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(54) Mortise lock for windows, doors and the like

(57) The present invention relates to a mortise lock for windows, doors and the like, of the type formed in an aluminium profile, characterised in that it consists of:

- an elongated central element (1) which has a likewise elongated hollow with a curved surface in the shape of a shell defined at each end, the shell-shaped surface being situated at the bottom end of the element designed so that the user can use his finger to press said element downwards in order to open the lock, and the shell-shaped surface being situated at the top end of the element designed so that the user can use his finger to press said element upwards, in order for said element to move a latch (21) which will act as a bolt and therefore close the lock, said latch (21) being attached to the element (1) by means of a screw pin (20), with the insertion of a small member (19) with a knurl, the purpose of which is to prevent the latch (21) from sliding due to the impact caused when the window, door or the like is closed; and
- an elastic element (16) fixed inside the aluminium body (2), which acts as a support for attaching the return spring (26), limits the movement of the element (1), presses the button (15) and halts the movement of the element (1) when it is pressed by the spring (26) when the lock is in the open position.

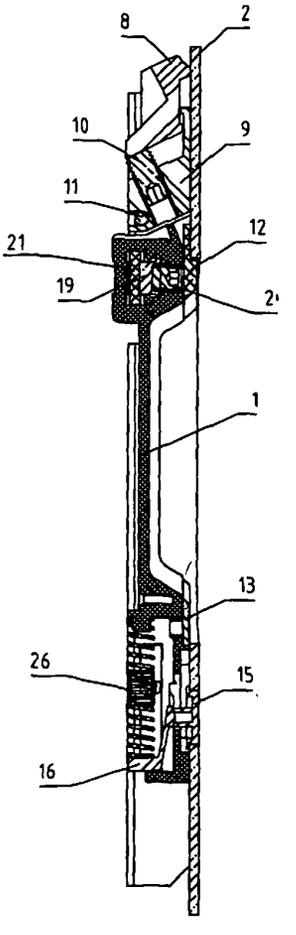

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Fig. 2

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Description

[0001] The present invention relates to a mortise lock for windows, doors and the like consisting externally of an aluminium body formed from a suitable profile, which is subjected to several types of machining according to the various embodiments.

[0002] Various mortise locks for door, windows or similar elements sliding leaves are known. Locks of this type generally include a sliding unit having a latch which acts as a bolt for the door, window or similar element, this sliding unit being operated by the user using appropriate means.

[0003] The main problems of locks of this type lies in the fixing of the latch which acts as a bolt for the door, window or similar element, of the mechanism for activating the sliding unit and of the system for securing the whole lock to the window, door or the like where it is mounted.

[0004] Thus, an objective of the present invention is to design a lock which resolves the above-mentioned inconveniences.

[0005] The lock of the present invention is essentially composed of a body which is substantially rectangular in shape with the shorter edges being rounded, in the centre of which there is an opening with a similar shape to the body, said opening housing the operating mechanism of a sliding element that activates the lock. The ends of this activating element have an ergonomic shape, so that it can be easily and comfortably activated by the user's fingers, one of the ends being designed to open the lock when it is activated and the other being designed to move a latch which has the function of a bolt. Inside the said body there is another element with three functions, which is fixed inside the body and will act as a support for attaching a return spring, limits the movement of the above-mentioned activating element and is also used to press a button the function of which is to halt the movement of the first element in the open position. Said lock is attached to the window, door or the like by means of an attachment system which may vary according to the embodiment, as will be described below.

