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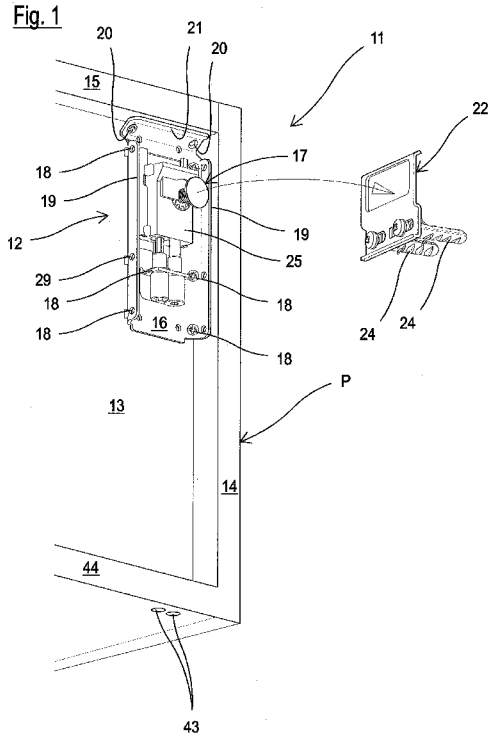
Fig. 1



(57) Abstract: An adjustable anchoring group for the wall assembly (23) of wall-cupboards (P) comprising a hanging-bracket device (12), provided with an anchoring base (16) to a wall-cupboard (P) and a hooking element (17), and an anchoring support (22) to a wall (23), regulation means and actuation means of the reciprocal position being provided between the hanging-bracket device (12), the hooking element (17) and the anchoring support (22) in order to regulate the position of the wall-cupboard (P) with respect to the wall (23) according to two directions (F, Fl) perpendicular to each other, vertically (in height) and horizontally (in depth), respectively, wherein both the regulation means and the actuation means are accessible from below by means of holes (43) formed in a base or ledge (44) of the wall-cupboard (P).

WO 2017/016919 A1

ANCHORING GROUP FOR WALL CUPBOARDS WITH REGULATION FROM BELOW

The present invention relates to an anchoring group for the wall assembly of wall cupboards with regulation from below.

The definition "anchoring group" indicates the combination of a plate (support), that can be fixed to the wall by means of screws and/or dowels, and an anchoring device (so-called hanging bracket) comprising a hook that can be fixed to a piece of furniture.

Anchoring groups of this kind are normally adjustable, in the sense that the hanging bracket can be moved with respect to the supporting plate to allow a regulation in height (vertical) and in depth (horizontal). In this way, the piece of furniture can be correctly positioned on the wall, also with respect to other adjacent furniture.

For a better understanding, it should also be pointed out that wall cupboards are usually provided with a rear wall, called "lining", which typically consists of a plywood panel or made of thin wood.

The lining can have a double function, both aesthetic for simply closing the back of the cupboard, and also structural for hanging the same cupboard by fixing the hanging bracket to said lining.

In any case, the hanging bracket of the anchoring group must be mainly fixed to structural parts of the cupboard, such as for example, the side shoulders, which are always produced with a load-bearing function, having an adequate thickness and resistance for the purpose.

Various types of anchoring groups are generally known, all conceived with double adjustment, in height and in depth.

These anchoring groups normally have relatively complex formations, or are difficult to actuate, making the adjustment in height and depth rather difficult to effect.

Furthermore, it is common practice in these groups to provide holes in the lining, through which a tool can pass, which acts on screws whereby the above horizontal and vertical adjustments are effected.

The holing in the lining, however, may not be desirable, as the wall cupboard, for example, has a certain value and must not be spoilt by leaving visible holes in the lining, even if they are then covered by special caps.

This can be the case of furniture that does not have closing doors, or with partially transparent doors (for example made of glass, as in the case of showcases

or the like), in which the holes and/or relative caps formed and positioned in the lining, are visible.

Furthermore, anchoring groups are known which, in order to avoid the problem of visible holes, propose a regulation from above, passing through the upper part called "top" of the same.

An example of this application is known from international patent application WO 2012/140467 of the holder.

With this type of adjustment, if on the one than it solves the problem of visibility, on the other, it has various drawbacks for its actuation.

Once installed, in fact, in order to effect the adjustment, it is almost always necessary to use a ladder for operating from above the piece of furniture in order to actuate the regulation of the anchoring group.

Furthermore, this solution has considerable problems when the space between the top of the cupboard and the ceiling is limited and does not allow the regulation intervention on the part of the operator.

The objective of the present invention is to overcome the drawbacks described above.

Furthermore, the present invention is proposed as an alternative to the known anchoring groups and

already present on the market.

In view of the above objectives, according to the present invention, a hidden-hanging-bracket and adjustable anchoring group has been conceived for the wall assembly of a wall cupboard having the characteristics specified in the enclosed claims.

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 embodiment examples of an anchoring group produced according to the present invention.

In the drawings:

- figure 1 shows a perspective view of an adjustable anchoring group for the wall assembly of a wall cupboard, with a partially exploded view of an anchoring plate or bar, in a first non-limiting embodiment according to the present invention;
- figures 2 and 3 show perspective views of the anchoring group in an assembled and operational position in an adjustment phase of the height (vertical) and in an adjustment phase of the depth (horizontal), respectively.
- figures 4 and 5 show raised sectional side views of

the anchoring group before the adjustment phase in depth (horizontal) and after the adjustment phase that shows the final position acquired by the cupboard with respect to the wall;

- figure 6 is an exploded perspective view illustrating the hanging bracket of the anchoring group according to the present invention shown in figure 1;
- figure 7 is a perspective view of the mechanism of the hanging bracket of figure 6, assembled, partially split and sectioned;
- figures 8 and 9 show two differently oriented perspective views of details of actuation means comprising a screw produced in the form of a worm screw and a toothed wheel that cooperates with said screw;
- figure 10 shows a perspective view of the anchoring group of the type illustrated in figure 1 positioned on the rear side of a wall cupboard to which transmission elements have been added to define a second non-limiting embodiment of the present invention;
- figure 11 shows a perspective view of the adjustable anchoring group for the wall assembly of a wall cupboard of figure 10, with a partially exploded view of an anchoring plate or bar;
- figures 12 and 13 show perspective views of the anchoring group of figure 11 in an assembled and

operational position in an adjustment phase of the height (vertical) and in an adjustment phase of the depth (horizontal), respectively;

- figure 14 shows a perspective view of the anchoring group of the type illustrated in figure 1, with a partially exploded view of an anchoring plate or bar, positioned on the rear side of a wall cupboard to which a guiding profile for a screwdriver has been added, shown in the application phase to the wall cupboard, defining a third non-limiting embodiment of the present invention;

- figures 15 and 16 show perspective views of the anchoring group of figure 14 in an assembled and operational position in an adjustment phase of the height (vertical) and in an adjustment phase of the depth (horizontal), respectively;

- figures 17 and 18 show raised sectional side views of the anchoring group of figure 16 before the adjustment phase in depth (horizontal) and after the adjustment phase that shows the final position acquired by the cupboard with respect to the wall;

- figures 19, 20, 21 and 22 show a front view, a raised view, a raised section and a perspective view illustrating a further second embodiment of a wall cupboard that can be used in an anchoring group

according to the present invention;

- figure 23 is an exploded perspective view of the hanging bracket of figures 19 to 22 with the relative anchoring plate or bar to a wall;
- figures 24, 25, 26 and 27 are a front view, two raised sections in different positions and a partly split perspective view that illustrate yet another embodiment of a hanging bracket that can be used in an anchoring group according to the present invention;
- figure 28 is an exploded perspective view of the hanging bracket of figures 24 to 27 with the relative anchoring plate or bar to a wall.

With particular reference to figure 1, this shows as a whole with the reference number 11, a first embodiment of an anchoring group according to the invention comprising a hidden and adjustable hanging-bracket device for the wall assembly of a wall cupboard.

Said anchoring group 11 comprises a hanging-bracket device 12, of the adjustable type and suitable for being assembled at the rear, in a hidden position, in contact with the lining 13, constrained laterally to a shoulder 14 and above to a top 15 of a wall cupboard P. As can be seen, said hanging bracket can be produced in various alternative embodiments.

In a first embodiment, the above hanging-bracket device 12 comprises an anchoring base or plate element 16 and a hooking element 17. The plate element 16 is provided with a plurality of fixing holes 18, formed laterally on both sides on raised edges 19 of the same plate element 16, for constraining it to the shoulder 14. Further fixing holes 20 on an upper raised edge 21 are also provided for constraining it to the top 15.

The hooking element 17 is coupled at the front with the same plate element 16 to constrain the same hanging bracket 12 with a plate or bar of similar supporting element 22 fixed to a wall 23 by means of screws or dowels 24 or similar stable positioning elements.

Each hanging bracket 12 comprises a slide 25, sliding linearly with respect to the plate element or flange 16 in a first direction F, whereas the hooking element 17 is at least partially associated with the slide 25. The hooking element 17 is in fact movable with respect to the slide 25 in at least a second direction F1, substantially perpendicular with respect to the first direction.

In this way, an adjustment of the wall cupboard P is obtained in two directions F, F1 perpendicular to each other, specifically vertically (in height) and horizontally (in depth).

Each plate element or flange 16 also comprises at least two sliding rails 26 which cooperate with the relative slide 25. The slide 25 provides sliding guides 27 destined for cooperating with the respective rails 26 for guiding the sliding of the slide 25 in the first direction, preferably in a vertical direction in an assembled condition, this direction being substantially perpendicular to the axis of the side fixing holes 18.

Furthermore, the anchoring group comprises regulation means for controlling the sliding of the slide 25 with respect to the plate element or flange 16.

Said means preferably comprise: a threaded seat 28 formed in the slide 25, an abutment flap 29, having a pair of holes and integral with the plate element 25 and which extends perpendicularly to the rails 26, and a regulation screw 30, accessible from below, cooperating with the abutment flap 29 and with the threaded seat 28. This cooperation is such as to allow the sliding of the slide 25 in the above-mentioned first direction F. The regulation screw 30 is kept firmly in position with respect to the abutment flap 29, but rotates, thanks to the provision of a blocking ring 31 such as a Seeger ring, which is housed in an annular seat 31A formed below its head 30A which is

therefore firmly constrained to the flap 29, but free to rotate.

Furthermore, each hanging-bracket device 12 comprises actuation means for controlling the movement of the hooking element 17 in the second direction F1. In particular, in the example shown, said actuation means comprise a drive screw 32, accessible from below, at least partly housed in the slide 25 and positioned parallelly to the regulation screw 30. Said drive screw 32 is also kept firmly in position with respect to an abutment flap 29, but rotates, thanks to the provision of a blocking ring 33, such as a Seeger ring, which is housed in an annular seat 33A formed below its head 32A which is therefore firmly constrained to the flap 29, but free to rotate.

More specifically, said actuation means, in addition to providing in this example the drive screw 32 having a polygonal stem 34, for example hexagonal, comprise a cylindrical element 35 formed externally in a portion in the form of a worm-screw 36, and housed in the slide 25, kept rotatingly in position by a pin 37.

The cylindrical element 35 is internally and axially provided with a cavity 38, having a polygonal form complementary to that of the stem 34 of the drive screw 32. Said cavity 38 is also provided in both the

head of the regulation screw 30 and in the head of the drive screw 32 for receiving, as described hereunder, the tip of a screwdriver or rotation key.

The pin 37 is inserted, in an assembled condition, in the slide 25 and then also in the throat 39 of the cylindrical element 35.

The portion in the form of a worm screw 36 of the cylindrical element 35 cooperates with a toothed wheel 40, also housed in the slide 25 and rotatingly withheld with respect to the same.

The hooking element 17 is provided with a partially threaded body 41 cooperating with a threaded seat 42 inside the toothed wheel 40.

The body 41 has two smooth opposite planes (or flat portions) (41A) that slide inside complementary guiding seats of a hole of the slide 25.

In this way, the body 41 of the hooking element 17 can be moved horizontally, in an extraction/insertion direction according to the arrow F1, from the toothed wheel 40 following the rotation of the latter, when actuated by the portion in the form of a worm screw 36 of the cylindrical element 35.

As can be seen in the figures, the axes of the portion in the form of a worm screw 36 of the cylindrical element 35, of the drive screw 32 and screw

30 are parallel to each other, so that access by means of keys or screwdrivers for effecting regulations of the wall cupboard P can be obtained by acting from the same part, i.e. directly from below.

The possibility of effecting regulations from below, for example by means of pass-through holes 43 formed in a base or ledge 44 of the wall cupboard P, has the result of improving access to the regulations and allowing simplified assembly and adjustments.

This eliminates the need for forming and having front pass-through holes on the lining, which are aesthetically unsightly, or having holes on the top of the cupboard which are not easily accessible and require the use of a ladder or create difficulties if the top is close to the ceiling.

In this way, the horizontal and vertical movement of the wall cupboard P can be advantageously regulated by acting on one part alone, i.e. from below, and by simply acting with a screwdriver 45. Figures 2 and 3 show how accessibility to the hanging bracket 12 is achieved through the screwdriver 45 introduced alternatively in either of the two holes 43.

Figures 4 and 5 show how the screwdriver 45 is introduced into one of the holes 43 to effect the adjustment in a horizontal direction, i.e. in depth,

according to the arrow F1.

Once the adjustment has been effected, figure 5 shows how the wall cupboard has been perfectly regulated in position by moving it as required towards the wall 23.

Figures 10 to 13 show, in a series of perspective views, an anchoring group of the type illustrated in the previous figures according to the invention in a further variation.

It is understood that the same elements are indicated in the figures with the same reference numbers used in the first embodiment described. Furthermore, these elements are not described in terms of structure and functioning and reference should be made to what is illustrated and described for the previous embodiment of figures 1 to 9.

Also in this case, the anchoring group is arranged on the rear part of a wall cupboard and transmission elements 46 have been added to this, constrained to the wall cupboard P, but free to rotate, for an easier actuation from below.

Said transmission elements 46 consist, for example, of shaped rods or polygonal stems 47, for example hexagonal, that can be inserted in complementary cavities or housings 38, having a complementary

polygonal form, produced in the head of both the regulation screw 30 and drive screw 32. Said rods 47 are aligned beneath the regulation means and actuation means and terminate at the opposite end with sleeves 48 also internally provided with cavities or seats 49 shaped complementarily with respect to the tip of a screwdriver 45 or similar tool.

In particular, the figures also show how supports 50, constrained to the cupboard, can be positioned, for example on the base 44 of the wall cupboard P, in which said sleeves 48 of the transmission elements 46 are positioned. More specifically, said supports 50 contain shaped housings 51 for the sleeves 48, for example in the form of pairs of yieldable flaps, in which the sleeves 48 are snap-inserted according to the arrow 52 of figure 10, after inserting the rods 47 in the cavities or housings 38 formed in the head of both the regulation screw 30 and drive screw 32 according to the arrow 53.

