...	4	0	

Made in France.

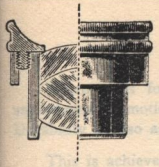
P5310 to P5312.



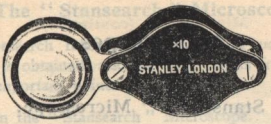
P5314.

P5310	Watchmakers' Eyeglasses, vulcanite, 2 inches focus	1	6	
P5311	,, ,, ,, 2½ ,, ,, ...	1	6	
P5312	,, ,, ,, 3 ,, ,, ...	1	6	
P5314	Pocket Magnifier, in folding horn mount, with nickel sheath, 1¼ inches diameter clear aperture, each	2	6	

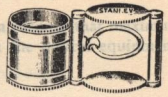
Magnifiers (continued).



P5320.

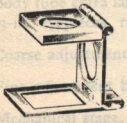


P5321.

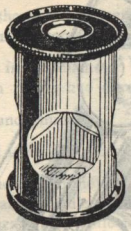


P5322.

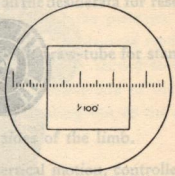
		£	s.	d.
P5320	**Stanley's Improved Aplanatic Magnifier.** This magnifier is of the highest class, specially designed to give a large flat field and excellent definition. It is entirely free from chromatic aberration. 15-mm. diameter. Magnification 10 diameters ..		14	6
P5321	Ditto, in folding mount for the pocket		16	6
P5322	**Improved Coddington Lens**		12	6



P5330 and P5331.



P5328.



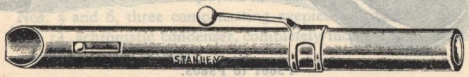
Graticule of P5328.

The STANLEY Measuring Microscope.

		£	s.	d.
P5328	**For Testing Linen or Paper, Measuring Screw Threads, Gauges, Brinell Impressions, etc., etc.** Supplied with two glass graticules to measure 1/100th of an inch or 1/10th of a millimetre, in leather case	1	2	6
P5329	Velvet-lined snap case, extra		2	0
P5330	**Linen Provers,** French manufacture, for counting threads in woven fabrics, ¼ × ¼ in. or ½ × ½ in., nickel plated		3	6
P5331	Ditto, ditto, 1 × 1 in.		7	6
P5332	**Linen Prover,** Universal pattern, British made, with spring back, 1 × ½ × ½ in., nickel plated		10	6
P5333	Ditto, ditto, brass		6	6

P5334.

P5334 **Pocket Pencil Microscope.** German make. Can be adjusted to magnify between 40 and 60 diameters. Invaluable for examining paper, textiles, etc., and for all botanical, geological works, etc. 12 6

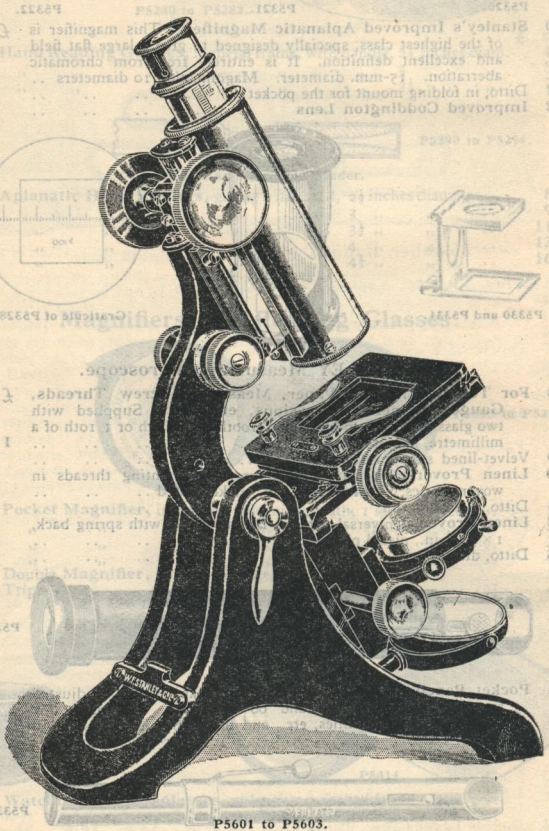


P5336.

P5336 **Pocket Pencil Microscope.** British made. Smaller model, nickel, magnifying 25 diameters 3 6

Microscopes.

"Stansearch" Microscope.



P5601 to P5603.

Microscopes (continued).

The "Stansearch" Microscope.

Microscopes for research must be constructed in such a manner that maximum smoothness of motion is obtained, also the best results from the optical equipment. Durability is also an important point.

This is achieved in the "Stansearch" Microscope.

The dovetailed form of bearing adopted, with its compensating movements, ensures lifelong smoothness and efficiency, a ready responsiveness both of the coarse and fine adjustments, an accuracy of motion in the mechanical stage across the optic axis in both directions, which can only be appreciated to the full by those who require to use high-power objectives.

The following specification shows the manner in which all the desiderata for research and photo-micrography have been incorporated :—

Body tube extra large size, 2 inches diameter, provided with draw-tube for standard 0.9173-in. eyepieces, range from 160 to 250 mm.

Coarse adjustment by rack and pinion.

Fine adjustment by vertical lever controlled on both sides of the limb.

Mechanical stage, 1¾-inch horizontal motion, 1-inch vertical motion, controlled by milled heads mounted on the same spindle. The mechanical stage is of the built-in variety, ensuring accurate alignment in the optic axis.

Substage, compound type with rackwork focussing, centring screws and provision for hinging out of the optic axis.

Plane and concave mirrors, 2-inch diameter, independently adjustable.

Optical bench limb.

Special pattern tripod foot, ensuring rigidity in all positions.

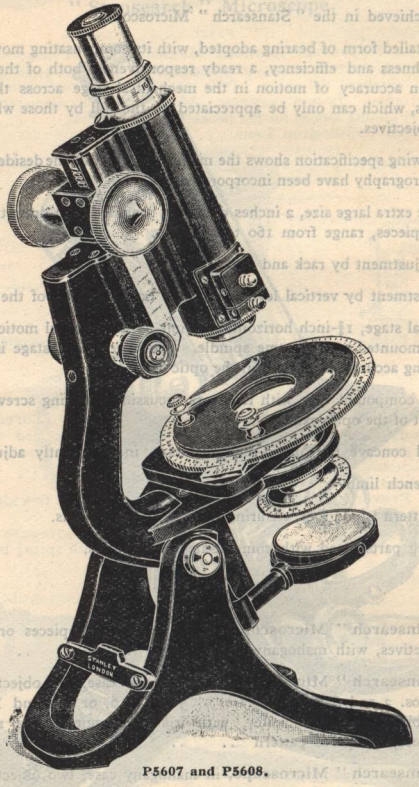
All bearing parts fitted with compensated movements.

PRICES.

		£	s.	d.
P5601	"Stansearch" Microscope, stand only, no eyepieces or objectives, with mahogany case	30	0	0
P5602	"Stansearch" Microscope, in mahogany case, two objectives, Nos. 3 and 6, two eyepieces, ×5 and ×6, or ×8 and ×10, Abbe model illuminator, with iris diaphragm, triple nosepiece, dustproof pattern	39	2	6
P5603	"Stansearch" Microscope, in mahogany case, two objectives, Nos. 3 and 6, three compensating eyepieces, magnifying 7, 10 and 14, achromatic condenser, completely mounted, triple nosepiece, dustproof pattern	45	15	0
	Without case, less	2	10	0

Microscopes (continued).

"Stanpet" Microscope.



P5607 and P5608.

Microscopes (continued).

The "Stanpet" Petrological Microscope.

Designed upon the same generous lines as the "Stanstorn," page 352, this instrument can be purchased in simple form for students, or completely mounted, and suitable for every form of research in which a Microscope of petrological form is necessary.

As in the "Universal Stanstorn," the limb is designed upon the principle of the optical bench. The stage is 4⅜ inches in diameter, and divided to degrees reading by vernier to 5 minutes. Draw-tube provided with R.M.S. Objective thread to receive Bertrand's Lens. Analyser and quartz plate are fitted to the lower end of the body. Large-sized polariser with divided circle, having provision to swing out of the optical axis, and fitted with spring detent to indicate quarter circles.

		£	s.	d.
P5607	**"Stanpet" Petrological Microscope,** as described above, with polished mahogany carrying case. Eyepiece ×6, fitted with cross webs, 1-inch objective	24	15	0
P5608	**"Stanpet" Petrological Microscope,** as specification, with objectives 1 inch and ⅓ inch, eyepieces ×6 cross-webbed and extra ×10. High angle polariser fitted to analyser and removable by unscrewing, spiral focussing underfitting carrying polariser and analyser, with provision for turning out the optical axis, double nose-piece, centering nose-piece, polished mahogany case	32	2	6

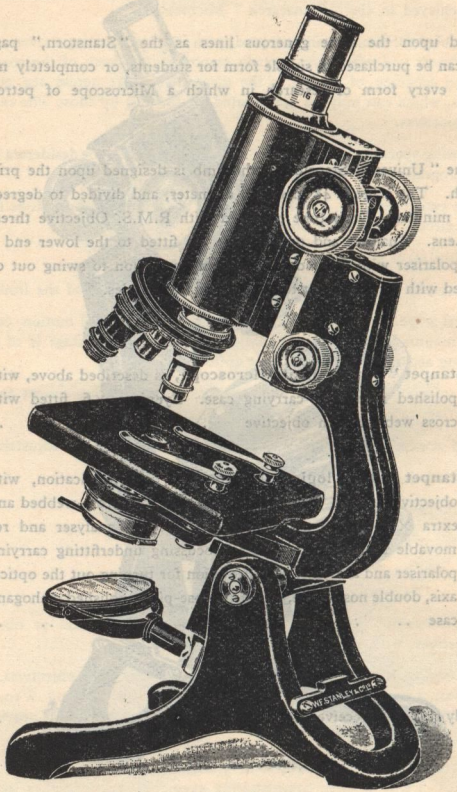
EXTRA.

P5609	Body slotted to receive Bertrand's Lens	4	5	0

For Telegraphic Code see end of catalogue.

Microscopes (continued).

"Universal Stanstorn" Microscope.



P5611 and P5612.

Microscopes (continued).

The "Universal Stanstorn" Microscope.

This Microscope is of the design which has found the greatest favour amongst modern workers, and is somewhat larger than the usual Students' Microscope.

The intention in its construction is to provide an instrument that may be used by the student, and eventually have added to it the additional fittings that form a complete research instrument. In other words, to provide a microscope that will last a lifetime.

The whole of the design and workmanship have this end in view. The accuracy of the movements, and the absolute rigidity of all parts, render this microscope suitable for the most precise work with the highest powers, and for photo-micrography.

An important feature in the build of the instrument is that the condenser carrier beneath the stage is mounted on a portion of the limb, which is continued in a solid casting below the stage. This will be found of special value with modern dark-ground illumination.

The working fittings throughout the instrument are fitted with controlling screws of a patented form, which enable wear and tear to be compensated for, should it be necessary at any time. The coarse adjustment is by diagonal rack and pinion, and the fine adjustment by a vertical lever controlled by a micrometer screw, the whole having very precise action. The stage, which is 4½ inches square, is completely covered with optically worked vulcanised rubber.

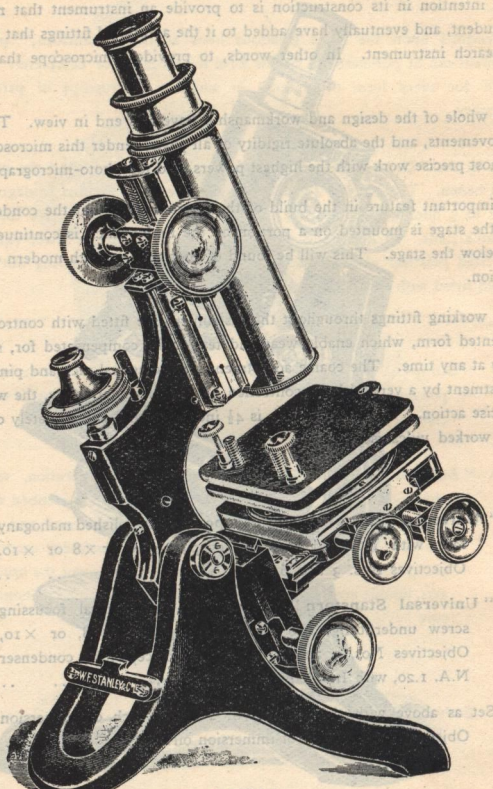
		£	s.	d.
P5611	"Universal Stanstorn" Microscope stand, in polished mahogany case, with lock and key, one eyepiece ×6 or ×8 or ×10. Objectives Nos. 3 and 6	15	10	0
P5612	"Universal Stanstorn" Microscope, with spiral focussing screw underfitting, two eyepieces, ×5, ×6, ×8, or ×10, Objectives Nos. 3 and 6, triple nose-piece, Abbe condenser N.A. 1.20, with Iris diaphragm	20	0	0
P5613	Set as above with the addition of a 1/12th-inch oil-immersion Objective, with supply of immersion oil..	27	10	0

EXTRA.

P5614	Compound substage with rackwork to focus and screws to centre instead of spiral focussing screw underfitting	2	5	0

Microscopes (continued).

STANLEY'S "Stanmetal" Microscope.



P5617. Stanley's "Stanmetal" Microscope, with Levelling Superstage P5621.

Microscopes (continued).

The "Stanmetal" Microscope, for Metallurgy.

For metallurgy, arrangements have to be made for the illumination of objects from above.

It is usual, therefore, for these microscopes to be made with a solid stage, having no central aperture. Illumination of the surface of the metals during examination is by means of a vertical illuminator, which is placed immediately above the objective.

The "Stanmetal" Microscope is a medium-sized instrument that has been found most suitable for the general purposes of a works laboratory. It combines all the refinements that are essential for accurate working, and enables photo-micrography to be done with the highest powers.

The coarse adjustment is rack and pinion, fine adjustment by lever. The stage has mechanical screws, and is mounted in a dovetailed fitting, so that the whole of the stage and the object on it may be raised and lowered as required.

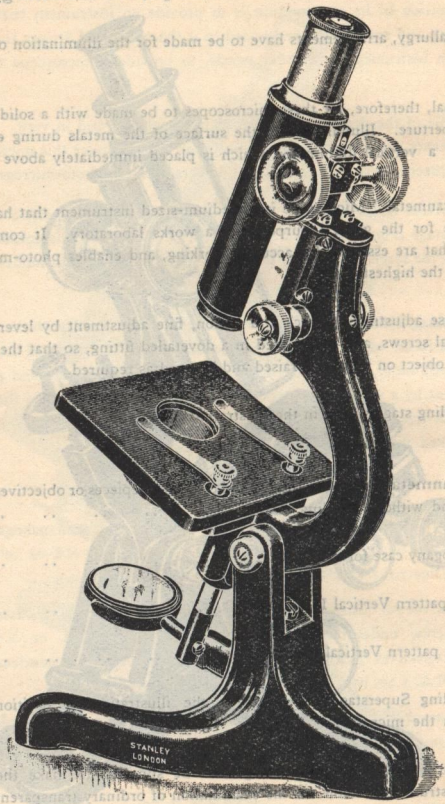
The levelling stage shown in the illustration is an extra.

		£	s.	d.
P5617	"Stanmetal" Microscope, Stand only, no eyepieces or objectives, and without levelling stage	29	10	0
P5618	Mahogany case for same	2	10	0
P5619	Disc pattern Vertical Illuminator	1	5	0
P5620	Prism pattern Vertical Illuminator	1	14	6
P5621	Levelling Superstage, as shown in the illustration in position on the microscope	3	0	0
P5622	Mirror and Compound Substage can be supplied to make the instrument suitable for the examination of ordinary transparent objects, if desired, extra	6	0	0

For Objectives, see page 361.

Microscopes (continued).

STANLEY'S "Stanstile" Microscope.



P5625.

Microscopes (continued).

The "Stanstile" Microscope.

This is a Student's Microscope, of thoroughly sound design, and of excellent proportions.

It is absolutely rigid, and the working parts are in every detail of best quality, so that the microscope may be used for all classes of laboratory and general work with high and low powers.

Coarse adjustment by rack and pinion. Fine adjustment by horizontal lever. Stage of metal, covered throughout with vulcanite. Fine adjustment has compensated bearings. All parts are the Royal Microscopical Society's standard sizes, so that additional fittings may be added as desired.

		£	s.	d.
P5625	**"Stanstile" Microscope,** in polished oak carrying case, with lock and key, one eyepiece, ×6, or ×8, or ×10, objectives 3 and 6, Educational series	8	10	0
P5626	**"Stanstile" Microscope,** in polished oak carrying case, with lock and key, two eyepieces, ×5 and ×6, or ×8 and ×10, triple nose-piece, spiral focussing screw underfitting, Abbe condenser N.A. 1.20, with Iris diaphragm, objectives 3 and 6, Educational series	13	12	6

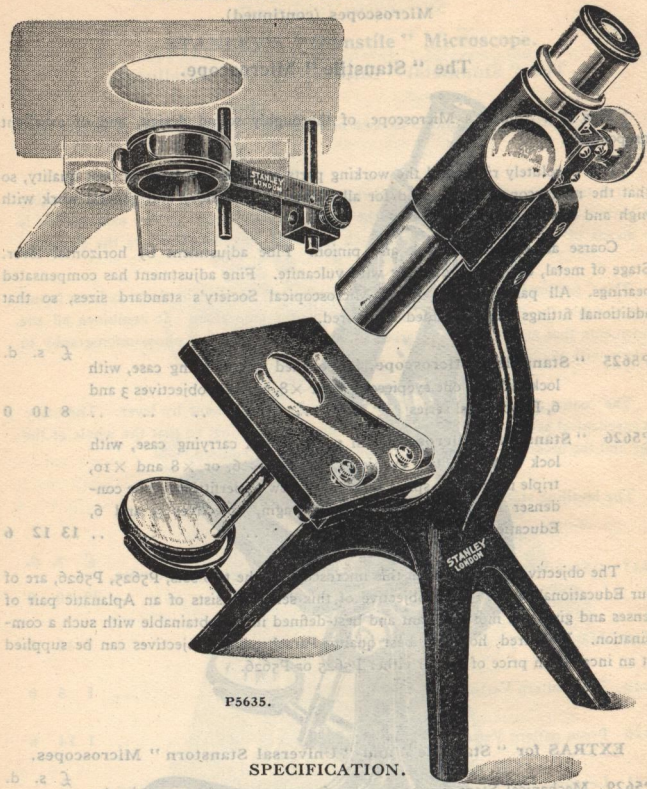
The objectives supplied with this microscope in the two sets, P5625, P5626, are of our Educational series. Each objective of this series consists of an Aplanatic pair of lenses and gives the most brilliant and best-defined image obtainable with such a combination. If desired, however, best quality Parachromatic objectives can be supplied at an increase in price of £2 for either P5625 or P5626.

EXTRAS for "Stanstile" and "Universal Stanstorn" Microscopes.

		£	s.	d.
P5629	Mechanical Stage, giving a range of movements of 55 mm. in the horizontal direction, and 25 mm. in the vertical direction. Divisions to movements reading by vernier	7	0	0
P5630	Spiral Focussing Screw for adjusting condenser		17	6
P5631	Double Nose-piece	1	5	0
P5632	Triple Nose-piece	1	10	0
P5633	1/12th-inch Oil-immersion Objective, 1.30 N.A.	7	10	0

Microscopes (continued).

The STANLEY "Amateur" Microscope.



P5635.

SPECIFICATION.

DIMENSIONS.				MAGNIFICATIONS.				WEIGHTS.	
Height to Eyepiece as shown.	Height to centre of Stage.	Spread of Foot.	Size of Stage.	Diam. of Mirror.	Objective.	Eyepiece No. 2.	Eyepiece No. 4.	Nett Weight.	Case and Accessories.
10 ins.	4 ins.	$5\frac{3}{4} \times 4\frac{3}{4}$ ins.	$3\frac{1}{2} \times 3\frac{1}{4}$ ins.	$1\frac{1}{2}$ in.	1 in. = 38 mm. $\frac{3}{4}$ in. = 16 mm. $\frac{1}{6}$ in. = 4 mm.	32 Dms. 90 ,, 390 ,,	54 Dms. 150 ,, 650 ,,	3 lbs.	2 lbs.

Microscopes (continued).

The STANLEY "Amateur" Microscope.

A low-priced instrument for the Home, School, Laboratory, and the Traveller.

Certain departures from orthodox practice have been made in the design of this instrument, to enable it to be produced at a price which is within reach of the most modest purse. The body, foot and tailpiece for the mirror and limb are all cast in one piece. The usual rack and pinion for focussing is replaced by a friction device. The instrument is a thoroughly sound job and gives excellent results up to powers of 1/6th in. Powers beyond this can be used, but work calling for such powers should be done on a standard instrument.

The "Amateur" Microscope in Complete Sets.

		£	s.	d.
P5635	"Amateur" Microscope Stand, with eyepiece No. 2, 2/3 in. objective, in fibre case, as described	3	17	0
P5636	"Amateur" Microscope, as per set above, with the addition of 1½-in. objective	4	19	6

EXTRAS AND ALTERNATIVES.

P5637	Simple Bi-convex Substage Condenser, as illustrated		10	6
P5638	Stop for dark-ground illumination with 2/3rd in. O.G.		2	0
P5639	Eyepieces ×6 or ×10, each		7	6
P5640	Double Nose-piece		10	0

OBJECTIVES.

P5641	1½ in. N.A. .13	1	2	6
P5642	2/3 in. N.A. .18		18	6
P5643	1/6 in. N.A. .65	2	10	0

"Amateur" Polariser.

Polariscope.

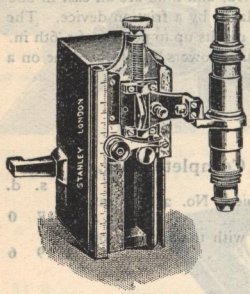
The Polariser is mounted in a similar manner to the condenser and is rotated in the fitting which receives it, beneath the stage of the microscope.

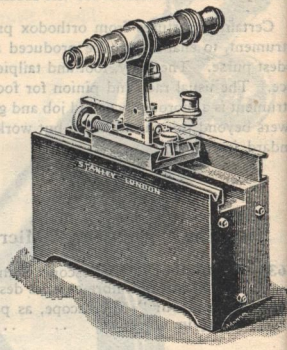
The Analyser is fitted between the objective and the nose-piece of the microscope.

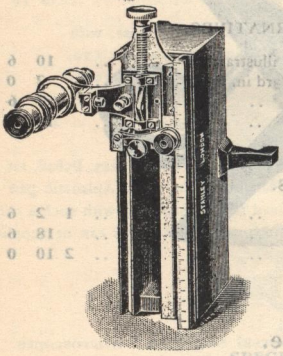
		£	s.	d.
P5644	Price of Polariser and Analyser, with slide of selenite to place on the stage under the object	1	2	6
	It is necessary to purchase the Understage Condenser Carrier, if not already supplied, in order to use the Polariscope. Price ..		6	0

Microscopes (continued).

STANLEY'S Vernier Reading Physical and Industrial Microscope







This is a handy laboratory instrumer for taking very fine measurements in th horizontal or vertical plane with extren accuracy. It consists of a heavy cast-iro base with an accurately machined bed, upo which moves a slide and pillar supporting th body of the microscope. Coarse and fir adjustments are provided, and readings ca be taken by means of the vernier to 0.02 mr throughout an available length of 16 cr The base of the instrument can be made t assume two positions, and the telescope ca be parallel with, or vertical to, the bed, illustrated.

PRICES.

		£	s.
P5645	The instrument as above, with one objective, 1 in., 2 in. or 3 in. ..	12	16
P5646	Additional Microscope Objectives of the powers stated, each ..	1	18
P5647	Telescope Object Glass, interchangeable with above, extra	1	12
P5648	Case, extra		19
P5649	Dividing on silver, extra	1	6

Microscope Accessories.

Objectives.

These may be corrected for any desired tube length, but are ordinarily supplied for a tube length of 170 mm.

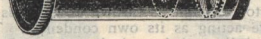
Achromatic.

	Approximate focal length. Ins.	Mm.	Initial power calculated for an image distance of 10 ins. (250 mm.).	N.A.	£	s.	d
5651	4	100	3	0.08	2	0	0
5652	3	75	4	0.09	2	0	0
5653	2	50	6	0.15	2	0	0
5654	1½	38	8	0.17	2	0	0
5655	1	25	12	0.21	1	12	6
5656	2/3 (3)	16	15	0.28	1	12	6
5657	1/2	12	20	0.34	2	0	0
5658	1/4	6	42	0.68	3	5	0
5659	1/6 (6)	4	65	0.70	3	5	0
5660	1/8	3	83	0.88	3	15	0
5661	1/12	1.8	125	1.30 oil immersion ..	7	10	0

Apochromatic.

	Equivalent focal length. Ins.	Mm.	Initial power image distance 10 ins.	N.A.	£	s.	d
5662	2/3	16	15	0.30	5	0	0
5663	1/3	8	30	0.65	7	0	0
5664	1/6	4	60	0.85	9	0	0
5665	1/12	2	120	1.37	17	10	0

Eyepieces, Huyghenian Type.



