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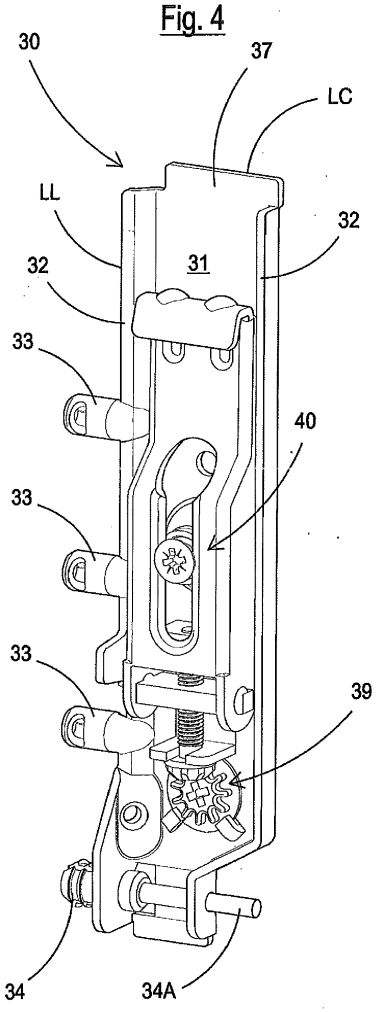
(54) **HIDDEN HANGING BRACKET WITH PERFECTED MEANS FOR FIXING IT TO A WALL CUPBOARD**

(57) A hidden hanging bracket (30,130) is equipped with first (33,34) and second (I) fixing means for fixing it to a shoulder (S) of a wall-cupboard (M), said hanging bracket also having a top (C) and a lining (F), of the type comprising: a base (31,131) of a substantially elongated rectangular form, on which two regulation mechanisms (39,40) are installed, for regulating the position of said cupboard (M), in height (vertical) and in depth, respectively, with respect to a wall (P) on which the same is assembled, on a long side (LL) and on a short side (LC) of said base (31,131), said first (33,34,133,134) and second fixing means (I) of the hanging bracket (30,130) to the shoulder (S) and to the top (C), respectively, of the cupboard (M), being envisaged. According to the invention, said second fixing means (I) consist of engagement means (37,137) of said base (31,131) freely inserted in a corresponding seat (38,141) of the top (C).

Fig. 4



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Description

[0001] The present invention relates to a hidden hanging bracket for the assembly of cupboards to a wall, equipped with perfected means for fixing it automatically to the cupboard, by means of a robot.

[0002] Hidden hanging brackets consisting of a base, having a substantially elongated rectangular form, are known, on which two regulation mechanisms are assembled, in vertical (height) and in depth, respectively, for regulating the position of the cupboard with respect to the wall on which the same is assembled, and consequently with respect to other possible adjacent wall units.

[0003] As is known to skilled persons in the field, hanging brackets of this type are fixed to the shoulder of the wall cupboard, and possibly also to the top, behind the lining, in correspondence with the upper corner of the cupboard, consisting of the combination between shoulder, top and lining.

[0004] The fixing of the hanging bracket to the shoulder and to the top is effected using fixing means such as pins and/or screws envisaged on the base.

[0005] A hidden hanging bracket of this type is described and illustrated, for example, in European patent EP 2219495, to which reference should be made for any clarifications required, and which should be considered as being an integral part of the present description for a better understanding of the same invention.

[0006] The hanging brackets in question can be fixed to the cupboard in the two following different assembly phases of the cupboard: on the shoulder of the cupboard, before its assembly, or on the same shoulder, but after the assembly of the cupboard.

[0007] It is currently highly desirable to be able to automatically fix a hanging bracket to the shoulder, by means of a robot, for evident reasons of producing large quantities of cupboards.

[0008] Another requirement to be satisfied by said hidden hanging brackets is their safe fixing to the cupboard, also in the presence of considerable stress due to shear and torsion.

[0009] For this reason, it is preferable for the hanging bracket to be fixed to both the shoulder and to the top. For this purpose, hanging brackets of the known type are provided with oblique fixing screws, which pass through holes on flanges, also oblique, extending from the base of the hanging bracket.

[0010] The presence of these oblique flanges and screws, however, makes the automatic fixing of the hanging brackets, by means of a robot, practically impossible, as, on contrary, is highly desirable.

[0011] In order to be able to automate the fixing of the hanging bracket to the shoulder of the cupboard, hanging brackets are known, without fixing means to the top, and are provided with pins and screws, or "doubles", only, for fixing them to the shoulder, which extend coplanar to the base. This however jeopardizes the resistance of the hanging bracket to relevant stress, mainly torsional.

[0012] The general objective of the present invention is to overcome the drawbacks of the known art, by providing a hanging bracket that can be automatically fixed to the shoulder and to the top of the cupboard, by means of a robot, and which, at the same time, also has the required resistance to both shear and torsional stress.

[0013] The above objective is achieved by a hidden hanging bracket with perfected means for fixing it to the wall-cupboard having the characteristics specified in the main claim and enclosed dependent claims.

[0014] The structural and functional characteristics of the present invention and its advantages with respect to the known art will appear even more evident from the following description referring to the enclosed drawings which show a hanging bracket produced according to the innovative principles of the invention.

[0015] In the drawings:

- Figures 1, 2 and 3 are perspective views illustrating two different hidden hanging brackets of the known type, provided with two different fixing systems or means to the cupboard;
- Figures 4 and 5 are two perspective views from the two opposite sides, front and rear side, respectively, showing a hidden hanging bracket produced according to the invention;
- Figures 6 and 7 are two raised views respectively illustrating the two opposite sides of the hanging bracket according to the invention, as in figures 4 and 5;
- Figure 8 is a raised view according to the arrow F1 of figure 6;
- Figure 9 is a raised view according to the arrow F2 of figure 7;
- Figure 10 is a plan view from above;
- Figure 11 is a plan view from below;
- Figure 12 is a section taken according to the line A-A of figure 6;
- Figure 13 is a (partial) perspective view illustrating the fixing phase of the hanging bracket, according to the invention, to a shoulder of a cupboard already assembled;
- Figure 14 is a perspective view illustrating the fixing phase of the hanging bracket, according to the invention, to a shoulder of a cupboard not yet assembled.
- Figure 15 is a perspective view illustrating the assembly phase of a cupboard to the shoulder of figure 14, already equipped with a hanging bracket;
- Figure 16 is a raised view partially illustrating a cupboard equipped with a hanging bracket according to the invention;
- Figure 17 is a section taken according to the line B-B of figure 16; and
- Figures 18 and 19 are two views similar to figures 16 and 17 showing a second possible embodiment of the invention.

[0016] With reference first of all to figures 1-3 of the drawings, these partially illustrate a wall cupboard M comprising a shoulder S, a top C, a lining F and a base B.

[0017] The cupboard M of figure 1 is equipped with a hanging bracket R fixed to the shoulder S alone and not to the top C. For this purpose, a plurality of pins 20 extend outwardly from a long side LL of the hanging bracket, together with a "double" dowel 21, which are inserted with interference (hammered) into corresponding holes 22 of the shoulder S. A hanging bracket of this type can be also be fixed automatically to the shoulder S but, as it does not comprise fixing means to the top C, it has a limited resistance to torsional stress.

[0018] The wall-cupboard M of figures 2 and 3 is equipped with a hanging bracket R1 fixed to both the shoulder S and to the top C. For this purpose, pins 20A and oblique screws V are envisaged, which pass through holes in flanges 23A, 24A, extending, also obliquely, from the base of the hanging bracket.

[0019] This type of hanging bracket has the advantage of also adequately resisting significant shear and torsional stress, but has the serious drawback of not being able to be fixed automatically, by means of a robot, to the shoulder S of the cupboard M, due to the presence of oblique fixing means to both the shoulder and to the top.

[0020] A hanging bracket 30 according to the invention, shown in figures 4-19, overcomes the above drawbacks of the known art, as it can be fixed automatically to both the shoulder S and to the top C of the cupboard.

[0021] For this purpose, the hanging bracket 30, according to a first embodiment of the invention, has a generally rectangular and elongated, box-like, structure comprising a base 31, with long stiffening edges 32, which extend perpendicularly from the base.

[0022] A plurality of pins 33 extend from a long side of said base 31 and below a "double" dowel 34, destined for being inserted with interference (hammered) into corresponding holes 35, 36 of the shoulder S of a wall-cupboard M. Said pins 33 and said dowel 34 form first fixing means. The dowel 34 is of the expansion type and can be expanded by hammering the pin 34A.

[0023] According to the invention, a connection I characteristically extends from the upper end (short side LC) of said base 31, which can consist, for example, of a flat tongue 37 suitable for being freely inserted into a corresponding seat 38 (milling) of the top C, in contact with the lining F (figure 17). Said seat 38 consists, in this embodiment of the invention, of an enlargement of the seat (milling) 41 of the top C wherein the lining F is housed.

[0024] Said connection I forms second fixing means.

[0025] Thanks to the combination of said pins 33 and "double" dowel 34 with said flat tongue 37, which extends as an extension of the base 31, the hanging bracket 30 can be fixed automatically, by means of a robot, to the shoulder S or to the cupboard M already assembled (figure 13) or before the assembly of the cupboard M (figures 14 and 15). The pins 33, the "double" tassel 34 and the tongue 37, in fact, are all elements which substantially lie on the same plane as the base 31.

