

(No Model.)

J. BALL.
INCANDESCENT LAMP.

No. 476,183.

Patented May 31, 1892.

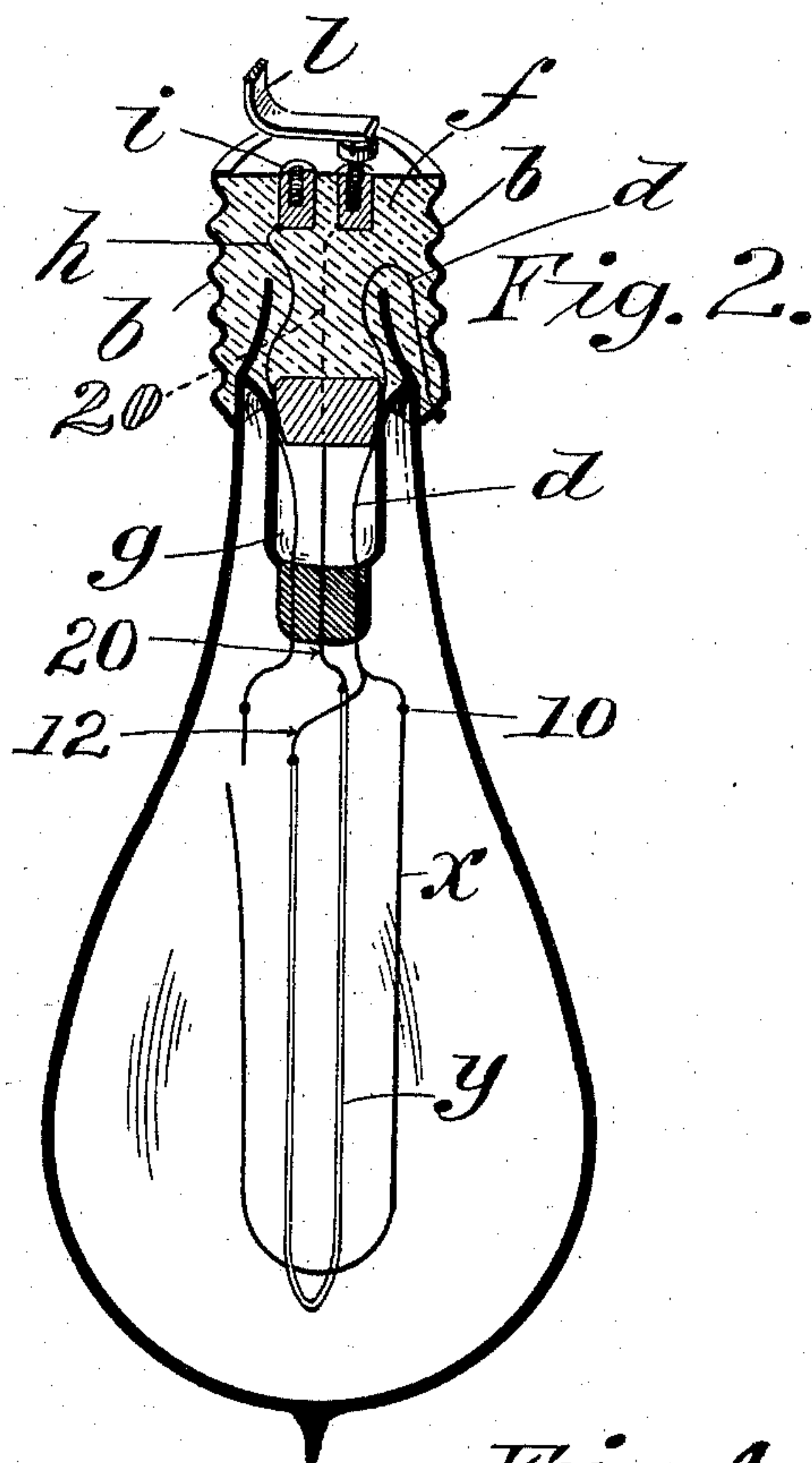
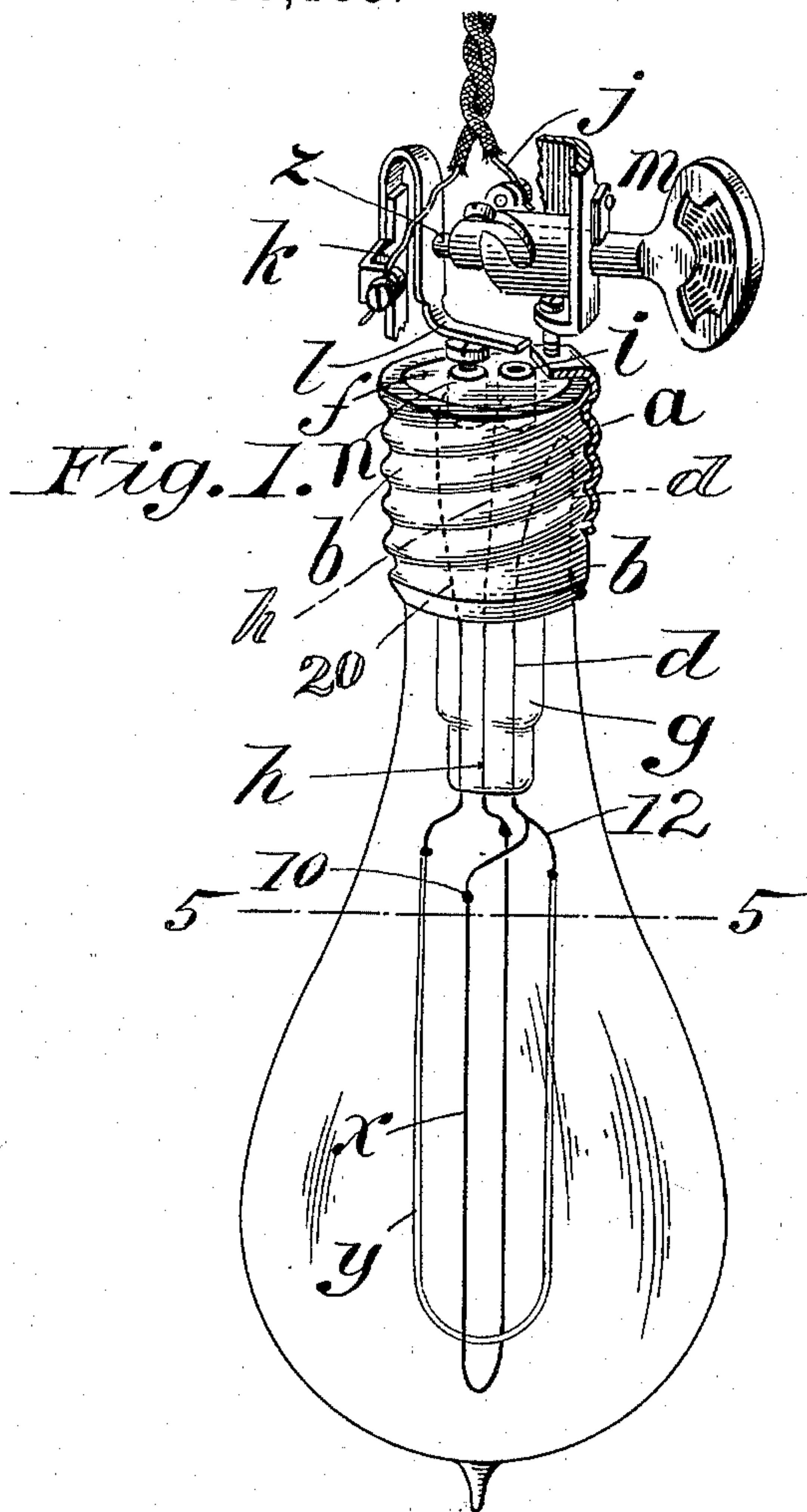


Fig. 3.

