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# (54) BURGLARY-PREVENTING DEVICE WITH SHIELDING BODY

(57) A burglary-preventing device (20) for an access panel (1), such as a door or window, comprises a shielding body (21) which is fixedly attached to the access panel (1). The shielding body (21) has a front side (24) and a rear side (25). The rear side (25) has a lock-receiving recess (26) to accommodate an end portion of a cylinder lock. A key passage (27) is provided and has an axis which extends from the front side (24) of the shielding body (21) to the lock-receiving recess (26). The passage (27) makes it possible to operate the cylinder lock from the front side (24) of the shielding body (21) using a key. The shielding body (21) furthermore has boreholes (30, 31) which extend at right angles to the passage (27). Inserts (32, 33) of a harder material than the material of the shielding body (21) are inserted into the bores (30, 31) and fixed.

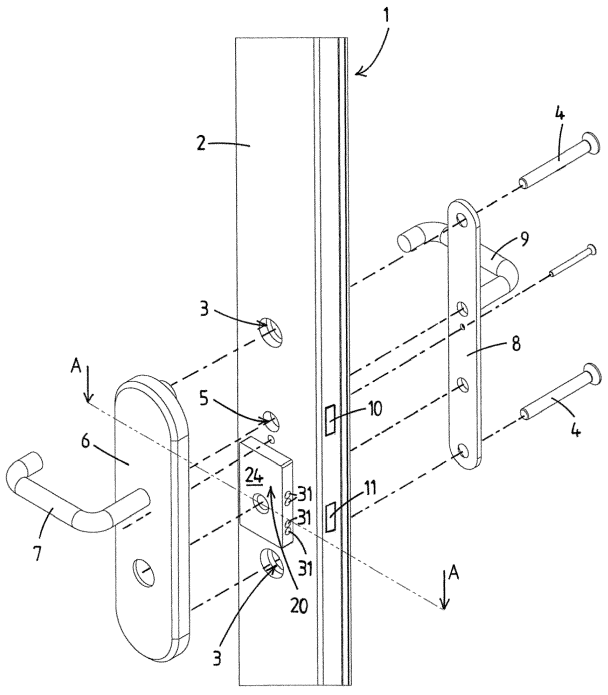



**Fig.1**

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## Description

**[0001]** The invention relates to a burglary-preventing device for an access panel, such as a door or window, wherein the burglary-preventing device comprises a shielding body, preferably made from metal, to be fixedly attached to the access panel, which shielding body has a front side, which is facing away from the access panel in a fitted position, and a rear side which is situated opposite the front side, wherein the rear side has a lock-receiving recess to accommodate an end portion of a cylinder lock, a passage with an axis which extends from the front side of the shielding body to the lock-receiving recess, wherein the passage makes it possible to operate the cylinder lock from the front side of the shielding body using a key.

**[0002]** Cylinder locks can in principle be opened by drilling the cylinder or by otherwise destroying the lock. If the locking pins, which lock the cylinder against rotation when no fitting key is inserted into the lock, are destroyed, then the lock can be rotated and opened. It is also known for locks to be pulled from doors or windows.

**[0003]** Anti-drilling devices are known which comprise a rotatable anti-drilling disc which is provided with a slotted hole to pass a key through. Such a disc serves to block access to the lock or at least to delay it, if an attempt is made to drill the lock. Devices are known, for example from EP 0 566 483, wherein the anti-drilling disc is provided with small inserts which are made of a harder material than the disc itself. These small inserts have to withstand drilling or damage the drill.

**[0004]** However, it is preferred if not only the cylinder is shielded, but also other components of the lock, such as for example the part of the lock housing wherein the locking pins are situated.

**[0005]** EP 0 943 756 A2 shows a door fittings set comprising a burglary-preventing device in Fig.1. The lock cylinder protrudes with respect to the door surface. The cylinder is inserted into a cylinder cover which comprises a covering cap which is fitted over a shielding body and a covering disc with a slotted hole for a key. This known device protrudes with respect to the front face of the door. In this case, the shielding body is a plate body with an oval periphery which is placed in front of the lock housing part which houses the locking pins, which should protect the lock housing part underneath the cylinder and should prevent the lock from being pulled out of the door. However, because the shielding body in this known burglary-preventing device is situated beyond the front face of the door, this device is susceptible to destruction by means of, for example, a grinder or a saw, following which the lock could still be pulled out of the door.

**[0006]** The object of the invention is to provide a burglary-preventing device which is better able to resist destruction.

**[0007]** This object is achieved according to the invention by a burglary-preventing device according to the preamble of claim 1, wherein the shielding body furthermore has bores which extend at right angles to the passage, wherein inserts of a harder material than the material of the shielding body are inserted into the bores and fixed.