[0006] For an easier understanding of the invention, drawings of three embodiments of the invention are attached hereto, in which:

Figure 1 represents a main elevation of the lock which has an invisible attachment system and is activated by means of a button;

Figure 2 represents a cross-section of the lock represented in figure 1;

Figures 3 and 4 represent a main elevation and a cross-section respectively of the lock which has the same operating system as figures 1 and 2 but is fixed in place by means of claws;

Figures 5 and 6 represent a main elevation and a cross-section respectively of the lock which has the same operating system as figures 1 and 2 but is fixed in place by means of screws;

Figures 7 and 8 represent a main elevation and a cross-section respectively of the lock which has an invisible attachment system and functions semi-automatically;

Figures 9 and 10 represent a main elevation and a cross-section respectively of the lock which has an invisible attachment system and is operated manually;

Figure 11 represents a cross-section of the lock showing an invisible attachment system set inside the window, door or the like and its attachment means;

Figure 12 represents a perspective view of the lock mounted in the window, door or the like and its attachment means.

[0007] As can be seen from the figures attached hereto, the lock of the invention essentially comprises an aluminium body'2, 3, 4 and 6 made from a profile which is machined in an appropriate way for the various embodiments.

[0008] Basically, the preferred embodiment represented in figures 1, 2, 11 and 12 consists of: an elongated central element 1, made of zamak, which has a likewise elongated hollow with a curved surface in the shape of a shell defined at each end, where the user can place his finger in order to activate the mechanism. Thus, by placing his finger inside the bottom end and making a descending movement, the user opens the lock by dragging the sliding unit which in turn releases the latch 21 that acts as a bolt. This latch 21 is attached to the element 1 by means of a screw pin 20, with the insertion of a small knurled member made of zamak 19, the purpose of which is to prevent the latch from sliding due to the impact caused when the door, window or similar element is closed. At its bottom end, the element 1 has an elastic element 16 made of delrin which is fixed inside the body 2 and will support the return spring 26 in the embodiment where this spring is used. This member 16 further limits the movement of the element 1, as well as pressing the button 15, if it is used, and it also has the function of halting the movement of said element 1 when it is pressed by the spring 26 in the open position. To return to the closed position, i.e. to make the opposite movement, it is simply necessary to press the button 15, which then releases elements 1 and 16 when pressure is exerted upon them simultaneously by the spring 26.

[0009] If the mechanism is activated semi-automatically, as can be seen in figures 7 and 8, the elastic element 17 covered by the cover 13, as well as supporting

the spring 26, also allows it to extend when the user presses the end of the element 1 downwards. In the case of manual activation where there is no spring 26, the elastic element 18, covered by the cover 14 and with a slightly different shape, holds the element 1 in the lower position when the user presses it downwards after pressing lightly on the cover 14.

[0010] The system for mounting the lock in the window, door or the like consists essentially of a threaded unit 9 with a guide, which is attached to the aluminium body 2 by means of a rivet 11. The central part of the inside of the unit 9 has a screw pin 10 that will be driven by a hexagonal screwdriver, which will have access to the pin after a cover 12 has been removed and which is inserted at the front through a small opening at the end of the element 1, passing through the opening of the aluminium body 2. When the pin 10 is screwed, it will move the sliding fastening clamp 8, which is invisible from the outside, pushing it against one end of the housing open for this purpose within the profile of the window, door or the like. In this way, it is possible to mount the lock invisibly after it has been fitted into the opposite end of an opening existing in the body 2. To remove the lock, it is simply necessary to unscrew the pin, thus releasing the sliding clamp 8.

[0011] As can be seen in figures 3 and 4, a lock which functions in the same way, i.e. by means of a button, can also be mounted in the window, door or the like 4 using claws 27 activated by means of a screw 28 or, as can be seen in figures 5 and 6, a lock with the same method of operation, i.e. by means of a button, can also be directly mounted in the window, door or the like 6 using screws 29.

[0012] Figures 7 and 8 represent an embodiment where the method of operation is semi-automatic, i.e. without a button to release the element 1, which must be activated by the user by pressing the ends thereof.

[0013] Figures 9 and 10 represent an embodiment where the method of operation is manual, i.e. without a button to release the element 1 and without a spring 26 to press elements 1 and 16, and in this case also the element 1 must be activated by the user by pressing the ends thereof.

