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(54) **DEVICE FOR ASSEMBLING AN OPENING HANDLE AND METHOD FOR ASSEMBLING SUCH A HANDLE**

(57) Blocking device (D) for an opening handle (2) comprising a blocking member (6) and a screw (15), said blocking member (6) being mounted on said screw (15), characterized in that said blocking member (6) comprises at least two branches (7a) and (7b) that are parallel and joined at their rear end by a base (8), the front end of one of the two branches (7a, 7b) being linked to an arm (17) extending parallel to the two branches (7a) and (7b), said arm (17) comprising at least one extension (18a, 18b) at right angles to said arm (17).

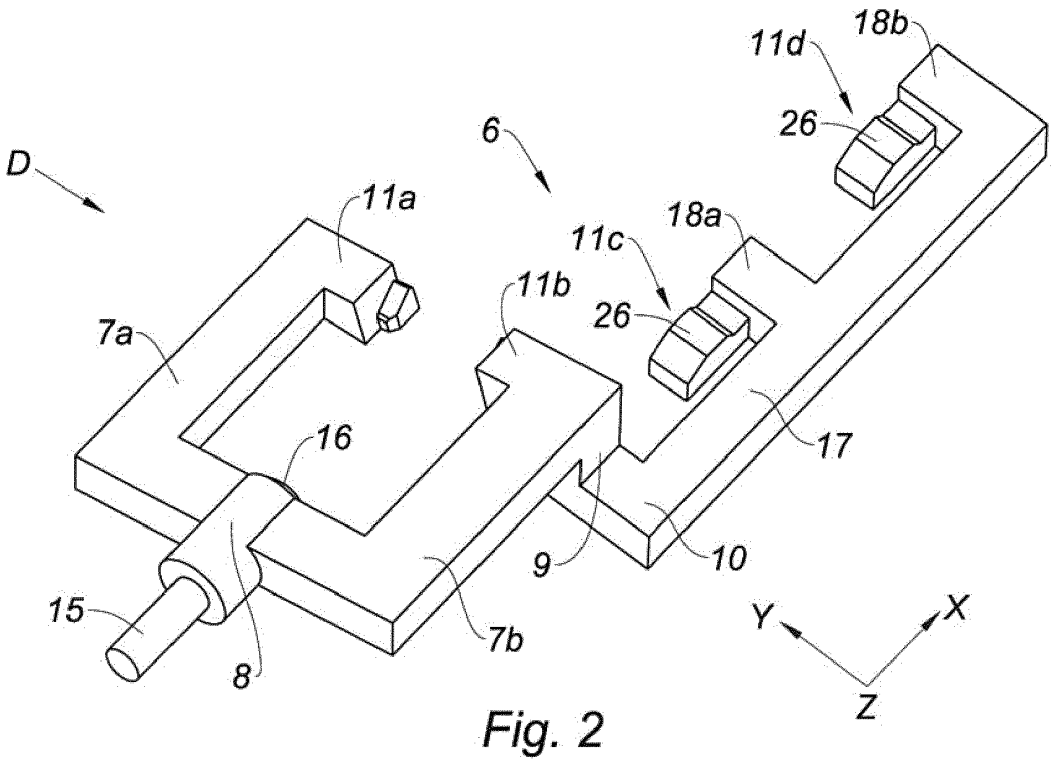

Fig. 2

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Description

Technical Field

[0001] The present invention relates to a device for assembling an opening handle, and more particularly an opening of a motor vehicle, comprising a single blocking member assembling the opening handle device, that is to say assembling the support, the lock and the bezel via a single element called a blocking member. The present invention relates also to a method for assembling such a handle. This method provides the means for assembling a handle according to the invention, without having to access the interior of the support.

Background Art

[0002] A device that comes close to the invention of this application is known from the prior art in the Patent FR2789429. The invention proposes a motor vehicle handle comprising an outer gripping lever articulated on an inner handle support, and of the type in which the lever comprises, at a rear end, an actuation foot which comprises link means for cooperating with a return; the lever is mounted on the support by an overall transverse approaching movement to an intermediate position, and by a longitudinal attachment movement during which the shaft and the support enter into cooperation by articulation means, and during which the link means of the rear foot are latched onto the return to prevent a return of the lever to its intermediate position. In this invention, the blocking member only makes it possible to block the lock present in the handle device.

[0003] The drawback of such a device is the complexity of the assembling and/or of the dismantling of such a handle. Indeed, through the fixing of the different components of a handle, such as a lock, a support and a bezel, by different elements, that increases the complexity of the operations that can be performed on the handle. Another drawback is therefore the large number of parts that make up such a handle.

