(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 705 775 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
12.03.2014 Bulletin 2014/11

(51) Int Cl.:
A47B 95/00 *(2006.01)* ***A47B 96/06*** *(2006.01)*

(21) Application number: **13178326.8**

(22) Date of filing: **29.07.2013**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **06.09.2012 IT MI20121487**

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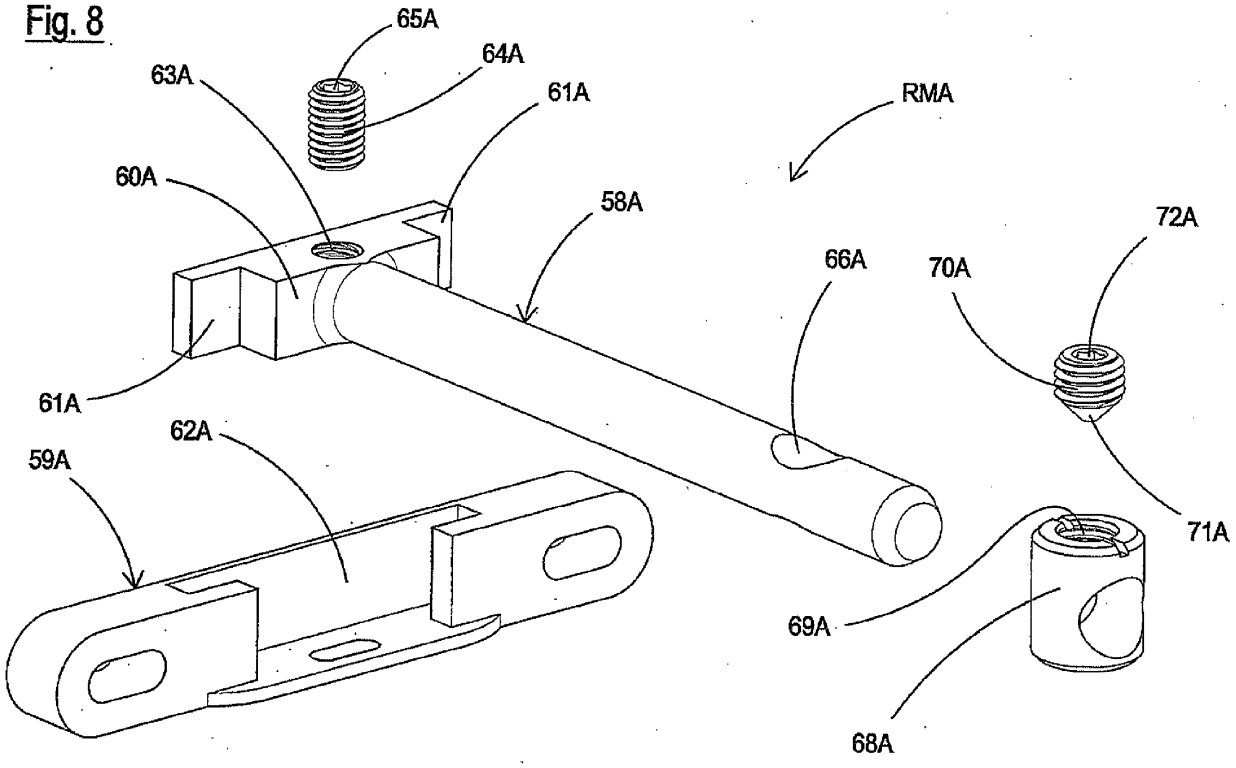
(54) System for hanging a furniture module to a wall

(57) A system for hanging a furniture module (M) to a wall (P) comprising, in combination: a wall-cupboard (50A, 50B, 50C) and a shelf (53A, 53B, 53C) rigidly fixed to said wall-cupboard (50A, 50B, 50C), according to the invention, comprises the combination: of a plurality of hidden shoulder-centre hanging brackets (52A, 52B, 52C) and a plurality of shelf brackets (RMA, RMB, 77C), said shoulder-centre hanging brackets (52A, 52B, 52C) and said shelf brackets (RMA, RMB, 77C) are both provided with respective regulation mechanisms in vertical (height) and in depth of the position of the module (M) with respect to the wall (P), the regulation mechanisms of the shelf brackets are accessible through holes 48A, 47A;48B,47B;93C,92C) situated in the shelf itself (53A, 53B,53C).

Fig. 8



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Description

[0001] The present invention relates to a system for hanging a monoblock furniture module to a wall comprising, in combination: a wall-cupboard and at least one side shelf rigidly interconnected. According to the invention, said wall cupboard and said side shelf are equipped with respective devices for regulating their position, with respect to the wall, in vertical (height) and in depth.

[0002] Various systems are well known to experts in the field for (separately) hanging wall cupboards and shelves to the wall.

[0003] Patent applications PCT/EP2011/005079 and PCT/EP2012/001234, for example, disclose hanging a wall cupboard to a wall using a so-called "shoulder-centre" hanging bracket, completely hidden, provided with regulation mechanisms of the wall cupboard in vertical and in depth with respect to the wall.

[0004] Reference should be made to the above-mentioned patent applications PCT/EP2011/005079 and PCT/EP2012/001234 for a better understanding of the structure and functioning of said "shoulder-centre" hanging brackets, which should be considered an integral part of the present description.

[0005] The most commonly used hidden system for hanging and fixing a shelf to the wall envisages the use of pins cantilever-fixed to the wall - at the desired height - on which the shelf is inserted, in which complementary holes are arranged for the purpose, for receiving said pins.

[0006] These systems do not comprise any mechanism for regulating the position - in vertical and in depth - of the shelf with respect to the wall.

[0007] The current tendency of interior architecture is to propose furniture modules consisting of a wall cupboard from which one or more shelves extend laterally, which are integral with the wall cupboard itself.

[0008] The module described above is therefore a monoblock.

[0009] Experts in the field will obviously realize that it is impossible to hang this kind of furniture with the possibility of vertical and depth regulation, in the presence of a shelf rigidly inserted on pins, as briefly described above, or in another way firmly connected to supporting means fixed to the wall.

[0010] The general objective of the present invention is to overcome this drawback by providing a hanging system whereby a monoblock furniture module, comprising a wall cupboard and at least one shelf, can be assembled to the wall so that its position, both vertical and in depth, can be regulated.

[0011] This objective is achieved by a hanging system having the characteristics specified in claim 1 and the enclosed subclaims.

[0012] The structural and functional characteristics of the present invention, and its advantages with respect to the known art, will appear evident from the following description, referring to the enclosed drawings, which show embodiment examples of the same invention. In the drawings:

- figures 1, 2 and 3 are views illustrating an example of the known art for hanging a cupboard to the wall using so-called hidden "shoulder-centre" hanging brackets.
- figures 4, 5 and 6 are views illustrating an example of the known art for fixing a shelf to the wall by means of hidden pins;
- figure 7 is a perspective view illustrating a monoblock module comprising a wall cupboard and a shelf rigidly interconnected and provided with hanging systems of the known type illustrated in figures 1-6;
- figure 8 is an exploded perspective view illustrating a first embodiment of a hanging system for shelves according to the present invention, wherein the shelf is fixed to a wall cupboard (partially shown) equipped with shoulder-centre hanging brackets;
- figures 9-12 are views illustrating the assembly phases of the hanging system of figure 8;
- figures 13-15 are views illustrating a shelf fixed to a wall by means of the hanging system illustrated in figures 8-12, in which the shelf is fixed to a wall cupboard (partially shown) equipped with shoulder-centre hanging brackets;
- figure 16 is an exploded perspective view illustrating a second embodiment of a hanging system for shelves according to the present invention;
- figures 17-20 are views illustrating the assembly phases of the hanging system of figure 16;
- figures 21-23 are views illustrating a shelf fixed to a wall by means of the hanging system illustrated in figures 16-20, in which the shelf is fixed to a wall cupboard (partially shown) equipped with shoulder-centre hanging brackets;
- figures 24 and 25 are two exploded perspective views illustrating a third embodiment of a hanging system for shelves according to the present invention;
- figures 26-28 are views illustrating the assembly phases of the hanging system of figures 24, 25;
- figures 29-31 are views illustrating a shelf fixed to a wall by means of the hanging system illustrated in figures 24-28, in which the shelf is fixed to a wall cupboard (partially shown) equipped with shoulder-centre hanging brackets, and wherein figures 29, 30 are vertical sections taken according to the line A-A of figure 31;
- figures 32-35 are sectional details illustrating the regulation mechanisms in vertical and in depth of the hanging system of figures 24-31, wherein figures 32, 33 are vertical sections taken according to the line B-B of figure 34;
- figure 36 is a perspective view illustrating a monoblock furniture module hung to a wall by means of a hanging system illustrated in figures 8 or 16;
- figure 37 is a perspective view illustrating a mono-

block furniture module hung to a wall by means of a hanging system illustrated in figure 24;

- figure 38 is an exploded perspective view illustrating the hidden shoulder-centre hanging bracket of the known type object of patent application PCT/EP2011/005079.

[0013] With reference to figures 1-3 of the drawings, a wall cupboard is indicated as a whole with 50 and is suitable for being hung (hooked) onto plaques 51 fixed to a wall P by means of a plurality of "shoulder-centre" hanging brackets indicated as a whole with 52 (Figure 38).

[0014] As already indicated, these known hidden and adjustable hanging systems by means of "shoulder-centre" hanging brackets, are described in patent applications PCT/EP2011/005079 and PCT/EP2012/001234 to which reference should be made.

[0015] Figures 4-6 illustrate a shelf 53 which is fixed to the wall P by means of pins 54.

[0016] The pins 54 are fixed to the wall P by means of suitable pegs 55 of the known type and corresponding holes 56 of the shelf 53 are inserted on said pins 54.

[0017] This hanging system of the known type does not comprise any regulation mechanism of the position in vertical and depth of the shelf 53 with respect to the wall P.

[0018] Figure 7 illustrates a module 57 consisting of a combination of the wall cupboard 50 and shelf 53, which are rigidly interconnected before being hung onto the wall.

[0019] It is obviously impossible to hang the monoblock module 57 to the wall, with the possibility of regulation, due to the rigid coupling between the shelf 53 and pins 54.

[0020] In order to overcome this drawback, according to the invention, a module M has been conceived in which both the wall cupboard 50A, 50B, 50C and the shelf 53A, 53B, 53C, are provided with respective regulation mechanisms for regulating their position in vertical and in depth with respect to the wall P (figures 8-37).

[0021] For this purpose, the wall cupboard 50A (figures 13-15) is hung by means of a plurality of hidden "shoulder-centre" hanging brackets 52A, of the known type (Figure 38), such as those described, for example in patent applications PCT/EP2011/005079 and PCT/EP2012/001234.

[0022] According to the invention, the shelf 53A is hung by means of characteristic shelf-brackets RMA (figure 8) equipped with regulation mechanisms in vertical and in depth of the position of the shelf with respect to the wall.

[0023] Figure 8 illustrates a pin 58A assembled on a plaque 59A fixed to the wall.

[0024] For this purpose, said pin 58A is provided with an end shank 60A, with flaps 61A, which is inserted inside a corresponding seat 62A of the plaque 59A.

[0025] A threaded pass-through hole 63A is situated in the shank 60A, through which a bead 64A is screwed, with a shaped end-seat 65A suitable for receiving a maneuvering tool U (figures 9-15).

[0026] The bead 64A is accessible through a hole 48A situated in the panel 53A.

[0027] The bead 64A serves for the vertical regulation of the shelf 53A.

[0028] Close to the free end, in the pin 58A, there is also a conical radial hole 66A.

[0029] Holes 67A are incorporated in the shelf 53A, in which respective supporting pins 58A are inserted.

[0030] A threaded radial butt 68A, threaded in 69A, is also housed inside a hole 47A of the shelf 53A, through which a bead 70A with a conical end 71A and shaped seat 72A for a maneuvering tool U, is screwed.

[0031] As can be clearly seen in figures 13-15, the end 71A of the bead 70A is inserted inside and collaborates with the conical hole 66A of the pin 58A.

[0032] The bead 70A serves for the regulation in depth of the shelf 53A.

[0033] Figures 16-23 illustrate a second embodiment of the invention which is substantially equivalent to that illustrated in figures 8-15.

[0034] In this second embodiment of the invention, components equal or equivalent to those of the first embodiment, illustrated with reference to figures 8-15, are indicated with the same reference numbers with the addition of the letter B.

