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(54) **RESTRICTOR ASSEMBLY**

(57) A restrictor assembly for restricting the movement of a window comprises a first member (1) defining an elongate track (2), a second member (17) mounted for sliding movement along the track (2) and a third member (18) able to interact with the second member (17). The assembly is configurable in a first configuration in which the second member (17) can be moved along the track (2) into a first predetermined position partway along the track and is held against sliding along the track in one direction, but not in the opposite direction. The assembly is also configurable in a second configuration in which the second member (17) can be moved along the track (2) into a second predetermined position partway along the track and is held against sliding along the track in either direction.

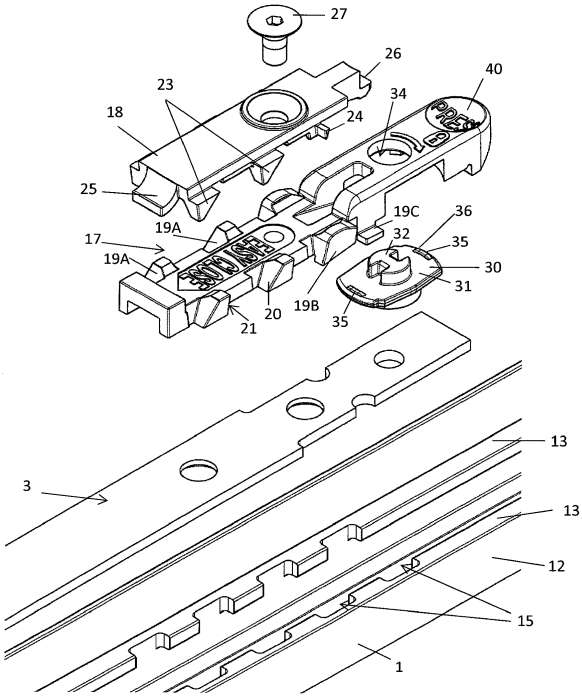

Fig.3

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Description

[0001] This invention relates to a restrictor assembly for limiting the movement of a member, for example a window.

[0002] Restrictor assemblies on windows are well known. They may take a variety of forms and are often provided for safety reasons. Some restrictor assemblies will allow a person to open a window to a limited extent but will then prevent the window from opening any further, whilst allowing the window to be closed and reopened to the same limited extent. Other restrictor assemblies will allow a window to be opened to a limited extent and will then hold the window in that open position against either further opening or closing. In different situations different functionality is desirable.

[0003] A restrictor assembly is typically incorporated into a linkage connected between the window frame and the window.

[0004] The form of that linkage will depend upon the way in which the window is mounted in the frame and the nature of its movement from a closed position to an open position. For example, the window may be mounted for simple pivoting about a fixed horizontal or vertical axis, or for a combination of pivoting and translational movement, or for translational movement only as in the case of a sash window. A known form of restrictor assembly comprises a first member defining an elongate track and a second member mounted for sliding movement along the track. The arrangement is such that as the window is opened, the second member slides along the track until it reaches a predetermined position at which it becomes held against further sliding movement along the track, thereby limiting the extent to which the window can be opened. The second member remains free to slide back along the track allowing the window to be closed. Furthermore, although the second member is held against further movement along the track, an operator is able to disengage the second member from engagement with the track against a resilient bias and thereby enable the second member to slide along the track beyond the predetermined position, allowing the window to be opened further, which may be desirable for routine cleaning or other maintenance.

[0005] Another known form of restrictor assembly is of similar design to the one just described, comprising a first member defining a track and a second member slidably mounted in the track, but in this case, when the second member slides to a predetermined position, it is held against movement along the track in either direction, so that the window is held in that position. An operator is able to disengage the second member from engagement with the track against a resilient bias and thereby enable the second member to slide along the track in either direction away from the predetermined position, allowing the window to be closed or opened further, which may be desirable for routine cleaning or other maintenance.

[0006] It is an object of the invention to provide a restrictor assembly which is able to provide enhanced versatility.

[0007] According to a first aspect of the invention there is provided a restrictor assembly for restricting the movement of a member, the assembly comprising a first member defining an elongate track, a second member mounted for sliding movement along the track and a third member able to interact with the second member, wherein the assembly is configurable in a first configuration being one in which the second member can be moved along the track into a first predetermined position partway along the track and is held against sliding along the track in one direction, but not in the opposite direction, and in a second configuration being one in which the second member can be moved along the track into a second predetermined position partway along the track and is held against sliding along the track in either direction.

[0008] The member whose movement is restricted will most usually be a window, although it is within the scope of the invention in its broadest aspect for it to be some other movable member. In the description below, but not in the claims, the member whose movement is restricted will for purposes of clarity often be referred to as a window, even though it may be some other member.

[0009] A restrictor mechanism of this kind can be configured either (1) to allow a person to open a window to a limited extent but then prevent the window from being opened any further by the person, whilst allowing the window to be closed and reopened to the same limited extent, or (2) to allow a window to be opened to a limited extent by a person but then hold the window in that open position against either further opening or closing by that person. Thus a person can set up the restrictor assembly in either configuration and does not need to have two different devices available. Such improved versatility can be very advantageous.

[0010] In embodiments of the invention described below the first, second and third members are each single parts, but it should be understood that it is possible for a "member" to consist of a plurality of parts connected together.

[0011] The first member defining the elongate track, which may be linear, may form part of a linkage and its position in space may change as a window is opened. Alternatively, the first member may be fixed either to the window frame or to the window. The most suitable arrangement will often be determined by the nature of the movement of the window between closed and open positions.

[0012] The interaction of the third member with the second member may take any suitable form. The third member may be mountable on the second member.

[0013] The first predetermined position and the second predetermined position may be adjacent to one another or coincident. It is preferable that the first and second members are in substantially the same relative positions in both the first and second predetermined positions.

They may be in exactly the same positions or the change in configuration of the assembly may result in them being in slightly different positions, for example because different parts of the second and/or third members are engaging the first member. Whilst reference is made to first and second predetermined positions which, as just explained, may actually be one single position, there may also be one or more further positions in which the second member is held. The assembly may be configurable into the first configuration and/or the second configuration in each of those further positions.

[0014] The assembly may be convertible from one of the first and second configurations to the other of the first and second configurations by removing the third member from the rest of the assembly; in a first of two embodiments of the invention described with reference to the drawings, that is the case. Such removal may convert the assembly from the first configuration to the second configuration or, alternatively, from the second configuration to the first configuration. Thus, the term "assembly" refers to a set of parts that may be assembled together and includes the case where one of the assembled set of parts is removed from the assembly and becomes separate from the assembly.

[0015] The assembly may be convertible from one of the first and second configurations to the other of the first and second configurations by altering the interaction of the third member on the second member. In a second of two embodiments of the invention described with reference to the drawings, that is the case. The assembly may be convertible from one of the first and second configurations to the other of the first and second configurations by rotating the third member relative to the second member. In the described embodiment the third member is rotated about an axis perpendicular to the track, but the rotation may alternatively be about another axis. The rotation may be achieved with the third member remaining mounted on the second member or, as in the described embodiment, the third member may be detached and then reattached to change the configuration. The rotation may be through an angle of 180 degrees.

[0016] The second member may be held against sliding along the track in at least one direction by direct engagement of the second member with the track or by indirect engagement, for example, by engagement of the third member, or some other member, with both the second member and the track. The first member and the second and/or third member may have interengaging formations that are arranged to engage one another to hold the second member against sliding movement along the track in at least one direction. The interengaging formations may comprise projections on the second and/or third member engageable in recesses in the first member. The recesses in the first member may be formed by a castellated section of the track. The track may generally comprise a base, upstanding side walls extending upwardly from opposite side edges of the base and lips at the tops of the side walls projecting inwardly from the side walls. The recesses may be provided on the lips.

