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

(11) **EP 3 048 222 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
27.07.2016 Bulletin 2016/30

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

(21) Application number: **16152281.8**

(22) Date of filing: **21.01.2016**

(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

(30) Priority: **22.01.2015 NL 2014175**

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(54) **CATCH FOR A LOCK, ASSEMBLY OF A CATCH AND LOCK AND/OR A CLOSING ELEMENT AND A METHOD FOR CLOSING A CLOSING ELEMENT**

(57) Catch for a lock latch, comprising a cup for mounting in or on a frame, having a first side and an opposite second side, a biasing mechanism provided within the cup, comprising a displacement element which is biased in the direction of the second side, an opening provided 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. The displacement element comprises or is formed by a bent leaf spring having a first leg connected to the catch and a second leg extending at least partly into the opening and including an angle with the first leg.

Fig. 4A

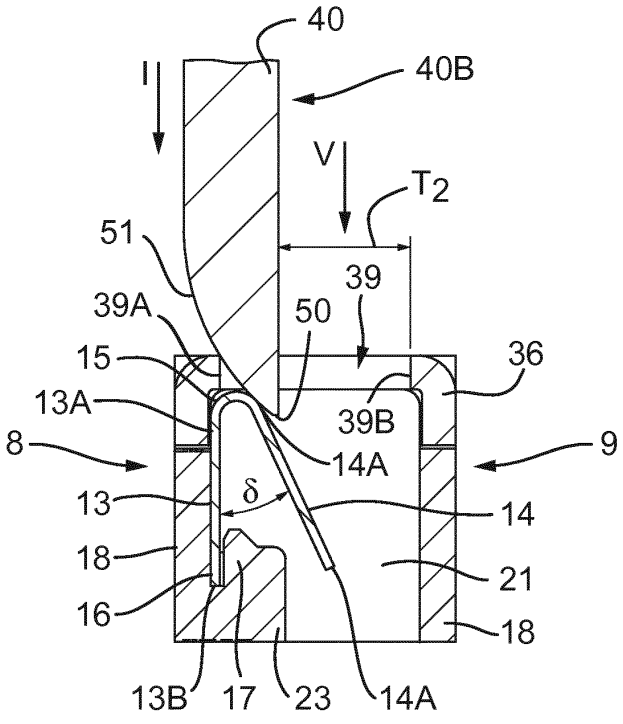

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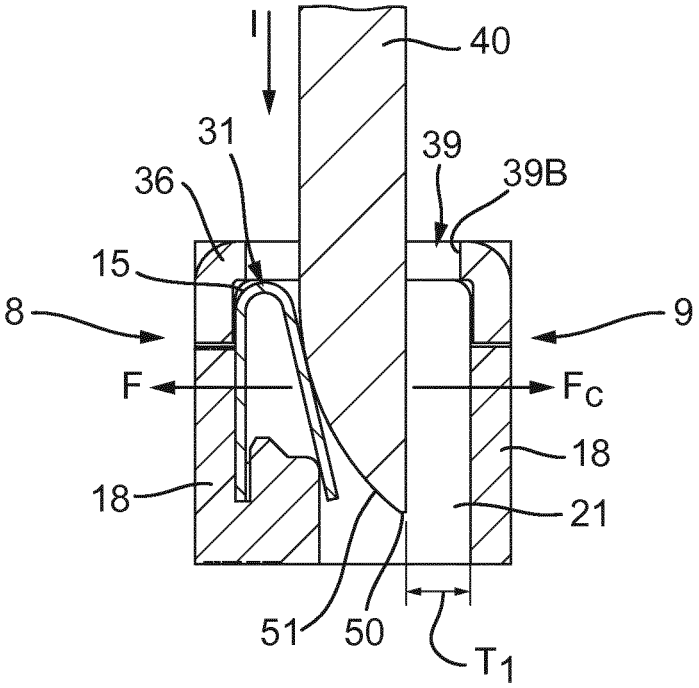
Fig. 4B



Description

[0001] The invention relates to a catch for a lock, especially for catching a latch of a lock.

[0002] For closing elements, such as but not limited to doors and windows, locks are provided, cooperating with a catch for the latch of the lock. The catch normally comprises a catch plate provided over an opening in a frame, such that the latch can enter into the opening in the frame through an opening in the catch plate. In order to keep the element closed properly the opening in at least the catch plate has to be fit relatively tightly around the latch and has to be positioned relatively accurately relative to the frame in which the opening is made and to which the catch plate is mounted. This means that the mounting of the catch plate and providing the opening is time consuming and costly, and requires skill of the carpenter.

[0003] When the closing element is deformed, for example bend, or displaced, or when for example a seal is ill fitting, the closing element may not fit entirely properly in the frame anymore. Such deformation can for example be the result of environmental issues, such as but not limited to humidity and/or dryness or humidity changes, improper support by its hinges, sagging or other defects of the closing element, its frame and/or its support. When the closing element does not fit in the frame properly anymore it may become more difficult, if not impossible to get the latch of the lock to enter into the opening in the catch plate and/or frame, or the closing element will otherwise not fit properly in the frame and close the opening in the frame properly.

[0004] EP2447452 discloses a catch for a lock latch, comprising a cup for mounting in or on a frame, the cup having a first side and an opposite second side. A biasing mechanism is provided within the cup, comprising a displacement element which is biased in the direction of the second side, by spring means. An opening is provided 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. This catch can effectively push and/or pull the latch and therewith a closing element to which it is attached towards the second side. However, this known catch is relatively complicated in construction, which can make it costly, both in production and fitting. Moreover it may require relatively much space in the frame, especially at a second side of the cup.

[0005] The invention has as an aim to provide an alternative catch for the latch of a lock. An alternative aim of the invention is to provide for a solution to at least one of the problems sketched here above. A further alternative aim of the present invention is to provide an assembly for closing at least partly an opening in a frame by a closing element or to be used for such closure. A still further alternative aim of the invention is to provide a method for closing off an opening in a frame by a closure element.

[0006] In a first aspect a catch for a lock latch can be defined by a cup for mounting in or on a frame, having a first side and an opposite second side. A biasing mechanism is provided within the cup, comprising a displacement element which is biased in the direction of the second side. An opening is provided 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. In the present disclosure such catch can be characterized in that the displacement element comprises or is formed by a bent leaf spring having a first leg connected to the catch, for example to a cup or cover, and a second leg extending at least partly into the opening and including an angle with the first leg.

[0007] An assembly of a catch and a lock with a latch can be characterised by the latch fitting into the cup of the catch, between a second leg of the displacement element and a second side of the cup, movable in a direction perpendicular to an insertion direction of the latch into the cup, between the first and second side of the cup. The latch preferably has an at least partly rounded off or tapering side near an end thereof forward in the insertion direction.

