



(11)

EP 3 567 191 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
13.11.2019 Bulletin 2019/46

(51) Int Cl.:
E05B 9/08 (2006.01) **E05B 17/14 (2006.01)**
E05B 17/20 (2006.01)

(21) Application number: **19153046.8**

(22) Date of filing: **22.01.2019**

(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

• **Dal Fabbro, Emanuela**
32010 Tambre BL (IT)

(72) Inventor: **OLIANA, Pier Luigi**
31015 CONEGLIANO TV (IT)

(74) Representative: **Modiano, Micaela Nadia et al**
Modiano & Partners
Via Meravigli, 16
20123 Milano (IT)

(30) Priority: **11.05.2018 IT 201800005261**

(71) Applicants:
• **Oliana, Pier Luigi**
31015 Conegliano (TV) (IT)

(54) **PROTECTION DEVICE FOR LOCKS**

(57) A protection device (1, 101, 201) for locks of doors (3, 103, 203), said locks (2, 102, 202) comprising a box-like body (4, 104, 204), which accommodates a cylinder provided with a seat for the insertion of a key adapted to allow the activation of the cylinder, and a covering element constituted by a boss (6, 106, 206); the device (1, 101, 201) is constituted by a reinforcement plate (12, 112, 212), which can be arranged in contact with the box-like body, from which a tab (16, 116, 216) protrudes to which it is possible to interconnect the stem (10, 110, 210) of said boss (6, 106, 206).

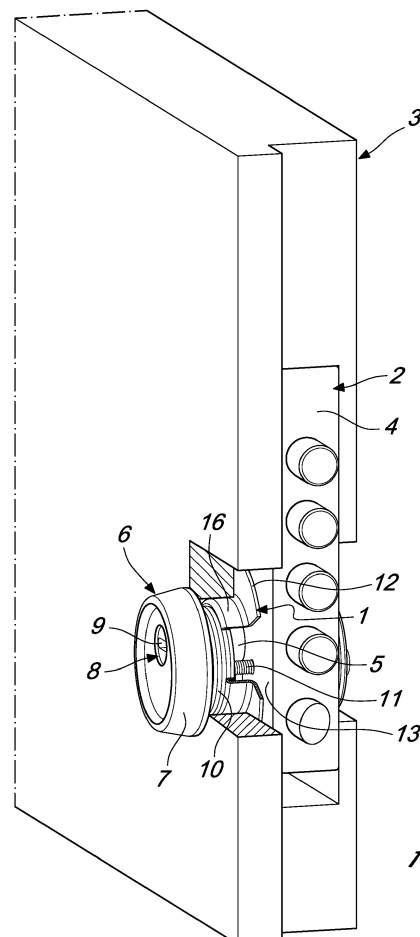


Fig. 2

Description

[0001] The present invention relates to a protection device for locks that can be coupled with wood doors.

[0002] Locks are known which are adapted to allow the locked closure, and the opening, of a door and are constituted essentially by a box-like body, forming the lock, which accommodates a cylinder provided with a seat for the insertion of the stem of a key adapted to allow the activation of the cylinder and thus the unlocking of the lock, and optional means for the movement of bolts and a latch.

[0003] These cylinders of the known type are usually made of brass or in any case of materials that do not have a high mechanical strength, thus lending themselves to being easily broken-in by drilling and/or breaking and/or tearing.

[0004] In order to protect these cylinders of the known type from possible break-ins, it is common to fix, in front of the box-like body that forms the lock, in such a position as to cover the cylinder, an adapted covering element which is constituted by a boss, having a substantially circular plan shape, which has, at the keyhole of the cylinder, a circular hole within which a keyhole protection disk is rotatably associated; a slit adapted to allow the insertion of the key is provided in the disk.

[0005] The boss thus constitutes a protection for the cylinder and allows at the same time the insertion and rotation of the key in the keyhole of the cylinder.

[0006] As illustrated in Figure 1, such bosses A of the known type have however a drawback: in fact such bosses A usually have such a depth as to arrange them, with their threaded stem B, spaced from the box-like body C so that a space E remains between the bottom D of the threaded stem B and the box-like body C.

[0007] The bosses A are thus fixed to the box-like body C by means of screws F, the head G of which is arranged toward the inner side of the door H, and the stem I of which is associated with a complementarily threaded seat provided on the bottom D of the boss A.

[0008] Thus, part of the stem I of the screws F remains exposed and allows ill-intentioned individuals to break the screws by means of appropriate tools, such as pipe wrenches or the like, which are used to grip the boss and make it oscillate until the screws yield, breaking them.

[0009] The aim of the present invention is therefore to solve the highlighted technical problems, removing the drawbacks of the cited background art and thus devising a protection device which, applied to a lock provided with a covering element, allows to protect the lock from break-ins.

[0010] Within this aim, an object of the invention is to provide a device that can be applied quickly and easily also to locks of the known type.

[0011] Another object is to provide a device that is structurally simple, has modest costs and can be manufactured with known machines and systems.

