



(51) International Patent Classification:

B65D 5/20 (2006.01) *B65D 25/56* (2006.01)
B65D 5/66 (2006.01)

(21) International Application Number:

PCT/US2024/016791

(22) International Filing Date:

22 February 2024 (22.02.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/447,912 24 February 2023 (24.02.2023) US

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(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,

(54) Title: CONTAINER WITH LID

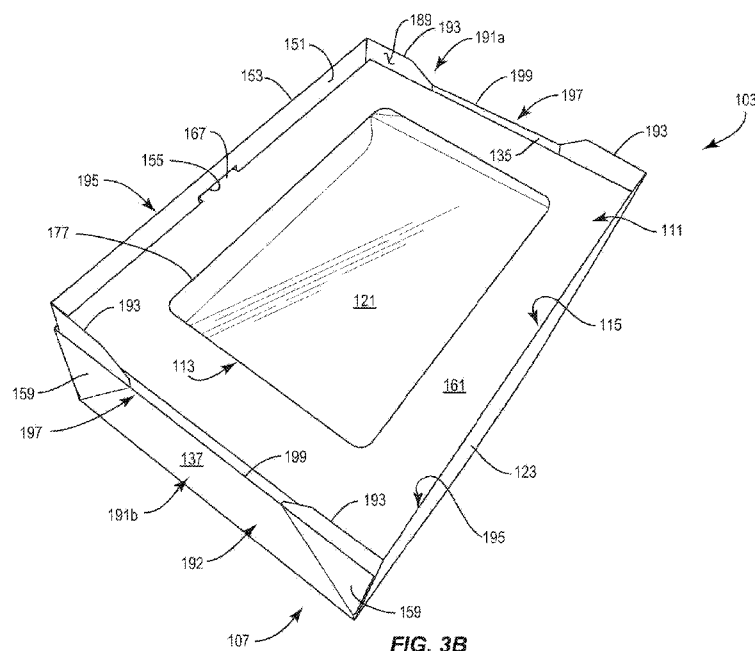


FIG. 3B

(57) Abstract: A container for holding a product. The container can comprise a tray comprising a sidewall extending at least partially around an interior of the tray. The sidewall can have a support edge. A lid can comprise at least a top panel, and one or more passageways can be formed in at least the sidewall of the tray. The container comprises an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray. At least a portion of the one or more passageways in at least the sidewall of the tray extends upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*

CONTAINER WITH LID

CROSS-REFERENCED TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 63/447,912, filed on February 24, 2023.

INCORPORATION BY REFERENCE

[0002] The disclosure of U.S. Provisional Patent Application No. 63/447,912, which was filed on February 24, 2023, is hereby incorporated by reference for all purposes as if presented herein in its entirety.

BACKGROUND OF THE DISCLOSURE

[0003] The present disclosure relates to the trays, cartons, containers, etc. for holding food products or other items.

SUMMARY OF THE DISCLOSURE

[0004] In general, one aspect of the disclosure is generally directed to a container for holding a product. The container can comprise a tray comprising a sidewall extending at least partially around an interior of the tray. The sidewall can have a support edge. A lid can comprise at least a top panel, and one or more passageways can be formed in at least the sidewall of the tray. The container comprises an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray. At least a portion of the one or more passageways in at least the sidewall of the tray extends upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

[0005] In another aspect, the disclosure is generally directed to a blank for forming a container. The blank can comprise a tray portion for at least partially forming a tray of the container formed from the blank. The tray portion can comprise a plurality of panels for at least partially forming a sidewall of the tray formed from the tray portion. The plurality of panels can be configured for forming one or more passageways in at least the sidewall when the tray is formed from the tray portion. The blank further can comprise a lid portion for at least partially forming a lid of the container formed from the blank. The lid portion can comprise at least a top panel. The container formed from the blank can be for comprising an open configuration in which the top panel is at least partially spaced from the interior of the tray formed from the tray portion and a closed configuration in which the top panel is positioned at least partially in an interior of the tray formed from the tray portion. At least a portion of the one or

more passageways formed when the sidewall is formed by the plurality of panels of the tray portion can be for extending above the top panel toward support edge of the sidewall for allowing air to move over the top panel of the lid when the container formed from the blank is in the closed configuration.

[0006] In another aspect, the disclosure is generally directed to, in combination, a tray blank for forming a tray of a container and a lid blank for forming a lid of the container. The tray blank can comprise a plurality of panels for at least partially forming a sidewall of the tray formed from the tray blank. The plurality of panels can be configured for forming one or more passageways in at least the sidewall when the tray is formed from the tray blank. The lid blank can comprise a top panel. The container formed from the tray blank and the lid blank can be for comprising an open configuration in which the top panel is at least partially spaced from the interior of the tray formed from the tray blank and a closed configuration in which the top panel is positioned at least partially in an interior of the tray formed from the tray blank. At least a portion of the one or more passageways formed when the sidewall is formed by the plurality of panels of the tray blank can be for extending above the top panel toward a support edge of the sidewall for allowing air to move over the top panel of the lid when the container formed from the tray blank and the lid blank is in the closed configuration.

[0007] In another aspect, the disclosure is generally directed to a method of forming a container. The method can comprise forming a tray. The tray can comprise a plurality of panels. The forming the tray can comprise forming at least the plurality of panels into a sidewall extending at least partially around an interior of the tray. The sidewall can have a support edge, and one or more passageways can be formed in the sidewall. The method further can comprise forming a lid, and the lid can comprise at least a top panel. The container can comprise an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray. At least a portion of the one or more passageways in at least the sidewall of the tray can extend upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

[0008] In another aspect, the disclosure is generally directed to a method of forming a container. The method can comprise obtaining a blank comprising a tray portion and a lid portion. The tray portion can comprise a plurality of panels and the lid portion can comprise at least a top panel. The method further can comprise forming a tray from the tray portion. The forming the tray can comprise forming at least the plurality of panels into a sidewall extending at least partially around an interior of the tray, the sidewall having a support edge. One or more passageways can be formed in at least the sidewall. The method also can comprise forming a lid from the lid portion. The container can comprise an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray. At least a

portion of the one or more passageways in at least the sidewall of the tray can extend upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

[0009] In another aspect, the disclosure is generally directed to a method of forming a container. The method can comprise obtaining a tray blank and a lid blank, the tray blank comprising a plurality of panels and the lid blank comprising at least a top panel. The method further can comprise forming a tray from the tray blank. The forming the tray can comprise forming at least the plurality of panels into a sidewall extending at least partially around an interior of the tray, the sidewall having a support edge. One or more passageways can be formed in at least the sidewall. The method also can comprise forming a lid from the lid blank. The container can comprise an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray. At least a portion of the one or more passageways in at least the sidewall of the tray can extend upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

[0010] 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.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] 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.

[0012] Fig. 1 is a plan view of a blank for forming a carton according to exemplary embodiments of the disclosure.

[0013] Figs. 2A and 2B are perspective views of the carton formed from the blank of Fig. 1 in an open configuration according to the exemplary embodiments of the disclosure.

[0014] Figs. 3A and 3B are perspective views of the carton of Figs. 2A and 2B in a closed configuration according to the exemplary embodiments of the disclosure.

[0015] Figs. 4 and 5 are cross-sectional views of the carton of Figs. 2A-3B.

[0016] Fig. 6 is a perspective view of a stack of a plurality of the cartons of Figs. 2A-3B.

- [0017] Fig. 7A is a plan view of a tray blank for forming a tray of a carton according to additional exemplary embodiments of the disclosure.
- [0018] Fig. 7B is a plan view of a lid blank for forming a lid of a carton according to additional exemplary embodiments of the disclosure.
- [0019] Fig. 8 is a perspective view of the tray and the lid of the carton formed from the tray blank and the lid blank of Figs. 7A and 7B with the carton in an open configuration according to the exemplary embodiments of the disclosure.
- [0020] Figs. 9A and 9B are perspective views of the carton of Fig. 8 in a closed configuration according to the exemplary embodiments of the disclosure.
- [0021] Fig. 10 is a cross-sectional view of the container of Figs. 8-9B.
- [0022] Corresponding parts are designated by corresponding reference numbers throughout the drawings.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

- [0023] The present disclosure generally relates to constructs, boxes, cartons, carriers, trays, containers, or the like, and packages for holding one or more products or articles such as food items (e.g., for food service, for display and/or sale, for storage and/or transport, etc.) or other articles such as any suitable type of product that can be stored, displayed, served, transported, cooled, frozen, heated, and/or cooked. Some suitable products could comprise sushi, salad, sandwiches, tacos, desserts, pastries, cookies, chips, hot dogs, French fries, nachos, fruits, vegetables, popcorn, cuts of meat, or any other suitable food product or other article. It is understood that food products other than the food products listed herein and/or non-food products may be contained in the package. Constructs according to the present disclosure can accommodate product or articles of any shape.
- [0024] In this specification, the terms “inner,” “interior,” “outer,” “exterior,” “lower,” “bottom,” “upper,” and “top” indicate orientations determined in relation to fully erected and upright containers and cartons. As described herein, constructs can be formed with multiple walls, panels, portions, tabs, flaps, fold lines, cuts, tear lines, and/or other aspects, which may be designated herein in terms relative to one another, e.g., “first,” “second,” “third,” etc., in sequential or nonsequential reference, without departing from the disclosure.
- [0025] Fig. 1 is a plan view of a blank 101 used to form a container or carton 103 (Figs. 2A-6) of a first embodiment of the disclosure. Fig. 1 shows an interior surface 104 of the blank 101. The carton 103 can be used to hold a food product (not shown), such as sushi and/or another suitable food service

item and/or other suitable product. For example, a prepared food product can be placed in the carton for service to a customer for consumption and/or can be placed on display for sale. The carton 103 includes a tray 107 that is sized to hold the food product and a lid 111 foldably connected to the tray 107 at a hinge 115. In embodiments, the lid 111 has features for facilitating air flow over the lid 111 when the carton 103 is in a closed configuration.

[0026] In the illustrated embodiment, and as described in more detail below, the carton 103 can include a window or window assembly 113 in one or more of the panels of the tray 107 and/or the lid 111. For example, the window assembly 113 could include an opening 177 defined in the lid 111 and a transparent or translucent liner material 179 covering the opening 177 as described in more detail below. For example, the liner material can include sustainable polymers, biopolymers (e.g., cellulose acetate), and/or other suitable polymers and/or other suitable materials.

[0027] As shown in Fig. 1, the carton blank 101 has a longitudinal axis L1 and a lateral axis L2. The blank 101 includes a first or tray portion 117 for forming the tray 107 and a second or lid portion 119 for forming the lid 111. The tray portion 117 includes a bottom panel 121 foldably connected to a back panel or first side panel 123 at a lateral fold line 125. A front panel or second side panel 129 is foldably connected to the bottom panel 121 at a lateral fold line 131. In the illustrated embodiment, the tray portion 117 includes two end panels 135, 137 foldably connected to opposite ends of the bottom panel 121 along respective longitudinal fold lines 138. As shown in Fig. 1, each of the end panels 135, 137 can include two oblique fold lines 157 defining respective opposing distal portions 159 in the end panels 135, 137.

[0028] In the illustrated embodiments, two end flaps 139, 141 are foldably connected to opposite ends of the first side panel 123 along respective oblique fold lines 143, and two end flaps 145, 147 are foldably connected to opposite ends of the second side panel 129 along respective oblique fold lines 149. In embodiments, the fold lines 143, 149 can be oblique so that the side panels 123, 129 are widest at the respective lateral fold lines 125, 131 and the side panels 123, 129 narrow as they extend away from the bottom panel 121. In exemplary embodiments, the end flaps 139, 141, 145, 147 can be glued to at least the distal portions 159 of the end panels 135, 137 when the tray 107 is formed from the tray portion 117, and the oblique fold lines 157 in the end panels 135, 137 can facilitate folding of the tray 107 into a flattened or collapsed configuration (not shown). In the illustrated embodiment, a bottom closure flap 151 is foldably connected to the second side panel 129 along a lateral fold line 153, and a locking opening or slot 155 extends in the bottom closure flap 151 (e.g., in a center or central portion of the bottom closure flap 151).

