

No. 829,539.

PATENTED AUG. 28, 1906

G. P. McDONNELL.
FINISHING ELECTRIC LAMP BULBS.
APPLICATION FILED SEPT. 1, 1905.

Fig. 1.

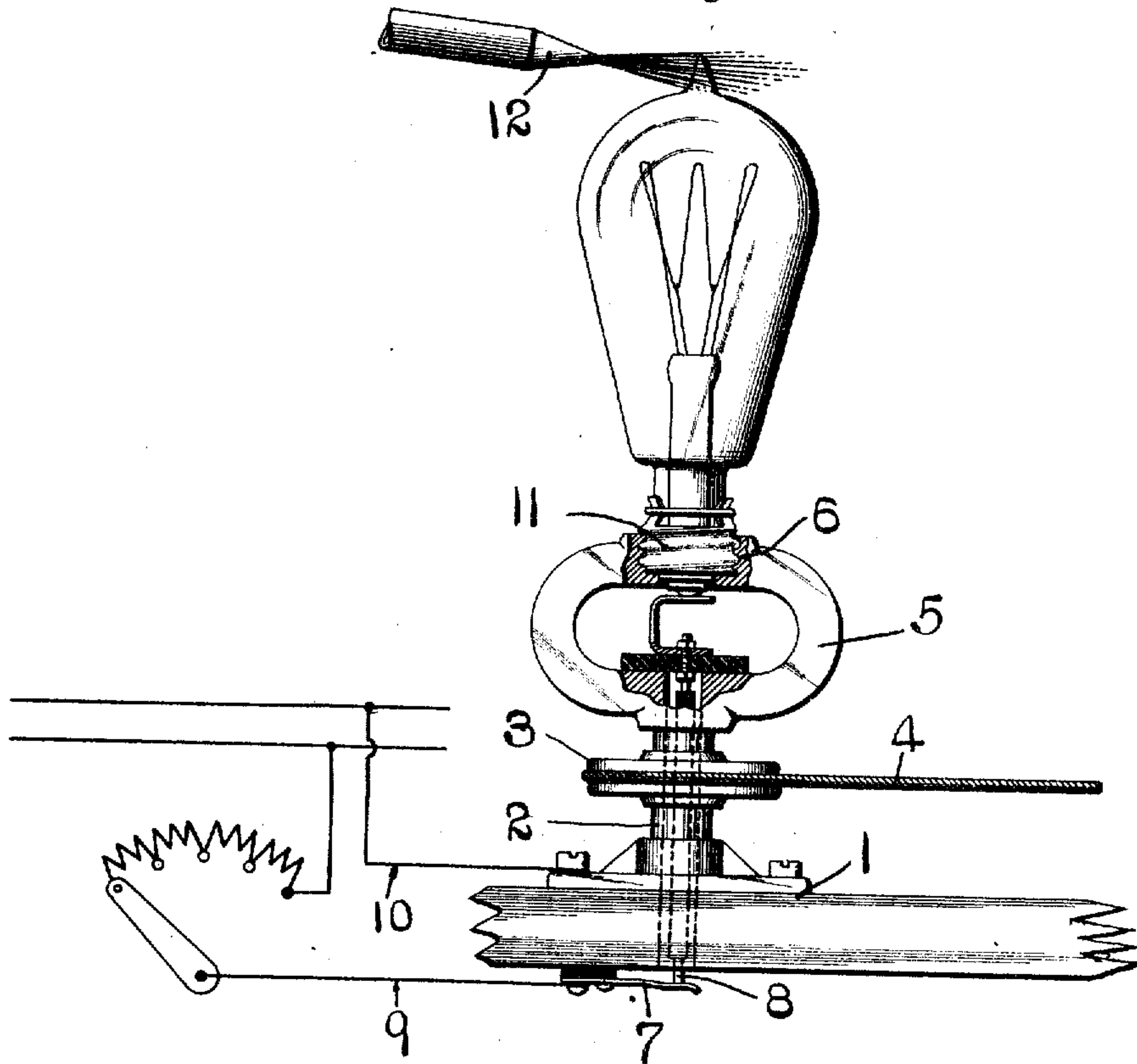
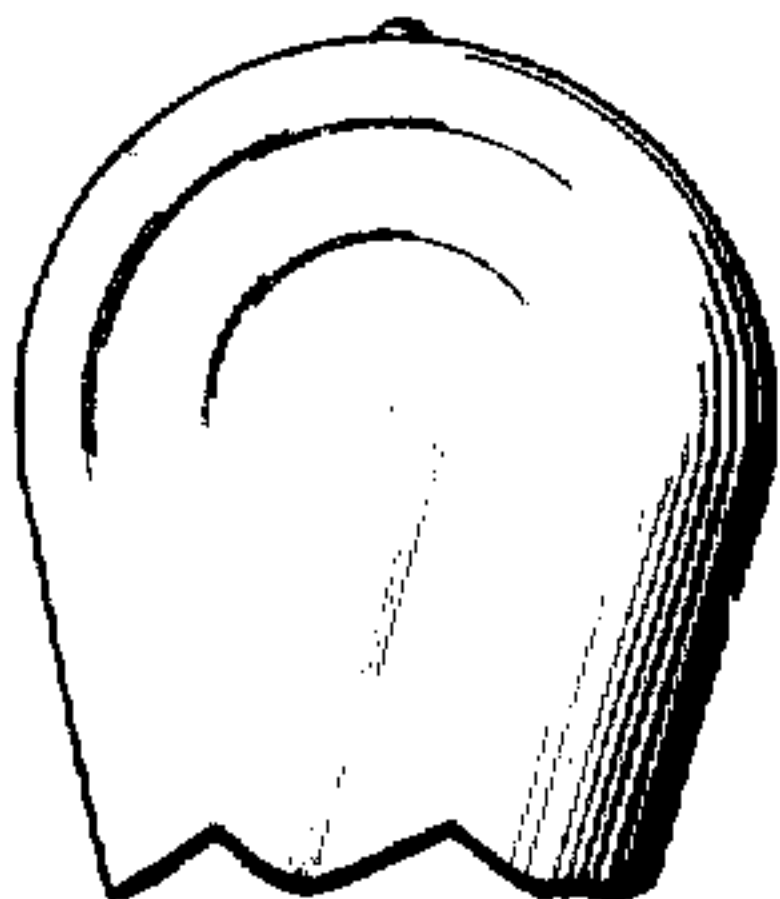
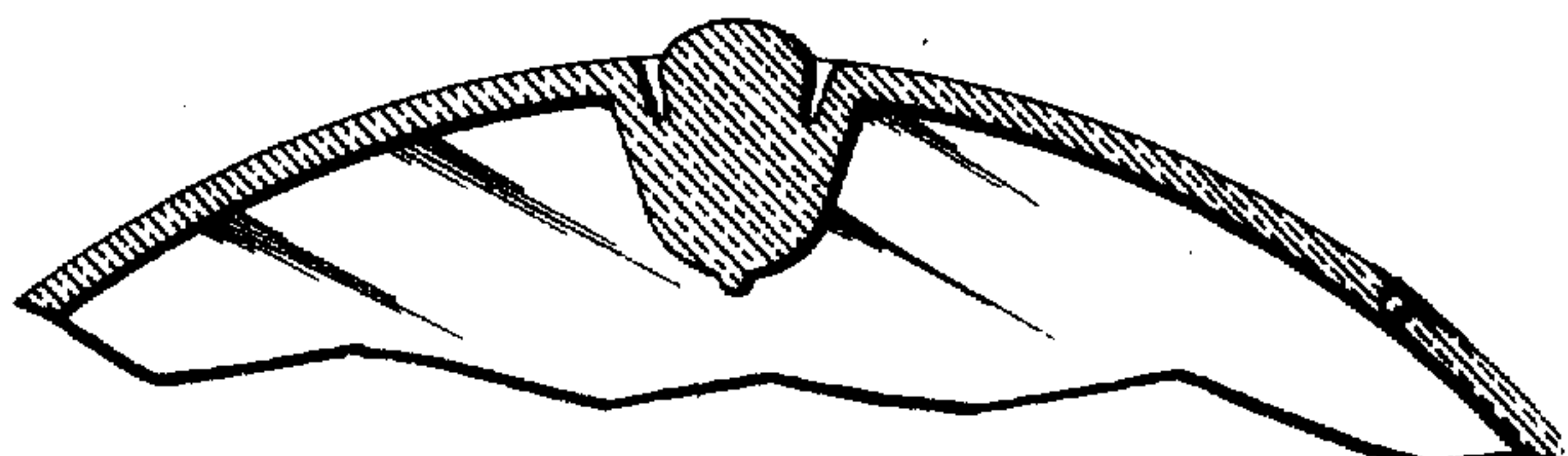


Fig. 3.