**[0008]** According to the invention, the shielding body is substantially reinforced by providing bores wherein hard inserts are arranged, thus greatly increasing the resistance of the shielding body to grinding and sawing. The axes of the bores extend in a plane perpendicular to the axis of the passage for the key. Due to the fact that the inserts are located in the shielding body, they provide efficient resistance against destruction of the shielding body by grinding or sawing from the top, bottom, sides or front of the shielding body. Thus, it is virtually impossible to remove the shielding body from the panel by means of a grinder or saw. Therefore, the lock cannot be pulled out of the panel either.

**[0009]** By providing the bores in a certain configuration, the associated inserts can shield the lock from various sides in an efficient manner.

**[0010]** In an advantageous embodiment, the inserts arranged in the bores together surround the passage in the shielding body. This surrounding configuration of inserts, which extend in the shielding body, provides strong protection against grinding or sawing on all sides. In addition, it is possible to prevent drilling of the lock at the housing portion where the pins are situated (usually on the bottom side of the cylinder) and protection is provided against drilling obliquely into the lock from the sides or above.

**[0011]** In a possible embodiment, the passage is flanked on diametrically opposite sides by first inserts which are inserted into corresponding mutually parallel first bores, and wherein the passage is furthermore flanked on diametrically opposite sides by second inserts, which are inserted into corresponding mutually parallel second bores and which are at right angles to the first inserts. In this way, a rectangular configuration of inserts is achieved which provides a shielded area around the passage for the key. By adding more first bores and more second bores, respectively, the shielded area may be increased.

**[0012]** In a possible further embodiment, the second inserts are shorter than the first inserts. This offers the possibility of placing the inserts at a short distance from the passage.

**[0013]** In a further embodiment, the mutually perpendicular bores intersect. In this embodiment, bores are thus provided in the body, the respective axes of which are in a plane. As a result thereof, it is possible to lock a first insert in a first bore by pushing a second insert into a second bore, which second bore intersects the first bore. The second insert then blocks the point of intersection between the two bores. If the second insert is then fixed, both inserts are secured.

**[0014]** In a possible embodiment, two first bores with first inserts are situated on either side of the passage. In this embodiment, four first bores are thus provided, two on each side of the passage, in order thus to increase the shielded surface area in one direction.

**[0015]** In a possible embodiment, two second bores with second inserts are situated on either side of the passage. In this embodiment, four second bores are thus provided, two on each side of the passage, in order thus to increase the shielded surface area in another direction.

**[0016]** In an advantageous embodiment, the inserts are formed as pins. The pins may have different lengths.

**[0017]** The inserts may be made of hard metal or of, for example, ceramic material. Other suitable hard materials could also be used. It is possible to make all inserts from the same material, but it is also conceivable that a number of the inserts are made of one material and another number of a different material. It is also conceivable for an insert to comprise several materials.

**[0018]** In a possible embodiment, with at least some of the bores, the insert is secured in the respective bore by closing the bore with a weld. In this case, a plug weld is conceivable.

**[0019]** In a preferred embodiment, the shielding body substantially has a block shape, wherein at least a first portion of the block is configured to be placed against a front face of the access panel. This shape is simple to produce as such, for example using a metal-removing operation.

**[0020]** Preferably, said block has a second portion which is configured to be accommodated in a matching recess in the access panel. In this case, the second portion of the block has a smaller peripheral length than the first portion of the block. In this embodiment, a portion of the block may thus be recessed into the access panel (e.g. door panel) and the first block portion bears against an area of the front face of the panel surrounding the recess.

**[0021]** The bores provided with the inserts are preferably situated in the first area and are thus in front of the front face of the panel.

**[0022]** The invention also relates to an access panel, such as a door or window, to which a burglary-preventing device, as described above, is fitted.

**[0023]** In a preferred embodiment of said access panel, the shielding body is made of metal and welded to the access panel. By welding the shielding body to the access panel, an extremely strong, non-detachable connection between the shielding body and the access panel is achieved.

**[0024]** Other possible methods for attaching the shielding body to the access panel may be an adhesive connection and/or a screw connection.

**[0025]** In a possible embodiment of the access panel, such as a door or a window, a handle or knob with a matching escutcheon is fitted to the access panel, with the escutcheon covering the burglary-preventing device. By covering the burglary-preventing device by means of an escutcheon, an attractive and uniform appearance is achieved.

**[0026]** The invention also relates to a door or window fittings set comprising a burglary-preventing device as described above, at least one handle or knob for a window or door, and at least one associated escutcheon which is configured to cover the burglary-preventing device.

**[0027]** The escutcheon, in a fitted position, has a rear side which faces the door or window panel, the rear side preferably being provided with a recess which is suitable for accommodating a front portion of the shielding body. As a result thereof, the escutcheon and the shielding body are fitted in a well-defined manner with respect to each other and a displacement with respect to each other is prevented.

