

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 62/534,951, filed on July 20, 2017.

INCORPORATION BY REFERENCE

[0002] The disclosure of U.S. Provisional Patent Application No. 62/534,951, filed on July 20, 2017, is hereby incorporated by reference for all purposes as if presented herein in its entirety.

BACKGROUND OF THE DISCLOSURE

[0003] The present disclosure generally relates to carriers or cartons for holding and displaying containers. More specifically, the present disclosure relates to basket-style carriers that include features for engaging an outer container.

SUMMARY OF THE DISCLOSURE

[0004] According to one aspect of the disclosure, a carrier for holding a plurality of containers comprises a plurality of panels extending at least partially around an interior space of the carrier, the plurality of panels comprises a front panel, a back panel, a front side panel, a back side panel, at least one bottom panel, and at least one central panel. A portion of the front panel forms a first curved corner of the carrier and a portion of the back panel forms a second curved corner of the carrier. The carrier further comprises a front end flap foldably connected to the front side panel and a back end flap foldably connected to the back side panel, at least one of the front end flap and the back end flap is flexibly reconfigurable and disposed at least partially in the interior space of the carrier.

[0005] According to another aspect of the disclosure, a blank for forming a carrier for holding a plurality of containers comprises a plurality of panels for extending at least partially around an interior space of the carrier formed from the blank. The plurality of panels comprises a front panel, a back panel, a front side panel, a back side panel, at least one bottom panel, and at least one central panel. A portion of the front panel is for forming a first curved corner of the carrier formed from the blank and a portion of the back panel is for forming a second curved corner of the carrier formed from the blank. The blank further comprises a front end flap foldably connected to the front side panel and a back end flap foldably connected to the back side panel, at least one of the front end flap and the back end flap is flexibly reconfigurable and is for being disposed at least partially in the interior space of the carrier formed from the blank.

[0006] According to another aspect of the disclosure,

a method of forming a carrier for holding a plurality of containers comprises obtaining a blank comprising a plurality of panels, the plurality of panels comprising a front panel, a back panel, a front side panel, a back side panel, at least one bottom panel, and at least one central panel. The blank further comprises a front end flap foldably connected to the front side panel and a back end flap foldably connected to the back side panel, at least one of the front end flap and the back end flap is flexibly reconfigurable. The method further comprises folding the plurality of panels at least partially around an interior space of the carrier such that a portion of the front panel forms a first curved corner of the carrier and a portion of the back panel forms a second curved corner of the carrier. The method further comprises positioning at least one of the front end flap and the back end flap at least partially in the interior space of the carrier.

[0007] According to another aspect of the disclosure, a transport system comprises an outer container comprising a bottom and plurality of sidewalls extending upwardly from the bottom. The plurality of sidewalls extends around an interior of the outer container and intersects at respective interior curved corners. The system further comprises at least one carrier disposed in the interior of the outer container, the at least one carrier comprising a plurality of panels extending at least partially around an interior space of the carrier. The plurality of panels comprises a front panel, a back panel, a front side panel, a back side panel, at least one bottom panel, and at least one central panel. A portion of the front panel forms a first curved corner of the at least one carrier and a portion of the back panel forms a second curved corner of the at least one carrier. At least one of the first curved corner and the second curved corner of the at least one carrier is engaged with a respective interior curved corner of the outer container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Those skilled in the art will appreciate the above stated advantages and other advantages and benefits of various additional embodiments reading the following detailed description of the embodiments with reference to the below-listed drawing figures. It is within the scope of the present disclosure that the above-discussed aspects be provided both individually and in various combinations.

[0009] According to common practice, the various features of the drawings discussed below are not necessarily drawn to scale. Dimensions of various features and elements in the drawings may be expanded or reduced to more clearly illustrate the embodiments of the disclosure.

Fig. 1 is a plan view of an exterior surface of a blank for forming a carrier according to a first exemplary embodiment of the disclosure.

Fig. 2 is a first sequential perspective view of a partial folding of the blank of Fig. 1.

Fig. 3 is a second sequential perspective view of a partial folding of the blank of Fig. 1.

Fig. 4 is a third sequential perspective view of a partial folding of the blank of Fig. 1.

Fig. 5 is a perspective view of a carrier formed from the blank of Fig. 1 according to the first exemplary embodiment of the disclosure.

Fig. 6 is a perspective detail view of a portion of the carrier of Fig. 5.

Fig. 7 is a perspective view of the carrier of Fig. 5 loaded with a plurality of containers.

Fig. 8 is a perspective view of an outer container for use with the carrier of Fig. 7.

Fig. 9 is a plan view of a system including the carrier of Fig. 7 disposed in the outer container of Fig. 8 according to the first exemplary embodiment of the disclosure.

Fig. 10 is a plan view of an exterior surface of a blank for forming a carrier according to a second exemplary embodiment of the disclosure.

Fig. 11 is a perspective view of a carrier formed from the blank of Fig. 10 and loaded with a plurality of containers according to the second exemplary embodiment of the disclosure.

Fig. 12 is a plan view of a system including the carrier of Fig. 11 disposed in the outer container of Fig. 8 according to the second exemplary embodiment of the disclosure.

[0010] Corresponding parts are designated by corresponding reference numbers throughout the drawings.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

[0011] The present disclosure generally relates to carriers, packages, constructs, sleeves, cartons, or the like, for holding and displaying containers such as jars, bottles, cans, etc. The containers can be used for packaging food and beverage products, for example. The containers can be made from materials suitable in composition for packaging the particular food or beverage item, and the materials include, but are not limited to, glass; plastics such as PET, LDPE, LLDPE, HDPE, PP, PS, PVC, EVOH, and Nylon; and the like; aluminum and/or other metals; or any combination thereof.

[0012] Carriers according to the present disclosure can accommodate containers of numerous different shapes. For the purpose of illustration and not for the purpose of limiting the scope of the disclosure, the following detailed description describes beverage containers (e.g., glass bottles) at least partially disposed within the carrier embodiments. In this specification, the terms "lower," "bottom," "upper," "top," "front," and "back" indicate orientations determined in relation to fully erected carriers.

[0013] As described herein, cartons can be formed by multiple overlapping panels and/or end flaps. Such panels and/or end flaps can be designated in relative terms to one another, e.g., "first", "second", "third", etc., in sequential or non-sequential reference without departing from the disclosure.

[0014] Fig. 1 shows a plan view of an exterior side 101 of a blank 103 used to form a package or basket-style carrier 105 (Fig. 5), in accordance with a first exemplary embodiment of the present disclosure. As shown in Fig. 7, the carrier 105 is sized to contain six containers C, three containers C being contained in a front portion 106 of the carrier 105 and three containers C being contained in a back portion 108 of the carrier 105. The carrier 105 can be formed with first and second curved corners 111, 113 that engage interior curved corners 239 of an outer crate or outer container 233 (Fig. 9) to minimize clearance therebetween such that containers in the carrier 105 are maintained in a substantially stable arrangement during transport and/or storage. In this regard, at least the first and second curved corners 111, 113 are engagement features for engaging the interior curved corners 239 of the outer container 233, which together form a storage or transport system 247, as described further herein. In the illustrated embodiment, the containers C can be beverage bottles, but the containers C could be any other suitable type and size of container without departing from the disclosure. The carrier 105 may be sized and shaped to hold more or less than six containers C. In one embodiment, the front portion 106 and the back portion 108 of the carrier 105 each hold three containers C. In other embodiments, the front portion 106 and the back portion 108 of the carrier 105 can hold more or less than three containers C without departing from the disclosure.

[0015] As shown in Fig. 1, the blank 103 has a longitudinal axis L1 and a lateral axis L2. The blank 103 has a front portion 107 for forming the front portion 106 of the carrier 105, and a back portion 109 for forming the back portion 108 of the carrier 105. In one embodiment, the front portion 107 and the back portion 109 are separated by the longitudinal centerline CL of the blank 103, as shown. As discussed in further detail below, the blank 103 is at least partially formed into the carrier 105 by folding the blank 103 about the fold lines 120, 122, 124 along the centerline CL so that the front portion 107 and the back portion 109 of the blank 103 are overlapped in at least partial face-to-face contact.

[0016] In the illustrated embodiment, the front portion 107 of the blank 103 comprises a front panel 115a and

a front side panel 117a foldably connected to the front panel 115a at a lateral fold line 131a. The front portion 107 also includes a front handle reinforcement flap 121a foldably connected to the central panel 145a at a portion of the lateral fold line 143a and separated from the front panel 115a by a cut 123a. The front handle reinforcement flap 121a includes an opening 130a and a handle flap 118a adjacent to the opening 130a and foldably connected to the handle reinforcement flap 121a at a fold line 125a. A keel 127a is foldably connected to the front side panel 117a at a lateral fold line 129a.

[0017] The front portion 107 of the blank 103, as shown in Fig. 1, includes a front bottom flap 138a foldably connected to the front panel 115a at a longitudinal fold line 135a. In one embodiment, the front bottom flap 138a includes strips 126a formed by lateral tear lines 128a. The strips 126a are adjacent notches 132a that extend through a portion of the front panel 115a, intersect the fold line 135a, and extend into the front bottom flap 138a.

[0018] Still referring to Fig. 1, the front portion 107 of the blank 103 also includes a front end flap 171a that includes a proximal portion 173a foldably connected to the front panel 115a at a lateral fold line 175a, an intermediate portion 177a foldably connected to the proximal portion 173a at a lateral fold line 179a, and a distal portion 181a foldably connected to the intermediate portion 177a at a lateral fold line 183a. In this regard each portion 173a, 177a, 181a is movable relative to each other such that the front end flap 171a has a flexibly reconfigurable arrangement, as described further herein. The front end flap 171a, as shown, may be separable from portions of the side panel 117a and the keel 127a along a line of weakening 172a, such as a cut. In the illustrated embodiment, the front end flap 171a may provide reinforcement and/or support for the side panel 117a and/or the keel 127a upon formation of the carrier 105, for example, by absorbing external forces applied in the course of loading and/or manipulating the carrier 105. The front end flap 171a can also at least partially engage one or more containers C inserted into the carrier 105, for example, to provide support, cushioning, and/or separation between multiple containers C, as described further herein.

