



(11) **EP 2 479 361 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**25.07.2012 Bulletin 2012/30**

(51) Int Cl.:  
**E05B 15/02 (2006.01)**

(21) Application number: **12152243.7**

(22) Date of filing: **24.01.2012**

(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**

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

(72) Inventor: **Oliana, Pier Luigi  
31015 Conegliano (TV) (IT)**

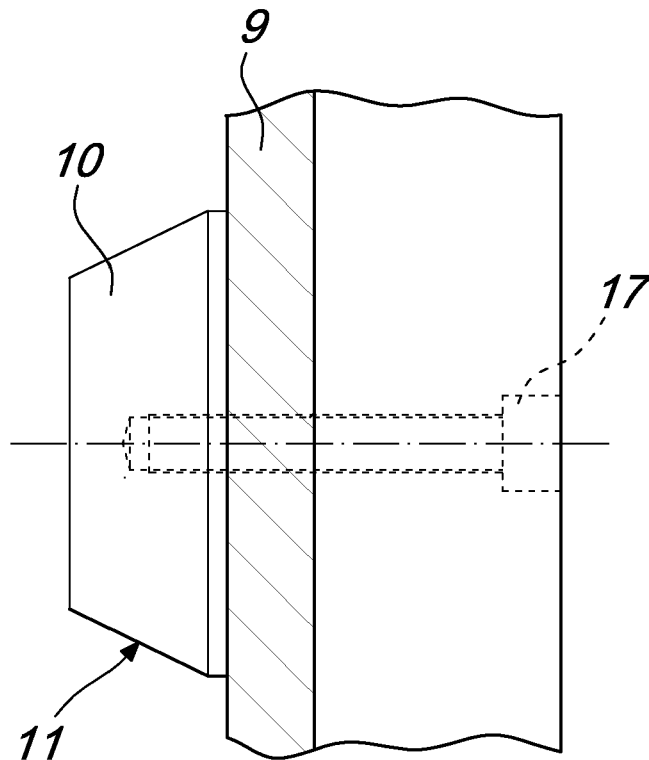
(74) Representative: **Modiano, Micaela Nadia et al  
Modiano & Partners (IT)  
Via Meravigli, 16  
20123 Milano (IT)**

(30) Priority: **25.01.2011 IT TV20110008**

(54) **Protection device, particularly for locks and the like**

(57) A protection device, particularly for locks and the like, comprising a baseplate (11) provided with a seat for a cylinder that can be associated with a lock. The

baseplate (11) comprises a hemispherical portion (10) on the front part, which has a radius that is such as to prevent the gripping of the hemispherical portion (10) of the baseplate (11) by means of tools for forced entry.



*Fig. 4B*

**EP 2 479 361 A1**

## Description

**[0001]** The present application relates to a protection device, particularly for locks and the like.

**[0002]** Nowadays locks are known which are adapted to enable the closing and opening of a door or of a gate and which basically comprise an opening cylinder provided with a seat for the insertion of a suitable key adapted to activate the cylinder and thus unlock the lock.

**[0003]** Such conventional cylinders are usually made of brass or in any case of materials that do not have high mechanical strength, thus tending to be easily forced by drilling and/or breaking and/or tearing off.

**[0004]** For protecting such conventional cylinders from possible forced entry, it is common to fix to the lock, in such a position as to envelop one end of the cylinder, an adapted covering element or baseplate which is essentially cylindrical and has a front opening which is partially blocked by a rotating protection disk in which a slit is defined which is adapted to allow the insertion of the key.

**[0005]** Such protection disk thus constitutes a defense of the cylinder from drilling with helicoid drill bits, but at the same time it allows the insertion and rotation of the key in the cylinder enclosed in the baseplate. Such conventional baseplates exhibit a drawback, however. They are in fact mounted from the outside and fixed to the lock by means of screws sunk into the panel of the door which is constituted by various materials such as wood, plastic, sheet metal etc.

**[0006]** Normally between the panel and the baseplate there is a space, or "gap", necessary to allow the mounting of the baseplate, which is covered and hidden by a decorative plate fixed to the panel.

**[0007]** Forced entry is usually achieved by removing the decorative plate from the panel of the door or main door, which is generally fixed thereto with two screws which are removable from the outside, and inserting a pipe or other tool on the protruding part of the protective baseplate, the cylindrical shape of which offers a good grip by the forced-entry tool, in such a way that, by forcing it, the two screws fixing the lock are torn out and, at the same time, once the cylinder is smashed, opening the door from outside is easy, as shown in Figures 1, 2, 3A and 3B for a conventional lock.

**[0008]** A drawback of the solutions described above is thus constituted by the easy removal of the decorative plate from the panel of the door or gate.

**[0009]** Italian patent applications TV2007A000195 and TV2009A000211 are known which describe a protection device structure which is burglar-resistant and tear-resistant, particularly for a lock.

**[0010]** Advantageously the structure comprises a substantially cylindrical baseplate, associated or associable axially with the cylinder of the lock, on the lateral surface of which, starting from the end thereof, on the side opposite to the lock, a first and a second annular recess are formed.

**[0011]** A first seat for fixing the cylinder is defined ax-

ially to the baseplate and arranged in such a way that the position of the access keyhole for an adapted key is misaligned with respect to the central longitudinal axis of the baseplate.

**[0012]** In the baseplate, laterally to the first seat and axially to the baseplate, holes are defined which are adapted for the insertion of suitable screws.

**[0013]** Advantageously, axially to the baseplate, an eyelet is defined which is preferably circular in plan view and faces, during use, the keyhole defined in the cylinder of the lock.

**[0014]** Conveniently the size of the eyelet is such as to allow the insertion and rotation of the shank of the key that is thus insertable in the keyhole of the cylinder of the lock.

**[0015]** Advantageously but not necessarily, a keyhole protection disk is rotatably inserted in the eyelet, diametrically to which an adapted slit is formed of a shape and arrangement that are such as to allow the passage of the shank of the key through it.

**[0016]** A decorative plate is present and provided with a cylindrical body on the bottom of which two or more tabs radially protrude which are contoured substantially complementary to the annular niches present in the baseplate.

**[0017]** The decorative plate is inserted in the baseplate at the rear by inserting the tabs in the niches while adapted screws fix the baseplate and the decorative plate to the lock arranged for example in the door.

**[0018]** Even if the two screws are loosened, the tabs inserted in the annular niches tend to prevent the exit of the decorative plate from its seat, thus preventing it from being torn off and allowing the baseplate of the lock to be ripped out with forced-entry tools.

**[0019]** The main disadvantage that can be ascribed to such conventional device consists in that these systems only delay the forced entry. After repeated and resolute attacks made with determination and adapted tools, the decorative plate can be broken.

**[0020]** The baseplate for protecting the cylinder of the lock, which is also cylindrical, is well suited for the insertion of a pipe of suitable size, with which, by applying force, the protective baseplate can be ripped out, breaking both the fixing screws and the cylinder and thus allowing the lock to be opened, as illustrated in Figures 3A and 3B.

