

The subject of the present invention is an actuating and fixing device for a switch, such as an on/off switch, of the type described in the preamble of Claim 1.

5 Such an actuating and fixing device for a switch is known, for example, from document FR-A-1,438,095.

 To fix an on/off switch of the push-button type onto the front of an appliance such as a television monitor, recourse is generally had to means such as
10 screws or nuts, depending on the type of switch. Such a fixing is not easy to automate. Furthermore, if a switch is to be fixed to a partition with a complicated shape and in a restricted space, as is the case for a television monitor on/off switch, which is fixed onto the
15 rear face of the front, there is a risk of the switch being sited in a spot on said front which is difficult to access, between stiffening ribs, and its actuating key may then be either too small, or incorrectly placed. If this key is enlarged or if it is fixed so that it
20 overhangs, there is a high risk of the actuating mechanism of the switch jamming or seizing.

 The subject of the present invention is an actuating and fixing device for a switch which allows it to be fixed easily, advantageously with the aid of an
25 assembly robot for mass-production, even in locations which are difficult to access, and which makes it possible easily to fit to it actuating keys of various shapes, even for actuation not square-on.

 The actuating and fixing device in accordance
30 with the invention includes a fixed hollow guidance body in which there moves longitudinally a movable transmission body, the switch being fixed to the hollow guidance body, an actuating button being fixed onto the movable body, and is characterized in that the hollow
35 guidance body includes two types of longitudinal guidance ribs and in that the movable body includes longitudinal guidance rods, a part of whose faces come into contact with a part of the lateral faces of the ribs, the length of the contacting surfaces being much greater than their

width, the contacting surfaces of the first type of rib being perpendicular to those of the second type of rib.

Advantageous embodiments are mentioned in Claims 2 to 5.

5 The present invention will be better understood on reading the detailed description of one embodiment, taken as a non-limiting example and illustrated by the appended drawing, in which:

10 - Figure 1 is an exploded perspective view of a fixing device in accordance with the invention, with a circuit breaker,

 - Figure 2 is a cross-sectional view from above on II-II of Figure 1,

15 - Figure 3 is a cross-sectional view on III-III of Figure 2, and

 - Figure 4 is a plan view of the switch of Figure 1 with its support.

 The invention is described below with reference to an on/off switch, but it is, of course, understood
20 that it is not limited to such an application, and that it can be used to control any mechanical or electro-mechanical device including an actuating pin with longitudinal translational movement.

 The fixing device 1 described below is intended
25 for fixing, to a wall 2, a bipole on/off switch 3 including an axial actuating rod 4 having, in the present case, a cross-section substantially in the form of a square.

 The device 1 essentially includes a fixed hollow
30 guidance body 5 in which there moves longitudinally a movable transmission body 6. The body 5, of rectangular cross-section, includes, at its front part (closest to the wall 2 in the fixed position), two longitudinal guidance tubes 7, 8 interacting with guidance pins 9, 10
35 formed on the wall 2. The body 5 also includes, at its front part, a clipping hook or boss 11 interacting with a corresponding stub (not represented) formed on the wall 2.

 The body 5 includes, at its rear part, two

lateral clipping tabs 12, 13 interacting with lateral bosses 14, 15 formed on a fixing component 16 which is attached to the front part of the switch 3.

Longitudinal holes 27, 28 are made in the bosses 14, 15 of the component 16. These holes interact with stubs 29, 30 formed at the rear part of the body 5, for guiding and holding the component 16 with the switch 3 in place when the bosses 14, 15 clip together with the tabs 12, 13.

The body 5 includes a first inner longitudinal rib 31, of rectangular cross-section, for example, formed in the middle of its wall 32 and extending over practically the entire length of the wall 32. The body 5 includes two other inner longitudinal ribs 33, 34 of rectangular cross-section, each one formed on one of its lateral walls 35, 36 respectively, these walls 35, 36 being parallel to the rib 31. The ribs 33, 34 are both at the same distance from the wall 32, at approximately one third of the height of the walls 35, 36 starting from the wall 32.

The body 6 essentially includes a wall 37 formed integrally with lateral guidance rods 38, 39 of equal length and a central guidance rod 40 a little shorter than the rods 38, 39, as well as with a boss 41 which fixes onto one end of the spring 42, the other end of which bears on the ring 26 of the rod 4.

The wall 37 is of rectangular shape, of dimensions substantially equal to the internal dimensions of the cross-section of the body 5. One of the short sides of the rectangular perimeter of the wall 37 is referenced 43, and the two long sides adjacent to the side 43 are referenced 44, 45.

