June 8, 1965 B. R. LAUREN ETAL 3,188,437

PUSH BUTTON SIGNAL LIGHT SWITCH WITH REMOVABLE INDICIA

Filed Dec. 18, 1962

Fig. 1.

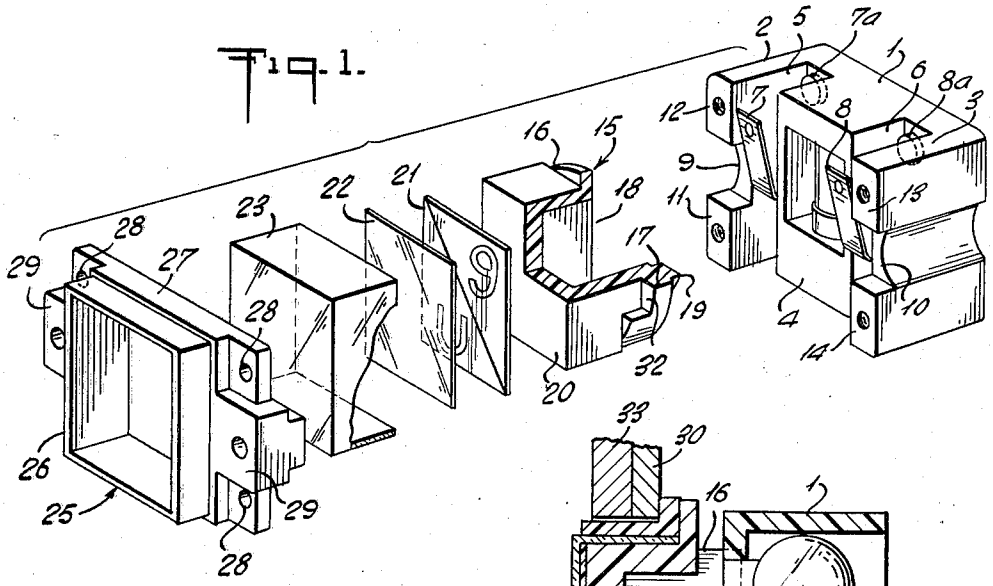


Fig. 3.

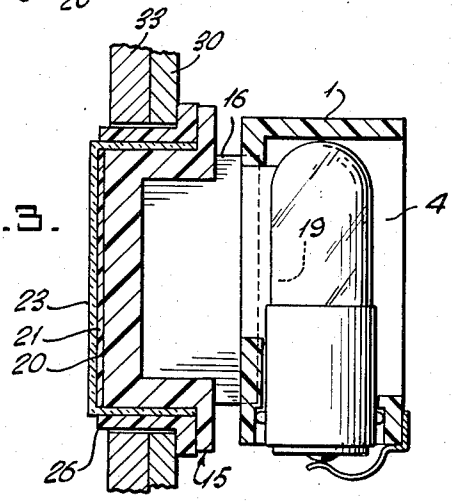


Fig. 2.

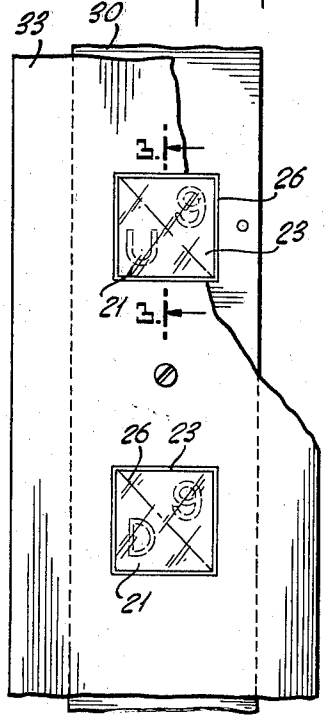
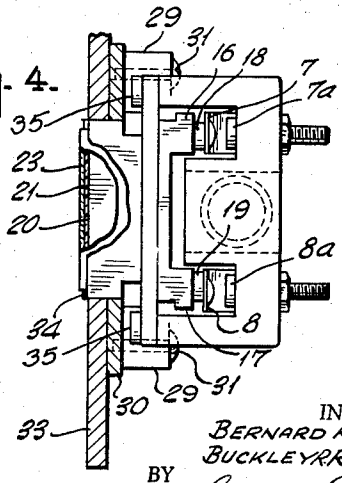


Fig. 4.



