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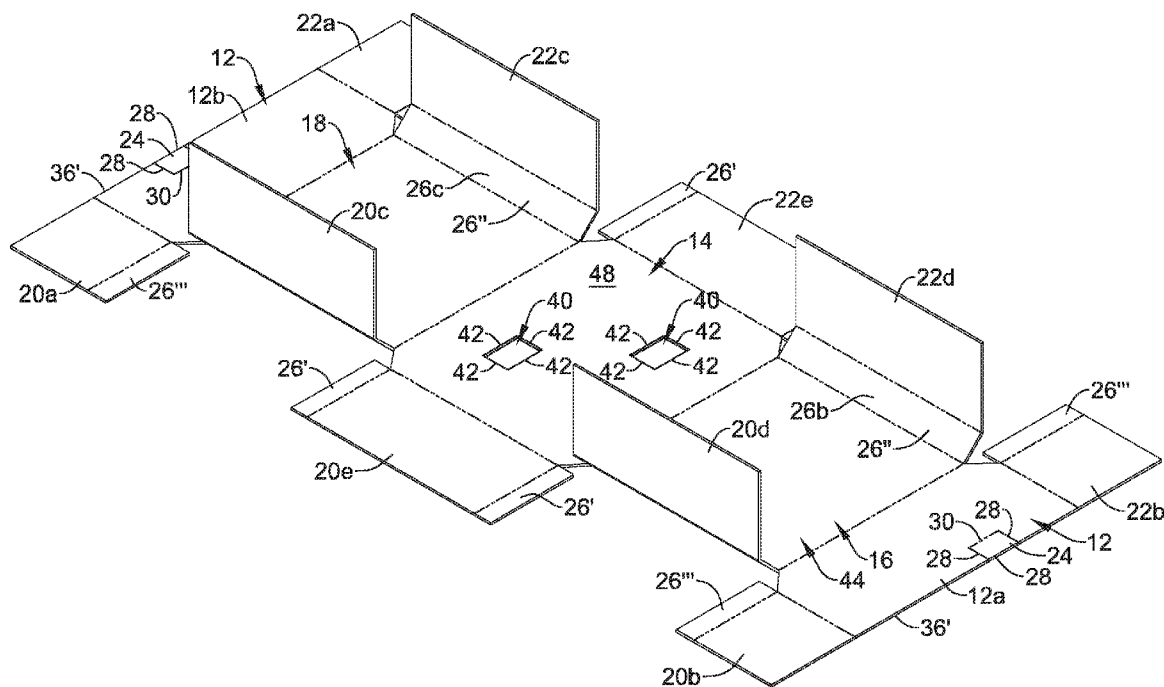
(19) **United States**(12) **Patent Application Publication**
Paiva et al.(10) **Pub. No.: US 2016/0207660 A1**(43) **Pub. Date: Jul. 21, 2016**(54) **CONTAINER WITH TABS AND BOX BLANK****Publication Classification**(71) Applicant: **Georgia-Pacific Corrugated LLC**,
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Letson, Dunwoody, GA (US)(73) Assignee: **Georgia-Pacific Corrugated LLC**,
Atlanta, GA (US)(21) Appl. No.: **14/996,428**(22) Filed: **Jan. 15, 2016****Related U.S. Application Data**(60) Provisional application No. 62/104,581, filed on Jan.
16, 2015.

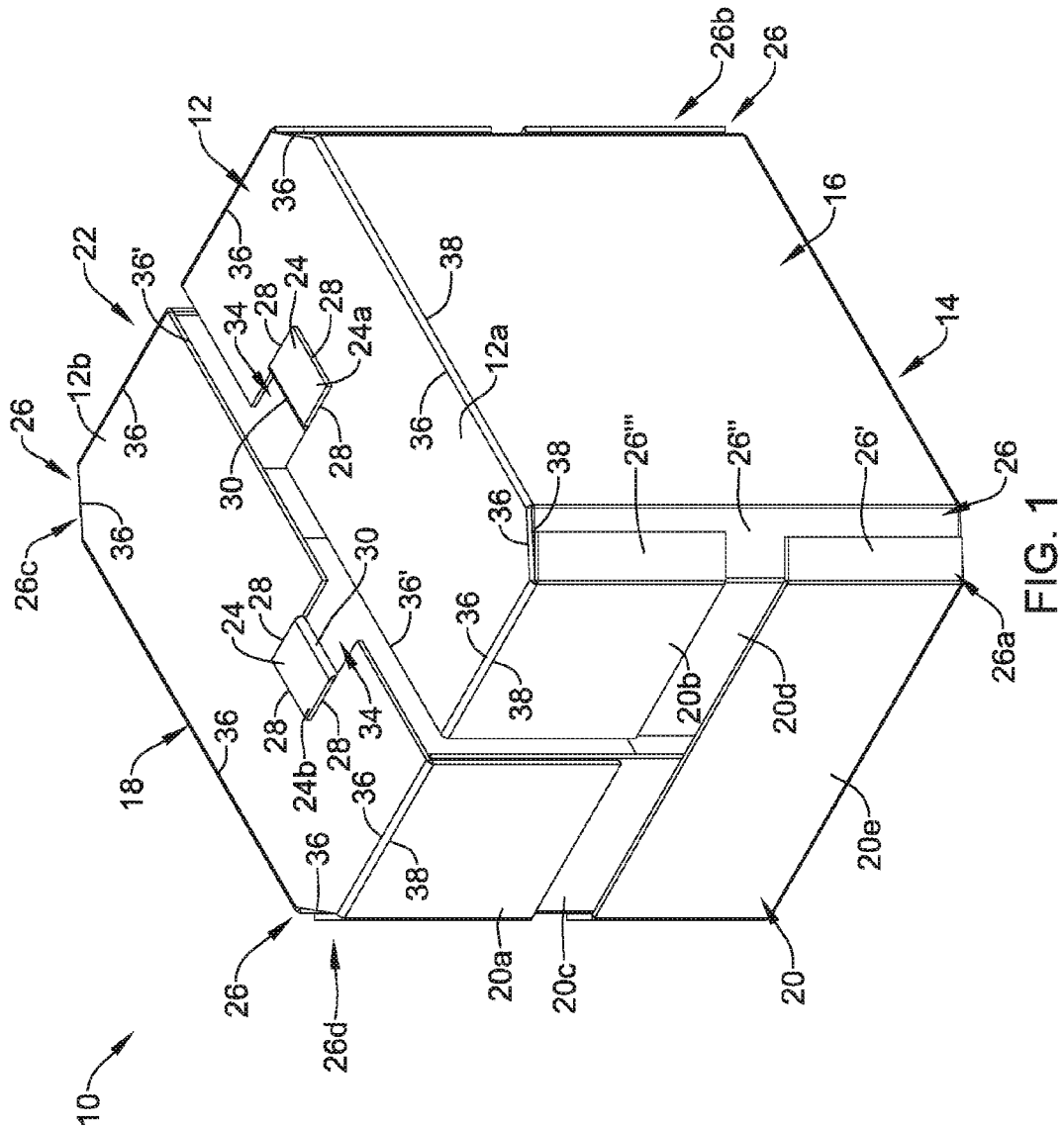
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B65D 5/42 (2006.01)
B65D 5/18 (2006.01)

(52) **U.S. Cl.**
CPC **B65D 5/0015** (2013.01); **B65D 5/18**
(2013.01); **B65D 5/4295** (2013.01)

(57) **ABSTRACT**

A container has a folded configuration and an unfolded configuration. The container may include a top, a bottom, and a plurality of sides to form an interior when in the folded configuration. The top may be formed of one or more panels and may include one or more tabs. The tabs may be positioned on the top at a location spaced from lateral edges of the top and/or lateral edges of the sides adjacent the top. The tabs may extend from or be formed from one or more panels forming the top, may be folded over an edge connected to the top, and engaged with a panel of the top. The container may include one or more openings in and/or through the bottom of the container, where the openings may be configured to receive tabs when containers are stacked to create stability in stacks of the containers.





