(No Model.)

E. T. STARR.

ELECTRIC ILLUMINATOR FOR THE MOUTH AND SIMILAR PURPOSES.

No. 313,783. Patented Mar. 10, 1885.

Fig. 1.

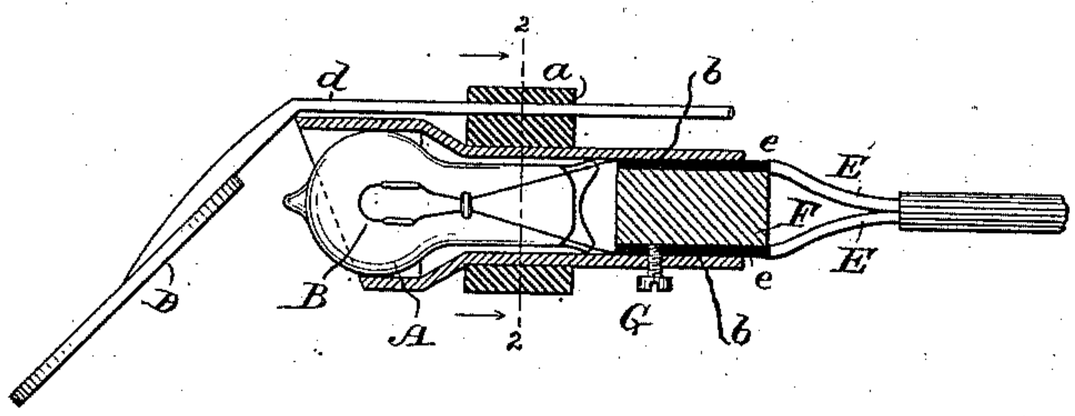


Fig. 2

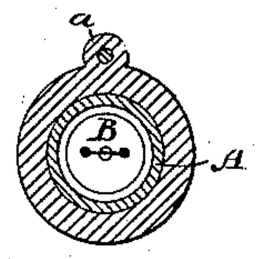


Fig. 3.

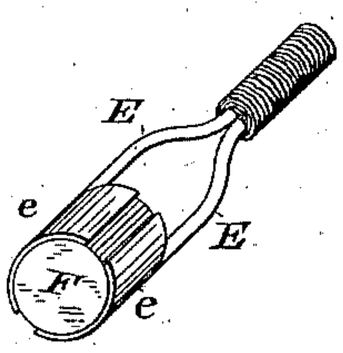
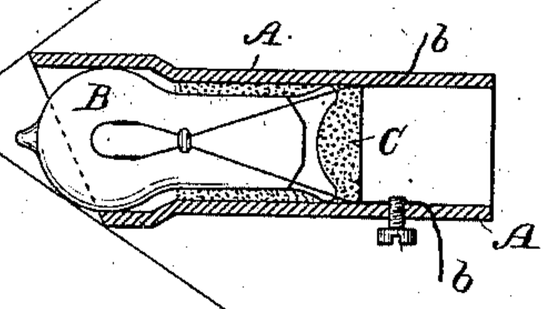


Fig. 4.



WITNESSES

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ELECTRIC ILLUMINATOR FOR THE MOUTH AND SIMILAR PURPOSES.

SPECIFICATION forming part of Letters Patent No. 313,783, dated March 10, 1885.

Application filed December 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, ELI T. STARR, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Electric Illuminators for the Mouth and Similar Purposes, of which the following is a specification, the application of which this specification forms a part being a division of a prior application of mine filed May 8, 1884, No. 130,776.

My invention relates to lamps or illuminators for the cavities of the human body, and constitutes improvements more especially upon the same class of devices heretofore patented to me under date of June 10 and June 17, 1884.

The objects of my present improvements are to improve the construction of the lamp and guard or casing which partially surrounds it; to improve the manner of fitting and connecting the lamp and its guard or casing, and to improve the connections between the lamp and casing and the handle of the instrument by which the lamp is carried, and by which it is manipulated when in operation.

The subject-matter claimed herein is first described in detail as embodied in the best way now known to me, and is then particularly pointed out in the summary at the close of this specification.

In the accompanying drawings, Figure 1 is a sectional view through so much of the improved mouth-lamp or electric illuminator for the cavities of the body as is necessary to illustrate the subject-matter herein claimed. Fig. 2 is a transverse section therethrough on the line 2 2 of Fig. 1. Fig. 3 is a perspective view of a portion of the slip-joint connection between the lamp and its handle which carries the conducting-connections; and Fig. 4 is a sectional view of a portion of the improved lamp or illuminator detached, showing the lamp as secured in its guard or casing by a cement connection between the two, this figure also showing lines drawn from the rear at angles relatively to the longitudinal line of the lamp to show that the eye of the operator to a wide angle or a wide line of divergence from the line of the lamp will be protected from the direct rays of said lamp in operating with the instrument.