[0035] The only difference between the first and second embodiment of the invention is that the latter comprises a sleeve 73B inside the hole 67B, in which the corresponding pin 58B is inserted and housed, cantilever-extending from the wall P. In addition, in this second embodiment of the invention, the butt 68A, present in the first, is absent.

[0036] As can be clearly seen in the drawings, said sleeve 73B is provided with a threaded hole 74B aligned with the conical hole 66B of the pin 58B, through which the bead 70B can be perceived.

[0037] For this purpose, the bead 70B passes and is accessible through a hold 46B situated in the shelf 53B.

[0038] The sleeve 73B is also provided with an end-flange 75B to allow it to be fixed inside a corresponding seat 76B positioned in the rear edge of the shelf 53B (figures 16-20).

[0039] Figures 24, 35 illustrate a third embodiment of the invention in which components which are the same as, or substantially equivalent to, those of the first two embodiments previously described, are indicated with the same reference numbers with the addition of the letter C.

[0040] Figure 24 illustrates a hidden shelf-bracket device indicated as a whole with 77C.

[0041] The shelf-bracket 77C cooperates with a plaque 78C fixed to the wall.

[0042] The shelf-bracket 77C is structurally composed of a regulation mechanism in vertical and in depth which is contained inside a shell consisting of two intercoupled half-shells 79C, 80C.

[0043] Said regulation mechanism comprises a slide 81C which has a horizontal movement and is also oscil-

lating, according to the arrows F1 and F2 respectively.

[0044] The horizontal translation of the slide 81C is controlled by a screw 82C which is screwed onto a nut 83C.

[0045] For this purpose, the screw 82C is provided with a toothed crown head 84C with which a control pinion 85C is engaged, that can be activated by means of a maneuvering tool U.

[0046] The pinion 85C is accessible through a hole 92C situated in the shelf 53C.

[0047] As can be clearly seen in the drawings, the screw 82C and nut 83C are housed inside a corresponding seat 86C of the slide 81C, whereas the toothed crown 84C and the pinion 85C are housed inside a seat S of the half-shells 79C, 80C.

[0048] The slide 81C, at the end opposite to the pinion 85C, is hook-shaped, as in 87C, and is hooked to a tooth 88C of the plaque 78C.

[0049] The oscillating movement of the slide 81C on the tilted planes 49C (figures 24, 32, 33) of the half-shells 79C, 80C is actuated by means of a bead 89C which is screwed onto a nut 90C.

[0050] As can be clearly seen in figures 24, 30 of the drawings, said nut 90C is housed in a seat 91C of the slide 81C.

[0051] Holes 92C, 93C are situated in the shelf 53C, through which the manoeuvring tool U of the pinion 85C and bead 89C is introduced.

[0052] The functioning of the hanging system according to the invention is evident from what is described above with reference to the drawings, and is briefly as follows.

[0053] The monoblock module illustrated in figures 21, 36, in which the shelf is assembled on pins 58A, 58B (figures 8-23), is hung by applying hanging brackets 52A, 52B to respective plaques 51A, 51B and contemporaneously inserting the pins 58A, 58B inside the respective seats of the shelves 53A, 53B.

[0054] Regulations in vertical and depth can then be effected by acting on the mechanisms of the shoulder-centre hanging brackets and beads 64A, 64B and 70A, 70B which collaborate with the pins 58A, 58B.

[0055] The mechanisms of the shoulder-centre hanging brackets act, in a known way and as described in the PCT patent applications cited above, on the hook G by varying its position in vertical and depth, consequently varying the position of the wall cupboard with respect to the wall (figures 2 and 3).

[0056] The screwing of the beads 64A, 64B, in contrast with the plaque 59A, 59B, causes a variation in the height of the pin 58A, 58B according to the arrows indicated in figures 13, 14 and 21, 22.

[0057] The screwing of the beads 70A, 70B inside the conical holes 66A, 66B causes a translation of the shelf 53A, 53B according to the arrows indicated in figures 13, 14 and 21, 22.

[0058] Consequently, the position in vertical and in depth also of the shelf 53A and 53B, can be regulated.

[0059] The monoblock module illustrated in figure 37, in which the shelf 53C, instead of being assembled on pins, is assembled on plaques 78C (figures 24-35), is hung by hooking the hanging brackets 52C to respective plaques 51C and contemporaneously hooking the slides 81C to the teeth 88C of the plaque 78C.

[0060] Regulations in vertical and depth can then be effected by acting on the mechanisms of the shoulder-centre hanging brackets and on the bead 89C and pinion 85C acting on the slide 81C.

[0061] By screwing the bead 89C onto the nut 90C, the oscillation is caused of the slide 81C around 49C, as indicated in figures 32, 33, and consequently a variation in the height of the wall cupboard 53C, as indicated by the arrows in the drawings.

[0062] By rotating the pinion 85C, the rotation is caused of the screw 82C through the nut 83C, and consequently the translation of the slide 81C hooked to the hook 88C of the plaque 78C. The panel 53C is therefore translated in depth, as indicated in figures 34, 35, and its position regulated with respect to the wall P.

[0063] As can be clearly seen in figures 13, 14, 21, 22 and 29, 30, the shelves 53A, 53B, 53C can also be assembled overturned, i.e. with access to the regulation mechanisms from above (figures 13, 21, 29) or below (figures 14, 22, 30), as desired.

[0064] The protection scope of the invention is defined by the following claims.

Claims

1. A system for hanging a furniture module (M) to a wall (P) comprising, in combination: a wall-cupboard (50A, 50B, 50C) and a shelf (53A, 53B, 53C) rigidly fixed to said wall-cupboard (50A, 50B, 50C), **characterized in that** it comprises the combination of: a plurality of hidden shoulder-centre hanging brackets (52A, 52B, 52C), and a plurality of shelf-brackets (RMA, RMB, 77C), said shoulder-centre hanging brackets (52A, 52B, 52C), and said shelf-brackets (RMA, RMB, 77C) both being equipped with respective regulation mechanisms, in vertical (height) and in depth of the position of the module (M) with respect to the wall (P), the regulation mechanisms of the shelf-brackets being accessible through holes (48A, 47A;48B,47B;93C,92C) situated in the shelf (53A, 53B, 53C) itself.

2. The system according to claim 1, **characterized in that** said hanging brackets (52A, 52B, 52C), are equipped with regulation mechanisms in vertical and in depth of a hook (G) for hanging to said wall (P).

3. The system according to claim 1, **characterized in that** said shelf-brackets (RMA) comprise a pin (58A) assembled on a plaque (59A) fixed to said wall (P), said pin (58A) is equipped with an end shank (60A),

with flaps (61A), which is inserted inside a corresponding seat (62A) of the plaque (59A), a threaded pass-through hole (63A) being situated in said shank (60A), through which a bead (64A) is screwed, with a shaped end-seat (65A) suitable for receiving a manoeuvring tool (U), said bead, (64A) cooperating with said plaque (59A) actuates the vertical regulation of the shelf (53A).

4. The system according to claim 3, **characterized in that**, close to the free end, in the pin (58A), there is also a conical radial hole (66A), in which the conical end (71A) of a bead (70A) is inserted, said bead being screwed onto a threaded radial butt (68A) housed in the shelf (53A), holes (67A) being incorporated in said shelf (53A), in which respective supporting pins (58A) are inserted, the bead (70A) serving for the regulation of the depth of the shelf (53A).

5. The system according to claim 1, **characterized in that** said shelf-bracket (77C) cooperates with a plaque (78C) fixed to the wall (P), said shelf-bracket (77C) is structurally composed of a regulation mechanism in vertical and in depth which is contained inside a shell consisting of two half-shells (79C, 80C), intercoupled and housed in the shelf (53C).

6. The system according to claim 5, **characterized in that** said regulation mechanism in vertical and in depth comprises a slide (81C) which has a horizontal movement (depth) and is also oscillating, according to the arrows (F1, F2) respectively.

7. The system according to claim 6, **characterized in that** the horizontal translation of the slide (81C) is controlled by a screw (82C) that is screwed onto a nut (83C), said screw (82C) and said nut (83C) being housed inside a corresponding seat (86C) of said slide (81C).

8. The system according to claim 7, **characterized in that** said screw (82C) is provided with a toothed crown head (84C) with which a control pinion (85C) is engaged, that can be activated by means of a manoeuvring tool (U), said head (84C) and said pinion (85C) being housed inside a seat (S) situated in said intercoupled half-shells (79C, 80C).

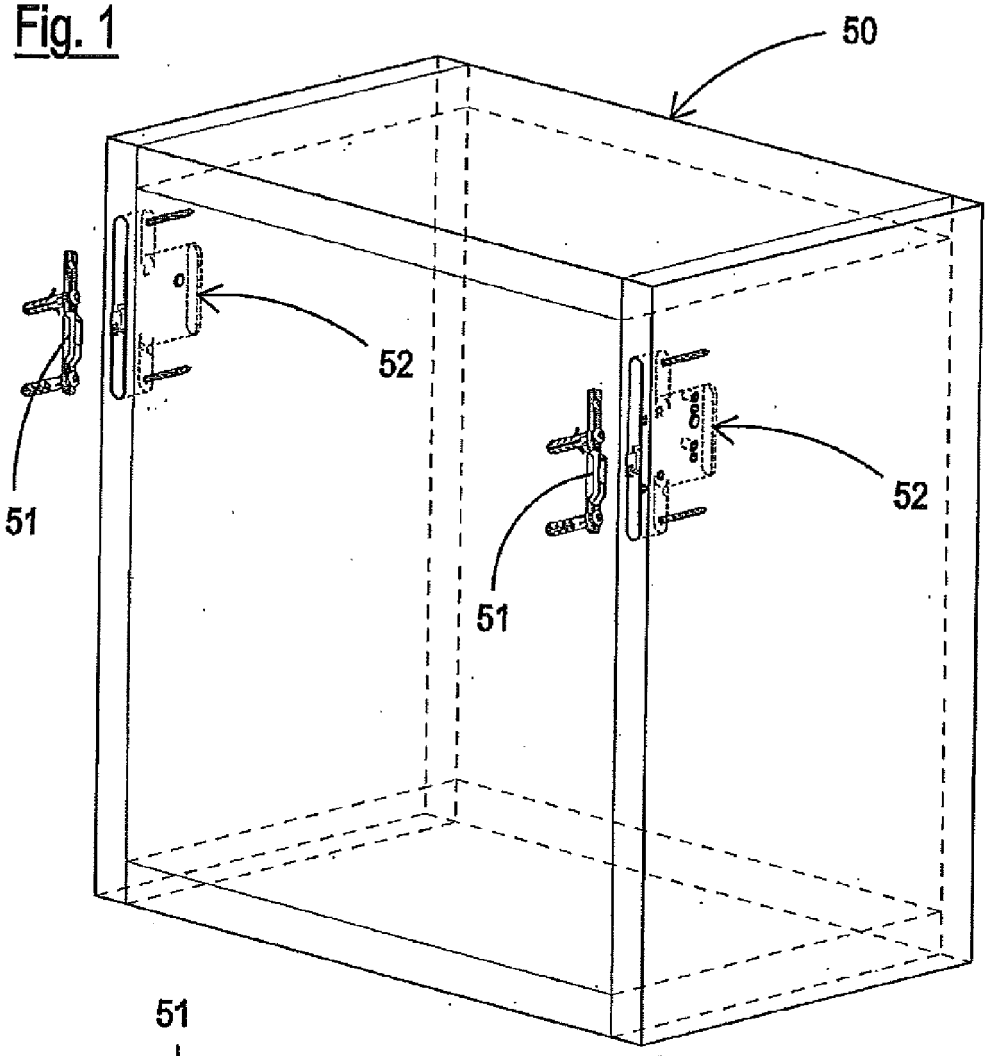
9. The system according to claims 5 and 8, **characterized in that** said slide (81C), at the end opposite to the pinion (85C), is hook-shaped, as in (87C), and is hooked to a tooth (88C) of the plaque (78C).

10. The system according to claim 6, **characterized in that** the oscillating movement of the slide (81C) on the tilted planes (49C) of the half-shells (79C, 80C) is actuated by means of a bead (89C) which is screwed onto a nut (90C), wherein said nut (90C) is housed inside a seat (91C) of said slide (81C).

11. The system according to claims 1, 3 and 4, **characterized in that** said shelf (53B) has a hole (67B) in which a sleeve (73B) is housed, in which a corresponding pin (58B) is inserted, said sleeve (73B) being provided with a threaded hole (74B) aligned with the conical hole (66B) of the pin (58B) through which the bead (70B) is screwed.

12. The system according to any of the previous claims, **characterized in that** said hidden shoulder-centre hanging brackets (52A,52B,52C) are as described and illustrated in patent application PCT/EP2011/005079.

