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(54) LOCK PARTICULARLY FOR DOOR WITH GLASS LEAF

(57) Described is a lock (10) particularly for door with glass leaf (11) comprising:
- an operating portion (12) to be housed in a seat (11 a) of a leaf (11);
- a first lateral portion (13) and a second lateral portion (14) each designed to make contact with one of the sides (12);
- fixing means (15) designed for clamping the lateral portions (13, 14) to each other through the operating portion (12);
- a covering mask (16) designed to be fixed to the first lateral portion (13) to hide it from view;
- first engaging elements (17) fixed to the first lateral portion (13) and second engaging elements (18) fixed to the mask (16);
- alignment means (19) defining a fixing direction (A) along which the mask (16) can be coupled to the first lateral portion (13).

The engaging elements (17, 18) are positioned and configured in such a way that upon the coupling of the mask (16) to the first lateral portion (13) the engaging elements (17, 18) interfere and mutually engage to retain the mask (16) to the first lateral portion (13).

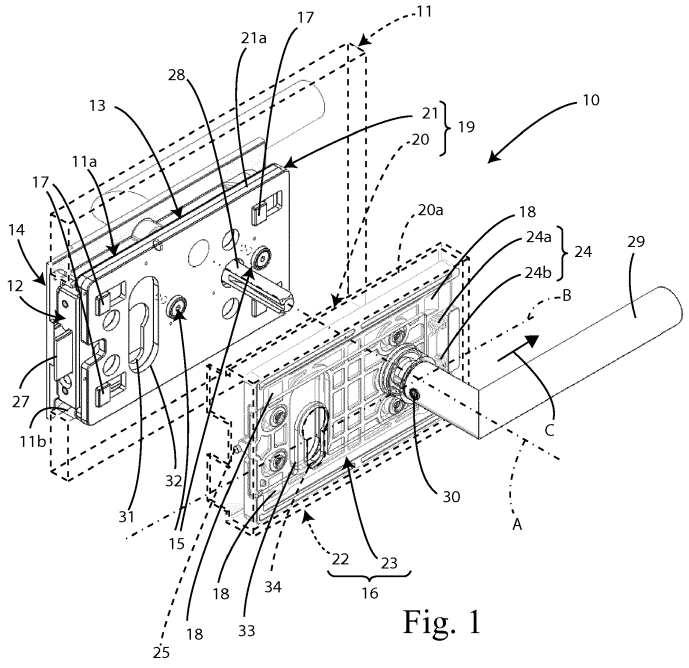

Fig. 1

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Description

[0001] This invention relates to a lock particularly for a door with a glass leaf.

[0002] More specifically, the invention relates to a lock designed to be fixed in a removable fashion to a glass leaf of a door.

[0003] It is currently known in the field of locks for glass doors that the frame of the door cannot be fixed directly to the leaf by means of screws or the like, which may occur, on the other hand, in the case of locks to be applied to doors made of wood or similar materials.

[0004] In fact, the fixing of a traditional lock to a glass door is currently carried out by means of a sandwich configuration where the lock comprises:

- a central portion which can be housed in a seat made in the leaf which incorporates the latch, a possible bolt and the means for actuating them, and
- two lateral portions suitable to engage the opposite faces of the leaf on the perimeter of the seat and which can be fixed to the central portion by means of screws.

[0005] This traditional lock also comprises two finishing masks suitable for covering the lateral portions to hide them from view.

[0006] The masks can be fixed to the lateral portions by screws.

[0007] This has the drawback of adversely affecting the appearance of the lock.

[0008] The problem at the basis of this invention is to provide a lock particularly for a door with a glass leaf which avoids the visibility, from the outside of the door, of fixing elements.

[0009] The main aim of this invention is to make a lock particularly for a door with a glass leaf which resolves this problem and, in particular, which prevents fixing screws or the like from being visible from the outside.

[0010] The aim of this invention is therefore to provide a lock particularly for a door with a glass leaf which is structurally simple and easy to install.

[0011] A further aim of the invention is to provide a lock particularly for a door with a glass leaf which allows the installation on a glass leaf and the dismantling from it which is simple, fast and does not require specific skills. This aim, as well as those and other aims which will emerge more fully below, are attained by a lock particularly for a door with a glass leaf according to appended claim 1.

[0012] Detailed features of the lock particularly for a door with a glass leaf according to the invention are indicated in the dependent claims.