[0008] In order to further elucidate the present invention embodiments thereof shall be elucidated here after with reference to the drawings, which show schematically:

Fig. 1 a closing element in a frame;
Fig. 1A part of the frame and an edge portion of the closing element in cross section along the line A - A in fig. 1:
Fig. 2 an exploded view of a catch, together with part of a latch of a lock;
Fig. 3 an assembled catch, in three perspective views, partly transparent, with a translating latch;
Fig. 4A and B in cross section a latch in a catch in a first, second and third position respectively;
Fig. 5 schematically in cross section a closing element in a frame according to fig. 1;
Fig. 6 an assembled catch, in three perspective views, partly transparent, with a pivoting latch; and
Fig. 7 in cross section schematically a latch in a catch of fig. 6.

[0009] The embodiments shown are only exemplary embodiments and should by no means be understood as limiting the invention in any way. Many variations are possible within the scope as defined by the claims.

[0010] In this description embodiments shall be shown and discussed for a door as an example of a closing element. It shall be clear that also other closing elements can be used, such as but not limited to windows, shutters, hatches and the like. In fig. 1 a door is shown as an example of a closing element, suspended in a frame, more specifically a doorframe, by hinges to one side and with three sets of cooperating latches and catches for closing the door on the opposite side. These latches can be part of three individual locks or of a centrally operated three

point lock. Alternatively there can be only one lock latch or more than one, for example two or more than three. Any lock latch can be a single element such as but not limited to a latch having a substantially square cross section or a pivotable, hooking latch, or can have more than one element, for example a number of pins, extending for example parallel to each other, spaced apart as tines of a fork. Hinges and/or locks can be provided on different sides of the closing element. Similar locks and catches could be provided in different positions, for example between two doors or windows of a double door or window set, or between a door of window and the relevant frame, other than or additionally to the side opposite the hinges.

[0011] In the description embodiments are shown in which the latch of a lock can be caught in a catch in and/or on a frame, such that for example misalignments of the latch and the catch relative to each other can be accommodated in at least one direction, especially in a direction substantially perpendicular to the opening area in the frame to be closed by the closing element. The frame has a first side, to or near which the closing element is suspended, and an opposite second side. In embodiments the first side may be referred to as the outer side, the opposite second side as the inner side, for example but not limited to when the closing element is a door or window at an outer side of a building, the closing element turning out for opening. For a closing element turning inward for opening the sides may be reversed. The catch can have a biasing element biasing an element of the catch in a direction towards the second side of the frame, i.e. in a closing direction of the closing element, such that when a latch of a lock connected to the closing element is caught in the catch, said latch and therewith the closing element may be pushed, by the biasing element, towards the closed position within the frame.

[0012] In the embodiments disclosed the lock or locks with the latches are mounted on and/or in the closing element, the catches in and/or on the frame. However, this can be reversed entirely or in part, the or each lock or at least one thereof being in and/or on the frame and the or each catch or at least one thereof being in and/or on the closing element. In the embodiments shown the catch or catches has/have a longitudinal direction which extends, in mounted position into and/or on a frame, substantially vertically, unless otherwise specified. Obviously, the catches could also mounted differently.

[0013] In the present invention a latch of a lock can be a translating type of latch, such as but not limited to latches commonly known as block latches, or pivoting latches. If there is more than one latch, the latches can be of individual locks or of a multiple point lock, centrally operated. A latch can be mechanically and/or electronically operated. In this description insertion direction of a latch has to be understood as including but not limited to a linear movement direction and a pivoting movement direction, relative to the catch. At least in a pivoting movement such direction will be defined by an actual or virtual axis of pivoting of the latch. Also combined linear and pivoting movement can define such insertion direction.

[0014] Another assembly according to the invention can be characterised by a catch according to the invention and a lock with a latch, mounted on a door or window or such closing element, preferably hingedly connected to a frame to and/or into which frame the catch is mounted, wherein the closing element has a pivoting direction towards a closed position within the frame, and wherein the first side of the cup of the catch is positioned at an upstream side of the pivoting direction towards the closed position.

[0015] Fig. 1 shows a closing element 1, in this embodiment shown as a door 1 in a frame 2. The closing element 1 is mounted to the frame 2 by a number of hinges 3. The frame 2 can be provided, in a known manner, with a rabbet 4 providing an abutment 5 for the door 1, such that the door can close off the opening within the frame 2. At a side opposite the side comprising the hinges 3 one or more catches 6 can be provided in or on the frame 2. In the embodiment shown three catches 6 are provided above each other, for the latches of one or more locks. The catch(es) 6 is or are provided such that a latch to be caught by the catch 6 can easily enter the catch 6 at least partly and will be forced towards the abutment 5, such that an edge portion of the door 1 is forced into close proximity and preferably against the abutment or against a seal 54 provided on or in said abutment, such as a draught and/or sound seal as commonly known.

[0016] In the embodiments shown and discussed, for example as shown in fig. 2 - 5, a catch 6 can be provided for biasing a latch of a lock or the like in a direction of closure of a closing element 1. To this end a catch 6 can be provided with a cup 7 for mounting in or on a frame 2, having a first side 8 and an opposite second side 9. Cup 7 has to be understood in the description as including at least but not limited to elements having partly open and/or partly closed frames with at least two opposite ends and a hollow or opening between said two opposite ends into which a latch can be entered at least partly. In the embodiment as shown in fig. 2 the frame has two side walls 18, substantially parallel, which may be relatively low and two opposite end elements 19, connecting the walls 18, which end elements 19 can be higher than the walls 18. Thus a closed frame 20 is formed by the walls 18 and end elements 19, in this embodiment an integral frame 20. An opening 21 extends through the frame 20. The opening 21 can have a closed bottom, the opening 21 effectively being a hollow, or can be open to both sides.

[0017] A biasing mechanism 10 can be provided within the cup 7. The biasing mechanism 10 can be provided with or, as shown in e.g. fig. 2, be substantially or entirely formed by a bent leaf spring 11. The spring 11 can form and/or comprise a displacement element 12 which is biased in the direction of the second side 9. A latch 40 of a lock40A can be inserted at least partly into the opening 21 and can engage the displacement element 12 such that the displacement element 12 will apply a force FC

on the latch 40 into the direction of the second side 9, as will be explained. The displacement element 12 comprises or is formed by a bent leaf spring 11 having a first leg 13 connected to the cup 7 and a second leg 14 extending at least partly into the opening 21. The second leg 14 including an angle δ with the first leg 13.

[0018] The bent leaf spring 11 preferably comprises a bend portion 15 between the first 13 and second leg 14, said bend portion 15 having a curvature facing outward of said opening 21. As can for example be seen in fig. 2 and 4 when seen in side view the legs 13, 14 can be substantially straight and flat, whereas the bend portion 15 has a curvature between adjacent imaginary edges 13A, 14A of the two legs 13, 14. The curvature can have a substantially constant radius, or a varying radius and is preferably obtained by deformation, especially bending of an initially flat strip of material into the spring 11. The material is preferably metal, such as spring steel, which can be coated or lubricated or bare metal, although also different materials or compositions of materials can be used. For example a metal spring can be used, at least partly covered by a further material such as plastic or a low friction coating, protecting the spring against for example oxidation and wear due to friction. Preferably the bend portion 15 has a length direction L15 substantially parallel to a length direction L21 of said opening 21. In fig. 4 the length directions L15, L21 extend preferably substantially perpendicular to the plane of drawing.

