

March 4, 1958

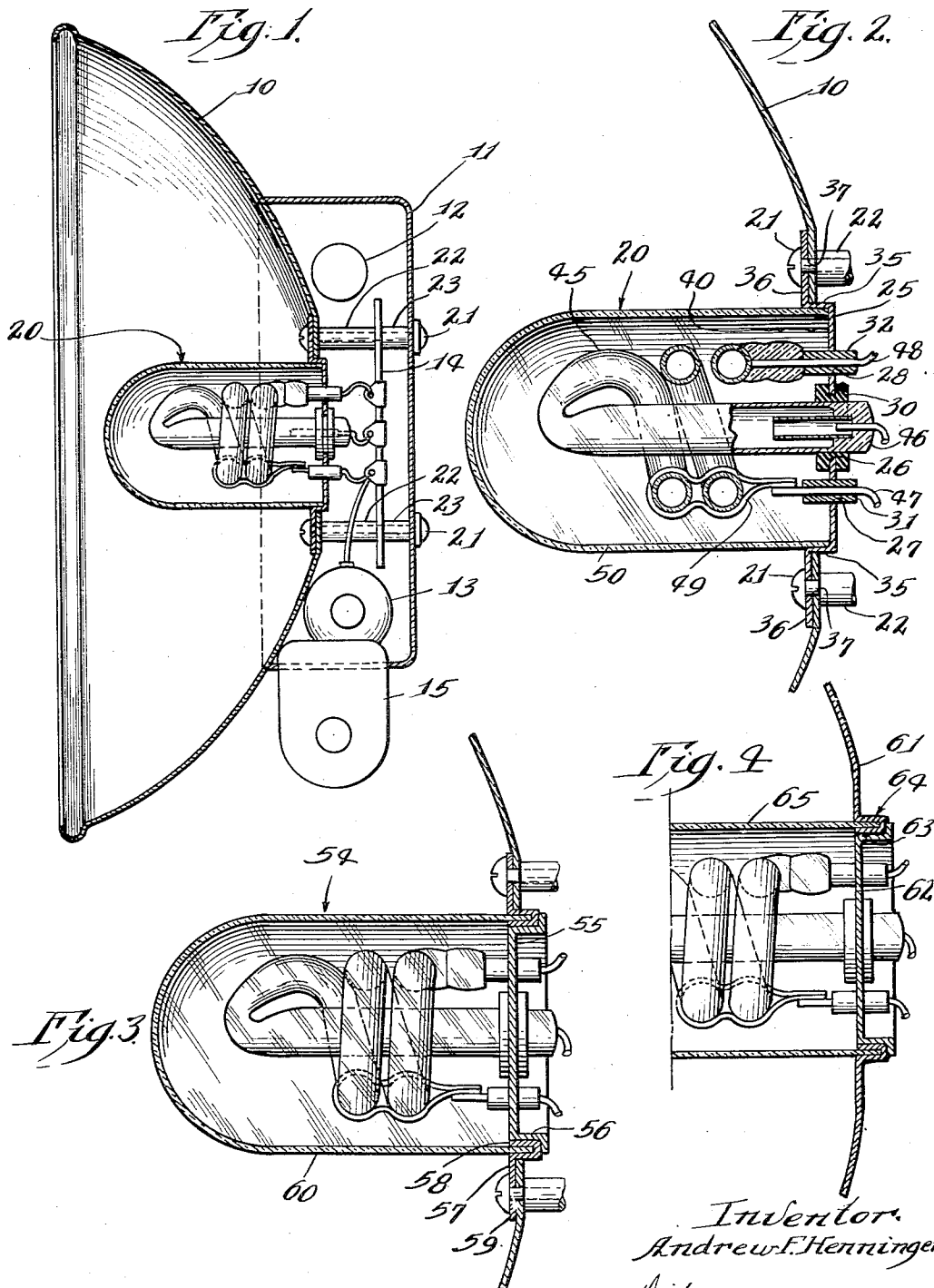
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2,825,795

FLASHTUBE MOUNTING STRUCTURE

Filed Nov. 25, 1953

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

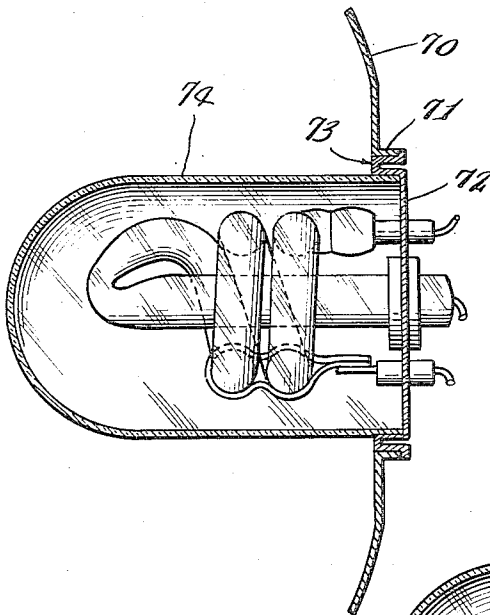


Fig. 5.

