

(No Model.)

E. BAUSCH.
MICROSCOPE.

No. 577,344.

Patented Feb. 16, 1897.

Fig. 1.

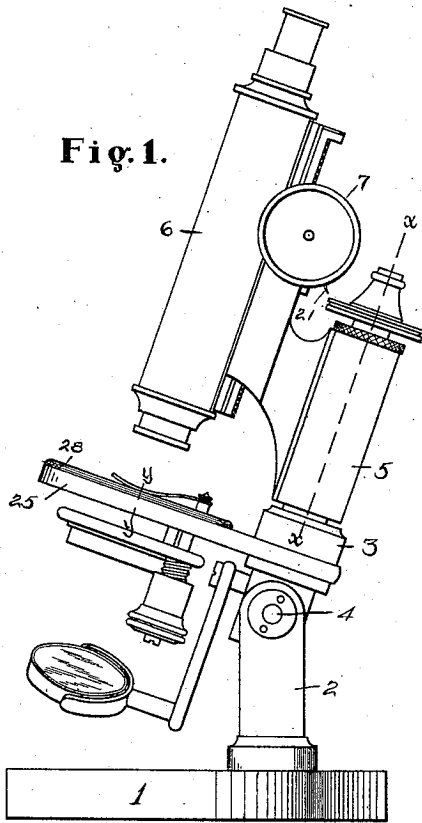


Fig. 2.

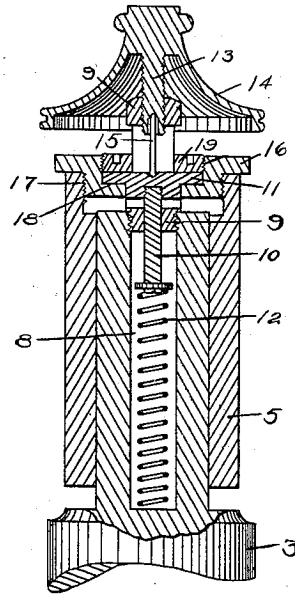


Fig. 3.

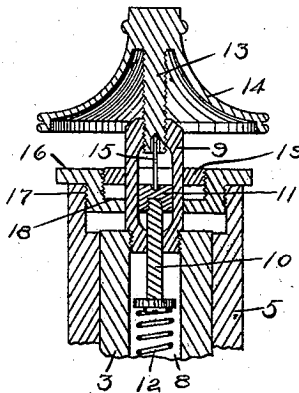


Fig. 5.

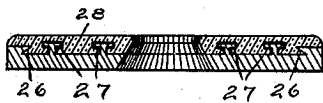
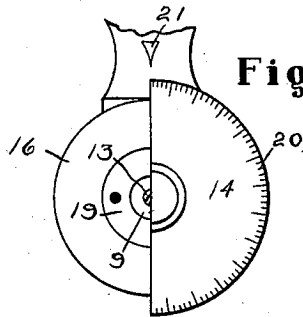


Fig. 4.



Witnesses;

Thomas Durant
Elizabeth Gifford

Inventor,
Edward Bausch,
by *Charles Church*
his atty's.

UNITED STATES PATENT OFFICE.

EDWARD BAUSCH, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE BAUSCH & LOMB OPTICAL COMPANY, OF SAME PLACE.

MICROSCOPE.

SPECIFICATION forming part of Letters Patent No. 577,344, dated February 16, 1897.

Application filed August 21, 1896. Serial No. 603,495. (No model.)

To all whom it may concern:

Be it known that I, EDWARD BAUSCH, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Microscopes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to microscopes and similar instruments, and has for its objects to improve the fine adjustment thereof by facilitating the assembling of the parts, and also to provide an improved top or surface for the stage or platform; and to these ends it consists in certain improvements in construction and combinations of parts, all as will be hereinafter described, and the novel features pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a side elevation of a microscope provided with my improvements; Fig. 2, a vertical sectional view on the line *xx* of Fig. 1; Fig. 3, a similar view taken at right angles to the plane of the section of Fig. 2; Fig. 4, a plan view of the pillar, showing a section of the adjusting-cap; Fig. 5, a sectional view on the line *yy* of Fig. 1, through the stage.

Similar reference-numerals in the several figures indicate similar parts.

