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(71) Applicant: **GRAPHIC PACKAGING INTERNATIONAL, LLC** [US/US]; Law Department - 9th Floor, 1500 Riveredge Parkway, Suite 100, Atlanta, GA 30328 (US).

(72) Inventor: **FORD, Colin, P.**; 510 Old Field Cove, Woodstock, GA 30189 (US).

(74) Agent: **CLAERBOUT, Andrew, N.**; Womble Bond Dickinson (US) LLP, P.O. Box 7037, Atlanta, GA 30357-0037 (US).

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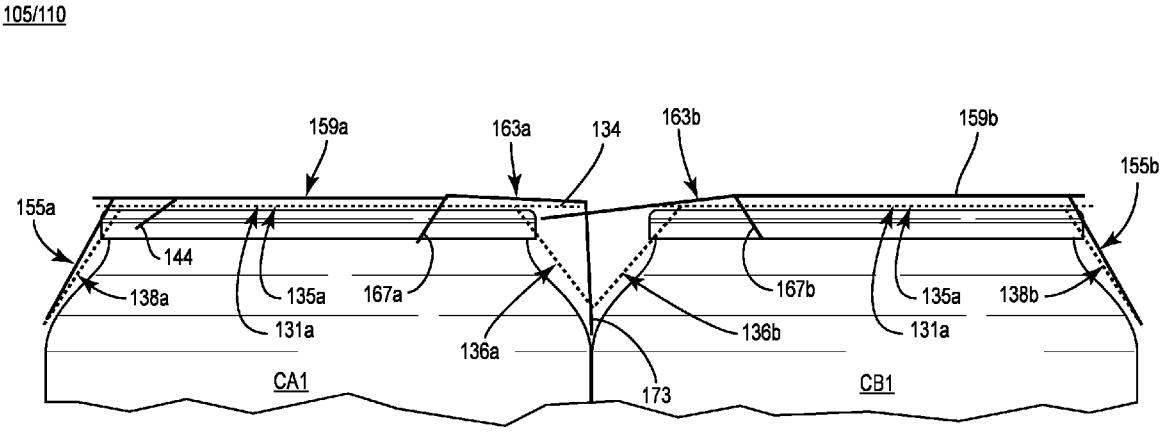


FIG. 3

(57) Abstract: A carrier for holding a plurality of containers, the carrier including a plurality of panels having at least one attachment panel configured to receive a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel, and locking features for maintaining an erected configuration of the carrier, the locking features including at least one male locking feature extending from a respective panel of the plurality of panels being at least partially received in a respective at least one female locking feature at least partially defined in a respective panel of the plurality of panels.

[Continued on next page]

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CARRIER FOR CONTAINERS

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 63/216,062, filed on June 29, 2021.

INCORPORATION BY REFERENCE

[0002] The disclosure of U.S. Provisional Patent Application No. 63/216,062, filed on June 29, 2021, 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 cartons or carriers for holding, displaying, and/or transporting containers.

SUMMARY OF THE DISCLOSURE

[0004] According to one aspect, the disclosure is generally directed to a carrier for holding a plurality of containers, the carrier comprising a plurality of panels comprising at least one attachment panel configured to receive a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel, and locking features for maintaining an erected configuration of the carrier, the locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels being at least partially received in a respective at least one female locking feature at least partially defined in a respective panel of the plurality of panels.

[0005] According to another aspect, the disclosure is generally directed to a blank for forming a carrier for holding a plurality of containers, the blank comprising a plurality of panels comprising at least one attachment panel configured to receive a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel, and locking features for maintaining an erected configuration of the carrier formed from the blank, the locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels for being at least partially received in a respective at least one female locking feature at least partially defined in a respective panel of the plurality of panels when the carrier is formed from the blank.

[0006] According to another aspect, the disclosure is generally directed to a method for forming a carrier for holding a plurality of containers, the method comprising obtaining a blank comprising plurality of panels including at least one attachment panel configured to receive a portion of one or

more containers of the plurality of containers, at least one side panel, and at least one top panel, and locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels and at least one female locking feature at least partially defined in a respective panel of the plurality of panels, positioning the at least one attachment panel for at least partially receiving one or more containers of the plurality of containers, and at least partially inserting the at least one male locking feature through the at least one female locking feature to maintain an erected configuration of the carrier.

[0007] 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.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] 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.

[0009] Fig. 1 is a plan view of an outer surface of a blank for forming a carrier and package according to a first exemplary embodiment of the disclosure.

[0010] Fig. 1A is an enlarged view of a portion of the blank of Fig. 1.

[0011] Fig. 1B is an enlarged view of another portion of the blank of Fig. 1.

[0012] Fig. 2 is a perspective view of the carrier and package formed from the blank of Fig. 1 according to the first exemplary embodiment.

[0013] Fig. 3 is a schematic view of a portion of a side of the carrier and package formed from the blank of Fig. 1 according to the first exemplary embodiment.

[0014] Fig. 4 is a plan view of an outer surface of a blank for forming a carrier and package according to a second exemplary embodiment of the disclosure.

[0015] Fig. 4A is a schematic view of a portion of a side of the carrier and package formed from the blank of Fig. 4 according to the second exemplary embodiment of the disclosure.

[0016] Fig. 5 is a plan view of an outer surface of a blank for forming a carrier and package according to a third exemplary embodiment of the disclosure.

[0017] Fig. 5A is a schematic view of a portion of a side of the carrier and package formed from the blank of Fig. 5 according to the third exemplary embodiment of the disclosure.

[0018] Fig. 6 is a plan view of an outer surface of a blank for forming a carrier and package according to a fourth exemplary embodiment of the disclosure.

[0019] Fig. 6A is a schematic view of a portion of a side of the carrier and package formed from the blank of Fig. 6 according to the fourth exemplary embodiment of the disclosure.

[0020] Fig. 7 is a plan view of an outer surface of a blank for forming a carrier and package according to a fifth exemplary embodiment of the disclosure.

[0021] Fig. 7A is a schematic view of a portion of a side of the carrier and package formed from the blank of Fig. 7 according to the fifth exemplary embodiment of the disclosure.

[0022] Fig. 8 is a plan view of an outer surface of a blank for forming a carrier and package according to a sixth exemplary embodiment of the disclosure.

[0023] Fig. 8A is a schematic view of a portion of a side of the carrier and package formed from the blank of Fig. 8 according to the sixth exemplary embodiment of the disclosure.

[0024] Corresponding parts are designated by corresponding reference numbers throughout the drawings.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

[0025] 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.

[0026] 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., aluminum cans) 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.

[0027] As described herein, carriers may be formed by multiple overlapping panels, end flaps, and/or other portions of blanks. Such panels, end flaps, and/or other portions of the blank 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.

[0028] Fig. 1 shows a plan view of an exterior side 101 of a blank 103 used to form a carrier 105 (Fig. 2) in accordance with a first exemplary embodiment of the disclosure. As shown in Fig. 2, the carrier 105 is sized to contain or support six containers, with three containers CA1, CA2, CA3 being attached to a front portion 106 of the carrier 105 and three containers CB1, CB2, CB3 being attached to a back portion 108 of the carrier 105. In the illustrated embodiment, the containers CA1, CA2, CA3, CB1, CB2, CB3 can be beverage cans, or could be any other suitable type and size of container without departing from the disclosure. In some embodiments, the containers can have an upper rim or other top portion having an outer diameter of 53mm, 58mm, or 56mm.

[0029] The carrier 105 can be sized and shaped to hold more or less than six containers. In one embodiment, the front portion 106 and the back portion 108 of the carrier 105 each have three containers, and in other embodiments, the front portion 106 and the back portion 108 of the carrier 105 can carry more or less than three containers without departing from the disclosure. The carrier 105 can be provided together with one or more containers as a package 110 (Fig. 2).

[0030] 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. The front portion 107 and the back portion 109 of the blank 103 are foldably connected at a lateral fold line 112 that forms a lateral centerline CL of the blank 103, as shown, and which can be interrupted by a plurality of laterally spaced cuts or locking openings 132 (broadly, "female locking features" or "second female locking features"). As described herein, locking openings can designate openings formed in one or more portions of a blank/carrier upon separation of one or more portions thereof and/or cuts or other lines of weakening that facilitate such separation.

[0031] With continued reference to Fig. 1, the front portion 107 of the blank 103 can include a front container retention panel or front attachment panel 131a, and a pair of laterally spaced handle openings 130 can interrupt the fold line 112 and at least partially extend into the attachment panel 131a. As also shown, the handle openings 130 can extend into portions of the back portion 109 of the blank 103.

[0032] With additional reference to the enlarged view of Fig. 1A, the front attachment panel 131a can also include a container retention portion 135a that is at least partially defined between a pair of longitudinally-spaced lateral fold lines 137a, 139a that are each interrupted by a respective pair of longitudinally-spaced cuts 141a that can each include one or more curved and/or angled portions. As shown, the longitudinally-spaced cuts 141a define container retention tabs 148a that extend outwardly from the container retention portion 135a. As also shown, respective oblique cuts 143a, 145a can extend outwardly from one or more cuts 141a that interrupt the fold line 139a. Furthermore, longitudinal cuts 146a can extend outwardly from respective central portions of the cuts 141a.

[0033] As shown, an interior marginal portion 136a of the attachment panel 131a is at least partially defined between the fold lines 137a, 112 and an exterior marginal portion 138a of the attachment panel 131a is at least partially defined between the fold line 139a and a lateral fold line 157a adjacent the attachment panel 131a.

[0034] The blank 103 can also include locking features for forming locking features of the carrier 105. Such locking features can include a plurality of male locking features and a plurality of male locking features, the female locking features configured to at least partially receive a portion of the respective male locking features. As shown, the locking features can include a pair of locking tabs 134 (broadly, "male locking features" or "fourth male locking features") extending from the attachment panel 131a and interrupting the fold line 137a and extending into the respective handle apertures 130. Locking features of the blank 103/carrier 105 positioned in the attachment panel 131a can also include a plurality of locking openings 140a (broadly, "female locking features" or "first female locking features") at least partially defined in the container retention portion 135a of the attachment panel 135a and intersecting the respective cuts 141a along the fold line 137a and a plurality of locking openings 142 (broadly, "female locking features" or "first female locking features" or "fourth female locking features") laterally spaced away from the locking openings 140a and at least partially defined in the container retention portion 135 of the attachment panel 131a.

[0035] A bevel or front side panel 155a, as shown, can be foldably connected to the front attachment panel 131a at the lateral fold line 157a, and a front top panel 159a can be foldably connected to the front side panel 155a at a lateral fold line 161a. The lateral fold line 161a can be interrupted by a plurality of the cuts 141a so as to define container retention tabs 148a protruding from the top panel 159, as described further herein. Positioned along each container retention tab 148a is a respective locking tab 144 (broadly, "male locking features" or "first male locking features" or "third male locking features") formed by a respective line of weakening 150 having one or more of curved, angled, and/or straight portions such that the locking tabs 144 extend from the top panel 159a. While the fold line 161a is

illustrated as extending partially along the lateral length of the blank 103, it will be understood that the fold line 161a can extend the full lateral length of the blank 103 without departing from the disclosure.

[0036] A front locking panel 163a can be foldably connected to the top panel 159a at a lateral fold line 165a interrupted by a plurality of laterally spaced locking tabs 167a (broadly, "male locking features" or "first male locking features") formed by respective curved cuts 168a so as to be arranged for extending from the locking panel 163a. The locking panel 163a can include handle features including handle reinforcement flaps or tabs 169a foldably connected to the front locking panel 163a at respective longitudinal fold lines 171a and for being aligned/cooperating with the respective handle openings 130, as described further herein.

[0037] Still referring to Fig. 1, locking tabs 173 (broadly, "male locking features" or "second male locking features") can be foldably connected to the front locking panel 163a at respective lateral fold lines 175 and/or can otherwise extend from the front locking panel 163a. As shown, the locking tabs 173 can have a base portion that expands to a distal portion or locking head/feature to present multiple locking edges.

[0038] In the illustrated embodiment, the back portion 109 of the blank 103 includes a back container retention panel or back attachment panel 131b, a back bevel panel or back side panel 155b, a back top panel 159b, and a back locking panel 163b having associated features that are generally a mirror-image of the corresponding portions of the front portion 107 of the blank 103. 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 of the blank 103 and the "b" components corresponding to the back portion 109 of the blank 103. An enlarged view of a portion of the back portion 109 of the blank 103 is illustrated in Fig. 1B.

[0039] With continued reference to Figs. 1A, and 1B, the back attachment panel 131b, as shown, can be devoid of the locking tabs 134 and the locking openings 142. In addition, the back top panel 155b can be devoid of the locking tabs 144.

[0040] With regard to the back locking panel 163b, the back locking panel 163b can be at least partially bisected by a lateral fold line or other line of weakening 164b so as to form a proximal portion and distal portion thereof, or to form a first back top panel and a second back top panel. As shown, a plurality of laterally spaced locking openings 177 (broadly, "female locking features" or "third female locking features" or "fifth female locking features") can be at least partially defined in the back locking panel 163b, and a plurality of generally polygonal, e.g., pentagonal, locking openings 179 (broadly, "female locking features" or "third female locking features" or "fourth female locking features" or "fifth

female locking features") can extend from the respective locking openings 177 toward a lateral free edge 181 (broadly, "locking edge" or "locking tab") of the back locking panel 163b.

[0041] As shown in Fig. 1, handle features of the back locking panel 163b can additionally include a pair of laterally spaced handle openings 183 adjacent the respective handle reinforcement flaps 169b which extend into the handle openings 183. While the handle openings 183 are illustrated as generally crescent-shaped or otherwise curved, the handle openings 183 can have a different arrangement without departing from the disclosure.

[0042] 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.

