



(11)

EP 4 487 732 A2

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
08.01.2025 Bulletin 2025/02

(51) International Patent Classification (IPC):
A47B 95/00 (2006.01)

(21) Application number: **24214163.8**

(52) Cooperative Patent Classification (CPC):
A47B 95/008

(22) Date of filing: **23.11.2020**

(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

(30) Priority: **03.12.2019 IT 201900022788**

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
20825238.7 / 4 069 037

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Remarks:

This application was filed on 20-11-2024 as a divisional application to the application mentioned under INID code 62.

(54) **ANGULAR SUPPORT DEVICE FOR WALL CABINETS**

(57) The present invention relates to an angular support device (1) adapted to support a wall cabinet on a wall, said device (1) comprising hooking means (3) adapted to cooperate with wall-fixed engagement means to support the piece of furniture, and a mounting body (2) comprising a support plate (10) whereon said hooking means (3) can be mounted, and a mounting plate (20) which can be integrally constrained to the inner surface of the side of a piece of furniture, said support plate (10) and said mounting plate (20) being arranged, in use, on mutually perpendicular planes so that said mounting body (2) is dihedral-shaped. In particular said support plate (10) and said mounting plate (20) are made of respectively distinct and separate pieces, guide means (40) being provided for on said mounting plate (20) to allow the coupling with said support plate (10), said mounting plate (20) further comprising retaining means (44) movable between a neutral position and a retaining position for maintaining the assembly of said mounting body (2).

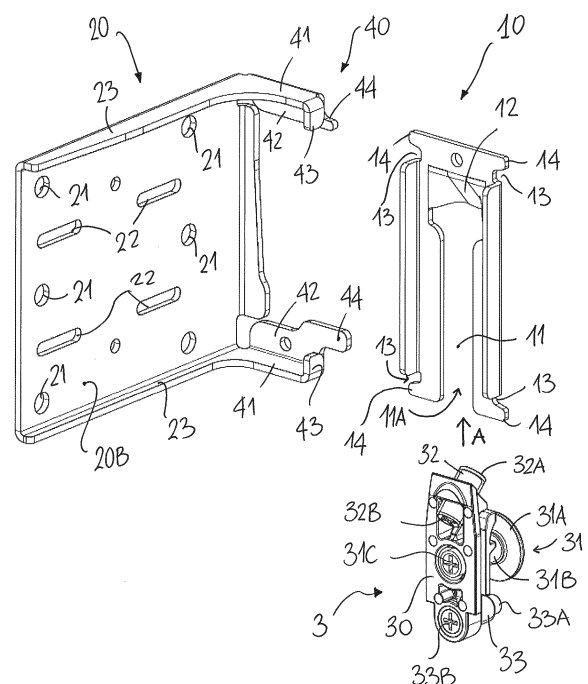


Fig. 2A

Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to a support device, or bracket, of the angular type, adapted to anchor a piece of furniture to a wall, in particular a wall cabinet.

BACKGROUND OF THE INVENTION

[0002] Generally, the pieces of furniture are made of parallelepiped bodies formed, as known, by a pair of vertical and parallel sides, a top, a base and a back.

[0003] Wall cabinets, i.e. piece of furniture without support to the floor, which can be fixed to the wall using suitable support devices, commonly called "brackets", generally constrained to the sides of the piece of furniture using suitable fixing means, and provided with hooking means cooperating with a plate or section arranged on the wall, are very appreciated in the furnishing industry.

[0004] Usually, the hooking means of the support devices are adjustable, both vertically and horizontally, by means of special adjustment screws, accessible through special openings obtained on the back, so as to be able to correct the position of the piece of furniture even after fixing it to the wall. Document WO2008129381 shows some examples of such support devices.

[0005] The fixing of the wall cabinets to the wall is clearly very demanding in terms of resistance to the loads required of the support devices, since, besides its own weight, the weight of the piece of furniture at full load must also be taken into account. This is more accentuated when the pieces of furniture to be fixed to the wall are rather deep, such as for example bases for kitchens or bathrooms, and provided with drawers.

[0006] Under such conditions, actually there is a considerable moment generated on the support devices, and therefore on the sides of the piece of furniture, with the risk of undesired breakages which may lead to the accidental detachment of the cabinet from the wall.

[0007] In order to eliminate or at least limit this risk, angular support devices are known, i.e. support devices provided with a constraint plate extending parallel to the side of the piece of furniture and fixable to the inner surface thereof, so as to confer greater resistance to bending, also acting as a structural reinforcement for the piece of furniture.

[0008] Document EP3289924 relates to an angular support device for wall cabinets comprising a first flat plate provided with an opening in which a hooking plate is inserted, and a second flat plate for mounting to the side of the piece of furniture, in which the first and second flat plate are made of a single body made of polymeric material and the hooking plate, whose edges are embedded into the polymeric material of the first flat plate, is made of metal.

[0009] A disadvantage found in angular support devices of the type described above lies in the fact that they

are generally made of a single piece, being complex and expensive to produce.

SUMMARY OF THE INVENTION

[0010] The main task of the present invention is to overcome the drawbacks of the devices of the prior art by obtaining an angular support device for wall cabinets that is easy and cost-effective to produce, while at the same time being robust and functional.

[0011] Within the scope of the aforementioned task, an object of the present invention is to provide an angular support device for wall cabinets that is easy to assemble and mount.

[0012] A further object of the present invention is to provide an angular support device for wall cabinets that is compact, i.e. having limited overall dimensions while being particularly stable and safe at the same time, adapted to bear even very high loads.

[0013] Lastly, another object of the present invention is to provide an angular support device for wall cabinets at competitive production costs, so that the use thereof is advantageous also from the economic point of view, and that can be obtained using the usual known systems, machinery and equipment.

[0014] The aforementioned task and objects, as well as others which will be more apparent hereinafter, are achieved by means of an angular support device for wall cabinets, as defined in claim 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Characteristics and advantages of an angular support device for wall cabinets according to the present invention will become more evident from the following description of particular but non-exclusive embodiments, illustrated purely by way of non-limiting example with reference to the following figures:

- figures 1A and 1B show - with perspective views from different angles - an angular support device for wall cabinets according to the present invention when fully assembled;
- figures 1C and 1D show - with top and lateral views respectively - an angular support device for wall cabinets according to the present invention when fully assembled;
- figures 2A and 2B show - with exploded views from different angles - the component elements of an angular support device for wall cabinets according to the present invention;
- figures 3A and 3B show - with perspective view - the operating steps for obtaining the assembly of the angular support device of figures 1A-1D;
- figures 4A, 4B and 4C show - respectively with a perspective, front and cross-sectional view - an angular support device according to the present inven-

- tion supporting a different type of hooking means;
- figures 5A and 5B show - respectively in perspective view and in plan view - the angular support device according to the present invention comprising a variant embodiment of one of the component elements;
- figure 6 is a perspective view of a covering element that can be associated with the angular support device for wall cabinets according to the preceding figures;
- figures 7A, 7B and 7C show - respectively with a lateral view, in plan view and in perspective view - an initial step of fixing the covering element of figure 6 to an angular support device according to the present invention;
- figures 8A, 8B and 8C show - respectively with a lateral view, in plan view and in perspective view - a final step of fixing the covering element of figure 6 to an angular support device according to the present invention;
- figures 9A and 9B show - with perspective views - respective steps for assembling an angular support device according to a first variant embodiment of the present invention;
- figures 10A and 10B show - with perspective views from different angles - a final step for assembling an angular support device according to the first variant embodiment;
- figure 11 shows - with a perspective view - a step for assembling an angular support device according to a second variant embodiment of the present invention;
- figures 12A and 12B show - with perspective views - respective steps for assembling an angular support device according to a third embodiment; and
- figure 13 shows - with a perspective view - the development of a component element of an angular support device according to the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0016] With reference to the attached figures, in particular to figures 1A to 1D, there is represented an angular support device 1 according to the present invention, adapted to hang a furnishing accessory of various types, and in particular a wall cabinet, to a wall.

[0017] Specifically, said angular support device 1 is adapted to be constrained to the inner surface of the side of a piece of furniture, at a rear edge portion thereof, and it is provided with hooking means which, when the device is mounted to the piece of furniture, face the wall, being adapted to cooperate with a special engagement element fixed to the wall at the height at which the piece of furniture is to be mounted, to keep the latter suspended.

[0018] The description below relates to the angular support device 1 when in use: the terms "vertical", "horizontal", "high" and "low", as well as other directional terms, are therefore to be understood, both in the present

description and in the claims, as relates to the position of the piece of furniture when mounted on the wall.

[0019] Said angular support device 1 comprises a mounting body 2 for attachment to the piece of furniture, which can be constrained to the inner surface of the side of a piece of furniture at a rear edge portion thereof, and supporting hooking means 3, adapted to cooperate with an engagement element (not shown), such as for example a bracket or a suitably shaped bar, fixed to the wall at a height at which the piece of furniture is to be mounted.

[0020] Said angular support body 2 advantageously consists of a support plate 10, adapted to support said hooking means 3, and a mounting plate 20, adapted to constrain said mounting body 2 to the piece of furniture, both preferably made of metal.

[0021] According to an advantageous characteristic of the present invention, said support plate 10 and said mounting plate 20 are made of distinct and separate pieces, which can be connected during assembly so as to lie along mutually orthogonal planes, so as to define - between them - a corner 4 (indicated in figures 1B and 1C), so that said mounting body 2 is essentially dihedral shaped in use.

[0022] In particular, as explained in greater detail below, in the embodiment of the invention illustrated in figures 1A to 3B, the coupling between said support plate 10 and said mounting plate 20 is carried out by means of a sliding movement along a coupling direction, advantageously guided by guide means 40 provided on the latter. Furthermore, the coupling position between said support plate 10 and said mounting plate 20 is advantageously maintained through retaining means 44, which are rotatably movable preferably by means of plastic deformation between a neutral position and a retaining position.

[0023] With reference to figures 2A and 2B, the various component elements of a support device 1 according to the present invention will be described below.

[0024] Specifically, said angular support device 1 comprises an essentially rigid and two-dimensional support plate 10, preferably rectangular-shaped, wherein a through opening 11 is obtained, extending longitudinally in an area, preferably central with respect to the extension thereof, so as to allow the housing of hooking means 3.

[0025] As shown in figures 2A and 2B, said hooking means 3 may for example be formed by a block 30, made of metal, and a hooking element 31 which typically has a circular or mushroom-shaped hooking head 31A, adapted to engage with a suitable seat obtained in the engagement element provided on the wall.

[0026] Advantageously, said hooking means 3 comprise means for adjusting the hooking position of the piece of furniture: in particular, said hooking element 31 has a threaded shank 31B adapted to be engaged in a corresponding threaded hole obtained in the block 30, so as to pass through it according to a transversal, and preferably orthogonal direction.

[0027] The end of the threaded shank 31B opposite

the head 31A has a transverse seat 31C in which a special tool, such as a screwdriver, can be engaged so as to axially rotate the shank 31B and thus adjust the projection of the head 31A from the block 30 and thus improve the engagement with the wall engagement element in depth.

[0028] Furthermore, said hooking means 3 preferably comprise a first grub screw 32 screwed onto a second threaded hole obtained in proximity of the upper edge of the block 30 and extending along an axis preferably inclined with respect to the latter, adapted to allow vertical adjustment of the hooking of the piece of furniture.

