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(54) LOCK DEVICE WITH ADJUSTABLE LATCH DEVICE

VERRIEGELUNGSVORRICHTUNG MIT EINSTELLBARER RIEGELVORRICHTUNG

DISPOSITIF DE VERROUILLAGE AVEC DISPOSITIF DE FIXATION RÉGLABLE

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Description

Field of the invention

[0001] The invention relates to a lock device comprising a lock housing with a lock bolt, a first follower and a second follower, a blocking member which, manoeuvred by each of the first and second followers, permits blocking of the lock bolt in a locked position and release of the lock bolt, and also an adjustable latch device with which it is possible to prevent the blocking member from being manoeuvred by means of the second follower for release of the bolt. The lock device according to the invention can be applied to locks with one or more bolts accommodated in the lock housing, and also to locks of the espagnolette type or other so-called multi-point locks in which one or more bolts arranged outside the lock housing are manoeuvred by means of the lock device.

Background and prior art

[0002] Many locks, for example for dwellings, are provided, on the one hand, with a lock cylinder which is coupled to a first follower and with which it is possible to operate by key the unlocking and locking of a bolt included in the lock, and, on the other hand, with a thumb turn which is coupled to a second follower and has the same function, which thumb turn is arranged on the inside of the door. The purpose of the thumb turn is to bring the lock to the locked position and unlocked position without having to use a key. A disadvantage of this solution is that an unauthorized person, who has gained access to the inside of the door, for example through a window, can easily unlock the door by means of the thumb turn and then leave the premises through the normal exit.

[0003] Locks are known that have a so-called thumb turn latch. This means that a person in the possession of a valid key, for example the owner of an apartment, is able to latch the thumb turn function and thereafter lock the door using the key. Someone located on the inside of the door is then unable to leave the premises by this route and must instead use another way out.

[0004] In some known locks, the thumb turn latch is activated via a button which is arranged on the forend side of the lock and which, before locking by key, is moved to a defined position, as a result of which the thumb turn latch is activated. SE 431 574 describes a previously known lock with an adjustable thumb turn latch of this kind.

[0005] EP 1 840 302 A2 discloses a lock comprising a latch bolt, a hook bolt and two follower arrangements one of which comprises a firt and a second follower. The lock has tree different operating modes. At a first daytime mode, the latch bolt extends only a shorter distans and allows ompening f the lock witout the use of a key. At a second saftely locking mode the latch bolt extends to a further protruding dead-loced position and the lock may be opened by a key from the outside and a turning knob from the inside. At a third secured safety locking mode also the hook bolt is extended and the turning knob on the inside is inactivated whreby the lock may only be opened by the use of a key from the outside and possibly also from the inside.

[0006] WO 03/078767 describes another previously known lock which is provided with an adjustable thumb turn latch and in which, after activation of the thumb turn latch, it is not possible to determine from the outside whether the thumb turn latch has been activated or not.

[0007] For other types of locks too which comprise a first follower and a second follower with which the lock bolt can be actuated, for example for moving the bolt or for locking the latter, it may be desirable, by means of an adjustable latch device, to be able to prevent one of the two followers from being used to act on the bolt.

[0008] However, previously known lock devices with adjustable latch devices of this kind are not always able to meet the very high safety demands that apply nowadays.

Brief disclosure of the invention

[0009] One object of the invention is to make available an improved lock device with an adjustable latch device which permits temporary blocking of the function of one of two followers included in the lock device.

[0010] Another object is to make available a lock device of this kind that provides a high degree of safety.

[0011] A further object is to make available a lock device of this kind in which manipulation of the lock by insertion of objects into the lock housing is prevented or is made considerably more difficult.

[0012] A further object is to make available a lock device of this kind in which manipulation of the lock by blows, kicks or vibrations on the outer side of the lock housing is prevented or made considerably more difficult.

[0013] Yet another object is to make available a lock device of this kind that is simple and reliable.

[0014] Yet another object is to make available a lock device of this kind which facilitates a modularized method of production of different locks forming part of a series. These and other objects are achieved with a lock device which is of the type defined in claim 1. The lock device comprises a lock housing which houses: a lock bolt which is movable between an unlocked position and a locked position, a first follower and a second follower. A blocking member is coupled to the first follower and to the second follower. By means of each of the first and second follower, the blocking member can be manoeuvred between a blocking position, in which the lock bolt is blocked in its locked position, and a release position, in which the lock bolt is movable to the unlocked position. The lock housing also receives a latch device which is adjustable between a latching state, in which manoeuvring of the blocking member by means of the second follower from the blocking position to the release position is blocked, and a non-latching state, in which manoeuvring of the blocking

member by means of the second follower from the blocking position to the release position is permitted. According to the invention, the latch device is arranged such that, when the lock bolt is located in its locked position and the latch device has adopted its latching state, by mechanical cooperation with the lock bolt, the latch device is blocked against being adjusted from its latching state to its non-latching state.

[0015] With the adjustable latch device, it is possible to temporarily prevent a situation where manoeuvring of the second follower, which can be a thumb turn follower for example, allows the blocking member to adopt its release position, which would otherwise allow the lock bolt to be brought to its unlocked position. The adjustable latch device can thus be used, for example, to permit adjustment of the lock device between a "safe at home" function and a "secure when away" function. In the "safe at home" function, a thumb turn arranged on the inside of a door or the like can be used to quickly and easily open the door from the inside, without using a key. In the "secure when away" function, the thumb turn cannot be used to undo the lock. In this way, a person who has gained unauthorized access, for example through a window or the like, will find it impossible or very much more difficult to exit through the door.

[0016] The latch device is also designed such that, by mechanical cooperation with the lock bolt, in the locked position of the lock bolt, it is blocked against being adjusted from its latching state to its non-latching state. In this way, the second follower cannot be brought into operation to manoeuvre the blocking member unless the lock bolt is first of all moved to its unlocked position. This significantly increases the security of the lock device compared to previously known lock devices with adjustable latch devices. As is customary, the whole structure of the lock device is designed and optimized to prevent the lock bolt being forced open or in some other unauthorized way being brought from its locked position to its unlocked position. By virtue of the mechanical cooperation according to the invention between the adjustable latch device and the lock bolt, the high degree of safety with which the lock bolt is kept in its locked position is also utilized to maintain the adjustable latch device in its latching state. In this way, manipulation of the adjustable latch device, for example by inserting manipulating tools into the lock housing or by exposing the lock housing to vibrations, knocks or blows, is made considerably more difficult.

[0017] The latch device can comprise a first movable latch member which, when the lock bolt is located in its locked position and the latch device has adopted its latching state, by bearing against the lock bolt, blocks the latch device against being adjusted from its latching state to its non-latching state. This ensures in a simple and practical way the blocking mechanical cooperation between the latch device and the lock bolt when the latter is located in its locked position.

[0018] The latch device can also comprise a second movable latch member which, when the latch device has adopted its latching state, is in engagement with a coupling member that connects the second follower to the blocking element. This permits a wide choice regarding the placement of the second follower, the blocking member and the adjustable latch device. At the same time, this permits simple and reliable blocking of the action of the second follower on the blocking member when the latch device has adopted its latching state.

[0019] The lock device can comprise an encapsulated module unit which is mounted as an integrated unit in the lock housing and which accommodates and encloses those parts of the second latch member and of the coupling member that are in engagement with one another when the latch device has adopted its latching state. This makes it even more difficult to manipulate the latch device, and its blocking by the second follower, by insertion of manipulating tools into the lock housing.

[0020] In order to make it still more difficult to manipulate the lock device by inserting tools into the lock housing, the first follower and the blocking member can be received in the encapsulated module unit.

[0021] The latch device can comprise a manually operated actuation button by means of which the latch device can be activated in order to adopt its latching state by means of a subsequent movement of the lock bolt from its unlocked position to its locked position. This permits simple and reliable actuation of the latch device.

[0022] The actuation button can extend through a forend or faceplate arranged on the lock housing. This permits easy access to the actuation button, for example when leaving home by going out through the door on which the lock device is mounted.

[0023] In addition to being coupled to the blocking member, the first follower can also be coupled to the lock bolt for manoeuvring the lock bolt between its locked position and unlocked position.

[0024] Alternatively or in addition to the first follower, the second follower, in addition to being coupled to the blocking member, can also be coupled to the lock bolt for manoeuvring the lock bolt between its locked position and unlocked position.

[0025] Alternatively or in addition to the first and second followers, a third follower can be coupled to the lock bolt for manoeuvring the lock bolt between its locked position and unlocked position.