[0029] As shown in Fig. 1, the side panels 123, 129 can have a height or depth D1 (e.g., the distance between the fold line 125 and the hinge 115 and the distance between the fold line 131 and the fold line 153) and the end panels 135, 137 can have a height or depth D2 (e.g., the distance between the respective

fold lines 138 and the respective distal edges 199 of the end panels 135, 137). In embodiments, the distance D2 can be less than the distance D1 so that the top edges of the side panels 123, 129 are disposed higher than the distal edges 199 of the end panels 135, 137 when the tray 107 is formed from the tray portion 117. In exemplary embodiments, the angle of the oblique fold lines 143, 149 can cause the end panels 135, 137 to extend obliquely (e.g., inwardly and upwardly) from the bottom panel 121 when the tray 107 is erected (e.g., as shown in Fig. 4), and the oblique positioning of the end panels 135, 137 further can contribute to the difference in the height of the top edges of the side panels 123, 129 and the height of the distal edges 199 of the end panels with respect to the bottom panel 121 in the erected tray 107. As shown in Fig. 1, the upper edges 193 of the end flaps 139, 141, 145, 149 can be spaced apart from the respective end panels 135, 137 (e.g., from the respective corners of the bottom panel 121) by a distance D3 (e.g., the length of the oblique fold lines 143, 149). In embodiments, the distance D3 can be greater than the distance D2 so that the upper edges 193 are spaced from the bottom panel a greater distance than the distal edges 199 of the end panels 135, 137 when the tray 107 is erected. Further, in exemplary embodiments, the upper edges 193 of the end flaps 139, 141, 145, 149 can extend at an oblique angle in the blank 101, wherein the oblique angle is selected so that the upper edges 193 are coplanar (e.g., approximately and/or substantially coplanar) with the top edges of the side panels 123, 129 when the tray 107 is erected. Any of the features that form the tray portion 117 and the tray 107 could be omitted or could be otherwise shaped, arranged, configured, and/or positioned without departing from the disclosure.

[0030] In the illustrated embodiment, the lid portion 119 includes a central or top panel 161 foldably connected to a top closure panel 163 along a lateral fold line 165. In embodiments, a locking tab 167 can extend from the top panel 161 toward the top closure panel 163 and can be at least partially defined by a cut line 169 that can interrupt the lateral fold line 165. As shown in Fig. 1, the locking tab 167 can be in a center or a central portion of the top panel 161 and the top closure panel 163. In exemplary embodiments, the locking opening 155 in the bottom closure flap 151 and the locking tab 167 can be aligned along a longitudinal axis CL of the blank 101. The lid portion 119 also can include two top end panels 171, 173 foldably connected to opposite ends of the top panel 161 along respective longitudinal fold lines 175.

[0031] As shown in Fig. 1, the cutout, opening, or window 177 can be defined in at least the top panel 161 with edges of at least the top panel 161 extending along the window 177. In other embodiments, the window 177 can extend into other portions of the blank 101. In exemplary embodiments, the liner material/film 179 or other suitable material can be applied to the interior surface 104 of at least the top panel 161, such as by gluing, heat sealing, welding, and/or other suitable attachment methods, to at least partially form the window assembly 113. In the illustrated embodiment, the film 179 can be transparent or translucent so that the items contained in the container 103 can be seen when the container 103 is closed (Figs. 3A and 3B). In embodiments, the film 179 can be sealed to the interior surface 104 of the

top panel 161 around the entirety of the window 177 so that the film 179 protects the items in the interior of the container 103. In exemplary embodiments, the film 179 can comprise a sustainable material. For example, the film 179 can be derived from renewable sources (e.g., biopolymers) and/or the film can be recyclable and/or compostable. In an embodiment, the film 179 can comprise a sustainable cellulose acetate, for example. Any of the features that form the lid portion 119 and the lid 111 could be omitted or could be otherwise shaped, arranged, configured, and/or positioned without departing from the disclosure.

[0032] As shown in Fig. 1, the features that form the hinge 115 can include a hinge panel 181 foldably connected to the first side panel 123 of the tray portion 117 along a lateral fold line 183 and to the top panel 161 of the lid portion 119 along a lateral fold line 185. In embodiments, the width of the hinge panel 181 (e.g., the spacing between the lateral fold lines 183, 185) can be equal to or similar to the difference between the distance D1 (e.g., the height of the fold line 183 when the tray 107 is formed) and the height of the distal edges 199 of the end panels 135, 137 above the bottom panel 121 when the tray 107 is formed (e.g., so that the top panel 161 of the lid 111 along or nearly along the plane of the distal edges 199 in the formed and closed carton 103). In the illustrated embodiments, the height of the distal edges 199 above the bottom panel 121 can be less than (e.g., slightly less than, for example, on the order of a millimeter less than) the distance D2. This configuration of the hinge panel 181 can help with positioning the lid 111 so that it is recessed in the tray 107 when in the closed position (Figs. 3A-6), as described in more detail below. Any of the hinge features could be omitted or could be otherwise shaped, arranged, configured, and/or positioned without departing from the disclosure.

[0033] The bottom and top end panels 135, 171 and the end flaps 139, 145 can extend along a first marginal area of the blank 101, and the bottom and top end panels 137, 173 and the end flaps 141, 147 can extend along a second marginal area of the blank 101. The blank 101 could be otherwise shaped, arranged, and/or configured without departing from the disclosure. For example, the blank 101 could include any suitable number of locking tabs 167 and locking openings 155 positioned along the closure panels 163, 151.

[0034] In exemplary embodiments, the carton 103 is formed by forming the tray portion 117 of the blank 101 into the tray 107 and forming the lid portion 119 of the blank into the lid 111. In an exemplary method, the tray 107 is formed by folding the side panels 123, 129 and the end panels 135, 137 relative to the bottom panel 121 to extend at least partially around an interior 189 of the tray 107 (Figs. 2A and 2B). In the illustrated embodiments, the end flaps 139, 145 are inwardly folded and overlapped with the end panel 135 to form a first end wall 191a of the tray 107, and the end flaps 141, 147 are overlapped with the end panel 137 to form an opposing second end wall 191b of the tray 107. In embodiments, the end flaps 139, 145 and 141, 147 can be glued to the respective end panels 135, 137 (e.g., can be glued and/or otherwise secured to the distal portions 159). As shown in at least Figs. 3B-5, the bottom closure

flap 151 can be folded along the lateral fold line 153 toward the interior of the tray 107 and can at least partially overlap the second side panel 129. In some embodiments, the bottom closure flap 151 can be secured (e.g., glued) in face-to-face contact with the interior surface of the second side panel 129. In embodiments, the side panels 123, 129 and the end walls 191a, 191b can cooperate to at least partially form a sidewall 192 extending around the interior 189 of the tray 107. The tray 107 could be formed by other forming steps without departing from the disclosure.

[0035] As shown in Figs. 2A and 2B, the lid 111 can be formed by folding the top closure panel 163 and the top end panels 173, 175 relative to the top panel 161 along the respective fold lines 165, 175. As shown in Fig. 2B, the locking tab 167 separates from the top closure panel 163 along the cut line 167 so that the tab 167 extends outwardly from the top panel 161 adjacent the top closure panel 163. The carton 103 is shown in an open configuration in Figs. 2A and 2B with the lid 111 folded away from the tray 107 so that items can be loaded into and/or removed from the interior 189 of the tray 107.

[0036] The carton 103 can be moved to a closed configuration (Figs. 3A-6) by folding the lid 111 toward the tray 107 at the hinge 115. As the lid 111 is closed, the top closure panel 163 can be positioned inside the second side panel 129 and the bottom closure flap 151 (e.g., Figs. 4 and 5), and the top end panels 171, 173 can be positioned inside the respective end walls 191a, 191b (e.g., Figs. 4 and 5) while the hinge panel 181 is folded downwardly into overlapping relationship with the first side panel 123. For example, the hinge panel 181 can be folded into face-to-face contact with an interior surface of the first side panel 123. Accordingly, the lid 111 can be moved into the interior 189 of the tray 107 so that the top panel 161 is spaced downwardly from the lateral fold lines 183, 153 and the upper edges 193 of the end flaps 139, 141, 145, 147. When the top panel 161 is moved into the closed position, the locking tab 167 can engage (e.g., can be at least partially received in) the locking opening 155 in the bottom closure flap 151 to help lock the lid 111 in the closed position with the tray 107. As shown in Fig. 5, the locking opening 155 in the bottom closure flap 151 can be located along the interior of the second side panel 129 (e.g., so that the opening is not in an exterior surface of the tray 107, which can help prevent the contents of the carton 103 from spilling out and/or contaminants from entering the carton 103 via the locking features and/or can hide the locking features from the exterior of the carton 103). Further, as shown in Fig. 5, the second side panel 129, the bottom closure flap 151, and the top closure panel 163 can be overlapped and/or in proximity (e.g., with the bottom closure flap 151 sandwiched between the second side panel 129 and the top closure panel 163), and the locking tab 167 can extend outwardly from the top panel 161 into the locking opening 155 in the bottom closure flap 151. In embodiments, the locking tab 167 can extend toward and/or abut the interior surface of the second side panel 129. The lid 111 could be otherwise closed without departing from the disclosure.

[0037] In the illustrated embodiments, an upper support feature of the carton 103 can be formed when the carton 103 is in the closed configuration. For example, as shown in Figs. 3A and 3B, the lateral fold lines 183, 153 and the upper edges 193 of the end flaps 139, 141, 145, 147 can cooperate to form a support edge 195 of the carton 103 (e.g., along the sidewall 192 of the tray 107). In embodiments, the support edge 195 can contact and support the bottom panel 121 of an upper carton 103 stacked on top of the lower carton 103 (Fig. 6). In exemplary embodiments, the top panel 161 can be smaller (e.g., in the lateral direction L2) than the bottom panel 121 so that the end walls 191a, 191b are sloped inwardly from their bottoms to their tops (e.g., Fig. 4) and so that the upper edges 193 of the end panels 191a, 191b are spaced inwardly from the outermost edges of the bottom panel 121 (e.g., along the longitudinal fold lines 138).

[0038] As shown in Figs. 3A-4, the carton 103 can include two end cutbacks, recesses, or passageways 197 at least partially defined in the end walls 191a, 191b. In the illustrated embodiments, the passageways 197 can be at least partially defined along the distal edge 199 of the bottom end panel 135 between the end flaps 139, 145 and along the distal edge 199 of the bottom end panel 137 between the end flaps 141, 147. In exemplary embodiments, the passageways 197 can facilitate moving air (e.g., cool, dry air in a refrigerator) over the top panel 161 of a lower carton 103 even when an upper carton 103 is stacked on the lower carton. For example, as shown in Fig. 6, a lower carton 103 and an upper carton 103 can be arranged in a stack 200 in which the support edge 195 of the lower carton 103 can support the bottom panel 121 of the upper carton 103 above the top panel 161 of the lower carton 103, and air can flow through the passageways 197 in the end walls 191a, 191b between the top panel 161 of the lower carton 103 and the bottom panel 121 of the upper carton 103. Accordingly, the moving air can help remove moisture (e.g., by evaporation, entraining the moisture in the air, etc.) that might otherwise accumulate between the stacked containers. While two cartons 103 are shown in the stack 200 in Fig. 6, any suitable number of cartons 103 can be arranged in the stack 200, such as in a display case for sale, in a storage facility, in transportation, etc. For example, a plurality of cartons 103 with more than two cartons 103 could be stacked.

[0039] In embodiments, the film 179 (e.g., bioderived cellulose acetate) can be sensitive to moisture (e.g., can be adversely affected by moisture). For example, moisture can contribute to warping, rippling, deformation, etching, clouding, and/or other damage of the film 179, which may look bad to potential customers and/or can make it difficult for potential customers to see the items in the interior of the container 103. Accordingly, removing any moisture that may be present between stacked cartons 103 (e.g., by allowing air to move through the passageways 197 and between the top panel 161 of the lower carton 103 and the bottom panel 121 of the upper carton 103) can help avoid damaging the film 179 and can help keep the film 179 at least partially transparent. The carton 103 could be otherwise configured without departing from the disclosure.