[0013] Further features and advantages of the invention will emerge more fully from the description of a preferred but not exclusive embodiment of a lock particularly for a door with a glass leaf, illustrated by way of non-limiting example in the accompanying drawings, in which:

- Figure 1 illustrates a partly exploded perspective view of a lock particularly for a door with a glass leaf according to the invention wherein some parts are shown transparent to better illustrate others;
- Figure 2 illustrates a front view of the lock of Figure 1;
- Figure 3 illustrates a section view of a detail of the lock of Figures 1 and 2 according to the line III - III of Figure 2;
- Figures 4 and 5 illustrate a plan view of a detail of the lock of the above-mentioned drawings in two different operating configurations, wherein some parts of the lock have been removed to better illustrate others.

[0014] With particular reference to the above-mentioned drawings, the numeral 10 denotes in its entirety a lock particularly for a door with a glass leaf 11 preferably comprising:

- an operating portion 12 designed to be housed in a seat 11a of a leaf 11 of a door and provided with two opposite sides 12a, 12b;
- a first lateral portion 13 and a second lateral portion 14 each designed to make contact with one of the sides 12a, 12b of the operating portion 12; the lateral portions 13, 14 being configured to squeeze between them an edge 11b of the seat 11a of the leaf 11 in which, in use, the operating portion 12 is housed to block the lock 10 to the leaf 11;
- fixing means 15 designed for clamping the lateral portions 13, 14 to each other, preferably through the operating portion 12;
- a covering mask 16 designed to be fixed to the first lateral portion 13 to hide it from view.

[0015] The fixing means 15 can, for example, comprise screws 15a and 15b designed to cross through out of service, not shown, passing through the operating portion.

[0016] The screws 15a and 15b being suitable to lock the first lateral portion 13 to the second lateral portion 14.

[0017] The latter advantageously have a substantially specular shape, where the term shape means the projection on the leaf 11 when the lock 10 is installed on the latter.

[0018] According to the invention, the lock 10 has a peculiarity in that it also preferably comprises:

- first engaging elements 17 fixed to the first lateral portion 13 and second engaging elements 18 fixed to the mask 16;
- alignment means 19 defining a fixing direction A along which the mask 16 can be coupled to the first lateral portion 13;
- the first and second engaging elements 17, 18 being positioned and configured in such a way that following the coupling of the mask 16 to the first lateral portion 13 along the fixing direction A, the first en-

gaging elements 17 interfere with the second engaging elements 18 and they mutually engage to retain the mask 16 to the first lateral portion 13.

[0019] The alignment means 19 are advantageously configured for guiding in a constrained manner the coupling of the mask 16 to the first lateral portion 13 in such a way that, for coupling them, the mask 16 is slidably guided along the fixing direction A until the complete superposing of the mask 16 on the first lateral portion 13 and simultaneous mutual engagement of the respective engagement elements 17 e 18.

[0020] In general, the alignment means 19 could comprise complementary guides which protrude both from the mask 16 and from the first lateral portion 13 so as to be mutually engageable for aligning the mask 16 with the first lateral portion 13 and, therefore, guiding the coupling along the fixing direction A.

[0021] According to the preferred embodiment, illustrated in the accompanying drawings, the alignment means 19 preferably comprise:

- lateral walls 20 of the mask 16 having a flat inner face 20a;
- a perimetral edge 21 of the first lateral portion 13 which has a flat outer face 21a;

wherein the inner face 20a and the outer face 21a define the fixing direction A and are designed to slide one on the other so as to guide the coupling of the mask 16 with the first lateral portion 13 keeping them aligned with the fixing direction A.

[0022] Advantageously, in general, the first engaging elements 17 are elastically movable with respect to the first lateral portion 13 along an hooking/unhooking direction B and/or the second engaging elements 18 are elastically movable with respect to the mask 16 along the hooking/unhooking direction B for mutually engaging the first and second engaging elements 18 following engagement of the mask 16 with the first lateral portion 13 along the fixing direction A.

[0023] The mask 16 advantageously comprises:

- a main body 22;
- a sliding element 23 to which the second engaging elements 18 is fixed and which is connected to the main body 22 in a slidable fashion along the hooking/unhooking direction B;
- elastic means 24 connected to the main body 22 and to the sliding element 23 to counter a sliding of the sliding element 23 with respect to the main body 22 in an unhooking direction C along the hooking/unhooking direction B.

