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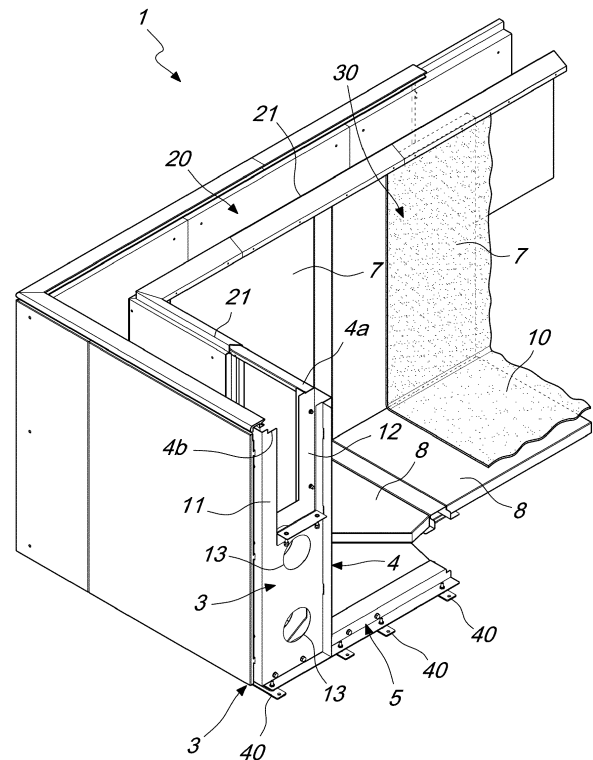
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(54) **ABOVE -GROUND SWIMMING POOL**

(57) An above-ground swimming pool (1), comprising a supporting frame (2) which has a plurality of peripheral supporting elements (3) which comprise a vertical post (4) and a horizontal base (5) which has at least one internal portion (5a) that is designed, during use, to protrude toward the inside of the swimming pool (1), and an impermeable sheet (10) which forms internally a basin (30); the horizontal base (5) is stably connected to the respective vertical post (4), which in turn is associated stably with a plate-like body (11) which comprises at least one respective metal plate and is extended parallel to the plane of arrangement of the supporting element (2), the plate-like body (11) having, in an upper region, a shaped portion (12) for the accommodation and support of an overflow channel (20) which is extended along the perimeter of the swimming pool (1), an overflow rim (21) being extended between the basin (30) and the overflow channel (20), the overflow channel (20) having a transverse cross-section adapted to contain such a volume of water as to form a compensation basin for the swimming pool (1).



*Fig. 2*

**EP 3 945 183 A1**

## Description

**[0001]** The present invention relates to an above-ground swimming pool.

**[0002]** Above-ground swimming pools are typically constituted by a supporting frame which is associated or associable with an impermeable sheet designed to form the basin that contains the water of the swimming pool.

**[0003]** The supporting frame is very often provided by tubular elements or profiles which are mutually connected by interlocking couplings or, in some cases, by metal plates.

**[0004]** The supporting frames are very often constituted by a series of vertical posts, which are mutually spaced along the perimeter of the swimming pool and are connected to a base which is directed toward the outside, and in some cases toward the inside, of the swimming pool.

**[0005]** In order to bear the weight of the water on the side walls, known frames often have diagonal buttresses for connection between the posts and the bases.

**[0006]** It is noted that the solutions that provide for buttresses, be they directed inward or outward, have considerable drawbacks.

**[0007]** If they are directed outward, they in fact have a significant space occupation and an aesthetic impact which renders the solution unpleasant, whereas if they are directed inward they prevent the impermeable sheet from forming a right angle with the floor.

**[0008]** Known and marketed above-ground swimming pools are furthermore of the "raised rim" type, i.e., they are filled with water so that the level lies below the raised rim so as to prevent the water, during use, from being able to overflow.

**[0009]** In order to ensure water replacement and cleaning, in these types of swimming pools there is a circuit which comprises at least one main port (also known as skimmer) which is formed at the side wall of the swimming pool, into which the water flows outward, by a filter and by one or more water intake ports which lead into the swimming pool; along the circuit there is a filtering device and there is a pump designed to reintroduce into the swimming pool, at the intake port or ports, the water that arrives from the main port.

**[0010]** Infinity or overflow swimming pools are also known which are normally installed underground, therefore not above ground, and have, outside the upper rim of the basin, a peripheral overflow channel which is connected to a filtering and recirculation circuit.

**[0011]** These swimming pools are filled to the upper rim, so as to provide a continuous overflow of the water which falls into the overflow basin to be then conveyed into the filtering and recirculation circuit.

**[0012]** In this case, the filtering and recirculation circuit has, along its own extension, a compensation tank in order to ensure that any sudden outflows of water can be managed safely by the filtering and recirculation circuit.

**[0013]** EP1573151 in the name of Agrisilos describes an above-ground swimming full which comprises a basin, formed by an impermeable sheet, and a supporting structure. The swimming pool comprises an overflow channel which is contained in a space of the supporting structure that is formed between first internal supporting means, which are adjacent to the tub, and second supporting means, which are more external than the first ones.

**[0014]** In particular, the first and second supporting means are constituted by two parallel rows of vertical posts which are connected by transverse elements and by stringers.

**[0015]** In this solution it is specified that the overflow channel can contain a volume of water that is sufficient for the channel itself to constitute an accumulation and compensation basin of the swimming pool.

