

MICROTOMES



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MICROTOMES.

E. LEITZ
OPTICAL WORKS
WETZLAR.

Agents:

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Ogilvy & Co.
18 Bloomsbury Square
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NEW-YORK
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Notices and Terms.

This catalogue supersedes all previous editions.

When ordering instruments, these should be described in strict accordance with the terms by which they are identified in the catalogue, and complete outfits should be specified by the rotational prefix number. For telegraphic orders it is sufficient to use the corresponding codeword.

Goods are forwarded at the risk and cost of the consignees.

Prices will be found in a separate schedule appended to this catalogue.

Packing is charged for at cost price.

All remittances should be accompanied by a statement of the exact date of the invoice.

We shall deem it a favour if you will place your orders through our local agent, subject to your convenience.

Telegraphic Address: **Microtome, Westcent, London.**

Connover, New-York.

On the Choice of a Microtome and its Principal Attachments.

Recent mechanical progress affords both the designer and the user of microtomes increased freedom, the one in the development of the various existing types of microtomes, the other in the choice of an appropriate equipment. Micrometer screws can now be made with such a degree of accuracy that they provide an exact means, independently of any refining attachment, of displacing the object from any position with uniform precision by small amounts of $\frac{1}{1000}$ mm. This disposes of the necessity of overcoming the inherent imperfections of screws by employing such means as causing it to act against a slide carriage rising along an inclined plane. Those requiring to cut perfect sections of extreme thinness are therefore no more restricted to the one type of sledge microtome with two mutually inclined slide tracks. The thinnest sections may now be cut from any object of normal structure with almost exactly the same degree of precision on any of the larger microtomes described in this catalogue. In the choice of a suitable microtome other points may be freely taken into consideration, such as its price or convenience in use, familiarity with a certain type, or special requirements in the matter of rigidity or rapidity in working.

The use of the microtome is continually extending in all departments of morphological and medical study. Having reached its present stage of efficiency in the zoological and anatomical laboratories, it has now become indispensable to botanists, physiologists, and pathologists; and it is accordingly to be found in every hospital or medical school. Many practising physicians and surgeons require its assistance; it has become a necessary item in the equipment of higher schools for the use of teachers of biological subjects or as a means of supplementing the school collection of specimens. Private workers and schools compelled to content themselves with a single instrument will do well to acquire a small model or, if the available means permit, a larger all-round microtome of the

sledge or base-sledge type. In hospitals and pathological laboratories an additional freezing microtome cannot well be dispensed with. Larger institutes, in addition to one or several all-round microtomes, will need a quick-cutting rotary microtome for obtaining a long uninterrupted series of sections, a base sledge-microtome for hard objects, and several small instruments for practical class work. The following outlines of the general features of the various microtomes may assist in the choice of an appropriate equipment.

The **Simplest Microtomes** (Nos. 1214 and 1215) are intended for the unpretentious purpose of guiding the hand in cutting objects, especially fresh and unprepared material, whereas the **Demonstration Microtome** lends itself within certain limits to cutting a faultless series of paraffin sections. In this simple microtome the object stage lacks means of orientation, so that the necessary adjustment has to be made at the time when the blocks are being melted on to the holders. Thanks to its simplicity this efficient little instrument is particularly well adapted as a **Freezing Microtome**. Microtomes of the sledge pattern are likewise immediately available for use with a freezing attachment. The only exceptions in this respect are those microtomes in which the object moves relatively to a stationary knife, i. e. the Minot Microtome and the Rotary Disc Microtomes. With these exceptions only, **all Leitz microtomes are universal instruments** and accordingly adapted for cutting paraffin as well as celloidin sections.

In all Leitz sledge microtomes the slide motion within a V-track has been abandoned in favour of a "**hanging carriage**", which constitutes a great improvement. Whilst under the old conditions the knife carriage was liable to be thrust aside out of its track by the leverage of the knife, this cannot possibly happen in the case of the hanging carriage, as the ledge at the top of the slide provides a counter-thrust. This form of suspension also does away with the second side of the V-track of the older type, in consequence of which the microtome is narrower, whilst the dead

weight so economised can be employed to increase that of the slide carriage and thereby to add to the precision of the cutting effect. This modification of the slide motion alone has sufficed to convert the simplest sledge microtome into a very efficient and rigid instrument; and, owing to its simplicity and comparatively low cost, it may be recommended as particularly well adapted for the **equipment of practical classes** and also as a **travelling microtome**.

The tedious process of screwing back the micrometer spindle has been rendered unnecessary in the case of the larger microtomes by the introduction of a split-nut clutch, which may be made to engage and disengage at pleasure. It affords also a convenient means of raising and lowering the object. Those who prefer the mechanical principle by which the object is raised by its transverse displacement along an inclined plane will find in this catalogue the description of a microtome in which this arrangement is associated with the advantages of the hanging carriage.

The design of the **Base Sledge Microtome**¹⁾ ensures the utmost degree of rigidity, such as is needed for cutting very large or hard objects. To this end the sledge is very heavy and travels on a track which forms the base of the microtome, whilst the knife is clamped in its supports on either side of the part of the knife which happens to be cutting. The Base Sledge Microtome is a very easy and rapid section cutter, the movement of the sledge as well as the advance or feed of the object being effected by one hand without changing its position, whilst the other is free for receiving the sections.

In the matter of cutting rapidity the Base Sledge Microtome is surpassed by the rotary microtomes, which are employed with advantage where it is required to cut as rapidly as possible very long series from well cutting objects, such as embryos. In the well-known Minot type the knife

¹⁾ Cf. S. Becher, "On new types of microtomes; I. The Leitz Base Sledge Microtome", *Zeitschrift für wissenschaftliche Mikroskopie*, Vol. 30, 1913, pp. 192-202.

is clamped on either side by a holder, which in the Leitz model is interchangeable with a holder for clamping the knife in an oblique position, whereby, in case of need, the instrument becomes available for cutting celloidine. Special attention may be drawn to the simplified form of the Minot type recently devised by us.

Attention is further drawn to the new type of **Rotary or Revolving Disc Microtome**²⁾ devised by us. As a rapid section cutter this instrument does not lag behind the Minot; indeed it surpasses the latter in the matter of the uniformity of section, since both the drive and the cutting effect are obtained by circular motions, so that the circular actuating motion is not transformed into a reciprocating motion as in the Minot microtome. A further point is that the knife blade is not in a vertical, but in a horizontal, plane, so that every separate section may be carefully taken off, if at any time the continuity of the series should fail. The microtome is likewise excellently adapted for cutting celloidin, at any rate terpinol-celloidin³⁾, all that is needed being to give the knife-holder a slight turn.

Over all other microtomes the Rotary Microtome has the advantage that the knife and the object do not retrace their relative motion between two successive cuts. This obviates the risk of the embedded blocks being damaged by any fragments of paraffin which may be adhering to the knife or of paraffin remaining attached to the block on the return stroke.

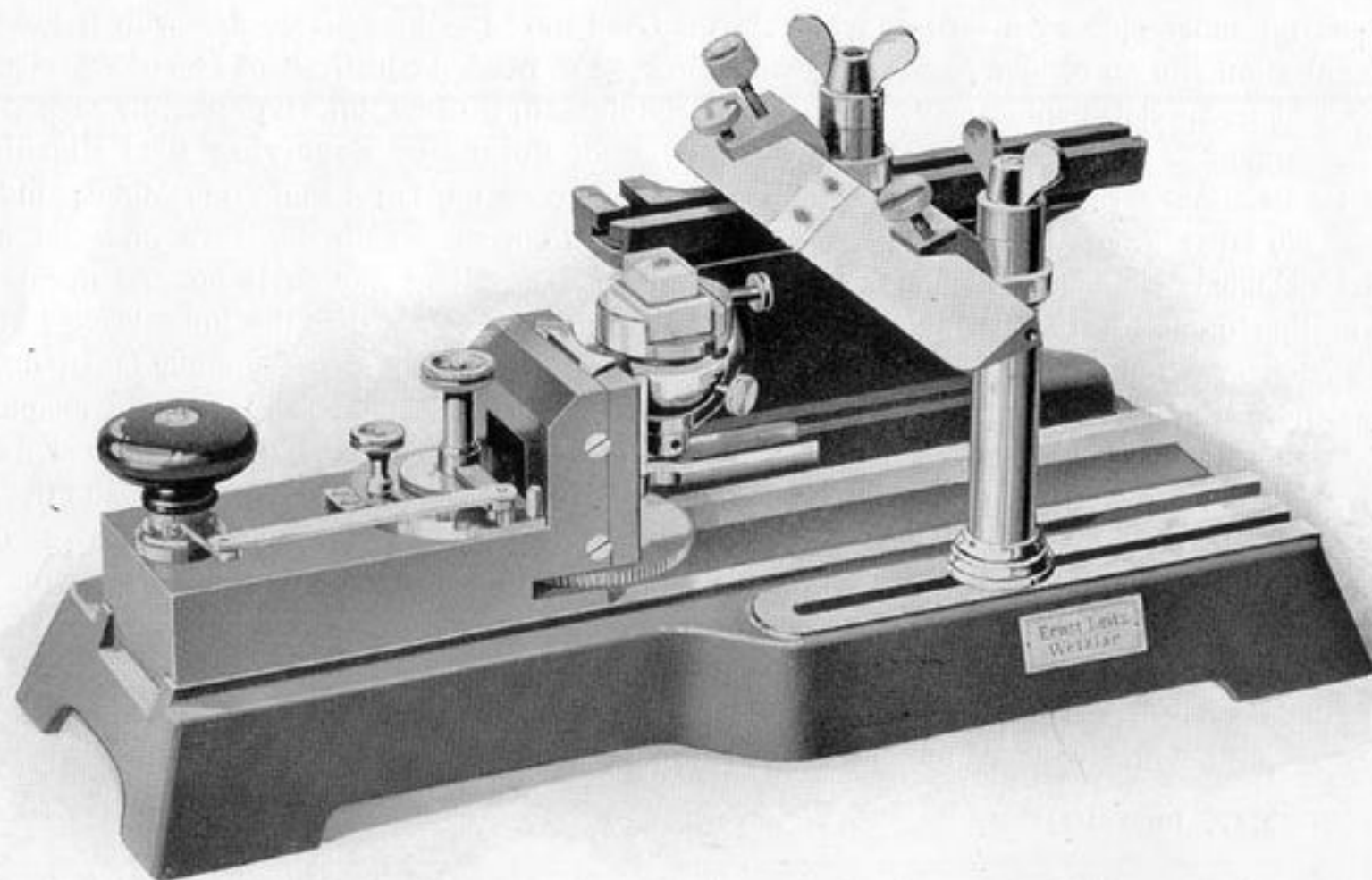
Detailed Directions on the use of these microtomes and the technique of cutting will be found in S. Becher's book entitled "Anleitung zum Gebrauch des Mikrotoms", second edition, a copy of which is supplied with every instrument obtained from us.