[0029] Lastly, a second grub screw 33 is preferably screwed into a third threaded hole obtained beneath said hooking element 31 and preferably in proximity of the lower edge of the block 30: advantageously, said second grub screw 33 extends along a direction preferably orthogonal to the block 30, and it is provided with a head 33A adapted to be engaged in a suitable seat provided for in the wall-engagement element with the anti-release safety function.

[0030] Similarly to what is provided for the hooking element 31, the adjustment of said grub screws 32, 33 is carried out by acting with a special tool on a respective engagement seat 32B, 33B accessible through the opposite face of the block 30 with respect to the one where the respective heads 32A, 33A project.

[0031] In order to facilitate the assembly of said hooking means 3 on said support plate 10, said opening 11 has an outlet 11A at a lower edge, which allows the slidable insertion of the block 30 along the direction indicated by the arrow A illustrated in figures 2A and 2B.

[0032] Should the hooking means 3 be of the type shown in figures 2A and 2B, said support plate 10 further comprises a hood-shaped abutment element 12 projecting with respect to the surface of the support plate 10, preferably obtained at the upper margin of the opening 11; said abutment element 12 is adapted to cooperate with said first grub screw 32 to allow the adjustment of the vertical position of the block 30 with respect to the support plate 10.

[0033] Two pairs of engagement fins 14 are advantageously obtained symmetrically projecting from said support plate 10, preferably at or in proximity of the vertices thereof, to facilitate the slidable coupling of said support plate 10 with said mounting plate 20, advantageously guided by guide means 40 as explained in greater detail below.

[0034] Said essentially rigid, two-dimensional and preferably rectangular or square-shaped mounting plate 20 can be positioned with an outer face 20A on the inner surface of the side of the piece of furniture, advantageously at a rear edge portion, and anchorable therein for example by inserting special fixing means, such as for example screws, in a plurality of first through openings 21 advantageously obtained thereon.

[0035] Alternatively, or additionally, as shown in figures 5A and 5B, in order to allow the mounting plate 20

to be mounted on the inner side of the piece of furniture, the latter may be provided with a plurality of coupling pins 21', projecting from said outer face 20A and adapted to be inserted into a corresponding plurality of holes suitably made in the side of the piece of furniture.

[0036] Said mounting plate 20 is also advantageously provided with a plurality of second through openings 22, preferably slot-shaped and elongated preferably in the horizontal direction, adapted to allow the fixing of a covering element 50 once the angular support device 1 has been anchored to the piece of furniture as explained in greater detail below.

[0037] According to an advantageous characteristic of the present invention, said mounting plate 20 is provided with guide means 40 adapted to allow the slidable coupling with said support plate 10. In particular, preferably, said guide means 40 substantially comprise a pair of first guide fins 41, advantageously parallel, which project perpendicularly with respect to the plane defined by the mounting plate 20, departing at corner portions of an inner face 20B of said mounting plate 20, opposite to the outer face 20A of contact with the surface of the side of the piece of furniture.

[0038] Advantageously, said first guide fins 41 are not directly connected to the inner face 20B of the mounting plate 20 but they are continuously connected to a pair of edge portions 23 lying on planes orthogonal to the lying plane of the mounting plate 20 and extending at opposite lateral edges thereof, to form corner recesses.

[0039] Said guide means 40 further comprise a pair of second guide fins 42 and a pair of third guide fins 43; in particular, in the embodiment shown in figures 2A and 2B, said second guide fins 42 and said third guide fins 43 are obtained projecting perpendicularly from the first guide fins 41, respectively laterally and at the end thereof, so as to form, together with the respective first guide fin 41, a track for the slidable insertion along a coupling direction B orthogonal to the mounting plate 20 of opposite edge portions of said support plate 10, whereon said pairs of engagement fins 14 are advantageously formed.

[0040] According to an advantageous characteristic of the present invention, said mounting plate 20 further comprises retaining means 44, for example formed by at least one tooth, and preferably a pair of teeth 44 projecting coplanar from said second guide fins 42, extending beyond the extension of the respective first guide fin 41, and they are advantageously movable between a neutral position, in which they allow the slidable coupling of said support plate 10 and said mounting plate 20, and a retaining position, in which they firmly maintain the achieved coupling position, preventing the two plates 10, 20 from slipping out.

[0041] In particular, preferably, when the support plate 10 has been slidably associated with the mounting plate 20, said retaining teeth 44 are plastically folded by means of a rotation around an axis X-X, advantageously orthogonal to the coupling direction B and, in use, vertical, thus completing the assembly of the mounting body 2.

[0042] As shown in figures 3A and 3B, the hooking means 3 are inserted into the through opening 11 obtained on the support plate 10 in order to proceed with the assembly of the angular support device 1, preferably carried out before fixing it to the side of the piece of furniture. Such operation may be advantageously carried out by translating said block 30, on which the hooking element 31 and the adjustment grub screws 32, 33 are screwed, along the direction indicated by the arrow A of figure 3A, so that the latter is positioned in the through opening 11, accessing thereto through the outlet 11A and being guided by the lateral margins of the opening 11.

[0043] The block 30 is then arranged in the opening 11 of the support plate 10 so that the head 32A of the first grub screw 32 abuts against the inner surface of the abutment element 12 obtained on the support plate 10, and that the hooking head 31A of the hooking element 31 projects in the same direction.

[0044] Subsequently, the support plate 10 supporting the hooking means 3 is coupled to the mounting plate 20, so as to form the dihedral-shaped mounting body 2.

[0045] Such coupling is advantageously carried out through a sliding movement of the support plate 10 along a coupling direction indicated by the arrow B in figure 3A, orthogonal to the inner face 20B of the mounting plate 20, said sliding being guided by said guide means 40.

[0046] Upon completing the slidable coupling between the support plate 10 and the mounting plate 20, which is determined by the abutment of a lateral edge of the support plate 10 against the inner face 20B of the mounting plate 20 and the ensuing formation of said edge 4, said retaining teeth 44 are advantageously folded plastically, as indicated by the arrows C of figure 3B, by means of a rotation around an axis X-X essentially orthogonal to the coupling direction B and vertical - in use - thus preventing a backward sliding movement which would entail decoupling of the two plates 10, 20.

[0047] Clearly, said coupling means 3 may also be of a different type with respect to what has been described above, provided that they are suitable for the purpose; for example, as shown in figures 4A - 4C, said hooking means 3 may comprise a hooking arm 31', provided at the upper end with a hooking element 31A' adapted to cooperate with the wall-fixed engagement element, and pivoted with the opposite end on said block 30.

[0048] In this case, said hooking means 3 may also be provided with means 32', 33' for adjusting the position of the known and conventional type, for example formed by screw and nut mechanisms which allow to vary the position of the hooking arm 31' respectively depth and vertical-wise and therefore to adjust the hooking of the piece of furniture to the wall.

[0049] For example, said means for adjusting the depth position 32' may be advantageously formed by a first screw which is screwed into a seat provided for in said block 30 and whose head 32A' is engaged in a vertical slotted opening provided for on said hooking arm 31', so that rotations of said screw 32' allow to vary the inclination

of the hooking arm 31' with respect to the block 30.

[0050] Said means for adjusting the vertical position 33' may instead be formed by a second vertically arranged screw which is screwed into nut screw integrally joined with the hooking arm 31', so that rotations of said second screw 33' entail the vertical movement of the latter.

[0051] The process for mounting support means 3 - according to this variant embodiment on said support plate 10 - is substantially similar to the one described above, with the difference that the latter is without said abutment element 12.

[0052] Advantageously, when the angular support device 1 is associated with the piece of furniture, it is possible to affix the covering element 50 shown in figure 6 on the surface of the mounting body 2 facing toward the inner cavity of the piece of furniture.

[0053] In particular, said covering element 50 has a shape essentially conjugated with that of the mounting body 2, and it can be fixed thereto by slidably inserting a plurality of coupling pins 51, obtained projecting from the inner face thereof, in the corresponding plurality of second slotted openings 22 provided for on the mounting plate 20 and described above.

[0054] As observable from figures 7A - 7C, said covering element 50 is actually positioned on the mounting body 2, when the latter has already been assembled and anchored to the piece of furniture to be suspended, by inserting said coupling pins 51 into the corresponding slotted openings 22 obtained on said mounting plate 20, and in particular at an edge portion thereof which is distal from the support plate 10.

[0055] Subsequently, the position of the covering element 50 with respect to the mounting body 2 can be adjusted easily by translating said coupling pins 51 to the corresponding slotted openings 22; as shown in figures 8A - 8C, the final position is advantageously reached when said covering element 50 abuts against the back of the piece of furniture to which the mounting body 2 is associated, irrespective of the thickness of the back itself and the distance of the latter from the suspension wall of the piece of furniture.

[0056] Figures 9A and 9B show respective assembly steps of an angular support device according to a first variant embodiment of the present invention, in which the guide means 40 and the retaining means 44 are shaped in a manner such that the coupling between said support plate 10 and said mounting plate 20 occurs by means of a slidable movement of the latter along a coupling direction parallel to the plane defined by the mounting plate 20, and - in use - perpendicular to the wall for mounting the piece of furniture, indicated by arrow B' in figure 9A.

[0057] Similarly to what has been described for the previous embodiment, the guide means 40 substantially comprise a pair of first advantageously parallel guide fins 41 which project perpendicularly with respect to the plane defined by the mounting plate 20, departing at corner

portions of the inner face 20B. A pair of second guide fins 42 is also provided for projecting orthogonally from said first guide fins 41, preferably for the entire extension thereof.

[0058] Advantageously, said first guide fins 41 are not directly connected to the inner face 20B of the mounting plate 20 but they are continuously connected to a pair of edge portions 23 lying on planes orthogonal to the lying plane of the mounting plate 20 and extending at opposite lateral edges thereof.

[0059] However, in this first variant embodiment of the mounting plate 20, said third guide fins 43 are obtained at the ends of said second guide fins 42, lying on a plane orthogonal thereto and parallel to the inner face 20B of the mounting plate 20.

[0060] Said retaining teeth 44, on the other hand, extend coplanar with the ends of said first guide fins 41 and they are adapted to be plastically folded into the retaining position by means of a rotation C' around a rotation axis Y-Y essentially parallel to the coupling direction B', as indicated in figure 9B.

[0061] The coupling between the support plate 10, supporting the hooking means 3, and the mounting plate 20 is therefore advantageously carried out through a slidable movement of the support plate 10 along the coupling direction B' guided by said guide means 40, and in particular by said third guide fins 43 assisted by the first guide fins 41.

[0062] Furthermore, said support plate 10 is advantageously provided with an engagement element 15 adapted to be inserted, during assembly, into a corresponding cavity 25 provided on said mounting plate 20.

[0063] The slidable coupling between the support plate 10 and the mounting plate 20 ends when the support plate 10 abuts against said second pair of guide fins 42, causing the ensuing formation of said edge 4.

[0064] At this point, as shown in Figures 10A and 10B, the retaining teeth 44 are advantageously folded plastically, as indicated by the arrows C', by means of a rotation around a rotation axis Y-Y essentially parallel to the coupling direction B', thus being arranged at the rear of the outermost pair of engagement fins 14 of the support plate 10, and said engagement element 15 is plastically folded into the cavity 25 to prevent the support plate 10 from accidentally de-coupling from the mounting plate 20 with a backward movement.

