

(19)



(11)

EP 4 202 159 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:

22.01.2025 Bulletin 2025/04

(21) Application number: **21217783.6**

(22) Date of filing: **27.12.2021**

(51) International Patent Classification (IPC):
E05B 13/10^(2006.01)

(52) Cooperative Patent Classification (CPC):
E05B 13/10; E05B 17/002; E05B 35/008;
E05C 9/041

(54) **HANDLE LOCK ASSEMBLY**

GRIFFSPERRANORDNUNG

ENSEMBLE DE VERROUILLAGE DE POIGNÉE

(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

(43) Date of publication of application:

28.06.2023 Bulletin 2023/26

(73) Proprietor: **Mesan Kilit Anonim Sirketi**

34570 Istanbul (TR)

(72) Inventor: **CAN, Mustafa**
Istanbul (TR)

(74) Representative: **Genç İlhan, Oznur**
Istanbul Patent A.S.
Plaza 33, Buyukdere Cad. No: 33/16
Sisli
34381 Istanbul (TR)

(56) References cited:

CN-A- 104 005 600 DE-U1- 20 107 170
TR-U5- 201 904 289

EP 4 202 159 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Technical Field of the Invention

[0001] The present invention relates to a linear acting handle lock assembly with an improved sealing feature.

Background of the Invention

[0002] It is known in the art that handle lock assembly structures, which are suitable for linear movement and have a handle that the user can move in the vertical direction, have been used for many years. Such handle lock assemblies are exposed to external factors, especially in the open air, and the working efficiency thereof may decrease as a result of rain, heat, temperature, etc.

[0003] A prior art publication in the technical field of the invention may be referred to as EP2476825 (A2), which discloses a lock mechanism comprising a main body accommodating a handle. Rotation of said handle activates longitudinal rods movable on a locking and unlocking direction with respective slots. Rotation of said handle is allowed upon operation of two locks in a sequence according to the present invention.

[0004] Another prior art publication in the technical field of the present invention may be referred to as TR 2019 04289 U5 among others, the document disclosing a lever lock for use in electrical-electronic cabinets, and cabinets, comprising a housing and a lever embedded in said housing and connected to said housing by means of a locking adapter to limit movement on said housing. The document further discloses that a sliding plate having a rotary wheel is disposed on the rear side of the sliding plate and in contact with internal gears formed on at least one inner edge of the rear side of the sliding plate.

[0005] Another prior art publication in the technical field of the present invention may be referred to as DE 201 07 170 111 among others, the document disclosing a bar lock for a lever bar lock for mounting in one or two rectangular openings in a thin wall, such as a door leaf. The document further discloses that a lock case that can be placed on one (inner) side of the door leaf and has devices for the axially displaceable mounting of at least one locking bar, and a pinion whose teeth mesh with matching perforations, incisions, indentations, or serrations of corresponding locking rod(s).

[0006] This type of vertical handle-operated lock assemblies may not exhibit sufficient resistance against sealing. Especially undesirable situations such as wetting and dusting of the gear structure to which the movement is transferred may reduce the working efficiency of the lock. There is a need for the handle-operated lock assemblies that will meet the increasing demand for hygiene in recent years.

Objects of the Invention

[0007] An object of the present invention is to provide a

handle lock assembly with sealing feature.

[0008] Another object of the present invention is to provide a handle lock assembly which is produced from material which does not accumulate dirt and bacteria in particular to meet specified hygiene standards.

[0009] Another object of the present invention is to provide a long-lasting and durable handle lock assembly. Thanks to the sealing structure, the proposed handle lock assembly prevents dirt formation while ensuring impermeability.

Summary of the Invention

[0010] The invention relates to a handle lock assembly for a cabinet door according to claim 1. The handle lock assembly comprising a main body having a handle housing extending along a longitudinal axis of the handle lock assembly; a handle provided within the handle housing and adapted to move between an unlocked position in which the handle is lifted from the handle housing and a locked position in which the handle is substantially within the handle housing; a lock plug provided at a lock plug housing of the handle, having a spring-biased lock cam adapted to lock the handle within the handle housing in the locked position. Said handle lock assembly comprises at least one pivotable mounted handle wheel being rotatable within the main body when the handle is lifted; at least one rack gear and at least one pinion gear (38) in communication with the handle wheel so as to convert a rotational movement from the handle wheel to a linear movement wherein the pinion gear is attached to a transmission bar for rotating; and a base plate attached to the main body for substantially covering an open bottom end of the main body.

Brief Description of the Drawings

[0011] The handle lock assembly which is the subject of the present invention is illustrated in the accompanying drawings for better understanding thereof, which drawings are only attached for better explaining the present invention and are not limiting the invention.

Figure 1 is an exploded view of a handle lock assembly according to the present invention.

Figure 2a is a perspective view of the handle lock assembly in a closed state according to the present invention.

Figure 2b is a perspective view of the handle lock assembly wherein the handle is brought into an open position according to the present invention.

Figure 3a is a perspective view of the handle lock assembly wherein the handle is lifted and the handle lock assembly is brought into an open position according to the present invention.

Figure 3b is a top perspective view of the handle lock assembly shown in Fig. 3a.

Figure 4 is a partially exploded view of the handle

lock assembly according to the present invention. Figure 5a is a perspective view of the handle lock assembly in a closed position wherein a suitable key is attached to a locking plug according to the present invention.

Figure 5b is a cross-sectional view of the handle lock assembly shown in Fig. 5a.

Figure 6a is a perspective view of the handle lock assembly in an open position wherein the suitable key is rotated, according to the present invention.

Figure 6b is a cross-sectional view of the handle lock assembly shown in Fig. 6a.

Figure 7a is a partial perspective view of the mid-sectioned state of the handle lock assembly where the handle is in a closed position, according to the present invention.

Figure 7b is a partial perspective view of the mid-sectioned state of the handle lock assembly wherein the handle is lifted and in an open position, according to the present invention.

Figure 8 is a partial perspective view of the mid-sectioned state of the handle lock assembly wherein the handle is in a locked position and the circumferentially placed gasket is pressed, according to the present invention.

Figure 9 is a perspective view of a rack gear of the handle lock assembly according to the present invention.

Detailed Description of the Invention

[0012] The invention will now be explained in detail in this section with reference to the accompanying drawings and the list of reference numerals used in the appended drawings is as follows;

- 10. Handle
- 11. Main body sealing member
- 12. Lock plug housing
- 13. Attachment portion
- 14. Outer casing
- 15. Handle housing
- 20. Main body
- 21. Gear cover
- 22. Support member
- 23. Joint member
- 24. Guiding portion
- 25. Bottom end
- 30. Base plate
- 31. Rack gear
- 32. Upper tooth set
- 33. Rack Opening
- 34. Inner tooth set

- 35. Handle wheel
- 36. Connection member
- 37. Transmission bar
- 38. Pinion gear
- 5 39. Bottom sealing member
- 40. Lock plug
- 41. Engagement protrusion
- 10 42. Lock cam
- 43. Spring
- 50a. Bottom male cover
- 50b. Bottom female cover
- 15 51. First longitudinal rod
- 52. Second longitudinal rod
- 53. Rotation gear
- 54. Engagement slot
- 20 100. Handle lock assembly
- X Longitudinal axis of the handle lock assembly

The present invention relates to a handle lock assembly (100) for a cabinet door. The proposed handle lock assembly (100) comprises a main body (20) having a handle housing (15) extending along a longitudinal axis (X) of the handle lock assembly (100); a handle (10) provided within the handle housing (15) and adapted to move between an unlocked position in which the handle (10) is lifted from the handle housing (15) and a locked position in which the handle (10) is substantially within the handle housing (15); a lock plug (40) provided at a lock plug housing (12) of the handle (10), having a spring-biased lock cam (42) adapted to lock the handle (10) within the handle housing (15) in the locked position. Said handle lock assembly (100) comprises at least one pivotable mounted handle wheel (35) being rotatable within the handle housing (15) when the handle (10) is lifted; at least one rack gear (31) and at least one pinion gear (38) in communication with the handle wheel (35) so as to convert a rotational movement from the handle wheel (35) to a linear movement wherein the pinion gear (38) is attached to a transmission bar (37), and a base plate (30) attached to the main body (20) for substantially covering an open bottom end (25) of the main body (20). With this arrangement, the handle lock assembly (100) is almost fully closed and is arranged to be resistant to external factors. One of the greatest advantages of the invention is that the handle lock assembly (100) is completely closed in order to impart a sealing feature. The base plate (30) forms the base of the handle lock assembly (100) and closes the bottom of the handle lock assembly (100). The handle lock assembly (100) is specially produced from material that does not accumulate dirt and bacteria in particular to meet specified hygiene standards.