Fig. 1



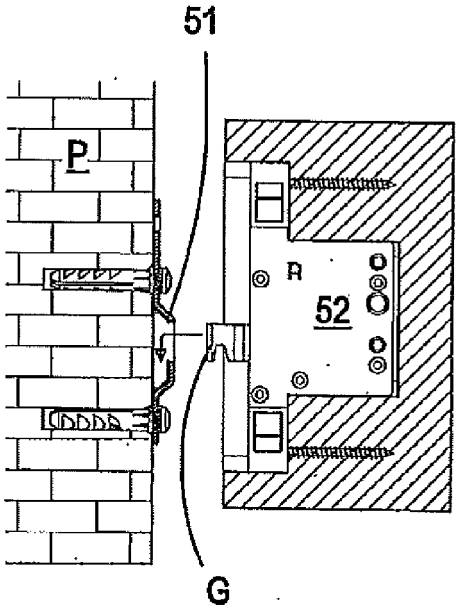


Fig. 2

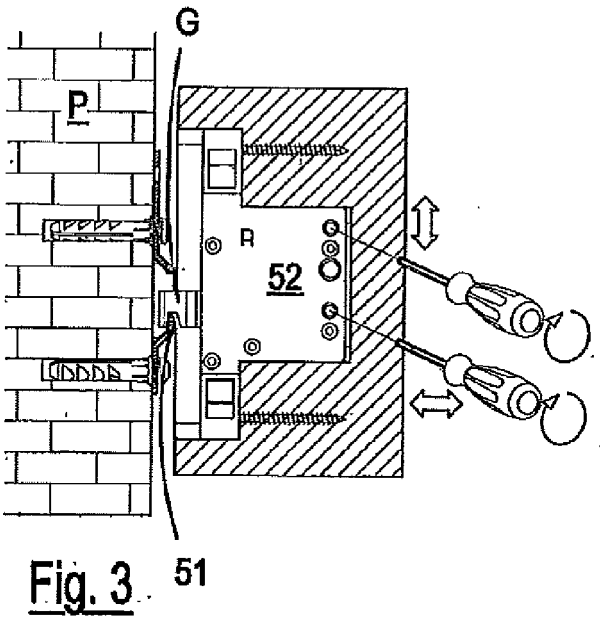


Fig. 3

Fig. 4

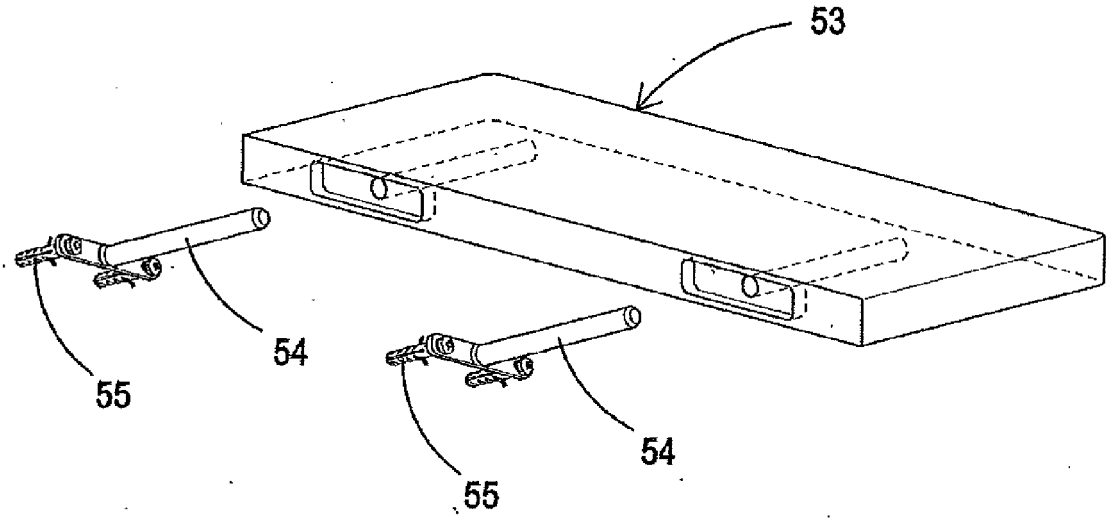


Fig. 5

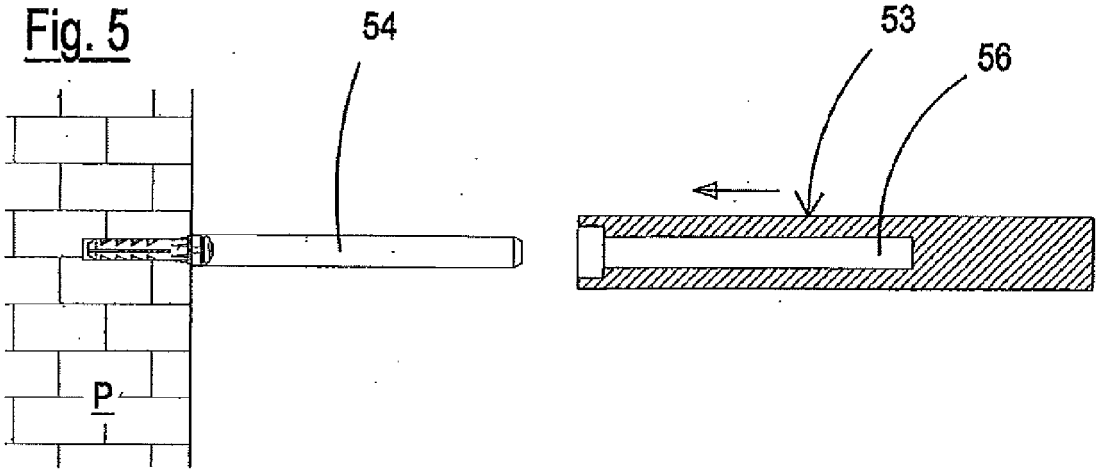
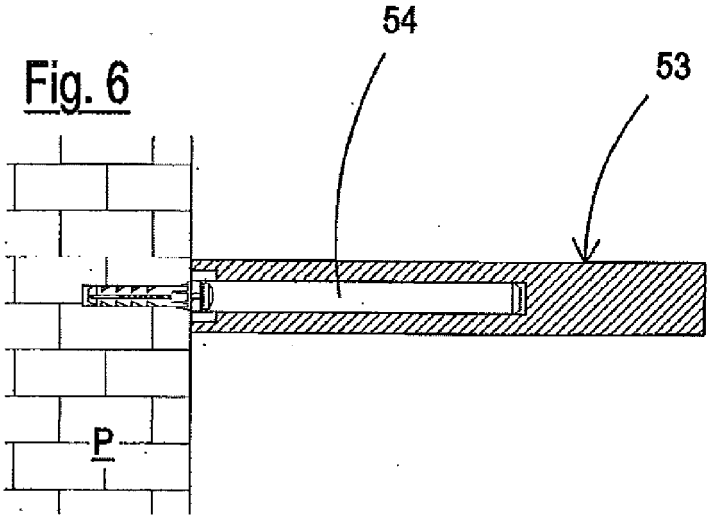


