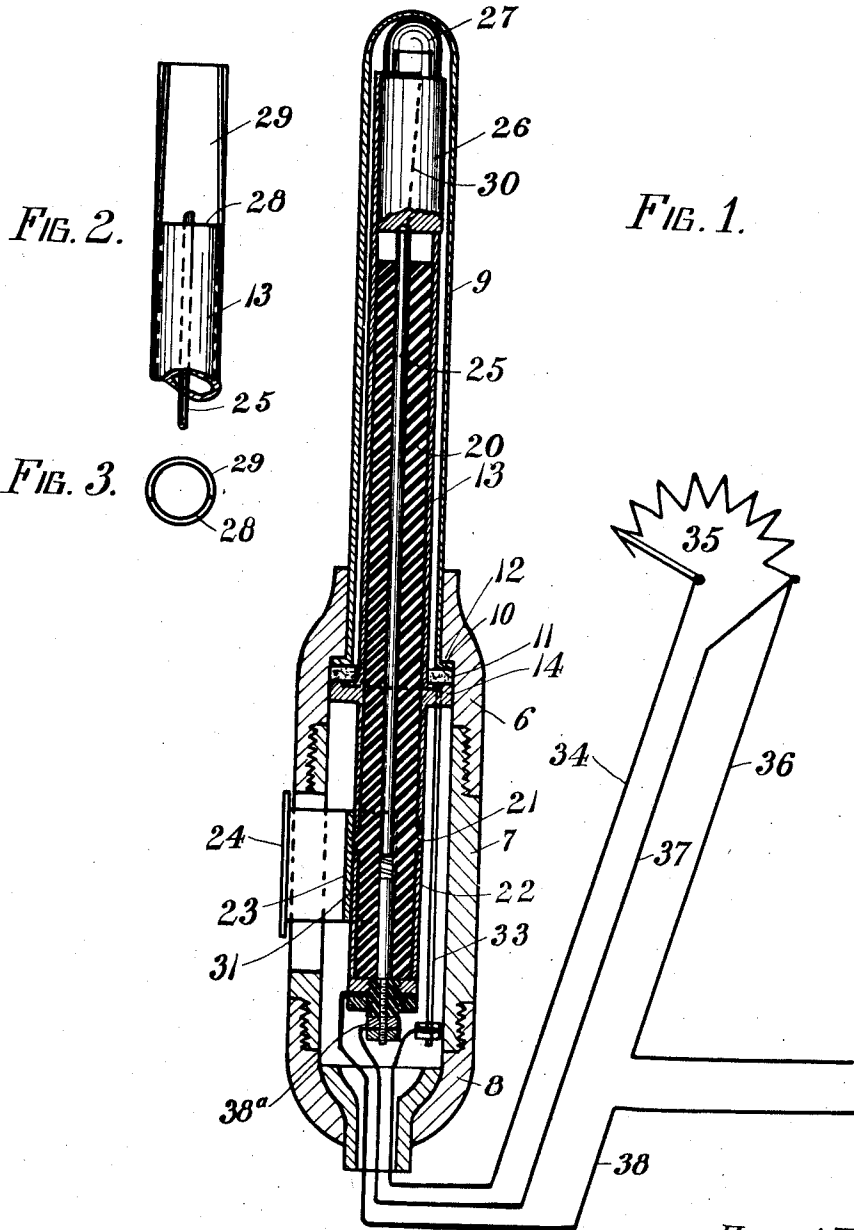


H. T. MARTIN & J. F. GOLDEN.
ILLUMINATING INSTRUMENT.
APPLICATION FILED NOV. 30, 1910.

1,011,980.

Patented Dec. 19, 1911.



WITNESSES:

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ILLUMINATING INSTRUMENT.

1,011,980.

Specification of Letters Patent.

Patented Dec. 19, 1911.

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To all whom it may concern:

Be it known that we, HOWARD T. MARTIN and JAMES F. GOLDEN, citizens of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Illuminating Instruments, of which the following is a specification.

This invention is an electric lamp or illuminator particularly adapted and intended for dental or surgical use in inspecting the interior of the mouth, throat and the other cavities of the body, but capable of other uses if desired.

The invention is especially an improvement on the illuminating instrument shown and described in our application No. 534,927 filed Dec. 27, 1909.

The object of the present invention is to remedy certain defects found in the construction disclosed in the former application, above referred to, and to generally improve and simplify the parts, special objects being to prevent the breakage of the lamp bulb and glass tube inclosing the same, and to improve the electrical connection to prevent burning out of the lamp.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a longitudinal sectional view of the instrument, the electrical connections being shown in diagram. Fig. 2 is a side view in detail of the end of the tube which holds the lamp. Fig. 3 is an end view of the tube as shown in Fig. 2.