[0017] In the first configuration, the interengaging formations may engage in such a way that a force along the track in a first direction causes the formations to slide over one another and disengage and a force along the track in a second direction opposite to the first direction causes the interengaging formations to abut one another, engage more forcefully with one another and hold the second member against movement along the track in one direction.

[0018] In the second configuration, the interengaging formations may engage in such a way that a force along the track in either direction causes the interengaging formations to abut one another, engage more forcefully with one another and hold the second member against movement along the track in either direction.

[0019] Converting the assembly from one of the first and second configurations to the other of the first and second configurations may change the formations on the second and/or third member that engage the formations on the first member. Such arrangements are described below with reference to the accompanying drawings.

[0020] Usually the restrictor is provided to limit the extent of opening of a window in normal use, but it is desirable that the restrictor can be overridden to allow the window to be opened fully, for cleaning or other maintenance. Thus, the holding of the second member against movement along the track can preferably be overridden by an operator action. The operator action may comprise moving the second member transverse to the track against a resilient bias. More particularly, the operator action may comprise pressing the second member into the track against a resilient bias. The pressing of the second member may be accomplished by direct contact with the second member or by contact with another member, for example the third member.

[0021] Reference is made above to the restrictor assembly comprising first, second and third members; it should be understood that the assembly may also comprise other members. In an embodiment of the invention described below the assembly comprises a further member for locking the assembly in its predetermined position, the further member being movably mounted on the assembly for movement between a locking position in which an operator action for overriding the holding of the second member is prevented and a releasing position in which the operator action is free to override the holding of the second member. The further member may be rotatably mounted on the assembly. The further member may be rotatable through approximately 90 degrees between the locking and releasing positions.

[0022] The assembly may comprise an additional member, the additional member being elongate, being connected to the second member and comprising at least a part of a linkage for connection between a window and a window frame. In an embodiment of the invention described below, the additional member is an elongate member that is itself slidably mounted in the track and

the movement of the additional member and the second member are the same. Another possibility is for the second member to be the only member slidably received in the track and to fulfil the function of the additional member (which is then not required); in that case the third member interacts with the second member in accordance with the invention and may similarly be mountable on the second member to control the configuration of the second member. Another possibility is for the additional member to be free to pivot relative to the track and for the second member to be pivotally mounted on the additional member. The second member may be connectible to the additional member at a plurality of positions; that can provide a way of adjusting the degree of opening of the window at which the restrictor assembly restricts movement.

[0023] According to a second aspect of the invention, there is provided a window mounted in a window frame for movement between an open and a closed position and a linkage connected between the window and the window frame, the linkage incorporating a restrictor assembly as defined above.

[0024] The window may be mounted in the window frame in a wide variety of ways. For example, it may be mounted for pivoting movement about a fixed axis, which may be a horizontal or vertical axis, or it may be mounted in the window frame for pivoting and translational movement, or it may be mounted in the window frame for translational movement only, as for example is the case with a sash window.

[0025] The linkage incorporating the restrictor assembly may itself provide part or even all of the mounting of the window or it may be ancillary to the window mounting, in which case the linkage may be mechanically separate from the mounting system for mounting the window in the window frame.

[0026] By way of example an embodiment of the invention will now be described with reference to the accompanying schematic drawings, of which:

Fig. 1A is an isometric view of a linkage incorporating a restrictor assembly;

Fig. 1B is an isometric view of the linkage of Fig. 1A with a track shown separately from the linkage;

Fig. 2 is an isometric, partially exploded, view of a first form of restrictor assembly;

Fig. 3 is an isometric, fully exploded, view of the first form of restrictor assembly;

Fig. 4 is an isometric view of the first form of restrictor assembly in its assembled state and with a locking member in an unlocked position;

Fig. 5 is an isometric view similar to Fig.4 of the first form of restrictor assembly in its assembled state, but with the locking member rotated to a locked position;

Fig. 6 is an isometric, partially exploded, view of a second form of restrictor assembly;

Fig. 7 is an isometric, fully exploded, view of the second form of restrictor assembly;

Fig. 8 is a partly cut away side view of the restrictor device of the restrictor assembly of Figs. 6 and 7 in a first configuration; and

Fig. 9 is a partly cut away side view, similar to Fig. 8 but showing the restrictor device in a second configuration.

[0027] Figs. 1A and 1B show a linkage incorporating a restrictor assembly for restricting the opening of a window. For the purposes of this description, it will be assumed that the window is hinged about a fixed vertical axis at one edge of the window and that the restrictor assembly is mounted on the window frame along a bottom edge of the frame.

[0028] A first member 1, exemplifying in this embodiment the "first member" of the invention and defining an elongate track 2, is fixed to a horizontal bottom section of the window (not shown). An elongate member 3 is slidably mounted in the track 2 for movement along the track. At one end of the member 3, a restrictor device 4 is mounted and at the other end of the member 3 one end of a link 5 is pivotally connected. The other end of the link 5 carries a pin 6 which is pivotally connected to the window (not shown) whose movement is to be restricted. Partway along the link 5, one end of a link 7 is pivotally connected, the opposite end of the link 7 being pivotally mounted on an anchor 8 that is fixed in the track 2.

[0029] As can be understood from Figs. 1A and 1B, when the window is opened further or closed, the position of the pin 6 moves relative to the position of the anchor 8 and, to accommodate that movement, the member 3 slides along the track 2. If movement of the member 3 along the track 2 is prevented by the restrictor device 4, then corresponding movement of the window is prevented.

[0030] An arrangement of the kind just described is already known. The novel features of the present invention relate to the form of the restrictor device 4 and its interaction with the track 2. It is those features that will now be described with reference to the remaining drawings which show two different embodiments, a first embodiment being shown in Figs. 2 to 5 and a second embodiment being shown in Figs. 6 to 9.

[0031] Referring first to Figs. 2 and 3, there is shown an end portion of the member 3, a portion of the track 2 and the restrictor device referenced 4 in Figs. 1A and 1B. Those parts may together be described as a restrictor assembly.

[0032] Referring to Figs. 1A, 1B, 2 and 3, the track 2 is of generally uniform cross-section and is defined by a base 11, side walls 12 extending upwardly from opposite side edges of the base and lips 13 at the tops of the side walls 12 and projecting inwardly from the side walls. Along one portion 14 of the track 2, the lips 13 are formed with recesses 15 to provide a castellated shape.

[0033] The restrictor device shown in Figs. 2 and 3

generally comprises: a member 17, which in this embodiment exemplifies the "second member" of the restrictor assembly of the invention and which is mounted on the end of the member 3; a configuration-adjusting member 18, which in this embodiment exemplifies the "third member" of the restrictor assembly of the invention and which is mountable and securable on the top of the member 17; and a locking member 30 which is rotatably mounted on the member 17.

[0034] The member 17 is connected to the member 3 in such a way that the member 17 is biased upwardly away from the base of the track. In the example shown this is achieved by providing a degree of resilience in the member 3 and having the end portion of the member 17 slightly upwardly inclined in its unstressed state. As a result the member 3 is pressed upwardly against the undersides of the lips 13.

[0035] The member 17 is sized to be able to be received in the track 2 with most of the member 17 having a width slightly less than the separation of the lips 13 but with projections 19A, 19B and 19C on the member 17 extending further outwardly beneath the lips 13. The projections 19A are dimensioned and positioned to be able to be received in the recesses 15 when the restrictor device is at a predetermined position within the portion 14 of the track 2. The projections 19C are dimensioned and positioned to remain within the track below the lips 13 at all times.