[0014] Figures 11 and 12 represent the invisible lock which has been described in detail, to be duly mounted in the window, door or the like using a hexagonal screwdriver to be activated inside the threaded unit described above.

[0015] As will be obvious to anyone skilled in the art, several variations to the embodiment described above are possible. However, all these variations are included within the scope of the following claims.

Claims

1. Mortise lock for windows, doors or the like, of the type formed in an aluminium profile, comprising an elongated central element (1) which has a likewise elongated hollow with a curved surface in the shape of a shell defined at each end, the shell-shaped surface being situated at the bottom end of the element designed so that the user can use his finger to press said element downwards in order to open the lock, and the shell-shaped surface being situated at the top end of the element designed so that the user can use his finger to press said element upwards, in order for said element to move a latch (21) which will act as a bolt and therefore close the lock, said latch (21) being attached to the element (1) in order to prevent the latch (21) from sliding due to the impact caused when the window is closed, **characterised in that** it is mounted in the window, door or the like by means of a unit with a guide (9) which is attached to the aluminium body (2) by means of a rivet (11), the central part of the inside of the unit (9) having a screw pin (10) that will be activated by an internal hexagonal key, which will have access to the pin after a cover (12) has been removed and which is inserted at the front through a small opening at the end of the element (1), passing through the opening of the aluminium body (2), causing a sliding fastening clamp (8) to move, pushing it against one end of the housing open for this purpose within the profile of the window, door or the like, this fastening being invisible from the outside after the clamp has been fitted into the opposite end of an opening existing in the body (2); and **in that** at the bottom end of the element (1) there is a member (16), (17) and (18) which is fixed inside the body (2) and acts as a support for the return spring (26) in the embodiment where said spring is used, which member further limits the movement of the element (1), as well as pressing the button (15), if it is used, and also has the function of halting the movement of said element (1) when it is pressed by the spring (26) in the open position.

2. Mortise lock for windows, doors and the like, according to the previous claim, **characterised in that** in order to carry out the opposite movement, i. e. to put the mechanism in the closed position, it is simply necessary to press the button (15) which has the function of securing element (1) and member (16) engaged one with other when pressure is exerted upon them simultaneously by the spring (26).

3. Mortise lock for windows, doors and the like, according to the previous claims, **characterised in that** it can be activated semi-automatically without a button (15) and manually without a button and without a return spring (26).

4. Mortise lock for windows, doors and the like, according to the previous claim, **characterised in that** it can be mounted in the window, door or the

like using fastening claws 27 activated by means of a screw (28) or by means of screws (29) directly in the window, door or the like (6).

