



(11)

EP 1 619 326 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.01.2006 Bulletin 2006/04

(51) Int Cl.:
E05B 63/18 (2006.01) **E05C 9/02** (2006.01)
E05B 15/02 (2006.01)

(21) Application number: **05015867.4**

(22) Date of filing: **21.07.2005**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR**
Designated Extension States:
AL BA HR MK YU

(72) Inventor: **Lambertini, Marco**
40068 San Lazzaro Di Savena
Bologna (IT)

(74) Representative: **Lanzoni, Luciano**
c/o BUGNION S.p.A.
Via Goito, 18
40126 Bologna (IT)

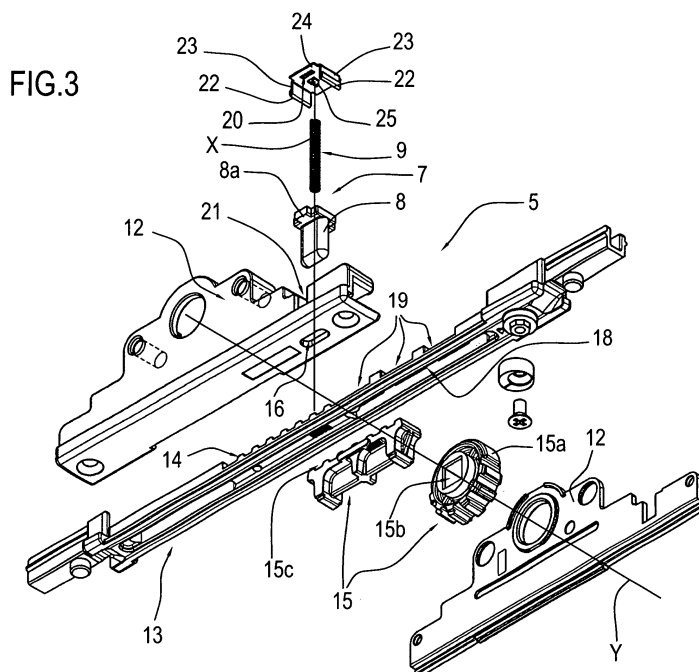
(30) Priority: **21.07.2004 IT BO20040453**

(71) Applicant: **GSG INTERNATIONAL S.p.A.**
40054 Budrio (Bologna) (IT)

(54) **An incorrect operation safety lock device for door or window handle control units**

(57) An incorrect operation safety lock device for door or window (2) handle control units (1), the doors or windows being of the type comprising a fixed frame (PF) and a sash (3) with operating means (4) for opening it, either by turning or by tilting, and closing it; the sash (3) housing control means (5) acting on the operating means (4) controlled by a handgrip (6) that can turn about a horizontal axis (Y); the operating means (5) also comprising means (7) for stopping and releasing handgrip (6) rotation comprising: an operating slider (8), extending

according to a second operating axis (X) transversal to the horizontal axis (Y), and attached to the operating means (5); elastic means (9), acting on the slider (8) and designed to allow maintenance of a configuration which stops handgrip (6) rotation when the sash (3) is in an open configuration; a slider (8) contact element (10) located on the fixed frame (PF) and designed to intercept the slider (8) laterally and at an angled surface (11) when the sash (3) passes from one of the open configurations to the closed configuration, allowing slider (8) movement, corresponding to the release of handgrip (6) rotation.



Description

[0001] The present invention relates to an incorrect operation safety lock device for door or window handle control units, in particular for tilt/turn doors or windows made of metal, PVC or the like, wood - PVC, etc.

[0002] Widespread use of doors or windows of the above-mentioned type has been known for some time, in most cases with application of Cremona bolt handles as the part for opening and closing the door or window.

[0003] This type of handle (see for example patent EP - 446.566 by the same Applicant) basically consists of an outer handgrip rotatably attached to a handle body (normally prismatic in shape), which houses the actual operating means connected, inside the profile, to rods and transmission means which, sliding along the usual seats made along the entire perimeter of the profile, allow the door or window to be opened (either by turning or by tilting) and closed.

[0004] Inside the handle body the handgrip is connected to a pinion meshing on opposite sides with a pair of racks having relative transversal rods, connected inside the above-mentioned rods and transmission means.

[0005] Another known solution is that of separating the two elements forming the handle, that is to say, the control means and the handgrip: this solution is used to make only the handgrip rapidly and economically interchangeable according to the colour - appearance requirements of the room in which the door or window is fitted.

[0006] In practice, in this solution the control means can be housed in tubular chambers in the profile forming the door or window sash, whilst only the handgrip (for example, a customary window handle) is applied on the outside of the profile and mechanically connected to the control means which are normally enclosed in a box-shaped body.

[0007] An incorrect operation safety lock device is also fitted on the control means to prevent a change in the sash configuration when the sash is in the open configuration, whether turned or tilted.

[0008] This device normally consists of a slider located in the box-shaped body and acting on a sliding control rod for the rods or transmission means located on the sash.

[0009] The slider is parallel with the handgrip operating axis and can slide between two end positions: the first stops the rod sliding, with the slider projecting from the box-shaped body and a portion of it interfering with the control rod (sash open configurations), and the second position releases the rod, with the cursor housed in the box-shaped body thanks to the action, for example, of a fixed contact element on the inside of the door or window fixed frame, allowing the rod released by the slider constraining portion to slide freely.

[0010] However, the device structured in this way has functional limitations, due to the above-mentioned arrangement in the box-shaped body, since its position is constrained to a single type of sash opening, that is to

say, a right-hand opening sash or a left-hand opening sash, in order to function correctly.