[0019] In embodiments wherein the legs 14, 15 are substantially straight and flat, the angle δ is defined by said planes. In embodiments wherein at least one of the legs 13, 14 are not substantially straight and flat, the angle δ is defined by an imaginary plane defined by the imaginary end 13A and the opposite free end 13B of the first leg 13 and imaginary plane defined by the imaginary end 14A and the opposite free end 14B of the second leg 13. Preferably the angle δ is between 5 and 90 degrees, more preferably between 5 and 60 degrees, such as for example between 5 and 45 degrees. In the example shown in fig. 4 the angle is for example but not limited to about 30 degrees. The angle δ can for example be chosen such that the free edge 14B of the second leg 14 lies, seen in a direction V substantially perpendicular to said opening 21, as shown in fig. 4, in a middle portion of the opening between the first and second side 8, 9. The second leg 14 can be pushed towards the first leg 13 by the latch 40, when entering the opening 21, the latch 40 exercising a force F onto the leg 14. The latch 40 can move further into the opening 21, and a reaction force or biasing force FC will act on the latch 40, by the spring 11, especially due to resilient deformation of the spring 11, especially of the second leg 14 and/or the bend portion 15.

[0020] In order to mount the spring 11 in the cup 7 or frame 20 the first leg can at least partly be inserted into a slot 16 provided at the first side 8 of the cup 7. The first leg can for example be slid into the slot 16, wherein the slot and first leg are preferably shaped and dimensioned such that the first leg 13 cannot move, i.e. cannot translate and/or rotate inside the slot except for translation into and possibly out of the slot 16. The first leg 13 can for example be form, press and/or snap fit into said slot 16. Alternatively or additionally the first leg 13 can be fixed in position in a different manner, for example by glue, by screwing a bolt through said leg into the cup, riveting, casting the leg into said cup or any other suitable form.

[0021] In embodiments the slot 16 can be provided with a side wall portion 17 at a side facing the second side 9 of the cup 7. This side wall portion 17 can be provided with at least one stop element 23 for limiting displacement of the second leg 14 within the opening 21 towards the first leg 13, i.e. reducing the angle δ. Reducing the angle δ will increase the force FC acting on the latch 40 towards the second side 9. By providing the at least one stop element 23, which may also be formed by the wall portion 17 as such, it may be prevented that the spring element is deformed too far, for example plastically deforming.

[0022] A cover 36 can be provided over the opening 21, in which cover an insertion opening 39 can be provided. The cover 36 can be provided locking the displacement element, especially the spring 11 in said cup. In embodiments to that end said cover has an opening 39 with at least one edge portion 39A lying over and possibly engaging the bend portion 15 of the displacement element 12, such that for example the second leg 13 and part of the bend portion 15 extend from under said edge portion 39A into the opening 21, for engagement by a latch 40.

[0023] In the embodiment shown the cover 36 is substantially U-shaped and dimensioned preferably such that it can be mounted over the frame 20, such that two substantially parallel legs 37 of the cover extend between the elements 19 and abut the walls 18, whereas a wall part 38 of the cover 36, connecting the legs 37, extends between the upper sides of the elements 19, covering the opening 21. The opening 39 can be provided in the wall part 38, for allowing a latch 40 of a lock or the like to enter the catch 6 in the direction I. At least part of the second leg 14 of the element 11 will be exposed below the opening 39, such that a latch 40 can engage the leg 14 and preferably also the bend portion 15. The cover 36 can further be provided with mounting openings 41 and/or elements for securing it to the cup 7 or frame 20 thereof. For example two openings 41 can be provided in the cover 36, for allowing bolts 42 to be screwed into nuts 43 provided below slot like openings 44 in the end elements 19. Covering elements (not shown) can be provided for covering the bolts 42, improving even further on the aesthetics.

[0024] The bend portion 15 can form a guide element 31 for the latch 40, easing the entering of the latch into the opening 21 and into contact with the second leg 14. If desired a further guide element can be provided on the cup 7, cover 36 and/or spring element 11, such as but not limited to a low friction element, for example a plastic

element, for reducing friction and/or wear between a latch and the catch, as shall be explained later on. Additionally or alternatively an appropriate coating could be provided on the spring element, such as but not limited to a low friction coating.

[0025] The cup 7, especially the frame 20 can be provided with mounting openings 46, for example bores extending at an angle through the end elements 19, such that screws 49 can be screwed through said bores 46 into the frame 2, front 47 to back 48 of the cup 7, from nearer to the first side 8 to nearer or even past the second side 9, as is shown in fig. 5. The cover 36 can cover the heads of the screws 49 used for mounting the cup 7 to the frame 2. Of the openings at least one has a insertion direction for a bolt or screw 49 extending angled relative to the first 8 and second side 9, from at or near an insertion side of the cup 7 near the first side 8 towards an opposite side of the cup, closer to the second side 9. The angle t preferably is between 90 and 150 degrees, relative to the insertion direction of the latch, more preferably between 105 and 140 degrees, for example about 135 degrees. By screwing the screws 49 or such means into the frame at an angle, the screws are mounted in the body of the frame having sufficient material surrounding the screws 49, increasing the strength of the mounting. Moreover, the most likely forces to be exerted on the catch 6 by the latch 40 will be in an angular direction, which can be similar to the angle of the screw 49. It should be noted that the angle should be understood as seen with respect to a frontal plane V of the frame 2, parallel to the side of the closing element.

[0026] In fig. 4A - B schematically the cooperation between a latch 40 and a catch 6 is shown, partly in cross section.

[0027] In fig. 4A a latch 40 is shown, having a front end 50 entering the catch 6, especially the cup 7 in the direction I. In this embodiment the latch is conveniently provided with a slightly rounded side 51 at said end 50 facing the first side 8 of the catch 6. In the position shown in fig. 4A the end 50 of the latch 40 enters the cup 7 through the opening 39 in the cover 36. The end 50 of the latch 40, especially the rounded side 51 thereof, is moved against the element 31, the bend portion 15 and/or the second leg 14 of the spring 11. In fig. 4A the spring element 11 is shown in a non-deformed rest position.

[0028] When the latch 40 is pushed further into the cup in the direction I, its end 50 will, due to the force F exerted by the latch 40 on the second leg 14, deform the spring element 11 elastically, reducing the angle δ. The deformation of the spring 11 will result in a counter force FC forcing the latch 40 and thus the element 1 to which it is attached in the direction of the second side, since the spring element will attempt to return to the non-deformed state. This will mean that the element 1 will be biased into a closing position.

[0029] In fig. 4B the latch 40 is shown in a position within the opening 21 as close as possible to the first side 8, showing the maximum distance T1 over which the latch 40 can be pushed towards the second side 9 inside the opening 21 until it is stopped by a side edge 39B of the opening 39, opposite the side edge 39A above the bend portion 15.