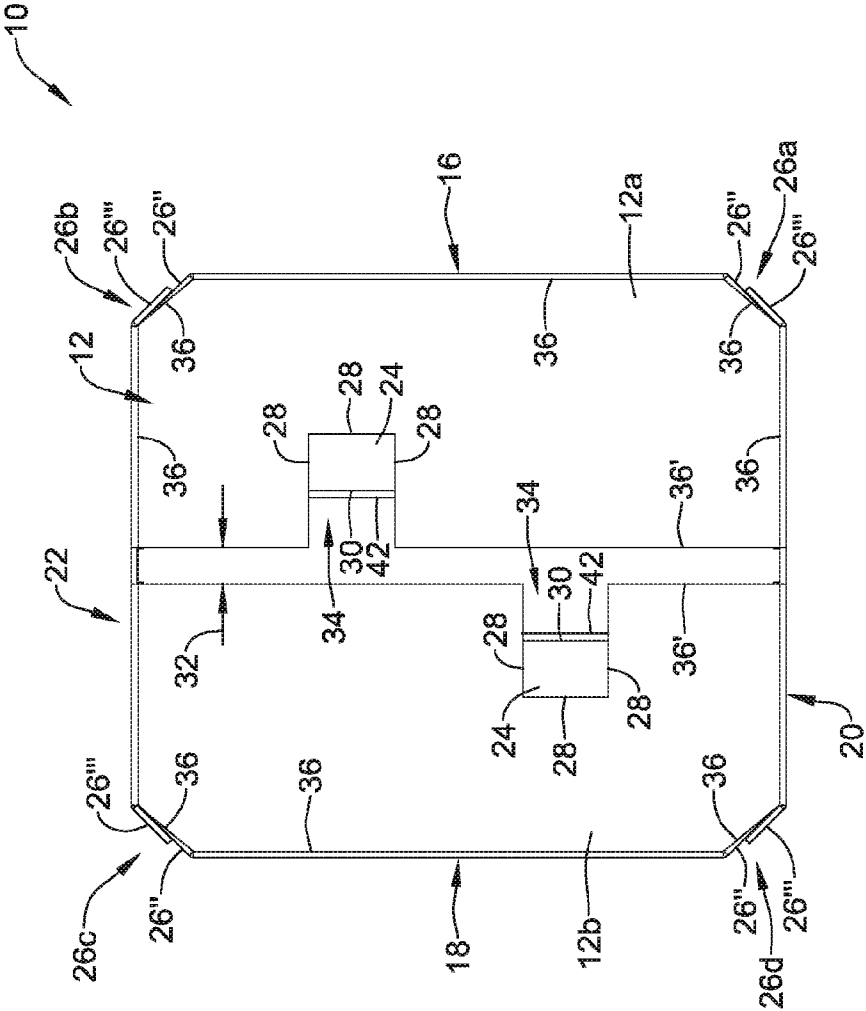


FIG. 2

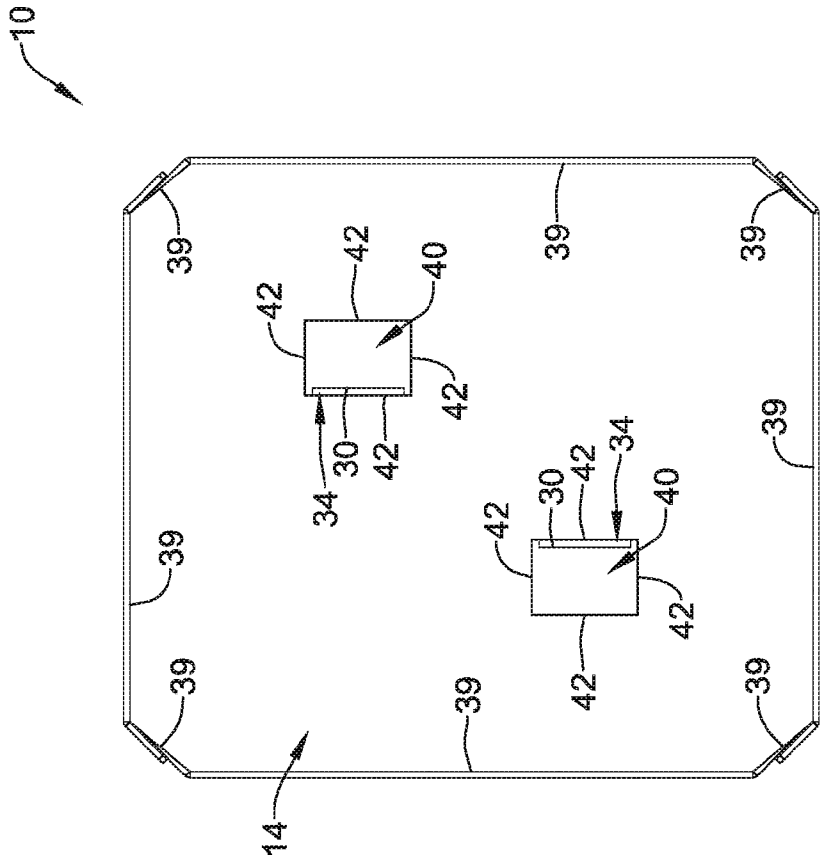
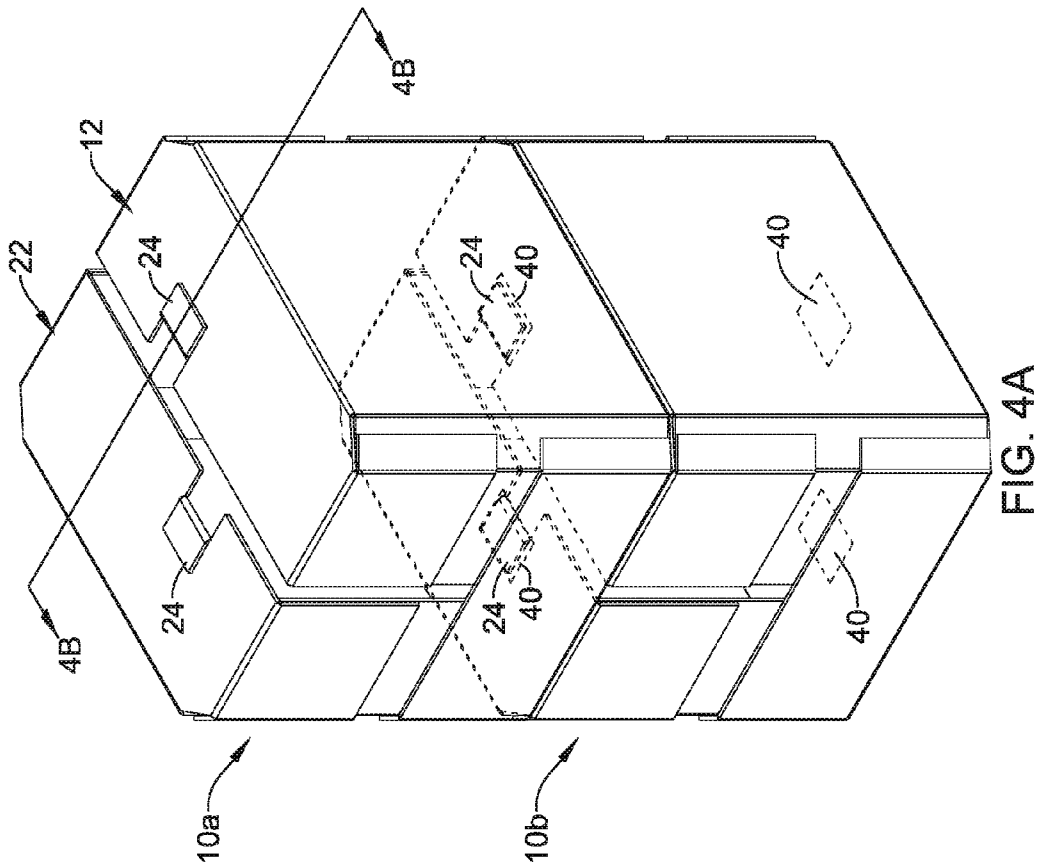
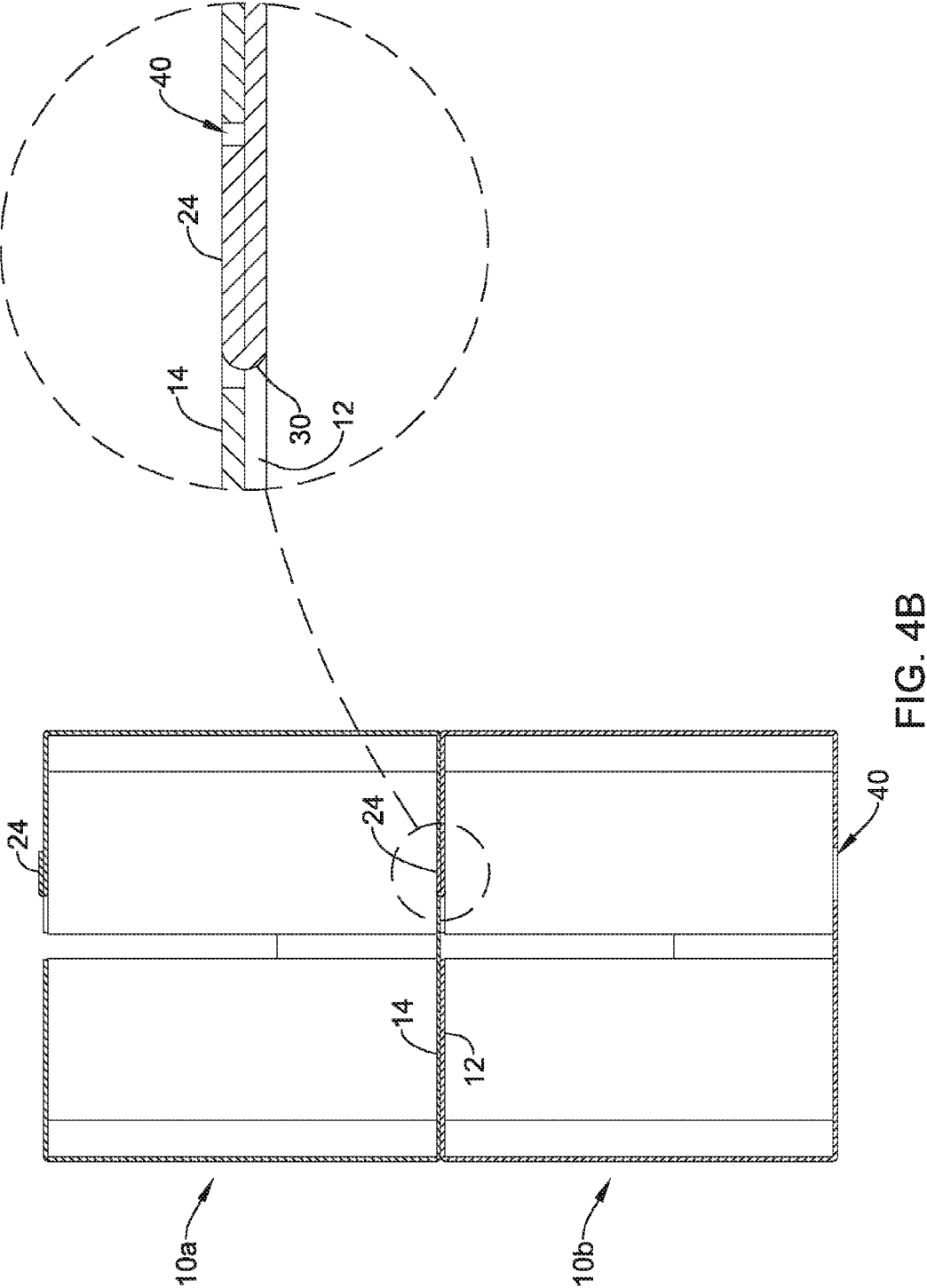


