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(54)

An interlayer insert for palettisation

(57)

The present invention concerns an interlayer insert (5) for palettisation comprising a substantially horizontal base board (1) to be inserted between two layers (7) of a pallet (9), each layer comprising a plurality of individual packages (8), **characterized in that** said insert (5) further comprises at least one flap (6) extending downwardly and/or at least one flap (6) extending upwardly from said base (1) into said lower and/or upper layer(s) (7) respectively, so that said at least one flap (6) is inserted and maintained between at least two individual packages (8) of the corresponding layer.

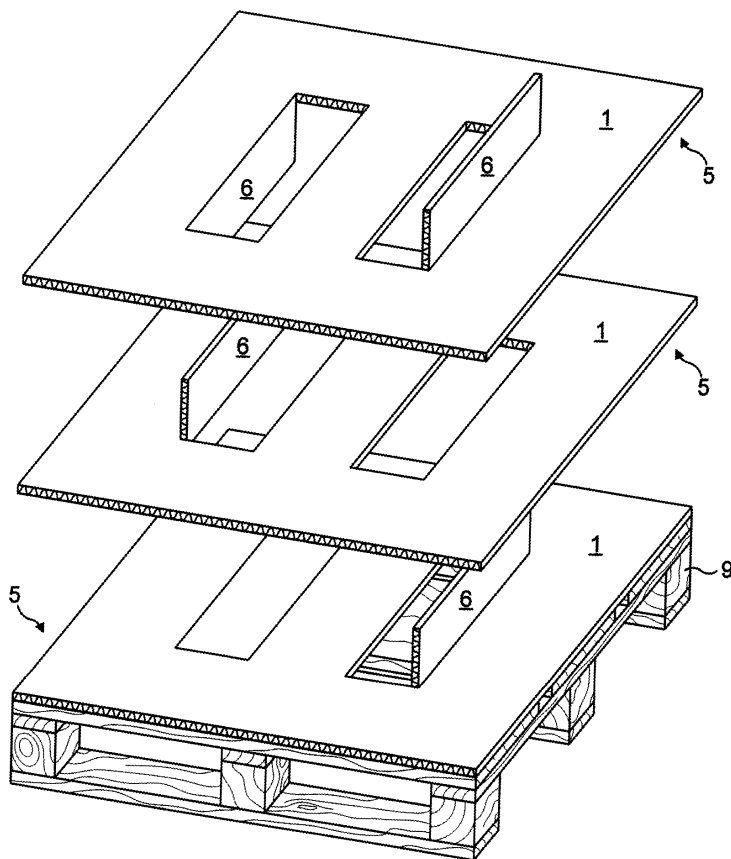


FIG. 7

Description

Field of the invention

[0001] The present invention concerns a new palettisation system, specifically a 3D palettisation system that improves the overall stability of the pallet formed therewith.

Background of the invention

[0002] In palettisation systems like other packing and packaging areas, it is more and more important to restrict the amount of packaging material used for cost and environmental reasons, or at least use recyclable materials and systems.

[0003] In the palettisation systems, it is however important to improve the stability of the pallets so that, while the size of a pallet is kept unchanged and the amount of packaging material that is used is decreased, the overall mechanical properties of the pallet are improved.

[0004] Different systems have been developed which involve stretching films for wrapping the pallet once it is constituted, or similar systems. However, such over wrapping film solutions require a specific equipment to wrap the pallet with film, and also require quite a large amount of packaging material, or even several materials.

[0005] In the French patent FR 2 229 235 to Alfred Weibel, a system of pallet interlayer inserts is described, wherein the interlayer inserts comprise external edges with bent portions which extend upwardly and/or downwardly to prevent lateral sliding movements of the interlayer insert in between two layers of palletised packages. While providing a solution to the risk of sliding of the insert, this solution however does not give additional stability to the pallet.

[0006] It is therefore a main purpose of the present invention to provide an alternative interlayer insert to the existing systems, that solves the above listed disadvantages and issues. It is for instance a purpose of the present invention to provide a new interlayer insert for pallets, that is cheap, if possible recyclable, provides a good stability to the pallet and decrease or even removes the need for additional overwrapping film to hold the pallet together in a stable configuration, while having a reduced environmental impact.

Summary of the invention

[0007] The above listed purpose and needs are met by the present invention with an interlayer insert for palettisation comprising a substantially horizontal base board to be inserted between two layers of a pallet, each layer comprising a plurality of individual packages, **characterized in that** said insert further comprises at least one flap extending downwardly and/or at least one flap extending upwardly from said base into said lower and/or upper layer(s) respectively, so that said at least one flap

is inserted and maintained between at least two individual packages of the corresponding layer.

[0008] Due to the mechanical interaction of the flap or flaps with upper and/or lower layers of the pallet, the overall cohesion of the said pallet is highly improved. More particularly, due to the friction of the flap(s) which is/are therefore held in place between the individual packages of the upper and/or lower layers, in addition to the friction forces of the base that is held in place between the upper and lower layers of the said pallet, the whole pallet construction is coherent mechanically, and shows a high resistance to lateral deformation.

