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(54) SELF-CENTRING SYSTEM FOR RECEPTACLES IN PULL OUT CABINETS

(57) A self-centring system (1) for receptacles in pull out cabinets comprising a first (12) and second fastening means (13) comprising a main portion from which hook means extend and which hook means of the first fastening means (12) are arranged to at least partially enclose a first portion of a receptacle (8) and to grip a connecting part of the first rail (6), and which hook means of the second fastening means (13) are arranged to at least partially enclose a second portion of the receptacle (8) and to grip a connecting part of the second rail (7). Permitting the receptacle (8) to attach to the first (6) and the second rails (7) and consequently to be self-centring between a first and second lateral sides of a cabinet body.

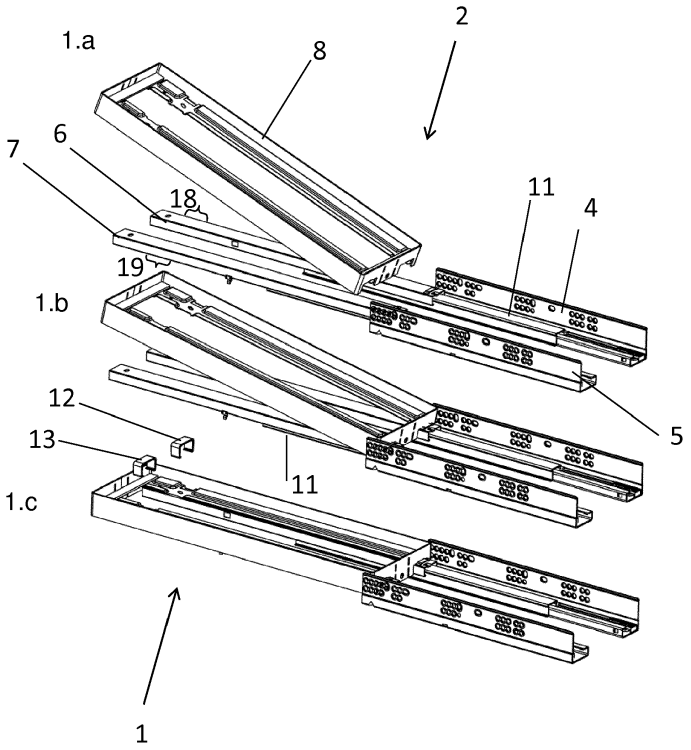

Fig. 1

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Description

Technical field

[0001] The present invention relates to a self-centring system for receptacles in pull out cabinets.

Background art

[0002] In prior art it is known that different storage systems comprising different internal frame structures for shelf systems, wardrobe systems, kitchen cabinets etc. are produced and eventually assembled. These storage systems comprise an outer housing and a frame structure arranged inside the outer housing. The frame structure supports internal shelves, trays etc. To decrease the manufacturing costs of the storage systems the manufacturers adapt a few frame structure models to fit in as many sizes of shelf systems, wardrobe systems, kitchen cabinets etc. as possible. This gives rise to that a specific frame structure in some way need to be adapted to the actual dimension of the specific outer housing by means of adjustment features such as for example distance means.

[0003] The outer housing is preferably made of fibreboard, medium-density fibreboard (MDF) or any other suitable outer housing material. Depending on the dimensions of the storage system, especially the material thickness of the outer housing material, the width of the frame structure need to be adjusted to various sizes in order to fit properly into the outer housing.

[0004] In prior art the adaptation of the width of the frame structure is conducted by adding one or more distance means between the frame structure and the outer housing. Generally the distance means are only added to one side of the frame structure. Depending on the height of the storage system, one or more positions along the height of the frame structure may need to be adjusted. The distance means come in different sizes in order to be able to correctly fill the gaps in between the frame structure and the outer housing due to different material thicknesses of the outer housing material.

[0005] In case the person who assembles the storage system is not a skilled worker, it may be difficult for the person to judge which size of the distance means are to be used to obtain the desired total width of the frame structure, and as a result the frame structure may be mounted in a skew manner and give rise to malfunction.

[0006] Another drawback in using distance means is that, since the manufacturer beforehand does not know which specific width the frame structure needs to be adapted to, the manufacturer has to send a surplus of distance means of various sizes to the end consumer or the person who assembles the storage system. This gives rise to an unnecessary waste of unused distance means that eventually are disposed of.

[0007] Furthermore, it is relatively difficult and time consuming for the end consumer or the assembly personnel to install the distance means in order for the frame structure to be correctly installed in the outer housing of the storage system.

[0008] The frame structure most often comprises some sort of receptacles which carry goods. These type of goods could in a domestic environment be clothes, foodstuff, bathroom necessities, tools etc. In an industrial or office environment it could be other type of goods. These receptacles need to be well centred and positioned with regards to the inner sides of the outer housing, as the receptacles are often installed in a pull out cabinet. The frame structure provides the means for the positioning of the receptacles. If the position of the receptacles is wrong the receptacles may be skewed with regards to the inner sides of the housing or too close to one of the inner sides of the housing. As a result it could be difficult or impossible to pull in and out the receptacles of the outer housing.

[0009] It is therefore desirable to accomplish a centring system for receptacles in pull out cabinets, which is inexpensive to manufacture, which does not include too many separate components, which is easy for the end consumer or any other person to install, which provides the possibility to be installed in a non-skewed manner, and which obsoletes distance means of various sizes.

Summary of invention

[0010] An object of the present invention is thus to accomplish a centring system for receptacles in pull out cabinets, which is inexpensive to manufacture, which does not include too many separate components, which is easy for the end consumer or any other person to install, which provides the possibility to be installed in a non-skewed manner, and which obsoletes distance means of various sizes.

