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(54) HANDLE FOR DOOR OR WINDOW

(57) Described is a handle for a door or window comprising a handgrip (4) having a gripping portion (4a) and a base or neck portion (4b); means (5) for stable coupling of the neck (4b) of the handgrip (4) to the operating shaft (3); elastic means (6) positioned between the handgrip (4) and the operating shaft (3) and configured to allow the maintaining of the handgrip (4) in a predetermined first position corresponding to the closed configuration of the door or window; a removable device (7) for associating the handgrip (4) to the door (1) or window comprising an annular element (8) associated with the door (1) or window and having a cylindrical wall (8a) equipped with a first plurality of teeth (9); a bushing (10) associated with the neck (4b) of the handgrip (4) and having an annular edge (10a) equipped with a second plurality of teeth (11), delimiting an inner chamber (10b) of the bushing (10); the bushing (10) couples and contains, in use, the cylindrical wall (8a) with the first plurality of teeth (9) through a predetermined positioning of the handgrip (4), and a subsequent rotation of the handgrip (4) to obtain a coupling between the first (9) and the second (11) plurality of teeth and define a stable connection of the handgrip (4) to the door or window (1); a slider (12) for locking the coupling between the first (9) and the second (11) plurality of teeth, positioned in a radial seat (13) made on the annular element (8) and protruding between two successive teeth of the first plurality of teeth (9); the slider (12) is movable in the seat (13) between an advanced position of free rotation of the second plurality of teeth (11) and a withdrawn position for locking the second plurality of teeth (11) wherein the slider (12) is between two successive teeth of the second plurality of teeth (11). [Figure 1]

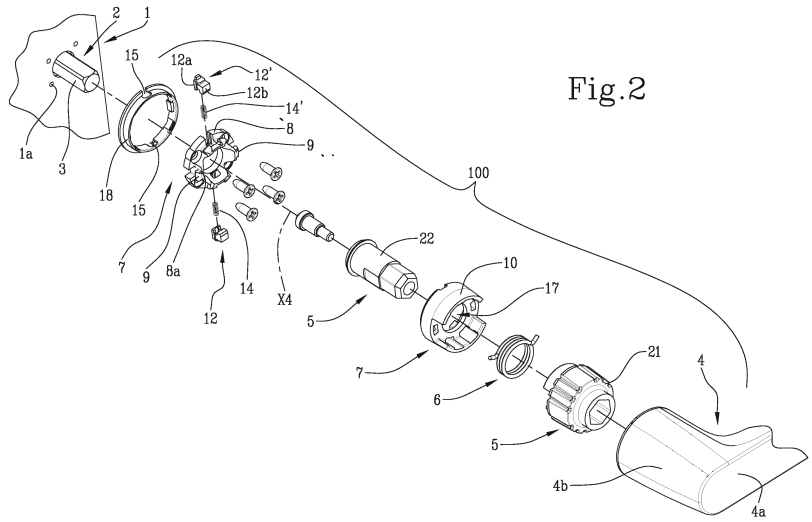

Fig.2

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Description

[0001] This invention relates to a handle for doors or windows.

[0002] The handles for doors and windows, in particular for doors and windows made of metal, wood, synthetic material and the like, for use indoors, such as, for example, the doors for separating rooms, are structurally simplified, in terms of their components, with respect to the "outdoor" handles (such as the known "cremone" type handles), since the control means are, almost always, already housed inside the door or window from which they project, from one or both surfaces of the door or window, with simply a control shaft which, usually, has a square cross-section.

[0003] Consequently, a type of handle for indoors comprises:

- a body for associating to the outer surface of the door or window configured to cover, at least partly, the control shaft;
- a handgrip, passing through an opening of the above-mentioned body, in such a way to allow coupling, using a relative end portion equipped with a matching seat, with the above-mentioned control shaft for varying the opening and closing configuration of the door or window by actuating the handgrip.

[0004] The handgrip is secured to the shaft, to prevent withdrawal of the handgrip along the axis of the shaft, using associating means comprising a grub screw screwed inside a radial through seat present on the handgrip and making contact with a surface of the shaft.

[0005] These base elements also normally include:

- a unit for predetermined positioning of the handgrip coupling with the shaft and
- means for spring return of the handgrip in a predetermined position which, usually, corresponds to the closed configuration of the door or window (usually along a horizontal plane).

[0006] The positioning unit of the handgrip is housed inside the above-mentioned body and may comprise, in one of the prior art solutions, of a circular, ringshaped element having a pair of opposite radial projections and extending towards the inside of the ring. These protrusions are engaged, during the coupling of the handgrip, by two through openings or longitudinal grooves, diametrically opposite to each other, made on the end of the handgrip having the square cross-section: in this way the ring is made integral with the handgrip.

[0007] The above-mentioned spring means are, in turn, interposed and connected, respectively, between the inner surface of the body and the positioning unit and therefore the rotation of the handgrip (corresponding to the opening of the door or window and with a downwards direction) and of the ring determines the compression of the spring means which, once the handgrip is released by the user, allows the raising of the handgrip acting on the ring.

[0008] A handle of this type is certainly reliable but has several drawbacks.

[0009] There are a relatively high number of elements making up the handle and the constraining systems between these components or operating means (spring means) are positioned in the associating body, making the handle, for the planned use, bulky and with complex maintenance over time.

[0010] In addition, a change of colour of the handles inside the rooms in which they are fitted may be requested and this also requires a replacement of the associating body.

[0011] This results in extremely high replacement times and costs.

[0012] The aim of this invention is to provide a handle for a door or window which overcomes the above-mentioned drawbacks of the prior art.

[0013] More specifically, the aim of this invention is to provide a handle for a door or window which is able to reduce the times for changing the handle and to simplify its maintenance.

[0014] A further aim of this invention is to provide a handle for a door or window with reduced size and low maintenance costs.

[0015] A further aim of this invention is to provide a handle for a door or window with a high decorative content.

[0016] These aims are fully achieved by the handle for doors or windows according to the invention as characterised in the appended claims.