[0011] Therefore, this constraint necessitates two different types of box-shaped bodies with the incorrect operation safety lock device positioned according to the appropriate operating directions, or disassembly of the box-shaped body before its application on the door or window to correctly reposition the device. Obviously, this increases the overall costs of the product, assembly and storage.

[0012] Therefore, the aim of the present invention is to overcome the above-mentioned disadvantages by providing an incorrect operation safety lock device for door or window handle control units which is extremely practical, versatile and so can be used irrespective of the opening configuration of the door or window sash.

[0013] Accordingly, the present invention achieves said aim with an incorrect operation safety lock device for door or window handle control units, the doors or windows being of the type comprising a fixed frame and a sash equipped with operating means for opening it, whether by turning or by tilting, and closing it. The sash houses control means acting on the operating means during use of a handgrip which can be turned about a horizontal axis. The operating means also comprise means for stopping and releasing handgrip rotation, comprising: an operating slider, extending according to an operating axis transversal to the horizontal axis, and attached to the operating means; elastic means, acting on the slider and designed to allow maintenance of a configuration which stops rotation of the handgrip when the sash is in the open configuration; a slider contact element located on the fixed frame and designed to intercept the slider laterally and at an angled surface when the sash passes from one of the open configurations to the closed configuration, allowing slider movement corresponding to the release of handgrip rotation.

[0014] The technical features of the invention, with reference to the above aims, are clearly described in the claims below and its advantages are apparent from the detailed description which follows, with reference to the accompanying drawings which illustrate a preferred embodiment of the invention provided merely by way of example without restricting the scope of the inventive concept, and in which:

- Figure 1 is a schematic front view with some parts cut away to better illustrate others, of part of a door or window fitted with the incorrect operation safety lock device for handle control units in accordance with the present invention;
- Figure 2 is a schematic side view of a detail of the door or window fitted with the incorrect operation safety lock device;
- Figure 3 is a perspective exploded view of a control device for handles fitted with the incorrect operation safety lock device in accordance with the present invention;

- Figure 4 is a top plan view with some parts cut away to better illustrate others, of the incorrect operation safety lock device located inside control means and illustrated in the previous figures;
- Figure 5 is a top plan view of another detail, that is to say, a contact plate, which is part of the incorrect operation safety lock device;
- Figure 6 is a schematic view from direction S shown in Figure 2, with some parts cut away to better illustrate others, of the incorrect operation safety lock device as it changes from a first to a second configuration;
- Figures 7 and 8 are respectively a perspective view and a perspective exploded view of the incorrect operation safety lock device;
- Figures 9, 10 and 11 are all perspective views of the contact plate in three different embodiments.

[0015] With reference to the accompanying drawings, in particular Figures 1, 2 and 3, the incorrect operation safety lock device according to the invention is used on a control unit, labelled 1 as a whole, for handles which can be applied to doors or windows 2.

[0016] As illustrated in Figures 1 and 2, the door or window 2 comprises a fixed frame PF and a sash 3, each consisting of vertical and horizontal external members (in the accompanying drawings the door or window is only partly illustrated, being typical).

[0017] The sash 3 has a central tubular section and an external seat or channel CP which houses operating means 4 for opening and closing the sash 3 relative to the fixed frame PF (Figure 1 partly illustrates transmission rods forming part of the operating means, since they are of the known type and are not part of the subject matter of the present invention).

[0018] The sash 3 also has a seat housing control means 5 acting on the operating means 4 to open (either to a turned or tilted configuration) and close the sash 3. These operations are controlled using a handgrip 6 kinematically connected to the control means 5, the handgrip being outside the sash 3 and able to turn about a horizontal axis Y.

[0019] As illustrated in Figures 1, 2, 3, the operating means 5 also comprise means 7 which stop and release handgrip 6 rotation, acting on the control means 5 according to the configuration assumed by the sash 3.

[0020] These stop and release means 7 comprise at least:

- an operating slider 8, extending according to an operating axis X transversal to the horizontal axis Y of rotation of the handgrip 6, and attached to the operating means 5;
- elastic means 9, acting on the slider 8 from inside the operating means 5, and designed to allow maintenance of a configuration which stops handgrip 6 rotation, with the slider 8 outside the operating means 5, when the sash 3 is in one of the open con-

figurations;

- a slider 8 contact element 10 located on the fixed frame PF of the door or window 2 and designed to intercept the slider 8 laterally and at an angled surface 11 (see also Figure 6) when the sash 3 passes from one of the open configurations to the closed configuration, allowing slider 8 movement, corresponding to the release of handgrip 6 rotation.

[0021] With the exception of the contact element 10, these elements forming the incorrect operation safety lock device are located in the operating means 5.

[0022] The operating means may, by way of example only and without limiting the scope of the invention, comprise (see Figure 3) a box-shaped body 12 for slidably housing a rod 13 connected to the operating means 4 and having a rack 14 which meshes with rotation means 15 kinematically connected to the handgrip 6.

[0023] The rotation means 15 may, again by way of example only, consist of a partially toothed wheel 15a with a seat 15b for connection to the handgrip 6 and a toothed carriage 15c for transmission of motion inserted and meshing between the wheel 15a and the rack 14.

[0024] According to the structure in the example embodiment, the slider 8 passes through a first slot 16 made in a bottom surface 17 of the box-shaped body 12 and a second slot 18 in the rod 13 so that it partly projects from the box-shaped body 12.