[0013] Referring to Fig. 1, the base plate (30) has an at least partly circumferentially arranged and outwardly

protruded bottom sealing member (39). Accordingly, the bottom sealing member (39) extends completely circumferentially to cover the lateral sides of the base plate (30). The bottom sealing member (39) is adapted to be in contact with a planar surface of the cabinet door. Thus, when the handle lock assembly (100) is attached to the cabinet, the bottom sealing member (39) is pressed against the planar surface of the cabinet door and the sealing member (39) is squeezed thereby obtaining fluid-tightness thereof. In a possible embodiment, the bottom sealing member (39) can be an overmolded gasket and extends radially outwardly beyond the lower surface of the base plate (30). The base plate (30) is a separate part and is attached to the main body (20) with a plurality of connection members.

[0014] The present invention also proposes an improved gear system for the handle lock assembly (100) which offers an easier opening and closing and requires less contact. According to Fig. 1 and 9, the rack gear (31) has at least one upper tooth set (32) in mechanical communication with the handle wheel (35) and at least one inner tooth set (34) in mechanical communication with the pinion gear (38). Referring to Fig. 9, the upper tooth set (32) has a plurality of teeth, preferably 3 teeth and the inner tooth set (34) has a plurality of teeth, preferably 5 or 6 teeth. The numbers and the shapes of the teeth can vary with respect to the handle wheel (35) and the pinion gear (38). The inner tooth set (34) is provided at an inner lateral surface of the rack opening (33) as can be seen in Fig. 9. The location of the inner tooth set (34) in the rack opening (33) can also vary.

[0015] Referring to Fig. 1, the handle lock assembly (100) has two handle wheels (35) in mechanical communication with corresponding upper tooth sets (32) to move the rack gear (31) with respect to the longitudinal axis (X) of the handle lock assembly (100). The handle wheels (35) can be formed as a quarter-shaped gear wheel spaced apart from each other.

[0016] Referring to Fig. 4, the handle lock assembly (100) comprises a gear cover (21) provided within the main body (20) for covering the rack gear (31) and the pinion gear (38). Accordingly, the handle lock assembly (100) further comprises a support member (22) provided at the handle (10) and is suitable for compression in such a way that the support member (22) contacts the gear cover (21) when the handle lock assembly (100) is in the closed position. Fig. 5 shows the position of the pressed support member (22) against the gear cover (21). The support member (22) has a hollow cylindrical shape and is made from an elastic material. The gear cover (21) can have U-shaped cross-section and two guiding portions (24) for guiding the gear cover (21) within the main body (20). The main body (20) has corresponding holes for receiving guiding portions (24) in the form of a cylinder.

[0017] Referring to Fig. 7a, a rotation gear (53) is attached to the transmission bar (37) for retracting or extending a first longitudinal rod (51) and a second longitudinal rod (52) along the longitudinal axis (X) of the

handle lock assembly (100). The first longitudinal rod (51) and the second longitudinal rod (52) have a plurality of engagement slots (54) for engaging gear teeth of the rotation gear (53). The engagement slot (54) is, preferably, in the form of a square-shaped hole. When the transmission is rotated the rotation gear (53) also rotates and moves the first longitudinal rod (51) and the second longitudinal rod (52) along the longitudinal axis (X). The handle lock assembly (100) comprises two matchable bottom male cover (50a) and a bottom female cover (50b) in which the first longitudinal rod (51) and the second longitudinal rod (52) are guided. The rotation gear (53) is also guided in the bottom male cover (50a).

[0018] Referring to Fig. 4, the handle lock assembly (100) comprises a joint member (23) attached to the base plate (30) in which two handle wheels (35) are pivotably coupled and an attachment portion (13) of the handle (10) is attached via a connection member (36) (i.e., a pin). The joint member (23) has preferably an attachment base for attaching the base plate (30) by at least one connection member (i.e., screw) and has a U-shaped connection portion in which two handle wheels (35) are guided.

[0019] The handle (10) has a planar upper surface on which the lock plug housing (12) is formed for receiving a corresponding lock plug (40). The lock plug housing (12) has an outer casing (14) in which the lock plug (40) is guided. This outer casing (14) has an opening through which the spring-biased lock cam (42) can extend. The attachment portion (13) of the handle (10) has a through hole in which the connection member (36) is fitted. When the handle lock assembly (100) is in the closed position, the upper surface of the main body (20) and the handle (10) is brought to the same height level which also enhances the impermeability of the handle lock assembly (100).

[0020] In a preferable embodiment, the handle lock assembly (100) further comprises a main body sealing member (11) for covering the upper circumferential end of the handle housing (15). Said main body sealing member (11) is an overmolded gasket and protrudes outwardly from the handle housing (15) wherein the main body sealing member (11) is arranged to be pressed by the handle (10) when the handle lock assembly (100) is in the closed position. In another possible embodiment of the invention, the handle lock assembly (100) comprises a circumferentially arranged and outwardly protruded handle sealing member (not shown) for covering the lateral periphery of the handle housing (15) and is arranged to be pressed against the handle housing (15) when the handle lock assembly (100) is in the closed position. The handle sealing member can be similarly shaped as the bottom sealing member (39). Thus, when the handle (10) is released from the handle housing (15), the pressed handle sealing member and/or main body sealing member (11) allows the handle (10) to be partially lifted upwards, afterwards, the user can easily hold and lift the handle (10). Such main body sealing member (11) can be made of a thermoplastic elastomer. In a possible embo-

diment, the main body sealing member (11) may be made of a rubber material.

[0021] Referring to Fig. 1, the lock plug (40) is arranged to be rotated by a suitable handle key. When the handle key (60) is firstly engaged and then rotated, the spring-biased lock cam (42) is retracted and the handle (10) is released from the handle housing (15). The lock cam (42) can have a rectangular shape with an inclined end portion for engaging corresponding housing in the main body (20). One end of the lock cam (42) is under the effect of the spring (43) for keeping the lock plug (40) in the closed position. In a possible embodiment, the lock plug (40) may be of any type of suitable parts of a lock cylinder available in the market. For example, a radial pin cylinder in which pins supported by respective springs are radially arranged may be preferred. Such cylinders typically require tubular keys to operate the cylinder.

[0022] In a possible usage of the handle lock assembly (100), the user puts the handle key (60) on an engagement protrusion (41) of the lock plug (40) as shown in Fig. 5a. The handle key (60) has a preferably corresponding hole which is shaped and dimensioned with respect to the engagement protrusion (41) of the lock plug (40). When the lock plug (40) is rotated, the lock cam (42) is retracted by compressing the spring (43) therein. This action transfers the pressure on the handle sealing member and/or main body sealing member (11) to the handle (10) and throws the handle (10) slightly upwards.

[0023] Thus, by holding the handle (10) easily, the handle (10) is rotated around the joint member (23) in the upward direction. This movement creates a rotation movement on the joint member (23) and is transferred to the improved rack-pinion system which creates a linear motion on the first longitudinal rod (51) and the second longitudinal rod (52). The skilled person in the art can replace another suitable means instead of such rods.

[0024] The handle lock assembly (100) presented within the scope of the present invention can be used on cabinets or panel doors. The proposed handle lock assembly (100) is arranged especially suitable for use in boxes or cabinet covers.

Claims

1. A handle lock assembly (100) for a cabinet door, the handle lock assembly (100) comprising:

a main body (20) having a handle housing (15) extending along a longitudinal axis (X) of the handle lock assembly (100);
 a handle (10) provided within the handle housing (15) and adapted to move between an unlocked position in which the handle (10) is lifted from the handle housing (15) and a locked position in which the handle (10) is substantially within the handle housing (15);
 a lock plug (40) provided at a lock plug housing

(12) of the handle (10), having a spring-biased lock cam (42) adapted to lock the handle (10) within the handle housing (15) in the locked position wherein said handle lock assembly (100) comprises:

at least one pivotable mounted handle wheel (35) being rotatable within the main body (20) when the handle (10) is lifted;

at least one rack gear (31) and at least one pinion gear (38) in communication with the handle wheel (35) so as to convert a rotational movement from the handle wheel (35) to a linear movement wherein the pinion gear (38) is attached to a transmission bar (37) for rotating; a base plate (30) attached to the main body (20) for substantially covering an open bottom end (25) of the main body (20)

characterized in that \$

the base plate (30) has an at least partly circumferentially arranged and outwardly protruded bottom sealing member (39) which is adapted to be in contact with a planar surface of the cabinet door;

the bottom sealing member (39) extending completely circumferentially to cover lateral sides of the base plate (30), and

the bottom sealing member (39) is an over-molded gasket and extends radially outwardly beyond the lower surface of the base plate (30).

