June 26, 1945. C. A. BROWN ET AL 2,379,063

BASE FOR ELECTRIC LAMPS AND THE LIKE

Filed Oct. 16, 1944

FIG. 1.

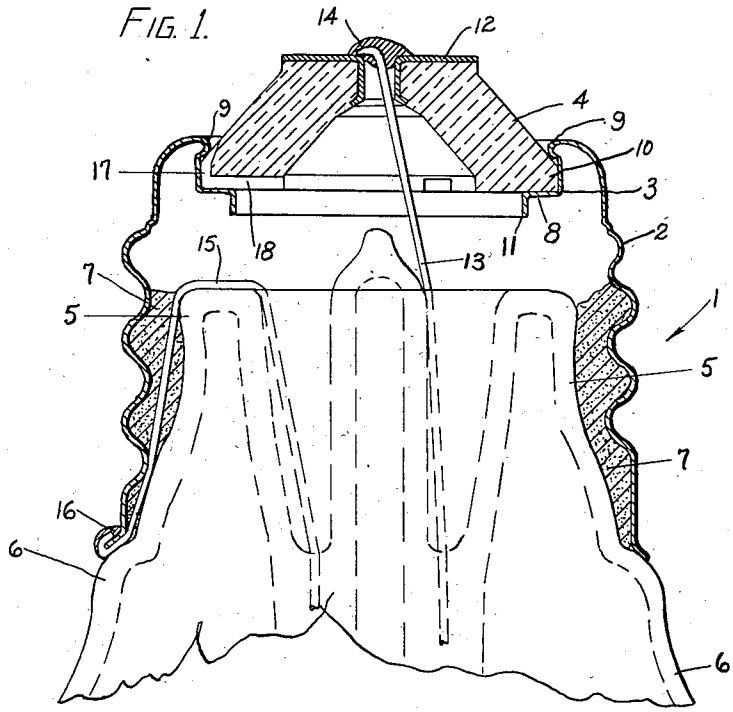


FIG. 3.

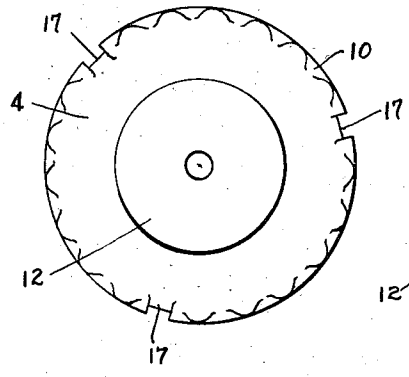


FIG. 2.

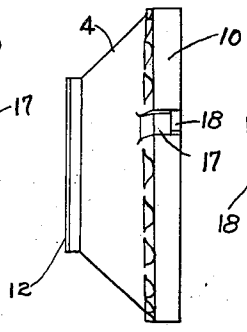


FIG. 4.

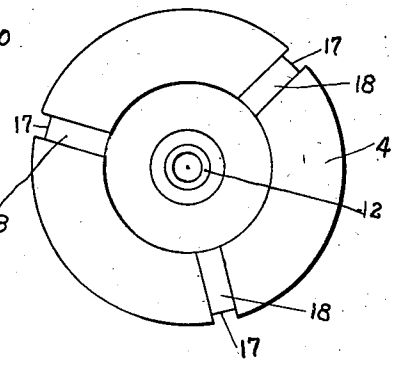
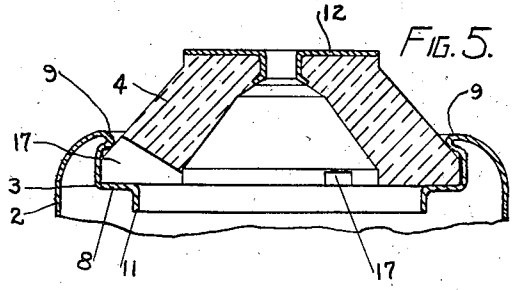


FIG. 5.



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BASE FOR ELECTRIC LAMPS AND THE LIKE

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Application October 16, 1944, Serial No. 558,888

3 Claims. (Cl. 176—32)

This invention relates to basing electrical devices, including bases for the bulbs or envelopes of incandescent lamps as well as discharge lamps and other discharge devices of various kinds. It is concerned with the structure of the base and with conditions that may arise from its attachment to an envelope end or neck. The invention is hereinafter explained with particular reference to bases of the Edison and kindred screw and center contact types, though it is also applicable to bases of very different types from this, such as the double end-contact bayonet type, for instance.

Bases are very commonly secured to envelope ends or necks by means of basing cement which requires time and heat to harden, set, or cure it. It is desirable to complete all other operations on the electrical devices before basing them, which includes the connection of the base contacts to the current leads of the devices. The bases and their end contacts are apertured for the passage of the current leads; but these leads are electrically connected to the end contacts by methods which usually result in closing the openings, such as soldering. This may leave the interior of a base completely closed off, with no possible escape for gases evolving from the basing cement during the hardening or curing, or even after the devices have become hot in service. Owing to the heat, the pressure of the confined gases may become high enough to rupture or crack the bulb end inside the base, or the stem tube that opens through the bulb end into the interior of the base, or the exhaust tube inside this stem tube; or it may in some cases expand the screw shell of the base so that it no longer turns freely in the corresponding lamp socket, or may blow the base off the bulb.

