



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
16.08.2017 Bulletin 2017/33

(51) Int Cl.:
E05B 15/02^(2006.01)

(21) Application number: **17154754.0**

(22) Date of filing: **06.02.2017**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(71) Applicant: **ASSA ABLOY Nederland B.V.**
7324 AN Apeldoorn (NL)

(72) Inventor: **BUNSCHOTEN, Edwin**
7324 AN APELDOORN (NL)

(74) Representative: **Melchior, Robin**
Octroibureau Vriesendorp & Gaade B.V.
Koninginnegracht 19
2514 AB Den Haag (NL)

(30) Priority: **15.02.2016 NL 2016263**

(54) **CATCH AND A METHOD FOR CATCHING A LOCKING ELEMENT**

(57) The invention relates to a catch for catching a locking element, wherein the catch comprises a catch body to catch the locking element in a receiving space in a catching direction and a correction member that extends in the receiving space to correct a misalignment between the catch and the locking element, wherein the correction member is moveable in a correcting direction between a first position and a second position, wherein the catch comprises a fixing member which is adjustable between a first state, in which it fixes the position of the correction member with respect to the catch body, and a second state, in which it allows repositioning of the correction member between the first and second position, wherein the correction member is moveable to a third position in which the correction member extends obliquely to the longitudinal direction.

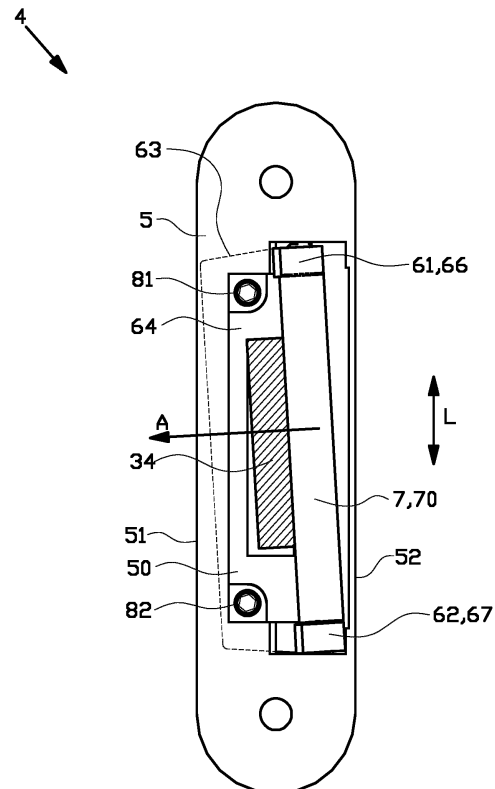


FIG. 7C

Description

BACKGROUND

[0001] The invention relates to a catch and a method for catching a locking element, in particular a lock latch or a bolt of a lock assembly that has been fitted to a wing of a door or a window that is susceptible to warping.

[0002] NL 2005577 C discloses a catch for a lock latch, wherein the catch comprises a cup for mounting in or on a frame, having a first side and a second side. The catch further comprises a displacement element which is biased by spring means in the direction of the second side and an opening for inserting part of a latch of a lock which can engage the displacement element such that the displacement element will apply a force on the latch into the direction of the second side.

[0003] With the known catch or plurality of such known catches, misalignment between a latch of a lock and the catch due to miscalculations, deformations, wear of parts, setting of the frame, weather or use, can be corrected.

[0004] Although the known catch may correct for a certain amount of misalignment, a drawback of the known catch is that the corrective force increases with the amount of misalignment. When the displacement element fails to durably correct the misalignment, the misalignment will ultimately exceed a certain threshold and the latch will no longer be able to pass the displacement element to engage the catch.

[0005] As acknowledged by the prior art, the misalignment may change over time. Hence, a catch and lock latch combination that works fine on installation, may become inoperable after a certain amount of time.

[0006] It is an object of the present invention to provide a catch and a method for catching a locking element, wherein the cooperation between the catch and the locking element can be improved.

SUMMARY OF THE INVENTION

[0007] According to a first aspect, the invention provides a catch for catching a locking element, wherein the catch comprises a catch body that is arranged to be mounted to a frame for a window or a door, wherein the catch body comprises a first side and a second side extending in a longitudinal direction of the catch body and a passage extending in said longitudinal direction between the first side and the second side for providing access to a receiving space defined in the catch body, wherein the catch body is adapted to catch the locking element in the receiving space in a catching direction that extends transverse to the longitudinal direction through the passage into the receiving space, wherein the catch further comprises a correction member that extends in the receiving space and that is arranged to correct a misalignment between the catch and the locking element by forcefully abutting the locking element in a correcting di-

rection extending transverse to the catching direction and the longitudinal direction, wherein the correction member is moveable in the correcting direction within the receiving space between a first position near the first side and a second position near the second side, wherein the catch comprises a fixing member which is adjustable between a first state, in which the fixing member is arranged to fix the position of the correction member with respect to the catch body, and a second state, in which the fixing member is arranged to allow repositioning of the correction member between the first position and the second position, wherein the correction member is moveable to a third position between the first position and the second position, wherein the correction member extends obliquely to the longitudinal direction in said third position.

[0008] The corrective force applied by the correction member on the locking element increases with the amount of misalignment. If after a certain amount of time, the misalignment between the catch and the locking element exceeds a certain misalignment threshold, the latch will no longer be able to pass the displacement element to engage the catch. Repositioning of the correction member between the first position and the second position can release some of the corrective force, thereby improving the cooperation between the catch and locking element, in particular over longer periods of time. The repositioning further allows for precisely positioning the correction member with respect to the locking element, even if the catch and/or the wing are inaccurately mounted. The correction member can be positioned in the third position to compensate for inaccurate mounting of the catch. Alternatively, it can be repositioned from another initial position to compensate for misalignment, e.g. due to warping of the wing over time. This obliquely extending correction member in the third position can address inaccurate mounting and/or misalignments in cases in which the locking element extends obliquely to said longitudinal direction, e.g. at the top or bottom locking element of a three-point locking system.

[0009] In an embodiment the correction member extends parallel to the longitudinal direction in said first position and said second position. Hence, in said positions, which form the outer positions of the range in which the correction member can move within the receiving space, the correction member can be positioned to in a parallel orientation to the sides. Thus, assuming that the door or window wing initially extends parallel to the frame and the catch mounted to said frame, the correction member can initially be parallel or substantially parallel to the locking element.

[0010] In a further embodiment the correction member comprises a first end and a second end opposite to the first end in the longitudinal direction when the correction member is in the first position and/or the second position, wherein one of the first end and the second end is located closer to the first side than the other of the first end and the second end in the third position. Again, this can address inaccurate mounting and/or misalignments in cas-

es in which the locking element extends obliquely to said longitudinal direction, e.g. at the top or bottom locking element of a three-point locking system.

[0011] In an embodiment the fixing member is arranged to fix the position of the correction member with respect to the catch body in the first position, the second position and the third position. Preferably, the fixing member is arranged for fixing the correction member with respect to the catch body in any position between the first position and the second position. Thus, a single fixing member can be used for each of the positions. The fixing member can even steplessly fix the correction member.

[0012] In an embodiment the correction member comprises a securing body that is arranged to be fixed with respect to the catch body by the fixing member, wherein the correction member further comprises an abutment member that is coupled to and displaceable with respect to the securing body to apply a corrective force to the locking element in the correcting direction. The abutment member can thus forcefully abut the locking element in case of misalignment.

[0013] In an embodiment thereof the correction member comprises a coupling that connects the abutment member to the securing body. The coupling allows for the displacement of the abutment member with respect to the securing body.

[0014] In an embodiment thereof the securing body, the coupling and the abutment member are integral or formed as one-piece. The integration can simplify the correction member, thereby reducing the cost price of the catch.

[0015] In an embodiment thereof the coupling is resiliently flexible in the correcting direction. The resilience can bias the abutment member to move into its unflexed, unbend and/or unstressed rest position when the abutment member is displaced with respect to the securing body by the locking element. Consequently, the resilience can generate and/or cause the corrective force that is applied by the abutment member onto the locking element in case of misalignment.

[0016] In a further embodiment the abutment member is unbiased with respect to the securing body when the correction member does not abut the locking element. Hence, the abutment member can automatically return to an unflexed, unbend and/or unstressed rest position when the correction member is not in abutment with the locking element.

[0017] In a further embodiment the securing body is arranged to extend between the fixing member and the catch body in the first position, the second position and/or any position between the first position and the second position. Thus, the fixing member can be brought into the second state at any of the positions to interact with the securing body.

