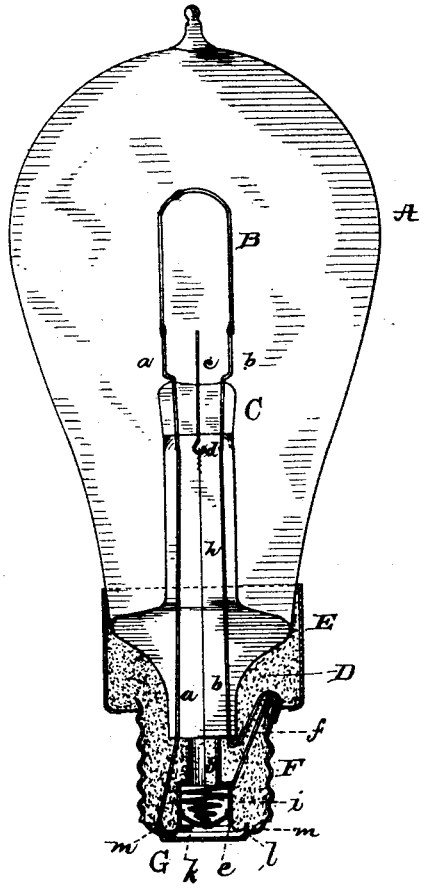
(No Model.)

T. A. EDISON.

CUT-OUT FOR INCANDESCENT ELECTRIC LAMPS.

No. 425,762. Patented Apr. 15, 1890.



Witnesses
E. L. Howland.
William Beyer

Inventor
Thomas A. Edison

By his Attorneys
Dyer & Seely

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

CUT-OUT FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 425,762, dated April 15, 1890.

Application filed March 8, 1888. Serial No. 266,597. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Incandescent Electric Lamps, (Case No. 766,) of which the following is a specification.

In my application, Serial No. 241,959, filed June 21, 1887, is shown and described a cut-out for incandescent electric lamps, in which a normally-idle wire terminating in the vacuum between the sides of the carbon loop holds out of action a spring contact-piece, and when the lamp breaks and an arc springs across the filament the excessive current upon the said idle wire fuses the same, so that said contact-piece is released and completes a shunt-circuit around the lamp.

In the application referred to the short circuit was completed by bringing the contact-piece into contact with the bottom plate of the socket of the lamp.

The main object of the present invention is to so construct and arrange the parts of a cut-out of the same general character as that just described that the same will be entirely contained in the lamp itself, so that the metal parts of the socket will not be required to form part of the cut-out apparatus.

In addition, my object is to increase the simplicity and effectiveness of cut-out arrangements of this kind.

My invention is illustrated in the accompanying drawing, which shows the lamp in elevation, with its insulating-base in section to show the cut-out which is within the same.

A is the glass vacuum-chamber of the lamp, which incloses the carbon filament B, secured to metal wires *a b*, passing through and sealed in the glass of the lamp at C. In the glass between the lamp-wires is also sealed a piece of platinum wire *c*, which extends up between the terminals of the filament, and whose lower end is formed into a hook *d*.

Upon the lower end of the lamp is secured the plaster-of-paris base D, which holds the metal band E and the screw-threaded collar or band F on the outside of the base, and in a recess formed in the bottom of the base the metal band *e*. The base is formed, as is now well understood, by pouring the plaster into a mold around the lamp-neck, which mold holds the bands E, F, and *e*, the wire *b* having previously been soldered to the band F, and the short connecting-wire *f* having also been soldered to the bands F and *e*. The base is molded with an opening at *g*, extending from above the band *e* through to the lamp-neck. After the base and terminals are thus in position the fine fusible wire *h*, preferably of iron, with its end twisted into a loop or eye, is inserted in the lamp-neck through the opening *g* and hooked onto the hook *d* of platinum wire *c*. Then upon the lower end of said wire is threaded a small spiral spring *i*, and beneath it a conical metal button *k*, with a hole for the wire in its center and by which the spring is compressed. These parts are then secured by a drop of solder at the center of button *k*.

In molding the base it is formed with a circular groove at *l*, and the end of the wire *a* is left projecting within or near this groove. A cap G, forming the lower terminal of the lamp-base, is placed with its edges in the groove *l*, and the wire *a* is soldered to said cap, whereby mainly the cap is held in position, though I prefer to place at the exposed part *m* a little asphalt or similar moisture-proof material, which will assist in sticking the cap G to the base.

It will be understood that when in use the lamp is screwed into a socket and the terminals F and G make contact with corresponding terminals in the socket, whereby the circuit is completed through G *a b* F in the normal operation of the lamp.

The band E furnishes a metal covering for the base, which may be grasped by the hand in placing the lamp in and withdrawing it from its socket without danger from the high-tension current employed in series systems, said band being entirely insulated from all current-conveying parts.

The lamp being placed in series with other lamps, if the filament breaks, an arc usually forms across the vacuum between the filament terminals. When this occurs, the platinum wire *c* and fine iron wire *h*, which is connected with the circuit outside the lamp, receive so much current that said wire *h* is fused thereby, whereupon the spring is released, and the button *k* is forced thereby down against the terminal G and connects it

with band *e*, whereby a shunt is completed around the broken filament through G, button *k*, band *e*, wire *f*, and band E.

What I claim is—

1. In an incandescent electric lamp, the combination of the globe, the hollow base secured thereto, a stationary contact-piece attached to said base and connected with one terminal of the lamp, a movable contact-piece within said base connected with the other terminal, and a fusible wire attached to said movable contact-piece and extending from the interior of said globe and holding said movable contact-piece normally out of contact with the stationary one, whereby the lamp-filament is short-circuited by the fusion of said wire, substantially as set forth.

2. In an incandescent electric lamp, the combination of the globe, the base having an opening through it, the bottom plate closing said opening, the movable contact within said opening connected with the lamp-circuit, and the wire between the leading-in wires supporting said contact, substantially as set forth.

3. In an incandescent electric lamp, the combination of the globe, the base having an opening through it, the plate closing said opening, the metal band within said opening connected with the lamp-circuit, the metal button sliding in said opening, and the wire between the leading-in wires supporting said button, substantially as set forth.

4. In an incandescent electric lamp, the combination of the globe, the base having an opening through it, the bottom plate closing said opening, the movable spring-contact within said opening connected with the lamp-circuit, and the wire between the leading-in wires supporting said contact, substantially as set forth.

5. In an incandescent electric lamp, the combination, with the globe, the leading-in wires, and the filament, of the base having an opening through it, the plate closing said opening, to which one of the leading-in wires is connected, the screw-threaded band on said base, to which the other leading-in wire is connected, the contact movable in said opening and connected with said screw-threaded band, and the wire situated between the leading-in wires and supporting said contact, substantially as set forth.

This specification signed and witnessed this 3d day of March, 1888.

THOS. A. EDISON.

Witnesses:
WM. PELZER,
E. C. ROWLAND.