FIG. 3





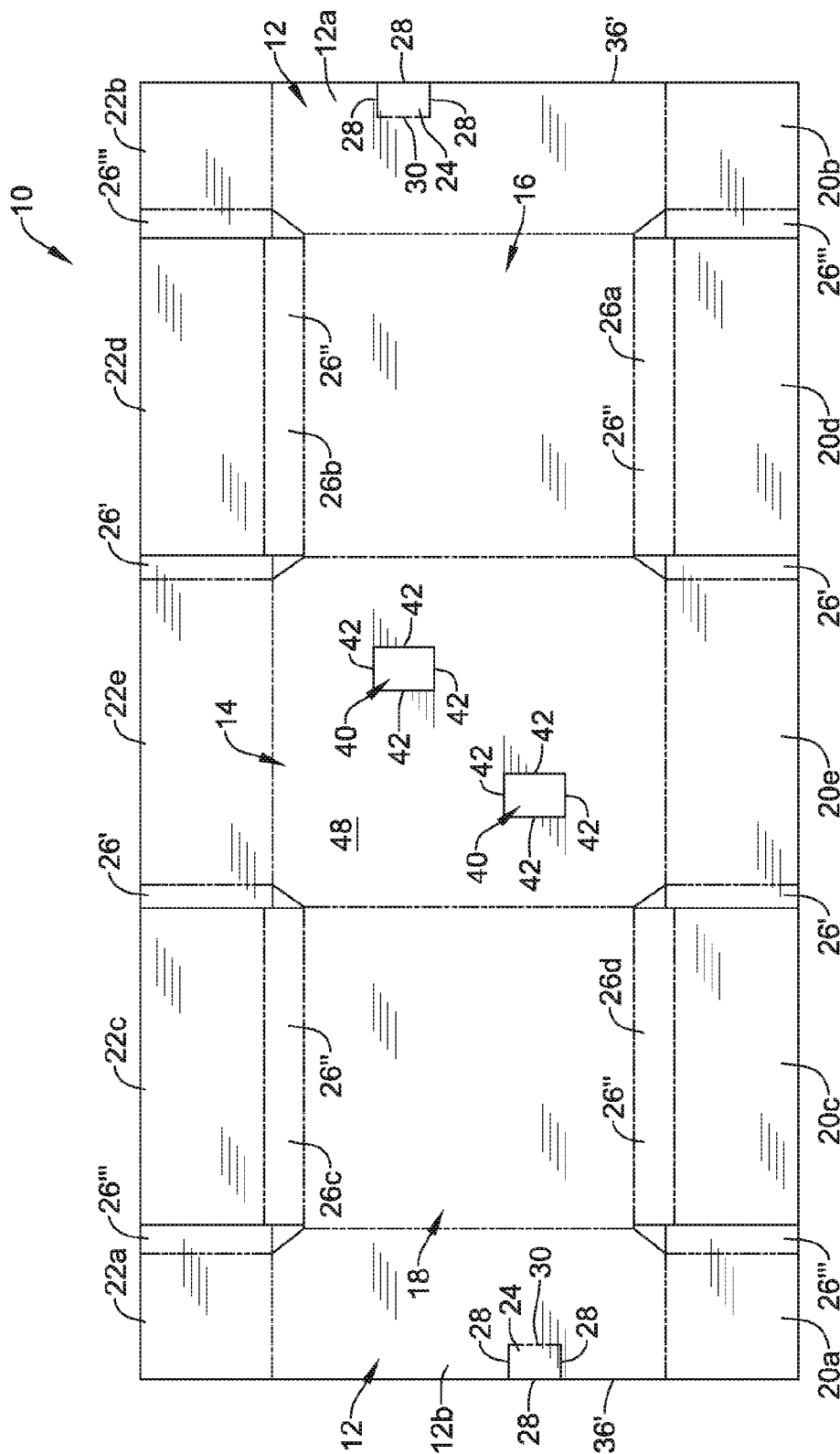


FIG. 5

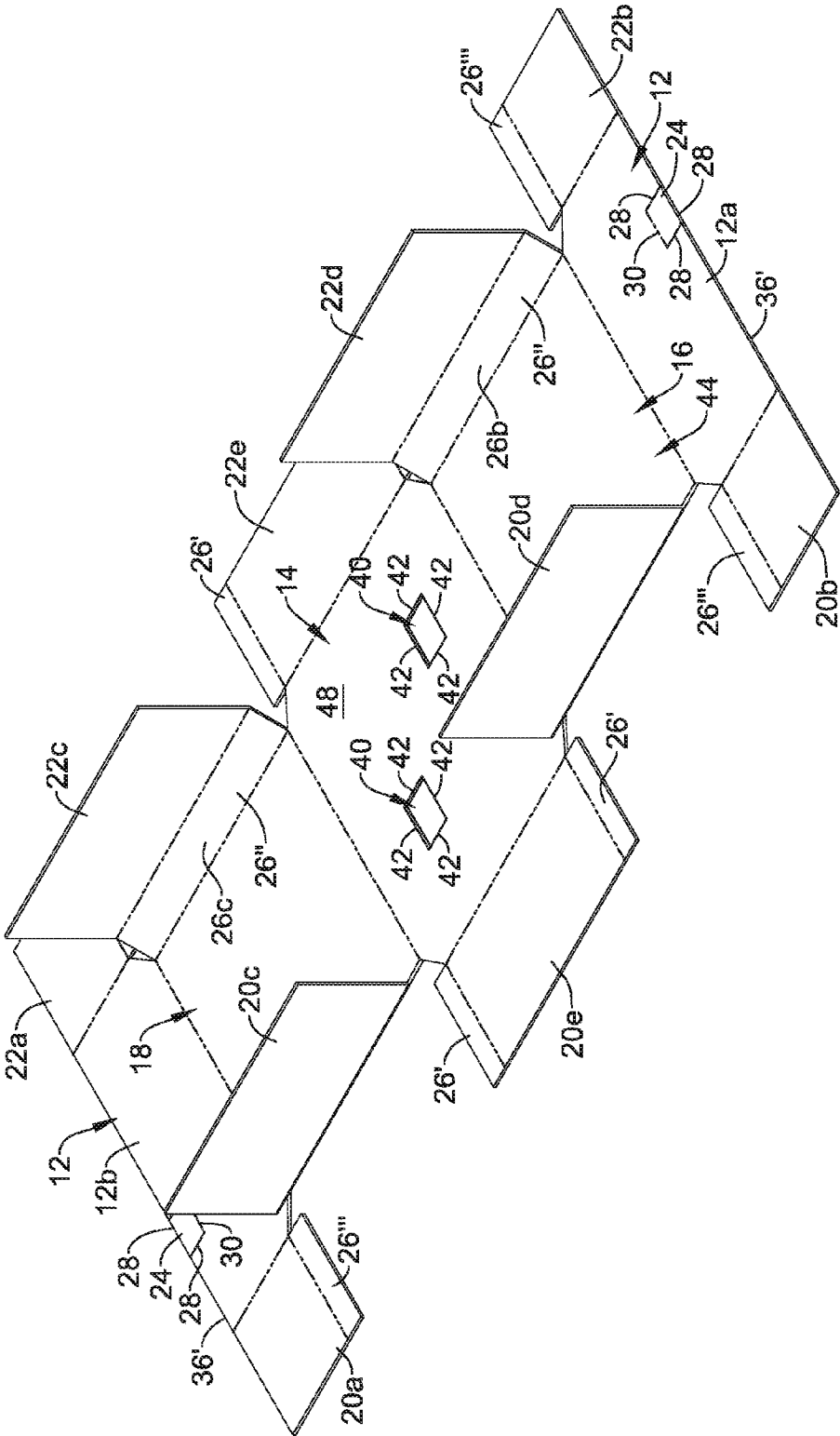


FIG. 6

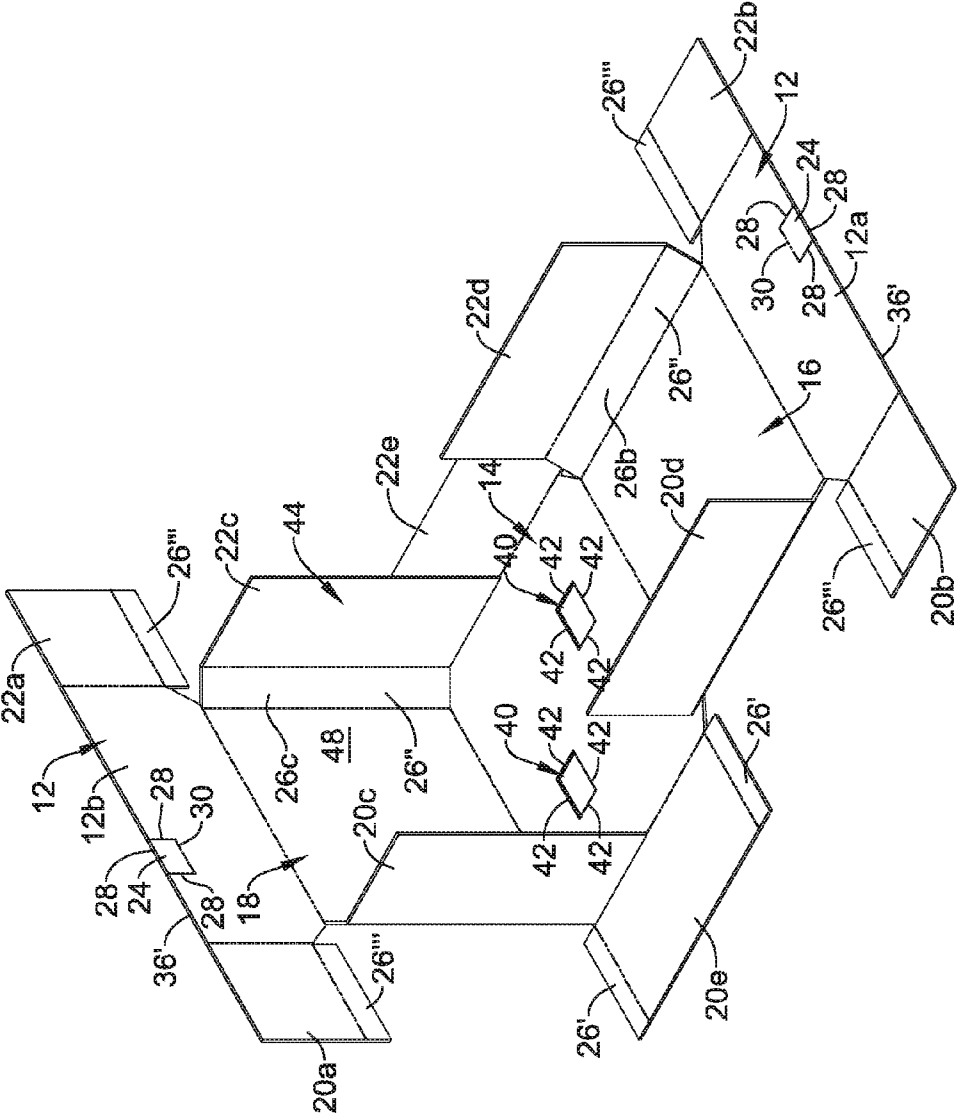