[0019] In the embodiment shown in Fig. 1, the front portion 107 includes a front or first central panel 141a foldably connected to the front panel 125a at a lateral fold line 143a. The first central panel 141a includes handle features including a handle opening 147a. As shown in Fig. 1, the central panel 141a includes a first divider flap 150a foldably connected to the central panel 141a at a lateral fold line 152a. The first divider flap 150a, as shown, is at least partially separable from the remainder of the first divider flap 150a along a line of weakening 153a. The first divider flap 150a, as shown, includes an adhesive flap 154a foldably connected to the first divider flap 150a at a lateral fold line 156a. As also shown, a third divider flap 160a is foldably connected to the central panel 141a at a lateral fold line 162a and is at least partially separable from the central panel 141a and the first

divider flap 150a along the line of weakening 153a. The adhesive flap 154a, as shown, is foldably connected to the third divider flap 160a at a lateral fold line 166a such that the first divider flap 150a and the third divider flap 160a are each foldably connected to the adhesive flap 154a. As shown, the third divider flap 160a is at least partially separable from the central panel 141a along a line of weakening 167a. The central panel 141a could be otherwise shaped, arranged, and/or configured, and could have other features, without departing from the disclosure.

[0020] In the illustrated embodiment, the features of the back portion 109 of the blank 103 include a back panel 115b, a back side panel 117b, a keel 127b, and a back or second central panel 141b that are generally a mirror-image of the corresponding panels or flaps of the front portion 107. For example, a second divider flap 150b and a fourth divider flap 160b are foldably connected to the central panel 141b at respective lateral fold lines 152b, 162b. Corresponding components (e.g., panels, flaps, fold lines, cuts, etc.) have been designated by corresponding reference numbers that differ by the "a" or "b" suffix, with the "a" components corresponding to the front portion 107 and the "b" components corresponding to the back portion 109 of the blank 103.

[0021] As shown in Fig. 1, and in contrast to the front portion 107, the back portion 109 of the blank 103 includes a back bottom flap or back bottom panel 138b foldably connected to the back panel 115b along a longitudinal fold line 135b and having a proximal portion 185 foldably connected to a distal portion 187 at a lateral fold line 189. As shown, the back bottom panel 138b includes apertures 192 adjacent the strips 126b and a pair of central openings 194 disposed between the central openings 195 and surrounded by lines of weakening 195 that define tabs 196 therebetween. The central openings 194 can receive a portion of the outer container 233 (Fig. 9) for supporting the carrier 105, as described further herein.

[0022] Any of the panels, flaps, fold lines, cuts, or other features could be otherwise shaped, arranged, and/or omitted from the blank 103 without departing from the disclosure. The blank 103 could be sized and/or shaped to accommodate more or less than six containers without departing from this disclosure.

[0023] Still referring to Fig. 1, and referring additionally to Fig. 2-4, in one embodiment, the carrier 105 can be erected from the blank 103 by folding the front panel 115a, the side panel 117a, the central panel 141a, and the keel 127a relative to one another at respective fold lines 131a, 143a, and 125a in the direction of the arrow A1. The front panel 115a can be subjected to a bending force such that a side portion 116a of the front panel 115a curves to bring the central panel 141a and the keel 127a into proximity. In one embodiment, the side portion 116a of the front panel 115a can have a grain direction GA that is rotated or oriented relative to the lateral axis L2 to facilitate curving. As described herein, curving can include bending, contouring, flexing, folding, creasing, etc. In

such a configuration, a portion of the front panel 115a and the central panel 141a and keel 127a are substantially parallel to one another and the side portion 116a of the front panel 115a and the side panel 117a are opposite one another. Similarly, the back panel 115b, the back side panel 117b, the central panel 141b, and the keel 127b can also be folded relative to one another at respective fold lines 131b, 143b, and 125b in the direction of the arrow A1. The back panel 115b can be subjected to a bending force, e.g., a side portion 116b of the back panel 115b curves to bring the central panel 141b and the keel 127b into proximity. In one embodiment, the side portion 116a of the front panel 115a can have a grain direction GB that is rotated or oriented relative to the lateral axis L2 to facilitate curving. While the grain directions GA, GB of the respective side portions 116a, 116b have been shown as linearly oblique relative to the lateral axis L2, it will be understood that one or both of the grain directions GA, GB can be at least partially curved. In another embodiment, one or both of the grain directions GA, GB is parallel to the lateral axis L2.

[0024] In such a configuration, a portion of the back panel 115b and the central panel 141b and keel 127b are substantially parallel to one another and the side portion 116b of the back panel 115b and the side panel 117b are opposite one another. The keels 127a, 127b are thus brought into proximity but maintained in substantially coplanar separation with marginal portions of the respective central panels 141a, 141b. The handle reinforcement flaps 121a, 121b can be folded at the respective fold lines 143a, 143b in the direction of the arrow A2 and overlapped on the central panels 141a, 141b and the keels 127a, 127b such that the respective central panels and keels 141a, 127a and 141b, 127b are connected via the respective handle reinforcement flaps 121a, 121b and with the handle openings 130a, 147a of the front portion 107 overlapped and the handle openings 130b, 147b of the back portion 109 overlapped in at least partial face-to-face contact. In such an arrangement, a front interior space 110a of the carrier 105 is defined in the front portion 106 of the carrier 105 between the front panel 115a and the central panel 141a, and a back interior space 110b of the carrier 105 is defined in the back portion 108 of the carrier 105 between the back panel 115b and the central panel 115b such that an interior space of the carrier 105 is provided.

[0025] The front portion 106 and the back portion 108 of the partially-formed carrier 105 having an open bottom can be folded about fold lines 120, 122, and 124 along the centerline CL of the blank 103 in the direction of the respective arrows A3, A4 so that the respective central panels 141a, 141b and keels 127a, 127b are brought into face-to-face contact and adhered to one another, for example, with an adhesive. A handle 149, as shown, extends upwardly along a central portion of the carrier 105, and includes the handle reinforcement flaps 121a, 121b, portions of the central panels 141a, 141b, and portions of the keels 127a, 127b.

[0026] As shown, the divider flaps 150a, 160a can also be folded away from the central panel 141a at respective fold lines 152a, 162a in the direction of the respective arrows A5 and A6 and separated from one another along portions of the cut line 153a. The divider flaps 150a, 160a can be folded toward the front panel 115a with the adhesive flap 154a folded into face-to-face contact with the front panel 115a at the respective fold lines 156a, 166a. In this regard, the divider flaps 150a, 160a extend from the central panel 141a, through the front interior space 110a, and to the front panel 115a to define a plurality of first container-receiving spaces 191 (Fig. 5) in the front portion 106 of the carrier 105. While the divider flaps 150a, 160a form three container-receiving spaces 191 in the front portion 106 of the carrier 105, a different number of container receiving spaces 191 can be formed without departing from the disclosure. Similarly, the divider flaps 150b, 160b can be folded away from the central panel 141b at the respective fold lines 152b, 162b in the direction of the respective arrows A7 and A8 and separated from one another along portions of the cut line 153b. The adhesive flap 154b can be folded into face-to-face contact with the back panel 115b at the respective fold lines 156b, 166b. In this regard, the divider flaps 150b, 160b extend from the central panel 141b, through the back interior space 110b, and to the back panel 115b to define a second plurality of container-receiving spaces 193 (Fig. 5) in the back portion 108 of the carrier 105. While the divider flaps 150b, 160b form three container-receiving spaces 193 in the back portion 108 of the carrier 105, a different number of container receiving spaces 193 can be formed without departing from the disclosure. The bottom of the carrier 105 can be closed by folding the front bottom flap 138a and the back bottom panel 138b at the respective fold lines 135a, 135b in the direction of respective arrows A10 and A9 and overlapping the front bottom flap 138a and the back bottom panel 138b into at least partial face-to-face contact.

[0027] In the assembled configuration of the carrier 105 shown in Fig. 5, and with additional reference to Fig. 6, the front end flap 171a and the back end flap 171b can be partially separated from the portions of the respective second side panels 117a, 117b and respective keels 127a, 127b along respective lines of weakening 172a, 172b and disposed inwardly into the respective container-receiving spaces 191, 193 of the carrier 105 adjacent the respective side panels 117a, 117b. The distal portions 181a, 181b of the respective end flaps 171a, 171b can be disposed in at least partial face-to-face contact, as shown. The overlap and contact of various portions of the blank 103 as described herein may be accomplished with an adhesive such as glue, or, in embodiments, through alternative closures such as tabs and slots. In embodiments, the aforementioned steps in forming the carrier 105 from the blank 103 may be performed differently, for example, in a different order, to result in the carrier 105.

[0028] As shown in Fig. 7, containers C can be inserted

into the respective container-receiving spaces 191, 193 of the carrier 105. The carrier 105 includes the respective first curved corner 111 and a second curved corner 113 formed by the respective side portions 116a, 116b of the respective panels 115a, 115b in an at least partially flexed arrangement and which provide a unique appearance of the carrier 105, for example, an asymmetrical appearance, to distinguish the carrier 105 from nearby carriers and/or to provide a visual indicator of an associated product. In addition, a recess 119 is formed between the adjacent first and second curved corners 111, 113, as described further herein. Referring additionally to Fig. 8, the carrier 105 can be placed in the interior 231 of an outer container 233 for storage and/or transport. As shown, the outer container 233 includes a bottom 235 and sidewalls 237, 238 that extend upwardly from the bottom 235 intersect at respective interior curved corners 239. The interior curved corners 239 have a curved configuration along the interior 231 of the outer container 233. The bottom 235 of the outer container 233, as shown, includes a divider 241 bisecting the interior 231 of the outer container 233 and a series of posts 243 extending upwardly from the bottom 235 of the outer container 233. As illustrated, flanges 245 extend from the posts 243 to the adjacent sidewalls 237 and the divider 241 of the outer container 233. As also shown, a series of vertical protrusions 246 may extend from the sidewalls 238 into the interior 231 of the outer container 233.

[0029] Referring additionally to Fig. 9, at least one carrier 105 can be placed in the interior 231 of the outer container 233 to form the storage or transport system 247. As shown, one or both of the first and second curved corners 111, 113 of the carrier 105 can be disposed in engagement, e.g., a flush or contoured engagement, with an adjacent interior curved corner 239 of the outer container 233. In this regard, the engagement of one of the first and second curved corners 111, 113 of the carrier 105 with a respective interior curved corner 239 of the outer container 233 provides a configuration in which a minimized clearance is present between the interior curved corners 239 of the outer container 233 and a respective curved corner 111, 113 of the carrier 105, e.g., so that space in the interior 231 of the outer container 233 is optimized to accommodate an increased number of carriers 105 and containers C in comparison to conventional outer containers that lack such features. Further, the crease 119 between the first and second curved corners 113, 115 can be positioned to at least partially receive a vertical protrusion 246 of the outer container 233, for example, to properly position the carrier 105 and to minimize, inhibit, and/or prevent movement thereof relative to the outer container 233. In one embodiment, the crease 119 can at least partially receive a post 243. It will be understood that the carrier 105 can be configured to engage other particular features of the outer container 233, for example, protruding, recessed, or otherwise textured molded sections. The complementary configuration of the curved corners 111, 113 of the carrier 105 and

the interior curved corners 239 of the outer container 233 ensures proper positioning of the carrier 105 in the outer container 233, for example, as compared to a carrier having square or otherwise configured corners.

