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C. A. DE GIERS

2,355,149

WARNING LIGHT AND TEST BUTTON

Filed April 13, 1940

FIG. 1.

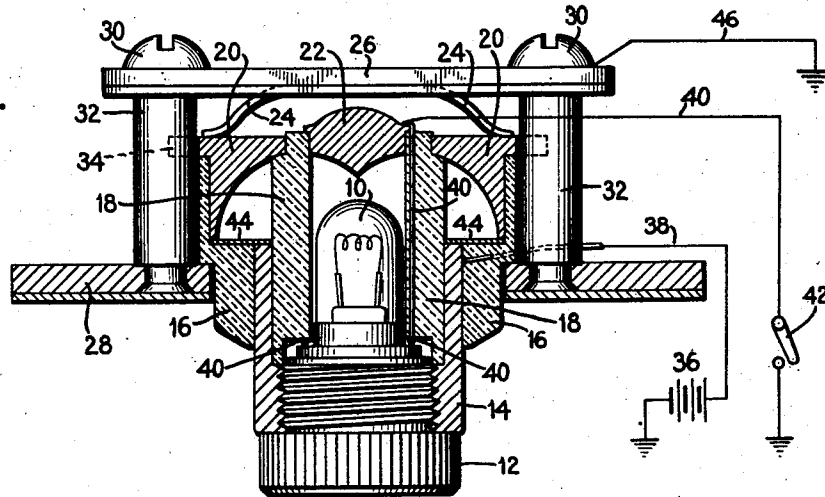


FIG. 5.

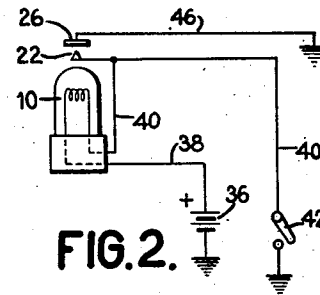
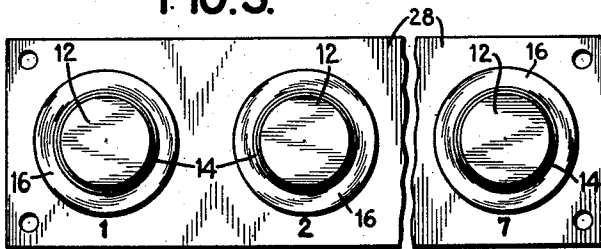


FIG. 2.

FIG. 3.

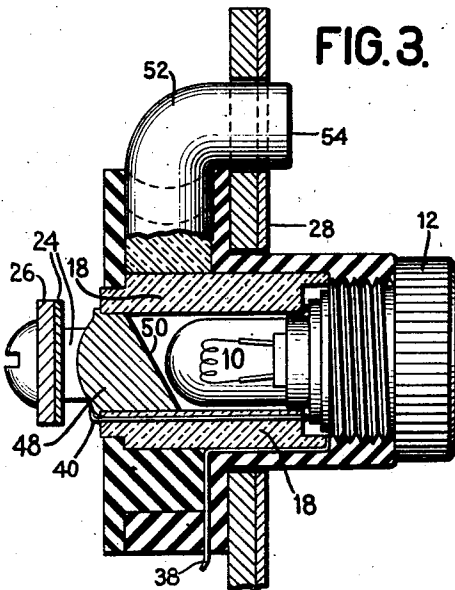
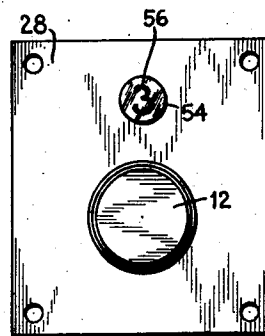


FIG. 4.



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WARNING LIGHT AND TEST BUTTON

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3 Claims. (Cl. 177—329)

This invention pertains to electric warning lights of the kind used on aircraft instrument panels. These warning lights may be connected to indicate the position of movable parts, such as retractable landing gears, the level of gasoline in the fuel tanks, oil pressure, or the like.

An object of the invention is to provide the operator with means for instantly testing the lamp itself.

Another object is to provide means for instantly replacing the lamp if it be defective.

Another object is to provide a color screen independent of the lamp itself so that colored lamps are not required.

Another object is to have the warning light show as a ring around a push button, thus serving to prevent reflection from sunlight or other lights, which might give the impression that the warning light is lit.