[0024] The mask 16 is preferably configured in such a way that as a result of the coupling of the mask 16 with the second lateral portion 14, the first engaging elements 17 interfere with the second engaging elements 18 in such a way as to force the sliding element 23 to move in the unhooking direction C to mutually couple in a snap-on fashion on the engaging elements 17 and 18.

[0025] Preferably, the elastic means 24 comprise at least one compression spring having one end in contact with the sliding element 23 and the other end in contact with the main body 22.

[0026] In the embodiment shown in the accompanying drawings, the elastic means 24 advantageously consist of two compression springs 24a and 24b, advantageously twins and/or parallel.

[0027] The main body 22 preferably has at least one through hole 25 facing the sliding element 23 to operate the sliding element 23 along the unhooking direction C through the through hole 25.

[0028] Preferably, the through hole will be selected with the smallest possible dimensions whilst being suitable to receive a pointed tool 100, for example the tip of a screwdriver, by means of which to push the sliding element 23 in the unhooking direction C for mutually disengaging the engaging elements 17 and 18.

[0029] The sliding element 23 preferably has a tooth or a protrusion and/or a blind hole 26 designed to be engaged by the pointed tool 100 for facilitating the movement of the sliding element 23.

[0030] The operating portion 12 preferably comprises a latch 27 operable according to an operating direction to which the hooking/unhooking direction B is advantageously parallel.

[0031] According to the embodiment shown in the accompanying drawings, preferably the first engaging elements 17 advantageously have a first wall 17a which is inclined with respect to the fixing direction A in such a way as to form an undercut.

[0032] The second engaging elements 18 also advantageously have a second wall 18a inclined with respect to the fixing direction A to form an undercut such that as a result of the coupling of the mask 16 to the first lateral portion 13, the first wall 17a rests on the second wall 18a and the elastic means 24 force the walls 17a, 18a one against the other to push the mask 16 against the first lateral portion 13.

[0033] Alternatively, preferably, the engaging elements 17 and 18 could be hook-shaped and the first engaging elements 17 and/or the second engaging elements 18 are elastically yieldable for mutually coupling in a snap-on fashion for elastic deformation.

[0034] In this case, the elastic means preferably comprise elastically flexible rods of the engagement elements 17 and/or 18.

[0035] The mask 16 and the first lateral portion 13 preferably have a substantially rectangular shape, the engaging elements 17, 18 being positioned at the corners of the shape.

[0036] The alignment means 19 can also consist in a square 28 which protrudes from the operating portion 12 and which, in a traditional manner, is designed to operate the latch 27 by means of a kinematic mechanism which

is not visible and in a traditional manner.

[0037] In this case, the mask 16 will advantageously incorporate a handle 29 which, in a traditional manner, will have a seat complementary to the square 28.

[0038] In this way, during assembly of the lock 10, simultaneously with the fitting (in a traditional manner) of the square 28 in the corresponding seat, the mask 16 is guided by the square 28 towards the first lateral portion 13 along the fixing direction A which, in this case is defined by the direction of extension of the square 28.

[0039] The operating portion 12 as well as the lateral portions 13 and 14 and the mask 16 are advantageously provided with corresponding through windows 31, 32, 33 suitable for receiving a lock cylinder, not illustrated.

[0040] More specifically, advantageously, the sliding element 23 of the mask 16 will have the relative through window 33 which will have an extension such as not to interfere with the cylinder of the lock following movement of the sliding element 23 along the hooking/unhooking direction B.

[0041] Operationally, with particular reference to Figure 1, for the assembly of the lock 10 on the leaf 11, the operating portion 12 is inserted in the seat 11a and the first lateral portion 13 is fixed simultaneously to the operating portion 12 and to the second lateral portion 14 by means of the screws 15a and 15b which are inserted in a through fashion through the operating portion 12.

[0042] By tightening the screws 15a and 15b, the lateral portions 13 and 14 are clamped on the leaf so as to squeeze between them the edge 11b of the seat 11a of the leaf 11 so as to block the lock 10 to the leaf 11.

[0043] The mask 16 is then mounted above the first lateral portion 13 coupling it along the fixing direction A.

[0044] During this operation, preferably, the sliding element 23 is pushed in the unhooking direction C, as can be seen, for example, in Figure 5, and released, as can be seen, for example, in Figure 4, when the mask 16 makes contact against the first lateral portion 13.

