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(54) Mobile protection for high waters

(57) The mobile protection against high waters that is contained from transportable structural elements that are water proof and that can be filled or emptied with water where the structural elements can be placed aside each to other and each over other, taking the shape of rectangular vessels (1) in case of linear flow of the protective wall against high waters and the shape of key segments (2) when the flow is curved. The hook hanger (9) represents easy up cap with opposite hooks (20) to the structural elements that lay across it. The easy up caps at the segments (2) have additional prolongation of the basic plate (19) because of the assurance of the seg-

ments (2) with the vessels (1) throughout the opposite hooks (20). The vertical jacket element (8) is in shape of half-profile, and it is unsolvable adhered over the layer of caouchouc. The jacket element (10) from the segment (2) has a profile in shape of mushroom. The jaws (17) are made of PE-HD-plate with inserted steel tops. The floor lips (14) have outlets (21) for insertion of reinforced iron bars. On the draining valve (25) from the segment (2) is screwed 2" (two inches) ball valve (15) with Storz-C-attachment and with Storz-C-blind attachment. At the draining valve (25) from each of the vessels (1) it can be screwed by one threaded cap (23) for closing of the appropriate draining valve (25)

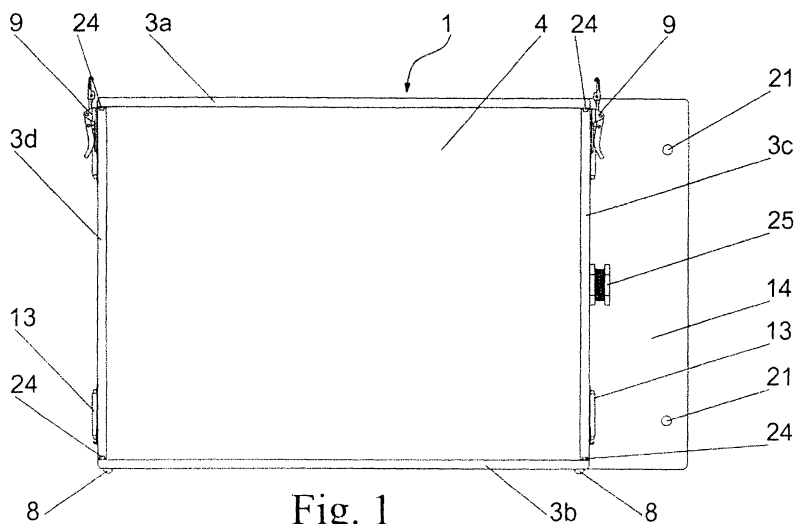


Fig. 1

Description

The filed on which the invention is relating to

[0001] The invention is relating on the mobile protection against thigh waters. It contains transportable, waterproof structural elements that can be filled or emptied with water.

Prior art of the techniques

[0002] From the patent DE 20213118 U1 it can be recognized a mobile protection against high waters that contains recognizable composition elements in shape of rectangular vessels that are waterproof and that can be filled or emptied by water. These vessels are composed of one floor element (plate, wall) with four side walls. The walls are made of gum elastic material. The biggest disadvantage of this protection against the high waters is that it is not waterproof. Such a made wall is unstable and water porous because of the whole gum/elastic structure of the walls. That is the reason why there is no possibility for walls to be put one over another and in such a way to increase the highness of the protective wall. Also, it is not possible, for example, the river curves to be followed only by rectangular vessels. The supporting elements, that are applied only for simulation of the curve (as it is said in DE 20213118 U1) makes the fast wall (the wall that fits closely) to be statically unstable.

Technical problem that is resolved by the invention

[0003] The task of this invention is to develop mobile protection against high waters that comprises transportable, waterproof structural elements which can be filled and emptied with water. This protection shall make a stable and waterproof protective wall, that, for example, follows one curve of river and that can be built up.

Description of the essence of the invention

[0004] In accordance with the invention this task shall be resolved providing that the structural (constructional) elements will be attached each to other and each over other. They will make shape of rectangular vessels for rectilinear path of the protective wall, as well as a shape of top/formed segments for the curved path of the protective wall whereas each composed element comprises four inclined walls and one plate. Two of the aside walls equal each to another and two frontal walls with equal size build up, together with the floor plate, rectangular vessels. Also, that there is a frontal wall, that is directed towards the side of the high water. On the floor plate as well as on the back frontal wall of the frontal wall, on the aside wall of the back frontal wall and on the aside wall of the aside wall, that can be overlapped by using hinge/joints that are hinged on the aside and frontal walls in such a way making possible horizontally overlapping of

the walls one over another. Also, it can be done between the barriers that can be built from the hinge/joints in the aside and frontal walls and where are put packing elements between the vessel wall barriers. Furthermore, the frontal walls use easy up caps in form of hanger with opposite hangers which are under inclination in relation to the aside walls that press packed aside walls in opposite of the frontal walls by means of wall sticker. In is performed in such a way that into each vessel is inserted a piece of gum, that, removed from the asside edge, makes a vessel with a halfcircled packed coat which can be attached to the previous mention walls from the upper side. The walls and the floor plates of the structural elements are built by two layers: one of them is made of PE-HD/PE-LD mixture while the other is made of caoutchouc. The walls bring the layer of caoutchouc from the outer side while the floor plate brings this layer from down side. The walls are hard bounded; they are waterproof regarding each to other as well as in respect of floor plates. The compositional (structural) elements are placed on the one of the sides for bounding that is put near to outer edges and vertically put packed elements. The structural elements, that regarding to the sides are without packed elements, can be tensioned by means of hooking caps, while the key segments posses packed elements on the upper edge. The structural elements that are put each over another are connectable by hook caps in the field of the upper edge. There are connected fast and sticker each to other, while the key segments make circle reinforcement. In the middle, they created one cross sectioned reinforcement which structural elements posses supportive handles for transportation and for construction of the protective wall. Each of the structural elements that are put on the floor from the side of the high water, in the prolongation of the floor plate, has floor lips and waterproof outlet valve, that can be closed and opened and that is used for draining of the filled water. On the downside from prolonged floor plate that are over the packed profile that is desirable to be built up of elastomer as well as on the side on which is turned the high water onto the floor plate are placed jaws. Each from the connected structural elements has passing holes of the floor plate that is attachable with one passing tube. On the down side from floor plates, each of the elements has security equipment against replacement. The inserted gum pieces in the vessels can be strength fasted with the drain valves or with the passing tube. The sub-claims from point 2 till nine show the rest of the performed forms of the invention.

