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ELECTRIC SLIDE SWITCH

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3,097,269

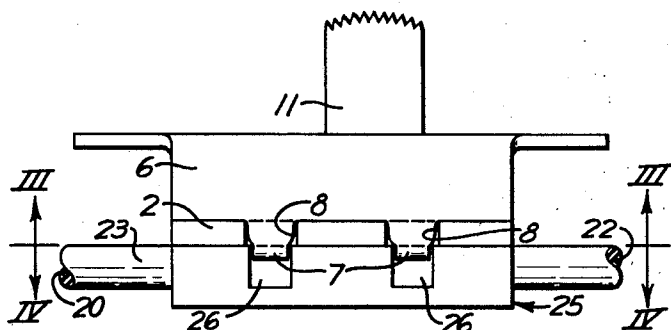


Fig. 1

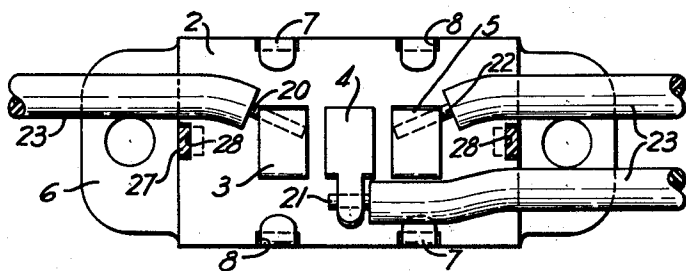


Fig. 3

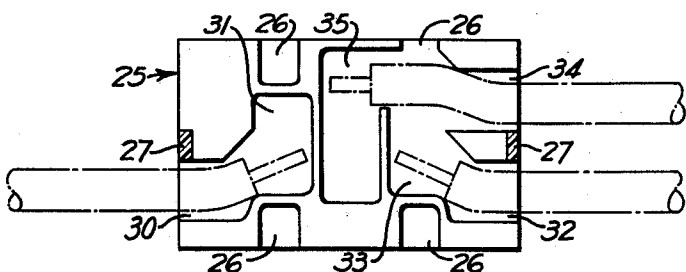


Fig. 4

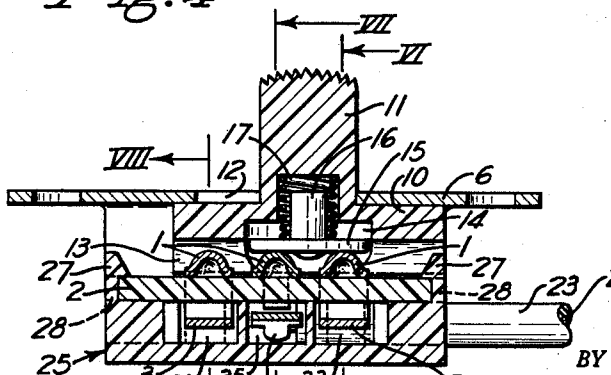


Fig. 5

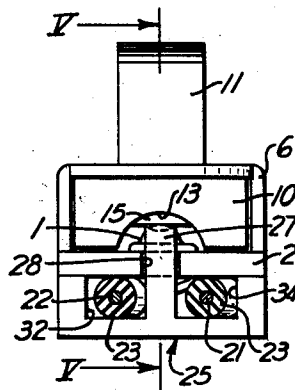


Fig. 2

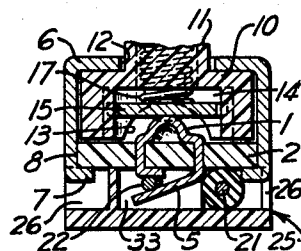


Fig. 6

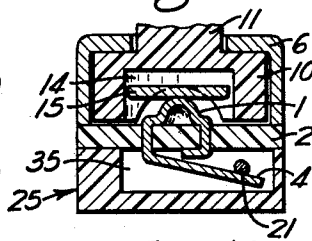


Fig. 7

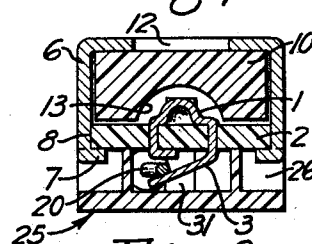


Fig. 8

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3,097,269

ELECTRIC SLIDE SWITCH

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1 Claim. (Cl. 200—16)

This invention relates to slide switches, and more particularly to the insulation of their terminals.

In a common type of slide switch, the terminals project more or less perpendicularly from the insulating base. The wire leads that are attached to the terminals usually extend in the same general direction, although, of course, there is nothing to prevent them from being bent away at an angle. In any event, the terminals are exposed, which detracts from the appearance of the switch and makes it easy to short circuit accidentally.

It is among the objects of this invention to provide a slide switch, in which the terminals are insulated from each other and from the metal switch housing, and in which the insulation is accomplished by a single shield that can be snapped into place.