[0043] With additional reference to Figs. 2-3, according to one exemplary embodiment of forming the carrier 105, the blank 103 can be inverted such that the exterior surface 101 of the blank 103 can be placed atop the containers CA1, CA2, CA3, CB1, CB2, CB3 such that the container retention portion 135a of the front attachment panel 131a overlies the containers CA1, CA2, CA3 and such that the container retention portion 135b of the back attachment panel 131b overlies the containers CB1, CB2, CB3. Further downward movement of the attachment panels 131a, 131b over the plurality of containers CA1, CA2, CA3, CB1, CB2, CB3 can activate the respective container retention portions 135a, 135b to engage respective containers.

[0044] For example, as the front attachment panel 131a is lowered or urged downwardly onto the containers CA1, CA2, CA3, the container retention portion 135a can at least partially separate from the remainder of the front attachment panel 131a at the cuts 141a. In such an arrangement, upper or top portions T of the respective containers CA1, CA2, CA3 can extend at least partially through respective openings formed by the respective cuts 141a such that the container retention tabs 148a can sit within recessed portions of the containers CA1, CA2, CA3, e.g., recessed tops of the containers CA1, CA2, CA3 below rolled upper rims thereof.

[0045] The marginal portions 136a, 138a of the attachment panel 131a can fold at least partially downwardly at the respective fold lines 137a, 139a in such a configuration, and, similarly, the marginal portions 136b, 138b of the attachment panel 131b can fold at least partially downwardly at the respective fold lines 137b, 139b. Such movement can cause reconfiguration of the outer marginal portion 138a of the top attachment panel 131a to reconfigure at the respective cuts 143a, 145a, 146a to engage a rolled/flanged rim or other top structure of the respective containers CA1, CA2, CA3.

[0046] The back attachment panel 131b and corresponding container retention portion 135b can engage the containers CB1, CB2, CB3 in a similar manner as described above with respect to the engagement of the front attachment panel 131a and container retention portion 135a with respect to the containers CA1, CA2, CA3. The reconfiguration of the corresponding portions of the back attachment panel 131b can occur as the back attachment panel 131b is lowed or urged downwardly onto the containers CB1, CB2, CB3 as described above with regard to the front attachment panel 131a.

[0047] Still referring to Figs. 2 and 3, the front side panel 155a can be folded upwardly at the fold line 157a, for example, to be at an oblique arrangement relative to the attachment portion 135a of the attachment panel 131a, and the top panel 159a can be folded at the fold line 161a into at least partial face-to-face contact with at least a portion of the attachment panels 131a, 131b. Such movement of the top panel 159a can cause the container retention tabs 148a to separate from the front side panel 155a at the respective cuts 141a, and can at least partially overlie the container retention tabs 148a associated with the attachment panel 131a. In this regard, the rolled rim or other top structure of the respective containers CA1, CA2, CA3 can be at least partially received through the cuts 141a along the fold line 161a such that the container retention tabs 148a extending from the top panel 159 can also sit within recessed upper portions of the containers CA1, CA2, CA3.

[0048] Similarly, the back side panel 155b can be folded upwardly at the fold line 157b into an oblique arrangement relative to the attachment portion 135b of the back attachment panel 131b, and the back top panel 159b can be folded at the fold line 161b into at least partial face-to-face contact with the top panel 159b and/or the attachment panel 131b. Such movement of the back top panel 155b can cause engagement with the containers CB1, CB2, CB3 in a manner similar to that described above with regard to the engagement of the front top panel 159a with the containers CA1, CA2, CA3.

[0049] The back locking panel 163b can be folded at the fold line 165b to at least partially overlie respective portions of the attachment panel 131b. In such an arrangement, the locking tabs 167b (broadly, "male locking features" or "fifth male locking features") can be at least partially separated from the fold line 165b and at least partially inserted through/received in the locking openings 140b (broadly, "female locking features" or "first female locking features" or "sixth female locking features") at least partially defined in the back attachment panel 131b to position the locking tabs 167b at least partially tucked under the back attachment panel 131b. Furthermore, the locking edge 181 of the back locking panel 163b can be tucked under or otherwise underlapped under the locking tabs 134 extending from the front attachment panel 131a. In this regard, the locking tabs 134 can be positioned in at least partial face-to-face contact with respective portions of the back locking panel 163b.

[0050] In the aforementioned arrangement, the locking openings 177 can be positioned over/aligned with the locking openings 132 along the fold line 112 and the locking openings 179 can be positioned over/aligned with the locking openings 140a in the front attachment panel 131a.

[0051] Thereafter, the back locking panel 163a can be folded at the fold line 165a to at least partially overlie respective portions of the attachment panel 131a. In such an arrangement, the locking tabs 144 can be at least partially separated from the container retention tabs 148a in the front top panel 159a at the lines of weakening 150 and at least partially inserted through or tucked under the edges of the locking openings 142 in the front attachment panel 131a.

[0052] Furthermore, the locking tabs 167a can at least partially separated from the front top panel 159a at the cuts 160a and can be at least partially inserted through and received in the aligned locking openings 179, 140a. Such movement of the panels of the blank 103/carrier 105 can also position the locking tabs 173 over the aligned locking openings 177, 132 such that the locking tabs 173 can be manipulated to be inserted at least partially through and received in the locking openings 177, 132. For example, the locking tabs 173 can be at least partially folded downwardly at the respective fold lines 175, inserted through the locking openings 177, and at least partially inserted through the locking openings 132 aligned therebelow.

[0053] Such interlocking engagement of the locking features of the carrier 105 and the carriers and packages disclosed herein can provide a robust construction of the carrier that is resistant to incidental loosening/movement/shifting and can contribute to maintain an erected configuration of the carrier 105 and a tight and secure engagement with the containers CA1, CA2, CA3, CB1, CB2, CB3. For example, the aforementioned arrangement of locking features presents multiple plies and interfering edges of material, e.g., paperboard, that forms the carrier 105 such that the various locking features provide a compounding effect that reinforces the strength/integrity of the carrier 105. In some embodiments, the engagements of the various male locking features and respective female locking features described herein can provide a desired level of tension or tightness of the carrier around the containers. A schematic illustration of the interaction of the locking features of the carrier 105 is provided in Fig. 3. In this regard, the blank 103/carrier 105 can be formed and maintained in an erected configuration with a minimized application of adhesive such as glue, or, in embodiments, so as to be devoid of an adhesive such as glue.

[0054] The above-described arrangement of the panels of the carrier can thus align the various handle features, e.g., the handle reinforcement flaps 169a, 169b (and adjacent handle opening 183) and the handle openings 130 such that a user can at least partially insert one or more of his or her fingers downwardly against the reinforcement flap 169a, 169b to cause at least partial separation thereof from

the respective locking panels 163a, 163b and downward folding at the respective fold lines 171a, 171b to allow the user to grasp the carrier 105 along portions of the attachment panels 131a, 131b exposed under the handle openings 130. The reinforcement flaps 169a, 169b can provide additional plies of material, e.g., as a buffer, between the user's fingers and the carrier, for example, to resist deformation/tearing of one or more portions of the carrier 105, for the user's comfort, to avoid, pinching of the user's fingers, etc.

[0055] The package 110/carrier 105 described above has a compact structure that can, for example, provide materials savings and waste reduction. Further, the exposure of one or more portions of the containers CA1, CA2, CA3, CB1, CB2, CB3 on exterior portions of the carrier 105/package 110 provides a consumer with a clear view of labeling or surface graphics associated with the containers CA1, CA2, CA3, CB1, CB2, CB3 as well as providing convenient access to remove one or more of the containers CA1, CA2, CA3, CB1, CB2, CB3 from the carrier 105/package 110, for example, by withdrawing a respective container through the respective cuts 141a, 141b to disengage the container from the respective panels 131a, 131b, 159a, 159b.

[0056] Fig. 4 is a plan view of the exterior surface 201 of a blank 203 for forming a carrier 205 (Fig. 4A) and package 210 (Fig. 4A) according to a second exemplary embodiment of the disclosure. The blank 203 and carrier 205/package 210 formed therefrom can have one or more features that are the same or similar to those described above with respect to the blank 103 and carrier 105/package 110 described above, and like or similar features are designated with like or similar reference numerals. Accordingly, the blank 203 can include a front portion 207 for forming a front portion 206 of the carrier 205/package 210 and a back portion 209 for forming a back portion 208 of the carrier 205/package 210.

[0057] The blank 203 can have the longitudinal axis L1 and the lateral axis L2, the attachment panels 131a, 131b, the side panels 155a, 155b, the top panels 159a, 159b, and associated features.

[0058] In addition, the locking openings 142 positioned in the attachment panel 131a of the blank 203 can be front locking openings 142a, and back locking openings 142b (broadly, "female locking features" or "first female locking features" or "third female locking features") can be at least partially defined in the attachment panel 131b of the blank 203. Further, the locking tabs 144 in the container retention tabs extending from the top panel 159a can be front locking tabs 144a, and the blank 203 can additionally include back locking tabs 144b (broadly, "male locking features" or "third male locking features") in the container retention tabs 148b extending from the back top panel 159b.

[0059] With continued reference to Fig. 4, locking tabs that are similar to the locking tabs 173 described above can be front locking tabs 173a attached to the top panel 159a at respective lateral fold lines 175a, and the blank 203 can also include back locking tabs 173b (broadly, "male locking features" or "fourth male locking features") foldably connected to and extending from the top panel 159b at respective lateral fold lines 175b.

[0060] In this regard, the blank 203 and carrier 205/package 210 formed therefrom can have a different number and arrangement of panels, handle features, and locking features as compared to the blank 103 and carrier 105/package 110 described above. It will be understood that the blank 203/carrier 205/package 210 can have a further different arrangement and/or configuration without departing from the disclosure.

[0061] With additional reference to Fig. 4A, the blank 203 can be formed into the carrier 205/package 210 in a manner similar to that described above with regard to the formation of the carrier 105/package 110 from the blank 103, without the action of the locking panels 163a, 163b as described above. For example, the containers CA1, CA2, CA3, CB1, CB2, CB3 can be at least partially received through openings formed in the respective attachment panels 131a, 131b via relative folding of one or more portions thereof as described above. The side panels 155a, 155b can further be positioned in generally oblique relation to respective portions of the attachment panels 131a, 131b as described above, and the top panels 159a, 159b can be positioned in at least partial face-to-face contact with respective portions of the attachment panels 131a, 131b as described above.

[0062] As shown in the schematic view of Fig. 4A, in which underlapped panels are illustrated in broken lines for clarity, the locking tabs 144a can be separated from the container retention tabs 148a at the respective lines of weakening 150a and tucked under the attachment panel 131a by being at least partially received through the respective openings 142a as described above. Similarly, the locking tabs 144b can be separated from the container retention tabs 148b at the respective lines of weakening 150b and inserted at least partially through and received in the respective openings 142b to be tucked under the attachment panel 131b.

[0063] Upon positioning of the top panels 159a, 159b in at least partial face-to-face contact with respective portions of the respective attachment panels 131a, 131b as described above, the locking tabs 173a, 173b can be positioned generally aligned over the respective locking openings 132 interrupting the fold line 112. Accordingly, the locking tabs 173a, 173b can be folded downwardly at the respective fold lines 175a, 175b and at least partially inserted through and received in the respective locking openings 132. In such an arrangement, one or more flared or flanged portions of the respective locking

tabs 173a, 173b can engage an underside of one or both of the respective attachment panels 131a, 131b to maintain a secure engagement of the locking tabs 173a, 173b through the locking openings 132.

[0064] The aforementioned construction of the carrier 205/package 210 can provide a robust and secured engagement of the various panels and portions thereof to support one or more of the containers with advantages similar to those described above with regard to the carrier 105/package 110. In some embodiments, such a construction of the carrier 205/package 210 can be provided so as to avoid or minimize the use of polymeric materials such as adhesives, e.g., glue.

[0065] Fig. 5 is a plan view of the exterior surface 301 of a blank 303 for forming a carrier 305 (Fig. 5A) and package 310 (Fig. 5A) according to a third exemplary embodiment of the disclosure. The blank 303 and carrier 305/package 310 formed therefrom can have one or more features that are the same or similar to those described above with respect to the blanks 103, 203 and carriers 105, 205/packages 110, 210 described above, and like or similar features are designated with like or similar reference numerals. Accordingly, the blank 303 can include a front portion 307 for forming a front portion 306 of the carrier 305/package 310 and a back portion 309 for forming a back portion 308 of the carrier 305/package 310.

[0066] The blank 303 can have the longitudinal axis L1 and the lateral axis L2, the attachment panels 131a, 131b, the side panels 155a, 155b, the top panels 159a, 159b, and associated features. The blank 303 can also include the locking openings 132, 142a, 142b, and the locking tabs 144a, 144b, 173. Additional locking openings 185 (broadly, "female locking features" or "second female locking features" or "fourth female locking features") can be at least partially defined in the back top panel 159b. It will be understood that the blank 303/carrier 305/package 310 can have a further different arrangement and/or configuration without departing from the disclosure.

[0067] With additional reference to the schematic view of Fig. 5A, in which underlapped panels are illustrated in broken lines for clarity, the blank 303 can be formed into the carrier 305/package 310 in a manner similar to that described above with regard to the formation of the carriers 105, 205/packages 110, 210 from the blanks 103, 203 as described above. For example, the containers CA1, CA2, CA3, CB1, CB2, CB3 can be at least partially received through openings formed in the respective attachment panels 131a, 131b via relative folding of one or more portions thereof as described above. The side panels 155a, 155b can further be positioned in generally oblique relation to respective portions of the attachment panels 131a, 131b as described above, and the top panels 159a, 159b can be positioned in at least partial face-to-face contact with respective portions of the attachment panels 131a, 131b as described above.

[0068] The locking tabs 144a can be separated from the container retention tabs 148a at the respective lines of weakening 150a and tucked under the attachment panel 131a via at least partial receipt through the respective openings 142a as described above. Similarly, the locking tabs 144b can be separated from the container retention tabs 148b at the respective lines of weakening 150b and inserted/received at least partially through the respective openings 142b to be tucked under the attachment panel 131b.