FIG. 7

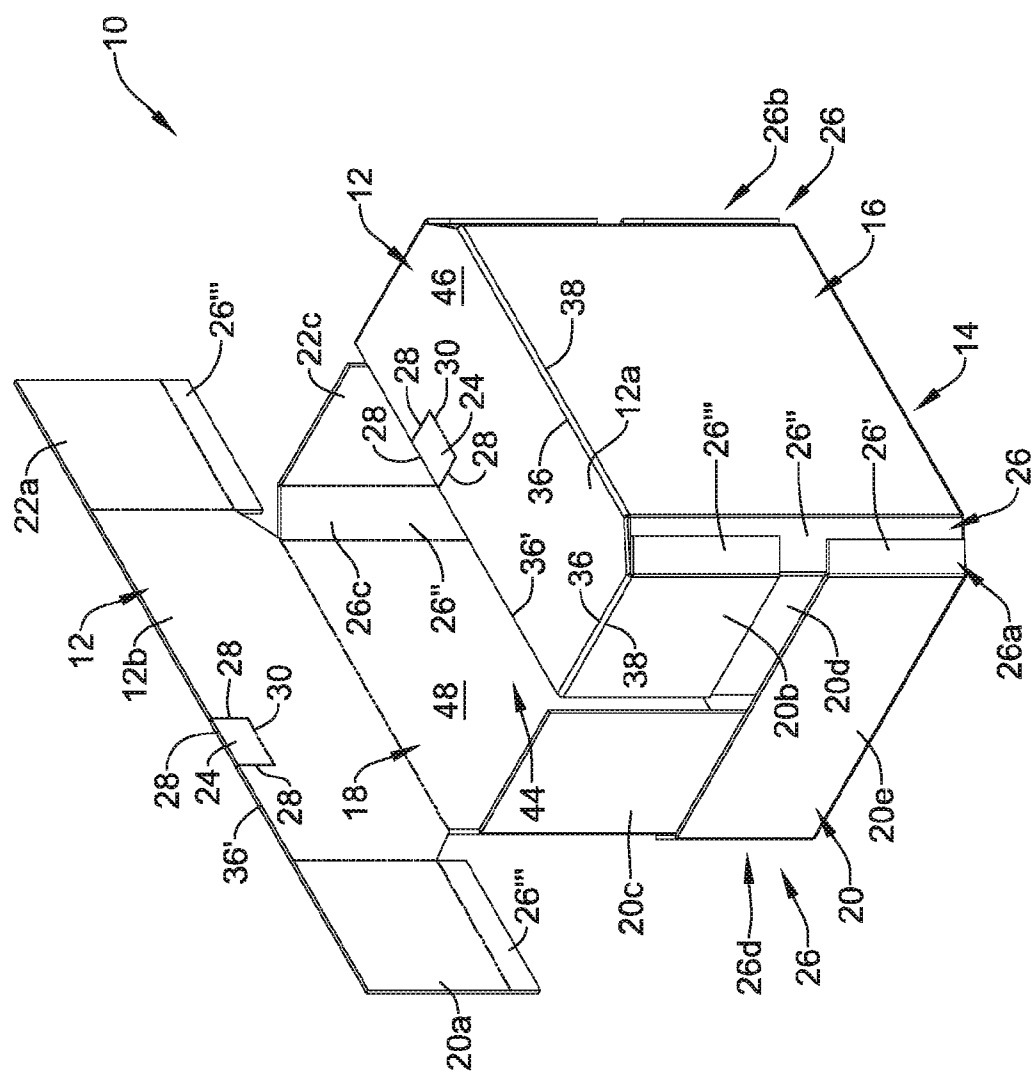
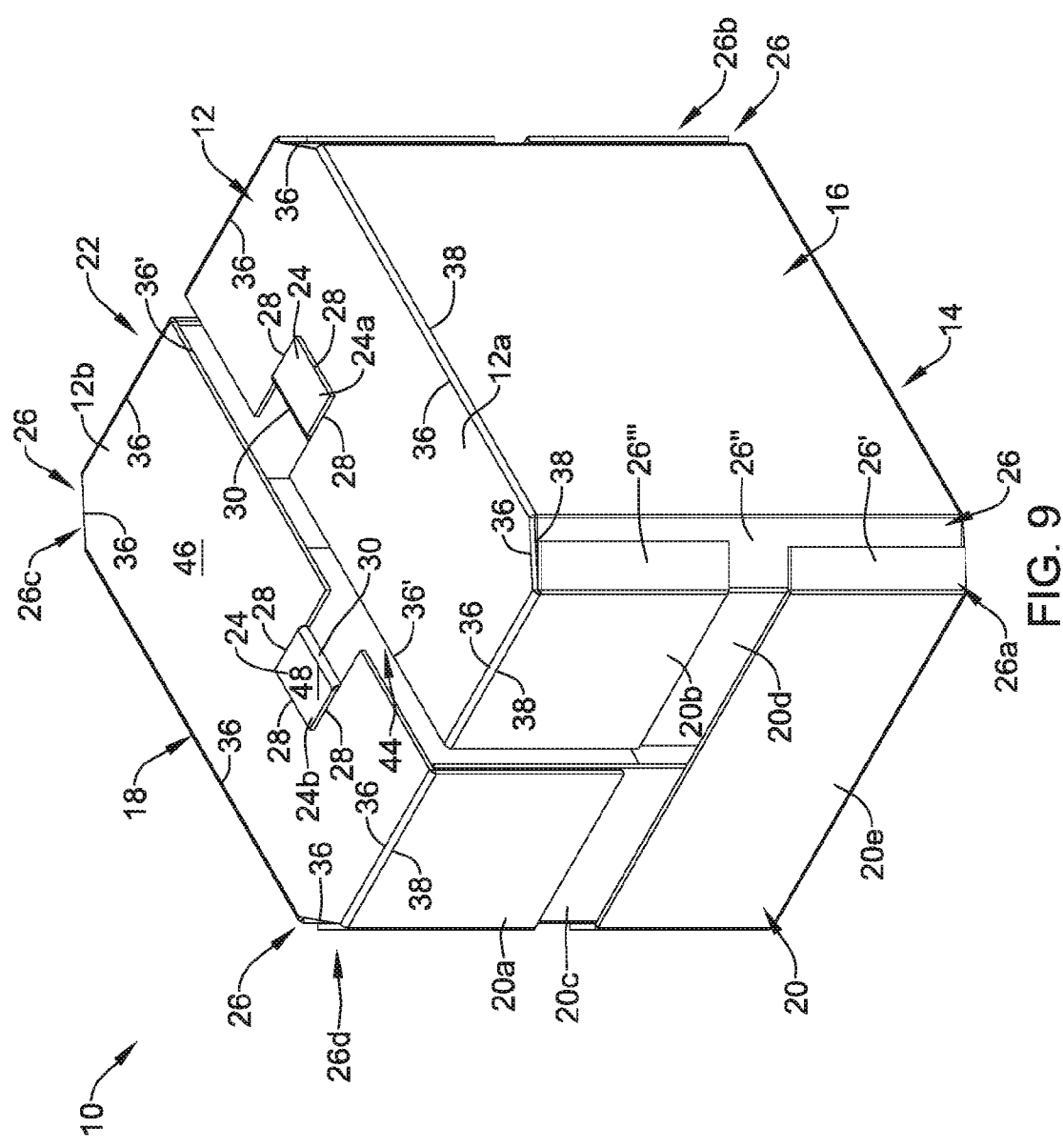
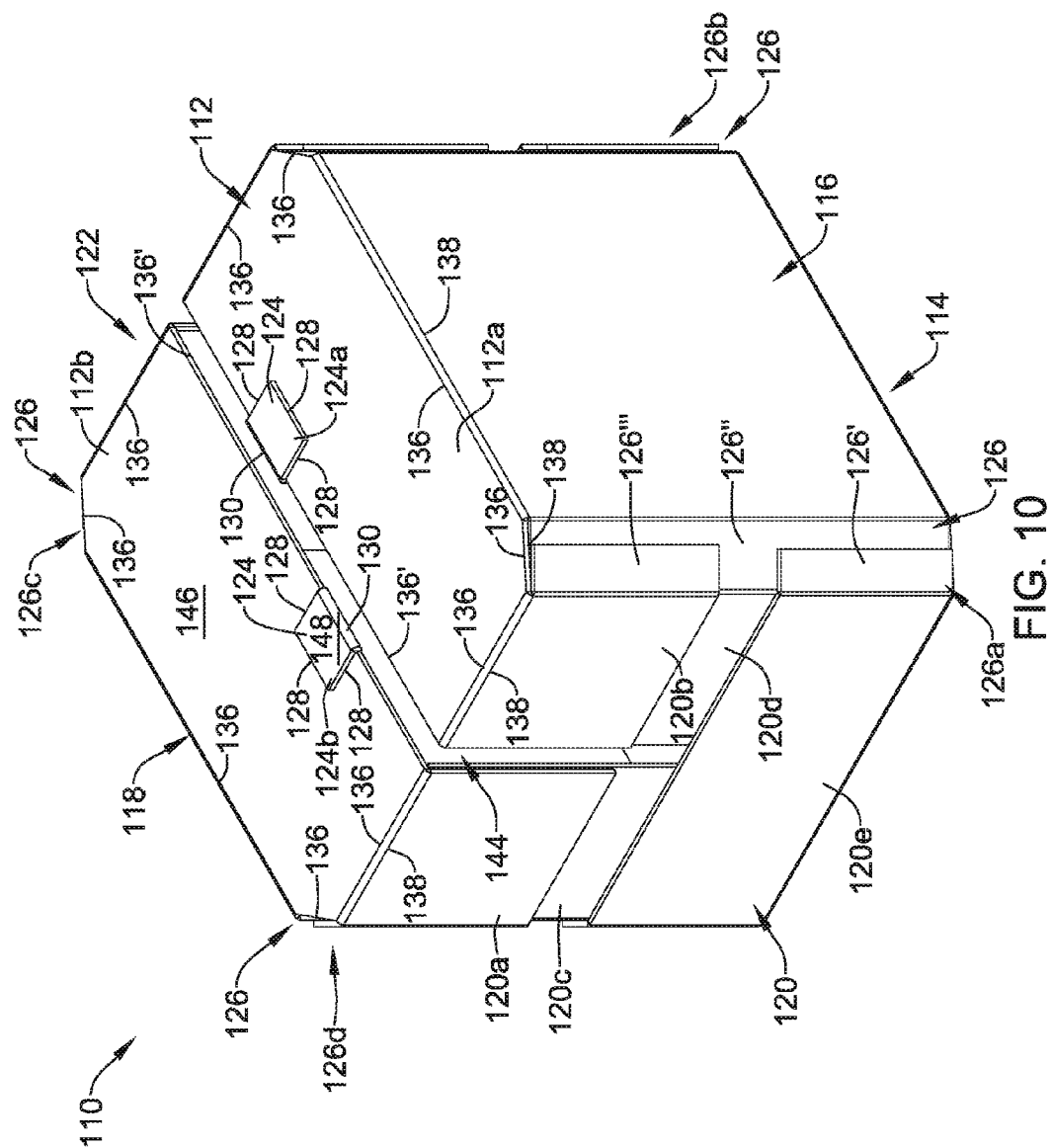