2. The handle lock assembly (100) according to any one of the preceding claims, wherein the rack gear (31) has at least one upper tooth set (32) in mechanical communication with the handle wheel (35) and at least one inner tooth set (34) in mechanical communication with the pinion gear (38).
3. The handle lock assembly (100) according to claim 2, wherein the handle lock assembly (100) comprises two handle wheels (35) in mechanical communication with corresponding upper tooth sets (32) to move the rack gear (31) with respect to the longitudinal axis (X) of the handle lock assembly (100).
4. The handle lock assembly (100) according to claim 2 or 3, wherein the rack gear (31) has a rack opening (33) wherein said inner tooth set (34) is provided at an inner lateral surface of the rack opening (33).
5. The handle lock assembly (100) according to any one of the preceding claims, wherein the handle lock assembly (100) comprises a gear cover (21) provided within the main body (20) for covering the rack gear (31) and the pinion gear (38).
6. The handle lock assembly (100) according to claim

- 5, wherein the handle lock assembly (100) comprises a support member (22) provided at the handle (10) and is suitable for compression in such a way that the support member (22) contacts the gear cover (21) when the handle lock assembly (100) is in the closed position. 5
7. The handle lock assembly (100) according to any one of the preceding claims, wherein a rotation gear (53) is attached to the transmission bar (37) for retracting or extending a first longitudinal rod (51) and a second longitudinal rod (52) along the longitudinal axis (X) of the handle lock assembly (100). 10
8. The handle lock assembly (100) according to claim 7, wherein the first longitudinal rod (51) and the second longitudinal rod (52) has a plurality of engagement slots (54) for engaging gear teeth of the rotation gear (53). 15
9. The handle lock assembly (100) according to any one of the preceding claims, wherein the handle lock assembly (100) comprises a joint member (23) attached to the base plate (30) in which two handle wheels (35) are pivotably coupled and an attachment portion (13) of the handle (10) is attached via a connection member (36). 20
10. The handle lock assembly (100) according to any one of the preceding claims, wherein the handle lock assembly (100) further comprises a main body sealing member (11) for covering the upper circumferential end of the handle housing (15). 25
11. The handle lock assembly (100) according to claim 10, wherein the main body sealing member (11) is an overmolded gasket and protrudes outwardly from the handle housing (15) wherein the main body sealing member (11) is arranged to be pressed by the handle (10) when the handle lock assembly (100) is in the closed position. 30
12. The handle lock assembly (100) according to any one of the preceding claims, wherein the handle lock assembly (100) further comprises a circumferentially arranged and outwardly protruded handle sealing member for covering the lateral periphery of the handle housing (15) and is arranged to be pressed against the handle housing (15) when the handle lock assembly (100) is in the closed position. 35
- 40
- 45
- 50

Patentansprüche

1. Griffsperranordnung (100) für eine Schranktür, wobei die Griffsperranordnung (100) umfasst:
- einen Hauptkörper (20) mit einem Griffgehäuse

(15), das sich entlang einer Längsachse (X) der Griffsperranordnung (100) erstreckt; einen Griff (10), der innerhalb des Griffgehäuses (15) vorgesehen ist und sich zwischen einer entriegelten Position, in der der Griff (10) aus dem Griffgehäuse (15) herausgehoben ist, und einer verriegelten Position, in der sich der Griff (10) im Wesentlichen innerhalb des Griffgehäuses (15) befindet, bewegen kann; einen Schliesskern (40), der an einem Schliesskerngehäuse (12) des Griffs (10) vorgesehen ist und einen federgespannten Schliessnocken (42) aufweist, der dazu geeignet ist, den Griff (10) innerhalb des Griffgehäuses (15) in der verriegelten Position zu verriegeln, wobei die Griffsperranordnung (100) umfasst:

mindestens ein schwenkbar gelagertes Griffrad (35), das im Hauptkörper (20) drehbar ist, wenn der Griff (10) angehoben wird; mindestens eine Zahnstange (31) und mindestens ein Ritzel (38), die mit dem Griffrad (35) in Verbindung stehen, um eine Drehbewegung des Griffrades (35) in eine lineare Bewegung umzuwandeln, wobei das Ritzel (38) an einer Übertragungsstange (37) zur Drehung befestigt ist; eine Grundplatte (30), die an dem Hauptkörper (20) angebracht ist, um ein offenes unteres Ende (25) des Hauptkörpers (20) im Wesentlichen abzudecken, **dadurch gekennzeichnet, dass** die Grundplatte (30) ein zumindest teilweise in Umfangsrichtung angeordnetes und nach außen vorstehendes unteres Dichtungselement (39) aufweist, das so angepasst ist, dass es mit einer ebenen Fläche der Schranktür in Kontakt ist; das untere Dichtungselement (39) sich vollständig in Umfangsrichtung erstreckt, um die Seitenflächen der Grundplatte (30) zu bedecken, und das untere Dichtungselement (39) eine umspritzte Dichtung ist und sich radial nach außen über die untere Fläche der Grundplatte (30) hinaus erstreckt.

2. Griffsperranordnung (100) nach einem der vorhergehenden Ansprüche, wobei die Zahnstange (31) mindestens eine obere Verzahnung (32), die mit dem Griffrad (35) in mechanischer Verbindung steht, und mindestens eine innere Verzahnung (34), die mit dem Ritzel (38) in mechanischer Verbindung steht, aufweist.
3. Griffsperranordnung (100) nach Anspruch 2, wobei die Griffsperranordnung (100) zwei Griffräder (35) umfasst, die in mechanischer Verbindung mit ent-

sprechender oberen Verzahnung (32) stehen, um die Zahnstange (31) in Bezug auf die Längsachse (X) der Griffsperranordnung (100) zu bewegen.

4. Griffsperranordnung (100) nach Anspruch 2 oder 3, wobei die Zahnstange (31) eine Zahnstangenöffnung (33) aufweist, wobei die Innenverzahnung (34) an einer inneren Seitenfläche der Zahnstangenöffnung (33) vorgesehen ist. 5
5. Griffsperranordnung (100) nach einem der vorhergehenden Ansprüche, wobei die Griffsperranordnung (100) eine Getriebeabdeckung (21) umfasst, die innerhalb des Hauptkörpers (20) vorgesehen ist, um die Zahnstange (31) und das Ritzel (38) abzudecken. 10
6. Griffsperranordnung (100) nach Anspruch 5, wobei die Griffsperranordnung (100) ein Stützelement (22) umfasst, das am Griff (10) vorgesehen und zum Zusammendrücken geeignet ist, so dass das Stützelement (22) die Getriebeabdeckung (21) berührt, wenn sich die Griffsperranordnung (100) in der geschlossenen Position befindet. 15
7. Griffsperranordnung (100) nach einem der vorhergehenden Ansprüche, wobei an der Übertragungsstange (37) ein Drehzahnrad (53) zum Einfahren oder Ausfahren einer ersten Längsstange (51) und einer zweiten Längsstange (52) entlang der Längsachse (X) der Griffsperranordnung (100) angebracht ist. 20
8. Griffsperranordnung (100) nach Anspruch 7, wobei die erste Längsstange (51) und die zweite Längsstange (52) eine Vielzahl von Eingriffsschlitz (54) für den Eingriff in die Verzahnung des Drehzahnrad (53) aufweisen. 25
9. Griffsperranordnung (100) nach einem der vorhergehenden Ansprüche, wobei die Griffsperranordnung (100) ein an der Grundplatte (30) befestigtes Gelenkelement (23) aufweist, in dem zwei Griffräder (35) schwenkbar gekoppelt sind und ein Befestigungsabschnitt (13) des Griffs (10) über ein Verbindungselement (36) befestigt ist. 30
10. Griffsperranordnung (100) nach einem der vorhergehenden Ansprüche, wobei die Griffsperranordnung (100) ferner ein Hauptkörperdichtungselement (11) zur Abdeckung des oberen Umfangsendes des Griffgehäuses (15) umfasst. 35
11. Griffsperranordnung (100) nach Anspruch 10, wobei das Hauptkörperdichtungselement (11) eine umspritzte Dichtung ist und nach außen aus dem Griffgehäuse (15) herausragt, wobei das Hauptkörperdichtungselement (11) so angeordnet ist, dass es 40

von dem Griff (10) gedrückt wird, wenn sich die Griffsperranordnung (100) in der geschlossenen Position befindet.