[0017] The technical features of the invention will become more apparent from the following detailed description of a preferred, non-limiting embodiment of it, with reference to the accompanying drawings, in which:

- Figure 1 illustrates a perspective view of the handle for a door or window, according to this invention, applied to a door;
- Figure 2 illustrates a perspective exploded view of the handle of Figure 1;
- Figure 3 illustrates a perspective exploded view of the handle of Figure 1 from an opposite corner relative to Figure 2;
- Figures 4 and 5 illustrate perspective views of a part of the handle of the preceding drawings in a configuration of pre-assembly of the handle to the door or window;
- Figure 6 illustrates an enlarged view of a detail referred to Figure 5 and with a slider in a different operating configuration;
- Figure 7 illustrates a perspective view of a part of the handle of the preceding drawings in an configuration of assembly of the handle to the door or window;
- Figure 8 illustrates a partial front cross section view

of a detail of the handle assembled and associated to the door;

- Figures 9 and 10 illustrate a detail of the part of the handle with a slider in two different operating configurations;
- Figure 11 illustrates a cross-section view of the neck of the handle assembled according to this invention.

[0018] As illustrated in the accompanying drawings, in particular in Figures 1 to 3, the handle according to this invention, labelled 100 in its entirety, is applicable in particular to doors 1, but it could be used on windows or French doors, without thereby limiting the scope of protection.

[0019] The door 1 (or window) comprises control means 2 designed to define a closed and, respectively, open configuration of the door 1.

[0020] The control means 2 comprise at least one operating shaft 3 (with a square cross-section in the case illustrated) which can rotate and protrude from at least one surface 1 a of the door 1.

[0021] The handle 100 comprises a handgrip 4 having a gripping portion 4a and a base portion or neck 4b facing, in use, the surface 1 a of the door 1.

[0022] The handle 100 also comprises means 5 for stable coupling of the neck 4b of the handgrip 4 to the operating shaft (3) in such a way as to form a single axis X4 of rotation of the handgrip 4 and of the operating shaft 3. The handle 100 also comprises elastic means 6 (a spring) positioned between the handgrip 4 and the operating shaft 3 and configured to allow the maintaining or the return of the handgrip 4 in a predetermined first position corresponding to the closed configuration of the door or window (Figures 1 and 2) from a second open position of the door 1 (not illustrated, but with an angle of rotation downwards).

[0023] The handle 100 also comprises a removable device 7 for associating the handgrip 4 to the door 1.

[0024] Again, as shown in Figures 1 to 3 and 11, the removable associating device 7 comprises an annular element 8 associated with the surface 1 a of the door 1 surrounding the area of the door 1 from which the operating shaft 3 protrudes.

[0025] The annular element 8 has a cylindrical wall 8a protruding towards the outside of the surface 1 a of the door or window 1, provided with a first plurality of teeth 9.

[0026] The associating device 7 comprises a bushing 10 associated with the neck 4b of the handgrip 4 closing the neck 4b (the neck 4b housing the stable coupling means 5 and the elastic means 6).

[0027] The bushing 10 has an annular edge 10a, facing towards the outside of the neck 4b, provided with a second plurality of teeth 11, delimiting an inner chamber 10b of the bushing 10.

[0028] The bushing 10 is configured for coupling and containing, in use, at least the cylindrical wall 8a with the first plurality of teeth 9 through a positioning of the handgrip 4 in a third position (shown by the dashed line in Figure 1), and a subsequent rotation of the handgrip 4 to obtain a coupling between the first 9 and the second 11 plurality of teeth and define a stable connection of the handgrip 4 to the door 1.

[0029] The associating device 7 comprises at least one slider 12 for locking the coupling between the first 9 and the second 11 plurality of teeth, positioned in a radial seat 13 made on the annular element 8 and protruding between two successive teeth of the first plurality of teeth 9.

[0030] The slider 12 is movable in the seat 13 between an advanced position of free rotation of the second plurality of teeth 11 (see Figures 6 and 10) and a withdrawn position for locking the second plurality of teeth 11 wherein the slider 12 is between two successive teeth of the second plurality of teeth 11 (see Figures 4, 5, 9 and 11).

[0031] Preferably, the removable associating device 7 comprises an elastic element 14 interposed between the slider 12 and the annular element 8 for maintaining or restoring the withdrawn position for locking the slider 12.

[0032] Preferably, the removable associating device 7 comprises the elastic element 14 interposed between the slider 12 and the cylindrical wall 8a of the annular element 8 for maintaining or restoring the withdrawn position for locking the slider 12.

[0033] It should be noted that the first 9 and the second 11 plurality of teeth are configured to allow the housing of the cylindrical wall 8a in the bushing 10 in the third position of the handgrip 4 and to move to the locked position with a rotation about the single axis X4 of rotation which is able to move the handgrip 4 in the first closed position.

[0034] As shown in Figure 1, the third position of the handgrip 4 may be an inclination upwards of the handgrip 4 or an inclination downwards, that is, in an intermediate position between the first closed position and the second open position.

[0035] Preferably, the cylindrical wall 8a forms a channel 16 delimited by the first plurality of teeth 9 and the annular element 8.

[0036] Preferably, the channel 16 is circular in shape.

[0037] Preferably, the annular element 8 is fixed to the surface 1 a of the door 1 with screw means.

[0038] The channel 16 is engageable, rotatably, by the second plurality of teeth 11 of the bushing 10 (and by the slider 12 in the advanced locking position).

[0039] It should be noted (see Figure 8) that the first 9 and the second 11 plurality of teeth have a geometry of each tooth which is able to define a mutual coupling on corresponding front surfaces positioned, in use, along a vertical plane parallel to the surface 1a of the door 1 (which defines an axial locking of the handle).

[0040] The bushing 10 has a central opening 17 inside the chamber 10b for the passage of the operating shaft 3 in such a way as to allow its housing in the coupling elements 2.

[0041] Moreover, the reversible associating device 7 comprises an annular base 18 for circumferential covering, in use, of the annular element 8.

