

(No Model.)

2 Sheets—Sheet 1.

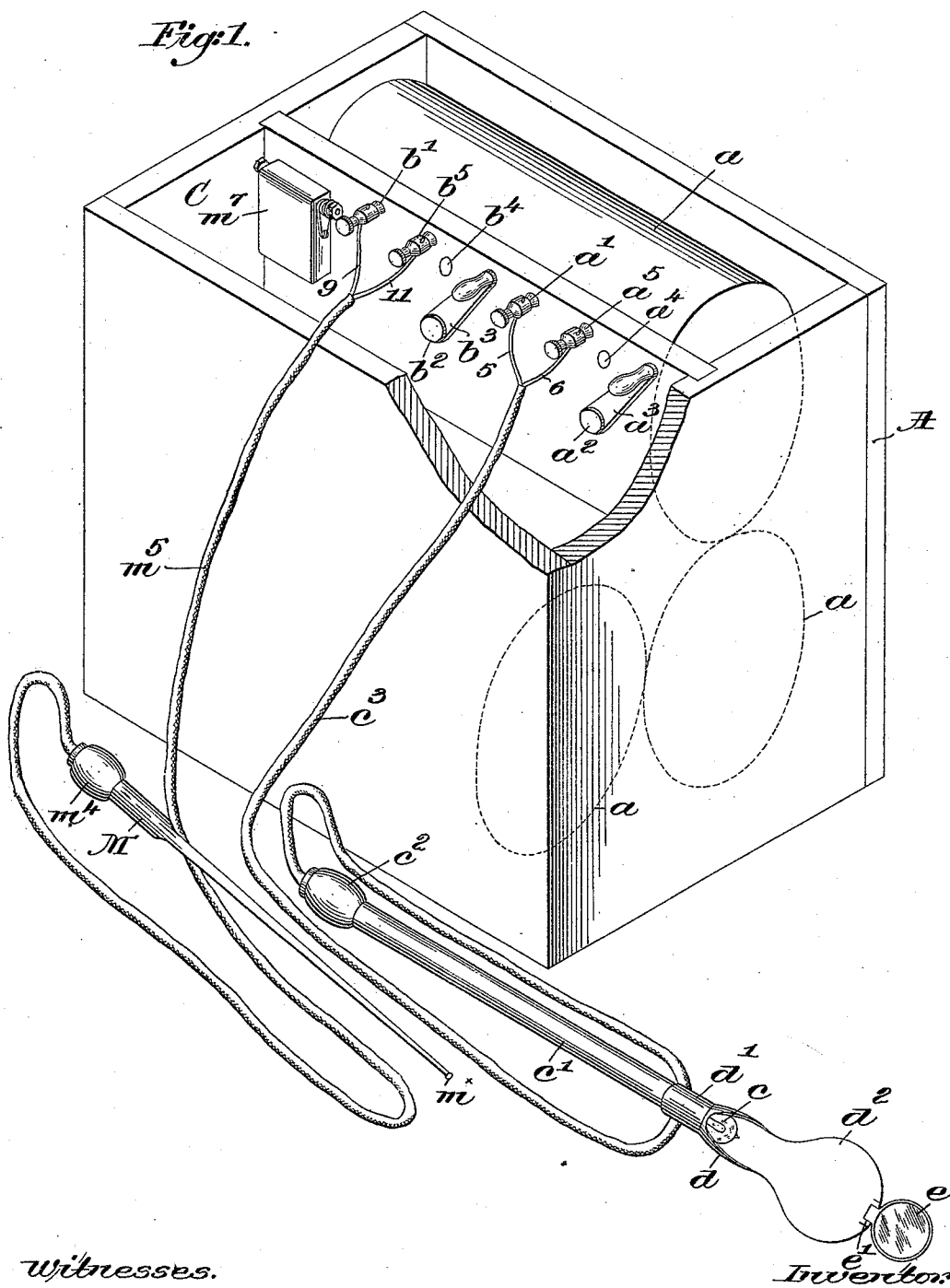
W. E. DOW.

INTERNAL ILLUMINATOR AND PROBE.

No. 543,616.

Patented July 30, 1895.

Fig. 1.



Witnesses.

Fred S. Grunke.

Thomas J. Drummond.

Inventor.

Willard E. Dow.

by Crosby & Sugrue
attys.

(No Model.)

2 Sheets—Sheet 2.

W. E. DOW.
INTERNAL ILLUMINATOR AND PROBE.

No. 543,616.

Patented July 30, 1895.

Fig. 6.