[0069] Upon positioning of the top panels 159a, 159b in at least partial face-to-face contact with respective portions of the respective attachment panels 131a, 131b as described above, the locking openings 185 can be positioned generally aligned over the locking openings 132 interrupting the fold line 112, and the locking tabs 173 can be positioned over the aligned locking openings 185, 132. In this regard, the locking tabs 173 can be folded downwardly at the respective fold lines 175, inserted through and received in the locking openings 185, and further inserted at least partially through and received in the locking openings 132. In such an arrangement, one or more flared or flanged portions of the respective locking tabs 173 can engage an underside of one or both of the respective attachment panels 131a, 131b to maintain a secure engagement of the locking tabs 173 through the locking openings 132.

[0070] The aforementioned construction of the carrier 305/package 310 can provide a robust and secured engagement of the various panels and portions thereof to support one or more of the containers with advantages similar to those described above with regard to the carriers 105, 205/packages 110, 210. In some embodiments, such a construction of the carrier 305/package 310 can be provided so as to avoid or minimize the use of polymeric materials such as adhesives, e.g., glue.

[0071] Fig. 6 is a plan view of the exterior surface 401 of a blank 403 for forming a carrier 405 (Fig. 6A) and package 410 (Fig. 6A) according to a fourth exemplary embodiment of the disclosure. The blank 403 and carrier 405/package 410 formed therefrom can have one or more features that are the same or similar to those described above with respect to the blanks 103, 203, 303 and carriers 105, 205, 305/packages 110, 210, 310 described above, and like or similar features are designated with like or similar reference numerals. Accordingly, the blank 403 can include a front portion 407 for forming a front portion 406 of the carrier 405/package 410 and a back portion 409 for forming a back portion 408 of the carrier 405/package 410.

[0072] The blank 403 can have the longitudinal axis L1 and the lateral axis L2, the attachment panels 131a, 131b, the side panels 155a, 155b, the top panels 159a, 159b, and associated features. The blank 403 can also include the locking openings 132, 142a, 142b, and the locking tabs 144a, 144b, 173.

[0073] As shown, the locking openings 185 can be at least partially defined at a location along/abutting the top panel 159b that is longitudinally spaced further from the central fold line 112 than in the blank 303 described above. In addition, tabs 187 can extend away from the respective locking openings 185 such that the tabs 187 can be at least partially foldably connected to the top panel 159b at the respective locking openings 185. In one embodiment, the locking openings 185 can be collinear with a free edge of the top panel 159b.

[0074] In the illustrated embodiment, the blank 403 can be provided with a greater number of locking tabs 173a than in the embodiments described above. In some embodiments, the blank 403 can include 5 locking tabs 173a, though a greater or lesser number of locking tabs 173a can be provided without departing from the disclosure.

[0075] The locking tabs 173b can be provided in an alternating arrangement with the tabs 187 such that a respective locking tab 173b is generally aligned with a respective locking tab 173a along an axis parallel to the longitudinal axis L1, and such that a respective tab 187 is generally aligned with a respective locking tab 173a along an axis parallel to the longitudinal axis L1.

[0076] With additional reference to the schematic view of Fig. 6A, in which underlapped panels are illustrated in broken lines for clarity, the blank 403 can be formed into the carrier 405/package 410 in a manner similar to that described above with regard to the formation of the carriers 105, 205, 305/packages 110, 210, 310 from the blanks 103, 203, 303 as described above. For example, the containers CA1, CA2, CA3, CB1, CB2, CB3 can be at least partially received through openings formed in the respective attachment panels 131a, 131b via relative folding of one or more portions thereof as described above. The side panels 155a, 155b can further be positioned in generally oblique relation to respective portions of the attachment panels 131a, 131b as described above, and the top panels 159a, 159b can be positioned in at least partial face-to-face contact with respective portions of the attachment panels 131a, 131b as described above.

[0077] The locking tabs 144a can be separated from the container retention tabs 148a at the respective lines of weakening 150a and tucked under the attachment panel 131a through the respective openings 142a as described above. Similarly, the locking tabs 144b can be separated from the container retention tabs 148b at the respective lines of weakening 150b and inserted at least partially through the respective openings 142b to be tucked under the attachment panel 131b.

[0078] Upon positioning of the top panels 159a, 159b in at least partial face-to-face contact with respective portions of the respective attachment panels 131a, 131b as described above, some of the locking tabs 173a, 173b can be generally aligned over the locking openings 132 interrupting the fold

line 112, and the locking tabs 173a interspersed therebetween can be generally aligned with the tabs 187. In this regard, the locking tabs 173a, 173b aligned over the locking openings 132 can be folded downwardly at the respective fold lines 175a, 175b and at least partially inserted through the locking openings 132. In such an arrangement, one or more flared or flanged portions of the respective locking tabs 173a, 173b can engage an underside of one or both of the respective attachment panels 131a, 131b to maintain a secure engagement of the locking tabs 173a, 173b through the locking openings 132.

[0079] Furthermore, the locking tabs 173a aligned with the respective locking openings 185/tabs 187 can be at least partially inserted through the locking openings 185, for example, to maintain and/or enhance the positioning of the attachment panels 131a, 131b relative to one another. In some embodiments, the tabs 187 can be at least partially folded downwardly at lines of weakening associated with the tabs 187 to facilitate at least partial receipt of the locking tabs 173a in the locking openings 185. In other embodiments, the locking tabs 173a can be inserted at least partially through the locking openings 185 and positioned in at least partial face-to-face contact with the tabs 187.

[0080] The aforementioned construction of the carrier 405/package 410 can provide a robust and secured engagement of the various panels and portions thereof to support one or more of the containers with advantages similar to those described above with regard to the carriers 105, 205, 305/packages 110, 210, 310. In some embodiments, such a construction of the carrier 405/package 410 can be provided so as to avoid or minimize the use of polymeric materials such as adhesives, e.g., glue.

[0081] Fig. 7 is a plan view of the exterior surface 501 of a blank 503 for forming a carrier 505 (Fig. 7A) and package 410 (Fig. 7A) according to a fifth exemplary embodiment of the disclosure. The blank 503 and carrier 505/package 510 formed therefrom can have one or more features that are the same or similar to those described above with respect to the blanks 103, 203, 303, 403 and carriers 105, 205, 305, 405/packages 110, 210, 310, 410 described above, and like or similar features are designated with like or similar reference numerals. Accordingly, the blank 503 can include a front portion 507 for forming a front portion 506 of the carrier 505/package 510 and a back portion 509 for forming a back portion 508 of the carrier 505/package 510.

[0082] The blank 503 can have the longitudinal axis L1 and the lateral axis L2, the attachment panels 131a, 131b, the side panels 155a, 155b, the top panels 159a, 159b, the locking panels 163a, 163b, and associated features. The blank 503 can also include the locking openings 132, 140a, 140b, 179, and the locking tabs 167a, 167b, 173.

[0083] As also shown, handle features of the blank 503 can include the handle openings 130, handle reinforcement flaps 431a, 431b foldably connected to the respective attachment panels 131a, 131b at respective oblique fold lines 433a, 433b and positioned extending into the respective handle openings 130, the handle reinforcement flaps 169b, and handle notches or handle cutouts 469 formed along a free edge of the locking panel 163a.

[0084] With additional reference to the schematic view of Fig. 7A, in which underlapped panels are illustrated in broken lines for clarity, the blank 503 can be formed into the carrier 505/package 510 in a manner similar to that described above with regard to the formation of the carriers 105, 205, 305, 405/packages 110, 210, 310, 410 from the blanks 103, 203, 303, 403 as described above. For example, the containers CA1, CA2, CA3, CB1, CB2, CB3 can be at least partially received through openings formed in the respective attachment panels 131a, 131b via relative folding of one or more portions thereof as described above. The side panels 155a, 155b can further be positioned in generally oblique relation to respective portions of the attachment panels 131a, 131b as described above, and the top panels 159a, 159b can be positioned in at least partial face-to-face contact with respective portions of the attachment panels 131a, 131b as described above.

[0085] The locking tabs 167, 167b can be separated from the top panels 159a, 159b at the respective lines of weakening 160a, 160b and tucked under the attachment panel 131a through the respective openings 140a, 140b as described above.

[0086] Upon positioning of the top panels 159a, 159b in at least partial face-to-face contact with respective portions of the respective attachment panels 131a, 131b as described above, the locking panel 163a can be positioned overlapping the locking panel 163b. In this regard, the locking tabs 173 aligned over the locking openings 179, 132 can be folded downwardly at the respective fold lines 175 to be inserted through and received in the respective locking openings 179 and further through the locking openings 132 therebelow. In such an arrangement, one or more flared or flanged portions of the respective locking tabs 173 can engage an underside of one or both of the respective attachment panels 131a, 131b to maintain a secure engagement of the locking tabs 173 through the locking openings 132.

[0087] The above-described arrangement of the panels of the carrier can thus align the various handle features, e.g., the handle openings 469, handle reinforcement flaps 169b, and the handle openings 132/handle reinforcement flaps 431a, 431b, such that a user can at least partially insert one or more of his or her fingers downwardly through the respective handle openings 469, against the reinforcement flaps 169b to cause at least partial separation thereof from the respective locking panels 163b and downward folding at the respective fold lines 171a at least partially through the respective handle openings 130. Such movement of the handle reinforcement flaps 169b can cause one or more of the

handle reinforcement flaps 431a, 431b to at least partially fold downwardly at the respective fold lines 433a, 433b to allow the user to grasp the carrier 505 along portions of the attachment panels 131a, 131b exposed under the handle openings 130. The reinforcement flaps 169a, 169b, 433a, 433b can provide additional plies of material, e.g., as a buffer, between the user's fingers and the carrier, for example, to resist deformation/tearing of one or more portions of the carrier 505, for the user's comfort, to avoid, pinching of the user's fingers, etc.

[0088] The aforementioned construction of the carrier 505/package 510 can provide a robust and secured engagement of the various panels and portions thereof to support one or more of the containers with advantages similar to those described above with regard to the carriers 105, 205, 305, 405/packages 110, 210, 310, 410. In some embodiments, such a construction of the carrier 505/package 510 can be provided so as to avoid or minimize the use of polymeric materials such as adhesives, e.g., glue.

[0089] Fig. 8 is a plan view of the exterior surface 601 of a blank 603 for forming a carrier 605 (Fig. 8A) and package 610 (Fig. 8A) according to a sixth exemplary embodiment of the disclosure. The blank 603 and carrier 605/package 610 formed therefrom can have one or more features that are the same or similar to those described above with respect to the blanks 103, 203, 303, 403, 503 and carriers 105, 205, 305, 405, 505/packages 110, 210, 310, 410, 510 described above, and like or similar features are designated with like or similar reference numerals. Accordingly, the blank 603 can include a front portion 607 for forming a front portion 606 of the carrier 605/package 610 and a back portion 609 for forming a back portion 608 of the carrier 605/package 610.

[0090] The blank 603 can have the longitudinal axis L1 and the lateral axis L2, the attachment panels 131a, 131b, the side panels 155a, 155b, the top panels 159a, 159b, the locking panel 163a, and associated features.

[0091] The blank 603 can also include a locking tab 167 (broadly, "male locking features" or "first male locking features") interrupting the fold line 161a, a locking tab 173, a locking opening 140b positioned in the attachment panel 131b, and a locking opening 185 positioned interrupting the fold line 161b. In the illustrated embodiment, the locking tab 167 can have a generally obliquely-tapered, e.g., wedge-shaped or triangular, configuration, and the locking opening 185 can have a generally curved configuration, though one or both of the locking tab 167 and the locking opening 185 can have a different configuration without departing from the disclosure.

[0092] As also shown, handle features of the blank 603 can include a pair of handle reinforcement flaps 631a, 631b intersecting and separably connected at a longitudinal cut 633 that interrupts the fold line 112. Each handle reinforcement flap 631a, 631b can be at least partially defined by a respective

pair of curved cuts 635a, 635b intersecting the cut 633. A handle reinforcement flap 637 can also be at least partially defined by a generally curved cut 639 in the top panel 159a.

[0093] With additional reference to the schematic view of Fig. 8A, in which underlapped panels are illustrated in broken lines for clarity, the blank 603 can be formed into the carrier 605/package 610 in a manner similar to that described above with regard to the formation of the carriers 105, 205, 305, 405, 505/packages 110, 210, 310, 410, 510 from the blanks 103, 203, 303, 403, 503 as described above. For example, the containers CA1, CA2, CA3, CB1, CB2, CB3 can be at least partially received through openings formed in the respective attachment panels 131a, 131b via relative folding of one or more portions thereof as described above. The side panels 155a, 155b can further be positioned in generally oblique relation to respective portions of the attachment panels 131a, 131b as described above, and the top panels 159a, 159b can be positioned in at least partial face-to-face contact with respective portions of the attachment panels 131a, 131b as described above.

[0094] The locking tab 167 can be separated from the top panel 159a at the line of weakening 160 and tucked under the attachment panel 131b by being at least partially received through the opening 140b as described above. Furthermore, the locking panel 163a can be positioned overlapping the top panel 159b such that the locking tab 173 can be inserted at least partially through the locking opening 185. In such an arrangement, one or more flared or flanged portions of the locking tab 173 can engage portions of the side panel 155b and/or the top panel 159b adjacent the locking opening 185.

[0095] The above-described arrangement of the panels of the carrier can thus align the various handle features, e.g., the handle reinforcement flaps 637, 631a, 631b, such that a user can at least partially insert one or more of his or her fingers downwardly through the handle reinforcement flap 637 such that the handle reinforcement flap 637 at least partially separates from the top panel 159a at the cut 639 to further move the handle reinforcement flaps 631a, 631b aligned therebelow to at least partially separate at the cut 633 and from the respective attachment panels 131a, 131b at the respective cuts 635a, 635b to move further downwardly to allow the user to grasp the carrier 605 along portions of the attachment panels 131a, 131b exposed by such movement of the handle reinforcement flaps 631a, 631b. The handle reinforcement flaps 637, 631a, 631b can provide additional plies of material, e.g., as a buffer, between the user's fingers and the carrier, for example, to resist deformation/tearing of one or more portions of the carrier 605, for the user's comfort, to avoid, pinching of the user's fingers, etc.

