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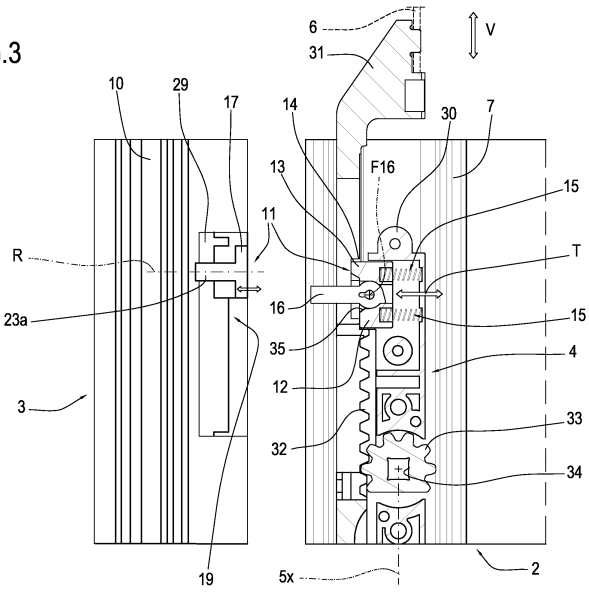
(54) Incorrect operation safety lock device for sliding doors or windows

(57) An incorrect operation safety lock device for a sliding door or window (1) of the lift and slide type comprises locking means (11) by which an operating rod (6) located on an upright (7) of a movable sash (2) and a control handle (5) are locked in a sash (2) lifted configuration for opening, which are located on the selfsame sash (2), and which are defined by: a slider (12) equipped with a front pin (13) movable along a direction (T) transversal to a direction of vertical movement (V) of the rod (6) to move the pin (13) to an advanced position inside a cavity (14) in the rod (6) in such a way as to define a locked position and then to move the pin (13) away from the rod (6) to define a disengaged position where it can move freely; first elastic means (15) acting on the slider (12) to keep the slider (12) itself in the locked position; a contact member (16) operatively connected to the slider (12) and interacting with an abutment member (17) located on an upright (10) of the fixed frame (3) to define movements relative to each other between a first operating position where the pin (13) is retracted relative to the rod (6), with the two vertical uprights (7, 10) in contact with each other prior to a vertical lowering movement for closing the sash (2), and a second, non-operating position designed to keep the pin (13) in the advanced position until engaging in the cavity (14) in the rod (6) as a result of the sash (2) being lifted vertically in order to open it.

FIG.3



EP 2 584 132 A1

Description

[0001] This invention relates to an incorrect operation safety lock device for sliding doors or windows of the "lift and slide" or "lift-n-slide" type.

[0002] In the technical field of sliding doors and windows, the use of an accessory known in the trade as incorrect operation safety lock is known.

[0003] This device or element is applied to the movable frame or sash of the door or window and acts on the control and operating unit, that is to say, on the movement of the closing systems driven by the handle, to prevent the systems from passing from an open to a closed configuration when the sash is open.

[0004] More specifically, one prior art structure of the control and operating units on sliding doors or windows comprises:

- the handle operated by the user;
- a kinematic unit composed of a toothed wheel and a rack which the handle is connected to;
- drive rods which are slidably housed at least in the vertical upright of the movable sash and which are controlled by the kinematic unit in such a way as to move along the upright in both directions;
- closing elements which are connected to the drive rods and which can be coupled to or housed in striker elements or cavities present on the upright of the fixed frame in order to define the closing or opening of the sash. Usually, the kinematic unit is located inside a box-shaped body mounted on the sliding sash.

[0005] The incorrect operation safety lock is located on the movable sash and acts along a direction transversal to the direction of vertical movement of one of the operating rods which slide on the upright of the sash itself.

[0006] An incorrect operation safety lock device for sliding doors or windows is described in patent document EP 1.172.506. The device described in that document comprises a slider housed in a box-shaped body which is independent of the operating unit connected to the handle.

[0007] The slider is provided, on one side, with a bolt for locking the operating rod, and on the other side, with a spring which is interposed between the slider and one wall of the box-shaped body in order to keep the bolt in a position of impingement on the operating rod.

[0008] The slider also has, associated with it, a contact member, in this case parallel to the locking pin, adapted to oppose the spring the moment it comes into contact with the front surface of the upright of the fixed frame in such a way as to cause the bolt to withdraw relative to the rod, thereby allowing the rod to move.

[0009] Basically, therefore, the operating unit is locked in place when the user, after opening the sash with the handle, moves the sash itself away from the fixed frame. In effect, this movement causes the contact member, and hence the slider (pushed by the spring) to advance so that the bolt is engaged in a cavity in the drive rod and the latter is locked in the open position.

[0010] Similarly, moving the sash towards the fixed frame causes the contact member to withdraw with the slider and the bolt, allowing the drive rods and hence the entire operating unit to move again.

[0011] This type of device is now widely used in sliding doors or windows of traditional type, whereas a device with a structure of this type cannot be used on lift and slide doors or windows.

[0012] In effect, in lift and slide doors and windows, the opening and closing operation is combined with a movement of, respectively, lifting and lowering the sash relative to the fixed frame by a corresponding rotation of the handle (in either direction) through 180° about the shaft which connects it to the operating unit.

[0013] These movements therefore make the device described above difficult to adapt to the operating unit. More specifically, lifting or lowering the sash would lead to the following:

- impossibility of immediate locking of the operating unit because the movement of the drive rods must be synchronized with the movement of the sash;
- possible interference between the rod and the locking bolt;
- possible interference between the fixed frame and the contact member, resulting in malfunctioning of the operating unit during opening and closing.

[0014] To this must be added the fact that the impossibility of locking the movement of the handle after lifting the sash makes initially opening the sash difficult because the handle itself is used to pull the sash.

[0015] At present, therefore, there are no specific incorrect operation safety lock devices for lift and slide doors or windows.

[0016] This invention has for an aim to provide an incorrect operation safety lock device for sliding doors or windows of the lift and slide type which overcomes the above mentioned drawbacks of the prior art.

[0017] More specifically, this invention has for an aim to provide an incorrect operation safety lock device for sliding doors or windows of the lift and slide type which is structurally simple and applicable to any operating unit on doors or windows of this type to allow the operating unit to be locked and unlocked quickly and without interference on the sash and on the movable components of the operating unit.

[0018] A further aim of the invention is to provide an incorrect operation safety lock device with which the handle can be locked in the open position as soon as the sash is lifted.

[0019] These aims are fully achieved by the incorrect operation safety lock device for sliding doors or windows of the lift and slide type according to this invention, as characterized in the appended claims.

[0020] More specifically, the incorrect operation safety lock device for a sliding door or window of the lift and slide type comprises locking means by which an operating rod located on an upright of a movable sash and a control handle are locked in a sash lifted configuration for opening and which are located on the selfsame sash. The locking means are defined by: a slider equipped with a front pin movable along a direction transversal to a direction of vertical movement of the rod to move the pin to an advanced position inside a cavity in the rod in such a way as to define a locked position and then to move the pin away from the rod to define a disengaged position where it can move freely; first elastic means acting on the slider to keep the slider itself in the locked position; a contact member operatively connected to the slider and interacting with an abutment member located on an upright of the fixed frame to define movements relative to each other between a first operating position where the pin is retracted relative to the rod, with the two vertical uprights in contact with each other prior to a vertical lowering movement for closing the sash, and a second, non-operating position designed to keep the pin in the advanced position until engaging in the cavity in the rod as a result of the sash being lifted vertically in order to open it.