Wetzlar, June 1921.

E. Leitz.

²⁾ See S. Becher, "On new types of microtomes, II. The Rotating Disc Microtome of Leitz", Zeitschr. f. wiss. Mikrosk., Vol 31, 1914, pp. 103 - 113; Reprinted in No. 4 of the "Communications from the Leitz Works" (S. Hirzel, Leipzig).

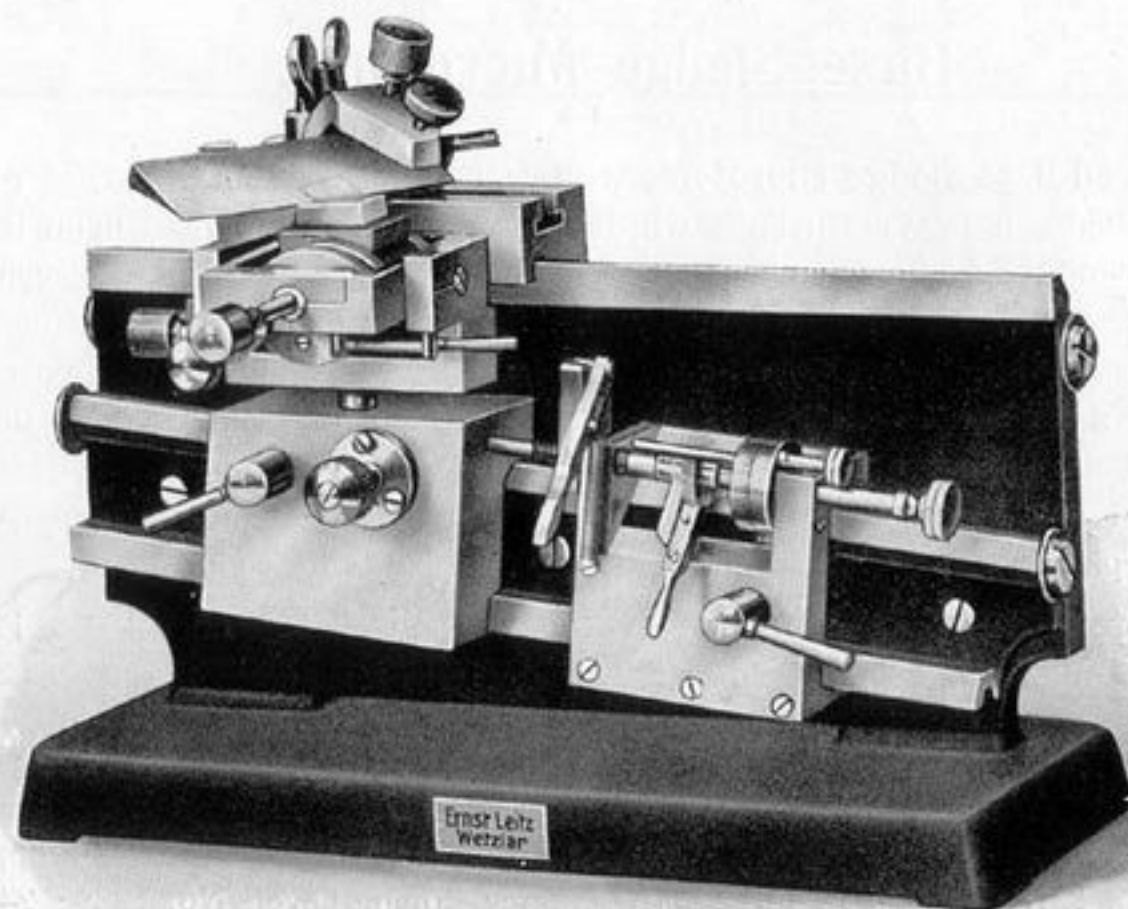
³⁾ On the Terpinol-celloidin method, which is gradually supplanting the method of cutting under alcohol. Cf. S. Becher and R. Demoll, "Einleitung in die mikroskopische Technik", Leipzig, 1913, as well as the "Directions" referred to above.



New Improved Base Sledge Microtome.

Base Sledge Microtome.

No.		Codeword
1200.	New Improved Base Sledge Microtome with cast iron, easily portable base plate, upon which slides a heavy carriage, which in its turn has mounted upon it the object-holder and the feed mechanism. The feed, i. e. the slow vertical displacement of the object, is effected automatically by turning the hand knob, the thickness of the knob being adjustable within a range of 1 to 20 μ . In addition, the apparatus is fitted with a split-nut clutch for the coarse displacement of the object, an object clamp with ball-and-socket joint having two screws, by means of which it may be inclined in any direction and turned about its axes; two knife clamps with rocking sole-piece for fixing the knife when cutting paraffin sections	Madan 21.15.0
1200 a.	Same Microtome , with knife No. 1230, 24 cm long, honing bevel No. 1239, 24 cm long, and Zimmer Strop, No. 1242 b	Madarose 24.9.6
1200 b.	Same Microtome , with ribbon conveyor No. 1216; knife No. 1230, 24 cm long; honing bevel No. 1239, 24 cm long; and Zimmer strop No. 1242 b	Madarus 26.13.6
1200 c.	Same Microtome , with special knife clamp for celloidin cutting, No. 1229; dropping apparatus No. 1218; knife No. 1230, 24 cm long; honing bevel, No. 1239; 24 cm long; and Zimmer strop No. 1242 b	Madates 28.3.6
For use with the Base Sledge Microtome we supply, if desired, a carbon dioxide freezing attachment with a large freezing stage		Madauram 3.10.0

