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(54) **ACCESSORY FOR SECURITY LOCKING OF A LOCK**

(57) An accessory for security locking of a lock, said accessory enabling the locking of the door lock such that the lock cannot be opened with a key or a picklock. The lock includes a lock body (2), a lock mechanism (30) inside the lock body for moving the lock bolt (38), a rotary knob (3), a key cylinder (4) and a rotary spindle (5a, 5b), which is between the rotary knob (3) and the lock mechanism (30). The spindle head (15) of the rotary spindle (5a, 5b) is in engagement with the lock mechanism (30). The accessory contains a safety latch (8) and a transfer mechanism (7, 14, 14a, 8a), by which the safety latch (8) is to be transferred from a security locking release position into a security locking position. The lock mechanism (30) includes a first rotary ring (16), with which the spindle head (15) is in engagement, and a second rotary ring (17), with which the second rotary spindle (25) to be rotated by a key is in engagement, as well as a bolt shifter (18), which is shifted by the first and second rotary rings (16, 17) as they rotate. The spindle head (15) is dimensioned and shaped to extend through the first rotary ring (16) into engagement with the second rotary ring (17), wherein, as the first rotary spindle (5a 5b) is being locked as non-rotatable in the security locking position of the safety latch (8), the spindle head (15) prevents the second rotary ring (17) from rotating by means of the second rotary spindle (25).

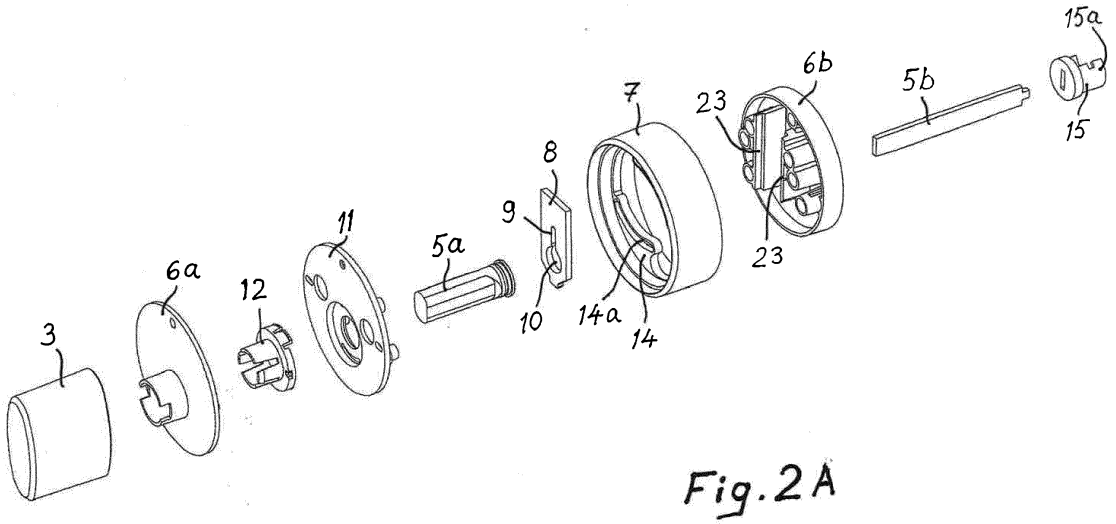

Fig. 2A

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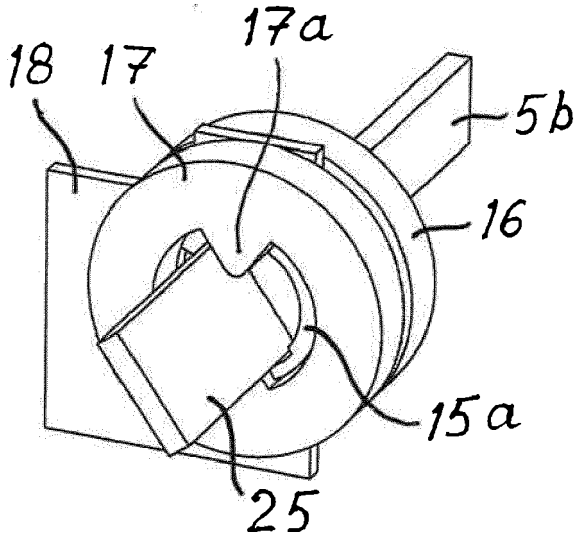