[0042] In light of this, the base 18 can be associated, in a snap-on fashion, on the annular element 8.

[0043] It should be noted that the base 18 has at least one opening 15 on its outer edge to allow free access to the slider 12. Preferably, as shown in the drawings, the removable associating device 7 comprises at least two sliders 12, 12' (with corresponding elastic elements 14, 14') positioned spaced apart from each other on the annular element 8 and positioned in corresponding radial grooves 13, 13' made on the annular element 8.

[0044] It should be noted that the base 18 has corresponding openings 15 to allow both the free movement of the sliders 12, 12' and their accessibility from the outside.

[0045] It should be noted that each slider 12, 12' comprises a base 12a for sliding along the seat 13, 13' and a protruding head 12b configured to engage, in the withdrawn position, with the channel 18 formed between the first plurality of teeth 9 and the annular element 8.

[0046] This head 12b determines the locking the second plurality of teeth 11 when the slider 12, 12' passes from the advanced position to the withdrawn position.

[0047] The movement of the slider(s) 12, 12' during assembly (at least for the advanced position) can be carried out directly by the coupling bushing 10 / annular element 8 (thanks to a particular profile of the teeth of the second plurality of teeth 11). Preferably, however, the translational movement of the sliders 12, 12' is performed using a tool 19 from the outside both for the assembly step and for the step of removing the handgrip 4.

[0048] More specifically, the tool 19 is U-shaped (see Figure 1) and has a pair of protrusions 20 opposite each other and positioned at the ends of the "U".

[0049] The two protrusions 20 are configured for being positioned simultaneously in contact with the corresponding sliders 12 and 12'.

[0050] Thanks to the flexibility of the tool 19 the protrusions 20 simultaneously push the two sliders 12, 12' in the advanced position, freeing the channel 18 and allowing the coupling or uncoupling between the bushing 10 and the annular element 8 through the free rotation of the second plurality of teeth 11.

[0051] As already mentioned, the bushing 10 defines a cap for closing the neck 4b of the handgrip 4.

[0052] In effect, in the neck 4b are housed the stable coupling means 5 and the elastic means 6.

[0053] The stable coupling means 5 comprise a further inner bushing 21 positioned on the bottom of the neck 4b of the handgrip 4 and integral with it and a sleeve 22 for coupling with the operating shaft 3 passing through the opening 17 of the bushing 10 and integral with the neck 4b by means of a screw element.

[0054] The elastic means 6 are connected between the bushing 10 (fixed after assembly) and the inner bushing 21 rotatable with the handgrip 4.

[0055] In other words, the handle is associated to the door as follows:

- a movement of the handgrip 4 towards the annular element 8 according to a predetermined position (third position);
- a translation of the sliders 12, 12' in the advanced position (for example, by means of the tool 19);
- front contact of the bushing 10 with the annular element 8 in such a way as to house the cylindrical wall 8a inside the chamber 10b of the bushing 10, with simultaneous coupling of the operating shaft 3 with the coupling means 5;
- a rotation of the handgrip 4 towards the first position to allow the coupling of head of the first and second plurality of teeth 9 and 11 to obtain the connection of the handgrip 4 to the door 1.

[0056] The release of the sliders 12, 12' can be carried out after the front contact of the bushing 10 with the annular element 8, since the second plurality of teeth 11 retain the sliders 12, 12' which transfer into a withdrawn position after the rotation of the handgrip 4 engaging the channel portion 16 with the head 12b so as to lock the coupling between the first and second 9 and 11 plurality of teeth.

[0057] A handle made as described above therefore achieves the above-mentioned aims thanks to a reversible associating device which is extremely fast, simple and safe and reduced in size.

[0058] The handle, in effect, can be mounted or replaced without the aid of a technician.

[0059] The functional components of the handle are inserted fully inside the neck of the handgrip, making the handle aesthetically pleasing.

Claims

1. A handle for a door or window (1) comprising control means (2) designed to define a closed configuration and, respectively, an open configuration of the door or window (1); the means (2) having at least one operating shaft (3) rotatable and protruding from at least one surface (1 a) of the door or window (1); the handle (100) comprising at least:

- a handgrip (4) having a gripping portion (4a) and a base portion or neck (4b) facing, in use, the surface (1 a) of the door or window (1);
- means (5) for stable coupling of the neck (4b) of the handgrip (4) to the operating shaft (3) in such a way as to form a single axis (X4) of rotation of the handgrip (4) and of the operating shaft (3);
- elastic means (6) positioned between the handgrip (4) and the operating shaft (3) and configured to allow the maintaining or the return of the handgrip (4) in a predetermined first position corresponding to the closed configuration of the door or window from a second open position of

the door or window (1);
- a removable device (7) for associating the handgrip (4) to the door or window (1),

characterised in that the removable associating device (7) comprises:

- an annular element (8) associated with the surface (1a) of the door or window (1) surrounding the area of the door or window (1) from which the operating shaft (3) protrudes; the annular element (8) having a cylindrical wall (8a) protruding towards the outside of the surface (1a) of the door or window (1), provided with a first plurality of teeth (9);
- a bushing (10) associated with the neck (4b) of the handgrip (4) closing the neck (4b) housed in the stable coupling means (5) and the elastic means (6); the bushing (10) having an annular edge (10a), facing towards the outside of the neck (4b), provided with a second plurality of teeth (11), delimiting an inner chamber (10b) of the bushing (10); the bushing (10) being configured for coupling and containing, in use, at least the cylindrical wall (8a) with the first plurality of teeth (9) through a positioning of the handgrip (4) in a third position, and a subsequent rotation of the handgrip (4) to obtain a coupling between the first (9) and the second (11) plurality of teeth and define a stable connection of the handgrip (4) to the door or window (1);
- at least one slider (12) for locking the coupling between the first (9) and the second (11) plurality of teeth, positioned in a radial seat (13) made on the annular element (8) and protruding between two successive teeth of the first plurality of teeth (9); the slider (12) being movable in the seat (13) between an advanced position of free rotation of the second plurality of teeth (11) and a withdrawn position for locking the second plurality of teeth (11) wherein the slider (12) is between two successive teeth of the second plurality of teeth (11).

