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(54) CARTON AND BLANK THEREFOR

KARTON UND ZUSCHNITT DAFÜR

CARTON ET DÉCOUPE ASSOCIÉE

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Description

TECHNICAL FIELD

[0001] The present invention relates to cartons and to blanks for forming the same. More specifically, the invention relates to a carton with a handle, the handle having a handle reinforcing structure.

BACKGROUND

[0002] In the field of packaging it is known to provide cartons for carrying multiple articles. Cartons are well known in the art and are useful for enabling consumers to transport, store and access a group of articles for consumption. For cost and environmental considerations, such cartons or carriers need to be formed from as little material as possible and cause as little wastage in the materials from which they are formed as possible. Further considerations are the strength of the carton and its suitability for holding and transporting large weights of articles. It is desirable that the contents of the carton are secure within the carton.

[0003] It is well known to provide a carton with a handle structure. It is desirable that the handle structure is sufficiently strong enough to bear the load of the carton contents. It is a further object of this disclosure to provide a reinforced handle structure which is readily assembled.

[0004] WO 96/21603 to Auclair discloses a blank for forming a carton for packaging a plurality of articles comprising a series of hingeably interconnected top, first side, bottom and second side panels for forming an open-ended sleeve capable of receiving said articles. The top and bottom panels are similarly non-rectangularly shaped substantially to correlate with the cross-sectional shape of the array of articles in a plane parallel to said top and bottom panels. A gusset comprising two hingeably connected gusset panels connects the first side panel and top or bottom panel which gusset is adapted to facilitate movement of the first side panel to correlate with the associated shape of a stowed array of articles during the formation of the carton.

[0005] The present invention seeks to provide an improvement in the field of cartons, typically formed from paperboard or the like.

SUMMARY

[0006] According to a first aspect of the present invention there is provided a carton for packaging one or more articles, the carton comprising a top portion formed in part by a top wall panel and a first upper end closure panel hinged to the top wall panel along a first end edge thereof; a first side wall hinged to a first edge of the top wall panel by first fold line; a second side wall hinged to a second edge of top wall panel by second fold line, second edge opposes first edge; a carrying handle defined in the top portion; a first gusset panel hinged to the first upper end closure panel along a first side edge; a first anchor panel hinged to the first gusset panel and to the first side wall, the first anchor panel being folded into a face to face relationship with the first side wall so as to secure the first upper end closure panel in a closed condition; and a first handle reinforcing structure disposed at least in part about the carrying handle, wherein the first handle reinforcing structure is coupled to the first anchor panel by two or more first connecting panels.

[0007] Optionally, a second upper end closure panel hinged to the top wall panel along a second end edge thereof; a second gusset panel hinged to the second upper end closure panel along a first side edge; a second anchor panel hinged to the second gusset panel and to the first side wall, the second anchor panel being folded into a face to face relationship with the first side panel so as to secure the second upper closure panel in a closed condition; wherein the first handle reinforcing structure is coupled to the second anchor panel by two or more second connecting panels.

[0008] Optionally, the carrying handle comprises a handle strap portion defined in the top wall panel by a pair of openings defined in the top wall panel.

[0009] Optionally, each of the pair of openings is defined at least in part by a cushioning flap hinged to the handle strap portion.

[0010] Optionally, the carrying handle comprises an aperture defined in the top wall panel of the carton.

[0011] Optionally, the carrying handle comprises an aperture defined in the at least one upper end closure panel.

[0012] Optionally, the carrying handle comprises a strap which is deployable through an opening in the top wall panel.

[0013] Optionally, the carrying handle comprises a strap which is automatically deployed through an aperture in the top wall panel when at least one upper end closure panel is folded with respect to the top wall panel.

[0014] Optionally, the top portion is formed from a first blank and the carton comprises a base portion including a base panel formed from a second blank.

[0015] Optionally, the carton is of the wrap-around type and comprises a second side wall and a base wall formed from a single unitary blank.

[0016] Optionally, the carton comprises a third gusset panel hinged to the first upper end closure panel along a second side edge opposing the first side edge; a fourth gusset panel hinged to the second upper end closure panel along a second side edge opposing the first side edge; a third anchor panel hinged to the third gusset panel and to the second side wall, the third anchor panel being folded into a face to face relationship with the second side wall so as to secure the first upper end closure panel in a closed condition; a fourth anchor panel hinged to the fourth gusset panel and to the second side wall, the fourth anchor panel being folded into a face to face relationship with the second side wall so as to secure the second upper end closure panel in a closed condition;

and a second handle-reinforcing structure disposed at least in part about the carrying handle, wherein the second handle reinforcing structure is coupled to the third anchor panel by two or more third connecting panels and to the fourth anchor panel by two or more fourth connecting panels.

[0017] According to a second aspect of the present invention there is provided a blank for forming a carton, the blank comprising: a top portion formed in part by a top wall panel and a first upper end closure panel hinged to the top wall panel along a first end edge thereof; a first side wall hinged to a first edge of the top wall panel by first fold line; a second side wall hinged to a second edge of top wall panel by second fold line, second edge opposes first edge; a carrying handle; a first gusset panel hinged to the first upper end closure panel along a first side edge; a first anchor panel hinged to the first gusset panel and to the first side wall panel; and a handle reinforcing structure comprising a first handle reinforcing panel coupled to the first anchor panel by two or more first connecting panels.

[0018] Within the scope of this application it is envisaged and intended that the various aspects, embodiments, examples, features and alternatives set out in the preceding paragraphs, in the claims and/or in the following description and drawings may be taken independently or in any combination thereof. For example, features described in connection with one embodiment are applicable to all embodiments unless there is incompatibility of features.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] Exemplary embodiments of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a plan view from above of a first blank for forming a carton according to a first embodiment;
Figure 2 is a plan view from above of a second blank for forming a tray portion of a carton for use with the blanks of Figures 1, 5, 7 and 9;
Figures 3A and 3B illustrate stages of construction of a carton from the blank of Figure 1;
Figure 4 is a perspective view from above of a carton formed from the blank of Figure 1 and the blank of Figure 2;
Figure 5 is a plan view from above of a first blank for forming a carton according to a second embodiment;
Figure 6 is a perspective view from above of a carton formed from the blank of Figure 5 and the blank of Figure 2;
Figure 7 is a plan view from above of a first blank for forming a carton according to a third embodiment;
Figure 8 is a perspective view from above of a carton formed from the blank of Figure 7 and the blank of Figure 2;
Figure 9 is a plan view from above of a first blank for forming a carton according to a fourth embodiment;
Figure 10 is a perspective view from above of a carton formed from the blank of Figure 9 and the blank of Figure 2; and
Figure 11 is a plan view from above of a first blank for forming a carton according to a fifth embodiment.

DETAILED DESCRIPTION OF EMBODIMENTS

[0020] Detailed descriptions of specific embodiments of the package, blanks and cartons are disclosed herein. It will be understood that the disclosed embodiments are merely examples of the way in which certain aspects of the invention can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. As used herein, the word "exemplary" is used expansively to refer to embodiments that serve as illustrations, specimens, models, or patterns. Indeed, it will be understood that the packages, blanks and cartons described herein may be embodied in various and alternative forms. The Figures are not necessarily to scale and some features may be exaggerated or minimised to show details of particular components. Well-known components, materials or methods are not necessarily described in great detail in order to avoid obscuring the present disclosure. Any specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the invention.

[0021] Referring to Figure 1, there is shown a plan view of a first blank 10; together with a second blank 70 shown in Figure 2, the first blank 10 forms a carton or carrier 90, as shown in Figure 4. The carton 90 is suitable for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B, as shown in Figure 4. The first blank 10 and second blank 70 together form a secondary package for packaging at least one primary product container or package.

[0022] Referring to Figures 5, 7 and 9, there are shown plan views of blanks 110, 210, 310 which, together with the second blank 70 of Figure 2, are capable of forming a carton or carrier 190, 290, 390 for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B. The third, fourth and fifth blanks 110, 210, 310 and the second blank 70 together form alternative secondary packages for packaging at least one primary product container or package.

[0023] Referring to Figure 11, there is shown a plan view of a blank 410 capable of forming a carton or carrier (not shown) for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B. The blank 410 forms a secondary package for packaging at least one primary product container or package.

[0024] In the embodiments detailed herein, the terms

"carton" and "carrier" refer, for the non-limiting purpose of illustrating the various features of the invention, to a container for engaging and carrying articles, such as primary product containers. It is contemplated that the teachings of the invention can be applied to various product containers, which may or may not be tapered and/or cylindrical. Exemplary containers include bottles (for example metallic, glass or plastics bottles), cans (for example aluminium cans), tins, pouches, packets and the like.

[0025] The blanks 10,110, 210, 310, 410 are formed from a sheet of suitable substrate. It is to be understood that, as used herein, the term "suitable substrate" includes all manner of foldable sheet material such as paperboard, corrugated board, cardboard, plastic, combinations thereof, and the like. It should be recognized that one or other numbers of blanks may be employed, where suitable, for example, to provide the carrier structure described in more detail below. The packaging structures or cartons described herein may be formed from a sheet material such as paperboard, which may be made of or coated with materials to increase its strength.

[0026] In the illustrated embodiments, the blanks 10,110, 210, 310 are configured to form a carton or carrier 90, 190, 290, 390 for packaging an exemplary arrangement of exemplary articles B. In the embodiments illustrated in Figures 1 to 10, the arrangement is a 3 x 4 matrix or array; in the illustrated embodiment three rows of four articles are provided, and the articles B are beverage cans. In the embodiment illustrated in Figure 11, the arrangement is a 4 x 4 matrix or array; in the illustrated embodiment four rows of four articles are provided, and the articles B are beverage cans. Alternatively, the blanks 10, 110, 210, 310, 410 can be configured to form a carrier for packaging other types, number and size of articles and/or for packaging articles in a different arrangement or configuration.

[0027] Referring to Figure 1, the first blank 10 comprises a plurality of main panels 14, 16, 18 hinged one to the next in a linear series. The plurality of main panels 14, 16, 18 of the blank 10 form walls of a carton in a set up condition. The first blank 10 comprises a first wall panel 14, which forms a first upper side wall of the carton 90 (see Figure 4). The first wall panel 14 is hinged to a second wall panel 16 by a hinged connection such as a fold line 15. The second wall panel 16 forms a top wall of the carton 90 as shown in Figure 4. The second wall panel 16 is hinged to a third wall panel 18 by a hinged connection such as a fold line 17. The third wall panel 18 forms a second upper side wall 18 of the carton 90 as shown in Figure 4.

[0028] Referring to Figure 2, the second blank 70 comprises a main panel 74 for forming a base wall of a carrier 90 (see Figure 4). The second blank 70 comprises a first lower side wall panel 72c, hinged to a first side edge of the main panel 74 by a hinged connection in the form of a fold line 73c. The second blank 70 comprises a second lower side wall panel 72d hinged to a second side edge, the second side edge opposing the first side edge, of the main panel 74, by a hinged connection in the form of a fold line 73d.

[0029] The first wall panel 14 of the first blank 10 is secured to the first lower side wall panel 72c of the second blank 70 to form a first composite side wall 14/72c of the carton 90. The second wall panel 18 of the first blank 10 is secured to the second lower side wall panel 72d of the second blank 70 to form a second composite side wall 18/72d of the carton 90. The first and second composite walls 14/72c, 18/72d, together with the second wall panel 16 and the main panel 74, form a tubular structure.

[0030] The carton 90 comprises end closure structures for at least partially closing each of the tubular structures. Each end closure structure is formed in part from the first blank 10 and in part by the second blank 70.

[0031] The first blank 10 comprises a first upper end closure panel 34a hinged to a first end edge of the top panel 16 by a hinged connection in the form of a fold line 35a. The first blank 10 comprises a second upper end closure panel 34b hinged to a second end edge of the top panel 16 by a hinged connection in the form of a fold line 35b.

[0032] The first upper end closure panel 34a is hingedly connected along a first side edge to a first gusset panel 32a by a fold line 37a. The first gusset panel 32a is hingedly connected to a first web panel 30a, by a fold line 33a. The first web panel 30a is hingedly connected to a first inner anchor panel 28a by a fold line 31a. The first inner anchor panel 28a is hingedly connected to a first outer anchor panel 26a by a fold line 27a. The first outer anchor panel 26a is hingedly connected to a first bridging panel 24a by a fold line 25a. The first bridging panel 24a is hingedly connected to a first end reinforcing panel 22a by a pair of fold lines 21a, 23a. The first outer anchor panel 26a and first bridging panel 24a form a pair of connecting panels between the first end reinforcing panel 22a and the first inner anchor panel 28a.

[0033] The first upper end closure panel 34a is hingedly connected along a second side edge to a second gusset panel 36a by a fold line 39a. The second gusset panel 36a is hingedly connected to a second web panel 38a by a fold line 43a. The second web panel 38a is hingedly connected to a second inner anchor panel 40a by a fold line 45a. The second inner anchor panel 40a is hingedly connected to a second outer anchor panel 42a by a fold line 47a. The second outer anchor panel 42a is hingedly connected to a second bridging panel 44a by a fold line 49a. The second bridging panel 44a is hingedly connected to a second end reinforcing panel 46a by a pair of fold lines 51a, 53a.

[0034] The second upper end closure panel 34b is hingedly connected along a first side edge to a third gusset panel 32b by a fold line 37b. The third gusset panel 32b is hingedly connected to a third web panel 30b by a fold line 33b. The third web panel 30b is hingedly connected to a third inner anchor panel 28b by a fold line 31b. The third inner anchor panel 28b is hingedly connected to a third outer anchor panel 26b by a fold line

27b. The third outer anchor panel 26b is hingedly connected to a third bridging panel 24b by a fold line 25b. The third bridging panel 24b is hingedly connected to a third end reinforcing panel 22b by a pair of fold lines 21b, 23b.

[0035] The second upper end closure panel 34b is hingedly connected along a second side edge to a fourth gusset panel 36b by a fold line 39b. The fourth gusset panel 36b is hingedly connected to a fourth web panel 38b, by a fold line 43b. The fourth web panel 38b is hingedly connected to a fourth inner anchor panel 40b by a fold line 45b. The fourth inner anchor panel 40b is hingedly connected to a fourth outer anchor panel 42b by a fold line 47b. The fourth outer anchor panel 42b is hingedly connected to a fourth bridging panel 44b by a fold line 49b. The fourth bridging panel 44b is hingedly connected to a fourth end reinforcing panel 46b by a pair of fold lines 51b, 53b.

