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Contributors

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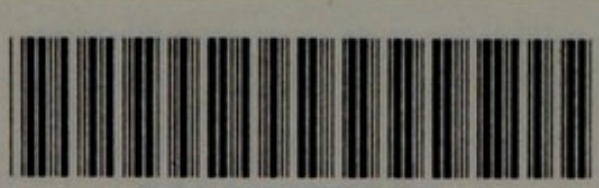
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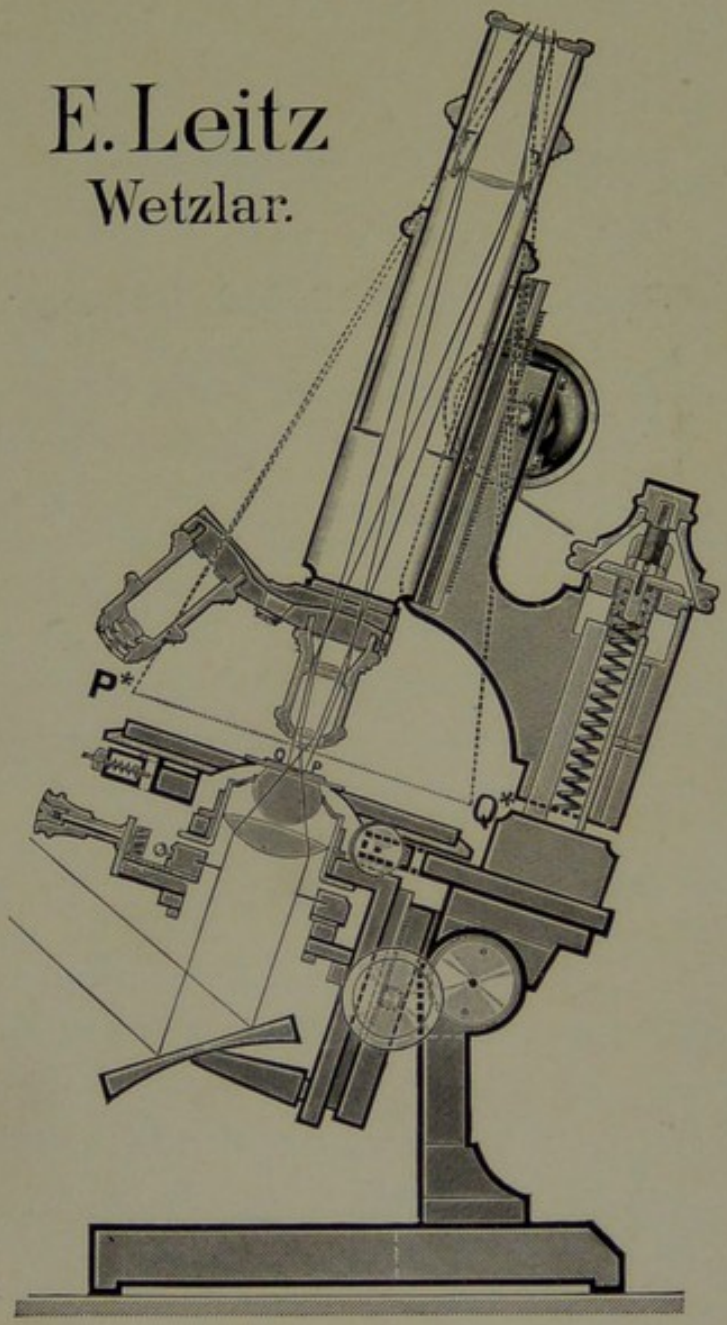

This illustration represents a section through Microscope Ia, one of the most popular instruments, and which illustrates the path of the rays through the instrument, is a reduced reproduction of a coloured chart of 47×28 inches intended for teaching purposes. On application this chart, together with a description, will be supplied free of charge for the use of Colleges etc.

[1907]

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In the course of the last few years the application of the microscope and its allies in an ever expanding field of research has given rise to so many improvements and additions, and has swelled our instrumentarium to such an extent that we have found it advisable to discontinue the publication of an all-inclusive catalogue. We now issue accordingly separate catalogues of

1. **Microscopes and Microscopical Accessory Apparatus,**
2. **Microtomes,**
3. **Photo-micrographic Apparatus,**
4. **Projection Apparatus,**
5. **Photographic Lenses and Cameras.**

Publication in separate sections enables us to describe the instruments and appliances more fully than the limits of a general catalogue would admit of, and we hope that these textual improvements may materially assist intending purchasers in their selections.

Any of these catalogues may be had free on application.

Electros of the illustrations contained in these catalogues are at the service of authors wishing to describe, or refer to, any of our instruments in their works or papers.

E. Leitz.

Wetzlar, July 1907.

Innovations and Improvements.

The following are the chief innovations and improvements introduced by this catalogue:

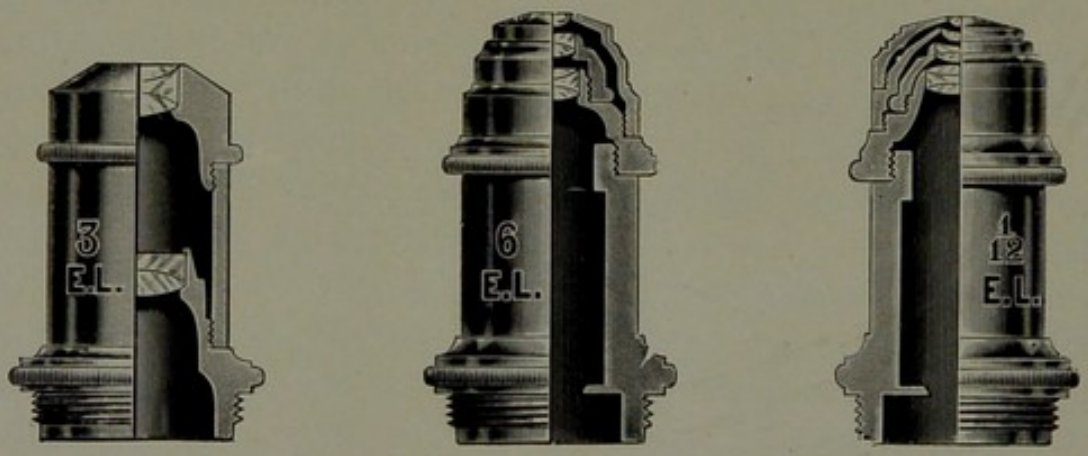
Contents.

Objectives and Eyepieces.

In the manufacture of our objectives no glass is employed which has not been subjected to the most rigorous tests. The index of refraction and the dispersive power of the glasses are determined by exact methods and the data so obtained applied to effect perfect correction of spherical and chromatic aberrations and to produce lenses possessing a wide aperture.

Precise mathematical calculation, combined with accurate systematic working and testing, enable us to guarantee all our objectives to be of uniformly excellent quality.

The glasses employed in our lenses have stood the test of years of experience and are not affected by atmospheric influences. Spontaneous clouding of the lenses is thus entirely obviated.



The three illustrations shown above convey an idea of the optical formula of our achromatic objectives.

The first figure represents a low power objective, viz. Objective 3. In lenses of this type the correction is spread over two doublets or triplets.

The intermediate figure shows the construction of our high power "dry" objectives. A hemispherical front lens is combined with two doublets or triplets, as the case may be. The front lens is the chief magnifying member of the combination, whilst the other lenses serve to correct the various aberrations.

The Oil-immersion lens, represented by the third illustration, consists of a hemispherical front lens, behind which is a meniscus,

which in its turn is followed by two doublets or triplets functioning as correcting elements.

It will be seen that we list Achromatic and Apochromatic objectives. These differ in that the glasses used in the apochromatics and the manner in which they are combined conduce to a more perfect correction of chromatic aberration. This advantage is not gained without a certain sacrifice of simplicity of construction. Their enhanced quality results from the elimination of flint glass having a high refractive index and the substitution of other materials for crownglass. With regard to purity of colour the apochromatic lenses are closely approached by the fluorite lenses, viz. "dry" lenses 6a, 7a, 8 and 9. Their comparatively simple construction enables us however to produce them at prices which only slightly exceed those of the achromatic lenses.

Apochromatic lenses resolve the fine markings of test objects, such as butterfly scales and diatoms, unquestionably more clearly than the achromatics, but the difference is slight, and in ordinary stained microscope preparations the advantage is less pronounced.

The higher degree of colour correction which results from the elimination of the secondary spectrum by the application of the apochromatic principle has no marked influence upon the resolving power of these objectives. Certain objects are, however, rendered visible with a degree of crispness which cannot be attained in achromatic lenses.

Both achromatic and apochromatic lenses are spherically and chromatically fully corrected and do not for their residual correction depend upon eyepieces.

Achromatic lenses work satisfactorily with ordinary Huyghenian eyepieces. In the case of apochromatic lenses the use of compensating eyepieces offers serious advantages under the highest magnifications only.

By reason of their high defining power and their exquisite chromatic correction the apochromatic as well as the achromatic lenses are eminently suitable for photographic work.

A proof of the utility of the achromatic lenses for photography is furnished in our booklet entitled „Photo-micrographic Appa-

ratus and Objectives", to which we have appended a number of reproductions of photographs obtained with these lenses.

To the apochromatic and achromatic lenses we have recently added, in the place of the older series of photo-micrographic lenses of small aperture, a new series of photographic lenses of aperture f / 4.5, named "Microsummars". These lenses unite with the advantage of an unusual degree of astigmatic correction a considerable resolving power and perfect colour correction. They are accordingly eminently adapted for projection on the screen and the photography at low magnifications of large preparations intended for general orientation. The short focus lenses of this series are also available as low power lenses for direct observation with the microscope.

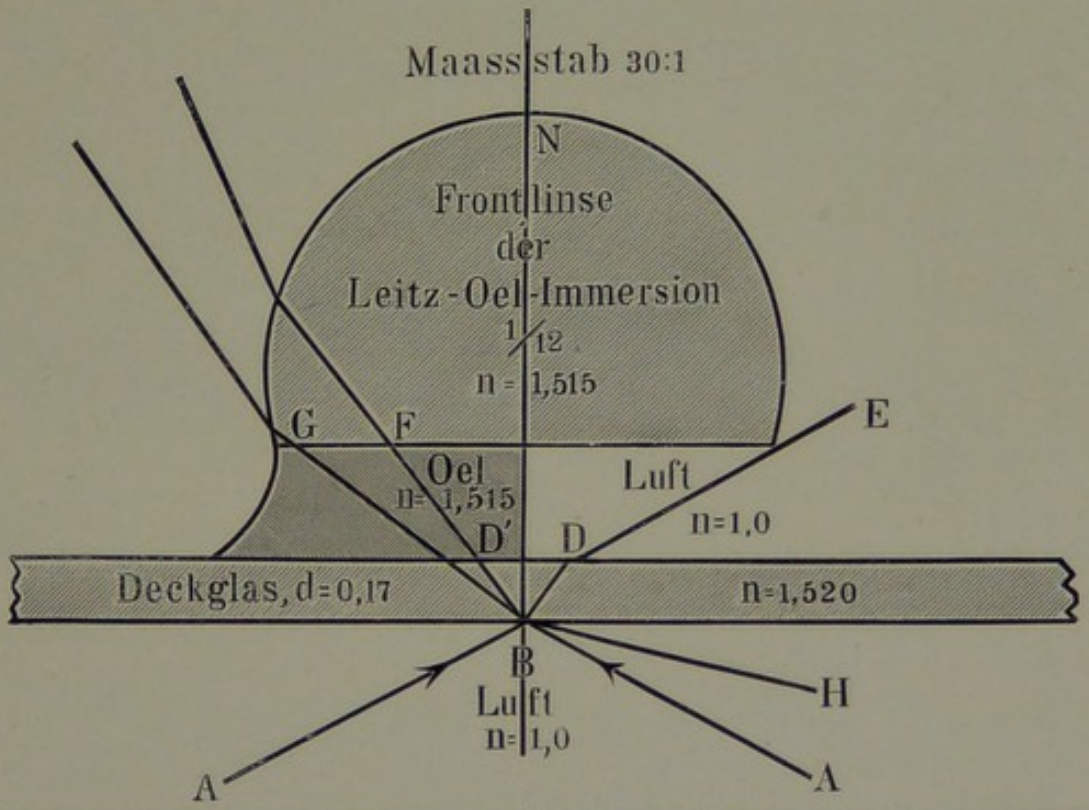
When using the high power objectives, i. e. from No. 5 upwards, it should be noted that the lenses are corrected for cover-glasses of 0.16—0.18 mm thickness and for a tube-length of 170 mm. The accurate adjustment of the tube-length is of particular importance in the case of the oil-immersion lenses. To facilitate this the draw-tubes of all the larger stands are graduated in millimeters, the scale indicating the exact length of the microscope tube in any given position of the draw-tube. It should, however, be remembered that the depth of the collar of the nosepieces is 18 mm and that when a nosepiece is attached to the tube the reading on the draw-tube scale will be 152, instead of 170 mm. Any departure of 10 mm or more from the correct tube-length would not fail to reduce the performance of a perfect lens to inferiority.

The subjoined diagram may serve to make clear the advantages of the oil-immersion objectives over those of the dry series.

The figure represents diagrammatically a section through a cover-glass and the front lens of an objective, one half of the diagram representing the conditions existing in the case of the oil-immersion, the other relating to those of dry objectives. It will be seen that ray AB, undergoing refraction at B when entering the denser medium of the cover-glass, is refracted towards the normal BN, and when again refracted leaves the glass in a direction DE parallel to AB. Owing to this displacement the ray cannot enter the lens. If now a fluid of the same refractive properties as glass, e. g. cedar-wood oil, be interposed between the lens and the cover-

glass the ray BD', which has the same initial inclination as BD, is made to proceed in a straight line and is enabled to enter the lens at F so as to take part in the formation of the image.

If u denotes half the angular aperture of an immersion objective, represented in the diagram by D'BN, and n the index of refraction of the medium (water, oil, etc.) interposed between the cover-glass and the objective, we have in the formula n sin u a mathematical expression for the optical capacity of the various types of lenses.



Angular aperture $2u$	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°

Numerical apertures.

Dry series $n = 1.00$	0 09	0,18	0,26	0,34	0,42	0,50	0,57	0,64	0,71	0,77	0,82	0,87	0,91	0,94
Water-Immersion $n = 1.33$	0,12	0,24	0,35	0,46	0,56	0,66	0,76	0,85	0,94	1,02	1,09	1,15	1,20	1,25
Homogeneous Oil-Immersion $n = 1.52$	0,14	0,26	0,40	0,52	0,64	0,76	0,87	0,98	1,07	1,16	1,24	1,32	1,38	1,43
Monobromide of Naphtalin Immersion $n = 1.66$	0,15	0,29	0,43	0,57	0,70	0,83	0,95	1,07	1,17	1,27	1,36	1,44	1,50	1,56

The preceding table gives the numerical apertures of objectives of various types corresponding to a given angular aperture. In "dry" lenses n, being the refractive index of air, is unity; in the immersion lenses n=1.33 for water, 1.52 for cedar oil, and 1.66 for monobromide of naphtalin.

The table demonstrates the great advantage of the immersion lenses over those of the dry series, and furnishes a picture of what has been done by opticians to increase the powers of the microscope by an increase of the numerical aperture.

Achromatic Objectives.

	No. of Objective	Focal length	Numerical Aperture (num.apert.)	Micrometer Values	Price £. s. d.	Code Words
	1*	44 mm ($1^3/_4$")	0.09	0.054 mm = 54 μ	**0. 8. 0***)	**Oakum**
	1	44 mm ($1^3/_4$")	0.09	0.054 mm = 54 μ	**0. 15. 0**	**Oaritis**
	1a	39—27 mm	0.06—0.10	0.050—0.026 mm 50—26 μ	**1. 5. 0** (adjustable mount)	**Oasenos**
	2	30 mm ($1^1/_4$")	0.14	0.028 mm = 28 μ	**0. 15. 0**	**Obarat**
	3	18 mm ($^3/_4$")	0.28	0.015 mm = 15 μ	**0. 15. 0**	**Ocaleo**
Dry Series	4	8 mm ($^1/_3$")	0.47	0.009 mm = 9 μ	**1. 5. 0**	**Oderite**
	5	5.8 mm ($^1/_4$")	0.77	0.005 mm = 5 μ	**1. 5. 0**	**Oedipe**
	6	4.4 mm ($^1/_6$")	0.82	0.0035 mm = 3.5 μ	**1. 10. 0**	**Ofite**
(Fluorite)	6a	4.4 mm ($^1/_6$")	0.82	0.0035 mm = 3.5 μ	**2. 0. 0**†)	**Ofuscar**
	7	3.2 mm ($^1/_8$")	0.85	0.0026 mm = 2.6 μ	**1. 10. 0**	**Ogdoad**
(Fluorite)	7a	3.2 mm ($^1/_8$")	0.85	0.0026 mm = 2.6 μ	**2. 0. 0**†)	**Ogmore**
„	8	2.5 mm ($^1/_{10}$")	0.87	0.0022 mm = 2.2 μ	**2. 0. 0**	**Ohime**
„	9	2.2 mm ($^1/_{12}$")	0.87	0.0017 mm = 1.7 μ	**3. 0. 0**	**Oigamos**
Water-Imm.	10	2.2 mm ($^1/_{12}$")	1.10	0.0017 mm = 1.7 μ	**3. 5. 0**	**Wateroog**
Homogeneous Oil-Immersion	$^1/_{12}$	1.8 mm ($^1/_{12}$")	1.30	0.0017 mm = 1.7 μ	**5. 0. 0**	**Immersion**
	$^1/_{16}$	1.5 mm ($^1/_{16}$")	1.30	0.0014 mm = 1.4 μ	**7. 10. 0**	**Immersorum**

* Objective 1* consists of one doublet only and is carefully corrected. It suffices for many purposes, though it does not possess the same brilliancy of field as the No. 1 objective.

† Objectives 6a and 7a, have a better chromatic correction than the ordinary Nos. 6 and 7.

Magnifications

of the Achromatic and Apochromatic Objectives in combination with the Huyghenian Eyepieces.

Tube-length 170 mm. Distance of image 250 mm.

Objectives		Eyepieces						Objectives
		0	I	II	III	IV	V	
Low Power Objectives	1*	12	18	22	26	30	40	Achromatic
	1	12	18	22	26	30	40	
	1a	6-9	9-15	11-19	13-21	18-29	24-35	
	2	25	33	40	50	60	80	
	3	45	60	70	80	105	130	
	4	75	100	115	135	180	230	
High Power Objectives (Cov.-glass thickness 0.17 mm)	5	140	180	210	250	325	420	
	6a and 6	200	255	300	350	460	600	
	7a and 7	260	335	400	450	600	780	
	8	300	400	450	550	700	940	
	9	380	500	575	700	900	1150	
Water-Immersion	10	405	535	610	745	950	1200	
Homogeneous Oil-Immersion	1/12	435	555	650	800	1000	1300	
	1/16	520	700	800	950	1250	1680	
Dry Lenses	16	45	60	70	85	110	140	Apochromatic
	8	95	125	145	170	225	295	
	4	210	270	315	375	500	635	
Oil-Immersion	2	390	510	585	705	920	1180	

Magnifications

of the Apochromatic Objectives in combination with the Compensation Eyepieces.

Objectives		Eyepieces				
		4	6	8	12	18
Dry Series	16	70	100	125	155	225
	8	140	200	260	325	465
	4	300	430	550	675	1000
Oil-Immersion	2	575	820	1080	1500	2250

Apochromatic Objectives.

Objectives		Focal length mm	Numerical Aperture	Micrometer Values	Price £. s. d.	Code Words
Dry Series	16	16	0.30	0.015 mm	**3. 0. 0**	**Apochabo**
	8	8	0.65	0.007 mm	**4. 0. 0**	**Apochanda**
	4	4	0.95	0.003 mm	**6. 0. 0** with correction collar	**Apocharem**
Homogeneous Oil-Immersion	2	2	1.30	0.002 mm	**12. 10. 0**	**Apochavit**

Microsummars with Iris Diaphragm. F 4.5,

available for use on the microscope.

Focus . . . mm	42	35	24
Price . . . . . £	**3. 0. 0**	**3. 0. 0**	**3. 0. 0**
Code Words	**Summanat**	**Summanetis**	**Summara**

Huyghenian Eyepieces.

Number	0	I	II	III	IV	V
Foc.length,mm	50	40	35	30	25	20
Code Words	**Oculabo**	**Oculaire**	**Ocular**	**Ocularetur**	**Ocularibus**	**Ocularitер**

Price of each Eyepiece **£ 0. 5. 0**

Compensation Eyepieces

for Apochromatic Objectives.

Eyepieces	4	6	8	12	18
Price . . . . . £	**0. 16. 0**	**0. 16. 0**	**1. 5. 0**	**1. 5. 0**	**1. 0. 0**
Code Words	**Compensa**	**Compensado**	**Compensare**	**Compensavi**	**Compensing**

Compensation Eyepiece 6 with micrometer **£ 1. 1. 0** **Compensons**

The Stands.

In the following paragraphs we propose to describe more particularly the larger stands and those of their parts which by their construction determine the quality of a microscope.

By the introduction of our new fine adjustment, which has involved certain changes in the construction of the microscope itself, our larger stands group themselves into two divisions.

Whilst the stands provided with the older form of micrometer movement conform to the traditional continental pattern, the newer stands may be described as a practical coalescense of the Continental and English models.

The essential parts of the microscope are:

1. The foot and upright support with joint for inclination,
2. The stage,
3. The substage or illuminating apparatus,
4. The body with its adjustments,
5. The tube with the eyepiece, nosepiece, and objectives.

The foot and upright support are solid and mutually fixed, being, in fact, cast in one piece in the later stands C, D and F. The length and width of the foot and its shape should be such as to ensure stability and admit of the body of the microscope being inclined through 90^0, if need be. For the same reason the foot should not rest with its entire surface on the supporting base. This requirement is best satisfied by the horseshoe foot and the tripod, both of which are made use of in our stands.

Sufficient space should be available below the stage for the accommodation of the illuminating apparatus. The stage itself should, above all, be sufficiently spacious, so as to admit of the examination of extensive objects, such as culture dishes and large sections.

For the examination of large brain sections we have designed two models provided with unusually large stages, viz. Nebelthau's Sliding Microscope (p. 64) and a Brain Section Microscope (p. 66).

Stands A, B, C, Ia, and II are fitted with circular stages which may be rotated and centred so as to facilitate the movement

of a certain particle into the centre of the field. The other stands have fixed square stages.

The illuminating apparatus below the stage is of different designs (see p. 93).

In the larger stands it consists of a plane and concave mirror, iris-diaphragm with rack and pinion movement for oblique illumination, condenser, and cylinder diaphragm.

The plane mirror is intended for low powers, the concave mirror for high magnifications.

Stands A and B, and optionally also Stands C, D, Ia, and Ib are provided with a hinged condenser and cylinder iris-diaphragm, which facilitate a rapid transition from observation with the condenser to that with the cylinder-diaphragm.

The condenser is so constructed as to concentrate the light supplied by the mirror about 2 mm, conformably to the thickness of the slide, above the surface of its top lens. The angle of convergence is about 120^0, i. e. equal to that of the highest powers. This angle is reducible in the case of lower powers by an iris-diaphragm. The optical axis of the condenser and the objectives should be strictly coincident. Stands A, B, C, D, Ia, and Ib are fitted with a rack and pinion movement for raising and lowering the condenser. In Stands F, II, IIa, and IIb a similar result is obtained by means of a lateral screw, which may also be fitted, as an alternative, to Stand D, and Ib.

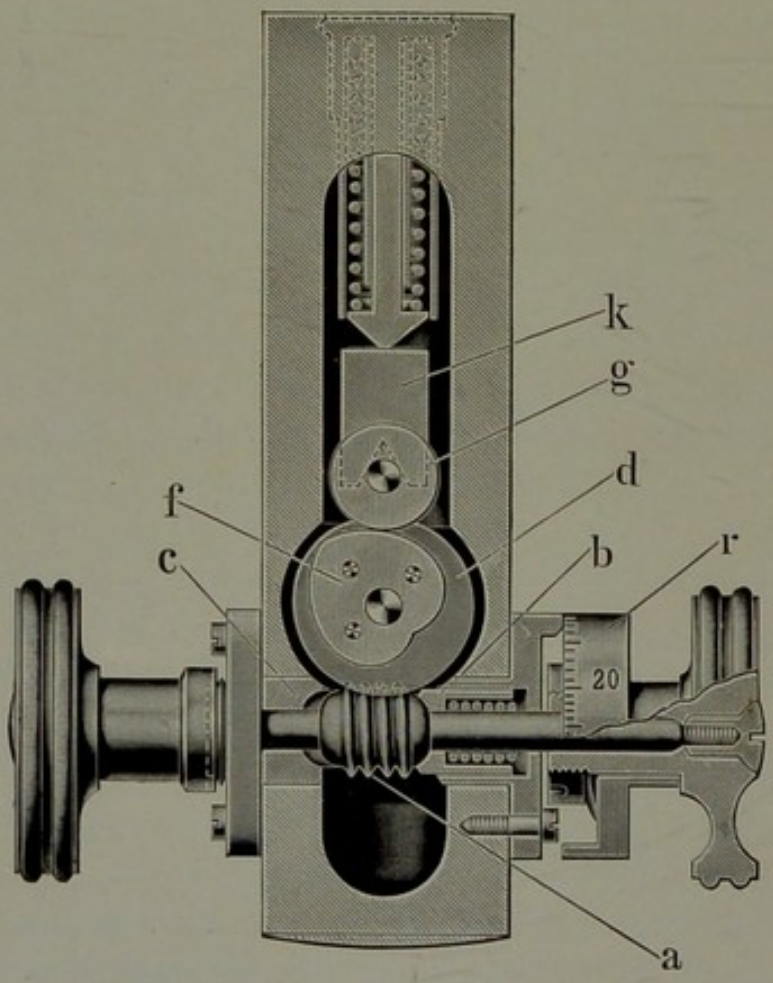
The upper body carries the coarse and fine adjustments, and as the working of these parts, more than any other, determine the value of an instrument we propose to describe in detail the movements fitted to Stands A, B, C, D, and F.

In these stands the upper frame is C-shaped so as to clear large preparations and dishes placed upon the stage, and to increase the available motion of mechanical stages. In addition, the curved upper body forms a convenient handle by which the stand may be grasped.

The coarse adjustment, which is common to all except the smallest stands, and has not suffered any modification in the new models, consists of a rack and pinion imparting motion to the tube and its optical parts. The tube has attached to it a rack

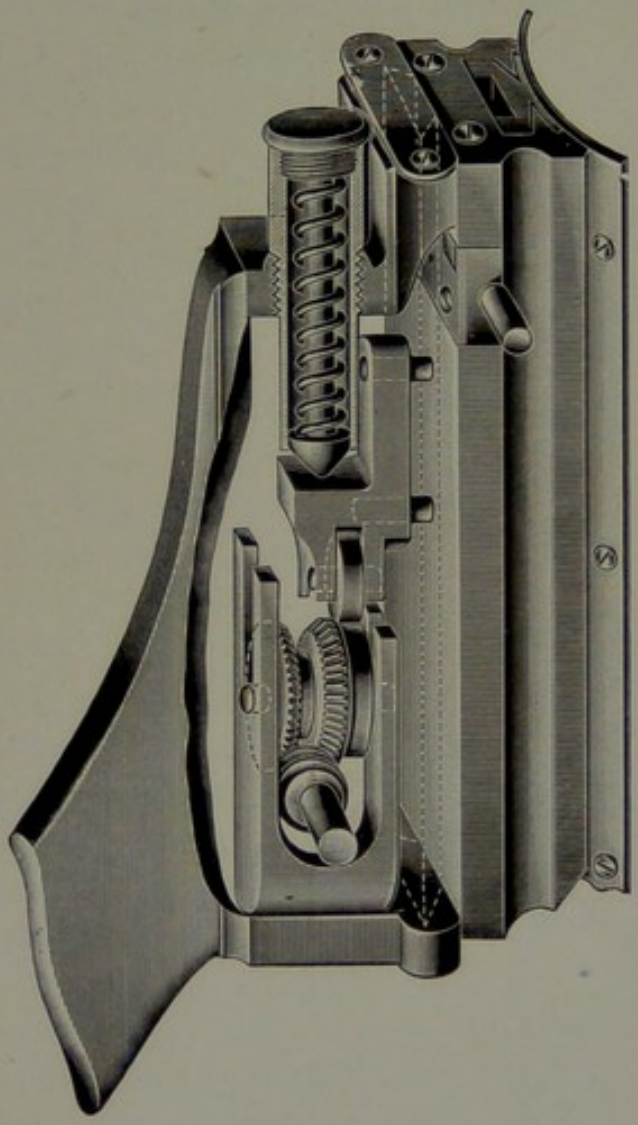
provided with diagonal teeth, the pinion having similarly cut teeth, the effect of the arrangement being that always two pairs of teeth remain engaged, so as to obviate loss of motion.

The most important novel feature of these microscopes is the fine adjustment.



The milled heads actuating this adjustment are situated below those connected with the coarse adjustment. This motion is controlled by a graduated drum *r*. The milled heads are mounted upon a spindle *a* and within the body of the stand expanded into a worm engaging into the toothed wheel *d*. A spiral spring pressing against one of the journals of the spindle prevents lateral play in the worm gearing. The spindle carries next to the wheel *d* a heart-shaped cam *f*, which acts upon a contact roller *g* journalled in a slide-block *k*. The latter, together with the roller, is pressed against the cam by the weight of the tube, perfect contact

being ensured by a weak buffer spring. The cam is bounded by two symmetrical spiral surfaces, and hence equal displacements beyond the center of rotation produce equal vertical motions. The latter are transmitted to the microscope tube by the contact roller and its carrier. The vertical range of motion obtainable with the cam is 3 mm. The wheel *d* has 60 teeth, and hence half a re-



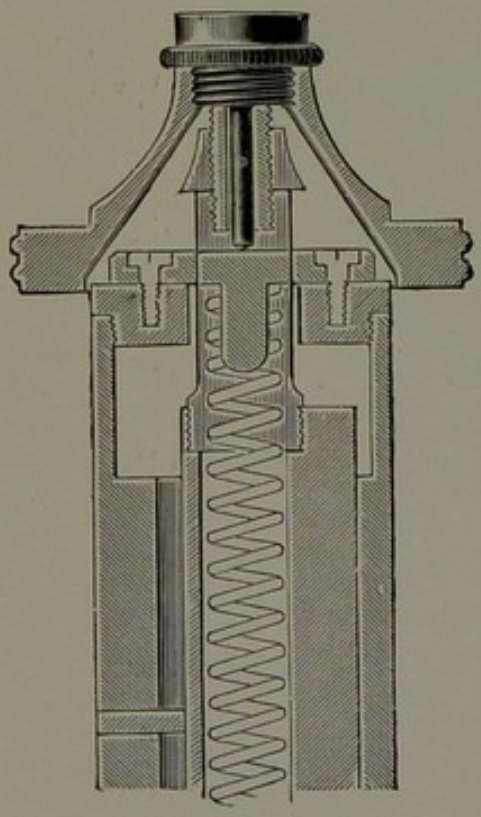
volution through 30 teeth is attended with a vertical motion of the tube through 3 mm, a single tooth being thus equivalent to an elevation through $\frac{3}{30} = 0.1$ mm. A displacement from one tooth to the next requires a complete revolution of the drum with its 100 divisions, so that rotation of the drum through 1 division corresponds to a vertical motion of 0.001 mm.

This micrometer movement, apart from its sensitiveness, possesses several other practical advantages. From the description it will be seen that the motion is endless and causes the tube to rise and fall by unlimited alternations through a range of 3 mm.

The destruction of a specimen is well-nigh impossible, since an excessive downward motion has merely the effect of depositing the tube with its objective upon the cover-glass, the latter being thus merely subjected to the insignificant pressure due to the buffer spring.

The other form of fine adjustment, which effects the slow movement of the tube in stands Ia, Ib, II, IIa, IIb, III, and, in a simplified form, also in Stand IV, depends for its good working upon the quality of the motion between the hollow prismatic sleeve which forms part of the upper body and the corresponding prism forming part of the substructure. It is essential that these parts should slide upon each other with a minimum of friction, but also without the least lateral play.

The prism is hollow and contains a spiral spring sufficiently strong to bear the entire weight of the upper body. The prism terminates above in a slotted cylindrical head, which forms the nut of the micrometer screw proper. After the insertion of the spring the prismatic sleeve is closed by a yoke passing through the slot and rigidly attached to the sleeve, or, which comes to the same thing, the upper movable part of the microscope. The latter will now rise under the pressure of the spring as far as the slot will allow, i. e. about 5 mm, which is the range of the micrometer screw. The downward motion is effected by a micrometer screw. The spindle of this micrometer screw is pierced and contains a loose steel pin, the point of which presses against the yoke. This loose steel pin does not participate in



Sectional view of the Micrometer Adjustment for stands Ia—III.

the rotatory motion of the micrometer screw, but transmits solely its vertical motion and thereby enhances considerably the delicacy of the adjustment. The pitch of the micrometer screw is 0.5 mm. Each interval of the head, which has 50 divisions, is $^1/_{100}$ mm.

In Stand V the micrometer is reduced to its simplest form. The tube is supported by a parallelogram of two forked pieces turning about pin-screws and thus moves without angular displacement by a screw acting upon a lever.

The tube of the microscope envelopes a sliding draw-tube, graduated to indicate its working length measured from the lower objective screw face to the eyepiece collar. The tube, like our objectives, is provided with the English Society screw.

A revolving nosepiece is now universally regarded as an indispensable adjunct of any but the smallest microscopes. Its use is, however, restricted to stands provided with rack and pinion, since in a sliding tube microscope the interchange of objectives would disturb the adjustment of the tube in an inconvenient manner. Apart from the advantage derived from the rapid interchange of objectives, it facilitates, if accurately made and fitted with properly adjusted objectives, the process of focussing the various objectives. After changing, it should only be necessary to focus with the fine adjustment to obtain a perfect image, and the centre of the field should not be displaced to any serious extent.

From this it will be seen that it is not a commendable plan to purchase a stand and its nosepiece at different times. When objectives have not been adapted for a certain nosepiece the latter fulfils only half its purpose. To secure proper adjustment the stand and objectives should be at hand when a nosepiece is added.

In stands IV and V the coarse adjustment is effected by means of a sliding tube passing through a spring sleeve.

Stand VI is provided with rack and pinion adjustment only. It has a large stage, and is primarily intended for the inspection of meat and for similar examinations where a very strong and durable stand is required. It will also be found to be a useful auxiliary laboratory stand.

Stands III, IV, V, VI have no joint for inclining the tube.

Stands A, B, C, D, F, Ia, Ib, II, IIa, IIb, III, IV are supplied in upright mahogany cases fitted with nickel-plated handles.

Stand V is fitted into a flat mahogany case.

Stand VI is supplied in a case fitted with leather handle.*

These cases are furnished without extra charge with complete microscope outfits.

Object clamps and test objects accompany each microscope.

The objectives to Stands A, B, C, D, F, Ia, Ib, II, IIa, IIb are supplied in brass boxes, with Stands III and IV in wooden cases, with Stand V in morocco cases.

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* Two special forms of this stand have been designed for meat inspection, one of which has been listed as a Meat Inspector's Travelling Microscope.

Selection of Microscopic Outfits.

We shall not here attempt, in view of the multiplicity of possible combinations, to recommend certain microscope outfits for any specified branch of study. Besides, the grade and completeness of a microscope is largely governed by the requirements of the purchaser and the means at his disposal. It may, however, be broadly stated that since a microscope is in the great majority of cases purchased only once in life, it is wise to acquire as complete a stand as possible, and, if need be, to rather cut down the optical equipment, which may be supplemented at any future time.

