

(No Model.)

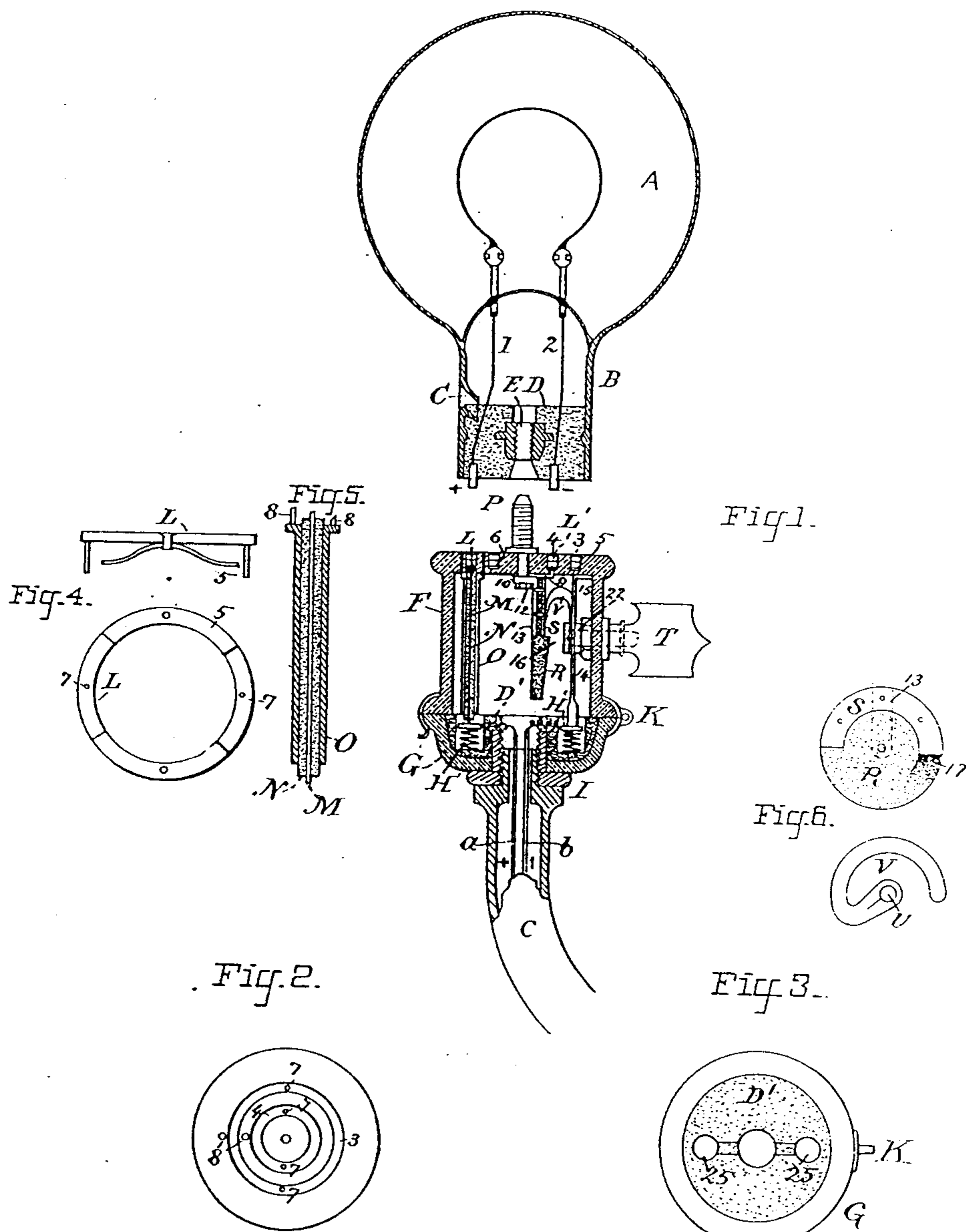
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C. G. PERKINS.