[0021] Thanks to the presence of these incorrect operation safety lock means, the operating system, including the handle, can be locked with the sash in the open position on doors and windows with a vertical movement prior to opening and closing the sash.

[0022] A system of this kind also makes it possible to instantly lock the handle after turning it to the lifting position so that it can be used as a handgrip to push or pull the movable sash.

[0023] Preferably, the device comprises second elastic means configured to restore the operating position of the contact member relative to the abutment member when the contact member and the abutment member are moved away from each other.

[0024] The second elastic means can be used to return the contact member and the abutment member to the operating position during the movement of the sash away from the fixed frame in such a way that the operating rod can be unlocked during subsequent closing of the sash.

[0025] This and other features are more apparent from the detailed description, set out below, of a preferred non-limiting example embodiment of the invention, with reference to the accompanying drawings, in which:

- Figure 1 is a schematic front view of a sliding door or window of the lift and slide type equipped with the incorrect operation safety lock according to the invention;
- Figure 2 is an exploded perspective view of a part of the control unit mounted on the door or window of Figure 1 and equipped with the incorrect operation safety lock according to the invention;
- Figure 3 is a front view, with some parts in cross section, illustrating a detail A from Figure 1, that is to say, the zone where the sash comes into contact with the fixed frame, where the sash control unit and the incorrect operation safety lock means are located, in a configuration where the sash is lifted and open, with the incorrect operation safety lock means acting on the operating and control unit;
- Figure 4 is a front view, with some parts in cross section, illustrating the detail A from Figure 1, in a configuration where the sash is lifted, open and in contact with the fixed frame and the incorrect operation safety lock means disengaged;
- Figure 5 is a front view, with some parts in cross section, illustrating the detail A from Figure 1, in a configuration where the sash is lowered and closed;
- Figure 6 is a front view, with some parts in cross section, illustrating the detail A from Figure 1, in a configuration where the sash is lifted and in contact with the fixed frame and with the incorrect operation safety lock means engaged;
- Figure 7 is a front view, with some parts in cross section, illustrating the detail A from Figure 1 in a step of positioning and fitting an abutment member forming part of the incorrect operation safety lock device;
- Figure 8 is a schematic front view showing a variant embodiment of the abutment member forming part of the incorrect operation safety lock device;
- Figures 9 and 10 are, respectively, a rear perspective view and a front perspective view of the abutment member of Figures 3 to 6.

[0026] With reference to the accompanying drawings, and in particular, Figures 1 and 2, the incorrect operation safety lock device according to the invention is applied to a sliding door or window 1 of the lift and slide type.

[0027] The door or window 1 comprises a movable sash 2, which can be lifted or lowered and which is slidable relative to a fixed frame 3.

[0028] The movable sash 2 is equipped with a control unit 4 comprising a handle 5 and acting at least on an operating rod 6 which is located on a vertical upright 7 of the sash 2 and which is equipped with closing means 8 acting in conjunction with striker elements 9 located on the vertical upright 10 of the fixed frame 3.

[0029] According to the invention, the device comprises locking means 11 by which the operating rod 6 and the control handle 5 are locked in a sash 2 lifted configuration for opening and which are located on the selfsame sash 2.

[0030] The means 11 comprise a slider 12 equipped with a front pin 13 movable along a direction T transversal to a direction of vertical movement V of the rod 6 to move the pin 13 to an advanced position inside a cavity 14 in the rod 6 in such a way as to define a locked position and then to move the pin 13 away from the rod 6 to define a disengaged position where it can move freely.

[0031] According to the invention, the means 11 also comprise first elastic means 15 acting on the slider 12 to

keep the slider 12 itself in the locked position. Also according to the invention, the means 11 comprise a contact member 16 operatively connected to the slider 12 and interacting with an abutment member 17 located on an upright 10 of the fixed frame 3 to define movements relative to each other between:

- a first operating position where the pin 13 is retracted relative to the rod 6, with the two vertical uprights 7 and 10 in contact with each other prior to a vertical lowering movement for closing the sash 2 (Figure 4),
- a second, non-operating position designed to keep the pin 13 in the advanced position until engaging in the cavity 14 in the rod 6 as a result of the sash 2 being lifted vertically in order to open it (Figure 6).

[0032] It should be noted, therefore, that thanks to this incorrect operation safety lock device, the operating rod and the sash control unit, and more specifically, the handle, can be locked in the position where the sash is in the lifted, open position.

[0033] The vertical movements of the sash, down for closing and up for opening, are accompanied by relative movements between the abutment member and the contact member in such a way as to impinge on the zones of contact between the sash and the fixed frame. To this must be added the fact that these two members are configured to allow the operating rod and the handle to be locked when the sash is lifted in order to open it: this locked condition configures the handle, which is set parallel to the vertical upright and turned downwardly, as a fixed and secure point for the user to grip in order to push or pull the sash.

[0034] Preferably, the device comprises second elastic means 18 configured to restore the operating position of the contact member 16 relative to the abutment member 17 when the contact member 16 and the abutment member 17 are moved away from each other.

[0035] In a first non-limiting embodiment illustrated in Figures 3 to 6, the contact member 16 is connected to, and movable relative to, the slider 12, protruding from the sash 2, and interacts with the fixed abutment member 17 located on the upright 10 of the fixed frame 3.

[0036] The contact member 16 is configured to move relative to the slider 12 in such a way as to define the first, operating position of contact with the fixed abutment member 17 so as to cause the pin 13 to retract relative to the rod 6 and the second, non-operating position designed to keep the pin 13 in the advanced position.

[0037] In a first non-limiting form of the embodiment, the contact member 16 is pivoted to the slider 12 at F16. During the vertical movement whereby the sash 2 is lifted in order to open it, the contact member 16 can be inclined, within a cavity 19 in the fixed frame 3, at an angle to the slider 12 itself so it can remain in the non-operating position (see Figure 6).

[0038] Preferably, the upright 10 of the fixed frame 3 comprises the cavity 19 which receives the contact member 16 and which is located below the abutment member 17, in such a way as to act in conjunction with the selfsame abutment member 17 to cause the contact member 16 to turn within the cavity 19 as the sash 2 is lifted.

[0039] Preferably, see Figure 2, the slider 12 is furnished with a cavity 20 engaged by a shaft 21 which one end of the contact member 16 is pivoted to in order to allow the contact member 16 itself to move between the operating position, where the contact member 16 is positioned transversely to the operating rod 6 (see also Figures 3, 4 and 5), and the non-operating position where the contact member 16 is inclined at an angle to the slider 12 (see Figure 6).

[0040] In light of this, the contact member 16 is furnished with second elastic means 18 (comprising a spring) fitted round the shaft 21 and interposed between the slider 12 and the contact member 16 in order to keep the contact member 16 in, or move it back to, the operating position.

[0041] It should be noted that the slider 12 is furnished with a cavity 35 configured to provide two limit stop contact walls defining the raised and inclined end positions of the contact member 16.

