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(54) System-floor substructure

(57) System-floor substructure for stand building, comprising a number of bearing sections which, in combination, define a grid having rectangular compartments. The floor further comprises a number of bearing feet which are detachably connected to the grid. The bearing sections each comprise two upright sidewalls extending in the longitudinal direction of the bearing section and a top wall interconnecting the upright sidewalls. Each bearing foot comprises a horizontal bearing face and four upright members mounted on top of the bearing face and, in combination, defining the corner points of a quadrangle. The smallest distance between parts of adjacent members of a bearing foot at least substantially corresponds to the distance between the outer sides of the upright sidewalls of a bearing section. At least three of the four members have each such dimensions that they can be received between the inner sides of two upright sidewalls of the bearing sections with an at least substantially proper fit. Depending on the position of the bearing foot, a bearing section is received in the floor between adjacent members of a bearing foot or a member of a bearing foot is received between upright sidewalls of a bearing section.

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Description

[0001] The invention relates to a system-floor substructure for stand building, comprising a number of bearing sections which, in combination, define a grid having rectangular compartments, the sides of the compartments being formed by these bearing sections and the floor further comprising a number of bearing feet which are detachably connected to the grid and at least support the grid at corner points of the compartments.

[0002] The invention also relates to bearing sections and bearing feet of such system-floor substructure.

[0003] Such system-floor substructure is known per se and is for instance used as a floor for a stand at exhibitions, in which case floor plates are placed in the compartments so as to complete the system-floor substructure to form a complete system floor. The bearing sections and bearing feet are detachably interconnected. This enables adapting a system-floor substructure to the desired dimensions of the system floor.

[0004] A drawback of the known system-floor substructure is that it comprises different types of bearing feet. For instance, the known system-floor substructure comprises corner-bearing feet, edge-bearing feet and central bearing feet. The corner-bearing feet are used for supporting bearing sections at the corner points of the system floor. The edge-bearing feet are used for supporting bearing sections which form an edge of the system floor. The central bearing feet are used for supporting the bearing sections at positions where four bearing sections meet.

[0005] The use of three different types of bearing feet renders the system relatively complicated and costly. The object of the invention is to meet this problem and is characterized in that a number of the bearing sections each comprise two upright sidewalls extending in the longitudinal direction of the bearing section and a top wall interconnecting the upright sidewalls, and that each bearing foot comprises a horizontal bearing face and four upright members mounted on top of the bearing face and in combination defining the corner points of a quadrangle, the smallest distance between parts of adjacent members of a bearing foot at least substantially corresponding to the distance between the outer sides of the upright sidewalls of a bearing section, and at least three of the four members having each such dimensions that they can be received between the inner sides of two upright sidewalls of a bearing section with an at least substantially proper fit, while depending on the position of a bearing foot in the floor, a bearing section is received between adjacent members of the bearing foot, or a member of the bearing foot is received between upright sidewalls of a bearing section.

[0006] Owing to the specific shape of the bearing foot, it can be universally applied for supporting bearing sections at corner points of the compartments located on corner points of the system-floor substructure, at edges of the system floor or at other places of the system floor.

[0007] A member of a bearing foot is received between the upright sidewalls of a section in particular if the bearing foot in question supports a section constituting a longitudinal edge of the system-floor substructure. This includes both the sections that form a longitudinal edge and those sections whose ends form a corner point of the system-floor substructure.

[0008] A section is received between adjacent members of a bearing foot if the section in question does not form a longitudinal edge of the system floor.

[0009] In particular, each of the members of a bearing foot comprises four upright sidewalls constituting the sidewalls of a rectangle. Preferably, these sidewalls define a square.

[0010] In accordance with a further preferred embodiment of the system-floor substructure according to the invention, a number of bearing sections further each comprise a central wall extending between the sidewalls, parallel to and below the top wall, so that the top wall, sidewalls and the central wall form a tubular channel.

[0011] The system-floor substructure may further comprise connecting corner pieces, each having two mutually perpendicular legs, which legs are slid into the tubular channels of two mutually perpendicular bearing sections and of which two free ends adjoin each other.