INCANDESCENT ELECTRIC LAMP AND SWITCH.

No. 287,313.

Patented Oct. 23, 1883.



ATTEST:

J. A. Muddle
E. Wm. Edwards

INVENTOR:

Charles G. Perkins

(No Model.)

2 Sheets—Sheet 2.

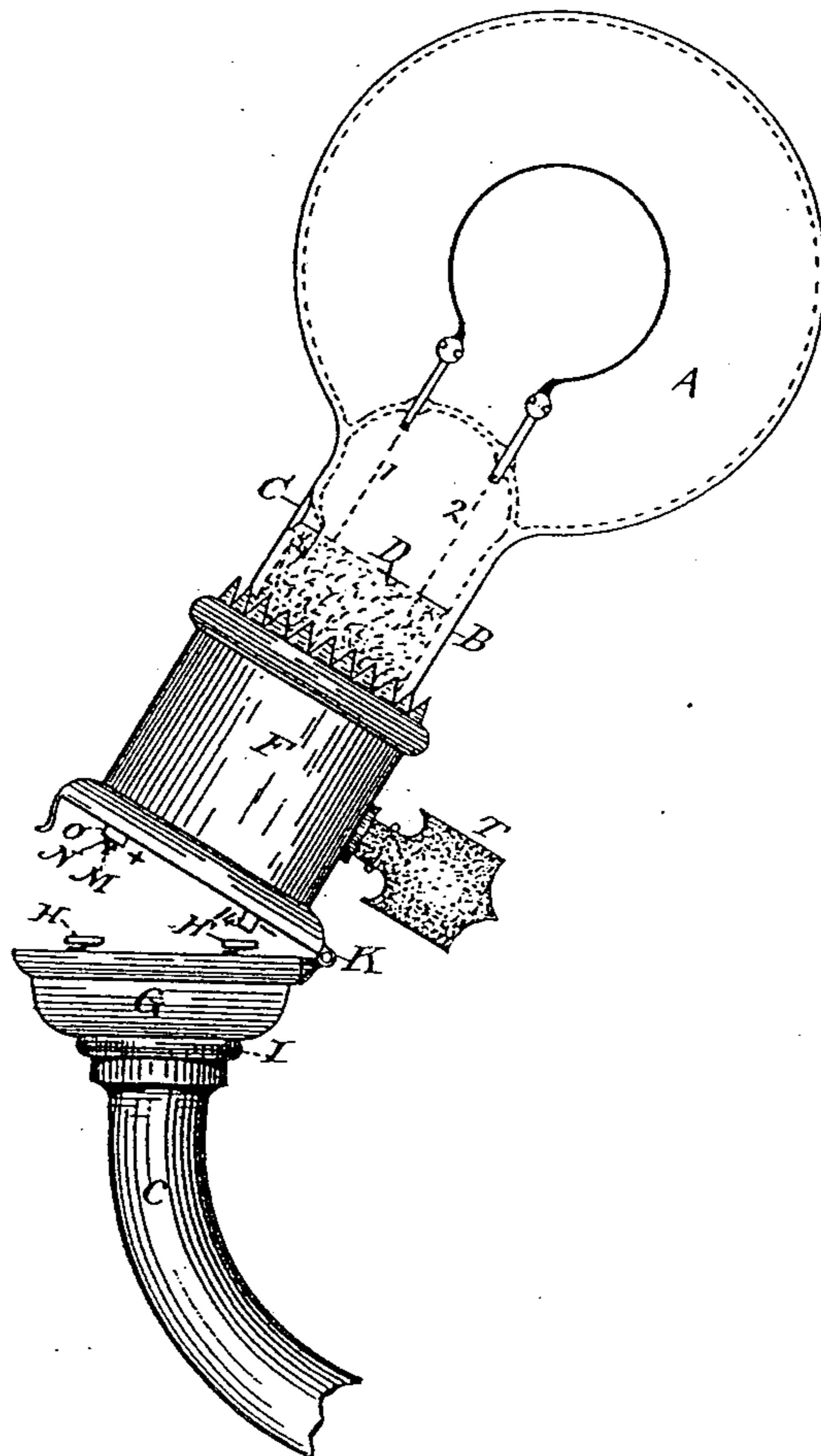
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Fig. 7.