Fig. 4

Description

[0001] The invention relates to an accessory for security locking of a lock, said accessory enabling the locking of the door lock such that the lock cannot be opened with a key or a picklock, the lock including a lock body, a lock mechanism inside the lock body for moving the lock bolt, a rotary knob, a key cylinder and a first rotary spindle, which is between the rotary knob and the lock mechanism and the spindle head of which is in engagement with the lock mechanism, the accessory further containing a safety latch and a transfer mechanism, by which the safety latch is to be transferred from a security locking release position into a security locking position, the lock mechanism including a first rotary ring, with which the spindle head is in engagement, and a second rotary ring, with which the second rotary spindle to be rotated by a key is in engagement, as well as a bolt shifter, which is shifted by the first and second rotary rings as they rotate.

[0002] The international patent application of the applicant, WO201402832, presents a similar accessory for security locking of a lock. Using this known accessory, the disadvantage of known locks can be solved, namely the possibility of unauthorized opening of the lock with illegitimate copy keys, master keys or a picklock.

[0003] The object of this invention is to further develop said accessory such that it is now better adapted for certain types of lock mechanisms. These types are particularly such lock mechanisms, in which the rotary spindles to be rotated by a key and a rotary knob function independently of each other.

[0004] This object is achieved in the invention on the basis of the characterizing features presented in the accompanying claim 1. Preferred embodiments of the invention are presented in the dependent claims.

[0005] In the following, one embodiment of the invention is described in more detail by means of reference to the accompanying figures, in which

Fig. 1	shows a lock equipped with an accessory according to the invention in a view along the plane of the door,
Figs. 2A and 2B	show an accessory according to the invention in exploded views,
Fig. 3	shows a view of the upper part of a lock equipped with an accessory according to the invention, as seen from outside the door, and
Fig. 4	shows the cooperation between the parts contained in the lock mechanism and their mutual positions.

[0006] Embedded in a door 1 seen in Fig. 1 is a lock body 2 containing a conventional lock mechanism 30, which translates the rotational movements of the key and rotary knob 3 into movements of the bolt 38. The rotary knob 3 and the key cylinder 4 are on opposite sides of the door and the lock body. The two-part rotary spindle 5a, 5b shown in Figs. 2A and 2B is between the rotary knob 3 and the lock mechanism 30 and extends through the accessory 6. The rotary spindle 5a, 5b is in engagement with the lock mechanism 30 and extends into the rotary knob 3. The handles are designated with reference numeral 37, and with reference numeral 39 the trigger bolt, which as the door closes triggers the lock bolt 38 into the dead-bolted position, when the pin 35 is in the upper position.

[0007] An accessory 6 according to the invention is installed between the rotary knob 3 and the lock body 2. In the present case, the rear casing 6b of the accessory 6 is against the surface of the door 1. The safety latch 8 is to be moved from a security locking release position into a security locking position, in which the flat spindle part 5b of the rotary spindle 5a, 5b is located in the slot 9 of the safety latch 8 and thus prevents the rotational movement of the rotary spindle 5a, 5b. In the security locking release position, the spindle part 5b is able to rotate freely in the hole 10 of the safety latch 8.

[0008] Fig. 3 shows the lock mechanism parts essential for the invention. They are the first rotary ring 16, with which the spindle head 15 is in engagement, and the second rotary ring 17, with which the second rotary spindle 25 to be rotated by a key, is in engagement, as well as the bolt shifter 18, which is shifted by the first and second rotary rings 16, 17 as they rotate. Both rotary rings 16 and 17 have hourglass-shaped openings, with which the heads of the rotary spindles 5a, 5b and 25 are in engagement.