**[0028]** The invention furthermore relates to a method for manufacturing a burglary-preventing device for an access panel, such as a door or window, wherein:

- a shielding body is formed or mechanically produced, preferably from metal, so that it has a front side which, in a fitted position, in use, faces away from the access panel, and a rear side which is situated opposite the front side,
- a lock-receiving recess is formed or mechanically produced in the rear side so as to accommodate an end portion of a cylinder lock,
- a passage with an axis in the shielding body is formed or mechanically produced, preferably drilled, from the front side of the shielding body to the lock-receiving recess, with the passage allowing the operation of the cylinder lock to be fitted in the lock-receiving recess by means of a key from the front side of the shielding body,
- bores are formed or produced mechanically at right angles to the passage in the shielding body, preferably drilled,
- inserts of a harder material than the material of the shielding body are inserted and fixed in the bores.

**[0029]** Preferably, the respective bores are closed off by welding after the respective inserts have been inserted into the respective bores.

**[0030]** The invention will be explained in more detail in the following description with reference to the drawing, wherein:

Fig. 1 shows a door with door fittings and a burglary-preventing device according to the invention;
Fig. 2 shows a view along the cross section A-A in Fig. 1;
Figs. 3A and 3B show a side view and a rear view, respectively, of an escutcheon with a door handle of the door fittings from Fig. 1;
Fig. 4A shows a front view of the burglary-preventing device from Fig. 1;
Fig. 4B shows a view in cross section along C-C in Fig. 4A; and
Fig. 4C shows a view in cross section along B-B in Fig. 4A.

**[0031]** Fig. 1 shows a door 1 with a door profile 2. Pas-

sages 3 are provided in the door profile for fastening bolts 4 by means of which the fittings are attached to the door profile 2. Furthermore, a passage is provided in the door profile 2 for a handle pin (not shown).

**[0032]** An outer escutcheon 6 and a door handle 7 are fitted to the outside of the door 1. On the inside, an inner escutcheon 8 and a handle 9 are fitted. The handles 7 and 9 are mutually connected by the handle pin (not shown) which extends through the passage 5 and is mechanically coupled to a latch 10 to operate the latter.

**[0033]** A cylinder lock which is mechanically coupled to a latch 11 is also fitted in the door profile. When the lock is in the open position, the latch 11 is in the retracted position and the door can be opened and closed freely. When the lock is in the locking position, the latch 11 is in the extended position and, in the case of a closed door 1, engages with an associated recess in the door frame.

**[0034]** At the location of the cylinder lock, a burglary-preventing device 20 is fitted on the outside of the door profile 2.

**[0035]** In Figs. 4A - 4C, the burglary-preventing device 20 is shown in more detail in various views.

**[0036]** The burglary-preventing device 20 comprises a shielding body 21. In the illustrated embodiment, the shielding body 21 is formed as a metal block having a rectangular contour, as can be seen in Fig. 4A. The block 21 consists of a front rectangular portion 22 and a rear rectangular portion 23, as can best be seen in Figs. 4B and 4C. The peripheral dimensions of the front portion 22 are larger than those of the rear portion 23.

**[0037]** In itself, the rectangular contour is not essential to the invention and could thus also be different, for example round, oval or polygonal, but the rectangular shape is simple to produce from a practical point of view.

**[0038]** The front portion 22 has a front side 24 which faces away from the door 1. The rear portion 23 has a rear side 25 which is opposite to the front side 22. A lock-receiving recess 26 is provided in the rear side 25 for accommodating an end portion of a cylinder lock. In the illustrated embodiment, the lock-receiving recess 26 comprises a portion 26A for accommodating the front end of the cylinder and a portion 26B for accommodating the front end of the housing portion where the locking pins are situated.

**[0039]** A passage 27 extends from the front side 24 through the block 21 to the lock-receiving recess 26. The passage 27 is formed as a bore with an axis which extends at right angles to the front side 24 of the block 21 and ends in the lock-receiving recess 26. The passage 27 allows operation of the cylinder lock by means of a key from the front side 24 of the shielding body 21.

**[0040]** The front portion 22 of the block 21 has an underside 28. In the illustrated embodiment, four blind bores 30 are provided in the underside 28 which extend at right angles to the passage 27, but do not intersect the latter. On either side of the passage 27, two parallel bores 30 are provided which, in the fitted position, extend upwards, as can best be seen in Fig. 4A.

**[0041]** Furthermore, the front portion 22 of the block 21 has a pair of opposite sides 29. On at least one of these sides 29, continuous bores 31 are provided which, in the illustrated example, are at right angles to the vertical bores 30. In the illustrated example, the bores 31 extend from the one side 29 to the other side 29, but these could also be blind bores. Two parallel bores 31 are arranged on either side of the passage 27 and extend horizontally in the fitted position, as can best be seen in Fig. 4A.

