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(54) Push-button arrangement

(57) The invention relates to a push-button arrangement with a push-button cover which is adjustable in a switch strip to a limited extent, and which actuates a push-button switch arranged on a board by means of a ram, and which, after it has been released, returns into its initial position by means of spring power. The outlay for the construction of the push-button arrangement is reduced in that the fibre-optic light guide, which is under initial tension and goes out on springs, is supported on the push-button cover and the push-button switch, and in that an LED is integrated into the push-button switch.

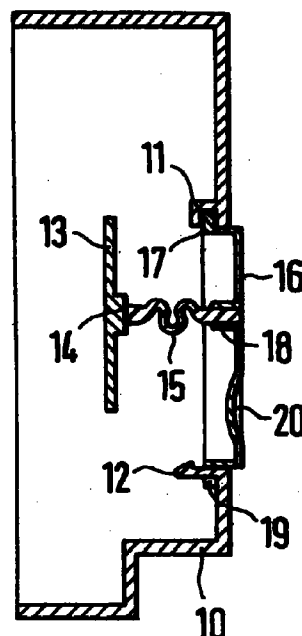


Fig.1

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Description

The invention relates to a push-button arrangement with a push-button cover which is adjustable in a switch strip to a limited extent, and which activates via a ram a push-button switch arranged on a board, and which returns, after it has been released to its initial position by means of spring power.

On the known push-button arrangements of this sort, a compression spring is pushed on to the ram and is tensioned further when the push-button cover is activated, with the result that, when the push-button cover is released, the push-button cover actually returns to the initial position. If the activated position of the push-button switch is to be displayed, then the outlay is considerably increased by an illuminating device.

The purpose of the invention is to create a push-button arrangement of the type mentioned initially which is substantially simplified in structure, even if the illuminating device is integrated into the push-button arrangement.

This purpose is fulfilled according to the invention in that a fibre-optic light guide, which is under initial tension and goes out on springs, is supported on the push-button cover and the push-button switch, and in that an LED is integrated into the push-button switch.

On this structure of the push-button arrangement, the ram and the compression spring can be dispensed with. The fibre-optic light guide takes over the functions of the ram, compression spring and illuminating. Through the integration of the LED into the push-button switch, a particularly simple and effective illuminating device is created, especially if it is so configured that the LED is arranged in the push-button switch in the region of the working surface of the fibre-optic light guide, and that the push-button cover has a receiving sleeve for the fibre-optic light guide in which the light guide is fixed and which is open towards the visible side of the push-button cover.

For aesthetic reasons, the design can furthermore be such that the fibre-optic light guide terminates with its face side flush or raised with the visible side of the push-button cover.

In order to achieve a spring effect in a simple fashion via the fibre-optic light guide, according to one development, provision is made for the resiliently deformable fibre-optic light guide to be configured in the form of a wave, a spiral or a screw.

Provision is made for the push-button cover to be mounted on one side in the switch strip, e.g. as in the enclosed drawing, so as to be tiltable on the upper edge, and for the switch strip and the push-button cover to be provided in the region of their edge of the push-button cover with stops which determine the initial and the switched position of the push-button cover, then the push-button cover is mounted in the switch strip in simple fashion and tiltable to a limited extent, and both positions of the push-button cover and thus of the push-

button arrangement are clearly defined.

The invention is explained in greater detail with the aid of an embodiment, given by way of example and shown in the drawing. The drawing shows, in each case in section:

Fig. 1 a push-button arrangement with a spring-mounted fibre-optic light guide in the initial position and

Fig. 2 the push-button arrangement according to Fig. 1 in the switched position.

As Figs. 1 and 2 show, a push-button cover 16 is mounted in a switch strip 10 so as to be tiltable to a limited extent. In the region of the upper edge of the push-button cover 16, the switch strip 10 has a tilting bearing 11 in to which a bearing projection 17 of the push-button cover 16 is introduced. In the region of the lower edge of the push-button cover 16, the switch strip 10 has a stop 12 which limits the switching movement of the push-button cover 16 when it is actuated. The stop 12 is configured as a snap hook and thus likewise serves the assembly of the push-button cover 16 by the bearing projection 17 of the push-button cover 16 being positioned in a first step in the tilting bearing 11 of the switch strip 10, and in a second step the stop 12 is depressed by rocking of the push-button cover 16, and, after further rocking of the push-button cover 16, springs back and stops the push-button cover 16. The push-button cover 16, held in the initial position, lies with a projection 19 adjacent to the switch strip 10, such that the initial position of the push-button cover 16 is also defined. The actuating point of the push-button cover 16 is indicated on the visible side of the push-button side 16 with the indentation 20.