[0012] This aim and these and other objects that will

become better apparent hereinafter are achieved by a protection device for locks of doors, said locks comprising a box-like body, which accommodates a cylinder provided with a seat for the insertion of a key adapted to allow the activation of said cylinder, and a covering element constituted by a boss, characterized in that it is constituted by a reinforcement plate, which can be arranged in contact with said box-like body, from which a tab protrudes to which it is possible to interconnect the stem of said boss.

[0013] Further characteristics and advantages of the invention will become better apparent from the detailed description of a particular embodiment, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a sectional view of background art;

Figure 2 is a partially sectional perspective view of the device according to the present invention;

Figure 3 is a perspective view of the device detached from the boss;

Figure 4 is a sectional view of the device applied;

Figure 5 is view of a detail of Figure 4;

Figure 6 is a view, similar to the previous one, of a variation;

Figure 7 is a view, similar to the previous one, of a variation;

Figure 8 is a view of the variation of the preceding figure during the insertion of the boss in the device.

[0014] With reference to the figures, a protection device for locks 2 of doors 3 according to the invention is generally designated by the reference numeral 1, said locks 2 comprising a box-like body 4, which accommodates a cylinder 5 provided with a seat for the insertion of the stem of a key adapted to allow the activation of said cylinder.

[0015] The lock 2 further comprises a covering element constituted by a boss 6 comprising a head 7, of various shapes, for example conical, frustoconical, cylindrical or other, which can be positioned externally to the door 3, which has, at the keyhole of the cylinder 5, a circular hole within which a keyhole protection disk 8 is associated rotatably, a slit 9 adapted to allow the insertion of the key being provided in said disk.

[0016] An externally threaded stem 10 protrudes from the head 7; the boss 6 is fixed to the lock by means of adapted and known first screws 11.

[0017] The protection device 1 is constituted by a reinforcement plate 12, which has a plan shape that is polygonal, preferably oval or circular with an outside diameter that is greater than the outside diameter of said stem 10, and can be arranged in contact with the lateral surface 13, of the box-like body 2 that faces the boss 6.

[0018] A space 14 is formed between the lateral surface 13 and the facing terminal end 10a of the stem 10.

[0019] The reinforcement plate 12 is provided centrally with a circular hole 15, which has a diameter that is slightly

larger than the outside diameter of the stem 10; a tab 16 protrudes perimetrically to said hole 15 and said stem 10 of the boss 6 can be interconnected with the tab.

[0020] The axial extension of the tab 16 is greater than the distance between the lateral surface 13 and the facing terminal end 10a of the stem 10 so as to form an end 17 that is folded advantageously at 180° toward the box-like body 4.

[0021] The end 17 is internally threaded complementarily to the stem 10 and, as shown for example in Figure 5, the stem 10 is thus rotatably associable therewith.

[0022] In this way, the boss 6 is monolithic with the door 3 and break-in resistance is increased considerably, since the stem 10 is stably fixed in position, although the space 14 exists between the lateral surface 13 and the facing terminal end 10a of the stem 10.

[0023] The first screws 11 only have the function of anchoring the boss 6.

[0024] In practice it has been found that the invention has achieved the intended aim and objects, a device having been devised which, applied to a lock, for wooden doors, provided with a covering element, allows to protect the lock effectively from break-ins.

[0025] Furthermore, the device can be applied rapidly and easily also to locks of the known type.

[0026] Finally, the device is structurally simple and has low manufacturing costs.

[0027] The materials used, as well as the dimensions that constitute the individual components of the invention, may of course be more pertinent according to the specific requirements.

[0028] Thus, as shown in Figure 6, the reinforcement plate 112 of the protection device 101 for locks 102 has, perimetrically to the hole 115, a tab 116 the end 117 of which is folded at 180° toward the box-like body 104 and is smooth, being interconnectable by mere interference with the underlying stem 110, which also is externally smooth, of the boss 106.

[0029] The locking in position of the boss 106 with respect to the door 103 occurs by means of a washer 118 which is fixed to the rear surface 119 of the stem 110 by means of second screws 120, the washer 118 protruding radially to the rear surface 119 so as to affect the folded end 117 by abutment.

[0030] Figures 7 and 8 show an additional embodiment in which the reinforcement plate 212 of the protection device 201 for locks 202 has, perimetrically to the hole 215, a tab 216 the end 217 of which is folded at 180° toward the box-like body 204 and is smooth, and so is the underlying stem 210 of the boss 206.

[0031] The locking in position of the boss 206 with respect to the door 203 occurs by means of an elastically deformable ring 221 arranged within an adapted annular seat 222 provided on the lateral surface of the stem 210 proximate to the terminal end 210a of the stem 210.

[0032] The ring 221 protrudes radially to the lateral surface of the stem 210 and affects the folded end 217 by abutment.

