

No. 752,889.

PATENTED FEB. 23, 1904.

C. F. DIECKMANN.
PORTABLE MICROSCOPE AND CASE THEREFOR.

APPLICATION FILED DEC. 22, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1.

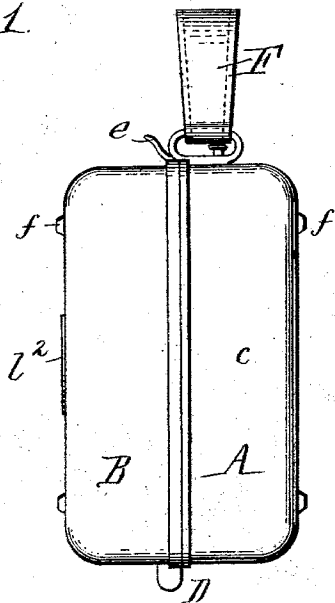
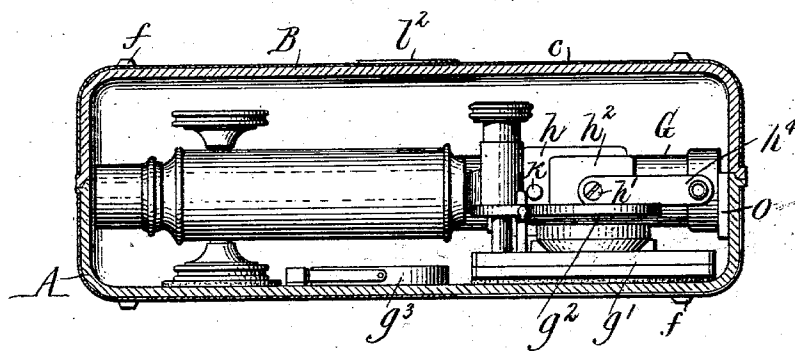


Fig. 2.



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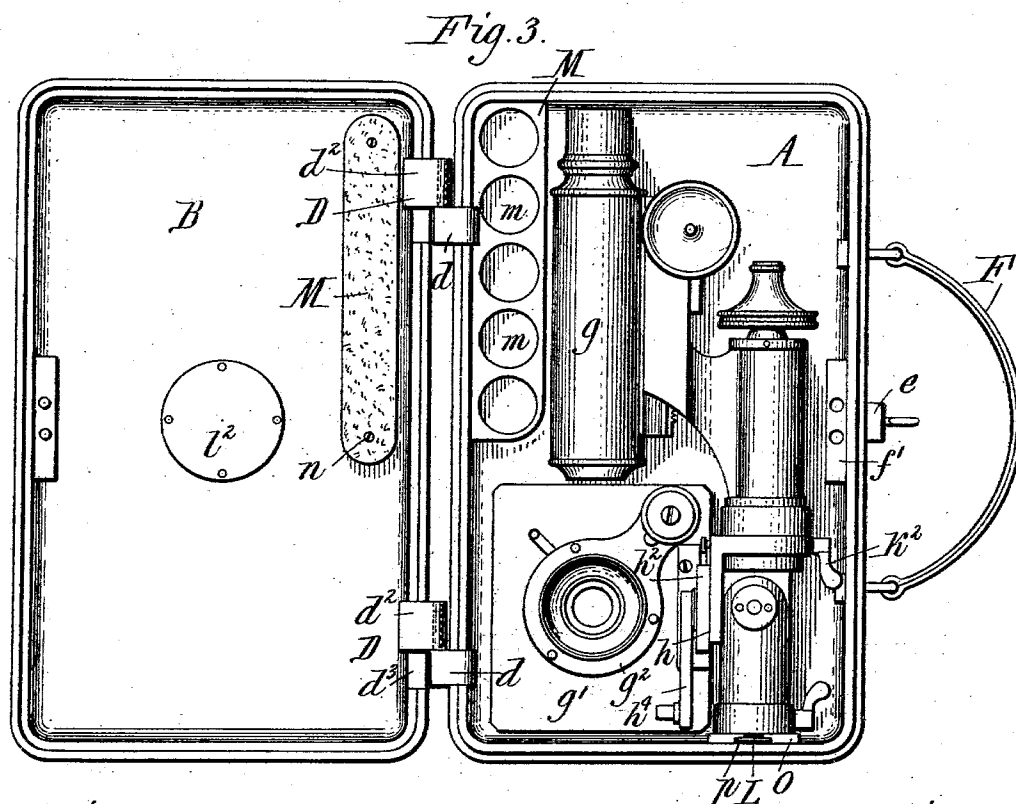
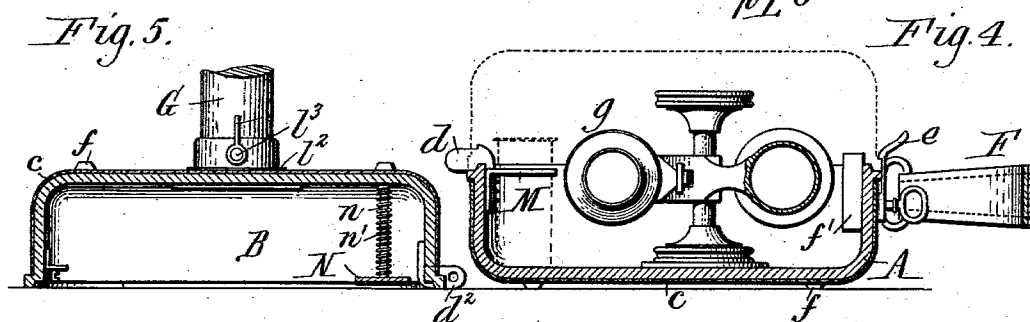
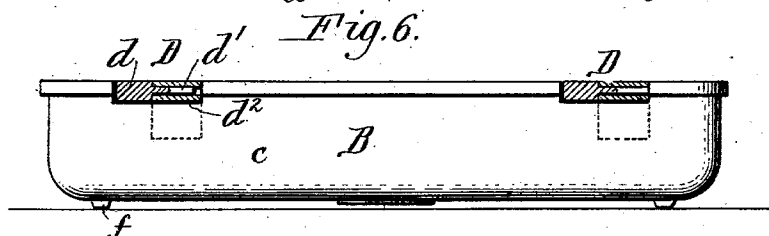
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