[0009] By "resistance to lateral deformation", it is meant resistance to forces applied externally to the pallet in a direction substantially perpendicular to the pallet vertical axis.

[0010] Preferably, the base of the said insert is substantially flat.

[0011] Also preferably, the insert according to the invention comprises at least two flaps, which can advantageously be disposed along non parallel plans.

[0012] Said flaps can also be disposed along substantially orthogonal plans.

[0013] In another possible embodiment of the invention, said at least one flap can advantageously be attached to at least one package of a layer, in a removable manner, for instance by at least one spot of glue.

[0014] In a highly preferred embodiment of the invention, the interlayer insert is formed integrally in one piece, such that said at least one flap forms one piece with the base.

[0015] Preferably, the insert of the invention is made out of a material selected from the list of: monolayer or multilayer cardboard, corrugated cardboard, monolayer or multilayer thermoplastic, corrugated plastic, thermoplastic film, wood or wood particles, expanded polystyrene, polymer foam such as polyurethane foam, or a combination thereof.

[0016] The present invention is further directed to a pallet comprising at least two layers, each layer comprising at least two individual packages, **characterized in that** said layers are separated by an interlayer insert having any of the above described characteristics.

[0017] In such a pallet, the individual packages can be either primary packages such as bottles, cans or containers, or secondary packages such as shrink-filmed or stretch-filmed groups of primary packages.

Brief description of the drawings

[0018] Additional features and advantages of the present invention are described in, and will be apparent from, the description of the presently preferred embodiments which are set out below with reference to the drawings in which:

Figures 1A to 1F are schematic top views showing flat boards with different configurations of precut

flaps for making interlayer panels according to the invention ;

Figure 2 is a schematic side view of the interlayer board shown in figure 1 E with flaps deployed ;

Figure 3 is a schematic side view of the interlayer board shown in figure 1 F with flaps deployed ;

Figure 4 is a schematic side view showing a plurality of superimposed interlayers made from the board according to figure 1C, with flaps deployed ;

Figure 5 is a schematic side view showing a plurality of superimposed interlayers made from the boards according to figure 1A and 1 B, with flaps deployed ;

Figure 6 is a schematic perspective view showing a plurality of superimposed interlayers similar to figure 4 ;

Figure 7 is a schematic perspective view similar to figure 6, wherein the plurality of interlayers is disposed above a pallet ;

Figure 8 is a schematic side view similar to figure 7, showing interlayers in place into a pallet, holding secondary packages (groups of bottles) ;

Figure 9 is a view similar to figure 8, showing a configuration of interlayer boards formed from the flat boards illustrated in figures 1A, 1 B, and 5.

Detailed description of the invention

[0019] Figures 1A to 1 F illustrate different configurations of flat boards 1 for making an interlayer insert for palettisation according to the present invention.

[0020] The boards 1 are made out of any suitable material that is inexpensive, ecological, mechanically resistant, and easy to cut in predetermined configurations and dimensions. Such materials include, but are not limited to, flat cardboard, corrugated cardboard, flat plastic, corrugated plastic, metal sheets, paper, or a combination thereof.

[0021] Each board 1 comprises at least one precut portion 2, preferably at least two. Each precut portion 2 illustrated in figure 1A, 1B, 1C, 1D, resembles a rectangle which has three of its sides 3 which are completely cut. One remaining side of the precut portion 2 is kept uncut and defines a hinge 4 (shown in dotted lines in the drawing).

[0022] Other shapes for the precut 2 - triangular, semi-elliptic, trapezoidal, or else - can be applied, depending on the size, shape or configuration of the packages to stack into an assembly and hold.

[0023] Figure 1E illustrates an alternative flat board 1 for making an interlayer insert according to the invention, wherein the precut portions 2 are rectangular and disposed by pairs in a symmetrical disposition relative to the longitudinal, respectively, transversal axis of the board.

[0024] Figure 1F shows another alternative flat board with 2 pairs of trapezoidal precut zones, each pair comprising precut portions disposed symmetrically around longitudinal, respectively transversal axis of the flat

board.

[0025] In order to make an interlayer insert 5 according to the present invention, at least some of the precut portions 2 of a flat board 1 are unfolded and deployed, above and/or below the plan of the said flat board, in order to create deployed flaps 6. Preferably, but not necessarily, the flaps 6 are deployed at a 90° angle from the board plan, as illustrated in side views 2 to 5.

[0026] Figure 2 shows an interlayer 5 with unfolded flaps 6 deployed at a 90° angle relative to the board plan, along precut portions 2 described above and shown in figure 1E. A pair of flaps 6 is deployed above the board plan, while the other pair of flaps 6 is deployed below the said plan. In this way, the interlayer insert 5 is configured to be mechanically linked to layers 7 of packages 8 disposed above and below the board plan in a packaging assembly.