Figures 12 and 13 show how, once the transmission elements 46 have been arranged with the relative auxiliary elements described above, it is advantageously possible to act from below with a simple screwdriver of any kind, for effecting any possible adjustments of the wall cupboard P previously described

and illustrated.

Finally, figures 14 to 18 show a further anchoring group of the type previously illustrated, in particular in figures 1 to 9, with a guiding profile for a screwdriver which facilitates its use.

As described above, for example, it should be pointed out that the same elements are indicated in the figures with the same reference numbers used in the first embodiment described. Furthermore, these elements are not described in terms of structure and functioning and reference should be made in this respect to what is illustrated and described for the previous embodiment of figures 1 to 9.

Also in this case, the anchoring group is positioned at the rear of a piece of furniture to which a guiding profile for screwdrivers 54 has been added for each hanging bracket 12 aligned below it.

The guiding profile 54 comprises a shaped body 55 in which two longitudinal pass-through holes 56 are formed, which extend between the ends of the profile 54.

The guiding profile 54 is applied on the lining 13 of the wall cupboard P aligned below the hanging bracket 12 so that its pass-through holes 56 are aligned with the cavities 38 of both the regulation

screw 30 and the drive screw 32.

Said guiding profile 54, for example, can be provided with an adhesive on its surface to be brought into contact with the lining 13, wherein the adhesive is covered by a protective non-stick strip 57 to be removed before application.

This provision of a guiding profile 54 eliminates any difficulty in inserting a screwdriver on the part of a user when a regulation and/or actuation intervention of the hanging bracket of the anchoring group must be effected.

As shown in figures 15 and 16, in fact, when an adjustment in height (vertical) must be effected, the screwdriver is inserted in the first pass-through hole of the guiding profile 54 on the left of the drawing so as to reach the relative screw of the hanging bracket 12. If, on the other hand, an adjustment in depth is to be effected, the screwdriver is inserted in the other pass-through hole 55 of the guiding profile 54, thus reaching the relative screw of the hanging bracket 12.

Figures 17 and 18 show how this operation is effected in the case of an adjustment in depth.

A first non-limiting embodiment of a possible hanging bracket to be used in an anchoring group according to the present invention has been previously

illustrated. Other alternative embodiments of a hanging bracket are described hereunder, for the sake of completeness.

Figures 19, 20, 21 and 22 are a front view, a raised view, a raised sectional view and a partly split perspective view illustrating a second further embodiment of a hanging bracket that can be used in an anchoring group according to the present invention. Where possible, the same reference numbers are used as those used for the first embodiment already illustrated and described.

As can be better seen in figure 23 in an exploded perspective view, the anchoring group comprises a hanging bracket 12 (figures 19 to 22) with a relative anchoring plate or bar 22 to a wall by means of specific dowels 24. Each hanging-bracket device 12 comprises a base or anchoring plate element 16 and a hooking element 17.

As for the previous examples, each anchoring group comprises regulation means and actuation means of the reciprocal position between the hanging-bracket device 12, the hooking element 17 and anchoring support 22 for effecting a regulation in the position of the wall cupboard P with respect to the wall 23. This regulation is effected according to two directions F, F1

perpendicular to each other, vertically (in height) and horizontally (in depth) respectively, and the regulation and actuation are advantageously effected from below.

Also in this case, a regulation screw 30 is provided, accessible from below, rotatable, but kept firmly in position by a pair of spaced abutment flaps 29 which extend from the plate element or flange 16. The regulation screw 30 is housed in a threaded seat 70 formed in a crosspiece 71 whose ends 72 are housed in seats 73 of a body 74, at whose end the hooking element 17 is produced.

This cooperation is such as to cause the desired movement in the first direction F indicated above, for the regulation in height.

It is also provided said body 74 bears laterally on its opposite sides, tilted slots 75 in which ends of a pin 76 are slidingly arranged, whose central area is inserted in a slide 77 which slides with respect to rails 26 of the base or plate element 16. The slide 77 also comprises a central pass-through threaded seat 78 in which a drive screw 32 is inserted, rotatable and accessible from below. Said drive screw 32 is positioned parallel to the regulation screw 30, and is kept firmly in position in the pair of abutment flaps

29 thanks to a blocking ring 79 positioned in a specific seat 80.

Said drive screw 32 forms, together with the tilted slots 75, the pin 76 and slide 77, actuation means for controlling the movement of the hooking element 17 in the second direction F1 indicated above.

This embodiment of the hanging bracket 12 can therefore also be used in a group according to the invention with regulation in depth effected from below.

Figures 24, 25, 26 and 27 are also enclosed, for the sake of completeness, which illustrate a front view, two raised sections in different positions and a partly split perspective view of a further embodiment of a hanging bracket that can be used in an anchoring group according to the present invention.

This embodiment of the hanging bracket 12 is partly similar to the previous embodiment, but provides a different mechanism for actuating the regulation of the hooking element 17 in the direction F1.

Also in this case, in fact, the regulation screw 30 is accessible from below and is only rotatable, as it is kept firmly in an axial position by a pair of spaced abutment flaps 29 which extend from the plate element or flange 16. More specifically, the regulation screw 30 is kept firmly in an axial position with respect to

the abutment flap 29, but with the possibility of rotation, thanks to the provision of a non-threaded collar 31A adjacent to its head 30A constrained in a slot 29A of the flap 29.

The regulation screw 30 is housed in a threaded seat 70 formed in a crosspiece 71 whose ends 72 are housed in seats 73 of a body 74, at whose end the hooking element 17 is situated. Also in this case, this cooperation causes the desired movement in the first direction F for regulation in height.

Analogously, the drive screw 32, rotatable and accessible from below, is arranged parallelly with respect to the regulation screw 30, and kept firmly in position in the pair of abutment flaps 29 by a blocking ring 79 positioned in a specific seat 80.

Said drive screw 32 controls a pinion 81 of a bevel produced with a toothing 82 positioned on a screw 83 which is engaged with a nut 84 slidingly arranged inside guiding rails 85 formed in the body 74 of the hooking element 17. As can be clearly seen in figures 25-28 of the drawings, said bevel 81, 82 is housed inside a box 86 integral with the plate or flange 16.

The rotation of the screw 83 caused by the bevel 81-82 causes the movement of the hooking element 17, thus creating actuation means for controlling the

movement in a second direction F1.

This embodiment of the hanging bracket 12 can therefore also be used in a group according to the invention with regulation in depth effected from below.

Figure 28 shows an exploded perspective view of the parts described above in the hanging bracket of figures 24 to 27 and also the relative anchoring plate or bar 22 to a wall with respective fixing dowels 24.

According to the present invention, an anchoring group has therefore been produced, in which the hanging bracket is fixed with respect to solid elements of the wall cupboard P (shoulder and top) and the actuation of the adjustments in depth and height of the hanging bracket are very practically effected from below with a screwdriver having a long stem or with a screwdriver with the aid of the actuation and guiding elements shown and described or similar elements.

In this way, the problems identified in the prior art have been solved.

Further variants, or equivalent modifications are also possible, all to be considered as being included in the scope of the present invention.

The scope of the invention is therefore defined by the following claims.

CLAIMS

1. An adjustable anchoring group for the wall assembly (23) of wall-cupboards (P) comprising a hanging-bracket device (12), provided with an anchoring base (16) to a wall-cupboard (P) and a hooking element (17), and an anchoring support (22) to a wall (23), regulation means and actuation means of the reciprocal position being arranged between said hanging-bracket device (12), said hooking element (17) and said anchoring support (22) in order to regulate the position of the wall-cupboard (P) with respect to the wall (23) according to two directions (F, F1) perpendicular to each other, vertically (in height) and horizontally (in depth), respectively, characterized in that both said regulation means and said actuation means are accessible from below by means of holes (43) formed in a base or ledge (44) of the wall-cupboard (P).

2. The group according to claim 1, characterized in that said hanging-bracket comprises a slide (25) sliding linearly with respect to said anchoring base (16) in a first direction, said hooking element (17) being at least partially associated with said slide (25) and movable with respect to the latter in at least a second direction substantially perpendicular with respect to said first direction, wherein said

regulation means and said actuation means are respectively associated with said slide (25) and said hooking element (17).

3. The group according to claim 2, characterized in that said base (16) comprises, on its sides, fixing holes (18) for fixing to a wall-cupboard (P) and sliding rails (26) of said slide (25), and wherein said slide (25) comprises sliding guides (27), said rails (26) and said guides (27) being suitable for cooperating with each other for guiding the sliding of said slide (25) in at least said first direction.

4. The group according to claim 2 or 3, characterized in that said regulation means accessible from below are suitable for controlling the sliding of said slide (25) with respect to said base (16).

5. The group according to one or more of the previous claims, characterized in that said regulation means comprise: a threaded seat (28) formed in said slide (25), an abutment flap (29) integral with said base (16) which extends perpendicularly to the movement direction of said slide, and a regulation screw (30) cooperating with said abutment flap (29) and with said threaded seat (28) for allowing the sliding of said slide (25) in said first direction.

6. The group according to claim 5, characterized in

that said regulation screw (30) is kept firmly in position with respect to the abutment flap (29), but rotates, thanks to the provision of a blocking ring (31) which is housed in an annular seat (31A) situated below a head (30A) of said regulation screw (30) and above the abutment flap (29).

7. The group according to one or more of the previous claims, characterized in that said actuation means accessible from below are suitable for controlling said movement of said hooking element (17) in said second direction.

8. The group according to one or more of the previous claims, characterized in that said actuation means comprise a drive screw (32) at least partially housed in said slide (25), said drive screw (32) being arranged parallelly to a regulation screw (30).

9. The group according to claim 8, characterized in that said drive screw (32) is kept firmly in position with respect to an abutment flap (29) of said base (16), but rotates, thanks to the provision of a blocking ring (33) which is housed in an annular seat (33A) situated below a head (32A) of said drive screw (32) and above the abutment flap (29).

10. The group according to claim 8 or 9, characterized in that said drive screw (32) is provided with a

polygonal stem (34) which extends in engagement inside a cylindrical element (35) which, in turn, is externally provided with a portion in the form of a worm-screw (36) which is engaged with a toothed wheel (40), said cylindrical element (35) and said toothed wheel (40) being housed in the slide (25) free to rotate, said hooking element (17) being provided with a partially threaded body (41) cooperating with a threaded seat (42) inside the toothed wheel (40) so as to move in said second direction.

11. The group according to claim 10, characterized in that said threaded body (41) has two smooth opposite planes (or flat portions) (41A) that slide inside complementary guiding seats of a hole of the slide (25) so that said hooking element (17) can be moved horizontally, in an extraction/insertion direction from the toothed wheel (40) following the rotation of the latter.

12. The group according to one or more of the previous claims, characterized in that transmission elements (46) are provided, constrained to the wall-cupboard (P), but free to rotate, which are engaged with said regulation means and actuation means.

13. The group according to claim 12, characterized in that said transmission elements (46) consist of shaped

rods (47) inserted in complementary cavities (38) of said regulation means and actuation means.

14. The group according to claim 13, characterized in that said rods (47) terminate with sleeves (48) internally provided with cavities (49) shaped complementarily with respect to the tip of a screwdriver (45) or similar tool.

15. The group according to claim 14, characterized in that supports (50) are provided, constrained to said base (44) of the wall-cupboard (P), in which said sleeves (48) of the transmission elements (46) are firmly positioned, but free to rotate.

16. The group according to one or more of claims 1 to 10, characterized in that each hanging-bracket (12) is provided, aligned below it, with a guiding profile for a screwdriver (54) applied to said wall-cupboard (P).

17. The group according to claim 16, characterized in that said guiding profile (54) comprises a shaped body (55) in which two longitudinal pass-through holes (56) are formed, which extend between the ends of the profile (54).

18. The group according to claim 1, characterized in that said hanging-bracket comprises a regulation screw (30), accessible from below, rotatable, but kept firmly in position by a pair of spaced abutment flaps (29)

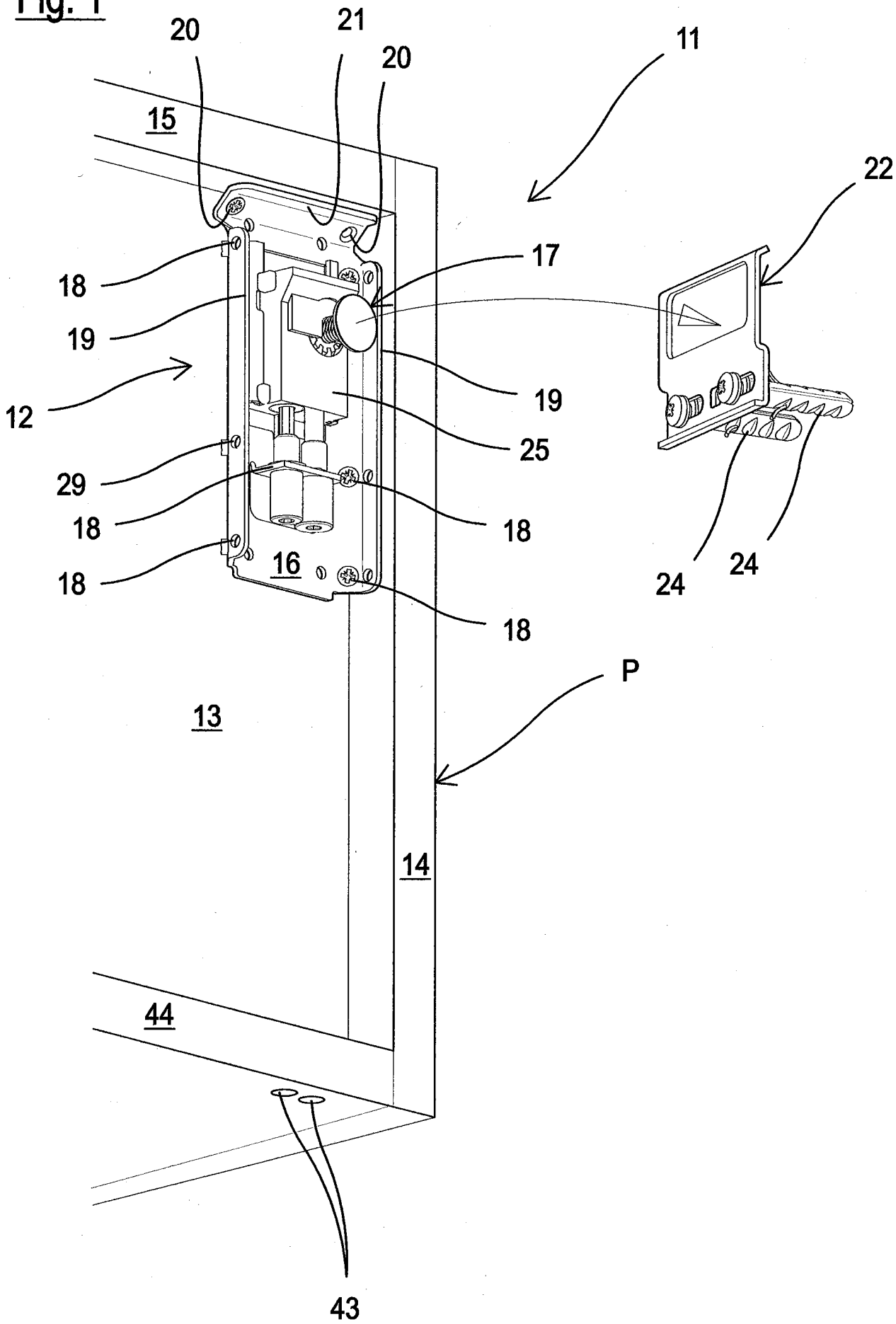
which extend from the plate element or flange (16), wherein said regulation screw (30) is housed in a threaded seat (70) formed in a crosspiece (71) whose ends (72) are housed in seats (73) of a body (74), at whose end the hooking element (17) is situated, so as to effect the desired movement in the first direction F for regulation in height.