[0033] In order to facilitate the positioning of the stem 210, the end 217 of the tab 216 that faces the stem 210 is beveled so as to form an inclined plane 223 which facilitates, during the insertion of the boss 206 in the device 201, the temporary compression of the ring 221.

[0034] These variations, too, achieve the intended aim and objects.

[0035] The various means for performing certain different functions need not certainly coexist only in the illustrated embodiment but can be present per se in many embodiments, including ones that are not illustrated.

[0036] The characteristics of the invention indicated as advantageous, convenient or the like may also be omitted or replaced with equivalents.

[0037] The disclosures in Italian Patent Application No. 102018000005261 from which this application claims priority are incorporated herein by reference.

[0038] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A protection device (1, 101, 201) for locks (2, 102, 202) of doors (3, 103, 203), said locks (2, 102, 202) comprising a box-like body (4, 104, 204), which accommodates a cylinder provided with a seat for the insertion of a key adapted to allow the activation of said cylinder, and a covering element constituted by a boss (6, 106, 206), **characterized in that** it is constituted by a reinforcement plate (12, 112, 212), which can be arranged in contact with said box-like body, from which a tab (16, 116, 216) protrudes to which it is possible to interconnect a stem (10, 110, 210) of said boss (6, 106, 206).
2. The device (1, 101, 201) according to claim 1, **characterized in that** said reinforcement plate (12, 112, 212), which has in plan view a polygonal shape with an outside diameter that is greater than the outside diameter of said stem (10, 110, 210), can be arranged in contact with the lateral surface (13, 113, 213) of said box-like body (2, 102, 202) that faces said boss (6, 106, 206), a space (14, 114, 214) being formed between said lateral surface (13, 113, 213) and a facing terminal end (10a, 110a, 210a) of said stem (10, 110, 210).
3. The device (1, 101, 201) according to claim 2, **characterized in that** said reinforcement plate (12, 112, 212) is provided centrally with a circular hole (15, 115, 215), which has a diameter that is slightly larger than an outside diameter of said stem (10, 110, 210),

said tab (16, 116, 216) protruding perimetrically to said hole (15, 115, 215), said stem (10, 110, 210) of said boss (6, 106, 206) being interconnectable therewith, the axial extension of said tab (16, 116, 216) being greater than a distance between said lateral surface (13, 113, 213) and the facing terminal end (10a, 110a, 210a) of said stem (10, 110, 210) so as to form an end (17, 117, 217) that is folded at 180° toward said box-like body (4, 104, 204).

5

said end (217) of said tab (216) that faces said stem (210) is beveled so as to form an inclined plane (223) which facilitates, during the insertion of said boss (206) in said device (201), the temporary compression of said ring (221).

10

4. The device (1) according to one or more of the preceding claims, **characterized in that** said end (17) is internally threaded complementarily to said stem (10) and said stem (10) of said boss (6) is rotatably associable therewith and is monolithic with said door (3), increasing break-in resistance, since said stem (10) is stably fixed in position, although said space (14) exists between said lateral surface (13) and said facing terminal end (10a) of said stem (10).

15

20

5. The device (101) according to one or more of the preceding claims, **characterized in that** said end (117) is folded at 180° toward said box-like body (104) and is smooth, being interconnectable by mere interference with said underlying stem (110), which also is externally smooth, of said boss (106).

25

6. The closure device (101) according to one or more of the preceding claims, **characterized in that** the locking in position of said boss (106) with respect to said door (103) occurs by means of a washer (118) which is fixed to the rear surface (119) of said stem (110) by means of second screws (120), said washer (118) protruding radially to said rear surface (119) so as to affect said folded end (117) by abutment.

30

35

7. The device (201) according to one or more of the preceding claims, **characterized in that** said reinforcement plate (212) is provided with said tab (216), the end (217) of which is folded at 180° toward said box-like body (204) and is smooth, and so is said underlying stem (210) of said boss (206), the locking in position of said boss (206) with respect to said door (203) occurring by means of an elastically deformable ring (221) arranged within an adapted annular seat (222) provided on the lateral surface of said stem (210) proximate to said terminal end (210a) of said stem (210).

40

45

8. The closure device (101) according to one or more of the preceding claims, **characterized in that** said ring (221) protrudes radially to said lateral surface of said stem (210) and affects said folded end (217) by abutment.