Fig. 6



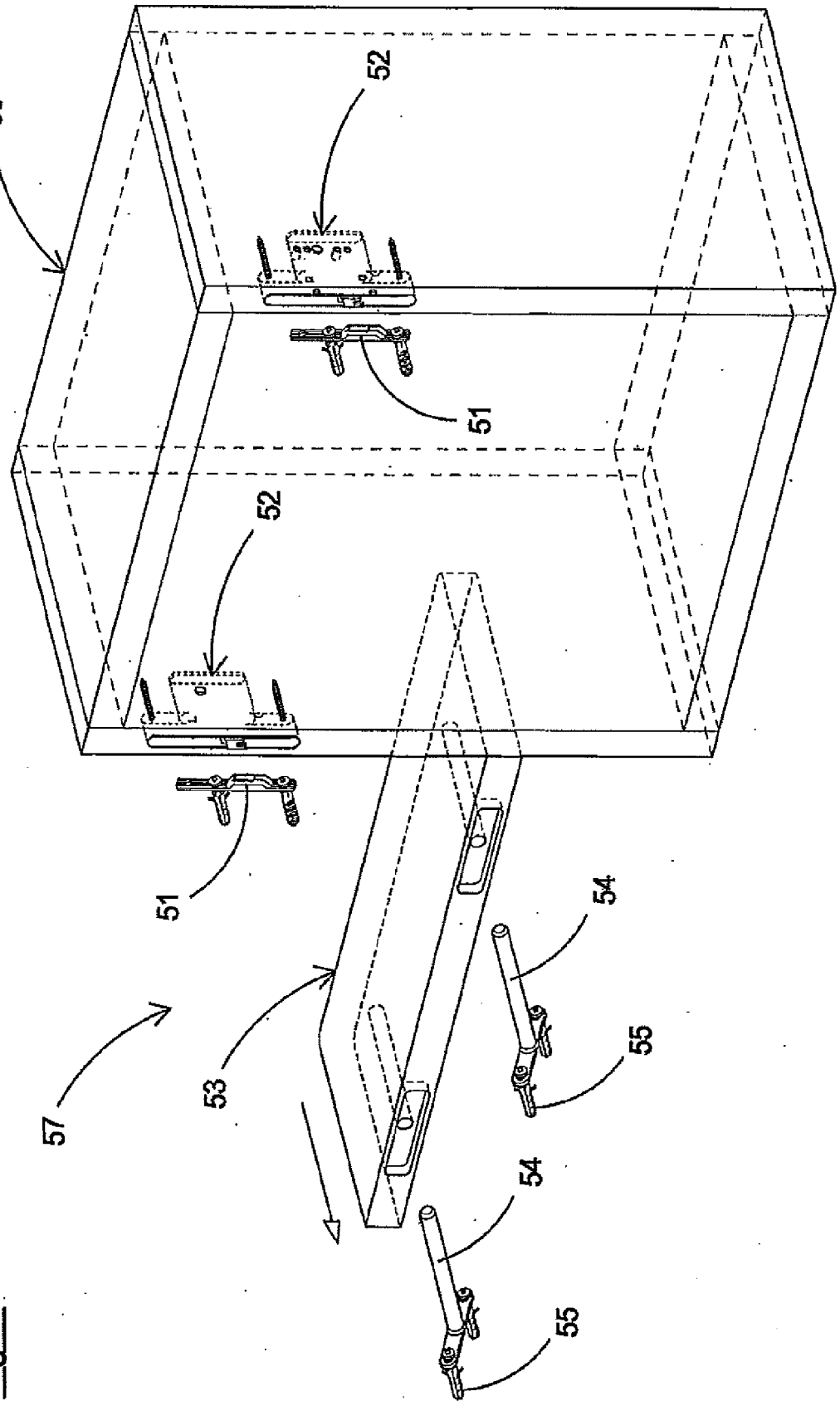


Fig. 7

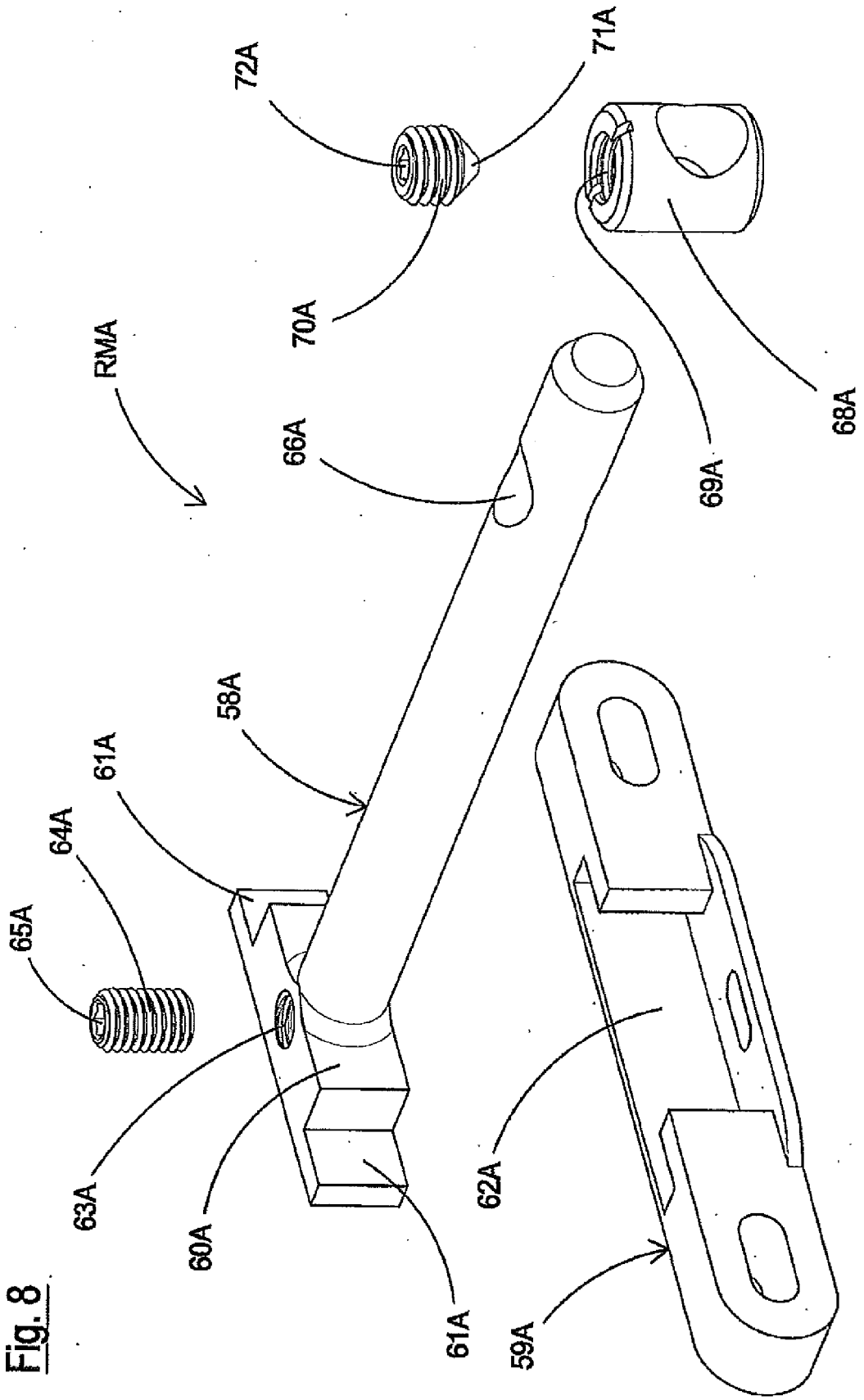


Fig. 8

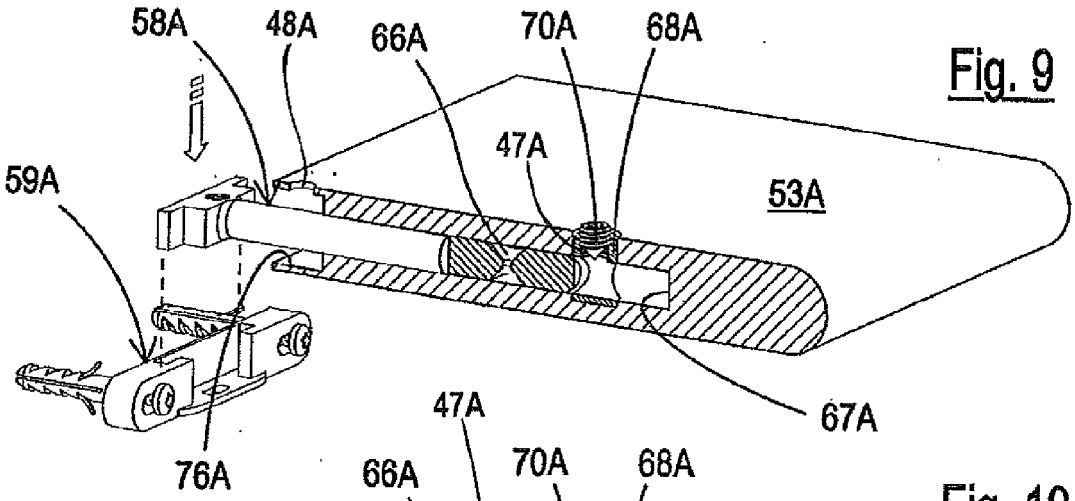


Fig. 9

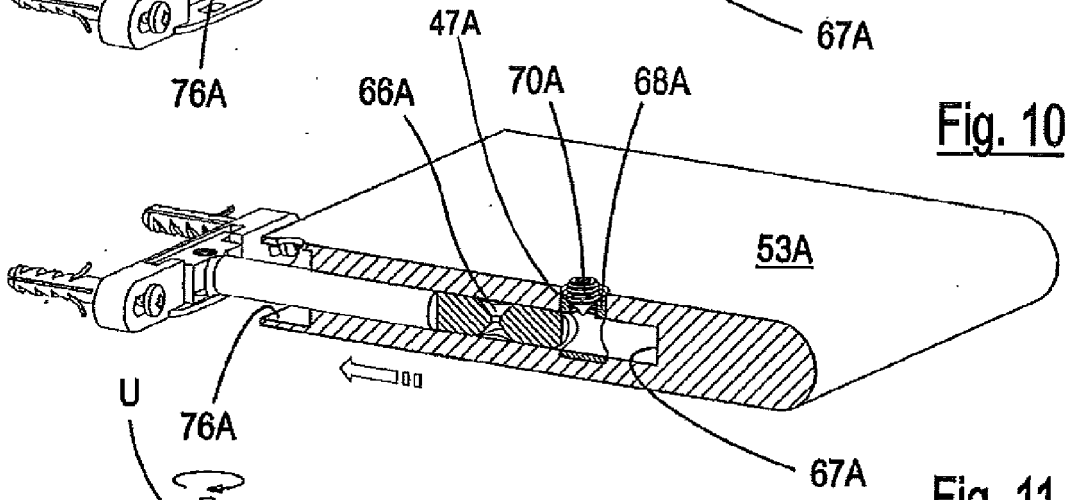


Fig. 10

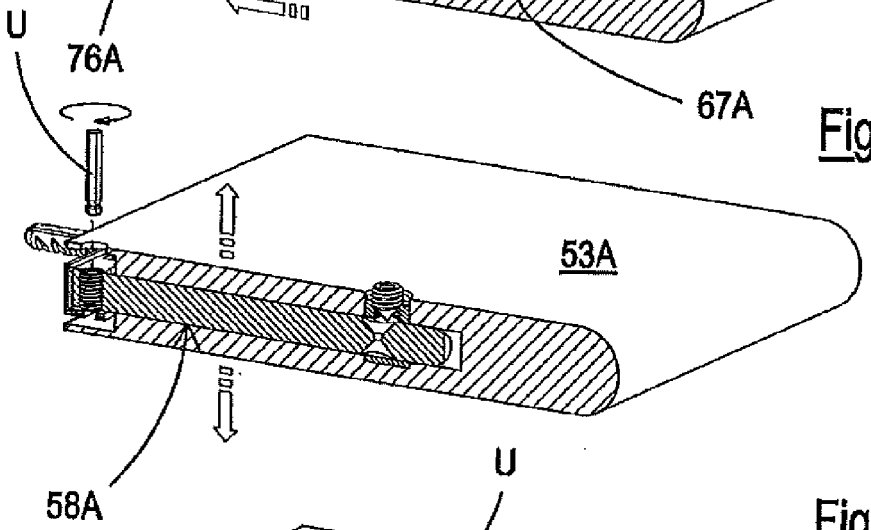


Fig. 11

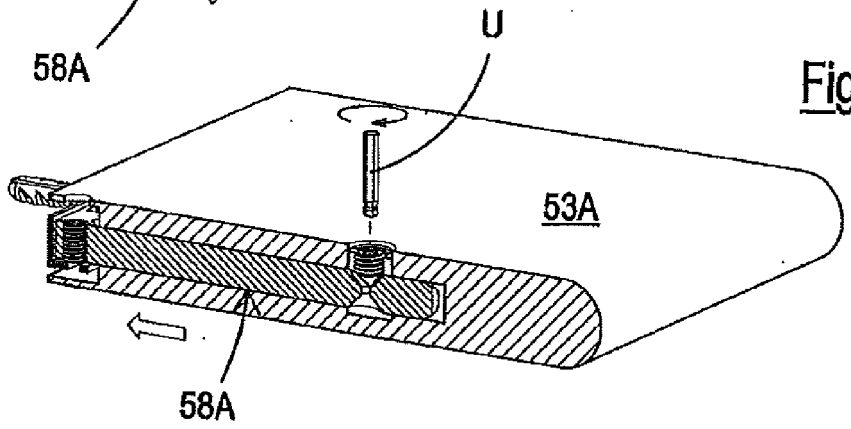


Fig. 12

Fig. 13

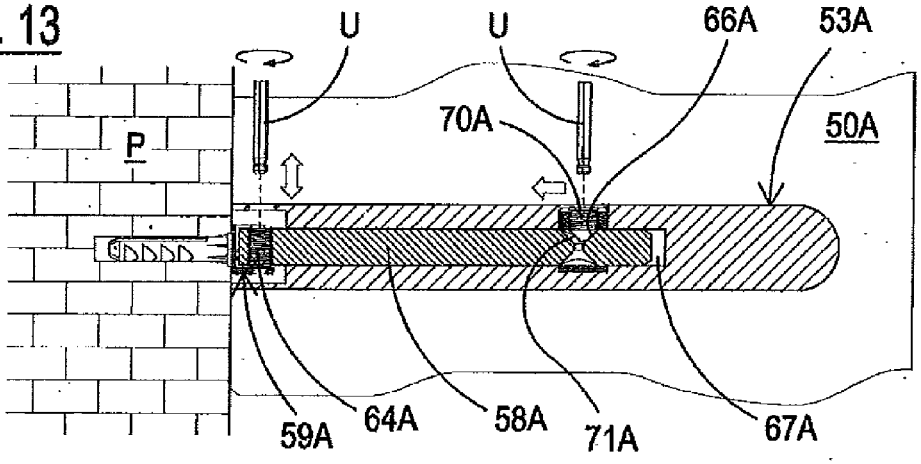


Fig. 14

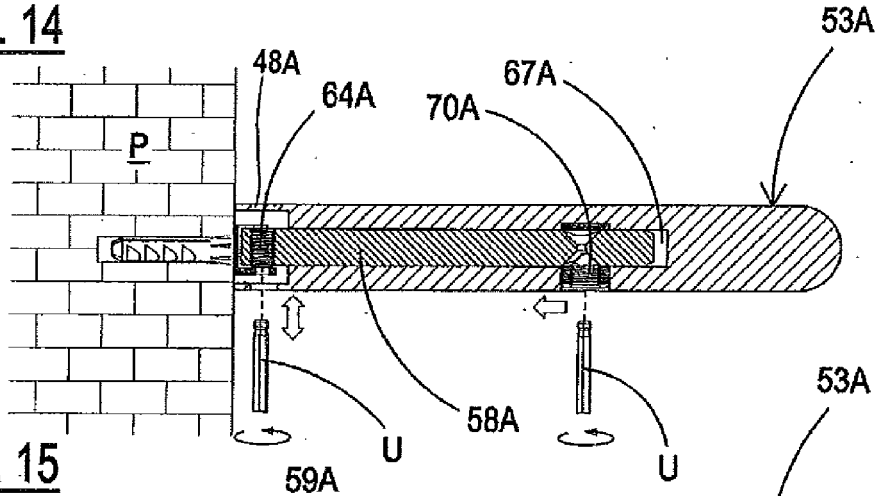
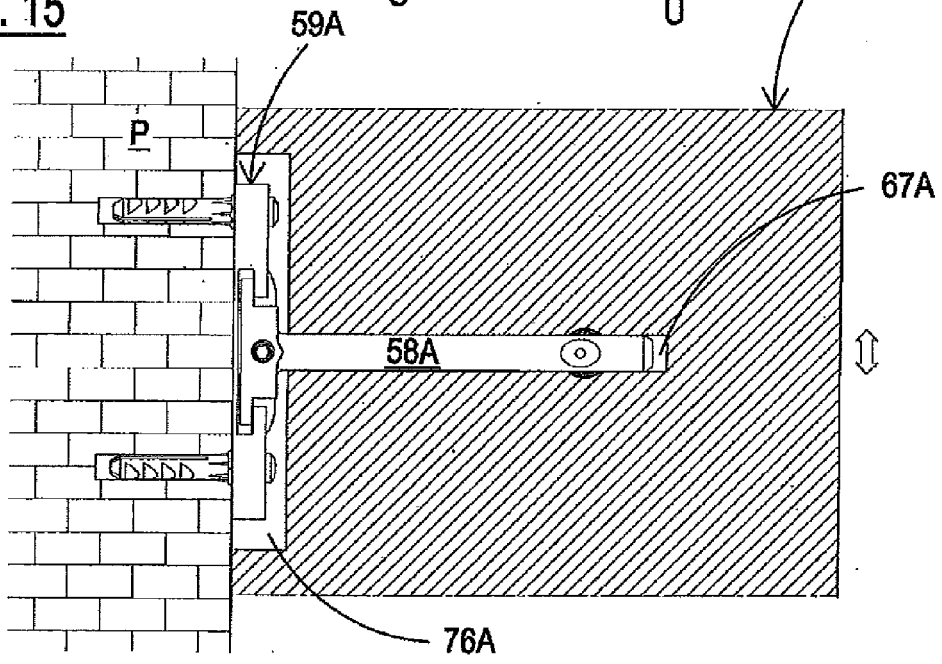


