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(54) ARTICLE CARRIER AND BLANK THEREFOR

ARTIKELTRÄGER UND ZUSCHNITT DAFÜR

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Description

TECHNICAL FIELD

[0001] The present invention relates to article carriers and to blanks for forming the same. More specifically, but not exclusively, the invention relates to a carrier of the top-gripping type having one or more apertures for receiving and retaining an article therein.

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 top gripping article carriers in which an aperture is formed in a panel of the carrier, wherein tabs are struck from said panel and are arranged about the aperture. The tabs are displaced out of the plane of said panel when an article is received in the aperture, wherein said tabs engage the article generally about a flange or lip of the article.

[0004] WO2020/210562 to Zacherle et al discloses an article top engaging device comprising an engaging panel having at least one top-receiving opening defined by a perimeter which defines a notional circle. The perimeter is interrupted by at least three relief elements each extending radially away of the centre of the notional circle. The perimeter comprises a toothed segment and a toothless segment. The toothed segment comprises at least two tooth edges for bearing a substantially vertical load.

[0005] It is desirable to provide a carrying handle to facilitate transportation of the package.

[0006] The present invention seeks to provide an improvement in the field of cartons, typically formed from paperboard or the like.

SUMMARY

[0007] A first aspect of the invention provides an article carrier for engaging at least one article, the article carrier comprising a top panel having at least one article-engaging feature; a pair of side panels hingedly connected to the top panel; and a pair of end panels, each of the pair of end panels bridges between the side panels hingedly connected to the top panel, wherein at least one of the end panels is at least partially detachably connected to the top panel along a severance line characterised in that the severance line extends partially along an end edge of the top panel so that the at least one end panel is at least partially separable from the top panel.

[0008] Optionally, the partially extending severance line stops short of the opposite ends of the at least one end panel.

[0009] Optionally, the severance line comprises at least one line segment which includes a slit passing through a midpoint of the end edge of the top panel.

[0010] Optionally, each of the side panels is secured at one of its ends to the at least one end panel.

[0011] Optionally, each of the side panels is connected at one of its ends to the at least one end panel by a locking feature.

[0012] Optionally, the top panel comprises at least two bevelled corners, and the end edge of top panel extends between the bevelled corners.

[0013] Optionally, the severance line forms a hinged connection between the at least one of the end panels and the top panel, the hinged connection being severable to facilitate deployment of a carrying handle formed in part by the at least one of the end panels.

[0014] Optionally, the severance line forms a hinged connection between the at least one of the end panels and the top panel, the hinged connection being severed upon deployment of a carrying handle formed in part by the at least one of the end panels.

[0015] Optionally, the article carrier further comprises a bundling structure for encircling the at least one article, the bundling structure comprises a first segment and a second segment, the first segment includes: a first side panel hingedly connected to the top panel; and a bridging portion hingedly connected to the first side panel, wherein the second segment includes an outer end panel at least partially severably connected to the top panel; an inner end panel hingedly connected to the outer end panel and disposed in an overlapping position with the outer end panel; and a bridge-engaging feature in engagement with the bridging portion of the first segment, wherein the bridge-engaging feature is provided at least by the inner and outer end panels such that at least part of the bridging portion is disposed between the inner and outer end panels in face-contacting arrangement with the inner and outer end panels.

[0016] Optionally, the article carrier further comprises a bundling structure for encircling the at least one article, the bundling structure comprises a first segment and a second segment, the first segment includes a first side panel hingedly connected to the top panel; and a bridging portion hingedly connected to the first side panel, wherein the second segment includes: an end panel at least partially severably connected to the top panel; wherein the bridging portion of the first segment is secured to the end panel in face-contacting arrangement therewith.

[0017] Optionally, further comprising a bundling structure for encircling the at least one article, the bundling structure comprises a first segment and a second segment, the first segment includes: a first end panel at least partially severably connected to the top panel; and a

bridging portion hingedly connected to the first end panel, wherein the second segment includes: a side panel hingedly connected to the top panel wherein the bridging portion of the first segment is secured to the side panel in face-contacting arrangement therewith.

[0018] Optionally, and at least one article, the carrier comprising: a top panel having at least one article-engaging feature retaining a respective article; a pair of side panels hingedly connected the top panel; and a pair of end panels each of the pair of end panels bridges between the side panels, wherein at least one of the end panels is at least partially detachably connected to the top panel along a severance line and wherein the at least one of the end panels forms part of a carrying handle and the severance line comprises at least one frangible connection element, characterised by the at least one frangible connection element being intact prior to initial use of the carrying handle.

[0019] A second aspect of the invention provides a blank for forming a top-engaging carrier, the blank comprising a top panel having at least one article-engaging feature; a pair of side panels hingedly connected the top panel; and a pair of end panels, each of the pair of end panels bridges between the side panels, wherein at least one of the end panels is at least partially detachably connected to the top panel along a severance line, characterised in that the severance line is frangible such that it remains unbroken upon formation of the top-engaging carrier.

[0020] Optionally, wherein the severance line extends partially along an end edge of the top panel so that the at least one end panel is at least partially separable from the top panel to form at least part of a carrying handle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] 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 blank for forming a carrier according to a first embodiment;
Figure 2 is a perspective view from above of a carrier formed from the blank of Figure 1;
Figure 3 is a perspective view from above of the carrier of Figure 2 showing a carrying handle in use;
Figure 4 is a plan view from above of a blank for forming a carrier according to a second embodiment;
Figure 5 is a perspective view from above of a carrier formed from the blank of Figure 4;
Figure 6 is a plan view from above of a blank for forming a carrier according to a third embodiment;
Figure 7 is a perspective view from above of a carrier formed from the blank of Figure 6 showing a carrying handle in use;
Figure 8 is a plan view from above of a blank for forming a carrier according to a fourth embodiment;
Figure 9 is a perspective view from above of a carrier formed from the blank of Figure 8 showing a carrying handle in use;
Figure 10 is a plan view from above of a blank for forming a carrier according to a fifth embodiment;
Figure 11 is a perspective view from above of a carrier formed from the blank of Figure 10; and
Figure 12 is a perspective view from above of a carrier formed from the blank of Figure 10 showing a carrying handle in use.

DETAILED DESCRIPTION OF EMBODIMENTS

[0022] Detailed descriptions of specific embodiments of the package, blanks and carriers 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 carriers described herein may be embodied in various and alternative forms. The Figures are not necessarily to scale and some features may be exaggerated or minimized 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.

[0023] Referring to Figure 1, there is shown a plan view of a blank 10 which is capable of forming a carton or carrier 90, as shown in Figure 2, 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 10 forms a secondary package for packaging at least one primary product container or package.

[0024] Alternative blanks 110; 210; 310; 410 are shown in Figures 4, 6, 8, and 10 for forming cartons or carriers 190; 290; 390; 490, as shown in Figures 5, 7, 9, and 11, for containing and carrying a group of primary products such as, but not limited to, bottles or cans, hereinafter referred to as articles B.

[0025] 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.

[0026] 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.

[0027] The packaging structures or cartons 90; 190; 290; 390; 490 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. An example of such a sheet material is tear-resistant NATRALOCK® paperboard made by WestRock Company. It should be noted that the tear resistant materials may be provided by more than one layer, to help improve the tear-resistance of the package. Typically, one surface of the sheet material may have different characteristics to the other surface. For example, the surface of the sheet material that faces outwardly from a finished package may be particularly smooth and may have a coating such as a clay coating or other surface treatment to provide good printability. The surface of the sheet material that faces inwardly may, on the other hand, be provided with a coating, a layer, a treatment or be otherwise prepared to provide properties such as one or more of tear-resistance, good glue-ability, heat sealability, or other desired functional properties.

[0028] In the illustrated embodiments, the blanks 10; 110; 210; 310; 410 are configured to form a carton or carrier 90 for packaging an exemplary arrangement of exemplary articles B. In the embodiments illustrated in Figures 1 to 11, the arrangement is a 2×3 matrix or array; in the illustrated embodiments two rows of three articles B are provided, and the articles B are 330ml beverage cans of a sleek or slim design.

[0029] 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.

[0030] Referring to Figure 1 there is shown a blank 10 comprising a plurality of panels 12, 14, 16, 18, 20, including a main panel 12 for forming a top wall or engaging panel of a carrier 90 (see Figure 2).

[0031] A first side panel 18 is hingedly connected to a first side of the main panel 12 by a hinged connection in the form of a fold line 17.

[0032] A second side panel 20 is hingedly connected to a second side of the main panel 12 by a hinged connection in the form of a fold line 19.

[0033] The blank 10 comprises a first end structure. The first end structure comprises a first end panel 14 hingedly connected to a first end of the main panel 12 by a hinged connection in the form of a severable line 13. The severable line 13 comprises a plurality of cuts or slits separated by frangible nicks or connection elements.

[0034] The first end structure comprises a first corner panel 60A hingedly connected to a first end of the first side panel 18 by a hinged connection in the form of a fold line 61A. A second corner panel 60B is hingedly connected to a first end of the second side panel 20 by a hinged connection in the form of a fold line 61B.

[0035] The first end structure comprises a first securing panel 64A hingedly connected to the first corner panel 60A by a hinged connection in the form of a fold line 63A. A second securing panel 64B is hingedly connected to the second corner panel 60B by a hinged connection in the form of a fold line 63B.

[0036] Optionally, a first web panel 68A is hingedly connected at one end to the first securing panel 64A by a hinged connection in the form of a fold line 69A and is hingedly connected at a second end to the first end panel 14 by a hinged connection in the form of a fold line 71A.

[0037] A cutaway, in the form of an aperture, separates the first web panel 68A from the main panel 12 and the first securing panel 64A. The cutaway separates the first corner panel 60A from the main panel 12 and the first web panel 68A. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 12. The corner is substantially linear in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0038] Optionally, a second web panel 68B is hingedly connected at one end to the second securing panel 64B by a hinged connection in the form of a fold line 69B and is hingedly connected at a second end to the first end panel 14 by a hinged connection in the form of a fold line 71B.

[0039] A second cutaway, in the form of an aperture, separates the second web panel 68B from the main panel 12 and the second securing panel 64B. The cutaway separates the second corner panel 60B from the main panel 12 and the second web panel 68B. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 12. The corner is substantially linear, in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0040] The blank 10 comprises a second end structure. The second end structure comprises a second end panel 16 hingedly connected to a second end of the main panel 12 by a hinged connection in the form of a severable line 15. The severable line 15 comprises a plurality of cuts or slits separated by frangible nicks or connection elements.

[0041] The second end structure comprises a third corner panel 62A hingedly connected to a second end of the first side panel 18 by a hinged connection in the form of a fold line 65A. A fourth corner panel 62B is hingedly connected to a second end of the second side panel 20 by a hinged connection in the form of a fold line 65B.

[0042] The second end structure comprises a third securing panel 66A hingedly connected to the third corner panel 62A by a hinged connection in the form of a fold

line 67A. A fourth securing panel 66B is hingedly connected to the fourth corner panel 62B by a hinged connection in the form of a fold line 67B.

[0043] Optionally, a third web panel 70A is hingedly connected at one end to the third securing panel 66A by a hinged connection in the form of a fold line 73A and is hingedly connected at a second end to the second end panel 16 by a hinged connection in the form of a fold line 75A.

[0044] A third cutaway, in the form of an aperture, separates the third web panel 70A from the main panel 12 and the third securing panel 66A. The cutaway separates the third corner panel 62A from the main panel 12 and the third web panel 70A. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 12. The corner is substantially linear in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0045] Optionally, a fourth web panel 70B is hingedly connected at one end to the fourth securing panel 66B by a hinged connection in the form of a fold line 73B and is hingedly connected at a second end to the second end panel 16 by a hinged connection in the form of a fold line 75B.

[0046] A fourth cutaway, in the form of an aperture, separates the fourth web panel 70B from the main panel 12 and the fourth securing panel 66B. The cutaway separates the fourth corner panel 62B from the main panel 12 and the fourth web panel 70B. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 12. The corner is substantially linear, in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0047] It will be appreciated that the first side panel 18, the first corner panel 60A, the first securing panel 64A, the third corner panel 62A, and the third securing panel 66A form a first strap 64A/60A/18/62A/66A along a first side of the main panel 12. The second side panel 20, the second corner panel 60B, the second securing panel 64B, the fourth corner panel 62B, and the fourth securing panel 66B form a second strap 64B/60B/20/62B/66B along a second side of the main panel 12.

[0048] The first side panel 18, the first corner panel 60A, the first securing panel 64A, the third corner panel 62A, and the third securing panel 66A may fo rm a first segment of a bundling structure. The first corner panel 60A and the first securing panel 64A form a bridging portion of the first segment. The third corner panel 62A and the third securing panel 66A form a second bridging portion of the first segment.

[0049] The first end panel 14 may form a second segment of the bundling structure.

[0050] The second side panel 20, the second corner panel 60B, the second securing panel 64B, the fourth corner panel 62B, and the fourth securing panel 66B may form a third segment of a bundling structure. The second corner panel 60B and the second securing panel 64B form a bridging portion of the third segment. The fourth corner panel 62B and the fourth securing panel 66B a second bridging portion of the third segment.

[0051] The second end panel 16 may form a fourth segment of the bundling structure.

[0052] The main panel 12 comprises at least one article retention structure RT1, RT2. The main panel 12 comprises a plurality of article retention structures RT1, RT2, specifically six article retention structures RT1, RT2 arranged in 2 $\times$ 3 matrix or array. Each of the article retention structures RT1, RT2 comprises an opening or aperture A7, A8.

[0053] The article retention structures RT1, RT2 of the illustrated embodiment take the form of a plurality of teeth or tabs 46, 44 arranged in an annular series about an aperture A7, A8 to form part of an article receiving opening.

[0054] The blank 10 comprises four first or endmost article retention structures RT1 each comprising a first opening or aperture A7. The blank 10 comprises two second, medial or intermediate article retention structures RT2 each comprising a second opening or aperture A8.

[0055] The endmost article retention structures RT1 comprises an article receiving opening defined in part by the first aperture A7 which is defined in, or struck from, the main panel 12.

[0056] The intermediate article retention structures RT2 comprises an article receiving opening defined in part by the second aperture A8 which is defined in, or struck from, the main panel 12.

[0057] The endmost article retention structures RT1 and the intermediate article retention structures RT2 each comprise a plurality of teeth or tabs 46, 44 disposed about the first or second aperture A7, A8 respectively.

[0058] The plurality of teeth 46, 44 are provided by the main panel 12. Each of the teeth 46, 44 is hingedly connected to the main panel 12, by a hinged connection. The hinged connection may be defined by a plurality of cut lines 42, 54. The plurality of cut lines 42, 54 may be arranged as an annular series of cuts about the first or second apertures A1, A2. The plurality of cut lines 42, 54 may define or approximate a portion of circle.

[0059] Each of the first article retention structures RT1 is substantially similar in construction and will therefore be described in detail with reference to a first one of the first article retention structures RT1 located adjacent to a first end of the blank 10 as shown in Figure 1.

[0060] The first article retention structure RT1 comprises a plurality of first or full teeth 46 disposed about the aperture A1. Each of the plurality of first teeth 46 comprises an engaging edge E1 opposing a hinged edge. The engaging edges E1 are defined by a linear portion of a cut line defining the aperture A7. Each engaging edge E1 defines a part of a hexadecagon. The illustrated embodiment comprises eight first teeth 46 together defining a portion of a hexadecagon. Each tooth

46 comprises a pair of side edges, the side edges are defined by cut lines 47, 48 extending radially outward from respective vertices of the hexadecagon. That is to say from a respective vertex between a pair of adjacent linear portions of the cut line defining the aperture A7. The cut lines 47, 48 are divergently arranged with respect to each other and define an angle therebetween, the angle may be about 22.5°.

[0061] The first article retention structure RT1 comprises a plurality of first circumferential cut lines 54. Each of the plurality of first circumferential cut lines 54 is aligned with one of the radial cut lines 47, 48 such that said one of the radial cut lines 47, 48 or a notional extension thereof bisects a respective one of the plurality of first circumferential cut lines 54.

[0062] Each of the plurality of first circumferential cut lines 54 is spaced apart from said one of the radial cut lines 47, 48 bisecting it so as to define a connecting nick or bridge portion between a pair of adjacently disposed teeth 46, 44.

[0063] Each of the plurality of first circumferential cut lines 54 may be linear in shape.

[0064] The first article retention structure RT1 comprises a plurality of second circumferential cut lines 42. Each of the plurality of second circumferential cut lines 42 is disposed between a pair of the plurality of first circumferential cut lines 54 and is spaced apart therefrom so as to define a pair of connecting nick or bridge portions between each tooth 46, 44 and the main panel 12. The pair of connecting nick or bridge portions provide a hinged or foldable connection between each tooth 46, 44 and the main panel 12.

[0065] Each of the plurality of second circumferential cut lines 42 may be linear in shape.

