

No. 697,469.

Patented Apr. 15, 1902.

E. S. GARDNER.

METHOD OF MANUFACTURING INCANDESCENT ELECTRIC LAMPS.

(Application filed July 22, 1901.)

(No Model.)

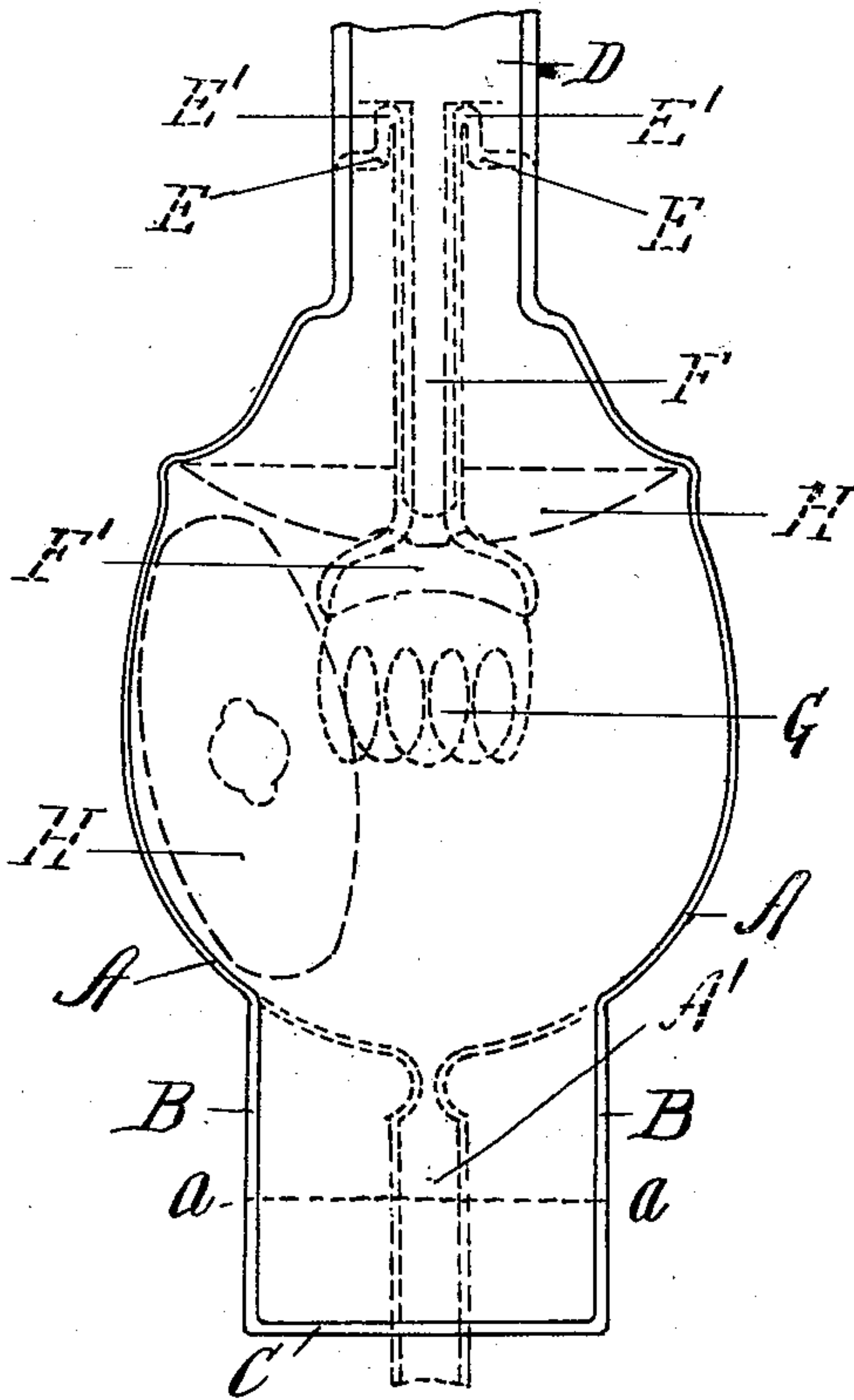


Fig. 1.