Referring specifically to the drawings, the handle part of the casing of the instrument comprises three sections, a front end section 6, an intermediate section 7 and a rear section 8, these sections being made of hard rubber or other suitable material and united by threaded joints. The casing of the front part of the instrument consists of a glass tube 9 closed at its front end and held at its rear end within the casing section 6 in which it fits, the rear end of the tube being flanged as at 10 to engage behind a shoulder 12 in the tubes 6. In case of breakage of the tube it can be quickly renewed by unscrewing the part 6 and slipping the tube out rearwardly. Within the casing thus formed is a metal tube 13 having an external shoulder 14 which rests against a packing ring 11 between said shoulder and the flange of the glass tube 9.

Within the tube 13 is an insulating core

20 which has near its rear edge a shoulder 21 which serves to separate the tube 13 from a rear metal tube 22 which corresponds in size and position to the tube 13, and the tubes 13 and 22 may be electrically connected by a sliding switch 23 which has a finger piece 24 projecting through a slot in the casing. The lamp circuit is opened and closed by this switch. The insulating core 20 incloses a rod 25 which extends through a bore in said core and projects at the front end thereof to contact with the lamp socket 26, the bulb being indicated at 27, the inner or central terminal of the lamp being in contact with the front end of the rod 25 and the outer or sleeve contact of the lamp being in conducting engagement with the tube 13. The lamp is held in this position by a special construction of the end of the tube 13. The front end of said tube is cut away on one side, to the edge 28, against which the lamp rests, the cutaway portion being somewhat less than half the circumference of the tube, leaving a part 29 of slightly more than half the circumference, the longitudinal line of cut being on a slight angle, as indicated by the dotted line 30. This forms two wings or sides, and the tube being made of spring metal, the lamp may be sprung in between the opposite sides or wings of the part 29 which clamp the same and thereby hold the lamp in position. The rod 25 is movable, being pressed behind by a spring 31, and when the lamp is inserted the spring is slightly compressed by the pressure on the rod, and this acts to press the lamp against the wings of the part 29 so that it will not rattle or loosen accidentally. There is therefore no pressure on the end of the outer glass tube 9 against the lamp bulb, and although the parts may be so arranged that the bulb and tube will be in contact at the front end, there is no such pressure as would tend to break the bulb or force out the end of the tube 9, as sometimes happened in the former construction in which the lamp was held in place by the pressure of the outer tube against its bulb.

The tube 13 is connected by a rod 33 to a leading in wire 34 connected to one terminal of a rheostat 35 the other terminal of which is connected to a supply wire 36, and also by a wire 37 to a screw 38 in electrical connection through spring 31 to the rod 25. The other supply wire 38 is connected to the rear tube 22.

When the movable member of the rheostat is on the point to which the wire 36 is connected, the resistance is cut out, and switch 23 being closed, the full amount of current will be carried by the wire 38 through the switch to rod 33 and wire 34, and thence to wire 36, thus completing a direct return circuit, and allowing no current to pass through the lamp. When the resistance is cut in at the rheostat, by shifting its movable member, a part of the current passes through the lamp, and part also through the direct return, the relative amounts being proportionate to the amount of resistance cut in. When the switch 24 is open, all the current is cut off from both the rheostat and the lamp. The lamp can be connected to a battery if desired, by disconnection from the rheostat, and connecting the wires 38 and 37 to a battery; or wire 34 can simply be disconnected from the rheostat to produce a straight series lamp.

When the switch is closed the circuit is through the wire 38, sleeve 22, switch 23, tube 13, to the lamp, and back through the rod 25, screw 38^a, and wires 37 and 36, part of the current also passing back from the tube 13 through rod 33, wire 34 and rheostat 35, which is thus in a shunt circuit, and by the manipulation of the rheostat the amount of current passing through the filament of the lamp is controlled and can be varied according to the voltage of the lamp, thereby enabling the use of a small lamp on the ordinary electric light circuit, and avoiding burning out of the lamp. As the resistance is cut in, a proportionally increasing amount of current passes through the lamp,

until its illumination is effected. When the switch 23 is opened the lamp and rheostat circuits are also opened.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. The combination of an electric lamp, and conducting connections to the lamp, including a tube with a recess at the end in which the lamp fits, and a rod pressing against the lamp to hold it in said recess.

2. The combination of an electric lamp, a conducting member having wings engaging the lamp, and a spring-pressed conducting member, located behind the lamp and pressing the same to engagement with the wings to hold it in position.

3. The combination of an electric lamp, a conducting tube recessed on one side at its front end to form opposite wings between which the lamp fits and is held, and a spring pressed conducting rod insulated from said tube and pressing against the rear end of the lamp to hold it between said wings.

4. The combination of an electric lamp, a central conductor rod bearing against the rear end of the base of the lamp, another conductor having projections engaging the front end of the lamp base, and a spring pressing the rod against said base to hold it against said projections.

In testimony whereof, we affix our signatures in presence of two witnesses.

HOWARD T. MARTIN.
JAMES F. GOLDEN.

Witnesses:

ALEX SLASMAN,
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