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PILOT LIGHT ASSEMBLY
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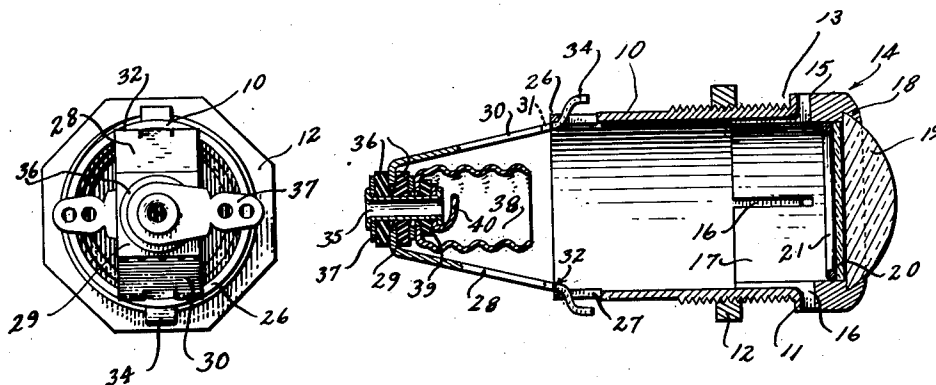


Fig. 2.

Fig. 1.

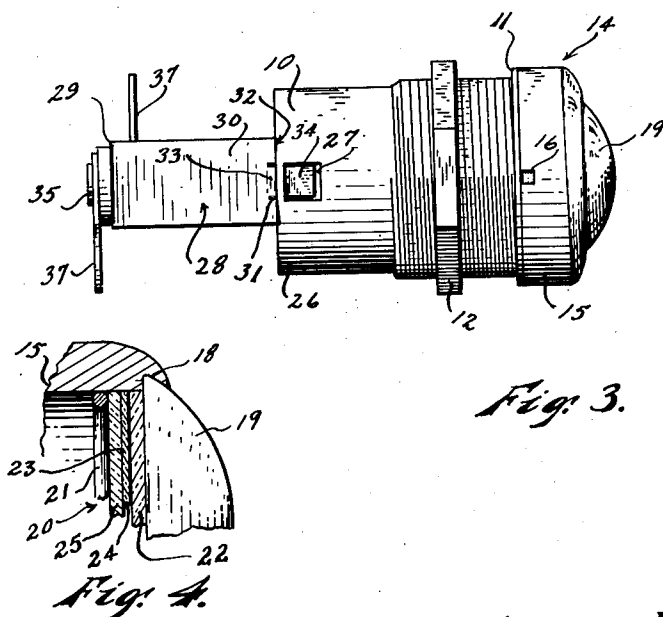


Fig. 3.

Fig. 4.

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PILOT LIGHT ASSEMBLY

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1 Claim. (Cl. 173—339)

The invention relates to mountings for pilot lights and other lights, especially suitable to instrument panels, cabinets and other situations.

It is an important object of the invention to present such a mounting which will be strong, and durable, and in which the assembly relation of the parts will be permanent. In the last named respect the invention avoids liability of short circuits or breaks of circuits due to loosening of parts by vibration by careless replacements by users and many other causes. Safety of users and apparatus electrically and mechanically is enhanced by the constructional form of the invention.

Another important object of the invention is to provide a construction which enables very rapid removal and replacement of lamps, and especially facilitating the replacement when the operator must or prefers to operate from in front of a panel while the mounting is principally exposed at the rear of the panel.

Another object of weight is to effect highly efficient ventilation of the device while yet attaining the ends of safety, durability and efficiency generally.

It is an advantage of the invention that it occupies a minimum space transversely, so that where a multiplicity of units are to be mounted in close relation on a panel, this may be effected with a minimum of waste space or liability of interference and/or obstruction of manipulation or adjustment of one unit by others next adjacent.

Another purpose of great importance is to enable the ready manipulation and use generally of the device both for mounting and for renewal of lights and jewel prisms or lenses, with a minimum liability of derangement (in a vernacular expression—"fool-proof").

It is also an object to give a novel detachable relation between the lamp receptacle and the permanent mounting body, and bulls-eye or lens mounting.

Additional objects, advantages and features of invention reside in the construction, arrangement and combination of parts involved in the embodiment of the invention as will appear from the following description and accompanying drawing, wherein

Figure 1 is a longitudinal sectional view of the device in one embodiment, in place in an instrument panel.

