QUEEN & Co.

PHOTOGRAPHIC Material

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JAMES W. QUEEN & CO

PHILADELPHIA. 1891.

PHOTOGRAPHIC GUIDE.

CLASSIFIED AND ILLUSTRATED

Price-List and Catalogue

OF

PHOTOGRAPHIC LENSES,

CAMERAS,

Apparatus, and Materials.

MADE, IMPORTED, AND SOLD, WHOLESALE AND RETAIL,

BY

JAMES W. QUEEN & CO.,

No. 924 Chestnut Street,

917 AND 925 SANSOM STREET.

BRANCH STORE, 228 MARKET STREET. FACTORY, 819-821 FILBERT STREET

PHILADELPHIA:

1890.

INTRODUCTION.

THE importance of photography increases yearly. It lends itself to our use in so many ways, scarcely an art or business existing in which it is not an aid, and has been so well recognized as a source of enjoyment by all persons of cultured taste, that it has become indispensable to our modern life.

It is not only that by its means we are enabled to retain the lineaments of friends when they are absent or have passed away, and to study at our leisure and without the fatigue of travel the monuments of our own race of all ages and of every clime, and the places rendered memorable by historic deeds or natural scenic beauties, though if it did no more than this it would have strong claims upon us.

But it offers itself to us as a companion of our walks and rides, as a faithful caterer who will gather for us all the choice bits or grand expanses of scenery which we visit in our rambles at home or abroad, and treasure them up for our delight when our tour is over. And thus it is that the greatest benefit from photography falls to the share of the photographer himself.

The tourist who travels with camera in hand is gradually so awakened to a perception of the beautiful in everything around him, that he finds it in a thousand unexpected places, and if he have the true material in him it soon makes him an artist, unconsciously to himself.

To the investigator in every department of science it gives the means of verifying his discoveries beyond cavil; to the lecturer or professor it furnishes the most perfect illustrations of his discourse;

to the health or pleasure seeker it offers both the most charming incentive to find all pleasant nooks and beautiful places and the means of bearing them away as a gallery of treasures for study or enjoyment in "the winter days."

By the processes and with the apparatus now furnished all these things are easy for any one. Invalids as well as the strong, delicate ladies as well as robust men, girls and boys, anybody in fact who will do so, may, with but a slight amount of practice, obtain the most satisfactory results. No soiled hands or heavy outfits are needed; only an eye to see what is beautiful and, in securing it, a little perseverance, which soon becomes enthusiasm.

In this catalogue, which is designed to furnish the most complete list of photographic goods yet published, will be found every variety of instrument, from the simplest that are good to the most perfect gems of workmanship that money and skill can make.

The growing importance of Film Negatives as a substitute for glass has caused us to present a very full list of the apparatus used in making them, together with complete details of the methods employed in working. To those desirous of making large pictures especially, the method offers many inducements on account of the comparative lightness of the outfit required.

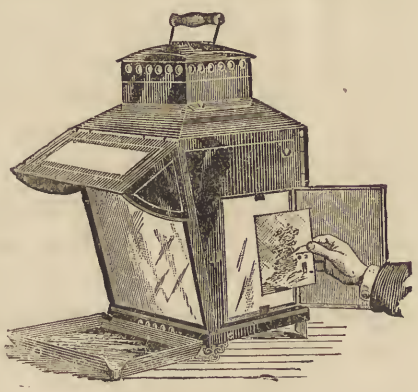
We would call special attention to the superiority of our lenses, a part of the photographic outfit in which it is peculiarly the province of the manufacturing optician to excel. To these we have given the greatest care, and they will be found to perform all and more than all that is claimed for them.

J. W. Queen & Co.

HOW PHOTOGRAPHS ARE MADE.

Dark Room.—The first thing needful, after receiving an outfit, is a room or closet from which every ray of ordinary or white light can be shut out. It need not be a room devoted especially to this purpose. Any room may be used at night by putting out the ordinary lamps or gas and closing the shutters, or a good-sized closet with shelf, which can have its door shut *light-proof*, may be used at any time.

To light the room so that we can see to work, and yet not so as to harm the sensitive plates, we use a *Ruby Lamp*. A plain table or shelf upon which to place the lamp and the dishes needed in working, a pitcher to hold a supply of fresh water, and a basin or bucket to receive the washing waters are all the furniture needed. A sink with water faucet and a shelf for dishes and glasses are a gain, but are by no means necessary. Indeed, many successful amateurs develop their plates in their hotel bedrooms when the day's work is over, using only the appliances always furnished a lodger. To do this a ruby lamp must, of course, be a part of the tourist's outfit.



RUBY LANTERN.

The one law for the dark room is *neatness and cleanliness in everything*. Have a place for everything where it will be at hand, and keep it there except when you are using it. Never use any dish or bottle for any other purpose than the one it was intended and labeled for.

Chemicals.—On opening your outfit in the dark room, place the various articles in the positions you have chosen for them. Take a one-quart bottle, fill it more than half full of water, and then drop into it crystals of *hypo. soda* till some remain undissolved. This should be labeled *stock hypo*. Take two pint bottles, and label one *used developer* and the other *used hypo*. These are for your developing and fixing baths after they have been once used. You may use both

the developer and the hypo. bath over and over again till they cease to work, but you must *never pour any solution which has been once used back into the fresh stock bottle.*

Filling the Plate-Holders.—Remember that no trace of ordinary white light must be allowed to reach your sensitive plate, except through the lens during "exposure," until the negative is finished. Entering the dark room, fasten the door and see that no white light gets in through any crevice. Light your ruby lamp and place it on the table. Take your double plate-holder and carefully wipe off the dust, both inside and out, with a dry brush. Place it in front of the lamp. To the left put the stock box of sensitive plates. Cut with a knife the paper which seals it, lift off the lid, and take up a plate by the edges. Never touch the face or *dull-looking* side, except to dust it off gently with a fine camel's hair brush. Put one plate in each side of the holder, with the dull or film side next the dark slide. Close the holder tightly. Put the lid back upon the stock box of plates and tie it down with a string. Pack your outfit ready for your journey, and then you may open the door.

Selection of View.—In choosing a landscape view it is well to bear in mind that all views taken when the sun is high, as near noon, or when it shines from just behind you as you face the view, are so lighted that they can only make flat, dull pictures. On the other hand. all pictures taken with the lens facing the sun have only the dark sides of the objects shown, which is worse than a flat picture. Choose, then, that time of day for each landscape view when your shadow, as you stand facing the view, falls in front of you, but considerably to the right or left of a line from you to the centre of the view. Let that part of the view nearest you be well diversified with rock or tree, trunk or clumps of bushes, and have nothing in it which, in the finished picture, would be unsightly or out of place there.

Setting up the Camera.—Set up your tripod firmly. Fasten the camera upon it with the lens facing the view. Level the camera. Uncap your lens, and move out the back (or front) of the camera till the inverted view appears on the ground glass. To see it clearly, place the *focusing cloth* over your head, shoulders and all the camera except the lens front, so as to exclude the light. Now turn the camera around on the pin which fastens it to the stand until the view on the glass includes just what you wish, and clamp it there.

Focusing.—Using a large diaphragm in the lens, and with your head still under the cloth, select some well-marked object situated forty or ninety feet from the camera and about half way between the middle and the corner of the ground glass. Move the back in or out until this object appears as sharply defined on the ground glass as possible. Take great care in this, as the sharpness of the picture depends upon it. Never mind the middle and remote distances, as they will be all right if this one prominent object is. When you have it just right clamp the back firmly. Remove the focusing cloth and place one of the smaller stops in the lens. *Put the cap upon the lens.*

Exposing the Plates.—Remove the frame holding the ground glass and put the plate-holder in its place, fastening it by the catch. Gently draw out the dark slide from that side of the plate-holder which is nearest the lens. Remove the cap from the lens with a gentle twisting motion, without jarring the camera or placing your hand between the lens and the view. Allow for a well-lighted landscape from two to six seconds, according to the depth of the shadows in the darkest foliage, as a trial. You will soon find the proper time, as practice only makes perfect in this.

As soon as the time is up, quickly but gently replace the cap on the lens and return the dark slide to its place in the holder. Expose in a similar way the other plate, of course, putting the other side of the holder next the lens in doing so, and the plates are ready to be taken back to the dark room for development.

In architectural subjects, where the front of a long building, or series of buildings, is to be shown in perspective, it will be a good plan to focus upon a part of the building near the camera, and, by adjusting the swing-back and the size of stops, get a sharp focus all over the plate.

If the building is high and it is necessary to tilt the camera to get the whole upon the plate, the back of the camera must be made vertical by the swing-back to avoid distortion in the lines of the resulting picture.

In instantaneous work the focus must be obtained upon the spot where the object is expected to pass, with a large diaphragm or the full aperture of the lens, before the time comes for taking the picture. Then by looking along the sides of the camera, or a pair of sights on top of it, or by a finder, as hereafter described, you will see when the object has reached the middle of the view, and will drop the instantaneous shutter.

Development.—On returning to the dark room, fasten your door and light your ruby lamp. Place your developing tray in front of the lamp in the ruby light. Pour into the graduate one ounce of the "Queen Hydrochinon Developer," and add water to make up the volume to two ounces. Mix well.



QUEEN DEVELOPER.

Take plate No. 1 from its holder and put it, film side up, in the developing tray. Pour over it the two ounces of developing fluid in one steady sweep, so as to cover it without a stoppage at any point. Keep the fluid moving slowly by gently rocking the tray. If bubbles appear at any time, quickly brush them away with a small camel's hair brush. The image should appear in from five to twenty seconds and come steadily up, getting darker all the time. Lift the plate up when the detail seems well out, and examine it for an instant before the lamp. When the sky is black and the clear yellow appearance of the rest of the image begins to fade, the process has probably gone on long enough. The image is now *generally* faintly visible at the back of the plate. At this stage remove it from the developing tray into a plate of water for a few minutes to wash off the adhering developer.

But if, on the other hand, the image flashes up at once on pouring on the developer, remove the plate quickly to a dish of water and add three or four *drops* of a saturated solution of bromide of potassium to the developer in the tray, as a restrainer, and mix well. Replace the plate in the tray and the image will doubtless come up all right.

NOTE.—If the image has not appeared at the end of a minute or two, pour into the graduate one ounce of the hydrochinon developer. Remove the plate from the tray, pour the extra fluid from the graduate into the tray, and mix thoroughly. Now put back the plate into the strengthened developer, and the image will quickly appear.

If the development is stopped too soon we lose detail in the picture, and if it is continued too long we lose brilliancy. A little practice will soon teach just when to stop.



PLATE IN DEVELOPER.



GRADUATED GLASS.

Fixing.—Wash out the graduate thoroughly. Pour into it two ounces of the saturated solution of *hypo. of soda* and add three ounces of water. Mix well, and pour into the fixing tray. Place this tray at the opposite end of the table from the developer. Take up the developed plate, wash it over the basin for a minute with a gentle stream of water, and then place it in the hypo. bath. Keep it there until the white appearance is all gone from the back and the plate looks dark all over. Now take it out and wash it carefully for twenty minutes by a stream from the pitcher to get rid completely of the hypo., and then rear it away in a safe place to dry. When thoroughly dry place it in its envelope for safe keeping.

Varnishing.—If very many prints are to be made from the negative it should be coated with a good, hard varnish. To do this the negative, which has been allowed to dry very thoroughly in its rack, is heated very carefully before a flame or upon a metal plate till it is about as hot as the hand can bear, and kept at this temperature for five or ten minutes. Then let it cool down, and when it just feels warm to the hand flow it with the varnish. Dry thoroughly, and when entirely cold heat it gradually again as in the first place, to drive off any of the solvent which may be held in the film. Then let it cool, and the varnish will be hard and strong.

PORTRAITS WITHOUT A GALLERY.

WHEN it is desired to take portraits at home two courses are open to the worker—one indoors, the other without.

Bear in mind that the rounded or statuesque form of solid bodies can only be brought out by using two lights nearly at right angles to each other, the one strong and the other just sufficient to subdue but not destroy the shadows cast by the former, and further, that all rays coming from directly above are to be avoided.

If we have a bay window, well lighted from the sky on the two sides, place the sitter in the room facing the windows and about eight feet distant from them, where a strong light from one window will fall upon him, and light up the shadows on the face by opening the other side window more or less and by a small white screen placed on one side. If there is a window directly in front it must, of course, be closed. Place the camera in the middle between the two side windows and focus carefully on the face, using a large opening in the lens. Expose about five to ten seconds with a good light, longer if the windows are small.

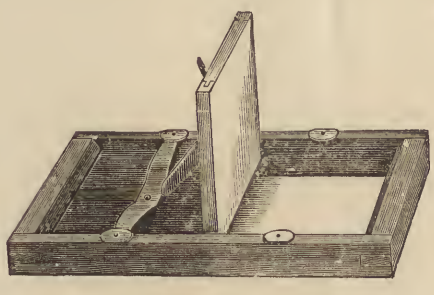
If you have not a bay window, a room with two large windows lighted by the sky will answer. Light the sitter strongly by the light from one window, and subdue the shadows by light from the other and by a white screen at the side. The exposure is generally longer than in the former case; from fifteen to thirty seconds with a quick plate is best. In portraits, the developer should be made by adding to half an ounce of Queen's Concentrated Developer about one ounce of water, and flowing as usual.

Out-door Portraiture.—But the most pleasing portraiture for the amateur is that which is secured out-of-doors in the summer. Under a leafy tree, where the vertical light is shut out, and the face, or it may be a group of faces, is lighted by a good northern light, exquisite portraits may be obtained; or a porch with trailing vines may shut off the top light and serve for fine work.

The main thing is to have the sitter removed far enough back from the edge of the porch or tree to avoid too much light from above, which causes heavy shadows under the eyebrows, nose, and chin, and, on the other hand, not so far back as to be lighted only by horizontal light, which gives alone a flat picture. The exposure for a portrait plate in either of these positions will be from one to ten seconds.

PRINTING ON SILVERED ALBUMEN PAPER.

PLACE your printing frame face downward upon a table, and pressing with the thumb of both hands upon the springs, remove the back. Take the negative from which you wish to print, carefully wipe off the plain glass side (not the film side), and lay it, *film side up*, in the printing frame. Place upon it a suitable sized piece of Queen's silvered paper, glossy side down, over this a pad of cloth the same size as the paper, and over all place the back of the frame, and fasten it without slipping the paper on the negative. All this must be done in a moderate light. Now place your frame either directly facing the sun or a white cloud lighted by the sun. Some negatives print better in the sun and others by the diffused light. In a few minutes the printing will be ready to examine. This is done by taking the frame into a room, opening the springs *at one end* and turning up the back, and then carefully lifting up the paper and examining the print. Print much darker than you wish the finished picture to be, as much of the depth comes out in toning and fixing. When the shadows are *bronzed* and the whites are slightly colored, remove the paper and put it in a dark box to keep. Print as many proofs as you wish from the negative, and we are then ready for the next operation.



PRINTING FRAME.

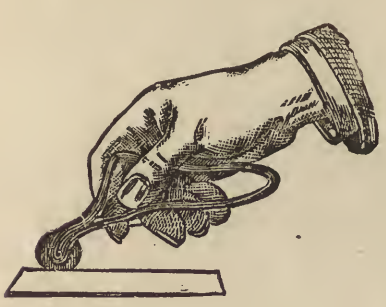
Toning the Prints.—Take your fifteen grains of chloride of gold and dissolve them in two ounces of water. Dissolve the two ounces of acetate of soda in a quart of water. Label each bottle. Make up your toning bath by taking half a pint of water and adding to it half a drachm of the gold solution and six drachms of the acetate of soda solution. Make this bath *at least* half a day before you wish to use it. It works best when about a day old. It can be used repeatedly by adding gold and acetate of soda in the above proportions.

When the bath is old enough for use, take the prints from their

dark box and place them, one at a time, face down, in clean water. After remaining for a few minutes repeat the operation, and proceed to tone by placing them one by one in the toning bath and keep them moving gently. See that they do not adhere to each other. They at first assume a reddish tint, which changes gradually through a warm to a dark purple and finally to a gray. Watch them carefully, and when they are just entering the dark purple, *before they reach the gray*, remove them and place them in fresh water. The toning should be done in a mild light in the daytime, as it is difficult to catch the proper tint by lamplight. In cold weather the bath may be warmed to shorten the work.

Fixing.—Wash the prints gently in two waters, after coming from the toning bath, and then place them in the fixing bath, which is made by taking five ounces of water and dissolving in it one ounce of *hypo. soda*. *The negative hypo. bath must never be used for prints.* Allow the prints to lie in this bath with constant stirring about fifteen minutes. Six ounces of bath will *fix* about twenty-five prints, five inches by eight. When done with the bath, throw it away and wash out the tray with clean water.

Washing.—When the prints are removed from the hypo. bath, they must be very carefully but thoroughly washed, at first by several changes of water at intervals of a quarter of an hour, and finally by throwing them into a large basin of water, where they are allowed to soak all night. A final rinsing in the morning will render them safe.



PHOTOGRAPH TRIMMERS.

Drying and Mounting.—They may be dried by laying them flat between pads of fine *unbleached* blotting paper with a weight on top. If wanted for immediate mounting, however, they need only be partly dried, and then brushed over the back with "Parlor or Pearl Paste" and placed upon their card. Here they are to be smoothed down with any soft cloth, avoiding wrinkles and air bubbles. If necessary, they should be trimmed just before mounting with the trimmer to the size required.

The cards thus mounted should have a pad of blotting paper placed between each, and dried with a weight on the top of all to keep them straight.

HOW TO MAKE DRAWING-ROOM TRANSPARENCIES AND MAGIC-LANTERN SLIDES.

THESE are prints from negatives in many respects similar to paper prints, but differing in this, that in these the picture is developed out instead of being printed out. The process of making them is as follows :



In the dark room, by the light of the ruby lamp, take the printing frame as used in paper printing, place the negative in it, film side up, and upon it put a sensitive plate, film side down, or in contact with the negative. Over this place the pad, and upon it fasten the back in

its position. Now take up the frame, cover the front with a large card, and place the frame with negative facing a gas or lamp flame, and about two feet distant from it.. Remove the card and allow the light to fall upon the negative for from five to fifteen seconds, according to its density. Replace the card and remove the whole to the ruby light. (The lamp of the ruby light will answer for the exposure by removing the ruby glass during that time.) In the ruby light remove the undeveloped plate from the printing frame and develop it as follows.

Pour into the graduate one-half ounce of Queen's Concentrated Developer, and add to it two ounces of water. Add to this four or five drops of a saturated solution of bromide of potassium and mix well. Put the plate in the developing tray, and develop as for a negative. Slow plates are better for this work than quick ones, and the development to succeed best should be slow. Do not hurry it. If it comes up too quickly add one or two drops more bromide to the developer and mix well.

When the details are fully out, but before any veiling or fading away of the bright yellow picture has taken place, wash off the developer and fix in a fresh hypo. bath made in the same proportions as for negatives. Wash very thoroughly after fixing, and rear in a clean, cool place, or in a negative rack to dry.

Mounting.—If the print is for use in the magic lantern, it is to be mounted with another piece of clear glass of the same size in front of the film, and between the two a lantern slide mat is placed. The edges of the glasses are fastened together by needle paper, and preferably attached by a glue cement.

If, however, it is a window transparency, it must be mounted with a ground glass in front of the film, and fastened in one of the various styles of transparency frames.

These views, when well made, are more beautiful than almost any other style of photographic print.

INTERIORS.

THE use of dry-plates has given a great impetus to this kind of work, as they admit of very prolonged exposure. As all the light usually comes from a window or series of windows, it is best, where possible, to choose a position for the camera which shall not be in front of a principal source of light. If it must be placed in front of a highly lighted window, the latter should be curtained with a plain white curtain on which dark lines represent the frames of the glass, or with a light figured curtain in harmony with the room.

FERRO PRUSSIATE PAPER.

WHEN a print is desired quickly, either to test the printing qualities of a negative, or for special purposes, the "Queen blue print paper" will be found very satisfactory.

To use it, place it with the dark colored side in contact with the face of the negative in a printing frame, just as for prints upon silvered paper. Expose to direct sunlight for a few minutes (depending on the brightness of the day) and then remove from the printing-frame and wash very thoroughly in a bath of clear water. Then dry between blotting paper, and you will have a clear, vigorous print, in blue and white. There is no toning or fixing, so that the process is easy and rapid.

CAUTIONS.

It is scarcely necessary to say that in photography, as in everything else, perfection is the result of thought and care. If the worker has closely followed the instructions given, he will doubtless succeed in doing good work from the start. The time of exposure and the strength of developer are the points in which the greatest judgment will be needed.

If the picture, in development, flashes up suddenly, but without becoming dense in any part, it has been exposed too long in the camera.

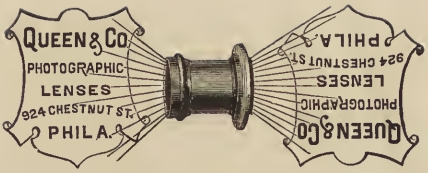
If it comes up slowly and becomes strong and dense in the high lights without having detail in the shadows, it has been underexposed.

If it comes up quickly, and passes on to a dense black, with no details of the picture, it has been exposed to light either in the dark room or in the plate-holder.

If the finished negative is weak, while the shadows are clear, the plate has not been developed long enough.

Finally, if the negative, after a day or two, shows a fine network of crystals over it, the washing after fixing has not been complete.

Mechanical causes produce also some unfavorable results. Chief among these are transparent spots upon the plate. These are caused either by dust on the plate or by bubbles in the developer. The holder should always be dusted out before use, and the plate brushed with the camel's hair brush, both when it is put into the plate-holder and when it is taken out for development.



PHOTOGRAPHIC LENSES,

AND HOW TO SELECT THEM.

THE portion of the photographic outfit which it is the most essential to have of good quality is the lens. A lens, good of its kind, but not appropriate to the work for which it is used, cannot be made to yield satisfactory work, even in the best of hands.

No branch of optics has received more attention of late years than has been bestowed upon the lenses used by photographers. New systems have been introduced by the combined researches of scientists and practical opticians, some of them intended for special lines of work only, others for more general use, but all differing considerably from each other and from the older forms.

This increase in the variety of lenses, while it gives a larger and wider choice to the intending purchaser, augments the difficulty of selection unless understood beforehand exactly what kind of work each class of lenses will do best. As it is unlikely that all of the many now in the photographic field have been able to obtain for themselves a clear idea or understanding of these distinctions, we give a brief account of the various kinds of photographic lenses and the class of work for which each is most suitable.

Varieties of Photographic Lenses.—To assist those not already acquainted with the various kinds of lenses and the peculiar excellencies of each, we give a short account of them, and a summary of the work each kind will do satisfactorily.

According to their methods of construction, photographic objectives are divided into two great groups. In one of these the spherical aberration is such that a diaphragm is necessary to obtain sharpness of focus on the ground glass in any part of the field.

In the other the lens gives a sharp picture at the middle of the ground glass with an opening or diaphragm as large as the lenses, but the sharpness of image falls off toward the edges of the plate, and a smaller aperture or diaphragm becomes necessary to render these

parts as sharp as the centre. But the diaphragm never is so small, in comparison with the focus of the lens, as in the former group.

Lenses belonging to the first of these groups are called *non-aplanatic*, and those belonging to the latter *aplanatic*.

Non-Aplanatic Lenses.—Chief among the former class is the *single achromatic lens*. This consists of an achromatic combination, cemented together with balsam, having the plano or slightly concave face turned toward the view to be reproduced, and the convex side toward the ground glass. The diaphragm is situated at some distance in front of the lens.

The Diaphragm.—As spherical aberration is caused by the rays from the edge of the lens coming to a focus nearer the lens than the rays which pass through the centre, it is clear that if for any given object we could use only either the centre or the edge, and *not both at once*, we should have greater sharpness of image. This is just what a diaphragm placed in front of a single achromatic lens does. It cuts off from the lens all the rays coming from any given point in the view except a small pencil which, passing through it and falling upon only a small part of the lens, traverses the latter and is brought to a sharp focus upon the ground glass. Each portion of the lens is thus used by a different pencil, and all form sharp images upon the focal plane.

If the diaphragm is placed at the proper distance from the lens, the rays which thus fall upon the edge of the lens have their focal length extended so that the margins of the picture are sharp at the same time with the centre, or, in other words, *the field of the lens is flat.* This, with the Queen & Co.'s Single Achromatic, is very well secured without excessive smallness of diaphragm, thus yielding a brilliant image.

Distortion.—If the reader will draw three or four parallel lines, about a quarter of an inch apart, upon a sheet of paper and cross them with another similar set at right angles to the first, and then examine them through a small convex lens, he will see that the outer ends of those lines which are farthest from the centre of the lens instead of appearing straight are bent outward, forming a curved outline to the figure. This is called *pincushion* distortion, and is caused by the lens acting in some degree as a prism and refracting the middle of the lines more than the ends. *Distortion*, or the *aberration of thickness*, is inseparable from a single lens, no matter how sharp the focus of each point of the image appears upon the ground glass.