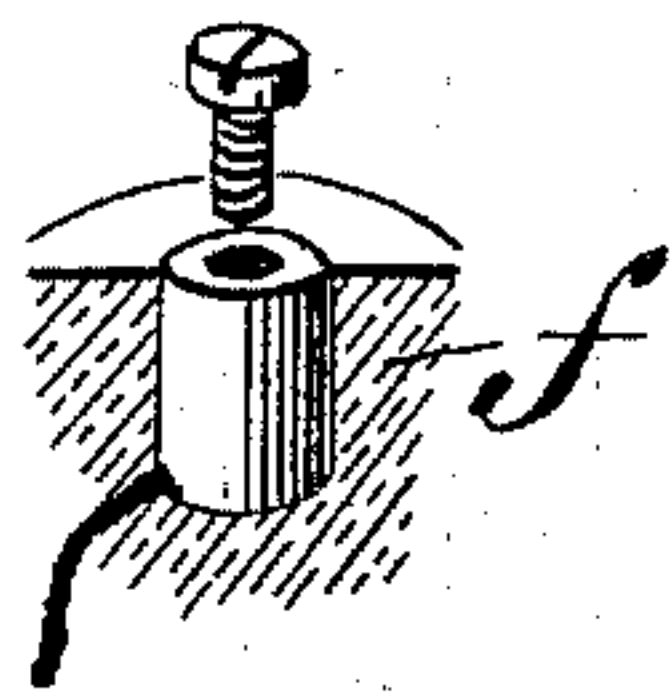
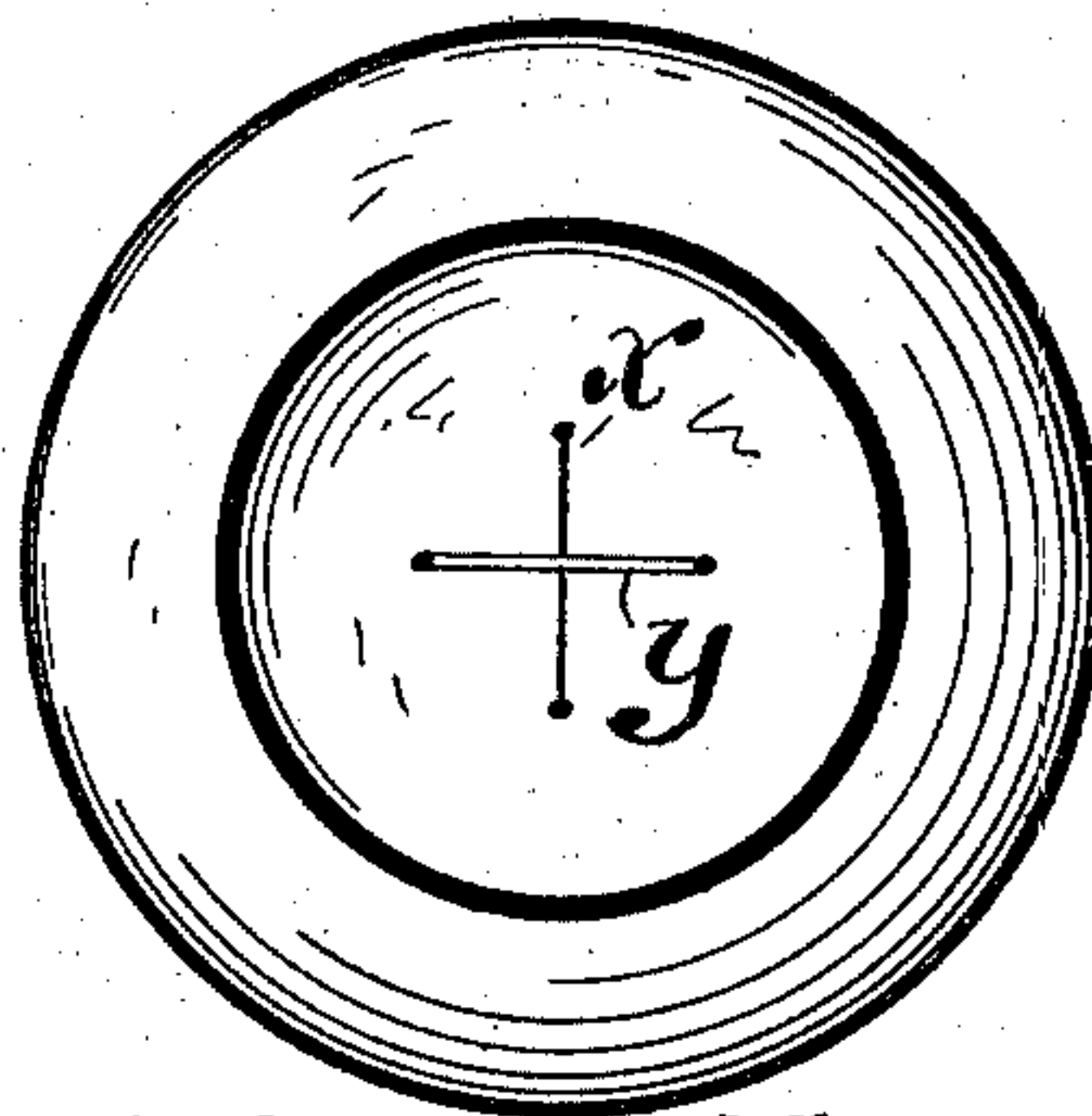