[0012] In this manner, straight sections can be intercoupled to form for instance a square frame, that is to say a compartment which will be supported by a bearing foot at each of its corner points. It is also possible to couple only two sections, which thus form a corner piece. It is also possible that sections are not intercoupled at all, which is the case with sections constituting the edge of the system-floor substructure. In the known systems, this is typically realized by four different elements, i.e. a frame consisting of four undetachably interconnected sections, a corner piece consisting of two mutually perpendicular and fixedly intercoupled sections, and loose sections. However, the sections and the corner pieces according to the invention can be applied entirely universally, like the bearing feet. In particular, each section further comprises an upright edge provided on the top wall. In this manner, a floor plate can be placed on the top walls of sections which form a compartment. The floor plate is then held in position by the upright edges on the top walls.

[0013] In accordance with a preferred embodiment, the height of the upright edge is less than the height of the space formed below the intermediate wall, between the upright sidewalls of the section. This has the advantage that the sections can be stacked when the system floor is transported in loose parts.

[0014] The invention will presently be specified with reference to the accompanying drawings, wherein:

Fig. 1 is a top plan view of a possible embodiment of a bearing foot according to the invention;

Fig. 2 is a side elevational view of the bearing foot according to Fig. 1;

Fig. 3a shows the bearing foot of Fig. 1 supporting a bearing section according to the invention, which bearing section forms a longitudinal edge of a system-floor substructure;

Fig. 3b shows the bearing foot of Fig. 1 supporting a bearing section according to the invention, which bearing section does not form a longitudinal edge of the system-floor substructure;

Fig. 4 is a schematic top plan view of a possible embodiment of a system-floor substructure according to the invention;

Fig. 5 shows a corner-connecting piece of the system-floor substructure; and

Fig. 6 shows a number of stacked bearing sections.

[0015] In Fig. 4, reference numeral 1 designates a system-floor substructure for stand building according to the invention. The system-floor substructure comprises a number of bearing sections 2 which in combination define a grid having rectangular compartments 4. Rectangular compartments are understood to include square compartments. The four sides of a compartment are formed by the bearing sections 2 mentioned. In use, each compartment is covered by a rectangular floor plate, not shown here. The floor plates are then held in position by the bearing sections and in fact form the floor of the stand.

[0016] The system-floor substructure according to Fig. 4 further comprises a number of universal bearing feet 6 (i, j), the drawing showing the bearing feet for i, j = 1, 2, 3. The bearing feet 6 are detachably connected to the grid and support the grid at corner points 8 of the rectangular compartments 4.

[0017] Each bearing foot (see Figs. 1 and 2) comprises a horizontal bearing face 10 and four upright members 12.1-12.4 mounted on top of the bearing face and, in combination, defining the corner points of a quadrangle. The bearing sections 2 each comprise two upright sidewalls 14 extending in the longitudinal direction of the bearing section, and a top wall 16 interconnecting the upright sidewalls 14.

[0018] The smallest distance d between parts of adjacent members of the bearing foot 6 at least substantially corresponds to the distance d' between the outer sides of the upright sidewalls 14 of the bearing sections. Further, at least three and in this example even four members of the bearing foot 6 have such dimensions that they can be received between the inner sides of two upright sidewalls of the bearing sections with an at least substantially proper fit.

[0019] This last means that the bearing section, as shown in Fig. 3a, can be placed over one or two members 14. On the other hand, each bearing section can be positioned between two or four adjacent members, as shown in Fig. 3b.

[0020] The above has as a result that the bearing foot can be universally applied. If a bearing foot supports a bearing section forming a longitudinal edge of a system-floor substructure, a member of a bearing foot is received between the upright sidewalls of a bearing section. This situation presents itself with respect to bearing feet 6 (1,1), 6 (1,2), 6 (1,3), 6 (2,1) and 6 (3,1). The bearing section 2 which is supported by bearing foot 6 (1,1) and bearing foot 6 (2,1) forms for instance a longitudinal edge of a system-floor substructure. Here, member 12.4 of bearing foot 6 (1,1) is received between the upright sidewalls of this bearing section. Likewise, the upright member 12.2 of bearing foot 6 (2,1) is received between the upright sidewalls of this bearing section. Something similar holds for the bearing sections supported by pairs of bearing feet 6 (1,3), 6 (1,2); 6 (1,2), 6 (1,1); and 6 (2,1), 6 (3,1) respectively.