Wide-Angle Rectilinear Lens.—But if two single achromatic lenses be arranged symmetrically upon one axis, that is, with the concave or plano sides facing each other, and convex surfaces both outside, with a suitable diaphragm between them, the distortion caused by the first may be balanced by the opposite distortion caused by the second, and the rays will pass through and form an image on the ground glass which is a perfectly accurate copy of the object, line for line. Such a combination is said to be *rectilinear*, and when properly constructed can be made to include an angle of 100° or more in which all straight lines in the object will be reproduced as straight lines in the image. To effect this small stops are necessary. For taking buildings close at hand, for street scenes, and for architectural and copying work generally this lens is invaluable.

In this group fall all the wide-angle rectilinear lenses, however they may differ from each other in minor details of construction.

Aplanatic Lenses.—Thus the *non-aplanatic* lenses give great sharpness and, with small diaphragms, very wide angles. But they are slow in working, and for this cause are nearly useless when quickness is needed, as in portraiture or instantaneous work.

Portrait Lenses.—To meet the needs of this special kind of work, Professor Petzval many years ago calculated the formula for a lens, which has worked so perfectly from the first that up to the present time it has received no important modification at the hands of the practical optician, the difference between lenses of this class being the result of the varying skill of the makers, and not of any change in formula. These lenses consist of an achromatic, nearly plano-convex, cemented front lens, with convex surface toward the object, corrected for aberrations by a rear achromatic combination, whose two components are placed a little distance apart, this distance being an important factor in the correction.

Thus constructed, when used with a large diaphragm between the compound lenses, the Portrait Lens gives a bright image free from aberration in the direction of the axis, that is, for parallel rays coming directly in front of the lens. But as the aberration for oblique rays is not corrected, it possesses *distortion*, so that it cannot be used for the reproduction of engravings, and it has a very narrow angle, so that it is not satisfactory for landscapes.

The Rapid Rectilinear.—A few years since two noted artists introduced at the same time, but in different countries, another and quite novel aplanatic combination. Instead of the outside lenses of each of the combinations being made of crown glass, as usual, in

this lens they were made of flint glass. This gave such a power of correcting the aberration of rays oblique to the axis, as well as of those parallel to it, that though of comparatively small diameter the lenses could be used for portraits with the full aperture, and by employing a diaphragm they gave absolutely rectilinear pictures of great brilliancy over a quite wide angle, from 60° to 80°. This lens, now known to the world as the *Rapid Rectilinear*, has been a greater boon to the photographer than any other lens ever introduced, as there is no purpose he can need a lens for which this lens does not fulfill very satisfactorily.

Summary.—We have, then, as *non-aplanatics* the single achromatic and the wide-angle rectilinear, and as *aplanatics* the portrait and the rapid rectilinear.

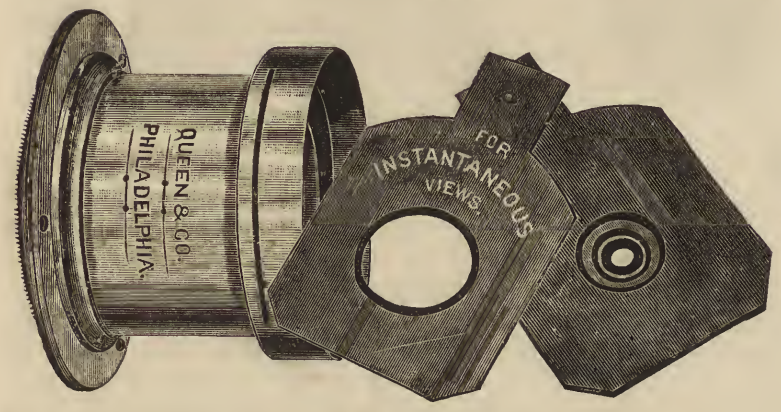
It remains to state the special excellencies of each lens, and to show what lenses are best adapted for the several purposes of the photographer. This we do briefly in the following table :

For landscapes	the Single Achromatic is good. " Wide-Angle Rectilinear is excellent. " Rapid Rectilinear is brilliant.
For architecture and street views	the Wide-Angle Rectilinear is excellent. " Rapid " "
For out-door groups	the Rapid Rectilinear is excellent. " Portrait is good. " Wide-Angle Rectilinear is good.
For copying	the Rapid Rectilinear is excellent. " Wide-Angle Rectilinear is excellent.
For portraits	the Rapid Rectilinear is excellent. " Portrait is excellent and more rapid.

From this it will not be difficult to decide with certainty just what lens will suit the purpose or purposes of each worker.

QUEEN & CO.'S

SINGLE ACHROMATIC LENSES.



RECOGNIZING that each kind of lens has its own peculiar excellencies, we have so chosen the lenses of each class as to allow them to do just what they can do best. Thus our *single achromatics* are so constructed as to give pictures of moderate angle with great sharpness and brilliancy, and are excellent for the purpose of reproducing scenes of still life, such as landscapes. As they work with quite large stops, they answer fairly also for groups in the open air, especially when rapid plates are used. They are neatly and securely mounted in the style shown in the illustration.

No.		Price.
P–1.	Queen & Co.'s Single Achromatic Lens, for pictures 4x5 inches, 5½ in. Focus, ...	$3 50
P–2.	Queen & Co.'s Single Achromatic Lens, for pictures 4½x6½ inches, 7½ in. Focus, ...	4 00
P–3.	Queen & Co.'s Single Achromatic Lens, for pictures 5x8 inches, 8½ in. Focus, ...	4 50
P–4.	Queen & Co.'s Single Achromatic Lens, for pictures 6½x8½ inches, 11 in. Focus, ...	5 50
P–5.	Queen & Co.'s Single Achromatic Lens, for pictures 8x10 inches, 13 in. Focus, ...	7 00

QUEEN & CO.'S
WIDE-ANGLE RECTILINEAR LENSES.



FOR work requiring great width of angle, with exact rectilinear results, these lenses are especially well adapted. They work with large stops, giving brilliant images over an angle of ninety to one hundred degrees, and have a remarkable depth of focus.

In confined landscape situations, where a lens of ordinary angle would not include the view, in architectural work where lofty buildings have to be taken from the street or at a short range, in copying large drawings in rooms of moderate length, and in all other work where great width of angle, combined with exactness of lines, is desired, no lens will be found more satisfactory.

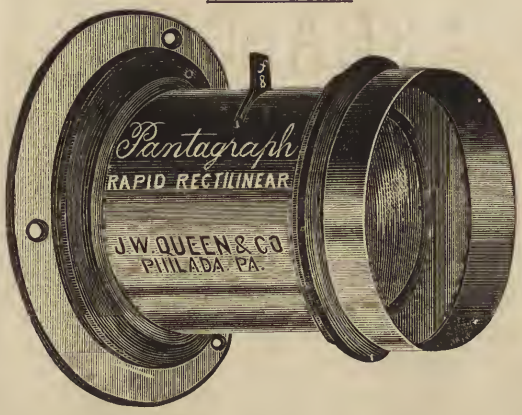
Compared with other wide-angle lenses, these are distinguished by the comparatively large stops with which they give sharp images, a result which is largely due to the great perfection of their polish.

The smaller sizes are especially valuable as stereoscopic lenses. Their fine perspective effects, enabling the artist to exercise a great choice of foreground, together with their brilliancy of images, render them particularly satisfactory for this class of work.

No.	Diameter of Lens.	Size of Plate when used for Wide-Angle Work.	Size of Plate when used for General Work.	Back Focus.	Price.
P-11.	¾ inch.	2 x 3 inch.	2 x 2 inch.	2¼ inch.	each, $22 50*
P-12.	¾ "	3 x 4 "	2½ x 3 "	3 "	" 22 50*
P-13.	1 "	4 x 5 "	3 x 3½ "	3½ "	" 25 00*
P-14.	1 "	4½ x 7½ "	3¼ x 4¼ "	4¼ "	" 25 00*
P-15.	1 "	5 x 8 "	4 x 5 "	5¼ "	" 25 00*
P-16.	1 "	6½ x 8½ "	5 x 7 "	6¼ "	" 25 00*
P-17.	1 "	8 x10 "	5 x 8 "	8 "	" 25 00
P-18.	1¼ "	11 x14 "	6½ x 8½ & 8x10	10½ "	" 40 00
P-19.	1¼ "	14 x17 "	11 x14 inch.	14 "	" 50 00
P-20.	1½ "	17 x20 "	14 x17 "	17 "	" 75 00
P-21.	1¾ "	20 x24 "	18 x22 "	22 "	" 110 00
P-22.	2 "	25 x30 "	20 x24 "	27 "	" 150 00
P-23.	4 "	30 x60 "	30 x45 "	48 "	" 250 00

*Furnished in matched pairs for use stereoscopically.

QUEEN & CO.'S
PANTAGRAPH RAPID RECTILINEAR LENSES.



The Pantagraph Rectilinear Lenses possess many valuable properties peculiar to themselves. They are perfectly rectilinear, and work well with the largest diaphragms for groups and instantaneous views. Their great compactness and lightness are a boon to the out-door artist, while their flatness of field and their penetrating power, in which, from carefully made tests, they are equal to any of the noted lenses in the market, render them very valuable for landscapes and copying.

To those to whom the price of the Francis Rapid Rectilinear would be an obstacle, the Pantagraphic Lenses will be found especially satisfactory.

PRICE-LIST OF QUEEN & CO.'S "PANTAGRAPH" LENSES.

Catalogue No.	Lens No.	Size of Plate.	Diameter of Lens.	Back Focus.	Equivalent Focus.	Extreme Angle.	Price.
P-41.	1	3¼ x 4¼ inches.	⅝ inches.	4 inches.	4⅞ inches.	80°	$ 10 00
P-42.	2	4 X 5 "	1 1/16 "	5 "	5¾ "	78°	12 00
P-43.	3	5 X 8 "	1 5/16 "	8 "	8¾ "	66°	15 00
P-44.	4	6½ x 8½ "	1¾ "	10¼ "	11 "	66°	24 00
P-45.	5	8 X10 "	2⅛ "	13 "	13¾ "	66°	30 00
P-46.	6	10 X12 "	2½ "	15 "	16 "	66°	36 00
P-47.	7	12 X15 "	2¾ "	20½ "	22 "	66°	42 00
P-48.	8	17 X20 "	3¼ "	25 "	27½ "	66°	60 00
P-49.	9	20 X24 "	3¾ "	28½ "	31 "	66°	100 00

Nos. 1 and 2 furnished in matched pairs for stereoscopic work.

QUEEN & CO.'S "FRANCAIS"

RAPID RECTILINEAR LENS.



Although it has been but a comparatively short time since these lenses were introduced by us to the American market, they have already taken a front rank among the lenses of their class. Compared critically with the best productions of the most famous makers, they have in every case been acknowledged at least equal, and in most cases superior, to all competitors. The causes which have led to these results may be briefly stated as follows :

First.—They are made of a quality of glass which is very free from color, and they thus allow more actinic light to pass through them than is usual with even the best lenses of other makers.

Second.—They are more perfectly polished than any other similar lenses, and they thus give pictures of unrivaled sharpness and brilliancy.

Third.—They are larger in diameter than other lenses of the same focus and covering the same size of plate. This gives room for a more perfect correction than is possible with lenses of smaller diameter, an opportunity which the maker has utilized to the utmost. At the same time the extra amount of light they thus bring to bear in photographing groups and in instantaneous work puts them easily ahead of all competitors of whatever make, so that they are especially well adapted for these purposes.

For out-door architecture their depth of focus, flatness of field, and perfect rectilinear qualities enable them to produce pictures at once absolutely free from distortion and perfectly harmonious in perspective. The same qualities added to their quickness of working renders them invaluable in photographing interiors, especially those which are only moderately lighted.

But it is when they are tested in copying or in landscapes that their excellence shows most plainly. Here their brilliant images, even with smallest stops, and their absolutely rectilinear character are very marked. When used for these purposes they cover sharply plates more than twice the area of those claimed for them in the accompanying table, which are the sizes for groups with the medium and larger stops.

It will readily be seen that all these advantages are the direct or indirect results of the perfection of the formulæ upon which the curves of the lenses are computed, aided by the perfect mechanical skill which has so thoroughly carried into practice the results given by the theoretical calculations of these curves.

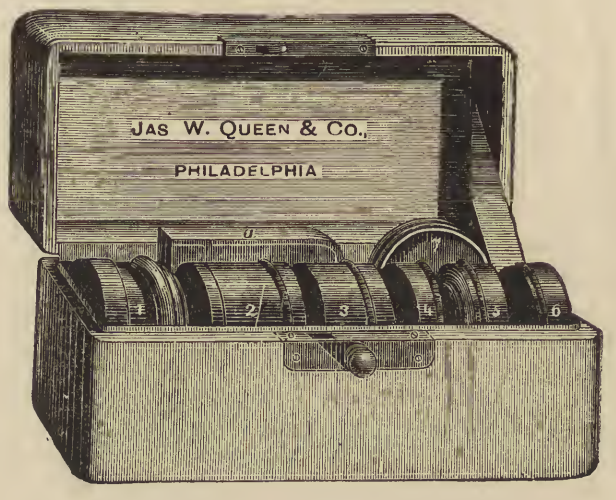
We have, therefore, no hesitation in claiming that they are the most perfect lenses for general work yet offered to the photographic fraternity.

Table and Prices of Queen & Co.'s Francais Rapid Rectilinear Lenses.

Catalogue Number.	For Instantaneous Work, Portraits and Groups, up to these sizes.	Will cover with small stops these sizes.	Back Focus in inches.	Equivalent Focus in inches.	Diameter of Lenses.	Price.
P-51.	3¼ x 4¼ inches.	4 x 5 inches.	4½	5⅛	$\frac{5}{8}$ inches.	$25 00*
P-52.	4 x 5 "	5x 7 "	6¾	7½	1¼ "	32 00*
P-53.	5 x 8 "	6½x 8½ "	8½	10¼	1⅝ "	38 00
P-54.	6½x 8½ "	8 x10 "	11	13	2 "	50 50
P-55.	8 x10 "	10 x12 "	14	15¾	2⅜ "	63 00
P-56.	10 x12 "	12 x15 "	17	18½	2¾ "	84 00
P-57.	12 x15 "	16 x18 "	19½	21¾	3⅛ "	100 00
P-58.	16 x20 "	21 x25 "	27	29½	$3\frac{5}{16}$ "	158 00
P-59.	20 x24 "	22 x28 "	31½	35½	4¾ "	235 00
P-60.	28 x33 "	30 x40 "	39	44¼	5½ "	370 00

* Furnished in matched pairs to use stereoscopically.

QUEEN & CO.'S
FRANCAIS'
RECTILINEAR, WITH MULTIPLE FOCI.



ONE often finds, on looking at the view made by his lens upon the ground glass, that it either includes some object which is undesirable, and which he can only get rid of by cutting down the size of the picture in printing, or that it leaves out something which would greatly increase the beauty. His lens includes either too large or too small an angle. Again, one sees a little nook or vine-clad rock that would be very fine if he could get it as a miniature, but which, otherwise, he must pass by. Lastly, one often wishes, as he looks at a sturdy, broad-spreading tree, or a grand expanse of mountain, to have at hand a plate that is larger than usual, so as not to cramp the noble proportions of the view.

To meet these various requirements, Monsieur Francais has made a series of lenses, calculated so as to be used in pairs or singly, which divide themselves as regards angle into three groups, one of 50°, one of 60°, and the third of 90°; and as regards the sizes of plate also into three groups, one of which covers 4¼x6½ inches, the second 5½x8½ inches, and the third 10x12 inches. These dimensions and

angles are so well chosen that there is scarcely a view to be found which does not fall harmoniously into place on one or other of the plates, and under one or other of the angles.

As shown in the illustration, the lenses are in separate cells. They are attached to each other, as shown in the following table. The whole series is very compact and easily used, and is packed securely in a neat case, as shown.

Regarding the quality of the separate combinations, the single lenses 7, 8, and 9 are exceptionally fine as landscape lenses. Their perfect polish and medium angles give great brilliancy to the views taken by them. For all work of this kind, in which straight lines do not enter, they are unsurpassed by any single lens yet made. For architectural subjects and portraits, singly or in groups, however, the combinations 1 to 5, inclusive, give superior results, being constructed as rapid rectilinears, and possessing all the good qualities of the regular lens of this maker—rapidity, brilliancy of lighting, depth of focus, and absolute freedom from distortion. When used with the small stops they give very brilliant landscapes, and are very rapid.

For copying they are both rapid and perfectly accurate. But their especially strong point is in their instantaneous work, as they combine the greatest rapidity with a choice of plate and angle not approached by any other series of lenses yet constructed.

Furnished with this series and with a 10x12 camera, with the proper kits, the landscape photographer can scarcely ask anything more convenient and complete.

Table of Queen & Co.'s Francais Rectilinear with Multiple Foci.

Combinations.	No. of Lenses Used.		Back Focus.	Size of Plate.		No. of the Diaphragm in Focusing.
	Front Lens next the view.	Rear Lens next ground glass.		Portrait.	Landscape.	
Rectilinears (1)	2	3	14½ inches.	6½x8½	10 x 12	1
of 2	2	4	11¼ "	4¼x6½	6½ x 8½	4
60° Angle. 3	3	4	10 "	3¼x4¼	4¼ x 6½	4
Rectilinears 4	5	6	7½ "		10 x 12	6
of 5	5	7	6½ "		6½ x 8½	6
90° Angle. 6	6	7	5¼ "		4¼ x 6½	6
Single 7		5	16 "		10 x 12	5
Lenses of 8		6	12 "		6½ x 8½	6
50° Angle. 9		7	10 "		4¼ x 8½	6

P-115. Francais' Rectilinear, with Miltiple Foci. Per set, $105 00

GEM LENSES.

These are small lenses, accurately matched in focus, for use in sets of 4, 6, 8, or 9, as desired, with ferrotype with argentic dry-plates.

No						Price.
P–125.	Gem Lenses,	1-9	size,	each,	. . . . .	$2 60
P–126.	" "	1-6	"	"	. . . . .	3 50
P–127.	" "	1-4	"	"	. . . . .	4 00

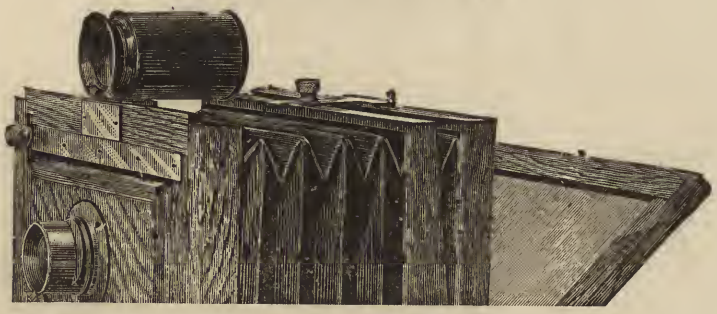
CONDENSING LENSES.



These lenses are made of white glass, are short focus, and finely polished. They are especially fitted for solar enlargements.

No.								Price
P–130.	Condensing Lens,	10	inches	diam.,	14	inches	focus, .	$26 00
P–131.	" "	12	"		16	"	.	40 00
P–132.	" "	14	"		18	"	.	55 00
P–133.	" "	15	"		20	"	.	65 00
P–134.	" "	16	"		21	"	.	75 00
P–135.	" "	18	"		25	"	.	115 00
P–136.	" "	20	"		35	"	.	160 00

QUEEN & CO.'S
FINDER FOR INSTANTANEOUS WORK.



THIS is an instrument similar in general construction to the camera itself, to be attached to the rear body of the camera, and set so as to have its field correspond with that on the ground glass of the camera.

Then, when the object is seen to be at the centre of the field of the finder, the instantaneous shutter is dropped and the object secured at the middle of the plate.

No.		Price.
P-140.	Finder for Instantaneous Work, ...	$3 00

DECONDIN'S PHOTOMETER.

FOR INSTANTLY OBTAINING THE CORRECT TIME OF EXPOSURE FOR ANY SUBJECT.

This instrument is very compact—about the size of a large watch—and is arranged so as to give very accurately the amount of light on the ground glass. It makes a very good test *for the comparative rapidity of lenses*.

To use :—Place the aperture of the Photometer over that part of the image for which you expose. By means of the thumb-nut, revolve the perforated diaphragm until the large opening is just visible and the three smaller ones are invisible, refer to the corresponding letter exposed at the second opening and then to the tables, which will give the time. For extra rapid plates allow one-third the time.

No.		Price.
P-141.	. . . . .	$5 00

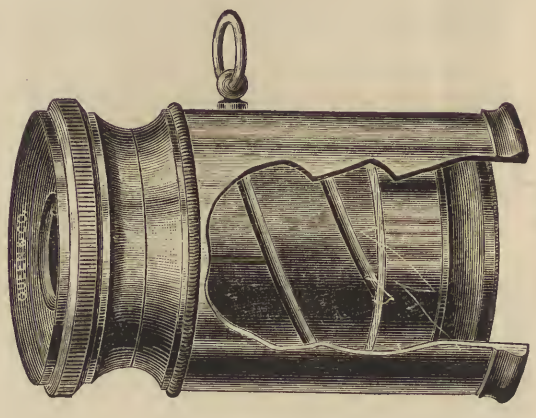
QUEEN & CO.'S
FOCUSING GLASSES.



P–155.



P–156.



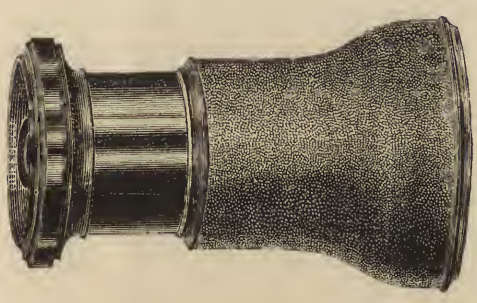
P–157.

IT is always difficult, especially when working with a small stop, to decide just when an object is in the best focus with the eye alone. For this cause the focusing glass is almost as necessary as a camera, if fine, sharp work is to be done.

It is adjustable either by screw or slip-tube, and should be placed against the back of the ground glass plate before attempting to focus a view, and adjusted so as to show the ground glass surface sharply while still pressed against the back of the plate. Then set it rigidly at this focus by clamping it, or otherwise, and when using it on the view afterward, simply bring the objects to a sharp focus in the focusing glass by moving the camera lens or body in or out, without deranging the adjustment of the examining lens.

No.		PRICE.
P–155.	Three-legged Focusing Glass, ...	$0 75
P–156.	Plain " "	75
P–157.	Queen & Co.'s " "	2 50

QUEEN & CO.'S VIEW COMPOSITORS.





VIEW COMPOSITOR.

THIS is a little instrument similar in general appearance to a single tube opera-glass, but including an angle of 30° to 45°, according to the extent to which it is drawn out. It is supplied with a blue glass, which shuts off all the rays except those which will impress the sensitive plate, so that one can see just how the picture will appear when taken.

It is very useful in selecting a view and in arranging the foreground, as any imperfections are far more noticeable in it than they would be to the eye alone.

No.		Price.
P–160.	View Compositor, each, ...	$6 00

QUEEN FOCUSING CLOTHS.

TO shield the ground glass from light while adjusting the focus of the lens upon it. The Queen Focusing Cloth is a double weight gossamer. It will be found most desirable when used for the purpose it was designed for.

No.		Price
P–162.	Queen Focusing Cloth, 36x36 inches square, . .	$0 60

SIMPLE INSTANTANEOUS DROP.

THIS consists of a wooden frame with grooves, attached to the front of the objective, in front of which a second frame with opening slips smoothly in the grooves of the former by the force of gravity. This is the simplest form of drop, and effective where too great rapidity is not desired.

No.		Adaptable to Lenses with hoods of	Price.
P–170.	Simple Instantaneous Shutter,	1⅜-in. diameter and less,	$1 25
P–171.	" " "	1⅝ " " "	1 50
P–172.	" " "	2 " " "	1 75
P–173.	" " "	2½ " " "	2 00
P–174.	" " "	3 " " "	2 25
P–175.	" " "	3½ " " "	2 50
P–176.	" " "	4 " " "	2 75

QUEEN & CO.'S
TIME AND INSTANTANEOUS
PNEUMATIC SHUTTER.