The rods 38, 39 are perpendicular to the wall 37 and are formed from the corners of the sides 43, 44 and 43, 45 respectively. The rods 38 and 39 have a rectangular cross-section, the long side of which is coincident with the side 44, 45 respectively. The rod 40 has a U-shaped cross-section the opening of which comes practically flush with the side 43, the two branches of

this U being perpendicular to the side 43. The axis of this U passes through the middle of the side 43. The distance between the branches of the U is substantially equal to the thickness of the rib 31. The cross-section
5 of the rod 40 has a rectangular outline, the side opposite the opening of the U of which is coplanar with the short sides of the rods 38, 39.

The length of the long sides of the cross-section of the rods 38, 39 is substantially equal to the distance
10 between the ribs 33, 34 and the wall 32. The distance between the outer long faces of the rods 38, 39 is slightly less than the distance between the walls 35, 36. The branches 38, 39 and 40 are connected, on their sides opposite the side 43, by a thin section 46 which extends
15 from the wall 37 over approximately $2/3$ of the length of the branches 38, 39.

The ends of the rods 38, 39 are formed into hooks 47, 48 pointing outwards. These hooks 47, 48 make it possible to retain the body 6 in the body 5 when the rods
20 38, 39 have been inserted all the way into the rectangular space defined between the wall 32 and the ribs 33, 34 of the body 5. Since the ends of the rods 38, 39 are elastic, they move slightly closer to one another when their hook-shaped ends 47, 48 are engaged in the
25 body 5. When these hooks emerge from the other side of the body 5, the rods 38, 39 return to the normal position, and the hooks retain the movable body 6 in the body 5.

The surfaces of the movable body 6 which are in
30 contact with the body 5 are as follows:

- ends of the branches facing the rod 40, in contact with the lateral faces of the rib 31 over a part of the height of this rib. The body 6 is thus guided in a direction perpendicular to the axis of the rib 31.
- 35 - short lateral sides of the rods 38, 39 in contact with the surfaces opposite of the wall 32 and of the ribs 33, 34.

Given that the length (measured along the longitudinal axis of the body 6) of these contacting

surfaces is much greater (at least ten times) than their width, there is no risk of the body 6 seizing in the body 5, even if this body 6 is not actuated square-on, that is to say if the wall 37 is not pressed at the centres C of the rectangle delimited by the legs of the rods 38, 39 on the wall 37. For this reason, an actuating button 49 can be fixed, for example by clipping, the actuating surface (indicated by an arrow 50) of which button is distanced from the said centre C.

10 According to one embodiment, the length of the contacting surfaces of the bodies 5 and 6 is approximately 30 mm, and the width of each of them is approximately 2 mm.

15 Owing to the fact that the actuating key 49 may be clipped onto the wall 37, it is very easy to personalize it without modifying the rest of the device for fixing the switch, which can be standardized.



CLAIMS

1. Actuating device for a switch (3) and for fixing it onto a support wall (2) including a fixed hollow guidance body (5) in which there moves longitudinally a
5 movable transmission body (6), the switch being fixed to the hollow guidance body (5), an actuating button (49) being fixed onto the movable body (6), characterized in that the hollow guidance body (5) includes two types of longitudinal guidance ribs (31; 33, 34) and in that the
10 movable body (6) includes longitudinal guidance rods (38, 39, 40), a part of whose faces comes into contact with a part of the lateral faces of the ribs (31; 33, 34), the length of the contacting surfaces being much greater than their width, the contacting surfaces of the first type of
15 rib (31) being perpendicular to those of the second type of rib (33, 34).

2. Fixing device according to Claim 1, characterized in that two of the said longitudinal rods (38, 39, 40) for guiding the movable body (6) are lateral guidance
20 rods (38, 39) of rectangular cross-section, whose short sides constitute a first set of guidance contact surfaces, and in that a third of the said longitudinal rods (38, 39, 40) for guiding the movable body (6) is a central guidance rod (40) with a U-shaped cross-section,
25 the ends of the surfaces of whose facing branches constitute a second set of guidance contact surfaces, and in that the rib of the said first type is a longitudinal rib (31) formed in the middle of the inner face of a long wall (32) of the hollow guidance body (5), and
30 perpendicularly to this wall, and in that the ribs of the said second type are two longitudinal ribs (33, 34) each respectively formed on an inner face of the lateral walls (35, 36) of the hollow guidance body (5), parallel to the said long wall (32), the ends of the surfaces of the
35 facing branches of the said central rod (40) coming into contact with the lateral faces of the rib (31) of the said first type over a part of the height of this rib, the small lateral sides of the said two lateral guidance rods (38, 39) coming into contact with the corresponding



surfaces of the said long wall (32) of the hollow guidance body (5) and with a part of the surface of the two longitudinal ribs of the said second type (33, 34).

3. Fixing device according to Claim 1 or 2, characterized in that the ratio of the length to the width of the contacting surfaces is at least 10.

4. Fixing device according to one of the preceding claims, characterized in that the switch (3) and the actuating button (49) are clipped onto the respective bodies.

5. Fixing device according to any one of the preceding claims, characterized in that the hollow guidance body (5) includes means (11) for clipping onto its support wall (2).