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UNITED STATES PATENT OFFICE.

CHARLES G. PERKINS, OF HOBOKEN, NEW JERSEY, ASSIGNOR TO THE
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INCANDESCENT ELECTRIC LAMP AND SWITCH.

SPECIFICATION forming part of Letters Patent No. 287,313, dated October 23, 1883.

Application filed January 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHAS. G. PERKINS, a citizen of the United States, and a resident of Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Electric Incandescent Lamps and Switches, of which the following is a specification.

My invention relates to an electric incandescent lamp and switch having electrical conductors arranged therein in such a manner as will make it impossible to form an electrical connection on the exterior thereof.

The first part of my invention consists of an electric incandescent lamp having an opening in the wall of its neck, through which plaster-of-paris is poured for the purpose of holding the electrical conductors in position, and also for holding suitable means therein in such a manner as will hold the lamp rigid to a switch-box made therefor.

The second part of my invention consists of a glass switch-box divided into two apartments, the upper apartment connected with the lower apartment by means of a hinge. The lower apartment is provided with a central metallic tap, which is held in position by means of plaster-of-paris, in which cavities are made for the reception of springs having metallic plates connected therewith, each of which is electrically connected with the main conductors of the lamp. The upper glass apartment is provided with two annular grooves on the top thereof, each of which receives a corresponding metallic plate having springs connected with the under side thereof. One of the plates represents the positive pole, while the other represents the negative.

The third part of my invention consists of mounting an armor on the cut-out wire, which is passed into a tube of insulating material. The whole is then passed into a metallic tube, which is held rigid to the top of the glass chamber. The tin wire is electrically connected with the annular plate representing the positive pole. The lower end of the tin wire is brought into electrical contact with the metallic plate of the lower glass chamber, representing the positive pole.

The fourth part of my invention consists of

having an upright screw placed on the center of the top of the upper glass chamber. The said screw is provided with a shank which passes down and through the body of the glass top, and then through two metallic strips, one of which is electrically connected with the annular metallic plate representing the negative pole of the lamp. The second metallic strip is provided with a projection extending downward, to which is fastened a circular plate of vulcanized fiber or other insulating material. The other side of the insulating-plate is provided with a semicircular metallic plate electrically connected with the metallic strip by means of metallic pins. The insulated plate is provided with an incline arising from its surface, off of which a switch-spring snaps onto the semicircular plate. At the other end of the semicircular plate the switch-spring snaps down into a depression made in the said insulated plate.

The fifth part of my invention consists of a metallic strip the uppermost end of which is provided with a foot which rests against the under side of the glass top of the switch-box. The said metallic strip is also provided with an aperture, through which the pin holding the switch-spring passes, thus forming a perfect electrical connection at that point. The lower end of the aforesaid metallic strip is provided with an enlargement thereon, which rests against the metallic plate of the lower glass chamber, representing the negative pole of the lamp.

In the drawings, Figure 1 represents a vertical section of the lamp and switch-box. Fig. 2 represents a plan of the top of the switch-box, showing the annular grooves. Fig. 3 represents a plan of the lower chamber of the switch-box. Fig. 4 represents a plan and elevation of the metallic plates, with springs attached to the under side thereof. Fig. 5 represents a vertical section of the tubes containing the cut-out wire therein. Fig. 6 represents a front elevation of the circular plate of vulcanized fiber, showing the semicircular metallic plate and its support in dotted lines. In this figure is also shown a front elevation of the switch-spring. Fig. 7 represents the lamp and switch-box complete and partly raised on

its hinge, which illustrates the manner in which the electrical contact is made between the main conductors and the switch-box.

In Fig. 1 of the drawings, A is the globe of the lamp.