P–185. Adaptable to lenses with hoods of 1⅜-inch diameter and less, ... $5 00

P–186. Adaptable to lenses with hoods of 1⅝-inch diameter and less, ... 5 25

P–187. Adaptable to lenses with hoods of 2-inch diameter and less, ... 5 50

P–188. Adaptable to lenses with hoods of 2½-inch diameter and less, ... 5 75

P–189. Adaptable to lenses with hoods of 3-inch diameter and less, ... 6 00

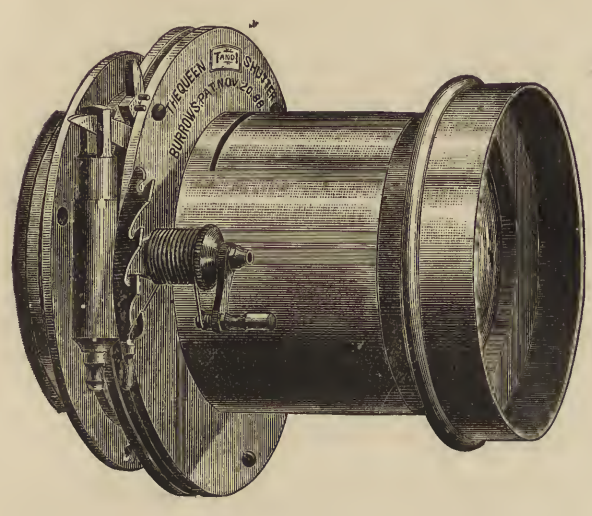
P–190. Adaptable to lenses with hoods of 3½-inch diameter and less, ... 6 25

P–191. Adaptable to lenses with hoods of 4-inch diameter and less, ... 6 50

THE QUEEN T and I Time and Instantaneous. SHUTTER.

(Burrows' Patent.)

THE LATEST AND BEST.



VERY COMPACT, FINELY FINISHED, STRONGLY MADE, REBOUND IMPOSSIBLE, MOVABLE PARTS LIGHT, NO JARRING OF INSTRUMENT.

This Shutter is noted for its compactness, and on account of its form is strong and will stand hard usage. It is finished in the very best manner, and while strongly made, the moving parts are exceedingly light and simple.

The greater part of this instrument being turned work, the most

faultless accuracy is obtainable, as well as the perfect finish which is always given fine work of this class. This accuracy of the inclosing case and moving parts is plainly indicated by the very light spring, which easily produces the highest speed with the only sufficient power to overcome the inertia—friction is reduced to a minimum.

The opening is symmetrical, beginning from the centre and gradually forming a perfect circle as it grows larger. The shutter itself is composed of two light leaves which cannot become misplaced or broken, and which counterbalance each other in every movement.

The small tumbler shown in the illustration controls the exposure; when pressed down the movement is instantaneous, the speed depending on the spring, which is adjustable as shown.

When this tumbler is pressed up the movement stops at full open, and only closes upon releasing the pressure on the bulb. When a quick touch and release is made by the bulb there is a scarcely perceptible pause at open, making a slow instantaneous under perfect control of the operator.

After being set, and the dark slide drawn, it may be changed to time or instantaneous (slow or fast), by a touch of the finger. It gives time exposures from 1 to $\frac{1}{10}$ second, which is an important advantage.

Mount on the camera in the position shown. To set it, depress the small crank until it catches, observe that the tumbler is right. For focusing, depress the crank over half-way, elevate the trigger connected with the piston, and let the crank return until it engages the trigger, see that the tumbler is set for time, otherwise this operation will fail.

These Shutters are fitted to lenses giving the

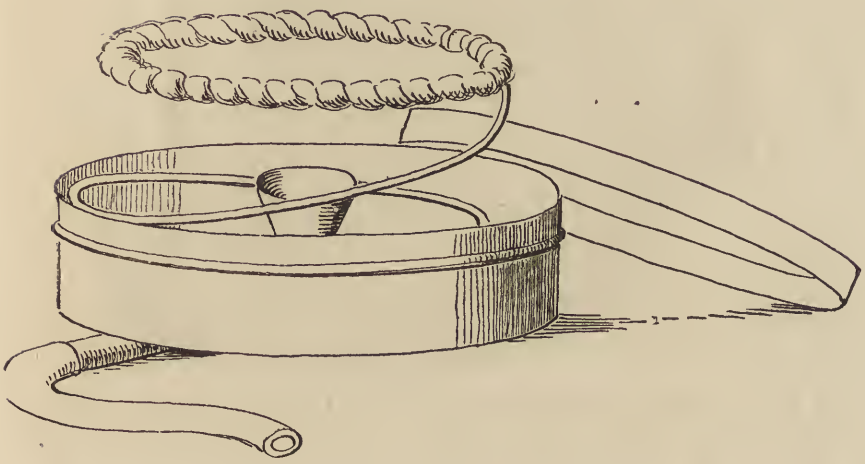
FULL SIZE APERTURE NECESSARY TO RAPID WORK.

PRICE, FITTED TO LENS CELLS COMPLETE:

No.	Aperture Diameter.	Outside Diameter.	For Lenses.	Price.
P-200.	1 in.,	2¼ in.,	4 x5 -5x 8.	$15 50
P-201.	1½ "	3¼ "	6½x8½-8x10,	16 50
P-202.	2 "	4½ "	8 x10 -up,	21 00

Where the lens mount requires extra flange-collars an additional charge of $1.25 to $1.75 will be made.

THE QUEEN FLASH LAMP.



It is conceded by all that pure magnesium powder, instantly and completely burned, makes the most desirable light for photography.

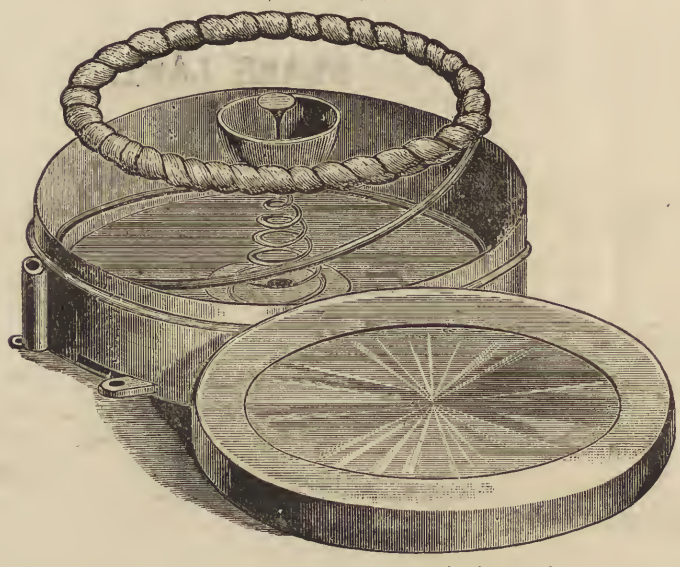
This device gives a broad sheet of light and fully stands the test for rapidity. Its simplicity is its chief merit. We place it on the market without ornamentation at the lowest price that is possible for an effective lamp, and guarantee its performance to be equal to any and superior to the majority of devices now offered for sale.

To use, pour in the cover enough alcohol to saturate the wick, then invert the lamp and place the wick in the alcohol. Replace the lamp on its base again and put the charge of *pure* magnesium in the funnel. Light the wick. Hold the tubing firmly with the finger and thumb of the left hand and squeeze the bulb forcibly with the right. Release the tube quickly, and at the same time expel all the air in the bulb. When properly done this will produce an instantaneous flash. Use from three to sixteen grains of magnesium.

No.		PRICE.
P–210.	Queen Flash Lamp, ...	$0 75

THE QUEEN FLASH LAMP, 1889.

PATENT APPLIED FOR.



A reference to the cut will show that this is an improvement on our original model, and that it differs radically from all other lamps. The circular asbestos wick gives the most perfect combustion possible. The absence of the customary and awkward rubber bulb and tube is noticeable. The powder is placed in the central reservoir, which is actuated by a strong spring, and under perfect contol of the trigger. When this is released, it springs upward to its limit and rebounds. The powder continues onward, and by the action of the central spindle it passes into the flame in finely divided particles, so that *perfect combustion* of all the powder takes place. The lamp is especially adapted to the use of pure Magnesium, but it will be evident that it is the safest and the best means of igniting any of the explosive flash-light powders now in use. With these compounds, the period of ignition is reduced to a small fraction of the time usually occupied by the explosion. Consequently in scientific work requiring the shortest possible exposures, where the smoke is no objection, this lamp with flash powders gives perfect results. This lamp is held in position and discharged with one hand, and may be held directly or supported on a rod of any length with a string passing from the trigger to a ring for the forefinger.

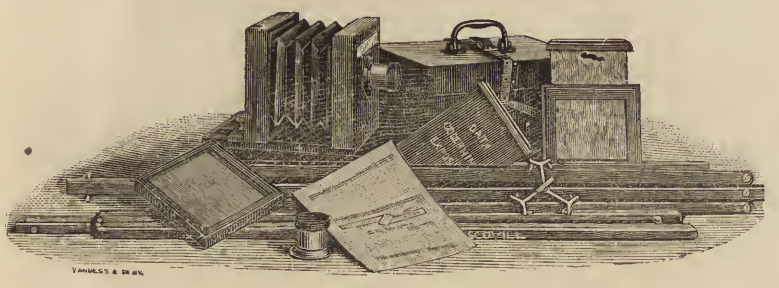
For large work a battery may be placed at available points, and discharged by one string.

They are thoroughly made of brass, and nickel-plated.

Price, ... $1.50

Magnesium powder, 50 cents per oz., 25 cents per bottle.

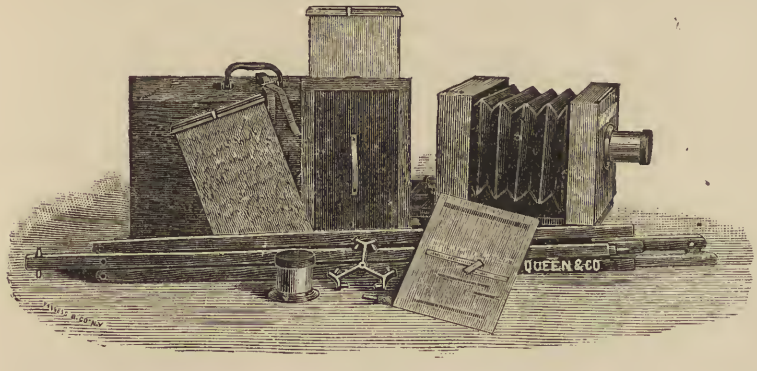
STANDARD CAMERAS.



4x5.

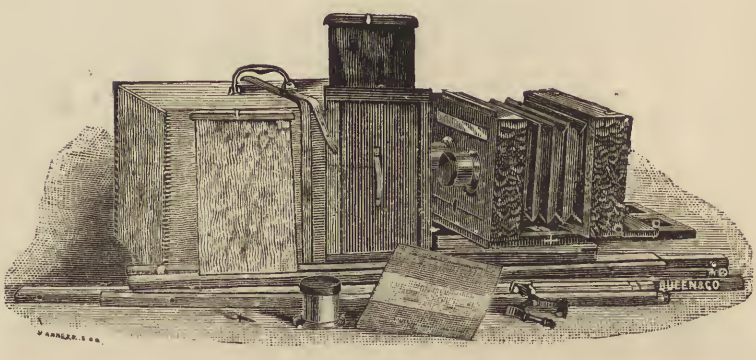
No.

P–250. **Camera Outfit**, comprising a View Camera with rubber bellows and rigid platform, for making 4x5 inch pictures,
1 Double Dry-Plate Holder.
1 Folding Tripod,
1 Achromatic Lens, with nickel-plated mounting, and
1 Carrying Case, Complete, $9 00



5x8.

P–251. **Camera Outfit**, comprising a View Camera, same style as No. 250, for taking 5x8 inch pictures,
1 Double Dry-Plate Holder.
1 Folding Tripod,
1 Achromatic Lens, and
1 Carrying Case, Complete, 10 00



STEREO, 5x8.

P–252. **Camera Outfit,** comprises :

View Camera for making 5x8-inch pictures.

This Camera is constructed so as to make either a *Cabinet Picture* on the full size of the plate (5x8 inches), or by substituting the extra front (supplied with the outfit) and using the pair of lenses of shorter focus, it is admirably adapted for taking *stereoscopic* negatives ; also by the same arrangement two small pictures, 4x5 inches each, of dissimilar objects can be made on the one plate.

1 Double Dry-Plate Holder.
1 Large Achromatic Lens,
1 Pair Achromatic Matched Stereo Lenses,
1 Folding Tripod, and
1 Carrying Case, Complete, $16 5(

P–253. **Camera Outfit,** comprises :

1 View Camera, for making 6½x8½-inch pictures,
1 Double Dry-Plate Holder.
1 Large Achromatic Lens,
1 Folding Tripod, and
1 Carrying Case. Complete, 14 00

P–254. **Camera Outfit,** comprises :

1 View Camera, for making 8x10-inch pictures,
1 Double Dry-Plate Holder.
1 Large Achromatic Lens,
1 Folding Tripod, and
1 Carrying Case, Complete, 25 00

NEW MODEL CAMERA.



4x5



5x8.

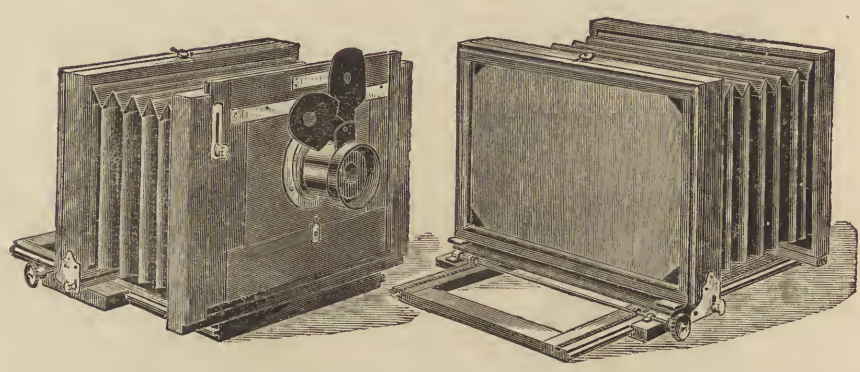
This Camera is made of the best seasoned cherry, well finished. The focusing-screen is hinged to the camera back, a safer and more convenient arrangement than where loose, and is made with swing-back.

This Camera is reversible, so as to enable the worker to take pictures either vertically or horizontally on the plate. All sizes above 4x5 have folding bed for compactness. A carrying case with drop handle accompanies each camera and will hold, besides the camera, 3 holders, focusing cloth, lens cap, etc. Each outfit comprises Camera, Queen & Co.'s Achromatic View Lens, Standard Folding Tripod, Model Double Plate Holder, and Carrying Case, with drop handle.

No.		PRICE.
P–260.	Outfit for making pictures 4 x5 inches, complete,	$10 00
P–261.	" " " 5 x8 " "	12 00
P–262.	" " " 6½x8½ " "	14 00

Stereoscopic attachment, including matched pair of lenses, furnished for above cameras (except 4x5) at $7.00.

IMPROVED MODEL CAMERA.



In general construction this Camera resembles "The New Model." It is strongly and carefully made, is very neat in appearance, and thus furnishes the amateur an excellent instrument at moderate price.

It is made of mahogany, highly finished, with the metal parts nickel-plated. It has a single swing back, a rising and falling front, a folding bed, and is reversible for taking pictures either vertically or horizontally, on the plate.

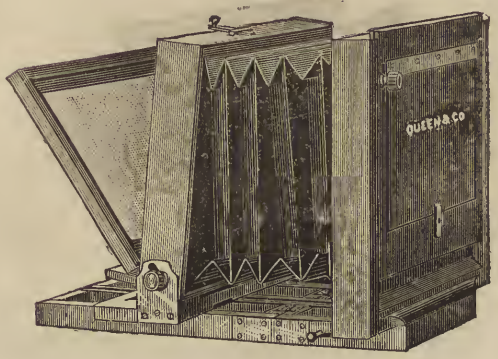
The cuts represents the 5x8 and the 6½x8½ sizes. The 8x10 size has, in addition, the stiff frame necessary in a large camera for rigidity.

Each outfit comprises, besides the Camera, Queen & Co.'s Achromatic View Lens, Folding Tripod, Model Plate Holder, and Carrying Case.

No.		PRICE.
P-270.	Outfit for making pictures 5 x8 inches, complete,	$18 00
P-271.	" " " 6½x8½ " "	22 00
P-272.	" " " 8 x10 " "	26 00

Stereoscopic attachment, including matched pair of lenses, furnished for above cameras at $7.00.

WATERBURY OUTFITS.



The illustration shows the general design of the Cameras of these popular outfits. They are made of mahogany, have rubber bellows, folding beds, single swing back, rising and falling front and side latch for making the bed rigid. They are light and compact. Queen & Co.'s Single Achromatic Lens, a suitable size of which accompanies each outfit, is a single achromatic view lens, in a nickel-plated mounting, with a set of stops to regulate the light.

Each outfit, when complete, consists of Camera, *New Style* Double Dry-Plate Holder, wooden Carrying Case, Taylor Tripod, and Queen & Co.'s Single Achromatic Lens, with a set of 3 stops.

No.		PRICE.
P–280.	Waterbury Outfit, for making pictures 4 x5 inches,	$12 00
P–281.	" " " " 4¼x5½ "	14 00
P–282.	" " " " 4¼x6½ "	15 00
P–283.	" " " " 5 x7 "	16 00
P–284.	" " " " 5 x8 "	16 50
P–285.	" " " " 6½x8½ "	20 00

NOVEL CAMERAS.

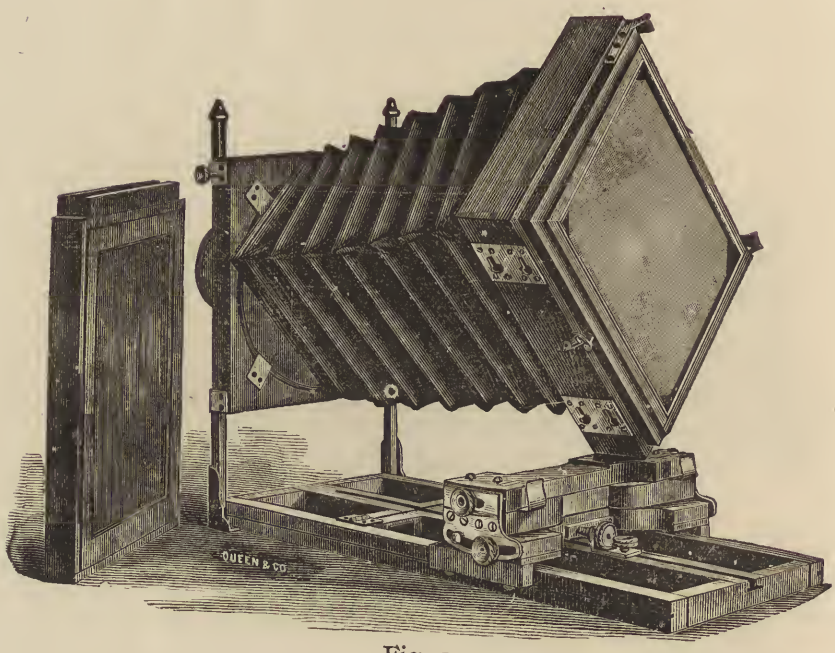


Fig. 1.

These Cameras are made of mahogany, finely finished. To enable the tourist to reverse his plate, so as to take either a horizontal or vertical picture, the back is detached from its base by pushing from left to right, when the screws which fasten it escape from their slots.

The back and bellows are then swung round to the proper position, the front turning in its setting at the same time, and keyed to the base by the other set of slots. This reversal is quickly effected. Fig. 1 shows the camera in process of reversal. Fig. 2 represents it set for upright pictures upon the plate. The front has a rising and falling movement to permit adjustment of

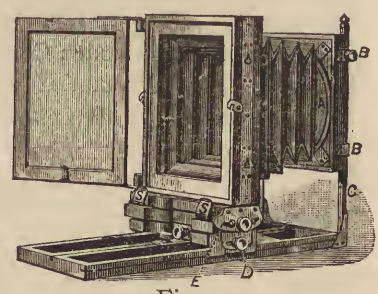


Fig. 2.

foreground and sky. The ground glass is hinged to the back. The camera has cone bellows and folding bed.

Sizes up to 8x10 inclusive are furnished with one novel *double* dry-plate holder, and carrying case; the larger sizes with one Novel *single* dry-plate holder and carrying case. Sizes 5x8, 6½x8½, and 8x10 have stereoscopic partition and extra front.

No.								Single Swing.	Double Swing.
P–286.	Novel Camera for making pictures				4	x5	in.,	$17 50	
P–287.	"	"	"	"	4¼	x 6½	"	20 00	$23 00
P–288.	"	"	"	"	5	x 8	"	20 00	23 00
P–289.	"	"	"	"	6½	x 8½	"	25 00	28 00
P–290.	"	"	"	"	8	x10	"	30 00	33 00
P–291.	"	"	"	"	10	x12	"	35 50	40 50
P–292.	"	"	"	"	11	x14	"	41 75	46 75
P–293.	"	"	"	"	14	x17	"	55 00	60 00
P–294.	"	"	"	"	17	x20	"	64 50	72 00
P–295.	"	"	"	"	18	x22	"	71 50	79 00

MANIFOLD CAMERAS.

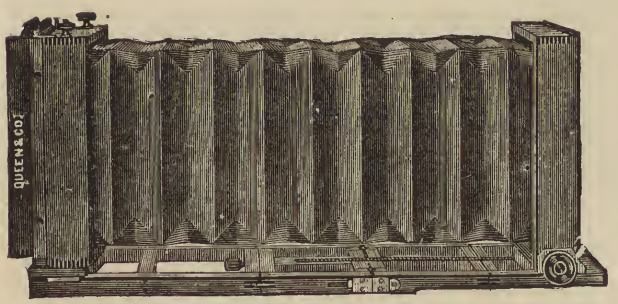


Fig. 1.

This Camera was designed to combine as many points of utility in a compact form as could be done without sacrificing lightness. It has an unusually long bed and folding bellows, which is often of

great use. When a short bed only is needed, the rear half of the bed can be removed, when the camera is still the usual length of draw. If it be desired, a still further shortening of the bed can be made by taking off one-third of the front, as shown in Fig. 2. The ground

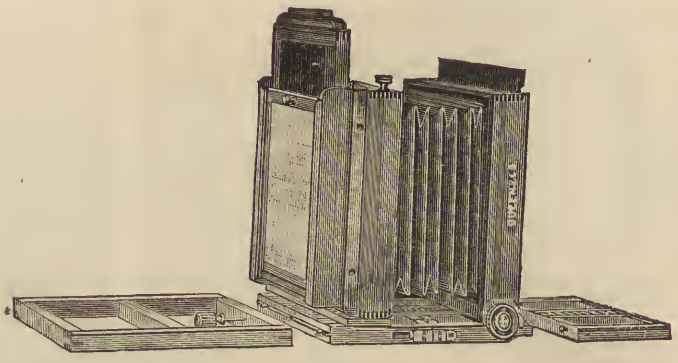


Fig. 2.

glass frame is held in place by springs, and the plate-holder is slipped into place by pushing this back, as shown in the cut. It has a double swing and reversible back, which permits a picture to be made either horizontally or vertically on the plate.



Fig. 3.

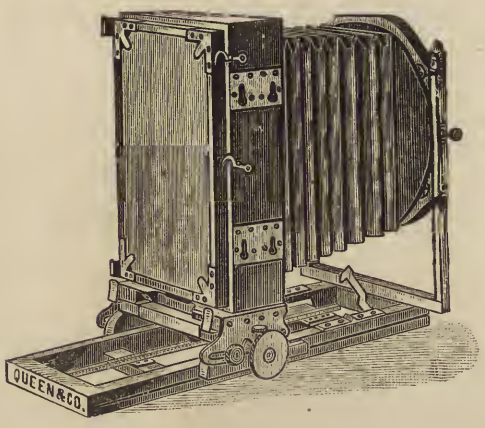
Fig. 1 represents the camera extended ; Fig. 2 shows the instrument in use, with both the rear and front bed detached ; Fig. 3 represents it packed.

It is, as its name implies, a camera for manifold uses.

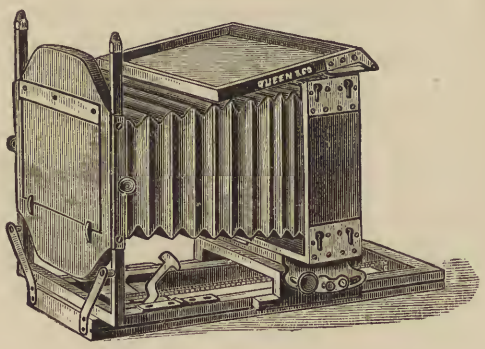
A Manifold Camera comprises the Camera, 1 Daisy-Plate Holder, and Camera Case.

No.					PRICE.
P–296.	Manifold Camera, for pictures		3¼ x 4¼	inches,	$34 00
P–297.	"	"	4 x 5	"	38 00
P–298.	"	"	4¼ x 5½	"	40 00
P–299.	"	"	5 x 7	"	42 00
P–300.	"	"	6½ x 8½	"	52 50
P–301.	"	"	8 x10	"	58 00

FAIRY NOVEL CAMERAS.