[0009] The spindle head 15 of the rotary spindle 5a, 5b is in engagement with the first rotary ring 16. The extension part 15a of the spindle head 15 is dimensioned and shaped to extend through the first rotary ring 16 into engagement also with the second rotary ring 17, wherein, as the first rotary spindle 5a, 5b is being locked as non-rotatable in the security locking position of the safety latch 8, the extension part 15a of the spindle head 15 also prevents the second rotary ring 17 from rotating by means of the second rotary spindle 25. The engagement is form-locked in the direction of rotation. For this reason, the extension part 15a is an arch, the ends of which rest against the narrowings 17a of the opening of the second rotary ring 17, which narrow the otherwise round opening into the shape of an hourglass. Both rotary rings 16 and 17 have thus hourglass-shaped openings (Figs. 3 and 4), with which the heads of the rotary spindles 5a, 5b and 25 engage in order to rotate the rotary rings. In its longitudinal direction, the rotary spindle 5a, 5b is divided into two parts 5a and 5b. The bar-like part 5a is fitted non-rotationally into the rotary knob 3 and the flat part 5b is equipped with the spindle head 15 and its extension part 15a and functions in cooperation with the safety latch 8.

[0010] The bolt shifter 18 is plate-like and has on both of its sides separate rotary rings 16 and 17 one upon the

other. The second rotary ring 17 engages with the rotary spindle 25 to be rotated by a key. Thus, the bolt shifter 18 can be moved both by the key as well as by the rotary knob. When the invention is used, the lock mechanism 30 must be in the dead-bolted position, i.e. in the so-called night position (the pin 35 in the upper position).

[0011] The parts shown in Figs. 2A and 2B are assembled for a compact package. The safety latch 8 is a plate-like slide, the transfer mechanism 7, 8a, 14, 14a of which contains an annular turner 7, by the turning back and forth of which the safety latch 8 is to be moved back and forth (up and down in the figure) between the security locking position and the security locking release position. For the purpose of this moving, there is inside the turner 7 a lug 14 with a groove 14a equipped with a rising spiral, with which groove the peg 8a of the safety latch 8 is in engagement. The rear casing 6b has sliding guides 23, which limit the reception space of the safety latch 8, in which the safety latch is able to move. On the side of the front casing 6a, sliding guides 13 limit the reception space of the safety latch 8. On top of the front casing 6a is placed the cover plate 11, which is attached to the front casing with a retainer 12. The retainer 12 is of plastic and all the other parts are of a metal, such as zinc and stainless steel, suitable for this purpose.

[0012] The rear casing 6b is attached by screws to the front casing. Sleeve-like spacer bulges between the casings keep the casings 6a and 6b at a suitable distance from each other. The turner 7 remains rotatable around the edges of the casings 6a and 6b. In this case, the safety latch 8 is to be moved back and forth in its longitudinal direction as the turner 7 is turned back and forth.

[0013] As is seen from Figs. 3 and 4, the spindle head 15 extends through the first rotary ring 16 into the opening of the second rotary ring 17, with which it engages in a form-locked manner and thus prevents the movements of both rotary rings 16 and 17 and the bolt shifter 18. In this case, the lock cannot be opened with a key or a picklock, because the bolt shifter 18 also cannot be moved by the rotary spindle 25 outside the door.

[0014] Coloured indicators (for example, red and green) can indicate to a user in the room whether the security locking is on or not. These indicators can also be generated with LED lights if the accessory is equipped with a battery or a power supply. If the accessory is equipped with a battery or a power supply, the safety latch 8 manoeuvring can be arranged using an electrical drive, such as a servo, a solenoid or a motor. In this case, the safety latch 8 manoeuvring can be controlled wirelessly using a remote control device, such as a smartphone. The transfer mechanism described above can be replaced by a simpler mechanism, with which the back and forth movement of the safety latch 8 is achieved. The transfer mechanism may be just a solenoid and, for manual use, a button or a lever, which is moved by a finger back and forth. The required movement distance is quite small and movement of the light safety latch requires only a little energy.

[0015] An accessory according to the invention can be applied particularly to locks used in the exterior doors of apartments, multi-storey apartment doors, or patio doors. In this case, the possibility of mechanically manipulating the safety latch from outside the door must be completely precluded. In other words, the mechanical manoeuvring means of the safety latch can only be mechanically manipulated from inside the door. From outside the door, however, it is possible to allow the manipulation of the electrically operated safety latch 8 of the accessory controlled by a safety code.