[0042] In a second embodiment of the invention (not illustrated), the contact member 16 may be movable relative to the slider 12 according to a vertical translational movement parallel to the direction of the rod 6 in such a way as to be inoperative during the lifting of the sash 2: in practice, the contact member 16 is connected to the slider 12, but can be lowered relative to the slider 12 (when it comes into contact with the abutment member 17) while maintaining its transversal configuration relative to the rod 6.

[0043] It should be noted that, alternatively, the contact member 16 may be fixed and the abutment member 17 movable, the latter comprising the second elastic means 18 interposed between the selfsame abutment member 17 and a frame 29 by which the abutment member 17 is mounted to the upright 10.

[0044] In practice (see Figure 8), the second elastic means 18 may be springs, positioned vertically and configured to lift the abutment member 17 under the pushing action of the contact member 16 when the sash 2 is lifted: this enables the contact member 16 to remain in the advanced, non-operating position (still transversal to the rod 6, in this case) in such a way that the front pin 13 locks the rod 6 when the rod 6 has been lifted as far as possible.

[0045] Preferably, the operating rod 6 comprises a slot 22 which extends vertically and from which the contact member 16 protrudes.

[0046] More specifically, the slot 22 extends along the rod 6 for a length at least equal to the length travelled by the sash 2 when lowered or lifted, so as to avoid interference with the contact member 16 when the latter is in the operating or inclined, non-operating positions.

[0047] It should be noted that the slot 22 extends for a length greater than the length travelled by the sash 2

when lowered or lifted so as to include the downward inclination of the contact member 16.

[0048] Preferably, the abutment member 17 is provided with movement means 23 for adjusting its position in both directions along an axis R perpendicular to the direction of movement of the operating rod 6 (see also Figures 8 and 9): this adjustability feature makes it possible to compensate for play between the sash 2 and the fixed frame 3 and, if necessary, of the elastic means 15 acting on the slider 12.

[0049] It should be noted that the adjustment means 23 may be embodied by a threaded pin 23a forming part of the abutment member 17 (in this case, a cylindrical plate) and able to be engaged in a cavity 23b formed on the mounting frame 29 of the abutment member 17.

[0050] The adjustment may be effected using a suitable key designed to be engaged in a cavity made on the front surface of the abutment member 17.

[0051] Preferably, as shown in Figures 2 to 6, the control unit 4 comprises a box-shaped body 30 housing the kinematic accessories for transferring movement from the handle 5 to the rods 6, as well as some of the component parts of the incorrect operation safety lock just described. Sliding inside the box-shaped body 30 there is a rigid arm 31 connecting two operating rods 6 (below and above the arm 31).

[0052] The arm 31 is furnished with toothing 32 on the inside of the box-shaped body 30 and meshing with a partial toothed wheel 33 provided with a cavity 34 engaged by the shaft of the handle 5.

[0053] The arm 31 is furnished with the aforementioned slot 22 for the passage of the contact member 16.

[0054] Turning the handle 5 (purely by way of an example in the embodiment illustrated) by an angle α of 180° in either direction causes the passage from the open to the closed configuration.

[0055] This solution is preferable but not limiting since the positions of the handle 5 corresponding to opening or closing may be diversified according to specific door or window designs.

[0056] Preferably, the handle 5 passes from a closed position at angle 0°with the handgrip directed upwards (see Figure 5, axis 5x), to an open position rotated downwardly through 180° with the handgrip directed downwards (see Figures 3, 4 and 6).

[0057] Above the internal toothing 32, the arm 31 comprises the cavity 14 which the pin 13 slots into.

[0058] Preferably, the slider 12, the contact member 16 and the first elastic means 15 are housed in a specific chamber 36 in the box-shaped body 30.

[0059] More specifically, the first elastic means 15 (for example a pair of springs) are interposed between the back of the slider 12 and a fixed rear wall of the chamber 36.

[0060] This invention also has for an object a sliding door or window 1 of the lift and slide type equipped with the incorrect operation safety lock described above.

[0061] The door or window 1 comprises a fixed frame 3 and at least one sash 3 slidable in two directions, namely, an opening direction DA and a closing direction DC, relative to the fixed frame 3.

[0062] The door or window 1 also comprises at least one pair of carriages 24 associated with the lower crosspiece 25 of the sash 2 and resting on a horizontal base track 26, allowing the sash 2 to slide in both the opening and closing directions.

[0063] Mounted on the sash 2 is the control unit 4 comprising the handle 5 and configured to move at least the operating rod 6 which is designed to define, by sliding along the vertical upright 7 of the sash 2, a sash 2 opening configuration comprising also a vertical lifting movement MA relative to the track 26, and a closing configuration where the sash 2 comes into contact with the vertical upright 10 of the fixed frame 3 and comprising also a vertical movement MC, opposite to the previous one, downwards towards the track 26.

[0064] The rod 6 is furnished with closing means 8 acting in conjunction with striker elements 9 located on the vertical upright 10 of the fixed frame 3 in order to configure the closing of the sash 2 when the latter is lowered. The closing means 8 (for example pins associated with the sash 2) and the striker elements 9 are illustrated schematically since they are of known type.

[0065] According to what has been described up to now, therefore, the operation of the incorrect operation safety lock device comprises the following steps, starting from a lifted opening configuration of the sash 2, illustrated in Figure 3.

[0066] In this configuration, the handgrip of the handle 5 is directed downwards (axis 5x), the slider 12 is in the advanced position, with the pin 13 engaged in the cavity 14 of the arm 31 connecting the rods 6, and the contact member 16 protrudes from the arm 31.

[0067] During the closing step, see Figure 4, the sash 2 moves closer to the upright 10 of the fixed frame 3 and the contact member 16 comes into contact with the front of the abutment member 17. Contact between the contact member 16 and the abutment member 17 causes the slider 12 to retract thanks to the compression of the first elastic means 15, thus allowing the arm 31 and the rods 6 to move freely.

[0068] At this point, the handle 5 can be turned, in this case upwards through 180°, thus lowering the sash 2 and simultaneously closing the door or window 1 thanks to the closing means 8 (see Figure 5).

[0069] It should be noted that, in this configuration, the contact member 16 has moved down and is now engaged in the lower cavity 19 in the frame 29 of the abutment member 17 and protrudes from the arm 31. This position moves the slider 12 back to the advanced position where the pin 13 is in contact with the inside surface of the arm 31 but without locking it.

[0070] To open the sash 2, the handle 5 is turned downwards through 180° (see Figure 6) thereby lifting the sash 2 itself.

[0071] The sash 2 lifting movement causes contact

from the bottom between the contact member 16 and the abutment member 17.

[0072] The pivot constraint F16 of the contact member 16 (in the embodiment illustrated) with the slider 12 causes the contact member 16 to turn when the sash 2 is lifted, while keeping the contact member 16 in the non-operating position: that allows the slider 12 and the pin 13 to remain in the advanced position until the sash 2 has been lifted as far as possible and has frontally engaged the pin 13 in the cavity 14, thereby locking the arm 31, the rods 6 and the handle 5 in the opening position.

[0073] That means the handle 5, already in the sash 2 lifted position and locked, can be used along the entire length of the handgrip as a means for pushing or pulling the sash 2.