These Cameras are handsomely made of finely polished mahogany, with the metal parts nickel-plated. They have cone bellows and reversing bodies, as in "The Novel" Camera. The focusing is done by a continuous rack with pinion. The ground glass frame swings back, as in "The Novel." They are provided with a brace of hooks for instantly making the bed rigid on unfolding it. Each Camera is furnished with one novel double dry-plate holder and a canvas-carrying case. The 4¼x6½ have no stereoscopic attachment.



No.						Single Swing.
P–302.	Fairy Novel Camera, for pictures			4¼ x 6½	inches,	$40 00
P–303.	"	"	"	5 x 8	"	42 00
P–304.	"	"	"	6½x 8½	"	45 00
P–305.	"	"	"	8 x10	"	50 00

IDEAL.

REVERSIBLE BACK CAMERA.

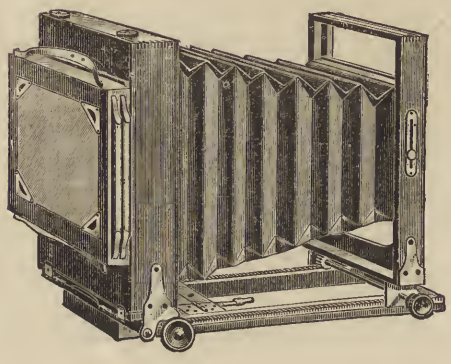


Fig. 1.

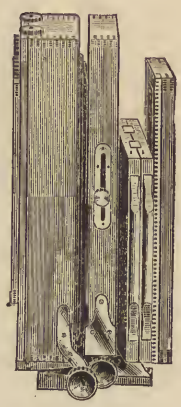
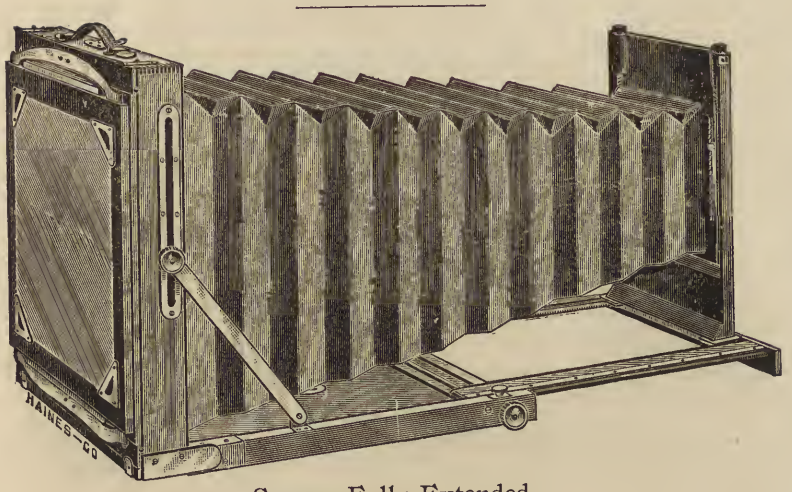


Fig. 2.

		SINGLE SWING.	DOUBLE SWING.
P–310.	4 x 5	$18 00	$20 00
P–311.	4¼ x 6½	20 00	22 00
P–312.	5 x 7	22 00	24 00
P–313.	5 x 8	25 00	27 00
P–314.	6½ x 8½	28 00	30 00

UNIVERSAL.



Camera Fully Extended.

THE Universal Camera is a modified English pattern, and is the most compact Camera in market, the 5x8 being but 2⅝ inches thick.

It has extra long bellows, the 5x8 having a focal capacity of 19 inches and other sizes in proportion; this allows the use of lenses of extreme length of focus, while lenses of the shortest focus can also be used; owing to the extra length of bellows the Camera can be used for copying and enlarging, if desired, and in fact is as near a *Universal* Camera as can well be made.

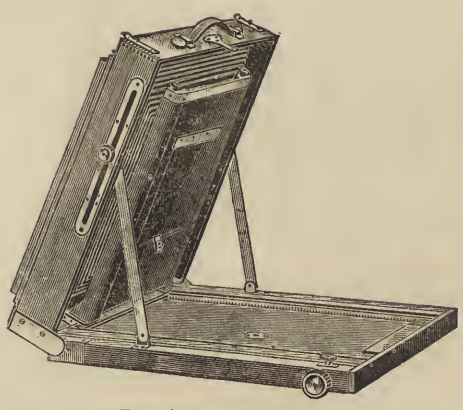
It has reversible back with our spring acting ground-glass frame by which the plate-holder is inserted between the ground glass and camera-back.

It has full rack-and-pinion, the movement being perfectly smooth. All metal work is done of brass, polished and lacquered.

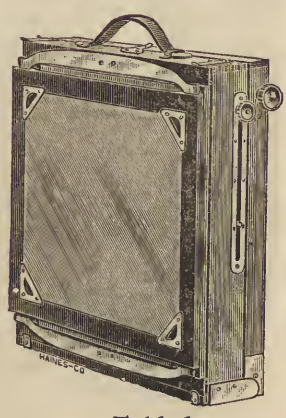
It is made with both single and double swing, has rising and falling front controlled by a spring acting in a ratchet, doing away with milled heads. The forward end of bellows is attached to the movable front and slides with it, thus avoiding a possibility of cutting off the rays of light.

The camera-box is made of selected mahogany highly polished, the entire workmanship being of the highest order.

UNIVERSAL.



Partially Folded.



Folded.

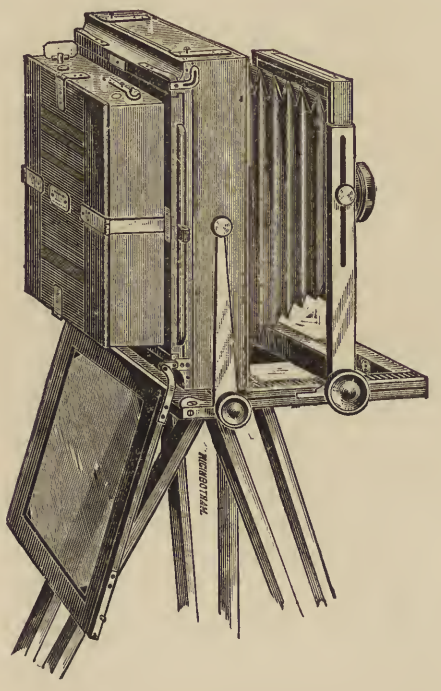
While very compact, the Universal is very simple of manipulation, there being no loose screws or parts, and is set up by tightening four milled heads, and is folded again by loosening the same number.

It is provided with a leather handle, so that it may be carried without the case if desired, as one holder can be carried between the ground glass and camera-back.

Price includes Canvas Carrying-Case, one Perfection Holder and Combination Tripod, but no lens.

No.	Size of Plate.	Single Swing.	Double Swing.
P–320.	3¼ x 4¼,	$24 00	$26 00
P–321.	4 x 5,	25 00	27 00
P–322.	4¼ x 6½,	28 00	30 00
P–323.	5 x 7,	33 00	35 00
P–324.	5 x 8,	36 00	38 00
P–325.	6½ x 8½,	40 00	43 00
P–326.	8 x10,	45 00	48 00
P–327.	10 x12,	52 00	56 00
P–328.	11 x14,	60 00	65 00

INTERCHANGEABLE VIEW CAMERA.



This Camera is made of mahogany, unstained and French polished. Has double swing, double rising front, front focusing rack-and-pinion, extension bed, and a reversible back.

The brass work is all hand-polished and lacquered. The Eureka ground-glass adjuster has all the advantages of the spring actuated ground glass, and may be lowered as an ordinary hinged frame.

Interchangeable Body and Bed.—The thumb-screws in the bed, which control the vertical swing, are so arranged that when unscrewed the body can be lifted from the bed and the bellows detached

from the front by turning a button; this feature enables the substitution of one body for another of a different size on the same bed.

Where great extremes are required, the combination can be made by using a bed and front half-way in size between the two backs. For instance, a customer ordered a 6½x8½ Camera, with 11x14 extra back; to preserve due proportion, we furnished an 8x10 bed, which was small enough to take the 6½x8½ back, and large enough to support the 11x14 back; the cost was,

6½x 8½ back,	$18 00
11 x14 back,	30 00
8 x10 bed,	20 00
Total,	$68 00

The cost of the two Cameras complete would have been $96.00, hence the saving was $28.00, while the outfit was 25 per cent. lighter than two Cameras.

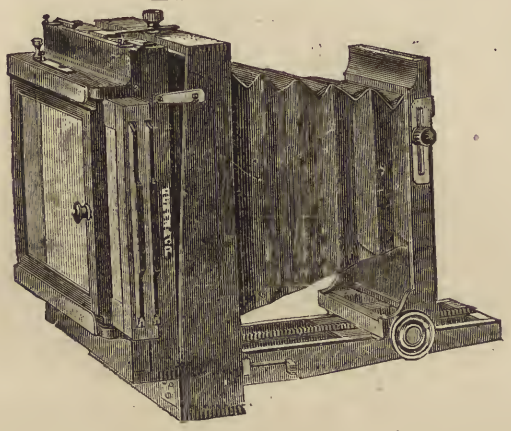
		Complete Camera, including Extension Bed, one extra Lens, Board and one Double Holder.	Extra Back and one Double Holder.
P–330.	4¼x 5½,	$26 00	$13 00
P–331.	4¼x 6½,	28 00	14 00
P–332.	5 x 7,	32 00	16 00
P–333.	5 x 8,	34 00	17 00
P–334.	6½x 8½,	36 00	18 00
P–335.	8 x10,	40 00	20 00
P–336.	10 x12,	50 00	25 00
P–337.	11 x14,	60 00	30 00
P–338.	14 x17,	75 00	37 50
P–339.	17 x20,	85 00	42 50
P–339¼.	18 x22,	90 00	45 00
P–339½.	20 x24,	100 00	50 00

Complete Cameras have canvas carrying-cases. Extra backs have wood carrying-cases.

Book-Holders (English style) can be furnished only for the hinged adjusters. (Figs. 4 and 5.)

Eureka Holders can be furnished for either style adjusters.

ST. LOUIS REVERSIBLE BACK CAMERAS.



This instrument is made of the best mahogany and is finely finished. It is made as light as possible without loss of stability. It has cone bellows, and the front slides up and down to adjust the foreground and sky. The focusing is by a rack-and-pinion, which moves the front instead of the back.

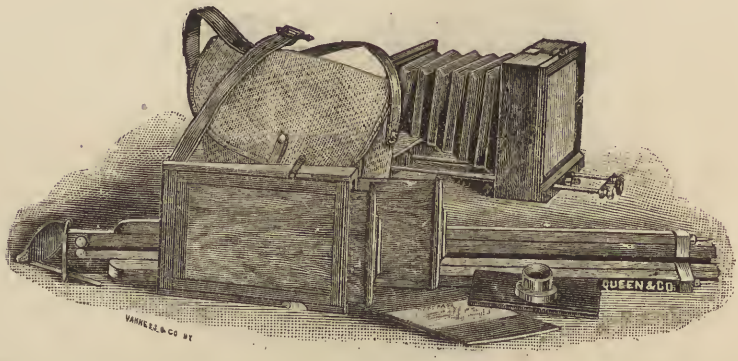
As the ground glass thus remains stationary, focusing is made easy, as the bed is out of the way, giving more control over the focusing cloth, and also enabling the operator to get closer to a wall or in a corner in photographing interiors or other confined positions. The carrier at the back is reversible, thus permitting a picture to be taken either vertically or horizontally on the plate.

The back of the camera is rigidly fastened to that part of the bed which is clamped to the tripod. By this device greater rigidity and steadiness is given to the back in exposure. The ground glass, being held in place by springs, is simply pushed back to admit the plate-holder, which slips into its place. In the larger sizes the bed is made in two parts, so that one may be removed when the operator is working with a wide-angled lens of very short focus.

This camera includes one daisy plate-holder, without recess in the face, and canvas carrying case.

No.		Single Swing Back.	Double Swing Back.
P–350.	St. Louis Camera, for picture 4¼ x 5½ in.,	$26 00	$30 00
P–351.	" " " 5 x 7 "	32 00	35 00
P–352	" " " 6½ x 8½ "	36 00	40 00
P–354.	" " " 8 x10 "	40 00	44 00

TOURIST'S POCKET OUTFITS.

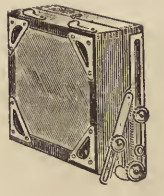


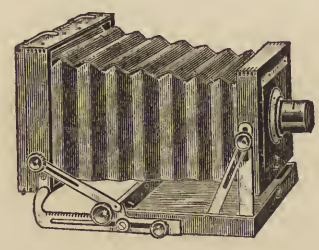
The frames and front of these Cameras are made of mahogany and finely finished. The nickel-plated rods and connectors which move the front are easily removed in packing and replaced for use. When folded up the 4x5 size measures but 5¾x6½x2 inches, and it is without any projecting parts or screws, so that it may be slipped into the pocket readily and safely. The weight of this size is only 1½ pounds with the dry-plate holder. In both the sizes the weight is nicely balanced on the centre of the tripod, which greatly lessens the risk of vibration.

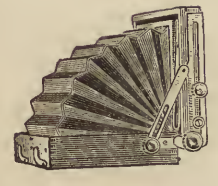
In focusing, the front of the camera with the lens is pushed forward, and when the focus is obtained the lens and front are fastened in their position by a screw acting on a spring, which presses against the focusing rods.

No.		Price.
P–360.	4x5 **Tourists' Pocket Outfit**, consisting of a 4x5 Tourists' Pocket Camera, with 1 Daisy Double Dry-Plate Holder, 1 Canvas Carrying Case, with shoulder strap, and 1 Extension Tripod, No. 1, with patent reversing attachment, Complete,	$22 00
P–361.	5x8 **Tourists' Pocket Outfit**, consisting of a 5x8 Tourists' Pocket Camera, with 1 Daisy Double Dry-Plate Holder, 1 Canvas Carrying Case, with shoulder strap, and 1 Extension Tripod, No. 2, with patent reversing attachment, Complete,	30 00

MIDGET POCKET CAMERA.







The Midget Pocket Camera is the most compact camera ever made, it being but 1½ inches thick when folded, and the 3¼x4¼ can be carried in an ordinary coat pocket, while the 4x5 can be carried in an overcoat pocket. On account of its compactness it is invaluable for ladies, tourists, bicyclists, and canoeists.



While so very compact, yet the 3¼x4¼ camera has a focal length of 6½ inches while the 4x5 has 7½ inches, so that any lens can be used if desired.

The Midget Pocket Camera is made in the best possible manner, being made of selected mahogany, highly polished, with metal work of polished and lacquered brass.

It has rising front, vertical swing, and has fine rack-and-pinion focusing movement; the ground glass is spring acting, the holder sliding between it and the camera-box.

The lens is a Rectilinear lens of great depth, and which is made compact enough to remain attached to the front board and be reversed in the camera.

The tripod is an ingenious invention, it having the appearance of a cane when folded.

The 3¼x4¼ when folded measures 4x5¼x1½ inches, and weighs less than one pound.

Price complete, including three holders.

No.		Price.
P–380.	3¼x4¼,	$25 00
P–381.	4 x5 ,	28 00

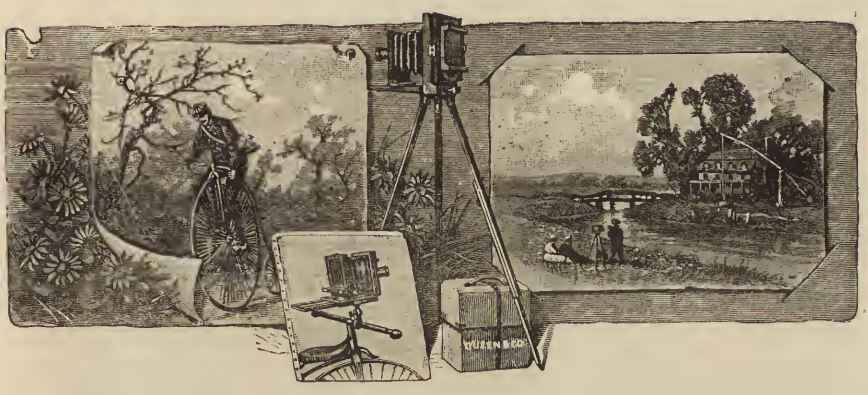
PEERLESS DETECTIVE CAMERA.



It has not come to be generally known, but such is the fact, that artists of renown and shrewd detectives carry about these cameras, and pictures are secured by them for their different lines of study through their instrumentality in a manner which is perfectly simple —in fact, it requires no skill other than to get within the range of focus of the unsuspecting victim. As the party, whether man, woman, or child, is not aware that anything unusual is transpiring, the expression of the countenance and the pose are not arranged with reference to their appearance in a picture. A quick working lens is hidden in the camera, and also a few plate-holders. By pressing on a spring the whole operation of exposure is completed.

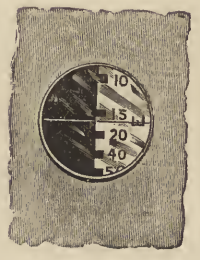
It followed naturally upon the introduction of the roll-holder that it should be applied to the Peerless Detective Camera, and this has been done in a manner that displays the greatest ingenuity. Instead of three double dry-plate holders, but one will accompany the roll-holder.

Many amateurs have declared that the pleasure of picture-taking was not fully revealed to them until they had procured and tried one of the *Peerless Detective Cameras*.



No.		Price.
P–400.	Peerless Roll-Holder Detective Camera, for 3¼x4¼-inch pictures, with Francais' Rapid Rectilinear Lens, ...	$65 00
P–401.	Peerless Roll-Holder Detective Camera, for 4x5-inch pictures, with Francais' Rapid Rectilinear Lens, .	75 00
P–402.	Peerless Detective Camera, for 3¼x4¼-inch pictures, with Francais' Rapid Rectilinear Lens, three double dry-plate holders, and case, with room for six double holders, ...	50 00
P–403.	Peerless Detective Camera, for 4x5-inch pictures, with Francais' Rapid Rectilinear Lens, three double dry-plate holders, and case, with room for six double holders, ...	60 00
P–404.	Peerless Detective Camera, for 3¼x4¼-inch pictures, with three double dry-plate holders and case, with room for six double holders. No lens, . .	30 00
P–405.	Peerless Detective Camera, for 4x5-inch pictures, with three double dry-plate holders, and case, with room for six double holders. No lens, . .	35 00

HAWKEYE.





This Camera combines many of the best features of an all-around camera. It is fitted for glass or film-plates or with roll-holder for 100 exposures. It works equally well from the hand or on a tripod.

This instrument consists of an exterior, hard-wood case, finely polished, with lacquered brass trimmings. It is fitted with finder, instantaneous shutter, with graduated speed adjuster, instantaneous acromatic lens, graduated scale of feet for focal adjustment, rapid screw actuated back focus, and a section of the back is removable for focusing on the ground glass.

No.		Price.
P–410.	Polished wood, one double holder,	$15 00
P–411.	Black grained leather, one double holder,	20 00
P–412—410.	With roll-holder,	30 00
P–413—411.	" "	35 00

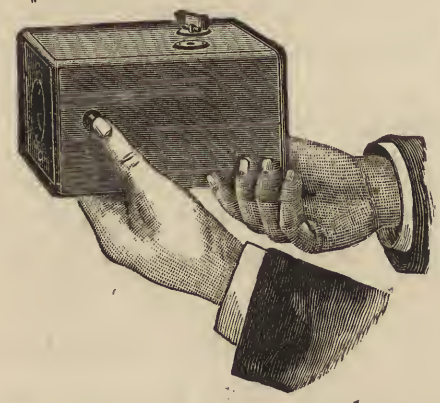
THE KODAK.



This is pre-eminently the tourist's camera, being small in size (6½ inches), light in weight (1 pound 10 ounces), and requiring no attention until 100 exposures have been made.

Any one can photograph with a Kodak. Expose the plates and send them to us to be developed.

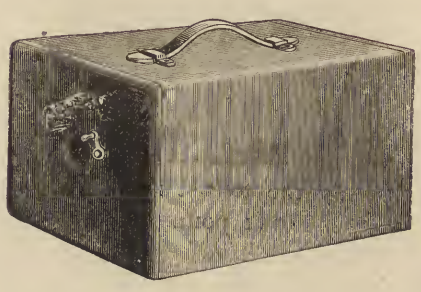
We will return the camera with fresh roll for exposures, the prints and negatives for $10.00.



Hold the camera as shown in the cut to make an exposure, pull the shutter-string and turn the thumb-screw until the indicator makes one revolution, when you are ready for another shot.

No.		PRICE.
P–415.	Kodak detective,	$25 00
P–416.	" film, 100 exposures,	2.50

THE ULTIMATE.

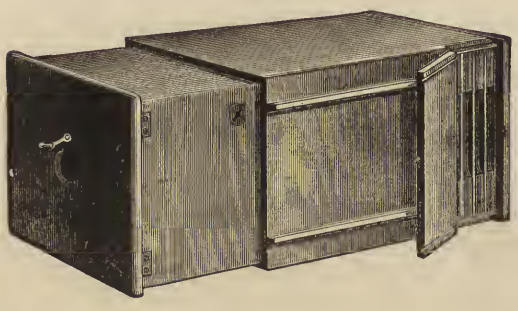


Showing Lens Opening and Shutter-Lever.

There is an ever-increasing demand for a detective or hand camera, which shall be pre-eminently small, simple, fully adjustable as to lens, speed of exposure, and for films or plates, and most perfectly concealed as a camera.

After mature consideration of every quality necessary to a perfect camera of this description, we have designed "The Ultimate," which we confidently offer to our patrons as filling all the above-mentioned conditions.

This instrument is most carefully and strongly made and finely finished in the best workmanship of our shops. It is covered with the best of black leather, fitted with our No. 2 Pantagraph lens, which we fully guarantee, and with four of the new metallic "Ultimate" Plate-Holders for 4x5 plates, or with a 3¼x4¼ Eastman Roll-Holder carrying 24 or 48 exposures.



Showing box extended and the arrangement of the bottom.

Send for "The Ultimate" Hand-book for a full description of the instrument and method of using it.

No.		Price.
P–425.	Ultimate with four 4x5 double holders, . . .	$35 00
P–426.	" " one 3¼x4¼ roll-holder, . . .	40 00
P–427.	" " glass plate and roll-holder, . .	45 00
	" without lens, $12 less.	
1 Queen & Co. Finder fitted to Ultimate, ...		3 00
Roll-holder refilled, exposed roll developed, printed, and finished, 24 exposures, ...		5 00
Roll-holder refilled, exposed roll developed, printed, and finished, 48 exposures, ...		10 00

THE LILLIPUT.





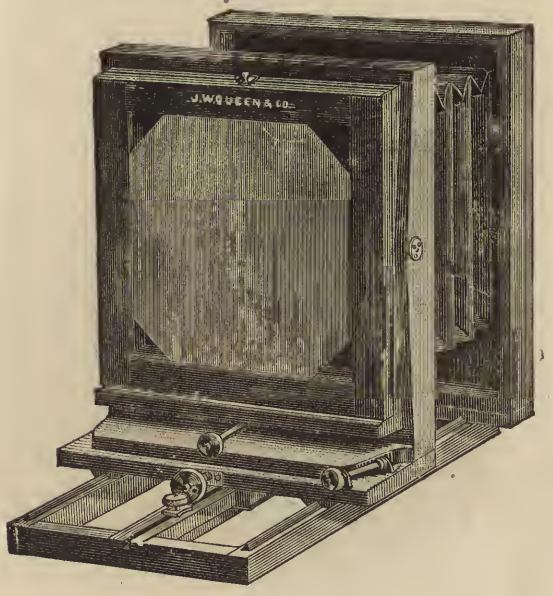
This little hand Camera is handsomely finished, in a russet leather case, with carrying-strap. There is no appearance of a Camera from the outside. Within is a time and instantaneous shutter, and six double plate-holders.

It is very simple, very complete, and very compact. A dozen plates may be exposed, or only one at a time, and developed like any glass negative. Metal carriers are furnished for flexible film negatives, so that any quantity of plates may be carried in small space.

P–420. Lilliput Camera, including 9 dozen 2½x2½ plates, and one ruby lantern, ... $25 00

P–421. Twelve metal carriers, for films, ... 1 08

NEW HAVEN REVERSIBLE BACK VIEW CAMERAS.