Fig. 15



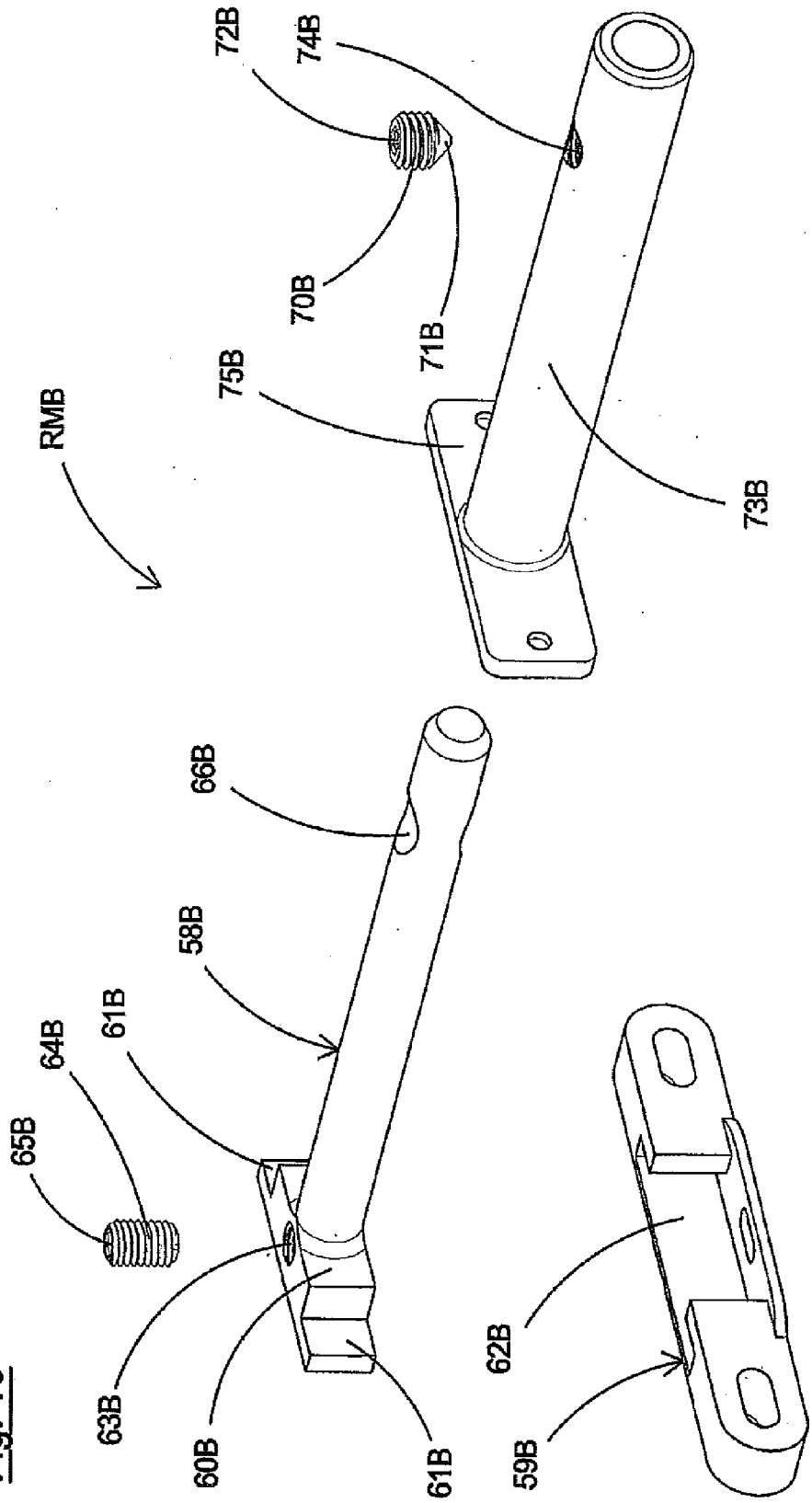

RMB
72B
74B
70B
71B
75B
73B
66B
58B
61B
64B
65B
63B
60B
61B
62B
59B

Fig. 16

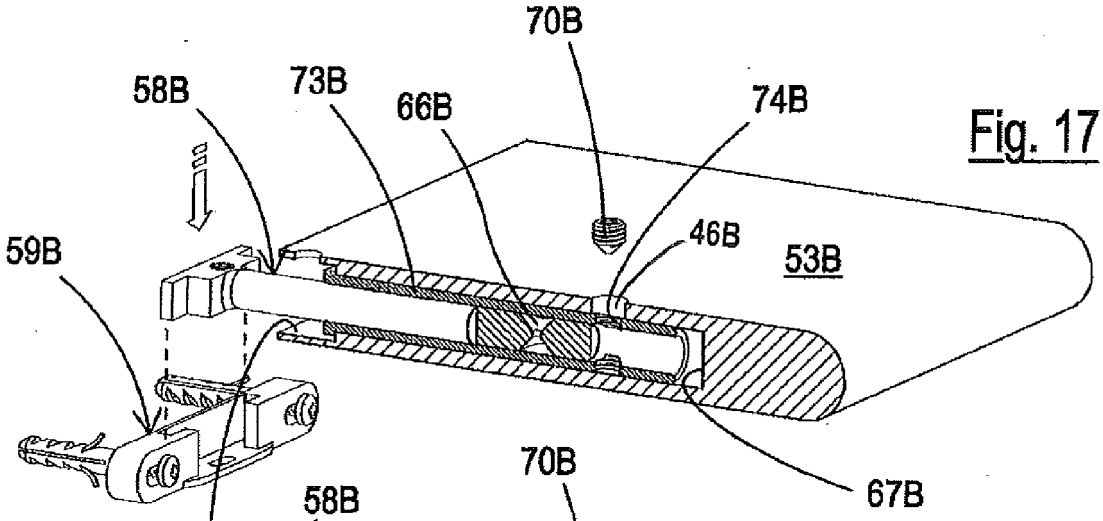


Fig. 17

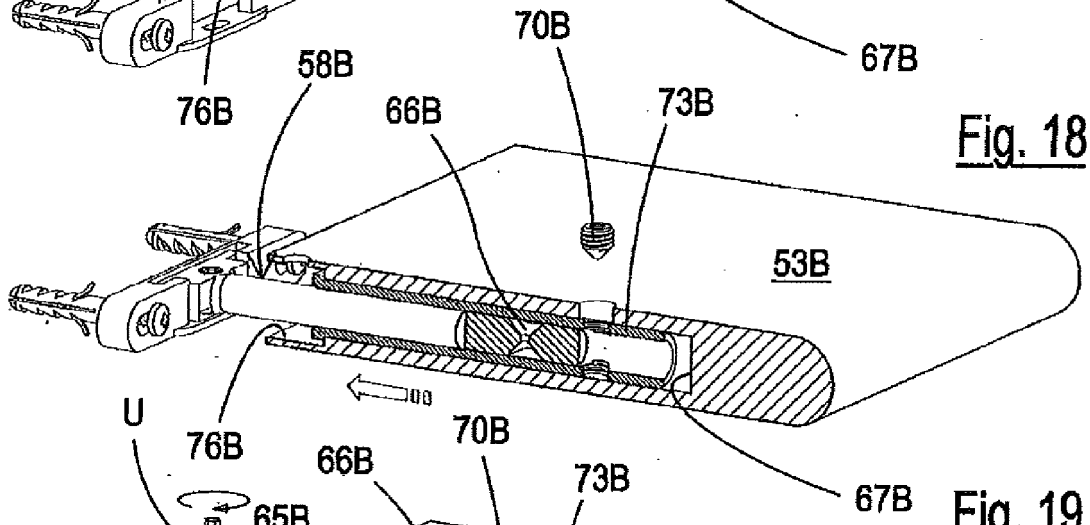


Fig. 18

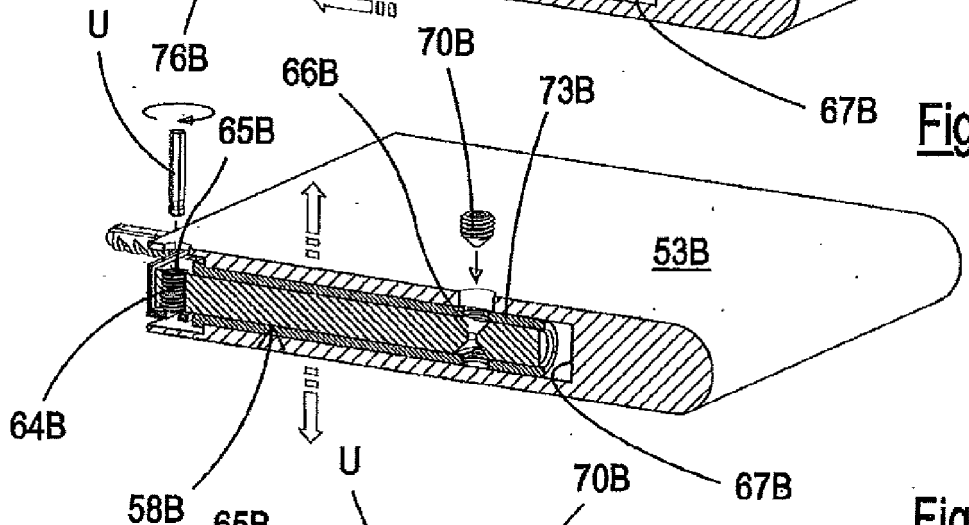


Fig. 19

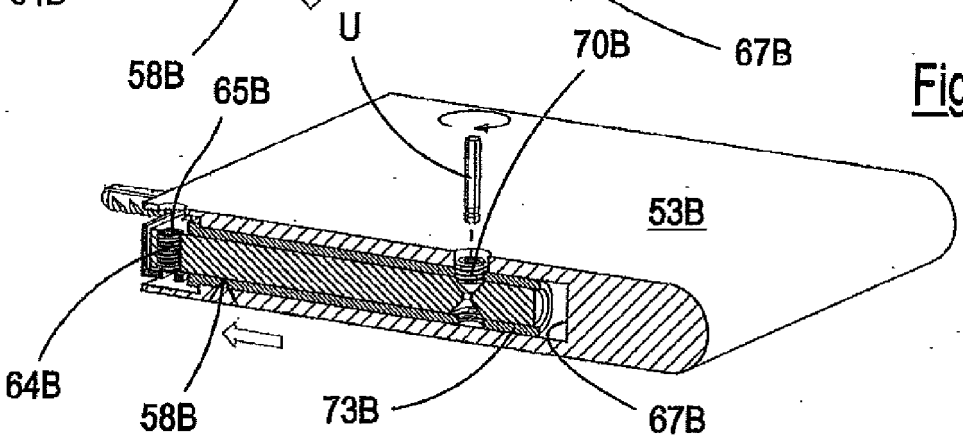


Fig. 20

Fig. 21

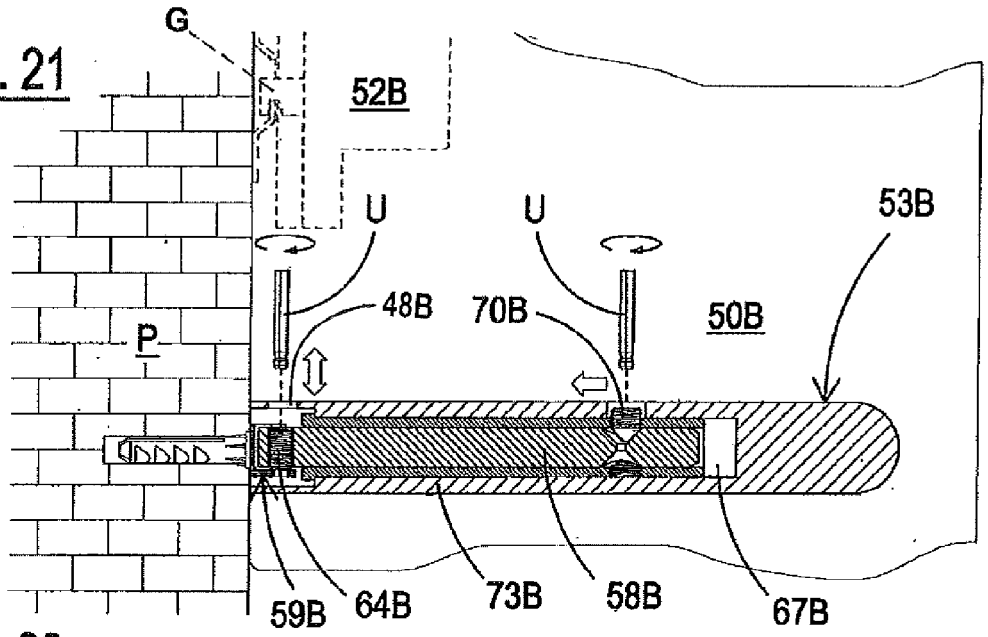


Fig. 22