Figure 2 is an inner end view of the device.

Figure 3 is an elevation at right angles to

Figure 1.

Figure 4 is a detail of the light filter and lens enlarged.

There is illustrated a mounting consisting of a cylindrical barrel 10 having a peripheral flange 11 at its front or outer end adapted to set against the front face of a panel 13 apertured to receive the barrel slidingly, and the barrel is externally threaded for a substantial distance from the flange; receiving thereon a nut 12 which may be screwed against the back side of the panel to hold the mounting in place. The panel shown may be a plate or wall such as involved in automobiles, airplanes, and cabinets for the mounting of instruments or signals. The barrel is smoothly finished interiorly throughout, and set frictionally in its front end there is a "jewel," bulls-eye or other signal device 14, consisting of a ring body 15 thickened at its outer or front part and exteriorly reduced at its inner or rear part to a thin cylindrical sleeve very slightly larger than the interior diameter of the barrel. It has a plurality (four in this instance) of longitudinal slots 16 opening on its inner end, the intervening material constituting fingers 17 to be sprung inwardly to slide in and be held frictionally in the barrel. The slots extend longitudinally into the thickened outer part of the ring body. The thickened part forms a stop shoulder which engages the end of the barrel when the signal assembly is fully thrust into the barrel. The slots extend into the thickened part and form communication between the interior of the barrel and the external atmosphere before the panel or other structure in which the signal is mounted. This affords ventilation in a novel way, which will thoroughly cool the interior of the barrel and the lamp therein when the device is in use, with the usual advantages well understood in the art, as well as attaining an additional novel result.

The ventilation is novel not merely because it permits a thermal movement of air, rising from the upper openings through the ring and entering below, but, in connection with the open rear end of the barrel, and the fact that there are differences in pressure of air on opposite sides of a panel and the like either constantly, or from time to time, incident to movement of craft, persons, and air; and by reason of variation of pressure constantly or intermittently, at one side or the other of the panel and the like, air will be caused to pass longitudinally through the barrel and through the panel, effecting a cooling of the space behind a panel exteriorly of the signal device.

The outer front end of the ring is rabbeted as at 18, with a tapered rim outwardly thereof which is upset, peened or spun outwardly over the edge of a lens 19 or the like, as a permanent mounting and retainer for the lens. Set within the sleeve immediately next the lens, there is a signal device 20, colored or characterized with individual significance in any approved way, and held removably in the sleeve by a C-spring or ring 21 expanded frictionally against the inner face of the sleeve. The signal device 20 is thus removable and replaceable manually by withdrawal of the sleeve and removal of the C-spring, which allows the signal to drop out of the sleeve. The lens in one form is of transparent glass shaped with a planiform fine-ground surface at the inner side, which may be termed a diffuse reflector and refractor, and the signal device consists of two translucent reflector-filter plates, one numbered 22 of white translucent Celluloid or pyroxylin adapted to reflect light entering from the front through the lens and thereby present in the lens as observed a flat white field; and back of this is a colored plate 23 of similar material serving as a reflector and filter, whereby when a lamp is energized rearwardly thereof a corresponding colored light field will appear in the lens. The plate 22 may be cut, printed or otherwise, characterized to identify the signal projected therefrom.

I find that in order to present a strictly white field in the lens when its lamp is not energized, without a trace of color, this may be attained by forming the plate 23 as an integral but built-up sheet, consisting of a front face portion 24 or lamina of thin translucent white material and a thicker rear body portion 25 or lamina of the necessary colored material, which may be transparent.

Where only the single compound sheet as last described is used there is pronounced color evident in the light reflected through the lens, and where the plate 22 is backed directly by a colored plate, there is also some color apparent by reflected light in the field of the lens.

The two plates made as described and positioned as set forth in conjunction with the ground glass surface on the lens constitutes a device of high signal safety with a minimum possibility of any light colored like the signal being apparent in light reflected by those elements from white or other colored lights before the lens.

The rear end portion 26 of the barrel is finished flush as a simple cylinder smooth inside and outside and at opposite sides thereof rectangular latch or lock apertures 27 are formed, spaced a short distance from the rear extremity of the barrel.

