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(54) Collapsible box

(57) Mounting receptacle, open at the upper base, of recyclable nature, for the transportation of perishable products, formed by side walls constituted by stiff panels (2,3) articulated to the stiff panel which constitutes the base (1), the side panels being finished off at their transversal edge in the manner of reinforcement columns (7) provided with adjacent, 45° oblique, longitudinal surfaces, permitting the embedding, when the assembly is mounted, of each one of every two adjacent columns forming one same vertical corner being provided with a side flap (10), as extension of the free edge of said column and which is capable of embedding on the external surface of the adjacent column to which it joins in order to keep the receptacle mounted.

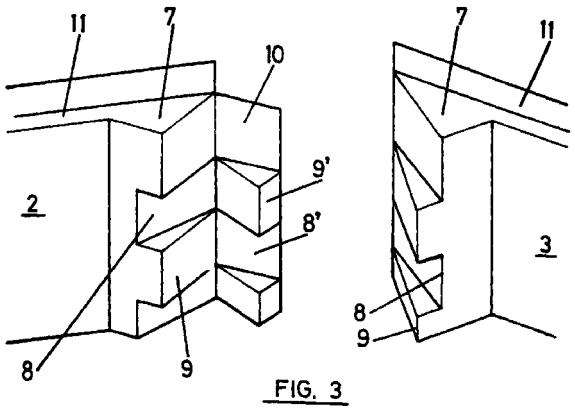

FIG. 3

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Description

[0001] The present invention refers to a recyclable, mounting receptacle, which is specially conceived for transporting perishable products such as fruit, horticultural and fruticultural products, fish, etc. and is constituted in such a manner that it can be kept in unfolded position for storage and transportation, and be mounted in an easy, rapid and safe manner prior to use.

[0002] More specifically, the receptacle of the invention is of the type which adopts a rectangular, straight, prismatic shape, open at the upper base, the walls and bottom walls of which are comprised of other corresponding stiff panels, the panels of the walls being related to the bottom panel by means of flexible joining strips which serve as articulation elements between one and another panel.

[0003] Spanish Utility Model No. 295.405 describes a container of the type specified, in which the wall panels are finished off at their vertical corner edges with a reinforcement column which presents adjacent, 45° oblique longitudinal surfaces for their joint embedding during the mounting of the assembly. Said columns present appreciably cylindrical extensions with vertical axis, which project as from the interior edge of the columns and alternatively couple to each other in alignment when two columns embed. Said extensions are provided with a coaxial hole which defines a passage to receive a locking pin.

[0004] With the described constitution, the formation of the columns which finish off the vertical wall corner edges, can present certain difficulties, due to the inclusion of extensions equipped with the axial hole to receive the locking pin. In addition to the receptacle, which is constituted based on plastic material, a locking pin must be included at each corner, generally of metallic nature.

[0005] The object of the present invention is a container of the type described which simplifies the constitution of the columns finishing off the vertical wall corner edges, thus eliminating the need to include a locking pin of different nature.

[0006] In accordance with the present invention, from every two adjacent columns forming one same vertical corner, one of the columns is provided with a lateral flap, as an extension of the free edge of said column, said flap being dimensioned and formed to embed on the external surface of the adjacent column when the assembly is mounted, joining to said surface so as to maintain and secure the mounting. The union is preferably achieved by means of heat.

[0007] Each pair of adjacent columns shall present, as from their embedding longitudinal surfaces, corresponding formations which couple to each other when mounting the assembly.

[0008] The columns shall be preferably hollow, open externally and the flap which starts from one of the columns of each two forming a corner, shall be provided with transversal formations to couple externally to the adjacent column on which it embeds.

[0009] With the described constitution, a one-use container of great strength is obtained, which can be subsequently totally recycled, without requiring separation or extraction operations of specific components.

[0010] The receptacle of the invention is manufactured in unfolded form, with the object of reducing transportation and storage costs when they are empty. The final mounting is carried out with compact and portable robots which fold the sides and weld the flap of one of the columns at each corner, to the exterior surface of the adjacent column, all this by means of a simple rapid, heat application and without requiring specialized manpower. The assembly robots are placed in the clients facilities or their vicinity, in such a way that a flexible and low cost logistic is achieved.