19. The group according to claim 18, characterized in that said body (74) laterally carries on its opposite sides, tilted slots (75) in which ends of a pin (76) are slidingly arranged, whose central area is inserted in a slide (77) which slides with respect to rails (26) of the base or plate element (16), wherein said slide (77) also comprises a central pass-through threaded seat (78) in which a drive screw (32) is inserted, rotatable and accessible from below, which is arranged parallelly with respect to said regulation screw (30), and kept firmly in position in the pair of abutment flaps (29) by a blocking ring (79) positioned in a specific seat (80) forming actuation means for controlling the movement of the hooking element (17) in the second direction (F1).

20. The group according to claim 18, characterized in that it is provided with a drive screw (32), rotatable and accessible from below, arranged parallelly with

respect to the regulation screw (30) and kept firmly in position in the pair of abutment flaps (29) by a blocking ring (79) positioned in a specific seat (80), wherein said drive screw (32) controls a pinion (81) of a bevel formed with a toothing (82) positioned on a screw (83) which is engaged with a nut (84) slidingly arranged inside guiding rails (85) situated in the body (74) of the hooking element (17), said bevel (81, 82) being housed inside a box (86) integral with the plate or flange (16), so as to block said body (74) in collaboration with the nut (84), whereby a rotation of the screw (83) caused by the bevel (81-82), causes the movement of the hooking element (17), thus creating actuation means for controlling the movement in a second direction (F1).

Fig. 1



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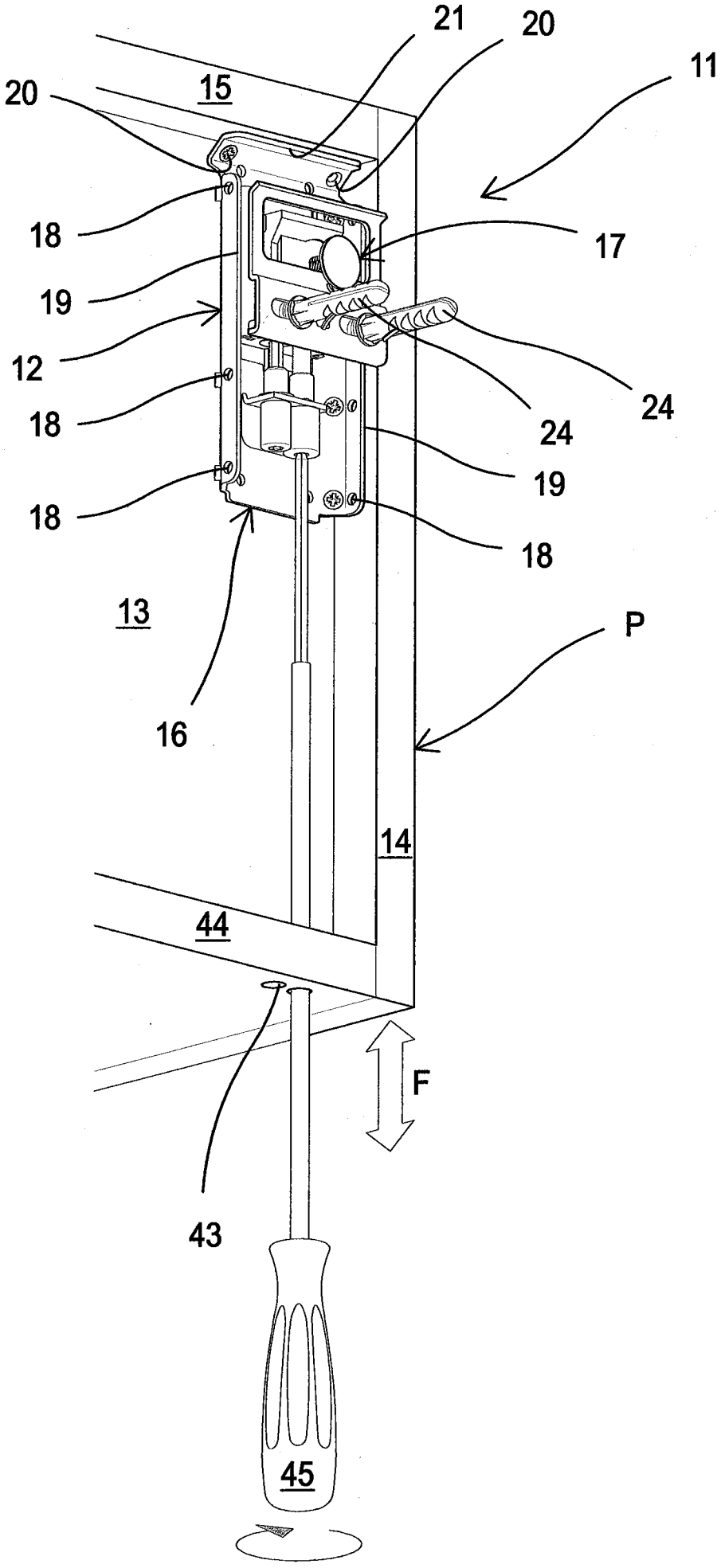
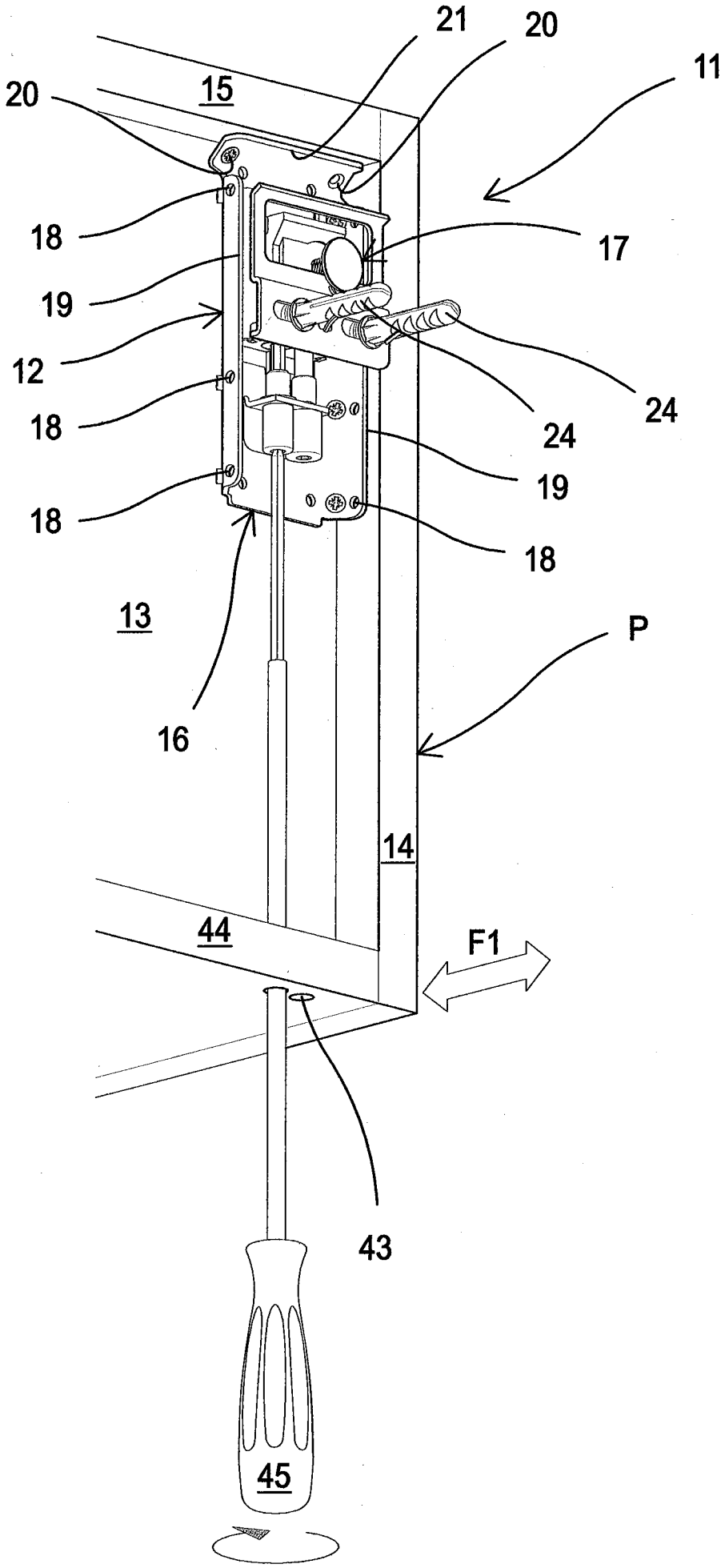


Fig. 3



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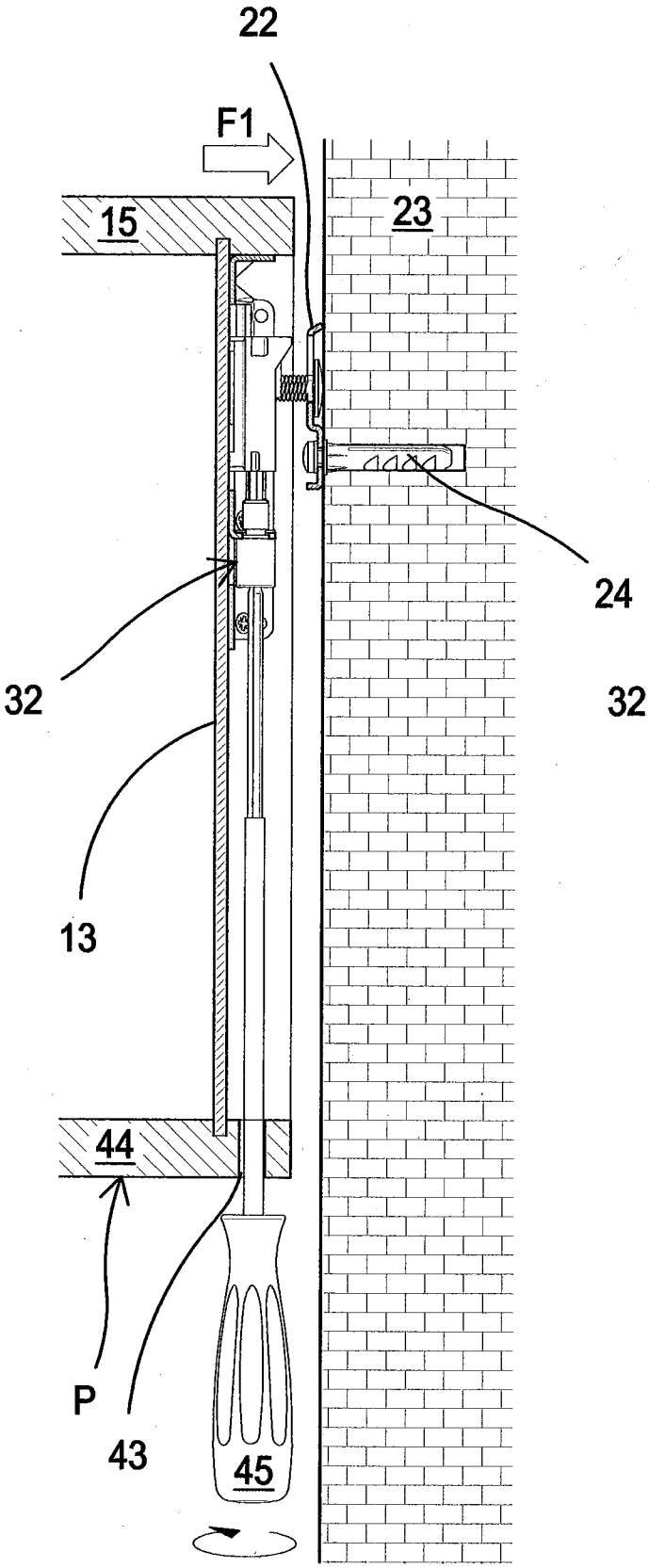

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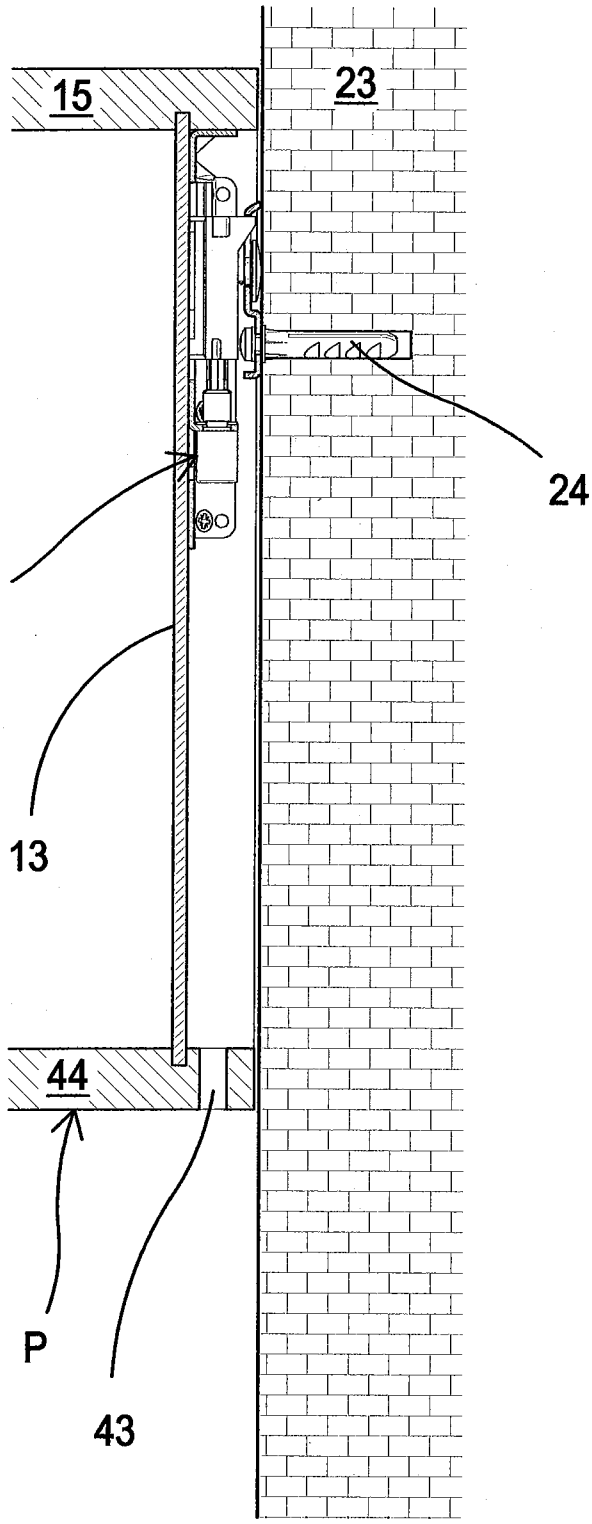