50

55

9. The closure device (101) according to one or more of the preceding claims, **characterized in that** in order to facilitate the positioning of said stem (210)

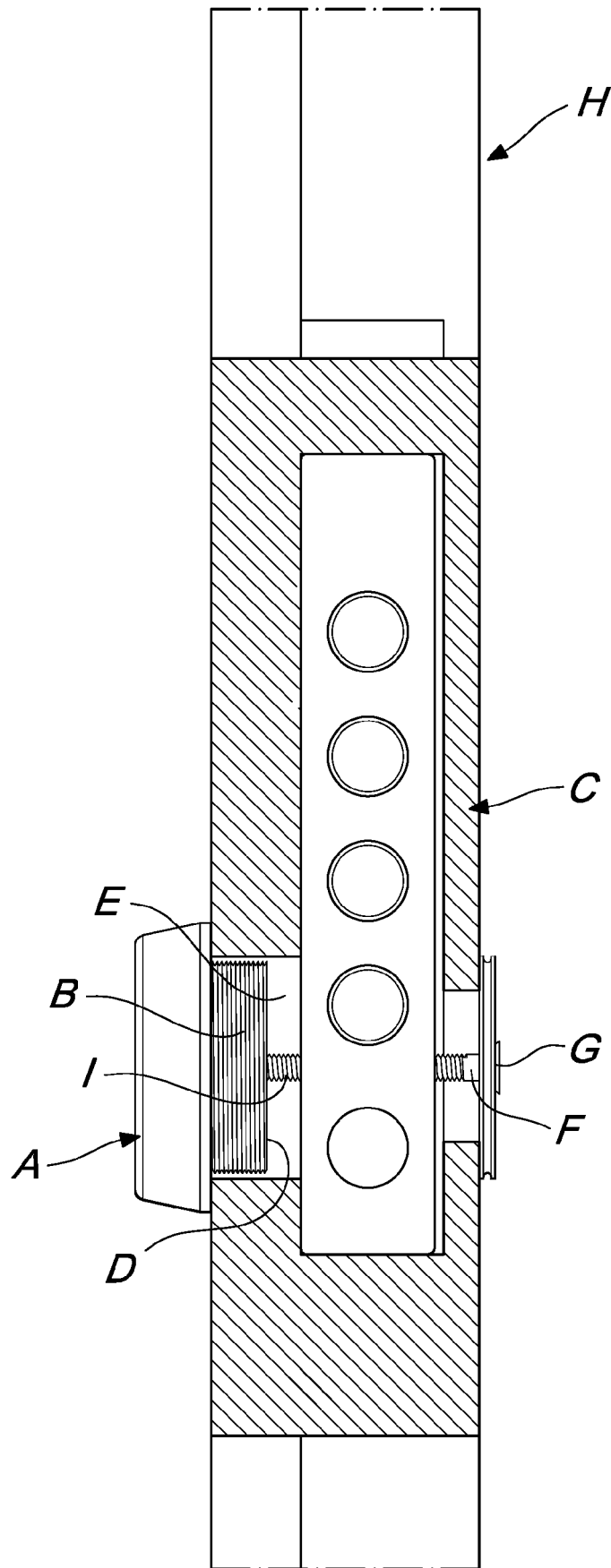
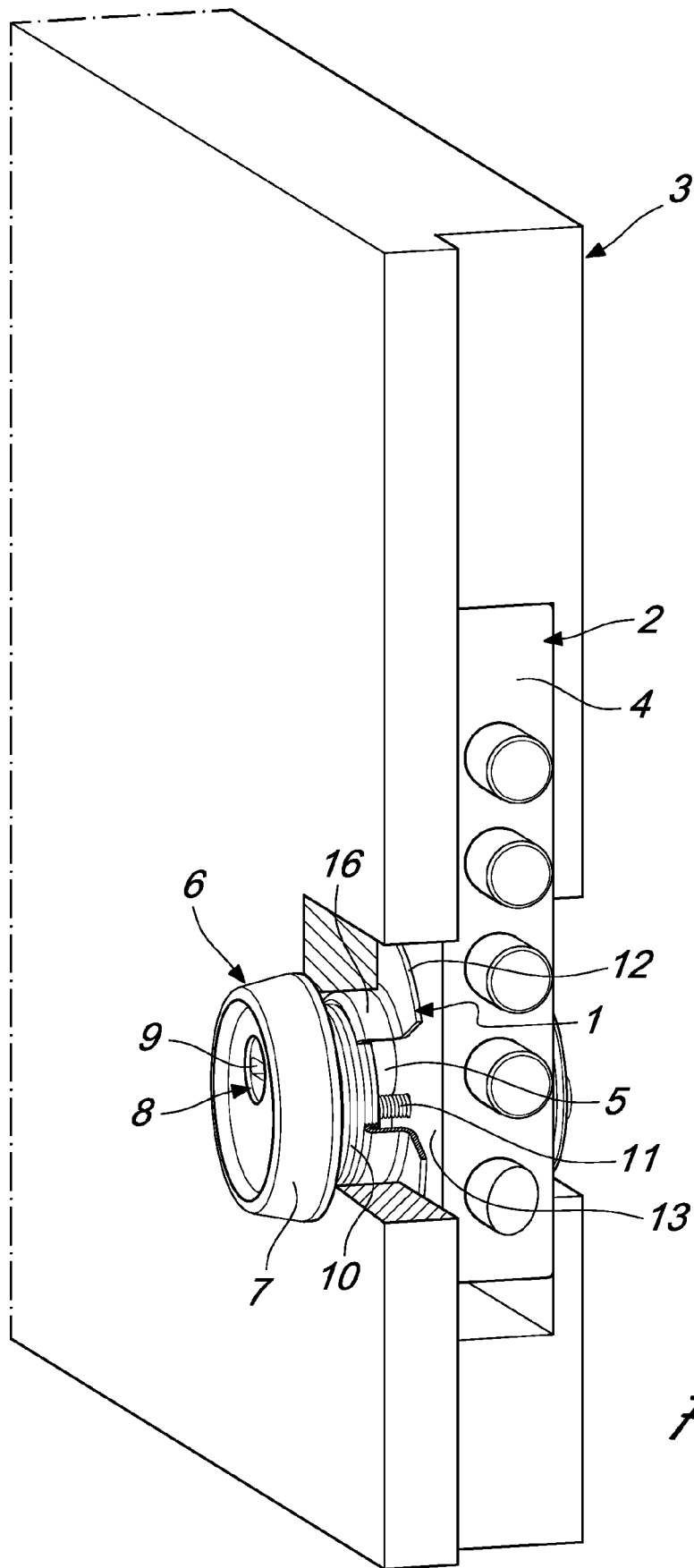