[0011] According to another characteristic of the invention, the panels which form the side walls are provided on the upper corner edge, at least on the end portions, with an internal step, interrupted by transversal projections, in correspondance to which, the bottom edge presents recesses of approximately equal dimensions to receive, when the receptacles are superposed or layed-up, the transversal projections of the container placed immediately below, said projections and recesses defining altogether, mutual anchorage elements.

[0012] Furthermore, from the previously indicated internal step small projections with oblique, free surfaces may project as from the angle, which serve as guiding and centering elements of the bottom of a container, layed-up immediately on top.

[0013] All the characteristics and advantages of the container of the invention can be better understood from the following description, made with reference to the enclosed drawings, in which a non limitative embodiment example is shown.

[0014] In the drawings:

Figure 1 is a partial perspective view of a container, constituted according to the invention.

Figure 2 shows the development of the former as from which the container of figure 1 is formed.

Figure 3 shows a perspective view of the embedding columns which configurate one of the receptacle corners.

Figure 4 is an exploded, cross sectional view of one of the receptacle corners, with the flap of one of the columns prior to its embedding and joining to the adjacent column.

Figure 5 is a similar section to figure 4, showing the embedding flap, joined to the adjacent column.

[0015] The receptacle shown in figure 1 is of straight prismatic configuration, of rectangular plan, and open at its upper base, including bottom 1, two larger longitudinal walls 2 and two smaller transversal walls which are referenced with number 3.

[0016] This receptacle is obtained as from the former development shown in figure 2, in which the bottom 1, longitudinal walls 2 and transversal walls 3, are comprised of other corresponding independent walls which remain joined to each other by means of flexible intermediate articulation strips 4

[0017] Said panels can present ventilation orifices 5 and reinforcement ribs 6.

[0018] Additionally, the longitudinal walls 2 and transversal walls 3, are finished off at their transversal edges by columns 7 which present surfaces confronted at 45° for their embedding and to determine a corner reinforcement, as can be better observed in figure 1.

[0019] Figure 3 shows a perspective view of adjacent columns 7 which configurate one same corner and which correspond to consecutive walls 2 and 3. Said columns may present, as from their embedding surface, recesses 8 and corresponding projections 9, which remain coupled to each other when the receptacle is mounted, such as is shown in figure 1.

[0020] From each of the two adjacent columns which embed into each other, and which form a corner, one of them extends externally into a longitudinal flap 10 which is intended to embed externally on the other column.

[0021] Columns 7 are preferably hollow and open at the rear surface, as can be observed in figures 4 and 5. Furthermore, flap 10, as can be observed in figure 3, includes formations 9' and 8' intended to couple externally on formations 9 and 8 of the adjacent column.

[0022] When the assembly is mounted and the consecutive columns 7 embed, such as is shown in figures 4 and 5, flap 10 embeds and couples externally on the adjacent column 7, to which it attaches, preferably by means of heat, remaining in the position shown in figure 5 so as to secure the mounting of the assembly.

[0023] As can be observed in figure 1 and 3, the walls of the receptacle are provided at the upper corner edge, at least at the end portions, with an internal step 11, which is interrupted by transversal projections 12. Corresponding to these projections, the bottom edge 13 presents recesses or openings 14 with approximately equal dimensions to those of projections 12 and located at coinciding position. In this manner, when the receptacle is superposed or layed-up, the projections of each one of the same, insert into the recesses or openings 14 of the receptacle placed immediately on top, thus acting as elements to secure the lay-up.

[0024] In addition to this, the top step 11 may present small projections 15 with inclined surface which act as centering elements of the bottom of a container layed-up immediately on top.

[0025] Projections 12 and recesses or openings 14 may be placed only on two of the opposite sides, or else on the four sides.

[0026] A receptacle is obtained with the described constitution which does not require independent auxiliary elements of different nature in order to carry out its mounting. A one-use recyclable receptacle is thus obtained.

[0027] The receptacle of the invention also permits the superposing or lay-up of various receptacles in corresponding position, due to the anchorage elements which define projections 12 and recesses or openings 14. Furthermore, the upper notch of its longitudinal walls also permits the superposing of the containers placed perpendicular to each other.

[0028] In addition to the mounting of the container, when the panels which form the bottom and walls are coplanar, as is shown in figure 2, the space occupied for its storage and transportation is reduced.