[0025] The rod 13 also has three seats 19 for connection to a base 8a of the slider 8, the seats made on the surface of the rod with the rack 14 (there are three seats to allow relative positioning according to the configuration assumed by the sash 3 and therefore the position of the rod 13).

[0026] As illustrated in Figures 3, 4 and 7, 8, the elastic means 9 are inserted between the slider 8 and the box-shaped body 12 and are designed to allow slider 8 movement between:

- a first, forward operating position, in which the slider 8 projects outside the box-shaped body 12 and the base 8a is connected to one of the seats 19 in the rod 13 (see also the upper position of the slider 8 in Figure 6), the interference stopping the rod 13 from sliding; and
- a second operating position, in which the slider 8 is completely housed in the box-shaped body 12 and the rod 13 can slide freely (see arrows F8 and slider 8 lower position in Figure 6).

[0027] At a structural level, the elastic means comprise a spring 9 inserted between the base 8a of the slider 8 and a supporting and contact wall 20 which can be elastically and reversibly connected in a seat 21 in the box-shaped body 12.

[0028] This contact wall 20 is "U" shaped and at its free ends has bulges 22 for connection in the seat 21 of the box-shaped body 12 when the arms 23 of the "U" are

elastically bent (see arrows F23 in Figure 4).

[0029] The base 24 of the contact wall 20 has a vertical tab 25 for positioning and retaining the end of the spring 9 so as to keep the spring 9 along a predetermined operating axis.

[0030] The slider 8 backward movement is caused, as indicated, by a contact element 10 with the angled surface 11 that is laterally intercepted by the slider 8.

[0031] As illustrated in Figures 5, 9 and 10, the contact element 10 may comprise a plate 26 which can be attached, using relative means 27 (for example grub screws or plain screws located and acting according to assembly and operating parameters which depend on the type of fixed frame PF), to the fixed frame PF and which can be positioned opposite the slider 8, when the door or window 2 is in a closed configuration.

[0032] The plate 26 has a central channel, formed by the angled surface 11 which can be laterally intercepted by the slider 8.

[0033] The plate 26 may have several types of structures: for example, in Figure 11 the plate 26 may be a single-block element with a central zone at the centre of which the angled surface 11 is located, delimited on both sides by a pair of walls 28a and 28b and having two sets of holes 27 with different centre-to-centre distances to allow greater adaptability for assembly on the fixed frame PF. In Figures 5, 9 and 10, the plate 26 may, in contrast, comprise two separate parts, the first 26a, being the base, for fastening it to the fixed frame PF, and the second part 26b being attached to the first part 26a to form the angled surface 11, delimited on both sides by the two guiding and thickness setting walls 28a and 28b.

[0034] The second part 26b may be equipped with means 29 for moving the second part 26b along a plane parallel with the first part 26a (see arrows F29) to adjust the position where the angled surface 11 is intercepted by the slider 8. This measure allows correction of any contact discrepancies caused by wear over time or difficulty assembling the contact element 10.

[0035] For example, the movement means 29 may consist of a pair of slots 29a made in the second part 26b in which screws 29b that lock the plate 26 to the first part 26a are inserted. Loosening the screws 29b allows movement of the second part 26b in both directions, for correct positioning, which may be displayed by marks 29c on the sides of the first part 29a.

[0036] Therefore, an incorrect operation safety lock device structured in this way achieves the preset aims with a structure and positioning of the elements which make it extremely rational, with fewer elements, and with the possibility, in a single element that can be applied to the box-shaped body of the control means, of using the device on both right- and left-hand opening sashes. The position of the slider, transversal to the axis of rotation of the handgrip and the presence of a contact plate, allows the creation of a single control means unit which adapts perfectly to all types of doors or windows, reducing production and storage costs.

[0037] The special structure of the slider - spring - flexible contact body unit allows rapid assembly, if the control means are not already fitted with it, and rapid disassembly for maintenance or part substitution.

[0038] The contact plate can also easily be adjusted to suit requirements after assembly thanks to the presence of the means for positioning the angled surface, thus optimising operation of the incorrect operation safety lock device.

[0039] The invention described is suitable for many industrial applications and may be modified and adapted in several ways without thereby departing from the scope of the inventive concept. Moreover, all the details of the invention may be substituted by technically equivalent elements.

Claims

1. An incorrect operation safety lock device for door or window (2) handle control units (1), the doors or windows being of the type comprising a fixed frame (PF) and a sash (3), each consisting of vertical and horizontal external members; at least the sash (3) having a central tubular section and an external seat or channel (CP) housing operating means (4) for opening, either by turning or by tilting, and closing the sash (3) relative to the fixed frame; the sash (3) housing, in a relative seat, control means (5) acting on the operating means (4) for achieving the sash (3) open and closed configurations controlled by a handgrip (6) kinematically connected to the control means (5), the handgrip being outside the sash (3) and able turn about a horizontal axis (Y); the operating means (5) also comprising means (7) which stop and release the handgrip (6) rotation, acting on the control means (5) according to the configuration assumed by the sash (3), the device being **characterised in that** the stop and release means (7) comprise at least:

- an operating slider (8), extending according to an operating axis (X) transversal to the horizontal axis (Y) of rotation of the handgrip (6), and attached to the operating means (5);
- elastic means (9), acting on the slider (8) from inside the operating means (5), and designed to allow maintenance of a configuration which stops handgrip (6) rotation, with the slider (8) outside the operating means (5), when the sash (3) is in one of the open configurations;
- a slider (8) contact element (10) located on the fixed frame (PF) of the door or window (2) and designed to intercept the slider (8) laterally and at an angled surface (11) when the sash (3) passes from one of the open configurations to the closed configuration, allowing slider (8) movement, corresponding to the release of

handgrip (6) rotation.

