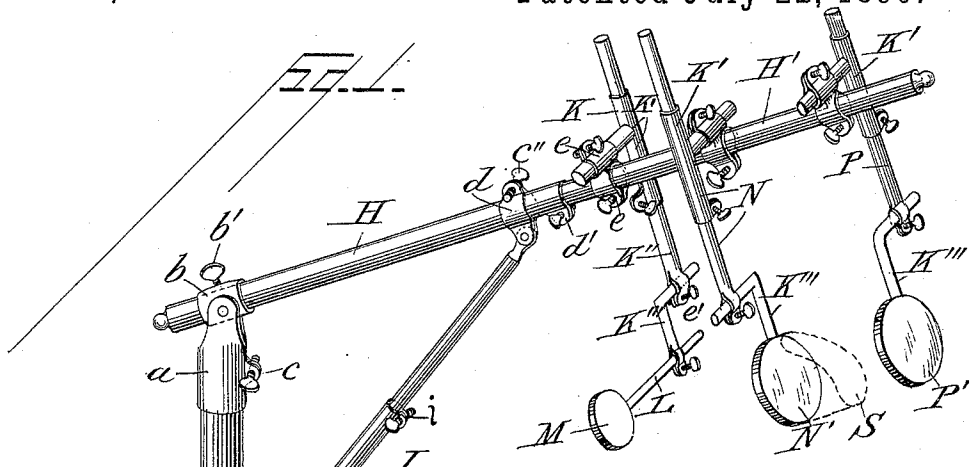
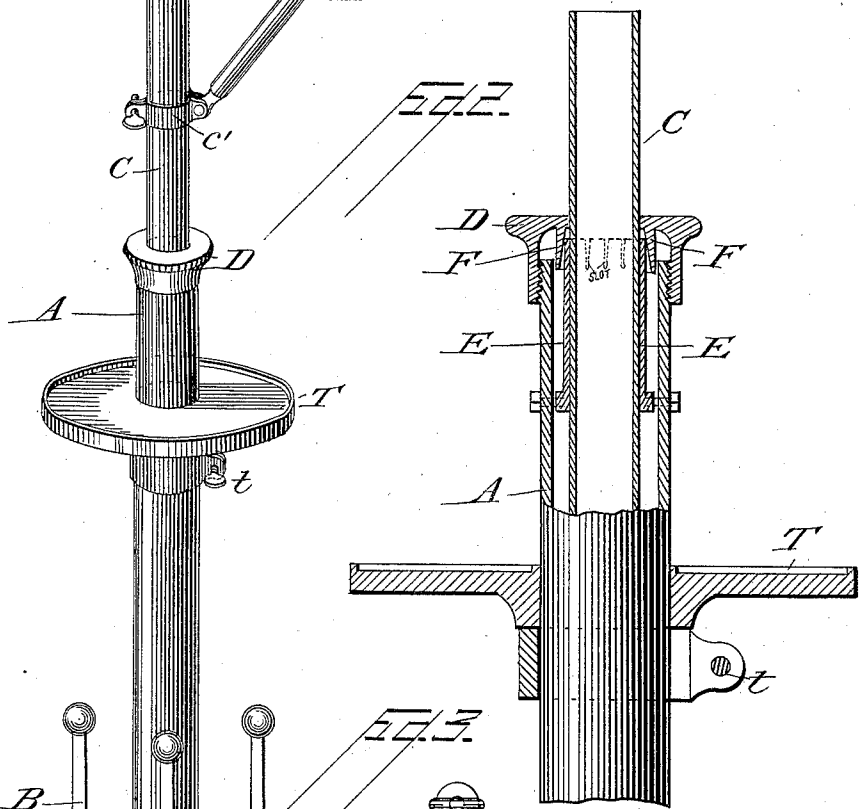
(No Model.)

