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S. H. NEWTON

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INCANDESCENT ELECTRIC LAMP AND METHOD OF MANUFACTURE

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Fig. 1.

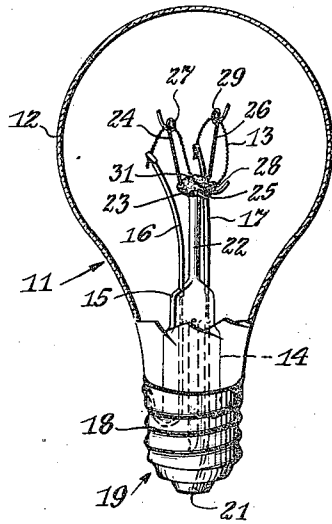
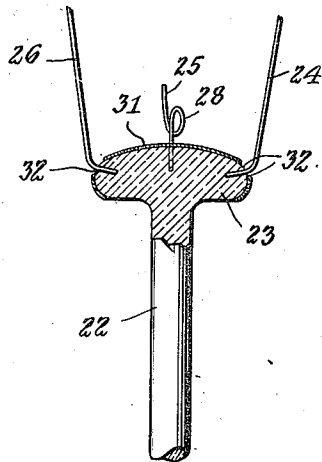


Fig. 2.



INVENTOR
S. H. NEWTON.
BY *J. W. Newton*
ATTORNEY

UNITED STATES PATENT OFFICE

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INCANDESCENT ELECTRIC LAMP AND METHOD OF MANUFACTURE

Stanley H. Newton, Bloomfield, N. J., assignor to
Westinghouse Electric & Manufacturing Com-
pany, East Pittsburgh, Pa., a corporation of
Pennsylvania

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8 Claims. (Cl. 176-16)

This invention relates to incandescent electric lamps, the method of manufacture and, more particularly, to gas-filled miniature lamps of high candle power and low voltage, in which a reflecting coating is placed on part of the surface of the lamp bulb to direct radiations emitted by the filament.

An object of my invention is the provision of means for preventing overheating of the arbor, or portion of the bulb adjacent the filament which may serve as a support for the same, during operation of the lamp, especially where the filament is carried close to a portion of said support.

Another object of my invention is the provision of an incandescent electric lamp having a bulb, of the so-called miniature size, and an arbor carrying an incandescent filament, wherebysaid filament is disposed close to said arbor, and means coating that portion of said arbor adjacent said filament to prevent overheating.

A further object of my invention is the provision of an incandescent electric lamp in which a specular metal coating, such as aluminum powder mixed with a nitrocellulose, or Bakelite varnish binder, is painted on the button of the stem, carrying a high candle power tungsten coil between supports, in order to reflect at least some of the heat from said button and prevent melting thereof, the coating selected being desirably of such a character that it also acts as a getter and helps to prevent bulb-blackening.

A still further object of my invention is the manufacture of miniature incandescent electric lamps of high candle power in which the filament-carrying part is protected from overheating by an energy-reflecting coating which also desirably functions as a getter.

Other objects and advantages of the invention, relating to the particular arrangement and construction of the various parts, will become apparent as the description proceeds.

Referring to the drawing:

Figure 1 is an enlarged side elevational view, partly in vertical section, of a lamp embodying my invention.

Figure 2 is a further enlarged view of a portion of the mount, of the lamp of Figure 1, adjacent the stem button, showing how the filament supports extend therefrom and the extent of the reflecting coating.

Referring to the drawing in detail, like parts being designated by like reference characters, there is shown, as one embodiment of my invention, an incandescent electric lamp 11 of what is

designated as a "miniature" type; that is, the bulb 12 is desirably relatively small or about the size of that of an automobile headlight. In the present embodiment, I have shown a lamp in which the bulb 12, desirably of glass, is filled with an inert gas, such as argon, and the mount holds a coiled tungsten filament 13 of the one-hundred-candle-power size, adapted for operation at a potential of 32 volts. It will, of course, be understood that these figures are merely illustrative and not limiting.

The bulb 12 has sealed thereto a glass flare tube 14 terminating in a press 15. Through the press extend lead-in conductor supports 16 and 17, the former electrically connected to the shell 18 of the base 19, and the latter to the center contact 21 of said base.