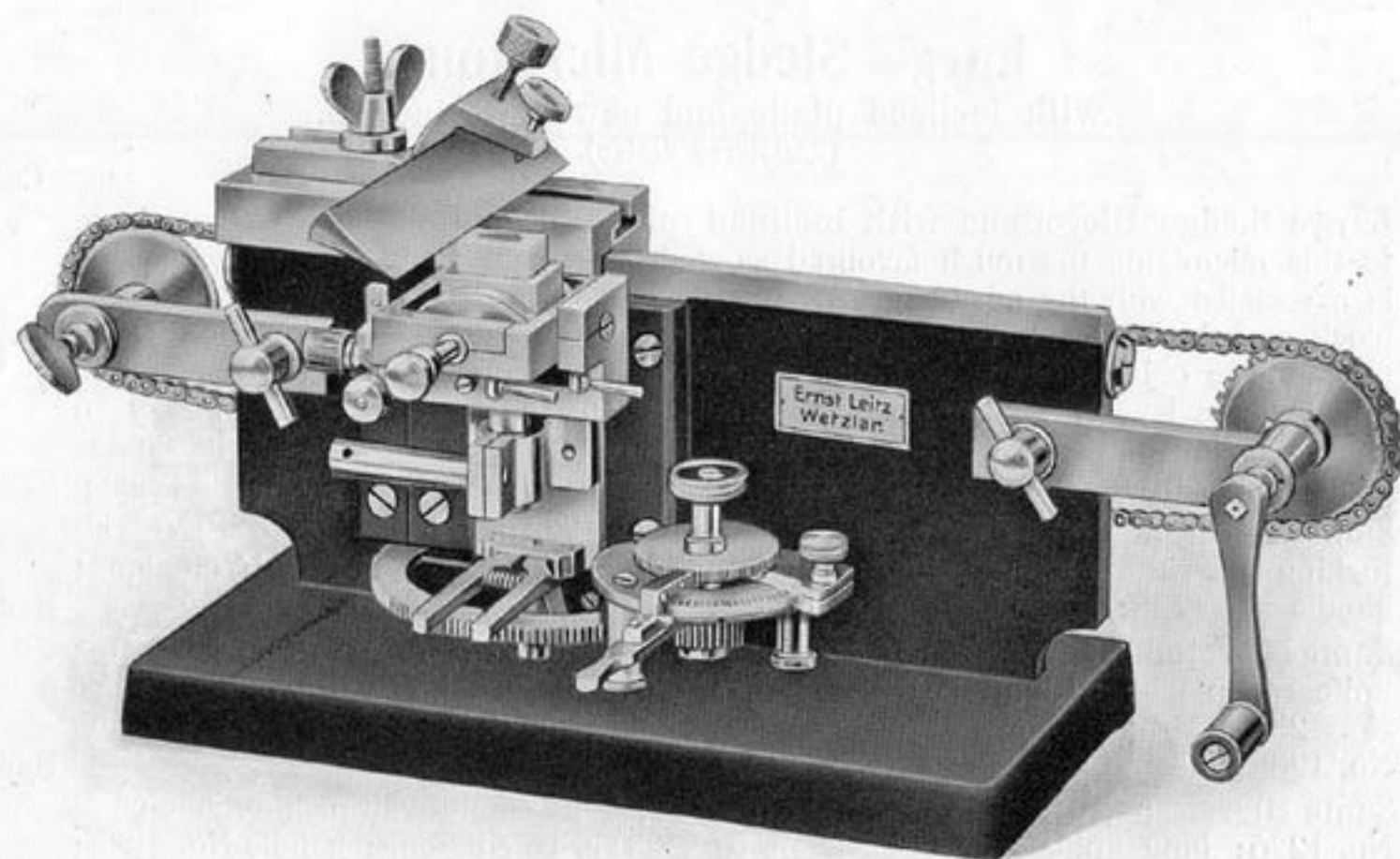


Large Sledge Microtome with Inclined Plane and New Slide Motion.
(Registered Design).

Large Sledge Microtome

with inclined plane and new slide motion.
(Registered design).

No.		Codeword
1201.	Large Sledge Microtome with inclined plane having a track 32 cm. long. In this microtome the much favoured slow displacement along an inclined plane is associated with the advantages of our new hanging slide motion. The knife block and the object carriage slide freely and yet with great precision along their track. The object is raised automatically by the action of a micrometer screw fitted with a lever transmission. The thickness of the section corresponding to one excursion of the lever can be varied within a range of 1—20 μ . The coarse adjustment is made by displacement within a split-nut clutch with ball-and-socket clamp	
1201 a.	Same Microtome , with ball-and-socket clamp No. 1225; knife clamp No. 1226 with rocking sole-piece; knife of Jung pattern with wedge profile No. 1231 c, 16 cm. long; handle No. 1238; and Zimmer strop No. 1242 b	Madebant 21.15.0 Madebit 24.0.0
1201 b.	Same Microtome , with ball-and-socket clamp No. 1225; dropping apparatus No. 1218; knife clamp with rocking sole-piece, No. 1226; Jung knife with wedge profile No. 1231 c, 16 cm. long, and plane-concave knife No. 1231 a, 24 cm. long; handle No. 1238; and Zimmer strop No. 1242 b	Madecass 28.7.0
1201 c.	Same Microtome , with Naples clamp No. 1224; knife clamp with rocking sole-piece No. 1226; Jung knife of wedge section No. 1231 c, 16 cm. long; handle No. 1238; and Zimmer strop No. 1242 b	Madentis 27.1.0
1201 d.	Same Microtome , with Naples clamp No. 1224; dropping apparatus No. 1218; knife clamp with rocking sole-piece No. 1226; Jung knife with wedge profile No. 1231 c, 16 cm. long, and plane-concave knife No. 1231 a, 24 cm. long; handle No. 1238; and Zimmer strop No. 1242 b	Maderent 31.8.6



Large Sledge Microtome with New Slide Motion and Automatic
Micrometer Mechanism with Toothed Wheel Transmission.
(Registered Design)

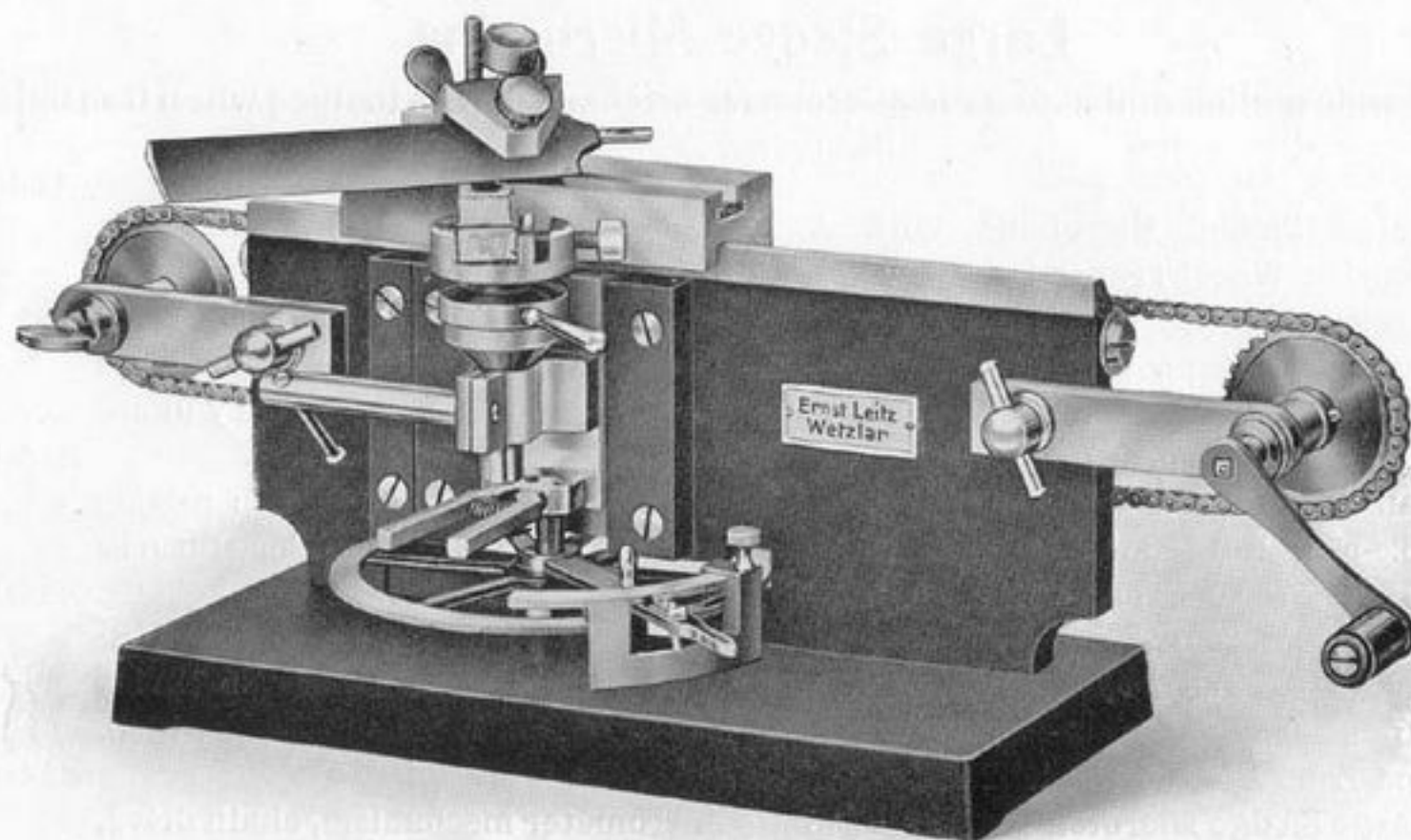
Large Sledge Microtome

with new slide motion and automatic micrometer mechanism with toothed wheel transmission.

(Registered design).

No.		Codeword
1202.	Large Sledge Microtome with Automatic Micrometer Mechanism with Toothed Wheel Transmission; with track 32 cm. long. The motion of the knife-block is obtained by a chain drive. The object is displaced automatically by a micrometer screw with toothed wheel transmission. The thickness of the sections can be varied from 1—20 μ . The coarse displacement of the object is by means of a split-nut clutch or a milled head. Without object clamp	Maderno 24.13.6
1202 a.	Same Microtome with ball-and-socket clamp No. 1225; knife clamp with rocking sole-piece No. 1226; Jung knife with wedge profile No. 1231 c, 16 cm. long; handle No. 1238, and Zimmer stop No. 1242 b	Madescam 26.12.0
1202 b.	Same Microtome, with ball-and-socket clamp No. 1225; dropping apparatus No. 1218; knife clamp with rocking sole-piece No. 1226; Jung knife of wedge section No. 1231 c, 16 cm. long, and plane-concave knife No. 1231 a, 24 cm. long; handle No. 1238, and Zimmer stop No. 1242 b	Madesdens 31.0.0
1203.	Large Sledge Microtome with automatic micrometer mechanism, chain drive, Naples clamp No. 1224	Madeunto 27.11.0
1204.	Same Microtome, without chain drive, with ball-and-socket clamp No. 1225	Madorem 21.0.0
1205.	Same Microtome, without chain drive, with Naples clamp No. 1224	Madorna 24.1.6

(The crank by which the sprocket wheels are actuated is fitted on the right side of the microtome, unless special directions are given to the contrary; it is, however, easily fitted on the left side).



