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(54) Switch assembly including a safety device for preventing the switch from being accidentally actuated, in particular for motor vehicles and the like.

(57) The present invention relates to a switch assembly including a device for preventing the switch from being accidentally actuated, in particular for motor vehicles and the like, which comprises an actuating push-button, which can be displaced from an OFF position to an ON position and vice versa.

The main feature of the invention is that on the push-button there is provided a slider element, including a lug which can be removably engaged with a locking element for holding the push-button in an OFF position, the slider element being displaceable, against the biassing of resilient means, in order to disengage the lug from the locking element and allow the push-button to pass from the OFF position to the ON position thereof.

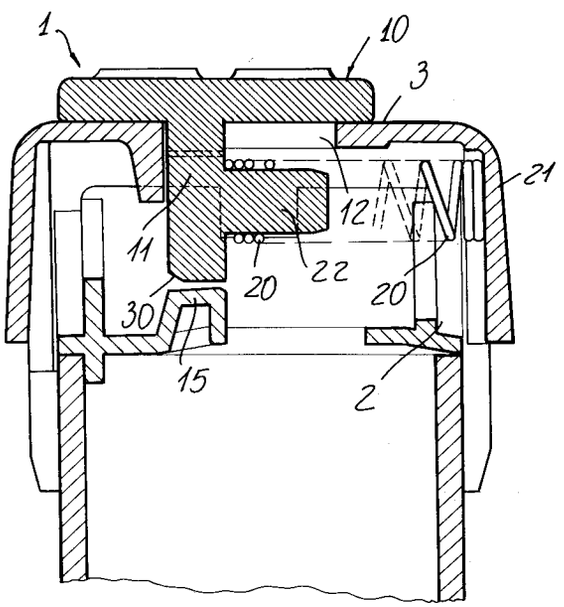

FIG. 2

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BACKGROUND OF THE INVENTION

The present invention relates to a switch assembly including a safety device for preventing the switch from being accidentally actuated, in particular for motor vehicles and the like.

As is known, it is frequently necessary to provide, in electric systems, a switch which is normally held in an OFF position and can be switched to its ON position exclusively as it is required.

This is the case, in particular, of the motor vehicles in which there is usually provided a switch for switching off the electrical connection with the vehicle battery, which switch, particularly for vehicles provided for transporting dangerous goods, represents a very important safety element.

A very important feature of such a switch is that it can not be accidentally switched on since, in such a case, it would switch on the battery thereby providing a dangerous condition, in particular as the vehicle is in movement.

Prior switches for the above mentioned use, have not been found to be fully satisfactory in operation.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to provide a switch assembly, including a safety device adapted to prevent the switch assembly from being accidentally actuated, in particular for motor vehicles and the like, which requires a deliberated operation to be switched to its ON condition.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a switch assembly which, while having remarkably improved operating features, is moreover very simple from a mere construction standpoint and can be made by conventional methods for making switches.

Another object of the present invention is to provide such a switch assembly which is very reliable and safe in operation and which, moreover, can be easily made starting from easily commercially available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a switch assembly including a safety device for preventing said switch assembly from being accidentally actuated, in particular for motor vehicles and the like, comprising an operating push-button which can be displaced from an OFF position to an ON position and vice versa, characterized in that said switch assembly further comprises, on said push-button, a slider provided with a lug which can removably engaged with a locking element in order to hold said push-button in an OFF position thereof, said slider being adapted to be driven, against resilient means, in order to disengage said lug from said locking element and allow said push-button to pass from the OFF position thereof to the ON position thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the invention will become more apparent from the following detailed disclosure of a switch assembly including a safety device for preventing the switch from being accidentally actuated, in particular for motor vehicles and the like, which is illustrated, by way of an indicative, but not limitative, example, in the accompanying drawings, where:

Figure 1 is a schematic top plan view of a portion of the push-button of the switch assembly, this figure clearly illustrating the slider included in the switch;

Figure 2 is a cross sectional view, substantially taken along the line II-II of Figure 1; and

Figure 3 is a further cross-sectional view, substantially taken along the line III-III of Figure 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the number references of the above mentioned figures, the switch assembly including a safety device for preventing the switch from being accidentally actuated, in particular for motor vehicles and the like, and which has been generally indicated at the reference number 1, comprises a switch body 2, which can be of any conventional type, thereon there is applied a push-button 3, for example of a swinging type, which is articulated about its pivot-pin 4.

