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T. W. JENTGES
INDICATOR CAP ASSEMBLY

2,890,538

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Fig. 1

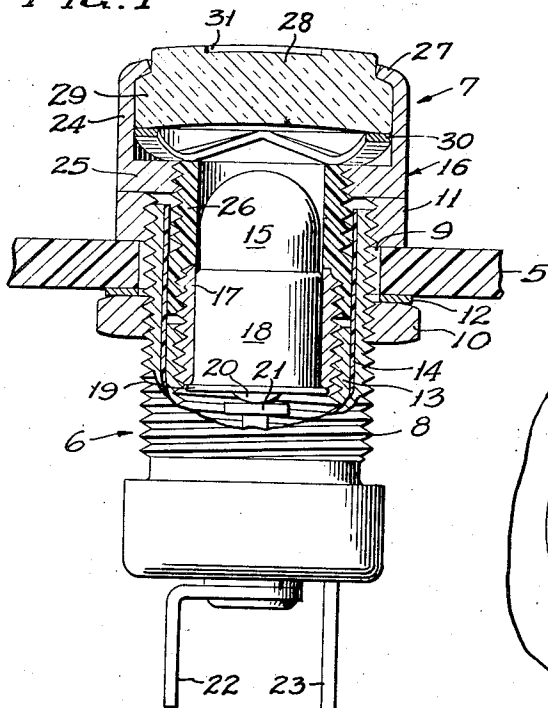


Fig. 2

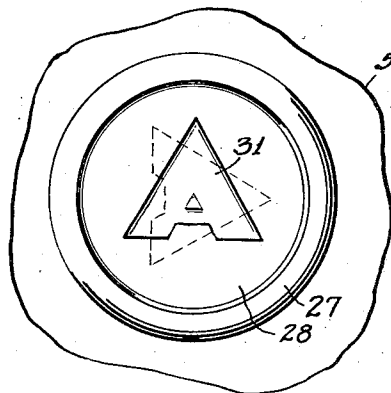


Fig. 3

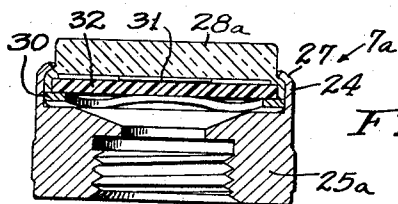
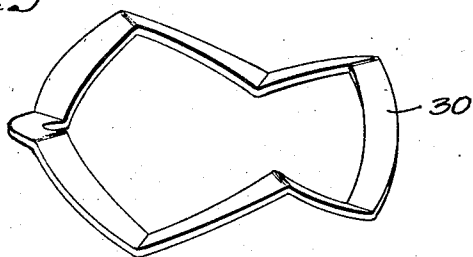


FIG. 4

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INDICATOR CAP ASSEMBLY

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1 Claim. (Cl. 40—130)

This invention relates to indicator lights of the type used on instrument panels (e.g. in aircraft) for indicating various operational functions of the apparatus to which the instrument panel is appurtenant. In some applications, the lens of such an indicator light may usefully bear directional indicia such as an arrow or equivalent direction indicating device. More commonly, the indicator lens bears a legend which must be upright in order to be satisfactorily read. The general object of this invention is to provide a very simple yet effective lens mounting head providing for rotary adjustment of such a lens for correct orientation of the legend or indicating character on the lens.

A further object is to provide for such adjustment by finger tip operation, and with maximum ease.

Other objects will become apparent in the ensuing specification and appended drawing in which:

Fig. 1 is a plan view, partially in horizontal section, of an indicator light embodying the invention;

Fig. 2 is an end view of the same;

Fig. 3 is a perspective view of the washer spring component thereof; and

Fig. 4 is a sectional view of a modified form of the invention.

Referring now to the drawing in detail, I have shown, as an example of one form in which the invention may be embodied, an indicator light adapted for mounting in a panel 5 which may be an instrument panel (e.g. of an airplane). The light comprises generally a lamp-housing barrel assembly 6 and a lens assembly 7, commonly referred to as the "head" of the device.

Barrel assembly 6 comprises an outer barrel or shell 8, externally threaded for convenient mounting in panel 5 by projecting it through an aperture 9 therein and clamping it in place by retainer nuts 10 and 11 threaded thereon, with a washer 12 interposed between nut 10 and panel 5. Nut 10 could be an integral flange on shell 8. A liner sleeve 13, insulated from shell 8 by an insulator sleeve 14, is mounted within the shell 8 to constitute an inner section of the barrel, in which may be mounted a small electric lamp bulb 15. The insulator sleeve 14 may be a tight fit within shell 8 and liner 13 may in turn be tightly fitted within sleeve 14 and thereby supported.

