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T. W. HALLERBERG

2,700,751

MEANS FOR MOUNTING AN INSTRUMENT IN A PANEL OPENING

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FIG. 1.

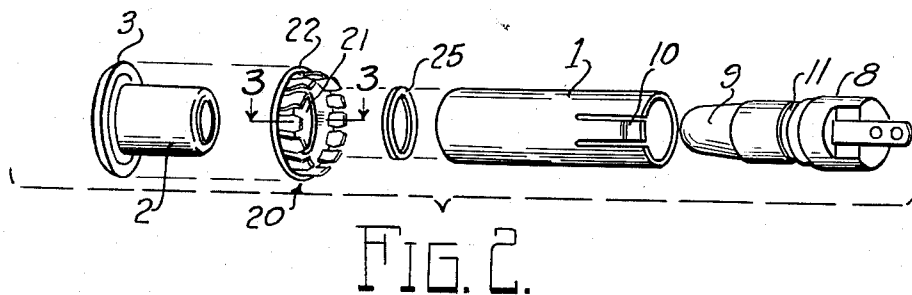
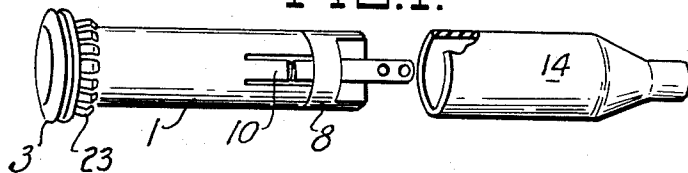


FIG. 3.

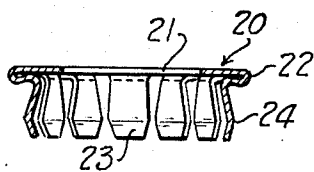


FIG. 4.

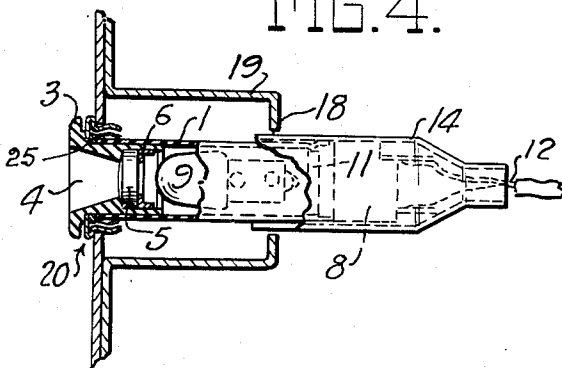
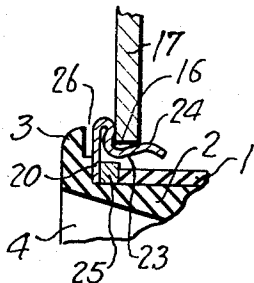


FIG. 5.



INVENTOR.
Theodore W. Hallerberg
BY Owen & Owen,

ATTORNEYS

2,700,751

MEANS FOR MOUNTING AN INSTRUMENT IN A PANEL OPENING

Theodore W. Hallerberg, Chicago, Ill.

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2 Claims. (Cl. 339—128)

This invention relates to equipment for instrument boards or panels, and particularly to such equipment used in connection with airplanes and automobiles.

In the use of such equipment, the official requirements are becoming more and more rigid that the equipment, and particularly those including electric lamp bulbs and necessitating frequent removal from the mounting panel for replacement of bulbs, be capable of easy and quick removal from and replacement in the panel. It is also important for the equipment itself to be easily removed from a panel and be separable for repair or the replacement of bulbs without the use of tools, other than possibly a prying blade, and without necessitating the removal and replacement of screws or similar attaching means.

An object of the invention is the provision of simple, efficient and improved equipment of this character that is capable of being easily and quickly separated and assembled for the replacement of light bulbs or the like therein.

Another object of the invention is the provision, in association with an instrument panel, of simple and efficient means for mounting the equipment in panel openings in a manner to permit both easy and rapid engagement and release thereof by snap action without the use of screws or other attaching means requiring tools for the manipulation thereof.

Further objects and advantages of the invention will be apparent from the following detailed description, and from the accompanying drawings illustrating one embodiment thereof, in which—

Fig. 1 is a perspective view of an instrument embodying the invention, with the parts thereof in assembled relation except that the insulating boot for the inner end thereof is shown separated therefrom; Fig. 2 is a perspective exploded view with the parts in axially separated relation; Fig. 3 is an enlarged view of the spring-holding ring taken on the line 3—3 in Fig. 2; Fig. 4 is a side view of the instrument mounted in an instrument panel and with parts in central longitudinal section, and Fig. 5 is an enlarged fragmentary section of parts shown in Fig. 4.

