Dec. 26, 1939. C. A. BROWN ET AL 2,184,269

BASE FOR INCANDESCENT LAMPS AND SIMILAR DEVICES

Filed May 14, 1938

Fig. 1.

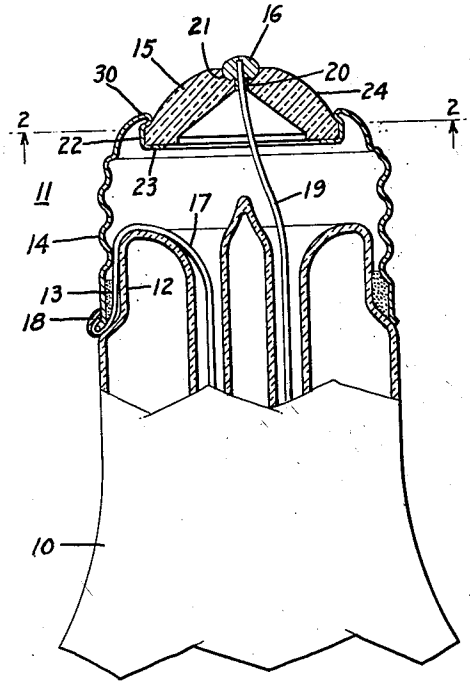


Fig. 2.

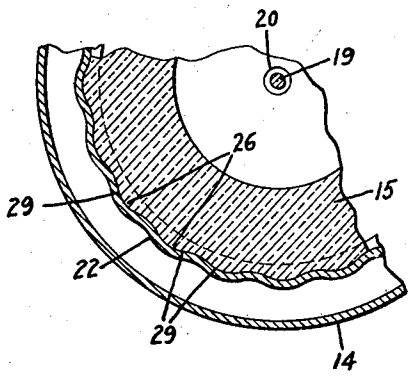


Fig. 3.

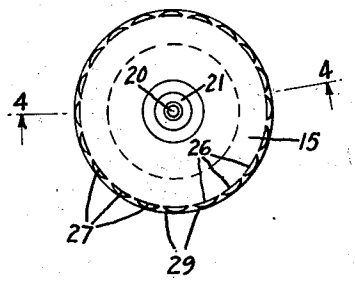
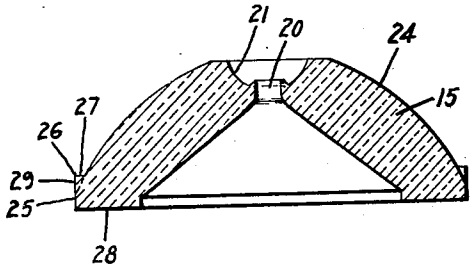


Fig. 4.



Inventors:
Carl A. Brown,
Clarence E. Hahn,
by Harry E. Dunham
Their Attorney.

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UNITED STATES PATENT OFFICE

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BASE FOR INCANDESCENT LAMPS AND SIMILAR DEVICES

Carl A. Brown, Chardon, and Clarence E. Hahn, Cleveland, Ohio, assignors to General Electric Company, a corporation of New York

Application May 14, 1938, Serial No. 207,965

2 Claims. (Cl. 176—32)

Our invention relates to electric incandescent lamps and similar devices comprising a bulb having an electrical energy translation element sealed therein and a base mounted on said bulb. More particularly, our invention relates to bases for such devices which usually consist of a metallic shell and a bottom end contact separated from each other by a suitable insulating medium.

In the present method of manufacturing lamp bases, a brass shell and a center or end contact eyelet are first placed in a suitable mold and a definite quantity of molten glass poured thereinto. A plunger then presses the molten glass into the desired shape and into firm engagement with the brass shell and eyelet to thereby form the completed base. The hot glass, however, anneals the brass shell so that it is undesirably softened to the point where it is readily deformable. To partially compensate for the resulting decrease in strength of the shell, and to maintain the shell strength above certain minimum limits, it is therefore necessary to employ brass material of greater thickness than would be the case if no such annealing action were present. As a consequence, the amount, and therefore the cost, of the brass material is considerably greater than it would be if no such shell annealing occurred. Furthermore, the brass shell is considerably tarnished or discolored by the heat of the molten glass during the formation of the base structure, thereby necessitating an operation commonly known as a "bright-dip" which consists in dipping the completed bases in a suitable acid bath, such as sulphuric and nitric acids, to remove the said discolorations and restore the original brightness of the brass shell and eyelet. A considerable quantity of brass is removed from the shell during this bright-dip operation, thereby resulting in a considerable waste of material and so further increasing the cost of manufacture. Also, the acid etches the brass shell unequally, etching the grain boundaries much deeper than the grains themselves, so that the original thickness of the brass must be sufficient to compensate for such unequal etching in order to maintain the strength of the shell above certain minimum limits. A further disadvantage of the above described process of manufacturing bases lies in the fact that the completed bases must be thoroughly inspected for a considerable number of objectionable defects, such as missing eyelets, plugged eyelets, slanting or displaced eyelets, threads of glass extending over the edge of the shell, too much glass insulation, or an insecure bond between the glass insulation and the brass shell or end contact eyelet. Such a rigid inspection necessitates a large inspection force, which therefore further increases the cost of production.