[0027] Figure 3 illustrates a similar interlayer 5 than the one described above for figure 2, but wherein the flaps 6 have a trapezoidal shape. This interlayer insert 5 is produced from the flat board 1 shown in figure 1 F.

[0028] When the precut portions 2 of several flat boards 1 illustrated in figure 1C, are deployed above and below the board plan, and superimposed, a stack of interlayers is prepared as shown in figure 4, as would be installed between layers of a packaging assembly, for instance in a pallet that will be described hereinafter. Similarly, a stack of interlayer inserts 5 with deployed flaps 6 is shown in figures 5, 6, or 7 that comprises several interlayer inserts 5 made from flat boards 1 shown in figure 1A or 1B.

[0029] As can be understood, a plurality of interlayer inserts 5 having different configurations of flaps can be gathered and stacked in a pallet.

[0030] A pallet 9 can therefore be prepared, as shown in figures 8 or 9, which illustrate the use of interlayer inserts 5 made from flat boards 1 with flaps configurations shown in figures 1C, 4, 6, 7, and respectively figures 1A, 1 B, and 5.

[0031] Of course, as shown in figures 8 and 9, a flap 6 that belongs to the interlayer insert disposed under the bottom layer of a pallet, and should normally be unfolded downwardly, is not deployed as it is directly in contact with the pallet disposed below.

[0032] As shown in figures 8 and 9, the interlayer inserts 5 according to the invention are inserted between two layers 7 of the pallet 9. Each layer 7 of the pallet 9 comprises a plurality of individual packages 8 disposed in rows.

[0033] The unfolded flaps 6 of the interlayer inserts 5 extend downwardly and upwardly from the board 1 into the lower, respectively upper layers 5 of the pallet 9, so that said flaps 6 are inserted and maintained between individual packages 8 of each corresponding layer 7. In that way, each interlayer insert 5 (except the interlayer insert in direct contact with the pallet board) creates a mechanical link between the upper and lower layers 7 of packages 8 between which it is disposed.

[0034] Each interlayer insert 5 is formed integrally in one piece, such that said at least one flap 6 forms one piece with the base board 1.

[0035] In one possible further embodiment of the present invention, the base board 1 of each interlayer insert 5 is attached, for instance by gluing to the upper and/or lower layers 7 in the pallet 9.

[0036] The interlayer inserts according to the invention are easy to place into a pallet in an automated way, using conventional palettisation techniques. The insert is placed in between layers of packages in the usual way, the flaps being unfolded at the time the interlayer is disposed on the pallet. The unfolding operation can be performed manually, however, in a preferred embodiment, this flap-unfolding process is automated. In that case, it could be done by a robot with vacuum pads to manipulate the flaps. The same robot could place the packs on the pallet as standard palletizer and had the function to take an interlayer and place it on the layer of the pallet. It could be as well a mix between standard palletizer and a robot for the interlayer.

[0037] It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

Claims

1. An interlayer insert (5) for palettisation comprising a substantially horizontal base board (1) to be inserted between two layers (7) of a pallet (9), each layer comprising a plurality of individual packages (8), **characterized in that** said insert (5) further comprises at least one flap (6) extending downwardly and/or at least one flap (6) extending upwardly from said base (1) into said lower and/or upper layer(s) (7) respectively, so that said at least one flap (6) is inserted and maintained between at least two individual packages (8) of the corresponding layer.
2. An insert (5) according to claim 1, wherein the base (1) of the said insert is substantially flat.
3. An insert (5) according to any of the claims 1 or 2, which comprises at least two flaps (6).
4. An insert (5) according to the preceding claim 3, wherein said at least two flaps (6) are disposed along non parallel plans.
5. An insert (5) according to claim 4, wherein said flaps (6) are disposed along substantially orthogonal plans.
6. An insert (5) according to any of the preceding claims, wherein said at least one flap (6) is attached to at least one package (8) of a layer (7), in a removable manner.
7. An insert (5) according to claim 6, wherein said flap (6) is attached to said package (8) by at least one spot of glue.
8. An insert (5) according to any of the preceding claims, wherein said at least one flap (6) forms one piece with the base (1).
9. An insert (5) according to any of the preceding claims, which is made out of a material selected from the list of: monolayer or multilayer cardboard, corrugated cardboard, monolayer or multilayer thermoplastic, corrugated plastic, thermoplastic film, wood or wood particles, expanded polystyrene, polymer foam such as polyurethane foam, or a combination thereof.
10. A pallet (9) comprising at least two layers (7), each layer (7) comprising at least two individual packages (8), **characterized in that** said layers (7) are separated by an interlayer insert (5) according to any of the preceding claims 1 to 9.
11. A pallet (9) according to claim 10, wherein said individual packages (8) are primary packages, such as bottles, cans, containers or the like.
12. A pallet (9) according to claim 10, wherein said individual packages (8) are secondary packages, such as shrink-filmed or stretch-filmed groups of primary packages.