[0066] In alternative embodiments each of the plurality of first circumferential cut lines 54 may be arcuate or curved. The first circumferential cut lines 54 may comprise a radius of curvature which is equal to half the diameter of the article receiving openings. The first circumferential cut lines 54 may comprise a radius of curvature which is greater than half the diameter of the apertures A7.

[0067] In alternative embodiments each of the plurality of second circumferential cut lines 42 may be arcuate or curved. The second circumferential cut lines 42 may comprise a radius of curvature which is equal to half the diameter of the article receiving openings. The second circumferential cut lines 42 may comprise a radius of curvature which is greater than half the diameter of the aperture A7.

[0068] The first and second circumferential cut lines 42, 54 when linear may be considered to define portions of a circle of infinite radius.

[0069] In the illustrated embodiment, the radius of curvature of each of the plurality of second circumferential cut lines 42 is equal to the radius of curvature of each of the plurality of first circumferential cut lines 54 however in other embodiments it may be different.

[0070] Optionally, the plurality of teeth 46, 44 is interrupted by a first recess or cutaway 56B. The first recess 56B lies upon a first notional line y-y. First notional line y-y extends radially from the centre C of the apertures A7, A8 and passes through the centre of the first recess 56B. The first notional line y-y may extend across the grain of the blank 10. The first notional line y-y is oriented perpendicularly with respect to the grain direction. The first notional line y-y extends longitudinally of the blank 10.

[0071] Optionally, the plurality of teeth 46, 44 is interrupted by a second recess or cutaway 56C. The second recess 56C lies upon a second notional line x-x. Second notional line x-x extends radially from the centre C of the apertures A7, A8 and passes through the centre of the second recess 56C. The second notional line x-x may extend along the grain of the blank 10. The notional line x-x is oriented parallel with respect to the grain direction. The notional line x-x extends transversely, or laterally, of the blank 10.

[0072] The first recess 56B is dimensioned so as to occupy a first arc defined by a first minor sector. The first minor sector is defined in part by a first sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a first partial tooth 44 disposed adjacent a first side of the first recess 56B and in part by a second sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a second partial tooth 44 disposed adjacent a second, opposing, side of the first recess 56B. The first and second sector notional lines define a second angle therebetween. The second angle may be in the range 35° to 50°, and may be around 45°.

[0073] The second recess 56C is dimensioned so as to occupy a second arc defined by a second minor sector. The second minor sector is defined in part by a third sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a third partial tooth 44 disposed adjacent a first side of the second recess 56C and in part by a fourth sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a fourth partial tooth 44 disposed adjacent a second, opposing, side of the second recess 56C. The third and fourth sector notional lines define a third angle therebetween. The third angle may be in the range 35° to 50°, and may be around 45°.

[0074] The first and third sector notional lines define a major or first toothed sector, the first toothed sector defines a third arc; the third arc is occupied by teeth 46, 44. That is to say teeth 46, 44 are disposed about the third arc, in a perimeter region of the first aperture A7.

[0075] The second and fourth sector notional lines define a third minor sector or second toothed sector, the second toothed sector defines a fourth arc; the fourth arc is occupied by teeth 46, 44. That is to say teeth 46, 44 are disposed about the fourth arc, in a perimeter region of the first aperture A7.

[0076] The first article retention structure RT1 com-

prises a first engaging tab T1 opposing the second recess 56C and a second engaging tab T2 opposing the first recess 56B.

[0077] The first engaging tab T1 is disposed proximate the first or second side panel 18, 20. The second engaging tab T2 is disposed proximate the first or second end panel 14, 16. The first engaging tab T1 is integral with the main panel 12, that is to say the first and second circumferential cut lines 42, 54 have been omitted. The first engaging tab T1 is proximate to the fold line 17, 19 hinging the main panel 12 to the respective side panel 18, 20.

[0078] The second engaging tab T2 is integral with the main panel 12, that is to say the first and second circumferential cut lines 42, 54 have been omitted. The second engaging tab T2 is proximate to the severable line 13, 15 hinging the main panel 12 to the respective end panel 14, 16.

[0079] Each of the second article retention structures RT2 is substantially similar in construction and will therefore be described in detail with reference to a first one of the second article retention structures RT2 located adjacent to the first one of the first article retention structures RT1 as shown in Figure 1.

[0080] The second article retention structure RT2 comprises an article receiving opening defined in part by a second aperture A8.

[0081] The second article retention structure RT2 comprises a plurality of teeth 46, 44 disposed about the second aperture A8. The plurality of teeth 46, 44, or at least free edges thereof, may define or approximate a second notional circle.

[0082] The plurality of teeth 46, 44 are hinged to the main panel 12 by a fold line. The fold line may be defined by a plurality of cut lines 42, 54. The plurality of cut lines 42, 54 may define or approximate a circle.

[0083] The second aperture A8 comprises a plurality of first or full teeth 46 disposed about the second aperture A8. Each of the plurality of first teeth 46 comprises an engaging edge E1 opposing a hinged edge. The engaging edges E1 are defined by a linear portion of a cut line defining the second aperture A8. Each engaging edge E1 defines a part or side of a hexadecagon. The illustrated embodiment comprises seven first teeth 46 together defining a portion of a hexadecagon. Each tooth 46 comprises a pair of side edges, the side edges are defined by cut lines 47, 48 extending radially outward from respective vertices of the hexadecagon. That is to say from a respective vertex between a pair of adjacent linear portions of the cut line defining the second aperture A8. The cut lines 47, 48 are divergently arranged with respect to each other and define an angle therebetween, the angle may be about 22.5°.

[0084] The second article retention structure RT2 comprises a plurality of first circumferential cut lines 54. Each of the plurality of first circumferential cut lines 54 is aligned with one of the radial cut lines 47, 48 such that said one of the radial cut lines 47, 48, or a notional extension thereof, bisects a respective one of the plurality of first circumferential cut lines 54.

[0085] Each of the plurality of first circumferential cut lines 54 is spaced apart from said one of the radial cut lines 47, 48 bisecting it so as to define a connecting nick or bridge portion between a pair of adjacently disposed teeth 46, 44. The connecting nick or bridge portion is disposed proximate a base of the teeth 46.

[0086] Each of the plurality of first circumferential cut lines 54 may be linear in shape.

[0087] The second article retention structure RT2 comprises a plurality of second circumferential cut lines 42. Each of the plurality of second circumferential cut lines 42 is disposed between a pair of the plurality of first circumferential cut lines 54 and is spaced apart therefrom so as to define a pair of connecting nick or bridge portions between each tooth 46, 44 and the main panel 12. The pair of connecting nick or bridge portions provide a hinged or foldable connection between each tooth 46, 44 and the main panel 12.

[0088] Each of the plurality of second circumferential cut lines 42 may be linear in shape.

[0089] The plurality of teeth 46, 44 is interrupted by a first recess or cutaway 56B, by a second recess or cutaway 56C and by a third recess or cutaway 56A. The first and third recesses 56B, 56A each lie upon the first notional line y-y. The first notional line y-y extends radially from the centre C of the second aperture A8 and passes through the centre of each of the first and third recesses 56B, 56A.

[0090] The first recess 56B is dimensioned so as to occupy a first arc defined by a first minor sector. The first minor sector is defined in part by a first sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a first partial tooth 44, disposed adjacent to a first side of the first recess 56B, and in part by a second sector notional line extending radially from the centre of the notional circle and passing through a side edge of a second partial tooth 44, disposed adjacent to a second, opposing, side of the first recess 56B. The first and second sector notional lines define an angle therebetween. The angle may be in the range 35° to 50°, and may be around 45°.

[0091] The second recess 56C is dimensioned so as to occupy a second arc defined by a second minor sector. The second minor sector is defined in part by a third sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a third partial tooth 44, disposed adjacent to a first side of the second recess 56C, and in part by a fourth sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a fourth partial tooth 44, disposed adjacent to a second, opposing, side of the second recess 56C. The third and fourth sector notional lines define an angle therebetween. The third angle may be in the range 35° to 50°, and may be around 45°.

[0092] The third recess 56A is dimensioned so as to

occupy a third arc defined by a third minor sector. The third minor sector is defined in part by a fifth sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a fifth partial tooth 44, disposed adjacent to a first side of the third recess 56A, and in part by a sixth sector notional line extending radially from the centre C of the notional circle and passing through a side edge of a sixth partial tooth 44, disposed adjacent to a second, opposing, side of the third recess 56A. The fifth and sixth sector notional lines define an angle therebetween. The third angle may be in the range 35° to 50°, and may be around 45°.

[0093] The first and fifth sector notional lines define a major or first toothed sector, the first toothed sector defines a fourth arc; the fourth arc is occupied by teeth 46, 44. That is to say teeth 46, 44 are disposed about the fourth arc, in a perimeter region of the second aperture A8.

[0094] The second and fourth sector notional lines define a third minor sector or second toothed sector, the second toothed sector defines a fifth arc; the fifth arc is occupied by teeth 46, 44. That is to say teeth 46, 44 are disposed about the fifth arc, in a perimeter region of the second aperture A8.

[0095] The third and sixth sector notional lines define a fourth minor sector or third toothed sector, the third toothed sector defines a sixth arc; the sixth arc is occupied by teeth 46, 44. That is to say teeth 46, 44 are disposed about the sixth arc, in a perimeter region of the second aperture A8.

[0096] The first and third recesses 56B, 56A are diametrically opposed to each other.

[0097] The second recess 56C is oriented or disposed substantially orthogonally to the first and third recesses 56B, 56A.

[0098] The centre of the first and third recesses 56B, 56A of the second article retention structure RT2 are collinear with the centre of the first recess 56B of the first article retention structure RT1.

[0099] The first recess 56B of each second article retention structure RT2 is disposed proximate to the first recess 56B of an adjacent one of the first article retention structure RT1 and is oriented in opposition thereto.

[0100] The third recess 56A of each second article retention structure RT2 is disposed proximate to the first recess 56B of an adjacent one of the first article retention structure RT1 and is oriented in opposition thereto.

[0101] The second recesses 56C of the second article retention structures RT2 are disposed proximate to each other and are oriented in opposition to each.

[0102] The second recess 56C of each of the first article retention structures RT1 is disposed proximate to the second recess 56C of an adjacently disposed first article retention structure RT1, and is oriented in opposition thereto.

[0103] The second article retention structure RT2 comprises a first engaging tab T1 opposing the second recess 56C.

[0104] The first engaging tab T1 is disposed proximate the first or second side panel 18, 20. The first engaging tab T1 is integral with the main panel 12, that is to say the first and second circumferential cut lines 42, 54 have been omitted. The first engaging tab T1 is proximate to the fold line 17, 19 hinging the main panel 12 to the respective side panel 18, 20.

[0105] The grain of the material forming the blank 10 may be arranged to be tangential to the centre of the first and third recesses 56B, 56A of the second article retention structure RT2. The grain of the material forming the blank 10 may be arranged to be tangential to the centre of the first recess 56B of the first article retention structure RT1. In this way in order for a tear to propagate between the first aperture A7 and the second aperture A8 the tear must propagate across the grain of the blank 10. In this way the blank 10 is arranged to provide maximum resistance to tear propagation between the first and second apertures A7, A8.

[0106] Removal of the teeth 46, by providing recesses 56B, 56C, 56A at locations where two adjacent apertures A7, A8 are disposed in close proximity, for example when packaging articles B of the sleek or slim design (articles B which are substantially of the same diameter over their entire height. In some embodiments the variation in diameter between a top closure of the article Band the main body of the article B may be less than 7mm, may be less than 5mm and optionally is less than 4mm.), has been found to reduce the likelihood of tear propagation. This beneficial advantage may be a result of removal of the radial cut lines 47, 48 in regions of the blank 210 where the apertures A7, A8 are in close proximity.

[0107] The blank 10 can be applied to a group of articles B in a flat form and folded thereabout.

[0108] The main panel 12 is lowered with respect to a group of articles B.

[0109] Each of the article retention structures RT1, RT2 of the blank 10 is aligned with a respective article B in the group. Portions of the articles B pass through the main panel 12. The toothed regions of the main panel 12 about each of the article retention structures RT1, RT2 may be folded out of the plane of the main panel 12.

[0110] Each toothed region of the main panel 12 may be folded about one of the articles B received in the respective one of the article retention structures RT1, RT2. The main panel 12 may deform about the article B for example, but not limited to, a shoulder portion of the article B, where the article B is a can the shoulder portion may be provide by the neck-in, as shown in Figure 3.

[0111] The engaging edges E1 of the teeth 44, 46 engage beneath a projection. The projection may be located about the neck or chime of the article B (which may provide a flange) of an article B. When the article B is a can, the projection may be provided by a canner's end seam. In other embodiments, the engaging feature or location may be provided by a ridge or undercut shaping of the article B or by an end closure of the article B for example but not limited to a crown cork or closure. In this

way, the engaging edges grip or hold the article B and prevent or inhibit the article B from unintentionally separating from the main panel 12.

[0112] The first and second side panels 18, 20 are folded about the opposing sides of the group of articles B. The corner panels 60A, 60B, 62A, 62B are folded about the corners of the group of articles B and the securing panels 64A, 64B, 66A, 66B are folded about ends of the group of articles B.

[0113] Glue or other adhesive treatment may be applied to the securing panels 64A, 64B, 66A, 66B or to an inner surface of corresponding regions of the first and second end panels 14, 16.

[0114] The first and second end panels 14, 16 are folded downwards about a respective end of the group of articles B. The first and second end panels 14, 16 are brought into face contacting relationship with respective ones of the securing panels 64A, 64B, 66A, 66B. The first and second end panels 14, 16 are secured to respective ones of the securing panels 64A, 64B, 66A, 66B.

[0115] A package comprising the article carrier 90 and the group of articles B is shown in Figures 2 and 3.

[0116] The carrier 90 may beneficially conceal a part of the articles B from view. The side panels 18, 20 and/or end panels 14, 16 may conceal a region of the articles B, for example said panels 18, 20, 14, 16 may conceal a barcode or other indicia such as, but not limited to, price indicia provided on individual articles B.

[0117] The side panels 18, 20 and end panels 14, 16 encircle or surround the group of articles B and may contain or confine the articles B; they may prevent or inhibit movement of the articles B for example tilting or splaying of the articles B when the article carrier 90 is carried by a user. The engagement of the side panels 18, 20 with the end panels 14, 16 via the securing panels 64A, 64B, 66A, 66B (and the corner panels 60A, 60B, 62A, 62B when present) may increase the strength, rigidity and robustness of the carrier 90 for example when carrying the carrier 90 by engagement with one of the plurality of panels 12, 14, 16, 18, 20.

[0118] Figure 3 illustrates a carrying handle in use, the carrying handle is formed at least in part from the first or second end panel 14, 16. Figure 3 shows a user U engaging the first end panel 14.

[0119] The user U may insert one or more fingers into a gap or void between the first end panel 14 and the group of articles B, the void may be defined between cylindrical side walls of a pair of adjacent articles B.

[0120] The severable line 13 when severed separates the first end panel 14 from the main panel 12.

[0121] An intermediate or medial region of the first end panel 14 can be displaced outwardly of the article carrier 90, such that the first end panel 14 is bowed in shape.

[0122] Referring now to Figures 4 and 5 there is shown an alternative 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 alternative embodiment shares many common features with the embodiment of Figures 1 to 3, therefore only the differences from the embodiment illustrated in Figures 1 to 3 will be described in any greater detail.

[0123] Figure 4 shows a blank 110 comprising a plurality of panels 112, 114, 116, 118, 120, including a main panel 112 for forming a top wall or engaging panel of a carrier 190 (see Figure 5).

[0124] A first side panel 118 is hingedly connected to a first side of the main panel 112 by a hinged connection in the form of a fold line 117.

[0125] A second side panel 120 is hingedly connected to a second side of the main panel 112 by a hinged connection in the form of a fold line 119.

[0126] The blank 110 comprises a first end structure. The first end structure comprises a first end panel 114 hingedly connected to a first end of the main panel 112 by a hinged connection. The hinged connection comprises a first intermediate portion provided by a severable line 113 and a pair of end portions each provided by a fold line 113F. The severable line 113 comprises a plurality of cuts or slits separated by frangible nicks or connection elements. In this way the first end panel 114 is partially severable from the main panel 112.

[0127] The first end structure comprises a first corner panel 160A hingedly connected to a first end of the first side panel 118 by a hinged connection in the form of a fold line 161A. A second corner panel 160B is hingedly connected to a first end of the second side panel 120 by a hinged connection in the form of a fold line 161B.

[0128] The first end structure comprises a first securing panel 164A hingedly connected to the first corner panel 160A by a hinged connection in the form of a fold line 163A. A second securing panel 164B is hingedly connected to the second corner panel 160B by a hinged connection in the form of a fold line 163B.

[0129] Optionally, a first web panel 168A is hingedly connected at one end to the first securing panel 164A by a hinged connection in the form of a fold line 169A and is hingedly connected at a second end to the first end panel 114 by a hinged connection in the form of a fold line 171A.