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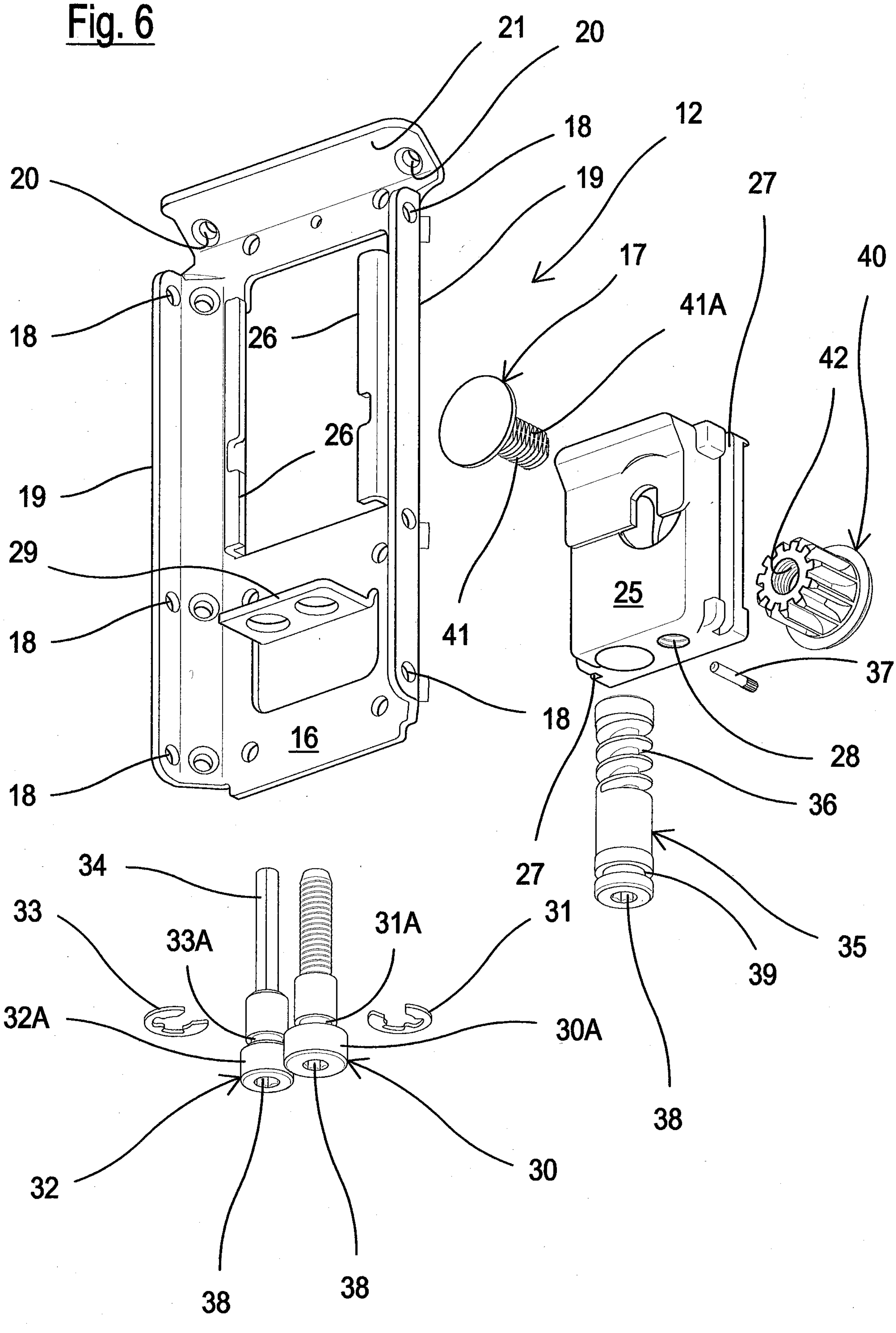
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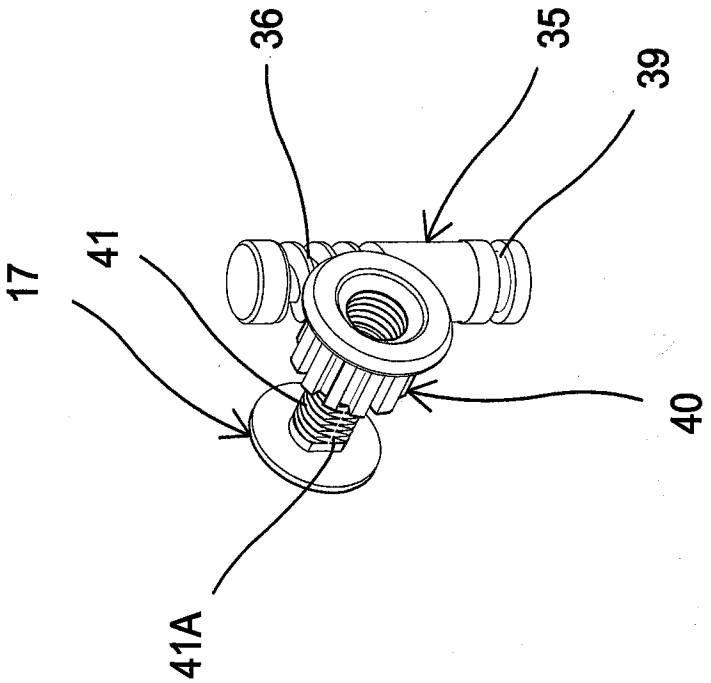
Fig. 9



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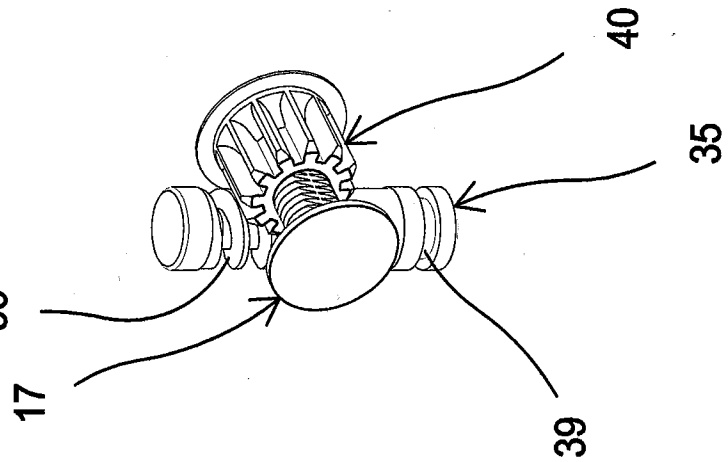

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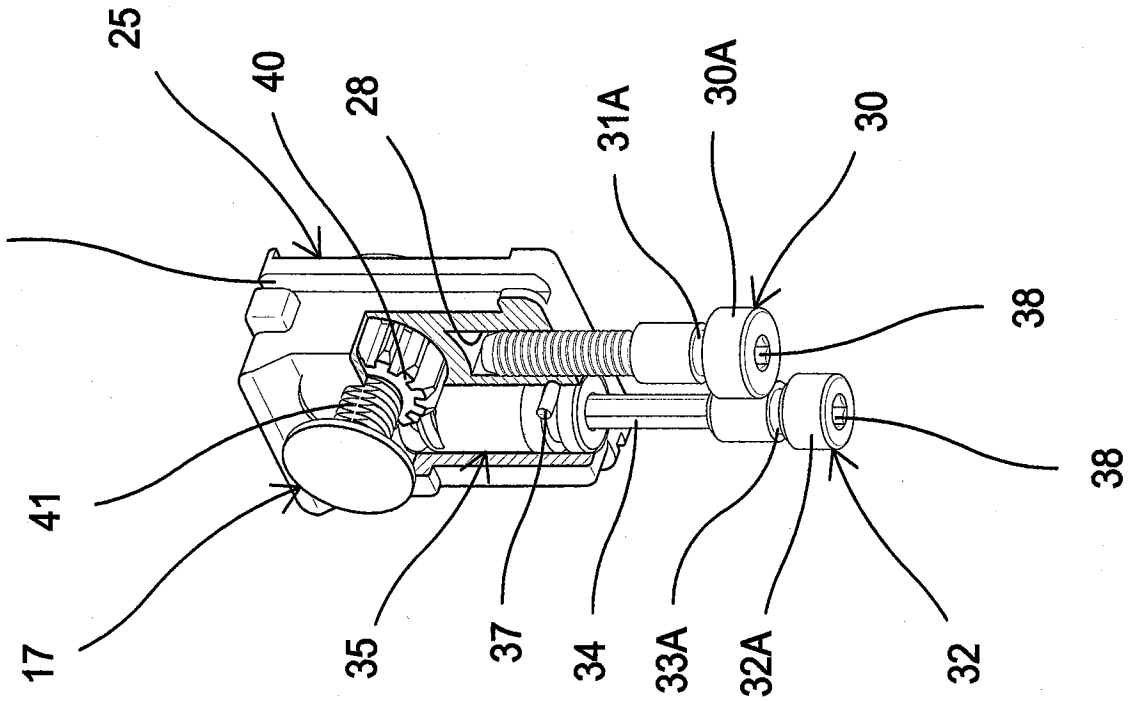

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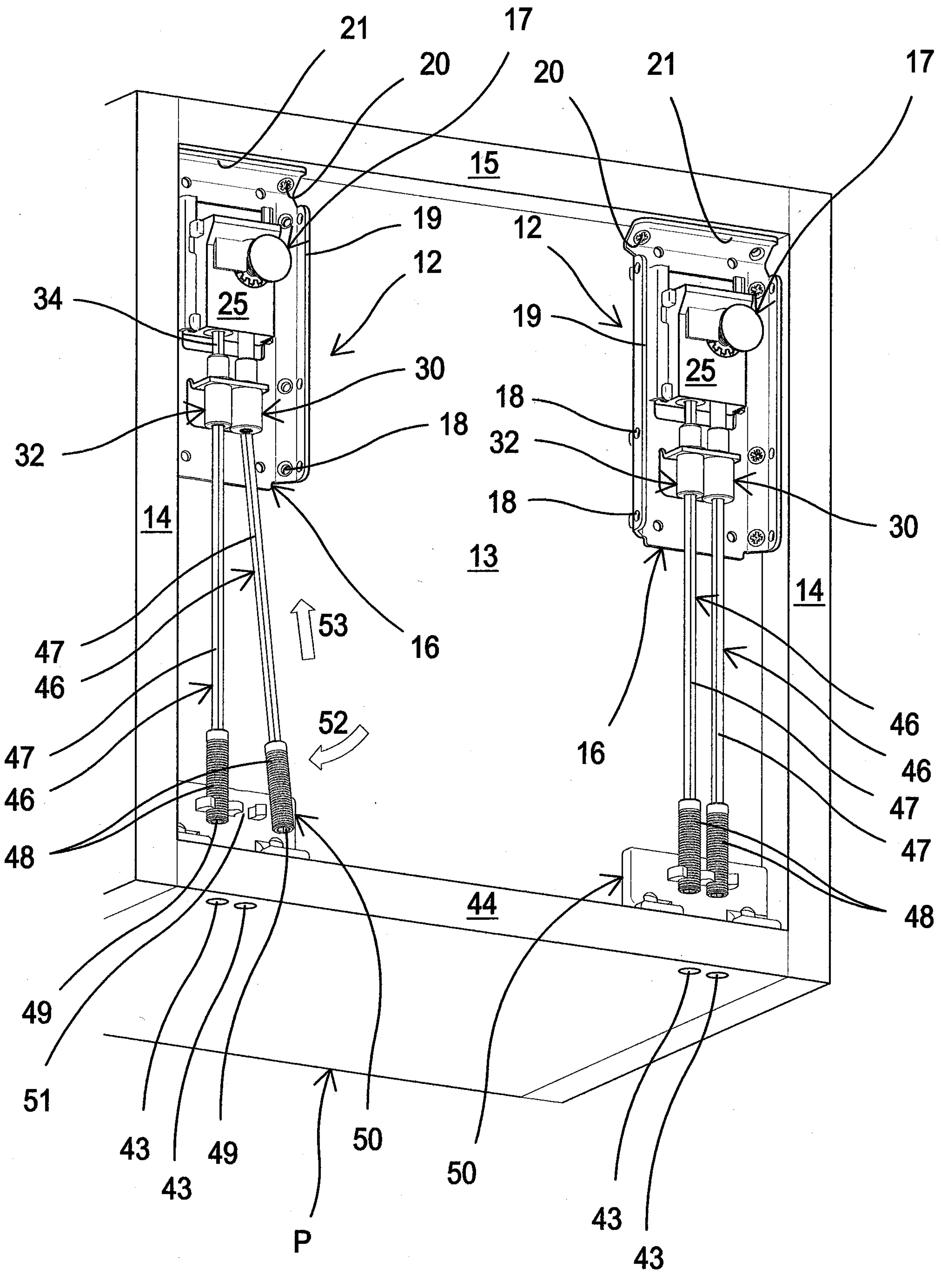
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Fig. 11