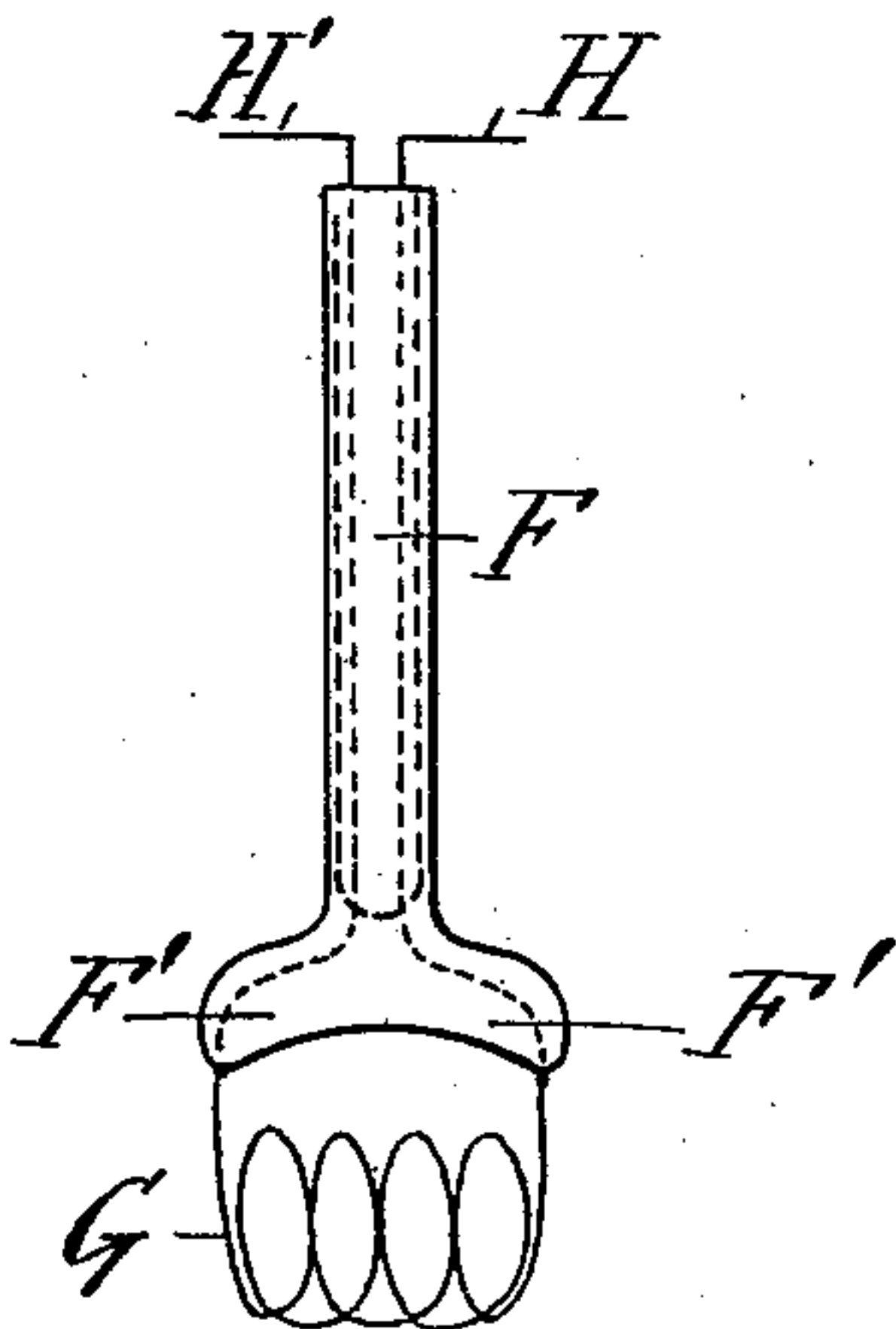


Fig. 2.