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES BALL, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO
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INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 476,183, dated May 31, 1892.

Application filed November 23, 1891. Serial No. 412,748. (No model.)

To all whom it may concern:

Be it known that I, JAMES BALL, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Incandescent Electric Lamps, of which the following is a specification.

This invention relates to improvements in that class of the incandescent lamp wherein are embodied two or more filaments, each of which has connected thereto electric conductors, which are extended outside of the vacuum-chamber, so that either of the filaments is available to be placed subject to the electric circuit, as circumstances may render advantageous.

The invention consists in improved constructions and the combination or arrangement of the parts, all substantially as will hereinafter more fully appear, and be set forth in the claims.

In the accompanying drawings the present invention is illustrated, Figure 1 being a perspective view of a common form of incandescent electric lamp having the present improvements applied thereto. Fig. 2 is a longitudinal section through the parts of the lamp which more particularly pertain to the invention. Fig. 3 is a perspective view in detail of one of the binding-posts employed. Fig. 4 is a cross-sectional view of the lamp on line 5 5, Fig. 1.

In the above drawings it has not been deemed advisable to show the "socket" for the lamp, although the switch is shown in Fig. 1, and in said Fig. 1 a section *a* of a screw-ring is shown, which constitutes a part of the socket. Also, in the drawings, for the purpose of perspicuity and avoidance of confusion, one of the filaments *x* is indicated, as by a heavy black line, and the other *y* by double light lines.

In the drawings and as usual, *b* represents the thin metallic screw-ring, which is adapted to screw-engage the socket, of which the said section (indicated at *a*) is a part.

d represents one of the leading-in wires or filament-conductor extensions, which has its outer end connected to or in contact with the screw-ring and extending thence through the

insulating plaster-of-paris *f* within the ring and through the inverted glass dome *g*, which forms the upper part of the globe, has its extremity disposed within the vacuum-space of the globe, and at 10 receives in connection therewith the end of the filament *x*. Said filament thence extends in the usual bowed course and has its other end attached to the other leading-in wire *h* therefor, which, extending through the said glass dome and insulating material and without contact with the screw-ring, terminates in contact with the binding-post *i*, which is shown as embedded in the plaster-of-paris at the upper end of the lamp-shank, the binding-post being deemed preferable to the usual flat plate or shallow cup commonly used in a corresponding position in the Edison lamp.