[0026] The first follower can expediently be a cylinder follower, the second follower a thumb turn follower, and the third follower a handle follower.

[0027] The lock device can comprise a bolt coupling member for driving the lock bolt between the locked position and the unlocked position, which bolt coupling member comprises means for coupling together with at least one bolt rod for manoeuvring at least one bolt arranged outside the housing and forming part of a multi-point lock. In this way, the lock device can be applied simply and reliably to many different types of multi-point locks.

[0028] Further objects and advantages of the invention will become clear from the following detailed description and from the claims.

Description of the figures

[0029] An illustrative embodiment of the invention is described below with reference to the figures, in which:

Figures 1-6 are plan views of a lock device according to one embodiment of the invention, in which certain parts have been removed, and show the lock device in different states.

Fig. 7 is a partially exploded perspective view in which parts of the lock device illustrated in Figures 1-6 are depicted on an enlarged scale.

Figures 8 and 9 are plan views on an enlarged scale, in which parts of the lock device illustrated in Figures 1-6 are shown after they have adopted different positions.

Detailed description of illustrative embodiments

[0030] In the illustrative embodiment of the invention shown in the figures, the lock device forms part of a multipoint lock of the espagnolette type. The lock device comprises a lock housing 1 which is formed by a first bent plate 2 and by a second bent plate (not shown). For the sake of clarity in the figures, one plate has been removed in order to show the interior of the lock housing. On a front side, the lock housing 1 is fixed to an faceplate 3 forming part of an espagnolette.

[0031] A first follower 10 in the form of a cylinder follower, a second follower 20 in the form of a thumb turn follower, and a third follower 30 in the form of a handle follower are received and rotatably mounted in the lock housing. A lock bolt 40 in the form of a swing bolt is rotatably mounted in the lock housing 1 and can be manoeuvred between a retracted unlocked position shown in Fig. 1 and a projecting locked position shown in Fig. 2. In the projecting locked position, the lock bolt 40 extends through openings that are formed in those parts of the bent plates 2 and of the faceplate 3 that are arranged on the front side of the lock housing. The third follower 30 is coupled in the usual way to a spring bolt 45. By means of a first bolt coupling member 50 and a second bolt coupling member (not shown), the third follower 30 is also coupled to the lock bolt 40 for manoeuvring the latter. In the example shown, the bolt coupling members 50 are formed by plate members which are arranged parallel to each other, are linearly displaceable and have a drive pin 51 cooperating with the lock bolt 40. For improved clarity, one bolt coupling member has been omitted from the figures. By means of the third follower 30, the two bolt coupling members 50 are linearly displaceable between an upper, unlocked position shown in Fig. 1 and a lower, locked position shown in Fig. 2. At their respective upper and lower ends, the two bolt coupling members 50 have coupling means 52 in the form of hooks for connection to bolt rods, dead bolt rods or pull rods (not shown) forming part of the espagnolette. The bolt rods are in turn coupled to dead bolts (not shown) which form part of the espagnolette and which can be, for example, end or side bolts and can be configured as wedge bolts, swing bolts, mushroom bolts or any other type of bolts.

[0032] The lock housing 1 has a front side, which is the side of the lock housing which bears against the faceplate 3 and which, in the figures, is represented by the lefthand side of the lock housing. The side of the lock housing 1 located opposite the front side is a rear side which, in the figures, is represented by the right-hand side of the lock housing.

[0033] When the lock device is assembled, a lock cylinder (not shown) is mounted on the lock housing 1 and is coupled to the first follower 10, a thumb turn (not shown) is coupled to the second follower 20, and a handle (not shown) is coupled to the third follower 30.

[0034] In Fig. 1, the lock is shown in a neutral state. In this state, the spring bolt 45 projects from and the lock bolt 40 is retracted into the lock housing 1. The bolt coupling members 50 are located in the upper, unlocked position. By turning the third follower 30 anti-clockwise, the two coupling members 50 are driven downwards into the locked position shown in Fig. 2, whereupon the lock bolt 40 is rotated clockwise to a projecting, locked position, in which position the lock bolt 40 is intended to engage with a strike plate (not shown) in a door jamb or the like. The lock has then adopted a locked state illustrated in Fig. 2.

[0035] By turning the third follower 30 clockwise from the locked state shown in Fig. 2, the bolt coupling members 50 are driven upwards into the unlocked position, whereupon the lock bolt 40, by means of the bolt coupling members 50, is rotated anti-clockwise to its retracted position. Thereafter, further turning of the third follower 30 brings the spring bolt 45 to a retracted position (not shown). The lock device has then adopted an unlocked state (not shown), in which either the lock bolt 40 or the spring bolt 45 engages with the strike plate. The door (not shown) or the like, on which the lock is fitted, can then be opened. From this position, the third follower 30 and the spring bolt 45 can return with a spring action to the positions shown in Fig. 1.

[0036] To permit secure blocking of the bolt coupling members 50 in the locked position, the lock device comprises means for blocking the coupling members 50 in their locked position and means for latching the blocking means in the blocking position. These means comprise an encapsulated module unit 60 of the type described in Swedish patent application SE 0950896-1, which is from the same applicant as the present application and which is incorporated herein by reference.

[0037] Referring first to Figures 1 and 7, the module

unit 60 is accommodated in the lock housing 1 and arranged on the rear side of the lock housing, i.e. at the greatest possible distance from the front side of the lock housing 1 provided with bolt and dead bolt openings. The module unit 60 comprises a module housing 61, which is formed by two module housing halves 61a, of which one has been omitted from the figures for clarity. The module housing halves 61a are composed of cast components of zinc. It is also possible, however, to form the module housing halves differently, for example of other cast metals or of reinforced polymer material. One module housing half 61a has projecting pins which, in the assembled position, are received in corresponding recesses (not shown) in the other module housing half (not shown). The pins are received in the corresponding recesses with a press-fit. In this way, a certain cohesion of the module housing during transport and during other handling of the unit is achieved. When the module unit 60 is fitted in the lock housing 1, the module housing halves 61a moreover are held constantly together by the plates 2 of the lock housing 1. The two module housing halves 61a have a number of inner recesses and together define an inner space.

[0038] The first follower 10 is received in the module unit 60 and has a driving projection 11. A rectilinearly movable blocking member 62 is received in a channel in the module housing halves 61a. The blocking member 62 has two downwardly projecting drive legs 63. By means of turning the first follower 10, it is possible, by the cooperation between the driving projection 11 and the drive legs 63, to move the blocking member 62 between a release position shown in Fig. 1 and a blocking position shown in Fig. 3. The bolt coupling members 50 comprise respective blocking projections (not shown) that extend into the module unit 60 through respective slits (not shown). When the blocking member 62 is in its release position, the blocking projections come free of the blocking member 62, and the bolt coupling members 50 are free to be moved. When the bolt coupling members 50 are located in their locked positions and the blocking member 62 is moved to the blocking position by means of the first follower, the blocking member 62 and the blocking projections cooperate such that movement of the bolt coupling members to their respective unlocked positions is blocked. In this way, the lock bolt 40 is also blocked in its projecting, locked position. The design and function of the blocking member 62, and also a function latching the blocking member 62, are described in detail in the abovementioned SE 0950896-1.

[0039] As can best be seen from Figures 7-9, the second follower 20 is coupled to the blocking member 62 by means of a coupling member which, in the example shown, consists of a rack element 70 and a carrier 71, which is rotatably mounted in the module unit 60. The second follower 20 has a toothed portion 21 which, in engagement with a corresponding toothed portion 72 on the rack element 70, can drive the latter rectilinearly. The rack element 70 has a drive recess 73 which, in engagement with a corresponding first drive recess 74 on the carrier 71, can drive the carrier 71 in rotation in the module unit 60. The carrier 71 also has two second drive recesses 75 which, in engagement with one of the drive legs 63 on the blocking member 62, can drive the blocking member 62 in rectilinear movement between the release position thereof and the blocking position thereof. In this way, it is possible to manoeuvre the blocking member 62 for movement to and fro between the release position and the blocking position by means of turning a thumb turn (not shown) coupled to the second follower 20. When the second follower 20 is turned anti-clockwise as in the figures, the blocking member 62 is driven to the blocking position, whereas clockwise turning of the second follower 20 drives the blocking member to the release position.

