March 22, 1966 E. T. PIBER 3,242,297

ELECTRIC SWITCH SUPERSTRUCTURES

Filed April 30, 1963

Fig. 1

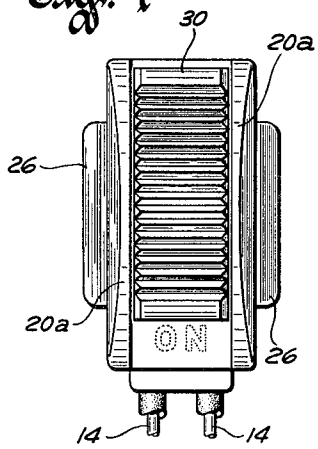


Fig. 2

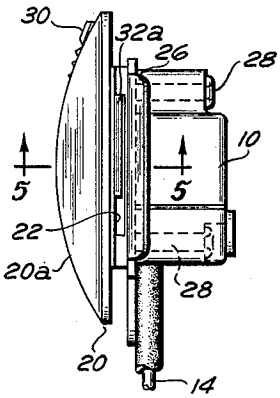


Fig. 3

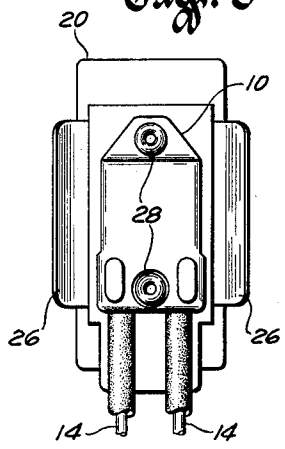


Fig. 4

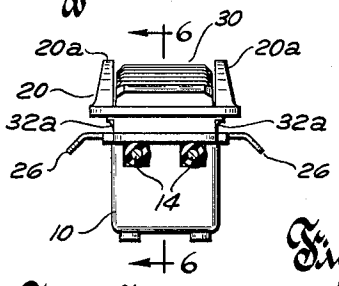


Fig. 5

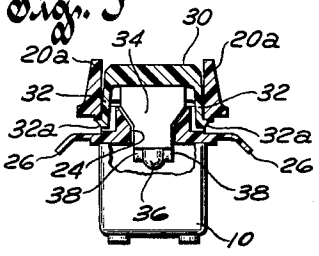


Fig. 6

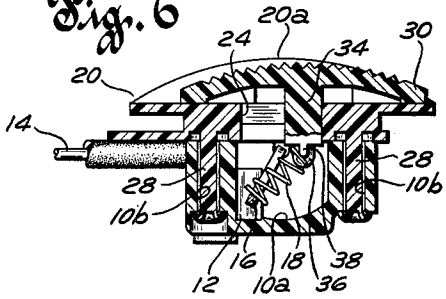
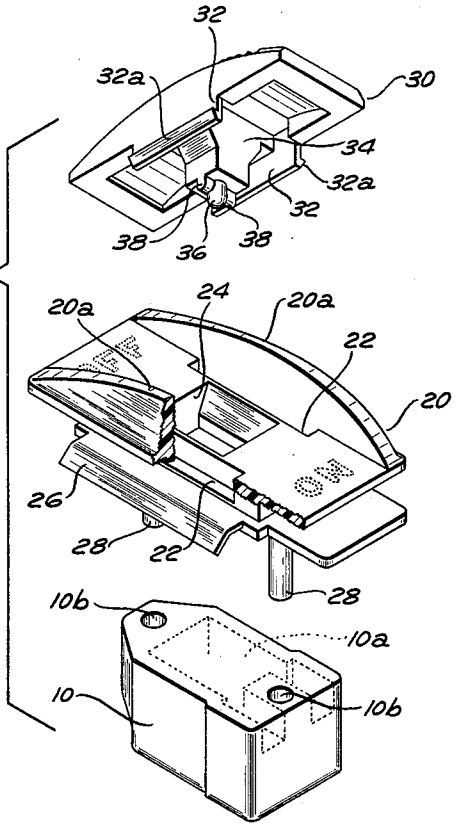


Fig. 7



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3,242,297

ELECTRIC SWITCH SUPERSTRUCTURES

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5 Claims. (Cl. 200—168)

This invention relates to electric switches and more particularly to an improved superstructure for such switches.

It is a primary object of this invention to provide an electric switch which has fewer parts, is easier to assemble and less expensive to manufacture.

It is a further object of this invention to provide an electric switch in which all exterior parts are of an electric insulating material.

It is a more specific object of this invention to provide a superstructure which has means formed integral therewith for securement to the switch housing.

These and other objects will hereinafter appear in the following specification and claims when taken in conjunction with the drawing, in which there is illustrated a slide button switch by way of example and is not meant to limit the invention, wherein:

FIGURE 1 is a top view of a slide button switch;

FIG. 2 is a side elevational view of the switch;

FIG. 3 is a bottom view of the switch;

FIG. 4 is an end elevational view of the switch;

FIG. 5 is a partial sectional view of the switch as indicated by line 5—5 in FIG. 2;

FIG. 6 is a sectional view along the longitudinal centerline of the switch as indicated by line 6—6 in FIG. 4; and

FIG. 7 is an exploded isometric view of the parts of the switch that comprise the superstructure.

As seen in FIG. 7, the superstructure of the switch comprises a switch base **10**, a combination cover and mounting plate member **20** and a slide button actuator **30**. The members **10**, **20** and **30** are all made of an electric insulating material; however, the slide button **30** and the mounting member **20** are formed of a more or less resilient material such as nylon.