[0026] Figures 14 and 15 show the assembly sequence (well-known to skilled persons in the field), wherein the hanging bracket 30 is first fixed to the shoulder S, on which the top C, the base B and the lining F, are subsequently fixed (by means of pins and glue) so as to form the assembled cupboard M.

[0027] The hanging bracket 30 is also equipped with two regulation mechanisms 39, 40, for the regulation of the height and depth respectively, of the position of the cupboard with respect to the wall P on which the same is assembled.

[0028] Said devices (even if illustrated) are not described in detail as they can be of any known type, for example that described in European patent EP 2219495.

[0029] As is evident to skilled persons in the field, the combination of the first and second fixing means according to the invention ensures a fixing of the hanging bracket to the shoulder with adequate resistance to shear and torsional stress.

[0030] Figures 18 and 19 show a possible second embodiment of the invention, wherein a tongue 137 extends from the base 131 not coplanar to the same base 131 but offset on a different plane. In this way, said tongue 137 can be engaged inside the non-modified (not enlarged) milling 141 of the top C where the lining F is housed. For this purpose, as can be clearly seen in figure 19, the lining F has a lowered section SR in correspondence with the upper edge, where said tongue 137, offset with respect to the base 131, is housed and rests.

[0031] This solution can be appropriate for wall-cupboards having a lining F of a certain thickness.

[0032] The objective mentioned in the preamble of the description has therefore been achieved.

[0033] The protection scope of the invention is defined by the enclosed claims.

Claims

1. A hidden hanging-bracket (30,130) equipped with first (33,34,133,134) and second (I) fixing means for fixing it to a shoulder (S) of a wall-cupboard (M), also having a top (C) and a lining (F), of the type comprising: a base (31,131) of a substantially elongated rectangular form, on which two regulation mechanisms (39,40) are installed, for regulating the position of said cupboard (M), in height (vertical) and in depth, respectively, with respect to a wall (P) on which the same is assembled, on a long side (LL) and on a short side (LC) of said base (31,131), there being said first (33,34,133,134) and second fixing means (I) of the hanging-bracket (30) to the shoulder (S) and to the top (C), respectively, of the cupboard (M), **characterized in that** said second fixing means (I) consist of engagement means (37,137) of said base (31,131) freely inserted in a corresponding seat (38,141) of the top (C).

2. The hanging-bracket according to claim 1, **characterized in that** said engagement means (I) consist of a tongue (37,137) which extends from the hanging-bracket (30,130) as an extension of the base (31,131).

3. The hanging-bracket according to claim 1, **characterized in that** said seat (38) is produced as an enlargement of a seat (41) (milling) of the top (C) where the lining (F) is housed.

4. The hanging-bracket according to claim 2, **characterized in that** said tongue (37) is in contact with said lining (F) and extends coplanar with the base (31).

5. The hanging-bracket according to claim 2, **characterized in that** said tongue (137) extends from the hanging-bracket (130) as an extension of the base (131) not coplanar with the same base (131), but offset on a different plane, said tongue (137) being housed inside the same milling (141) as the top (C) in which the lining (F) is housed, said lining (F) has a lowered section (SR), in correspondence with its upper edge, where said tongue (137), offset with respect to the base (131), is housed and rests.