[0074] Moving the sash 2 away from the upright 10 of the fixed frame 3 allows the contact member 16, under the action of the second elastic means 18, to return to the position where it is transversal to the arm 31 so that it is correctly set to come into contact with the abutment member 17 during closing of the sash 2.

[0075] This invention also provides a method for positioning and fitting the incorrect operation safety lock described above on the sliding door or window 1 of the lift and slide type.

[0076] The method comprises at least the following steps (see Figure 7):

- preparing the control unit 4 of the locking means 11 by which the operating rod 6 and a handle 5 are locked in a position corresponding to the sash 2 lifted configuration for opening;
- inserting the control unit 4 along a vertical upright 7 of a movable sash 2;
- fixing the control unit 4 to the upright 7 at a predetermined position along the selfsame upright 7;
- preparing and temporarily applying an installation pin 27 to the front outside part of the operating unit 4;
- preparing the abutment member 17 on the vertical upright 10 of the fixed frame 3 at a position in front of the contact member 16 protruding from the control unit 4;
- moving the contact member 16 towards the abutment member 17 by moving the sash 2 until the installation pin 27 is inserted at least partially in a cavity 28 formed on the mounting frame 29 of the abutment member 17 in order to determine a relative position between the abutment member 17 and the contact member 16;
- fixing the frame 29 to the upright 10 of the fixed frame 3 in the position previously determined.

[0077] That way, a firm position of the abutment member 17 relative to the contact member 16 and which is correlated with both the operating and the non operating position of the two members can be obtained quickly and securely.

[0078] A device structured in this way fully achieves the preset aims thanks to an extremely simple arrangement of parts which is reduced in size and can guarantee sure and reliable operation on lift-n-slide sliding doors or windows.

[0079] The possibility of locking the control unit immediately after lifting the sash makes it possible to use the handle as a means for pushing or pulling the sash even if the handgrip is relatively short, as in the case of Cremone handles.

[0080] The multiplicity of possible solutions for the system of relative movement between the contact member and the abutment member allows the device to be adapted to any type of frame or control unit for the door or window.

Claims

1. An incorrect operation safety lock for a sliding door or window (1) of the lift and slide type composed of a sash (2), movable relative to a fixed frame (3), a control unit (4) comprising a handle (5) located on the sash (2) and acting on at least one operating rod (6) located on a vertical upright (7) of the sash (2) and equipped with closing means (8) acting in conjunction with striker elements (9) located on the vertical upright (10) of the fixed frame (3);
characterized in that it comprises locking means (11) by which the operating rod (6) and the control handle (5) are locked in a sash (2) lifted configuration for opening, which are located on the selfsame sash (2) and which are defined at least by:

- a slider (12) equipped with a front pin (13) movable along a direction (T) transversal to a direction of vertical movement (V) of the rod (6) to move the pin (13) to an advanced position inside a cavity (14) in the rod (6) in such a way as to define a locked position and then to move the pin (13) away from the rod (6) to define a disengaged position where it can move freely;
- first elastic means (15) acting on the slider (12) to keep the slider (12) itself in the locked position;
- a contact member (16) operatively connected to the slider (12) and interacting with an abutment member (17) located on the upright (10) of the fixed frame (3) to define movements relative to each other between a first operating position where the pin (13) is retracted relative to the rod (6), with the two vertical uprights (7, 10) in contact with each other prior to a vertical lowering movement for closing the sash (2), and a second, non-operating position designed to keep the pin (13) in the advanced position until engaging in the cavity (14) in the rod (6) as a result of the sash (2) being lifted vertically in order to open it; the contact member (16) being pivoted to the slider (12) at (F16) and, during the

vertical movement whereby the sash (2) is lifted in order to open it, can be inclined, within a cavity (19) in the fixed frame (3), at an angle to the slider (12) itself so it can remain in the non-operating position.

2. The device according to claim 1, comprising second elastic means (18) configured to restore the operating position of the contact member (16) relative to the abutment member (17) when the contact member (16) and the abutment member (17) are moved away from each other.

3. The device according to claim 1 or 2, wherein the contact member (16) is connected to, and movable relative to, the slider (12), protruding from the sash (2), and interacts with the fixed abutment member (17) located on the upright (10) of the fixed frame (3); the contact member (16) being configured to move relative to the slider (12) in such a way as to define the first, operating position of contact with the fixed abutment member (17) so as to cause the pin (13) to retract relative to the rod (6) and the second, non-operating position designed to keep the pin (13) in the advanced position.

4. The device according to any of the preceding claims, wherein the upright (10) of the fixed frame (3) comprises the cavity (19) which receives the contact member (16) and which is located below the abutment member (17), in such a way as to act in conjunction with the selfsame abutment member (17) to cause the contact member (16) to turn within the cavity (19) as the sash (2) is lifted.

5. The device according to any of the preceding claims, wherein the slider (12) is furnished with a cavity (20) engaged by a shaft (21) which one end of the contact member (16) is pivoted to in order to allow the contact member (16) itself to move between the operating position, where the contact member (16) is positioned transversely to the operating rod (6), and the non-operating position where the contact member (16) is inclined at an angle to the slider (12).

6. The device according to any of the preceding claims, wherein the contact member (16) is furnished with the second elastic means (18) fitted round the shaft (21) and interposed between the slider (12) and the contact member (16) in order to keep the contact member (16) in, or move it back to, the operating position.

7. The device according to any of the preceding claims, wherein the operating rod (6) comprises a slot (22) which extends vertically and from which the contact member (16) protrudes; the slot (22) extending along the rod (6) for a length at least equal to the length travelled by the sash (2) when lowered or lifted.

8. The device according to any of the preceding claims, wherein the abutment member (17) is provided with movement means (23) for adjusting its position in both directions along an axis (R) perpendicular to the direction of movement of the operating rod (6).

9. A sliding door or window of the lift and slide type, comprising:

- a fixed frame (3);
- at least one sash (2) slidable in two directions, namely, an opening direction and a closing direction, relative to the fixed frame (3);
- a pair of carriages (24) associated with the lower crosspiece (25) of the sash (2) and resting on a horizontal base track (26), allowing the sash (2) to slide in both the opening and closing directions;
- a control unit (4) comprising a handle (5), mounted on the sash (2) and configured to move at least one operating rod (6) which is designed to define, by sliding along the vertical upright (7) of the sash (2), a sash (2) opening configuration comprising also a vertical lifting movement relative to the track (26), and a closing configuration where the sash (2) comes into contact with the vertical upright (10) of the fixed frame (3) and comprising also a vertical movement, opposite to the previous one, downwards towards the track (26); the rod (6) being equipped with closing means (8) acting in conjunction with striker elements (9) located on the vertical upright (10) of the fixed frame (3) in order to configure the closing of the sash (2) when the latter is lowered,

characterized in that it comprises an incorrect operation safety lock according to any of the foregoing claims from 1 to 8.