[0045] Following the release, the sliding element 23 is pushed by the elastic means along the hooking/unhooking direction B in the direction opposite the unhooking direction C so that the first wall 17a and the second wall 18a engage and the thrust, of one against the other, exerted by the elastic means 24 determines the packing of the mask 16 on the first lateral portion 13.

[0046] Lastly, the handle 29 is locked on the square 28 preferably by means of a grub screw 30.

[0047] For the dismantling, the grub screw is loosened and, preferably using a pointed tool 100, the sliding element 23 is pushed in the unhooking direction C to mutually disengage the first and second engaging elements 17 and 18, as shown, for example, in Figure 5.

[0048] So the mask 16 is moved away from the first lateral portion 13 along the fixing direction A.

[0049] Preferably, the fixing direction A is perpendicular to the plane of extension of the leaf 11, however, in alternative embodiments, it may be any direction and the alignment means 19 may not be present, allowing an assembly of the mask 16 on the first lateral portion 13 which is substantially free.

[0050] It is therefore clear how the lock 10 according to the invention achieves the set aims and objectives.

[0051] More specifically, thanks to the blocking of the mask 16 to the first lateral portion 13 by means of the engaging elements 17 which are hidden by the mask 16, the lock 10 does not need being equipped with screws or other fixing elements which are visible from the outside since only the through hole 25 is visible from the outside of the lock 10.

[0052] The invention as it is conceived is susceptible to numerous modifications and variants, all falling within the scope of protection of the appended claims.

[0053] Further, all the details can be replaced by other technically-equivalent elements.

[0054] In practice, the materials which are used, as well as the contingent forms and dimensions, can be varied according to the contingent requirements and the state of the art.

[0055] Where the constructional characteristics and the technical characteristics mentioned in the following claims are followed by signs or reference numbers, the signs or reference numbers have been used only with the aim of increasing the intelligibility of the claims themselves and, consequently, they do not constitute in any way a limitation to the interpretation of each element identified, purely by way of example, by the signs or reference numerals.

Claims

1. A lock (10) particularly for door with glass leaf (11) comprising:

- an operating portion (12) designed to be housed in a seat (11a) of a leaf (11) of a door and provided with two opposite sides (12a, 12b);
- a first lateral portion (13) and a second lateral portion (14) each designed to make contact with one of the sides (12a, 12b) of said operating portion (12); said lateral portions (13, 14) being configured to squeeze between them an edge (11b) of the seat (11a) of the leaf (11) in which, in use, said operating portion (12) is housed to block said lock (10) to said leaf (11);
- fixing means (15) designed for clamping said lateral portions (13, 14) to each other through said operating portion (12);
- a covering mask (16) designed to be fixed to said first lateral portion (13) to hide it from view;
- first engaging elements (17) fixed to said first lateral portion (13) and second engaging elements (18) fixed to said mask (16);
- alignment means (19) defining a fixing direction (A) along which said mask (16) can be coupled to said first lateral portion (13);

- said first and second engaging elements (17, 18) being positioned and configured in such a way that following the coupling of said mask (16) to said first lateral portion (13) along said fixing direction (A), said first engaging elements (17) interfere with said second engaging elements (18) and they mutually engage to retain said mask (16) to said first lateral portion (13);

wherein said first engaging elements (17) are elastically movable with respect to said first lateral portion (13) along an hooking/unhooking direction (B) and/or said second engaging elements (18) are elastically movable with respect to said mask (16) along said hooking/unhooking direction (B) for mutually engaging said first and second engaging elements (18) following engagement of said mask (16) with said first lateral portion (13) along said fixing direction (A) said lock (10) being **characterized in that** said mask (16) comprises:

- a main body (22);
- a sliding element (23) connected to said main body (22) in a slidable manner along said hooking/unhooking direction (B); said second engaging elements (18) being fixed to said sliding element (23);
- elastic means (24) connected to said main body (22) and to said sliding element (23) to counter a sliding of said sliding element (23) with respect to said main body (22) in an unhooking direction (C) along said hooking/unhooking direction (B);

said mask (16) being configured in such a way that as a result of the coupling of said mask (16) with said second lateral portion (14), said first engaging elements (17) interfere with said second engaging elements (18) in such a way as to force said sliding element (23) in said unhooking direction (C) to engage said engaging elements.

2. The lock (10) according to claim 1, **characterized in that** said elastic means (24) comprise at least one compression spring (24a, 24b) having one end in contact with said sliding element (23) and the other end in contact with said main body (22).