[0029] The receptacles of the invention may be closed by means of an upper cover, made up of a stiff panel, for example of equal dimensions to that of the open base of the receptacle. This panel shall be embedded along its perimeter in a small wall for its embedding with the container on the outside of the side panels.

Claims

1. Mounting receptacle, of rectangular straight prismatic configuration, open at its upper base and with walls and bottom comprised of other corresponding stiff panels (2, 3 and 1), related to each other by flexible articulation strips (4), the wall panels (2 and 3) being finished off at their transversal edge into reinforcement columns (7) which present oblique adjacent longitudinal surfaces at 45°, for their mutual embedding when the assembly is mounted, characterized in that one of every two adjacent columns (7) which form one same vertical corner, is provided with a lateral flap (10), as extension of the edge or free border of said column (7), the flap (10) of which, is dimensioned and formed (8' 9') for embedding on the external surface of the adjacent column (7), when the assembly is mounted, and to join to said surface in order to maintain and secure the mounting.

2. Receptacle according to claim 1, characterized in that each pair of adjacent columns (7) present, as from their embedding longitudinal surfaces, corresponding formations (8, 9) which couple to each other when the assembly is mounted.

3. Receptacle according to claim 1, characterized in that the panels (2, 3) which form the side walls are provided on their upper corner edge, at least on the end portions, with an internal step (11) which is interrupted by transversal projections (12), corresponding with which, the bottom edge (13) presents recesses or openings (14) of approximately equal

dimensions to receive, during the superposing or lay-up of receptacles, the transversal projections (12) of the container placed immediately below, defining altogether, mutual anchorage elements.

4. Receptacle according to claim 3, characterized in that from the internal step, small projections (15) of free oblique surfaces extend as from the angle, which serve as guiding elements and as centering element of the bottom of a container layed-up immediately on top.