[0036] The first inner anchor panel 28a is hingedly connected to a first end edge of the first wall panel 14 by a fold line 29a. The second inner anchor panel 40a is hingedly connected to a first end edge of the third wall panel 18 by a fold line 41a. The third inner anchor panel 28b is hingedly connected to a second end edge of the first wall panel 14 by a fold line 29b. The fourth inner anchor panel 40b is hingedly connected to a second end edge of the third wall panel 18 by a fold line 41b.

[0037] The first outer anchor panel 26a and the first bridging panel 24a are separated from the first wall panel 14 by a first aperture A2. The second outer anchor panel 42a and the second bridging panel 44a are separated from the third wall panel 18 by a second aperture A8. The third outer anchor panel 26b and the third bridging panel 24b are separated from the first wall panel 14 by a third aperture A3. The fourth outer anchor panel 42b and the second bridging panel 44b are separated from the third wall panel 18 by a fourth aperture A9.

[0038] Optionally, the third wall panel 18 comprises a dispensing feature D in the form of a tear panel 18a. The tear panel 18a is defined in part by a pair of converging weakened lines of severance 62a, 62b. A cutline 64b interconnects the pair of converging weakened lines of severance 62a, 62b so as to form a continuous weakened line which is substantially "U" shaped. The cutline 64b defines in part a tear initiation tab T which is hingedly connected to the tear panel 18a by a fold line 64a.

[0039] The second wall panel 16 comprises a handle structure H. The handle structure H comprises a strap portion S defined, in the second wall panel 16, in part by a first fold line 55a and a second fold line 55b. A first end of the strap portion S is defined by a first pair of divergently arranged fold lines 63a, 63d. A second end of the strap portion S is defined by a second pair of divergently arranged fold lines 63b, 63c. Fold line 63a and fold line 63b are contiguous with first fold line 55a. Fold line 63c and fold line 63d are contiguous with second fold line 55b.

[0040] A first cushioning flap 50a is hinged to a first side edge of the strap portion S and second cushioning flap 50b is hinged to a second side edge of the strap portion S.

[0041] A first hinged flap 52a is disposed adjacent to a first end of the first cushioning flap 50a and a second hinged flap 52b is disposed adjacent to a second end of the first cushioning flap 50a. The first and second hinged flaps 52a, 52b are hingedly connected to the second top wall panel 16 by fold lines 57a, 57b respectively. The first and second hinged flaps 52a, 52b are hinged in opposition to the first cushioning flap 50a.

[0042] A third hinged flap 52d is disposed adjacent to a first end of the second cushioning flap 50b and a fourth hinged flap 52c is disposed adjacent to a second end of the second cushioning flap 50b. The third and fourth hinged flaps 52d, 52c are hingedly connected to the second top wall panel 16 by fold lines 57d, 57c respectively. The third and fourth hinged flaps 52d, 52c are hinged in opposition to the second cushioning flap 50b.

[0043] The first hinged flap 52a is defined in part by a cutline 59a, which separates the first hinged flap 52a from the first cushioning flap 50a. The second hinged flap 52b is defined in part by a cutline 59b, which separates the second hinged flap 52b from the first cushioning flap 50a.

[0044] The third hinged flap 52d is defined in part by a cutline 59d, which separates the third hinged flap 59d from the second cushioning flap 50b. The fourth hinged flap 52c is defined in part by a cutline 59c, which separates the fourth hinged flap 52c from the second cushioning flap 50b.

[0045] The blank 10 comprises a first handle reinforcing structure. A first handle reinforcing panel 12 is hingedly connected between the first end reinforcing panel 22a and the third end reinforcing panel 22b by fold lines which are interrupted by apertures A11, A12 respectively.

[0046] The blank 10 comprises an optional second handle reinforcing structure. A second handle reinforcing panel 20 is hingedly connected between the second end reinforcing panel 46a and the fourth end reinforcing panel 46b by fold lines which are interrupted by apertures A13, A14 respectively.

[0047] Referring now to Figure 2 the second blank 70 comprises a first lower end wall panel 72a hinged to the main panel 74 by a fold line 73a. The second blank 70 comprises a second lower end wall panel 72b hinged to the main panel 74 by a fold line 73b.

[0048] The first lower end wall panel 72a is hingedly connected to the first lower side wall panel 72c by a first corner panel 76a, a first securing panel 78a and a first lower gusset panel 80a. The first lower end wall panel 72a is hinged to the first corner panel 76a by a fold line 75a; the first corner panel 76a is hinged to the first securing panel 78a by a fold line 77a; the first securing panel 78a is hinged to the first lower gusset panel 80a by a fold line 79a; and the first lower gusset panel 80a is hinged to the first lower side wall panel 72c by a fold line 81a.

[0049] The first lower end wall panel 72a is hingedly connected to the second lower side wall panel 72d by a

second corner panel 76b, a second securing panel 78b and a second lower gusset panel 80b. The first lower end wall panel 72a is hinged to the second corner panel 76b by a fold line 75b; the second corner panel 76b is hinged to the second securing panel 78b by a fold line 77b; the second securing panel 78b is hinged to the second lower gusset panel 80b by a fold line 79b; and the second lower gusset panel 80b is hinged to the second lower side wall panel 72d by a fold line 81b.

[0050] The second lower end wall panel 72b is hingedly connected to the first lower side wall panel 72c by a third corner panel 76c, a third securing panel 78c and a third lower gusset panel 80c. The second lower end wall panel 72b is hinged to the third corner panel 76c by a fold line 75c; the third corner panel 76c is hinged to the third securing panel 78c by a fold line 77c; the third securing panel 78c is hinged to the third lower gusset panel 80c by a fold line 79c; and the third lower gusset panel 80c is hinged to the first lower side wall panel 72c by a fold line 81c.

[0051] The second lower end wall panel 72b is hingedly connected to the second lower side wall panel 72d by a fourth corner panel 76d, a fourth securing panel 78d and a fourth lower gusset panel 80d. The second lower end wall panel 72b is hinged to the fourth corner panel 76d by a fold line 75d; the fourth corner panel 76d is hinged to the fourth securing panel 78d by a fold line 77d; the fourth securing panel 78d is hinged to the fourth lower gusset panel 80d by a fold line 79d; and the fourth lower gusset panel 80d is hinged to the second lower side wall panel 72d by a fold line 81d.

[0052] Optionally, the main panel 74 comprises a plurality of apertures A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32 struck therefrom.

[0053] The plurality of apertures A21, A22, A23, A24, A25, A26, A27, A28, A29, A30, A31, A32, may be arranged in a matrix or array comprising three rows and four columns. Optionally, the apertures A21, A25, A29, A24, A28, A32 in the endmost columns are struck in part from the main panel 74 and in part from the adjacent one of the first and second lower side wall panels 72c, 72d.

[0054] Turning to the construction of the carrier 90 from the first blank 10 and the second blank 70, the carrier 90 may be formed by a series of sequential folding operations in a straight line machine so that the carrier 90 may not be required to be inverted to complete its construction.

[0055] Glue or other adhesive treatment is applied to an inner surface of the first handle reinforcing panel 12 and inner surfaces of the first end reinforcing panel 22a and the third end reinforcing panel 22b. In other embodiments glue or other adhesive treatment is applied to an inner surface of the second wall panel 16.

[0056] Optionally, glue or other adhesive treatment is applied to an inner surface of the first outer anchor panel 26a and third outer anchor panel 26b. In other embodiments glue or other adhesive treatment is applied to an inner surface of the first inner anchor panel 28a and to the third inner anchor panel 28b.

[0057] The blank 10 is then folded as indicated by direction arrow D1 about the fold lines 27a, 27b so as to bring the first handle reinforcing panel 12 into face contacting relationship with the second wall panel 16, and the first end reinforcing panel 22a and the third end reinforcing panel 22b into face contacting relationship with the respective one of the first and second upper end closure panels 34a, 34b.

[0058] The first handle reinforcing panel 12 is secured to the second wall panel 16. The first end reinforcing panel 22a is secured to the first upper end closure panel 34a and the third end reinforcing panel 22b is secured to the second upper end closure panel 34b, as shown in Figure 3A.

[0059] The first outer anchor panel 26a may be secured to the first inner anchor panel 28a and the third outer anchor panel 26b may be secured to the third inner anchor panel 28b.

[0060] Glue or other adhesive treatment is applied to an inner surface of the second handle reinforcing panel 20 and inner surfaces of the second end reinforcing panel 46a and the fourth end reinforcing panel 46b. In other embodiments glue or other adhesive treatment is applied to an outer surface of the first handle reinforcing panel 12 and outer surfaces of the first end reinforcing panel 22a and the third end reinforcing panel 22b.

[0061] Optionally, glue or other adhesive treatment is applied to an inner surface of the second outer anchor panel 42a and fourth outer anchor panel 42b. In other embodiments glue or other adhesive treatment is applied to an inner surface of the second inner anchor panel 40a and to the fourth inner anchor panel 40b.

[0062] The blank 10 is then folded as indicated by direction arrow D2 about the fold lines 47a, 47b so as to bring the second handle reinforcing panel 20 into face contacting relationship with the first handle reinforcing panel 12, and the second end reinforcing panel 46a and the fourth end reinforcing panel 46b into face contacting relationship with the respective one of the first and third end reinforcing panels 22a, 22b.

[0063] The second handle reinforcing panel 20 is secured to the first handle reinforcing panel 12. The second end reinforcing panel 46a is secured to the first end reinforcing panel 22a and the fourth end reinforcing panel 46b is secured to the third end reinforcing panel 22b, as shown in Figure 3B.

[0064] The second outer anchor panel 42a may be secured to the second inner anchor panel 40a and fourth outer anchor panel 42b may be secured to the fourth inner anchor panel 40b.

[0065] Optionally, the second handle reinforcing panel 20 may be secured to the second wall panel 16. The second end reinforcing panel 46a may be secured to the first upper end closure panel 34a. The fourth end reinforcing panel 46b may be secured to the second upper end closure panel 34b.

[0066] The blank 10 can be shipped or distributed in

this form, as shown in Figure 3B, to a conversion plant where the blank 10 is erected about a group of articles B.

[0067] In order to form a carton 90 the second blank 70 is erected to form a tray 70, see Figure 4. The first securing panel 78a and third securing panel 78c are each secured to the first lower side wall panel 72c. The second securing panel 78b and fourth securing panel 78d are each secured to the second lower side wall panel 72d.

[0068] The tray is loaded with at least one article; in the embodiments shown in Figure 4 the tray is loaded with a group of articles.

[0069] Glue or other adhesive treatment is applied to an inner surface of the first wall panel 14 and the third wall panel 18. In other embodiments glue or other adhesive treatment is applied to an outer surface of the first and second lower side wall panels 72c, 72d.

[0070] The blank 10 is placed over the loaded tray 70. The first, second, third and fourth inner anchor panels 28a, 40a, 28b, 40b are folded about the fold lines 29a, 29b, 41a, 41b respectively.

[0071] The first, second, third and fourth inner anchor panels 28a, 40a, 28b, 40b are folded so as to be disposed between the group of articles B and the respective one of the first and third wall panels 14, 18.

[0072] The first wall panel 14 is secured to the first lower side wall panel 72c. The third wall panel 18 is secured to the second lower side wall panel 72d, so as to form the carton 90 shown in Figure 4.

[0073] Referring now to Figures 5 and 6, there is shown an additional embodiment of the present disclosure. In the second illustrated embodiment like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "100" to indicate that these features belong to the second embodiment. The additional embodiment shares many common features with the first embodiment and therefore only the differences from the embodiment illustrated in Figures 1 to 4 will be described in detail.

[0074] Referring to Figure 5, there is shown a plan view of a third blank 110; together with the second blank 70 of Figure 2, the third blank 110 forms a carton or carrier 190, as shown in Figure 6. The carton 190 is suitable for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B, as shown in Figure 6. The third blank 110 and second blank 70 together form a secondary package for packaging at least one primary product container or package.

[0075] Referring again to Figure 5, the third blank 110 comprises a plurality of main panels 114, 116, 118 hinged one to the next in a linear series. The plurality of main panels 114, 116, 118 of the blank 110 form walls of a carton 190 in a set up condition. The third blank 110 comprises a first wall panel 114, which forms a first upper side wall of the carton 190 (see Figure 6). The first wall panel 114 is hinged to a second wall panel 116 by a hinged connection such as a fold line 115. The second wall panel 116forms a top wall of the carton 190 as shown in Figure 6. The second wall panel 116 is hinged to a third wall panel 118 by a hinged connection such as a fold line 117. The third wall panel 118 forms a second upper side wall 118 of the carton 190 as shown in Figure 6.

[0076] The blank 110 comprises an alternative handle structure. This structure comprises a handle aperture HA struck from within the second wall panel 16. The handle aperture HA is substantially rectangular in shape, however in alternative embodiment other shapes may be employed. The first handle reinforcing panel 112 comprises a central strap portion 112A which is configured to be in vertical registry with the handle aperture HA. The second handle reinforcing panel 120 is likewise configured with a central strap portion which is disposed in vertical registry with the handle aperture HA and the central strap portion 112A of the first handle reinforcing panel 112. The first and second handle reinforcing panels 112, 120 together form a handle strap which can be withdrawn through the handle aperture HA. The second handle reinforcing panel 120 may be secured to the first handle reinforcing panel 112, for example, but not limited to, by employing glue or other adhesive treatment.

[0077] The first and second handle reinforcing panels 112, 120 may be unsecured to the second top panel 116 so as to be free to move with respect thereto. Similarly portions of the first, second, third and fourth end reinforcing panels 122a, 146a, 122b, 146b may be unsecured to the respective ones of the first and second upper end closure panels 134a, 134b so as to be free to move with respect thereto.

[0078] As shown in Figure 6 the handle strap 112a protrudes through the handle aperture HA. The handle strap 112a may be configured to automatically protrude through the handle aperture HA when the first and second upper end closure panels 134a, 134b are folded with respect to the second wall panel 116. This may be achieved by offsetting the fold line between the first handle reinforcing panel 112 and the first end reinforcing panel 122a with respect to the fold line 135a. Similarly, the fold line between the first handle reinforcing panel 112 and the third end reinforcing panel 122b may be offset with respect to the fold line 135b, the fold line between the second handle reinforcing panel 120 and the second end reinforcing panel 146a may be offset with respect to the fold line 135a and the fold line between the second handle reinforcing panel 120 and the fourth end reinforcing panel 146b may be offset with respect to the fold line 135b. In this way the handle strap 112a may be configured to be longer in length dimension than the second wall panel 116 so that the handle strap 112a is forced through the handle aperture HA when the carton 190 is assembled.