Another object is to use the base of the lamp as the push button.

Another object is to provide a warning signal by light reflected from behind, through a colored screen, and then through a ring or bull's-eye of translucent material.

Another object is to provide a push button with a lamp behind it and provided with reflectors for directing the light to the desired spot and in the desired form, whether it be a ring around the push button, a bull's eye alongside the button, or otherwise.

Further and other objects and advantages will be apparent from the specification and claims, and from the accompanying drawing which illustrates what is now considered the preferred embodiment of the invention.

Figure 1 is a cross-section of one embodiment of the invention.

Fig. 2 is a wiring diagram of the invention.

Fig. 3 shows another embodiment of the invention.

Fig. 4 is a front view of Fig. 3 on a reduced scale.

Fig. 5 is a panel showing front views of three units of the kind shown in Fig. 1.

Referring to Fig. 1, the test lamp comprising a bulb 10 and a base 12 is screwed into socket 14 which is a press fit in translucent ring 16, all of which elements constitute parts of a push button lamp unit adapted for installation in an instrument panel 28, and with the translucent ring 16 projecting slightly from the face of said panel so that the light from said bulb through said ring towards the front of said panel may also be visible from an angle. A transparent spacer

sleeve or tube 18 surrounds bulb 10 in socket 14 and serves to aid in the support of concave reflector 20, and of metallic contact button 22, the inner surfaces of which also serve as reflectors. Spring 24, between reflector 20 and metallic cross-bar 26 normally keeps button 22 out of contact with bar 26. Bar 26 is attached to panel 28 by screws 30 through spacer sleeves 32. Reflector 20 has a flange 34 notched around sleeves 32 in sliding engagement therewith. Ring 16 serves to insulate socket 14 from panel 28 and other metallic parts.

Current is normally supplied to the lamp from battery 36 through wire 38, socket 14, the lamp filament, wire 40, switch 42 to ground. If everything is in order and the switch 42 is closed, the rays from lamp 10, guided by reflectors 22, 20, will pass through sleeve 18 and color screen 44 to illuminate translucent ring 16. Thus, when the system is operating normally, the light indicates the position of the switch 42 or the condition of any of the above mentioned movable parts that happens to be employed to control it.

If, with switch 42 closed, there is no illumination of ring 16, and the operator wishes to know whether or not the lamp itself is in working order, he simply pushes on lamp base 12, as on a push button, to place button 22 in contact with bar 26, whereupon a test circuit is established through the lamp from the source by way of lines 38, 40, button 22, bar 26 and line 46 to ground.

If the lamp is found defective, it may be instantly removed and replaced from the front.

The circuits described above are shown diagrammatically in Fig. 2.

Fig. 5 is a front view, partly broken away, of a panel with devices according to Fig. 1 for testing fuel tanks.

Figs. 3 and 4 are sectional and front views, respectively, of a modification of the invention in which the illumination is in the form of a bull's-eye above the test lamp instead of being a ring 16 around the lamp. In Fig. 3 contact button 48 has a surface 50 which reflects the light rays upwardly through transparent member 52 to appear as a bull's-eye at 54. A tank identifying numeral 56 may be placed so as to be visible through the bull's-eye at 54, if desired.

It is to be understood that the invention is not limited to the specific embodiment herein illustrated and described, but may be used in other ways without departure from its spirit as defined by the following claims.

I claim:

1. The combination with an electrical indicating lamp for an instrument panel, of a push button concealing, supporting and surrounding said lamp and with the lamp projecting toward the rear of said push button, means including contact devices operated by depression of said push button for energizing said lamp to light the same to test its operativeness, and a front window and means for indirectly lighting the same by said lamp when lighted.

2. The combination with an electrical indicating lamp for an instrument panel, of a push button concealing, supporting and surrounding said lamp and with the lamp projecting toward the rear of said push button, means including contact devices operated by depression of said push

button for energizing said lamp to light the same to test its operativeness, and a front window surrounding said push button and means for indirectly lighting said window by said lamp when lighted.

3. The combination with an electrical indicating lamp for an instrument panel, of a push button concealing, supporting and surrounding said lamp and with the lamp projecting toward the rear of said push button, means including contact devices operated by depression of said push button for energizing said lamp to light the same to test its operativeness, and a front window adjacent but offset from said push button and means for indirectly lighting said window by said lamp when lighted.

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