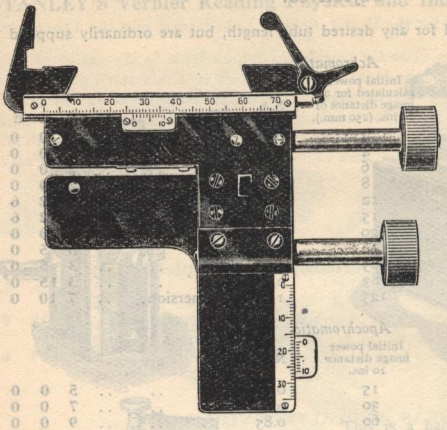
			£	s.	d
5668	No. 1 formerly A	Capped Magnifying power 5	1	5	0
5669	Ditto	Students'		10	0
5670	No. 2 formerly B	Capped ,, ,, 6	1	5	0
5671	Ditto	Students'		10	0
5673	No. 3 formerly C	Capped ,, ,, 8	1	5	0
5674	Ditto	Students'		10	0
5675	No. 4 formerly D	Capped ,, ,, 10	1	15	0
5676	Ditto	Students'		10	0
5677	No. 5 formerly E	Capped ,, ,, 12	1	15	0
5678	Ditto	Students'		15	6
5679	No. 6 formerly F	Capped ,, ,, 15	1	10	0
5680	Ditto	Students'		15	6
5681	Pointer to Eyepiece	.. ..		5	0

Compensating Eyepieces.

5684	Students' size, ×7, 10, 14, and 20 diameters .. .. .. Each	1	7	6
5685	Best Capped Pattern, ×7, 10, 14, and 20 diameters .. .. .. ,,	2	7	6

Microscope Accessories (continued).

Attachable Mechanical Stage.



P5691. Attachable Mechanical Stage. This is designed to fit almost any microscope having a plain stage.

The method of fixing is a simple one, and consists of passing two steel rods with screwed ends through the Attachable Stage and the holes in the stage of the microscope in which the ordinary object springs are fitted. A clamping nut is attached to the steel rods from beneath, to clamp the stage in position.

The movements are of the most accurate description. The travel in the horizontal direction is 55 mm., and in the vertical 25 mm.

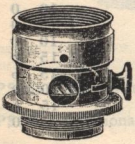
	£	s.	d.
The movements are divided to read by verniers to 1/10 mm.	7	0	0

Vertical Illuminator.

Reference is made in the description of the "Stanmetal" Microscope to the necessity of illuminating opaque objects, such as metals, from above. For this purpose a vertical illuminator is used. These are made on two different principles, one having a prism, the other a disc of cover glass for reflecting light.

By means of the reflector the light is thrown downwards through the objective to the specimen, the objective acting as its own condenser. The light is set at right angles to the microscope, and directed through the aperture in the vertical illuminator.

A stand condenser is interposed between the light and the vertical illuminator.



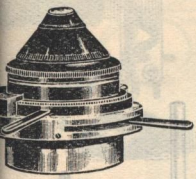
P5693.

P5694.

	£	s.	d
P5693 Vertical Illuminator, with cover-glass reflector, as figured	1	5	0
P5694 Ditto, ditto. Prism reflector, as figured	1	14	6
P5695 Extra for Iris Diaphragm for either of the above		10	0
P5696 Combined Vertical Illuminator, carrying both disc reflector and prism reflector for independent use. The carrier has mounted on its side an Iris diaphragm and a small condenser lens ..	3	10	0

Microscope Accessories (continued).

Condensers, Substage.



P5699.

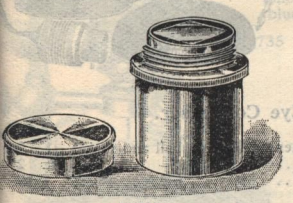
Condensers for microscope illumination are an absolute essential, especially when medium- or high-power objectives are in use.

The Abbe Illuminator is the pattern that is most commonly employed, and for the general purposes of the biologist it is very suitable.

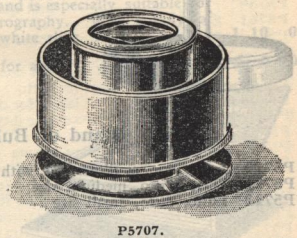
There is no doubt that a well-corrected condenser that is achromatic and aplanatic enables finer detail to be seen, and we accordingly list below an assortment of condensers suitable for all classes of work with every description of objective.

		£	s.	d.
5698	Abbe Illuminator, completely mounted for substage, with Iris diaphragm, and carrier for stops, N.A. 1.20	3	0	0
5699	Ditto, ditto, ditto, for understage	2	5	0
5701	Universal Condenser, full aperture 1.0, aplanatic aperture .95, with large back lens, the best achromatic condenser for general use, mounted with Iris diaphragm for substage	7	0	0
5702	Ditto, ditto, ditto, for understage	6	10	0
5703	Oil-immersion Condenser 1.35 aplanatic aperture, 1.35 numerical aperture—the finest high-power condenser that is made, completely mounted with Iris diaphragm for substage or understage	9	10	0
5704	Discs of coloured glass to use with the above condensers		1	6

Polarising Apparatus.



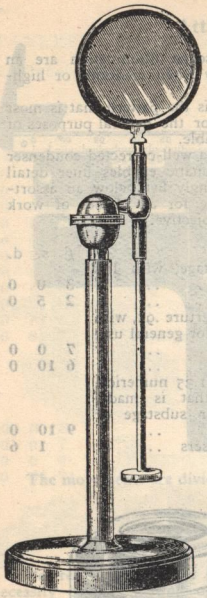
P5705.



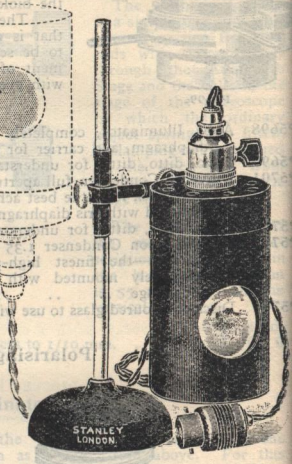
P5707.

Polarising apparatus is used in petrological work, for the examination of crystals nerally, and for many subjects of interest, the colour effects produced giving an added arm to much of the microscopical work of the amateur. It consists of two parts, lariser and analyser, and a removable selenite, complete, is attached to the former.

		£	s.	d.
5705	As illustrated, polariser and analyser, with selenite, small size ..	1	10	0
5706	Ditto, ditto, medium size	2	5	0
5707	Ditto, ditto, large size	3	2	6
5709	Special polariser for petrological work, with extra large-sized prism having rotating flange divided, and fitted with spring indicator, without selenite	3	10	0
5710	Analyser to rotate over eyepiece, with divided circle, complete with student's eyepiece, fitted with cross webs	4	15	0
5711	Mica Selenite Stage for producing colour effects. The results obtained are exceptionally brilliant and beautiful	2	12	6



P5720.



P5726.

Stand or Bull's-Eye Condenser.

		£	s.	d
P5720	Large size, as illustrated, with lengthening bar and ball and socket	1	7	6
P5721	Ditto, ditto, medium size	1	2	6
P5722	Ditto, ditto, small size		17	6

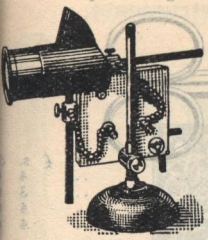
Mr. E. M. Nelson's Aplanatic Bull's-Eye.

This consists of two lenses and is designed specially for Photo-micrographic work

		£	s.	d
P5723	Mounted as P5720, with ball and socket, complete	2	0	0
P5724	Ditto, ditto, with centering screws to the lenses	4	0	0
P5725	Iris diaphragm to either of the above, extra	1	5	0

P5726 **The "Laboratory" Electric Lamp Stand,** specially designed for microscopic work, with heavy metal base and gas-filled opal or interior-etched bulb. Ample adjustment is allowed for height and inclination. When interior-etched bulbs are employed, a light-filter is necessary on account of the intense light. Price, complete with 60-watt lamp and one yard of flex, any voltage 3 0 0

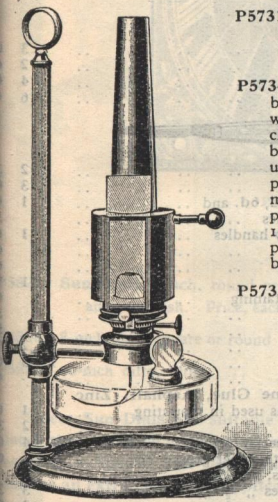
Microscope Accessories (continued).



P5727.

Hand-Feed Arc Lamp.

		£	s.	d.
P5727	Specially designed for micro work. Arranged on the right-angle principle, maximum light is obtained from the carbons. It is compact and small, consumes only about 4 amperes of current, so can be connected to ordinary domestic supply. With hood and condensing lens on stand	4	10	0
P5728	Extra for clockwork regulator to carbons	4	0	0
P5729	A resistance is required for the above—for 100 volts	1	1	0
P5730	Ditto for 200 volts	1	0	0
P5731	25 pairs carbons, for 200 volts ..		10	0

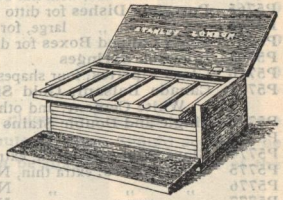


P5734

"Standard" Lamp.

P5734 The type most frequently used by workers. It has a flat glass reservoir, which allows of the light being brought close to the table. The lamp itself may be securely fixed at any height on the upright bar, which latter, being square, prevents it from swinging round. A metal chimney, taking 3 × 1 slips, is provided. This lamp will burn for 10 hours, and is especially suitable for photo-micrography. With supply of blue and white slips 1 10 0

P5735 Case for above 1 0 0



P5737.

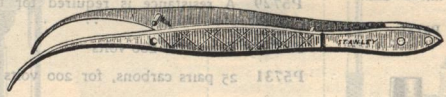
		£	s.	d.
P5737	**Machine-made Object Boxes**, polished pine bodies, card-lined trays, with wood partition, to hold 144 objects; recommended		13	0
P5739	**Object Boxes**, millboard bodies covered with imitation cloth, to hold 144 objects		6	6

In all above varieties objects lie flat in the trays

P5740	**Collecting Sticks**, for pond life, complete with fittings	1	10	0
P5741	**Glass Troughs**, for pond life, small, 3 × 1 inch		1	6
P5742	" " " larger, 3 × 1½ inch		2	0
P5743	" " " large (zoophyte)		2	6

Apparatus for Mounting Microscopic Objects.

		£	s.
P5745	**Scissors**, large, 5-inch		4
P5746	,, small, botanical		3
P5747	,, best quality		4
P5748	,, curved either way, small		4



P5750	**Forceps**, large		3
P5751	,, small		2
P5752	,, best, with guide pin		4
P5753	,, small, fine points, curved		6

P5755	**Scalpels**, large or small, wood handles		2
P5756	,, metal		3
P5757	**Section Lifters**, single or double ended, 6d. and		1
P5758	**Dissecting Needles**, hard-wood handles		
P5759	,, ,, best quality ivory handles		1
P5761	**Seekers**		
P5762	**Glass Canula**, with rubber teat		
P5763	**Blow Pipes**		1
P5764	**Watch Glasses**, with flat bottom for staining		
P5765	**Porcelain Dishes** for ditto		
P5766	,, ,, large, for ditto		
P5767	**Glass Capped Boxes** for ditto		2
P5768	**Injection Syringes**	1	5
P5770	**Glass Pipettes**, four shapes		
P5771	**Canada Balsam, Gold Size, Marine Glue, Asphalt, Zinc White Cement**, and other mediums used in mounting		1
P5772	**Single and Double Stains** for ditto		2
P5773	,, ,, ,, ,, made to special formulæ		4
P5774	**Glass Slips**, 3 × 1 inch, extra fine and thin, per gross		5
P5775	**Glass Covers**, extra thin, No. 1, circles, per ½ oz.		2
P5776	,, ,, ,, No. 1, squares ,, ½ ,,		3
P5777	,, ,, ,, No. 2, circles ,, ½ ,,		2
P5778	,, ,, ,, No. 2, squares ,, ½ ,,		2
P5779	**Labels, for naming objects**		
P5780	**Razors**, for section cutting		2
P5781	,, best hollow ground (recommended)		4
P5782	**Brass Mounting Clips**, for holding glass on		
P5783	**Shadbolt's Turntable**, for ringing objects	1	2
P5784	**Rings**, for making cells, glass, per dozen		1
P5785	,, ,, ,, ,, vulcanite, per dozen		1
P5789	**Mounting Cabinets**, for practical biology and physiology (no reagents included) as supplied to Bartholomew's, Guy's, and other Hospitals, polished mahogany cases	2	7

Sun-Dials.

Pedestal Pattern.

P5824 to P5826.

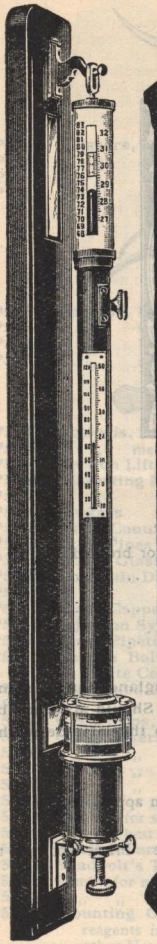
		£	s.	d.
P5824	**Sun-Dial**, 5-inch, round or square, brass lacquered or bronzed antique finish. Price, each		12	9
P5825	8-inch ditto, square or round	1	4	0
P5826	10-inch ditto, ditto	1	10	0

These Sun-Dials are suitable for most places in England, but in some places there may be a slight error of a minute or two. Should accuracy be required, a Special Sun-Dial would have to be made to the latitude of the place at an extra charge on application.

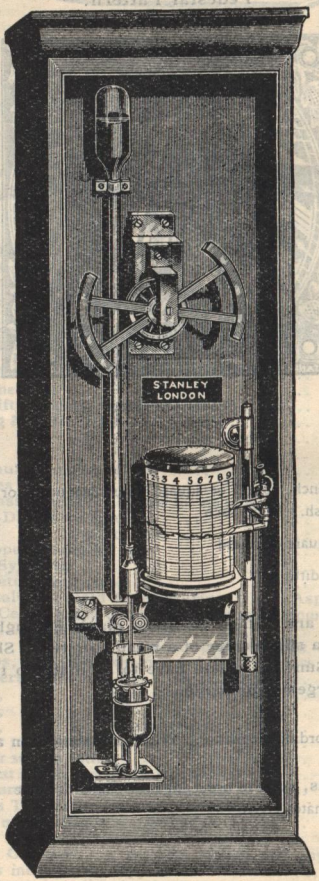
Mottoes extra according to matter. Prices of Pedestals on application.

Vertical Sun-Dials, made to order, in brass, slate or stone Prices according to material and size; estimates given.

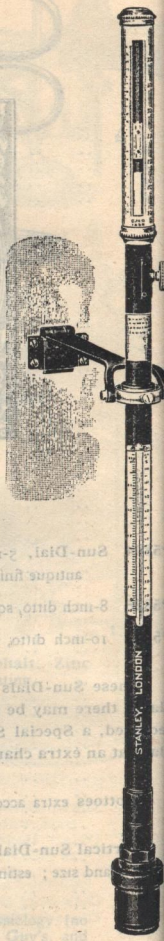
Standard Meteorological Instruments.



P5851.



P5861.



P5859.

STANLEY'S Standard Meteorological Instruments.

Standard Mercurial Barometers.

		£	s.	d.
P5851	**Standard Fortin Barometer,** with ½-inch mercurial column, vernier reading to 1/500th inch and 1/10th millimetre, with standard thermometer reading Fahrenheit and Centigrade. This instrument is of the highest quality, and is mounted on a mahogany board with adjusting screws at base, and has reflectors to the cistern and the vernier	15	0	0
	Kew Certificate for the above, extra, at cost			
P5852	Ditto, of the same construction, but reading 1/500th inch with thermometer divided Fahrenheit	14	15	0
P5853	Ditto, reading 1/10th millimetre, and divided Centigrade	14	15	0
	Kew Certificate for same, extra, at cost.			
P5854	**Cases** for either of the above, bright ebonised, with glass panelled sides and door, with lock	5	5	0
P5856	**Standard Fortin Barometer,** as P5851, but larger size, .6-inch mercury column	25	4	0
	Standard Fortin Barometers with larger bores of ¾ or 1 inch made to order in a few days			
P5857	**Students' Standard Barometer,** Fortin principle, with bore of tube ¼ inch, reading by vernier to 1/100th inch and 1/10th millimetre, mounted on solid mahogany base-board, with suspension bracket, opal reflectors, vertical adjusting screws a thoroughly reliable instrument	10	10	0
P5858	Ditto, ditto, cheaper quality	8	8	0
P5859	**Meteorological Office Pattern Station Barometer,** with scale specially divided so as to compensate for the rise or fall of the mercury in the cistern, thus rendering unnecessary the zero adjustment required with the Fortin type; reading to 1/500th inch, with Fahrenheit thermometer	14	0	0
P5860	Ditto, ditto, cheaper quality	8	8	0

Kew Certificate for same, at cost.

Standard Barometers of every description made to order

Any standard barometer can be supplied with millibar scale, and the attached thermometer with absolute scale, if desired.

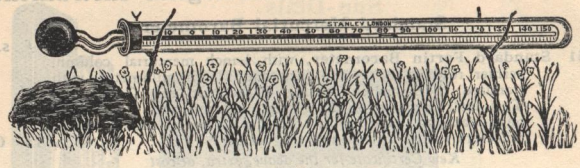
The Meteorological Society recognise only readings taken by such barometers as have Kew Certificates.

P5861 **Dine's Patent Self-recording Mercurial Barometer,** accurately registering upon a chart the actual variations of atmospheric pressure. The pen is actuated by a float in the lower cistern, the motion being multiplied by a lever so that a length of 1½ inches on the paper may correspond to a change of 1 inch in the height of the barometer. The float is in the form of a hollow cylinder sealed at the top and floating mouth downwards in the mercury. A rise of temperature lowers the level of the mercury in the lower cistern, but at the same time it expands the air in the float, and makes it swim higher in the mercury. The volume of air is so adjusted that there may be a complete compensation. There is an additional pen fixed to the frame, which draws a line of reference on each sheet, and for accurate measurement this line is taken as the zero line, to avoid any error that might be caused by placing the chart unequally on the drum

Prices on application

Although every possible care is taken in packing these instruments for transit, we can under no circumstances take responsibility for their safe delivery, as it is quite impossible to protect them from damage if roughly handled

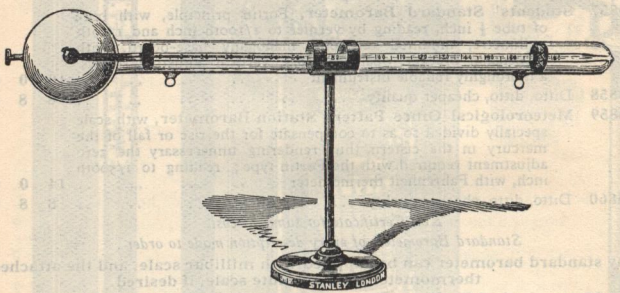
Standard Thermometers.



P5869

		£	s.	d.
P5869	**Standard Terrestrial Radiation Thermometer,** for registering the minimum temperature on grass		16	0
P5870	Brass Stand for the above		7	6

Kew Certificate for above, at cost

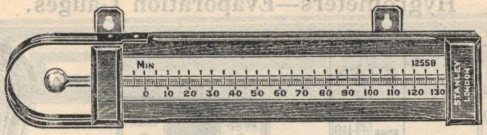


P5874. With Stand P5875.

		£	s.	d.
P5872	**Standard Solar Radiation Thermometer,** with black bulb for showing maximum temperature of solar rays in the open air ..		1	2
P5873	**Standard Solar Radiation Thermometer,** self-registering, with black bulb in vacuum chamber, to prevent its being affected by wind or draught, for indicating the true temperature of solar rays		1	17
P5874	Ditto, with platinum terminals, for determining the vacuum by means of a Ruhmkorff coil		2	10
P5875	**Brass Stand** for P5872, P5873 and P5874		12	0

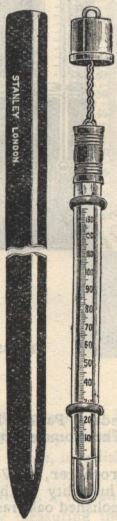
Kew Certificate for above, at cost.

Standard Thermometers (continued).



P5878 and P5879

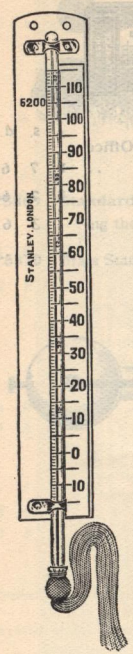
		£	s.	d.
P5878	**Standard Maximum Thermometer, Meteorological Office pattern,** stem divided and opal scale	1	7	6
P5879	Ditto, **Minimum**	1	7	6
	Kew Certificate for either of the above		3	6



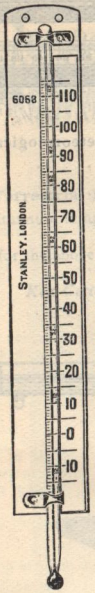
P5881 to P5883.

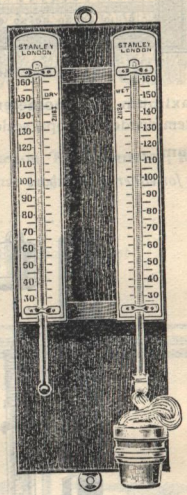
P5881	**Thermometer for Subsoil temperature, Meteorological Office pattern,** divided on stem and hermetically sealed in stout outer glass cylinder, mounted in boxwood frame with copper cap and chain, and including pointed iron tube for taking temperatures at 1 foot	2	18	6
P5882	Ditto, ditto, for taking temperatures at 4 feet	3	3	0
P5883	Ditto, ditto, for taking temperatures at 6 feet	3	7	6

Hygrometers—Evaporation Gauges.

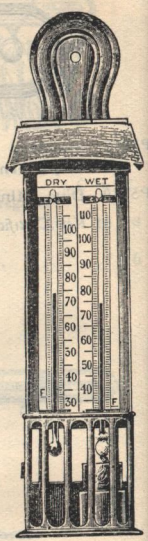


P5884.





P5885.

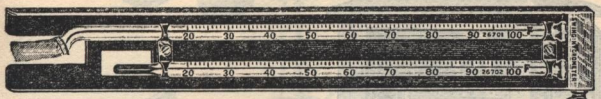


P5888.

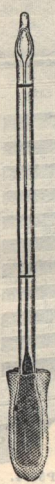
		£	s.	d.
P5884	Meteorological Office Standard Pattern Hygrometers, consisting of Wet and Dry Bulb Thermometers on porcelain scales .. *N.P.L. Certificate, for pair*		15 6	
P5885	**Mason's Standard Hygrometer,** or Wet and Dry Bulb Thermometer, for showing humidity of the air, with opal scales, stem divided tubes, on polished oak frame	2	5	
P5886	Ditto, with N.P.L. Certificate	2	11	
P5887	Ditto, Admiralty regulation pattern, in strong zinc case, with guard to bulbs and opal scale		18	
P5888	Ditto, Cotton Factory pattern, approved by Board of Trade, copper case and porcelain scale		18	
P5889	Ditto, ditto, cheaper form, with boxwood scale		15	
P5890	**Hygrometrical Tables,** adapted to the use of the above, by J. Glaisher, F.R.S.		3	

All other forms of Hygrometers in stock or to order.

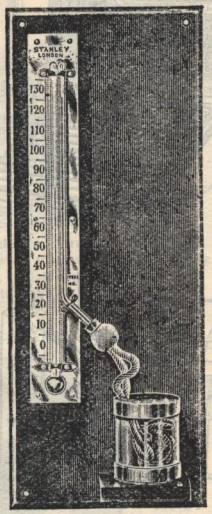
STANLEY'S Hygrometers for Special Purposes.



P5895.



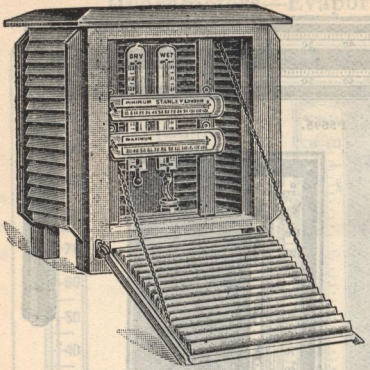
P5898.



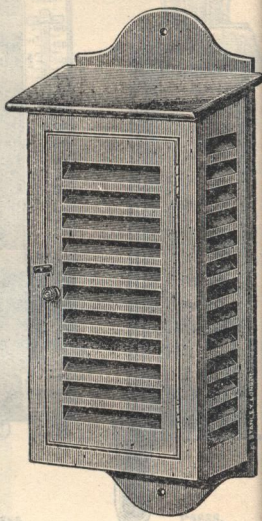
P5900.

		£	s.	d.
P5895	**Whirling or Swing Hygrometer,** Brass bent-up side-frame with wood handle, Mercury Tubes, with spare muslins for Wet Tube and Water Bottle, in polished case	1	12	6
P5898	**The Kata Thermometer** is a wet and dry bulb comfort meter and evaporimeter for measuring the efficiency of ventilation, and cooling and drying processes. Invented by Professor Leonard Hill, F.R.S.		18	6
P5900	**Cunyngham's Frost Predictor** foretells frost at a glance without the aid of tables. The coming frost is indicated when the wet bulb column falls below the dry at sundown. Mercury tubes on metal scale, and mounted on an oak back	1	10	0

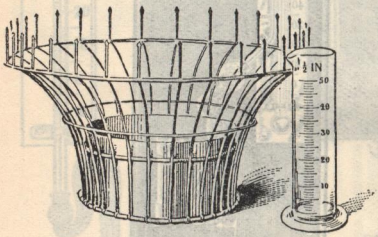
Hygrometer Screens and Evaporation Gauges.



P5901.