Claims

1. An accessory for security locking of a lock, said accessory enabling the locking of the door lock such that the lock cannot be opened with a key or a picklock, the lock including a lock body (2), a lock mechanism (30) inside the lock body for moving the lock bolt (38), a rotary knob (3), a key cylinder (4) and a first rotary spindle (5a, 5b), which is between the rotary knob (3) and the lock mechanism (30) and the spindle head (15) of which is in engagement with the lock mechanism (30), the accessory further containing a safety latch (8) and a transfer mechanism (7, 8a, 14, 14a), by which the safety latch (8) is to be transferred from a security locking release position into a security locking position, the lock mechanism (30) including a first rotary ring (16), with which the spindle head (15) is in engagement, and a second rotary ring (17), with which the second rotary spindle (25) to be rotated by a key is in engagement, as well as a bolt shifter (18), which is shifted by the first and second rotary rings (16, 17) as they rotate, **characterized in that** the spindle head (15) is equipped with an extension part (15a), which is dimensioned and shaped to extend through the first rotary ring (16) into engagement with the second rotary ring (17), wherein, as the first rotary spindle (5a 5b) is being locked as non-rotatable in the security locking position of the safety latch (8), the extension part (15a) of the spindle head (15) prevents the second rotary ring (17) from rotating by means of the second rotary spindle (25).

2. An accessory according to claim 1, **characterized in that** the accessory (6) is on the interior side of the door (1) between the rotary knob (3) and the lock body (2) and the first rotary spindle (5a, 5b) extends through the accessory (6).

3. An accessory according to claim 1 or 2, **characterized in that** the spindle head (15) is fitted into the hourglass-shaped openings of the rotary rings (16, 17).

4. An accessory according to any one of claims 1-3,

characterized in that the safety latch (8) is a plate-like slide, which has a hole (10) and a slot (9), and the first rotary spindle (5a, 5b) has a flat part (5b), which extends through the hole (10) when the safety latch (8) is in the security locking release position and through the slot (9) when the safety latch (8) is in the security locking position.

5. An accessory according to any one of claims 1-4, **characterized in that** the transfer mechanism (7, 8a, 14, 14a) includes a turner (7), by the turning back and forth of which the safety latch (8) is to be moved back and forth between the security locking position and the security locking release position.