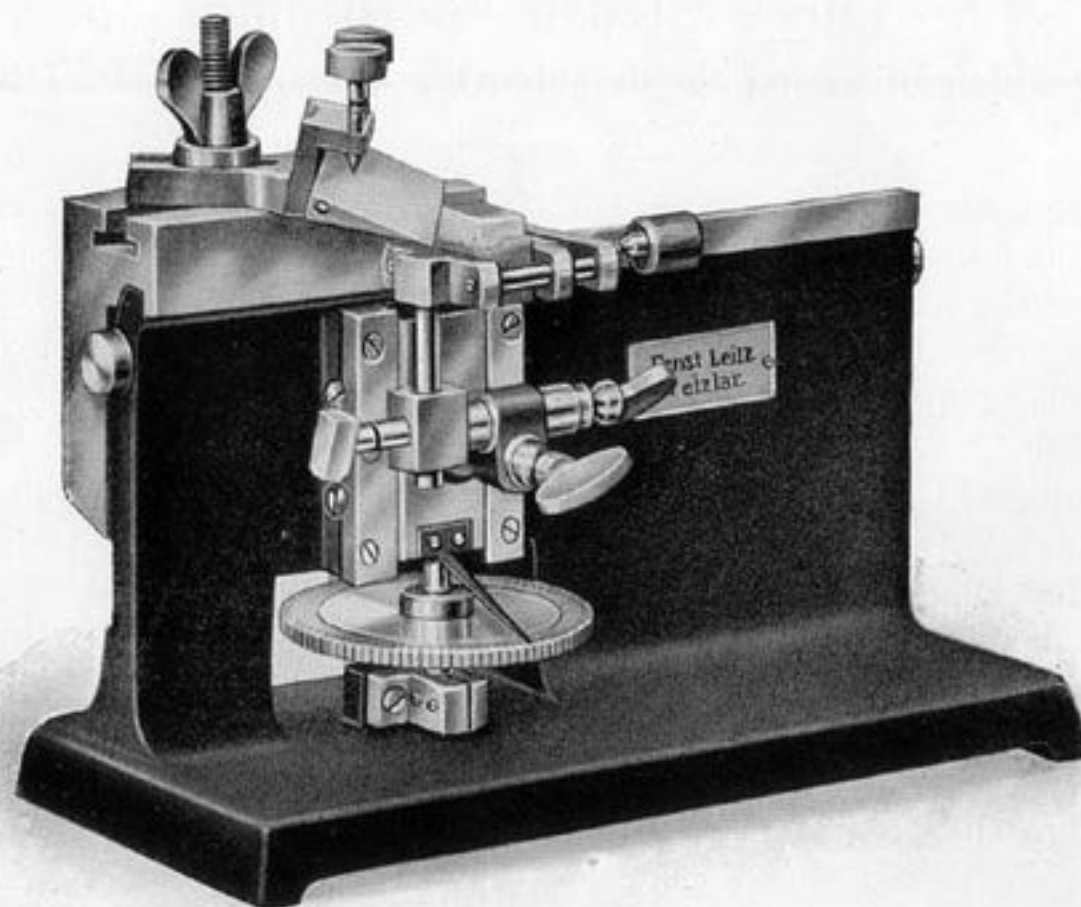
Large Sledge Microtome with New Slide Motion and Simple Automatic Lever Micrometer Feed Action.
(Registered Design).

Large Sledge Microtome

with new slide motion and simple automatic lever micrometer feed action.

No.		Codeword
1206.	Large Sledge Microtome with Simple Automatic Lever Micrometer Feed Action. This instrument differs from the preceding one solely by its simpler feed mechanism. The track is 32 cm. long. The knife-block is actuated by a chain drive. One stroke of the lever corresponds to a thickness of sections which can be varied from 1 to 20 μ . The coarse adjustment is obtained with the aid of a split-nut clutch. Without object clamp	Maesoli 21.15.0
1206 a.	Same Microtome , with ball-and-socket clamp No. 1225; knife clamp with rocking sole-piece No. 1226; Jung knife with wedge profile No. 1231 c, 16 cm. long; handle No. 1238; and Zimmer stop No. 1242 b	Maestare 24.0.0
1206 b.	Same Microtome , with ball-and-socket clamp No. 1225; dropping apparatus No. 1218; knife clamp with rocking sole-piece No. 1226; Jung knife with wedge profile No. 1231 c, 16 cm. long; and plane-concave knife No. 1231 a, 24 cm. long; handle No. 1238; and Zimmer stop No. 1242 b	Maestavit 28.7.0
1207.	Large Sledge Microtome with Simple Automatic Lever Micrometer Feed Action , chain drive and Naples clamp No. 1224	Magador 25.0.0
1208.	Same Microtome, without chain drive , with ball-and-socket clamp No. 1225	Magata 18.4.0
1209.	Same Microtome, without chain drive , with Naples clamp No. 1224	Magnates 21.9.0

(The crank by which the sprocket wheels are actuated is fitted on the right side of the microtome, unless special directions are given to the contrary; it is, however, easily fitted on the left side).



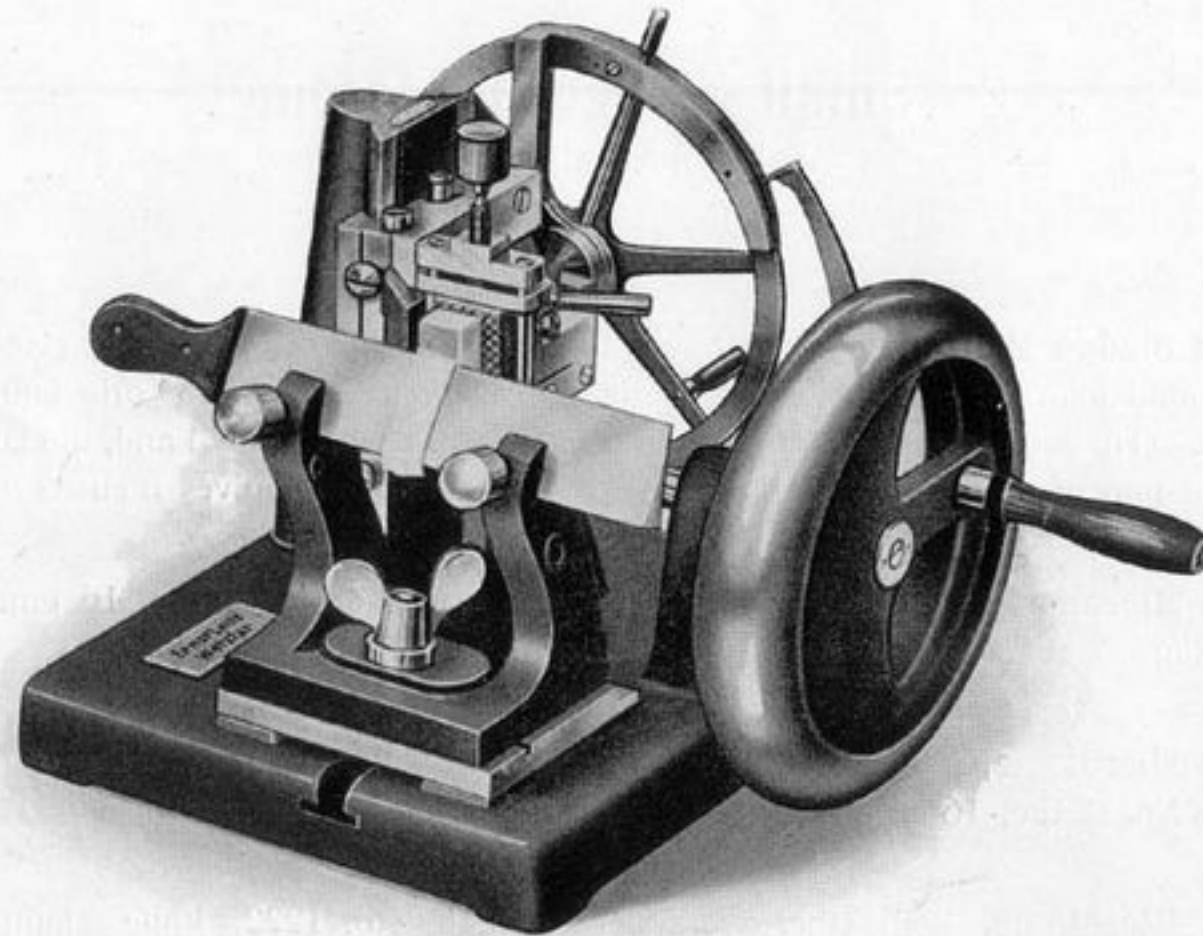
Small Sledge Microtome with New Slide Motion.
(Registered Design).

Small Sledge Microtome

with new slide motion.

(Registered design).

