(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 500 761 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
26.01.2005 Bulletin 2005/04

(51) Int Cl.[7]: **E05B 63/18**, E05B 65/08

(21) Application number: **04015956.8**

(22) Date of filing: **07.07.2004**

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

(30) Priority: **22.07.2003 IT MI20030344**

(71) Applicant: **MASTER S.r.l.**
70014 Conversano (IT)

(72) Inventor: **Loperfido, Michele**
70013 Castellana Grotte (BA) (IT)

(74) Representative: **Faraggiana, Vittorio, Dr. Ing.**
Ingg. Guzzi & Ravizza S.r.l.
Via Vincenzo Monti 8
20123 Milano (IT)

(54) Handle lock for slidable windows provided with a faulty-operation preventing system

(57) A handle locking device for slidable sashes of a window with a frame consisting of a section member, provided with a faulty-operation preventing system adapted to stop the closing movement of the handle when the sash (12) is not in a closed position in its frame (11), comprises an actuating element (15) movable against the action of a spring (21) between a handle-locked position and a handle-released position with a movement perpendicular to the sliding movement of the sash (12) and projecting from the handle body (13b) within the section member thickness. Said actuating element (15) is provided with an active free end (14) received in the section member thickness and designed to interfere in the sliding direction of the sash, by a cam-slipping action, with a locating element (20) on the window frame when the sash (12) is brought to a closed position, to move the actuating element (15) to the released position.

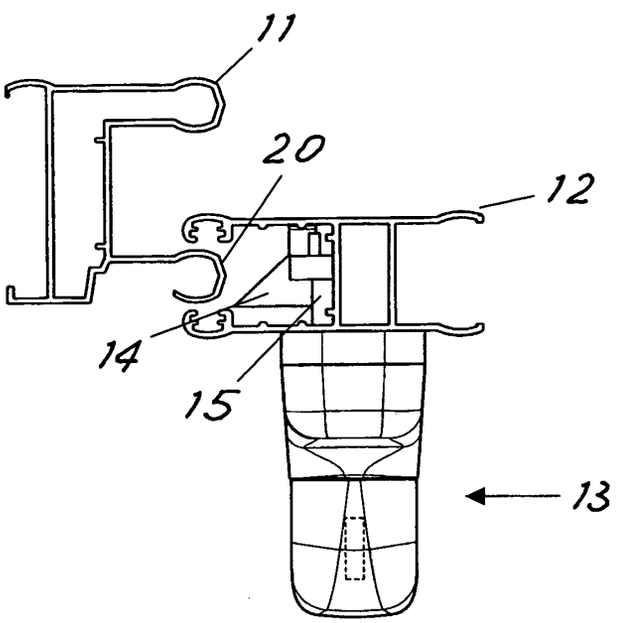


Fig. 1

EP 1 500 761 A2

Description

[0001] The present invention relates to a handle mechanism for operating the closing members of slidable windows, provided with a "faulty-operation preventing" system. For the sake of brevity in the following this mechanism will be identified as "handle", since it generally consists of a body containing the mechanism and from which an element to be gripped projects, which body is designed to be applied to the window sash.

[0002] A "faulty-operation preventing" system on window fixtures is made necessary when operation of the working element and, as a result, movement of the window lock element (for example a prong adapted to couple for closure with a suitable locating element positioned on the fixture frame) is wished to be prevented. When the window is not closed, it is convenient that a faulty operation should be prevented when the handle is operated to the closed position and consequently on carrying out the corresponding movement to the closed position of the lock element actuated by the handle. In fact, an attempt to close the window carried out following a faulty operation of the above type could lead the lock element to impinge on the complementary locating element into which it is introduced when the window is closed, in case of correct working. Such a collision could cause damages to the fixture.

[0003] There are presently on the market different handles provided with a faulty-operation preventing system for casement windows and only some systems for slidable windows. In handles for casement windows, the faulty-operation preventing system comprises an actuating element slidable along a direction perpendicular to the window plane (hereinafter referred to as direction Z, for the sake of simplicity) and for its operation utilizes the relative motion between the sash and the window frame. In the case of slidable windows, the faulty-operation preventing system comprises an actuating element that is movable in the sliding direction of the fixture (hereinafter, direction X) parallel to the window plane, and for operation utilizes approaching between the sash and frame.