The main feature of the invention is that on the push-button 3 thereis located a slider 10 provided with a lug 11 extending inside the push-button through a slot 12.

More specifically, the lug 11 is provided with side legs 13 which, as the switch is assembled, resiliently yield to be easily introduced into the slot and then they will spread apart to engage abutments 14 so as to prevent the slider from disengaging.

At the inner end portion thereof, the lug 11 can be removably connected with a detent element 15 provided on the body of the switch and adapted to prevent the push-button from being operated, since it can not swing even if subjected to a pressure, because the lug 11 will abut against the detent or locking element 15.

Accordingly, the switch assembly will be held in its OFF position, and it can be operated or switched to its ON position exclusively by operating the slider 10 to cause said slider to be displaced, against the biassing of resilient means, such as a spring 20, op-

erating between the lug 11 and the side walls 21 of the push-button 3.

Moreover, as shown, the spring 20 is engaged with a centering peg 22, provided on the lug 11.

If the slider 10 is driven, against the urging of the spring 20, then the lug 11 will be disengaged from the detent or locking element 15 and, accordingly, the push-button can be operated, by causing it to swing or toggle, as is shown by the dashed line in Figure 3.

Under these conditions, the switch assembly will be switched to its ON position and, accordingly, the connection with the electric battery of the motor vehicle will be disengaged or switched-OFF.

On the other hand, as the push-button is returned to its OFF position, the spring will cause the slider to be driven again to its starting position, which operation will be aided by the provision of a cut-out 30 on the lug 11 which will allow said lug to be re-located above the locking or detent element 15.

From the above disclosure, it should be apparent that the invention fully achieves the intended aim and objects. In particular, the fact is to be pointed out that a switch assembly has been provided which is very simple construction-wise, while being very efficient, since the provision of the slider will prevent the switch assembly from being accidentally switched ON: in fact, in order to switch ON the switch assembly, is necessary to carry out an additional operation of driving the slider against the spring 20.

The invention as disclosed is susceptible to several modifications and variations all of which will come within the scope of the inventive idea.

Moreover, all of the details can be replaced by other technically equivalent elements.

In practicing the invention, the used materials, as well as the contingent size and shapes can be any, depending on requirements.

Claims

1. A switch assembly including a safety device for preventing said switch assembly from being accidentally actuated, in particular for motor vehicles and the like, comprising an operating push-button which can be displaced from an OFF position to an ON position and vice versa, characterized in that said switch assembly further comprises, on said push-button, a slider provided with a lug which can removably engaged with a locking element in order to hold said push-button in an OFF position thereof, said slider being adapted to be driven, against resilient means, in order to disengage said lug from said locking element and allow said push-button to pass from the OFF position thereof to the ON position thereof.

2. A switch assembly, according to Claim 1, characterized in that said lug extends inside said push-button through a slot formed through said push-button.

3. A switch assembly, according to Claims 1 and 2, characterized in that said resilient means operate between said lug and a wall of said push-button.

4. A switch assembly, according to one or more of the preceding claims, characterized in that said resilient means comprise a spring, engaged on a peg extending from said lug.

5. A switch assembly, according to one or more of the preceding claims, characterized in that said lug is provided, at a free end portion thereof, with a cut-out or bevel in order to allow said lug to be easily arranged above said locking element as said push-button is driven from the ON to the OFF position thereof.