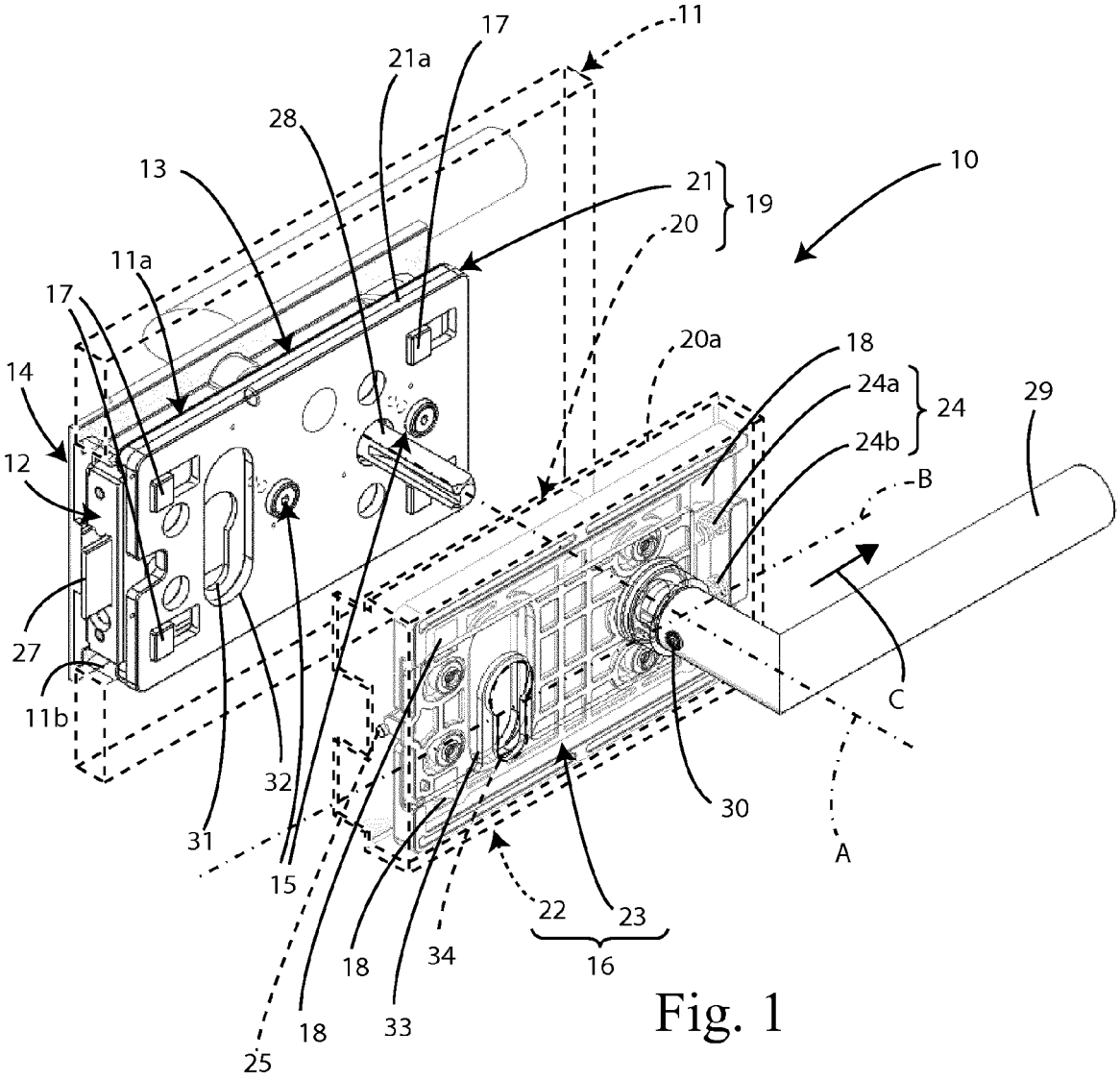
3. The lock (10) according to claim 1 or 2, **characterized in that** said main body (22) has at least one through hole (25) facing said sliding element (23) to operate said sliding element (23) along said unhooking direction (C) through said through hole (25).

4. The lock (10) according to any one of claims 1 to 3, **characterized in that** said operating portion (12) comprises a latch (27) operable according to an operating direction; said hooking/unhooking direction (B) being parallel to said operating direction.