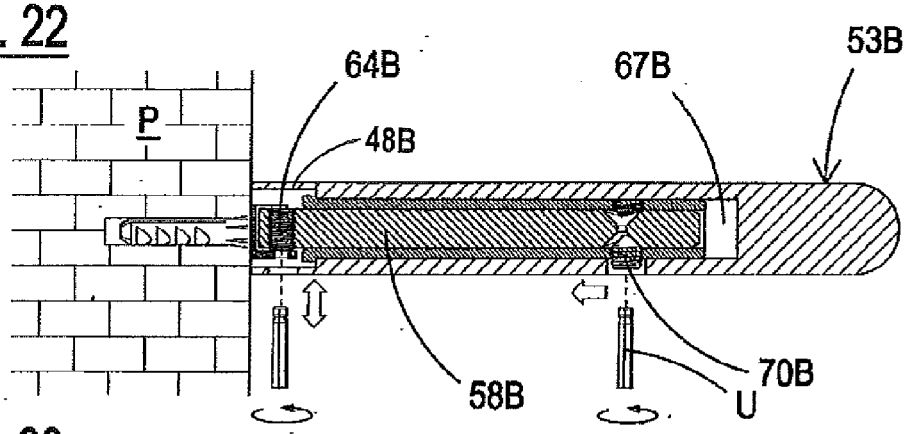
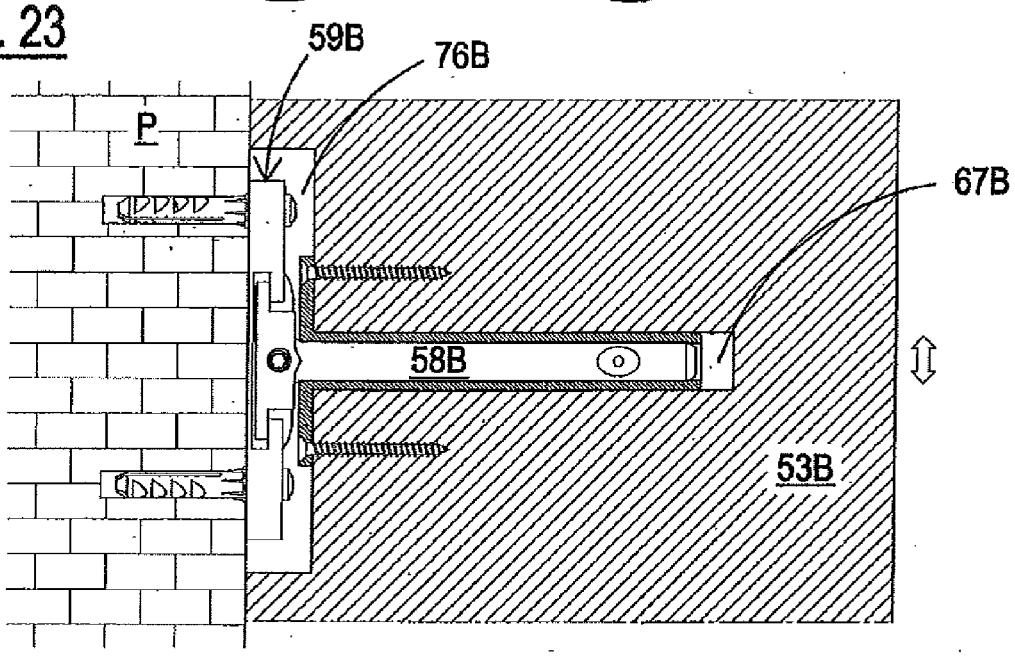


Fig. 23



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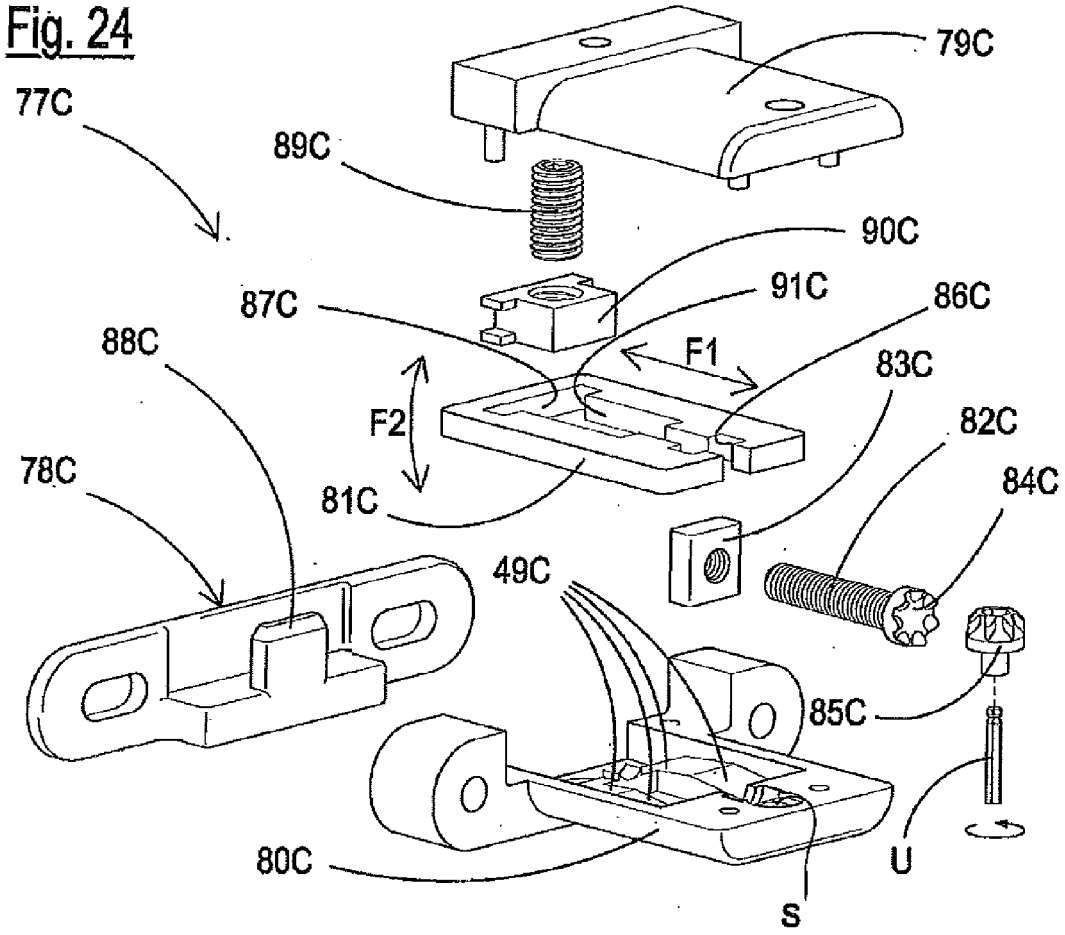
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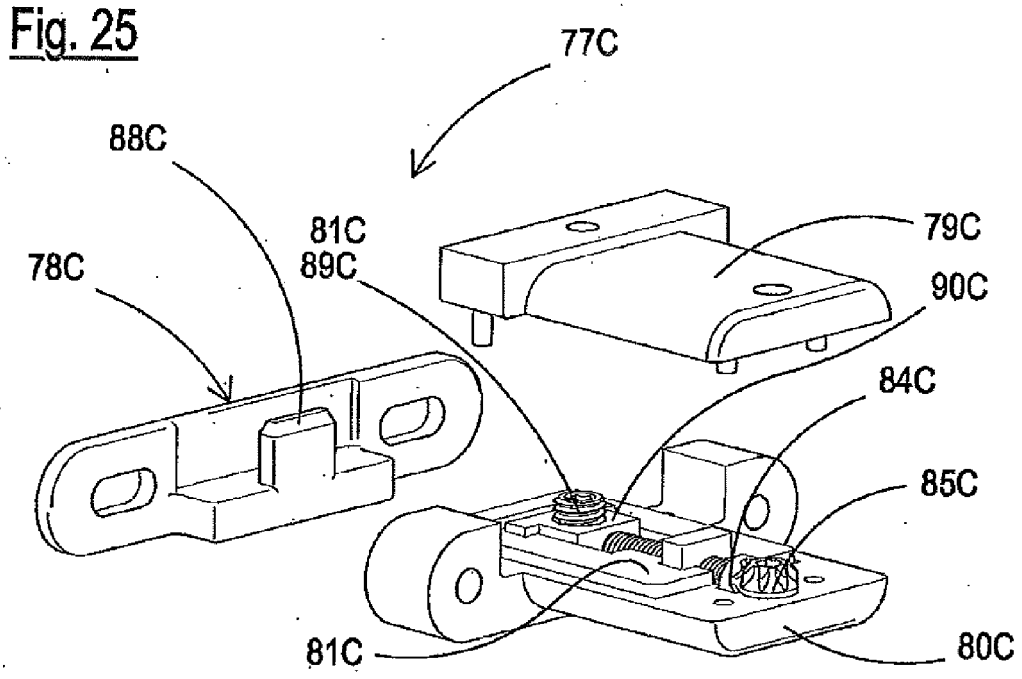
Fig. 25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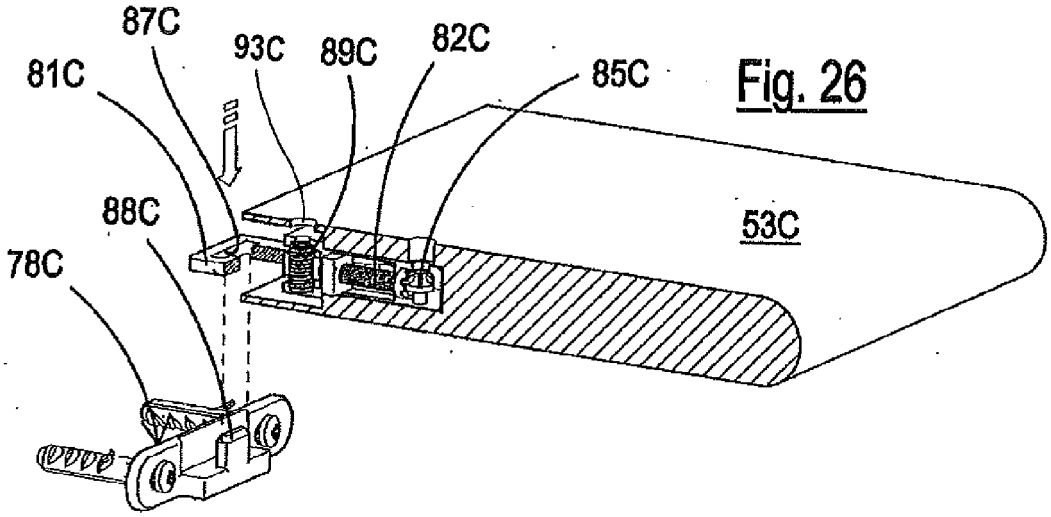
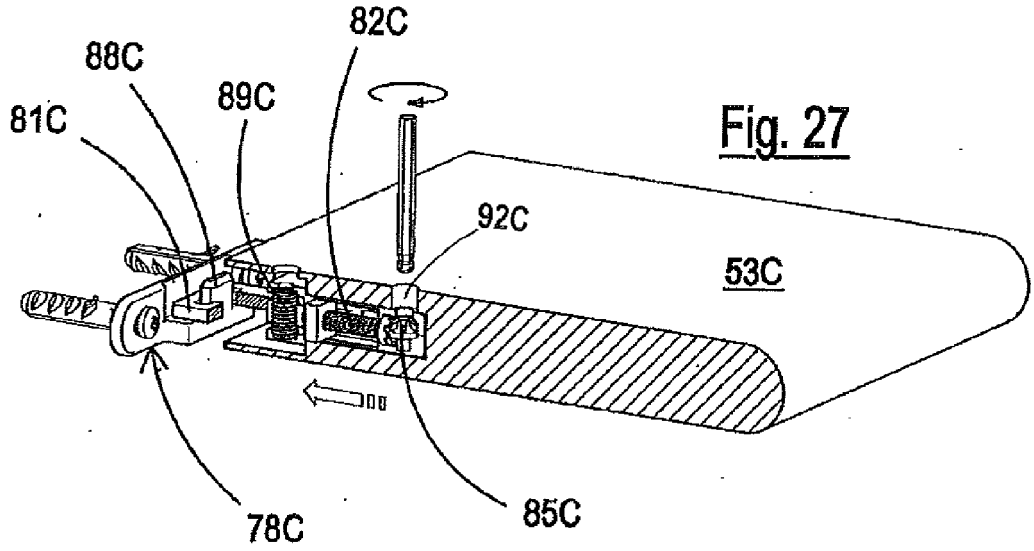