2. The handle according to claim 1, wherein the removable associating device (7) comprises an elastic element (14) interposed between the slider (12) and the annular element (8) for maintaining or restoring the withdrawn position for locking the slider (12).

3. The handle according to any one of the preceding claims, wherein the first (9) and the second (11) plurality of teeth are configured to allow the housing of the cylindrical wall (8a) in the bushing (10) in the third position of the handgrip (4) and to move to the locked position with a rotation about the single axis (X4) of rotation which is able to move the handgrip (4) in the first closed position.

4. The handle according to any one of the preceding claims, wherein the cylindrical wall (8a) forms a channel (16) delimited by the first plurality of teeth (9) and the annular element (8); the channel (16) being engageable, rotatably, by the second plurality of teeth (11) of the bushing (10).

5. The handle according to any one of the preceding claims, wherein the first (9) and the second (11) plurality of teeth have a geometry of each tooth which is able to define a mutual coupling on corresponding front surfaces positioned, in use, along a vertical plane parallel to the surface (1 a) of the door or window (1).

6. The handle according to any one of the preceding claims, wherein the bushing (10) has a central opening (17) inside the chamber (10b) for the passage of the operating shaft (3) in such a way as to allow its housing in the coupling elements (2).

7. The handle according to any one of the preceding claims, wherein the reversible associating device (7) comprises an annular base (18) for circumferential covering, in use, of the annular element (8); the base (18) being associable, in a snap-on fashion, on the annular element (8).

8. The handle according to claim 7, wherein the base (18) has an opening (15) on its outer edge to allow, in use, free access to the slider (12) from the outside.

9. The handle according to any one of the preceding claims, wherein the removable associating device (7) comprises at least two sliders (12, 12') positioned spaced apart from each other on the annular element (8) and positioned in corresponding radial seats (13, 13') made on the annular element (8).

10. The handle according to any one of the preceding claims, wherein the bushing (10) defines a cap for closing the neck (4b) of the handgrip (4); the neck (4b) housing the stable coupling means (5) and the elastic means (6).