**[0016]** However, it is found that the structure described in the patent cited above does not make it possible to effectively obtain an above-ground overflow swimming pool without an accumulation basin, since the need to have a frame with crossmembers and stringers does not make it possible to provide a vertical space that is sufficient to accommodate a channel capable of acting as an accumulation basin.

**[0017]** It is noted furthermore that said swimming pool is laborious and complicated to assemble as well as scarcely flexible from the point of view of the possible shapes and geometries that can be obtained.

**[0018]** Finally, it is furthermore difficult, if not impossible, to be able to install the swimming pool on a base that is not perfectly flat.

**[0019]** The aim of the present invention is to provide an above-ground swimming pool that is capable of improving the background art in one or more of the aspects indicated above.

**[0020]** Within this aim, an object of the invention is to provide an above-ground overflow swimming pool that can be installed and used without providing a compensation basin.

**[0021]** Another object of the invention is to provide an above-ground swimming pool that is composable and modular and can be installed easily even if the resting base is not perfectly flat.

**[0022]** Not the least object of the invention is to provide an above-ground swimming pool that is highly reliable, relatively easy to provide and has competitive costs.

**[0023]** This aim, as well as these and other objects which will become more apparent hereinafter, are achieved by an above-ground swimming pool according to claim 1, optionally provided with one or more of the characteristics of the dependent claims.

**[0024]** Further characteristics and advantages of the invention will become more apparent from the description of some preferred but not exclusive embodiments of the above-ground swimming pool according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a top view of an above-ground swimming pool according to the invention;

Figure 2 is an enlarged-scale perspective view of a portion of the above-ground swimming pool of Figure 1;

Figure 3 is a transverse sectional view of the supporting frame, taken along the plane of arrangement defined by the line III-III of Figure 2; and

Figure 4 is an enlarged-scale view of a portion of the cross-section of Figure 1;

Figure 5 is an exploded perspective view of a supporting element;

Figure 6 is a sectional view of the supporting element, taken along the plane of arrangement defined by the line VI-VI of Figure 4.

**[0025]** With reference to the figures, the above-ground swimming pool according to the invention, designated generally by the reference numeral 1, comprises a supporting frame 2 which comprises a plurality of peripheral supporting elements 3 which comprise a vertical post 4 and a horizontal base 5 which is designed, during use, to protrude at least partially with an internal portion 5a toward the inside of the swimming pool 1 and therefore toward the impermeable sheet 10 which forms internally a basin 30.

**[0026]** The horizontal base 5 is stably connected to the respective vertical post 4.

**[0027]** Each vertical post 4 in turn is associated stably with a plate-like body 11 which comprises at least one respective metal plate and is extended parallel to the plane of arrangement of said supporting element 2.

**[0028]** Preferably, each vertical post 4 is formed by at least one portion of folded metal plate.

**[0029]** The plate-like body 11 is provided in an upper region with a shaped portion 12 for the accommodation and support of an overflow channel 20 which is extended along the perimeter of the swimming pool 1.

**[0030]** An overflow rim 21 is extended between the basin 30 and the overflow channel 20.

**[0031]** The overflow channel 20 has a transverse cross-section that is adapted to contain such a volume of water as to form a compensation basin for the swimming pool 1.

**[0032]** In particular, the overflow channel 20 has a transverse cross-section which is adapted to contain a volume of water at least equal to 10% of the volume of water contained in the basin 30 of the swimming pool 1.

**[0033]** The swimming pool 1 is associated with a filtering and recirculation circuit, not shown in the figures, which comprises at least one filtering and recirculation duct which has at least one discharge port connected to the overflow channel 20 and at least one intake port which leads into the basin 30.

**[0034]** Filtering means and at least one pump are arranged along the filtering and recirculation duct. However, no compensation basin is provided along said filtering and recirculation duct.

**[0035]** Preferably, the vertical posts 4 and the horizontal bases 5 comprise box-like elements which are obtained starting from metal plate, conveniently zinc-coated iron, which is bent so as to create profiles.

5 **[0036]** Each vertical post 4 can be formed by a first post portion 4a, while a second post portion 11a provides the plate-like body 11.

**[0037]** The first post portion 4a has a substantially C-shaped or omega-shaped transverse cross-section, while the second post portion 11a has a C-shaped transverse cross-section.

10 **[0038]** The first and second post portions 4a, 11a are mutually connected so as to be mutually opposite by virtue of connection means which are constituted for example by screws and bolts 4b which pass through slots 4c, so that the transverse cross-section of the supporting elements 3 is substantially rectangular.

**[0039]** The vertical posts 4 can be connected stably to the respective horizontal base 5 by bolting.

20 **[0040]** Preferably, the connection between the vertical post 4 and the respective horizontal base 5 can be provided by using one or more, preferably two, contoured profiles 21 shaped like an inverted T or L, which have a plurality of slots 21a which can be engaged by screws 21b.

25 **[0041]** The vertical posts 4 form, at the plate-like body 11, at least one and preferably two through openings 13 for the passage of pipes, cables or auxiliary devices.

30 **[0042]** Conveniently, the ratio between the length L of the horizontal base 5 and in particular of the internal portion 5a of the horizontal base 5, and the height H of the vertical post 4 is greater than or equal to 1/3.

35 **[0043]** More preferably, the ratio between the length L of the horizontal base 5 and in particular of the internal portion 5a of the horizontal base 5, and the height H of the vertical post 4 is greater than or equal to 1/2.

