Oct. 31, 1944. J. FLAWS, JR 2,361,469

MOUNT STRUCTURE FOR ELECTRIC LAMPS AND SIMILAR DEVICES

Filed Aug. 26, 1942

Fig. 1.

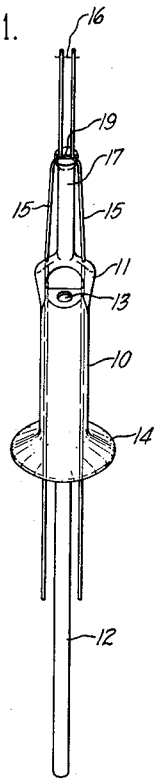


Fig. 2.

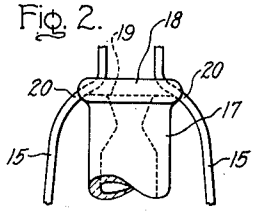


Fig. 3.

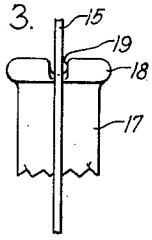


Fig. 4.

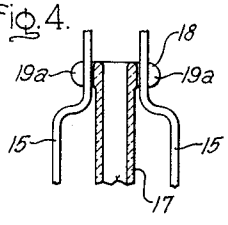


Fig. 5.

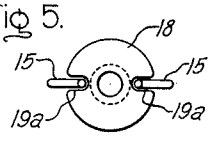
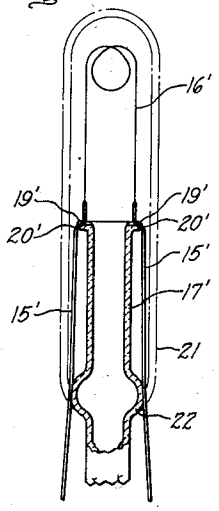


Fig. 6.



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UNITED STATES PATENT OFFICE

2,361,469

MOUNT STRUCTURE FOR ELECTRIC LAMPS AND SIMILAR DEVICES

John Flaws, Jr., East Cleveland, Ohio, assignor to General Electric Company, a corporation of New York

Application August 26, 1942, Serial No. 456,449

2 Claims. (Cl. 176—38)

My invention relates to electric lamps and similar devices comprising a sealed envelope containing a filament carried by lead-in wires. More particularly, my invention relates to improvements in the mount or filament supporting structure for such devices.

The present invention finds particular application in the mount structure for photoflash lamps. Such mounts, as illustrated in Patent No. 2,280,598—G. H. Meridith, comprise a glass stem tube having a compressed seal or press portion at its inner or forward end through which extend a pair of lead-in wires, the forward ends of which are bridged by a filament which carries a fulminating substance to serve as a primer for igniting a surrounding filling of combustible material. The lead-in wires extend a comparatively long distance beyond the stem press and a sudden shock or vibration is apt to tear loose the filament which consists of a short straight length of extremely fine wire, usually tungsten.

Several expedients have heretofore been employed to obviate the effects of such vibration. According to one such expedient, the lead-in wires were bound together with a lacquer bead at a point a short distance from the forward tips of the wires. However, the application of such a bead was a manual operation and was, therefore, relatively expensive and unsuitable to mass production. According to another expedient, a glass arbor is extended from the stem press between the lead-in wires to a point about midway in the length of the wires. The lead wires are formed so as to contact the arbor for a short distance and this contact area is then sprayed with lacquer to bind the wires to the arbor.

One of the objects of the present invention is to provide an improved construction in which the lead-in wires are effectively supported against injurious shock or vibration without the use of a bead or lacquer coating such as referred to above. It is another feature of my invention that the lead-in wires are so supported without being rigidly attached to a fixed part of the lamp. This is of advantage in that it permits subsequent testing of the filament connection by means which tend to spread the leads apart.

Further features and objects of my invention will appear from the following detailed description of species thereof and from the drawing.