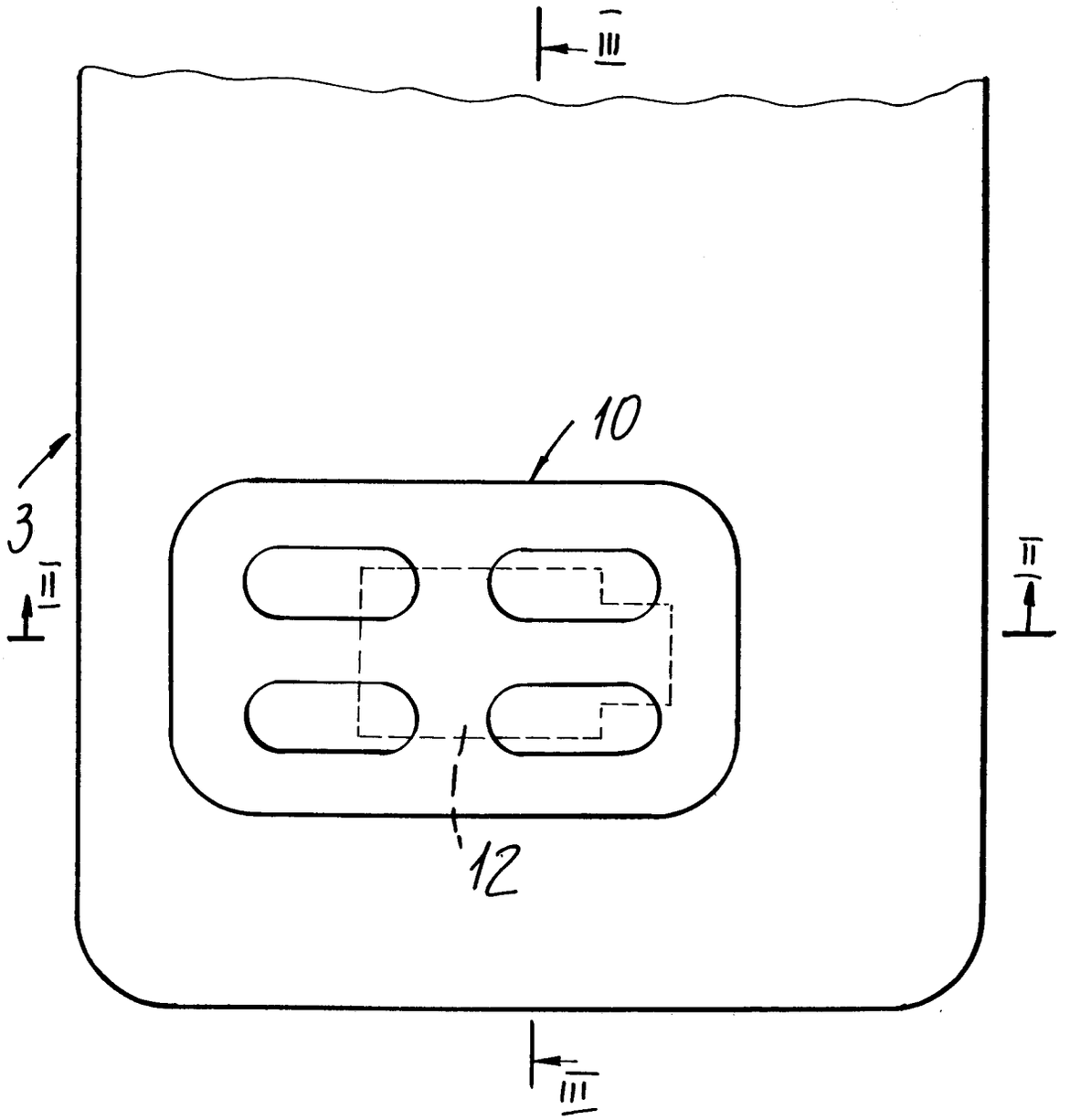

FIG. 1