INVENTORS
BERNARD R. LAUREN
BUCKLEY R. REED

BY Hopgood & Calimafde

ATTORNEYS

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PUSH BUTTON SIGNAL LIGHT SWITCH WITH REMOVABLE INDICIA

Bernard R. Lauren, Louisville, and Buckley R. Reed, Valley Station, Ky., assignors to K. M. White Company, Inc., Louisville, Ky., a corporation of Kentucky

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This invention relates to a button switch of the plunger type and, in particular, to an elevator button switch with a translucent face portion having associated therewith a removably mounted indicium element.

Elevator button switches are known having a translucent button element as part of a button housing with an indicium thereon and having a lamp housing associated therewith for lighting up the translucent face of the button. Generally, the indicium is molded, embossed or etched in the face of the button element, or otherwise made an integral part of the button, so that the indicium is fixed in place and can't be removed for replacement without detaching the button switch from its mounting support and removing the button element from its housing and replacing it.

It would be desirable to have a button switch in which the indicium element is not dependent on or made a part of the button element and which can be easily replaced by indicia of a variety of designs or colors.

It is thus an object of our invention to provide a button switch characterized by a novel combination of elements and, in particular, a button switch of the plunger type in which the indicium element is separate and distinct from the button element.

As another object we provide as an article of manufacture an elevator button switch of the plunger type having an indicium element which is removably associated with the button element and which is capable of being easily removed and replaced by another indicium element.

As a further object we provide in combination an elevator button switch with associated mounting and face plates, the switch having associated therewith a removable indicium element.

These and other objects will more clearly appear when taken in conjunction with the following disclosure and the accompanying drawing, wherein:

FIG. 1 depicts in three dimensions an explosive view of one embodiment of the button switch showing the arrangement of the various cooperable elements;

FIG. 2 is a front view of an embodiment of the button switch showing a face plate partially broken away and a wall mounting plate supporting the elements making up the switch;

FIG. 3 is a cross section of the button switch taken along line 3—3 of FIG. 2; and

FIG. 4 depicts an end view of the button housing and insulator block assembly, with the mounting and face plates in cross section.

In its broad aspect, the button switch comprises as one of its elements an insulator block having a lamp housing and electrical contact elements biased in an open position. The block has in cooperable and slidable relation with it a translucent plastic button housing having a button element which when depressed exerts pressure via means on the housing to the biased contact elements. An indicium element is removably maintained in faying relationship with the top of the button element by means of a cup-like retaining member which fits snugly over the top of the button element and holds the indicium elements in place. Bracket means fit snugly about the button housing, the housing being in slidable contact therewith and held in contact with the block by the

bracket. Means are employed for connecting the bracket to the block and provide a compact assembly of cooperable elements.

The various elements which make up a preferred embodiment of our invention are shown in the explosive view of FIG. 1 as comprising insulator block **1** having legs **2** and **3**. The legs are separated by a lamp housing **4** whereby to provide slots **5** and **6** containing electrical contact elements **7**, **7***a* and **8**, **8***a* connected to an electric circuit not shown. Electric elements **7** and **8** are spring biased in the open position as shown and are adapted when depressed to touch contact elements **7***a* and **8***a*, respectively.

Each of the legs **2**, **3** have cut outs **9** and **10** which are adapted to receive the projecting ends of a bracket to be described later. As a result of the cut outs, four posts **11** to **14** are provided to receive screws for fastening a bracket to the block.

A translucent button housing **15** of hard rigid plastic, e.g. nylon, of preferably hollow construction, is provided adapted to be slidably mounted over lamp housing **4** (note FIG. 4), the housing having two legs **16** and **17** which ride along the side surfaces of the lamp housing and touch the surface of spring elements **7** and **8** via its projections **18** and **19**. The housing has a rectangular button element **20** which flanges outwardly as shown into leg portions **16** and **17**. Next to the top of button **20** is indicium element **21** designed to coincide with the top of the button. The indicium element is likewise translucent and preferably made of nylon. The numeral "9" may be opaque and the field surrounding it translucent or vice versa. Associated with the numeral is the letter "U" to indicate the "up" button. Next to the indicium element is provided, although not necessarily, a color filter **22** of about the same size as the indicium element, in the event a particular translucent color is desired. This is followed by a cup-like retaining member **23**, preferably of transparent plastic, which fits snugly over button element **20** and holds indicium element **21** in faying relationship against the surface of the button together with the color filter, should a color filter be employed.