[0030] As can be seen from fig. 4A, the latch 40 can initially enter the opening 39 only with the tip 50, wherein the latch is mostly next to the spring element 11, in fig. 4 shown above the bend portion 15. In this position the latch will still be in a position partly retracted into the lock and the side 40B of the latch facing the second side 9 of the catch is at a distance T2 from said edge 39B. When the latch 40 is forced out of the lock further, the curved or angled surface 51 of the latch will move over the bend portion 15 and/or the second leg 14, into the opening 21, and at the same time the latch will be forced towards the second side 9. As long as the closing element 1 does not reach a closing end position the latch 40 and thus the closing element 1 can be moved further towards the second side 9 and the closing position respectively, preferably until an equilibrium is reached between the closing force and the spring force of the spring element 11. Thus a proper closure can be obtained.

[0031] With a catch or several such catches 6 according to this description the advantage can be obtained that a closing element can be pushed into a closing position by the catches 6, whereas this catch or these catches may provide for the possibility of correcting for for example misalignment between a lock or latch and a catch, which could exist or come into existence throughout the life time of the closing element, for example due to miscalculations, deformations of the closing element and/or frame or catch, wear of parts of the assembly of closing element, frame, lock or locks and catches, hinges and the like, or due to setting of for example the frame. These misalignments can also change in time, for example due to for example weather or use. Another advantage that can be obtained with a catch or several such catches 6 can be that when closing an element 1 a user does not have to push hard against the closing element, since the cooperating latch(es) and catch(es) will "push" the element into a closed position, if necessary.

[0032] As is especially clear form fig. 3, the opposite ends of the cup 7, especially of the frame 20 can be defined by the end elements 19, which can be rounded, preferably such that the radius of curvature of the elements 19 is about equal to the overall width of the frame 20, such that an opening or slot or the like for the catch can easily be made in a frame 2 by machining with a tool having the same curvature. The opening 39 preferably has a length L measured in a direction between the ends 19, which is such that a latch 40 can easily be inserted, and which substantially corresponds to the length L1 of the bend portion 15 and/or a guiding element 31 of and/or on the element 11. By using such element 31 providing reduced friction the insertion of the latch in the direction I can even further be improved.

[0033] The distance D between the side 60 of the frame 2 closest to the first side 8 and the side of the element

11 facing the latch 40 when inserted can be surprisingly small and/or the thickness T of the frame 2 remaining between said first side 8 and the side 60 of the frame 2 can be sufficiently great. This means that a frame 2 can be used with a limited thickness between the abutment 5 and the side 60 of the frame 2, without compromising the strength of the frame or the mounting of the catch 6 therein. The angled screws 49 can also aid to this mounting strength, as discussed before. Moreover, compared to a catch according to the prior art the distance D2 between the edge 39B of the opening 39 and the side wall 18 of the cup 7 or frame 20 can be minimal, leaving ample space form movement of the latch, without any parts inside the opening intervening. This means that the overall width W of the catch can be small without compromising a desired distance over which the catch 40 can move within the opening 21.

[0034] The spring element 11 is extremely simple in design and use, making the system easy to manufacture and use, relatively inexpensive and compact.

[0035] In fig. 6 and 7 an alternative embodiment of an assembly of a catch 6 and a latch 40 is shown, wherein the catch can be similar to or identical to the catch of fig. 2 - 5, and wherein the latch 40 is a pivoting latch. The latch 40 is mounted on an axis 70 extending through the opening 61. A gear 62 can be provided, in fig. 6 shown in part as teeth 63 which can in a known manner be engaged by a rotating and/or translating part within the lock, which can for example be operated by a key, a lever mechanism, a motor or the like means, known in the art. A rotation of the latch 40 around said axis 70 in the direction indicated by arrow 64 will move a hooking part 65 of the latch 40 into and out of the cup 7, especially through the opening 39 in the cover 36, such that part of the hooking part 65 will hook behind the cover 36, especially behind the edge 66 of the opening 39 closest to a first of the end elements 19. By use of such hooking part 65 the latch cannot leave the catch 6 in a linear direction, which can improve anti burglary properties. As can be seen there is a space 67 behind the cover, between the said edge 66 and the end element 19 closest thereto, in which space 67 the hook part can be accommodated. The opening 39 is preferably off set relative to a center C of the catch, in longitudinal direction between both opposite end elements 19, such that such space 67 is mainly formed to one side of the opening 39.

[0036] As can especially be seen from fig. 7 the hook part 65 can be tapering, chamfered, rounded or the like at a side facing the biasing element, such as the bend portion 15, element 31 and/or the second leg 14, in order to facilitate such engagement further and reduce the force needed for inserting the hook part 65 of the latch when engaging the displacement element 11.

[0037] In another aspect the displacement element can have a direction of movement which encloses an angle with the direction of the force to be applied to the latch, which angle is preferably acute, such as but not limited to between 5 and 175 degrees, more preferably between 45 and 135 degrees, and most preferably between 75 and 105 degrees, such as about 90 degrees. Preferably such movement is substantially parallel to a longitudinal direction of the catch.

[0038] The catch can have an insertion opening 39 for a latch 40, offset in longitudinal direction from a mid position between two opposite longitudinal ends 19 of the catch 7, preferably such that a cover element 36 is provided with the opening 39 for receiving at least part of a catch 40, displaced relative to a center of the cup in a length direction. It is preferably placed closer to one longitudinal end 19 than to the opposite longitudinal end 19. Seen in an insertion direction I of the latch 40 behind the cover element 36 a space may be provided for receiving part of the latch 40, which space is provided at a side of the cup 7 seen in length direction between one of the longitudinal ends 19 and an edge of the opening 39 closest to said end 19.

[0039] In the embodiments as shown in fig. 2 - 7 the displacement element 12 is formed by or comprises a spring element 11, disclosed as an element which is in cross section substantially V-shaped. It shall be clear that the same or similar effects can be obtained with equivalent elements, for the different parts. For example the spring element 11 as disclosed could be exchanged for a composite spring element or could be mounted differently, for example to the cover element 36, or could be an integral part thereof or of the frame 20, for example part of a wall 18. The cover element 36 could be an integral part of the cup 7, where in the spring element 11 can for example be mounted from a rear of the cup or through the opening 39.

[0040] The present invention is by no means limited to the specific embodiments as shown and discussed. Various alternatives are considered to have been disclosed herein too, such as but not limited to combinations of various parts as shown or discussed. These should also be considered falling within the invention as claimed in the appending claims.

Claims

1. Catch for a lock latch, comprising a cup for mounting in or on a frame, having a first side and an opposite second side, a biasing mechanism provided within the cup, comprising a displacement element which is biased in the direction of the second side, an opening provided 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, **characterized in that** the displacement element comprises or is formed by a bent leaf spring having a first leg connected to the catch and a second leg extending at least partly into the opening and including an angle with the first leg.

2. Catch according to claim 1, wherein the bent leaf spring comprises a bend portion between the first and second leg, said bend portion having a curvature facing outward of said opening.