[0079] The end portion of the handle strap 112a may be arranged to broaden towards the respective adjacent end reinforcing panel 122a, 122b, 146a, 146b. In this way the end portions of the handle strap 112a restrict the extent to which the handle strap 122a can be withdrawn through the handle aperture HA.

[0080] Referring now to Figures 7 and 8, there is shown an additional embodiment of the present disclosure. In the third illustrated embodiment like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "200" to indicate that these features belong to the third embodiment. The additional embodiment shares many common features with the first two embodiments and therefore only the differences from the embodiments illustrated in Figures 1 to 6 will be described in detail.

[0081] Referring to Figure 7, there is shown a plan view of a fourth blank 210; together with the second blank 70 of Figure 2, the fourth blank 210 forms a carton or carrier 290, as shown in Figure 8. The carton 290 is suitable for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B, as shown in Figure 8. The fourth blank 210 and second blank 70 together form a secondary package for packaging at least one primary product container or package.

[0082] Referring again to Figure 7, the first blank 210 comprises a plurality of main panels 214, 216, 218 hinged one to the next in a linear series. The plurality of main panels 214, 216, 218 of the blank 210 form walls of a carton 290 in a set up condition. The first blank 210 comprises a first wall panel 214, which forms a first upper side wall of the carton 290 (see Figure 8). The first wall panel 214 is hinged to a second wall panel 216 by a hinged connection such as a fold line 215. The second wall panel 216 forms a top wall of the carton 290 as shown in Figure 8. The second wall panel 216 is hinged to a third wall panel 218 by a hinged connection such as a fold line 217. The third wall panel 218 forms a second upper side wall 218 of the carton 290 as shown in Figure 8.

[0083] The blank 210 comprises an alternative handle structure. This structure comprises a first handle aperture HA1 struck from within the first upper end closure panel 234a and a second handle aperture HA2 struck from within the second upper end closure panel 234b. The first and second handle apertures HA1, HA2 are substantially rectangular in shape; however, in alternative embodiments, other shapes may be employed. The first handle aperture HA1 is defined at least in part by a first handle cushioning flap HF1 which is hingedly connected to the first upper end closure panel 234a by a fold line 283a. The second handle aperture HA2 is defined at least in part by a second handle cushioning flap HF2 which is hingedly connected to the second upper end closure panel 234b by a fold line 283b.

[0084] The first end reinforcing panel 222a comprises a first recess R1 which is configured to be in registry with a portion of the first handle aperture HA1 when in an assembled condition. The second end reinforcing panel 246a comprises a second recess R3 which is configured to be in registry with a portion of the first handle aperture HA1 when in an assembled condition.

[0085] In this way the first and second end reinforcing panels 222a, 246a reinforce the first handle aperture HA1.

[0086] The first handle cushioning flap HF1 may pass through each of the first and second recesses R1, R3 when the handle structure is in use.

[0087] The third end reinforcing panel 222b comprises a third recess R2 which is configured to be in registry with a portion of the second handle aperture HA2 when in an assembled condition. The fourth end reinforcing panel 246b comprises a fourth recess R4 which is configured to be in registry with a portion of the second handle aperture HA2 when in an assembled condition.

[0088] In this way the third and fourth end reinforcing panels 222b, 246b reinforce the second handle aperture HA2.

[0089] The second handle cushioning flap HF2 may pass through each of the third and fourth recesses R3, R4 when the handle structure is in use.

[0090] The first and second handle reinforcing panels 212, 220 may provide additional strength to the handle structure, and may serve to distribute or spread the load forces over a greater area of the carton 290 so as to reduce the likelihood of tearing.

[0091] Referring now to Figures 9 and 10, there is shown an additional embodiment of the present disclosure. In the fourth illustrated embodiment like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "300" to indicate that these features belong to the fourth embodiment. The additional embodiment shares many common features with the previous embodiments and therefore only the differences from the embodiments illustrated in Figures 1 to 8 will be described in detail.

[0092] Referring to Figure 9, there is shown a plan view of a first blank 310; together with the second blank 70 of Figure 2, the fifth blank 310 forms a carton or carrier 390, as shown in Figure 10. The carton 390 is suitable for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B, as shown in Figure 10. The first blank 310 and second blank 70 together form a secondary package for packaging at least one primary product container or package.

[0093] Referring again to Figure 9, the fifth blank 310 comprises a plurality of main panels 314, 316, 318 hinged one to the next in a linear series. The plurality of main panels 314, 316, 318 of the blank 310 form walls of a carton 390 in a set up condition. The fifth blank 310 comprises a first wall panel 314, which forms a first upper side wall of the carton 390 (see Figure 10). The first wall panel 314 is hinged to a second wall panel 316 by a hinged connection such as a fold line 315. The second wall panel 316 forms a top wall of the carton 390 as shown in Figure 10. The second wall panel 316 is hinged to a third wall panel 318 by a hinged connection such as a fold line 317. The third wall panel 318 forms a second upper side wall 318 of the carton 390 as shown in Figure 10.

[0094] The blank 310 comprises an alternative handle structure. This structure comprises a handle strap 361a defined in part in the second wall panel 316 and having a first end portion E1 defined in the first upper end closure panel 334a and a second end portion E2 defined in the second upper end closure panel 334b. The handle strap 361a is defined in part by first weakened line of severance or cutline 399a and in part by a second weakened line of severance or cutline 399b. The first and second weakened lines of severance 399a, 399b extend from the first upper end closure panel 334a across the second wall panel 316 and into the second upper end closure panel 334b.

[0095] The first handle reinforcing panel 312 comprises a third weakened line of severance 387a. The third weakened line of severance 387a extends across the first handle reinforcing panel 312 and into each of the first and third end reinforcing panels 322a, 322b. The third weakened line of severance 387a substantially divides the first handle reinforcing panel 312 into a first portion 312a and a second portion 312b. The first portion 312a is secured to the handle strap 361a, the second portion 312b is secured to a first region of the second wall panel 316 adjacent to the handle strap 361a.

[0096] The second handle reinforcing panel 320 comprises a fourth weakened line of severance 387b. The fourth weakened line of severance 387b extends across the second handle reinforcing panel 320 and into each of the second and fourth end reinforcing panels 346a, 346b. The fourth weakened line of severance 387b substantially divides the second handle reinforcing panel 320 into a first portion 320a and a second portion 320b. The first portion 320a is secured to the first portion 312a of the first handle reinforcing panel 312, the second portion is secured to a second region of the second wall panel 316 adjacent to the handle strap 361a, the second region being disposed on an opposing side of the handle strap 361a to the first region.

[0097] The third weakened line of severance 387a is arranged to be substantially in registry with the first weakened line of severance 399a when in a set up condition.

[0098] The fourth weakened line of severance 387b is arranged to be substantially in registry with the second weakened line of severance 399b when in a set up condition.

[0099] As illustrated in Figure 10 the handle strap 361a and the first portions 312a, 320a of the first and second handle reinforcing panels 312, 320 together form a carrying handle. The carrying handle can be displaced upwardly in the centre such that a user may grasp the handle strap 361a to transport the carton 390.

[0100] Referring to Figure 11, there is shown a plan view of a blank 410 for forming a carton or carrier (not shown). The blank 410 is unitary, that is to say the second blank 70 of Figure 2 is not required to form a complete carton. The blank 410 comprises a first base wall panel 408a and a second base wall panel 408b which together form a composite base wall 408a/408b of the carton.

[0101] The sixth blank 410 comprises a plurality of main panels 408a, 414, 416, 418, 408b hinged one to the next in a linear series. The plurality of main panels 408a, 414, 416, 418, 408b of the blank 410 form walls of a carton in a set up condition. The first base wall panel 408a is hinged to a first wall panel 414 by a hinged connection in the form of a fold line 411a. The first wall panel 414 forms a first side wall of the carton. The first wall panel 414 is hinged to a second wall panel 416 by a hinged connection such as a fold line 415. The second wall panel 416 forms a top wall of the carton. The second wall panel 416 is hinged to a third wall panel 418 by a hinged connection such as a fold line 417. The third wall panel 418 forms a second side wall 418 of the carton. The third wall panel 418 is hinged to a second base wall panel 408b by a hinged connection in the form of a fold line 411b.

[0102] In order to accommodate the first and second base wall panels 408a, 408b the position of the fold lines 427a, 427b, 447a, 447b must be adjusted. The dimensions of the first, second, third and fourth inner anchor panels 428a, 428b, 440a, 440b; the first, second, third and fourth outer anchor panels 426a, 426b, 442a, 442b; and the first, second, third and fourth bridging panels 424a, 424b, 444a, 444b are increased in length to accommodate the first and second base wall panels 408a, 408b between the second wall panel 416 and the respective one of the first and second handle reinforcing panels 412, 420.

[0103] The distance d/2 between the fold line 427a and the proximal edge of the handle strap portion defined in the second wall panel 416 should be around one half the distance d between the fold line 415 and the proximal edge of the central portion of the first handle reinforcing panel 412. In the embodiment illustrated in Figure 11, a cutaway or recess is struck from an edge of the first handle reinforcing panel 412. This recess is created by the aperture A1, see Figure 1. It will be appreciated that a similar relationship for the fold lines 427b, 447a, 447b is required.

[0104] The present disclosure provides a carton for packaging one or more articles. The carton comprises a first side wall, a second side wall and a top portion. The carton may be formed from one unitary blank or from two or more distinct blanks; the top portion may be formed from one of the two or more distinct blanks. The top portion comprises or is defined in part by a top wall panel, formed from the second wall panel and a first upper end closure panel. The first upper end closure panel is hinged to the top wall panel along a first end edge thereof. The carton comprises a carrying handle defined in the top portion. A first gusset panel is hinged to the first upper end closure panel along a first side edge. A first anchor panel is hinged to the first gusset panel and to the first side wall. The first anchor panel is folded into a face to face relationship with the first side panel so as to secure the first upper end closure panel in a closed condition. The carton comprises a first handle reinforcing structure

disposed at least in part about the carrying handle. Optionally, the first handle reinforcing structure is defined in part by a handle reinforcing panel and in part by at least one end reinforcing panel. The first handle reinforcing structure is coupled to the first anchor panel by two or more connecting panels. The connecting panels may be provided by one of the bridging panels and the respective one of the outer anchor panels hinged thereto.

[0105] It will be recognized that as used herein, directional references such as "top", "bottom", "base", "front", "back", "end", "side", "inner", "outer", "upper" and "lower" do not necessarily limit the respective panels to such orientation, but may merely serve to distinguish these panels from one another.

[0106] As used herein, the terms "hinged connection" and "fold line" refer to all manner of lines that define hinge features of the blank, facilitate folding portions of the blank with respect to one another, or otherwise indicate optimal panel folding locations for the blank. Any reference to "hinged connection" should not be construed as necessarily referring to a single fold line only; indeed a hinged connection can be formed from two or more fold lines wherein each of the two or more fold lines may be either straight/linear or curved/curvilinear in shape. When linear fold lines form a hinged connection, they may be disposed parallel with each other or be slightly angled with respect to each other. When curvilinear fold lines form a hinged connection, they may intersect each other to define a shaped panel within the area surrounded by the curvilinear fold lines. A typical example of such a hinged connection may comprise a pair of arched or arcuate fold lines intersecting at two points such that they define an elliptical panel therebetween. A hinged connection may be formed from one or more linear fold lines and one or more curvilinear fold lines. A typical example of such a hinged connection may comprise a combination of a linear fold line and an arched or arcuate fold line which intersect at two points such that they define a half moon-shaped panel therebetween.

[0107] As used herein, the term "fold line" may refer to one of the following: a scored line, an embossed line, a debossed line, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, an interrupted cut line, a line of aligned slits, a line of scores and any combination of the aforesaid options.

[0108] It should be understood that hinged connections and fold lines can each include elements that are formed in the substrate of the blank including perforations, a line of perforations, a line of short slits, a line of half-cuts, a single half-cut, a cut line, an interrupted cut line, slits, scores, any combination thereof, and the like. The elements can be dimensioned and arranged to provide the desired functionality. For example, a line of perforations can be dimensioned or designed with degrees of weakness to define a fold line and/or a severance line. The line of perforations can be designed to facilitate folding and resist breaking, to facilitate folding and facilitate breaking with more effort, or to facilitate breaking with little effort.

[0109] The phrase "in registry with" as used herein refers to the alignment of two or more elements in an erected carton, such as an aperture formed in a first of two overlapping panels and a second aperture formed in a second of two overlapping panels. Those elements in registry with each other may be aligned with each other in the direction of the thickness of the overlapping panels. For example, when an aperture in a first panel is "in registry with" a second aperture in a second panel that is placed in an overlapping arrangement with the first panel, an edge of the aperture may extend along at least a portion of an edge of the second aperture and may be aligned, in the direction of the thickness of the first and second panels, with the second aperture.

Claims

1. A carton (90; 190; 290; 390) for packaging one or more articles (B), the carton (90; 190; 290; 390) comprising:

a top portion formed in part by a top wall panel (16; 116; 216; 316; 416) and a first upper end closure panel (34a; 134a; 234a; 334a; 434a) hinged to the top wall panel (16; 116; 216; 316; 416) along a first end edge thereof;
a first side wall (14, 114, 214, 314, 414) hinged to a first edge of the top wall panel by first fold line (15, 115, 215, 315, 41); a second side wall (18, 118, 218, 318, 418) hinged to a second edge of top wall panel by second fold line (17, 117, 217, 317, 417), second edge opposes first edge;
a carrying handle (H) defined in the top portion;
a first gusset panel (32a; 132a; 232a; 332a; 432a) hinged to the first upper end closure panel (34a; 134a; 234a; 334a; 434a) along a first side edge;
a first anchor panel (28a; 128a; 228a; 328a; 428a) hinged to the first gusset panel (32a; 132a; 232a; 332a; 432a) and to the first side wall (14; 114; 214; 314; 414), the first anchor panel being folded into a face to face relationship with the first side wall (14; 114; 214; 314; 414) so as to secure the first upper end closure panel (34a; 134a; 234a; 334a; 434a) in a closed condition;
and a first handle reinforcing structure (12; 112; 212; 312; 412) disposed at least in part about the carrying handle (H),

wherein the first handle reinforcing structure is coupled to the first anchor panel (28a; 128a; 228a; 328a) by two or more first connecting panels (24a, 26a; 124a, 126a; 224a, 226a; 324a, 326a; 424a, 426a).

