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(54) DOOR LOCK FIXTURE MOUNTED ONTO A TUBULAR MEMBER

TÜRSCHLOSSHALTERUNG, DIE AUF EINEM ROHRFÖRMIGEN ELEMENT MONTIERT IST

DISPOSITIF DE VERROUILLAGE DE PORTE MONTÉ SUR UN ÉLÉMENT TUBULAIRE

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EP-A1- 3 153 645
EP-A1- 4 159 962
DE-U1- 20 022 248

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Description

Technical field

[0001] The present invention relates to a system comprising a tubular member and a door lock fixture fixed thereto. The door lock fixture comprises a faceplate and a fixture body and is mounted with its fixture body through an elongated rectangular slot in a wall portion of the tubular member, with the faceplate of the fixture being configured to engage an outer surface of said wall portion of the tubular member and to be fixed to said wall portion by means two bolts which are applied through an opening in said faceplate.

Background art

[0002] The door lock fixture is in particular a mortice lock or a keep for a door lock. The word "door" is used in the present specification to embrace all kinds of closure members such as doors, having a full door panel, and gates. The door can either be a hinged or a sliding closure member.

[0003] EP 3 153 645 discloses a system comprising a tubular member and a door lock fixture fixed thereto by a top bolt and a bottom bolt, the tubular member having a wall with an elongated rectangular slot therein, the elongated rectangular slot extending in a longitudinal direction and having an top short side and a bottom short side, the door lock fixture comprising a faceplate and a fixture body, the door lock fixture being configured to be mounted with its fixture body through said elongated rectangular slot with the faceplate engaging an outer surface of said wall, the faceplate comprising a top opening through which said top bolt extends and a bottom opening through which said bottom bolt extends.

[0004] EP 3 153 645 further discloses that the fixture body includes moveable (e.g. slideable or pivotable) clamping levers which, when retracted, allow inserting the fixture body through the rectangular elongated slot, and, when extended, engage an inner surface of the tubular member thereby clamping a wall portion of the tubular member between the clamping lever and the faceplate. Each clamping lever comprises a threaded opening which, when the clamping levers are extended, axially aligns with a respective one of the top/bottom opening in the faceplate. The top/bottom bolt is fastened through a threaded opening in a respective clamping lever.

[0005] A downside of this known system is the positional leeway between the door lock fixture and the tubular member both in the longitudinal direction of the support member and in the width direction of the elongated rectangular slot.

[0006] EP 4 159 962 is prior art cited under Article 54(3) EPC and relevant for the assessment of novelty only. EP 4 159 962 discloses a system comprising a tubular member and a door lock fixture fixed thereto by a top bolt and a bottom bolt, the tubular member having a wall with an elongated rectangular slot therein, the elongated rectangular slot extending in a longitudinal direction and having an top short side and a bottom short side, the door lock fixture comprising a faceplate and a fixture body, the door lock fixture being configured to be mounted with its fixture body through said elongated rectangular slot with the faceplate engaging an outer surface of said wall, the faceplate comprising a top opening through which said top bolt extends and a bottom opening through which said bottom bolt extends, wherein the elongated rectangular slot comprises a top notch at the top short side and a bottom notch at the bottom short side, the notches extending away from one another, said top bolt extending at least partially through said top notch and said bottom bolt extending at least partially through said bottom notch, the system further comprising a top nut and a bottom nut for fastening a respective bolt.

Disclosure of the invention

[0007] It is an object of the present invention to provide a system comprising a tubular member and a door lock fixture fixed thereto which addresses the above mentioned downsides.

[0008] To this end, the system according to the invention is characterised in that the elongated rectangular slot comprises a top notch at the top short side and a bottom notch at the bottom short side, the notches extending away from one another, said top bolt extending at least partially through said top notch and said bottom bolt extending at least partially through said bottom notch, the system further comprising a top nut and a bottom nut for fastening a respective bolt, wherein the elongated rectangular slot has a width comprised between 10 and 35 mm.

[0009] Providing the notches through which the bolts extend cause a desired positioning of the door lock fixture with respect to the support member. More specifically, as each bolt partially extends through a respective notch, both the height (i.e. longitudinal direction) and the width position of the bolts with respect to the support member is fixed. Likewise, since each bolt extends through a respective opening in the faceplate, the height/width position of the faceplate (i.e. the door lock fixture) is fixed with respect to the support member. The leeway possible with the known system is thus avoided.

[0010] Moreover, this advantage is obtained without, as suggested in EP 3 153 645, having to create separate openings in the support member. In other words, the required opening in the support member (i.e. the elongated rectangular slot with notches) can be manufactured in a single step (e.g. by cutting, laser cutting, milling, etc.).

[0011] In an embodiment of the present invention, each nut is moveably mounted onto the fixture body between a retracted position in which the fixture body can be inserted through said elongated rectangular slot into the

tubular member, and an extended position in which the nut at least partially engages an inner surface of said wall to clamp said wall between the faceplate and the nut.

[0012] In this way, the nuts are invisible from the outside of the system thereby improving anti-tamper properties of the system. Furthermore, each bolt can be tightened strongly so that the wall of the tubular member is clamped strongly and reliably between the faceplate and the nut irrespective of the thickness of the wall of the tubular member.

[0013] In a first alternative embodiment of the present invention, the nuts are formed as a threaded opening in a support, each support being moveably mounted on the fixture body between a retracted position in which the fixture body can be inserted through said elongated rectangular slot into the tubular member and an extended position in which the nut is axially aligned with a respective one of the top opening and bottom opening. The supports may be manually moveable from their retracted position to their extended position or they may be spring biased towards their extended position with a latch being provided for each support to hold its nut in its retracted position. The supports may be slideable or pivotable between their retracted position and their extended position.

[0014] Such supports are disclosed in EP 3 153 645 and have various advantages. For example, such supports are suitable for varying wall thicknesses. Moreover, such supports do not hamper the insertion of the fixture body into the tubular member since it is held in its retracted position when the fixture body is inserted into the tubular member. A pivotable support is advantageous as the support can simply pivot within the tubular member from its retracted to its extended position until it engages the inner surface of the wall of the tubular member. A spring-biased support ensures that the support has only to be released to be brought automatically by the spring into its extended position. A corresponding latch can be actuated to release the support. Actuation of the latch can for example be done through the hole for the bolt in the faceplate. Alternatively, the door lock fixture may comprise a removable locking element which holds the support in its retracted position. By simply removing this locking element, the support is released and moves under the action of said spring in the tubular member until it projects behind the inner surface of the wall of the tubular member. In this position, the bolt can be inserted through said opening in the faceplate in the fixture and can be screwed in the screw threaded hole in the clamping lever to clamp the wall of the tubular member strongly between the faceplate of the fixture and the nut formed in the support.