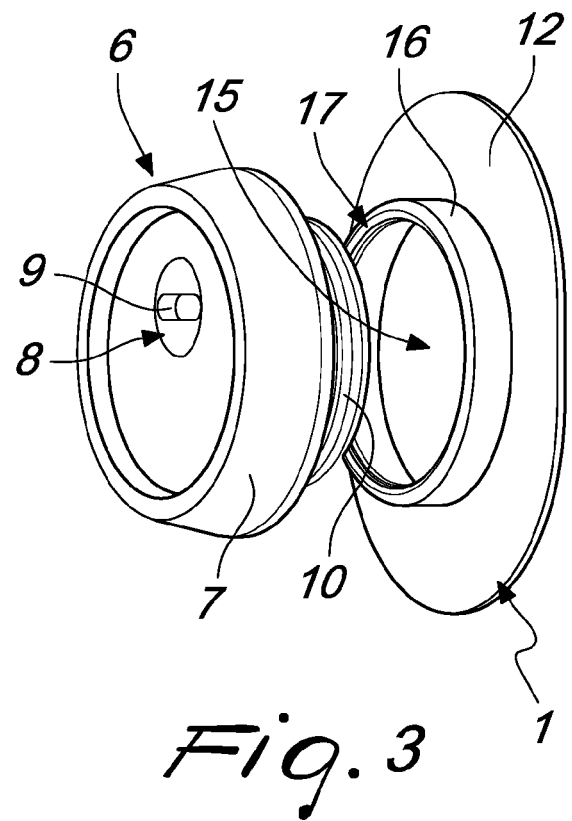
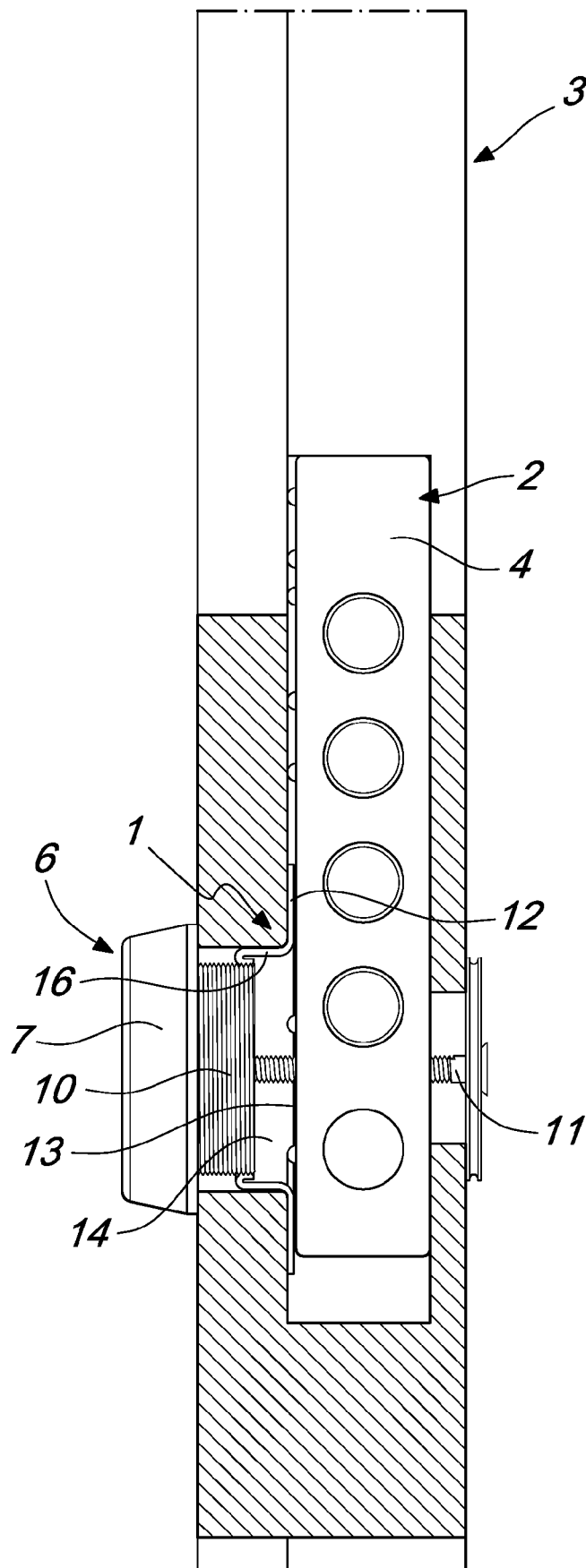
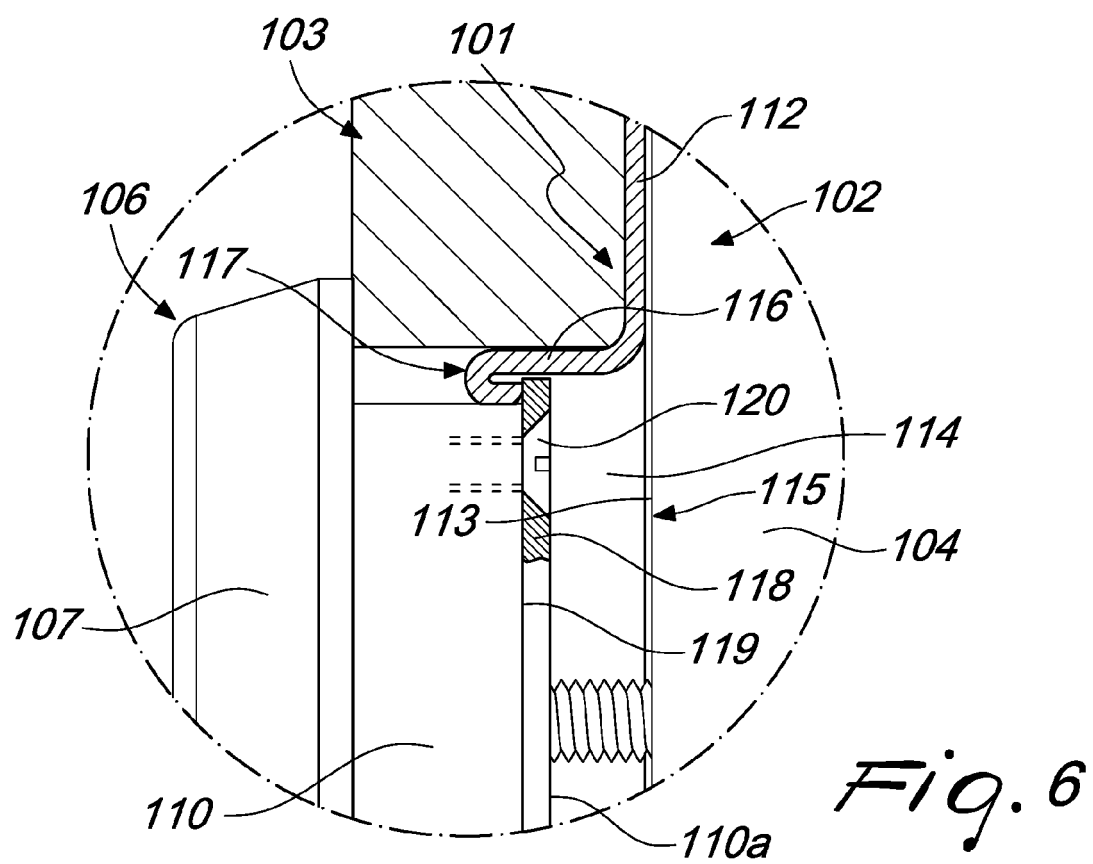