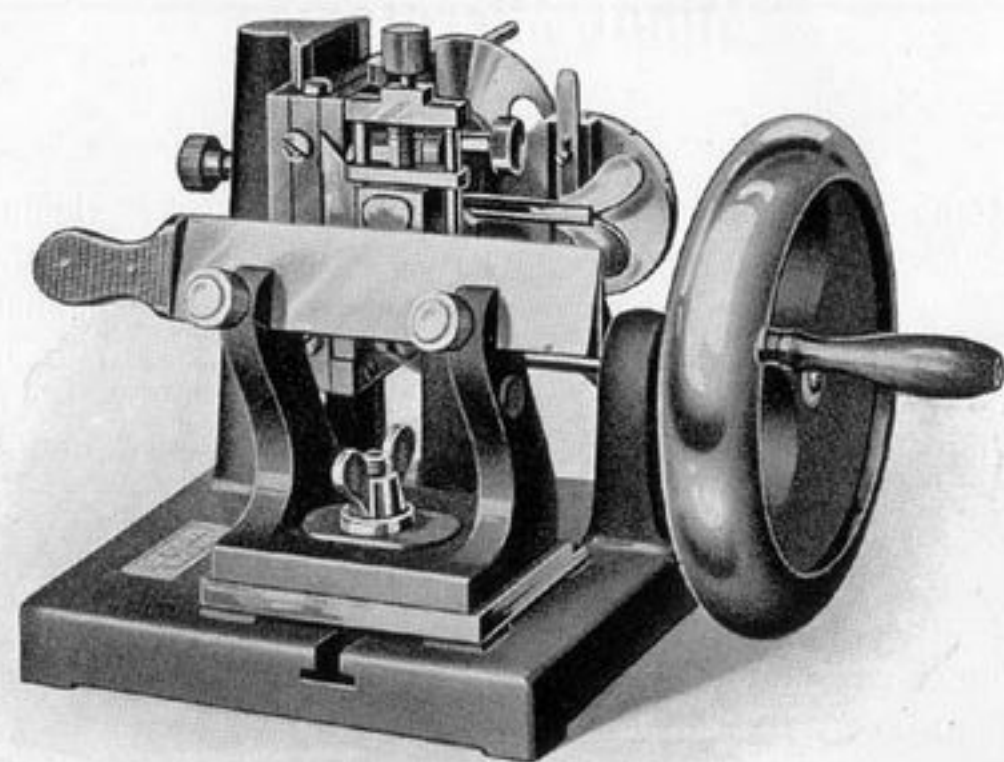
No.		Codeword
1210.	Small Sledge Microtome , with track 26 cm. long, with simple object clamp and compound joint for adjustment in height and about two axes for orientating the object. The knife-lock and the feed mechanism are actuated by hand, the latter by the rotation of a wheel with 100 teeth, in which each tooth gives a cut $5\ \mu$ thick	Magnole 9.12.6
1210a.	Same Microtome with Thoma knife of wedge profile No. 1232 c, 16 cm. long; and Zimmer strop No. 1242 b	Magoarem 11.10.6
1210b.	Same Microtome , with movable knife clamp No. 1227; Jung knife of wedge profile No. 1231 c, 16 cm. long; handle No. 1238; and Zimmer strop No. 1242 b	Magodus 12.14.6
1210c.	Same Microtome , with ether freezing apparatus No. 1222. knife clamp with rocking sole-piece No. 1227, Jung knife of wedge profile No. 1231 c, 16 cm. long; handle No. 1238; and Zimmer strop No. 1242b	Magona 15.6.6



Minot Microtome.

Minot Microtome.

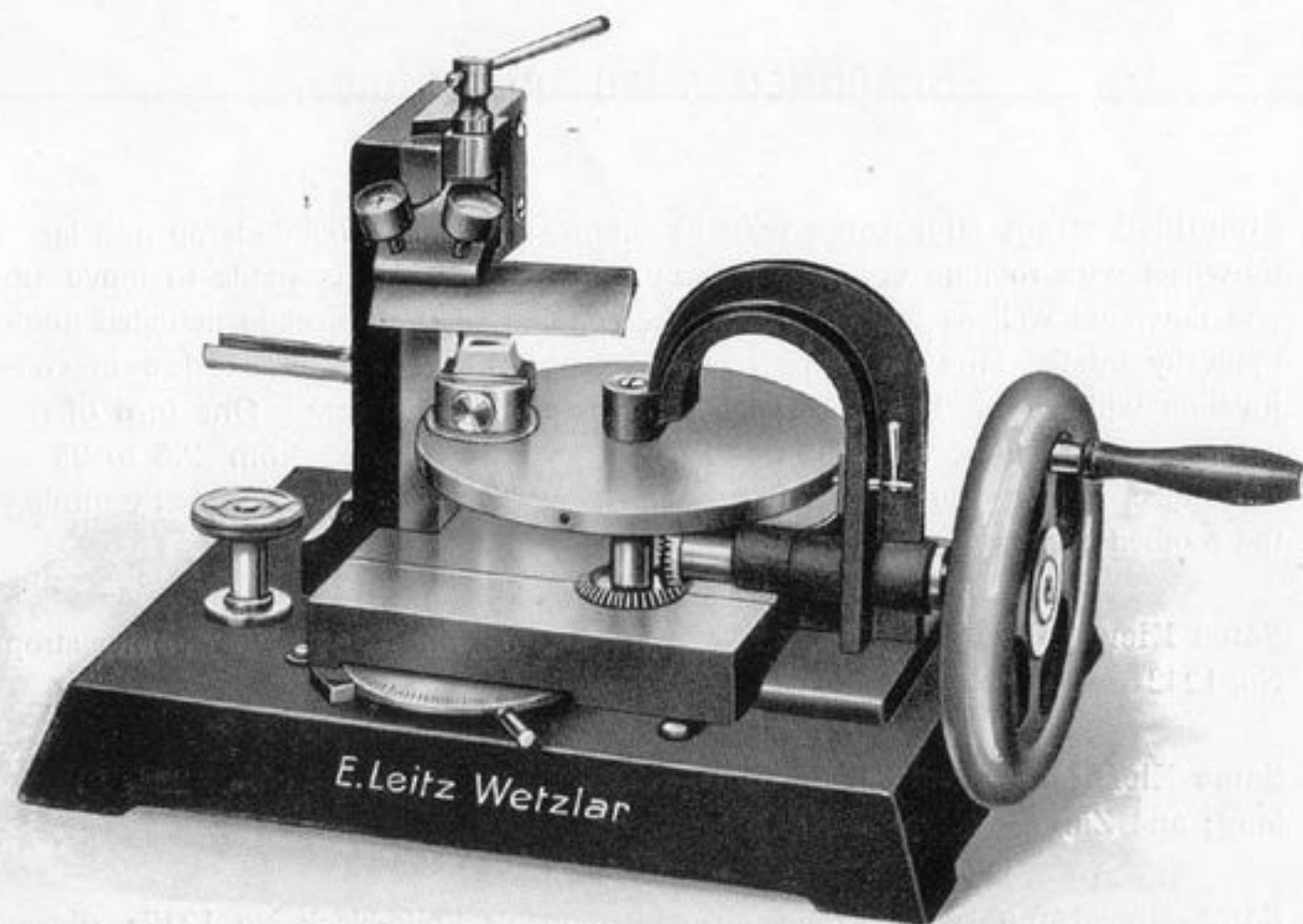
No.	Codeword
1211. Minot Microtome with stationary knife block, ball-and-socket clamp No. 1225 and large fly-wheel and revolving eccentric pin, by means of which the object is made to move up and down. The object is made to advance automatically after each cut by a wheel with 500 teeth. The thickness of section corresponding to one turn of the wheel can be varied within a range of 1—20 μ . By turning the toothed wheel the object can be moved backwards and forwards at any desired speed	Magostar 19.5.0
1211a. Same Microtome , with Minot knife No. 1234, 15 cm. long; and Zimmer strop No. 1242b	Magot 20.17.0
1211b. Same Microtome , with ribbon conveyor No. 1216, Minot knife with wedge profile No. 1234, 15 cm. long; and Zimmer strop No. 1242b	Magrada 23.0.0
1211c. Same Microtome , with a fixed as well as a movable knife block No. 1217; ribbon conveyor No. 1216; Minot knife No. 1234, 15 cm. long; and Zimmer strop No. 1242b	Magras 25.13.0



Simplified Minot Microtome.

Simplified Minot Microtome.