Between the conductor supports 16 and 17 extends a glass arbor 22 terminating in a button 23, preferably having a convex or globular outer or end surface. From the button, of the present embodiment, extend relatively short filament supports 24, 25 and 26 terminating in loops 27, 28 and 29. The filament 13 has its ends secured, respectively, to the conductor supports 16 and 17, its intermediate portions passing through the loops 27, 28 and 29, so that it is properly supported in the desired position.

On account of the high candle power of the filament and the nearness to the button 23, the latter is very apt to become overheated and melt in operation. In order to avoid this undesirable result, I apply to the button a reflecting coating 31, preventing the absorption of radiant energy to as great an extent as possible. Although various coatings may be employed, such as silver or other material which has high reflecting characteristics, I prefer to use aluminum powder mixed with a nitrocellulose or Bakelite varnish binder, which is then painted on the button between the points of connection with the supports 24, 25 and 26, as shown most clearly in Figure 2, desirably leaving uncoated portions 32 of the outer surface, around the points where the supports enter the button, in order to prevent shunting of any current through the coating.

Experiments show that in a lamp of the character described, without the reflecting coating disclosed, the excessive heat from the high candle power filament was such that, upon burning, the button blackened or melted. Upon applying the aluminum paint to such a button, it was found that the same was so protected that melting and undesirable results, such as bulb blackening, were avoided.

It will, therefore, be seen that in accordance with my invention, I provide a reflecting coating on the inside of the lamp bulb, as on the relatively large area of the arbor button or other filament-supporting portion, said reflecting material being silver or aluminum, so as to not only augment the light output of the lamp by reflecting a beam, and prevent overheating of the portion which carries the reflecting surface, but also cooperate with the tungsten filament and gas filling to reduce blackening of the lamp bulb and increase the life of the lamp. I thus substantially prevent blackening of the bulb throughout the life of the filament.

Although a preferred embodiment of my invention has been disclosed, it will be understood that modifications may be made within the spirit and scope of the appended claims.

This application is a continuation-in-part of my application Serial No. 215,345, filed June 23, 1938, for the improvement in Incandescent electric lamp and method of manufacture, and owned by the assignee of the present application.

I claim:

1. An incandescent electric lamp comprising a bulb, an arbor enclosed therein and having a button at its free end and integral therewith, a filament supported from said button and an exterior coating of heat-reflecting material applied to the button and terminating short of the support means.

2. In an incandescent electric lamp, a bulb, an arbor supported in said bulb and terminating in a button, support means extending from said button, a filament carried by said support means, and a coating of heat-reflecting material applied to said button and terminating short of said support means.

3. In an incandescent electric lamp, a bulb, a flare tube sealed therein and having a press, a lead-in conductor supports extending through said press, an arbor extending from said press between said supports and terminating in a button, wires extending from said button, a filament extending from one conductor support to the other, with intermediate portions supported by said wires, and a coating of heat reflecting material on the exterior of said button and terminating short of said wires.

4. In an incandescent electric lamp, a bulb, a flare tube sealed therein and having a press, lead-in conductor supports extending through said press, a glass arbor extending from said press between said supports and terminating in a button, relatively short filament supports extending from said button and formed with end loops, a filament extending from one conductor support to another through said loops, and a coating of aluminum paint on said button between, and terminating short of, the points of connection of the filament supports therewith.

5. A mount for an incandescent electric lamp comprising a flare tube, lead-in conductor supports extending therefrom, an arbor extending from said flare tube and disposed between said supports, a filament the ends of which are connected to said supports, means extending from the end portion of said arbor and supporting intermediate portions of said filament, and a heat reflecting coating applied to said end portion and terminating short of said supporting means.

6. A mount for an incandescent electric lamp comprising a flare tube having a press, lead-in conductor supports extending through said press, an arbor extending from said press between said supports and terminating in a button, relatively short filament supports extending from said button, a filament extending from one conductor support to the other and with intermediate portions resting on said supports, and a coating of aluminum paint on said button, but terminating short of said supports.

7. The method of manufacturing an incandescent electric lamp comprising supporting an incandescible filament adjacent the end of an arbor, coating the arbor end portion with a heat-reflecting material spaced from the filament-supporting means, and sealing said mount into a bulb.

8. The method of manufacturing an incandescent electric lamp comprising supporting the filament from wire supports extending from a button on the end of an arbor, coating said button with aluminum paint between the points of union of said supports therewith, but terminating short of said supports, sealing said mount into a bulb, and surrounding the filament with an inert gas.

STANLEY H. NEWTON.