[0036] As can be seen most clearly in Fig.3, the projections 19A have inclined faces 20 at first ends and perpendicular faces 21 at their opposite second ends. When the projections 19A are received in the recesses 15 of the track 2 and a longitudinal force is applied to the member 17 pressing the inclined faces 20 against end walls of the recesses 15, the faces 20 are pressed downwardly through a camming action towards the base of the track and the member 17 becomes free to slide along the track 2. If, however, a longitudinal force is applied to the member 17 in the opposite direction, the faces 21 are pressed against opposite end walls of the recesses 15, but in this case there is simple abutment of confronting faces that are perpendicular to the direction of applied force and the member 17 is therefore held in position with the projections 19A remaining in the recesses 15.

[0037] The configuration-adjusting member 18 is sized to be able to be received in the track 2 with most of the configuration-adjusting member 18 having a width slightly less than the separation of the lips 13 but with projections 23 and 24 on the configuration-adjusting member 18 extending further outwardly beneath the lips 13 when the configuration-adjusting member 18 is secured to the member 17. The projections 23 are dimensioned and positioned to be able to be received in the recesses 15 when the restrictor device is at a predetermined position within the portion 14 of the track. The projections 24 are dimensioned and positioned to remain within the track below the lips 13.

[0038] As can be seen most clearly in Fig.2, when the configuration-adjusting member 18 is secured on the member 17, the inclined faces 20 of the projections 19A are covered over by the projections 23 and the two sets of projections together define compound projections that have perpendicular faces at both ends. When the compound projections are received in the recesses 15 of the track 2 and a longitudinal force is applied to the member 17 in either direction, perpendicular faces of the compound projections are pressed against opposite end walls of the recesses 15; in this case there is simple abutment of confronting faces that are perpendicular to the direction of applied force and the member 17 is therefore held in position with the compound projections remaining in the recesses 15.

[0039] The configuration-adjusting member 18 is secured to the member 17 by end lugs 25 and 26 which engage in recesses in the member 17 and by a fixing means, for example a screw, 27 which fastens the configuration-adjusting member 18 to the member 17.

[0040] Referring now also to Figs. 4 and 5, the locking member 30 has a plate-like portion 31 whose longitudinal dimension, as viewed in Figs. 2 to 4, is greater than its transverse dimension and has curved ends. A boss 32 is upstanding from the middle of the plate-like portion 31 and is formed with recesses 33. The boss 32 is received in a circular opening 34 in the member 17 and is thereby rotatably mounted in the member. In the embodiment shown in the drawings, the locking member 30 is retained in the rotational orientation shown in Figs. 2 to 4 by small projecting parts 35 on the end regions 36 of the ends of the plate-like portion 31 engaging in recesses (not visible in the drawings) in the member 17. The extent of the engagement is such that the locking member 30 is not likely to rotate through accidental contact or vibration but the member can be rotated through 90 degrees to the position shown in Fig. 5 by engaging a suitable tool in the recesses 33 in the boss 32. In this position the end regions 36 of the plate-like portion 31 project over the tops of the lips 13 of the track 2.

[0041] In the illustrated embodiment, the locking member also serves, when in the position shown in Figs. 2 to 4, to retain the configuration-adjusting member 18 on the member 17 even if the fixing means 27 is removed: one of the end regions 36 of the plate-like portion 31 projects over the top of the end lug 26 preventing its withdrawal from the recess in the member 17. In order to remove the configuration-adjusting member 18 from the member 17, the locking member 30 is rotated to the position shown in Fig. 5 and the end lug 26 can then be withdrawn from its recess in the member 17.

[0042] Much of the operation of the restrictor assembly described above will now have been understood, but it will be described below for completeness. As a window is opened or closed the member 3 and the restrictor device 4 slides along the track 2. While the restrictor device is away from the portion 14 of the track 2, there is no restraint of that sliding movement. If, however, the restrictor device slides into the portion 14 of the track 2,

projections on the device will engage in the recesses 15 in the track 2, the device being biased upwardly away from the base 11 of the track 2.

[0043] If the configuration-adjusting member 18 is not fitted, then, once the projections 19A are received in the recesses 15, the member 17, and therefore also the member 3, are held against movement in one direction (the direction causing the confronting perpendicular faces to be pressed against each other), but will be able to move in the opposite direction with the inclined faces 20 being pressed downwardly against the upward resilient bias to a position below the lips 13 of the track 2. Thus, the member 3 is able to move in one direction (allowing movement of the window in that direction, which would usually be chosen to correspond to closing of the window), but is not able to move in the opposite direction.

[0044] If the configuration-adjusting member 18 is fitted, then, once the projections 19A are received in the recesses 15, the member 17, and therefore also the member 3, are held against movement in both directions.

[0045] The holding of the restrictor device against longitudinal movement can be overridden by manually depressing the device by pressing down in a region 40 of the member 17. That pressing depresses the projections 19A, and the projections 23 in the case where the member 18 is also present, so that they are free to pass beneath the lips 13. The locking member 30 does not obstruct such depression when in the position shown in Figs. 2 to 4, but does prevent such depression when in the position shown in Fig. 5; accordingly, with the locking member in the position shown in Fig. 5, the member 3 is prevented from sliding along the track in either direction. In that case the window is locked and unable to be opened further or closed.

[0046] A first choice as to whether or not to employ the configuration-adjusting member 18 is made initially. Thereafter the configuration may be changed when the restrictor device is in engagement with the castellated portion 14 of the track, but such a change of configuration will be required only if it is desired to change the restriction on opening or closing the window.

[0047] Whilst the present invention has been described and illustrated with reference to one particular embodiment, it will be appreciated by those of ordinary skill in the art that the invention lends itself to many different variations. A second simple embodiment illustrating one such variation will now be described with reference to Figs. 6 to 9. In Figs. 6 to 9, corresponding parts are referenced by the same reference numerals as in Figs. 2 to 5. In the embodiment of Figs. 6 to 9, the configuration adjusting member 18 is always fitted to the member 17 but it can be fitted in either of two orientations that are 180 degrees apart. The projections 23 on the member 18 are profiled such that they interact with the projections 19A on the member 17 to provide compound projections with desired profiles. When the member 18 is rotated through 180 degrees and fitted to the member 17, compound projections are again formed but of different profiles. Thus the active faces of the profiles can be altered from inclined (to allow release through a camming action), to perpendicular (to obstruct release), or to inclined in an opposite direction (to allow release when longitudinal movement is in the opposite direction). If desired it is also possible to provide for release through a camming action for movement in both longitudinal directions. In Figs. 6 and 7, the inclinations of the faces of the projections are not clearly visible but in Figs. 8 and 9, the different inclinations with the member 18 in different orientations can be seen. In the particular example of Figs. 8 and 9, the effect of rotating the member 18 is to switch the inclinations of the camming surfaces from one inclination to an opposite inclination. Thus, in this particular example, the restrictor device in a first configuration is held against longitudinal movement in a first direction but not in a second opposite direction, whilst in a second configuration the restrictor device is held against longitudinal movement in the second direction but not in the first opposite direction.

[0048] It will be understood that a variety of other arrangements may be employed to alter the parts of the restrictor device and the track that engage one another and the arrangements described above with reference to the drawings are merely examples. For example, in the arrangements described above, the member 17 is depressed into the track to release it for movement along the track, but it would be possible to provide an arrangement in which a lateral or other movement was required. In the arrangements described above the resilient biasing of the member 17 is achieved through the resilience of an end portion of the member 3, but other biasing arrangements may alternatively be employed. In the embodiment of Figs. 2 to 5, the effect of removing the member 18 is to allow movement of the members 3,17 in one direction when such movement was previously blocked, but it will be understood that one could alternatively change the shapes of the projections 19, 23, such that the effect of removing the member 18 is to prevent movement of the members 3,17 in one direction when such movement was previously allowed.