[0005] Further, the invention is shown in details on the base of one performed example. The drawings that belong to this example show the details as follows.

Fig. 1 Upper view on the vessel,

Fig.2 A part from one protective wall of the vessels,
Fig.3 Down side of the floor plate prolonged with floor leaps,

Fig.4 Upper view on one key segment,

Fig.5 Frontal view on the fig.4
 Fig.6 Frontal view on a vessel,
 Fig.7 Frontal view on a vessel with inside directed
 and bended frontal wall,
 Fig.8 Back view on a vessel,
 Fig.9 Back view on vessel with inside directed and
 bended frontal wall,
 Fig.10 Steps of assembling walls of a vessel,
 Fig.11 Upper view of the gum sticker,
 Fig. 12 Schematic cross section A-A, in accordance
 with fig.11.

[0006] The fig. 1 shows the upper view of one rectangular transportable vessel 1, that can be filled or emptied with water, and which, with the key segments 2 (as a structural elements placed each near to other), build protective wall against high waters whereas they shall be put each to adhere in case of curved flow, while, in case of linear flow, on the protective wall against high water will be put rectangular vessels 1. In purpose of increasing the highness of protective wall against high water, the structural elements can be ordered one over another, as it is shown in fig.2. Each of the structural elements is built up from four vertical walls 3, that are fasted on the floor plate 4 and that have above an opened holed room that is to be filled with water. The vessel 1 has two aside walls with equal size 3a, 3b and two frontal walls 3c, 3d with equal size, too. The structural elements that have to be attached to the floor, in the prolongation of the floor plate 4, from the side of the high water, posse's floor lips. This leaps uses for decreasing the turning momentum in the case of extra water weigh. In purpose of developing attachment between the floor and the structural elements, each of the down sides of the prolonged floor plates 4 has one packed profile 16 that is desirably to be made of polymer (see fig.3). On the side that is turned toward the high water and from the side of the floor plate 4 are mounted jaws 17 that are used for further stabilization. The jaws comprise PE-HD-plate with impregnated steal tops. Further, in the floor leaps 14, there are perforated holes 21, across which are put concrete (armature) iron bars for reinforcement of the structural elements on the floor. The aside walls 3a, 3b and the frontal walls 3c, 3d can be overlapped in the direction of the floor plate 4. As it can be seen in fig.10, over the hinged/joints 5 are going to be overlapping, as follows:

The fontal wall 3c, that is turned toward the high water, with the floor plate 4, the frontal wall 3d with the frontal wall 3c, the aside wall 3a with the frontal wall 3d, as well as the aside wall 3b with the aside wall 3a.

[0007] As it can be seen from the fig.10, the hinged/joints 5 of the frontal walls 3c, 3d and the aside walls 3a, 3b are placed in such a way facilitating horizontal overlapping of the walls 3a, 3b, 3c and 3d. Further, the structures, that are built up from the hinged/joints 5 in the aside walls 3a, 3b and the frontal walls 3c, 3d are ordered be-

tween the structures of the walls 3 and the wall stickers 24 of the walls 1. In the opened vessels 1 can be inserted one gum part 6, in accordance with fig.11 and fig.12. The inserted gum part 6 shall be stopped across one drain valve 25 from the down vessel 1 and across the transmission tube from the upper vessel 1 into the vessel 1 that is not shown in the figure. For example, this can be happened in the down vessel 1, across a plate (an equipment for fitting the tubes) that lays inside the drain valve 25, whereas the connecting nut 22 shall be turned outside, against the vessel 1 of the drain valve 25, while the fast inserted gum pieces 6 are put inside, between the plate and the vessel 1. The upper edge of the inserted gum piece shall be pulled off over the edge of the vessel, where the gum piece 6 of the upper edge from the vessel shapes half-circled, packed coat 7 referring to one adhered vessel 1. Further, the frontal walls 3c, 3d have an easy up caps in the form of hanger 26, with inclined placed opposite hooks 27, on the aside walls 3a, 3b that fast the aside walls 3a, 3b by means of wall jacket 24, opposite to the frontal walls 3c, 3d. The walls 3 and the floor plate 4 from the structural elements are made of two-layer, namely, they are composed of one PE-HD/PE-LD-mixture and one layer of caouchouc, whereas the walls of the structural elements carry the caouchouc layer from the outside, while the floor plate 4 carries the same layer from the downside. The walls 3 and the floor plates 4 are attached each to other strength and waterproof. The structural elements have to the one of the turning sides, besides the outside edges, vertically placed packed elements 8. The packed elements 8 are in a form of half-profile, unsolvable adhered each to other over the caouchouc layer. Opposite to the packed elements 8, there are adhere fasted the structural elements with the sides without the packed elements 8, by the hooked caps 9. The edges of the walls have jacked coat 7 made of inserted gum pieces 6 and key segments 2 that carry jacket elements 10 on the upper edge in a shape of mushrooms. The structural elements are connected each to other through hooked caps 9 that is shown in fig.2 with possibility for their strength and densely connection. The hook caps 9 are built up as an easy up caps, which have opposite hooks 20 of the constructive element, which lies from the other side because of the security of the structural elements. The easy up cups have supplementary prolongation of the basic plate 19 at the segments 2 because of the security of the segments 2 and the vessels 1, by means of the opposite hooks 20. The segments 2 posses circled reinforcement 11 in the field of the upper edge. In the middle there is put one cross sectioned placed second reinforcement 12, as it is shown in fig.4. The structural elements posses carrying handle 13 in purpose of building protective wall against high waters. Each from the structural elements that can be attached has, in the floor plate, passing drilling in which one passing tube can be screwing. As it is shown in fig.2, at the down side, the adhered structural elements posses security equipment against spraining 18, In fig.6 and fig.7 are shown,