Fig. 1

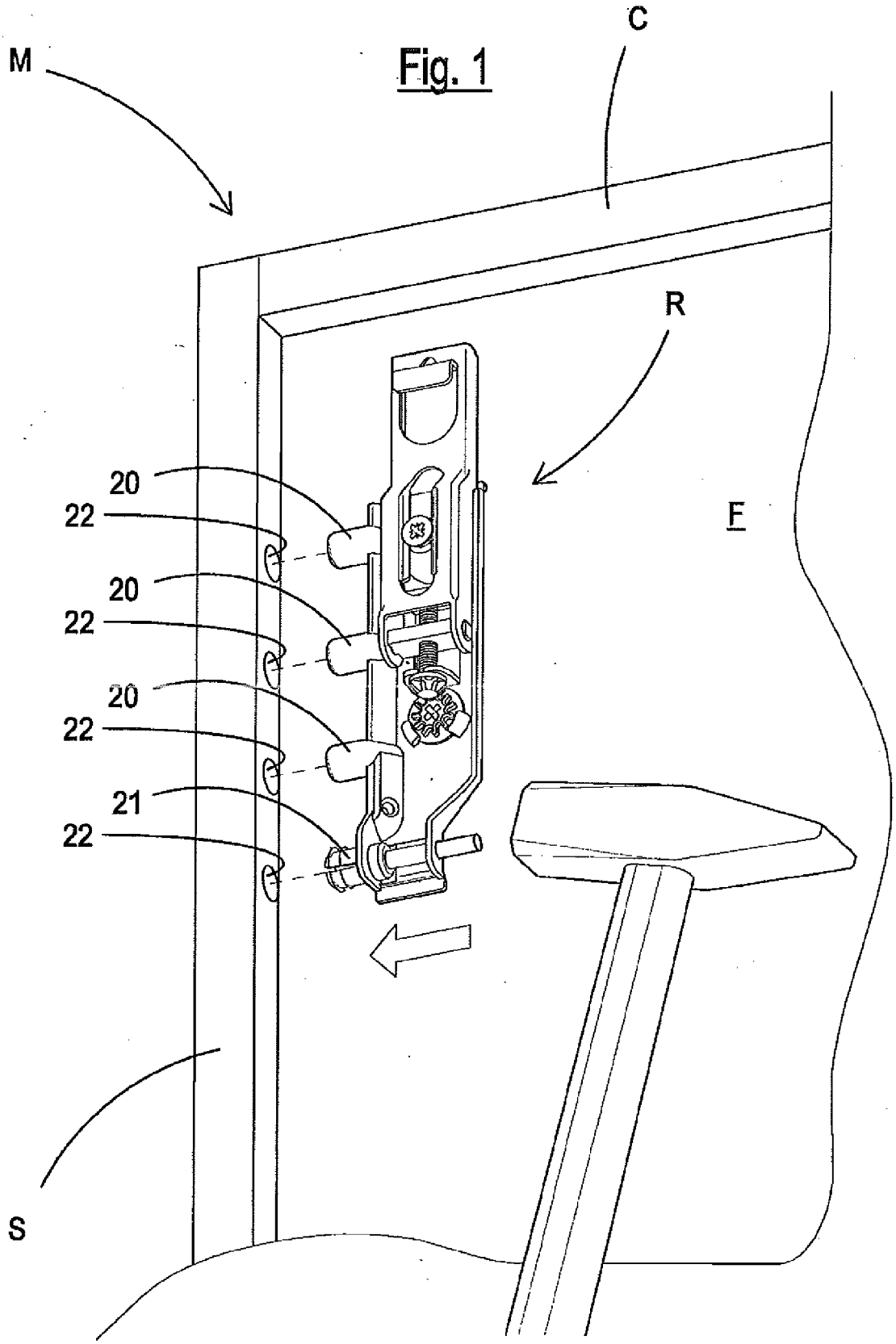


Fig. 2

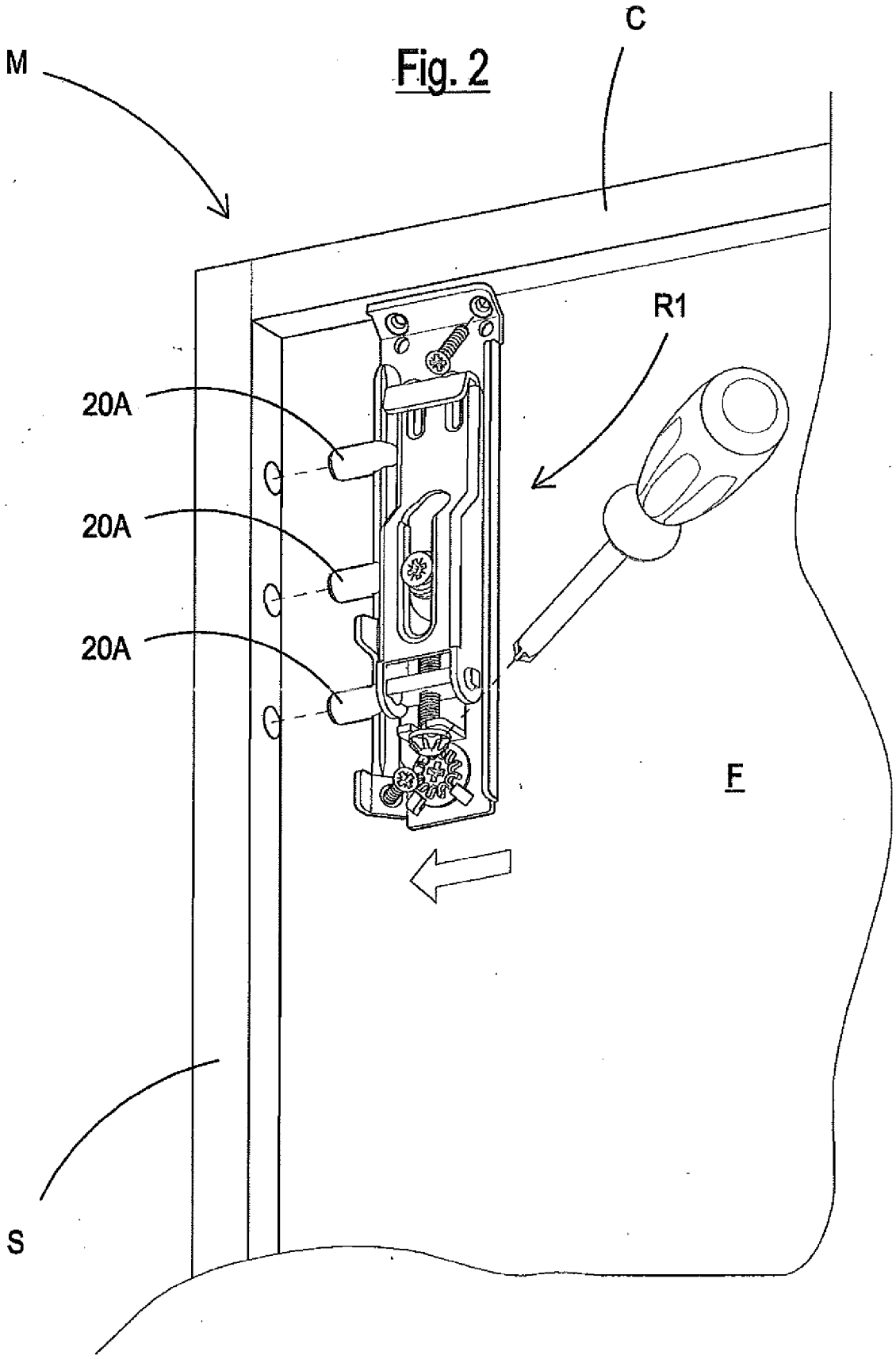


Fig. 3

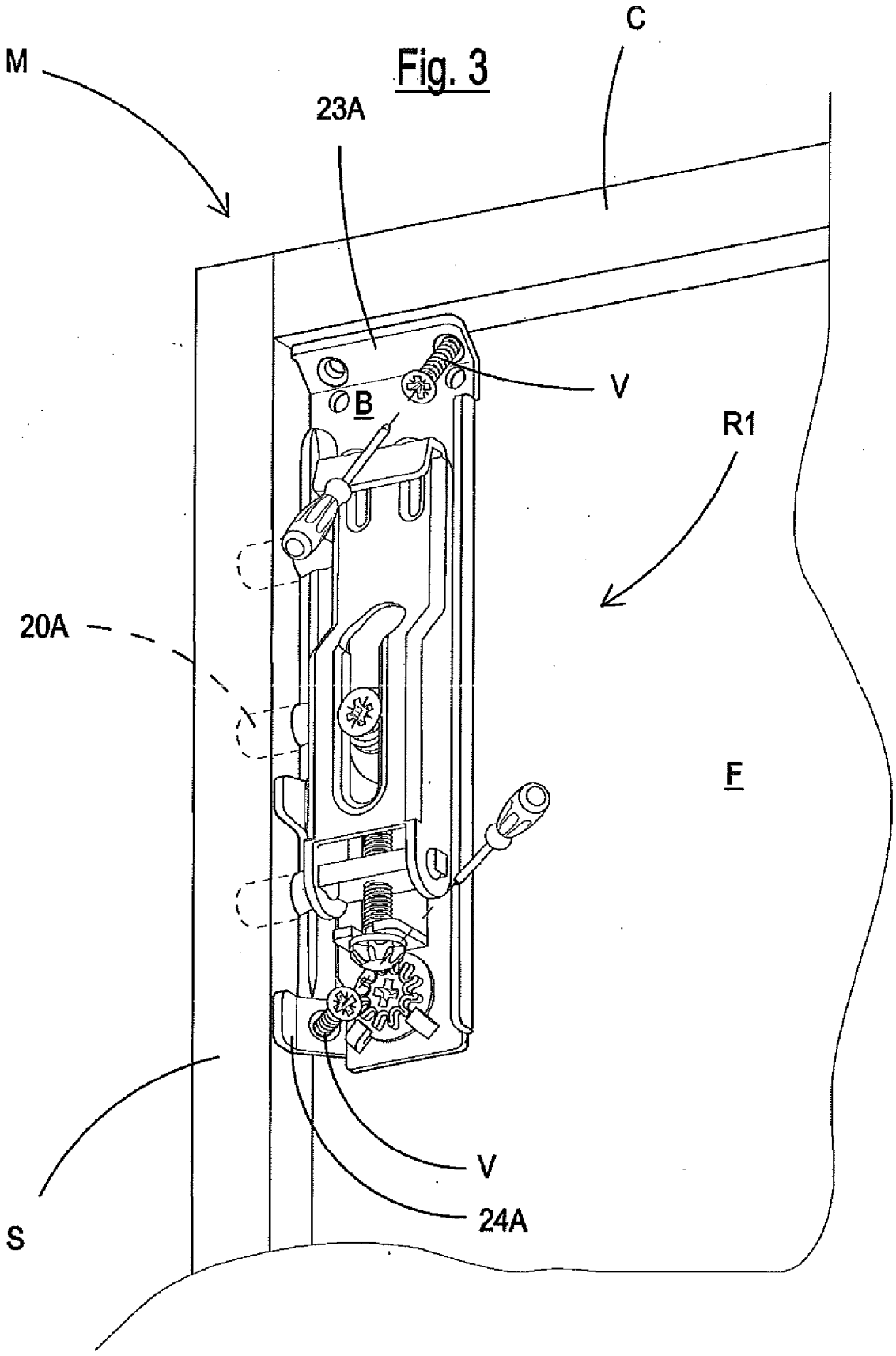
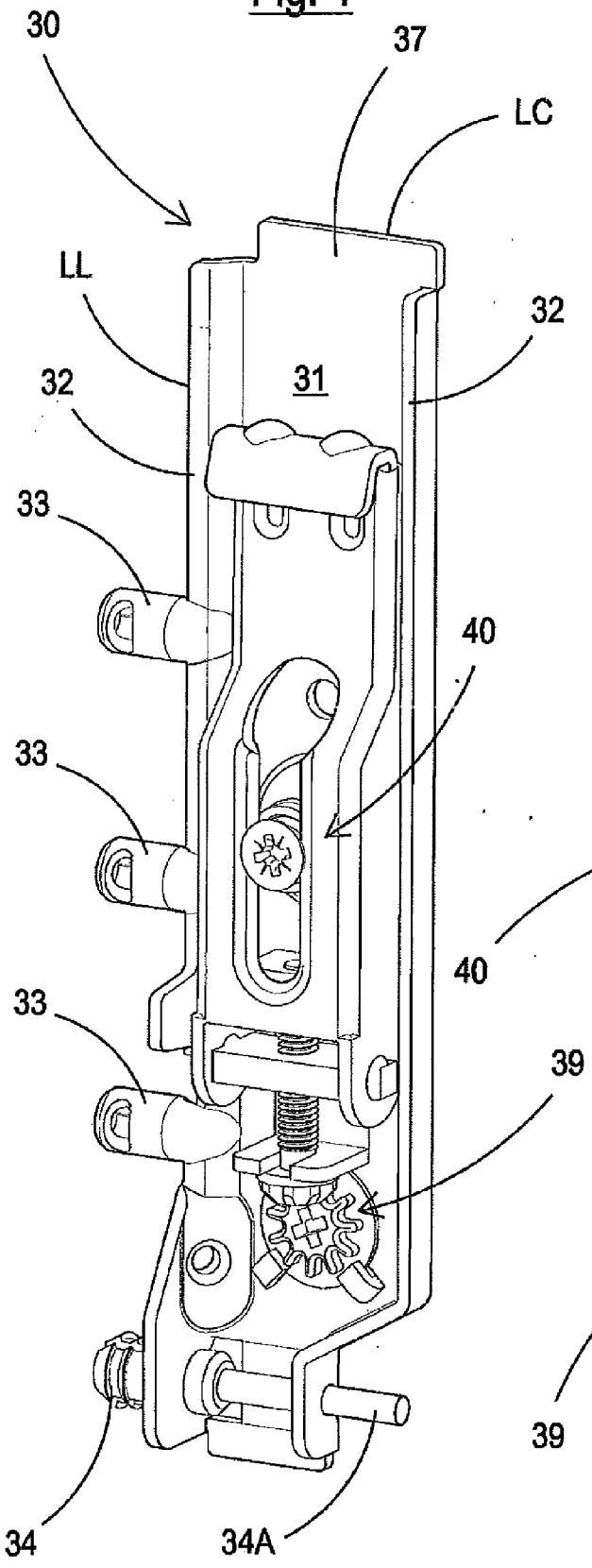