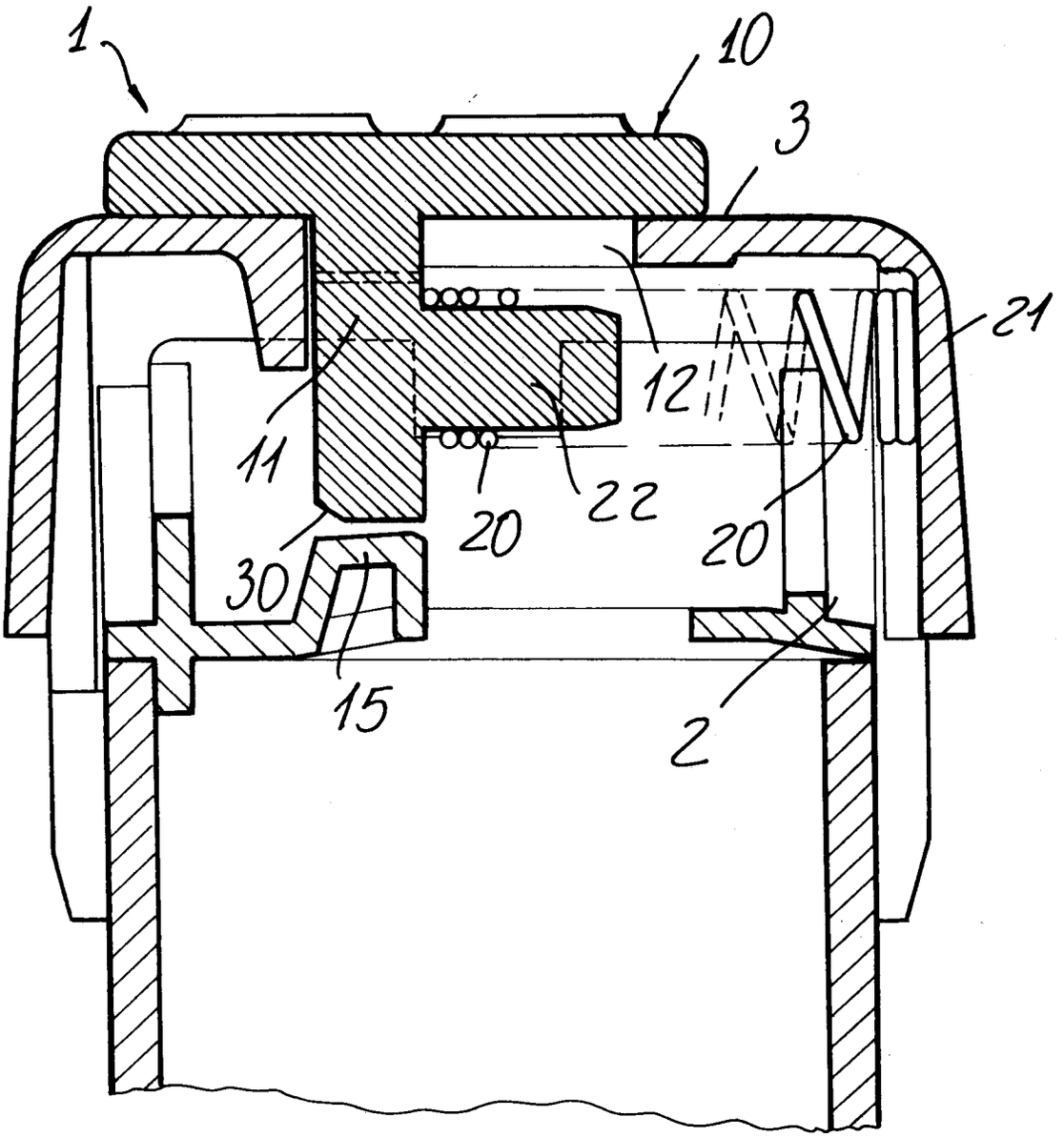

FIG. 2

