Dec. 13, 1949 H. H. CHUN 2,491,252

LAMP MOUNT

Filed March 30, 1948

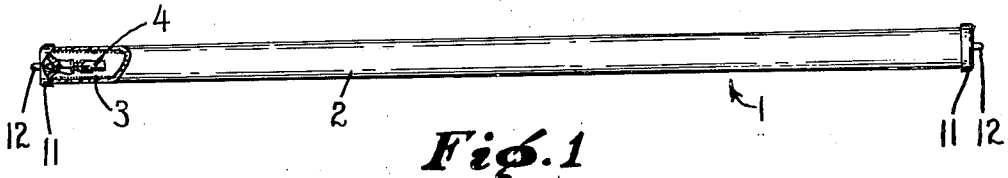


Fig. 1

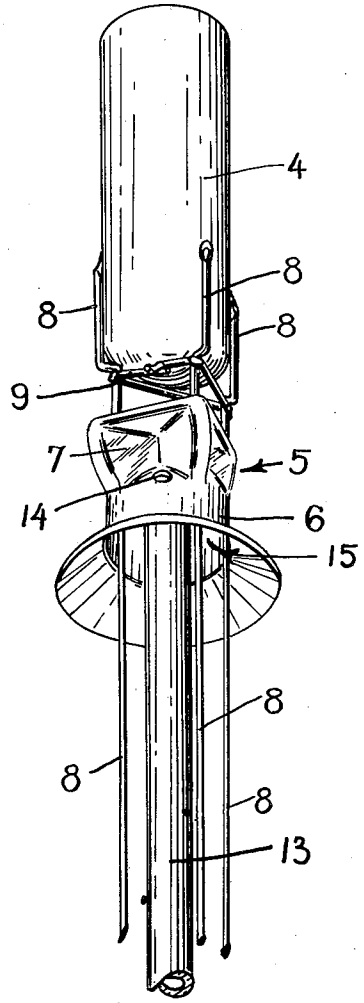


Fig. 2

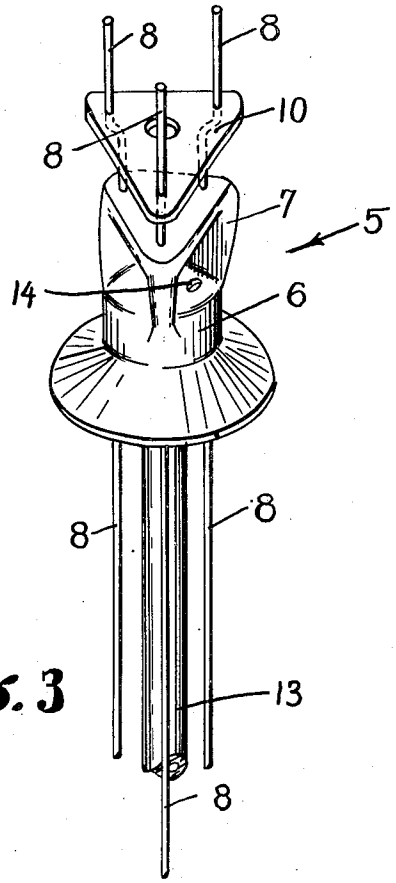


Fig. 3

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## LAMP MOUNT

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1 Claim. (Cl. 176—126)

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This invention relates to electric gaseous discharge devices and more particularly to elongated linear fluorescent lamps of the cold cathode type.

An object of this invention is to provide an improved electrode mount therefor.

Another object is to provide a reinforced stem therefor.

Further objects, advantages, and features will be apparent from the following description when read in conjunction with the accompanying drawing in which:

Figure 1 is a side elevational view of a fluorescent lamp with one end thereof in section.

Figure 2 is an enlarged detail of a lamp mount showing one embodiment of my invention.

Figure 3 is an enlarged detail of a lamp stem showing another embodiment of my invention.

One of the many applications of elongated linear fluorescent light sources is in the field of public transportation, such as subway and street cars for example. In this field, cold cathode fluorescent lamps, 72 and even 96 inches in length, have been employed. In installations of this type the lamps are subjected to considerable shock and vibration. One of the deleterious effects of shock and vibration is chipping of the glass stem press. This chipping usually occurs when the lamp is subjected to a sudden and sharp shock which sets up a force which displaces the electrode from its normal position. Displacement of the electrode stresses the electrode-supporting wires and sets up a strain in the stem press in which a portion of these wires is sealed. Sometimes this strain is quite severe and results in chipping of pieces of glass from the stem press. Vibration of the lamp then causes these free glass chips to move about within the lamp and, in so doing, scratch the coating of fluorescent material with which the inner wall of the lamp envelope is provided. The stem reinforcement of my invention minimizes the possibility of stem press chipping and fluorescent coating defacement.

In Figure 1, the fluorescent lamp 1 comprises an elongated tubular glass envelope 2, the inner wall of which is provided with a coating 3 of fluorescent material, the ends of which are provided with electrodes 4, a more detailed view of which may be had from a study of Figure 2, bases 11, and base pins 12.

Figure 2 shows a lamp mount 5, one of which is sealed in each end of the lamp envelope. The mount 5 comprises a glass flare 6, a stem press 7 formed integral therewith, an exhaust tubulation 15 terminating at one end in an aperture

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14 through which the lamp may be evacuated and provided with a filling of an inert gas or gases and a small quantity of mercury, and an electrode 4 mounted on lead wires 8 which are sealed in and extend through the stem press 7. The stem reinforcing means shown in Figure 2 consists of a wire member 9 fixedly connected to and wound around the lead wires 8 between the top of the stem press 7 and the lower end of the electrode 4. Preferably, the wire member 9 is welded to each of the lead wires 8 and the ends of member 9 are welded to each other.

Another embodiment or form of stem reinforcing means is shown in Figure 3. It consists of a metal plate 10, provided with holes therein, through which lead wires 8 extend. The metal plate is fixedly connected to the lead wires, preferably by welding it thereto.

Although I have shown three lead wires extending from the flare cavity 15, only one, of course, is necessary, and it is connected to the base pin 12 in the base 11. I have found it convenient during a portion of the manufacturing operation to use three full-length lead wires and then sever two of them within the flare cavity. Since only one lead wire is necessary to establish the necessary electrical connection, one may, without departing from the spirit of my invention, employ but one lead wire, and use two electrode-supporting wires or spuds which would be imbedded in the stem press.

When a fluorescent lamp, which has been provided with a stem reinforcement in accordance with the principles of my invention, is subjected to vibration or a shock which displaces the electrode 4 and stresses the lead wires 8, the resulting strain occurs primarily in the stem reinforcing member, the wire member 9 of Figure 2 or the metal plate 10, of Figure 3, instead of in the glass stem press 7. By providing for the stem reinforcing member to take the major brunt of the shock, instead of having the full impact transmitted to the glass stem press, chipping of the glass and the consequent defacement of the coating of fluorescent material is reduced substantially.

What I claim is:

A lamp mount comprising a glass flare; a stem press formed integral therewith; at least one lead wire sealed in said press and extending therethrough; two electrode-supporting wires, at least a portion of which are sealed in said press; an elongated tubular electrode mounted on said lead wire and said electrode-supporting wires; and a rigid stress-absorbing means comprising

a wire member wound around and fixedly connected to the lead wire and the electrode-supporting wires intermediate the base of the electrode and the top of the stem press.

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