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(54) Cardboard box for perishable products

(57) The box is constituted from a laminated, monopiece body of cardboard, in which by means of stamping and corresponding folding lines a central sector (1) is established constituting the bottom, and a pair of end panels (3) and a pair of side panels (4) with the end panels (3) or in its case the side panels (4) having a double wall, in which their interior may be of the same height or less than the external wall. The internal wall presents end fins (7) which remain placed in cut-outs (8) provided on the upper edge of the side panel (4) or in its case of the end panel (3), also having protruding and upper flanges (10) complementary of lower cut-outs (11) to obtain the stabilization and transversal immobilization in the stacking between boxes, with the side panels (4) being able to be of less height than the end panels or vice versa, to form airing windows in the stacking. The flanges (10) may be performed in intermediate areas or on the corners, also presenting end extensions either of the end panels (3) or of the side panels (4) which remain attached and fastened by means of gluing to these or to the end panels themselves, determining a greater rigidity and resistance of the box.

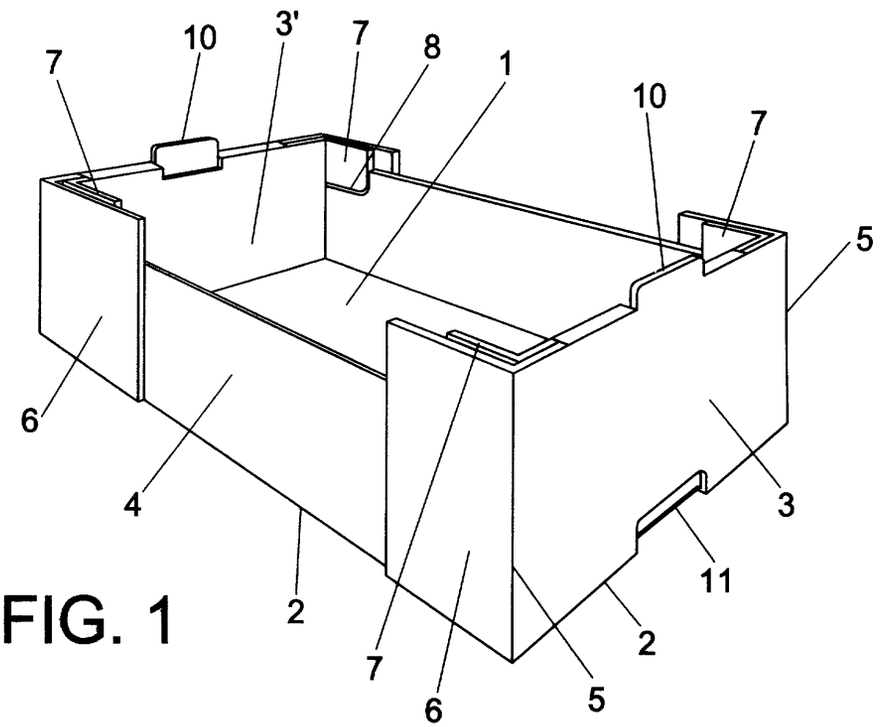

FIG. 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a cardboard box of the type used for perishable products, a box which has been conceived and structured in order to attain a maximum mechanical resistance with a minimum use of material.

[0002] It is likewise the object of this invention to attain a box which offers, aside from the properties referred to in the previous paragraph, optimum stability properties when being stacked with other identical ones, and that also ensures an optimum ventilation for the products contained inside when in such a stacked situation.

[0003] It is also the object of the invention to attain that the box offers a noticeable resistance without deforming when stacked with other similar ones, loaded with products.

BACKGROUND OF THE INVENTION

[0004] The normal evolution in the design of cardboard boxes with the above-mentioned application has lead to the generalized use of monopiece boxes, in which by means of stamped lines a bottom is defined from which, by means of folding lines, two end panels and two side panels emerge which must have mutual means of fastening in order to obtain the assembly of the box.

[0005] One of the usual solutions consists in prolonging the ends of the side panels with fins which fold around the end panels, duplicating the height of these and adding flanges to their free edge which, after folding the end panel on itself and inserting the prolongations of the side panels, couple into openings located at the bottom of the box, thus attaining its assembly without adhesives, staples or any other element foreign to the laminated body of cardboard itself.

[0006] With this solution a box with reinforced end panels is obtained which, however, presents two fundamental problems, a complete absence of reinforcement in the area of the side panels and an excessive use of material.

[0007] A saving of material is attained making the end panels to be single, with these having the added prolongations at the ends and folding them over the side panels, and fastening these latter pieces with staples, glue, or something similar, but this solution causes an absence of reinforcement in the end panels, which are precisely the elements of the box that are going to support greater stresses.

[0008] On the other hand, solutions are also known which provide a higher rigidity and a consequent resistance in the stacking between full boxes, by forming end panels and sometimes side panels of double or even triple walls, as well as by adding to the box triangular prismatic reinforcements in the corners. However, these type of boxes which are very resistant for stacking present the inconvenience of their structural complexity, since the sheet from which the box will be obtained must be submitted to a special process to obtain all of the extensions, fins and folding lines which make it possible to carry out the assembly of the box and to make it resistant. The structural complexity of these type of boxes not only has the inconvenience of the high expense of the material and of the highly expensive machines related to them, but they also have other problems among which could be mentioned, maybe as the most important, the difficulty or assembly of the box, as well as the need of staples or other means to obtain an effective assurance of assembly.

SPECIFICATION OF THE INVENTION

[0009] The cardboard box proposed by the invention is comprised among those considered as having high resistance, but with simpler structural characteristics, allowing an assembly without difficulties, without sophisticated machinery and without the need of staples for assurance of the assembly.

[0010] More specifically, the box of the invention is of the type that are constituted from a laminated, monopiece, stampable body, preferably of cardboard, wherein is established a central and rectangular area determinant of the bottom, as well as four sectors that derive, after corresponding folding lines, from the four sides of the bottom, to constitute the two end panels and two side panels, all of this as is conventional.

[0011] From these characteristics, the box of the invention presents the peculiarity that either the end panels or the side panels are double walls, with the internal wall obtained from the inward folding of an extension which prolongs from the area that constitutes the external wall, being able to reach the same height as it, or presenting a smaller amplitude to end up with its lower edge away from the bottom, that is, without that internal wall reaching the bottom of the box from above.

[0012] Furthermore, the internal wall, whether corresponding to the end panels or to the side panels, presents equal side and end fins which fold over the internal face of the side panels or the end panels, whichever the case, being placed in cut-outs provided for this in said side panels or in the end panels, remaining coplanar with the external wall.

[0013] On the other hand, the external wall of the end panels, or if it is the case, of the side panels, present end extensions which fold over the external face of the side panels or the end panels, reaching the same height as that of the wall from which they derive, with these extensions being able to be attached inside, attaining a larger capacity for the box.

[0014] In one embodiment, the side panels may have less height than the end panels or vice versa, determining in both cases some ample air passages or windows in the stacking of the boxes, although the height may be

the same with the side panels and/or end panels having cut-outs corresponding to the larger part of the length of the upper edge to obtain the same end.

[0015] In another embodiment, the end panels and/or side panels have some upper flanges added which are complementary to cut-outs provided to this effect in the lower part, to obtain a dovetailing effect in the stacking, avoiding transverse movements between the stacked boxes, so that said flanges or cut-outs may be located at intermediate areas or at the ends, in which case the configuration would be angular, affecting both the end panels as well as the side panels, thus obtaining four stabilizing points between the stacked boxes.