[0040] The lock device according to the present invention also comprises an adjustable latch device 80. Referring first to Figures 7-9, the latch device 80 comprises a manoeuvring sled 81 which is rectilinearly movable along the inner face of the front side of the lock housing 1. A manoeuvring button 82 projects from the manoeuvring sled 81 and extends through openings in the bent plates 2 of the lock housing and in the faceplate 3. A spring element 83 (Figures 1, 8 and 9) is arranged on the side of the manoeuvring sled 81 opposite the button. The spring element bears against the inner face of the bent plates 2 and in this way maintains the manoeuvring sled 81 in the position to which the latter has been driven manually by actuation of the manoeuvring button 82. The manoeuvring sled also comprises a lower driving projection 84, an upper driving projection 85 and two return recesses 86, of which only one can be seen in the figures.

[0041] A first movable latch member 87 is rotatably mounted on an axle 88 which is fixed in the lock housing 1. Two return arms 89 are likewise rotatably mounted on the axle 88, one on each side of the first movable latch member 87. A second movable latch member 90 in the form of a latch rod, spring-loaded by means of a compression spring 91, is received in a rectilinearly movable manner in a channel in the module unit 60. The second movable latch member 90 has a front driving end 92 and a rear latching end 93. By movement of the second movable latch member 90, the rear latching end 93 can be introduced into a latching recess 76, which is formed in the rack element 70. The second movable latch member 90 and the latching recess 76 are arranged such that, when the latching end 93 is in latching engagement with the latching recess, both the latching end 93 and the latching recess 76 are received and enclosed in the module unit 60. This makes manipulation of these parts difficult.

[0042] The function of the latch device 80 is described below with reference to Figures 1 and 4-9. In the starting position shown in Fig. 1, the lock bolt 40 is in the open position, the blocking member 62 is in the release position, and the latch device 80 has adopted a non-latching state. The manoeuvring sled 81 is located in an upper, inactivated position.

[0043] By moving the manoeuvring sled 81 downwards by means of the manoeuvring button 82, the first movable latch member 87 is driven to turn anti-clockwise by means of the upper 84 and lower 84 driving projections in contact with corresponding surfaces on the first movable latch member 87. The first movable latch member 87 is in contact with the driving end 92 of the second movable latch member 90 and drives the latter a distance in the direction towards the rack element 70. The latch device has then adopted an activated state shown in Fig. 4. In this state, the latching end 93 of the second movable latch element 90 is not in engagement with the latching recess 76 on the rack element 70. By virtue of the fact that the first movable latch member 87 bears against the upper driving projection 85 of the manoeuvring sled 81, at a certain angle, the compression spring 91, under the action of the second movable latch member 90, cannot press the first movable latch member 87 back in the clockwise direction.

[0044] From the state shown in Fig. 4, the third follower 30 can be manoeuvred by means of the handle (not shown) so as to drive the lock bolt to the projecting, locked position shown in Fig. 5 via the bolt coupling members 50. During the rotation movement of the lock bolt 40, a blocking pin 41 arranged on the lock bolt 40 comes into contact with the first movable latch member 87 and drives the latter further in the clockwise direction. The first movable latch member 87 drives the second movable latch member 90 to further movement in the rearward direction, and the latching end 93 comes into latching engagement with the latching recess 76 of the rack element 70. The bolt coupling members 50 are also in engagement with ends of the return arms 89, and the other ends of the return arms are in engagement with the return recesses 86 on the manoeuvring sled 81. During the movement of the bolt coupling members 50 in the downward direction, the manoeuvring sled 81 is thus returned to its upper starting position.

[0045] The latch device has then adopted a latching state shown in Fig. 5. In this state of the latch device, it is no longer possible to manoeuvre the blocking member by means of the second follower 20 or by means of the thumb turn coupled to the latter. However, in the state shown in Fig. 5, the blocking member 63 is still located in its release position, in which it is possible, by means of the third follower 30, to return the lock bolt to the unlocked, retracted position.

[0046] From the state shown in Fig. 5, it is also possible instead to manoeuvre the first follower 10 such that the blocking element 63 adopts its blocking position. The lock device then adopts the locked, blocked and latched state shown in Fig. 6. This state represents the state of highest security for the lock device. From this state, the lock device can be adjusted to any other state only if, by means of a correct key inserted into the lock cylinder coupled to the first follower 10, the blocking element 63 is first driven from the blocking position to the release position. By virtue of the latching engagement between the latching end 93 of the second movable latch member and the latching recess 76 on the rack 70, it is not possible, in the state shown in Fig. 6, to manoeuvre the blocking member 62 by means of the second follower 20 or by means of a thumb turn connected to the latter. In order to cancel this latching of the second follower 20, it is necessary, by virtue of the mechanical cooperation of the first movable latch member 97 with the blocking pin 45 of the lock bolt 40, to first return the lock bolt from the locked position to the unlocked position. The whole structure of the lock device is designed to prevent unauthorized return of the lock bolt to the unlocked position. Thus, according to the invention, the latch device is maintained, in the state in which it latches the second follower 20, with the same degree of safety by which the lock bolt is maintained in its own locked position.

[0047] From the state shown in Fig. 6, the lock device is returned to the state shown in Fig. 1 by returning the blocking member 62 to the release position by means of the first follower and then by manoeuvring the third follower 30 such that the bolt coupling members 50 and the lock bolt 40 return to their locked positions. During this return movement, the compression spring 91 presses the second movable latch member 90 forwards, and the latching end 93 disengages from the latching recess 76 on the rack element. The driving end 92 of the second movable latch member also returns the first movable latch member 87 in the clockwise direction to the starting position shown in Fig. 1. Thereafter, it is once again possible to use the second follower 20, and a thumb turn coupled to the latter, in order to manoeuvre the blocking element 62.

[0048] Illustrative embodiments of the invention have been described above. The invention is not limited to these embodiments and can be freely varied within the scope of the attached patent claims. The lock can constitute or form part of a so-called single-point lock having one or more bolts accommodated in the lock housing, or of a so-called multi-point lock having one or more bolts arranged outside the lock housing. For example, the hooks arranged on the coupling member for connection to bolt rods in an espagnolette can be omitted. In this case, the lock can comprise one or more bolts or dead bolts arranged in the lock housing. Regardless of whether the lock is designed to be connected to an espagnolette or not, the bolts or dead bolts forming part of the lock can be of different types and configurations. Examples of such bolts are turning bolts or swing bolts, rectilinearly movable bolts, hook bolts, mushroom bolts and spring bolts. Although the second follower has been described above as a thumb turn follower, it is possible for this follower to be coupled to some other type of manually or electrically driven manoeuvring member. Examples of such manoeuvring members are lock cylinders, handles, electric motors, solenoids and similar devices designed to drive the second follower. In other embodiments not shown here, the first and/or the second follower can be designed to drive the movement of the lock bolt between the locked position and unlocked position thereof. The

blocking member can be designed in a number of different ways and, instead of being configured as a separate movable member, can for example form part of the coupling members between the first and/or second follower for manoeuvring the movement of the lock bolt.

Claims

1. Lock device comprising a lock housing (1) which houses:

- a lock bolt (40) which is movable between an unlocked position and a locked position,
- a first follower (10),
- a second follower (20),
- a blocking member (62) which is coupled to the first (10) and to the second (20) follower and which, by means of each of the first (10) and second (20) follower, can be manoeuvred between a blocking position, in which the lock bolt (40) is blocked in its locked position, and a release position, in which the lock bolt (40) is movable to the unlocked position,
- a latch device (80) which is adjustable between a latching state, in which manoeuvring of the blocking member (62) by means of the second follower (20) from the blocking position to the release position is blocked, and a non-latching state, in which manoeuvring of the blocking member (62) by means of the second follower (20) from the blocking position to the release position is permitted,

wherein the latch device (80) is arranged such that, when the lock bolt (40) is located in its locked position and the latch device (80) has adopted its latching state, by mechanical cooperation with the lock bolt (40), the latch device (80) is blocked against being adjusted from its latching state to its non-latching state.

2. Lock device according to Claim 1, in which the latch device (80) comprises a first movable latch member (87) which, when the lock bolt (40) is located in its locked position and the latch device (80) has adopted its latching state, by bearing against the lock bolt (40), blocks the latch device (80) against being adjusted from its latching state to its non-latching state.

3. Lock device according to Claim 1 or 2, in which the latch device (80) comprises a second movable latch member (90) which, when the latch device (80) has adopted its latching state, is in engagement with a coupling member (70) that connects the second follower (20) to the blocking element (62).

4. Lock device according to Claim 3, comprising an encapsulated module unit (60) which is mounted as an integrated unit in the lock housing (1) and which accommodates and encloses those parts (76, 93) of the second latch member (90) and of the coupling member (70) that are in engagement with one another when the latch device (80) has adopted its latching state.

