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(54) A reinforced packaging assembly

(57) The present invention is directed to a secondary packaging (4) comprising a plurality of individual primary packages (1) and at least one envelope (2) that gathers and holds the said primary packages together, **characterized in that** at least two adjacent individual primary packages within the envelope (2) comprise attaching means (6) so as to prevent any movement of one primary package relative to the other.

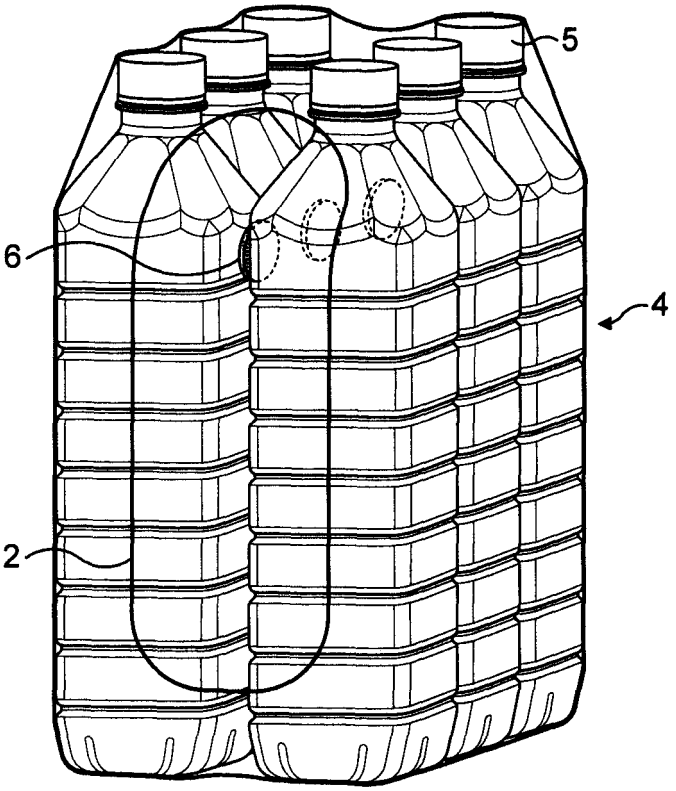

FIG. 4

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Description

Field of the invention

[0001] The present invention concerns a reinforced secondary packaging assembly, more particularly a secondary packaging assembly wherein the cohesion between primary packages contained therein is improved.

Background of the invention

[0002] Usually, primary packages such as for instance mineral water bottles, are gathered together in groups into a secondary package such as a shrinkable or stretch film. Then secondary packages are grouped into layers and stacked to form a pallet for storage and transportation.

[0003] While this constitutes a convenient way of handling, storing, and distributing groups of primary packages such as water bottles 1, the film 2 used for the secondary packaging of bottles shows some disadvantages. One main disadvantage is that in some conditions, particularly during difficult transport conditions where the packs are shaken, the primary packages slide against one another, which results in some secondary packages being deformed as illustrated in figures 1 and 2. This is highly undesirable and it results in the whole pallet 3 being unstable and deformed as shown in figure 1, which may even result in some secondary packages in the pallet that fall down during transportation or during handling.

[0004] Such a situation is a major inconvenient, not only for the damage that may be caused to the packages, but also it represents a danger for the manual workers handling the pallets, as some of the packs which are unstable in the pallet may fall on them and cause injuries.

[0005] The German Utility Model DE 20 2006 000 215 U1 attempts to provide a solution to improved cohesion of individual primary packages that are grouped together. Specifically, this utility model discloses a band of adhesive material that encloses the group of individual primary packages to be gathered and secured together. However, this solution does not provide a solution for sliding of primary packages that are disposed inside the group, i.e. those packages in the group which are not disposed on the periphery of the group. Such internally disposed packages are therefore not maintained like the peripheral ones, so that they can slide anyway. More than that, the peripheral tape that is provided is made of a flexible material and hence, may bend or twist if cutting - opposed - forces are applied to the group of packages for instance during transportation, which would inevitably result in sliding of the primary packages one against the others anyway.