**[0021]** The main aim of the present invention is therefore to resolve the above-mentioned technical problems, eliminating the drawbacks in the cited background art and thus devising a device that prevents the baseplate from being ripped out of the lock once the plate has been removed.

**[0022]** Within this aim, an important object of the invention is to provide a device that can be produced with conventional machinery and systems.

**[0023]** Another object of the invention is to provide a device that is structurally simple and can also be applied to normal conventional locks.

**[0024]** This aim and these and other objects which will become more evident hereinafter are achieved by a protection device, particularly for locks and the like, comprising a baseplate, provided with a seat for a cylinder that can be associated with a lock, **characterized in that** said baseplate comprises a hemispherical portion on the front part, said hemispherical portion having a radius that is such as to prevent the gripping of said hemispherical portion of said baseplate by means of tools for forced entry.

**[0025]** Further characteristics and advantages of the invention will become more apparent from the detailed description of a specific embodiment, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a lock of the traditional type, mounted and recessed on a door or main door;

Figure 2 is a perspective view of the lock in Figure 1 from which the decorative plate has been removed;

Figure 3A is a perspective view of the lock in Figure 1 broken with a pipe for use in forcing entry;

Figure 3B is a lateral sectional view of the lock in Figure 2 engaged by the pipe for use in forcing entry in Figure 3A;

Figure 4A is a front view of a first embodiment of a protection device, according to the invention, applied to the surface of the panel of a door;

Figure 4B is a lateral sectional view of the device in Figure 4A;

Figure 5 is a front exploded perspective view of the device according to the invention;

Figure 6 is a front perspective view of the device according to the invention;

Figure 6A is an enlarged view of a portion of the device according to the invention as illustrated in Figure 6;

Figure 7 is a front perspective view of the hemispherical portion of the device according to the invention in Figure 6;

Figures 8 and 9 are lateral sectional views of a second embodiment of the device according to the invention, provided with a cover, applied to panels of two doors with different thicknesses;

Figures 10 and 11 are lateral sectional views of a first embodiment of the device according to the invention, applied to panels of two doors with different thicknesses;

Figure 12 is a further lateral sectional view of a second embodiment of the device according to the invention in Figure 8 or 9;

Figures 13A to 13C show three different steps of an attempt to force entry to which the device according to the invention is subjected by means of a pipe for use in forcing entry.

**[0026]** In Figure 1 a conventional lock is shown com-

prising a protective body 1 (or baseplate) for a cylinder 6, mounted on a door 2 and combined with a decorative plate 3.

**[0027]** In Figure 2 the removal of the decorative plate 3 is shown, leaving the body 1 protecting the cylinder 6 free which, being cylindrical, is very prone to an attack by breaking the screws 4 and the cylinder 6 itself, by means of a pipe 5 for use in forcing entry, as shown in Figures 3A and 3B.

**[0028]** For preventing what is described above and shown in Figures 1, 2, 3A and 3B, the device according to the invention comprises a baseplate 11 which in turn comprises a hemispherical portion 10, which has a radius of curvature that is such as to not permit gripping with a pipe 5 or other tool for use in forced entry, thus preventing the lock from being forced.

**[0029]** This solution, as shown in Figure 4, can be adopted directly when the baseplate 11 is mounted on the surface i.e. directly on the panel of the door 9, and not sunk into it.

**[0030]** With countersunk baseplates 11, as shown in Figures 10 and 11, since the panel of the door 9 can have variable thicknesses, the hemispherical portion 10 of the baseplate 11 makes coupling with a decorative plate 12 impossible and, in any case, very unattractive, for the following reasons. If the panel of the door 9 is very thin, as in Figure 10, the gap 13 between the hemispherical portion 10 of the baseplate 11 and the decorative plate 12 is very small and thus aesthetically acceptable. If the panel of the door 9 is very thick, as in Figure 11, the gap 13 is very wide and therefore extremely unattractive and unacceptable.

**[0031]** For making such a structure commercially and aesthetically acceptable, and at the same time confer a burglar-resistant security on the invention, a cylindrical seat 14 is moreover defined in the hemispherical portion 10 of the baseplate 11 and is adapted to accommodate a cover 16 which is hollow and substantially cylindrical, kept in position by a gasket seal, advantageously of the O-ring type 15, as shown in Figures 6, 7, 8, 9 and 12.

**[0032]** The gasket keeps the cover 16 in a restrained position, which cover is smaller than the hole of the decorative plate 12, which is mounted on the front of the baseplate 11, so that the decorative plate 12 can be positioned axially according to the thickness of the panel of the door 9, thus always keeping the gap 13 at the same size, whether the panel of the door 9 is thin or thick.

**[0033]** The decorative plate 12 can be advantageously mounted as in Figures 10 and 11, with simple fixing screws, or the decorative plate 12 can be used with anchoring tabs on the bottom of the baseplate 11 as in Italian patent applications TV2007A000195 and TV2009A000211.

**[0034]** The function of the hemispherical portion 10 of the baseplate 11, which is fixed to the lock by means of the screws 17, is such that at an attempt at forced entry, once the decorative plate 12 has been removed, the baseplate cannot be forced open since the hemispherical

profile of the hemispherical portion 10 of the baseplate 11 offers no possibility for grip to a possible attack with a pipe 5, by allowing the rotation of the pipe 5 in the direction 18, as illustrated in the steps of an attempt at forced entry in Figures 13A to 13C, thus forestalling the possibility of being broken and hence of forced entry.

**[0035]** Mounting the cylindrical cover 16 on the hemispherical portion 10 of the baseplate 11 makes it possible not to leave an excessive gap 13 between the decorative plate 12 and the edge of the baseplate 11, in case there are panels of different thicknesses on the doors.

**[0036]** The solution of combining the hemispherical portion 10 with a cylindrical cover 16 makes it possible to avail of a burglar-resistant system on doors with panels of different thicknesses, by eliminating the problem of variability of the gap 13.

**[0037]** In practice it has been found that the invention fully achieves the set aim and objects, a protection device, particularly for a lock, having been devised which is capable of protecting the cylinder of the lock from attempts at interference and forcing.

**[0038]** Even if the decorative plate 12 is removed from its seat, the device according to the invention prevents the baseplate 11 from being ripped out of its seat by a breaking of the fixing screws 17 using the forced-entry systems mentioned previously, because its hemispherical shape prevents any kind of grip, and at the same time the technical/aesthetic problem of mounting the device on doors 9 with panels of different thicknesses is resolved by having the front part covered by a cylindrical cover 16.

**[0039]** In addition the device has a considerable simplicity of construction and keeps production costs low.

**[0040]** Obviously the materials used as well as the dimensions constituting the individual components of the invention can be more pertinent to specific requirements.