[0021] A bearing section which does not form a longitudinal edge of the system substructure, such as for instance the bearing section supported by bearing feet 6 (1,2) and 6 (2,2), is received between adjacent members of the bearing feet in question. This bearing section is received between upright members 12.3 and 12.4 of bearing foot 6 (1,2) and between upright members 12.1 and 12.2 of bearing foot 6 (2,2).

[0022] Preferably, each of the members comprises four upright sidewalls defining the sidewalls of a rectangle. In this example, the upright sidewalls of each of the members even define a square. This involves the distance between the outer sides of opposite sides of a member corresponding at least substantially to the distance between the inner sides of opposite sidewalls of the bearing section 2. As a result, in a bearing foot, maximally four mutually perpendicular bearing sections can be received between adjacent members of the bearing foot. In addition, two bearing sections which are in line or oriented perpendicularly relative to each other and which form a longitudinal edge of the system-floor substructure, can each be placed over a member of one bearing foot, as a result of which the bearing feet do not project at the longitudinal edges of the system floor. This prevents the possibility of people injuring themselves on the bearing feet.

[0023] Preferably, each bearing section further comprises a central wall 18 extending between the sidewalls 14, parallel to and below the top wall 16, so that the top wall, sidewalls and central wall in a bearing section form a tubular channel 20 (see Figs. 3a and 3b).

[0024] The system-floor substructure further comprises connecting corner pieces 22. Fig. 5 is a top plan view of such connecting corner pieces. The connecting corner piece 22 comprises two mutually perpendicular legs 24, 26. The width b of each leg corresponds to the width b' of the channel 20 of a bearing section. In use, the two legs 24, 26 of a connecting corner piece are slid into the tubular channels of two mutually perpendicular bearing sections, two free ends of which adjoin each other. To this end, the connecting corner piece is further provided, in the corner enclosed by the two legs, with an

upright edge 27 having a square cross section. The thickness of the edge 27 corresponds to the thickness of the upright sidewall of the channel 20. In this example, the four bearing sections which are supported by bearing feet 6 (1,2), 6 (1,1); 6 (1,1), 6 (2,1); 6 (2,1), 6 (2,2) and 6 (2,2), 6 (1,2), are interconnected by means of four connecting corner pieces. The same holds for instance for the four bearing sections which are supported by bearing feet 6 (2,3), 6 (2,2); 6 (2,2), 6 (3,2); 6 (3,2), 6 (3,3) and 6 (3,3), 6 (2,3). In addition, the bearing section supported by bearing feet 6 (1,3), 6 (1,2) is not connected to other bearing sections by means of connecting corner pieces.

[0025] The use of connecting corner pieces renders it easy to build up a system-floor substructure. At first, the system-floor substructure is composed of in each case four bearing sections which form a compartment and which are interconnected by means of connecting corner pieces. These bearing sections, four in each case, are placed on bearing feet according to the pattern of Fig. 4. After that, the grid is completed by means of the loose bearing sections which are not connected via connecting pieces. Generally, these loose bearing sections are bearing sections forming a longitudinal edge of the system-floor substructure.

[0026] As is clearly demonstrated in Figs. 3a and 3b, each bearing section further comprises an upright edge 28 provided on the top wall 16. The advantage of the upright edges 28 is that they form a frame of the above-mentioned floor plates and, accordingly, hold the floor plates placed in a compartment 4 properly in position.

[0027] Preferably, the height h of the upright edge 28 is less than the height h' of the space formed below the intermediate wall, between the upright sidewalls of the bearing section. This has the advantage that the bearing sections can be stacked for transport and/or storage, as shown in Fig. 6.