Fig. 26



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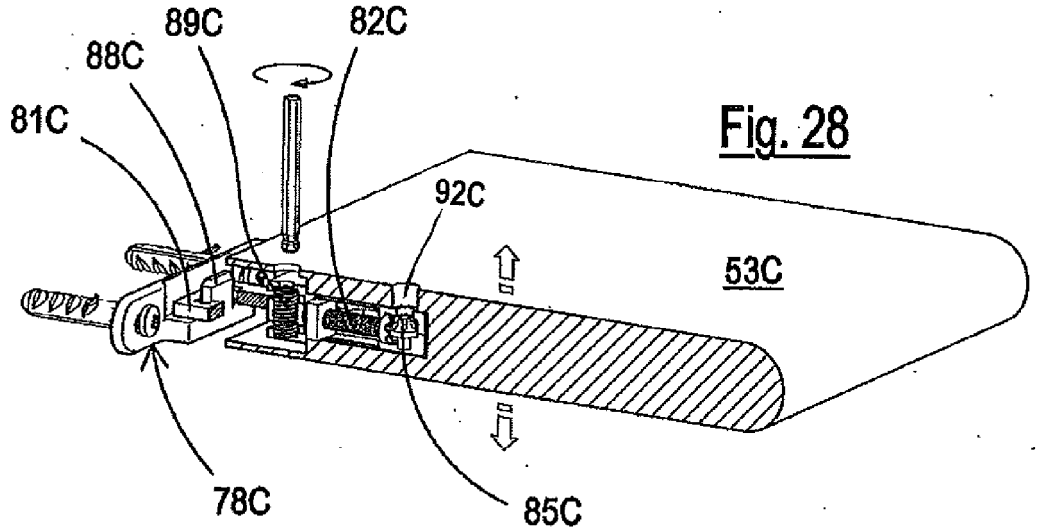
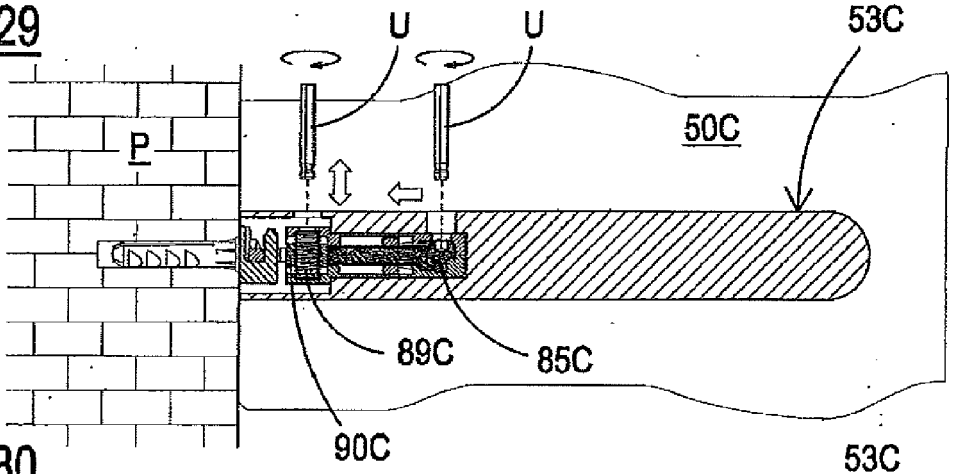


Fig. 28

Fig. 29



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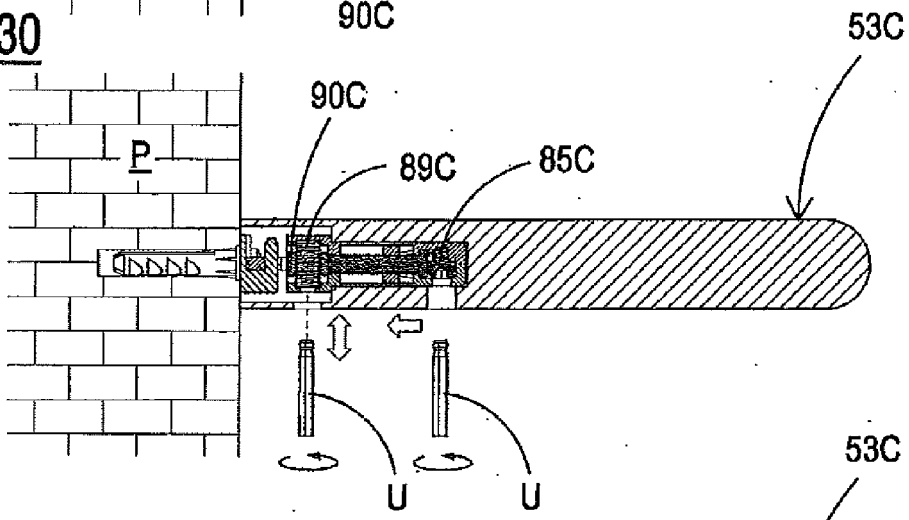


Fig. 31

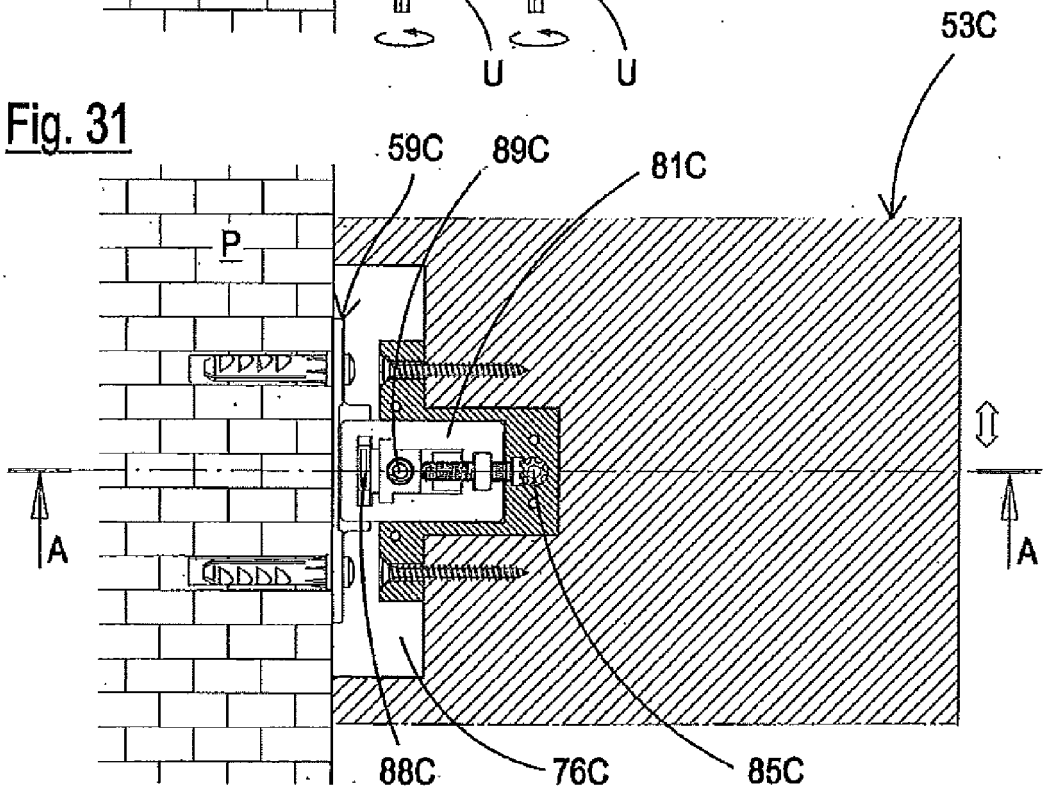
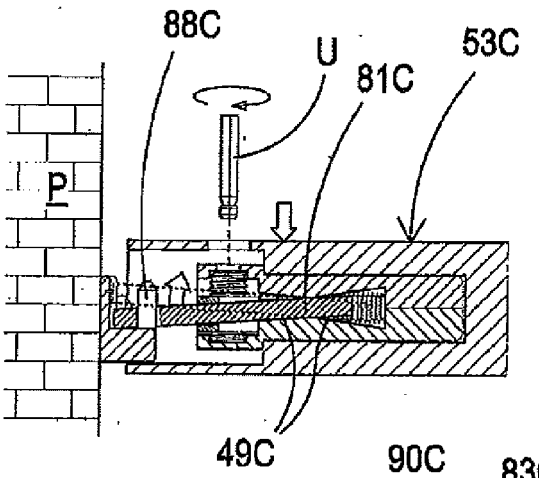


Fig. 32



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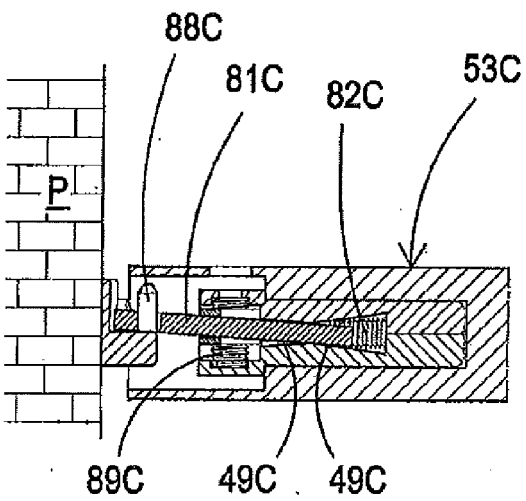