**[0041]** The various means for effecting certain different functions shall not in any way coexist only in the illustrated embodiment, but may be present per se in many embodiments, even if they are not illustrated.

**[0042]** The characteristics indicated as advantageous, convenient or similar may also be missing or substituted by equivalent characteristics.

**[0043]** The content of Italian patent application no. TV2011A000008, the priority of which is claimed in the present application, is incorporated as a reference.

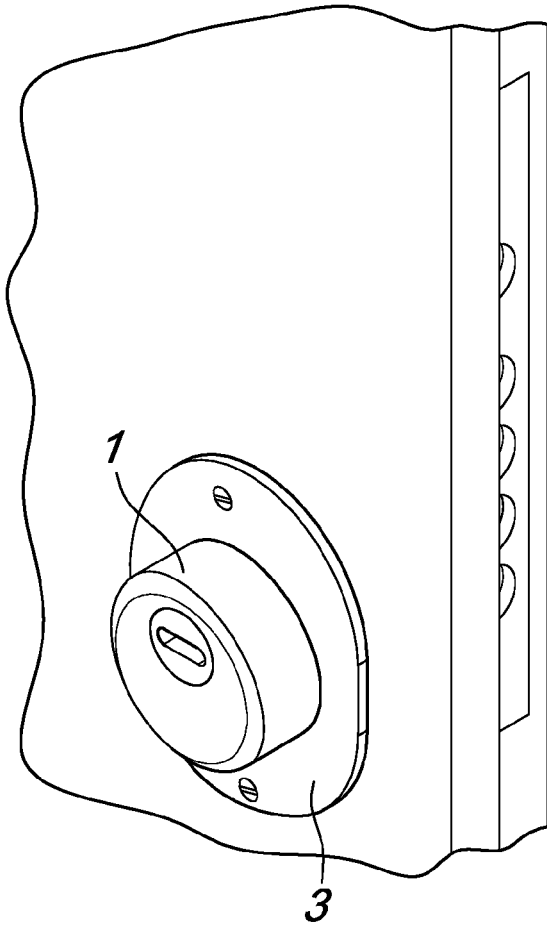
**[0044]** Where the technical features mentioned in any claim are followed by reference numerals and/or signs, those reference numerals and/or signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference numerals and/or signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference numerals and/or signs.

comprising a baseplate (11), provided with a seat for a cylinder that can be associated with a lock, **characterized in that** said baseplate (11) comprises a hemispherical portion (10) on the front part, said hemispherical portion (10) having a radius that is such as to prevent the gripping of said hemispherical portion (10) of said baseplate (11) by means of tools for forced entry.

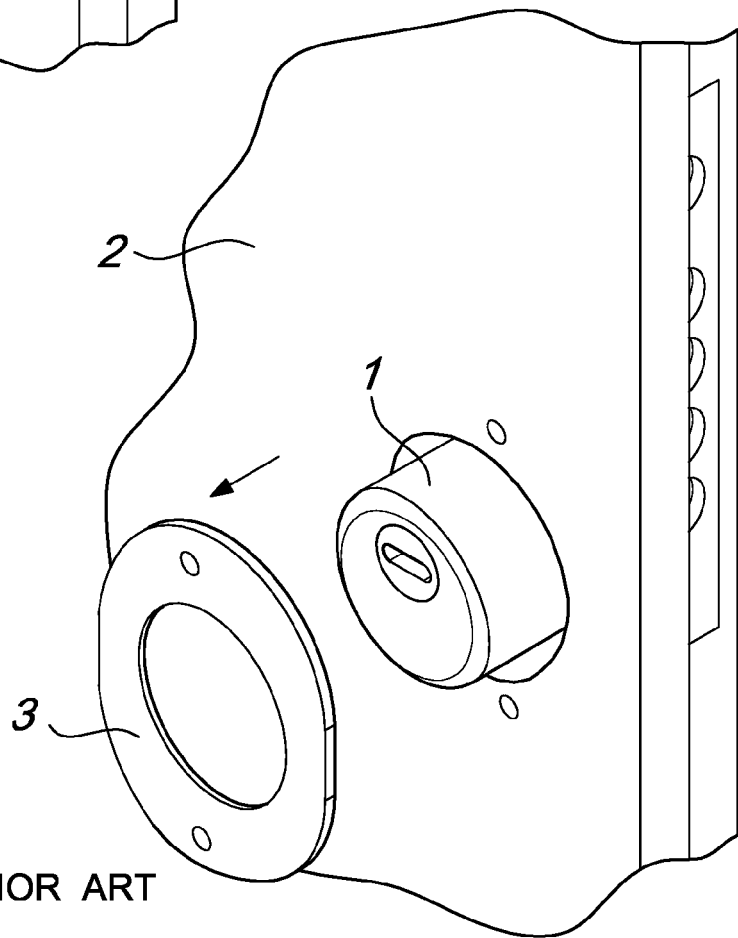
2. The protection device according to claim 1, **characterized in that** said baseplate (11) comprises, on the outer lateral surface thereof, a cylindrical seat adapted to accommodate a cylindrical cover (16) which is kept in place by a retainer ring of the O-ring type.
3. The protection device according to claim 1 or 2, **characterized in that** said hemispherical portion (10) of said baseplate (11) is at least partially covered by said cylindrical cover (16) so as to give cylindrical continuity to said baseplate (11).
4. The protection device according to one or more of the preceding claims, **characterized in that** said cylindrical cover (16) keeps the gap (13) between said baseplate (11) and a decorative plate constant.
5. The protection device according to one or more of the preceding claims, **characterized in that** said device is adapted to be mounted on a plurality of types of doors.

