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

(11) **EP 3 647 517 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
06.05.2020 Bulletin 2020/19

(51) Int Cl.:
E05B 17/18 *(2006.01)* ***E05B 21/00*** *(2006.01)*
E05B 17/14 *(2006.01)*

(21) Application number: **18204407.3**

(22) Date of filing: **05.11.2018**

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

(71) Applicant: **KALE Kilit ve Kalip Sanayi A.S.**
Sariyer/Istanbul (TR)

(72) Inventor: **BARIS, Muhammed**
34396 Istanbul (TR)

(74) Representative: **Sevinç, Erkan**
Istanbul Patent A.S.
Plaza-33, Büyükdere Cad. No: 33/16
Sisli
34381 Istanbul (TR)

(54) **LOCK GUARD FOR LOCKS WITH AN ENHANCED SECURITY**

(57) The present invention proposes a lock guard (100) for protecting a lock, comprising: a main body (40) having a keyhole (12) and an aperture (36) for reaching a keyhole or an access point of the lock, a plurality of plate tumblers (14) provided in the main body (40). Said lock guard (100) further comprises: a movably attached bolt plate (13) to be triggered by the plate tumblers (14), an elevating member (20) arranged to be in contact with the bolt plate (13), a resilient member (22) to be pressed by the elevating member (20); a spring biased locking tongue (30) arranged to move between a closed and an open position wherein the locking tongue (30) is kept by the elevating member (20) and is arranged to block the aperture (36) of the main body (40) to prevent access to the keyhole or the access point of the lock when in the closed position.

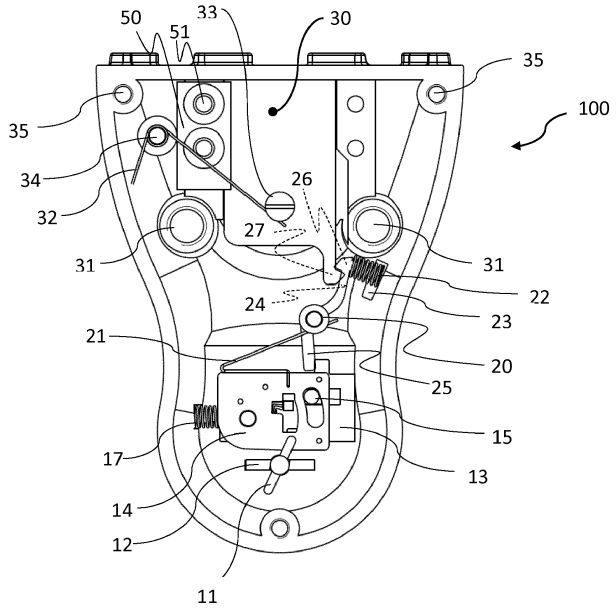

Fig. 1

EP 3 647 517 A1

Description

Technical Field of the Invention

[0001] The present invention relates to a lock guard for a lock provided on a door or a window and more particularly relates to a lock guard, which prevents any unauthorized person to reach the lock.

Background of the Invention

[0002] Locks, whether cam locks, cylinder locks or mortise locks are typically mounted with their key hole of a locking unit or access point directly exposed to the atmosphere and interference.

[0003] Most door locks have rosettes or lock guards surrounding an outer periphery of the locking unit of the lock, which are resistant to any unwanted drilling or lock picking with tamper proof means. Such lock guards and rosettes are commonly fastened to the locks on the door or the window by screws, spring clips and slots, or some combination thereof. Even though the drilling resistive rosettes and the guards are commonly used, the key hole or the access point of such locks is still open the atmosphere and vulnerable.

[0004] Among others, one of the prior art disclosures in the technical field of the present invention can be referred to as NL2013180 (B1), which relates to a security furniture for a key operated rim lock, comprising a rosette which is provided with a key hole. Although the conventional type of lock guards and rosettes improve the protection of the lock and delays a break-in operation, it provides a good grip for a tool such as a clamp or the like, so that it is possible to tear it off and then easily access the cylinder.

[0005] Accordingly, the keyhole of the conventional locks is open to vandalism or sabotage coming from outside. Furthermore, when a more secure lock is needed, conversion of such existing locks is also relatively cumbersome and expensive, since the whole lock box must be replaced. It is needed to provide a rosette which prevents any illicit openings against locks and suitable for different shape and size of the locks.

Objects of the Invention

[0006] Primary object of the invention is to provide a lock guard that can be easily attached to existing or new door locks with increased security against unauthorized opening of the lock.

[0007] Another object of the invention is to provide a lock guard, which prevents access to the lock by covering the key hole or access point of the lock.

[0008] Another object of the invention is to provide a lock guard, which is suitable to be attached different shape and size of the locks.

[0009] Another object of the invention is to provide a lock guard, which does not only protect the lock against illicit attempts, but also protects the lock mechanism against break-in attempts through the door.

Summary of the Invention

[0010] The present invention proposes a lock guard for attaching on a lock, comprising: a main body having a plurality of plate tumblers and a key hole; an aperture formed in the main body for reaching a keyhole of the lock. Said lock guard further comprises a bolt plate provided in the main body which is suitable to be triggered from the plurality of plate tumbler; an elevating member; a resilient member which is arranged to be pressed by the elevating member; a spring biased locking tongue arranged to move between a closed and an open position wherein the locking tongue is kept by the elevating member and is arranged to block the aperture of the main body to prevent access to the key hole of the lock in the closed position when in the closed position.

Brief Description of the Figures

[0011] Accompanying drawings are given solely for the purpose of exemplifying a lock guard whose advantages over prior art were outlined above and will be explained in detail hereinafter:

Fig. 1 demonstrates a rear view of the lock guard according to the present invention.

Fig. 2 demonstrates a front view of the lock guard according to the present invention.

Fig. 3 demonstrates a perspective view of the lock guard according to a second embodiment of the invention.