[0016] In another embodiment, the double wall corresponds to the side panels, where the internal wall may have the same height or be smaller than the external wall, with the end panels being of less height to determine the airing windows for the stacking. Furthermore, the lateral extensions of the side panels, which fold over the end panels, will be of the same height as these and their internal edge is beveled affecting the section comprised between the upper edge of the end panel and the upper edge of the extensions themselves folded over it.

[0017] In this possible embodiment the inferior part of the corners have angular cut-outs which cooperate in the stabilization and centering of the stacking with the complementary flanges or cut-outs located respectively in the upper and lower intermediate areas of the side panels.

DESCRIPTION OF THE DRAWINGS

[0018] To complement the description being made and with the object of assisting to have a better understanding of the characteristics of the invention, according to a preferred example of a practical embodiment of it, enclosed as an integral part of said description are a series of drawings in which, with an illustrative and non-limiting nature, the following has been represented:

Figure 1.- Shows a perspective view of a cardboard box for perishable products embodied according to the object of the present invention, where the double wall is determined in the end panels and these are of greater height than the side panels.

Figure 2.- Shows, according to a similar perspective to that of the previous figure, a box where the side panels reach the same height as the end panels.

Figure 3.- Shows another perspective view of a possible embodiment of the box represented in figure 1, in which the internal wall of the end panels does not reach to the bottom.

Figure 4.- Shows another possible embodiment of the box represented in figure 2, where the internal wall of the end panels does not reach to the bottom.

Figure 5.- Shows a perspective view of a box like that of figure 1 but with flanges which in this latter one are provided on the upper edge and centered on all of the end panels, in this figure 5 are in an angular configuration corresponding with the corners.

Figure 6.- Shows a perspective of a possible embodiment of the box represented in figure 2 but with the variations incorporated in the one shown in figure 5 respecting figure 1.

Figure 7.- Shows a possible embodiment of the box represented in figure 5 in which the end panels do not reach to the bottom.

Figure 8.- Shows a possible embodiment of the box represented in figure 6 in which the internal wall of the end panels does not reach to the bottom

Figure 9.- Shows a possible embodiment of the box in which the double wall is determined in the side panels, with these having upper flanges complementary to cut-outs in the lower part for stabilization and immobilization in the stacking between boxes.

Figure 10.- Shows a possible embodiment of the box represented in the previous figure in which the flanges of stabilization and immobilization are materialized corresponding with the corners.

Figure 11.- Shows a possible embodiment of figure 9 in which the internal wall of the side panels does not reach to the bottom.

Figure 12.- Shows a possible embodiment of the box represented in figure 10 wherein the internal wall of the side panels does not reach to the bottom.

Figure 13.- Shows another possible embodiment of the box with double wall end panels, with end extensions of these which fold over the external face of the sides, wherein the internal wall of said end panels reaches the same height as their external wall.

Figure 14.- Shows a possible embodiment of the box represented in the previous figure, wherein the internal wall of the end panels does not reach to the bottom.

Figures 15 and 16.- Each show perspectives corresponding to two boxes in which the double wall is materialized in the side panels, one of them reaching to the bottom and the other one not reaching to the bottom, and where the end panels are of less height with the end extensions of the side panels which fold over the external face of the end panels with their upper and internal corner forming an oblique or beveled edge.

PREFERRED EMBODIMENT OF THE INVENTION

[0019] In view of the figures referred to, the box of the invention is constituted by a laminated and monopiece body, preferably of cardboard, in which a central sector (1) is defined, of rectangular configuration, constituting the bottom of the box, so that by means of its four folding lines (2) it prolongs into the corresponding end panels (3) and side panels (4), determining the walls of the box itself, with the particularity that either the end panels (3)

or the side panels (4) prolong at the ends into extensions (6) or (6'), the first of which folds down and remains fastened by gluing the external wall of the side panels (4) and the second ones which fold over the external face of the end panels (3) and remain fastened to these by gluing. The extensions (6) or (6') determine at their fold with the end panels (3) or the side panels (4), the respective angle (8).

[0020] The box presents a double wall, either in its end panels or in its side panels (4), with the internal wall being able to reach, in one or the other case, the same height as that corresponding to the end panel or side panel or a smaller height.

[0021] Actually, in one case each end panel (3) prolongs into an extension (3') or (3") which in the fold toward the inside will constitute the internal wall of the box, while in another case each side panel (4) prolongs into an extension (4') or (4") to also constitute the internal wall of the box.

[0022] Both in one or the other case that internal wall may reach the same height as the respective end panel or the respective side panel. Thus, figure 1 shows the internal wall (3') of the end panels (3) reaching the same height as these, that is, of the external wall, while in figures 3 and 4 it can be seen that the internal wall (3") of these end panels (3) reaches a smaller height than the external wall, with the same occurring with the internal wall (4') or (4") of the side panels (4).

[0023] In all cases the internal wall (3) or (3'), (4) or (4'), presents some end fins (7) which fold over inwards, remaining attached and fastened by gluing to the internal surfaces of the extensions (6) or (6') and located in corresponding cut-outs (8) provided to that effect at the ends either of the side panels (4) or of the end panels (3).

[0024] The extensions (6) and (6'), which are provided to be arranged on the exterior, may optionally be located in the interior, in which case a greater amplitude or width of the box would be obtained. Evidently, the corresponding angle (5) which determines the extensions (6) or (6') with their corresponding end panel (3) or side panel (4), will be located in the interior or the exterior.

[0025] In figures 9, 10, 11 and 12 the box is shown in which the double walls are located in correspondence with the side panels, in one case with the internal wall (4') reaching the same height as the external wall of the side panels (4) and in another case with the internal wall (4") reaching a smaller height, that is, without reaching to the bottom as occurs when the internal wall (3") corresponds with the end panels (3).

[0026] In this embodiment of figures 9 to 12 the box presents its end panels (3) of less height than the sides forming airing windows, which are complemented with the cut-outs (9') provided in the side panels (4) themselves, with the particularity that in figures 9 to 11 the stabilization and immobilization of the stacking is attained by means of upper flanges (10) of the side panels (4) which are complementary of corresponding cut-outs (11) established in the lower part, while in figures 10 and 11 the stabilization and immobilization of the stacking is attained with the angular flanges (10') of the corners, complementary of the corresponding lower cut-outs (11').

[0027] In figures 13 and 14 a box is shown in which the side panels (4) have the same height as the end panels (3), with these counting on the corresponding cut-out (9) in correspondence with its upper edge to determine the airing windows in the stacking between boxes, with the particularity that both in the box represented in figure 13 as well as the box represented in figure 14, which vary in the height of the internal wall of the end panel, in the first case with said internal wall (3') reaching to the bottom, and in the second case with said internal wall (3") of a smaller height, it has been provided that the extensions (6) of said end panels (3) which fold down and remain attached and fastened by means of gluing onto the external surface of the sides or side panels (4), on the top present respective flanges (10) complementary of cut-outs (11), as well as the flanges (10) and cut-outs (11) of the end panels (3), to complement these means of immobilization and stabilization in the stacking between boxes.

[0028] In figures 15 and 16 a box is shown in which the end panels (3), in this case, present less height than the side panels (4), with the particularity that the end extensions (6') of these latter which fold down and remain fastened by gluing to the external surface of the end panels (3), present their interior and superior corner with an added bevel (6"), determining trapezoidal cut-outs on the upper edge of said end panels (3) of smaller height, with the particularity also that in this case the fins (7) into which the internal wall prolongs (4') or (4") of the side panels (4) instead of being placed into cut-outs of the corresponding end panels (3), with these presenting a smaller height, remain located above the upper edge of these. In this embodiment, the upper edge of the side panels (4) has flanges (10") complementary of corresponding cut-outs (11") provided in the lower part, also having in the corners other cut-outs (11') such as those provided in the boxes having the flanges (10') of angular configuration corresponding with the superior corners.