[0004] Unfortunately, it has not been hitherto possible to use handles with a faulty-operation preventing system having an actuating element movable in direction Z in the case of slidable windows, because the sash movement with respect to the window frame (in direction X) does not allow actuation of such a faulty-operation preventing system. These handles are widespread on the market, but can be used only in the case of casement windows. Therefore planning and production of suitable handles for slidable windows having a faulty-operation preventing system provided with an actuating element movable in the direction X, is made necessary, as previously mentioned. This clearly involves disadvantages from the point of view of series production and economies of scale.

[0005] It is a general aim of the present invention to eliminate the above mentioned drawbacks by providing a handle with a faulty-operation preventing system having an actuating element movable in the direction Z that can be used in the case of slidable-sash windows as well.

[0006] In view of the above aim, in accordance with the invention a handle locking device for a slidable sash of a window with a frame made of a section member, provided with a faulty-operation preventing system adapted to stop the closing movement of the handle when the sash is not in a closed position in its frame has been conceived, which device comprises an actuating element movable against the action of a spring between a handle-locked position and a handle-released position with a movement perpendicular to the sliding movement of the sash and projecting from the handle body within the section member thickness, said actuating element being provided with an active free end received in the section member thickness and designed to interfere in the sliding direction of the sash, by a cam-slipping action, with a locating element on the window frame when the sash is brought to a closed position, to move the actuating element to the released position.

[0007] For better explaining the innovative principles of the present invention and the advantages it offers over the known art, a possible embodiment applying said principles will be described hereinafter with the aid of the accompanying drawings. In the drawings:

- Fig. 1 is a sectional view of a preferred embodiment of the invention,
- Fig. 2 is a perspective view of the handle in Fig. 1,
- Fig. 3 is an exploded view of two details of the faulty-operation preventing system of the handle,
- Fig. 4 is a further exploded view of the faulty-operation preventing system,
- Fig. 5 represents a view of the handle with the closing cover thereof,
- Fig. 6 is a sectional view of an alternative embodiment of the invention,
- Fig. 7 is a sectional view of another alternative embodiment of the invention.

[0008] Shown in section in Fig. 1 is the frame 11 of the slidable window to which the invention applies, as well as the window sash 12 and handle 13 provided with a faulty-operation preventing device. The faulty-operation preventing system, as shown in the following figures, comprises a base body 16, an actuating element 15, a block 14, a cover 18 and a spring 21. The actuating element 15 is mounted in a slidable manner on the base body 16 so that it can move in the direction Z. The spring 21 is mounted between the base body 16 and the actuating element 15, its longitudinal axis being disposed along the direction Z. Formed in the base body 16 is a rack 16b meshing with a cogwheel 17 integral with the handle handgrip 13a. The base body 16 is received into the handle body 13b so that it can slide in a vertical di-

rection. The cover 18 is fastened to the handle body 13b to close it and is provided with housings 18b (two of which are shown in Fig. 5) designed to receive the tooth 15b formed on the actuating element 15. The block 14 is provided with an inclined surface 14a and is fastened, by means of a screw (not shown in the figure) for example, to the actuating element 15. Means 14b and 14c are formed on the block 14 in order to ensure a non-weak fastening of said block to the element 15. The projections 14c can possibly also have the function of limiting bending of the actuating element 15 during closure, by resting on a suitable surface of the section member of sash 12 to lighten the shearing stress on element 15.

[0009] Operation of the handle as a whole is as follows.

[0010] In an open condition of the window, spring 21 pushes the actuating element 15 away from the base body 16. In this manner this spring 21 forces the tooth 15b into the housing 18b formed in the cover 18 and corresponding to the open position of the handle. This prevents the base body 16 from sliding in a vertical direction within the body of handle 13b. Since this base body 16 is kinematically connected with the handle handgrip 13a by means of the rack 16b and the cogwheel 17, it is well apparent how the faulty-operation preventing function inhibiting any rotation of the handgrip 13a when the window is open, is implemented.

[0011] When the slidable sash 12 during closure moves close to the fixture frame 11, the locating element 20 of the frame comes into contact with the inclined surface 14a of the block 14. This block is pushed in the direction Z moving close to the body of handle 13b by effect of a cam-slipping action of the inclined surface 14a with the locating element 20 of the frame. This involves sliding of the actuating element 15 on the base body 16 overcoming the elastic force of spring 21. In this manner the tooth 15b is released from the housing 18b that received it, thus allowing the base body 16 to slide vertically and the handle handgrip 13a to rotate to close the window.