Fig. 4a demonstrates a rear view of the lock guard, where a locking tongue is driven and the locking tongue is in an open position according to the second embodiment of the invention.

Fig. 4b demonstrates a rear view of the lock guard, where a locking tongue is kept in a main body of the lock guard and the locking tongue is in a closed position according to the second embodiment of the invention.

Fig. 5 demonstrates a perspective view of the lock guard where the locking tongue is driven according to the second embodiment of the invention.

Fig. 6 demonstrates an upper view of a bolt plate according to the present invention.

Fig. 7 demonstrates an upper view of an elevating member according to the present invention.

Fig. 8a demonstrates a perspective view of the slidable locking bolt according to the present invention.

Fig. 8b demonstrates a perspective view of a tongue spring, one of arms of which is arranged to abut a corresponding protrusion of the locking bolt according to the present invention.

Detailed Description of the Invention

[0012]

11. Key

12. Key hole

13. Bolt plate
    131. Guiding hole
    132. Projection

14. Plate tumbler

15. Guiding pin

16. Window

17. Bolt spring

20. Elevating member
    21. Spring
    22. Resilient member
    23. Spring housing
    24. Upper arm
    25. Lower arm
    26. Protrusion
    27. Tooth
    28. Central portion

30. Locking tongue
    31. Mounting hole
    32. Tongue spring
    33. Tongue protrusion
    34. Tongue spring housing
    35. Upper mounting hole
    36. Aperture
    37. Spring arm

40. Main body
    41. Slot

50. Guiding member
    51. Guiding connection member

100. Lock guard

[0013] Referring now to the figures outlined above, the present invention proposes a lock guard (100) for attaching on a lock, comprising: a main body (40) having a keyhole (12) for receiving a key (11) and an aperture (36) for reaching a keyhole of the attached lock, a plurality of plate tumblers (14) provided at the main body (40). Said lock guard (100) further comprises: a bolt plate (13) which is suitable to be triggered from the plurality of plate tumbler (14), an elevating member (20) arranged to be in contact with the bolt plate (13), a resilient member (22) which is arranged to be pressed by the elevating member (20), a spring biased locking tongue (30) arranged to move between a closed and an open position wherein the locking tongue (30) is kept by the rotatably connected elevating member (20) and is arranged to block the aperture (36) of the main body (40) to prevent access to the key hole of the lock when in the closed position. According to the present invention, the locking tongue (30) is movably positioned on the main body (40) and is arranged move away from the main body (40) to open the aperture (36) fully when the locking tongue (30) is brought into the open position.

[0014] Said lock guard (100) is arranged to attach at an outer portion of the lock or like, and the aperture (36) of the main body (40) is aligned to reach said profiled lock cylinder. Advantageously, as an additional security feature, said lock guard (100) can be used to protect the lock of door or windows or the like against any illicit openings. Movably arranged locking tongue (30) is made of a material which is strong enough against any drilling or puncture such as metal, steel or the like. By covering the keyhole of the lock with the anti-drilling locking tongue (30) prevents unauthorized persons to reach the lock.

[0015] In a preferred embodiment, as a locking unit, a plurality of plate tumblers are used. "Plate lock", "plate lock", "double-sided lock" and "tumbler locks" which are widely practiced in the art and each lock of the above mentioned type can be opened/closed by a specific key (11) preferably provided with one sided tailpieces. In another embodiment of the invention, only the key (11) can open the lock guard (100) and the lock to be attached. Every plate tumbler (14) has a window (16) in which a guiding pin (15) moves, when a suitable key (11) is inserted and turned in the lock guard (100). The guiding pin (15) passes through the windows (16) of all the plate tumblers (14). Said guiding pin (15) guides through the window (16) of the plate tumblers (14) upon the turn of the key (11) and determines the position of the bolt plate (13). Firstly, the key (11) which has a preferably double bit with a certain profile of the recesses and projections is inserted inside the keyhole (12) and is rotated. When the key (11) is introduced into the keyhole (12) and rotated around its axis, the indented edges of the bitted key come into contact in succession with the edge portions of the plate tumblers (14). The key's bits engage with the corresponding plate tumblers (14) and, if the key (11) has the right profiles, each plate tumbler (14) is moved until it is aligned. Each plate tumbler (14) has a slit in which an arm of a spring (21) is attached and the other arm of the spring (21) abuts a central portion (28) of the elevating member (20). The bolt plate (13) in a commu-

nication with the plate tumblers (14) mounted movable in the main body (40) and displaceable by means of rotation of the key (11) in the main body (40) between a first position and a second position corresponding, respectively, to the open condition and to the closed condition of the lock guard (100). The bolt plate (13) is pressed by a bolt plate spring (17) which is in contact with a projection of the bolt plate (13). The bolt plate spring can be designed to operate with a compression load, so the spring gets shorter as the load is applied to it.