**[0042]** In the illustrated example, the axes of the bores 30 and 31 are in the same plane, as a result of which the first bores (which are vertical in the figure) and second bores 31 (which are horizontal in the figure) intersect.

**[0043]** The bores 30 and 31 extend parallel to the front side 24, although this is not strictly necessary for the invention to work. The front side could also extend in a non-parallel way to the plane defined by the axes of the bores.

**[0044]** Inserts formed as pins 32 of a harder material than the material of the shielding body are fitted in the bores 30.

**[0045]** In a similar way, inserts formed as pins 33 of a harder material than the material of the shielding body are fitted in the second bores 31.

**[0046]** The harder material of the pins 32, 33 could be hard metal. Another possibility is a ceramic material.

**[0047]** The pins 33 are significantly shorter than the pins 32. In a preferred embodiment, the shorter pins 33 have a length which is only slightly greater than the diameter of the passage 27. As a result thereof, it is possible first to fit a relatively long pin 32 on one side in the bore which is closest to the passage 27 in order then to insert the relatively short pins 33 from the side 29 which is situated furthest from the inserted relatively long pin 32 into the bores 31 and push them through until they bear against the relatively long pin 32. Thereafter, a second relatively long pin 32 can be fitted on the other side of the passage 27 into the bore 30 which is situated closest to the passage 27, as a result of which the relatively short pins are locked between the two relatively long pins 32. Subsequently, the outer relatively long pins 32 may also be fitted.

**[0048]** The relatively long pins 32 are fixed in their respective bores 30. Preferably, this is achieved by means of a weld, in particular a plug weld, in the open end of the bores 30.

**[0049]** It should be noted here, just for the sake of illustration, that in a possible practical embodiment, the relatively long pins 32 may have a length $l_1$ of 65 mm and a diameter $D_1$ of 8 mm and the relatively short pins 33 may have a length $l_2$ of 17 mm and a diameter $D_2$ of 8 mm. The front portion 22 of the block 21 may have a length L of 100 mm and a width B of 60 mm. The length and width of the second part 23 of the block are each approximately 20 mm less than the length and the width of the front portion 22 of the block. The thickness T of the total block may be approx. 25 mm, with the thickness

$T_1$ of the second part 23 being approx. 10 mm.

**[0050]** The door profile 2 has a front plate 40, as can be seen in Fig. 2. In this front plate 40, a hole 41 with a contour which corresponds to the contour of the rear portion 23 of the block 21 is provided. In the illustrated example, the hole 41 is thus rectangular. The dimensions of the hole 41 are slightly larger than the dimensions of the rear portion 23 of the block 21, as a result of which the rear block portion 23 may be fitted in the hole 41 with some play.

**[0051]** The rear block portion 23 is welded to the rear side of the front plate 40 on all sides. The welds are denoted by reference numeral 41. Welding the block portion 23 to the rear side prevents the welds 41 from being destroyed, for example by means of a grinder or the like. As a result thereof, the block 21 cannot be removed from the door, which would make it possible to pull the lock out of the door.

**[0052]** The front block portion 22 is welded to the front side of the front plate 40 on all sides. The welds on the sides 29 can be seen in Fig. 2 and are denoted by reference numeral 42.

**[0053]** The front block portion 22 is situated in front of the front plate 40 of the door profile and is therefore accessible to all manner of tools, such as a drill, a grinder or a saw. Because hard pins 32, 33 which extend in different directions are fitted in the block portion 22 situated in front of the plate 40, the front block portion 22 is efficiently protected from being sawn or ground through.

**[0054]** As can be seen in Fig. 1 and Fig. 2, an escutcheon 6 is fitted over the block 21. The escutcheon 6 has a front escutcheon plate 61 and a peripheral edge 62. On the rear side of the front escutcheon plate 61, a recessed portion 63 is provided to accommodate the front side of the front portion 22 of the block 21. The contour of the recess 63 is identical to that of the block, but slightly larger in size, so that there is some play for fitting.

## Claims

1. Burglary-preventing device (20) for an access panel (1), such as a door or window, wherein the burglary-preventing device (20) comprises a shielding body (21), preferably made from metal, to be fixedly attached to the access panel (1), which shielding body (21) has a front side (24), which is facing away from the access panel (1) in a fitted position, and a rear side (25) which is situated opposite the front side (24), wherein the rear side (25) has a lock-receiving recess (26) to accommodate an end portion of a cylinder lock, a passage (27) with an axis which extends from the front side (24) of the shielding body (21) to the lock-receiving recess (26), wherein the passage (27) makes it possible to operate the cylinder lock from the front side (24) of the shielding body (21) using a key, **characterized in that** the shielding body (21) furthermore has bores (30, 31) which extend at right angles to the passage (27), wherein inserts (32, 33) of a harder material than the material of the shielding body (21) are inserted into the bores (30, 31) and fixed.

