



(12)

EUROPEAN PATENT APPLICATION

(21) Application number : **94830018.1**

(51) Int. Cl.⁵ : **H01H 21/22, H01H 23/12**

(22) Date of filing : **19.01.94**

(30) Priority : **01.02.93 IT MI930075 U**

(43) Date of publication of application :
10.08.94 Bulletin 94/32

(84) Designated Contracting States :
DE FR GB

(71) Applicant : **CAVIS S.r.l.**
Via Roma, 31
I-15023 Felizzano (Alessandria) (IT)

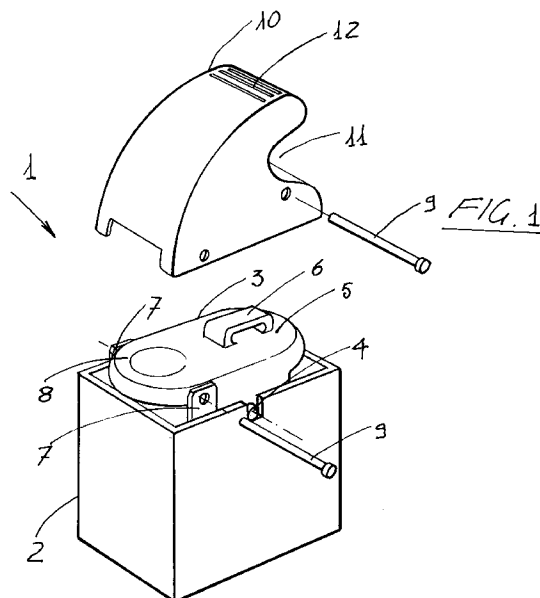
(72) Inventor : **Colombo, Paolo**
c/o Cavis S.r.l.,
Via Roma, 31
I-15023 Felizzano, (Alessandria) (IT)

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

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

(57) The present invention relates to an improved safety switch (1) for application to motor vehicle power windows, characterized in that it comprises a base body (2) supporting thereon a pivoted push-button (3) swinging about a central fixed pin (4).

On the push-button there is mounted, with an offset relationship, a suitable contoured covering element (10) which is adapted, as it is upwardly pulled, to operate the motor vehicle windows.



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.

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 stand-point.

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 an improved motor vehicle power window safety switch, characterized in that said switch comprises a pivoted push-button swinging about a central fixed pin, thereon there is offset arranged a contoured covering element allowing said push-button to be operated.

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 an improved 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 ac-

cording 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 improved 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 pushbutton 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. 5

The invention as disclosed is susceptible to several variations and modifications all of which will come within the scope of the inventive idea. 10

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

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. 15

Claims

1. An improved motor vehicle power window safety switch, characterized in that said switch comprises a pivoted push-button swinging about a central fixed pin, thereon there is offset arranged a contoured covering element allowing said push-button to be operated. 20 25
2. An improved safety switch for motor vehicle power windows, according to Claim 1, characterized in that said switch comprises a base body supporting thereon said swinging push-button. 30
3. An improved safety switch according to Claims 1 and 2, characterized in that to a portion of said swinging push-button there is provided a slot which, in cooperation with perforated support elements, affixed to said base body, allows the engagement therein of locking pins for locking on said switch said covering element. 35 40
4. An improved safety switch according to one or more of the preceding claims, characterized in that said covering element is snap engaged on said safety switch. 45
5. An improved safety switch according to one or more of the preceding claims, characterized in that said covering element is provided with a hand finger engaging groove. 50
6. An improved safety switch for power windows, according to one or more of the preceding claims, characterized in that said covering element is provided with a top knurled portion. 55

