(No Model.)

E. R. KNOWLES & F. E. IDELL.

INCANDESCENT ELECTRIC LAMP.

No. 292,324. Patented Jan. 22, 1884.

FIG. 1.

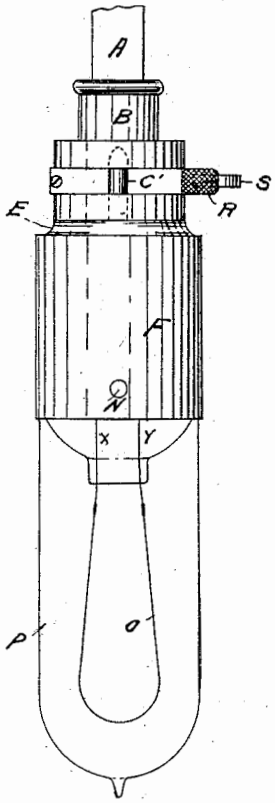


FIG. 2.

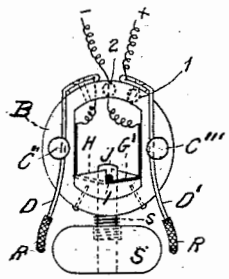


FIG. 3.

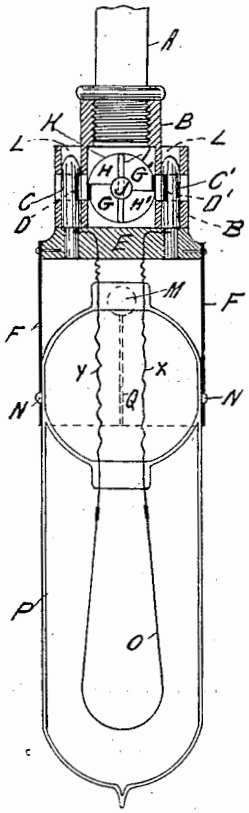


FIG. 4.

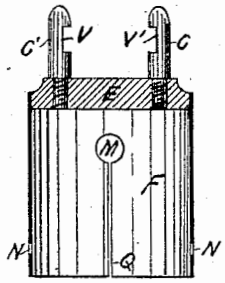


FIG. 5.

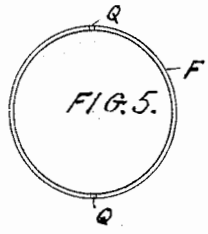
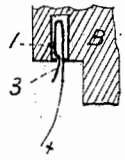


FIG. 6.



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UNITED STATES PATENT OFFICE.

EDWARD R. KNOWLES, OF BROOKLYN, N. Y., AND FRANK E. IDELL, OF HOBOKEN, N. J., ASSIGNORS TO THE CONSOLIDATED ELECTRIC LIGHT COMPANY, OF NEW YORK.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 292,824, dated January 22, 1884.

Application filed September 6, 1882. (No model.)

To all whom it may concern:

Be it known that we, EDWARD R. KNOWLES, a resident of Brooklyn, county of Kings and State of New York, and FRANK E. IDELL, a resident of Hoboken, county of Hudson and State of New Jersey, have invented a new and useful Improvement in Electric Lamps and Sockets or Holders; and we do hereby declare the following to be a full, clear, concise, and exact description of the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon.

This invention consists of a socket and holder for incandescent electric lamps in which the circuit is completed when the lamp is placed in the socket in its appropriate holder, subject, however, to such circuit-controller as shall instantly and effectually make or break the circuit and light or extinguish the lamp, at the same time making a socket and holder from which the glass bulb, should it be broken or should it be necessary to take it out for any cause, can be removed by any one not skilled in the art and a new one substituted therefor, and a socket which cannot be removed from the holder while the current is acting on the lamp, it being necessary to first break the current before the lamp can be detached from its socket, and also a novel and efficient means for connecting the electrodes of the lamp to the circuit-wires. In all the fixtures of this class in use at the present time the lamp can be detached and removed from its socket and the socket from its holder at will, whether the lamp be burning or not. In the present invention the lamp is placed in a socket, and there held in such a way that it can be easily taken out at any time, and the socket can be attached to and removed from its holder only when the current which energizes the lamp is turned off, so that no accident may arise while the lamp is being put in or taken out of position.

