

(No Model.)

O. A. MOSES.

MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS.

No. 335,831.

Patented Feb. 9, 1886.

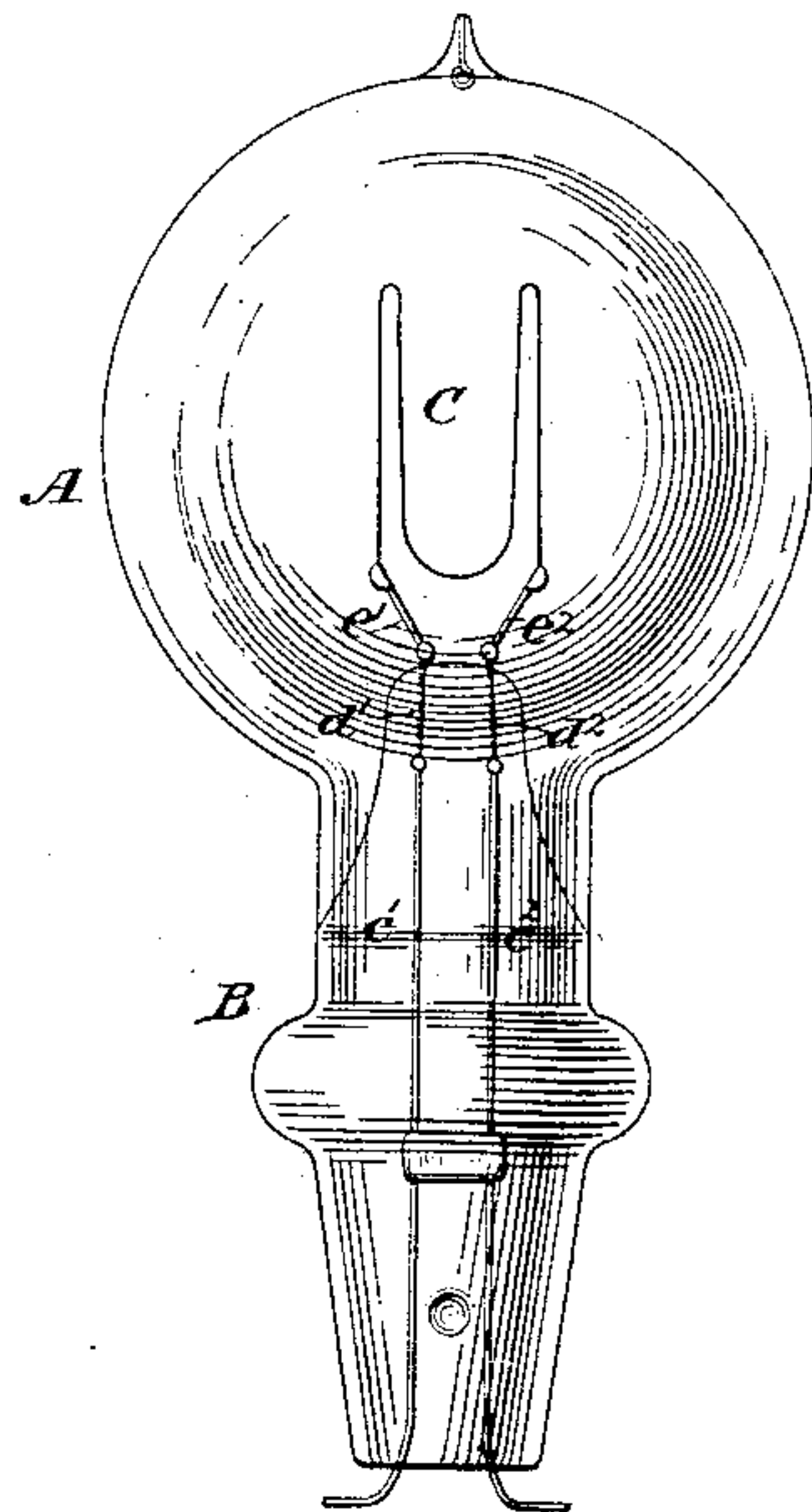


Fig. 1,

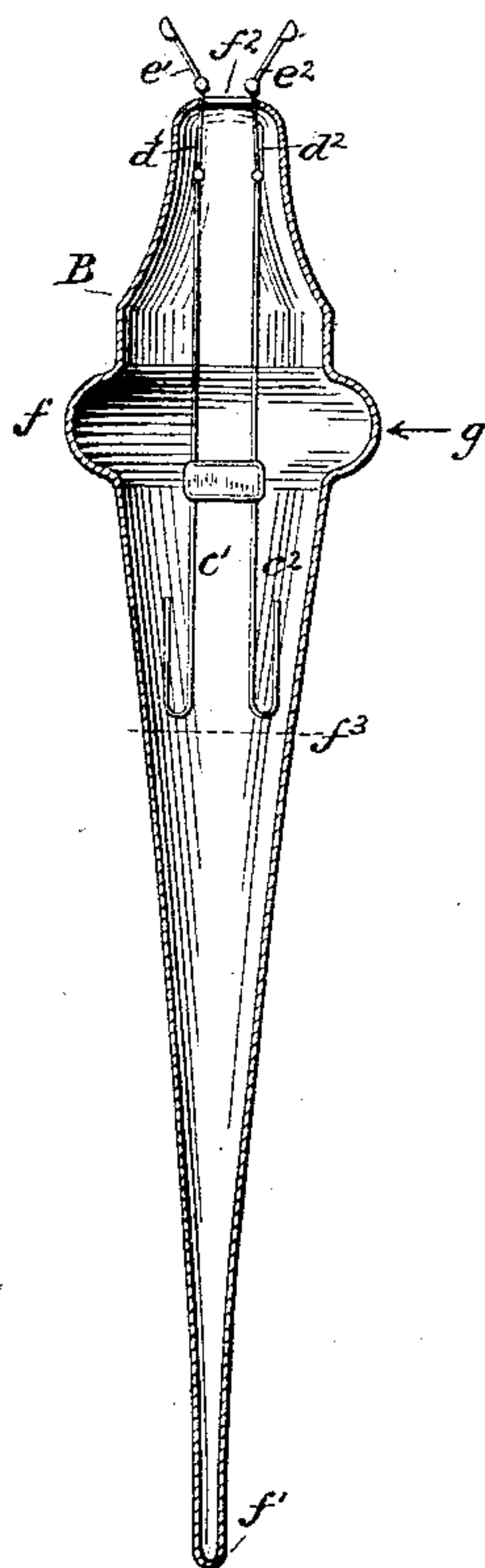


Fig. 2,

Witnesses

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MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 335,831, dated February 9, 1886.

Application filed September 2, 1885. Serial No. 175,966. (No model.)

To all whom it may concern:

Be it known that I, OTTO A. MOSES, a citizen of the United States, residing in New York, in the county and State of New York, have invented certain new and useful Improvements in the Manufacture of Incandescent Electric Lamps, of which the following is a specification.

The invention relates to the method of constructing incandescent-electric-light globes.

The object of the invention is to provide an effective method of sealing the leading-in wires into the portion of the glass which afterward closes the opening of the neck of the globe.

In carrying out the invention a tube of glass, widened somewhat at a short distance from one end to form a bulb, is employed. One end of this tube is closed hermetically, and the leading-in wires are passed through the other end. Heat is then applied by means of a blow-pipe, or in any other convenient manner, to the enlarged or expanded portion of the tube, whereby the air contained therein is rarefied. The end through which the leading-in wires are passed is then closed and, preferably, a drop of molten glass is applied to the same to securely seal it. The heat is at this stage in the operation transferred from the bulb to the portion of the tube surrounding the leading-in wires, so that while this portion of the glass is softened by heat the enlarged portion is allowed to cool. Under the influence of atmospheric pressure the glass around the platinum wires shrinks, runs together, and the edges colliquify, so as to allow of a gradual collapse and thickening of the glass to the desired point, thus sealing the wires securely while the occluded gases are being driven out by heat and escaping into the partially-evacuated chamber or bulb. After the sealing has been thus accomplished at this point the opposite end of the tube is broken off, and the wires leading from the sealed platinum wires are drawn through this broken end preparatory to inserting the entire piece within the neck of the globe which it is to close.

In the accompanying drawings, Figure 1 is an elevation of a lamp constructed upon this principle, and Fig. 2 illustrates the stages in the operation of preparing it.

Referring to the figures, A represents the

globe which is designed to be closed by the neck-piece B.

C represents the filament, supported upon copper conductors e' and e'' , leading from the platinum wires d' and d'' , which lead through the neck portion B. The remaining ends of the platinum wires d' and d'' are attached to conductors c' and c'' , and these pass through the neck portion of the lamp.