2. A carton (90; 190; 290; 390) according to claim 1 comprising:

a second upper end closure panel (34b; 134b; 234b; 334b; 434b) hinged to the top wall panel (36; 116; 216; 316; 416) along a second end edge thereof;
a second gusset panel (32b; 132b; 232b; 332b; 432b) hinged to the second upper end closure panel (34b; 134b; 234b; 334b; 434b) along a first side edge;
a second anchor panel (28b; 128b; 228b; 328b; 428b) hinged to the second gusset panel (32b; 132b; 232b; 332b; 432b) and to the first side wall (14; 114; 214; 314; 414), the second anchor panel (28b; 128b; 228b; 328b; 428b) being folded into a face to face relationship with the first side panel (14; 214; 314; 414) so as to secure the second upper closure panel (34b; 134b; 234b; 334b; 434b) in a closed condition;
wherein the first handle reinforcing structure is coupled to the second anchor panel (28b; 128b; 228b; 328b; 428b) by two or more second connecting panels (24b, 26b; 124b, 126b; 224b, 226b; 324b, 326b; 424b, 426b).

3. A carton (90) according to claim 1 wherein the carrying handle (H) comprises a handle strap portion (S) defined in the top wall panel (16; 416) by a pair of openings defined in the top wall panel (16; 416).

4. A carton (90) according to claim 3 wherein each of the pair of openings is defined at least in part by a cushioning flap (50a; 50b) hinged to the handle strap portion (S).

5. A carton (90) according to claim 1 wherein the carrying handle (H) comprises an aperture (HA) defined in the top wall panel (116) of the carton (190).

6. A carton (290) according to claim 1 wherein the carrying handle (H) comprises an aperture (HA1, HA2) defined in the at least one upper end closure panel (234a, 234b).

7. A carton (190; 390) according to claim 1 wherein the carrying handle (H) comprises a strap (112a; 361a) which is deployable through an opening in the top wall panel (116; 310).

8. A carton (190) according to claim 1 wherein the carrying handle (H) comprises a strap (112a) which is automatically deployed through an aperture (HA) in the top wall panel (116) when at least one upper end closure panel (134a; 134b) is folded with respect to the top wall panel (116).

9. A carton according to claim 1 wherein the top portion is formed from a first blank (10; 110; 210; 310; 410) and the carton (90; 190; 290; 390) comprises a base portion including a base panel (74) formed from a second blank (70).

10. A carton according to claim 1 wherein the carton is of the wrap-around type and comprises a second side wall and a base wall formed from a single unitary blank.

11. A carton (90; 190; 290; 390) according to claim 2 wherein the carton (90; 190; 290; 390) comprises:

a third gusset panel (36a; 136a; 236a; 336a; 436a) hinged to the first upper end closure panel (34a; 134a; 234a; 334a; 434a) along a second side edge opposing the first side edge;
a fourth gusset panel (36b; 136b; 236b; 336b; 436b) hinged to the second upper end closure panel (34b; 134b; 234b. 334b; 434b) along a second side edge opposing the first side edge;
a third anchor panel (40a; 140a; 240a; 340a; 440a) hinged to the third gusset panel (36a; 136a; 236a; 336a; 436a) and to the second side wall (18; 118; 218; 318; 418), the third anchor panel (40a; 140a; 240a; 340a; 440a) being folded into a face to face relationship with the second side wall (18; 118; 218; 318; 418) so as to secure the first upper end closure panel (34a; 134a; 234a; 334a; 434a) in a closed condition;
a fourth anchor panel hinged to the fourth gusset panel and to the second side wall, the fourth anchor panel (40b; 140b; 240b; 340b; 440b) being folded into a face to face relationship with the second side wall (18; 118; 218; 318; 418) so as to secure the second upper end closure panel (34b; 134b; 234b; 334b; 434b) in a closed condition;
and a second handle-reinforcing structure disposed at least in part about the carrying handle, wherein the second handle reinforcing structure is coupled to the third anchor panel (40a; 140a; 240a; 340a; 440a) by two or more third connecting panels (42a, 44a; 142a, 144a; 242a, 244a; 342a, 344a; 442a, 444a) and to the fourth anchor panel (40b; 140b; 240b; 340b; 440b) by two or more fourth connecting panels (42b, 44b; 142b, 144b; 242b, 244b; 342b, 344b; 442b, 444b).

12. A blank (10; 110; 210; 310; 410) for forming a carton (90; 190; 290; 390), the blank comprising:

a top portion formed in part by a top wall panel (16; 116; 216; 316; 416) and a first upper end closure panel (34a; 134a; 234a; 334a; 434a) hinged to the top wall panel (16; 116; 216; 316; 416) along a first end edge thereof;
a first side wall (14, 114, 214, 314, 414) hinged to a first edge of the top wall panel by first fold line (15, 115, 215, 315, 41);

a second side wall (18, 118, 218, 318, 418) hinged to a second edge of top wall panel by second fold line (17, 117, 217, 317, 417), second edge opposes first edge;
a carrying handle (H);
a first gusset panel (32a; 132a; 232a; 332a; 432a) hinged to the first upper end closure panel (34a; 134a; 234a; 334a; 434a) along a first side edge;
a first anchor panel (28a; 128a; 228a, 328a, 428a) hinged to the first gusset panel (32a; 132a; 232a; 332a; 432a) and to the first side wall panel (14; 114; 214; 314; 414);
and a handle reinforcing structure (12, 112, 212, 312, 412) comprising a first handle reinforcing panel (12; 112; 212; 312; 412) coupled to the first anchor panel (28a; 128a; 228a; 328a; 428a) by two or more first connecting panels (24a, 26a; 124a, 126a; 224a; 226a; 324a, 326a; 424a, 426a).

Patentansprüche

1. Schachtel (90; 190; 290; 390) zum Verpacken eines oder mehrerer Gegenstände (B), wobei die Schachtel (90; 190; 290; 390) umfasst:

einen Deckenabschnitt, der teilweise durch eine Deckenwandfläche (16; 116; 216; 316; 416) und eine erste obere Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) ausgebildet ist, die an der Deckenwandfläche (16; 116; 216; 316; 416) entlang einer ersten Endkante derselben angelenkt ist;
eine erste Seitenwand (14, 114, 214, 314, 414), die durch eine erste Faltlinie (15, 115, 215, 315, 41) an einer ersten Kante der Deckenwandfläche angelenkt ist;
eine zweite Seitenwand (18, 118, 218, 318, 418), die durch eine zweite Faltlinie (17, 117, 217, 317, 417) an einer zweiten Kante der Deckenwandfläche angelenkt ist, wobei die zweite Kante der ersten Kante gegenüberliegt;
einen in dem Deckenabschnitt angeordneten Tragegriff (H);
eine erste Zwickelwandfläche (32a; 132a; 232a; 332a; 432a), die an der ersten oberen Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) entlang einer ersten Seitenkante angelenkt ist;
eine erste Ankerwandfläche (28a; 128a; 228a; 328a; 428a), die an der ersten Zwickelwandfläche (32a; 132a; 232a; 332a; 432a) und an der ersten Seitenwand (14; 114; 214; 314; 414) angelenkt ist, wobei die erste Ankerwandfläche in eine flächenberührende Beziehung mit der ersten Seitenwand (14; 114; 214; 314; 414) gefaltet ist, um die erste obere Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) in einem geschlossenen Zustand zu sichern;
und eine erste Griffverstärkungsstruktur (12; 112; 212; 312; 412), die wenigstens teilweise um den Tragegriff (H) angeordnet ist,
wobei die erste Griffverstärkungsstruktur durch zwei oder mehrere erste Verbindungswandflächen (24a, 26a; 124a, 126a; 224a, 226a; 324a, 326a; 424a, 426a) an die erste Ankerwandfläche (28a; 128a; 228a; 328a) gekoppelt ist.

2. Schachtel (90; 190; 290; 390) nach Anspruch 1, umfassend:

eine zweite obere Endverschlusswandfläche (34b; 134b; 234b; 334b; 434b), die an der Deckenwandfläche (36; 116; 216; 316; 416) entlang einer zweiten Endkante derselben angelenkt ist;
eine zweite Zwickelwandfläche (32b; 132b; 232b; 332b; 432b), die an der zweiten oberen Endverschlusswandfläche (34b; 134b; 234b; 334b; 434b) entlang einer ersten Seitenkante angelenkt ist;
eine zweite Ankerwandfläche (28b; 128b; 228b; 328b; 428b), die an der zweiten Zwickelwandfläche (32b; 132b; 232b; 332b; 432b) und an der ersten Seitenwand (14; 114; 214; 314; 414) angelenkt ist, wobei die zweite Ankerwandfläche (28b; 128b; 228b; 328b; 428b) in eine flächenberührende Beziehung mit der ersten Seitenwandfläche (14; 214; 314; 414) gefaltet ist, um die zweite obere Verschlusswandfläche (34b; 134b; 234b; 334b; 434b) in einem geschlossenen Zustand zu sichern;
wobei die erste Griffverstärkungsstruktur durch zwei oder mehrere zweite Verbindungswandflächen (24b, 26b; 124b, 126b; 224b, 226b; 324b, 326b; 424b, 426b) an die zweite Ankerwandfläche (28b; 128b; 228b; 328b; 428b) gekoppelt ist.

3. Schachtel (90) nach Anspruch 1, wobei der Tragegriff (H) einen Griffbandabschnitt (S) umfasst, der in der Deckenwandfläche (16; 416) durch ein Paar von Öffnungen angeordnet ist, die in der Deckenwandfläche (16; 416) angeordnet sind.

4. Schachtel (90) nach Anspruch 3, wobei jedes Öffnungspaar wenigstens teilweise durch eine Polsterlasche (50a; 50b) definiert ist, die an dem Griffbandabschnitt (S) angelenkt ist.

5. Schachtel (90) nach Anspruch 1, wobei der Tragegriff (H) eine Öffnung (HA) umfasst, die in der Deckenwandfläche (116) der Schachtel (190) definiert ist.

6. Schachtel (290) nach Anspruch 1, wobei der Tragegriff (H) eine Öffnung (HA1, HA2) umfasst, die in der wenigstens einen oberen Endverschlusswandfläche (234a, 234b) definiert ist.

7. Schachtel (190; 390) nach Anspruch 1, wobei der Tragegriff (H) ein Band (112a; 361a) umfasst, das durch eine Öffnung in der Deckenwandfläche (116; 310) einsetzbar ist.

8. Schachtel (190) nach Anspruch 2, wobei der Tragegriff (H) ein Band (112a) umfasst, das automatisch durch eine Öffnung (HA) in der Deckenwandfläche (116) einsetzbar ist, wenn wenigstens eine obere Endverschlusswandfläche (134a; 134b) in Bezug auf die Deckenwandfläche (116) gefaltet ist.

9. Schachtel nach Anspruch 1, wobei der Deckenabschnitt aus einem ersten Zuschnitt (10; 110; 210; 310; 410) ausgebildet ist und die Schachtel (90; 190; 290; 390) einen Bodenabschnitt mit einer Bodenwandfläche (74) umfasst, die aus einem zweiten Zuschnitt (70) ausgebildet ist.

10. Schachtel nach Anspruch 1, wobei die Schachtel eine Schachtel des Umwickeltyps ist und eine zweite Seitenwand und eine Bodenwand umfasst, die aus einem einzigen einheitlichen Zuschnitt ausgebildet sind.

11. Schachtel (90; 190; 290; 390) nach Anspruch 2, wobei die Schachtel (90; 190; 290; 390) umfasst:

eine dritte Zwickelwandfläche (36a; 136a; 236a; 336a; 436a), die an der ersten oberen Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) entlang einer zweiten Seitenkante, die der ersten Seitenkante gegenüberliegt, angelenkt ist;
eine vierte Zwickelwandfläche (36b; 136b; 236b; 336b; 436b), die an der zweiten oberen Endverschlusswandfläche (34b; 134b; 234b; 334b; 434b) entlang einer zweiten Seitenkante, die der ersten Seitenkante gegenüberliegt, angelenkt ist;
eine dritte Ankerwandfläche (40a; 140a; 240a; 340a; 440a), die an der dritten Zwickelwandfläche (36a; 136a; 236a; 336a; 436a) und an der zweiten Seitenwand (18; 118; 218; 318; 418) angelenkt ist, wobei die dritte Ankerwandfläche (40a; 140a; 240a; 340a; 440a) in eine flächenberührende Beziehung mit der zweiten Seitenwand (18; 118; 218; 318; 418) gefaltet ist, um die erste obere Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) in einem geschlossenen Zustand zu sichern;
eine vierte Ankerwandfläche, die an der vierten Zwickelwandfläche und an der zweiten Seitenwand angelenkt ist, wobei die vierte Ankerwandfläche (40b; 140b; 240b; 340b; 440b) in eine flächenberührende Beziehung mit der zweiten Seitenwand (18; 118; 218; 318; 418) gefaltet ist, um die zweite obere Endverschlusswandfläche (34b; 134b; 234b; 334b; 434b) in einem geschlossenen Zustand zu sichern;
und eine zweite Griffverstärkungsstruktur, die wenigstens teilweise um den Tragegriff angeordnet ist,
wobei die zweite Griffverstärkungsstruktur durch zwei oder mehrere dritte Verbindungswandflächen (42a, 44a; 142a, 144a; 242a, 244a; 342a, 344a; 442a, 444a) an die dritte Ankerwandfläche (40a; 140a; 240a; 340a; 440a) gekoppelt ist und durch zwei oder mehrere vierte Verbindungswandflächen (42b, 44b; 142b, 144b; 242b, 244b; 342b, 344b; 442b, 444b) an die vierte Ankerwandfläche (40b; 140b; 240b; 340b; 440b).