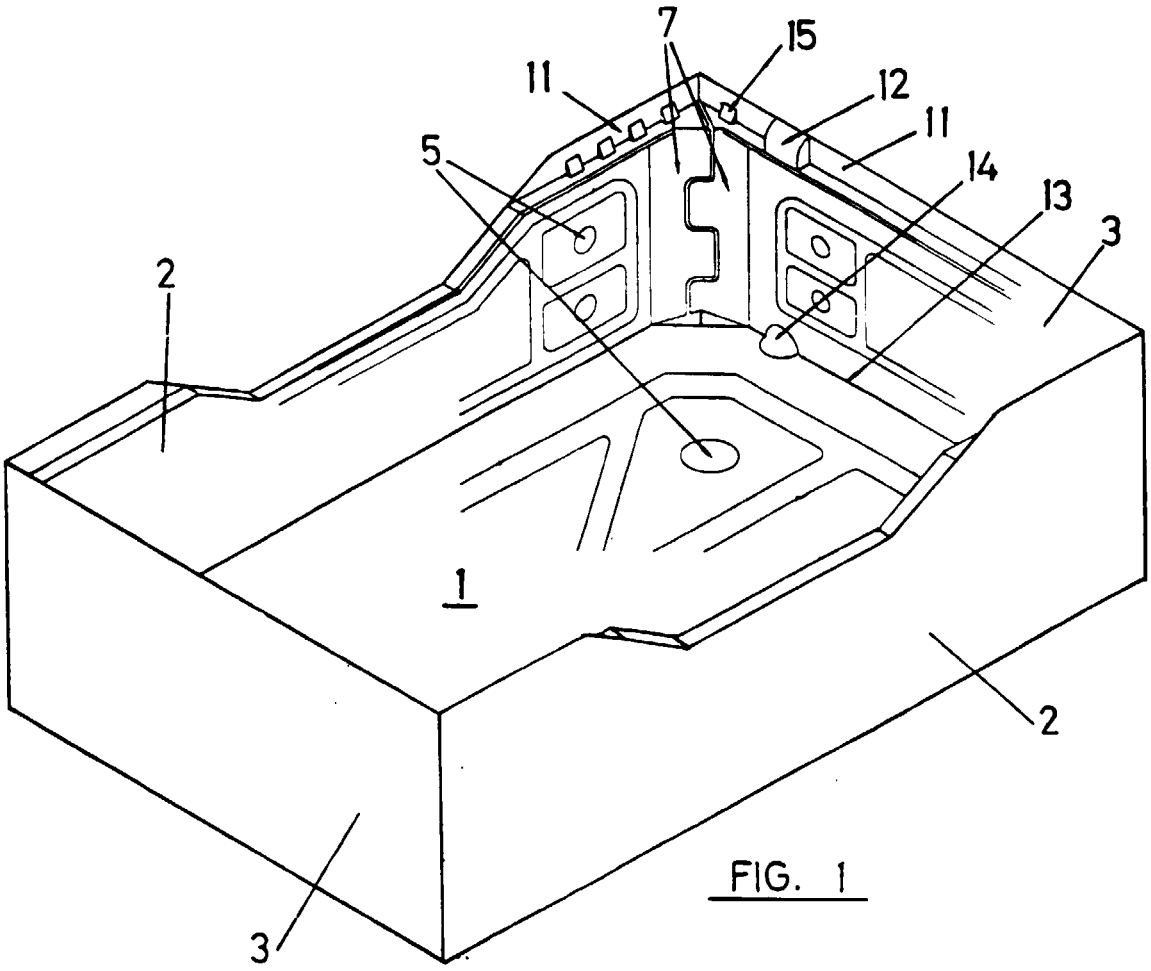
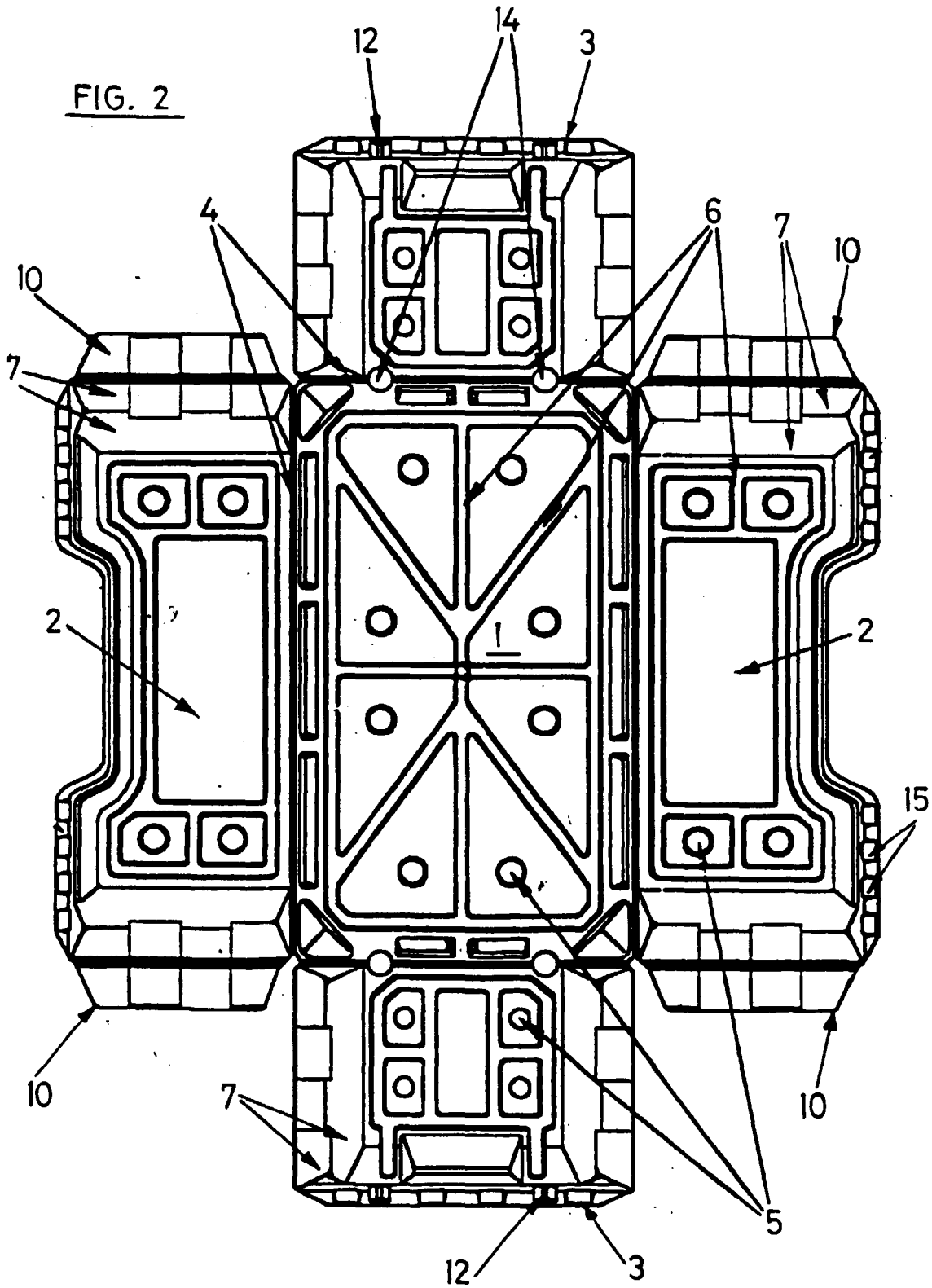