It is essential that the wires passing into the chamber through the portion B should be carefully and perfectly sealed into the glass. For this reason it is desirable that the occluded gases, which it is well known are present in platinum, shall be withdrawn to as great an extent as possible. To that end it is preferred to seal them in the glass while heated, and this to a greater or less extent deprived of such gases; and to still further aid in effecting the result a partial vacuum is established in the neck-piece B while the sealing is being accomplished. For this purpose a hollow glass tube, as shown in Fig. 2, is employed. This is widened, as shown, to form the bulb f , and the lower end of the tube is closed, as shown at f' . The leading-in wires are passed through the remaining end, f'' , of the tube, and their ends are preferably bent upward, as shown, for convenience. The bulb f of the tube is then subjected to heat by means of a blow-pipe flame, as indicated at g , or in any other convenient manner, so that the air is greatly rarefied, being expelled at the open end f'' . The blow-pipe flame is then transferred to the end f' of the tube and the glass is softened and closed about the platinum wires while they and the glass are thus still heated. If it is desired, a drop of glass may be applied to the small opening at the end of the tube. The tube is thus sealed, and the partial vacuum within the same tends to draw the occluded gases from wires, which are kept heated until the bulb has cooled, the heat itself assisting to drive out such gases from the wires. After the sealing has been effected the tube may be broken off at the point f'' . It is then ready for insertion into the globe A, to which it is applied according to any of the well-known methods, the final step in the process being to evacuate the globe and seal it.

I claim as my invention—

1. The hereinbefore - described process of sealing in leading-in wires for incandescent electric lamps, which consists in inserting the same in a glass tube, expelling a portion of the air therefrom by heating the tube and closing the glass about the wires while the tube is allowed to cool, thereby creating a partial vacuum within the tube while the wires are heated.
2. The hereinbefore - described process of sealing leading-in wires into the glass neck of an incandescent electric light, which consists in inserting them in an inclosed chamber, attenuating the air therein, and closing the glass about the wires while the air is so attenuated while maintaining the wires at a high temperature, substantially as described.
3. The hereinbefore - described process of sealing wires into a glass wall, which consists in inserting them through an opening in the wall, producing a partial vacuum upon one side of the wall, softening the glass about the wires, and causing the same to close about the wires by atmospheric pressure.
- In testimony whereof I have hereunto subscribed my name this 28th day of August, A. D. 1885.

OTTO A. MOSES.

Witnesses:

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