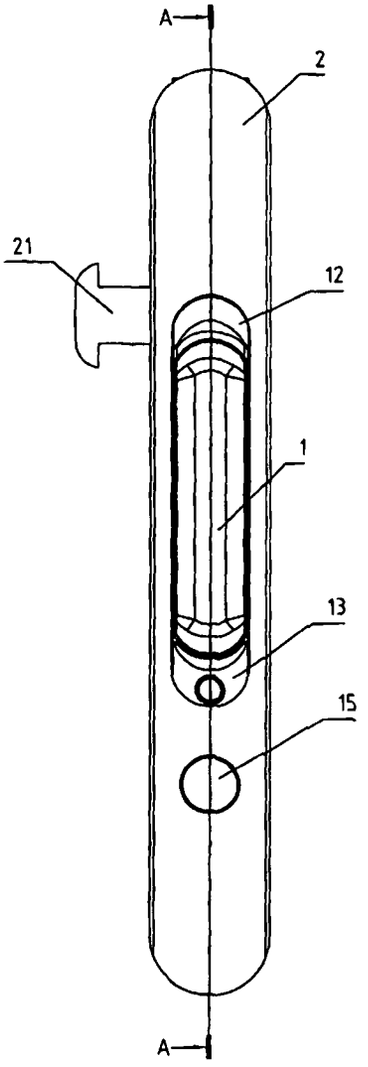


Fig. 1

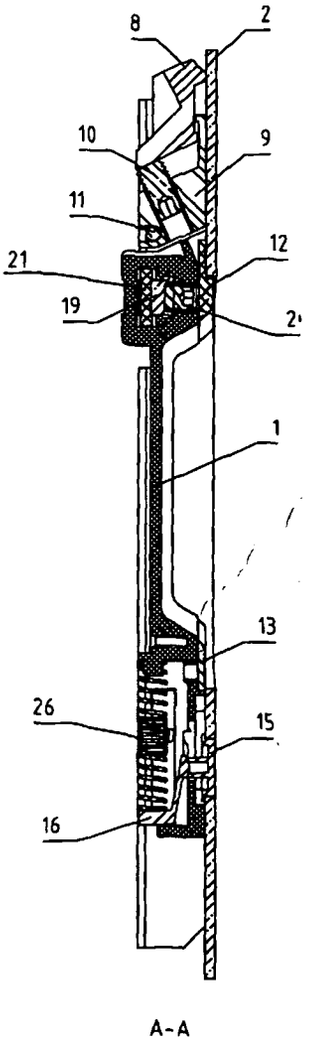


Fig. 2

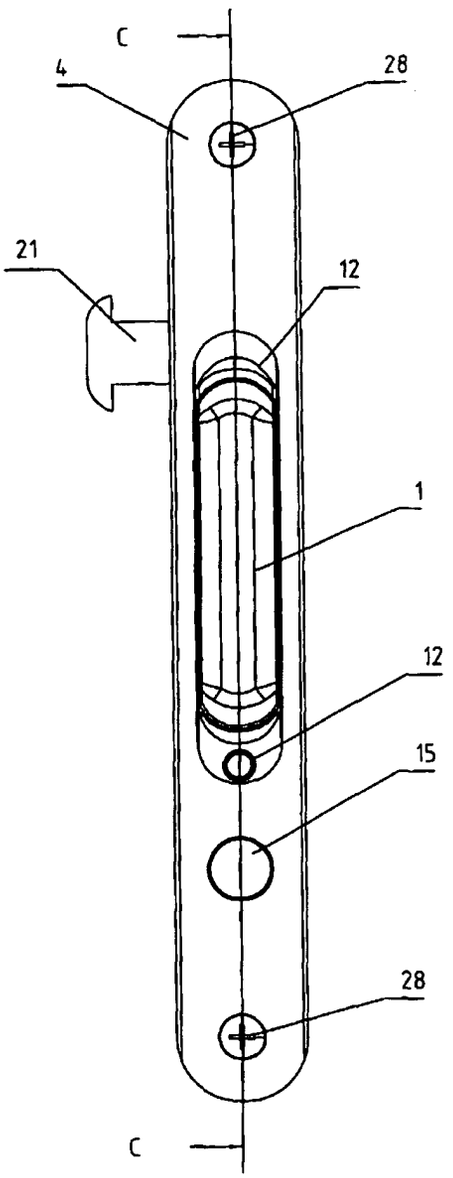
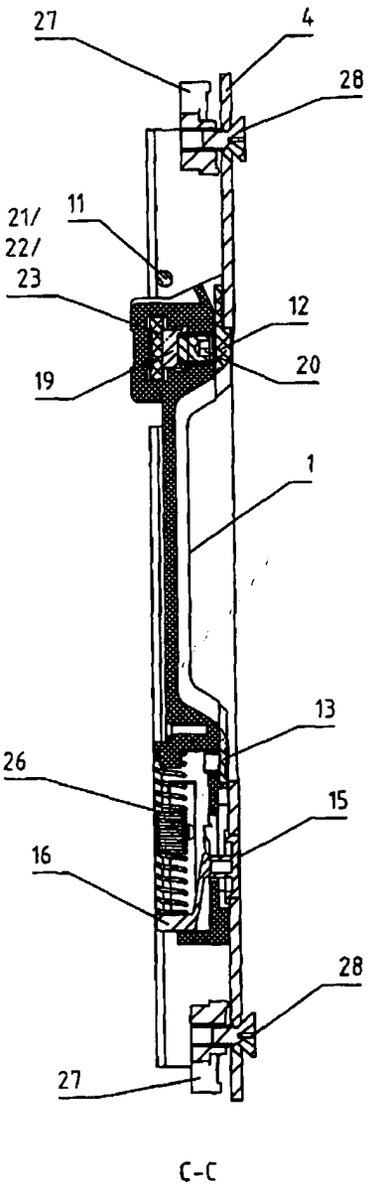