Medical, botanical, and zoological study will as a rule necessitate the choice of one of the larger stands provided with an illuminating apparatus, viz. Stands A, B, C, D, F, Ia, Ib, II, IIa or IIb. For other work requiring only small magnifications and where an illuminating apparatus may be dispensed with, the smaller Stands III, IV, or V may suffice in many cases.

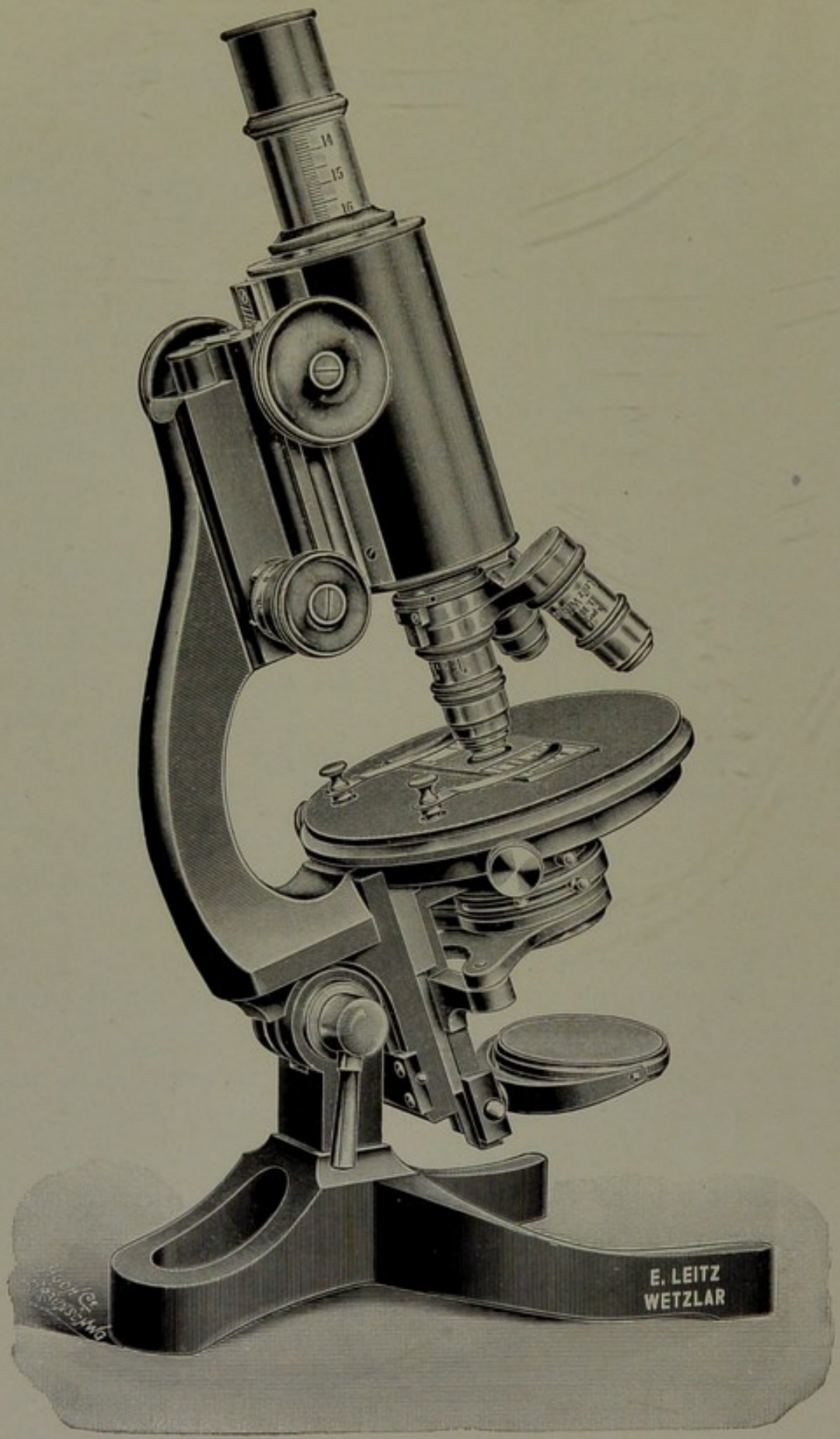
For the use of students we recommend Stands F, II IIa, IIb, and III, IV, V, the former with, the latter without illuminating apparatus.

If an intending purchaser will indicate the nature of his requirements we shall be pleased to assist him in his selection by suitable suggestions.

The subjoined specifications are those of the most popular combinations, but any other combination will be furnished to suit individual requirements.

The price of a complete outfit is in all cases the aggregate of the component items.

Stands without objectives cannot be supplied.



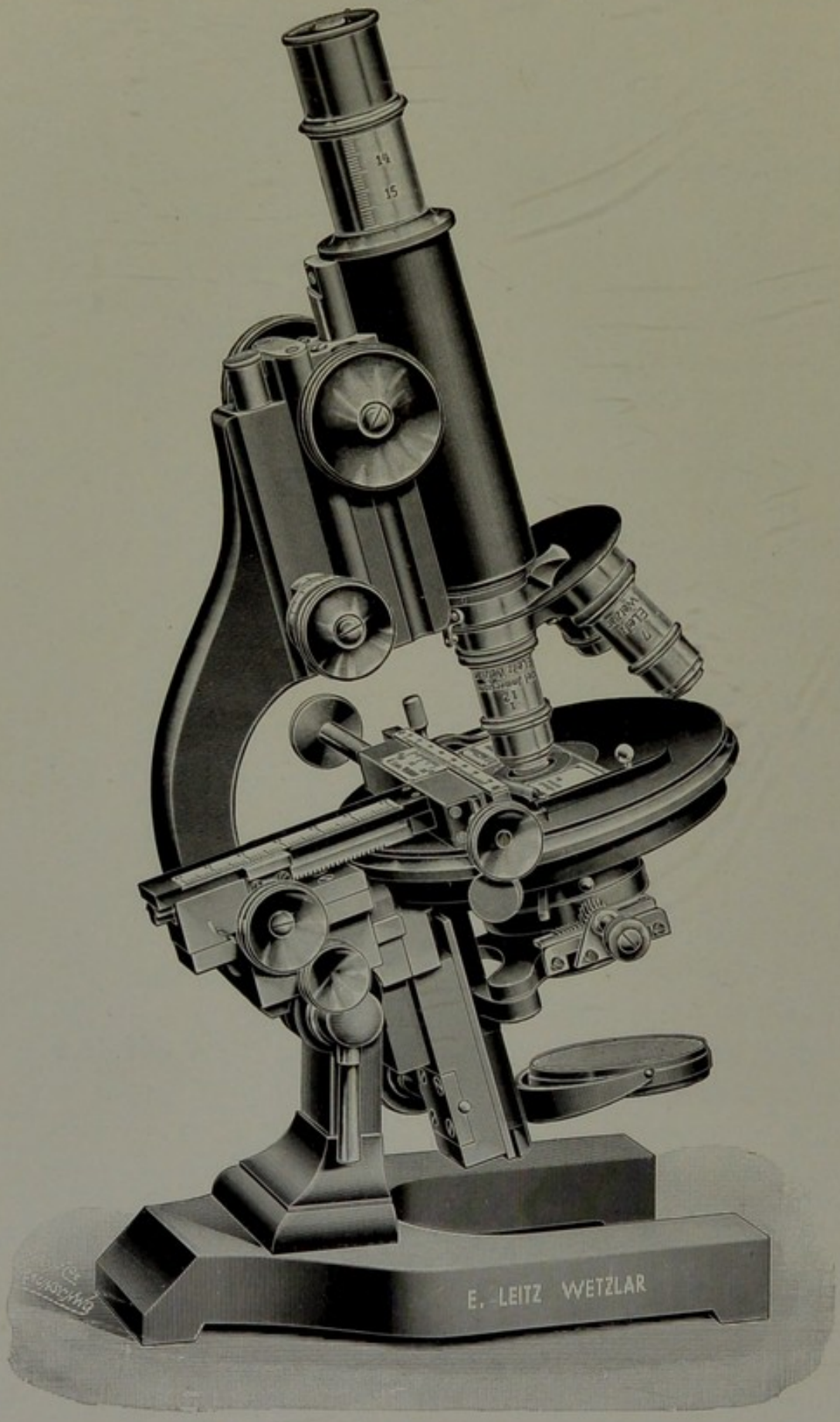
Universal Microscope. — Stand A.

Stand A.

Universal Microscope.

No.		£. s. d.	Code Words
1.	**Large Microscope.** Inclinable, with hinged joint and clamping lever, circular revolving and centring stage, coarse adjustment by rack and pinion, new continuous safety micrometer movement with divided drum, (each division = 0.001 mm), wide tube adapted for photography with wide-angled lenses without eyepiece, graduated draw-tube, large illuminating apparatus with hinged condenser and cylinder iris-diaphragm. Large mechanical stage No. 86 for objects up to 100×50 mm Triple nosepiece Drawing eyepiece No. 112 Apochromatic objectives 16, 8, 4, oil-immersion 2 mm, num. ap. 1.30 Compensating eyepieces 4, 8, 12, 18 Compensating micrometer eyepiece 6 Magnifications 70—2250	**52. 2. 0**	**Aanrid**
2.	**The same stand,** Large mechanical stage No. 86 Triple nosepiece Achromatic objectives Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, oil-immersion $^1/_{12}$ and oil-immersion $^1/_{16}$, n. ap. 1.30 Huyghenian eyepieces 0, I, II, III, IV, V Magnifications 12—1680	**46. 15. 0**	**Abesse**
3.	**The same stand,** Triple nosepiece Objectives 2, 4, 6, oil-immersion $^1/_{12}$, n. ap. 1.30 Eyepieces 0, I, III, IV, V, micrometer eyepiece II Magnifications 25—1300	**26. 5. 0**	**Aculla**
	Stand with illuminating apparatus, without objectives and eyepieces, without nosepiece	**15. 0. 0**	**Astris**

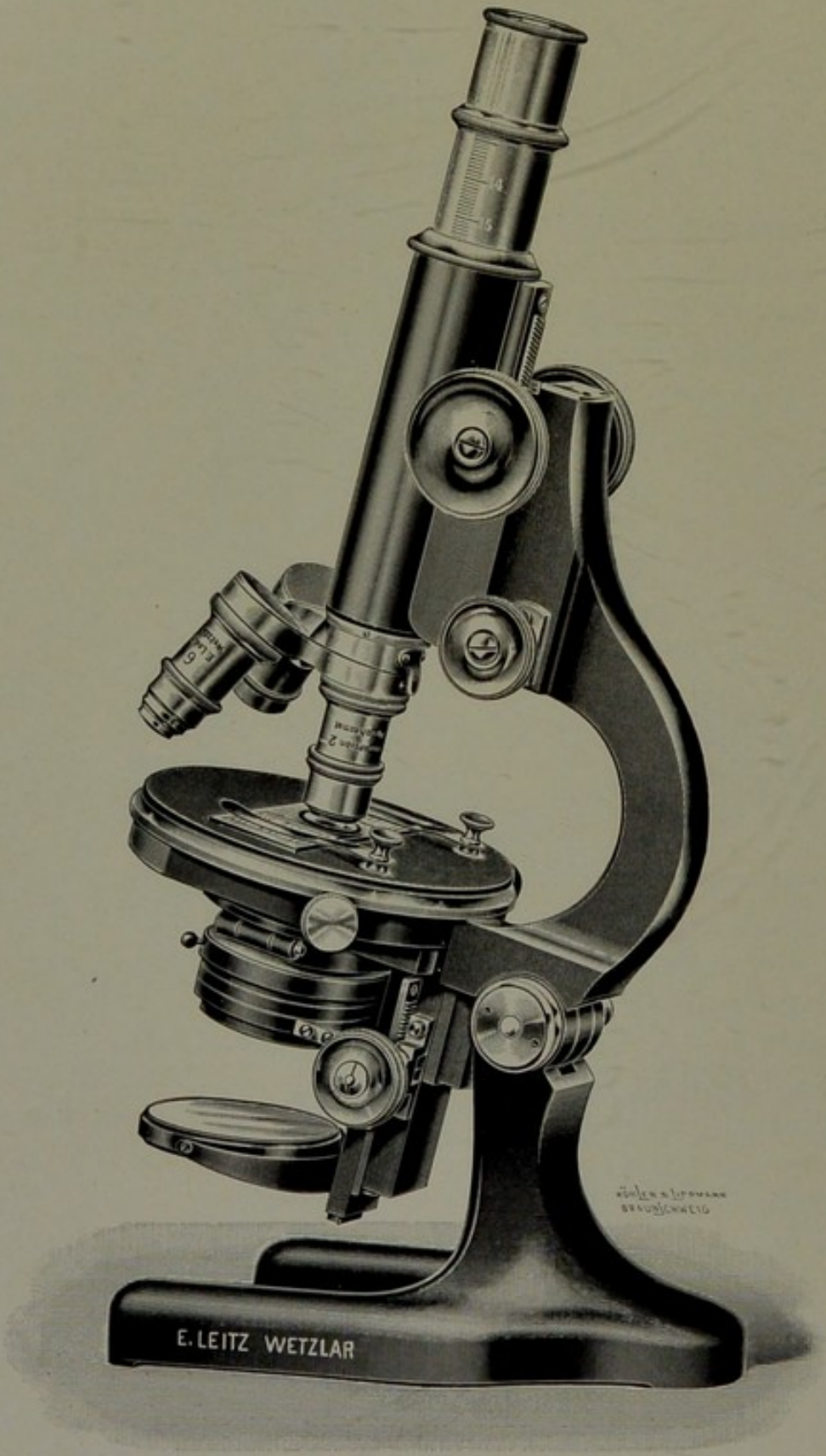
This stand may, if preferred, be supplied with a **horseshoe foot** like that of Stand B.



Stand B.

Stand B.

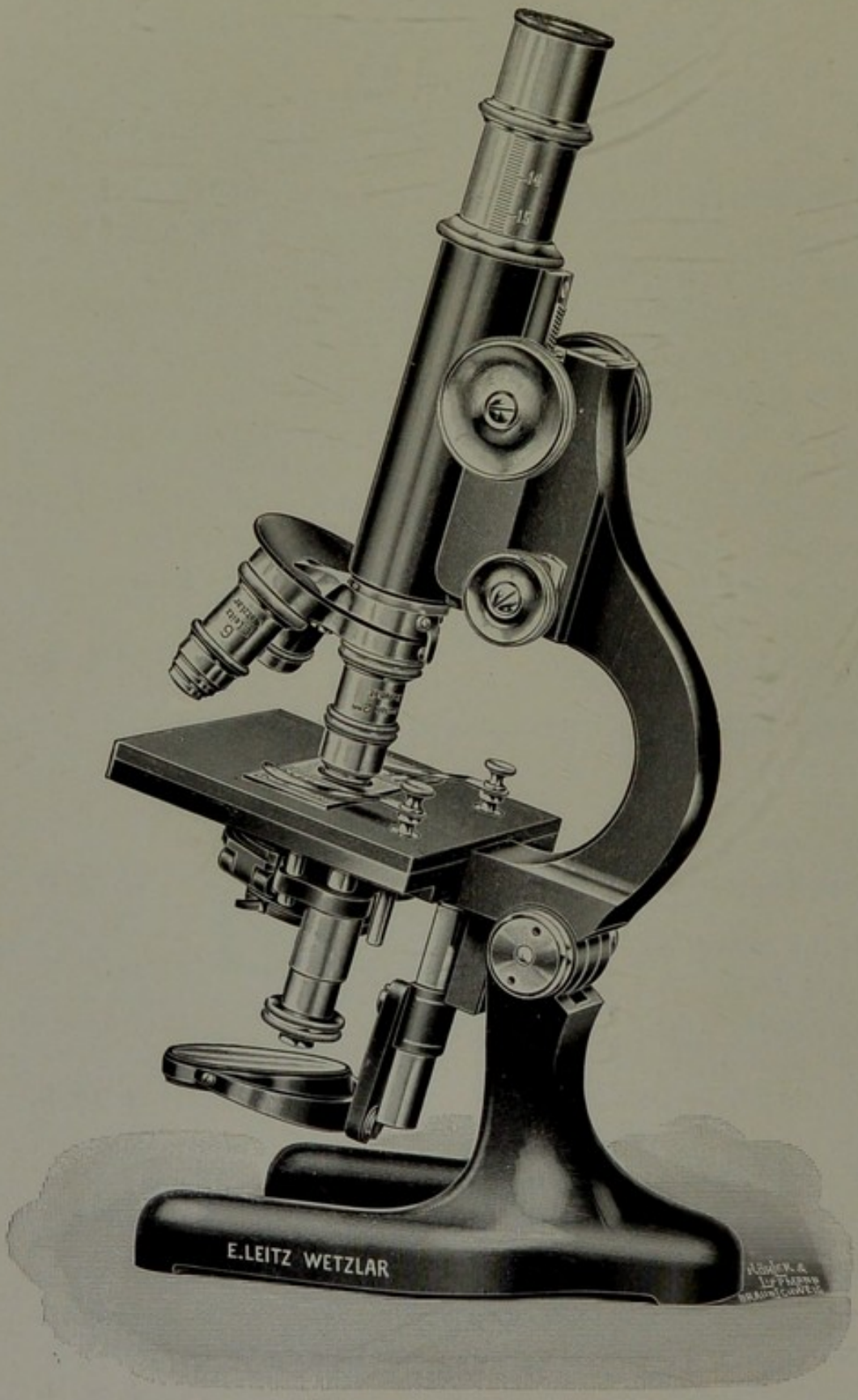
No.		£ s. d.	Code Words
1.	**Large microscope,** inclinable, with hinged joint and clamping lever, with circular revolving and centring stage. Coarse adjustment by rack and pinion, new continuous safety micrometer movement with divided drum (each division = $^1/_{1000}$ mm). Draw-tube with millimeter scale. Large illuminating apparatus with swing-out condenser and cylinder iris-diaphragm. Mechanical stage No. 87 Triple nosepiece Drawing eyepiece No. 112 Micrometer eyepiece No. 94 Objectives Nos. 1, 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces 0, I, III, IV, V Magnifications 12—1300	**29. 10. 0**	**Buaro**
2.	**The same stand with illuminating apparatus** Triple nosepiece Micrometer eyepiece No. 94 Drawing eyepiece No. 112 Objectives 2, 4, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV, V Magnifications 33—1300.	**26. 5. 0**	**Bubone**
3.	**The same stand with illuminating apparatus** Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**23. 0. 0**	**Bucella**
	The stand with illuminating apparatus without objectives, eyepieces and nosepiece	**14. 0. 0**	**Bustis**



Stand C.

Stand C.

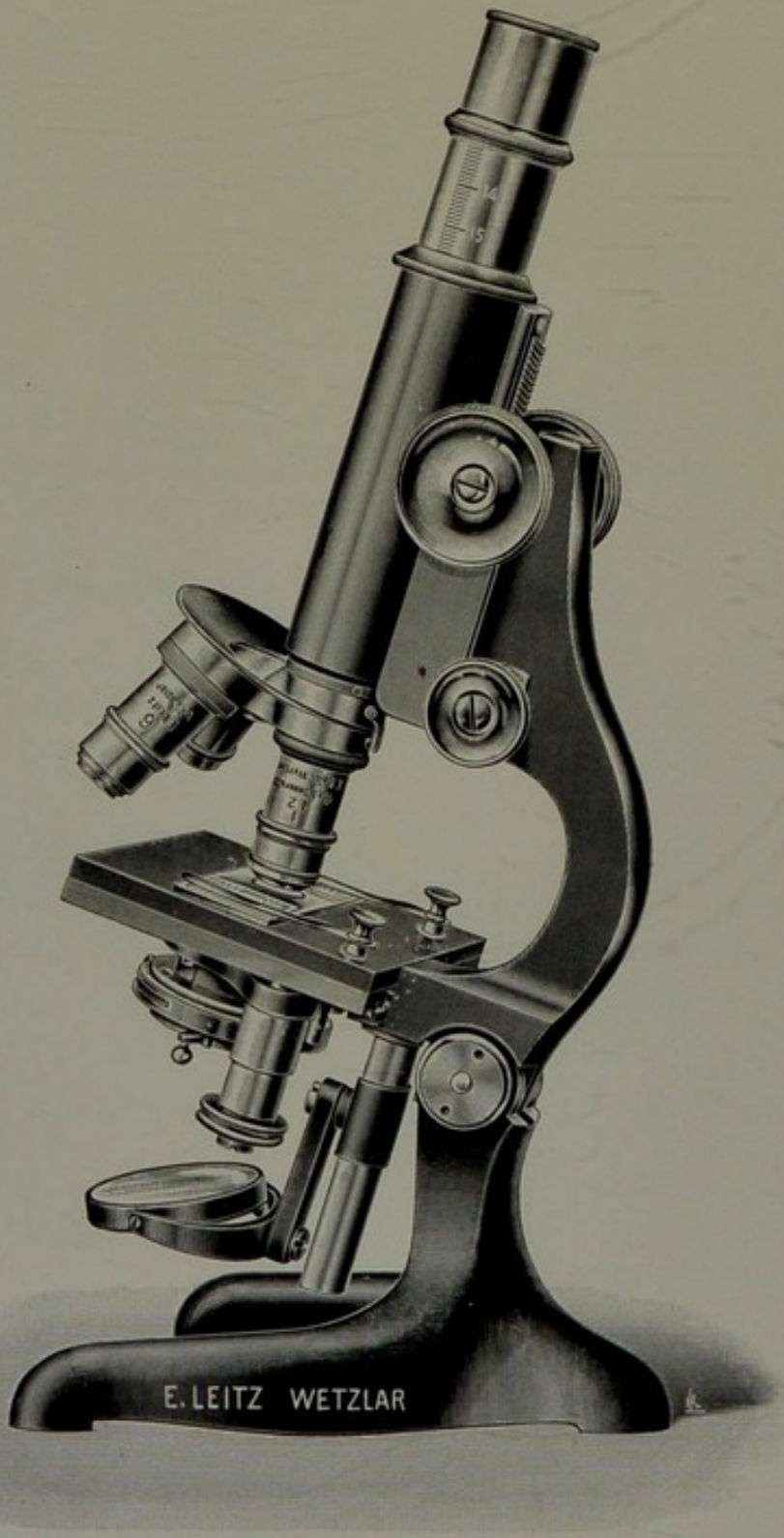
No.		£ s. d.	Code Words
1.	**Large Microscope,** somewhat smaller than A and B, with horseshoe foot. The stand is inclinable. It has a centring and revolving stage, coarse rack and pinion adjustment, new continuous safety micrometer movement with divided drum (each division = $^1/_{1000}$ mm), and a graduated draw-tube. It is equipped with a large Abbe illuminating apparatus *b* fitted with rack and pinion and iris-diaphragm with lateral movement. The condenser is interchangeable against a cylinder-diaphragm. Triple nosepiece Objectives 2, 4, 6, $^1/_{12}$″ oil-immersion, num. ap. 1.30 Eyepieces I, III, IV, V Magnifications 33—1300	**21. 0. 0**	**Cuadra**
2.	**The same stand** with illuminating apparatus Triple nosepiece Objectives 3, 6, $^1/_{12}$″ oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**19. 10. 0**	**Cubito**
3.	**The same stand** with illuminating apparatus Triple nosepiece Objectives 3, 6, 8 Eyepieces I, III, IV Magnifications 60—700	**16. 10. 0**	**Cucita**
	Stand with illuminating apparatus, without objectives, eyepieces or nosepiece	**10. 10. 0**	**Custeis**
	Stand with illuminating apparatus, swing-out condenser and cylinder iris-diaphragm (p. 93, a)	**11. 5. 0**	**Custilles**
	This stand may be fitted with mechanical stage No. 87 Price	**3. 10. 0**	**Platinato**



Stand D.

Stand D.

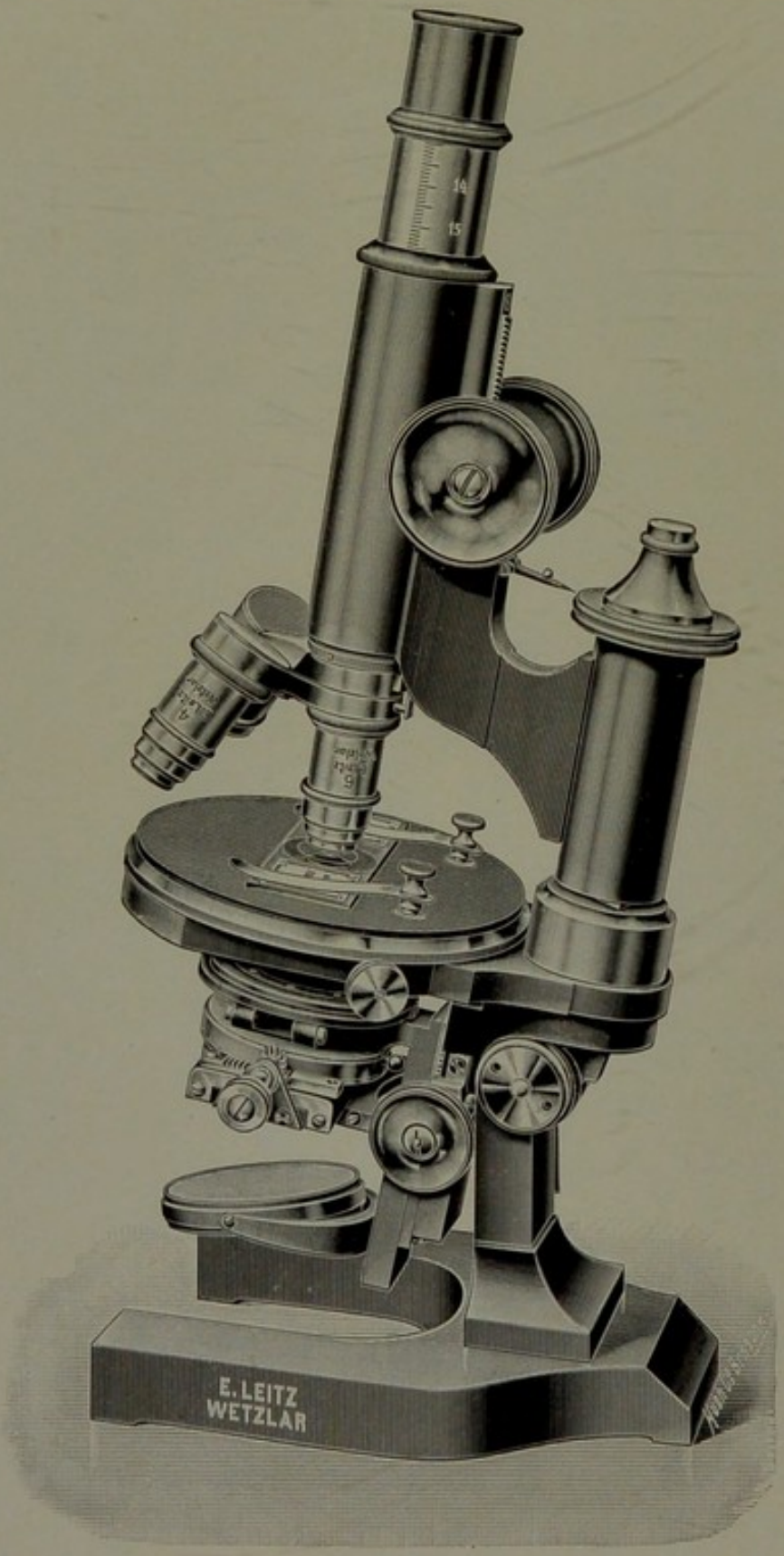
No.		£. s. d.	Code Words
1.	**Large Microscope,** differing from C in the form of the stage only. The latter is of the square fixed type. The stand is inclinable. The draw-tube is graduated into millimeters. The coarse adjustment is effected by rack and pinion, the fine adjustment by the new continuous safety micrometer movement reading to 0.001 mm. The stand is fitted with an Abbe illuminating apparatus b, like Stand C. Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**18. 15. 0**	**Doasi**
2.	**The same stand** with medium sized illuminating apparatus *(c)*, hinged condenser, cylinder iris-diaphragm with lateral screw for raising and lowering the illuminating apparatus. Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**18. 0. 0**	**Doben**
3.	**The same stand** with medium sized illuminating apparatus *(c)* with lateral screw. Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**17. 5. 0**	**Docena**
4.	**The same stand** without illuminating apparatus, with cylinder diaphragm. Double nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**10. 5. 0**	**Dodina**
	Stand with cylinder diaphragm, without objectives and eyepieces, without illuminating apparatus, without lateral screw, and without nosepiece	**6. 15. 0**	**Dosten**
	Stand with medium sized illuminating apparatus *(c)* and lateral screw	**8. 5. 0**	**Dostig**
	Stand with medium sized illuminating apparatus *(c)* and hinged condenser and cylinder iris diaphragm	**9. 0. 0**	**Dostweide**
	Stand with large Abbe illuminating apparatus *(b)* . .	**9. 15. 0**	**Dustier**
	Stand with large Abbe illuminating apparatus *(a)*, hinged condenser and cylinder iris diaphragm	**10. 10. 0**	**Dusting**
	This stand may likewise be fitted with Mechanical Stage No. 87.		



Stand F.

Stand F.

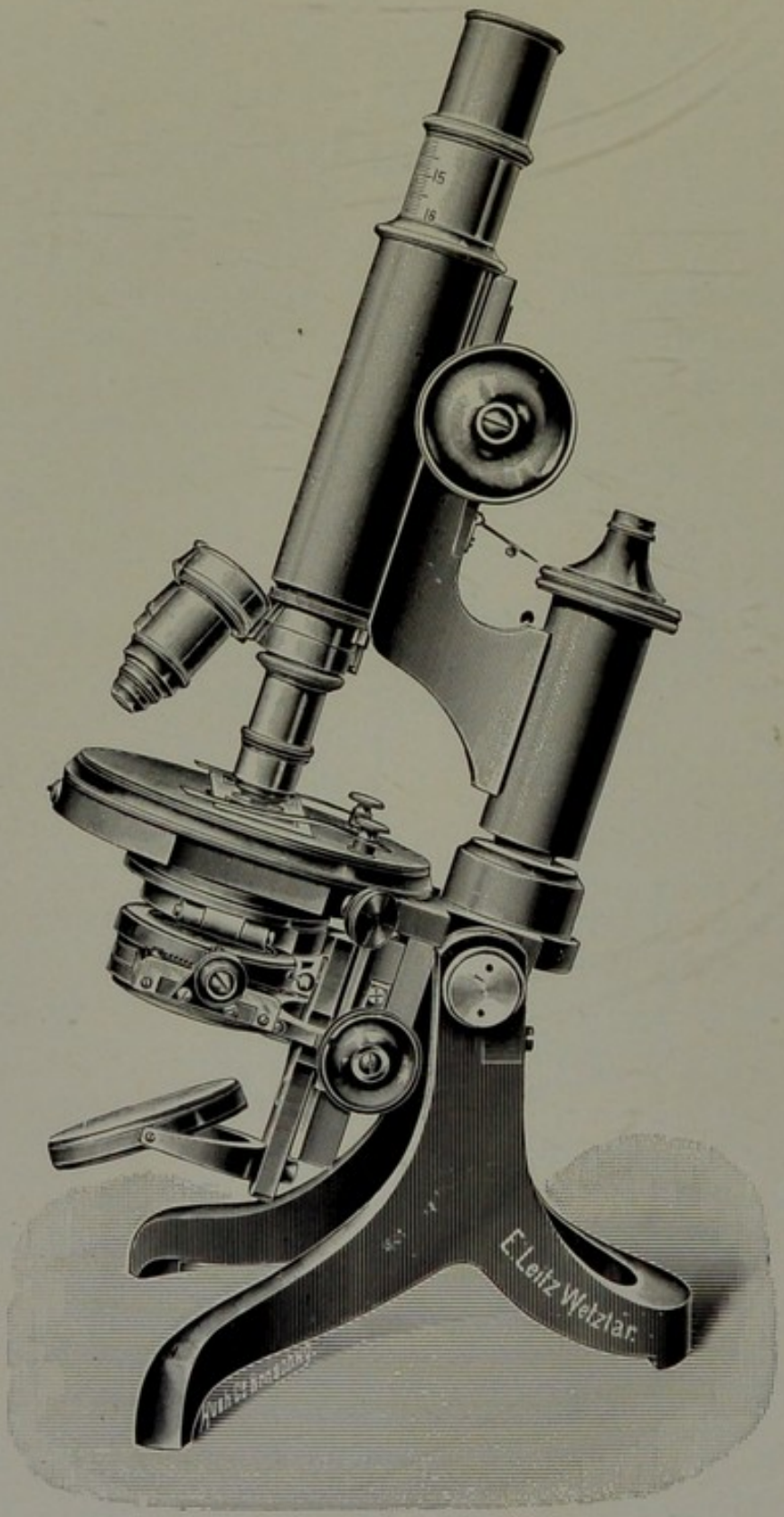
No.		£. s. d.	Code Words
1.	**Medium Sized Microscope.** Stand with joint for inclination at 45°, with fixed square stage, horseshoe foot, coarse adjustment by rack and pinion, new continuous safety micrometer movement, draw tube with millimeter scale, illuminating apparatus (c) with permanently attached iris-diaphragm to slip into a sleeve below the stage. The condenser and cylinder-diaphragm are interchangeable. A ring below the iris-diaphragm serves to hold a ground glass or coloured disc. Triple nosepiece Objectives 3, 6, oil-immersion 1/12, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**15. 15. 0**	**Fiados**
2.	**The same stand** with illuminating apparatus, Triple nosepiece Objectives 3, 6, 8 Eyepieces II, IV Magnifications 70—700	**12. 10. 0**	**Fibula**
3.	**The same stand** without illuminating apparatus Double nosepiece Objectives 3 and 7 Eyepieces I, III Magnifications 60—450	**9. 0. 0**	**Ficali**
4.	**The same stand** without illuminating apparatus Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**8. 5. 0**	**Fidale**
	Stand with illuminating apparatus and iris-diaphragm .	**6. 15. 0**	**Fistiana**
	Stand with cylinder-diaphragm	**5. 10. 0**	**Fistuca**
	Cylinder iris-diaphragm	**0. 10. 0**	**Cylinder**
	This microscope may be fitted with a lateral screw for raising and lowering the illuminating apparatus as with Stands II and IIa, at an additional cost of. . .	**0. 5. 0**	**Laterali**
	Mechanical stages cannot be used with advantage on this stand.		



Stand Ia.

Stand Ia.