[0015] In a second alternative embodiment of the present invention, the nuts are irrotatably mounted on a support arm, each support arm being slideably mounted on the fixture body between a retracted position in which the fixture body can be inserted through said elongated rectangular slot into the tubular member and an extended position in which the nut is axially aligned with a respective one of the top opening and bottom opening, each nut being slideably mounted on a respective support arm along a transverse direction which is substantially perpendicular to the longitudinal direction and is preferably further perpendicular to the faceplate.

[0016] This alternative embodiment is also suited for varying wall thicknesses. Furthermore, by having a separate nut and support, the risk of damaging the support is reduced when tensioning the bolt when compared to the first alternative embodiment where the nut is formed as an opening in the support.

[0017] In an embodiment of the present invention, each bolt has a bolt head and a threaded part extending in a first direction, the bolt head defining a hypothetical circumscribed cylinder extending in said first direction, wherein a part of said wall adjacent said notches is located inside a respective hypothetical cylinder.

[0018] In this embodiment a part of the tubular member is located directly underneath the bolt head. In other words, the tubular support is partially positioned directly between the bolt head and the nut which optimizes force transfer between the door lock fixture and the tubular member.

[0019] In an embodiment of the present invention, each notch comprises a substantially semi-circular part, said part in particular having a diameter between 5 mm and 10 mm and more particularly between 6 mm and 7 mm.

[0020] In an embodiment of the present invention, a leeway between each notch and its respective bolt is at most 1 mm, particularly at most 0,5 mm.

[0021] In an embodiment of the present invention, each notch has an opening width which is measured along a line contiguous with its respective short side, the opening width being at most 50%, particularly at most 40%, and more particularly at most 30%, of a width of the elongated rectangular slot.

[0022] In an embodiment of the present invention, the elongated rectangular slot has a height, the height being at least 4 times, particularly at least 6 times, and more particularly at least 7 times, larger than the width, the width preferably being between 15 and 30 mm and particularly between 20 and 25 mm.

[0023] The various dimensions of the elongated rectangular slot are mainly determined in view of the dimensions of the lock fixture. Furthermore, the notch dimensions are mainly determined depending on the bolt diameter with higher diameter bolts typically leading to a stronger, albeit more expensive, connection.

[0024] In an embodiment of the present invention, the notches are aligned with one another in the longitudinal direction. This leads to a symmetric design which reduces manufacturing and/or assembly errors.

Brief description of the drawings

[0025] Other particularities and advantages of the in-

vention will become apparent from the following description of some particular embodiments of a mortice lock and of a keep according to the present invention. The reference numerals used in this description relate to the annexed drawing.

Figure 1 shows a perspective view of a mortice lock mounted on a tubular member.
Figure 2 shows a perspective view of a morticed lock keep mounted on a tubular member.
Figure 3 shows a front view of the tubular member of figures 1 and 2.
Figure 4 shows a detail of figure 3.
Figure 5 shows a perspective view of a cooperating mortice lock and keeper mounted on two tubular members as part of a closure system.
Figure 6 shows a partial longitudinal cross-section through the cooperating mortice lock and keeper of figure 5. The lock has not been fully shown in cross-section to avoid irrelevant details.
Figure 7 shows a detail of figure 6.

Description of the invention

[0026] The present invention will be described with respect to particular embodiments and with reference to certain drawings but the invention is not limited thereto but only by the claims. The drawings described are only schematic and are non-limiting. In the drawings, the size of some of the elements may be exaggerated and not drawn on scale for illustrative purposes. The dimensions and the relative dimensions do not necessarily correspond to actual reductions to practice of the invention.

[0027] Furthermore, the terms first, second, third and the like in the description and in the claims, are used for distinguishing between similar elements and not necessarily for describing a sequential or chronological order. The terms are interchangeable under appropriate circumstances and the embodiments of the invention can operate in other sequences than described or illustrated herein.

[0028] Moreover, the terms top, bottom, over, under and the like in the description and the claims are used for descriptive purposes. The terms so used are interchangeable under appropriate circumstances and the embodiments of the invention described herein can operate in other orientations than described or illustrated herein.

[0029] Furthermore, the various embodiments, although referred to as "preferred" are to be construed as exemplary manners in which the invention may be implemented rather than as limiting the scope of the invention.

[0030] The present invention generally relates to a system comprising a tubular member 3 and a door lock fixture mounted thereon. In the embodiment of figure 1, the door lock fixture is a mortice lock 1 to be inserted into a closure member, in particular in a hollow tubular member 3 thereof. In the embodiment of figure 2, the door lock fixture is a morticed lock keep 2 which comprises a body portion that is inserted in the support onto which it is mounted. The support is generally formed by a hollow tubular member 3 and can either be a fixed post or a leaf of a double door or gate.

[0031] In general, the door lock fixture (i.e. the mortice lock 1 or the morticed lock keep 2) comprises a faceplate 4 and a fixture body 5. The tubular member 3 is generally part of a gate, as illustrated in the figures, or of a door or any other type of hinged closure member and generally comprises a rectangular elongated slot 6 in a wall portion 7. The rectangular elongated slot 6 has a top short side 8, a bottom short side 9, and two long sides 10 which extend in a longitudinal direction 11 (which is also the direction along which the tubular body 3 extends). The fixture body 5 is designed to be inserted through the rectangular elongated slot 6 with the faceplate 4 engaging an outer side of the wall portion 7.

[0032] In order to attach the door lock fixture to the tubular member 3, use is made of a top bolt 12 and a bottom bolt 13 which are placed through a corresponding top/bottom opening in the faceplate 4. Each bolt 12, 13 further at least partially extends through a corresponding one of a top notch 14 and a bottom notch 15 which are provided in a respective top/bottom short side 8, 9. This ensure that the faceplate 4 (and thus the door lock fixture) are correctly aligned with the rectangular elongated slot 6. Each bolt 12, 13 is bolted into a corresponding one of a top nut 16 and a bottom nut 17. In the illustrated embodiments (as best shown in figures 6 and 7), as described in more detail below, the nuts 16, 17 are located inside the tubular member 3. However, in other embodiments, the bolts may fully extend through the tubular member with the nuts being provided on the rear side thereof.