Bracket **25** is provided for holding the elements, including the block, together. The bracket, which is also preferably made of nylon, comprises a hollow rectangular sleeve portion **26** adapted to fit snugly about retaining member **23** on button element **20** in sliding relationship therewith. The bracket has a rectangular flange **27** with screw-receiving holes **28** at each corner thereof, a pair of opposite side portions of the flange being thickened in the middle as shown at **29** for attachment to mounting plate **30** shown in FIG. 4 via screws **31**, while the bracket is fastened via its corners to the posts of the block by means of screws **35**. The thickened portion **29** of the bracket flange is adapted to fit partially in recess **32** of button housing **15** and cut outs **9** and **10** of block **1** (note FIG. 1) when the bracket is fastened in place as shown in the end view of FIG. 4.

Because spring contact elements **7** and **8** are biased in the open position, button housing **15** is maintained in its outermost position as shown in FIG. 4. When pressure is applied to the top of button element **20**, button housing **15** is caused to slide via its legs **16** and **17** along the side surfaces of lamp housing **4** and push elements **7** and **8** into contact with contacts **7***a* and **8***a* to complete the elevator circuit. Upon release of the pressure, the button housing is pushed back to its original position by virtue of the natural spring action of electric elements **7** and **8**. The elements of the assembly are shown in cross section in FIG. 3.

The rectangular sleeve portion of the bracket which surrounds the button element extends slightly beyond face plate **33** shown in FIG. 4 to provide a peripheral ridge or

lip 34 around and substantially flush with the button element. The extending peripheral lip has the advantage in that a person leaning against the face plate is prevented from inadvertently actuating the button sufficiently to actuate the elevator. The button design is also less subject to tampering.

As stated above, the elements making up the assembly are preferably made of hard smooth plastic so that plastic is riding on plastic. The button housing should be made of translucent material capable of dispersing light evenly. Nylon is preferred as the translucent plastic material, although other translucent plastic materials may be employed, such as the hard rigid material polymethyl methacrylate sold under the trademarks Lucite, Plexiglas, etc., cellulose acetate butyrate, cellulose propionate, and the like. Preferably, the elements, other than the insulator block, should all be made of the same plastic composition having the same temperature coefficient of expansion. By using the same composition, a freely movable button housing is assured against sleeve 26 of the bracket. By using the same plastic composition of high surface finish throughout, or plastics having substantially the same properties, the sliding surfaces tend to be self-lubricating, non-abrasive and non-flaking.

As stated hereinbefore, the advantage of using a separate element for the indicia is that the indicia and the button elements can be made as stock items. The indicia may be in the form of numerals or they can be made of varying designs and character. For example, the indicium element might comprise the trademark of a company. Whatever the indicia, they can be changed readily merely by removing face plate 33. The plastic retaining cover 23 may be lifted off fairly easily by prying, the numeral element removed and replaced by another and the retaining cover re-inserted and the face plate attached.

A color filter, such as element 21, may be used to suit interior decoration requirements where necessary. Or the color filter may be used on special holiday occasions; for example, the color green might be used during such periods encompassing St. Patrick's day and the like. Whatever the circumstances, the color filter like the indicium element can be removed or inserted easily without the necessity of taking the whole assembly apart as described herein above. While the button element is shown having a rectangular shape, it will be appreciated that it may be round or have any other desirable shape.

While the present invention has been described in conjunction with a preferred embodiment, it is to be understood that modifications and variations may be resorted to without departing from the spirit and scope of the invention as those skilled in the art will readily understand. Such modifications and variations are considered to be within the purview and scope of the invention and the appended claims.

What is claimed is:

1. An elevator button switch with removably mounted indicium element comprising an insulator block having a lamp housing and electrical contact elements biased in an open position, a plastic button housing having a translucent button element associated therewith in slidable cooperation with said block and said biased contact elements, a removably mounted inidcium element of translucent plastic material in faying relationship with the top of said button element, a retaining member maintaining the indicium element in said faying relationship, bracket means which fit snugly about said button housing and through which said housing slides and is held in place in the insulator block, and means associated with said bracket and said block for connecting the two together.