Fig. 4


30
37
LC
LL
32
31
32
33
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33
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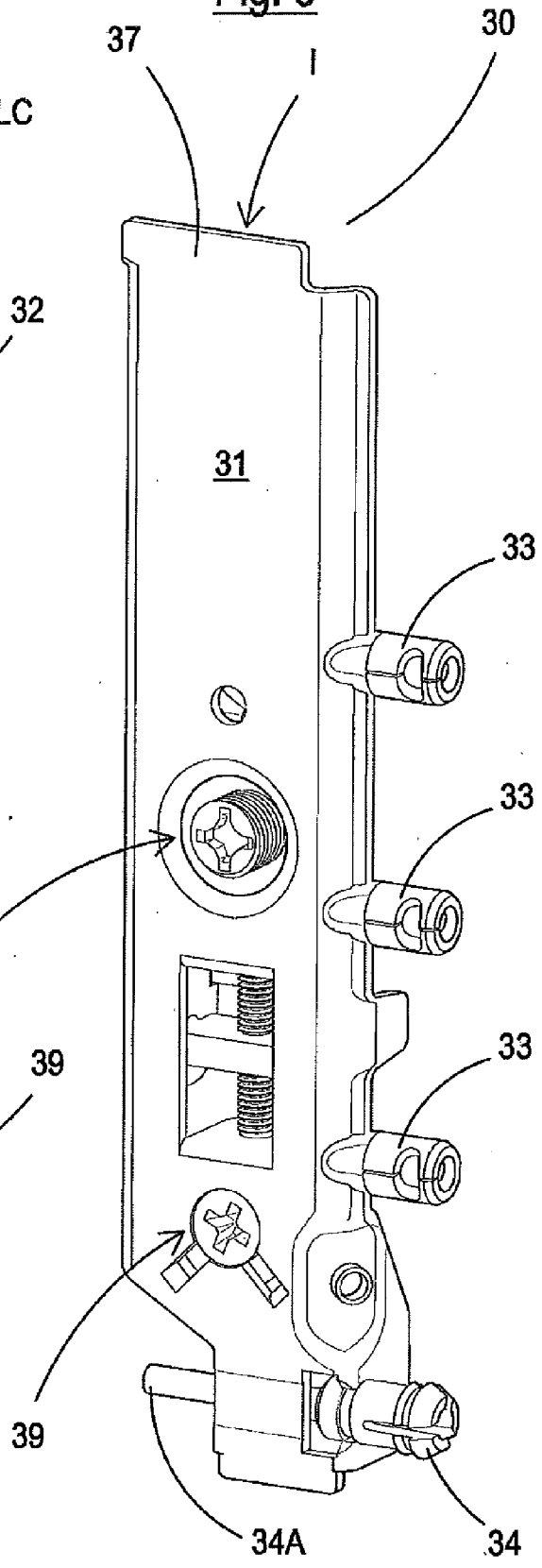
39
34
34A

Fig. 5


37
I
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31
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33
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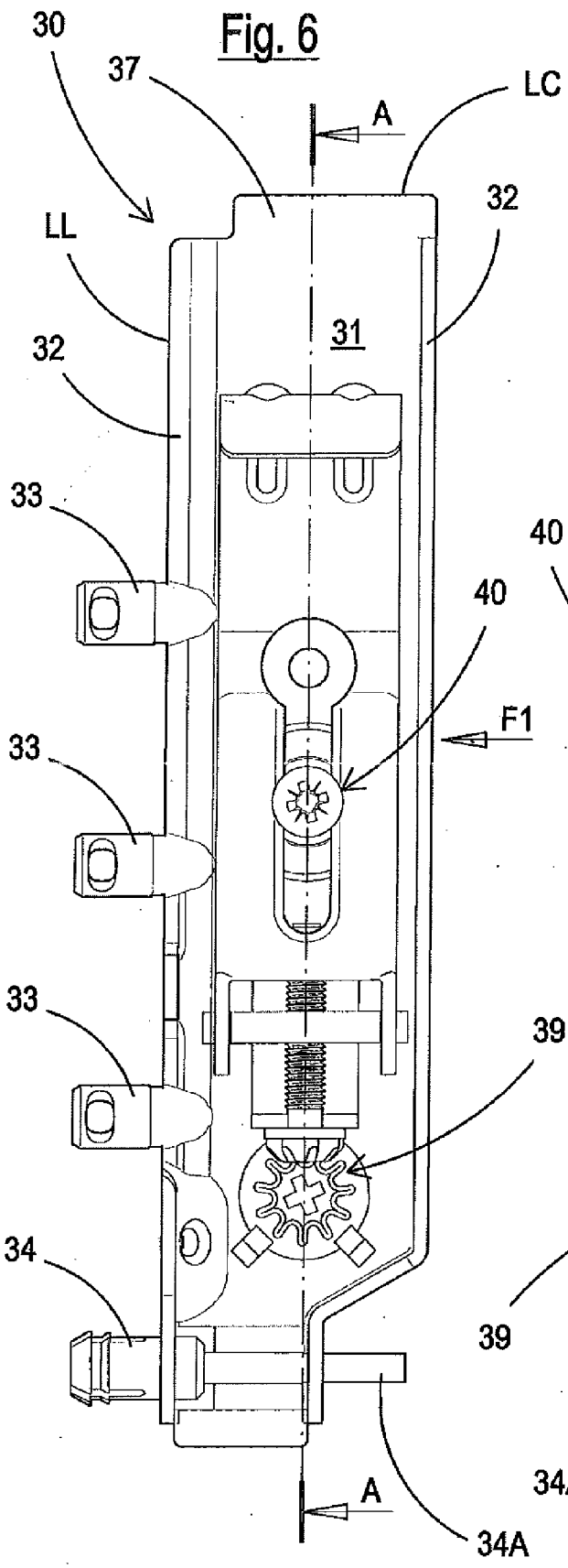
39
34A
34

Fig. 6


30
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F1
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39
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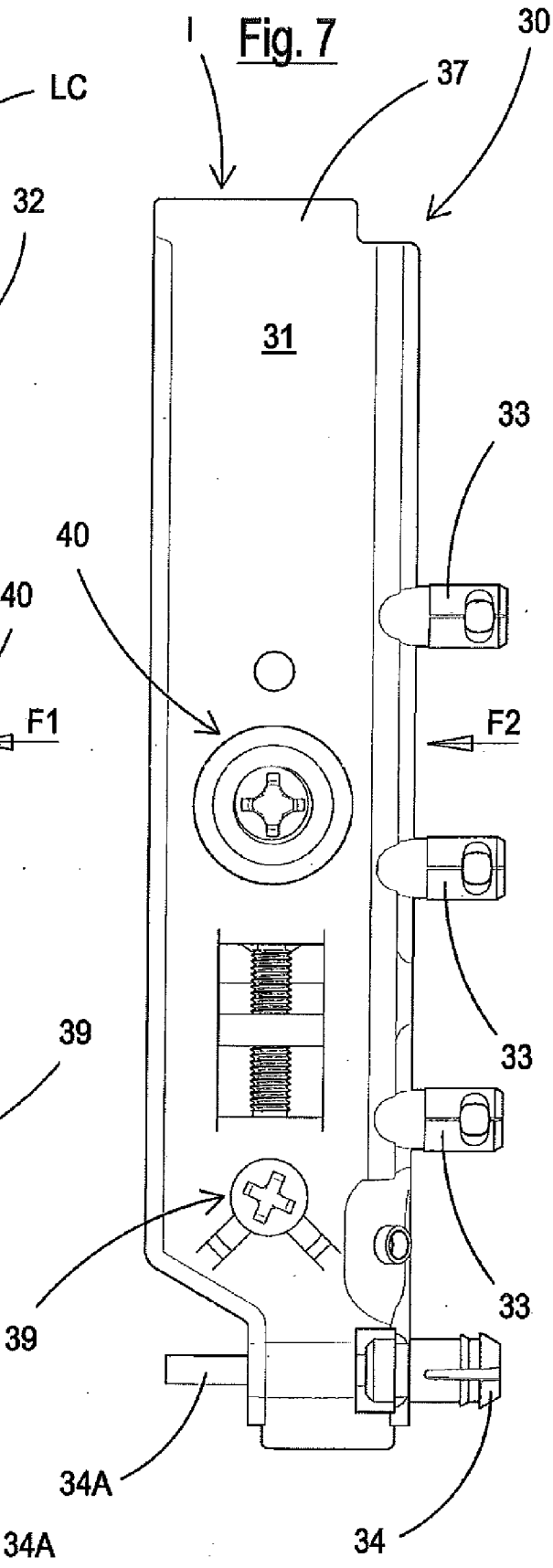
A
34A

Fig. 7


I
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40
F2
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33
39
34A
34