12. Zuschnitt (10; 110; 210; 310; 410) zum Ausbilden einer Schachtel (90; 190; 290; 390), wobei der Zuschnitt umfasst:

einen Deckenabschnitt, der teilweise durch eine Deckenwandfläche (16; 116; 216; 316; 416) und eine erste obere Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) ausgebildet ist, die an der Deckenwandfläche (16; 116; 216; 316; 416) entlang einer ersten Endkante derselben angelenkt ist;
eine erste Seitenwand (14, 114, 214, 314, 414), die durch eine erste Faltlinie (15, 115, 215, 315, 41) an einer ersten Kante der Deckenwandfläche angelenkt ist;
eine zweite Seitenwand (18, 118, 218, 318, 418), die durch eine zweite Faltlinie (17, 117, 217, 317, 417) an einer zweiten Kante der Deckenwandfläche angelenkt ist, wobei die zweite Kante der ersten Kante gegenüberliegt;
einen Tragegriff (H);
eine erste Zwickelwandfläche (32a; 132a; 232a; 332a; 432a), die an der ersten oberen Endverschlusswandfläche (34a; 134a; 234a; 334a; 434a) entlang einer ersten Seitenkante angelenkt ist;
eine erste Ankerwandfläche (28a; 128a; 228a, 328a, 428a), die an der ersten Zwickelwandfläche (32a; 132a; 232a; 332a; 432a) und an der ersten Seitenwandfläche (14; 114; 214; 314; 414) angelenkt ist;
und eine Griffverstärkungsstruktur, die eine erste Griffverstärkungsplatte (12; 112; 212; 312; 412) umfasst, die durch zwei oder mehrere erste Verbindungswandflächen (24a, 26a; 124a, 126a; 224a; 226a; 324a, 326a; 424a, 426a) an die erste Ankerwandfläche (28a; 128a; 228a;

328a; 428a) gekoppelt ist.

Revendications

1. Carton (90 ; 190 ; 290 ; 390) pour emballer un ou plusieurs articles (B), le carton (90 ; 190 ; 290 ; 390) comprenant :

une partie supérieure formée en partie par un panneau de paroi supérieure (16 ; 116 ; 216 ; 316 ; 416) et un premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) articulé sur le panneau de paroi supérieure (16 ; 116 ; 216 ; 316 ; 416) le long d'un premier bord d'extrémité de celui-ci ;
une première paroi latérale (14, 114, 214, 314, 414) articulée sur un premier bord du panneau de paroi supérieure au moyen d'une première ligne de pliage (15, 115, 215, 315, 41) ; une deuxième paroi latérale (18, 118, 218, 318, 418) articulée sur un deuxième bord du panneau de paroi supérieure au moyen d'une deuxième ligne de pliage (17, 117, 217, 317, 417), le deuxième bord se trouvant en face du premier bord ;
une poignée de transport (H) définie dans la partie supérieure ;
un premier panneau de soufflet (32a ; 132a ; 232a ; 332a ; 432a) articulé sur le premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) le long d'un premier bord latéral ;
un premier panneau d'ancrage (28a ; 128a ; 228a ; 328a ; 428a) articulé sur le premier panneau de soufflet (32a ; 132a ; 232a ; 332a ; 432a) et sur la première paroi latérale (14 ; 114 ; 214 ; 314 ; 414), le premier panneau d'ancrage étant plié en relation de face à face avec la première paroi latérale (14 ; 114 ; 214 ; 314 ; 414) afin de fixer le premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) dans un état fermé ;
et une première structure de renforcement de poignée (12 ; 112 ; 212 ; 312 ; 412) disposée au moins en partie autour de la poignée de transport (H),
dans lequel la première structure de renforcement de poignée est reliée au premier panneau d'ancrage (28a ; 128a ; 228a ; 328a) par deux premiers panneaux de connexion (24a, 26a ; 124a, 126a ; 224a, 226a ; 324a, 326a ; 424a, 426a) ou plus.

2. Carton (90 ; 190 ; 290 ; 390) selon la revendication 1, comprenant :

un deuxième panneau de fermeture d'extrémité supérieure (34b ; 134b ; 234b ; 334b ; 434b) articulé sur le panneau de paroi supérieure (36 ; 116 ; 216 ; 316 ; 416) le long d'un deuxième bord d'extrémité de celui-ci ;
un deuxième panneau de soufflet (32b ; 132b ; 232b ; 332b ; 432b) articulé sur le deuxième panneau de fermeture d'extrémité supérieure (34b ; 134b ; 234b ; 334b ; 434b) le long d'un premier bord latéral ;
un deuxième panneau d'ancrage (28b ; 128b ; 228b ; 328b ; 428b) articulé sur le deuxième panneau de soufflet (32b ; 132b ; 232b ; 332b ; 432b) et sur la première paroi latérale (14 ; 114 ; 214 ; 314 ; 414), le deuxième panneau d'ancrage (28b ; 128b ; 228b ; 328b ; 428b) étant plié en relation de face à face avec la première paroi latérale (14 ; 214 ; 314 ; 414) afin de fixer le deuxième panneau de fermeture supérieur (34b ; 134b ; 234b ; 334b ; 434b) dans un état fermé ;
dans lequel la première structure de renforcement de poignée est reliée au deuxième panneau d'ancrage (28b ; 128b ; 228b ; 328b ; 428b) par deux deuxièmes panneaux de connexion (24b, 26b ; 124b, 126b ; 224b, 226b ; 324b, 326b ; 424b, 426b) ou plus.

3. Carton (90) selon la revendication 1, dans lequel la poignée de transport (H) comprend une partie de lanière de poignée (S) définie dans le panneau de paroi supérieure (16 ; 416) par une paire d'ouvertures définies dans le panneau de paroi supérieure (16 ; 416).

4. Carton (90) selon la revendication 3, dans lequel chacune des ouvertures de la paire d'ouvertures est définie au moins en partie par un rabat amortisseur (50a ; 50b) articulé sur la partie de lanière de poignée (S).

5. Carton (90) selon la revendication 1, dans lequel la poignée de transport (H) comprend une ouverture (HA) définie dans le panneau de paroi supérieure (116) du carton (190).

6. Carton (290) selon la revendication 1, dans lequel la poignée de transport (H) comprend une ouverture (HA1, HA2) définie dans ledit au moins un panneau de fermeture d'extrémité supérieure (234a, 234b).

7. Carton (190 ; 390) selon la revendication 1, dans lequel la poignée de transport (H) comprend une lanière (112a ; 361a) qui est déployable à travers une ouverture formée dans le panneau de paroi supérieure (116 ; 310).

8. Carton (190) selon la revendication 2, dans lequel la poignée de transport (H) comprend une lanière (112a) qui se déploie automatiquement à travers une

ouverture (HA) formée dans le panneau de paroi supérieure (116) quand au moins un panneau de fermeture d'extrémité supérieure (134a ; 134b) est plié par rapport au panneau de paroi supérieure (116).

9. Carton selon la revendication 1, dans lequel la partie supérieure est formée à partir d'une première découpe (10 ; 110 ; 210 ; 310 ; 410) et le carton (90 ; 190 ; 290 ; 390) comprend une partie de base qui comporte un panneau de base (74) formé à partir d'une deuxième découpe (70).

10. Carton selon la revendication 1, dans lequel le carton est du type enveloppant et comprend une deuxième paroi latérale et une paroi de base formées à partir d'une seule découpe unitaire.

11. Carton (90 ; 190 ; 290 ; 390) selon la revendication 2, dans lequel le carton (90 ; 190 ; 290 ; 390) comprend :

un troisième panneau de soufflet (36a ; 136a ; 236a ; 336a ; 436a) articulé sur le premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) le long d'un deuxième bord latéral opposé au premier bord latéral ;
un quatrième panneau de soufflet (36b ; 136b ; 236b ; 336b ; 436b) articulé sur le deuxième panneau de fermeture d'extrémité supérieure (34b ; 134b ; 234b ; 334b ; 434b) le long d'un deuxième bord latéral opposé au premier bord latéral ;
un troisième panneau d'ancrage (40a ; 140a ; 240a ; 340a ; 440a) articulé sur le troisième panneau de soufflet (36a ; 136a ; 236a ; 336a ; 436a) et sur la deuxième paroi latérale (18 ; 118 ; 218 ; 318 ; 418), le troisième panneau d'ancrage (40a ; 140a ; 240a ; 340a ; 440a) étant plié en relation de face à face avec la deuxième paroi latérale (18 ; 118 ; 218 ; 318 ; 418) afin de fixer le premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) dans un état fermé ;
un quatrième panneau d'ancrage articulé sur le quatrième panneau de soufflet et sur la deuxième paroi latérale, le quatrième panneau d'ancrage (40b ; 140b ; 240b ; 340b ; 440b) étant plié en relation de face à face avec la deuxième paroi latérale (18 ; 118 ; 218 ; 318 ; 418) afin de fixer le deuxième panneau de fermeture d'extrémité supérieure (34b ; 134b ; 234b ; 334b ; 434b) dans un état fermé ;
et une deuxième structure de renforcement de poignée disposée au moins en partie autour de la poignée de transport,
dans lequel la deuxième structure de renforcement de poignée est reliée au troisième panneau d'ancrage (40a ; 140a ; 240a ; 340a ; 440a) par deux troisièmes panneaux de connexion (42a, 44a ; 142a, 144a ; 242a, 244a ; 342a, 344a ; 442a, 444a) ou plus et au quatrième panneau d'ancrage (40b ; 140b ; 240b ; 340b ; 440b) par deux quatrièmes panneaux de connexion (42b, 44b ; 142b, 144b ; 242b, 244b ; 342b, 344b ; 442b, 444b) ou plus.

12. Découpe (10 ; 110 ; 210 ; 310 ; 410) pour former un carton (90 ; 190 ; 290 ; 390), la découpe comprenant :

une partie supérieure formée en partie par un panneau de paroi supérieure (16 ; 116 ; 216 ; 316 ; 416) et un premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) articulé sur le panneau de paroi supérieure (16 ; 116 ; 216 ; 316 ; 416) le long d'un premier bord d'extrémité de celui-ci ;
une première paroi latérale (14, 114, 214, 314, 414) articulée sur un premier bord du panneau de paroi supérieure au moyen d'une première ligne de pliage (15, 115, 215, 315, 41) ;
une deuxième paroi latérale (18, 118, 218, 318, 418) articulée sur un deuxième bord du panneau de paroi supérieure au moyen d'une deuxième ligne de pliage (17, 117, 217, 317, 417), le deuxième bord se trouvant en face du premier bord ;
une poignée de transport (H) ;
un premier panneau de soufflet (32a ; 132a ; 232a ; 332a ; 432a) articulé sur le premier panneau de fermeture d'extrémité supérieure (34a ; 134a ; 234a ; 334a ; 434a) le long d'un premier bord latéral ;
un premier panneau d'ancrage (28a ; 128a ; 228a, 328a, 428a) articulé sur le premier panneau de soufflet (32a ; 132a ; 232a ; 332a ; 432a) et sur le premier panneau de paroi latérale (14 ; 114 ; 214 ; 314 ; 414) ;
et une structure de renforcement de poignée comprenant un premier panneau de renforcement de poignée (12 ; 112 ; 212 ; 312 ; 412) relié au premier panneau d'ancrage (28a ; 128a ; 228a ; 328a ; 428a) par deux premiers panneaux de connexion (24a, 26a ; 124a, 126a ; 224a ; 226a ; 324a, 326a ; 424a, 426a) ou plus.

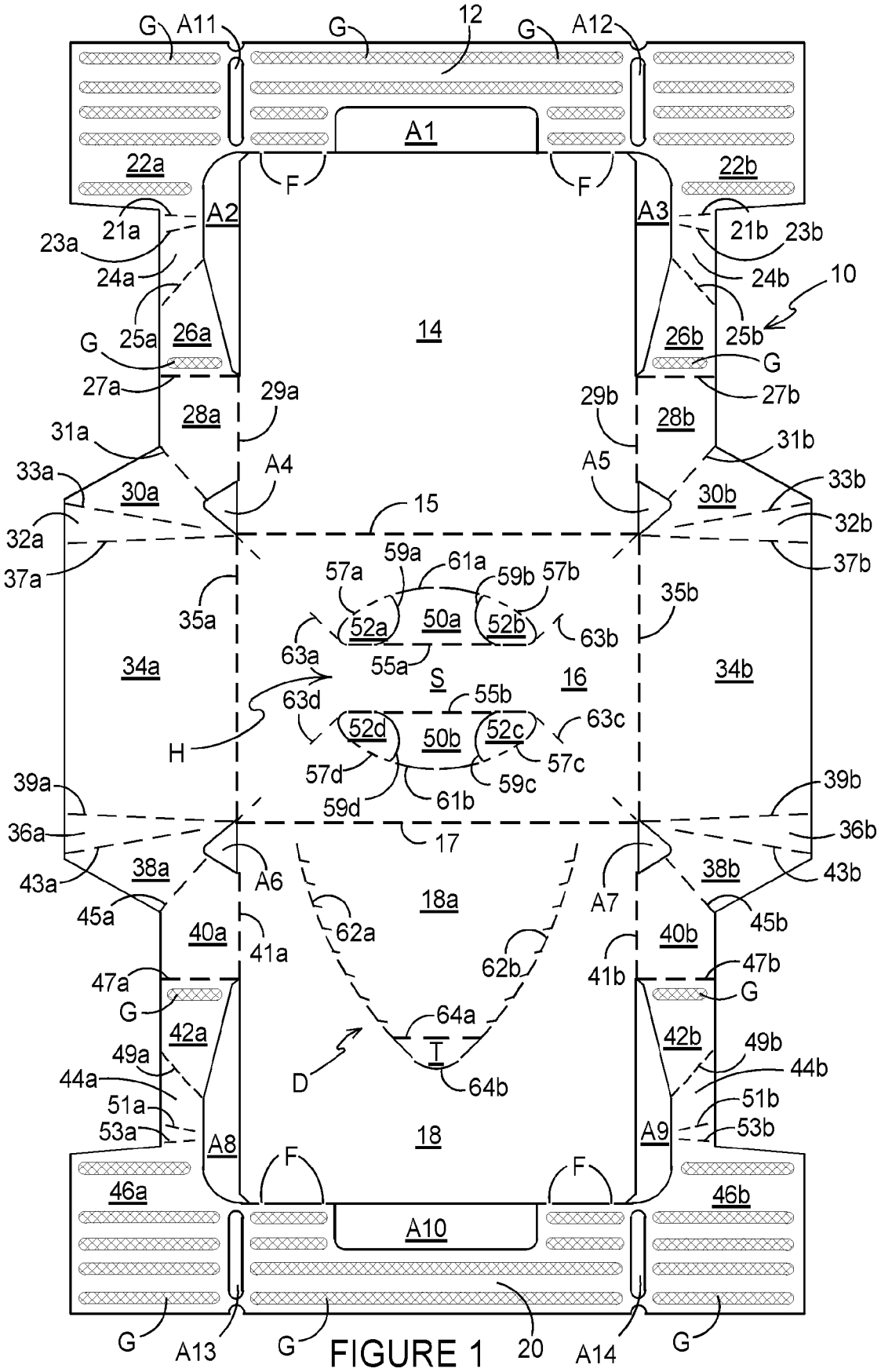

G
A11
G
12
G
A12
A1
22a
F
F
22b
A2
A3
21a
21b
23a
23b
24a
24b
10
14
G
25a
26a
26b
25b
G
27a
27b
29a
29b
28a
28b
31a
31b
A4
A5
33a
33b
30a
30b
15
32a
32b
37a
37b
59a
61a
57a
59b
57b
35a
35b
52a
50a
52b
63b
63a
55a
34a
S
16
34b
63d
55b
63c
52d
50b
52c
H
57d
57c
59c
39a
39b
59d
61b
36a
36b
17
38a
38b
43a
A6
A7
43b
18a
45a
62a
62b
45b
40a
41a
40b
41b
47a
47b
G
G
64a
42a
42b
49a
T
49b
44a
D
64b
44b
51a
51b
53a
A8
18
A9
53b
F
F
46a
46b
A10
G
A13
G
20
A14
G