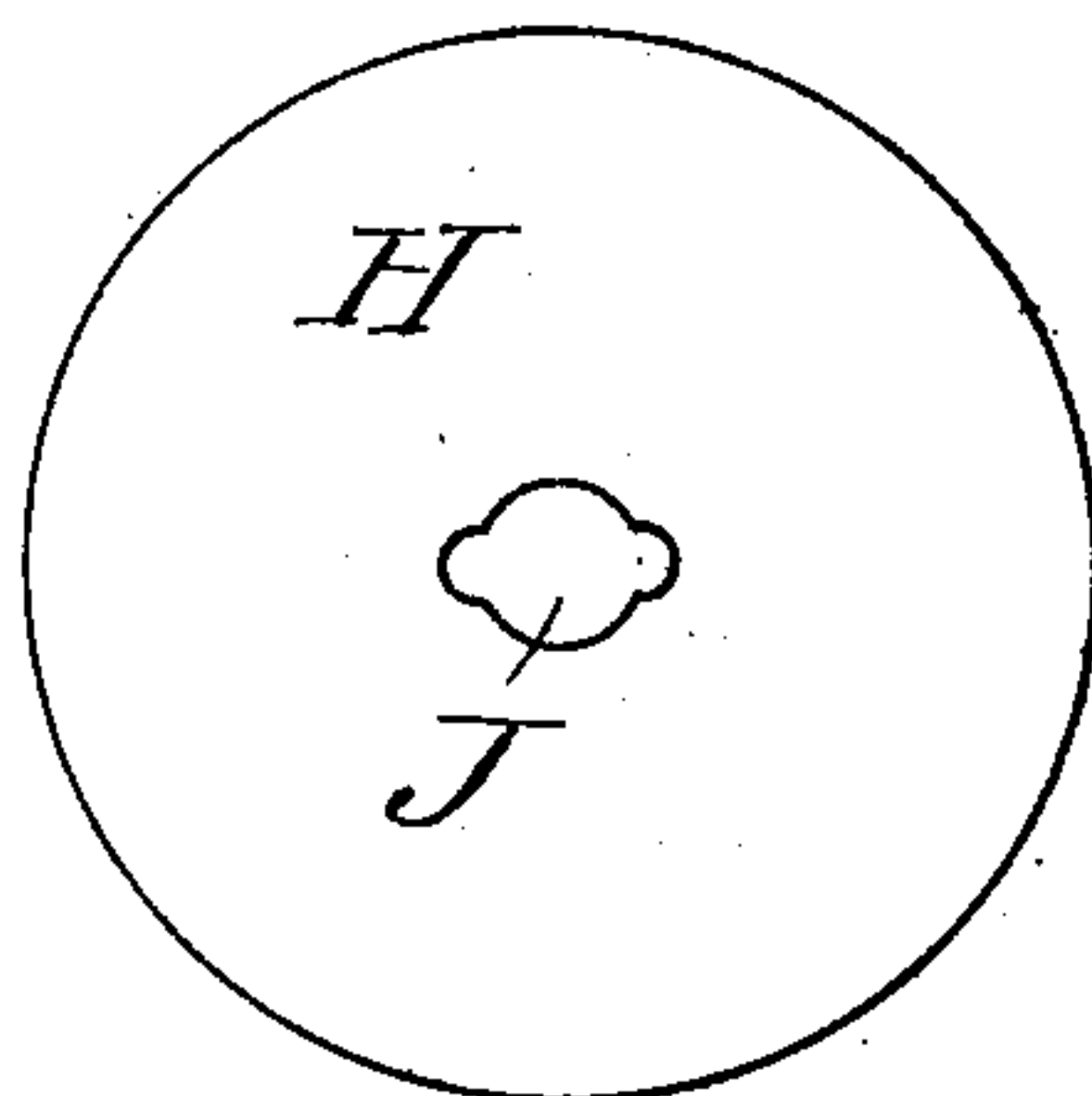


Fig. 3.