[0065] Figure 11 shows a step for assembling an angular support device 1 according to a second variant embodiment of the invention. Unlike the embodiments described above, in this variant embodiment the coupling between the support plate 10 and the mounting plate 20 occurs by means of at least one rotation around a vertical axis V-V.

[0066] In particular, in order to obtain the assembly of the mounting body 2, the support plate 10 is approached to the mounting plate 20 so that a pair of engagement fins 14 provided for on the side of the latter arranged proximal to the mounting plate 20 is inserted into corre-

sponding corner recesses.

[0067] Subsequently, the support plate 10 is rotated around a vertical axis V-V passing essentially through the inner edge of the dihedron, as indicated by the arrow D, and said retaining teeth 44 are plastically folded, by means of a rotation C' around a rotation axis Y-Y parallel to the plane defined by the mounting plate 20, and - in use - perpendicular to the wall for mounting the piece of furniture.

[0068] Figures 12A and 12B show a further variant embodiment, in which the coupling between the support plate 10 and the mounting plate 20 occurs by means of at least one rotation around a horizontal axis O-O, as indicated by the arrow D', substantially defined by one of the first guide fins 41.

[0069] To this end, a pair of engagement fins 14 provided for on said support plate 10 is advantageously obtained projecting vertically, to allow insertion in a corresponding pair of corner recesses provided for on the mounting plate 20.

[0070] Similarly to the previous variant embodiment, the coupling between said plates 10, 20 is completed by plastically folding the retention teeth 44 by means of a rotation C' around a rotation axis Y-Y parallel to the plane defined by the mounting plate 20, and - in use - perpendicular to the wall on which the piece of furniture is mounted.

[0071] The process for producing an angular support device 1 according to the present invention therefore generally comprises the following steps:

- a) associating said hooking means 3 on said support plate 10;
- b) coupling said support plate 10 to said mounting plate 20 by means of said guide means 40 to obtain said mounting body 2;
- c) moving said retaining means 44 from a neutral position to a retaining position in order to maintain the assembly of said mounting body 2 stably.

[0072] Figure 13 shows the flat development of a mounting plate 20 according to the present invention. As a matter of fact, at least said mounting plate 20 can be advantageously obtained from a flat metal sheet, wherein some portions of sheet are folded, simultaneously or in subsequent steps, along appropriately provided weakening portions, to obtain the pairs of fins 41, 42 and 43 forming the guide means 40, and the retaining means 44.

[0073] Advantageously, also said support plate 10 can be obtained according to a similar production process, starting from a flat metal sheet.

[0074] In the light of the above, it is therefore clear that the present invention achieves the objects and advantages set forth initially. As a matter of fact, an angular support device for wall cabinets that is easy and cost-effective to produce and at the same time very robust and functional, has been conceived.

[0075] This is mainly due to the fact that the mounting

body 2 is made of two distinct and separate elements, which can be subsequently assembled by means of simple sliding or rotation movements.

[0076] Furthermore, the coupling between said mounting plate 20 and said support plate 10 is advantageously guided by guide means suitably shaped according to the selected coupling movement and then stably maintained by retaining means movable from the neutral position to the retaining position in a simple and immediate manner.

[0077] However, it will be apparent to the man skilled in the art that an angular support device according to the present invention is compact, i.e. having limited overall dimensions, but at the same time particularly stable and safe, adapted to bear even very high loads, a characteristic that makes it particularly suitable for fixing rather deep furniture, such as bases for kitchens or bathrooms, equipped with drawers, to the wall.

[0078] Naturally, the present invention is susceptible of numerous applications, modifications or variations without departing from the scope of protection, as defined by the attached claims.

[0079] Furthermore, the materials and equipment used for the implementation of the present invention, as well as the shapes and dimensions of the individual components, may be the most suitable ones depending on the specific requirements.

Claims

1. Angular support device (1) adapted to support a wall cabinet on a wall, said device (1) comprising:

- hooking means (3) adapted to cooperate with engagement means wall-fixed to support the piece of furniture, and
- a mounting body (2) comprising a support plate (10) whereon said hooking means (3) can be mounted, and a mounting plate (20) which can be integrally constrained to the inner surface of the side of a piece of furniture, said support plate (10) and said mounting plate (20) being arranged, in use, on mutually perpendicular planes so that said mounting body (2) is dihedral-shaped,

characterised in that said support plate (10) and said mounting plate (20) are made of respectively distinct and separate pieces, guide means (40) being provided on said mounting plate (20) to allow the coupling with said support plate (10) during assembly, said mounting plate (20) further comprising retaining means (44) movable between a neutral position and a retaining position during assembly for maintaining the assembly of said mounting body (2).

2. Angular support device (1) according to claim 1, wherein said retaining means (44) are formed by at

least one retaining tooth whose passage between said neutral position and said retaining position occurs through plastic deformation with a rotation (C, C') around a rotation axis (X-X, Y-Y).

3. Angular support device (1) according to any one of the preceding claims, wherein said guide means (40) comprise a pair of first guide fins (41) projecting perpendicularly at corner portions of an inner face (20B) of said mounting plate (20), and a pair of second guide fins (42) projecting perpendicularly from said first guide fins (41).
4. Angular support device (1) according to claim 3, wherein the coupling of said support plate (10) on said mounting plate (20) occurs by sliding along a coupling direction (B, B').
5. Angular support device (1) according to claim 4, wherein said guide means (40) further comprise a pair of third guide fins (43) projecting perpendicularly from the ends of said first guide fins (41) so as to form, together with the respective first and second guide fins (41, 42), a track for slidably inserting said support plate (10) along a coupling direction (B) orthogonal to said mounting plate (20).
6. Angular support device (1) according to claim 5, wherein said at least one retaining tooth (44) is provided for projecting in a coplanar manner from a corresponding second guide fin (42), developing beyond the extension of the respective first guide fin (41), said rotation axis (X-X) being orthogonal to the coupling direction (B) and, in use, vertically.
7. Angular support device (1) according to claim 4, wherein said guide means (40) further comprise a pair of third guide fins (43) projecting perpendicularly from the ends of said second guide fins (42), lying on a plane parallel to said mounting plate (20) so as to form, with the respective first guide fin (41), a guide for slidably inserting said support plate (10) along a coupling direction (B') parallel to the mounting plate (20), said support plate (10) further comprising an engagement element (15) adapted to be inserted into a corresponding cavity (25) obtained on said mounting plate (20) to prevent decoupling.
8. Angular support device (1) according to claim 7, wherein said at least one retaining tooth (44) is provided for projecting in a coplanar manner from the end of one of said pair of first guide fins (41), said rotation axis (Y-Y) being parallel to the coupling direction (B').
9. Angular support device (1) according to any one of claims 1 to 3, wherein the coupling of said support plate (10) with said mounting plate (20) occurs by

means of at least one rotation (D, D') around an axis (V-V; O-O).

10. Angular support device (1) according to any one of the preceding claims, wherein said hooking means (3) can be positioned in an opening (11) obtained on said mounting plate (10). 5
11. Angular support device (1) according to claim 10, wherein said hooking means (3) are slidably inserted into said opening (11) through an outlet (11A) obtained at a lower edge of said support plate (10). 10
12. Angular support device (1) according to any one of the preceding claims, wherein said hooking means (3) comprise a hooking element (31A, 31A') and means for adjusting the hooking position depth and vertical-wise. 15
13. Angular support device (1) according to any one of the preceding claims, further comprising a covering element (50) adapted to be associated with said mounting body (2) when the latter is mounted on said piece of furniture, said covering element (50) being provided with a plurality of coupling pins (51) adapted to slidably engage a corresponding plurality of slotted openings (22) obtained on said mounting plate (20). 20 25
14. Piece of furniture comprising an angular support device (1) according to any one of claims 1 to 13. 30
15. A method for producing an angular support device (1) according to claim 1, comprising the following steps: 35
 - a) associating said hooking means (3) with said support plate (10);
 - b) coupling said support plate (10) to said mounting plate (20) by means of said guide means (40) to obtain said mounting body (2); 40
 - c) moving said retaining means (44) from a neutral position to a retaining position in order to maintain the assembly of said mounting body (2) stably. 45

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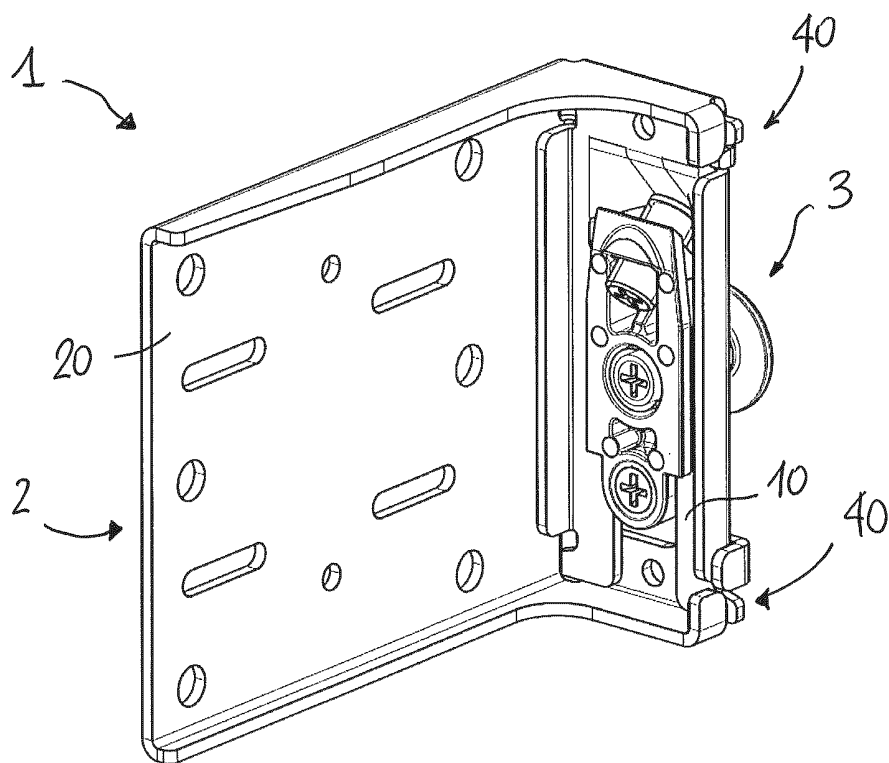