No.	£ s. d.	Code Words
1. **Large Microscope,** with horseshoe foot. The stand is inclinable and fitted with revolving and centring stage, coarse adjustment by rack and pinion, fine adjustment by micrometer screw with scale reading to $^1/_{100}$ mm. Draw-tube with millimeter scale. Large Abbe illuminating apparatus (b) with rack and pinion, and iris-diaphragm with oblique movement. The cylinder-diaphragm and condenser are readily interchangeable. Triple nosepiece Objectives 2, 4, 6, $^1/_{12}''$ oil-immersion, num. ap. 1.30 Eyepieces I, III, IV, V Magnifications 33—1300	**20. 0. 0**	**Gaats**
2. **The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, $^1/_{12}''$ oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**18. 10. 0**	**Gabina**
3. **The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, 8 Eyepieces I, III, IV Magnifications 60—700	**15. 10. 0**	**Gacela**
Stand with Abbe illuminating apparatus, but without objectives, eyepieces and nosepiece	**9. 10. 0**	**Gastaba**
The same with illuminating apparatus (a), swing-out condenser and cylinder iris-diaphragm	**10. 5. 0**	**Gastoso**
Mechanical stage No. 87 may be fitted to this stand. Price	**3. 10. 0**	**Platinato**

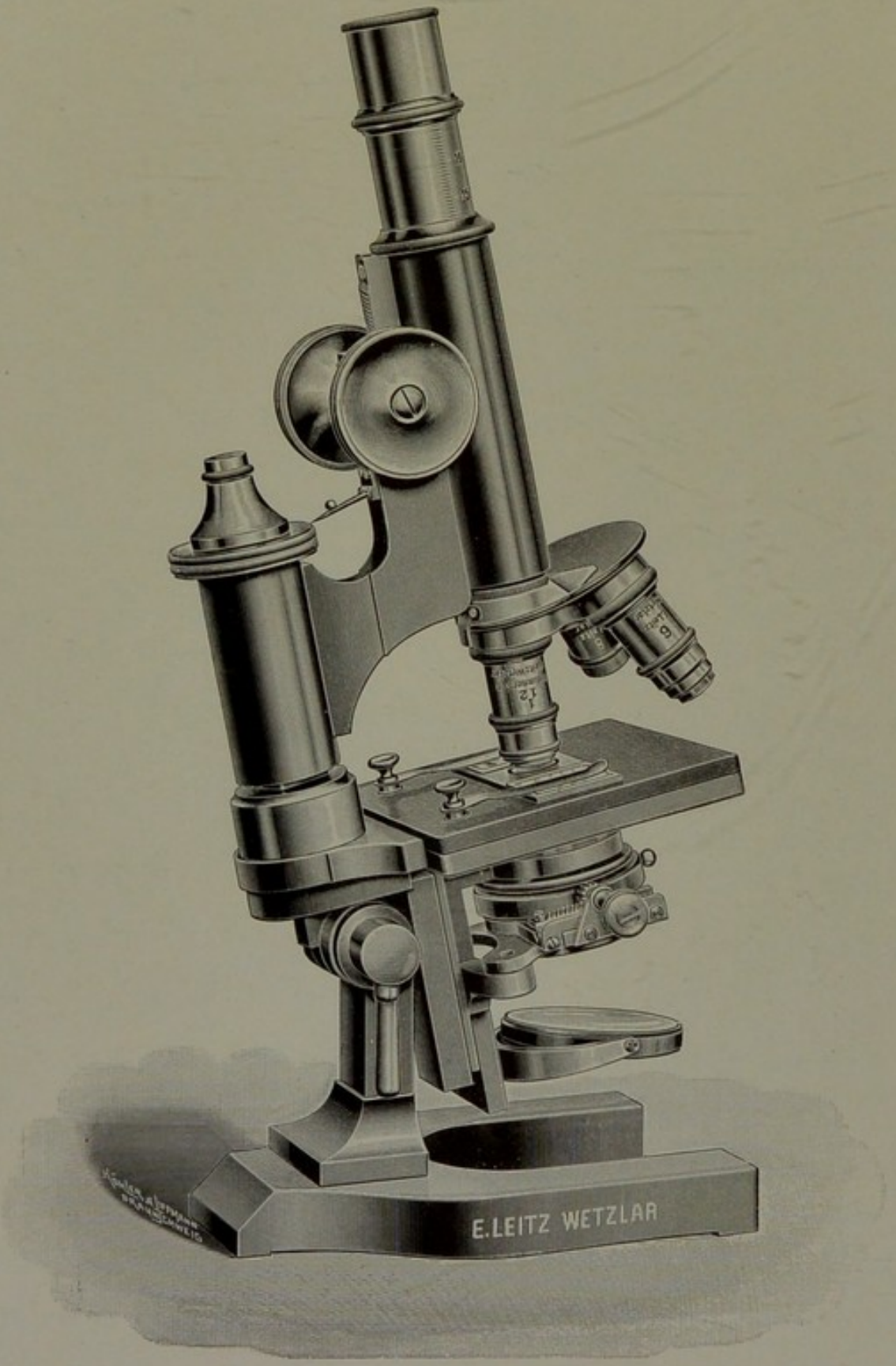


Stand Ia
with English foot.

Stand Ia

with English foot.

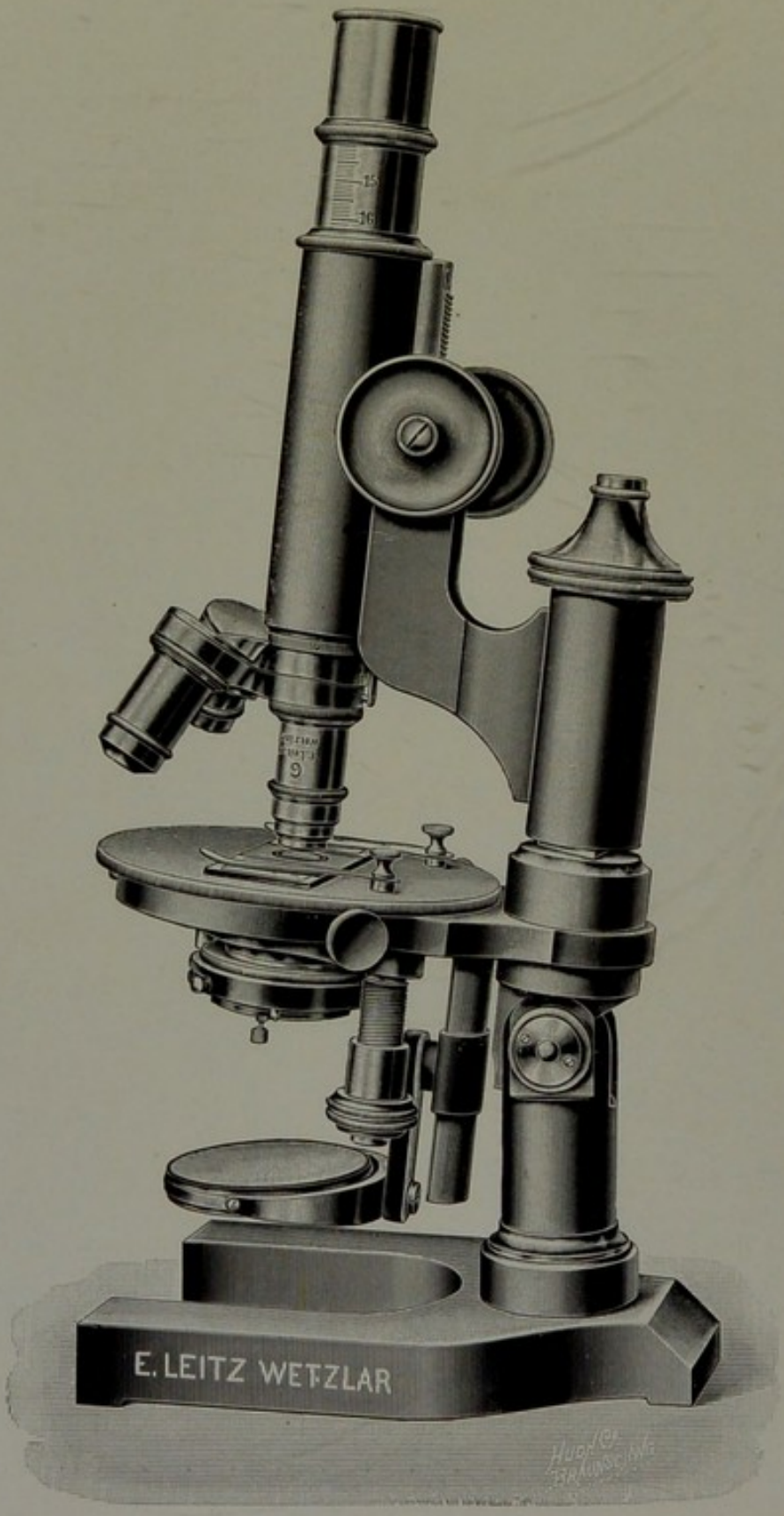
No.		£ s d.	Code Words
1.	**Large Microscope,** differing from the foregoing Stand Ia only in that it is provided with an English foot, which makes the stand somewhat steadier and lighter. The prices and combinations are otherwise the same. The stage revolves and may be centred. The stand is fitted with an Abbe illuminating apparatus (b) with rack and pinion and iris-diaphragm with oblique motion etc. Triple nosepiece Objectives 2, 4, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV, V Magnifications 33—1300	**20. 0. 0**	**Geada**
2.	**The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**18. 10. 0**	**Gebom**
3.	**The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, 8 Eyepieces I, III, IV Magnifications 60—700	**15. 10. 0**	**Gecomo**
	The stand with Abbe illuminating apparatus, but without objectives, eyepieces and nosepiece	**9. 10. 0**	**Gesta**
	The stand with Abbe illuminating apparatus (a) with swing-out condenser and cylinder iris-diaphragm .	**10. 5. 0**	**Gestiva**
	Mechanical stage No. 87 may be fitted to this stand. Price	**3. 10. 0**	**Platinato**



Stand Ib.

Stand Ib.

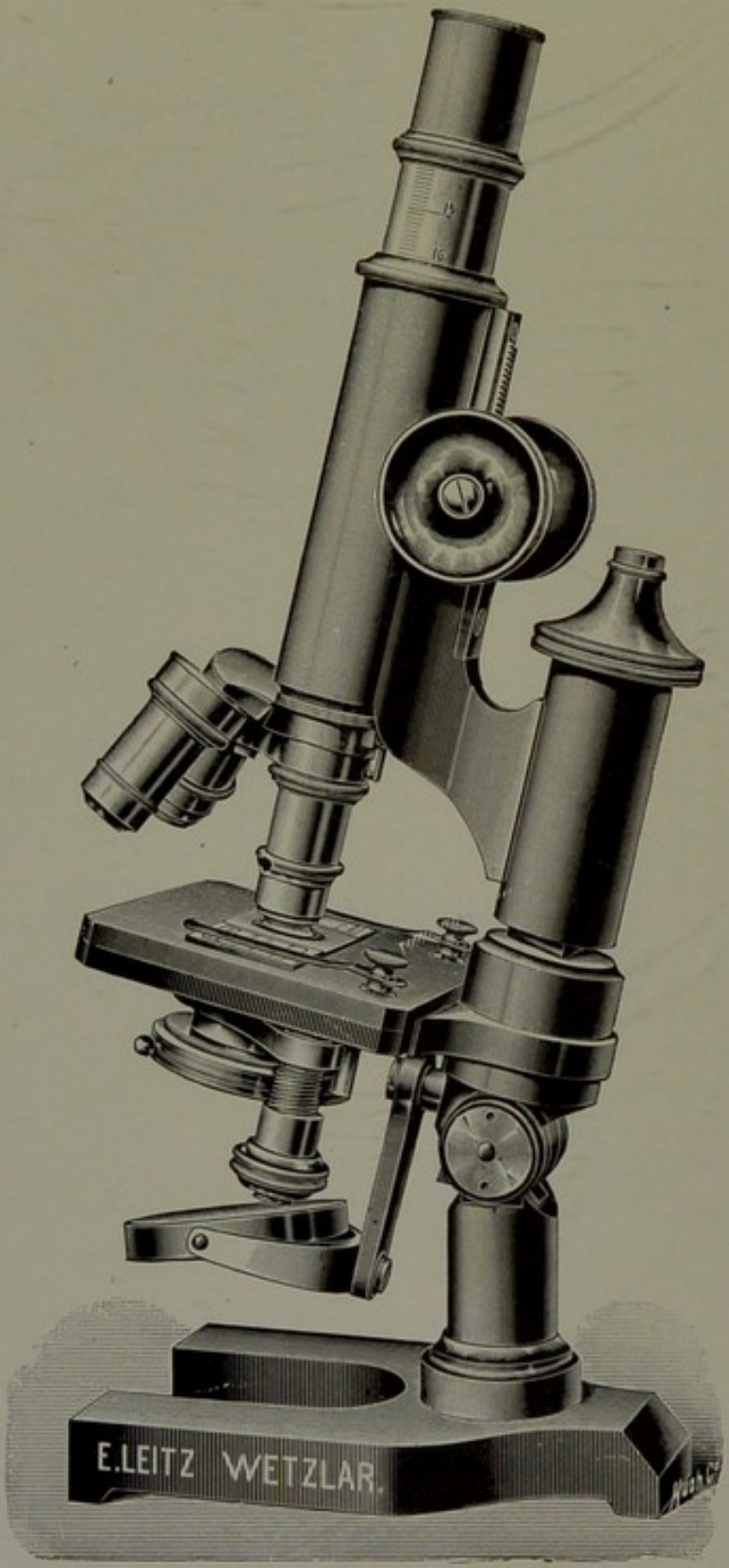
No.		£ s. d.	Code Words
1.	**Large Microscope,** which differs from Ia only in the form of the stage. The latter is fixed and square. The stand is inclinable and has a hinged joint and clamping lever. Draw-tube with millimeter scale. Coarse adjustment by rack and pinion, fine adjustment by micrometer screw with graduated head reading to $^1/_{100}$ mm. Illuminating apparatus, same as in Stand Ia. Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**17. 15. 0**	**Goad**
2.	**The same** with simplified illuminating apparatus (c) and lateral screw Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**16. 5. 0**	**Gobait**
3.	**The same** without illuminating apparatus and lateral screw, with cylinder-diaphragm. Double nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**9. 5. 0**	**Gocart**
4.	**The same** without illuminating apparatus and lateral screw, and without nosepiece. Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**8. 10. 0**	**Godille**
	Stand without objectives and eyepieces, without illuminating apparatus, without lateral screw, and without nosepiece	**5. 15. 0**	**Gostar**
	Stand with Abbe illuminating apparatus (b) without objectives, eyepieces, and nosepiece	**8. 15. 0**	**Gostati**
	Stand with simplified illuminating apparatus (c) and lateral screw	**7. 5. 0**	**Gostero**
	Stand with Abbe illuminating apparatus (a), with swing-out condenser and cylinder iris-diaphragm . . .	**9. 10. 0**	**Gosting**
	Mechanical stage No. 87 may be fitted to this stand. Price	**3. 10. 0**	**Platinato**



Stand II.

Stand II.

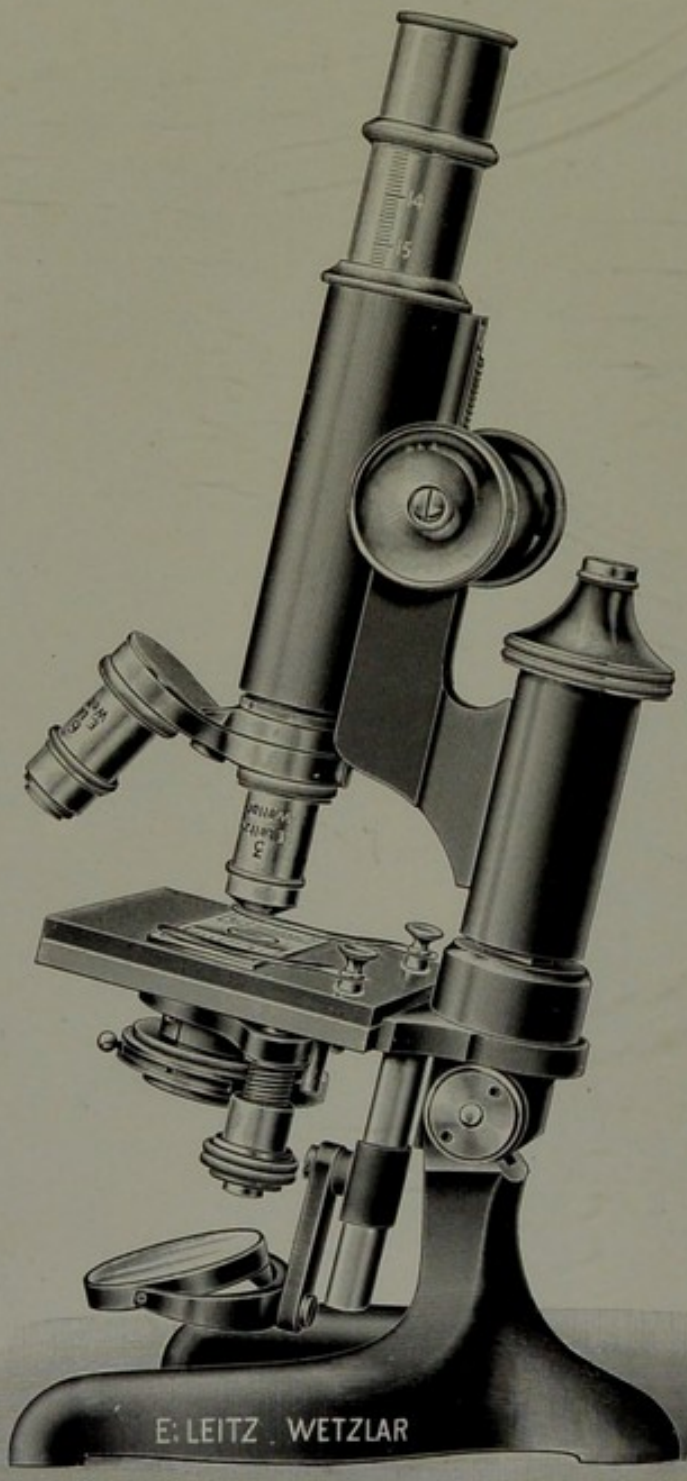
No.	£ s. d.	Code Words
1. **Medium Size Microscope,** inclinable, with revolving and centring vulcanite stage, coarse adjustment by rack and pinion, fine adjustment by micrometer-screw. Draw-tube with millimeter scale. Illuminating apparatus and iris-diaphragm with lateral screw (c). A ring under the iris-diaphragm serves to hold a ground glass or coloured disc. The illuminating apparatus and cylinder diaphragm are easily interchangeable. Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**15. 10. 0**	**Heald**
2. **The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, 8 Eyepieces II, IV Magnifications 70—700	**12. 5. 0**	**Hebrosa**
3. **The same** without illuminating apparatus Triple nosepiece Objectives 3, 5, 7 Eyepieces I, III Magnifications 60—450	**10. 5. 0**	**Hecato**
4. **The same** without illuminating apparatus Double nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**8. 15. 0**	**Hedon**
5. **The same** without illuminating apparatus and nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60 – 450	**8. 0. 0**	**Heeltap**
Stand with illuminating apparatus (c) and iris diaphragm, without objectives, eyepieces and nosepiece . . .	**6. 10. 0**	**Hesten**
Stand with cylinder-diaphragm and lateral screw . .	**5. 5. 0**	**Hesternal**
Stand with illuminating apparatus (c), swing-out condenser, and cylinder iris-diaphragm	**7. 5. 0**	**Hestiones**
Cylinder iris-diaphragm	**0. 10. 0**	**Cylinder**
This stand may be fitted with mechanical stage No. 89 Price	**2. 10. 0**	**Platinoid**



Stand IIa.

Stand IIa.

No.		£. s. d.	Code Words
1.	**Medium Size Microscope,** inclinable, with fixed square stage, coarse adjustment by rack and pinion, fine adjustment by micrometer-screw. Draw-tube with millimeter scale. Illuminating apparatus (c) and iris-diaphragm with lateral screw. A ring under the iris-diaphragm serves to hold a ground glass or coloured disc. The illuminating apparatus and cylinder diaphragm are easily interchangeable. Triple nosepiece Objectives 3, 6, $^1/_{12}$" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**15. 0. 0**	**Hiabit**
2.	**The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, 8 Eyepieces II, IV Magnifications 70—700	**11. 15. 0**	**Hibrida**
3.	**The same** without illuminating apparatus Triple nosepiece Objectives 3, 5, 7 Eyepieces I, III Magnifications 60—450	**9. 15. 0**	**Hicetas**
4.	**The same** without illuminating apparatus Double nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**8. 5. 0**	**Hidalgo**
5.	**The same** without illuminating apparatus and nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**7. 10. 0**	**Hiemabat**
	Stand with illuminating apparatus (c) and iris-diaphragm, without objectives, eyepieces or nosepiece . . .	**6. 0. 0**	**Histonis**
	Stand with cylinder-diaphragm and lateral screw . .	**4. 15. 0**	**Histrice**
	Cylinder iris-diaphragm	**0. 10. 0**	**Cylinder**
	This stand may be fitted with mechanical stage No. 89. Price	**2. 10. 0**	**Platinoid**

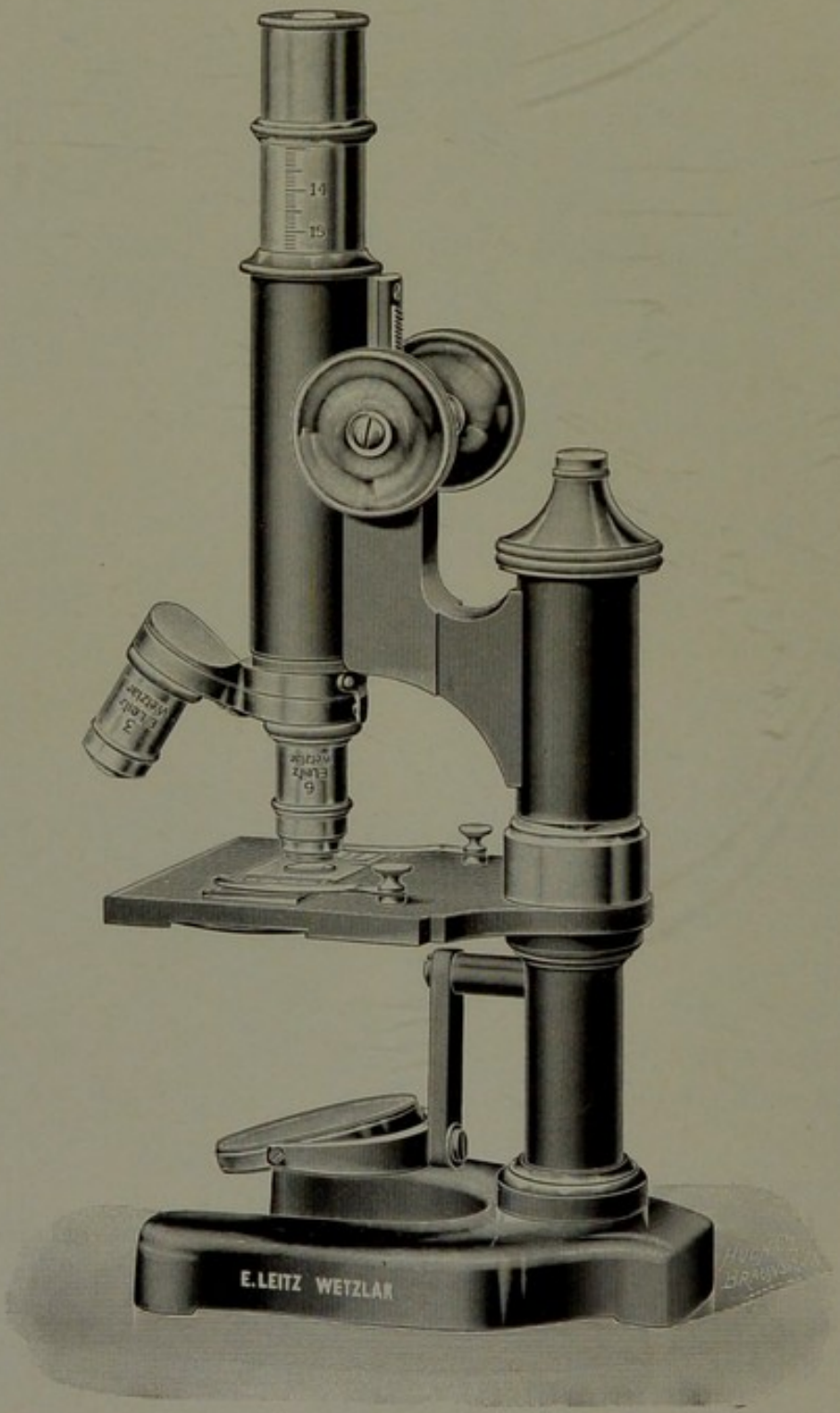


Stand IIb.

Stand IIb.

No.	£ s d	Code Words
1. **Medium Size Microscope,** stand with joint for inclination at 45°, mounted on a horseshoe foot cast in one piece, coarse adjustment by rack and pinion, fine adjustment by micrometer screw. Draw-tube with millimeter scale. Illuminating apparatus (c) with iris-diaphragm permanently attached and sliding in a sleeve underneath the stage. The illuminating apparatus and cylinder-diaphragm are interchangeable. A ring below the iris-diaphragm serves to hold a ground glass or coloured disc. Triple nosepiece Objectives 3, 6, 1/12" oil-immersion, num. ap. 1.30 Eyepieces I, III, IV Magnifications 60—1000	**13. 0. 0**	**Hoard**
2. **The same** with illuminating apparatus Triple nosepiece Objectives 3, 6, 8 Eyepieces II, IV Magnifications 70—700	**9. 15. 0**	**Hobit**
3. **The same** without illuminating apparatus Double nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**6. 5. 0**	**Hocino**
4. **The same** without illuminating apparatus and nosepiece Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**5. 10. 0**	**Hodmen**
Stand with illuminating apparatus (c) and iris-diaphragm	**4. 0. 0**	**Hostal**
Stand with cylinder or wheel diaphragm	**2. 15. 0**	**Hostimur**
Cylinder iris diaphragm	**0. 10. 0**	**Cylinder**
This microscope may be fitted with a lateral screw for raising and lowering the illuminating apparatus as in Stands II and IIa, at an additional cost of	**0. 5. 0**	**Laterali**

Mechanical stages cannot be used with advantage on this stand.



Stand III.

Stand III.

No. £ s. d. Code Words

Stand III is now provided with rack and pinion coarse adjustment instead of the sliding tube. A nosepiece may thus be used on it to advantage. It will be found an excellent and cheap laboratory stand.

1. **Medium Size Microscope,** with iron foot and upright cast in one piece, coarse adjustment by rack and pinion, fine adjustment by micrometer screw. The draw-tube has a millimeter scale. Plane and concave mirror. Wheel-diaphragm.
   Triple nosepiece
   Objectives 3, 6, 8
   Eyepieces I, III
   Magnifications 60—550 . . . . . **8. 5. 0** **Iarda**

2. **The same.**
   Triple nosepiece
   Objectives 3, 5, 7
   Eyepieces I, III
   Magnifications 60—450 . . . . . **7. 10. 0** **Iberus**

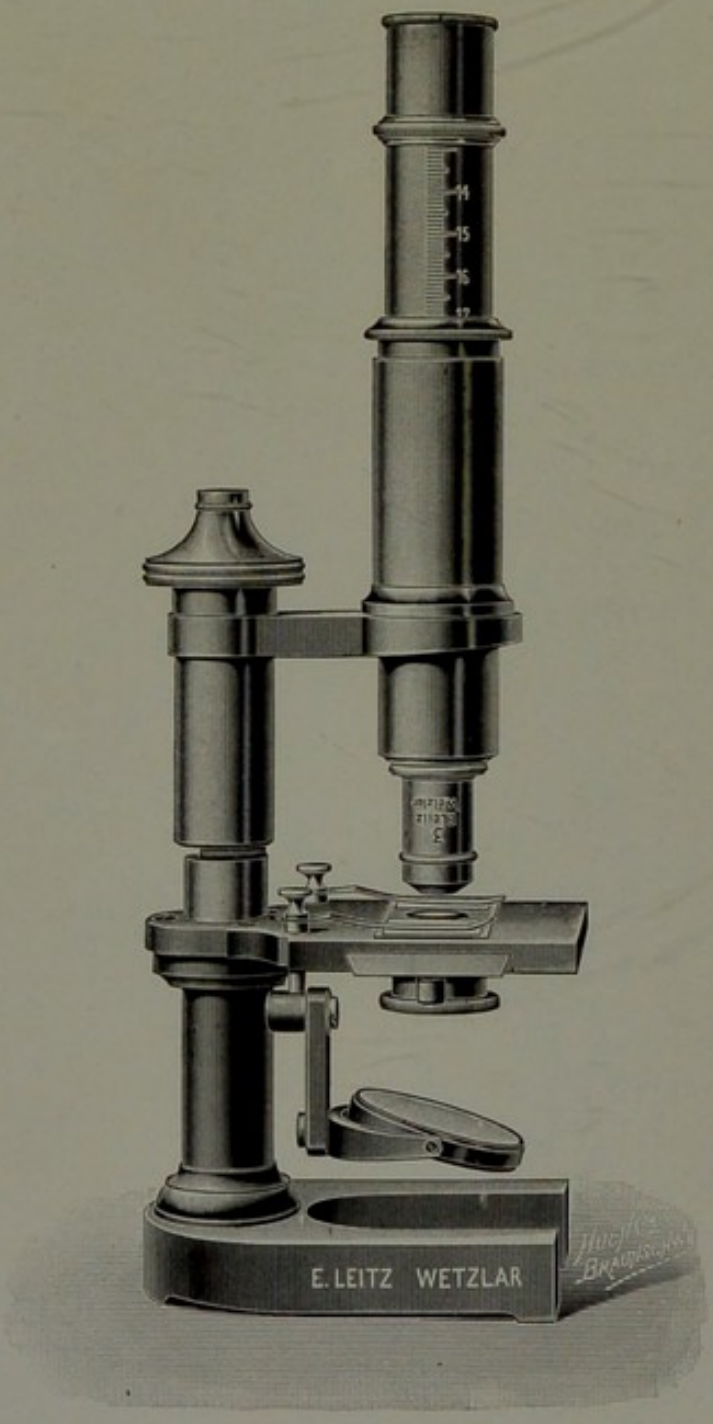
3. **The same** with double nosepiece
   Objectives 3, 7
   Eyepieces I, III
   Magnifications 60—450 . . . . . **6. 0. 0** **Iconis**

4. **The same** without nosepiece
   Objectives 3, 7
   Eyepieces I, III
   Magnifications 60—450 . . . . . **5. 5. 0** **Idolino**

Stand with wheel-diaphragm . . . . . **2. 10. 0** **Istam**

This stand may be supplied with an iris-diaphragm in the stage instead of the wheel-diaphragm.

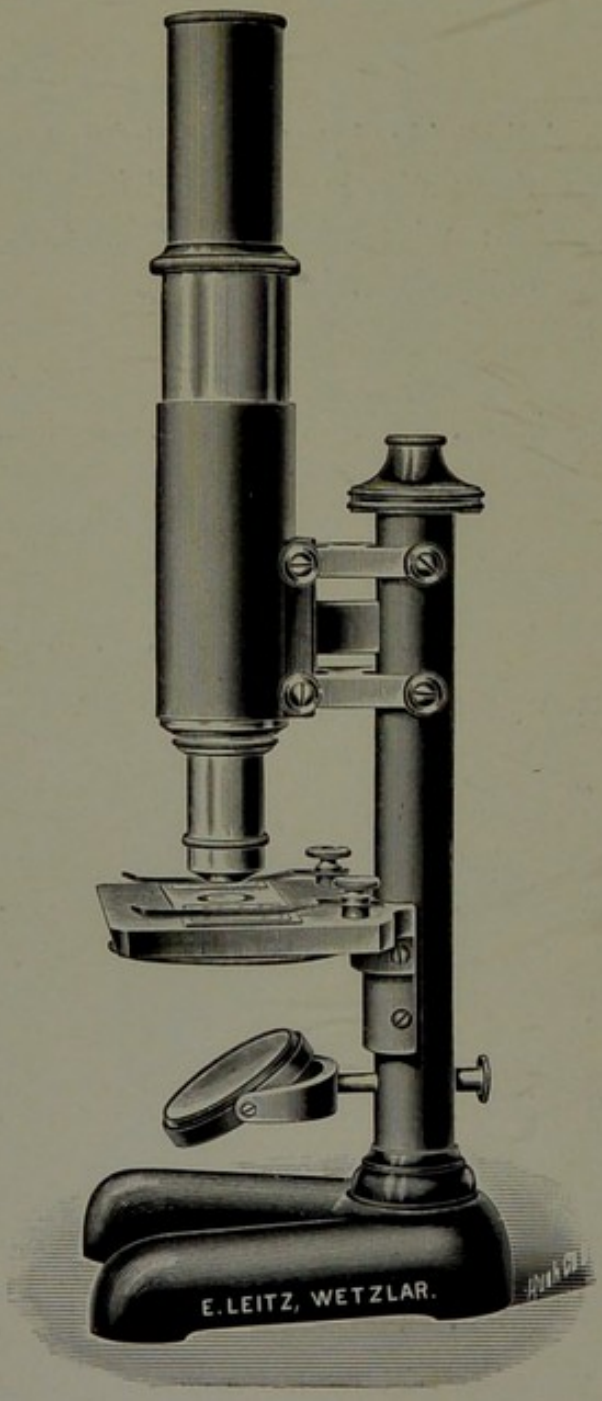
Stand with iris-diaphragm . . . . . **3. 0. 0** **Istorico**



Stand IV.

Stand IV.

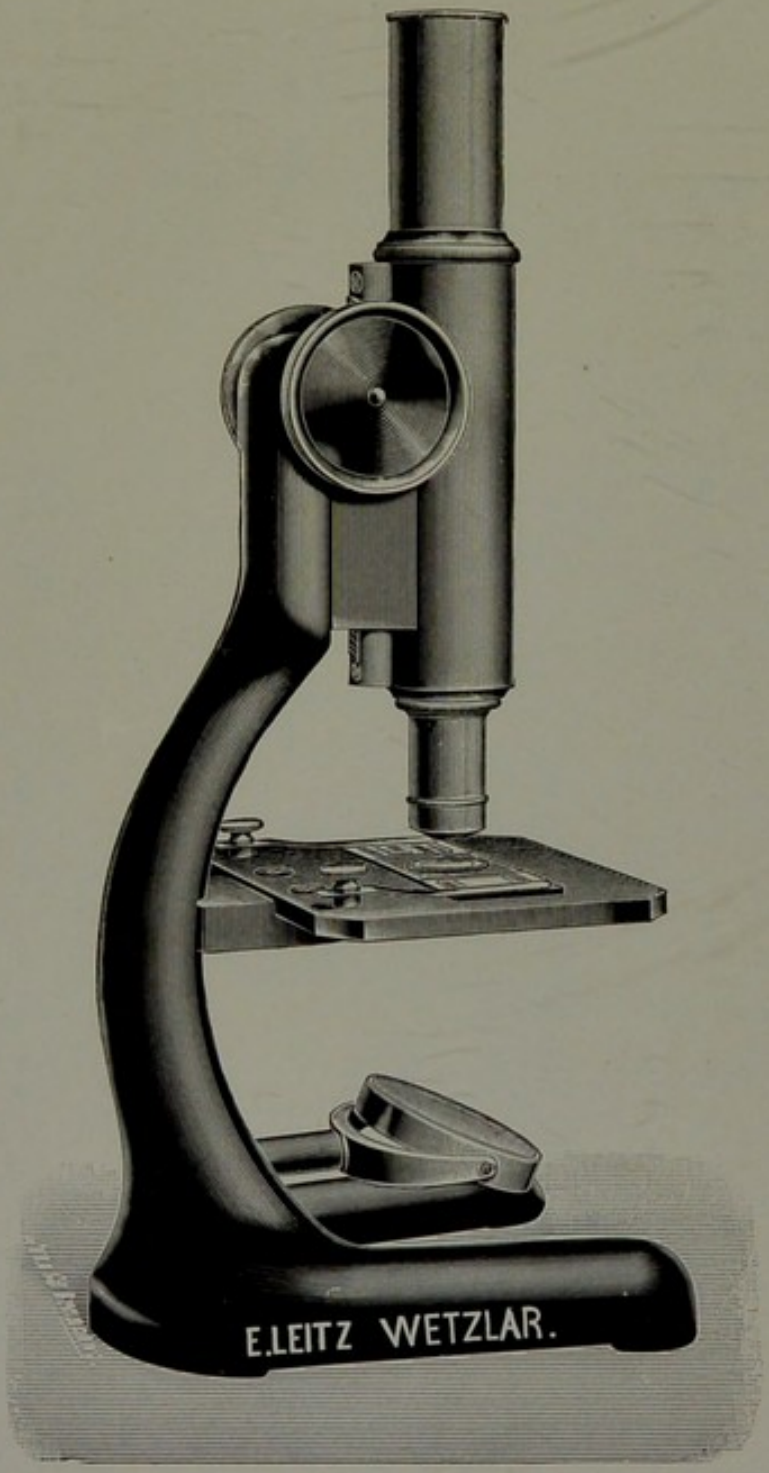
No.		£ s. d.	Code Words
1.	**Small Microscope.** Adjustable by sliding tube and micrometer-screw. The draw-tube is graduated in millimeters. Cylinder-diaphragm with sliding sleeve. Concave and plane mirrors, obliquely adjustable. Objectives 3, 6, 8 Eyepieces I, III Magnifications 60—550	**6. 10. 0**	**Kiafur**
2.	**The same.** Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**4. 10. 0**	**Kibed**
3.	**The same** without cylinder-diaphragm, with wheel-diaphragm Objectives 3, 5, 7 Eyepieces I, III Magnifications 60—450	**5. 10. 0**	**Kicunjo**
4.	**The same.** Objectives 1, 3, 7 Eyepieces I, III Magnifications 18—450	**5. 0. 0**	**Kidron**
5.	**The same.** Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**4. 5. 0**	**Kievit**
	Stand with cylinder-diaphragm, without objectives and eyepieces	**1. 15. 0**	**Kusting**
	Stand with wheel-diaphragm, without objectives and eyepieces	**1. 10. 0**	**Kustos**



Stand V.