12. Griffsperranordnung (100) nach einem der vorhergehenden Ansprüche, wobei die Griffsperranordnung (100) ferner ein in Umfangsrichtung angeordnetes und nach außen vorstehendes Griffdichtungselement zum Abdecken des seitlichen Umfangs des Griffgehäuses (15) umfasst und so angeordnet ist, dass es gegen das Griffgehäuse (15) gedrückt wird, wenn sich die Griffsperranordnung (100) in der geschlossenen Position befindet. 45

Revendications

1. - Ensemble de verrouillage de poignée (100) pour une porte d'armoire, l'ensemble de verrouillage de poignée (100) comprenant : 50

un corps principal (20) ayant un logement de poignée (15) s'étendant le long d'un axe longitudinal (X) de l'ensemble de verrouillage de poignée (100) ;

une poignée (10) disposée à l'intérieur du logement de poignée (15) et agencée pour se déplacer entre une position déverrouillée dans laquelle la poignée (10) est sortie du logement de poignée (15) et une position verrouillée dans laquelle la poignée (10) se trouve sensiblement à l'intérieur du logement de poignée (15) ;

un barillet de verrouillage (40) disposé à un logement de barillet de verrouillage (12) de la poignée (10), ayant une came de verrouillage sollicitée par ressort (42) agencée pour verrouiller la poignée (10) à l'intérieur du logement de poignée (15) dans la position verrouillée ; ledit ensemble de verrouillage de poignée (100) comprenant en outre :

au moins une roue de poignée (35) montée pivotante et rotative à l'intérieur du corps principal (20) lorsque la poignée (10) est sortie ;

au moins un engrenage à crémaillère (31) et au moins un pignon (38) en communication avec la roue de poignée (35) de façon à convertir un mouvement rotatif de la roue de poignée (35) en un mouvement linéaire, le pignon (38) étant fixé à une barre de transmission (37) pour une rotation ; et

une plaque de base (30) fixée au corps principal (20) pour sensiblement recouvrir une extrémité inférieure ouverte (25) du corps principal (20),

caractérisé par le fait que

la plaque de base (30) a un élément d'étanchéité inférieure (39) disposé au moins partiellement de manière circonférentielle et faisant saillie vers l'extérieur, qui est agencé pour être en contact

- avec une surface plane de la porte d'armoire ;
l'élément d'étanchéité inférieur (39) s'étend complètement de manière circonférentielle pour recouvrir des côtés latéraux de la plaque de base (30) ; et
l'élément d'étanchéité inférieur (39) est un joint surmoulé et s'étend radialement vers l'extérieur au-delà de la surface inférieure de la plaque de base (30).
2. - Ensemble de verrouillage de poignée (100) selon l'une quelconque des revendications précédentes, dans lequel l'engrenage à crémaillère (31) a au moins une denture supérieure (32) en communication mécanique avec la roue de poignée (35) et au moins une denture intérieure (34) en communication mécanique avec le pignon (38). 5
 3. - Ensemble de verrouillage de poignée (100) selon la revendication 2, l'ensemble de verrouillage de poignée (100) comprenant deux roues de poignée (35) en communication mécanique avec des dentures supérieures (32) correspondantes pour déplacer l'engrenage à crémaillère (31) par rapport à l'axe longitudinal (X) de l'ensemble de verrouillage de poignée (100). 10
 4. - Ensemble de verrouillage de poignée (100) selon la revendication 2 ou 3, dans lequel l'engrenage à crémaillère (31) a une ouverture de crémaillère (33), ladite denture intérieure (34) étant disposée sur une surface latérale intérieure de l'ouverture de crémaillère (33). 15
 5. - Ensemble de verrouillage de poignée (100) selon l'une quelconque des revendications précédentes, l'ensemble de verrouillage de poignée (100) comprenant un carter d'engrenages (21) disposé à l'intérieur du corps principal (20) pour recouvrir l'engrenage à crémaillère (31) et le pignon (38). 20
 6. - Ensemble de verrouillage de poignée (100) selon la revendication 5, l'ensemble de verrouillage de poignée (100) comprenant un élément de support (22) disposé à la poignée (10) et apte à une compression de telle sorte que l'élément de support (22) vient en contact avec le carter d'engrenages (21) lorsque l'ensemble de verrouillage de poignée (100) est dans la position fermée. 25
 7. - Ensemble de verrouillage de poignée (100) selon l'une quelconque des revendications précédentes, dans lequel un engrenage de rotation (53) est fixé à la barre de transmission (37) pour rétracter ou étendre une première tige longitudinale (51) et une seconde tige longitudinale (52) le long de l'axe longitudinal (X) de l'ensemble de verrouillage de poignée (100). 30
 8. - Ensemble de verrouillage de poignée (100) selon la revendication 7, dans lequel la première tige longitudinale (51) et la seconde tige longitudinale (52) ont une pluralité de fentes d'engagement (54) pour engager une denture de l'engrenage de rotation (53). 35
 9. - Ensemble de verrouillage de poignée (100) selon l'une quelconque des revendications précédentes, l'ensemble de verrouillage de poignée (100) comprenant un élément de jonction (23) fixé à la plaque de base (30) dans lequel deux roues de poignée (35) sont accouplées de manière pivotante et une partie de fixation (13) de la poignée (10) est fixée par l'intermédiaire d'un élément de liaison (36). 40
 10. - Ensemble de verrouillage de poignée (100) selon l'une quelconque des revendications précédentes, l'ensemble de verrouillage de poignée (100) comprenant en outre un élément d'étanchéité de corps principal (11) pour recouvrir l'extrémité circonférentielle supérieure du logement de poignée (15). 45
 11. - Ensemble de verrouillage de poignée (100) selon la revendication 10, dans lequel l'élément d'étanchéité de corps principal (11) est un joint surmoulé et fait saillie vers l'extérieur à partir du logement de poignée (15), l'élément d'étanchéité de corps principal (11) étant agencé pour être pressé par la poignée (10) lorsque l'ensemble de verrouillage de poignée (100) est dans la position fermée. 50
 12. - Ensemble de verrouillage de poignée (100) selon l'une quelconque des revendications précédentes, l'ensemble de verrouillage de poignée (100) comprenant en outre un élément d'étanchéité de poignée disposé de manière circonférentielle et faisant saillie vers l'extérieur pour recouvrir la périphérie latérale du logement de poignée (15) et agencé pour être pressé contre le logement de poignée (15) lorsque l'ensemble de verrouillage de poignée (100) est dans la position fermée. 55