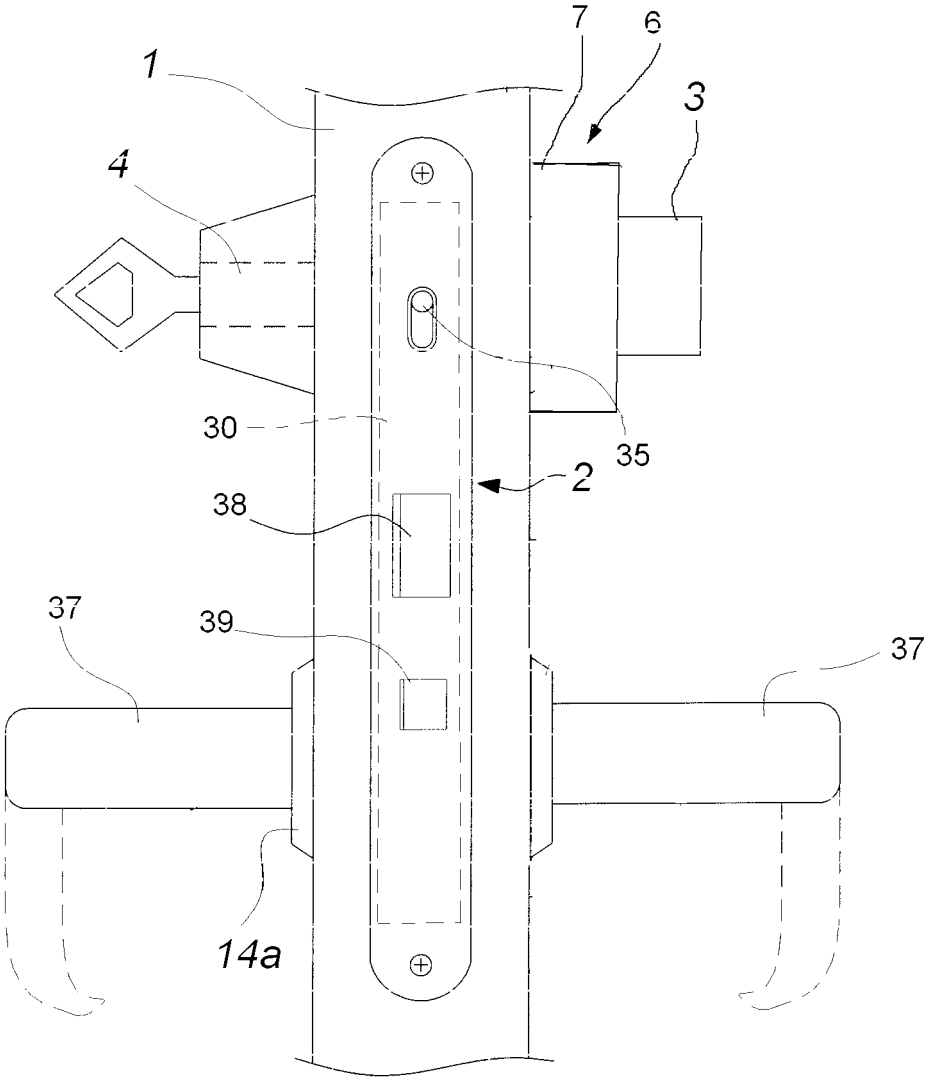

Fig. 1

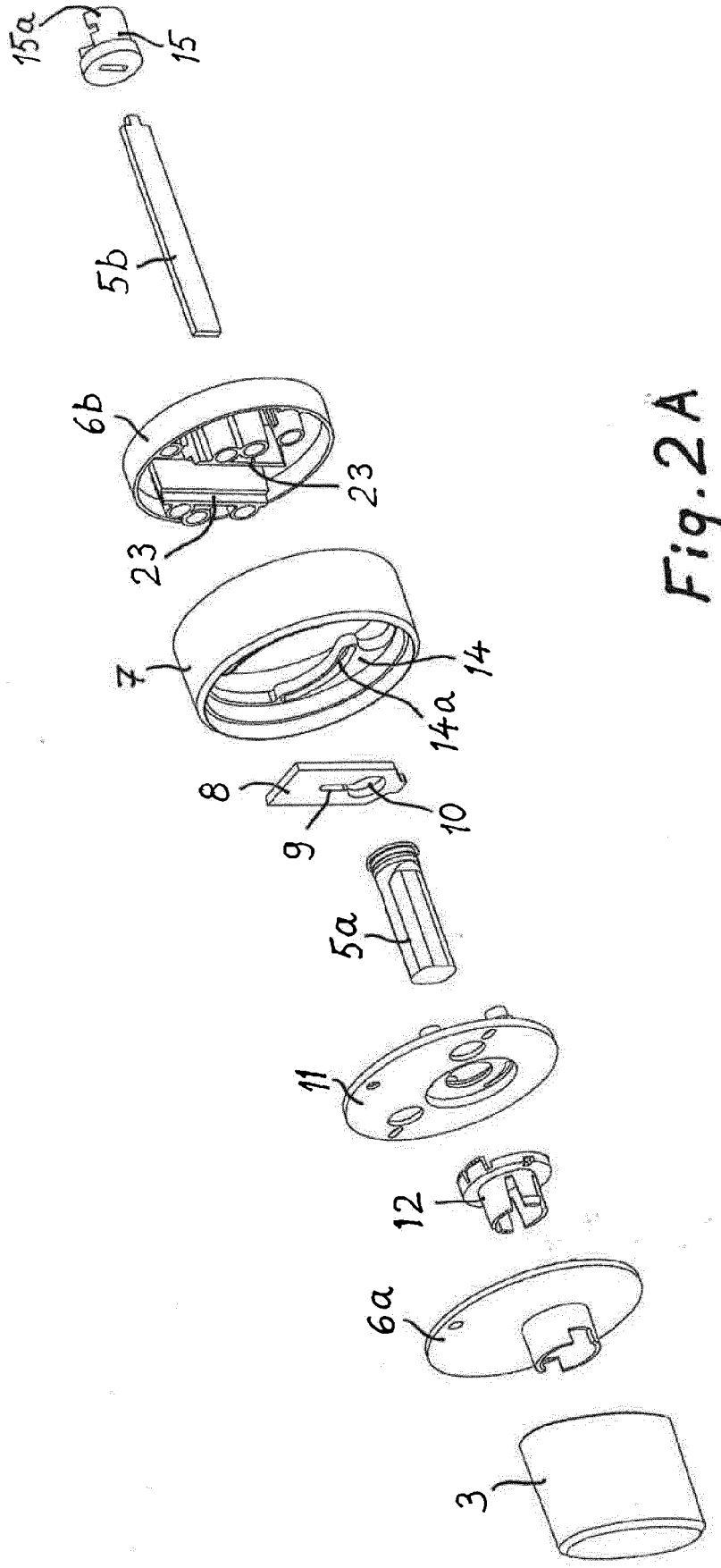

Fig. 2A

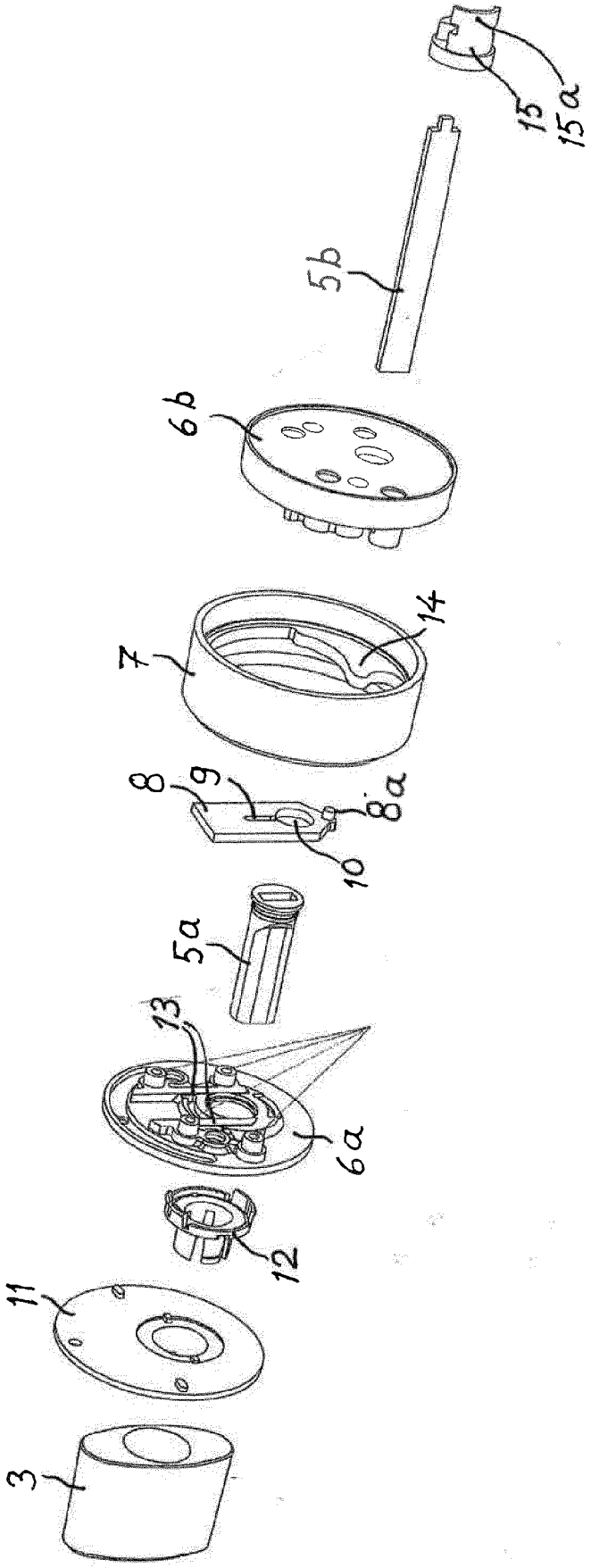

Fig. 2B

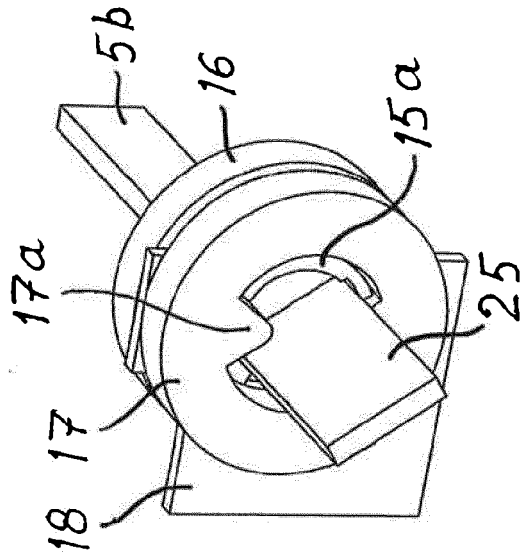