[0028] Further, the bearing feet have their bottom sides provided with at least one height-adjustable leg 34. For this purpose, openings 36 may for instance be provided in the bearing face 10 of a bearing foot, which openings are each provided, at the inside thereof, with a screw thread. The legs themselves comprise a cylindrical surface 38 likewise provided, at the outside thereof, with screw thread, which screw thread can cooperate with the screw thread of the openings 36. In this manner, the leg 34 can be screwed into or out of the bearing face 10 for setting the height. The upright circumferential edges of the connecting corner pieces 28 are further provided with recesses 32 which can partially enclose a surface 38 when the central opening 36 is used for a leg. In this manner, an extra firm connection is established between the bearing sections on the one hand and the bearing feet on the other.

[0029] It is observed that the invention is by no means limited to the above-described embodiment. For instance, the upright members need not especially be of a square design. It is also possible to give the circumferential edges of the members a cylindrical design. However, the advantage of giving the members a rectangular design is that the connection sections cannot rotate around the members. However, other shapes of the members are possible as well. For instance, the hatched portion of the members, as shown in Fig. 1, may be left out without sacrificing functionality of the bearing feet. It is also possible to include additional bearing feet approximately at midlength of a bearing section, which is shown in dotted lines in Fig. 4.

[0030] Such variants are all understood to fall within the framework of the invention.

Claims

1. A system-floor substructure for stand building, comprising a number of bearing sections which, in combination, define a grid having rectangular compartments, the sides of the compartments being formed by said bearing sections and the floor further comprising a number of bearing feet which are detachably connected to the grid and at least support the grid at corner points of the compartments, **characterized in that** a number of the bearing sections each comprise two upright sidewalls extending in the longitudinal direction of the bearing section and a top wall interconnecting the upright sidewalls, and that each bearing foot comprises a horizontal bearing face and four upright members mounted on top of the bearing face and in combination defining the corner points of a quadrangle, the smallest distance between parts of adjacent members of a bearing foot at least substantially corresponding to the distance between the outer sides of the upright sidewalls of a bearing section, and at least three of the four members having each such dimensions that they can be received between the inner sides of two upright sidewalls of a bearing section with an at least substantially proper fit, while depending on the position of a bearing foot in the floor, a bearing section is received between adjacent members of the bearing foot or a member of the bearing foot is received between upright sidewalls of a bearing section.

2. A system-floor substructure according to claim 1, characterized in that a member of a bearing foot is received between the upright sidewalls of a bearing section if the bearing foot in question supports a bearing section forming a longitudinal edge of a system-floor substructure.

3. A system-floor substructure according to claim 1 or 2, characterized in that a bearing section is received between adjacent members of a bearing foot if the bearing section in question does not form a longitudinal edge of the system-floor substructure.

4. A system-floor substructure according to any one of the preceding claims, characterized in that the four members of each bearing foot each have such dimensions that they can be received between the inner sides of two upright sidewalls of the bearing sections with an at least substantially proper fit.

5. A system-floor substructure according to any one of the preceding claims, characterized in that the members each comprise four upright sidewalls which define the sides of a rectangle.

6. A system-floor substructure according to claim 5, characterized in that the members each comprise four upright sidewalls which define the sides of a square.

7. A system-floor substructure according to claim 6, characterized in that the four members of a bearing foot lie on the corner points of a square.

8. A system-floor substructure according to any one of the preceding claims, characterized in that a number of bearing sections each further comprise a central wall extending between the sidewalls, parallel to and below the top wall, so that the top wall, sidewalls and the central wall form a tubular channel.

9. A system-floor substructure according to any one of the preceding claims, characterized in that a number of bearing sections each further comprise an upright edge provided on the top wall.

10. A system-floor substructure according to claims 8 and 9, characterized in that the height of the upright edge is less than the height of the space formed below the intermediate wall between the upright sidewalls of a bearing section.

11. A system-floor substructure according to claim 8 or 10, characterized in that the system-floor substructure further comprises connecting corner pieces which each comprise two mutually perpendicular legs, which legs are slid into the tubular channels of two mutually perpendicular bearing sections and of which two free ends adjoin each other.