FIG. 1A

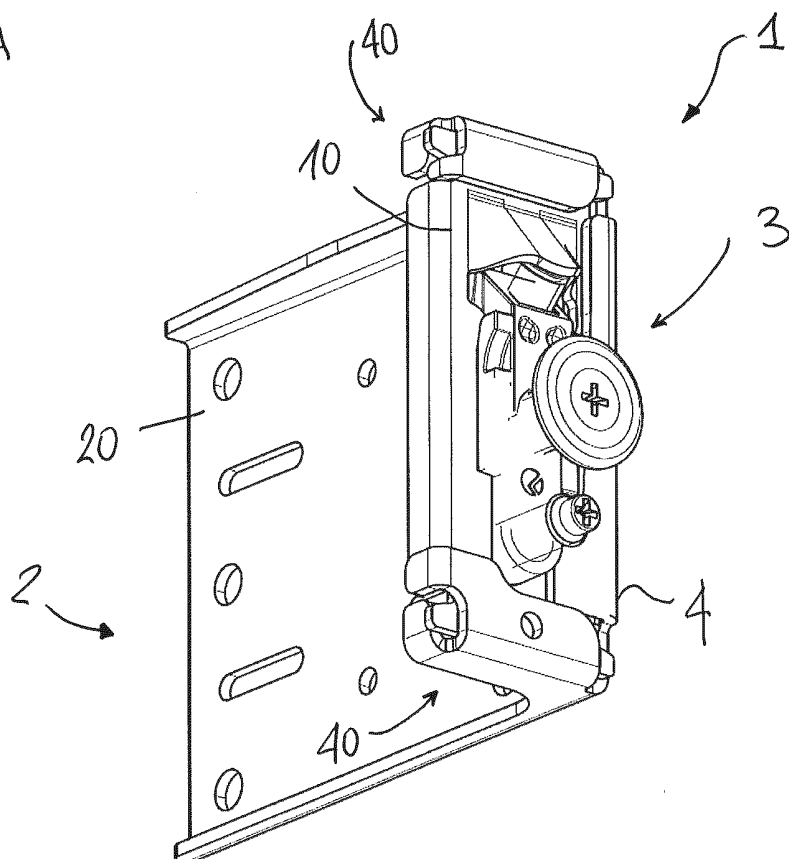


FIG. 1B

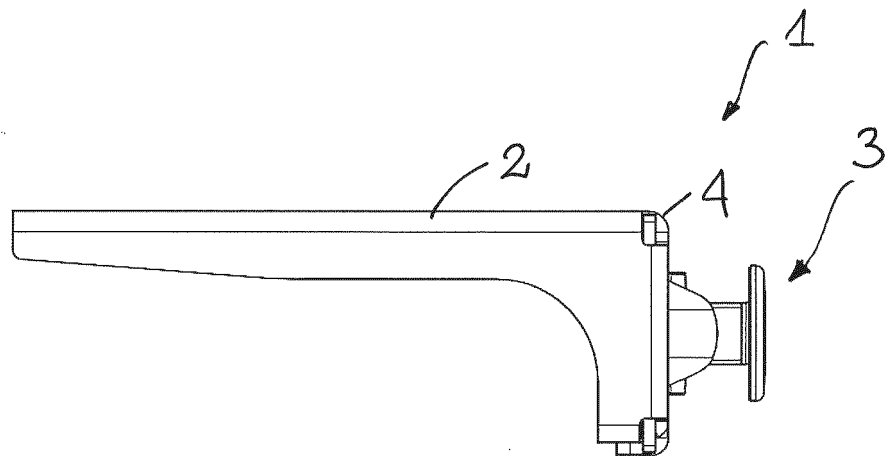


FIG. 1C

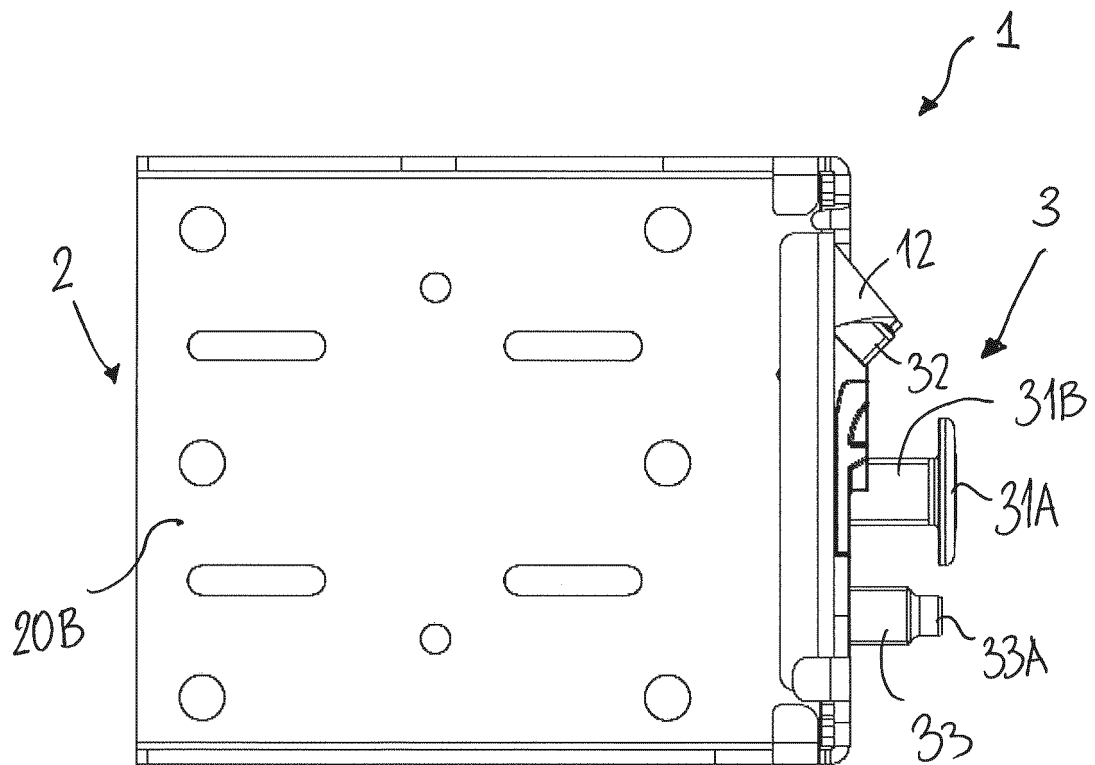


FIG. 1D

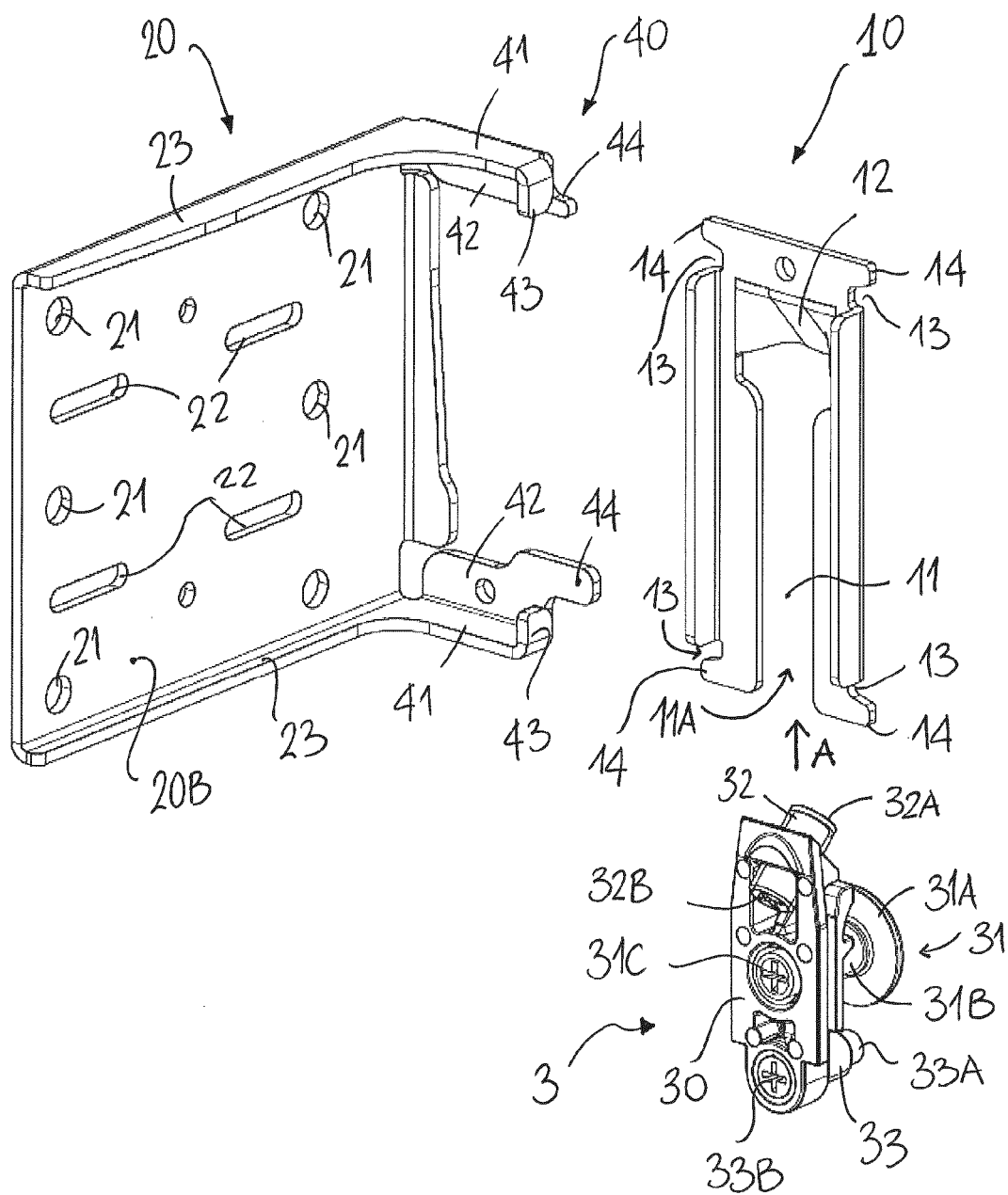
