

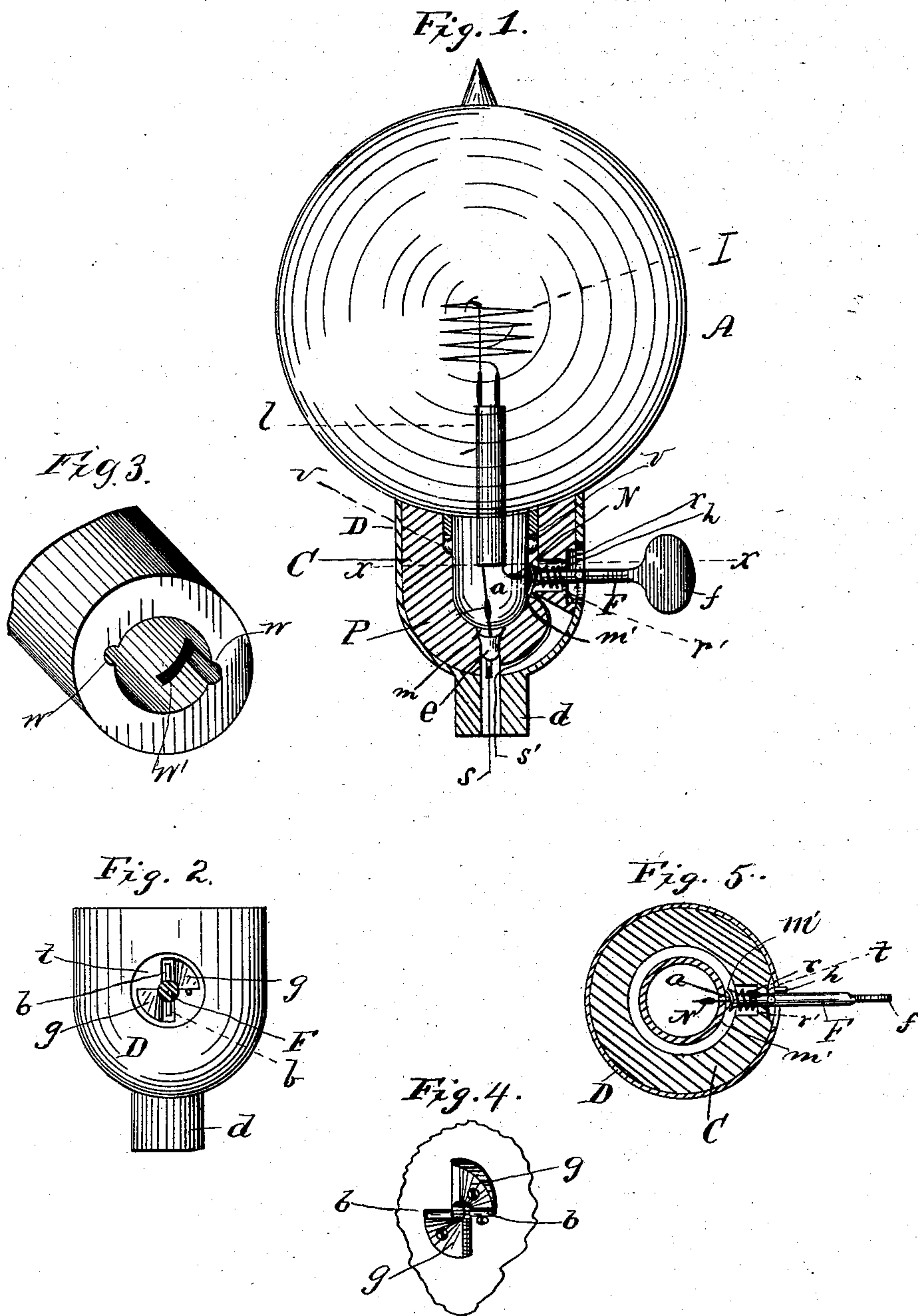
(No Model.)

G. W. HICKMAN & J. F. McCOY.

INCANDESCENT ELECTRIC LAMP.

No. 302,133.

Patented July 15, 1884.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 302,133, dated July 15, 1884.

Application filed November 7, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, GEO. W. HICKMAN, of Washington, District of Columbia, and JOSEPH F. MCCOY, of Rahway, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Electric Lamps; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

Our invention relates to means for supporting the bulbs of incandescent electric lamps, and to devices for closing and breaking the circuit through incandescing electric lamps for the purpose of lighting and extinguishing the same; and it consists in certain novel constructions and combinations of devices, which will be fully understood from the following particular description, in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of an incandescing electric lamp, with its base-cup shown in central vertical section, and provided with circuit closing and breaking devices according to our invention. Fig. 2 is a detached view in elevation of the base-cup, the thumb-pin being shown in section. Fig. 3 is a partial perspective view of the base-cup, showing its interior grooved wall. Fig. 4 is a perspective view of the inclined cam-plates and a portion of the thumb-pin. Fig. 5 is a horizontal section of the lamp on line *xx* of Fig. 1.

