

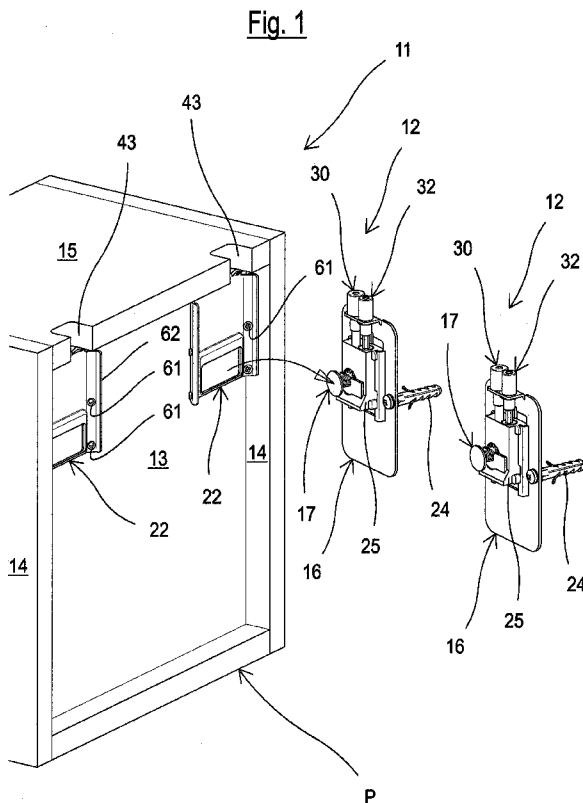


- (51) International Patent Classification:
A47B 95/00 (2006.01)
- (21) International Application Number:
PCT/EP2016/067303
- (22) International Filing Date:
20 July 2016 (20.07.2016)
- (25) Filing Language:
English
- (26) Publication Language:
English
- (30) Priority Data:
10 2015 000 039 506
29 July 2015 (29.07.2015) IT
- (71) Applicant: LEONARDO S.R.L. [IT/IT]; Via Leopardi 8,
22060 Figino Serenza (CO) (IT).
- (72) Inventor: CATTANEO, Carlo; via Leonardo da Vinci 5,
22060 Figino Serenza (CO) (IT).
- (74) Agents: MARTEGANI, Franco et al.; Via Carlo Alberto
41, 20900 Monza (IT).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ANCHORING GROUP FOR WALL CUPBOARDS WITH AN INCREASED CAPACITY WITH REGULATION FROM ABOVE



(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 (23) and a hooking element (17), and an anchoring support (22) to a wall-cupboard (P), regulation means and activation 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, F1) perpendicular to each other, vertically (in height) and horizontally (in depth), respectively, wherein both the regulation means and the activation means are accessible from above by means of holes (43) formed in a top (15) of the wall-cupboard (P).

WO 2017/016955 A1

Published:

— *with international search report (Art. 21(3))*

ANCHORING GROUP FOR WALL CUPBOARDS WITH AN INCREASED
CAPACITY WITH REGULATION FROM ABOVE

The present invention relates to an anchoring group
for the wall assembly of wall cupboards with an
5 increased capacity with regulation from above.

At present, the definition "anchoring group"
generally 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-
10 called hanging bracket) comprising a hook that can be
fixed to the furniture.

Furthermore, for a better understanding of the
problems associated with anchoring groups and their
application, it should also be pointed out that wall
15 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,
20 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,
25 which are always produced with a load-bearing function,

having an adequate thickness and resistance for the purpose, sometimes supported by a fixing also to the upper top of the cupboard.

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

In this document, the hanging bracket is fixed to the lining of the cupboard and the anchoring support is fixed to the wall of the environment or building.

10 This type of application, however, is not suitable when the wall cupboard does not have a particularly sturdy structure.

The use of particularly thin structural panels, in fact, hinders the firm positioning of the hanging
15 bracket to the cupboard.

Thin panels of both the shoulder and top do not support the firm positioning of the hanging bracket and above all are not suitable for validly "bearing" the cupboard and its contents once the hanging bracket has
20 been fixed to them.

The hanging bracket does not have a valid and stable coupling in the thin layer of wood or the like forming the panel.

This fixing with the insertion of screws or similar
25 elements can also easily cause breakage if the panel is

particularly thin and can therefore lead to a possible sagging of the wall cupboard when it is loaded.

In this situation of thin panelling, moreover, the anchoring groups used must be able to be regulated, in the sense that the hanging bracket, or rather its parts, must be movable with respect to the supporting point to allow a regulation in height (vertical) and also in depth (horizontal).

Only in this way is it possible to position the cupboard correctly on the wall, also with respect to other adjacent furniture.

Furthermore, also in this situation of a thin structure of the cupboard, the anchoring groups must not have complex mechanisms or be difficult to implement, in any case avoiding difficulty in their regulation in height and depth.

A further problem connected with the positioning of these wall cupboards lies in the need for holes in the lining and/or panels, allowing the passage of a tool that effects horizontal and vertical adjustments.