[0011] According to one aspect the invention concerns a self-centring system for receptacles in pull out cabinets. The frame structure provided in a cabinet body comprises first and second brackets, first and second rails, at least one receptacle. The first bracket is fixedly attached to a first lateral side of the cabinet body and the second bracket is fixedly attached to a second lateral side of the cabinet body. The first and second rails are slidably attached by means of sliding means on to the first and second brackets, such that the first and second rails are slidable in and out of the cabinet body. The receptacle is attached to the first and second rails. The self-centring system comprises a first and second fastening means comprising a main portion from which hook means extend and which hook means of the first fastening means are arranged to at least partially enclose a first portion of the receptacle and to grip a connecting part of the first rail. The hook means of the second fastening means are arranged to at least partially enclose a second portion of the receptacle and to grip a connecting part of the second rail, permitting the receptacle to attach to the first and the second rails and consequently to be self-centring be-

tween the first and second lateral sides of the cabinet body.

[0012] An advantage with the system is that it enables the receptacle to self-centre between the first and second lateral sides of the cabinet body. Furthermore the included components are few and inexpensive to manufacture. The system is very easy for the end consumer or any other person to install in a non-skewed manner. Additionally the distance means of various sizes are made obsolete.

[0013] The above system may be configured according to different optional embodiments. For example the first and the second fastening means may each be provided with a main portion, a pin and first parts of the hook means. The pin and first parts of the hook means extend in the same direction and are arranged on and substantially perpendicular to the main portion. The pin of the first fastening means is arranged to engage with a first hole provided in the receptacle and the pin of the second fastening means is arranged to engage with a second hole provided in the receptacle.

[0014] An advantage with the solution is that the pin and the first parts of the hook enables the receptacle to even better self-centre between the first and second lateral sides of the cabinet body.

[0015] According to an embodiment of the invention, the hook means of the first and second fastenings means may comprise second parts arranged at end parts of the first parts of the hook means extending in a substantially perpendicular direction in relation to the first parts of the hook means, and are arranged to grip the connecting parts of the first and the second rails.

[0016] An advantage with the solution is that the second parts of the fastening means fixedly attach the receptacle to the first and second rails, and that it prevents the receptacle to lift upwards if the end user would pull the receptacle in that direction.

[0017] According to an embodiment of the invention the first and second holes of the receptacle may be oblong, extend in a diagonal manner in between the first and second lateral sides of the cabinet body and mirror each other in an imaginary centre line of the receptacle in a lateral direction. An overall length of the first and second holes of the receptacle is long enough in permitting the pin of the first and second fastening means and thus the receptacle to travel an adjustment distance in a transverse direction.

[0018] An advantage with the solution is that it permits the pin of the first and second fastening means and thus the receptacle to travel an adjustment distance in a transverse direction. This permits the receptacle to even better self-centre between the first and second lateral sides of the cabinet body.

[0019] According to an embodiment of the invention the receptacle may be provided with first and second pins, which extend from a first end of the receptacle towards the first and second rails respectively. The first rail may be provided with a first aperture within which the first pin engage, and the second rail may be provided with a second aperture within which the second pin engage.

[0020] An advantage with the solution is that it permits the receptacle to even better self-centre between the first and second lateral sides of the cabinet body and that it is fixedly attached to the first and the second rails.

[0021] According to an embodiment of the invention the first and second apertures of the first and second rails may be oblong in shape, extend in the transverse direction and wherein an overall length of the first and second apertures is long enough in permitting the first and second pins of the receptacle and thus the receptacle to travel an adjustment distance in a transverse direction.

[0022] An advantage with the solution is that it permits the first and second pins of the receptacle and thus the receptacle to travel an adjustment distance in a transverse direction. This permits the receptacle to even better self-centre between the first and second lateral sides of the cabinet body.

[0023] According to an embodiment of the invention the receptacle may be provided with first and second tongue-shaped projections, which extend from a second end of the receptacle towards the first and second rails respectively. The first rail may be provided with a first receiving device within which the first tongue-shaped projection engage, and the second rail is provided with a second receiving device within which the second tongue-shaped projection engage.

[0024] An advantage with the solution is that it permits the receptacle to even better self-centre between the first and second lateral sides of the cabinet body and that it is semi-fixedly attached to the first and the second rails.

[0025] According to an embodiment of the invention the first and second receiving devices may be long enough in a transverse direction in permitting the first and second tongue-shaped projections and thus the receptacle to travel an adjustment distance in a transverse direction.

[0026] An advantage with the solution is that it permits the first and second tongue-shaped projections and thus the receptacle to travel an adjustment distance in a transverse direction. This subsequently results in the receptacle to even better self-centre between the first and second lateral sides of the cabinet body.

[0027] According to an embodiment of the invention the receptacle may be provided with a first and second set of apertures. The hook means of the first fastening means extend through the first set of apertures. The hook means of the second fastening means extend through the second set of apertures.

[0028] An advantage with the solution is that it permits the receptacle to even better self-centre between the first and second lateral sides of the cabinet body.

[0029] According to an embodiment of the invention the first and second set of apertures of the receptacle may comprise a width extending along lateral sides of the receptacle. The width is larger than a width of the first

and the second fastening means.

[0030] An advantage with the solution is that it permits the receptacle to even better self-centre between the first and second lateral sides of the cabinet body.

[0031] The outer housing material often varies in thickness in between 16 and 19 mm. However, the thickness can both be smaller and greater than these dimensions.