[0012] Thanks to block 14 suitably mounted on the handle, it has been possible to use a handle with a faulty-operation preventing system which has an actuating element 15 movable in a direction perpendicular to the window plane also in the presence of a slidable sash window.

[0013] Obviously, the above description of an embodiment applying the innovative principles of the present invention is given by way of example only and therefore must not be considered as a limitation of the scope of the patent rights herein claimed. In fact it is possible to image different alternative embodiments. For example, shown in Fig. 6 is a handle in accordance with the invention which comprises a block 14 (similar to that of the preferred embodiment) and an additional locating element 20 that is fastened to the fixture frame 11 to promote actuation of the faulty-operation preventing system and to adapt it to the specific shape of the frame itself. Again, shown in Fig. 7 is a further alternative embodiment of the present invention. In this case only a locating element 20 is mounted on the window frame, in the absence of a block to be fastened to the actuating element 15. This locating element 20 is provided with an inclined surface for cam slipping required for actuation of the faulty-operation preventing system; this surface is quite similar to the inclined surface 14a of block 14 in the preferred embodiment. Finally, in the embodiments providing for the presence of block 14 to be fastened to the actuating element 15, a fastening system with an adjustable screw can be used so as to be able to adjust the distance of the cam surface 14a of the handle and therefore to be able to adapt the handle to the different forms and different types of frames present on the market.

Claims

1. A handle locking device for a slidable window sash with a frame made up of a section member, provided with a faulty-operation preventing system adapted to stop the closing movement of the handle when the sash (12) is not in a closed position in its frame (11), comprising an actuating element (15) movable against the action of a spring (21) between a handle-locked position and a handle-released position with a movement perpendicular to the sliding movement of the sash (12) and projecting from the handle body (13b) within the section member thickness, said actuating element (15) being provided with an active free end (14) received in the section member thickness and designed to interfere in the sliding direction of the sash, by a cam-slipping action, with a locating element (20) on the window frame when the sash (12) is brought to the closed position to move the actuating element (15) to the released position.

2. A handle locking device for a slidable window sash as claimed in claim 1, **characterized in that** said active end (14) and said locating element (20) mutually engage at an inclined surface (14a) of at least one of them, with mutual cam slipping.

3. A handle locking device for a slidable window sash as claimed in claim 2, **characterized in that** said inclined surface (14a) forms an angle of 45° with the sliding direction of the sash (12) and with the movement direction of the actuating element (15).

4. A handle locking device for a slidable window sash as claimed in claim 1, **characterized in that** said active end (14) is a block adapted to be fastened to the actuating element (15) in an adjustable manner in order to enable engagement between said block and the locating element (20) in any case, upon var-

ying of the position of said locating element within the section member, irrespective of the type of frame (11) used.

5. A handle locking device for a slidable window sash as claimed in claim 1, **characterized in that** said active end (14) is a block fastened to the actuating element (15) by means of a screw, said block comprising means (14b, 14c) to make fastening thereof not weak.

6. A handle locking device for a slidable window sash as claimed in claim 1, **characterized in that** said active end (14) is provided with projections (14c) on which a surface of the section member of the sash (12) rests at right angles to the sliding direction of the window, in order to restrict bending of the actuating element (15) during cam-slipping between the active end (14) and the locating element (20).