[0016] Referring to the Fig. 7, said elevating member (20) can have a hollow central portion (28) of where the elevating member (20) is attached to the main body (40) and is arranged to pivot around said central portion (28). In the preferred embodiment, the elevating member (20) is pivotal and has an upper arm (24) and a lower arm (25) where the lower arm is in contact with the spring biased bolt plate (13). Fig. 1 shows a closed position of the lock guard (100) by covering the aperture (36) fully by eliminating access to the keyhole or the access point of the lock. Referring to the Fig.1, the upper arm (24) of the elevating member (20) can have a protrusion (26) to be in contact with the locking tongue (30) when the locking tongue (30) is in the closed position. The locking tongue (30) has a tooth (27) as a part which extends from the elevating member (20) wherein the tooth (27) is shaped and dimensioned to engage with the protrusion (26) of the upper arm (24) of the elevating member (20) when the locking tongue (30) is brought into the closed position. As shown in the Fig. 1, the tooth (27) and the spring biased upper arm (24) and the protrusion (26) thereof makes a contact with each other and the upper arm (24) keeps the locking tongue (30) within the main body by blocking access to the keyhole or the access point of the lock. When the plurality of plate tumblers (14) is triggered by the user via a corresponding key (11), the bolt plate (13) is moved in a direction where the lower arm (25) of the elevating member (20) is pivoted and is pressed against the resilient member (22) provided in a spring housing (23) in the main body (40). As the upper arm (24) of the elevating member (20) is retracted, the tooth (27) and the locking tongue (30) are released and the locking tongue (30) is pushed away through a slot (41) of the main body (40) under the pressure of a tongue spring (32) which is in contact with the locking tongue with a tongue protrusion (33) provided on the locking tongue (30). Further, the movement of locking tongue (20) can be limited by the tongue protrusion (33) which abuts the inside of an upper part of the main body (40). The tongue spring (32) is mainly arranged to push the locking tongue (30) out of the main body (40) one of its arm is in contact with said tongue protrusion (33). Said tongue spring (32) has a spring arm (37) which is in contact with a tongue protrusion (33) provided on the locking tongue (30) to move the locking tongue (30) when released. A central hollow portion of the tongue spring (32) can be attached to a tongue spring housing (34) such that said tongue spring (32) can make a pivotal movement around said tongue spring housing (34).

[0017] In the preferred embodiment, the locking tongue (30) is arranged to move in a direction parallel to the longitudinal axis of the main body (Y). Referring to the Fig. 4a, when the locking tongue (30) is released and extended away from the main body (40), the user can push the locking tongue (30) and can bring in the closed position again by covering the aperture (36) and engaging the tooth (27) and the upper arm (24) as shown in Fig. 1. Said main body (40) further comprises at least one guiding member (50) for guiding in which the locking tongue (30) is guided in a vertical direction where the guiding member (50) can be attached to the main body (40) with at least one guiding connection member (51). The guiding member (50) covers at least a portion of the locking tongue (30) in a vertical direction, such that the locking tongue (30) is smoothly aligned to move away from the slot (41) of the main body (40). Said slot is shaped and sized with respect to the width and depth of the locking tongue (30).

[0018] Fig. 1 and 2 show the first embodiment of the lock guard (100) according to the present invention and Fig. 3 and 5 show the second embodiment of the lock guard (100) according to the present. Second embodiment mainly differs that the outer periphery of the main body (40) is designed mainly elliptic whereas the first embodiment has a different main body which has an outer periphery expanding in the longitudinal direction. Although outer part of the lock which is open to the outside can have a different shape and size, the main body (40) of the lock guard (100) is shaped and dimensioned enough to cover the whole outer part of the lock for blocking access to the lock. The first embodiment of the invention can have at least one upper mounting hole (35) through which corresponding fastening means are attached as shown in Fig. 1.

[0019] Again referring to the Fig. 1 and 4a, the main body (40) has more than one mounting hole (31) to be attached by fastening means such as a screw or the like. Instead of using conventional type rosettes, the lock guard (100) can easily be attached to existing doors and can be fixed from inside with screws without changing the existing lock. The entire lock guard (100) is designed as a ready-to-install unit that can be mounted on the outside of the door or the like regardless of the lock and lock unit used on the door. In order to improve the protection of the lock guard (104), the lock can made of metal, steel or the like. The resilient member (22) can be a spring and is designed to operate with a compression load, so the spring gets shorter as the load is applied to it wherein the resilient member (22) is arranged in the housing (23) within the main body (40).

Claims

1. A lock guard (100) for protecting a lock, comprising:

a main body (40) having a keyhole (12) and an aperture (36) for reaching a keyhole or an access point of the lock;
a plurality of plate tumblers (14) provided in the main body (40) **characterized in that** said lock guard (100) further comprises:

a movably attached bolt plate (13) to be triggered by the plate tumblers (14);
an elevating member (20) arranged to be in contact with the bolt plate (13);
a resilient member (22) to be pressed by the elevating member (20);
a spring biased locking tongue (30) arranged to move between a closed and an open position wherein the locking tongue (30) is kept by the elevating member (20) and is arranged to block the aperture (36) of the main body (40) to prevent access to the keyhole or the access point of the lock when in the closed position.

2. The lock guard (100) according to claim 1 wherein said elevating member (20) is rotatably connected within the main body (40) and has an upper arm (24) and a lower arm (25) where the lower arm (25) is arranged to contact with the bolt plate (13).

3. The lock guard (100) according to claim 1 or 2 wherein said lock guard (100) further comprises a tongue spring (32) which is arranged to push the locking tongue (30) out of the main body (40).

4. The lock guard (100) according to claim 3 wherein said tongue spring (32) has a spring arm (37) which is in contact with a tongue protrusion (33) provided on the locking tongue (30) to move the locking tongue (30) when released.

5. The lock guard (100) according to any of the preceding claims wherein the spring biased locking tongue (30) is arranged to move in a direction parallel to the longitudinal axis of the main body (Y).

6. The lock guard (100) according to any of the preceding claims wherein the spring biased bolt plate (13) is arranged to move in a direction which is perpendicular to the longitudinal axis of the main body (Y) and the bolt plate (13) has a projection (132) arranged to be in contact with the lower arm of the elevating member (20) for pivoting the elevating member (20) when the plurality of plate tumblers (14) are triggered.

8. The lock guard (100) according to any of the preceding claims wherein said main body (40) further comprises at least one guiding member (50) in which the locking tongue (30) is guided in a vertical direction and the at least one guiding member (50) is attached to the main body (40) with at least one guiding connection member (51).

9. The lock guard (100) according to claim 2 wherein the upper arm (24) of the elevating member (20) has a protrusion (26) to be in contact with the locking tongue (30).