5. The lock (10) according to any one of claims 1 to 4, **characterized in that** said first engaging elements (17) have a first wall (17a) which is inclined with respect to said fixing direction (A) to form an undercut; said second engaging elements (18) have a second wall (18a) inclined with respect to said fixing direction (A) to form an undercut such that as a result of the coupling of said mask (16) to said first lateral portion (13), said first wall (17a) rests on said second wall (18a) and said elastic means (24) force said first and second walls (17a, 18a) one against the other to push said mask (16) against said first lateral portion (13).

6. The lock (10) according to any one of the previous claims, **characterized in that** said alignment means (19) comprise lateral walls (20) of said mask (16) having a flat inner face (20a) and a perimetral edge (21) of said first lateral portion (13) having a flat outer face (21a); said inner face (20a) and said outer face (21a) defining said fixing direction (A) and being designed to slide one on the other to guide a coupling of said mask (16) on said first lateral portion (13).

7. The lock (10) according to one of the preceding claims, **characterized in that** said mask (16) and said first lateral portion (13) have a substantially rectangular shape, said engaging elements (17, 18) being positioned at the corners of said substantially rectangular shape.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21a
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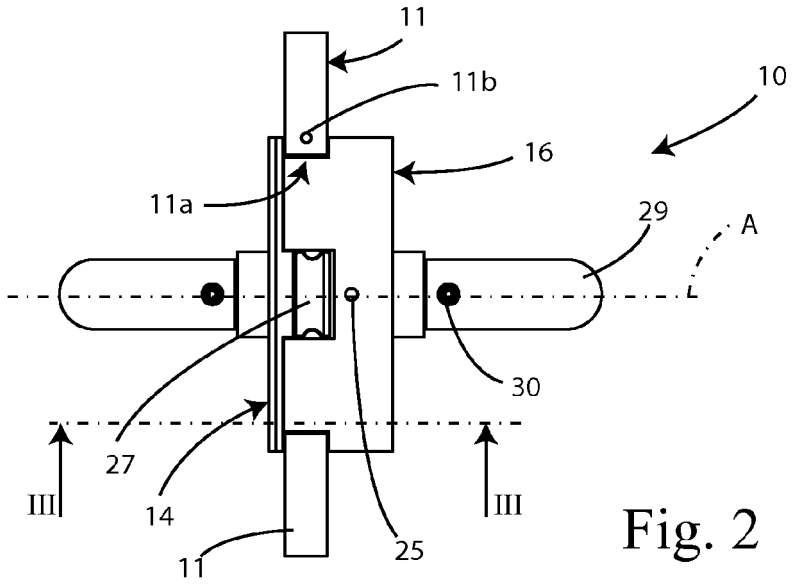
Fig. 1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III
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Fig. 2