Summary of invention

[0004] The device according to the invention aims to address these drawbacks by providing a blocking device for an opening handle comprising a blocking member and a screw, said blocking member being mounted on said screw, characterized in that said blocking member comprises at least two branches that are parallel and joined at their rear end by a base, the front end of one of the two branches being linked to an arm extending parallel to the two branches, said arm comprising at least one extension at right angles to said arm.

[0005] This configuration of the blocking member allows it to be present at all the points of assembly of the components of a handle, that is to say the bezel, the lock and the support, in order to fix these components together.

[0006] Advantageously, the branches and the arm are on two parallel planes.

[0007] More advantageously, each front end of the branches of the blocking member comprises a snug, arranged at right angles to said branches and extending towards one another.

[0008] Even more advantageously, the free end of at least one extension of the blocking member comprises a snug arranged at right angles to the at least one extension.

[0009] In another embodiment, the arm comprises two extensions, said extensions each comprising a snug both extending in the same direction.

[0010] The invention relates also to a method for assembling the device, in an opening handle, comprising the following steps:

- Insertion of a lock into the location provided to receive said lock in the support.
- Insertion of the blocking member into the recess provided in the support.
- Fixing of the support onto an inner face of the opening.
- Insertion of a bezel on the outer face of the opening facing said support so that each retaining element of the bezel is inserted into each corresponding void of said support.
- Displacement along the longitudinal axis of the blocking member by screwing, such that the snugs arranged on the branches of the blocking member block any vertical movement along the axis (Y) of the lock, the longitudinal movement along the axis (X) of said lock being blocked by the screw of the blocking member, and such that each snug arranged on each extension of said blocking member is engaged in each corresponding opening arranged in each corresponding retaining element.

[0011] Furthermore, the invention relates also to an opening handle, in particular for a motor vehicle, comprising a support arranged on the inner face of the opening, a bezel and a lock, said handle being flush relative to the opening, wherein said handle comprises the device and is assembled according to the preceding method.

[0012] This single blocking member makes it possible to more easily assemble such a handle, in particular by avoiding any operation inside the support of the handle once the components of the handle have been put in place, but also by reducing the number of component parts thereof.

[0013] Preferentially, the bezel comprises at least one retaining element that can be inserted into at least one void of said support in order to secure said bezel and said support.

[0014] In another embodiment, each retaining element of the bezel comprises an opening arranged longitudinally along the axis (X) and capable of receiving each

corresponding snug.

[0015] The insertion of each snug into each corresponding opening of each corresponding retaining element of the bezel makes it possible to fix the bezel onto the support and thus block any transverse movement of the bezel.

[0016] Advantageously, the snugs of the branches are capable of blocking any vertical movement along the axis (Y) of the lock.

[0017] In another embodiment, the blocking member is mounted on a screw at the base of the blocking member such that said screw bears by one of its ends on the lock in order to block any longitudinal movement along the axis (X) of said lock.

[0018] In yet another embodiment, the support comprises a recess capable of receiving the blocking member.

[0019] This recess allows the blocking member to be inserted into the support.

[0020] More advantageously, the support is configured in such a way that, when the snugs are in blocking position, the blocking member is blocked from any transverse movement along the axis (Z) through abutments forming part of said support.

[0021] The invention will be described in more detail through the various figures presented below, which will simplify the understanding thereof.

Brief description of drawings

[0022]

Figure 1 is a view from the front of an opening before insertion of the bezel into the support, according to the invention.

Figure 2 is a plan view of the blocking member according to the invention.

Figure 3 is a rear view of the support, with the blocking member in initial position.

Figure 4 is a rear view of the support, with the blocking member in blocking position.

Figure 5 is a cross-sectional view along the line Y-Y of Figure 4.

[0023] Through the following figures referring to variants specified in the present invention, it is understood that other variants can be obtained by combining or simply modifying the variants represented, such that these new variants are also within the scope of the present invention.

[0024] In the following description, the terms interior and exterior are understood relative to the passenger compartment, of a vehicle for example, the interior being in the passenger compartment. The terms front and rear are understood relative to the terms interior and exterior, the front facing the exterior of the vehicle and the rear facing the interior thereof.