10. The lock guard (100) according to claim 9 wherein the locking tongue (30) has a tooth (27) which is shaped and dimensioned to engage with the protrusion (26) of the upper arm (24) of the elevating member (20) when the locking tongue (30) is in the closed position.

11. The lock guard (100) according to any of the preceding claims wherein the locking tongue (30) is movably positioned on the main body (40) and is arranged move away from the main body (40) to open the aperture (36) fully when the locking tongue (30) is brought into the open position.

12. The lock guard (100) according to any of the preceding claims wherein the tooth (27) and the locking tongue (30) are configured to be released from each other and the locking tongue (20) is pushed away from a slot (41) shaped and dimensioned with respect to the locking tongue (30) and provided on the main body (40), when the bolt plate (13) is retracted.

13. The lock guard (100) according to any of the preceding claims wherein the bolt plate (13) is attached one of the plate tumblers (14) and each of said plate tumblers (14) has a window (16) in which a guiding pin (15) moves, when a suitable key (11) is inserted and turned in the lock guard (100).

14. The lock guard (100) according to any of the preceding claims wherein each plate tumbler (14) has a slit in which an arm of a spring (21) is attached and the other arm of the spring (21) abuts a central portion (28) of the elevating member (20).

15. A lock comprising said lock guard (100) according to any of the preceding claims.

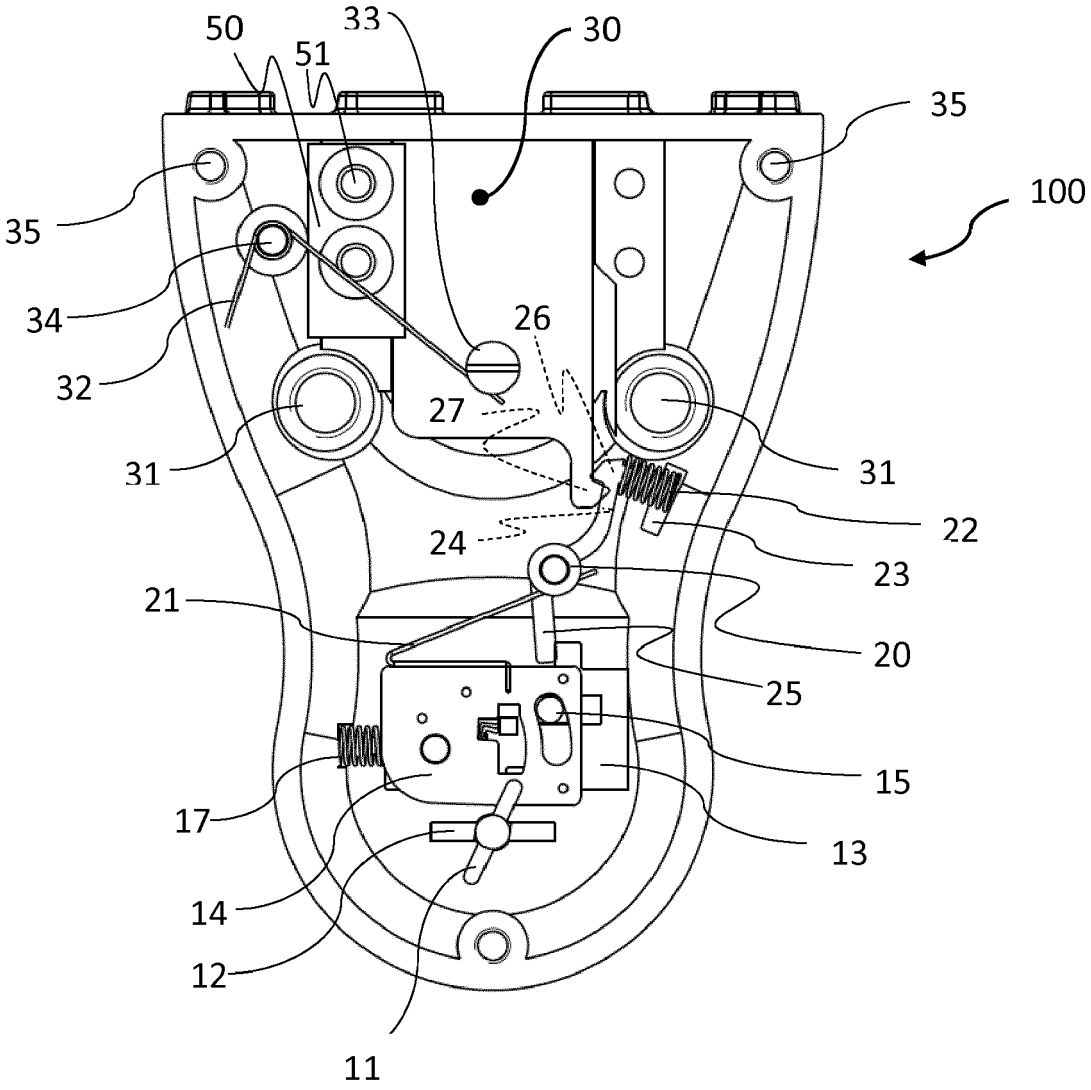
50
51
33
30
35
35
100
34
26
32
27
31
31
22
24
23
21
20
25
15
17
13
14
12
11