Holing in the lining and/or panels in visible positions is not desirable, as the wall cupboard, for example, has a certain value and must not be ruined by making holes that can easily be seen by an observer, even if covered by specific caps. In particular, in the

case of furniture that does not have closing doors, or with partially transparent doors, in which the holes and/or relative caps formed in the lining, are visible.

The objective of the present invention is therefore
5 to overcome the drawbacks previously indicated.

Furthermore, the present invention is proposed as an alternative to the known anchoring groups and already present on the market, in particular when the panels of the cupboard are thin.

10 In view of the above objectives, according to the present invention, an anchoring group has been conceived for the wall assembly of wall cupboards with an increased capacity with regulation from above, having the characteristics specified in the enclosed
15 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
20 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
25 anchoring group for the wall assembly of a wall

- cupboard with regulation from above in a non-limiting embodiment according to the present invention, in which the wall cupboard has a pair of anchoring plates or bars and a pair of hanging brackets are shown in an exploded view from the cupboard, separate from each other and to be fixed to the wall, individually spaced;
- 5
- figures 2, 2A and 3, 3A show perspective views of the single anchoring group in an assembled and operational position in an adjustment phase in height
 - 10 (vertical) and in an adjustment phase in depth (horizontal), respectively, and also partial views of the hanging bracket alone;
 - figures 4, 5 and 6 show raised sectional side views of the anchoring group before its operational assembly,
 - 15 before the adjustment phase in depth (horizontal) and after the adjustment phase which shows the final position acquired by the cupboard with respect to a wall;
 - figure 7 shows an enlarged perspective view of a
 - 20 hanging bracket already shown in figure 1;
 - figure 8 is an exploded enlarged perspective view illustrating the hanging bracket forming part of the anchoring group according to the present invention shown in figure 1;
 - 25 - figure 9 is a perspective view of the mechanism of

the hanging bracket of figure 8, assembled, partially split and sectioned;

- figures 10 and 10A show two differently oriented perspective views of details of activation means comprising a screw produced in the form of a worm screw and a toothed wheel that cooperates with said screw for regulating the hooking element.

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

According to the invention, said anchoring group 11 comprises a pair of hanging-bracket devices 12, of the adjustable type and suitable for being assembled on a wall or panel 23 by means of fixing dowels 24. A pair of supporting plates 22 are provided at the rear of a wall cupboard P, in a hidden position, in contact with a lining 13, constrained laterally to a shoulder 14 and above a top 15 of the wall cupboard P. It is immediately evident that the hanging bracket or its mechanisms can be produced in various alternative embodiments.

In the non-limiting embodiment shown, each hanging

bracket device 12 comprises an anchoring base or plate element 16 and a hooking element 17. The plate element 16 is provided with at least a pair of holes 60 suitable for receiving the fixing dowels 24, produced
5 in opposite parts of the plate element 16 itself, for constraining it to the wall 23.

Each hooking element 17 of each hanging bracket 12 is coupled in the front with the same plate element 16 to receive and constrain each supporting plate 22 which
10 is fixed at the rear of the wall cupboard P. In particular, said fixing is effected thanks to the presence, in each supporting plate 22, of holes 61 formed on side edges 62 and upper edges (if present) of each plate 22 which are juxtaposed with respect to the
15 shoulder 14 and top 15 and constrained by means of screws for obtaining its stable positioning.

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
20 element 17 is at least partly 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.

25 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.

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 16 and which extends perpendicularly to the rails 26, and a regulation screw 30, accessible and operable from above, 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.

5 Furthermore, each hanging-bracket device 12 comprises activation means for controlling the movement of the hooking element 17 in the second direction F1. In particular, in the example shown, said activation means comprise a drive screw 32, accessible and
10 operable from above, 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 the abutment flap 29, but rotates, thanks to the provision of a blocking ring 33,
15 such as a Seeger ring, which is housed in an annular seat 33A formed below its head 32A which is thus firmly constrained to the flap 29, but free to rotate.

More specifically, said activation means, in addition to comprising in this example the drive screw
20 32, having a polygonal stem 34, for example hexagonal, provide a cylindrical element 35, provided externally with a portion in the form of a worm-screw 36, and housed in the slide 25, kept rotatably in position by a pin 37.

25 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 rotatably 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 activated 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 above.

The possibility of effecting regulations from above, for example by means of pass-through holes or recesses 43 formed in the top 15 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. The positioning of holes or recesses 43 in the top 15 of the wall cupboard P eliminates any aesthetical problem, completely hiding them from the view of an observer.

Furthermore, the constraint of the hanging brackets 12 to the wall 23 allows a safe and stable positioning of the anchoring group, avoiding any possible breakage of the wooden parts or breakage points.

In this way, the horizontal or vertical movement of the wall cupboard P can be advantageously regulated, acting on only one side, i.e. from above, and by simply

acting with a screwdriver 45.

Figures 2, 2A and 3, 3A show how accessibility to the hanging bracket 12 is achieved through the screwdriver 45 introduced from above alternatively in
5 either of the two holes 43 of the top 15 of the wall cupboard P.