[0130] Optionally, a second web panel 168B is hingedly connected at one end to the second securing panel 164B by a hinged connection in the form of a fold line 169B and is hingedly connected at a second end to the first end panel 114 by a hinged connection in the form of a fold line 171B.

[0131] The blank 110 comprises a second end structure. The second end structure comprises a second end panel 116 hingedly connected to a second end of the main panel 112 by a hinged connection. The hinged connection comprises a first intermediate portion provided by a severable line 115 and a pair of end portions each provided by a fold line 115F. The first intermediate portion of the severable line 115 comprises a plurality of cuts or slits separated by frangible nicks or connection elements. In this way the second end panel 116 is partially

severable from the main panel 112.

[0132] The second end structure comprises a third corner panel 162A hingedly connected to a second end of the first side panel 118 by a hinged connection in the form of a fold line 165A. A fourth corner panel 162B is hingedly connected to a second end of the second side panel 120 by a hinged connection in the form of a fold line 165B.

[0133] The first end structure comprises a third securing panel 166A hingedly connected to the third corner panel 162A by a hinged connection in the form of a fold line 167A. A fourth securing panel 166B is hingedly connected to the fourth corner panel 162B by a hinged connection in the form of a fold line 167B.

[0134] Optionally, a third web panel 170A is hingedly connected at one end to the third securing panel 166A by a hinged connection in the form of a fold line 173A and is hingedly connected at a second end to the second end panel 116 by a hinged connection in the form of a fold line 175A.

[0135] Optionally, a fourth web panel 170B is hingedly connected at one end to the fourth securing panel 166B by a hinged connection in the form of a fold line 1173B and is hingedly connected at a second end to the second end panel 116 by a hinged connection in the form of a fold line 75B.

[0136] It will be appreciated that the first side panel 118, the first corner panel 160A, the first securing panel 164A, the third corner panel 162A, and the third securing panel 166A form a first strap 164A/160A/118/162A/166A along a first side of the main panel 112. The second side panel 120, the second corner panel 160B, the second securing panel 164B, the fourth corner panel 162B, and the fourth securing panel 166B form a second strap 164B/160B/120/162B/166B along a second side of the main panel 112.

[0137] The main panel 112 comprises at least one article retention structure RT1, RT2. The main panel 112 comprises a plurality of article retention structures RT1, RT2, specifically six article retention structures RT1, RT2 arranged in 2 $\times$ 3 matrix or array. Each of the article retention structures RT1, RT2 is substantially the same in construction as the article retention structures RT1, RT2 of Figure 1 and will not be described in further detail.

[0138] Figure 5 illustrates an article carrier 190 formed from the blank 110, the end panels 114, 116 are partially separated from the main panel 112. End portions of the end panels 114, 116 are connected to the main panel 112. A medial region of each of the end panels 114, 116 is displaceable outward to form a carrying handle.

[0139] Referring now to Figures 6 to 9 there is shown further alternative embodiments of the present disclosure. In the third and fourth illustrated embodiments, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "200"; "300" to indicate that these features belong to the third and fourth embodiments respectively. The third and fourth embodiments share many common features with the embodiments of Figures 1 to 5, therefore only the differences from the embodiments illustrated in Figures 1 to 5 will be described in any greater detail.

[0140] Figure 6 shows a blank 210 according to the third illustrated embodiment; the blank 210 comprises a plurality of panels 212, 214A, 214B, 216A, 216B, 218, 220 including a main panel 212 for forming a top wall or engaging panel of a carrier 290 (see Figure 7).

[0141] A first side panel 218 is hingedly connected to a first side of the main panel 212 by a hinged connection in the form of a fold line 217.

[0142] A second side panel 220 is hingedly connected to a second side of the main panel 212 by a hinged connection in the form of a fold line 219.

[0143] The blank 210 is configured to be assembled without requiring adhesive and comprises end structures adapted to be mechanically secured.

[0144] The blank 210 comprises a first end structure. The first end structure comprises a first upper end panel 214A hingedly connected to a first end of the main panel 212 by a hinged connection.

[0145] The hinged connection comprises a first intermediate portion provided by a severable line 213A and a pair of end portions each provided by a fold line 213F. The severable line 213A comprises a plurality of cuts or slits separated by frangible nicks or connection elements. In this way the first upper end panel 214A is partially severable from the main panel 212.

[0146] A first lower end panel 214B is hingedly connected to the first upper end panel 214A by a hinged connection in the form of a fold line 213B.

[0147] The first end structure comprises a first corner panel 260A hingedly connected to a first end of the first side panel 218 by a hinged connection in the form of a fold line 261A. A second corner panel 260B is hingedly connected to a first end of the second side panel 220 by a hinged connection in the form of a fold line 261B.

[0148] The first end structure comprises a first securing panel 264A hingedly connected to the first corner panel 260A by a hinged connection in the form of a fold line 263A. A second securing panel 264B is hingedly connected to the second corner panel 260B by a hinged connection in the form of a fold line 263B.

[0149] Optionally, a first web panel 268A is hingedly connected at one end to the first securing panel 264A by a hinged connection in the form of a fold line 269A and is hingedly connected at a second end to the first upper end panel 214A by a hinged connection in the form of a fold line 271A.

[0150] Optionally, a second web panel 268B is hingedly connected at one end to the second securing panel 264B by a hinged connection in the form of a fold line 269B and is hingedly connected at a second end to the first upper end panel 214A by a hinged connection in the form of a fold line 271B.

[0151] The blank 210 comprises a second end structure. The second end structure comprises a second

upper end panel 216A hingedly connected to a second end of the main panel 212 by a hinged connection. The hinged connection comprises a first intermediate portion provided by a severable line 215A and a pair of end portions each provided by a fold line 215F. The severable line 215A comprises a plurality of cuts or slits separated by frangible nicks or connection elements. In this way the second upper end panel 216A is partially severable from the main panel 212.

[0152] A second lower end panel 216B is hingedly connected to the second upper end panel 216A by a hinged connection in the form of a fold line 215B.

[0153] The second end structure comprises a third corner panel 262A hingedly connected to a second end of the first side panel 218 by a hinged connection in the form of a fold line 265A. A fourth corner panel 262B is hingedly connected to a second end of the second side panel 220 by a hinged connection in the form of a fold line 265B.

[0154] The first end structure comprises a third securing panel 266A hingedly connected to the third corner panel 262A by a hinged connection in the form of a fold line 267A. A fourth securing panel 266B is hingedly connected to the fourth corner panel 262B by a hinged connection in the form of a fold line 267B.

[0155] Optionally, a third web panel 270A is hingedly connected at one end to the third securing panel 266A by a hinged connection in the form of a fold line 273A and is hingedly connected at a second end to the second upper end panel 216A by a hinged connection in the form of a fold line 275A.

[0156] Optionally, a fourth web panel 270B is hingedly connected at one end to the fourth securing panel 266B by a hinged connection in the form of a fold line 273B and is hingedly connected at a second end to the second upper end panel 216A by a hinged connection in the form of a fold line 275B.

[0157] It will be appreciated that the first side panel 218, the first corner panel 260A, the first securing panel 264A, the third corner panel 262A, and the third securing panel 266A form a first strap 264A/260A/218/262A/266A along a first side of the main panel 212. The second side panel 220, the second corner panel 260B, the second securing panel 264B, the fourth corner panel 262B, and the fourth securing panel 266B form a second strap 264B/260B/220/262B/266B along a second side of the main panel 212.

[0158] The blank 210 comprises first flap 272 hingedly connected to the first lower end panel 214B by a hinged connection. The hinged connection is defined, at least in part, by a cut line V1. Cut line V1 defines a tab P1 extending from an outer or lower edge of the first lower end panel 214B. The cut line V1 forms a receiver, in the form of an opening, slot or slit, for receiving a locking tab or detent C1. Each of the first and second securing panels 264A, 264B comprises a locking tab or detent C1 extending from a lower edge thereof.

[0159] The first flap 272 may comprise a pair of wing portions 274A, 274B hingedly connected by a respective fold line 277A, 277B to a central portion of the first flap 272. The fold lines 277A, 277B may be divergently arranged with respect to each other, the fold lines 277A, 277B diverge towards the first lower end panel 214B.

[0160] Each of the first and second securing panels 264A, 264B comprises a cutaway in the form of an aperture A5. Each aperture A5 forms a second receiver for receiving a respective second locking tab or detent C2. The first upper end panel 214A comprises a pair of cut lines 201, each of which is substantially "U" shaped, each cut line 201 defines a respective detent C2.

[0161] The blank 210 comprises second flap 276 hingedly connected to the second lower end panel 216B by a hinged connection. The hinged connection is defined, at least in part, by a cut line V2. Cut line V2 defines a second tab P2 extending from an outer or lower edge of the second lower end panel 216B. The cut line V2 forms a receiver, in the form of an opening, slot or slit, for receiving a locking tab or detent C2. Each of the third and fourth securing panels 266A, 266B comprises a locking tab or detent C2 extending from a lower edge thereof.

[0162] The second flap 276 may comprise a pair of wing portions 278A, 278B hingedly connected by a respective fold line 278A, 278B to a central portion of the second flap 276. The fold lines 279A, 279B may be divergently arranged with respect to each other, the fold lines 279A, 279B diverge towards the second lower end panel 216B.

[0163] Each of the third and fourth securing panels 266A, 266B comprises a cutaway in the form of an aperture A5. Each aperture A5 forms a second receiver for receiving a respective second locking tab or detent C2. The second upper end panel 216A comprises a pair of cut lines 201, each of which is substantially "U" shaped, each cut line 201 defines a respective detent C2.

[0164] The main panel 212 comprises a plurality of article retention structures RT, specifically eight article retention structures RT1, RT2 arranged in 2×3 matrix or array. Each of the article retention structures RT1, RT2 is substantially the same in construction as the article retention structures RT1, RT2 of Figures 1 and 4 and will not be described in further detail.

[0165] The end structures are folded to secure the first and second side panels 218, 220 about sides of a group of articles B.

[0166] The main panel 212 is lowered with respect to a group of articles B. The first and second side panels 218, 220 are folded about the opposing side of the group of articles B. The corner panels 260A, 260B, 262A, 262B are folded about the corners of the group of articles B and the securing panels 264A, 264B, 266A, 266B are folded about ends of the group of articles B.

[0167] The first and second upper end panels 214A, 216A are folded downwards about a respective end of the group of articles B. The first and second lower end panels 214B, 216B are folded upwardly with respect to the first and second upper end panels 214A, 216A such that the

detents C2 can be inserted into the apertures A5. The first and second lower end panels 214B, 216B are folded downwardly to return to a substantially coplanar relationship with the respective one of the first and second upper end panels 214A, 216A to which they are hinged.

[0168] The first and second flaps 272, 276 are folded internally, the wing portions 274A, 274B, 276A, 276B are folded with respect to the central portion so as to pass the side walls of adjacently disposed articles B.

[0169] The cut line V2 forms an opening in which the locking tab C1 of each securing panel 266A, 266B is received.

[0170] The wing portions 278A, 278B are folded into coplanar relationship with the central portion of tab 272; in this way the tab 272 is held in position by the adjacently disposed articles B.

[0171] The tab 272 is held in the folded condition by the articles B and inhibits disengagement of the locking tabs C1 from the receiver.

[0172] The tab 272 in the folded condition is in face-to-face relationship with the portions of the detents C2 received in the apertures A5; and may inhibit disengagement of detents C2 from the apertures A5.

[0173] The tabs P1, P2 may conceal or protect the locking tabs C1 so as to improve security of the locking tabs C1 in the receiver.

[0174] Figure 8 shows a blank 310 according to the fourth illustrated embodiment; the blank 310 comprises a plurality of panels 312, 314A, 314B, 316A, 316B, 318, 320 including a main panel 312 for forming a top wall or engaging panel of a carrier 390 (see Figure 9).

[0175] The embodiment of Figures 8 and 9 comprises a first end structure including a first upper end panel 314A hingedly and severably connected to a first end of the main panel 312 by a severable hinged connection. The first end structure may be deployed to form a carrying handle, as shown in Figure 9.

[0176] The first end structure comprises a first corner panel 360A hingedly connected to a first end of a first side panel 318 by a hinged connection in the form of a fold line 361A. A second corner panel 360B is hingedly connected to a first end of a second side panel 320 by a hinged connection in the form of a fold line 361B.

[0177] The first end structure comprises a first securing panel 364A hingedly connected to the first corner panel 360A by a hinged connection in the form of a fold line 363A. A second securing panel 364B is hingedly connected to the second corner panel 360B by a hinged connection in the form of a fold line 363B.

[0178] Optionally, a first web panel 368A is hingedly connected at one end to the first securing panel 364A by a hinged connection in the form of a fold line 369A and is hingedly connected at a second end to the first upper end panel 314A by a hinged connection in the form of a fold line 371A.

[0179] Optionally, a second web panel 368B is hingedly connected at one end to the second securing panel 364B by a hinged connection in the form of a fold line 369B and is hingedly connected at a second end to the first upper end panel 314A by a hinged connection in the form of a fold line 371B.

[0180] The severable hinged connection between the first upper end panel 314A and the main panel 312 comprises a severable line 313A. The severable line 313A comprises a plurality of cuts or slits separated by frangible nicks or connection elements. In this way the first upper end panel 314A is coupled to the main panel 312 at least in the blank form.

[0181] The first corner panel 360A, first securing panel 364A and first web panel 368A couple a first end of the first upper end panel 314A to the first side panel 318. The second corner panel 360B, second securing panel 364B and second web panel 368B couple a second, opposing, end of the first upper end panel 314A to the second side panel 320.

[0182] The frangible nicks or connection elements of the severable line 313A may be severed when the carrying handle is deployed. The frangible nicks or connection elements by a user or consumer to enable full deployment of the carrying handle. The severable line 313A may be partially severed for example by severing some but not all of the frangible nicks or connection elements of the severable line 315A.

[0183] The blank 310 comprises a second end structure including a second upper end panel 316A hingedly and severably connected to a second end of the main panel 312 by a severable hinged connection. The second end structure may be deployed to form a second carrying handle.

[0184] The second end structure comprises a third corner panel 362A hingedly connected to a second end of the first side panel 318 by a hinged connection in the form of a fold line 365A. A fourth corner panel 362B is hingedly connected to a second end of the second side panel 320 by a hinged connection in the form of a fold line 365B.

[0185] The first end structure comprises a third securing panel 366A hingedly connected to the third corner panel 362A by a hinged connection in the form of a fold line 367A. A fourth securing panel 366B is hingedly connected to the fourth corner panel 362B by a hinged connection in the form of a fold line 367B.

[0186] Optionally, a third web panel 370A is hingedly connected at one end to the third securing panel 366A by a hinged connection in the form of a fold line 373A and is hingedly connected at a second end to the second upper end panel 316A by a hinged connection in the form of a fold line 375A.

[0187] Optionally, a fourth web panel 370B is hingedly connected at one end to the fourth securing panel 366B by a hinged connection in the form of a fold line 373B and is hingedly connected at a second end to the second upper end panel 316A by a hinged connection in the form of a fold line 375B.

[0188] The severable hinged connection between the second upper end panel 316A and the main panel 312

comprises a severable line 315A. The severable line 315A comprises a plurality of cuts or slits separated by frangible nicks or connection elements. In this way the second upper end panel 316A is coupled to the main panel 312 at least in the blank form.

[0189] The third corner panel 362A, third securing panel 366A and third web panel 370A couple a first end of the second upper end panel 316A to the first side panel 318. The fourth corner panel 362B, fourth securing panel 366B and fourth web panel 370B couple a second, opposing, end of the second upper end panel 316A to the second side panel 320

The frangible nicks or connection elements of the severable line 315A may be severed when the carrying handle is deployed. The frangible nicks or connection elements by a user or consumer to enable full deployment of the carrying handle. The severable line 315A may be partially severed for example by severing some but not all of the frangible nicks or connection elements of the severable line 315A.

[0190] Referring now to Figures 10 and 11 there is shown another alternative embodiment of the present disclosure. In the fifth illustrated embodiment, like numerals have, where possible, been used to denote like parts, albeit with the addition of the prefix "400" to indicate that these features belong to the fifth embodiment. The alternative embodiment shares many common features with the embodiment of Figures 1 to 9, therefore only the differences from the embodiment illustrated in Figures 1 to 9 will be described in any greater detail.

[0191] Referring to Figure 10 there is shown a blank 410 comprising a plurality of panels 412, 414, 416, 418, 420, including a main panel 412 for forming a top wall or engaging panel of a carrier 490 (see Figure 11).

[0192] A first side panel 118 is hingedly connected to a first side of the main panel 412 by a hinged connection in the form of a fold line 417.

[0193] A second side panel 420 is hingedly connected to a second side of the main panel 412 by a hinged connection in the form of a fold line 419.