2. The device according to claim 1, **characterised in that** the angled surface (11) for laterally intercepting the slider (8) is part of the contact element (10). 5

3. The device according to claim 1, wherein the operating means (5) comprise at least a box-shaped body (12) slidably housing a rod (13) connected to the operating means (4), the rod having a rack (14) which meshes with rotation means (15) kinematically connected to the handgrip (6), the device being **characterised in that** the slider (8) passes through a first slot (16) made in a bottom surface (17) of the box-shaped body (12) and a second slot (18) in the rod (13); the rod (13) also having at least three seats (19) for connection to a base (8a) of the slider (8), the seats being made on the surface of the rod with the rack (14). 10
15
20

4. The device according to claims 1 and 3, **characterised in that** the elastic means (9) are inserted between the slider (8) and the box-shaped body (12) and are designed to allow slider (8) movement between a first, forward operating position, in which the slider (8) projects outside the box-shaped body (12) and the base (8a) is connected to one of the seats (19) in the rod (13), the interference stopping the rod (13) from sliding, and a second operating position, in which the slider (8) is completely housed in the box-shaped body (12) and the rod (13) can slide freely. 25
30

5. The device according to claim 4, **characterised in that** the elastic means comprise a spring (9) inserted between the base (8a) of the slider (8) and a supporting and contact wall (20) which can be elastically and reversibly connected in a seat (21) in the box-shaped body (12). 35
40

6. The device according to claim 5, **characterised in that** the contact wall (20) is "U" shaped, with bulges (22) at its free ends for connection in the seat (21) in the box-shaped body (12) when the arms (23) of the "U" are elastically bent; the base (24) of the contact wall (20) having a vertical tab (25) for positioning the end of the spring (9). 45

7. The device according to claims 1 and 2, **characterised in that** the contact element (10) comprises a plate (26) which can be attached, using suitable means (27), to the fixed frame (PF) and can be positioned opposite the slider (8) when the door or window (2) is in a closed configuration; the plate (26) having a central channel, formed by the angled surface (11) which can be laterally intercepted by the slider (8). 50
55

8. The device according to claim 7, **characterised in that** the plate (26) comprises two separate parts, the first part (26a), being the base, for fastening it to the fixed frame (PF) and the second part (26b), being attached to the first part (26a) to form the angled surface (11), delimited on both sides by the two thickness setting walls (28a) and (28b), and having means (29) for moving the second part (26b) along a plane parallel with the first part (26a) and designed to allow adjustment of the position where the angled surface (11) is intercepted by the slider (8).