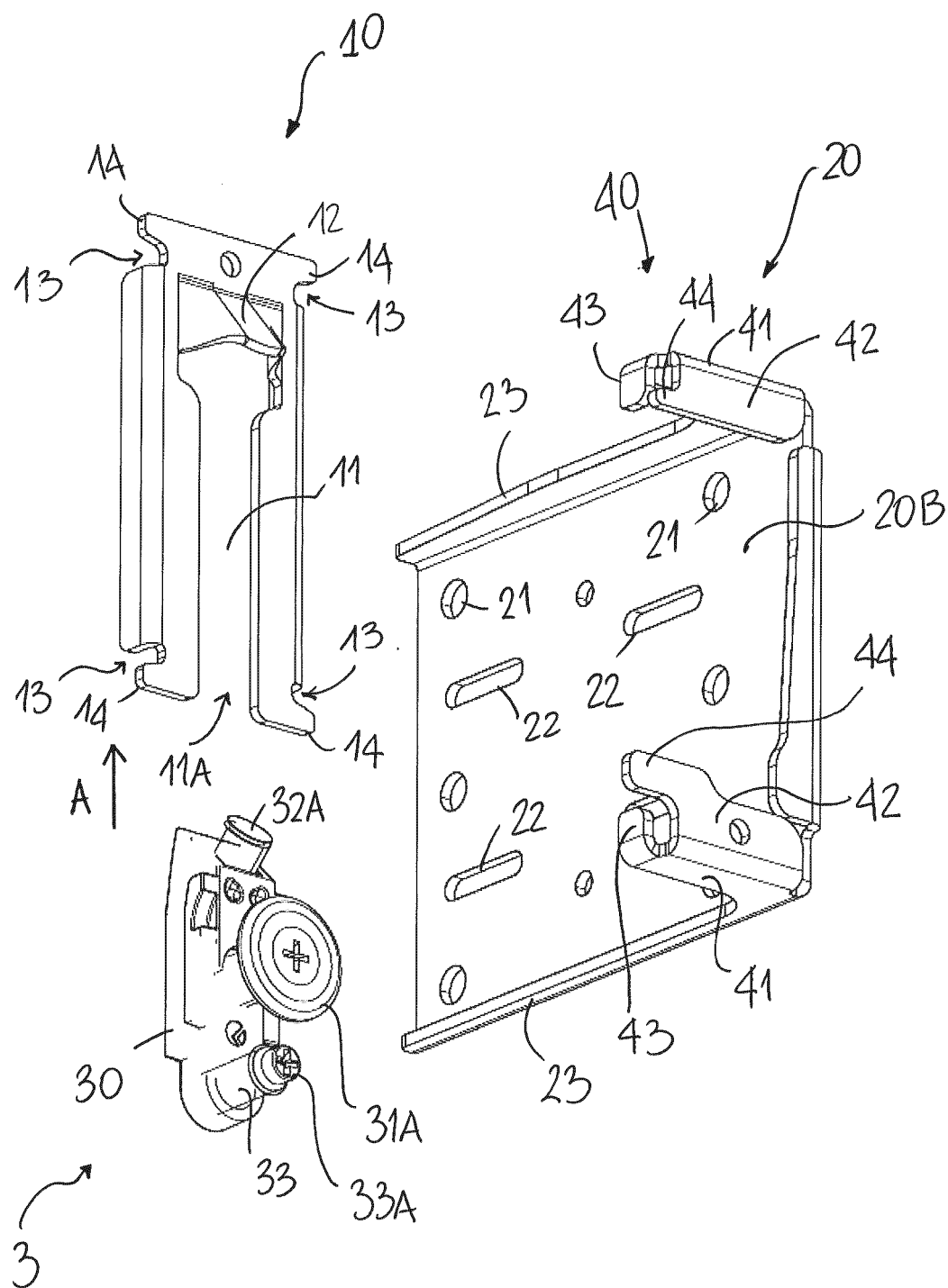
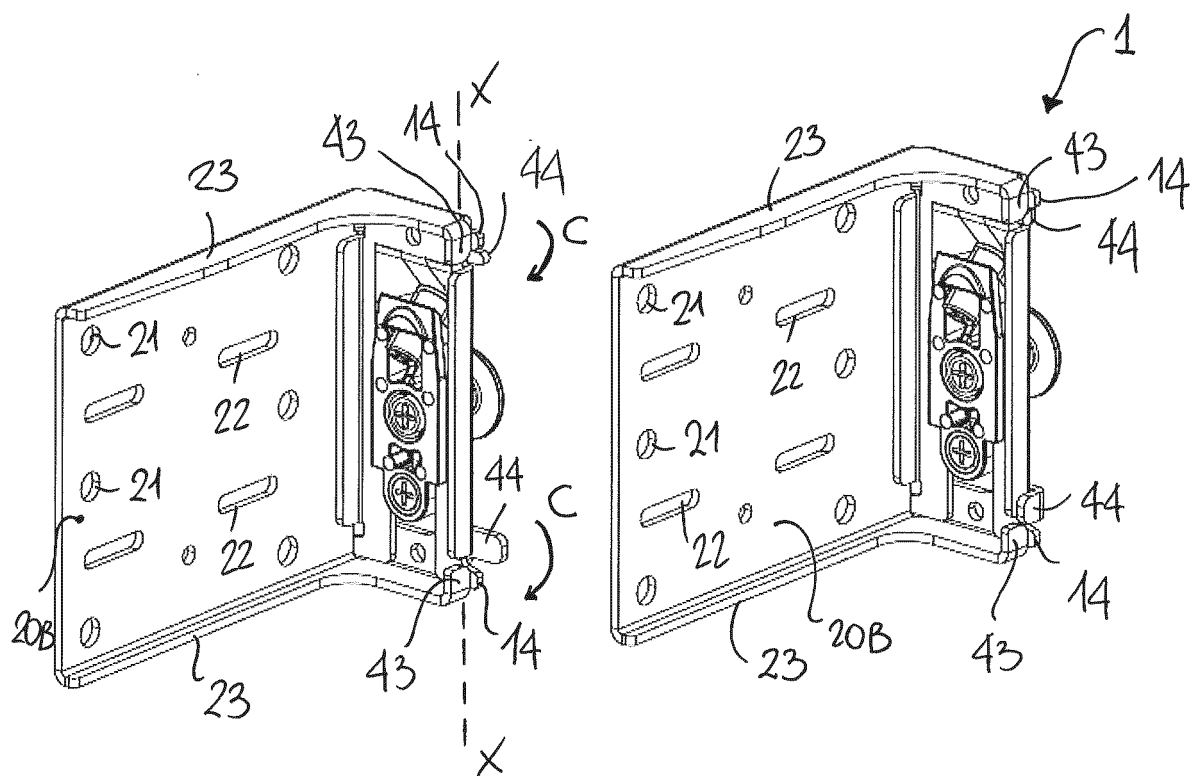
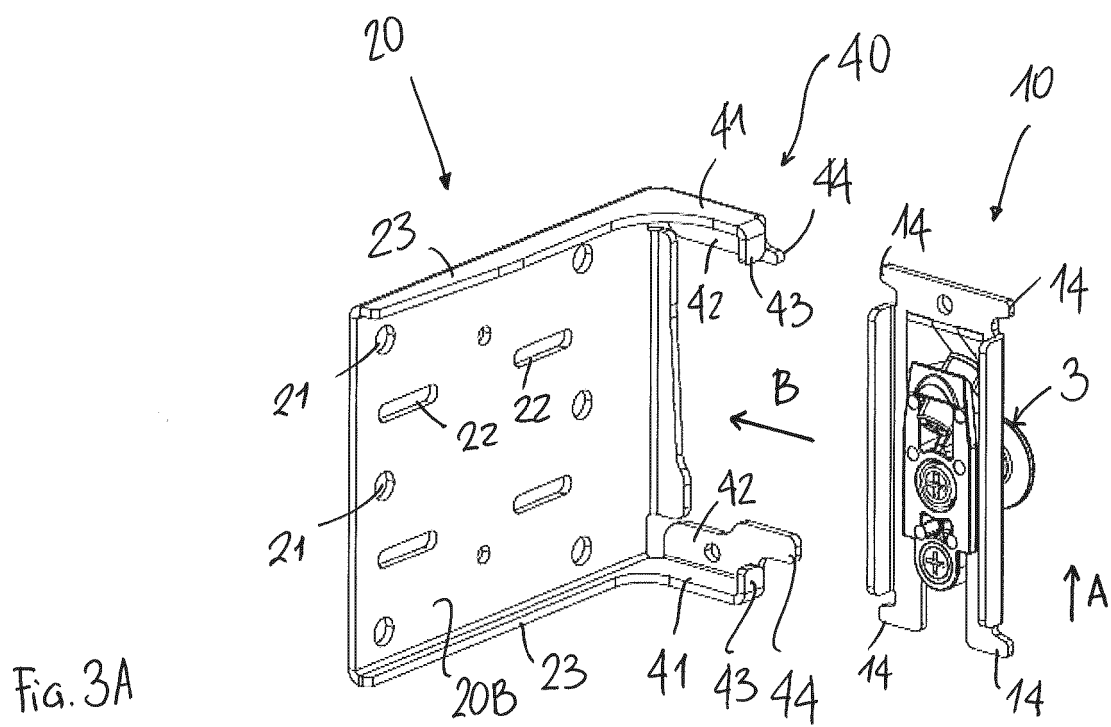
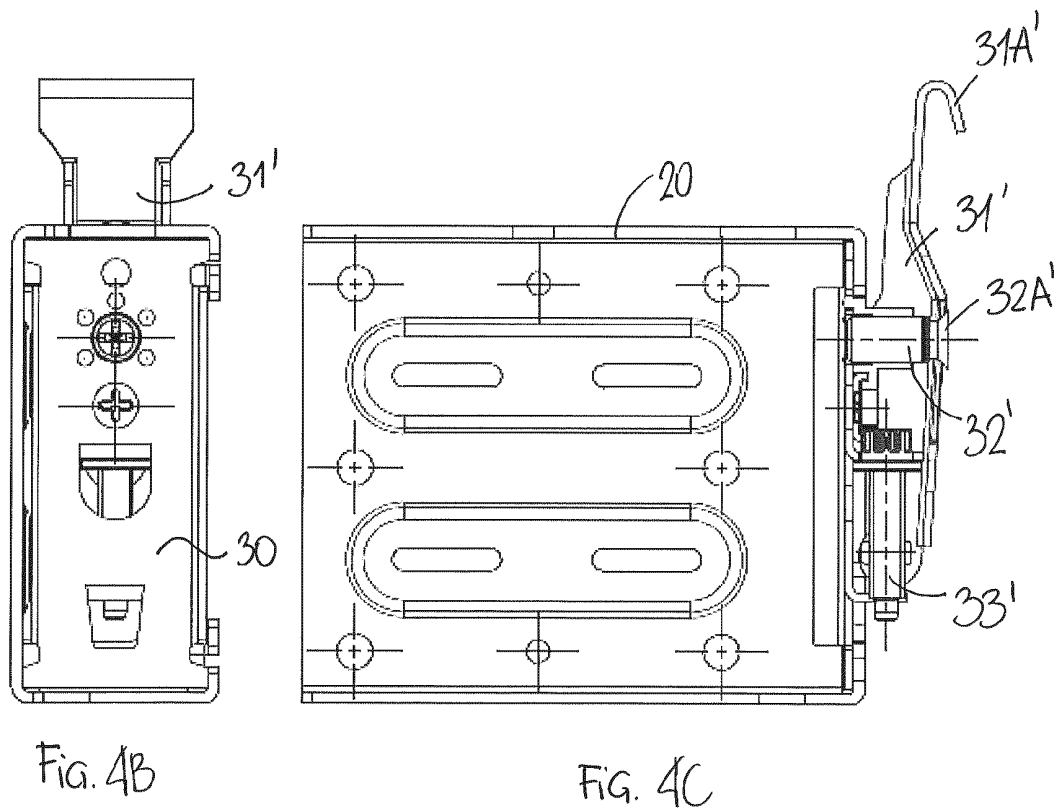
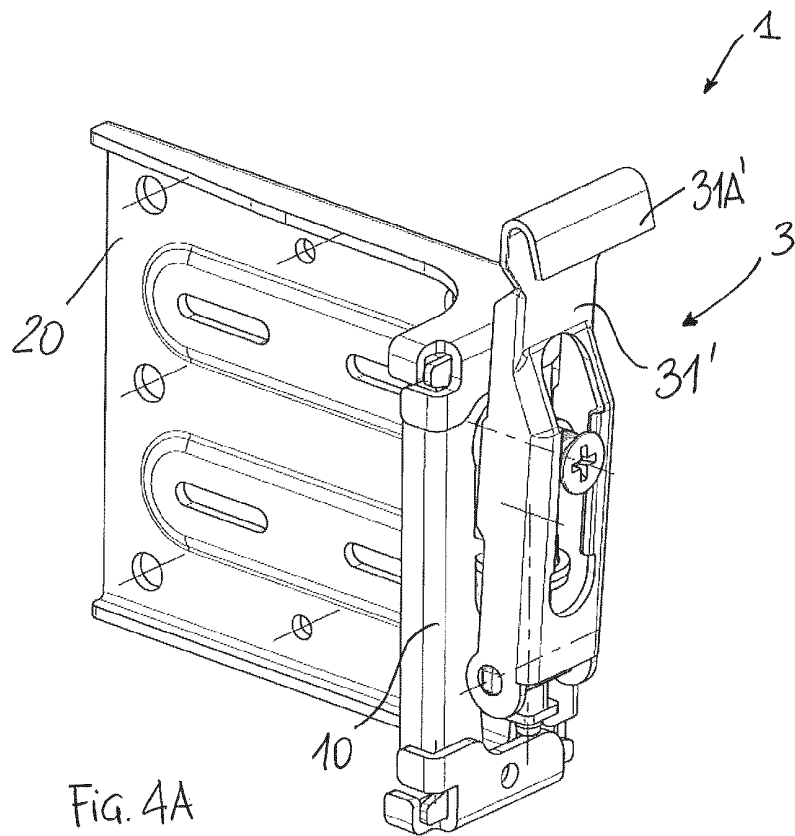