Fig. 6.

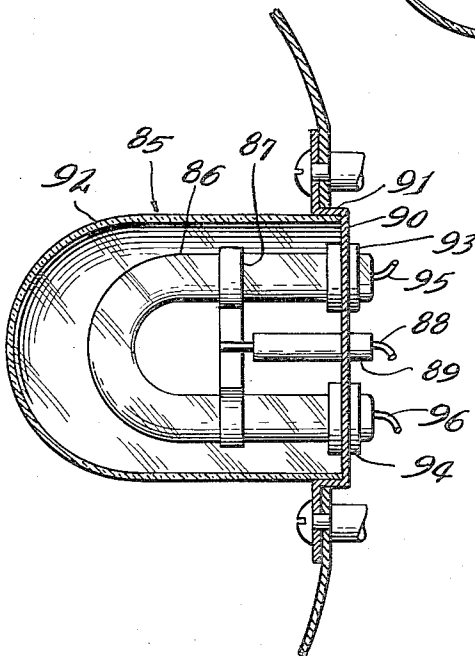
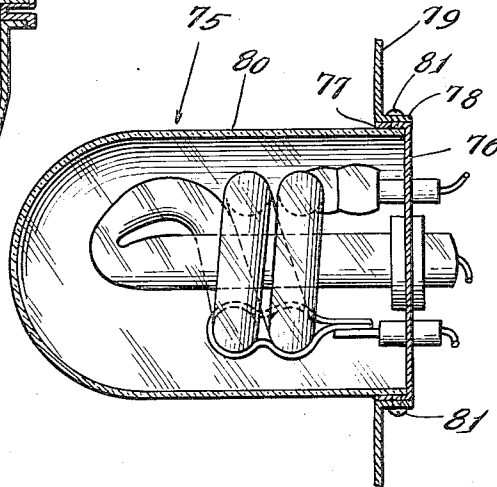


Fig. 7.

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FLASHTUBE MOUNTING STRUCTURE

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Application November 25, 1953, Serial No. 394,338

5 Claims. (Cl. 240-1.3)

This invention relates to a mounting structure for a flashtube of a type commonly used in photographic illumination.

Flashtubes heretofore used for photography have a mounting structure comprising a tube base which is received within a socket forming part of the photoflash assembly. The usual tube base and associated socket have a substantial axial dimension, and this dimension requires a corresponding substantial size increment in the photoflash assembly. Such size increment ordinarily has no function other than to accommodate the aforesaid axial dimension of the tube base and socket.

One object of this invention, therefore, is to provide a flashtube mounting structure which totally eliminates the substantial axial dimension heretofore present in conventional tube bases. The invention allows the use of a shallower reflector and provides a photoflash assembly which is substantially more compact and smaller than prior assemblies.

Another object of the invention is to provide a mounting structure with which a flashtube easily may be installed or replaced in a photoflash assembly.

Another object is to provide a mounting structure which includes and accommodates an improved safety dome. The dome gives protection against the high voltage terminals and the danger of broken glass in case the flashtube should fracture for one reason or another.

Another object is to provide a mounting structure having a forward surface which is light reflective so as to utilize effectively the light that heretofore has been absorbed and lost in prior flashtubes. Thus, the lighting efficiency of a tube using the mounting structure of the invention is substantially increased.

Another object of the invention is to provide a flashtube mounting structure having a reflective surface which is shaped to reflect light in a predetermined manner. Thus the structure may have a parabolic, spherical or ellipsoidal curve to follow the configuration of the reflector to which it is attached. It also may be flat, or curved differently from the reflector, so that light may be reflected into areas which are not adequately illuminated by the particular reflector employed.

Another object is to provide a mounting structure which permits the flashtube to be adjusted easily with respect to the optimum focal point of the reflector. Thus the beam spread may be increased or decreased, and this can be accomplished without removal of the permanently attached safety dome.

