

[54] ELECTRICAL SWITCHES

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350/112, 286, 287; 340/380

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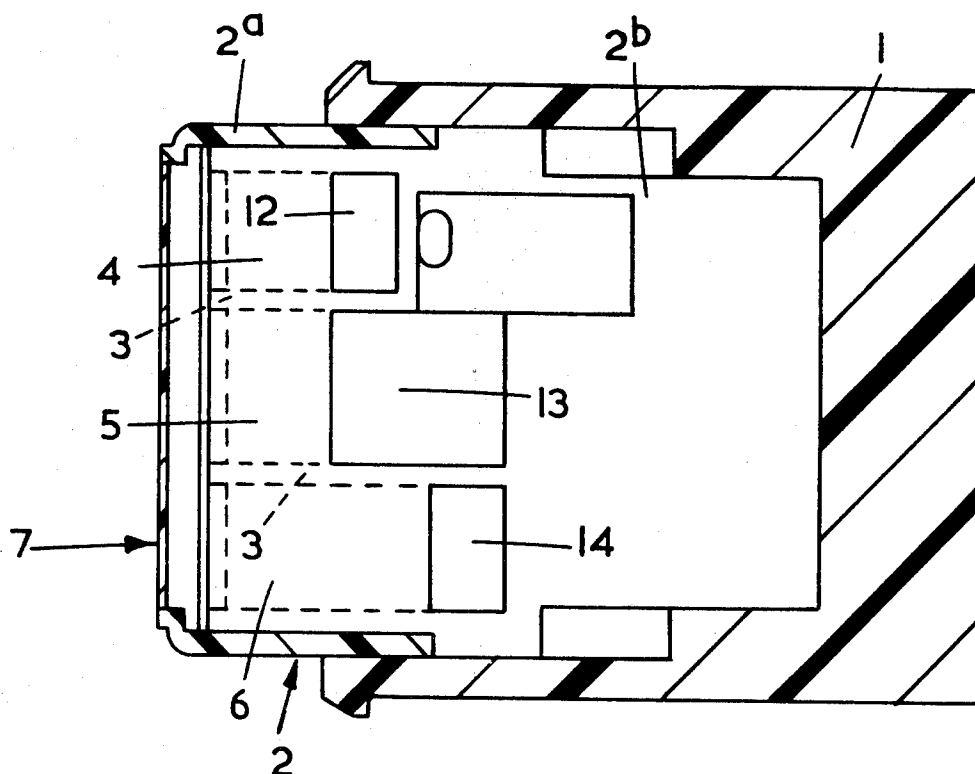
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[57] ABSTRACT

A position indicating electrical switch particularly of the illuminated type including a housing supporting a switch operating member. An operating member is slidable relative to the housing to effect switching operations and includes an end wall which is visible to an operator of the switch from the exterior of the housing. The end wall includes a plurality of translucent portions and a plurality of separate light paths are provided to the translucent portions respectively from a side wall of the member which is disposed internally of the housing. A wall of the housing adjacent the side wall of the member is provided with a window such that light from an external light source can pass through the window of the housing and is thereafter caused to pass through one or some of the translucent portions in the end wall of the switch operating member by way of the light paths defined in the operating member. The light passing to the translucent portions provides a visual indication of the operating position of the switch operating member at any given instant.