Fig. 2A







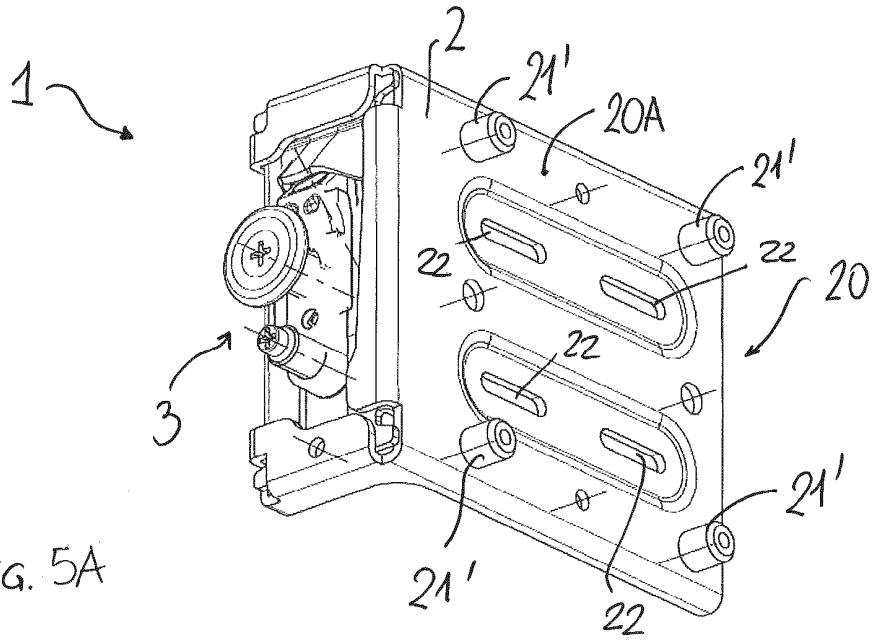


Fig. 5A

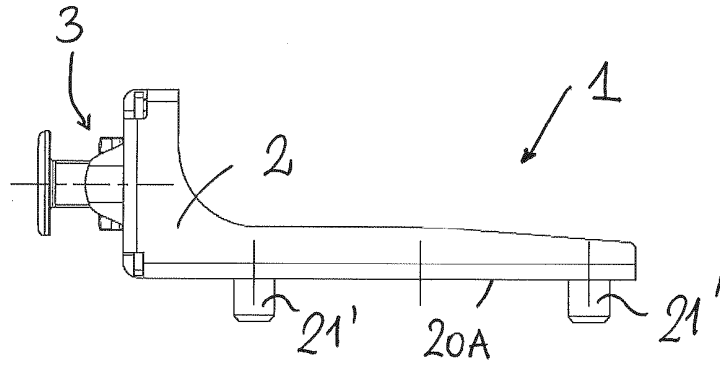


Fig. 5B

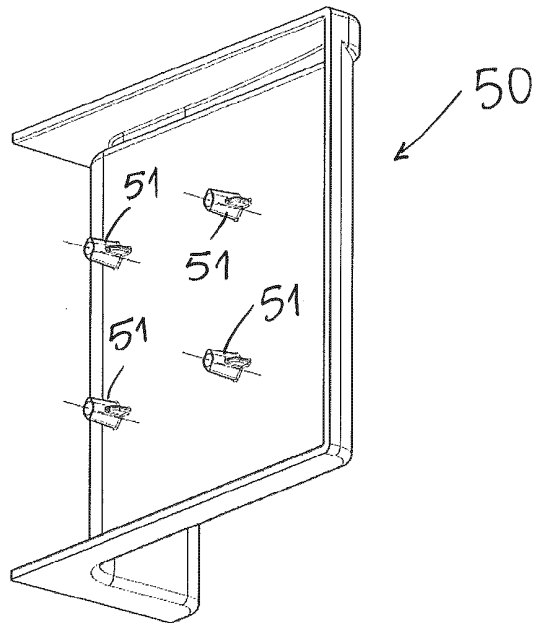


Fig. 6

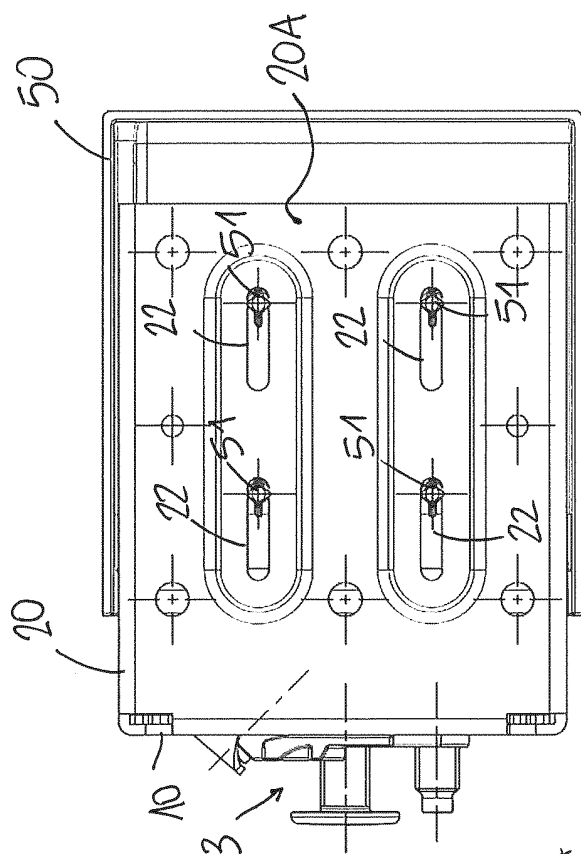


Fig. 7A

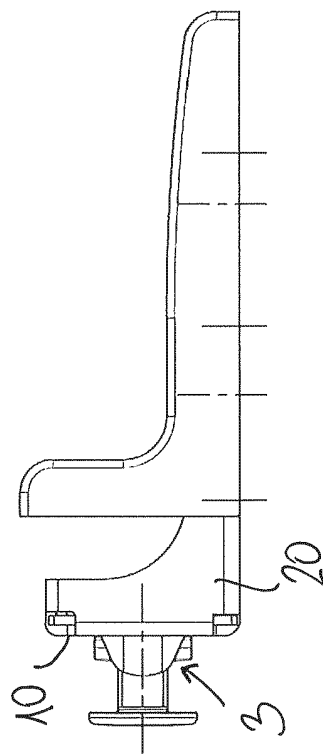


Fig. 7B

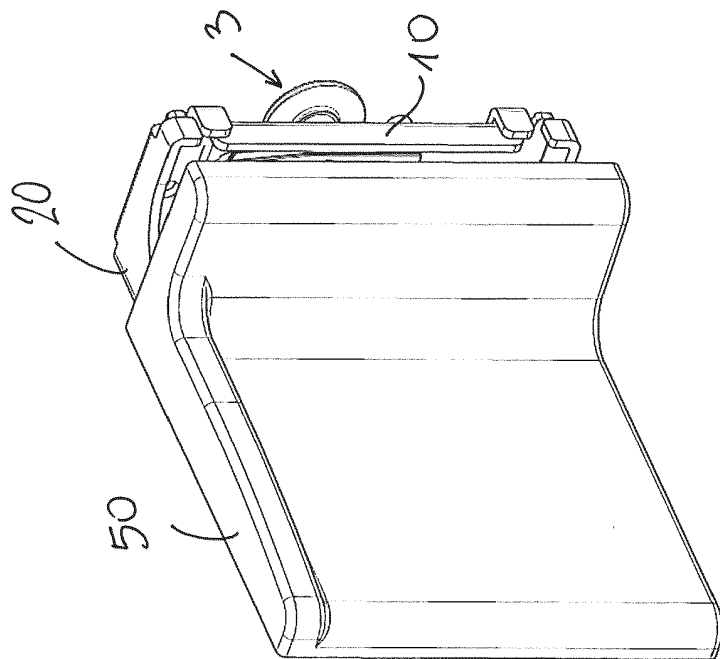