C
4
28
21
12
1
12
15
28
C

Fig. 3


27
4
28
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1
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26
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Fig. 4

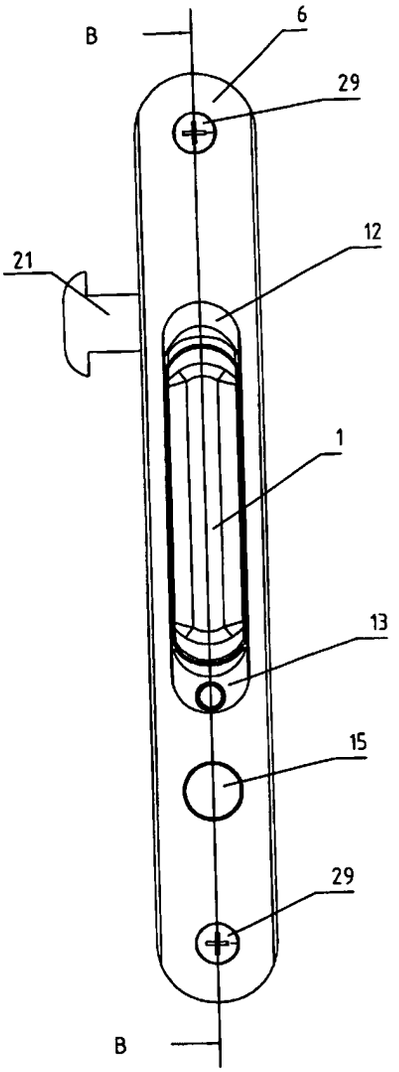

Fig. 5

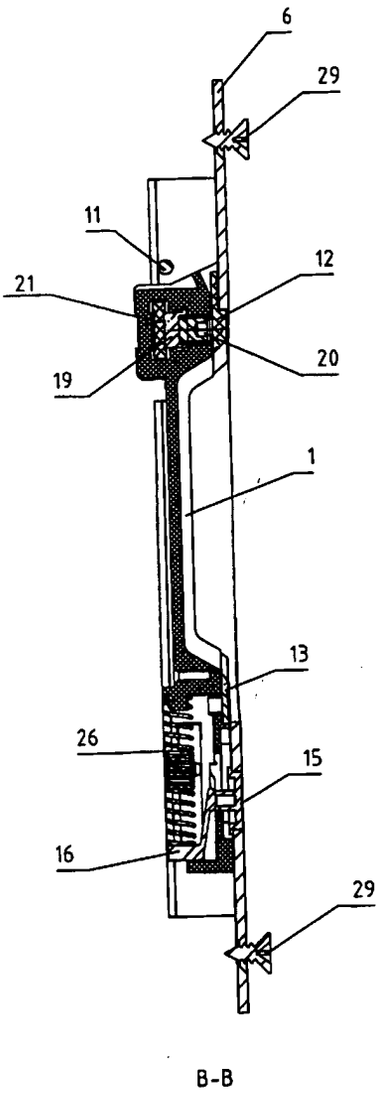

Fig. 6

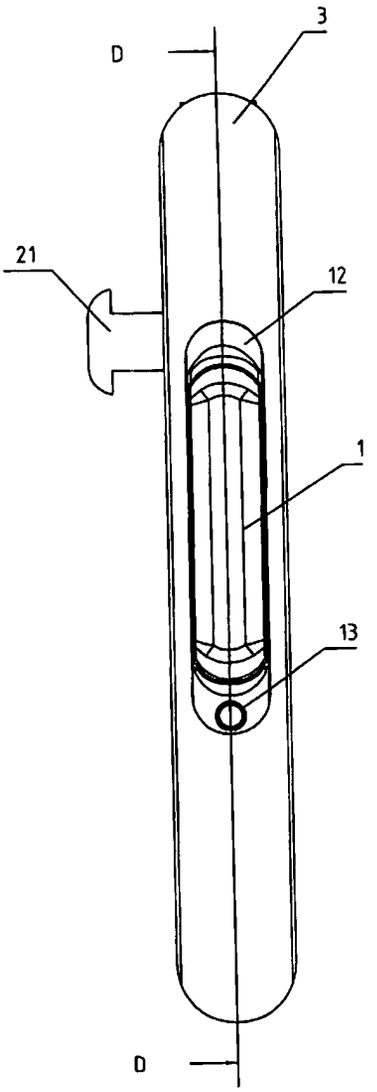

Fig. 7

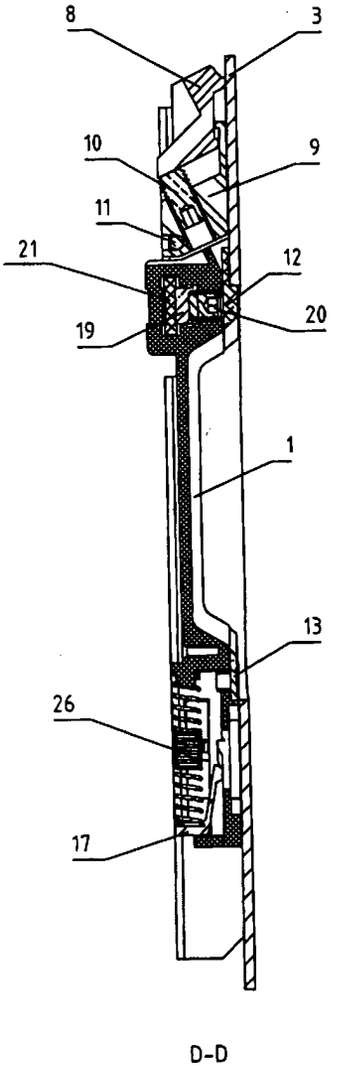