3. Catch according to claim 2, wherein said bend portion has a length direction substantially parallel to a length direction of said opening.

4. Catch according to any one of the preceding claims, wherein the first leg is at least partly inserted into a slot provided at the first side of the cup.

5. Catch according to claim 4, wherein the slot is provided with a side wall portion at a side facing the second side of the cup, which side wall portion is provided with at least one stop element for limiting displacement of the second leg within the opening.

6. Catch according to any one of the preceding claims, wherein a cover is provided locking the displacement element in said cup.

7. Catch according to claim 6, wherein said cover has an opening with at least one edge portion engaging the bend portion of the displacement element, such that part of the bend portion extends from under said edge portion into said opening, for engagement by a latch.

8. Catch according to any one of the previous claims, wherein the catch is provided with openings for fixing the cup to a frame, of which openings at least one has a insertion direction for a bolt or screw extending angled relative to the first and second side, from at or near an insertion side of the cup near the first side towards an opposite side of the cup, closer to the second side, wherein the angle preferably is between 90 and 150 degrees, relative to the insertion direction of the latch, more preferably between 105 and 140 degrees, for example about 135 degrees.

9. Catch according to any one of the previous claims, wherein the catch has an insertion opening for a latch, offset in longitudinal direction from a mid position between two opposite longitudinal ends of the catch, preferably such that a cover element is provided with the opening for receiving at least part of a catch, displaced relative to a center of the cup in a length direction, such that it is placed closer to one longitudinal end than to the opposite longitudinal end and/or wherein seen in an insertion direction of the latch behind a cover element a space is provided for receiving part of the latch, which space is provided at a side of the cup seen in length direction between one of the longitudinal ends and an edge of the opening closest to said end.

10. Assembly of a catch according to any one of the previous claims and a lock with a latch, wherein the latch fits at least partly into the cup of the catch, between the second leg of the displacement element and the second side of the cup, movable in a direction perpendicular to an insertion direction of the latch into the cup, between the first and second side of the cup, wherein the latch preferably has an at least partly rounded off or tapering side near an end thereof forward in the insertion direction.

11. Assembly of a catch according to any one of claims 1 - 10 and a lock with a latch, mounted on a door or window or such closing element, preferably hingedly connected to a frame onto and/or into which frame the catch is mounted, wherein the closing element has a closing direction towards a closed position within the frame, and wherein the first side of the cup of the catch is positioned at an upstream side of the pivoting direction towards the closed position.

12. Assembly according to claim 10 or 11, wherein there are at least two catches above each other, at least one of which is a catch according to any one of claims 1 - 9.