2. Burglary-preventing device according to claim 1, wherein the inserts (32, 33) inserted into the bores (30, 31) together surround the passage (27) in the shielding body (21).

3. Burglary-preventing device according to claim 1 or 2, wherein the passage (27) is flanked on diametrically opposite sides by first inserts (32) which are inserted into corresponding mutually parallel first bores (30), and wherein the passage (27) is furthermore flanked on diametrically opposite sides by second inserts (33), which are inserted into corresponding mutually parallel second bores (31) and which are at right angles to the first inserts (32).

4. Burglary-preventing device according to claim 3, wherein the second inserts (33) are shorter than the first inserts (32).

5. Burglary-preventing device according to claim 4, wherein the mutually perpendicular bores (30, 31) intersect.

6. Burglary-preventing device according to one of claims 3-5, wherein two first bores (30) with first inserts (32) are situated on either side of the passage (27), and/or two second bores (31) with second inserts (33) are situated on either side of the passage (27).

7. Burglary-preventing device according to any of the preceding claims, wherein the inserts (32, 33) are formed as pins.

8. Burglary-preventing device according to any of the preceding claims, wherein at least some of the inserts (32, 33) are made from hard metal, such a ceramic material.

9. Burglary-preventing device according to any of the preceding claims, wherein, with at least some of the bores (30, 31), the insert (32, 33) is secured in the respective bore (30, 31) by closing the bore (30, 31) with a weld.

10. Burglary-preventing device according to any of the preceding claims, wherein the shielding body (21) substantially has a block shape, wherein at least a first portion (22) of the block (21) is configured to be placed against a front face of the access panel (1).

11. Burglary-preventing device according to claim 10, wherein the block (21) has a second portion (23)

which is configured to be accommodated in a matching recess (41) in the access panel (1), wherein the second portion (23) of the block (21) preferably has a smaller peripheral length than the first portion (22) of the block (21).

**12.** Access panel (1), such as a door or window, to which a burglary-preventing device (20) according to any of the preceding claims is fitted.

**13.** Access panel (1) according to claim 12, wherein the shielding body (21) is made of metal and welded to the access panel (21), or wherein the shielding body (21) is attached to the access panel (1) by means of an adhesive connection or a screw connection.

**14.** Door or window fittings set comprising a burglary-preventing device (20) according to any of claims 1-11, at least one handle or knob (7, 9) for a window or door, and at least one associated escutcheon (6, 8) which is configured to cover the burglary-preventing device (20), wherein preferably the escutcheon (6, 8), in a fitted position, has a rear side which faces the door or window panel (1), the rear side being provided with a recess (63) which is suitable for accommodating a front portion (22) of the shielding body (21).

**15.** Method for manufacturing a burglary-preventing device (20) for an access panel (1), such as a door or window, wherein:

- a shielding body (21) is formed or mechanically produced, preferably from metal, so that it has a front side (24) which, in a fitted position, in use, faces away from the access panel (1), and a rear side (25) which is situated opposite the front side (24),
- a lock-receiving recess (26) is formed or mechanically produced in the rear side (25) so as to accommodate an end portion of a cylinder lock,
- a passage (27) with an axis in the shielding body (21) is formed or mechanically produced, preferably drilled, from the front side (24) of the shielding body (21) to the lock-receiving recess (26), with the passage (27) allowing the operation of the cylinder lock to be fitted in the lock-receiving recess (26) by means of a key from the front side (24) of the shielding body (21),
- bores (30, 31) are formed or produced mechanically at right angles to the passage (27) in the shielding body (21), preferably drilled,
- inserts (32, 33) of a harder material than the material of the shielding body (21) are inserted and fixed in the bores (30, 31).