[0018] In an embodiment thereof the catch body is provided with a bottom side defining the bottom of the receiving space with respect to the latch opening, wherein the fixing member comprises one or more clamping

members for clamping securing body against the bottom side. By clamping the securing body against the bottom side, no specific features other than the securing body are required at the correction member to be fixed in a position with respect to the catch body. In particular, the clamping allows for steplessly adjusting the position of the correction member in any position between the first position and the second position.

[0019] In a preferred embodiment thereof the one or more clamping members are arranged for clamping the securing body against the bottom side in a clamping direction parallel or substantially parallel to the catching direction. The correction member can thus be fixed in the same direction that the catch is arranged receive the locking element.

[0020] In a further embodiment thereof the fixing member comprises a first clamping member that is adapted to clamp the correction member against the bottom side at a first clamping position. The correction member can thus be fixed with respect to the catch body at said first clamping position.

[0021] In an embodiment thereof the fixing member comprises a second clamping member that is adapted to clamp the correction member against the bottom side at a second clamping position that is spaced apart from the first clamping position. By simultaneously clamping the correction member in the two spaced apart clamping positions, it can be prevented that the correction member is still rotatable about one of the clamping positions after fixing. The reliability of the fixing can thus be improved.

[0022] In an embodiment thereof the first clamping position and the second clamping position are spaced apart in the longitudinal direction. The space between the clamping positions can further improve the reliability of the fixing, in particular in a direction parallel to the correcting direction.

[0023] In a further embodiment each of the one or more clamping members comprises a threaded bore in or at the catch body and a threaded clamping body that is arranged to engage the threaded bore to move between the first state and the second state. The clamping body can thus be moved relative to the catch body by the cooperation between the threads.

[0024] In an embodiment thereof the securing body has a flat or substantially flat securing surface, wherein the bore faces the securing surface, wherein clamping body is arranged to be protrude from the bore against the securing surface in the first state and to be spaced apart from the securing surface in the second state. When the clamping body protrudes from the bore, it can be brought in to clamping abutment with the securing body, thereby fixing it against the catch body.

[0025] In a further embodiment thereof the bore extends perpendicular or substantially perpendicular to the securing surface. The catch body can thus be made to clamp the securing body in a direction normal to its securing surface, thereby improving the reliability of the clamping.

[0026] In an embodiment the fixing member is accessible for adjustment via the passage and/or in the catching direction. The fixing member can thus be accessed during use, e.g. by opening the wing to expose the catch.

[0027] In an embodiment the clamping body is a screw or a bolt with a head that is accessible for adjustment with a tool via the passage and/or in the catching direction. The fixing member can thus be operated with standard tooling, e.g. a screw driver, thereby allowing consumers to reposition the correction member themselves.

[0028] In an embodiment the catch body is provided with a retaining member to retain the correction member in the receiving space in the catching direction. The retaining member can prevent that the correction member falls out of the catch in absence of the locking element interacting with said correction member.

[0029] In an embodiment the coupling comprises a first leg that connects the abutment member to the securing body at or near the first clamping position and a second leg that connects the abutment member to the securing body at or near the second clamping position. By using legs, less material can be used to manufacture the correction member. Furthermore, the legs can be given a specific strength and/or resilience to match the required corrective force that is to be applied by the abutment member on the locking element.

[0030] In an embodiment thereof the first leg and the second leg are spaced apart to form a gap, wherein the catch body is provided with a retaining member that engages said gap to retain the correction member in the receiving space in the catching direction. Again, the retaining member can prevent that the correction member falls out of the catch in absence of the locking element interacting with said correction member.

[0031] In a further embodiment thereof the correction member is slidable over the retaining member in the correction direction within the receiving space. The correction member can thus still move between the first position and the second position while being retained by the retaining member.

[0032] In an embodiment the abutment member is located at a side of the securing body near one of the first side and the second side of the catch body, wherein the securing body extends towards the other of the first side and the second side of the catch body. This asymmetrical arrangement can improve the stability of the correction member when the abutment member is displaced by the locking element with respect to the securing body in the correcting direction.

[0033] In an embodiment the catch body comprises a guide slot for receiving the securing body, wherein the securing body is slidable in the guide slot in the correcting direction. The movement of the correction member between the first position and the second position can thus be controlled and/or guided.

[0034] In an embodiment the abutment member is a roll, wherein the roll is rotatable with respect to the securing body about a roll axis extending perpendicular to

the correcting direction. The roll can reduce the friction between the locking element and the correction member when the locking element passes the correction member in the catching direction.

[0035] According to a second aspect, the invention provides a computer-readable medium having computer-executable instructions adapted to cause an added-manufacturing device or a 3D printer to print a catch according to any one of the preceding claims. This allows for the catch according to the invention to be printed.

[0036] The various aspects and features described and shown in the specification can be applied, individually, wherever possible. These individual aspects, in particular the aspects and features described in the attached dependent claims, can be made subject of divisional patent applications.

BRIEF DESCRIPTION OF THE DRAWINGS

[0037] The invention will be elucidated on the basis of an exemplary embodiment shown in the attached schematic drawings, in which:

figure 1 shows a schematic front view of a door wing with a three-point lock system comprising three latches in the door wing and a corresponding number of catches according to the invention in the door frame;

figure 2 shows a partial cross-section of the door and the door frame according to line II-II in figure 1;

figure 3 shows an isometric view of a catch provided in a jamb of the door frame;

figure 4 shows an exploded view of the catch as shown in figure 3;

figure 5A shows an isometric view of the catch according to figure 4;

figure 5B shows a cutaway isometric view of the catch according to the figure 5A with a first and second clamping member and a correction member;

figures 6A and 6B show stepped cross-sections of the catch according to the stepped line VI - VI in figure 5B.

figures 7A-C show a front view of the catch of figures 4, 5A and 5B, without the strike plate, in a first position, a second position and a third position, respectively;

DETAILED DESCRIPTION OF THE INVENTION

[0038] Figure 1 shows a door wing 1 that is mounted in a door frame 2 by means of hinges 21 at the hinging side 22 of the door frame 2. The door wing 1 is rotatable about the hinges 21 towards the closing side 23 of the door frame 2 into a closed position in which the plane of the door wing 1 is parallel to or within the plane of the door frame 2. In this exemplary embodiment, the door wing 1 and the door frame 2 are provided with a three-point lock system 3 at the closing side 23 of the door

frame 2. The lock system 3 comprises three lock assemblies 31, 32, 33 that are distributed over the height of the door wing 1 in a bottom, center and top position, respectively. As shown in figure 2, each lock assembly 31, 32, 33 comprises a locking element 34 in the door wing 1 and a corresponding catch 4 opposite to said locking element 34 in the door frame 2. The locking element 34 can be a lock latch, a latch bolt, a dead bolt, a hook bolt or another suitable locking element that is arranged to be received in the catch 4. The lock latches 34 as shown are individually and/or simultaneously operable by a door handle or a key mechanism between a retracted and an extended position with respect to the door wing 1. When the lock latch 34 is opposite to the catch 4, the catch 4 is arranged to receive and retain the lock latch 34 in the catch 4 until the door handle or the key mechanism is operated again.

[0039] As shown in figure 2, the lock latches 34 and the catches 4 of the respective lock assemblies 31, 32, 33 are preferably accurately mounted directly opposite to each other in a catching direction C so that each lock latch 34 may be accurately received within the corresponding catch 4. However, as a result of inaccurate placement and/or deformation of the door wing 1 and/or the door frame 2 over time, the alignment of the lock assemblies 31, 32, 33 may become less accurate. The amount of misalignment may differ for each lock assembly 31, 32, 33, in particular in case of warping. While the central lock latch 34 and catch 4 combination may still be aligned, the top and/or bottom combination may already be misaligned considerably. The catch 4 according to the invention intends to at least partially correct and/or counteract said misalignment. In addition, the catch 4 according to the invention is adjustable to compensate for a misalignment that exceeds a certain threshold whereat the operation and/or cooperation between the lock latch 34 and the catch 4 becomes impossible.

