

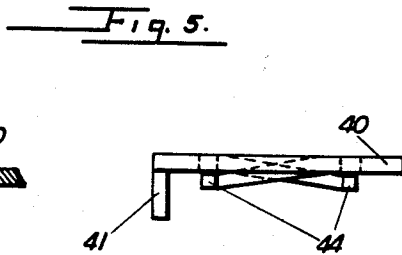
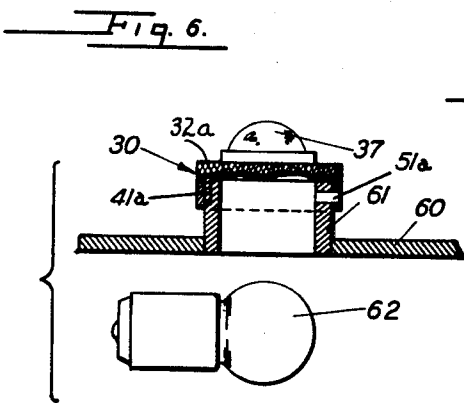
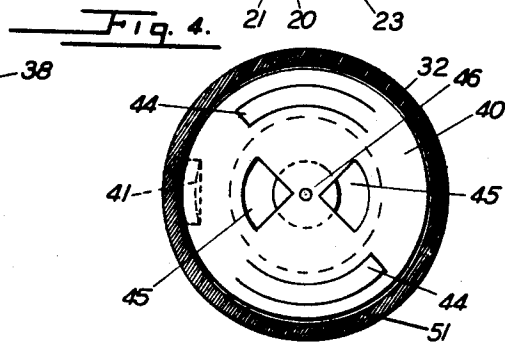
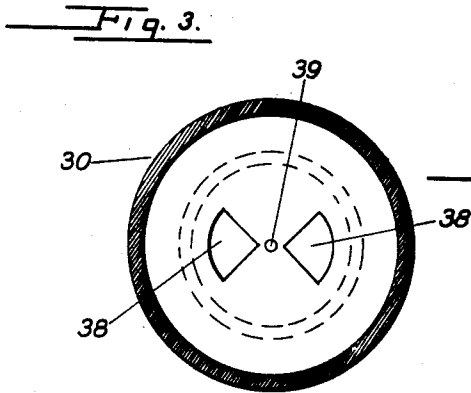
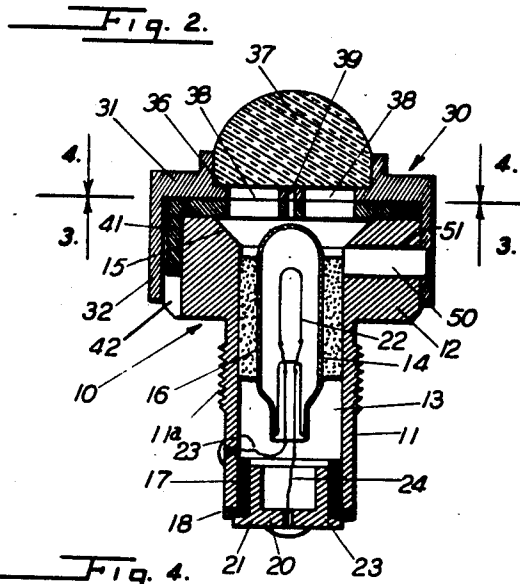
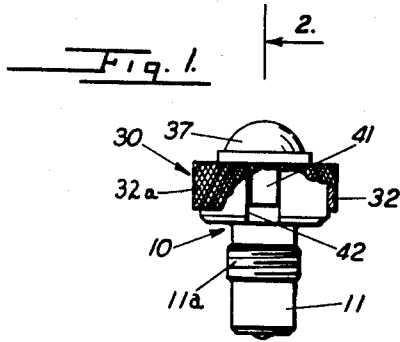
April 3, 1945.

A. D. DIRCKSEN ET AL
VARIABLE INDICATOR LIGHT CAP

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VARIABLE INDICATOR LIGHT CAP

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2 Claims. (Cl. 177-329)

This invention relates generally to warning and indicator lamps, and more particularly to variable light caps for small sized warning or indicator lamps of the instrument panel type.

Indicator or warning lamps of the type mentioned are frequently installed in situations in which they may sometimes be used in the daylight, and sometimes in darkness. If sufficient light is emitted that the lamp is easily observed in daylight, it is then so bright in darkness as to detract from the observer's dark eye adaptation. For instance, if the observer is a pilot of an aircraft, it is highly important that his dark eye adaptation be preserved, and it is therefore important that any indicator lamps on his control panel be substantially dimmed. On the other hand, if the lamp be sufficiently dimmed for night time use, it is then too dim for observation in daylight.

It is the object of the present invention to provide a simple and improved easily adjustable dimming cap for an indicator lamp.

The invention will be best understood from the following detailed description of certain present illustrative embodiments thereof, reference for this purpose being had to the accompanying drawing, in which:

Fig. 1 is an enlarged elevation of a warning lamp in accordance with the invention, parts being broken away;

Fig. 2 is a still further enlarged section on line 2-2 of Fig. 1;

Fig. 3 is a section on line 3-3 of Fig. 2;

Fig. 4 is a section on line 4-4 of Fig. 2;

Fig. 5 is a detail side elevation of the stationary shutter disk; and

Fig. 6 is a view showing a modified arrangement, in which the variable light cap is mounted separately of the lamp.

In the drawing, numeral 10 designates generally a lamp housing, comprising an externally threaded barrel 11 and an enlarged cylindrical head 12, the housing being provided with a central bore 13 for reception of the lamp bulb 14 and other parts presently to be mentioned. Preferably, the forward end of bore 13 meets with a conical portion or opening 15 formed in the forward side of head 12, so as to form a conical reflector surface. Lamp bulb 14 is mounted within bore 13 in any suitable or usual manner, as for instance by means of cement such as indicated at 16.