[0096] The aforementioned construction of the carrier 605/package 610 can provide a robust and secured engagement of the various panels and portions thereof to support one or more of the containers with advantages similar to those described above with regard to the carriers 105, 205, 305, 405, 505/packages 110, 210, 310, 410, 510. In some embodiments, such a construction of the carrier

605/package 610 can be provided so as to avoid or minimize the use of polymeric materials such as adhesives, e.g., glue.

[0097] It will be understood that the blanks and carriers/packages described herein can be provided in different configurations without departing from the disclosure.

[0098] 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.

[0099] 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.

[00100] 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.

[00101] 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.

[00102] 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.

WHAT IS CLAIMED IS:

1. A carrier for holding a plurality of containers, the carrier comprising:

a plurality of panels comprising at least one attachment panel configured to receive a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel; and

locking features for maintaining an erected configuration of the carrier, the locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels and being at least partially received in a respective at least one female locking feature at least partially defined in a respective panel of the plurality of panels.

2. The carrier of claim 1, wherein the at least one male locking feature is a locking tab and the at least one female locking feature is a locking opening.

3. The carrier of claim 2, wherein the at least one female locking feature is at least partially defined in the at least one attachment panel.

4. The carrier of claim 3, wherein the at least one attachment panel is a front attachment panel, the at least one side panel is a front side panel, the at least one top panel is a front top panel, and the plurality of panels further comprises a back attachment panel configured to receive a portion of one or more containers of the plurality of containers, a back side panel, and a back top panel.

5. The carrier of claim 4, wherein the at least one male locking feature is a first male locking feature extending from the front top panel, the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel, the locking features further comprise a second male locking feature extending from the front top panel, and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel and at least partially receiving the second male locking feature.

6. The carrier of claim 5, wherein the locking features further comprise a third male locking feature extending from the back top panel and at least partially received in a third female locking feature at least partially defined in the back attachment panel.

7. The carrier of claim 6, wherein the locking features further comprising a fourth male locking feature extending from the back top panel and at least partially received in the second female locking feature.

8. The carrier of claim 6, wherein the locking features further comprise a fourth female locking feature at least partially defined in the back top panel, the fourth female locking feature at least partially receiving the second male locking feature.

9. The carrier of claim 8, wherein the fourth female locking feature is aligned with the second female locking feature such that each of the fourth female locking feature and the second female locking feature at least partially receives the second male locking feature therethrough.

10. The carrier of claim 4, wherein the plurality of panels further comprises a front locking panel and a back locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel and at least partially receiving the first male locking feature.

11. The carrier of claim 10, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel and at least partially receiving the second male locking feature.

12. The carrier of claim 10, wherein the front locking panel is in at least partial face-to-face contact with the back locking panel, the locking features comprise a third female locking feature at least partially defined in the back locking panel, the third female locking feature aligned with the second locking feature such that each of the third female locking feature and the second female locking feature at least partially receives the second male locking feature therethrough.

13. The carrier of claim 12, wherein the third female locking feature is aligned with the first female locking feature such that each of the third female locking feature and the first female locking feature at least partially receive the first male locking feature.

14. The carrier of claim 12, wherein the locking features further comprise a third male locking feature extending from the front top panel and a fourth female locking feature at least partially defined in the front attachment panel and at least partially receiving the third male locking feature.

15. The carrier of claim 14, wherein the locking features further comprise a fifth female locking feature at least partially defined in the back locking panel, the fifth female locking feature aligned with the first female locking feature such that each of the fifth female locking feature and the first female locking feature at least partially receive the third male locking feature therethrough.

16. The carrier of claim 15, wherein the locking features further comprise a fourth male locking feature extending from the front attachment panel and in at least partial face-to-face contact with a portion of the back locking panel.

17. The carrier of claim 16, wherein the locking features further comprise a fifth male locking feature extending from the back locking panel and at least partially received in a sixth female locking feature at least partially defined in the back attachment panel.

18. The carrier of claim 4, wherein the plurality of panels further comprises a front locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the back attachment panel and at least partially receiving the first male locking feature.

19. The carrier of claim 18, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined in the back top panel, the second female locking feature at least partially receiving the second male locking feature, the front locking panel and the back top panel are positioned in at least partial face-to-face contact.

20. A blank for forming a carrier for holding a plurality of containers, the blank comprising:

a plurality of panels comprising at least one attachment panel configured to receive a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel; and

locking features for maintaining an erected configuration of the carrier formed from the blank, the locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels for being at least partially received in a respective at least one female locking feature at least partially defined in a respective panel of the plurality of panels when the carrier is formed from the blank.

21. The blank of claim 20, wherein the at least one male locking feature is a locking tab and the at least one female locking feature is a locking opening.

22. The blank of claim 21, wherein the at least one female locking feature is at least partially defined in the at least one attachment panel.

23. The blank of claim 22, wherein the at least one attachment panel is a front attachment panel, the at least one side panel is a front side panel, the at least one top panel is a front top panel, and the plurality of panels further comprises a back attachment panel configured to receive a portion of one or more containers of the plurality of containers, a back side panel, and a back top panel.

24. The blank of claim 23, wherein the at least one male locking feature is a first male locking feature extending from the front top panel, the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel, the locking features further comprise a second male locking feature extending from the front top panel, and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel for at least partially receiving the second male locking feature when the carrier is formed from the blank.

25. The blank of claim 24, wherein the locking features further comprise a third male locking feature extending from the back top panel for being at least partially received in a third female locking feature at least partially defined in the back attachment panel when the carrier is formed from the blank.

26. The blank of claim 25, wherein the locking features further comprising a fourth male locking feature extending from the back top panel and for being at least partially received in the second female locking feature when the carrier is formed from the blank.

27. The blank of claim 25, wherein the locking features further comprise a fourth female locking feature at least partially defined in the back top panel, the fourth female locking feature for at least partially receiving the second male locking feature when the carrier is formed from the blank.

28. The blank of claim 27, wherein the fourth female locking feature is for being aligned with the second female locking feature such that each of the fourth female locking feature and the second female locking feature are for at least partially receives the second male locking feature therethrough when the carrier is formed from the blank.

29. The blank of claim 23, wherein the plurality of panels further comprises a front locking panel and a back locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel and for at least partially receiving the first male locking feature when the carrier is formed from the blank.

30. The blank of claim 29, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel and for at least partially receiving the second male locking feature when the carrier is formed from the blank.

31. The blank of claim 29, wherein the locking features comprise a third female locking feature at least partially defined in the back locking panel, the third female locking feature for being aligned with the second locking feature such that each of the third female locking feature and the second female locking feature is for at least partially receives the second male locking feature therethrough when the carrier is formed from the blank.

32. The blank of claim 31, wherein the third female locking feature is for being aligned with the first female locking feature such that each of the third female locking feature and the first female locking feature are for at least partially receive the first male locking feature when the carrier is formed from the blank.

33. The blank of claim 31, wherein the locking features further comprise a third male locking feature extending from the front top panel and a fourth female locking feature at least partially defined in the front attachment panel and for at least partially receiving the third male locking feature when the carrier is formed from the blank.

34. The blank of claim 33, wherein the locking features further comprise a fifth female locking feature at least partially defined in the back locking panel, the fifth female locking feature for being aligned with the first female locking feature such that each of the fifth female locking feature and the first female locking feature are for at least partially receiving the third male locking feature therethrough when the carrier is formed from the blank.

35. The blank of claim 34, wherein the locking features further comprise a fourth male locking feature extending from the front attachment panel and for being in at least partial face-to-face contact with a portion of the back top panel when the carrier is formed from the blank.

36. The blank of claim 35, wherein the locking features further comprise a fifth male locking feature extending from the back locking panel and for being at least partially received in a sixth female locking feature at least partially defined in the back attachment panel when the carrier is formed from the blank.

37. The blank of claim 23, wherein the plurality of panels further comprises a front locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the back attachment panel and for at least partially receiving the first male locking feature when the carrier is formed from the blank.

38. The blank of claim 37, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined in the back top panel, the second female locking feature for at least partially receiving the second male locking feature when the carrier is formed from the blank

39. A method for forming a carrier for holding a plurality of containers, the method comprising:

obtaining a blank comprising plurality of panels including at least one attachment panel configured to receive a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel, and locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels and at least one female locking feature at least partially defined in a respective panel of the plurality of panels;

positioning the at least one attachment panel for at least partially receiving one or more containers of the plurality of containers; and

at least partially inserting the at least one male locking feature through the at least one female locking feature to maintain an erected configuration of the carrier.

40. The method of claim 39, wherein the at least one male locking feature is a locking tab and the at least one female locking feature is a locking opening.

41. The method of claim 40, wherein the at least one female locking feature is at least partially defined in the at least one attachment panel.

42. The method of claim 41, wherein the at least one attachment panel is a front attachment panel, the at least one side panel is a front side panel, the at least one top panel is a front top panel, and the plurality of panels further comprises a back attachment panel configured to receive a portion of one or more containers of the plurality of containers, a back side panel, and a back top panel.

43. The method of claim 42, wherein the at least one male locking feature is a first male locking feature extending from the front top panel, the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel, the locking features further

comprise a second male locking feature extending from the front top panel, and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel, and the method further comprises at least partially inserting the second male locking feature in the second female locking feature.

44. The method of claim 43, wherein the locking features further comprise a third male locking feature extending from the back top panel and a third female locking feature at least partially defined in the back attachment panel, and the method further comprises at least partially inserting the third male locking feature in the third female locking feature.

45. The method of claim 44, wherein the locking features further comprising a fourth male locking feature extending from the back top panel, and the method further comprises at least partially inserting the fourth male locking feature in the second female locking feature.

46. The method of claim 44, wherein the locking features further comprise a fourth female locking feature at least partially defined in the back top panel, and the method further comprises at least partially inserting the second male locking feature in the fourth female locking feature.

47. The method of claim 46, wherein the method further comprises aligning the fourth female locking feature with the second female locking feature such that each of the fourth female locking feature and the second female locking feature at least partially receives the second male locking feature therethrough.

48. The method of claim 42, wherein the plurality of panels further comprises a front locking panel and a back locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel, the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel, and the method further comprises at least partially inserting the first male locking feature in the first female locking feature.

49. The method of claim 48, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel, and the method further comprises at least partially inserting the second male locking feature in the second female locking feature.

50. The method of claim 48, further comprising positioning the front locking panel is in at least partial face-to-face contact with the back locking panel, the locking features comprise a third female locking feature at least partially defined in the back locking panel, and the method further comprises

aligning the third female locking feature with the second locking feature such that each of the third female locking feature and the second female locking feature at least partially receives the second male locking feature therethrough.

51. The method of claim 50, wherein the method further comprises aligning the third female locking feature with the first female locking feature such that each of the third female locking feature and the first female locking feature at least partially receive the first male locking feature.

52. The method of claim 50, wherein the locking features further comprise a third male locking feature extending from the front top panel and a fourth female locking feature at least partially defined in the front attachment panel, and the method further comprises at least partially inserting the third male locking feature in the fourth female locking feature.

53. The method of claim 52, wherein the locking features further comprise a fifth female locking feature at least partially defined in the back locking panel, and the method further comprises aligning the fifth female locking feature with the first female locking feature such that each of the fifth female locking feature and the first female locking feature at least partially receive the third male locking feature therethrough.

54. The method of claim 53, wherein the locking features further comprise a fourth male locking feature extending from the front attachment panel, and the method further comprises positioning the fourth male locking feature in at least partial face-to-face contact with a portion of the back locking panel.

55. The method of claim 54, wherein the locking features further comprise a fifth male locking feature extending from the back locking panel and a sixth female locking feature at least partially defined in the back attachment panel, and the method further comprises at least partially inserting the fifth male locking feature in the sixth female locking feature.

56. The method of claim 42, wherein the plurality of panels further comprises a front locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the back attachment panel, and the method further comprises at least partially inserting the first male locking feature in the first female locking feature.

57. The method of claim 56, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined in the back top panel, the method further comprises positioning the front locking panel

and the back top panel in at least partial face-to-face contact, and the method further comprises at least partially inserting the second male locking feature in the second female locking feature.

58. A package, the package comprising:

a plurality of containers; and

a carrier holding the plurality of containers, the carrier comprising:

a plurality of panels comprising at least one attachment panel receiving a portion of one or more containers of the plurality of containers, at least one side panel, and at least one top panel; and

locking features maintaining an erected configuration of the carrier, the locking features comprising at least one male locking feature extending from a respective panel of the plurality of panels and being at least partially received in a respective at least one female locking feature at least partially defined in a respective panel of the plurality of panels.

59. The package of claim 58, wherein the at least one male locking feature is a locking tab and the at least one female locking feature is a locking opening.

60. The package of claim 59, wherein the at least one female locking feature is at least partially defined in the at least one attachment panel.

61. The package of claim 60, wherein the at least one attachment panel is a front attachment panel, the at least one side panel is a front side panel, the at least one top panel is a front top panel, and the plurality of panels further comprises a back attachment panel receiving a portion of one or more containers of the plurality of containers, a back side panel, and a back top panel.

62. The package of claim 61, wherein the at least one male locking feature is a first male locking feature extending from the front top panel, the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel, the locking features further comprise a second male locking feature extending from the front top panel, and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel and at least partially receiving the second male locking feature.

63. The package of claim 62, wherein the locking features further comprise a third male locking feature extending from the back top panel and at least partially received in a third female locking feature at least partially defined in the back attachment panel.

64. The package of claim 63, wherein the locking features further comprising a fourth male locking feature extending from the back top panel and at least partially received in the second female locking feature.

65. The package of claim 63, wherein the locking features further comprise a fourth female locking feature at least partially defined in the back top panel, the fourth female locking feature at least partially receiving the second male locking feature.

66. The package of claim 65, wherein the fourth female locking feature is aligned with the second female locking feature such that each of the fourth female locking feature and the second female locking feature at least partially receives the second male locking feature therethrough.

67. The package of claim 61, wherein the plurality of panels further comprises a front locking panel and a back locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the front attachment panel and at least partially receiving the first male locking feature.