Fig. 4

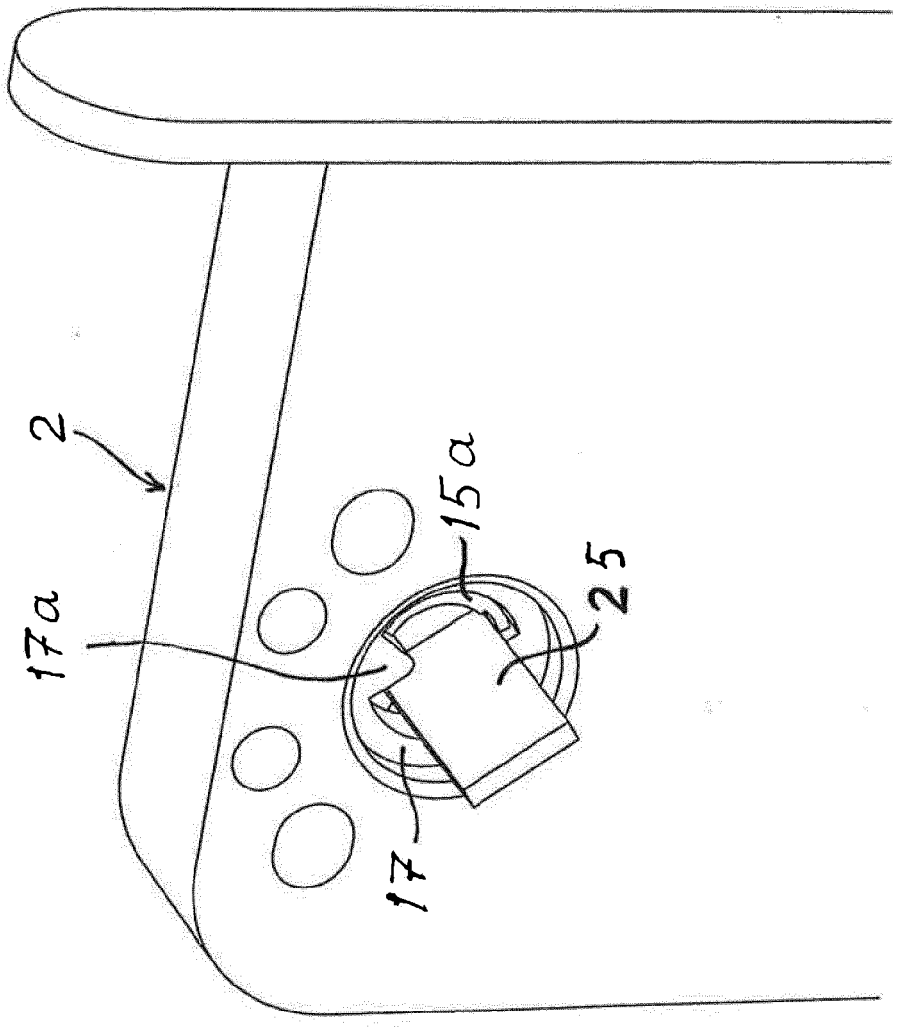

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 17 19 4107

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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	20 February 2018	Pérez Méndez, José F

CATEGORY OF CITED DOCUMENTS

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