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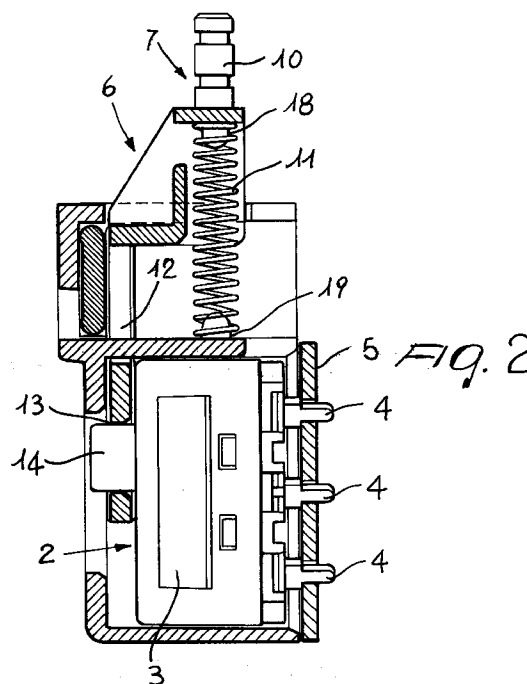
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(54) **Versatile push-button panel**

(57) The versatile push-button panel includes a first body (2) having an electrical slide switch (3), a second body (6) having a push-button control (7) of the slide switch, and a third body having one or more housings for the mutually associated first and second bodies.



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Description

The present invention relates to a versatile push-button panel.

It is known that electric appliances such as an aspirating hood, a dish washer or a laundry machine, a cooking apparatus or a heating apparatus, are generally provided with either two types of electrical switch: press switches or slide switches.

With respect of press switches, slide switches are considerably less expensive, being structurally less complicated. Slide switches may have better electrical properties and are sensibly more reliable in use especially under heavy duty. However, slide switches are more bulky and require a deeper mounting surface, compared to press switches.

Press switches, having the same electrical properties of slide switches, are smaller and have fewer regions subjected to dirt because they do not have a slot where the handle of slide switches must move.

Furthermore, press switches have an easier and comfortable actuation that requires less strength on the part of the user, compared to slide switches because, for example, the user can use any finger to operate them.

Furthermore, the surface of electrical appliance receiving the press switch requires less working, since it is only necessary to bore a simple hole for the cursor, and requires less space and a limited thickness on the surface of application.

It is apparent from the above that the use of slide switches instead of press switches is dictated by several mainly functional and economical consideration.

In either cases the user will suffer from inconveniences.

An aim of the present invention is to eliminate the above described drawbacks of the prior art.

An important object of the invention is to provide a versatile push-button panel having all the advantages derived by a slide switch without the inconveniences.

A further object of the invention is to provide a versatile push-button panel that can be used modularly, with one or more slide switches.

Still a further object of the invention is to provide a versatile push-button panel which allows a single or multiple selection of the slide switches according to the required electrical contacts.

A further object of the invention is to provide a versatile push-button panel which allows to store one type of slide switch for all applications either requiring this type of switch or a press button switch.

Still a further object of the invention is to provide a versatile push-button panel which can be easily assembled and is highly reliable. Also an object of the invention is to provide a versatile push-button panel which and can be applied on any type of electrical appliances, regardless of the size of the front panel of the appliance, and which is also of low cost promoting its presence in

the market.

The above aim and objects are achieved by a versatile push-button panel characterized in that it comprises a first body comprising an electric slide switch, a second body comprising a button control means of said slide switch, and a third body comprising at least one housing for at least said first and second bodies mutually associated.

Further characteristics and advantages of the invention will be more apparent by the following description of a preferred embodiment of the push-button panel according to the invention, illustrated, by way of example in the enclosed drawings wherein:

FIG. 1 is a cross section front view of the panel according to the invention;

FIG. 2 is a cross section side view of the panel according to the invention;

FIG. 3 is a top plan view of the panel of FIG. 1.

With reference to the above figures, the versatile push-button panel, generally designated by the reference numeral 1, comprises a first body, generally designated by the reference numeral 2, comprising a conventional electrical slide switch 3 bearing the moving contacts above the fixed contacts, that are not shown in the drawings, connected through electric connecting pins 4 with, for example, a circuit board 5.

The push-button panel further comprises a second body, generally designated by the reference numeral 6, having a push-button control means 7 for activating the slide switch 2.

The push-button panel also comprises a third body, generally designated by the reference numeral 8, comprising at least one housing and, according to the need, more than one housing 9. The first and second bodies 2 and 6 are arranged inside the housing 9 as shown in FIGs. 1 and 2.

More particularly, the push-button control means 7 comprises a cursor 10 biased by an elastic means, such as a spring 11, between at least a first and a second positions.

The control means 7 are also provided with a control member 12 associated with the cursor 10 for moving the slide 3 from the first position to the second position and viceversa. The control member 12 stems from the cursor 10 along the housing 9 of the third body 8 and has a seat 13. The handle 14 of the slide 3, of the electric switch or first body 2, is engaged inside the seat 13.