68. The package of claim 67, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined between the front attachment panel and the back attachment panel and at least partially receiving the second male locking feature.

69. The package of claim 67, wherein the front locking panel is in at least partial face-to-face contact with the back locking panel, the locking features comprise a third female locking feature at least partially defined in the back locking panel, the third female locking feature aligned with the second locking feature such that each of the third female locking feature and the second female locking feature at least partially receives the second male locking feature therethrough.

70. The package of claim 69, wherein the third female locking feature is aligned with the first female locking feature such that each of the third female locking feature and the first female locking feature at least partially receive the first male locking feature.

71. The package of claim 69, wherein the locking features further comprise a third male locking feature extending from the front top panel and a fourth female locking feature at least partially defined in the front attachment panel and at least partially receiving the third male locking feature.

72. The package of claim 71, wherein the locking features further comprise a fifth female locking feature at least partially defined in the back locking panel, the fifth female locking feature aligned with the first female locking feature such that each of the fifth female locking feature and the first female locking feature at least partially receive the third male locking feature therethrough.

73. The package of claim 72, wherein the locking features further comprise a fourth male locking feature extending from the front attachment panel and in at least partial face-to-face contact with a portion of the back locking panel.

74. The package of claim 73, wherein the locking features further comprise a fifth male locking feature extending from the back locking panel and at least partially received in a sixth female locking feature at least partially defined in the back attachment panel.

75. The package of claim 61, wherein the plurality of panels further comprises a front locking panel, wherein the at least one male locking feature is a first male locking feature extending from the front locking panel and the at least one female locking feature is a first female locking feature at least partially defined in the back attachment panel and at least partially receiving the first male locking feature.

76. The package of claim 75, wherein the locking features further comprise a second male locking feature extending from the front locking panel and a second female locking feature at least partially defined in the back top panel, the second female locking feature at least partially receiving the second male locking feature, the front locking panel and the back top panel are positioned in at least partial face-to-face contact.