[0033] As illustrated in figures 3 and 4, the elongated rectangular slot 6 has a width W and a height H. The height H is at least 4 times, particularly at least 6 times, and more particularly at least 7 times, larger than the width W. The width is between 10 and 35 mm, particularly between 15 and 30 mm, and more particularly between 20 and 25 mm, with the width W being about 22 mm in the illustrated embodiment. These dimensions are mainly determined in view of the dimensions of the lock body.

[0034] In the illustrated embodiment as best shown in figure 4, each notch 14, 15 comprises a semi-circular part 20 and two straight parts 21. The semi-circular part 20 in particular having a diameter between 5 mm and 10 mm and more particularly between 6 mm and 7 mm. These dimension of this semi-circular part 20 is mainly determined depending on the bolt diameter and a maximum leeway between the bolt diameter and the semi-circular part 20 is 1 mm and particularly 0,5 mm. The two straight parts 21 in the illustrated embodiment each have a length L of 2 mm, but other lengths are possible. The main reason for these straight parts 21 is to avoid the bolts 12, 13 centre-lines to coincide with the top/bottom short side 8, 9. In view of manufacturing tolerances, this could

lead to bolts 12, 13 not being correctly positioned in their respective notch 14, 15.

[0035] Each notch 14, 15 has an opening width W_o which measured along a line contiguous with its respective short side 8, 9. The opening width W_o is at most 50%, particularly at most 40%, and more particularly at most 30%, of a width W of the elongated rectangular slot 6. This dimension is mainly determined depending on the bolt diameter and is preferably equal to the diameter of the semi-circular part 20. In the illustrated embodiments, the notches 14, 15 are aligned in the longitudinal direction 11 leading to a symmetric design.

[0036] Details on the specific fixation of the door lock fixture to the tubular support 3 will be described with reference to figures 5 to 7 which illustrate a double wing gate having a mortice lock 1 in a tubular member of a first gate wing 22 and a morticed lock keep 2 in a tubular member of a second gate wing 23. It will be readily appreciated that the second gate wing may also be a fixed support.

[0037] The lock 1 may have a locking mechanism of any type and comprises a faceplate 4 and a lock body 5. The lock 1 may comprise a latch bolt 24 which is operated by means of handles 25, a deadbolt 26 which is operated by means of a key in particular through the intermediary of a lock cylinder 27 (for example a single-barrel euro-profile cylinder), or it may comprise a combination of a latch bolt 24 and a deadbolt 26 as in the embodiments illustrated in the drawings. Usually the latch bolt 24 and the deadbolt 26 are slideably mounted in the lock 1 to slide between a retracted and an extended position. In the embodiments illustrated in the drawings, the deadbolt 26 is however hook-shaped and pivots in the lock 1 between its extended and its retracted positions. The lock illustrated in figure 6 is in particular a lock as disclosed in EP 2 186 974 and EP 3 153 645 and further details about this lock can be found therein.

[0038] The morticed lock keep 2 comprises a faceplate 4 and a partially hollow body 5. The faceplate 4 comprises an elongated opening 28 and the partially hollow body 5 forms a corresponding elongated slot 29 in which the latch bolt 24 and/or the deadbolt 26 are received as shown in figure 6. The morticed lock keep 2 illustrated in the figures is in particular a morticed lock keep as disclosed in EP 3 153 645 and further details about this morticed lock keep can be found therein.

[0039] The fixture body 5 of the morticed lock keep 2 is provided with two support arms 30 which are (manually) slideably mounted onto the fixture body 5 along the longitudinal direction 11 between a retracted position in which the fixture body 5 can be inserted through the rectangular elongated slot 6 into the tubular member 3 and an extended position (shown in figures 6 and 7). On each support arm 30, there is provided a nut 16, 17 which is irrotatably and slideably mounted on the respective support arm 30 along a transverse direction 31 (indicated in figure 6) between a rest position and an engaging position (shown in figure 6). Each nut 16, 17 comprises a threaded opening configured to receive a bolt 12, 13 used to mount the morticed lock keep 10 on the tubular member 3. In the illustrated embodiment, the nut 16, 17 is irrotatable with respect to the support arm 30 due to its square (in general non-circular) outer shape.

[0040] Other details and advantages of the support arms 30 with slideable nuts 16, 17 are described in a patent application titled "Door lock fixture arranged to be mounted onto a tubular member" filed on the same day by the same applicant as the present application and are incorporated herein by reference.

[0041] The fixture body 5 of the mortice lock 1 is provided with two supports 32 that are moveable (e.g. slideable or pivotable) between a retracted position in which the fixture body 5 can be inserted into the elongated opening 6 and an extended position in which each support 32 engages an inner surface of the tubular member 3. Each support 32 is provided with a threaded opening which forms a respective one of the nuts 16, 17. In the illustrated embodiments, the supports 32 are pivotable and spring-biased due to a spring member 33 and latches 34 are provided to maintain the supports 32 in their retracted position. The supports 32 are identical to those described in EP 3 153 645 A1 which is incorporated herein by reference.

[0042] Irrespective of the fixation system used, each bolt has a bolt head and a threaded part extending in direction 31. The bolt head defines a hypothetical circumscribed cylinder extending in direction 31, wherein a part of said wall 7 adjacent said notches 14, 15 is located inside a respective hypothetical cylinder.

[0043] It will be readily appreciated that the fixation systems described above for the mortice lock 1 and the morticed lock keep 2 are interchangeable and still others may be used in accordance with the present invention related to the provision of notches 14, 15 for the alignment of the fixation bolts 12, 13.

[0044] Although aspects of the present invention have been described with respect to specific embodiments, it will be readily appreciated that these aspects may be implemented in other forms within the scope of the invention as defined by the claims.

Claims

1. A system comprising a tubular member (3) and a door lock fixture (1, 2) fixed thereto by a top bolt (12) and a bottom bolt (13), the tubular member having a wall (7) with an elongated rectangular slot (6) therein, the elongated rectangular slot extending in a longitudinal direction (11) and having an top short side (8) and a bottom short side (9), the door lock fixture comprising a faceplate (4) and a fixture body (5), the door lock fixture being configured to be mounted with its fixture body through said elongated rectangular slot with the faceplate engaging an outer surface of said wall, the faceplate comprising a top

opening through which said top bolt extends and a bottom opening through which said bottom bolt extends,

characterized in that the elongated rectangular slot comprises a top notch (14) at the top short side and a bottom notch (15) at the bottom short side, the notches extending away from one another, said top bolt extending at least partially through said top notch and said bottom bolt extending at least partially through said bottom notch, the system further comprising a top nut (16) and a bottom nut (17) for fastening a respective bolt,
wherein the elongated rectangular slot has a width (W) comprised between 10 and 35 mm.