More specifically, it can be seen how each hanging bracket 12 is constrained to the wall 23 thus creating an increased capacity which prevents any possible
10 sagging also in the case of a considerable load. Furthermore, each supporting plate 22 collaborating with the respective hooking element 17 of the hanging bracket 12 is firmly positioned on the rear part of the cupboard without any holing, for example in
15 correspondence with the convergence between the top 15 and the shoulder 14, in a particularly resistant point of the structure of the wall cupboard P.

Figure 5 shows by way of example how the screwdriver 45 is introduced from above into one of the
20 holes 43 of the top 15 to effect the adjustment in a horizontal direction, i.e. in depth, according to the arrow F1, after juxtaposing the wall cupboard P with relative supporting plates 22 and the respective hooking element 17 of the corresponding hanging
25 brackets 12, as indicated by the arrow K in the section

of figure 4.

Once the adjustment has been effected, as indicated in figure 5, figure 6 shows how the wall cupboard P has been perfectly regulated in position by moving it as
5 required towards the wall 23.

According to the invention, an anchoring group has been provided in which the hanging bracket is fixed to the wall or panel with respect to which the wall cupboard P, bearing anchoring supports such as plates
10 or a single bar, must be positioned, optimizing the stable and safe positioning of the wall cupboard also in the presence of particularly thin panels of the top, shoulder and base.

It is therefore reiterated that each anchoring
15 group comprises regulation means and activation means of the reciprocal position between the hanging-bracket device 12, the hooking element 17 and the anchoring support 22 to effect a regulation in the position of the wall cupboard P with respect to the wall 23. Said
20 regulation is effected in two directions F, F1, perpendicular to each other, vertically (in height) and in horizontally (in depth) respectively and the regulation and activation are advantageously effected from above.

25 The implementation of the adjustments in depth and

in height are therefore very practically effected directly from above with a screwdriver.

Finally, all problems relating to the presence of visible holes in the elements of the wall cupboard
5 and/or closing caps of the same holes, have been eliminated.

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

Further variants, or equivalent modifications are
10 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.

15

20

25

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 panel or wall (23) and a hooking element (17), and an anchoring support (22) to a wall-cupboard (P), regulation means and activation means of the reciprocal position being provided 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, wherein both said regulation means and said activation means are accessible from above by means of holes (43) formed in a top (15) of the wall-cupboard (P).

2. The group according to claim 1, characterized in that said hanging-bracket (12) 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 activation 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 fixing holes (60), for receiving fixing dowels to said wall (23), 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 a first direction.

4. The group according to claim 2 or 3, characterized in that said regulation means accessible from above 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 from 2 to 4, 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
5 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 from 2 to 6, characterized in that said activation means accessible from above are suitable for
10 controlling said movement of said hooking element (17) in said second direction.

8. The group according to one or more of the previous claims from 2 to 7, characterized in that said activation means comprise a drive screw (32) at least
15 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
20 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).

25 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 said anchoring support positioned behind said wall-cupboard (P) is a single bar.

13. The group according to one or more of claims 2 to 12, characterized in that said anchoring support

positioned behind said wall-cupboard (P) consists of a pair of supporting plates (22).