FIG. 8





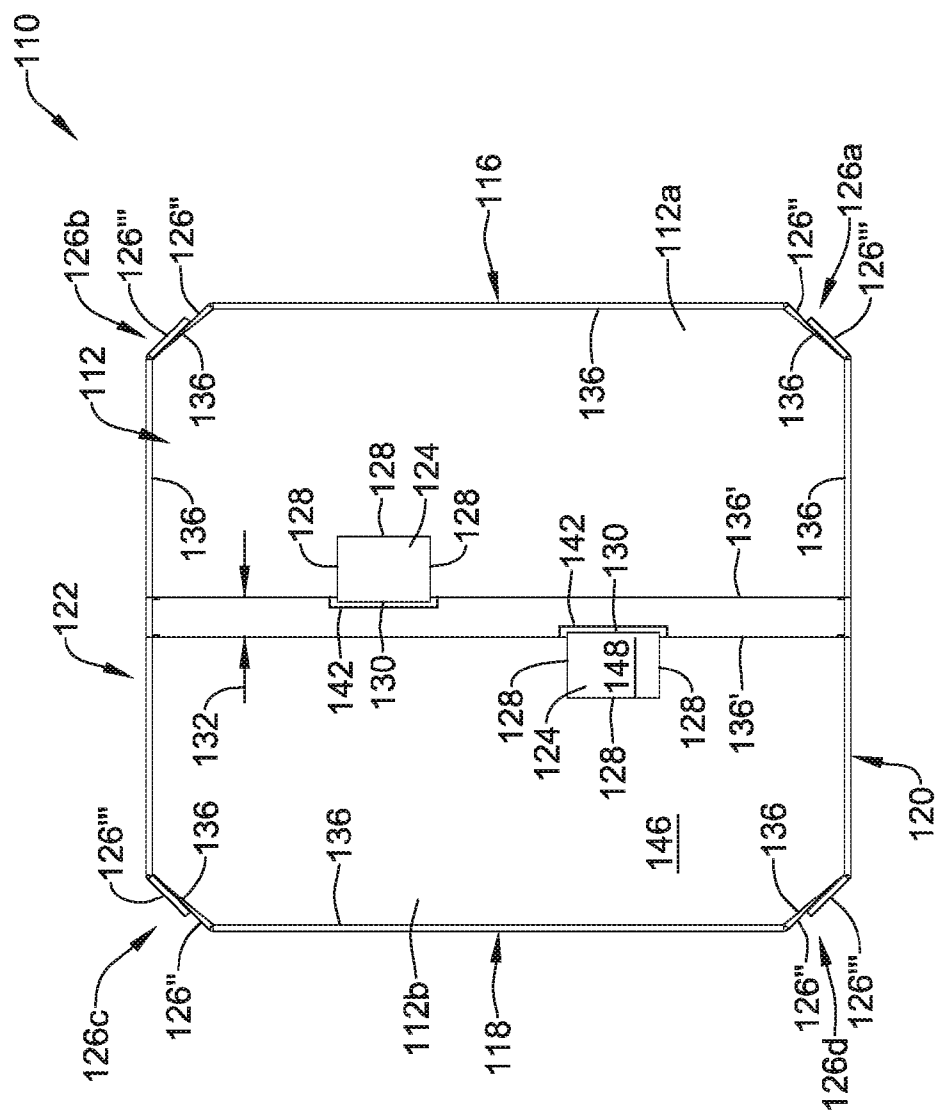


FIG. 11

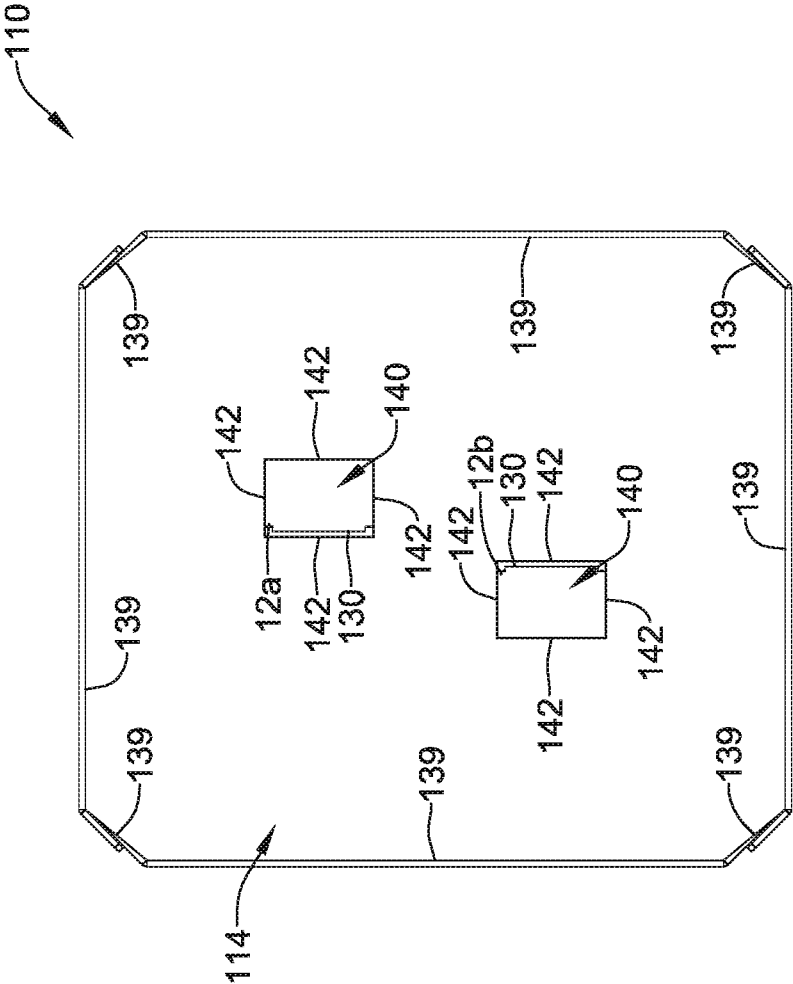


FIG. 12

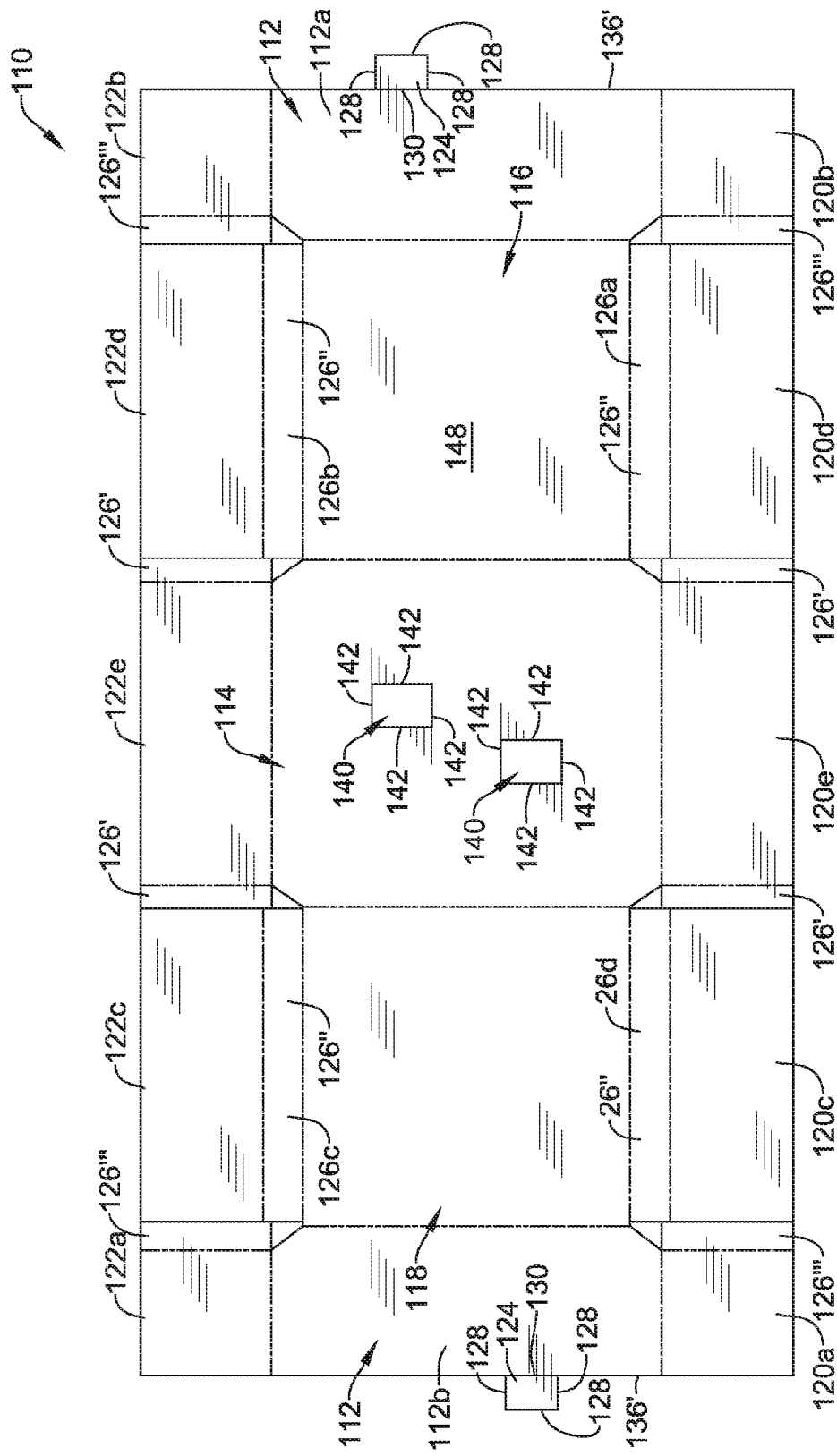


FIG. 13

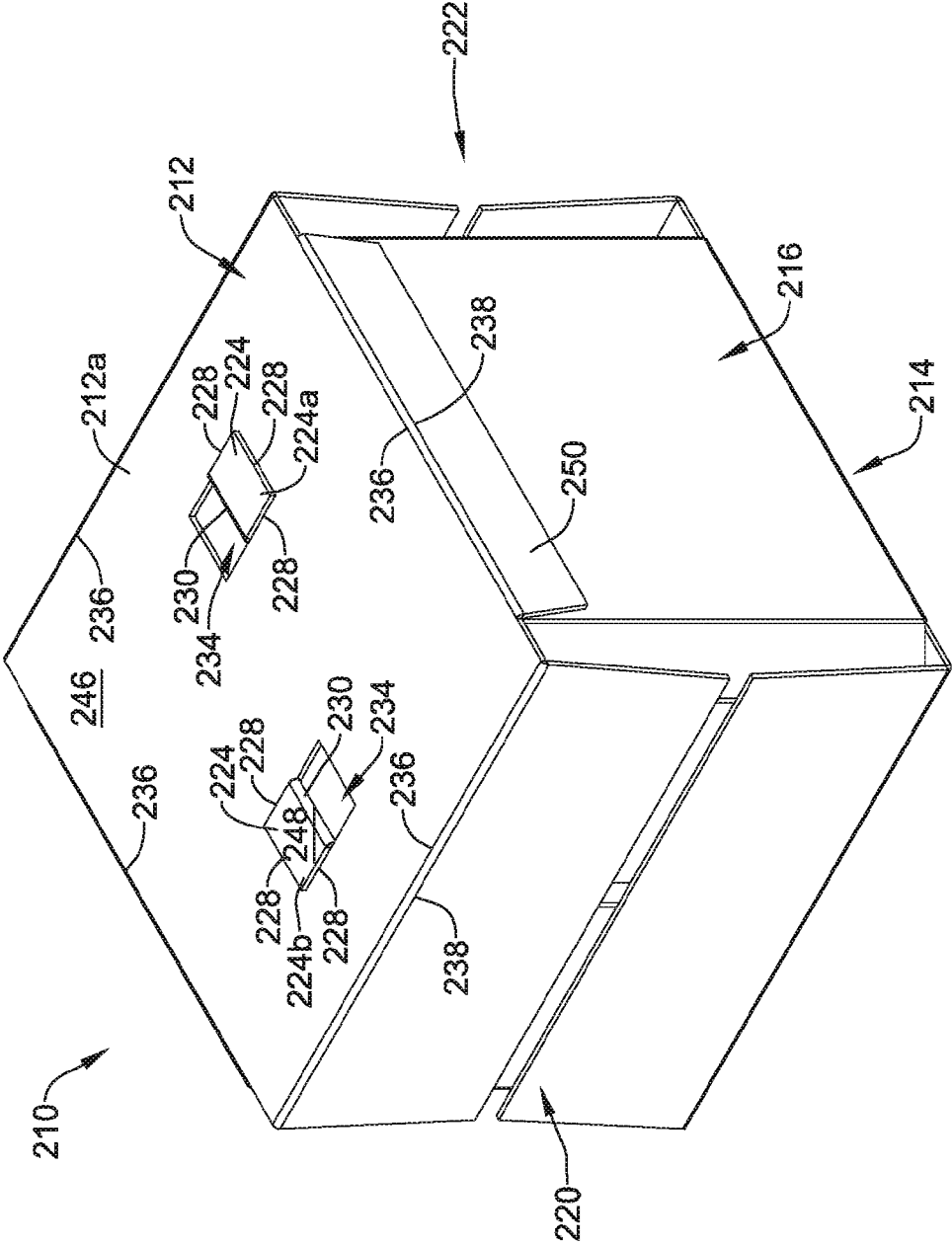


FIG. 14

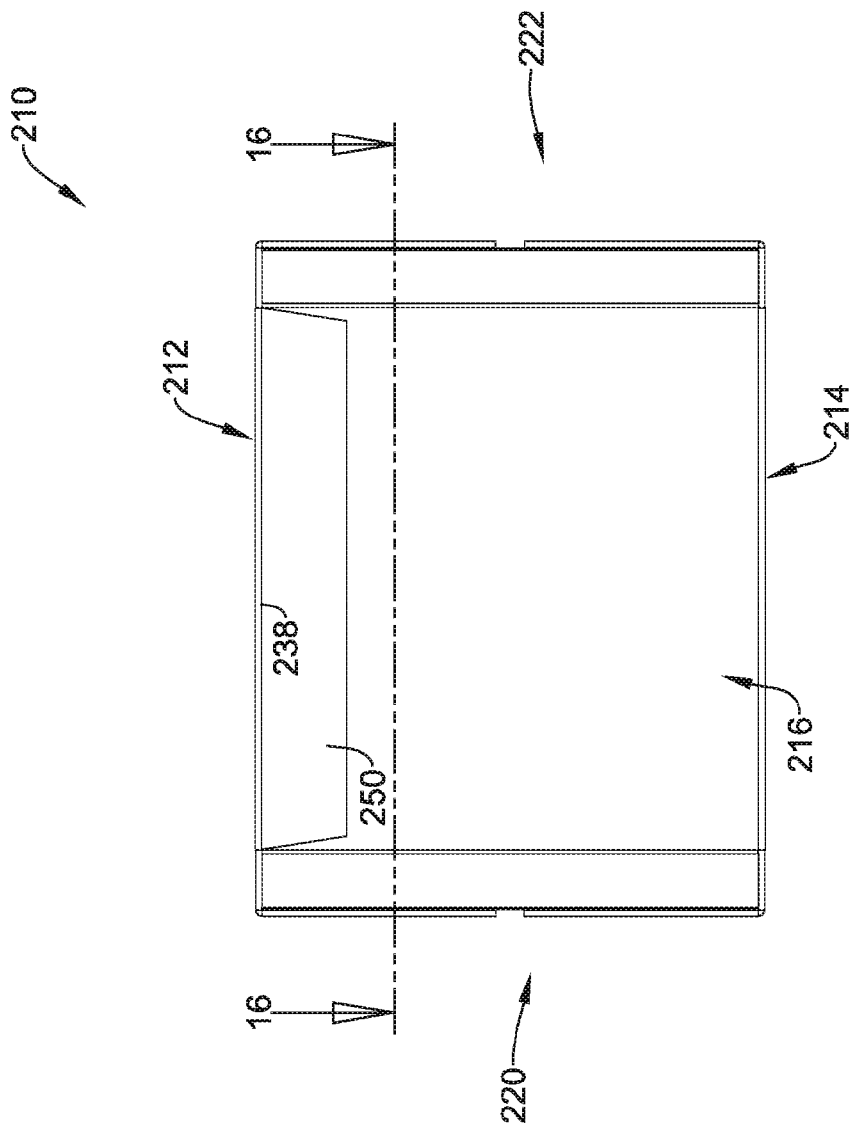


FIG. 15

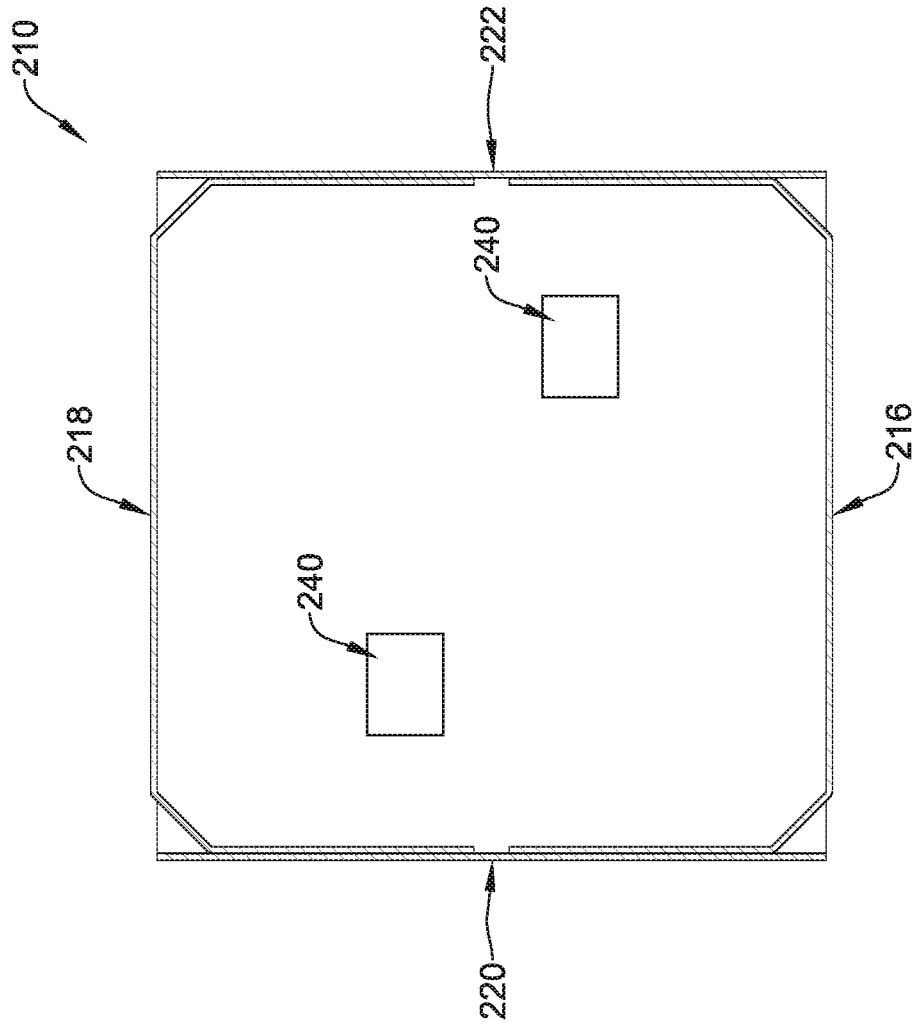