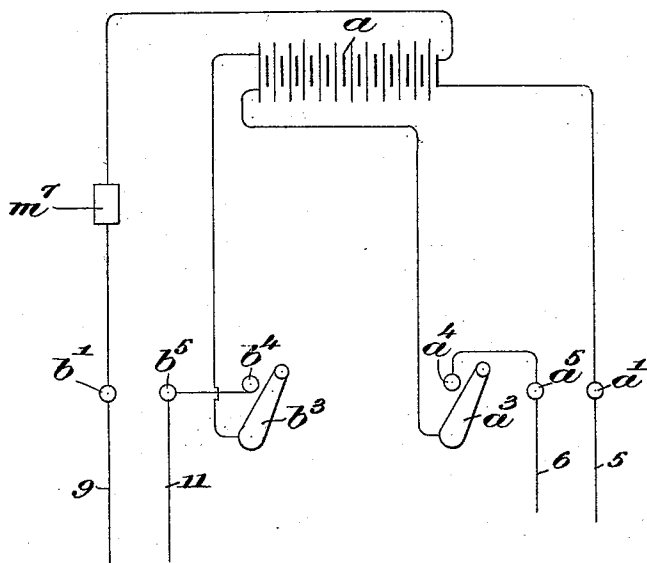


Fig. 5.



Fig. 2.



Fig. 3.

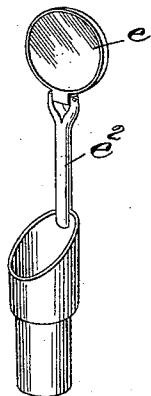
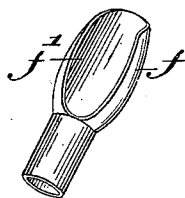


Fig. 4.



Witnesses.

Thomas J. Summmond.
Fried. S. Grunkeof.

Inventor.

Willard E. Dow.
by Crosby & Ingouy
attys.

UNITED STATES PATENT OFFICE.

WILLARD E. DOW, OF BRAINTREE, MASSACHUSETTS.

INTERNAL ILLUMINATOR AND PROBE.

SPECIFICATION forming part of Letters Patent No. 543,616, dated July 30, 1895.

Application filed February 16, 1895. Serial No. 538,667. (No model.)

To all whom it may concern:

Be it known that I, WILLARD E. DOW, of Braintree, county of Norfolk, State of Massachusetts, have invented an Improvement in Internal Illuminators and Probes; of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object the production of a novel device for the use of physicians and surgeons, by which to illuminate the throat, nose, and other internal parts, and also to probe for metallic or other conducting parts, the location of which is by the probe determined through the medium of a suitable indicator or alarm, and the invention consists in various details of construction, to be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 in perspective, partially broken away, shows a portable apparatus embodying my invention, the same being equipped with both the illuminator and probe, as is desirable for general use. Fig. 2 is a longitudinal section through the illuminator, showing one form of reflector and tongue-depressor applied thereto; Fig. 3, a detail showing a different manner of mounting the hinged mirror; Fig. 4, in perspective, shows yet another modified form of reflector; Fig. 5, a longitudinal section through the probe, showing the conductors and means for connecting the same; and Fig. 6, a diagram illustrating one method of running the circuits.

In the particular apparatus selected to enable my invention to be understood, and shown in the drawings, A is a suitable box or case containing the electric generator, shown as in the form of one or more dry cells *a a*, three of which are shown, two in dotted lines, connected in suitable manner, the two poles of the cells being connected, respectively, with the binding-post *a'* and the pivot *a²* of the switch-lever *a³*, the latter being adapted to be thrown into engagement with a fixed contact *a⁴*, electrically connected with the binding-post *a⁵*. The respective poles of the battery are also connected in suitable manner with the binding-post *b'* and the pivot *b²* of the switch-lever *b³*, adapted to be thrown into electrical engagement with a fixed contact *b⁴* connected with the binding post *b⁵*.

Referring now to Figs. 1 and 2, my improved illuminator consists of a miniature electric incandescent lamp *c*, mounted upon the end of a suitable carrier, preferably, as herein shown, a metallic tube *c'*, into one end of which a lamp is sealed, and to which one leg of the lamp-filament is connected, as at 1, Fig. 2, the tube thereby constituting one of the conductors of the lamp. The other leg of the lamp-filament is connected by a suitable conductor 2 with a plug 3 at the opposite end of the tube-carrier *c'* and insulated therefrom, preferably by a block of hard rubber 4. The end of the carrier *c'* adjacent the block 3 is shown as exteriorly threaded to adapt it to be screwed into a threaded socket in the metallic head *c²* on the end of the flexible conducting-cord *c³*, which latter contains two conducting-wires 5 and 6, connected, respectively, at one of their ends with the binding posts *a⁵ a⁶*, one of the said conductors—as, for instance, that marked 5—being electrically connected with the said head *c²*, as shown at 7, Fig. 2. At the bottom of the threaded socket in the head *c²*, and insulated therefrom in suitable manner, is a conducting screw or piece 8, which is connected with the conductor 6 of the cord *c³*, so that when the carrier *c'* is screwed into the socketed head *c²* a complete circuit is formed from the binding-post *a'* through the conductor 5, connection 7, head *c²*, carrier *c'*, lamp-filament, conductor 2, plug 3, screw 8, and conductor 6 to the binding-post *a⁵*, and when the switch *a³* is thrown upon the contact *a⁴* a circuit is established through the battery or generator, causing the lamp-filament to be heated to incandescence to serve as an illuminator for the mouth, nose, or other desired part.