Fig. 7C

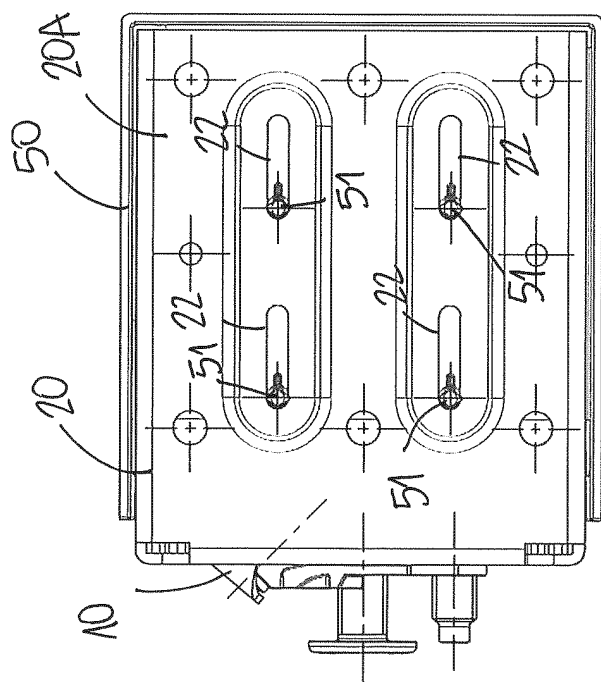


FIG. 8A

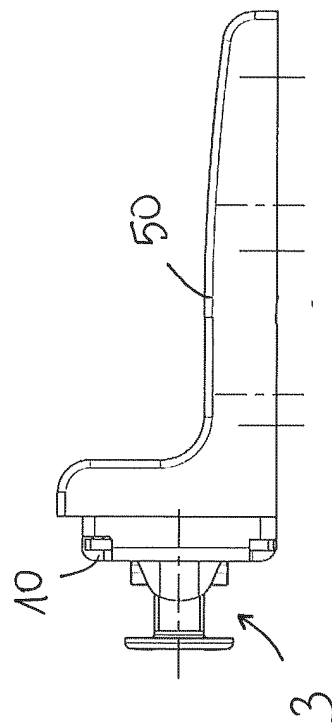


FIG. 8B

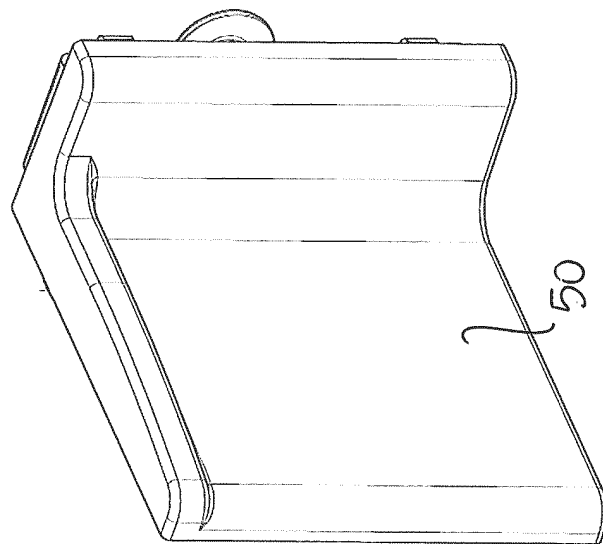


FIG. 8C

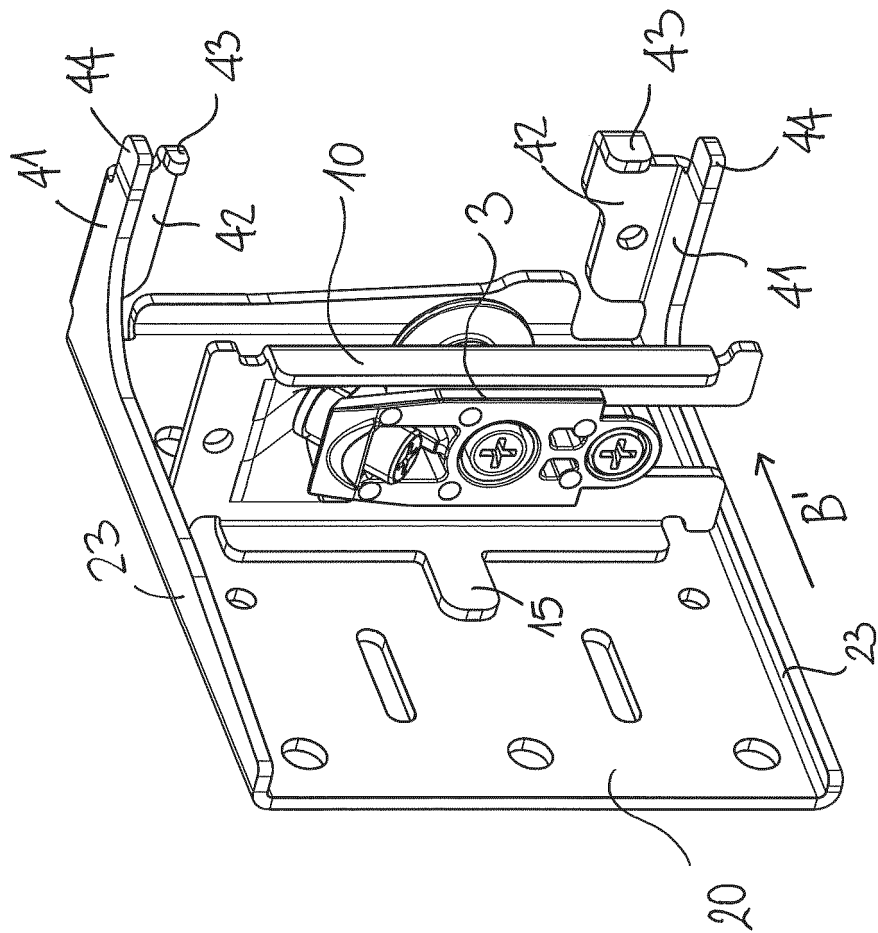


FIG. 9A

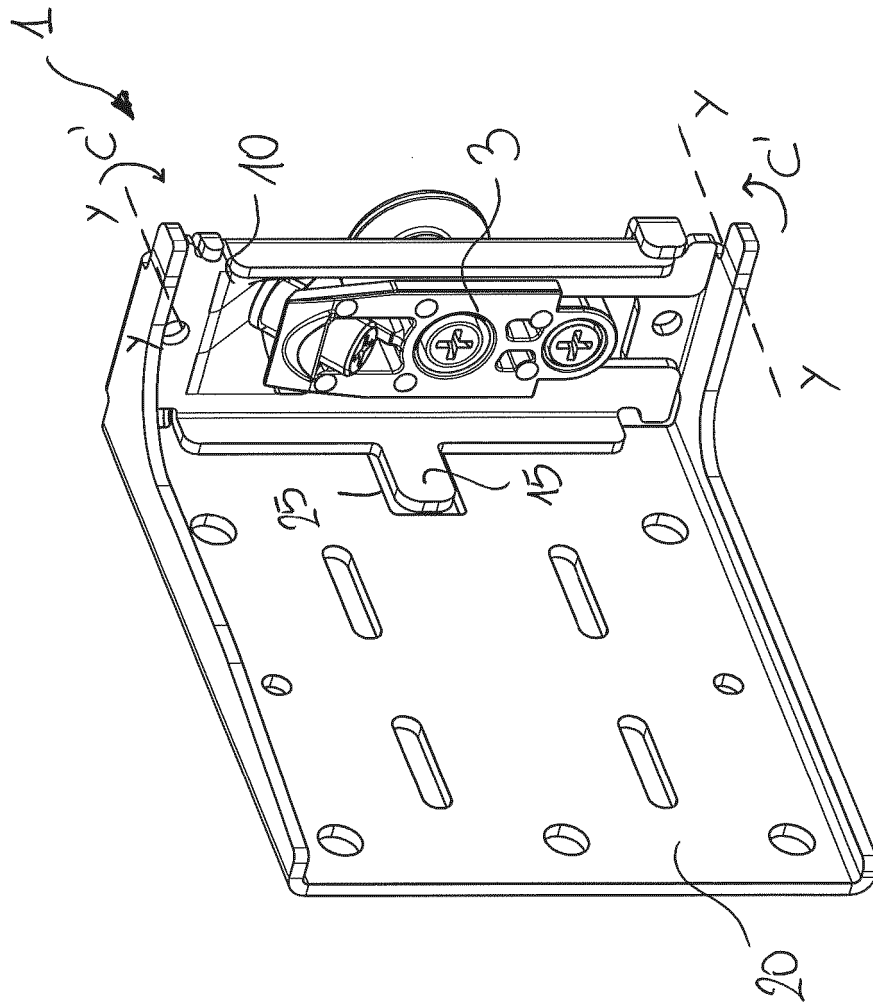


Fig. 9B

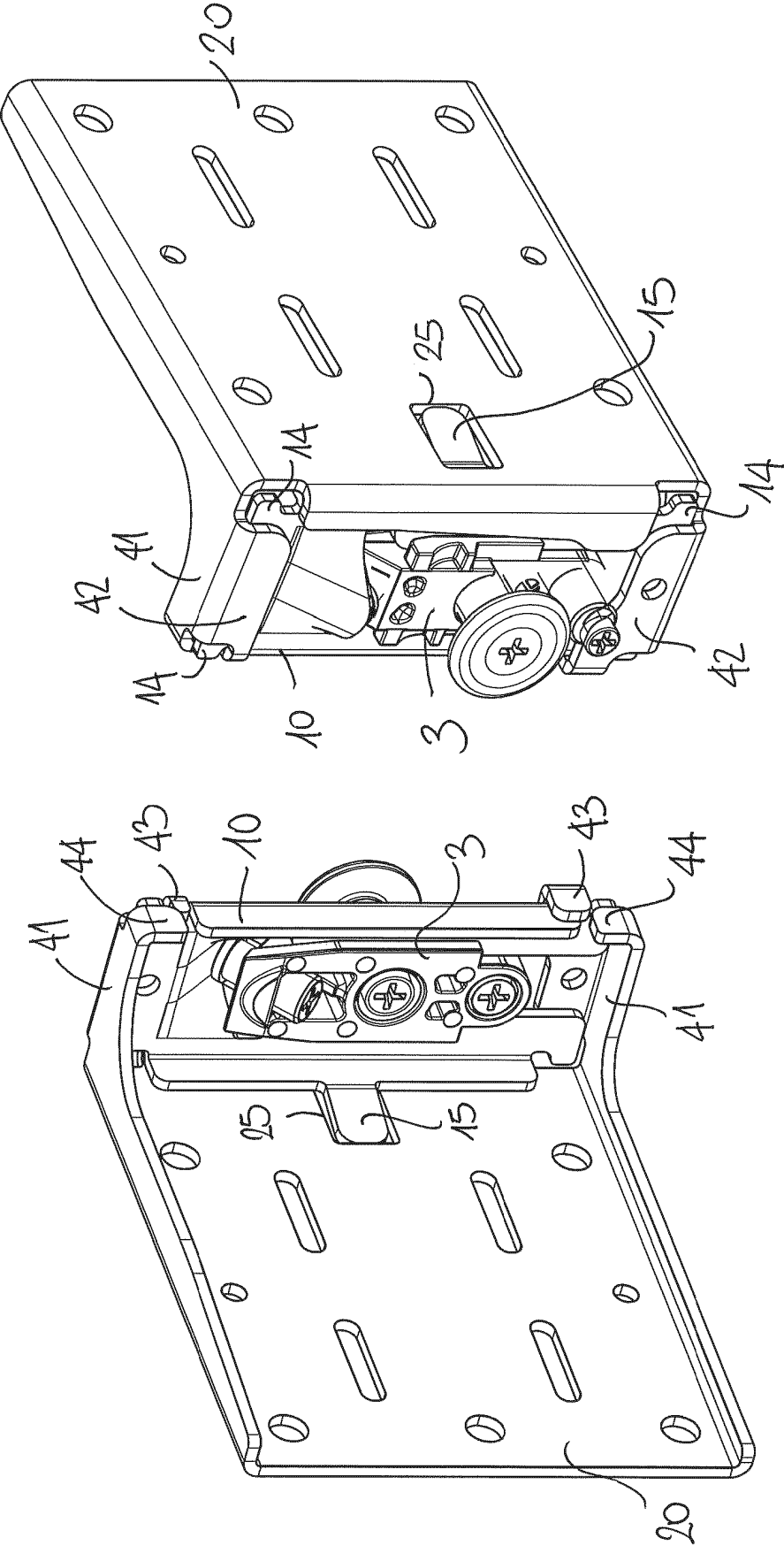


Fig. 10A