[0049] The restrictor arrangement has been described in the context of a window pivoting about a fixed vertical axis, but it should be understood that the invention is also applicable to a window pivoting about a fixed horizontal axis and to other window arrangements which may involve only rotational movement or a combination of rotational or translational movement or only translational movement as for example would apply in the case of a sash window. Whilst in the embodiments described above, the restrictor assembly is provided for a window, it should be understood that it could be applied to another member, for example a door.

[0050] It will be appreciated by the reader that integers or features of the invention that are described as preferable, advantageous, convenient or the like are optional and do not limit the scope of the independent claims. Moreover, it is to be understood that such optional inte-

gers or features, whilst of possible benefit in some embodiments of the invention, may not be desirable, and may therefore be absent, in other embodiments.

Claims

1. A restrictor assembly for restricting the movement of a member, the assembly comprising a first member defining an elongate track, a second member mounted for sliding movement along the track and a third member able to interact with the second member, wherein the assembly is configurable in a first configuration being one in which the second member can be moved along the track into a first predetermined position partway along the track and is held against sliding along the track in one direction, but not in the opposite direction, and in a second configuration being one in which the second member can be moved along the track into a second predetermined position partway along the track and is held against sliding along the track in either direction.

2. A restrictor assembly according to claim 1, wherein the first predetermined position and the second predetermined position are adjacent to one another or coincident.

3. A restrictor assembly according to claim 1 or 2, wherein the assembly is convertible from one of the first and second configurations to the other of the first and second configurations by removing the third member from the rest of the assembly.

4. A restrictor assembly according to claim 3, in which the assembly is convertible from the first configuration to the second configuration by removing the third member from the rest of the assembly.

5. A restrictor assembly according to claim 3, in which the assembly is convertible from the second configuration to the first configuration by removing the third member from the rest of the assembly.

6. A restrictor assembly according to claim 1 or 2, in which the assembly is convertible from one of the first and second configurations to the other of the first and second configurations by altering the interaction of the third member on the second member.

7. A restrictor assembly according to claim 6, in which the assembly is convertible from one of the first and second configurations to the other of the first and second configurations by rotating the third member relative to the second member through an angle of 180 degrees.

8. A restrictor assembly according to any preceding claim, in which the first member and the second and/or third member have interengaging formations that are arranged to engage one another to hold the second member against sliding movement along the track in at least one direction.

9. A restrictor assembly according to claim 8, in which the interengaging formations comprise projections on the second and/or third member engageable in recesses in the first member.

10. A restrictor assembly according to claim 8 or 9, in which, in the first configuration, the interengaging formations engage in such a way that a force along the track in a first direction causes the formations to slide over one another and disengage and a force along the track in a second direction opposite to the first direction causes the interengaging formations to abut one another, engage more forcefully with one another and hold the second member against movement along the track in one direction.

11. A restrictor assembly according to any of claims 8 to 10, in which, in the second configuration, the interengaging formations engage in such a way that a force along the track in either direction causes the interengaging formations to abut one another, engage more forcefully with one another and hold the second member against movement along the track in either direction.

12. A restrictor assembly according to any of claims 8 to 11, in which converting the assembly from one of the first and second configurations to the other of the first and second configurations changes the formations on the second and/or third member that engage the formations on the first member.

13. A restrictor assembly according to any preceding claim, in which the holding of the second member against movement along the track can be overridden by an operator action.

14. A restrictor assembly according to claim 13 in which the operator action comprises moving the second member transverse to the track against a resilient bias.

15. A restrictor assembly according to claim 14, in which the operator action comprises pressing the second member into the track against a resilient bias.

16. A window assembly comprising a window mounted in a window frame for movement between an open and a closed position and a linkage connected between the window and the window frame, the linkage incorporating a restrictor assembly according to any preceding claim.

17. A window assembly according to claim 16, in which the window is mounted in the window frame for pivoting movement about a fixed axis.

18. A window assembly according to claim 16, in which the window is mounted in the window frame for pivoting and translational movement.

19. A window assembly according to claim 16, in which the window is mounted in the window frame for translational movement only.

20. A window assembly according to any of claims 16 to 19, in which the linkage incorporating the restrictor assembly is mechanically separate from a mounting system for mounting the window in the window frame.