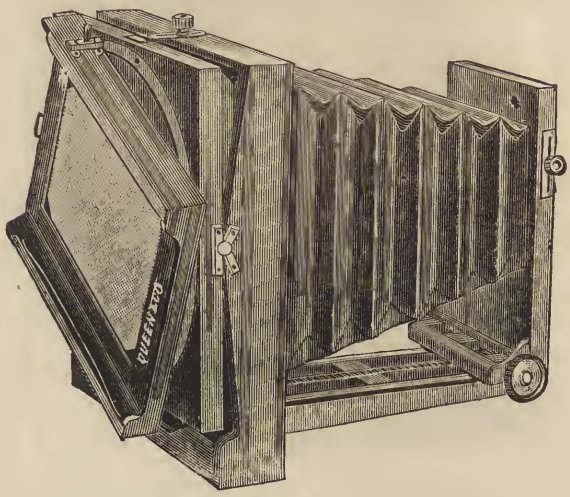
These Cameras are made in a very substantial manner from the best mahogany, handsomely finished in French polish. They have vertical sliding fronts, folding platforms, and are very compact. They have cone-shaped bellows and reversible backs, permitting the pictures to be taken either horizontally or vertically on the plate, without removing the holder.

Both this and the following style of camera are suited for the use of the professional photographer. With the camera is included one new style double dry-plate holder and canvas carrying case.

No.		For Pictures.	PRICE. Single Swing Back.	Double Swing Back
P–430.	New Haven View Camera,	6½x 8½ in.,	$29 00	$33 00
P–431.	" "	8 x10 "	34 00	38 00
P–432.	" "	10 x12 "	40 00	45 00
P–433.	" "	11 x14 "	50 00	55 00
P–434.	" "	14 x17 "	60 00	65 00
P–435.	" "	17 x20 "	70 00	75 00

REVOLVING BACK CAMERAS.

Front Focusing.

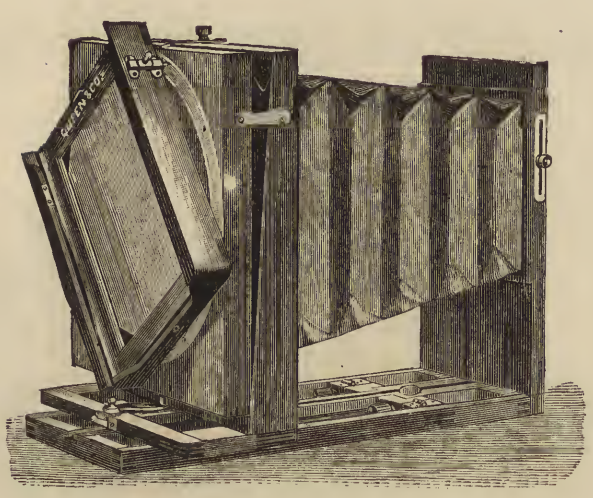


NOT MADE LARGER THAN 8x10 SIZE.

This instrument is made of mahogany beautifully and substantially finished. In addition to the cone front sliding arrangement for adjustment of foreground and sky, it has an ingenious device for reversing the plate-holder, by rotating it on the back of the camera, without disturbing the body of the instrument and without taking off the back.

The sizes below 10x12 are made either with the usual back focusing arrangement or by a rack and pinion, moving the front with its lens. The 10x12 inch and all larger sizes are only made with the back focus.

The very substantial character of these instruments renders them especially suitable for the professional photographer with considerable outside work.



Back Focus.

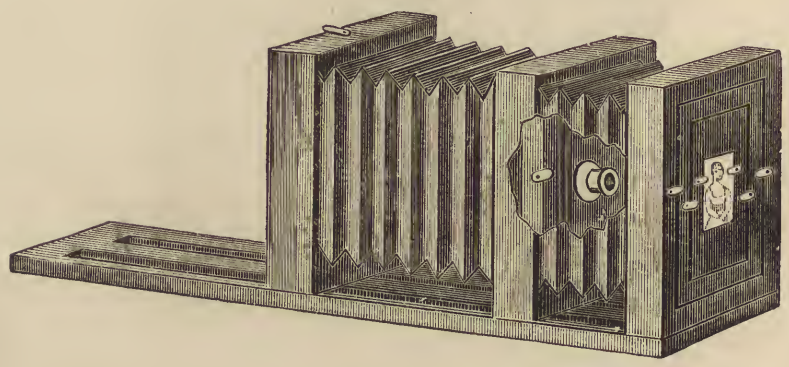
Each camera is encased in a canvas bag with a handle. Those cases for cameras above 11x14 size have two handles.

These cameras are fitted with Daisy double dry-plate holders.

No.		For Pictures	PRICE. Single Swing.	Double Swing.
P-460.	Revolving Back Camera,	4 x 5 in.,	$31 00	$36 00
P-461.	" " "	4¼ x 5½ "	33 00	38 00
P-462.	" " "	5 x 7 "	34 00	40 00
P-463.	" " "	5 x 8 "	35 00	40 00
P-464.	" " "	6½ x 8½ "	45 00	50 00
P-465.	" " "	8 x10 "	50 00	55 00
P-466.	" " "	10 x12 "	65 00	70 00
P-467.	" " "	11 x14 "	77 50	82 50
P-468.	" " "	14 x17 "	90 00	95 00
P-469.	" " "	17 x20 "	105 00	110 00
P-470.	" " "	20 x24 "	120 00	120 00
P-472.	" " "	25 x30 "	165 00	175 00

In ordering, please state whether front or back focus is desired.

ENLARGING, REDUCING, AND COPYING CAMERAS.



The construction of these Cameras is clearly shown in the illustration. The frame is square and large enough to carry the respective plates either horizontally or vertically. The front and the plate-holder are reversible. Each size is furnished with kits to carry any sized plate from its full size down to 3¼x4¼. The double bellows is very long, being about six feet in the 8x10 size. It has a side opening to permit the proper adjustment of the lens and diaphragms, without disturbing the front. It is a very valuable instrument for the production of lantern or other transparencies, and for printing upon gelatino-bromide paper.

INSTRUCTIONS FOR USE.

To copy a negative in the natural size, place it in the kit on the front of camera and button it in. Attached to the centre frame of the camera is a division upon which, on the side toward the camera front, a lens is mounted. Suppose this to be a quarter-plate portrait lens, the focal length of which we will suppose to be four inches—draw back the centre frame and the lens twice the focal length of the lens (8 inches); slide the back frame with ground glass the same distance from the centre frame. To enlarge with the same lens to eight times the size of the original, the centre of the lens must be four and one-

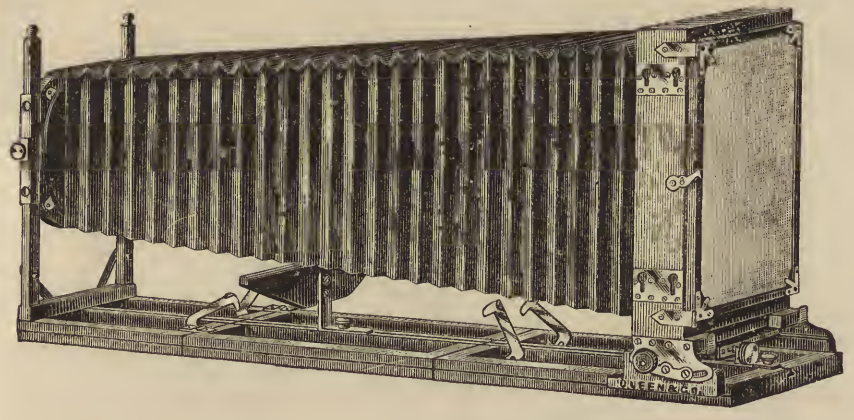
half inches from the negative, and the ground glass be thirty-six inches from the centre of the lens. To reduce in the same proportion, reverse and have thirty-six inches from the centre of the lens to the negative, and from the centre of lens to ground glass four and one-half inches.

No.	Size in Inches.					PRICE.
P–490.	6½x8½	Enlarging,	Reducing,	and Copying	Camera,	$30 00
P–491.	8x10	"	"	"	"	35 00
P–492.	10x12	"	"	"	"	48 00
P–493.	11x14	"	"	"	"	60 00
P–494.	14x17	"	"	"	"	72 00

Special Styles and Sizes made to order

NEW NOVELETTE CAMERA.

8x10 Camera, with single swing, extra length, for copying, enlarging, etc.



The bed is composed of three sections. By removing the rear section a regular 8x10 Novelette Camera is obtained. The extra section is held firmly in position by two dowel pins and our hook clamps, and can be removed in less than three seconds. A movable support is placed under the bellows to hold it in position and prevent sagging.

All is packed in an ordinary carrying case.

Length of focus, 32½ inches. Total weight, 7 pounds.

P–495. Camera with one Novel Holder and Case, . . $40 00

TRIPODS.



Taylor's Folding Tripod. Queen & Co.'s Feather- weight Tripod

TAYLOR'S FOLDING TRIPOD.

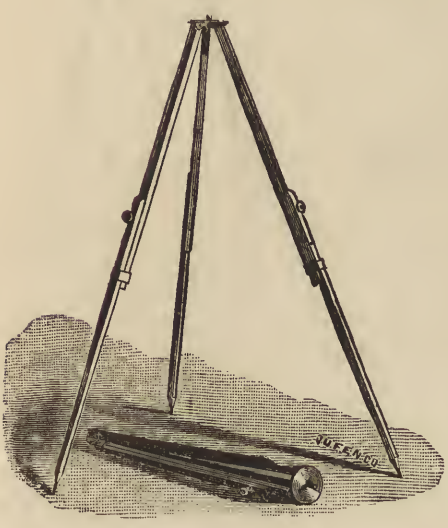
This is probably the most popular form of tripod. It combines rigidity, compactness, and ease of adjustment.

No.		Price.
P-510.	Taylor's Folding Tripod, made of best straight-grained maple, with either wood or metal top, suited for any size camera up to 8x10 inches, . . .	$2 50

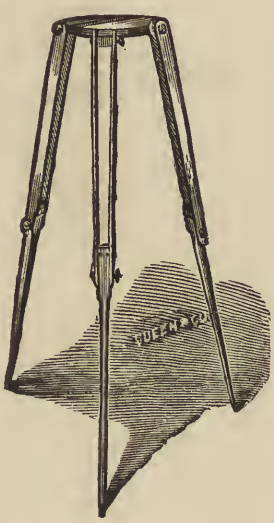
QUEEN & CO.'S FEATHER-WEIGHT TRIPOD.

Nothing more compact or graceful than the new light tripod for amateur work recently introduced by us, and called the "Feather-Weight," has yet been seen. It is readily adjusted to any irregularity of the ground, and lady amateurs prefer it to others on account of its neatness and lightness. The top is covered with billiard cloth, and the screw is not removable.

No.		Price.
P-511.	Queen & Co.'s Feather-Weight Tripod, . . .	$3 50



The Extension Tripod.



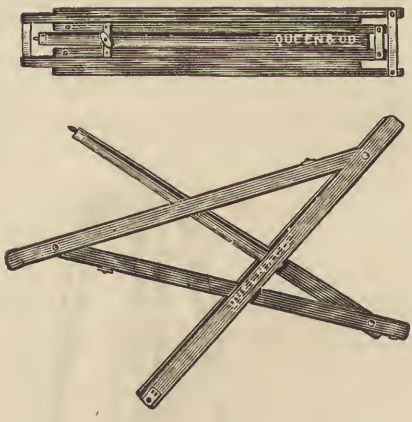
P-519.

The Extension Tripod can be set up ready for use quicker and with less trouble than any other. By turning the brass buttons shown in the illustration, the legs may be extended in a moment to the length desired and then fastened.

No.		Price.
P-512.	Extension Tripod, for 3¼x4½ and 4x5-inch cameras,	$3 00
P-513.	" " 5x8 " "	3 25
P-514.	" " 6½x8½ " "	5 00

Larger sizes to order.

THE FAIRY TRIPOD.





Showing Fairy Tripod set up ready for use.

The length of this tripod when folded is 16 inches. It weighs 1 pound and 15 ounces.

No.		Price.
P–518.	Fairy Tripod, ...	$5 00

These tripods are made of selected ash, with brass mountings. They are light and portable, yet firm and rigid when extended for use.

No.								Price.
P–519.	Tripod, with jointed legs,			6-inch	wooden	top,	.	$2 85
P–520.	"	"	"	12 "	"	"	.	4 75
P–521.	"	" hinged	"	12 "	"	"	.	5 70
P–522.	"	"	"	11 "	metal	"	.	9 50
P–523.	"	" rigid,	"	12 "	wooden	"	.	6 00
P–524.	"	"	"	15 "	"	"	.	8 00

PARTS OF LARGE TRIPODS.

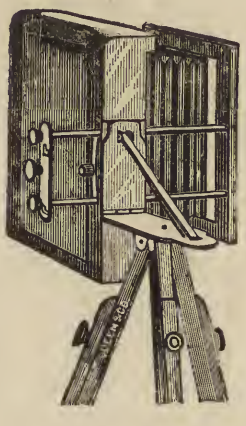
P–525.	Single Leg for Tripod	P–509, each,	. . .	$0 95
P–526.	" " "	P–510, "	. . .	1 18
P–527.	" " "	P–511, "	. . .	1 18
P–528.	" " "	P–512, "	. . .	1 42
P–529.	" Top "	P–509, "	. . .	72
P–530.	" " "	P–510, "	. . .	1 18
P–531.	" " "	P–511, "	. . .	1 18

TRIPOD CASES.

No.		Price.
P–534.	Tripod Case, Canvas, for Extension Tripod, small, and P–503, ...	$1 50
P–535.	Tripod Case, Canvas, for Extension Tripod, large, .	2 50

CAMERA REVERSING ATTACHMENTS.

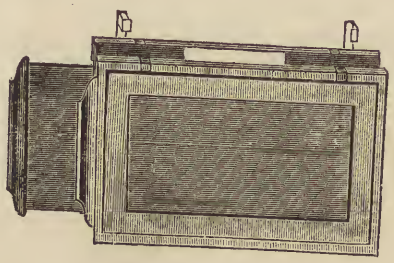




This arrangement consists of a double top, immovably fixed to the Extension Tripod. The upper half of this top is hinged to the lower half, and can be set either flat upon it or at right angles to it as desired, and firmly clamped in either position. The camera is fastened to the upper half, and is reversed, as shown in Fig. 2, by turning this half vertical or at right angles to the lower. The reversal can be effected instantly.

No.		Price.
P–540.	Camera Reversing Attachment, for 4x5-inch camera,	$3 00
P–541.	" " " 5x8 " "	3 50
P–542.	" " " 6½x8½ " "	4 00

THE "DAISY" DOUBLE DRY-PLATE HOLDER.



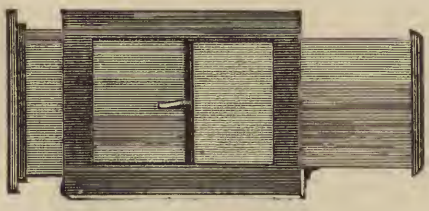
THIS holder unclasps and opens like a book to receive the plates. The partition carrying the springs which keep the slides in their place is then removed by a slight slipping motion, the plates put into their places with the films toward the dark slides, the partition replaced, the hinges or book closed, and the clasps shut down, when all is light-proof. It is a satisfactory holder in every way, and has the advantage of being lighter and taking up less room than any other first quality holder.

There are two styles, intended for different adjustments of the camera. In the first, which is used in those cameras where the ground glass is removed or swings on a hinge joint, and the holder is set squarely on the back in its place, a slight recess is cut on the face of the frame to fit the inside of the camera back. The second (used in those cameras where the ground glass frame is not removed but springs back, and the plate-holder slips in its place) is made without this recess, or full on each face. The price is the same for each, but in ordering it is necessary to state which style is needed. We keep the Daisy Holders ready adjusted for Manifold, "76," Tourist, St. Louis, Peerless, Detective, and Revolving-Back Cameras.

No.		PRICE
P–560.	Daisy Double Dry-Plate Holder, for 3¼x4¼-in. plates,	$1 75
P–561.	" " " " 4 x 5 "	2 00
P–562.	" " " " 4¼x 5½ "	2 10
P–563.	" " " " 4¼x 6½ "	2 25
P–564.	" " " " 5 x 7 "	2 35
P–565.	" " " " 5½x 7 "	2 50
P–566.	" " " " 5 x 8 "	2 50
P–567.	" " " " 6½x 8½ "	4 20

No.							Price.
P-568.	Daisy Double Dry-Plate Holder, for				8x10-in.	plates,	$6 00
P-569.	"	"	"	"	10x12	"	8 00
P-570.	"	"	"	"	11x14	"	10 00
P-571.	"	"	"	"	14x17	"	12 50
P-572.	"	"	"	"	17x20	"	15 50
P-573.	"	"	"	"	18x22	"	18 00
P-574.	"	"	"	"	20x24	"	21 50
P-575.	"	"	"	"	25x30	"	26 00

NEW STYLE DOUBLE DRY-PLATE HOLDER.

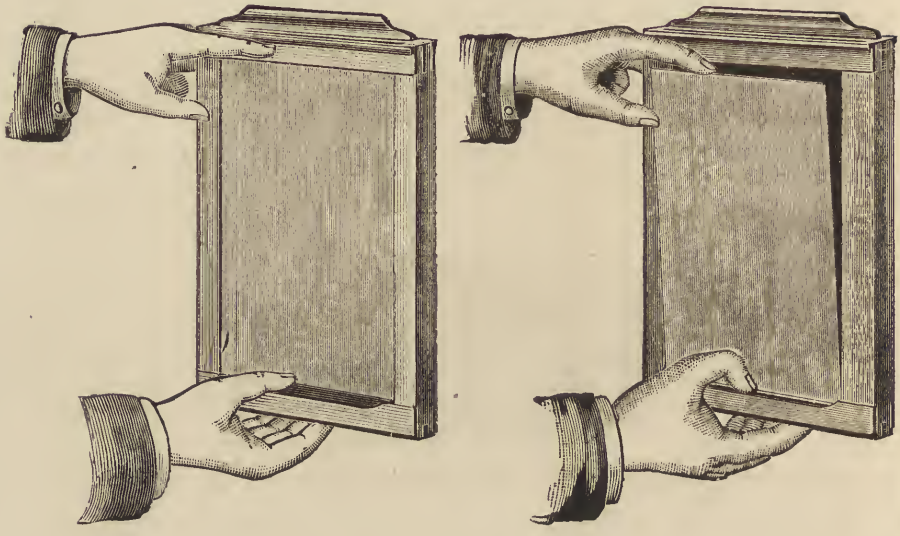


IN this holder the partition between the plates is removed by opening the spring latch at the end opposite to the dark slides, and drawing it out. This leaves the grooves for the plates exposed, and into them the plates are slipped, film side next the dark slide, then the partition is pushed in place again and latched.

It is suited for use with the Standard, Waterbury, and "76" Cameras.

No.	For Plates						Price.
P-576.	3¼ x 4¼-inches,	New Style	Double	Dry-Plate	Holder,		$1 50
P-577.	4 x 5	"	"	"	"	"	1 75
P-578.	4¼ x 5½	"	"	"	"	"	1 85
P-579	4¼ x 6½	"	"	"	"	"	1 90
P-580.	5 x 7	"	"	"	"	"	2 10
P-581	5½ x 7	"	"	"	"	"	2 20
P-582.	5 x 8	"	"	"	"	"	2 20
P-583.	6½ x 8½	"	"	"	"	"	3 80
P-584.	8 x10	"	"	"	"	"	5 00
P-585.	10 x12	"	"	"	"	"	7 00
P-586.	11 x14	"	"	"	"	"	8 50
P-587.	14 x17	"	"	"	"	"	10 80

PERFECTION HOLDER.



The Perfection Double Plate-Holder is the simplest and best plate-holder ever placed on the market.

To load the Perfection Holder, the end of the plate is rested against the spring-bar at the end of holder, then by simply pressing the spring-bar with the thumb, the plate falls into place.

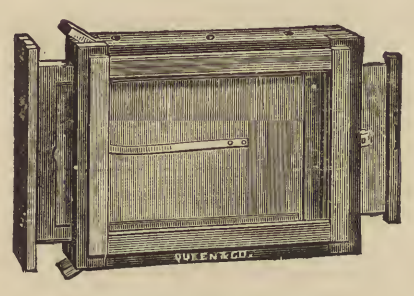
On account of its simplicity the Perfection Holder can be loaded and unloaded with the greatest of ease, even in absolute darkness.

As the plate is held in place by the ends only, the *full width* of the plate is exposed, and but $\frac{1}{16}$ inch is cut off from each end.

It is used with the Improved Model, Ideal, and Universal Cameras.

No.	For Plates.	Price.	No	For Plates.	Price.
P–590.	3¼ x 4¼,	$1 00	P–595.	6½ x 8½,	$1 60
P–591.	4 x 5,	1 00	P–596.	8 x 10,	1 85
P–592.	4¼ x 6½,	1 25	P–597.	10 x 12,	3 00
P–593.	5 x 7,	1 25	P–598.	11 x 14,	4 50
P–594.	5 x 8,	1 35			

THE NOVEL DOUBLE DRY-PLATE HOLDER.



IN this form of holder the plates are carried by strips attached to the edges of the partition which separates them. To fill it, unlatch the two latches at the end opposite to the dark slides, draw out the partition with its attached grooves or strips, put the slides into their places, and replace the whole in the outer case, latching the two keys. This style is adapted for use with Novel and Fairy Cameras.

Sizes larger than 8x10 inches are only made single.

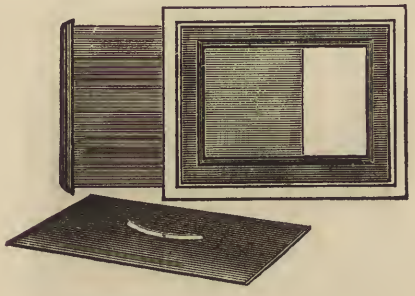
No.	For Plates.		PRICE.
P–600.	4 x 5	inches, Novel Double Dry-Plate Holder, .	$2 00
P–601.	4¼ x 5½	" " " " " .	2 25
P–602.	4¼ x 6½	" " " " " .	2 25
P–603.	5 x 7	" " " " " .	2 25
P–604.	5½ x 7	" " " " " .	2 25
P–605.	5 x 8	" " " " " .	2 25
P–606.	6½ x 8½	" " " " " .	4 00
P–607.	8 x10	" " " " " .	5 00
P–608.	10 x12	" Novel Single Dry-Plate Holder, .	5 50
P–609.	11 x14	" " " " " .	6 75
P–610.	14 x17	" " " " " .	10 00
P–611.	17 x20	" " " " " .	12 00
P–612.	18 x22	" " " " " .	14 00

FEATHER-WEIGHT DOUBLE DRY-PLATE HOLDER.

THIS holder has a pliable partition, without spring, between the plates, and when thinner plates than usual are used, a piece of black blotting or other soft paper should be added to keep them in place. The plates are put in by simply drawing the dark slide and slipping them in their position. On closing the dark slide they are held in place. It is for use with Combination Cameras.

No.	For Plates.							PRICE.
P–625.	4 x5	in.,	Feather-Weight	Double	Dry-Plate	Holder,		$1 00
P–626.	4¼x5½	"	"	"	"	"	"	1 00
P–627.	4¼x6½	"	"	"	"	"	"	1 25
P–628.	5 x7	"	"	"	"	"	"	1 25
P–629.	5 x8	"	"	"	"	"	"	1 35
P–630.	6½x8½	"	"	"	"	"	"	1 60
P–631.	8 x10	"	"	"	"	"	"	1 85
	With Registering Slide.							
P–632.	4 x5	"	"	"	"	"	"	1 15
P–633.	4¼x5½	"	"	"	"	"	"	1 20
P–634.	4¼x6½	"	"	"	"	"	"	1 40
P–635.	5 x7	"	"	"	"	"	"	1 45
P–636.	5 x8	"	"	"	"	"	"	1 65
P–637.	6½x8½	"	"	"	"	"	"	2 00
P–638.	8 x10	"	"	"	"	"	"	2 35

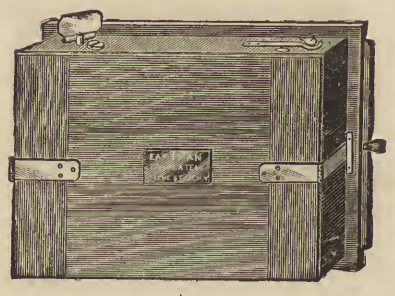
THE SINGLE DRY-PLATE HOLDER.



THE construction of this holder is clearly shown in the illustration. As it carries only one plate, it is not often used for work at a distance from the dark room. It is unsurpassed, however, in photo-micrography and in the enlarging and reducing camera, and especially in using the gelatino-bromide printing paper in making an enlarged picture from a small negative.