Description of embodiments

[0025] Figure 1 shows a vehicle opening 2. A support 13 is fixed onto the inner face of the opening 2. A lock 4 is inserted previously into the support 13 in a location provided to receive the lock 4. A bezel 1, not inserted into the support in this figure, has a form similar to a bowl. An opening 3, present on the bezel 1, allows access to a lock 4 in order to lock and/or unlock the opening 2 when a user inserts the key suitable for this purpose.

[0026] Upstream of the lock 4, there is a plate 5 for protecting the lock 4. The bezel 1 can be mounted flush with the opening 2 such that the user can bring his or her hand inside said bezel 1.

[0027] A capacitive sensor can for example be located inside the bezel 1 in order to detect the hand of the user, allowing the opening of the opening 2. A housing 22 is provided on the handle for this purpose, receiving the capacitive sensor. The support 13 comprises two voids 21a and 21b that can each receive a corresponding retaining element 14a and 14b (not represented) arranged behind the bezel 1, so as to insert the bezel 1 into the support 13.

[0028] A seal (not represented) is inserted between the bezel 1 and the opening 2 in order to protect the interior of the handle against environmental conditions, thus conferring, for example, seal tightness on the device.

[0029] Figure 2 shows a preferred embodiment of the blocking member 6 according to the invention. This blocking member 6 comprises various component elements. Indeed, the blocking member 6 is arranged as follows: the blocking member 6 comprises two branches 7a and 7b linked to one another at their rear end by a base 8.

[0030] These branches 7a and 7b and the base 8 of the blocking member 6 form a stirrup having a form similar to a U. The branch 7b has a first extension 9 at right angles along a transverse axis Z relative to the branch 7b. This first extension 9 also has a second extension 10 at right angles along the vertical axis Y to the first extension 9.

[0031] These two extensions 9 and 10 allow an arm 17, arranged at right angles along the longitudinal axis X to the second extension 10, to be linked to the branch 7b. This arm 17 has two extensions 18a and 18b at right angles along the vertical axis Y to the arm 17 so as to be facing openings provided in each retaining element 14a and 14b of the bezel 1 (as represented in Figure 3).

[0032] Snugs 11a and 11b, arranged respectively on the free end of the branches 7a and 7b, make it possible to block the lock 4 of any vertical movement along the axis Y. Other snugs 11c and 11d, arranged respectively on the free end of the extensions 18a and 18b make it possible to block each corresponding retaining element 14a and 14b of any transverse movement along the axis Z.

[0033] The blocking member 6 is mounted on a screw 15 arranged at the centre of the base 8 on which the

blocking member 6 can be displaced. The snugs 11c and 11d have a specific configuration.

[0034] Indeed, a chamfer 26 has been produced on each snug 11c and 11d, thus favouring the insertion of each snug 11c and 11d into each corresponding opening of each corresponding retaining element 14a and 14b. The blocking member 6 can be made of zamak or of plastic.

[0035] Figure 3 shows the rear of the support 13. The front of the support 13 is against the inner part of the opening 2. Two retaining elements 14a and 14b of a bezel 1 can be seen on the rear of the support 13, inserted into each corresponding void. This allows for a first snap-fitting of the bezel 1 onto the support 13.

[0036] A lock 4 is also present in the support 13 on which it is inserted into a specific location. Indeed, it is a quasi-circular location capable of receiving the lock 4 of complementary form.

[0037] A blocking member 6 is inserted into the recess provided to receive said member 6. In this position, the blocking member 6 does not assemble the components of the handle, that is to say the bezel 1, the lock 4 and the support 13. Indeed, the snugs 11a and 11b and the snugs 11c and 11d do not block the movement, respectively vertical along the axis Y of the lock 4 and transverse along the axis Z of each corresponding retaining element 14a and 14b.

[0038] This is reflected by the location of the base 8 of the blocking member 6 at the end of the screw 15 coming into abutment against the lock 4. The base 8 of the blocking member 6 is also in abutment against this same end through a flat end-fitting 16, arranged on this end of the screw 15. The support 13 has a recess capable of receiving the bezel 1 by complementarity of form.

[0039] The support 13, at the recess allowing the insertion of the blocking member 6, has, on its perimeter, a rib 23 blocking the longitudinal movement along the axis X of the two extensions 18a and 18b in the direction opposite to that of the insertion of the snugs 11c and 11d into each opening of each corresponding retaining element 14a and 14b.

[0040] The same rib 23 also blocks the vertical movement along the axis Y of the arm 17 and of the extensions 18a and 18b. The rib 23 runs also over the free perimeter of the retaining elements 14a and 14b so as to block any vertical movement along the axis Y and longitudinal along the axis X of these retaining elements 14a and 14b. Another rib 24 is also present against the outer part of the branches 7a and 7b so as to block any vertical movement along the axis Y of the branches 7a and 7b.