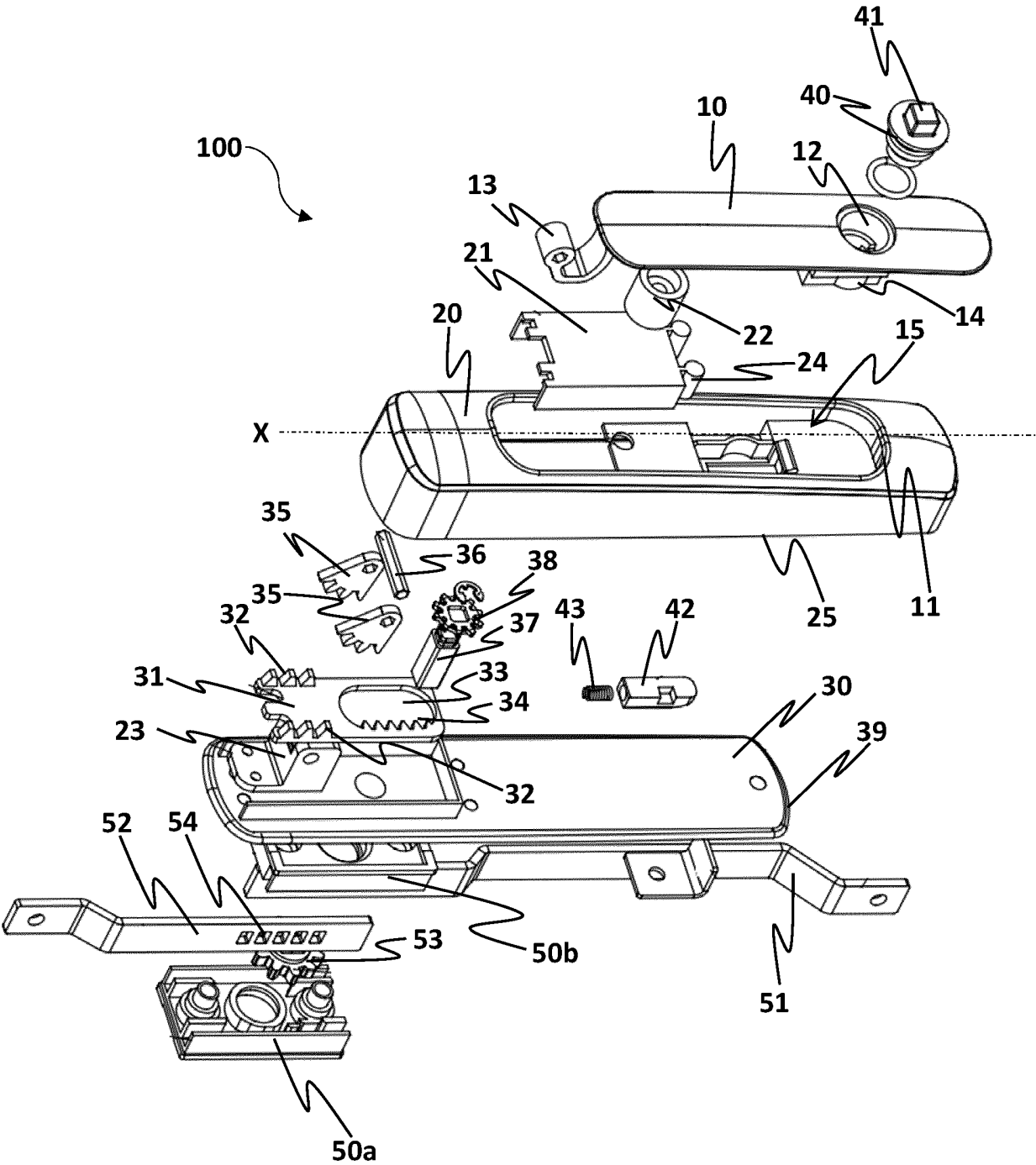


FIG. 1

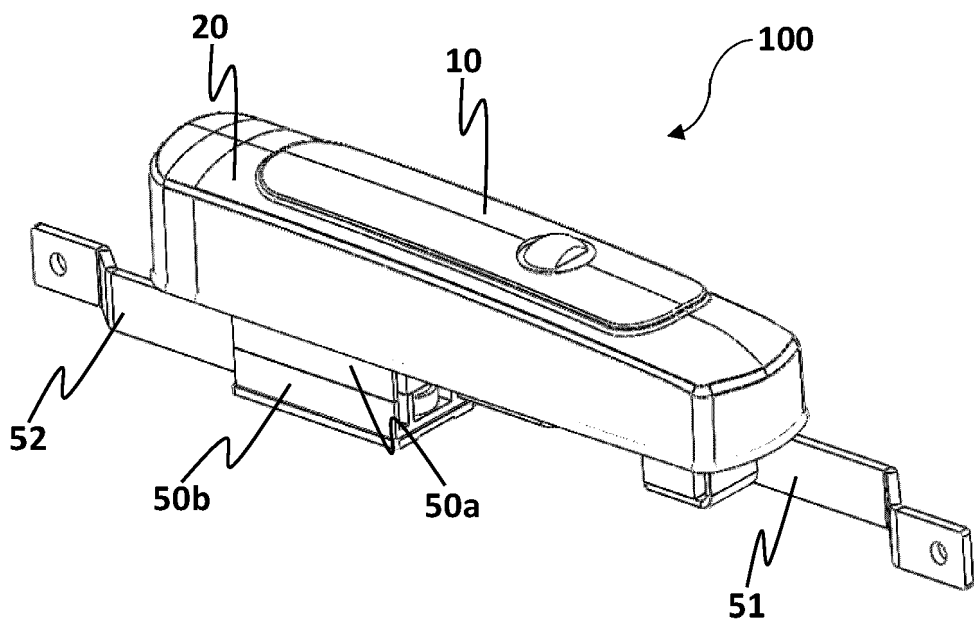


FIG. 2a

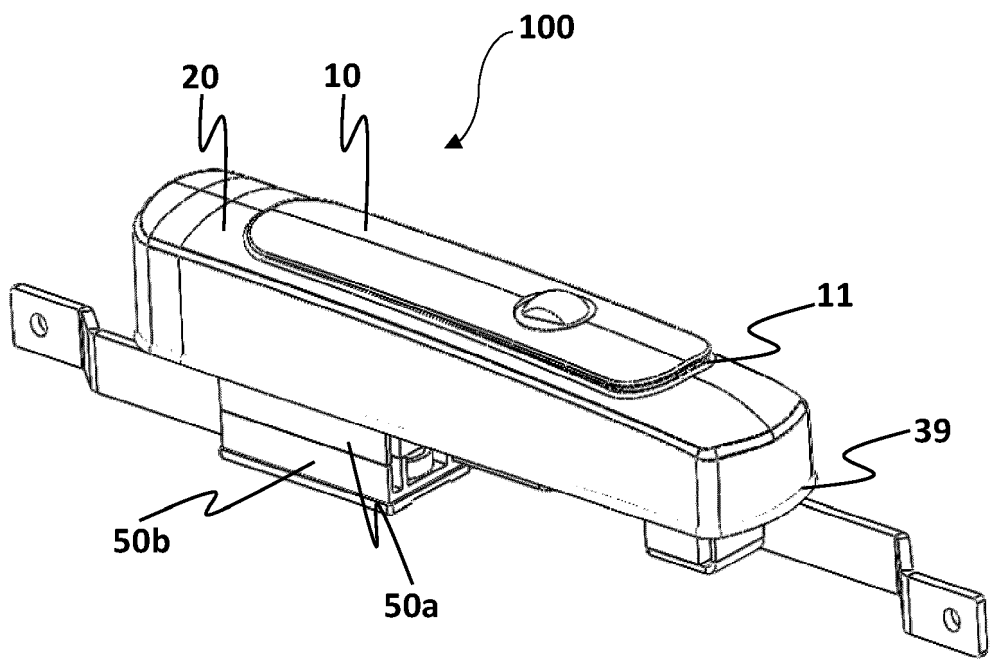


FIG. 2b

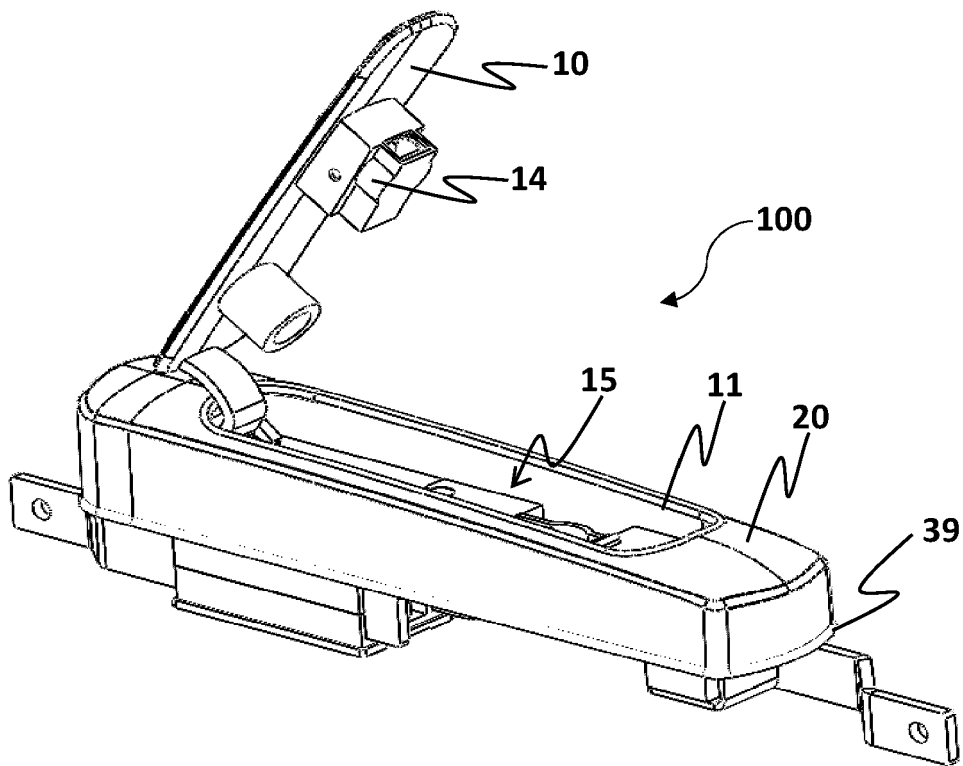


FIG. 3a