As can be recognised from Fig. 1, a resiliently deformable fibre-optic light guide 15, for example, configured in wave form, takes over the function of ram and compression spring. In the initial position, the fibre-optic light guide 15 is so pre-tensioned that the initial position as per Fig. 1 is maintained. One end of the fibre-optic light guide 15 is fixed in a receiving sleeve 18 moulded on to the push-button cover 16 and terminates with its face side flush or raised with the visible side of the push-button cover 16.

The other end of the fibre-optic light guide 15 rests on a push-button switch 14 into which an LED is integrated. The LED is arranged in the supporting region of the fibre-optic light guide 15 and is activated via the push-button switch 14 in its swing-on position. The push-button switch 14 has a short switching lift and is fixed on a board 13.

If, as is shown in Fig. 2, the push-button cover 16 is depressed in the region of the indentation 20, then the latter tilts into the switched position which is limited by the stop 12 of the switch strip 10. Here, the fibre-optic light guide 15 is further tensioned by deformation. The push-

button switch 14 is actuated and switches on the LED. The light emitted is led via the fibre-optic light guide to the push-button cover 16 and exits on the face side of the fibre-optic light guide 15, as a sign that the push-button arrangement is going into its switched position. If the push-button cover 16 is released, the fibre-optic guide 15 automatically switches the push-button cover 16 back into the initial position shown in Fig. 1. The push-button switch 14 and the LED maintain their switched-on position, however, until the next time the push-button cover 16 is activated, since the push-button arrangement works in a known bistable fashion.

Claims

1. Push-button arrangement, having a push-button cover which is adjustable in a switch strip to a limited extent, actuates via a ram a push-button switch disposed on a board, and after being released, returns to the initial position by means of resilience, **characterised in that,**

a fibre-optic light guide (15), which is under initial tension and extends resiliently, is supported on the push-button cover (16) and the push-button switch (14), and in that an LED is incorporated in the push-button switch (14).

2. Push-button arrangement according to claim 1, **characterised in that,**

the push-button cover (16) has a receiving sleeve (18) for the fibre-optic light guide (15), in which sleeve the fibre-optic light guide (15) is secured and which is open towards the visible side of the push-button cover (16).

3. Push-button arrangement according to claim 2, **characterised in that,**

the fibre-optic light guide (16) terminates with its face side flush or raised with the visible side of the push-button cover (16).

4. Push-button arrangement according to claim 1 to 3, **characterised in that,**

the resiliently deformable fibre-optic light guide (15) may be configured in the form of a wave, a spiral or a screw.

5. Push-button arrangement according to one of claims 1 to 4, **characterised in that,**

the push-button cover (16) is mounted on one side in the switch strip (10) so as to be tiltable

and in that the switch strip (10) and the push-button cover (16) are provided in the region of the opposite edge of the push-button cover (16) with stops (12, 19), which determine the initial and the switch position of the push-button cover

6. Push-button arrangement according to one of claims 1 to 5, **characterised in that,**

the LED is arranged in the push-button switch (14) in the region of the working surface of the fibre-optic light guide (15).

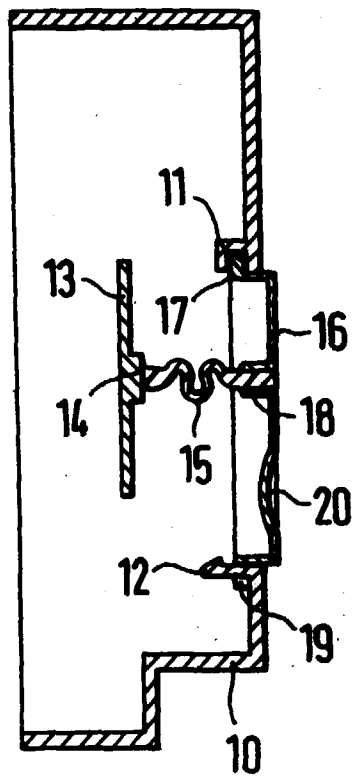


Fig.1

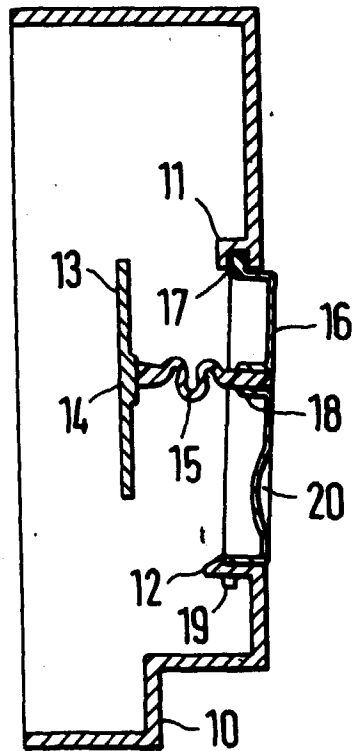


Fig.2