10. A method for positioning and fitting an incorrect operation safety lock on a sliding door or window (1) of the lift and slide type, **characterized in that** it comprises at least the steps of:

- preparing in a control unit (4) locking means (11) by which an operating rod (6) and a handle (5) are locked in a position corresponding to the sash (2) lifted configuration for opening;
- inserting the control unit (4) along a vertical upright (7) of a movable sash (2);
- fixing the control unit (4) to the upright (7) at a predetermined position along the selfsame upright (7);
- preparing and temporarily applying an installation pin (27) to the front outside part of the operating unit (4);

- preparing an abutment member (17) on the vertical upright (10) of the fixed frame (3) at a position in front of the contact member (16) protruding from the control unit (4) and forming part of the locking means (11);
- moving the contact member (16) towards the abutment member (17) by moving the sash (2) until the installation pin (27) is inserted at least partially in a cavity (28) formed on a mounting frame (29) of the abutment member (17) in order to determine a relative position between the abutment member (17) and the contact member (16);
- fixing the frame (29), with the abutment member (17) on it, to the upright (10) of the fixed frame (3) in the position previously determined.

FIG.1

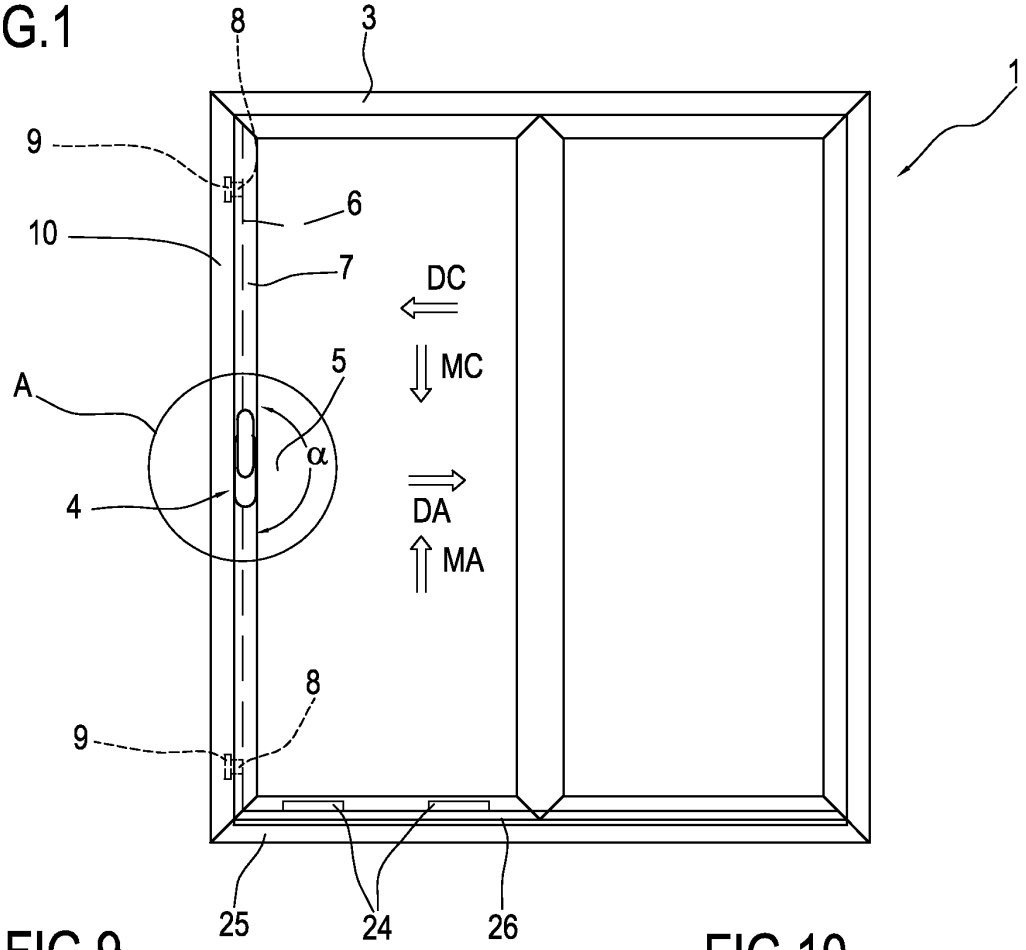


FIG.9

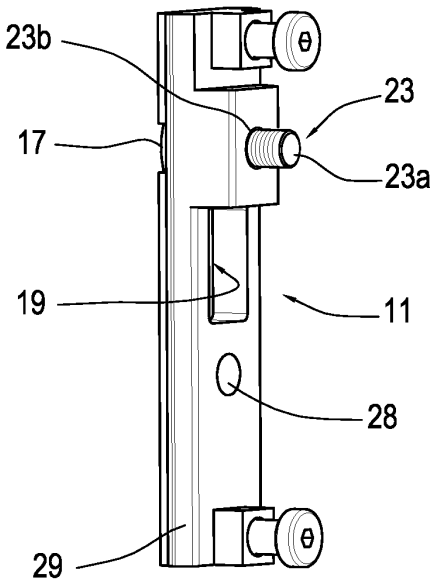


FIG.10

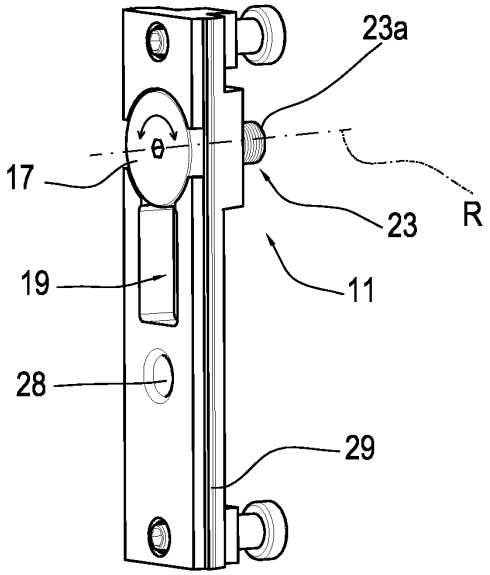
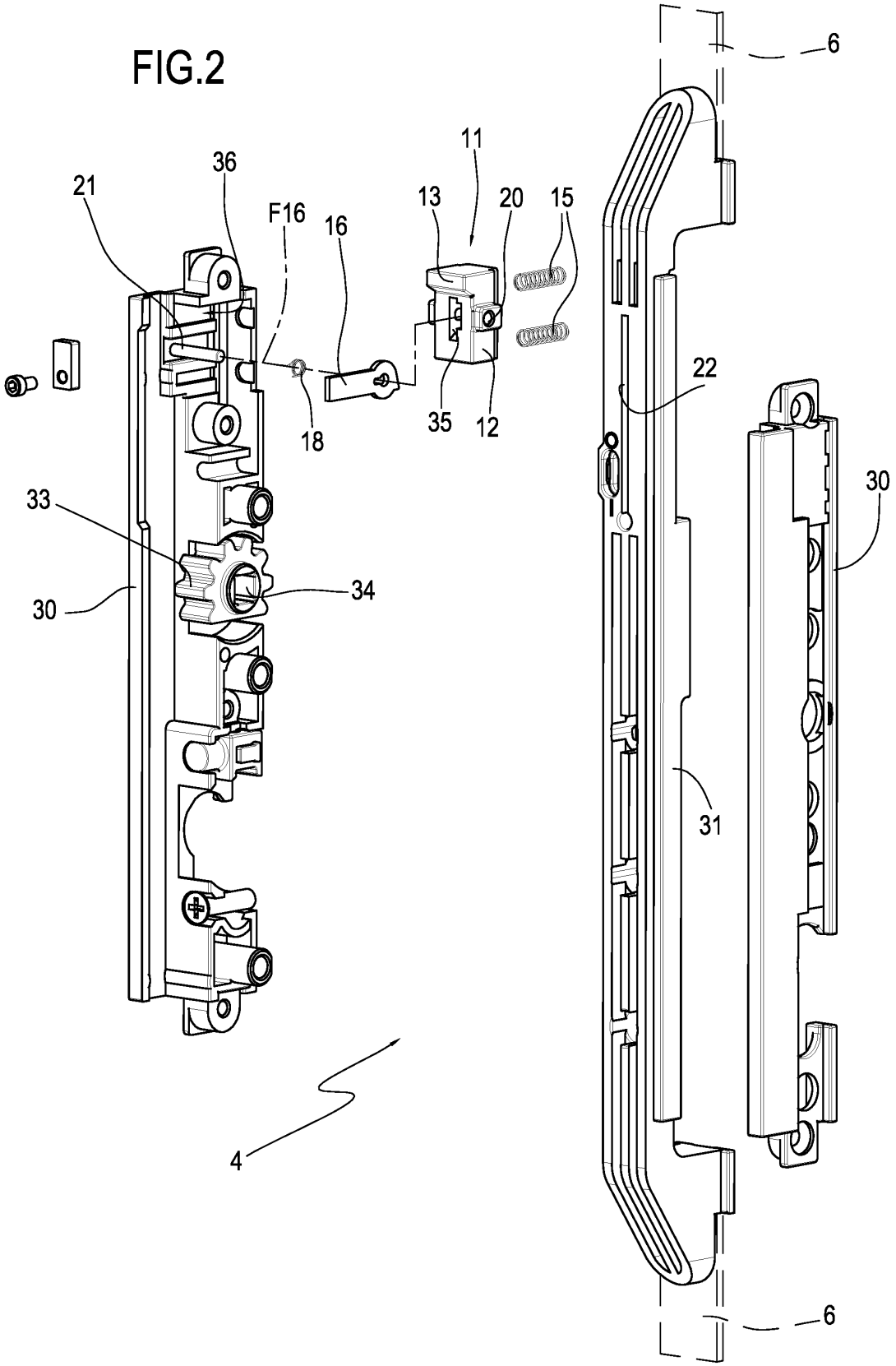
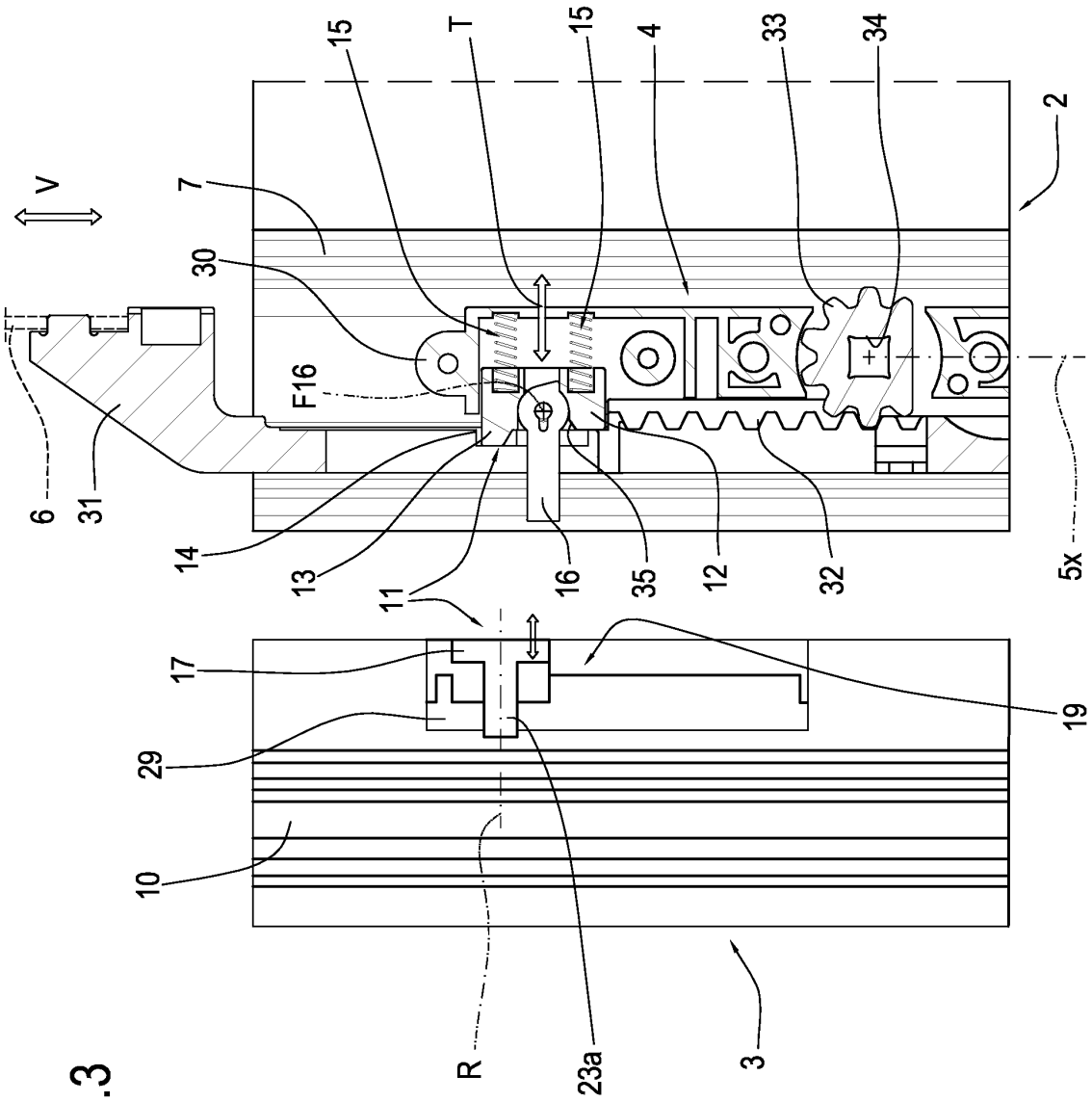


FIG.2




V
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T
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F16
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16
35
12
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5x
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19
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10
R
23a
3