[0041] The rib 24 also extends against the outer part of the base 8 when the blocking member 6 is in blocking position as illustrated in Figure 4. At each corner formed by the rib 24 extending against each branch 7a and 7b and at the base 8, abutments 19a and 19b are produced so that any transverse movement along the axis Z of the blocking member 6 in its blocking position as illustrated in Figure 4 is blocked. The movement of the lock 4 is also blocked by snugs 20a, 20b and 20c extending at right angles relative to the plane of the support 13.

[0042] Figure 4 shows the rear of the support 13 as represented in the preceding figure, except that the blocking member 6 is in its blocking position. Indeed, each snug 11c and 11d is inserted into the corresponding opening of each corresponding retaining element 14a and 14b, so as to assemble the support 13 and the bezel 1. Furthermore, the snugs 11a and 11b are in a position blocking the vertical movement along the axis Y of the lock 4.

[0043] The base 8 of the blocking member 6 is positioned at the end opposite the end containing the flat end-fitting 16 of the screw 15. This blocking position of the blocking member 6 results from the displacement of the blocking member 6 on the screw 15 along the longitudinal axis X.

[0044] This position of the blocking member 6 also allows the lock 4 to be fixed onto the support 13. The lock 4 is therefore assembled both on the bezel 1 and the support 13 and the bezel 1 is also assembled on the support 13 via the blocking member 6. In this position, the blocking member 6 is in contact against the abutments 19a and 19b, preventing the withdrawal of the blocking member 6 in the transverse direction Z.

[0045] Figure 5 is a cross-sectional view along the line Y-Y of Figure 4. This figure shows the nesting of the bezel 1 in the receptacle provided to receive said bezel 1 in the support 13. Indeed, the front of the support 13 has a recess of rounded form in order to receive the bezel 1 that has a complementary form. Furthermore, the retaining elements 14a and 14b, arranged at the rear of the bezel 1, are divided into two compartments, having two openings. As represented in this figure, one of the openings of the retaining element 14b is capable of receiving the snug 11d of the blocking member 6.

[0046] The ribs 23 and 24 described in Figure 3 are also illustrated in this figure which clearly shows the blocking of the blocking member 6 in its recess such that any movement of the blocking member 6 is inhibited, except for the displacement of the blocking member 6 into its unblocking position, that is to say along the longitudinal axis X.

[0047] The present invention relates also to a method for assembling the device in a handle, described in the preceding Figures 1 to 5.

[0048] Firstly, the lock 4 is inserted into the location provided to receive the lock 4 in the support 13.

[0049] Secondly, the blocking member 6 is inserted into the recess provided for this purpose in the support 13 such that the blocking member 6 is in unblocking position.

[0050] The base 8 of the blocking member 6 is therefore in abutment against the end-fitting 16 of the screw 15.

[0051] The support 13 can finally be fixed on the inner side of the opening 2 to then insert the bezel 1 from the outside of the opening 2 such that the bezel 1 is inserted into the recess provided to receive it in the support 13.

[0052] Each retaining element 14a and 14b of the bezel 1 is inserted into each corresponding void 21a and 21b of the support 13. At this stage, the lock 4 is at the opening 3 of the bezel 1 provided for this purpose.

[0053] Finally, the blocking member 6 is displaced into its blocking position via the screwing of the screw 15 from the outside of the support so that the components of the handle, that is to say the bezel 1, the lock 4 and the support 13, are assembled by translation.

[0054] It should be noted that the order of the preceding steps is given by way of example; there is nothing to preclude one or more of the above steps being reversed, for example the blocking member 6 can be inserted before the lock 4.

Claims

1. Blocking device (D) for an opening handle (2) comprising a blocking member (6) and a screw (15), said blocking member (6) being mounted on said screw (15), **characterized in that** said blocking member (6) comprises at least two branches (7a) and (7b) that are parallel and joined at their rear end by a base (8), the front end of one of the two branches (7a, 7b) being linked to an arm (17) extending parallel to the two branches (7a) and (7b), said arm (17) comprising at least one extension (18a, 18b) at right angles to said arm (17).

2. Device (D) according to the preceding claim, **characterized in that** said branches (7a) and (7b) and said arm (17) are on two parallel planes.