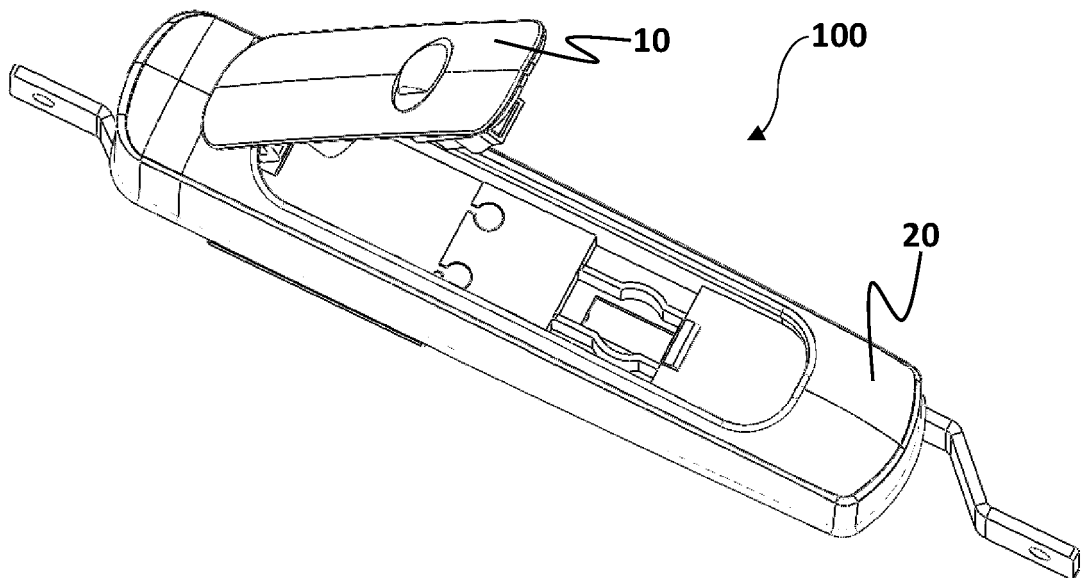


FIG. 3b

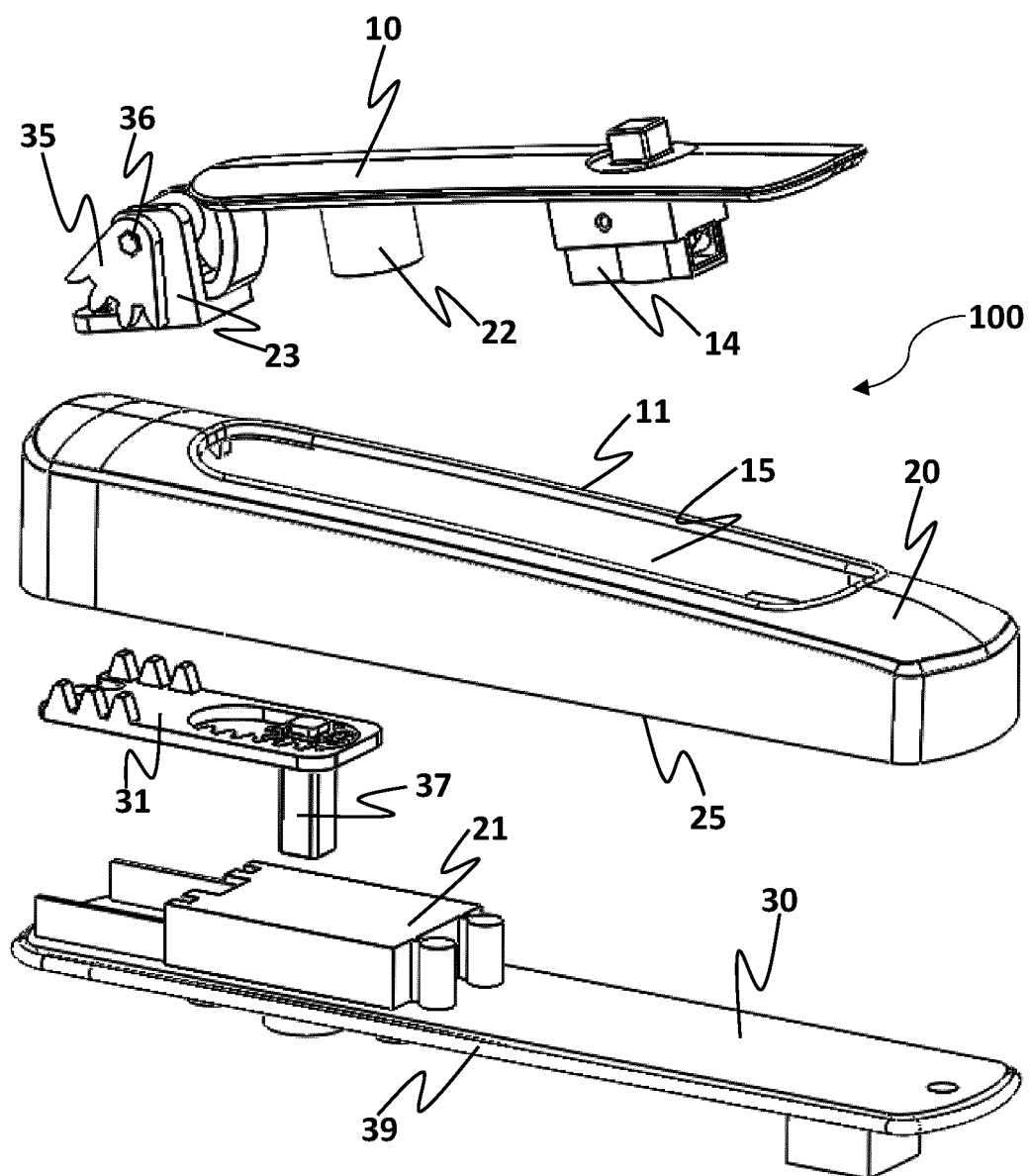


FIG. 4

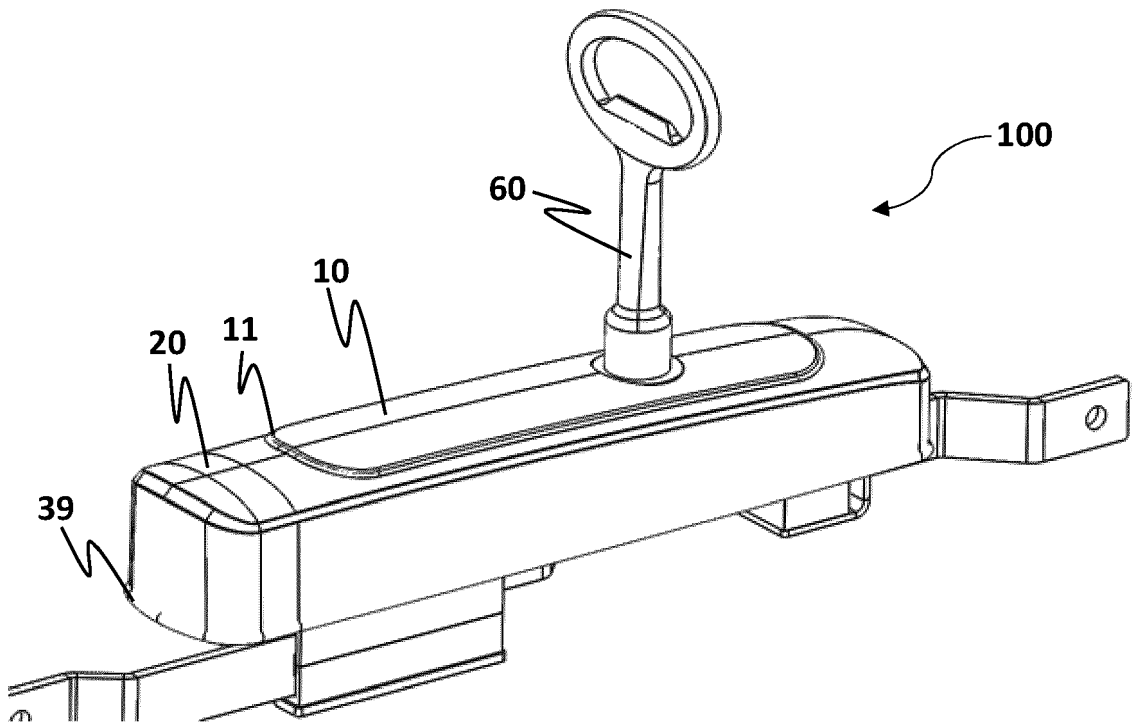


FIG. 5a

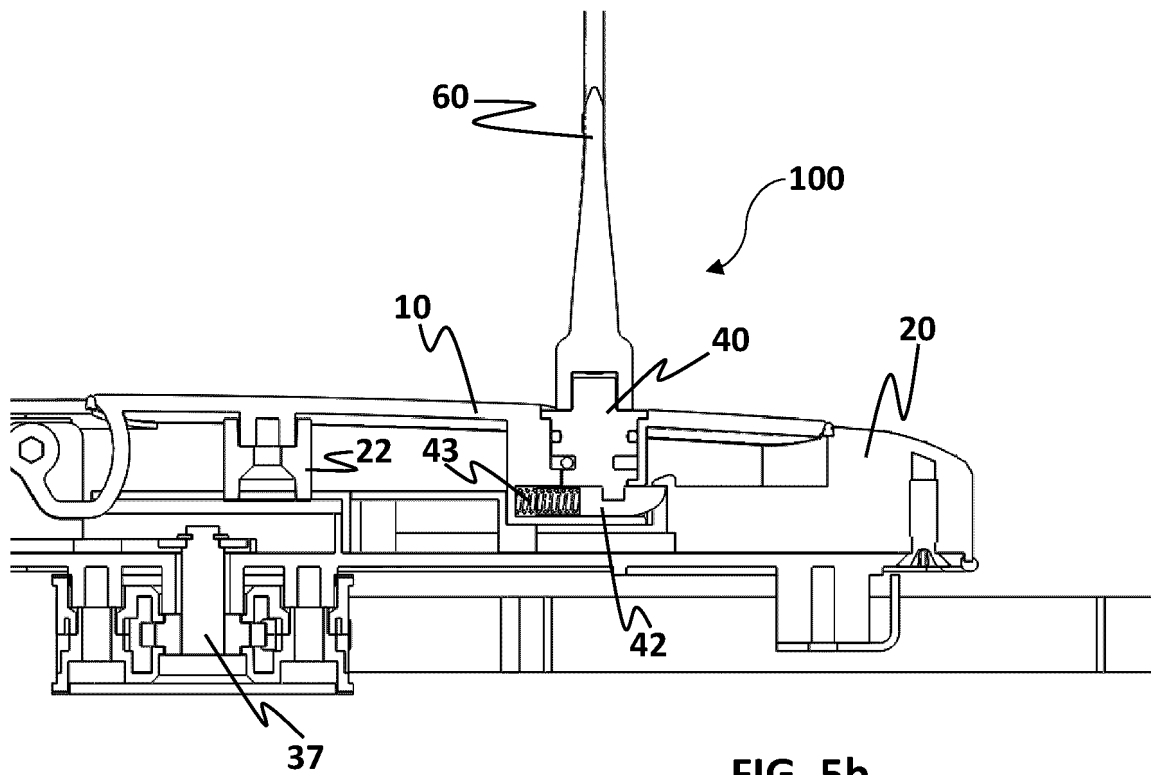


FIG. 5b