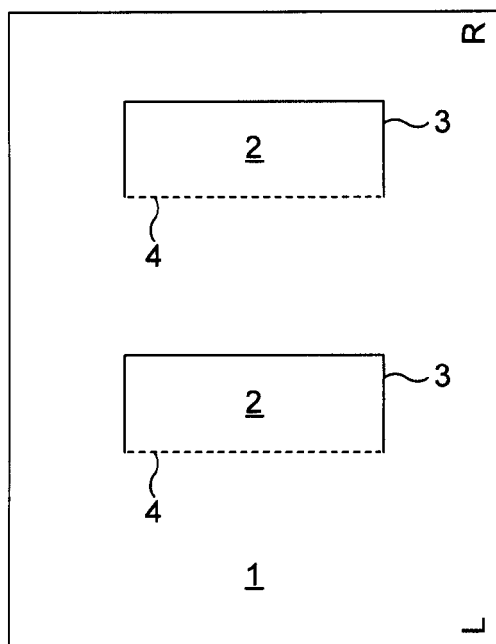


FIG. 1A

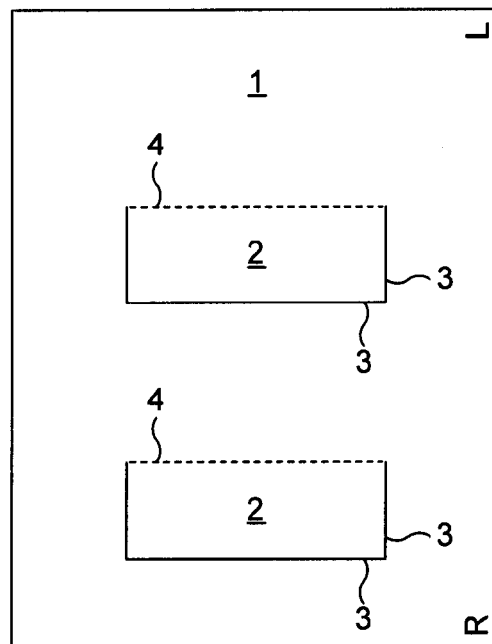


FIG. 1B

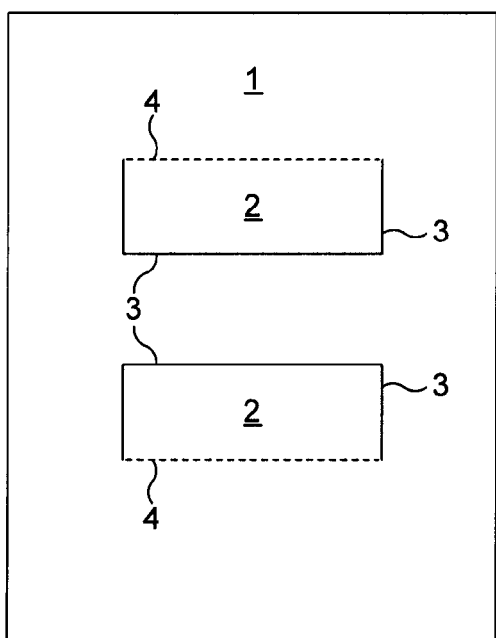


FIG. 1C

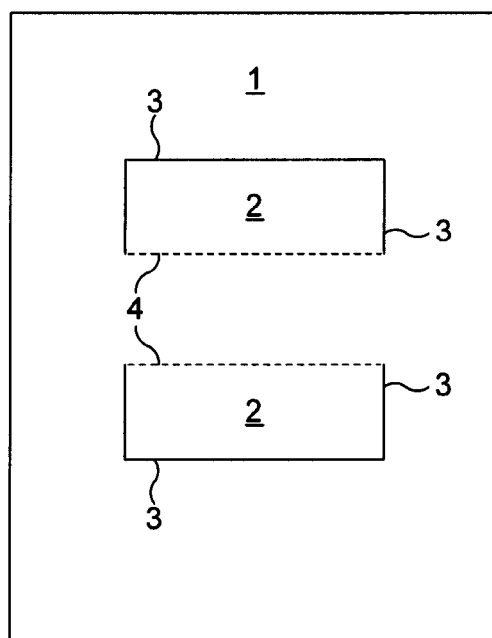


FIG. 1D

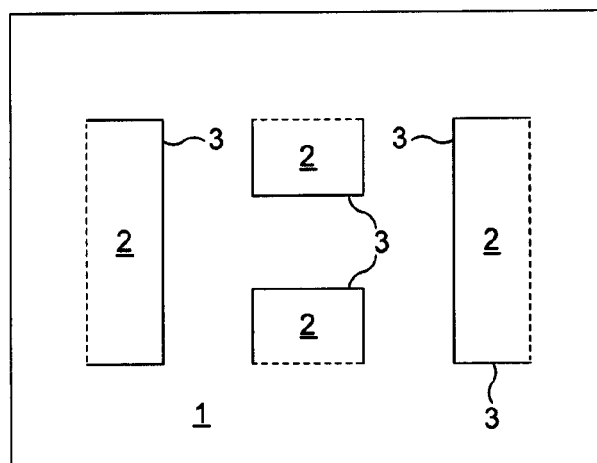


FIG. 1E

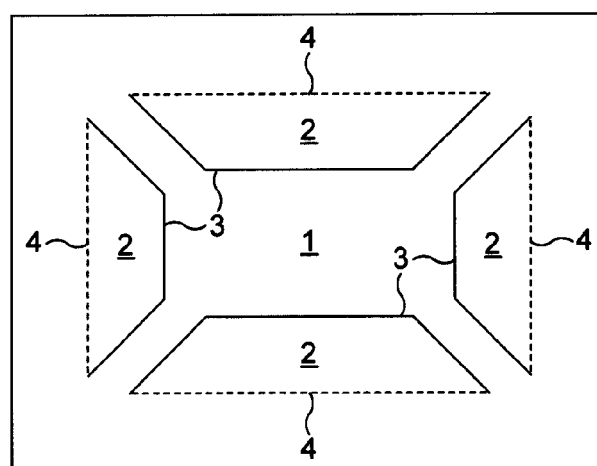


FIG. 1F