j and *k* are the wires for bringing the current to the lamp and leading it from the lamp back to the line, the said wire *j* in Fig. 1 being shown as connected to a binding-post on a part of the switch which is in electrical communication with the ring *b*, and hence with the leading-in wire *d*. The other wire *k* is connected to the spring-finger *l*, which forms another part of the switch, and the said finger may or may not bear upon the screw of the binding-post, accordingly as the switch-button *m* is or is not properly turned therefor.

There is another binding-post *n* embedded in the insulating-filling *f* in the shank of the lamp, from which another leading-in wire 20 passes through the glass dome into the vacuum-chamber and receives the one end of the second filament *y*, the other end of which filament has an electrical communication with the screw-ring, and thence with the wire *j*. This communication with the screw-ring is, as specifically shown, by way of the branch 12 of the leading-in wire *d* and through said wire *d*, the said wire performing the double duty of acting as a leading-in wire, to which one end of each of two filaments may be connected. Now it will be seen that there is for each end of each filament a leading-in wire which is extended to an available point to be placed in electrical communication with the different wires *j* and *k*, which are included in

the circuit for the lamp. While, as seen, a leading-in wire may be in connection with the one end, respectively, of several filaments, the leading-in wires to which the other ends of
 5 these filaments are respectively connected must be insulated from the first leading-in wire; and now with reference to the drawings, Figs. 1 and 2, it will be seen that the filament *y* is in the circuit for the current,
 10 which may come into the lamp through the wire *j*, passing through the socket and screwing to the leading-in wire *d* and through the filament *y*, thence by way of the wire 20 to the binding-post *n*, and through the switch-
 15 finger to the wire *k*. The end *z* of the button-spindle is constituted by an insulating material in order to prevent the lamp from being short-circuited. Now in case the filament *y* should be severed or destroyed the filament
 20 *x* may be brought into the circuit, and this may be done by merely changing the screw for the binding-post *n* from its position on said binding-post to a position on the other binding-post *i*. The current then coming in
 25 over wire *j* and through the leading-in wire *d* will avoid the branch 12, but pass through the filament *x* and then through the wire *h* and the switch-finger to the wire *k*, or of course the current may be reversed, first coming in
 30 through *k* and *h* and passing out through *d* and *j*.

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

35 1. In an incandescent electric lamp, the combination, with the globe or bulb having a suitable insulating material at its shank, of a leading-in wire *d*, having a connection with a suitable metallic part which is provided therefor
 40 at the shank and extended into the vacuum-

space of the lamp, two or more separate metallic socketed pieces set in the said insulating material, several filaments, each having its one end connected to suitable portions of said leading-in wire *d*, and leading-in wires 45 which are respectively connected to the other ends of the filaments and lead, respectively, to said socketed pieces, a screw-plug adapted to be set in either of said socketed pieces, and a switch having the movable finger *l*, adapted 50 to range across all of said socketed pieces and adapted to have connection with the one thereof in which the screw-plug may be set, as set forth.

2. In an electric incandescent lamp, the combination, with the globe or bulb having a suitable insulating material at its shank, of a leading-in wire *d*, having a connection with a suitable metallic part which is provided therefor 55 at the shank and extended into the vacuum-space of the lamp, two or more separate metallic pieces set in the said insulating material, several filaments, each having its one end connected to suitable portions of said leading-in wire *d*, and leading-in wires which 65 are respectively connected to the other ends of the filaments and lead, respectively, to said metallic pieces, a movable contact-piece adapted to be supported by either of said metallic pieces, and a switch having the movable finger *l*, adapted to range across all of 70 said metallic pieces and adapted to have connection with the one thereof on which the movable contact-piece may be set, substantially as set forth.

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Witnesses:

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