Stand V.

No.	£ s. d.	Code Words
1. **Small Microscope.** Adjustable by sliding tube and micrometer-screw. Wheel diaphragm. Concave mirror. Objectives 3, 7 Eyepieces I, III Magnifications 60—450	**3. 15. 0**	**Leanto**
2. **The same.** Objectives 3, 5 Eyepieces I, III Magnifications 60—250	**3. 10. 0**	**Lebrona**
3. **The same** with plane mirror Objectives 1, 3 Eyepieces I, III Magnifications 18—80	**3. 0. 0**	**Lectas**
4. **The same.** Objective 3 Eyepieces I, IV Magnifications 60—105	**2. 5. 0**	**Ledice**
5. **Stand** without objectives and eyepieces	**1. 0. 0**	**Leesten**



Stand VI.

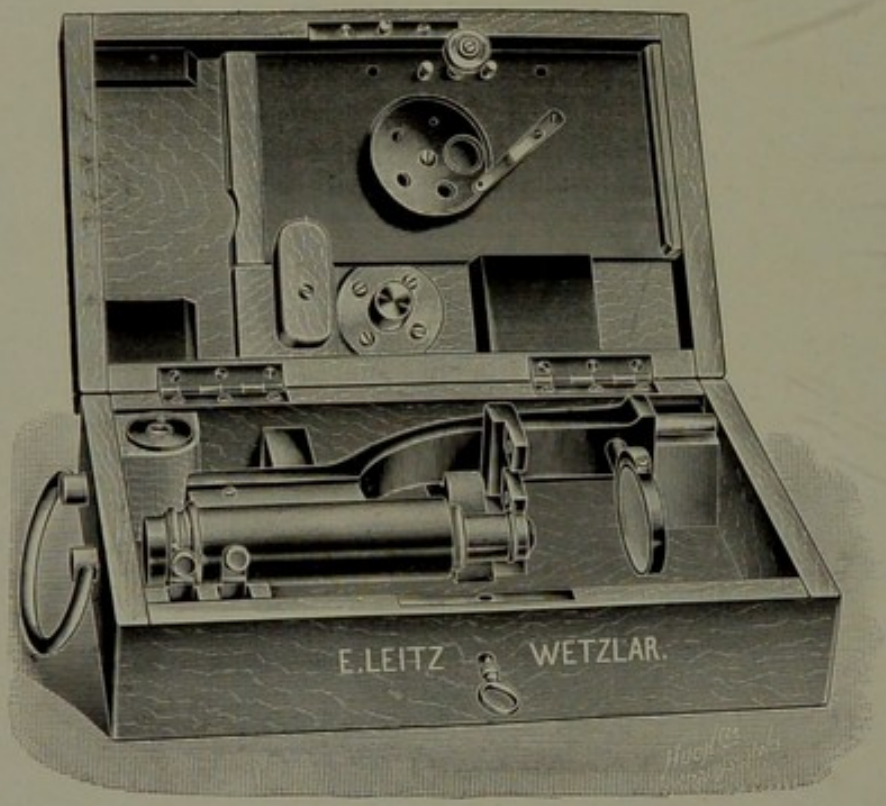
Stand VI.

No.		£ s. d.	Code Words
1.	**Small Microscope.** Adjustable by means of a fine rack and pinion movement. Available for focussing objectives of fairly high power. Primarily adapted as an auxiliary laboratory stand for counting plate cultures and for the inspection of meat. With large stage (10×9 cm) Objective 3, eyepieces 0 and IV Magnifications 40 and 100 diameters	**2. 5. 0**	**Teabug**
2.	**The same stand,** Combination objective, eyepiece III Magnifications 40 and 100 diameters	**2. 5. 0**	**Tebano**
3.	**The same stand,** Simplified double nosepiece Objectives 1* and 3, eyepiece IV Magnifications 30 and 100 diameters	**2. 18. 0**	**Tecedor**
4.	**The same stand** for counting colonies on culture plates by Prof. Ficker's method. Objective 3, eyepieces II and IV Eyepiece cross line micrometer No. 99 Magnifications 70 and 100 diameters	**2. 10. 0**	**Tediaba**
	Stand without objectives or eyepieces	**1. 0. 0**	**Testicos**

Stand VIa.

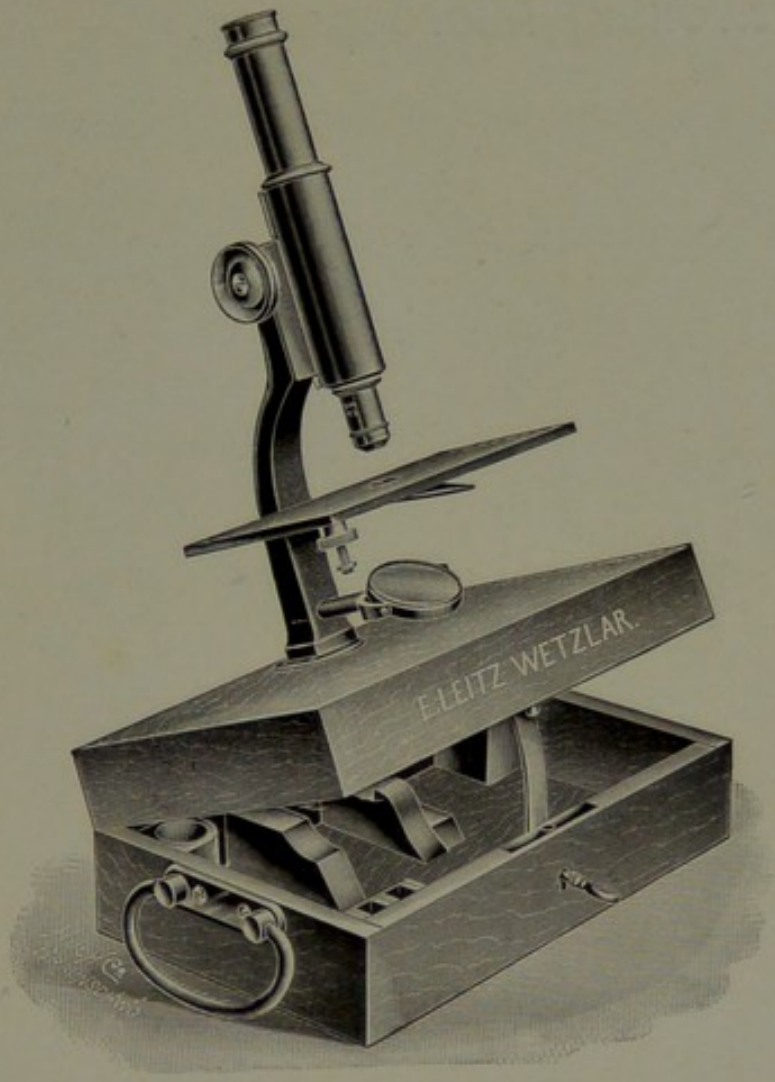
1.	**The same microscope** as Stand VI, but with detachable stage (9×17 cm), which fits separately into the case, the latter being thus comparatively small and portable. Objective 3, eyepieces 0 and IV Magnifications 40 and 100 diameters	**2. 10. 0**	**Toad**
2.	**The same stand,** Combination objective, eyepiece III Magnifications 40 and 100 diameters	**2. 10. 0**	**Tobas**
3.	**The same stand,** Simplified double nosepiece Objectives 1* and 3, eyepiece IV Magnifications 30 and 100 diameters	**3. 3. 0**	**Tocade**
	Stand without objectives and eyepieces	**1. 5. 0**	**Tosterai**

Meat Inspector's Travelling Microscope.



Meat Inspector's Travelling Microscope in Case.

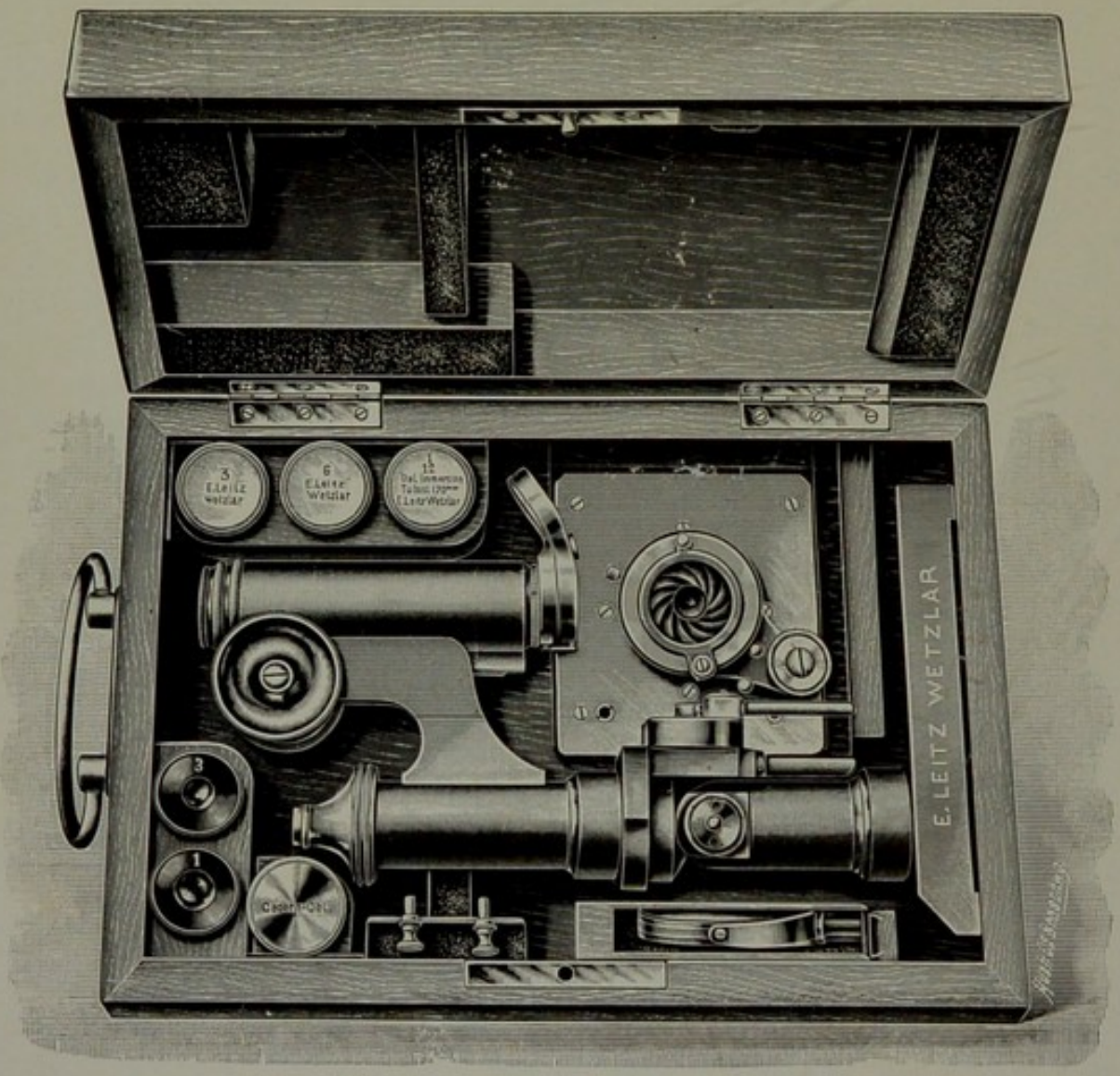
No.		£. s. d.	Code Words
1.	**Meat Inspector's Travelling Microscope,** disjointing, with upper part of the tube to slide into the lower part, causing the instrument to fit into a very small case. The latter serves likewise as a foot to the stand, the lid being fitted with a socket for the reception of a conical pin at the foot of the stand (see Fig. on p. 57). The stage is of the same size as that of Stand VIa and is detachable. Objective 3 Eyepieces 0 and IV Magnifications 40 and 100 diameters	**2. 12. 0**	**Treato**
2.	**The same stand,** Combination objective Eyepiece III Magnifications 40 and 100 diameters	**2. 12. 0**	**Treba**



Meat Inspector's Travelling Microscope set up.

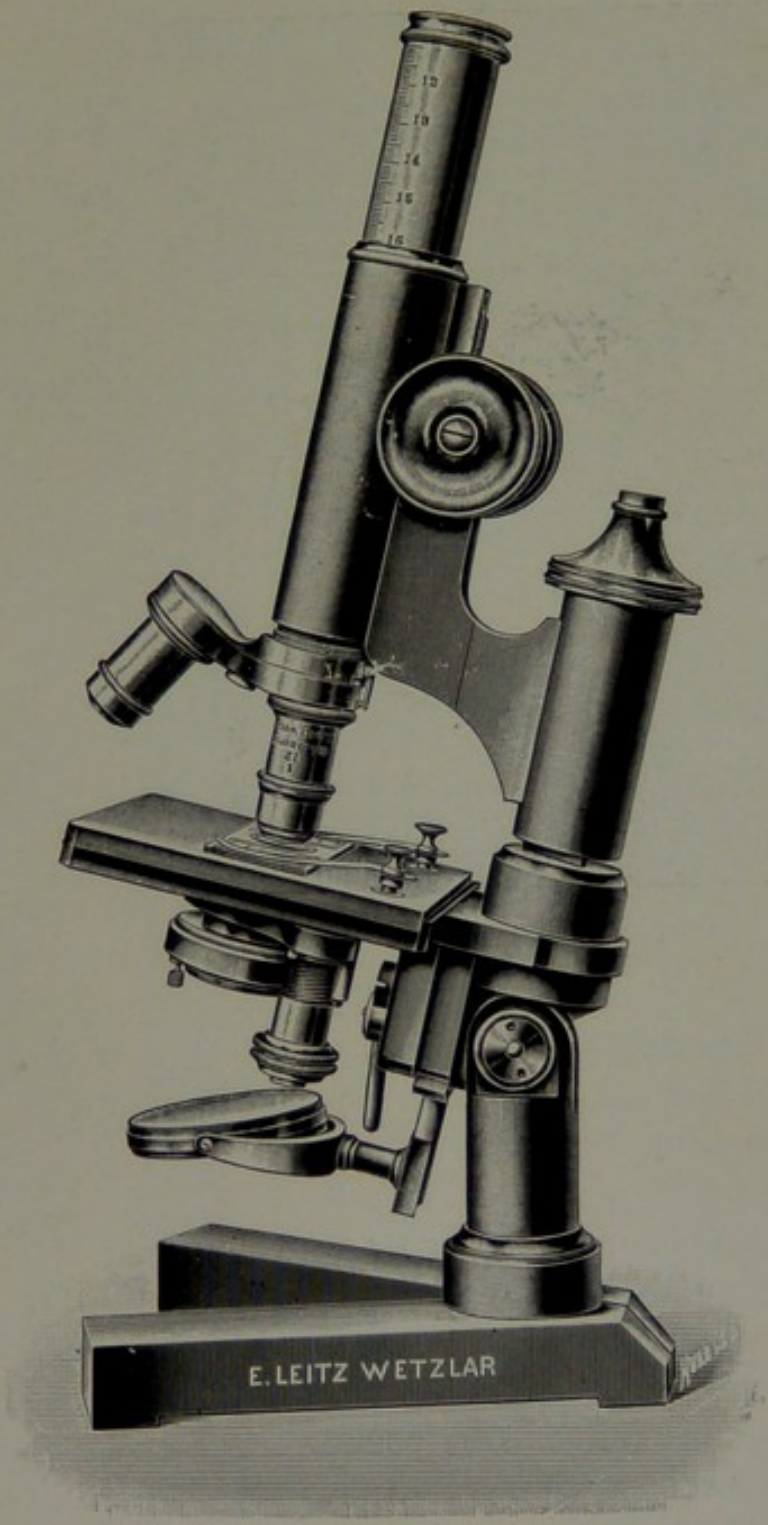
No.		£. s. d	Code Words
3.	**The same stand,** Simplified double nosepiece, Objectives 1* and 3 Eyepiece IV Magnifications 30 and 100 diameters	**3. 5. 0**	**Treceno**
	Stand without objectives and eyepieces	**1. 7. 0**	**Trestiga**
	Glass Screw Compressor, divided, per pair	**0. 2. 0**	**Compressor**
	Pressure plates, undivided, with clips, per pair . . .	**0. 1. 0**	**Pressurer**
	Microscopic Dissecting Case containing 1 pair scissors, 1 scalpel, 1 forceps, 2 dissecting needles, 1 pneumatic pipette	**0. 5. 0**	**Trichinius**

Travelling Microscopes.



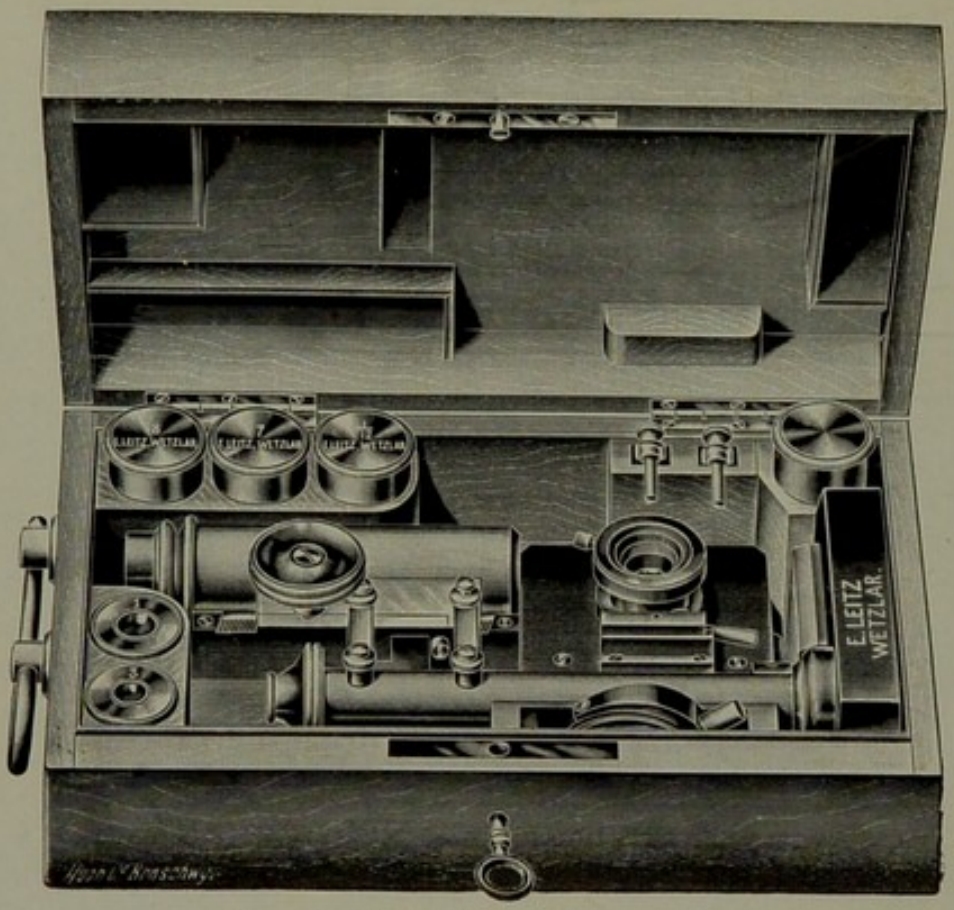
Large Travelling Microscope
(Size of morocco case $12 \times 8^1/_4 \times 3^1/_2$ inches.)

The **Large Travelling Microscope** corresponds in size and working capacity to Stand IIa. The foot consists of two hinged parts, the stage and mirror fold up flat, and the draw-tube closes completely so as to reduce the dimensions of the folded stand to a minimum. During use the stage may be clamped by a lever. The stand is inclinable and provided with a rack and pinion coarse and a micrometer fine adjustment. The illuminating apparatus is similar to that of Stand IIa.



Large Travelling Microscope set up.

No.		£. s. d.	Code Words
1.	**Stand with illuminating apparatus and iris diaphragm,** and double nosepiece	**8. 5. 0**	**Realzo**
2.	**The same stand,** with objectives 3, 6, $^1/_{12}$″ oil-immersion, num. ap. 1.30. Eyepieces I, III Magnifications 60—800	**16. 0. 0**	**Rebotin**

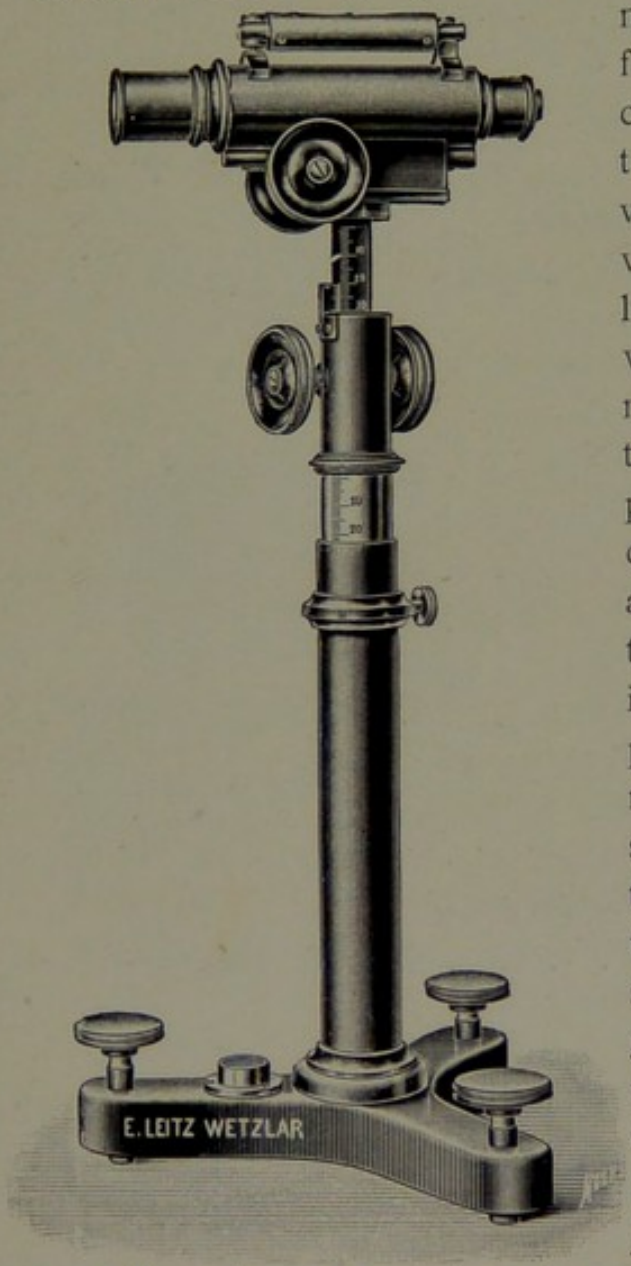


Small Travelling Microscope.

No.		£ s. d.	Code Words
	Small Travelling Microscope. This microscope is ready for use after spreading the foot, drawing out the tube, and setting the mirror and stage in position. It is provided with micrometer adjustment like Stand V, coarse adjustment by rack and pinion and condenser with iris diaphragm. The box accommodates three objectives, two eyepieces and a brass box for a bottle of cedar oil. It is fitted with a lock and handle, and measures $11 \times 6^1/_2 \times 3^1/_2$ inches. The whole apparatus weighs $5^1/_2$ pounds.		
1.	**Small Travelling Microscope** with illuminating apparatus but without objectives and eyepieces . . .	**4. 0. 0**	**Roanes**
2.	**The same stand** with objectives 3, 6, $^1/_{12}$" num. ap. 1.30 eyepieces I and III Magnifications 60—800	**11. 15. 0**	**Robaz**
3.	**Stand** without illuminating apparatus	**3. 0. 0**	**Rocinal**
4.	**The same stand** with objectives 2, 4, 7, eyepieces I and III. Magnifications 33—450	**7. 0. 0**	**Rodista**

£ s. d. Code Word

Horizontal Reading Microscope. This instrument consists of a microscope tube placed horizontally on a column which may by a draw and rack and pinion movement be extended from 34 to 55 cm. The column rises from a tripod base provided with a level and levelling screws. A millimeter scale and a vernier indicate to 1/10 millimeter the magnitude of vertical displacements. The microscope tube carries a spirit level and may thus be made to rotate in a strictly horizontal plane by the adjustment of the levelling screws at the foot of the stand. The objective consists of two separable doublets and gives three magnifications at 5, 9 and 48 cm focus respectively. A rack and pinion adjustment serves to focus the microscope tube. A micrometer, 1 cm long divided into 100, in the diaphragm of the eyepiece still further increases the utility of the instrument for fine and accurate measurements.



Price, including objective, eyepiece and micrometer **5. 0. 0** **Reader**

Demonstration Microscopes.

Improved pattern with convenient undetachable handle.

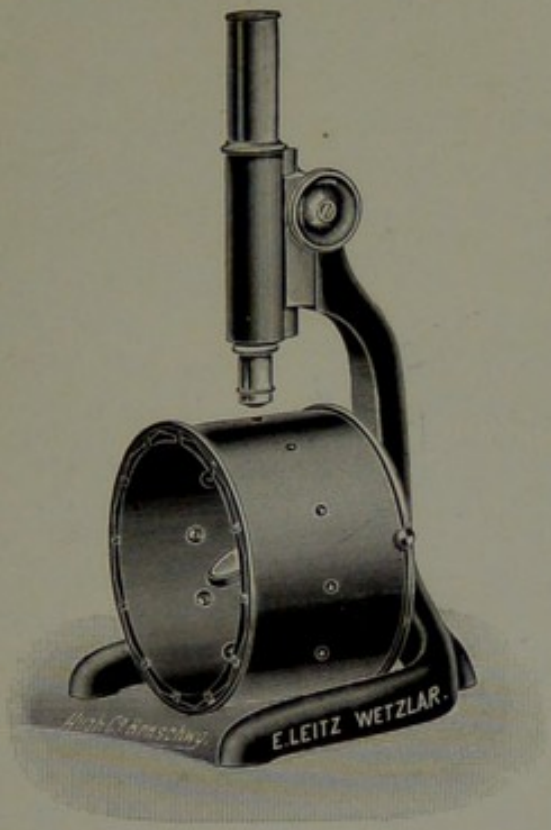
Demonstration microscope with condenser.

No.		£ s. d.	Code Words
1.	**Demonstration Microscope** for low and medium powers. Square stage with wheel-diaphragm. Adjustment by sliding tube. After adjustment the tube may be fixed by a clamping ring. Stand without objective and eyepiece	**0. 15. 0**	**Demostrado**
2.	**The same** with objective 3 and eyepiece I Magnification 60 diameters . .	**1. 15. 0**	**Demonstras**
3.	**The same** with adjusting screw for focussing high power objectives and with condenser and iris-diaphragm, but without objectives and eyepieces	**2. 5. 0**	**Demonstrem**
4.	**The same** with objectives 3 and 6 and eyepiece I Magnifications 60 and 255 diameters	**4. 15. 0**	**Demonstror**

All these demonstration microscopes are supplied in a neat polished mahogany box.

Museum Microscope.

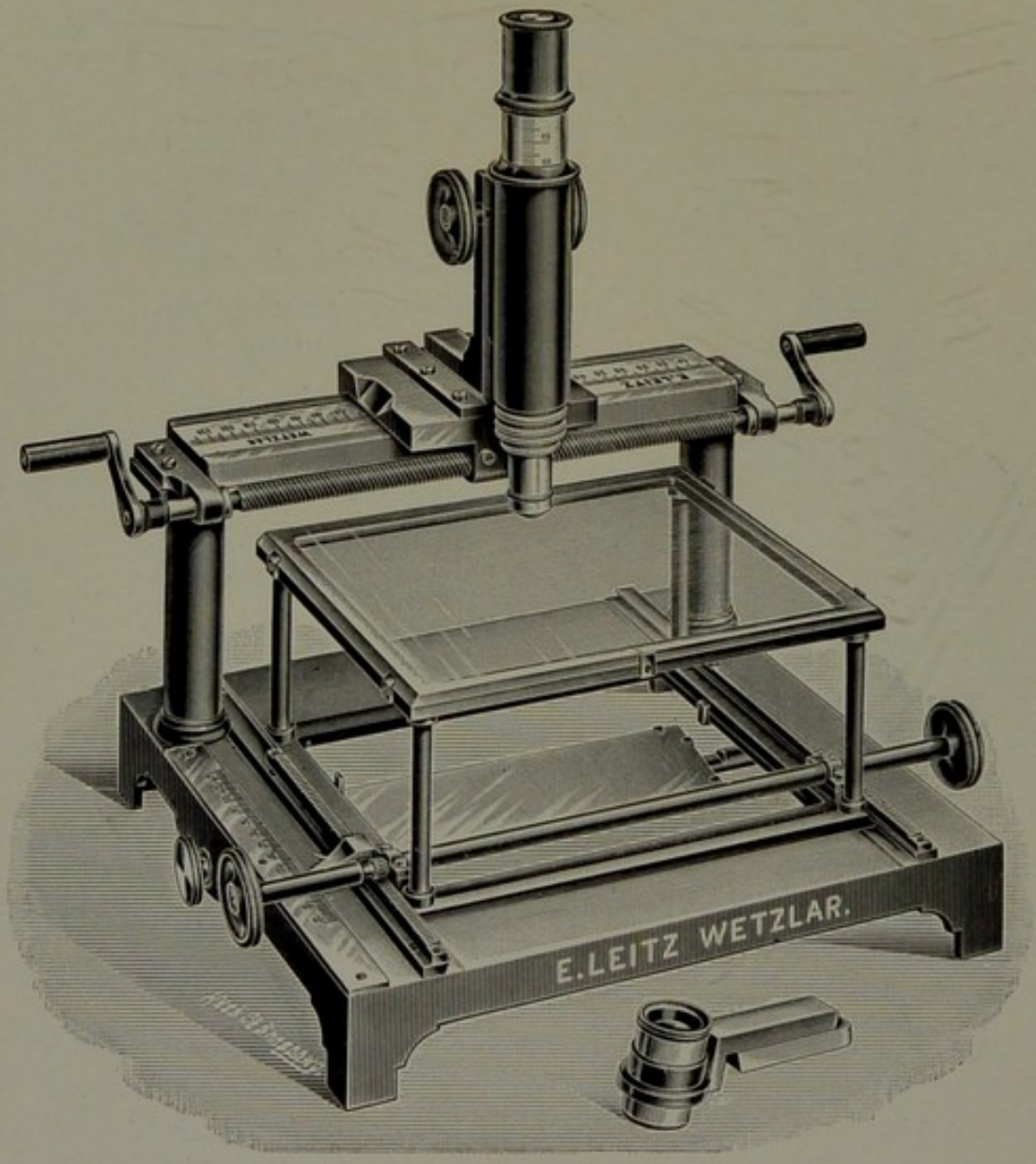
£ s d. Code Word



The **Museum Microscope** is a simple apparatus for showing on one instrument to persons unacquainted with the use of the microscope a series of specimens, without the necessity of replacing these by others and readjusting the instrument.

In this instrument the stage is replaced by a drum capable of rotation from left to right and provided with supports for 12 preparations. The latter are separately retained in position by clips. Another detachable drum of sheet metal serves to protect the specimens from damage. Both drums are perforated by 12 apertures for illumination and observation. The interior of the drum contains a mirror which is movable in all directions. A spring register at the back of the drum ensures the correct position of each specimen as it comes under observation. The microscope is provided with a coarse rack and pinion adjustment and is accordingly adapted for use with low powers only.

Price of the Museum Microscope, in case, with objective 3 and eyepiece II . . . . . **8. 10. 0** **Museum**



Nebelthau's Traversing Microscope.

Nebelthau's Traversing Microscope

(as described in the Zeitschrift für wissensch Mikr., Vol. XIII, 1896, p. 417).

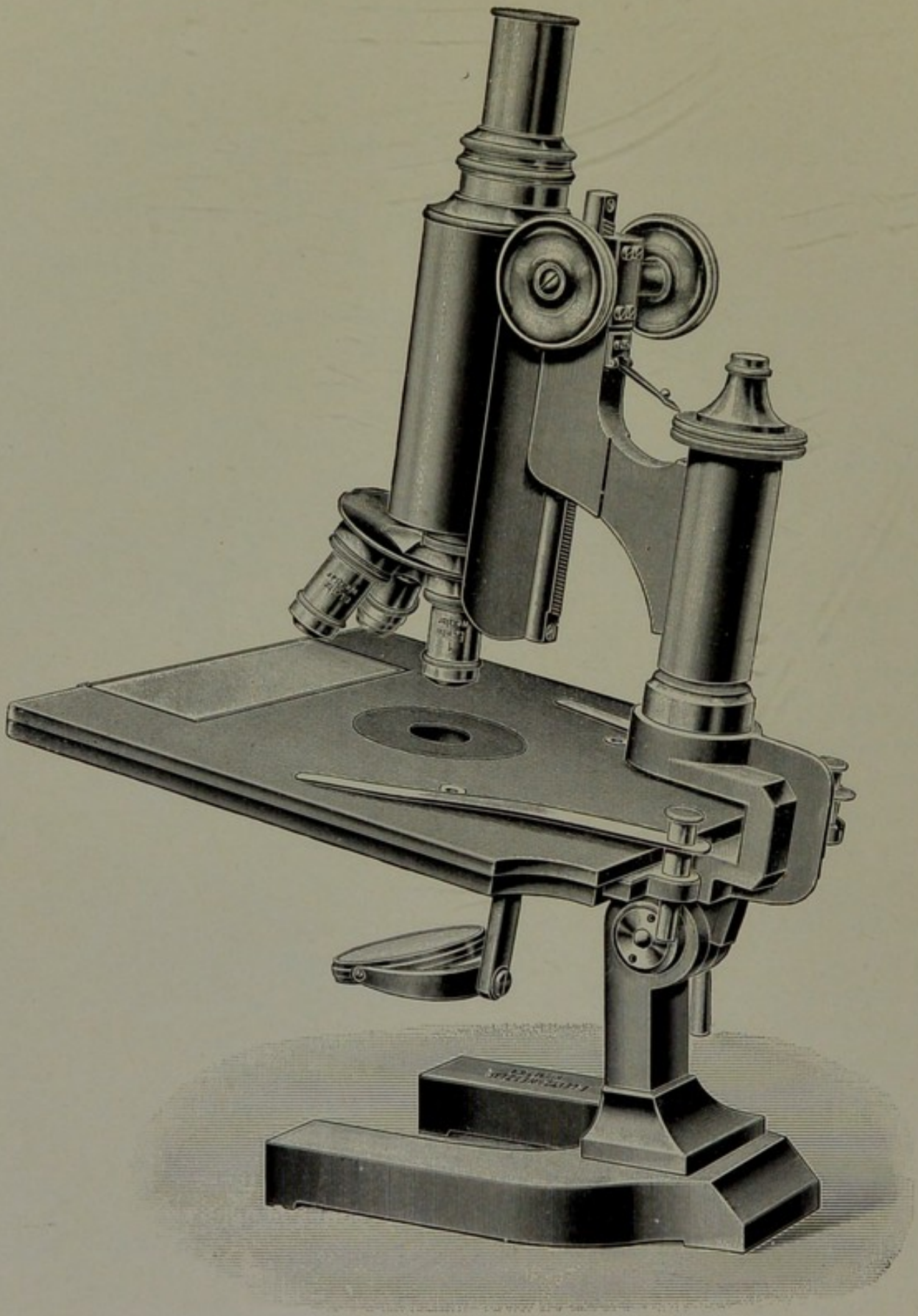
	£	s	d.	Code Words

The Traversing Microscope is an instrument by means of which very large objects, such as large sections of the brain, may be examined systematically. It is also useful for the general examination of plate cultures.