An object of this invention is to obviate such trouble from confined gases in a base by providing a vent to the outside that will not be closed in the usual operations of basing the lamp and connecting its leads to the base contact(s). As particularly described hereinafter, this is accomplished very simply and conveniently, without complicating the base structure, without requiring any extra operation in base manufacture, and without increasing the cost of the base in any way. Other features and advantages of the invention will become apparent from the description of species and forms of embodiment, and from the drawing.

In the drawing,

Fig. 1 shows an axial section through a lamp bulb neck and a base embodying the invention, a portion of the lamp bulb appearing in elevation; Fig. 2 is a side or edge view of one part of the base; and Figs. 3 and 4 are top and bottom views of the same part.

Fig. 5 is a fragmentary section similar to part of Fig. 1, illustrating a modification.

Figs. 1 to 4 illustrate the application of our invention to an Edison screw base 1 of the general type illustrated in U. S. patents, Nos. 2,184,269 and 2,210,525 to Brown and Hahn, comprising a sheet metal screw shell 2 having at its outer end a seat 3, and a button-like base-end insulator 4 laterally abutting the seat 3 and secured thereto. As shown, the inner end of the base shell 2 is circumposed about the reduced end or neck 5 of a vitreous incandescent electric lamp bulb or envelope 6 and is secured thereto by an suitable basing cement 7, which does not, however, fill the interior of the base 1 above the bulb end 5. As in said patents, the seat 3 may be rabbeted to receive the periphery of the insulator 4, being preferably formed by doubling the sheet metal of the shell 2 back thereinto and flanging it inward at 8. The insulator button 4 may be secured to and in the seat 3 by pressing or spinning inward the upper edge 9 of the seat 3 on the edge of the button. To hold the insulator 4 against rotation on its seat 3, its upper outer edge 10 may have rounded top projections or teeth against which the sheet metal at 9 is depressed and interlocked. The seat 3 is shown as reinforced and stiffened by turning the inner margin of the flange 8 downward from its general plane, as a supplemental flange or lip 11. Another feature not shown in the aforesaid patents is a centrally apertured sheet metal end contact disc 12 having a hollow shank embedded in the glass or other insulative material of the button 4, which is centrally apertured in correspondence with the disc and shank openings.

A leadwire 13 from inside the bulb 6 is shown threaded through the center hole in the insulation 4 and the disc 12, and may be soldered to the latter at 14, where it is cut off. In the case of a device with two leads to its filament or electric translation means, the other lead 15 may be retroverted to extend down between the bulb neck 5 and the screw shell 2 to its lower edge, and there brought out and soldered to the shell at 16. These center contact and leadwire features are similar to those of Edison screw bases in general use prior to the aforesaid patents.

For the purposes of our invention, we provide one or more openings or channels at or in the interengaging surfaces of the parts 2 and 4, by local deformation thereof. As shown in the drawing, the openings are provided at the ex-

pense of the insulator margin or seating portion 10, and have the character of recesses or depressions. In Figs. 1 to 4, the recesses consist of notches 17 across the insulator periphery and communicating grooves 18 across the inside or bottom annular seating surface of the insulator. In Fig. 5, the recesses are in the form of mere notches 17 with bottoms sloping inward beyond the flange 8. As shown in Figs. 3 and 4, there are three of the openings in the bottom margin, equally spaced around it. The depth of the notches 17 at their top openings exceeds the overhang of the inturned seat edge 9, and the bottom openings of the notches or of the grooves 18 extend inside the zone of contact of the button 4 with the seat flange 8. Thus there are vent and breathing openings formed in the seating portion 10 of the base end insulator 4, and open past the shell seat, for the escape of gas from inside the base 1, or for the entrance of the outside air. The external mouths of these openings are sheltered behind the shell seat overhang 9, where they are almost imperceptible and indistinguishable from the spaces between the teeth on the insulator edge 10, and little liable to be clogged wtih dirt. The mouths of these openings inside the shell 2 are at the top of the latter and sheltered by the flange lip 11, so that they are not likely to be clogged by dirt before the base is applied to a lamp, nor by the basing cement at a lower level in the shell, around the bulb neck 5.

In manufacture, the insulator 4 may be formed by die-pressing or molding any suitable glass, such as that used for the insulator buttons in the aforesaid patents, or for the insulative parts of the Edison screw bases in common use prior to said patents. The contact discs 12 (with their shanks) may be placed in the molding dies before the glass is introduced and thus molded into the insulators. The vent opening recesses (notches 17 with or without grooves 18) may be formed in the insulator margins as an incident of the molding operations, by suitable projections on the corresponding surfaces of the dies. Thus the vent openings are provided without any special operation or extra cost.

In Fig. 5, various parts and features are marked with the same reference numerals as those corresponding in Figs. 1 to 4, in order to dispense with repetitive description.

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

1. In an electrical device comprising a bulb having a neck portion with a lead wire extending therefrom; a metal base shell circumposed about and internally cemented to the bulb neck, and having an end seat at its outer end; and a base-end insulator button abutting and secured to said seat carrying an end contact electrically connected to said lead wire, and provided with a vent in its own seating portion open past the shell seat.

2. In a base construction for electrical devices of the character described, the combination of a metal shell having an end seat; and a base-end insulator button abutting and secured to said seat, and having a vent opening past the shell seat formed in it at the expense of the material of its seating portion.

3. In a base construction for electrical devices of the character described, the combination of a metal shell having its outer end doubled inward and flanged, and overhanging the rabetted seat thus formed; and a base-end insulator button seated in said seat and peripherally held in by the overhang aforesaid, but notched across its periphery to a depth greater than said overhang and grooved across its seating surface in communication with its peripheral notching.

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