40 **[0044]** This ratio ensures maximum stability. The weight of the water that bears on the horizontal base 5 when the swimming pool is in use in fact prevents the supporting element 2 from tipping outward or inward. The particular shape of the supporting element 2 makes it possible to avoid the use of buttresses or cross-members for stiffening, and this makes it possible to size the overflow channel 20 in an extremely flexible and practical manner without compromising the stability of the supporting frame 2.

45 **[0045]** The vertical post 4, by virtue of its particular shape, in fact has a transverse cross-section that is wide enough to ensure the non-deformability of the supporting element 2 as a whole.

50 **[0046]** Furthermore, since there are no buttresses or tension members between the vertical post 4 and the horizontal base 5, at least as regards its internal portion 5a which is extended toward the basin 30, the angle between them is always equal to 90° and this allows the positioning of the impermeable sheet 10 so as to form likewise a corresponding 90° angle between the walls and the bottom of the basin 30.

[0047] The vertical posts 4 are provided with coupling portions for connecting panels 7 which act as elements for covering the side directed toward the inside of the supporting frame 2.

[0048] Advantageously, the connecting panels 7 also are provided starting from folded portions of metal plate.

[0049] Similar bottom panels 8 can be used to connect the adjacent horizontal bases 5, while external infilling panels 9 can be associated with the plate-like bodies 11 in order to provide the covering of the external side of the supporting frame 2.

[0050] According to a preferred constructive variation, the horizontal base 5 is extended both towards the basin 30, with its internal portion 5a, and toward the outside of the basin 30, with an external portion 5b thereof, in order to provide an inverted T-shape.

[0051] Conveniently, the supporting frame 2 is provided, below the horizontal bases 5, with longitudinal members 40 which are extended parallel to the extension of the overflow channel 20 and are designed to provide ground support.

[0052] Means for height adjustment are provided between the longitudinal members 40 and the horizontal bases 5 and are adapted to make it possible to adjust the height position of said horizontal bases 5 in order to bring them to the same height.

[0053] Clearly, this makes it possible to install the swimming pool 1 even on a bed of sand or of yielding material, without requiring the provision of a perfectly level casting.

[0054] The overflow channel 20 has a surface which is impermeable or impermeabilized in order to ensure watertightness.

[0055] In order to obtain this result, it is possible to use sealed and coated metal plate (for example coated with PVC), or it is possible to cover the internal surface of the overflow channel 20 with a perimetric portion of the sheet 10.

[0056] The use of the above-ground swimming pool 1 according to the invention is evident from what has been described above.

[0057] In particular, the installation of the described swimming pool 1 is extremely simple by virtue of its modularity and of the possibility to rest it even without previously providing the casting.

[0058] By virtue of the particular structure of the supporting frame 2, which does not have crossmembers and inclined stringers, it is possible to provide a basin 30 with walls and bottom arranged at 90° and with a reduced space occupation in a transverse direction.

[0059] By virtue of the absence of stringers and crossmembers it is also possible to provide the compensation basin directly in the overflow channel 20, thus simplifying installation and avoiding the need to provide technical spaces.

[0060] The particular structure of the supporting frame 2 allows the provision of swimming pools 1 having a very large variety of shapes and geometries without being

constrained to the dimensions of the sheet 10.

[0061] In practice it has been found that the invention achieves the intended aim and objects, providing an above-ground swimming pool 1 that is extremely compact and aesthetically pleasing.

[0062] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims; all the details may furthermore be replaced with other technically equivalent elements.

[0063] In practice, the materials used, as long as they are compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to the requirements and the state of the art.