A flanged insulator bushing 17 is inserted within the rearward end of bore 13, the flange 18 of said bushing engaging the rearward end of barrel

11, and inserted within bushing 17 is a flanged contact button 20, the flange 21 of which engages the flange 18 of insulator bushing 17. The filament 22 of bulb 14 is connected to barrel 11 by wire 23, and to contact button 20 by wire 24. It will of course be understood that the screw-threads 11a on the exterior of barrel 11 are adapted for connection with a suitable socket, and that the contact button 20 at the end of the barrel is adapted to make electrical contact with a suitable contact member contained in such socket.

Rotatably mounted on cylindrical head 12 is a rotating shutter cap 30, comprising a front wall 31 and a rearwardly extending, cylindrical side wall 32 rotatably fitted onto head 12. Wall 31 is formed with a depressed, annular seat 36 for a translucent, colored, or cloudy lens 37, which may be retained in place in any suitable or usual manner. The wall portion below lens 37 is formed with shutter apertures 38, here shown as two in number, and of sector shape, being positioned on opposite sides of center, as clearly appears in Fig. 3. A very small light-passing aperture 39 may also, if desired, be provided at the exact center.

Confined between head 12 and wall 31 of rotating shutter cap 30 is a stationary shutter disk 40, one side of which is formed with a downwardly bent lug 41 which engages in a seating notch 42 formed in the side of head 12 to secure the shutter disk against relative rotation with respect to head 12. Shutter disk 40 is preferably formed with two downwardly bent leaf springs 44, which press downwardly against the head 12, and press the shutter disk upwardly against the underside of wall 31 of the rotating cap, thus maintaining the shutter disk 40 in light-tight engagement with wall 31, and also supporting these two parts at selected setting against displacement due to possible vibration.

The stationary shutter disk 40 is provided with two shutter apertures 45, shaped and positioned similar to apertures 38 of cap 30, and preferably, with a centrally located light passing aperture 46, of the same size as aperture 39 and in line therewith.

A stop pin 50 set into and projecting radially a short distance from the side of head 12 engages in a ninety degree (90°) circumferential slot 51 formed in the side 32 of cap 30, this pin serving not only to limit rotation of cap 30 with reference to head 12, but also securing the cap on the head. With cap 30 turned so that one end of its slot 51 is in engagement with pin 50, shutter apertures

38 and 45 are in full registration, and with cap 30 so turned that the other end of its slot 51 is in engagement with pin 50, the apertures 38 and 45 are entirely out of registration. In the former position, a maximum of light directly from lamp 14, and reflected from surface 15, is passed through the shutter apertures and transmitted through lens 37, while in the latter position, all light is cut off excepting for that passing through the aligned central apertures 39 and 46. The light may be adjusted to any value in between by rotative adjustment of the cap between these two extreme positions. For this purpose, the cap is designed for convenient manipulation by the fingers, and is preferably formed with a knurled side surface, as indicated at 32a in Fig. 1, to facilitate this adjustment operation.

If the aligned, central light apertures 39 and 46 are employed, the light can never be completely cut off, excepting by operation of a switch. This provides a minimum amount of light for night operation. These always-open apertures may of course be omitted, if it should be desired to provide for complete extinguishing of the light by means of the shutter cap.

Fig. 6 shows a modification, in which the shutter cap and lamp are separately mounted. Number 60 designates an instrument panel provided with a projecting tubular boss 61. The shutter cap 30, which may be identical with the shutter cap 30 of the preceding figures, is rotatably mounted on tubular boss 61 in a manner identical to the mounting of cap 30 of Figs. 1 to 5 on the head 12 of lamp housing 10, as will be evident. The stop pin 51a for the cap is in this instance set into the wall of tubular boss 61, and the downwardly bent stationary shutter lug 41a is recessed into boss 61, all as will be entirely clear from an inspection of Fig. 6. The lamp bulb 62 is separately mounted, in any suitable socket, not illustrated, directly below and in alignment with the tubular boss 61.

It will be understood that the drawings and description are for illustrative purposes only, and that various changes in design, structure and arrangement may be made without departing from the spirit and scope of the invention or of the appended claims.

We claim:

1. In combination, a cylindrical member formed with a central opening, a cap rotatably mounted on said cylindrical member, said cap comprising a front end wall member and a cylindrical side wall flange portion extending rearwardly therefrom rotatably fitted on said cylindrical member, a shutter disk fixed against rotation relatively to said cylindrical member positioned parallel and adjacent to said front end wall member of said cap and between said end wall member and said cylindrical member, spring leaves formed as a part of and bent out of the plane of said shutter disk acting against said cylindrical member to press said shutter disk against said front wall member of said cap, and means securing said cap on said cylindrical member against the pressure of said spring leaves, said shutter disk and said front end wall member of said cap having shutter apertures adapted to be moved into and out of register with one another by relative rotation of said cap on said cylindrical member.

2. In combination, a cylindrical member formed with a central opening, a cap rotatably mounted on said cylindrical member, said cap comprising a front end wall member and a cylindrical side wall flange portion extending rearwardly therefrom rotatably fitted on said cylindrical member, a shutter disc fixed against rotation relatively to said cylindrical member positioned parallel and adjacent to said front end wall member of said cap and between said end wall member and said cylindrical member, spring leaves formed as a part of and bent out of the plane of said shutter disc acting to cause a friction to be exerted on said front wall member of said cap, and means securing said cap on said cylindrical member against the pressure of said spring leaves, said shutter disc and said front end wall member of said cap having shutter apertures adapted to be moved into and out of register with one another by relative rotation of said cap on said cylindrical member.

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