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(54) Improved safety switch specifically designed for application to motor vehicle power windows

Verbesserter Sicherheitsschalter, speziell für elektrische Kraftfahrzeug-Fensterheber konzipiert

Commutateur de sécurité amélioré, spécifiquement conçu pour des lève-vitres électriques de véhicules automobiles

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(73) Proprietor: **CAVIS S.r.l.**
I-15023 Felizzano (Alessandria) (IT)

(72) Inventor: **Colombo, Paolo**
I-15023 Felizzano, (Alessandria) (IT)

(74) Representative: **Cicogna, Franco**
Ufficio Internazionale Brevetti
Dott.Prof. Franco Cicogna
Via Visconti di Modrone, 14/A
20122 Milano (IT)

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EP-A- 0 471 317	**DE-A- 2 402 613**
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- **PATENT ABSTRACTS OF JAPAN vol. 013, no. 184 (E-751) 28 April 1989 & JP-A-01 010 534 (OMRON TATEISI ELECTRONICS CO) 13 January 1989**

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Description

BACKGROUND OF THE INVENTION

The present invention relates to an improved safety switch, specifically designed for application to motor vehicle power windows.

As is known, prior power window switches usually comprise a push-button by means of which the window glasses of a motor-vehicle are caused to be raised or lowered under the control of a driving electric motor.

These prior switches, however, have the drawback that they are not fully reliable since the mentioned push-button, which projects from an arm element supported inside each door of the motor vehicle, can be accidentally operated, for example by the elbow, thereby causing the window glass to be undesirably lowered or raised.

This, as it should be apparent, could be very dangerous for the motor vehicle passengers, mainly for children.

The document DE-A- 2 402 613 discloses a switch having substantially the features of the preamble of Claim 1.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to overcome the above mentioned drawbacks, by providing an improved safety switch specifically designed for application to motor vehicle power windows, which is adapted to prevent the window glasses for being accidentally operated.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a switch which is very reliable and safe in operation, can be easily made starting from easily available elements and materials and which, moreover, is very reliable 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 motor vehicle power window safety switch, according to the main Claim.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the invention will become more apparent from the following detailed disclosure of a preferred, though not exclusive, embodiment of a safety switch for motor vehicle power windows, which is illustrated, by way of an indicative, but not limitative example, in the accompanying drawings, where:

Figure 1 is a perspective view of the main component parts of the subject safety switch, before the assembling thereof;

Figure 2 is a perspective view of the switch according to the present invention after the assembling of its component parts;

Figure 3 is a front cross-sectional view of the subject safety switch, and specifically illustrating the mode of operation thereof;

Figure 4 is a side view of the switch according to the invention;

and

Figure 5 is a top plan view of the switch according to the invention, without the covering element therefor.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the number references of the above mentioned figures, the safety switch for power windows, which has been specifically designed for application to motor vehicles and the like, according to the present invention, and generally indicated at the reference number 1, comprises a base body 2, supporting thereon a pivoted push-button 3 which can swing about a central fixed pin 4.

Through a portion 5 of the above mentioned swinging push-button there is provided a slot 6 which allows, in cooperation with perforated support elements 7 affixed to the base body 2 and arranged on the front and on the rear, respectively, of a portion, indicated at the reference number 8, of the swinging push-button 3, the insertion of pins 9 provided for locking on the switch 1 a covering element 10.

Accordingly, this covering element is coupled to the switch with an offset relationship.

If desired, the covering element can also be snap engaged on the switch.

Moreover, said covering element is so contoured and/or designed as to allow to introduce into a groove 11 formed thereon, a finger of a hand, in order to cause the glass panel of the window to be operated.

On the top, the covering element is provided with a knurled portion 12 preventing the hand finger from slipping, as the covering element is pressed in order to cause the glass panel to be lowered.

In operation, by introducing a hand finger into the groove 11 and pulling upwardly the covering element 10, the portion 8 of the swinging push-button 3 is pressed downwardly, thereby closing a contact element associated therewith and causing the glass panel to be raised.

On the other hand, by downwardly pressing the covering element 10, will be closed the contact element causing the glass panel to be lowered, through the pressure exerted on the portion 5 of the swinging push-button 3.

From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

In particular, the fact is to pointed out that a safety switch has been provided which comprises a covering

element specifically designed for preventing the glass panels from being accidentally operated.

This safety switch, accordingly, is much more reliable than prior analogous safety switches and, moreover, it is very simple from a mere construction standpoint.