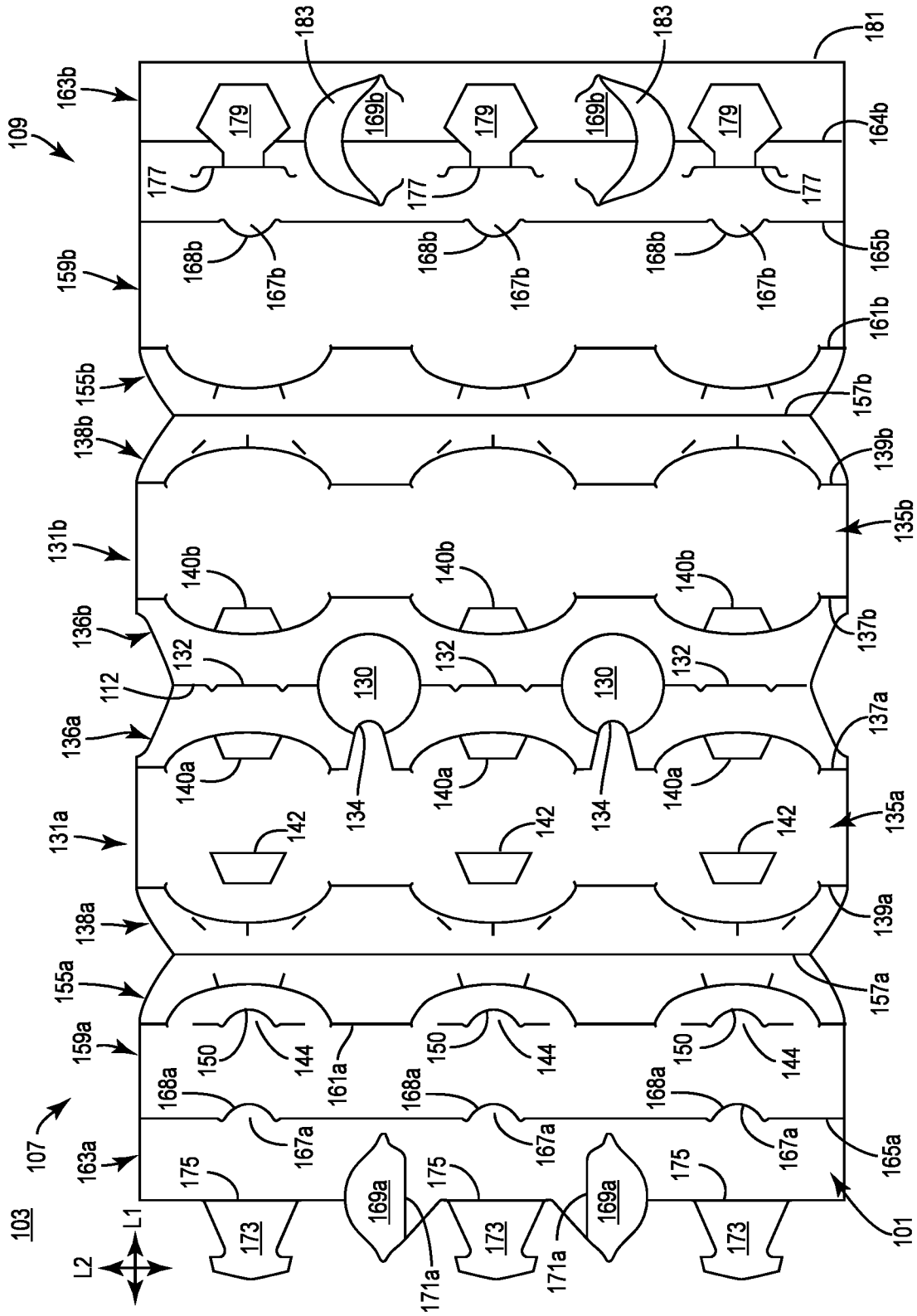

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FIG. 1

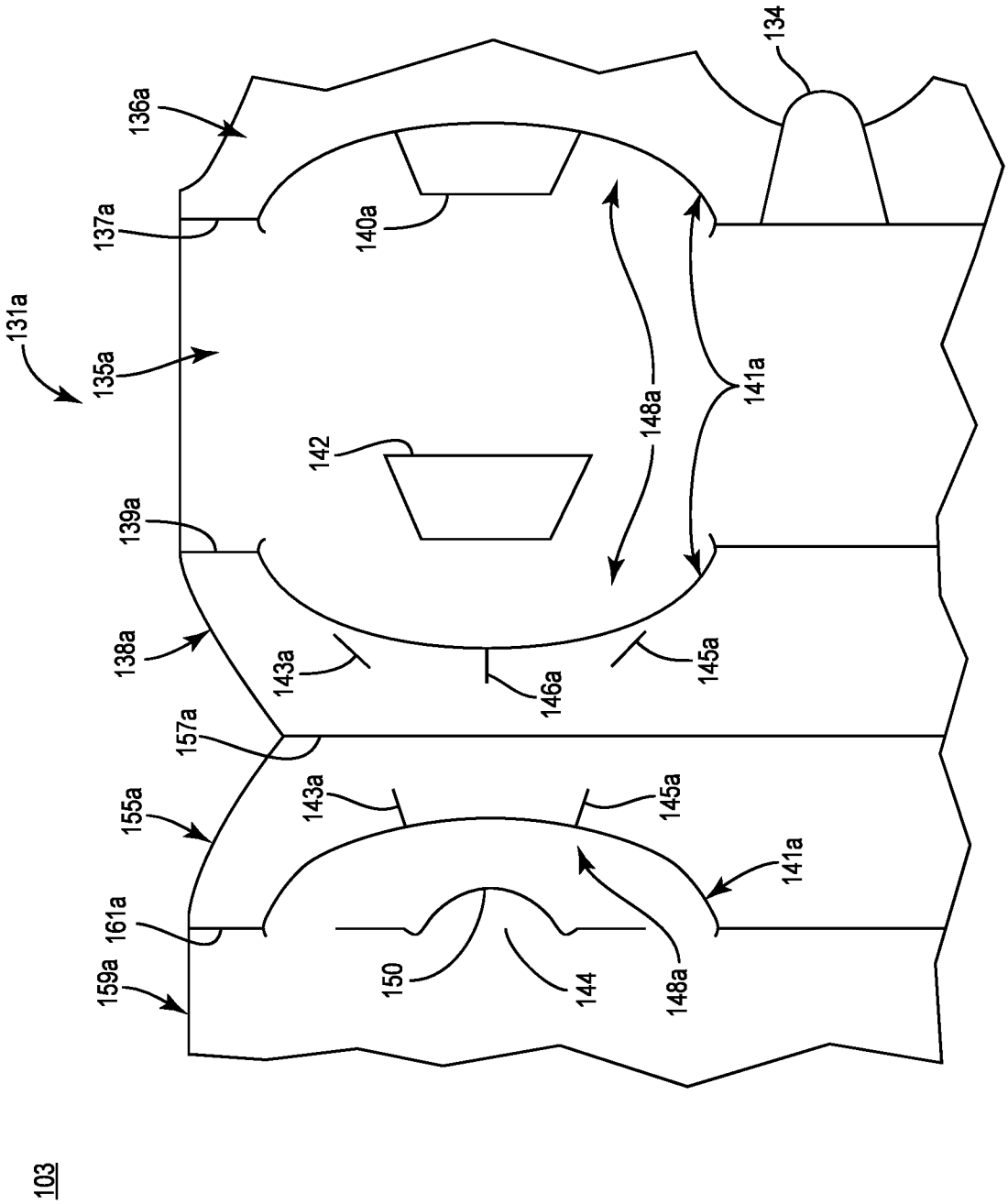

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FIG. 1A

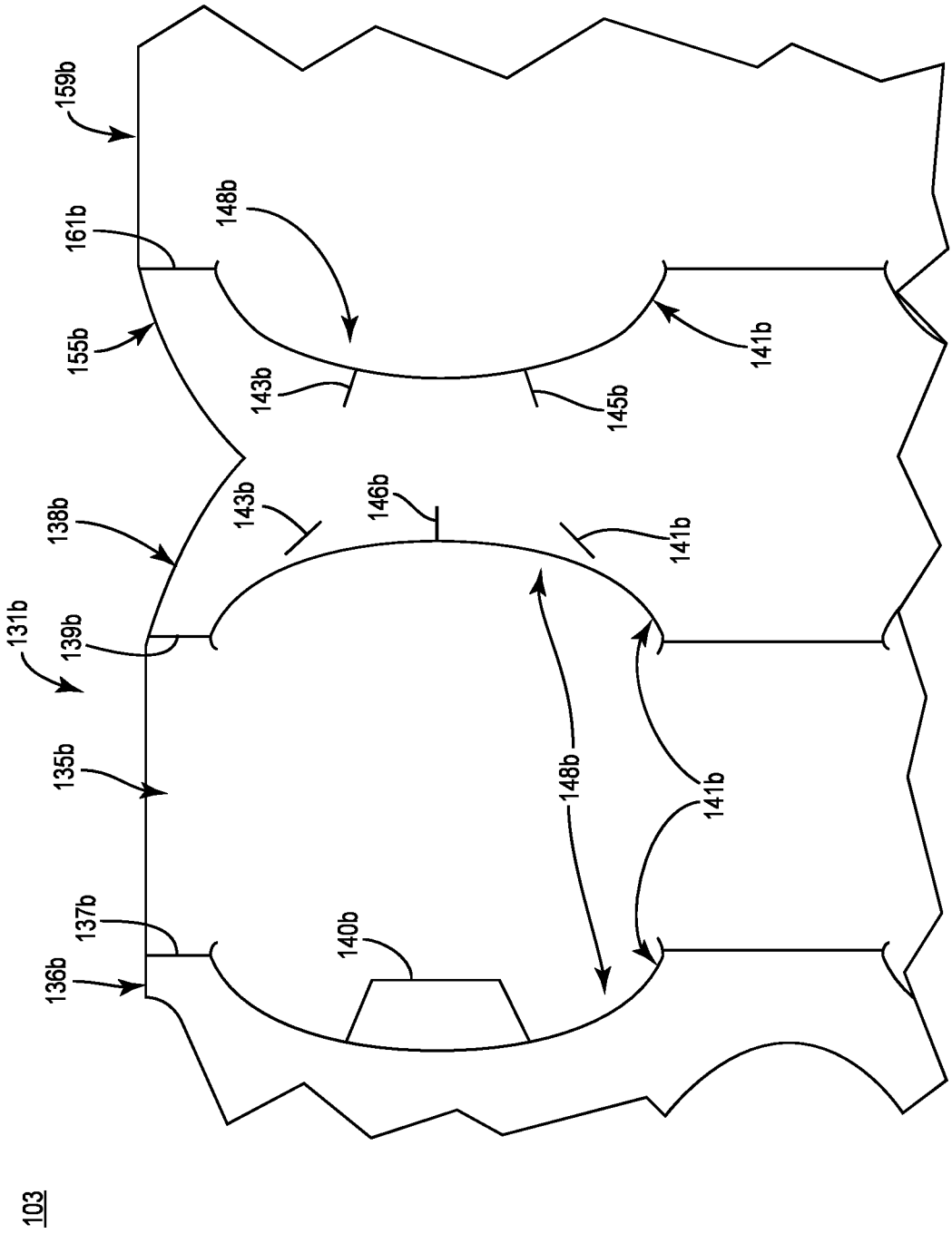

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FIG. 1B

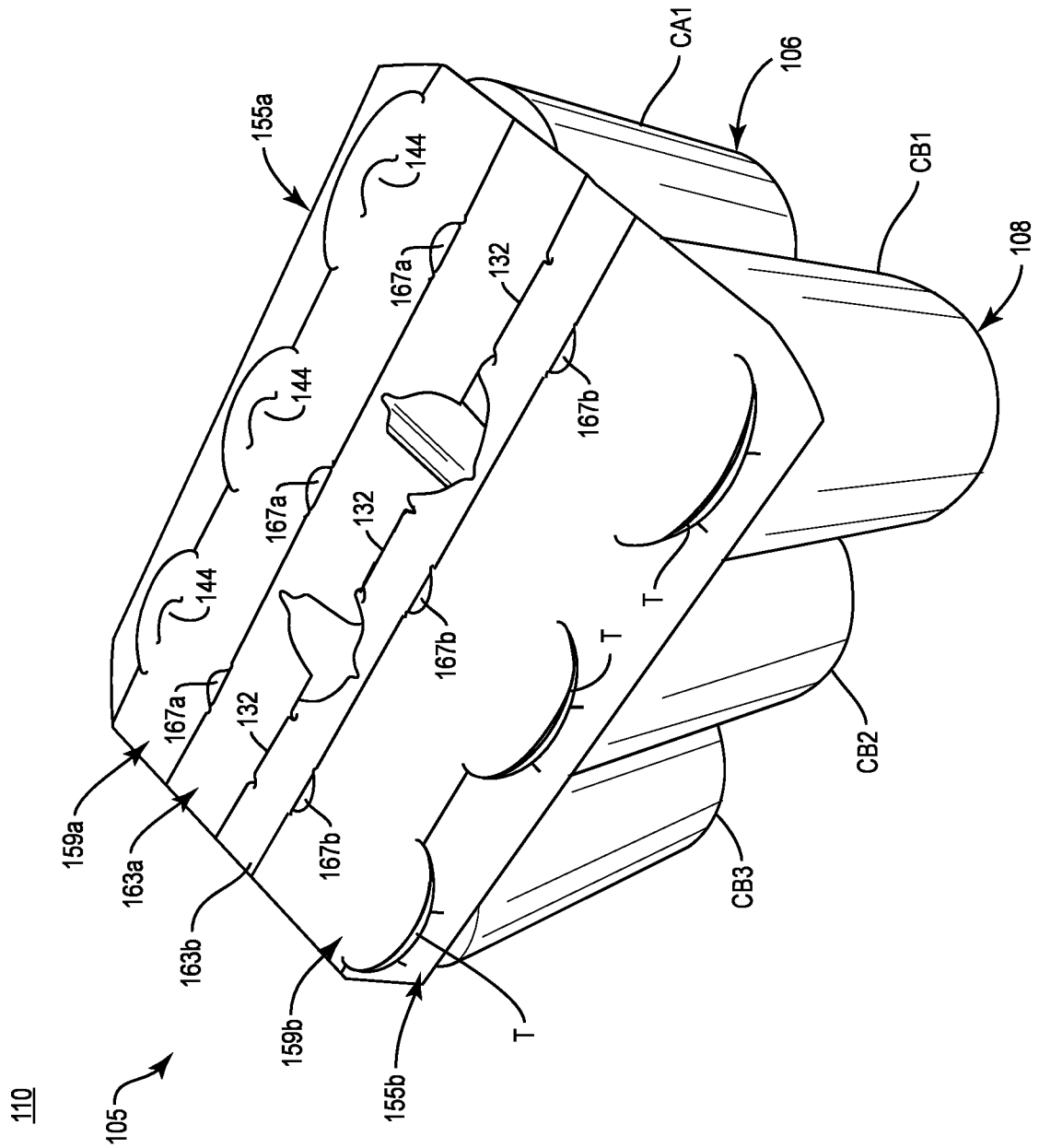

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CB3

FIG. 2

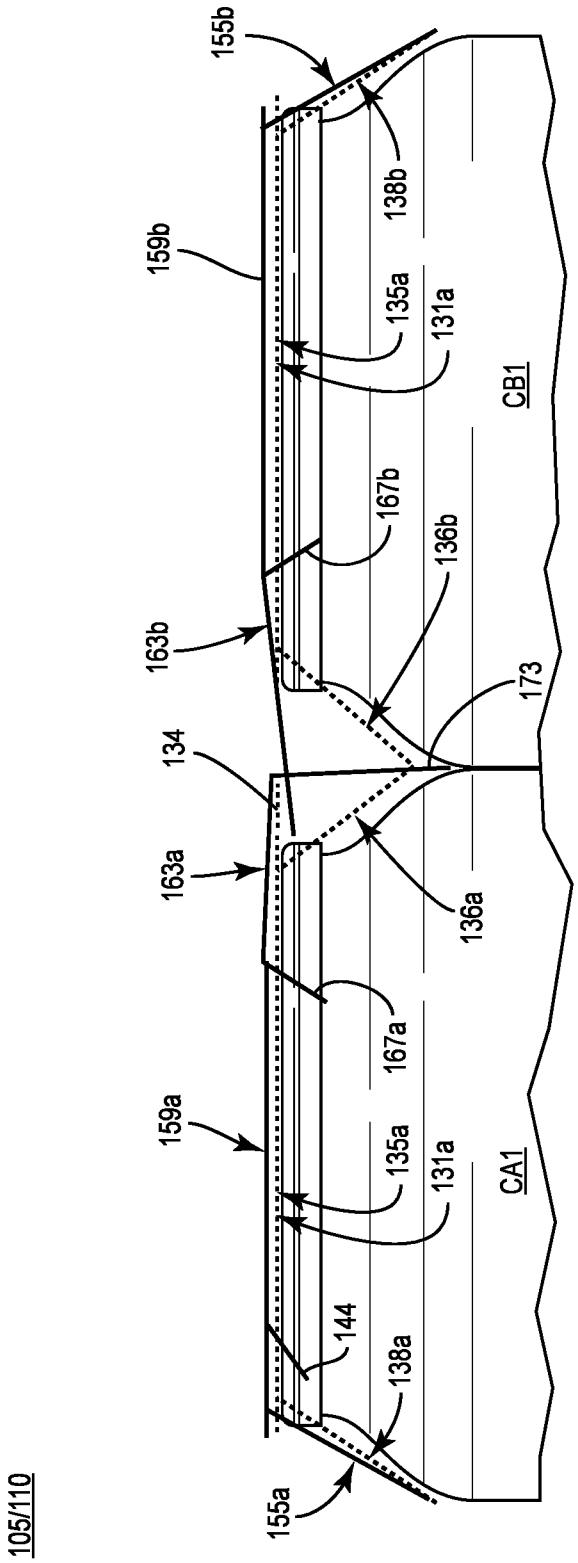

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FIG. 3

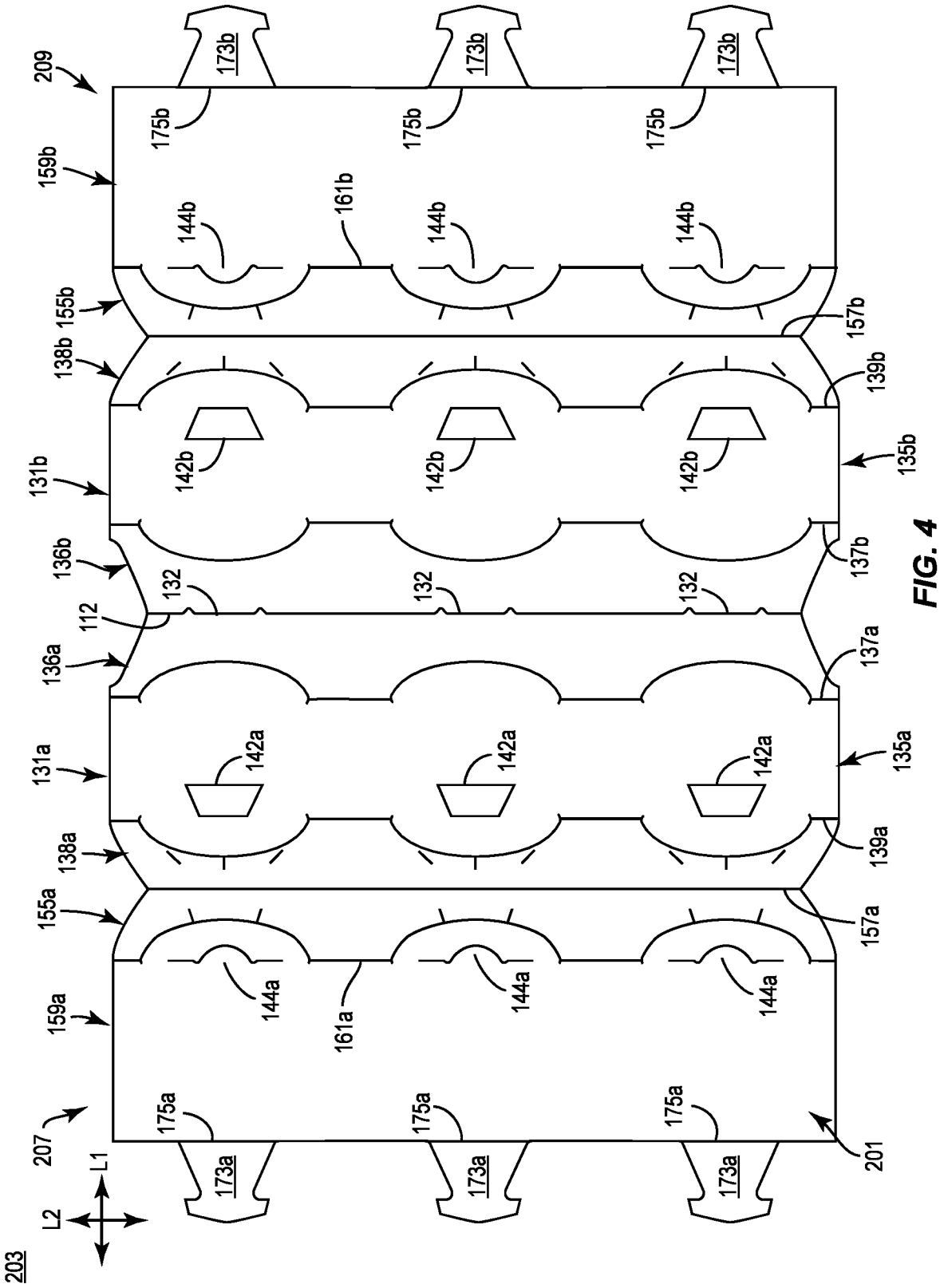

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FIG. 4

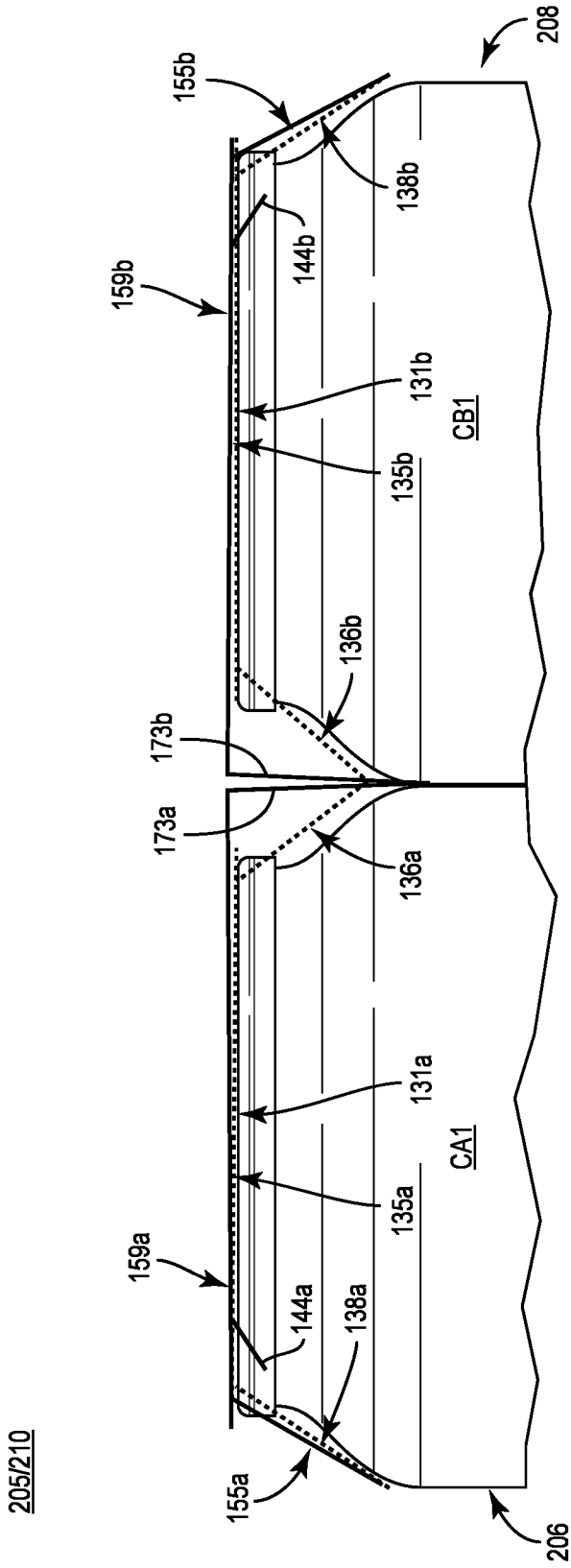

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FIG. 4A

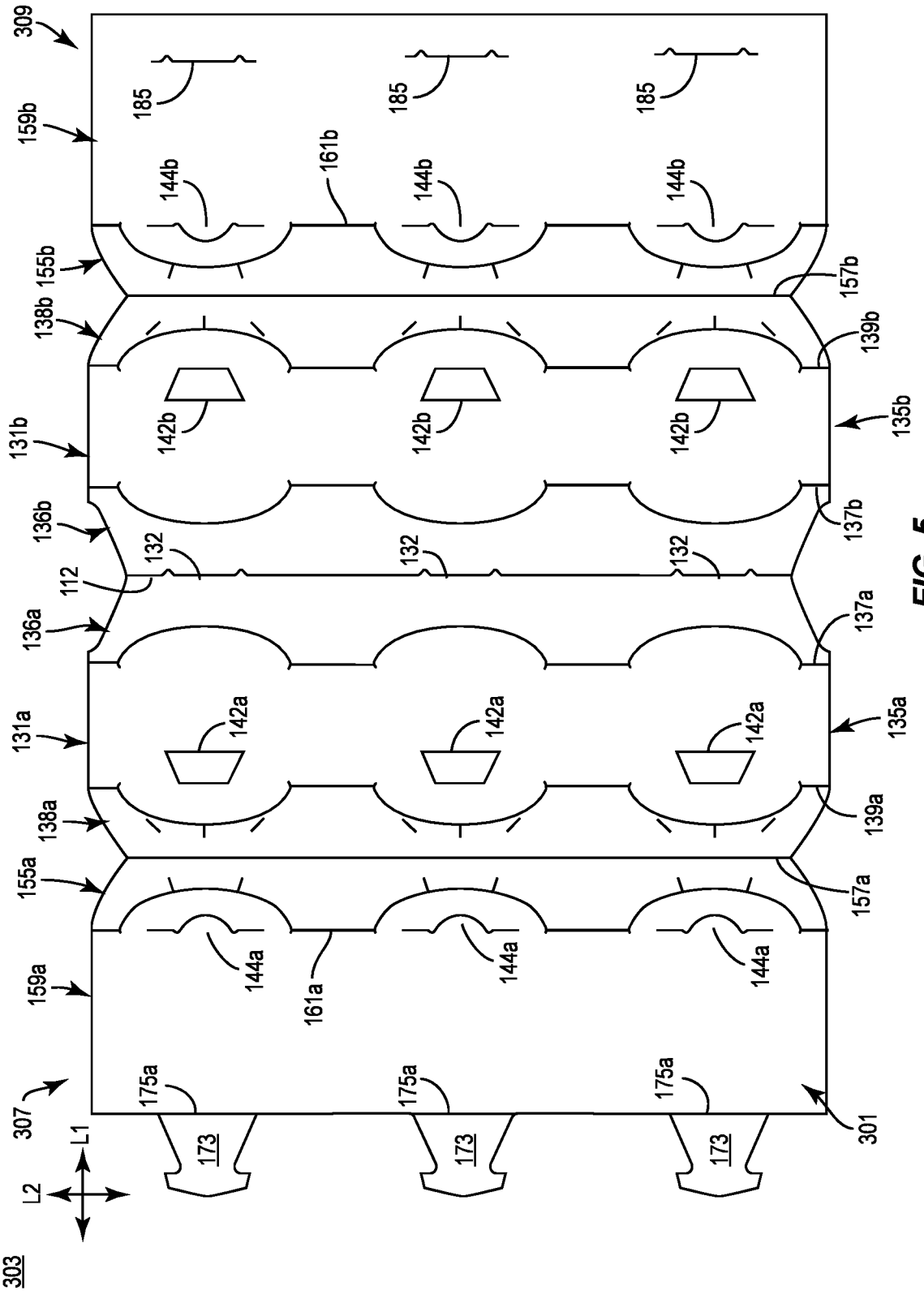

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FIG. 5

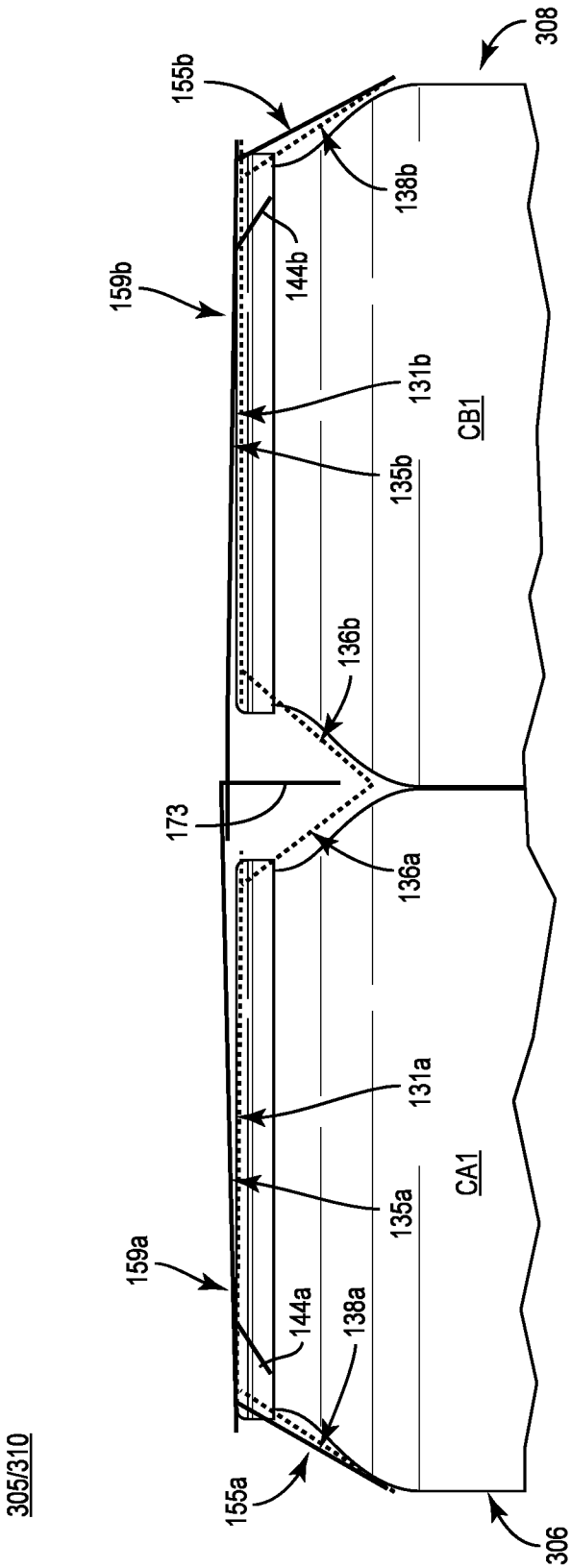

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FIG. 5A

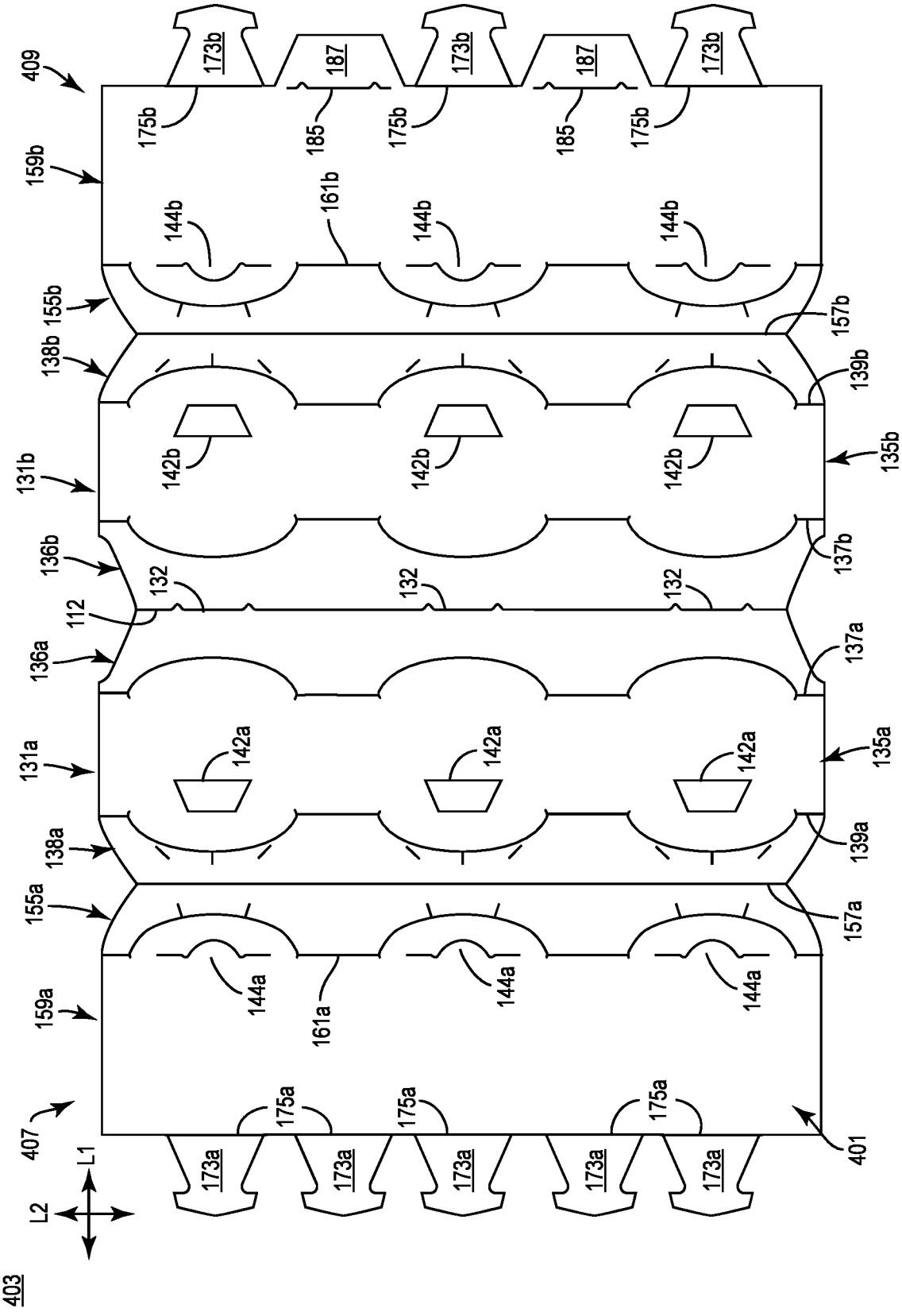

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FIG. 6

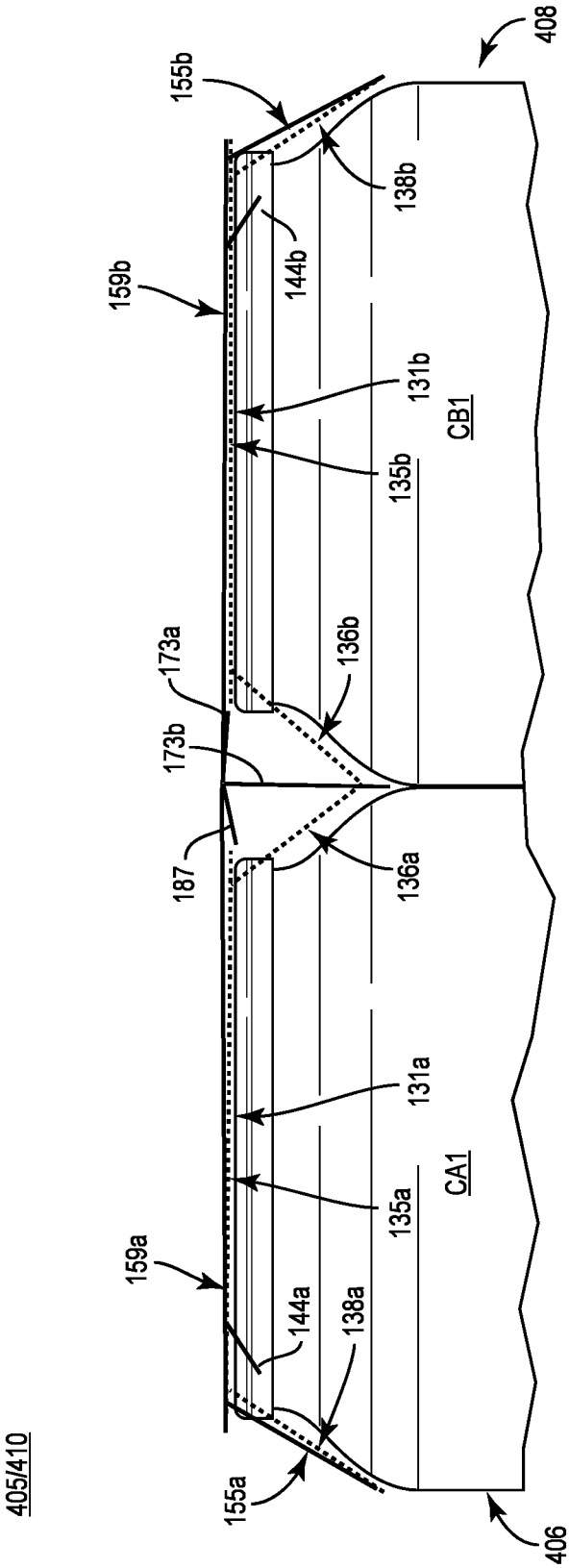

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FIG. 6A

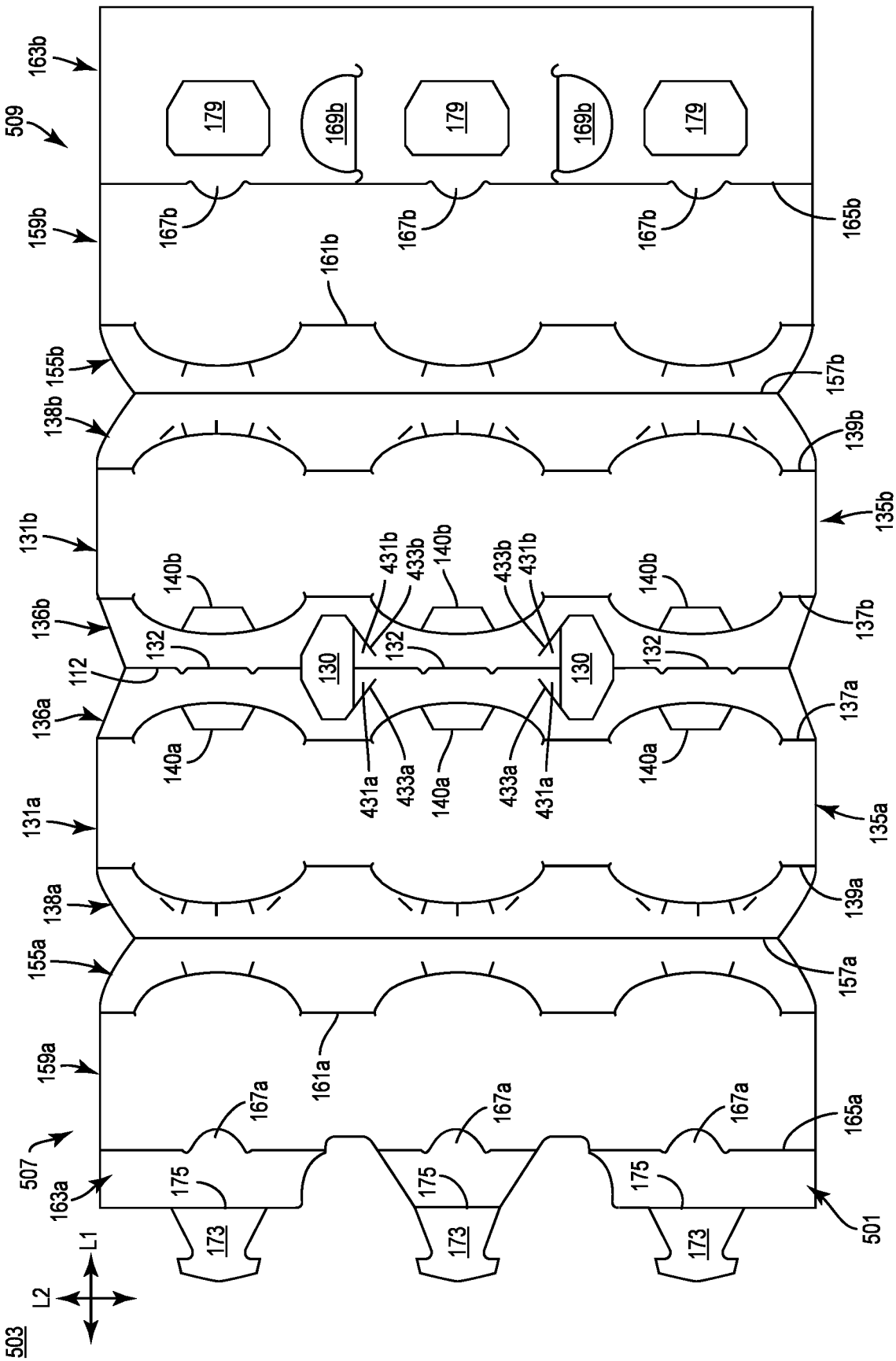

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FIG. 7

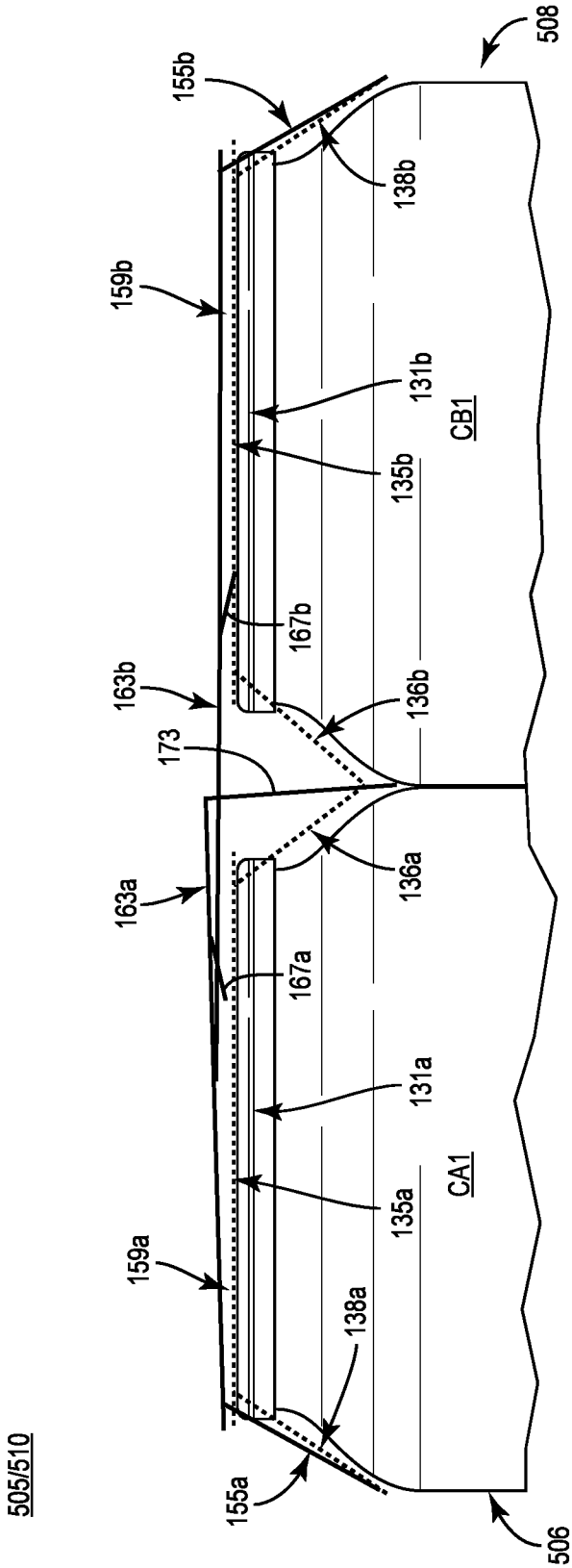