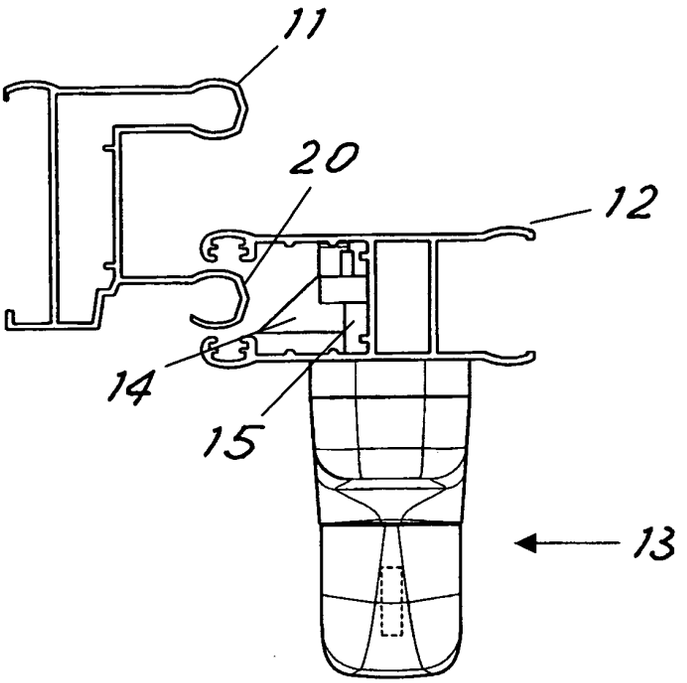


Fig. 1

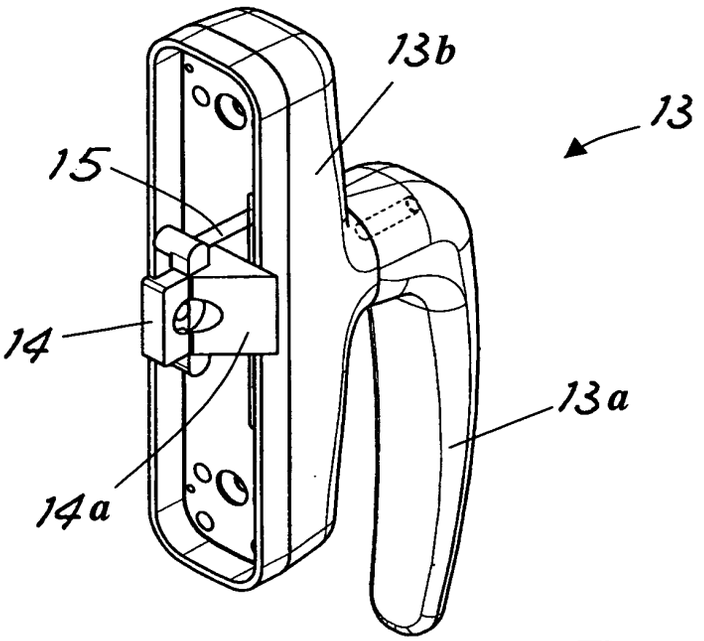


Fig. 2