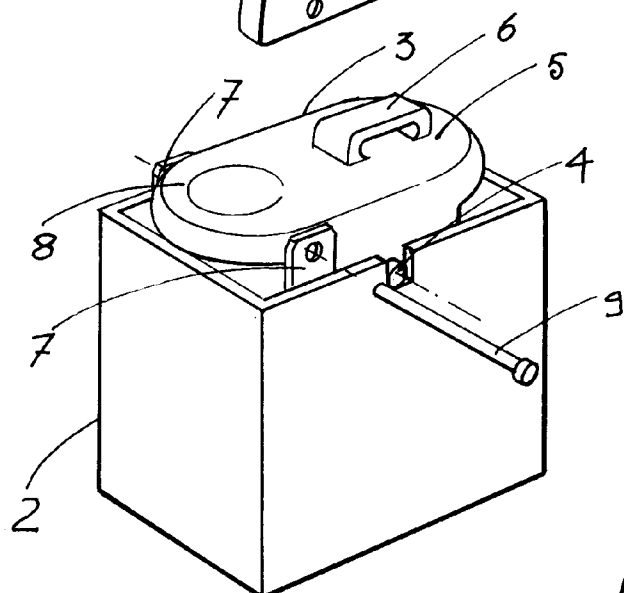
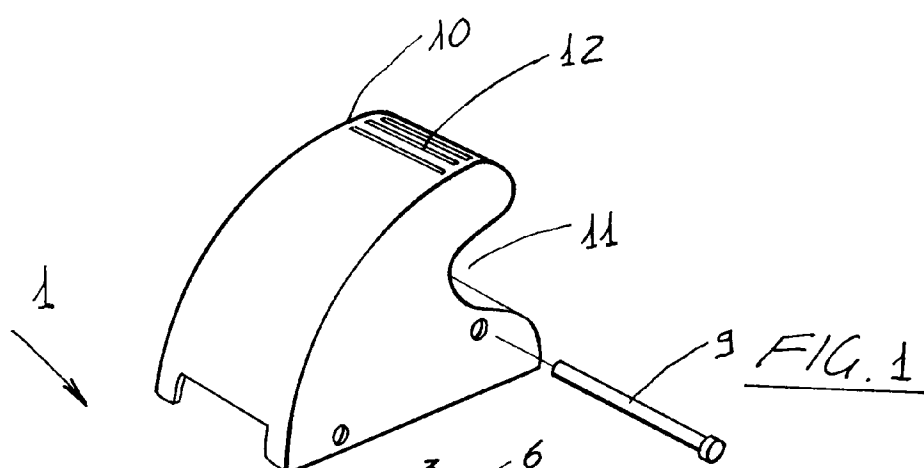
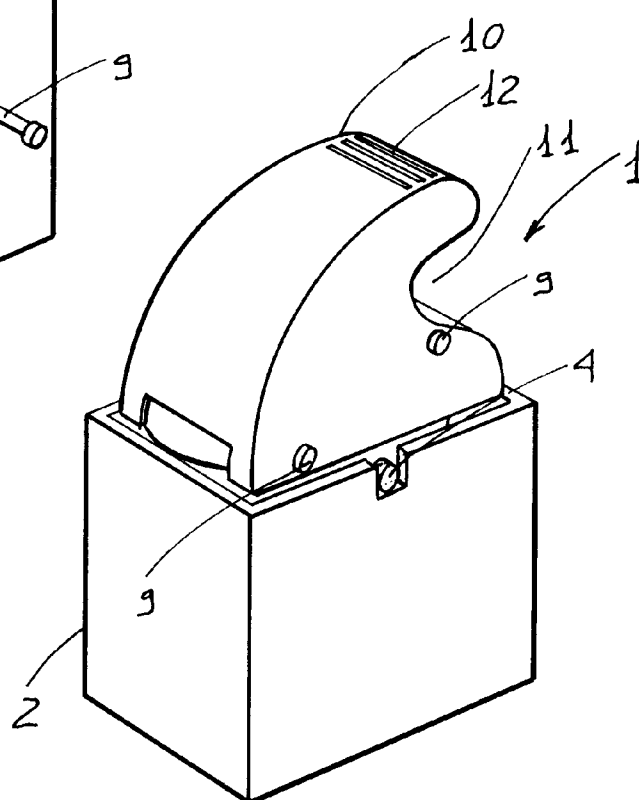