Fig. 10B

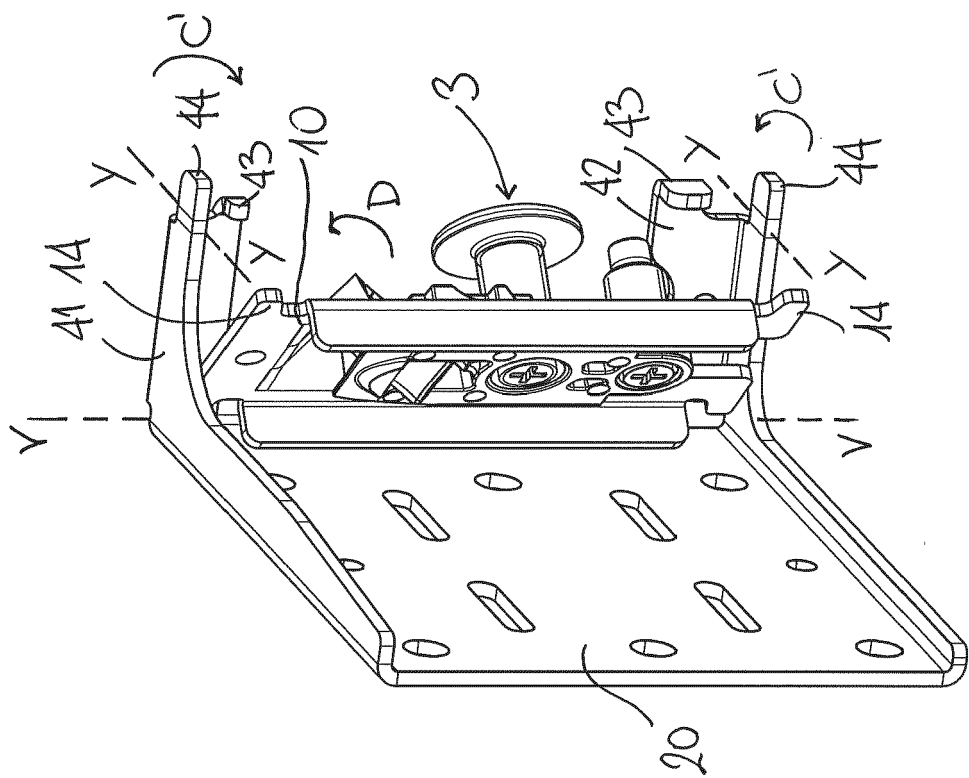


Fig. 11

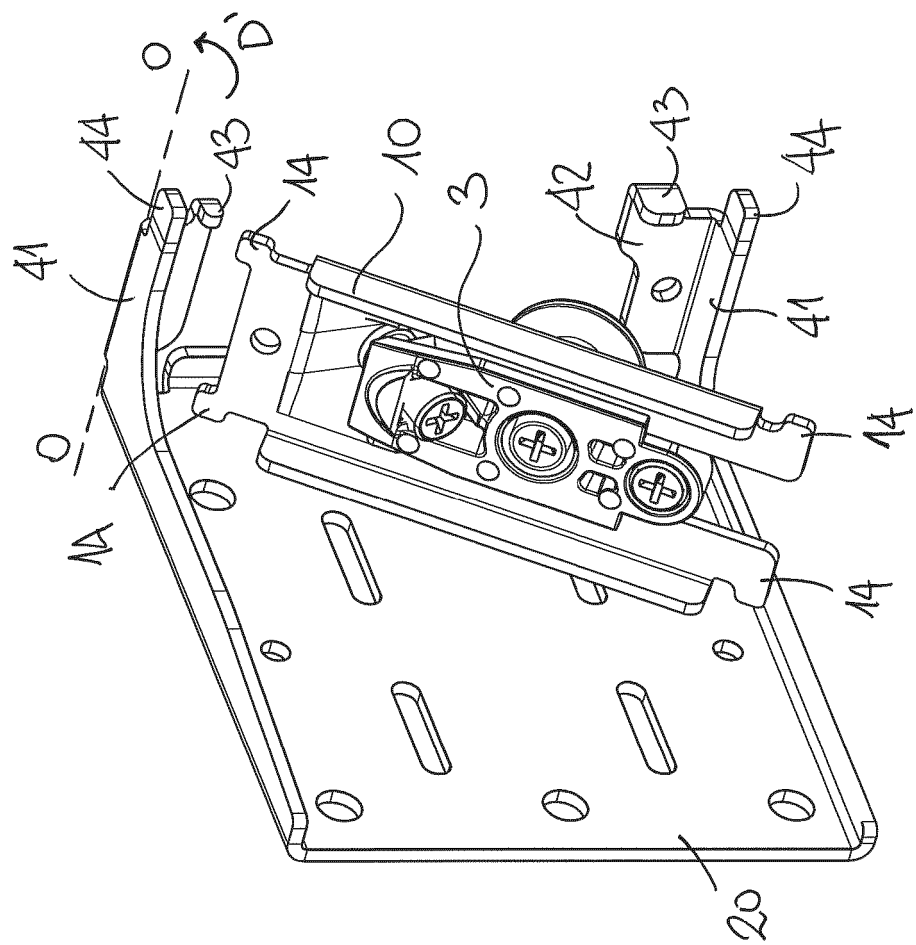


FIG. 12A

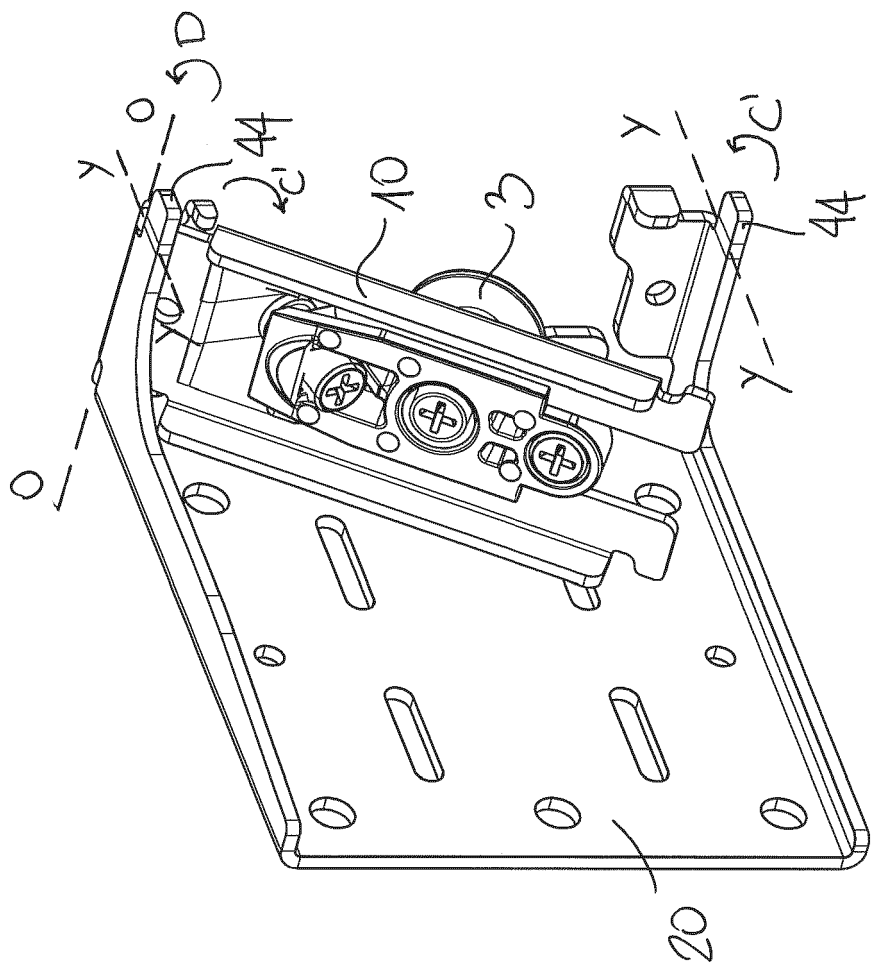


Fig. 12B

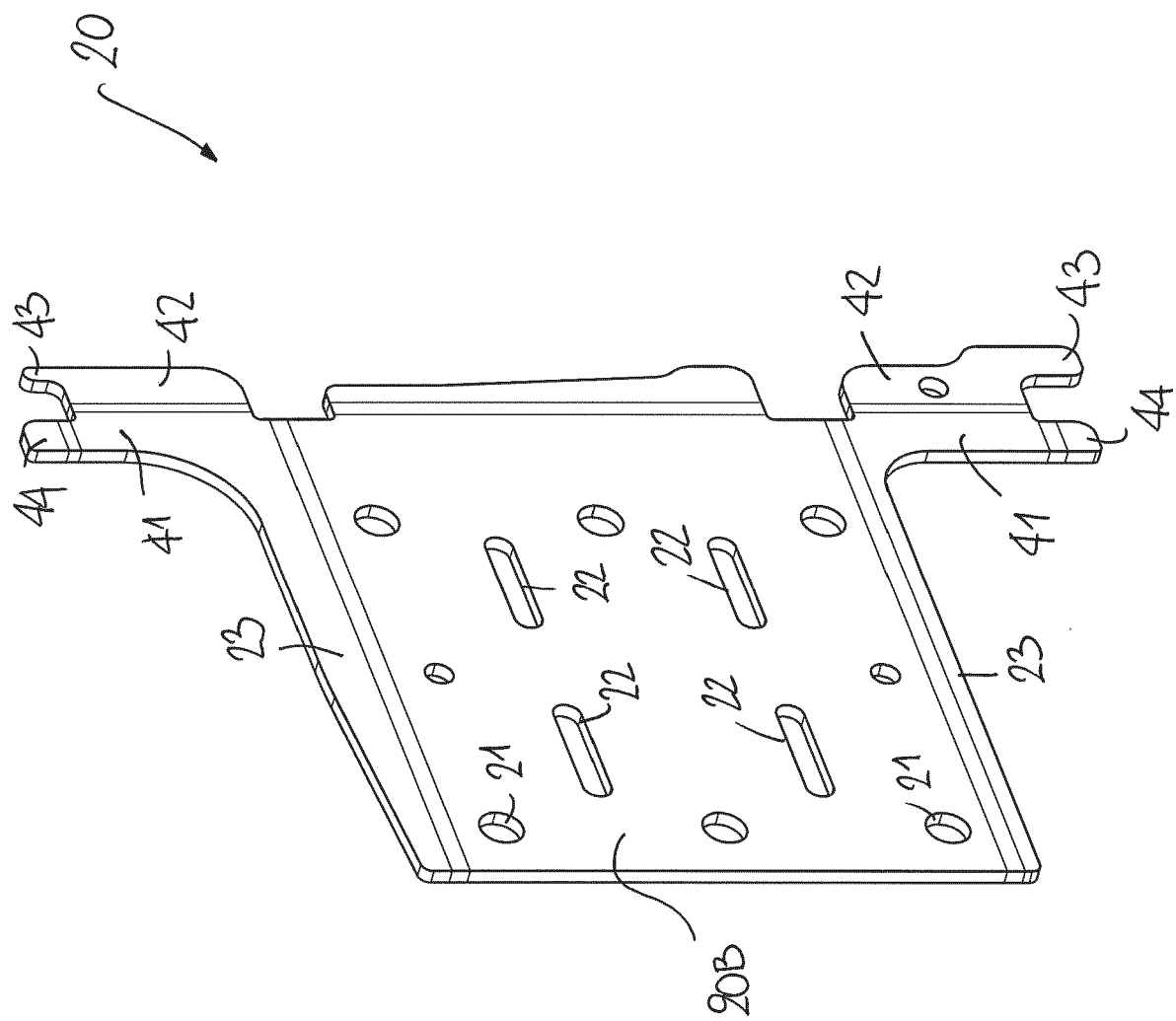


Fig. 13

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2008129381 A [0004]
- EP 3289924 A [0008]