In the annexed drawings, Figure 1 is a side view of the lamp-socket and holder in position, hanging pendent from the fixture. Fig. 2 is a sectional view of the holder. Fig. 3 is a vertical section through lamp, socket and holder, and Fig. 4 is a section of the socket itself. Fig. 5 is a top view of Fig. 4, and Fig. 6 a detail drawing to be hereinafter referred to.

The lamp used is of the form described by us in another application, although any form of bulb-lamp can be made to fit this fixture.

The socket, Fig. 4, consists of a ring or cylinder of metal or any suitable material, F, slotted on opposite sides by the cut Q, so as to allow it to open and receive the lower end of the bulb of the lamp, and yet retain its general appearance. At two opposite sides, N N, holes are perforated through F for a purpose to be described farther on. The cylinder F is firmly attached to a base of non-conducting material, E, into which are screwed the projecting pins C C′, formed as shown. On the straight sides of the lamp P, Figs. 1 and 3, little teats or projections are placed, and when the lamp is slid into the cylinder F, which it just fits, these little teats snap in the holes N N and securely fasten the globe P into the cylinder F, as shown in Fig. 3. The conductors X Y are passed through E and wound around C and C′, which are then screwed down into place, thus making a good contact between C C′ and X Y, and yet a connection which can be broken by simply unscrewing C′ C. The globe P can then be drawn out of F, so as to allow the teats to slip out of the holes N N.

The holder for the socket, Fig. 2, consists of a block of non-conducting material, B, hollowed out, as shown, and tapped with a screw-thread to allow it to be fastened to an appropriate support. It is perforated by two holes, C″ C‴, into which the pins C C′ can pass. The sides of the block B are grooved, and in these grooves are laid the springs D D′, as shown, and which are fastened to the back of B. These springs are so arranged that when the conically-pointed pins C C′ are pushed up into the holes C″ C‴, the springs D D′ fly out and into the notches V V′ on C C′, and so hold the socket and lamp securely in the holder B. When it is desired to take the socket and lamp away from the holder B, the two springs are pinched together so as to clear the notches V and V′, and the lamp and socket can then be drawn out of B. The ends of springs D and

D′ are covered with a non-conductor, R, to prevent any possibility of a short circuit occurring between them. The circuit-breaking apparatus consists of the button S, of conducting material, the spindle J, spring *s*, pin I, and button K. The button K is composed of four inclined surfaces, H H′ G G′, two of which, G and G′, are faced with metal, and over which the pin I slides when the button S is turned. The spring *s* tends constantly to keep the button S away from the box B, and the pin I constantly presses against K. The + and — conductors may be attached in any suitable manner. In the position in which S is shown, the metallic circuit is completed by the pin I pressing against the metallic surfaces G and G′, and it will be seen that the springs D and D′ cannot be pressed together, while S remains in the position shown. The button, being oblong, prevents the springs from being closed until it is turned to set in a position exactly at right angle to that in which it is shown; but the moment the button is turned lengthwise of the lamp the springs D and D′ can be closed and the lamp removed, the pin I in that case resting on the insulating-pieces H and H′, and breaking the circuit across K.

The electric circuit is as follows: The + current enters at the thimble 1, Figs. 2 and 6, and thence to spring D′, pin C′, conductor X, loop O, conductor Y, pin C, spring D, contact G, pin I, contact G′, to thimble 2 to — point. When button S is turned at right angle to position shown this electric circuit is broken by the pin I being moved off from the contacts G and G′. This break is accomplished in a sudden manner, so as to prevent sparks. The surfaces H H′ G G′ are inclined, and as the pin I turns it is slid up and along these inclines until it comes to their end, when the spring suddenly snaps it down to the beginning of the next pair of inclines, thus making and breaking the circuit suddenly and effectually.

Having thus described our invention, what we claim is—

1. In an incandescent electric lamp, the combination of the illuminating-chamber P, provided with projections or teats, the socket F, having perforations N N, an insulating base, E, and pins C C′, connected to the electrodes of said lamp, substantially as described, for the purpose specified.

2. In an incandescent electric lamp, the combination of an illuminating-chamber, P, a socket, F, provided with screw-pins C C′, having notches V and V′, and a support, B, containing a switch, H G, and provided with clamps D and D′, substantially as described, for the purpose specified.

3. In the circuit of an incandescent electric lamp, the combination of a switch-piece, S, and lamp-clamps R, the two coacting to prevent the lamp from being removed until the circuit is turned off.

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