2. The system according to claim 1, **characterized in that** each nut is moveably mounted onto the fixture body between a retracted position in which the fixture body can be inserted through said elongated rectangular slot into the tubular member, and an extended position in which the nut at least partially engages an inner surface of said wall to clamp said wall between the faceplate and the nut.

3. The system according to claim 2, **characterized in that** the nuts are formed as a threaded opening in a support (32), each support being moveably mounted on the fixture body between a retracted position in which the fixture body can be inserted through said elongated rectangular slot into the tubular member and an extended position in which the nut is axially aligned with a respective one of the top opening and bottom opening.

4. The system according to claim 3, **characterized in that** the supports are manually moveable from their retracted position to their extended position.

5. The system according to claim 3, **characterized in that** the supports are spring biased towards their extended position and a latch (34) is provided for each support to hold its nut in its retracted position.

6. The system according to any one of claims 3 to 5, **characterized in that** the supports are slideable between their retracted position and their extended position.

7. The system according to any one of claims 3 to 5, **characterized in that** the supports are rotatable between their retracted position and their extended position.

8. The system according to claim 2, **characterized in that** the nuts are irrotatably mounted on a support arm (30), each support arm being slideably mounted on the fixture body between a retracted position in which the fixture body can be inserted through said elongated rectangular slot into the tubular member and an extended position in which the nut is axially aligned with a respective one of the top opening and bottom opening, each nut being slideably mounted on a respective support arm along a transverse direction (31) which is substantially perpendicular to the longitudinal direction and is preferably further perpendicular to the faceplate.

9. The system according to any one of the preceding claims, **characterized in that** each bolt has a bolt head and a threaded part extending in a first direction, the bolt head defining a hypothetical circumscribed cylinder extending in said first direction, wherein a part of said wall adjacent said notches is located inside a respective hypothetical cylinder.

10. The system according to any one of the preceding claims, **characterized in that** each notch comprises a substantially semi-circular part (20), said part in particular having a diameter between 5 mm and 10 mm and more particularly between 6 mm and 7 mm.

11. The system according to any one of the preceding claims, **characterized in that** a leeway between each notch and its respective bolt is at most 1 mm, particularly at most 0,5 mm.

12. The system according to any one of the preceding claims, **characterized in that** the notches are aligned with one another in the longitudinal direction.

13. The system according to any one of the preceding claims, **characterized in that** each notch has an opening width W_o which is measured along a line contiguous with its respective short side, the opening width being at most 50%, particularly at most 40%, and more particularly at most 30%, of a width of the elongated rectangular slot.

14. The system according to any one of the preceding claims, **characterised in that** the elongated rectangular slot has a height (H), the height being at least 4 times, particularly at least 6 times, and more particularly at least 7 times, larger than the width, the width preferably being between 15 and 30 mm and particularly between 20 and 25 mm.

15. The system according to any one of the preceding claims, **characterised in that** the door lock fixture is a keeper for a door lock or a mortice lock.

Patentansprüche

1. Ein System, welches ein rohrförmiges Element (3)

und eine Türschlosshalterung (1, 2) umfasst, daran befestigt durch eine obere Schraube (12) und eine untere Schraube (13), wobei das rohrförmige Element eine Wand (7) mit einem länglichen rechteckigen Schlitz (6) darin hat, wobei sich der längliche rechteckige Schlitz in eine Längsrichtung (11) ausdehnt und eine obere kurze Seite (8) und eine untere kurze Seite (9) hat, wobei die Türschlosshalterung einen Stulp (4) und einen Schlosskasten (5) umfasst, wobei die Türschlosshalterung konfiguriert ist, um mit ihrem Schlosskasten durch den erwähnten länglichen rechteckigen Schlitz montiert zu werden, wobei der Stulp in eine Außenfläche der erwähnten Wand eingreift, wobei der Stulp eine obere Öffnung, durch die sich die erwähnte obere Schraube erstreckt, und eine untere Öffnung, durch die sich die erwähnte untere Schraube erstreckt, umfasst,

dadurch gekennzeichnet, dass der längliche rechteckige Schlitz eine obere Kerbe (14) an der oberen kurzen Seite und eine untere Kerbe (15) an der unteren kurzen Seite umfasst, wobei sich die Kerben voneinander weg ausdehnen, wobei sich die erwähnte obere Schraube zumindest teilweise durch die erwähnte obere Kerbe erstreckt und sich die erwähnte untere Schraube zumindest teilweise durch die erwähnte untere Kerbe erstreckt, wobei das System ferner eine obere Mutter (16) und eine untere Mutter (17) umfasst, um eine zugehörige Schraube zu fixieren,
wobei der längliche rechteckige Schlitz eine Weite (W) von zwischen 10 und 35 mm hat.

2. Das System nach Anspruch 1, **dadurch gekennzeichnet, dass** jede Mutter auf dem Schlosskasten beweglich montiert ist zwischen einer zurückgezogenen Position, in der der Schlosskasten durch den erwähnten länglichen rechteckigen Schlitz in das rohrförmige Element eingeführt werden kann, und einer ausgestreckten Position, in der die Mutter zumindest teilweise in eine Innenfläche der erwähnten Wand eingreift, um die erwähnte Wand zwischen dem Stulp und der Mutter festzuklemmen.

3. Das System nach Anspruch 2, **dadurch gekennzeichnet, dass** die Muttern als eine mit einem Gewinde versehene Öffnung in einem Träger (32) geformt sind, wobei jeder Träger auf dem Schlosskasten beweglich montiert ist zwischen einer zurückgezogenen Position, in der der Schlosskasten durch den erwähnten länglichen rechteckigen Schlitz in das rohrförmige Element eingeführt werden kann, und einer ausgestreckten Position, in der die Mutter axial mit einer Zugehörigen der oberen und untere Öffnung ausgerichtet ist.

4. Das System nach Anspruch 3, **dadurch gekennzeichnet, dass** die Träger manuell von ihrer zurückgezogenen Position in ihre ausgestreckte Position beweglich sind.

5. Das System nach Anspruch 3, **dadurch gekennzeichnet, dass** die Träger federvorgespannt hin zu ihrer ausgestreckten Position sind und ein Riegel (34) für jeden Träger vorgesehen ist, um seine Mutter in seiner zurückgezogenen Position zu halten.

6. Das System nach irgendeinem der Ansprüche 3 bis 5, **dadurch gekennzeichnet, dass** die Träger zwischen ihrer zurückgezogenen Position und ihrer ausgestreckten Position verschiebbar sind.