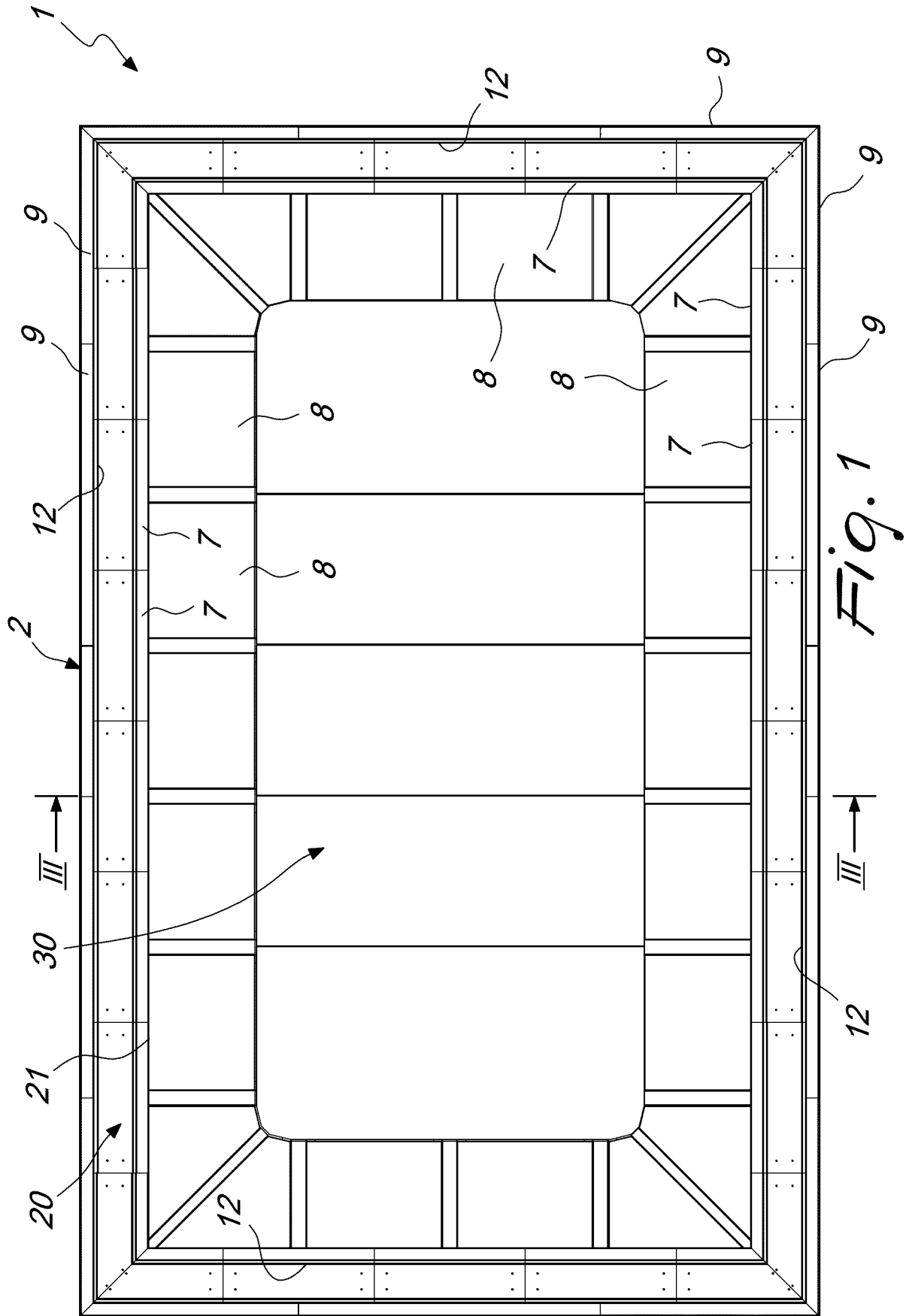
[0064] The disclosures in Italian Patent Application no. 102020000018526, from which this application claims priority, are incorporated herein by reference.

[0065] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

## Claims

1. An above-ground swimming pool (1), comprising a supporting frame (2) which comprises a plurality of peripheral supporting elements (3) which comprise a vertical post (4) and a horizontal base (5) which has at least one internal portion (5a) that is designed, during use, to protrude toward the inside of said swimming pool (1), and an impermeable sheet (10) which forms internally a basin (30), **characterized in that** said horizontal base (5) is stably connected to the respective vertical post (4), which in turn is associated stably with a plate-like body (11) which comprises at least one respective metal plate and is extended parallel to the plane of arrangement of said supporting element (2), said plate-like body (11) having, in an upper region, a shaped portion (12) for the accommodation and support of an overflow channel (20) which is extended along the perimeter of said swimming pool (1), an overflow rim (21) being extended between said basin (30) and said overflow channel (20), said overflow channel (20) having a transverse cross-section adapted to contain such a volume of water as to form a compensation basin for the swimming pool (1).
2. The above-ground swimming pool (1) according to claim 1, **characterized in that** each vertical post (4) is formed by at least one portion of metal plate that is bent so as to obtain a substantially rectangular cross-section.

3. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** said overflow channel (20) has a transverse cross-section that is adapted to contain a volume of water that is at least equal to 10% of the volume of water contained in said basin (30) of said swimming pool (1). 5
4. The above-ground swimming pool (1) according to one or more of the preceding claims, characterizing that it comprises a filtering and recirculation circuit which comprises at least one filtering and recirculation duct that has at least one discharge port connected to said overflow channel (20), and at least one intake port which leads into the basin (30), filtering means and at least one pump being arranged along said filtering and recirculation duct. 10 15
5. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** said vertical posts (4) and said horizontal bases (5) comprise box-like elements obtained starting from metal plate bent so as to create profiles. 20
6. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** said vertical posts (4) are stably connected to the respective horizontal base (5) by bolting. 25
7. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** said vertical posts (4) form, at the respective plate-like body (11), at least one through opening (13) for the passage of pipes, cables or auxiliary devices. 30 35
8. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** the ratio between the length L of the horizontal base (5) and the height H of the vertical post (4) is greater than or equal to 1/3. 40
9. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** said vertical posts (4) are provided with coupling portions for connecting panels (7) which act as elements for covering the side directed toward the basin (30). 45
10. The above-ground swimming pool (1) according to one or more of the preceding claims, **characterized in that** said supporting frame (2) has, below the horizontal bases (5), longitudinal members (40) which are extended parallel to the extension of said overflow channel (20) and are designed to provide ground support, height adjustment means being provided between said longitudinal members (40) and the horizontal bases (5) and being adapted to make it possible to adjust the height position of said horizontal bases (5) in order to bring them to the same height. 50 55