The microscope is mounted upon a travelling carriage running on a heavy beam supported by two stout pillars under which the stage moves. The various movements are accomplished by the combined motion of the microscope and that of the stage on a track at right angles to the former. The microscope is moved by a screw, the stage by a double rack and pinion. The magnitude of the movements is indicated in each case by a scale, thus affording the means for systematic examination of the entire specimen. The stage consists of a glass plate, measuring 16×20 cm and carried in a frame supported on four columns. The range of motion of the microscope is 18 cm, that of the stage 13.5 cm. A mirror under the stage affords ample illumination. The microscope tube is so arranged that it can be easily removed from the stand and a simple lens substituted for it. The coarse adjustment of the microscope is effected by rack and pinion. A screw above the objective serves for the fine adjustment.

The price of this traversing microscope, without objectives or eyepieces but with a lens holder and simple lens magnifying eight diameters is . . . . . **10. 0. 0** **Nebelthau**

Moulded glass dish of the same size as the stage to hold very large sections . . . . . **0. 3. 0** **Glasschale**



Microscope for the Examination of Brain Sections.

Microscope

for the examination of brain sections.

£ s. d. Code Words

This stand is of unusual dimensions and was primarily designed for the examination of large brain sections.

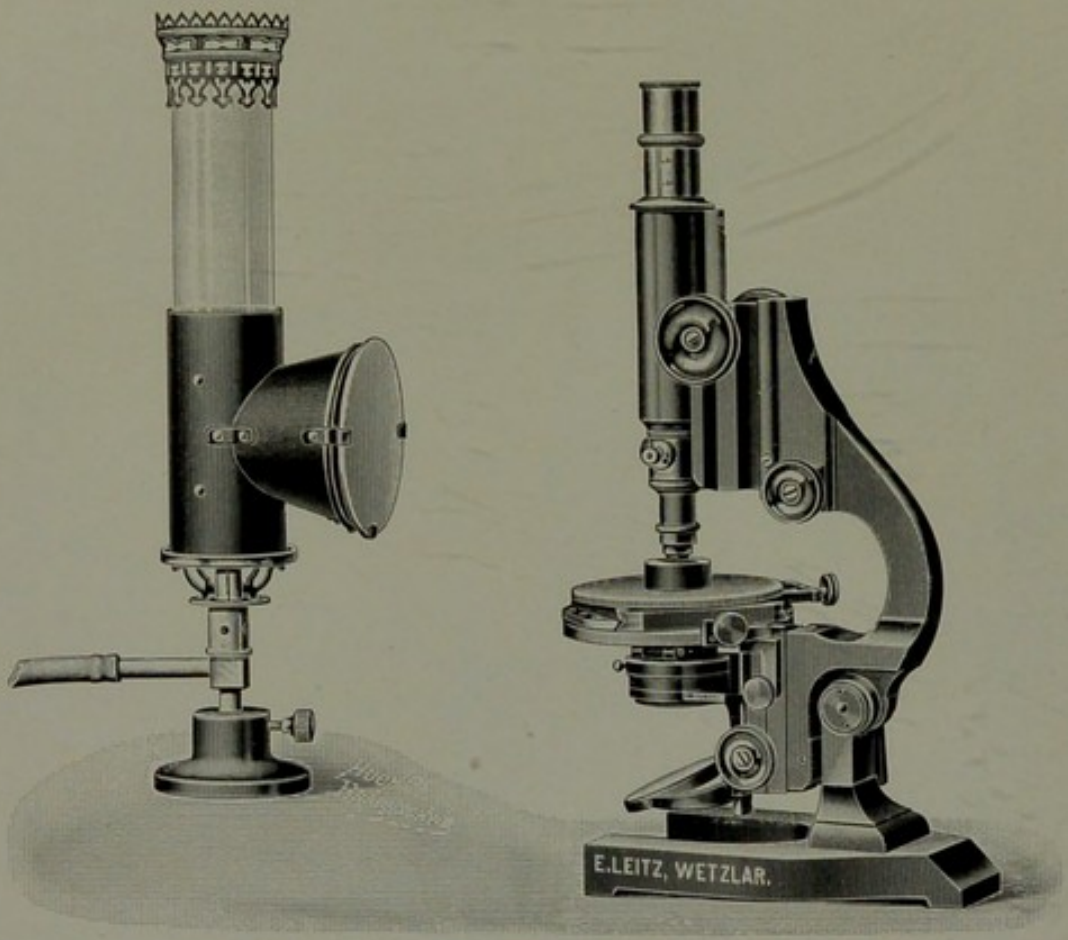
The instrument is fitted with a fixed square stage measuring 20×20 cm and accommodates accordingly the largest sections. The tube is wide like that of Stand A and admits with the lowest powers of an extensive view of the entire preparation. The stand is accordingly eminently adapted for photo-micrographic work.

In addition to a rack and pinion for the coarse adjustment the stand is equipped with a micrometer movement, which renders it available for use with high powers.

The stand is supplied either with a stop dropped into the stage opening or with the medium sized Abbe illuminator with lateral screw c (see p. 94, c).

Stand with stage stop . . . . . **8. 0. 0** **Cervello**

Stand with medium sized Abbe illuminator and lateral screw . . . . . **9. 10. 0** **Cervelluta**



The Metallurgical Microscope conforms in its dimensions to Stand B. It is fitted with the new micrometer movement (1 division = 0.001 mm) and the large Abbe illuminating apparatus (b). The illumination of opaque objects (metals) is effected with the aid of the new opaque illuminator (see p. 98). The round mechanical stage is vertically adjustable by a rack and pinion and may be inclined to the optical axis by means of a lateral fitting. The vertical displacement of the stage, besides admitting of the examination under the microscope of large pieces of metal of considerable thickness, furnishes an additional means of focussing an object by means of the rack and pinion of the stage. This is an important advantage when an object is being examined by several objectives in succession, since it removes the necessity of readjusting the opaque illuminator with respect to the light, which would be necessary if focussing had to be effected by the adjustment of the tube. The inclinability of the stage enables the observer to place all parts of objects with uneven surfaces in their proper positions.

	£. s. d.	Code Words
Metallurgical Microscope with large Abbe illuminator (b) and opaque illuminator	**16. 5. 0**	**Metallicus**
The same stand without Abbe illuminator, with opaque illuminator only	**13. 5. 0**	**Metalloid**

Microscopes

for mineralogical investigations.

We have, with the kind co-operation of Dr. Lincio, remodelled our mineralogical microscopes, especially our large Stand A, so as to render them available for the most advanced requirements (see Jahrbuch für Mineralogie, Supplementary Volume XXIII, 1906).

For the optical equipment of our mineralogical microscopes we carefully select from the large number of objectives which pass through our hands such only as are absolutely free from polarising properties.

All eyepieces fitted for cross lines and micrometers are provided with a movable eye lens for focussing without parallax.

For our polarisers we employ exclusively prisms with large apertures of the most approved Glan-Thompson type.

All stands are, for the better observation with and without eyepiece, of axial images, provided with a moderating disc.

The subjoined illustrations of the stands represent approximately one half their true dimensions.

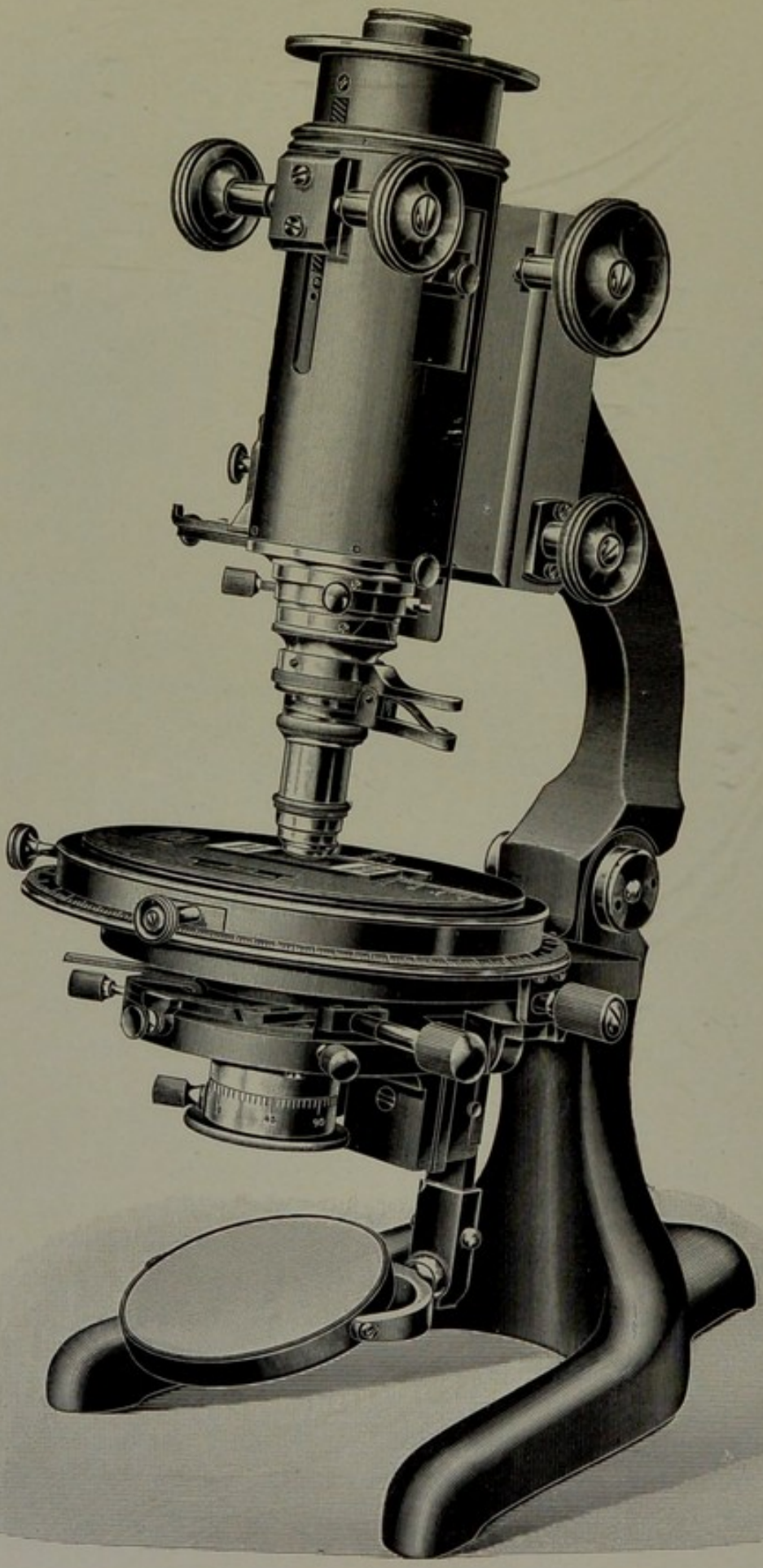
Large Mineralogical Stand A.

(Universal Stand as suggested by Dr. Lincio).

The manifold requirements which a perfect mineralogical microscope is called upon to satisfy led unavoidably to somewhat larger dimensions than those of our other stands.

The stand is provided with coarse adjustment by rack and pinion and our new continuous fine movement, which reads to 0.001 mm and safeguards the immunity of the cover-glasses and preparations (see p. 20).

The boldly arched upper body lends itself admirably for the examination of objects adjusted by rotary appliances. In addition, the arch forms a convenient handle by which the stand may be carried.



Large Mineralogical Stand A.

The hinge for the inclination of the body is on a level with the top of the stage, which ensures a better distribution of weight when the stand is tilted back.

The tube is unusually wide, so as to secure for the analyser a more precise and better protected position. The tube, which is provided with a millimeter scale, is raised and lowered by a rack and pinion.

The top of the tube takes the upper analyser, which has a circle divided into 360^0 for determining the magnitude of circular polarisation. A longitudinal slit in the tube serves for the introduction into the draw-tube, or into the path of the rays, of a Bertrand lens mounted in a slider. The other analyser at the lower end of the tube is entirely enclosed, and, being fitted to a slider, may be inserted and withdrawn at pleasure. This sliding analyser may be turned through 90^0, the magnitude of the rotation being indicated by a quadrant divided into whole degrees and attached to the right hand side of the tube.

The lower end of the tube is fitted with a centring head for accurately adjusting the objectives with respect to the centre of the object stage. The rigid construction of this improved centring head renders it available for use with a revolving nosepiece in the place of the usual objective clutches. The centring head has a slit for the introduction of selenite and mica compensators.

The microscope is equipped with a large revolving stage with slide movements at right angles to each other, divided into half degrees and reading to minutes by a vernier. The underside of the stage is provided with a fine helical wheel rim into which an endless screw may be made to engage at pleasure. The object of this refinement is to facilitate the fixation and exact adjustment of an object during operations involving goniometric measurements, determinations of angles of obliteration, etc. The motion of the stage, the range of which is 20 mm in either direction, is effected by two screws and controlled by scales situated in the face of the stage. The latter is likewise provided with finder scales. The stage is set in a plane strictly normal to the optical axis by the method of "autocollimation." By the rotation of a milled head situated on the right below the

No. £ s d. Code Words

stage the polariser and iris-diaphragm together with the condenser may be raised and lowered conjointly. The polarising prism is in an adjustable mount which is graduated into 72 parts. The zero point, which coincides with the principal meridian of the microscope (0^0—180^0), is situated on the right hand side of the stand and is marked by an index line on the fixed mount of the polariser. After loosening a clamping screw with which the mounting of the polariser is provided the adjustment of the intersection of the meridians of the analyser and polariser may be completed.

Immediately above the polariser there is an iris-diaphragm and above this a lens transmitting nearly parallel rays. Both are mounted upon a slider and may be withdrawn as soon as the illuminating apparatus has been lowered. By a quarter turn of a milled head on the left below the stage the two upper lenses of the three-part condenser may be brought into line with the optical axis and similarly withdrawn. The centration with respect to the optical axis of these two lenses is easily accomplished by two screws.

The polariser, iris-diaphragm, and condenser are readily removed independently and replaced by a condenser of great light gathering power for ordinary microscopic observation.

The outfit includes a magnifier with a large field for accurately reading the scales.

1. **Stand** with large revolving mechanical stage and polariser of 30^0 aperture . . . . . **36. 10. 0** **Paateiro**

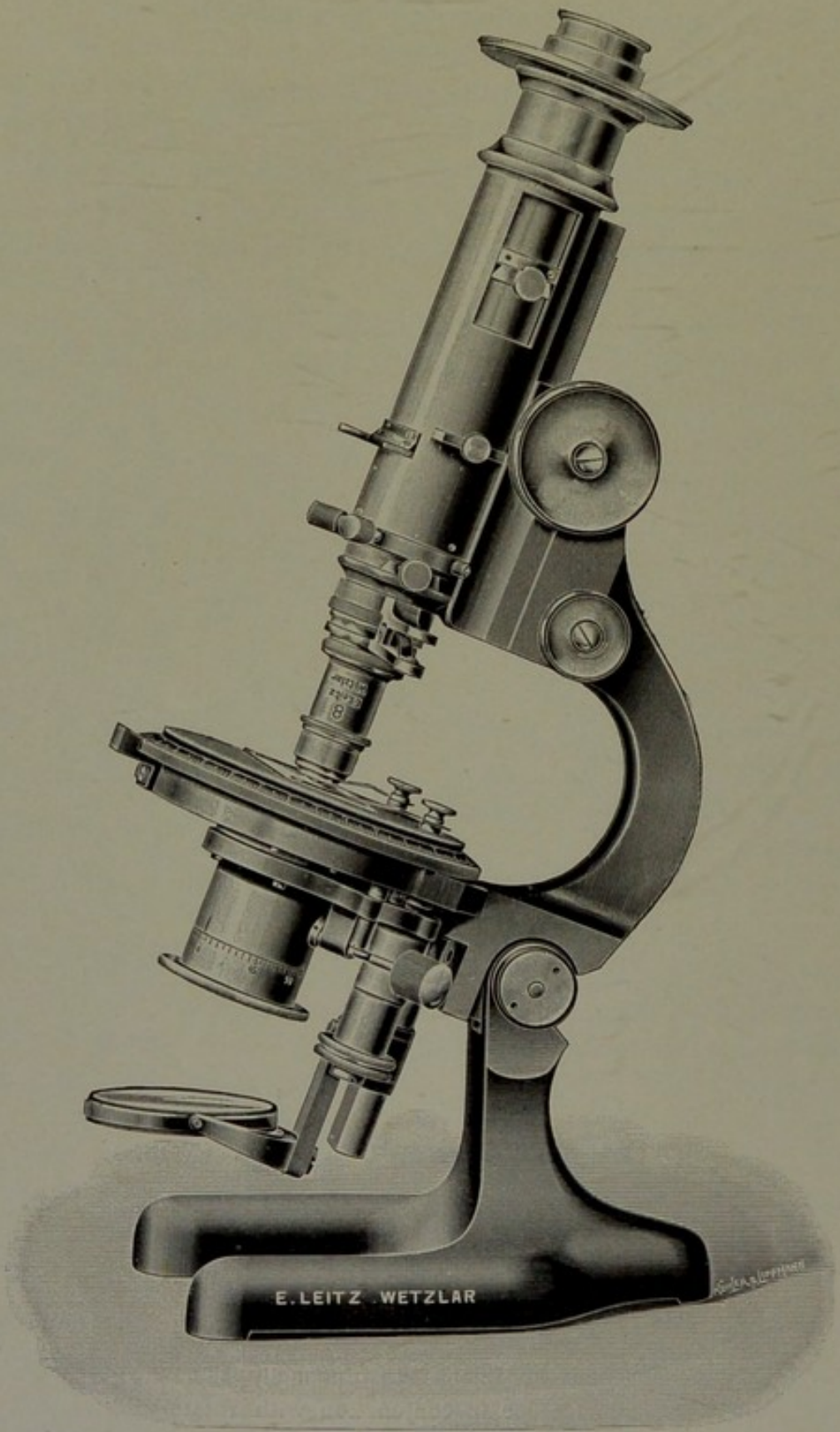
2. **The same stand** with polariser of 19^0 aperture . **34. 0. 0** **Pabular**

3. **The same stand** with simple revolving stage and polariser of 30^0 aperture . . . . . **32. 10. 0** **Pacido**

4. **The same stand** with simple revolving stage and polariser of 19^0 aperture . . . . . **30. 0. 0** **Padrinos**

	£ s. d.	Code Words
The following may be recommended as a suitable optical outfit for these stands:		
Achromatic objectives 1, 3, 5, 7, and oil-immersion $^1/_{12}$, num. ap. 1.30	**9. 5. 0**	**Pracebo**
Immersion objective of num. ap. 1.48, corrected chromatically only, not spherically, being thus available for the observation of crystals with large axial angles, but not for the study of structural details	**3. 0. 0**	**Prasina**
The outfit may include the following complements:		
Eyepiece I with Bertrand's quartered quartz plate . .	**1. 5. 0**	**Precator**
Eyepieces 0, I, II, III with adjustable eye-lens and cross lines, each 9/—	**1. 16. 0**	**Presago**
Eyepiece II and III with adjustable eye-lens adapted for a micrometer (see p. 105), each 5/—	**0. 10. 0**	**Pridian**
Stage micrometer 2 mm = 200 parts, for comparison	**0. 5. 0**	**Micropoda**
Selenite films, red I. order, and mica films $^1/_4$ wavelength, both mounted	**0. 8. 0**	**Priverno**
Illuminating apparatus d, which may be slipped into the sleeve in the place of the polariser	**1. 0. 0**	**Illuminum**
Klein's lens with micrometer	**1. 0. 0**	**Prodano**
Eyepiece 0 with cross lines, iris-diaphragm, and adjustable eye-lens	**1. 5. 0**	**Prolecto**
As adjuncts for rapidly changing objectives on the stand:		
Lens clutch with adapters (or revolving nosepiece, see p. 100)	**0. 15. 0**	**Clutch**
Sliding adapter for producing oblique illumination (fitting the lower flange of the polariscope)	**1. 5. 0**	**Pruneto**
Opaque illuminator No. 79	**1. 5. 0**	**Opaque**

Objective 1, as recommended above, has an unusually short working distance and is therefore available for use in conjunction with rotatory appliances or very thick objects, where it obviates the necessity of racking the tube up to its extreme end



Mineralogical Stand C.

Mineralogical Stand C.

This stand is of a considerably smaller size and also much simpler than the Universal Stand A. It has, however, like the latter, in addition to the rack and pinion adjustment, the new continuous fine movement reading to $^1/_{1000}$ mm, which offers complete immunity from accidental destruction of preparations and their cover-glasses during the process of focussing high powers.

Stand C is likewise of the curved pattern, so as to greatly increase the available space on the stage and provide a convenient handle for carrying the instrument.

The condenser and polariser may be raised and lowered by a lateral screw. Transition from convergent to parallel pencils is effected by a quarter turn of a milled head situated at the side, which throws the two upper lenses of the triple condenser out of the optical axis.

The mount of the polarising prism is divided into 72 parts. After loosening a screw within the mount the adjustment of the intersection of the meridians of the analyser and polariser may be completed by turning the latter.

The zero point, which coincides with the principal meridian of the microscope (0^0—180^0), is situated at the front of the stand and is marked by a line in the fixed sleeve mount of the polariser.

The polariser has immediately above it an iris-diaphragm, the opening of which is readily adjusted by a small lever situated on the right below the stage.

The iris is situated immediately below the lower lens of a three-part condenser, which, after lowering, may be swung out for the detachment of this lens. The removal of the polariser renders the triple condenser available for the majority of investigations with non-polarised light.

The lower flange of the polariscope takes a carrier for the interposition of coloured glass discs.

The rotation of the stage, which is divided into 360^0, is read by a vernier. The face of the stage is provided with finders.

The centring head at the lower end of the tube is slotted for the insertion of selenite and mica compensators.

No.		£ s. d.	Code Words
	The analyser above the centring head may with ease be passed in and out of the optical axis. This sliding analyser is likewise capable of rotation through an angle of 90°.		
	A Bertrand lens mounted upon a slider may at pleasure be included in the path of the rays.		
	The upper analyser slips over the upper tube end and has a circle divided into 360° for measuring circular polarisation.		
1.	**Stand** with polariser of 30° aperture	**20. 0. 0**	**Peantis**
2.	**Stand** with polariser of 19° aperture	**17. 10. 0**	**Pebrada**
	Optical outfit adapted for mineralogical research:		
	Achromatic objectives 1, 3, 5, 7, and oil-immersion 1/12 num. ap. 1 30	**9. 5. 0**	**Pracebo**
	Immersion objective of num. ap 1.48, corrected chromatically only, not spherically, being thus available for the observation of crystals with large axial angles, but not for the study of structural details	**3. 0. 0**	**Prasina**
	The outfit may include the following complements:		
	Eyepiece I with Bertrand's quartered quartz plate . . .	**1. 5. 0**	**Precator**
	Eyepieces I and III with adjustable eye-lens and cross lines, each 9/—	**0. 18. 0**	**Prenote**
	Eyepiece II with adjustable eye-lens adapted for a micrometer (see p. 105)	**0. 5. 0**	**Prigione**
	Stage micrometer 2 mm = 200 parts, for comparison	**0. 5. 0**	**Micropoda**
	Selenite films, red I. order, and mica films 1/4 wavelength, both mounted	**0. 8. 0**	**Priverno**
	Klein's lens with micrometer	**1. 0. 0**	**Prodano**
	Eyepiece 0 with cross lines, iris-diaphragm, and adjustable eye-lens	**1. 5. 0**	**Prolecto**
	As adjuncts for rapidly changing objectives on the stand:		
	Lens clutch with adapters (or revolving nosepiece see p. 100)	**0. 15. 0**	**Clutch**

Mineralogical Stand I.

This stand conforms in its dimensions and general equipment to the preceding Mineralogical Stand C.

It differs, however, from the latter entirely in the external form of the stand, which is that of the older straight-bodied pattern, and in that it has the ordinary micrometer movement reading to 1/100 mm. The coarse adjustment is effected by a rack and pinion movement. The stand is inclinable about a hinge. The condenser and polariser may be raised and lowered by a lateral screw. Transition from convergent to parallel light is effected by a quarter turn of a milled head on the left, whereby the two upper lenses of the triple condenser may be thrown out of action.

The mount of the polarising prism is divided into 72 parts. After loosening a screw within the mount the adjustment of the intersection of the meridians of the analyser and polariser may be completed by turning the latter.

The zero point, which coincides with the principal meridian of the microscope (0^0—180^0), is situated at the front of the stand and is marked by a line in the fixed sleeve mount of the polariser.

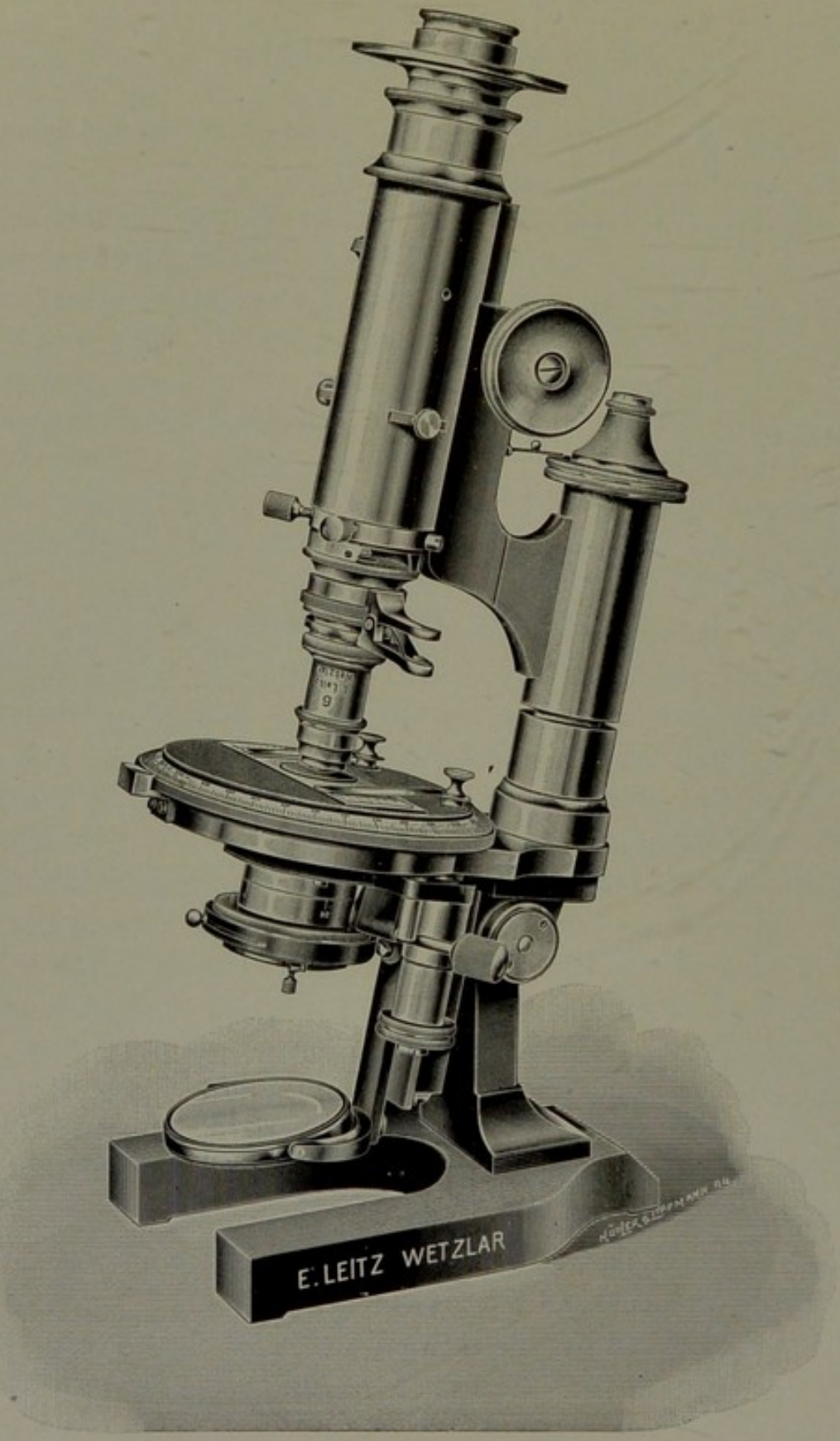
The polariser has immediately above it an iris-diaphragm, the opening of which is readily adjusted by a small lever situated on the right below the stage.

The iris is situated immediately below the lower lens of a three-part condenser, which after lowering may be swung out for the detachment of this lens. The removal of the polariser renders the triple condenser available for the majority of investigations with non-polarised light.

The lower flange of the polariscope takes a carrier for the interposition of coloured glass discs.

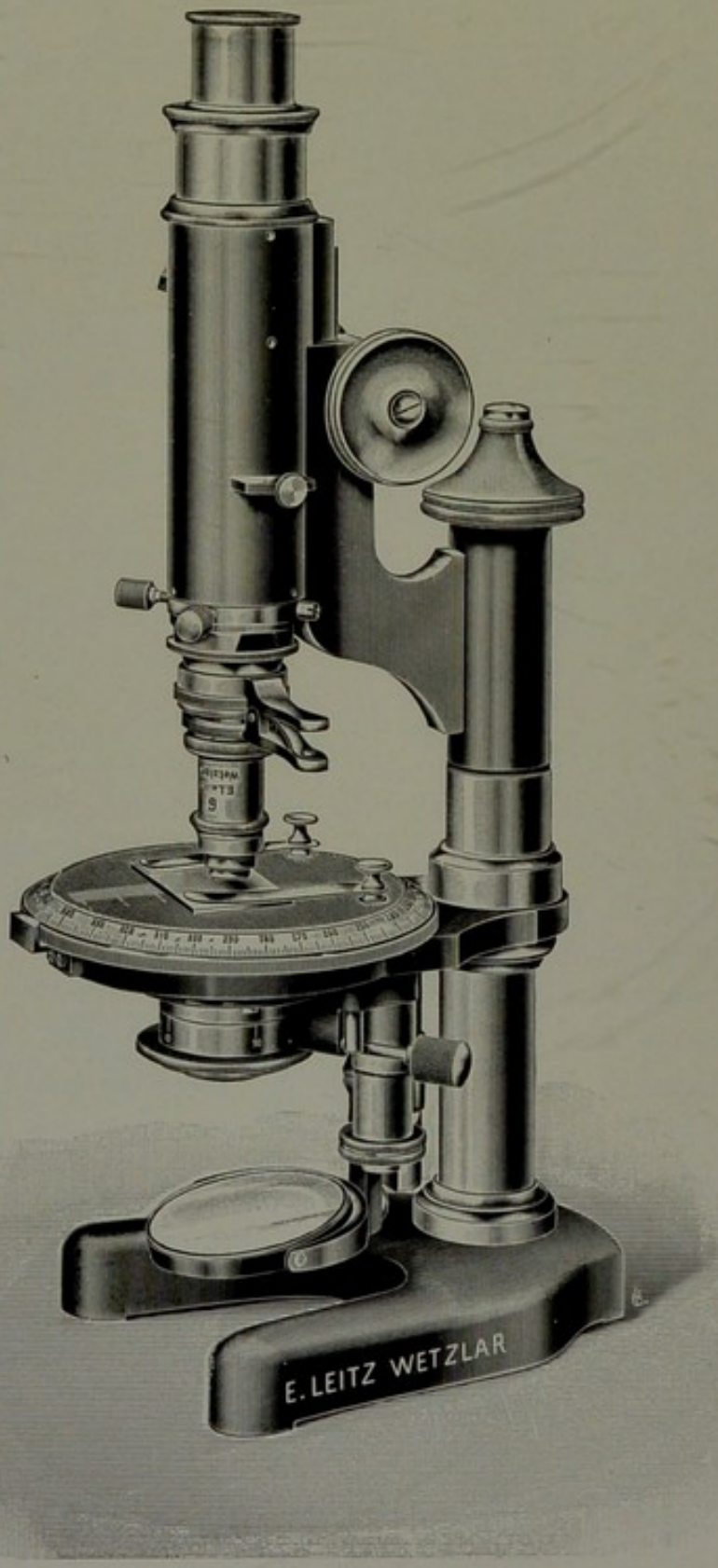
The rotation of the stage, which is divided into 360^0, is read by a vernier. The face of the stage is provided with finders.

The centring head at the lower end of the tube is slotted for the insertion of selenite and mica compensators.



Mineralogical Stand I.

No.		£ s d.	Code Words
	The analyser above the centring head may with ease be passed in and out of the optical axis. This sliding analyser is likewise capable of rotation through an angle of 90°.		
	A Bertrand lens mounted upon a slider may at pleasure be included in the path of the rays.		
	The upper analyser slips over the upper tube end and has a circle divided into 360° for measuring circular polarisation.		
1.	**Stand** with polariser of 30° aperture	**19. 0. 0**	**Piador**
2.	**Stand** with polariser of 19° aperture	**16. 10. 0**	**Pibcorn**
	Optical outfit adapted for mineralogical research:		
	Achromatic objectives 1, 3, 5, 7, and oil-immersion 1/12 num. ap. 1.30	**9. 5. 0**	**Pracebo**
	Immersion objective of num. ap. 1.48, corrected chromatically only, not spherically, being thus available for the observation of crystals with large axial angles, but not for the study of structural details	**3. 0. 0**	**Prasina**
	The outfit may include the following complements:		
	Eyepiece I with Bertrand's quartered quartz plate . .	**1. 5. 0**	**Precator**
	Eyepieces I and III with adjustable eye-lens and cross lines, each 9/—	**0. 18. 0**	**Prenote**
	Eyepiece II with adjustable eye-lens adapted for a micrometer (see p. 105)	**0. 5. 0**	**Prigione**
	Stage micrometer 2 mm = 200 parts, for comparison	**0. 5. 0**	**Micropoda**
	Selenite films, red I. order, and mica films 1/4 wavelength, both mounted	**0. 8. 0**	**Priverno**
	Klein's lens with micrometer	**1. 0. 0**	**Prodano**
	Eyepiece 0 with cross lines, iris-diaphragm, and adjustable eye-lens	**1. 5. 0**	**Prolecto**
	As adjuncts for rapidly changing objectives on the stand:		
	Lens clutch with adapters (or revolving nosepiece see p. 100)	**0. 15. 0**	**Clutch**



Mineralogical Stand II.

Mineralogical Stand II.

£ s. d. Code Words

This stand is not inclinable and lacks the upper analyser for circular polarisation and stauroscopic determinations.

It is fitted with a rack and pinion coarse adjustment and a micrometer movement of the ordinary type.

The condenser and polariser may be raised and lowered by a lateral screw. The transition from convergent to parallel light is effected by a quarter turn of a milled head at the side, which throws the two upper lenses of the triple condenser out of action. The polariser is marked at 0^0, 90^0, 180^0, 270^0 and is easily removed from the condenser sleeve. The zero point, which coincides with the principal meridian of the microscope (0^0—180^0) is at the front of the stand and marked by an index line in the condenser sleeve. The stage is graduated into 360 degrees. Its rotation is read by an index. The stage is provided with a finder. The centring head attached to the lower end of the tube has an opening for the introduction of selenite and mica compensators.