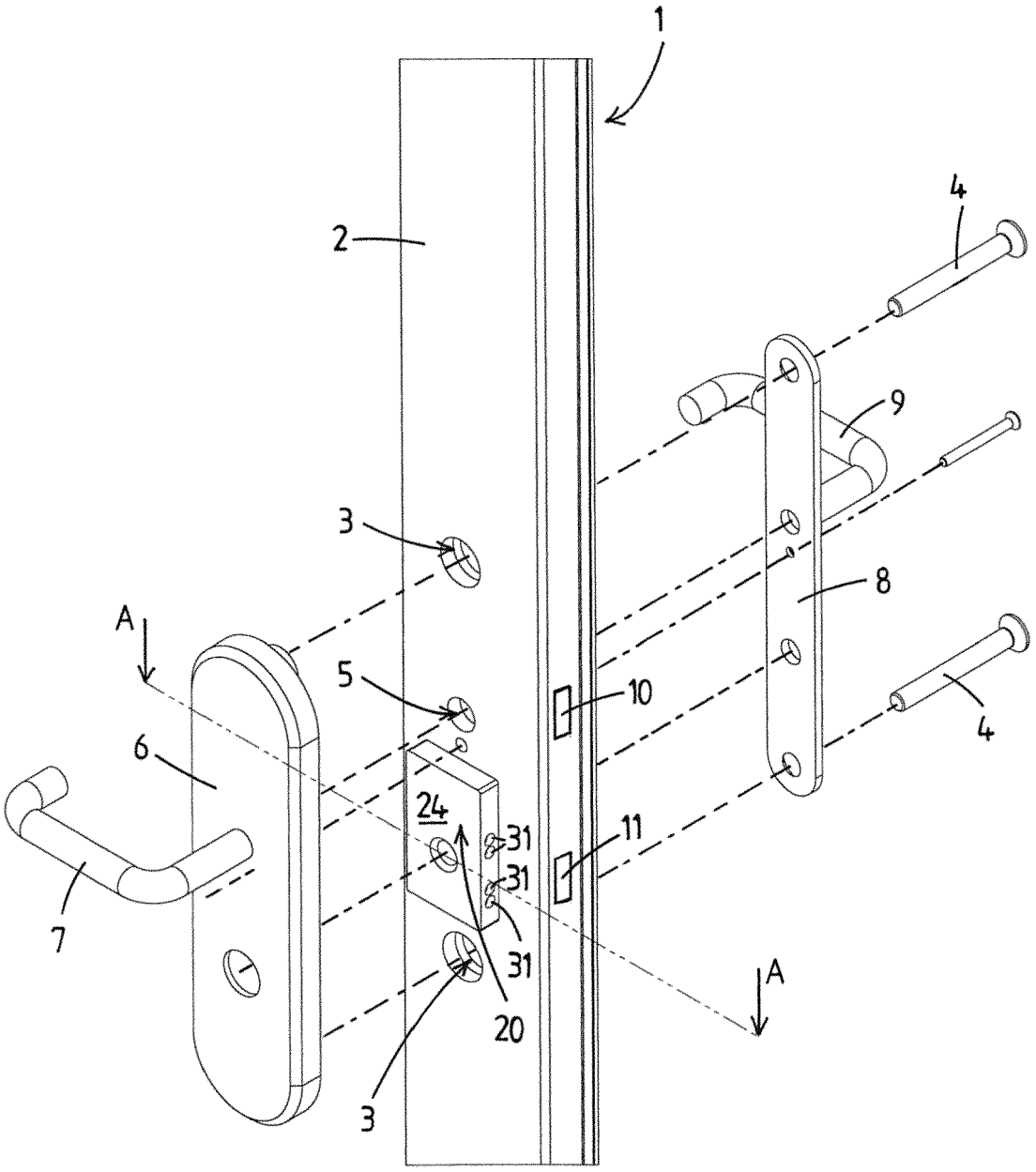



Fig.1

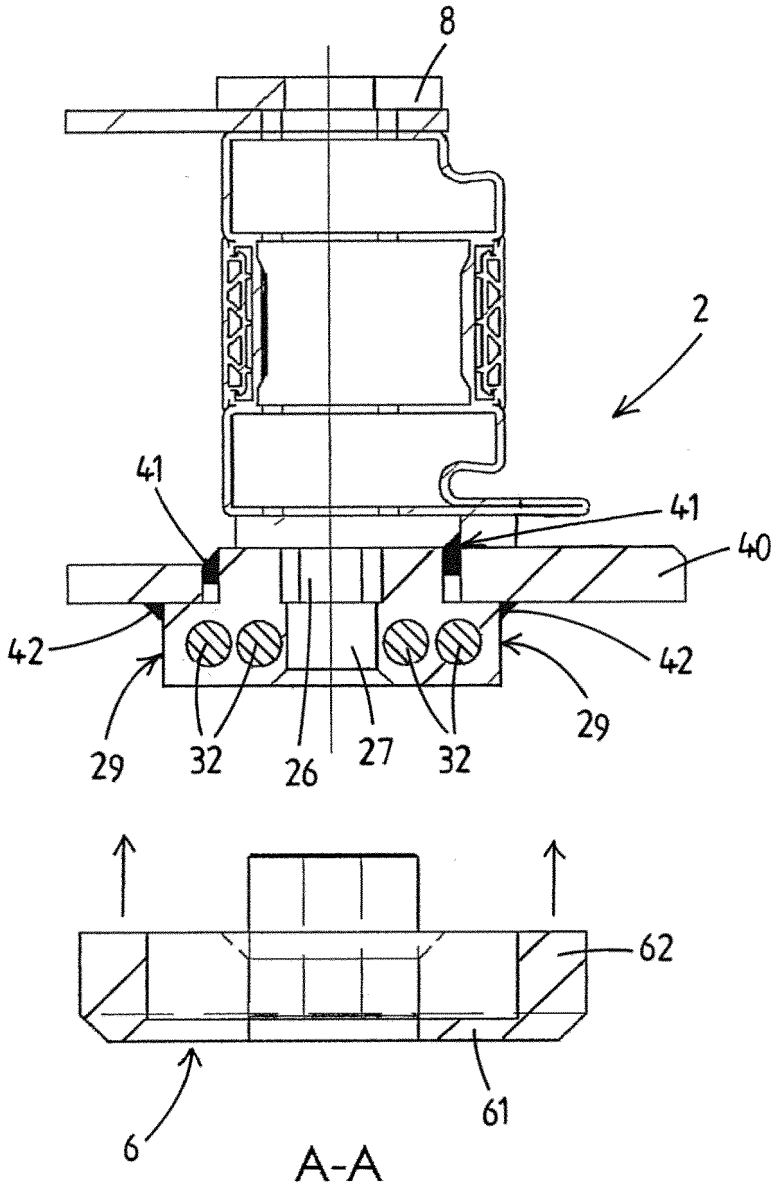



Fig.2

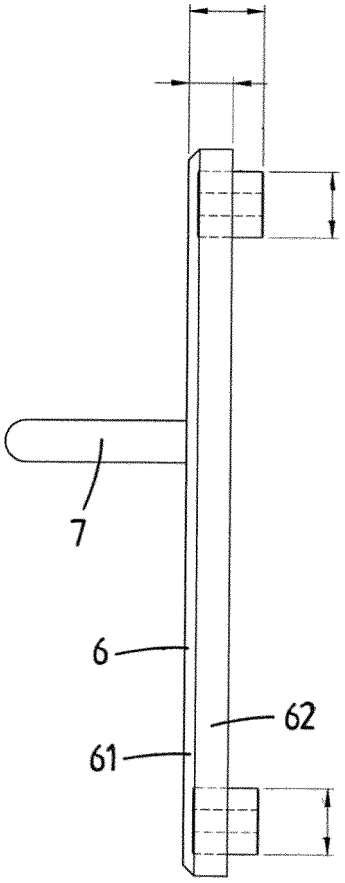



Fig.3a

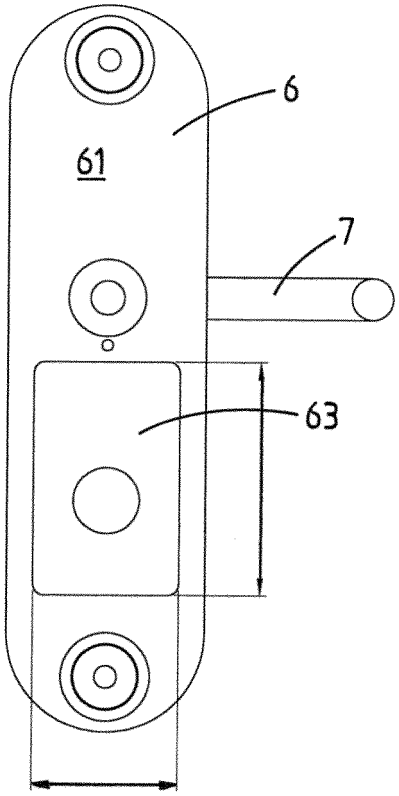



Fig.3b

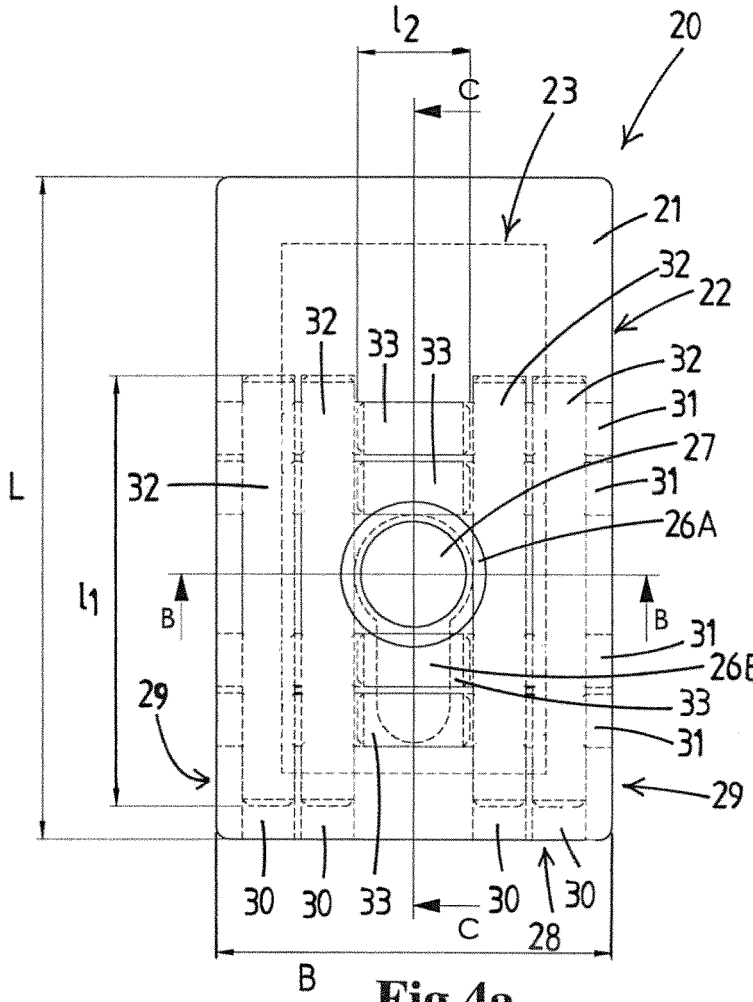



Fig.4a

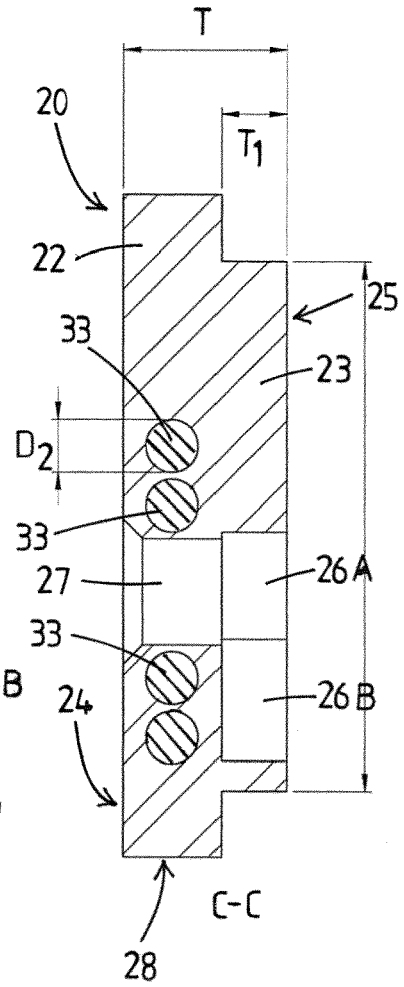



Fig.4b

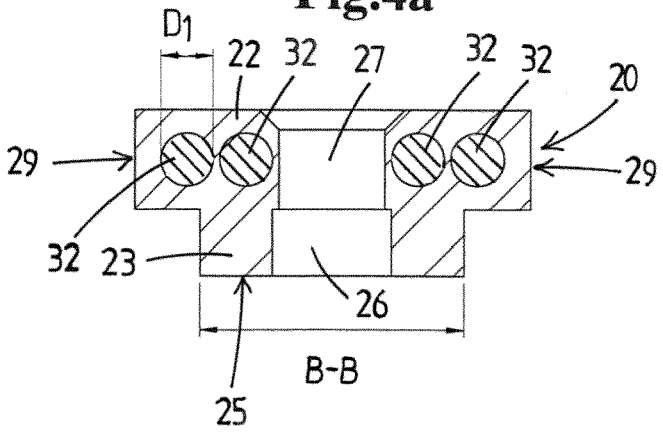



Fig.4c

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# EUROPEAN SEARCH REPORT

Application Number
EP 17 16 5236