Claims

1. Cardboard box for perishable products, which is constituted from a laminated, monopiece, stampable body, preferably of cardboard, in which a central sector is established constituting the bottom from which are derived, by means of respective folding lines, four other sectors determinant of the two end panels and the two side panels, **characterized in that** either the end panels (3) or the side panels (4) prolong into respective extensions (3'-3") or (4'-4"), the folding of which, by means of respective folding lines, determine an internal, double wall in said end panels (3) or side panels (4); having also

provided that said internal wall (3'-3") or (4'-4") presents at its ends equal fins (7) which fold down and remain placed in respective cut-outs (8) established to this effect at the ends of the upper edge of the side panels (4) or end panels (3), respectively, establishing superficial continuity with the internal surface of said side panels or end panels.

2. Cardboard box for perishable products, according to claim 1, **characterized in that** the external wall of the end panels (3) or of the side panels (4) present in each case a pair of lateral extensions (6) or (6'), of the same height, which fold over and are fastened by gluing them to the external surface of the side panels (4) or end panels (3), respectively.

3. Cardboard box for perishable products, according to claim 2, **characterized in that** the extensions (6) or (6') are susceptible of being located in the interior of the respective side panels (4) or end panels (3).

4. Cardboard box for perishable products, according to claim 1, **characterized in that** the internal wall (3') of the end panels (3) or (4') of the side panels (4), is of the same height as the corresponding external wall.

5. Cardboard box for perishable products, according to claim 1, **characterized in that** the internal wall (3') of the end panels (3) or (4') of the side panels (4), is of less height than the corresponding external wall.

6. Cardboard box for perishable products, according to claim 1, **characterized in that** the side panels (4) are of less height than the end panels (3) or vice versa, determining airing windows in the stacking.

7. Cardboard box for perishable products, according to claim 1, **characterized in that** the side panels (4) are of equal height as the end panels (3), with either having cut-outs (9) and (9') in their upper edge, determining airing windows in the stacking.

8. Cardboard box for perishable products, according to claim 1, **characterized in that** in correspondence with the upper edge, the end panels (3) and/or side panels (4) present flanges (10-10'-10"), protruding upwards, complementary of cut-outs (11-11'-11") provided to this effect in the lower part, to obtain an immobilization and a corresponding transversal stabilization of the boxes in their stacking.

9. Cardboard box for perishable products, according to claim 8, **characterized in that** the complementary flanges (10-10") and cut-outs (11-11") are provided in intermediate areas of the end panels (3) and/or of the side panels (4).

10. Cardboard box for perishable products, according to claim 8, **characterized in that** the complementary flanges (10') and cut-outs (11') are provided in the corners, according to an angular configuration, which simultaneously affects the end panel (3) and the side panel (4).

11. Cardboard box for perishable products, according to claim 1, **characterized in that** the fins (7) derived from the internal wall (4') or (4") of the side panels (4) are susceptible of being place in a leaning manner over the straight and upper edge of the end panels (3), when these have less height than the side panels (4) themselves, while the extensions (6') into which prolong the end of the external wall of the side panels (4) and that fold over the end panels (3), present a bevel (6"), affecting the section comprised between the upper edge of the end panel (3) and the upper edge of the extension (3') itself; having contemplated in this case that on the upper edge of the side panels (4) pairs of upper flanges (10") are included complementary of respective cut-outs (11") provided in the lower part.