*Fig. 1*

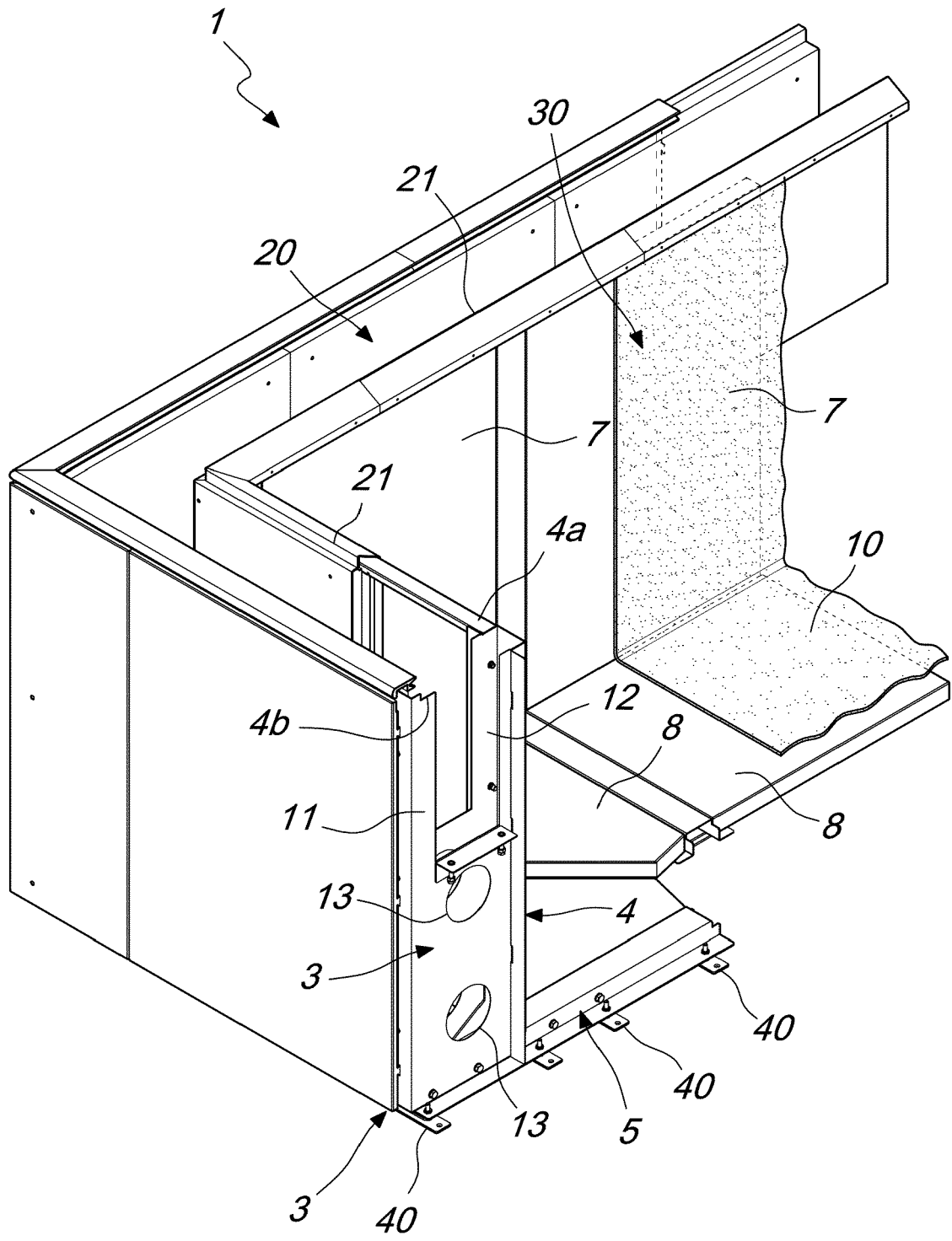