3. Device (D) according to either one of the preceding claims, **characterized in that** each front end of said branches (7a) and (7b) of said blocking member (6) comprises a snug (11a, 11b), arranged at right angles to said branches (7a) and (7b) and extending towards one another.

4. Device (D) according to any one of the preceding claims, **characterized in that** the free end of at least one extension (18a, 18b) of said blocking member (6) comprises a snug (11c, 11d) arranged at right angles to said at least one extension (18a, 18b).

5. Device (D) according to the preceding claim, **characterized in that** said arm (17) comprises two extensions (18a) and (18b), said extensions each comprising a snug (11c) and (11d) both extending in the same direction.

6. Method for assembling the device (D) according to Claims 1 to 5, in an opening handle (2), comprising the following steps:

   - insertion of a lock (4) into the location provided to receive said lock in the support (13),
   - insertion of the blocking member (6) into the recess provided in the support (13),
   - fixing of the support (13) onto an inner face of the opening (2),
   - insertion of a bezel (1) on the outer face of the opening (2) facing said support (13) so that each retaining element (14a, 14b) of said bezel (1) is inserted into each corresponding void (21a, 21b) of said support (13),
   - displacement along the longitudinal axis (X) of the blocking member (6) by screwing, such that the snugs (11a) and (11b) arranged on the branches (7a) and (7b) of said blocking member (6) block any vertical movement along the axis (Y) of the lock (4), the longitudinal movement along the axis (X) of said lock (4) being blocked by the screw (15) of the blocking member (6), and such that each snug (11c, 11d) arranged on each extension (18a, 18b) of said blocking member (6) is engaged in each corresponding opening arranged in each corresponding retaining element (14a, 14b).

7. Opening handle (2), in particular for a motor vehicle, comprising a support (13) arranged on the inner face of the opening (2), a bezel (1) and a lock (4), said handle being flush relative to the opening (2), **characterized in that** said handle comprises the device (D) according to Claims 1 to 4 and is assembled according to the method according to Claim 5.

8. Opening handle (2) according to the preceding claim, **characterized in that** said bezel (1) comprises at least one retaining element (14a, 14b) that can be inserted into at least one void (21a, 21b) of said support (13) in order to secure said bezel (1) and said support (13).

9. Opening handle (2) according to Claim 7 or 8, **characterized in that** each retaining element (14a, 14b) of said bezel (1) comprises an opening arranged longitudinally along the axis (X) and capable of receiving each corresponding snug (11c, 11d).

10. Opening handle (2) according to Claims 7 to 9, **characterized in that** the snugs (11a) and (11b) of said branches (7a) and (7b) are capable of blocking any vertical movement along the axis (Y) of the lock (4).

11. Opening handle (2) according to Claims 7 to 10, **characterized in that** said blocking member (6) is mounted on a screw (15) at said base (8) of said blocking member (6) such that said screw (15) bears by one of its ends on said lock (4) in order to block any longitudinal movement along the axis (X) of said lock (4).

12. Opening handle (2) according to Claims 7 to 11, **characterized in that** said support (13) comprises a recess capable of receiving said blocking member (6).

13. Opening handle (2) according to Claims 7 to 12, **characterized in that** said support (13) is configured in such a way that, when the snugs (11a, 11b, 11c, 11d) are in blocking position, said blocking member (6) is blocked from any transverse movement along the axis (Z) through abutments (19a) and (19b) forming part of said support (13).