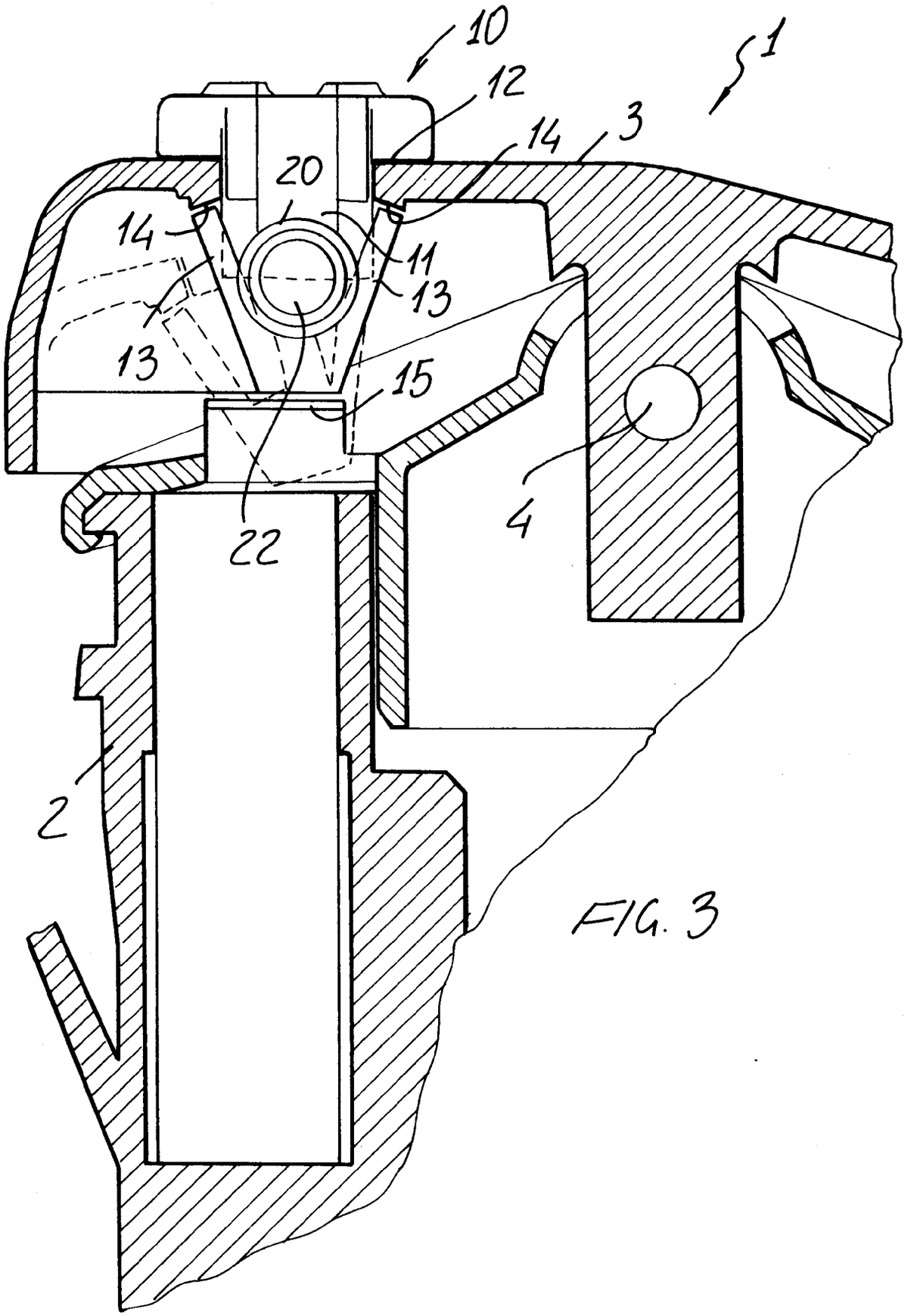

FIG. 3