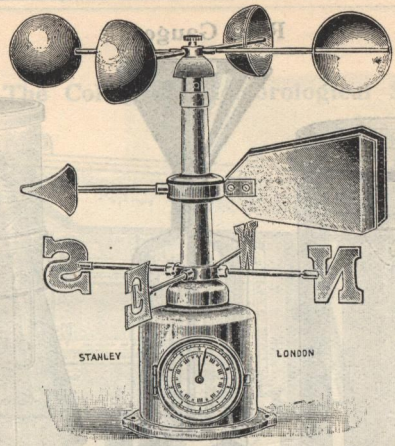


P5904.



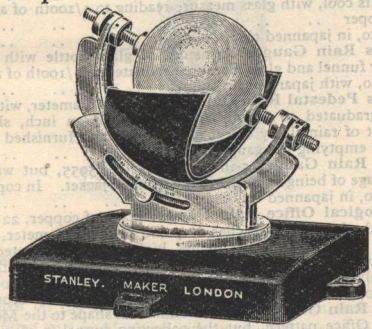
P5906.

		£	s.	d
P5901	**Stevenson's Screen**, to hold Standard Thermometers and Hygrometers, made of well seasoned wood in our own Works, double louvered, painted white and waterproof varnished	5	5	0
P5902	Ditto, ditto, Meteorological Office pattern	10	17	6
P5903	**Stand**, for either of above, with long legs to let into the ground and support the screen at the regulation height of 4 feet from the ground	2	5	0
P5904	**Shipboard Hygrometer Screen**, B.O.T. model, as illustrated. Enamelled white, with door	1	15	0
P5905	**Mason's Hygrometer** or Wet and Dry Bulb Thermometer, broad pattern, japanned case, with gate, 7×5 inch hand-painted Opal Scale and Mercury Tubes, range 40° to 110° Fahr. (or to order) with water bottle, complete to suit above Screen ..	1	1	6
P5906	**Evaporation Gauge**, for determining the amount of terrestrial evaporation, consisting of copper dish with solid brass rim, galvanised iron cage to prevent animals or birds from drinking the water, complete with glass measure	2	5	0



		£	s.	d.
P5931	**Beckley Anemometer, Stanley's Improved Form,** with 3-inch cups, cast-iron frame, wind vane working on ball bearings and four fixed cardinal points, registering up to 500 miles	14	5	0
P5932	Ditto, without fixed points or wind vane	6	15	0
P5933	Case for P5932		18	6

Improved Sunshine Recorder.

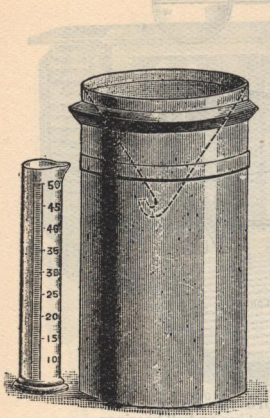


P5934.

Improved Model Campbell-Stoke's Sunshine Recorder, with divided arc for accurately setting the polar axis, and also with adjustment for readily centering the lens in the bowl. With grooves for receiving the recording charts, complete on heavy base. With complete set of charts for summer, winter, and equinoctial records.

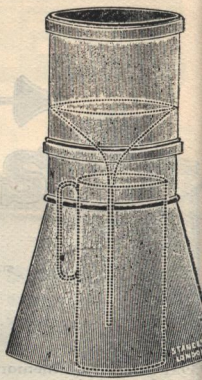
		£	s.	d.
P5934	**Sunshine Recorder,** complete	21	0	0
P5935	One year's service of Charts	2	2	0
P5936	Extra for adjustable base, if required	2	5	0

Rain Gauges.



P5950.

P5955.

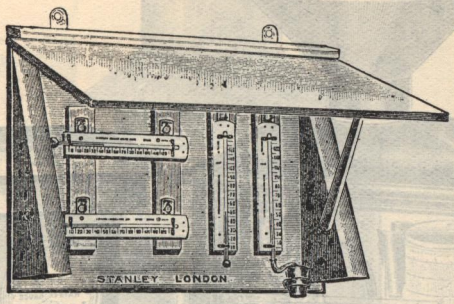


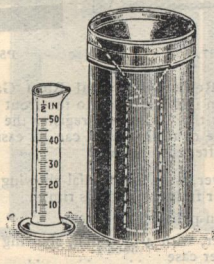
P5965.

		£	s.	d.
P5950	**Glaisher's Rain Gauge,** 8 inches diameter. The funnel has a curved tube at its lower end to preserve the last few drops of rain. The receiving vessel is partly sunk in the ground to keep contents cool, with glass measure reading to 1/100th of an inch. In copper	1	13	
P5951	Ditto, ditto, in japanned tin		18	
P5955	**Howard's Rain Gauge,** consisting of glass bottle with 5-inch copper funnel and glass measure graduated to 1/100th of an inch		13	
P5956	Ditto, ditto, with japanned tin funnel		12	
P5958	**Howard's Pedestal Rain Gauge,** 12 inches diameter, with glass tube graduated to 1/10th and 1/100th of an inch, showing amount of rainfall by direct observation, and furnished with a tap for emptying the gauge. In copper	4	0	
P5963	**Symons' Rain Gauge,** 5-inch, similar to P5955, but with the advantage of being enclosed in outer metal jacket. In copper ..	1	1	
P5964	Ditto, ditto, in japanned tin		14	
P5965	**Meteorological Office Rain Gauge,** made of copper, 22 inches high; the funnel is 10 inches deep and 8 inches diameter. With copper receiving pot, 12 inches high, and a graduated glass measure. These gauges have a splayed base to enable them to be firmly fixed in the ground	3	18	
P5966	Ditto, ditto, 5 inches diameter, other measurements in proportion..	2	0	
P5967	**Snowdon Rain Gauge.** This is similar in shape to the Meteorological Office pattern, but the collecting funnel is of 5 inches diameter, and it has a straight base. The gauge is intended to be placed almost entirely below the earth's surface. In copper	1	7	
P5968	Ditto, ditto, in japanned tin		17	
P5970	**Glass Measures for Rain Gauges,** divided and etched to Meteorological Office standards, 5-inch			4
P5971	Ditto, 8-inch			5

British Association, Admiralty pattern, and other Rain Gauges made to order in a few days. Prices on application.

The Collegiate Meteorological Set.

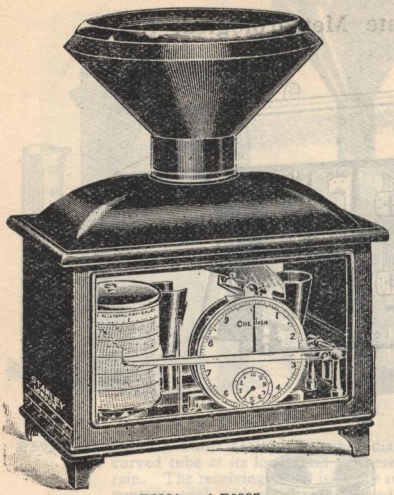




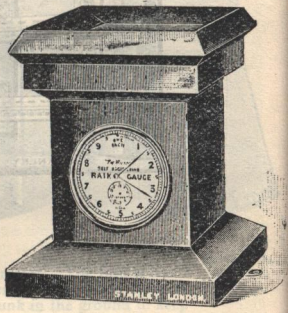
		£	s.	d.
P5975	**Set of Meteorological Instruments,** consisting of maximum and minimum thermometers and Mason's hygrometer, all being graduated on the stems and figured on porcelain scales; the whole fitted on a wood screen with an adjustable front, for fixing on wall or post. Also a Symons' 5-inch copper rain gauge with graduated measure reading to .01 inch. Complete ..	6	6	0

Kew Observatory verifications for above instruments (if required) can be supplied at cost.

Recording Rain Gauges.



P5986 and P5987.



P5980 to P5984.

The "Stanley" Self-Registering Dial Rain Gauge is entirely automatic, and requires no attention. An index is fitted to the front glass to indicate the reading of the last observation. Thus the Gauge will register the rainfall for a month, or any other time. The dial is white opal glass, and can be easily read at a distance. The hands can be set back to zero after each reading.

		£	s.	d.
P5980	10-inch square receiver, with 6-inch dial showing up to 25 inches. In polished copper frame with brass rim	21	5	0
P5981	10-inch ditto, ditto, in polished zinc frame	17	0	0
P5983	8-inch square receiver, with 4-inch dial, showing up to 10 inches. In polished copper case	11	18	0
P5984	8-inch, in japanned zinc case	9	10	0

These Gauges can be supplied to indicate millimetres of rainfall at same prices.

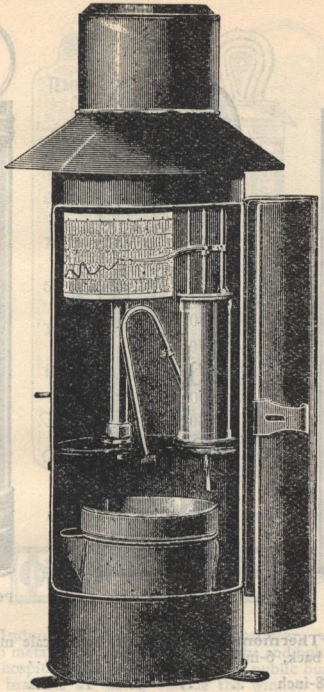
The "Stanley" Self-Recording Rain Gauge records the rainfall on a weekly chart, and indicates it on a dial.

The great advantage of this instrument is that the chart records the rate and time of the rainfall.

The receiver is 8 inches diameter, and the instrument is enclosed in a strong japanned iron frame, with cast-iron base, and is fitted with a padlock.

		£	s.	d.
P5986	To indicate on the dial up to 10 inches	20	10	0
P5987	To indicate up to 200 inches	22	10	0
	Each Gauge is sent out complete with charts for one year, and bottle of ink.			
P5988	Extra Charts for the above, per set, sufficient for one year		7	6

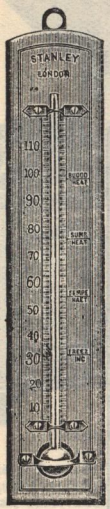
Self-Recording Rain Gauge.



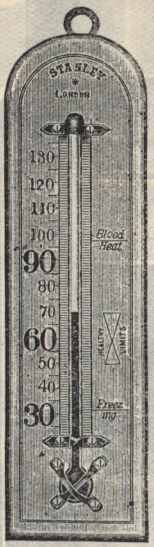
P5990.

		£	s.	d.
P5990	**Self-Recording Rain Gauge.** This has a receiving surface 6 inches in diameter, from which the collected rain flows through a metal pipe into a cylindrical receptacle underneath. This is furnished with a float with rod, which is attached to the arm carrying the recording pen. When the chamber has received half an inch of rainfall the pen will be at the top of the chart, the attached syphon then comes into action and empties the chamber, causing the pen to descend to the zero line, when the rain gauge is again ready to record. The chart, which is drawn to show half an inch of rain, and divided to hundredths of an inch, will thus show an unlimited rainfall. It revolves once in 24 hours, and is actuated by a reliable clockwork movement. Complete, with charts for one year	40	0	0

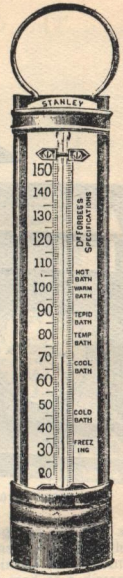
STANLEY'S Household Thermometers.



P6001.



P6004.

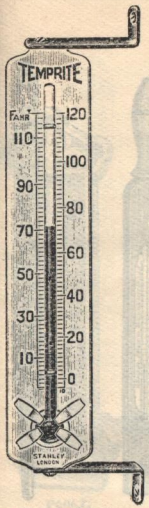


P6010 to P6013.

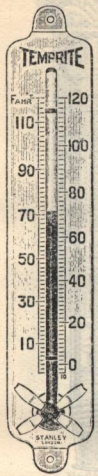
		£	s.	d.
P6001	**Household Thermometer**, red spirit, brass scale mounted on boxwood back, 6-inch		2	6
P6002	Ditto, ditto, 8-inch		3	6
P6003	**Thermometer**, Boxwood, with mercurial column 8-inch, marked Fahrenheit and Centigrade		6	6
P6004	**Household Thermometer**, Boxwood, 8-inch spirit column and bold figures, as illustrated, lens front		5	0
P6005	**Sixes Thermometer**, 8-inch, Boxwood, registering Maximum and Minimum Temperatures		8	6
P6010	**Bath Thermometer**, 8-inch, in japanned tin case, metal scale ..		3	0
P6011	,, ,, 8-inch, in copper case, metal scale		4	6
P6013	,, ,, 8-inch, in copper case, porcelain scale ..		8	6

Note on Spirit Thermometers.—Sometimes during transit the liquid of these will be driven from the bulb into the stem. This can be rectified by holding the thermometer firmly at the top and swinging it smartly with the bulb end down. This will cause the spirit to return to the bulb.

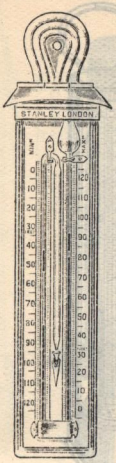
Outdoor and Greenhouse Thermometers.



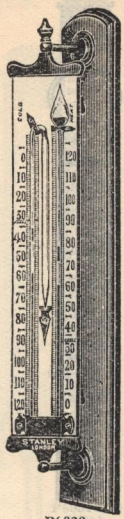
P6026.



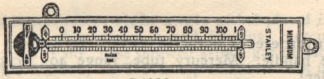
P6025.



P6035 to P6037.



P6038.



P6028.

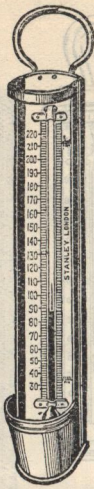
		£ s. d.
P6025	**Temprite Indoor or Outdoor Thermometer**, with white enamelled metal back, fadeless red fluid tube and bold markings, ideal for hospitals, public institutions and public buildings ..	5 0
P6026	**Ditto**, with brackets for fixing outside the window for outdoor readings	5 0
P6028	**Minimum Registering Thermometer**, 8-inch, red spirit, on boxwood	2 0
P6029	Ditto, with **zinc scale**, best quality	4 6
P6030	**Maximum Registering Thermometer**, with mercury tube on boxwood	7 0

		8-in.	10-in.	12-in.
P6035	**Maximum and Minimum Registering Thermometer**, with **zinc scale** and white japanned tin case, complete with magnet for resetting ..	8/6	10/6	15/-
P6036	**Ditto**, with **opal glass scale**	12/-	15/-	25/-
P6037	**Maximum and Minimum Registering Thermometer in strong copper case**, with **opal glass scale**	14/6	18/-	29/6
P6038	**Bracket Maximum and Minimum Thermometer**, best quality, with swivel mounting on polished oak back, and **opal glass scale** ..	36/-	38/-	45/-

Warning. Maximum and Minimum Thermometers can be sent by post or rail only at customer's own risk, as the tubes are very easily upset if shaken violently.

Commercial Thermometers.

P6039 to P6041.



P6050 to P6052.

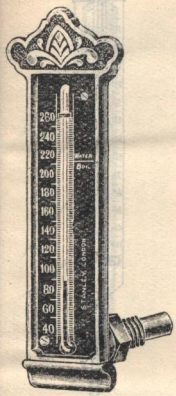
P6053 to P6055.

P6060.

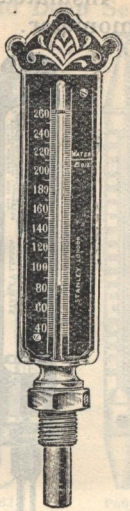
P6061.

		£	s.	d.
P6039	10-inch **Thermometer, Confectioners'**, brass bent-up side, with stout wire handle. Mercury tube, range 40° to 320° Fahr. (or to order)		7	6
P6040	12-inch, ditto, ditto		9	0
P6041	14-inch, ditto, ditto		10	6
P6050	10-inch **Brewers' Thermometer**, in stout copper scoop case, with riveted handle, heavy metal scale and bold "T" top. Mercury tube, range 30° to 220° Fahr. (or to order)		9	6
P6051	12-inch, ditto, ditto, ditto		10	0
P6052	14-inch, ditto, ditto, ditto		10	6
P6053	10-inch **Cooling Thermometer**, heavy copper case, with riveted handle and hand-painted porcelain scale with very bold figuring, bold mercury tube, range 40° to 80° Fahr. (or to order) ..		19	6
P6054	12-inch, ditto, ditto, ditto	1	1	0
P6055	14-inch, ditto, ditto, ditto	1	4	0
P6060	**Dairy Thermometer**, wood handle and frame, with glass insulated tube and paper scale, range 0° to 150° Fahr. (Foreign manufacture, which we do not guarantee)		3	0
P6061	10-inch **Dairy Thermometer**, floating glass insulated model, with paper scale and mercury tube, range 40° to 220° Fahr. (or to order)		2	0

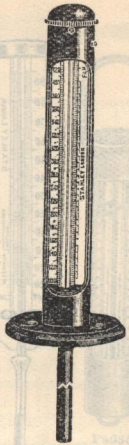
Commercial Thermometers (continued).



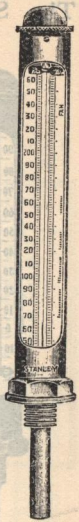
P6062.



P6063.



P6066.



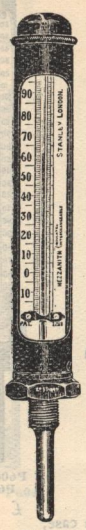
P6064 and P6065.

		£	s.	d.
P6062	**Hot Water Thermometer, right angle** nickel-plated iron case, black scale with white dividing and figuring, mercury tube, range 40° to 260° Fahr., base screwed ½-inch gas thread (British Standard Pipe Thread, 14 T.P.I. top diameter .825 inch) and 2¼-inch tailpiece with locking nut		6	9
P6063	**Hot Water Thermometer,** as above, but straight model, as illustrated. Base screwed ½-inch gas thread (British Standard Pipe Thread, 14 T.P.I. top diameter .825 inch) and with 2½-inch tailpiece		6	9
P6064	**Brass Case Thermometer,** with mercury column, 8-inch silvered metal scale, 50° to 260° (or to order)		18	6
P6065	Ditto, with revolving shutter		19	6
P6066	**Brass Case Tar or Tank Thermometer,** with revolving shutter, 8-inch silvered metal scale, enamelled mercury tube, range 100° to 500° Fahr. (or to order), with 3½-inch diameter flange and 24-inch tailpiece	1	15	6
P6067	**Thermometer** as above, but with screwed base ½-inch gas thread instead of flange (British Standard Pipe Thread, 14 T.P.I. top diameter .825 inch)	1	17	6

The length of tailpiece can be varied to meet requirements.

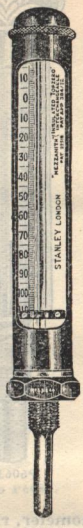
If screw holes are required in the flange of P6066, this should be mentioned on the order.

The STANLEY Patent Insulated Interchangeable Thermometer.

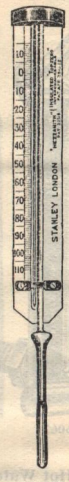


P6070.

P6071.



P6074.

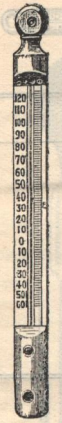


P6075.

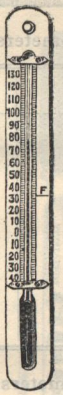
This is a high-grade Thermometer, suitable for either **Steam or Refrigeration.** It is **standardised,** and spare tubes and caps can be supplied separately either to **replace breakages** or **vary the range.** Scales can be replaced or exchanged in a minute by any unskilled person using ordinary care, without removing the caps, by simply unscrewing the top. Tube and scale are suspended between a rubber cushion at the bottom and a spring at the top. When used for refrigeration, an insulated collar is provided to minimise frosting.

		£	s.	d.
P6070	**Thermometer,** as illustrated, with hand-painted opal scale and red spirit tube, range minus 15° to plus 110° Fahr. (or to order), with 3-inch tailpiece, base screwed ⅜-inch or ¾-inch gas thread (¼-inch gas thread, British Standard Pipe Thread, 14 T.P.I. top diameter .825 inch sent unless otherwise specified)	1	1	0
P6071	**Spare Tube and Scale** for above, complete in cap ready for fitting in case, range minus 15° to plus 110° Fahr. (or to order).. ..		10	6
P6072	Stanley patent Brass Case **Interchangeable Thermometer,** as P6070, but Mercury Tube, range 40° to 240° Fahr. (or to order)	1	2	6
P6073	**Spare Tube and Scale** for above, complete in cap ready for fitting in case, range 40° to 240° Fahr. (or to order)		13	6
P6074	Stanley patent Brass Case **Interchangeable Thermometer,** as P6070, but with "Top-Zero" mercury tube and opal scale, range minus 15° to plus 110° Fahr. (or to order)	1	6	6
P6075	Spare "Top-Zero" Tube and Scale for above, complete in cap ready for fitting in case		17	6

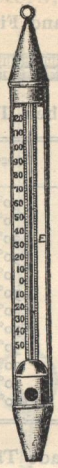
Refrigerator and Deep Sea Thermometers.



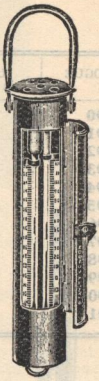
P6078.



P6082.



P6083.



P6086.

		£	s.	d.
6078	**Half-Round Wood Stick**, with sunk red spirit tube, 60° below zero to 120° above		4	0
6079	,, ,, ,, with sunk mercury tube, 10° below zero to 60° above		4	3
6080	,, ,, ,, with metal scale, sunk red spirit tube, to 100° below zero		5	0
6081	,, ,, ,, polished, 8 inches long, with sunk enamelled glass tube		3	6
6082	**Flat Wood Scale**, rounded top and bottom, sunk red spirit tube, 40° below zero to 130° above		3	6
6083	**In Copper Frame**, with silvered metal scale and spirit tube, 50° below zero to 120° above		5	0
6084	**In Bronzed Brass Case**, with red or blue spirit tube, glass scale, 10° below zero to 60° above		10	6

Incubator Thermometers.

		£	s.	d.
6085	**Incubator Thermometer**, red fluid tube, with red fadeless fluid and boxwood mount, over-all size 8½ inches		2	0

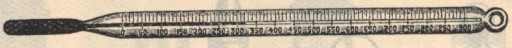
Other sizes to order.

Deep Sea Thermometers.

		£	s.	d.
6086	**Deep Sea Maximum and Minimum Registering Thermometer**, in ebonite mounting, divisions and figures on electrum, raised scales at side, acting also as a protection to the thermometer. In round copper case, with hinged door and clasps	2	16	6
6087	Ditto, but without copper case	2	2	0

STANLEY'S Chemical Thermometers.

Divided and Figured on Stem.



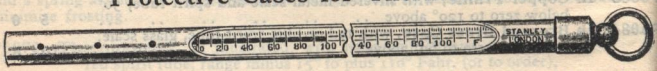
Fahrenheit Thermometers.

CATALOGUE No.	Length in inches.	Range, Fahr.	Divided to	Price, Each.
P6090	6	30°–150°	2°	2/8
P6091	8	0°–150°	2°	2/10
P6092	8	30°–220°	2°	3/-
P6093	8	30°–300°	2°	3/-
P6094	10	0°–220°	2°	3/6
P6095	10	30°–300°	2°	4/-
P6096	10	30°–400°	2°	5/-
P6097	12	30°–220°	1°	4/-
P6098	12	30°–300°	1°	4/-
P6099	12	30°–400°	2°	5/-
P6100	12	30°–600°	2°	6/-
P6101	15½	100°–800°	2°	9/-

Centigrade Thermometers.

CATALOGUE No.	Length in inches.	Range, Cent.	Divided to	Price, Each.
P6105	12	0°–110°	1°	3/-
P6106	12	10°–110°	1°	3/-
P6107	12	0°–200°	1°	4/-
P6108	12	0°–360°	2°	7/-

Protective Cases for Thermometers.

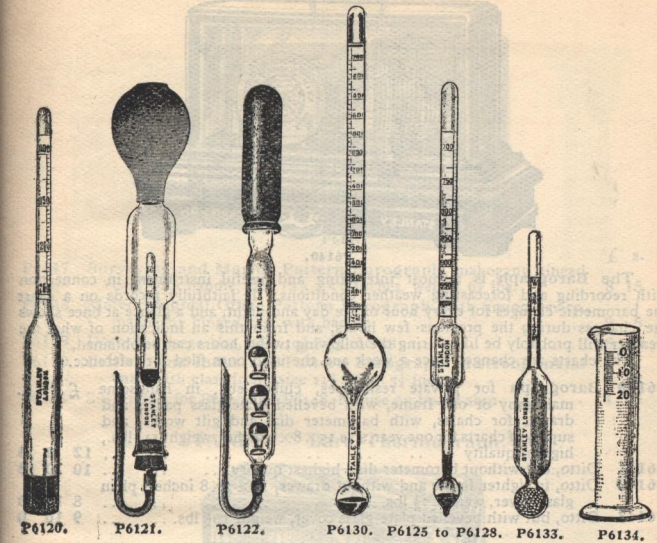


Sheaths in Brass or Steel, nickel-plated, can be supplied to fit any of the above Thermometers to protect them while in use. Steel is recommended for high temperatures.

CATALOGUE No.	Length of Thermometer in inches.	Over-all Length in inches.	Price, extra to cost of Thermometer, Brass.	Price, extra to cost of Thermometer, Steel, Plated.
P6110	10	11	3/9	4/6
P6111	12	13	3/9	5/-
P6112	15½	16½	5/6	7/-

Thermometers registering 600° Fahr. and above are Nitrogen-filled.

Hydrometers, etc.



P6120. P6121. P6122. P6130. P6125 to P6128. P6133. P6134.