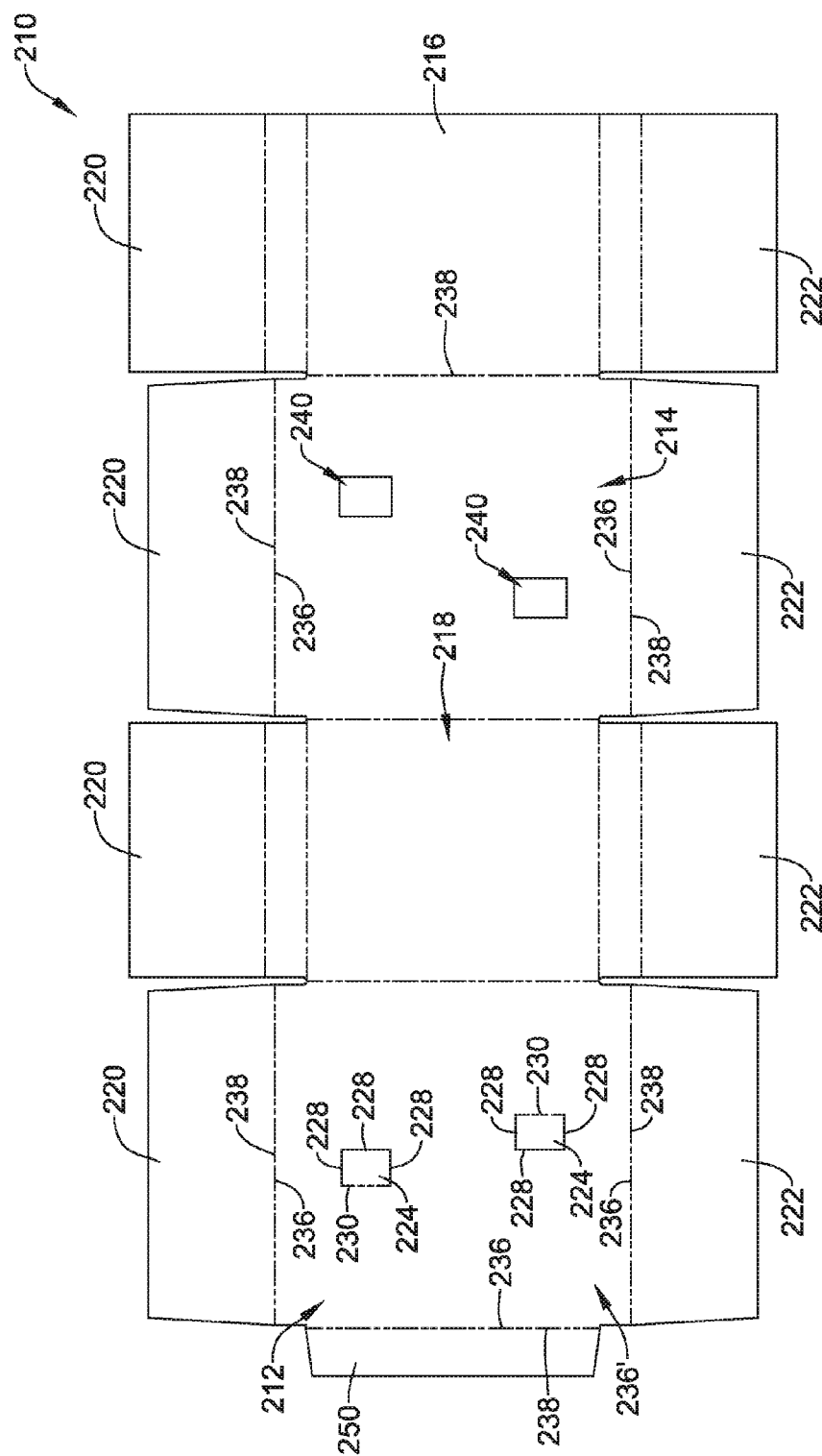


FIG. 16



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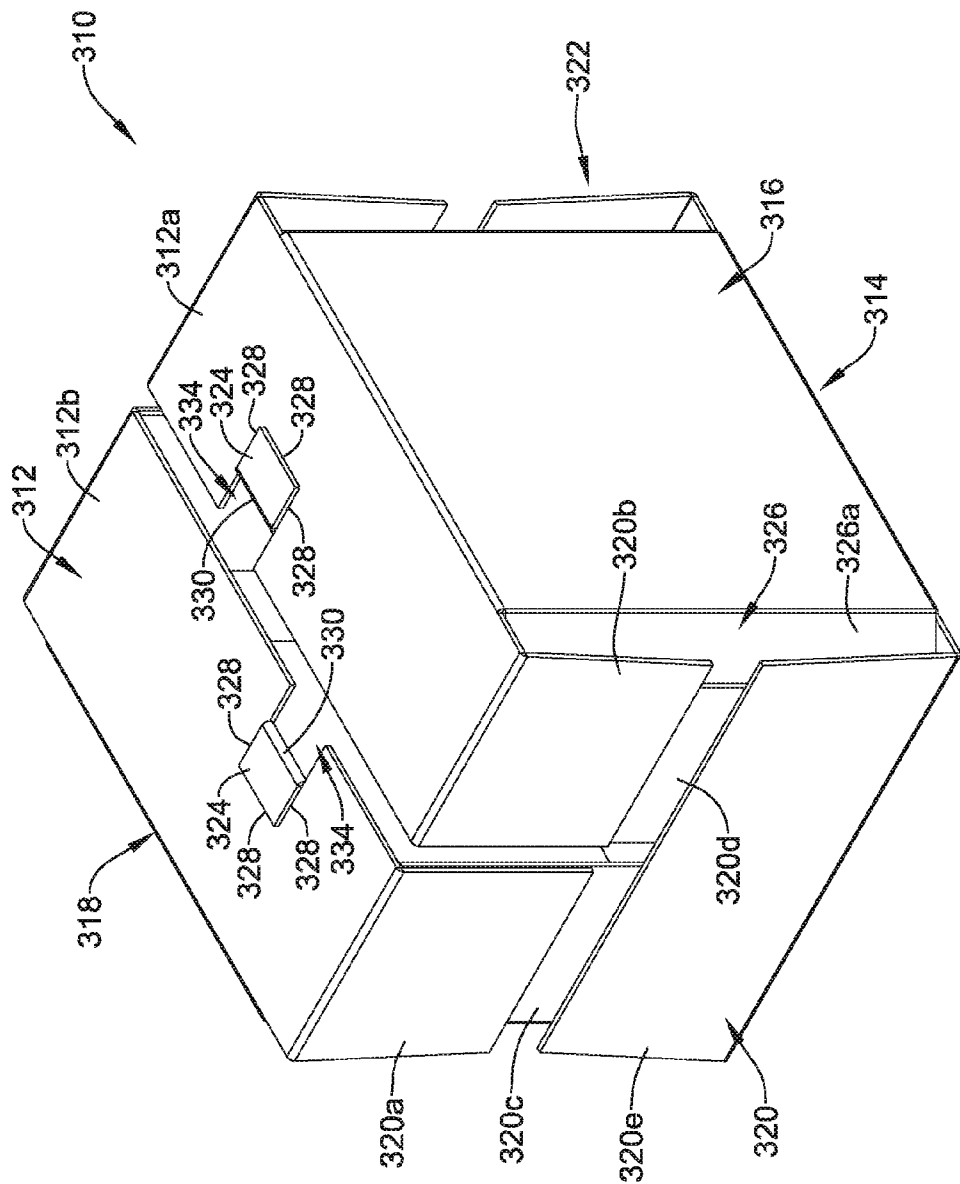
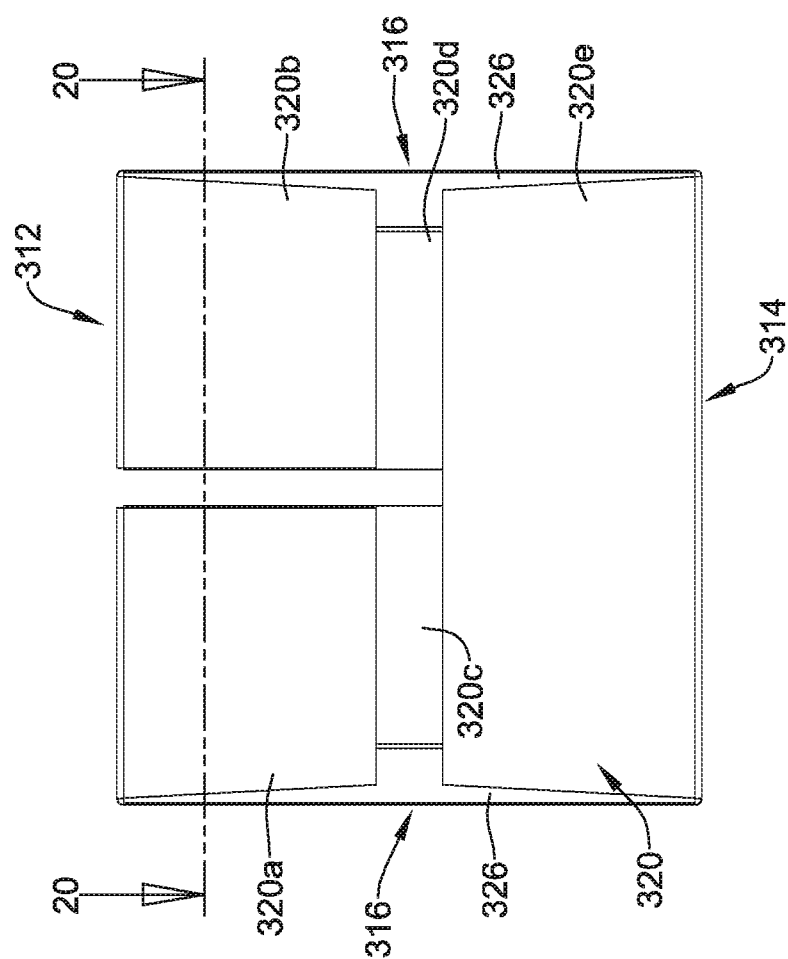


FIG. 18



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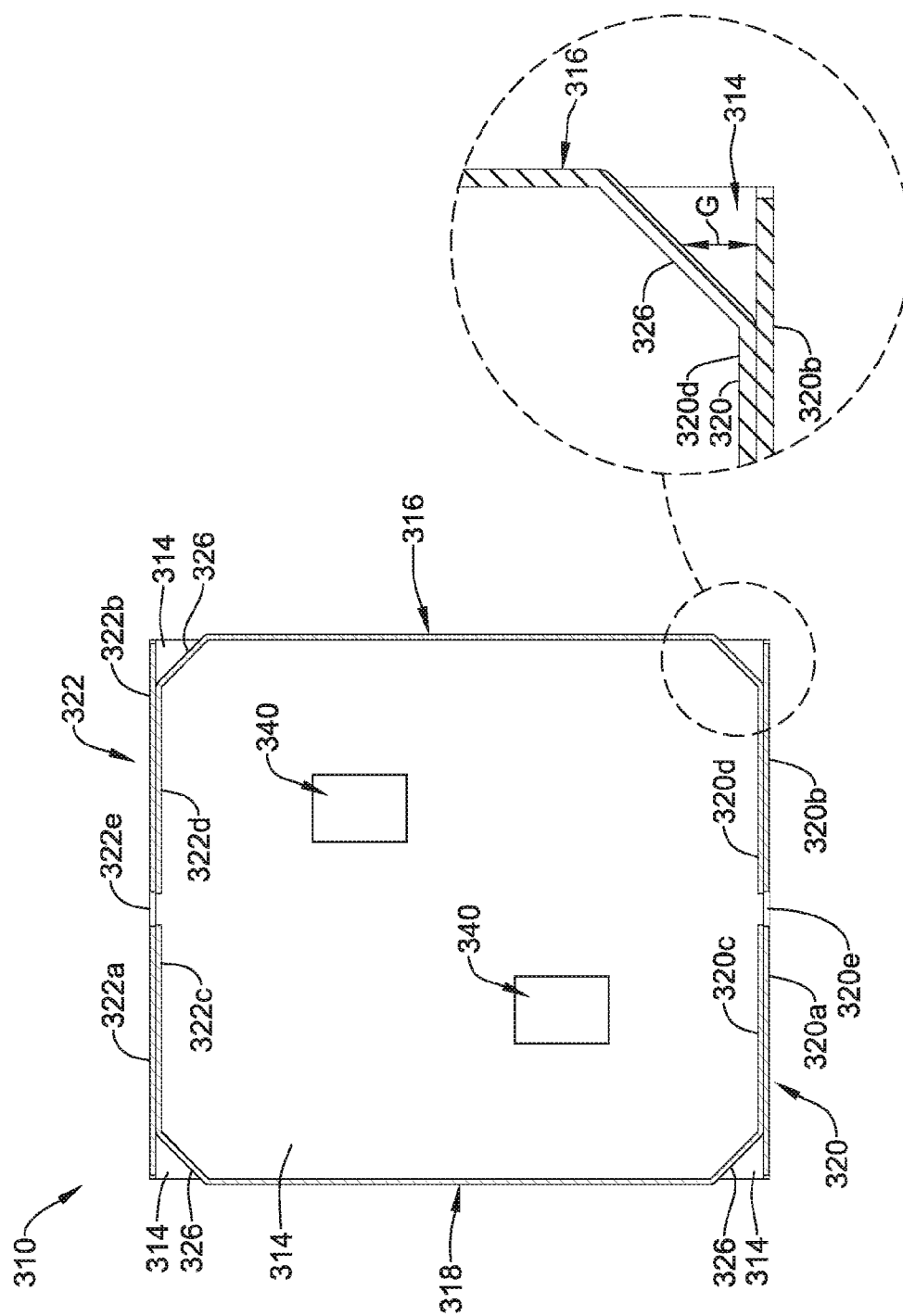