## Claims

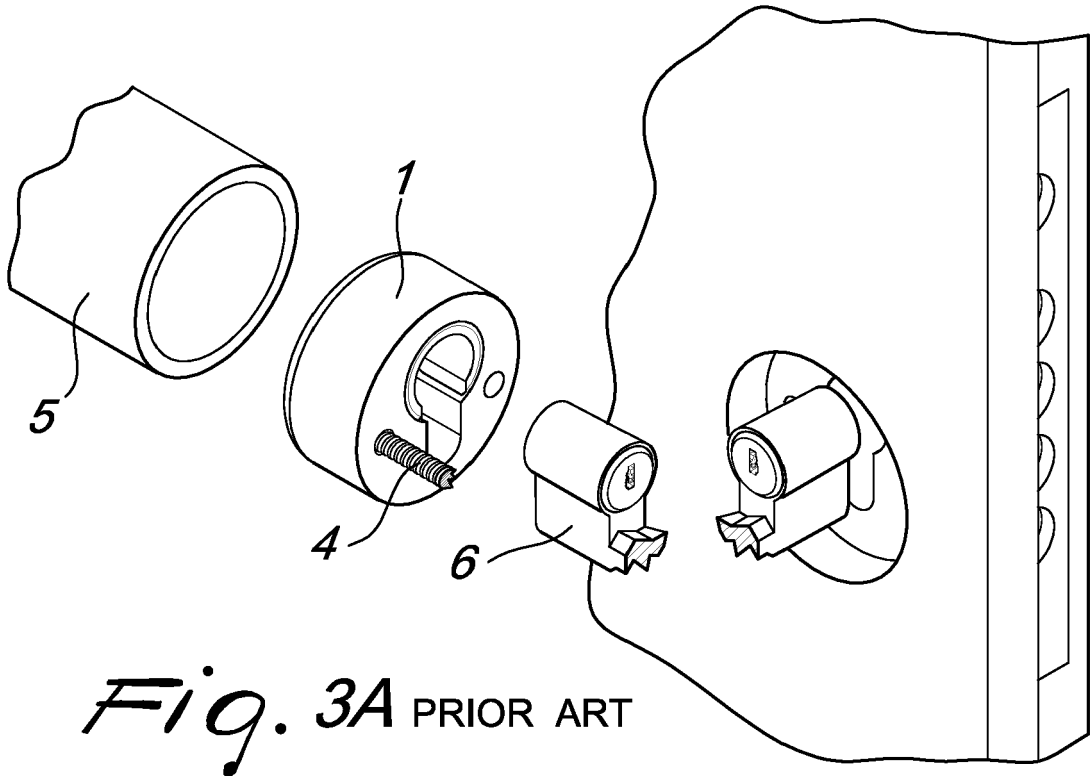
1. A protection device, particularly for locks and the like,