[0040] Figs. 7A and 7B illustrate a tray blank 301a and a lid blank 301b for forming a carton 303 (Figs. 8-10) according to additional embodiments of the disclosure similar to the carton 103 and blank 101 of the prior embodiments. Accordingly, like or similar features are indicated with like or similar reference numbers between the two embodiments. The second embodiment is generally similar to the first embodiment, except for variations noted and variations that will be apparent to one of ordinary skill in the art. While the carton 103 of Figs. 2A-6 can be considered to have a one-piece configuration, the carton 303 can have a two-piece configuration, including a separate tray 307 and lid 311 with the hinge omitted. As shown in Fig. 7A, the tray blank 301a, which is used to form the tray 307, can include a bottom panel 121, side panels 123, 129, and end flaps 139, 141, 145, 147 that are similar to the bottom and side panels and end flaps of the prior embodiments. In embodiments, the bottom panel, the side panels, and the end flaps of the embodiment of Fig. 7A can have different shapes, sizes, aspect ratios, etc. than the corresponding panels and flaps of the embodiment of Fig. 1. As shown in Fig. 7A, the end flaps 139, 141, 145, 147 are foldably connected to the respective side panels 123, 129 along longitudinal fold lines 343, 349 instead of the oblique fold lines 143, 149 of the embodiment of Fig. 1. In the illustrated embodiments, each of the side panels 123, 129 is foldably connected to a respective bottom closure panel 350, 351 along respective lateral fold lines 352, 353, and the bottom closure panels 350, 351 are foldably connected to respective spacer flaps 401, 403 along respective lateral fold lines 405, 407. The bottom closure panels 350, 351 each can include a locking opening 155 (e.g., that is aligned with a longitudinal axis CL of the tray blank 301a).

[0041] As shown in Fig. 7A, the bottom end panels 335, 337 are similar to the bottom end panels 135, 137 of Fig. 1, except that each of the bottom end panels 335, 337 includes two spaced protrusions 409 at least partially defining a recess 411 between the protrusions 409. In the illustrated embodiments, the protrusions 409 can extend from the respective distal portions 359 of the end panels 335, 337. In embodiments, the distal edge 399 of the bottom end panels 335, 337 extends along the recess 411 and the upper edges 393 of the protrusions 409 are spaced outwardly from the distal edge 399. Any of the features that form the tray blank 301a and the tray 307 could be omitted or could be otherwise shaped, arranged, configured, and/or positioned without departing from the disclosure.

[0042] As shown in Fig. 7B, the lid blank 301b can include two top closure panels 363, 364 foldably connected to a top panel 361 along respective lateral fold lines 365, 366 and two top end panels 371, 373 foldably connected to the top panel 361 along respective longitudinal fold lines 375. In the illustrated embodiment, a window 377 can extend in the top panel 361 and into the top end panels 371, 373 with edges of the top panel 361 and the top end panels 371, 373 extending along the window 377. As shown in Fig. 7B, a film 379 can be secured to the top panel 361 and to the top end flaps 371, 373 along and around the window 377 to at least partially form a window assembly 313. Any of the features that form the lid blank 301b and the lid 311 could be omitted or could be otherwise shaped, arranged, configured, and/or positioned without departing from the disclosure.

[0043] As shown in Fig. 8, the tray 307 can be formed in a similar manner as the tray 107 of the prior embodiments. For example, the bottom end panels 335, 337 and the respective end flaps 139, 145 and 141, 147 can be overlapped and adhered together after folding the bottom end panels 335, 337 and the side panels 123, 129 upwardly along the respective fold lines 138, 138, 125, 131 relative to the bottom panel 121. The overlapped bottom end panel 335 and end flaps 139, 145 can at least partially form an end wall 391a, and the overlapped bottom end panel 337 and end flaps 141, 147 can at least partially form an end wall 391b. In embodiments, at least the side panels 123, 129 and the end walls 391a, 391b can form a sidewall 392 extending around the interior 389 of the tray 307. In the illustrated embodiments, the bottom closure panels 350, 351 can be folded along the respective lateral fold lines 352, 353 into the interior 389 of the tray 307, and the spacer flaps 401, 403 can be folded outwardly along the respective lateral fold lines 405, 407 to extend from the respective bottom closure panels 350, 351 toward the respective side panels 123, 129 (e.g., as shown in Fig. 10). Accordingly, the spacer panels 401, 403 can help keep the bottom closure panels 350, 351 from pivoting outwardly toward the respective side panels 123, 129, which could otherwise move the locking openings 155 out of position and reduce the locking engagement of the locking features between the lid 311 and the tray 307.

[0044] As shown in Fig. 8, the lid 311 can be formed by folding the top closure panels 363, 364 and the top end panels 371, 373 downwardly along the respective fold lines 365, 366, 375, 375 relative to the top panel 361. The separate tray 307 and lid 311 (e.g., the two-piece carton 303) is shown in the open configuration in Fig. 8. The tray 307 and the lid 311 could be otherwise formed without departing from the disclosure.

[0045] In the illustrated embodiments, the lid 311 can be positioned over the tray 307 and, as shown in Figs. 9A and 9B, the lid 311 can be moved into the interior 389 of the tray 307 with the top closure panels 363, 364 positioned along the respective bottom closure panels 350, 351 and the top end panels 371, 373 positioned along the respective end walls 391a, 391b. Alternatively, the lid 311 could be rotated 180 degrees with respect to the tray 307 and then inserted into the interior of the tray. The lid 311 can be moved into the tray 307 until the locking tabs 167 engage the respective locking openings 155 and the top panel 361 is spaced downwardly (e.g., recessed or rebated) from the support edge 395 of the tray 307. In embodiments, the support edge 395 can be formed by the cooperation of the lateral fold lines 352, 353, the upper edges 193 of the end flaps 139, 141, 145, 147, and along the upper edges 393 of the protrusions 409 of the bottom end panels 335, 337. As shown in Figs. 8-10, the recesses 411 can at least partially form the cutbacks or passageways 397 in the end walls 391a, 391b with the distal edges 399 of the end panels 335, 337 extending along the passageways 397 between the protrusions 409 in the end panels 335, 337. In embodiments, the cutbacks or passageways 397 can allow air movement over the top panel 361 between stacked cartons 303 similarly to the prior embodiments.

[0046] Any of the features of the various embodiments of the disclosure can be combined with, replaced by, or otherwise configured with other features of other embodiments of the disclosure without departing from the scope of this disclosure. In addition, the panels, flaps, and other features shown and described in conjunction with the blanks 101, 301a, 301b and the cartons 103, 303 are included by way of example.

[0047] The blanks according to any of the embodiments of the present disclosure can be, for example, formed from coated paperboard and similar materials. For example, the interior and/or exterior sides of the blank can be coated with a clay coating. The clay coating may then be printed over with product, advertising, price coding, and other information or images. The blank may then be coated with a varnish to protect any information printed on the blank. The blank may also be coated with, for example, a moisture barrier layer, on either or both sides of the blank. In accordance with the above-described embodiments, the blank may be constructed of paperboard of a caliper such that it is heavier and more rigid than ordinary paper. The blank can also be constructed of other materials, such as cardboard, hard paper, or any other material having properties suitable for enabling the carton to function at least generally as described herein. The blank can also be laminated or coated with one or more sheet-like materials at selected panels or panel sections.

[0048] In accordance with the exemplary embodiments of the present disclosure, 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.

[0049] 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 of 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.

[0050] The above embodiments may be described as having one or more panels adhered together by glue during erection of the carton embodiments. The term “glue” is intended to encompass all manner of adhesives used to secure carton panels in place.

[0051] The foregoing description of the disclosure illustrates and describes various embodiments. As various changes could be made in the above construction without departing from the 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. Furthermore, the scope of the present disclosure covers various modifications, combinations, alterations, etc., of the above-described embodiments. Additionally, the disclosure shows and describes only selected embodiments, but various other combinations, modifications, and environments are within the scope of the disclosure 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 container for holding a product, the container comprising:

a tray comprising a sidewall extending at least partially around an interior of the tray, the sidewall having a support edge;

a lid comprising at least a top panel; and

one or more passageways formed in at least the sidewall of the tray;

wherein the container comprises an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray, and wherein at least a portion of the one or more passageways in at least the sidewall of the tray extends upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

2. The container of claim 1, further comprising a window defined in at least the top panel and a film extending along the window, wherein the film is at least one of a biopolymer, a recyclable material, and a compostable material.

3. The container of claim 2, wherein the film comprises a sustainable cellulose acetate.

4. The container of claim 1, wherein the tray further comprises a bottom panel and the sidewall comprises at least an end panel foldably connected to the bottom panel, and wherein the end panel comprises a distal edge opposite to the bottom panel and extending along at least a portion of a passageway of the one or more passageways.

5. The container of claim 4, wherein the end panel is a first end panel and the passageway is a first passageway, wherein the sidewall further comprises a second end panel foldably connected to the bottom panel opposite to the first end panel, and wherein a distal edge of the second end panel extends along a second passageway of the one or more passageways.

6. The container of claim 4, wherein the sidewall further comprises at least an end flap in an overlapping relationship with the end panel.

7. The container of claim 1, wherein the sidewall comprises at least an end panel and an end flap in overlapping relationship, the support edge of the sidewall comprises an upper edge of the end flap, and a distal edge of the end panel extends away from the end flap along a passageway of the one or more passageways.

8. The container of claim 7, wherein the end flap is a first end flap, wherein the sidewall further comprises a first side panel, a second side panel, and a second end flap, wherein the first end flap is foldably connected to the first side panel, the second end flap is foldably connected to the second side panel, and the second end flap is in an overlapping relationship with the end panel opposite to the first end flap, and wherein the passageway extends between the first end flap and the second end flap.

9. The container of claim 1, wherein the sidewall comprises at least an end panel, wherein the end panel comprises two spaced protrusions and a recess extending between the two protrusions, and wherein the recess extends along a passageway of the one or more passageways.

10. The container of claim 1, wherein the one or more passageways comprise a first passageway and an opposing second passageway, wherein the sidewall comprises at least a first end panel and a second end panel, wherein each of the first end panel and the second end panel comprises two spaced protrusions and a recess extending between the two protrusions, and wherein the recess extends along the respective first passageway and second passageway.

11. The container of claim 1, wherein the tray further comprises a bottom closure flap foldably connected to the sidewall and extending along at least a portion of the interior of the tray, and a locking slot extends in the bottom closure flap, wherein the lid further comprises a locking tab extending from the top panel, and wherein the locking tab is at least partially received in the locking slot when the container is in the closed configuration.

12. The container of claim 11, wherein the lid is foldably connected to the sidewall by a hinge that is disposed opposite to the bottom closure flap.

13. The container of claim 12, wherein the tray comprises a bottom panel, and the sidewall comprises a first side panel foldably connected to the bottom panel and a second side panel foldably connected to the bottom panel, wherein the lid is foldably connected to the first side panel by the hinge and the bottom closure flap is foldably connected to the second side panel along a fold line, and wherein the hinge and the fold line are spaced apart from the bottom panel.

14. The container of claim 13, wherein the locking slot is spaced apart from the fold line and from the bottom panel.

15. The container of claim 11, wherein the sidewall comprises a side panel, the bottom closure flap is foldably connected to the side panel along a fold line, and the fold line extends along a portion of the support edge of the sidewall.

16. The container of claim 1, wherein the tray further comprises a first bottom closure flap and a second bottom closure flap, each foldably connected to the sidewall and extending along at least a portion of the interior of the tray, wherein a first locking slot extends in the first bottom closure flap and a second locking slot extends in the second bottom closure flap, wherein the lid further comprises a first locking tab and a second locking tab, each extending from the top panel, and wherein each of the first locking tab and the second locking tab is at least partially received in the respective first locking slot and second locking slot when the container is in the closed configuration.

17. The container of claim 1, wherein the lid is foldably connected to the sidewall of the tray along a hinge.

18. The container of claim 17, wherein the sidewall comprises a side panel, the hinge comprises a hinge panel foldably connected to the side panel along a first fold line, and the hinge panel is foldably connected to the top panel along a second fold line.

19. The container of claim 18, wherein the hinge panel is in an overlapping relationship with the side panel when the container is in the closed configuration.