Another object is to provide a mounting structure for a flashtube which has an adjustable triggering band for increasing or decreasing the triggering sensitivity of the tube. The mounting structure is such that the triggering band readily may be adjusted.

Another object is to provide a mounting structure which can be accommodated by substantially all available reflectors. Generally speaking, any reflector may

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be conditioned to receive the mounting structure by making one or more holes in the reflector.

Another object is to provide a flashtube mounting structure which can be manufactured at a substantially lower cost than the tube bases and tube sockets heretofore employed for the same purpose.

Still another object is to provide a mounting structure for a flashtube which permits the tube leads to be connected directly into the associated circuit. The usual bearing contacts between base pins and socket receptacles are eliminated and replaced by extremely short and positive direct connections. Thus circuit resistance is reduced to a minimum.

Still another object is to provide a flashtube mounting structure which possesses shockproof characteristics that can be depended on to prevent tube breakage in case of careless handling.

Other objects, advantages and details of the invention will be apparent as the description proceeds, reference being had to the accompanying drawings which illustrate several forms of the invention. It is to be understood, however, that the description and drawings are illustrative only, and are not to be taken as limiting the invention except insofar as it is limited by the appended claims.

In the drawings:

Fig. 1 is a vertical sectional view through a photoflash assembly having a flashtube with a mounting structure embodying one form of the invention;

Fig. 2 is an enlarged sectional view of a flashtube having the mounting structure shown in Fig. 1, and

Figs. 3-7 are sectional views of flashtubes having mounting structures embodying other suggested forms of the invention.

Referring now to the drawings, Fig. 1 illustrates a photoflash assembly comprising a reflector 10 having a cap 11 which encloses certain components of the assembly. Within cap 11 are disposed a triggering capacitor 12, an ignition coil 13 and a terminal board 14. A suitable mounting bracket 15 may be carried on cap 11 as shown.

A flashtube 20 provided with mounting structure according to one form of the invention is disposed centrally in reflector 10. A pair of screws 21 having spacers 22 and 23 in each case pass through the mounting structure, reflector 10, terminal board 14 and cap 11 to hold the assembly together.

Referring to Fig. 2, the mounting structure of flashtube 20 comprises a base plate 25 of metallic sheet material. Base plate 25 is preferably circular in shape although it may have other suitable configuration such as oval, square, etc. Plate 25 is provided with a plurality of spaced openings, there being three such openings, designated 26, 27 and 28, in the form illustrated. Opening 26 is somewhat larger than the other two and it is provided with an insulating grommet 30. Similarly, openings 27 and 28 respectively have insulating grommets 31 and 32.

Base plate 25 has a peripheral flange 35 which interfits within a central opening provided in reflector 10. Flange 35 has an extending portion 36 which engages a portion of reflector 10 and is secured thereto by suitable means such as screws 21 passing through openings 37.

Base plate 25, in some embodiments of the invention, has its forward surface 40 of reflective character. Also, base plate 25 is shaped to reflect light in a predetermined manner. As illustrated, plate 25 is substantially flat but it may be formed in parabolic, spherical, ellipsoidal, or other desired shape.

A gas tube 45 is received on base plate 25 with the lead elements 46, 47 and 48 of the tube passing respectively through the grommets 30, 31 and 32. The fit made by the lead elements in the grommets is sufficiently tight

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so that tube 45 is properly supported. In some instances the fit may be such that the lead elements are non-adjustable, but in most instances it is desirable to provide a friction fit so that the elements may be adjusted in axial direction. This enables variation in tube position with respect to the focal point of the reflector, thus making it possible to increase or decrease the beam spread as desired.

In some embodiments of the invention insulating grommets 30, 31 and 32 are comprised of resilient material to impart a shockproof characteristic to tube 45. The tube is thus rendered capable of withstanding shocks such as may be occasioned by careless handling.

Lead element 47 extends from a triggering band 49 provided on tube 45 in a manner and for the purpose which are well known in the art.

The mounting structure of the invention also includes a safety dome 50 which is disposed over tube 45 and is secured adjacent peripheral flange 35 thereby fixing dome 50 in position with respect to base plate 25. In the form illustrated in Fig. 2, dome 50 is cemented or otherwise secured directly to peripheral flange 35.