FIGURE 1

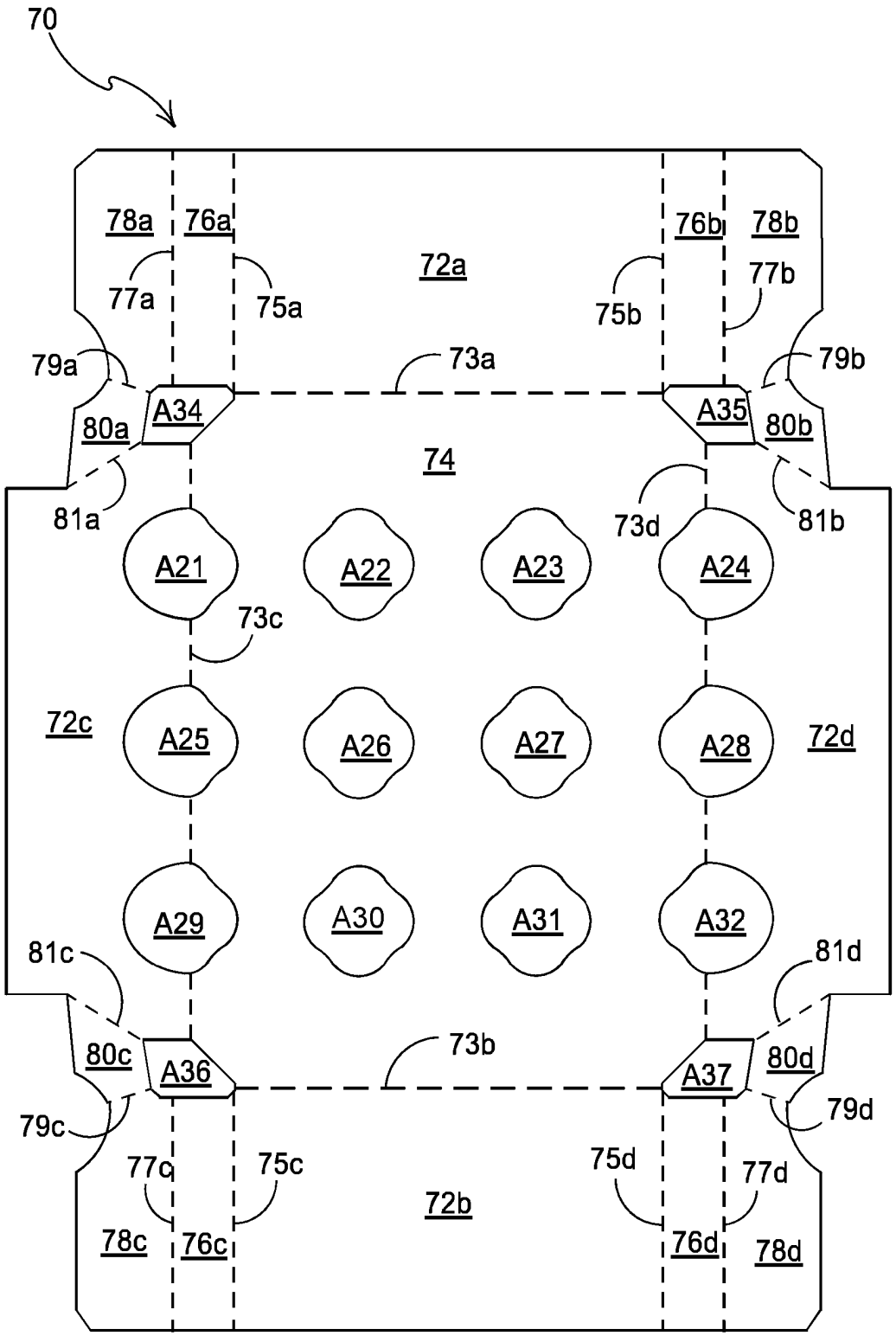

70
78a
76a
77a
75a
72a
76b
78b
77b
75b
79a
73a
79b
A34
80a
A35
80b
74
81a
73d
81b
A21
A22
A23
A24
73c
72c
A25
A26
A27
A28
72d
A29
A30
A31
A32
81c
81d
80c
A36
73b
A37
80d
79c
79d
77c
75c
75d
77d
72b
78c
76c
76d
78d