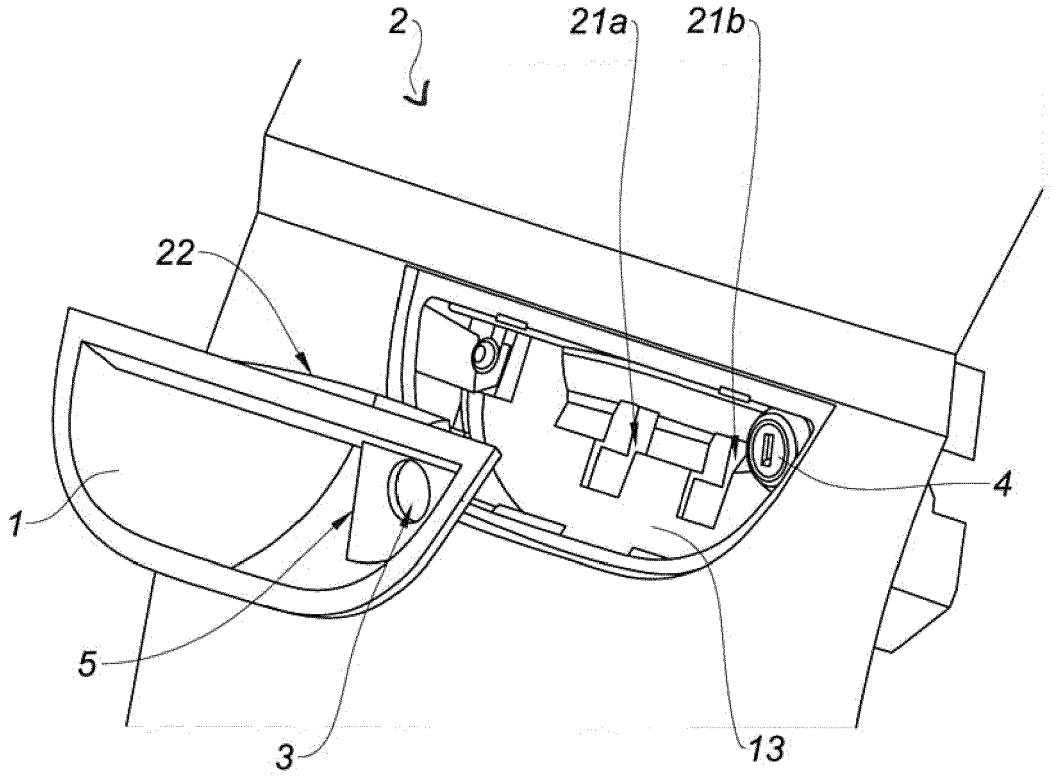
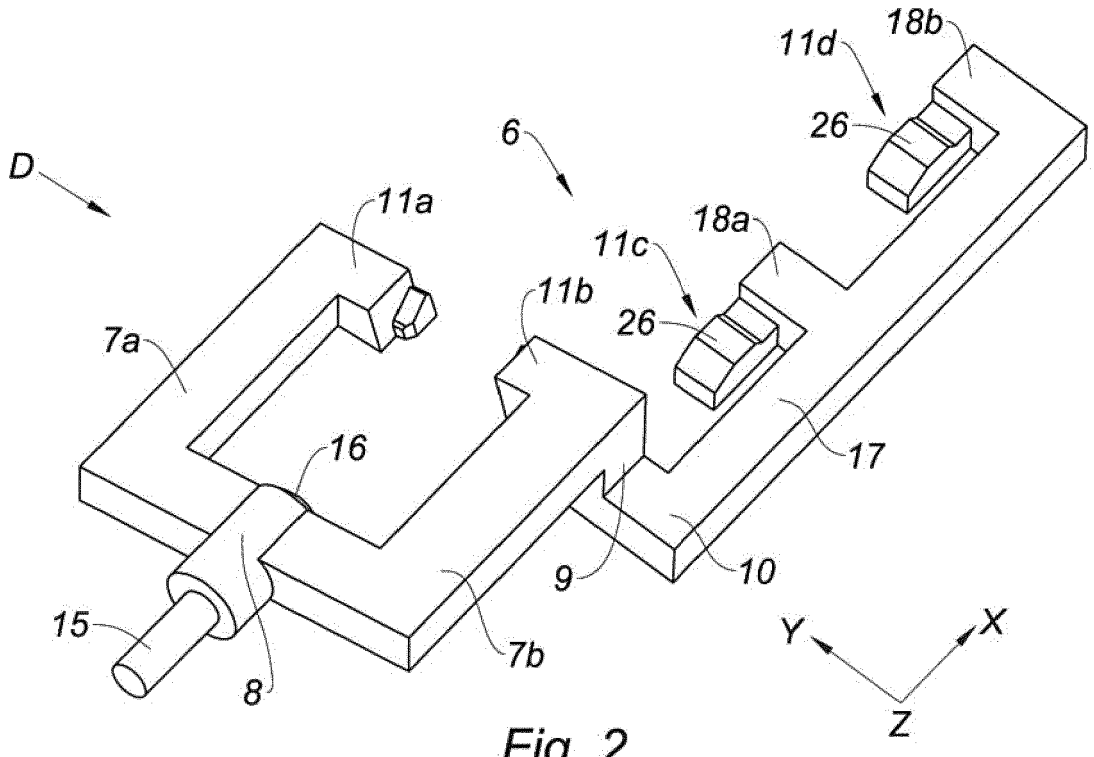