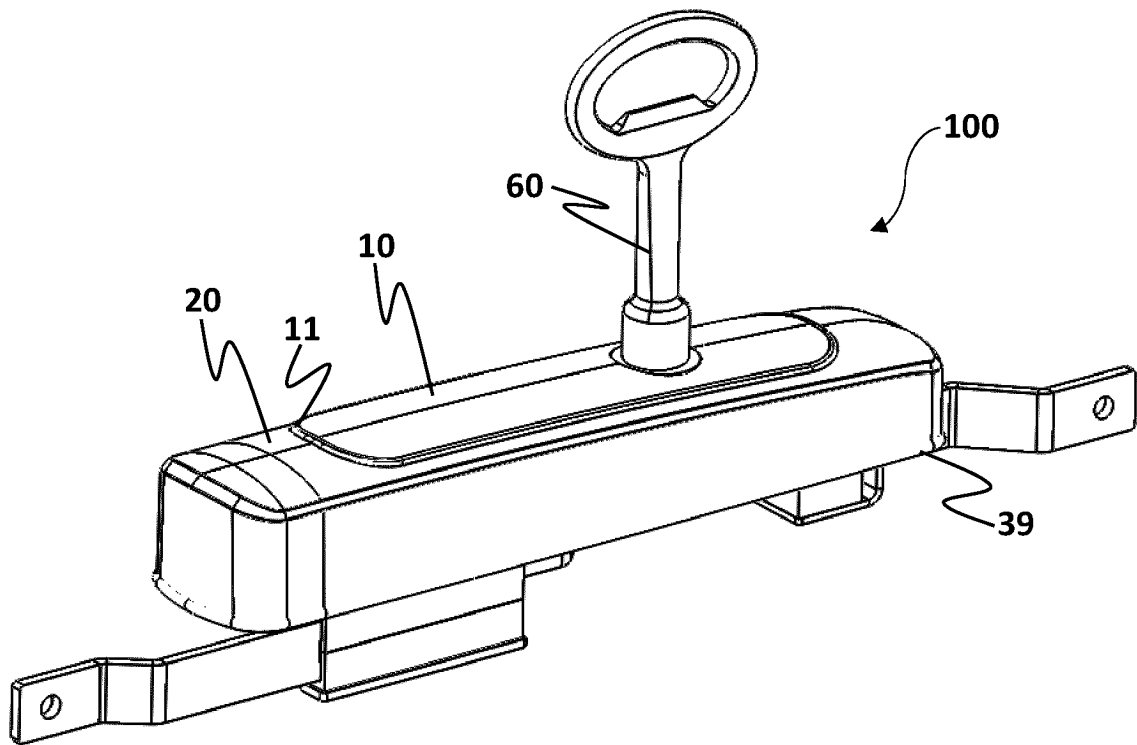


FIG. 6

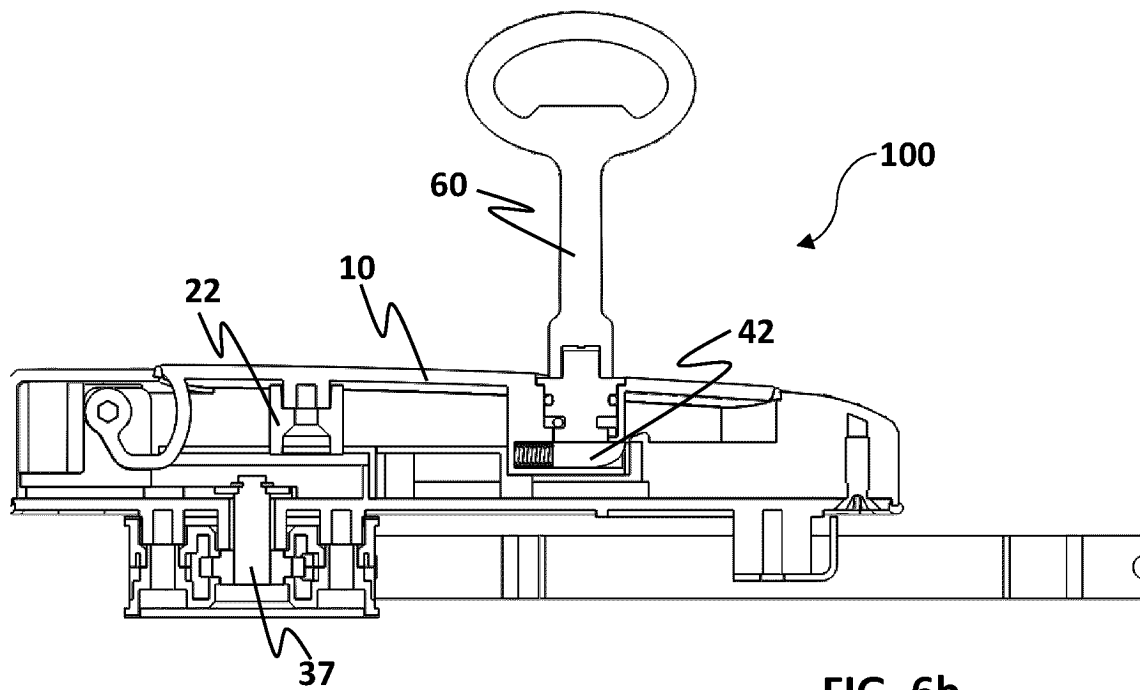


FIG. 6b

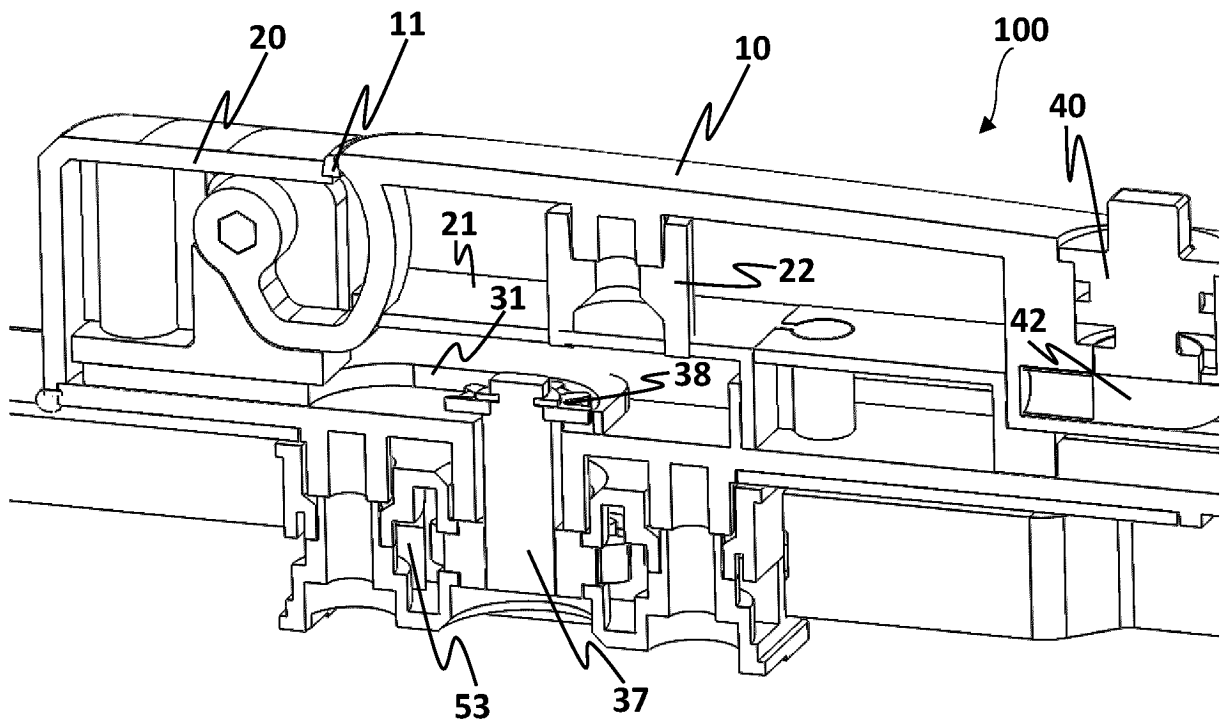


FIG. 7a

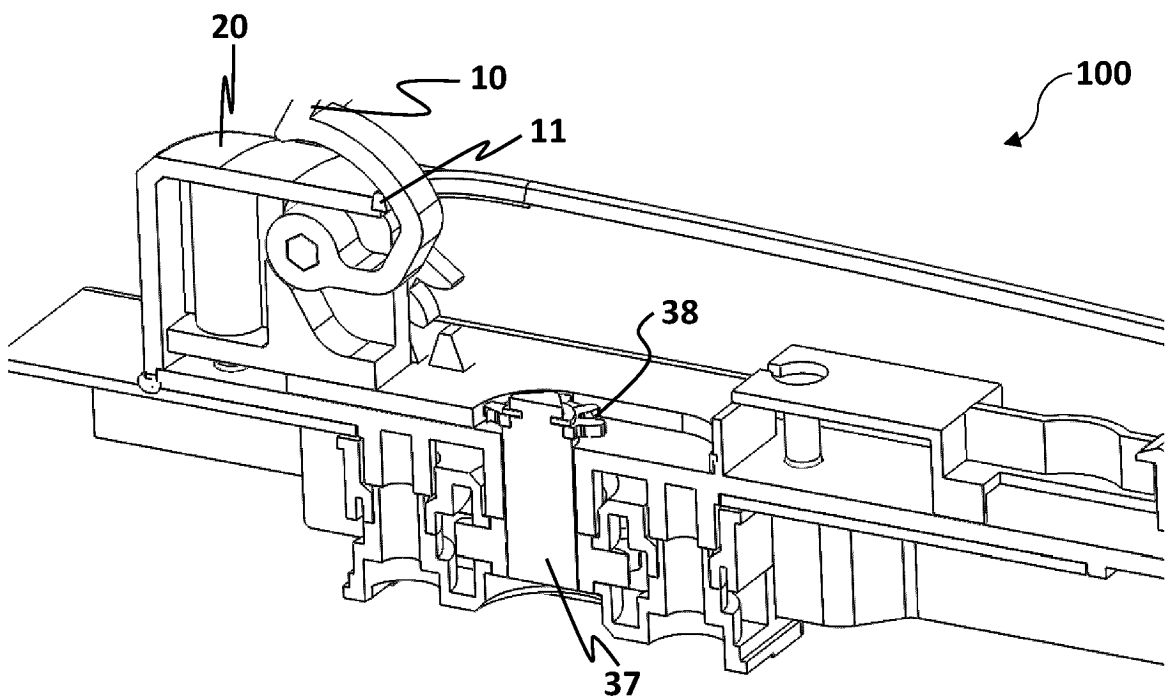


FIG. 7b