[0006] It is therefore a primary object of the present invention to provide a solution to strengthen the secondary packs, and especially increase their resistance to lateral mechanical constraints which may appear during handling or transportation.

Summary of the invention

[0007] The main objective of the invention as mentioned above is met with a secondary packaging comprising a plurality of individual primary packages and at least one envelope that gathers and holds the said primary packages together, **characterized in that** at least two adjacent individual primary packages within the envelope comprise attaching means so as to prevent any movement of one primary package relative to the other.

[0008] Due to the fact that at least two, preferably all adjacent primary packages within the package are attached to one another, the contents of the secondary packaging envelope forms a solid block of primary packages that can resist more easily the mechanical solicitations that may occur during handling or transportation. Particularly, the overall resistance of the secondary packaging to transversal pressure is highly increased.

[0009] In a first embodiment of the present invention, the attaching means is a spot of natural or artificial glue, said glue being selected within the type of: cold glue, hot melt thermoplastic glue, pressure sensitive adhesives, or a combination thereof.

[0010] In a second embodiment of the present invention, the attaching means is a double sided adhesive tape.

[0011] In a third embodiment, the attaching means comprises hoop-and loop fasteners of the Velcro® type.

[0012] In a fourth embodiment, the attaching means comprises a sprayed layer, or a mat, of anti-slip agent.

[0013] In a fifth embodiment of the present invention, the attaching means comprises at least one protrusion disposed along the wall of one primary package, and at least one recess disposed along the wall of an adjacent primary package, said protrusion and recess being shaped so as to cooperate in attachment in a releasable manner.

[0014] In a sixth embodiment of the present invention, the attaching means is a magnet disposed along the wall of one primary package, that cooperates in attachment with a metallic part disposed on the wall of another adjacent primary package.

[0015] Advantageously, each primary package within a secondary package can be attached to at least two adjacent primary packages.

[0016] In one possible further embodiment of the present invention, the primary packages are mineral water bottles, made for instance out of polyethyleneterephtalate (PET).

[0017] Possibly, the secondary packaging according to the invention comprises a large number of primary packages wherein at least two, preferably all, adjacent packages are secured together by attaching means, so that said secondary packaging constitutes the layer of a pallet.

[0018] The present invention is further directed to a method of improving the stability of a secondary package according to any of the characteristics listed out above,

characterized in that it comprises the steps of, in order:

(i) ordering and grouping a plurality of primary packages in a predetermined pattern,
(ii) disposing the attaching means between at least two adjacent packages of the plurality of primary packages,
(iii) wrapping around the group of primary packages with a thermal shrinkable plastic film
(iv) conveying the wrapped group of primary packages through a heating tunnel so as to tightly shrink the film around said plurality of packages.

[0019] In one first embodiment of this invention method, the rows of primary packages are linear.

[0020] In a second embodiment of this invention method adjacent rows of primary packages are shifted one relative to the other.

[0021] Finally, the present invention is further directed to a pallet comprising a plurality of layers, each of said layers comprising a plurality of secondary packages according to any of the preceding claims 1 to 11 arranged in rows.

[0022] In a preferred embodiment of a pallet according to the invention, at least two, preferably all, of the secondary packages in a layer which are disposed adjacent to one another, comprise cooperating attaching means to prevent any movement of one secondary package relative to the other.

Brief description of the drawings

[0023] 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:

Figure 1 is a schematic side view of a pallet comprising stacked layers of secondary packages according to figure 2 : the whole pallet is deformed ;
Figure 2 is a schematic side view of a secondary package showing the result of not securing at least some of the primary packages one to another : bottles are tilted by sliding one against the other and the overall secondary pack is hence deformed ;
Figure 3 is a schematic side view of a secondary packaging according to the present invention, showing at least one spot of glue between the primary packages ;
Figure 4 is a schematic perspective view similar to figure 3 ;
Figure 5 is a schematic lateral view showing a row of secondary packages according to the invention, disposed in the layer of a pallet.