3 Claims, 2 Drawing Figures



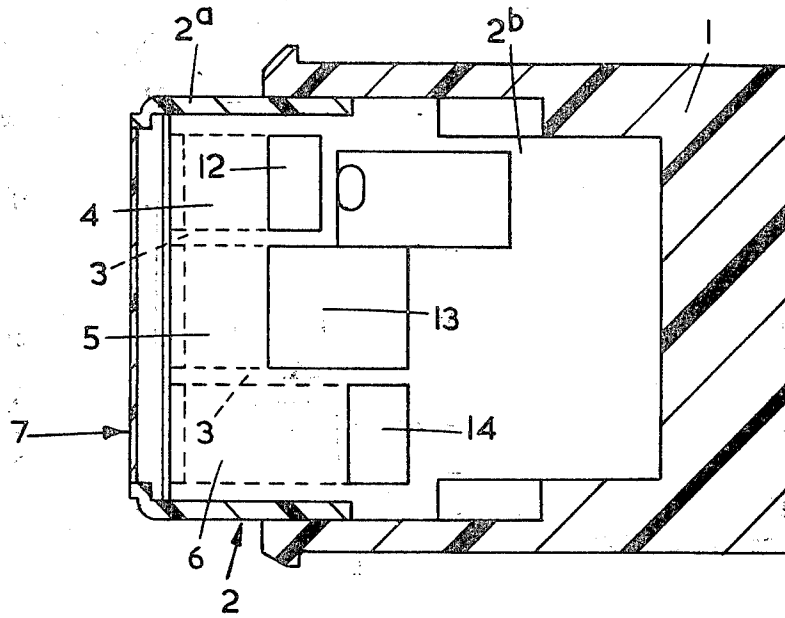


FIG. 1

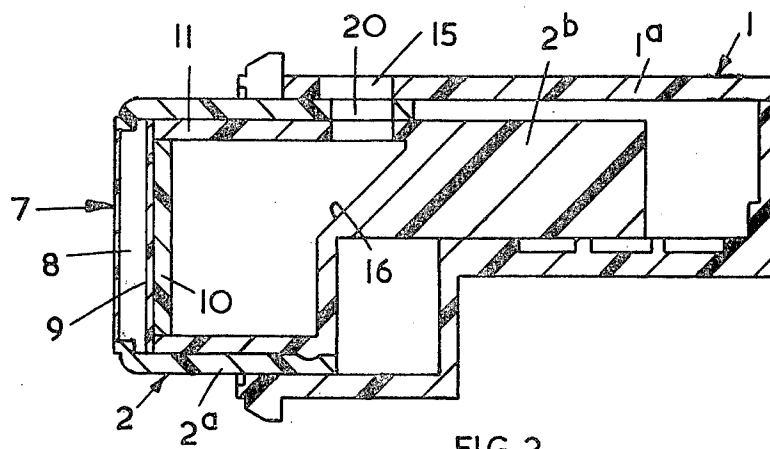


FIG. 2

ELECTRICAL SWITCHES

This invention relates to position indicating electrical switches, particularly but not exclusively, for use in motor vehicles and, more particularly, relates to position indicating electrical switches of the type which are illuminated.

According to the present invention, there is provided an electrical switch comprising a housing, a switch operating member mounted in the housing to be slidable relative thereto to effect switching operations, said member having an end wall which is viewable externally of the housing and which has a plurality of translucent portions therein, means defining separate light paths respectively to the translucent portions from a side wall of the member disposed internally of the housing and adjacent a wall thereof, window means in the said wall of the housing arranged so that, in use, light from a source externally of the housing passes through the window means in the housing and is caused to pass through one or some of the translucent portions in the end wall of the switch operating member by the light path defining means so as to provide a visual indication of the instantaneous operating position of the switch operating member.

Preferably, the switch operating member is hollow and the means defining separate light paths comprises one or more opaque partitions dividing the switch operating member into a plurality of compartments and a window associated with each compartment in the said side wall of the switch operating member, the said windows of the compartments being disposed transversely of the direction of movement of the switch operating member.

Preferably also, the window means in the housing comprises a window extending transversely of the direction of movement of the switch operating member so as to be capable of transmitting light to all of the compartments, some of the windows in the compartments being staggered longitudinally with respect to the direction of movement of the switch operating member whereby movement of the switch operating member causes different windows in the switch operating member to be aligned with the window in the housing.

Most advantageously, the switch operating member is divided into three compartments with two of the windows therein being staggered longitudinally and the third being elongated longitudinally, the arrangement being such that the operating member is movable between two positions, in both of which the last-mentioned window in the switch operating member is exposed so that the translucent portion associated therewith is always lit irrespective of the position of the switch operating member.

By the term "window" as used herein is meant an aperture or an aperture closed by a light transmitting material.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawing, in which:

FIG. 1 is a side elevation of an electric switch according to the present invention, and

FIG. 2 is a part-sectional plan view of the switch of FIG. 1.

Referring to the drawing, the electrical switch comprises a housing 1 including a clip-on top 1a and a

switch operating member 2 disposed in the housing to be slidable relative thereto. The electrical switch is provided with the usual electrical contacts which are selectively engageably by depressing the switch operating member. Such electrical contacts are not shown since they are of a conventional type which is well known for push-button switches and form no part of the present invention.