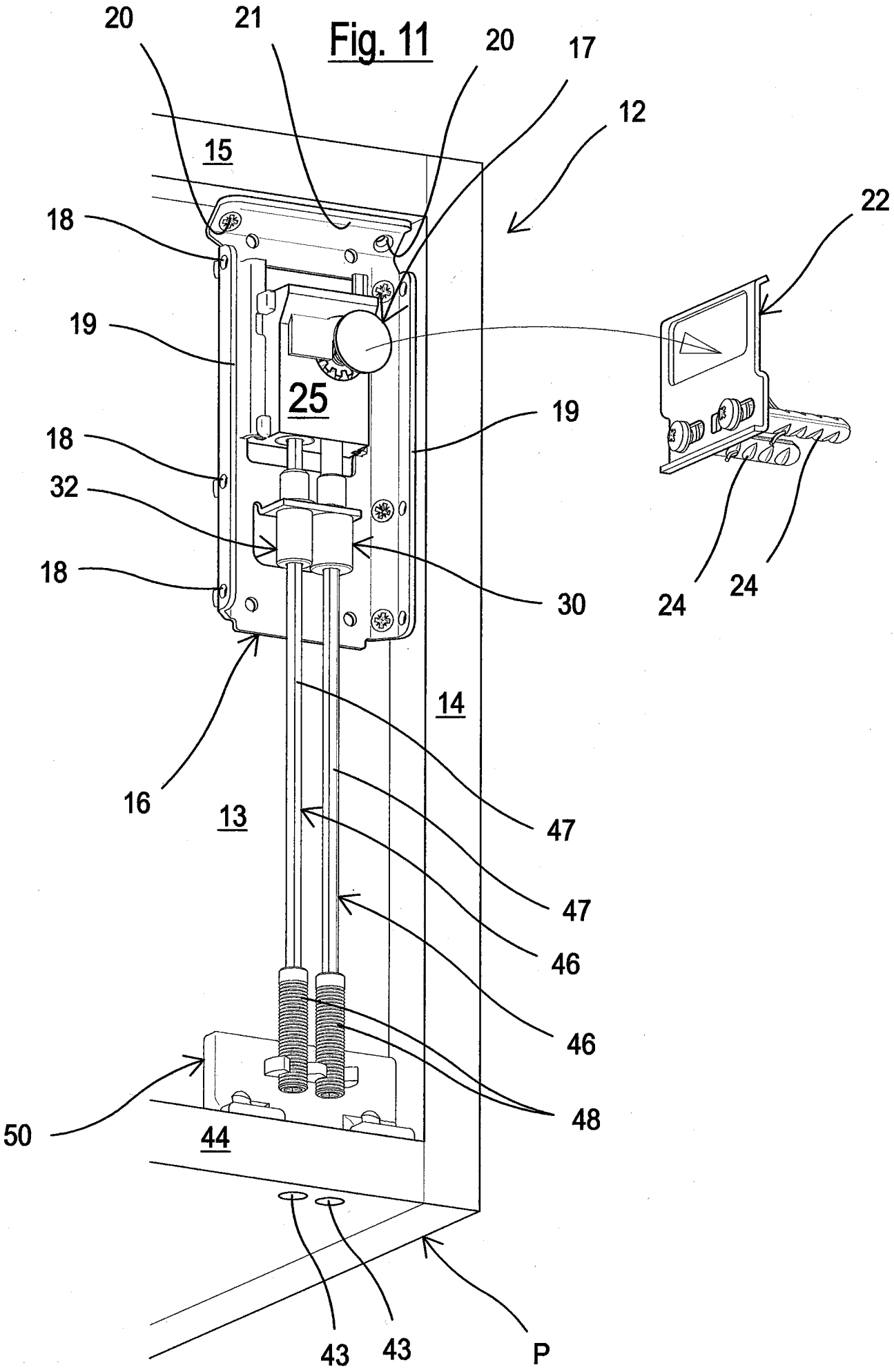
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Fig. 12

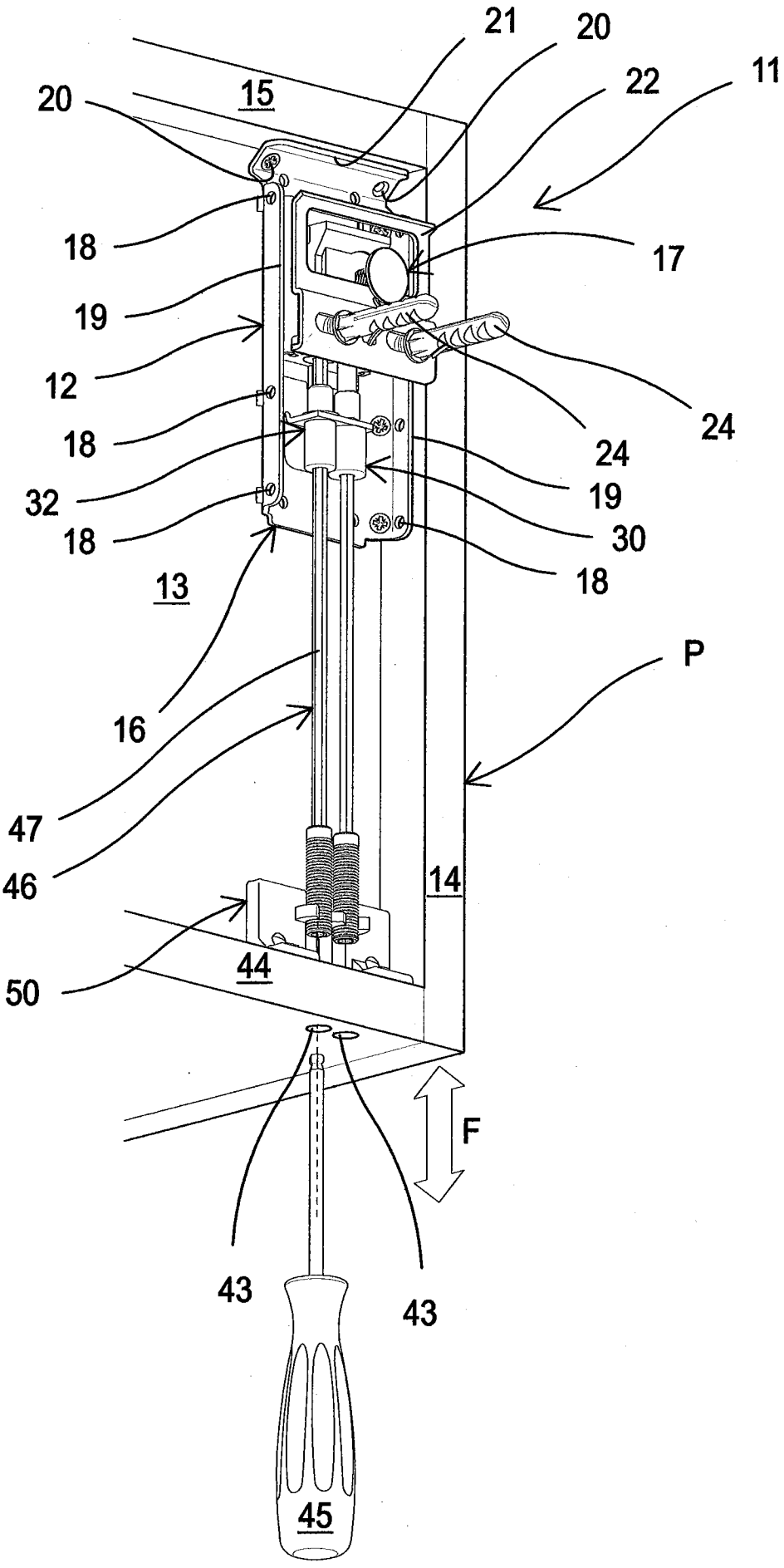
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Fig. 13

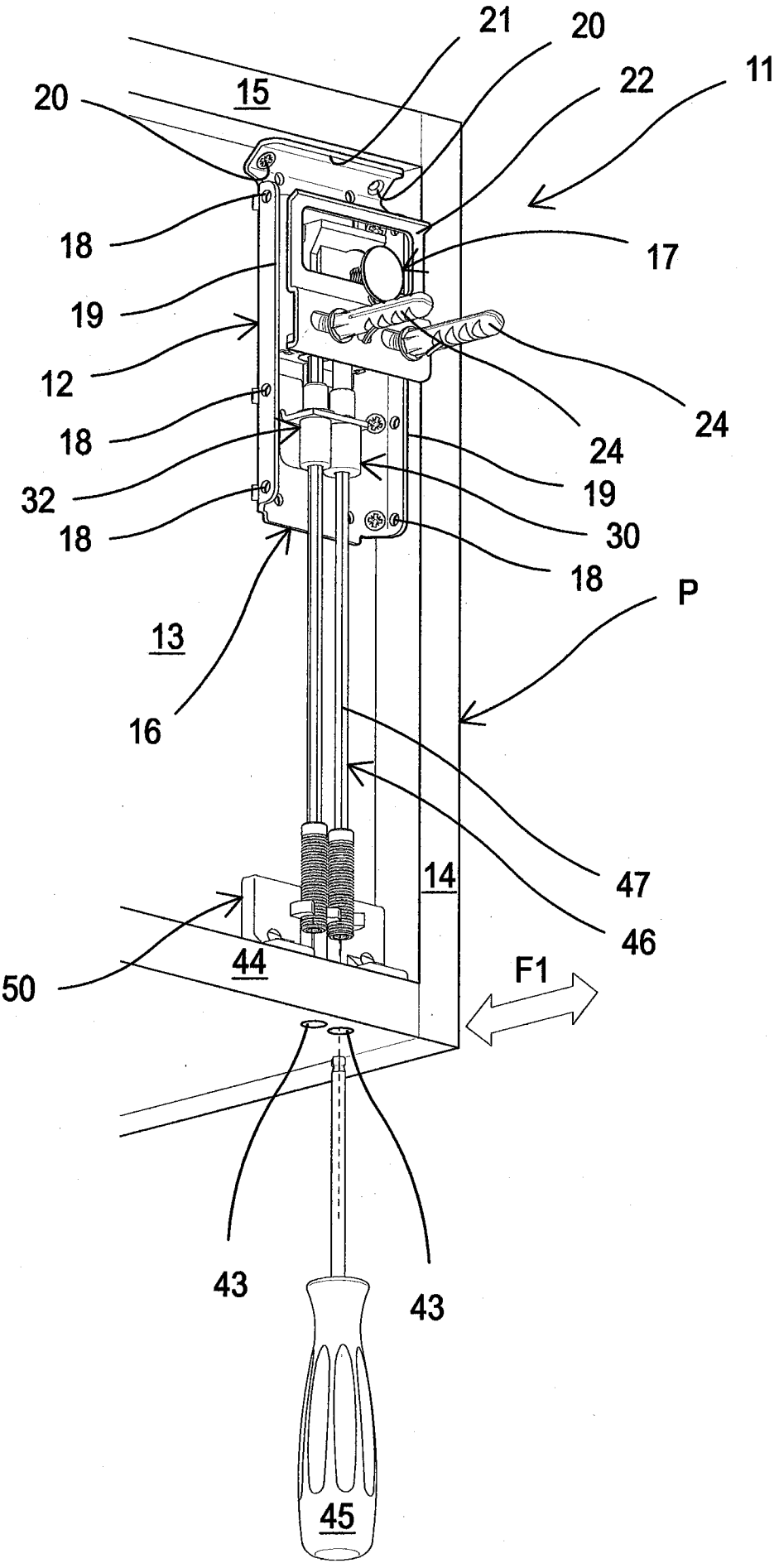
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Fig. 14

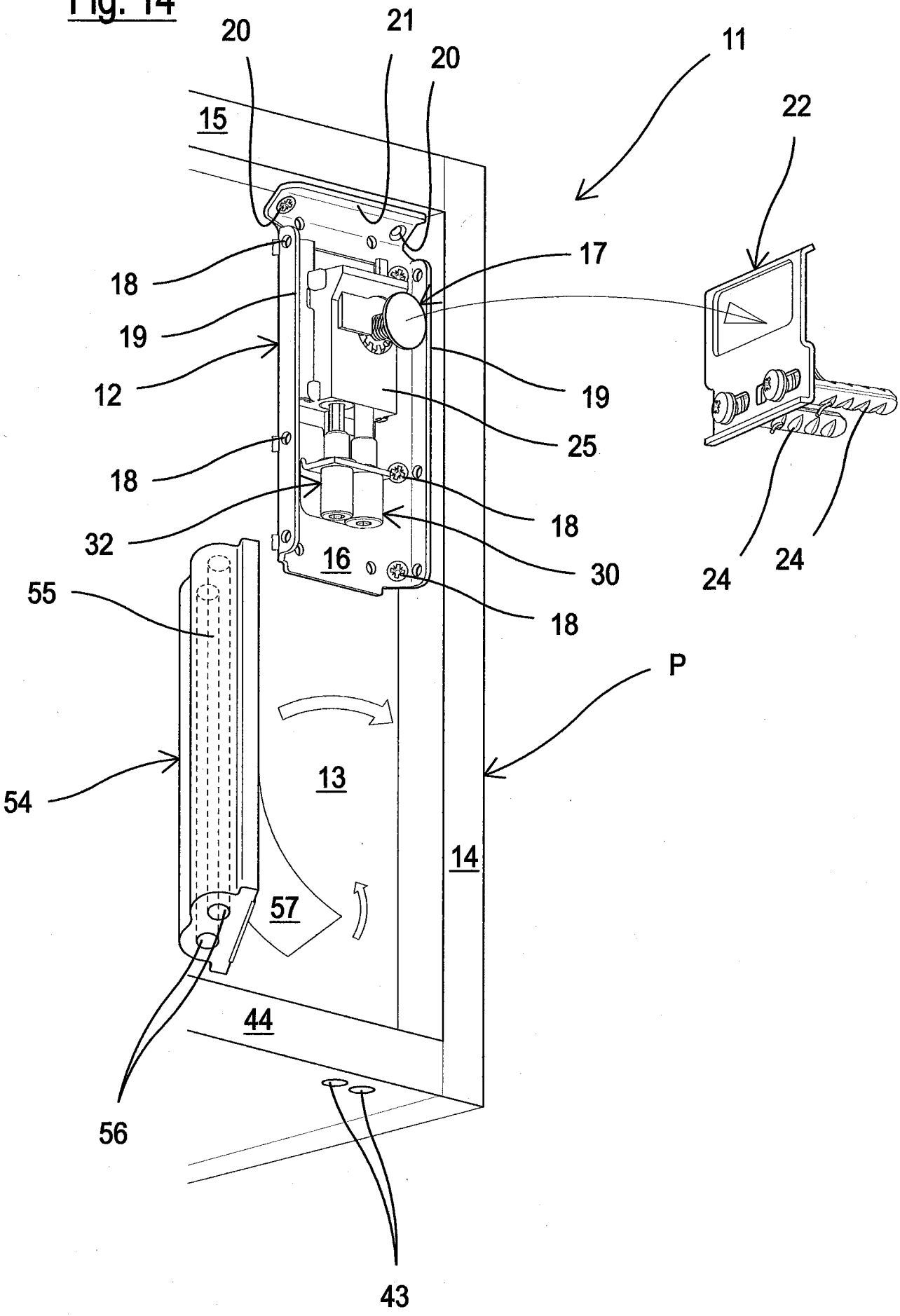
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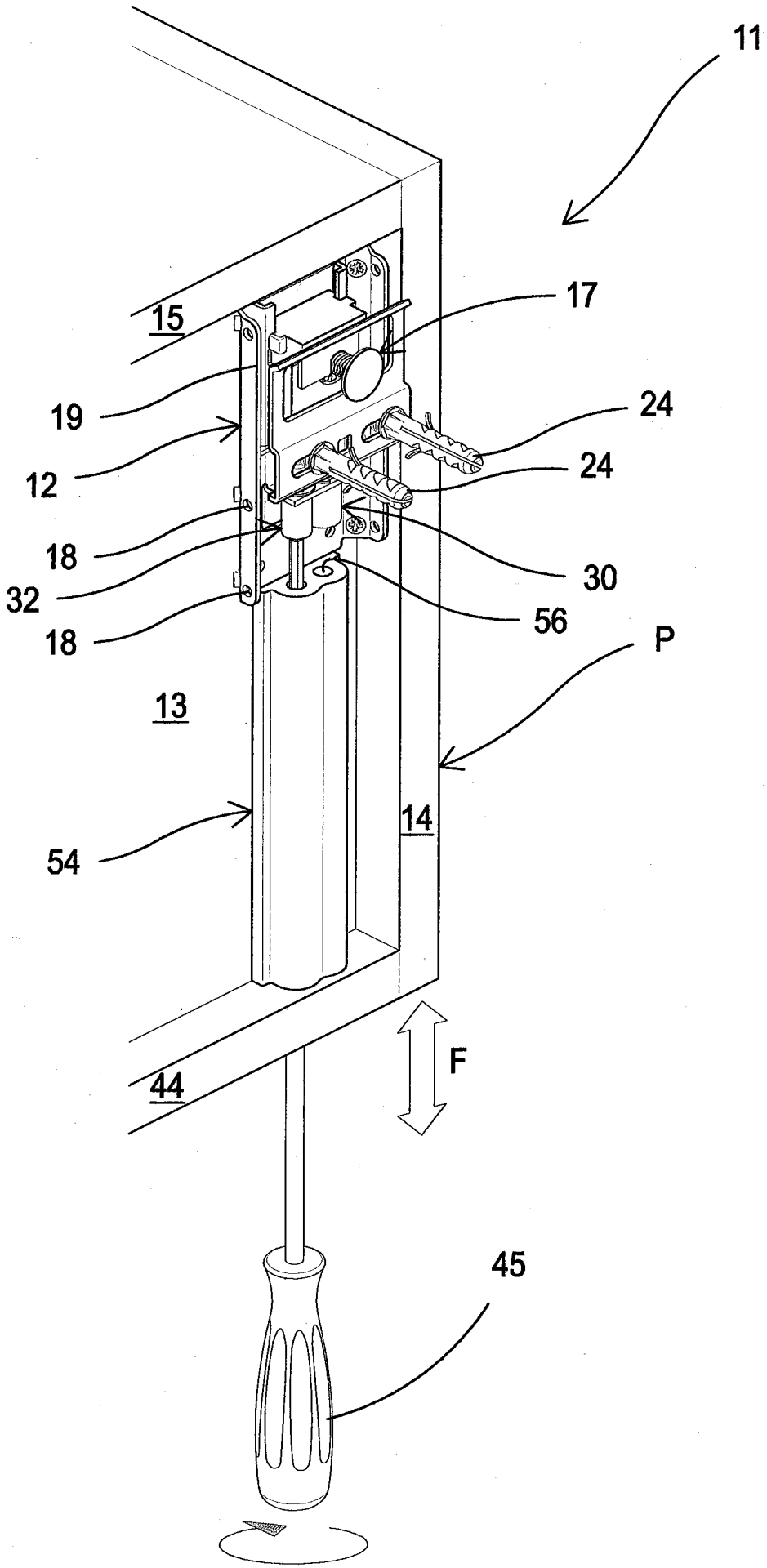
Fig. 15