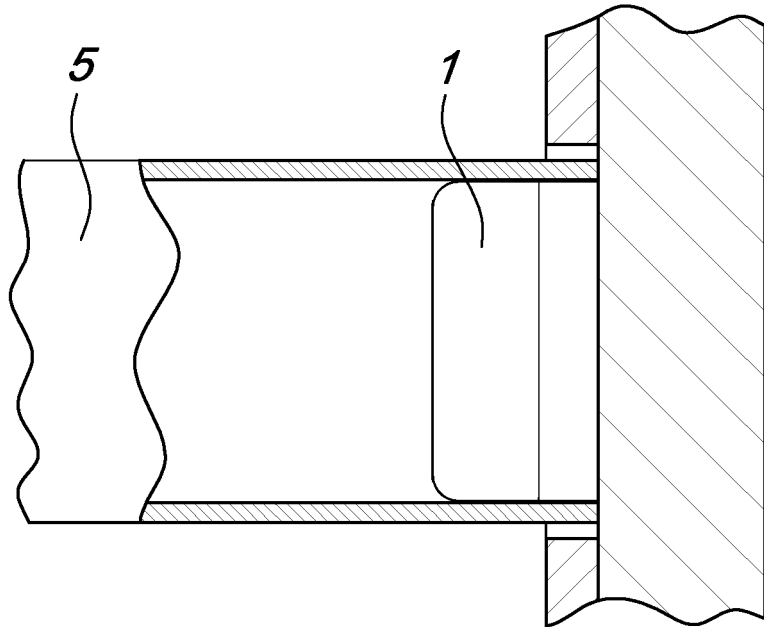
*Fig. 1* PRIOR ART



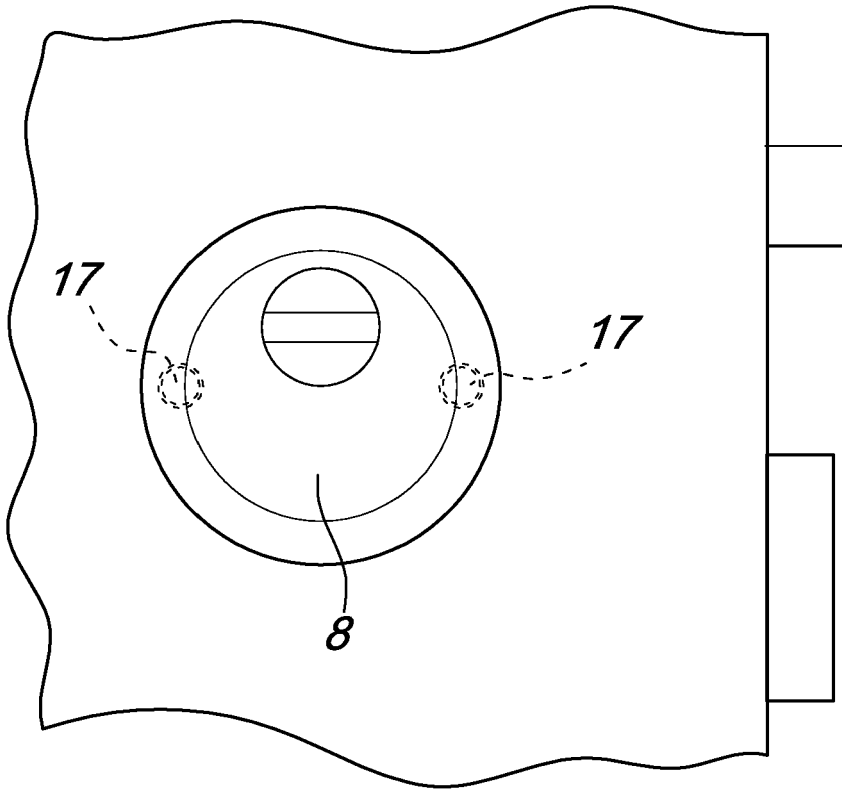
*Fig. 2* PRIOR ART



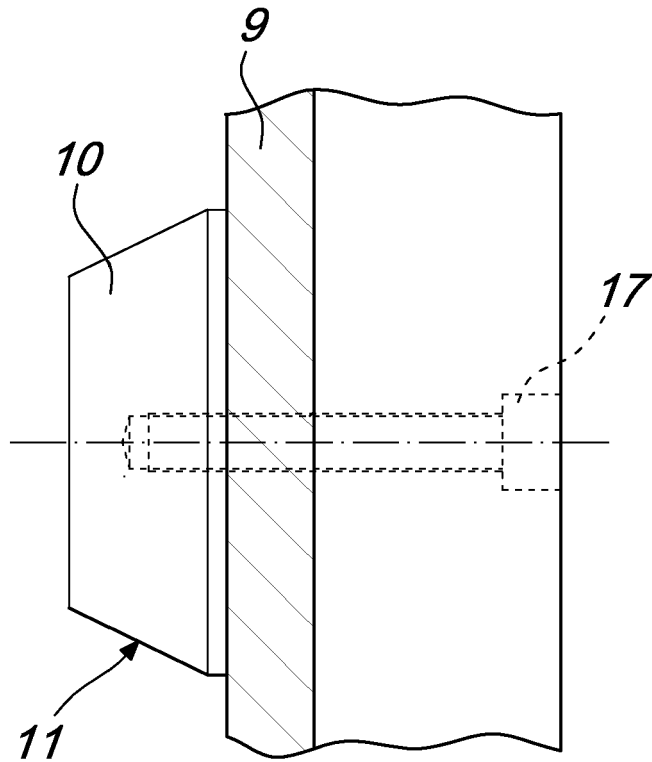
*Fig. 3A* PRIOR ART



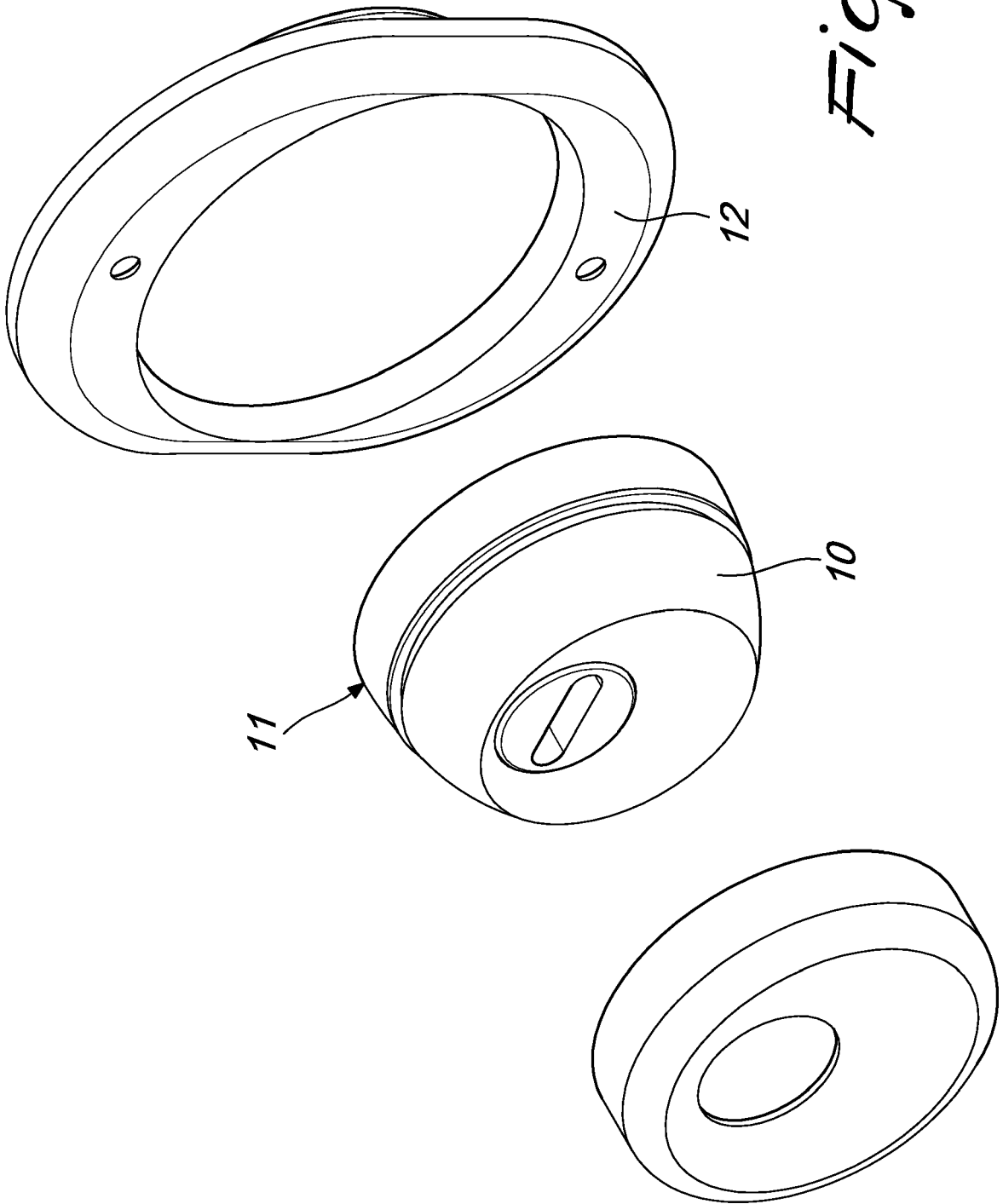