[0030] Further, each central opening 194 in the back bottom panel 138b of the carrier 105 is sized to accommodate a post 243 of the outer container 233. In one embodiment, the tabs 196 surrounding the respective central openings 194 can fold upwardly at the respective lines of weakening 195 to present a wider opening for receipt of the posts 243. In this regard, a carrier 105 in the interior 231 of the outer container 233 can be positioned such that a post 243 extends upwardly through the central openings 194 to be disposed between four adjacent containers C, for example, to maintain positional stability and/or to cushion the containers C from impacts or vibrations. The post 243 can be provided with one or more recesses that can be configured, for example, to accommodate the curvature of an adjacent container C. Further, a post 243 of the outer container 233 adjacent the second side panels 117a, 117b of the carrier 105 can be at least partially disposed in the space between the end flaps 171a, 171b. In this regard, a post 243 can at least partially protrude into and be at least partially disposed in the interior spaces 110a, 110b of the carrier 105 adjacent the respective side panels 117a, 117b, with the end flaps 171a, 171b providing a flexibly reconfigurable portion of the carrier 105 that can engage and at least partially conform about a post 243 of the outer container 233. In one embodiment, when multiple carriers 105 are disposed in the outer container 233, the side panels 117a, 117b of adjacent carriers 105 can be disposed in at least partial face-to-face contact, with a post 243 disposed at least partially in the respective interior spaces 110a, 110b adjacent the respective side panels 117a, 117b to provide a minimized clearance between adjacent carriers 105.

[0031] In this regard, at least one carrier 105 can be placed in the interior 231 of the outer container 233 such that the containers C disposed in the carriers 105 are provided with stability and protection via the engagement of the respective curved corners 111, 113 of the carriers 105 with respective interior curved corners 239 of the outer container 233, the engagement of the respective creases 119 of the carriers 105 with the vertical protrusions 246 and/or posts 243, the engagement of the respective end flaps 171a, 171b with the posts 243 and the disposition of the posts 243 in the respective interior spaces 110a, 110b of the carriers 105, the presence of the posts 243 between containers C, and/or the minimized free space between different carriers 105 and different containers C in the interior 231 of the outer container 233. While a pair of carriers 105 have been shown disposed in the interior 231 of the outer container 233 for clarity of illustration, it will be understood that a different number of carriers 105 can be disposed in the interior 231 of the outer container 233.

[0032] Figs. 10-12 illustrate a second exemplary em-

bodiment of the disclosure that includes one or more features that are similar to those described in the first exemplary embodiment, and like or similar reference numbers are indicated throughout the drawings to indicate like or similar features. The second embodiment of the carrier, generally designated 305, is similar to the carrier 105 (Fig. 5) of the first embodiment, except that the second embodiment is a 2x2 configuration for holding four containers C, with two containers C in the front portion 106 and two containers in the back portion 108. Fig. 10 illustrates a blank 303 for forming the carrier 305 of the second exemplary embodiment. The blank 303 includes the divider flap 150a foldably connected to the central panel 141a at the fold line 152a in the front portion 107 of the blank 303 and the divider flap 150b foldably connected to the central panel 141b at the fold line 152b in the back portion 109 of the blank 303. The divider flaps 150a, 150b divide the respective front portion 106 and back portion 108 of the carrier 305 into two container-receiving spaces 191, 193.

[0033] Still referring to Fig. 10, and referring additionally to Fig. 11, the carrier 305 can be formed in a similar manner as the carrier 105 (Fig. 5) of the first exemplary embodiment. The blank 303 can include regions 304a, 304b on the respective central panels 141a, 141b that are devoid of adhesive such that a space in the form of a recess or crease 319 is formed between the first and second curved corners 113, 115 of the carrier 305. In one embodiment, respective lines of weakening 342a, 342b can be provided on the respective regions 304a, 304b to facilitate reconfiguration of the crease 319, as described further herein. The carrier 305 can be loaded with containers C that are contained in the container-receiving spaces 191, 193 in a similar manner as described above with respect to carrier 105 (Fig. 5).

[0034] Referring additionally to Fig. 12, at least one carrier 305 can be placed in the interior 231 of the outer container 233 to form a storage or transport system 447. As shown a vertical protrusion 246 is adjacent the curved corners 111, 113 of the respective carriers 305, and the crease 319 can expand to accommodate a portion of the vertical protrusion 246. For example, because the central panels 141a, 141b are devoid of adhesive connection to one another at the regions 304a, 304b, the vertical protrusion 246 can urge the front portion 107 and the back portion 109 of the carrier 305 apart from one another to nest in the crease 319 between the curved corners 111, 113 of the carrier 305, as shown. In one embodiment, the lines of weakening 342a, 342b may form an angled portion 320 of the crease 319 that further engages a portion of the vertical protrusion 246, or, in one embodiment, a post 243.

[0035] Further, and as described above with respect to the first exemplary embodiment, the curved corners 113, 115 of the carrier 305 can be disposed in engagement with an adjacent interior curved corner 239 of the outer container 233 such that a post can 243 extend upwardly through the central openings 194 to be disposed

between four adjacent containers C, for example, to maintain positional stability and/or to cushion the containers C from impacts or vibrations. In this regard, at least one carrier 305 can be placed in the interior 231 of the outer container 233 such that the containers C disposed in the carriers 305 are provided with stability and protection via the engagement of the respective curved corners 111, 113 of the carriers 305 with respective interior curved corners 239 of the outer container 233, the engagement of the respective creases 319 of the carriers 105 with the vertical protrusions 246 and/or posts 243, the engagement of the respective end flaps 171a, 171b with the posts 243 and the disposition of the posts 243 in the respective interior spaces 110a, 110b of the carriers 305, the presence of the posts 243 between containers C, and/or the minimized free space between respective different carriers 305 and different containers C in the interior 231 of the outer container 233. While a pair of carriers 305 have been shown disposed in the interior 231 of the outer container 233 for clarity of illustration, it will be understood that a different number of carriers 305 can be disposed in the interior 231 of the outer container 233.

[0036] In general, the blank may be constructed from paperboard having a caliper so that it is heavier and more rigid than ordinary paper. The blank can also be constructed of other materials, such as cardboard, or any other material having properties suitable for enabling the carrier to function at least generally as described above. The blank can be coated with, for example, a clay coating. The clay coating may then be printed over with product, advertising, and other information or images. The blanks may then be coated with a varnish to protect information printed on the blanks. The blanks may also be coated with, for example, a moisture barrier layer, on either or both sides of the blanks. The blanks can also be laminated to or coated with one or more sheet-like materials at selected panels or panel sections.

[0037] As an example, a tear line can include: a slit that extends partially into the material along the desired line of weakness, and/or a series of spaced apart slits that extend partially into and/or completely through the material along the desired line of weakness, or various combinations of these features. As a more specific example, one type tear line is in the form of a series of spaced apart slits that extend completely through the material, with adjacent slits being spaced apart slightly so that a nick (e.g., a small somewhat bridging-like piece of the material) is defined between the adjacent slits for typically temporarily connecting the material across the tear line. The nicks are broken during tearing along the tear line. The nicks typically are a relatively small percentage of the tear line, and alternatively the nicks can be omitted from or torn in a tear line such that the tear line is a continuous cut line. That is, it is within the scope of the present disclosure for each of the tear lines to be replaced with a continuous slit, or the like. For example, a cut line can be a continuous slit or could be wider than

a slit without departing from the present disclosure.

[0038] In accordance with the exemplary embodiments, a fold line can be any substantially linear, although not necessarily straight, form of weakening that facilitates folding therealong. More specifically, but not for the purpose of narrowing the scope of the present disclosure, fold lines include: a score line, such as lines formed with a blunt scoring knife, or the like, which creates a crushed or depressed portion in the material along the desired line of weakness; a cut that extends partially into a material along the desired line of weakness, and/or a series of cuts that extend partially into and/or completely through the material along the desired line of weakness; and various combinations of these features. In situations where cutting is used to create a fold line, typically the cutting will not be overly extensive in a manner that might cause a reasonable user to incorrectly consider the fold line to be a tear line.

[0039] The above embodiments may be described as having one or more panels adhered together by glue during erection of the carrier embodiments. The term "glue" is intended to encompass all manner of adhesives commonly used to secure carrier panels in place.

[0040] The foregoing description of the disclosure illustrates and describes various exemplary embodiments. Various additions, modifications, changes, etc., could be made to the exemplary embodiments without departing from the spirit and scope of the disclosure. It is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. Additionally, the disclosure shows and describes only selected embodiments of the disclosure, but the disclosure is capable of use in various other combinations, modifications, and environments and is capable of changes or modifications within the scope of the inventive concept as expressed herein, commensurate with the above teachings, and/or within the skill or knowledge of the relevant art. Furthermore, certain features and characteristics of each embodiment may be selectively interchanged and applied to other illustrated and non-illustrated embodiments of the disclosure.

Claims

1. A carrier (105, 305) for holding a plurality of containers (C), comprising:

a plurality of panels extending at least partially around an interior space (110a, 110b) of the carrier (105, 305), the plurality of panels comprises a front panel (115a), a back panel (115b), a front side panel (117a), a back side panel (117b), at least one bottom panel (138b), and at least one central panel (141a, 141b), a portion (116a) of the front panel (115a) forms a first curved corner (111) of the carrier (105, 305) and a portion

(116b) of the back panel (115b) forms a second curved corner (113) of the carrier (105, 305); and a front end flap (171a) foldably connected to the front side panel (117a) and a back end flap (171b) foldably connected to the back side panel (117b), at least one of the front end flap (171a) and the back end flap (171b) is flexibly reconfigurable and disposed at least partially in the interior space (110a, 110b) of the carrier (105, 305).