[0040] As shown in figure 3, the catch 4 is mounted in a jamb 24 at the closing side 23 of the door frame 2. The door jamb 24 is provided with a suitable pocket (not shown) for receiving said catch 4. The catch 4 comprises a cover plate, a front plate or a strike plate 40 at the outside of the door jamb 24, in use facing towards and/or opposite to the lock latch 34 in the catching direction C. The catch 4 is provided with a passage or opening 41 in the strike plate 40. As shown in figure 6A, the catch 4 further comprises a catch body 5 with a receiving space 50 defined therein. The receiving space 50 is located directly behind the passage 41 in the catching direction C for receiving the lock latch 34 in said catching direction C through the passage 41. The catch body 5 is elongate and extends in a longitudinal direction L. The catch body 5 has a first side 51 and a second side 52, both parallel or substantially parallel to the longitudinal direction L of the catch body 5. The receiving space 50 extends parallel to the longitudinal direction L and in between the first side 51 and the second side 52. The receiving space 50 is bounded by the first side 51, the second side 52 and a

bottom side 53.

[0041] As shown in figures 4, 5A and 5B, the catch 4 comprises a correction member 6 that is arranged correcting a misalignment between the catch 4 and the lock latch 34 by forcefully abutting the lock latch 34 in a correcting direction A extending transverse or perpendicular to the catching direction C and the longitudinal direction L. The correction member 6 extends in or is located in the receiving space 50. As shown in figures 7A and 7B, the correction member 6 is movable within said receiving space 50 between a first position at or near the first side 51 and a second position at or near the second side 52, respectively. In the first position and the second position, the correction member 6 extends parallel or substantially parallel to the longitudinal direction L of the catch 4. The correction member comprises a first end 61 and a second end 62 opposite to the first end 61 in the longitudinal direction L.

[0042] As best seen in figure 4, the correction member 6 comprises a securing body 63 that is arranged to be fixed with respect to the catch body 5 and an abutment member 7 that is coupled to and displaceable with respect to the securing body 63 to apply a corrective force to the lock latch 34 in the correcting direction A. The abutment member 7 is located at a side of the securing body 63 near the second side 52 of the catch body 5, while the securing body 63 extends towards the first side 51 of the catch body 5. In this exemplary embodiment, the securing body 63 has a plate-like form with a flat or a substantially flat securing surface 64. The abutment member 7 is connected to the securing body 63 via a coupling 65.

[0043] Preferably, the coupling 65 is made from a resilient material, such that the coupling 65 is resiliently flexible in the correcting direction A. When the correction member 6 does not abut the lock latch 34, the abutment member is in a rest position with respect to the securing body 63, as shown in figure 6A. However, when the abutment member 7 is displaced with respect to the securing body 63, e.g. as a result of abutment with a misaligned lock latch 34 as shown in figure 6B, a biasing force is generated in the coupling 65 that will try to return the abutment member 7 to the unstressed, unbend or unflexed position as shown in figure 6A. The biasing force is exerted as a corrective force on the lock latch 34. The larger the displacement, the larger the biasing force and thus the larger the corrective force.

[0044] As shown in figure 4, the coupling 65 of this exemplary embodiment comprises a first leg 66 and a second leg 67 that stand up from the securing body 63. The legs 66, 67 are integral to or formed as one-piece with the securing body 63. The first leg 66 is positioned at or near the first end 61 of the correction member 6 and the second leg 67 is positioned at or near the second end 62 of the correction member 6.

[0045] The abutment member 7 of this exemplary embodiment is shaped as a roll 70 that is held between the respective legs 66, 67 and that extends parallel or sub-

stantially parallel to the longitudinal direction L of the catch body 5 when the correction member 6 is in the first or second position. The roll 70 is arranged to be just below the passage 41 in the catching direction C for contacting the lock latch 34. The roll 70 is rotatable about a rotation axis (not shown) perpendicular to the correction direction A to reduce friction between the lock latch 34 and the correction member 6 when the lock latch 34 passes the roll 70 in the catching direction C. Alternatively, the roll 70 may be replaced by another suitable abutment member, e.g. an abutment member that is integral or formed as one-piece with the rest of the correction member 6.

[0046] As shown in figure 5B, the catch 4 further comprises a fixing member 8 for fixing the position of the correction member 6 with respect to the catch body 5 in the first position as shown in figure 7A, the second position as shown in figure 7B and any position in a movement range between the first position and the second position. One of these random positions is shown as a third position in figure 7C. In the first and second positions, the correction member 6 extends parallel to the longitudinal direction L of the catch 4, e.g. with its first end 61 and its second end 62 at the same or substantially the same distance from the first side 51 and/or the second side 52 of the catch body 5. The correction member 6 may be positioned in any parallel position in between the first and the second position. Alternatively, as shown in figure 7C, the correction member 6 may be positioned in a non-parallel or oblique third position, in which the first end 61 is closer to the first side 51 of the catch body 5 than the second end 62. This third position may prove particularly useful when the lock latch 34 is not or no longer parallel to the catch 4.

[0047] As shown in figure 5B, the fixing member 8 comprises a first clamping member 81 and a second clamping body 82. The securing body 63 extends between the clamping members 81, 82 and the bottom side 53 of the catch body 5 in any of the positions as shown in figures 7A, 7B and 7C. The first clamping body 81 is arranged for clamping the correction member 6 against the bottom side 53 of the catch body 5 at a first clamping position, at or near the first end 61 of the correction member 6. The second is arranged clamping member 82 for clamping the correction member 6 against the bottom side 53 of the catch body 5 at a second clamping position, at or near the second end 62 of the correction member 6. The clamping positions are spaced apart in the longitudinal direction L of the catch body 5.

[0048] In this exemplary embodiment, each clamping member 81, 82 comprises a threaded clamping body 83 and a threaded bore 84 for receiving and guiding said threaded clamping body 83 in a clamping direction B towards the correction member 6. Preferably, the clamping direction B is parallel or substantially parallel to the catching direction C and/or normal or perpendicular to the securing surface 64. The bores 84 faces or debouch towards the securing surface 64 of the securing body 63. The clamping body 83 is preferably formed by a screw

or a bolt with a head that can be operated by a tool, e.g. a screw driver. The thread of the clamping body 83 is arranged to engage the thread of the bore 84, so that the clamping body 83 is movable with respect to bore 84 in the clamping direction B by operation of the tool. The clamping body 83 is movable and/or adjustable with respect to the bore 84 between a first state and a second state. In the first state, the clamping body 83 protrudes from the bore 84 towards the securing surface 64 and forcefully abuts the securing surface 64 of the correction member 6 in the clamping direction B, thereby clamping the securing body 63 against the bottom side 53 of the catch body 5. In the second state, the clamping body 83 is retracted in a direction opposite to the clamping direction B so that the clamping body 83 is spaced apart from the securing body 63.

[0049] As best seen in figure 5B, the clamping members 81, 82 are accessible through or via the passage 41. For easy access, the strike plate 40 can be removed to expose the full receiving space 50.

[0050] As shown in figures 4, 5B and 6A, the catch body 5 further comprises a retaining member 54 to retain the correction member 6 in the receiving space 50 in the catching direction C. The retaining member 54 extends in the gap between the legs 66, 67 of the coupling 65 in the longitudinal direction L of the catch body 5 and at least partly extends between the securing body 63 and the passage 41 in the catching direction C. The retaining member 54 thus prevents that the correction member 6 falls out of catch 4. The retaining member 54 further defines guide channels for the legs 66, 67 as they move between the first position and the second position. To remove the correction member 6 from the catch 4, the bottom side 53 of the catch body 5 should be removed.

[0051] As best seen in figure 6A, the catch body 5 further comprises a guide slot 55 for receiving the securing body 63. The securing body 63 is slidable in the guide slot 55 in the correcting direction C. The guide slot 55 ensures that the securing body 63 is only slidable parallel or substantially parallel to the correcting direction C. In this exemplary embodiment the guide slot 55 extends through the first side 51 of the catch body 5 to allow the securing body 63 to move at least partly into and/or through the first side 51. This increases the range of movement at or near the first position of the correction member 6.

[0052] The method for installing, mounting and/or operating the previously discussed catch 4 in a door frame 2 will be briefly elucidated hereafter with reference to figures 6A, 6B and 7A-7C.

[0053] The catch 4 is initially mounted in the door frame 2 of figure 2 opposite to the lock latch 34 in the catching direction C. Ideally, the catch 4 is aligned optimally with the lock latch 34 so that the lock latch 34 may enter the receiving space 50 of the catch 4 through the passage 41 without or with only slightly abutting the correction member 6. Hence, no corrective force or only a slight corrective force is exerted by the correction member 6

onto the lock latch 34. However, when the catch 4 and/or the lock latch 34 are unintentionally misaligned due to inaccurate mounting or when the catch 4 and/or the lock latch 34 become misaligned over time due to deformations, the lock latch 34 will contact the correction member 6 and the abutment member 7 will be displaced with respect to the securing body 63, as shown in figure 6B. The resilience in the coupling 64 exerts a biasing force on the abutment member 7 that will try to return the abutment member 7 to its rest position of figure 6A. The result is a corrective force exerted by the abutment member 7 on the lock latch 34. The corrective force may durable correct the misalignment and/or may prevent a further deformation or misalignment.