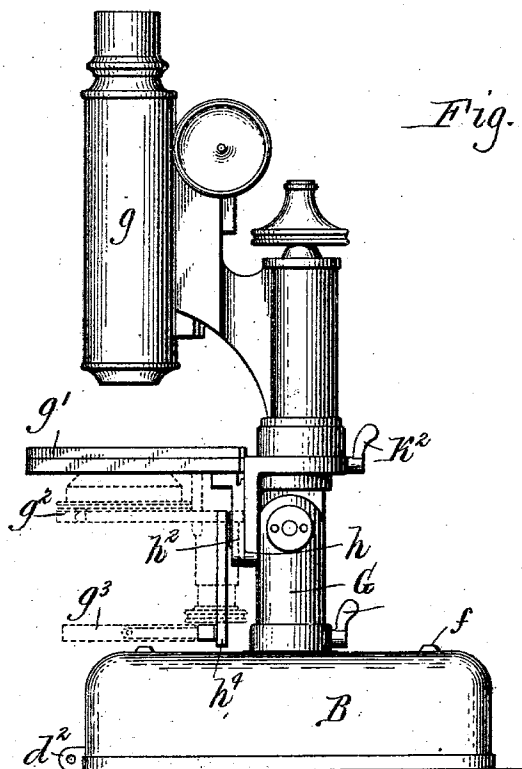


Fig. 7.

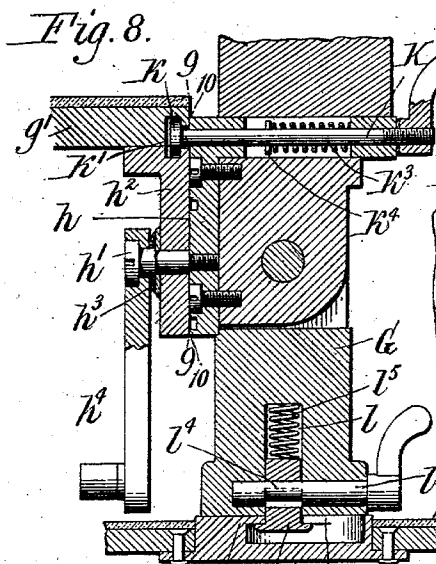


Fig. 8.