Fig. 1

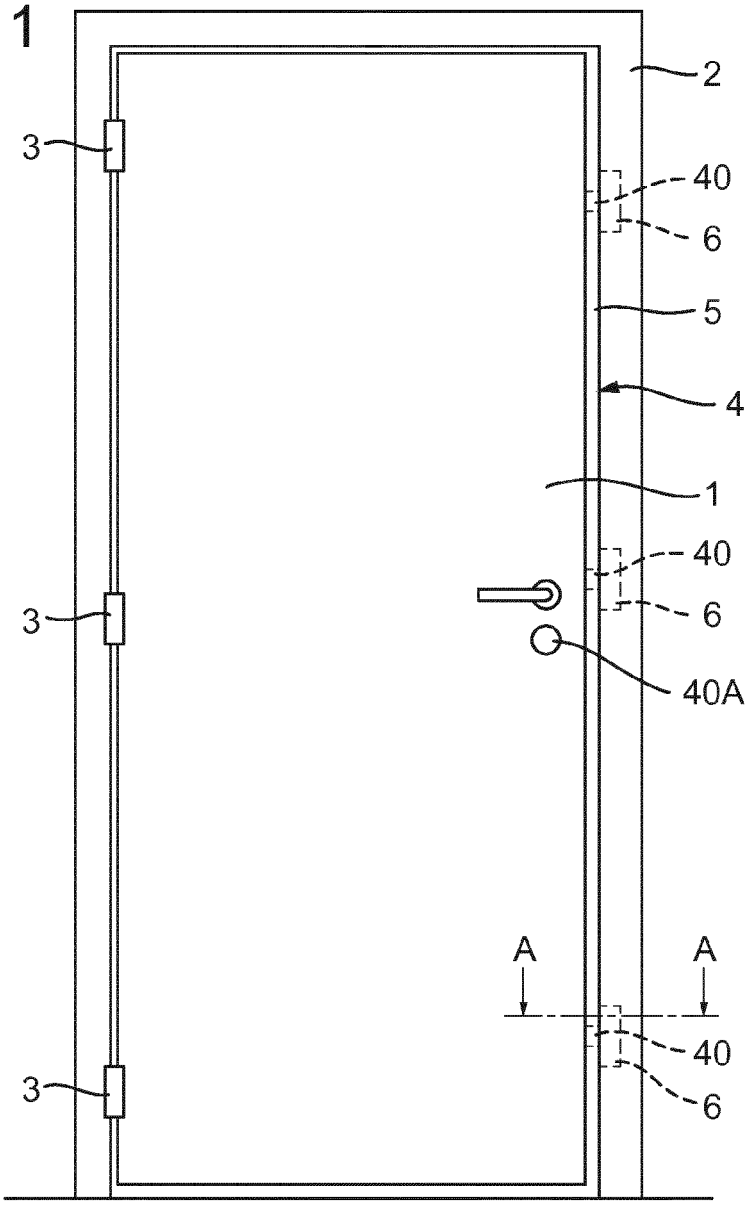


Fig. 1A

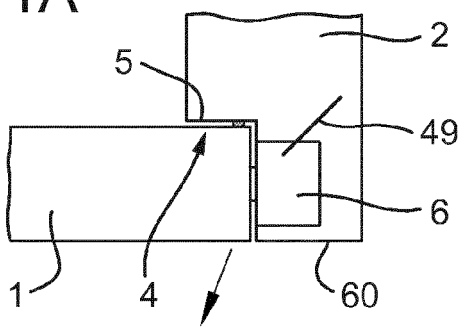


Fig. 2

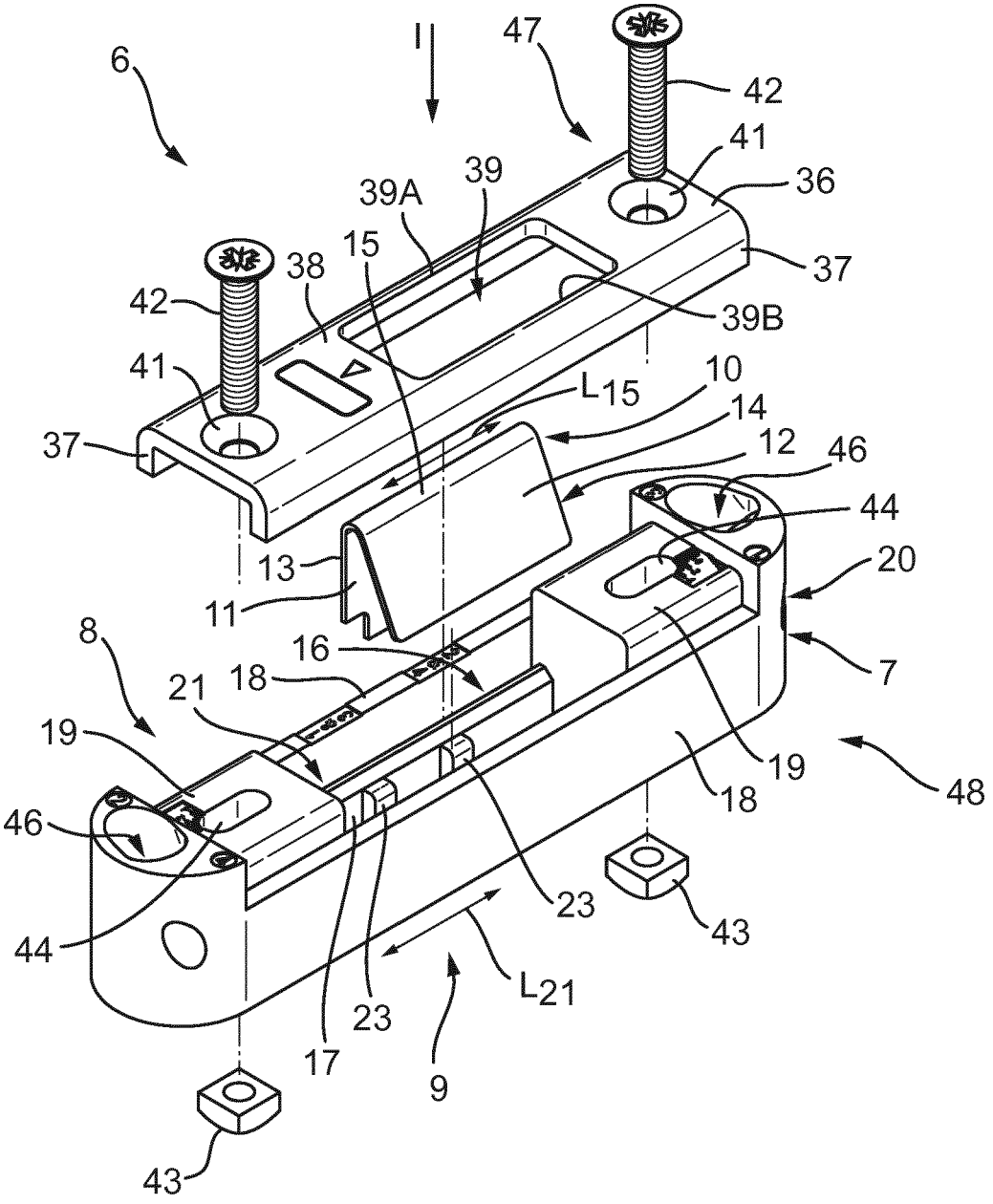

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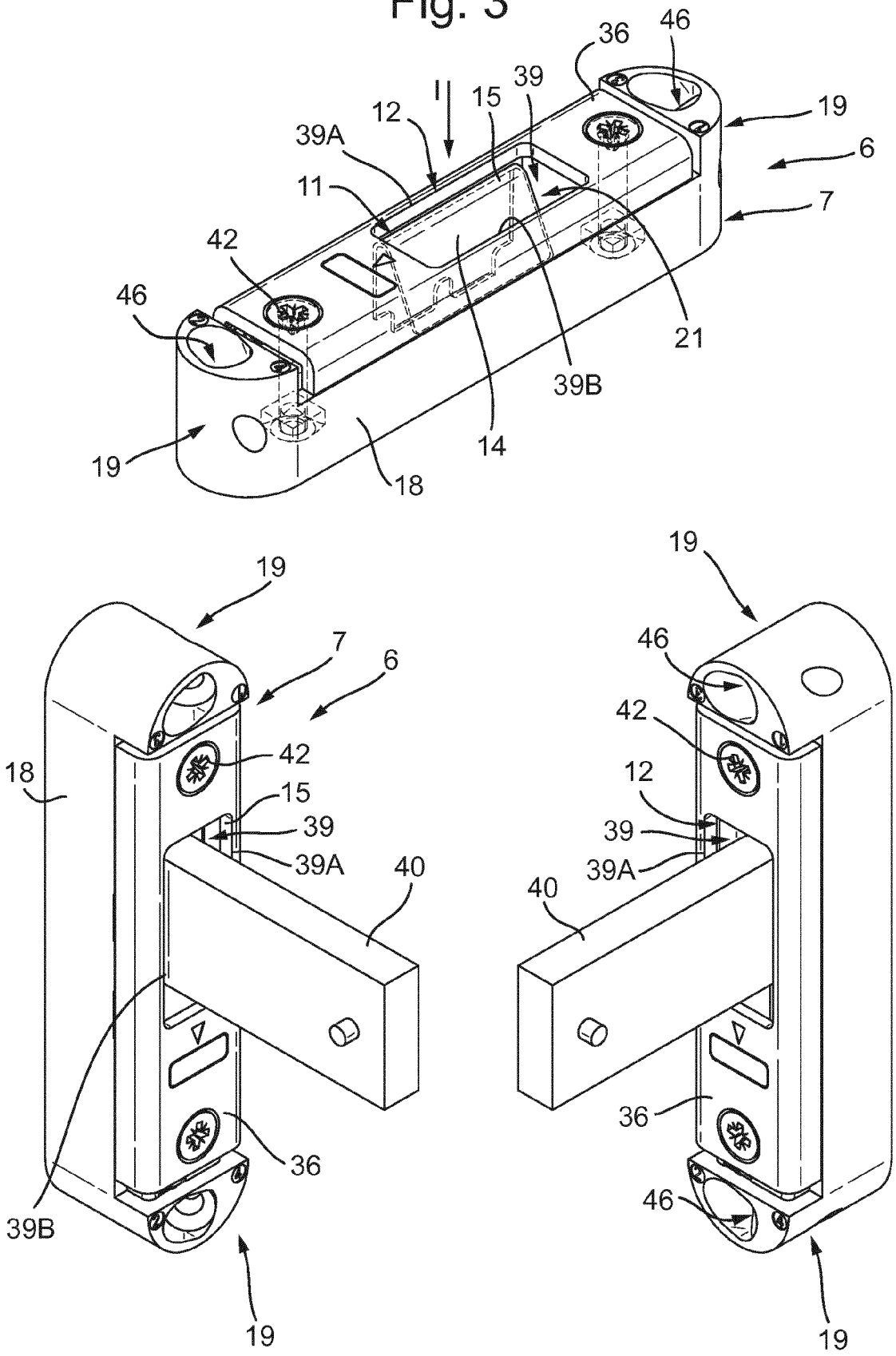
Fig. 3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39A
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Fig. 4A