The base 1 and standard 2 are of the usual construction, 3 indicating the pillar, pivoted at 4 to the standard and, as usual, angular in cross-section.

5 indicates the sleeve, fitting and sliding upon the pillar 3 and upon which the tube 6, carrying the lenses, is adjustably mounted and moved by the usual wheel 7.

The pillar 3 (which may be rigidly attached to the base, if desired) is provided with the longitudinal recess 8, threaded at its upper end for the correspondingly threaded lower end of the yoke 9, which latter is provided with a central aperture for the passage of the screw 10, secured to the bridge 11. The lower end or head of the screw 10 abuts against a spring 12 in the recess 8 of the pillar and forces the bridge upward.

13 indicates the adjusting-screw, formed

with or attached to the cap 14 and threaded in the upper aperture in the yoke and operating upon the bridge, preferably through the loose pin 15. The means for securing the bridge to the sleeve 5 consists of a collar or ring 16, screwing into the end of the sleeve, as at 17, and having an interior annular shoulder or rim 18, upon which the bridge rests and to which it is secured by a clamping ring or collar 19, screwing into the threaded portion of the ring 16 above the shoulder. This construction enables me to assemble the parts by passing the screw through the aperture in the yoke into the bridge, then to screw the yoke into the pillar until the shoulder upon it seats on the end of the latter, this rotary movement of the yoke of course carrying the bridge with it, and after the yoke is seated the collar 19 is screwed down, tightly clamping the bridge to the sleeve and enabling the fine adjustment of the instrument to be accomplished by the cap-screw 13, the scale 20 on the edge of the cap cooperating with a suitable index 21 in the usual manner, the sleeve being held pressed upward against the screw by the spring 12, as will be understood.

The advantage of securing the bridge in position by the clamping-ring is that it can be tightly fastened to the sleeve irrespective of the position it may assume after the yoke is screwed tightly to the pillar, which enables me to keep all the parts in tight condition, necessary in an instrument of this description.

The table or stage forming another part of my present invention is constructed as shown particularly in Figs. 1 and 5 and embodies a base-plate 25, supported in any suitable manner, or, as shown, from the pillar, and preferably consisting of a piece of metal having its front portion around the central aperture recessed and provided with undercut edges 26 and a series of studs or headed projections 27, distributed throughout the upper surface of the recessed portions.

28 indicates the upper cover of the stage, composed of hard rubber, gutta-percha, or similar material more or less plastic and preferably black, so as to prevent light-reflection, and which is secured upon and made practically integral with the stage by being pressed down into the recess in the stage while ren-

dered semiplastic by heat, causing the material to flow around and beneath the undercut edge and the headed studs or anchor projections, as in Fig. 5, after which the upper portion is finished off in any suitable manner to form a smooth dead-black mat-surface, which is eminently desirable in an instrument of this description. By this anchoring the rubber cover is practically integral with the stage and not only prevents the separation of the rubber from the metal, but is a vast improvement over the stages having blackened brass tops.

I claim as my invention—

1. The combination with the pillar, the yoke and the spring, of the adjustable sleeve, the bridge passing through the yoke, and means for connecting the ends of the bridge to the sleeve in any position of rotary adjustment, and the adjusting-screw, substantially as described.

2. The combination with the pillar, the yoke screwing therein, and the spring, of the bridge passing through the yoke and engaging the spring, the sleeve having the shoulder, the adjustable collar on the sleeve clamping the

yoke upon the shoulder, and the adjusting-screw, substantially as described.

3. The combination with the pillar, and the yoke screwing therein, of the sleeve, the bridge passing through the yoke, means for clamping the bridge to the sleeve in any position of rotary adjustment, and means for operating the sleeve and pillar relatively, operating through the yoke and bridge, substantially as described.

4. In an instrument of the kind described, the combination with the stage having the anchors thereon, of the stage-cover composed of hard rubber or similar material firmly secured by the anchors to the stage, substantially as described.

5. In an instrument of the kind described, the combination with the stage recessed and having the undercut edges and the anchors, of the stage-cover of hard rubber or similar material in which the anchors are embedded, substantially as described.

EDWARD BAUSCH.

Witnesses:

RUDOLF ZIMMERMAN,
FRANK H. MASON.