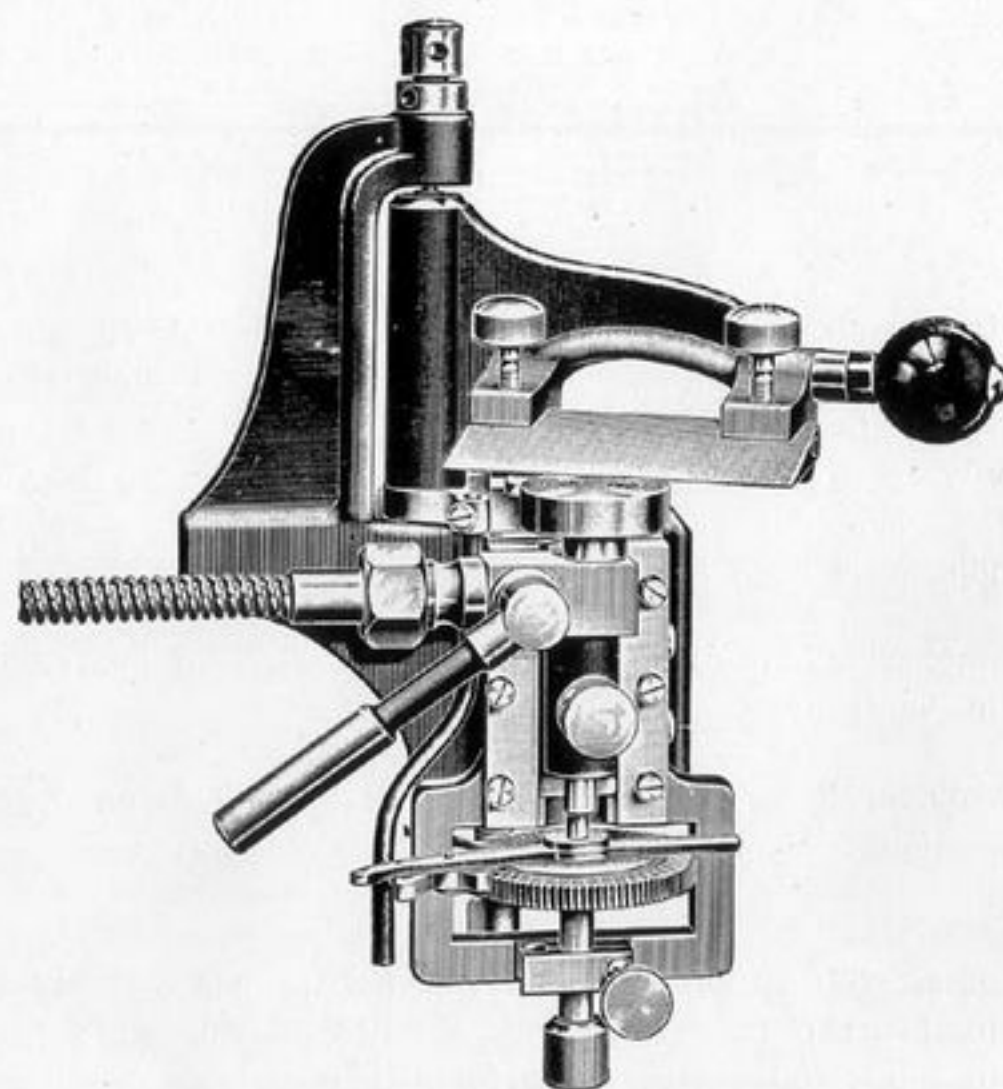
No.	Codeword
1211E. Simplified Minot Microtome with fixed knife block, compound clamp and large fly-wheel with rotating eccentric pin, by which the object is made to move up and down as well as forward. The feed motion of the object is actuated automatically by ten limit pin stops mounted eccentrically on a brass disc in conjunction with a wheel with 200 teeth and a lever attachment. One turn of the crank gives sections, the thickness of which can be varied from 2.5 to 25 μ . The object can be moved backwards and forwards at any desired rate by turning the toothed wheel	Mabata 19.5.0
1211E1. Same Microtome , with Minot knife No. 1234, 15 cm. long; and Zimmer strop No. 1242 b	Mabel 20.17.0
1211E2. Same Microtome , with ribbon conveyor No. 1216; Minot knife No. 1234, 15 cm. long; and Zimmer strop No. 1242 b	Mabire 23.0.0
1211E3. Same Microtome , with fixed and with movable knife-block No. 1217; ribbon conveyor No. 1216; Minot knife No. 1234, 15 cm. long; and Zimmer strop No. 1242 b	Mabouja 25.13.0



Rotary Microtome.

Rotary Microtome. (Patented).

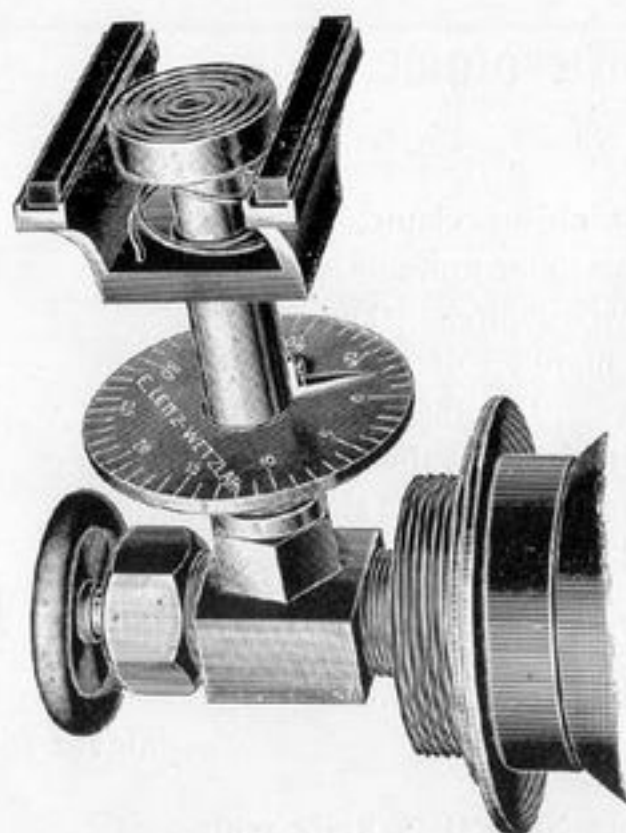
No.	Codeword
1212. Rotary Microtome with adjustable knife clamp, simple object clamp, large fly-wheel and automatic micrometer feed mechanism. The latter is housed within the heavily built base plate, where it is well secured against damage and soiling. One turn of the fly-wheel gives sections, the thickness of which can be varied from 1 to 20 μ . The coarse adjustment of the object is made by a split-nut clutch and the fine adjustment by a milled head	Macuma 26.5.0
1212 a. Same Microtome , with knife of wedge profile No. 1235, 8 cm. long; honing bevel No. 1240, 8 cm. long; and Zimmer strop No 1242 b	Macusson 27.9.0
1212 b. Same Microtome , with ribbon conveyor No. 1216; knife with wedge profile No. 1235, 8 cm. long; honing bevel No. 1240, 8 cm. long; and Zimmer strop No. 1242 b	Macuteno 29.12.6
1212 c. Same Microtome , with ribbon conveyor No. 1216; knife with wedge profile No. 1235, 8 cm. long; plane-concave knife No. 1235, 8 cm. long; honing bevel No. 1240, 8 cm. long; and Zimmer strop No. 1242 b	Macum 30.3.0



Demonstration and Freezing Microtome.

Demonstration and Freezing Microtome.

No.		Codeword
1213.	Demonstration and Freezing Microtome with simple object clamp, paraffin stage, and stout screw clamp for attachment to the table. The knife describes a radial sweeping motion about an axis pivoted between two centres. The object rises automatically by an amount corresponding to the number of divisions to which the ratchet action is set on a scale of ten divisions. The thickness of the sections can be made to vary from 5 to 50 μ . When the object is raised by turning the milled knob at the bottom, the amount by which it rises is shown on the graduated micrometer disc. One interval on this scale corresponds to a thickness of 10 μ	Malattia 9-12-6
1213a.	Same Microtome , with knife of wedge profile No. 1235, 8 cm. long; honing bevel No. 1240, 8 cm. long; and Zimmer strop No. 1242b	Malavez 10-16-6
1213b.	Same Microtome , with carbon dioxide freezing apparatus No. 1219; knife with wedge profile No. 1235, 8 cm. long; honing bevel No. 1240, 8 cm. long; and Zimmer strop No. 1242b	Malavisse 13-17-6



Small Freezing Microtome
after Bardeen.

No.

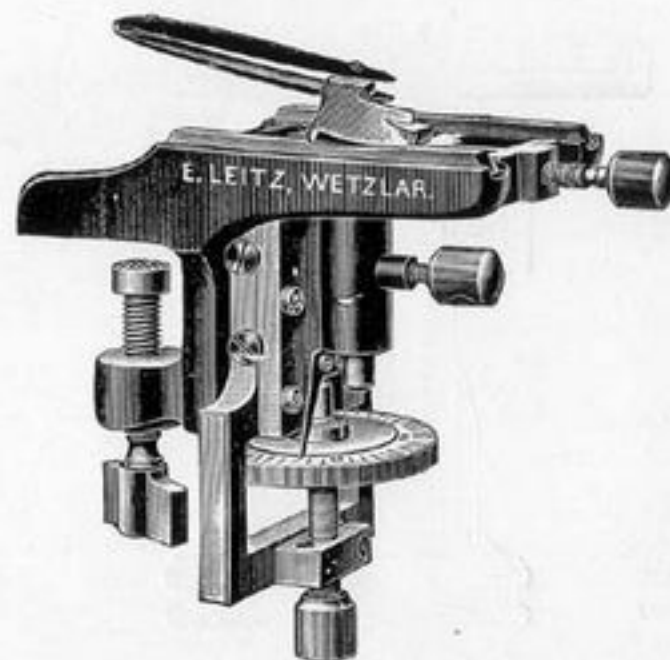
Codeword

1213 C1. **Freezing Microtome** after Bardeen, a simple instrument for direct attachment to the carbon dioxide cylinder, which must therefore be provided with a suitable stand or firmly supported on a table. The thickness of the section is regulated by the rotation of a graduated disc, each division of which is equal to a vertical movement of 10μ , a pointer being provided to facilitate setting

Bardeen 3.1.6

1213 C2. **Same Microtome** with knife of chisel form No. 1236a

Bardus 4.3.0



Hand Microtome.