B is the neck, provided with an opening, C, in the wall thereof.

D is the plaster-of-paris, which holds the conductors 1 and 2 in position.

E is a screw-nut, which is also held in position by the plaster D.

F is the upper apartment of the glass switch-box, having two annular grooves, 3 and 4, on the top thereof.

G is the lower apartment of the glass switch-box, filled with plaster-of-paris D', which is provided with cavities 25 therein, for keeping in position the metallic plates and springs H H'.

I is the central metallic tap, which is also held in position by the plaster-of-paris. The said tap I receives the screw of the gas-pipe.

K is the hinge on which the upper apartment swings.

L L' are the metallic plates, provided with springs 5 and 6, riveted to the under side thereof. The said plates L L' are held in position by small pins 7, which extend from the plate through the glass, and are bent over, so as to keep them in a fixed position whenever the lamp shall have been removed from the switch-box.

M is the cut-out wire, passing into an insulating-tube, N, which also passes into a metallic tube, O, provided with pins 8, which pass up and through the glass top of the switch-box, and are bent over, so as to hold the same in a vertical position. The upper end of the cut-out wire M is electrically connected with the positive plate L, while the lower end is brought in electrical contact with the positive plate H whenever the switch-box shall have been closed. The lower end of the insulated tube N projects a little below the metallic tube O, which prevents the latter from coming in contact with the plate H.

P is the upright metallic screw, having its shank passing down and through the center of the top of the glass switch-box. The said shank passes through two metallic strips, 9 and 10, the first of which is electrically connected with the negative plate L'. The said strip 9 is also electrically connected with the strip 10, the two being held tightly together by a screw-nut, 12, of the shank. The extension 13 of the strip 10 supports a circular plate, R, of vulcanized fiber or other suitable material, by means of metallic pins which extend therefrom through the circular plate R, and thence through a metallic plate, S, of a semicircular form, which is electrically connected with the metallic strip 10 by means of the aforesaid metallic pins.

T is the switch-key, mounted on a metallic stem having a head on the end thereof. The said stem passes through the eye U of the switch-spring V, and thence through the upright

metallic strip 14, provided with a foot, 15, which rests against the under side of the top of the switch-box. The lower end of said strip 14 is provided with an enlargement on the end thereof, which is brought into electrical contact with the plate H' whenever the switch-box shall have been closed. The strip 14 and switch-spring V are kept in a constant electrical contact by means of jam-nuts 22.

The face of the plate R is provided with an incline, 16, upon which the spring V slides, and from which it snaps to the plate S. Whenever the said spring V shall have been moved to the other end of the plate S, it will then snap from the surface thereof down into the depression 17, made in the plate R.

Modus operandi.—After the lamp and switch-box have been properly made, the screw-nut E is screwed on the upright screw P until the conductors 1 and 2 press heavily upon the plates L and L', which give way under pressure, and offer a resistance by means of the springs 5 and 6, after which the electrical conductors of the lamp will make a perfect electrical contact with the switch-box. The switch-box F is then closed and held to the lower chamber, G, by means of a catch-spring. This operation brings the cut-out wire M in contact with the plate H, having connected therewith a retracting-spring which insures a perfect electrical contact with the said cut-out wire. The enlarged end of the upright strip 14 is also brought into contact with the plate H'. The said plates H and H' are electrically connected with the main conductors a and b, which pass through the gas-pipe C. The current of electricity passes up the main conductor a to the plate H, from which it passes to the cut-out wire M to the plate L; from thence to the conductor 1 to the carbon filament of the lamp, from which it passes to the conductor 2 to the plate L'; from thence to the strip 9, to the strip 10, down its extension 13, from which it passes through the metallic pins to the plate S, then to the spring V to the upright strip 14, thence downward to the plate H', and from thence to the main conductor b, which completes the circuit.