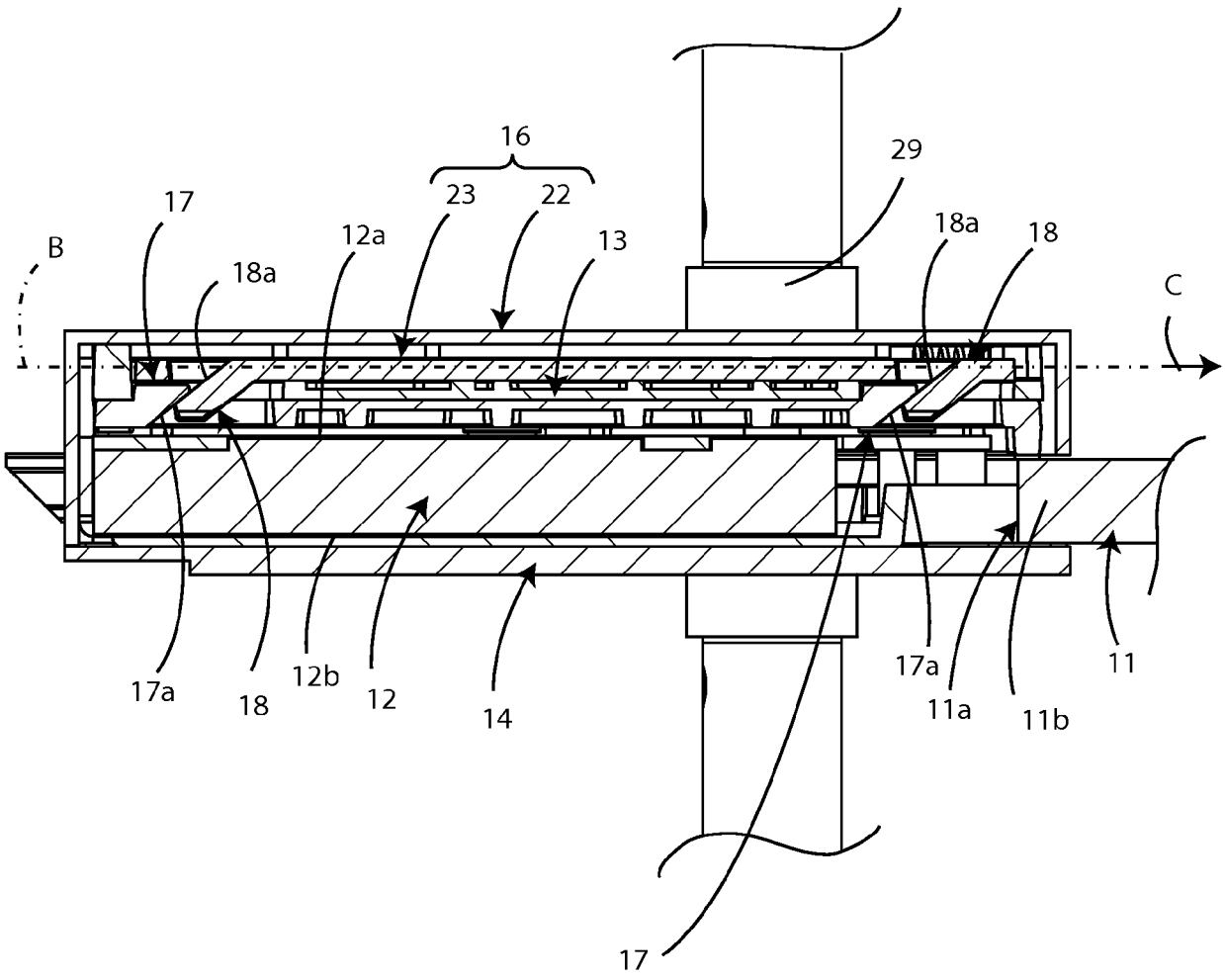
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Fig. 3