2. The carrier (105, 305) of claim 1, wherein a recess (119, 319) is formed between the first curved corner (111) and the second curved corner (113) and is configured to receive a portion of an outer container (233).
3. The carrier (305) of claim 2, wherein the recess (319) comprises an angled portion (320) formed by at least one line of weakening (342a, 342b).
4. The carrier (105, 305) of claim 2, wherein the at least one bottom panel (138b) comprises at least one opening (194) surrounded by lines of weakening (195) for receiving a portion of the outer container (233).
5. The carrier (105, 305) of claim 1, wherein each of the front end flap (171a) and the back end flap (171b) comprises a plurality of portions that comprises a proximal portion (173a, 173b), an intermediate portion (177a, 177b), and a distal portion (181a, 181b), each portion of the respective plurality of portions is foldably attached to a respective adjacent portion of the respective plurality of portions.
6. The carrier (105, 305) of claim 5, wherein the respective distal portions (181a, 181b) of the front end flap (171a) and the back end flap (171b) are in face-to-face contact.
7. The carrier (105, 305) of claim 1, further comprising a first divider flap (150a) extending from the at least one central panel (141a, 141b) to the front panel (115a) to form a first plurality of container-receiving spaces (191) in the interior space (110a) of the carrier (105, 305) and a second divider flap (150b) extending from the at least one central panel (141a, 141b) to the back panel (115b) in the interior space (110b) of the carrier (105, 305) to form a second plurality of container-receiving spaces (193) in the interior space (110a, 110b) of the carrier (105, 305).
8. The carrier (105) of claim 7, further comprising a third divider flap (160a) extending from the at least one central panel (141a, 141b) to the front panel (115a) in the interior space (110a) of the carrier (105, 305) and a fourth divider flap (160b) extending from the

at least one central panel (141a, 141b) to the back panel (115b) in the interior space (110b) of the carrier (105).

9. The carrier (105, 305) of claim 7, wherein the at least one central panel (141a, 141b) is a front central panel (141a) and the carrier (105, 305) further comprises a back central panel (141b) in face-to-face contact with the front central panel (141a), wherein the interior space (110a, 110b) of the carrier (105, 305) is a front interior space (110a) of the carrier (105, 305) between the front panel (115a) and the front central panel (141a), and the carrier (105, 305) comprises a back interior space (110b) between the back panel (115b) and the back central panel (141b).
10. A blank (103, 303) for forming a carrier (105, 305) for holding a plurality of containers (C), comprising:

a plurality of panels for extending at least partially around an interior space (110a, 110b) of the carrier (105, 305) formed from the blank (103, 303), the plurality of panels comprises a front panel (115a), a back panel (115b), a front side panel (117a), a back side panel (117b), at least one bottom panel (138b), and at least one central panel (141a, 141b), a portion (116a) of the front panel (115a) is for forming a first curved corner (111) of the carrier (105, 305) formed from the blank (103, 303) and a portion (116b) of the back panel (115b) is for forming a second curved corner (113) of the carrier (105, 305) formed from the blank (103, 303); and
a front end flap (171a) foldably connected to the front side panel (117a) and a back end flap (171b) foldably connected to the back side panel (117b), at least one of the front end flap (171a) and the back end flap (171b) is flexibly reconfigurable and is for being disposed at least partially in the interior space (110a, 110b) of the carrier (105, 305) formed from the blank (103, 303).
11. The blank (103, 303) of claim 10, wherein a recess (119, 319) is formed between the first curved corner (111) and the second curved corner (113) of the carrier (105, 305) formed from the blank (103, 303) and is configured to receive a portion of an outer container (233).
12. The blank (103, 303) of claim 10, wherein each of the front end flap (171a) and the back end flap (171b) comprises a plurality of portions that comprises a proximal portion (173a, 173b), an intermediate portion (177a, 177b), and a distal portion (181a, 181b), each portion of the respective plurality of portions is foldably attached to a respective adjacent portion of the respective plurality of portions.

13. The blank (103, 303) of claim 10, wherein the at least one bottom panel (138b) comprises at least one opening (194) surrounded by lines of weakening (195) for receiving a portion of the outer container (233).

14. The blank (103, 303) of claim 10, further comprising a first divider flap (150a) foldably connected to the at least one central panel (141a, 141b), the first divider flap (150a) extends from the at least one central panel (141a, 141b) to the front panel (115a) in the interior space (110a) of the carrier (105, 305) formed from the blank (103, 303) to form a first plurality of container-receiving spaces (191), the blank (103, 303) further comprising a second divider flap (150b) foldably connected to the at least one central panel (141a, 141b), the second divider flap (150b) extends from the at least one central panel (141a, 141b) to the back panel (115b) in the interior space (110b) of the carrier (105, 305) formed from the blank (103, 303) to form a second plurality of container-receiving spaces (193).

15. A method of forming a carrier (105, 305) for holding a plurality of containers (C), comprising:

obtaining a blank (103, 303) comprising a plurality of panels, the plurality of panels comprising a front panel (115a), a back panel (115b), a front side panel (117a), a back side panel (117b), at least one bottom panel (138b), and at least one central panel (141a, 141b), the blank (103, 303) further comprising a front end flap (171a) foldably connected to the front side panel (117a) and a back end flap (171b) foldably connected to the back side panel (117b), at least one of the front end flap (171a) and the back end flap (171b) is flexibly reconfigurable;
folding the plurality of panels at least partially around an interior space (110a, 110b) of the carrier (105, 305) such that a portion (116a) of the front panel (115a) forms a first curved corner (111) of the carrier (105, 305) and a portion (116b) of the back panel (115b) forms a second curved corner (113) of the carrier (105, 305); and
positioning at least one of the front end flap (171a) and the back end flap (171b) at least partially in the interior space (110a, 110b) of the carrier (105, 305).

16. The method of claim 15, wherein a recess (119, 319) is formed between the first curved corner (111) and the second curved corner (113) and is configured to receive a portion of an outer container (233).

17. The method of claim 15, wherein each of the front end flap (171a) and the back end flap (171b) comprises a plurality of portions that comprises a proxi-

mal portion (173a, 173b), an intermediate portion (177a, 177b), and a distal portion (181a, 181b), each portion of the respective plurality of portions is foldably attached to a respective adjacent portion of the respective plurality of portions.

18. The method of claim 15, wherein the blank (103, 303) comprises a first divider flap (150a) foldably connected to the at least one central panel (141a, 141b) and a second divider flap (150b) foldably connected to the at least one central panel (141a, 141b), the first divider flap (150a) extends from the at least one central panel (141a, 141b) to the front panel (115a) to form a first plurality of container-receiving spaces (191) in the interior space (110a) of the carrier (105, 305) and the second divider flap (150b) extends from the at least one central panel (141a, 141b) to the back panel (115b) to form a second plurality of container-receiving spaces (193) in the interior space (110b) of the carrier (105, 305).

19. A transport system (247, 447), comprising:

an outer container (233) comprising a bottom (235) and plurality of sidewalls (237, 238) extending upwardly from the bottom (235), the plurality of sidewalls (237, 238) extend around an interior (231) of the outer container (233) and intersects at respective interior curved corners (239);
at least one carrier (105, 305) disposed in the interior (231) of the outer container (233), the at least one carrier (105, 305) comprising:

a plurality of panels extending at least partially around an interior space (110a, 110b) of the carrier (105, 305), the plurality of panels comprises a front panel (115a), a back panel (115b), a front side panel (117a), a back side panel (117b), at least one bottom panel (138b), and at least one central panel (141a, 141b), a portion (116a) of the front panel (115a) forms a first curved corner (111) of the at least one carrier (105, 305) and a portion (116b) of the back panel (115b) forms a second curved corner (113) of the at least one carrier (105, 305), at least one of the first curved corner (111) and the second curved corner (113) of the at least one carrier (105, 305) is engaged with a respective interior curved corner (239) of the outer container (233).

20. The transport system (247, 447) of claim 19, wherein the outer container (233) comprises at least one protrusion (246) extending from at least one sidewall (237, 238) of the plurality of sidewalls (237, 238),

wherein a recess (119, 319) is formed between the first curved corner (111) and the second curved corner (113) of the at least one carrier (105, 305) and receives at least a portion of the at least one protrusion (246).

21. The transport system (247, 447) of claim 20, wherein the outer container (233) comprises at least one post (243) extending upwardly from the bottom (235), wherein the at least one carrier (105, 305) further comprises a front end flap (171a) foldably connected to the front side panel (117a) and a back end flap (171b) foldably connected to the back side panel (117b), at least one of the front end flap (171a) and the back end flap (171b) is flexibly reconfigurable and disposed at least partially in the interior space (110a, 110b) of the at least one carrier (105, 305), the at least one post (243) is at least partially disposed in the interior space (110a, 110b) of the at least one carrier (105, 305) between the front end flap (171a) and the back end flap (171b).

22. The transport system (247, 447) of claim 21, wherein the at least one carrier (105, 305) is a first carrier (105, 305) and the transport system (247, 447) further comprises a second carrier (105, 305), and wherein the at least one post (243) is at least partially disposed in the interior space (110a, 110b) of each of the first carrier (105, 305) and the second carrier (105, 305) between the respective front end flap (171a) and back end flap (171b).