In accordance with this invention, wire leads are secured to the terminals projecting from the insulating base plate of a slide switch, and the leads extend outwardly across the edges of the plate. An insulating shield covers the outer surface of the base plate and is provided with separate compartments containing the switch terminals. The shield has means hooked onto the plate to hold the shield against it. The leads preferably, but not necessarily, project from the opposite ends of the plate and therefore the ends of the shield are provided with notches connected with the compartments and receiving the leads. The shield may also be provided with recesses receiving the ears that connect the metal switch housing to the base plate.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which

FIG. 1 is a side view of the improved slide switch;

FIG. 2 is an end view thereof;

FIG. 3 is a view of the outside of the base taken on the line III—III of FIG. 1;

FIG. 4 is a view of the inside of the shield taken on the line IV—IV of FIG. 1;

FIG. 5 is a longitudinal section of the switch taken on the line V—V of FIG. 2; and

FIGS. 6, 7 and 8 are cross sections taken on the lines VI—VI, VII—VII and VIII—VIII, respectively, of FIG. 5.

Referring to the drawings, two or more spaced fixed contacts 1 are rigidly mounted in a straight line along the center of the inner surface of a rectangular insulating base plate 2. Three contacts are shown for illustrative purposes. Integrally joined to the contacts and extending through the base and away from its outer surface are electric terminals 3, 4 and 5. Seated on the base plate is a channel-shaped metal housing 6, the side edges of which are provided with ears 7 extending through notches 8 in the edges of the plate and bent over its outer surface to lock the plate and housing together.

Disposed in the housing between its top and the base plate is an actuating member or slide that moves lengthwise of the switch. This slide, which preferably is made of a molded insulating material, has a rectangular body 10, from which an integral button 11 projects up through one end of a slot 12 in the top wall of the housing. The opposite ends of this slot limit the movements of the slide by acting as stops, which the button strikes. The bottom of the slide is provided with a channel 13 that receives the row of contacts on the base. The center of the channel opens into a recess 14 that extends up into

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the button and that contains a sliding contact which, if in the form of a disk 15, has a central stem 16. The disk is pressed against the fixed contacts by a coil spring 17 encircling the stem. The sliding contact engages only two fixed contacts at a time.

The switch terminals are so arranged that the two end terminals 3 and 5 leave the base plate at one side of its longitudinal center line, while the center terminal 4 leaves the plate at the opposite side of the center line. In accordance with this invention all of the terminals are bent laterally across the center line into positions rather close to the base. The center terminal preferably is long enough to extend beyond the other two terminals. Attached to the terminals near their outer ends are wire leads 20, 21 and 22 that extend laterally across the edges of the base plate. For best results, one of the leads extends away from one end of the plate and the other two extend away from its opposite end, as shown in FIG. 3. All of the leads are covered with insulation 23.

A feature of this invention is that base plate 2 is covered by a shield 25 that insulates the terminals. The shield may be a block of synthetic plastic, and it is the same size as the base plate so that it completely covers its outer surface. To accommodate the terminals and wire leads and isolate them from one another, the side of the shield next to the plate is provided with separate compartments for the terminals and with notches for the adjoining portions of the leads, as will be described in the next paragraph. Opposite side edges of the shield are provided with recesses 26 that receive the housing ears 7. The shield is held against the base plate most conveniently by means projecting from one or the other of them, or both, and hooked over the other. Preferably, however, the opposite ends of the shield are provided with integral resilient hooks 27, which extend through notches 28 in the ends of the plate and hook over its inner surface as shown in FIG. 5. The shield is therefore assembled with the rest of the switch by simply snapping it onto the insulating base.

As shown in FIG. 4, the notch 30 that receives wire lead 20 at one end of the shield connects with one end of the end compartment 31 containing the terminal 3 at that end of the switch. Likewise, one of the notches, designated 32 at the opposite end of the shield connects with one end of the other end compartment 33 so that the lead 22 fastened to the terminal 5 at that end of the switch can extend out of the shield. The remaining notch 34 for center lead 21 communicates through the opposite end of compartment 33 with the adjacent end of the center compartment 35. One way of avoiding the danger of the center lead shorting against the terminal 5, which it crosses, is by extending the insulation on that lead entirely across the terminal as shown. That same insulation likewise crosses the inner end of the ear-receiving recess 26 at that point, which, because of space limitations, extends entirely through the side wall of the shield.

A switch made in accordance with this invention has a neat appearance, because there are no exposed terminals and soldered connections. The base is smooth and flat. The shield protects the switch from short circuiting and from damage to the connections between the wire leads and the terminals. It also prevents accidental grounding of the terminals to the housing ears. The shield is very inexpensive and can be applied quickly to the rest of the switch by merely snapping them together.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claim,

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the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

An electric slide switch comprising an insulating base plate, a row of three fixed contacts mounted on one side of the plate and having terminals extending through the plate and projecting from its opposite side, the terminals extending laterally part way across the plate, a wire lead secured to the end of the center terminal and extending longitudinally away from one end of the base plate, wire leads secured to the ends of the two end terminals and extending longitudinally away from the opposite ends of said plate, a movable contact slidable along said row of fixed contacts, a metal housing covering said contacts and secured to said plate, and an insulating shield at said opposite side of the base plate provided in the side adjoining the plate with a row of compartments each containing one of said terminals, the shield having integral means hooked onto said plate to hold the shield against it, and the ends of the shield being provided with notches

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connected with said compartments and receiving said leads, the notch that contains the center lead opening into one end of an end compartment, and the adjacent notch opening into the other end of said end compartment.

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