Switch base **10** and mechanism therein is of a well known type such as that described in the expired Alvin W. Krieger Patent No. 2,171,368, dated August 29, 1939, and therefore many of the details have been omitted. A recess **10***a* is open to the top of base **10** and a pair of stationary contacts **12** and a switch operating mechanism are located within recess **10***a*. A pair of wire lead connectors **14** are connected to stationary contacts **12** and extend outwardly of the base for connection to an external power source. A substantially W-shaped bridging contact member **16** is pivotally mounted at the upper end of its outer legs within the recess **10***a*. A compression spring **18** provides an overcenter driving connection between the contact member **16** and slide button **30** as will be more fully described later. Base **10** is also provided with a pair of cylindrical holes **10***b* which extend between the upper and lower surfaces of the base.

Combination cover and mounting plate member **20** has a pair of substantially L-shaped slots **22** which open to its top and opposite sides. A pair of vertical sidewalls **20***a* extend upwardly of the member **20** at its sides and form one wall of slots **22** as can be seen in FIG. 7. A central aperture **24** is open to both the top and bottom surfaces of member **20**. A pair of tabs **26** extend outwardly of the sides of member **20** for purposes of mounting the switch to the device it is desired to control. A pair of cylindrical projections **28** which have internal end recesses are molded integral of the member **20** and extend outwardly of its lower surface in corresponding alinement with holes **10***b* of base **10**.

Slide button **30** has a pair of resilient leg portions **32** extending outwardly of its lower surface. Leg portions **32** are formed complemental to slots **22** of member **20**, and have beveled cam surfaces **32***a* at their outer ends. A central boss portion **34** also extends outwardly of the lower surface of button **30** and has on its outer surface a dome-shaped extension **36** which centrally divides a rib **38** also shown in FIG. 7.

Button **30** is assembled to the mounting plate **20** by first alining the legs **32** above the slots **22** and then sliding the button downward into the mounting plate. As beveled surfaces **32***a* move between the side walls **20***a*, they cam legs **32** inward and side walls **20***a* maintain the legs in this position until the complemental horizontal portions of the legs and slots are in line, thus allowing the legs to spring outward and lock the button to the mounting plate. With button **30** in place, the boss portion **34** extends through the central aperture **24** of member **20**.

The slots **22** are of greater longitudinal length than the legs **32** and button **30** is thus free to travel linearly the difference between the two lengths. The central aperture **24** is of sufficient length to provide travel clearance for boss **34**.

Member **20** is next assembled to the base **10** by inserting the cylindrical extensions **28** into alined holes **10***b*. The upper end of the compression spring **18** bears against the rib **38** and is maintained in that location by dome portion **36** which extends into spring **18** as shown in FIG. 6. Movement of the button therefore moves the upper end of the spring past center and the spring in turn operates the bridging contact.

With the member **20** and base **10** held firmly together, the ends of extensions **28**, which protrude beyond the opposite side of the base, are spun over. A preferable way to accomplish this is to wrap a tool of the type used for turning over metal rivets with a heating element and heat this tool to a constant temperature on the order of 375° to 400° F. The combination of the temperature and spinning motion cause the walls of the recesses of projections **28** to roll back over themselves instead of flaring outwardly, thus forming a neat and firm rivet head.

Use of such nylon rivets molded integral with the mounting member **20** eliminates the use of separate metal rivets and also provides a switch which has no electric conductive materials externally exposed. The extensive use of molded insulating material also makes it possible for the button to secure itself to the mounting member, eliminates a special spring cap between the spring and the button, and allows mounting features of the switch to be made integral with a portion of the switch structure.

I claim:

1. In an electric switch, in combination, a base, switch contacts and operating mechanism mounted in said base within a recess which opens to one side of said base, and an assembly overlying and closing the recess in said base, said assembly comprising a member formed of an electric insulating material having means for securing said member to said base, a pair of transversely spaced L-shaped slots opening through an outer surface and opposite sides of said member and a central aperture communicating with said recess in said base, and a slide button operator mounted to said member for relative movement therewith, said slide button having resilient leg portions complemental to and interfitting with the slots in said member and having an integral portion which extends through said central aperture and has connection with the switch operating mechanism in said base.

2. The combination according to claim **1**, wherein said member and said slide button are formed of a semi-elastic electric insulating material.

3. The combination according to claim **1**, wherein said leg portions of said slide button are longitudinally shorter

than the length of said slots by an amount which defines the total reciprocable movement for said slide button.

4. In an electric switch, in combination, a base formed of electric insulating material, switch contacts and operating mechanism mounted in said base within a recess opening through one side of said base, a combination cover and mounting member formed of an electrical insulating material and comprising a cover portion overlying the recess in said base, integral fastening portions projecting through clearance openings in said base, said fastening portions being upset over an outer surface of said base to secure the latter and said member together, said member further comprising an intermediate portion of reduced lateral area overlying said cover portion and an upper flat surfaced portion overhanging said intermediate portion, said intermediate and flat surfaced portions having a pair of transversely spaced L-shaped slots which open through the flat surfaced portion and through the opposite sides, respectively, of said intermediate portion and having a central aperture extending therethrough and communicating with the recess in said base, and a slide button operator formed of a semi-elastic insulating material having transversely spaced integral leg

portions complemental to and interfitting with said slots and having a third integral portion which extends through said central aperture and has connection with the switch operating mechanism in said base.

5. The combination according to claim 4, wherein said cover portion of said member has integral tabs depending to opposite sides which together with said flat surfaced portion serve to anchor the switch in a panel or housing that is suitably apertured to accommodate said intermediate portion of said member.

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