FIG. 1

FIG. 2



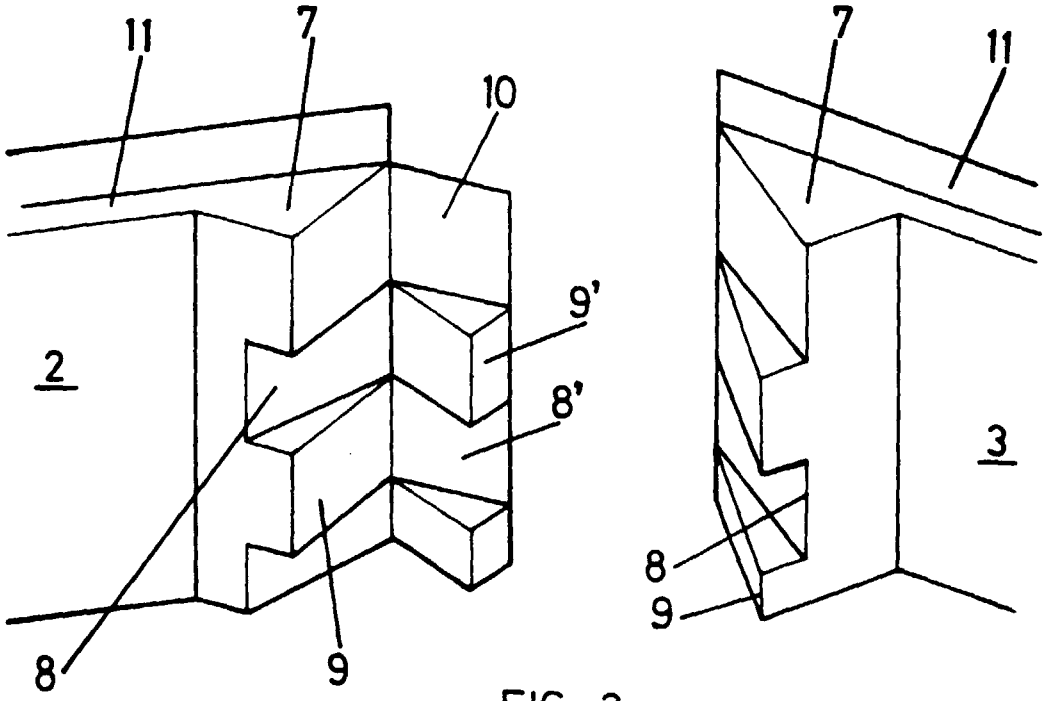


FIG. 3

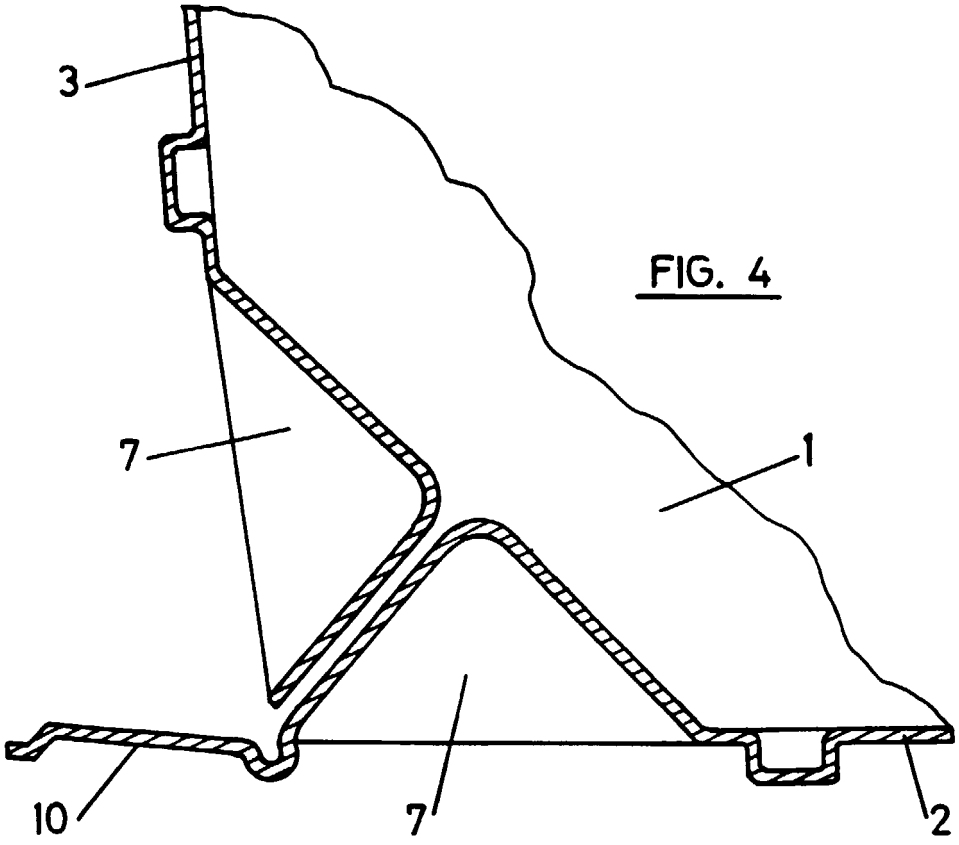


FIG. 4

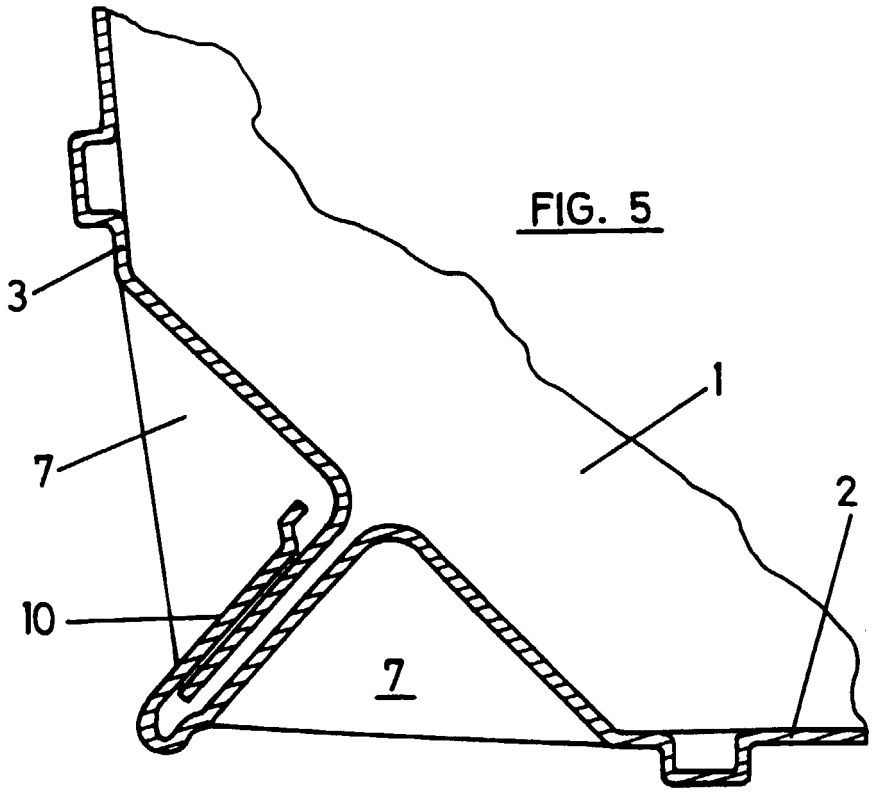


FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 98 50 0266

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A	WO 92 13771 A (NORSK HYDRO) 20 August 1992 (1992-08-20) * figure 3 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	10 January 2000	Gino, C

CATEGORY OF CITED DOCUMENTS

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