FIG.1

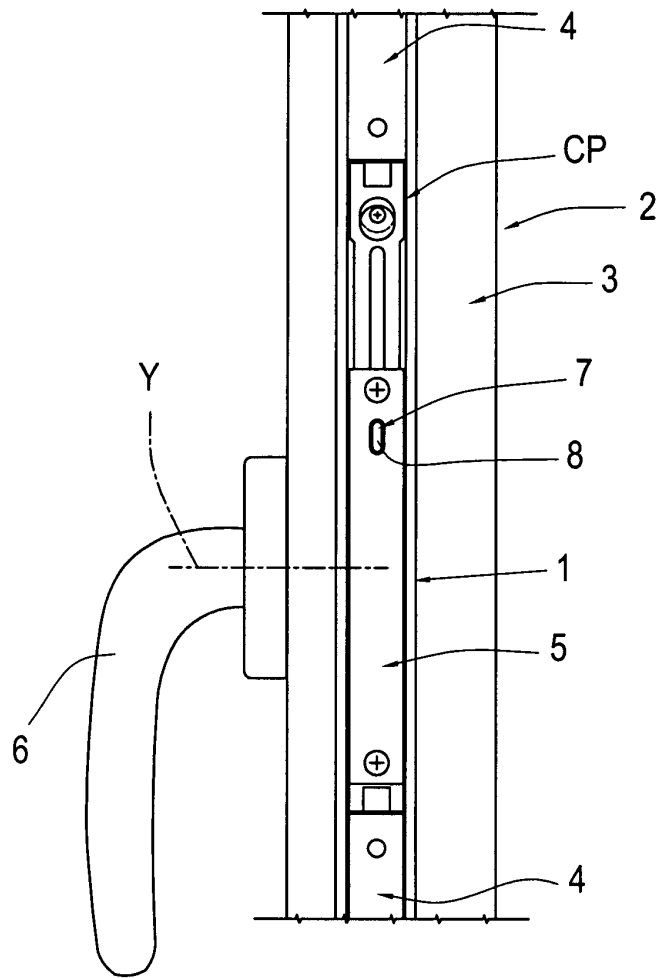
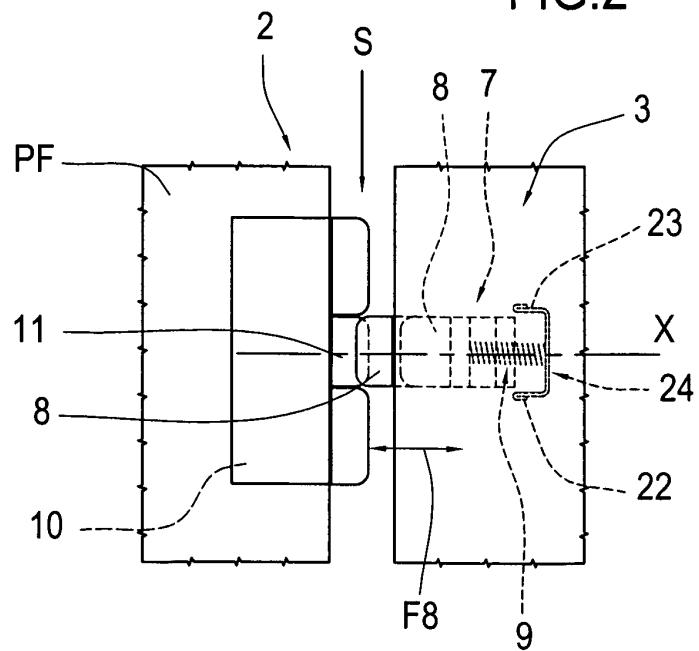
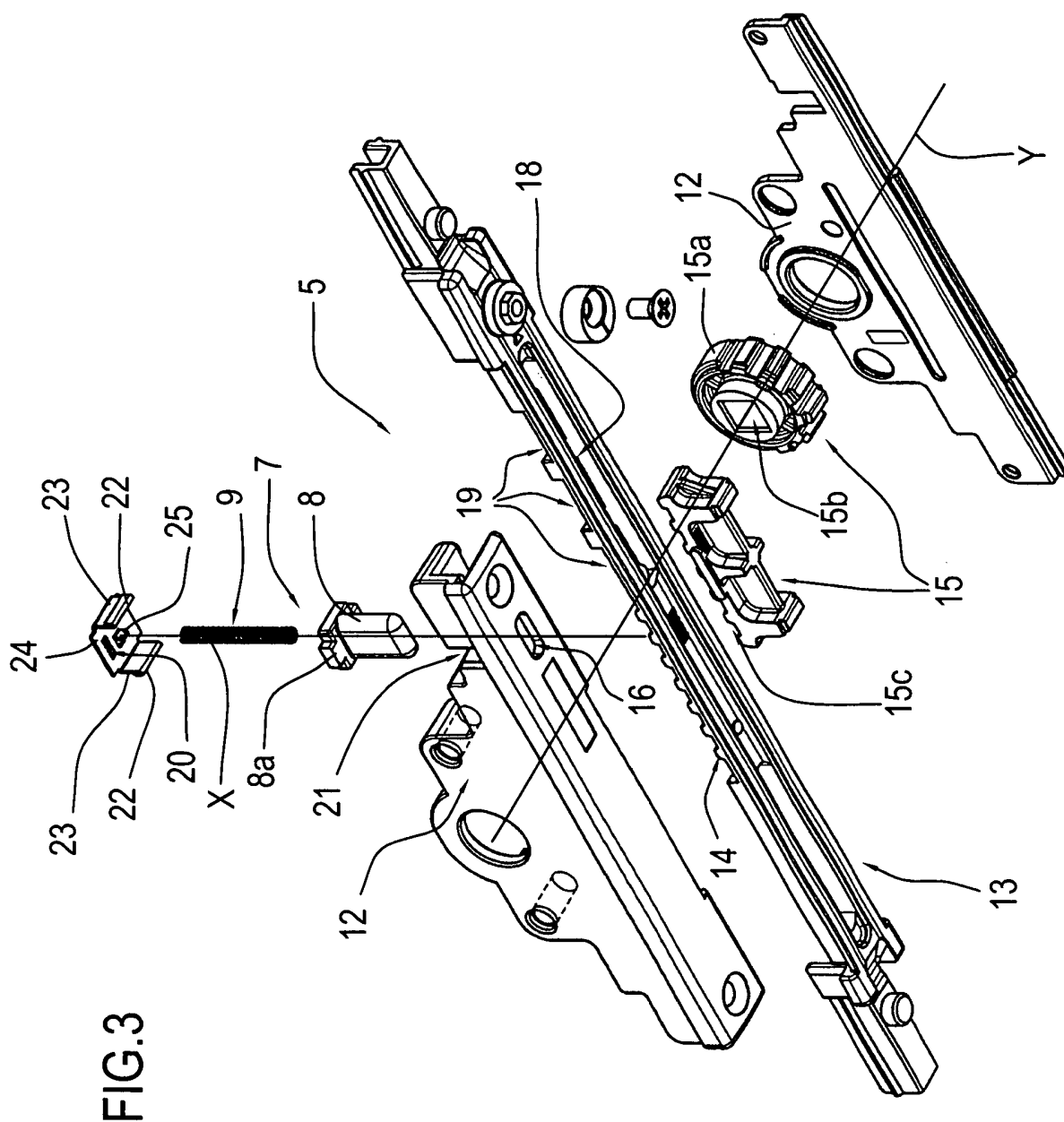
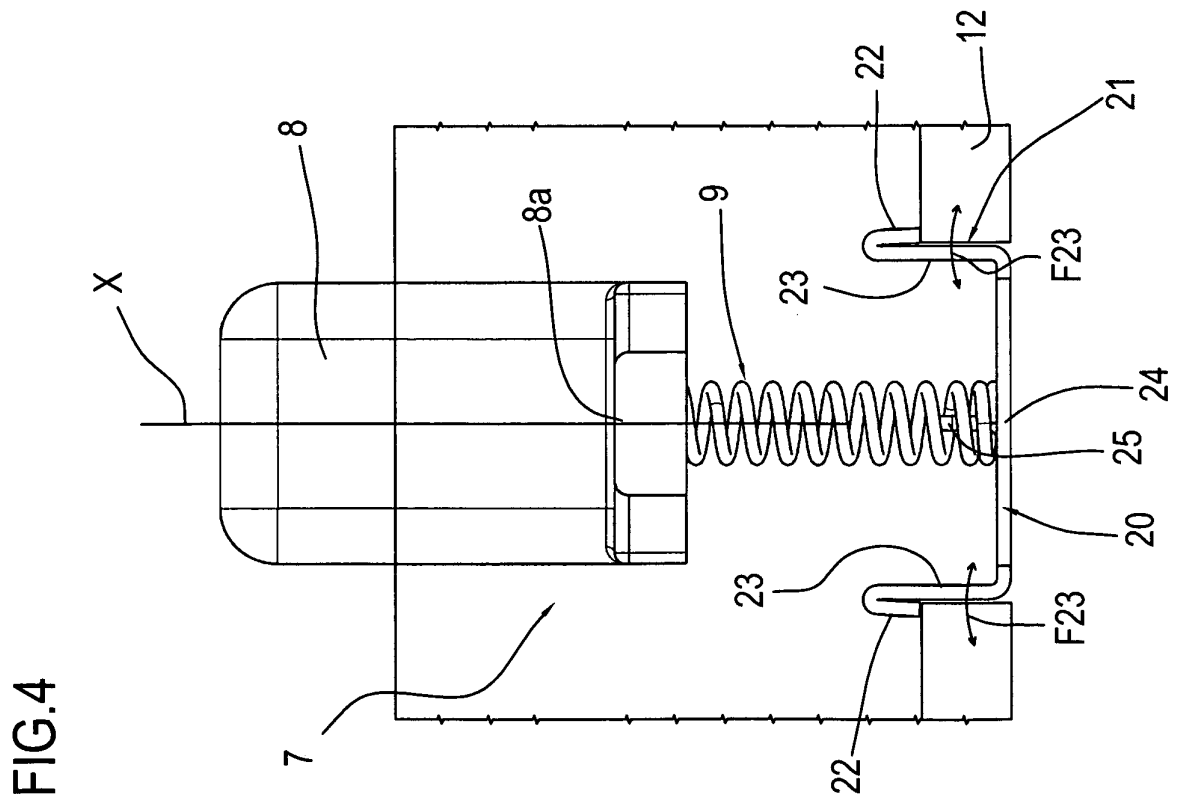