Head 7 includes a lens cap 16 which forms part of an assembly including a tubular neck 17, externally threaded and mounted in barrel 6 by threading it into liner sleeve 13 as shown. The metal base cartridge 18 of lamp 15 is received in neck 17, with its base flange 19 bearing against the end of neck 17 and its end contact 20 engaged against a center contact 21 in barrel 6. Properly insulated from the other parts of barrel 6 by any well known conventional mounting, contact 21 projects through the end of the barrel and is attached to a terminal 22. By an equally well known arrangement, a terminal 23 is connected to barrel liner 13 and projects through the end of the barrel while being insulated from shell 8.

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Lens cap 16 includes a cylindrical skirt 24 which, in the assembled light, abuts the end of barrel 6. An insulator sleeve 26 is threaded into annular shoulder 25 and is threaded onto neck 17 and interposed between shoulder 25 and neck 17, to insulate the latter from shell 8 and head 7. The assembly including cap 16, insulator sleeve 26, neck 17 and lamp bulb 15, 18, constitute the assembly referred to as head 7 which can be mounted in barrel 6 by threading neck 17 into liner sleeve 13 as above stated. The end of skirt 24 is formed inwardly to provide a retainer flange 27. A lens 28 having a rim 29 of reduced thickness, defining a shoulder that is retained beneath flange 27, is spring loaded by a marcelled washer spring 30 into frictional engagement with the underside of flange 27. Spring 30 is interposed under compression between shoulder 25 and lens 28 and is of larger diameter than the light aperture defined by the opening at the outer end of neck 17. Suitably applied to lens 28 in any known manner (as by recessing its outer face) is an indicating character such as the arrow 31 shown in Fig. 2. The indicating character can as well be a letter, numeral, or word.

By applying the tip of a finger or thumb against lens 28 and pressing inwardly, the frictional engagement of rim 29 against flange 27 is broken and the lens may then be easily rotated by turning the finger, the frictional engagement of the finger against the lens being sufficient to effect such rotation. When the lens is released, the spring-loaded frictional engagement of rim 29 against flange 27, functioning as a brake, locks the lens in its adjusted position, effectively resisting any tendency of the lens to rotate under the effect of vibration.

In the form of the invention shown in Fig. 4, head 7a embodies a diffusion disc 32, of translucent material, with indicia 31 imprinted thereon, inserted into a shallow circular recess in the inner side of lens 28a, and marcelled spring washer 30 may bear against this disc. The parts 28a, 32 and 30 are mounted within a retainer flange 24, 27 on a skirt 25a corresponding generally to the parts 24, 25 of Fig. 1 but of modified cross section as shown.

One of the primary objects of the invention is to facilitate the assembly of thread-connected parts in a small indicator light wherein it is impossible to determine in advance the exact position of rotation at which the lens head will stop when it is being screwed into the band assembly. With a pre-assembled jewel having such a directional orientation requirement, the likelihood of the legend being properly oriented at the exact point where the head has been screwed snugly "home" in the barrel, is quite negligible if the lens is fixed against rotation in the lens cap. The invention makes it possible to install the light without regard to the position that will be assumed by the lens when the installation is completed, and to then rotate the lens within its cap until it is adjusted to its correct position.

The indicating device 31, as shown in Fig. 2, may be regarded either as an arrow or the letter "A." Any other letter, or a numeral could as well be utilized.

I claim:

In an indicator lamp, a lamp barrel for housing a lamp bulb; a lens cap including a cylindrical skirt, a flange projecting inwardly from the outer end of said skirt and defining a lens aperture; means extending inwardly from the rear end of said skirt and joining the same to said barrel, said means defining a forwardly facing annular shoulder; a lens received in said cap, said lens having a circular rim disposed behind said flange and a central lens body provided with an indicating character having a function affected by rotary orientation; and an annular compression spring of marcel shape interposed between

said lens rim and said shoulder under compression and yieldingly loading said lens rim into frictional holding engagement with the rear surface of said flange for normally holding said lens in a selected position of rotary adjustment from which said lens may be adjusted by subjecting it to fingertip pressure to depress it so as to release said holding engagement, followed by rotation applied to the lens through the fingertip while said holding engagement remains released, the high points of said spring engaging said lens rim with a limited area of contact so as to provide for relatively free rotation of the lens when said frictional engagement is released.

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