No.	For Plates,						Price.
P–640.	3¼ x 4¼	inches,	Single	Dry-Plate	Holder,	. .	$1 50
P–641.	4 x 5	"	"	"	"	. .	1 75
P–642.	4¼ x 5½	"	"	"	"	. .	1 85
P–643.	4¼ x 6½	"	"	"	"	. .	1 90
P–644.	5 x 7	"	"	"	"	. .	2 10
P–645.	5 x 8	"	"	"	"	. .	2 20
P–646.	6½ x 8½	"	"	"	"	. .	3 80
P–647.	8 x10	"	"	"	"	. .	5 00
P–648.	10 x12	"	"	"	"	. .	7 00
P–649.	11 x14	"	"	"	"	. .	8 50
P–650.	14 x17	"	"	"	"	. .	10 80
P–651.	17 x20	"	"	"	"	. .	13 00
P–652.	18 x22	"	"	"	"	. .	15 00
P–653.	20 x24	"	"	"	"	. .	18 00
P–654.	25 x30	"	"	"	"	. .	25 00

ROLL HOLDERS.



THE roll holder consists of a light-proof box with a dark slide, arranged to hold a spool, upon which is wound a belt of negative film long enough to suffice for 24 to 48 full-plate exposures. It is similar in purpose to the dry-plate holders, and can be fitted to *any* camera in the same manner as they.

A recorder working by sound (in some of the holders by sight also) tells when a full length of paper has been uncoiled and drawn tightly over the flat surface, which serves to keep the neg. film in the same plane as the face of the ground glass. After exposure, the key which moves the reel is turned again until the sounder indicates that a fresh length is in place, when it, too, may be exposed. The film which has not been used and that which has already been exposed are both kept in darkness during the exposure of the plate.

When all the band, or as much of it as desired, has been exposed, all or that part is taken from the reel and cut into separate lengths at the marks left by the recorder. These lengths, which contain separate pictures, are developed just as an ordinary gelatine plate. Of course, all operations excepting the exposure must be conducted in a room lighted by ruby light.

After washing, the negative is soaked in a solution as follows:

FORMULA FOR SOAKING SOLUTION.

Glycerine,	½ oz.
Wood or grain alcohol,	8 oz.
Water,	8 oz.

The negatives are then hung up to dry, with clips at the botto to keep them as flat as possible, and are printed without furth manipulation.

MODEL OF 1889 ROLL HOLDERS.

Patented May 5, 1885. Other Patents applied for.

No.	Size.	Price.	No.	Size.	Price.
P–680.	3¼ x 4¼ inches,	$10 00	P–685.	5 x 7 inches,	$12 50
P–681.	4 x 5 "	10 00	P–686.	5 x 8 "	12 50
P–682.	4¼ x 5½ "	10 00	P–687.	6½ x 8½ "	16 00
P–683.	4¼ x 6½ "	10 00	P–688.	8 x 10 "	20 00
P–684.	4¾ x 6½ "	12 50			

All fitted with the new single revolution audible indicator and *intermittent marker.*

NOTICE.—Transparent Film Spools will fit any of the roll holders heretofore sold by us.

FITTING ROLL HOLDERS TO CAMERA.

Except where the roll holder is sold with the camera, *an extra charge* is made for fitting it to the camera. In ordering roll holders, where you already have the camera, it is best to send us either the camera or a double dry-plate holder as a guide in fitting. Where this is impracticable, state carefully the outside dimensions of the back, and give the name of the camera as well as of the maker.

EXTRA PARTS OF ROLL HOLDERS.

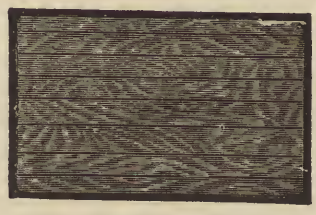
As all the parts of the roll holders are made interchangeable, any separate part can be furnished.

EXTRA REELS.



No.		Price.
P–704.	Extra Keys, each,	$0 25
P–705.	Extra Reels, 3¼ inches long, each,	50
P–706.	" " 4 " " "	50
P–707.	" " 4½ " " "	50

CARRIERS FOR THE "AMERICAN FILMS" AND NEGATIVE PAPER SHEETS.



These are thin wooden frames, with spring strips along the sides and ends, devised to hold the American Films, Negative and Bromide Paper, while being exposed in the camera. They fit into the ordinary dry-plate holders just as glass plates.

No.	Size.	$\frac{3}{32}$-inch Thick.	$\frac{1}{8}$-inch Thick.	$\frac{3}{16}$-inch Thick.	$\frac{1}{4}$-inch Thick.	
P–719.	3¼ x 4¼ inches,	$0 25	$0 25			each.
P–720.	4 x 5 "	30	30			"
P–721.	4¾ x 6½ "	30				"
P–722.	5 x 7 "	35		$0 35		"
P–723.	5 x 7½ "	35				"
P–724.	5 x 8 "	35	35	35		"
P–725.	6½ x 8½ "	40	40	40		"
P–726.	8 x10 "	50	50	50		"
P–727.	10 x12 "			60		"
P–728.	11 x14 "			75		"
P–729.	14 x17 "			1 00		"
P–730.	16 x20 "				$1 25	"
P–731.	18 x22 "				1 50	"
P–732.	20 x24 "				1 75	"

Sizes not priced are not furnished.

Double holders that have the plates slide in the end require the $\frac{3}{32}$-inch thickness.

The *Daisy Holder* will take the $\frac{1}{8}$-inch when its septum is removed. The carriers being opaque, it is not needed.

Wet plate holders need the $\frac{3}{16}$-inch thickness.

In ordering carriers state which thickness is required.

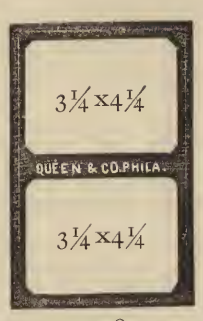
BLACK-BOARD REGISTERING SLIDES.

By the use of a dark slide to the dry-plate holder with one side *slated*, any memoranda can be entered upon it at the time of exposure, which will be important in development or in naming it when printed.

No.		Price.
P-660.	For 3¼ x 4¼ inches, Registering Slides,	$0 18
P-661.	" 4 x 5 " " "	20
P-662.	" 4¼ x 5½ " " "	24
P-663.	" 4¼ x 6½ " " "	28
P-664.	" 5 x 7 " " "	35
P-665.	" 5 x 8 " " "	40
P-666.	" 6½ x 8½ " " "	55
P-667.	" 8 x 10 " " "	75

Registering Slides not made above 8x10 size.

KITS FOR DOUBLE DRY-PLATE HOLDERS.



5x8



Size of Holder.	Size of Opening in the Kit.	Price, Each.
4 x 5 .	3¼x4¼,	25
4¼x 5½.	3¼x4¼,	25
4¼x 6½.	3¼x4¼,	30
5 x 7 .	3¼x4¼, 4x5, 4¼x5½,	30
5 x 8 .	3¼x4¼, 4x5, 4¼x5½, 4¼x6½,	30
6½x 8½.	3¼x4¼, 4x5, 4¼x5½, 4¼x6½, 5x7,	30
8 x10 ,	3¼x4¼, 4x5, 4¼x5½, 4¼x6½, 5x7, 5x8, 6½x8½,	35
10 x12 .	5x7, 5x8, 6½x8½, 8x10,	55
11 x14 .	5x7, 5x8, 6½x8½, 8x10,	60
5 x 8 .	To carry two 3¼x4¼ plates,	35

SQUEEGEES.

VELVET  RUBBER.

The Squeegee is a soft rubber pad, intended for use in pressing the paper negative upon the hard rubber plates, so as to exclude all air and drive out all the moisture possible previous to drying.

No.			PRICE.
P–733.	Squeegee,	6 inches long,	$0 40
P–734.	"	8 " "	50
P–735.		12 " "	75

HARD RUBBER PLATES.

FOR DRYING PAPER NEGATIVES.

These plates have the advantage of being perfectly smooth and flat, and yet of allowing the paper negative to be readily removed from them when dry without danger of adhering to them. The smooth rubber surface produces a fine gloss upon the paper.

No.			PRICE
P–736.	4 x 5	inch Hard Rubber Plates, $\frac{1}{16}$-inch thick, each,	$0 10
P–737.	5 x 7	" " " " " " "	18
P–738.	5 x 8	" " " " " " "	20
P–739	6½x 8½	" " " " " " "	30
P–740.	8 x10	" " " " " " "	40
P–741.	10 x12	" " " " " " "	60
P–742.	11 x14	" " " " " " "	75

One negative can be "Squeegeed" upon each side of a rubber plate, which is then placed in a plate rack to dry.

GLASS DRY-PLATE DEVELOPING OUTFITS.

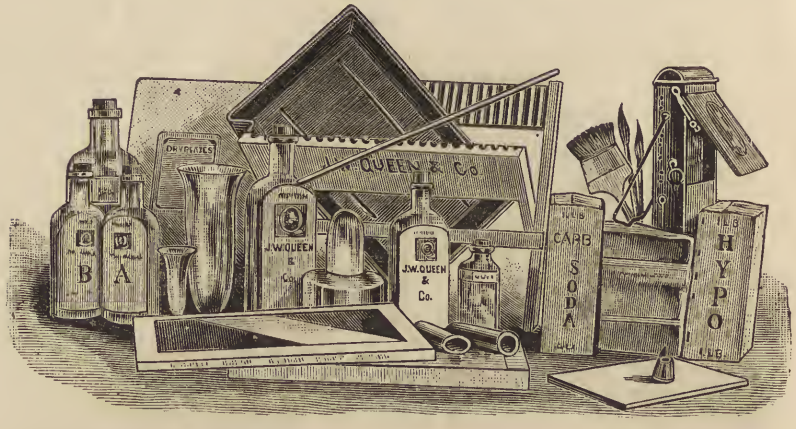


The Necessary Negative or Developing Outfit.—We put up the following outfits for use in making and developing pictures of any size from 3¼x4¼ inches to 8x10 inches. Every article enumerated is a necessity. They are securely packed. Each outfit has plates and developing trays to suit the special size of plate, but in other respects are alike. Each outfit consists of

1 Instruction Book,
1 Queen Focusing Cloth,
1 W. I. A. Ruby Lantern,
1 Dozen Glass Dry-Plates,
1 Glass Graduate,
2 Developing Trays,
1 8-ounce Bottle "Hydrochinon Dev.
1 lb. Hypo. Soda,
1 " Carbonate of Soda,
1 " Alum,
1 oz. Bromide of Potassium,
1 Glass Stirring Rod,
1 Camel's Hair Brush,
1 Queen & Co.'s Note Book,
2 Rubber Finger Protectors. Negative Preservers.

No.	For Pictures	PRICE.
P–745.	3¼x4¼ inches, Necessary Developing Outfit,	$3 25
P–746.	4 x5 " " " "	3 40
P–747.	4¼x5½ " " " "	3 50
P–748.	4¼x6½ " " " "	3 75
P–749.	5 x7 " " " "	3 90
P–750.	5 x8 " " " "	4 00
P–751.	6½x8½ " " " "	4 75
P–752.	8 x10 " " " "	5 75

COMPLETE DEVELOPING OUTFITS.



Complete Developing Outfits.—In these outfits we furnish a more complete line of the chemicals and accessories needful in developing, so as to meet all the possible requirements of the amateur, as well as the young professional.

Each outfit comprises :

1 Instruction Book,
1 Focusing Cloth,
1 Dozen Glass Dry-Plates,
1 2-inch Camel's Hair Brush,
1 W. I. A. Ruby Lantern,
1 Queen & Co.'s Note Book,
1 4-oz. Glass Graduate,
1 Minim "
1 set Scales and Weights, 5-inch,
2 Glossy Rubber Trays,
1 Glass Stirring Rod,
1 8-oz. Bottle of Hydrochinon Developer,
2 Rubber Finger Protectors.
1 oz. Bromide of Potassium.
1 lb. Carbonate of Soda,
2 small Camel's Hair Brushes,
1 Plate Lifter,
1 lb. Alum,
1 " Hypo. Soda,
1 Negative Drying Rack,
1 small Alcohol Lamp,
1 Bottle Alcohol,
1 " "Queen" Negative Varnish,
1 Bottle A "Queen" Intensifier.
1 " B " "
Negative Preservers.

No.	For Pictures					Price.
P–753.	3¼ x 4¼	inches,	Complete	Developing	Outfit,	$7 00
P–754.	4 x 5	"	"	"	"	7 25
P–755.	4¼ x 5½	"	"	"	"	7 50
P–756.	4¼ x 6½	"	"	"	"	8 50
P–757.	5 x 7	"	"	"	"	8 65
P–758.	5 x 8	"	"	"	"	8 75
P–759.	6½ x 8½	"	"	"	"	9 50
P–760.	8 x 10	"	"	"	"	11 25

PRINTING AND TONING OUTFITS



Necessary Printing and Toning Outfits.—This outfit we have selected with much care, with the intention of furnishing the amateur, at the least expense consistent with satisfactory work, with those articles which are *absolutely necessary* in printing and toning his own pictures. The amateur beginning photography will find it meets all his requirements. It comprises

1 Printing Frame.
2 Dozen Sheets Sensitized Paper,
1 7½-grain Bottle of Chloride of Gold,
1 2-ounce Bottle of Acetate of Soda,
2 Dozen Card Mounts,
1 Sheet Litmus Paper.

No	For Pictures						Price.
P-778.	3¼ x 4¼	inches,	Necessary	Printing	and	Toning	Outfit, $1 60
P-779.	4 x 5	"	"	"	"	"	1 75
P-780.	4¼ x 5½	"	"	"	"	"	1 75
P-781.	4¼ x 6½	"	"	"	"	"	2 13
P-782.	5 x 7	"	"	"	"	"	2 50
P-783.	5 x 8	"	"	"	"	"	2 50
P-784.	6½ x 8½	"	"	"	"	"	2 80
P-785.	8 x10	"	"	"	"	"	3 60

COMPLETE PRINTING AND TONING OUTFITS.

The following outfits we have made with the desire of including everything that is needed in the operation of printing and toning. They will be found to meet all the necessary wants of the amateur.

1 Printing Frame,
2 Dozen Sheets of Silver Paper,
1 Porcelain Toning Tray, deep,
1 Agate Iron Lipped Fixing Tray,
1 15-grain Bottle of Chloride of Gold,
1 2-oz. Bottle of Acetate of Soda,
1 lb. Box of Hypo. Soda,
2 Dozen Card Mounts,
1 Jar of Parlor Paste,
1 1½-inch Paste Brush,
1 Scott Vignetter,
1 Dozen Vignetting Paper,
1 Glass Form for Trimming Prints,
1 Straight Trimmer,
1 Sheet of Blue Litmus Paper,
1 Glass Funnel,
1 Package of Filtering Paper.

No.	For Pictures	Price.
P–786.	3¼ x 4¼ in., Complete Printing and Toning Outfit,	$5 75
P–787.	4 x 5 " " " " "	6 00
P–788.	4¼ x 5½ " " " " "	6 25
P–789.	4¼ x 6½ " " " " "	7 25
P–790.	5 x 7 " " " " "	7 75
P–791.	5 x 8 " " " " "	8 00
P–792.	6½ x 8½ " " " " "	9 00
P–793.	8 x10 " " " " "	12 00

PERMANENT BROMIDE PAPER OUTFITS.

The quickness with which permanent prints may be obtained by developing them upon the Permanent Bromide Paper, added to the fact that no toning is required in the operation, offers many advantages to the photographer. We have selected the following outfits for the use of those desiring to use this process. They will be found to contain everything necessary for securing perfect results. Each comprises

1 Dozen Sheets of Permanent Bromide Paper,
1 Developing Tray,
1 Fixing Tray,
1 lb. of Oxalate of Potash,
1 lb. of Protosulphate of Iron,
1 lb. of Hyposulphite of Soda,
¼ lb. of Acetic Acid,
1 oz. of Sulphuric Acid,
1 oz. of Bromide of Potassium.

No.	For Sheets						Price.
P–794.	3¼ x 4¼	inches,	Permanent	Bromide	Paper	Outfit,	$1 50
P–795.	4 x 5	"	"	"	"	"	1 65
P–796.	4¼ x 5½	"	"	"	"	"	1 75
P–797.	4¼ x 6½	"	"	"	"	"	1 90
P–798.	4¼ x 6½	"	"	"	"	"	1 95
P–799.	5 x 7	"	"	"	"	"	2 00
P–800.	5 x 7½	"	"	"	"	"	2 00
P–801.	5 x 8	"	"	"	"	"	2 00
P–802.	6½ x 8½	"	"	"	"	"	2 50
P–803.	8 x10	"	"	"	"	"	3 00
P–804.	11 x14	"	"	"	"	"	5 25
P–805.	16 x20	"	"	"	"	"	10 75
P–806.	22 x27	"	"	"	"	"	17 00

BLUE PRINT PAPER OUTFITS.

THE ease with which proofs may be obtained from negatives by the "Blue Print" process has made it a general favorite. To facilitate its use, both in printing from negatives and from line drawings, we have arranged outfits, each of which comprises everything needful for successful results, as follows:

2 Dozen Sheets "Queen" Sensitive Blue Print Paper.
1 Printing Frame, size of Paper,
1 Felt Pad, size of Paper,
1 Washing Tray, size of Paper.

No.	For Sheets						Price.
P–807.	3¼ x 4¼	inches,	Blue Print	Paper	Outfit,	. .	$1 05
P–808.	4 x 5	"	"	"	"	. .	1 15
P–809.	4¼ x 5½	"	"	"	"	. .	1 15
P–810.	4¼ x 6½	"	"	"	"	. .	1 37
P–811.	5 x 7	"	"	"	"	. .	1 52
P–812.	5 x 8	"	"	"	"	. .	1 57
P–813.	6½ x 8½	"	"	"	"	. .	1 75
P–814.	8 x10	"	"	"	"	. .	2 39
P–815.	11 x14	"	"	"	"	. .	4 40
P–816.	14 x17	"	"	"	"	. .	6 20
P–817.	16 x20	"	"	"	"	. .	9 70
P–818.	18 x22	"	"	"	"	. .	11 25
P–819.	20 x24	"	"	"	"	. .	11 85
P–820.	24 x30	"	"	"	"	. .	22 50
P–821.	35 x45	"	"	"	"	. .	38 00
P–822.	30 x60	"	"	"	"	. .	52 00

GLASS DRY-PLATES.

DRY-PLATES, which are now universally used by out-door workers and largely in galleries, are negative glass upon which a very sensitive film (generally a gelatine emulsion) has been evenly applied. They will keep in dry, dark places at ordinary temperatures an unlimited time. They are put up and kept in light-tight paper boxes, and must be opened, developed, and fixed only in ruby light. They are far more sensitive to weak light than wet or collodion plates, and for this reason all cameras, dark rooms, plate holders, etc., in which they are used must be absolutely light-proof.

There are many kinds in commercial use, all of which have their special advantages, and most of which will do any work which may be expected of them. Some operators prefer one brand and some another. Any of the following will be found satisfactory :

CRAMER, SEED,
FORBES, CARBUTT'S,
STANLEY.

Any of the above brands we offer at the following :

No.				Price
P–825.	3¼ x 4¼	inches,	per dozen,	$0 45
P–826.	4 x 5	"	"	65
P–827.	4¼ x 5½	"	"	75
P–828.	4¼ x 6½	"	"	90
P–829.	4¾ x 6½	"	"	95
P–830.	5 x 7	"	"	1 10
P–831.	5½ x 7	"	"	1 25
P–832.	5 x 8	"	"	1 25
P–833.	6½ x 8½	"	"	1 65
P–834.	8 x10	"	"	2 40
P–835.	10 x12	"	"	3 80
P–836.	11 x14	"	"	5 00
P–837.	14 x17	"	"	9 00
P–838.	16 x20	"	"	12 50
P–839.	17 x20	"	"	13 00
P–840.	18 x22	"	"	15 50
P–841.	20 x24	"	"	18 50

ORTHOCHROMATIC PLATES.

IN the ordinary dry-plate, as well as the wet collodion plate, objects having either a red, yellow, or green tint are reproduced as though they were black, excepting only the small amount of white light reflected from their surfaces. Plates which should reproduce the relative amount of light reflected from a many-colored surface, even though they gave the result without tint, have been long sought for by artists. In order to supply this demand, we have sought both the home and foreign market carefully, and have chosen the plate which has given the most perfect results—the Carbutt Orthochromatic.

They do not reproduce colors, but they yield pictures which have the same gradations of light and shade, irrespective of tint, as the object itself shows to the eye. In copying paintings, in all the details of landscapes in which color forms a prominent feature, and, in fact, in all work where the object has distinct colors, they will be found to give results very superior to the ordinary photographic plate.

On account of their sensitiveness to the red and yellow rays they must be developed in covered trays, and the dark room lighted with only a faint light, deeply shaded by ruby glass. They may thus be examined from time to time during development by lifting the lid from the tray.

No.					PRICE.
P–842.	1 dozen,	4 x5	inches, Orthochromatic Plates,	.	$0 80
P–843.	1 "	5 x8	" " "	.	1 50
P–844.	1 "	6½x8½	" " "	.	20 00

TRANSPARENCY PLATES.

GELATINO CHLORIDE OR GELATINO ALBUMEN.

THESE are for window or other transparencies, and in the two smaller sizes for lantern slides. Like other sensitive plates, they must be kept in the dark till used. They are printed from a negative, and then developed.

No.			Price.
P–846.	3¼ x 4	inches, *thin crystal*, per dozen, . .	$0 65
P–847.	3¼ x 4¼	" ordinary negative glass, per dozen,	55
P–848.	4 x 5	" " " " "	80
P–849.	4¼ x 5½	" " " " "	90
P–850.	4¼ x 6½	" " " " "	1 05
P–851.	4¾ x 6½	" " " " "	1 20
P–852.	5 x 7	" " " " "	1 40
P–853.	5½ x 7	" " " " "	1 50
P–854.	5 x 8	" " " " "	1 50
P–855.	6½ x 8½	" " " " "	2 00
P–856.	8 x10	" " " " "	3 00
P–857.	10 x12	" " " " "	4 50
P–858.	11 x14	" " " " "	5 85
P–859.	14 x17	" " " " "	10 80
P–860.	16 x20	" " " " "	14 40
P–861.	17 x20	" " " " "	15 30
P–862.	18 x22	" " " " "	18 00
P–863.	20 x24	" " " " "	21 50

OPAL PLATES.

GELATINO CHLORIDE OR GELATINO ALBUMEN.

THESE are sensitized opal plates for printing upon with a negative. They are used either as portraits by reflected light, or by transmitted light as lamp shades or window transparencies. They must be kept in light-tight boxes till ready for use. They are developed as negatives.

No.			Price.
P–864.	3¼ x 4½	inches, per half dozen, ...	$0 55
P–865.	4 x 5	" "	80
P–866.	4¼ x 5½	" "	90
P–867.	4¼ x 6½	" "	1 08
P–868.	5 x 7	" "	1 40
P–869.	5 x 8	" "	1 50
P–870.	6½ x 8½	" "	2 00
P–871.	8 x10	" "	3 00
P–872.	10 x12	" "	4 50
P–873.	11 x14	" "	5 75

FLEXIBLE NEGATIVE FILMS.

With these Films no extra processes are necessary. They are developed, fixed, and washed exactly like glass, with the advantage that they weigh less than one-tenth as much as glass plates.

They are extremely thin and may be printed from either side, thus avoiding the necessity of stripping to reverse the image.

They are coated with rapid, medium, or slow landscape emulsions, and can be used in any plate-holder.

No.					
P–874.	3¼ x 4¼	inches.	Negative Films, per dozen,	.	$0 65
P–875.	4 x 5	"	" "	.	95
P–876.	4¼ x 5½	"	" "	.	1 12
P–877.	4¼ x 6½	"	" "	.	1 30
P–878.	4¾ x 6½	"	" "	.	1 40
P–879.	5 x 7	"	" "	.	1 65
P–880.	5½ x 7	"	" "	.	1 75
P–881.	5 x 8	"	" "	.	1 80
P–882.	6½ x 8½	"	" "	.	2 50
P–883.	8 x10	"	" "	.	3 60
P–884.	10 x12	"	" "	.	5 40
P–885.	11 x14	"	" "	.	7 00

Can be sent by mail. Postage extra.

ARGENTIC DRY-PLATES.

The dry-plates hitherto described can only be used as negatives, and thus are not suited for the ferrotype process.

The instantaneous Argentic Dry-Plate, however, is made especially for positive or ferrotype pictures. They enable the operator to avoid all the pin holes, stains, etc., of the ordinary silver bath work, and being always ready for use and very brilliant in result, are a great boon.

An exposure in the gallery of from one to three seconds is sufficient. About two minutes are needed for development, and from three to five for fixing, washing, drying, and varnishing. Thus the pictures may be ready for delivery in ten minutes after the exposure. For *out-door* work the Argentic plates work well, with an instantaneous drop exposure, rendering them invaluable for picnic groups and other similar work.