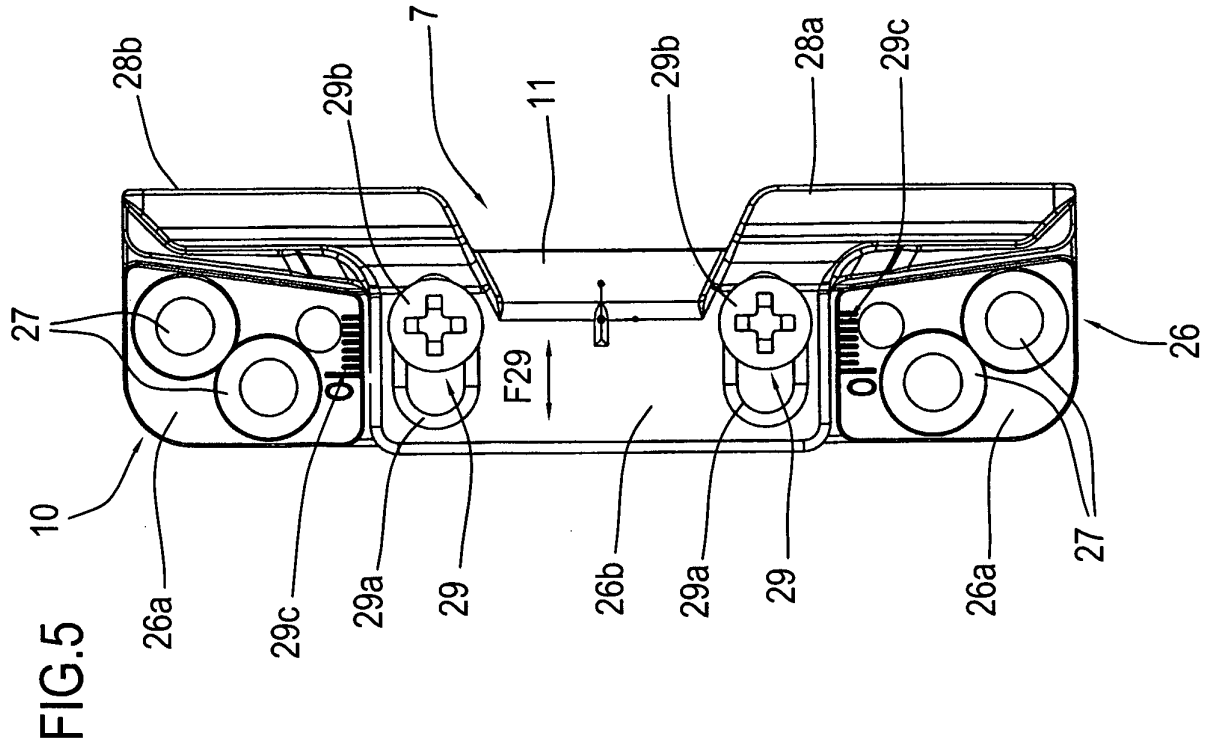
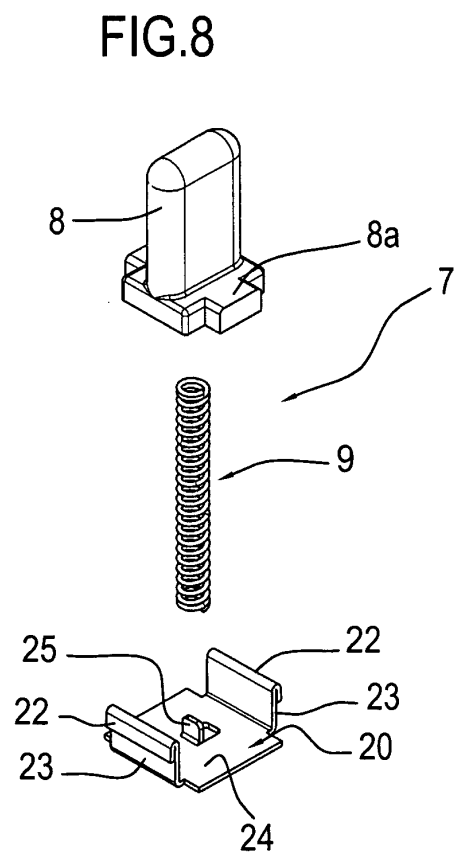
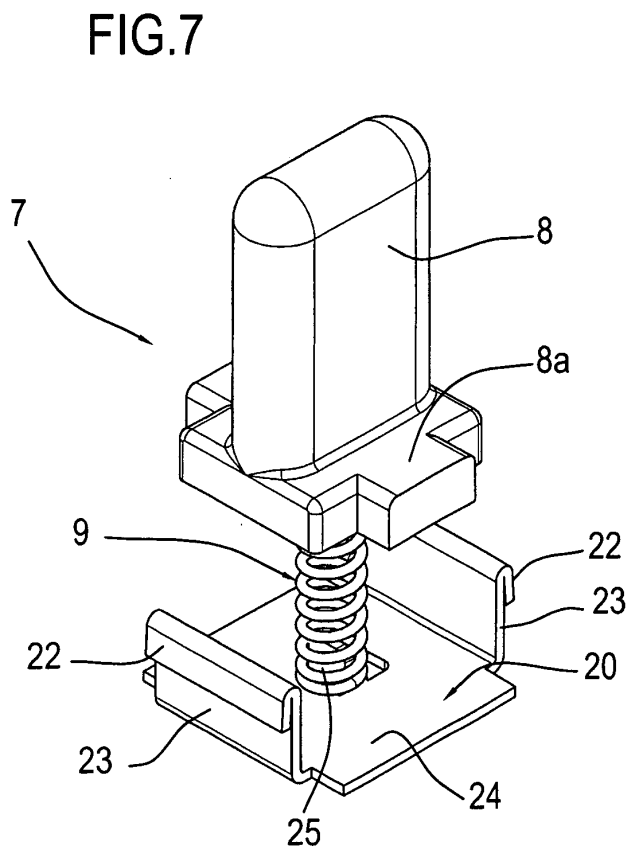
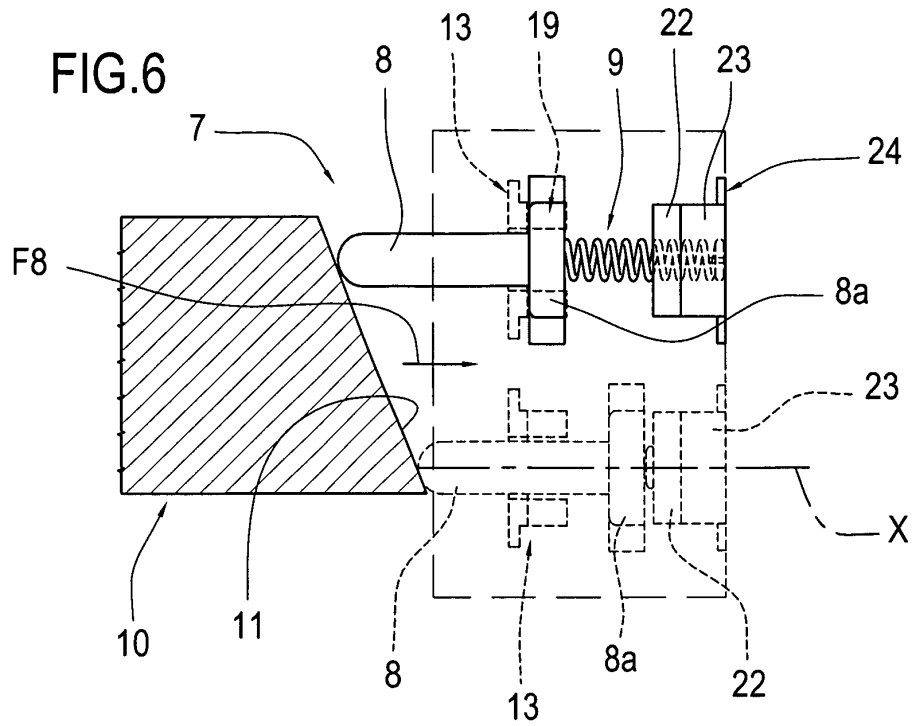