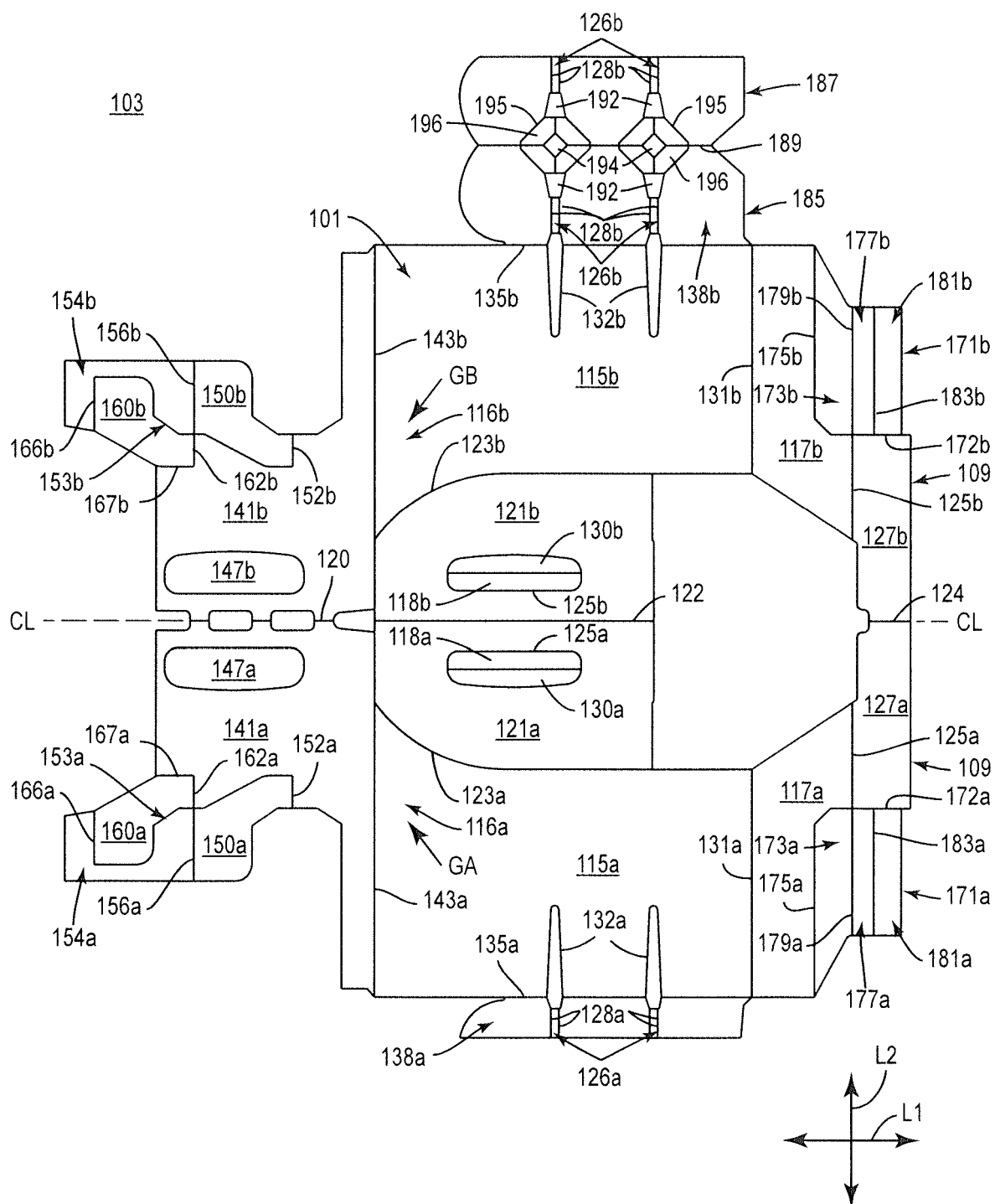


FIG. 1

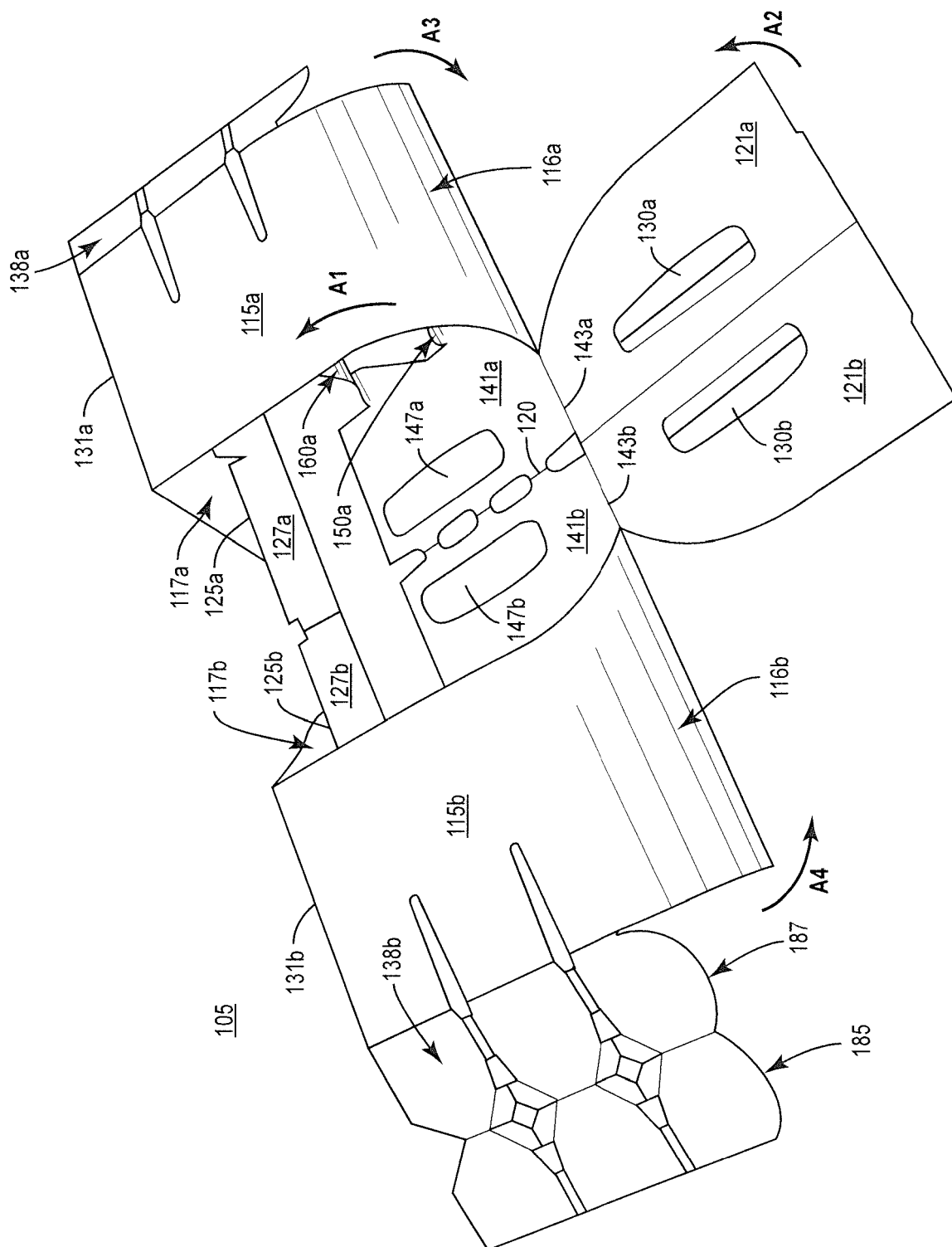


FIG. 2

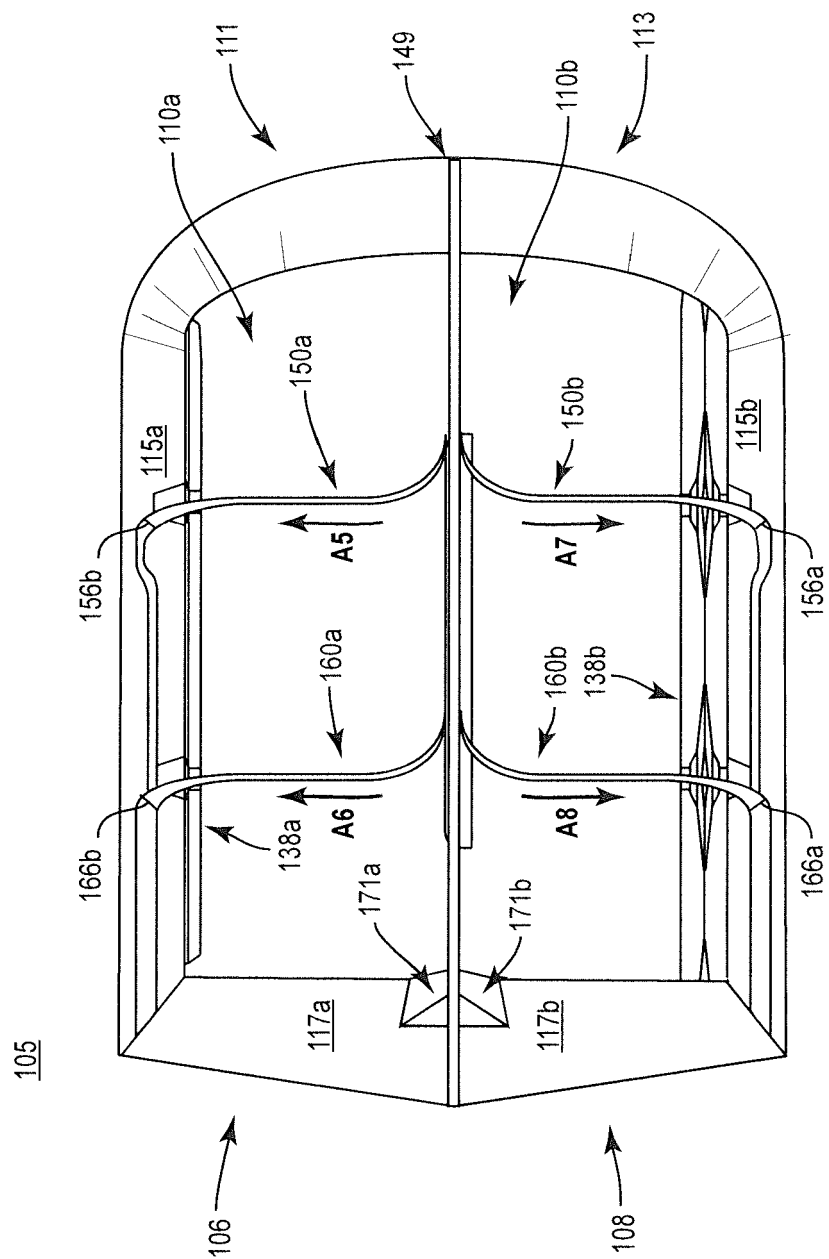


FIG. 3

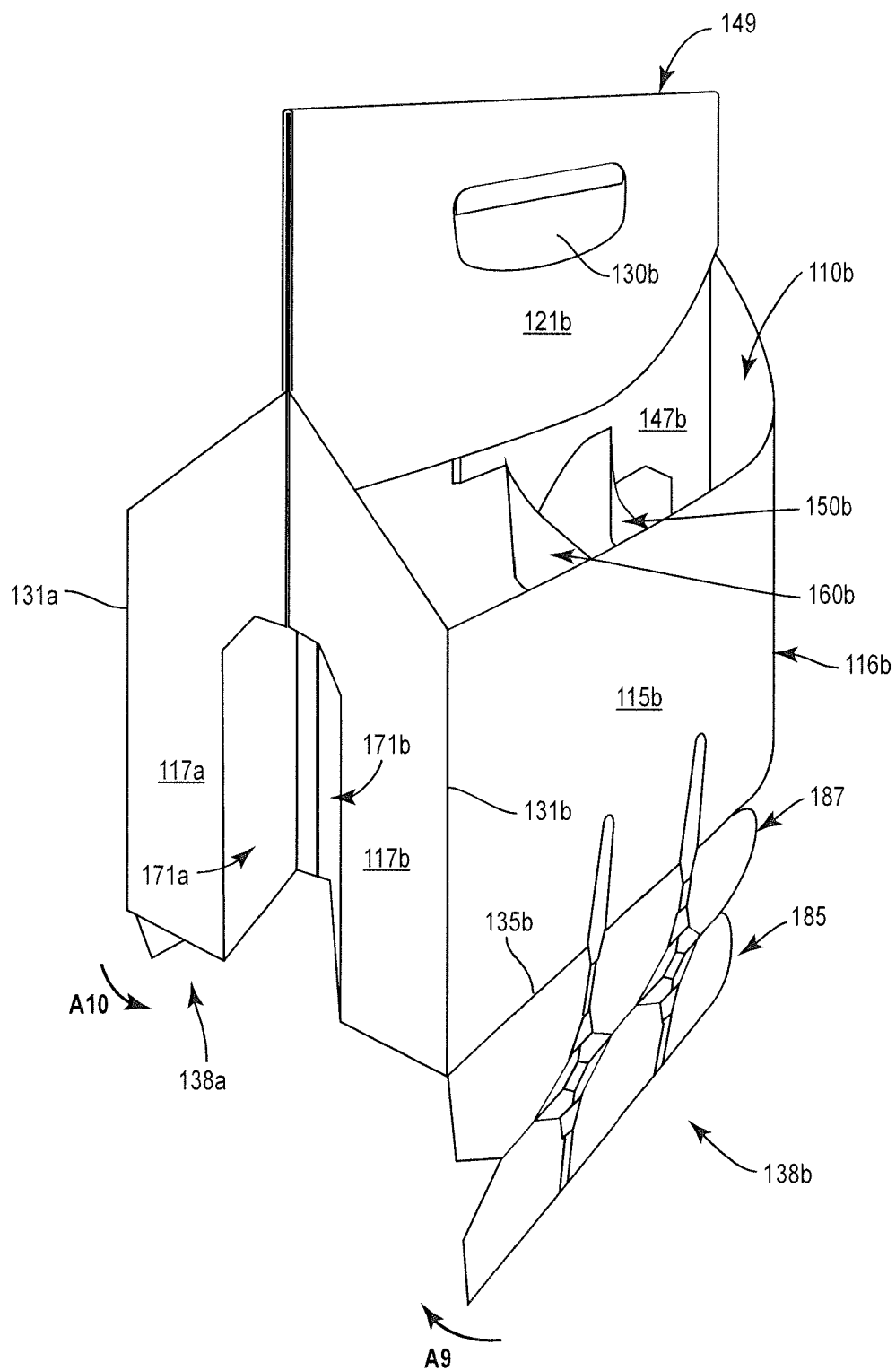


FIG. 4