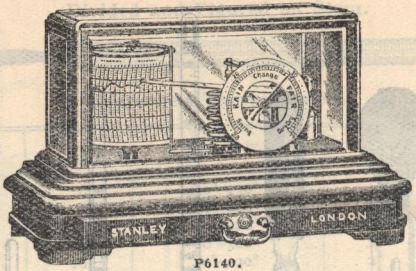
		£	s.	d.
P6119	**Accumulator Hydrometer**, flat pattern, 6-inch, divided every 5, range 1100–1300, in card case		3	3
P6120	Ditto, ditto, 9-inch		3	6
P6121	**Accumulator Hydrometer**, syphon pattern, with rubber fittings, float 3 inches long, in card case		6	6
P6122	**Accumulator Hydrometer**, bead type, with three beads, with instructions, in card case		5	9

Specific Gravity Hydrometers.

Glass, approximately 9 inches long, paper scale, divided every 5, mercury poised.

P6125	Range 700–1000		5	0
P6126	„ 1000–1300		5	0
P6127	„ 1300–1600		5	0
P6128	„ 1600–2000		5	9
P6130	**Universal Hydrometer**, glass, paper scale, reading in specific gravity, shot poised, range 700–2000, in card case		10	9
P6131	**Glass Hydrometer for Proof Spirit**, 40 under to 60 over proof, in case		5	0
P6132	**Set of Six Twaddle's Hydrometers**, in stained deal case ..	2	17	6
P6133	**Lactometer**, for testing milk, glass, shot poised, paper scale, W, 1, 2, 3, M., approximately 6 inches long, in card case		2	9
P6134	**Cream Testing Jar**, glass, 9×1¼ inches, graduated 0–30% ..		3	6

STANLEY Barographs.

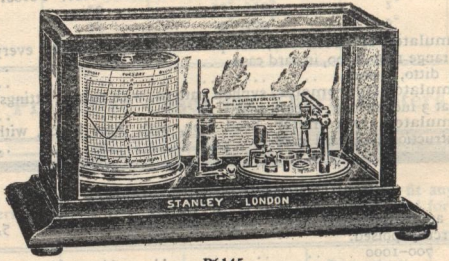


P6140.

The **Barograph** is a most interesting and useful instrument in connection with recording and forecasting weather conditions. It faithfully records on a chart the barometric changes for every hour of the day and night, and a glance at once shows the changes during the previous few hours, and from this an indication of what the weather will probably be like during the following twelve hours can be obtained.

The charts are changed once a week and the used ones filed for reference.

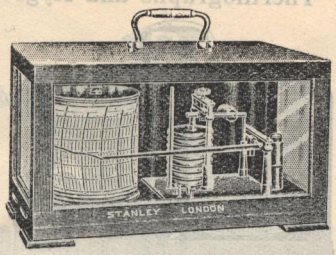
		£	s.	d.
P6140	**Barograph** for private residences, clubs, etc., in handsome mahogany or oak frame, with bevelled plate-glass panels and drawer for charts, with barometer dial and gilt works, and supply of charts for one year, size 15×8×9 inches, weight 11½ lbs., highest quality	12	0	0
P6141	Ditto, but without barometer dial, highest quality	10	10	0
P6142	Ditto, in lighter frame and without drawer, 14×7×8 inches, plain glass cover, weight 7½ lbs.	8	15	0
P6143	Ditto, but with bevelled plate-glass cover, weight 10½ lbs.	9	10	9



P6145.

P6145 **The Popular Barograph.** This instrument is similar to the foregoing, but has one large vacuum chamber concealed in the base of the instrument. A printed plate is conveniently placed from which a weather forecast can be obtained. This is done by observing the nature of the record line for the previous few hours. The chart is marked to correspond with the printed plate and the forecast is given under the marks on the plate corresponding to those on which the record falls. This is only suitable for the British Isles, and if required for abroad the instrument is supplied without forecast plate 7 0 0

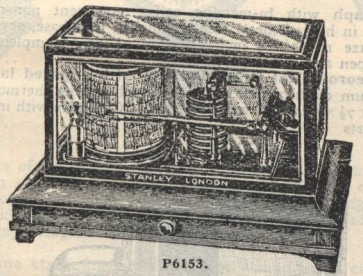
STANLEY Barographs (continued).



P6147

		£	s.	d.
P6147	**Surveying and Marine Pattern Barograph,** mahogany hinged case with handle, size 12×7×6 inches, weight 6¾ lbs... ..	8	15	0
P6148	**Meteorological Office Pattern Barograph,** with timing device, mahogany hinged case with handle	9	5	0
P6149	Ditto, but large size, 16×10½×7½ inches	18	0	0
P6150	**Colliery and Industrial Pattern Barograph, in strong metal case** with glass front, size 11½×6½×5¼ inches	9	10	0
P6151	Suspenders for P6147 and P6148, for use on board ship	1	10	0

STANLEY "Baro-Thermograph."



P6153.

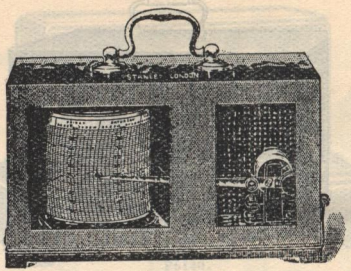
P6153	This instrument gives **Barometer and Thermometer** records on one chart. The frame is similar to P6141 on previous page. Coloured inks are used to distinguish the one record from the other, highest quality	12	15	0

Spare Charts and Inks.

P6160	Spare Charts for barographs or thermographs, per set of 52, in card box, respectively .. .. 6s. and	8	0	
	When Thermograph Charts are required, please state range of temperature.			
	Metric Charts supplied at same price			
P6161	Inks for same, per bottle	1	6	

For Telegraphic Code see end of catalogue

STANLEY Thermographs and Hygrographs.



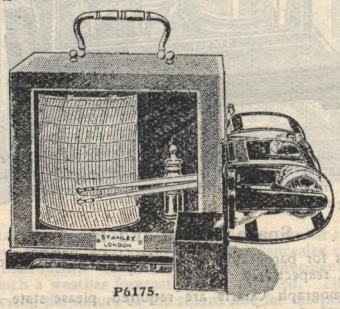
P6170 and P6171.

Thermographs and Hygrographs. Temperature and Humidity are now recognised to be of the greatest importance in connection with industrial welfare. Every factory ought to be equipped with these instruments and the records regularly inspected to maintain the healthiest atmosphere for the workers, which is a **cost factor** worthy of serious consideration.

The Thermograph records Dry Temperature on the chart. **The Hygrograph** records Wet and Dry Temperatures, the one being distinguished from the other by means of coloured inks.

In the following instruments the mechanism is very simple, non-corrosive and of the highest quality. When ordering please state range of temperature for chart.

		£	s.	d
P6170	**Thermograph** with bi-metallic coils, movement non-rusting, reliable, in hinged metal case, enamelled iron base, seven-day clock, size 10×5½×5 inches, weight 5½ lbs. Complete with charts, pen and ink	9	0	0
P6171	Ditto, **Meteorological Office Pattern with exposed lamina**, high drum clock, and fitted with 6-inch setting thermometer, size 11×7½×5 inches, weight 7½ lbs Complete with ink, pen and charts	9	15	0

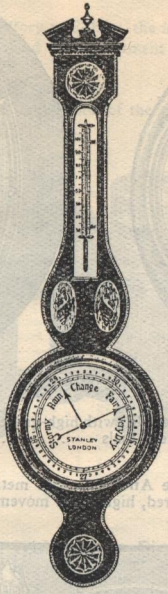


P6175.

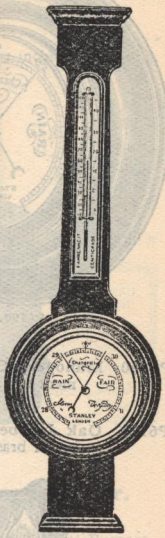
		£	s.	d
P6175	**Hygrograph**, recording wet and dry temperatures, **Meteorological Office Pattern**, with exposed laminæ, which ensure perfect circulation of air, metal hinged case, enamelled iron base, seven-day clock, 6-inch setting thermometer for purposes of comparison, 11×7½×5 inches, weight 9½ lbs.	13	0	0

STANLEY Aneroid Barometers.

P6180.



P6183.



P6184.

The movements of our best Aneroids are made at our Hatton Garden Works. Frames are made in great variety, from beautifully carved works of art to the plain, handsome patterns of modern times. Those listed in the following two pages are intended only as a guide, but full particulars and illustrations are gladly submitted upon receipt of application, giving an idea of requirements.

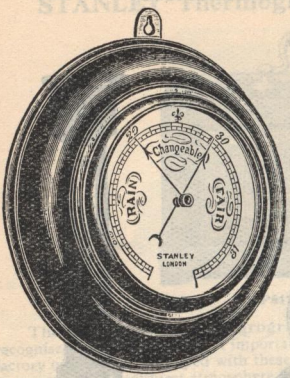
		£ s. d.
P6180	**Queen Anne style,** finely carved Oak or Walnut frame, engraved metal dial and spiral bulb thermometer scale. A solid durable instrument of the highest class, size 41½ × 12 inches	10 0 0

		5-inch Dial. (26×7½ in.) £ s. d.	6-inch Dial. (30×9 in.) £ s. d.
P6183	**Shell Inlaid Mahogany Barometer,** silvered metal dial and red spirit thermometer, with metal scale, high-grade movement	4 4 0	4 15 0

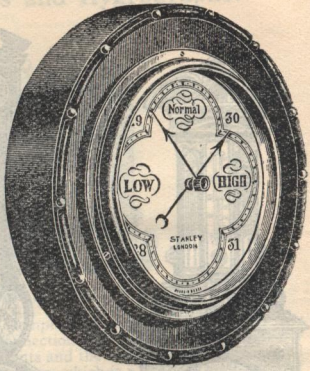
		5-in. Dial. (26×7½ in.) £ s. d.	6-in. Dial. (33½×9 in.) £ s. d.
P6184	**Plain pattern Barometer,** with handsomely figured Walnut frame, silvered metal dial, red spirit thermometer, silvered and metal scale. A very handsome and up-to-date instrument	2 18 6	3 15 6

Barometers can also be supplied in Oak or Mahogany at the same price.

STANLEY Aneroid Barometers (continued)



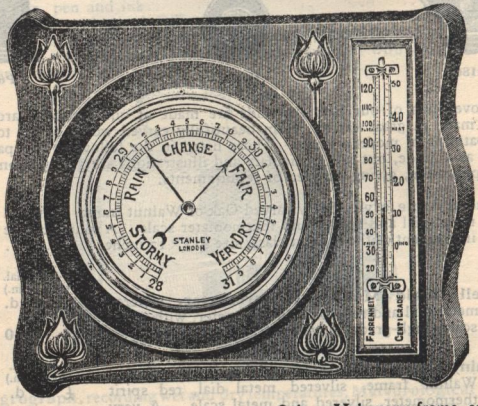
P6190.



P6191.

		5-in. Dial (over-all 9½ in.)			6½-in. Dial (over-all 11 in.)		
		£	s.	d.	£	s.	d.
P6190	**Mahogany Circle Aneroid,** with high-grade movement and silvered metal dials	2	9	0	2	15	0

		5-in. Dial (over-all 8¼ in.)			6½-in. Dial (over-all 9¾ in.		
		£	s.	d.	£	s.	d.
P6191	**Oak Jacobean Circle Aneroid,** with metal dials either brass or silvered, high-grade movement ..	2	5	0	2	9	0



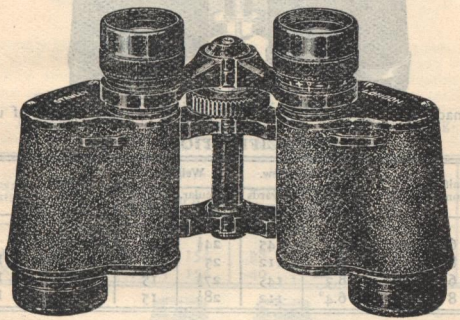
P6192.

		£	s.	d.
P6192	**Barometer and Thermometer,** in Oak or Mahogany frame, as illustrated, silvered metal dial and thermometer scale, size over-all 14½ × 12 inches, dial 6½ inches	4	4	0

STANLEY Prism Binoculars.

Since moving into our new factory at Eltham, the improved means at our disposal has enabled us to considerably extend the department dealing with the manufacture of Prism Binoculars, Telescopes, etc.

In addition, we have amplified this section of the catalogue by including the best models of other leading manufacturers.



P6200.

The New "STANLEY" Wide-Angle Eight Prism Binocular.

This Binocular has been produced to meet the demand for a General Purpose Glass at a moderate price.

It is made in one model only to cheapen the cost of production.

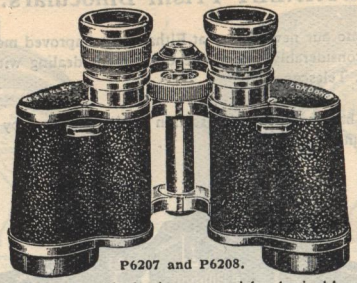
As an all-round glass we can emphatically state that no better value has ever been offered in Prism Binoculars.

SPECIFICATION.

CAT. No.	Magnification.	Diam. of Obj. mm.	Field of View.		Weights.		Focussing.	Price, in Leather Case.
			Angular.	In yds. per 1,000	Binocular. ozs.	Case. ozs.		
P6200	×8	30	7.9°	135	26	14	Wheel	£ s. d. 7 17 6

For Telegraphic Code see end of catalogue.

STANLEY'S Best Quality Series of General Purpose Binoculars.



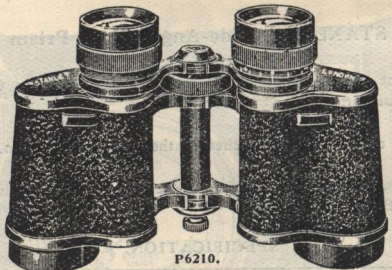
P6207 and P6208.

British made throughout, of the best materials obtainable, and of unsurpassed workmanship.

SPECIFICATION.

CAT. No.	Magnification.	Dia. of Obj. mm.	Field of View.		Weights.		Focussing.	Price, in Leather Case.
			Angular.	In yards per 1,000	Binocular. ozs.	Case. ozs.		£ s. d.
P6205	×6	30	8.3°	145	24½	15	Eyepiece	9 15 0
P6206	×8	30	6.4°	112	25	15	Eyepiece	10 5 0
P6207	×6	30	8.3°	145	27½	15	Central	10 10 0
P6208	×8	30	6.4°	112	28½	15	Central	11 0 0

STANLEY'S Extra Wide-Angle Binocular.



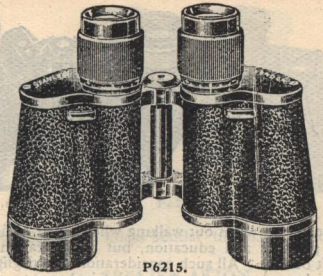
P6210.

A general all-round glass, 30-mm. object-glass, special 5-lens eyepiece of extra large diameter, high power with a relatively very large field of view and great light gathering power.

SPECIFICATION.

CAT No	Magnification.	Dia. of Obj. mm.	Field of View.		Weights		Focussing.	Price, in Leather Case.
			Angular.	In yards per 1,000.	Binocular. ozs.	Case. ozs.		£ s. d.
P6210	× 8	30	8.75°	154	25½	15	Central	11 10 0

STANLEY Binoculars (continued).



P6215.

STANLEY'S Wide-Angle Sporting Glass.

Extensive field, brilliantly illuminated. Ideal for racing.

SPECIFICATION AND PRICES.

CAT No	Magnification.	Dia. of Obj. mm.	Field of View.		Weights.		Focussing.	Price.
			Angular.	In ft. at 1,000	Field Glass. ozs.	Leather Case. ozs.		£ s. d.
P6215	×8	40	8.75°	154	38	20	Eyepiece	15 10 0
P6216	×8	40	8.75°	154	40	20	Central	16 5 0

P6220 to P6222.

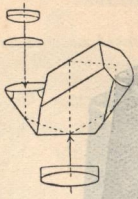
STANLEY'S Extra Wide-Angle Glasses with Extra Large Object Glasses.

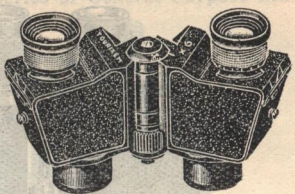
These are unequalled for Marine and Night Observations.

SPECIFICATION AND PRICES.

CAT No	Magnification.	Dia. of Obj. mm	Field of View.		Weights.		Eyepiece Focussing. Price.	Central Focussing. Price.
			Angular.	In yards at 1,000.	Field Glass. ozs.	Leather Case. ozs.	£ s. d.	£ s. d.
P6220	×10	36	7°	122	26	21	14 10 0	15 5 0
P6221	×12	40	6.20°	108	28	21	15 15 0	16 10 0
P6222	×16	48	4.84°	84	34	22	16 5 0	17 0 0

The STANLEY Vest Pocket Binocular





P6225 and P6226.

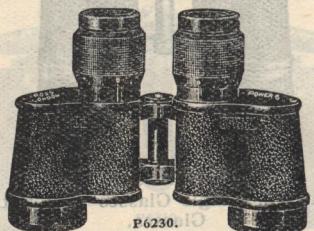
There are many occasions when out walking when a pair of field glasses would add considerably to one's pleasure and education, but consideration of bulk and weight result in their being left behind. All such considerations are negligible with the Stanley Vest Pocket Glass, which measures only $5\frac{1}{4} \times 3\frac{1}{4} \times 1\frac{1}{2}$ inches over-all, and weighs 11 ozs.

The optical specification, which is given below, compares favourably with the specification of any of the larger models of the usual type, and has been verified at the National Physical Laboratory. In this glass the usual Porro prism system has been replaced by one roof-edged prism, thereby reducing not only bulk and weight, but also the number of different refracting surfaces in the path of the ray, with consequent great saving of light and weight. Two models only are made.

SPECIFICATION.

CAT No.	Magnification.	Dia. of Obj. mm.	Field of View.		Weights.		Focussing.	Price.
			Angular.	In yards at 1,000.	Glass. ozs.	Case ozs.		£ s. d.
P6225	×6	22	8°	140	11	$2\frac{1}{2}$	Central	11 0 0
P6226	×8	24	6°	105	11	$2\frac{1}{2}$	Central	12 0 0

Ross Extra Wide-Angle Field Binoculars.



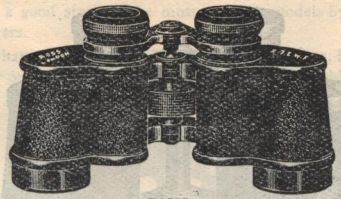
P6230.

The E. W. F. ×6 model is the Sportsman's glass "par excellence," and no finer binoculars have been offered to the public than this model and those described on the following page.

SPECIFICATION.

CAT No	Magnification.	Dia. of Obj. mm.	Field of View.		Weights.		Focussing.	Price.
			Angular.	In yards at 1,000.	Glass. ozs.	Case. ozs.		£ s. d.
P6230	×6	30	11°	192	25	15	Eyepiece only	13 0 0

Ross Binoculars (continued).

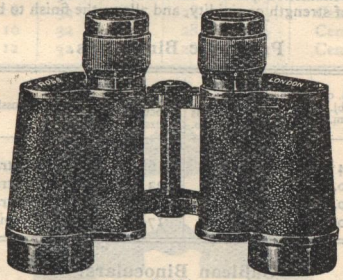


P6235.

This is an extra wide Field Glass similar to P6230, but central focussing, and slightly higher power.

SPECIFICATION.

CAT. No.	Magnification.	Dia. of Obj. mm.	Field of View.			Weight.		Focussing.	Price, in Case.
			Real.	Apparent angular.	In yards at 1,000.	Glass. ozs.	Case. ozs.		£ s. d.
P6235	×7	30	9.4°	65°	166	27½	14	Central	13 15 0



P6236.

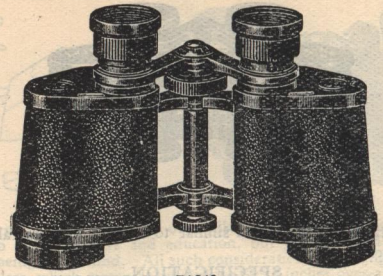
Ross's High-power Binocular, made with Eyepiece Focussing only.

The ideal glass for natural history work and for watching sporting events under all conditions.

SPECIFICATION.

CAT. No.	Magnification.	Dia. of Obj. mm.	Field of View.			Weight.		Focussing.	Price, in Case.
			Real.	Apparent angular.	In yards at 1,000.	Glass. ozs.	Case. ozs.		£ s. d.
P6236	×12	35	5°	60°	87	30	16	Eye-piece	16 0 0

Barr & Stroud Binoculars.



P6240.

Of the Finest Quality, Optically and Mechanically.

The prisms and lenses are made of the best annealed optical glass, and are clear, colourless, and free from veins, giving a large, brilliant field of view, sharp definition, and freedom from colour faults. The stereoscopic effect in the prismatic binoculars is very striking.

The trouble of the enamel wearing off and showing the bare metal has been eradicated in all models except P6244 and P6245, by the use of a composition material in place of the usual enamelled parts. This also makes the binoculars very light in weight, without loss of strength or rigidity, and allows the finish to be made permanent.

Prismatic Binoculars.

CAT. No.	Magnification.	Dia. of Obj. mm.	Field of View.		Weights.		Focussing.	Price, each.
			In deg.	In yards at 1,000.	Binocular. ozs.	Case. ozs.		£ s. d.
P6240	×6	24	8°	138	16½	14	Central	7 10 0
P6241	×6	30.5	8°	138	23	16	Central	9 10 0
P6242	×8	30.5	7½°	125	21½	16	Central	11 0 0
P6243	×6	30.5	8°	138	17½	16	Eyepiece	8 15 0

Galilean Binoculars.

CAT. No.	Magnification.	Dia. of Obj. mm.	Lines	Field of View.		Weights.		Interocular Distance. mm.	Price, each.
				In deg.	In yards at 1,000.	Binocular. ozs.	Case. ozs.		£ s. d.
P6244	×3½	50.8	24	6½°	112	21	7½	62 or 63.5	4 0 0
P6245	×3½	44.5	21	6½°	112	18	7½	62 or 63.5	2 12 6
P6246	×4	55.6	26	6°	104	22	8	65	2 7 6

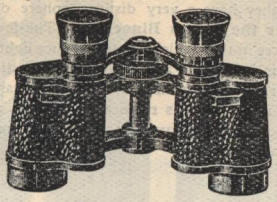
The P6246 is a very rigid marine glass that will withstand hard usage, but is light in weight, with a permanent black finish. The light-gathering power is extraordinarily great, making it specially suitable as a night glass.

All prices include leather cases.

Binoculars of French Manufacture.

We always keep a good stock of the most popular models by the leading French binocular manufacturers.

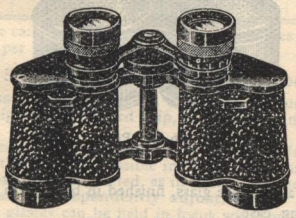
These are somewhat cheaper than the British-made binoculars, but they are specially selected and tested by our representative in Paris, and are thoroughly reliable.



P6250 to P6253.

APPROXIMATE SPECIFICATION AND PRICES.

CAT. No.	Magnification.	Dia. of Obj. mm.	Field of View. In m. at 1,000 m.	Weights. Glass. ozs.	Weights. Case. ozs.	Focussing.	Price. £ s. d.
P6250	×6	32	142	28	15½	Central	4 15 0
P6251	×8	32	115	28	15½	Central	4 15 0
P6252	×10	32	80	28	15½	Central	6 6 0
P6253	×12	32	80	28	15½	Central	6 15 6



P6254 and P6255.

Wide-Angle Model.

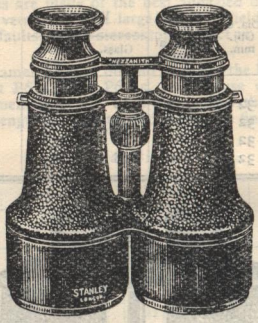
APPROXIMATE SPECIFICATION AND PRICES.

CAT. No.	Magnification.	Dia. of Obj. mm.	Field of View. In m. at 1,000 m.	Weights. Glass. ozs.	Weights. Case. ozs.	Focussing.	Price. £ s. d.
P6254	×8	32	140	26	14	Central	6 6 0
P6255	×8	26	135	19	11	Central	5 5 0

STANLEY'S Galilean Binoculars.

Although Galilean Binoculars have been largely displaced for land use by Pri matic Binoculars owing to the greatly increased magnification and field which can obtained with the latter, they have a very distinct sphere of usefulness, and **off several advantages over the Prism Binocular.** The low power and the few number of refracting surfaces in the Galilean system reduce light absorption and produ a brighter image, and it is largely on account of this that they have retained th popularity for marine work. For use in a bad light they are unequalled. Anoth advantage is that if the inner surfaces require cleaning at any time it can be do by any inexperienced person with ordinary care, by simply unscrewing the lenses a wiping them clean with a soft rag.

STANLEY'S Marine Binoculars.



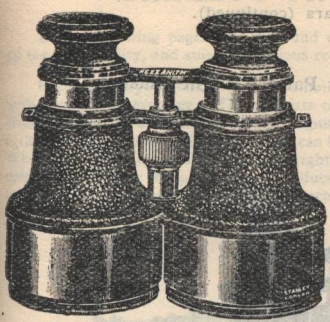
P6256 and P6257.

A high-grade general-purpose glass, finished in black with a leather-covered bo complete in leather sling case.

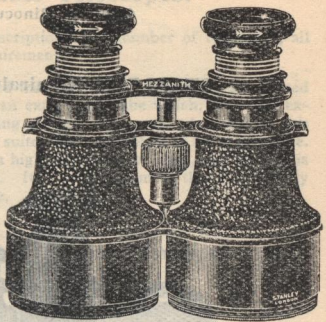
SPECIFICATION AND PRICES.