For developing it is better to use the stock developer furnished with the plates, as by its use greater rapidity, purer whites, and more brilliancy can be obtained than by any ordinary developer. It is put up in 12-oz. bottles.

As the slightest veiling is an injury, care must be taken to stop the development as soon as the detail is out, to keep the plates free from any exposure to white light till fixed, and to fix by a cyanide solution.

No.								Price.
P–890.	3¼	x	4¼	in., Argentic Dry-Plates, per box of	2	doz.,		$0 90
P–891.	4	x	5	" " " "	2	"		1 25
P–892.	4¼	x	5½	" " " "	2	"		1 50
P–893.	4¼	x	6½	" " " "	2	"		1 80
P–894.	5	x	7	" " " "	2	"		2 00
P–895.	5	x	8	" " " "	2	"		2 25
P–896.	6½	x	8½	" " " "	2	"		3 75
P–897.	7	x	10	" " " "	2	"		4 00
P–898.	8	x	10	" " " "	2	"		4 50
P–899.	10	x	14	" " " "	1	"		4 00

AMERICAN GELATINE FILMS.

THE American Film consists of a film of *insoluble* sensitive gelatine emulsion attached to a paper support by means of a layer of soluble gelatine. After exposure, development, fixing, and washing the gelatine film is laid upon a prepared plate of glass and the paper and soluble gelatine removed by warm water. In the place of the paper a varnish of thick gelatine and glycerine is now spread over the film and dried. The whole is then stripped from the glass and is ready for printing.

These films can be used as negatives in photo-mechanical printing, in place of glass stripping plates, and will be found EXCELLENT for general work.

AMERICAN FILMS IN CUT SHEETS.



No.							Price.
P–940.	Two Dozen	3¼ x 4¼	inches,	per	package,	. .	$0 70
P–941.	" "	4 x 5	"	"	"	. .	1 00
P–942.	" "	4¾ x 6½	"	"	"	. .	1 50
P–943.	" "	5 x 7	"	"	"	. .	1 75
P–944.	" "	5 x 7½	"	"	"	. .	1 90
P–945.	" "	5 x 8	"	"	"	. .	2 00
P–946.	" "	6½ x 8½	"	"	"	. .	2 80

No.		Price.
P–947.	Two Dozen 8x10 inches, per package, . . .	$4 00
P–948.	One " 10x12 " " " . . .	3 00
P–949.	" " 11x14 " " " . . .	4 00

AMERICAN FILMS IN SPOOLS.

P–950.	3¼ inches wide, for two dozen 3¼ x 4¼-inch pictures,	$0 85
P–951.	4 " " " " 4 x 5 " "	1 10
P–952.	4¾ " " " " 4¾x 6½ " "	1 75
P–953.	4½ " " " " 4½x 7½ " "	2 00
P–954.	5 " " " " 5 x 8 " "	2 20
P–955.	6½ " " " " 6½x 8½ " "	3 00
P–956.	8 " " " " 8 x10 " "	4 50
P–957.	10 " " " " 10 x12 " "	6 75
P–958.	11 " " " " 11 x14 " "	9 00

Other sizes in proportion. See Clearance Sale list.

New transparent films do not require stripping. See page 74.

ON PATENT SPOOLS, TO FIT THE ROLL HOLDER.

No.	Size.	Price. 24 Exposures.	Price. 48 Exposures.
P–960.	3¼ inch, 3¼ x 4¼ Exposures, . .	$1 00	$2 00
P–961.	4 " 4 x 5 " . .	1 50	3 00
P–962.	4½ " 4½ x 6½ " . .	2 00	4 00
P–963.	4¾ " 4¾ x 6½ " . .	2 25	4 50
P–964.	5 " 5 x 8 " . .	3 00	6 00
P–965.	6½ " 6½ x 8½ " . .	4 00	8 00
P–966.	8 " 8 x 10 " . .	6 00	12 00
P–967.	Kodak No. 1 Spools, $2.50 each.		
P–968.	" " 2 Spools, 60 Exposures, $2.50.		
P–969.	" " " 100 " $4.25.		

Add 1½ cents per inch for postage on 24 Exposure Spools, and 2½ cents per inch on 48 Exposure Spools.

ALBUMEN PAPERS.

No.		Per Dozen.	Per Ream.
P–1020.	Swiss Pink, single,	$0 80	$28 00
P–1021.	Imperial Single, N. P. A., Dresden, White and Pink,	80	28 00
P–1022.	Extra Brilliant, N. P. A., White, Pink, Pearl, and Pense,	1 00	34 00
P–1023.	Extra Brilliant, S. and M., N. P. A., White and Pink,	1 00	34 00
P–1024.	Single, S. and M., White and Pink,	80	28 00
P–1025.	Enameled Violet,	1 10	40 00
P–1026.	3 Crown, Extra Brilliant, White, Pink, and Pense,	1 00	34 00
P–1027.	Hovey's Rive, White, Pink, and Pearl, single,	75	25 00
P–1028.	" Special " " "	80	30 00
P–1029.	Morgan's Rive, White, Pink, and Pearl, single,	75	27 50
P–1030.	" Extra Brilliant, White, Pink, and Pearl, single,	85	30 00
P–1031.	20½x24½-inch N. P. A., Extra Brilliant Pense,	1 25	45 00

PLAIN AND SALTED PAPERS.

No.		Price.
P–1040.	Plain Saxe, Medium, per dozen,	$0 50
P–1041.	" " Positive or Heavy, per dozen,	60
P–1042.	" " 26x40 inches, "	4 00
P–1043.	" " 35x45 " "	6 50
P–1044.	(Clemons) Arrowroot or Salted Leatherized Paper, per dozen,	80

UNSENSITIZED BLUE PRINT PAPER.

		Per Yard.	Per Roll of 50 Yds.
P–1047.	27-inch Acme Helio Paper, for Blue Prints,	$0 15	$5 50
P–1048.	36 " " " " " "	18	6 50
P–1049.	42 " " " " " "	20	8 50
P–1050.	54 " " " " " "	25	10 50
P–1051.	54 " Extra heavy, " " "	40	12 50

QUEEN & CO.'S

SILVERED

ALBUMEN PAPER.

OUR Silvered Albumen Paper is made for us by a practical photographer, and for our own trade exclusively. It is of the highest degree of excellence, both in its keeping and working qualities. The convenience to the amateur of having at hand a paper which is at any time ready for printing upon, without the trouble of silvering, and which is yet more uniform in its working qualities than that he can prepare for himself, has made our silvered albumen paper of the greatest advantage—in fact, nearly indispensable.

No.			PRICE.
P–1059.	Pkg. Silvered Albumen Paper, 2 doz.,	3¼ x 4¼ in.,	$0 30
P–1060.	" " " " "	4 x 5 "	40
P–1061.	" " " " "	4¼ x 5½ "	50
P–1062.	" " " " "	4¼ x 6½ "	60
P–1063.	" " " " "	5 x 7 "	75
P–1064.	" " " " "	5 x 8 "	75
P–1065.	" " " " "	6½ x 8½ "	1 00
P–1066.	" " " " "	8 x 10 "	1 50
P–1067.	" " " " "	10 x 12 "	1 50
P–1068.	" " " " "	11 x 14 "	3 00
P–1069.	" " " per doz.,	14 x 17 "	3 00
P–1070.	" " " " "	17 x 20 "	3 00
P–1071.	Rolls of " " " "	18 x 22 "	3 00

"QUEEN" BLUE PRINT PAPER.

IN making the Queen Blue Print Paper, we employ only our celebrated Acme Helio paper, which has become such a universal favorite with draughtsmen for use in the blue print process.

By our improved formulæ and methods of working we have been able to secure the finest keeping qualities, while shortening the time necessary for printing. Whether this paper is used for the reproduction of line drawings or for printing proofs from ordinary architectural or landscape negatives it gives rich deep blues and pure clear whites. When the negative is full of half tones these are finely reproduced by overprinting slightly, and performing the washing in tepid instead of cold water.

It is put up in packages which can readily be refastened, light-proof, on taking out a sheet for present use. For every purpose of the "blue print" this will be found to give the best satisfaction, both to the amateur, the artist, or the professional photographer.

No.		Price.
P–1080.	3¼ x 4¼-inch sheets, Sensitized Blue Paper, per doz.	$0 10
P–1081.	4 x 5 " " " " " "	10
P–1082.	4¼ x 5½ " " " " " "	15
P–1083.	4¼ x 6½ " " " " " "	18
P–1084.	5 x 7 " " " " " "	18
P–1085.	5 x 8 " " " " " "	20
P–1086.	6½ x 8½ " " " " " "	25
P–1087.	8 x10 " " " " " "	40
P–1088.	11 x14 " " " " " "	65
P–1089.	14 x17 " " " " " "	85
P–1090.	16 x20 " " " " " "	95
P–1091.	18 x22 " " " " " "	1 00
P–1092.	20 x24 " " " " " "	1 25
P–1093.	23 x36 " " " " " "	2 10
P–1094.	27 x40 " " " " " "	3 00
P–1095.	31 x50 " " " " " "	5 00
P–1096.	30 x60 " " " " " "	8 00
P–1097.	Sensitized Rolls 40 inches wide, and 50 yards, per yard,	50

PERMANENT BROMIDE PAPER.



A. **Smooth Surface, thin,** for positive printing, copying drawings, etc., by contact.

B. **Smooth Surface, heavy,** for enlargements and working in ink, oil, and water colors.

C. **Rough Surface, heavy,** for enlargements, plain, and for working in crayon, ink, water colors, and oil.

This paper is uniformly and heavily coated by machinery with silver bromide, mixed with the least possible quantity of gelatine to avoid curling, and to preserve the tooth of the paper for working with crayons.

We recommend variety C for plain enlargements and for large contact prints of all kinds, on account of the fine artistic effects it yields ; B for small contact prints not intended for mounting ; A for small contact prints to be mounted on cardboard.

Every batch of Permanent Bromide Paper is critically tested before sending out.

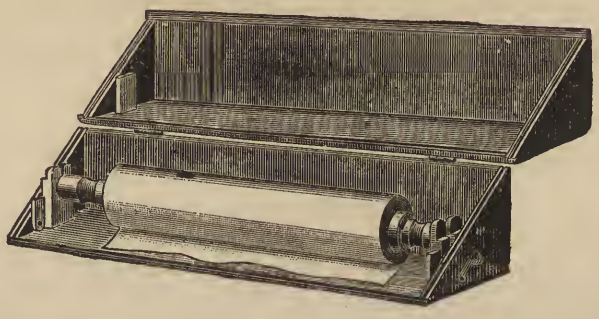
PERMANENT BROMIDE PAPER, A, B, OR C.

CUT SHEETS.

No.	Sizes.	Per Dozen.	No.	Sizes.	Per Dozen.
P–1100.	3¼ x 4¼ inches,	$0 25	P–1112.	11x14 inches,	$3 00
P–1101.	4 x 5 "	40	P–1113.	12x15 "	3 35
P–1102.	4¼ x 5½ "	50	P–1114.	14x17 "	4 50
P–1103.	4¼ x 6½ "	55	P–1115.	16x20 "	6 00
P–1104.	4¾ x 6½ "	60	P–1116.	17x20 "	6 40
P–1105.	5 x 7 "	65	P–1117.	18x22 "	7 50
P–1106.	5 x 7½ "	70	P–1118.	20x24 "	9 00
P–1107.	5 x 8 "	75	P–1119.	22x27 "	11 25
P–1108.	6½ x 8½ "	1 10	P–1120.	24x30 "	13 50
P–1109.	8 x10 "	1 50	P–1121.	25x30 "	14 00
P–1110.	10 x12 "	2 25	P–1122.	24x36 "	16 00
P–1111.	10 x14 "	2 65	P–1123.	30x40 "	22 50

Other sizes in proportion.

If ordered in packages of less than one dozen, an extra charge of 25 cents will be made for packing.



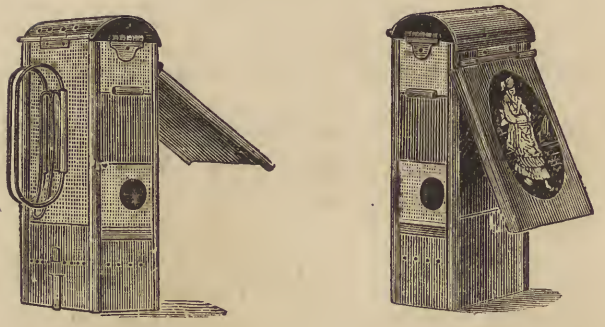
IN ROLLS, OR ON SPOOLS FOR ENLARGING EASEL.

No.		Price per yard.	No.		Price per yard.
P–1125.	10 inches wide,	$0 56	P–1131.	20 inches wide,	$1 12
P–1126.	11 " "	62	P–1132.	22 " "	1 24
P–1127.	12 " "	68	P–1133.	24 " "	1 35
P–1128.	14 " "	79	P–1134.	25 " "	1 40
P–1129.	16 " "	90	P–1135.	30 " "	1 68
P–1130.	18 " "	1 00	P–1136.	31 " "	1 74

Not less than five yards on one roll.

LAMPS FOR THE DARK-ROOM.

THE W. I. A. RUBY LANTERN.



As a means of obtaining a small amount of light with a lantern that is compact and portable, this style answers admirably. It cannot be recommended, however, for general use in the developing room.

No.		Price
P–1145.	W. I. A. Ruby Lantern, ...	$0 50

THE TISDELL CANDLE RUBY LAMP.

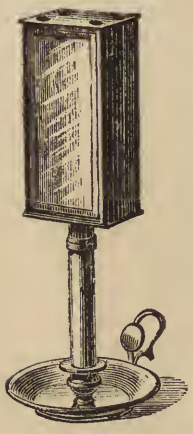
IN this lamp one-half of a common sperm candle is the fuel required There is consequently no danger to the chimney from over-heating, no oil to be spilled in traveling, and no smoke or smell in using. The lamp is always ready for use, and has no complicated parts to get out of order. A single glance at the open lamp is sufficient to explain the method of its use to any one.

The outside measurement of the case when packed is only 6¾x2½ inches, and its weight but 12 ounces.

It can be recommended as a perfectly safe lamp for the development of the most sensitive plates, and very satisfactory for use in changing plates from the box to the plate-holder and back, when traveling.

No.		Price.
P–1146.	Tisdell Candle Ruby Lamp, ...	$1 35

FRENCH FOLDING LANTERN.





This lantern packs into a small space, and yet when set up and lighted gives plenty of illumination for any purpose required. It is thus a very satisfactory lamp for tourists. The candle is held in place by an automatic spring till consumed.

	PRICE
P–1147. French Folding Lantern, ...	$2 25

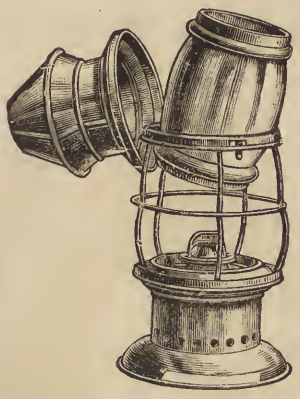
GAS BURNER WITH RUBY CHIMNEY.



IN this arrangement of the Argand Burner it has been so modified, as shown in the cut, as to prevent the downward radiation of the light. The upward radiation is prevented by a movable top to the ruby chimney, which does not shut off the draft.

No.	PRICE
P–1148. Gas Burner, with Ruby Chimney, complete, ...	$2 50
P–1149. Ruby Chimney, each, ...	80

R. R. DRY-PLATE LANTERN.



This is a strong, safe lantern for the dark-room. The barrel-shaped ruby glass shade and the dark top or chimney are detached, as shown, for lighting. It needs but little oil, and gives a good light.

P–1150. R. R. Dry-Plate Lantern, ... $1 50

NON-ACTINIC DARK-ROOM LANTERN.



This lamp has broad, flat sides to allow plenty of ruby light to fall upon all parts of a plate while developing without shadows. It is very convenient and satisfactory.

P–1151. Non-Actinic Dark-Room Lantern, ... $2 00

MULTUM IN PARVO DRY-PLATE LANTERN.

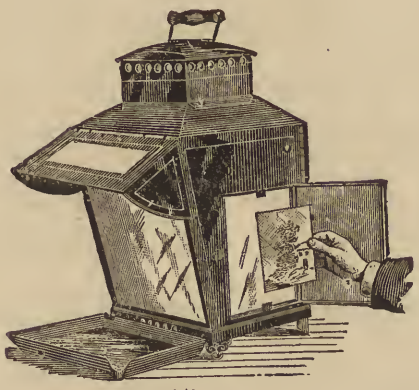


Fig. 1.

THIS Dry-Plate Lantern is larger than either of the others described, and can be used for several distinct purposes. It is about 9 inches square by 14 inches high; is fitted on one side with an 8x10-inch plate of ruby glass, with shade to protect the eyes in developing; on another, covered by a door when not in use, is a plate of opal glass for examining the negative after fixing; in a third side the door opens and allows the white light of the lamp to be used for printing from a negative by either transparency or opal glass, or by gelatino bromide paper. It is provided with a large broad-wick lamp for coal oil, but can be used with gas if desired.

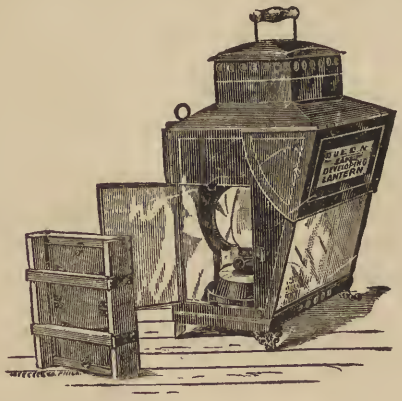


Fig. 2.

Fig. 1 shows the method of using it in developing and examining negatives after fixing; Fig. 2, the plan of printing from a negative by contact.

No.		Price.
P–1152.	Multum in Parvo Dry-Plate Lantern, . . .	$6 00

ELECTRIC LAMP FOR DARK-ROOM.

THIS lamp gives no appreciable heat, has no smoke or smell, and does not vitiate the air. It can be held directly over the negative during development, thus lighting it without fatiguing the eye. It will burn two hours continuously without renewing the battery fluids, or, when only used occasionally, will last for several days.

P–1153.	Electric Lamp, with 3 candle-power, . . .	$7 00
P–1154.	" " " 3 " with switch, .	8 00
P–1155.	" " " 6 " . . .	8 50
P–1156.	" " " 6 " with switch, .	9 50

RUBY FABRIC.

This is a textile fabric, carefully tinted of a color which, by spectroscopic test, is perfectly non-actinic by transmitted light. It comes in rolls like window curtains, and may be had in any length desired. It is one of the best materials for covering the window of the dark-room.

P–1157.	Ruby Fabric, per yard, 38 inches wide, . . .	$0 60
P–1158.	Ruby Non-Actinic Paper, per sheet, 20x25 inches, .	25
P–1178½.	P. O. Paper, per doz. sheets, ...	60

RUBY, ORANGE, OR GREEN GLASS.

Our ruby glass is tested by the spectroscope, and all glass allowing any trace of the violet rays to pass through it is rejected. The numbers given below are for ruby. If orange or green is desired, affix to the number for proper size in Ruby. The fraction ¼ for Orange, and ½ for Green. Thus, if an 8x10 orange is desired the number would be, P–1160¼ ; of an 8x10 green, P–1160½.

No.	For Plates.	Price.
P–1159.	Ruby Glass Plate, 6½x8½ inches, each, . .	$0 20
P–1160.	" " " 8 x10 " " . .	30
P–1161.	" " " 10 x12 " " . .	50
P–1162.	" " " 9 x16 " " . .	55
P–1163.	" " " 11 x14 " " . .	55
P–1164.	" " " 13 x16 " " . .	70
P–1165.	" " " 12 x20 " " . .	80
P–1166.	" " " 18 x19 " " . .	1 25
P–1167.	" " " 13 x32 " " . .	1 50

PHOTOGRAPHIC TRAYS.

THE DIMENSIONS OF ALL TRAYS ARE MEASURED AT THE BOTTOM INSIDE.

PAPER MACHÉ TRAYS.

No.			EACH
1.	P–1168.	3¼ x 4¼,	$0 25
2.	P–1168½.	4¼ x 5½,	30
3.	P–1169.	5¼ x 8¼,	50
4.	P–1169½.	7 x 9,	70
5.	P–1170.	8¼ x 10¼,	1 05
6.	P–1170½.	10¼ x 12¼,	1 65
7.	P–1171.	12 x 14¾,	2 10
8.	P–1171½.	16 x 20,	3 35
9.	P–1172.	19 x 24,	5 75
10.	P–1172½.	23 x 27,	6 75
11.	P–1173.	26 x 30,	7 70
12.	P–1173½.	28 x 34,	8 50

JAPANNED IRON TRAYS.



These trays are strong, securely coated, and last well. They may be used with satisfaction either in dry-plate or bromide paper development.

No.	For Plates.		PRICE.
P–1175.	4¼ x 5½	inches, Japanned Iron Trays,	$0 20
P–1176.	5½ x 8½	" " " "	25
P–1177.	7 x 9	" " " "	30
P–1178.	9 x11	" " " "	40
P–1179.	10 x12	" " " "	50
P–1180.	12 x15	" " " "	60
P–1181.	15 x18	" " " "	1 00
P–1182.	19 x22	" " " "	2 00
P–1183.	22 x24	" " " "	2 50

HARD RUBBER TRAYS.

These are largely used for both developing, silvering, and toning trays.

No.	For Plates.						Price.
P–1184.	4½x 5½	inches,	Shallow	Hard	Rubber	Tray,	$0 50
P–1185.	5 x 7	"	"	"	"	"	60
P–1186.	5½x 8½	"	"	"	"	"	70
P–1187.	7 x 9	"	"	"	"	"	88
P–1188.	8½x10½	"	"	"	"	"	1 15
P–1189.	10¾x12¾	"	"	"	"	"	1 75
P–1190.	12 x16	"	"	"	"	"	2 40
P–1191.	15 x18	"	"	"	"	"	4 00
P–1192.	18 x22	"	"	"	"	"	5 75
P–1193.	21 x26	"	"	"	"	"	7 50
P–1194.	10 x12	"	Deep,	"	"	"	3 80
P–1195.	12 x16	"	"	"	"	"	6 00
P–1196.	15 x18	"	"	"	"	"	7 00
P–1197.	18 x22	"	"	"	"	"	8 00
P–1198.	19 x24	"	"	"	"	"	9 25
P–1199.	21 x26	"	"	"	"	"	12 00

GLOSSY RUBBER OR EBONITE TRAY.



This style of tray is easily kept clean, as it has a glossy surface. It is constructed, as shown in the illustration, with two raised ledges on the bottom, rendering the handling of the plate an easy matter.

No.	For Plates.				Price.
P–1200.	3½x 4½	inches,	Ebonite	Tray,	$0 25
P–1201.	4⅜x 5⅝	"	"	"	27
P–1202.	4½x 6¾	"	"	"	40

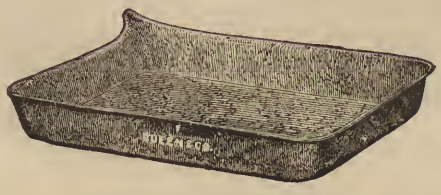
No.	For Plates.				Price.
P–1203.	5½ x 8½	inches,	Ebonite	Tray,	$0 60
P–1204.	7 x 9	"	"	"	80
P–1205.	8½ x 10½	"	"	"	1 30
P–1206.	10 x 12	"	"	"	2 40
P–1207.	11 x 14	"	"	"	3 20

PORCELAIN TRAYS.

These are very largely used for silvering and toning. They are of highly glazed porcelain, not affected by chemicals.

No.	For Plates.				Price.
P–1220.	5 x 7	inches,	Porcelain	Tray, shallow,	$0 44
P–1221.	"	"	"	" deep,	62
P–1222.	5½ x 8½	"	"	" shallow,	60
P–1223.	"	"	"	" deep,	75
P–1224.	7 x 9	"	"	" shallow,	66
P–1225.	"	"	"	" deep,	82
P–1226.	8 x 10	"	"	" shallow,	82
P–1227.	"	"	"	" deep,	1 00
P–1228.	10 x 12	"	"	" shallow,	1 32
P–1229.	"	"	"	" deep,	1 66
P–1230.	11 x 14	"	"	" shallow,	2 16
P–1231.	"	"	"	" deep,	2 64
P–1232.	14 x 17	"	"	" shallow,	5 10
P–1233.	"	"	"	" deep,	6 60
P–1234.	15 x 19	"	"	" shallow,	6 28
P–1235.	"	"	"	" deep,	8 00
P–1236.	19 x 24	"	"	" shallow,	12 88
P–1237.	"	"	"	" deep,	16 00

AGATE-IRON LIPPED TRAYS.



This tray is made so as not to break, and are of a material not acted upon by any chemical employed. They are consequently used for all kinds of photographic work where a tray is needed.