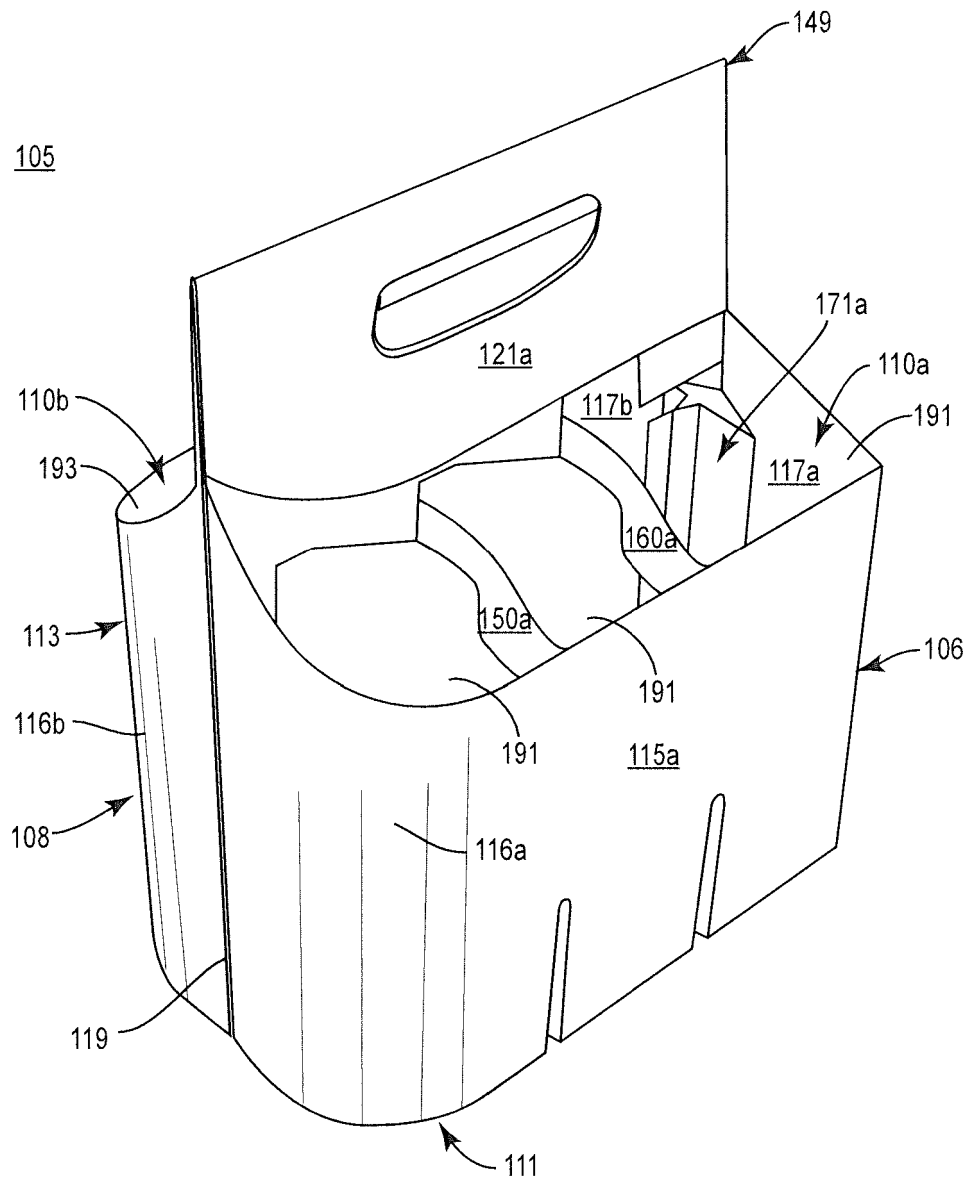


FIG. 5

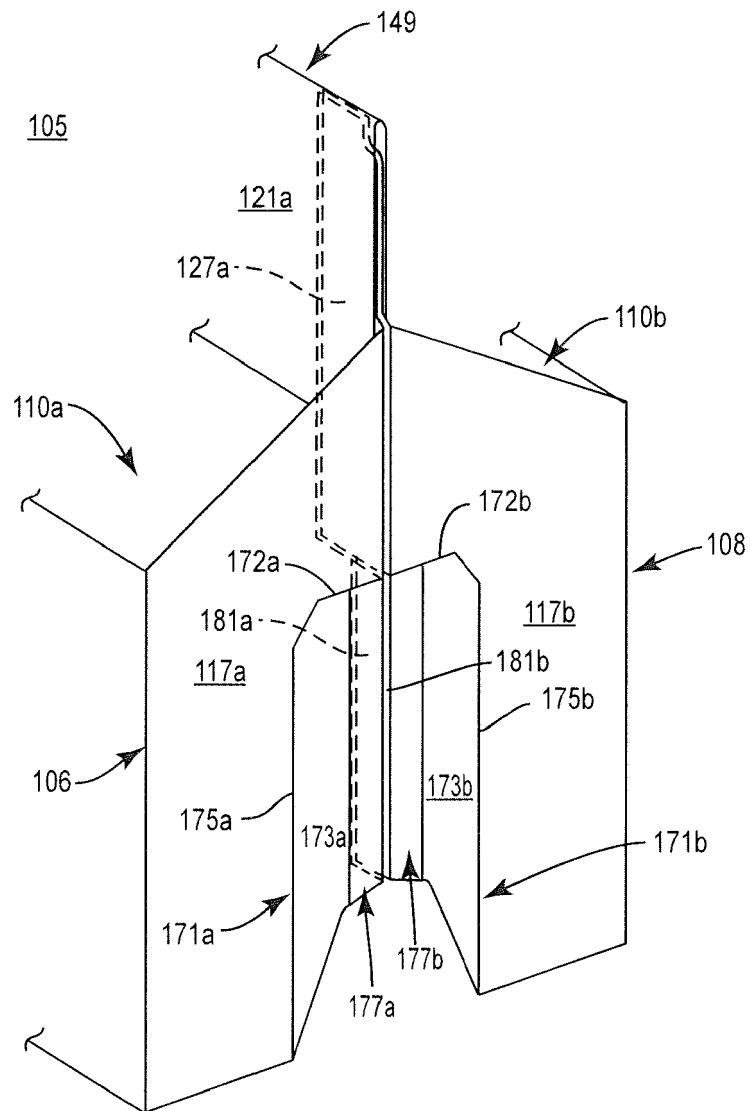


FIG. 6

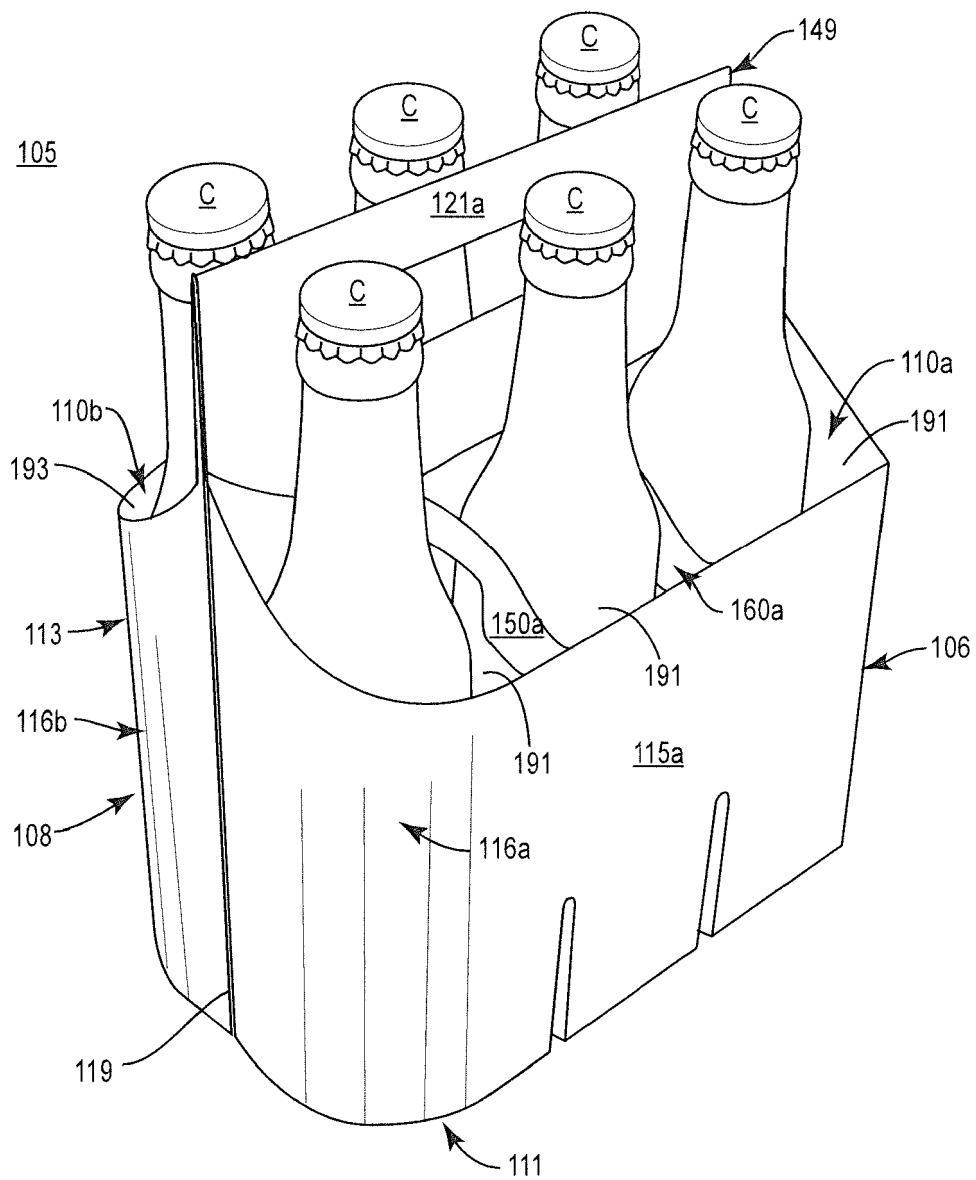


FIG. 7

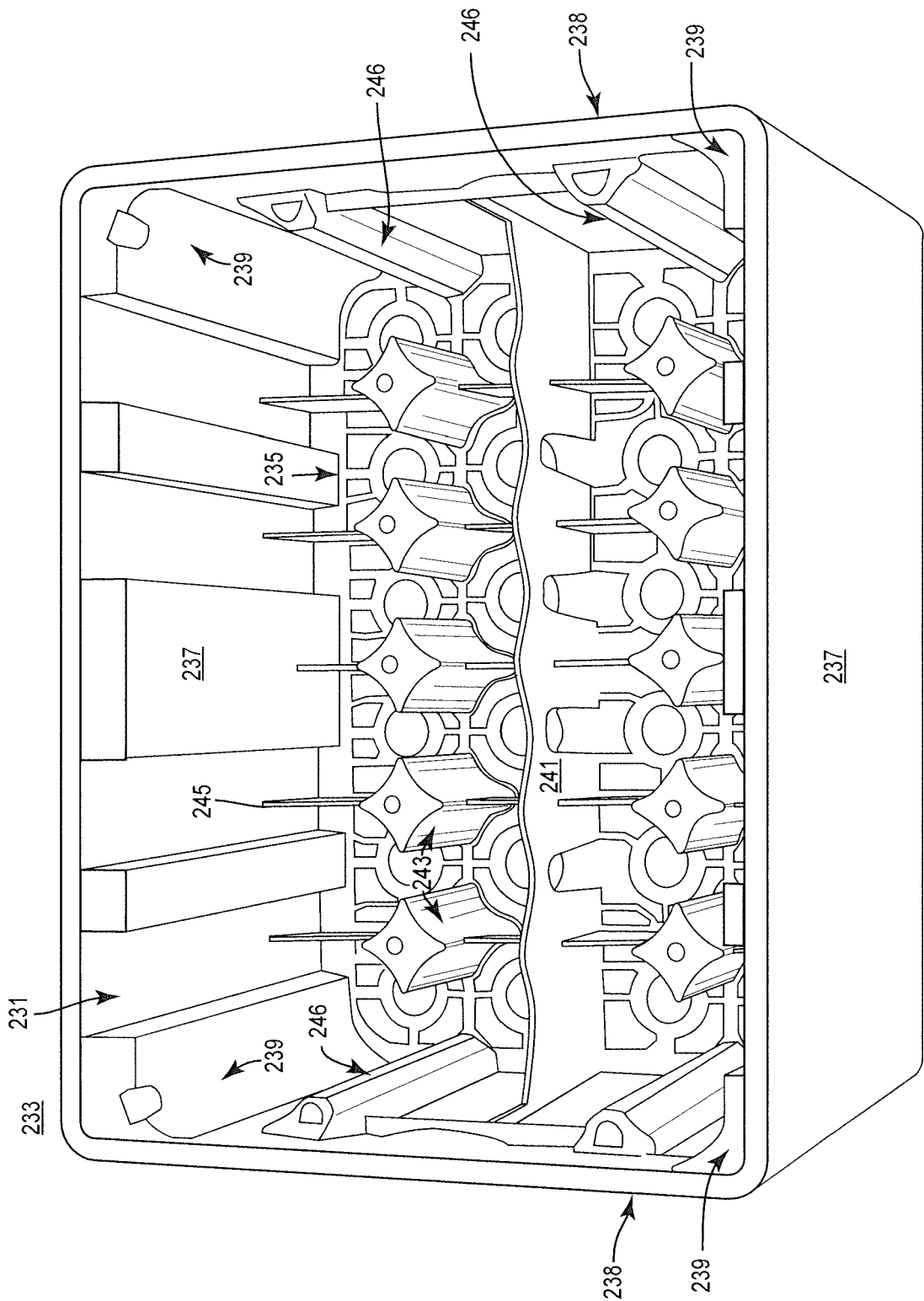


FIG. 8

