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G. P. McDONNELL.

METHOD OF AND APPARATUS FOR FINISHING ELECTRIC LAMPS OR BULBS.

APPLICATION FILED NOV. 2, 1904.

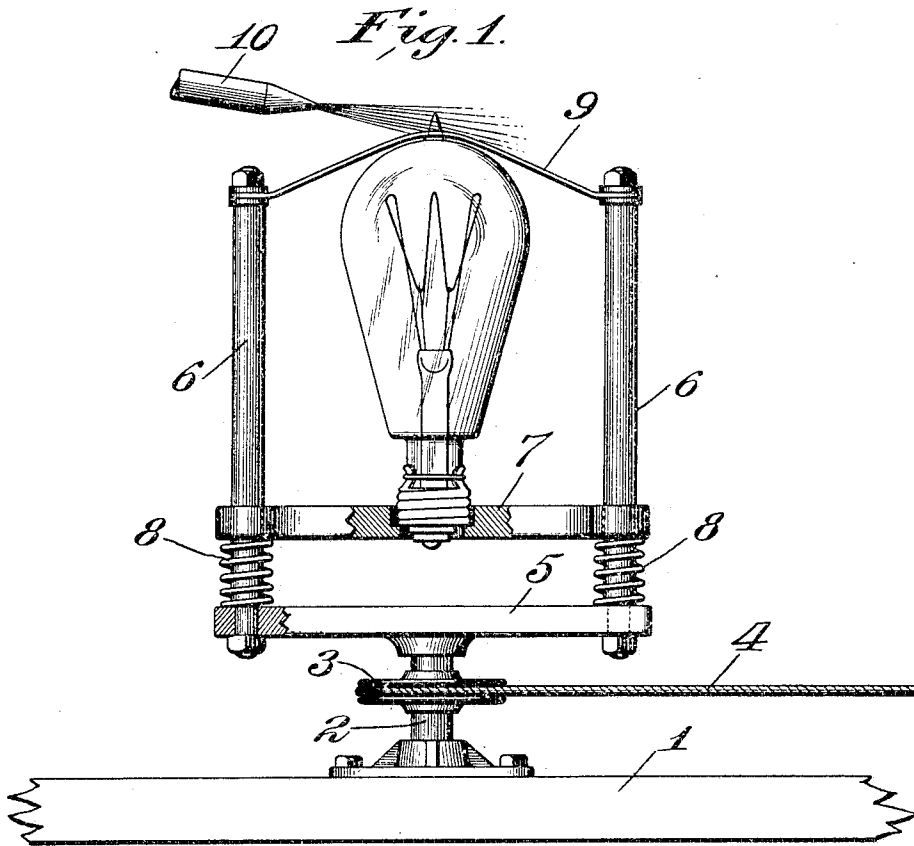


Fig. 3.

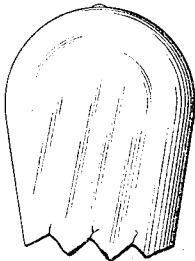
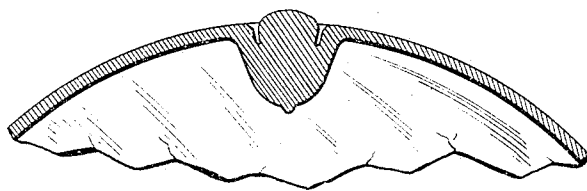


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE P. McDONNELL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO AMERICAN ELECTRIC COMPANY, OF EAST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

METHOD OF AND APPARATUS FOR FINISHING ELECTRIC LAMPS OR BULBS.

SPECIFICATION forming part of Letters Patent No. 793,211, dated June 27, 1905.

Application filed November 2, 1904. Serial No. 231,077.

To all whom it may concern:

Be it known that I, GEORGE P. McDONNELL, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Methods of and Apparatus for Finishing Electric Lamps or Bulbs, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevational view of my improved apparatus for finishing electric-lamp bulbs. Fig. 2 is an enlarged detail sectional view showing the finished end of a lamp or bulb, and Fig. 3 is a side elevational view showing the finished end of the lamp or bulb.

This invention relates to a new and useful improvement in the method of and apparatus for finishing electric-lamp bulbs, the object being to remove the sharp point or teat resulting from the closure of the tubulature. Heretofore upon closing the tubulature the lamp or bulb was left with a projecting teat, which was not only susceptible to breakage in transportation, but was very brittle and frangible and in addition was objectionable, particularly if it was accidentally struck by a person.