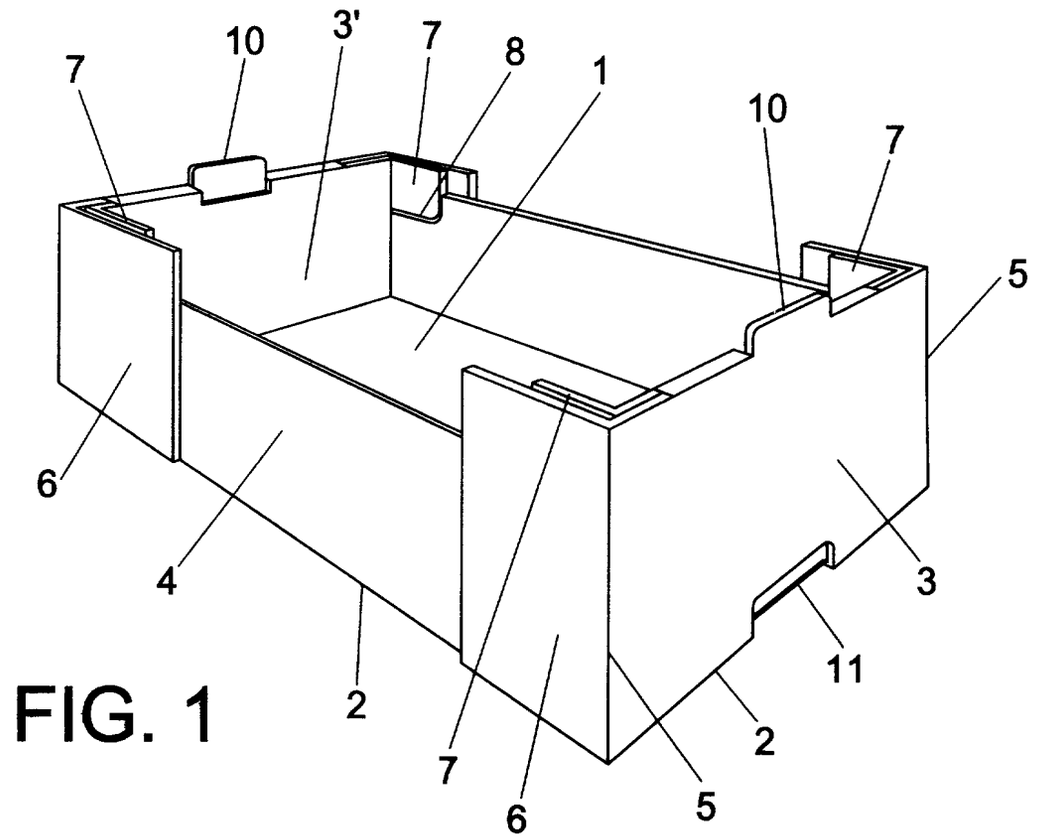

FIG. 1

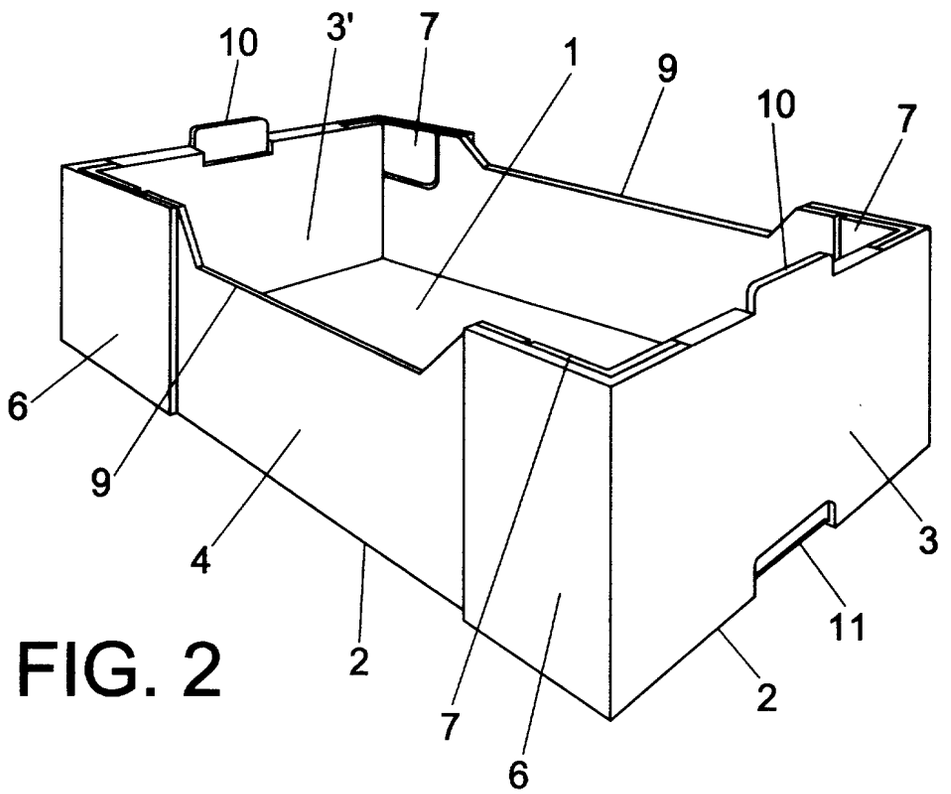

FIG. 2

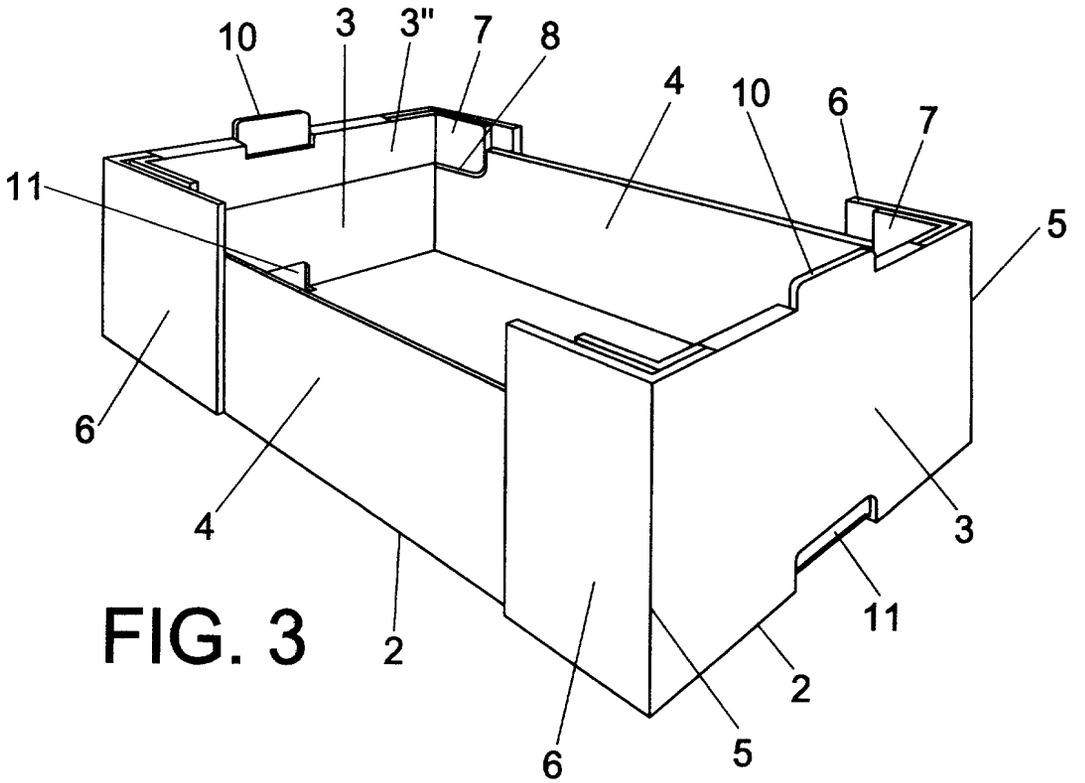

FIG. 3

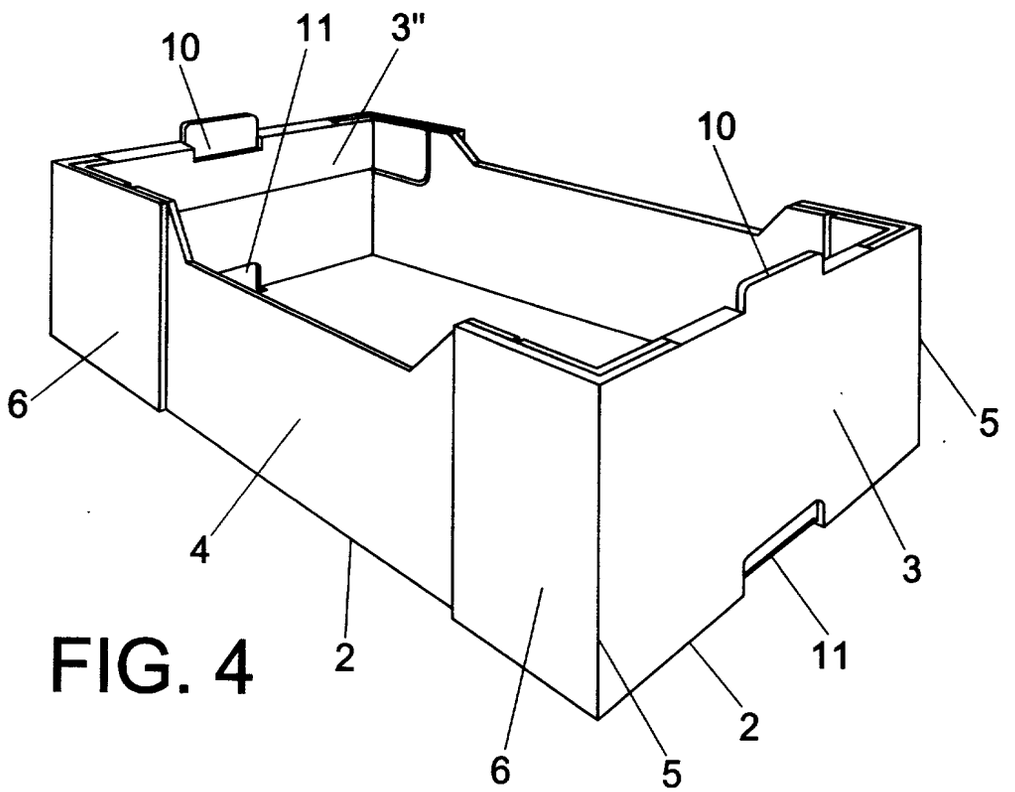

FIG. 4

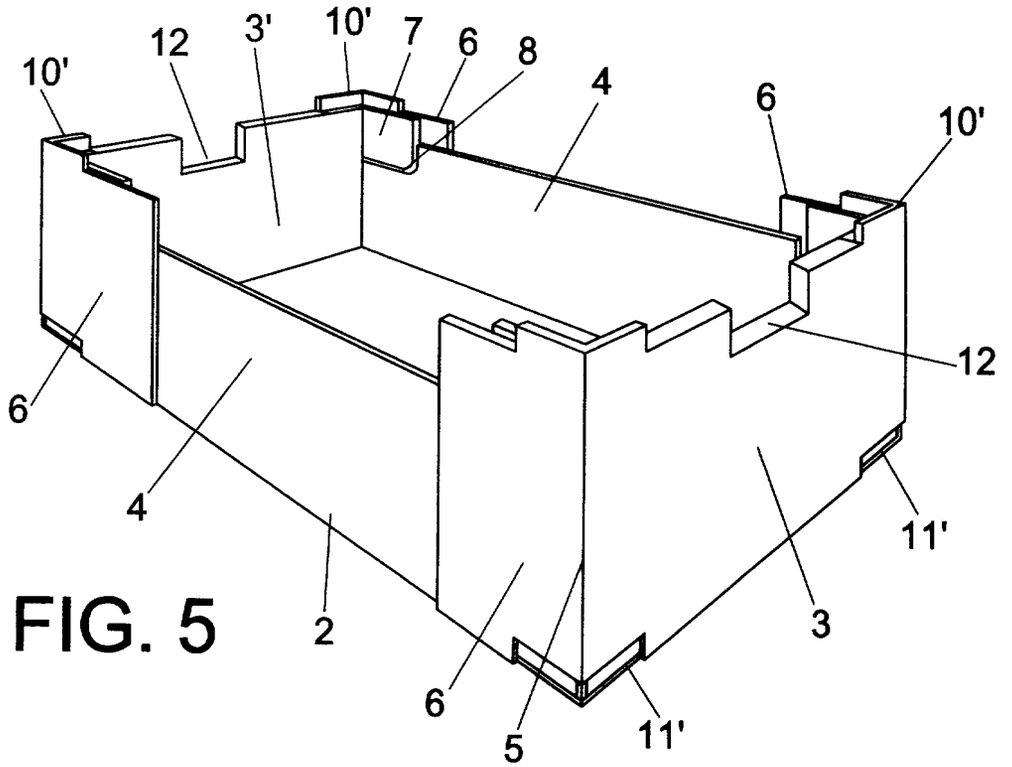