Witnesses
A. J. McCauley.
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Fig. 2.



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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.

FINISHING ELECTRIC-LAMP BULBS.

No. 829,539.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed September 1, 1905. Serial No. 376,730.

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 Finishing Electric-Lamp 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 an apparatus for carrying out my method. Fig. 2 is an enlarged detail sectional view showing the finished end of the lamp or bulb. Fig. 3 is a side elevational view showing the finished end of the lamp or bulb.

This invention relates to a new and useful method of finishing electric-lamp bulbs, the object being to remove the sharp point or teat resulting from the closure of the tubulature.

The present invention is an improvement upon the method disclosed in United States Patent No. 793,211, dated June 27, 1905, granted upon an application filed by me.

My present invention consists, essentially, in passing a current of electricity through the carbon filament at the time the teat is being subjected to the fusing heat, so as to reduce the pressure inside of the bulb and by preliminarily heating the bulb and its teat avoid cracking of the glass forming the teat.

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

I 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, forming a lamp socket and support 6.

In order to pass an electric current through the filament in the bulb at the time the bulb is being acted upon, as above described, I arrange a contact 7 on the frame and connect the same with a rod 8, passing down through an opening in the shaft 2. A wire 9 is in electrical connection with the contact 7. A wire 10 may be connected to the base of the frame

and through the lamp-support be in electrical contact with the brass base or collar 11 of the lamp. A rheostat may be placed in the lamp-circuit to cut in or cut out resistance in the circuit, so as to control the amount of current supplied to the filament at the will of the operator.

In operation after the lamp is placed in position the current is turned on so as to heat the glass of the bulb and its teat and also to expand such residual gases as may be left in the bulb and to increase the pressure in the bulb. When this has been accomplished, it requiring but a very short time to do this, the frame is rotated, the teat being practically in coincidence with the axis of rotation, and the flame from the nozzle 12 directed there-against. When the glass of the teat is melted, the atmospheric pressure forces the same inwardly; but as the residual gases inside of the lamp have been heated the external pressure, while preponderating, is not excessive, and the molten glass is thus rendered less sensitive to such pressure, and consequently instead of the teat sinking in suddenly, as would be the case were the glass cold and a high vacuum maintained inside the lamp, the teat sinks slowly until the parts assume the position shown in Fig. 2. The rotation of the bulb when the teat is heated causes the teat, in addition to the sinking action before referred to, to have the appearance of a countersunk button, the rounded portion projecting slightly beyond the peripheral line of the bulb, as shown in Fig. 2.

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

1. The herein-described method of finishing electric-lamp bulbs on which the teat has been formed, the same consisting in first passing an electric current through the carbon filament so as to heat the residual gases and the glass of the bulb and its teat, then applying heat to the teat of the lamp-bulb, which bulb has first been exhausted, and at the same time rotating the lamp or bulb; substantially as described.

2. The herein-described method of finishing electric-lamp bulbs on which the teat has been formed, which consists in first passing an electric current through the carbon filament so as to heat the residual gases and the

glass of the bulb and its teat, which bulb has first been exhausted, and then playing a flame on the teat of the bulb and permitting atmospheric pressure to cause the teat to sink substantially within the lines of the lamp or bulb; substantially as described.

3. The herein-described method of finishing electric-lamp bulbs on which the teat has been formed, which consists in first passing an electric current through the carbon filament so as to lower the vacuum therein and at the same time heat the glass of the bulb and its teat, which bulb has first been exhausted,

then subjecting said teat only to the action of heat externally applied and at the same time rotating the lamp or bulb and finally annealing the same; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 25th day of August, 1905.

GEORGE P. McDONNELL.

Witnesses:

F. R. CORNWALL,
CORA BADGER.