In the drawing Fig. 1 is a perspective view of a mount comprising my invention; Figs. 2 and 3 are side views, on an enlarged scale, showing the auxiliary support structure for the lead-in wires of the mount shown in Fig. 1; Figs. 4 and 5 are side sectional and top views, respectively, of a modified auxiliary support structure; and Fig. 4 is a side view, partly in section, of another modified type of mount in which my invention is employed.

Referring to Fig. 1, the mount shown therein is particularly adaptable for use in a flash lamp, such as shown in the Meridith patent referred to above. The mount comprises the usual glass stem tube 10 having a compressed seal or press portion 11 at its inner or forward end. The mount also includes the usual exhaust tube 12 which communicates, through an aperture 13, with the interior of the enclosing bulb or envelope (not shown) which is sealed to the flare or flange 14 at the outer end of the stem tube 10. Lead-in wires 15, 15 extend through the stem press 11 and carry, at their inner or forward ends, a filament 16, usually consisting of a short straight length of fine tungsten wire which is attached to the wires 15, 15 by embedding.

In accordance with the present invention, the mount also includes an arbor 17 which extends forwardly from the stem press 11 and preferably consists of glass tubing, although it may be made of solid glass rod or cane. The said arbor 17 terminates in a button 18 which is provided with a transverse slot or slots 19, the opening into the interior of the arbor being preserved through the button. The lead-in wires 15, 15 extend forwardly along opposite sides of the arbor 17 to a point beyond the forward end of the said arbor, which is located about midway of the length of the lead-in wires. At a point adjacent the said forward end of the arbor, the lead-in wires are bent toward each other so that the bent portions 20, 20 enter opposite ends of the slot or notch 19. The engagement of the bent portions 20 of the lead-in wires with the slotted end of the arbor 17 effectively supports the lead-in wires against injurious shock or vibration. At the same time the lead-in wires are not rigidly attached to the arbor and, therefore, the mount may be tested for open circuits or loose filament connections by attempting to pry the lead-in wires apart, as more fully explained in my copending application Serial No. 420,474, filed November 26, 1941, now Patent No. 2,327,033 dated August 17, 1943.

In Figs. 4 and 5, I have illustrated a slight modification of the slots or notches in the end of the arbor. In this case, the notches 19a—19a are formed in the sides of the button 18, rather than across the top thereof, as in Figs. 1–3. Otherwise, this construction corresponds to that shown in said Figs. 1–3.

In Fig. 6 I have illustrated my invention as applied to a type of lamp used extensively in switchboards. This lamp comprises a glass tube 17' which serves as a combination arbor and exhaust tube. The lead-in wires 15', 15' have portions embedded in the seal between the end of the bulb 21 and the bulbous portion 22 of the tube 17'. As in the construction shown in Fig. 1, the inner or forward end of the tube 17' is provided with transversely-extending slots or notches 19', 19', and the lead-in wires 15', 15' have bent portions 20', 20' which enter the notches. As usual, this type of lamp is evacuated through the tube 17' which is subsequently tipped off or sealed at a point just below the bulbous portion 22.

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

1. In an electrical device of the type comprising a sealed envelope containing a filament carried by lead-in wires extending outwardly from said envelope, an arbor extending into said envelope and having its forward end transversely slotted, the lead-in wires extending forwardly along opposite sides of said arbor to a point beyond the forward end thereof, the said lead-in wires having bent portions adjacent the forward end of the arbor engaging the slots therein to support the wires against shock and vibration, and the filament being attached to the forward ends of said lead-in wires.

2. In an electrical device of the type comprising a sealed envelope containing a filament carried by lead-in wires sealed through a portion of said envelope and extending thereinto in the same direction, an arbor fixed at one end to the said portion of the envelope through which the lead-in wires are sealed, said arbor extending forwardly into the envelope between said lead-in wires to a point short of the inner ends of said wires, opposite sides of the forward end of said arbor being notched to a width only slightly larger than the diameter of the wires, portions of said lead-in wires being bent toward each other to extend through said notches to support the wires against shock and vibration, and the filament being attached to the inner ends of said lead-in wires.

JOHN FLAWS, JR.