20. The container of claim 18, wherein the first fold line extends along a portion of the support edge of the sidewall.

21. A blank for forming a container for holding a product, the blank comprising:

a tray portion for at least partially forming a tray of the container formed from the blank, the tray portion comprising a plurality of panels for at least partially forming a sidewall of the tray formed from the tray portion, wherein the plurality of panels is configured for forming one or more passageways in at least the sidewall when the tray is formed from the tray portion; and

a lid portion for at least partially forming a lid of the container formed from the blank, the lid portion comprising at least a top panel;

wherein the container formed from the blank is for comprising an open configuration in which the top panel is at least partially spaced from the interior of the tray formed from the tray portion and a closed configuration in which the top panel is positioned at least partially in an interior of the tray formed from the tray portion, and wherein at least a portion of the one or more passageways formed when the sidewall is formed by the plurality of panels of the tray portion is for extending above the top panel toward support edge of the sidewall for allowing air to move over the top panel of the lid when the container formed from the blank is in the closed configuration.

22. The blank of claim 21, further comprising a window defined in at least the top panel and a film extending along the window, wherein the film is at least one of a biopolymer, a recyclable material, and a compostable material.

23. The blank of claim 22, wherein the film comprises a sustainable cellulose acetate.

24. The blank of claim 21, wherein the tray portion further comprises a bottom panel and the plurality of panels comprises at least an end panel foldably connected to the bottom panel, and wherein the end panel comprises a distal edge opposite to the bottom panel, the distal edge being for extending along at least a portion of a passageway of the one or more passageways in the sidewall of the tray formed from the tray portion.

25. The blank of claim 24, wherein the end panel is a first end panel and the passageway is a first passageway, wherein the plurality of panels further comprises a second end panel foldably connected to the bottom panel opposite to the first end panel, and wherein a distal edge of the second end panel is for extending along a second passageway of the one or more passageways in the sidewall of the tray formed from the tray portion.

26. The blank of claim 21, wherein the plurality of panels comprises at least an end panel, an end flap is for being in an overlapping relationship with the end panel when the tray is formed from the tray portion, an upper edge of the end flap is for at least partially forming the support edge of the sidewall when the tray is formed from the tray portion, and a distal edge of the end panel is for extending away from the end flap along a passageway of the one or more passageways in the sidewall of the tray formed from the tray portion.

27. The blank of claim 26, wherein the end flap is a first end flap, wherein the plurality of panels further comprises a first side panel and a second side panel, wherein the first end flap is foldably connected to the first side panel, a second end flap is foldably connected to the second side panel, and the second end flap is for being in an overlapping relationship with the end panel opposite to the first end flap when the tray is formed from the tray portion, and wherein the passageway extends between the first end flap and the second end flap in the sidewall of the tray formed from the tray portion.

28. The blank of claim 21, wherein the plurality of panels comprises a side panel, the tray portion further comprises a bottom closure flap foldably connected to the side panel and a locking slot extending in the bottom closure flap, wherein the lid portion further comprises a locking tab extending from the top panel, and wherein the locking tab is for being at least partially received in the locking slot when the container formed from the blank is in the closed configuration.

29. The blank of claim 28, wherein the tray portion further comprises a bottom panel, the side panel is a first side panel that is foldably connected to the bottom panel, and the plurality of panels further comprises a second side panel foldably connected to the bottom panel, wherein the lid portion is foldably connected to the first side panel by a hinge and the bottom closure flap is foldably connected to the second side panel along a fold line, and wherein the hinge and the fold line are spaced apart from the bottom panel.

30. The blank of claim 29, wherein the locking slot is spaced apart from the fold line and from the bottom panel.

31. The blank of claim 28, wherein the bottom closure flap is foldably connected to the side panel along a fold line, and the fold line is for extending along a portion of the support edge of the sidewall when the tray is formed from the tray portion.

32. The blank of claim 21, wherein the plurality of panels of the tray portion comprises a side panel, and the lid portion is foldably connected to the side panel along a hinge, and wherein the hinge comprises a hinge panel foldably connected to the side panel along a first fold line, and the hinge panel is foldably connected to the top panel along a second fold line.

33. The blank of claim 32, wherein the first fold line is for extending along a portion of the support edge of the sidewall when the tray is formed from the tray portion.

34. In combination, a tray blank for forming a tray of a container and a lid blank for forming a lid of the container, wherein

the tray blank comprises a plurality of panels for at least partially forming a sidewall of the tray formed from the tray blank, wherein the plurality of panels is configured for forming one or more passageways in at least the sidewall when the tray is formed from the tray blank;

the lid blank comprises a top panel; and

the container formed from the tray blank and the lid blank is for comprising an open configuration in which the top panel is at least partially spaced from the interior of the tray formed from the tray blank and a closed configuration in which the top panel is positioned at least partially in an interior of the tray formed from the tray blank, and wherein at least a portion of the one or more passageways formed when the sidewall is formed by the plurality of panels of the tray blank is for extending above the top panel toward a support edge of the sidewall for allowing air to move over the top panel of the lid when the container formed from the tray blank and the lid blank is in the closed configuration.

35. The combination of claim 34, wherein the lid blank further comprises a window defined in at least the top panel and a film extending along the window, wherein the film is at least one of a biopolymer, a recyclable material, and a compostable material.

36. The combination of claim 35, wherein the film comprises a sustainable cellulose acetate.

37. The combination of claim 34, wherein the tray blank further comprises a bottom panel and the plurality of panels comprises at least an end panel foldably connected to the bottom panel, and wherein the end panel comprises a distal edge opposite to the bottom panel, the distal edge being for extending along at least a portion of a passageway of the one or more passageways in the sidewall of the tray formed from the tray blank.

38. The combination of claim 37, wherein the end panel is a first end panel and the passageway is a first passageway, wherein the plurality of panels further comprises a second end panel foldably connected to the bottom panel opposite to the first end panel, and wherein a distal edge of the second end panel is for extending along a second passageway of the one or more passageways in the sidewall of the tray formed from the tray blank.

39. The combination of claim 37, wherein the sidewall further comprises at least an end flap in an overlapping relationship with the end panel.

40. The combination of claim 34, wherein the plurality of panels comprises at least an end panel, and wherein the end panel comprises two spaced protrusions and a recess extending between the two protrusions, the recess being for extending along a passageway of the one or more passageways in the tray formed from the tray blank.

41. The combination of claim 34, wherein the plurality of panels comprises at least a first end panel and a second end panel, wherein each of the first end panel and the second end panel comprises two spaced protrusions and a recess extending between the two protrusions, and wherein the recesses are for extending along a respective first passageway and second passageway of the one or more passageways in the sidewall of the tray formed from the tray blank.

42. The combination of claim 34, wherein the plurality of panels comprises a side panel, the tray blank further comprises a bottom closure flap foldably connected to the side panel and a locking slot extending in the bottom closure flap, wherein the lid blank further comprises a locking tab extending from the top

panel, and wherein the locking tab is for being at least partially received in the locking slot when the container formed from the tray blank and the lid blank is in the closed configuration.

43. The combination of claim 42, wherein the bottom closure flap is foldably connected to the side panel along a fold line, and the fold line is for extending along a portion of the support edge of the sidewall when the tray is formed from the tray portion.

44. The combination of claim 34, wherein the plurality of panels comprises a first side panel and an opposing second side panel, wherein the tray blank further comprises a first bottom closure flap foldably connected to the first side panel and a second bottom closure flap foldably connected to the second side panel, wherein a first locking slot extends in the first bottom closure flap and a second locking slot extends in the second bottom closure flap, wherein the lid further comprises a first locking tab and a second locking tab, each extending from the top panel, and wherein each of the first locking tab and the second locking tab is for being at least partially received in the respective first locking slot and second locking slot when the container formed from the tray blank and the lid blank is in the closed configuration.

45. A method of forming a container for holding a product, the method comprising:

forming a tray, the tray comprising a plurality of panels, wherein the forming the tray comprises forming at least the plurality of panels into a sidewall extending at least partially around an interior of the tray, the sidewall having a support edge, and one or more passageways are formed in the sidewall;

forming a lid, the lid comprising at least a top panel;

wherein the container comprises an open configuration in which the top panel is at least partially spaced from the interior of the tray and a closed configuration in which the top panel is positioned at least partially in the interior of the tray, and wherein at least a portion of the one or more passageways in at least the sidewall of the tray extends upwardly from the top panel toward the support edge of the sidewall for allowing air to move over the top panel of the lid when the container is in the closed configuration.

46. The method of claim 45, wherein the lid further comprises a window defined in at least the top panel and a film extending along the window, wherein the film is at least one of a biopolymer, a recyclable material, and a compostable material.

47. The method of claim 45, wherein the tray further comprises a bottom panel, the plurality of panels comprises at least an end panel foldably connected to the bottom panel, and the end panel comprises a distal edge opposite to the bottom panel, and wherein the forming the plurality of panels into the

sidewall comprises positioning the distal edge of the end panel to extend along at least a portion of a passageway of the one or more passageways.

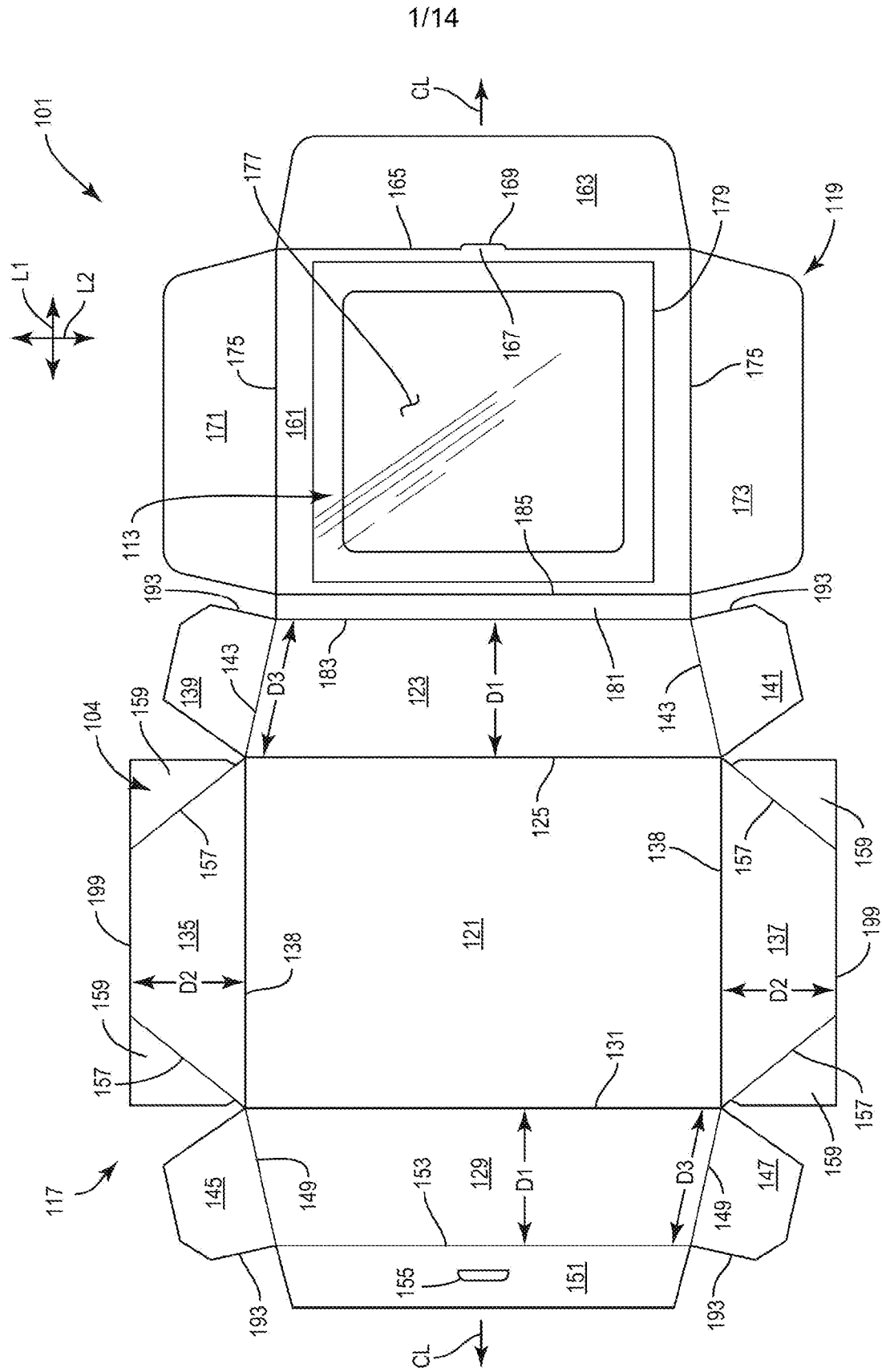
48. The method of claim 45, wherein the plurality of panels comprises a side panel, the tray further comprises a bottom closure flap foldably connected to the side panel and a locking slot extending in the bottom closure flap, the forming the tray comprising positioning the bottom closure flap to extend along at least a portion of the interior of the tray, wherein the lid further comprises a locking tab extending from the top panel, and wherein the locking tab is at least partially received in the locking slot when the container is in the closed configuration.

