

No. 728,589.

PATENTED MAY 19, 1903.

L. LEVI.
SURGICAL INSTRUMENT.
APPLICATION FILED AUG. 12, 1899.

NO MODEL.

Fig. 1.

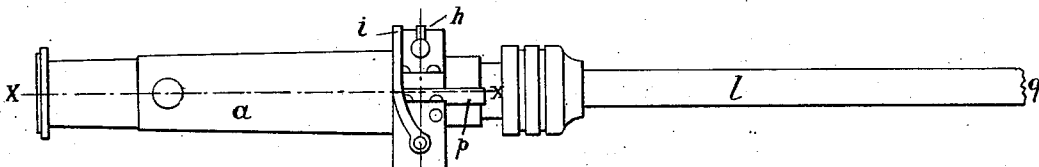


Fig. 2.

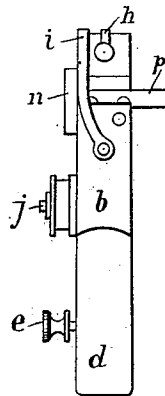


Fig. 4.

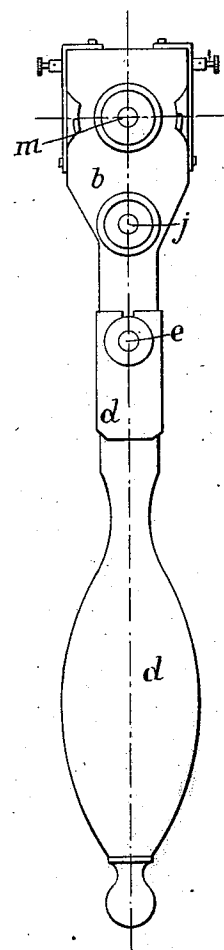


Fig. 3.

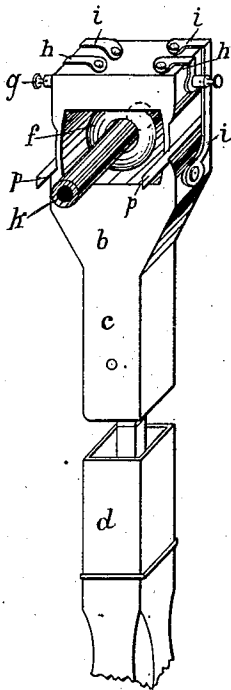


Fig. 6.

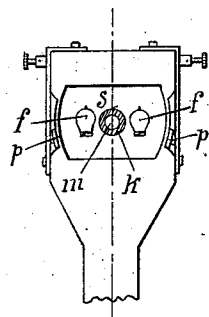
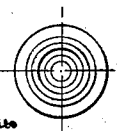
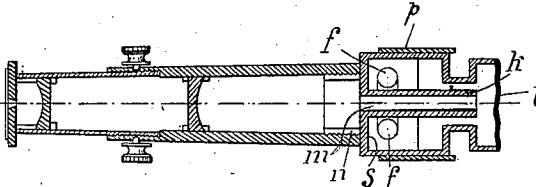


Fig. 7.



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Fig. 5.



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LEONE LEVI, OF GENOA, ITALY.

SURGICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 728,589, dated May 19, 1903.

Application filed August 12, 1899. Serial No. 726,981. (No model.)

To all whom it may concern:

Be it known that I, LEONE LEVI, a citizen of the Kingdom of Italy, and a resident of Genoa, Italy, have invented certain new and useful
 5 Improvements in Surgical Instruments, of which the following is a specification.

This invention relates to an apparatus for illuminating the interior of the human body and at the same time magnifying the objects
 10 thus illuminated.

The invention consists, briefly, in a telescope, an exploring-tube in line therewith, and an annular electric light concentric with the axis of said tube and placed between the
 15 adjacent ends of the telescope and the tube, with a suitable annular reflector for throwing the light of the lamp through the tube.

In the accompanying drawings, Figure 1 is a side elevation of the complete apparatus.
 20 Fig. 2 is a side view of the central portion containing the lamp and reflector. Fig. 3 is a perspective view of the same from the side of the exploring-tube. Fig. 4 is an elevation of the opposite side of the same portion of
 25 the apparatus, showing it attached to the handle. Fig. 5 is a section of the telescope and of the lighting-chamber. Fig. 6 is a modified form of the arrangement shown in Fig. 3, wherein two ordinary incandescent
 30 lamps instead of the above-mentioned annular one are provided besides the small central tube. Fig. 7 is a front view of the eye-piece of the telescope.

The apparatus consists of three distinct
 35 parts—to wit, a central portion containing the lighting device and means for attachment to a handle and provided with an attachment for the other two parts—to wit, the telescope and the exploring-tube. The central
 40 part consists of a box or lighting-chamber *b*, within which is located the lighting device, consisting of either an annular electric light *f*, as shown in Fig. 3, or two lamps disposed symmetrically on each side of the central
 45 transverse axis of this chamber, as shown in Fig. 6. Attached to the chamber *b* are two binding-posts *g*, which receive the terminals of the wires supplying the current to the lamp. Connection is made with the lamp
 50 through the plates *h* and *i*, and in the circuit of the lamp is interposed a push-button *j*, so that the circuit can be opened and closed at

pleasure. The lighting-chamber *b* has a depending stem *c*, adapted to be received in a socket in the handle *d*, where it can be fastened by means of a clamping-screw *e*. The
 55 telescope *a*, which is provided with any suitable means for adjusting its focus, is secured to the screw-threaded neck *n* on one side of the chamber *b* and concentric with the axis
 60 of the annular electric lamp. An exploring-tube *l* is attached to the opposite side of the lighting-chamber *b* by means of spring-clips *p*, so that its axis will coincide with the axis
 65 of the telescope. A small tube *k* is secured central to the diaphragm *s* of the lighting-chamber, concentric with and passing through the annular electric lamp or between the two
 70 lamps and extending into the exploring-tube *l* for a short distance.

The mode of using the apparatus is as follows: The end *q* of the exploring-tube is introduced into the cavity to be examined and the telescope is properly focused. The eye
 75 of the observer having been placed at the ocular of the telescope, the push-button *j* is pressed in order to close the circuit and light the lamp or lamps. The flood of light through
 80 the exploring-tube is reflected back from the illuminated object through the small central observing-tube *k* to the telescope, and thus to the eye of the observer, who is thus furnished
 with a highly illuminated and magnified view of the part to be examined.

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

The combination with a lighting-chamber, of an annular electric lamp secured therein, an exploring-tube attached to one side of said
 90 chamber, a telescope attached to the opposite side of said chamber in line with said tube, a diaphragm between the lighting-chamber and the telescope, and a short observing-tube extending through the lamp and into the exploring-tube.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

LEONE LEVI.

Witnesses:

W. AICARD,
G. CARAÑO.