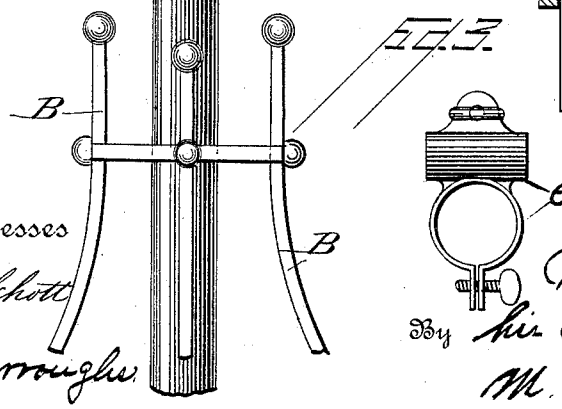
W. L. HENDRICK.

SURGICAL APPARATUS.

No. 432,614. Patented July 22, 1890.







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SURGICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 432,614, dated July 22, 1890.

Application filed March 18, 1890. Serial No. 344,303. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. HENDRICK, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Surgical Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention has for its object the construction of an apparatus especially adapted to be used by surgeons in such operations where it is necessary or advantageous to have a practical operative microscope concentrated on the place to be operated upon—such as the interior of the mouth, throat, vagina, &c.

The invention consists in the special arrangement of a mirror and lenses, so that the mirror may be placed in such a position as to throw the light concentrated upon it by one of the lenses on the particular place to be examined, and the other lens to be used as a magnifying-glass to examine the place to be operated upon directly or the image reflected in the mirror, and, further, to the means of supporting and adjusting the mirror and lenses, and to an adjustable table adapted to revolve and hold the tools of the operator.

The invention further relates to the novel construction and combination of parts, as will be hereinafter fully set forth, pointed out in the claims hereto appended, and illustrated in the accompanying drawings.

In the accompanying drawings, in which similar letters of reference designate corresponding parts, Figure 1 is a side elevation of the apparatus. Fig. 2 is a vertical section through the lower standard and the cap on the top of the same, showing the device for securing the upper standard in place when adjusted. Fig. 3 is a detail view showing the double friction-collar used in connecting several of the various parts of the apparatus.

Referring to the drawings by letter, A designates a hollow standard provided with a suitable base B. In this hollow standard slides a standard C, adjustably held therein. A cap D, having an aperture in its top for the passage of the upper standard, is screwed to the top of the lower standard. Around the adjustable standard C, just below the cap, is a sleeve E, having its lower end flanged. The purpose of this flange is to allow the insertion of screws through the sides of the standard A to attach the sleeve firmly to the same. Any other suitable device may be used for retaining the sleeve in place and may be substituted for the flange and screws. The upper end of this sleeve is slotted for the purpose which will be explained farther on.

From the under side of the cap D a band F projects, which has its outer periphery at right angles to the top of the cap and its inner periphery at a slight angle to the outer, so as to be wedge-shaped in cross-section. This wedge-shaped band enters the space between the top of the sleeve E and the stationary standard. When the sliding standard has been adjusted to the desired height, the cap is screwed down and the wedge forced between the stationary standard and slotted top of the sleeve, which is compressed and firmly bound to the sliding standard, and thereby holding it in place. The slotted top of the sleeve allows it to be easily compressed.

On the top of the adjustable standard is a cap *a*, having its upper end bifurcated. It is slotted vertically on one side, and has the lugs *c* provided with a set-screw for securing the cap upon the standard. Between the arms of the bifurcated end of the cap is pivoted the sleeve *b*, through which the arm H, carrying the supports for the lenses and mirror passes, and is held adjustably therein by the set-screw *b'*.

To provide a vertical adjustment of the arm H, the telescopic brace *l* is provided. It is secured at one end to the adjustable standard C by the clamp-collar *c'*, and at the other end to the arm H by the clamp-collar *d*. A set-screw *i* is provided, so that the brace may be secure in its adjusted position.