Fig.1

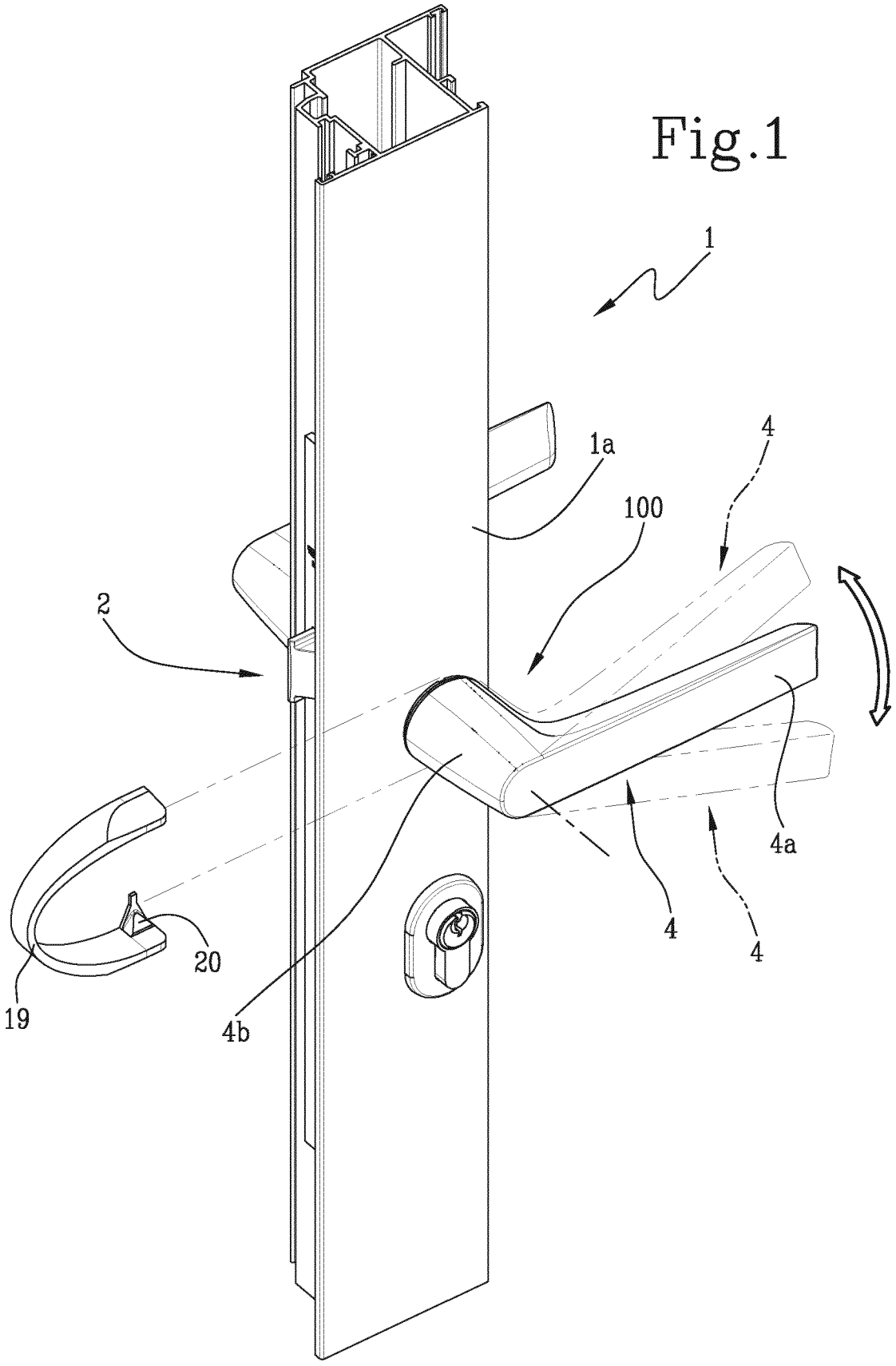
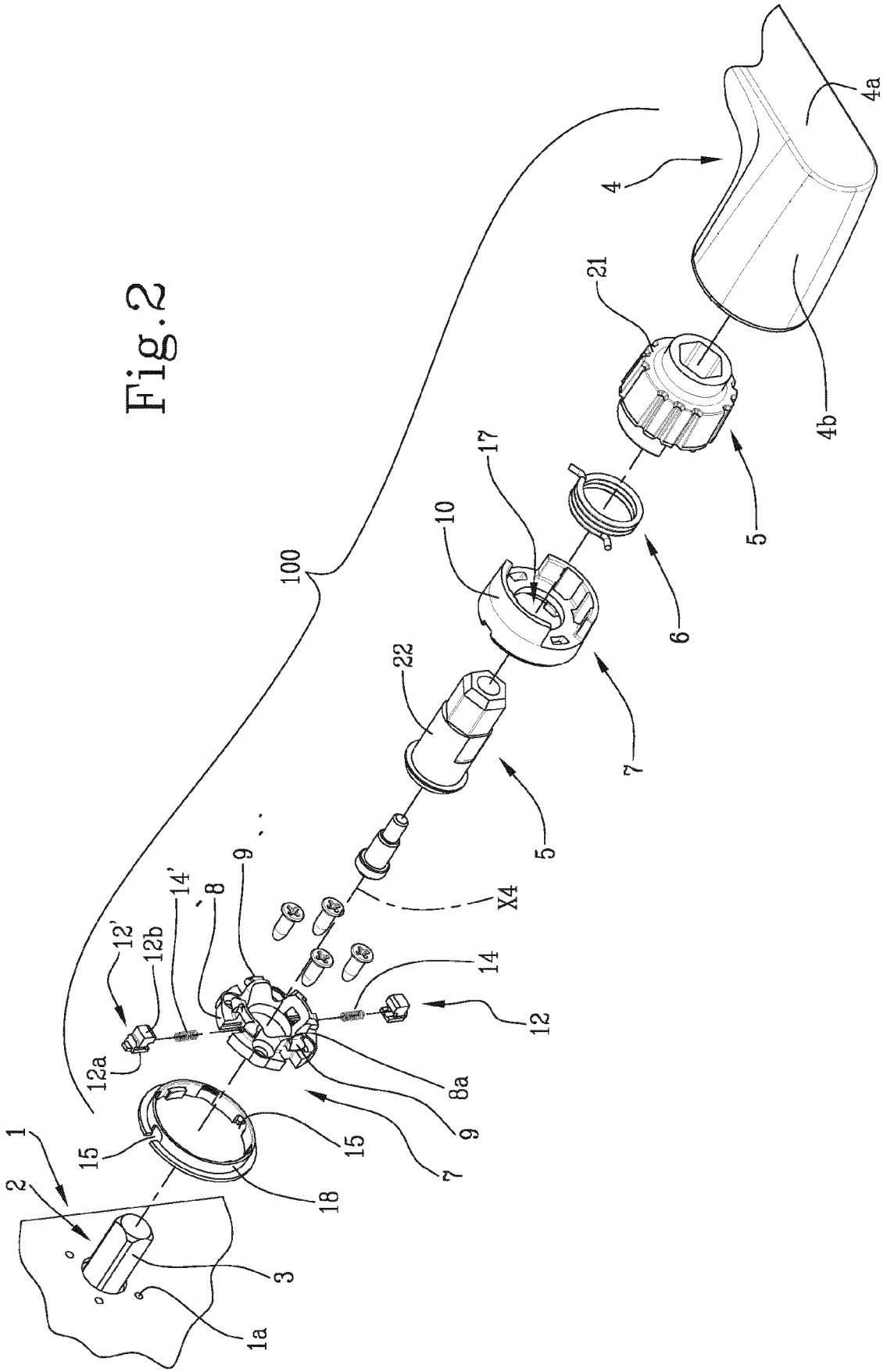