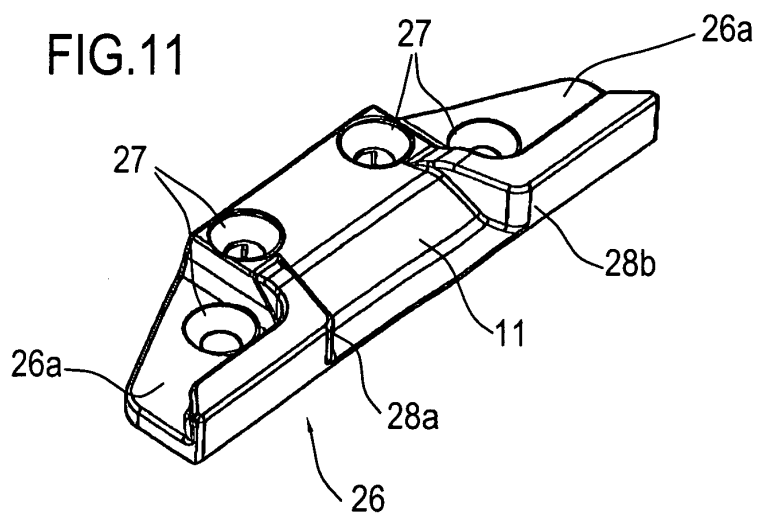
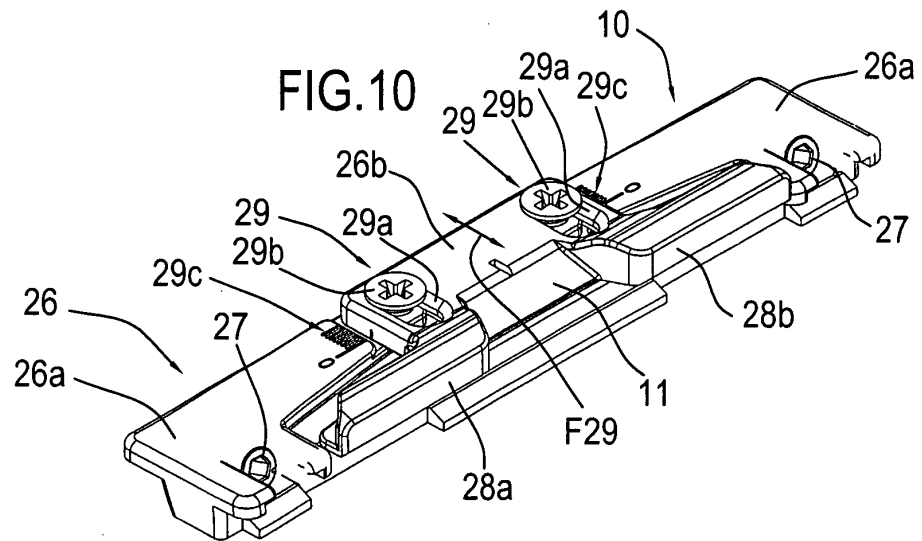
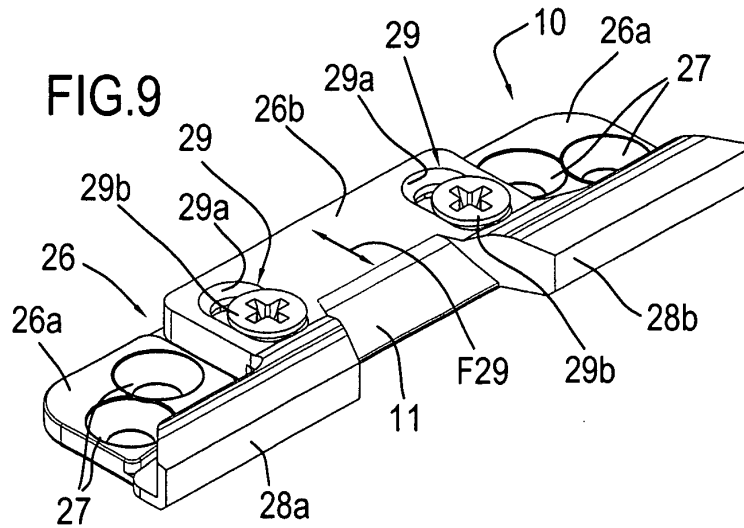
FIG.2