5. Lock device according to Claim 4, in which the first follower (10) and the blocking member (62) are received in the encapsulated module unit (60).

6. Lock device according to any of Claims 1-5, in which the latch device (80) comprises a manually operated button (82) by means of which the latch device (80) can be activated in order to adopt its latching state by means of a subsequent movement of the lock bolt (40) from its unlocked position to its locked position.

7. Lock device according to Claim 6, in which the button (82) extends through a forend or faceplate (3) arranged on the lock housing (1).

8. Lock device according to any of Claims 1-7, in which the lock bolt (40) can be manoeuvred between its locked position and unlocked position by means of the first follower (10).

9. Lock device according to any of Claims 1-8, in which the lock bolt (40) can be manoeuvred between its locked position and unlocked position by means of the second follower (20).

10. Lock device according to any of Claims 1-9, in which the lock bolt (40) can be manoeuvred between its locked position and unlocked position by means of a third follower (30).

11. Lock device according to any of Claims 1-10, in which the first follower (10) is a cylinder follower.

12. Lock device according to any of Claims 1-11, in which the second follower (20) is a thumb turn follower.

13. Lock device according to any of Claims 10-12, in which the third follower (30) is a handle follower.

14. Lock device according to any of Claims 1-13, comprising a bolt coupling member (50) for driving the lock bolt (40) between the locked position and the unlocked position, which bolt coupling member (50) comprises means (52) for coupling together with at least one bolt rod for manoeuvring at least one bolt arranged outside the housing and forming part of a multi-point lock.

Patentansprüche

1. Verriegelungsvorrichtung, die ein Verriegelungsgehäuse (1) aufweist, das Folgendes einhaust:

   - unverriegelten Position und einer verriegelten Position (40) beweglich ist,
   - einen ersten Mitnehmer (10),
   - einen zweiten Mitnehmer (20),
   - ein Sperrglied (62), das mit dem ersten (10) und dem zweiten (20) Mitnehmer gekoppelt ist, und das mittels jeweils des ersten (10) und des zweiten (20) Mitnehmers zwischen einer Sperrposition, in der der Verriegelungsbolzen (40) in seiner verriegelten Position gesperrt ist, und einer Freigabeposition, in der der Verriegelungsbolzen (40) in die unverriegelte Position beweglich ist, bewegt werden kann,
   - eine Einrastvorrichtung (80), die zwischen einem Einrastzustand, bei dem das Bewegen des Sperrglieds (62) von der Sperrposition zu der Freigabeposition mittels des zweiten Mitnehmers (20) gesperrt ist, und einen Nicht-Einrastzustand, bei dem das Bewegen des Sperrglieds (62) von der Sperrposition zu der Freigabeposition mittels des zweiten Mitnehmers (20) gestattet ist, verstellbar ist,

   wobei die Einrastvorrichtung (80) derart angeordnet ist, dass die Einrastvorrichtung (80) durch mechanisches Zusammenwirken mit dem Verriegelungsbolzen (40) gegen Verstellen von ihrem Einrastzustand in ihren Nicht-Einrastzustand gesperrt ist, wenn sich der Verriegelungsbolzen (40) in seiner verriegelten Position befindet und die Einrastvorrichtung (80) ihren Einrastzustand eingenommen hat.

2. Verriegelungsvorrichtung nach Anspruch 1, wobei die Einrastvorrichtung (80) ein erstes bewegliches Einrastglied (87) aufweist, das die Einrastvorrichtung (80) durch entgegenwirken gegen den Verriegelungsbolzen (40) gegen Verstellen von ihrem Einrastzustand in ihren Nicht-Einrastzustand sperrt, wenn sich der Verriegelungsbolzen (40) in seiner verriegelten Position befindet und die Einrastvorrichtung ihren Einrastzustand eingenommen hat.

3. Verriegelungsvorrichtung nach Anspruch 1 oder 2, wobei die Einrastvorrichtung (80) ein zweites bewegliches Einrastglied (90) aufweist, das sich in Eingriff mit einem Kopplungsglied (70), das den zweiten Mitnehmer (20) mit dem Sperrglied (62) verbindet, befindet, wenn die Einrastvorrichtung (80) ihren Einrastzustand eingenommen hat.

4. Verriegelungsvorrichtung nach Anspruch 3, die eine eingehauste Moduleinheit (60) aufweist, die als eine integrierte Einheit in dem Verriegelungsgehäuse (1) befestigt ist, und die diese Teile (76, 93) des zweiten Einrastglieds (90) und des Kopplungsglieds (70), die in Eingriff miteinander stehen, wenn die Einrastvorrichtung (80) ihren Einrastzustand eingenommen hat, aufnimmt und einhaust.

5. Verriegelungsvorrichtung nach Anspruch 4, wobei der erste Mitnehmer (10) und das Sperrglied (62) in der eingehausten Moduleinheit (60) aufgenommen sind.

6. Verriegelungsvorrichtung nach einem der Ansprüche 1 bis 5, wobei die Einrastvorrichtung (80) einen manuell betätigten Knopf (82) aufweist, mittels dessen die Einrastvorrichtung (80) aktiviert werden kann, um ihren Einrastzustand mittels einer nachfolgenden Bewegung des Verriegelungsbolzens (40) von seiner unverriegelten Position in seine verriegelte Position einzunehmen.

7. Verriegelungsvorrichtung nach Anspruch 6, wobei sich der Knopf (82) durch die Stulpseite bzw. Frontplatte (3), die auf dem Verriegelungsgehäuse (1) angeordnet ist, erstreckt.

8. Verriegelungsvorrichtung nach einem der Ansprüche 1 bis 7, wobei der Verriegelungsbolzen (40) mittels des ersten Mitnehmers (10) zwischen seiner verriegelten Position und unverriegelten Position bewegt werden kann.

9. Verriegelungsvorrichtung nach einem der Ansprüche 1 bis 8, wobei der Verriegelungsbolzen (40) mittels des zweiten Mitnehmers (20) zwischen seiner verriegelten Position und unverriegelten Position bewegt werden kann.

10. Verriegelungsvorrichtung nach einem der Ansprüche 1 bis 9, wobei der Verriegelungsbolzen (40) mittels eines dritten Mitnehmers (30) zwischen seiner verriegelten Position und unverriegelten Position bewegt werden kann.

11. Verriegelungsvorrichtung nach einem der Ansprüche 1 bis 10, wobei es sich bei dem ersten Mitnehmer (10) um einen Zylindermitnehmer handelt.

12. Verriegelungsvorrichtung nach einem der Ansprüche 1 bis 11, wobei es sich bei dem zweiten Mitnehmer (20) um einen Knaufmitnehmer handelt.

13. Verriegelungsvorrichtung nach einem der Ansprüche 10 bis 12, wobei es sich bei dem dritten Mitnehmer (30) um einen Klinkenmitnehmer handelt.

14. Lockvorrichtung nach einem der Ansprüche 1 bis 13, die ein Bolzenkoppelglied (50) zum Antreiben des Verriegelungsbolzens (40) zwischen der verriegel-

ten Position und der unverriegelten Position aufweist, wobei das Bolzenkoppelglied (50) Mittel (52) zum gemeinsamen Koppeln mit mindestens einer Bolzenstange zum Bewegen mindestens eines Bolzens, der außerhalb des Gehäuses angeordnet ist und Teil der Mehrpunktverriegelung bildet, aufweist.

Revendications

1. Dispositif de verrouillage comprenant un boîtier de verrouillage (1) qui loge :

- un pêne de serrure (40) qui est mobile entre une position déverrouillée et une position verrouillée,
- un premier galet (10),
- un deuxième galet (20),
- un membre de blocage (62) qui est couplé aux premier (10) et deuxième (20) galets et qui, au moyen des premier (10) et deuxième (20) galets peut être manoeuvré entre une position de blocage dans laquelle le pêne de serrure (40) est bloqué dans sa position verrouillée, et une position libérée dans laquelle le pêne de serrure (40) est mobile vers la position déverrouillée,
- un dispositif de fixation (80) qui est ajustable entre un état de fixation dans lequel la manoeuvre du membre de blocage (62) au moyen du deuxième galet (20) de la position de blocage à la position libérée est bloquée, et un état de non-fixation dans lequel la manoeuvre du membre de blocage (62) au moyen du deuxième galet (20) de la position de blocage à la position libérée est autorisée,

dans lequel le dispositif de fixation (80) est agencé de telle façon que lorsque le pêne de serrure (40) est situé dans sa position verrouillée et que le dispositif de fixation (80) a adopté son état de fixation, par coopération mécanique avec le pêne de serrure (40), le dispositif de fixation (80) est bloqué contre un ajustement de son état de fixation à son état de non-fixation.