## 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<br>A | DE 197 57 987 A1 (EVVA WERKE [AT])<br>2 June 1999 (1999-06-02)<br>* column 1, line 51 - column 2, line 67; figures 1-3 * | 1,7,8, 10,12, 13,15<br>14 | INV.<br>E05B15/16<br>E05B15/02 |
| X | DE 85 08 267 U1 (PETER METZ, HOMA-GESCHLÄGE GMBH & CO KG)<br>13 June 1985 (1985-06-13)<br>* pages 1,2; figures 1,2 * | 1,2,7-15 | |
| X | DE 87 17 477 U1 (MELCHERT BESCHLÄGE GMBH & CO KG) 10 November 1988 (1988-11-10)<br>* page 12, paragraph 3 - page 13, paragraph 1; figure 5 * | 1,2,7, 10,12, 14,15 | |
| A | WO 2010/121292 A1 (FIRE & SECURITY HARDWARE PTY L [AU]; MACKLE TREVOR [AU]; ARMENIAN BERG)<br>28 October 2010 (2010-10-28)<br>* page 3, line 5 - page 5, line 19; figures 4-9 * | 1,7-10, 12,13,15 | TECHNICAL FIELDS SEARCHED (IPC)<br>E05B |
| A | US 2003/217575 A1 (PRICE DENNIS C [US])<br>27 November 2003 (2003-11-27)<br>* paragraph [0050]; figure 4 * | 1-9,12, 14,15 | |

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 21 August 2017 | Pérez Méndez, José F |

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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