[0032] With regards to mentioned adjustment distance in a transverse direction, the adjustment distance is for instance 6 mm when the outer housing material varies in thickness between 16 and 19 mm, which often is the case. The formula for calculating the adjustment direction would be 2 x (maximum thickness - minimum thickness of outer housing material) which for mentioned thicknesses equals 2 x (19-16) = 6 mm.

Brief description of drawings

[0033] The invention is now described, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 shows a self-centring system for receptacles in pull out cabinets in a perspective view, in a first installation step (1.a), in a second installation step (1.b) and in a third installation step (1.c).

Fig. 2 shows a fastening means in a front view (2.a), in a view from above (2.b), in a perspective view (2.c) and in a side view (2.d).

Fig. 3 shows a receptacle in a view from above (3.a) and in a perspective view (3b.)

Fig. 4 shows a receptacle in a view from below.

Fig. 5 shows a first rail attached to a first bracket and a second rail attached to a second bracket in a view from above in a pulled-out position (5.a), in a pushed-in position (5.b) and in a front view (5.c).

Fig. 6 shows a self-centring system for receptacles in pull out cabinets installed in a cabinet body in a view from above.

Description of embodiments

[0034] In the following, a detailed description of a self-centring system for receptacles in pull out cabinets is provided.

[0035] Fig. 1 shows a self-centring system 1 for receptacles in pull out cabinets in three different installation steps (1.a, 1.b and 1.c). A frame structure 2 comprises first 4 and second brackets 5, first 6 and second rails 7 and a receptacle 8. The first 6 and second rails 7 are slidably attached by means of sliding means 11 on to the first 4 and second brackets 5, such that the first 6 and second rails 7 are slidable. The receptacle 8 is attached to the first 6 and second rails 7. The self-centring system 1 comprises a first 12 and second fastening means 13 arranged to at least partially enclose the receptacle 8. The first fastening means 12 is further arranged to grip a connecting part 18 of the first rail 6, and the second fastening means 13 is arranged to grip a connecting part 19 of the second rail 8, permitting the receptacle 8 to attach to the first 6 and the second rails 7.

[0036] Fig. 2 shows a first 12 or a second fastening means 13 provided with a main portion 14, from which hook means 15 extend, a pin 20 and first parts of 21 the hook means 15. The pin 20 and first parts 21 of the hook means 15 extend in the same direction and are arranged on and substantially perpendicular to the main portion 14. The hook means 15 comprises second parts 24 arranged at end parts 25 of the first parts 21 of the hook means 15 extending in a substantially perpendicular direction in relation to the first parts 21 of the hook means 15. A width 43 of the fastening means 13 is illustrated.

[0037] Fig. 3 shows a receptacle 8 comprising a first hole 22 and a second hole 23. The first 22 and second holes 23 of the receptacle 8 are oblong, extend in a diagonal manner and mirror each other in an imaginary centre line 26 of the receptacle 8 in a lateral direction. An overall length 27 of the first 22 and second holes 23 of the receptacle 8 and an adjustment distance 28 are further illustrated. The receptacle 8 is provided with first 35 and second tongue-shaped projections 36, which extend from a second end 37 of the receptacle 8. The receptacle 8 is furthermore provided with a first 40 and second set of apertures 41. The first 40 and second set of apertures 41 of the receptacle 8 comprises a width 42 extending along lateral sides of the receptacle 8.

[0038] Fig. 4 shows a receptacle 8 comprising first 29 and second pins 30, which extend from a first end 31 of the receptacle 8. The receptacle 8 is provided with first 35 and second tongue-shaped projections 36, which extend from a second end 37 of the receptacle 8.

[0039] Fig. 5 shows a first rail 6 slidably attached to a first bracket 4 and a second rail 7 slidably attached to a second bracket 5. Furthermore a connecting part 18 of the first rail 6 is provided and a connecting part 19 of the second rail 7 is provided. The first rail 6 is provided with a first aperture 32, and the second rail 7 is provided with a second aperture 33. The first rail 6 is provided with a first receiving device 38, and the second rail 7 is provided with a second receiving device 39. An overall length 34 of the first 32 and second apertures 33 and an adjustment distance 28 are illustrated.

[0040] Fig 6. shows a self-centring system 1, wherein a frame structure 2 is provided in a cabinet body 3. The first bracket 4 is fixedly attached to a first lateral side 9 of the cabinet body 3 and the second bracket 5 is fixedly attached to a second lateral side 10 of the cabinet body 3. The first 6 and second rails 7 (shown in previous figures) are slidable in and out of the cabinet body 3. The system permits the receptacle 8 to attach to the first 6 and the second rails 7 (shown in previous figures) and

consequently to be self-centring between the first 9 and second lateral sides 10 of the cabinet body 3. Furthermore, the lateral and transversal directions are shown in Fig. 6.

Claims

1. A self-centring system (1) for receptacles in pull out cabinets, wherein a frame structure (2) provided in a cabinet body (3) comprises first (4) and second brackets (5), first (6) and second rails (7), at least one receptacle (8), wherein the first bracket (4) is fixedly attached to a first lateral side (9) of the cabinet body (3) and the second bracket (5) is fixedly attached to a second lateral side (10) of the cabinet body (3), wherein the first (6) and second rails (7) are slidably attached by means of sliding means (11) on to the first (4) and second brackets (5), such that the first (6) and second rails (7) are slidable in and out of the cabinet body (3), wherein the receptacle (8) is attached to the first (6) and second rails (7), wherein the self-centring system (1) comprises a first (12) and second fastening means (13) comprising a main portion (14) from which hook means (15) extend and which hook means (15) of the first fastening means (12) are arranged to at least partially enclose a first portion (16) of the receptacle (8) and to grip a connecting part (18) of the first rail (6), and which hook means (15) of the second fastening means (13) are arranged to at least partially enclose a second portion (17) of the receptacle (8) and to grip a connecting part (19) of the second rail (7), permitting the receptacle (8) to attach to the first (6) and the second rails (7) and consequently to be self-centring between the first (9) and second lateral sides (10) of the cabinet body (3).