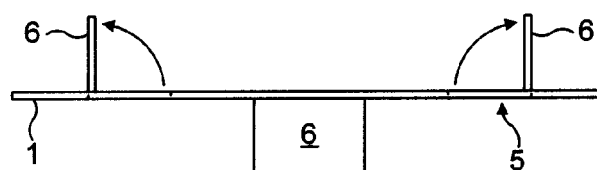


FIG. 2

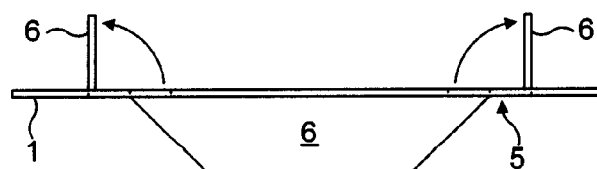


FIG. 3

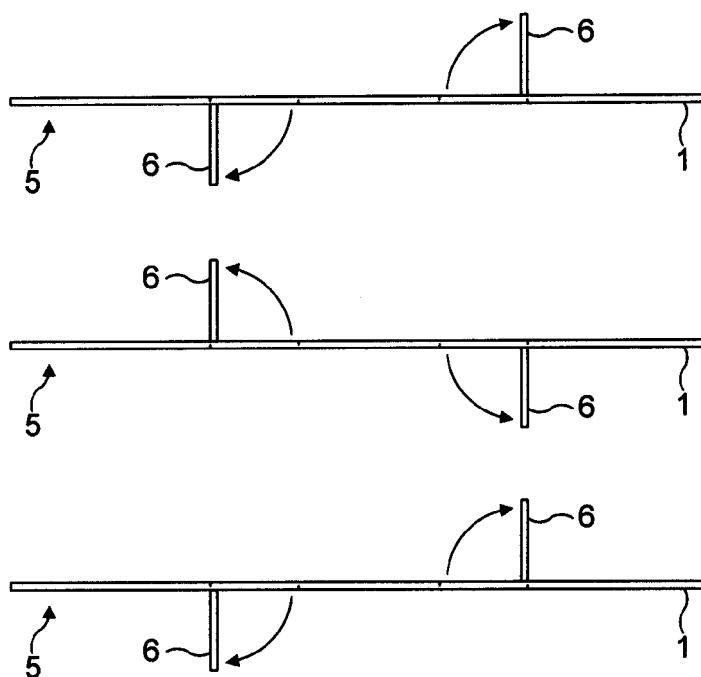


FIG. 4

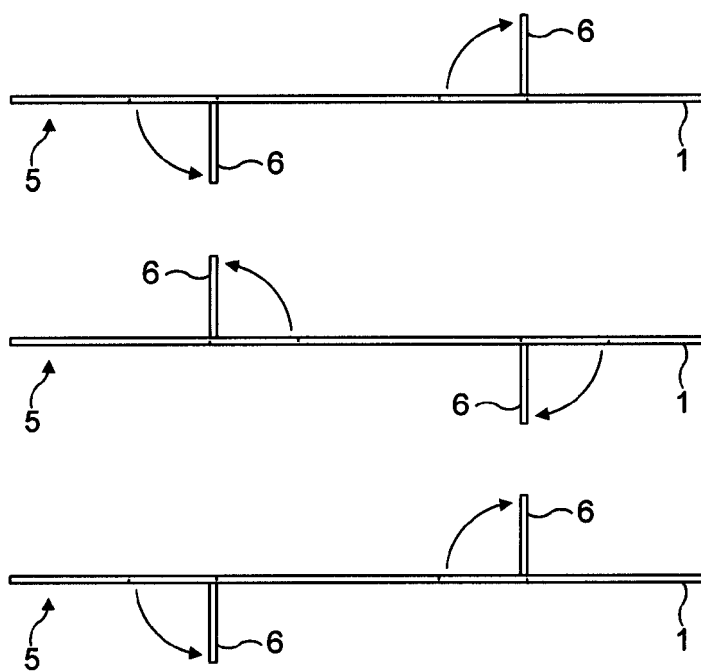


FIG. 5

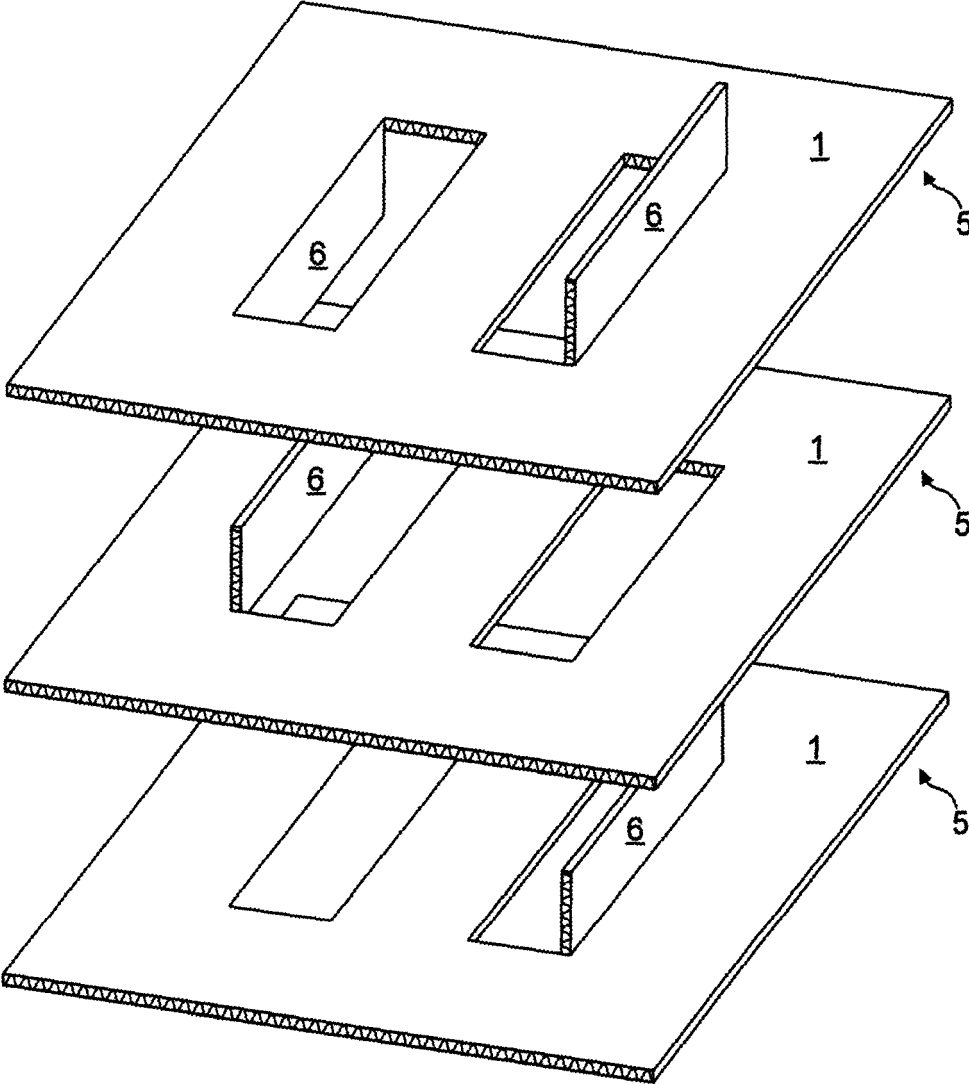


FIG. 6

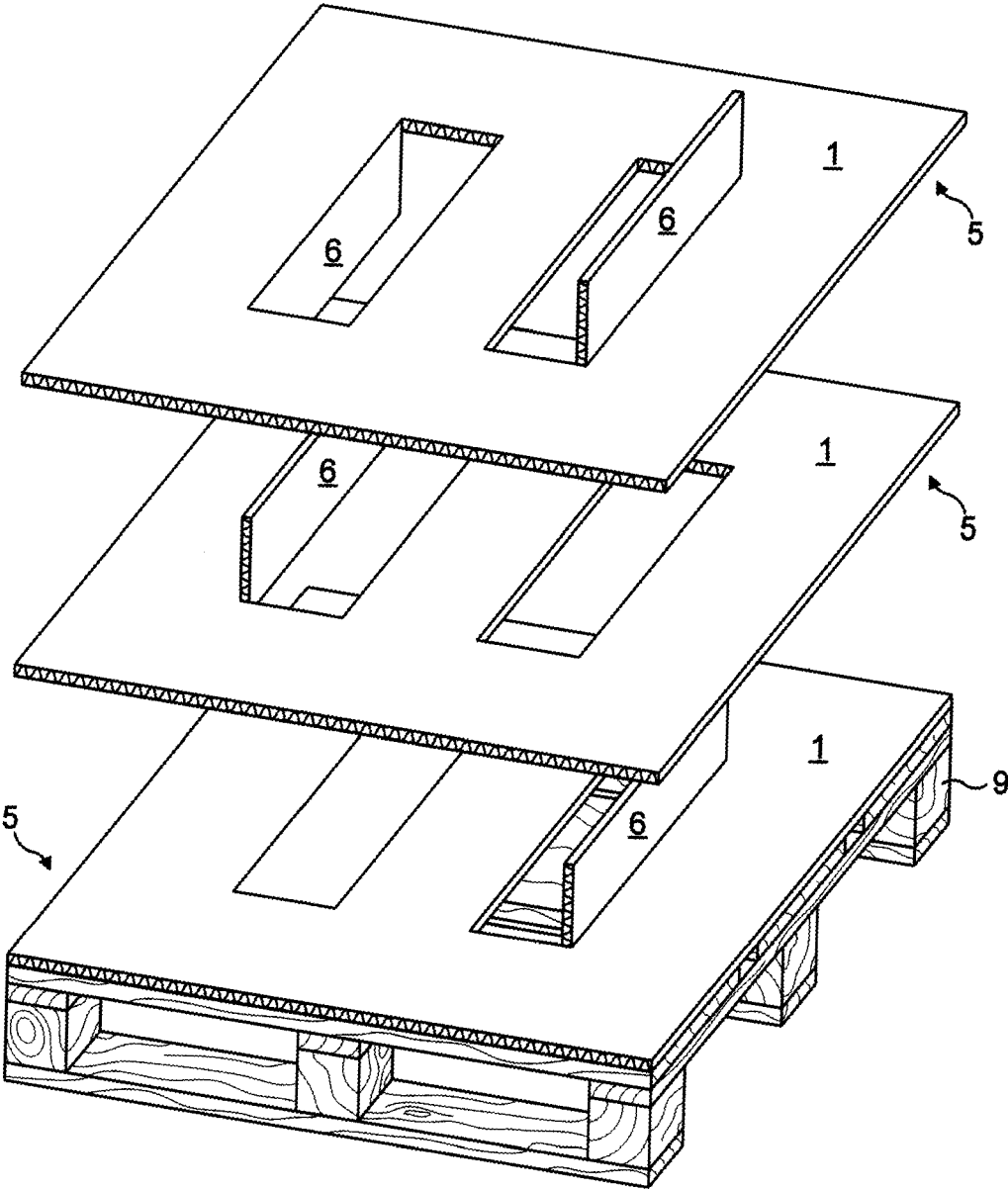


FIG. 7