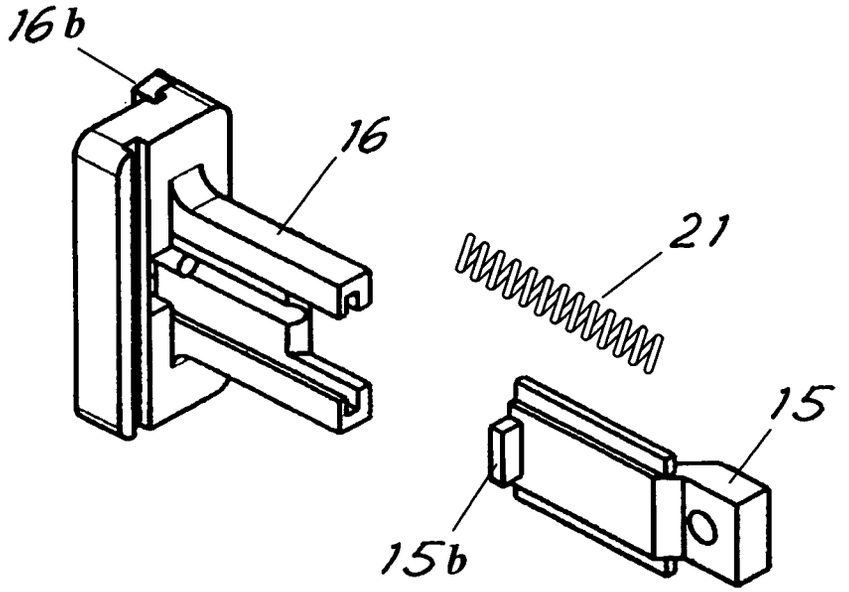


Fig. 3

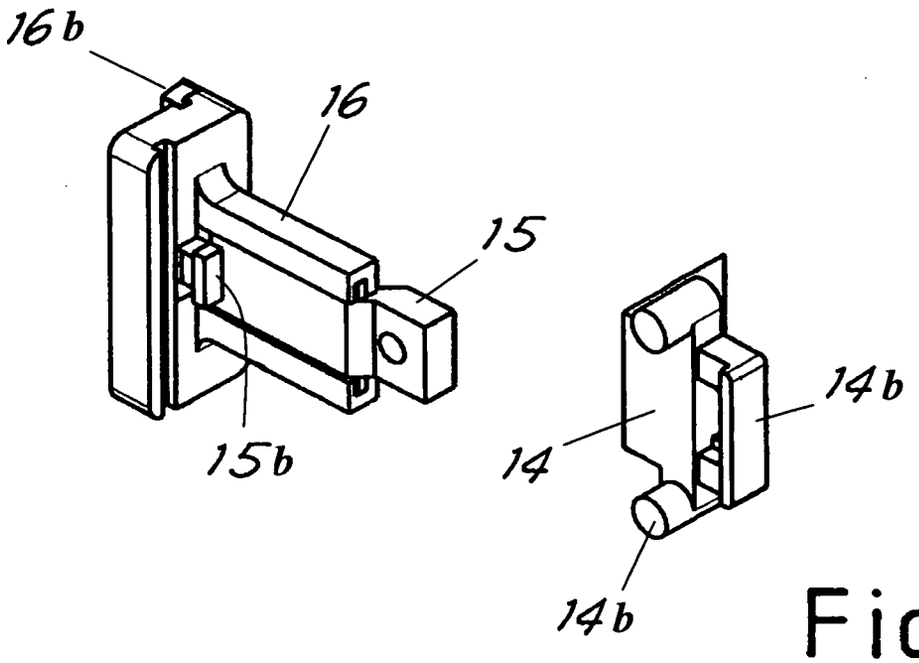


Fig. 4

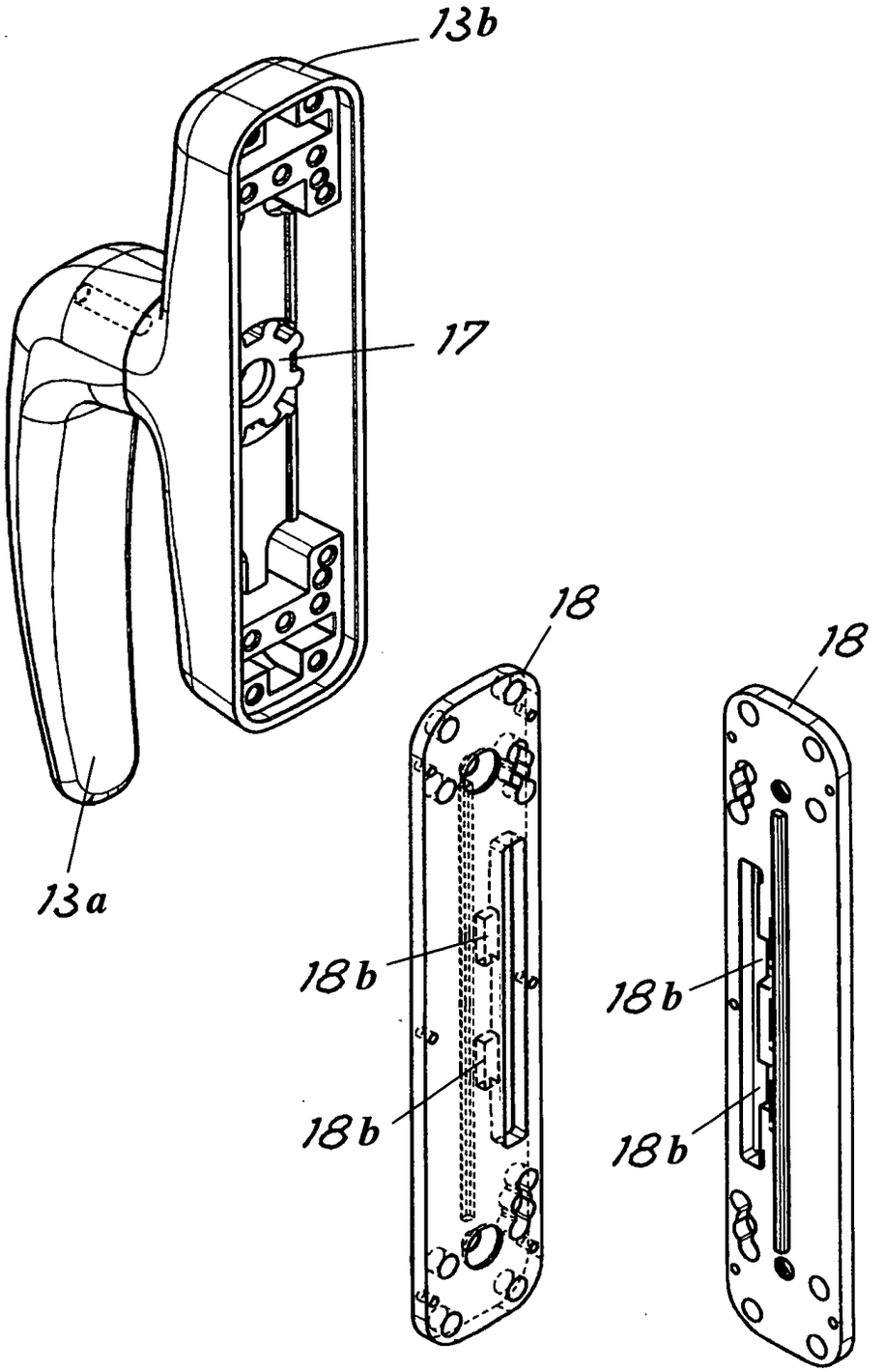