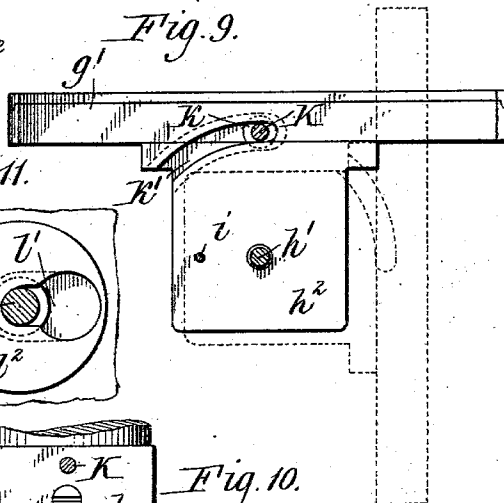


Fig. 9.

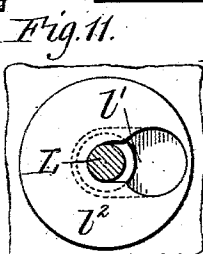


Fig. 11.

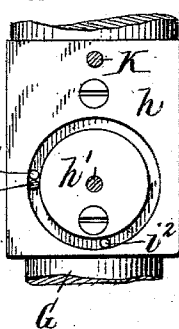


Fig. 10.

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UNITED STATES PATENT OFFICE.

CARL F. DIECKMANN, OF BUFFALO, NEW YORK, ASSIGNOR TO SPENCER LENS COMPANY, OF BUFFALO, NEW YORK.

PORTABLE MICROSCOPE AND CASE THEREFOR.

SPECIFICATION forming part of Letters Patent No. 752,889, dated February 23, 1904.

Application filed December 22, 1903. Serial No. 186,157. (No model.)

To all whom it may concern:

Be it known that I, CARL F. DIECKMANN, a citizen of the United States, and a resident of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Portable Microscopes and Cases Therefor, of which the following is a specification.

This invention relates to a portable microscope and inclosing case or box for the same.

Microscopes have been provided with containing boxes or cases in which the instrument with its heavy metal base is placed; but the box is large, cumbersome, and heavy in itself, and with the complete microscope and the usual accessories is so heavy and bulky that the physician or microscopist will not carry his instrument with him when he otherwise would in order to save time and work under the most favorable conditions. It has also been proposed to provide a traveling-case for microscopes having a hinged lid on which the stand is secured in operative position and which serves as the base for the instrument. This construction is objectionable, because the accessories are contained in the case and the cover must be opened and the adjustments of the instrument destroyed each time a new device is to be used.

The primary object of the present invention is to produce a full-sized portable microscope and containing-case for the same and the usual accessories which is light, compact, and of attractive appearance, and in which the case affords a stable convenient base for the instrument.

Other objects of the invention are to improve the construction of the microscope and its case in several particulars, which will appear from the following description.

In the accompanying drawings, Figure 1 is an end elevation of a containing-case embodying the invention. Fig. 2 is a longitudinal section of the case, showing the microscope in front elevation in place therein. Fig. 3 is a plan view of the case, showing the same open and the microscope therein. Fig. 4 is a vertical section of the body of the case, showing the microscope therein, partly in elevation and

partly in section. Fig. 5 is a transverse section of the case-cover, showing the same inverted and constituting the base of the microscope. Fig. 6 is an elevation of the body of the case, showing the hinges in section. Fig. 7 is a side elevation of the microscope in operative position on the cover-base. Fig. 8 is a fragmentary vertical sectional elevation, on an enlarged scale, of the lower portion of the microscope. Fig. 9 is a sectional elevation in line 9 9, Fig. 8, looking toward the front and showing the folded position of the stage by dotted lines. Fig. 10 is a sectional elevation in line 10 10, Fig. 8, looking toward the rear. Fig. 11 is a fragmentary plan view, partly in section, on an enlarged scale, showing the detachable base connection.

Like letters of reference refer to like parts in the several figures.