the vessel 1 from the down side of the water, whereas , in fig.7, the frontal wall 3c is horizontally sprained toward inside , opposite to the floor plate 4. Over the vessel, that is opened frontally, it can be seen the back frontal wall 3d with its hinge/joints. The figures 8 and 9 show the view of the vessel 1 seen from the back. In fig.9, the frontal side 3d is overlapped to the frontal side 3c. From the drain valve 25 of the segment 2, there is screwed one two inches ball valve 15 by Storz-C-clutch to Storz-C-blind attachment , while, opposite of the drain valves 25, from each of the vessels 1 it can be screwed treaded cap 23 into the appropriate drain valve 25. Additionally, in the invention are applied materials that are stainless and neutral to the underground waters.

Meanings of the referred drawings

[0008]

1. Vessel,
2. Segment,
3. Walls, 3a - Aside wall, 3b - Aside wall, 3c-Frontal wall, 3d - Frontal wall,
4. Floor plate,
5. Hinge/joint,
6. Inserted gum piece,
7. Coat,
8. Packed element,
9. Hook cap
10. Packed element in the kind of mushroom,
11. Reinforcement,
12. Reinforcement, cross-sectional placed,
13. Carrying handle,
14. Floor leaps,
15. 2" (two inches) ball valve,
16. Packed profile,
17. Jaws,
18. Security equipment against straining,
19. Prolongation of the basic plate,
20. Opposite hooks,
21. Outlet,
22. Connecting nut,
23. Threaded cap,
24. Wall jacket,
25. Draining valve,
26. Easy up cap in form of hanger,
27. Opposite inclined hooks.

Claims

1. The mobile protection against high waters, that is contained from transportable structural elements that are water proof and that can be filled or emptied with water is **characterized by** that the structural elements can be placed aside each to other and each over other, taking the shape of rectangular vessels (1) in case of linear flow of the protective wall against

high waters and the shape of key segments (2) when the flow is curved, providing that in case of linear flow of the protective wall, each structural element contains four vertical walls (3) and one floor plate (4) whereas two aside walls with same size (3a, 3b) and two frontal walls, that are also with same size (3c, 3d) are building up together with the floor plate (4) and the rectangular vessels (1), and after that, the frontal wall (3c) that is turned to the side of high water, at the floor plate (4), the back frontal wall (3d) of the frontal wall (3c), the aside wall (3a) of the back frontal wall (3d) and the aside wall (3b) of the aside wall (3a), that can be overlapped by means of hinge/joints (5) in the walls (3a, 3b, 3c, 3d), whereas the hinged/joints (5) are hanged on the aside walls (3a, 3b) and on the frontal walls (3c, 3d) in such a way that the walls (3a, 3b, 3c, 3d) can be horizontally overlapped each over another, between the barriers, which can be built up from the hinge/joints (5) in the walls (3a, 3b) and in the frontal walls (3c, 3d), providing that between the barriers of the walls (3) of the vessels (1) are placed jackets on the walls (24); further, the frontal walls (3c, 3d) posses easy up caps in shape of hanger (26) with opposite hangers that are under inclination (27) to the aside walls(3a, 3b), in such a way that the aside walls (3a,3b) are fasted with jackets to the frontal walls (3c, 3d) by means of wall jacket (24), providing that in each vessel (1) is imported an inserted piece of gum (6), that, pooled off the aside edge, creates one vessel (1) with half-circled packed coat (7) and it can be attached from the upper side to them; the walls (3) and the floor plates (4) from the structural elements are built up of two layers: one layer from PE-RD/PE-LD - mixture and the other one from caouchouc, in such a way that the walls (3) carry the caouchouc layer of the outside, while the floor plates (3) are strongly connected and are waterproof each refers to other floor plates (4) whereas the structural elements are placed to one of the side of connection, placed to the outside edges, while the vertically placed packed elements (8) posses , in respect to the structural elements, that are with sides without jacket elements (8), through the hook caps (9) which are fastening waterproof, as well as key elements (10) on the upper edge; the structural elements , that are put each over to other are connectable through hook caps (9), strength and waterproof one with another, while the key segments (2) make a circled reinforcement (11) in the field of the upper edge, and in the middle, they make cross sectioned reinforcement (12) which assembled elements posses carrying handles (13) for transportation and for creation of the protective wall; each of the structural elements, that are staying on the floor from the side of the high water in the prolongation of the floor plate (4), possesses floor leaps (14) and porous drain valve (25) that can be close and open and that is applied for unfilled water, while to the

downside of the prolonged floor plate (4), through the jacket profile (16), which is desirably to be from elastomer, and on the side that is turned in the direction to the high water of the floor plate (4). Posses jaw (17); whereas each of the attaching structural elements contains passing hole in the floor plate (4), that is attachable with the passing tube, while at the down side of the floor plates (4), each of them posses security equipment against straining (18), where the inserted gum pieces (6) in the vessels (1) can be fastened strength with the draining valves (25) or with the passing tube.

2. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that the hook hanger (9) represents easy up cap with opposite hooks (20) to the structural elements that lies across it. 5
3. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that the easy up caps at the segments (2) have additional prolongation of the basic plate (19) because of the assurance of the segments (2) with the vessels (1) throughout the opposite hooks (20). 10
4. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that the vertical jacket element (8) is in shape of half-profile, and it is unsolvable adhered over the layer of caouchouc. 15
5. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that the jacket element (10) from the segment (2) has a profile in shape of mushroom. 20
6. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that the jaws (17) are made of PE-HD-plate with inserted steel tops. 25
7. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that the floor lips (14) have outlets (21) for insertion of reinforced iron bars. 30
8. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that on the draining valve (25) from the segment (2) is screwed 2" (two inches) ball valve (15) with Storz-C-attachment and with Storz-C-blind attachment. 35
9. The mobile protection against high waters in accordance with the Claim 1 is **characterized by** that at the draining valve (25) from each of the vessels (1) it can be screwed by one threaded cap (23) for closing of the appropriate draining valve (25) 40

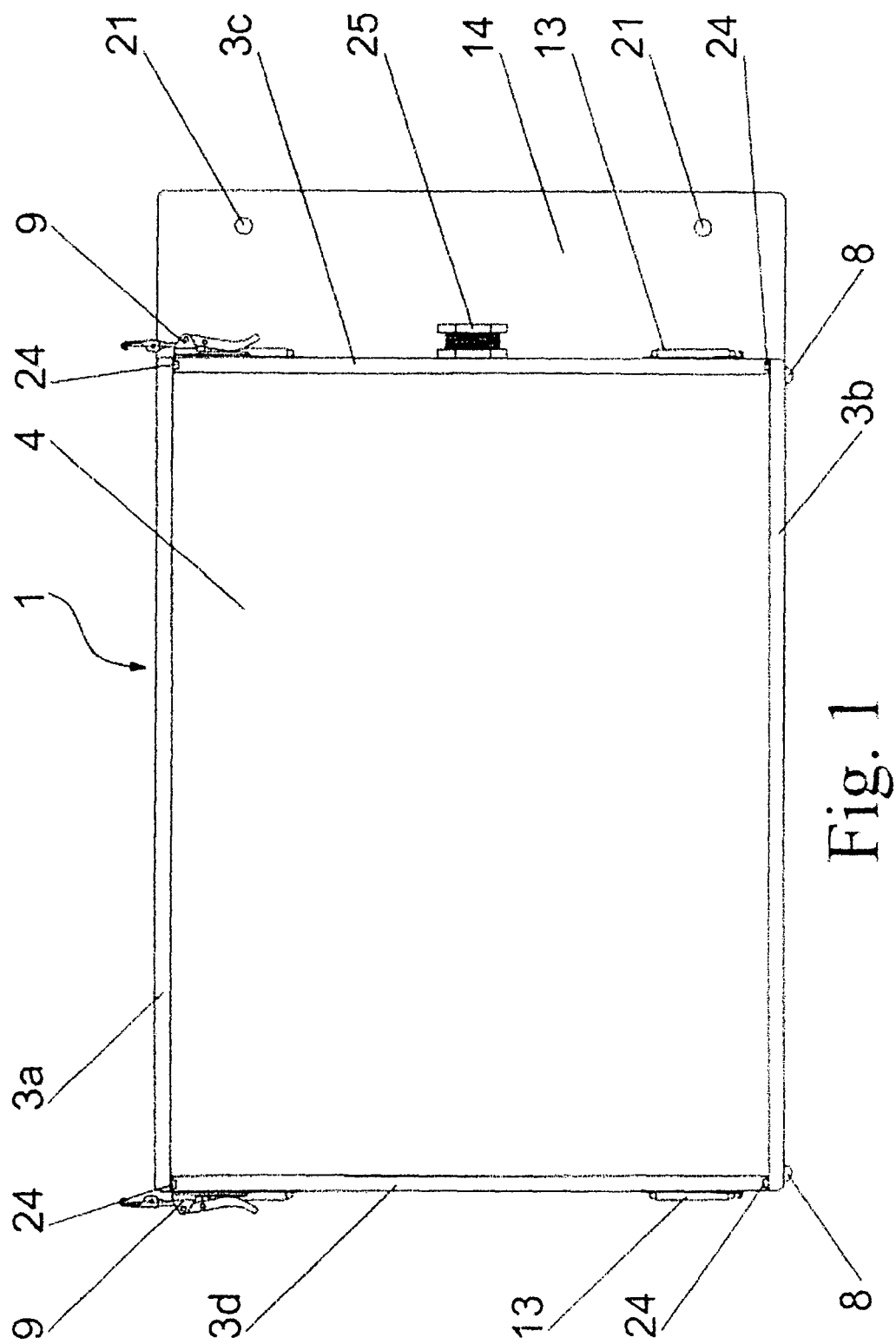


Fig. 1

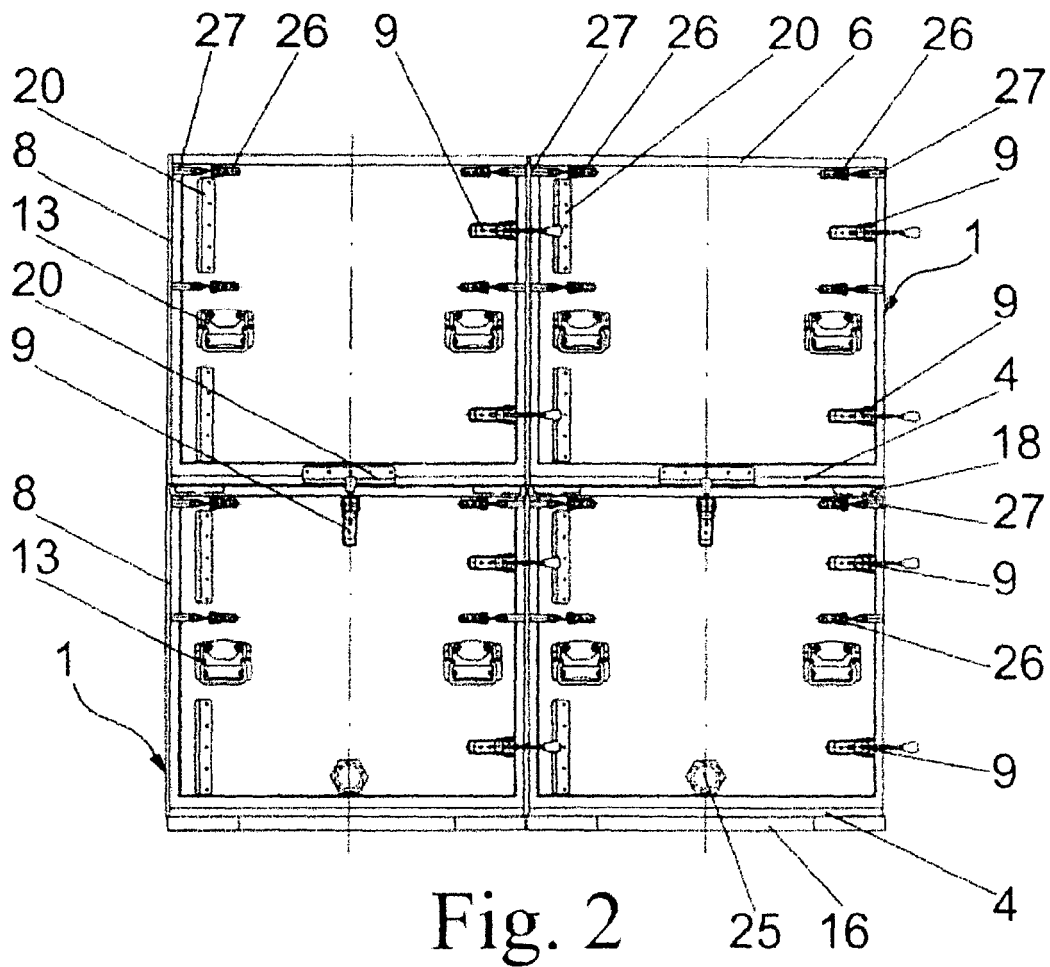


Fig. 2

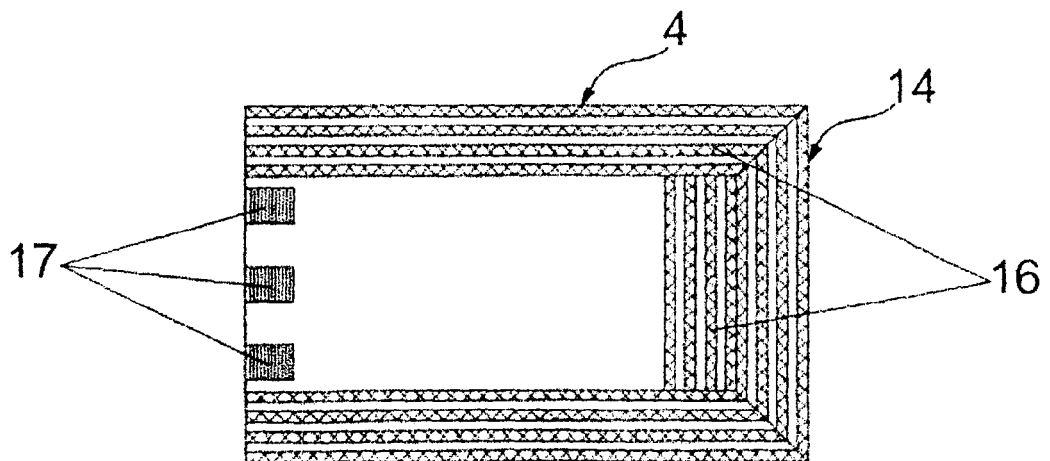


Fig. 3

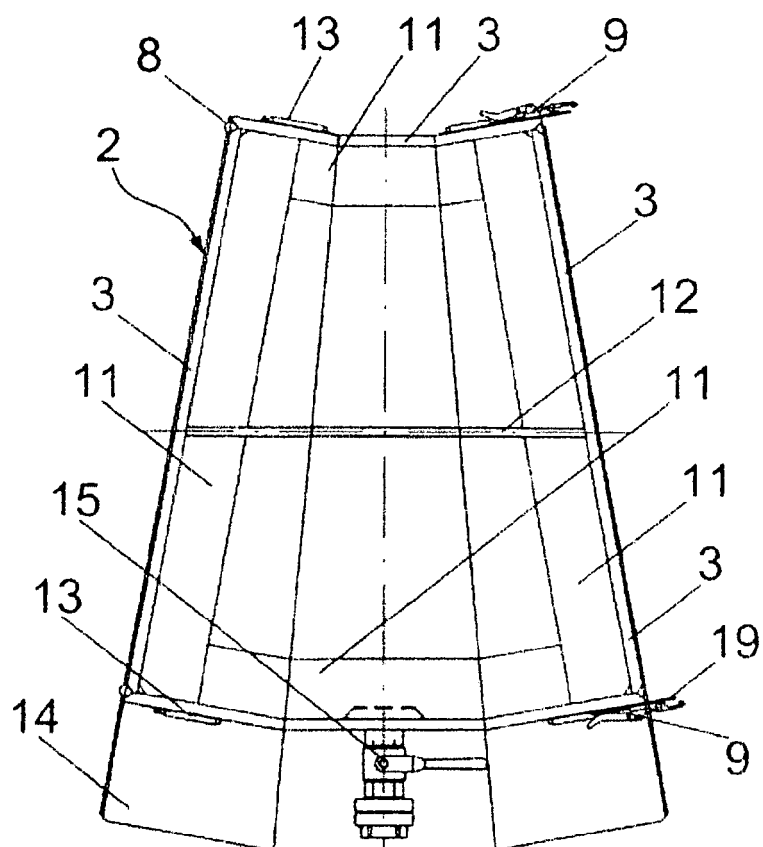


Fig. 4

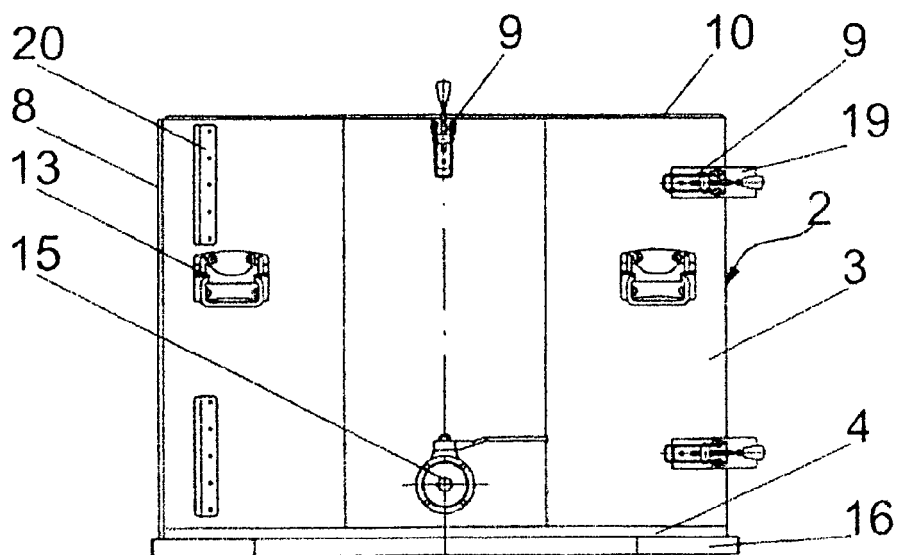
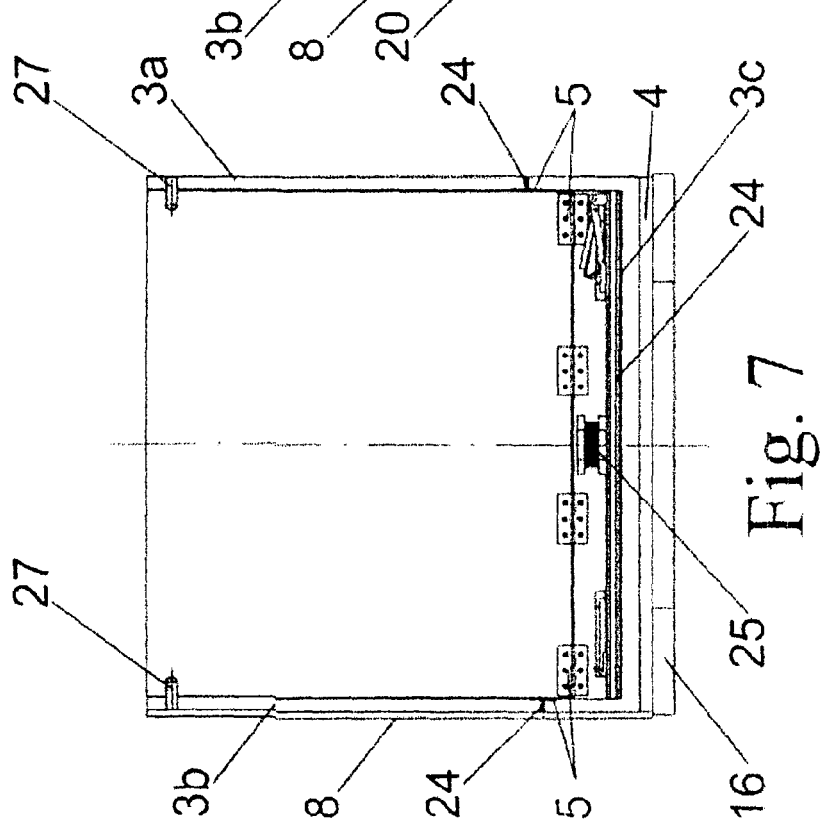
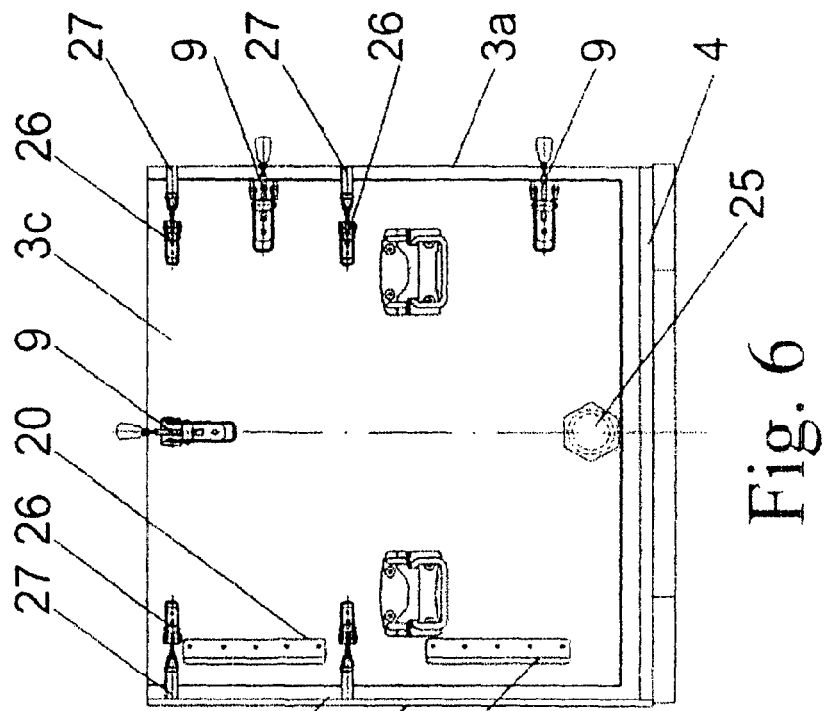
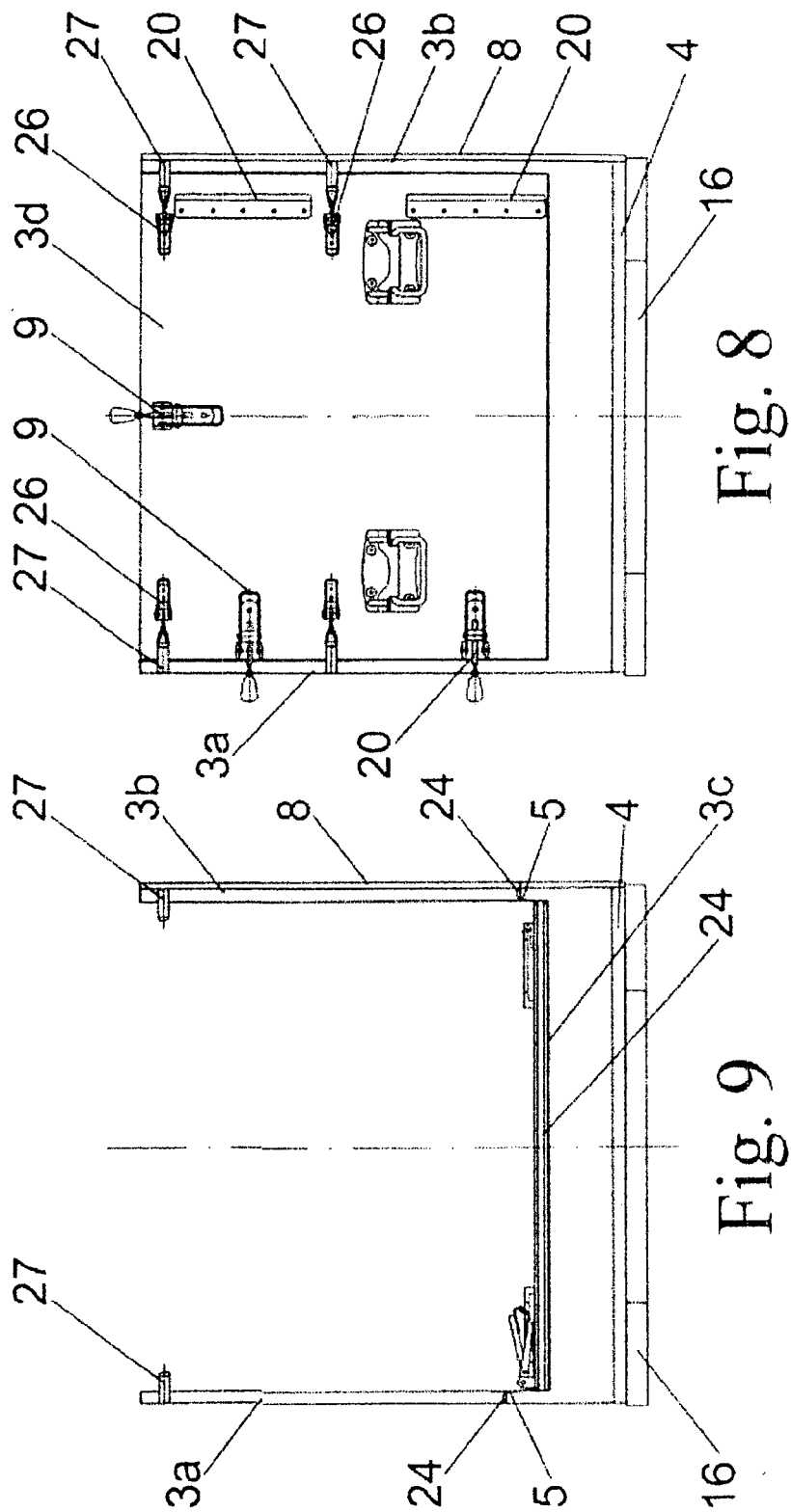