CAT. No.	Number of Lenses.	Diam. of O.G.		Magnification.	Field of View.		Height, closed. ins.	Weights.		Price.
		ins.	mm.		Degrees.	In yards per 1,000.		Glass only. lbs. ozs.	Case. ozs.	£ s. d
P6256	6	2¼	57	×4½	4½°	79	5⅝	2 0	14	4 10
P6257	6	2⅛	54	×4½	4°	70	5⅝	1 15	12	4 5

Galilean Binoculars (continued).



P6258 and P6259.



P6260 and P6261.

The STANLEY Special Night Binoculars.

Leather-covered body, in sling case.

SPECIFICATION AND PRICES.

CAT. No.	Number of Lenses.	Diam. of O.G. ins.	Diam. of O.G. mm.	Magnification.	Field of View. Degrees.	Field of View. In yards per 1,000.	Height, closed. ins.	Weights. Glass only. lbs. ozs.	Weights. Case. ozs.	Price. £ s. d.
P6258	6	2¼	57	×3	8°	140	4⅛	2 0	11	4 15 0
P6259	6	2⅛	54	×3	7½°	131	4	1 10	9	4 10 0

Either of the above can be supplied with vulcanised bodies instead of leather-covered at an extra cost of 3s. per pair.

The STANLEY Patent Rigid Binoculars.

This **Night Glass** has been designed in order to secure great rigidity to meet the wear and tear of night use on board ship, at the same time ensuring accuracy and speed in focussing.

Further, the glasses once set **can remain focussed,** if desired ; also a very much larger focussing range than usual is possible in this type of glass. Differences of focus in the observer's eyes can be counteracted, as in addition to the usual central focussing arrangement, **each head is independently adjustable.**

By this means the glasses can be held in focus with the central screw right down and thus remain absolutely rigid.

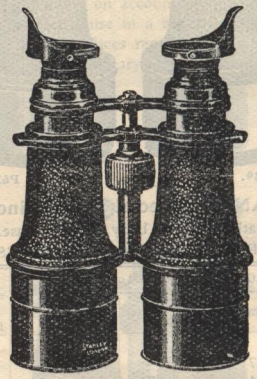
SPECIFICATION AND PRICES.

CAT. No.	Number of Lenses.	Diam. of O.G. ins.	Diam. of O.G. mm.	Magnification.	Field of View. Degrees.	Field of View. In yards per 1,000.	Height, closed. ins.	Weights. Glass only. lbs. ozs.	Weights. Case. ozs.	Price. £ s. d.
P6260	6	2¼	57	×3	8°	140	4	2 2	11	5 5 0
P6261	6	2⅛	54	×3	7½°	131	4	1 14	9	5 0 0

Either of the above can be supplied with vulcanised bodies instead of leather-covered at an extra cost of 3s. per pair.

Galilean Binoculars (continued).

STANLEY'S Admiralty Pattern Night Glass.



P6265.

Stanley's Mark I, 24 line, Admiralty Pattern Night Binoculars with jointed bars, folding eyecups, morocco and japanned bodies, fixed sunshades, complete in leather sling case.

SPECIFICATION AND PRICES.

CAT. No.	Number of Lenses.	Diam. of O.G.		Magnification.	Field of View.		Height, closed. ins.	Weights.		Price.
		ins.	mm.		Degrees.	In yards per 1,000.		Glass only. lbs.	Case. lbs.	£ s. d.
P6265	6	$2\frac{1}{8}$	54	$\times 4\frac{1}{2}$	4	70	6	2	1	5 15 0

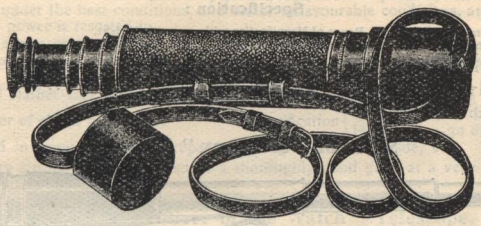
For Telegraphic Code see end of catalogue.

STANLEY'S Portable Telescopes.

In the following pages will be found descriptions of a number of telescopes, all of the best quality, and suited to various requirements.

Pancratic Eyepieces. It will be noticed that some of the telescopes are quoted with a pancratic eyepiece. This consists of an extra draw-tube which, on being extended, produces an increase in the magnifying power. The great advantage of this is that the degree of magnification in use can be suited to the condition of the atmosphere. When the air is clear and the light is bright, a high power can be used, and when it is comparatively dark the power can be reduced. It is an arrangement that adds greatly to the utility and pleasure of using a telescope.

STANLEY'S "Companion" Portable Telescope.



P6270.

The highest power portable telescope made. Finest optical qualities.

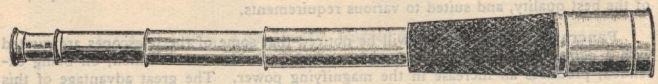
Stanley's "Companion" Portable Telescope. This telescope is constructed to provide the necessary length for an extremely high magnification, while, when closed, the instrument is exceedingly compact.

The performance of the instrument is unsurpassed, and it is very strongly recommended for target practice, deer-stalking, tourists, and general look-out purposes, where the greatest magnification obtainable in a telescope of portable form is required. It is made in two sizes.

		£ s. d.
P6270	**Magnifications** variable from 30 to 50 diameters; **length**, closed 12 inches, extended 42 inches; **weight**, 3½ lbs. The object-glass is 2⅛-inch diameter; it has four draw-tubes and pancratic draw-tube, whereby the magnifying power is varied, and is provided with shade for sun and spray. For use for long distances. In brass, finished black, covered in black morocco, or brown leather or pigskin, complete with caps and slings	9 10 6
P6271	**Magnifications** variable by means of pancratic draw-tube, from 35 to 65 diameters; **length**, closed 12 inches, extended 42 inches; weight, 3 lbs. 12 ozs.; object-glass, 2½-inch diameter. The most powerful hand telescope made, covered in black morocco or brown leather or pigskin, with caps and slings ..	12 10 0

Portable Telescopes (continued).

STANLEY'S "Deerstalker" Telescope.



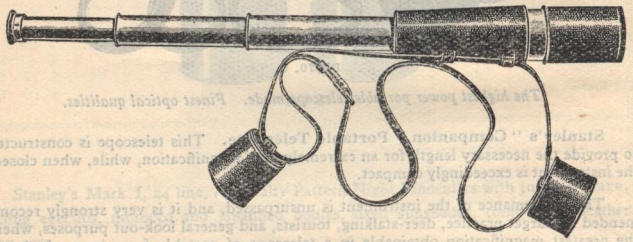
This telescope is one of the finest portable telescopes manufactured. The body and tubes are of very light, hard-drawn brass, finished in black bronze. The body may be covered in brown calf, morocco, or pigskin.

The telescope is carried in a solid leather conical-shaped case, which has a sling for the shoulder attached to it. Its case may be either of black or brown solid leather. Length, closed, 10½ inches. The workmanship and optical quality are of the highest.

Specification :

	Diameter of Object-glass.	Range of Magnification with Pancratic Draw-tube.	Weight. lbs. ozs.	£ s. d.
P6275	2-inch ..	.. 25 to 40	1 10	7 15 0
P6278	2¼-inch ..	.. 25 to 40	1 12	10 10 0

STANLEY'S "Lynx" Telescope.

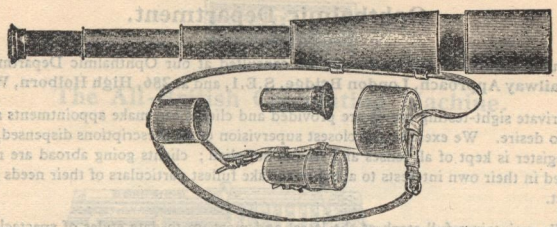


This telescope is specially designed to yield great brilliance of image, large and flat field, with exquisite definition. It is of best and latest construction, and is exceedingly compact for tourists' use. The body is tapered, and can be covered either in best brown calf or morocco. It has three draw-tubes, and an extra pancratic draw-tube can be had to increase the magnification, if desired, at a small extra cost. It is made in varying sizes, all having a shade for sun and spray.

	Diameter of Object-glass.	Size closed, about, inches.	Magnification Diameter.	Range of Magnification with Pancratic Draw-tube.	£ s. d.
P6290	1⅝-inch ..	10½ ..	20 ..	.. 20–30	4 5 0
P6292	2-inch ..	10½ ..	25 ..	.. 25–35	5 5 0
P6293	2¼-inch ..	10½ ..	25 ..	.. 25–35	5 15 0
P6294	2¼-inch ..	10½ ..	25 ..	.. 25–35	6 6 0
P6295	Pancratic Draw-tube, yielding variable magnifications, as specified above				15 0

Portable Telescopes (continued).

STANLEY'S Government Pattern Telescope.



This telescope is the present government pattern, its particular feature being that it is supplied with two interchangeable eyepieces, high and low powers; the high power being used under the best conditions, and under unfavourable conditions, atmospheric, etc., the low power is resorted to.

Some experts consider this form a great advantage over the Pancratic, as if the instrument is subjected to not infrequent rough usage, a better continuance of centering is obtained.

A small leather case attached to the sling carries the eyepiece not in use.

Diameter of object glass, 2.1". Magnification { Low power, 15 diameters. High power, 30 diameters.

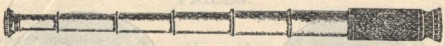
Covered in brown calf, with caps and sling, sliding sunshade, etc.

		£	s.	d.
P6301	Very strongly recommended as a thoroughly good glass at a very moderate price	6	15	0

STANLEY'S "Officer of the Watch" Telescope.
Naval Model Mark I.

		£	s.	d.
P6305	White Metal Telescope, buff leather-covered body and N.P.L. Method Certified	3	3	0
P6306	White Metal Telescope, with pancratic draw-tube, with magnifying powers of 16 to 26 diameters, buff leather-covered body and N.P.L. Method Certified. Special quality	4	4	0

The STANLEY Pocket Telescope.



This telescope is 1½ inches in diameter and 4 inches only when closed. It has six draw-tubes and extends 16 inches. The object-glass is 1⅛ inches in diameter, giving an exceptionally large field and a magnification of 16-diameters. It is a soundly-made instrument and we strongly recommend it for those who require a pocket telescope.

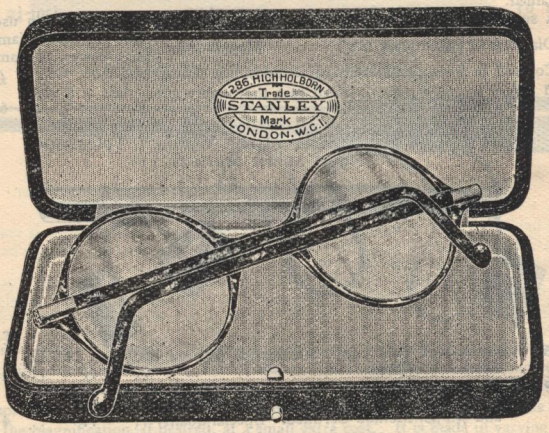
		£	s.	d.
P6307	Telescope complete in leather purse	3	0	0

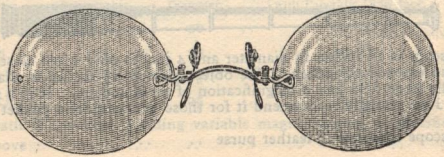
Ophthalmic Department.

Fully Qualified Opticians can be consulted at our Ophthalmic Department at **13, Railway Approach, London Bridge, S.E.1,** and at **286, High Holborn, W.C.1.**

Private sight-testing rooms are provided and clients can make appointments should they so desire. We exercise the closest supervision of all prescriptions dispensed, and a full register is kept of all lenses and frames supplied; clients going abroad are recommended in their own interests to allow us to take fullest particulars of their needs in this respect.

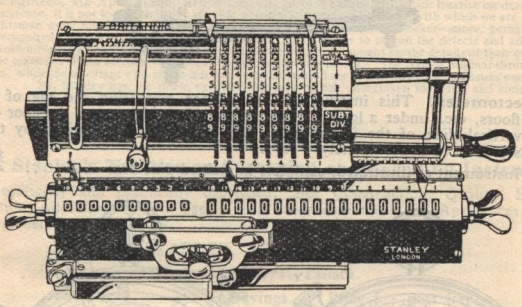
We maintain a full stock of the latest and most up-to-date styles of spectacles and eyeglasses, and workshops have been installed at each establishment to deal with urgent orders and repairs.





BRITANNIC

The All-British Calculating Machine.



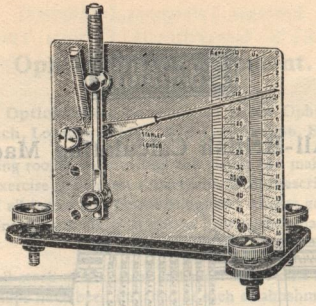
This is an Arithmometer of the barrel type which weighs no more than 12 lbs., with case, and only occupies desk space of 13×6½ inches, so that special tables or stands are not required.

It is practically noiseless, and even a junior can be instructed in its use in less than an hour. It does not require specially trained and skilled operators as do several other makes of machines.

Eight Patents of British invention, the result of many years' experience, are incorporated, all of which are valuable in eliminating the possibility of error.

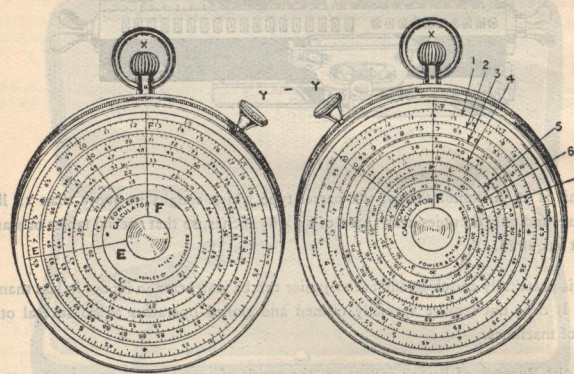
PRICES.

		£	s.	d.
P6320	Nine-lever model	50	0	0
P6321	Twelve-lever model	55	0	0



Deflectometer. This instrument is used for measuring the sag of girders, concrete floors, etc., under a load. A wooden lath is held between the floor or beam and the vertical slide of the instrument. Any movement is amplified by the arm, which has a ratio of approximately 5 to 1.

		£	s.	d.
P6341	Instrument as illustrated, complete in stained pine case	2	15	0



		£	s.	d.
P6351	**Fowler's Long Scale Vest Pocket Calculator,** with a total length of scale of 30 inches on one face and scale of reciprocals, logs, square roots, log sines and Log tans on reverse. Price, in leather case, with instruction pamphlet		18	0
P6352	Ditto, ditto, but in nickel case	1	0	0
P6353	**Fowler's Universal Circular Calculator,** 3 inches diameter, having the following six different scales all on the one face: Primary Scale for Multiplication and Division, Reciprocals, Logs, Cubes, Sines, Tangents and Square Roots. Price, in bakelite case, with instruction book of 80 pages ..	1	5	0
P6354	**Fowler's "Magnum" Circular Calculator,** 4⅜ inches diameter, a single-faced calculator having a Long Primary Scale for Multiplication and Division of 50 inches, also scales of Reciprocals, Logs, Roots, Sines and Tangents. Price, in leather case, with instructions	1	18	0

STANLEY'S Scientific and Technical Books.

EIGHTH EDITION (Revised by H. T. TALLACK).

P7721 Treatise on Drawing and Mathematical Instruments.

Their Construction, Uses, Qualities, Selection, Preservation, and Improvements, with Hints upon Drawing, Colouring, Lettering, etc.

By W. F. STANLEY, F.R.A.S., F.G.S., F.Ph.S., etc.

Price 3/6 post free.

The Engineer, 4th April, 1866 (1st Edition).—As there is hardly an English treatise on drawing instruments in existence, it is not too much to say that Mr. Stanley has produced the best with which we are acquainted. The draughtsman owes much to the labours of the mathematical instrument maker—more, perhaps, than is generally recognised; and it is impossible to read what Mr. Stanley has to say on the defects and advantages of particular instruments, without perceiving that he has expended much thought on the details of their construction, and no little ingenuity in the attempt to improve on existing arrangements. The book is original throughout, and well written, while the drawings with which it is copiously illustrated are sufficiently clear to answer every practical purpose. . . . Mr. Stanley has, we think, executed the task he has undertaken modestly and conscientiously, and this in itself goes far to render a book valuable.

FOURTH EDITION.

P7722 Stanley's Treatise on Surveying and Levelling Instruments.

Theoretically and practically described. For Construction, Quality, Selection, Preservation, Adjustments, and Uses; with other Apparatus and Appliances used by Civil Engineers and Surveyors.

By W. F. STANLEY, F.R.A.S., F.G.S., F.Ph.S., etc.

Revised by H. T. Tallack.

606 Pages. 432 Engravings. Price 5/- post free.

The following list includes some of the most general technical books that are kept in stock, but any others will be obtained to order if still in print. Prices are subject to any alteration the publishers may make.

Books cannot be sent on approval, as publishers do not supply them on these terms

		£	s.	d.
P7761	**Alphabets, Old and New,** Lewis F. Day. For the use of craftsmen, with the introductory essay on "Art in the Alphabet," 7×4½ inches, 229 pages		7	6
P7762	**Assaying, A Textbook of,** 7½×5½ inches, 470 pages. G. & J. J. Berringer		12	6
P7763	**Builders' Price Book,** Laxton and Lockwood		7	6
P7765	**Civil Engineers' Pocket Book,** Trautwine. 6½×4 inches, 1,520 pages	1	15	0
P7766	**Curve Tables,** A. Beazeley, M.Inst.C.E. Tables of Tangential Angles and Multiples for setting out curves from 5 to 200 radius		5	0
P7767	**Curve Tables,** Cutler and Edge. Tables for setting out curves from 101 feet to 5,000 feet radius. Useful for setting out roads, sewers, walls, fences, and general engineering work, 5×3½ inches, 47 pages		2	6
P7768	**Curve Tables,** Kennedy & Hatchwood. Tables for setting out curves for railways, canals, roads, etc., from a radius of 5 chains to 3 miles, 4¼×3½ inches, 70 pages		2	6

Scientific and Technical Books (continued).

		£	s.	d.
P7769	**Decimal Tables**, Winzar's "Instanter," giving at sight the decimal equivalents of the Moneys, Weights, Measures, Angles, Fractions, etc., in general use in the British Empire and the United States		3	0
P7770	**Drawing and Measuring Instruments**, W. F. Stanley. Their construction, uses, qualities, selection, preservation and improvements, with hints upon Drawing, Colouring, Calculating, Sun-printing, Lettering, etc. Eighth edition		3	6
P7771	**Easements of Light**, John Swarbrick. Modern methods of computing compensation	1	1	0
P7772	**Engineers' Year Book**, Kempe	1	10	0
P7773	**Field Analysis of Minerals**, G. D. McGregor. 8½×4 inches		3	6
P7774	**Field Manual**, A. L. Higgins. A practical treatise of Surveying Methods and Operations	1	1	0
P7775	**French Measures and English Equivalents**, J. Brook. For the use of Engineers, Manufacturers of Iron, Draughtsmen, etc.		1	6
P7776	**Geological and Topographical Maps**, their interpretation, A. R. Dwerryhouse. 8¾×5½ inches		6	0
P7777	**Geology of the Metalliferous Deposits**, R. H. Rastall. Demy 8vo., 81 figures	1	1	0
P7778	**Geology, Structural and Field**, Jas. Geikie. 9×6 inches, 454 pages	1	4	0
P7779	**Geology, Textbook of**, Lake & Rastall. 9×6 inches, 500 pages	1	1	0
P7780	**Graphic Charts in Business**, by Allan C. Haskell. A description of the various charts and diagrams available for business control and progress report, profusely illustrated	1	1	0
P7781	**Hints to Meteorological Observers**, W. Marriott, F.R.Met.Soc.		3	0
P7782	**Hints to Travellers**, E. A. Reeves, F.R.A.S., F.R.G.S. Scientific and general, edited for the Council of the Royal Geographical Society, 2 vols. New edition in course of preparation.			
P7783	**Hoppus's Measurer**, W. Richardson. Showing at sight the solid and superficial contents (and value) of any piece or quantity of square or round timber, either standing or felled; also of stone, board, glass, etc., contents in feet, inches and twelfth-parts of an inch, and a new table for calculating round timber. 7×3 inches, 238 pages		2	0
P7784	**Hurst's Pocket Book.** A Handbook of formulæ, tables and memoranda for Architectural Surveyors and others engaged in building. 5×3½ inches, 500 pages		8	6
P7785	**Hydrometer Tables**, Sykes. Of concentrated strengths of spirits, with directions, etc.		4	0
P7786	**Hygrometrical Tables**, adapted to the use of the wet and dry bulb Thermometer, Jas. Glaisher, F.R.S.		3	6
P7787	**Land Area Tables**, W. Codd. Showing the acreage represented by any number of square inches from .01 to 100 to various ordnance scales and other tables. Tables in envelope		1	0
P7788	**Levelling**, T. Holloway, revised by H. T. Tallack. Levelling and its general application. 8½×5½ inches, 145 pages		2	6

Scientific and Technical Books (continued).

		£	s.	d.
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P7792	**Mathematical Tables,** Chambers. (Pryde.) Logarithms of Numbers 1 to 108,000, Trigonometrical, Nautical and other tables, 7½×5 inches, 450 pages		5	0
P7793	**Mechanical Engineering, A Textbook of,** W. J. Lineham. 8×5½ inches, 1,244 pages	1	1	0
P7794	**Metalliferous Mine Surveying,** by Thos. G. Hanton		15	0
P7795	**Microscope, The,** a simple handbook by C. A. Hall. How to use the Microscope		3	0
P7796	**Mine Surveying,** Brough & Dean		9	0
P7797	**Mine Surveying,** E. B. Durham. 8½×6 inches	1	1	0
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P7799	**Mineralogy, Elements of,** Frank Rutley. 7½×5 inches		6	0
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P7801	**Mineralogy, Textbook of,** F. H. Hatch and R. H. Rastall. Sedimentary Rocks. 7½×5 inches		7	6
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P7816	**Ornamental Penman,** 31 specimen Alphabets, etc.			8

Scientific and Technical Books (continued).