By preforming the glass insulation as a separate member and then mechanically securing the brass shell thereto, the above-mentioned disadvantages are entirely obviated. Accordingly, one object of our invention is to provide a base construction for electric lamps and similar devices in which the glass insulation consists of a separate preformed member which is thereafter mechanically secured to the brass shell.

Another object of our invention is the provision of positive interlocking means between the base shell and the preformed glass insulation member employed in our improved base construction whereby relative rotational displacement between the said parts is positively eliminated.

A further object of our invention is the provision of a preformed glass insulator button for a lamp base the periphery of which button is formed with a plurality of projections so shaped as to withstand breakage during the rolling over of the brass shell onto said projections and to form a firm interlock between the brass shell and the glass button.

Further objects and advantages of our invention will appear from the following description of a species thereof and from the accompanying drawing in which:

Fig. 1 is a fragmentary side view, partly in section, of an electric incandescent lamp provided with a base comprising our invention; Fig. 2 is an enlarged fragmentary sectional view taken on the line 2—2 of Fig. 1; Fig. 3 is a plan view of a preformed glass insulator button according to our invention; and Fig. 4 is an enlarged sectional view taken on the line 4—4 of Fig. 3.

Referring to the drawing, there is shown in Fig. 1 an electric incandescent lamp comprising a bulb 10 having a filament (not shown) sealed therein and a base 11 attached to the neck 12 of the bulb by suitable cement 13. The base 11 consists of a threaded metallic shell 14, preferably of brass, together with insulation 15, and a bottom end contact 16. The insulation is preferably made of glass, although any other suitable material may be employed. One end of the lamp filament is connected to the base shell by means of a lead 17 bent back over the end of the bulb neck and soldered at 18 to the edge of the said shell. The other end of the lamp filament is connected to a lead 19 which extends through a

centrally located opening 20 in the glass insulation where the said lead is secured by means of a drop of solder 16 to thereby form the bottom end contact. The recess 21 in the glass insulation 15 is preferably shaped in the manner described and claimed in our co-pending application Serial No. 207,964 of even date herewith.

The glass insulation 15 according to our invention is made as a preformed member and is secured to the base shell 14 by mechanical interlocking means. Referring to Fig. 1, the outer end of the base shell 14 is provided with a re-entrant flange 22, the inner edge of which is bent inwardly to form an annular ledge or seat 23 on which the preformed glass button 15 is mounted. The upper or outer convex surface 24 (Fig. 4) of the glass button 15, adjacent the periphery 25 thereof, is formed with a plurality of uniformly spaced crescent shaped projections or lugs 26. The upper surfaces 27 of these lugs are substantially flat and lie in a plane approximately parallel to that of the seating surface 28 on the glass button, while the side surfaces 29 of the lugs are formed substantially as continuations of the periphery 25, as shown in Fig. 4, and are curved on a radius of preferably one-sixteenth inch or thereabouts.

In assembling the preformed glass button 15 and the base shell 14, the button is simply placed in position on the annular seating flange 23 and the upper edge 30 of the base shell is rolled or peened over the various projections 26 by means of a suitable forming tool, such as a roller or cam. The pressure so applied to the edge 30 of the base shell results in a deformation of the re-entrant flange 22 whereby the same conforms to and engages the curved side surfaces 29 of the various projections 26, as shown in Fig. 2, as well as the upper surfaces 27 of the same. To insure such a deformation of the re-entrant flange 22 without a corresponding deformation of the outer edge or wall 30 of the base shell, the projections 26 on the glass button are spaced a definite distance apart. Thus, as shown in Fig. 3, a button 15 having a diameter of approximately seven-tenths of an inch is preferably provided with twenty such projections 26 around its circumference so that the same will be spaced approximately eleven-hundredths of an inch apart. With such an arrangement, a positive interlock between the brass shell 14 and the glass button 15 is assured whereby relative rotative displacement therebetween is entirely prevented. In addition, the projections 26 are sufficiently strong so as not to become broken during the rolling over of the shell edge 30 onto the said projections.

As stated previously, the use of the preformed glass insulator button 15 greatly simplifies the production of lamp bases and materially decreases the cost of manufacture thereof. The internal strains in such a button can be removed by annealing the same prior to its assembly with the brass shell so that the latter is not softened and tarnished by the heat attending such annealing operation. Since no discoloration of the brass shell occurs, the customary bright-dip operation may be dispensed with, thus permitting the use of thinner material for the brass shell. The use of a drop of solder as the bottom end contact eliminates the customary brass eyelet, thereby resulting in a further saving of brass. Finally, the use of a preformed insulator button eliminates a considerable number of the defects for which bases have been heretofore inspected, with a resulting decrease in the cost of inspection.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A base for electric lamps or similar devices comprising a metal shell and a preformed insulator button at the upper end thereof, said button having a convex upper surface with a plurality of small spaced crescent-shaped projections at its periphery, said shell having at its upper end a re-entrant flange portion terminating in an inwardly extending flange forming a seat for the periphery of said button, the upper portion of said re-entrant flange being deformed to conform to the shape of the periphery of said button including the curved sides of said projections and overlying the upper surfaces thereof, the interengagement of said flange portion with the sides of said projections preventing relative rotational movement between said shell and button, and the periphery of said button being firmly clamped between the said inwardly extending flange and the portion of said re-entrant flange overlying said projections.

2. A base as set forth in claim 1 wherein the insulator button consists of a vitreous material.

CARL A. BROWN.
CLARENCE E. HAHN.