Fig. 8

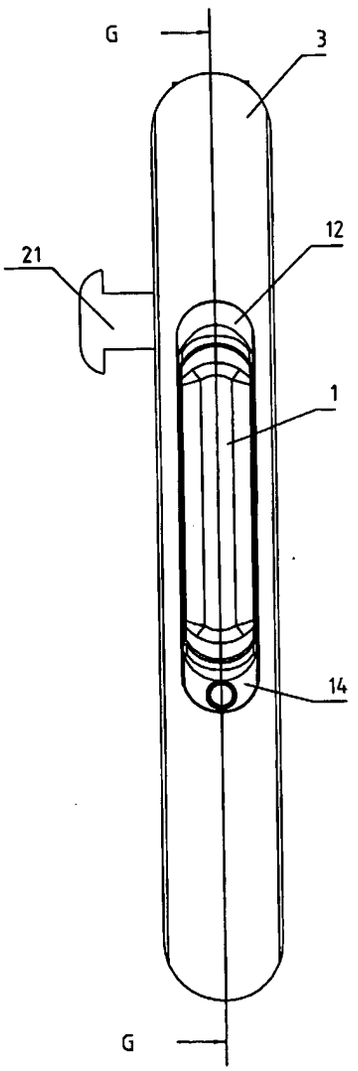

Fig. 9

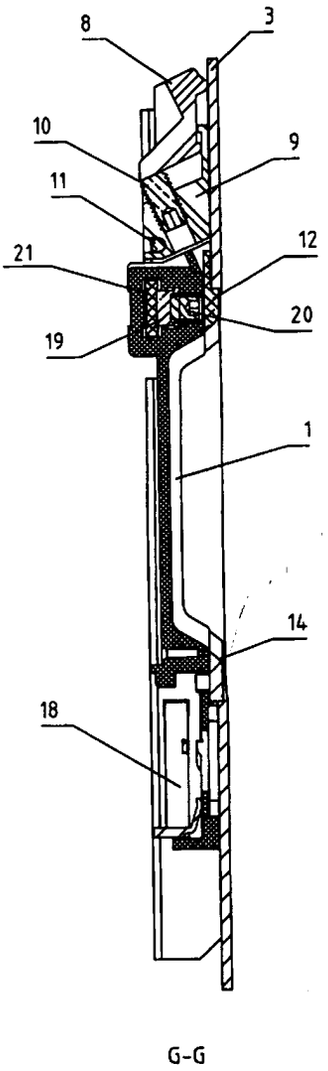

Fig. 10

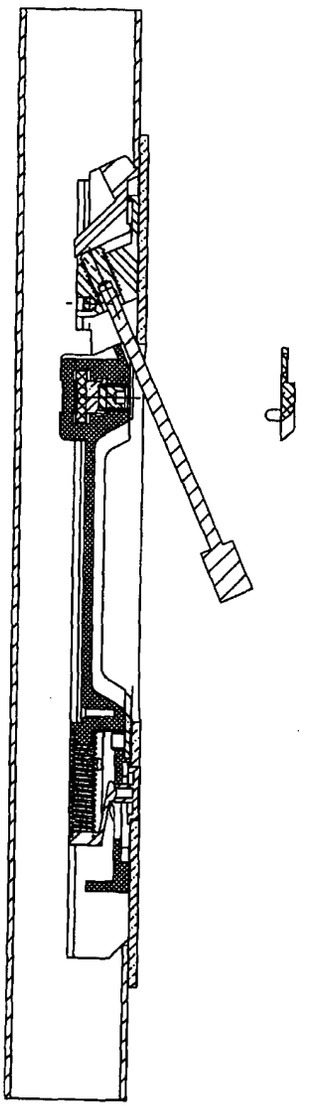

Fig. 11

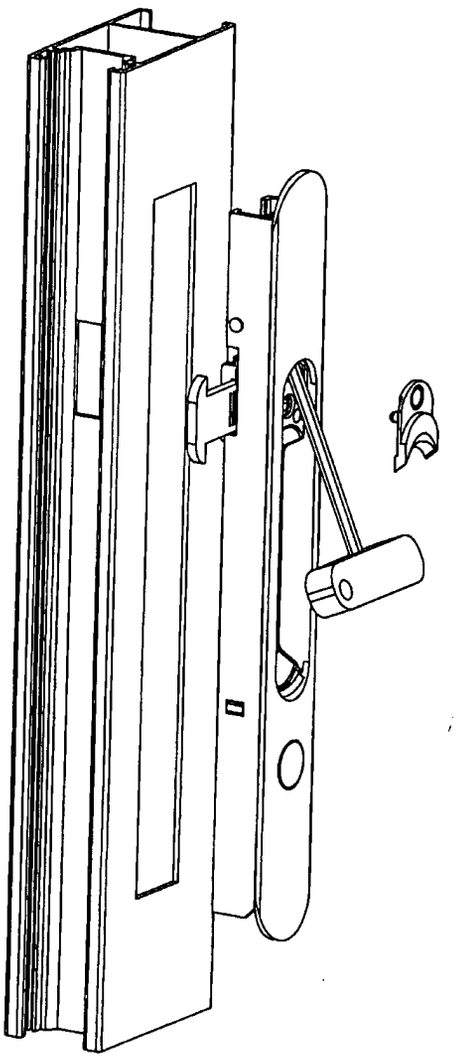

Fig. 12