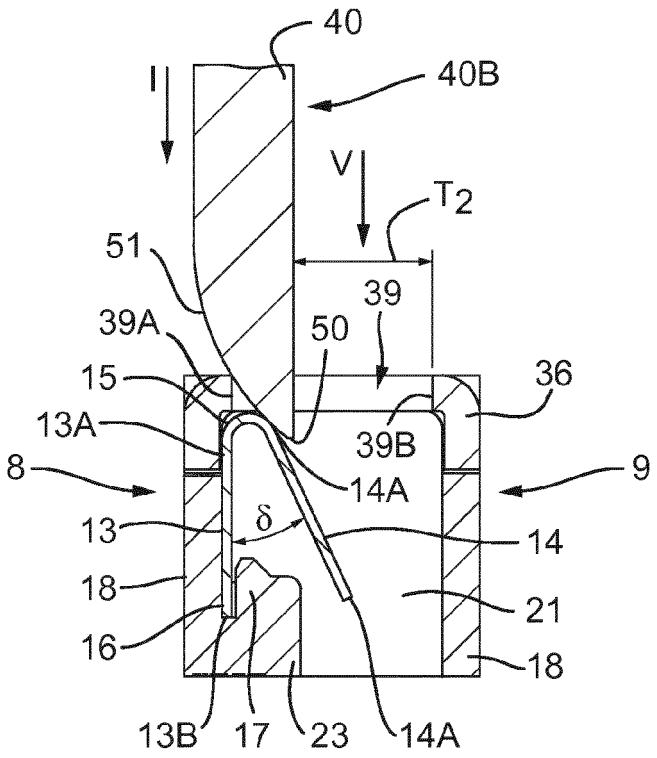
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Fig. 4B

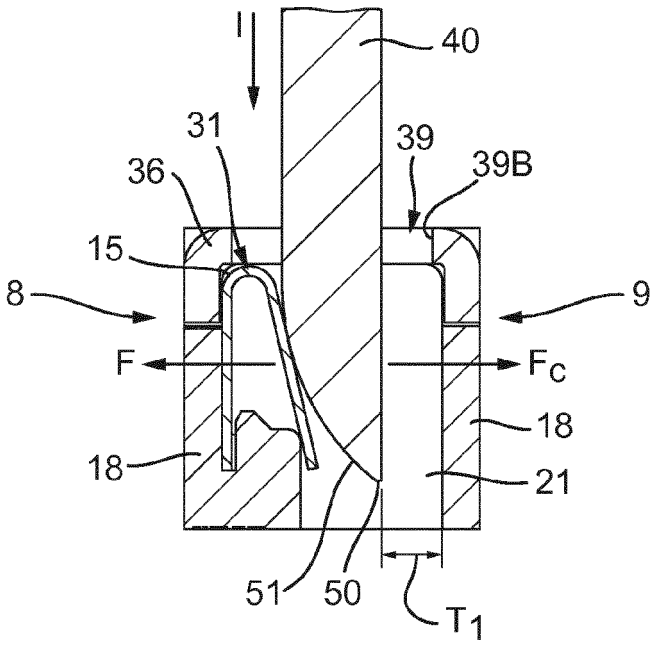
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Fig. 5

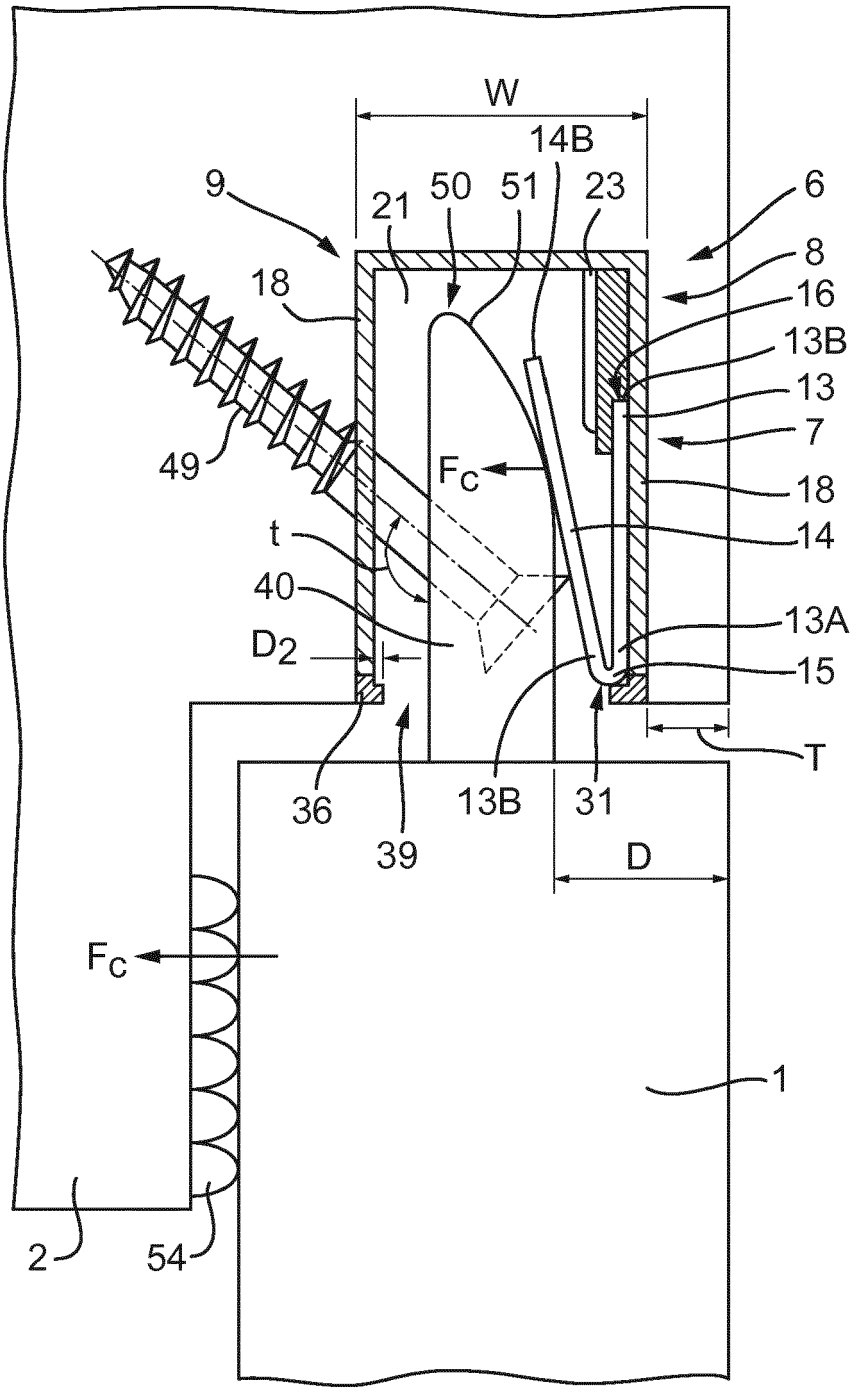
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Fig. 6