49. The method of claim 45, further comprising obtaining a blank, wherein the blank comprises a tray portion and a lid portion, and wherein the forming the tray comprises forming the tray portion of the blank into the tray and the forming the lid comprises forming the lid portion of the blank into the lid.

50. The method of claim 45, wherein the plurality of panels of the tray comprises a side panel, and the lid is foldably connected to the side panel along a hinge, and wherein the hinge comprises a hinge panel foldably connected to the side panel along a first fold line, and the hinge panel is foldably connected to the top panel along a second fold line.

51. The method of claim 45, further comprising obtaining a tray blank and a lid blank, wherein the forming the tray comprises forming the tray blank into the tray and the forming the lid comprises forming the blank into the lid.

52. The method of claim 45, wherein the sidewall comprises at least an end panel, wherein the end panel comprises two spaced protrusions and a recess extending between the two protrusions, and wherein the recess extends along a passageway of the one or more passageways.



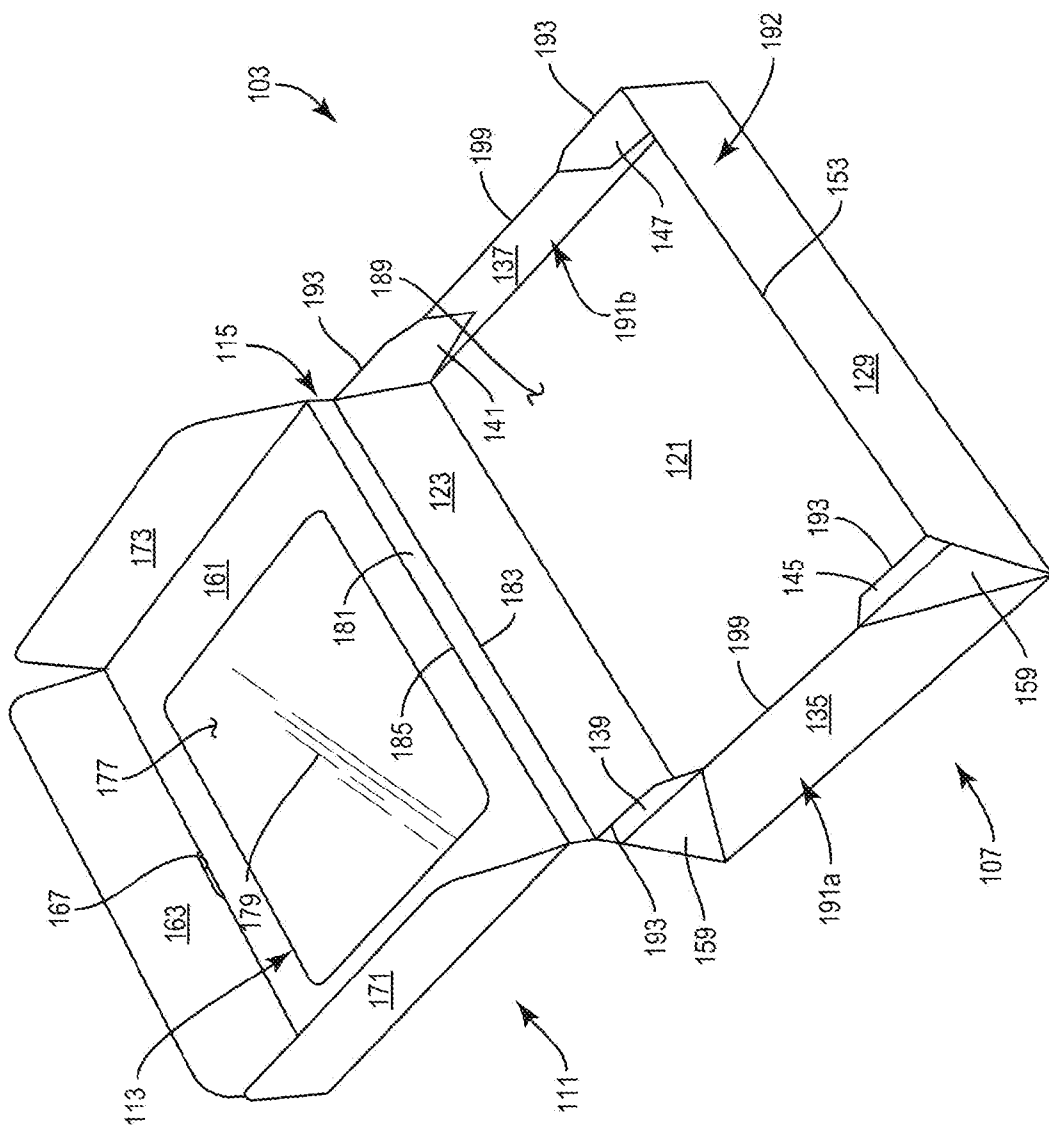
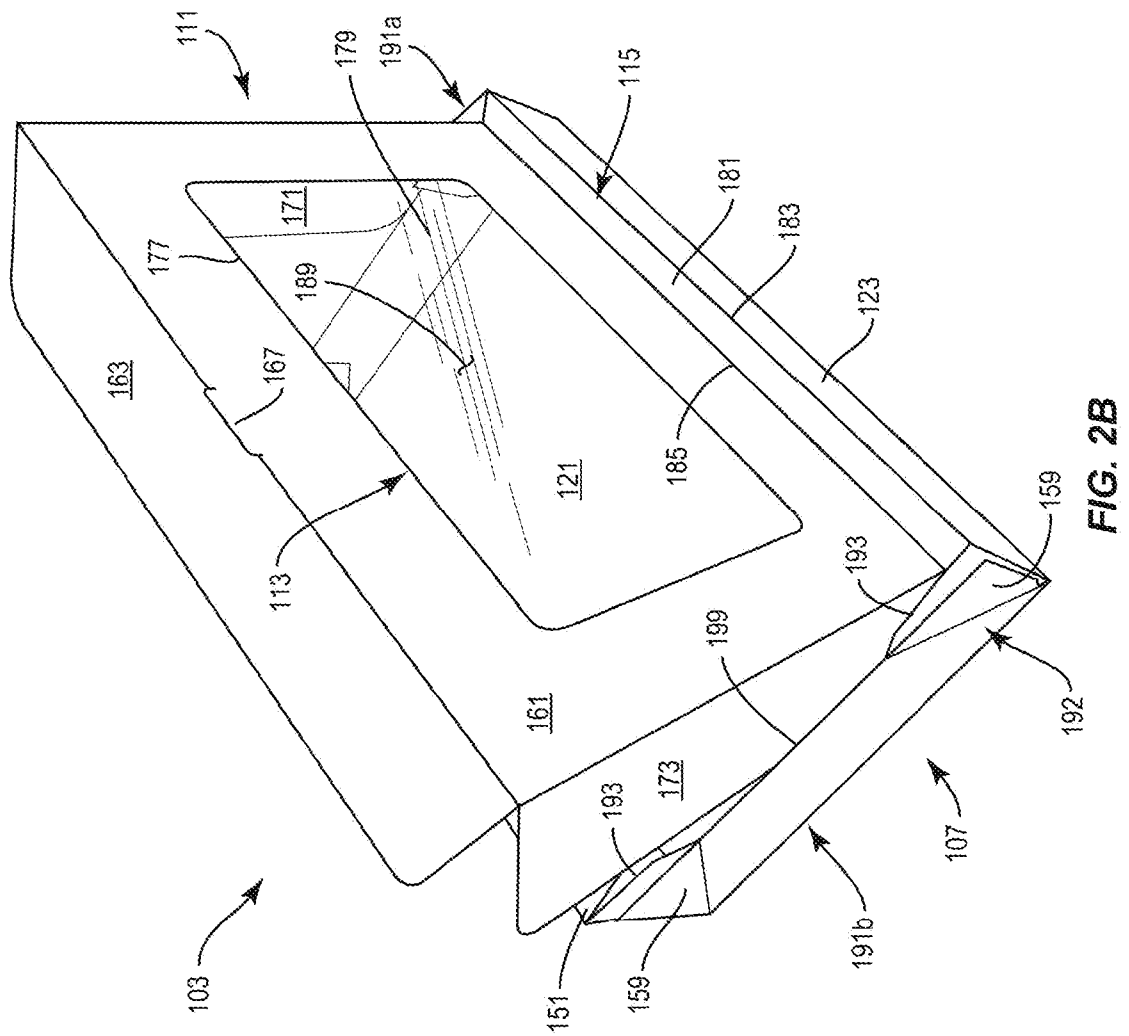