7. Das System nach irgendeinem der Ansprüche 3 bis 5, **dadurch gekennzeichnet, dass** die Träger zwischen ihrer zurückgezogenen Position und ihrer ausgestreckten Position drehbar sind.

8. Das System nach Anspruch 2, **dadurch gekennzeichnet, dass** die Muttern nicht drehbar an einem Haltearm (30) montiert sind, wobei jeder Haltearm am Schlosskasten verschiebbar montiert ist zwischen einer zurückgezogenen Position, in der der Schlosskasten durch den erwähnten länglichen rechteckigen Schlitz in das rohrförmige Element eingeführt werden kann, und einer ausgestreckten Position, in der die Mutter axial mit einer Zugehörigen der oberen Öffnung und der unteren Öffnung ausgerichtet ist, wobei jede Mutter auf einem zugehörigen Haltearm verschiebbar entlang einer Querrichtung (31) montiert ist, welche im Wesentlichen senkrecht zur Längsrichtung verläuft und bevorzugt ferner senkrecht zum Stulp ist.

9. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** jede Schraube einen Schraubenkopf und einen Gewindeteil hat, der sich in eine erste Richtung erstreckt, wobei der Schraubenkopf einen hypothetisch umschriebenen Zylinder definiert, der sich in die erwähnte erste Richtung erstreckt, wobei sich ein Teil der erwähnten Wand angrenzend an die erwähnten Kerben innerhalb eines zugehörigen hypothetischen Zylinders befindet.

10. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** jede Kerbe einen im Wesentlichen halbkreisförmigen Teil (20) umfasst, wobei der erwähnte Teil insbesondere einen Durchmesser von zwischen 5 mm und 10 mm und genauer von zwischen 6 mm und 7 mm hat.

11. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** ein Spielraum zwischen jeder Kerbe und ihrer zugehörigen Schraube höchstens 1 mm, insbesondere höchs-

tens 0,5 mm beträgt.

12. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** die Kerben miteinander in der Längsrichtung ausgerichtet sind.

13. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** jede Kerbe eine Öffnungsweite W_o hat, die entlang einer Linie angrenzend an ihre zugehörige kurze Seite gemessen wird, wobei die Öffnungsweite höchstens 50 %, insbesondere höchstens 40 %, und noch genauer höchstens 30 % einer Weite des länglichen rechteckigen Schlitzes beträgt.

14. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** der längliche rechteckige Schlitz eine Höhe (H) hat, wobei die Höhe mindestens 4-mal, insbesondere mindestens 6-mal, und noch genauer mindestens 7-mal größer ist als die Weite, wobei die Weite bevorzugt zwischen 15 und 30 mm und insbesondere zwischen 20 und 25 mm beträgt.

15. Das System nach irgendeinem der vorigen Ansprüche, **dadurch gekennzeichnet, dass** die Türschlosshalterung ein Schließhaken für ein Türschloss oder ein Einsteckschloss ist.

Revendications

1. Système comprenant un élément tubulaire (3) et un dispositif de verrouillage de porte (1, 2) fixé à celui-ci par un boulon supérieur (12) et un boulon inférieur (13), l'élément tubulaire ayant une paroi (7) dans laquelle se trouve une fente rectangulaire allongée (6), la fente rectangulaire allongée s'étendant dans une direction longitudinale (11) et ayant un petit côté supérieur (8) et un petit côté inférieur (9), le dispositif de verrouillage de porte comprenant une plaque frontale (4) et un corps de dispositif (5), le dispositif de verrouillage de porte étant configuré pour être montée avec son corps de dispositif à travers ladite fente rectangulaire allongée, la plaque frontale s'engageant dans une surface extérieure de ladite paroi, la plaque frontale comprenant une ouverture supérieure à travers laquelle s'étend ledit boulon supérieur et une ouverture inférieure à travers laquelle s'étend ledit boulon inférieur,

caractérisé en ce que la fente rectangulaire allongée comprend une encoche supérieure (14) sur le petit côté supérieur et une encoche inférieure (15) sur le petit côté inférieur, les encoches s'écartant l'une de l'autre, ledit boulon supérieur s'étendant au moins partiellement à travers ladite encoche supérieure et ledit boulon inférieur s'étendant au moins partiellement à travers ladite encoche inférieure, le système comprenant en outre un écrou supérieur (16) et un écrou inférieur (17) pour la fixation d'un boulon respectif,
dans lequel la fente rectangulaire allongée a une largeur (W) comprise entre 10 et 35 mm.

2. Système selon la revendication 1, **caractérisé en ce que** chaque écrou est monté de manière mobile sur le corps de dispositif entre une position rétractée dans laquelle le corps de dispositif peut être inséré à travers ladite fente rectangulaire allongée dans l'élément tubulaire, et une position déployée dans laquelle l'écrou s'engage au moins partiellement dans une surface intérieure de ladite paroi pour serrer ladite paroi entre la plaque frontale et l'écrou.

3. Système selon la revendication 2, **caractérisé en ce que** les écrous sont formés comme une ouverture filetée dans un support (32), chaque support étant monté mobile sur le corps de dispositif entre une position rétractée dans laquelle le corps de dispositif peut être inséré à travers ladite fente rectangulaire allongée dans l'élément tubulaire et une position déployée dans laquelle l'écrou est aligné axialement avec une ouverture respective de l'ouverture supérieure et de l'ouverture inférieure.

4. Système selon la revendication 3, **caractérisé en ce que** les supports peuvent être déplacés manuellement de leur position rétractée à leur position déployée.

5. Système selon la revendication 3, **caractérisé en ce que** les supports sont sollicités par un ressort vers leur position déployée et qu'un loquet (34) est prévu pour chaque support afin de maintenir son écrou dans sa position rétractée.

6. Système selon l'une quelconque des revendications 3 à 5, **caractérisé en ce que** les supports sont coulissants entre leur position rétractée et leur position déployée.

7. Système selon l'une quelconque des revendications 3 à 5, **caractérisé en ce que** les supports sont rotatifs entre leur position rétractée et leur position déployée.

8. Système selon la revendication 2, **caractérisé en ce que** les écrous sont montés de manière non rotative sur un bras de support (30), chaque bras de support étant monté coulissant sur le corps de dispositif entre une position rétractée dans laquelle le corps de dispositif peut être inséré à travers ladite fente rectangulaire allongée dans l'élément tubulaire et une position déployée dans laquelle l'écrou est aligné

axialement avec une ouverture respective de l'ouverture supérieure et l'ouverture inférieure, chaque écrou étant monté coulissant sur un bras de support respectif le long d'une direction transversale (31) qui est sensiblement perpendiculaire à la direction longitudinale et qui est de préférence perpendiculaire à la plaque frontale.

9. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** chaque boulon a une tête de boulon et une partie filetée s'étendant dans une première direction, la tête de boulon définissant un cylindre hypothétique circonscrit s'étendant dans ladite première direction, dans lequel une partie de ladite paroi adjacente aux encoches est située à l'intérieur d'un cylindre hypothétique respectif.

10. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** chaque encoche comprend une partie sensiblement semi-circulaire (20), ladite partie ayant notamment un diamètre compris entre 5 mm et 10 mm et plus particulièrement entre 6 mm et 7 mm.

11. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'**une marge entre chaque encoche et son boulon respectif est d'au plus 1 mm, en particulier d'au plus 0,5 mm.

12. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** que les encoches sont alignées l'une sur l'autre dans la direction longitudinale.

13. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** chaque encoche a une largeur d'ouverture W_0 qui est mesurée le long d'une ligne contiguë à son petit côté respectif, la largeur d'ouverture étant au maximum de 50 %, en particulier au maximum de 40 %, et plus particulièrement au maximum de 30 %, d'une largeur de la fente rectangulaire allongée.

14. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la fente rectangulaire allongée a une largeur (W) et une hauteur (H), la hauteur étant au moins 4 fois, en particulier au moins 6 fois, et plus particulièrement au moins 7 fois, plus grande que la largeur, la largeur étant de préférence comprise entre 15 et 30 mm, et plus particulièrement entre 20 et 25 mm.

15. Système selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le dispositif de verrouillage de porte est une gâche pour une serrure de porte ou une serrure à mortaiser.