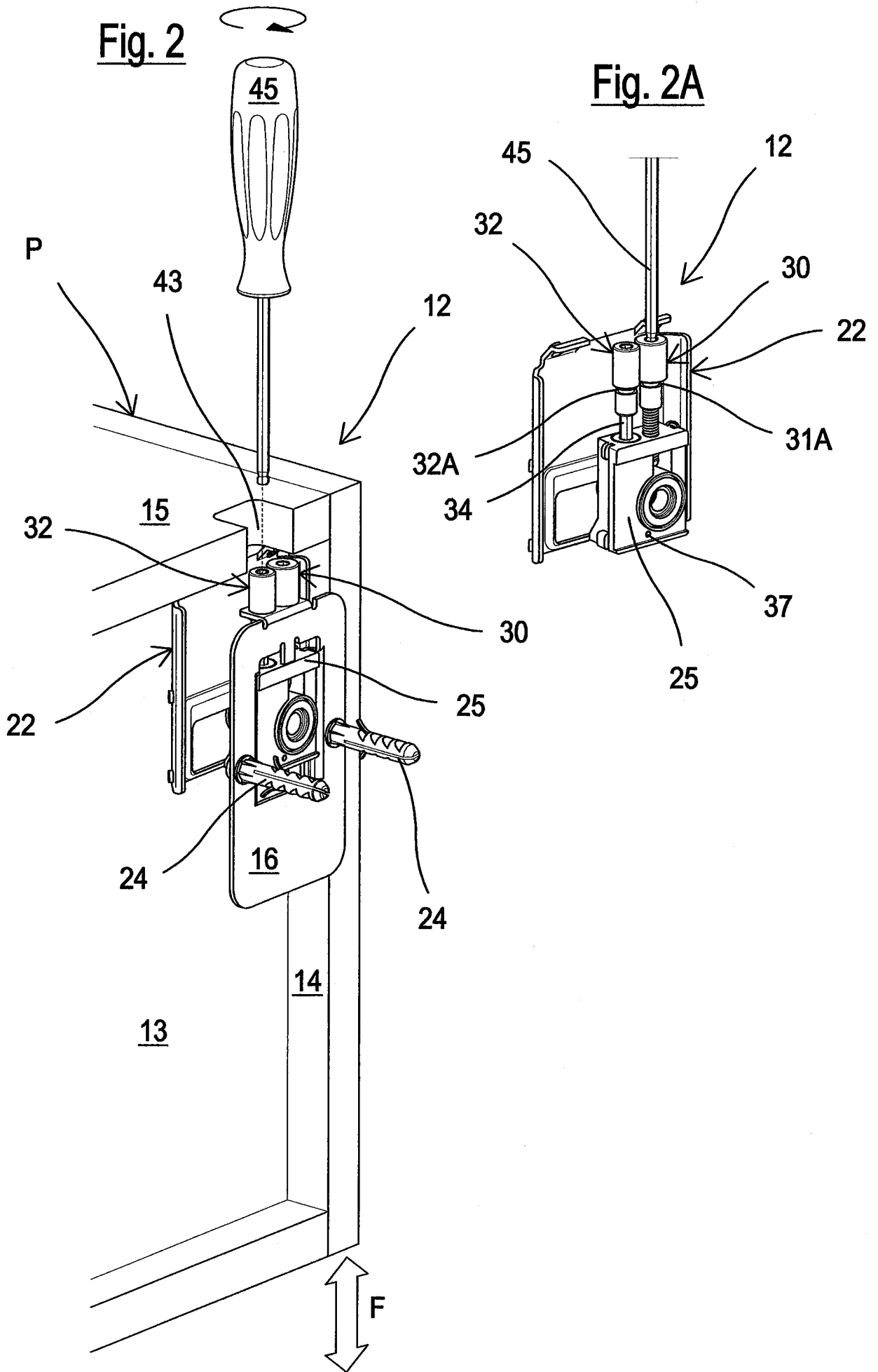
5

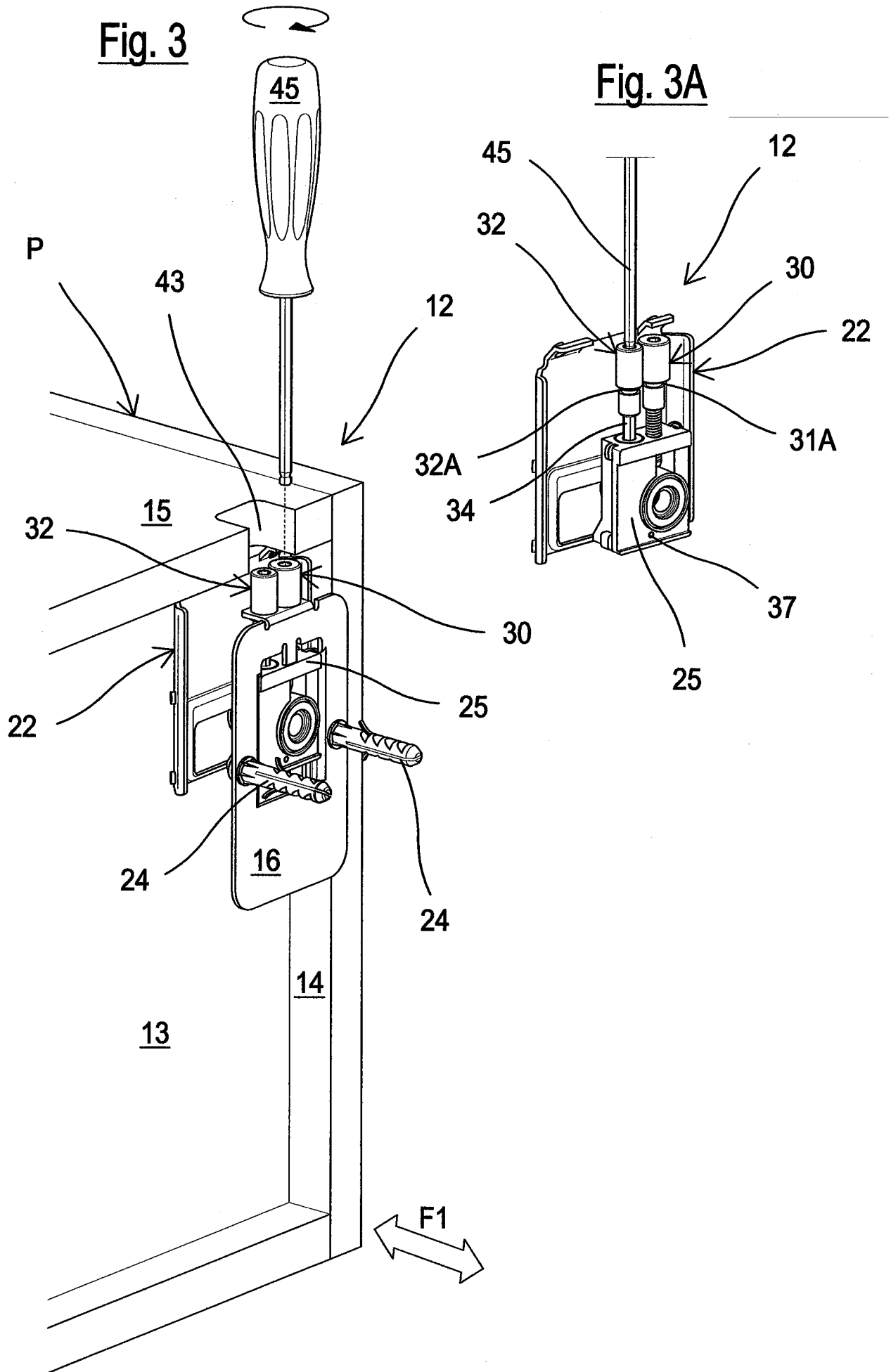
10

15

20

25





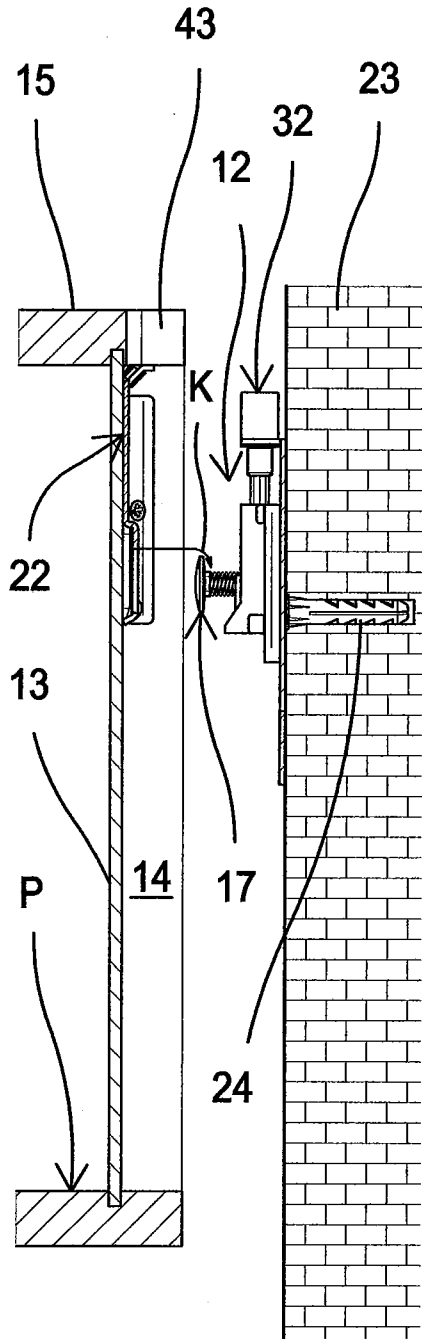


Fig. 4

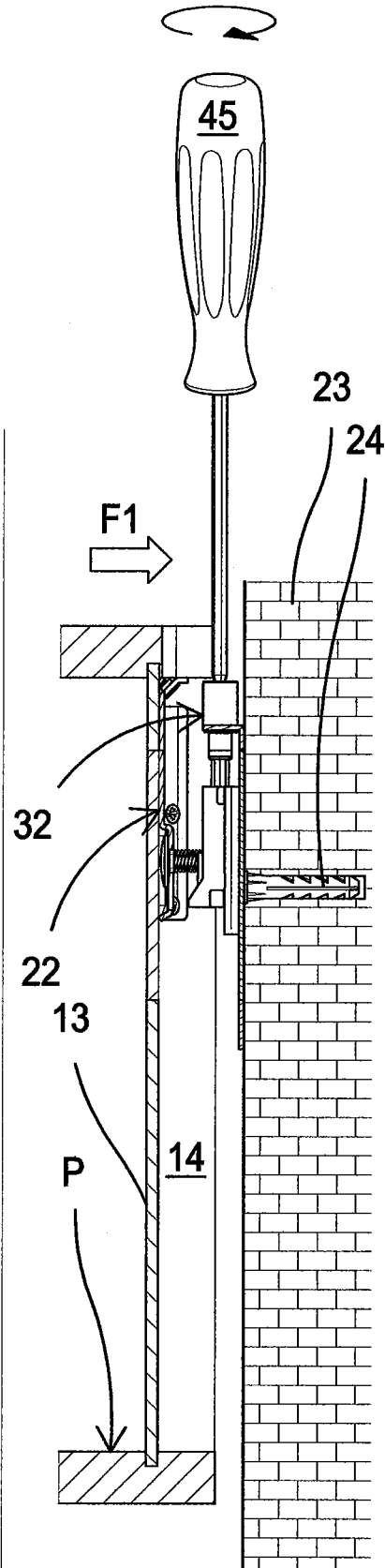


Fig. 5

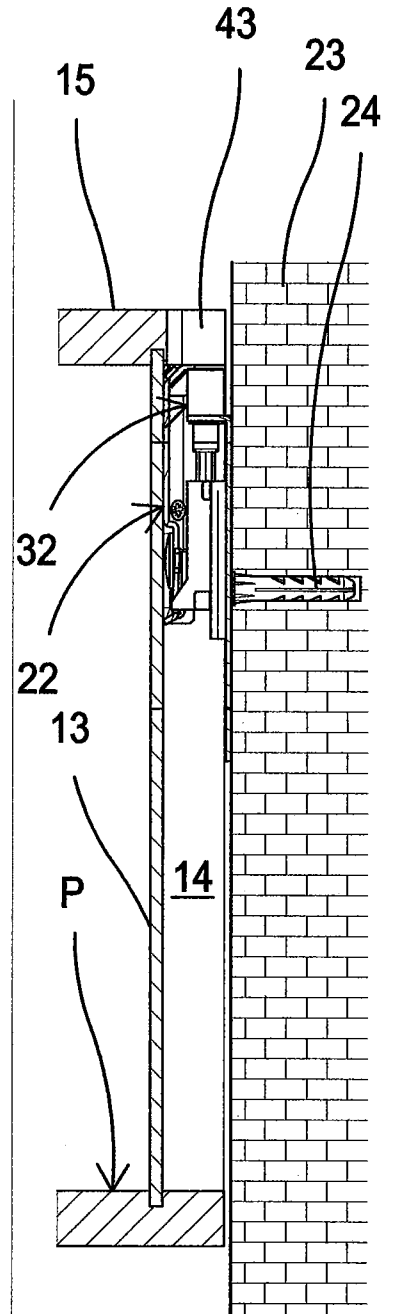