The lamp-bulb *A* is formed with a downwardly-projecting closed cylindrical extension, *a*, having one of the leading-in wires, *P*, sealed through its lower end wall, and terminating in a concavo-convex metallic tip, *m*, which is fitted to the end of the extension *a* with its convex surface downward. The other leading-in wire, *N*, is sealed through the side wall of the extension *a*, and terminates in a similar tip, *m'*. Within the bulb the wires are held in position by a light glass tube, *l*, which surrounds them both. The extension *a* is inserted into an approximately-hemi-

spherical cup, *C*, which is itself inclosed by a similarly-shaped metal casing, *D*, having at its lower end a centrally-bored projecting neck, *d*. The cup *C* has also an opening in its lower end, into which is inserted a metal plug, *e*, with which one of the service-wires *s* is connected, passing up through the neck *d* for this purpose. The upper end of the plug *e* is made concave to form a closely-fitting seat for the tip *m*, which rests upon it, while the main body of the bulb rests upon the upper edge of cup *C*. The vertical wall of extension *a* is separated from that of cup *C* by an intervening space.

Opposite the tip *m'*, on the side of the extension *a*, a recess, *r*, is formed in the inner surface of cup *C*, and is separated by a thin wall, *r'*, from a recess, *t*, of greater diameter, formed in the outer surface of said cup.

Through an opening in the wall *r'* is arranged a pin, *F*, having a thumb-piece, *f*, by which it may be turned, and radial pins *b b*, which stand within the recess *t* in front of two inclined or bevel-faced cam-plates, *g g*, which are fixed to the inner wall of said recess, in opposite sides of the opening therein. Each of these cam-plates has a transverse groove across its face at its thick end.

The pin *F* has formed at its inner end a head, *h*, the outer surface of which is made concave to fit snugly against the tip *m'*, and behind this head a helical spring is arranged about the pin with one end bearing against the head and the other against the wall *r'*. The tendency of this spring is to force the head of the pin in contact with the tip *m'*, and in order to withdraw the head from such contact the pin *F* is to be turned in proper direction to cause its pins *b b* to ride up the inclined faces of the cam-plates *g g*. This will obviously force the pin *F* outward and compress the spring, and when the pins *b b* lodge in the grooves across the cam-plates the pin *F* will hold in the position to which it has been turned. When it is turned back sufficiently to release the pins from the grooves, the spring will force the head back in contact with the tip. The service-wires *s s'* pass up through the neck *d*, and thence wire *s'* runs through a passage formed in



the wall of cup C to the head of pin F, to which it is attached, so that when said head contacts with tip  $m'$  the lamp-circuit will be completed from wire  $s'$  through the head of pin F, tip  $m'$ , wire N, the incandescing filament I, wire P, tip  $m$ , and plug  $e$ , to wire  $s$ .

The thumb-piece  $f$  of the pin F should be made of non-conducting material—such as hard rubber, glass, or porcelain—in order to avoid danger of shock to persons manipulating said pin.

In order to provide for readily securing the bulb in and removing it from its base-cup, I form on the extension  $a$  two diametrically-opposite studs,  $v v$ , while in the inner surface of the cup I cut two longitudinal grooves from the edge inward, and extend them laterally at right angles at a little distance from their outer ends, as shown at  $w'$ . The grooves are so formed and located as to co-operate with the studs  $v v$ , to form a double bayonet-joint for securing the bulb and cup together, the inner ends of the grooves terminating at points to allow the bulb to be turned to proper position to bring the tip  $m'$  directly opposite the inner end of pin F.

Having now fully described our invention and explained the operation thereof, what we claim is—

1. In an incandescing lamp, the combination, with the bulb having one of its leading-in wires terminating in a contact-tip on the outside of said bulb, of the circuit closer or breaker carrying a correspondingly-shaped tip connected to the service-wire, substantially as shown and described.

2. The combination, with the incandescing-

lamp bulb having extension  $a$  and its leading-in wires terminating in metal tips  $m$  and  $m'$  on the outer surface of said extension, of the cup C, metal plug  $e$ , forming a seat for tip  $m$ , the pin F, having a head arranged to contact with tip  $m'$ , the spring arranged to force the pin F inwardly, and suitable means to enable the pin to be forced outwardly and latched, substantially as set forth.

3. The combination, with the pin F, arranged to move endwise, the spring arranged to force said pin in one direction, and the cam-plates and pins  $b b$ , for forcing the pin in the opposite direction when turned, of the incandescing lamp bulb having a contact-plate with which said pin F will make contact for closing circuit when driven inwardly, substantially as described.

4. The combination, with the bulb having extension  $a$ , provided with the tip  $m'$ , and studs  $v v$ , of the cup having the circuit closing and breaking pin F, as described, and provided with bayonet-joint grooves to receive the said studs and prevent the turning of the bulb to bring the said tip opposite the inner end of the closing and breaking pin, substantially as described.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

GEO. W. HICKMAN.  
JOSEPH F. MCCOY.

Witnesses:

B. F. MORSELL,  
EDWARD E. ELLIS.