FIGURE 2

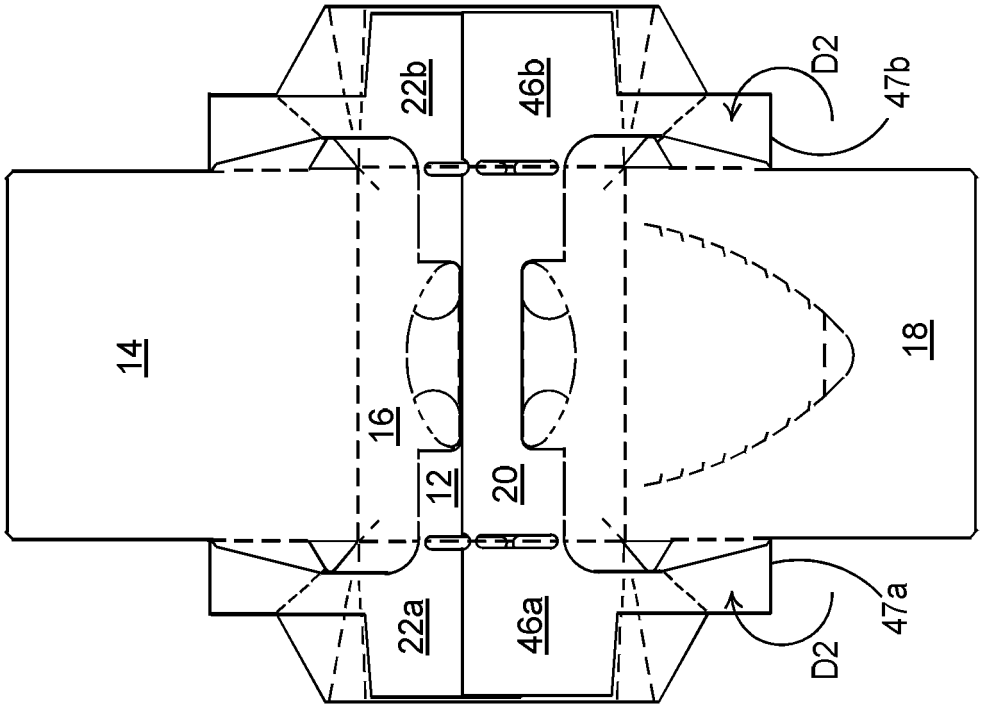


FIGURE 3B

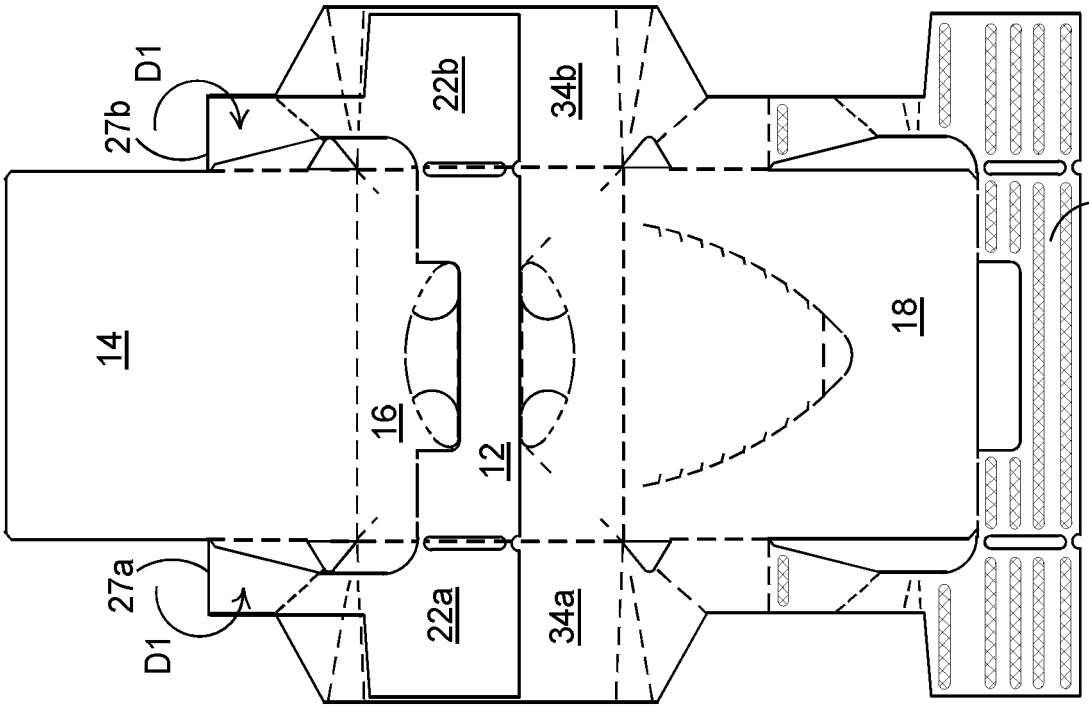


FIGURE 3A

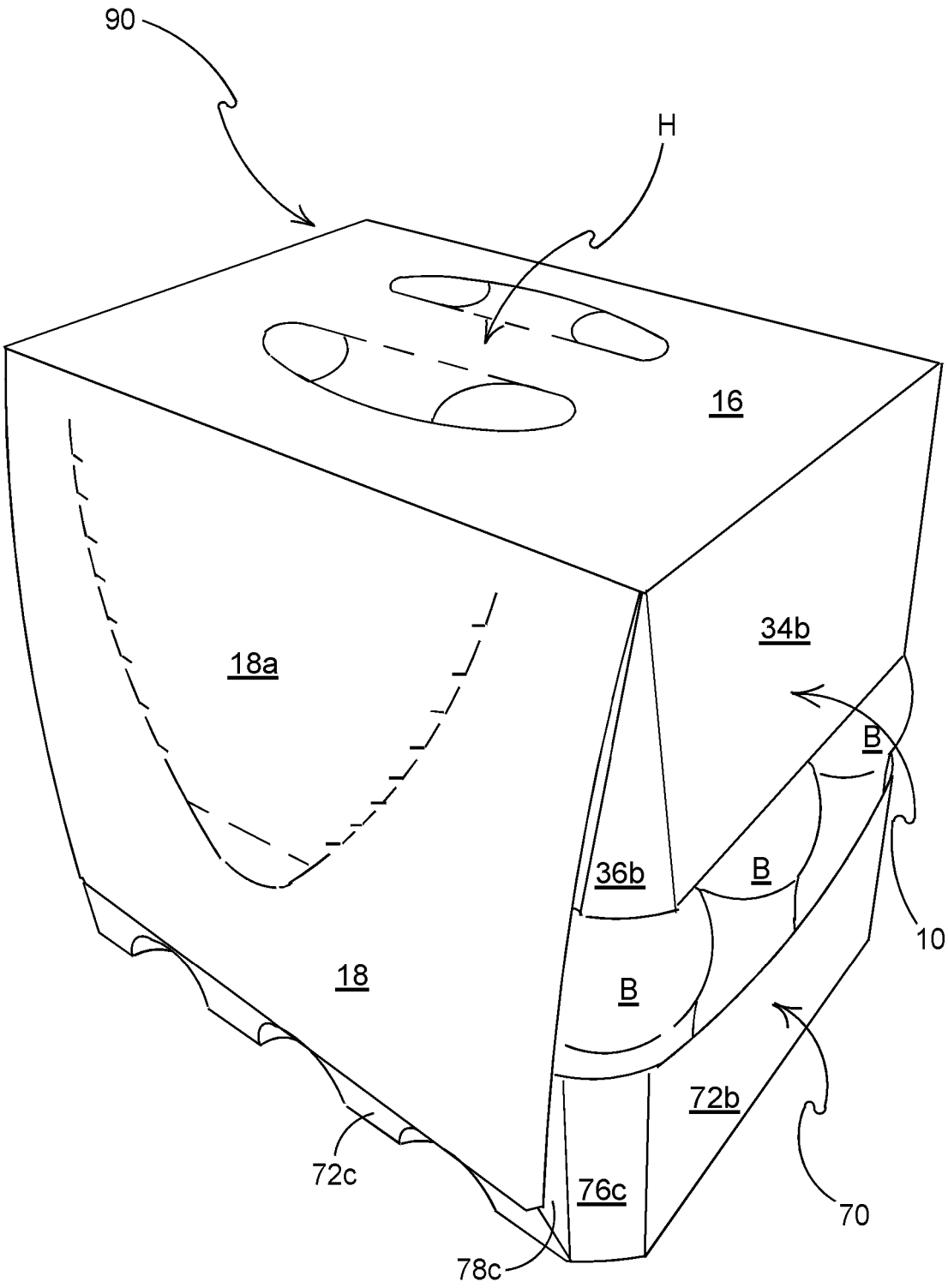


FIGURE 4

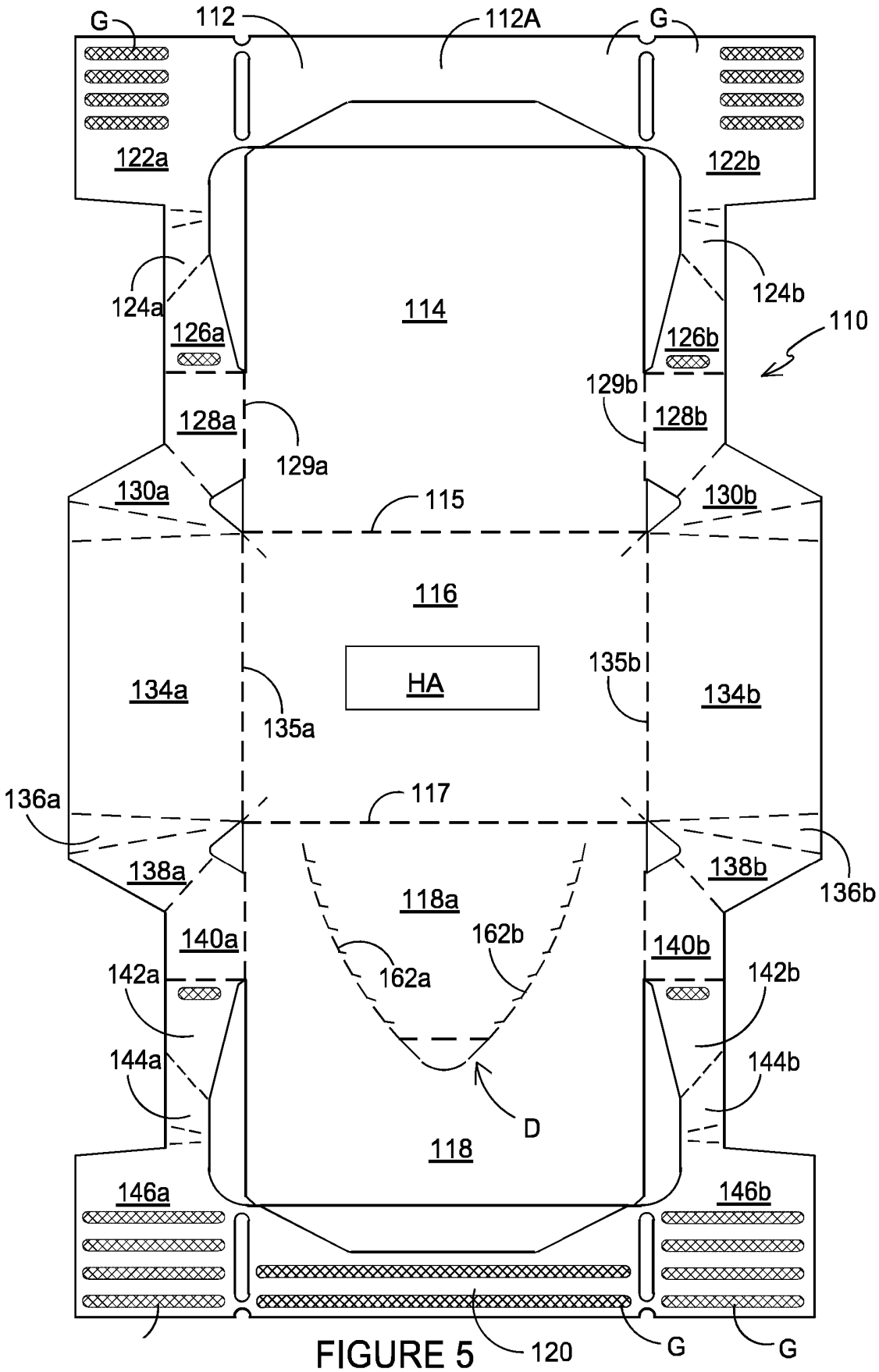

G
112
112A
G
122a
122b
124a
124b
114
110
126a
126b
129b
128a
128b
129a
130a
115
130b
116
HA
135b
134a
135a
134b
136a
117
138a
138b
136b
118a
162b
140a
140b
162a
142a
142b
144a
144b
D
118
146a
146b
120
G
G

FIGURE 5

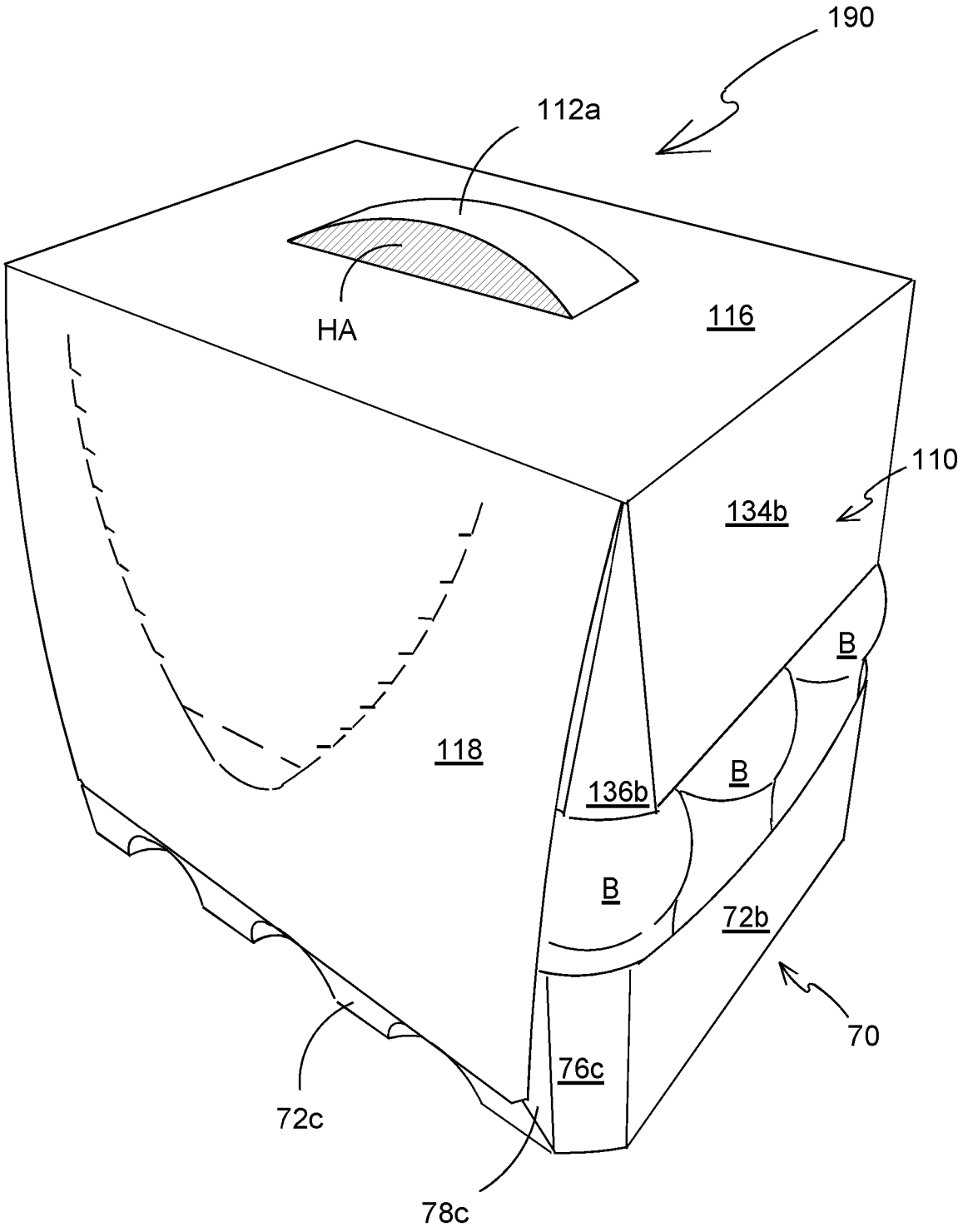
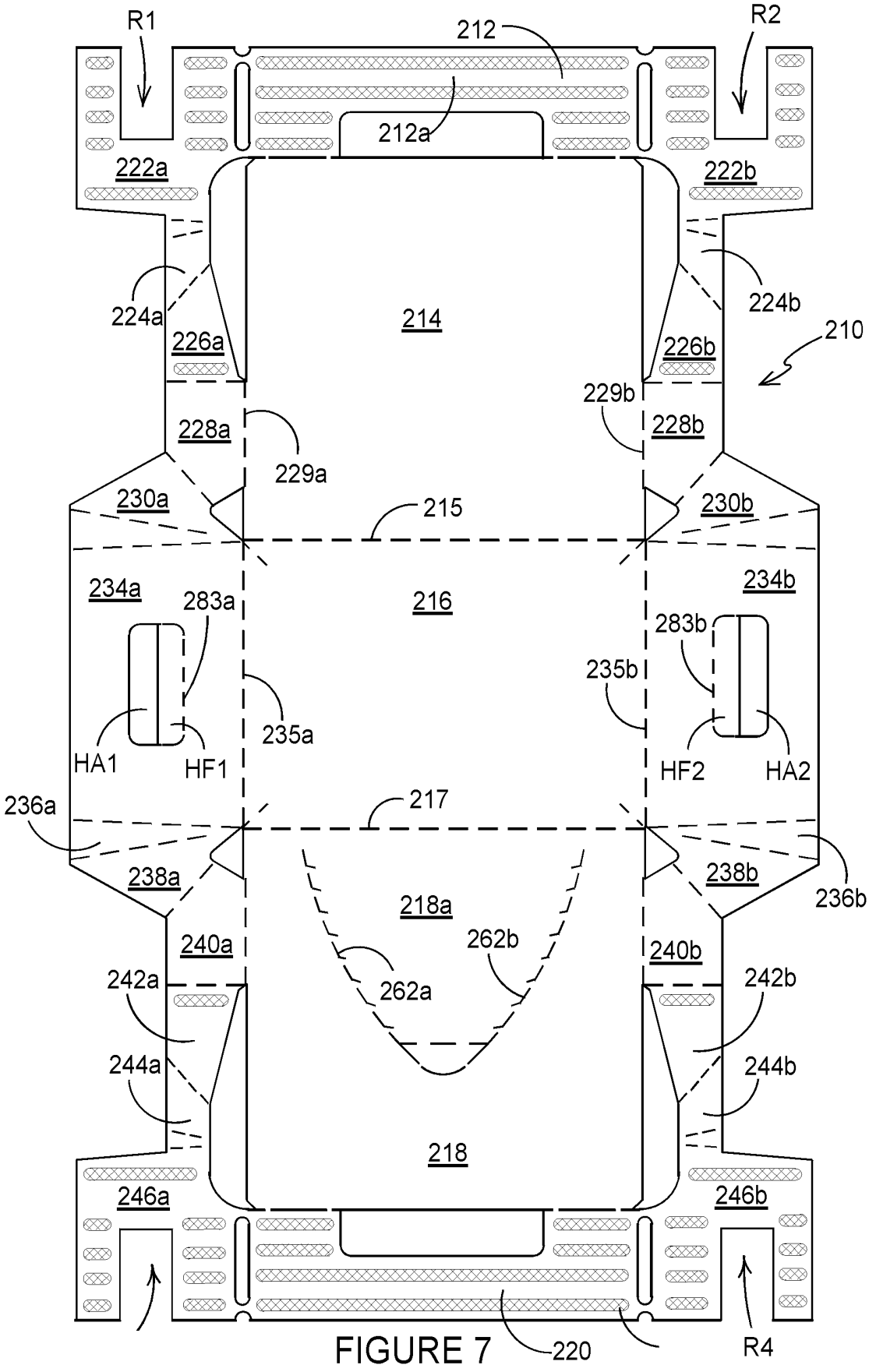


FIGURE 6


R1
212
R2
212a
222a
222b
224a
224b
214
210
226a
226b
229b
228a
228b
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230a
215
230b
234a
283a
216
234b
283b
235b
HA1
HF1
235a
HF2
HA2
236a
217
238a
238b
236b
218a
240a
262b
240b
242a
262a
242b
244a
244b
218
246a
246b
220
R4