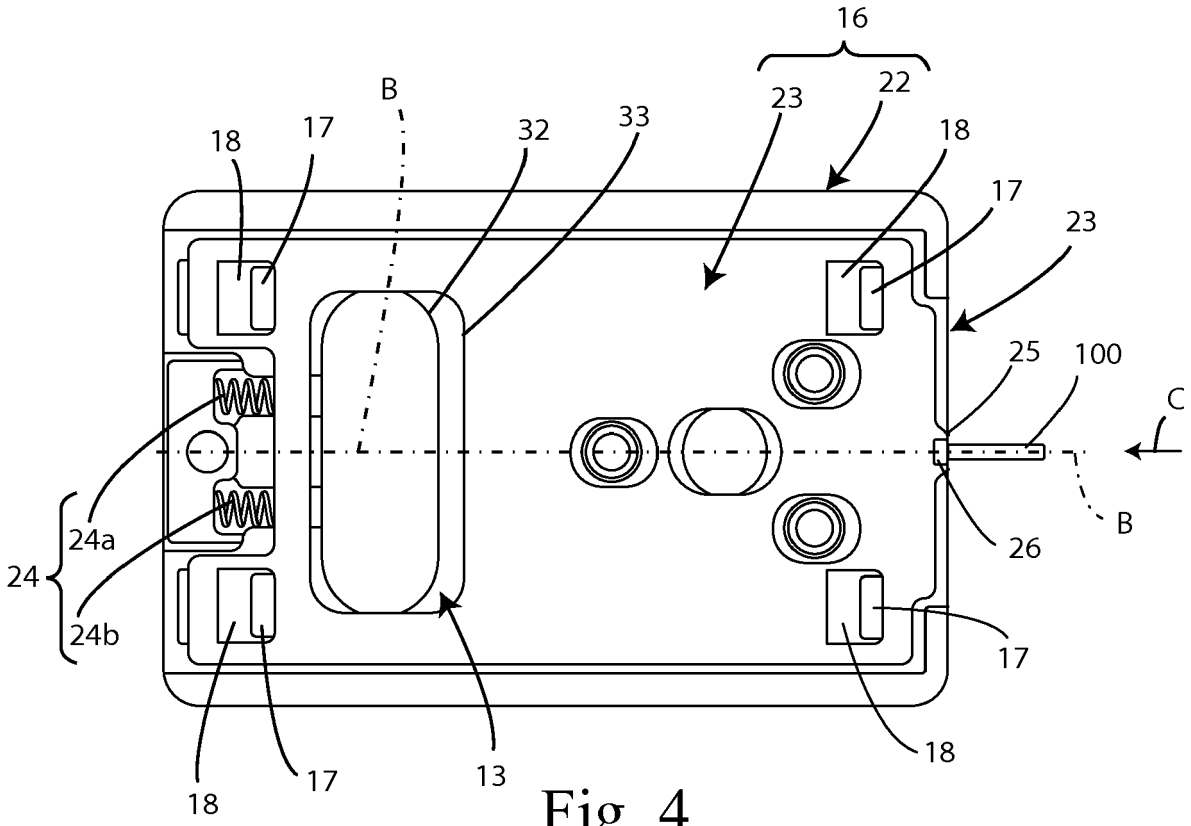
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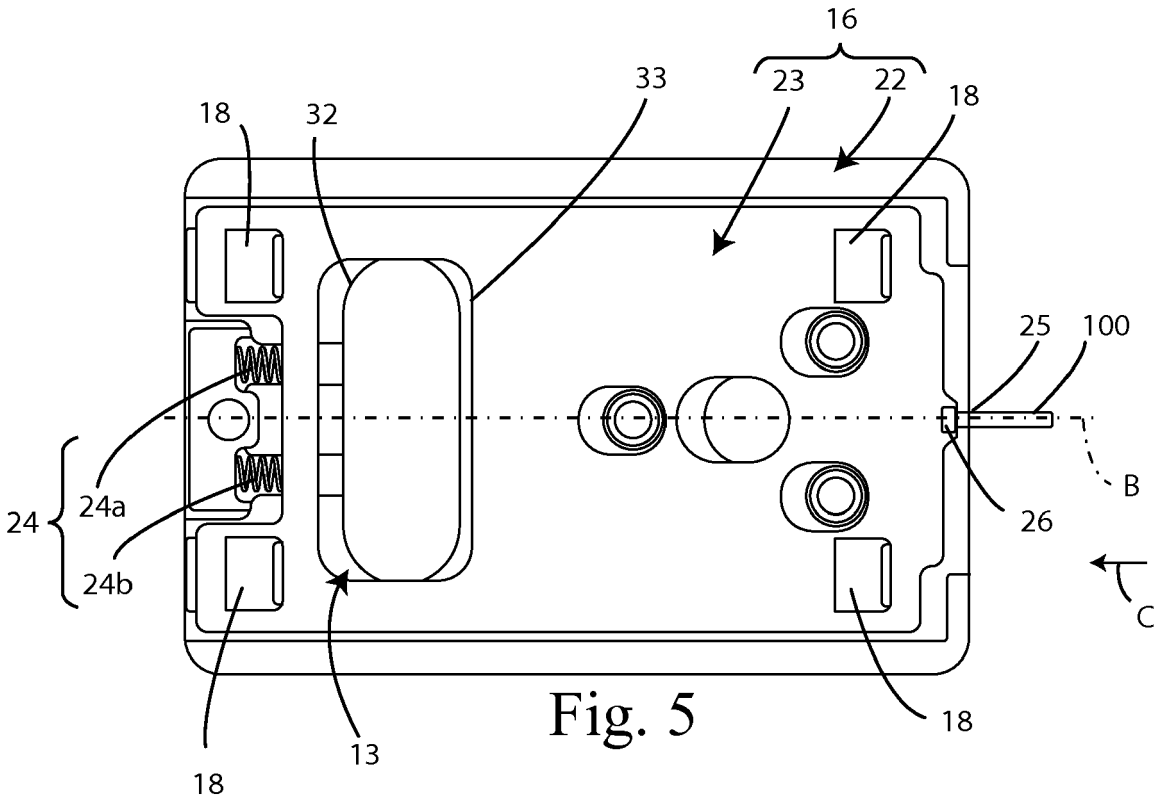
Fig. 4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24b
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13
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18

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 19 15 2746

DOCUMENTS CONSIDERED TO BE RELEVANT

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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	24 May 2019	Ansel, Yannick

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24-05-2019

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