Fig. 6

Fig. 7

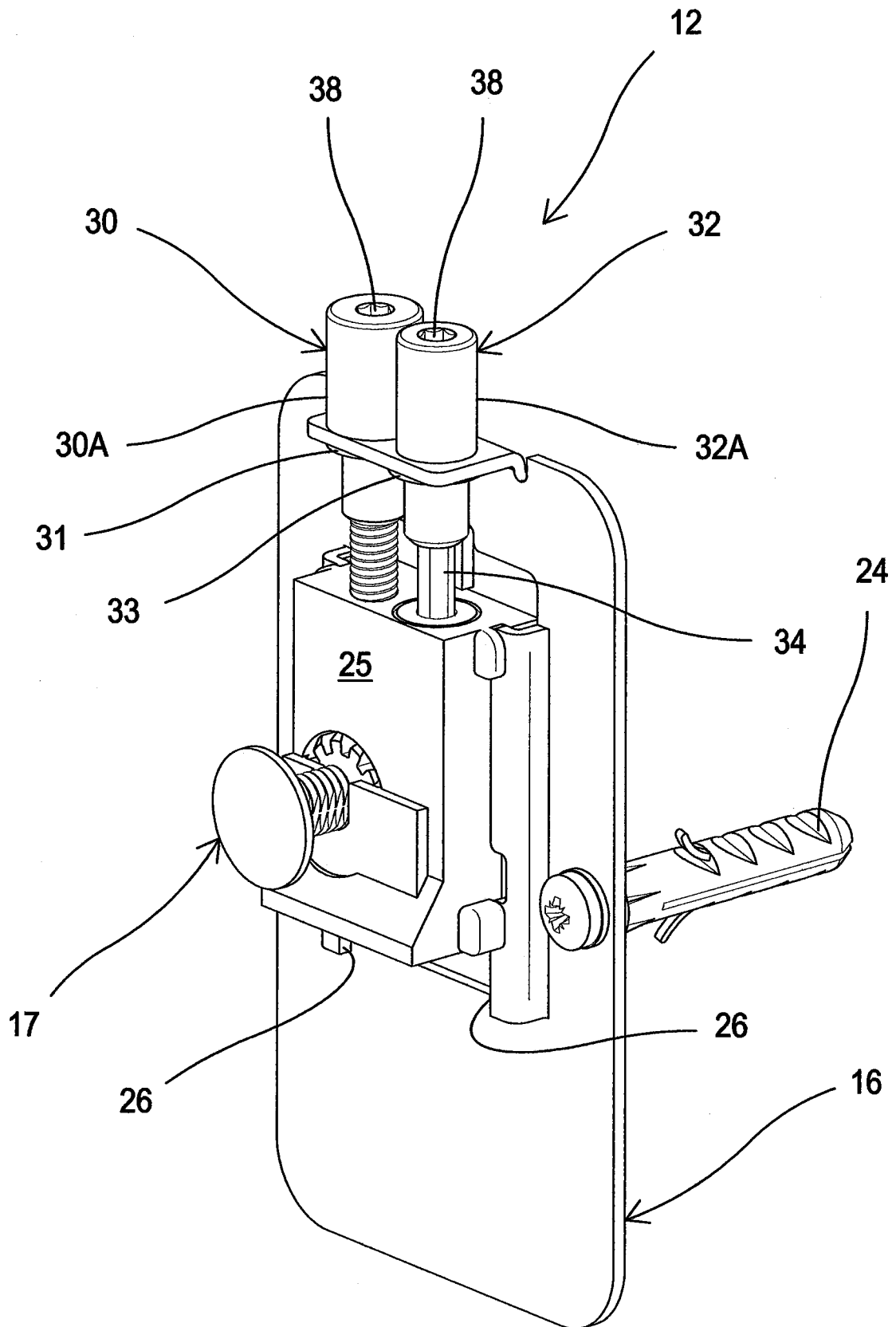


Fig. 8

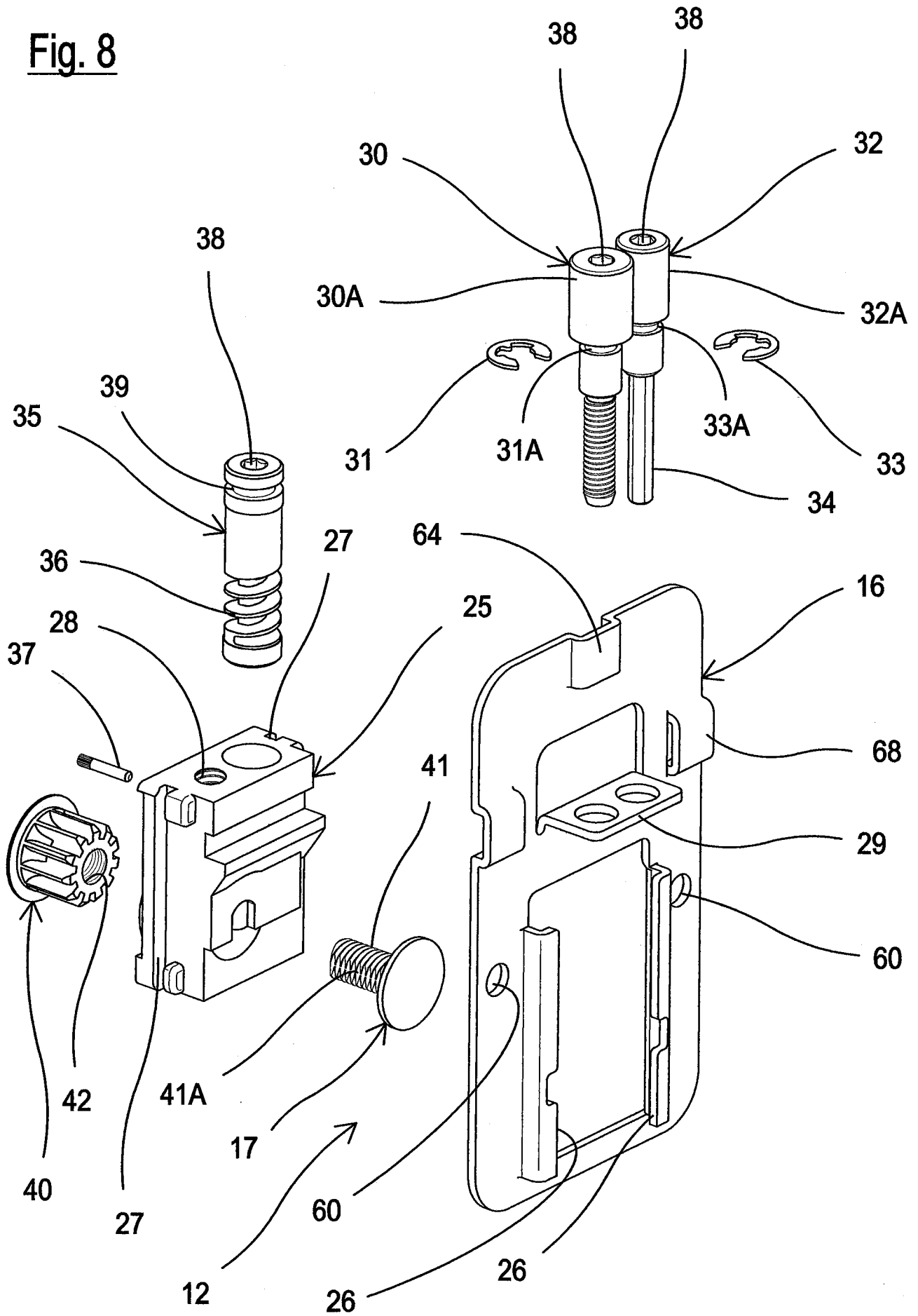


Fig. 9

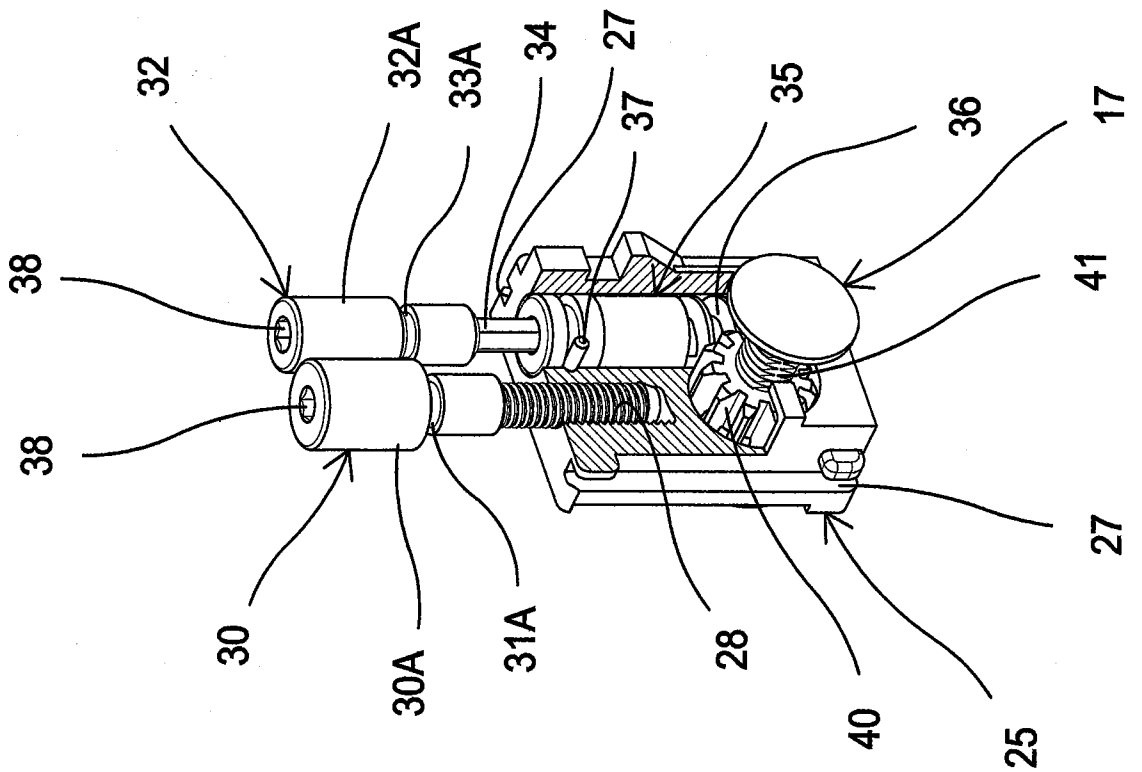


Fig. 10

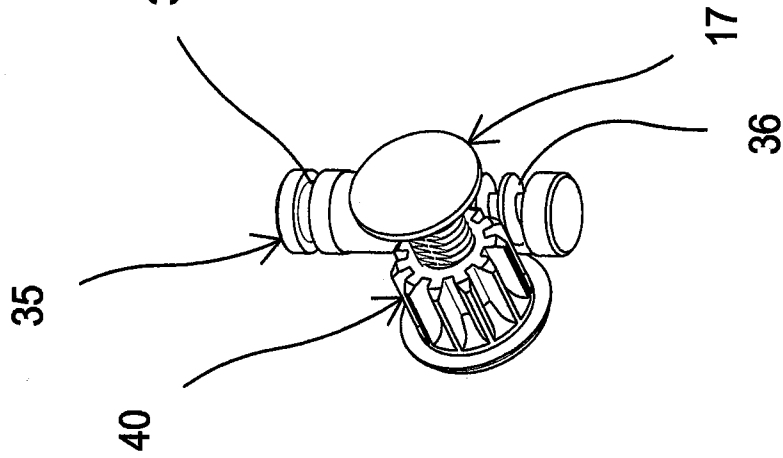