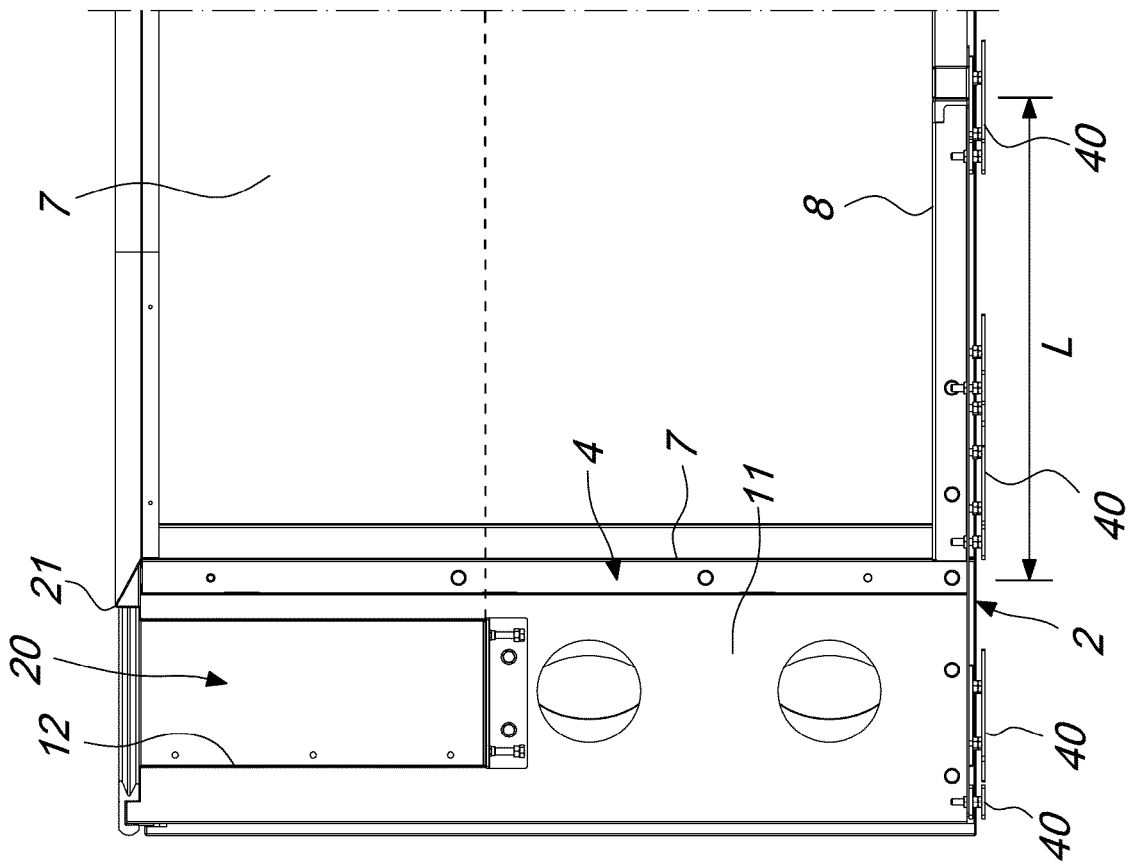
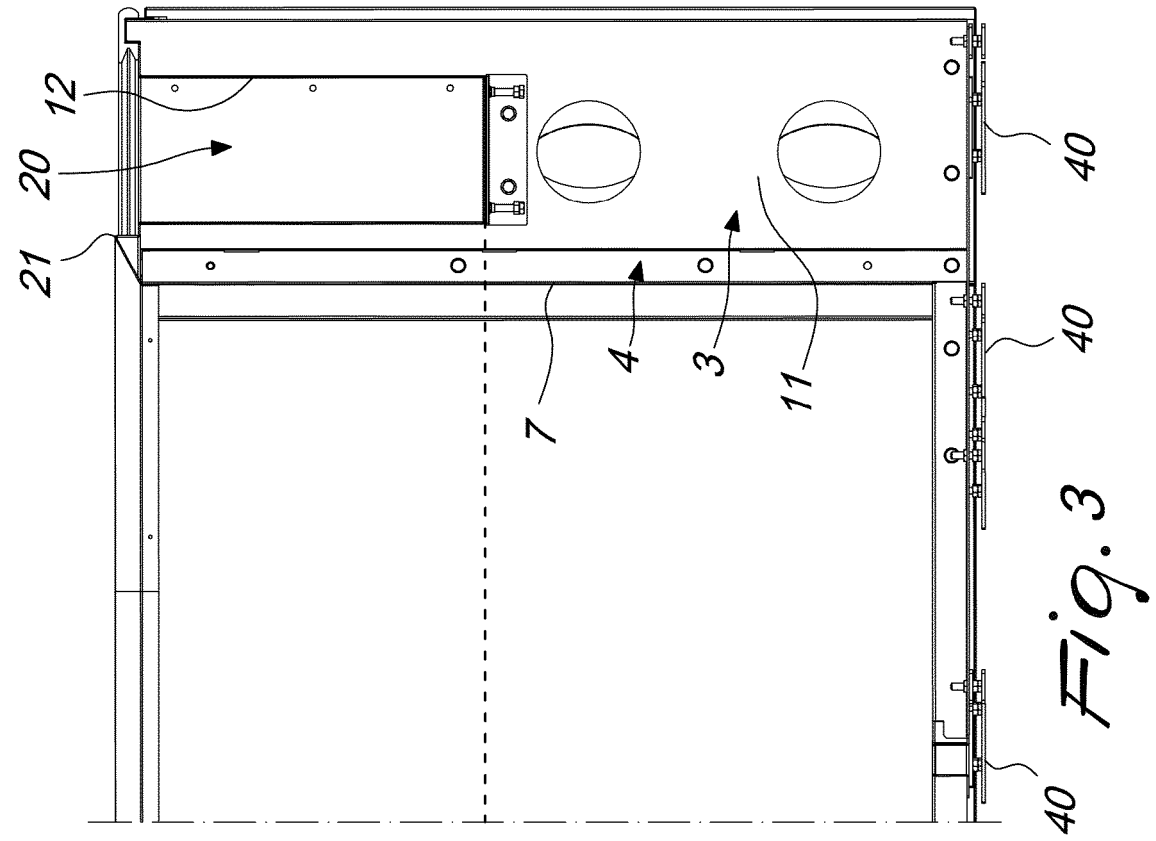