The case comprises two parts or sections A and B, which constitute, respectively, the body and cover of the base and are preferably made of metal covered with leather or the like material *c* to give the case the necessary strength and stiffness without unduly increasing its size and to lend a neat attractive appearance resembling a traveling case or bag. The body and cover are connected by suitable hinges D, a catch *e* and lock *f* of any suitable form being employed to hold the cover closed. The hinges connecting the body and cover are of a construction permitting the cover to be detached from the body and inverted to form the base of the microscope, as hereinafter described. The hinges shown consist of hinge-lugs *d*, secured to the back of the body and provided with pintles *d'*, and hinge-lugs *d''*, secured to the back of the cover and having holes to receive the pintles on the other lugs. The hinge-lugs on the body project above or beyond the edge of the back, while the hinge-lugs on the cover are arranged flush with the edge of the back or set in the back, so that when the latter is detached and inverted the edges of its ends and sides will rest flat upon a table or supporting-surface and will not rock or be unsteady. The edge of the back of the cover is provided adjacent to its hinge-lugs with recesses *d'''* to receive the hinge-lugs

of the body when the cover is closed, so that a tight joint is effected between the body and cover and the latter is held from endwise movement to detach it from the body except

5 when opened.

F represents a handle or strap for carrying the case, and f' buttons or feet which are preferably provided on the bottom of the body to prevent marring the latter in use.

10 The microscope proper is of well-known construction, except as hereinafter explained, and comprises a stand G, tube g , hinged thereto for inclining the stage g' , substage g'' , carrying the usual illuminating apparatus, preferably constructed and arranged as described

15 in United States Letters Patent No. 700,409, granted to me May 20, 1902, and mirror g^3 . The stage is pivoted to the stand, so that it can be turned from the operative position

20 shown in Fig. 7 to the position shown in Fig. 3, in which it is parallel with the plane of the stand, to permit it to be placed in the case. This pivotal connection is preferably constructed as follows, (see Figs. 8 to 10):

25 The stand is provided at the front of its lower end with a flat vertical face h , to which is secured a forwardly-projecting screw h' , constituting a pivot, and the stage is provided with a depending pivot plate or arm h^2 , having a hole through which the pivot passes.

30 The pivot-arm of the stage is pressed against the front-face stand to take up any looseness by a spring-washer h^3 , surrounding the pivot between the pivot-arm of the stage and the

35 swinging arm h^4 for the mirror, which is also hung on said pivot.

i , Figs. 9 and 10, is a stop-pin which projects from the rear face of the pivot-arm of the stage into a circular groove in the front

40 face of the tube-arm and is adapted to engage cooperating stationary stops i' i'' to arrest the stage in its operative and folded positions. The stage is held rigid in its operative position by a clamping-bolt K passing horizontally through a hole in the stand and having

45 at its front end a head k , engaging in an undercut open-ended curved slot k' , formed in the rear face of the pivot-arm of the stage concentrically with the stage-pivot. The rear

50 end of the bolt-shank is threaded and provided with a thumb-nut k^2 , by turning which the bolt can be drawn inwardly to clamp and hold the stage.

k^3 is a spring coiled about the clamping-bolt in a recess in the stand between the rear end of the recess and a pin or shoulder k^4 on the bolt. This spring acts to project the clamping-bolt forwardly when the thumb-nut is loosened, so that its head will slide freely

60 in its slot and will enter the open end thereof without striking the walls of the slot.

The cover of the case is detached from the body and inverted, as shown in Figs. 5 and 7, when used as the base of the microscope,

65 which is detachably secured in an upright po-

sition on the cover-base, preferably by the following means:

L represents a securing-bolt located in a longitudinal hole l in the lower end of the stand and having a projecting headed end, 70 which is adapted to enter a keyhole-slot l' , formed externally in a socket-plate l'' , secured centrally on the case-cover in any suitable manner.

l^3 is a bolt-operating shaft arranged to turn 75 in a transverse hole in the stand and having at its outer end an operating lever or handle and provided with an eccentric pin or portion l^4 , working in a slot in the securing-bolt. After the head of the bolt is inserted in the 80 large end of the slot and slid under the contracted end thereof the bolt-operating shaft is turned and the bolt-head is thereby drawn up to clamp the overhanging walls of the keyhole-slot between the same and the end of the 85 stand. The securing-bolt is normally projected, so as to readily enter the keyhole-slot by a spring l^5 between its inner end and the end of the bolt-hole. The bolt serves to hold its operating-shaft in place. The case-cover 90 affords a firm, stable base for the microscope, and as the latter is secured on the outside of the cover it is elevated sufficiently above the supporting table or surface and enables the instrument to be used with convenience. 95