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FIG. 5

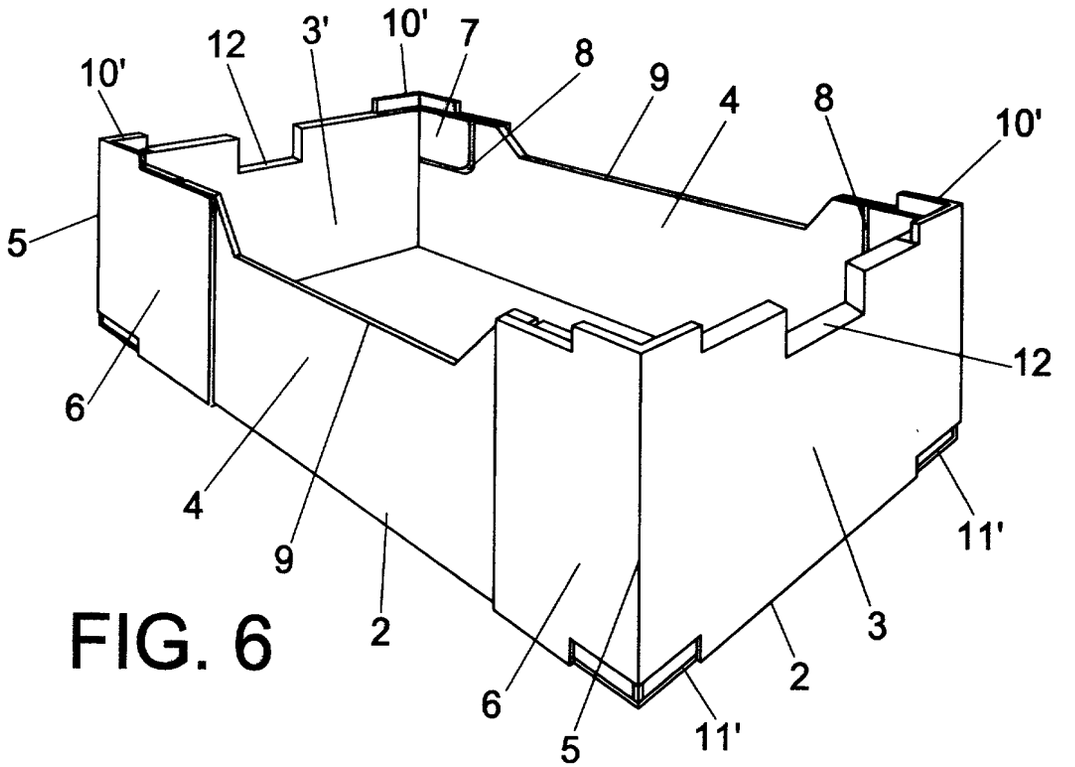
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FIG. 6

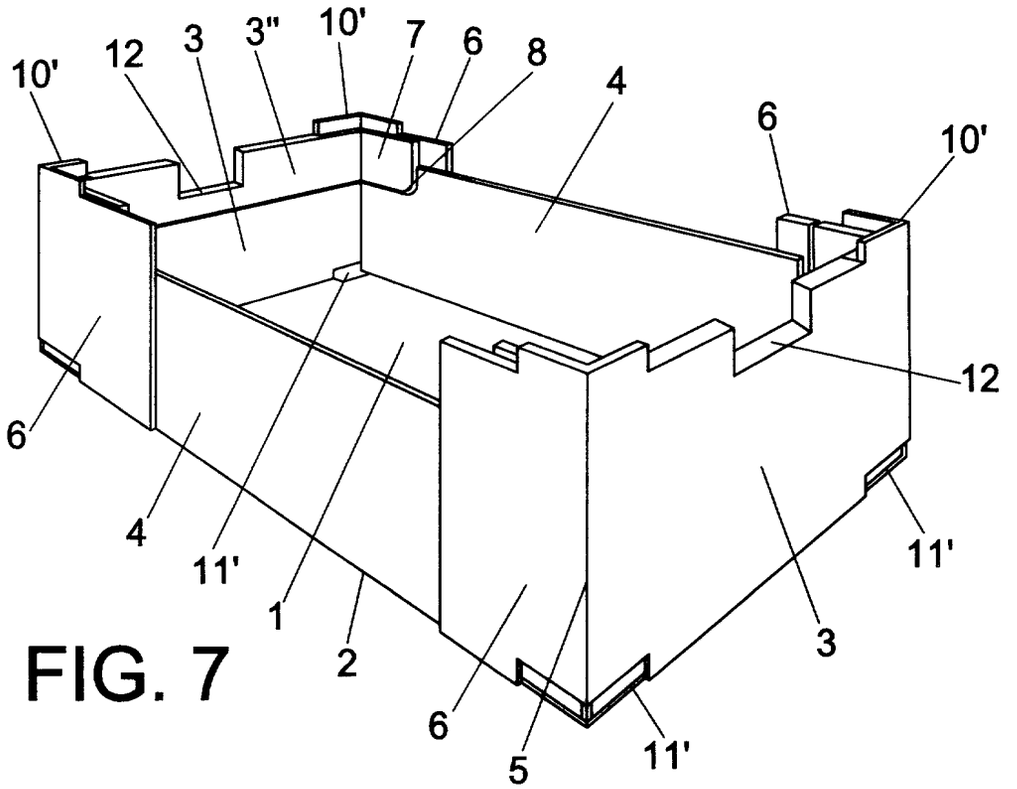
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FIG. 7