In practicing the invention, the used materials, provided that they are compatible to the intended use, as well as the contingent size and shapes, can be any, according to requirements.

Claims

1. A motor vehicle power window safety switch (1) comprising a pivoted push-button (3) swinging about a central fixed pin (4), thereon there is offset arranged a contoured covering element (10) allowing said push-button (3) to be operated, characterized in that said switch comprises a base body (2) supporting thereon said swinging push-button (3), that to a portion of said swinging push-button (3) there is provided a slot (6) which, in cooperation with perforated support elements (7), affixed to said base body (2), allows the engagement therein of locking pins (9) for locking on said switch said covering element (10), and that in said covering element (10) a groove (11) is formed, wherein as a hand finger is introduced into said groove, for pulling upwardly said covering element (10) a portion (8) of said swinging push-button (3) is pressed downwardly, thereby closing a contact element associated therewith and causing a glass panel to be raised and by downwardly pressing said covering element (10), said contact element will be closed causing said glass panel to be lowered, through the pressure exerted on a further portion (5) of said swinging push-button (3).

2. A safety switch according to Claim 1, characterized in that said covering element (10) is snap engaged on said safety switch (1).

3. A safety switch for power windows according to Claims 1 and 2, characterized in that said covering element (10) is provided with a top knurled portion (12).

Patentansprüche

1. Ein Sicherheitsschalter (1) für elektrische Fenster von Kraftfahrzeugen, der einen aufgehängten Druckschalter (3) umfaßt, der um einen mittig befestigten Stift (4) schwingt und auf dem versetzt eine geformte Abdeckung (10) angeordnet ist, die die Betätigung dieses Druckschalters (3) ermöglicht, dadurch gekennzeichnet, daß dieser Schalter einen Sockel (2) umfaßt, der diesen schwingenden Druckschalter (3) trägt, daß in einem Bereich dieses schwingenden Druckschalters (3) ein Schlitz (6) bereitgestellt ist, der zusammen mit gelochten Trageteilen (7), die an diesem Sockel (2) befestigt sind, das Eingreifen von Befestigungsstiften (9) zur Befestigung dieser Abdeckung (10) auf diesem Schalter erlaubt, und daß in dieser Abdeckung (10) eine Vertiefung (11) gebildet ist, wobei, wenn ein Finger in diese Vertiefung eingeführt wird, um diese Abdeckung (10) anzuheben, ein Bereich (8) dieses schwingenden Druckschalters (3) niedergedrückt wird, wodurch ein damit verbundenes Kontaktteil geschlossen und eine Glasscheibe zum Steigen veranlaßt wird, und wenn diese Abdeckung (10) durch den auf einen weiteren Bereich (5) dieses schwingenden Druckschalters (3) ausgeübten Druck niedergedrückt wird, dieses Kontaktteil geschlossen werden wird, was das Sinken dieser Glasscheibe bewirkt.

2. Ein Sicherheitsschalter nach Anspruch 1, dadurch gekennzeichnet, daß diese Abdeckung (10) auf diesem Sicherheitsschalter (1) schnappbefestigt ist.

3. Ein Sicherheitsschalter für elektrische Fenster nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß diese Abdeckung (10) mit einem oberen, geriffelten Bereich (12) versehen ist.

Revendications

1. Un commutateur de sécurité (1) pour des glaces à commande électrique, destiné à l'application à des véhicules automobiles, comprenant un poussoir à bascule (3) pivotant sur une broche centrale fixe (4), sur lequel est arrangé dans une position décalée un couvercle (10) façonné permettant l'actionnement dudit poussoir (3), caractérisé en ce que ledit poussoir comprend un socle (2) supportant ledit poussoir à bascule (3), que dans une partie dudit poussoir à bascule (3) est agencée une fente (6) permettant, conjointement avec des supports perforés (7) fixés audit socle (2), l'introduction de broches d'arrêt (9) pour fixer ledit couvercle (10) sur ledit commutateur, et en ce que dans ledit couvercle (10) est formée un creux (11), et lorsqu'un doigt est introduit dans ledit creux pour soulever ledit couvercle (10) une partie (8) dudit poussoir à bascule (3) est pressée vers le bas, en fermant un contact lui étant associé et en causant la remontée d'une vitre, et qu'en pressant vers le bas ledit couvercle (10) ledit contact sera fermé en causant l'abaissement de ladite vitre, grâce à la pression exercée sur une autre partie (5) dudit poussoir à bascule (3).