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FIG. 7A

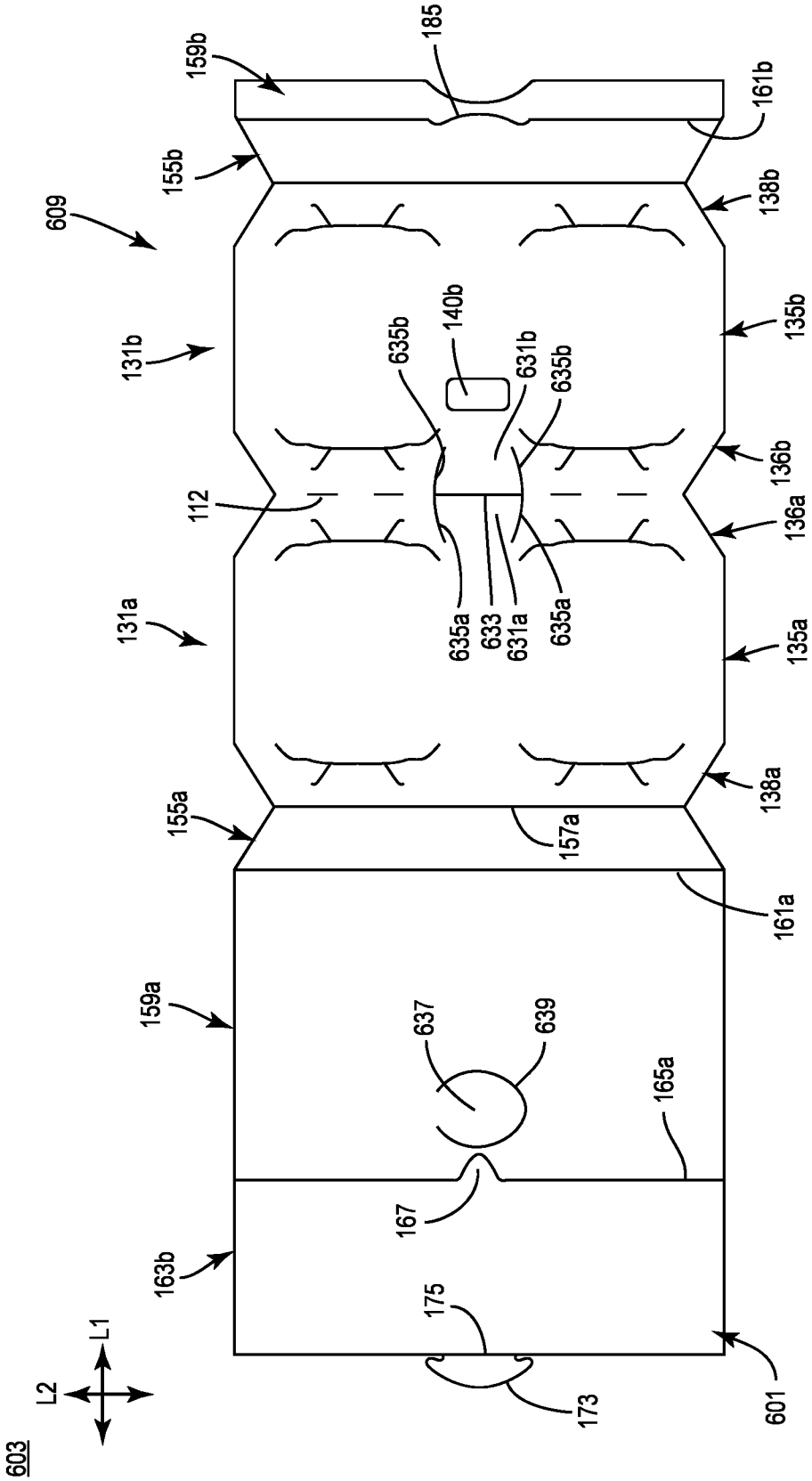

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FIG. 8

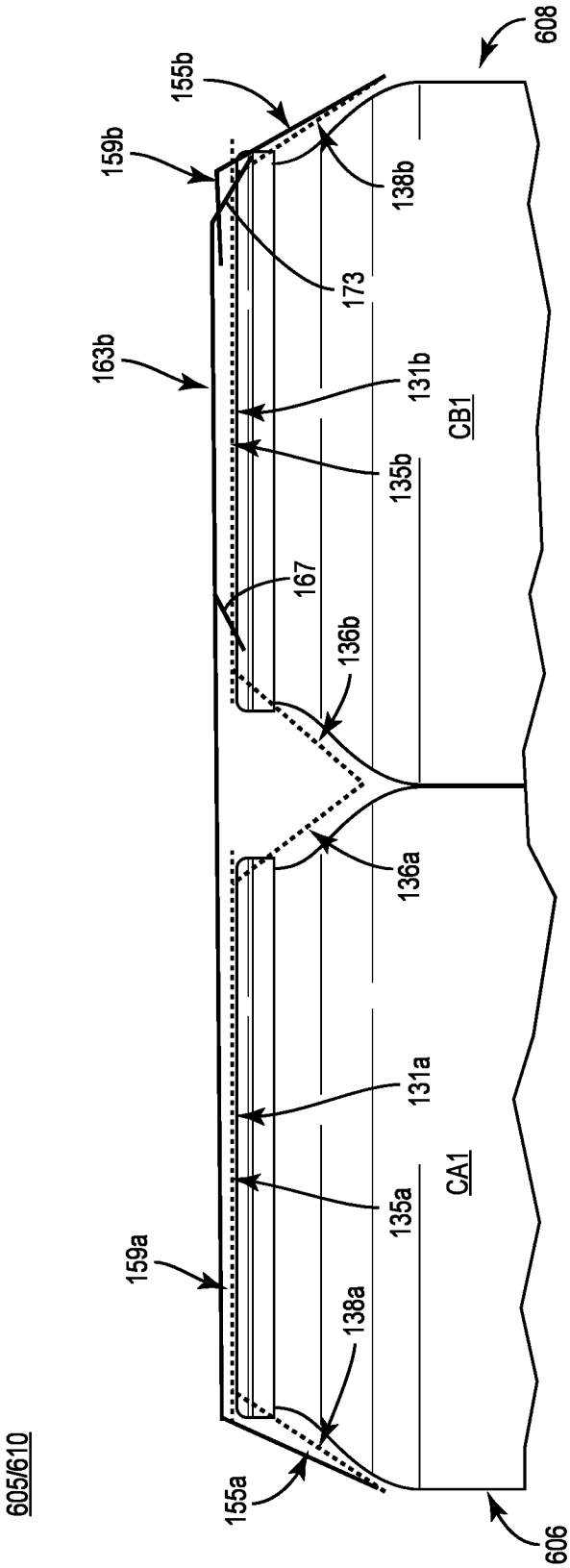

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FIG. 8A

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2022/035207

A. CLASSIFICATION OF SUBJECT MATTER

B65D 71/44(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B65D 71/44(2006.01); B65D 71/00(2006.01); B65D 71/28(2006.01); B65D 71/46(2006.01); B66F 19/00(2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: carrier, container, attachment panel, top panel, male locking feature, female locking feature

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3281180 A (SPERY, JOSEPH C.) 25 October 1966 (1966-10-25) column 8, line 35 - column 11, line 3 and figures 7-13	1-6,8-25,27-44,46-63,65-76
Y		7,26,45,64
Y	JP 11-193059 A (MITSUBISHI MATERIALS CORP.) 21 July 1999 (1999-07-21) paragraph [0026] and figures 1-3	7,26,45,64
A	US 4192540 A (OLIFF, JAMES R.) 11 March 1980 (1980-03-11) column 1, line 43 - column 2, lines 29 and figures 1-3	1-76
A	WO 2006-044583 A2 (MEADWESTVACO PACKAGING SYSTEMS LLC) 27 April 2006 (2006-04-27) page 7, line 1 - page 10, line 5 and figures 1-5	1-76
A	EP 1910187 B1 (MEADWESTVACO PACKAGING SYSTEMS LLC) 18 March 2009 (2009-03-18) paragraphs [0031]-[0033] and figures 1-7	1-76

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"D" document cited by the applicant in the international application
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 October 2022	**14 October 2022**

Name and mailing address of the ISA/KR	Authorized officer
Korean Intellectual Property Office **189 Cheongsa-ro, Seo-gu, Daejeon** **35208, Republic of Korea**	**PARK, Tae Wook**
Facsimile No. **+82-42-481-8578**	Telephone No. **+82-42-481-3405**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/US2022/035207

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
US	3281180	A	25 October 1966	None			
JP	11-193059	A	21 July 1999	None			
US	4192540	A	11 March 1980	None			
WO	2006-044583	A2	27 April 2006	CN	101076481	A	21 November 2007
				CN	101076481	B	02 January 2013
				EP	1833737	A2	19 September 2007
				JP	2009-511362	A	19 March 2009
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				KR	10-2007-0099546	A	09 October 2007
				RU	2007117908	A	20 November 2008
				RU	2389668	C2	20 May 2010
				WO	2006-044583	A3	06 July 2006
EP	1910187	B1	18 March 2009	AT	425928	T	15 April 2009
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