[0054] When the misalignment exceeds a certain threshold the corrective force becomes to great and the correction member 6 actually hinders and/or blocks the entering of the lock latch 34 into the receiving space 50. In this situation, the correction member 6 of the present invention can be repositioned to release and/or offset some of the corrective force. In particular, the clamping bodies 81, 82 as shown in figure 6A can be moved by a tool, e.g. a screw driver, into the second state to allow the correction member 6 to freely and/or steplessly moved with respect to the catch body 5. The correction member 6 can be experimentally repositioned in several positions between and/or including the first position and the second position, as shown in figures 7A, 7B and 7C, to try out the operation between the catch 4 in the lock latch 34 in said positions. When the ideal new position is found, the correction member 6 is tightly and/or securely fixed by moving the clamping bodies 81, 82 back into the first state, as shown in figure 6A, to fix the correction member 6 with respect to catch body 5. The repositioning can be performed at any time, e.g. during mounting or during the subsequent use. The repositioning can be performed by a technician or a consumer.

[0055] It is to be understood that the above description is included to illustrate the operation of the preferred embodiments and is not meant to limit the scope of the invention. From the above discussion, many variations will be apparent to one skilled in the art that would yet be encompassed by the scope of the present invention.

[0056] In summary, the invention relates to a catch 4 for catching a locking element 34, wherein the catch 4 comprises a catch body 5 that is adapted to catch the locking element 34 in a receiving space 50 in a catching direction C, wherein the catch 4 further comprises a correction member 6 that extends in the receiving space 50 and that is arranged to correct a misalignment between the catch 4 and the locking element 34 by forcefully abutting the locking element 34 in a correcting direction A extending transverse to the catching direction C, wherein the correction member 6 is moveable in the correcting direction A within the receiving space 50 between a first position and a second position, wherein the catch 4 comprises a fixing member 7 which is adjustable between a first state, in which the fixing member 7 is ar-

ranged to fix the position of the correction member 6 with respect to the catch body 5, and a second state, in which the fixing member 7 is arranged to allow repositioning of the correction member 6 between the first position and the second position.

Claims

1. Catch for catching a locking element, wherein the catch comprises a catch body that is arranged to be mounted to a frame for a window or a door, wherein the catch body comprises a first side and a second side extending in a longitudinal direction of the catch body and a passage extending in said longitudinal direction between the first side and the second side for providing access to a receiving space defined in the catch body, wherein the catch body is adapted to catch the locking element in the receiving space in a catching direction that extends transverse to the longitudinal direction through the passage into the receiving space, wherein the catch further comprises a correction member that extends in the receiving space and that is arranged to correct a misalignment between the catch and the locking element by forcefully abutting the locking element in a correcting direction extending transverse to the catching direction and the longitudinal direction, wherein the correction member is moveable in the correcting direction within the receiving space between a first position near the first side and a second position near the second side, wherein the catch comprises a fixing member which is adjustable between a first state, in which the fixing member is arranged to fix the position of the correction member with respect to the catch body, and a second state, in which the fixing member is arranged to allow repositioning of the correction member between the first position and the second position, wherein the correction member is moveable to a third position between the first position and the second position, wherein the correction member extends obliquely to the longitudinal direction in said third position.
2. Catch according to claim 1, wherein the correction member extends parallel to the longitudinal direction in said first position and said second position.
3. Catch according to claim 1 or 2, wherein the correction member comprises a first end and a second end opposite to the first end in the longitudinal direction when the correction member is in the first position and/or the second position, wherein one of the first end and the second end is located closer to the first side than the other of the first end and the second end in the third position.
4. Catch according to any one of the preceding claims,

wherein the fixing member is arranged to fix the position of the correction member with respect to the catch body in the first position, the second position and the third position, preferably wherein the fixing member is arranged for fixing the correction member with respect to the catch body in any position between the first position and the second position.

5. Catch according to any one of the preceding claims, wherein the correction member comprises a securing body that is arranged to be fixed with respect to the catch body by the fixing member, wherein the correction member further comprises an abutment member that is coupled to and displaceable with respect to the securing body to apply a corrective force to the locking element in the correcting direction, preferably wherein the correction member comprises a coupling that connects the abutment member to the securing body, more preferably wherein the securing body, the coupling and the abutment member are integral or formed as one-piece and most preferably wherein the coupling is resiliently flexible in the correcting direction.
6. Catch according to claim 5, wherein the abutment member is unbiased with respect to the securing body when the correction member does not abut the locking element.
7. Catch according to claim 5 or 6, wherein the securing body is arranged to extend between the fixing member and the catch body in the first position, the second position and/or any position between the first position and the second position.
8. Catch according to claim 7, wherein the catch body is provided with a bottom side defining the bottom of the receiving space with respect to the latch opening, wherein the fixing member comprises one or more clamping members for clamping securing body against the bottom side, preferably wherein the one or more clamping members are arranged for clamping the securing body against the bottom side in a clamping direction parallel or substantially parallel to the catching direction, more preferably wherein the fixing member comprises a first clamping member that is adapted to clamp the correction member against the bottom side at a first clamping position, more preferably wherein the fixing member comprises a second clamping member that is adapted to clamp the correction member against the bottom side at a second clamping position that is spaced apart from the first clamping position and most preferably wherein the first clamping position and the second clamping position are spaced apart in the longitudinal direction.
9. Catch according to claim 8, wherein each of the one

or more clamping members comprises a threaded bore in or at the catch body and a threaded clamping body that is arranged to engage the threaded bore to move between the first state and the second state, preferably wherein the securing body has a flat or substantially flat securing surface, wherein the bore faces the securing surface, wherein clamping body is arranged to protrude from the bore against the securing surface in the first state and to be spaced apart from the securing surface in the second state, and more preferably wherein the bore extends perpendicular or substantially perpendicular to the securing surface.

10. Catch according to any one of the preceding claims, wherein the fixing member is accessible for adjustment via the passage and/or in the catching direction.
11. Catch according to claim 9, wherein the clamping body is a screw or a bolt with a head that is accessible for adjustment with a tool via the passage and/or in the catching direction.
12. Catch according to any one of the preceding claims, wherein the catch body is provided with a retaining member to retain the correction member in the receiving space in the catching direction.
13. Catch according to any one of claims 5-9 or 11, wherein the coupling comprises a first leg that connects the abutment member to the securing body at or near the first clamping position and a second leg that connects the abutment member to the securing body at or near the second clamping position, preferably wherein the first leg and the second leg are spaced apart to form a gap, wherein the catch body is provided with a retaining member that engages said gap to retain the correction member in the receiving space in the catching direction, and more preferably wherein the correction member is slidable over the retaining member in the correction direction within the receiving space.
14. Catch according to any one of claims 5-9, 11, or 13, wherein the abutment member is located at a side of the securing body near one of the first side and the second side of the catch body, wherein the securing body extends towards the other of the first side and the second side of the catch body, preferably wherein the catch body comprises a guide slot for receiving the securing body, wherein the securing body is slidable in the guide slot in the correcting direction.
15. Catch according to any one of claims 5-9, 11, 13 or 14, wherein the abutment member is a roll, wherein the roll is rotatable with respect to the securing body

about a roll axis extending perpendicular to the correcting direction.