FIG. 2



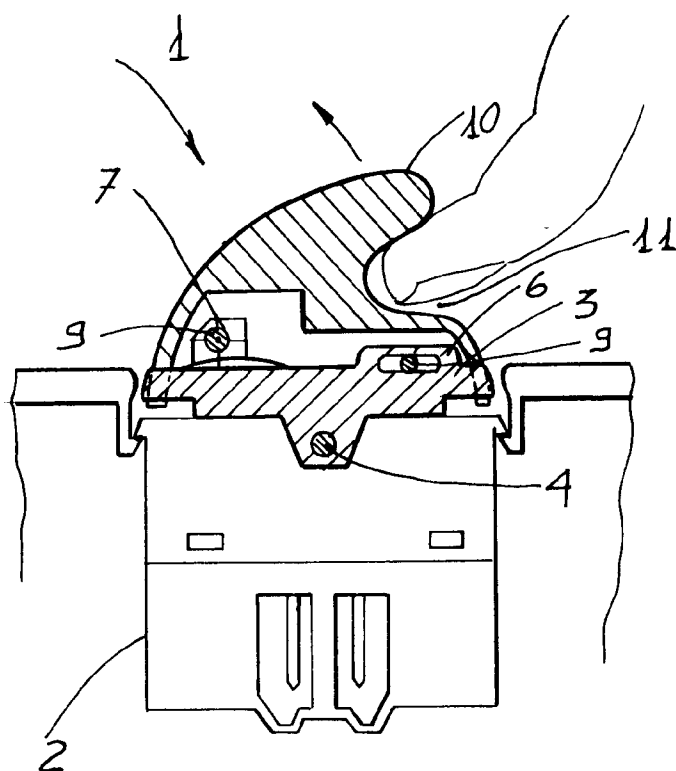


FIG. 3

FIG. 4

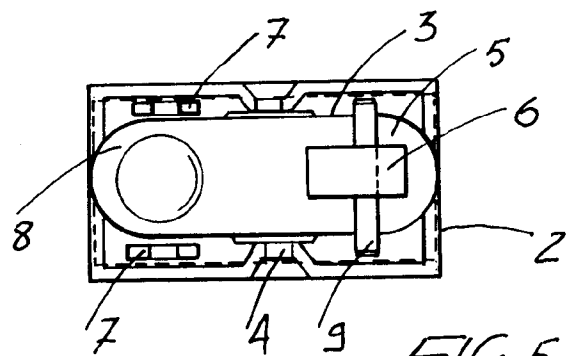
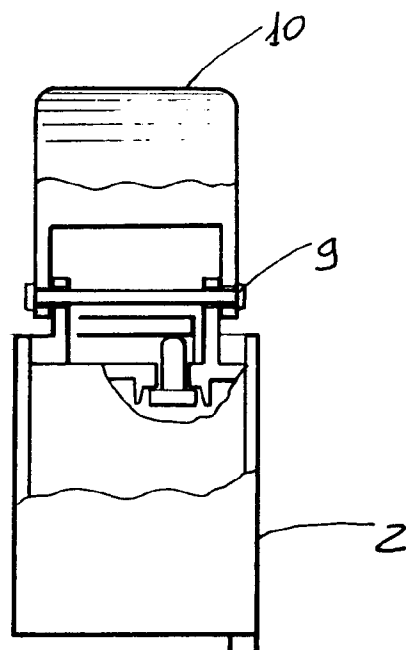


FIG. 5



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 83 0018

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	DE-A-24 02 613 (GEBR. VEDDER) * page 8, last paragraph - page 11, paragraph 1; figure 1 *	1,2	H01H21/22 H01H23/12
X	EP-A-0 471 317 (ABB) * claim 1; figure *	1,2	
A	US-A-3 081 390 (LASAR) * column 2, line 42 - column 3, line 25; figure 2 *	1	
A	FR-A-2 666 926 (LEGRAND) * page 6, line 22 - page 10, line 13; figures 1-3,7 *	1	
A	DE-A-34 33 604 (BBC) * page 12, line 10 - page 14, line 14; figure 1 *	1	
A	DE-C-41 10 327 (S. SIEDLE & SÖHNE TELEFON-UND TELEGRAFIENWERKE) * claim 1; figure 1 *	1	
A	US-A-4 292 485 (KONDO ET AL) * the whole document *	1	
A	FR-A-992 792 (SOCAPEX-PONSOT) * page 3, left column, paragraph 4; figure 4 *	1,6	
A	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 * the whole document *	1	
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 28 June 1994	Examiner Nielsen, K
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 (01/92) (P/4000)