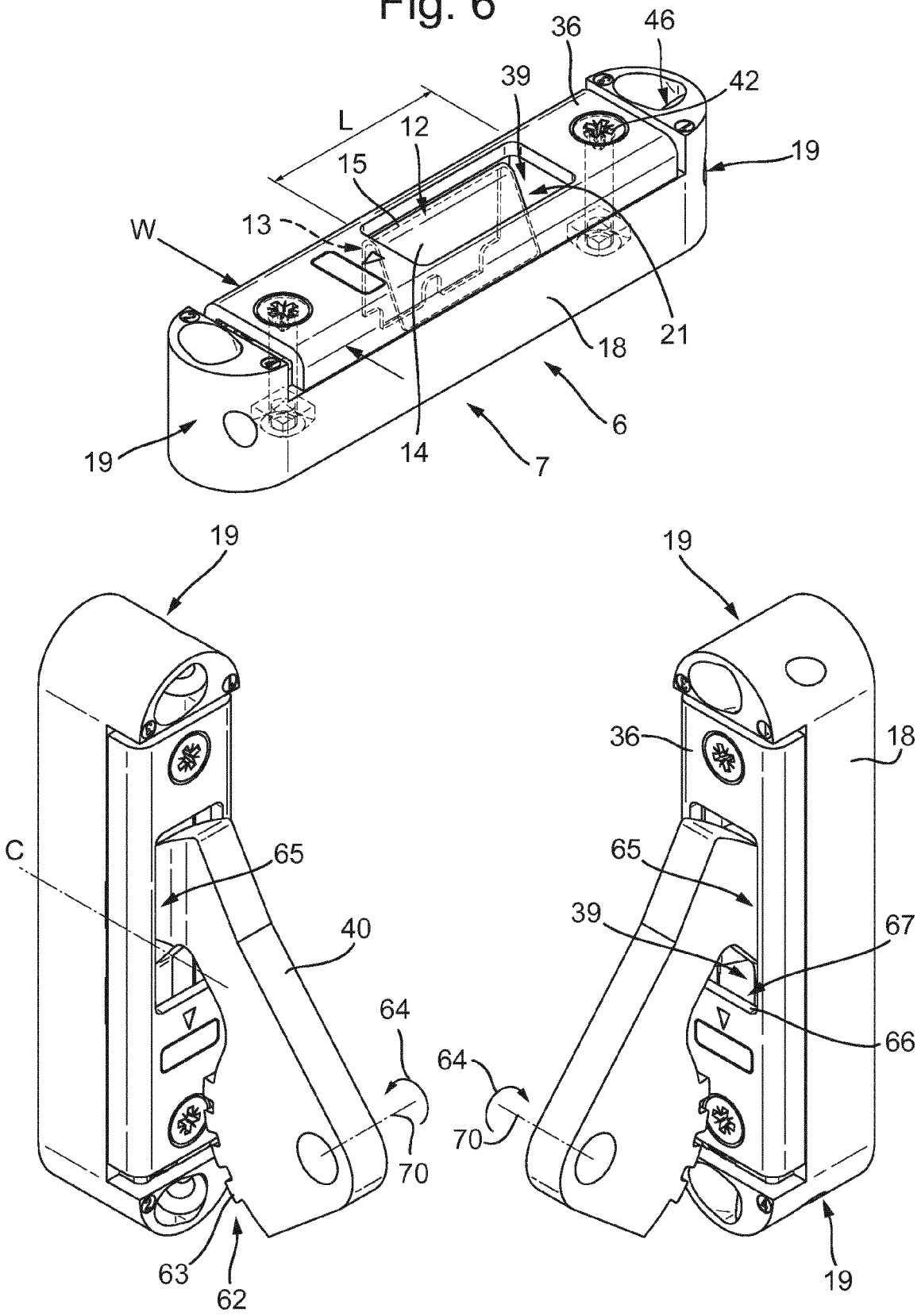
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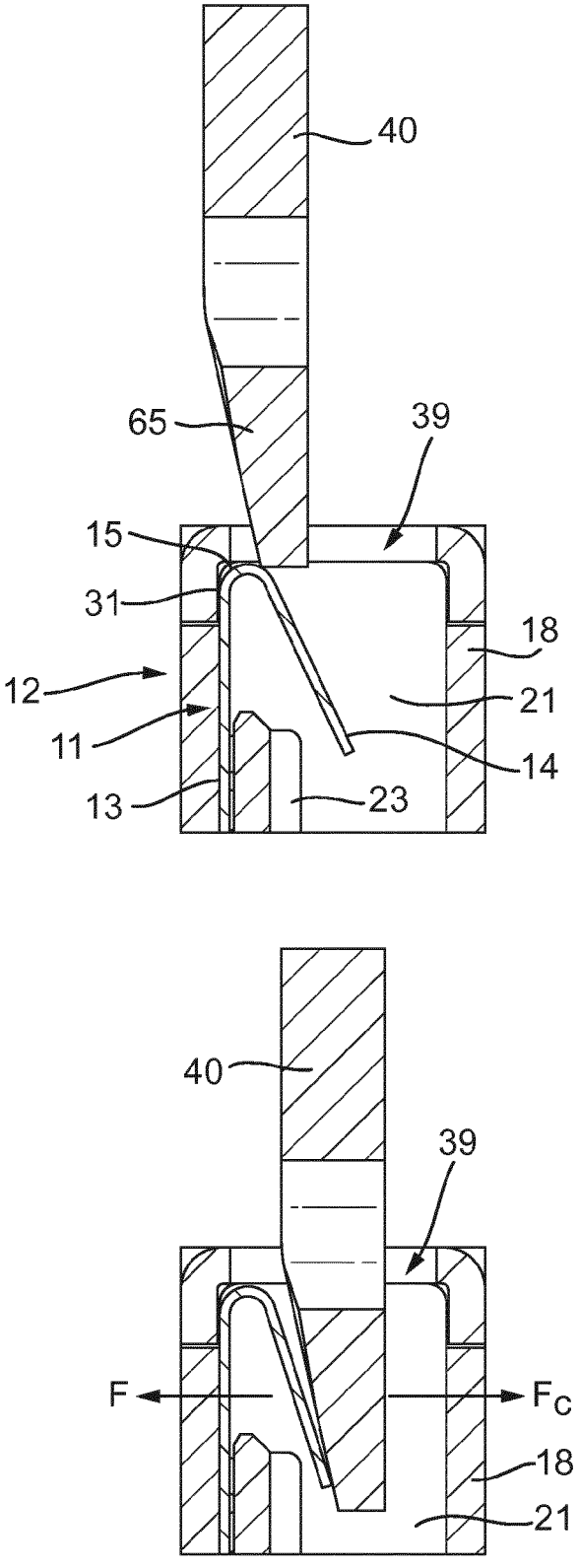
Fig. 7



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EUROPEAN SEARCH REPORT

Application Number
EP 16 15 2281

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X A	US 2 535 444 A (MILLER CLARKE E) 26 December 1950 (1950-12-26) * the whole document *	1 4	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 May 2016	Westin, Kenneth

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25-05-2016

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