The switch operating member 2 is formed in two parts, a knob case 2a and a carrier 2b, the case 2a being a clip fit on the carrier 2b. A pair of partitions 3 forming part of the carrier 2b divide the switch operating member 2 into three compartments 4, 5 and 6. An end wall 7 of the knob case 2a is disposed so as to be viewable externally of the body 1 and is a composite wall being formed of an acrylic lens 8, a polyester film 9 and a series of three white lenses 10, the lenses 10 being associated respectively with the compartments 4, 5 and 6. In this embodiment, the polyester film 9, in the region of compartment 5, is coloured green and is provided with lettering thereon so as to indicate the purpose of the switch. The polyester film, in the regions of compartments 4 and 6, is coloured red and green, respectively. A side wall 11 of the carrier 2b forms a mask having three apertures 12, 13 and 14 therein associated with the compartments 4, 5 and 6, respectively, there being cut-outs 20 provided where necessary in the knob case 2a. The apertures 12 and 14 are staggered relative to one another longitudinally with respect to the direction of sliding movement of the switch operating member 2, whilst the aperture 13 is extended so as to have a portion which is in transverse alignment with aperture 12 and a portion which is in transverse alignment with aperture 14.

A wall of the housing 1 which is adjacent to side wall 11 has an aperture 15 therein. The aperture 15 extends transversely with respect to the direction of movement of the switch operating member 2 so as to be capable of transmitting light to the compartments 4, 5 and 6 through the apertures 12, 13 and 14, respectively. Each compartment 4, 5 and 6 is sprayed white inside to increase light reflection therein and is also provided with an angled surface 16 whereby light from the respective aperture 12, 13 or 14 is reflected towards the end wall 7. A source of light (not shown) is provided externally of the housing 1 and is arranged to supply light through the window 15 in the housing 1.

In use, light from the light source passes through the aperture 15 and, in the position shown in FIGS. 1 and 2, enters compartments 5 and 6 by way of apertures 13 and 14 in the switch operating member, apertures 13 and 14 being aligned with window 15. Thus, light is transmitted to the end wall 7 by reflection internally of compartments 5 and 6 so that light passes through the lettering on polyester film 9 associated with the compartment 5 to indicate the position of the switch and also through the green coloured film 9 associated with compartment 6 for indicating one particular condition of the switch. When the switch operating member 2 is depressed so that it slides further within the housing 1, the aperture 14 in the switch operating member 2 is moved out of alignment with window 15 whilst the aperture 12 associated with compartment 4 is moved into alignment with window 15, aperture 13 remaining in alignment due to its extended length. In this position, the green coloured film 9 associated with compartment 6 is no longer illuminated whilst the red coloured film

9 associated with compartment 4 becomes illuminated and the lettering indicating the position of the switch stays illuminated. In this latter position of the switch operating member 2, the switch contacts are made.

The apertures 12, 13 and 14 associated with the compartments 4, 5 and 6 together with the partitions 3 and the angled surfaces 16 form means defining separate light paths respectively to the end wall 7 from the side wall 11 of the switch operating member 2.

It will be manifest that the present invention provides a convenient way of indicating the purpose and condition of an electrical switch using a single light source which is mounted externally of the electrical switch and therefore is relatively accessible for replacement purposes.

I claim:

1. A position indicating electrical switch comprising a housing, a single hollow switch operating member mounted in the housing for slidable movement relative thereto to effect selective switching operations, said operating member having an end wall which is viewable externally of the housing and having a plurality of separate translucent portions therein, one or more opaque partitions dividing the hollow interior of the operating member into a plurality of compartments to form the translucent portions in the end wall of the operating member, apertured mask means formed by a side wall

of said operating member relative to said housing and defining separate light paths respectively to said translucent portions, said mask means including an aperture associated with each of said compartments, and disposed transversely of the direction of movement of the switch operating member.

2. A switch as claimed in claim 1, wherein one of said mask means is displaced longitudinally relative to the direction of movement of the switch operating member, whereby movement of the switch operating member relative to the housing causes different apertures in the mask means to be aligned with said window in the housing.

3. A switch as claimed in claim 1, wherein the switch operating member is movable between two positions, and the hollow interior portion of the operating member is divided into three compartments each containing a respective translucent portion, two of the apertures of said mask means being staggered longitudinally, and a third aperture in said mask means being elongated longitudinally, whereby in both positions of the operating member said elongated aperture is aligned with said window in the housing so that the associated translucent portion is illuminated regardless of the position of the switch operating member relative to the housing.

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