Fig. 8

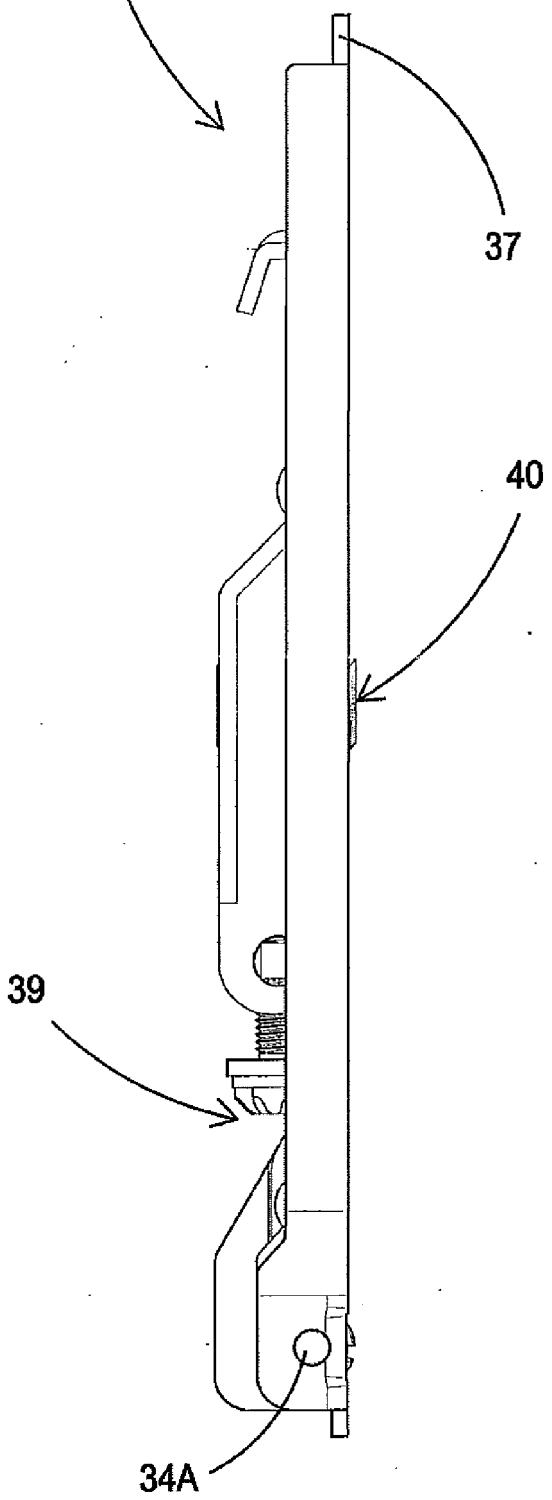


Fig. 9

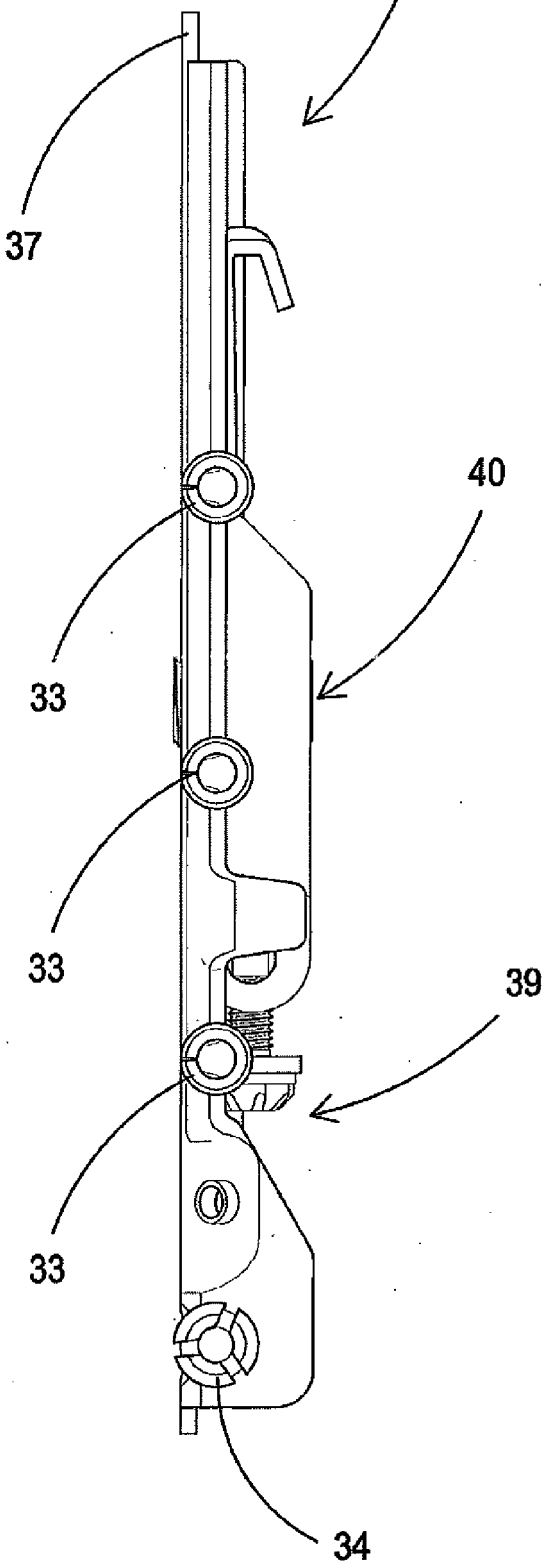
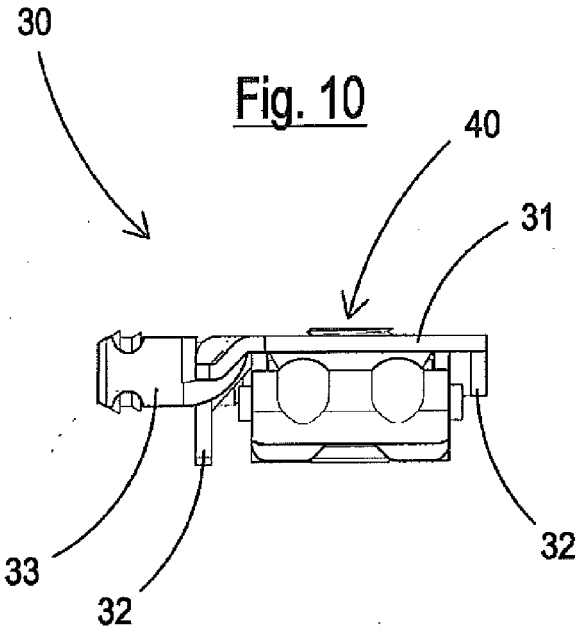