Fig. 34

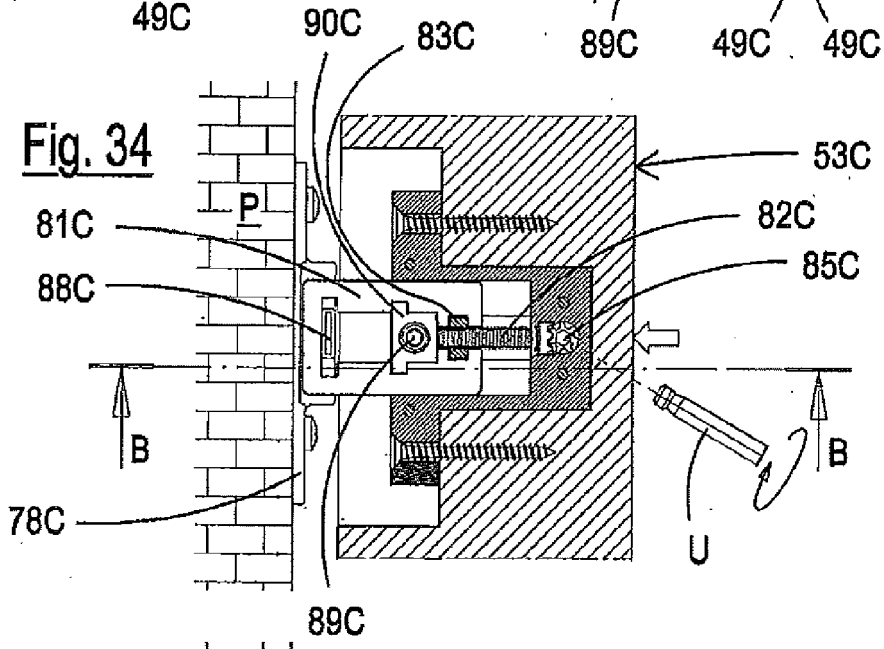
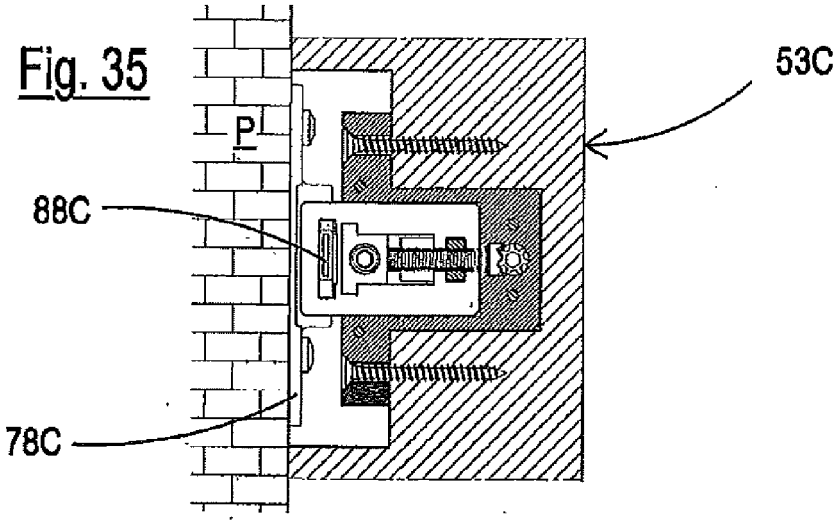
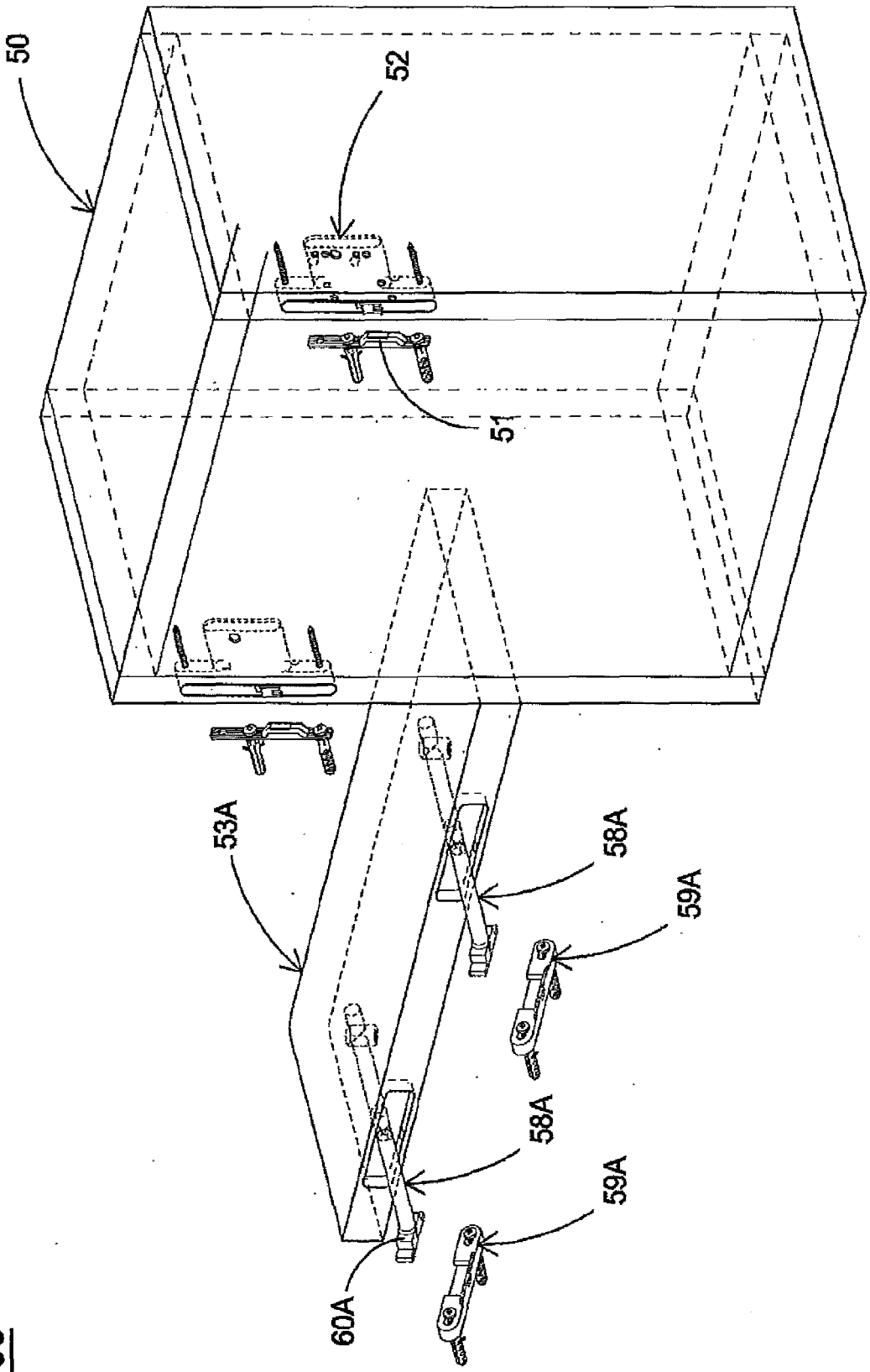


Fig. 35





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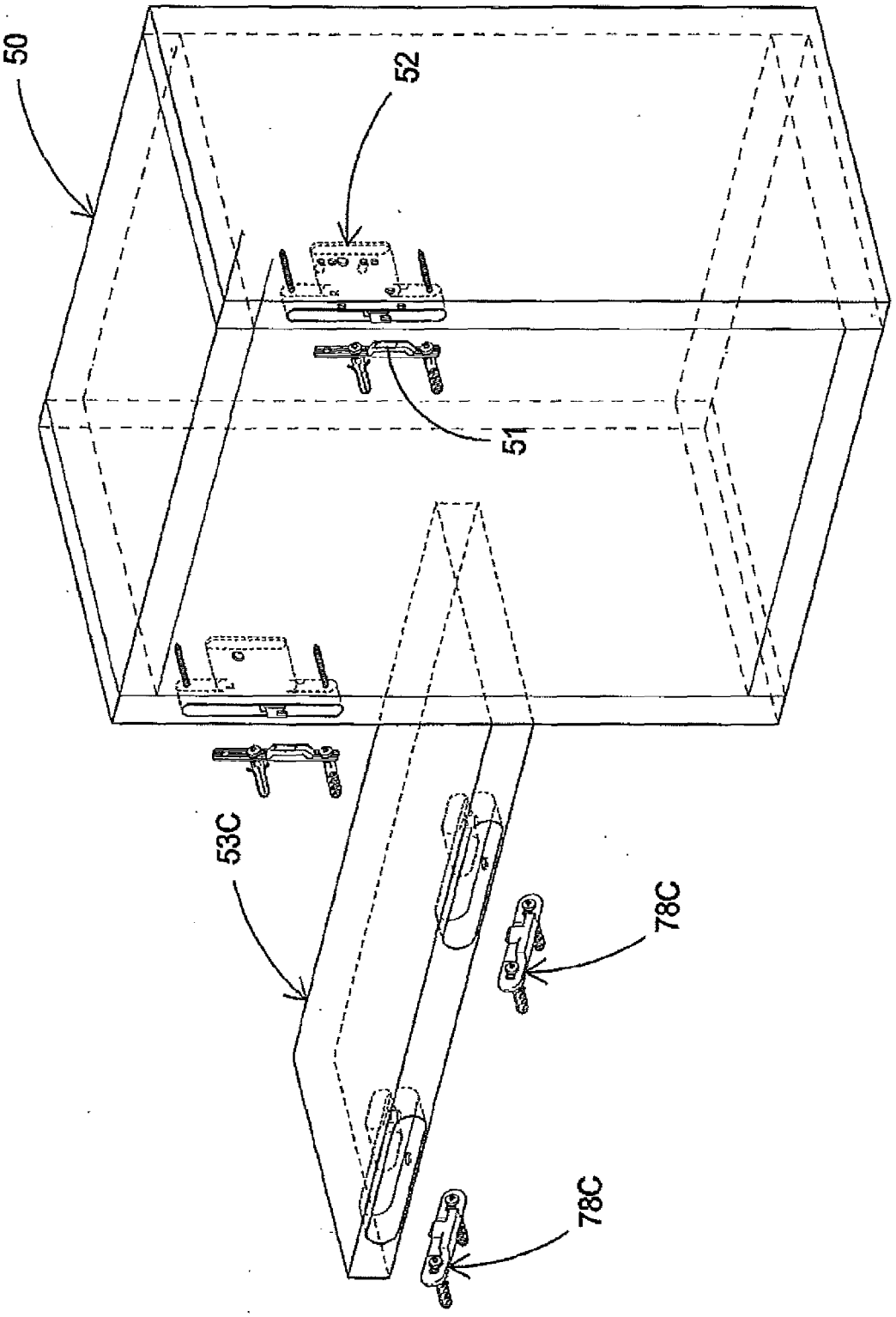
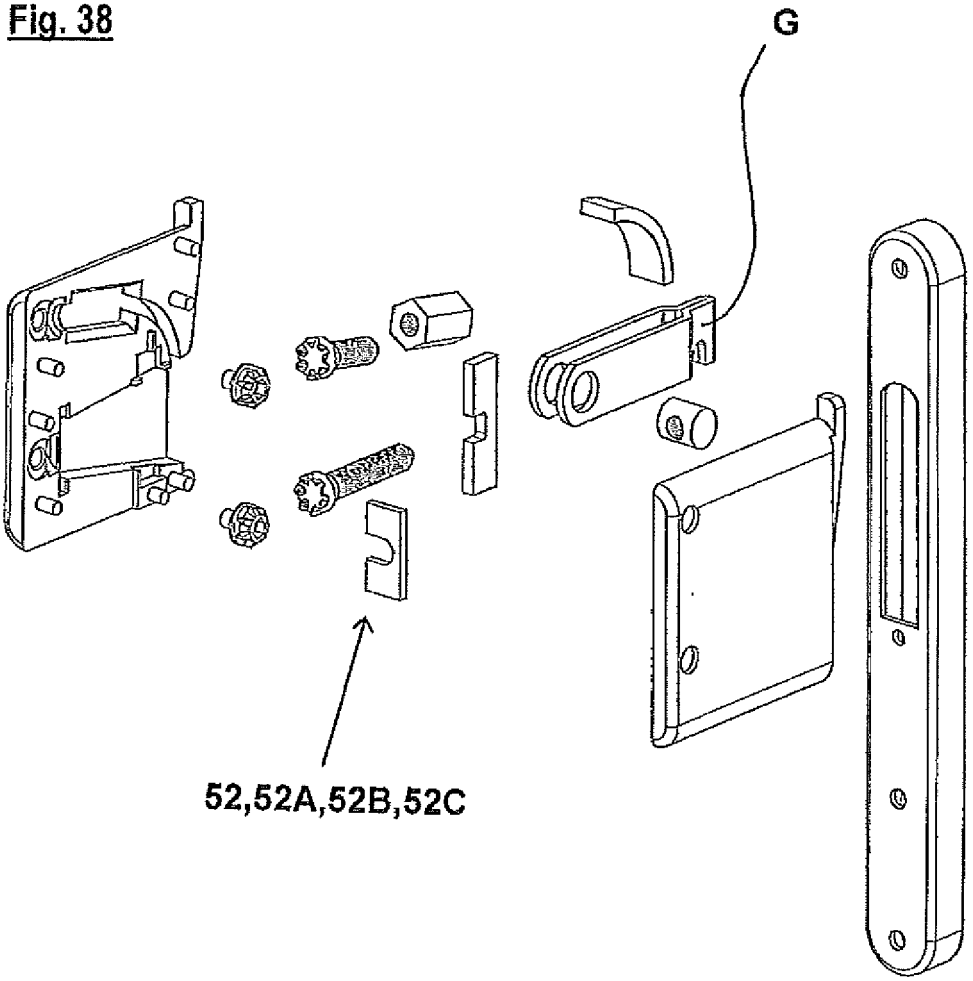


Fig. 37

Fig. 38



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EUROPEAN SEARCH REPORT

Application Number
EP 13 17 8326

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2012/048849 A1 (LEONARDO SRL [IT]; CATTANEO CARLO [IT]) 19 April 2012 (2012-04-19) * the whole document *	1,12	INV. A47B95/00 A47B96/06
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TECHNICAL FIELDS SEARCHED (IPC)

A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 October 2013	Jacquemin, Martin

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