European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 01 5867

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.7)
X	EP 1 004 735 A (FERCO INTERNATIONAL FERRURES ET SERRURES DE BATIMENT SOCIETE ANONYME) 31 May 2000 (2000-05-31) * column 5, paragraph 27 - column 6, paragraph 38; figure *	1-4	E05B63/18 E05C9/02 E05B15/02
X	DE 33 35 306 A1 (SIEGENIA-FRANK KG) 11 April 1985 (1985-04-11) * page 18, paragraph 3; figures 8-11 *	1,2	
X	US 2003/160462 A1 (TONGES REINER) 28 August 2003 (2003-08-28) * page 2, paragraphs 15,22; figure *	1	
X	DE 33 07 209 A1 (FA. AUG. WINKHAUS; FA. AUG. WINKHAUS, 4404 TELGTE, DE; FA. AUG. WINKHA) 6 September 1984 (1984-09-06) * the whole document *	1	
A	EP 1 387 030 A (GSG INTERNATIONAL S.P.A) 4 February 2004 (2004-02-04) * the whole document *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05B E05D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 19 October 2005	Examiner Pieracci, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p> <p>& : member of the same patent family, corresponding document</p>			

1
EPO FORM 1503 03.82 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 01 5867

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-10-2005

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1004735 A	31-05-2000	FR 2786525 A1	02-06-2000
DE 3335306 A1	11-04-1985	NONE	
US 2003160462 A1	28-08-2003	DE 10209573 A1	11-09-2003
		GB 2385887 A	03-09-2003
DE 3307209 A1	06-09-1984	AT 386643 B	26-09-1988
		AT 30584 A	15-02-1988
		SE 446470 B	15-09-1986
		SE 8401118 A	02-09-1984
EP 1387030 A	04-02-2004	NONE	