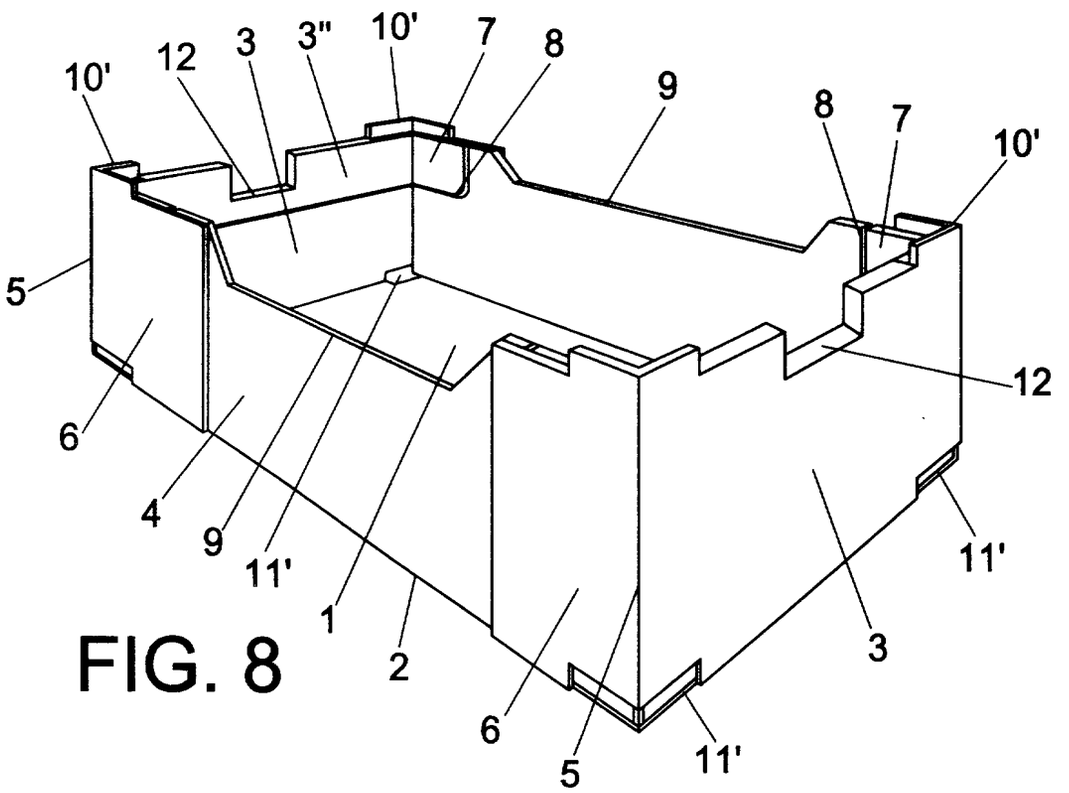
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FIG. 8