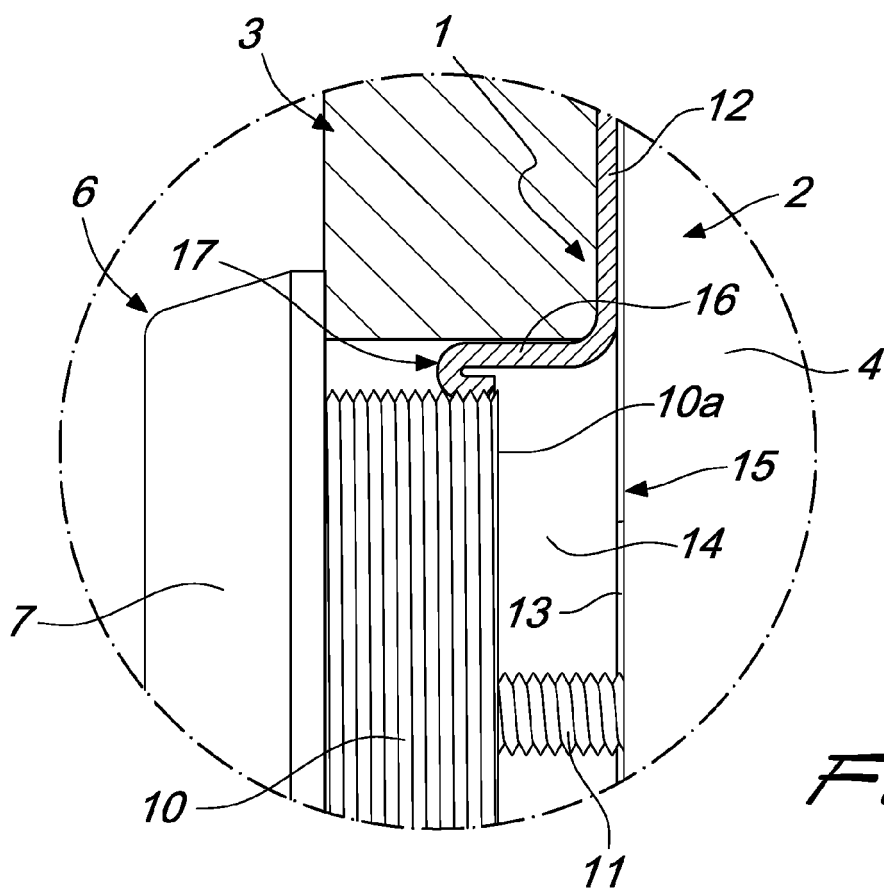
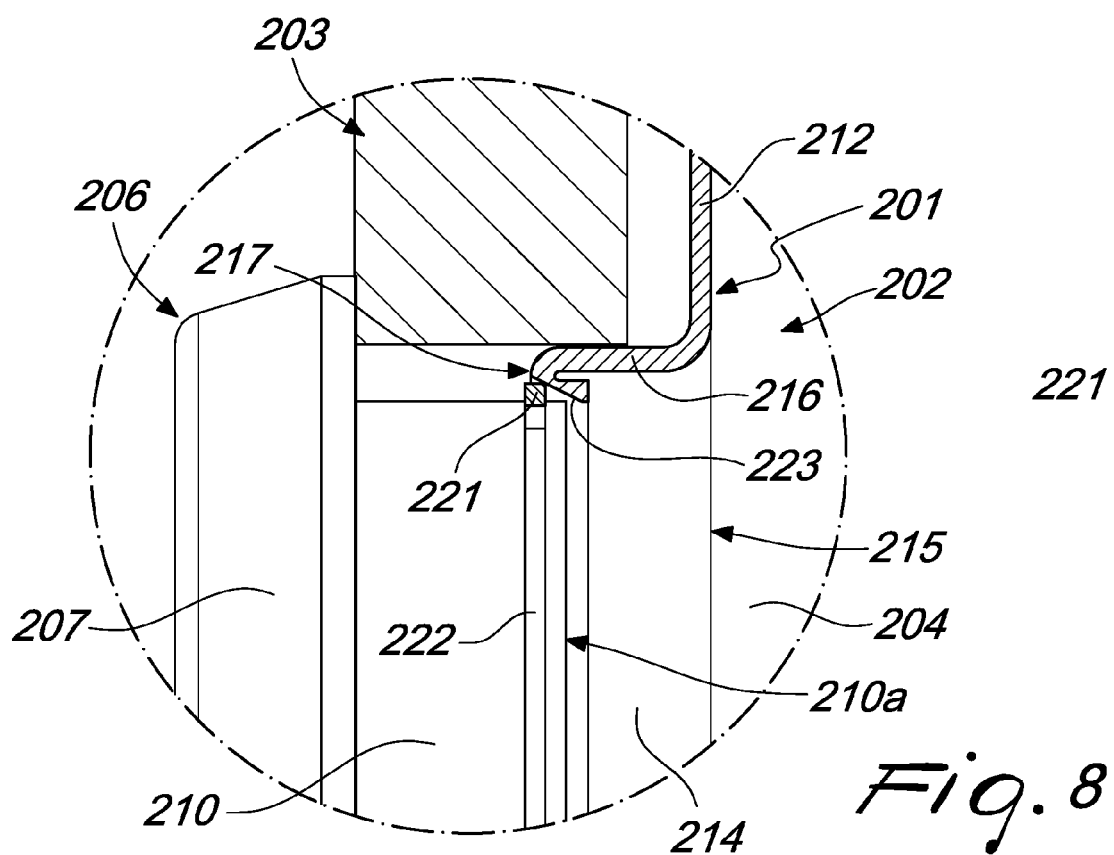
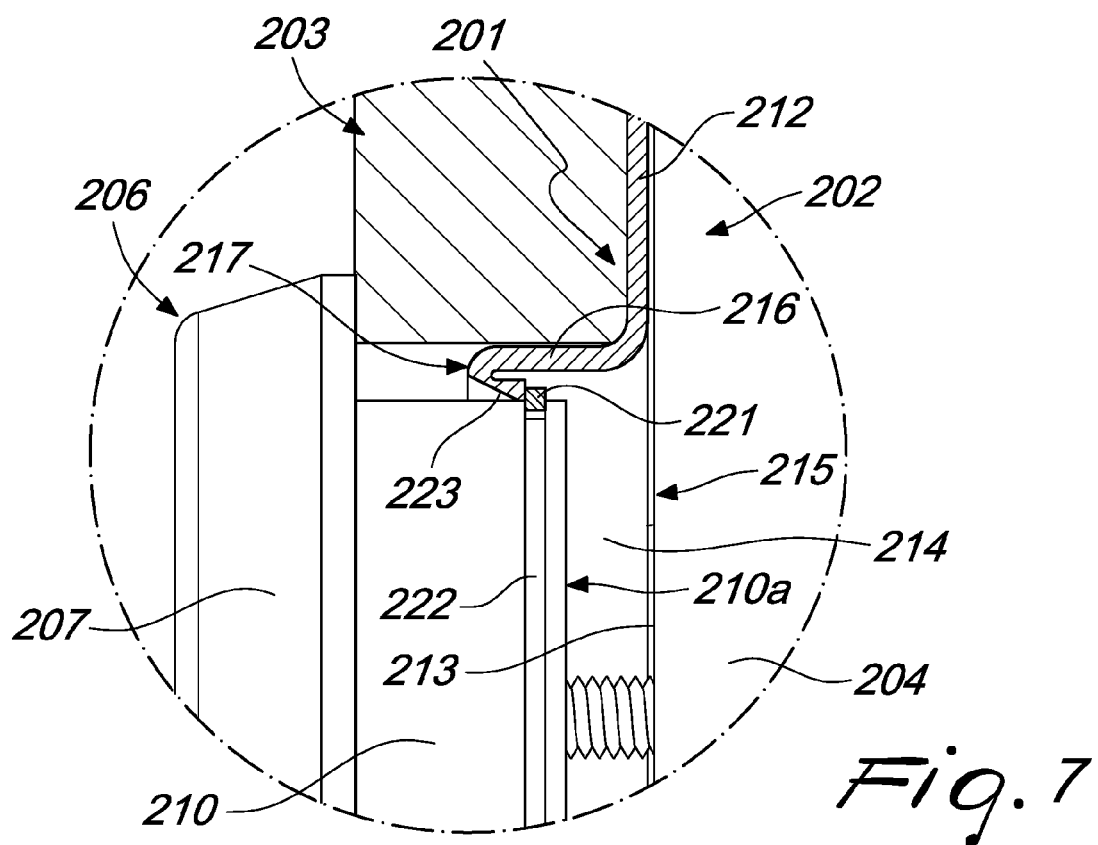