12. A system-floor substructure according to any one of the preceding claims, characterized in that the free ends of the bearing sections are supported by the bearing feet.

13. A system-floor substructure according to any one of the preceding claims, characterized in that a number of bearing feet each comprise, at the bottom side thereof, at least one height-adjustable leg.

14. A bearing foot of a system-floor substructure according to any one of the preceding claims.

15. A bearing section of a system-floor substructure according to any one of preceding claims 1-13.

16. A connecting corner piece of a system-floor substructure according to any one of preceding claims 1-13.

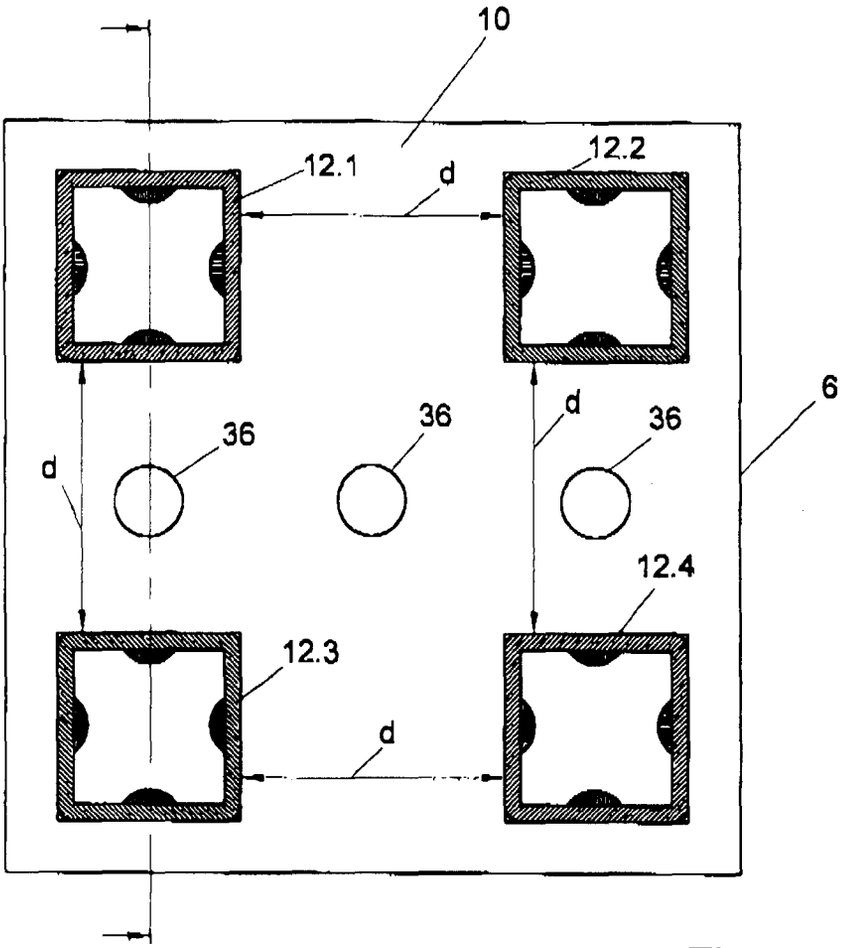

Fig. 1

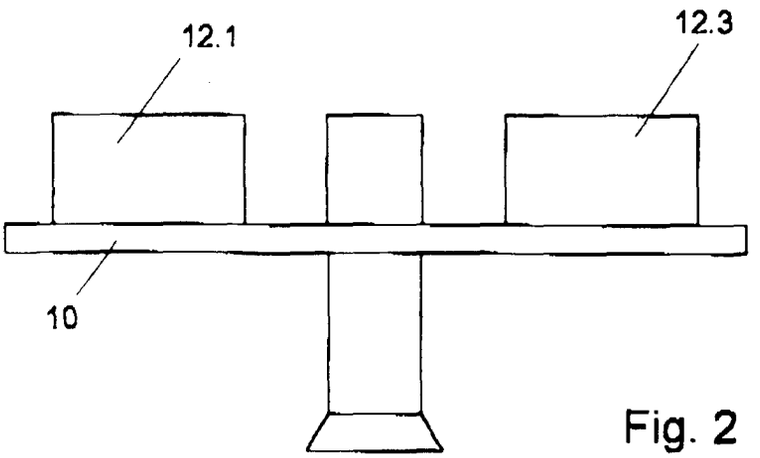

Fig. 2

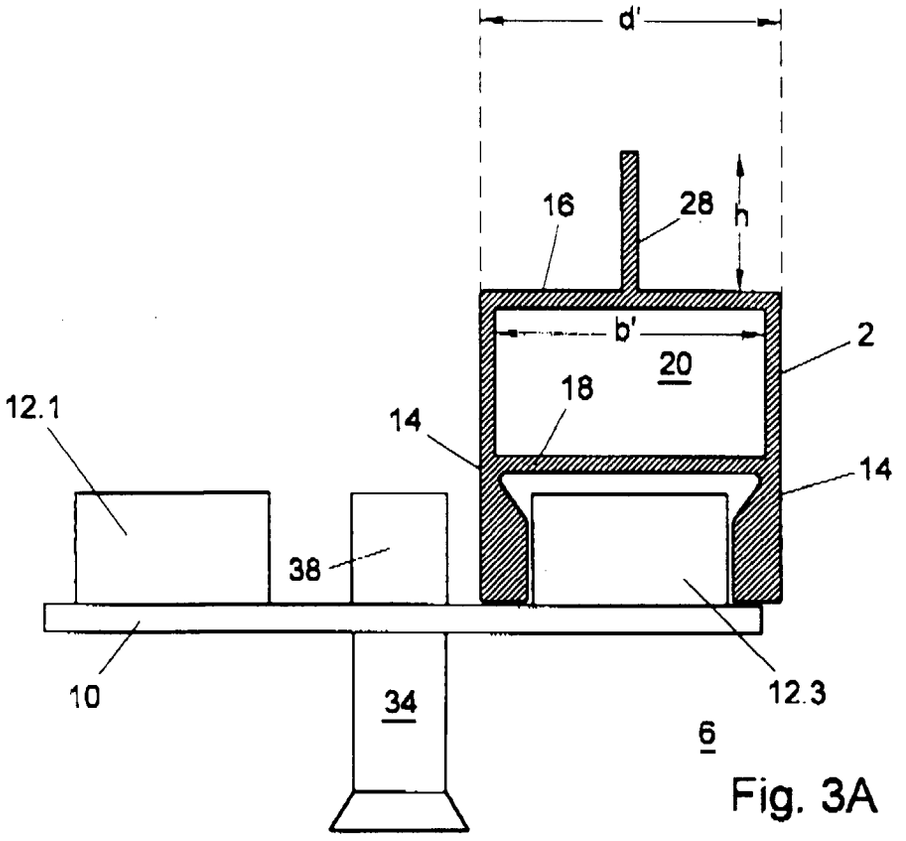
d'
16
28
h
b'
2
20
18
12.1
14
14
38
10
34
12.3
6