2. A self-centring system (1) according to claim 1, **characterised in that** the first (12) and the second fastening means (13) are each provided with a main portion (14), a pin (20) and first parts of (21) the hook means (15), wherein the pin (20) and first parts (21) of the hook means (15) extend in the same direction and are arranged on and substantially perpendicular to the main portion (14), wherein the pin (20) of the first fastening means (12) is arranged to engage with a first hole (22) provided in the receptacle (8) and the pin (20) of the second fastening means (13) is arranged to engage with a second hole (23) provided in the receptacle (8).

3. A self-centring system (1) according to claim 1 or 2, **characterized in that** the hook means (15) of the first (12) and second fastenings means (13) comprises second parts (24) arranged at end parts (25) of the first parts (21) of the hook means (15) extending in a substantially perpendicular direction in relation to the first parts (21) of the hook means (15), and are arranged to grip the connecting parts (18, 19) of the first (6) and the second rails (7).

4. A self-centring system (1) according to any of the claims 1-3, **characterised in that** the first (22) and second holes (23) of the receptacle (8) are oblong, extend in a diagonal manner in between the first (9) and second lateral sides (10) of the cabinet body (3) and mirror each other in an imaginary centre line (26) of the receptacle (8) in a lateral direction, and wherein an overall length (27) of the first (22) and second holes (23) of the receptacle (8) is long enough in permitting the pin (20) of the first (12) and second fastening means (13) and thus the receptacle (8) to travel an adjustment distance (28) in a transverse direction.

5. A self-centring system (1) according to any of the claims 1-4, **characterised in that** the receptacle (8) is provided with first (29) and second pins (30), which extend from a first end (31) of the receptacle (8) towards the first (6) and second rails (7) respectively, and the first rail (6) is provided with a first aperture (32) within which the first pin (29) engage, and the second rail (7) is provided with a second aperture (33) within which the second pin (30) engage.

6. A self-centring system (1) according to claim 5, **characterised in that** the first (32) and second apertures (33) of the first (6) and second rails (7) are oblong in shape, extend in the transverse direction and wherein an overall length (34) of the first (32) and second apertures (33) is long enough in permitting the first (29) and second pins (30) of the receptacle (8) and thus the receptacle (8) to travel an adjustment distance (28) in a transverse direction.

7. A self-centring system (1) according to any of the claims 1-6, **characterised in that** the receptacle (8) is provided with first (35) and second tongue-shaped projections (36), which extend from a second end (37) of the receptacle (8) towards the first (6) and second rails (7) respectively, and the first rail (6) is provided with a first receiving device (38) within which the first tongue-shaped projection (35) engage, and the second rail (7) is provided with a second receiving device (39) within which the second tongue-shaped projection (36) engage.

8. A self-centring system (1) according to claim 7, **characterised in that** the first (38) and second receiving devices (39) are long enough in a transverse direction in permitting the first (35) and second tongue-shaped projections (36) and thus the receptacle (8) to travel an adjustment distance (28) in a transverse direction.

9. A self-centring system (1) according to any of the claims 1-8, **characterized in that** the receptacle (8) is provided with a first (40) and second set of apertures (41), wherein the hook means (15) of the first fastening means (12) extend through the first set of apertures (40), and wherein the hook means (15) of the second fastening means (13) extend through the second set of apertures (41).

10. A self-centring system (1) according to claim 9, **characterized in that** the first (40) and second set of apertures (41) of the receptacle (8) comprises a width (42) extending along lateral sides of the receptacle (8), wherein the width (42) is larger than a width (43) of the first (12) and the second fastening means (13).