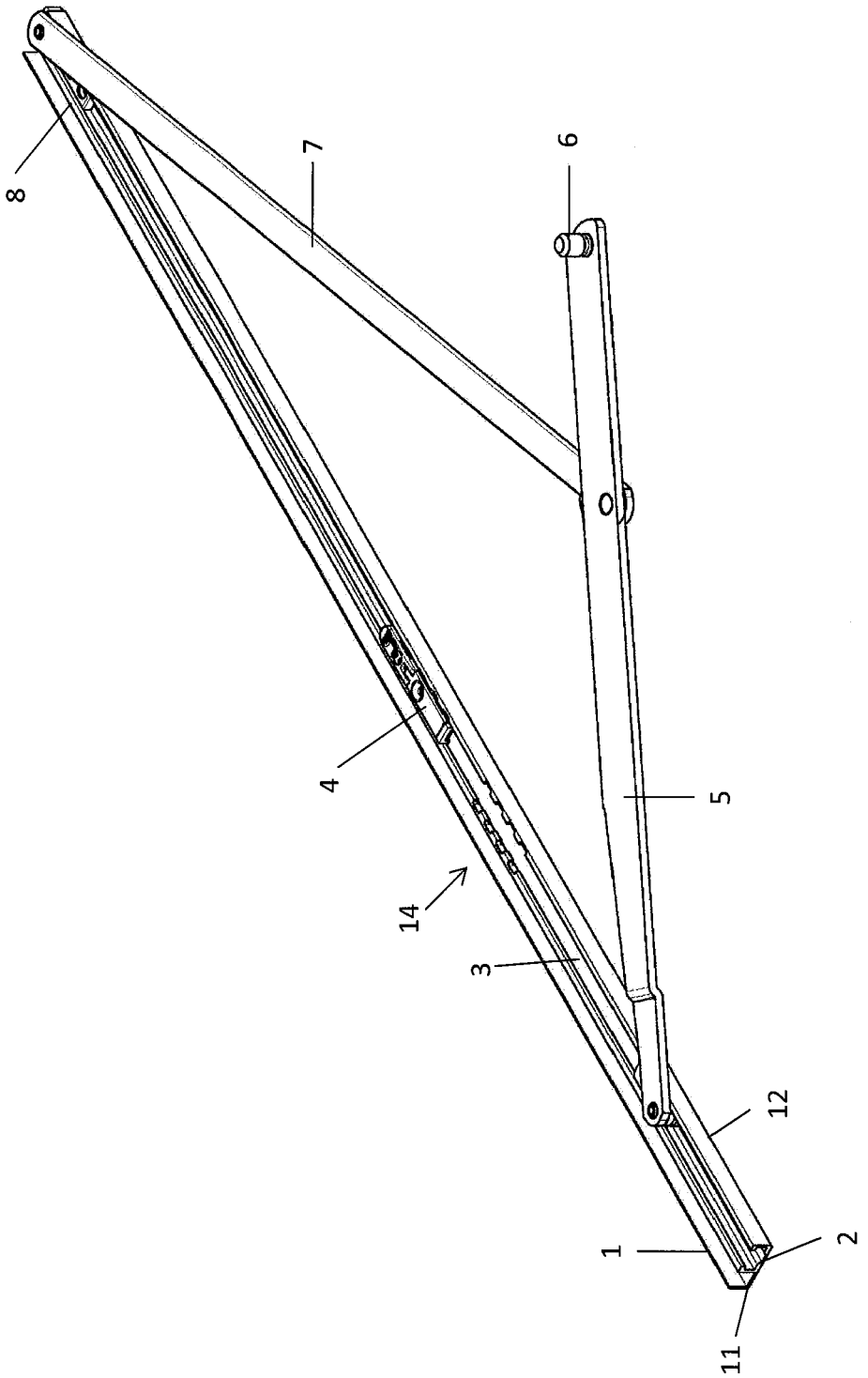


Fig.1A

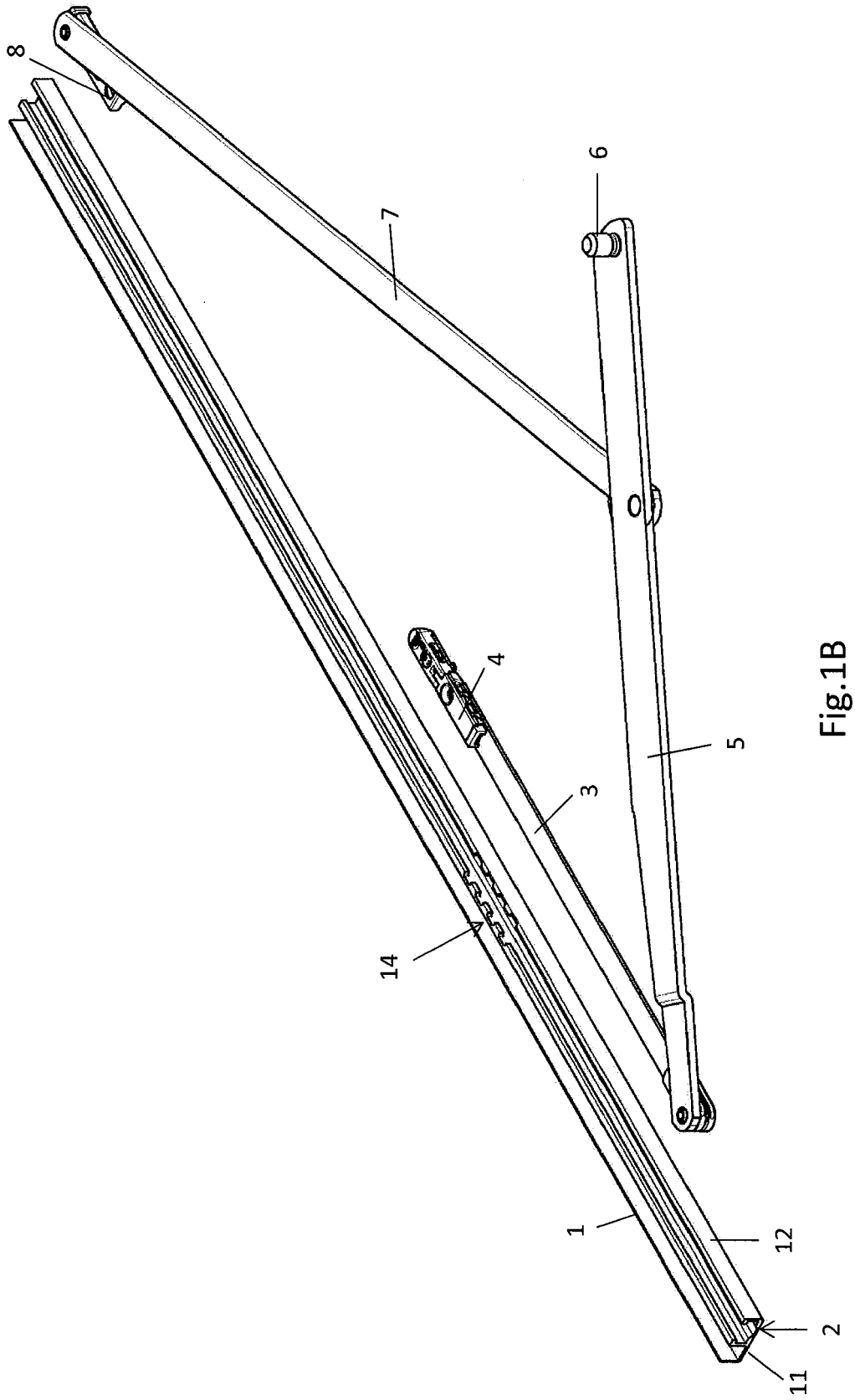


Fig.1B

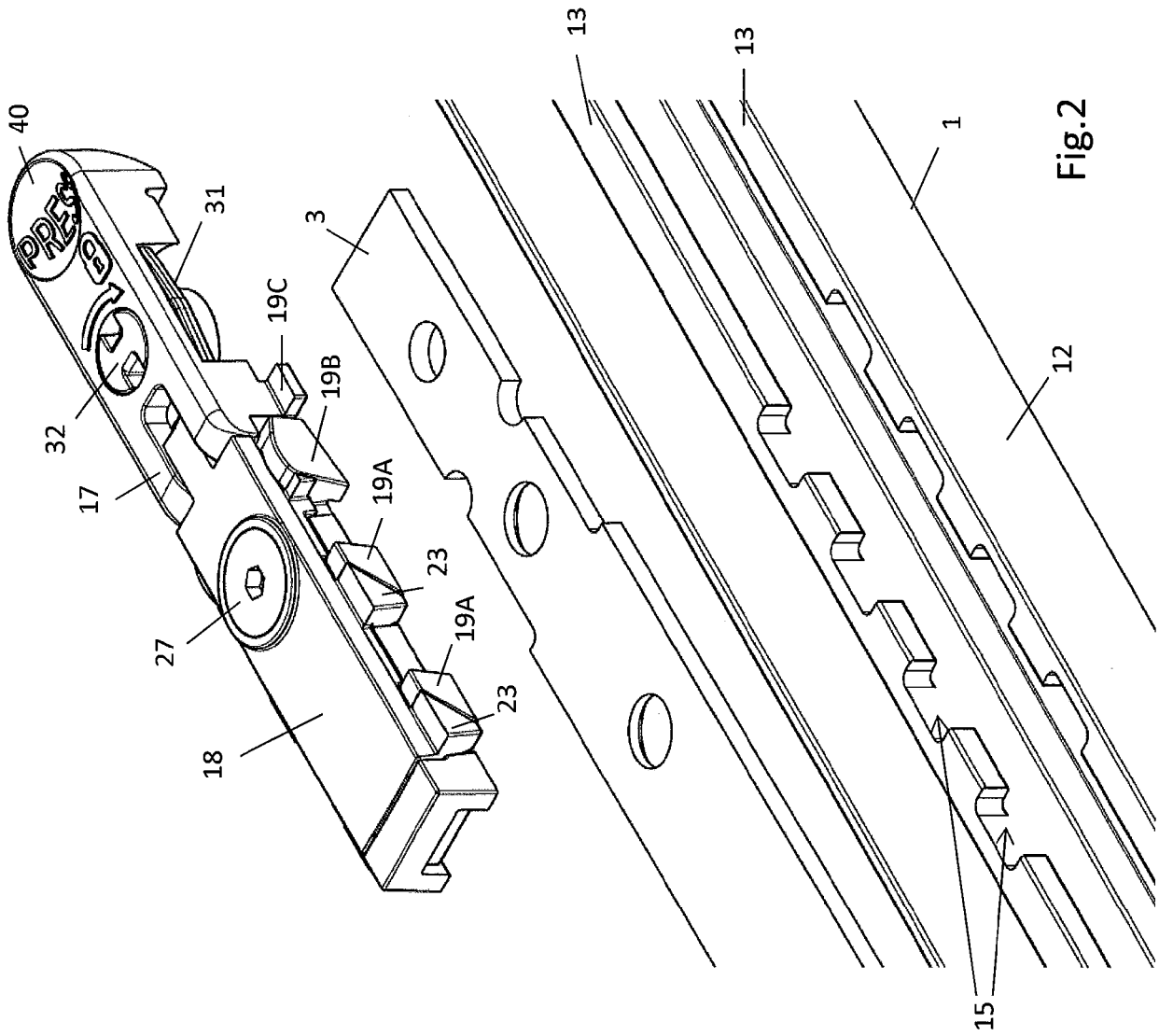