Fig. 3A

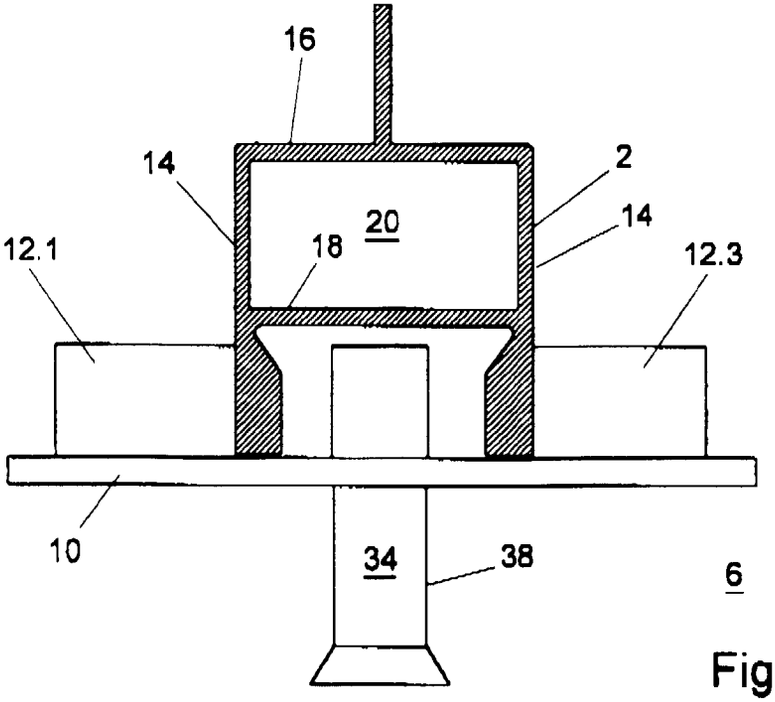
16
14
2
20
14
12.1
18
12.3
10
34
38
6

Fig. 3B

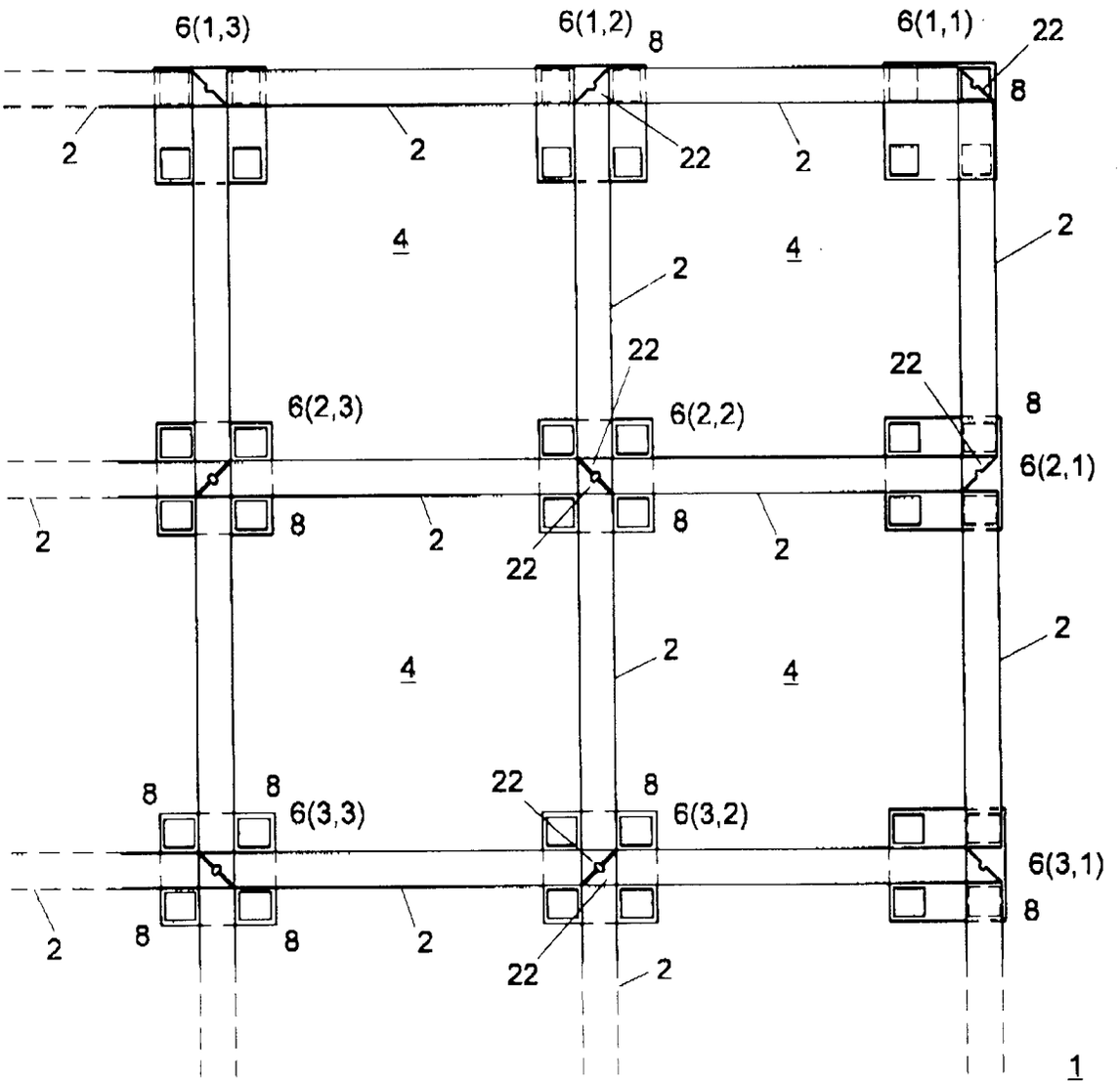