- No. 1214. **Hand Microtome**, with object clamp, paraffin stage, and stout screw cramp for its attachment to a table, and two glass strips 70 mm. long forming a guiding support for the knife. The object is made to rise automatically by the rotation of a graduated micrometer disc. Each division corresponds to a thickness of $10\ \mu$
- 1214a. **Same Microtome**, with razor No. 1237

Codeword

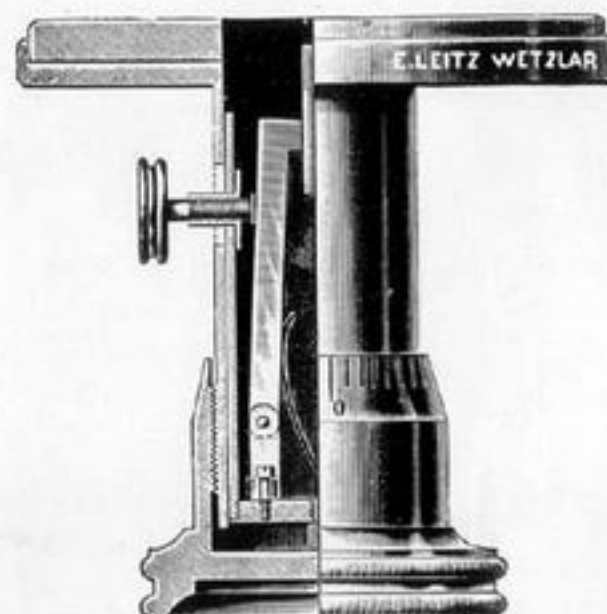
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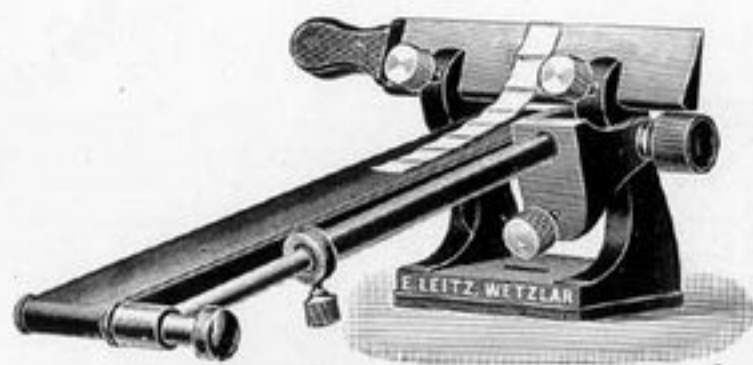
1214b

Freezing apparatus



Cylinder Microtome.

No.	Codeword
1215. Cylinder Microtome , with object clamp fitted with a vice screw, a circular stage having mounted upon it a plane glass plate of 70 mm. diameter. The object is made to rise by the rotation of a graduated micrometer screw-nut, each division of which corresponds to a thickness of 10 μ . All metal parts are nickel-plated	Maleando 1.15.0
1215a. Same Microtome , with razor No. 1237	Maleasen 2.0.0



Ribbon Conveyor.



Dropping Apparatus.

Accessories.

No.

Codeword

1216. **Ribbon Conveyor.** When cutting a continuous series of sections the ribbon conveyor serves for taking off the adhering sections without risk of damaging them. It can be used with Microtomes Nos. 1200, 1211 and 1212

Maliardo 2-4-0

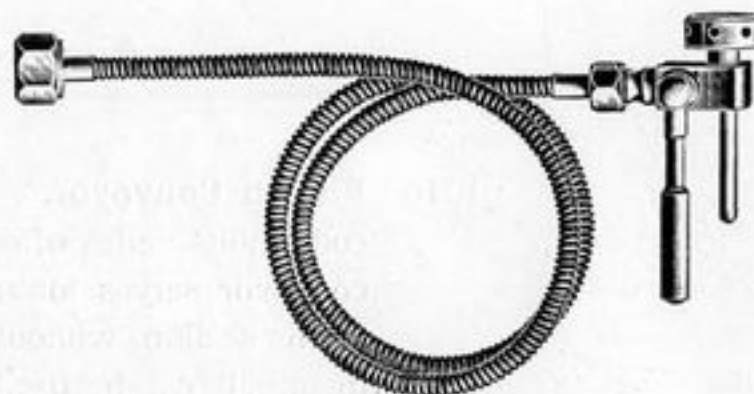
(When ordering a ribbon conveyor for use with an existing microtome the latter should be identified, as the mode of attachment differs in the various instruments.)

1217. **Movable Knife Block** for fixing the Minot knife in an oblique position

Minotto 2-12-6

1218. **Dropping Apparatus** for wetting the knife with alcohol when cutting preparations embedded in celloidin. It can be attached to the Base Sledge Microtome and to the Sledge Microtomes Nos. 1201 to 1209

Malibundo 2-12-6



Carbon Dioxide Freezing Apparatus.

No.

Code word

1219. **Carbon Dioxide Freezing Apparatus.** This attachment screws to the carbon dioxide cylinder by means of the metal tube supplied with it and will freeze any preparation within a few seconds. Over the ether freezing apparatus it has the advantage that the freezing process is much more rapid and produces a well sustained effect, and also that considerably larger objects may be frozen by its means

Carbonico 3.1.6

The Carbon Dioxide Freezing Apparatus is adapted for use with Microtomes Nos. 1202 to 1210 and 1213.

(When ordering, the microtome for which the Carbon Dioxide Freezing Apparatus is intended should be specified).

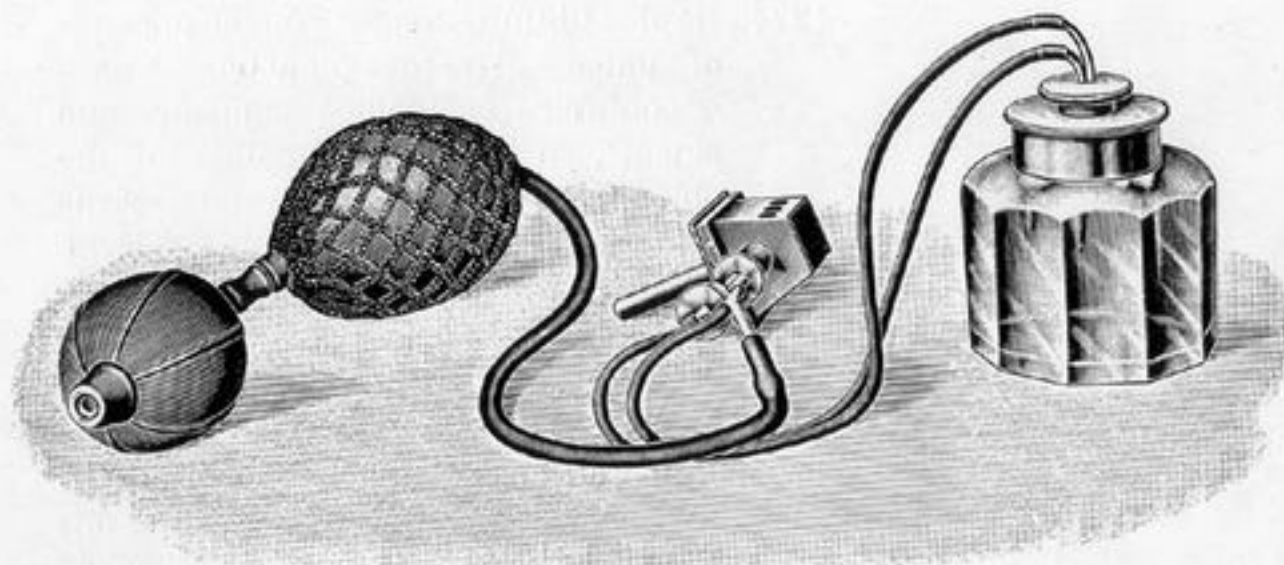
1220. **Carbon Dioxide Freezing Apparatus** of same design but with a larger freezing stage; adapted for use with the Base Sledge Microtome No. 1200 only

Carboniera 3.10.0

1221. **Disjointing Stand** for the carbon dioxide cylinder, substantially made of T iron

Stantis 1.19.0

Bring without connection 17.6



Ether Freezing Apparatus.

No.

Codeword

1222. **Ether Freezing Apparatus**, consisting of a freezing box, rubber bellows, double tubing and stoppered glass vessel to hold the ether. The top plate of the freezing box is checkered to ensure a better adhesion of the objects.

The Ether Freezing Apparatus is adapted for use with Microtomes Nos. 1202 to 1210 and 1213

1223. **Freezing Stage for Ethyl Chloride**, adapted for use with Microtomes Nos. 1202 to 1210 and 1213

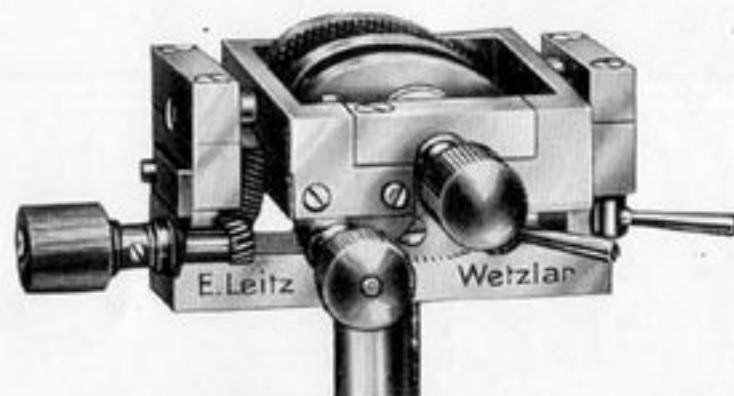
(When ordering, the microtome for which the ether freezing apparatus or freezing stage is intended should be specified).

Aether

2.12.6

Aethyl

9.0



Naples Clamp.



Ball-and-socket Clamp

No.