5

10

15

20

25

30

35

40

45

50

55

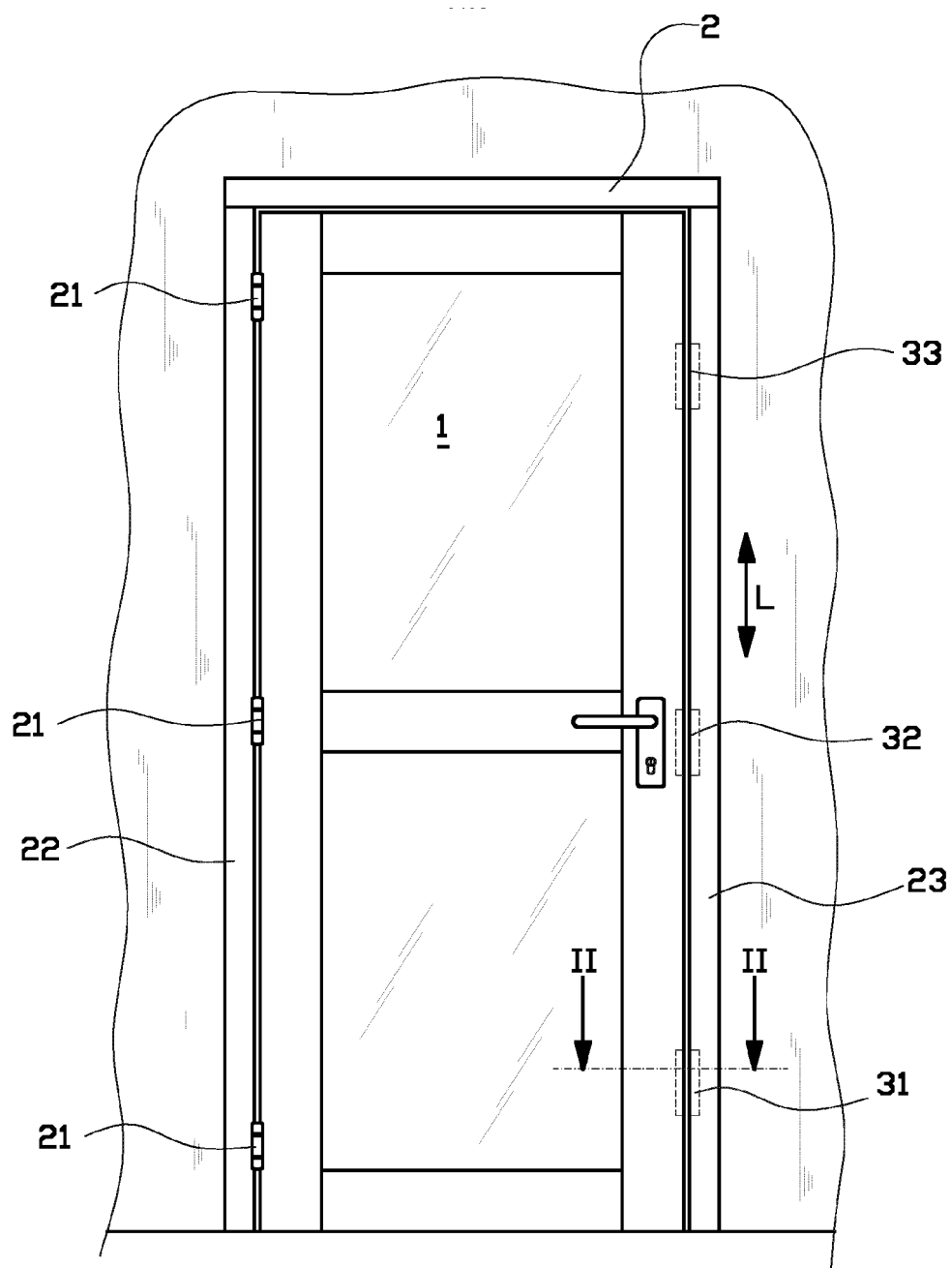


FIG. 1

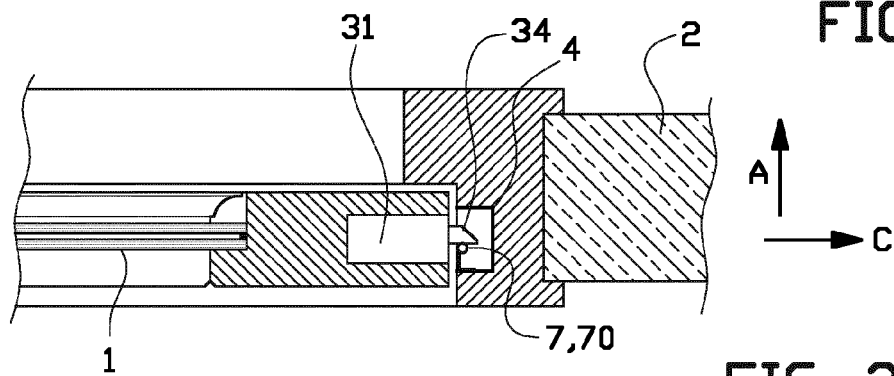


FIG. 2

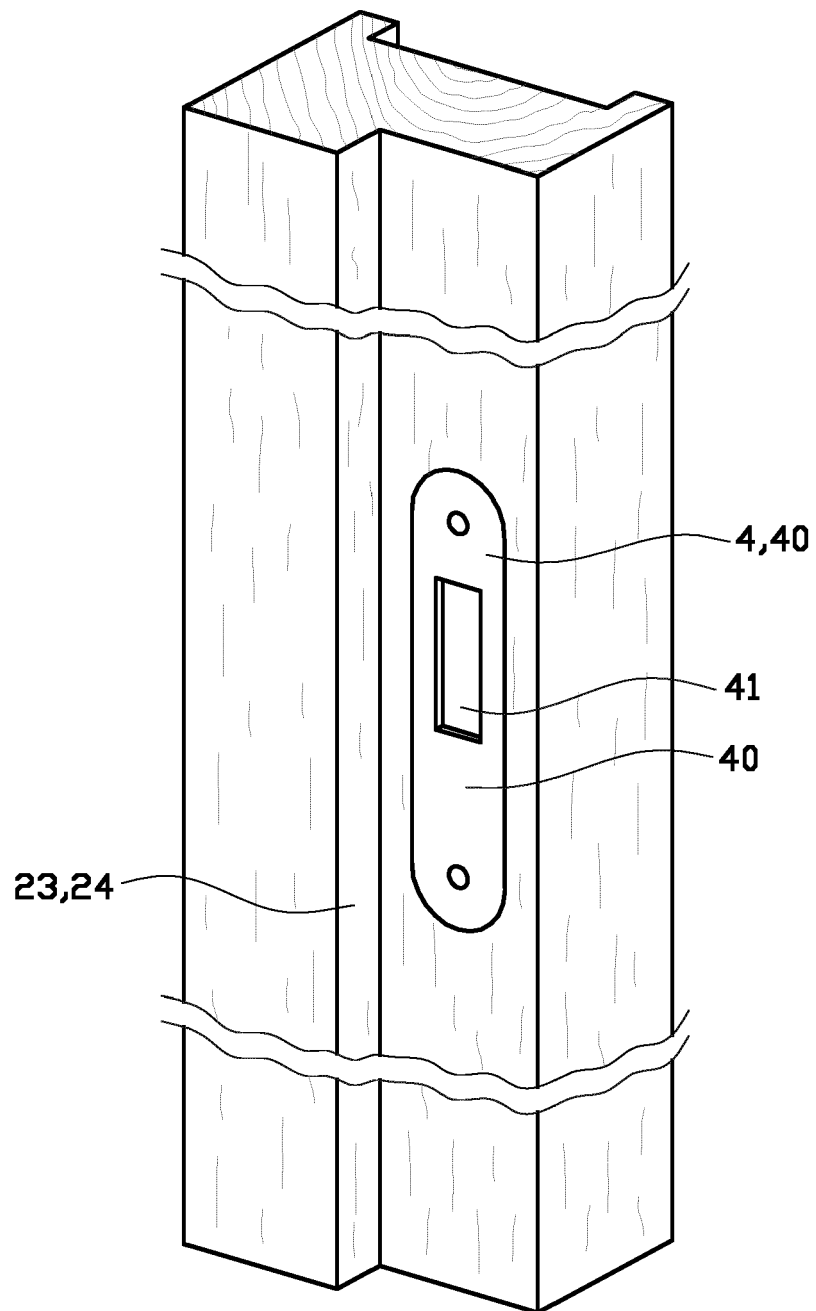


FIG. 3

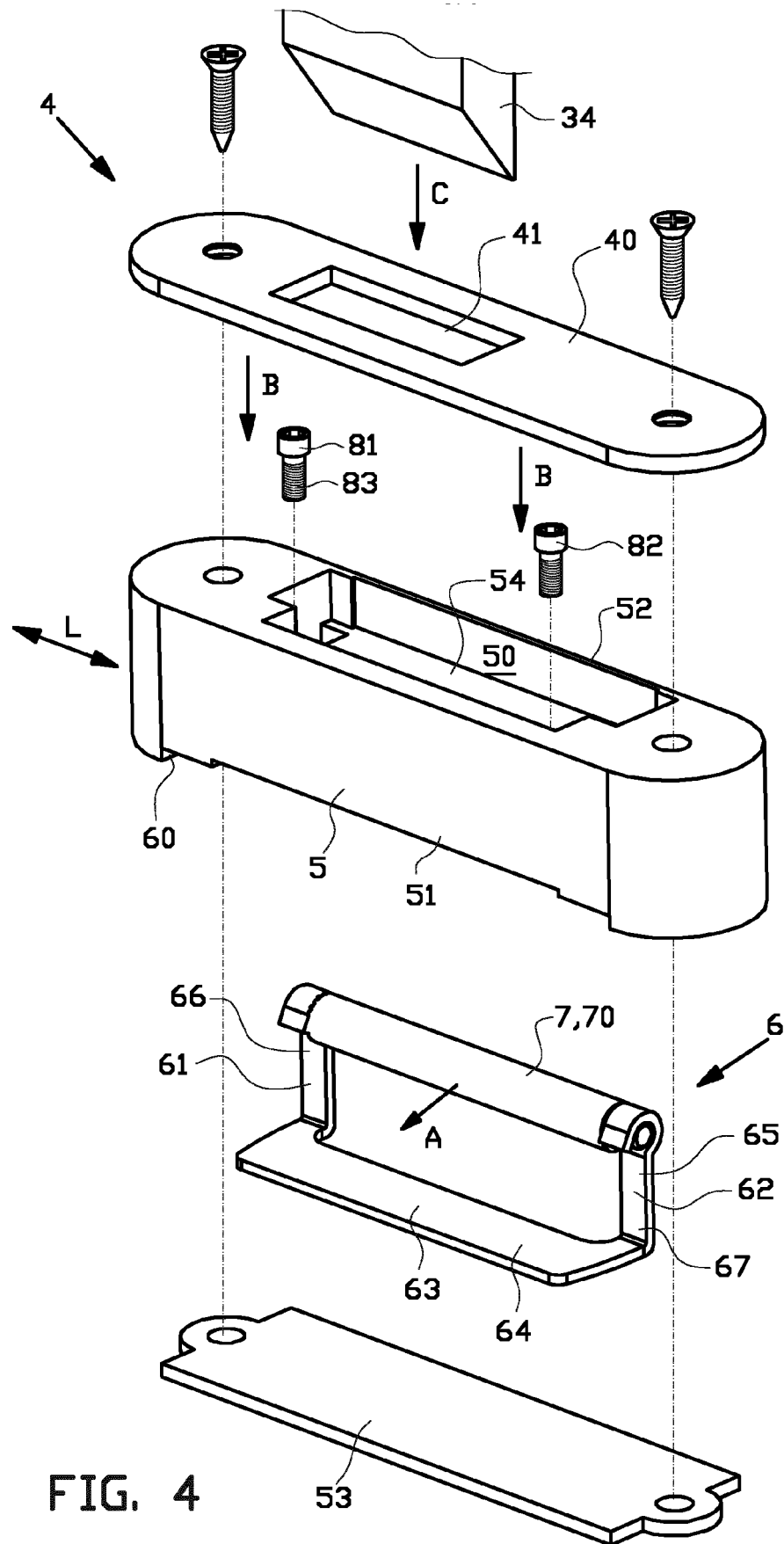


FIG. 4

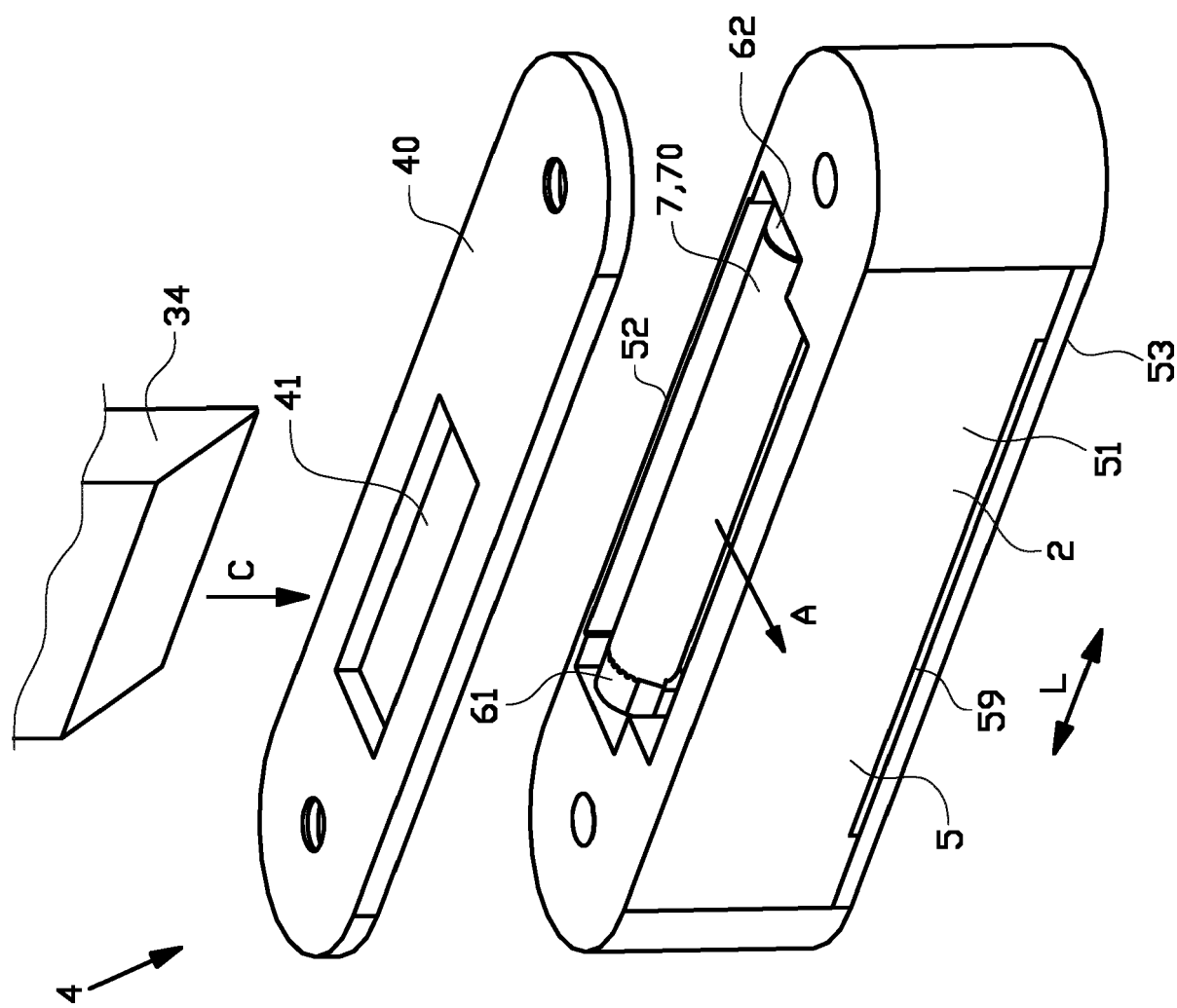


FIG. 5A

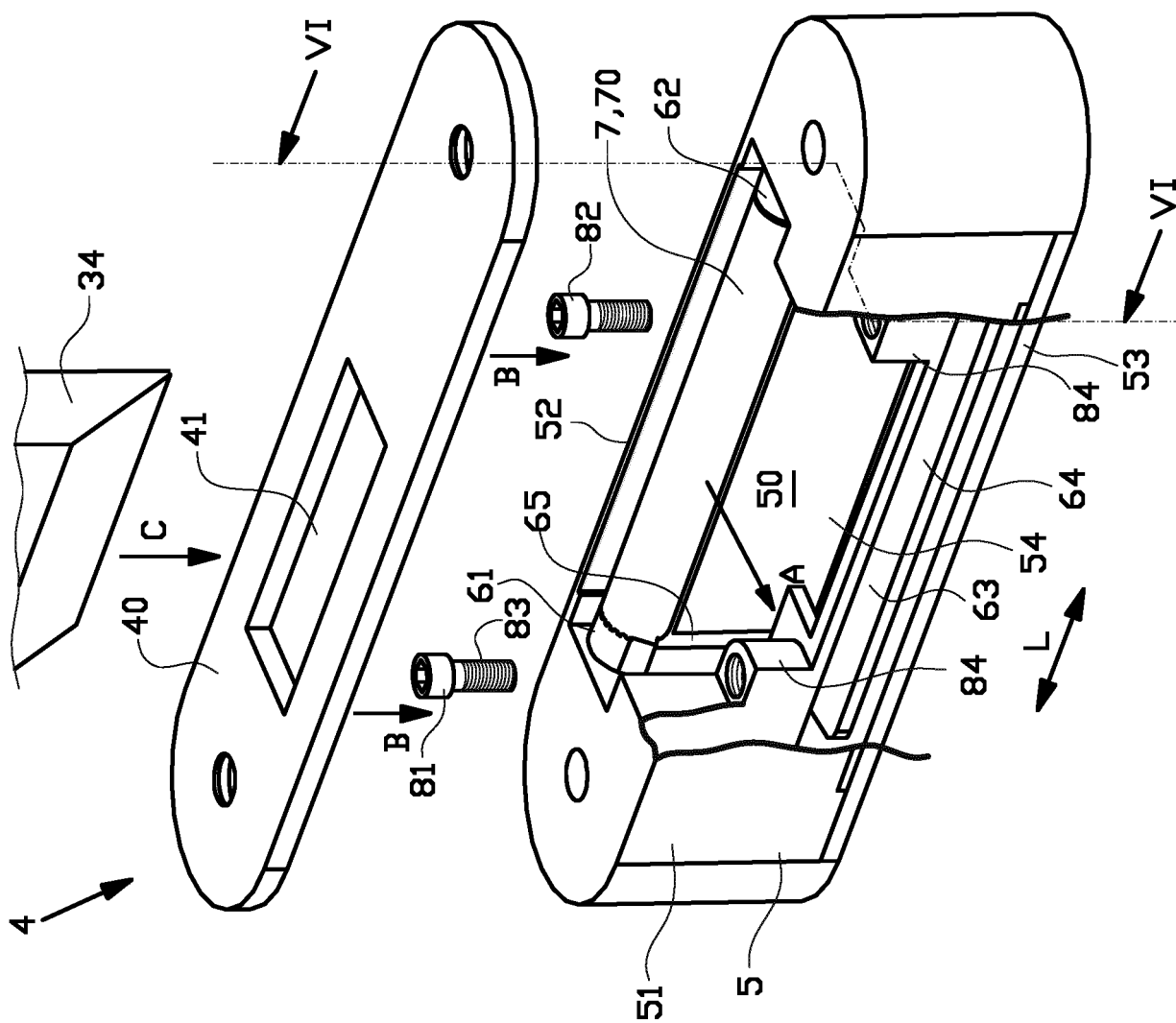


FIG. 5B

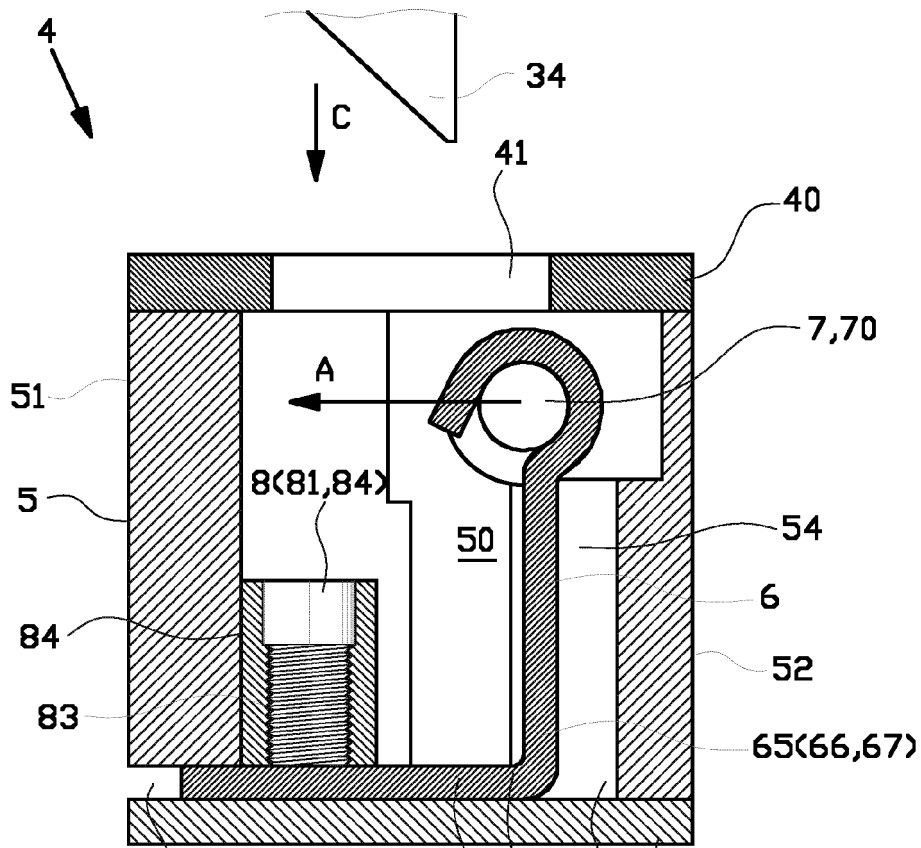


FIG. 6A

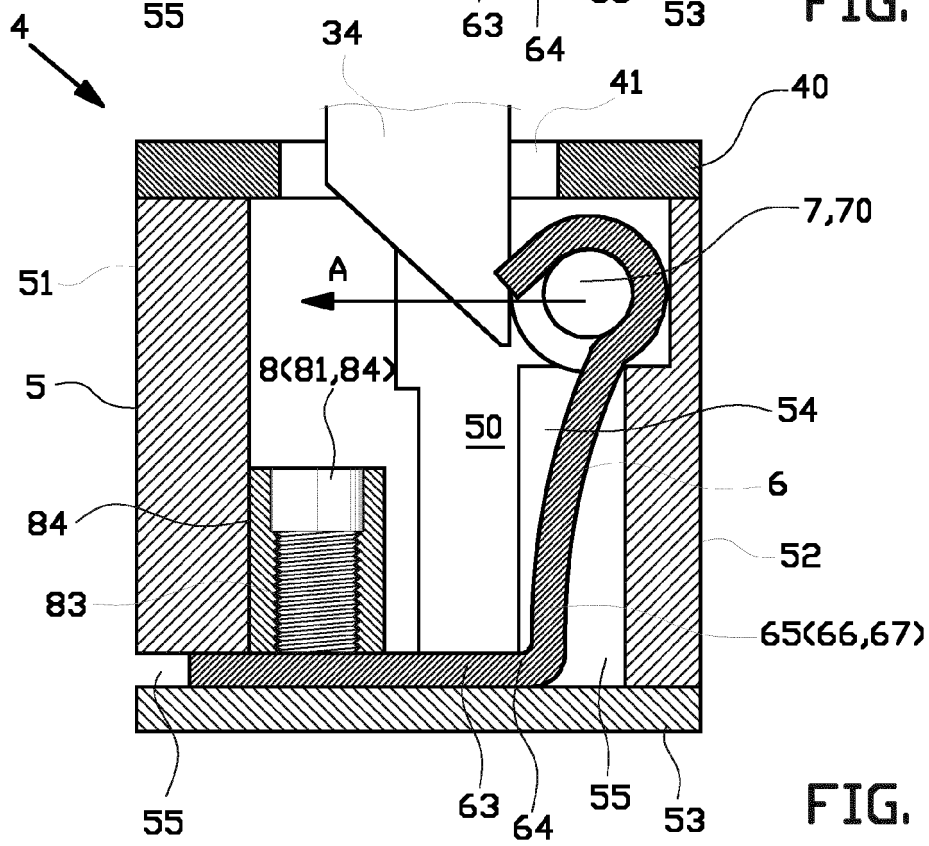


FIG. 6B

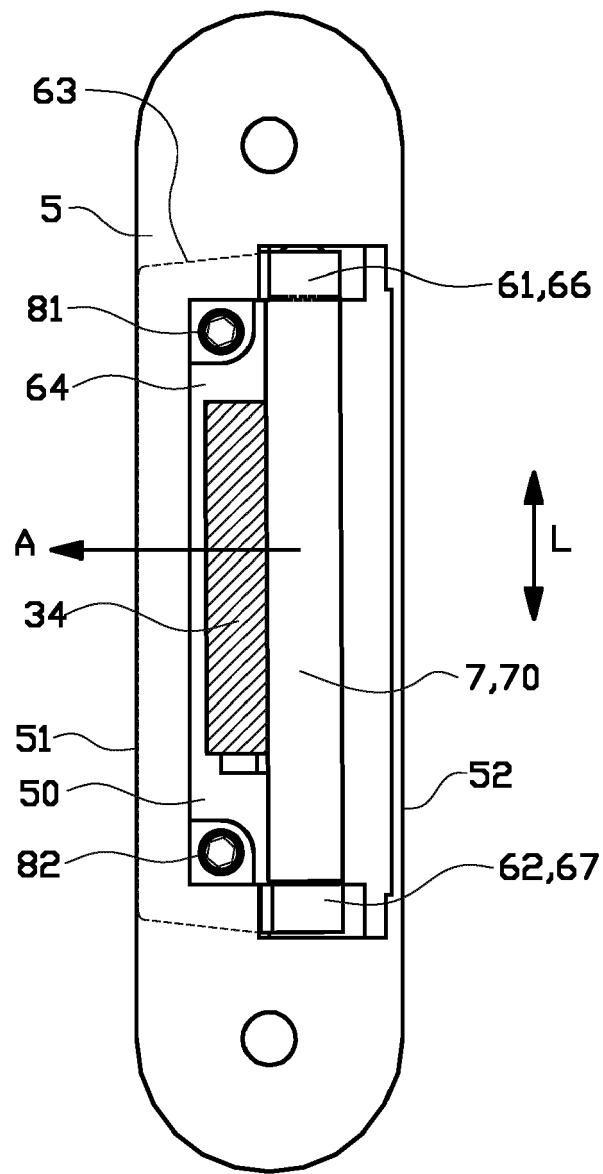


FIG. 7A

4

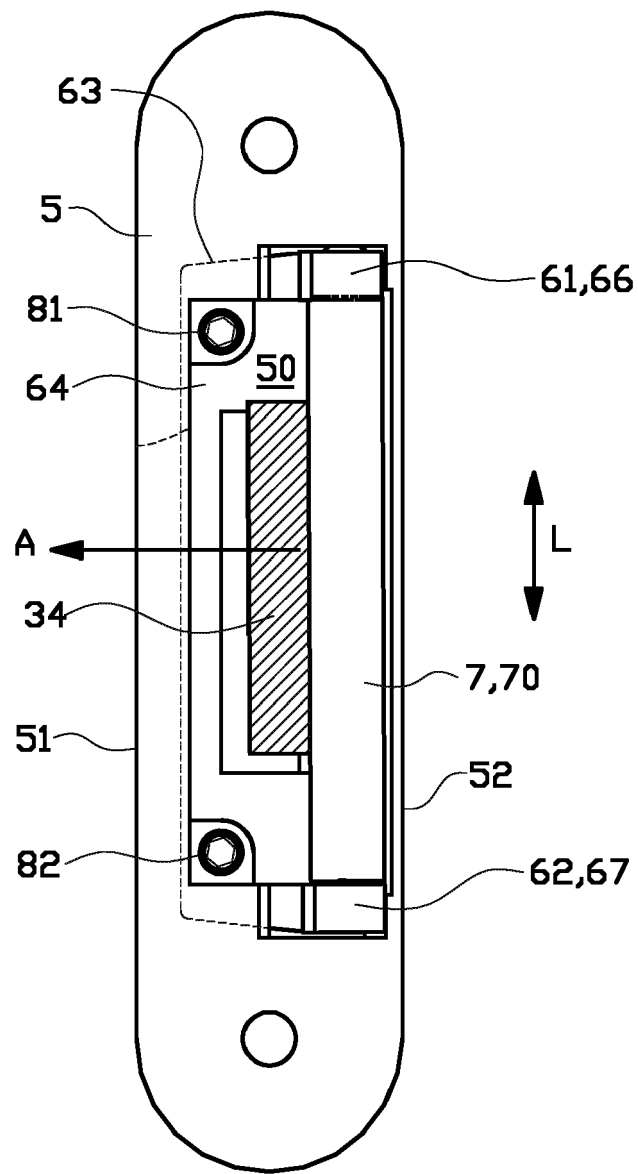