*Fig. 3B* PRIOR ART



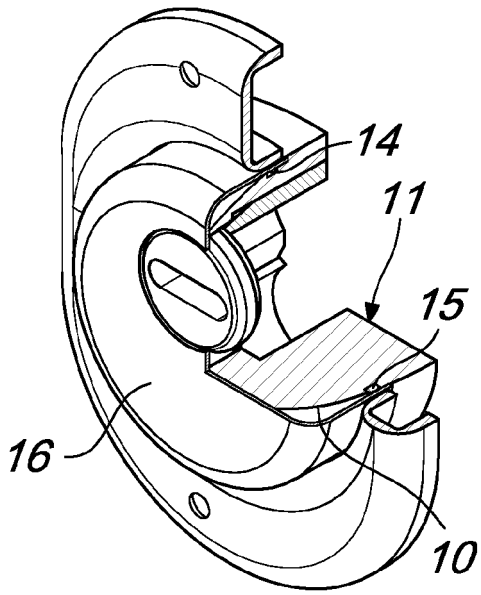
*Fig. 4A*



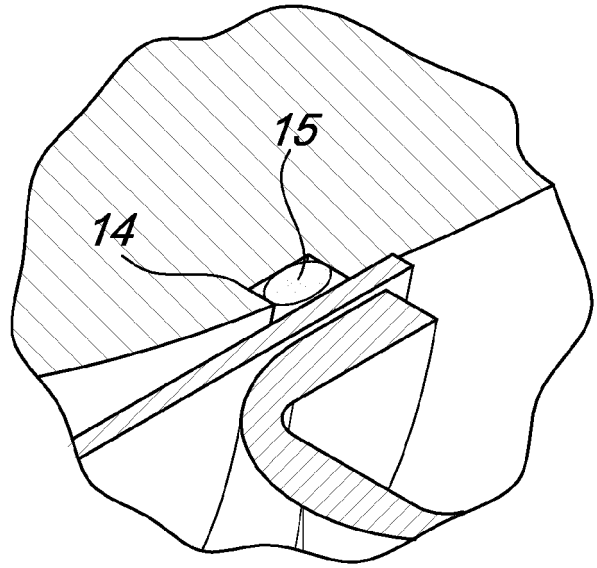
*Fig. 4B*



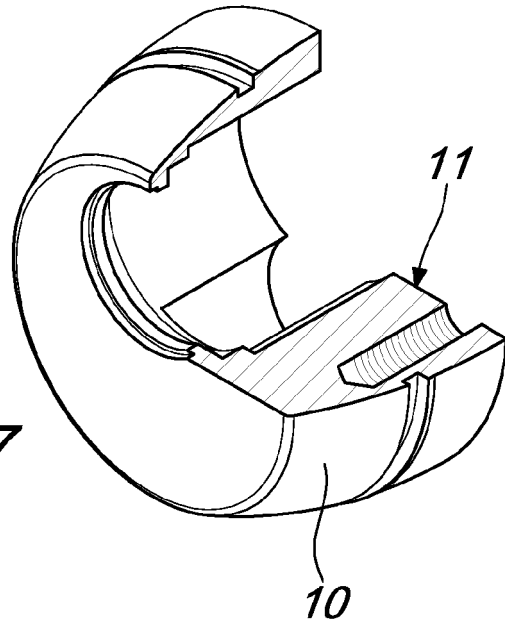
*Fig. 5*



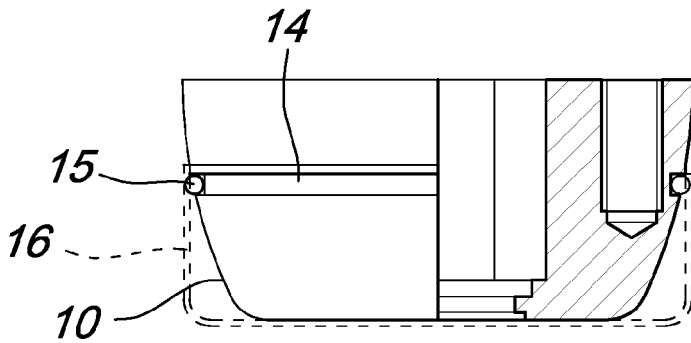