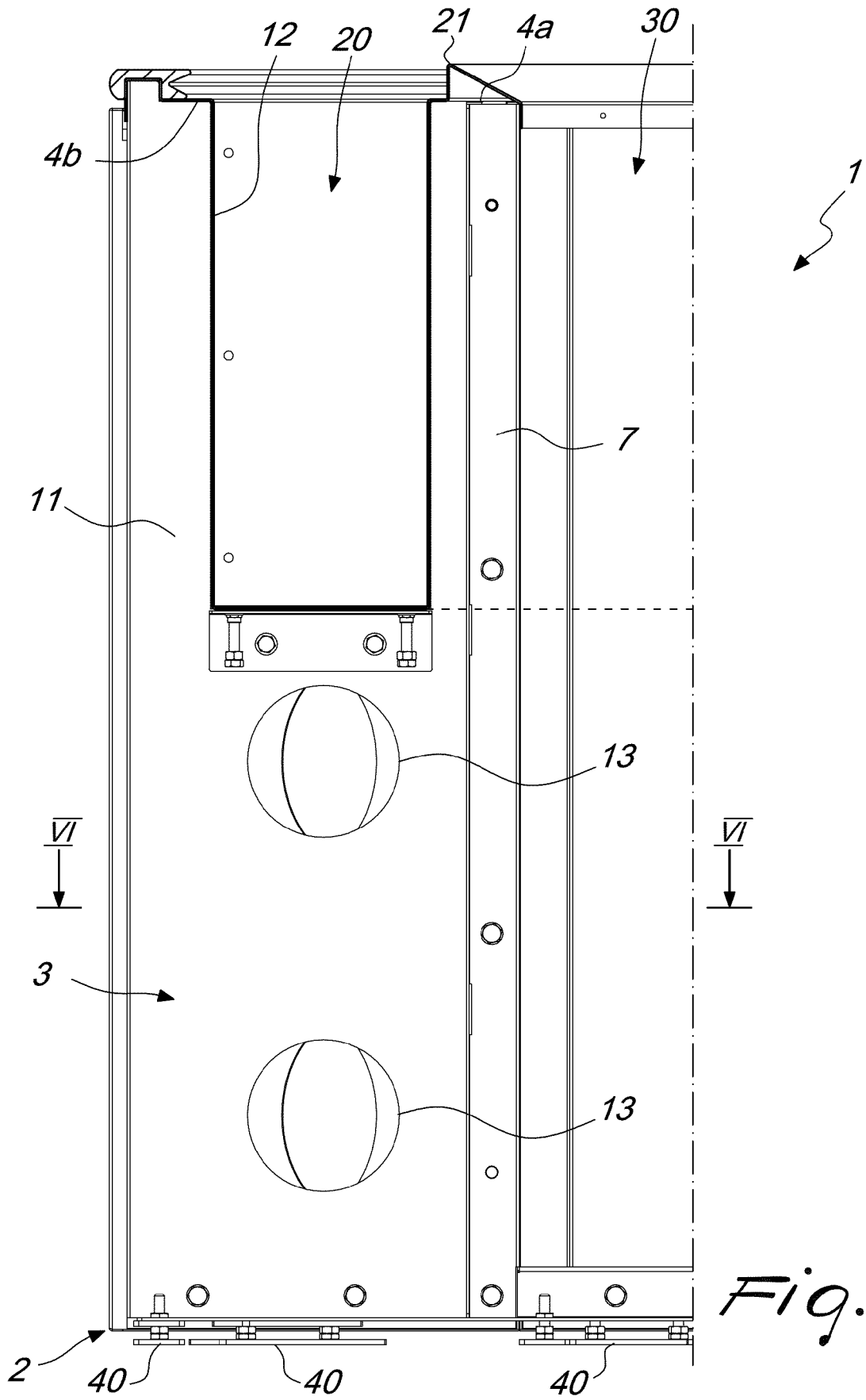