[0194] The blank 410 comprises a first end structure. The first end structure comprises a first end panel 414 hingedly connected to a first end of the main panel 412 by a hinged connection in the form of a frangible or severable line 413. The severable line 413 comprises a plurality of cuts or slits separated by frangible nicks or connection elements.

[0195] The first end structure comprises a first securing panel 464A hingedly connected to a first end of the first end panel 414 by a hinged connection in the form of a fold line 461A. A second securing panel 464B is hingedly connected to a second end of the first end panel 414 by a hinged connection in the form of a fold line 461B.

[0196] Optionally, a first web panel 468A is hingedly connected at one end to the first securing panel 464A by a hinged connection in the form of a fold line 469A and is hingedly connected at a second end to the first side panel 418 by a hinged connection in the form of a fold line 471A.

[0197] A cutaway, in the form of an aperture, separates the first web panel 468A from the main panel 412 and the first securing panel 464A. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 412. The corner is substantially linear in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0198] Optionally, a second web panel 468B is hingedly connected at one end to the second securing panel 464B by a hinged connection in the form of a fold line 469B and is hingedly connected at a second end to the second side panel 420 by a hinged connection in the form of a fold line 471B.

[0199] A second cutaway, in the form of an aperture, separates the second web panel 468B from the main panel 412 and the second securing panel 464B. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 412. The corner is substantially linear, in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0200] The blank 410 comprises a second end structure. The second end structure comprises a second end panel 416 hingedly connected to a second end of the main panel 412 by a hinged connection in the form of a frangible or severable line 415. The severable line 4 15 comprises a plurality of cuts or slits separated by frangible nicks or connection elements.

[0201] The second end structure comprises a third securing panel 466A hingedly connected to a first end of the second end panel 420 by a hinged connection in the form of a fold line 465A. A fourth securing panel 466B is hingedly connected to a second end of the second end panel 416 by a hinged connection in the form of a fold line 465B.

[0202] Optionally, a third web panel 470A is hingedly connected at one end to the third securing panel 466A by a hinged connection in the form of a fold line 473A and is hingedly connected at a second end to the first side panel 418 by a hinged connection in the form of a fold line 475A.

[0203] A third cutaway, in the form of an aperture, separates the third web panel 470A from the main panel 412 and the third securing panel 466A. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 412. The corner is substantially linear in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0204] Optionally, a fourth web panel 470B is hingedly connected at one end to the fourth securing panel 466B by a hinged connection in the form of a fold line 473B and is hingedly connected at a second end to the second side panel 420 by a hinged connection in the form of a fold line 475B.

[0205] A fourth cutaway, in the form of an aperture, separates the fourth web panel 470B from the main panel

412 and the fourth securing panel 466B. The cutaway defines a filleted, mitred, or bevelled corner of the main panel 412. The corner is substantially linear, in the illustrated embodiment, but may be arcuate or rounded in other embodiments. In other embodiments, the cutaway may comprise a cut line, slot, slit, recess or severable line.

[0206] It will be appreciated that the first end panel 414, the first securing panel 464A, and the second securing panel 464B form a first strap 464A/414/464B along a first end of the main panel 412. The second end panel 416, the third securing panel 466A, and the fourth securing panel 466B form a second strap 466A/416/466B along a second end of the main panel 412.

[0207] The first end panel 414, the first securing panel 464A, and the second securing panel 464B may form a first segment of a bundling structure. The first securing panel 464A forms a bridging portion of the first segment. The second securing panel 464B forms a second bridging portion of the first segment.

[0208] The first side panel 418 may form a second segment of the bundling structure.

[0209] The second end panel 416, the third securing panel 466A, and the fourth securing panel 466B may form a third segment of a bundling structure. The third securing panel 466A forms a bridging portion of the third segment. The fourth securing panel 466B a second bridging portion of the third segment.

[0210] The second side panel 420 may form a fourth segment of the bundling structure.

[0211] The main panel 412 comprises at least one article retention structure RT1, RT2. The main panel 12 comprises a plurality of article retention structures RT1, RT2, specifically six article retention structures RT1, RT2 arranged in 2 $\times$ 3 matrix or array. Each of the article retention structures RT1, RT2 comprises an opening or aperture A7, A8. Each of the article retention structures RT1, RT2 is substantially the same in construction as the article retention structures RT1, RT2 of Figure 1 and will not be described in further detail.

[0212] The blank 410 may comprise at least one stabilisation device M. In the illustrated embodiment, the blank 410 comprises two stabilisation devices M. The stabilization device takes the form of an opening struck from the blank 410. A first stabilisation device M is disposed between first group of four article retention structures RT1, RT2 located proximate a first or leading end edge of the blank 410 and may be disposed centrally between said group of article retention structures RT1, RT2. A second stabilisation device M is disposed between a second group of four article retention structures RT1, RT2 located proximate a second or trailing end edge of the blank 410 and may be disposed centrally between said group of article retention structures RT1, RT2. The stabilisation devices M are configured to receive an abutment peg during application of the blank 410 to a group of articles B. The abutment peg stabilises or secures the blank 410 when the side and end panels 418, 420, 414, 416 are folded about the group of articles B.

[0213] The opening of the stabilisation devices M may be non-circular in shape, and may be substantially square or diamond shaped. The opening may be defined by at least one tab 494 struck from the main panel 412 and hingedly connected thereto. In the illustrated embodiment, the opening is defined by a pair of tabs each struck from the main panel 412 and hingedly connected to the main panel 412 in opposition to each other. The pair of tabs 494 may be separated from each other by a cut or severable line 495.

[0214] In some embodiments, the stabilisation devices M may be arranged to provide an additional handle opening. In the embodiment of Figure 10, the stabilisation devices M are generally too small in dimension to accept a finger or portion thereof of a user's finger. This may be advantageous in that a greater amount of substrate material is provided in the main panel 412 between the stabilisation devices M and the of article retention structures RT1, RT2, whereby improving the robustness and integrity of the article carrier 490.

[0215] The first end panel 414, the first securing panel 464A, and the second securing panel 464B provide a carrying handle 464A/414/464B at a first end of the carrier 490. The second end panel 416, the third securing panel 466A, and the fourth securing panel 466B form a second carrying handle 466A/416/466B at a second end of the carrier 490. In use the first end panel 414 or the second end panel 416 separates from the main panel 412, the respective frangible line 413, 415 severs or breaks; this may allow the end panel 414, 416, or at least a medial portion thereof, to be displaced outwardly, away from the articles B and/or main panel 412, as shown in Figure 12. In this way a gap or void is created between an inner surface of the end panel 414, 416 and the articles B in which a user may insert a portion of their hand or fingers. The carrying handle 464A/414/464B, 466A/416/466B, particularly the securing panels 464A, 464B, 466A, 466B may brace against side walls of the articles B, this may facilitate transfer of load forces into the side walls of the articles B and may improve the strength or resilience of the carrying handle 464A/414/464B, 466A/416/466B.

[0216] The blanks 10; 110; 210; 310; 410 include at least a paperboard substrate. The material of the paperboard substrate may be selected from any conventional paperboard, for example, ranging in weight upwardly from about 10pt., preferably from about 16pt. to about 28pt. (0.028"/~0.7mm). An example of such a substrate is a 27 point (pt.) SBS board (solid bleached sulphate paperboard coated on one side, trade name PrintKote®) or CNK® board (Coated Natural Kraft® -an unbleached kraft paperboard having a clay coating on one side, trade name CarrierKoteTM) manufactured by WestRock® Company. The paperboard substrate may be a bleached or unbleached board. The board may be coated on at least one side, optionally the side opposite the lamination, with a conventional coating selected for compatibility with the printing method and board composition.

[0217] The blanks 10; 110; 210; 310; 410 may include a tear resistant layer laminated to the paperboard layer. It optionally includes an adhesive layer between the paperboard substrate and the tear resistant layer. The tear resistant layer may be disposed over the uncoated side of the paperboard substrate and may be formed of polymeric material and secured to the substrate. The tear resistant layer imparts toughness to the laminate structure. Suitable tear resistant materials may include, but not be limited to, tear resistant laminated sheet material, e.g., NATRALOCK®, which may include a layer of an n-axially oriented film, e.g., MYLAR®, which is a bi-axially oriented polyester, oriented nylon, cross-laminated polyolefin or high-density polyolefin. The orientation and cross-laminated structure of these materials contribute to the tear resistant characteristic. Also, tear resistance may be attributed to the chemical nature of the tear resistant material such as extruded metallocene-catalysed polyethylene (mPE).

[0218] Alternatively, the tear resistant layer may be a layer of linear low-density polyethylene (LLDPE). In embodiments where linear low-density polyethylene (LLDPE) or mPE is used, it is not necessary to incorporate an adhesive layer. Other suitable materials having a high level of tear resistance may also be used.

[0219] The adhesive layer may be formed of polyolefin material such as a low-density polyethylene (LDPE). The adhesive layer may be placed between the substrate and the tear resistant layer to secure the tear resistant layer to the substrate.

[0220] The present disclosure provides a carrier of the top engaging type having improved article retention structures or article top engaging devices.

[0221] The article carrier 90; 190; 290; 390; 490 clips or engages at least one article B. The article carrier 90; 190; 290; 390; 490 comprises an engaging panel 12; 112; 212; 312; 412 which has at least one article-engaging structure RT1, RT2 for engaging a part of the at least one article B. The article carrier 90; 190; 290; 390; 490 comprises a bundling, grouping or support structure for encircling the at least one article B. The bundling structure comprises a first segment and a second segment.

[0222] Embodiments provide a top engaging carrier 90; 190; 290; 390; 490 comprising a top panel 12; 112; 212; 312; 412 with at least one article-engaging feature RT1, RT2. The top engaging carrier 90; 190; 290; 390; 490 may comprise a pair of side panels 18, 20; 118, 120; 218, 220; 318, 320; 418, 420 hingedly connected the top panel 12; 112; 212; 312; 412 and a pair of end panels 14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416. Each of the pair of end panels 14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416 bridges between the side panels 18, 20; 118, 120; 218, 220; 318, 320; 418, 420. At least one of the end panels 14, 16, 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416 may be at least partially detachably connected to the top panel 12; 112; 212; 312; 412 along a severance line 13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415.

[0223] Optionally, the severance line 13, 15; 313A, 315A; 413, 415 extends entirely along an end edge of the top panel 12; 312; 412 so that the at least one end panel 14, 16; 314A/314B, 316A/316B; 414, 416 is fully separable from the top panel 12; 312; 412.

[0224] The severance line 113, 115, 213A, 215A may extend partially along an end edge of the top panel 112; 212 so that the at least one end panel 114; 116; 214A/214B, 216A/216B is partially separable from the top panel 112; 212.

[0225] Optionally, the partially extending severance line 113, 115, 213A, 215A stops short of the opposite ends of the at least one end panel 114; 116; 214A/214B, 216A/216B.

[0226] The severance line 13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415 may comprise at least one line segment which includes a slit passing through a midpoint of the end edge of the top panel 12; 112; 212; 312; 412.

[0227] Optionally, each of the side panels 18, 20; 118, 120; 218, 220; 318, 320; 418, 420 is secured at one of its ends to the at least one end panel 14, 16; 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416.

[0228] Optionally, each of the side panels 218, 220; 318, 320 is connected at one of its ends to the at least one end panel 214A/214B, 216A/216B; 314A/314B, 316A/316B by a locking feature.

[0229] The top panel 12; 112; 212; 312; 412 may comprise at least two bevelled corners, and the end edge of top panel 12; 112; 212; 312; 412 extends between the bevelled corners.

[0230] The top panel 12; 112; 212; 312; 412 forms an engaging panel of a package, the top panel 12; 112; 212; 312; 412 may be disposed between the opposing ends of the articles B being packaged.

[0231] Optionally, the top panel 12; 112; 212; 312; 412 is disposed below an upper end of the articles B being packaged.

[0232] Optionally, the severance line 13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415 forms a hinged connection between the at least one of the end panels 14, 16; 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416 and the top panel 12; 112; 212; 312; 412. The hinged connection being severable to facilitate, or in consequence of, deployment of a carrying handle formed in part by the at least one of the end panels 14, 16; 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416.

[0233] The at least one of the end panels 14, 16; 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416 may form part of a carrying handle. The severance line 13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415 comprises at least one frangible connection element. The at least one frangible connection element is intact (or connects the at least one of the end panels 14, 16; 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B;

414, 416 to the top panel 12; 112; 212; 312; 412) prior to initial use of the carrying handle. In other words, the at least one frangible connection element remains unbroken and retain the at least one of the end panels 14, 16; 114; 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416 connected to the top panel 12; 112; 212; 312; 412 upon formation of the top-engaging carrier till it is used as the carrying handle.

[0234] It can be appreciated that various changes may be made within the scope of the present invention, for example, the size and shape of the panels and apertures may be adjusted to accommodate articles of differing size or shape, a greater or lesser number of articles and/or arranged in different array configurations. Whilst the foregoing embodiments have been illustrated and described with article retention structures of the "sunburst" type in which a plurality of tabs are arranged about an opening other retention structures may be employed. In other embodiments, the article retention structures RT1, RT2 may take a different form, for example, but not limited to, an article receiving opening for receiving a portion of an article and providing a pair of opposed engaging edges for engaging opposing sides of an article below a flange, chime or other projection. It will be appreciated that in such embodiments the top panel or engaging panel may be disposed at an elevation below the upper end of the articles being packaged.

[0235] The article retention structures RT1, RT2 may take the form of a pair of spaced apart opposing cuts which define a displaceable region forming a cover over an article and providing a pair of opposed engaging edges for engaging opposing sides of an article below a flange, chime or other projection.

[0236] 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.

[0237] 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.

[0238] 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 cutline, a line of aligned slits, a line of scores and any combination of the aforesaid options.

[0239] 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 cutline, an interrupted cutline, slits, scores, embossed lines, debossed lines, 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.

[0240] 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. An article carrier (90; 190; 290; 390; 490) for engaging at least one article (B), the article carrier (90; 190; 290; 390; 490) comprising:

   a top panel (12; 112; 212; 312; 412) having at least one article-engaging feature (RT1, RT2);
   a pair of side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected to the top panel (12; 112; 212; 312; 412); and
   a pair of end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), each of the pair of end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414,

416) bridges between the side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected to the top panel(12; 112; 212; 312; 412), wherein at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) is at least partially detachably connected to the top panel (12; 112; 212; 312; 412) along a severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) **characterised in that** the severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) extends partially along an end edge of the top panel (12; 112; 212; 312; 412) so that the at least one end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) is at least partially separable from the top panel (12; 112; 212; 312; 412).

2. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the partially extending severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) stops short of the opposite ends of the at least one end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

3. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) comprises at least one line segment which includes a slit passing through a midpoint of the end edge of the top panel (12; 112; 212; 312; 412).

4. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein each of the side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) is secured at one of its ends to the at least one end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

5. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein each of the side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) is connected at one of its ends to the at least one end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) by a locking feature.

6. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the top panel (12; 112; 212; 312; 412) comprises at least two bevelled corners, and the end edge of top panel (12; 112; 212; 312; 412) extends between the bevelled corners.

7. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) forms a hinged connection between the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) and the top panel (12; 112; 212; 312; 412), the hinged connection being severable to facilitate deployment of a carrying handle formed in part by the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

8. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) forms a hinged connection between the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) and the top panel (12; 112; 212; 312; 412), the hinged connection being severed upon deployment of a carrying handle formed in part by the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

9. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) forms a hinged connection between the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) and the top panel (12; 112; 212; 312; 412), the hinged connection being severable in consequence of deployment of a carrying handle formed in part by the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

10. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the article carrier (90; 190; 290; 390; 490) further comprises a bundling structure for encircling the at least one article (B), the bundling structure comprises a first segment and a second segment, the first segment includes:

a first side panel (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected to the top panel (12; 112; 212; 312; 412); and
a bridging portion hingedly connected to the first side panel (18, 20; 118, 120; 218, 220; 318, 320; 418, 420),

wherein the second segment includes:

an outer end panel (14, 16; 114, 116; 214, 216, 314, 316) at least partially severably connected to the top panel (12; 112; 212; 312; 412);
an inner end panel (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) hingedly connected to the outer end panel (14, 16; 114, 116; 214, 216, 314, 316) and disposed in an overlapping position with the outer end panel (14, 16; 114, 116; 214, 216, 314, 316); and
a bridge-engaging feature in engagement with

the bridging portion of the first segment, wherein the bridge-engaging feature is provided at least by the inner (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) and outer (14, 16; 114, 116; 214, 216, 314, 316) end panels such that at least part of the bridging portion is disposed between the inner (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) and outer (14, 16; 114, 116; 214, 216, 314, 316) end panels in face-contacting arrangement with the inner (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) and outer (14, 16; 114, 116; 214, 216, 314, 316) end panels.