Fig. 10



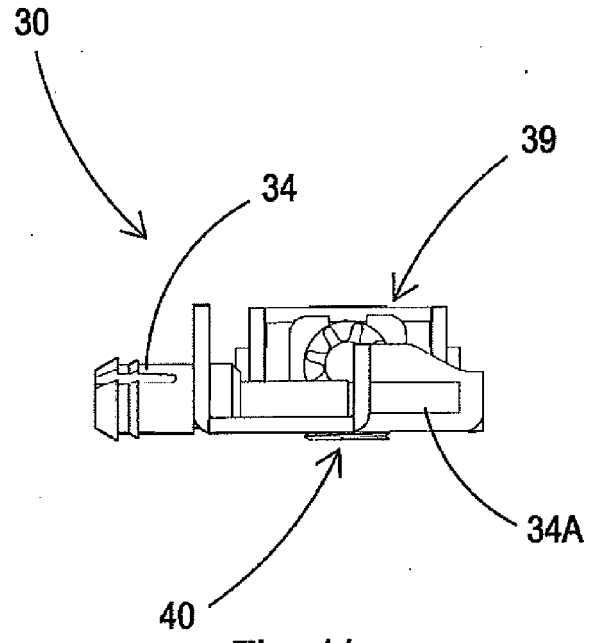


Fig. 11

Fig. 12

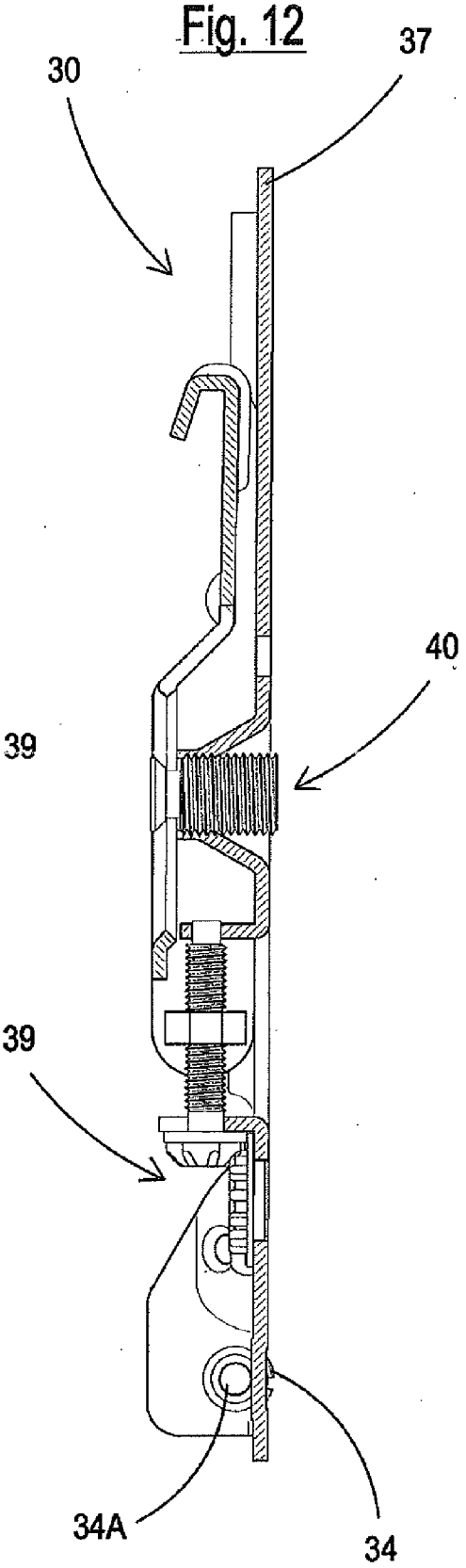


Fig. 13

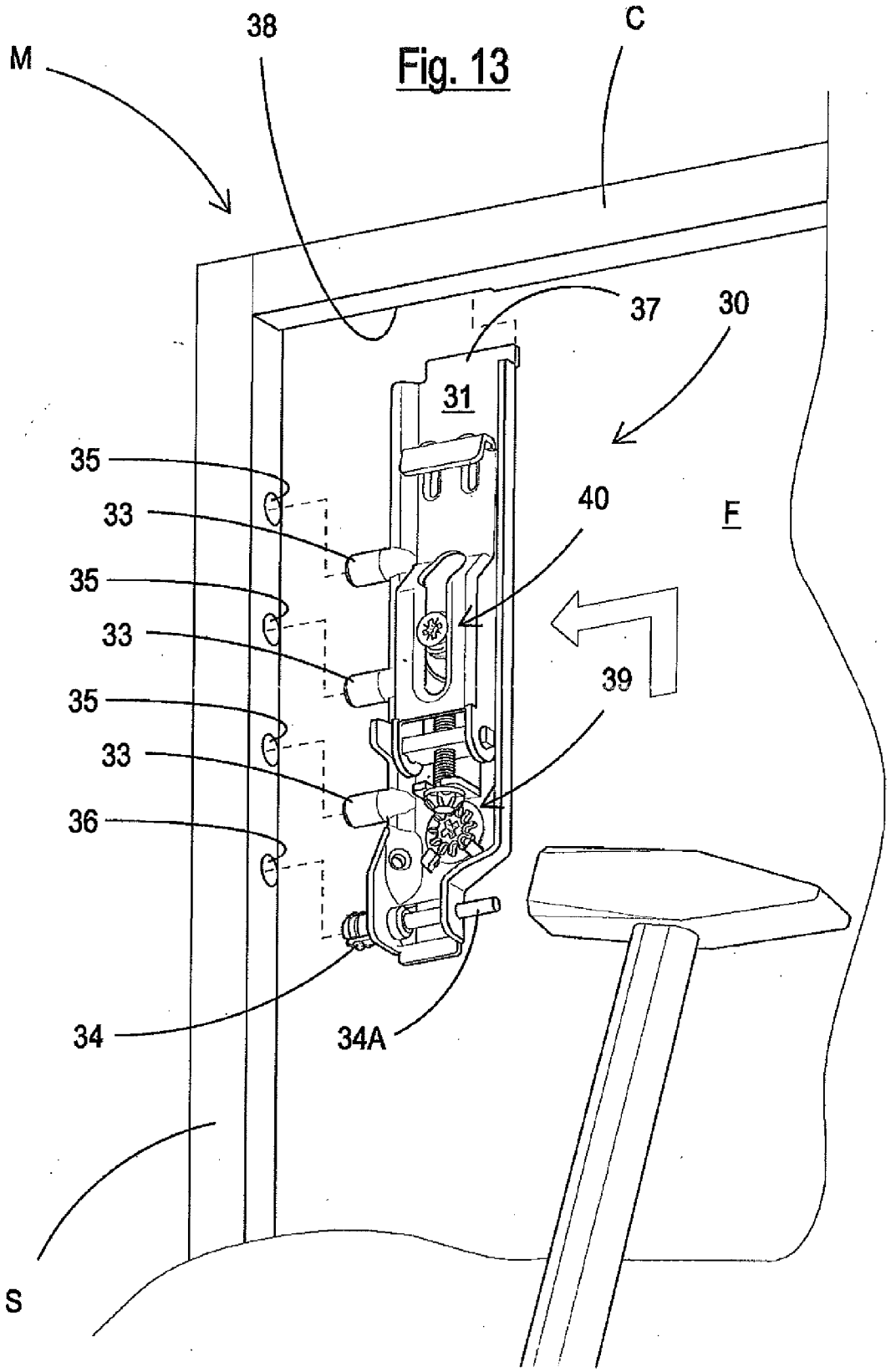