Referring to Fig. 3, flashtube 54 has a mounting structure comprising a base plate 55 having a peripheral flange 56. Also provided is an annular member 57 having an inner flange 58 which engages the aforesaid peripheral flange 56 with a friction fit enabling the two pieces to be separated. Annular member 57 has an extending portion 59 which engages a portion of the reflector and is secured more or less permanently thereto in any suitable manner. This mounting structure has a safety dome 60 which is cemented or otherwise suitably secured to inner flange 58 of annular member 57. With this form of mounting structure base plate 55 and the tube carried thereby are readily removable while annular member 57 and associated safety dome 60 remain in the reflector.

The base plate of the Fig. 3 form of the invention, as well as that of all subsequent forms, is provided with openings and grommets as described in connection with the Fig. 2 form of the invention.

The form of the invention illustrated in Fig. 4 is substantially the same as that shown in Fig. 3 except that annular member 57 has been eliminated as such and comparable structure has been made a part of reflector 61. The mounting structure includes a base plate 62 having a peripheral flange 63. Reflector 61 is provided with a central opening having a marginal flange 64 which receives the flange 63 with a press fit. A safety dome 65 is cemented or otherwise suitably secured to the reflector flange 64.

In Fig. 5 reflector 70 has a central opening provided with a marginal flange 71. The mounting structure comprises a base plate 72 having a peripheral flange 73 which makes a press fit with marginal flange 71. Safety dome 74 is cemented or otherwise suitably secured to flange 73 and thus is removable with base plate 72 and the tube elements mounted thereon.

Referring to Fig. 6, a flashtube 75 is provided with a mounting structure which is substantially the same as that shown in Fig. 5. A base plate 76 has a peripheral flange 77 which is received within a marginal flange 78 provided around a central opening in a reflector 79. A safety dome 80 is secured to peripheral flange 77. Instead of a press fit, peripheral flange 77 has a looser fit within flange 78 and set screws 81 or the like are provided to hold base plate 76 in proper position in reflector 79.

Fig. 7 illustrates a flashtube 85 having a U-shaped tube 86 of the type widely used for stroboscopic applications. U-tube 86 has an axially slidable triggering electrode 87. Lead 88 from triggering electrode 87 passes through grommet 89 and is adjustable so as to vary the axial position of the triggering electrode along the tube. Thus, the

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triggering sensitivity of the tube easily may be varied as desired. The mounting structure of flashtube 85 is substantially the same as that illustrated in Fig. 2 wherein a base plate 90 has a peripheral flange 91 which receives a safety dome 92. Base plate 90 has three openings, one of which receives grommet 89 and the other two of which respectively receive grommets 93 and 94. Leads 95 and 96 from the U-shaped tube extend respectively through grommets 93 and 94.

From the above description it is thought that the construction and advantages of my invention will be readily apparent to those skilled in the art. Various changes in detail may be made without departing from the spirit or losing the advantages of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A flashtube mounting structure comprising a base plate of metallic sheet material having a plurality of spaced openings therein, an insulating grommet mounted in each of said openings, a peripheral flange on said base plate adapted to interfit detachably within an opening in a reflector, said base plate receiving a flashtube with the lead elements of said flashtube passing through respective grommets to anchor said flashtube to said base plate, and a safety dome disposed over said flashtube and secured adjacent said peripheral flange in fixed position with respect to said base plate.

2. The combination of claim 1 wherein the forward surface of said base plate is light reflective and said base plate is shaped to reflect light in a predetermined manner.

3. The combination of claim 1 wherein the associated reflector has a focal point and the lead elements of said flashtube have a friction fit with said grommets, the said lead elements being axially movable within said grommets to permit adjustment of said flashtube with respect to the focal point of the reflector.

4. A flashtube mounting structure comprising a base plate of metallic sheet material having a plurality of spaced openings therein, an insulating grommet mounted in each of said openings, a peripheral flange on said base plate adapted to interfit within an opening in a reflector, said flange having an extending portion adapted to engage a portion of the reflector and be detachably secured thereto, said base plate receiving a flashtube with the lead elements of said flashtube passing through respective grommets to anchor said flashtube to said base plate, and a safety dome disposed over said flashtube and secured to said peripheral flange.

5. A flashtube mounting structure comprising a base plate of metallic sheet material having a plurality of spaced openings therein, an insulating grommet mounted in each of said openings, a peripheral flange on said base plate, an annular member having an inner flange detachably engaging said base plate peripheral flange and an extending portion adapted to engage a portion of the reflector and be secured thereto, said base plate receiving a flashtube with the lead elements of said flashtube passing through respective grommets to anchor said flashtube to said base plate, and a safety dome disposed over said flashtube and secured to the inner flange of said annular member.

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