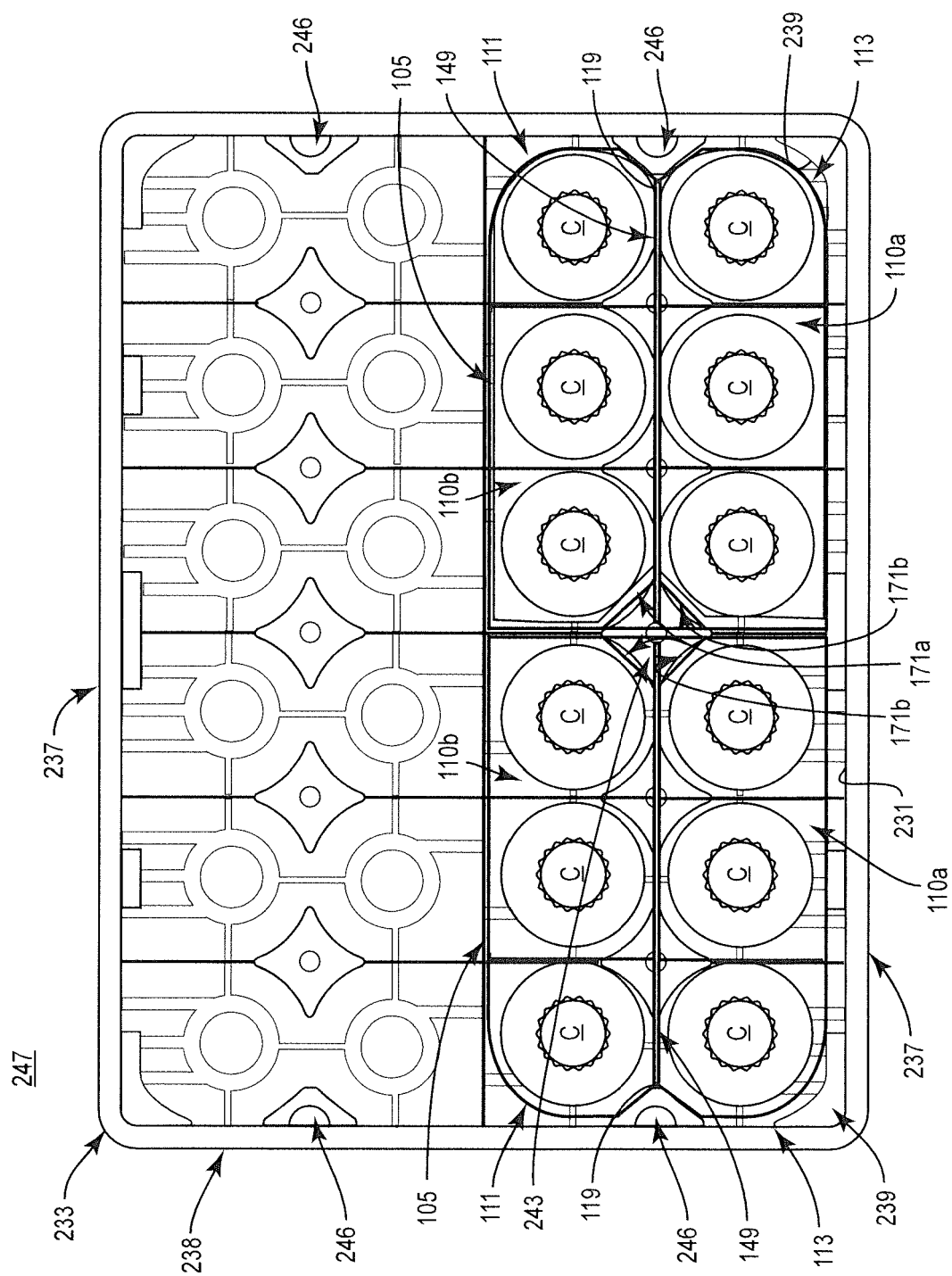


FIG. 9

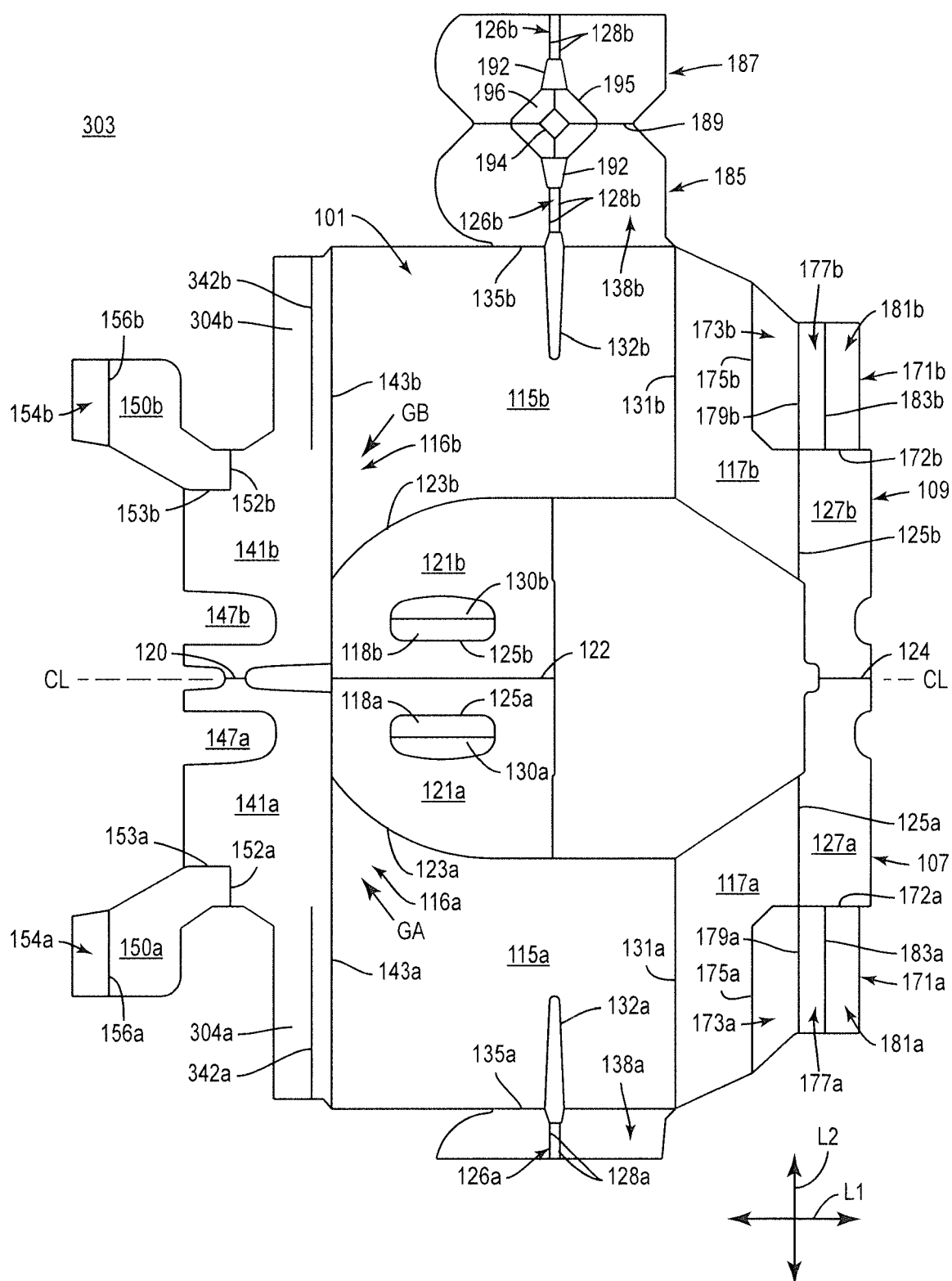


FIG. 10

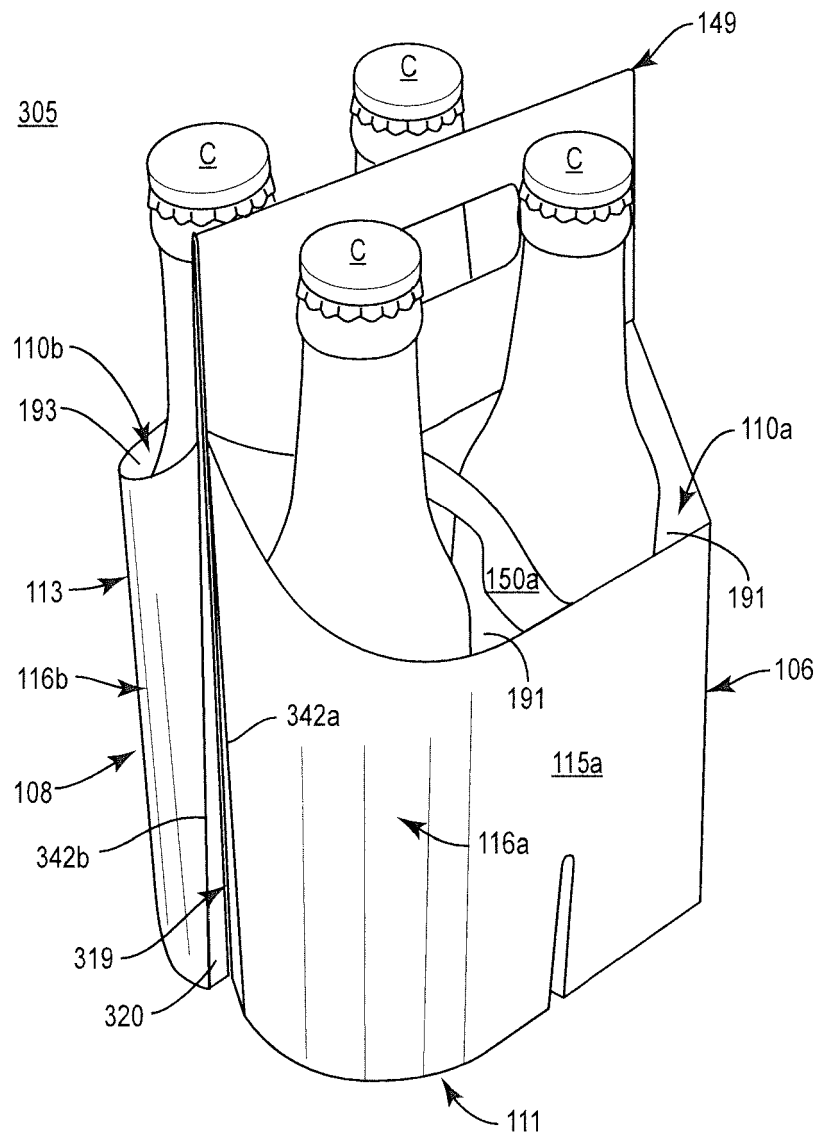


FIG. 11

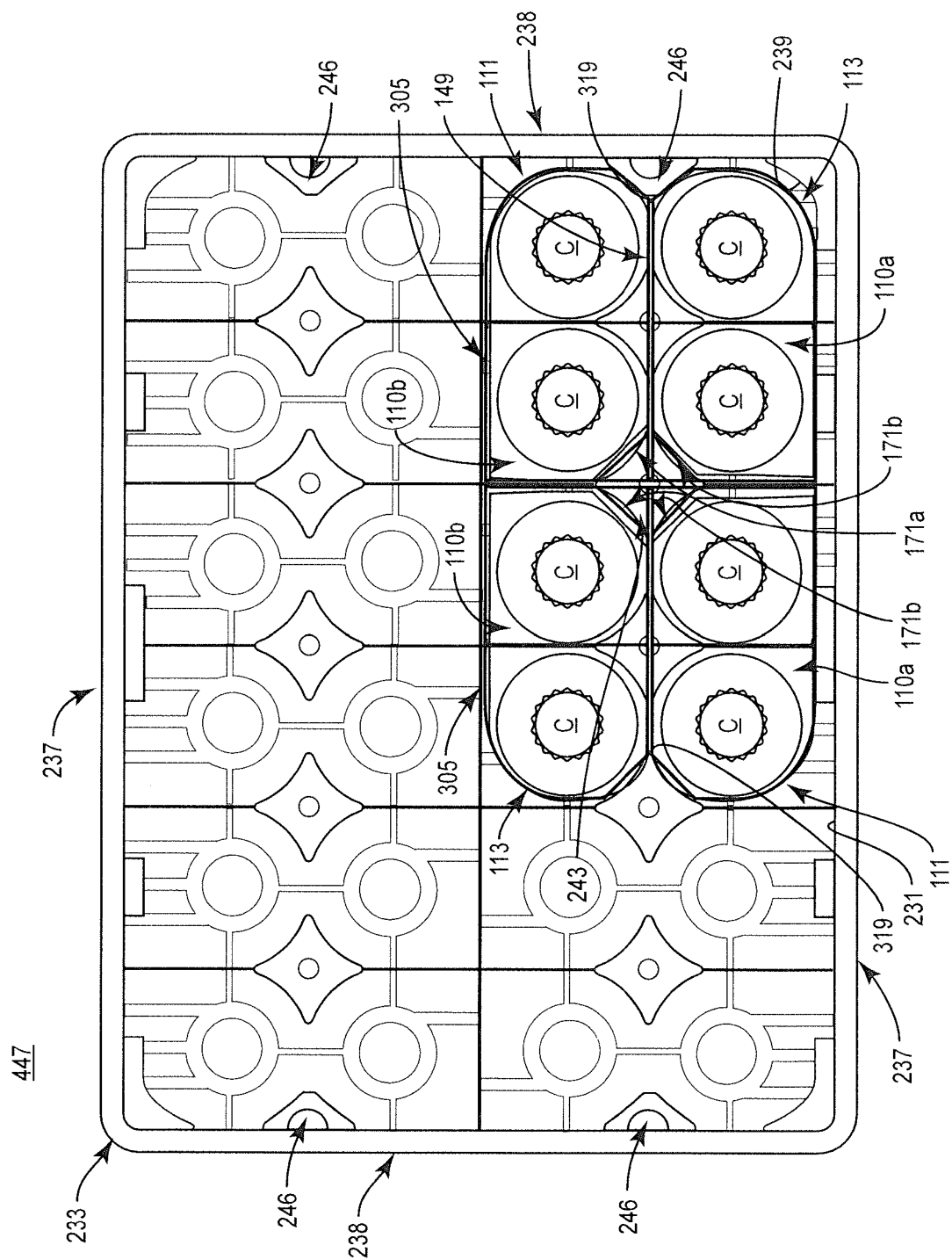


FIG. 12



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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 28 November 2018	Examiner Sundell, 011i
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