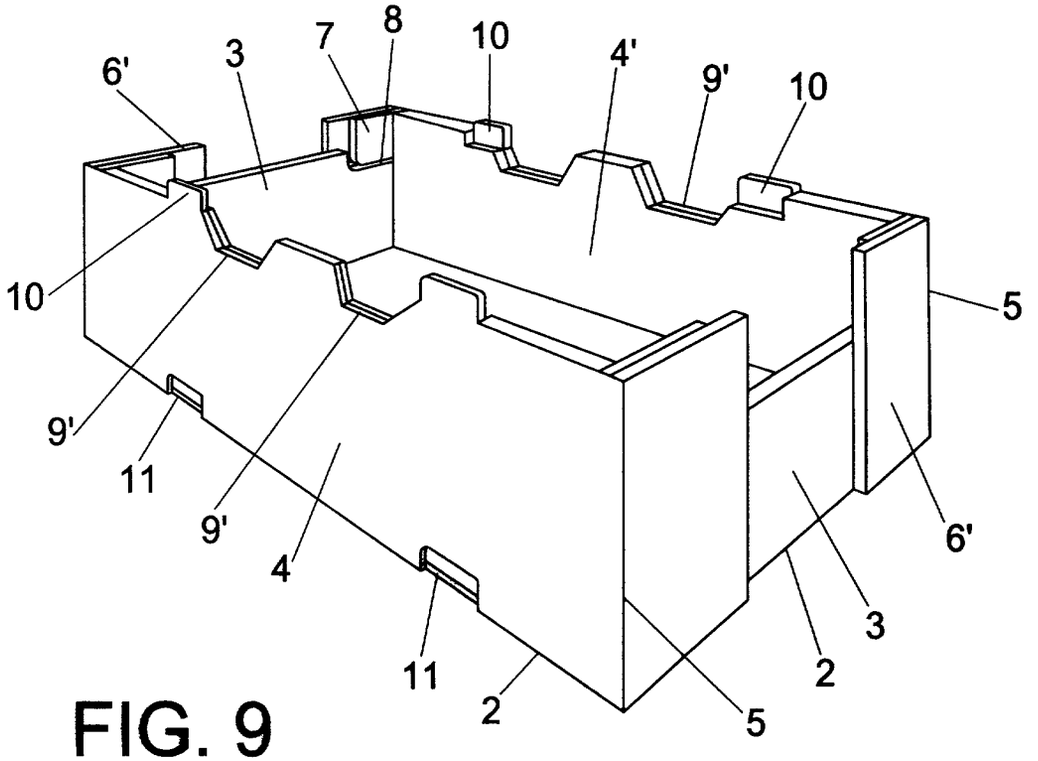

FIG. 9

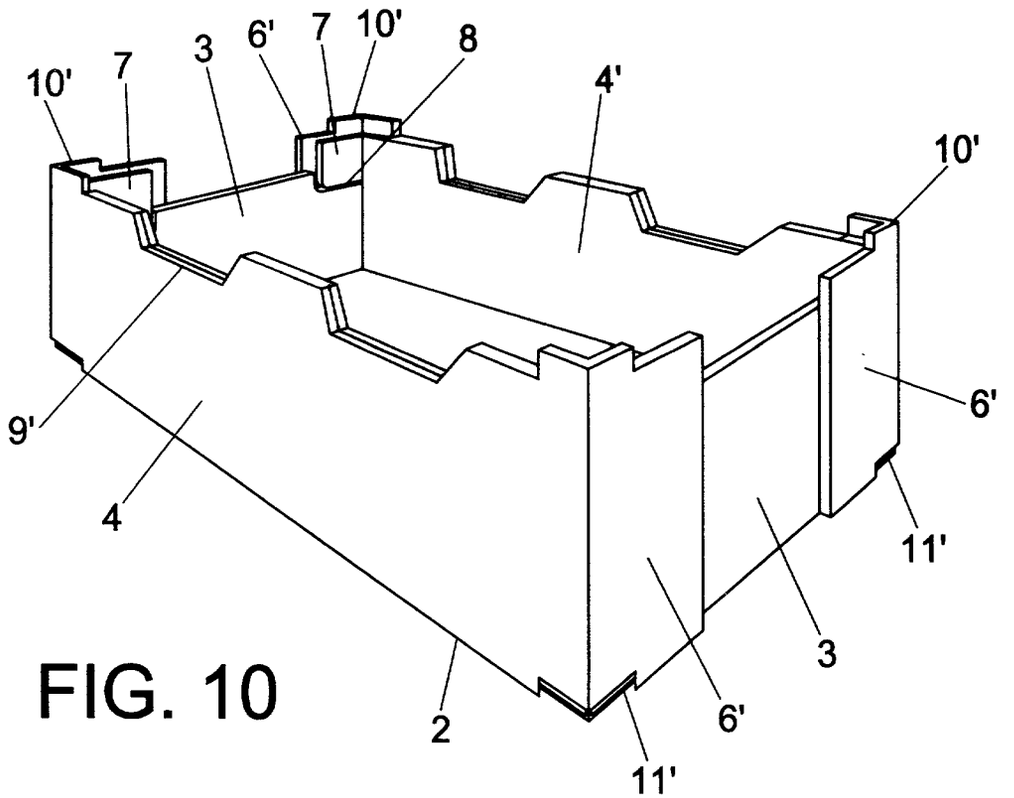

FIG. 10

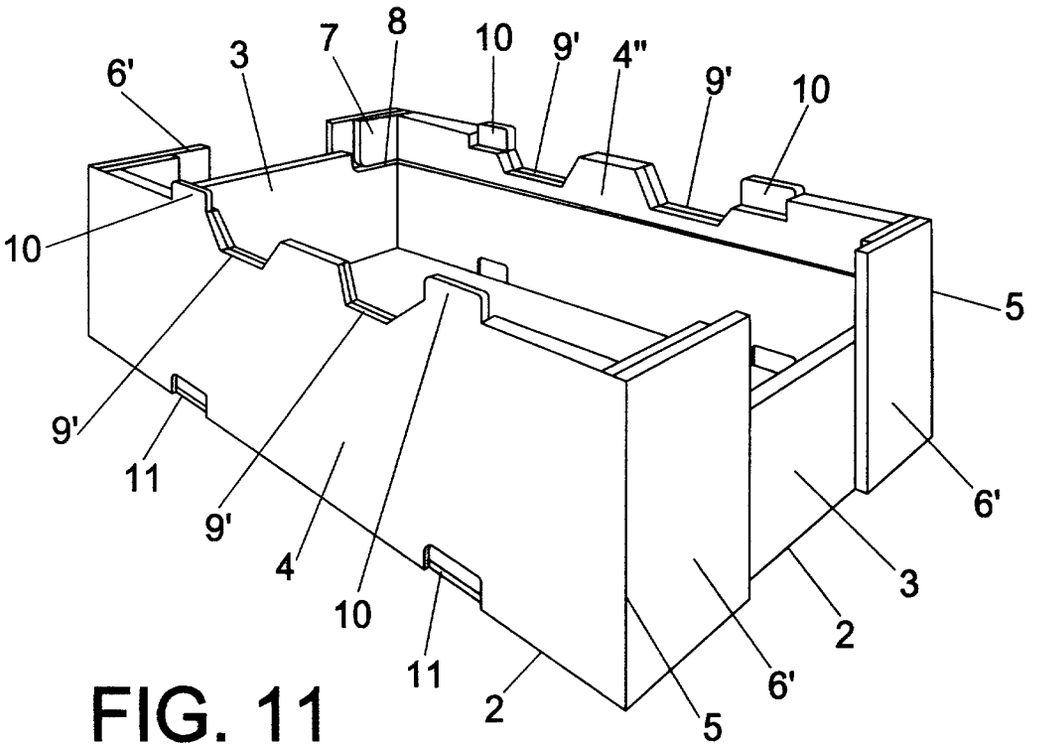
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FIG. 11

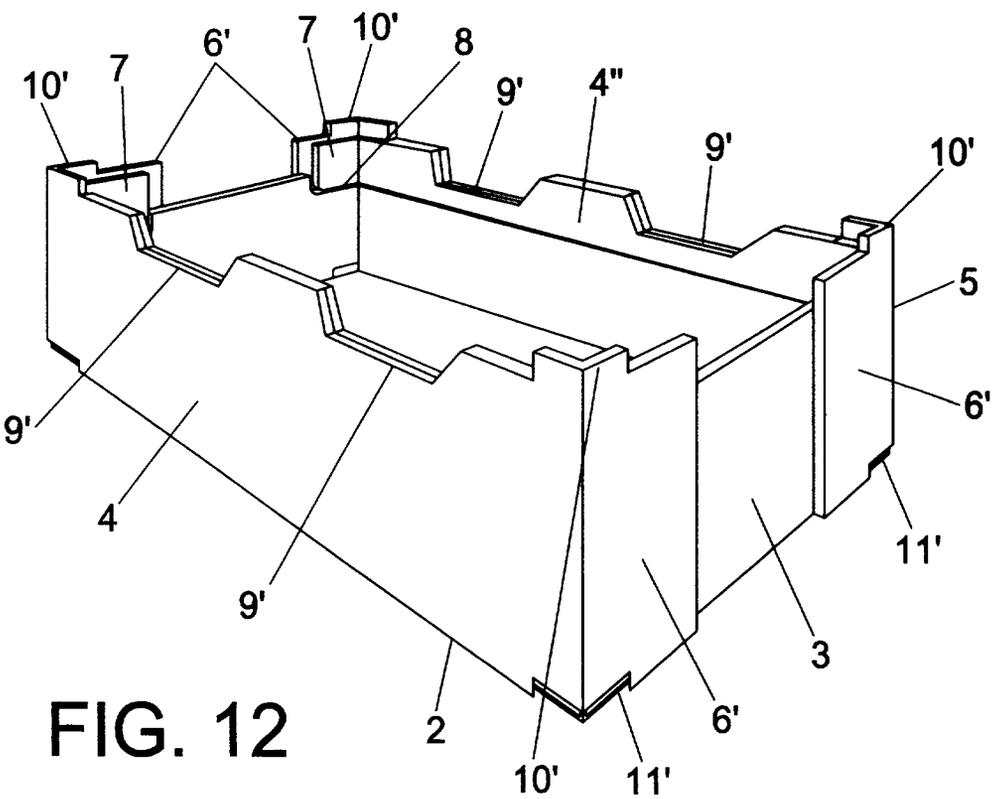
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FIG. 12

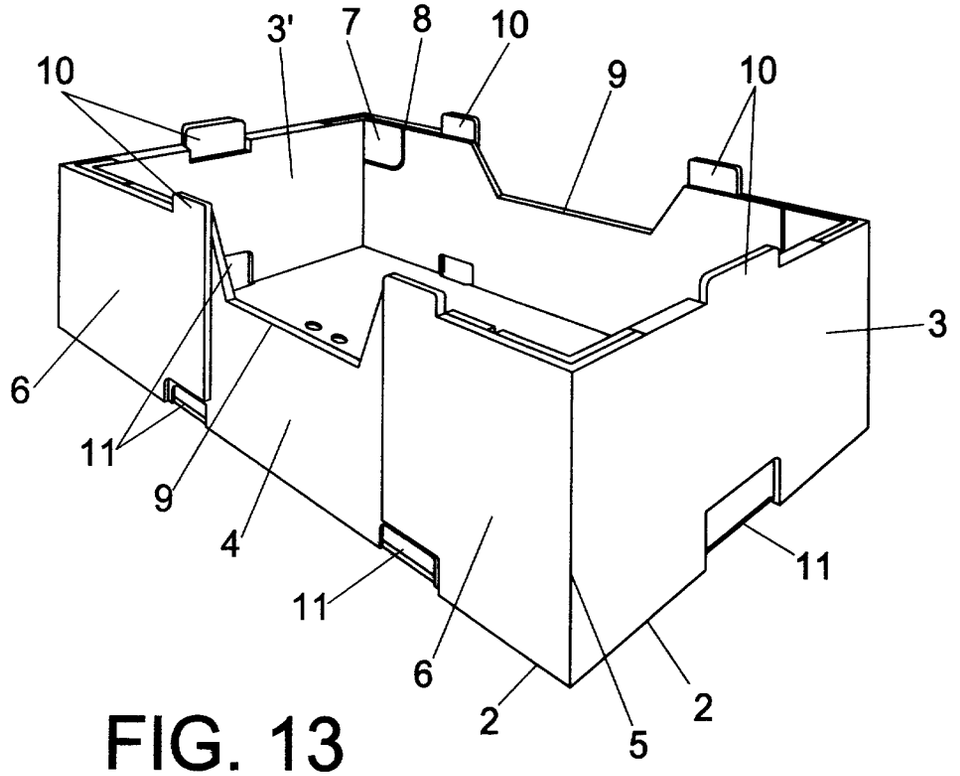
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FIG. 13