FIG.3

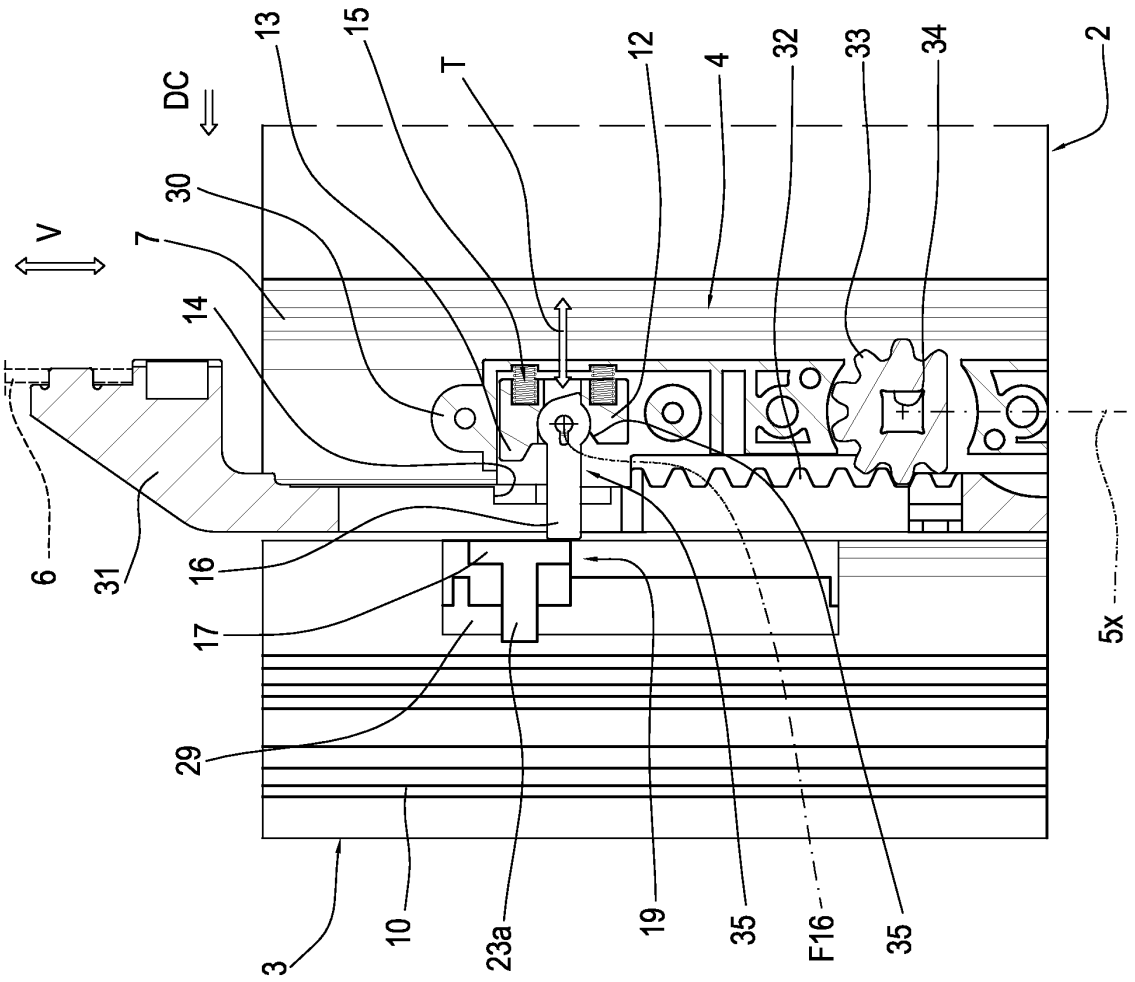


FIG.4

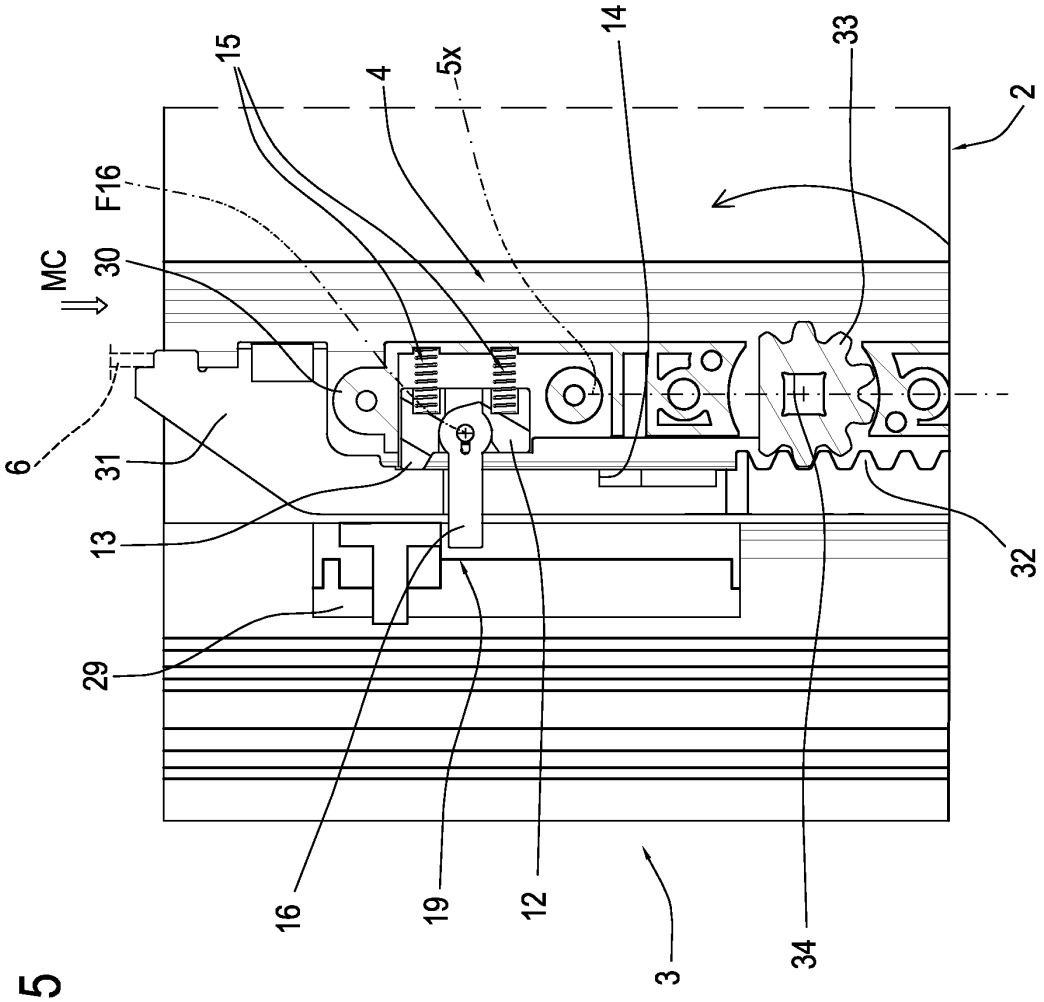


FIG.5

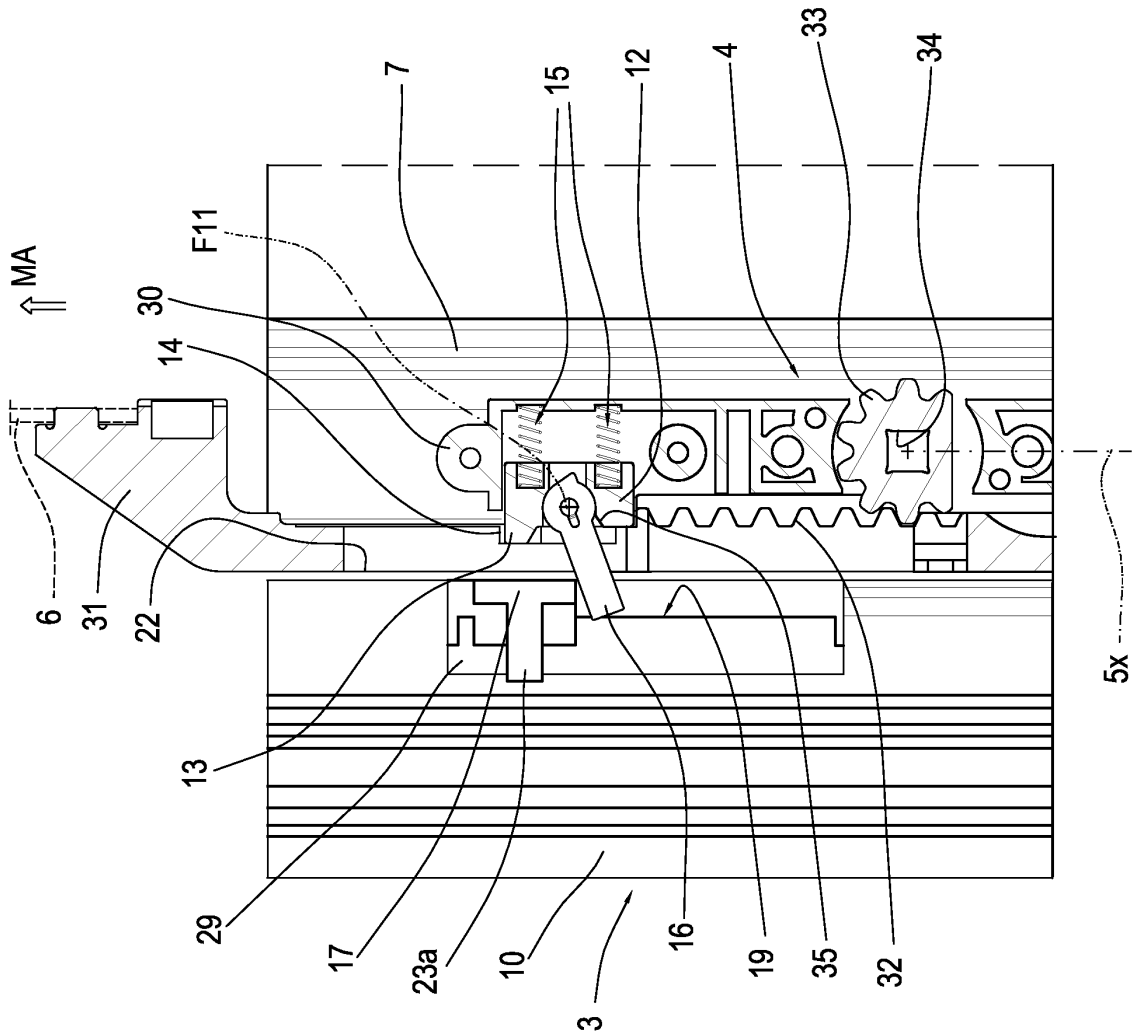


FIG.6

FIG.7

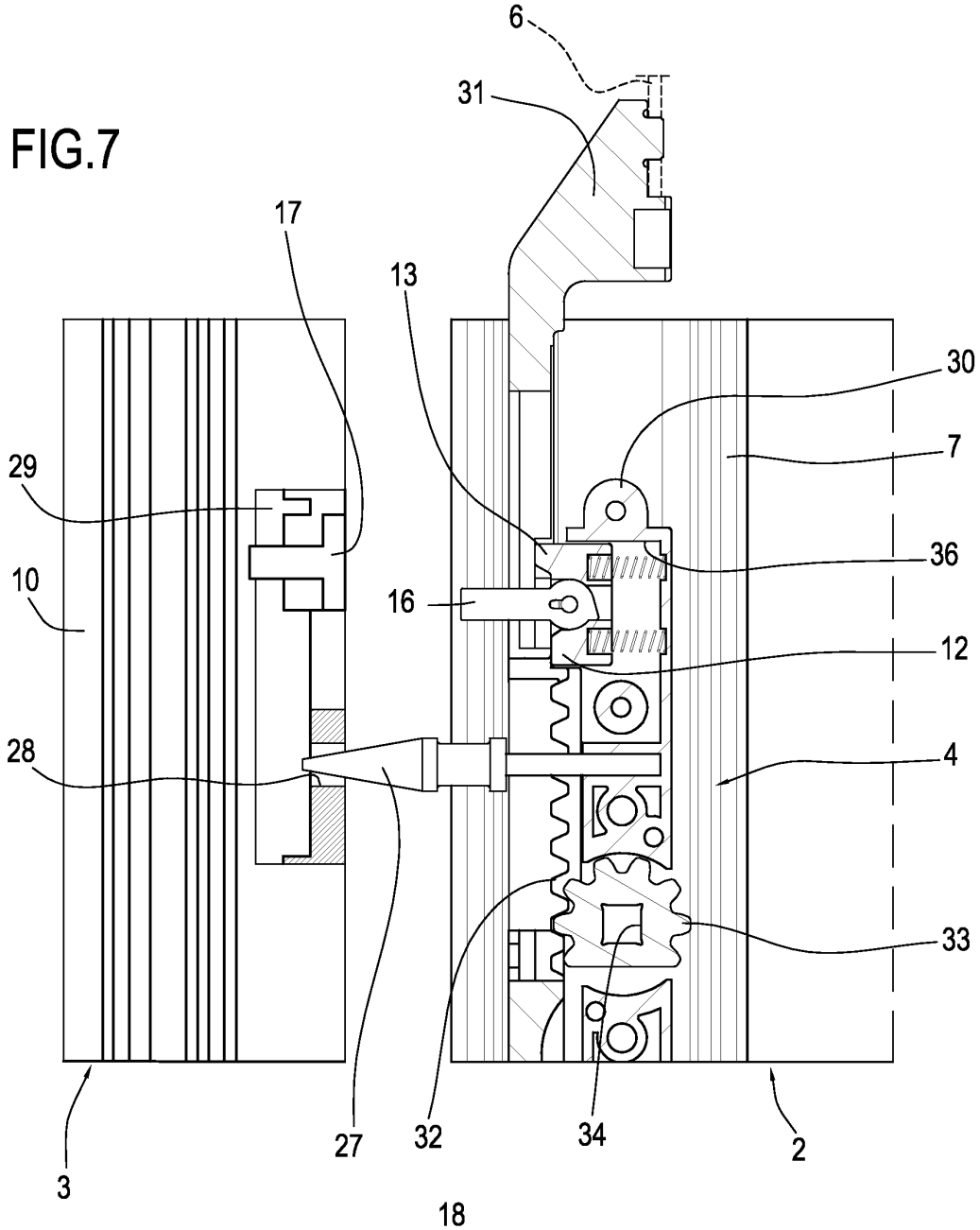
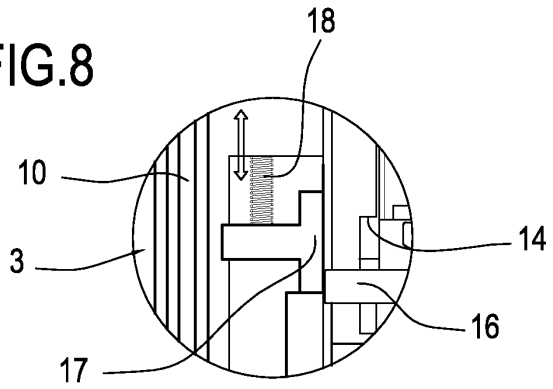


FIG.8



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Application Number
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E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	13 November 2012	Geerts, Arnold

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13-11-2012

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