Fig. 14

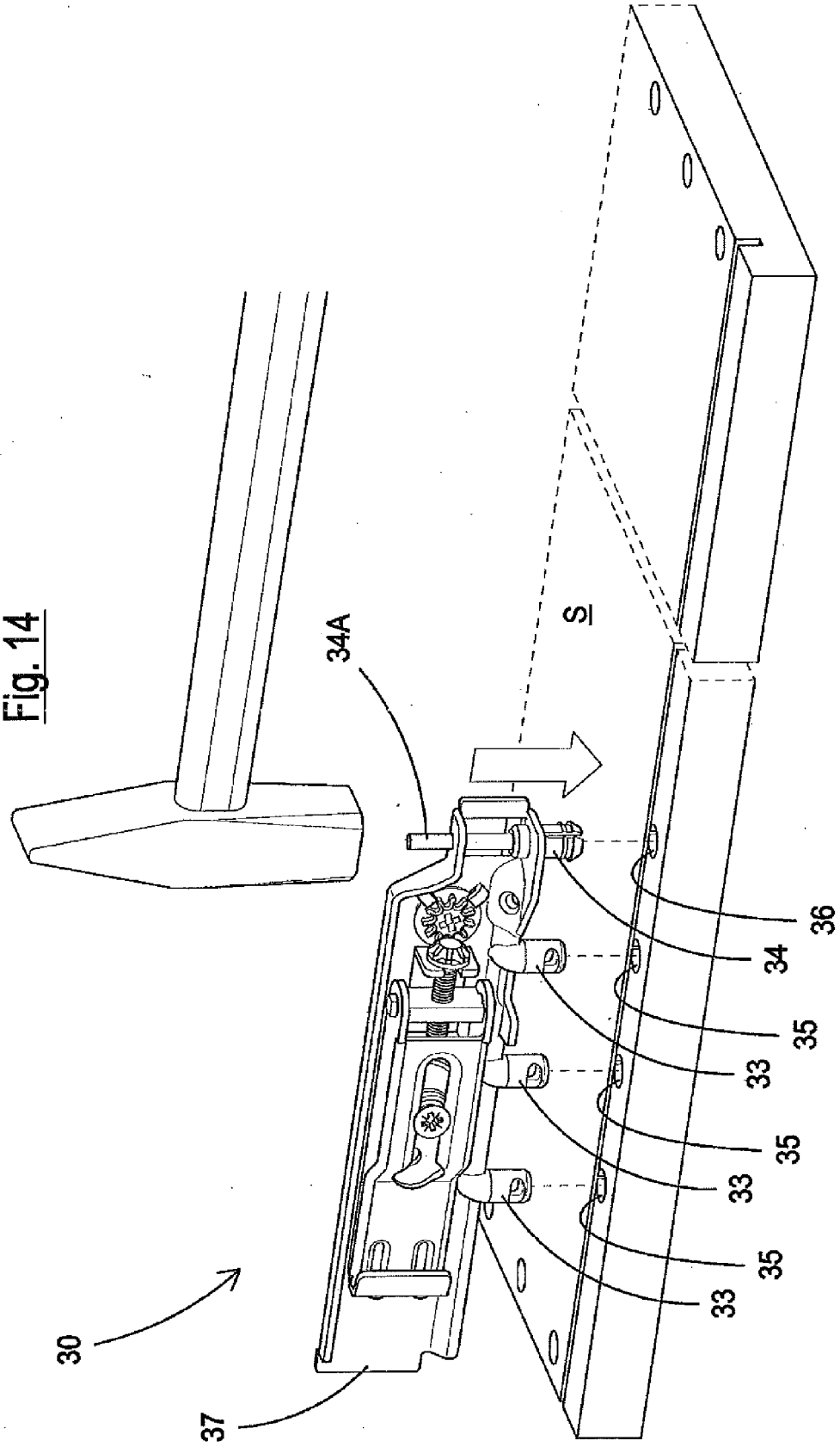


Fig. 15

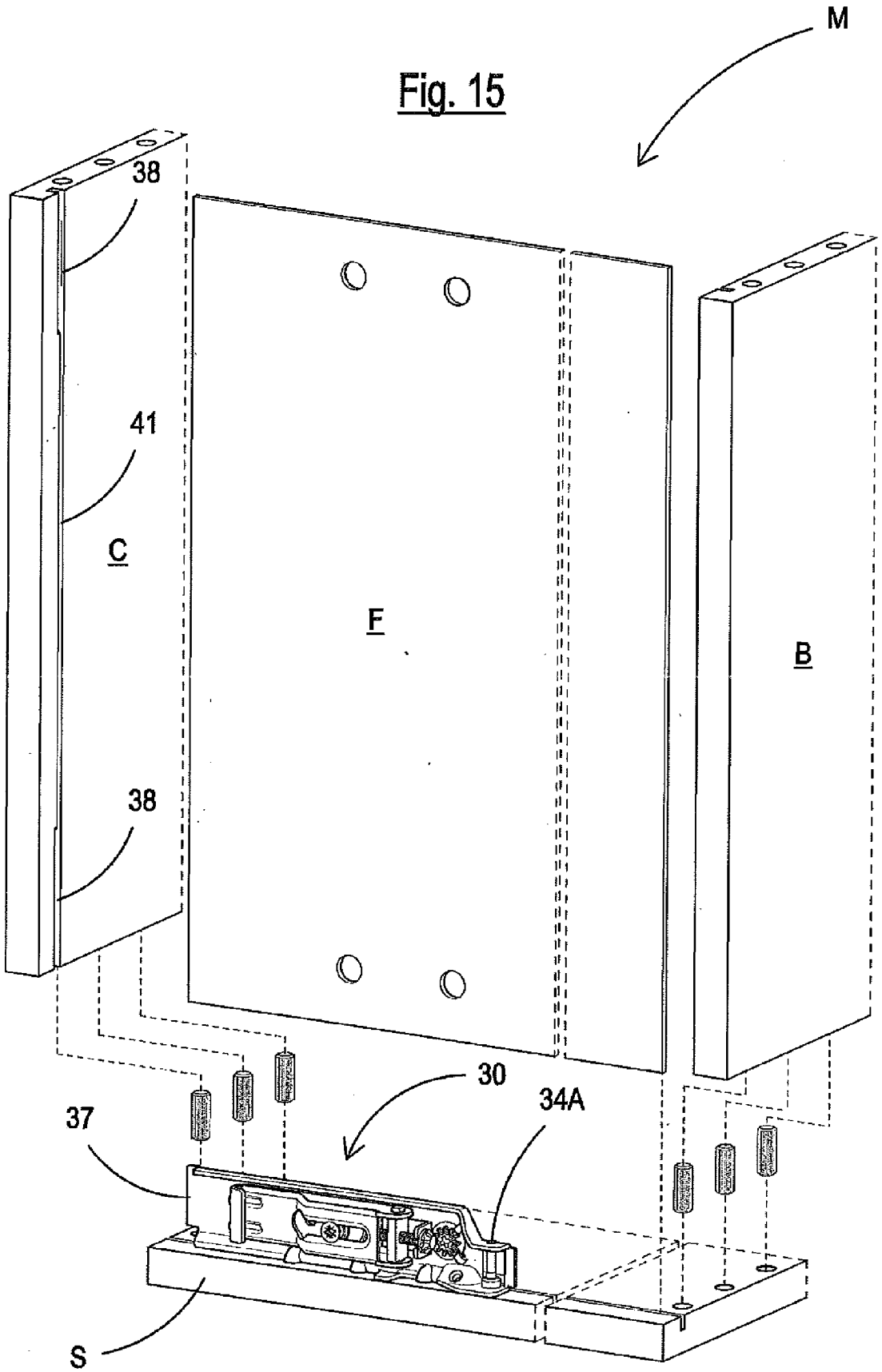
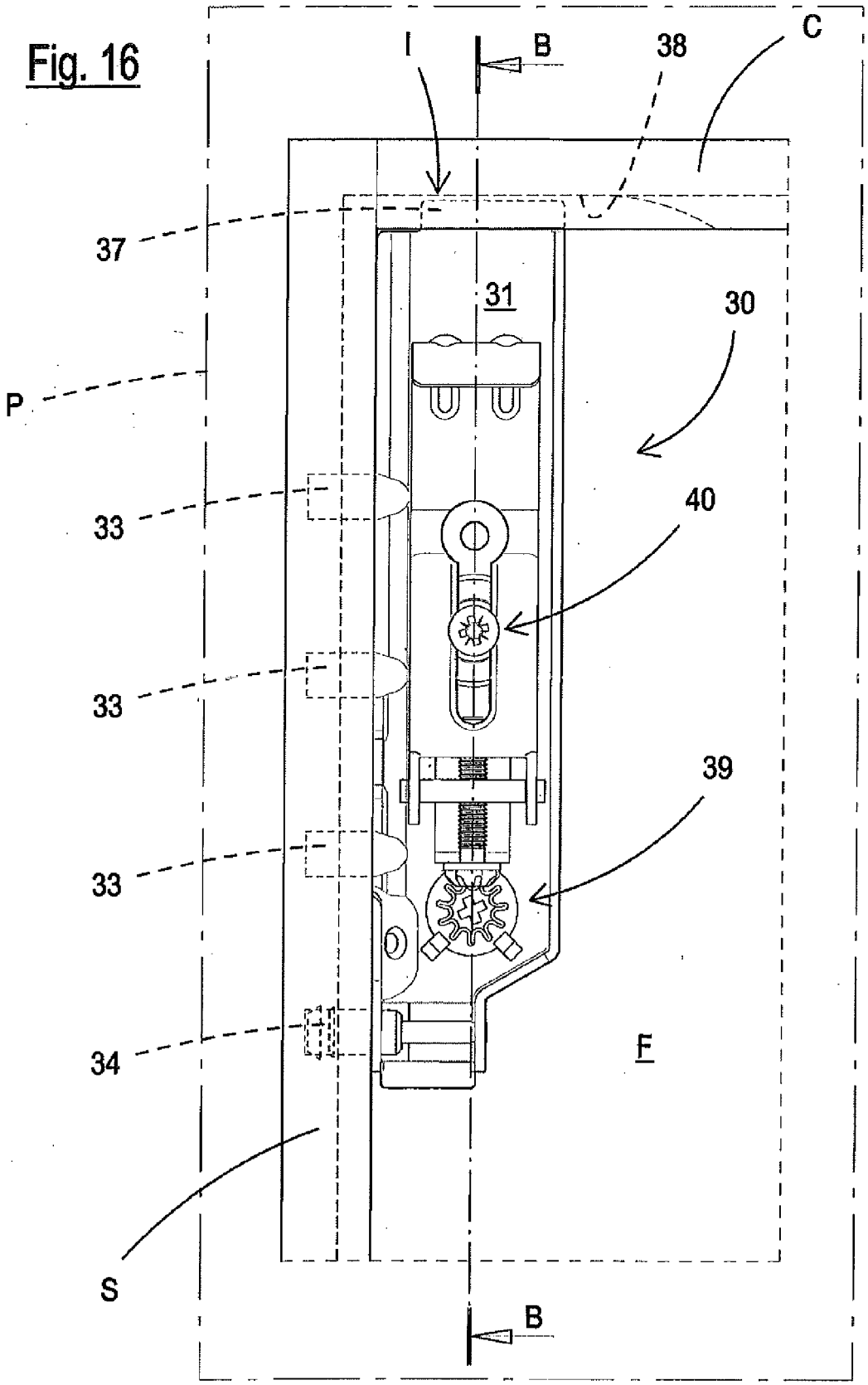