FIG. 7B

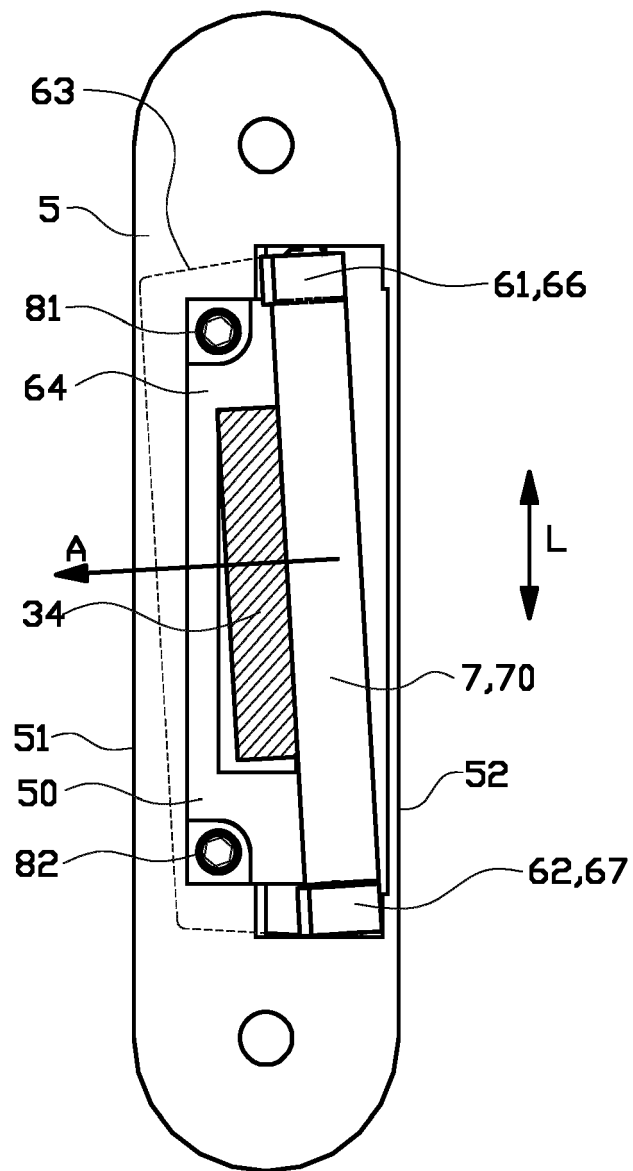


FIG. 7C



EUROPEAN SEARCH REPORT

Application Number
EP 17 15 4754

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 1 113 129 A1 (PICARD) 4 July 2001 (2001-07-04) * the whole document *	1-15	INV. E05B15/02
A	WO 2009/125436 A1 (CISA SPA) 15 October 2009 (2009-10-15) * the whole document *	1-14	
A	US 4 893 854 A (HAGEN) 16 January 1990 (1990-01-16) * the whole document *	1-15	
A,D	NL 2 005 577 C (BUVA RAT BOUWPROD BV) 27 April 2012 (2012-04-27) * the whole document *	1-15	