Fig. 5

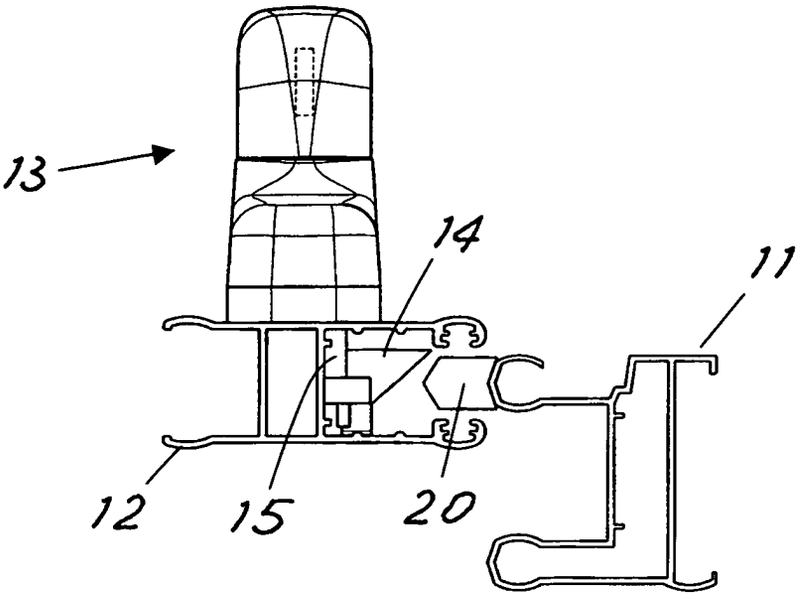


Fig.6

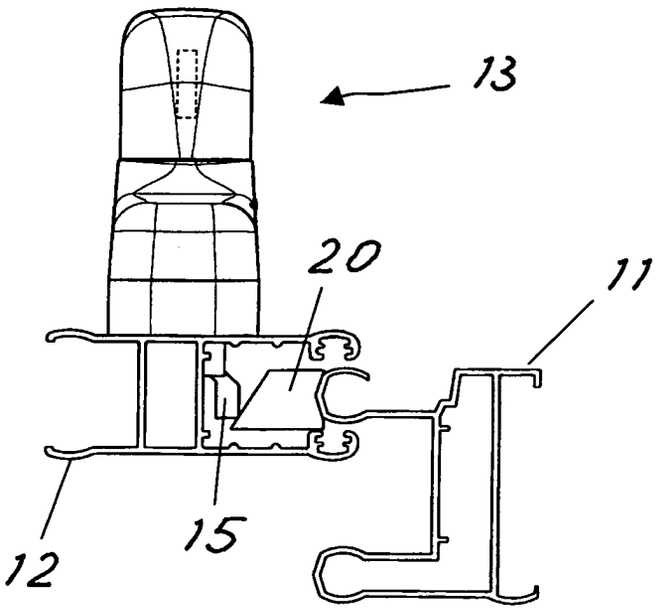


Fig.7