An instrument embodying the present invention, and which includes an electric signal light, comprises a body tube 1 of metal in one end of which is mounted a plug 2 having an outer annular end flange 3 and a central longitudinal opening, with its outer end portion of outwardly flared or tapered form, as at 4, and with its inner end of cylindrical form and shouldered at its inner end to receive and form a stop for a lens 5 therein. The lens is held in the plug 2 by a ring 6 that has a pressed fit in the cylindrical opening in the plug.

A plug 8 carrying an electric lamp bulb 9 has its lamp-carrying end telescoped within the rear end of the body tube 1 with the lamp enclosed within the tube adjacent to the lens 5, the tube and plug having releasable snap engagement to retain them in assembled relation. For this purpose, the tube 1, in the present instance, is slit at its rear end to form a spring detent finger 10 having a rib or detent portion for engagement in an annular recess 11 in the plug. The plug has suitable electrical connections for the lamp bulb and these have connection with lead wires 12 at the inner end of the plug, as well understood in the art. A rubber insulating boot 14 is fitted over the plug 8 and rear end portion of the tube 1 and encloses the exposed lead wire connections with the plug.

In use, the instrument assembly is intended to be mounted in an opening 16 in an instrument panel 17 and may have its inner end portion braced and supported by

projection through a registering opening 18 in a bracket 19 attached to the inner side of the panel, as indicated in Fig. 4.

One feature of the invention is the snap or yielding means carried by the instrument for releasably mounting it in the panel opening 16. This means comprises a flat body ring 20 stamped from sheet metal and having a central opening 21 of a size to snugly fit over the cylindrical body portion of the plug 2, so that it may have a pressed fit thereover. The forward side of the ring 20 bears outwardly against or has stop coaction with the plug flange 3. The metal at the outer edge of the ring 20 is turned over upon itself to form a shoulder roll 22, extending a short distance inward from such edge, and then extending rearwardly from the ring and notched to form an annular series of spring fingers 23 for insertion into the panel opening 16. Each of these fingers has a radial hump 24 near its free end for holding engagement with the inner edge of the opening wall, as best shown in Fig. 5.

A holding collar 25 has a pressed fit on the body of the plug 2 within the set of spring snap-fingers 23 and serves to clamp the ring 20 against the flange 3. The body tube 1 is forced onto the plug body against the collar 25 after assembly of the latter thereon.

In use, the entire instrument assembly may be quickly inserted into a panel opening 16 and the bracket opening 18 and firmly held therein by the engagement of the spring fingers 23 of the ring 20 with the panel opening wall, as shown in Figs. 4 and 5. For the purpose of repair or for replacement of the lamp bulb, the assembly may be withdrawn from the panel opening by an outward pull on the flange of the plug 2. To facilitate such pull, the inner surface of the plug flange is grooved to provide a recess 26 between it and the ring 20 to facilitate gripping.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

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

1. In an instrument for removable mounting in a panel opening, a cylindrical body tube having a hollow plug mounted in one end thereof, said hollow plug having a flange formed on one end, a holding collar tightly mounted on said hollow plug, a body ring having a central opening and turned over outer edge portions terminating in a set of spring fingers projecting lengthwise of the body tube, the set of spring fingers of the body ring adapted to project into the panel opening and having yielding co-action with its walls to resist removal of the instrument from the panel, the body ring being held in position against the flange of the hollow plug by the holding collar.

2. In a light support for removable mounting in a panel opening, comprising a cylindrical body tube having formed in one end thereof a spring detent finger, a lamp carrying plug having telescopic releasable engagement mounted in one end of the cylindrical body tube, a second plug in the opposite end of the body tube having a sliding fit therein and having a longitudinal opening therethrough in register with the lamp bulb in the lamp carrying plug, a lens mounted in said opening intermediate the ends of said second plug, said second mentioned plug having a flange on one end thereof, a body ring mounted on said second plug adjacent the flange thereof, a holding collar tightly mounted on said second plug engaging the body ring with the flange on the second plug, said body ring having spring fingers on the outer edge thereof to engage the wall of the panel opening.

References Cited in the file of this patent

UNITED STATES PATENTS

711,670	McGill	Oct. 21, 1902
2,125,843	Hall	Aug. 2, 1938
2,192,345	Foute	Mar. 5, 1940
2,536,709	Divizia	June 2, 1951
2,585,887	Woodward	Feb. 12, 1952

FOREIGN PATENTS

332,040	Great Britain	July 17, 1930
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