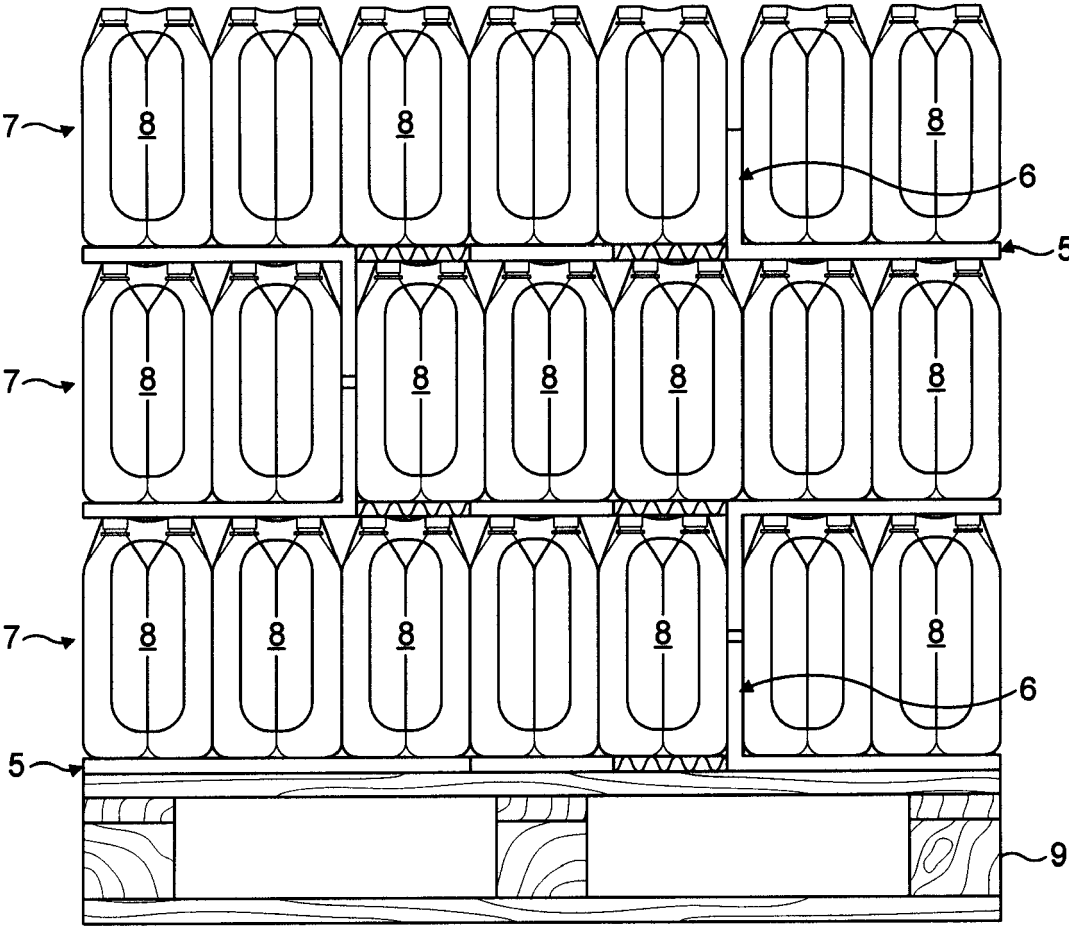


FIG. 8

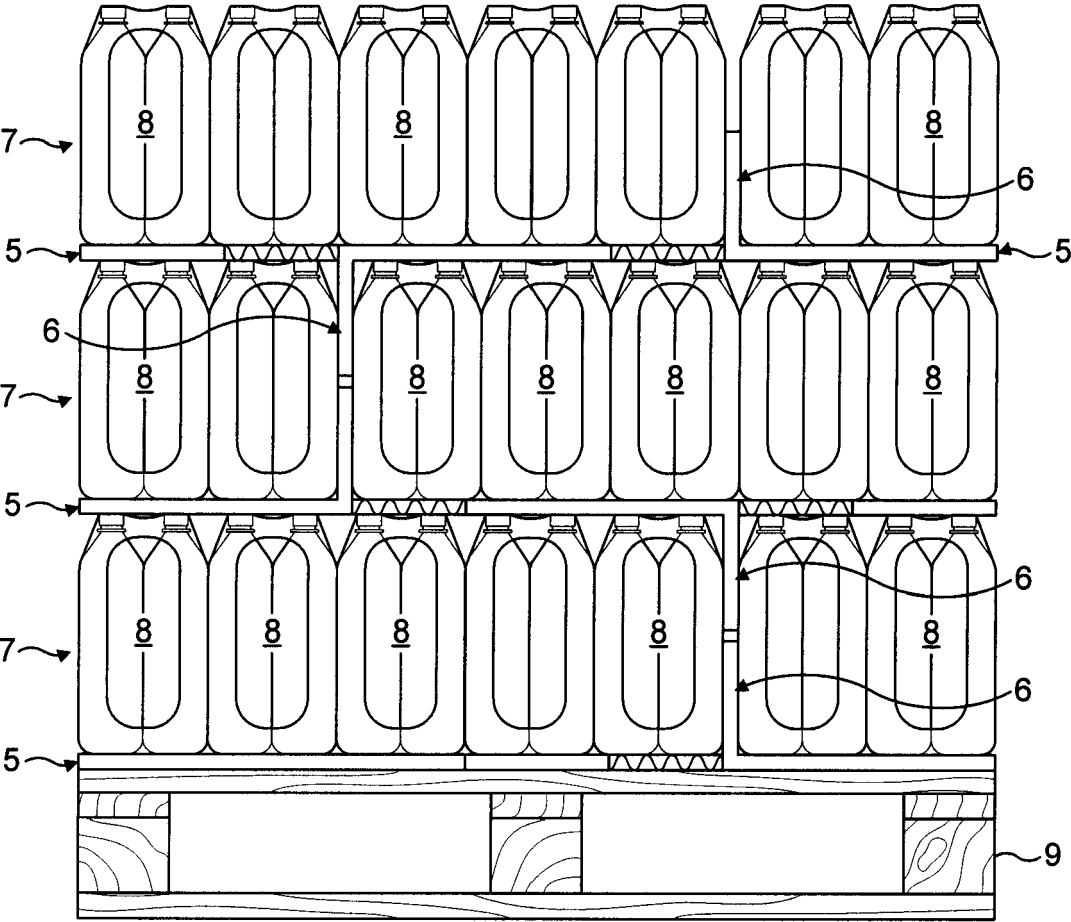


FIG. 9



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 08 10 1647

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 75 17 157 U (RICKERTSON PRODUKTION GMBH [DE]) 2 October 1975 (1975-10-02)	1-5,8-12	INV. B65D57/00 B65D71/00
Y	* page 5, line 2 - page 6, line 22; figures 1-7 *	6,7	
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A	----- GB 09248 A A.D. 1910 (HOSKING ERNEST [AU]) 21 July 1910 (1910-07-21) * the whole document *	1	
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			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 7 July 2008	Examiner Appelt, Lothar
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 10 1647

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07-07-2008

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REFERENCES CITED IN THE DESCRIPTION

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