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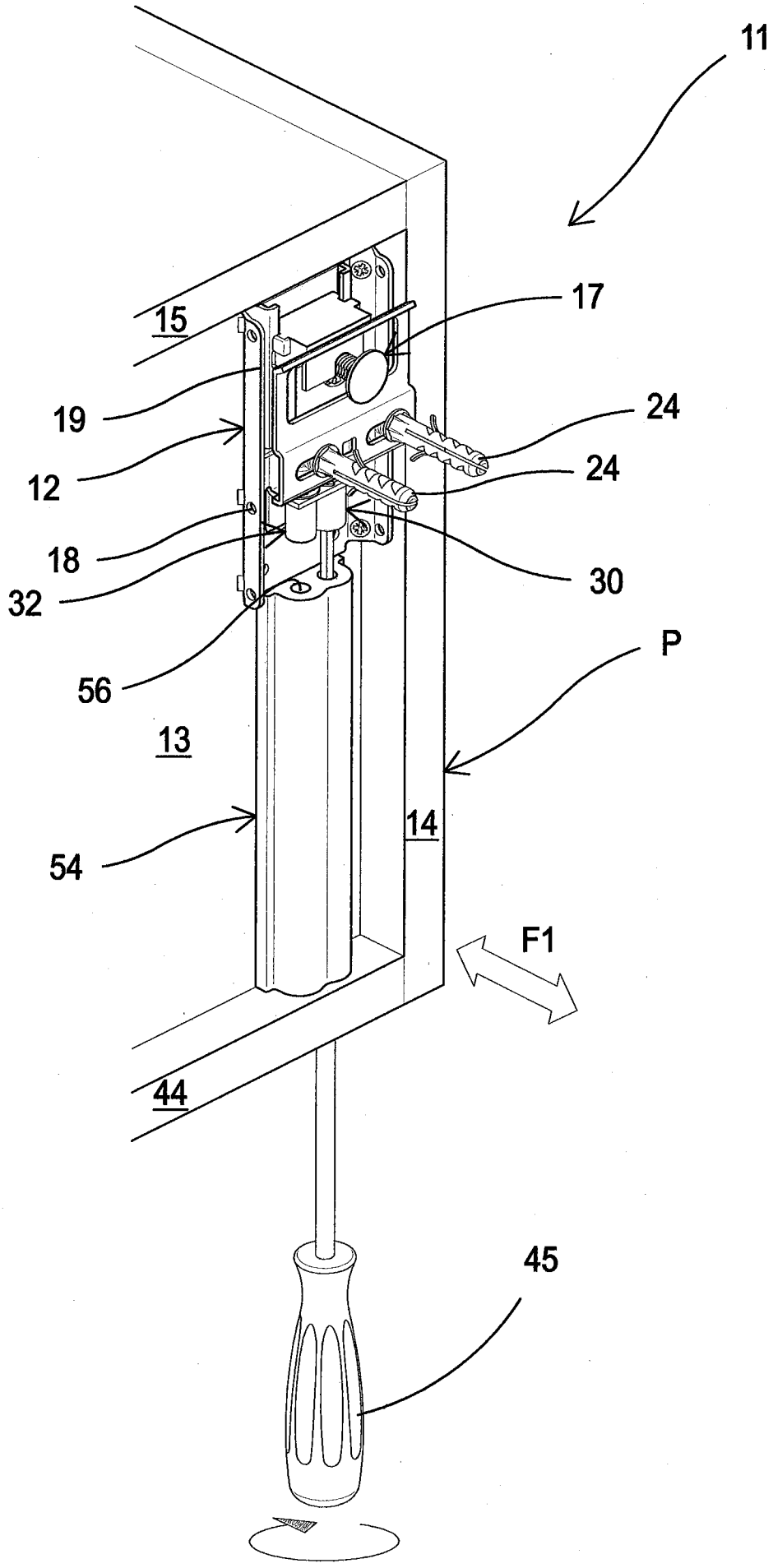

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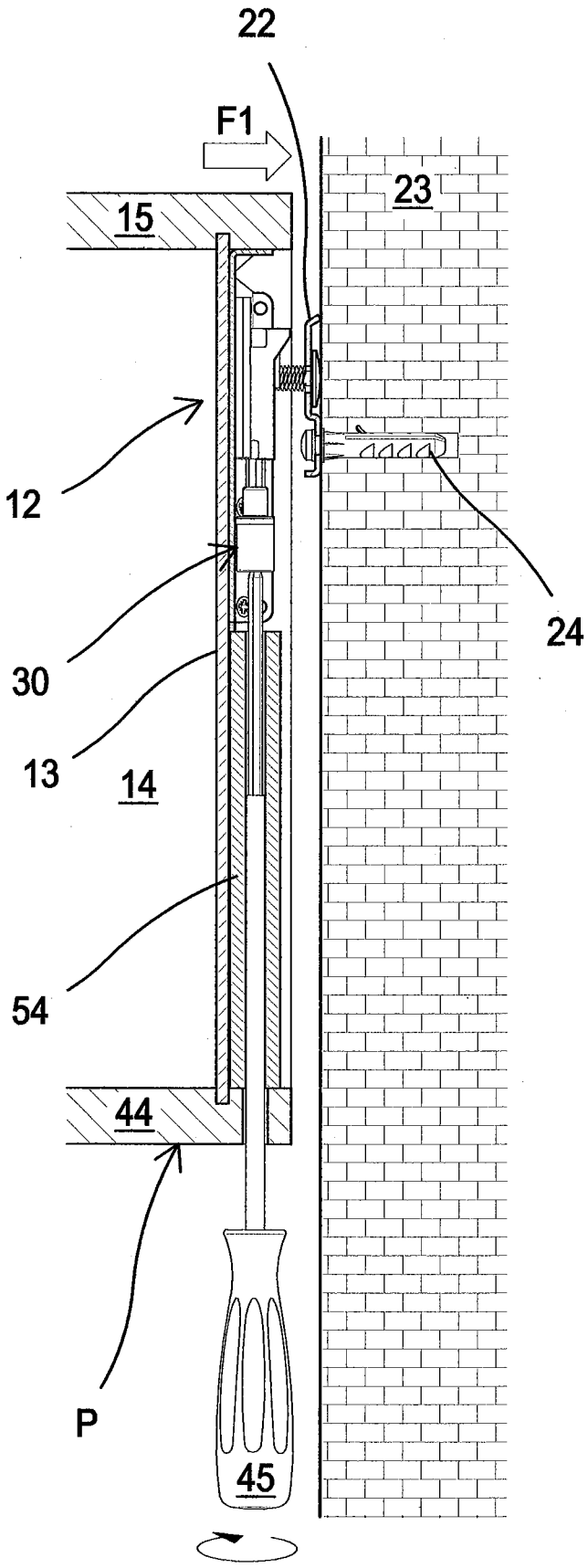

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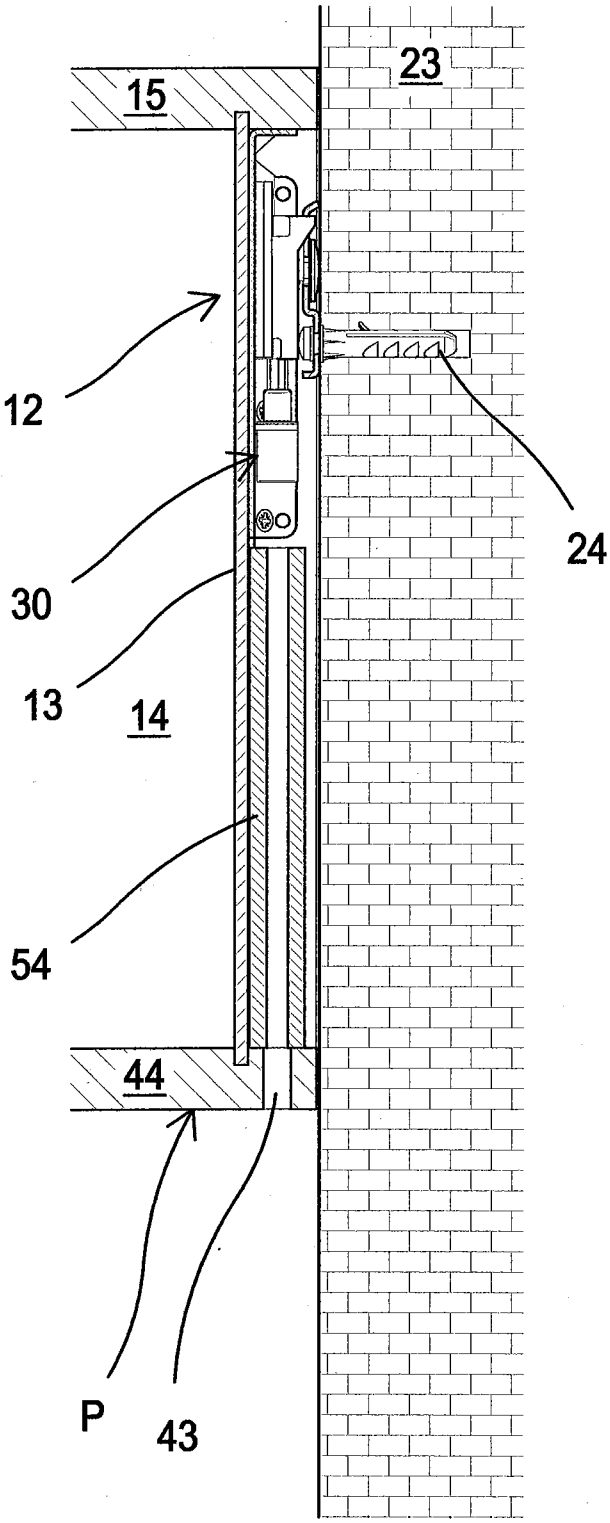