2
21a
21b
22
1
4
5
3
13

Fig. 1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11a
11d
18b
26
18a
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11b
26
7a
16
17
9
10
15
8
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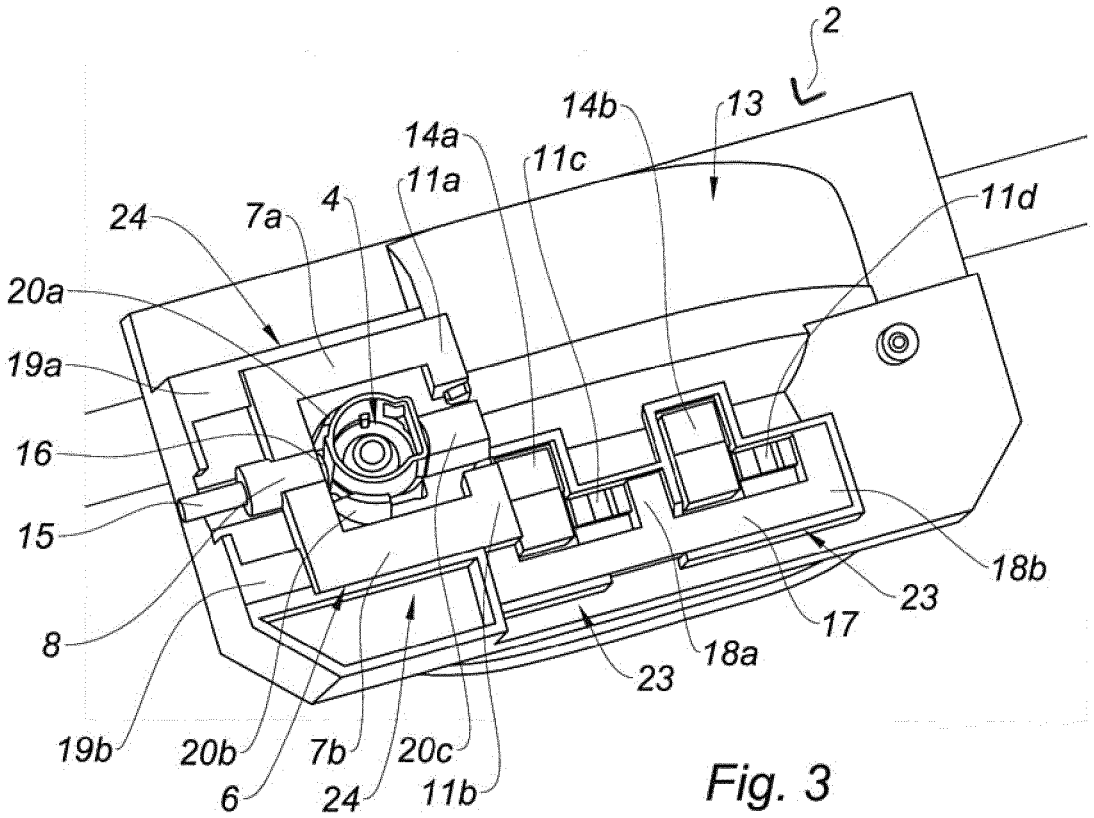
Y
X
Z