11. An article carrier (90; 190; 290; 390; 490), according to claim 1, wherein the article carrier further comprises a bundling structure for encircling the at least one article (B), the bundling structure comprises a first segment and a second segment, the first segment includes:

a first side panel (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected to the top panel (12; 112; 212; 312; 412); and
a bridging portion hingedly connected to the first side panel (18, 20; 118, 120; 218, 220; 318, 320; 418, 420),

wherein the second segment includes:

an end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) at least partially severably connected to the top panel (12; 112; 212; 312; 412);
wherein the bridging portion of the first segment is secured to the end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) in face-contacting arrangement therewith.

12. An article carrier (90; 190; 290; 390; 490), according to claim 1, further comprising a bundling structure for encircling the at least one article (B), the bundling structure comprises a first segment and a second segment, the first segment includes:

a first end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) at least partially severably connected to the top panel (12; 112; 212; 312; 412); and
a bridging portion hingedly connected to the first end panel (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416),

wherein the second segment includes:

a side panel (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected to the top panel (12; 112; 212; 312; 412);
wherein the bridging portion of the first segment is secured to the side panel (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) in face-contacting arrangement therewith.

13. A package comprising a top-engaging carrier (90; 190; 290; 390; 490), according to claim 1, and at least one article (B), the carrier (90; 190; 290; 390; 490) comprising:

a top panel (12; 112; 212; 312; 412) having at least one article-engaging feature (RT1, RT2) retaining a respective article;
a pair of side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected the top panel (12; 112; 212; 312; 412); and
a pair of end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), each of the pair of end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) bridges between the side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), wherein at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) is at least partially detachably connected to the top panel (12; 112; 212; 312; 412) along a severance line and wherein the at least one of the end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) forms part of a carrying handle and the severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) comprises at least one frangible connection element, **characterised by** the at least one frangible connection element being intact prior to initial use of the carrying handle.

14. A blank (10; 110; 210; 310; 410) for forming a top-engaging carrier (90; 190; 290; 390; 490), the blank (10; 110; 210; 310; 410) comprising:

a top panel (12; 112; 212; 312; 412) having at least one article-engaging feature (RT1, RT2);
a pair of side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) hingedly connected the top panel (12; 112; 212; 312; 412); and
a pair of end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), each of the pair of end panels (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) bridges between the side panels (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), wherein at least one of the end panels (14, 16; 114, 116;

214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) is at least partially detachably connected to the top panel (12; 112; 212; 312; 412) along a severance line (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415), **characterised in that** the severance line is frangible such that it remains unbroken upon formation of the top-engaging carrier (90; 190; 290; 390; 490).

15. A blank according to claim 14, wherein the severance line extends partially along an end edge of the top panel (12; 112; 212; 312; 412) so that the at least one end panel is at least partially separable from the top panel (12; 112; 212; 312; 412) to form at least part of a carrying handle.

Patentansprüche

1. Artikelträger (90; 190; 290; 390; 490) zur Eingriffnahme mindestens eines Artikels (B), wobei der Artikelträger (90; 190; 290; 390; 490) Folgendes umfasst:

eine obere Platte (12; 112; 212; 312; 412), die mindestens ein Artikeleingriffsmerkmal (RT1, RT2) aufweist;
ein Paar von Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit der oberen Platte (12; 112; 212; 312; 412) verbunden sind; und
ein Paar von Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), wobei jede des Paars von Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) Brücken zwischen den Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit der oberen Platte (12; 112; 212; 312; 412) verbunden sind, bildet, wobei mindestens eine der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) mindestens teilweise lösbar mit der oberen Platte (12; 112; 212; 312; 412) entlang einer Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) verbunden ist, **dadurch gekennzeichnet, dass** sich die Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) teilweise entlang einer Endkante der oberen Platte (12; 112; 212; 312; 412) erstreckt, sodass das mindestens eine Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) mindestens teilweise von der oberen Platte (12; 112; 212; 312; 412) trennbar ist.

2. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei die sich teilweise erstreckende Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) kurz vor den gegenüberliegenden Enden der mindestens einen Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) endet.

3. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei die Trennlinie (13, 15; 113,115, 213A, 215A; 313A, 315A; 413, 415) mindestens ein Liniensegment umfasst, das einen Schlitz aufweist, der durch einen Mittelpunkt der Endkante der oberen Platte (12; 112; 212; 312; 412) verläuft.

4. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei jede der Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) an einem ihrer Enden an der mindestens einen Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) befestigt ist.

5. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei jede der Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) an einem ihrer Enden mit der mindestens einen Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) durch ein Verriegelungsmerkmal verbunden ist.

6. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei die obere Platte (12; 112; 212; 312; 412) mindestens zwei abgeschrägte Ecken aufweist und sich die Endkante der oberen Platte (12; 112; 212; 312; 412) zwischen den abgeschrägten Ecken erstreckt.

7. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei die Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) eine gelenkige Verbindung zwischen der mindestens einen der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) und der oberen Platte (12; 112; 212; 312; 412) bildet, wobei die gelenkige Verbindung trennbar ist, um das Ausklappen eines Tragegriffs zu erleichtern, der teilweise durch die mindestens eine der Endplatten (14,16; 114,116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) gebildet wird.

8. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei die Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) eine gelenkige Verbindung zwischen der mindestens einen der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) und der oberen Platte (12; 112; 212; 312; 412) bildet, wobei die gelenkige Verbindung beim Ausklappen eines Tragegriffs, der teilweise durch die mindestens eine der Endplatten (14,

16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) gebildet wird, getrennt wird.

9. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei die Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) eine gelenkige Verbindung zwischen der mindestens einen der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) und der oberen Platte (12; 112; 212; 312; 412) bildet, wobei die gelenkige Verbindung infolge des Ausklappens eines Tragegriffs, der teilweise durch die mindestens eine der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) gebildet wird, trennbar ist.

10. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei der Artikelträger (90; 190; 290; 390; 490) weiter eine Bündelungsstruktur zum Umschließen des mindestens einen Artikels (B) umfasst, wobei die Bündelungsstruktur ein erstes Segment und ein zweites Segment umfasst, wobei das erste Segment Folgendes einschließt:

eine erste Seitenplatte (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit der oberen Platte (12; 112; 212; 312; 412) verbunden ist; und
einen Brückenabschnitt, der gelenkig mit der ersten Seitenplatte (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) verbunden ist, wobei das zweite Segment Folgendes einschließt:

eine äußere Endplatte (14, 16; 114, 116; 214, 216, 314, 316), die mindestens teilweise trennbar mit der oberen Platte (12; 112; 212; 312; 412) verbunden ist;
eine innere Endplatte (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B), die gelenkig mit der äußeren Endplatte (14, 16; 114, 116; 214, 216, 314, 316) verbunden ist und sich mit der äußeren Endplatte (14, 16; 114, 116; 214, 216, 314, 316) überlappend angeordnet ist; und
ein Brückeneingriffsmerkmal, das mit dem Brückenabschnitt des ersten Segments in Eingriff steht, wobei das Brückeneingriffsmerkmal mindestens durch die inneren (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) und äußeren (14, 16; 114, 116; 214, 216, 314, 316) Endplatten derart gebildet wird, dass mindestens ein Teil des Brückenabschnitts zwischen den inneren (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) und den äußeren (14, 16; 114, 116; 214, 216, 314, 316) Endplatten in flächenberührender Anordnung mit den inneren (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) und den äußeren (14, 16; 114, 116; 214, 216, 314, 316) Endplatten angeordnet ist.

11. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, wobei der Artikelträger weiter eine Bündelungsstruktur zum Umschließen des mindestens einen Artikels (B) umfasst, wobei die Bündelungsstruktur ein erstes Segment und ein zweites Segment umfasst, wobei das erste Segment Folgendes einschließt:

eine erste Seitenplatte (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit der oberen Platte (12; 112; 212; 312; 412) verbunden ist; und
einen Brückenabschnitt, der gelenkig mit der ersten Seitenplatte (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) verbunden ist,
wobei das zweite Segment Folgendes einschließt:

eine Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), die mindestens teilweise trennbar mit der oberen Platte (12; 112; 212; 312; 412) verbunden ist;
wobei der Brückenabschnitt des ersten Segments an der Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) in flächenberührender Anordnung mit dieser befestigt ist.

12. Artikelträger (90; 190; 290; 390; 490) nach Anspruch 1, weiter umfassend eine Bündelungsstruktur zum Umschließen des mindestens einen Artikels (B), wobei die Bündelungsstruktur ein erstes Segment und ein zweites Segment umfasst, wobei das erste Segment Folgendes einschließt:

eine erste Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), die mindestens teilweise trennbar mit der oberen Platte (12; 112; 212; 312; 412) verbunden ist; und
einen Brückenabschnitt, der gelenkig mit der ersten Endplatte (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) verbunden ist,
wobei das zweite Segment Folgendes einschließt:

eine Seitenplatte (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit

der oberen Platte (12; 112; 212; 312; 412) verbunden ist;
wobei der Brückenabschnitt des ersten Segments an der Seitenplatte (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) in flächenberührenden Anordnung mit dieser befestigt ist.

13. Verpackung umfassend einen oben eingreifenden Träger (90; 190; 290; 390; 490) nach Anspruch 1 und mindestens einen Artikel (B), wobei der Träger (90; 190; 290; 390; 490) Folgendes umfasst:

eine obere Platte (12; 112; 212; 312; 412), die mindestens ein Artikeleingriffsmerkmal (RT1, RT2) aufweist, das einen jeweiligen Artikel festhält;
ein Paar von Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit der oberen Platte (12; 112; 212; 312; 412) verbunden sind; und
ein Paar von Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), wobei jede des Paars von Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414,416) Brücken zwischen den Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) bildet, wobei mindestens eine der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) mindestens teilweise lösbar mit der oberen Platte (12; 112; 212; 312; 412) entlang einer Trennlinie verbunden ist, und wobei die mindestens eine der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) einen Teil eines Tragegriffs bildet und die Trennlinie (13, 15; 113,115, 213A, 215A; 313A, 315A; 413, 415) mindestens ein Sollbruchverbindungselement umfasst, **dadurch gekennzeichnet, dass** das mindestens eine Sollbruchverbindungselement vor der ersten Verwendung des Tragegriffs intakt ist.

14. Zuschnitt (10; 110; 210; 310; 410) zur Bildung eines oben eingreifenden Trägers (90; 190; 290; 390; 490), wobei der Zuschnitt (10; 110; 210; 310; 410) Folgendes umfasst:

eine obere Platte (12; 112; 212; 312; 412), die mindestens ein Artikeleingriffsmerkmal (RT1, RT2) aufweist;
ein Paar von Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), die gelenkig mit der oberen Platte (12; 112; 212; 312; 412) verbunden sind; und
ein Paar von Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), wobei jede des Paars von Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) Brücken zwischen den Seitenplatten (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) bildet, wobei mindestens eine der Endplatten (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) mindestens teilweise lösbar mit der oberen Platte (12; 112; 212; 312; 412) entlang einer Trennlinie (13, 15; 113, 115, 213A, 215A; 313A, 315A; 413, 415) verbunden ist, **dadurch gekennzeichnet, dass** die Trennlinie derart zerbrechlich ist, dass sie bei der Bildung des oben eingreifenden Trägers (90; 190; 290; 390; 490) ungebrochen bleibt.

15. Zuschnitt nach Anspruch 14, wobei sich die Trennlinie teilweise entlang einer Endkante der oberen Platte (12; 112; 212; 312; 412) erstreckt, sodass die mindestens eine Endplatte mindestens teilweise von der oberen Platte (12; 112; 212; 312; 412) trennbar ist, um mindestens einen Teil eines Tragegriffs zu bilden.

Revendications

1. Support d'article (90; 190; 290; 390; 490) pour venir en prise avec au moins un article (B), le support d'article (90; 190; 290; 390; 490) comprenant :

un panneau supérieur (12; 112; 212; 312; 412) comportant au moins un élément de prise d'article (RT1; RT2) ;
une paire de panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) reliés de manière articulée au panneau supérieur (12; 112; 212; 312; 412) ; et
une paire de panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), chacun de la paire de panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) formant un pont entre les panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) reliés de manière articulée au panneau supérieur (12; 112; 212; 312; 412), dans lequel au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) est au moins en partie relié de manière amovible au panneau supérieur (12; 112; 212; 312; 412) le long d'une ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) **caractérisé en ce que** la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) s'étend en partie le long d'un bord d'extrémité du panneau supérieur (12; 112; 212;

312; 412) de telle manière que l'au moins un panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) est au moins en partie séparable du panneau supérieur (12; 112; 212; 312; 412).

2. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) s'étendant partiellement ne va pas jusqu'aux extrémités opposées de l'au moins un panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

3. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) comprend au moins un segment de ligne qui inclut une fente passant à travers un point médian du bord d'extrémité du panneau supérieur (12; 112; 212; 312; 412).

4. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel chacun des panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) est fixé à une de ses extrémités à l'au moins un panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

5. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel chacun des panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) est relié à une de ses extrémités à l'au moins un panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) par un élément de verrouillage.

6. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel le panneau supérieur (12; 112; 212; 312; 412) comprend au moins deux coins biseautés, et le bord d'extrémité du panneau supérieur (12; 112; 212; 312; 412) s'étend entre les coins biseautés.

7. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) forme une liaison articulée entre l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) et le panneau supérieur (12; 112; 212; 312; 412), la liaison articulée pouvant être séparée pour faciliter le déploiement d'une poignée de portage formée en partie par l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

8. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) forme une liaison articulée entre l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) et le panneau supérieur (12; 112; 212; 312; 412), la liaison articulée étant séparée lors du déploiement d'une poignée de portage formée en partie par l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

9. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) forme une liaison articulée entre l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) et le panneau supérieur (12; 112; 212; 312; 412), la liaison articulée pouvant être séparée en conséquence du déploiement d'une poignée de portage formée en partie par l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416).

10. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel le support d'article (90; 190; 290; 390; 490) comprend en outre une structure de groupement pour encercler l'au moins un article (B), la structure de groupement comprend un premier segment et un second segment, le premier segment inclut :

un premier panneau latéral (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) relié de manière articulée au panneau supérieur (12; 112; 212; 312; 412) ; et
une partie de pontage reliée de manière articulée au premier panneau latéral (18, 20; 118, 120; 218, 220; 318, 320; 418, 420),
dans lequel le second segment inclut :

un panneau d'extrémité extérieur (14, 16; 114, 116; 214, 216; 314, 316) au moins en partie relié de manière séparable au panneau supérieur (12; 112; 212; 312; 412) ;
un panneau d'extrémité intérieur (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) relié de manière articulée au panneau d'extrémité extérieur (14, 16; 114, 116; 214, 216; 314, 316) et disposé dans une position superposée avec le panneau d'extrémité extérieur (14, 16; 114, 116; 214, 216; 314, 316) ; et
un élément de prise avec le pont en prise

avec la partie de pontage du premier segment, dans lequel l'élément de prise avec le pont est fourni au moins par les panneaux d'extrémité intérieurs (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) et extérieurs (14, 16; 114, 116; 214, 216; 314, 316) de telle manière qu'au moins une partie de la partie pontage est disposée entre les panneaux d'extrémité intérieurs (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) et extérieurs (14, 16; 114, 116; 214, 216; 314, 316) en agencement de contact de face avec les panneaux d'extrémité intérieurs (64A, 64B, 66A, 66B; 164A, 164B, 166A, 166B; 264A, 264B, 266A, 266B; 364A, 364B, 366A, 366B) et extérieurs (14, 16; 114, 116; 214, 216; 314, 316).

11. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, dans lequel le support d'article comprend en outre une structure de groupement pour encercler l'au moins un article (B), la structure de groupement comprend un premier segment et un second segment, le premier segment inclut :

un premier panneau latéral (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) relié de manière articulée au panneau supérieur (12; 112; 212; 312; 412) ; et
une partie de pontage reliée de manière articulée au premier panneau latéral (18, 20; 118, 120; 218, 220; 318, 320; 418, 420),
dans lequel le second segment inclut :

un panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) au moins en partie relié de manière séparable au panneau supérieur (12; 112; 212; 312; 412) ;
dans lequel la partie de pontage du premier segment est fixée sur le panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) en agencement de contact de face.

12. Support d'article (90; 190; 290; 390; 490) selon la revendication 1, comprenant outre une structure de groupement pour encercler l'au moins un article (B), la structure de groupement comprend un premier segment et un second segment, le premier segment inclut :

un premier panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) au moins en partie relié de manière séparable au panneau supérieur (12; 112; 212; 312; 412) ; et
une partie de pontage reliée de manière articulée au premier panneau d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416),
dans lequel le second segment inclut :

un panneau latéral (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) relié de manière articulée au panneau supérieur (12; 112; 212; 312; 412) ;
dans lequel la partie de pontage du premier segment est fixée sur le panneau latéral (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) en agencement de contact de face.