*Fig. 6*



*Fig. 6A*



*Fig. 7*



*Fig. 12*

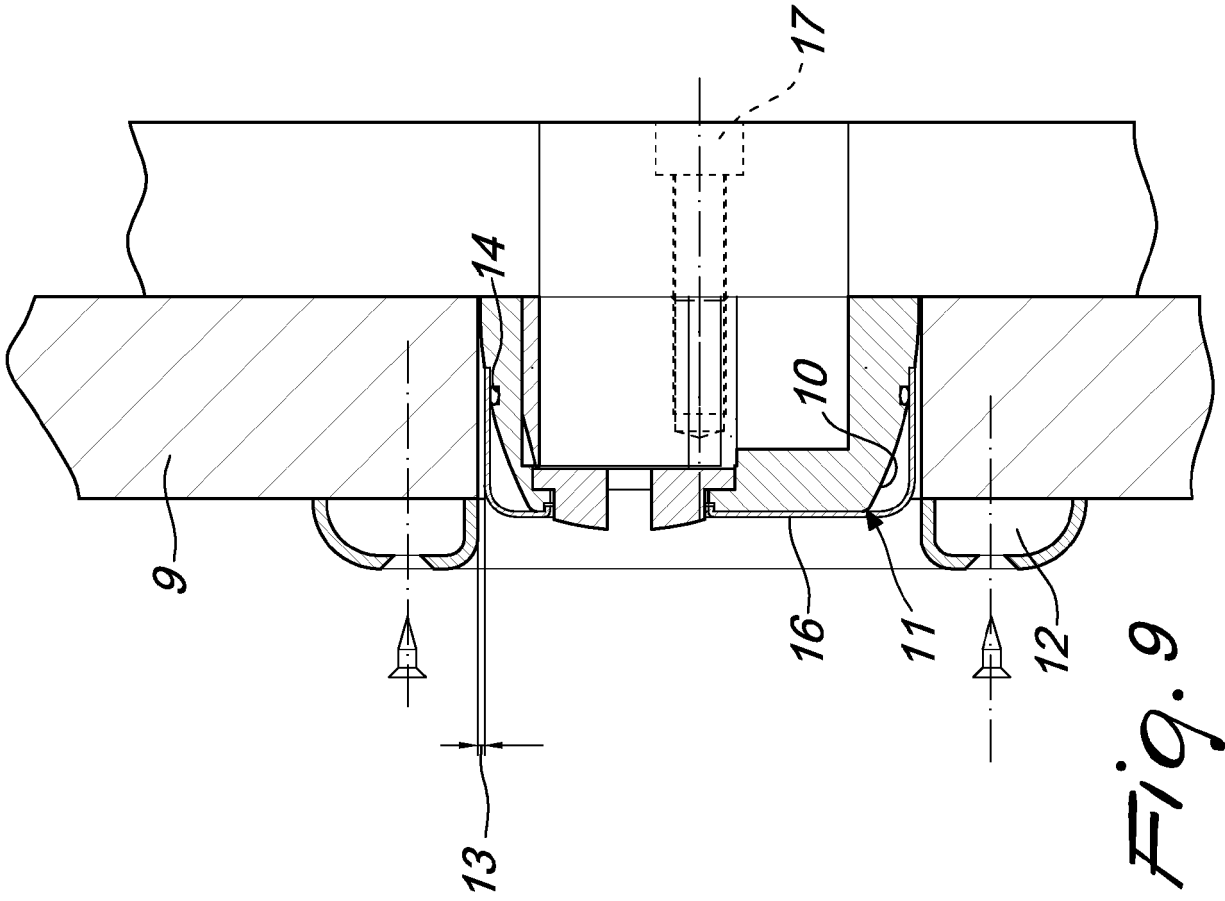


Fig. 9

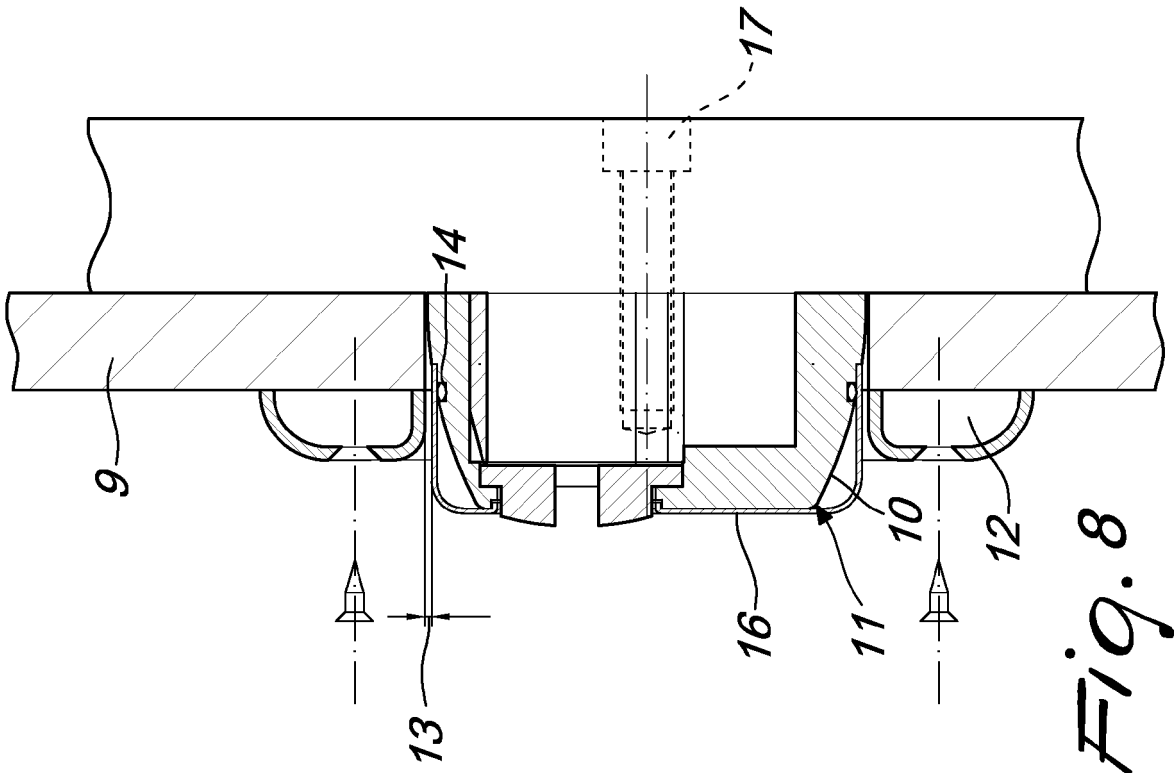
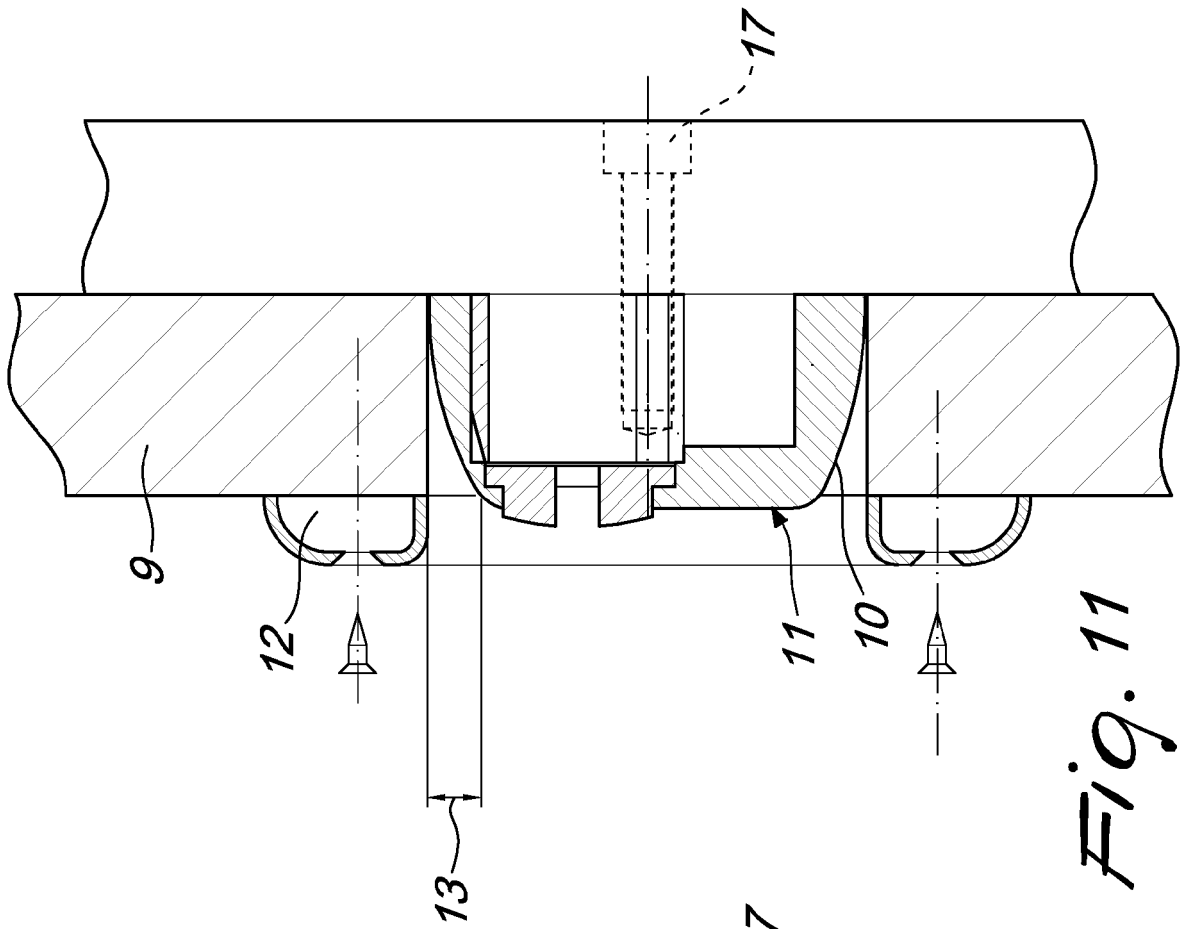
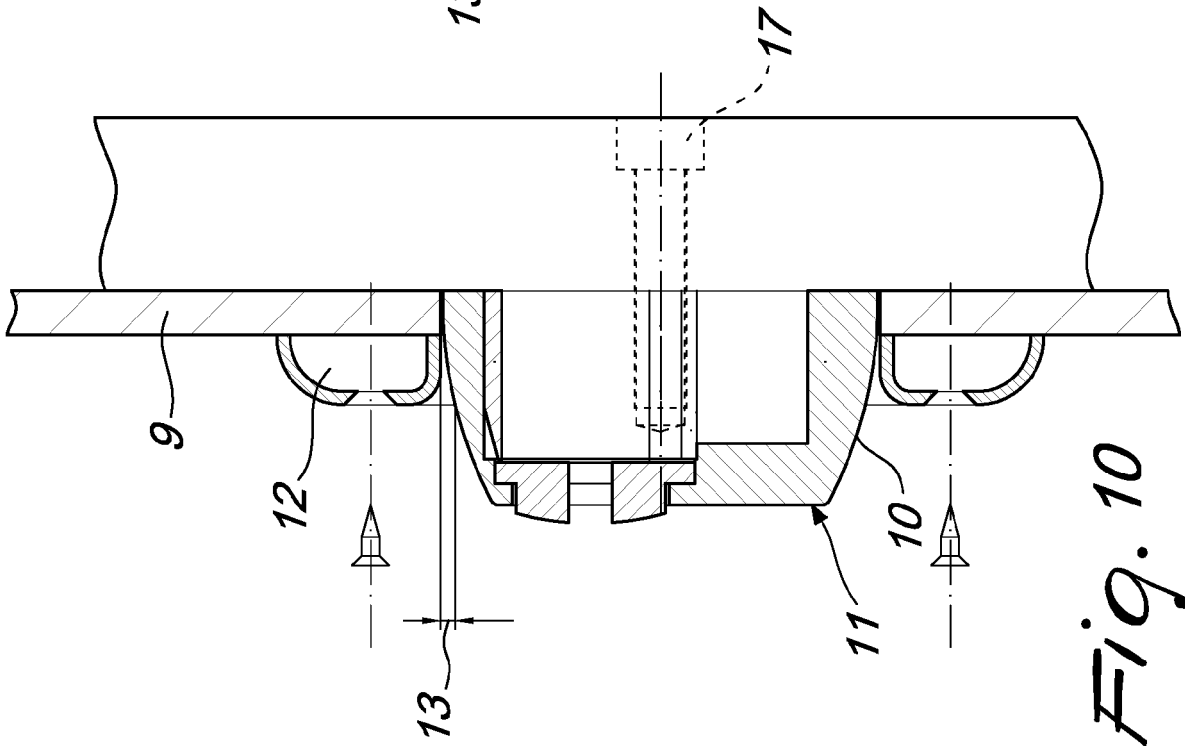