The analyser, which is above the centring head, may at pleasure be thrown in and out of action.

The upper part of the tube has a slit for the reception of a slider containing a Bertrand lens.

Stand with polariser of 19^0 aperture . . . . . **9. 0. 0** **Poacit**

The stand may appropriately be equipped with the following optical parts:

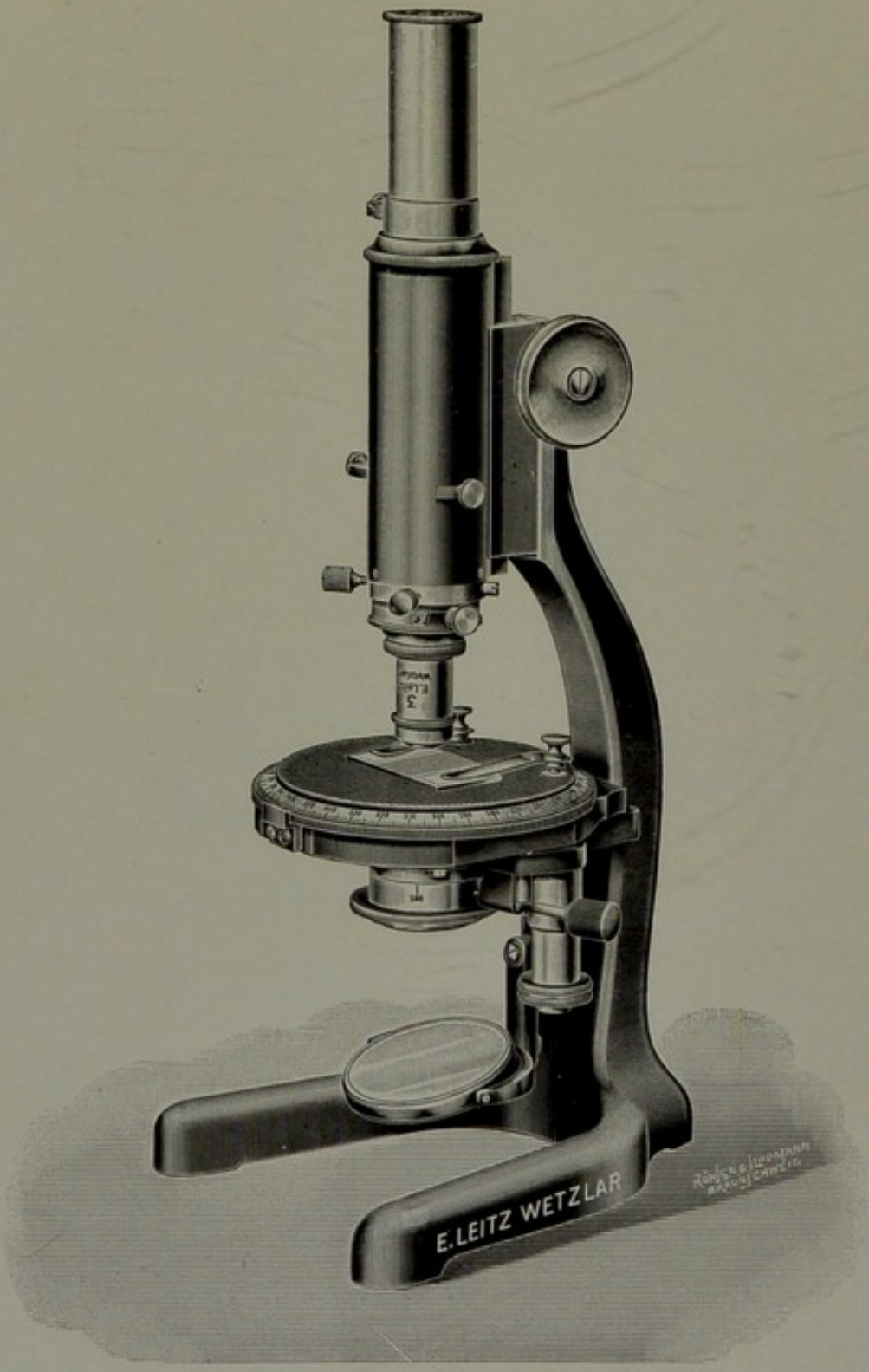
Achromatic objectives 3, 7 and 8 . . . . . **4. 5. 0** **Prodient**

Eyepieces II and III with adjustable eye lenses and cross lines, each 9/— . . . . . **0. 18. 0** **Presedo**

Eyepiece III with micrometer, 10 mm divided into 100 parts . . . . . **0. 10. 0** **Plorantes**

Selenite films, red I. order, and mica films of $^1/_4$ wavelength, both mounted . . . . . **0. 8. 0** **Priverno**

Objective clutch and adapters (or nosepiece see p. 100) **0. 15. 0** **Clutch**



Mineralogical Stand III.

Mineralogical Stand III.

	£ s d	Code Words

This stand possesses all the qualities of a good and useful auxiliary laboratory stand. Its foot, lower, and upper frame are cast in one piece and lacquered black. The stand is provided with a rack and pinion coarse adjustment only. The condenser and polariser may be raised and lowered by a lateral screw. Transition from convergent to parallel light is effected by a quarter turn of a milled head, which throws the two upper lenses of a triple condenser out of the optical axis. The polariser is easily removed from the condenser sleeve and has position marks at 0^0, 90^0, 180^0 and 270^0. The zero point is at the front of the stand and is marked by an index line on the condenser sleeve.

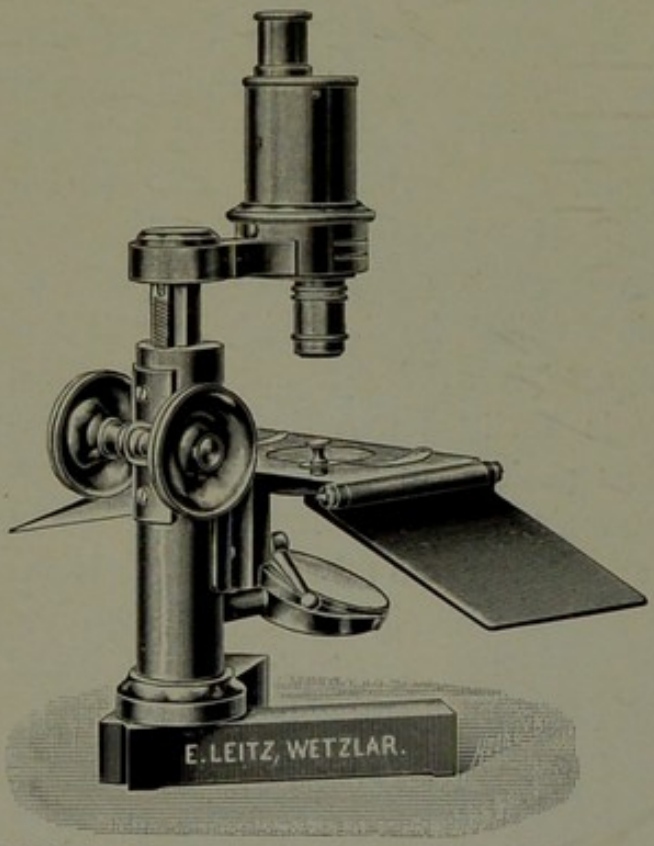
The stage is divided into 360^0 degrees and the amount of rotation is read by an index. The stage is provided with a finder.

The centring head at the lower end of the tube is slotted for the introduction of selenite and mica compensators.

The analyser above the centring head and the Bertrand lens above the tube are easily included in, or removed from, the path of the rays.

Stand with polariser of 19^0 aperture	**6. 10. 0**	**Puarello**
Appropriate equipment:		
Objectives 3 and 5	**2. 0. 0**	**Plumario**
Eyepiece II with cross lines	**0. 9. 0**	**Primole**
Eyepiece III with micrometer 10 mm = 100 parts . .	**0. 10. 0**	**Plorantes**
Selenite films, red I. order, and mica films of $^1/_4$ wavelength, both mounted	**0. 8. 0**	**Priverno**

Dissecting Microscopes, Lens Stands and Magnifiers.



R. Pfeiffer's Erect-vision Dissecting Microscope.

R. Pfeiffer's Erect-vision Dissecting Microscope. The stand of this microscope has been so designed as to render the instrument available for travelling purposes. Its foot is made to fold up. The stage may be turned into line with the tube and the metal hand-rests folded back upon the stage, to which they are attached by hinges. The stage opening is closed by a glass disc, below which is an iris-diaphragm to regulate the size of the active opening. The stand is fitted with a plane and concave mirror. Focussing is effected by rack and pinion.

Two Porro-prisms are mounted within a tube in such manner that by two successive reflections of the image formed by the objective an erect image is obtained in the eyepiece. The latter is of the Ramsden type. The outfit includes objectives 1, 2, 3, which possess considerable working distances.

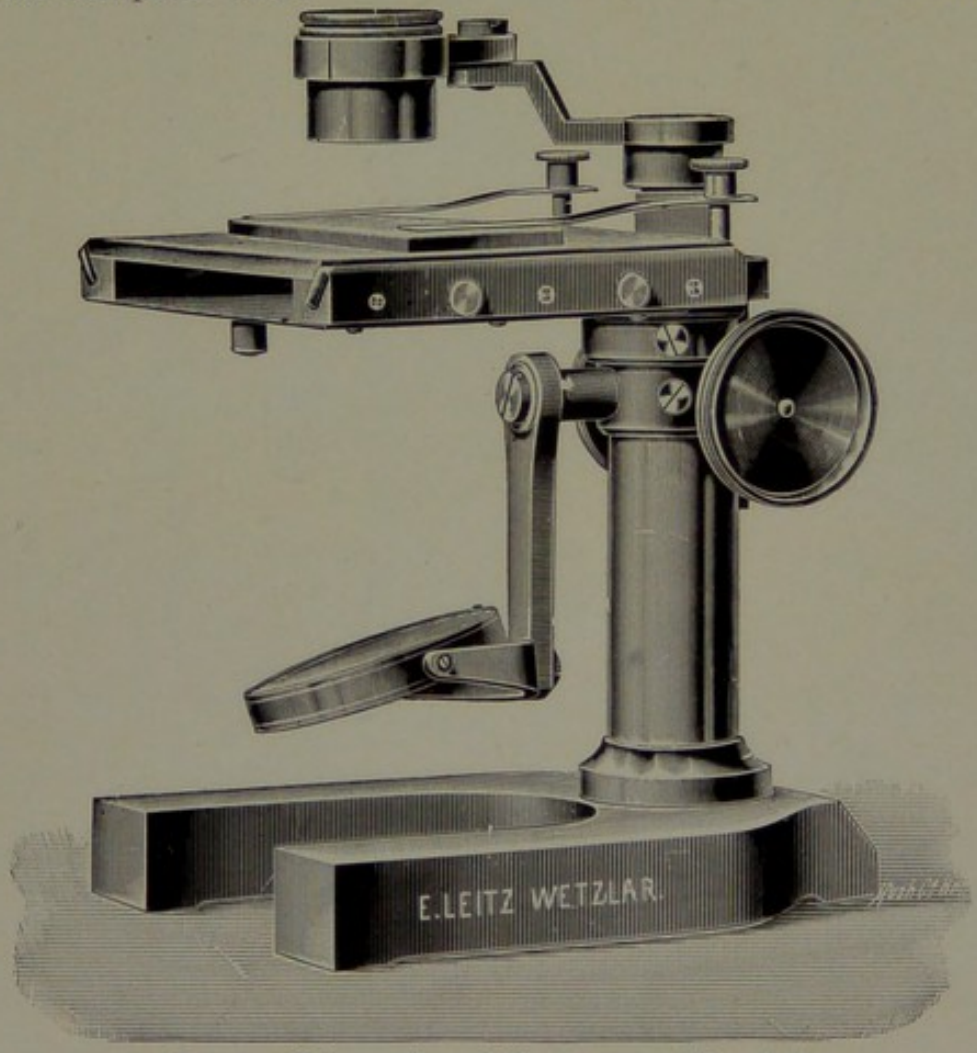
No. £ s d. Code Words

The following table gives the magnifications and working distances of these objectives in conjunction with the eyepiece.

Objective	1	2	3
Magnification	25	60	120 diam.
Working distance	65 mm	20 mm	8 mm

Prices:

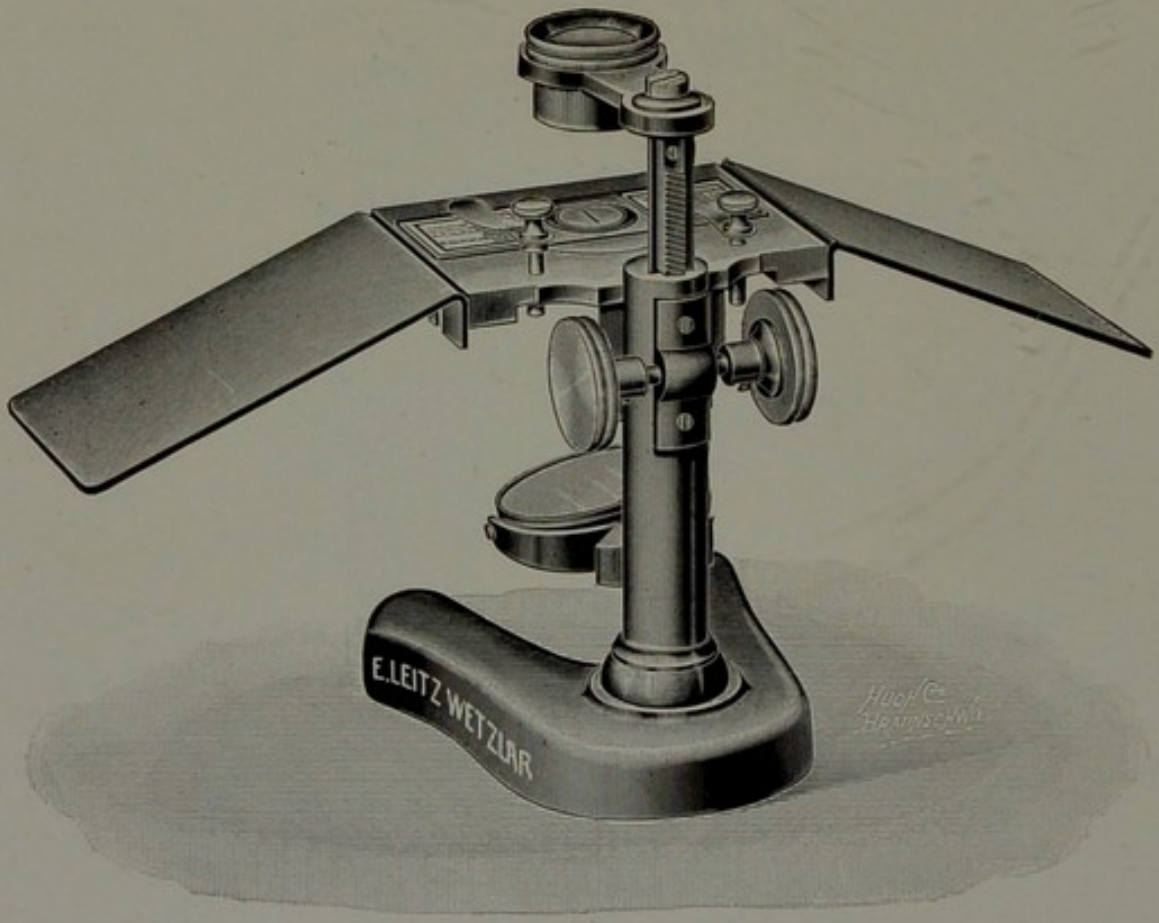
40. Folding dissecting microscope, stand only . . . . . **3. 0. 0** **Nabit**
41. Prism tube with one eyepiece . . . . . **2. 0. 0** **Nadais**
42. Objectives 1, 2, 3, 15/— each . . . . . **2. 5. 0** **Nadorite**
43. Stand with complete outfit . . . . . **7. 5. 0** **Nadrenas**



Large Dissecting Microscope No. 44.

44. **Large Dissecting Microscope.** Stand on heavy horse-shoe base, large stage with glass plate, adjustment by rack and pinion. The lens-carrier is movable for examining large plates. Illumination by movable plane

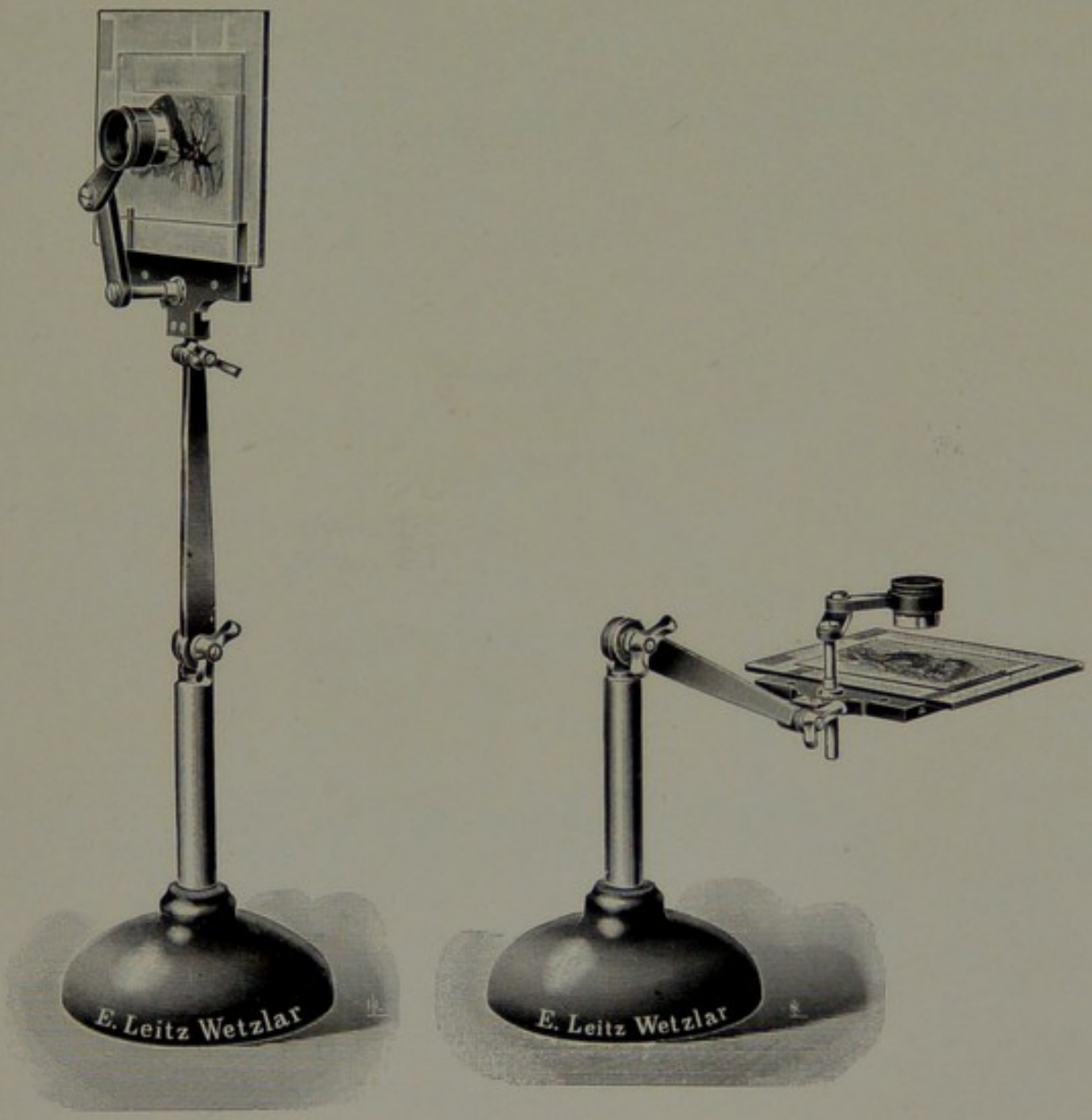
No.		£ s. d.	Code Words
	mirror and white glass plate. The case contains leather covered metal hand-rests which during use may be attached to the sides of the stage. During dissection with incident light a dark metal plate may be slid below the stage. **Stand** without lenses, in case	**2. 0. 0**	**Naenia**
45.	**The same** with three aplanatic lenses of the Steinheil type magnifying 8, 16 and 20 diam.	**3. 10. 0**	**Naevio**
46.	**The same** with these lenses and Abbe's drawing apparatus	**5. 0. 0**	**Nafego**
47.	**The same stand** with prism-tube No. 41 for erect vision, objectives 1*, 2, 3, magnifying 25, 60 and 120 diam. .	**5. 18. 0**	**Nagari**



Simple Dissecting Microscope No. 48.

48.	**Simple Dissecting Microscope,** with adjustment by rack and pinion, movable plane mirror and white glass plate, glass stage in metal frame. Metal hand-rests covered with leather and fitting inside the case. Stand without lenses	**1. 0. 0**	**Nahoede**

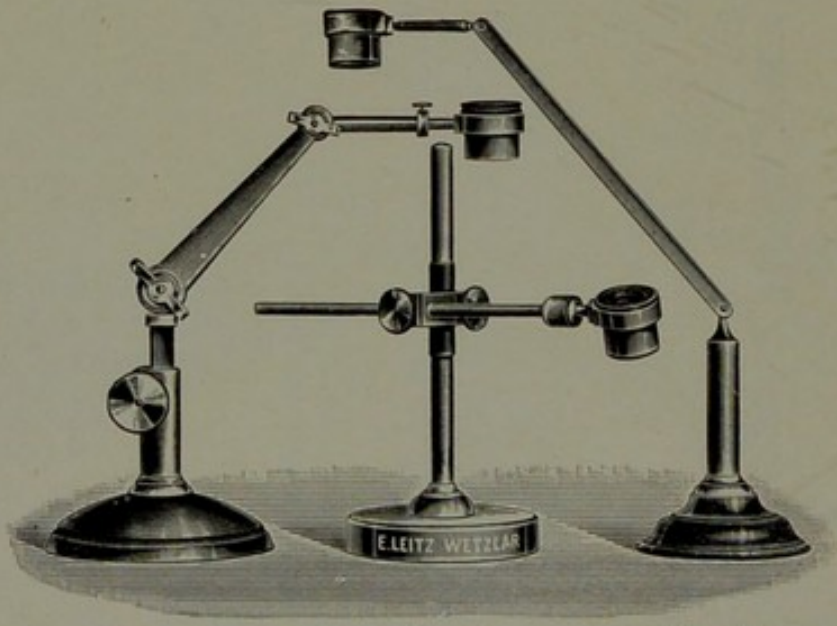
No.		£ s. d.	Code Words
49.	**The same** with two aplanatic Steinheil lenses. Magnifications 10 and 20 diam.	**2. 0. 0**	**Naidem**



Edinger's Large Dissecting Lens Stand.

50.	**Edinger's Large Dissecting Lens Stand** for scrutinizing large plates, brain sections, etc. The preparation is attached to the glass stage by simply moistening the latter. The lens stand is provided with universal joints to facilitate examination	**1. 0. 0**	**Naklom**

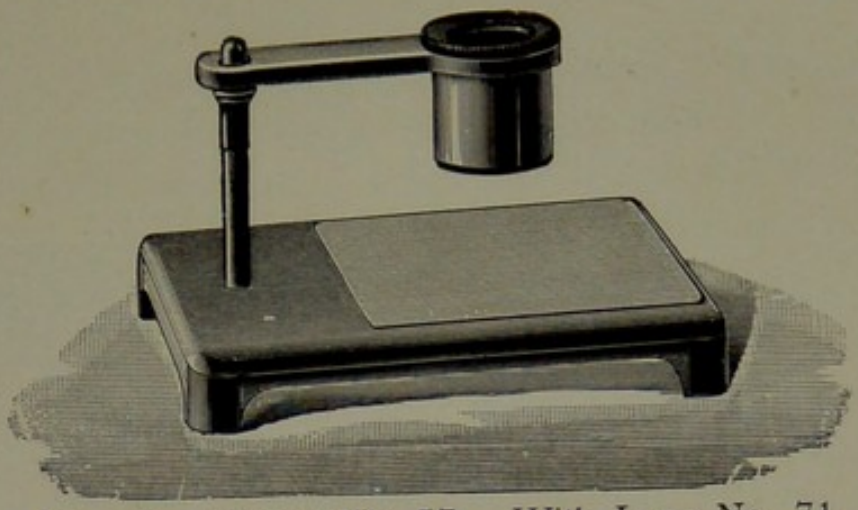
No.		£ s d	Code Words
51.	**The same** with lens magnifying 8 diameters	**1. 10. 0**	**Naleven**
52.	**Lens-holder** on iron foot with movable arms, the joints of which may be fixed by thumb-screws, rack and pinion adjustment — without lens	**0. 18. 0**	**Namore**
53.	**Lens-holder,** nickel-plated stand with lens collar working in a ball and socket joint. Without lens	**0. 10. 0**	**Nancior**



No. 52. No. 53. No. 54.

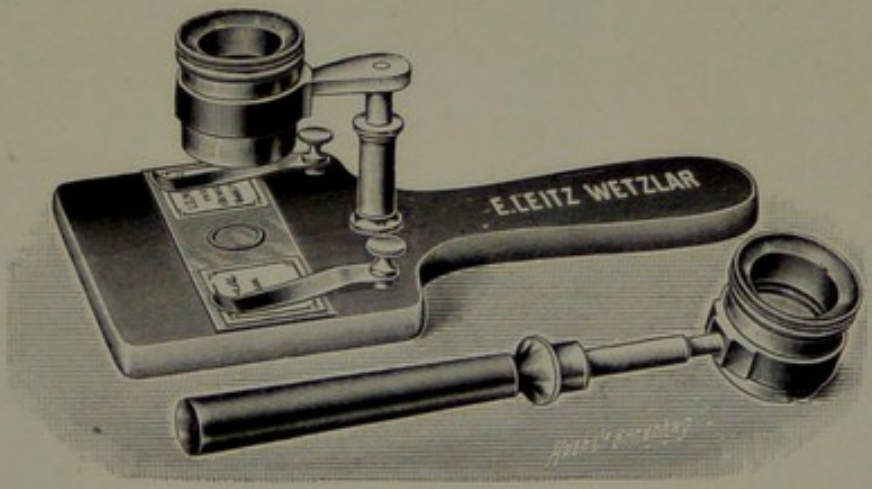
Lens-holders.

54.	**Lens-holder** on heavy iron foot, with universal joints. Without lens	**0. 8. 0**	**Nantados**
55.	**Pocket Microscope,** of the size of an eyepiece . . .	**0. 8. 0**	**Napeiro**
56.	**Lens** for examining Algae	**0. 6. 0**	**Narcine**



Dissecting Stage No. 57. With Lens No. 71.

No.		£. s. d.	Code Words
57.	**Dissecting Stage** with white glass plate and movable lens-holder — without lens	**0. 5. 0**	**Nardinos**
58.	**The same** with lens No. 71	**0. 8. 0**	**Narium**

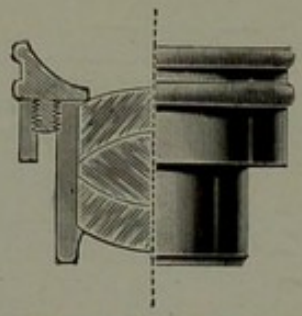


Demonstration lens-holder No. 59. — Handle No. 61.

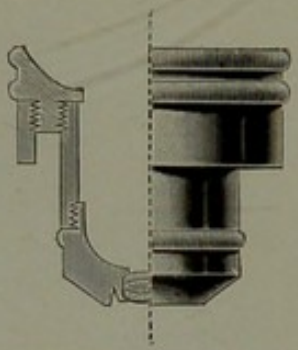
59.	**Demonstration lens-holder,** consisting of a hard rubber stage with handle, clamps for holding the preparation in position, and a movable lens-holder. Without lens . .	**0. 6. 0**	**Narpico**
60.	**Focussing lens** for photographic camera. The focussing is effected by spiral motion	**0. 12. 0**	**Nasato**
61.	**Handle** with ring for holding lens	**0. 3. 0**	**Naseggia**

No. £ s. d. Code Words

The **Aplanatic Steinheil Triplets** are remarkable for their large, flat field, excellent definition, and freedom from chromatic aberration.



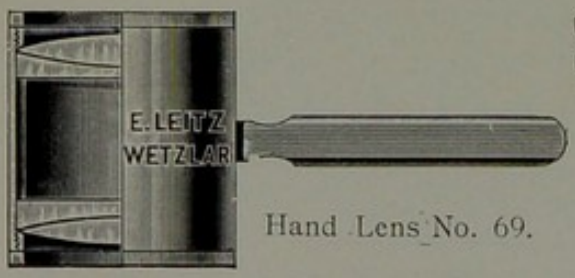
Steinheil lens No. 63.



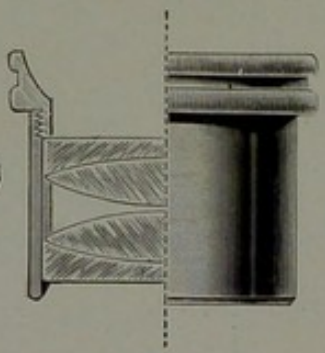
Steinheil lens No. 66.

	Diameter	Visual field	Magnification		
62.	24 mm	20 mm	8 diam.	**0. 10. 0**	**Nasidios**
63.	15 „	15 „	10 „	**0. 10. 0**	**Nasuta**
64.	12 „	12 „	12 „	**0. 10. 0**	**Natabo**
65.	10 „	10 „	16 „	**0. 10. 0**	**Naturas**
66.	6 „	3,5 „	20 „	**0. 10. 0**	**Naulisa**
67.	5 „	2 „	30 „	**0. 10. 0**	**Navatis**
68.	3 „	1 „	40 „	**0. 10. 0**	**Nazarda**

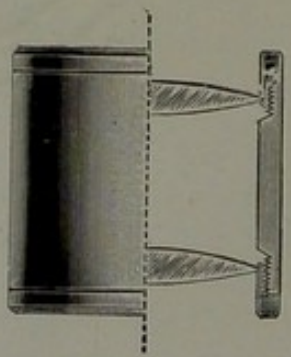
The **achromatic doublets** consist of two achromatic lenses and have a very large and flat field showing a good definition.



Hand Lens No. 69.



Doublet No. 70.



Simple Magnifier No. 71

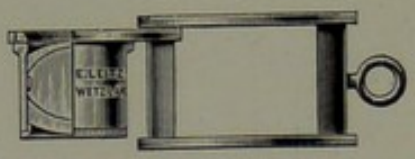
	Diameter of lenses	Diameter of field	Magnification		
69.	30 mm	35 mm	5 diam.	**0. 10. 0**	**Nebride**
70.	23 „	20 „	8 „	**0. 8. 0**	**Necabit**

Simple Magnifier, consisting of two single bi-convex lenses.

71.	23 mm	25 mm	6 diam.	**0. 3. 0**	**Nefario**

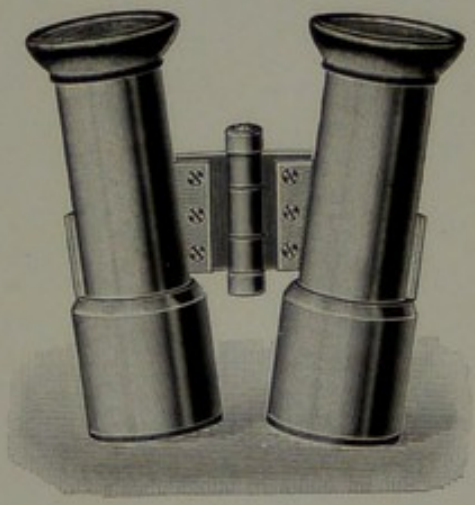
No. £ s. d. Code Words

Doublet No. 69 can be used as a hand lens only. The mounting of all the other lenses is such that they fit any of the dissecting stands or lens holders. Aplanatic triplets 64—68 can only be used on stands with rack and pinion adjustment.



Pocket lens No. 72.

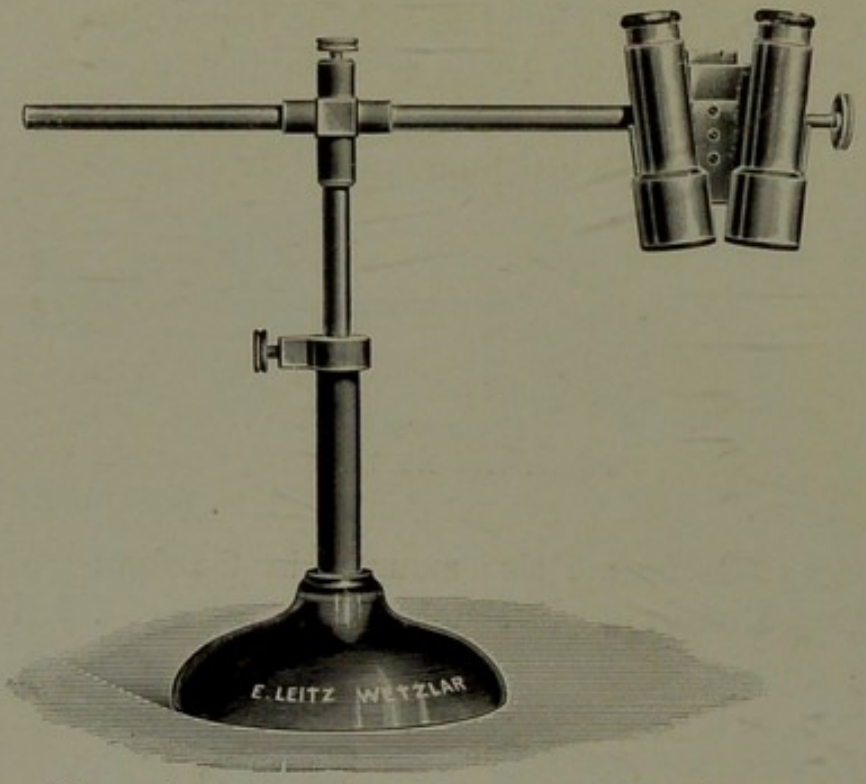
72. Aplanatic Lenses 62—66 are also mounted in the form of **Folding Lenses** . . . . . **0. 12. 0** **Negatori**



Binocular Hand Magnifier No. 73.

73. **Binocular Hand Magnifier,** magnifying 4 diam. . . **2. 0. 0** **Binoctia**

74. Eilhard Schulze's **Binocular Dissecting Lens** consists of two Brücke lenses with strictly coincident fields. The two lens tubes are hinged to furnish a means of adjusting the inter-pupillary distance. The visual distance is about 250 mm. The field is large and flat, the magnification four diameters. The magnifier is adjustable both in a horizontal and vertical direction and



Binocular Dissecting Microscope No. 74.