Conveniently, the control member 12 and the cursor 10 are integral and are kept inside the third body 8 by two side wings 15 of the third body 8. The wings 15 also serve as guides during the motion.

The first body 2 is also kept inside the third body 8 by snap action by means of, for example, two elastic teeth 16.

In more detail, the spring 11 engages on one side with a first peg 18 provided on the cursor 10 and, on the other side, with a second peg 19 provided on a tang 20 of the third body 8. As said above, the third body 8 may have one housing 9 or a plurality of housings and in each of the housings mutually associated first body 2 and second body 6 may be housed.

When the third body 8 has a plurality of housings 9, the third body 8 is also provided with a selector member 21 having a retaining means for the cursor 10 and for the control member 12 in at least said second position.

In particular, the retaining means, for each of the first and second bodies, comprises a tooth 22 having an inclined wall 23 ending with an engagement seat 24 engaged by a corresponding projection 25 associated with the control member 12.

In this manner, when the cursor 10 is brought from the first neutral position to the second position, the motion of the control member 12, which is associated with the cursor, will make the slide 3 slide thus electrically actuating the circuit board 5.

In this second position, the projection 25 of the control member 12 by sliding along the inclined wall 23 of tooth 22 makes the selector member 21 move transversely until the projection 25 engages the engagement seat 24 thus keeping the control member 12 and the cursor 10 in the second position.

It is apparent that the transverse motion of the selector member 21 effects the disengagement of any other control member inside the housings 9 which will automatically return to the neutral position.

Nevertheless, the user may in any case, by pushing two or more cursors 10 at the same time, make the cursors engage in the selector member thus effecting a desired electric connection.

The selector member 21 is returned to its deactivated position through a spring which is not illustrated in the drawings.

By pushing a cursor 10 the disengagement of the cursor or plurality of cursors of the selector member 21 is effected also because of the action of the spring 11 which returns each cursor in the neutral position ready to receive possible further commands.

It has been seen in practice that the push-button panel according to the invention is particularly convenient in that a slide switch can be used with all associated advantages while at the same time the slide switch is controlled by a push-button with all the associated advantages as described above.

The invention is extremely simple and effective and extremely versatile since only slide switches have to be stored and, according to the application, they may be used with a push-button control.

In this manner, storing costs as well as manufacturing costs may be saved still ensuring a versatile application.

Advantageously, the above described push-button panel is also particularly suitable for very small spaces

where the thickness of the materials where it is applied is small.

The push-button panel may be applied to an electrical appliance, by snap-on or by screws, on a supporting and control structure, and may house, as already stated, a single switch or a plurality of switches according to the needs.

The push-button panel according to the invention may have numerous modifications and variations, all within the inventive concept; furthermore, all the details may be substituted with technically equivalent elements.

The materials employed, as well as the dimensions, may be any according to the specific needs and the state of the art.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Versatile push-button panel characterized in that it comprises a first body (2) comprising an electric slide switch (3), a second body (6) comprising a button control means (7) of said slide switch (3), and a third body (8) comprising at least one housing (9) for at least said first (2) and second (6) bodies mutually associated.
2. Push-button panel, according to claim 1, characterized in that said button control means comprises a cursor (10) biased by elastic means (11) between a first and at least a second positions and viceversa, and a control member (12) associated with said cursor (10) for moving said slide (3) between said first position and said at least second position and viceversa.
3. Push-button panel, according to claim 1 or 2, characterized in that said control member (12) stems from said cursor (10) along said housing (9) in said third body (8) and has a seat (13) engaged by a handle (14) of said slide (3) of said electric switch.
4. Push-button panel, according to one or more of the preceding claims, characterized in that said control member (12) and said cursor (10) are integral and are retained in said third body (8) by two side wings (15).
5. Push-button panel, according to one or more of the preceding claims, characterized in that said elastic means comprises a spring (11) engaging, on one side, a first peg (18) provided on said cursor (10)

and, on the other side, a second peg (19) provided on said third body (8).

6. Push-button panel, according to one or more of the preceding claims, characterized in that said first body (2) is retained in said third body (8) by snap-on means constituted by two elastic teeth (16). 5
7. Push-button panel, according to one or more of the preceding claims, characterized in that slide electric switch (3) is associated to a circuit board (5). 10
8. Push-button panel, according to one or more of the preceding claims, characterized in that said third body (8) has a plurality of housings (9) each suitable to house said mutually engaged first (2) and second (6) bodies. 15
9. Push-button panel, according to one or more of the preceding claims, characterized in that said third body (8) comprises a selector member (21) having retaining means (22,24,25) of said cursor (10) and of said control member (12) in said at least second position. 20
10. Push-button panel, according to one or more of the preceding claims, characterized in that said retaining means comprises, for each of said first (2) and second (6) bodies, a tooth (22) having an engagement seat (24) for engaging a corresponding projection (25) associated with said control member. 25 30

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