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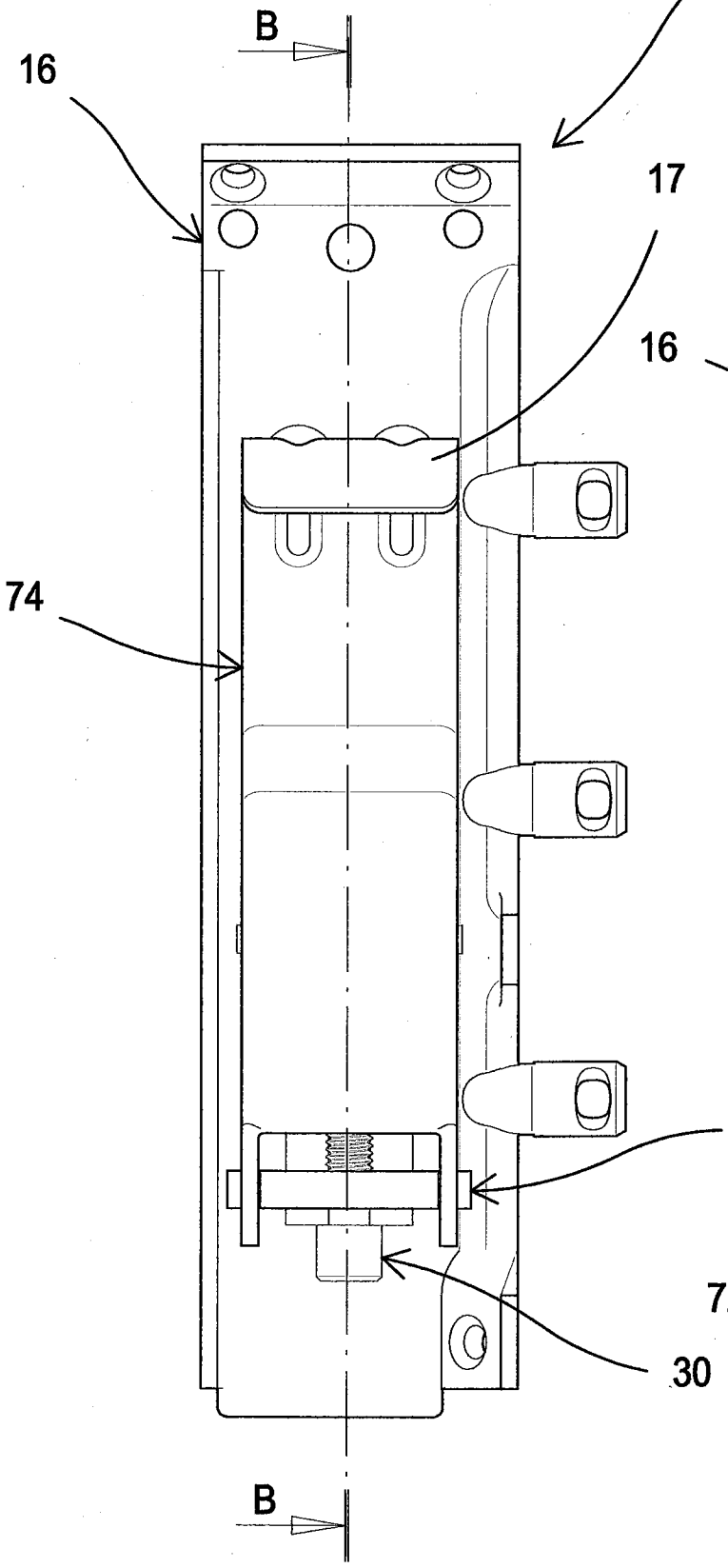

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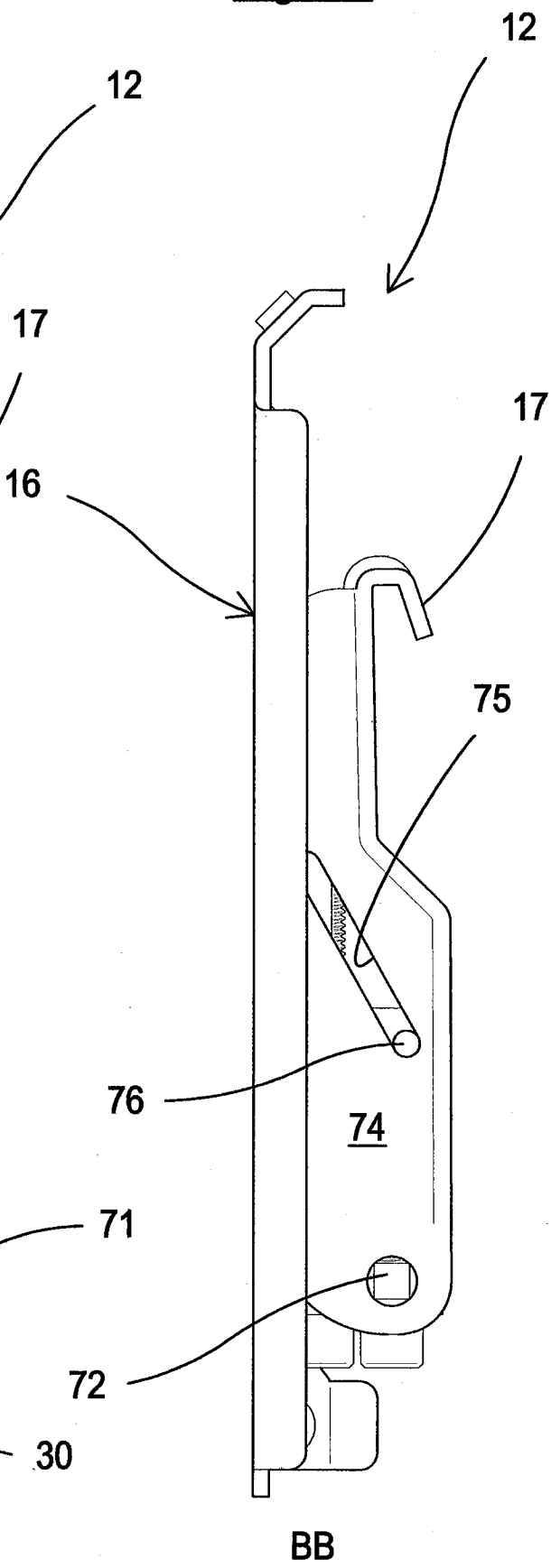

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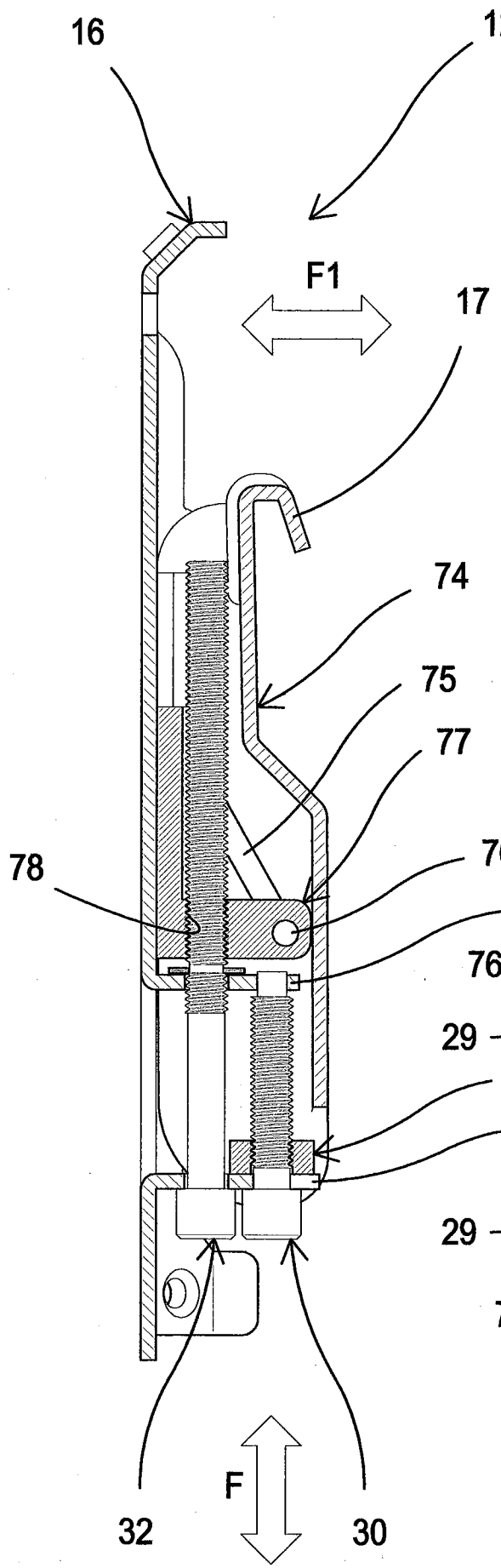
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Fig. 22

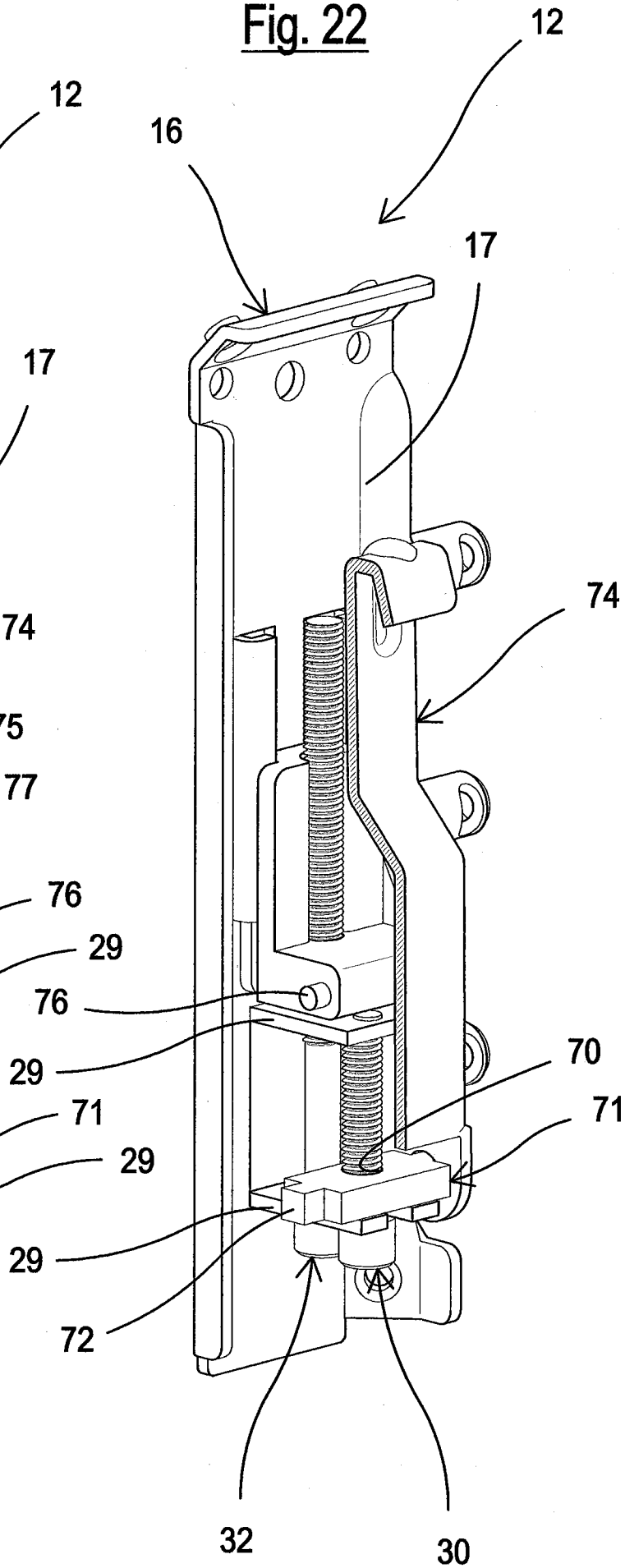
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Fig. 23

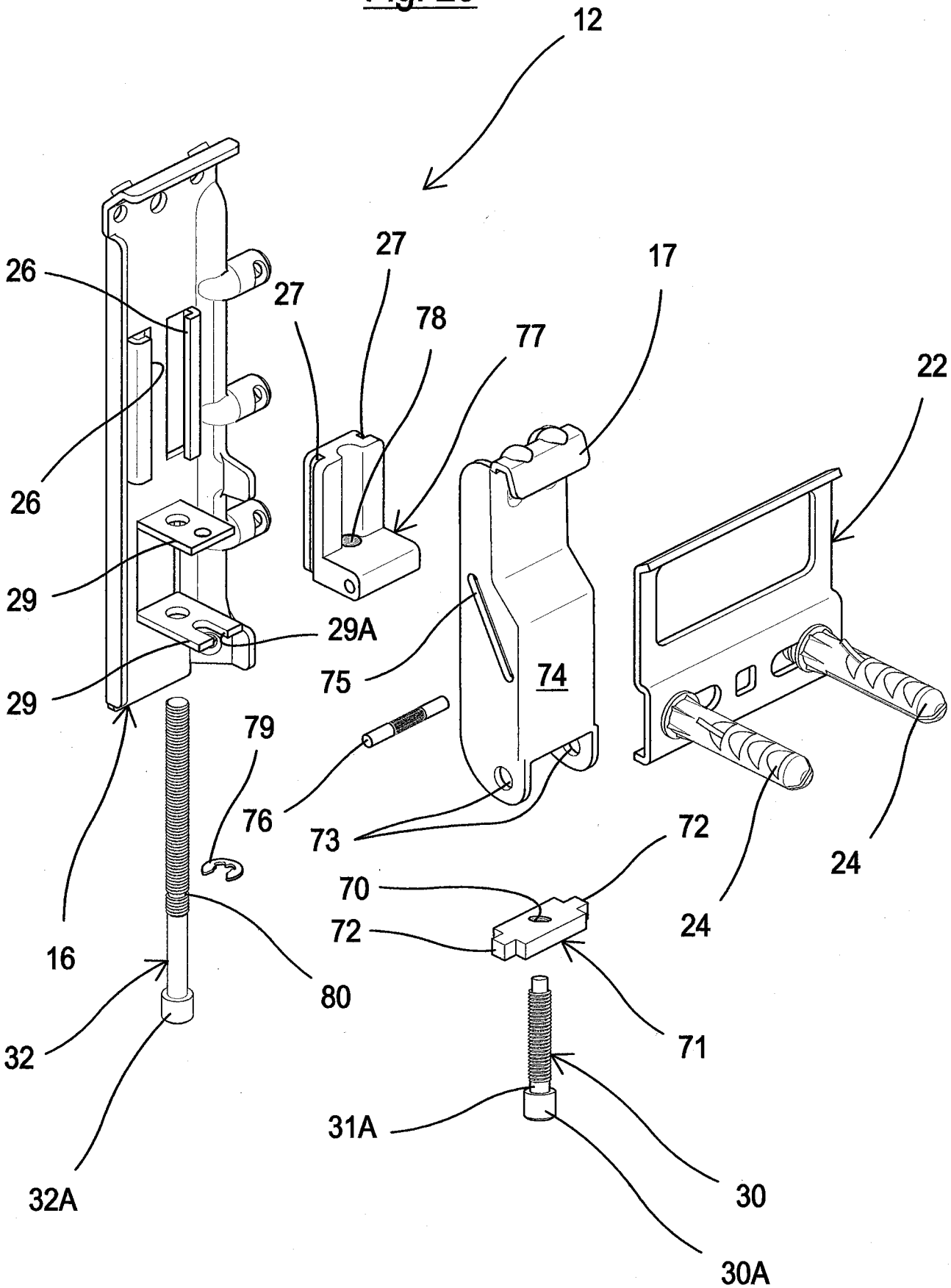
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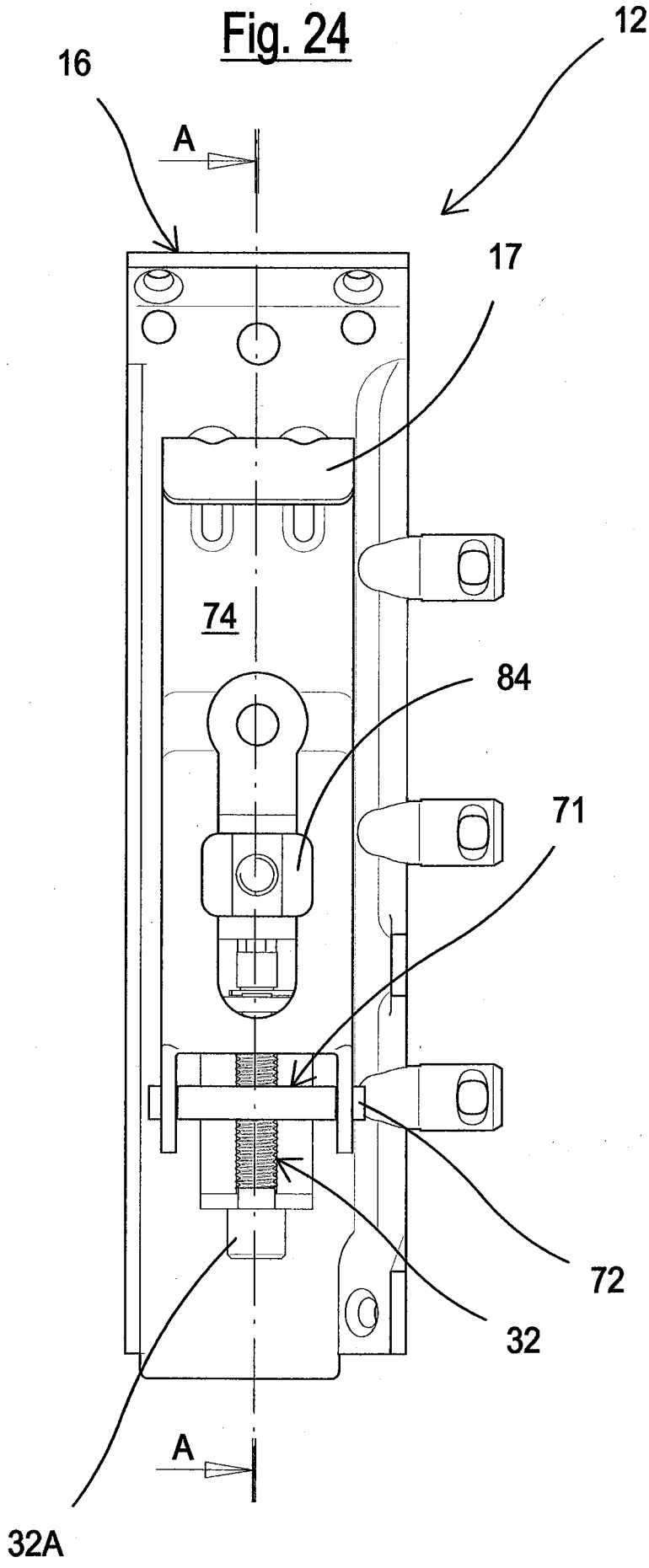
Fig. 24