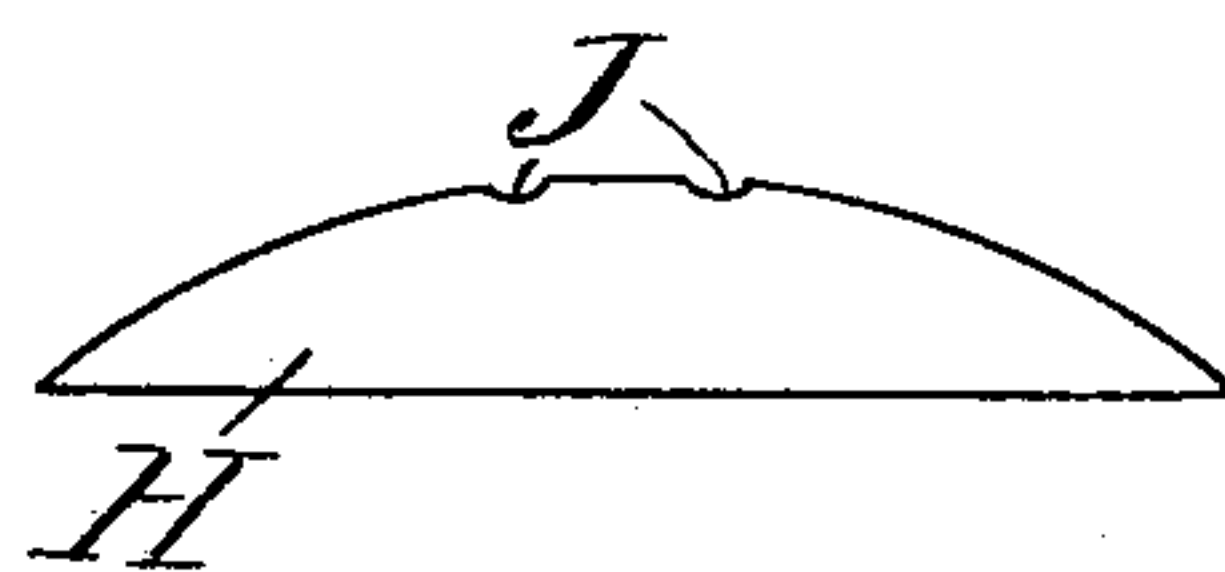


Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

EDGAR S. GARDNER, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO BERNSTEIN ELECTRIC MANUFACTURING COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

METHOD OF MANUFACTURING INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 697,469, dated April 15, 1902.

Application filed July 22, 1901. Serial No. 69,182. (No specimens.)

To all whom it may concern:

Be it known that I, EDGAR S. GARDNER, of Boston, (Dorchester,) in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Methods of Manufacturing Incandescent Electric Lamps, of which the following is a specification.

My invention relates to a new and useful method of manufacturing incandescent electric lamps; and its object is to produce a lamp with an internal reflector located in relation to the filament.

My invention consists of certain novel features hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a side view of an incandescent electric lamp, showing in full lines the shape of the lamp before my method is applied and showing in dotted lines the position of the parts during the application of my method. Fig. 2 is a detail view of the leading-in wires, filament, and glass stem in which the leading-in wires are located. Fig. 3 is a plan view of the reflector. Fig. 4 is a side view of the same.

Like letters of reference refer to like parts throughout the several views.

In carrying out my process I take the lamp A and cut off the end C of the lower extension B to the line *a a*, leaving the tube open at this end and of sufficient size to insert the reflector and glass stem with carbon filament. After this I cut off the neck D of the bulb and partially close it up, as shown at E, leaving a small opening sufficient to permit the end of the glass stem F to pass through it. After these steps have been taken I insert the reflector H, which has been tempered to make it pliable and springy at the same time, and bend it up so that it can be inserted into the bulb through the extension B and then spring it back to its former shape and crosswise of the bulb, with the polished side away from the neck D. The convex or concave side can be polished according to the style of lamp desired—that is, whether it is desired to diffuse or concentrate the rays of light. I then pass the stem F, to which is attached the filament

G and leading-in wires H', up through the opening in the extension B of the bulb, then through the opening J in the reflector H, and move the parts upward until the stem F reaches the opening E of the neck and the shoulder F' of the stem F brings the reflector H into position shown in dotted lines, Fig. 1. The upper end of the stem F is then cut off close to the neck, the leading-in wires of the lamp holding the reflector H and filament G in place temporarily, so that the filament will not be broken by falling against the lamp. The lower extension B of the bulb A is then closed up, so that it assumes the ordinary shape of incandescent electric lamps, and the tube A', by which the lamp is exhausted, is attached to the opening, as shown in dotted lines, and after the bulb is exhausted I then seal the stem F into the inturned portion E' and fix the parts in the proper position. The lamp is then exhausted and the tip closed in the usual manner.

Having thus ascertained the nature of my invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The method of manufacturing incandescent electric lamps, which consists, first, in inserting a reflector within the bulb, second, in passing through said reflector the stem carrying the filament, third, in moving the stem and reflector into position, fourth, in sealing the stem to the neck of the bulb, fifth, in exhausting the bulb, and lastly, in closing the tip.

2. The method of manufacturing incandescent electric lamps, which consists, first, in inserting through the end opposite the neck the reflector, second, in inserting through the end opposite the neck the stem carrying the filament, third, in passing said stem through said reflector, fourth, in moving the stem and reflector up into position, fifth, in sealing the stem to the neck of the bulb, sixth, in exhausting the bulb, and lastly, in closing the tip.

3. The method of manufacturing incandescent electric lamps, which consists, first, in cutting off the end of the bulb opposite the neck, second, in inserting the reflector through

the open end opposite the neck, third, in inserting through the open end opposite the neck the stem carrying the filament, fourth, in passing said stem through said reflector,
5 fifth, in moving the stem and reflector up into position, sixth in sealing the stem to the neck of the bulb, seventh, in exhausting the bulb, and lastly, in closing the tip.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of July, A. D. 1901.

EDGAR S. GARDNER.

Witnesses:

E. L. HARLOW,
A. L. MESSER.