Detailed description of the invention

[0024] Figures 3 and 4 illustrate a secondary package 4 according to the invention, which comprises a group of primary packages - in the embodiment example shown in the drawing, the primary packages are water bottles 1 made of polyethyleneterephtalate (PET), which are closed by a screw cap 5 -. The water bottles 1 are grouped and held together as a group with a thermoplastic film envelope 2 that is heat shrunk around the said group of bottles.

[0025] In order to hold the bottles 1 together in a fixed attachment, a spot of glue 6 is disposed in between the bottles, more specifically disposed on the lateral sides of the adjacent bottles. The spot of glue is such that the grip is sufficient to prevent relative movement of the bottles against each other during transportation and handling of the secondary packages 4.

[0026] Basically, it was found that the glue must be sufficient to resist a transversal force on the secondary package 4 which is at least 0.2 Newton.

[0027] As shown more specifically on figure 4, the secondary package comprises 6 bottles which are disposed in two rows of 3 bottles. A spot of glue 6 is disposed between bottles adjacent to one another in the longitudinal direction, and also in the transversal direction of the secondary package. With such a construction, the sliding movement of bottles within the pack is prevented in all directions.

[0028] Figure 5 shows a group of secondary packages according to the invention which are disposed in a row to form the layer of a pallet.

[0029] The spot of glue is placed in between the bottles on line, at the tie the bottles are gathered to form a pack, just before the group of bottles is wrapped in a shrink film envelope. The glue is preferably placed in a hot state on the side wall of each bottle by using a automated nozzle spray system.

[0030] A particular aspect of the invention is directed to a pallet that comprises several layers. Each layer in the pallet is made of an alignment of a plurality of secondary packages (2) as described hereinabove. In order to prevent the further relative movement of the secondary packages (2) in the same layer, attaching means are disposed between two adjacent secondary packages in a layer. These attaching means can be for instance spots of glue, double-sided adhesive tape, hoop-and-loop fasteners, or any other kind of attaching means that is described above to be suitable for releasably attaching two primary packages together in a secondary packages, or a combination thereof.

[0031] 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 mod-

ifications be covered by the appended claims.

Claims

1. A secondary packaging (4) comprising a plurality of individual primary packages (1) and at least one envelope (2) that gathers and holds the said primary packages together, **characterized in that** at least two adjacent individual primary packages (1) within the envelope (2) comprise attaching means (6) so as to prevent any movement of one primary package relative to the other.

2. A secondary packaging (4) according to claim 1, wherein the attaching means (6) is a spot of natural or artificial glue, said glue being selected within the type of: cold glue, hot melt thermoplastic glue, pressure sensitive adhesives, or a combination thereof.

3. A secondary packaging (4) according to claim 1, wherein the attaching means (6) is a double sided adhesive tape.

4. A secondary packaging (4) according to claim 1, wherein the attaching means (6) comprises hoop- and loop fasteners.

5. A secondary packaging (4) according to claim 1, wherein the attaching means (6) comprises a sprayed layer, or a mat, of anti-slip agent.

6. A secondary packaging (4) according to claim 1, wherein the attaching means (6) comprises:

   - at least one protrusion disposed along the wall of one primary package, and
   - at least one recess disposed along the wall of an adjacent primary package, said protrusion and recess being shaped so as to cooperate in attachment in a releasable manner.

7. A secondary packaging (4) according to claim 1, wherein the attaching means (6) is a magnet disposed along the wall of one primary package (1), that cooperates in attachment with a metallic part disposed on the wall of another adjacent primary package (1).

8. A secondary packaging (4) according to any of the preceding claims 1 to 5, wherein each primary package (1) within a secondary package is attached to at least two adjacent primary packages.

9. A secondary packaging (4) according to any of the preceding claims, wherein the primary packages are mineral water bottles.