No.		£ s. d.	Code Words
	may be raised and lowered on the vertical support, which may be clamped in any desired position. A rack and pinion serves to effect the fine adjustment . . .	**3. 0. 0**	**Binocular**
75.	**Greenough's Stereoscopic Binocular Microscope.** Two microscope tubes are so arranged as to bring the same object into focus in the axis of each tube, the tubes being set at an angle to each other for this purpose. The stand is provided with rack and pinion adjustment. The image is erected by a Porro prism. Magnification 20 diameters	**10. 0. 0**	**Greenough**
	To obtain higher magnifications, not exceeding 45 diameters, the binocular microscope may be equipped with higher power eyepieces (I to IV).		
	Price per pair of eyepieces	**0. 10. 0**	**Greenovite**

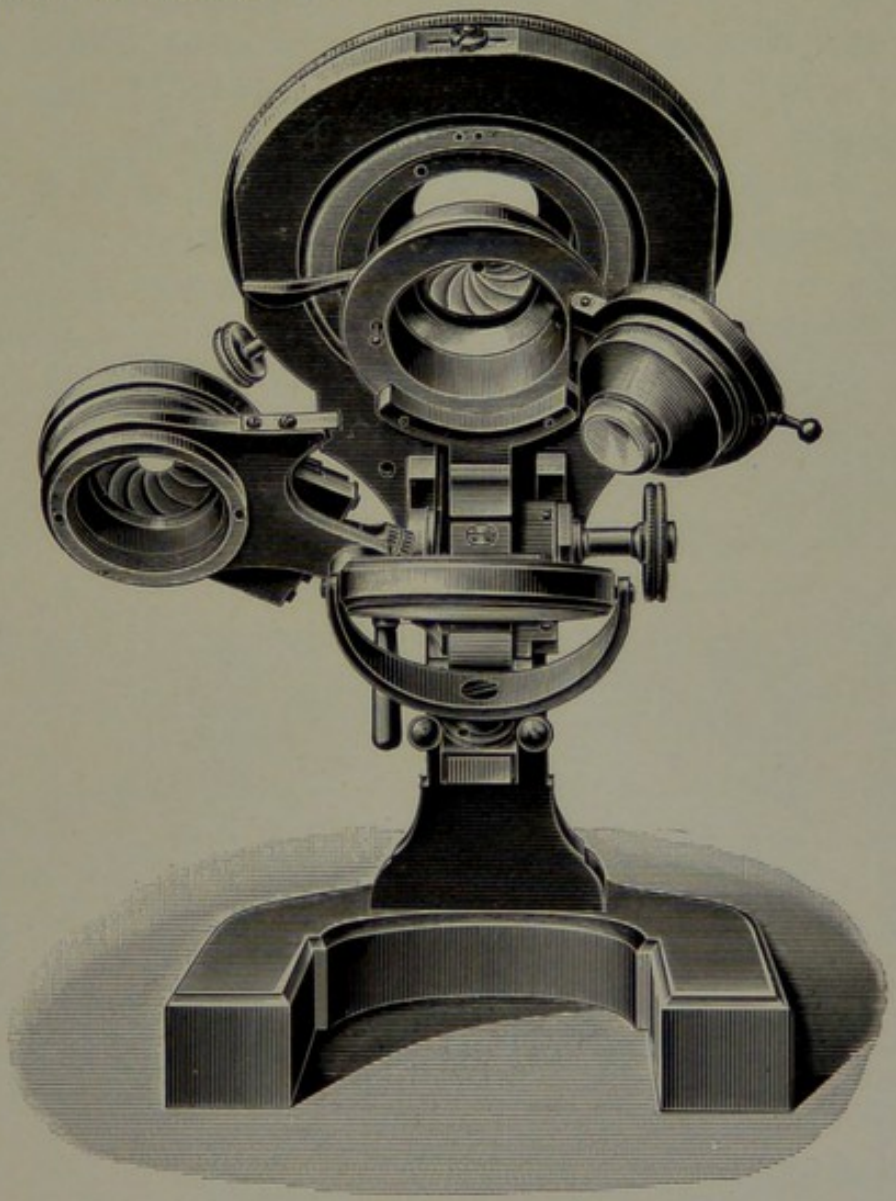
Accessories to the Microscope.

Illuminating Apparatus.

a. Illuminating Apparatus of Stands A and B.

The apparatus consists of the following parts:

Cylinder iris diaphragm.
Swing-out condenser.
Diaphragm carrier with iris diaphragm.
Plane and concave mirror.



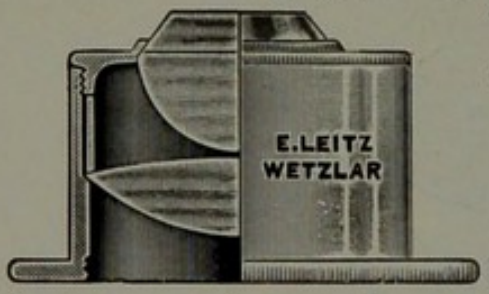
The cylinder iris diaphragm is put into practice when the condenser is swung out of position. To this end the diaphragm carrier should be turned aside, as shown in the diagram, and a small knob depressed, which liberates the condenser, allowing it to be swung aside.

£ s. d. Code Words

The adjustment of the cylinder iris diaphragm is accomplished by means of a lever. Before the condenser is swung back into position the cylinder iris should be opened to its full extent. The lower iris diaphragm is for use in conjunction with the condenser only. It is regulated by means of a small knob. A horizontal rack and pinion arrangement permits oblique illumination, and a vertical rack and pinion provides the means for adjusting the whole substage. By these means perfect control of the illumination of the object is obtained. Ground or coloured glass discs may be inserted above the iris diaphragm when it is found desirable to modify the light.

This illuminating apparatus may also be fitted to Stands C, D, Ia and Ib . . . . . **3. 15. 0** **Illuminant**

b. Illuminating Apparatus of Stands C, D, Ia and Ib.



The apparatus is composed of the following parts:

Cylinder diaphragm with several stops of different apertures, the condenser, diaphragm carrier with iris-diaphragm, plane and concave mirrors.

To substitute the condenser for the cylinder diaphragm the diaphragm carrier should be turned aside and the cylinder diaphragm drawn out of the sleeve in which it is interchangeable with the condenser. The diaphragm carrier should then be turned back into position and the amount of light regulated by manipulating the knob controlling the size of the iris. The whole substage may be raised or lowered in the optical axis by means of a rack and pinion, and a similar arrangement permits lateral illumination by moving the iris diaphragm in the horizontal plane.

Ground glass and coloured plates may be inserted above the iris diaphragm . . . . . **3. 0. 0** **Illuminer**

c. Illuminating Apparatus for Stands F, II, IIa and IIb.

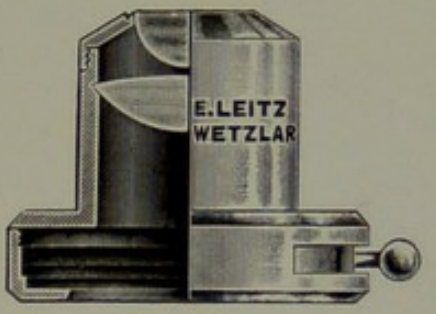
The condenser and iris diaphragm are permanently connected and give central, but no oblique, illumination.

No. £ s. d Code Words

The whole apparatus may be raised and lowered in the optical axis by means of a lateral screw in the case of Stands II and IIa, by hand in that of Stands F and IIb (see p. 35 and 47). The cylinder diaphragm may be inserted in the place of the condenser. A ring below the iris diaphragm permits of the insertion of glass discs for the purpose of modifying the light. Illuminating apparatus without lateral screw **1. 5. 0** **Illuminist**

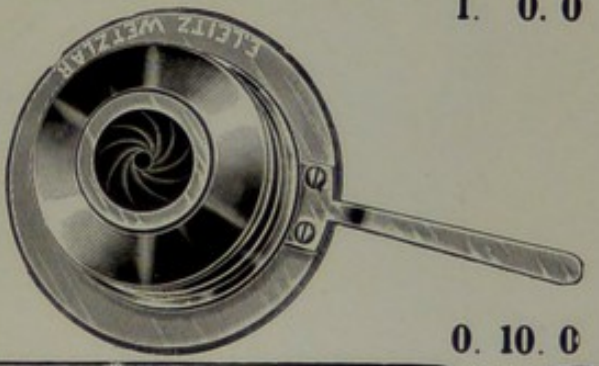
This illuminating apparatus may be fitted with cylinder iris-diaphragm and swing-out condenser for Stands D, Ib and II. **2. 0. 0** **Illuminons**

d. Small Illuminating Apparatus.

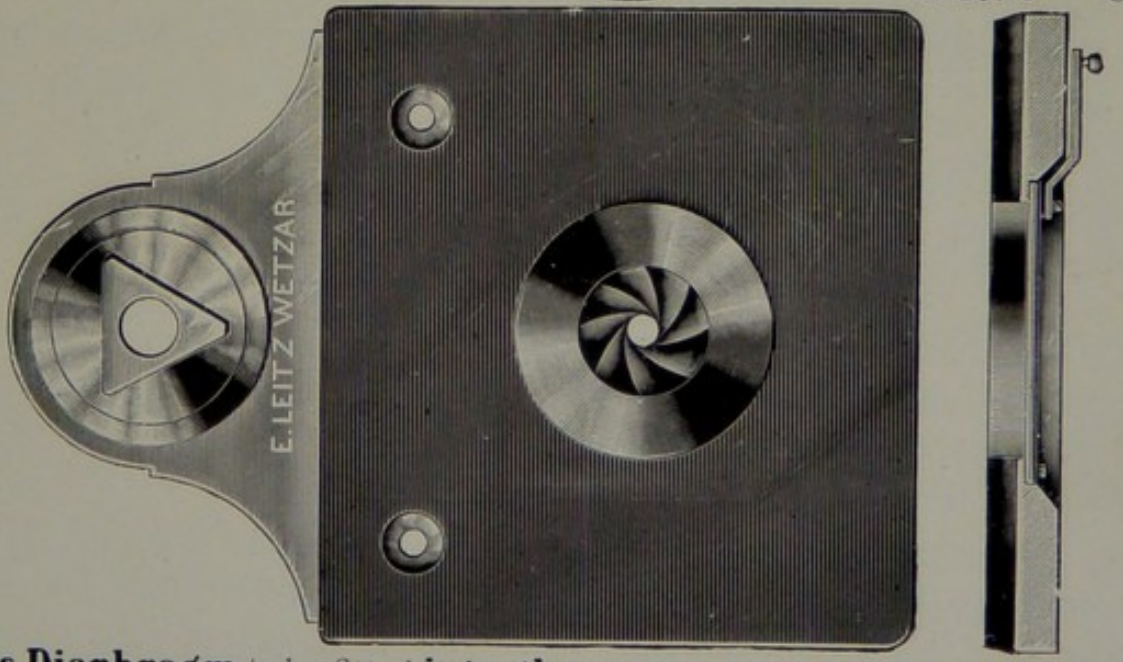


The small illuminating apparatus consists of a smaller condenser with iris-diaphragm and can be adapted to Stand IV, if fitted with a cylinder diaphragm. **1. 0. 0** **Illuminum**

Subsequent adaption of an illuminating apparatus to a stand is not subject to a special charge.



76. a. **Cylinder Iris Diaphragm** for Stands F, II, IIa and IIb, (see adjoining figure) . . . . **0. 10. 0** **Cylinder**



b. **Iris Diaphragm** to be fitted **into the stage** of stand III in the place of the cylinder diaphragm (see also p. 49) **0. 10. 0** **Stageiris**

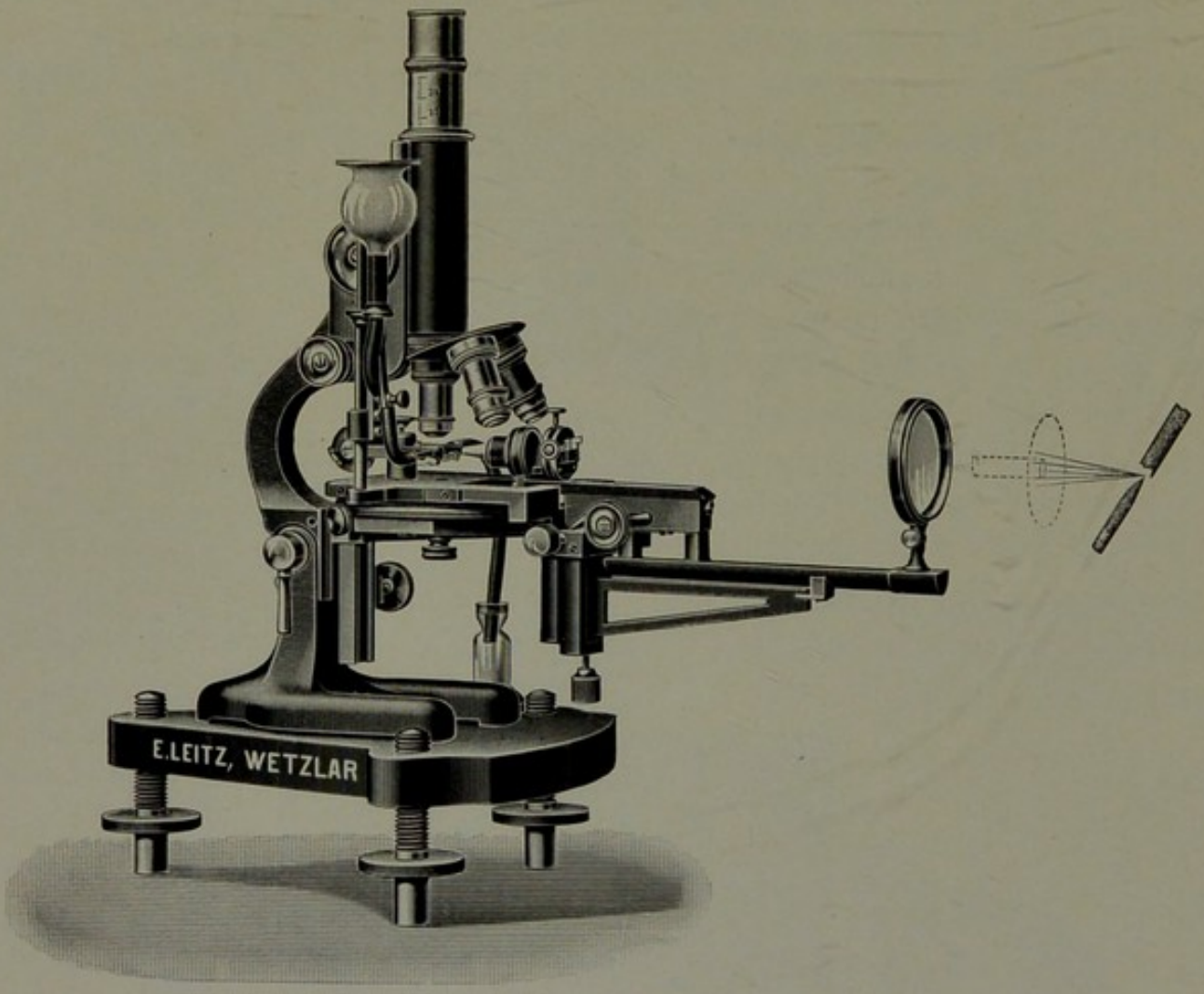
c. **Iris Diaphragm** for the Illuminating apparatus . . **0. 10. 0** **Iris**

No.

77. **Simplified Arrangement for demonstrating Ultra-microscopic Particles** by Siedentopf and Zsigmondy's method.

This apparatus has been so arranged as to be available for use on any sufficiently large stand.

It is mounted on a metal plate, by which it may be attached to any microscope stage.



For this purpose the illuminating apparatus of the microscope should be removed and the metal plate placed upon the stage of the microscope with the small disc on the plate accurately in the central opening of the stage.

After its adjustment the apparatus is placed in its correct position by firmly tightening a screw passing through a cross bar below the stage into a tap-hole in the disc referred to. The metal plate is provided with a clamping device for holding a small chamber, through which the fluid under

No. £ s. d. Code Words

examination is passed by means of a tube connection. The rate of admission is regulated by a pinch-cock. Light enters the chamber through a small window. During the examination the chamber may be left open, or it may be closed by a cover-glass. The chamber may for the examination of transparent solid objects (ruby glass, etc.) be replaced by a small stage. The anterior part of the metal plate carries a small optical bench, upon which the illuminating lens, the slit arrangement and the illuminating objective are movably mounted. The optical bench is adjustable horizontally and vertically. The light should be supplied by an arc lamp, or it may be sun-light directed by a mirror. Passing through a diaphragm tube it is concentrated upon a slit apparatus by a lens. The slit is adjustable in length and width. The diminished image of the slit is projected into the plane of vision by an adjustable objective of appropriate power.

The microscope, together with the entire apparatus, rests upon an adjustable stand, which facilitates the adjustment of the apparatus with respect to the voltaic arc.

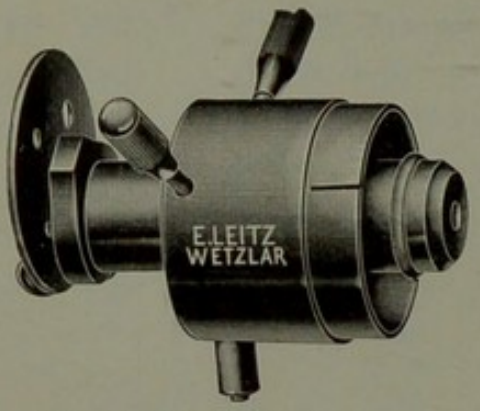
Price of the apparatus with adjustable stage, three glass chambers, three glass funnels, and small stage plate without lamp or microscope, complete in mahogany case **13. 15. 0** **Ultra**

Black glass chamber with glass window . . . . **0. 2. 0** **Ultralink**

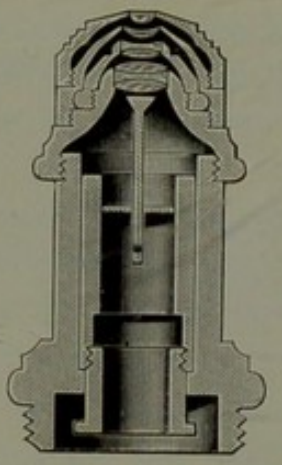
Black glass chamber with quartz window . . . **0. 5 0** **Ultramaro**

78. **New Dark Ground Illuminator** for the microscopic demonstration of unstained preparations, e. g. bacteria. The light should be supplied by an electric arc or the sun, a special illuminator with stops serving to transmit the light.

An elastic centre stop-pin screws into the mount at the back of the optical part and rests against the back-lens. Any of our immersion objectives is available for this purpose.



Dark ground illuminator.



Objective with centre stop.

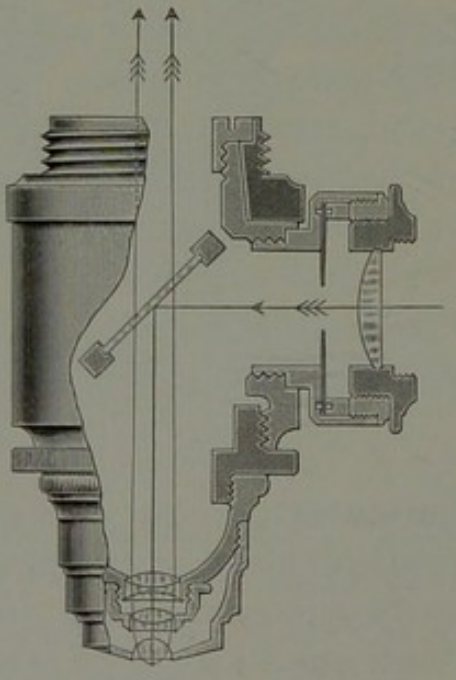
No. £ s d. Code Words

Illuminated in this manner the parts of a preparation are seen brightly illuminated upon a dark ground, even with the highest eyepiece magnifications.

Condenser for dark-ground illumination . . . . . **2. 10. 0** **Condensor**

Objective centre pin-stop . . . . . **1. 0. 0** **Stempierei**

This apparatus can be readily adapted to any microscope of sufficient size.

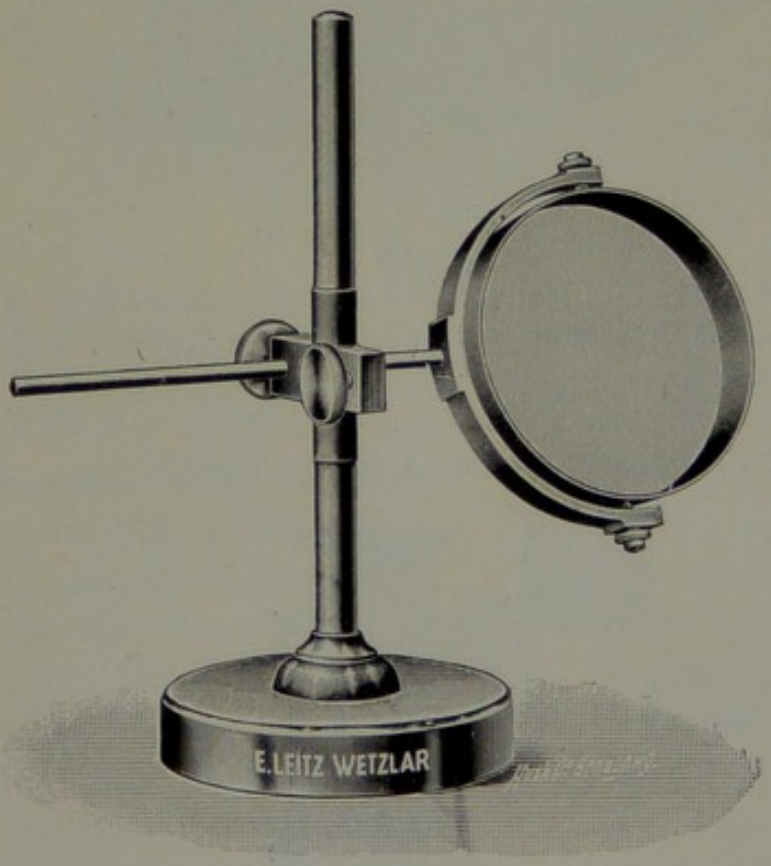


79. The **Opaque Illuminator** serves for the illumination of opaque objects, especially pieces of metal, the microscopic structure of which is to be studied under a high power. It consists of a mount screwing to the microscope tube or its nosepiece. The circular opening at

No. £ s. d. Code Words

the side of the mount has a collar with an illuminating lens and diaphragm screwed into it. The light passes through this lens and falls upon a thin glass plate within the illuminator. This plate is capable of adjustment from without and when at an angle of about 45° reflects the light by total reflection to the object. For observation with polarised light a polariser may be screwed to the front of the illuminating lens mount. The illuminator may be used in conjunction with ordinary objectives, the lower powers up to No. 5 being attachable direct to the microscope, whereas in the higher powers the nickelled lens front should be detached and screwed to the short collar supplied with the illuminator.

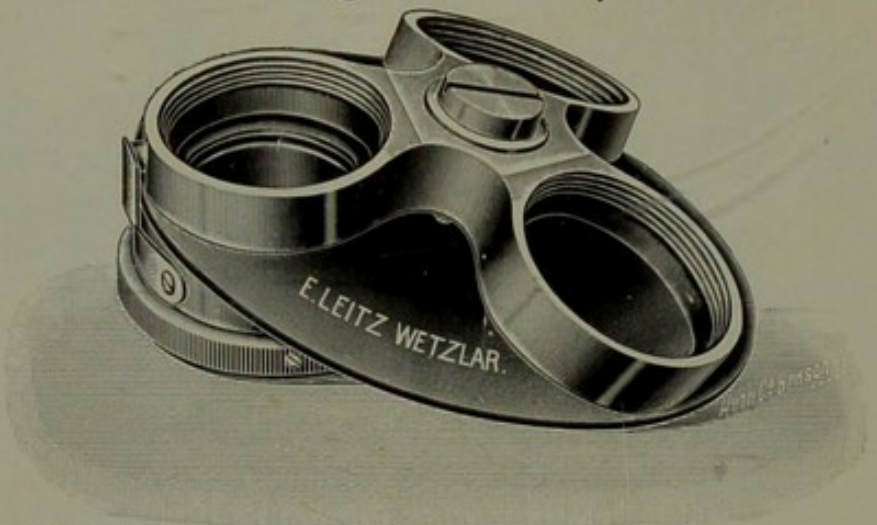
Each apparatus is accompanied by directions . . **1. 5. 0** **Opaque**



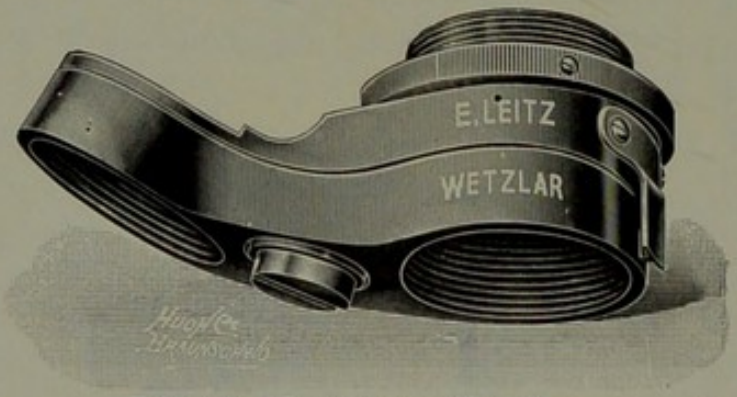
Illuminating Lens on Stand No. 80.

80. **Illuminating Lens on Stand,** 100 mm diameter . . **1. 0. 0** **Illuminize**

Revolving Nosepieces.



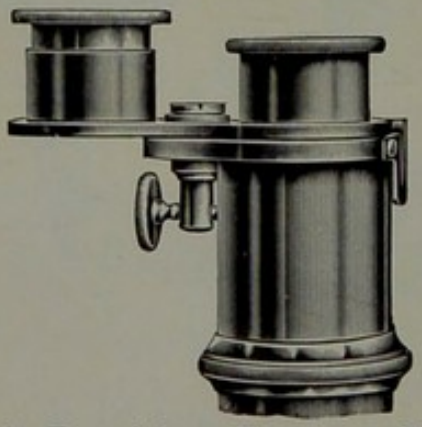
Triple Nosepiece with circular guard No. 82.



Double Nosepiece No. 81.

		£. s. d.	Code Words
81.	**Revolving nosepiece** for two objectives (Double nosepiece)	**0.15. 0**	**Duplo**
82.	**Revolving nosepiece** for three objectives (Triple nosepiece)	**1. 0. 0**	**Triplo**
83.	**Revolving nosepiece** for four objectives	**1. 5. 0**	**Quadruplo**
84.	**Objective clutch** with three adapters	**0.15. 0**	**Clutch**

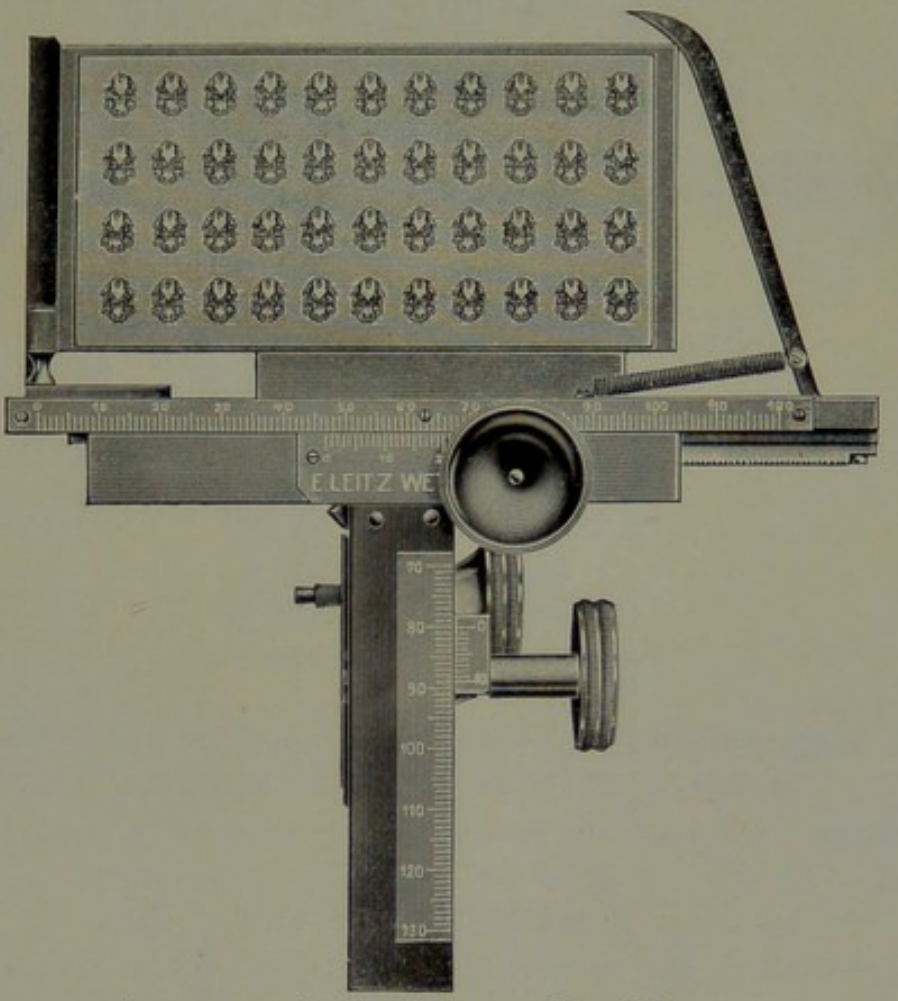
Revolvers are adapted to existing stands free of charge.



Double Revolving Eyepiece No. 85.

85.	**Double Revolving Eyepiece** without eye-lens . . .	**0.10. 0**	**Changeras**
	Eye lenses, each	**0. 3. 0**	**Eyelens**

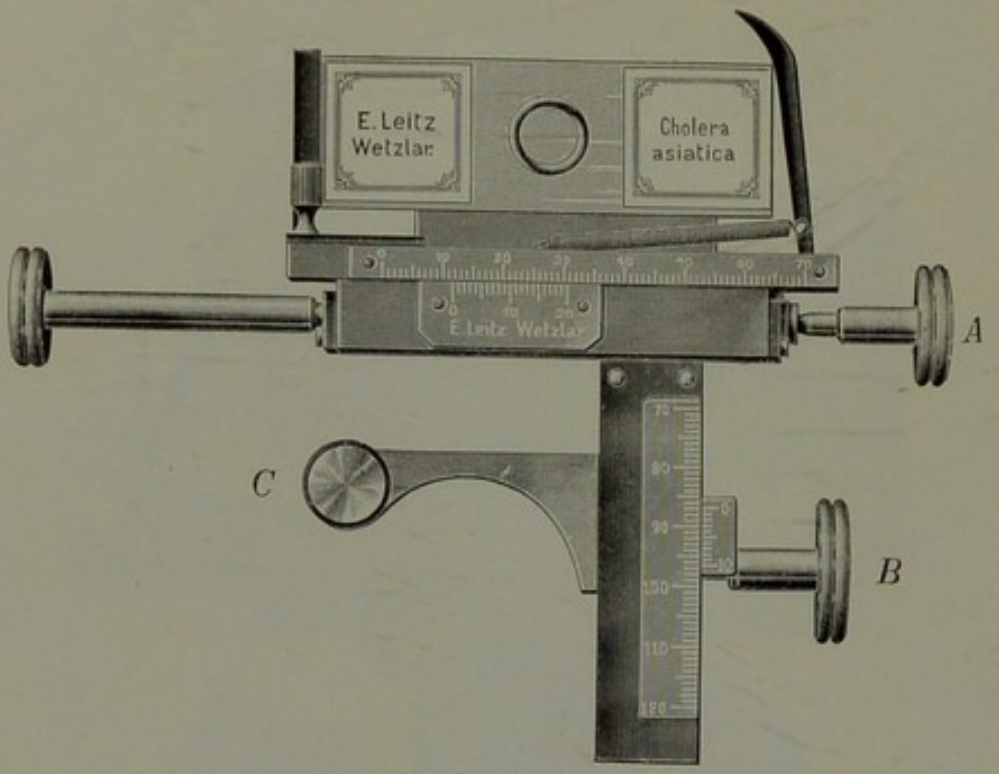
Mechanical Stages.



Large mechanical Stage No. 86.

No		£ s d	Code Word
86.	**Large Mechanical Stage** for Stands A and B. This stage is provided with finely cut racks, which render it available for searching preparations of 100×50 mm. The vernier for the advance and return motion reads $^1/_{10}$ mm, that for the lateral motion $^1/_{20}$ mm. Attachment to the microscope is effected by placing the apparatus upon the microscope stage with the knife edge at the back of the mechanical stage resting in the notch in the column of the stand, and fixing by means of the milled thumb screw. This mode of fixation ensures an immutable position of the stage.	**4. 0. 0**	**Platina**

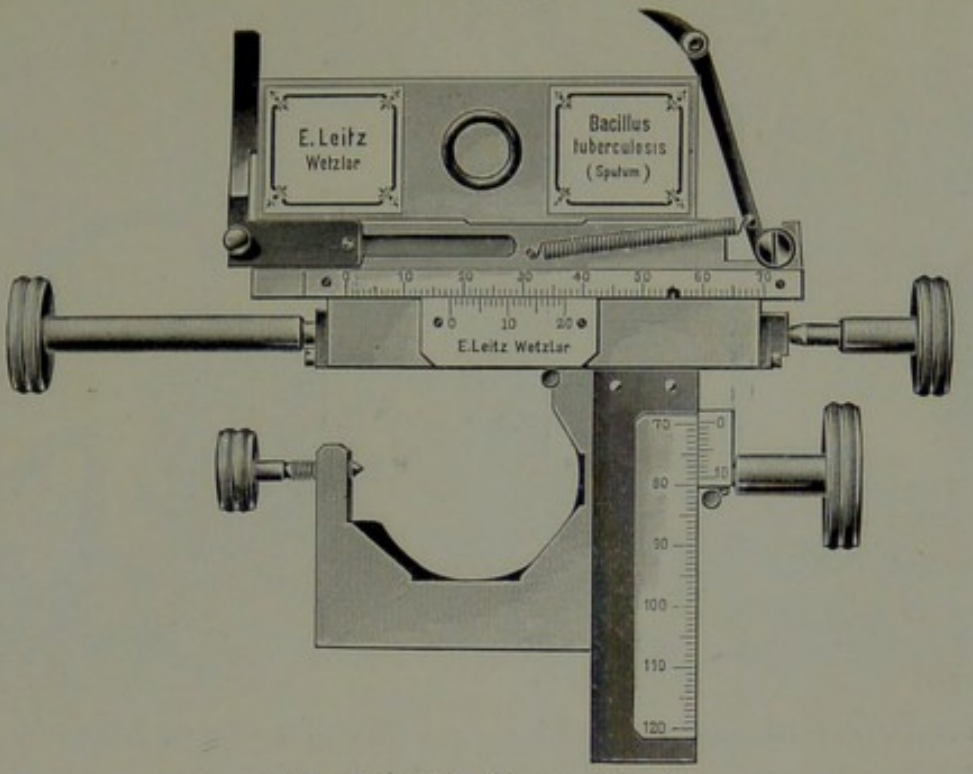
This mechanical stage may be supplied at any time.



Mechanical Stage No. 87.

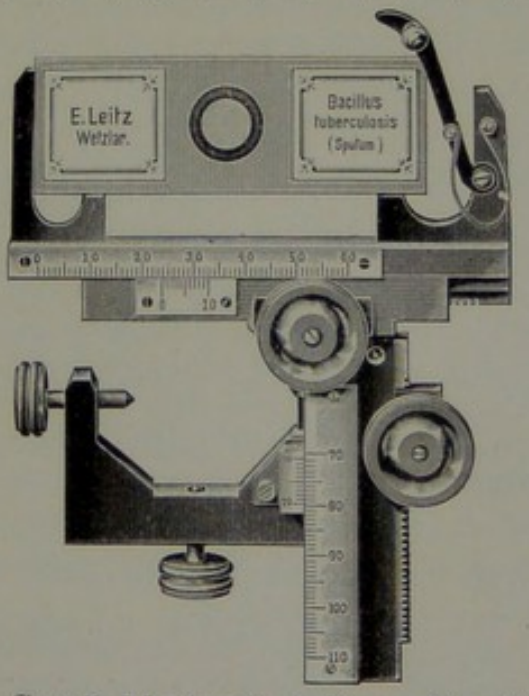
No.		£ s. d.	Code Word
87.	**Mechanical Stage,** adapted for Stands Ia and Ib, as well as the new Stands A, B, C and D. The stage is readily attachable to Stands Ia and Ib by means of a screw C and a set-pin. It may be detached by simply unscrewing. In the case of Stands A, B, C and D the mode of attachment is the same as that adopted in the large stage No. 86. The movements of the stage are at right angles to one another and are accomplished by carefully constructed rack and pinion movements. The range of the lateral movement is 50 mm, that of the other 30 mm. Both movements are read by verniers. The spindle of the lateral movement is fitted with a milled head A and another on the left to slip on or off. The movement at right angles to it is effected by a pinion head B. This stage is available for systematically examining large specimens and as a finder for noted points. Such points may always be found when once accurately recorded, even after detaching and replacing the stage any number of times, since the construction of the stage ensures its fixation in an unvarying position	**3. 10. 0**	**Platinato**

If required for use on Stands Ia or Ib this stage has to be specially adapted to the stand, for which we make no extra charge.