Fig.2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1a
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18
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8a
12a
12'
12b
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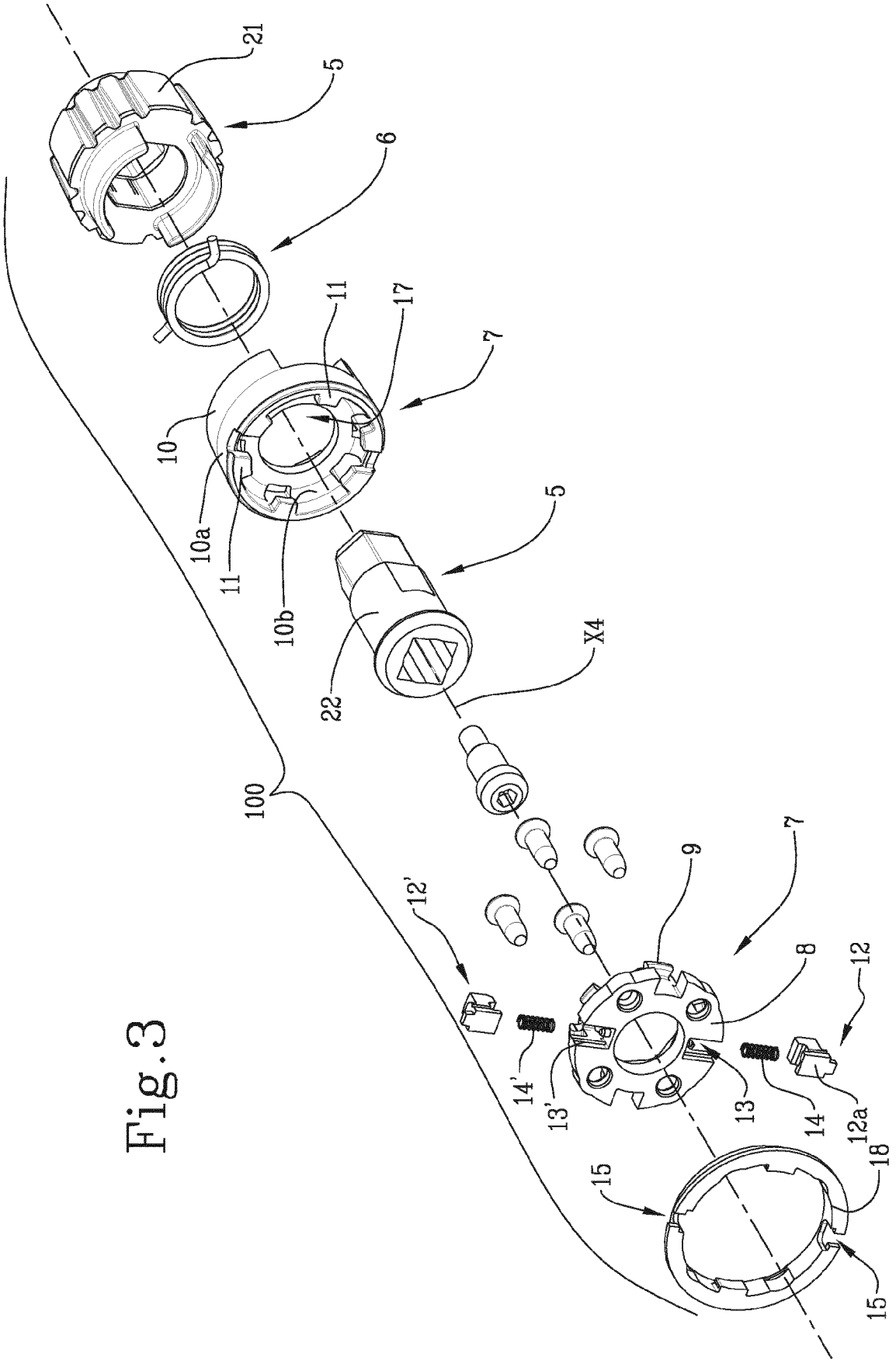
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10a
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12a
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15