Fig. 1
PRIOR ART











EUROPEAN SEARCH REPORT

Application Number
EP 19 15 3046

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 338 806 A (COX ROY L) 13 July 1982 (1982-07-13) * the whole document *	1,5,6	INV. E05B9/08 E05B17/14
X	US 4 708 007 A (STOIA HARRY J [US]) 24 November 1987 (1987-11-24) * column 2, line 60 - column 4, line 9; figures 1-3 *	1-4	ADD. E05B17/20
X	FR 1 376 584 A (REALISATION DE FERRURES D AMEU) 31 October 1964 (1964-10-31) * the whole document *	1,5	
X	US 554 965 A (C.W.SQUIRES) 18 February 1896 (1896-02-18) * page 2, lines 58-83; figure 4 *	1	
X	EP 3 150 782 A1 (CELLETTI ANDREA [IT]; DI MUZIO ANDREA [IT]; FAVARETTO RICCARDO [IT]) 5 April 2017 (2017-04-05) * the whole document *	1-4,7-9	TECHNICAL FIELDS SEARCHED (IPC)
A	EP 2 314 805 A1 (OLIANA PIER LUIGI [IT]) 27 April 2011 (2011-04-27) * paragraph [0040]; figure 5 *	7-9	E05B
A	EP 2 479 361 A1 (OLIANA PIER LUIGI [IT]) 25 July 2012 (2012-07-25) * paragraph [0031] - paragraph [0036]; figure 6A *	6-9	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 17 July 2019	Examiner Koster, Michael
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 19 15 3046

5 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.

17-07-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4338806 A	13-07-1982	NONE	
US 4708007 A	24-11-1987	NONE	
FR 1376584 A	31-10-1964	NONE	
US 554965 A	18-02-1896	NONE	
EP 3150782 A1	05-04-2017	NONE	
EP 2314805 A1	27-04-2011	EP 2314805 A1 ES 2712053 T3 IT 1400448 B1	27-04-2011 09-05-2019 31-05-2013
EP 2479361 A1	25-07-2012	EP 2479361 A1 IT 1404281 B1	25-07-2012 15-11-2013

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

- IT 102018000005261 [0037]