2. An elevator button switch with a removably mounted indicium element comprising an insulator block having a lamp housing and electrical contact elements biased in an open position, a plastic button housing having a translucent button element associated therewith, said button housing being in slidable cooperation with said block and

having means by which said button housing is maintained in cooperable relation with said block and said biased contact elements as the button housing is caused to slide into the block, a removably mounted indicium element of translucent plastic material in faying relationship with the top of said button element, a transparent plastic cup-like retaining member fitting snugly over the top of said button element for maintaining the indicium element in place, plastic bracket means which fit snugly over said button housing and through which said housing slides and is held in place in the insulator block, and means associated with said bracket and said insulator block for connecting the two together.

3. An elevator button switch with removably mounted indicium element comprising an insulator block having a lamp housing and electrical contact elements biased in an open position; a plunger assembly comprising a plastic button housing having a translucent button element associated therewith, said button housing being in slidable cooperation with said block and having means by which said button housing is maintained in cooperable relation with said block and means whereby pressure applied to said plunger assembly is transferred to said biased contact elements as the button housing is caused to slide into the block, a removably mounted indicium element in faying relationship with the top of said button element, a transparent plastic cup-like retaining member fitting snugly over the top of said button element for maintaining the indicium element in place; plastic bracket means which fit snugly over said button housing and through which said housing slides and is held in place in the insulator block; and means associated with said bracket and said insulator block for connecting the two together.

4. The elevator button switch of claim 3 wherein the button housing, the retaining member and the bracket are all made of a hard rigid plastic having substantially the same properties.

5. The combination of an elevator button switch with removably mounted indicium element and wall mounting means comprising an insulator block having a lamp housing and electrical contact elements biased in an open position, a plastic button housing having a translucent button element associated therewith, said button housing being in slidable cooperation with said block and said biased contact elements, a removably mounted indicium element of translucent plastic material in faying relationship with the top of said button element, a retaining member maintaining the indicium element in place, bracket means which fit snugly about said button housing and through which said housing slides and is held in place in the insulator block, means associated with said bracket for fixedly mounting said bracket on said insulator block, wall mounting means having an opening therein for receiving said button housing, and means associated with the button housing and the insulator block by which they are connected to the wall mounting means.

6. The combination of an elevator button switch with removably mounted indicium element and mounting means comprising an insulator block having a lamp housing and electrical contact elements biased in an open position, a plastic button housing having a translucent button element associated therewith, said button housing being in slidable cooperation with said block and having means by which said button housing is maintained in cooperable relation with said block and said biased contact elements as the button housing is caused to slide into the block, a removably mounted indicium element of translucent plastic material in faying relationship with the top of said button element, a transparent plastic cup-like retaining member fitting snugly over the top of said button element for maintaining the indicium element in place, plastic bracket means which fit snugly about said button housing and through which said housing slides and is held in place in the insulator block, means associated with said bracket for fixedly mounting said bracket on said insulator block,

wall mounting means having an opening therein for receiving said button housing, and means associated with the button housing and the block by which they are connected to the mounting plate.

7. The combination of an elevator button switch with removably mounted indicium element and wall mounting means comprising an insulator block having a lamp housing and electrical contact elements biased in an open position; a plunger assembly comprising a plastic button housing having a translucent button element associated therewith, said button housing being in slidable cooperation with said block and having means by which said button housing is maintained in cooperable relation with said block and means whereby pressure applied to said plunger assembly is transferred to said biased contact elements as the button housing is caused to slide into the block, a removably mounted indicium element in faying relationship with the top of said button element, a transparent plastic cup-like retaining member fitting snugly over the top of said button element for maintaining the indicium element in place; plastic bracket means which fit snugly

about said button housing and through which said housing slides and is held in place in the block; means associated with said bracket for fixedly mounting said bracket on said block; a mounting plate having an opening therein for receiving said button housing and through which a portion of the housing extends; means associated with the button housing and the block by which they are connected to the mounting plate; a face plate covering said mounting plate and having an opening in register with the opening of the mounting plate, and means connecting the face plate to the mounting plate.

8. The combination of claim 7 wherein the plunger assembly and the bracket are made of hard rigid plastic having substantially the same properties.

References Cited by the Examiner

UNITED STATES PATENTS

2,890,538	6/59	Jentges	340—252
3,093,718	6/63	Blomquist et al.	200—167

BERNARD A. GILHEANY, *Primary Examiner.*