10. A secondary package (4) according to any of the preceding claims, which constitutes the layer of a pallet.

11. A method of improving the stability of a secondary package according to any of the preceding claims 1 to 9, **characterized in that** it comprises the steps of, in order:

    (i) ordering and grouping a plurality of primary packages in a predetermined pattern,
    (ii) disposing the attaching means between at least two adjacent packages of the plurality of primary packages,
    (iii) wrapping around the group of primary packages with a thermal shrinkable plastic film
    (iv) conveying the wrapped group of primary packages through a heating tunnel so as to tightly shrink the film around said plurality of packages.

12. A method according to claim 11, wherein the rows of primary packages are linear.

13. A method according to claim 11, wherein adjacent rows of primary packages are shifted one relative to the other.

14. A pallet comprising a plurality of layers, each of said layers comprising a plurality of secondary packages according to any of the preceding claims 1 to 11 arranged in rows.

15. A pallet according to claim 14, wherein at least two, preferably all, of the secondary packages in a layer which are disposed adjacent to one another, comprise cooperating attaching means to prevent any movement of one secondary package relative to the other.

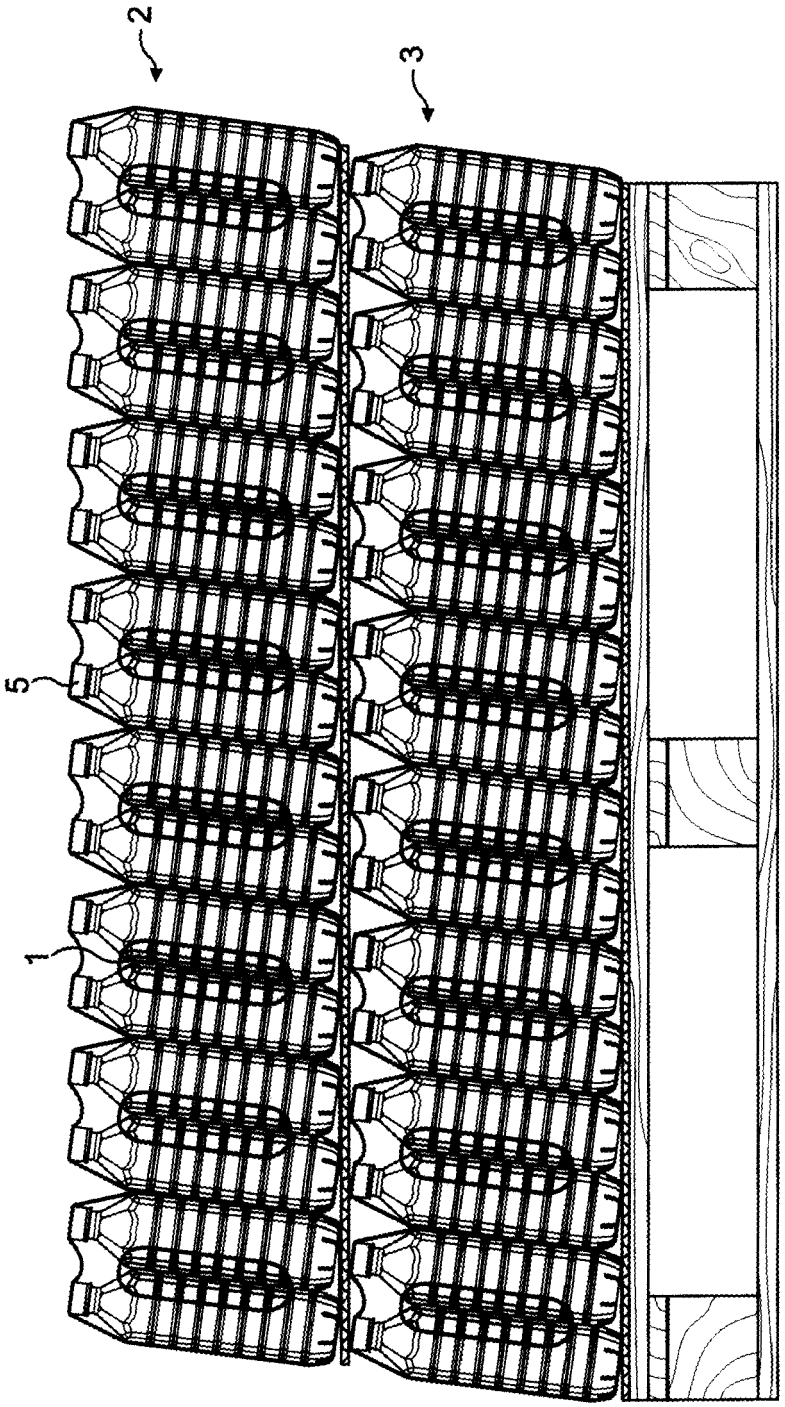

FIG. 1
PRIOR ART

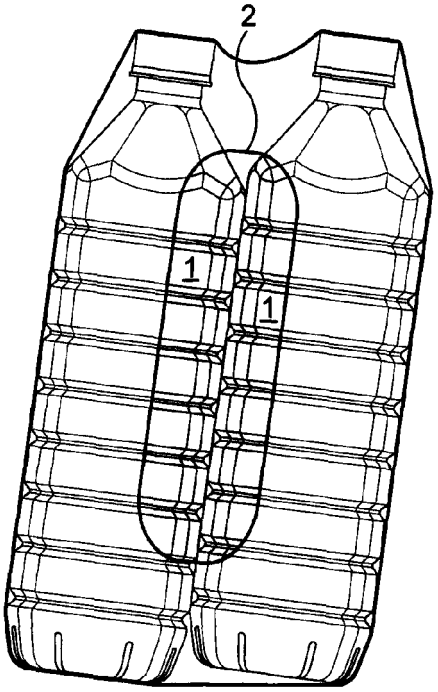

FIG. 2
PRIOR ART

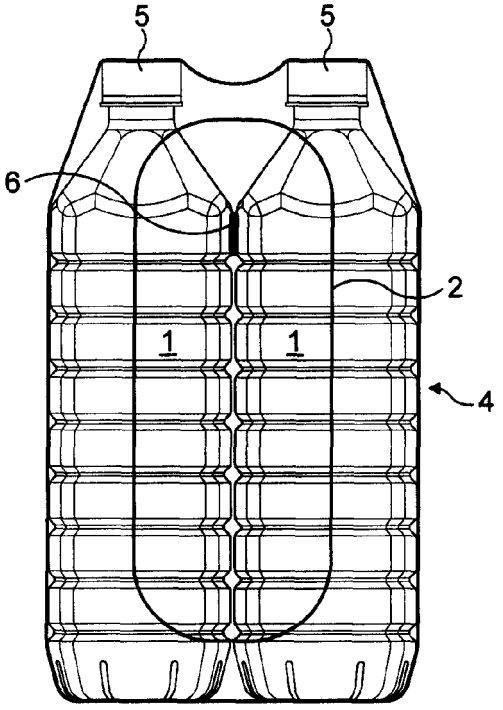

FIG. 3

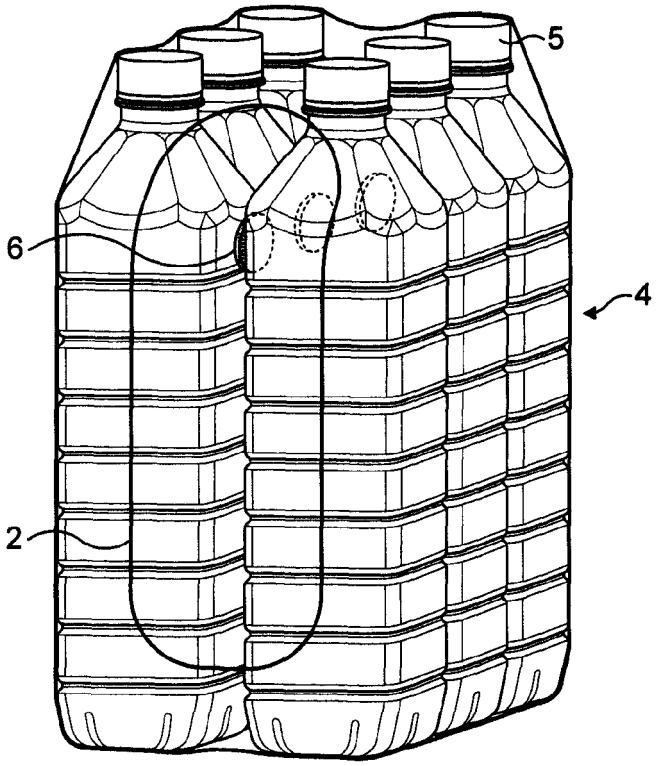

FIG. 4

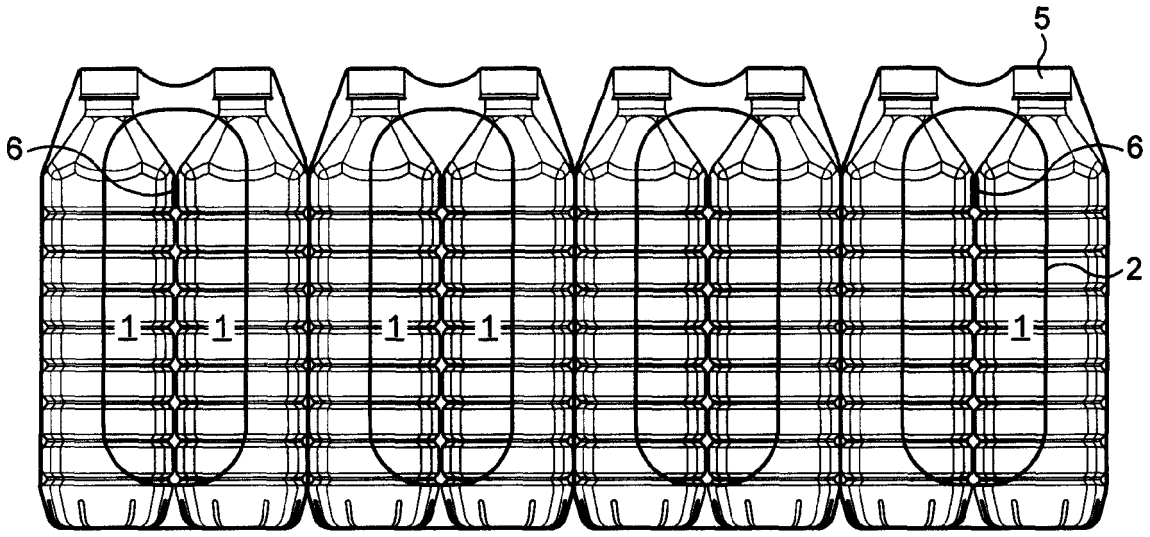

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 08 10 1998

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* column 5, line 21 - line 51 * * column 6, line 66 - column 7, line 52; figures 1,4,5 *	3,4,7	
X	US 3 759 378 A (WERTH E) 18 September 1973 (1973-09-18) * column 2, line 42 - line 56; figures 1-3 *	1,2,8-10	
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Y	US 5 115 916 A (BEASLEY JOHN C [US] ET AL) 26 May 1992 (1992-05-26) * sentence 8 - sentence 23 *	4	
Y	WO 2007/033723 A (HENKEL KGAA [DE]; WACQUEZ ANNE-LAURE [FR]; SCHAAL DOROTHEE [DE]; PETER) 29 March 2007 (2007-03-29) * page 11, paragraph 2; figure 2 *	7	TECHNICAL FIELDS SEARCHED (IPC) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	9 July 2008	Derrien, Yannick

CATEGORY OF CITED DOCUMENTS

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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