13. Emballage comprenant un support de prise par le haut (90; 190; 290; 390; 490), selon la revendication 1, et au moins un article (B), le support (90; 190; 290; 390; 490) comprenant :

un panneau supérieur (12; 112; 212; 312; 412) comportant au moins un élément de prise d'article (RT1; RT2) ;
une paire de panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) reliés de manière articulée au panneau supérieur (12; 112; 212; 312; 412) ; et
une paire de panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), chacun de la paire de panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) formant un pont entre les panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), dans lequel au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216 A/216B; 314A/314B, 316A/316B; 414, 416) est au moins en partie relié de manière amovible au panneau supérieur (12; 112; 212; 312; 412) le long d'une ligne de séparation et dans lequel l'au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) forme partie d'une poignée de portage et la ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) comprend au moins un élément de liaison cassable, **caractérisé par** l'élément de liaison cassable étant intact avant une utilisation initiale de la poignée de portage.

14. Découpe (10; 110; 210; 310; 410) pour former un support de prise par le haut (90; 190; 290; 390; 490), la découpe (10; 110; 210; 310; 410) comprenant :

un panneau supérieur (12; 112; 212; 312; 412) comportant au moins un élément de prise d'article (RT1; RT2) ;
une paire de panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420) reliés de manière articulée au panneau supérieur (12; 112; 212; 312; 412) ; et
une paire de panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416), chacun de la paire de panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) formant un pont entre les panneaux latéraux (18, 20; 118, 120; 218, 220; 318, 320; 418, 420), dans lequel au moins un des panneaux d'extrémité (14, 16; 114, 116; 214A/214B, 216A/216B; 314A/314B, 316A/316B; 414, 416) est au moins en partie relié de manière amovible au panneau supérieur (12; 112; 212; 312; 412) le long d'une ligne de séparation (13, 15; 113, 115; 213A, 215A; 313A, 315A; 413, 415) **caractérisé en ce que** la ligne de séparation est cassable de telle manière qu'elle reste non cassée lors de la formation du support de prise par le haut (90; 190; 290; 390; 490).

15. Découpe selon la revendication 14, dans laquelle la ligne de séparation s'étend en partie le long d'un bord du panneau supérieur (12; 112; 212; 312; 412) de telle manière que l'au moins un panneau d'extrémité est au moins en partie séparable du panneau supérieur (12; 112; 212; 312; 412) pour former au moins une partie d'une poignée de portage.

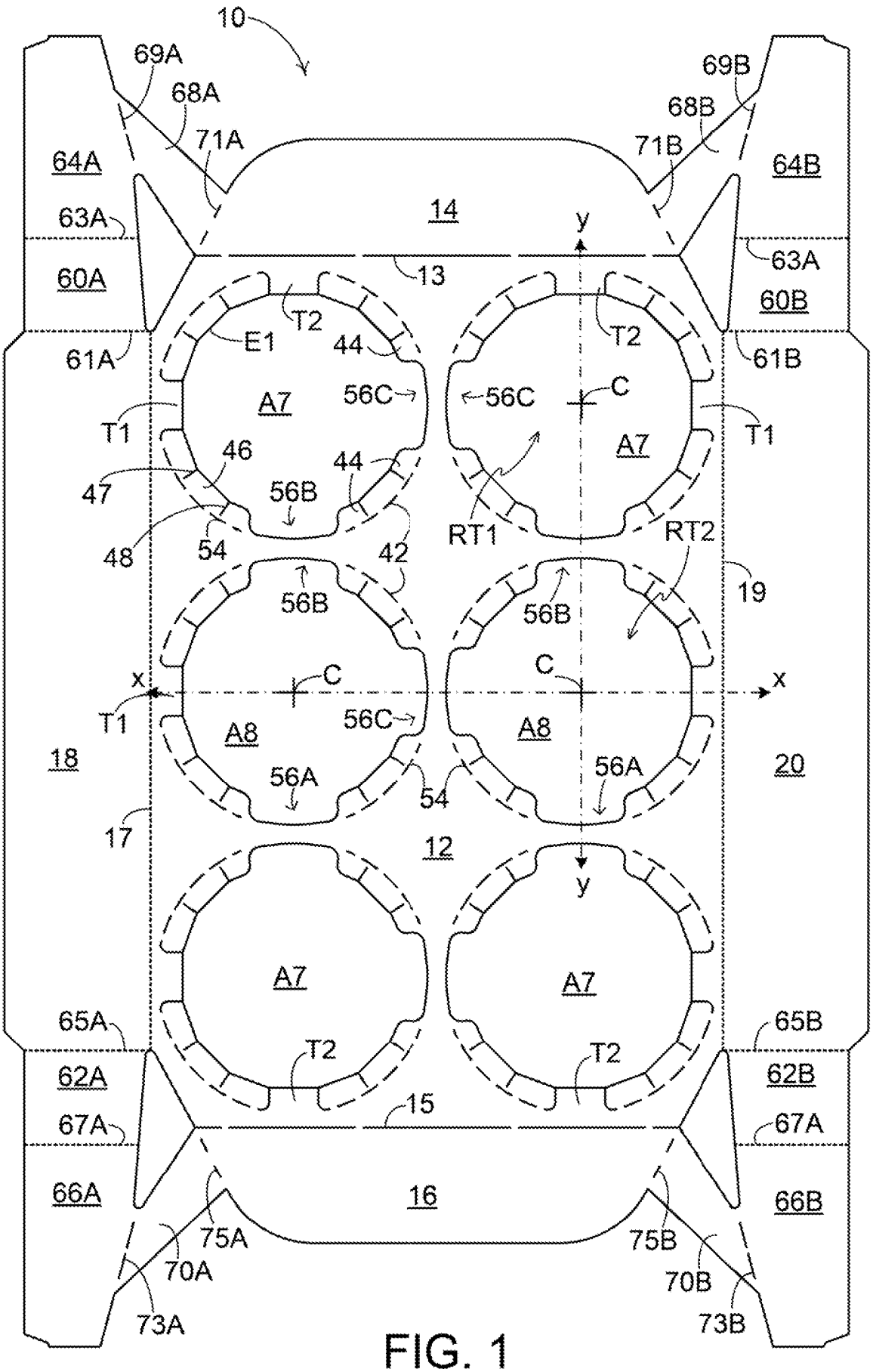
10
69A
68A
71A
64A
63A
60A
61A
14
13
69B
68B
71B
64B
63A
60B
61B
y
T2
E1
44
A7
56C
C
T1
46
47
48
54
56B
42
RT1
RT2
19
x
18
A8
56A
17
12
20
65A
62A
67A
66A
15
16
65B
62B
67A
66B
75A
70A
73A
75B
70B
73B

FIG. 1

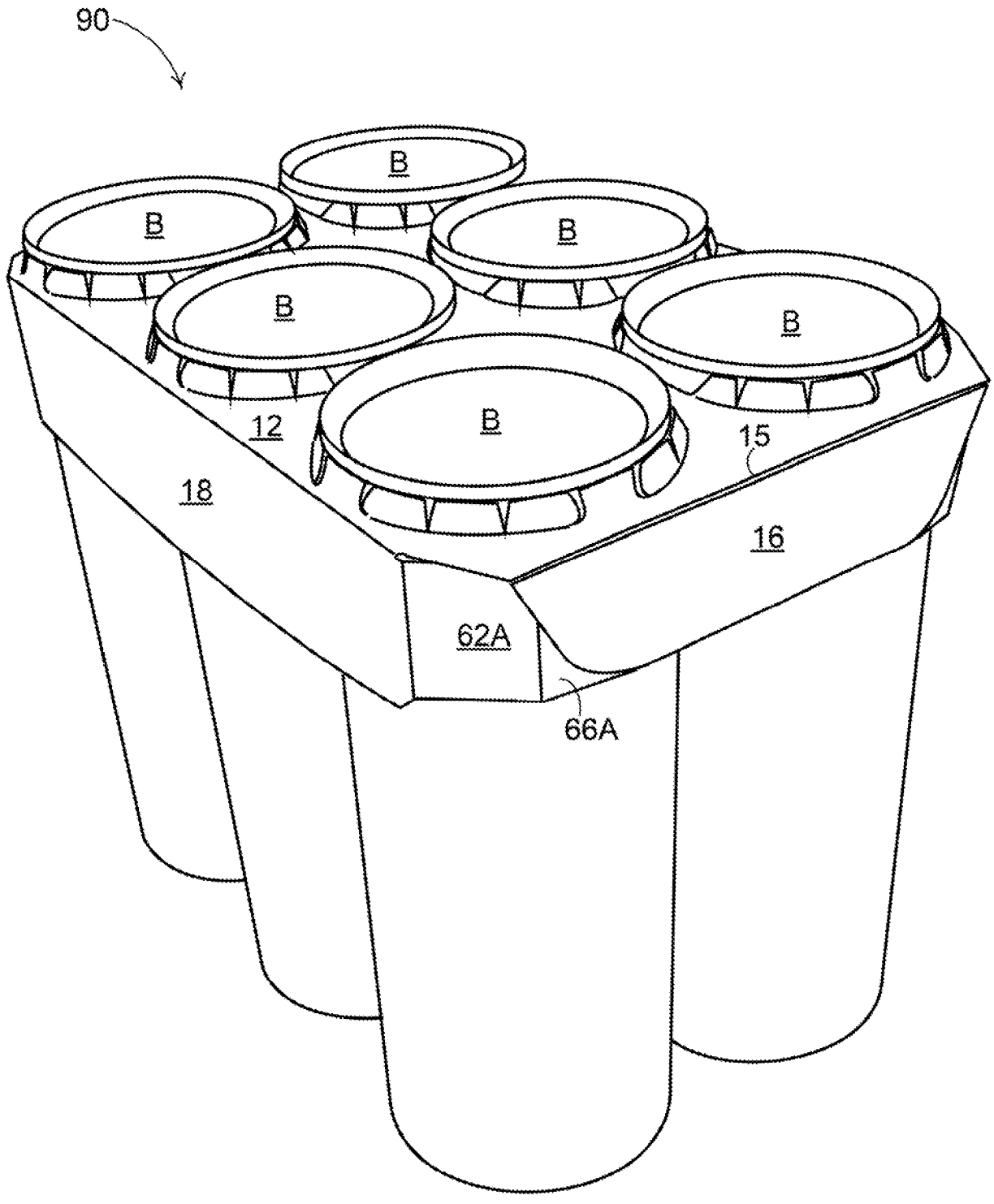

FIG. 2

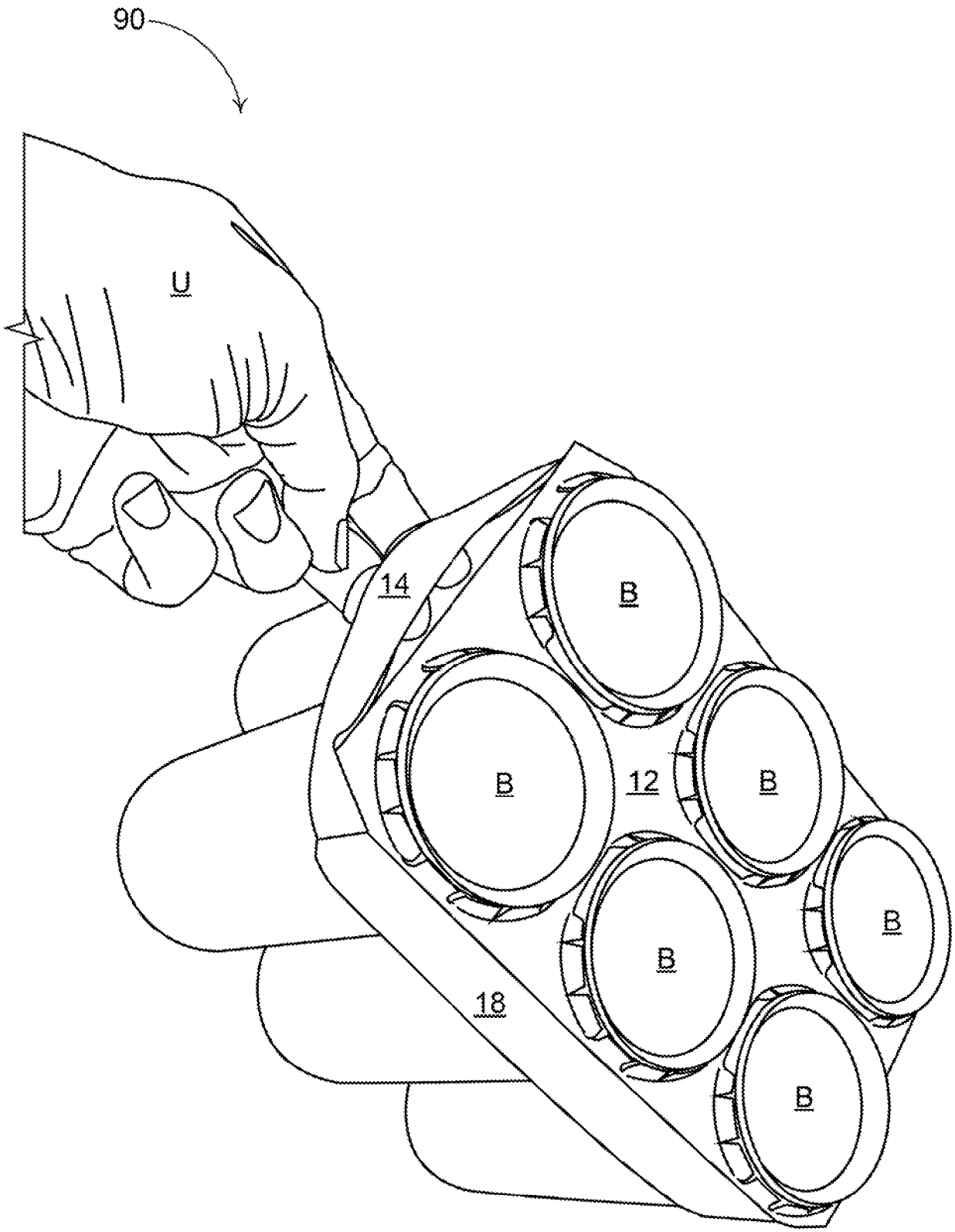

FIG. 3

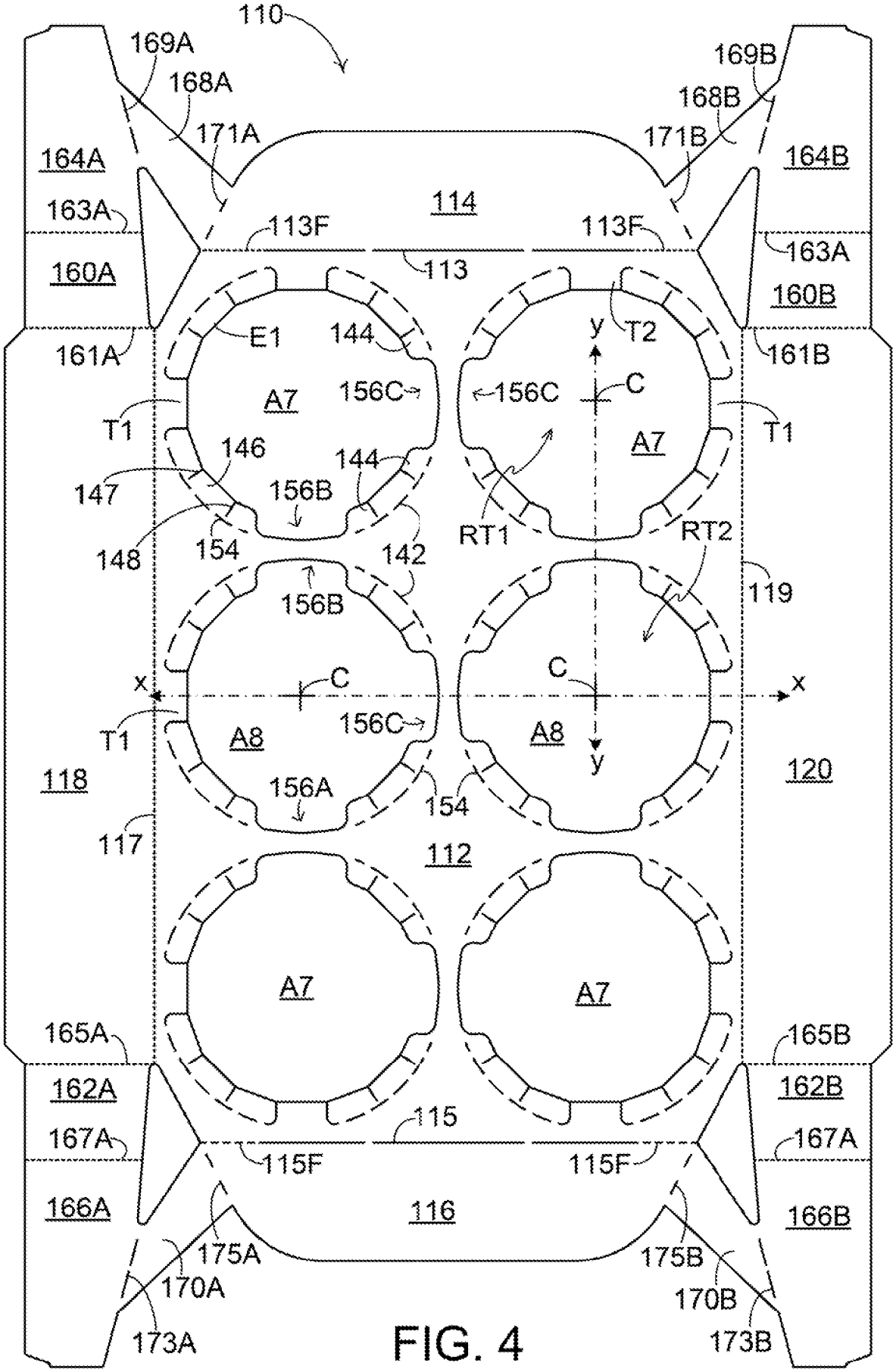
110
169A
168A
171A
164A
163A
160A
161A
169B
168B
171B
164B
163A
160B
161B
114
113F
113F
113
E1
144
144
A7
156C
156C
C
y
T2
T1
T1
A7
146
147
156B
148
154
142
RT1
RT2
119
156B
x
C
C
x
T1
A8
156C
A8
y
118
156A
154
120
117
112
A7
A7
165A
165B
162A
162B
167A
167A
115
115F
115F
166A
116
166B
175A
175B
170A
170B
173A
173B