Fig. 2





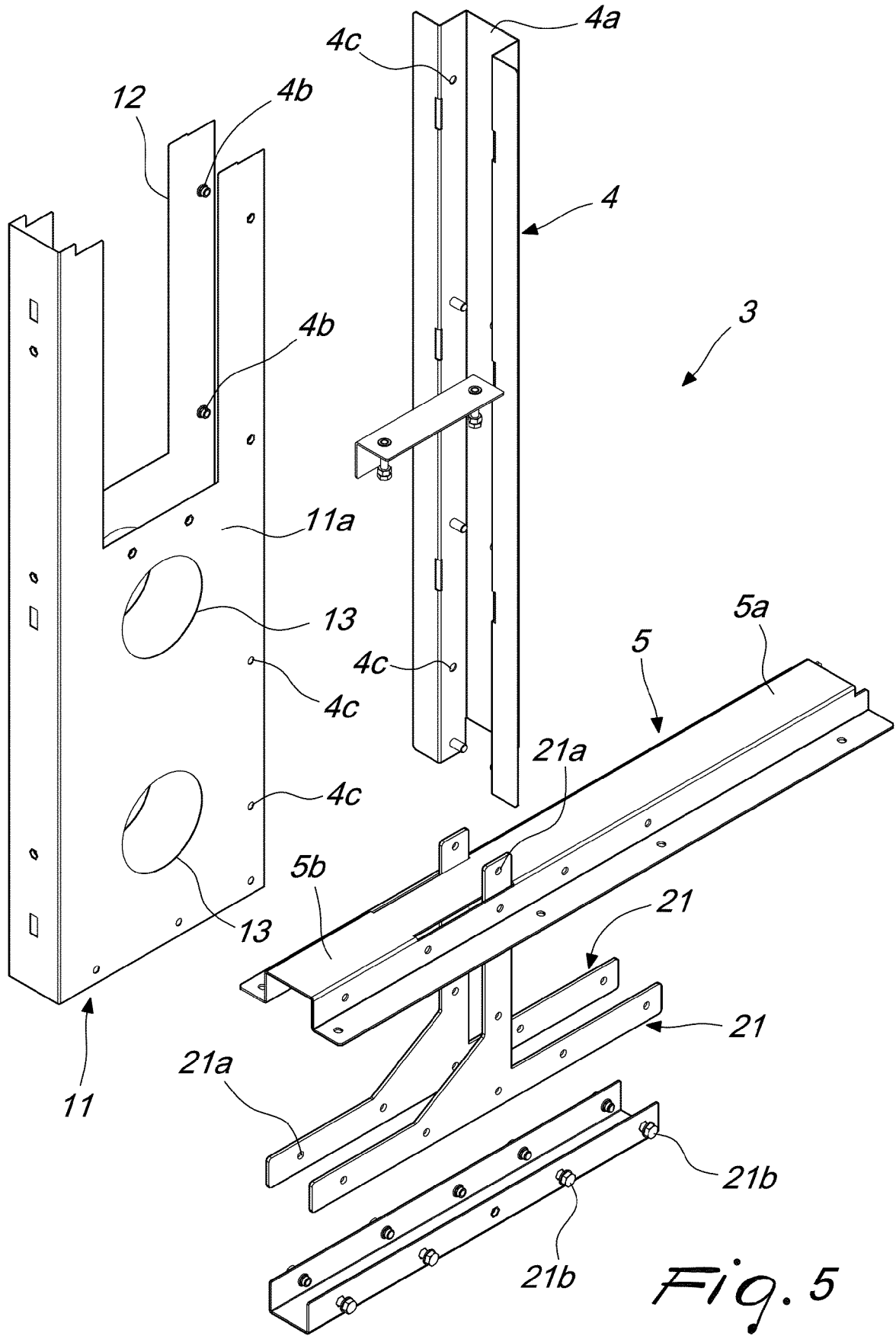
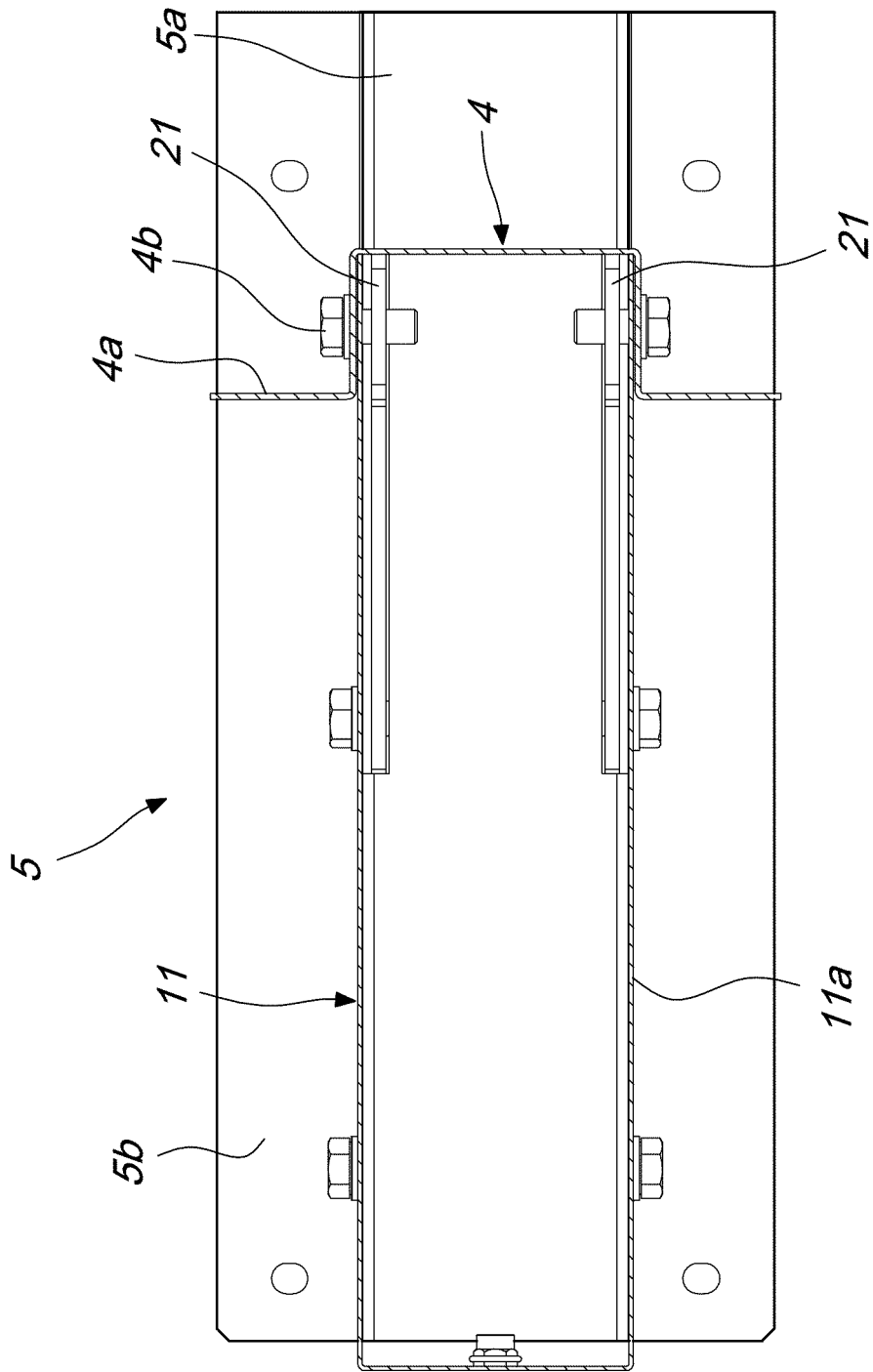


Fig. 5



*Fig. 6*



EUROPEAN SEARCH REPORT

Application Number  
EP 21 18 7467

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 November 2021	Examiner Stefanescu, Radu
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ANNEX TO THE EUROPEAN SEARCH REPORT  
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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