Fig. 2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11d
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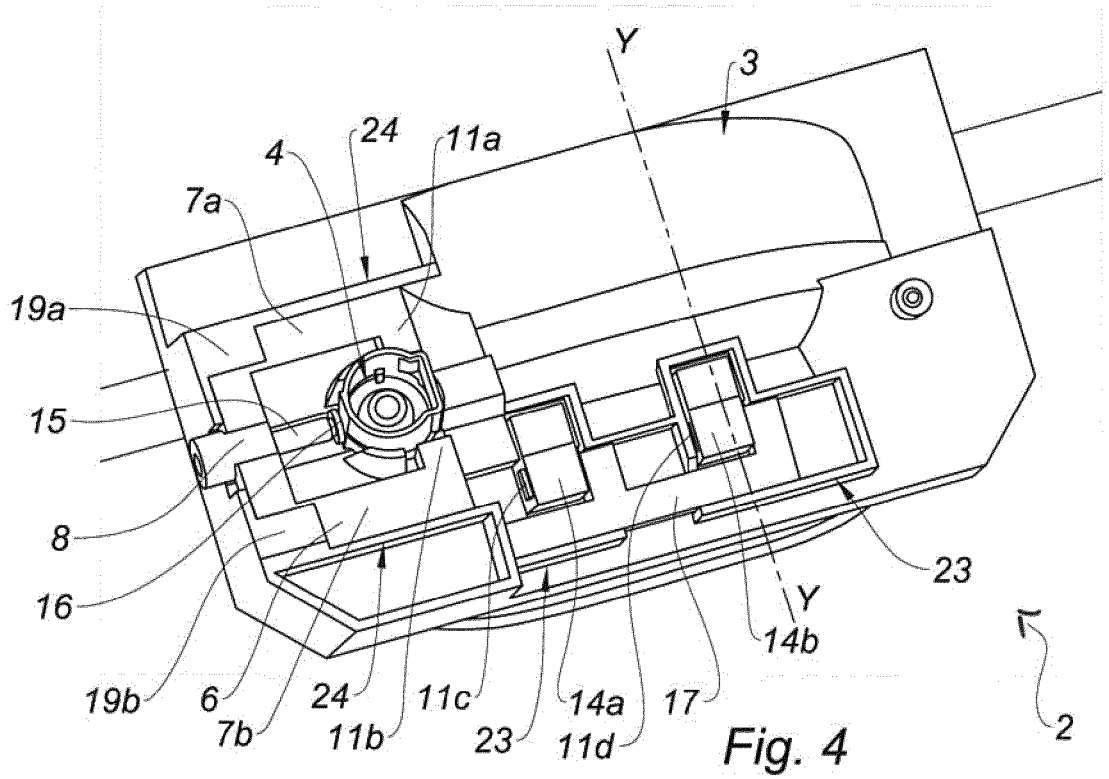
23
18a
17
23
18b

Fig. 3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Y
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23
2

Fig. 4

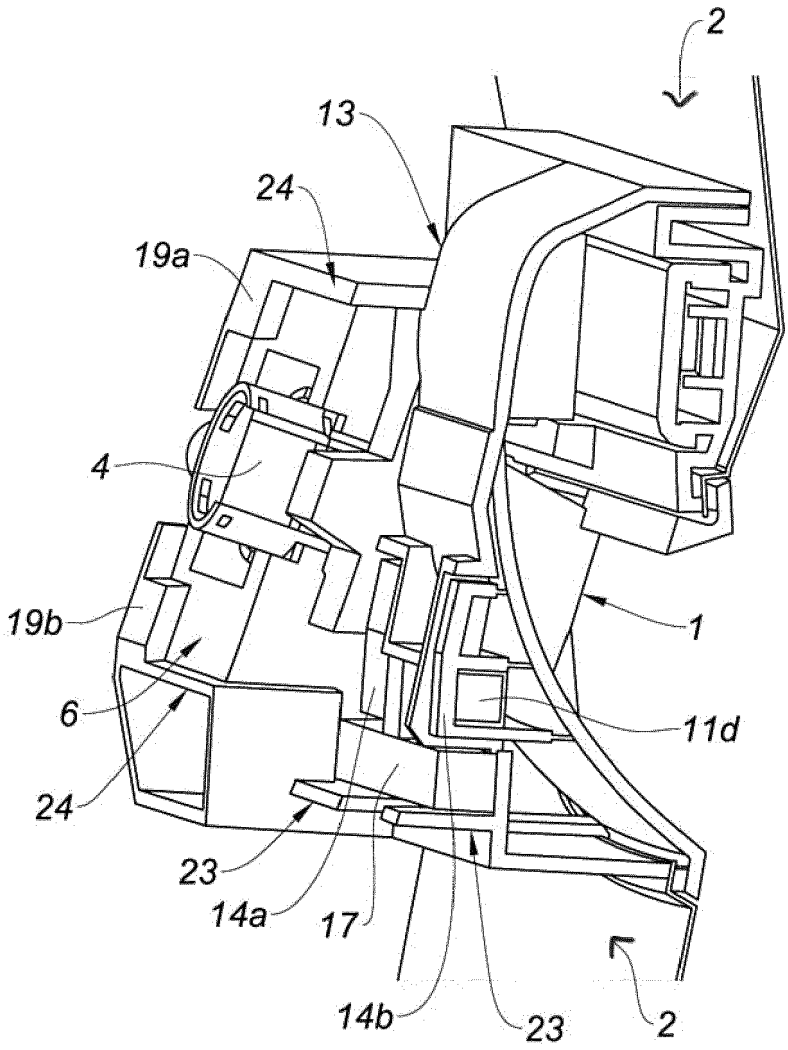

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 18 21 1994

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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TECHNICAL FIELDS SEARCHED (IPC)

E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 June 2019	Goddar, Claudia

CATEGORY OF CITED DOCUMENTS

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11-06-2019

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