FIG. 20

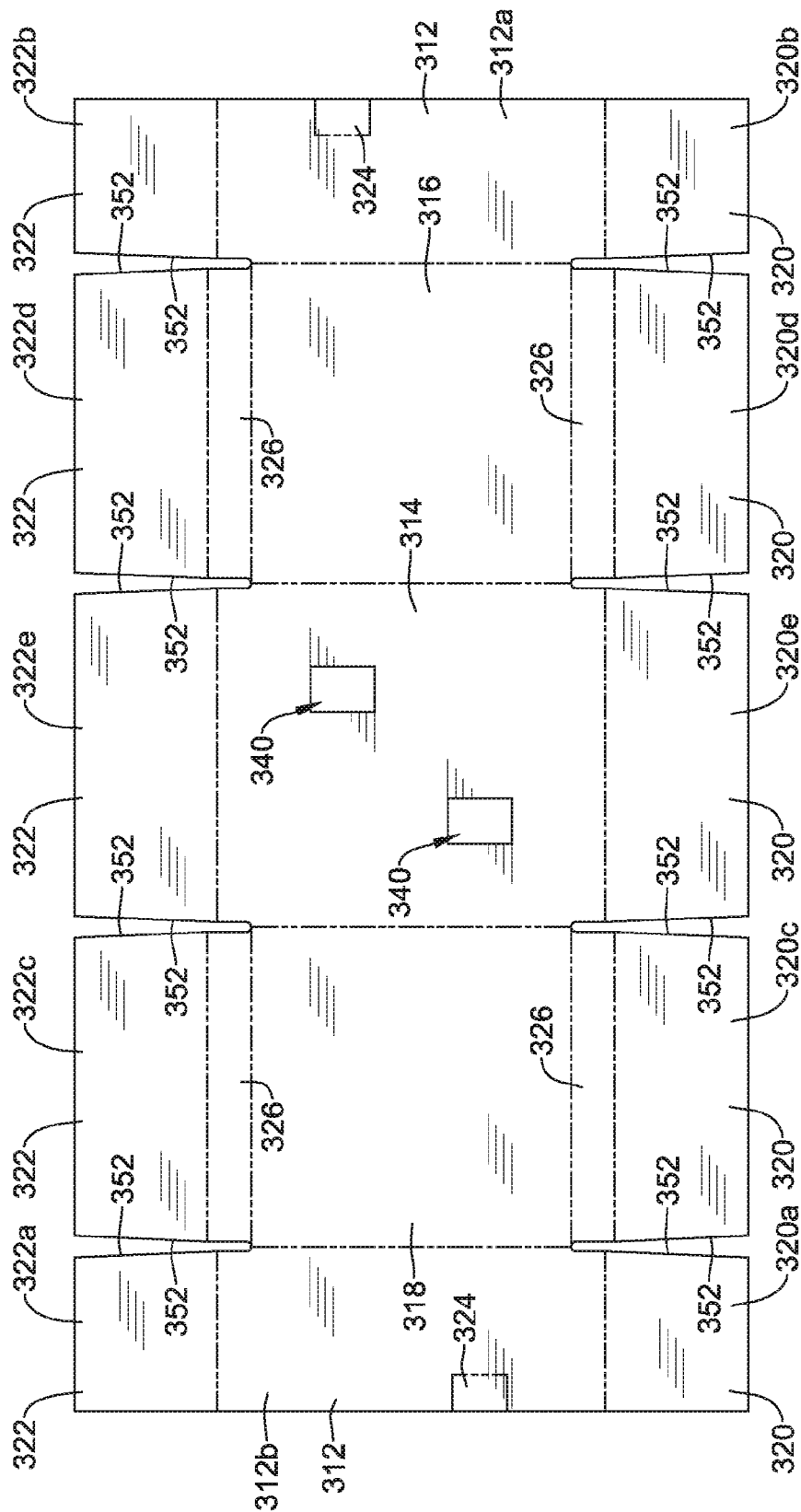


FIG. 21

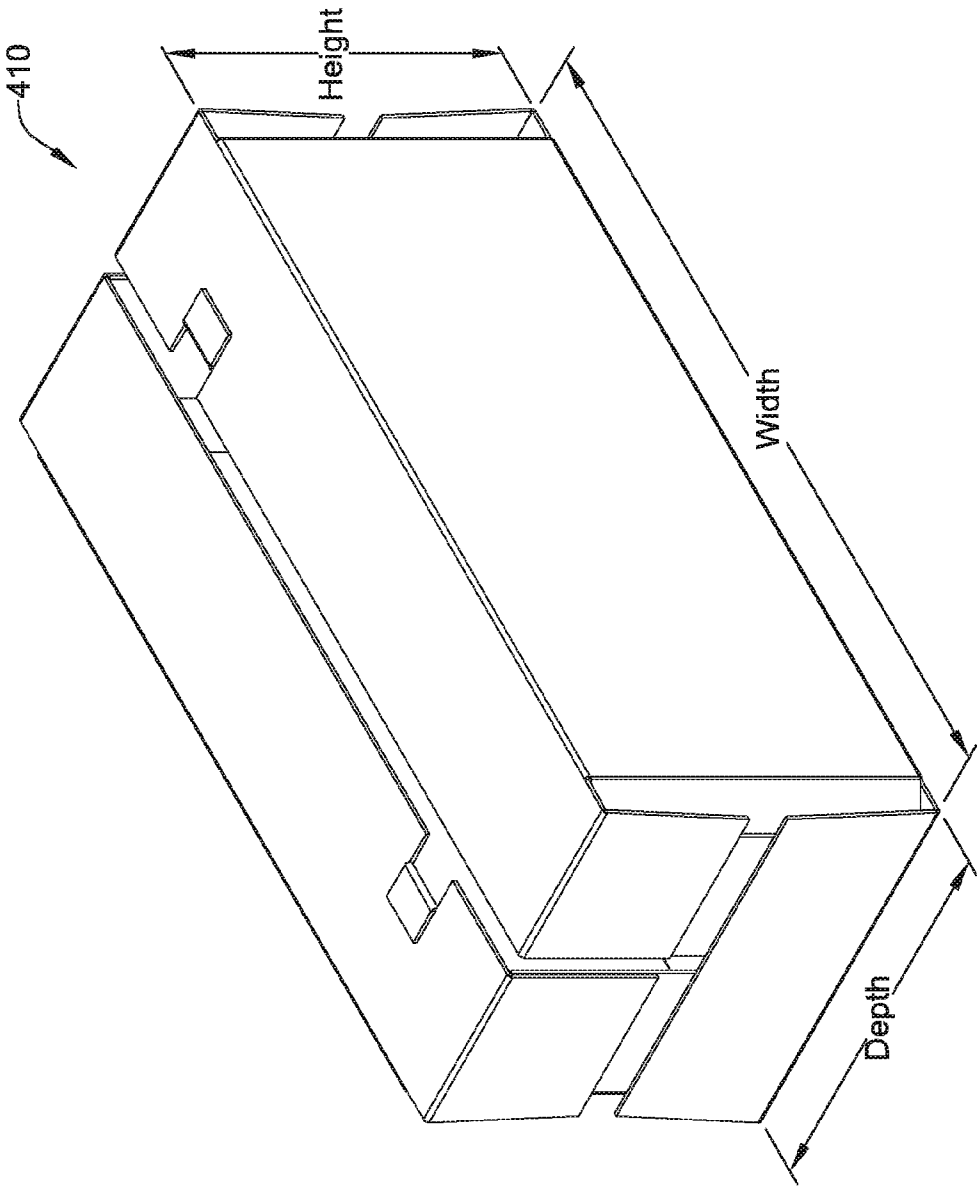


FIG. 22

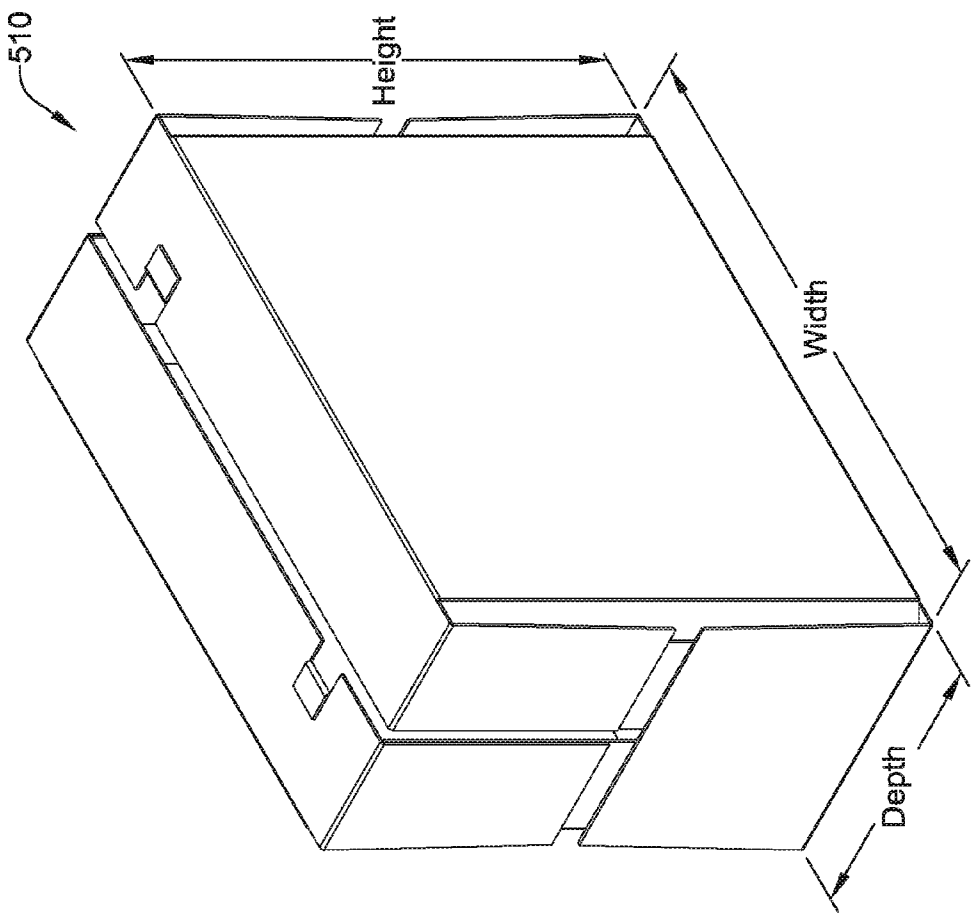


FIG. 23

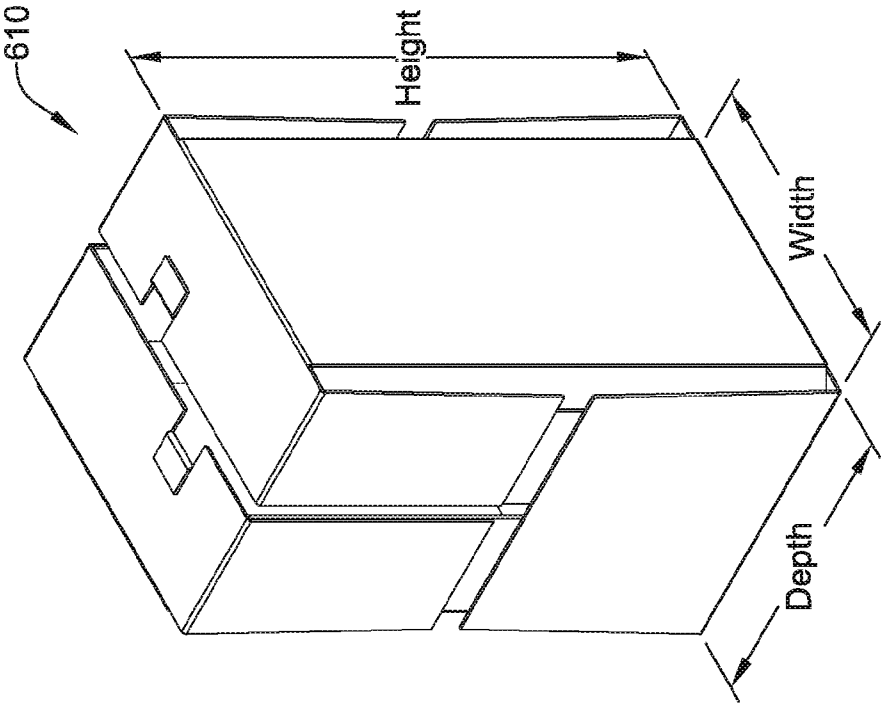


FIG. 24

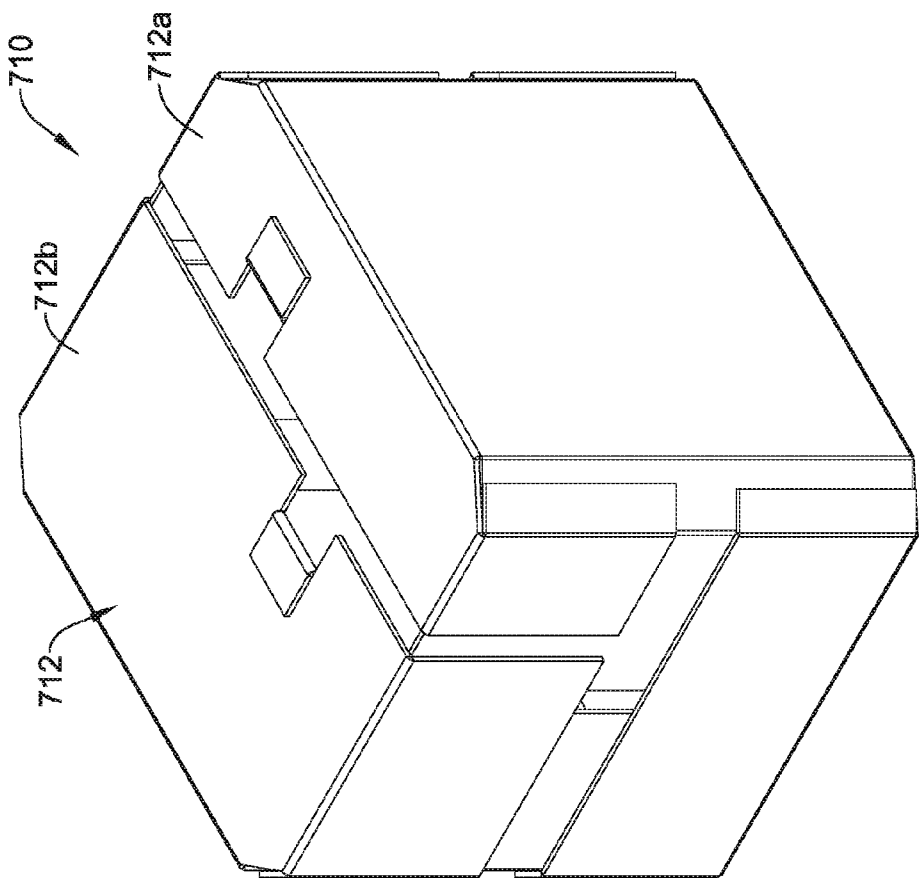


FIG. 25

CONTAINER WITH TABS AND BOX BLANK

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is related to design patent Application Ser. No. 29/514,888 entitled BOX BLANK, having an attorney docket number of 1385.1001101, and filed on Jan. 16, 2015, the entire disclosure of which is incorporated herein by reference for all purposes. This application is related to design patent Application Ser. No. 29/514,892 entitled BOX BLANK, having an attorney docket number of 1385.1002101, and filed on Jan. 16, 2015, the entire disclosure of which is incorporated herein by reference for all purposes. This application is related to design patent Application Ser. No. 29/514,898 entitled BOX BLANK, having an attorney docket number of 1385.1003101, and filed on Jan. 16, 2015, the entire disclosure of which is incorporated herein by reference for all purposes.

TECHNICAL FIELD

[0002] The disclosure is directed to containers for holding items. More particularly, the disclosure is directed to containers in unfolded and folded configurations with features configured to facilitate alignment containers in a stack of containers and/or promote stability in a stack of containers when the containers are stacked upon one another.

BACKGROUND

[0003] A wide variety of containers have been developed for storing items, along with methods for forming and using such containers. Some containers may include stacking tabs extending upward from a top edge of container sidewalls to provide stability when stacking such containers. When stacking similar containers on top of one another, the stacking tabs of the containers may fit into corresponding notches cut into adjacent containers to secure the stack. Of the known containers and methods of forming and using thereof, each has certain advantages and disadvantages.

SUMMARY

[0004] The disclosure is directed to several alternative designs, materials and methods of assembling containers for holding items.

[0005] Accordingly, one illustrative embodiment is a container having an unfolded configuration and a folded configuration. The container may include a bottom, a first side, a second side, a third side, a fourth side, and a top. The first side, the second side, the third side, and the fourth side may at least partially extend from the bottom. The top may at least partially extend from one of the sides. In some cases, the top may include one or more tabs, where the tabs may be laterally spaced from the first side, the second side, the third side, and the fourth side.

[0006] In another illustrative embodiment, a box blank may be configured to form a container. The box blank may include a bottom panel, a first side panel, a second side panel, and a top panel. The bottom panel may include one or more openings spaced from lateral edges of the bottom panel. The first side panel may extend from a first lateral edge of the bottom panel and the second side panel may extend from a second lateral edge of the bottom panel. The top panel may extend from one of the first side panel and the second side panel. In

some cases, the box blank may include a tab in the top panel, where the tab may be spaced from all side panels of the box blank.

[0007] Another illustrative embodiment is a method of using a box blank. The method may include folding each of four side panels extending from a bottom panel of the box blank. The four side panels of the box blank may be folded to a position substantially perpendicular to the bottom panel. Illustratively, the method may include folding a top panel extending from one or more of the four side panels to a position substantially perpendicular to one or more of the side panels from which the top panel may extend. Folding the top panel may form an interior space at least partially defined between the bottom panel, the four side panels, and the top panel. In some cases, the method may include folding a tab of the top panel away from the interior space. The tab of the top panel may be spaced from lateral edges of the four side panels adjacent the top panel.

[0008] The above summary of some example embodiments is not intended to describe each disclosed embodiment or every implementation of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The invention may be more completely understood in consideration of the following detailed description of various embodiments in connection with the accompanying drawings, in which:

[0010] FIG. 1 is a schematic perspective view of an illustrative container in a folded configuration;

[0011] FIG. 2 is a schematic top plan view of the illustrative container of FIG. 1;

[0012] FIG. 3 is a schematic bottom plan view of the illustrative container of FIG. 1;

[0013] FIG. 4A is a schematic perspective view of two containers illustratively stacked on top of one another;