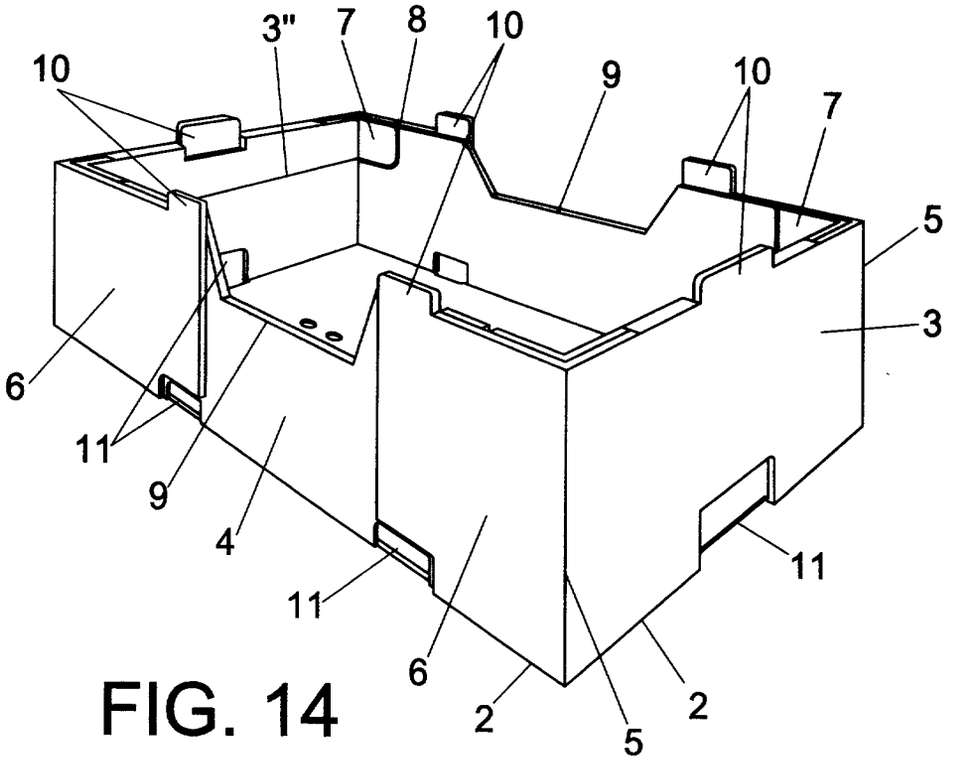
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FIG. 14

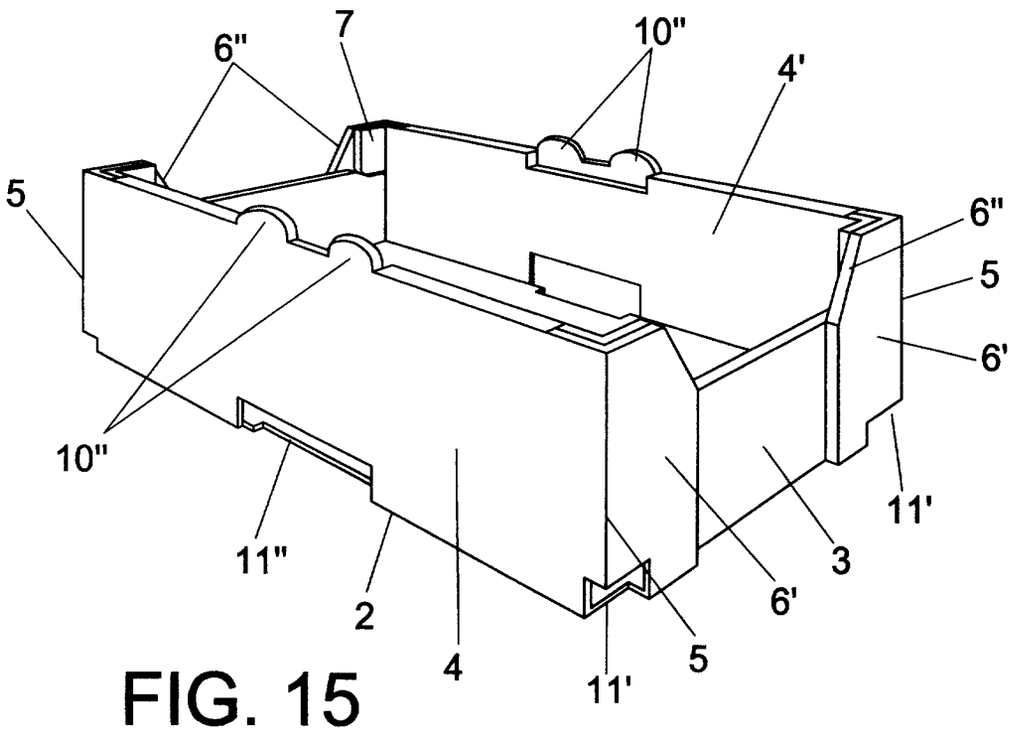

FIG. 15

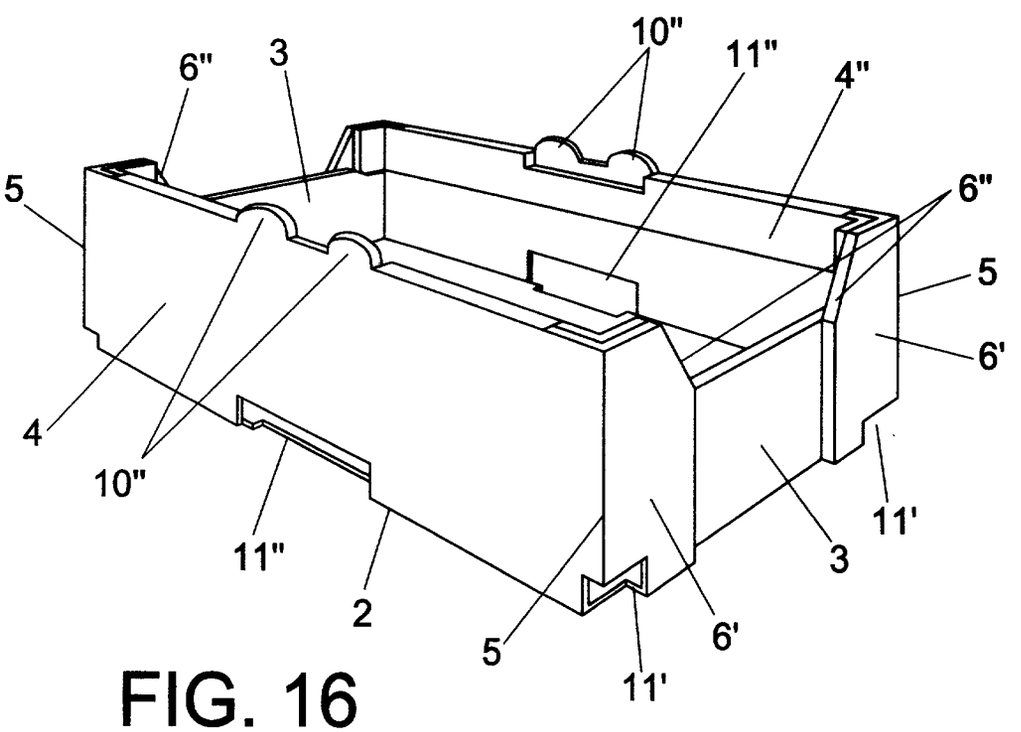

FIG. 16

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 50 0238

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X Y A	DE 41 29 458 A (EMBALAJE IBEROAMERICANA) 29 October 1992 (1992-10-29) * the whole document *	1-4,7,8,10 5,6,9 11	B65D5/00
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