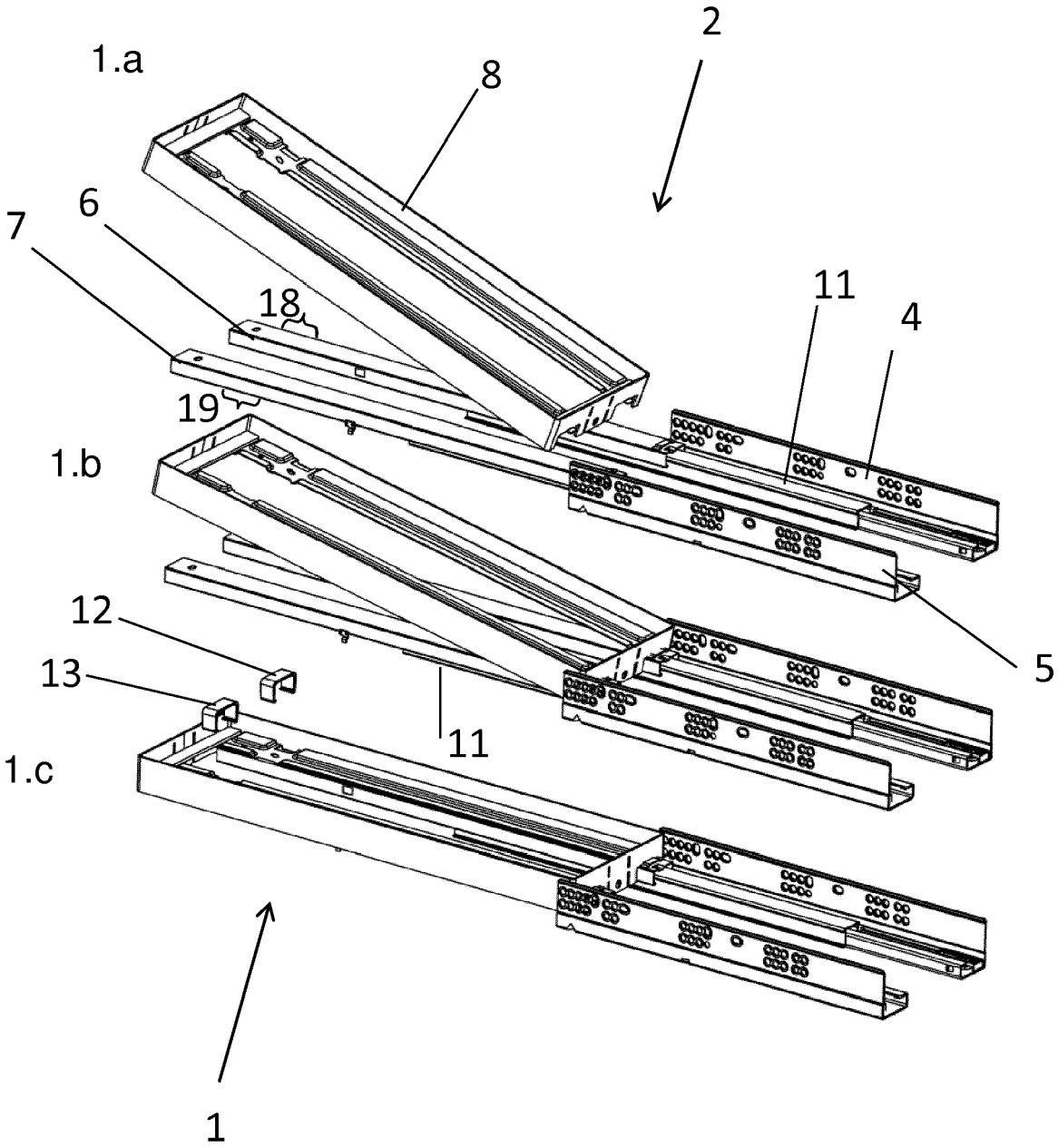


Fig. 1

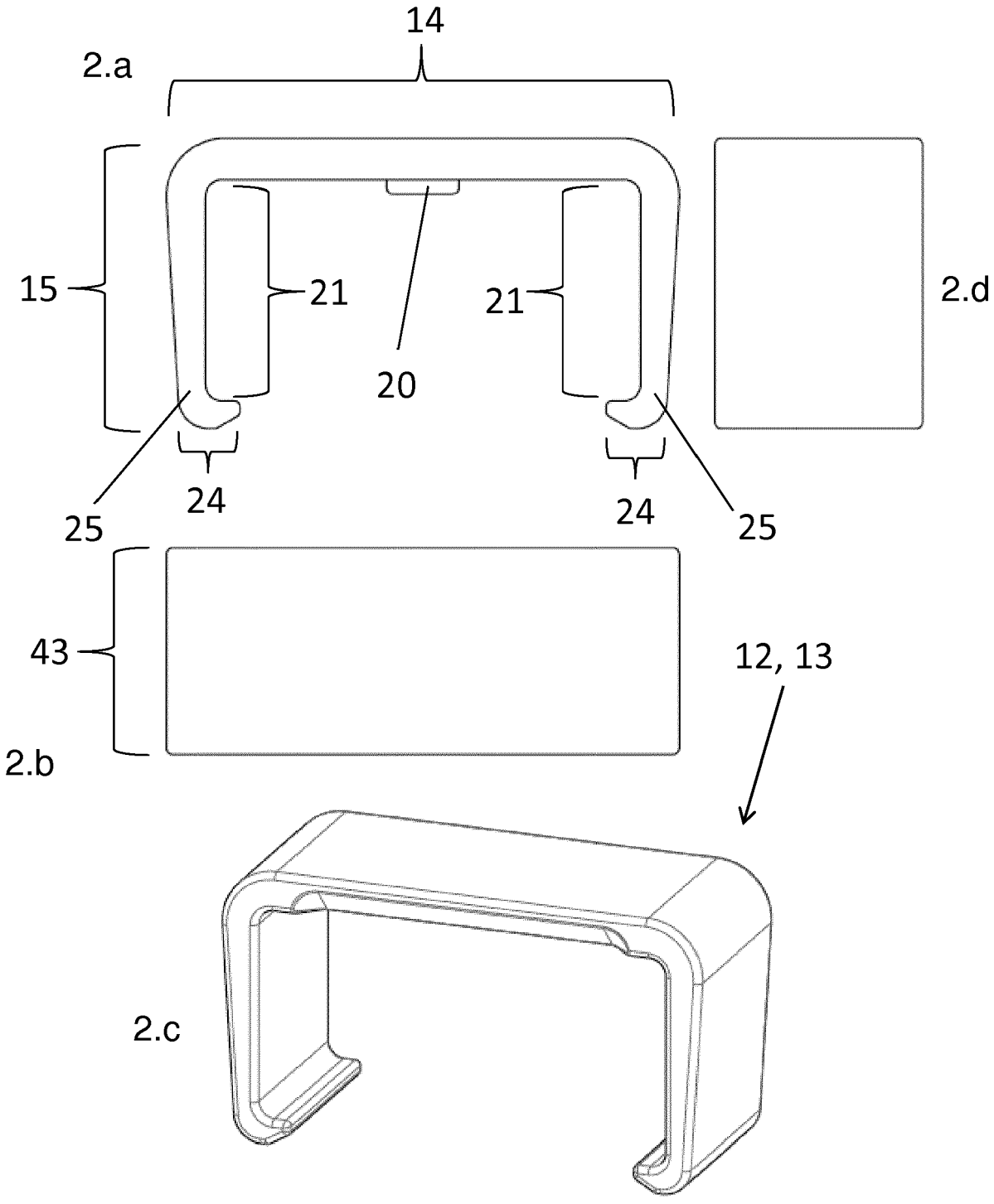


Fig. 2

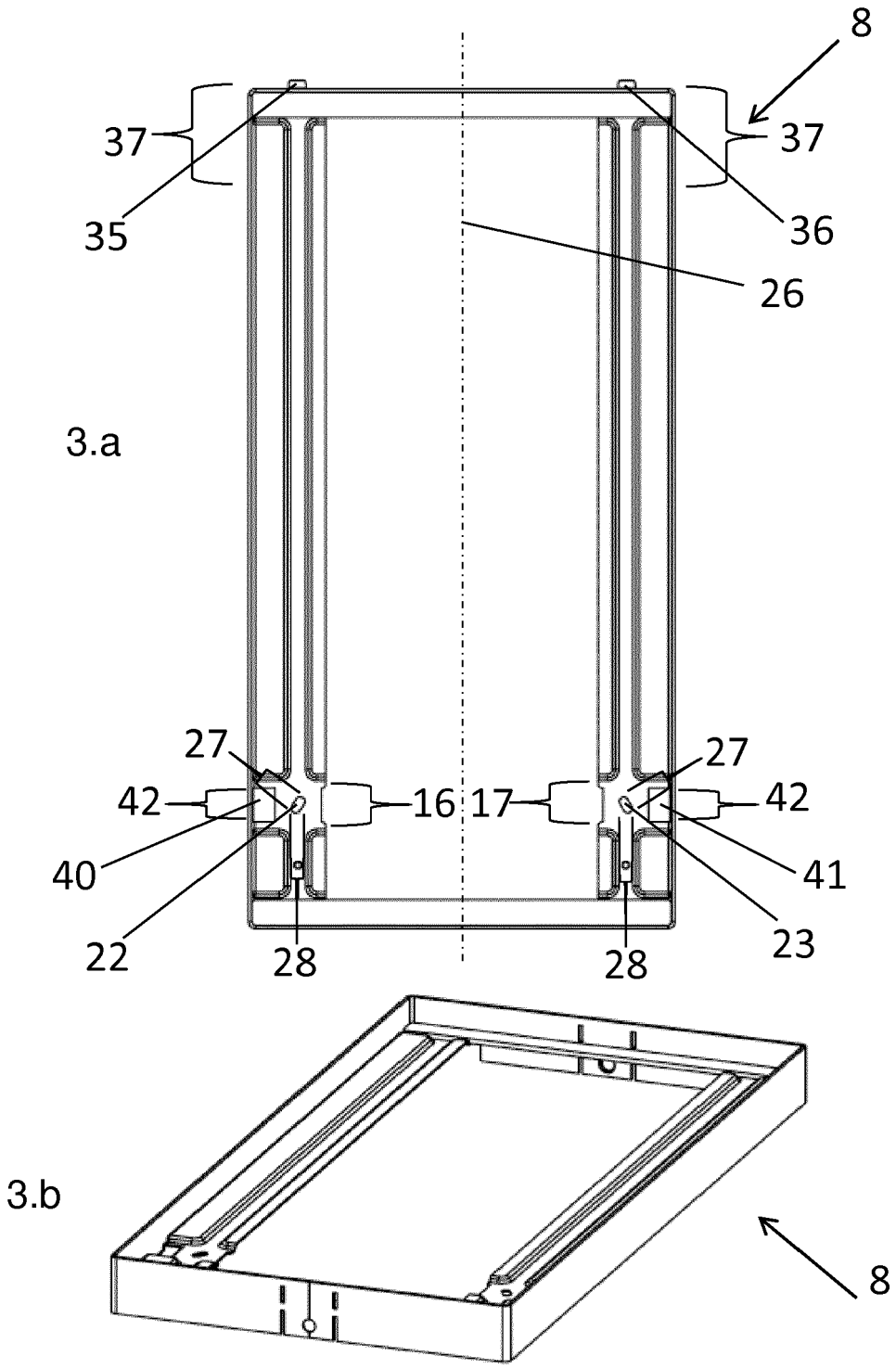


Fig. 3

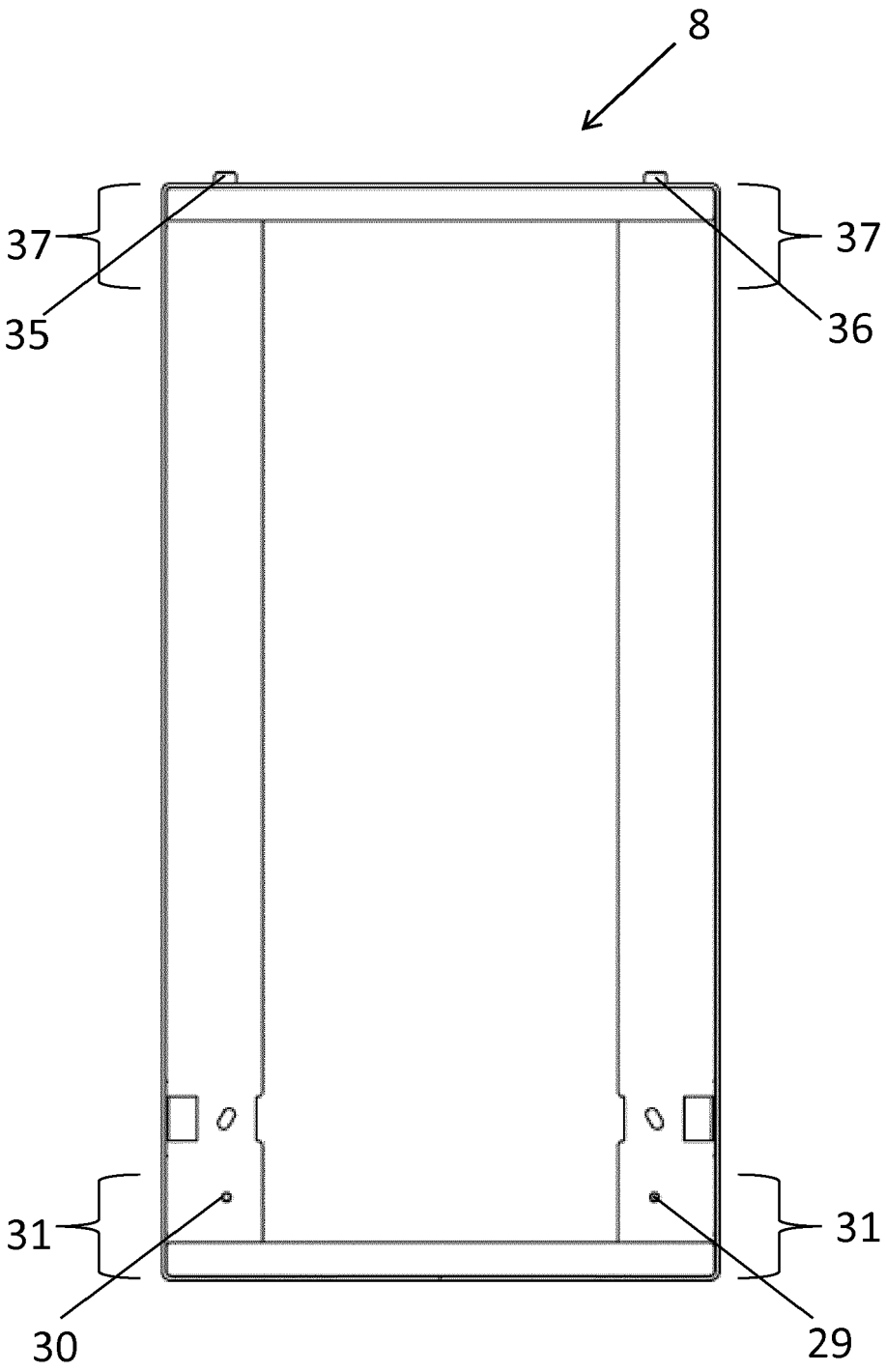


Fig. 4

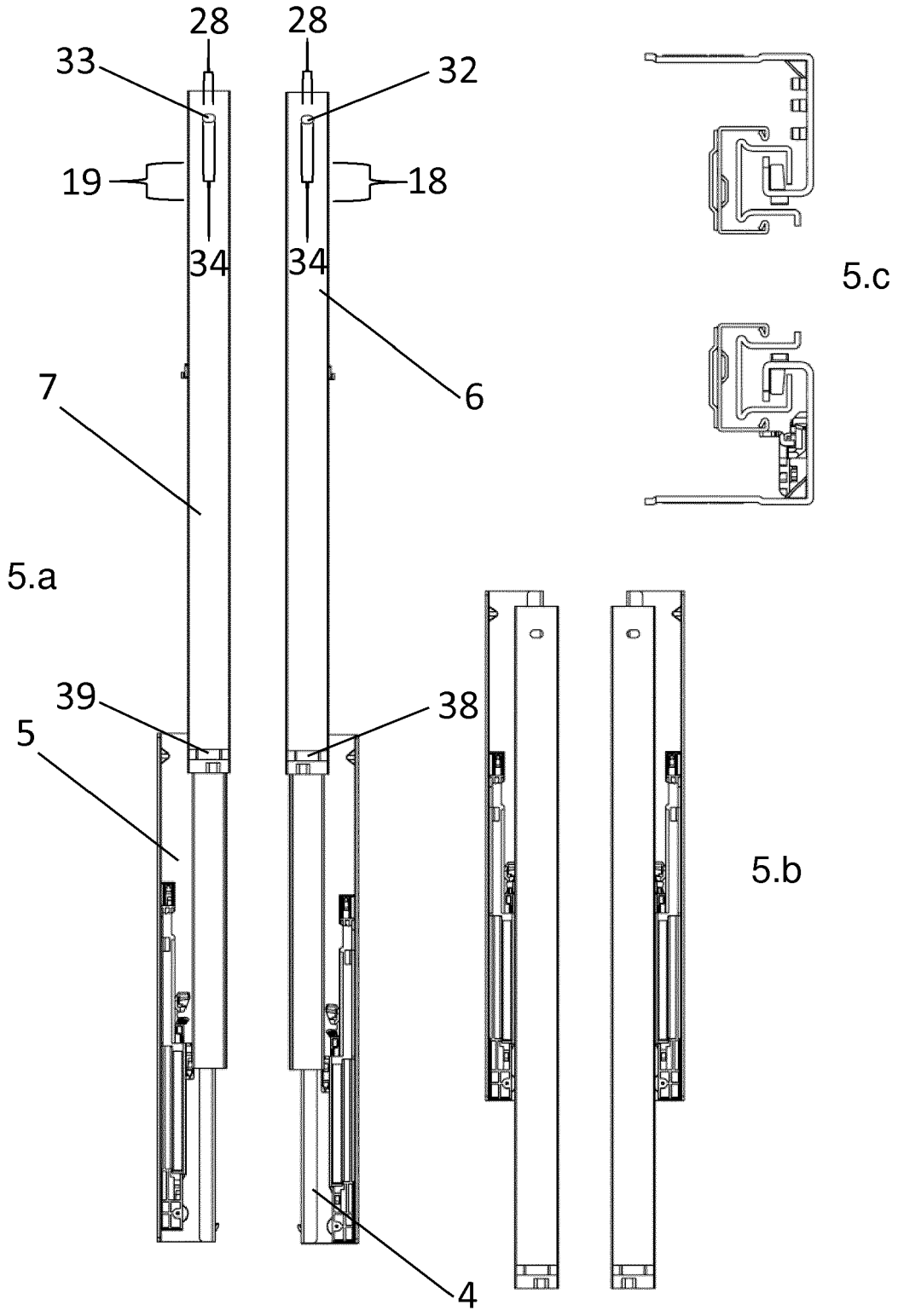
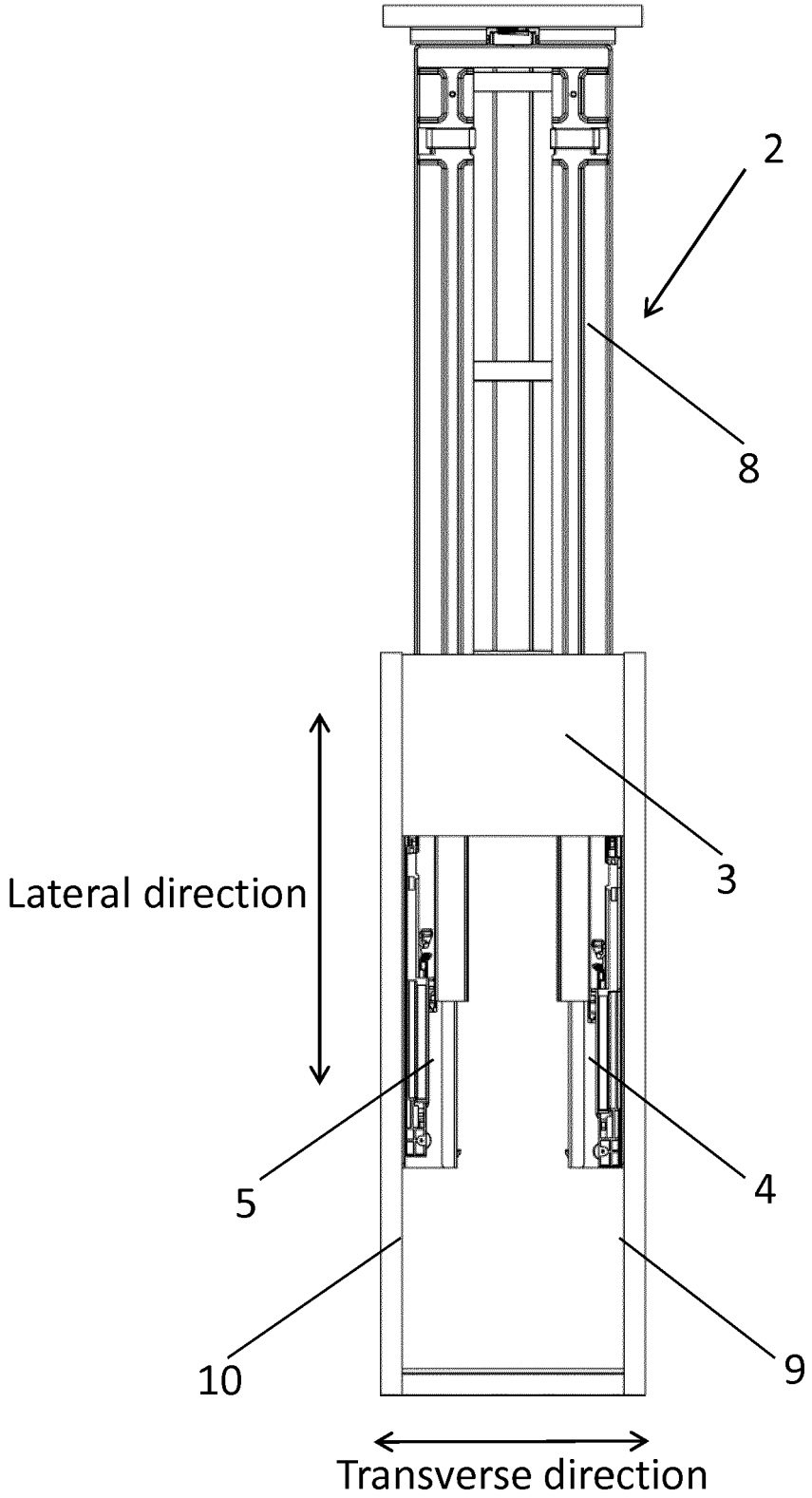


Fig. 5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8
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Lateral direction
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Transverse direction

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EUROPEAN SEARCH REPORT

Application Number
EP 17 16 6903

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2015/164223 A1 (LAWSON STEPHEN JOHN [CA]) 18 June 2015 (2015-06-18) * paragraphs [0103], [0104], [0106] * * figures 3, 38, 49 *	1-10	INV. A47B88/427
X	US 9 596 931 B1 (NIMGULKAR MILIND SAHEBRAO [IN] ET AL) 21 March 2017 (2017-03-21)	1	
A	* figures 25, 26 * * column 9, line 29 - line 59 *	2-10	
X	EP 2 317 261 A2 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 4 May 2011 (2011-05-04)	1	
A	* figures 3, 5 *	2-10	

TECHNICAL FIELDS SEARCHED (IPC)

A47B
F16B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15 September 2017	Sroka, Christian

CATEGORY OF CITED DOCUMENTS

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