FIG. 2A



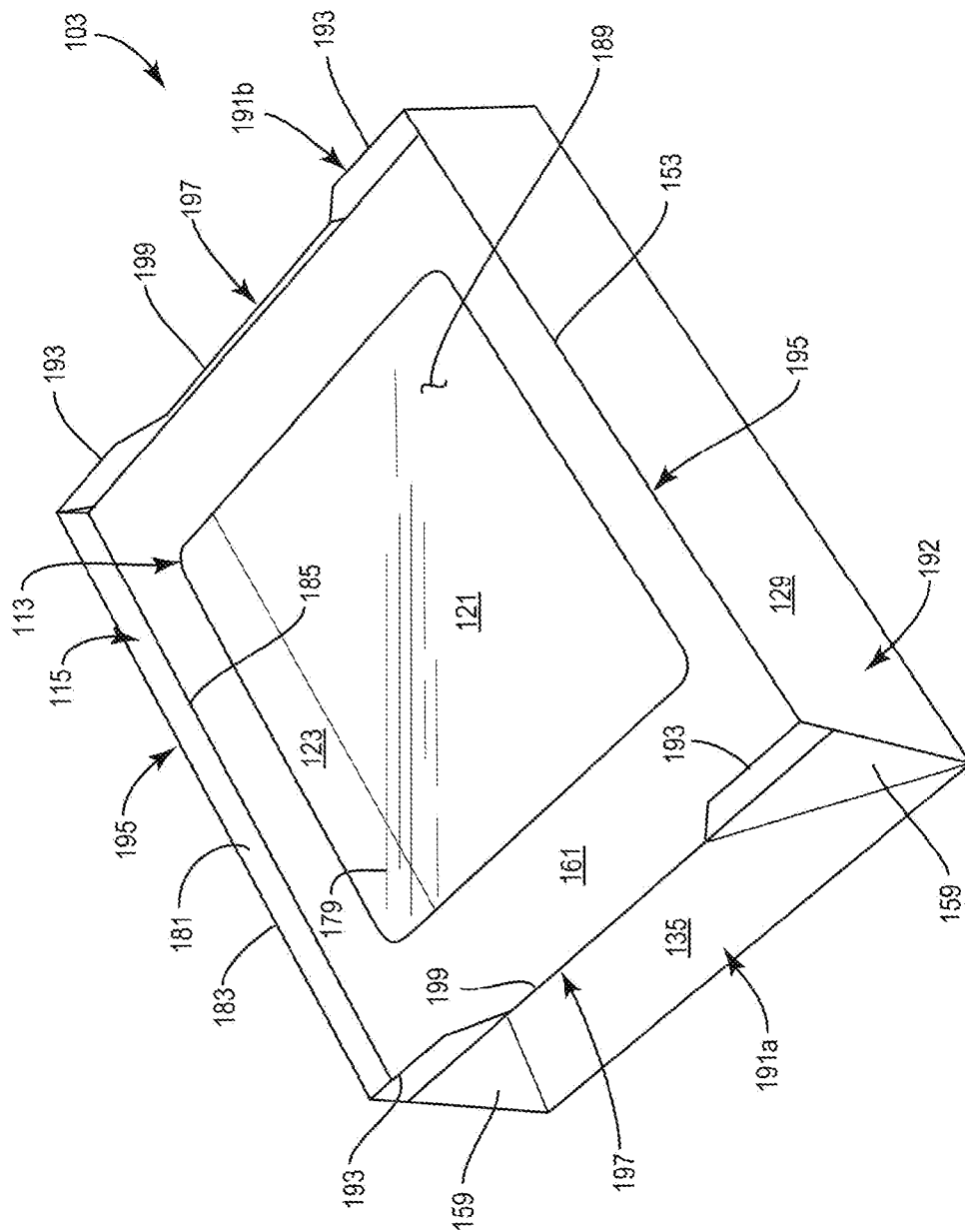
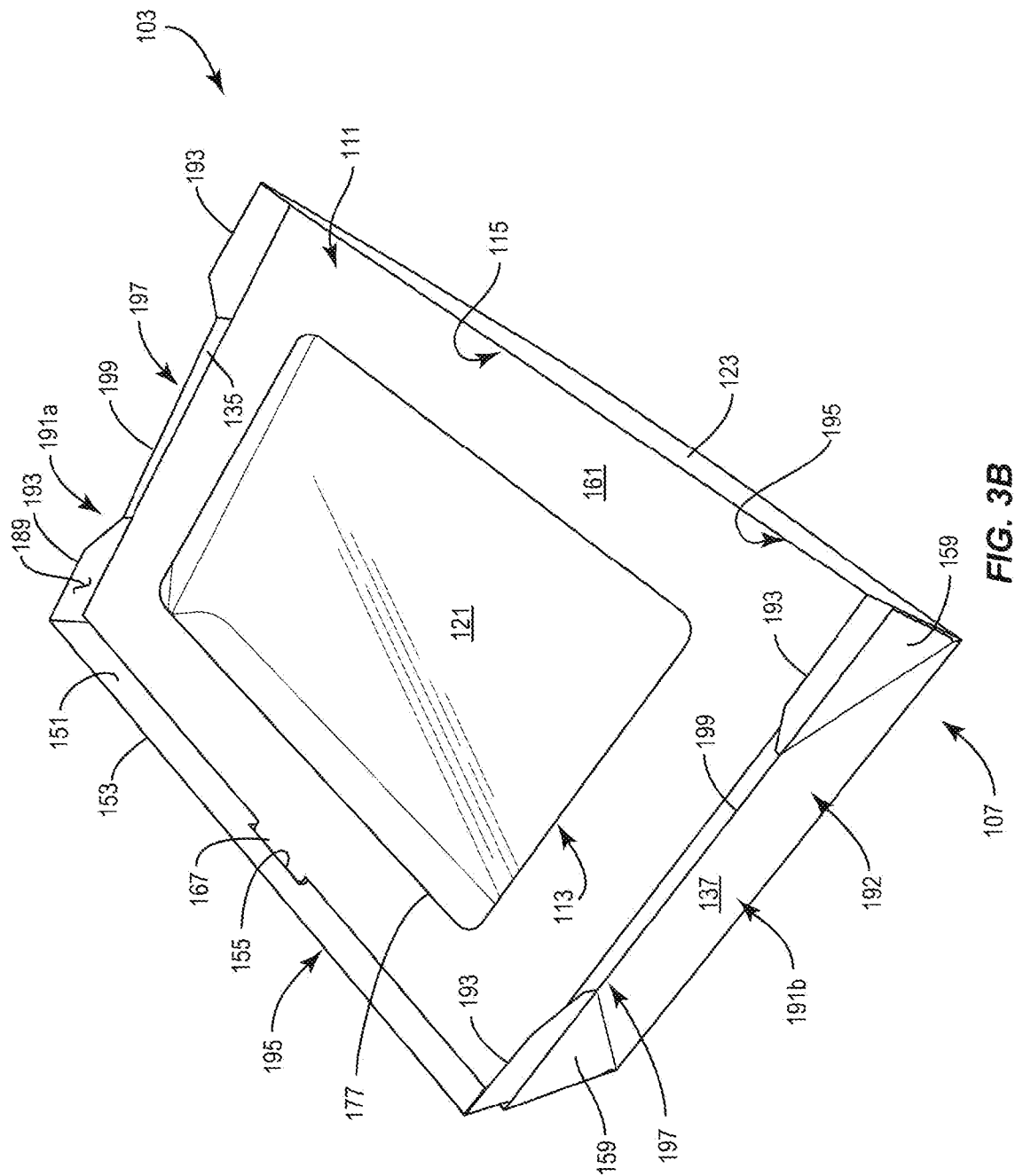