Heretofore the electrical conductors of incandescent lamps passed from the interior of the vacuum chamber to the exterior, and were bent out and upward, so as to fit snugly to the neck of the lamp, in which shape it is mounted on a switch-box made of rubber or fiber. Said conductors come in contact with metallic plates, strips, or wires fastened to said switch-box, and representing the negative and positive poles of the lamp. This construction of a switch-box made of rubber or fiber is objectionable, from the fact that the heat of the electrical conductors and the neck of the globe produces great damage to the electrical connections by causing the rubber or fiber to warp and corrode, thus breaking the circuit and again causing the switch-handle to become inoperative. It is also objectionable, from the fact that the rubber or fiber are very

expensive materials and difficult to work into proper shape, thus proving a great impediment to their introduction into public use. These objections have been demonstrated by practical experience, and are obviated by my glass switch-box, which surpasses all others for durability and cheapness. It does not corrode or warp; hence its great advantage over those heretofore mentioned.

I am aware that plaster-of-paris has heretofore been used on the exterior of the neck of an electric incandescent lamp. I am also aware that cut-outs have also been used in connection with switch-boxes of an incandescent lamp; but they were not supplied with a proper armor that would insure a positive action, or that would prevent an electric circuit from being formed on the exterior of the switch-box. These objections, however, are obviated by my glass switch-box, as heretofore described.

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

1. In an electric incandescent lamp, with the neck of the globe having an aperture in the wall thereof, the conductors therein in contact with the circuit-connection in the top of the switch-box, and held in suitable position by the plaster-of-paris filling in the neck.

2. The combination, substantially as shown and described, of the conductors 1 and 2, screw-nut E, plaster-of-paris D, all of which are placed in the interior of the neck B of the globe A, and the opening C in the wall of said neck B, through which the plaster-of-paris D is poured.

3. In an electric incandescent lamp, a switch-box made of glass and divided into two apartments, the upper apartment provided with annular grooves to receive the circuit-connections, in combination with the lower apartment filled with plaster-of-paris for holding suitable means in position therein which will make a perfect electrical contact with the switch mechanism of the upper apartment when mounted thereon.

4. In an incandescent lamp, the glass switch-box described, consisting of upper apartment,

F, having annular grooves 3 and 4, lower apartment, G, with plaster-of-paris D, and inclosed circuit-connections, substantially as set forth.

5. The combination, substantially as shown and described, of the plaster-of-paris D, spring-supported plates H H', tap I, and apartments F and G, with an electric incandescent lamp.

6. The metallic plates L L', springs 5 and 6, and glass apartments F and G, in combination with the conductors of an electric incandescent lamp, substantially as shown and described.

7. The cut-out wire M, insulated tube N, metallic tube O, and studs 8, in combination with plates L L' and glass apartments F and G of a switch-box for an electric incandescent lamp, substantially as shown and described.

8. The combination of the upright screw P, metallic strips 9 and 10, extension 13, insulated plate R, and metallic plate S, in combination with metallic plates L L' of a switch-box for an electric incandescent lamp, substantially as shown and described.

9. The metallic strip 14, with foot on the upper end thereof, in combination with a switch-spring, V, key T, metallic pin 17, jam-nuts 22, and glass partitions F and G of a glass switch-box for an electric incandescent lamp, substantially as shown and described.

10. In an electric incandescent lamp, the combination of the screw-nut E, held in position within the walls of the neck B by plaster-of-paris D, and the conductors 1 and 2, held therein in the same manner, in combination with the upright screw P, strips 9 10, extension 13, insulated plate R, metallic plate S, grooves 3 and 4, plates L L', cut-out wire M, insulated tube N, metallic tube O, switch-spring V, upright strip 14, pin 18, jam-nuts 22, spring-plates H H', plaster-of-paris D, tap I, glass apartments F G, and hinge K, substantially as shown and described.

Signed at New York, in the county of New York and State of New York, this 10th day of January, A. D. 1883.

CHARLES G. PERKINS.

Witnesses:

GEO. R. PROERUS,

JOHN HAHNFELD.