A tubular casing or guard, A, partially surrounds an incandescent electric lamp, B, which preferably consists, as usual, of a vacuum-globe containing an incandescing filament. Said casing and said lamp are firmly united together, and in the position desired relatively to each other by means of a cement or plastic connection, C, which is filled in around the lamp and between it and the interior walls of the tubular casing. This cement is preferably a quick-setting cement, and this cement or connection may be, for instance, plaster-of-paris, or it may be oxychloride of zinc, such as used by dentists for filling and setting teeth. Plaster-of-paris or some equivalent white cement is preferred, as owing to its white character it acts as a reflector of the light and increases the lighting effect of the lamp, which is very desirable. Of course any suitable plastic connection or cement having a capacity of setting or hardening may be employed, and with this great advantage that the electric lamp may be secured in the casing at the desired point, and with a firm connection due to the setting of the cement or plastic filling. When the cement or plastic connection C has set or hardened, the lamp and casing are rigidly and permanently united together.

The front end of the guard or casing A is preferably enlarged slightly, as clearly shown in Figs. 1 and 4, so as to form an obstruction to shield the eyes of the operator from the direct rays of the light emitted by the lamp in operation, and the front end of said guard or casing is open to permit of the passage of the light-rays of the lamp, while its rear end obviously is closed.

Instead of securing the lamp in the tubular casing or guard by means of the cement connection, it may be secured therein by other means. For instance, the terminal wires *b b* of the lamp may be passed through openings in the side or at the rear end of the guard or casing, and be bent or otherwise fastened or shaped to secure the lamp and casing together. This arrangement is shown particularly in Fig. 1.

The guard or casing is preferably constructed of non-conducting material—for instance, hard rubber—and it may be fitted externally with a socket, *a*, for the reception of the shank

d of a mirror or reflector, D, as shown in Fig. 1, whereby the light of the lamp may be thrown or reflected to the place desired to be brightly illuminated. I do not claim herein, however, this feature of the angularly-arranged mirror or reflector mounted directly upon the lamp-casing and rendered adjustable by means of a sliding stem, as that particular matter constitutes part of the subject-matter of my prior application filed May 8, 1884, before mentioned, and of which, as stated, this present case is a division.

The lamp B, with its surrounding guard or casing A, is carried by a suitable handle, upon or through which the electrical connections run from the battery or other source of electrical supply which feeds the lamp, and the handle is preferably provided with a circuit making and breaking device to throw the lamp into and out of operation, as desired, and the handle may be constructed in accordance with my Patent No. 300,115, of June 10, 1884, if desired.

The handle portion of the instrument is not shown herein, as it constitutes no part of my present improvements.

The conducting wires or connections E E at the front end of the handle of the instrument, which handle, as stated above, I have deemed it unnecessary to illustrate, terminate preferably in two plates or strips, *e e*, which in this example are fitted upon an intervening non-conducting plug or block, F. In the present example, also, the terminal wires or connections *b b* of the lamp are led down through the tubular guard or casing and into an extension thereof, so as to lie upon the inner face of said tubular extension, and engage or make contact respectively with the plates *e e* of the plug or block F when said block is slipped or fitted into the rear tubular end or extension of the guard or casing, as shown in Fig. 1. When the slip-joint connection is made, as in Fig. 1, for instance, it will be obvious that the circuit is established between the conducting-wires E E and the terminal wires *b b* of the incandescing filament of the lamp B, and this connection may be made rigid, so as not to depend upon friction to hold the parts of the slip-joint together by means of a set or clamp screw, G, passing through the tubular casing and bearing against the block or plug F which fits within it.

It will of course be understood that the slip-joint connection may be reversed—that is, the tubular seat for the block or plug may be connected with or form a part of the conducting wires or connections E E of the handle, and that the plug or block F may form part of the lamp guard or casing or holder A, the terminal wires of the lamp lying, for instance, upon an external reduced portion or end of said casing or holder A, and said reduced portion being then fitted in the socket or seat formed for it at the front end of the handle, so as to bring the terminal wires of the lamp in contact with the internal conducting-connections of said socket.

By this slip-joint and set-screw arrangement the lamp with its casing may be rapidly fitted to the handle or detached therefrom, as desired, while, when in place, good electrical connection is insured. By the slip-joint connection, also, the lamp or guard or holder may be rotated about the handle-connections, so as to adjust the lamp to suit different conditions of work.

I do not wish to be understood as broadly claiming a slip-joint electrical connection, as that is very old, but not the particular organization and arrangement claimed by me.

My improved lamp may be used to aid the dentist and surgeon in their work, investigations, and operations, various important uses for such a lamp as I have described being suggested in my previous patents of June 10 and June 17, 1884.

I claim herein as my invention—

1. A tubular open-ended guard or casing fitted with, containing, and surrounding the body of an electric lamp, said lamp and casing being firmly united together by means of a hardened or set cement or filling and the rays of the lamp being emitted at the open end of said guard or casing, substantially as described.

2. A tubular casing or holder fitted with and containing an electric lamp rigidly secured therein, said casing being enlarged or provided with an obstruction at its front end to shield the eyes of the operator from the direct rays of the lamp, substantially as described.

3. The combination, with the conducting-connections of the handle of a mouth or similar lamp, of an electric lamp having a surrounding guard or casing by means of a slip-joint conducting-connection and a set-screw or clamp device which locks the parts of the slip-joint together, substantially as described.

In testimony whereof I have hereunto subscribed my name.

ELI T. STARR.

Witnesses:
WM. J. PEYTON,
P. GEO. VINSON, Jr.