FIG. 4

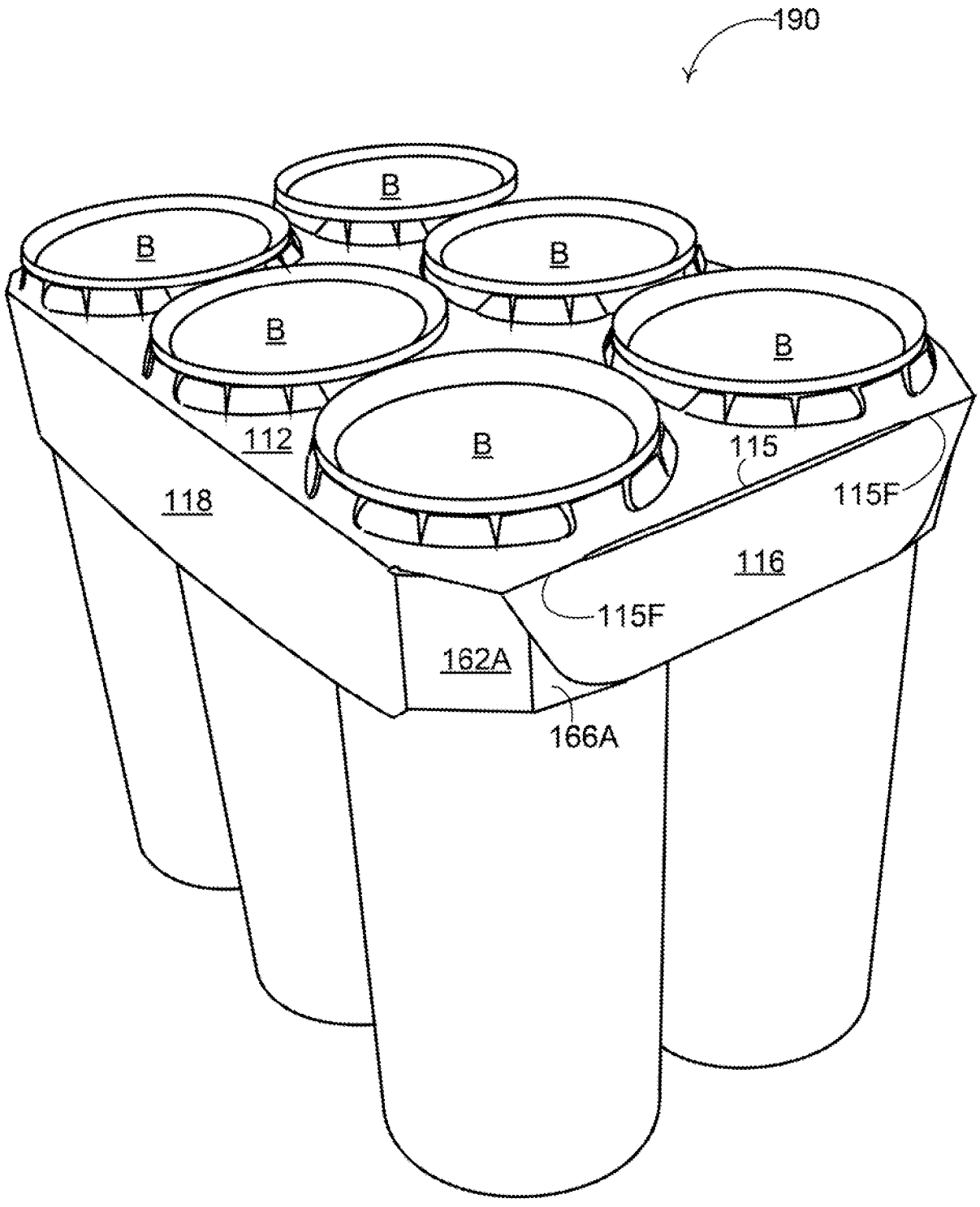

FIG. 5

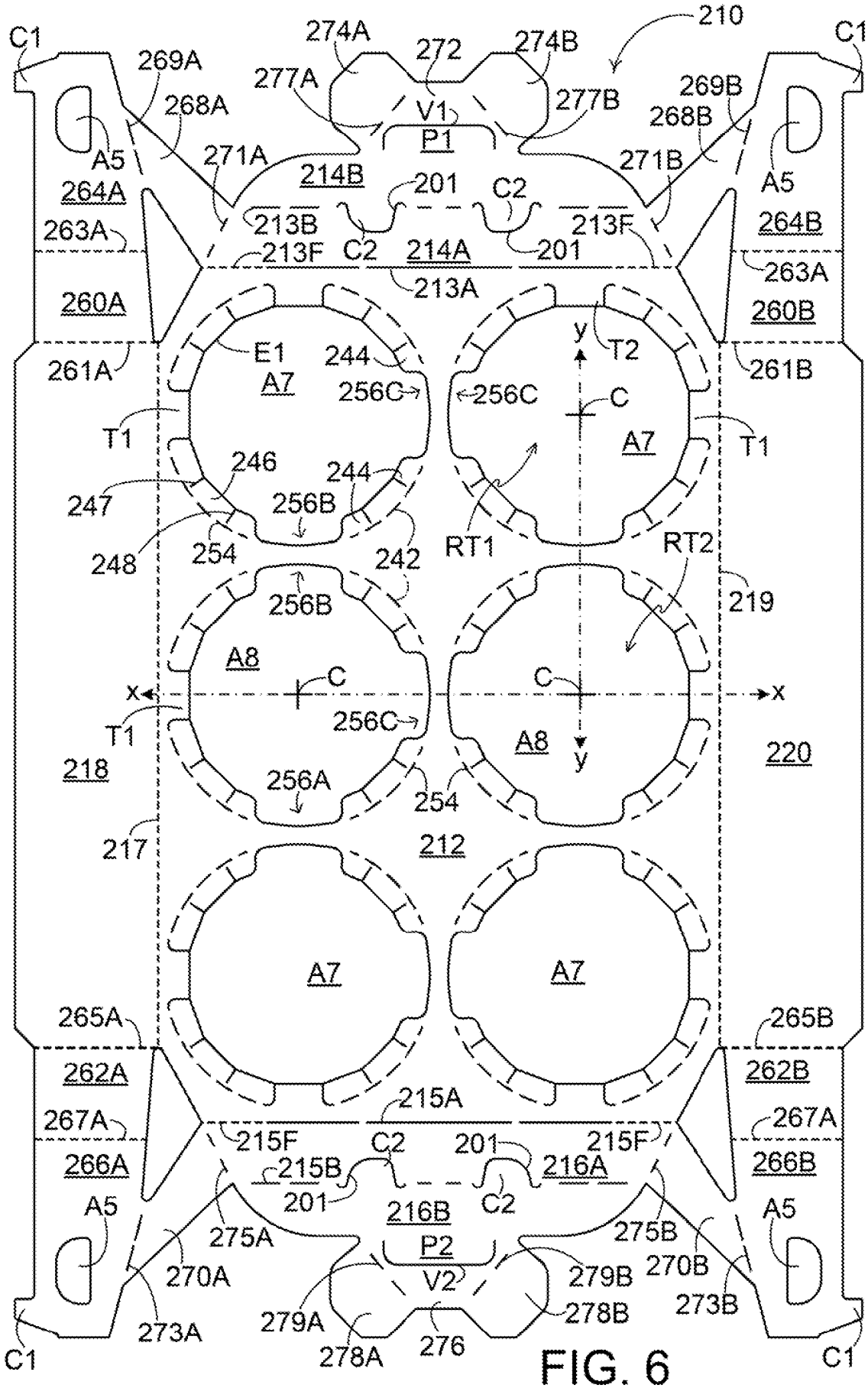
C1
269A
268A
A5
264A
263A
260A
261A
271A
274A
272
274B
277A
277B
V1
P1
214B
201
C2
213B
213F
214A
213A
210
269B
268B
271B
264B
263A
260B
261B
E1
244
A7
256C
T1
246
247
248
254
256B
242
RT1
RT2
219
A8
C
x
y
T2
218
220
256A
217
212
265A
262A
267A
266A
215A
215F
215B
216A
216B
P2
V2
275A
270A
273A
279A
278A
276
279B
278B
275B
270B
273B

FIG. 6

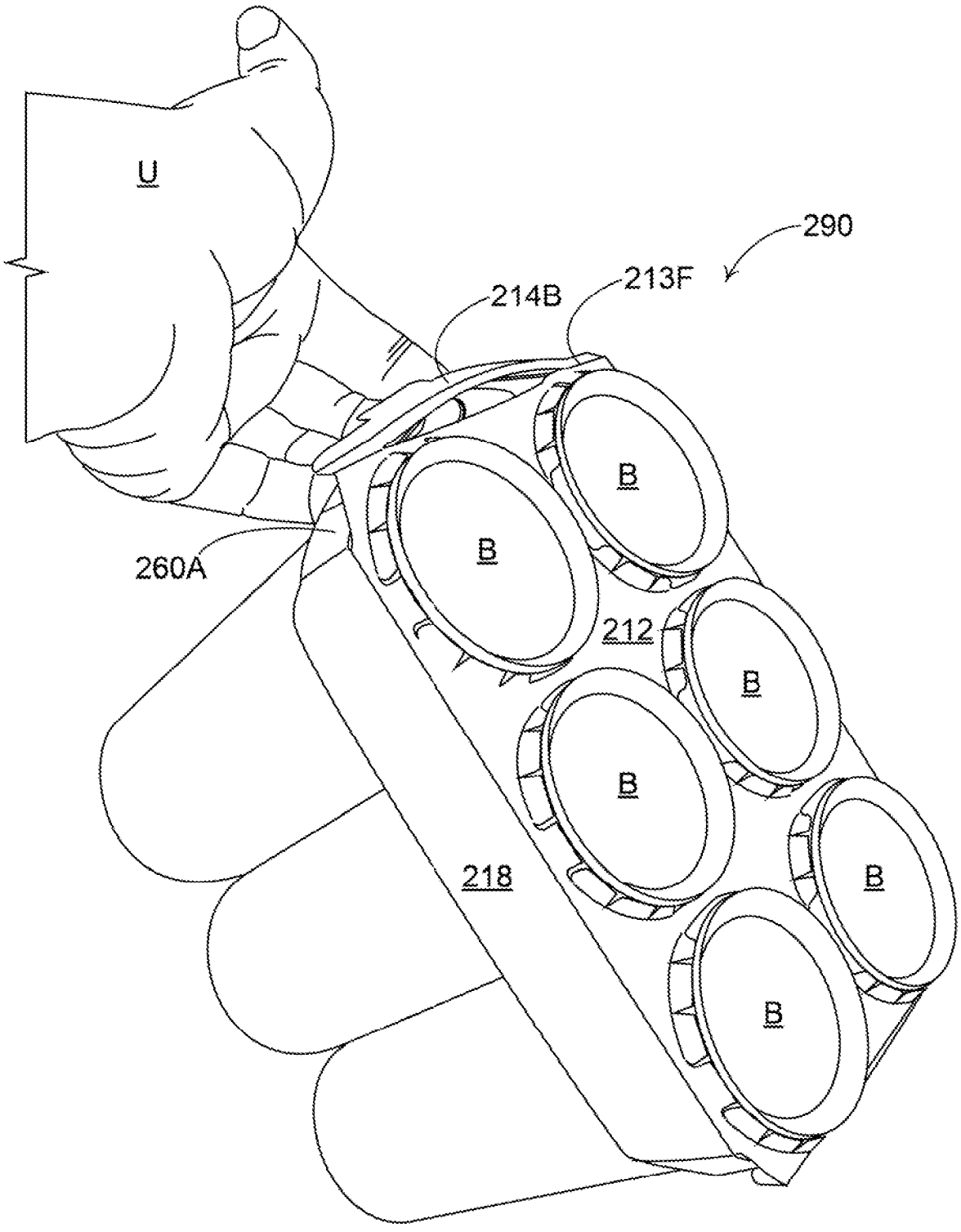

FIG. 7

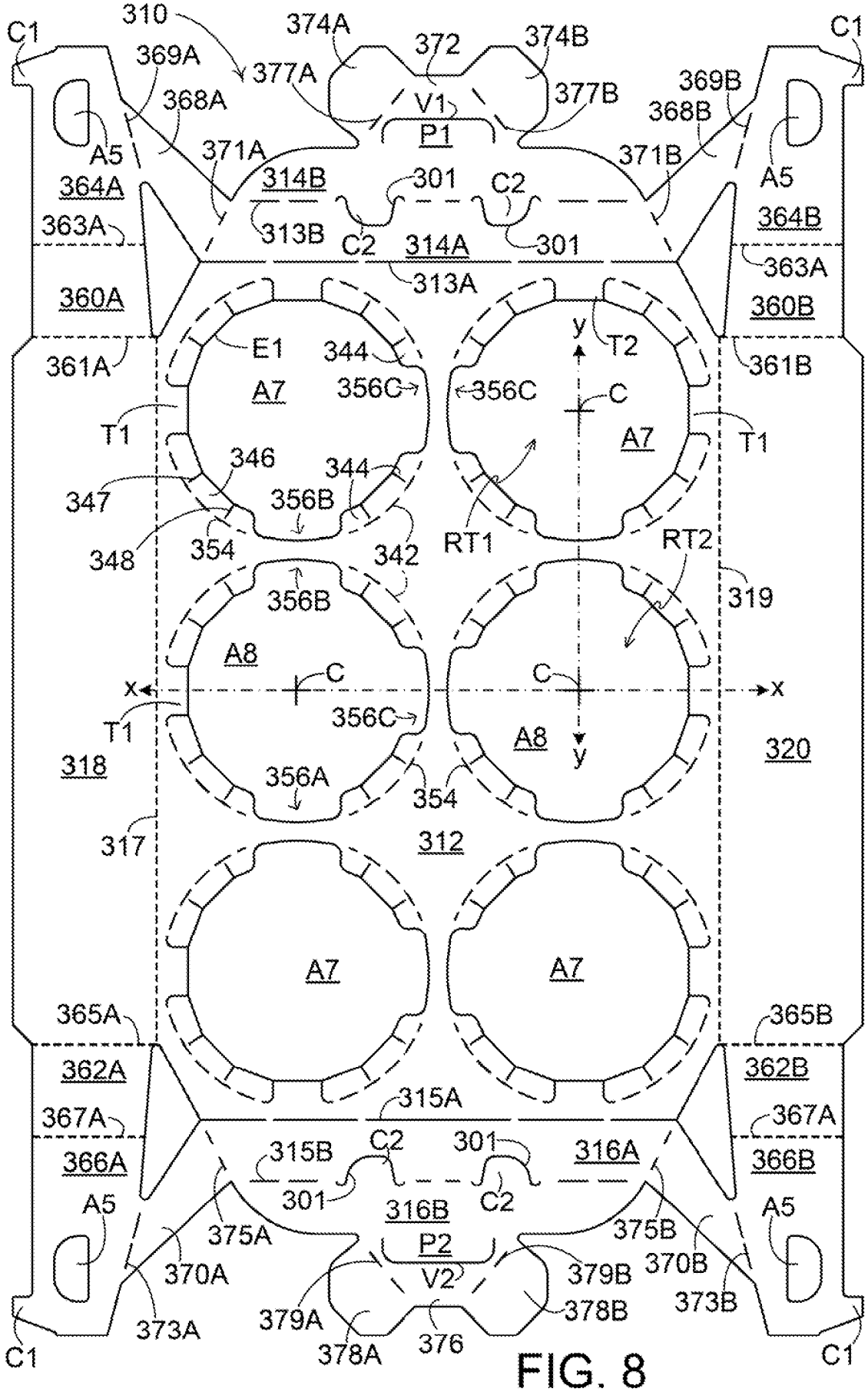
C1
310
374A
372
374B
C1
369A
377A
377B
369B
368A
V1
368B
P1
A5
371A
371B
A5
314B
301
C2
364A
364B
363A
313B
C2
314A
301
363A
313A
360A
360B
E1
344
y
T2
361A
361B
A7
356C
356C
C
T1
A7
T1
346
344
347
356B
RT1
RT2
348
354
342
319
356B
A8
C
C
x
x
T1
356C
A8
y
320
318
356A
354
317
312
A7
A7
365A
365B
362A
362B
315A
367A
367A
315B
C2
301
316A
366A
366B
301
316B
C2
A5
375A
375B
A5
P2
370A
370B
V2
379B
373B
379A
378B
373A
378A
376
C1
C1