2. Dispositif de verrouillage selon la revendication 1, dans lequel le dispositif de fixation (80) comprend un premier membre de fixation mobile (87) qui, lorsque le pêne de serrure (40) est situé dans sa position verrouillée et que le dispositif de fixation (80) a adopté son état de fixation, en s'appuyant contre le pêne de serrure (40), bloque le dispositif de fixation (80) contre un ajustement de son état de fixation à son état de non-fixation.

3. Dispositif de verrouillage selon la revendication 1 ou 2, dans lequel le dispositif de fixation (80) comprend un deuxième membre de fixation mobile (90) qui, lorsque le dispositif de fixation (80) a adopté son état de fixation, est en engagement avec un membre de couplage (70) qui connecte le deuxième galet (20) à l'élément de blocage (62).

4. Dispositif de verrouillage selon la revendication 3, comprenant une unité de module encapsulé (60) qui est montée en tant qu'une unité intégrée dans le boîtier de verrouillage (1) et qui reçoit et entoure les parties (76, 93) du deuxième membre de fixation (90) et du membre de couplage (70) qui sont en engagement l'une avec l'autre lorsque le dispositif de fixation (80) a adopté son état de verrouillage.

5. Dispositif de verrouillage selon la revendication 4, dans lequel le premier galet (10) et le membre de blocage (62) sont reçus dans l'unité de module encapsulé (60).

6. Dispositif de verrouillage selon l'une quelconque des revendications 1-5, dans lequel le dispositif de fixation (80) comprend un bouton à actionnement manuel (82) au moyen duquel le dispositif de fixation (80) peut être activé afin qu'il adopte son état de verrouillage au moyen d'un mouvement consécutif du pêne de serrure (40) de sa position déverrouillée à sa position verrouillée.

7. Dispositif de verrouillage selon la revendication 6, dans lequel le bouton (82) s'étend à travers un devant ou une têtière (3) agencée sur le boîtier de verrouillage (1).

8. Dispositif de verrouillage selon l'une quelconque des revendications 1-7, dans lequel le pêne de serrure (40) peut être manoeuvré entre sa position verrouillée et sa position déverrouillée au moyen du premier galet (10) .

9. Dispositif de verrouillage selon l'une quelconque des revendications 1-8, dans lequel le pêne de serrure (40) peut être manoeuvré entre sa position verrouillée et sa position déverrouillée au moyen du deuxième galet (20).

10. Dispositif de verrouillage selon l'une quelconque des revendications 1-9, dans lequel le pêne de serrure (40) peut être manoeuvré entre sa position verrouillée et sa position déverrouillée au moyen d'un troisième galet (30).

11. Dispositif de verrouillage selon l'une quelconque des revendications 1-10, dans lequel le premier galet (10) est un galet à cylindre.

12. Dispositif de verrouillage selon l'une quelconque des revendications 1-11, dans lequel le deuxième galet (20) est un galet à barrette tournante.

13. Dispositif de verrouillage selon l'une quelconque des revendications 10-12, dans lequel le troisième galet (30) est un galet à poignée.

14. Dispositif de verrouillage selon l'une quelconque des revendications 1-13, comprenant un membre de couplage de pêne (50) pour entraîner le pêne de serrure (40) entre la position verrouillée et la position déverrouillée, lequel membre de couplage de pêne (50) comprend un moyen (52) pour un couplage conjointement avec au moins une tige de pêne pour manoeuvrer au moins un pêne agencé hors du boîtier et faisant partie d'un verrou multi-points.