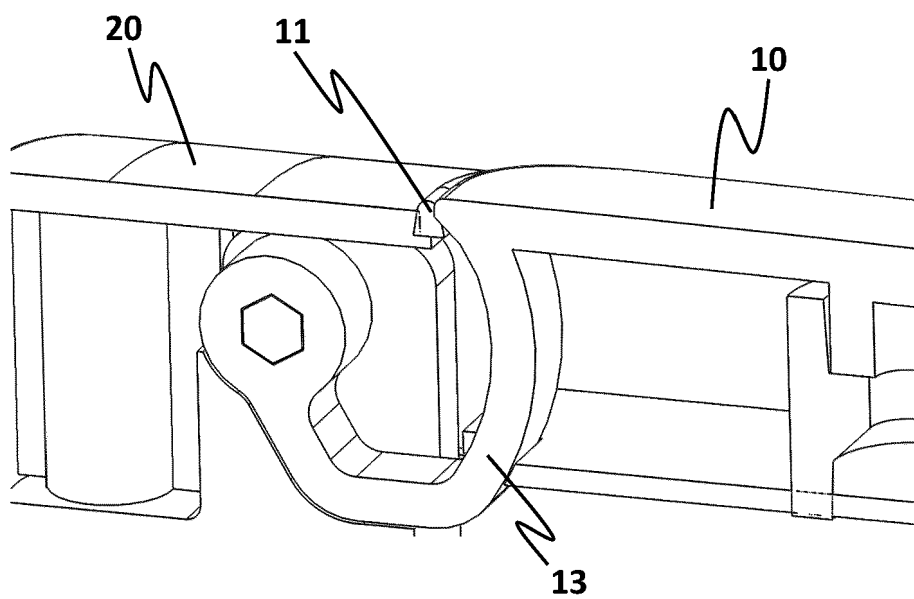


FIG. 8

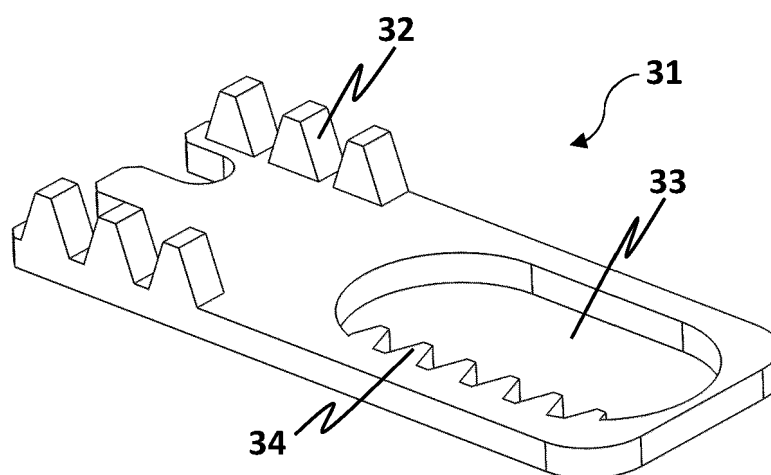


FIG. 9

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

- EP 2476825 A2 [0003]
- TR 201904289 U5 [0004]
- DE 20107170111 [0005]