FIG. 8

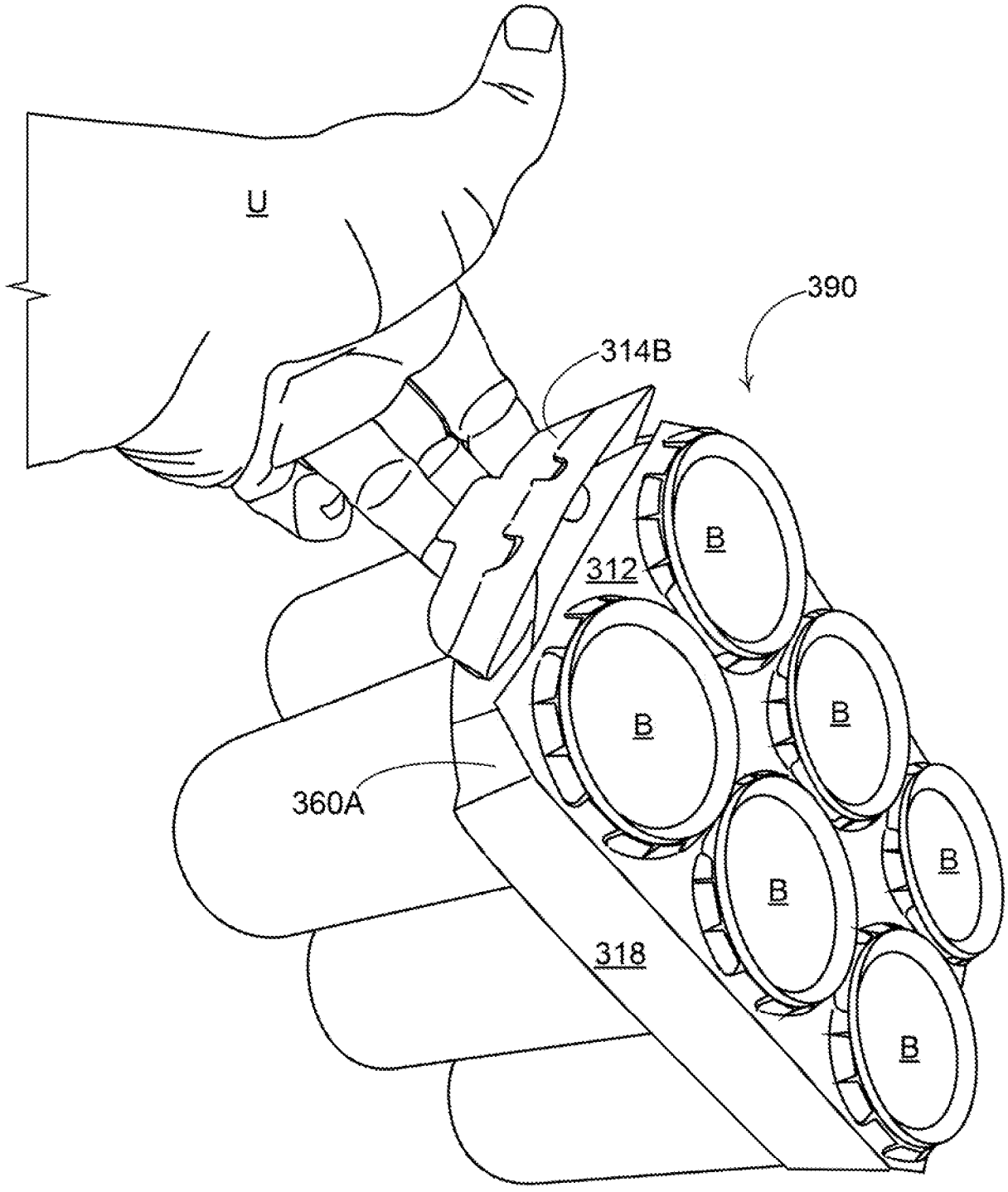

FIG. 9

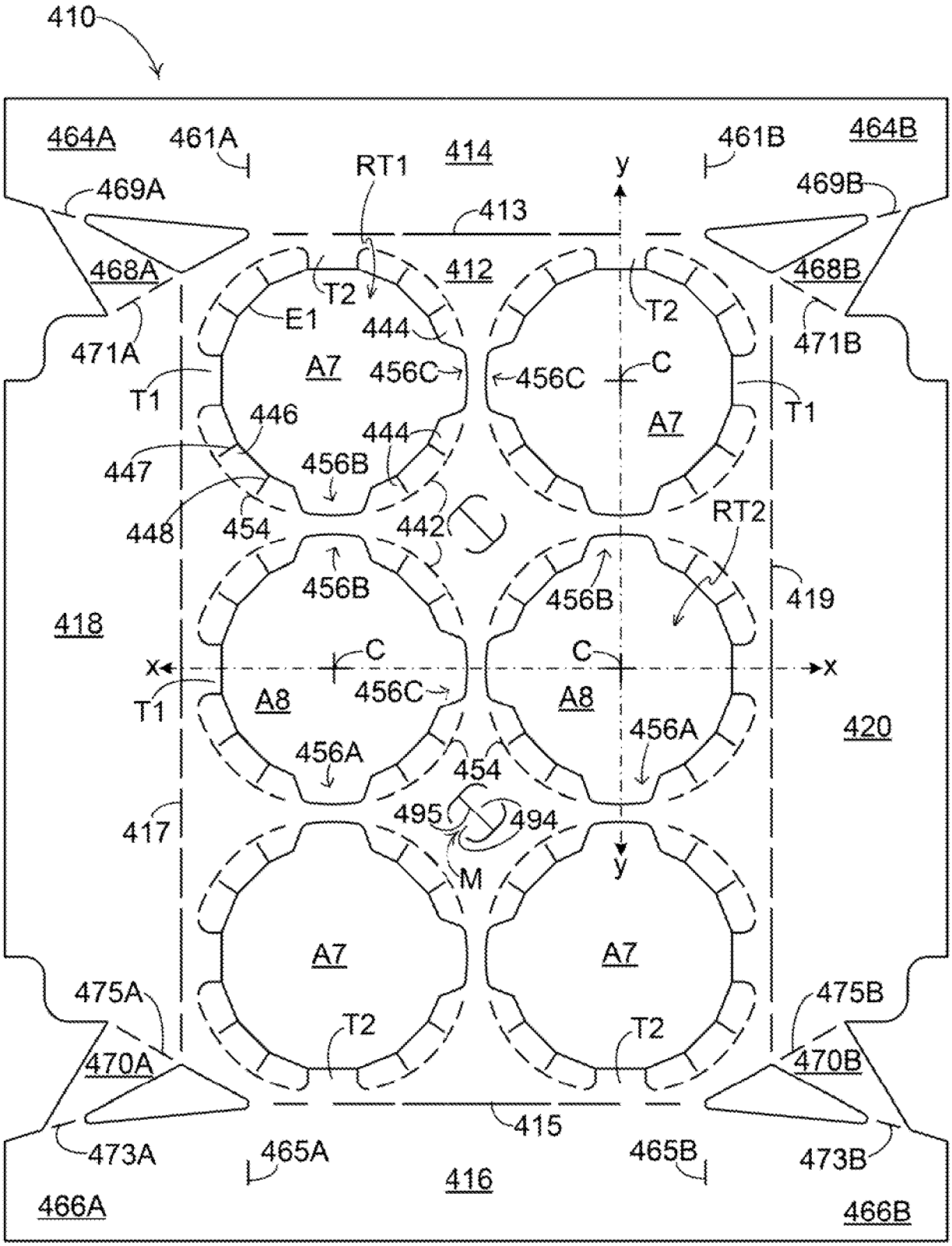
410
464A
461A
414
461B
464B
RT1
y
469A
469B
413
468A
412
468B
T2
T2
E1
444
471A
471B
A7
456C
456C
C
T1
T1
446
A7
444
447
456B
448
454
442
RT2
456B
456B
419
418
C
C
x
x
T1
A8
456C
A8
456A
420
456A
454
417
495
494
M
y
A7
A7
475A
475B
T2
T2
470A
470B
415
473A
465A
465B
473B
416
466A
466B

FIG. 10

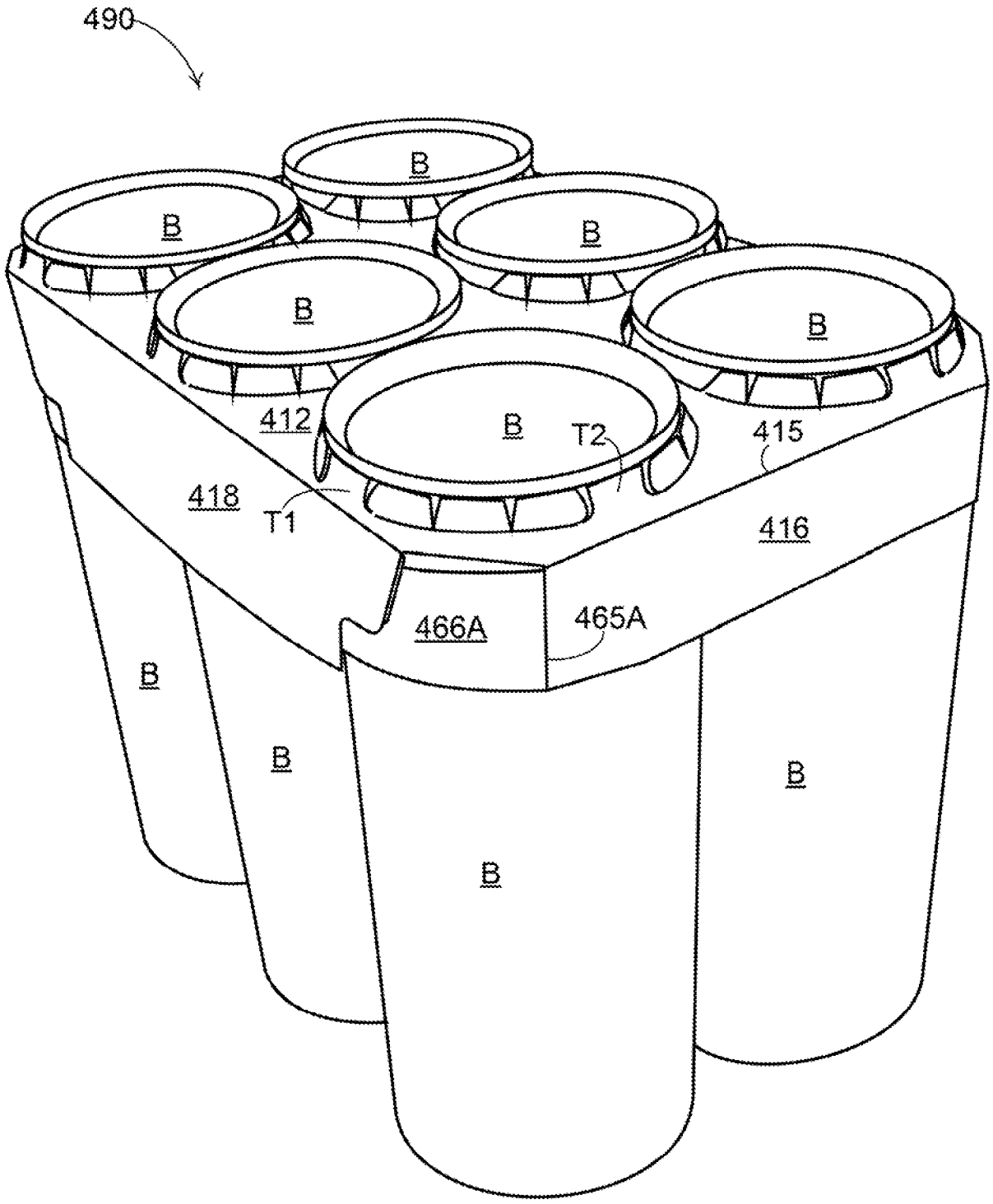

FIG. 11

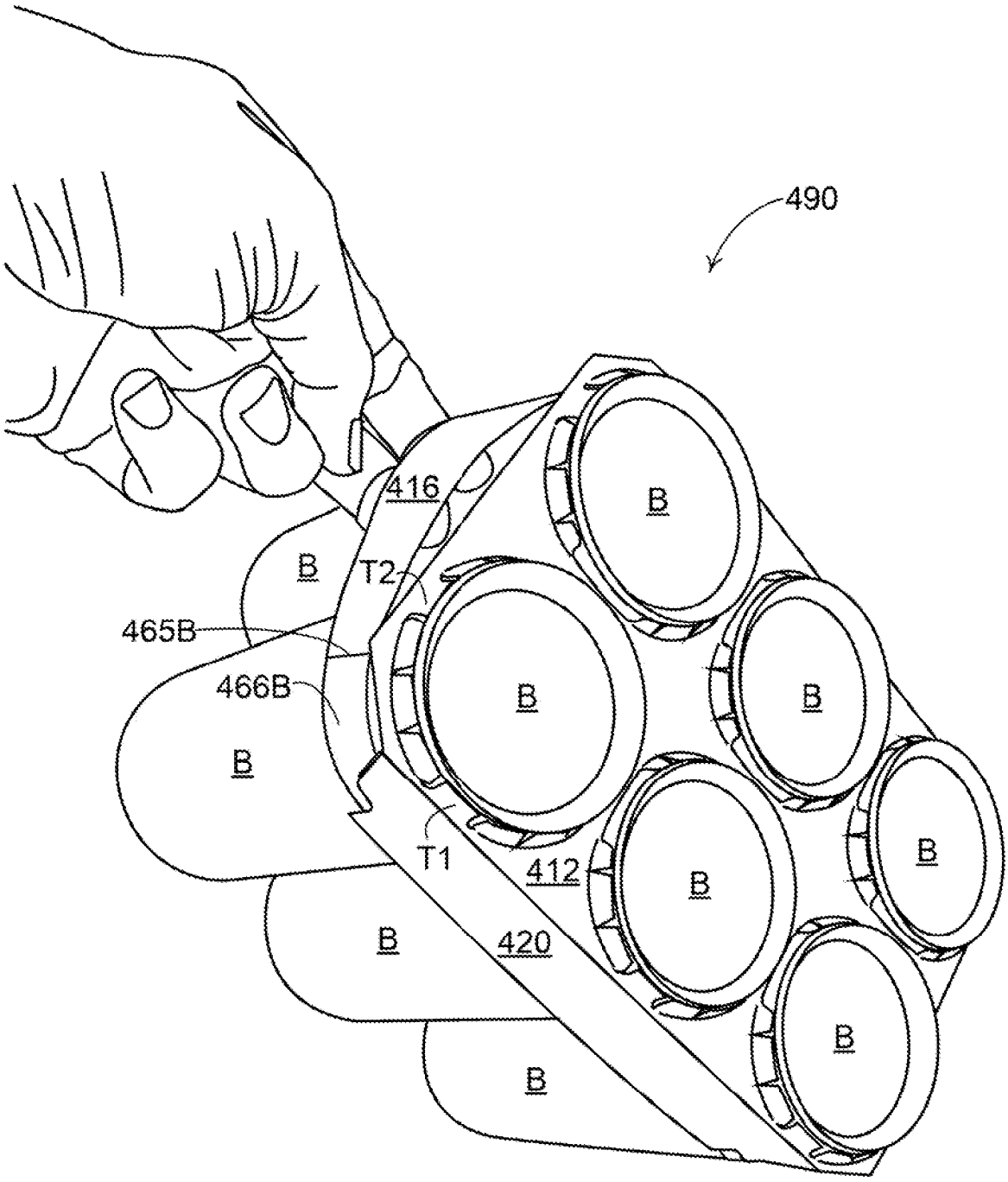

FIG. 12

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2020210562 A, Zacherle **[0004]**