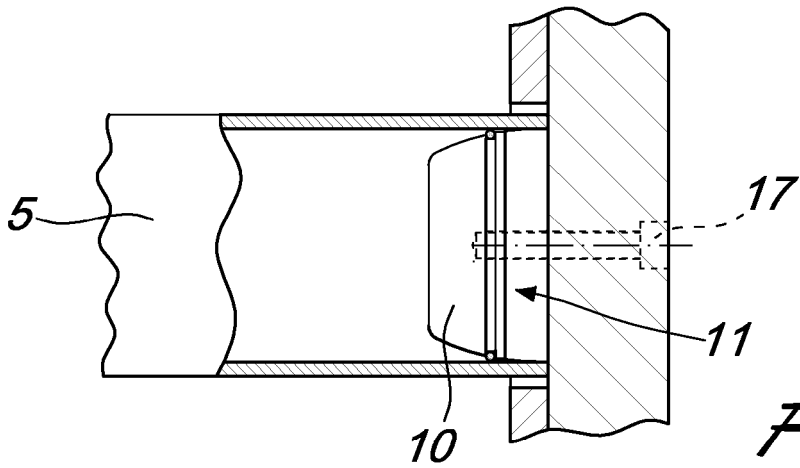
Fig. 8



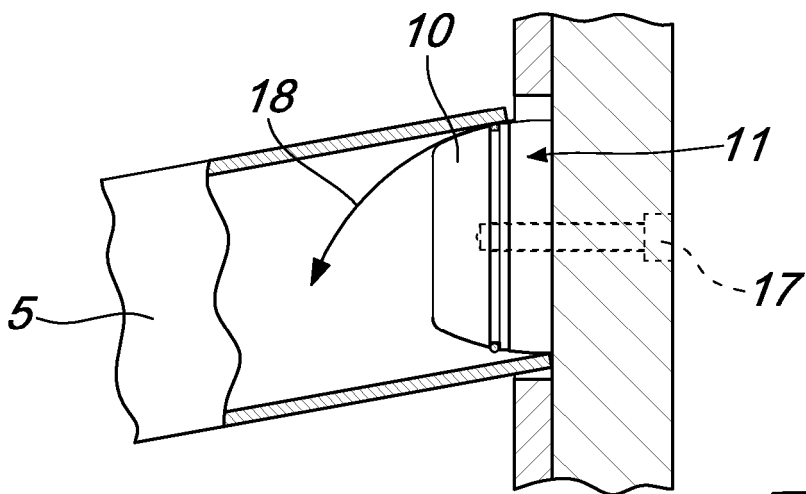
*Fig. 11*



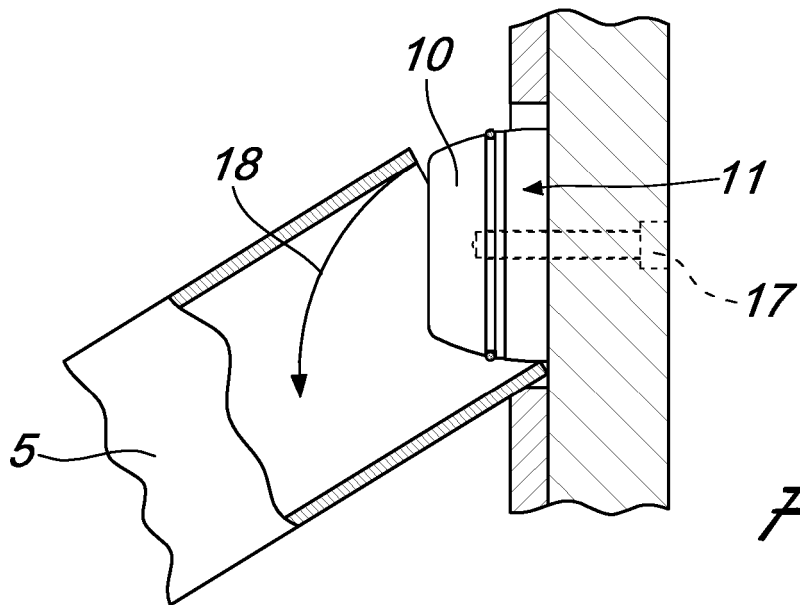
*Fig. 10*



*Fig. 13A*



*Fig. 13B*



*Fig. 13C*



EUROPEAN SEARCH REPORT

Application Number  
EP 12 15 2243

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	GB 2 376 980 A (JURRAS LTD) 31 December 2002 (2002-12-31)	1,5	INV. E05B15/02
A	* page 3, line 8 - line 17; figures 4,5 * -----	2	
X	DE 299 11 732 U1 (AUGUST KNAPP SCHLIESTECHNIK GM) 23 September 1999 (1999-09-23)	1	
A	* page 11, line 3 - line 11 * -----	2-5	
A	GB 1 505 569 A (GKN STENMAN AB) 30 March 1978 (1978-03-30)	1	
	* page 1, line 67 - line 75; figures * -----		
			TECHNICAL FIELDS SEARCHED (IPC)
			E05B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		2 May 2012	Van Beurden, Jason
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	

1 EPO FORM 1503 03/82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 12 15 2243

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.

02-05-2012

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2376980	A	31-12-2002	GB 2376980 A	31-12-2002
			IE 20010587 A1	30-12-2002
-----				
DE 29911732	U1	23-09-1999	NONE	
-----				
GB 1505569	A	30-03-1978	CA 1032202 A1	30-05-1978
			DE 2557151 A1	01-07-1976
			DK 569875 A	21-06-1976
			FI 753399 A	21-06-1976
			GB 1505569 A	30-03-1978
			NL 7514950 A	22-06-1976
			NO 754121 A	22-06-1976
			SE 389706 B	15-11-1976
			SE 7416187 A	21-06-1976
-----				

**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 TV20070195 A [0009] [0033]
- IT TV20090211 A [0009] [0033]
- IT TV20110008 A [0043]