Fig. 5





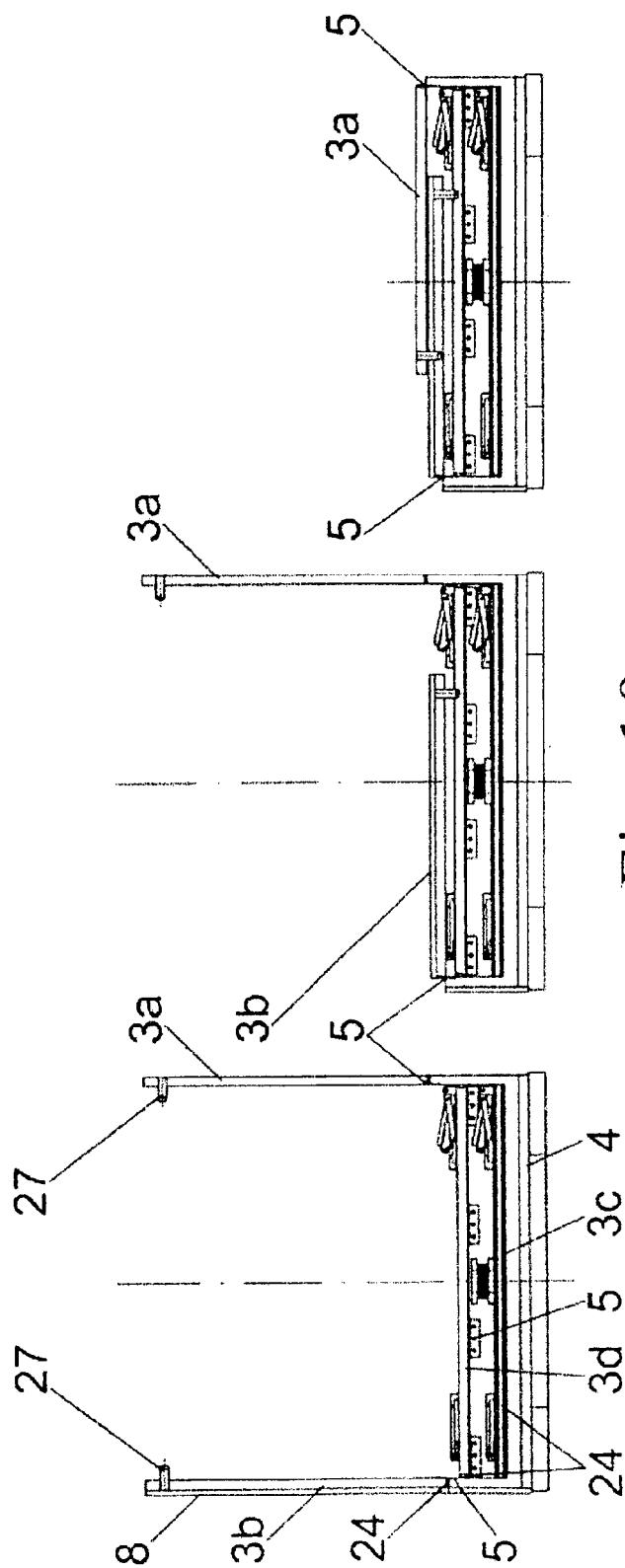


Fig. 10

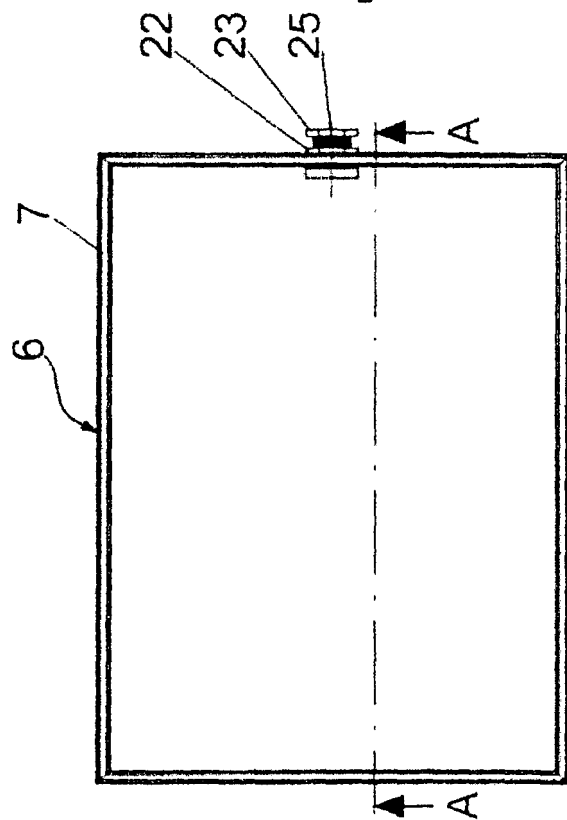


Fig. 11

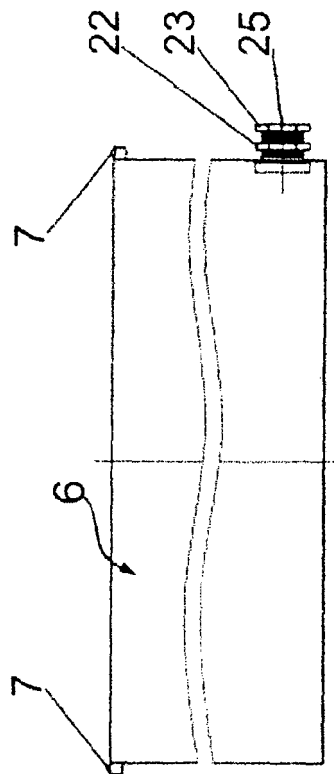


Fig. 12