No.	For Plates						PRICE.
P–1240.	5x 7	inches,	Agate-Iron	Lipped	Tray,	shallow, .	$0 80
P–1241.	"	"	"	"	"	deep, .	1 00
P–1242.	7x 9	"	"	"	"	shallow, .	1 00
P–1243.	"	"	"	"	"	deep, .	1 25
P–1244.	8x10	"	"	"	"	shallow, .	1 25
P–1245.	"	"	"	"	"	deep, .	1 60
P–1246.	10x12	"	"	"	"	shallow, .	2 00
P–1247.	"	"	"	"	"	deep, .	2 25
P–1248.	11x14	"	"	"	"	shallow, .	3 00
P–1249.	"	"	"	"	"	deep, .	3 37
P–1250.	14x17	"	"	"	"	shallow, .	5 00
P–1251.	"	"	"	"	"	deep, .	6 00
P–1252.	15x19	"	"	"	"	shallow, .	7 00
P–1253.	"	"	"	"	"	deep, .	8 00
P–1254.	19x24	"	"	"	"	shallow, .	12 00
P–1255.	"	"	"	"	"	deep, .	15 00

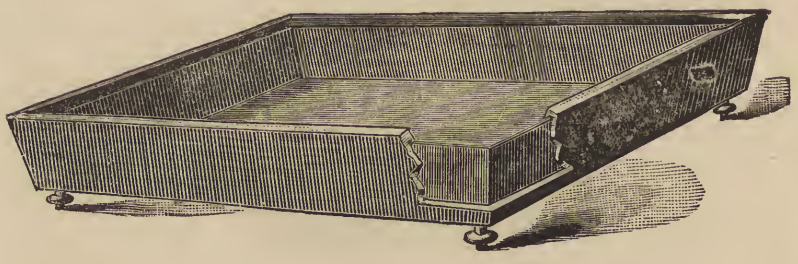
GLASS-LIPPED DEVELOPING TRAYS.

The Glass Developing Tray being transparent, enables the development to be watched *through* it.

No.	For Plates.						PRICE.
P–1260.	4¼ x 5½	inches,	Glass	Developing	Tray,	with Lip,	$0 40
P–1261.	5½ x 8½	"	"	"	"	"	55
P–1262.	7 x 9	"	"	"	"	"	70
P–1263.	9 x11	"	"	"	"	"	85

THE COMMON-SENSE TRAY.

For Washing, Silvering, etc.

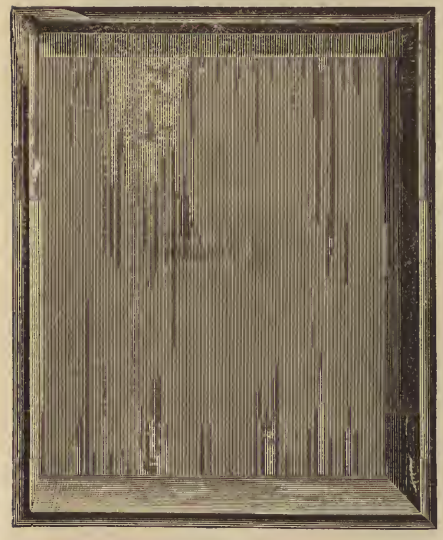


Made of kiln-dried lumber, with acid-proof paper lining, bound

corners, canvased joints, etc. Light, strong and durable; recommended by the best photographers.

No.	For plates.	Price
P–1270.	15X19 inches (half sheet size), Common-Sense Tray,	$4 00
P–1271.	19X24 " (whole sheet size), " "	6 00

WATERBURY TRAYS.





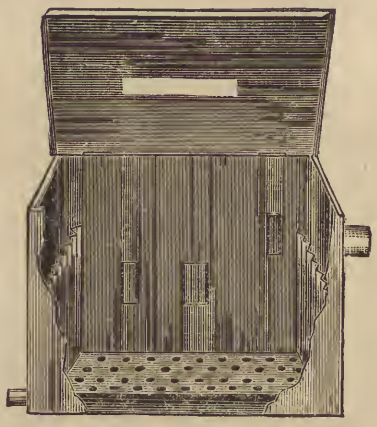
These are lined wooden trays of very superior construction and finish. The bottom rests on cross straps, which support them very uniformly and advantageously when in use. They do not warp or crack.

No.	For Plates,	Price.
P–1272.	15X19 inches, Waterbury Tray, ...	$3 50
P–1273.	19X24 " " "	5 00
P–1274.	22X28 " " "	6 50

THE CURRENT NEGATIVE WASHING BOXES.



P–1325.



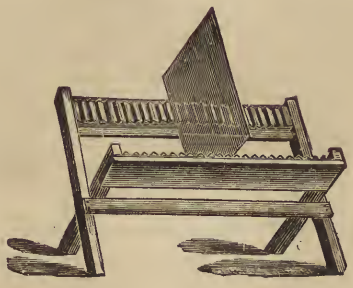
P–1326—P–1335.

IN these boxes the plates are washed by a gentle current of water, which is admitted by the lower tube, and rising, is discharged by the upper or larger one.

In the adaptable box a false bottom perforated with holes causes the flow to be more evenly diffused through the box and checks any too rapid movement. The 8x10-inch size of this style is made so that plates of 6½x8½-inch, 5x8-inch, and 4x5-inch sizes can also be washed in it.

No.	For Plates.		Price.
P–1325.	3¼ x 4¼ inches,	Adaptable,	$1 60
P–1326.	4 x 5 "	" and smaller sizes,	1 75
P–1327.	4¼ x 5½ "	"	1 90
P–1328.	4¼ x 6½ "	"	2 00
P–1329.	5 x 7 "	"	2 10
P–1330.	5 x 8 "	"	2 15
P–1331.	6½ x 8½ "	"	2 25
P–1332.	8 x 10 "	"	2 50
P–1333.	10 x 12 "	"	4 00
P–1334.	11 x 14 "	"	5 00
P–1335.	11 x 14 "	"	6 00

FOLDING NEGATIVE DRYING RACKS.



This is a great convenience in drying the negatives, as it holds them safely and allows free access of air.

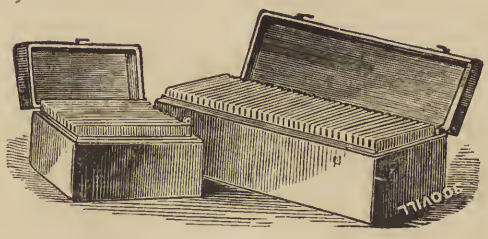
No.		Price.
P–1345.	Folding Negative Rack, for plates to 8x10 inches,	$0 50
P–1346.	" " " " " 14x17 "	90

NEGATIVE PRESERVERS.

They consist of an envelope made of strong, thick paper, one end open, and cut to admit of removing the negative, and having on one side three printed lines for the number, name, and remarks.

No.		For Negatives,	Price.
P–1350.	Negative Preservers,	3¼ x 4¼ inches, per 100,	$0 30
P–1351.	" "	4¼ x 5½ " "	38
P–1352.	" "	4¼ x 6½ " "	46
P–1353.	" "	5 x 8 " "	54
P–1354.	" "	6½ x 8¾ " "	61
P–1355.	" "	8 x10 " "	76
P–1356.	" "	10 x12 " "	1 60
P–1357.	" "	11 x14 " "	2 00

NEGATIVE BOXES.



These are essential to the amateur for keeping his plates free from injury. They are made of white wood with hinged cover, and are neat and durable. It will be found that in Negative Boxes is the most satisfactory way to store negatives.

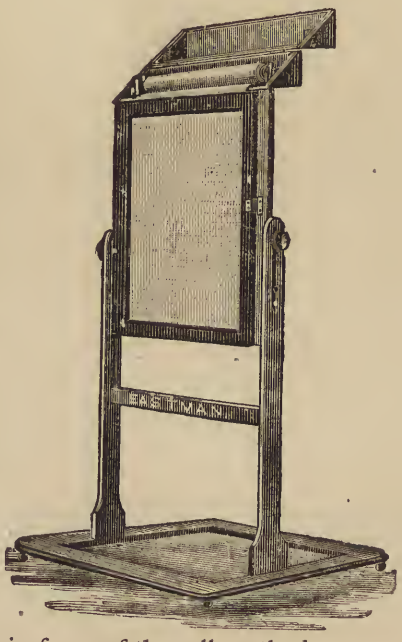
No.								Regular with Hook.	Light Tight, with Lock and Key. PRICE.
P–1360.	Negative Boxes, to hold			24	1-9	in.	plates,	$0 60	$1 75
P–1361.	"	"	"	"	1-6	"	"	60	1 80
P–1362.	"	"	"	"	3¼ x 4¼	"	"	70	1 90
P–1363.	"	"	"	"	4 x 5	"	"	75	1 95
P–1364.	"	"	"	"	4¼ x 5½	"	"	75	1 95
P–1365.	"	"	"	"	4¼ x 6½	"	"	75	2 00
P–1366.	"	"	"	"	4 x 7	"	"	80	2 00
P–1367.	"	"	"	"	4 x 8	"	"	85	2 05
P–1368.	"	"	"	"	5 x 7	"	"	90	2 10
P–1369.	"	"	"	"	5 x 8	"	"	95	2 15
P–1370.	"	"	"	"	6½ x 8½	"	"	1 05	2 30
P–1371.	"	"	"	"	8 x10	"	"	1 20	2 60
P–1372.	"	"	"	"	10 x12	"	"	2 40	3 90
P–1373.	"	"	"	"	11 x14	"	"	3 55	5 00
P–1374.	"	"	"	"	13 x16	"	"	3 80	5 30
P–1375.	"	"	"	12	14 x17	"	"	4 00	5 75
P–1376.	"	"	"	"	16 x20	"	"	5 00	6 50
P–1377.	"	"	"	"	17 x21	"	"	5 20	7 20
P–1378.	"	"	"	"	20 x24	"	"	6 00	8 00

Special sizes made to order, to hold any number of plates required.

ENLARGING EASELS WITH ROLL HOLDERS.

THESE consist of an upright easel, with a light-proof box at the top to hold a spool of permanent bromide paper. They are intended for use with any apparatus for enlargement, either by natural or artificial light.

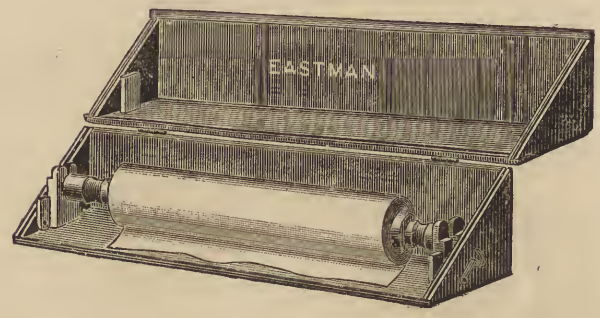
To use them the paper is drawn down from the spool like a curtain, and fastened in place by a hinged frame, which serves to register the picture. After exposure, each length is cut off and a fresh one drawn down. If it is desired to use several widths of paper upon the easel, *extra holders*, which are interchangeable, may be employed, a separate holder for each width.



Cut sheets of the bromide paper may be exposed on these easels either by pinning them to the frame in the usual way or by using a film carrier, as all the easels can be supplied with kits for all sizes smaller than the main one. But the advantage of cleanliness and convenience are greatly in favor of the roll method.

No.		For Spools up to		PRICE.
P–1615.	Enlarging Easel with Spool Holder,	11	inches,	$7 50
P–1616.	" " " "	16	"	10 00
P–1617.	" " " "	22	"	12 50
P–1618.	" " " "	25	"	15 00
P–1619.	" " " "	30	"	20 00

EXTRA SPOOL HOLDERS.



One Spool Holder accompanies each easel. If smaller pictures than the one for which the easel is designed are desired, extra spool holders of the size required may be used, as all these holders are interchangeable, and any width less than the full size of the easel can be used on the easel.

The spools of bromide paper for these holders are furnished in light-proof boxes.

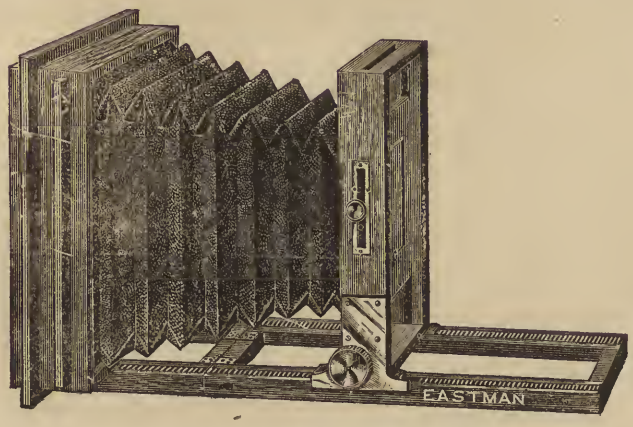
No.		Price.
P-1625.	Extra Spool Holder, for paper up to 11 inches wide,	$2 00
P-1626.	" " " " " 16 "	2 50
P-1627.	" " " " " 22 "	3 00
P-1628.	" " " " " 25 "	4 00
P-1629.	" " " " " 30 "	5 00

KITS FOR ENLARGING EASELS.

These Kits nest one into the other, and are furnished with buttons for fastening in place. They have, also, spring clips for holding film carriers for using cut sheets.

No.		Outside Size.	Inside Size.	Price
P-1638.	Kit for Easel,	25x30 inches,	22x27 inches,	$1 50
P-1639.	" "	22x27 "	20x24 "	1 40
P-1640.	" "	20x24 "	18x22 "	1 30
P-1641.	" "	18x22 "	16x20 "	1 20
P-1642.	" "	16x20 "	14x17 "	1 00
P-1643.	" "	14x17 "	11x14 "	80
P-1644.	" "	11x14 "	10x12 "	66
P-1645.	" "	10x12 "	8x10 "	60

THE DAYLIGHT ENLARGING CAMERA.



THIS is designed to be used in a dark-room. The rear of it is to be fastened by keying into a hole of the proper size in the window shutter. A frame inclined 45° upward and covered with white muslin is secured just outside the window below the camera so as to give a good illumination.

With this and one of the enlarging easels with spool holder for bromide paper one may make enlargements upon this paper from small negatives that will compare favorably with prints made direct from large negatives.

Any *rectilinear lens* that will cover a plate the size of the negative used may be employed. The smaller the stop the sharper the enlargement and the longer the exposure.

The cameras are focused by a fine, smooth rack-and-pinion movement.

No.		Price
P–1650.	Enlarging Camera, with kits for 8x10 inch negatives and under, without lens, ...	$25 00
P–1651.	Do. 5x8 Enlarging Camera, ...	20 00

FINISHING DEPARTMENT.

In this Department we are prepared to execute in the best possi ble manner any photographic work an amateur may wish done on o: from his negatives.

DEVELOPING, SILVER PRINTS, INTENSIFYING, BRO MIDE CONTACT PRINTS, REDUCING, GLASS TRANSPARENCIES, RETOUCHING, BROMIDE ENLARGEMENTS.

PRICE-LIST OF CONTACT SILVER PRINTING.

Size of Print	Unmounted.	Mounted.	Size of Print.	Unmounted.	Mounted.
3¼x4¼,	$0 05; . .	$0 09	5 x7 ,	$0 10; . .	$0 15
4 x5 ,	06; . .	09	5 x8 ,	10; . .	15
4¼x5½,	07; . .	12	6½x8½,	15; . .	25
4¼x6½,	07; . .	12	8 x10 ,	25; . .	35

Ten per cent. discount from prices when ordered in lots of one dozen from same negative.

ENLARGEMENTS ON PERMANENT BROMIDE PAPER.

This style of print, though but lately introduced, has on account of its beautiful half-tones received the preference over those made by any other process. With it, at a trifling cost, beautiful enlarged pictures from good negatives can be made, which, when framed, make handsome wall decorations.

PRICE-LIST FOR BROMIDE ENLARGING.

Size of Print.	Unmounted.	Mounted.	Size of Print.	Unmounted.	Mounted
10x12,	$1 00; . .	$1 50	20x24,	$2 50; . .	$3 00
11x14,	1 25; . .	1 75	22x27,	2 75; . .	3 50
14x17,	1 50; . .	2 00	25x30,	3 00; . .	3 75
16x20,	1 75; . .	2 25	24x36,	4 00; . .	4 75
18x22,	2 25; . .	2 75	30x40,	6 00; . .	7 25

When ordering give size of enlargement you wish; whether vignetted or plain, mounted or unmounted, and if mounted whether on card or muslin stretcher.

Retouching Negatives, 15c. for ½-inch head and under; 5 cents for each additional ¼-inch.

QUEEN & CO.'S CHEMICAL PREPARATIONS.

NONE GENUINE WITHOUT OUR TRADE-MARK.



COMPOUNDED BY US FROM OUR OWN FORMULÆ OF THE BEST MATERIALS.

"**The Queen Concentrated Developer,**" for dry plates, films, or paper negatives, in one solution, a portion of which is diluted before using; is the simplest, surest, and best Developer for the beginning amateur. In 4 oz. bottles, 25 cents, or 8 oz. bottles, 40 cents.

"**The Queen Pyro and Soda Developer,**" for dry plates, films, or paper negatives, is put up in packages containing two 8 oz. bottles; one of Pyrogalic Acid solution (No. 1), and the other of Carbonate of Soda solution (No. 2). To those who wish to manipulate in development we cannot recommend this Developer too highly, as we know in it they have an article far superior to anything yet offered. Price, per package, 50 cents.

"**The Queen Ferrous Oxalate Developer,**" for the developing of bromide paper, paper negatives, American films, and transparency plates. It is sold in packages containing one quart of Oxalate solution, 8 ounces Iron solution, and 2 ounces Bromide solution. For the purposes intended this Developer will be found *all that can be desired.* Price, per package, 75 cents.

Developer "Tondeur." A Hydrochinon developer which we import. It is put up dry in a neat square box and weighs 4 oz., the chemicals are inclosed in tinfoil packages and should all be dissolved in 40 oz. of water. This developer is very convenient for travelers. It is used the same as our regular Hydrochinon developer. Price, per package, $1.00.

Hydrochinon Developer. We offer our concentrated Hydrochinon Developer as one of the cheapest and most permanent developers on the market.

We find that it will admit of an extreme range of exposure, producing fine negatives in respect to *color*, *density*, *and detail.*

It should be kept corked, and the old developer saved in bottles, which should be kept *full.* This may be used repeatedly, gradually showing a tendency to make negatives harder, which may be met by longer exposures.

Dilute with an equal volume of water. Use fresh solution for instantaneous and flash-light negatives, and very old solution for extreme over-exposures. Price, 8-ounce bottle, 25 cents; in bulk, per quart, 75 cents; qt. bottle 10 cents.

"**The Queen Intensifying Solution,**" with this solution satisfactory printing negatives can often be made from those which to all appearance are total failures. Price, per 8-ounce bottle, 50 cents.

"**The Queen Negative Varnish.**" Negatives which are valued should always be varnished to prevent their being spoiled by scratching or the staining of albumen-paper. The "Queen Varnish" will be found especially satisfactory for this purpose, as it makes a hard, clear coating over the sensitive film, which can be retouched on and which does not crack, peal, or soften while printing. Price, per 4-ounce bottle, 30 cents; 8-ounce bottle, 50 cents.

"**The Queen Ground Glass Substitute.**" Any one who has had the misfortune to break or lose his ground glass when away from home will readily see the value of a solution with which, out of a piece of clear glass (an old negative for instance, with the film carefully cleaned off), a new ground glass can be made in a few moments. The solution may also be used with very fine effect for working in cloud effects in negatives. Price, per bottle, 50 cents.

"**The Queen Toning and Fixing Solution**" is put up in packages containing two 4-ounce bottles. It is specially prepared for use with the "Queen Silvered Albumen Paper," on which it will give prints of any tone desired, and is equally good for artists, or ready sensatized gelatine papers.

This Solution will be the cause of a large increase in the number of amateurs who do their own printing. Price, per package, 50 cents.

PHOTOGRAPHIC CHEMICALS.

A Complete Line of Chemicals Listed on our Chemical Catalogue.

Acid, Acetic, No. 8, bot. .10 ; one lb.,	$0 10
" " " 5, lb. bot. .25 ; per lb.,	09
" Boracic, per oz.,	05
" Citric, "	12
" " per lb.,	80
" Muriatic, C. P. ; per lb.,	45
" " Com. ; "	35
" Nitric, C. P. ; per oz.,	12
" " " per lb.,	45
" " Com. ; "	30
" " 7 lb. bot.,	1 20
" Oxalic ; per oz.,	10
" " per lb.,	30
" Pyro (Schering's) ; per oz.,	35
" " " ¼-lb. can,	1 25
" " " 1 "	4 25
" Sulphuric, C. P., g. s. b. ; per oz.,	12
" " " " 4 oz.,	20
" " " " 1-lb. bot.,	45
" Sulphuric, g. s. b. ; per lb.,	40
" Tannic ; per oz.,	30
Albumen, dry ; per oz.,	15
Alcohol, 95 per cent. ; per pint,	50
" " " per quart,	87
Alum, powdered ; per lb.,	15
" chrome ; "	30
Ammonia, Liq. Conc., 26°, bot. .15 ; per lb.,	15
" " 4-lb. bot.,	90
Ammonium, Iod. ; per oz.,	40
" Brom. ; "	15
" Carb. ; per lb.,	50

Ammonium Chloride; per oz.,	20
" " per lb.,	45
" Sulphocyanide, per oz.,	25
Barium Nitrate; per oz.,	10
" per lb.,	40
Borax; per lb.,	25
Cadmium Bro.; per oz.,	25
" Iod.; per oz.,	50
" Chloride; per oz.,	50
Calcium, " " 13 cents, ½-lb. box,	25
Calcium, Iodide, g. s. b., per oz.,	$0 45
" Brom., " "	35
Chloroform, oz., .18, lb. bot.,	1 50
Compressed Pyro., 5 gr. pellets, ½-oz. bot.,	40
" Hydrochinon, 4 gr. pellets, ½.oz. bot.,	50
" Potash Bromide, 2 gr., ½-oz. bot.,	20
" Soda Carb., 5 gr., 1-oz. bot.,	20
" Soda Sulphite, 5 gr., 1-oz. bot.,	20
" Potash Carb., 5 gr., 1-oz. bot.,	20
Copper, Sulph.; per lb.,	55
" Acetate; per oz.,	15
" Chloride; "	15
Developer, Queen's Conc.; 8 oz.,	40
" " Pyro. and Soda; per package,	50
" Ferrous Oxalate; per package,	75
" Queen Hydrochinon, one solution,	25
" " " bot. .10; per quart,	75
" " Conc. 2 solutions, package,	1 00
" Fondeur, dry; package,	1 00
Ether, Sulph., Conc.; 1 lb. bot.,	90
Gold, Chloride; 15-gr. bot.,	55
" " 7½ "	30
" and Sodium; 15-gr. bot.,	35
Gum Sandarac; per lb.,	50
" Shellac, bleached,	60
" " Orange,	45
Hydroxylamine; per oz.,	90
Hydrochinon; "	70
Iodine, Resul., g. s. b.; per oz.,	38
Iron, Sulphate; per lb. box,	06
" " pure; per lb. bot.,	50
" Sulphate and Ammonia; lb. bot.,	15

Iron Citrate and Ammonia; 1b. bot.,	85
" Perchloride; 1b. bot.,	1 00
Lead, Acetate, C. P.; oz., 12c., 2 oz. bot.,	20
" Nitrate; oz.,	12
Lime, Chloride; 1b.,	20
Lithium, Iodide, g. s. b.; oz.,	1 00
" Bromide, " "	40
Litmus Paper, sheet, 5c.; 1 dozen,	50
Magnesium, powder; ½ oz. bot., 25c.; oz.,	40
Mercury, Bichloride, oz., 12c.; 1b.,	$0 75
Potassium, Bromide, oz., 10c.; 1b.,	75
" Bichromate, Com.; 1b. bot.,	27
" Carb.; per 1b.,	30
" Chlorate; "	40
" Ferrocyanide (yellow Prussiate); 1b.,	70
" Ferricyanide (red "); "	1 25
" Iodide; oz. bot.,	30
" Oxalate; per 1b.,	30
Silver, Nitrate; per oz., variable,	80
Soda, Acetate; 2 oz. bot.,	18
" " 1b.,	50
" Carb., Cryst.; 1b. box,	10
" Hyposulphite; "	06
" Sulphite, Cryst.: ½ bot., 18c.; 1b.,	30
Sodium, Bromide; oz. bot.,	12
" Chloride; "	10
" Iodide; "	35
Tannin; "	30
Uranium, Nitrate, g. s. b.; oz.,	90
" Chloride, " "	90
Zinc, Bromide; oz. bot.,	25
" Iodide; "	60

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