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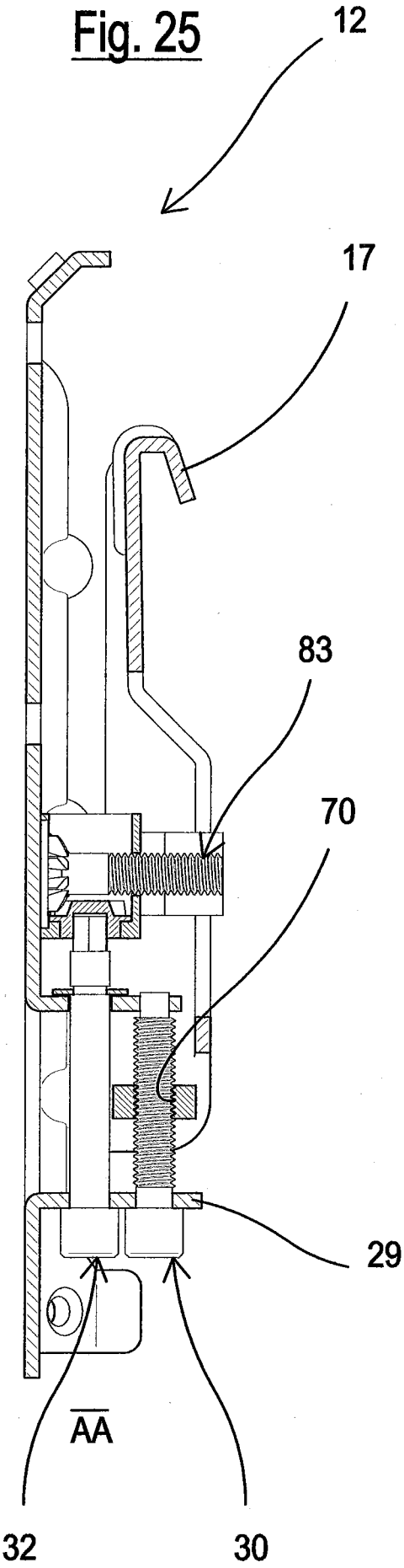

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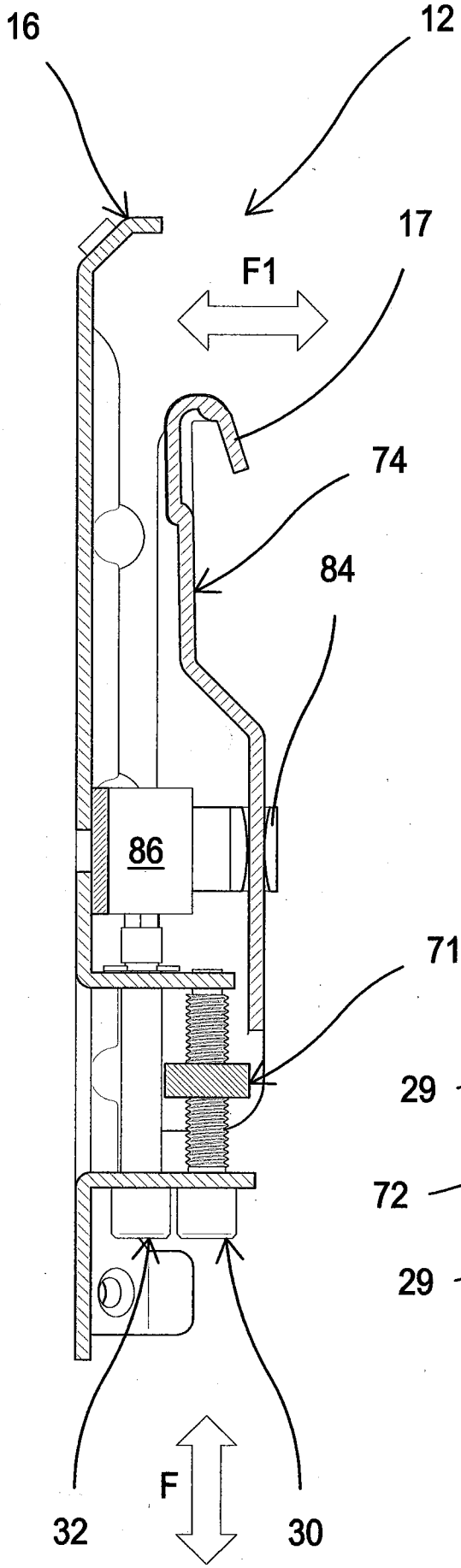

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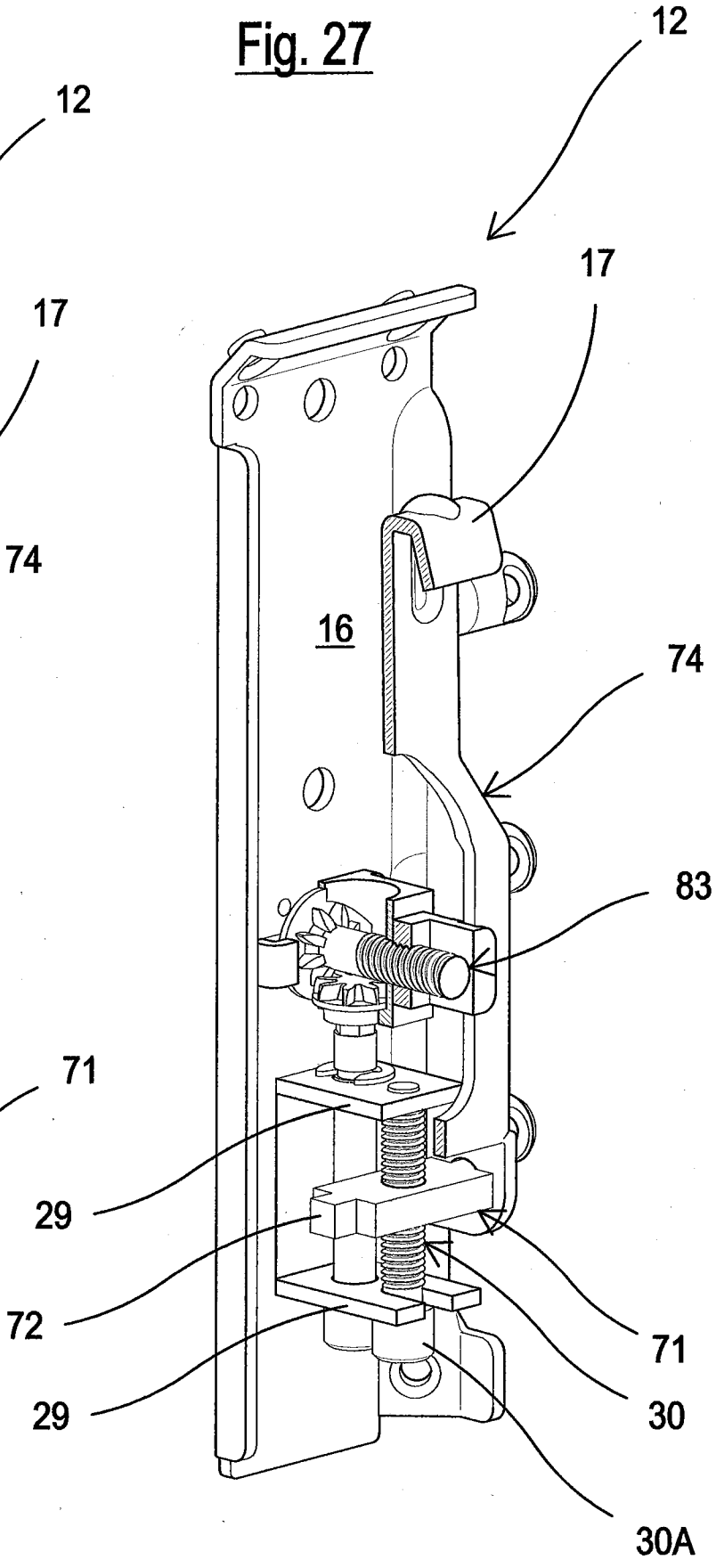

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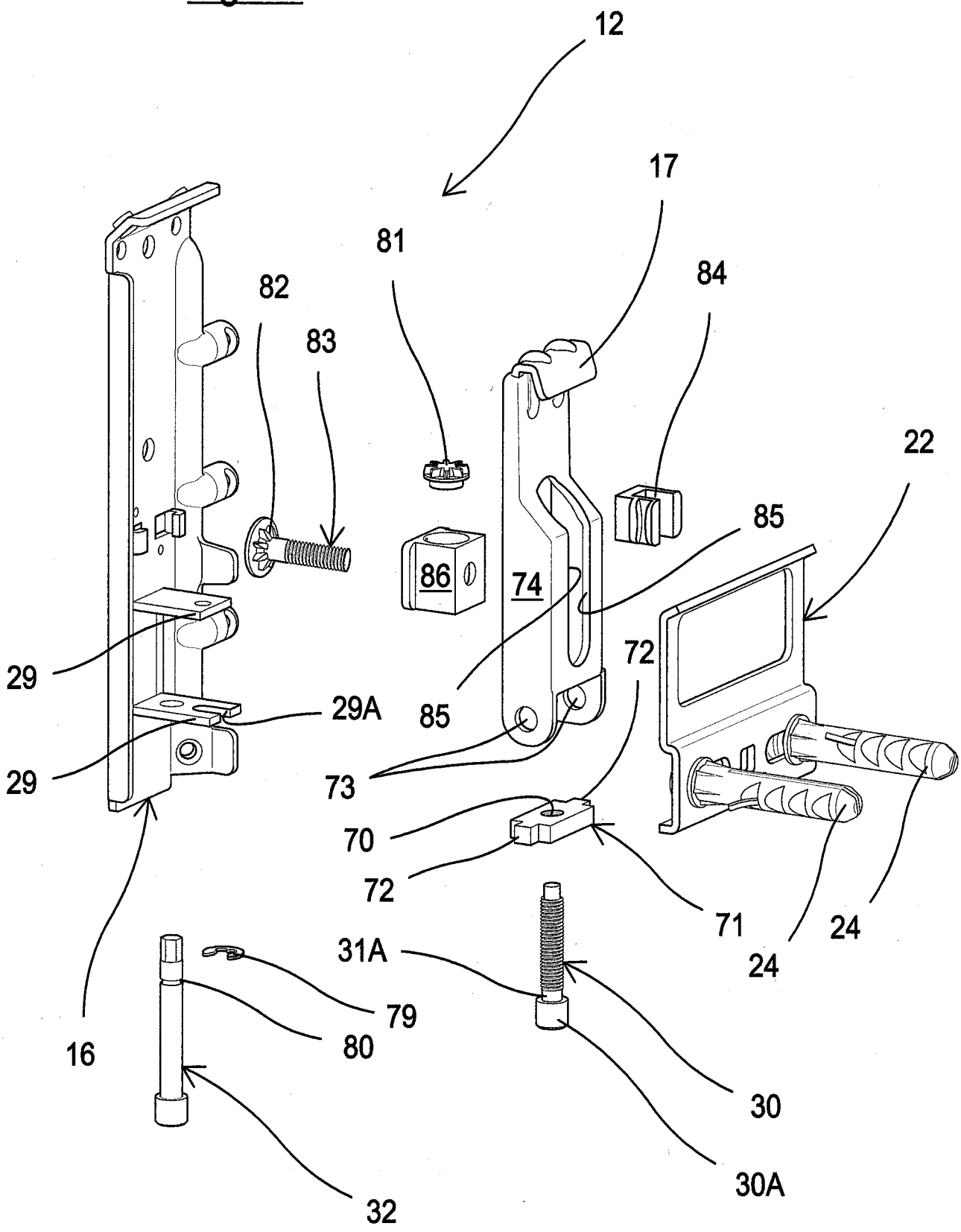
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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/067084

A. CLASSIFICATION OF SUBJECT MATTER
INV. A47B95/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/140467 A1 (LEONARDO SRL [IT]; CATTANEO CARLO [IT]) 18 October 2012 (2012-10-18) page 3, line 1 - page 22, line 4; figures 1-24 -----	1-5,7,8, 10-17,20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
1 September 2016	08/09/2016

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Kohler, Pierre

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/EP2016/067084

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012140467 A1	18-10-2012	EP 2696725 A1	19-02-2014
		EP 3025618 A1	01-06-2016
		EP 3025619 A1	01-06-2016
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		WO 2012140467 A1	18-10-2012