Fig. 4

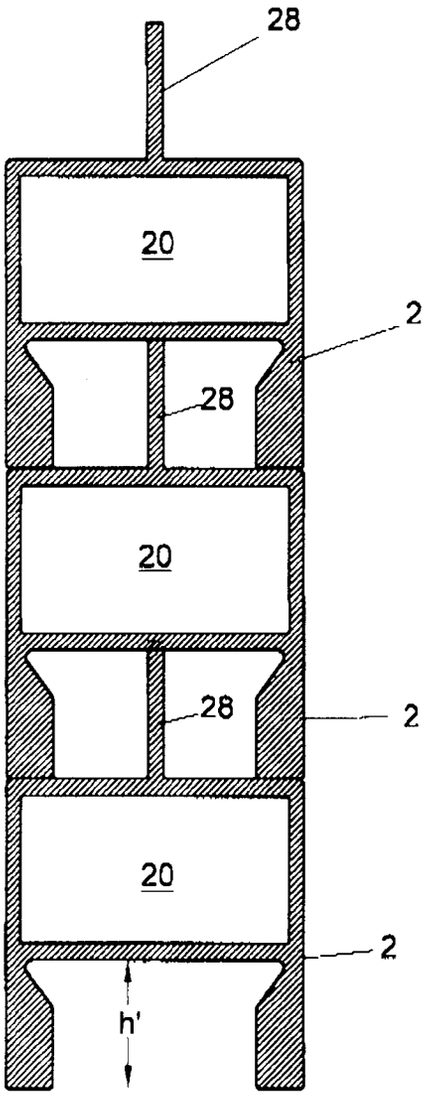

Fig. 6

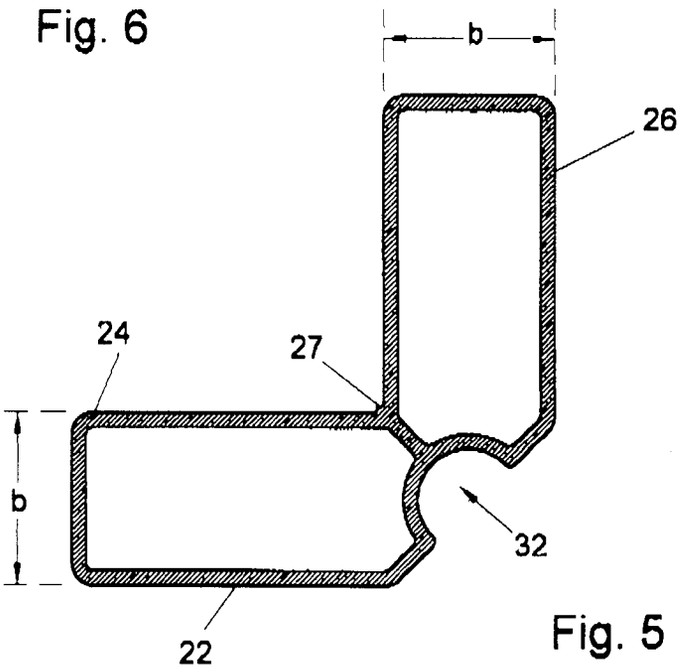

Fig. 5