		£	s.	d.
P7817	**Petrographic Methods and Calculations,** Arthur Holmes. 8¾×6 inches, 515 pages	1	11	6
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P7822	**Roadmaking, Modern,** by J. W. Green, City Engineer, Durham		7	6
P7823	**Roadmaking, The Science of,** by Green & Ridley		10	6
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P7827	**Slide Rule,** Pickworth. A practical manual. 7×5 inches ..		3	6
P7828	**Slide Rule, Calculations by,** H. O. Cooper. 500 examples and exercises		7	6
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7½ ,, left .. PEIMT
P1220 5-inch right .. PEINI
5 ,, left .. PEIOY
6 ,, right .. PEIPN
6 ,, left .. PEIQC
P1221 7½-inch right PEIRS
7½ ,, left .. PEISH
P1222 Cust's .. .. PEITX

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P1229 6-inch .. .. PEIVB
P1230 4 ,, ... PEIWR
P1231 5 ,, ... PEIXG
P1232 6 ,, ... PEIYW
P1240 Hand Compass PEIZL
P1241 Radium .. .. PEJAP
P1246 4-inch .. .. PEJBE

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P1261 ,, PEJFO
P1262 ,, PEJII
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P1264 ,, PEJOX
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P1271 Nickel .. .. PEJVA
P1274 Stop Watch .. PEJYV
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P1276 Timer .. .. PEKDI

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P1282 ,, ... PEKQA
P1284 ,, ... PEKUK
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P1286 ,, ... PEKYU
P1287 ,, ... PELAN
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P1291 Oblong .. .. PELSE
P1293 Mercurial .. PELTU
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P1298 With Telescope PEMAM
P1299 4-inch .. .. PEMEW
P1300 Stand .. .. PEMGA
P1301 Sliding .. .. PEMIF
P1310 Machete .. PEMNE
P1311 Bill Hook .. PEMOU
P1312 12-inch .. .. PEMRO
P1313 Axe .. .. PEMUI

P1314 4½ lbs. .. .. PEMVY
P1315 Whistle .. .. PEMYS
P1316 Two-note .. PENAL
P1317 Lancets .. .. PENBA

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P1320 Telemeter .. PENIE
P1321 Staff .. .. PENJU

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P1322 Heliograph .. PENOT

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P1323 Heliotrope .. PENQY
P1324 Lamp .. .. PENUH
P1325 Stethoscope .. PENYR

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15,000 ,, .. PEOEU
P1331 5,000-feet .. PEOFJ
10,000 ,, .. PEOGZ
15,000 ,, .. PEOHO
P1332 5,000-feet .. PEOID
10,000 ,, .. PEOJT
15,000 ,, .. PEOKI
P1333 5,000-feet .. PEOLY
10,000 ,, .. PEOMN
15,000 ,, .. PEONC
3,000 ,, .. PEOOS
Metric .. .. PEOPH
P1340 5,000-feet .. PEOQX
10,000 ,, .. PEORM
15,000 ,, .. PEOSB
Metric .. .. PEOTR

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P1350 5-inch .. .. PEOVW
P1351 3 ,, ... PEOWL
Mining .. .. PEOXA
P1352 3,000-feet .. PEOYQ
P1353 15,000 ,, .. PEOZF
P1354 20,000 ,, .. PEPAJ
P1355 5-inch .. .. PEPCO
P1356 3 ,, ... PEPET
Metric .. .. PEPFI

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P1360 5,000-feet .. PEPIC
10,000 ,, .. PEPOR
3,000-metres PEPSA
P1361 5,000-feet .. PEPUF
10,000 ,, .. PEPVP
3,000-metres PEPZE
P1362 15,000-feet .. PEQAI
20,000 ,, .. PEQBY
5,000-metres PEQES
P1363 15,000-feet .. PEQIB
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5,000-metres PEQOQ

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P1371 5,000-feet .. PERUD
10,000 ,, .. PERWI
P1372 5,000-feet .. PERXY
10,000 ,, .. PERYN
P1374 5,000-feet .. PESAG
10,000 ,, .. PESDA
P1375 5,000-feet .. PESEQ
10,000 ,, .. PESKE
3,000 ,, .. PESLU
15,000 ,, .. PESOO
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P1384 Altimeter .. PESUC

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Leather Case .. PETGU

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P1396 Marine .. .. PETUB
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P1426 6 ,, ... PEUSW
P1427 2½ ,, ... PEUTL
P1428 3 ,, ... PEUUA
P1429 3½ ,, ... PEUVQ
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P1431 4½-inch .. .. PEUXV
P1432 5 „ .. .. PEUYK
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P1474 Geographical PEXNU
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P1476 1½-inch .. .. PEXQO
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P1480 Scout .. .. PEYAA
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P1520 Standard .. PEYNT
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P1531 Double .. .. PEYTH
P1533 Opt. Square .. PEYUX
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P1540 Open form .. PEYXR
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P1542 Small .. .. PEYZW
Large .. .. PEZCE
P1543 Compass .. PEZDU
P1544 Circular .. .. PEZEJ
P1545 Compass .. PEZGO
P1546 Tripod .. .. PEZIT
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P1562 Links .. .. PEZWA
P1564 Perambulator PEZYF
P1565 Metres .. .. PFAAN
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P1570 Pedometer .. PFALA
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P1575 3-figure .. .. PFASE
P1576 4 „ .. .. PFATU
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P1581 „ .. PFBOU
P1590 Type 1 .. .. PFBUI
P1591 „ 2 .. .. PFCIE
P1592 German .. .. PFDEU
P1600 Sieve .. .. PFEAJ
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P1610 100-links .. PFEIC
P1611 100 „ .. PFEOR
50-feet .. .. PFESA
100 „ .. .. PFEUF
20-metres .. PFEYP
25 „ .. PFEZE
P1612 100-links .. PFFAI
50-feet .. .. PFFUE
100 „ .. .. PFFYO
20-metres .. PFGIA
25 „ .. PFHOO
P1613 100-links .. PFHUU
50-feet .. PFHYA
100 „ .. .. PFHYO
20-metres .. PFIAB
25 „ .. PFIAC
P1614 100-links .. PFIAF
50-feet .. .. PFIEP
100 „ .. .. PFIFE
P1615 50-links .. PFIGU
P1620 Iron .. .. PFIIZ
P1621 15-inch .. .. PFIJO
P1622 18 „ .. .. PFIMI
P1623 24 „ .. .. PFINY

P1624 Drop .. .. PF
P1625 Strap .. .. PF
P1626 15-inch .. .. PF
18 „ .. .. PF
24 „ .. .. PF
P1627 Tellers .. .. PF
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P1646 50-feet .. .. PF
100 „ .. .. PF
P1647 20-metres .. PF
25 „ .. PF
P1648 100-links .. PF
50-feet .. .. PF
100 „ .. .. PF
P1649 20-metres .. PF
25 „ .. PF
P1650 100-links .. PF
50-feet .. .. PF
100 „ .. .. PF
P1651 20-metres .. PF
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P1652 Standard .. PF
P1653 5-chains .. PF
P1654 300-feet .. .. PF
P1655 Undivided .. PF
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P1656 Undivided .. PF
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P1667 ⅝ „ .. .. PF
¾ „ .. .. PF
P1668 Thermometer PF
P1669 30-feet .. .. PF
P1670 50 „ .. .. PF
P1671 100 „ .. .. PF
P1675 50 „ .. .. PF
P1676 100 „ .. .. PF
P1677 50 „ .. .. PF
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50 „ .. .. PF
66 „ .. .. PF
100 „ .. .. PF
20-metres .. PF
25 „ .. PF
P1691 33-feet .. .. PG
50 „ .. .. PG
66 „ .. .. PG
100 „ .. .. PG

P1691 20-metres .. PGAOK
25 ,, .. PGARE
P1692 33-ft. Const. PGASU
50 ,, ,, .. PGAUZ
66 ,, ,, .. PGAVO
100 ,, ,, .. PGAYI
20-m. ,, .. PGAZY
25 ,, ,, .. PGBUY
33-ft. Met. .. PGCAA
50 ,, ,, .. PGCIU
66 ,, ,, .. PGCOI
100 ,, ,, .. PGEAZ
20-m. Met .. PGEBO
25 ,, ,, .. PGEEI
P1693 33-ft. Const. PGEFY
50 ,, ,, .. PGEIS
66 ,, ,, .. PGEOG
100 ,, ,, .. PGERA
20-m. ,, .. PGEUV
25 ,, ,, .. PGEYE
33-ft. Met. .. PGEZU
50 ,, ,, .. PGFAY
66 ,, ,, .. PGFUU
100 ,, ,, .. PGGOE
20-m. Met. .. PGIAV
25 ,, ,, .. PGIEE
P1695 33-feet .. .. PGIFU
50 ,, ... PGIIO
66 ,, ... PGILI
20-metres .. PGIMY
P1696 33-feet .. .. PGIOC
50 ,, ... PGIUR
66 ,, ... PGIYA
100 ,, ... PGJAU
20-metres .. PGKOA
25 ,, .. PGLUO
P1697 33-feet .. .. PGLYY
50 ,, ... PGMEA
66 ,, ... PGNOY
100 ,, ... PGOAP
20-metres .. PGOBE
25 ,, .. PGOCU
P1698 33-feet .. .. PGOEZ
50 ,, ... PGOFO
66 ,, ... PGOII
100 ,, ... PGOJY
20-metres .. PGOOX
25 ,, .. PGOUL
P1699 33-feet .. .. PGOVA
50 ,, ... PGOYV
66 ,, ... PGPAO
100 ,, ... PGPEY
20-metres .. PGPYU
25 ,, .. PGROU
P1700 33-feet .. .. PGRUI
50 ,, ... PGSIE
66 ,, ... PGTEU
100 ,, ... PGUAJ
20-metres .. PGUCO
25 ,, .. PGUET
P1701 3-feet .. .. PGUFI
6 ,, ... PGUGY
9 ,, ... PGUIC

P1701 12-feet .. .. PGUOR
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P1710 33-feet .. .. PGUYP
50 ,, ... PGUZE
66 ,, ... PGVAI
100 ,, ... PGVUE
20-metres .. PGVYO
25 ,, .. PGWIA
P1711 33-feet .. .. PGXOO
50 ,, ... PGYAF
66 ,, ... PGYEP
100 ,, ... PGYFE
20-metres .. PGYGU
25 ,, .. PGYIZ
P1712 33-ft. Rig. .. PGYJO
50 ,, ,, .. PGYMI
66 ,, ,, .. PGYNY
100 ,, ,, .. PGYON
20-m. ,, .. PGYUB
25 ,, ,, .. PGYYL
33-ft. Met. .. PGYZA
50 ,, ,, .. PGZAE
66 ,, ,, .. PGZEO
100 ,, ,, .. PGZIY
20-m. ,, .. PGZUA
25 ,, ,, .. PHAAS
P1713 33-ft. Rig. .. PHAEB
50 ,, ,, .. PHAIL
66 ,, ,, .. PHAJA
100 ,, ,, .. PHAQE
20-m. ,, .. PHARU
25 ,, ,, .. PHAUO
33-ft. Met. .. PHAXI
50 ,, ,, .. PHAYY
66 ,, ,, .. PHBEA
100 ,, ,, .. PHCOY
20-m. ,, .. PHDII
25 ,, ,, .. PHEAO
P1720 33-feet .. .. PHEDI
50 ,, ... PHEEY
66 ,, ... PHEIH
100 ,, ... PHEOW
P1721 33-feet .. .. PHEQA
50 ,, ... PHEUK
66 ,, ... PHEXE
100 ,, ... PHEYU
P1722 33-feet .. .. PHGOU
50 ,, ... PHGUI
66 ,, ... PHHIE
100 ,, ... PHIAK
P1747 Punch .. .. PHIDE
P1748 Rivets .. .. PHIEU

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P1760 5-ft. Natural PHIID
5 ,, Black .. PHIKI
6 ,, Natural PHILY
6 ,, Black .. PHIOS
10 ,, Natural PHIUG
10 ,, Black .. PHIXA
2-m. Natural PHIYQ

P1760 2-m. Black .. PHKAI
P1761 5-ft. Natural PHKUE
5 ,, Black .. PHKYO
10 ,, Black .. PHLIA
10 ,, Natural PHMOO
P1764 Black .. .. PHOAE
Natural .. .. PHOBU
P1770 Black .. .. PHOEO
Natural .. .. PHOHI
P1771 Black .. .. PHOIY
Natural .. .. PHOOM
P1772 5-feet .. .. PHOUA
P1780 5 ,, ... PHOYK
P1781 10 ,, ... PHQYI
P1782 Case .. .. PHRUY
P1783 ,, ... PHSAA
P1784 Ferrule .. .. PHSIU
P1790 Bamboo .. .. PHSOI
P1791 Malacca .. .. PHUAZ

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(b) ¼-inch .. PHUFY
$\frac{1}{10}$,, .. PHUIS
(c) .. .. .. PHUOG
(d) .. .. .. PHURA
P1801 (b) ¼-inch .. PHUUV
$\frac{1}{10}$,, .. PHUYE
P1810 (a) .. .. .. PHUZU
(b) .. .. .. PHVAY
(c) .. .. .. PHVUU
P1820 6-feet .. .. PHWOE
P1821 8 ,, ... PHYAV

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P1830 Ivory .. .. PHYFU
Boxwood .. PHYIO
P1831 Ivory .. .. PHYLI
Boxwood .. PHYMY
P1832 Ivory .. .. PHYOC
P1840 ,, ... PHYUR
First Quality PHYYA
Second ,, PHZAU
P1841 Ivory .. .. PIAAH
First Quality PIABX
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Boxwood .. PIAHL
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P1850 7/6 .. .. .. PIAKF
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P1851 Mechanic's .. PIAMK
P1852 Timber .. .. PIAOP
P1853 Stainless .. PIAPE
P1854 Boxwood .. PIAQU
P1855 5-feet .. .. PIARJ
P1856 6 ,, ... PIASZ
P1857 1-metre .. .. PIATO

P1858 Steel Rule .. PIAUD
P1859 „ „ .. PIAVT
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P1865 6-feet .. .. PIAYN
P1866 8 „ .. .. PIAZC
P1867 10 „ .. .. PIBAG
P1868 2-metres .. PIBDA
P1869 Jointed .. .. PIBEQ
P1870 Bamboo .. PIBKE
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P1880 12-inch .. .. PIBSY
P1881 18 „ .. .. PIBUC
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P1906 With adjustment .. .. PICUB

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P1933 Stanley .. .. PIEAD
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P2043 5-inch .. .. PIHEK
4 „ .. .. PIHHE
P2046 5 „ .. .. PIHIU
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Small .. .. PIICE
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P2070 3-inch .. .. PIIPX
2½ „ .. .. PIIQM
P2071 3 „ .. .. PIIRB
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5 „ .. .. PIJEI
P2081 6 „ .. .. PIJFY
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P2083 6 „ .. .. PIJUV
5 „ .. .. PIJYE
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5 „ .. .. PIKAY
P2085 6 „ .. .. PIKEH
5 „ .. .. PIKIR
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P2121 B. Point .. PINAV
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P2225 4½-inch .. .. PIUDI
6 ,, ... PIUEY
P2226 4½ ,, ... PIUFN
6 ,, ... PIUGC
P2227 4½ ,, ... PIUHS
6 ,, ... PIUIH

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P2230 4½-inch .. .. PIUKM
6 ,, ... PIULB
P2231 4½ ,, ... PIUMR
6 ,, ... PIUNG

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P2232 4½-inch .. .. PIUOW
6 ,, ... PIUPL
P2233 4½ ,, ... PIUQA
6 ,, ... PIURQ
P2234 4½ ,, ... PIUSF
6 ,, ... PIUTV

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P2235 Wallet .. .. PIUWP
P2236 Perma .. .. PIUXE

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P2250 6-inch .. .. PIUZJ
P2251 Carbon .. .. PIVAN
Stainless .. PIVEX
P2252 No Bar .. .. PIVIG
P2254 Carbon .. .. PIVLA
Stainless .. PIVOV
P2255 6-inch .. .. PIVSE

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P2258 Carbon .. .. PIVUJ
Stainless .. PIVWO
P2259 Carbon .. .. PIVYT
Stainless .. PIVZI
P2263 Carbon .. .. PIWAM
Stainless .. PIWEW
P2264 Carbon .. .. PIWGA
Stainless .. PIWIF
P2266 Rotating .. PIWNE
P2267 Case .. .. PIWOU

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P2270 6-inch .. .. PIWUI
P2271 No Bar .. .. PIWVY
P2273 Divider .. .. PIWYS
P2274 Ink .. .. PIXAL
P2275 Pencil .. .. PIXBA

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P2276 Perma .. .. PIXIE
P2277 Mahogany .. PIXJU
P2278 ,, .. PIXMO
P2279 Perma .. .. PIXOT
P2280 Mahogany .. PIXPI
P2281 ,, .. PIXQY

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P2282 Wallet .. .. PIXYR
P2283 ,, ... PIYAK

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P2284 Wallet .. .. PIYDE
P2285 Perma .. .. PIYEU

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P2286 Wallet .. .. PIYGZ
P2287 Mahogany .. PIYHO

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P2288 Wallet .. .. PIYID
P2289 Mahogany .. PIYJT
P2290 Wallet .. .. PIYKI
P2291 Mahogany .. PIYLY

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P2293 Compass .. PIYNC
P2294 No Bar .. .. PIYOS
P2295 Compass .. PIYPH
P2296 ,, .. PIYQX
P2297 Divider .. .. PIYRM
P2298 Pen .. .. PIYSB

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P2305 Divider .. .. PIYUG
P2306 Pencil .. .. PIYVW
P2307 Pen .. .. PIYWL
P2308 Divider .. .. PIYXA
P2309 Pencil .. .. PIYYQ
P2310 Pen .. .. PIYZF

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P2311 Wallet .. .. PIZCO
P2312 ,, ... PIZET
P2313 ,, ... PIZFI

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P2314 Wallet .. .. PIZIC
P2315 ,, ... PIZOR
P2316 ,, ... PIZSA

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P2321 18-inch .. .. PIZYP
P2322 24 ,, ... PIZZE
P2323 30 ,, ... PJAAX
P2324 36 ,, ... PJAEG
P2325 42 ,, ... PJAHA
P2326 48 ,, ... PJAIQ
P2329 30 ,, ... PJAOE
P2330 36 ,, ... PJAPU

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P2331 Electrum .. PJAUT
P2332 Brass .. .. PJAVI
P2333 Electrum .. PJAWY
P2334 Sliding Bar .. PJAYC
P2335 Brass .. .. PJCEE
P2336 Larger .. .. PJCIO
P2338 Compensating PJCYA

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P2340 Parallel Braced PJEAT
P2341 Gauge Points PJEBI
P2342 Disc .. .. PJECY

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P2345 Coradi .. .. PJEIM
P2346 Centimetres .. PJEOA
P2347 Decimal.. .. PJEUP
P2348 Wagon .. .. PJEVE

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P2350 Integrator .. PJEYZ
P2351 ,, .. PJEZO

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P2352 Integrator .. PJFYY

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P2355 Computer .. PJHOY
P2356 Universal .. PJIAP
P2357 Scale .. .. PJIBE
P2358 Sheets .. .. PJICU
P2359 Computer .. PJIEZ

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P2363 Camera .. .. PJIJY
P2364 ,, ... PJIOX
P2366 Craniometer .. PJIUL

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P2371 Centrolinead .. PJIYV
P2375 2-inch .. .. PJJAO
P2376 4 ,, ... PJJEY
P2377 6-inch .. .. PJJYU
P2378 9 ,, ... PJJOU
P2379 12 ,, ... PJJUI

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P2401 No. 1 Set .. PJNEU
No. 2 ,, .. PJOAJ
No. 3 ,, .. PJOCO
P2402 No. 1 ,, .. PJOET
No. 2 ,, .. PJOFI
No. 3 ,, .. PJOGY
P2403 No. 1 ,, .. PJOIC
No. 2 ,, .. PJOOR
No. 3 ,, .. PJOSA
P2404 No. 1 ,, .. PJOUF
No. 2 ,, .. PJOYP
No. 3 ,, .. PJOZE
P2405 No. 1 ,, .. PJPAI
No. 2 ,, .. PJPUE
No. 3 ,, .. PJPYO
P2406 No. 1 ,, .. PJQIA
No. 2 ,, .. PJROO
No. 3 ,, .. PJTAE
P2407 No. 1 ,, .. PJTEO
No. 2 ,, .. PJTIY
No. 3 ,, .. PJTUA
P2409 No. 6 ,, .. PJUAD
No. 7 ,, .. PJUCI
No. 8 ,, .. PJUDY
No. 9 ,, .. PJUEN
P2410 No. 6 ,, .. PJUIX
No. 7 ,, .. PJUOL
No. 8 ,, .. PJUPA
No. 9 ,, .. PJUWE
P2411 No. 6 ,, .. PJUXU
No. 7 ,, .. PJUYJ
No. 8 ,, .. PJVYI
No. 9 ,, .. PJWUY
P2412 No. 6 ,, .. PJXAA
No. 7 ,, .. PJXIU
No. 8 ,, .. PJXOI
No. 9 ,, .. PJYCE
P2414 No. 12 ,, .. PJYEJ
No. 13 ,, .. PJYGO
P2415 No. 12 ,, .. PJYIT
No. 13 ,, .. PJYJI
P2416 No. 12 ,, .. PJYKY
No. 13 ,, .. PJYOH
P2417 No. 12 ,, .. PJYUW
No. 13 ,, .. PJYWA
P2418 No. 15 ,, .. PJYYF
No. 16 ,, .. PJZEI
No. 17 ,, .. PJZYE
No. 18 ,, .. PKAAM
P2419 No. 15 ,, .. PKAEW
No. 16 ,, .. PKAGA
No. 17 ,, .. PKAIF
No. 18 ,, .. PKANE
P2420 No. 15 ,, .. PKAOU
No. 16 ,, .. PKARO
No. 17 ,, .. PKAUI
No. 18 ,, .. PKAVY
P2421 No. 15 ,, .. PKAYS
P2421 No. 16 Set .. PKBIE
No. 17 ,, .. PKCEU
No. 18 ,, .. PKEAI

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P2425 6-inch .. .. PKEES
P2426 12 ,, ... PKEIB
P2427 18 ,, ... PKENA
P2428 24 ,, ... PKEOQ
P2429 30 ,, ... PKEUE
P2430 2 ,, ... PKEVU
P2431 3 ,, ... PKEYO
P2432 6 ,, ... PKFIA
P2433 6 ,, ... PKGOO
P2434 12 ,, ... PKIAE
P2435 18 ,, ... PKIBU
P2436 24 ,, ... PKIEO
P2437 30 ,, ... PKIHI
P2438 2 ,, ... PKIIY
P2439 3 ,, ... PKIOM
P2440 6 ,, ... PKIUA
P2441 6 ,, ... PKIYK
P2442 12 ,, ... PKKYI
P2443 18 ,, ... PKLUY
P2444 2 ,, ... PKMAJ
P2445 3 ,, ... PKMIU
P2446 6 ,, ... PKMOI
P2447 6 ,, ... PKOAZ
P2448 12 ,, ... PKOBO
P2449 18 ,, ... PKOEI
P2450 2 ,, ... PKOFY
P2451 3 ,, ... PKOIS
P2454 6 ,, ... PKOOG
P2455 12 ,, ... PKORA
P2456 2 ,, ... PKOUV
P2457 6 ,, ... PKOYE
P2458 12 ,, ... PKOZU
P2459 2 ,, ... PKPAY

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No. 21 .. .. .. PKQOE
No. 22 .. .. .. PKSEE
No. 23 .. .. .. PKSIO
No. 24 .. .. .. PKSYA
No. 25 .. .. .. PKTAU
No. 26 .. .. .. PKUAT
No. 27 .. .. .. PKUBI
No. 28 .. .. .. PKUCY
No. 29 .. .. .. PKUEC
No. 30 .. .. .. PKUIM
No. 31 .. .. .. PKUOA
No. 32 .. .. .. PKUUP
No. 33 .. .. .. PKUVE
No. 34 .. .. .. PKUWU
No. 35 .. .. .. PKUYZ
No. 36 .. .. .. PKUZO
No. 37 .. .. .. PKVUO
No. 38 .. .. .. PKVYV
No. 39 .. .. .. PKWEJ
No. 40 .. .. .. PKXOV
No. 41 .. .. .. PKYAP
No. 42 .. .. .. PKYBE
No. 43 .. .. .. PKYCU

No. 44 .. .. .. PKYEZ
No. 45 .. .. .. PKYFO
No. 46 .. .. .. PKYII
No. 47 .. .. .. PKYJY
No. 48 .. .. .. PKYOX
No. 49 .. .. .. PKYUL
No. 50 .. .. .. PKYVA
No. 51 .. .. .. PKYYV
No. 52 .. .. .. PKZAO
No. 53 .. .. .. PKZEY
No. 54 .. .. .. PKZYU
No. 55 .. .. .. PLAAB
No. 56 .. .. .. PLAEL
No. 57 .. .. .. PLAFA
No. 61 .. .. .. PLAIV
No. 62 .. .. .. PLAME
No. 63 .. .. .. PLANU
No. 64 .. .. .. PLAOJ
No. 65 .. .. .. PLAQO
No. 66 .. .. .. PLATI
No. 67 .. .. .. PLAUY
No. 68 .. .. .. PLAYH
No. 69 .. .. .. PLBAA
No. 70 .. .. .. PLBIU
No. 71 .. .. .. PLBOI
No. 72 .. .. .. PLDEI
No. 73 .. .. .. PLDYE
No. 74 .. .. .. PLEAY
No. 75 .. .. .. PLEEH
No. 76 .. .. .. PLEIR
No. 77 .. .. .. PLEMA
No. 78 .. .. .. PLEOF
No. 81 .. .. .. PLETE
No. 82 .. .. .. PLEUU
No. 83 .. .. .. PLEXO
No. 84 .. .. .. PLEYD
No. 85 .. .. .. PLFOE
No. 86 .. .. .. PLHEE
No. 87 .. .. .. PLHIO
No. 88 .. .. .. PLHYA
No. 89 .. .. .. PLIAU
No. 90 .. .. .. PLIDO
No. 91 .. .. .. PLIED
No. 92 .. .. .. PLIGI
No. 93 .. .. .. PLIHY
No. 94 .. .. .. PLIIN
No. 95 .. .. .. PLIOB

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P2461 30-centimetre PLIUQ
P2462 50 „ PLJOA
P2463 1-metre .. PLKUO
P2464 30-centimetre PLKYY
P2465 50 „ PLLEA
P2466 1-metre .. PLMOY
P2467 30-centimetre PLNII
P2470 30 „ PLOAO
P2471 50 „ PLODI
P2472 30 „ PLOEY
P2473 50 „ PLOIH
P2474 1-metre .. PLOOW
P2475 30-centimetre PLOQA
P2476 50 „ PLOUK
P2477 30-centimetre PLOXE
P2479 30 „ PLOYU
P2480 50 „ PLQOU

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No. 101 .. .. .. PLRIE
No. 102 .. .. .. PLSEU
No. 103 .. .. .. PLUAI
No. 104 .. .. .. PLUBY
No. 105 .. .. .. PLUES
No. 106 .. .. .. PLUIB
No. 107 .. .. .. PLUNA
No. 108 .. .. .. PLUOQ
No. 109 .. .. .. PLUUE
No. 110 .. .. .. PLUVU
No. 111 .. .. .. PLUYO
No. 112 .. .. .. PLVIA
No. 113 .. .. .. PLWOO
No. 114 .. .. .. PLYAE
No. 115 .. .. .. PLYBU
No. 116 .. .. .. PLYEO
No. 117 .. .. .. PLYHI
No. 118 .. .. .. PLYIY
No. 119 .. .. .. PLYOM
No. 120 .. .. .. PLYUA
No. 121 .. .. .. PLYYK
No. 122 .. .. .. PMAAR
No. 123 .. .. .. PMAEA
No. 124 .. .. .. PMAIK
No. 125 .. .. .. PMALE
No. 126 .. .. .. PMAMU
No. 127 .. .. .. PMAOZ
No. 128 .. .. .. PMAPO
No. 129 .. .. .. PMASI
No. 130 .. .. .. PMATY
No. 131 .. .. .. PMAUN
No. 132 .. .. .. PMAYX
No. 133 .. .. .. PMBOY
No. 134 .. .. .. PMCII
No. 135 .. .. .. PMDAO
No. 136 .. .. .. PMDEY
No. 137 .. .. .. PMDYU
No. 138 .. .. .. PMEAN
No. 139 .. .. .. PMEEX
No. 140 .. .. .. PMEIG
No. 141 .. .. .. PMELA
No. 142 .. .. .. PMEOV
No. 144 .. .. .. PMESE
No. 145 .. .. .. PMETU
No. 146 .. .. .. PMEUJ
No. 147 .. .. .. PMEWO
P2485 12-inch .. .. PMEYT
P2486 18 „ .. .. PMEZI

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M .. .. PMFUI
N .. .. PMGIE
O .. .. PMHEU
P .. .. PMIAJ
Q .. .. PMICO
Left to right .. .. PMIDU
Right to left .. .. PMIEB