Codeword

1224. **Naples Clamp**, designed on the principle of gimbals. The rotation about the axes is controlled by toothed segments and pinions, so that the orientation of the object with respect to a certain plane can be adjusted with great precision. The two motions are clamped by two small lever handles. The Naples clamp is adapted for use with the Sledge Microtomes Nos. 1201 to 1209

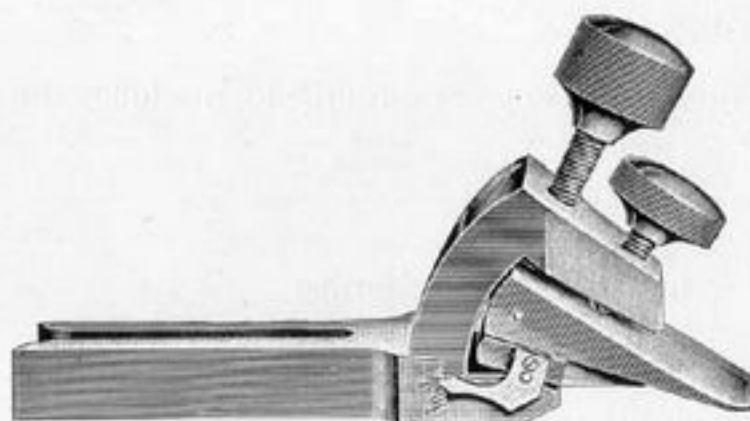
Neapolitan 3-16

5-5-0

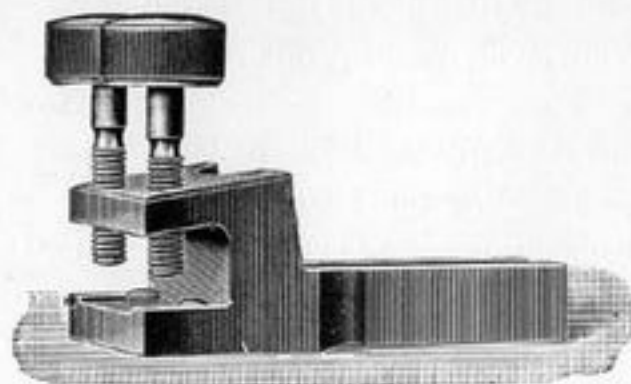
1225. **Ball-and-socket Clamp**, consisting of two hemispherical cups, the upper one of which forms the cover. The hollow space so formed encloses a steel ball which protrudes through the cover and so forms the carrier of the object clamp proper. After the release of the upper hemisphere the steel ball is movable in all directions and may be turned about its axis. When completed, the adjustment may be fixed by drawing up the lever at the side. The ball-and-socket clamp is available for use with any of the Sledge Microtomes Nos. 1201 to 1209 and the Minot Microtome No. 1211

Malecon 3-

2-4-0



Knife Clamp with Rocking Sole Piece.



Simple Knife Clamp.

No.

Codeword

1226. **Knife Clamp with Rocking Sole Piece.**

In this device a rocking piece rests on the lower jaw of the clamp, upon which it turns in cradle fashion. By alternately turning the two screws one way or the other the knife may be rapidly given any desired slant. A pointer is attached, by means of which the position of the knife can be read off. The knife clamp with rocking sole may be used on Microtomes Nos. 1201 to 1210

Messerino 1-8-6

1227. **Same Knife Clamp, but without scale and pointer**

Messeniora 1-6-6

1228. **Simple Knife Clamp, in which the knife is given the desired slant by two grub screws in the lower jaw of the clamp. They are adjusted with the aid of a screw-driver. The simple knife clamp may be used with Microtomes Nos. 1201 to 1210**

Mesero 1-1-0

1229. **Simple Knife Clamp with fixed sole for cutting celloidin, for use with the base sledge microtome**

Mesetas 1-1-0

Microtome Knives.

The Microtome Knives supplied by us are of the best quality. They are ground to the following three profiles:



(a) Flat hollow-ground



(b) Plane-concave



(c) Plane wedge profile

Our experience has shown knives ground to the profile (b) to be best adapted for cutting celloidin, whilst paraffin is best cut with knives having the profile (c).

Knives of the Thoma and Weigert patterns do not require a special clamp for fixing them, being attached immediately to the knife-block by the slotted handles.



No. 1230.



No. 1231.

No.

Codeword

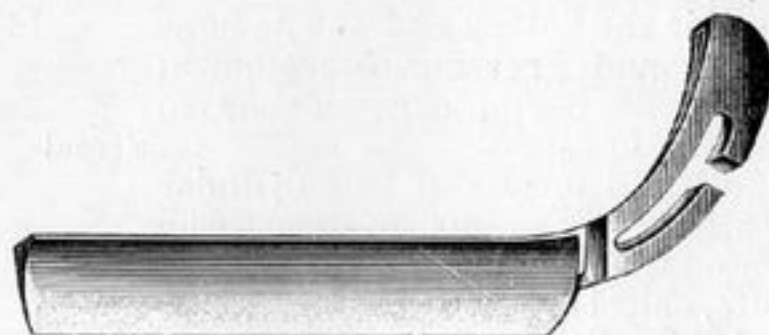
1230. **Microtome Knife** for the base sledge microtome, with wedge profile, blade 24 cm. long, in case

Messer

1-16-6

1231. **Microtome Knives**, Jung pattern, with cylindrical stem, ground to profile (c):

(a)	Length of cutting edge 24 cm., in case	Meseraica	1-15-0
(b)	" " " " 20 " " "	Meseno	1-8-0
(c)	" " " " 16 " " "	Mesetto	1-0-0
(d)	" " " " 14 " " "	Messervir	17-6
(e)	" " " " 12 " " "	Messenio	16-0



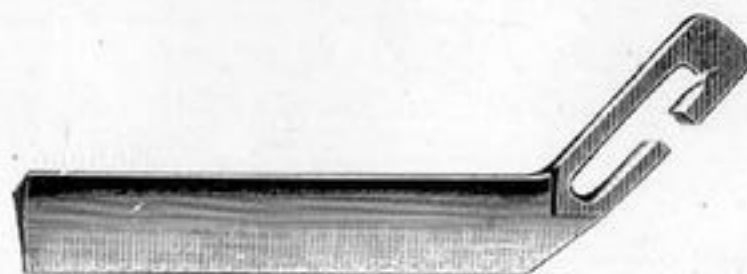
No. 1232.

No.

Codeword

1232. **Thoma Microtome Knives**, with curved slotted handle for direct attachment to the knife-block, ground to profile (c):

(a)	Length of cutting edge	24 cm., in case	Thomala	2.0.0
(b)	"	"	Thomasm	1.13.6
(c)	"	"	Thomasin	1.6.6
(d)	"	"	Thomasile	1.1.0
(e)	"	"	Thomean	1.0.0
(f)	"	"	Thomise	16.0



No. 1233.

1233. **Weigert Microtome Knife**, with straight oblique slotted handle for direct attachment to the knife block, ground to profile (c):

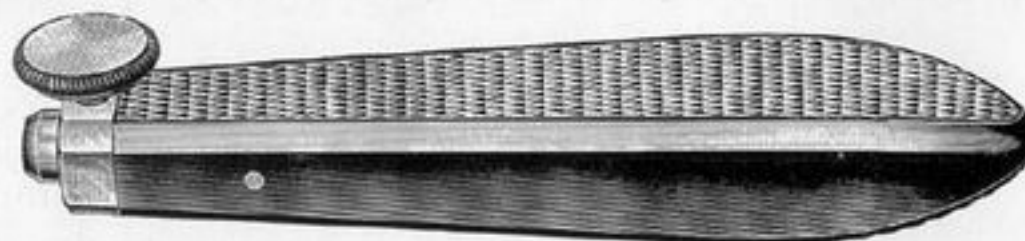
(a)	Length of cutting edge	24 cm., in case	Mescabad	1.19.0
(b)	"	"	Mescabamos	1.12.0
(c)	"	"	Mescabaria	1.5.0
(d)	"	"	Mescabasse	1.0.0
(e)	"	"	Mescabo	16.0



No. 1234.



- No.
1237. Razor for Hand and Cylinder Microtomes, flat and hollow ground



1238. Ebony Handle, for attachment to Jung knives



1239. Honing Bevel Wire Attachment for knives ground to profile (a):

Length:	24 cm.	20 cm.	16 cm.	14 cm.	12 cm.
Codeword	Manhego	Manchette	Manchera	Mancheron	Manchese
	2/6	2/6	2/6	1/6	1/6

No.

Codeword

1234. **Minot Microtome Knife**, concave on both sides, cutting edge 15 cm. long, thickness of back 13 mm., in case

Minotier 100

1235. **Knife for the Rotary and the Demonstration and Freezing Microtomes**; cutting edge 8 cm. long, ground to profile (c), in case

Mesca 110

1236. **Large Knife for Hand and Cylinder Microtomes**, flat and hollow ground, with provision for fixing the handle and blade

Meset 7.6

- 1236a. **Knife, chisel form**, for the Microtomes Nos. 1214, 1215 and for the Bardeen Freezing Microtome

Chisel 12.0

Mesetta 5.6

Manche 4.6

No.

Codeword

1240. **Honing Bevel Tube Attachment** for knives with profiles (b) and (c):Length: 24 cm. *1/6* 20 cm. *2/6* 16 cm. *1/6* 14 cm. *1/6* 12 cm. *1/6* 8 cm. *1/6*Codeword **Tub** **Tubaceo** **Tubare** **Tubarius** **Tubato** **Tubarum**1241. **Strop** for microtome knives, one side only with padded base:

(a) Length 30 cm.

(b) „ 36 „

Cuire

12.6

Cuirons

14.61242. **Zimmer Strop**, four-sided, leather on three sides, a hone on the fourth side

(a) 20 cm. long, 3 cm. wide

(b) 20 cm. long, 3.5 cm. wide

Zimmer

10.6

Zimmerer

12.9

Pasta

*9*1243. **Stropping Paste**1244. **Hones**, yellow Belgian, for microtome knives:

Honing surface: 18×4 20×4.5 23×5 28×6 cm.

Codeword **Hones** **Pierrette** **Pierre** **Stein***at prices ruling*