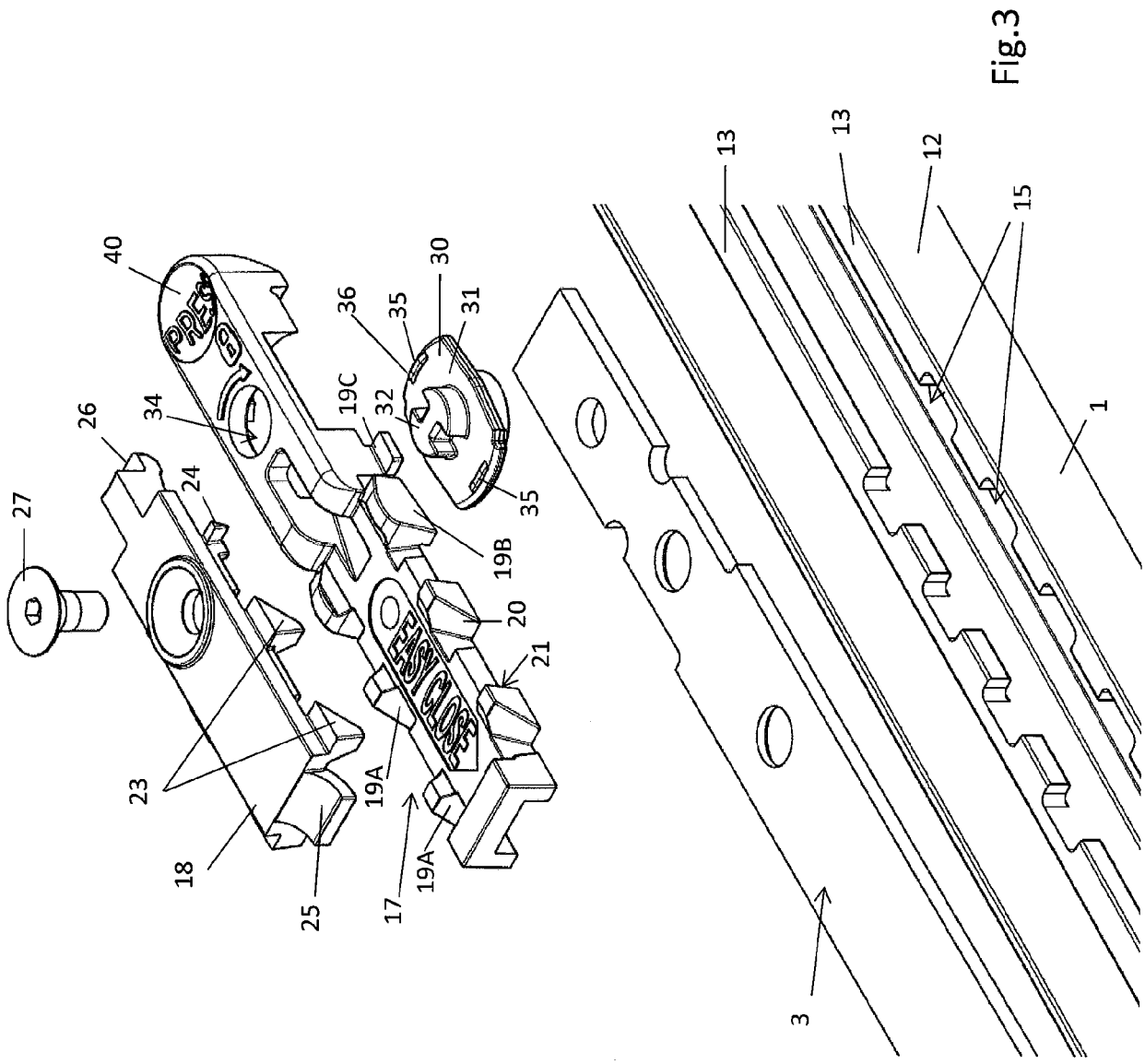


Fig.2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19A
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Fig.3