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P2501 6-inch .. .. PMIFT
P2502 12 „ .. .. PMIGY
P2503 18 „ .. .. PMIIC
P2504 24 „ .. .. PMIOR
P2505 30 „ .. .. PMISA
P2506 6 „ .. .. PMIUF
P2507 12 „ .. .. PMIYP
P2508 18 „ .. .. PMIZE
P2509 24 „ .. .. PMJAI
P2510 30 „ .. .. PMJUE
P2511 6 „ .. .. PMJYO
P2512 12 „ .. .. PMKIA
P2513 18 „ .. .. PMLOO
P2514 12 „ .. .. PMNAE
P2515 18 „ .. .. PMNEO
No. 151 .. .. .. PMNIY
No. 152 .. .. .. PMNUA
No. 153 .. .. .. PMOAD
No. 154 .. .. .. PMOCI
No. 155 .. .. .. PMODY
No. 156 .. .. .. PMOEN
No. 157 .. .. .. PMOIX
No. 158 .. .. .. PMOOL
No. 159 .. .. .. PMOPA
No. 160 .. .. .. PMOWE
No. 161 .. .. .. PMOXU
No. 162 .. .. .. PMOYJ
No. 163 .. .. .. PMPYI
No. 164 .. .. .. PMQUY
No. 165 .. .. .. PMRAA
No. 166 .. .. .. PMRIU
No. 167 .. .. .. PMROI
No. 168 .. .. .. PMTEI
No. 169 .. .. .. PMTYE
No. 170 .. .. .. PMUAY
No. 171 .. .. .. PMUEH
P2517 Boxwood .. PMUIR
P2518 Cell.-edged .. PMUMA
P2519 Ivory .. .. PMUOF
P2520 Electrum .. PMUTE

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R .. .. PMUYD
S .. .. PMVOE
T .. .. PMXEE
U .. .. PMXIO
W .. .. PMXYA
Left to right .. .. PMYAU
Right to left .. .. PMYDO

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P2525 6-inch .. .. PMYGI
P2526 12 „ .. .. PMYHY
P2527 18 „ .. .. PMYIN
P2528 24 „ .. .. PMYOB
P2529 30 „ .. .. PMYTA
P2530 6 „ .. .. PMYUQ
P2531 12 „ .. .. PMZOA
P2532 18 „ .. .. PNAAG
P2533 24 „ .. .. PNADA
P2534 30 „ .. .. PNAEQ
P2536 6 „ .. .. PNAKE

P2537 12-inch .. .. PNALU
P2538 18 „ .. .. PNAOO
P2539 12 „ .. .. PNARI
P2540 18 „ .. .. PNASY
No. 201 .. .. .. PNAUC
No. 202 .. .. .. PNAYM
No. 203 .. .. .. PNCAE
P2545 Boxwood .. PNCEO
Cell.-edged .. PNCIY
Ivory .. .. PNCUA
P2546 Boxwood .. PNEAC
Cell.-edged .. PNEEM
Ivory .. .. PNEIW
P2547 Boxwood .. PNEKA
Cell.-edged .. PNEOK
Ivory .. .. PNERE
P2548 Boxwood .. PNESU
Cell.-edged .. PNEUZ
P2549 Boxwood .. PNEVO
Cell.-edged .. PNEYI
P2550 Boxwood .. PNEZY
Cell.-edged .. PNFUY
Ivory .. .. PNGAA
P2551 Boxwood .. PNGIU
Cell.-edged .. PNGOI
Ivory .. .. PNIAZ
P2552 Boxwood .. PNIBO
Cell.-edged .. PNIEI
Ivory .. .. PNIFY
P2553 Boxwood .. PNIIS
Cell.-edged .. PNIOG
P2554 Boxwood .. PNIRA
Cell.-edged .. PNIUV
P2557 Boxwood .. PNIYE
P2558 Brass .. .. PNIZU
P2559 Weight .. .. PNJAY

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P2561 Boxwood .. PNKOE
Ivory .. .. PNMEE
P2562 Boxwood .. PNMIO
Ivory .. .. PNMYA
P2563 Boxwood .. PNNAU
Ivory .. .. PNOAT
P2564 Boxwood .. PNOBI
Ivory .. .. PNOCY
No. 251 .. .. .. PNOEC
No. 252 .. .. .. PNOIM
No. 253 .. .. .. PNOOA
No. 254 .. .. .. PNOOS
No. 255 .. .. .. PNOUP
No. 256 .. .. .. PNOVE
P2565 6-inch .. .. PNOWU
P2566 12 „ .. .. PNOYZ
P2567 6 „ .. .. PNOZO
P2568 12 „ .. .. PNPUO
P2569 6 „ .. .. PNPYY
P2570 12 „ .. .. PNQEA
P2571 Boxwood .. PNROY
P2572 Cell.-faced .. PNSII
P2573 Ivory .. .. PNTAO

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P2577 Marquois .. PNTYU
P2578 Improved .. PNUAN
P2580 Pair .. .. PNUEX

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P2583 Case .. .. PNUIG
P2584 Best quality .. PNULA
P2585 Case .. .. PNUOV
P2586 „ .. .. PNUSE
P2601 ¼-inch .. .. PNUTU
P2602 ¼ „ .. .. PNUUJ
P2603 ½ „ .. .. PNUWO
P2604 ½ „ .. .. PNUYT
P2605 Angle Gauge .. PNUZI
P2606 Wire „ .. PNVOU
P2607 Standard .. PNVUI
P2608 „ .. PNWIE
P2611 Circular .. .. PNXEU
P2612 Iron .. .. PNYAJ
P2613 Lead .. .. PNYCO
P2614 „ .. .. PNYET

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P2615 6-inch .. .. PNYGY
9 „ .. .. PNYIC
12 „ .. .. PNYOR
15 „ .. .. PNYSA
18 „ .. .. PNYUF
24 „ .. .. PNYYP
P2616 Celluloid .. PNYZE
P2617 Ivory .. .. PNZAI
P2619 6-inch .. .. PNZUE
9 „ .. .. PNZYO
12 „ .. .. POAAW
15 „ .. .. POABL
18 „ .. .. POACA
24 „ .. .. POADQ
P2620 9 „ .. .. POAEF
12 „ .. .. POAFV
15 „ .. .. POAGK
18 „ .. .. POAIP
24 „ .. .. POAJE
P2621 9 „ .. .. POAKU
12 „ .. .. POALJ
15 „ .. .. POAMZ
18 „ .. .. POANO
24 „ .. .. POAOD
Ivory .. .. POAPT
P2622 9-inch .. .. POAQI
12 „ .. .. POARY
15 „ .. .. POASN
18 „ .. .. POATC
24 „ .. .. POAUS
P2623 6 „ .. .. POAVH
9 „ .. .. POAWX
12 „ .. .. POAXM
15 „ .. .. POAYB
18 „ .. .. POAZR
24 „ .. .. POBAV
30 „ .. .. POBEE
36 „ .. .. POBFU
P2624 6 „ .. .. POBIO
9 „ .. .. POBLI
12 „ .. .. POBMY
P2624 15-inch .. .. POBOC
18 „ .. .. POBUR
24 „ .. .. POBYA
30 „ .. .. POCAU
36 „ .. .. POCDO
P2625 9 „ .. .. POCED
12 „ .. .. POCGI
15 „ .. .. POCHY
18 „ .. .. POCIN
24 „ .. .. POCOB
30 „ .. .. POCTA
36 „ .. .. POCUQ

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P2627 6-inch .. .. PODBI
P2628 12 „ .. .. PODCY
P2629 Sectioning .. PODEC

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P2661 Elliptic .. .. PODOA
P2662 „ .. .. PODUP
P2663 „ .. .. PODVE
P2677 Parabolic .. PODWU

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P2681 Parabola .. PODZO
P2682 Hyperbola .. POEAS
P2683 Ellipse .. .. POEBH
P2684 Cycloid .. .. POECX
P2685 Cubic .. .. POEDM
P2691 7-inch .. .. POEEB
P2692 14 „ .. .. POEFR
P2695 30 „ .. .. POEGG

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P2700 12-inch .. .. POEIL
P2701 18 „ .. .. POEJA
P2702 12 „ .. .. POEKQ
P2703 18 „ .. .. POELF
P2704 24 „ .. .. POEMV
P2706 9 „ .. .. POENK
P2707 12 „ .. .. POEPP
P2708 18 „ .. .. POEQE

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P2711 Cardboard .. POESJ
P2712 Pearwood .. POETZ
P2713 Vulcanite .. POEUO
P2714 Celluloid .. POEVD
P2715 Cardboard .. POEWT
P2716 Pearwood .. POEXI
P2717 Vulcanite .. POEYY
P2718 Celluloid .. POEZN
P2719 Cardboard .. POFAR
P2720 Pearwood .. POFEA
P2721 Vulcanite .. POFIK
P2722 Celluloid .. POFLE

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P2723 Cardboard .. POFOZ
P2724 Pearwood .. POFPO
P2725 Vulcanite .. POFSI
P2726 Celluloid .. POFTY

P2727 Pearwood .. POFYX
P2728 Vulcanite .. POGAQ
P2729 Celluloid .. POGGE

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P2742 Curve Gauge .. POGHU
P2743 „ „ .. POGIJ
P2744 Radiator .. POGKO
P2745 Corner .. .. POGNI

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P2751 Pearwood .. POGUM
Vulcanite .. POGYW
Celluloid .. POHAP
P2753 Pearwood .. POHBE
Vulcanite .. POHCU
Celluloid .. POHEZ
P2754 Pearwood .. POHFO
Vulcanite .. POHII
Celluloid .. POHJY
P2755 Pearwood .. POHOX
Vulcanite .. POHUL
Celluloid .. .. POHVA

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P2761 Yacht .. .. POIAO
P2762 Pearwood .. POICT
P2763 Large .. .. POIDI
P2764 Celluloid .. POIEY
P2765 Large .. .. POIFN
P2766 Adjustable .. POIGC

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P2770 Set .. .. POIIH
P2771 Weight .. .. POIJX
P2772 Set .. .. POIKM
P2773 Weight .. .. POILB
P2774 Opisometer .. POIMR
P2776 Divided .. .. POING
P2777 Rotameter .. POIOW
P2778 „ .. POIPL
P2779 „ .. POIQA
P2780 Improved .. POIRQ

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P2900 Gun-metal .. POITV
P2901 Electrum .. POIUK
P2904 Circular .. POIWP
Semi-circular POIWY
P2905 Circular .. POIXE
Semi-circular POIXP
P2906 Circular .. .. POIYU
Semi-circular POIZJ
P2907 Circular .. .. POJAN
Semi-circular POJEX
P2910 Tacheometer POJIG

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P2917 Gun-metal .. POJOV
Electrum .. POJSE
P2918 Gun-metal .. POJTU
Electrum .. POJUJ

P2919 Circ. Gun. .. POJWO
Semi „ .. POJYT
Circ. Elect. .. POJZI
Semi „ .. POKAM
P2920 Circ. Gun. .. POKEW
„ Elect. .. POKGA
Semi Gun. .. POKIF
„ Elect. .. POKNE
P2921 Circular .. POKOU
P2922 Semi .. .. POKRO
P2923 Circular .. .. POKUI
P2924 Semi .. .. POKVY
P2931 6-inch .. .. POKYS
P2932 9 „ .. .. POLAL
P2933 12 „ .. .. POLBA
P2939 6 „ .. .. POLEV
P2940 9 „ .. .. POLIE
P2948 6 „ .. .. POLJU
P2949 9 „ .. .. POLMO
P2957 12 „ .. .. POLOT
P2958 15 „ .. .. POLPI

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P2971 5-in. Box. .. POLUH
5 „ Ivory .. POLYR
6 „ Box. .. POMAK
6 „ Ivory .. POMDE
P2972 5 „ Box. .. POMEU
5 „ Ivory .. POMHO
6 „ Box. .. POMID
6 „ Ivory .. POMKI
P2973 Electrum .. POMLY
P2976 Boxwood .. POMOS
Ivorine .. .. POMOY
Ivory .. .. POMUA
P2982 Sandhurst .. POMUG

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P3001 6-inch .. .. POMYQ
12 „ .. .. PONAJ
P3002 6 „ .. .. PONCO
12 „ .. .. PONET
P3005 Boxwood .. PONFI
P3006 Opaque .. .. PONGY
P3007 Transparent .. PONIC
P3008 7-inch .. .. PONOR
P3009 Ebony Edge .. PONSA

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P3010 7-inch .. .. PONYP
P3011 10 „ .. .. PONZE
P3012 12 „ .. .. POOAI
P3013 7 „ .. .. POOBY
P3014 10 „ .. .. POOCN
P3015 12 „ .. .. POODC
P3021 6 „ .. .. POOES
P3022 8 „ .. .. POOFH
P3023 8 „ .. .. POOGX
P3024 10 „ .. .. POOHM

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P3051 4-inch .. .. POOJR

P3051 6-inch .. .. POOKG
8 „ .. .. POOLW
P3052 4 „ .. .. POOML
6 „ .. .. POONA
8 „ .. .. POOPF
10 „ .. .. POOQV
P3053 4 „ .. .. POORK
6 „ .. .. POOTP
8 „ .. .. POOUE
P3055 4 „ .. .. POOVU
6 „ .. .. POOWJ
8 „ .. .. POOXZ
10 „ .. .. POOYO
12 „ .. .. POOZD
P3056 4 „ .. .. POPAH
6 „ .. .. POPER
8 „ .. .. POPIA
10 „ .. .. POPOP
12 „ .. .. POPPE
P3057 4 „ .. .. POPTO
6 „ .. .. POPUD
8 „ .. .. POPWI
10 „ .. .. POPXY
12 „ .. .. POPYN
P3061 4 „ .. .. POQAG
6 „ .. .. POQDA
8 „ .. .. POQEQ
10 „ .. .. POQKE
12 „ .. .. POQLU
15 „ .. .. POQOO
P3062 4 „ .. .. POQRI
6 „ .. .. POQSY
8 „ .. .. POQUC
10 „ .. .. POQYM
12 „ .. .. PORAF
15 „ .. .. POREP
18 „ .. .. PORFE
P3063 4 „ .. .. PORGU
6 „ .. .. PORIZ
8 „ .. .. PORJO
10 „ .. .. PORMI
12 „ .. .. PORNY
15 „ .. .. PORON
18 „ .. .. PORUB

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P3065 4-inch .. .. PORZA
6 „ .. .. POSAE
8 „ .. .. POSBU
10 „ .. .. POSEO
12 „ .. .. POSHI
P3066 4 „ .. .. POSIY
6 „ .. .. POSOM
8 „ .. .. POSUA
10 „ .. .. POSYK
12 „ .. .. POTAD
15 „ .. .. POTCI
18 „ .. .. POTDY
P3067 4 „ .. .. POTEN
6 „ .. .. POTIX
8 „ .. .. POTOL
10 „ .. .. POTPA
12 „ .. .. POTWE

P3067 15-inch .. .. POTXU
18 „ .. .. POTYJ
P3071 4 „ .. .. POUAC
6 „ .. .. POUBS
8 „ .. .. POUCH
10 „ .. .. POUDX
12 „ .. .. POUFB
15 „ .. .. POUGR
18 „ .. .. POUHG
P3072 6 „ .. .. POUIW
8 „ .. .. POUJL
10 „ .. .. POUKA
12 „ .. .. POULQ
15 „ .. .. POUMF
18 „ .. .. POUNV
P3073 6 „ .. .. POUOK
8 „ .. .. POUQP
10 „ .. .. POURE
12 „ .. .. POUSU
15 „ .. .. POUTJ
18 „ .. .. POUUZ
Right hand .. POUVO
Left hand .. POUWD
P3075 18-inch .. .. POUXT
P3076 24 „ .. .. POUYI
P3077 30 „ .. .. POUZY

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P3081 Vulcanite .. POVEL
P3082 Celluloid .. POVFA
P3083 Vulcanite .. POVIV
P3084 Celluloid .. POVME
P3085 Vulcanite .. POVNU
P3086 Celluloid .. POVOJ
P3088 Vulcanite .. POVQO
P3089 Celluloid .. POVTI
P3091 Celluloid .. POVUY
P3092 Aluminium .. POVYH
P3093 Improved .. POWAA

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P3151 18-inch .. .. POWHE
23 „ .. .. POWIU
31 „ .. .. POWLO
36 „ .. .. POWOI
42 „ .. .. POWPY
54 „ .. .. POWUX
P3152 18 „ .. .. POWYG
23 „ .. .. POXCE
31 „ .. .. POXDU
36 „ .. .. POXEJ
42 „ .. .. POXGO
54 „ .. .. POXIT
P3155 18 „ .. .. POXJI
23 „ .. .. POXKY
31 „ .. .. POXOH
36 „ .. .. POXUW
42 „ .. .. POXWA
54 „ .. .. POXYF
P3156 Brass Tongue POYAZ
P3157 4-feet .. .. POYBO
5 „ .. .. POYCD
6 „ .. .. POYDT
P3157 7-feet .. .. POYEI
P3161 18-inch .. .. POYFY
23 „ .. .. POYGN
31 „ .. .. POYHC
36 „ .. .. POYIS
42 „ .. .. POYJH
54 „ .. .. POYKX
P3162 18 „ .. .. POYLM
23 „ .. .. POYMB
31 „ .. .. POYNR
36 „ .. .. POYOG
42 „ .. .. POYPW
54 „ .. .. POYQL
P3165 18 „ .. .. POYRA
23 „ .. .. POYSQ
31 „ .. .. POYTF
36 „ .. .. POYUV
42 „ .. .. POYVK
54 „ .. .. POYXP
P3166 18 „ .. .. POYYE
P3167 24 „ .. .. POYZU
P3168 31 „ .. .. POZAY
P3169 42 „ .. .. POZEH

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P3205 18-inch .. .. POZMA
24 „ .. .. POZOF
30 „ .. .. POZTE
36 „ .. .. POZUU
42 „ .. .. POZXO
48 „ .. .. POZYD
60 „ .. .. PPAAL
72 „ .. .. PPABA
P3206 18 „ .. .. PPAEV
24 „ .. .. PPAIE
30 „ .. .. PPAJU
36 „ .. .. PPAOT
42 „ .. .. PPAPI
48 „ .. .. PPAQY
60 „ .. .. PPAUH
72 „ .. .. PPAYR
P3207 18 „ .. .. PPBEU
24 „ .. .. PPDAI
30 „ .. .. PPDUE
36 „ .. .. PPDYO
42 „ .. .. PPEAH
48 „ .. .. PPEER
P3210 18 „ .. .. PPEIA
24 „ .. .. PPEOP
30 „ .. .. PPEPE
36 „ .. .. PPEQU
42 „ .. .. PPETO
48 „ .. .. PPEUD
60 „ .. .. PPEWI
72 „ .. .. PPEXY
P3211 18 „ .. .. PPEYN
24 „ .. .. PPFOO
30 „ .. .. PPHAE
36 „ .. .. PPHEO
42 „ .. .. PPHIY
48 „ .. .. PPHUA
60 „ .. .. PPIAD
72 „ .. .. PPICI
P3212 18-inch .. .. PPIDY
24 „ .. .. PPIEN
30 „ .. .. PPIIX
36 „ .. .. PPIOL
42 „ .. .. PPIPA
48 „ .. .. PPIWE
60 „ .. .. PPIXU
72 „ .. .. PPIYJ
P3219 18 „ .. .. PPJYI
24 „ .. .. PPKUY
30 „ .. .. PPLAA
36 „ .. .. PPLIU
42 „ .. .. PPLOI
48 „ .. .. PPNEI
60 „ .. .. PPNYE
72 „ .. .. PPOAY
P3220 50-cms. .. PPOEH
75 „ .. PPOIR
100 „ .. PPOMA
125 „ .. PPOOF
150 „ .. PPOTE
175 „ .. PPOUU
200 „ .. PPOXO
P3221 7-feet .. .. PPOYD
8 „ .. .. PPREE
10 „ .. .. PPRIO
P3222 7 „ .. .. PPRYA
8 „ .. .. PPSAU
10 „ .. .. PPTOA
P3223 7 „ .. .. PPUAS
8 „ .. .. PPUEB
10 „ .. .. PPUIL
P3224 Deal .. .. PPUJA
P3225 Mahogany .. PPUQE

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P3254 23×16.. .. PPUUO
P3255 31×23.. .. PPUXI
P3256 42×29.. .. PPUYY
P3257 54×33.. .. PPVEA
P3258 70×36.. .. PPWOV
P3259 70×50.. .. PPXII
P3260 100×31.. .. PPYAO

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P3271 23×16.. .. PPYDI
P3272 31×23.. .. PPYEY
P3273 42×29.. .. PPYIH
P3274 54×33.. .. PPYOW
P3275 70×36.. .. PPYQA
P3276 70×50.. .. PPYUR
P3277 100×31.. .. PPYXE
P3278 23×16.. .. PPYYU
P3279 31×23.. .. PQAEK
P3280 42×29.. .. PQAHE
P3281 16×12.. .. PQAIU
P3282 23×16.. .. PQALO
P3290 31×23.. .. PQAOI
P3291 42×29.. .. PQAPY
P3292 54×33.. .. PQAUX

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P3301 23×16.. .. PQCEI

P3302 31×23.. .. PQCYE
P3303 42×29.. .. PQDAY
P3304 54×33.. .. PQDUU
P3305 70×36.. .. PQEAX
P3306 70×50.. .. PQEEG
P3307 100×31.. .. PQEHA
P3308 23×16.. .. PQEIQ
P3309 31×23.. .. PQEOE
P3310 42×29.. .. PQEPU
P3311 54×33.. .. PQESO
P3312 23×16.. .. PQEUT
P3313 31×23.. .. PQEVI
P3314 42×29.. .. PQEWY
P3315 54×33.. .. PQEYC

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P3320 Light .. .. PQGIO
Dark .. .. PQGYA
Cross Bar .. PQHAU
P3325 23×16 .. .. PQIAT
P3326 31×23 .. .. PQIBI
P3327 42×29 .. .. PQICY

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P3330 Table .. .. PQIIM
P3335 31×23 .. .. PQIOA
P3336 42×29 .. .. PQIUP
P3340 Stool .. .. PQIVE

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P3345 Trestles .. PQIYZ
P3346 With Frame .. PQIZO
P3347 Frame .. .. PQJUO

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P3348 Double .. .. PQKEA
P3349 Single .. .. PQLOY

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P3350 42×29 .. .. PQNAO
P3351 54×33 .. .. PQNEY
P3356 42×29 .. .. PQNYU
P3357 54×33 .. .. PQOAN
P3358 Stool .. .. PQOEX

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P3360 Complete .. PQOLA

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P3365 D.E. .. .. PQOSE
P3366 Antiquarian .. PQOTU
P3367 D.E. .. .. PQOUJ
P3368 Antiquarian .. PQOWO
P3369 D.E. .. .. PQOYT
P3370 Antiquarian .. PQOZI
P3371 D.E. .. .. PQPOU
P3372 Antiquarian .. PQPUI
P3373 D.E. .. .. PQQIE
P3374 Antiquarian .. PQREU

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P3380 White Wood .. PQTUE
P3381 Mahogany .. PQTYO
P3382 „ .. PQUAH
P3383 Flaps .. .. PQUER
P3384 Bar .. .. PQUIA

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P3390 42×29 .. .. PQUPE
P3391 31×23 .. .. PQUQU
P3392 23×16 .. .. PQUTO
P3393 6-inch .. .. PQUUD
P3394 12 „ .. .. PQUWI
P3395 18 „ .. .. PQUXY
P3396 24 „ .. .. PQUYN
¼, ½, ¾ & 1-in. PQVOO
¼, ½, 1½ & 3-in. PQXAE
P3397 Straight-edge PQXEO
P3398 Base-plate .. PQXIY
P3399 Arm .. .. PQXUA

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P3400 9¼×13½ .. PQYCI
P3401 19¼×13½ .. PQYDY
P3402 27½×19½ .. PQYEN
P3403 19¼×27½ .. PQYIX
P3410 Size 1 .. .. PQYOL
„ 2 .. .. PQYPA
„ 3 .. .. PQYWE
P3411 Size 1 .. .. PQYXU
„ 2 .. .. PQYYJ
„ 3 .. .. PQZYI
P3412 Size 1 .. .. PRAAQ
„ 2 .. .. PRAGE
„ 3 .. .. PRAHU

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P3426 Box .. .. PRAKO
P3427 Bureau .. .. PRANI

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P3474 22-inch .. .. PRAUM
P3475 27 „ .. .. PRAYW
P3476 31 „ .. .. PRBII
P3477 42 „ .. .. PRCAO
P3478 53 „ .. .. PRCEY
P3479 31 „ .. .. PRCYU
P3480 Leather .. .. PREAM
P3481 16×11 .. .. PREEW
P3482 22×16 .. .. PREGA
P3483 31×23 .. .. PREIF
P3484 40×28 .. .. PRENE
P3485 53×31 .. .. PREOU
P3490 31×23 .. .. PRERO
P3491 42×28 .. .. PREUI

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P3520 Instructions .. PREYS
P3521 Blaine .. .. PRFIE
P3522 Pickworth .. PRGEU
P3613 Model No. 1 .. PRIAI
P3614 „ No. 2 .. PRIBY
P3615 „ No. 3 .. PRIES
Booklet .. .. PRIIB

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P3620 Barnard .. PRIOQ
P3622 Boucher .. PRIUE
P3623 Silver .. .. PRIVU
P3630 Patent .. .. PRIYO
P3631 Silver .. .. PRJIA

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P3650 5-inch .. .. PRMAE
P3651 10 „ .. .. PRMEO
P3652 20 „ .. .. PRMIY
P3653 Students' .. PRMUA
P3660 10-inch .. .. PROAC