Fig.3

Fig.4

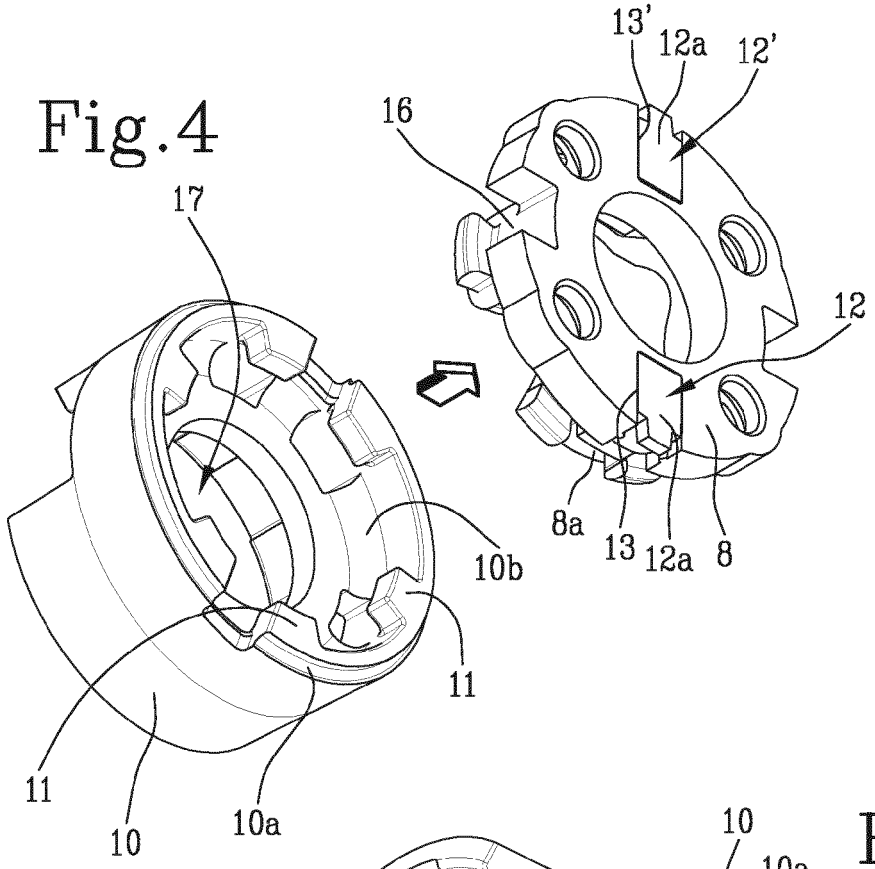


Fig.5

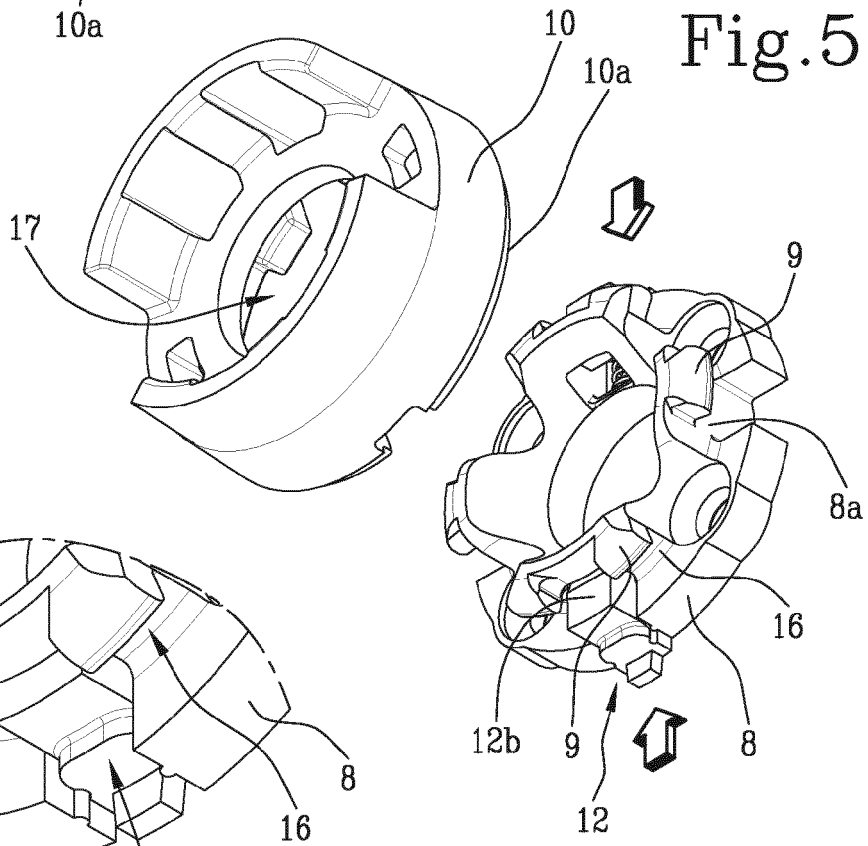


Fig.6

Fig.7

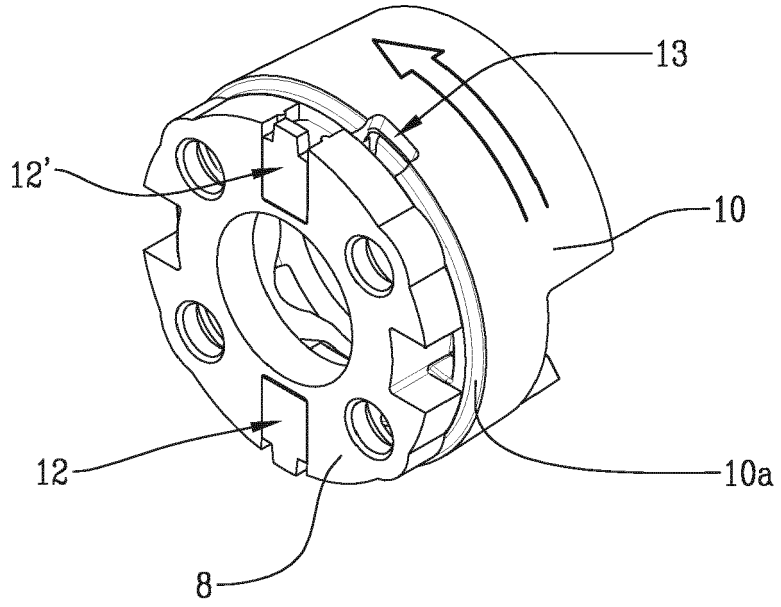


Fig.8

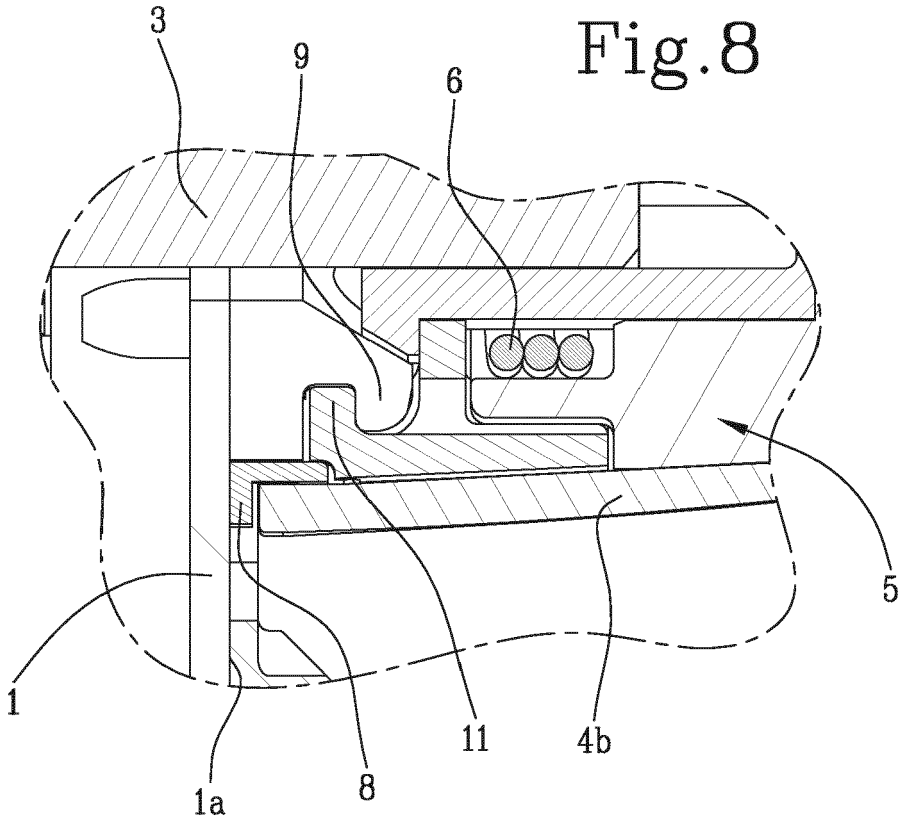


Fig.9

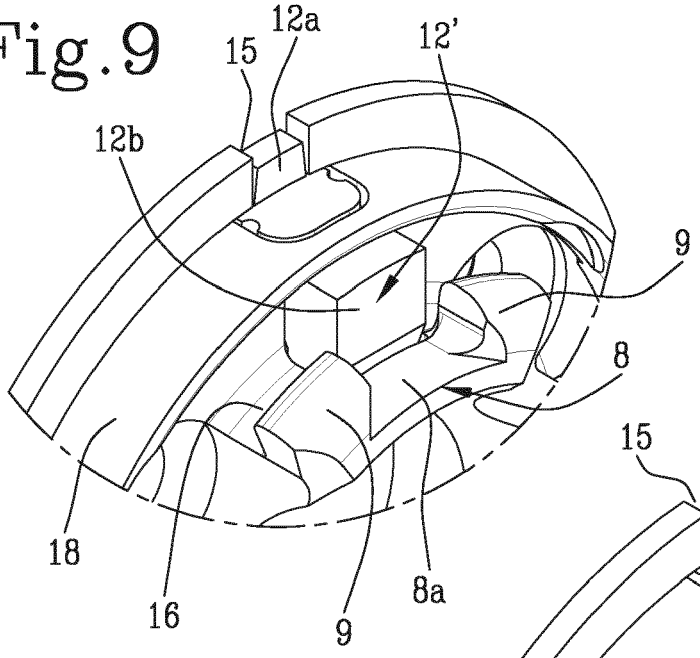


Fig.10

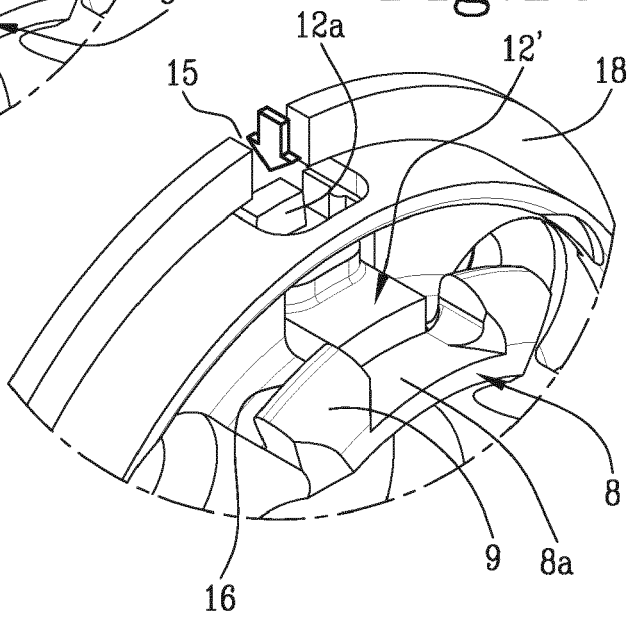
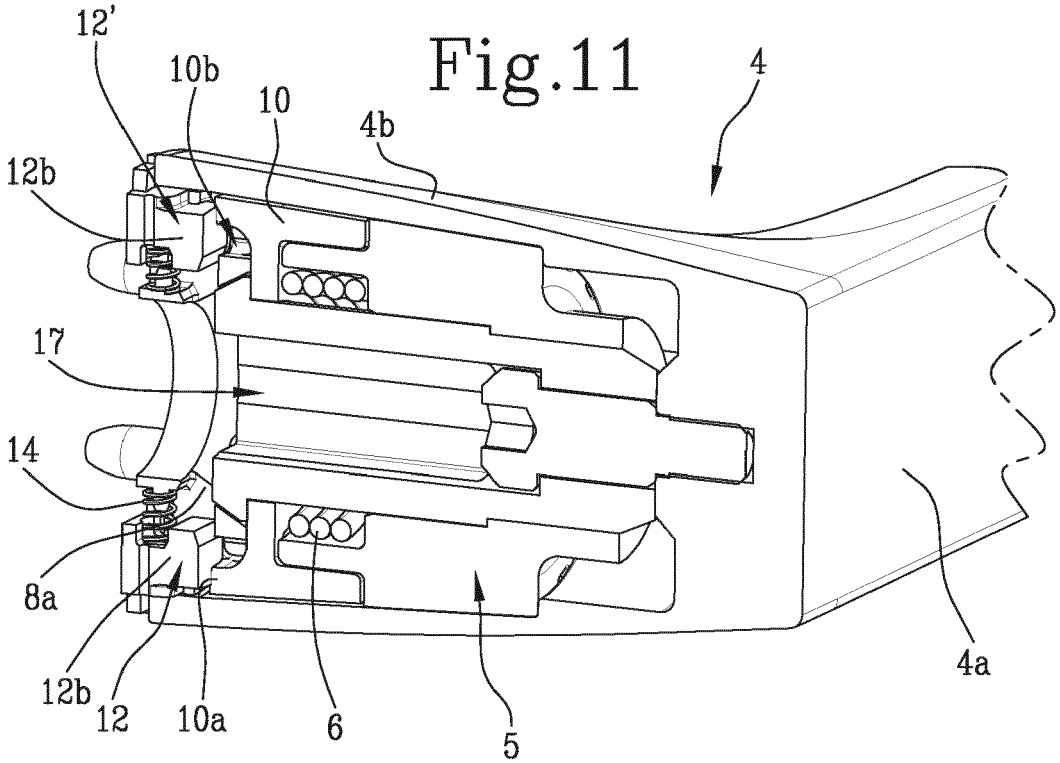


Fig.11



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EUROPEAN SEARCH REPORT

Application Number
EP 18 15 1245

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2007/089135 A1 (LAERHOVEN BART VAN [NL]; VAN LAERHOVEN KOEN MARIA DYONI [NL]) 9 August 2007 (2007-08-09) * figures 1, 3, 4 *	1-10	INV. E05B3/00 E05B3/06
A	ES 1 147 008 U (SISTEMAS TECNICOS DEL ACCESORIO & COMPON) 3 December 2015 (2015-12-03) * the whole document *	1-10	
A	US 2007/170731 A1 (SHEN MU-LIN [TW] ET AL) 26 July 2007 (2007-07-26) * the whole document *	1-10	
A	EP 2 476 823 A2 (HOPPE AG [IT]) 18 July 2012 (2012-07-18) * figures 3, 6 *	1-10	
A	EP 2 107 187 A1 (HOPPE AG [DE]) 7 October 2009 (2009-10-07) * figures 2,3 *	1-10	TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	17 May 2018	Cruyplant, Lieve

CATEGORY OF CITED DOCUMENTS

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P : intermediate document

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L : document cited for other reasons

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EPO FORM 1503 03.82 (P04C01)

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17-05-2018

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