A	EP 1 426 530 A2 (CISA SPA) 9 June 2004 (2004-06-09) * figures *	1	
A	EP 2 762 660 A2 (FUHR CARL GMBH & CO KG) 6 August 2014 (2014-08-06) * abstract *; figures 4-6 *	1	TECHNICAL FIELDS SEARCHED (IPC)
			E05B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 June 2017	Examiner Van Beurden, Jason
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03/02 (P04C01)

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

EP 17 15 4754

5

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

15-06-2017

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1113129 A1	04-07-2001	EP 1113129 A1	04-07-2001
		FR 2802963 A1	29-06-2001
WO 2009125436 A1	15-10-2009	EP 2279316 A1	02-02-2011
		WO 2009125436 A1	15-10-2009
US 4893854 A	16-01-1990	NONE	
NL 2005577 C	27-04-2012	EP 2447452 A1	02-05-2012
		NL 2005577 C	27-04-2012
EP 1426530 A2	09-06-2004	AT 430857 T	15-05-2009
		EP 1426530 A2	09-06-2004
		ES 2324774 T3	14-08-2009
		IT B020020128 U1	04-06-2004
		PT 1426530 E	20-07-2009
EP 2762660 A2	06-08-2014	DE 102013101033 A1	07-08-2014
		EP 2762660 A2	06-08-2014

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- NL 2005577 C [0002]