Fig. 1

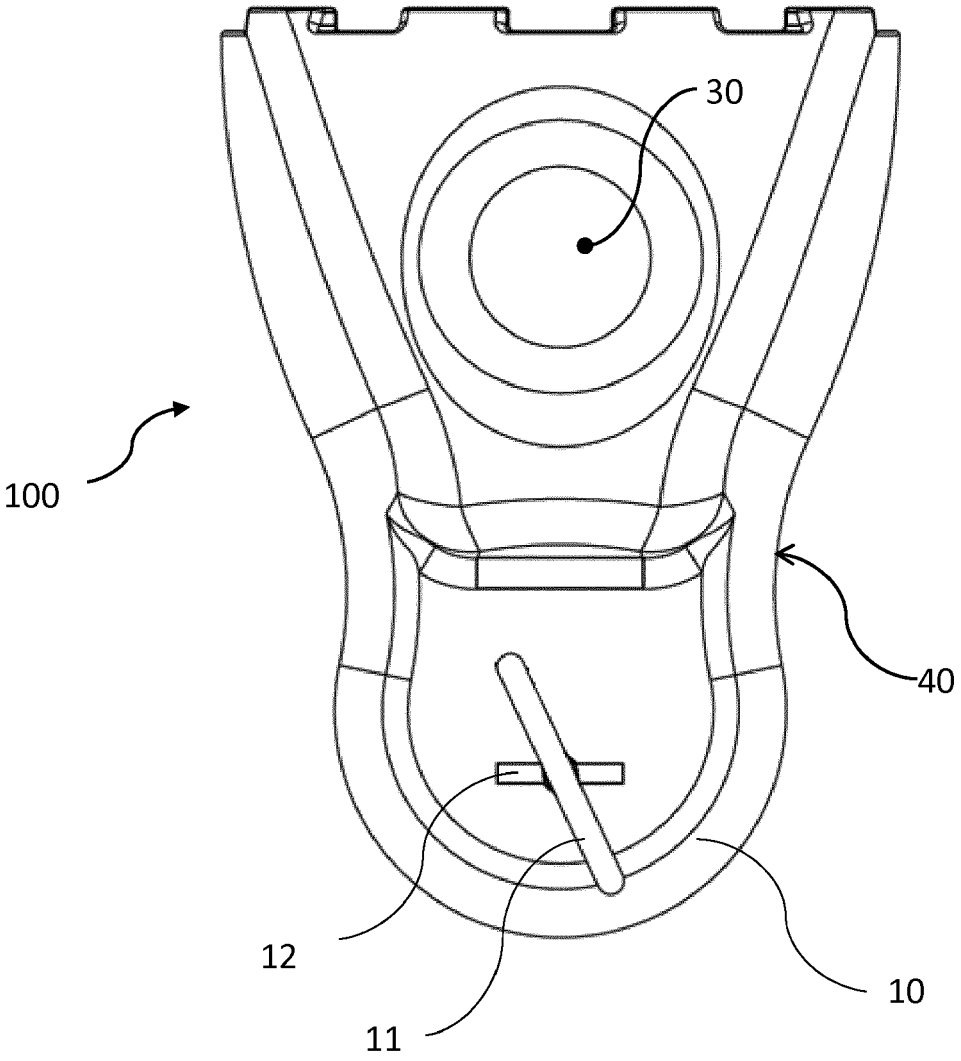

Fig. 2

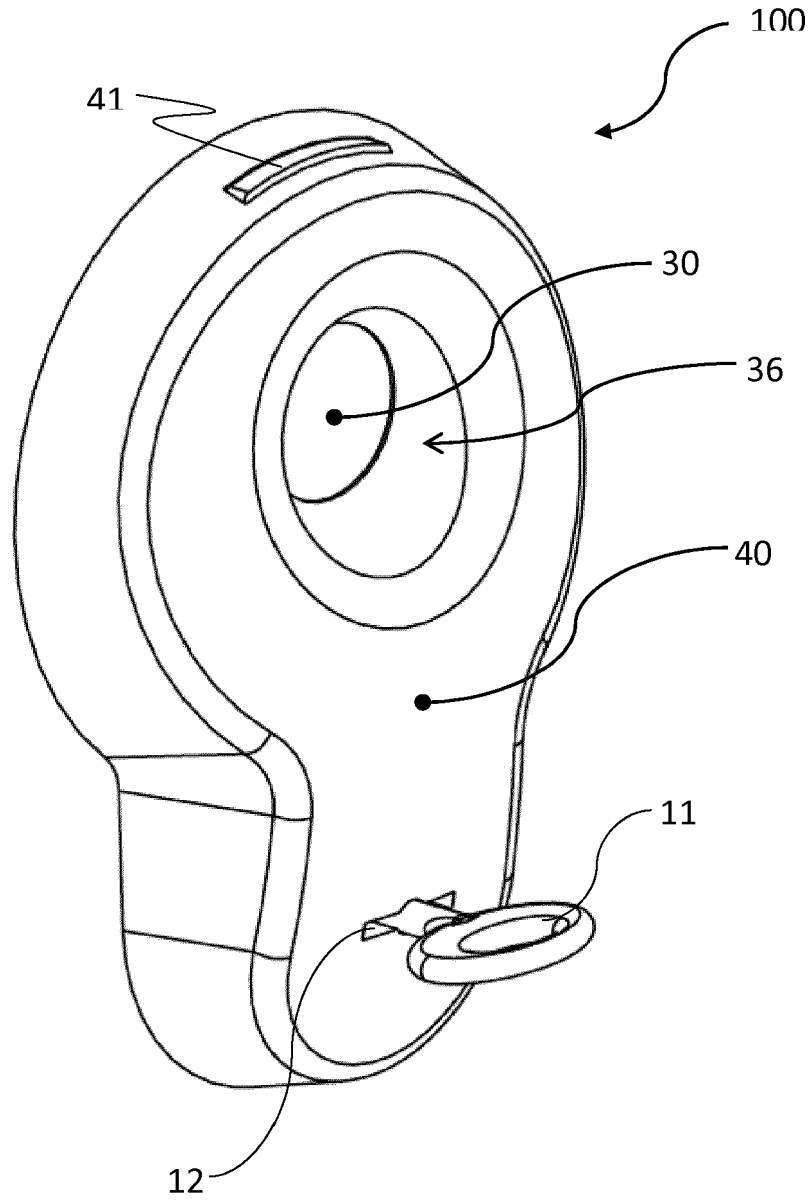

Fig. 3

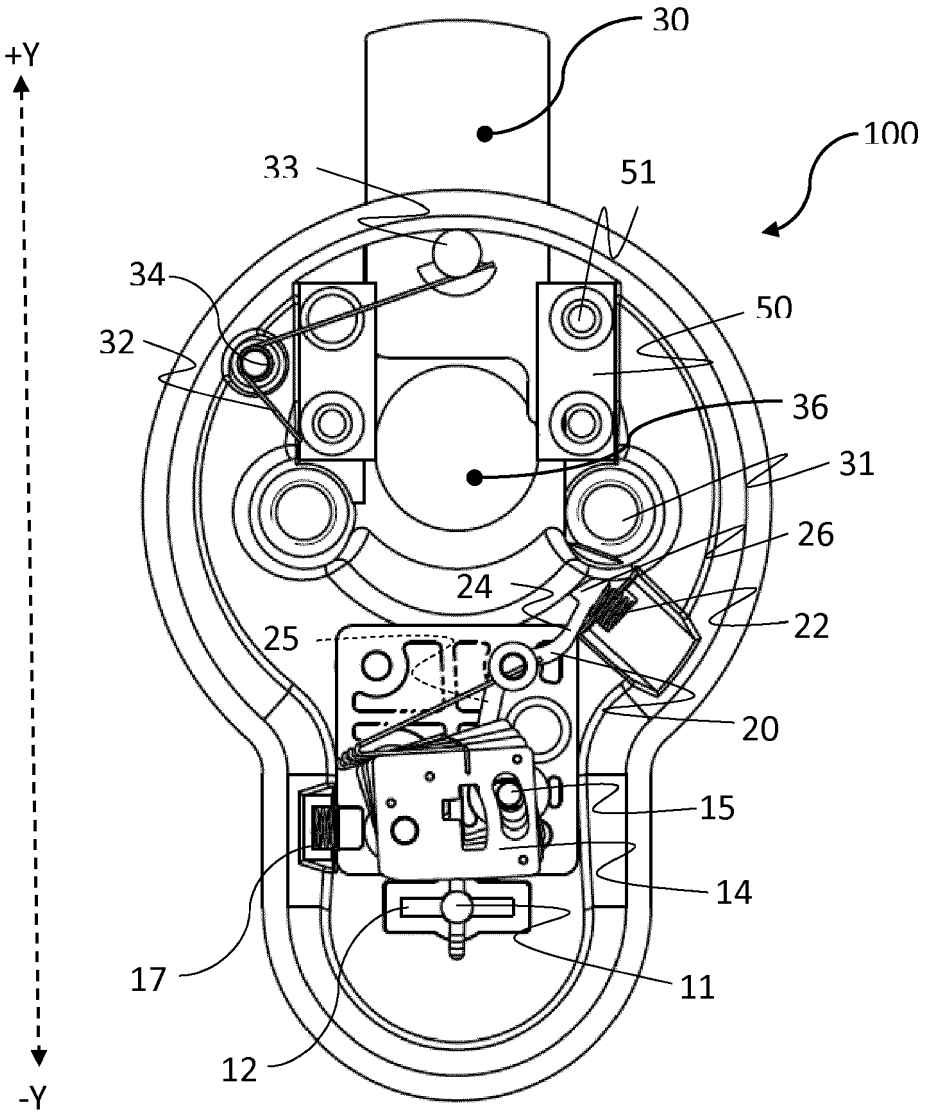

Fig. 4a

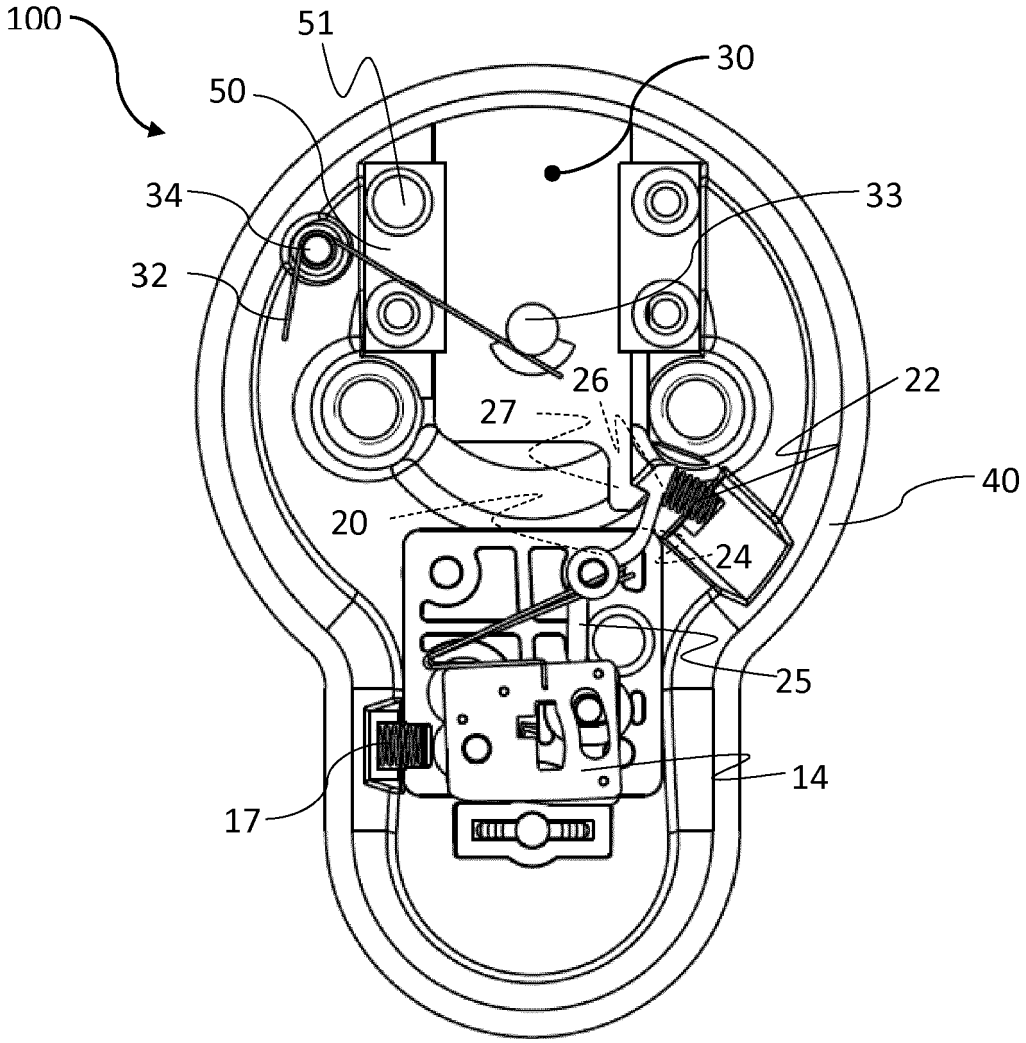

Fig. 4b

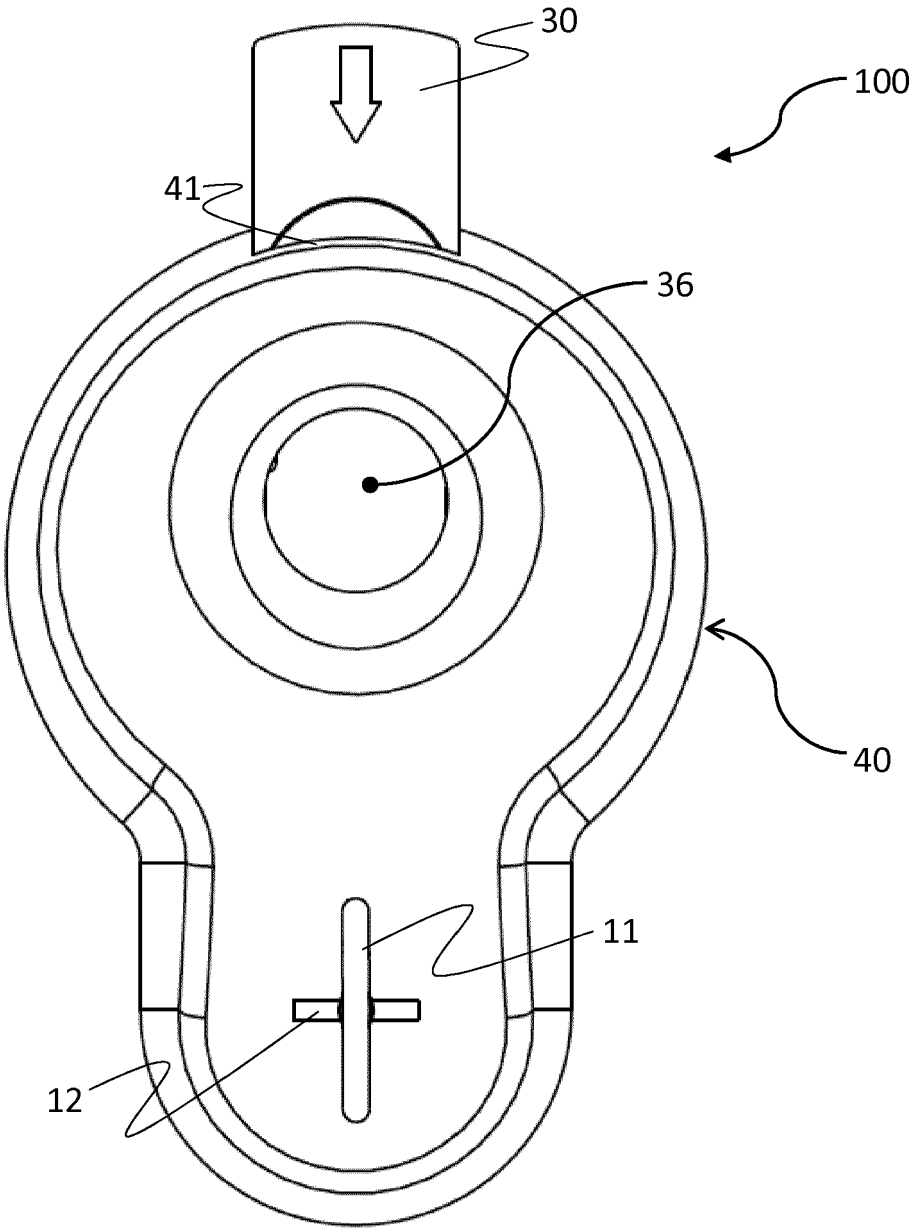

Fig. 5

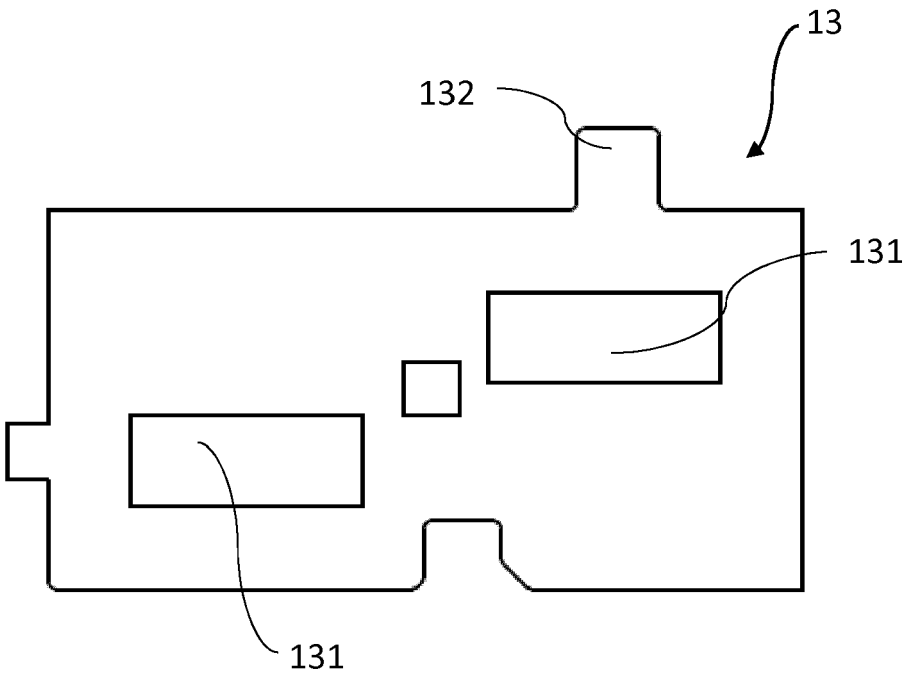

Fig. 6

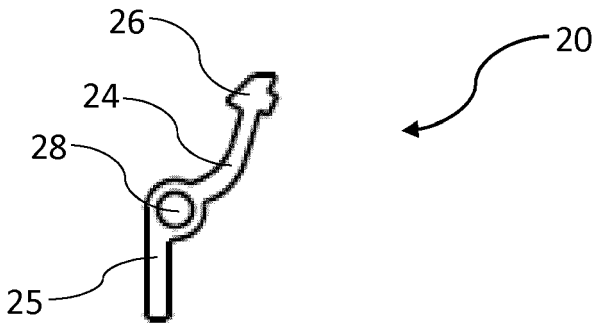

Fig. 7

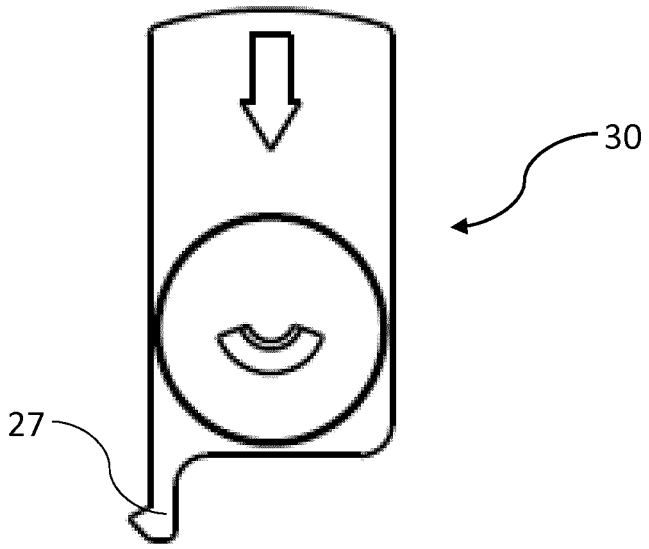

Fig. 8a

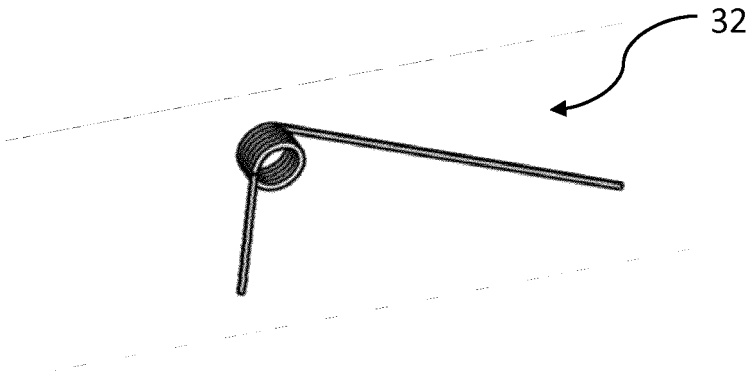

Fig. 8b

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 18 20 4407