In the arm H telescopes the extension-arm H', held therein by the set-screw *d'*, passing through suitable lugs formed on the edges of the split formed in the end of the arm H. Secured on the extension-arm, near its inner end, by the clamp-collars *e*, (see Fig. 3,) is the T-shaped joint K. Through the sleeve K' of this joint, and adjustably secured therein,

passes the arm K″, having its outer end bifurcated, which, with a set-screw, forms a clamp-collar. In this clamp-collar is secured one end of the angle-support K‴, which has its outer end formed into a clamp-collar similar to that on the end of the arm K″, and carries the handle L of the mirror M. The handle of the mirror is long enough to allow considerable adjustment of the same. Farther out on the extension-arm H′ are secured, by clamp-collars *e* and T-shaped joints, the supports N and P for the lenses N′ and P′, respectively. These supports are similar to that of the mirror, and therefore need not be described in detail.

The preferred kind of lenses to be used are plane concave, so that the focus may be lengthened much more so than when convex ones are used without diminishing the magnifying and light-concentrating power. The lenses are so fastened as to be easily removed and replaced by others, when it is so desired.

The magnifying-lens N′ is provided with a hood S to exclude the reflected light from a window or any other source. The hood also serves to keep the eye of the operator the proper distance from the lens.

When it is desired to examine any of the parts before mentioned, as the mouth, eye, throat, &c., the patient is placed in position in a chair or other suitable support, and the apparatus placed back of him, so that the extension-arm can be brought over either shoulder, as would be most convenient to the operator. The mirror and lenses are then brought into position. The mirror is so placed that it will throw the light concentrated upon it by the lens used for that purpose upon the place to be examined, or so that the image reflected upon it may be examined by the magnifying-lens when brought to focus upon the mirror or the place to be operated upon.

The manner in which the different parts are connected allows a great variety of adjustments, which at the same time securely hold the apparatus in its adjusted positions.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As an improvement in surgical apparatus, the hollow standard A, supported upon a suitable base and having a slotted sleeve E within its upper end, the adjustable standard C, telescoping with the lower standard, the cap D, and the wedge F, projecting from the under side of the cap, substantially as and for the purpose specified.

2. As an improvement in surgical apparatus, the hollow standard A, supported by a suitable base, the adjustable standard C, the arm H, pivoted to the top of said adjustable standard, the extension-arm H′, telescoping with the arm H, the supports for the mirror and lenses carried by said extension-arm, and the telescopic brace I, secured at its ends to the arm H and the adjustable standard C, respectively, substantially as and for the purpose specified.

3. As an improvement in surgical apparatus of the described class, the combination of the hollow standard A, provided with a suitable base, the adjustable standard C, telescoping with said standard A and having its upper end bifurcated, the arm H, pivoted at one end between the arms of the bifurcated end of the standard C, the telescopic brace I, secured at its ends to the standard C and the arm H, respectively, the extension-arm H′, telescoping with the arm H, and the supports for the lenses and mirror adjustably carried on the extension-arm, substantially as and for the purpose specified.

4. The combination of the standard A, supported by a suitable base, the adjustable standand C, the arm H, pivoted to the top of said adjustable standard, the extension-arm H′, telescoping with the arm H, the supports for the mirror and the lenses carried by T-shaped joints secured to the extension-arm, and the brace I, secured at its ends to the arm H and the adjustable standard C, respectively, substantially as and for the purpose specified.

5. The combination of the hollow standard A, supported by a suitable base, the adjustable standard C, the arm H, pivoted to the top of said adjustable standard, the brace I, secured at its ends to the standard C and the arm H, respectively, the extension-arm H′, telescoping with the arm H, the T-shaped connections K′, secured to the extension-arm by clamp-collars, and the angle-supports K‴ for the mirror and lenses carried by the arms sliding in the T-shaped connections, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM L. HENDRICK.

Witnesses:

EUGENE H. MOORE,

EDWARD E. PARKER.