2. Un commutateur de sécurité selon la revendication 1, caractérisé en ce que ledit couvercle (10) est en-

cliqueté sur ledit commutateur de sécurité (1).

3. Un commutateur de sécurité pour des glaces à commande électrique selon les revendications 1 et 2, caractérisé en ce que ledit couvercle (10) est doté à son haut d'une partie cannelée (12).

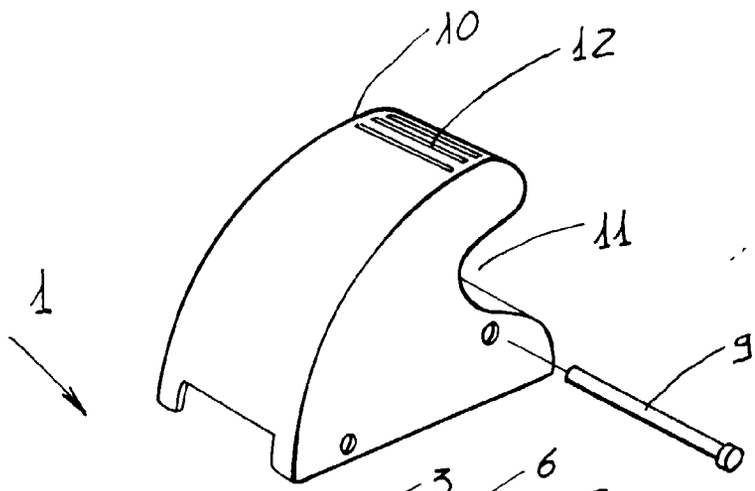

FIG. 1

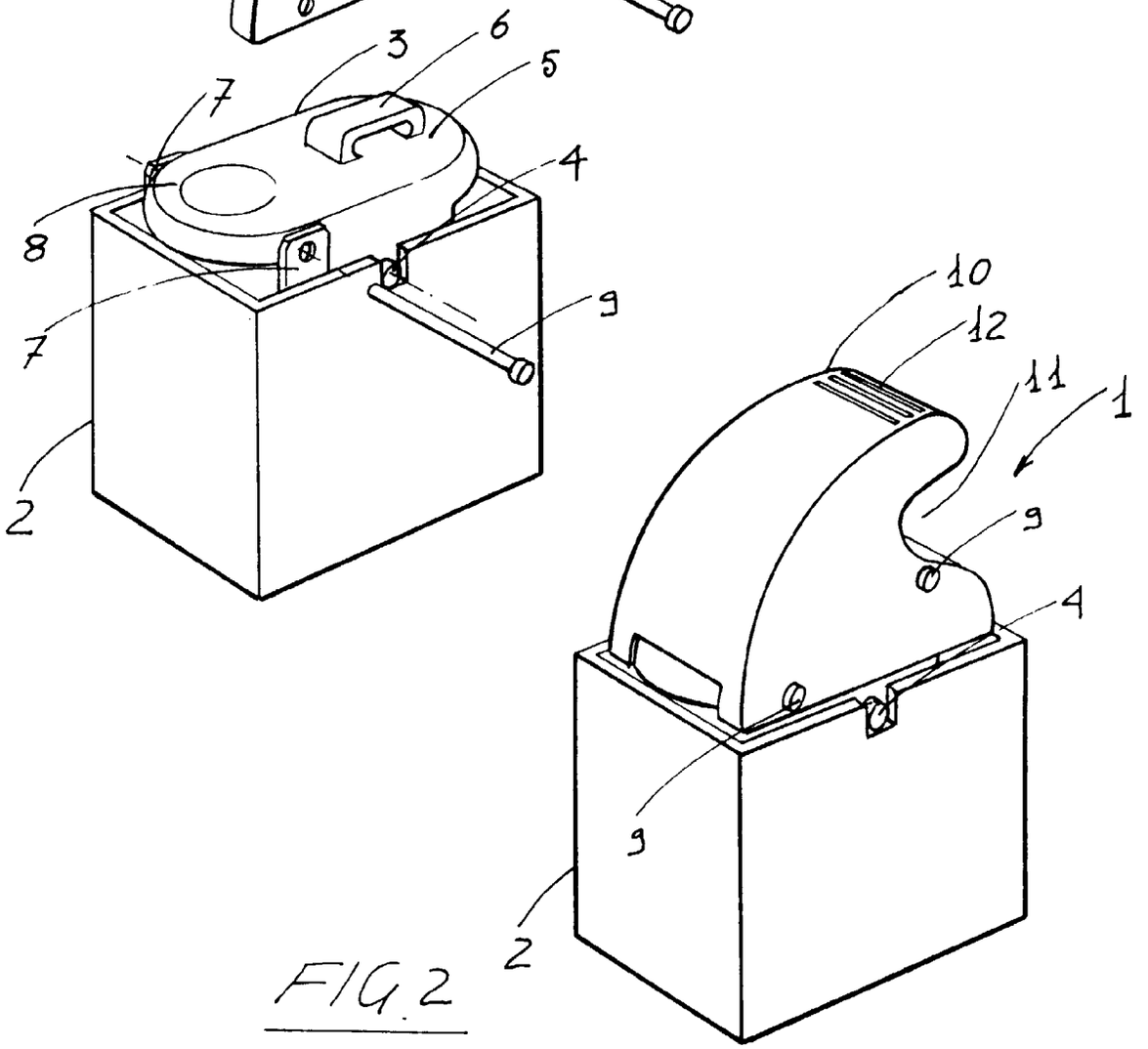

FIG. 2

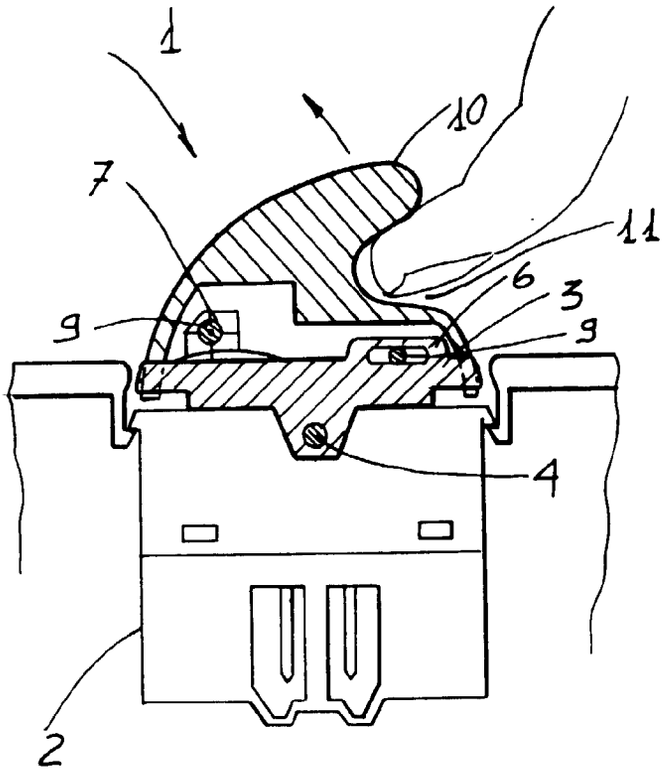

FIG. 3

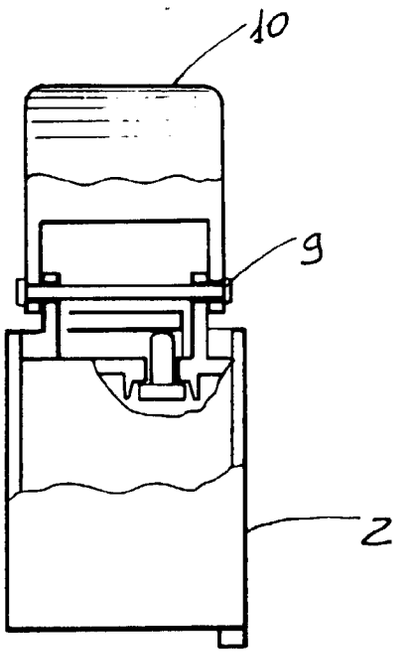

FIG. 4

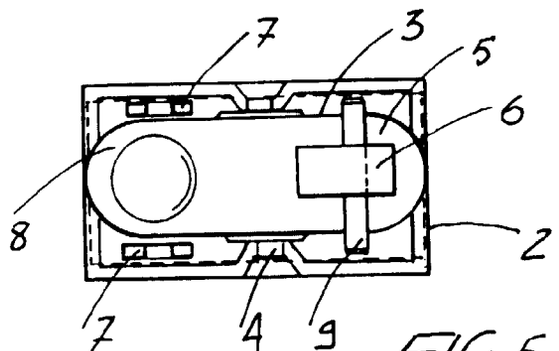

FIG. 5