FIGURE 7

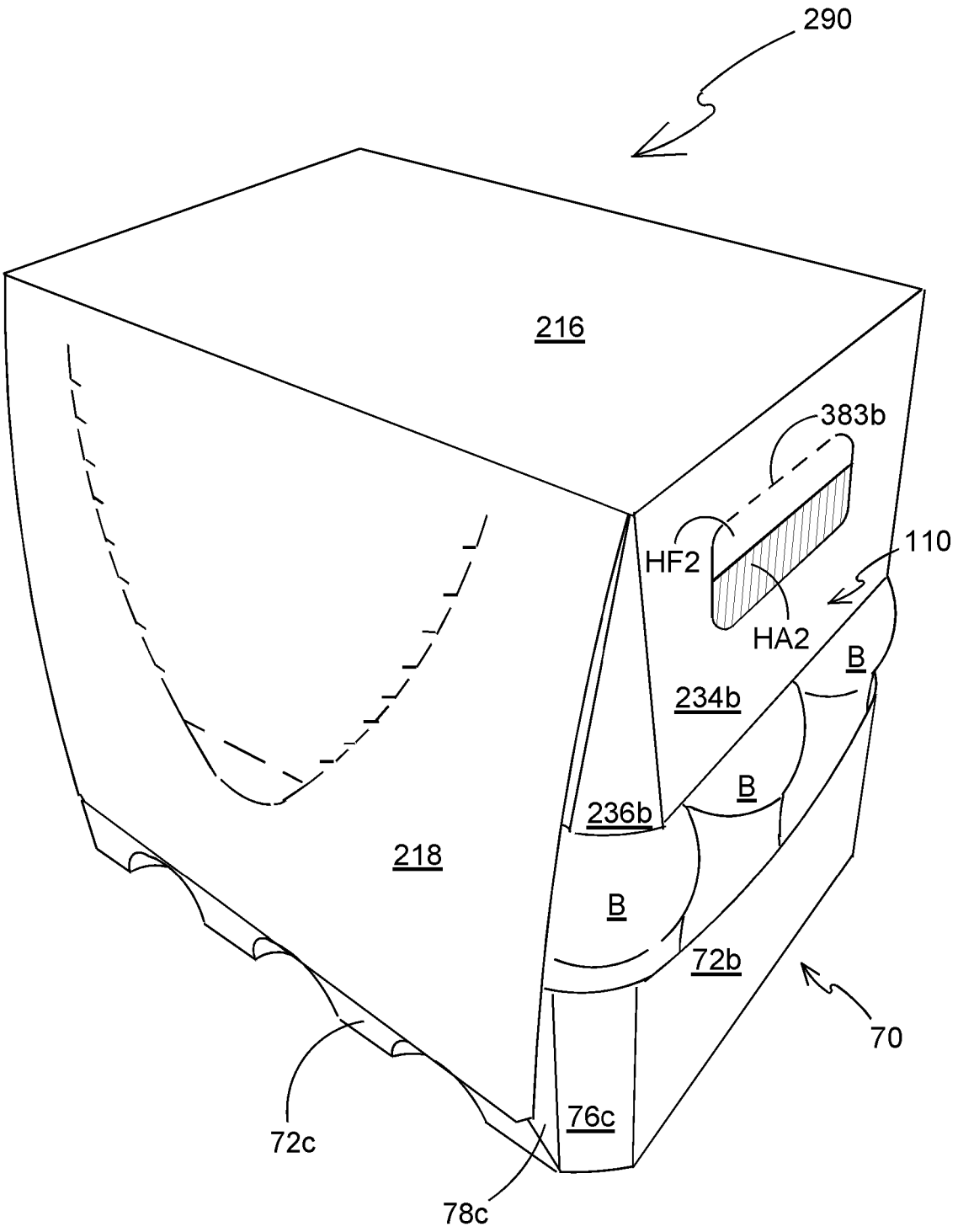

FIGURE 8

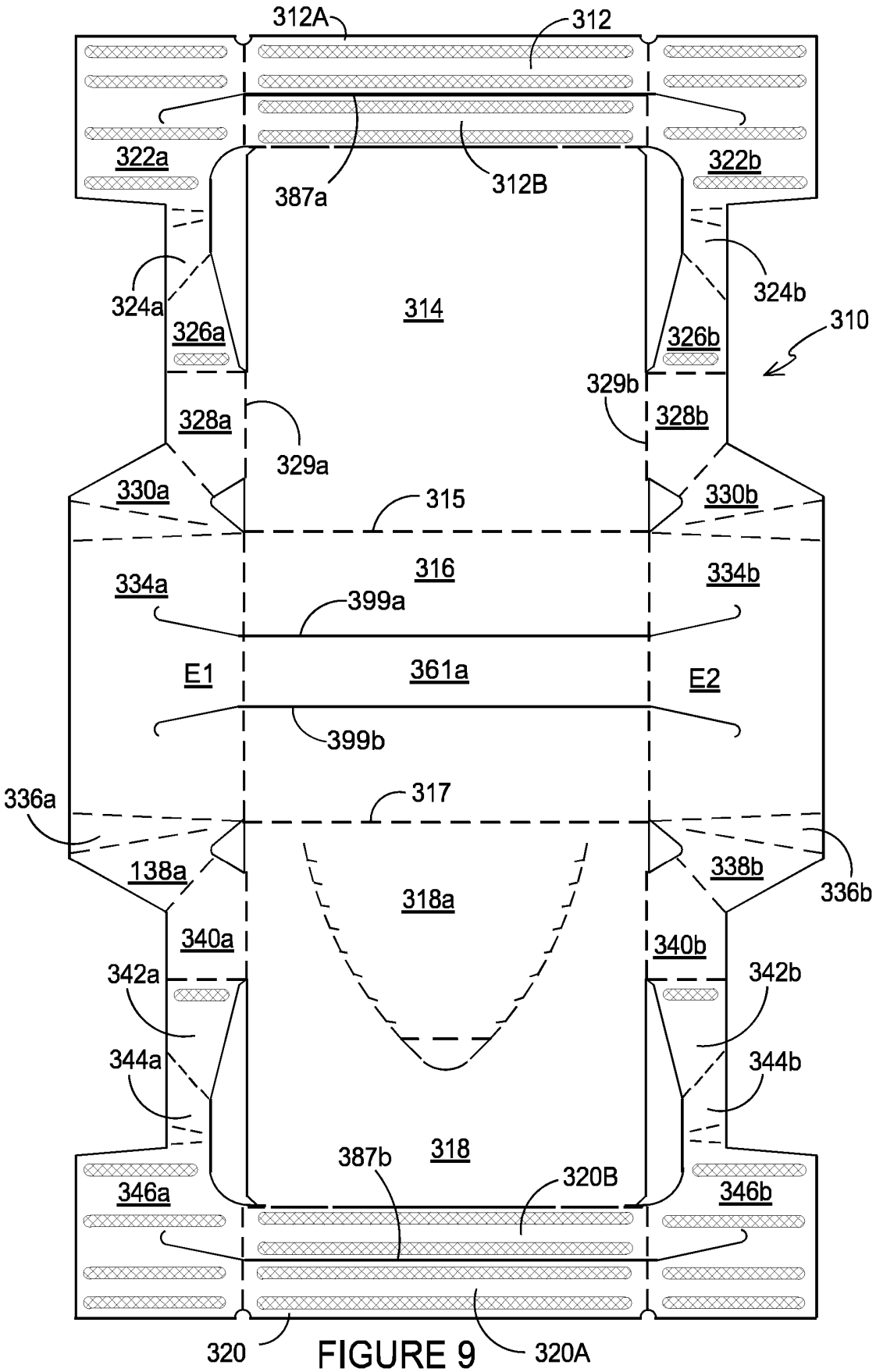
312A
312
322a
322b
387a
312B
324a
324b
314
310
326a
326b
329b
328a
328b
329a
330a
315
330b
316
334a
334b
399a
E1
361a
E2
399b
336a
317
138a
338b
336b
318a
340a
340b
342a
342b
344a
344b
387b
318
320B
346a
346b
320
320A

FIGURE 9

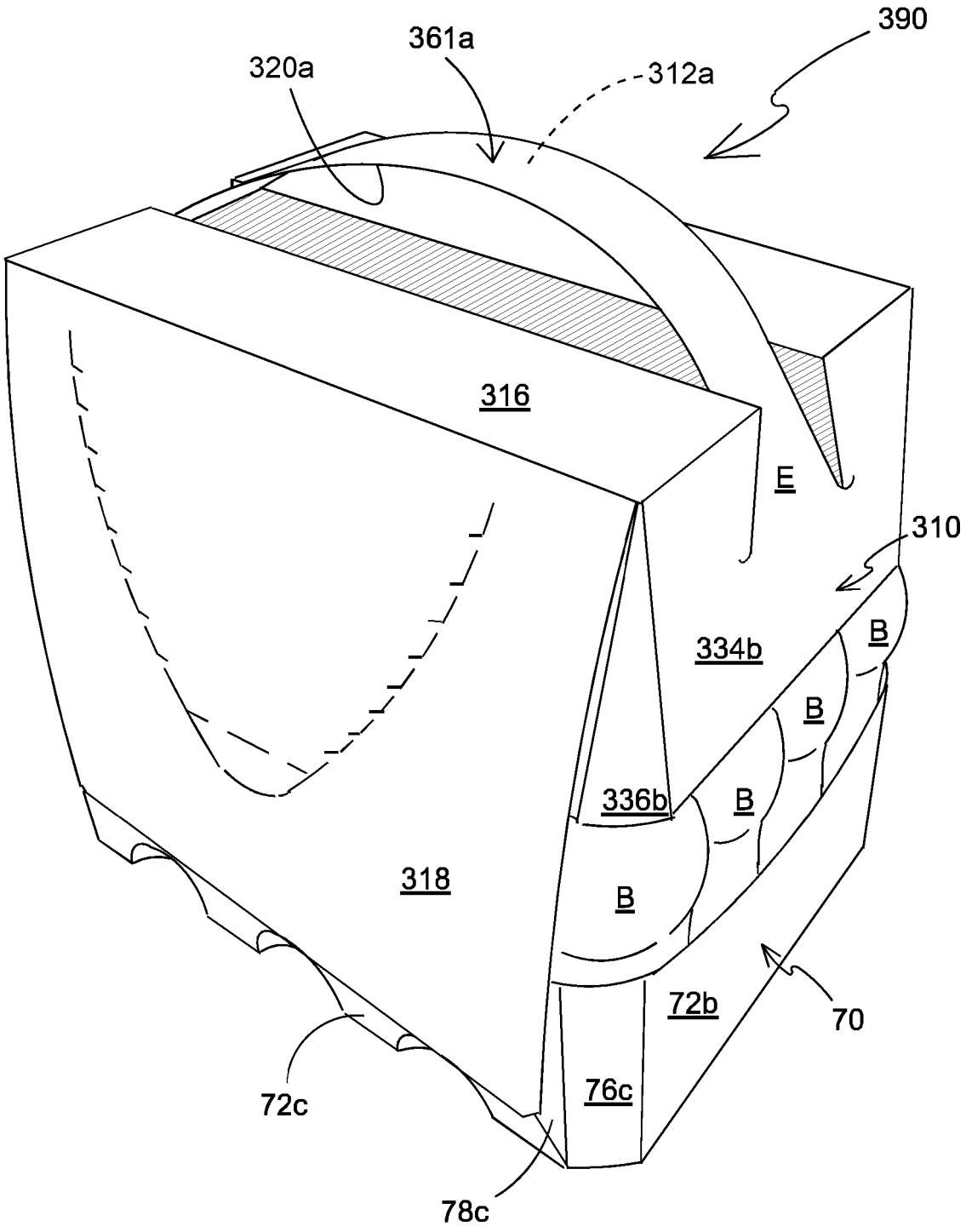
390
361a
320a
312a
316
E
310
334b
B
B
B
336b
B
318
72b
70
76c
72c
78c

FIGURE 10

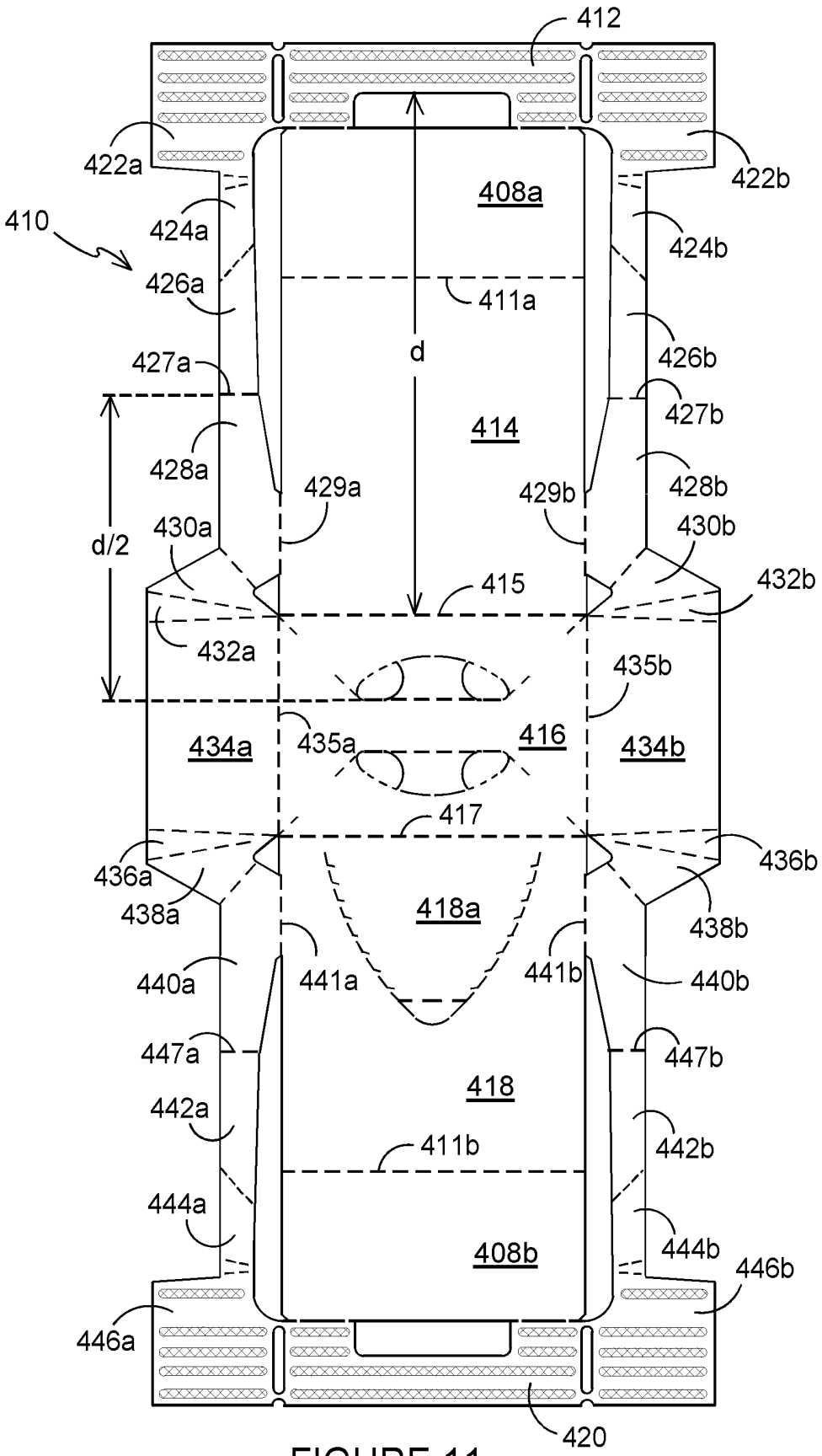
412
422a
422b
410
408a
424a
424b
426a
411a
426b
d
427a
427b
414
428a
428b
429a
429b
d/2
430a
430b
415
432b
432a
435b
434a
435a
416
434b
417
436a
436b
438a
418a
438b
440a
441a
441b
440b
447a
447b
418
442a
411b
442b
444a
408b
444b
446b
446a
420

FIGURE 11

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 9621603 A, Auclair **[0004]**