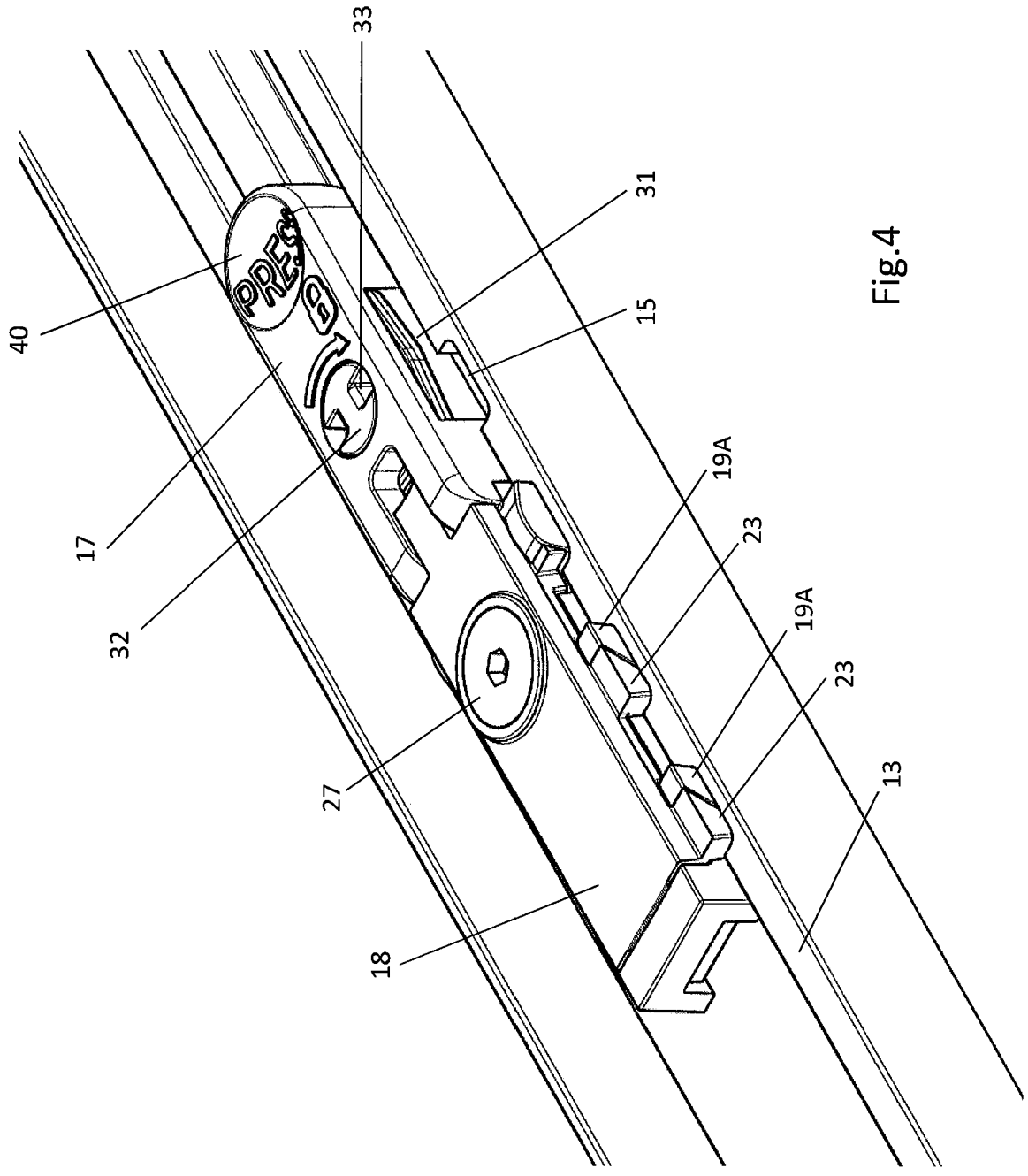

Fig.4

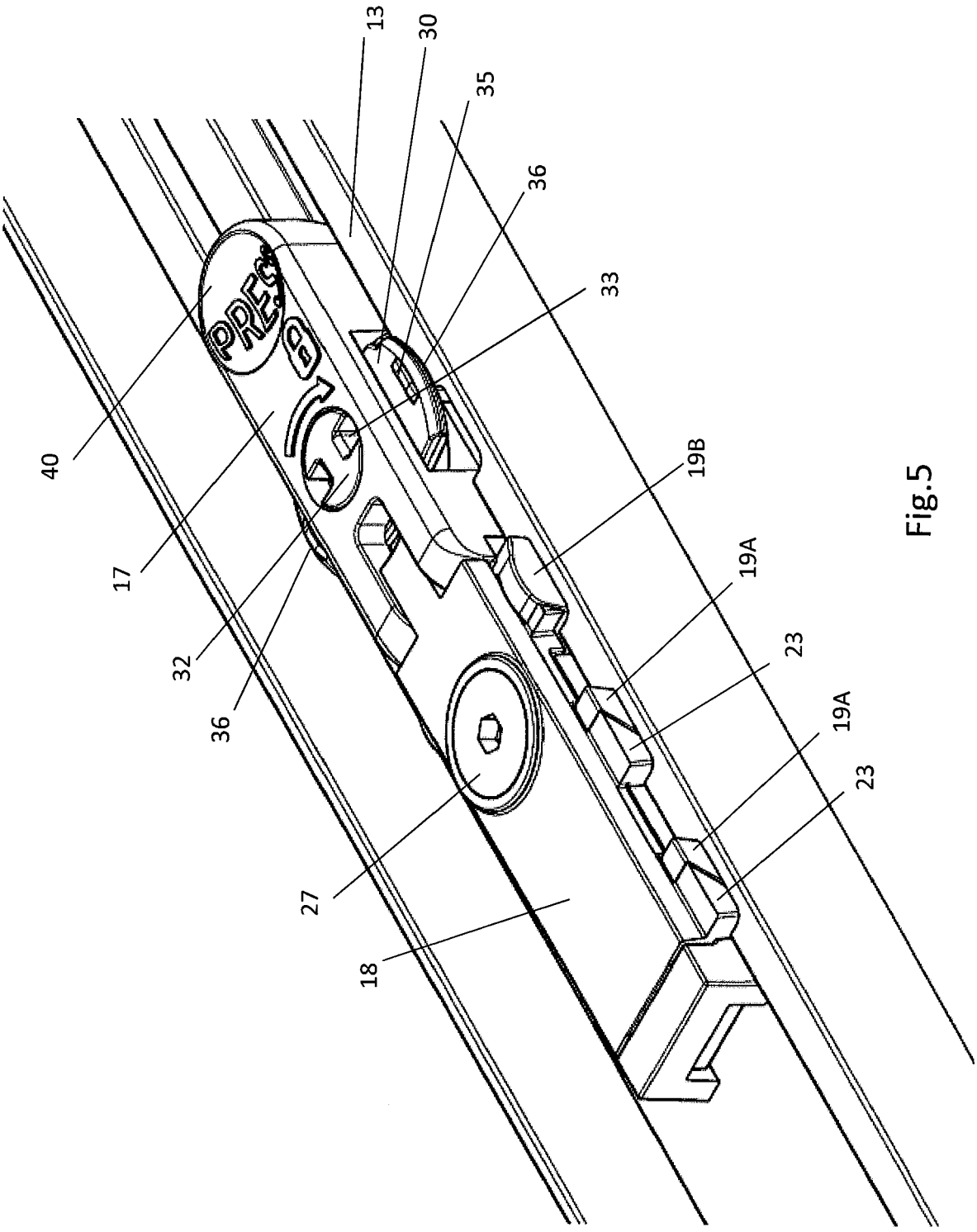

Fig.5

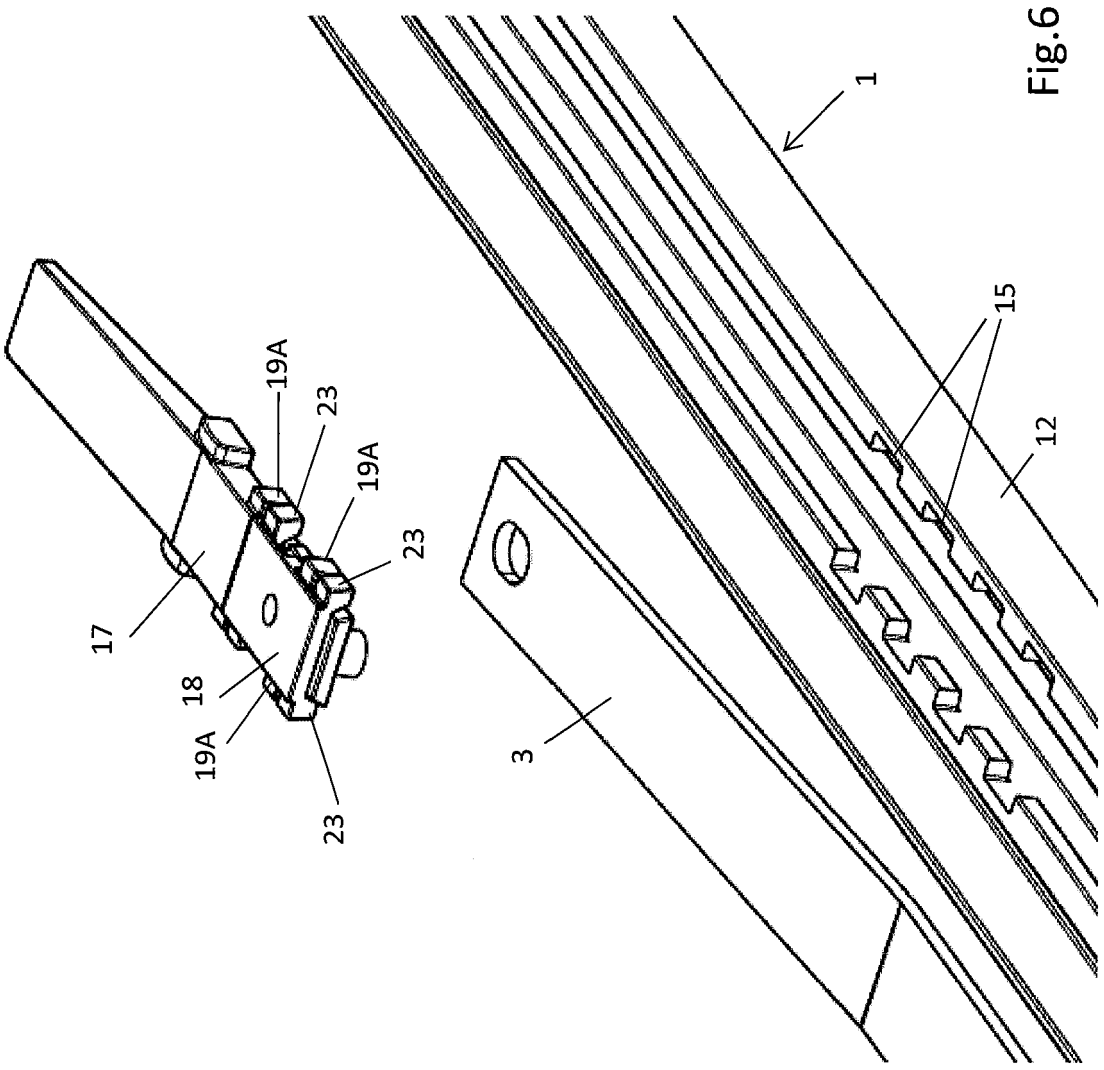

Fig.6

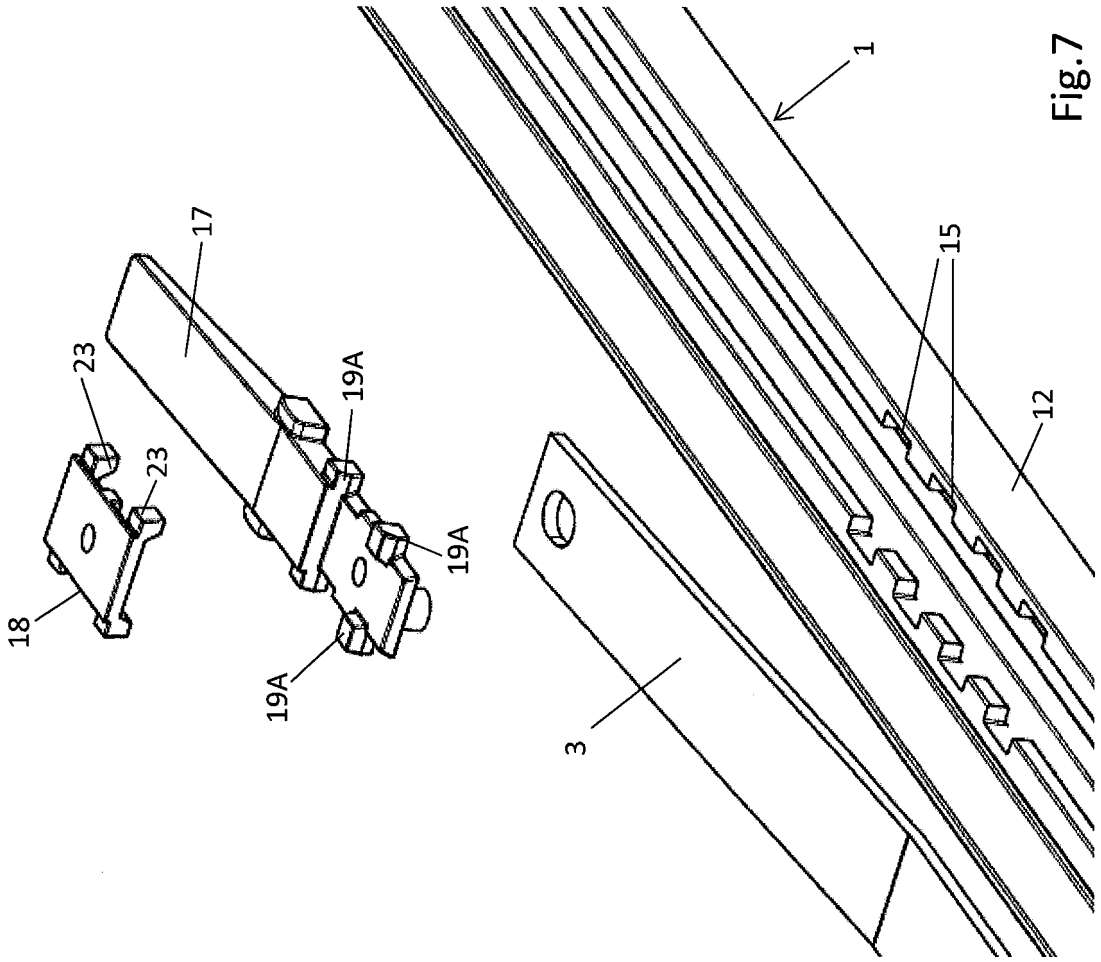

Fig.7

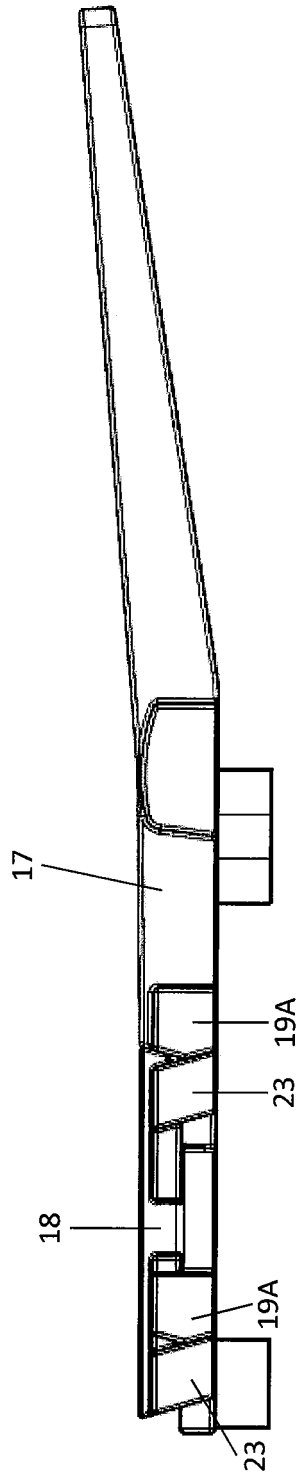

Fig.8

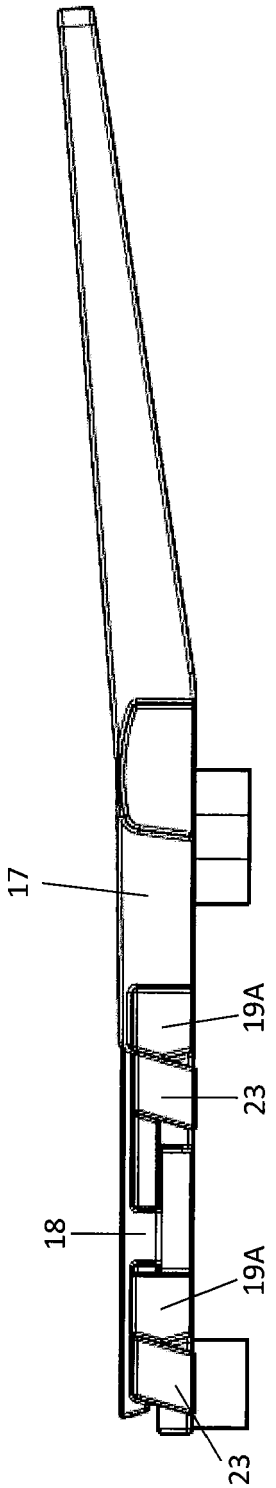

Fig.9

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EUROPEAN SEARCH REPORT

Application Number
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E05D
E05C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	14 June 2017	Witasse-Moreau, C

CATEGORY OF CITED DOCUMENTS

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