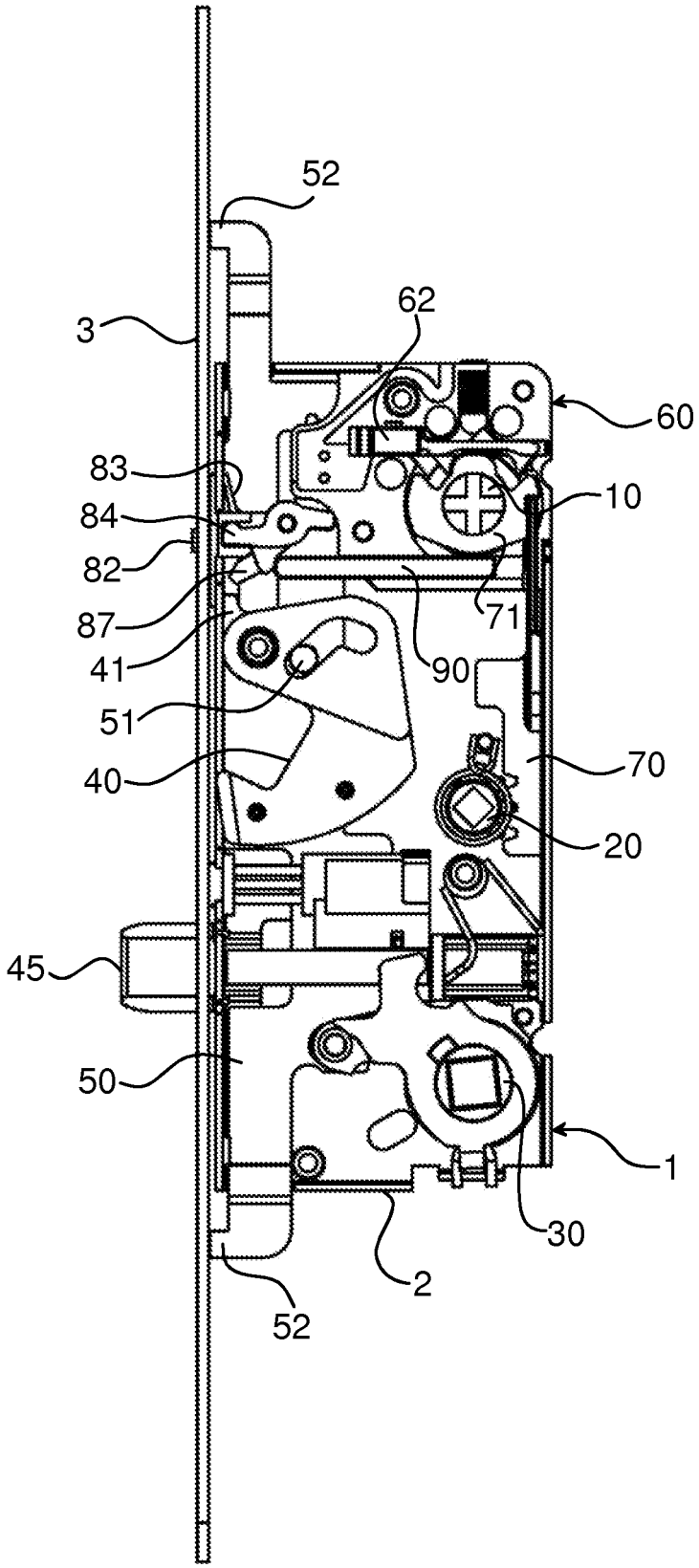


Fig. 1

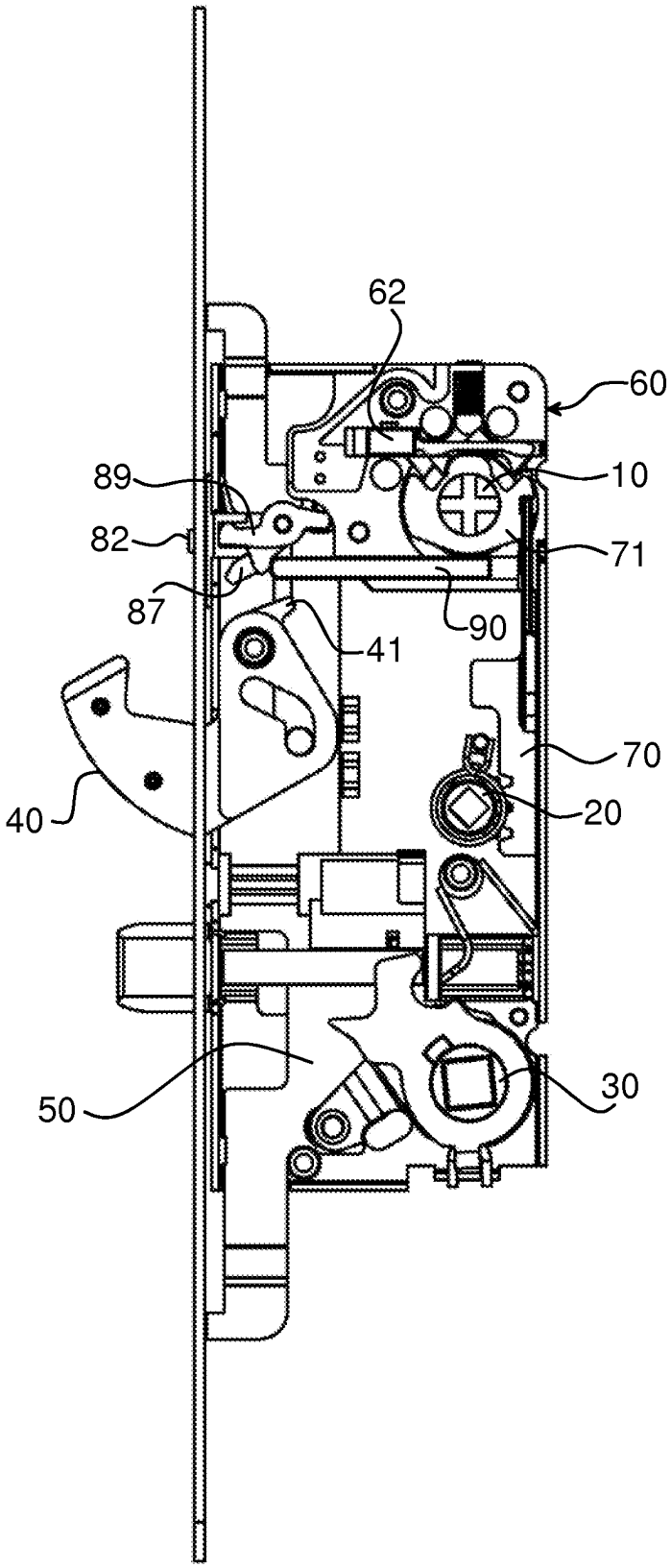


Fig. 2

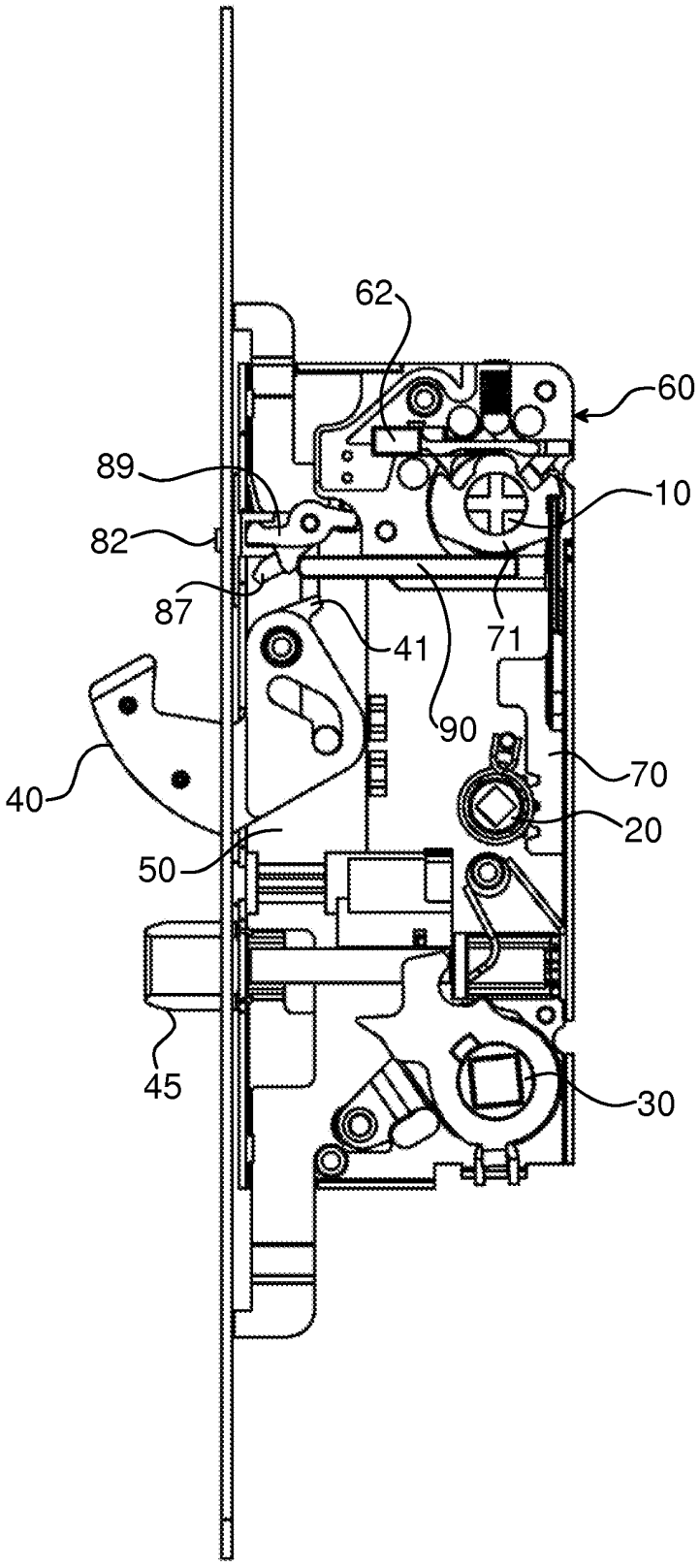


Fig. 3

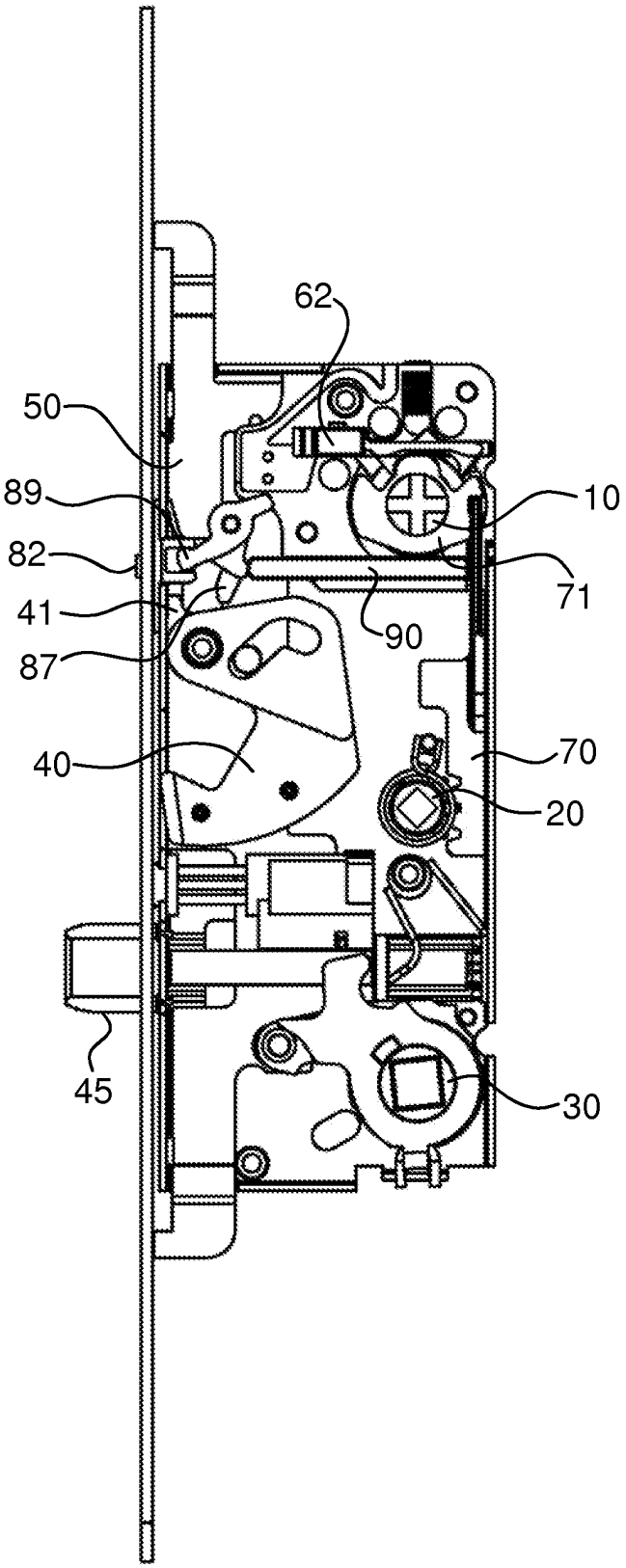


Fig. 4