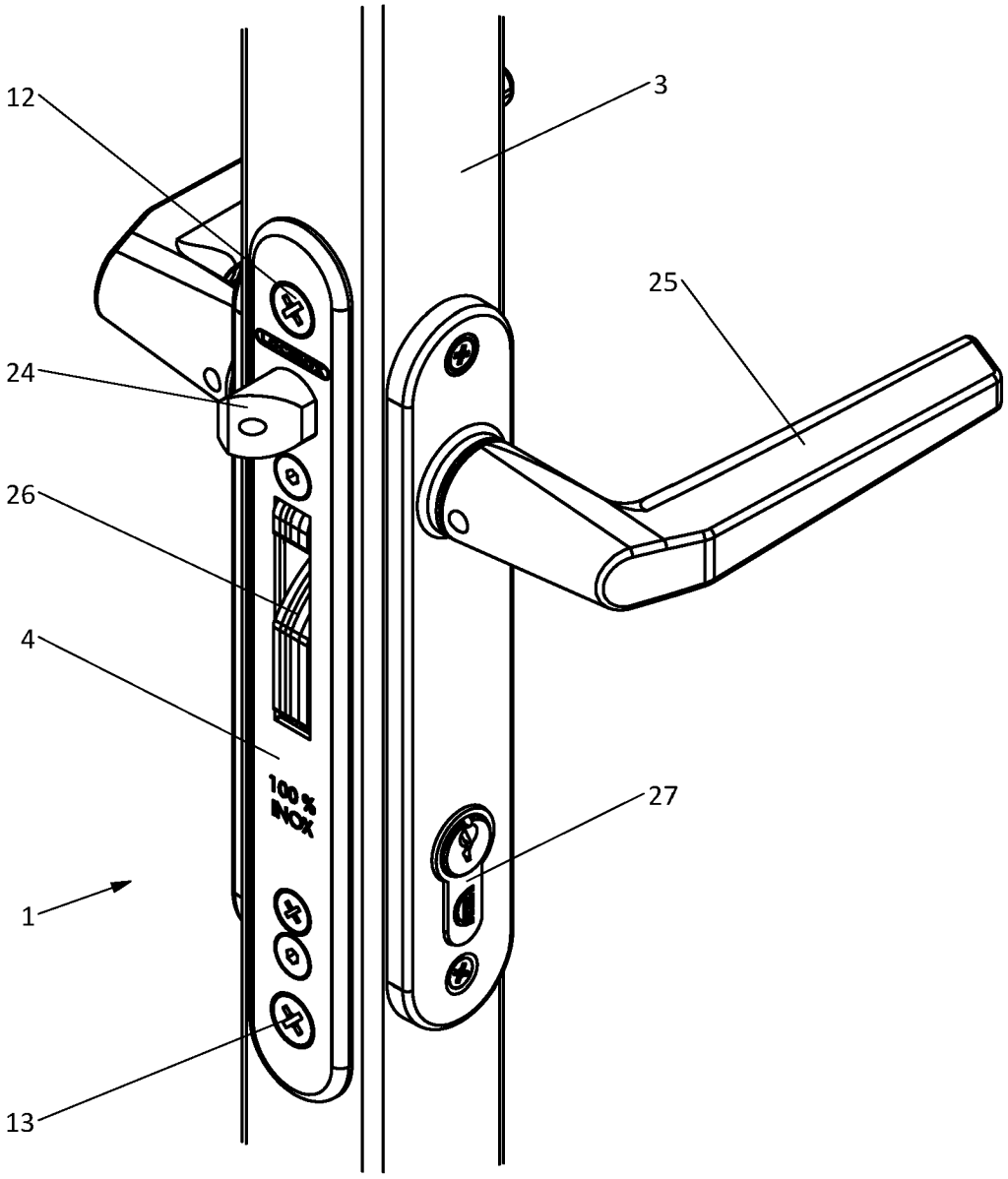

Fig. 1

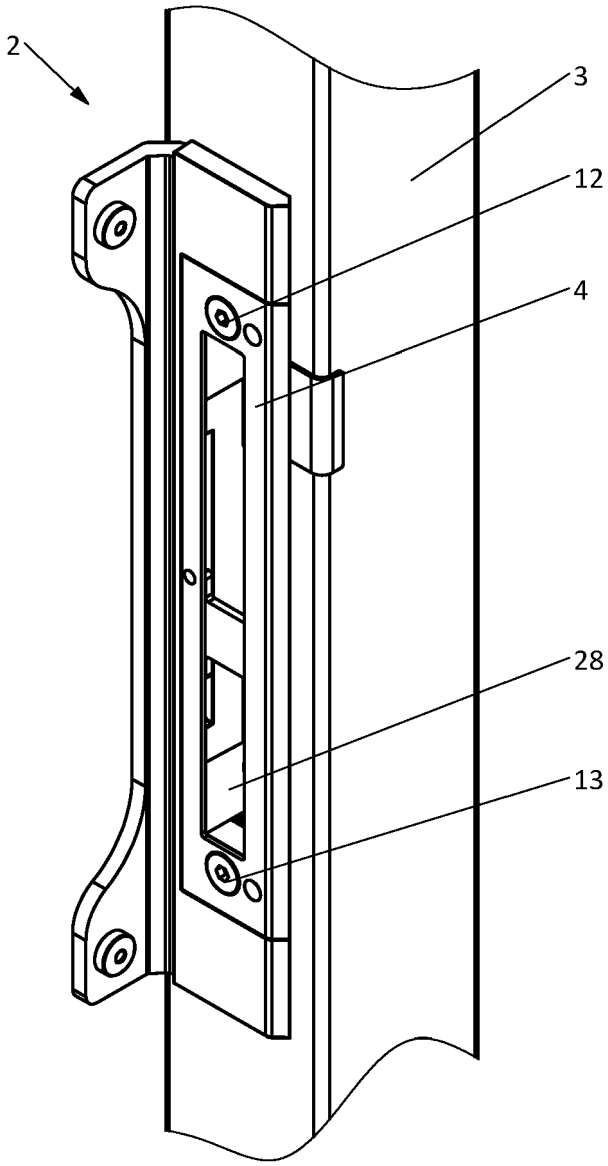

Fig. 2

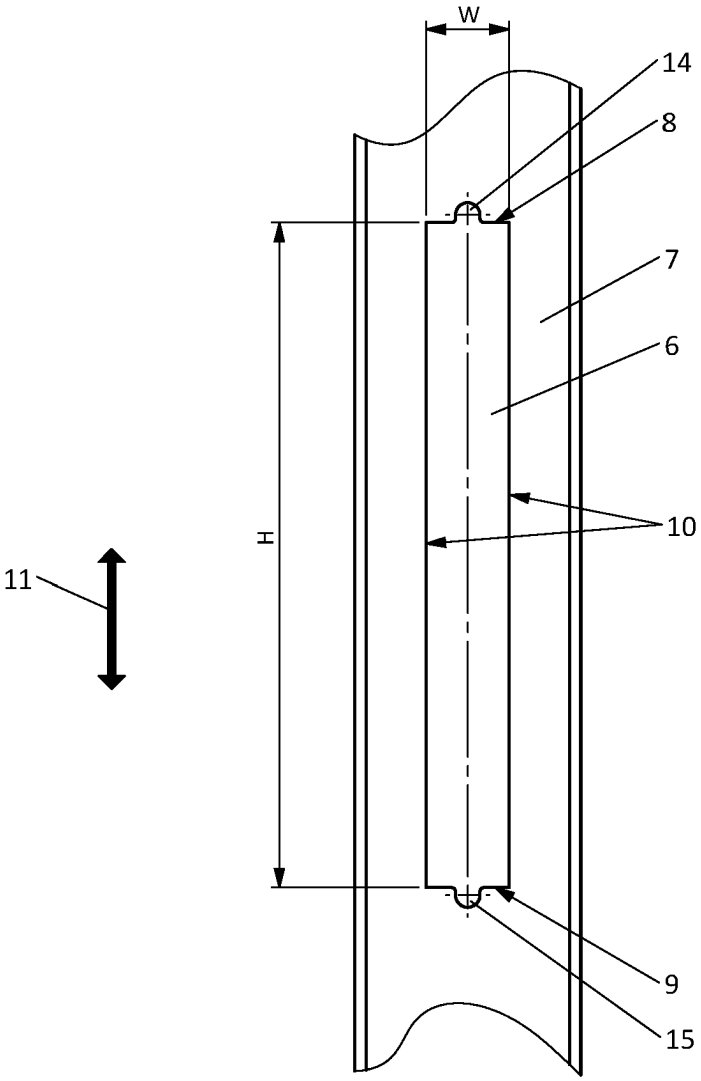

Fig. 3

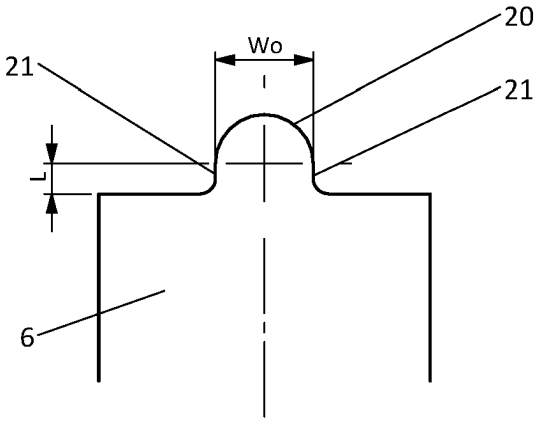

Fig. 4

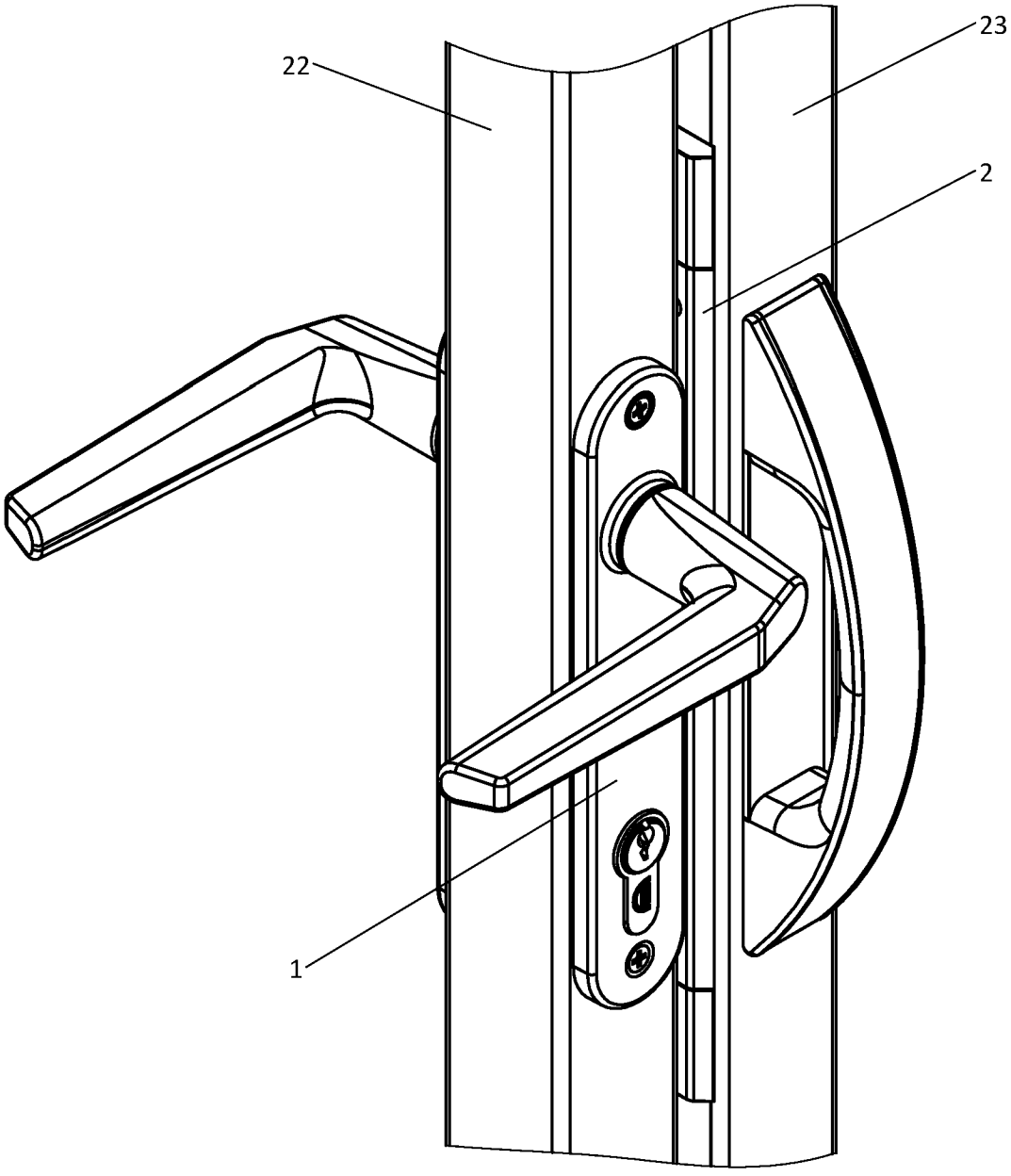

Fig. 5

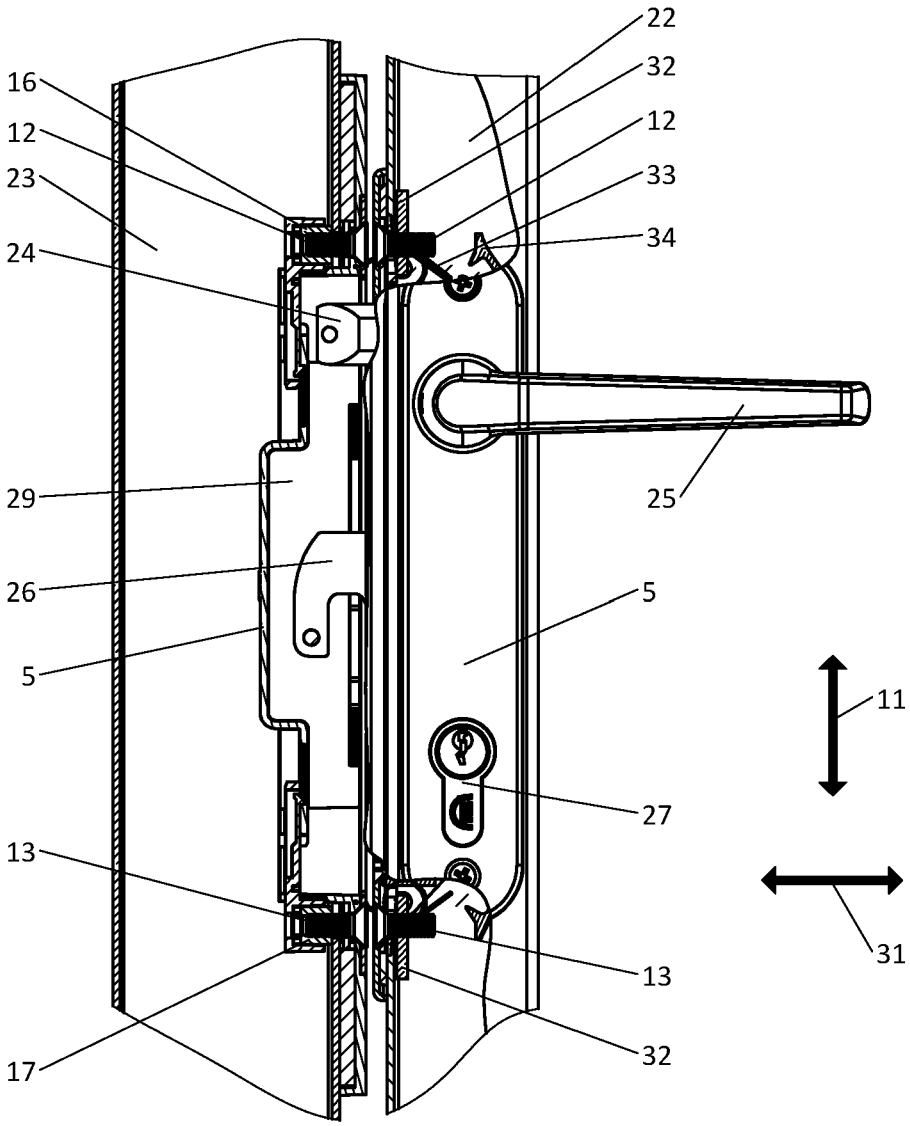
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Fig. 6

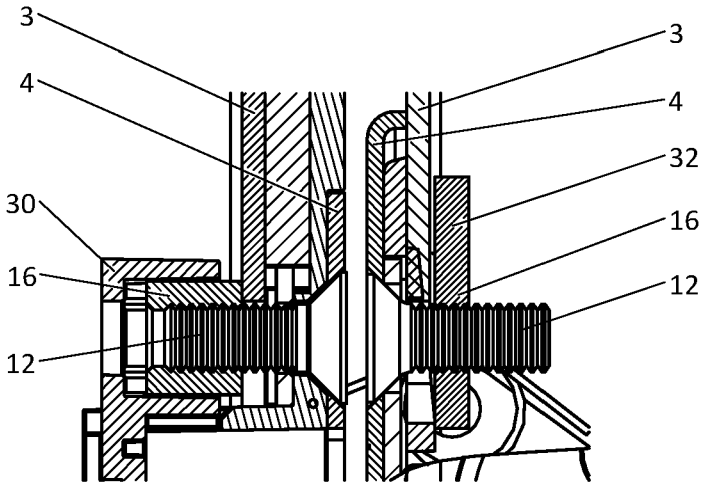
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Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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