A lamp mount is engaged detachably with the rear end of the barrel, consisting of a spring plate or frame 28 of flat sheet strip, ordinarily of a width about half the diameter of the barrel (although this is not arbitrary), and substantially U-shaped, the bight portion 29 being planiform, and the arms 30 so formed being planiform and divergent toward their extremities, but readily compressible inwardly by the fingers of a person. At the extremities of these arms, two longitudinal slots 31 are formed, and the material of the member at the outer sides of these slots is cut away a short distance outwardly of the ends of the slots, forming stops 32. Each medial portion 33 of the plate between the slots is bent sharply outward substantially at right angles to the adjacent portions of the respective arms, and on a line spaced lon-

gitudinally beyond the extremities of the stops 32 corresponding to the material between the inner end edge of the barrel and the apertures 27, and thence inbent and extended longitudinally in offset relation to the respective arm 30 a distance, which is less than the measurement of the apertures 27 longitudinally of the barrel 10. This offset part constitutes a latch or locking tongue 34 on each arm 30. Either tongue may be set in one of the apertures 27 from within the barrel, and by compressing the other arm its tongue may be engaged in the opposite aperture 27, holding the mount 28 to the barrel. In this position it is important to note that the arms 30 are of such width that their edge portions extend across a longitudinal geometrical projection of the cylinder of the barrel, and consequently the extremities of the stops fall in close relation to, if not in abutment with, the edge of the barrel. This also serves to insure accurate positioning of the bight 29 on the axis of the barrel, and prevents the mount from being pushed out of proper relation to the barrel by longitudinal pressure or ordinary lateral pressures.

The bight of the mount 28 is centrally apertured to receive an assembly rivet 35 therethrough, by which insulating spacing washers 36 are held against each side of the bight, and a wiring terminal 37 confined in contact with the upset extremity of the rivet. Inwardly of the inner washer 36 a second wiring terminal is located apertured to receive the rivet spaced there-within and projecting laterally from between the arms 30 and spaced well therefrom. A single lamp receptacle 38 of cup shape is set with its base against the last named terminal and held by an insulating spacer washer 39 within the receptacle, inwardly of which a central lamp contact 40 is held by the inner upset or flanged end of the rivet in closely compressed engagement with the washer 39. The whole receptacle and wiring terminal assembly is thus held permanently and securely in proper relation by the rivet.

Any conventional form of receptacle 38 may be used.

The metal parts have been formed of aluminum, but other materials may be used as found available and advantageous.

The device being assembled as described, and mounted in a panel, a conventional lamp may be put in place or removed by withdrawal of the jewel or lens device with its sleeve, and insertion of the lamp through the front end of the barrel. The lamp may also be put in place by compressing the arms 30 of the mount 28 and withdrawing the mount with its receptacle from the barrel to a position where the lamp may be conveniently inserted. This may be done without detaching the leads to the device, a suitable amount of slack being customarily left in the wires leading to the device, so that the mount may be drawn down below the panel or to one side. After the lamp is engaged in the receptacle, the mount with the lamp in place is returned to position at the end of the barrel as before described.

For changing the signal, the signal device 14 is removed from the front by being manually pulled from the barrel. The C-spring being removed, the filter or other plates are then removed and replaced by the suitably colored or otherwise characterized plate or plates; after which the C-spring is pressed manually to its place and the element 14 again inserted in proper position.

Any other form of lens or plate may be sub-

stituted for the gem or bull's-eye, as will be understood.

While I have shown and described specifically a particular structure for embodying the invention, I do not regard the invention as limited to these exact details, and various changes and modifications of structure may be made without departing from the spirit of the invention as more particularly defined by the appended claim.

It will be appreciated that the open construction around the lamp receptacle, and the clear opening in the rear end of the barrel around the lamp and lamp receptacle, contribute highly to the effective ventilation and cooling of the device, by thermal air circulation as well as by the longitudinal movement of air through the barrel, as before referred to.

I claim:

A signal lamp device of the character described

comprising a cylindrical body member constructed and arranged for mounting on a panel and the like and including oppositely disposed latch apertures inwardly of the rear edge thereof, a U-shaped lamp mount having a lamp receptacle in the bight thereof and including two spring arms extended beside the receptacle, spaced apart normally at their extremities more than the diameter of the cylindrical body member, said arms having lateral tongue elements thereon, said tongues being narrower than the arms and projected outwardly laterally from the arms, shaped and arranged to enter the apertures of said cylindrical body member from within, and a stop projected longitudinally beside the tongue on at least one side of the tongue on each arm adapted to lie flush with the outer end edge of the cylindrical body member.

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