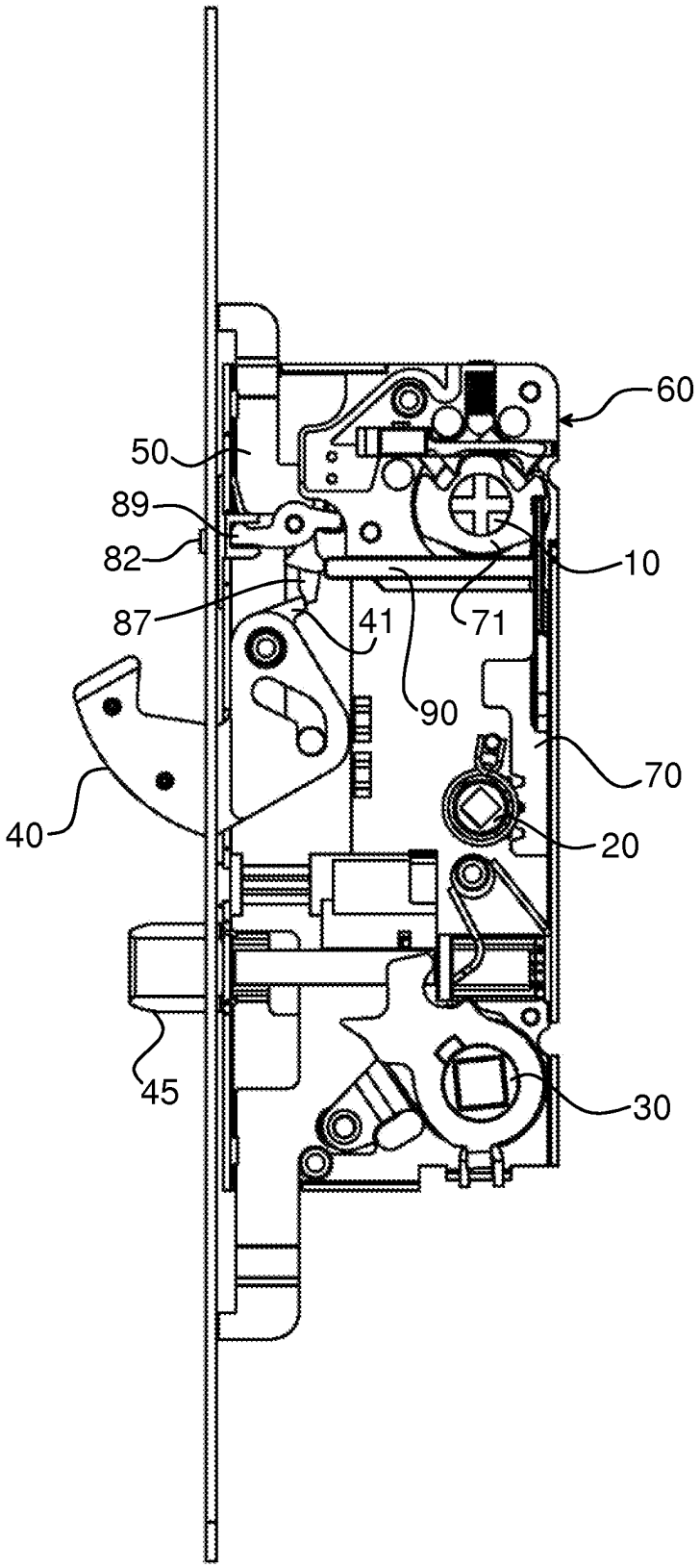


Fig. 5

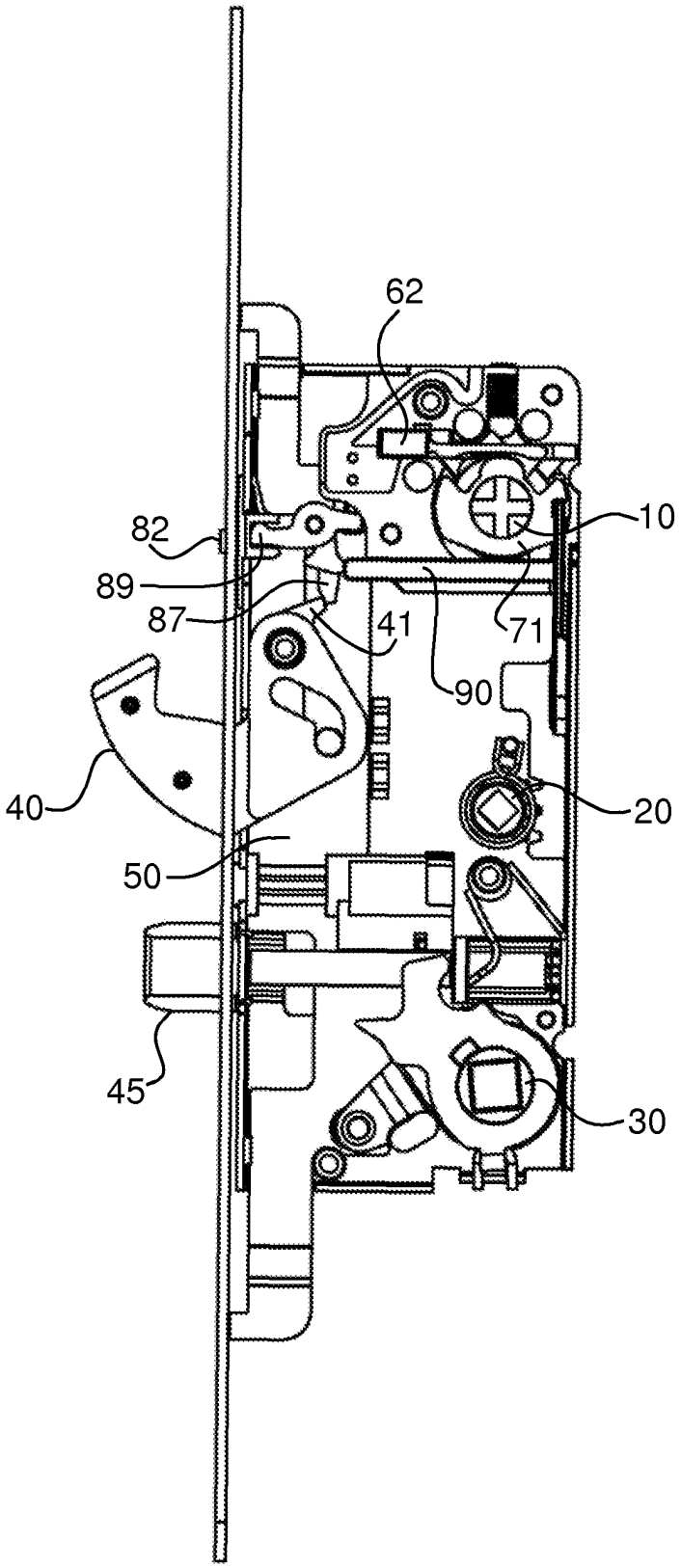


Fig. 6

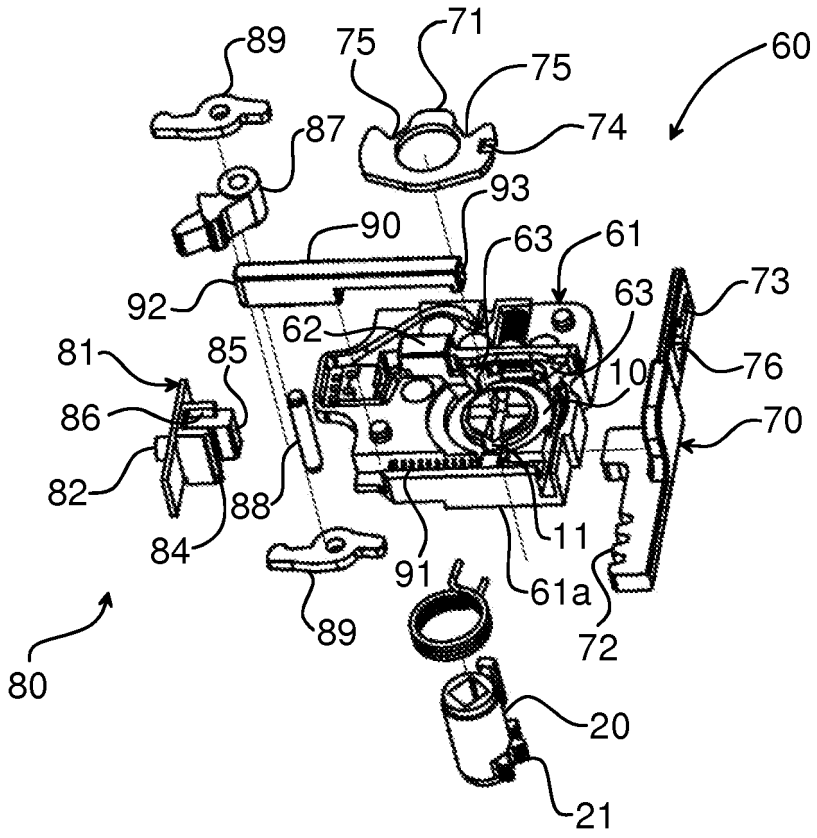

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Fig. 7