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Magnifying .. PROIW
P3680 5-inch .. .. PROKA
P3681 10 „ .. .. PROOK
P3682 20 „ .. .. PRORE
P3685 5 „ .. .. PROSU
P3686 10 „ .. .. PROUZ
P3687 20 „ .. .. PROVO
P3688 10 „ .. .. PROYI
P3689 20 „ .. .. PROZY
P3695 5 „ .. .. PRPUY
P3696 10 „ .. .. PRQAA
P3697 20 „ .. .. PRQIU
P3698 10 „ .. .. PRQOI
P3700 5 „ .. .. PRSEI
P3701 10 „ .. .. PRSYE
P3705 5 „ .. .. PRTAY

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P3706 10-inch .. .. PRUAX
P3707 10 „ .. .. PRUEG
P3709 20 „ .. .. PRUHA
P3710 Cursor .. .. PRUIQ
P3711 „ .. .. PRUOE
P3712 Magnifying .. PRUPU
P3713 „ .. PRUSO
P3714 „ .. PRUUT
P3715 „ .. PRUVI
P3716 10-inch .. .. PRUWY
P3717 20 „ .. .. PRUYC
P3720 Handbook .. PRWEE
P3721 Blaine .. .. PRWIO
P3722 Pickworth .. PRWYA
P3723 Winzar .. .. PRXAU

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P3730 10-inch .. .. PRYBI
P3731 20 „ .. .. PRYCY
P3732 10 „ .. .. PRYEC
P3733 20 „ .. .. PRYIM
P3734 10 „ .. .. PRYOA
P3736 10 „ .. .. PRYUP
P3737 10 „ .. .. PRYVE
P3740 Stadia .. .. PRYWU

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P3749 Steel Plates .. PRYZO
P3750 Boxwood .. PRZUO
P3751 Cardboard .. PRZYY

P3752 12-inch .. .. PSAAF
P3753 22 „ .. .. PSAEP
P3754 Froude's .. PSAFE
P3755 Cardboard .. PSAGU
P3756 Celluloid .. PSAIZ

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P3781 ⅛-inch .. .. PSAMI
¼ „ .. .. PSANY
⅜ „ .. .. PSAON
P3783 ½ „ .. .. PSAUB
¾ „ .. .. PSAYL
1 „ .. .. PSAZA
P3785 ¼ „ .. .. PSBAE
⅜ „ .. .. PSBEO
½ „ .. .. PSBIY
⅝ „ .. .. PSBUA
¾ „ .. .. PSDYI
1 „ .. .. PSEAB
P3787 ¼ „ .. .. PSEEL
⅜ „ .. .. PSEFA
½ „ .. .. PSEIV
⅝ „ .. .. PSEME
¾ „ .. .. PSENU
1 „ .. .. PSEOJ
P3789 ¼ „ .. .. PSEQO
⅜ „ .. .. PSETI
½ „ .. .. PSEUY
⅝ „ .. .. PSEYH
¾ „ .. .. PSFAA
1 „ .. .. PSFIU
P3791 ¼ „ .. .. PSFOI
⅜ „ .. .. PSHEI
½ „ .. .. PSHYE
⅝ „ .. .. PSIAY
¾ „ .. .. PSIEH
1 „ .. .. PSIIR
P3793 ¼ „ .. .. PSIMA
⅜ „ .. .. PSIOF
½ „ .. .. PSITE
⅝ „ .. .. PSIUU
¾ „ .. .. PSIXO
1 „ .. .. PSIYD
P3795 ¼ „ .. .. PSJOE
⅜ „ .. .. PSLEE
½ „ .. .. PSLIO
⅝ „ .. .. PSLYA
¾ „ .. .. PSMAU
1 „ .. .. PSNOA
P3797 ⅛ „ .. .. PSOAS
¼ „ .. .. PSOEB
⅜ „ .. .. PSOIL
½ „ .. .. PSOJA
⅝ „ .. .. PSOQE
¾ „ .. .. PSORU
1 „ .. .. PSOUO
P3799 ⅛ „ .. .. PSOXI
¼ „ .. .. PSOYY
⅜ „ .. .. PSPEA
½ „ .. .. PSQOY
⅝ „ .. .. PSRII
¾ „ .. .. PSSAO
1 „ .. .. PSSEY

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P3801 ⅛-inch .. .. PSUAM
¼ „ .. .. PSUEW
½ „ .. .. PSUGA
⅝ „ .. .. PSUIP
¾ „ .. .. PSUNE
1 „ .. .. PSUOU
P3803 ⅛ „ .. .. PSURO
¼ „ .. .. PSUUI
½ „ .. .. PSUVY
⅝ „ .. .. PSUYS
¾ „ .. .. PSVIE
1 „ .. .. PSWEU
P3805 ⅛ „ .. .. PSYAI
¼ „ .. .. PSYBY
⅜ „ .. .. PSYES
½ „ .. .. PSYIB
⅝ „ .. .. PSYNA
¾ „ .. .. PSYOQ
1 „ .. .. PSYUE
P3807 ⅛ „ .. .. PSYVU
¼ „ .. .. PSYYO
⅜ „ .. .. PSZIA
½ „ .. .. PTAAV
⅝ „ .. .. PTAEE
¾ „ .. .. PTAFU
1 „ .. .. PTAIO
P3811 ⅛ „ .. .. PTALI
¼ „ .. .. PTAMY
⅜ „ .. .. PTAOC
½ „ .. .. PTAUR
⅝ „ .. .. PTAYA
¾ „ .. .. PTBAU
1 „ .. .. PTCOA
P3813 ⅛ „ .. .. PTDUO
¼ „ .. .. PTDYY
⅜ „ .. .. PTEAR
½ „ .. .. PTEEA
⅝ „ .. .. PTEIK
¾ „ .. .. PTELE
1 „ .. .. PTEMU
P3814 ⅛ „ .. .. PTEOZ
¼ „ .. .. PTESI
⅜ „ .. .. PTEUN
½ „ .. .. PTEYX
⅝ „ .. .. PTFOY
¾ „ .. .. PTGII
1 „ .. .. PTHAO
P3816 ⅛ „ .. .. PTHEY
¼ „ .. .. PTHYU
⅜ „ .. .. PTIAN
½ „ .. .. PTIEX
⅝ „ .. .. PTIIG
¾ „ .. .. PTILA
1 „ .. .. PTIOV
P3817 1⅛ „ .. .. PTISE
2 „ .. .. PTITU
3 „ .. .. PTIUJ
4 „ .. .. PTIWO
P3818 1⅛ „ .. .. PTIYT
2 „ .. .. PTIZI
3 „ .. .. PTJOU
4 „ .. .. PTJUI

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P3821 ⅛-inch .. .. PTLEU
¼ „ .. .. PTNAI
1 „ .. .. PTNUE
1¼ „ .. .. PTNYO
P3822 C .. .. .. PTOAH
G .. .. .. PTOIA
No. 2 .. .. PTOOP
1V .. .. .. PTOPE
2V .. .. .. PTOQU
3V .. .. .. PTOTO
P3823 S .. .. .. PTOUD
W .. .. .. PTOWI
P3824 V .. .. .. PTOXY
Q .. .. .. PTOYN
R .. .. .. PTPOO
T .. .. .. PTRAE

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P3825 Plate .. .. PTRIY
P3826 „ .. .. PTRUA
P3827 „ .. .. PTTYI
P3828 „ .. .. PTUAB
P3831 Small .. .. PTUAD
Large .. .. PTUAQ
P3832 Red .. .. PTUAS
P3833 Blue .. .. PTUEB
P3834 Small .. .. PTUEG
Medium .. .. PTUEJ
Large .. .. PTUEK
P3835 Pad .. .. PTUEL
P3836 Box .. .. PTUFA
P3841 Set .. .. PTUIV

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P3850 No. 1 Set .. PTUNU
P3851 Box .. .. PTUOJ

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P3852 No. 2 Set .. PTUTI
P3853 Box .. .. PTUUY
P3854 No. 3 Set .. PTUYH

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P4100 30-inch .. .. PTVIU
40 „ .. .. PTVOI
P4101 30 „ .. .. PTXEI
40 „ .. .. PTXYE
P4102 30 „ .. .. PTYAX
40 „ .. .. PTYEH
P4103 30 „ .. .. PTYIR
40 „ .. .. PTYMA
P4106 30 „ .. .. PTYTE
40 „ .. .. PTYUU
P4110 30 „ .. .. PTYXC
40 „ .. .. PTYYE
P4111 30 „ .. .. PTZOE
40 „ .. .. PUAAH
P4112 Hyposulphate PUACP
P4120 Erasing .. .. PUADR
P4121 „ .. .. PUAEU
P4123 Acid .. .. PUAFJ

P4124 Red .. .. PUAGZ
Yellow .. .. PUAHO
Green .. .. PUAID
White .. .. PUAJT
Violet .. .. PUAKI
P4125 Intensifying .. PUALY
P4126 Powder .. .. PUAMN
P4127 „ .. .. PUANC

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P4130 30-inch .. .. PUAPH
40 „ .. .. PUAQX
P4131 30 „ .. .. PUARM
40 „ .. .. PUASB
Acid, ¼-lb. .. PUATR
„ 1-lb. .. PUAVW
P4132 30-inch .. .. PUAWL
40 „ .. .. PUAXA
P4133 30 „ .. .. PUAYQ
40 „ .. .. PUAZF
P4134 30 „ .. .. PUBAJ
40 „ .. .. PUBCO
Tin .. .. PUBET

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P4140 30-inch .. PUBGY
40 „ .. .. PUBIC
P4141 30 „ .. .. PUBOR
40 „ .. .. PUBSA
P4142 30 „ .. .. PUBUF
40 „ .. .. PUBYP
P4143 30 „ .. .. PUBZE
40 „ .. .. PUCAI
P4144 30 „ .. .. PUCBY
40 „ .. .. PUCES
P4145 30 „ .. .. PUCIB
40 „ .. .. PUCNA
Tin .. .. PUCOQ

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P4146 18-inch .. .. PUCVU
P4147 24 „ .. .. PUCYO
P4148 30 „ .. .. PUDAH
P4149 36 „ .. .. PUDER
P4150 12 „ .. .. PUDIA
P4151 15 „ .. .. PUDOP
P4152 12 „ .. .. PUDPE
P4153 15 „ .. .. PUDQU
P4154 Brush .. .. PUDTO
P4155 Sponge .. .. PUDUD
P4156 Large .. .. PUDWI

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P4158 30-inch .. .. PUDYN
P4159 40 „ .. .. PUEAG
P4160 30 „ .. .. PUEBW
P4161 40 „ .. .. PUECL

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P4164 Tacks .. .. PUEEQ

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P4165 23×16 .. .. PUEGV
P4166 31×23 .. .. PUEHK
P4167 41×28 .. .. PUEJP
P4168 54×32 .. .. PUEKE
P4170 41×28 .. .. PUELU
P4171 54×32 .. .. PUEMJ
P4173 23×16 .. .. PUENZ
P4174 31×23 .. .. PUEOO
P4175 41×28 .. .. PUEPD
P4176 54×32 .. .. PUEQT
P4177 30-inch .. .. PUERI
P4178 40 „ .. .. PUESY

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P4180 32-inch .. .. PUEUC
P4181 42 „ .. .. PUEVS
P4182 48 „ .. .. PUEWH
Direct .. .. PUEXX
Alternating .. PUEYM
Voltage .. .. PUEYS
Cycles .. .. PUEYZ
P4184 Carbons .. PUEZB
P4185 Glasses .. .. PUFAF
P4186 32-inch .. .. PUFEP
42 „ .. .. PUFFE
48 „ .. .. PUFGU
P4187 32 „ .. .. PUFIZ
42 „ .. .. PUFJO
48 „ .. .. PUFMI

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P4188 40×27 .. .. PUFON
P4189 53×31 .. .. PUFUB
P4190 60×40 .. .. PUFYL
Direct .. .. PUFZA
Alternating .. PUGAE
Voltage .. .. PUGAN
Cycles .. .. PUGBO
P4193 40×27 .. .. PUGBU
P4194 53×31 .. .. PUGEO
P4195 60×40 .. .. PUGHI
P4196 Glasses .. .. PUGIY
P4197 Carbons .. .. PUGOM

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P4198 Gas Heated .. PUGYK
P4199 Electrical .. PUHAD

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P4201 Gas Heated .. PUHDY
P4202 Electrical .. PUHEN

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P4211 20×15½ .. .. PUHOL
P4212 30×22 .. .. PUHPA
P4213 30×22 .. .. PUHWE
P4214 30×22 .. .. PUHXU
P4215 30×22 .. .. PUHYJ
P4216 40×27 .. .. PUIAC
P4217 40×27 .. .. PUIBS
P4218 40×27 .. .. PUICH

P4219 53×31 .. .. PUIDX
Quire .. .. PUIEM
Ream .. .. PUIFB
Hot Pressed .. PUIGR
Not .. .. PUIHG
P4221 30×22 .. .. PUIIW
P4222 40×27 .. .. PUIJL
Quire .. .. PUIKA
Ream .. .. PUILQ
Hot Pressed .. PUILT
Not .. .. PUIMA
P4225 30×22 .. .. PUIMF
P4226 30×22 .. .. PUINV
P4227 40×27 .. .. PUIOK
Quire .. .. PUIQP
Ream .. .. PUIRE
Not .. .. PUISU
Hot Pressed .. PUITJ
P4230 22×15 .. .. PUIUZ
P4231 30×22 .. .. PUIVO
P4232 40×27 .. .. PUIWD
Quire .. .. PUIXT
Ream .. .. PUIYI
P4240 30×22 .. .. PUIZY
P4241 30×22 .. .. PUJAB
P4242 40×27 .. .. PUJEL
P4243 40×27 .. .. PUJFA
P4244 52½×30½ .. PUJIV
P4245 72×48 .. .. PUJME
Rolled .. .. PUJMO
M. Finish .. PUJNA
Quire .. .. PUJNU
Ream .. .. PUJOJ

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P4251 30-inch .. .. PUJTI
P4252 40 „ .. .. PUJUY
P4253 60 „ .. .. PUJYH
P4254 30 „ .. .. PUKAA
P4255 40 „ .. .. PUKEK
P4256 60 „ .. .. PUKHE
P4257 30 „ .. .. PUKIU
P4258 40 „ .. .. PUKLO
P4259 60 „ .. .. PUKOI
P4260 30 „ .. .. PUKPY
P4261 40 „ .. .. PUKUX
P4262 60 „ .. .. PUKYG
P4271 30×22 .. .. PULCE
P4272 30×22 .. .. PULDU
P4273 30×22 .. .. PULEJ
P4274 30×22 .. .. PULGO
P4275 40×27 .. .. PULIT
P4276 40×27 .. .. PULJI
P4277 40×27 .. .. PULKY
P4278 40×27 .. .. PULOH
P4279 52×30 .. .. PULUW
P4280 52×30 .. .. PULWA
P4281 52×30 .. .. PULYF
P4282 52×30 .. .. PUMAZ
P4285 Cotton .. .. PUMEI
P4286 Lined .. .. PUMFY
P4287 Holland .. .. PUMIS
P4288 Lined .. .. PUMOG

P4289 Cotton .. .. PUMRA
P4290 Lined .. .. PUMUV
P4291 Holland .. .. PUMYE
P4292 Lined .. .. PUMZU

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P4301 26-inch .. .. PUNEH
P4302 39 ,, ... PUNIR
P4303 52 ,, ... PUNMA
P4304 26 ,, ... PUNOF
P4305 39 ,, ... PUNTE
P4306 52 ,, ... PUNUU
P4307 30 ,, ... PUNXO
P4308 40 ,, ... PUNYD
P4309 54 ,, ... PUOAX
P4310 60 ,, ... PUOBM
P4311 30 ,, ... PUOCB
P4312 40 ,, ... PUODR
P4313 54 ,, ... PUOEG
P4314 60 ,, ... PUOFW
P4315 Gummed .. PUOGL
P4320 2-sheet .. .. PUOHA
3 ,, ... PUOIQ
4 ,, ... PUOJF
6 ,, ... PUOKV
P4321 2 ,, ... PUOLK
3 ,, ... PUONP
4 ,, ... PUOOE
6 ,, ... PUOPU
P4322 2 ,, ... PUOQJ
3 ,, ... PUORZ
4 ,, ... PUOTD
6 ,, ... PUOUT
P4323 2 ,, ... PUOVI
3 ,, ... PUOWY
4 ,, ... PUOXN
6 ,, ... PUOYC
P4324 2 ,, ... PUOZS
3 ,, ... PUPAW
4 ,, ... PUPCA
6 ,, ... PUPEF
P4330 3 ,, ... PUPIP
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6 ,, ... PUPNO
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10 ,, ... PUPQI
12 ,, ... PUPRY
P4331 3 ,, ... PUPUS
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6 ,, ... PUQAV
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10 ,, ... PUQFU
12 ,, ... PUQIO
P4332 4 ,, ... PUQLI
6 ,, ... PUQMY
8 ,, ... PUQOC
10 ,, ... PUQUR
12 ,, ... PUQYA
P4333 6 ,, ... PURAU
8 ,, ... PURDO
10 ,, ... PURED
12 ,, ... PURHY
P4334 6 ,, ... PURIN
P4334 8-sheet .. .. PUROB
10 ,, ... PURTA
12 ,, ... PURUQ
P4335 6 ,, ... PUSAT
8 ,, ... PUSBI
10 ,, ... PUSCY
12 ,, ... PUSEC
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P4442 30 ,, ... PUTRU
P4443 40 ,, ... PUTUO
P4444 30 ,, ... PUTYY
P4445 40 ,, ... PUUAR
P4446 30 ,, ... PUUBG
P4447 40 ,, ... PUUCW
P4451 30 ,, ... PUUDL
P4452 40 ,, ... PUUEA
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P4454 30 ,, ... PUUGF
P4455 40 ,, ... PUUHV
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P4459 30 ,, ... PUUMU
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P4481 40 ,, ... PUUVC
P4482 60 ,, ... PUUWS
P4483 30 ,, ... PUUXH
P4484 40 ,, ... PUUYX
P4485 60 ,, ... PUUZM
P4486 30 ,, ... PUYAQ
P4487 40 ,, ... PUVGE
P4488 60 ,, ... PUVHU
P4500 30 ,, ... PUVIJ
P4501 40 ,, ... PUVKO
P4502 30 ,, ... PUVOY
P4503 40 ,, ... PUVUM
P4504 60 ,, ... PUVYW
P4510 Carbonic .. PUWAP
P4511 Blacklead .. PUWBE
P4520 10 × 7 .. .. PUWCU
P4521 14 × 10 .. .. PUWEZ
P4522 20 × 14 .. .. PUWFO
P4523 10 × 7 .. .. PUWII
P4524 14 × 10 .. .. PUWJY
P4525 20 × 14 .. .. PUWOX
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P4580 30 ,, ... PUYAN
P4581 18 ,, ... PUYBC
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P4585 54-inch .. .. PUYDI
P4586 40 ,, ... PUYEX
P4587 30 ,, ... PUYFM
P4591 54 ,, ... PUYHI
P4592 40 ,, ... PUYIG
P4593 30 ,, ... PUYJW
P4596 40 ,, ... PUYKI
P4597 36 ,, ... PUYLA
P4598 30 ,, ... PUYMC
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P4602 30 ,, ... PUYO

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P4606 30 ,, ... PUYTU
Arande .. .. PUYUJ
Economic .. PUYVZ
P4610 54-inch .. .. PUYWC
P4611 40 ,, ... PUYXI
P4612 36 ,, ... PUYYT
P4613 30 ,, ... PUYZI
P4617 40 ,, ... PUZAM
P4618 30 ,, ... PUZEV
P4621 40 ,, ... PUZGA
P4622 30 ,, ... PUZIF
P4626 40 ,, ... PUZNE
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Eighths .. .. PVACK
Tenths .. .. PVAD
P2651 Twelfths .. PVAEJ
P4652 Sixteenths .. PVAGC
Twentieths .. PVAIT
P4653 Millimetres .. PVAJU
P4660 Eighths .. .. PVAKT
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P4662 Quarters .. PVAUT
Eighths .. .. PVAW
Tenths .. .. PVAY
P4670 Eighths .. .. PVBE
Tenths .. .. PVBY
Twelfths .. PVCA
Sixteenths .. PVCU
Twentieths .. PVDO

P4680 Eighths .. .. PVDOI
Tenths .. .. PVDOY
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P4690 Millimetres .. PVEAW
P4695 Eighths .. .. PVECA
Tenths .. .. PVEEF
P4696 Twelfths .. PVEIP
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P4698 Millimetres .. PVENO
P4721 Eighths .. .. PVEOD
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P4722 Eighths .. .. PVERY
Tenths .. .. PVEUS
Millimetres .. PVEYB
Bistre .. .. PVFEE
Green .. .. PVFIO
P4730 Eighths .. .. PVFYA
Tenths .. .. PVGAU
P4731 Twelfths .. PVHOA
P4732 Sixteenths .. PVIAS
Twentieths .. PVIEB
P4733 Millimetres .. PVIIL
P4735 Eighths .. .. PVIJA
Tenths .. .. PVIQE
P4736 Eighths .. .. PVIRU
Tenths .. .. PVIUO
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P4738 Red .. .. PVLII
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P4762 Monthly .. PVOEW
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P4773 15½×9 .. .. PVOUI
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Ream .. .. PVOYS
1 Cycle ×
tenths .. PVPIE
2 cycles ×
tenths .. PVQEU
1 cycle ×
1 cycle .. PVSAI
2 cycles ×
2 cycles .. PVSUE
3 cycles ×
twentieths .. PVSYO
1 cycle ×
twelfths .. PVTIA
4 cycles ×
tenths .. PVUAG

P4773 3 cycles ×
2 cycles .. PVUDA
2 cycles ×
twelfths .. PVUEQ
3 cycles ×
twelfths .. PVUKE
P4780 Sample Set .. PVULU
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P4786 Bank .. .. PVUUO
P4790 Drawing .. PVUYM
P4791 Bank .. .. PVWAE

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P4801 17¾×11½ .. PVWUA
P4802 11½× 8½ .. PVYAC
P4803 17¾×11½ .. PVYEM
P4810 Form A .. .. PVYIW
P4811 ,, B .. .. PVYKA
P4812 ,, C .. .. PVYOK
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Ream .. .. PVYSU

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P4813 Eighths .. .. PVYVO
Tenths .. .. PVYYI
P4814 Eighths .. .. PVYZY
Tenths .. .. PVZUY
P4815 Eighths .. .. PWAAP
Tenths .. .. PWABE
P4816 Millimetres .. PWACU
P4817 ,, ... PWAEZ
P4818 Eighths .. .. PWAFO
Tenths .. .. PWAII
P4819 Eighths .. .. PWAJY
Tenths .. .. PWAOX
P4820 Metric .. .. PWAUL
P4821 Eighths .. .. PWAVA
Tenths .. .. PWAYV
P4822 Millimetres .. PWBAO

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P4826 ,, .. PWDOU
P4827 ,, .. PWDUI
P4828 Bank .. .. PWEAL
P4829 ,, ... PWEBA
P4830 ,, ... PWEEV
P4841 Cartridge .. PWEIE
P4842 ,, .. PWEJU
P4843 ,, .. PWEMO
P4844 Bank .. .. PWEOT
P4845 ,, ... PWEPI
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P4850 Cartridge .. PWEUH
P4851 ,, .. PWEYR
P4852 ,, .. PWFEU
P4853 Bank .. .. PWHAI
P4854 ,, ... PWHUE
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P4856 Cartridge .. PWIAH
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P4861 ,, .. PWIIA
P4862 Bank .. .. PWIOP
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P4877 Single line .. PWLUA
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P4902 50 .. .. PWPIU

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P4908 Abstract .. PWSUU
P4909 Foolscap .. PWTOE
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P4915 Specification .. PWUEF
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P4917 Cash .. .. PWUJE
Quire .. .. PWUKU
Ream .. .. PWUNO
P4920 Sounding .. PWUOD
P4921 Tide .. .. PWUQI
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P4928 1-oz. .. .. PWUYB
P4929 2 ,, ... PWVEE
P4930 8 ,, ... PWVIO
P4931 16 ,, ... PWVYA
P4932 20 ,, ... PWWAU
No. 1 .. .. .. PWXOA
No. 2 .. .. .. PWYAS
No. 3 .. .. .. PWYEB
No. 4 .. .. .. PWYIL
No. 5 .. .. .. PWYQE
No. 6 .. .. .. PWYRU

No. 7 .. .. .. PWYUO
No. 8 .. .. .. PWYXI
No. 9 .. .. .. PWZEA
No. 10 .. .. .. PXAAE
No. 11 .. .. .. PXABU
No. 12 .. .. .. PXAEO
No. 13 .. .. .. PXAHI
No. 14 .. .. .. PXAIY
No. 15 .. .. .. PXAOM
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Brown .. .. PXKEE
Orange .. .. PXKIO
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Violet .. .. PXLAU
Indigo .. .. PXMOA
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Blue .. .. PXNYY
Green .. .. PXOAR
Brick Red .. PXOEA
Yellow .. .. PXOIK
P4955 Black .. .. PXOLE
P4956 Yellow .. .. PXOMU
Vermilion .. PXOOZ
Brown .. .. PXOPO
Burnt Sienna PXOSI
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Ultramarine .. PXOUN
Light Green .. PXOYX
Carmine .. PXPOY
Scarlet .. .. PXQII
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Deep Green .. PXRYU
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P4994 8d. .. .. .. PYAED
1/- .. .. .. PYAFT
P4995 1/2 .. .. .. PYAGI
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P5040 3-slope .. .. PYBEC
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