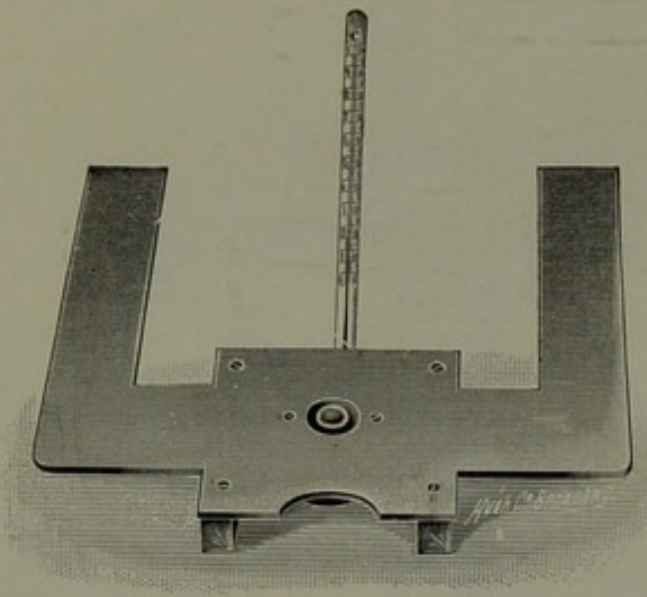
Mechanical Stage No. 88.

No.		£ s d.	Code Words
88.	**Mechanical Stage** No. 88. This stage may be attached to Stands Ia, and Ib by means of a thumb screw by the user himself	**3. 10. 0**	**Platineras**

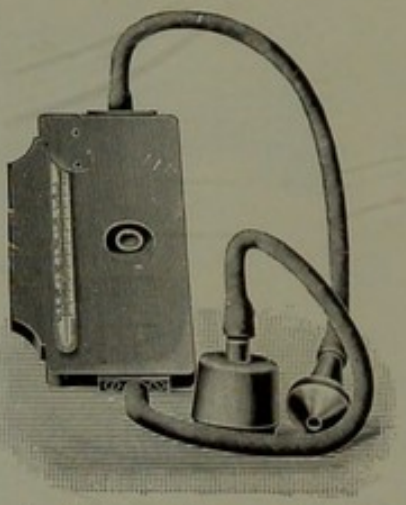


Small Mechanical Stage No. 89.

89.	**Small Mechanical Stage** No. 89 is a little smaller than the preceding stages and has been designed for use with Stands II and IIa. It is fitted with simple rack and pinion motions only	**2. 10. 0**	**Platinoid**



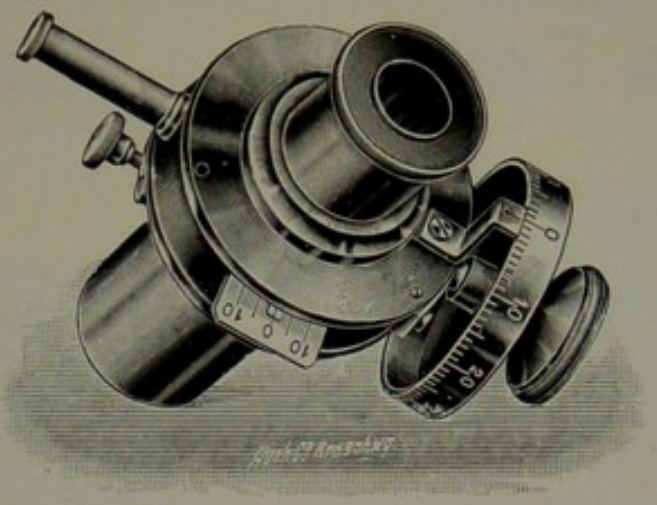
M. Schultze's Warm Stage No. 90.



Stricker's Warm Stage No. 92.

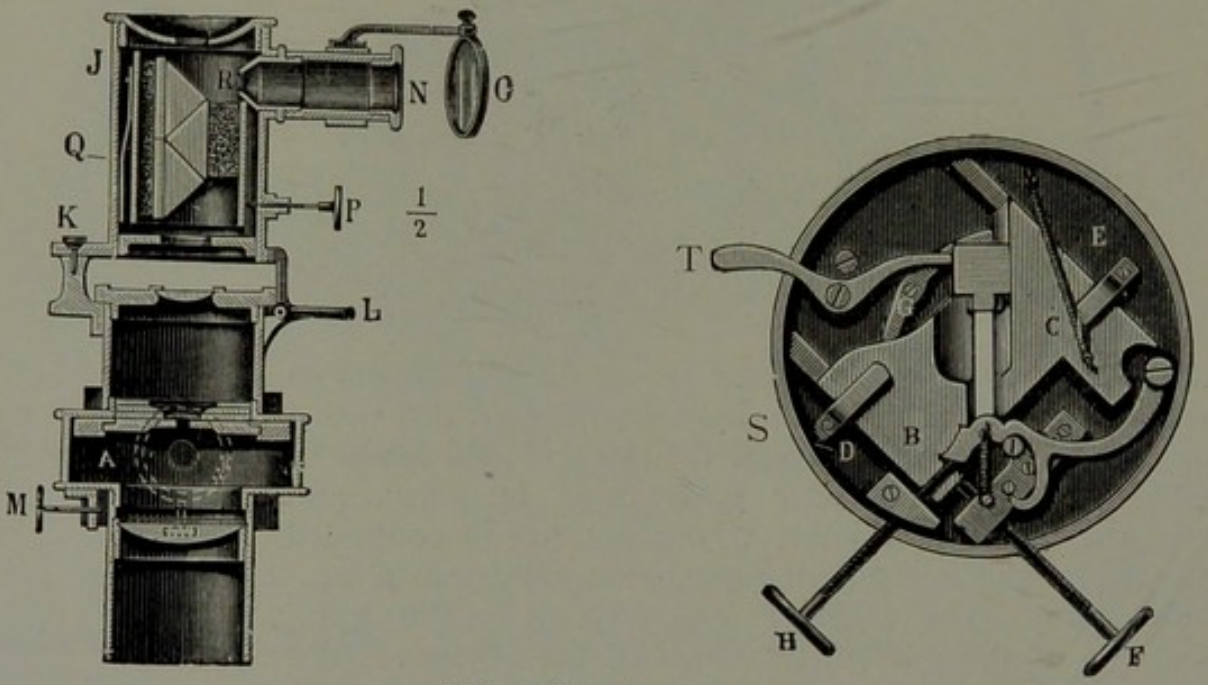
No.		£ s. d.	Code Words
90.	**Schultze's Warm Stage.** This consists of a metallic U plate, through the branches of which the heat from one or more small lamps is conducted to the central part of the stage and the object. The apparatus is also provided with a condenser, which affords sufficient illumination for the use of high power objectives, and with a thermometer indicating the exact temperature of the centre of the stage, which may be carried as high as 100° C	**1. 10. 0**	**Schultze**
91.	**Pfeiffer's Warm Stage.** This consists of a glass chamber through which warm water may be made to flow. A small ground-in cell serves as a moist chamber . .	**1. 0. 0**	**Pfeiffer**
92.	**Stricker's Warm Stage.** This stage consists of a metal chamber, through which warm water is made to pass, and is provided with a condenser and thermometer. It may be clamped to any of the square microscope stages	**1. 15. 0**	**Stricker**

Micrometers.



No.		£ s d	Code Words
93.	**Screw Micrometer Eyepiece** for the accurate measurement of large objects. This apparatus is provided with a Huyghenian eyepiece, between the eye and field lenses of which there is a millimeter scale ruled on glass, and above this a movable index whose position is controlled by a micrometer screw terminating externally into a graduated drum. The value of each division on the drum, about $^1/_{20}$ of the micrometer value of the objective (see p. 15), must be determined for each combination of ocular and objective by means of the stage micrometer. The eye lens of the ocular is movable for accurately focussing the scale. The apparatus slips into the tube of the microscope like any ordinary eyepiece and is fixed in position by a thumb-screw at the side.	**2. 10. 0**	**Microdon**
94.	**Micrometer Eyepiece.** The mount unscrews in the centre for the introduction of the micrometer scale. The eye lens is movable for accurately focussing the scale	**0. 10. 0**	**Microlide**
95.	**Glass-Micrometer for the Eyepiece,** to drop on the diaphragm of the eyepiece. Scale of 5 mm divided into 100 parts	**0. 6. 0**	**Micrologo**
96.	**Glass Micrometer Eyepiece,** 10 mm divided into 100 parts	**0. 5. 0**	**Micrometer**
97.	**Stage-Micrometer,** 1 mm divided into 100 parts ruled on glass	**0. 9. 0**	**Micronisi**
98.	**Stage-Micrometer,** photographed on glass, 2 mm divided into 200 parts	**0. 5. 0**	**Micropoda**
99.	**Eyepiece Crossline Micrometer,** divided into squares for counting scattered objects in the field. Mounted. Interval between the lines 0,5 mm	**0. 5. 0**	**Microporos**
100.	**Glass Slide with Cell** $^2/_{10}$ mm deep, with eyepiece micrometer No. 99, in case	**0. 8. 0**	**Microptera**
101.	**Glass Slide with Cell,** floor divided into squares, $^1/_{400}$ square mm each, in case	**0. 10. 0**	**Micropus**

Apparatus for the Examination of Blood.

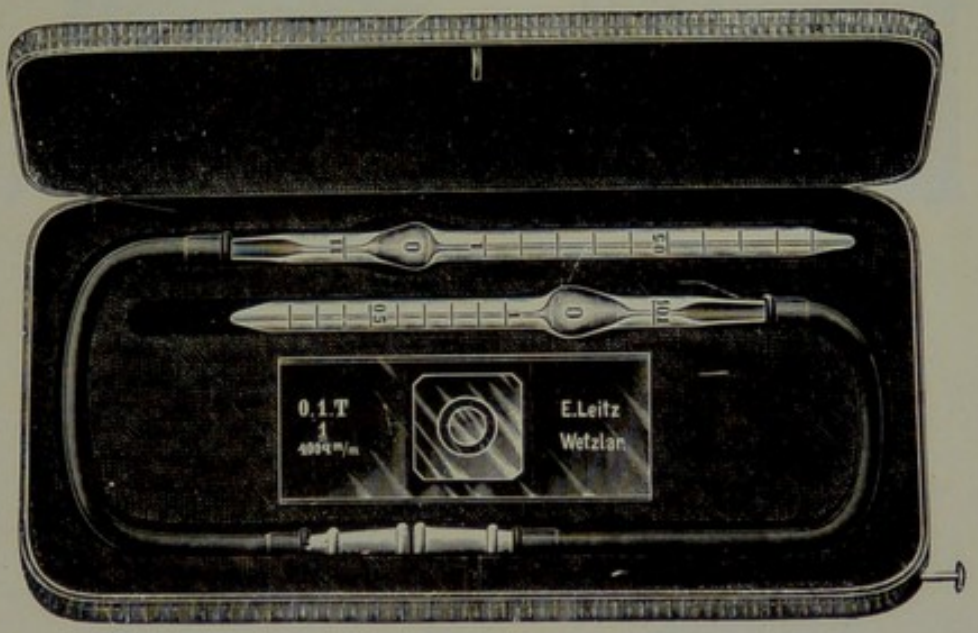


Micro-Spectroscope.

No.		£ s. d	Code Word
102.	**The Micro-Spectroscope** fits into the tube of the microscope like any ordinary eyepiece and may be fixed in any desired position by means of the thumb-screw M. The position of the bright and dark lines of the spectrum and their respective wave lengths are ascertained by means of a scale. The flat drum A, the interior of which is shown in section, contains the slit and the comparison prism. The slit is regulated by the screws F and H. The lever T moves the comparison prism across one half of the slit. The cylinder Q above the eyepiece contains the Amici prism. At the point N of the horizontal tube RN is a micrometer scale illuminated by a mirror O. After raising the spring-catch L the upper part of the spectroscope may be turned round a pivot K, thus allowing of the adjustment of the eyepiece	**8. 5. 0**	**Spectrebat**

(A full description accompanies each instrument.)

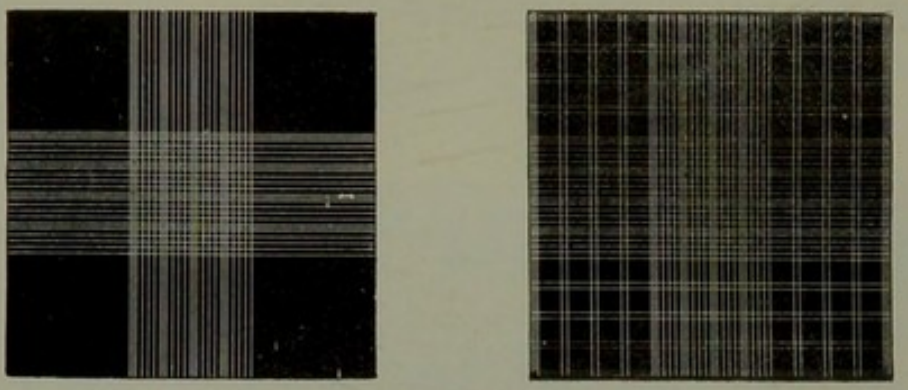
No.		£. s. d.	Code Words
103.	**Browning's Hand-Spectroscope,** for the spectroscopic examination of the blood	**1. 10. 0**	**Spectrales**
104.	**Hand-Spectroscope** with comparison prism, mirror, and bottle holder	**2. 0. 0**	**Spectrorum**



Thoma's Haemacytometer.

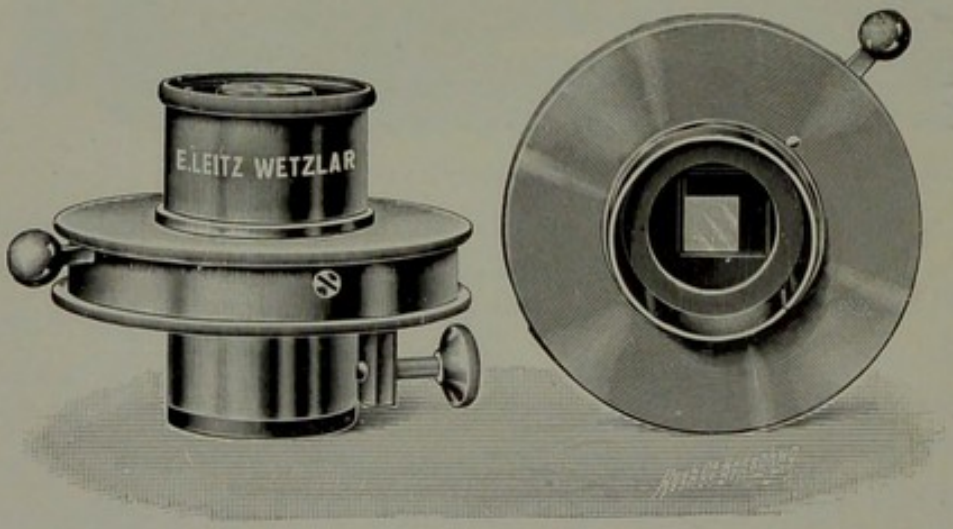
105.	**Thoma's Haemacytometer** consisting of an object glass with accurately ruled cell, an optically plane coverglass and two calibrated mixing pipettes 1. for red blood-corpuscles, diluting to $^1/_{100}$ and $^1/_{200}$, 2. for white blood-corpuscles, diluting to $^1/_{10}$ and $^1/_{20}$. Directions are supplied with the apparatus . . . . . . The volumetric value of the pipette is accurately determined with water and the depth of the cell established by accurate micrometric measurement. Observations made with the aid of this instrument may therefore be relied upon.	**1. 5. 0**	**Haematoid**
106.	**Pipette for white corpuscles**	**0. 4. 0**	**Pipette**
107.	**Pipette for red corpuscles**	**0. 4. 0**	**Pipettina**
108.	**Thoma's Counting Chamber, with coverglass** (Fig. p. 108)	**0. 13. 0**	**Thoma**

No.		£. s. d.	Code Words
109.	**Türk's Counting Chamber** with cover-glass . . .	**0. 17. 0**	**Turk**



Counting chambers

Thoma's Türk's.



Ehrlich's Eyepiece.

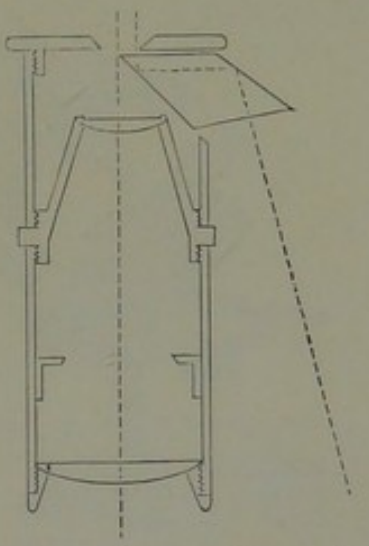
110. **Ehrlich's Eyepiece** contains a diaphragm with a square opening, which is adjustable within definite ratios for purposes of counting.

This eyepiece is designed to facilitate the estimation of the relative numbers of red and white blood corpuscles in dry stained preparations.

Full directions accompany each instrument . . . . **1. 10. 0** **Ehrlich**

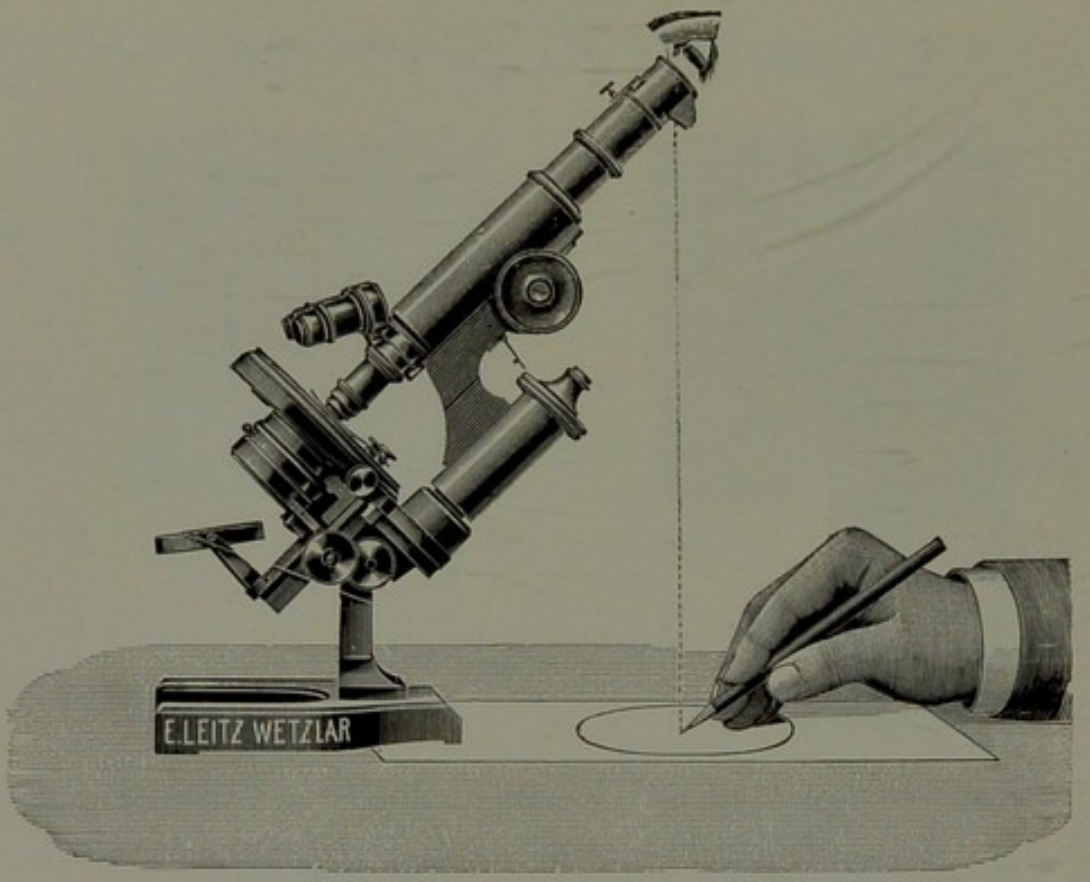
Drawing Apparatus.

Drawing Eyepiece No. 111.



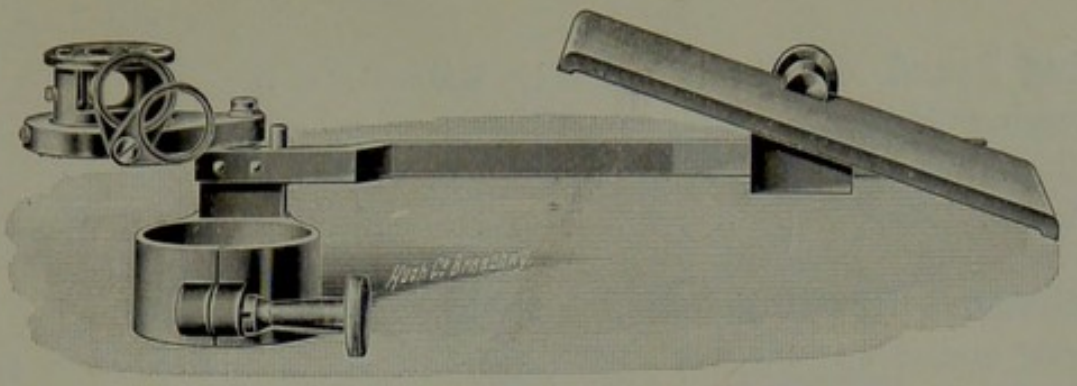
Diagrammatic section of Drawing Eyepiece No. 111.

No.		£ s. d.	Code Word
111.	**Drawing Eyepiece** No. 111 (see Zeitschr. f. wissensch. Mikrosk., Vol. XII, 1895, p. 289) is employed with the stand in its vertical position. The drawing surface is at the side of the microscope. The eyepiece slips into the tube of the microscope like any ordinary eyepiece and is held in position by a thumb-screw. The drawing surface is at once visible without further adjustment and the image is clear and sharp. The rays cut the lower and upper surfaces of the prism at right angles and are totally reflected at the other sides. Secondary images due to reflection by coated mirrors are thus obviated. The brightness of the drawing field may be regulated by smoked glasses mounted in two pivoted collars . .	**1. 0. 0**	**Desinant**



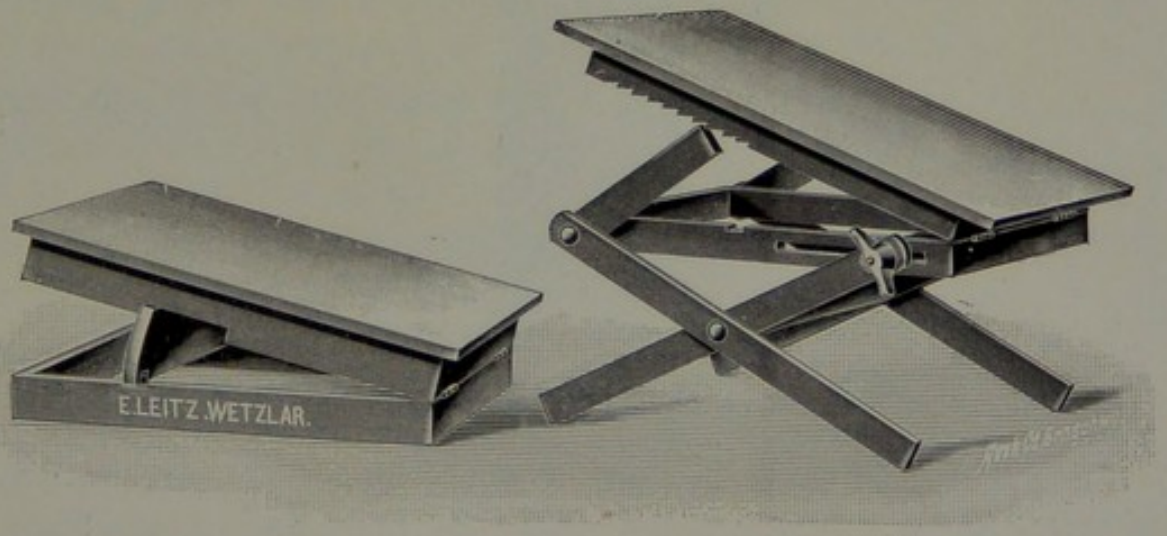
Drawing Eyepiece for drawing with inclined stand.

No.		£ s d.	Code Word
112.	**Drawing Eyepiece** No. 112 is similar to that just described but so arranged as to throw the image vertically downwards behind the microscope when the latter is inclined at an angle of 45 degrees. The reflected image is sharp and free from distortion when microscope and drawing papers are in their proper position. The intensity of the light may be modified by smoked glasses mounted in two movable metal collars (see Fig. on p. 112) The convenient position of the drawing surface and the advantage of drawing while the microscope is in an inclined position have rapidly brought this little instrument into great favour and so fulfilled a prediction uttered in the journal referred to in the preceding page	**1. 5. 0**	**Desinare**



Abbe's Drawing Apparatus.

No.		£ s. d.	Code Word
113.	**Abbe's Drawing Apparatus.** The drawing surface is made visible by a mirror at the side of the instrument and by a double prism placed over the eyepiece of the microscope. The image formed by the objective and eyepiece is seen through an aperture in the silver coating on the prism. The latter is supported on a vertical hinge so that it may be readily turned out of the axis of the microscope without detaching the whole apparatus. Two smoked glasses mounted in rings may be placed in front of the prism so as to modify the intensity of the light	**1. 10. 0**	**Desinatior**



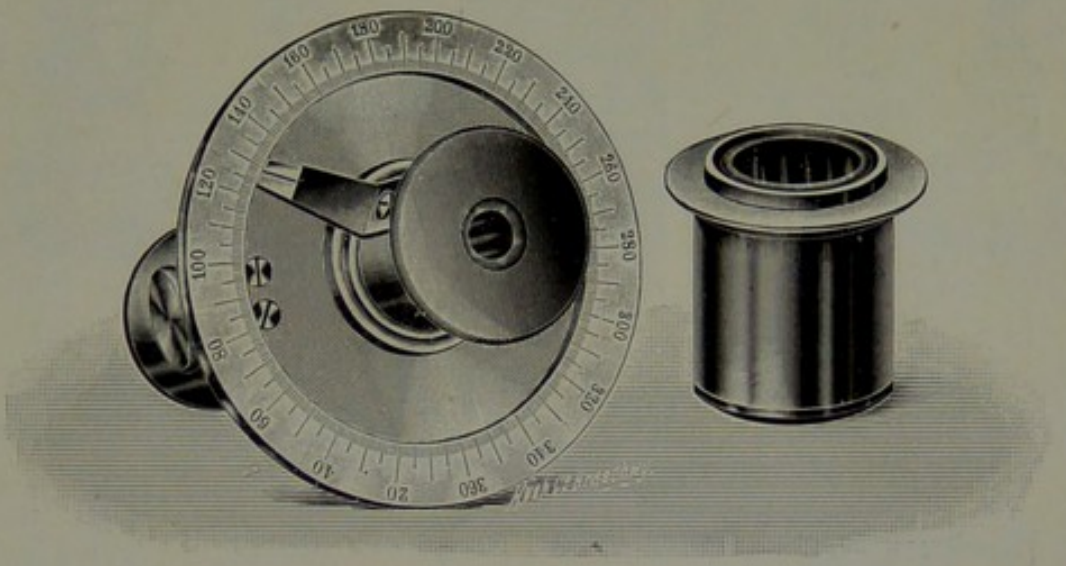
Drawing Board No. 114. Giesenhagen's Drawing Board No. 115.

The **Drawing Boards** afford a smooth surface for the drawing paper and are so arranged that they may be inclined at any required angle or raised to any desired elevation.

No.		£ s. d.	Code Words
114.	**Drawing Board** No. 114 is specially adapted for use with drawing eyepiece No. 111, which shows no distortion when the drawing surface is at an angle of 12^0 to the horizontal	**0. 5. 0**	**Desinatum**
115.	**Giesenhagen's Drawing Board** No. 115 is adjustable at various angles and may be raised and lowered . . With drawing eyepiece No. 112 and the Abbe drawing apparatus the surface of the drawing board should be horizontal.	**0. 10. 0**	**Desinavero**

Drawing Eyepiece No. 112.

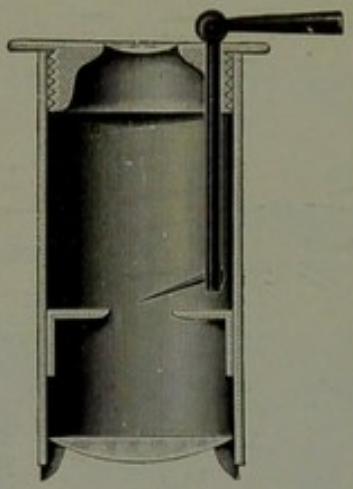
Polarising Apparatus.



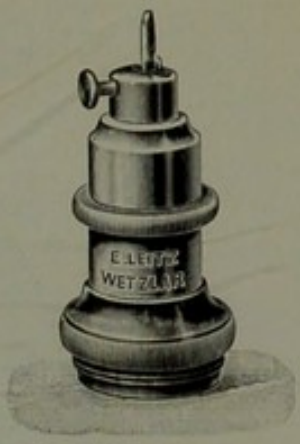
Analiser. Polariser.

		£ s. d.	Code Words
116.	**Polarising Apparatus** for Food Analysis. The analiser forms part of an eyepiece which fits into the tube of the microscope and is provided with a graduated disc and index. It is fixed in any desired position by means of a thumb-screw. The polariser, when used in connection with Stands A, B, C, D, Ia and Ib fitted with either of the illuminators *a* or *b*, is hung in the carrier of the iris-diaphragm. When used on stands provided with the smaller illuminators *c* or *d*, it has to be specially mounted so as to take the place of the cylinder diaphragm, and, if desired, may be furnished with a condensing lens (5/— extra) . . .	**2. 18. 0**	**Polarizar**
117.	**Simple Polarising Apparatus.** The analiser is without an eyepiece and has no graduated disc. The polarizer is as described above	**2. 0. 0**	**Polarisant**
118.	**Selenite and Mica Films.** Set of 8	**0. 15. 0**	**Selenitis**

119



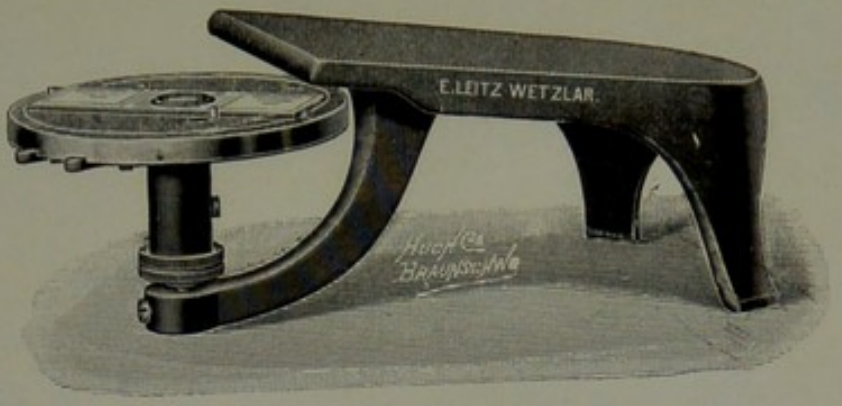
121



120

Object Markers.

No.		£. s. d.	Code Words
	Object Markers. These facilitate the process of finding any particular part of a specimen by surrounding it by a visibly marked circle. To mark a certain portion of an object as seen under the microscope the lens should be replaced by the object marker.		
119.	**Object Marker** No. 119, fitted with a fine camel-hair brush the tip of which, having been dipped into black varnish or some suitable colour, marks the small area at the centre	**0. 3. 0**	**Markirer**
120.	**Object Marker** No. 120, fitted with a writing diamond, with the aid of which a circle may be drawn round the object	**0. 10. 0**	**Marqueur**
121.	**Demonstration Ocular,** Kuznitzky's (see Zeitschrift f. wissensch. Mikroskopie, Vol. XIII, 1896, p. 145), indicates any particular portion of the image to which it is desired to draw particular attention. It consists of a pointer which may be moved by a suitable lever. By this movement and the rotation of the eyepiece in the tube any point in the field may be reached	**0. 8. 0**	**Indicator**
122.	**Erecting Prism.** This fits over the eyepiece and erects the image produced in the compound microscope, thereby facilitating dissection on the stage of the microscope	**0. 18. 0**	**Prisma**



Turn Table No. 123.

No.		£ s. d.	Code Words
123.	**Turn Table,** for ringing, with adjustable clips . . .	**0. 10. 0**	**Turntable**
124.	**Cover-glass Gauge**	**0. 9. 0**	**Taster**

Accessories.

125.	**Coverglasses,** squares, 15×15 mm, per 100	**0. 1. 3**	**Varcato**
126.	„ squares, 18×18 mm, per 100	**0. 1. 9**	**Vascelli**
127.	„ squares, 20×20 mm, per 100	**0. 2. 6**	**Vedova**
128.	„ circles, 15 mm diameter, per 100 . . .	**0. 2. 0**	**Vegetor**
129.	„ circles, 18 mm diameter, per 100 . . .	**0. 2. 6**	**Vehentor**
130.	„ circles, 20 mm diameter, per 100 . . .	**0. 3. 0**	**Velamos**
131.	**Glass slides,** hollow, per doz	**0. 1. 3**	**Venador**
132.	**Glass slides,** English size, 3×1″, of plate-glass with polished edges, per 100	**0. 2. 6**	**Ventrigo**
133.	**Glass slides,** with well, for moist chambers	**0. 1. 0**	**Verpos**
134.	**Thickened Cedar** Wood Oil for immersion lenses, per 50 grm	**0. 1. 0**	**Cedar**
135.	**Capped Bottle** for Immersion Oil, with horn rod . .	**0. 0. 9**	**Capuchon**

Microscopical Cases.

No.		£ s. d.	Code Words
136.	**Case,** containing a razor, spatula, two small knives, straight and curved scissors, forceps, two needles, two lancet-shaped needles	**0. 13. 6**	**Wittol**
137.	**Case,** containing a razor, spatula, a small knife, two needles, small scissors, and forceps	**0. 10. 0**	**Wiston**
138.	**Case,** containing a small knife, small scissors, forceps and two needles	**0. 6. 0**	**Wingolf**
139.	**Botanical Outfit** in case, containing a small knife, forceps, self-closing forceps with horn handle, two scissors, two needles, and two lenses.	**0. 13. 6**	**Botanic**
140.	**Case for Meat Inspection**, containing a small pair of scissors, small knife, forceps, two dissecting needles, a pipette with India rubber hood	**0. 5. 0**	**Trichinius**
141.	**Outfit for Sputum Examinations,** Kaatzer's consisting of a platinum needle, blower, cover-glass forceps, and a small rubber plate	**0. 18. 0**	**Sputum**
142.	**Leather Microscope Case** to protect the mahogany case when travelling	**1. 5. 0**	**Leather**
143.	**Leather Case** to protect the mahogany cases of large size instruments	**1. 10. 0**	**Leatheroid**
144.	**Bell Jar** for covering microscopes	**0. 6. 0**	**Bell**
145.	**Bell Jar** for covering large sized microscopes . . .	**0. 8. 0**	**Belljar**

Engraving on microscopes:
1/— to 2/— according to number of letters.

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Index.

Ferd. Schnitzler, Wetzlar.