The body of the case is provided with holding devices for the various accessories of the microscope—for instance, M represents a rack, secured at the back of the body near one end, and is provided with retaining-holes m for the 100 eyepieces and objectives, which are held in the rack by a padded plate or bar N, slidably mounted on fixed pins n at the back of the cover and held in yielding engagement with the parts in the rack by springs n' , surrounding the pins n . As the cover is detached from 105 the body of the case when using the instrument, the body, which contains the microscope accessories, can be placed in a convenient position near the instrument and the accessories 110 taken therefrom as required without disturbing the position or adjustments of the microscope, which is a great advantage of a construction in which the part of the case forming the base of the microscope is not detached 115 from the other part and must be moved each time a device is taken from the case.

If desired, a separate tripod or base (not shown) can be furnished with the instrument for use in the laboratory. Such base is provided with a socket similar to that on the case-cover for the engagement of the securing-bolt. It will be understood that this supplemental base is not carried about with the instrument in the case. 125

When the microscope is to be placed in the case, the mirror is detached from its swinging arm and the stage with the attached substage is turned to the position shown in Figs. 2 and 3, in which it is parallel with the stand. In 130

this position the stage occupies much less space transversely of the instrument than when it is in operative position, and the instrument can consequently be inclosed in a case considerably narrower than the width of the stage.

The body of the case is provided at one end (see Fig. 3) with a plate O, having an undercut slot *p*, in which the head of the base-securing bolt is engaged in placing the microscope in the case to hold the microscope from movement in the case in the position shown in Fig. 3.

I claim as my invention—

1. A microscope case or receptacle comprising detachably-connected sections, one of which constitutes a base for the microscope and is provided with means for securing the microscope thereto, substantially as set forth.

2. A microscope case or receptacle comprising sections, hinges detachably connecting said sections, one of said sections constituting a base for the microscope, and having means for securing the microscope thereto, substantially as set forth.

3. A microscope case or receptacle comprising detachably-connected sections, one of which when detached and inverted constitutes a base for the said section having external means for securing the microscope therein, substantially as set forth.

4. A microscope case or receptacle comprising detachable hinged sections, the hinge members in one section being set into one side thereof, whereby said sections will rest firmly in a supporting-surface when inverted to form a base for the microscope, substantially as set forth.

5. A microscope case or receptacle comprising detachable hinged sections, one of said sections having hinge members set into one side thereof, and recesses adjacent to said hinge members, and the other section having projecting hinge members adapted to enter the recesses in the other section when the sections are closed to prevent the detachment of the sections except when opened, substantially as set forth.

6. The combination of a microscope, a case therefor, a device for securing the microscope in operative position on said case comprising cooperating parts on the microscope and case, and a part in said case which cooperates with said securing part on the microscope to hold the latter from movement in the case, substantially as set forth.

7. The combination of a microscope, a case therefor provided with a socket, a bolt on the microscope which cooperates with said socket to hold the microscope in operative position in the case, and a socket in the case with which said bolt cooperates to hold the microscope stationary in the case, substantially as set forth.

8. The combination of a microscope, a case therefor provided with a socket-plate externally slotted, a bolt on the microscope which engages in said slot to hold the microscope in operative position on the case, and a slotted plate in said case in which said bolt engages to hold the microscope stationary in the case, substantially as set forth.

9. The combination of a stand, a stage provided on said stand and provided with an undercut curved slot concentric with the stage-pivot, and a clamping-bolt mounted in said stand and having a head which enters the curved slot in the stage, substantially as set forth.

10. The combination of a stand, a stage provided with an arm pivoted on said stand, and provided with an undercut curved slot concentric with the stage-pivot, cooperating stops on said stage arm and stand to limit the pivotal movement of the stage, and a clamping-bolt mounted in said stand and having a head which engages the curved slot in the stage, substantially as set forth.

Witness my hand this 18th day of December, 1903.

CARL F. DIECKMANN.

Witnesses:

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C. M. BENTLEY.