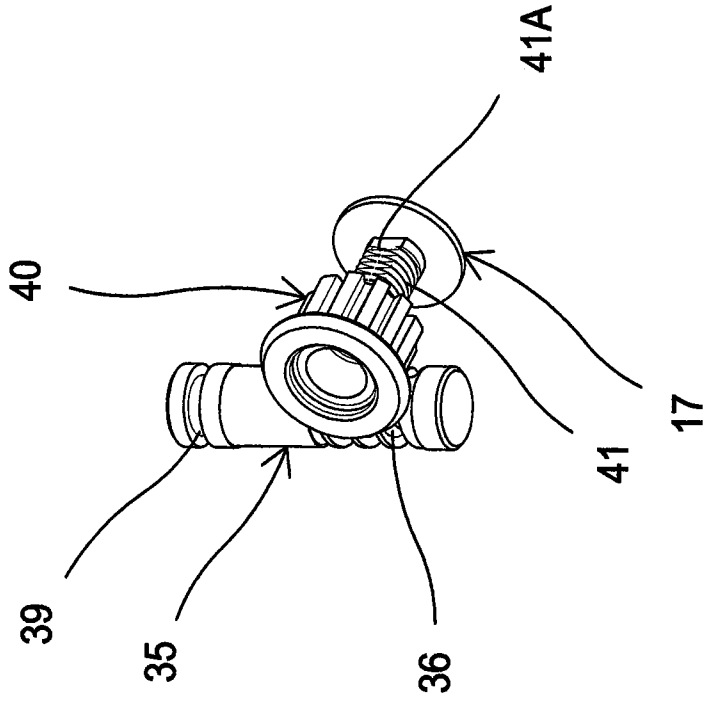


Fig. 10A



25

27

41

17

36

17

41

17

41A

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/067303

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 13, line 6; figures 1,2,21-24 page 21, line 2 - page 22, line 4; figures 21-24 -----	1-5,7,8, 10-13

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
---	---

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

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

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2016/067303

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
		EP 3025620 A1	01-06-2016
		ES 2576998 T3	12-07-2016
		WO 2012140467 A1	18-10-2012