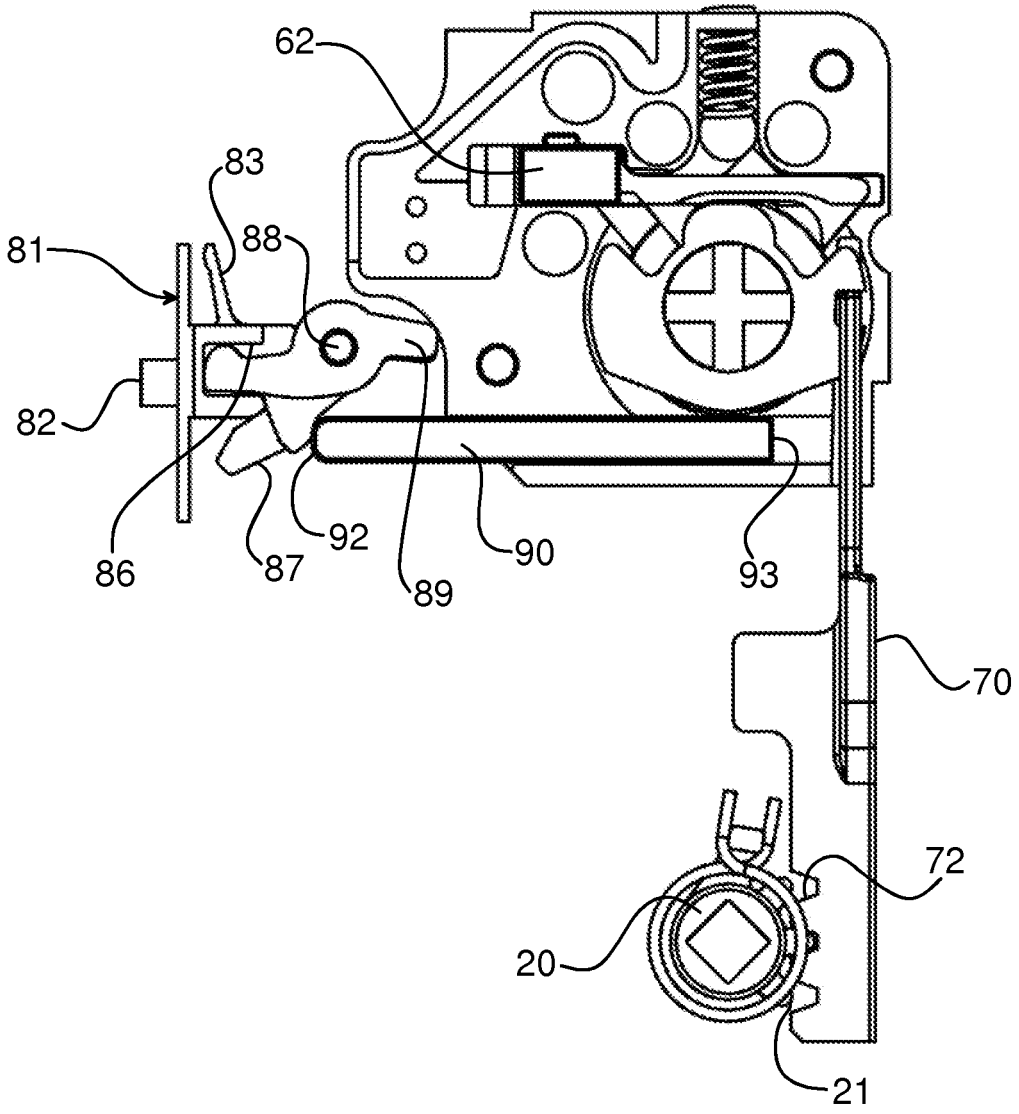


Fig. 8

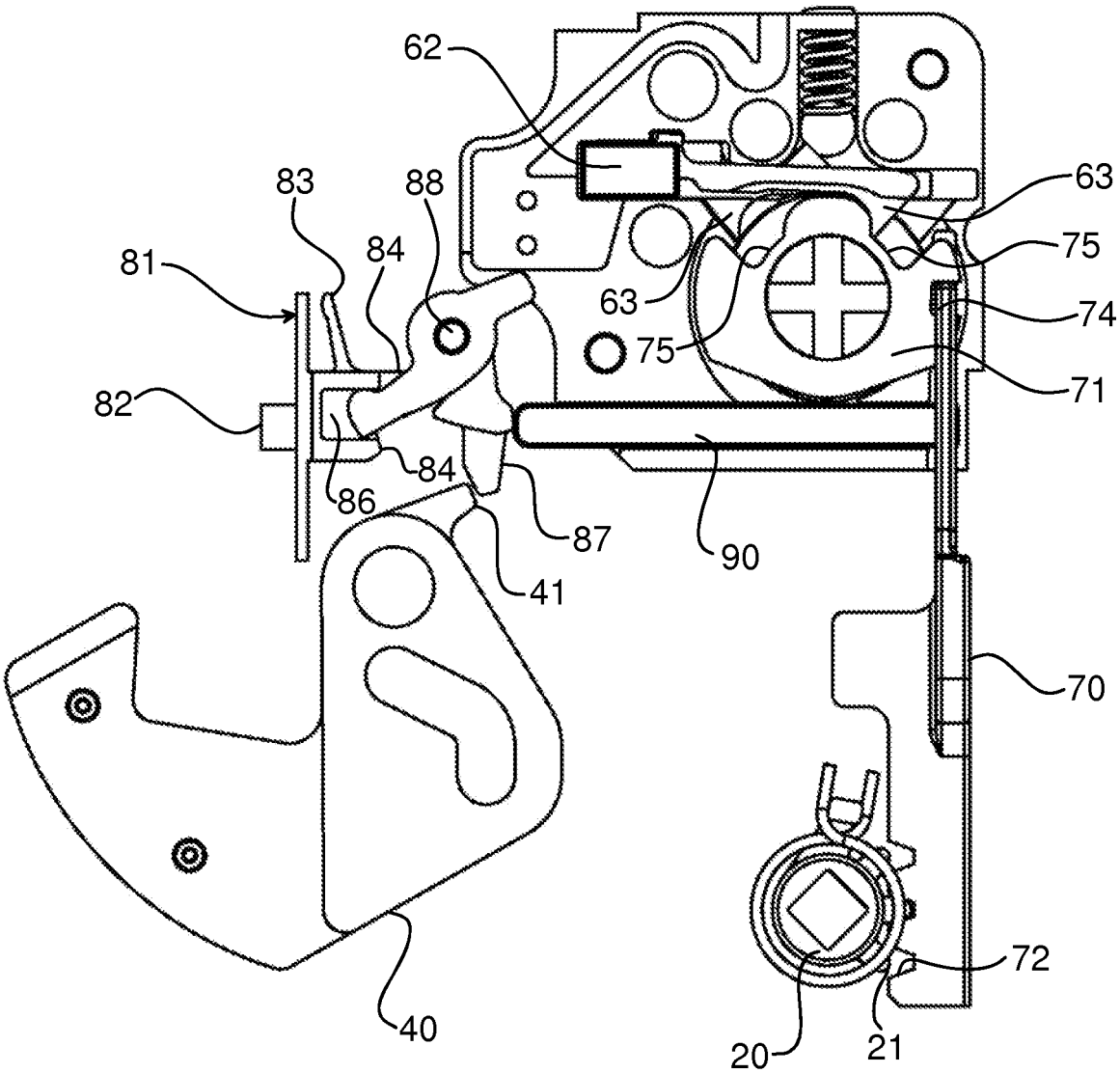


Fig. 9

REFERENCES CITED IN THE DESCRIPTION

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