Fig. 16



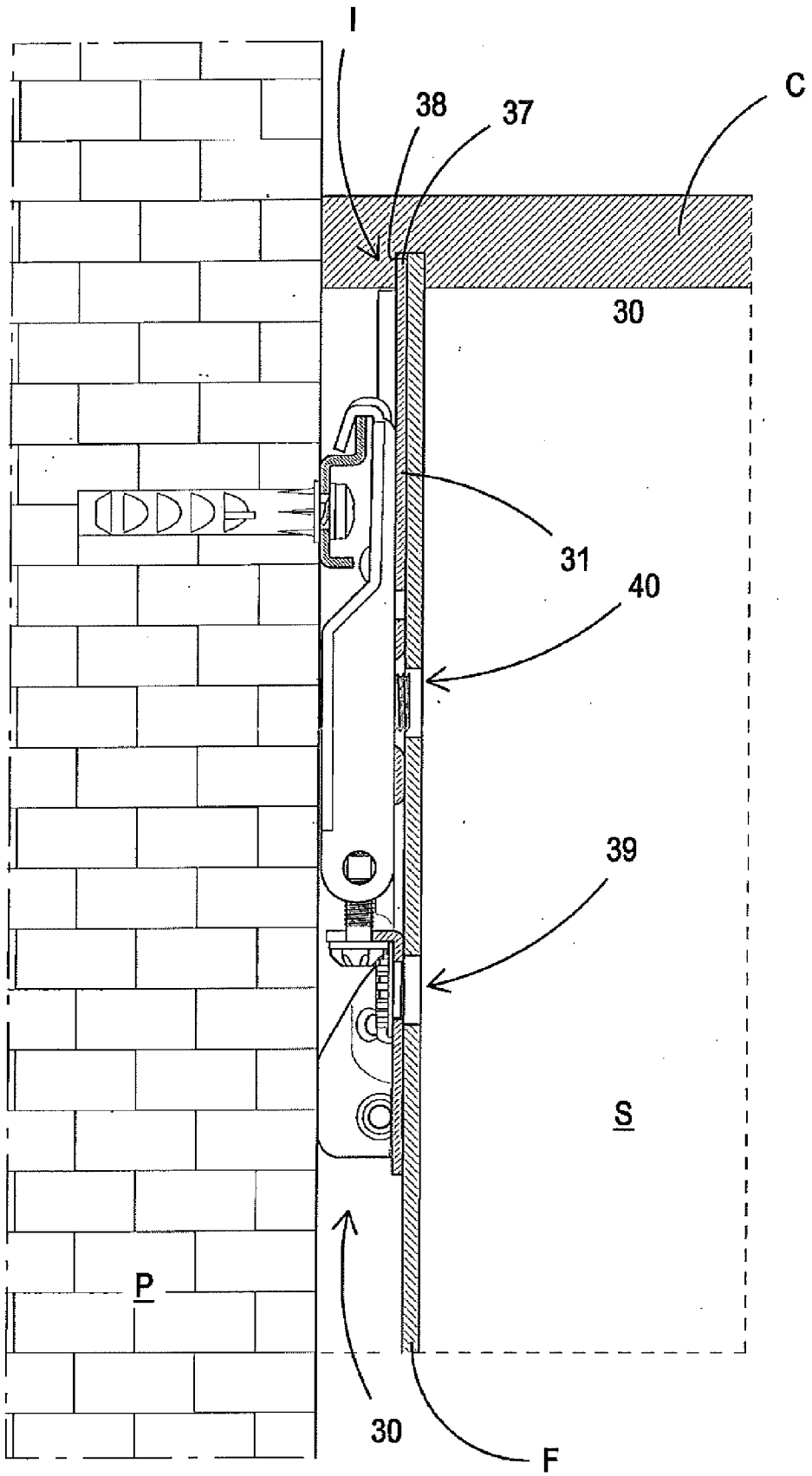
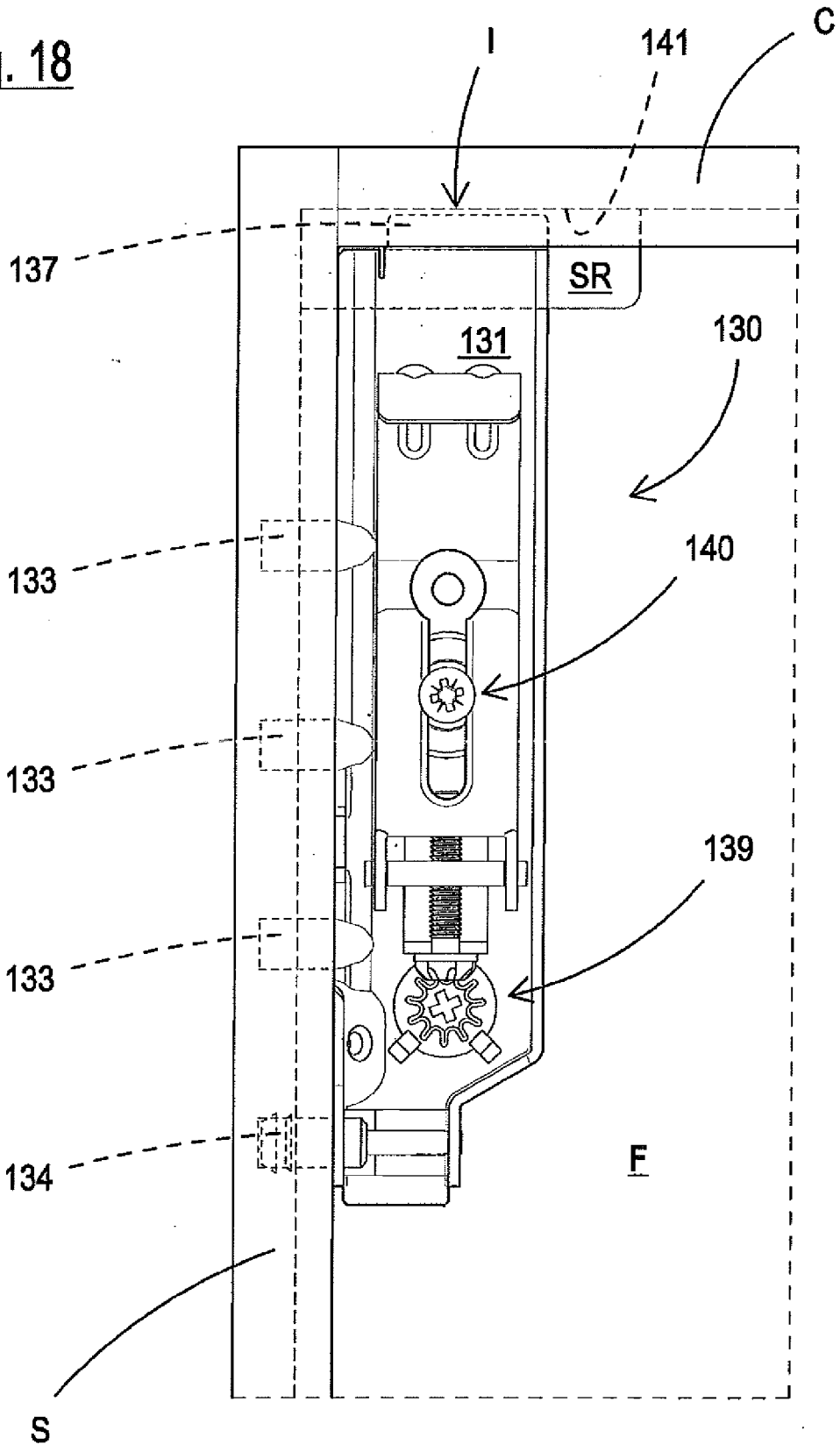


Fig. 17

Fig. 18



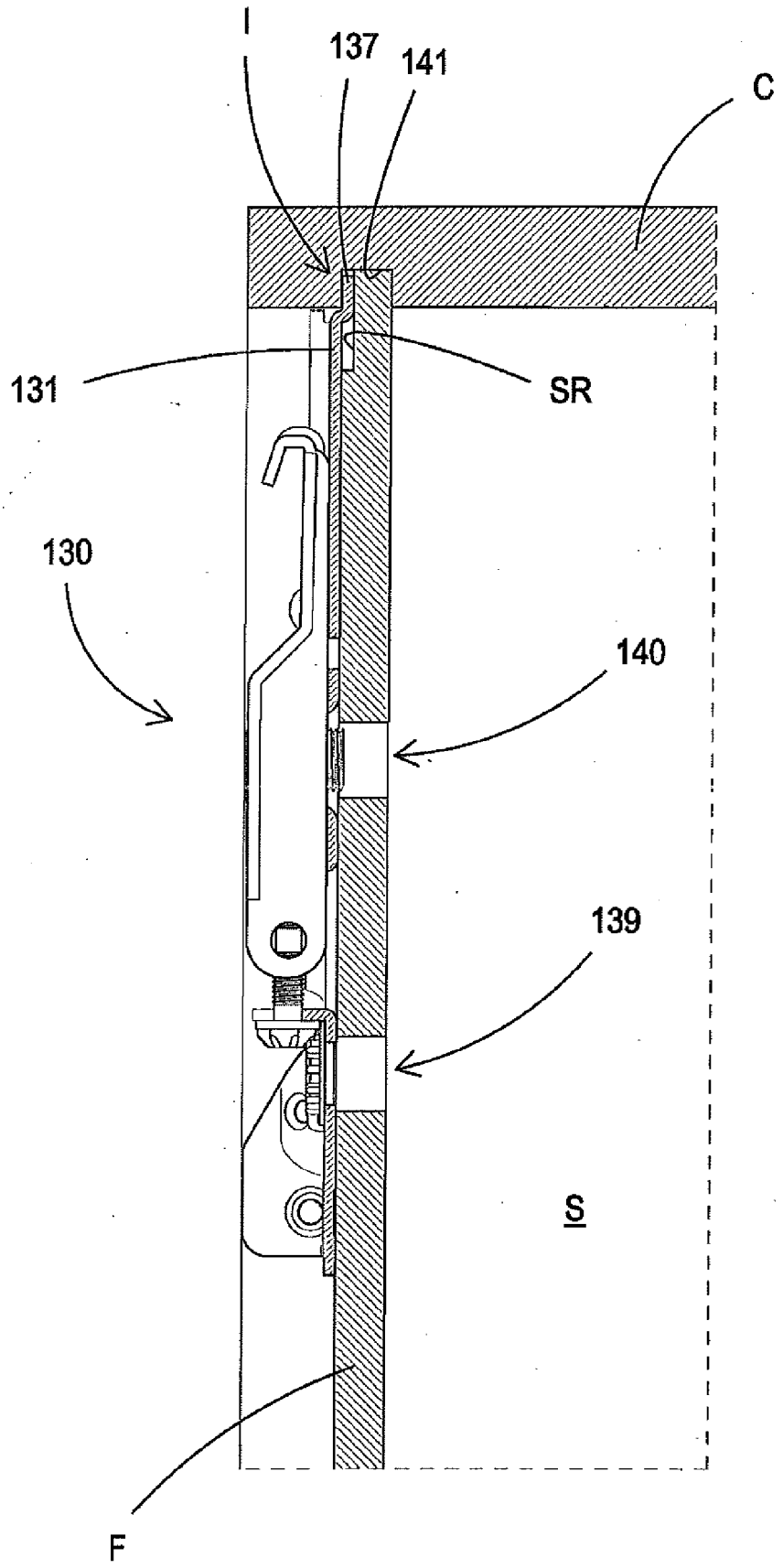


Fig. 19

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EUROPEAN SEARCH REPORT

Application Number
EP 15 16 6683

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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	28 August 2015	Vehrer, Zsolt

CATEGORY OF CITED DOCUMENTS

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