To reflect the light in desired direction, and also to shield the parts of the body from the heat, more or less of which is generated by the lamp, I have provided a reflector, one form of which is shown at *d*, and which is provided with a tubular neck *d'*, adapted to be slipped upon the carrier from its threaded end 3, the opposite end adjacent the lamp being spread slightly, as shown at *c^x*, to enable the tubular neck *d'* of the reflector to be wedged thereupon to hold the said reflector in position, although not with sufficient force to prevent it being easily rotated to throw the light in desired direction.

The reflector *d* is made like a scoop, inclos-

ing the lamp on all but one side, which latter is cut away in order that the rays of light may be reflected from the reflector through this cut-away portion on the parts to be illuminated, and in the construction, Figs. 1 and 2, a portion of the reflector d is prolonged to a considerable distance beyond the lamp to constitute a tongue-depressor d^2 , which also constitutes a sort of reflector.

In Figs. 1 and 2 I have shown a mirror e , hinged at e' to the end of the tongue-depressor, which thereby constitutes a support for the mirror, the hinge e' enabling the angularity of the mirror relative to the axis of the lamp to be adjusted to meet varying conditions.

In Fig. 3 the mirror e is mounted upon a different support e^2 , which does not constitute a tongue-depressor, and in Fig. 4 the reflector f is made to more fully inclose the lamp, the opening f' formed by cutting away a portion of the reflector extending along the whole side of the reflector.

Referring now to Figs. 1 and 5, the probe M is shown as composed of two nearly similar conducting members m m' , made long and narrow to adapt the same for probing purposes, and secured to and separated by a strip of insulated material m^2 , preferably of rubber, the connecting end of the members m m' being preferably rounded, as at m^x , to better adapt the probe for its various uses. At its butt-end, that opposite the end m^x , one of the members m is carried completely around the probe and threaded, as at m^3 , to adapt it to be screwed into a socketed head m^4 , similar in construction to the socketed head e^2 , it being connected to a conductor 9, inclosed in the cord m^5 , and joined at its opposite end to the binding-post b' , the insulated screw 10 in the bottom of the socket being connected to the conductor 11, also included in the cord m^5 and joined to the binding-post b^5 .

The probing member m' is connected, as shown in the drawings, with an inner insulated plug m^6 , which, when the probe is screwed into the socketed head m^4 , is adapted to contact with the screw 10 in the bottom of the socket, so that, assuming the switch b^3 to be turned upon the contact b^4 , a circuit is established from the battery through the conductor 9, head m^4 , probing member m , and also from the other pole of the battery through the binding-post b^5 , conductor 11, screw 10, plug m^6 , and probing member m^5 .

When the probe is in use, the moment the tips m^x of the two probing members come in contact with a metallic or other conducting substance sought for a completed circuit is at once established from and through the battery, which may be indicated to the operator in suitable or desired manner, herein by the use of a buzzer m^7 , arranged in one of the circuits of the probe, herein between the binding-post b' and its pole of the generator.

The probe and illuminator are herein shown as incorporated in a single apparatus,

I having found that frequently they may be used together, when one should assist the other in the various operations known to physicians and surgeons; but my invention is not necessarily limited to the incorporation or use of both together, for so far as known to me I am the first to provide a probe of the nature described, whether it is used in connection with or without an illuminator.

The chamber C in front of the apparatus, to the wall of which the binding-posts, switches, &c., are attached, is made to receive and hold the illuminator and probe when not in use.

My invention is not limited to the exact construction of parts herein shown, for the same, obviously, may be varied without departing from the spirit and scope of the invention.

I claim—

1. In an apparatus of the class described, a tubular lamp-carrier, a lamp at its end, and a reflector having a hollow neck to embrace and adapted to slide concentrically upon the said carrier, and a mirror hinged to the end of said reflector, substantially as described.

2. In an apparatus of the class described, the combination of a lamp, a conducting tube in the end of which the lamp is mounted, said tube constituting one conductor for the lamp, a second conductor within but insulated from the said conducting tube, and terminating in a contact at the end of said tube; two flexible conductors and a socket at the end of the same connected with one of said conductors and adapted to receive the end of said conducting tube; and a contact within said socket and connected with said other flexible conductor and adapted when said tube is inserted in said socket, to co-operate with said tube contact, whereby a complete circuit is established, substantially as described.

3. In an apparatus of the class described, a tubular lamp carrier, a lamp at its end, a mirror support having a tubular portion at one end adapted to slide concentrically upon the said tubular carrier, and a mirror hinged to the end of said mirror support, substantially as described.

4. In an apparatus of the class described, a probe consisting of two conducting members, insulated one from the other, and at the butt end of the probe formed with one of the said members encircling the other and threaded to enter a suitable socket, the other of the said members constituting a fixed contact within, and insulated from, the said threaded portion, substantially as described.

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

WILLARD E. DOW.

Witnesses:

FREDERICK L. EMERY,
CHARLES H. CLAPP.