FIG. 3A



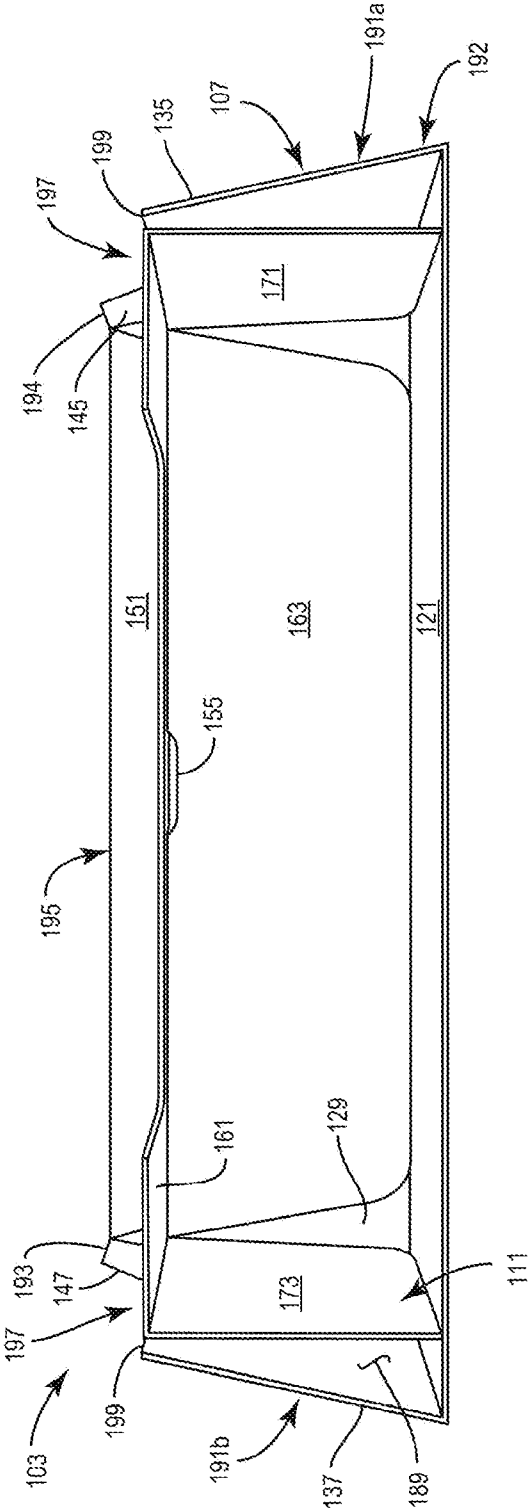


FIG. 4

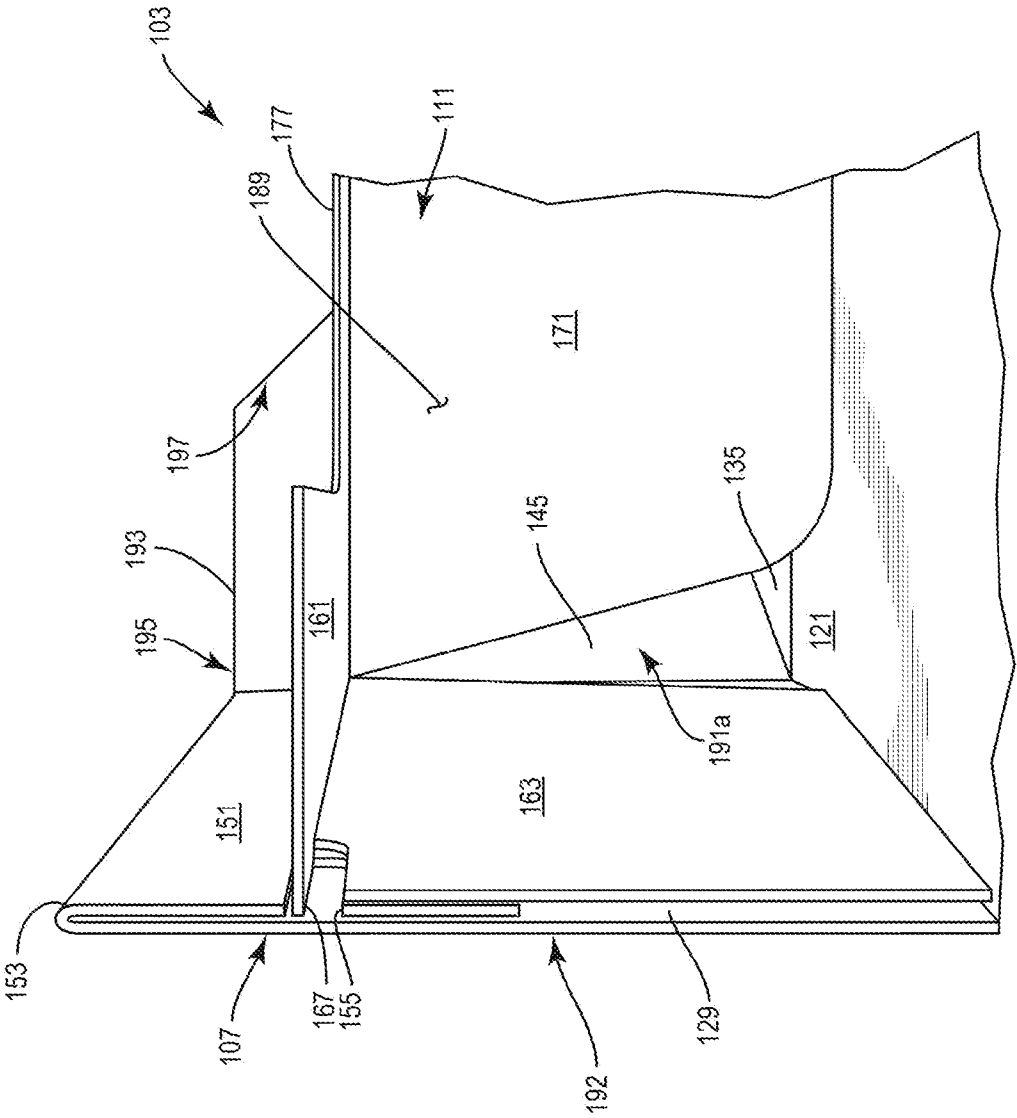


FIG. 5

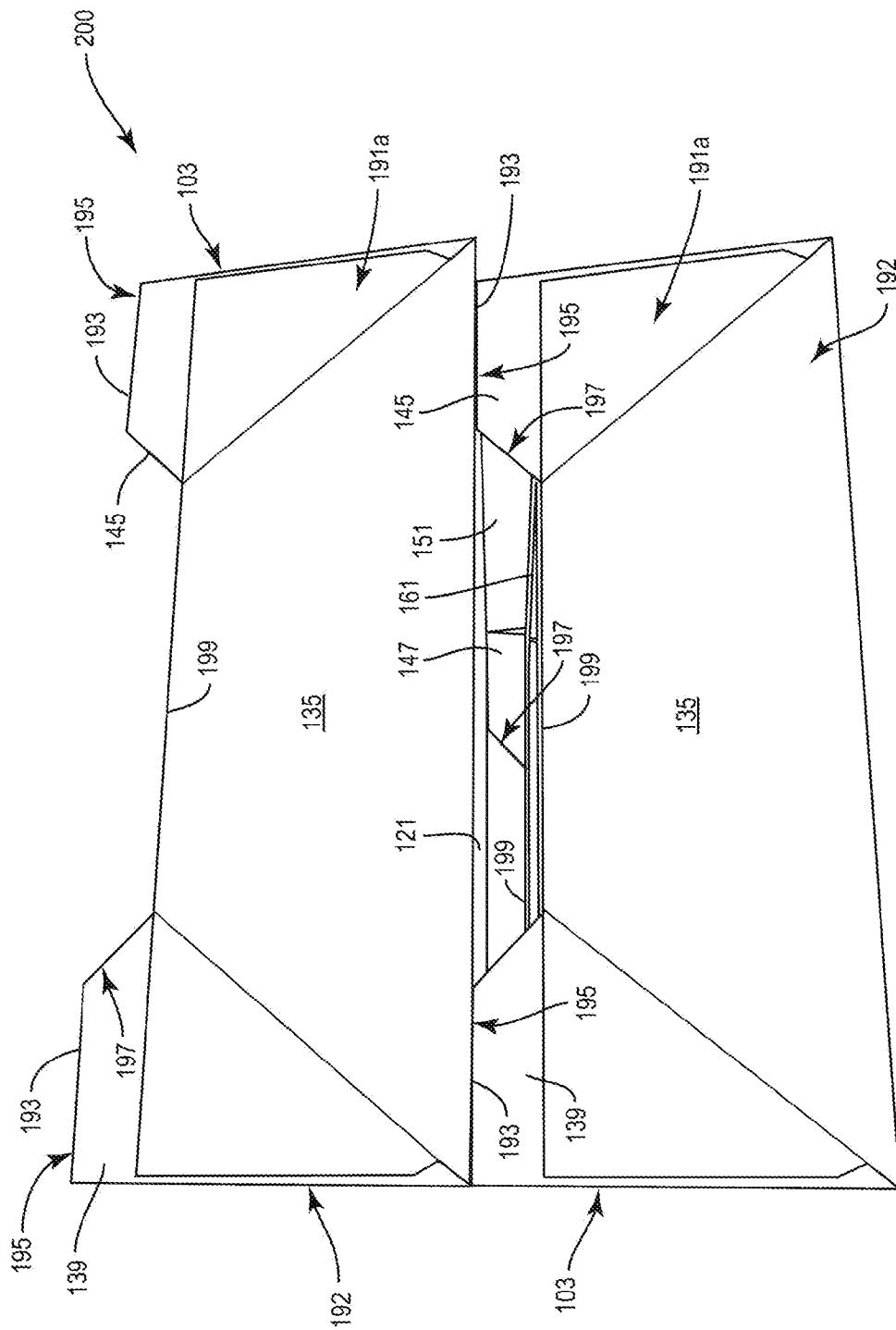


FIG. 6

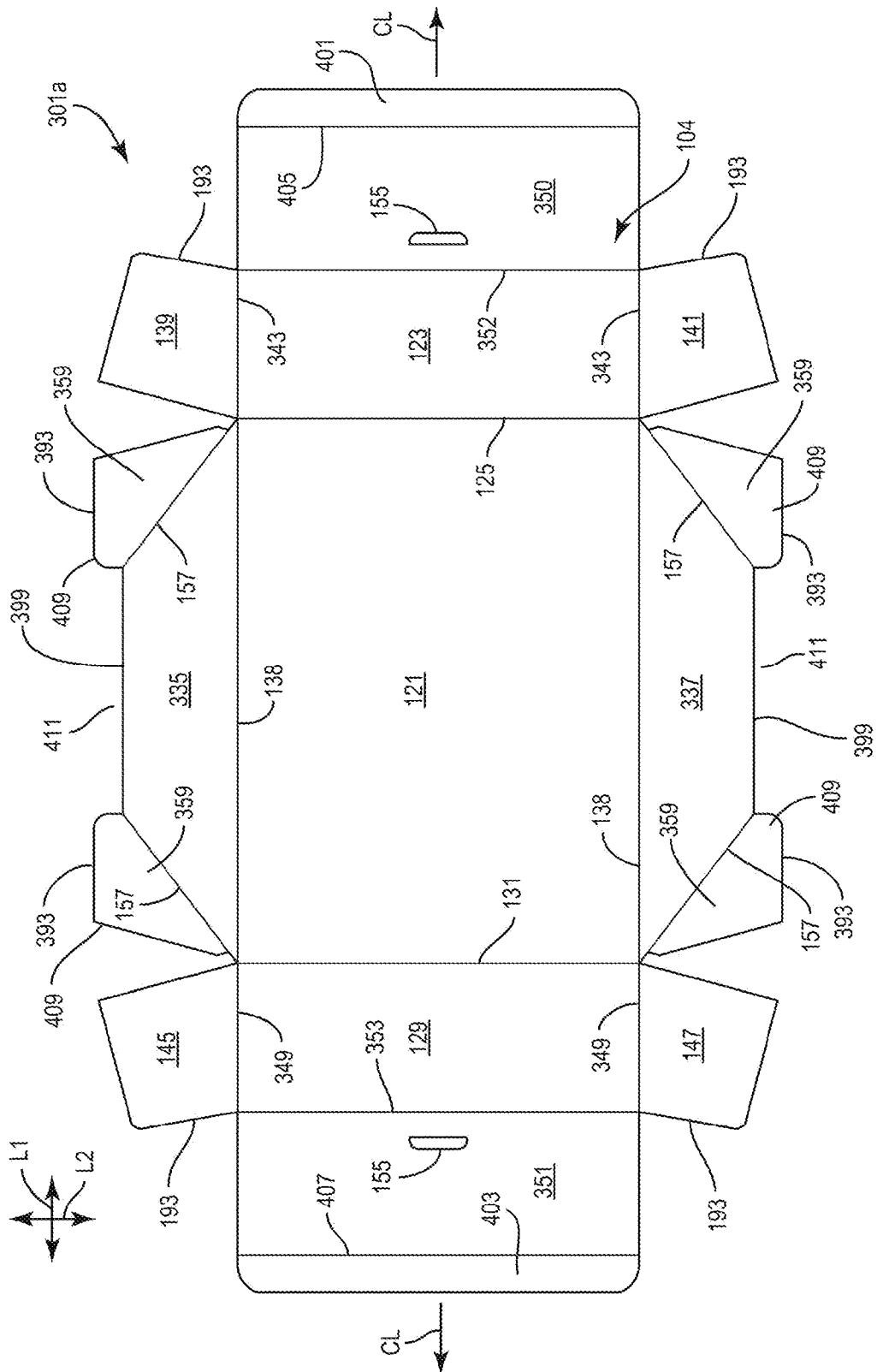


FIG. 7A

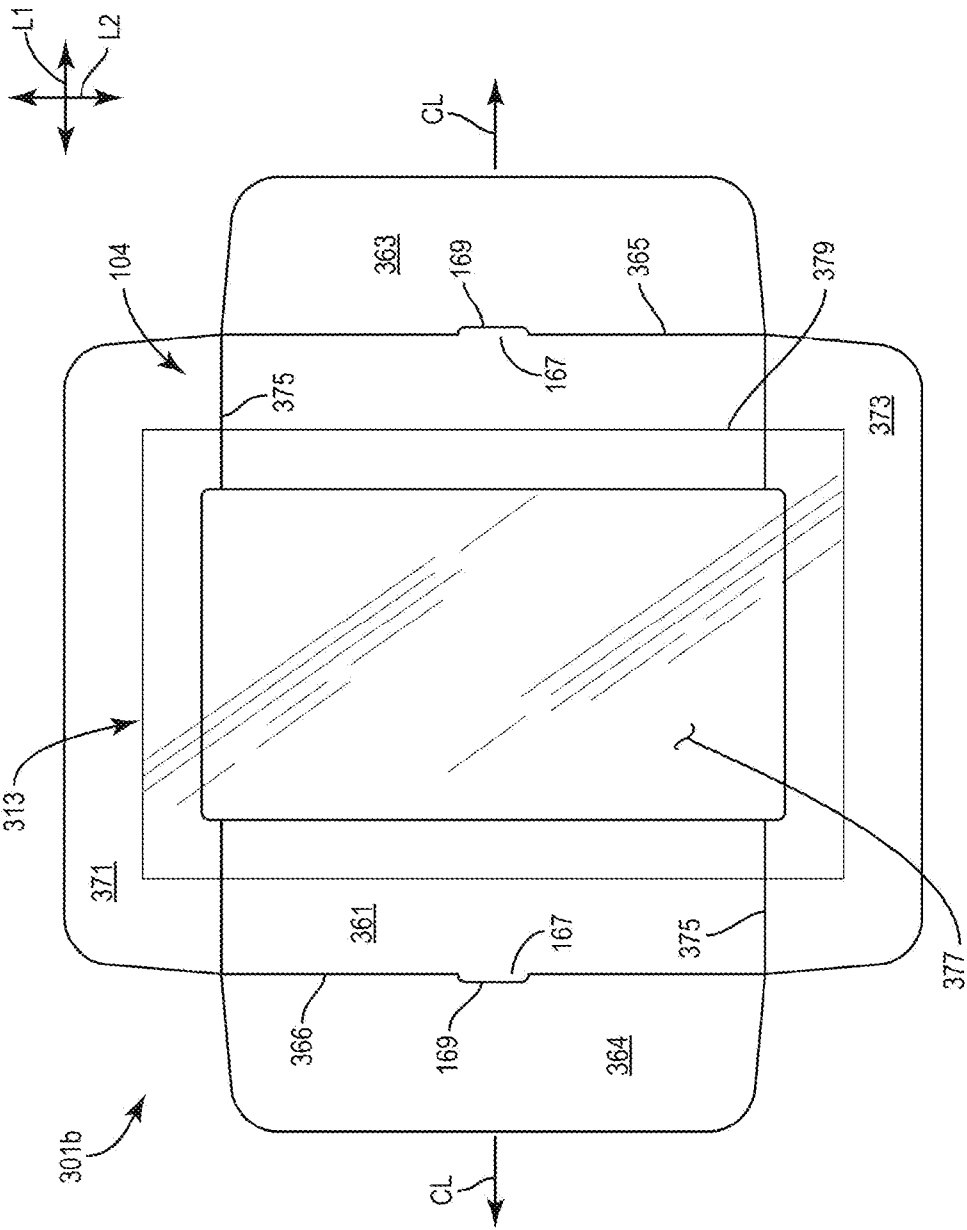


FIG. 7B

11/14

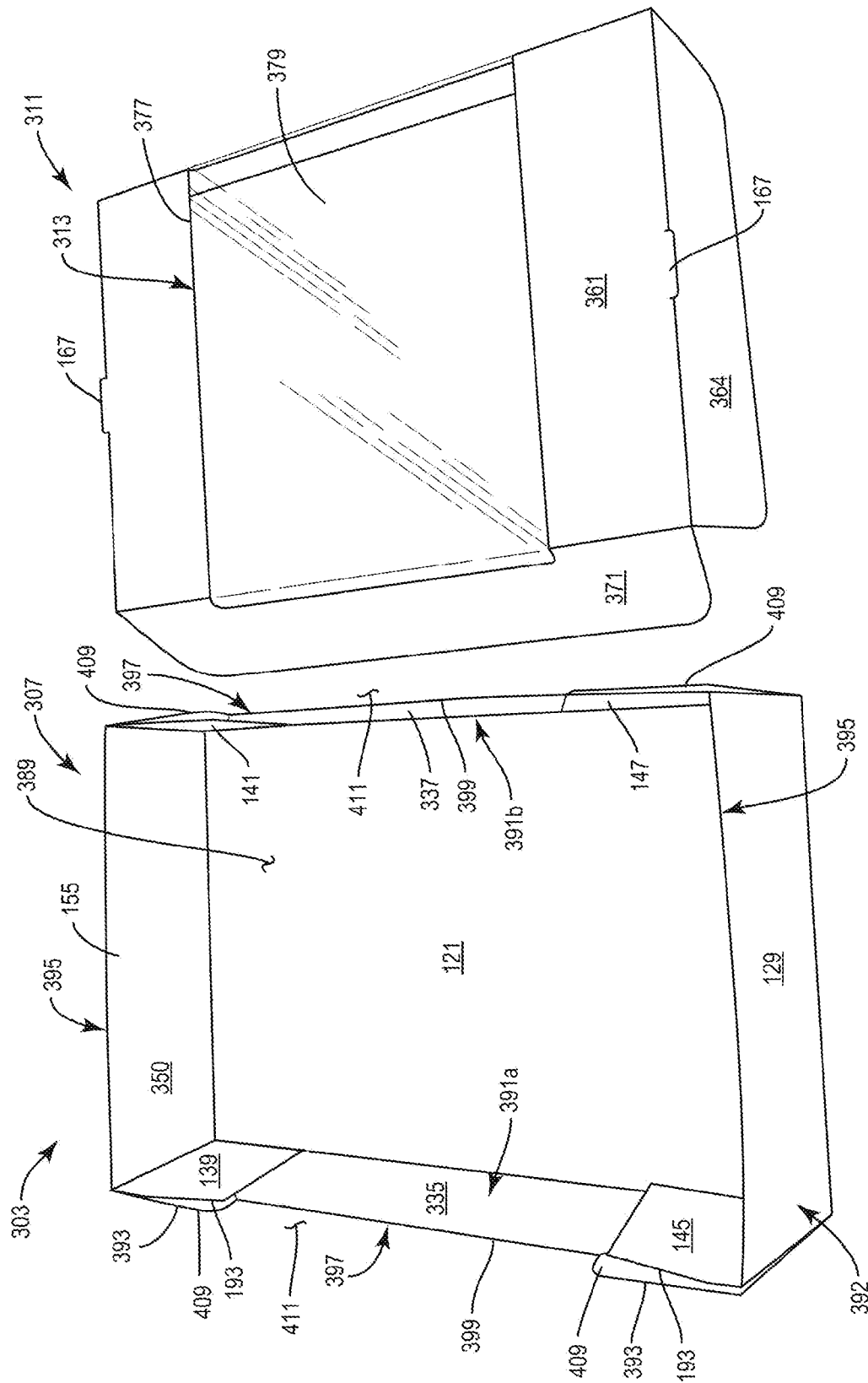


FIG. 8

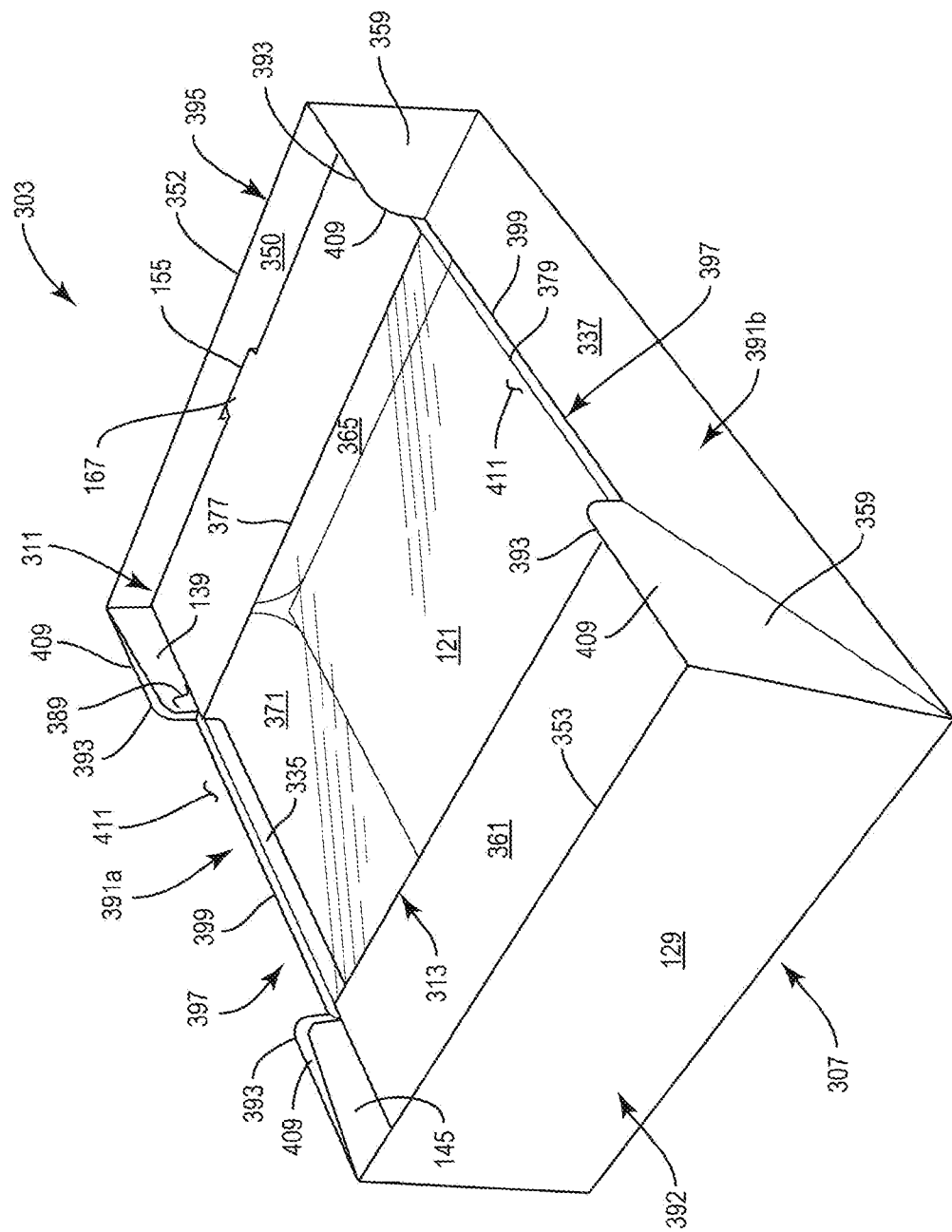


FIG. 9A

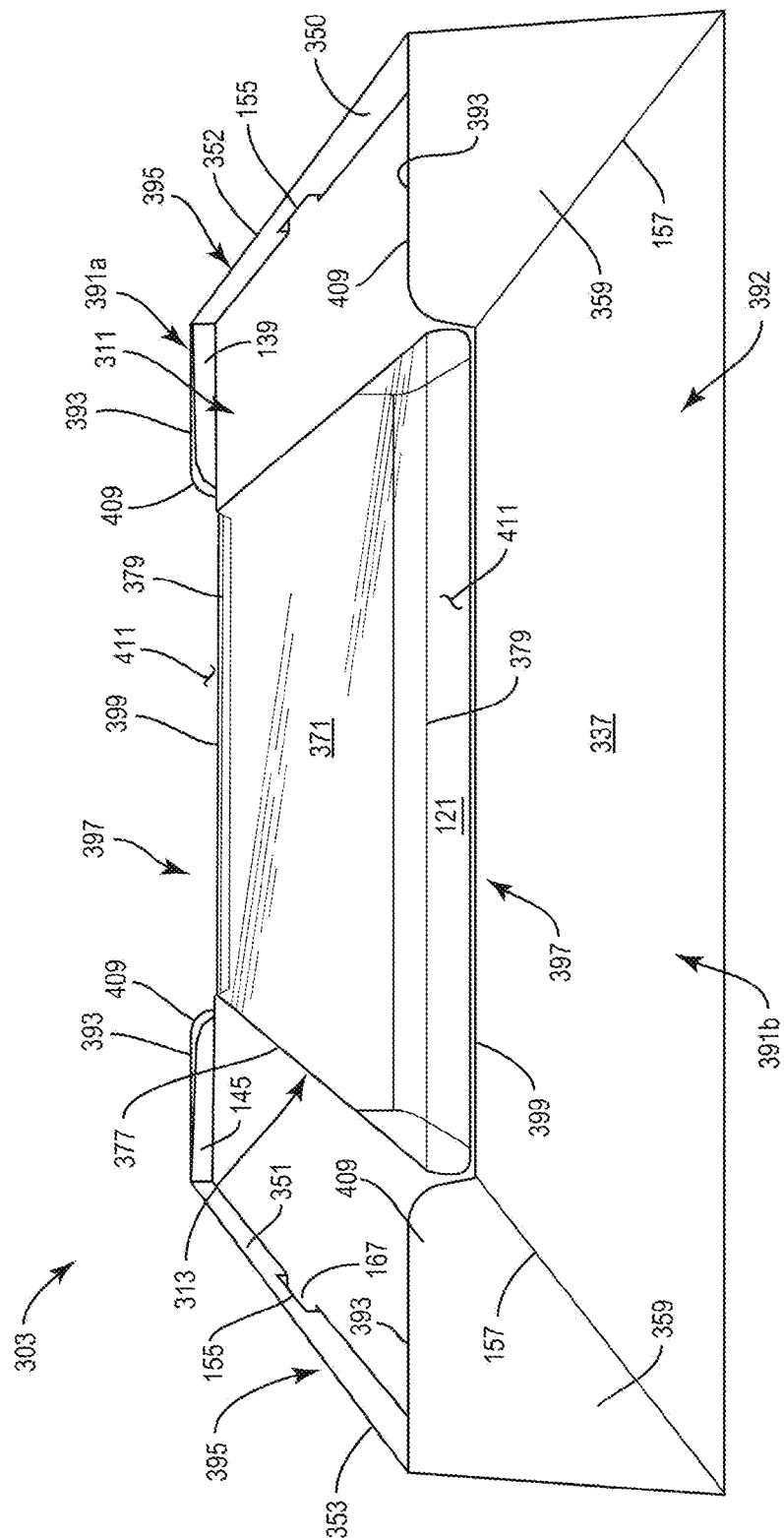


Fig. 6

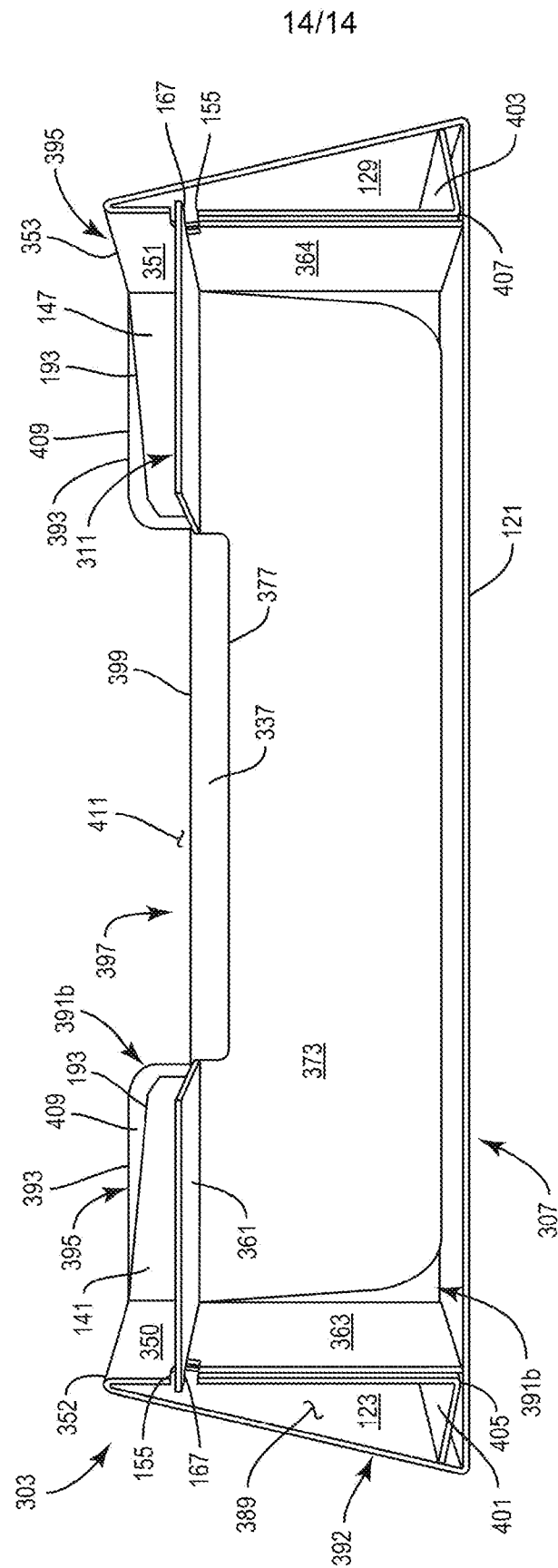


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2024/016791

A. CLASSIFICATION OF SUBJECT MATTER B65D 5/20(2006.01)i; B65D 5/66(2006.01)i; B65D 25/56(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 5/20(2006.01); B65D 5/42(2006.01); B65D 5/48(2006.01); B65D 5/66(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: container, tray, support edge, lid, passageway, air		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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Date of the actual completion of the international search 30 May 2024		Date of mailing of the international search report 31 May 2024
Name and mailing address of the ISA/KR Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon 35208, Republic of Korea Facsimile No. +82-42-481-8578		Authorized officer PARK, Tae Wook Telephone No. +82-42-481-3405

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2024/016791

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