My invention consists in an improved method and means for eliminating this teat, as will hereinafter be described, and more particularly pointed out in the claims.

In the drawings I have shown an approved form of apparatus for carrying out my invention; but it is obvious that other forms could be employed.

1 is a base upon which is mounted a vertical rotary shaft 2, having a pulley 3, driven by a suitable source of power—as, for instance, a belt 4. The shaft carries at its upper end a frame 5, having uprights 6, on which is yieldingly mounted a lamp-support 7, springs 8 exerting their energies to press the lamp-support and its carried lamp upwardly. The upper ends of the frame-posts carry a sheet of asbestos 9, having a small opening through

which the teat of the lamp projects. I have mentioned asbestos as an available heat-retarding medium, the object of this sheet being to guard the lamp or bulb from the heat of the flame directed onto the teat from a nozzle 10; but it is obvious that other materials could be employed, or the fire-guard could be dispensed with.

In practice the lamp-support is depressed, so as to enable the lamp or bulb to be placed in position, a suitable socket being preferably provided in the lamp-support to receive the socket end of the lamp or bulb, after which the teat is fitted in the small opening of the fire-guard, so as to project thereabove. The frame is now rotated, the teat being practically in coincidence with the axis of rotation, and the flame from the nozzle 10 is directed thereagainst. When the glass of the teat is melted, the atmospheric pressure forces the same inwardly, the vacuum inside of the lamp of course causing this, until the bulk of the material which had previously formed the teat is located inside of the globe, as shown in Fig. 2. The rotation of the globe when the teat is heated causes the teat, in addition to the sinking action above referred to, to have the appearance of a countersunk button, the rounded portion projecting slightly beyond the peripheral line of the globe, as shown in Fig. 2.

I prefer that the opening in the fire-guard be of such size that only the teat is exposed to the heat of the flame, as in that way it is possible to give the lamps or bulbs a neat and uniform finish.

Before subjecting the lamp or bulb to the finishing operation just above described I prefer to heat the same, so as to avoid cracking due to the application of the heat on the teat, and after the teat has been reduced the lamp or bulb is annealed, as usual.

It will be obvious that in addition to eliminating the teat and imparting a neat and uniform finish to the electric-lamp bulbs my invention obviates the liability of damage to the lamp or bulb at this point. Instead of the lamp or bulb being weakest at the point

where it was closed it is by my improvement made strongest at this point.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In an apparatus of the character described, the combination with a rotating support upon which is mounted the lamp or bulb to be finished, and a fire-guard having an opening through which the teat of the lamp or bulb projects; substantially as described.

2. In an apparatus of the character described, the combination with a support for the lamp or bulb, a fire-guard having an opening through which the teat of the lamp or bulb projects, and a heating medium directed so as to play on the projecting portion of the teat; substantially as described.

3. In an apparatus of the character described, the combination with a rotatable frame, means for rotating said frame, a yielding lamp-support carried by said frame, a perforated guard also carried by said frame whereby when the lamp is placed on said yielding support its teat will be projected through said fire-guard, and a heating medium for directing heat against the projecting end of the teat; substantially as described.

4. The herein-described method of finishing electric-lamp bulbs, the same consisting in applying heat to the teat of the lamp-bulb which has first been exhausted, and at the same time

rotating the lamp or bulb; substantially as described.

5. The herein-described method of finishing electric-lamp bulbs which consists in heating the lamp or bulb which has first been exhausted, and then playing a flame on the teat and permitting the atmospheric pressure to cause the teat to sink substantially within the lines of the lamp or bulb; substantially as described.

6. The herein-described method of finishing electric-lamp bulbs which consists in heating the lamp or bulb which has first been exhausted, then subjecting its teat only to the action of heat, and at the same time rotating the lamp or bulb, and finally annealing the lamp or bulb; substantially as described.

7. The herein-described method of finishing electric-lamp bulbs, the same consisting in first heating the lamp or bulb, then applying heat to the teat while protecting the lamp or bulb proper, rotating the lamp or bulb at the time the heat is applied to the teat, and then finally annealing the lamp or bulb; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 29th day of October, 1904.

GEORGE P. McDONNELL.

Witnesses:

F. R. CORNWALL,
GEORGE BAKEWELL.