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	NL 2 013 180 B (ASSA ABLOY NEDERLAND B V [NL]) 14 July 2016 (2016-07-14) * the whole document *	1-15	INV. E05B17/18 E05B21/00 E05B17/14
A	DE 37 27 925 A1 (MELCHERT BESCHLAEGE [DE]) 2 March 1989 (1989-03-02) * the whole document *	1-15	
A	FR 2 677 069 A1 (RAMBLIER YVES [FR]) 4 December 1992 (1992-12-04) * the whole document *	1-15	
A	US 1 259 128 A (PINGREE DAVID H [US]) 12 March 1918 (1918-03-12) * the whole document *	1-15	
A	US 1 124 373 A (WILSON IRA W [US]) 12 January 1915 (1915-01-12) * the whole document *	1-15	
A	US 756 434 A (TROPP PAUL [DE]) 5 April 1904 (1904-04-05) * the whole document *	1-15	TECHNICAL FIELDS SEARCHED (IPC) E05B
A	WO 2013/033960 A1 (ZHEJIANG HONGLI LOCKS CO LTD [CN]; JIA JUNXIN [CN]) 14 March 2013 (2013-03-14) * the whole document *	1-15	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	8 April 2019	Geerts, Arnold

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 18 20 4407

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

08-04-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
NL 2013180 B	14-07-2016	----------	
DE 3727925 A1	02-03-1989	NONE	
FR 2677069 A1	04-12-1992	NONE	
US 1259128 A	12-03-1918	NONE	
US 1124373 A	12-01-1915	NONE	
US 756434 A	05-04-1904	NONE	
WO 2013033960 A1	14-03-2013	RU 2012150419 A	27-07-2014
		WO 2013033960 A1	14-03-2013

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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

Patent documents cited in the description

- NL 2013180 B1 **[0004]**