[0014] FIG. 4B is a schematic cross-section view of the two containers illustratively stacked on top of one another of FIG. 4A, taken along line 4B-4B;

[0015] FIG. 5 is a schematic plan view of the illustrative container of FIG. 1 in an unfolded configuration;

[0016] FIGS. 6-9 depict an illustrative flow of folding the illustrative container of FIG. 1;

[0017] FIG. 10 is a schematic perspective view of an illustrative container in a folded configuration;

[0018] FIG. 11 is a schematic top plan view of the illustrative container of FIG. 10;

[0019] FIG. 12 is a schematic bottom plan view of the illustrative container of FIG. 10;

[0020] FIG. 13 is a schematic plan view of the illustrative container of FIG. 10 in an unfolded configuration;

[0021] FIG. 14 is a schematic perspective view of an illustrative container in a folded configuration;

[0022] FIG. 15 is a schematic front view of the illustrative container of FIG. 14;

[0023] FIG. 16 is a schematic cross-section view of the illustrative container of FIG. 14, taken along line 16-16 in FIG. 15;

[0024] FIG. 17 is a schematic plan view of the illustrative container of FIG. 14 in an unfolded configuration;

[0025] FIG. 18 is a schematic perspective view of an illustrative container in a folded configuration;

[0026] FIG. 19 is a schematic front view of the illustrative container of FIG. 18;

[0027] FIG. 20 is a schematic cross-section view of the illustrative container of FIG. 18, taken along line 20-20 in FIG. 19;

[0028] FIG. 21 is a schematic plan view of the illustrative container of FIG. 18 in an unfolded configuration;

[0029] FIGS. 22-25 are schematic perspective views of containers having various illustrative dimensions.

[0030] While the invention is amenable to various modifications and alternative forms, specifics thereof have been shown by way of example in the drawings and will be described in detail. It should be understood, however, that the intention is not to limit aspects of the invention to the particular embodiments described. On the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention.

DETAILED DESCRIPTION

[0031] For the following defined terms, these definitions shall be applied, unless a different definition is given in the claims or elsewhere in this specification.

[0032] All numeric values are herein assumed to be modified by the term “about”, whether or not explicitly indicated. The term “about” generally refers to a range of numbers that one of skill in the art would consider equivalent to the recited value (i.e., having the same function or result). In many instances, the term “about” may be indicative as including numbers that are rounded to the nearest significant figure. Additionally, “about” may refer to being near or at an object (e.g., about an edge).

[0033] The recitation of numerical ranges by endpoints includes all numbers within that range (e.g., 1 to 5 includes 1, 1.5, 2, 2.75, 3, 3.80, 4, and 5).

[0034] Although some suitable dimensions, ranges, and/or values pertaining to various components, features, and/or specifications are disclosed, one of skill in the art, incited by the present disclosure, would understand desired dimensions, ranges, and/or values may deviate from those expressly disclosed.

[0035] As used in this specification and the appended claims, the singular forms “a”, “an”, and “the” include plural referents unless the content clearly dictates otherwise. As used in this specification and the appended claims, the term “or” is generally employed in its sense including “and/or” unless the content clearly dictates otherwise.

[0036] Any numbers (e.g., first, second, third, fourth, etc.), letters (e.g., a, b, c, etc.), directional referents (e.g., left, right, top, bottom, up, down, front, back, corner etc.), or other terms (e.g., sides) used to describe features relative to another feature (e.g., a first side and a second side or side A and side B or a left side and a right side) are used for clarity of descriptiveness purposes and are not meant to limit the interpretation or scope of such features.

[0037] The following detailed description should be read with reference to the drawings in which similar elements in different drawings are numbered the same. The detailed description and the drawings, which are not necessarily to scale, depict illustrative embodiments and are not intended to limit the scope of the invention. The embodiments depicted are intended only as illustrative. Selected features of any illustrative embodiment may be incorporated into an additional embodiment unless clearly stated to the contrary.

[0038] Although containers configured for stacking on top of one another are known, there is an ongoing need to provide alternative containers configured to be stacked on top of one

another. Additionally or alternatively, there is an ongoing need to provide alternative methods of forming and using containers configured to be stacked on top of one another.

[0039] Containers may begin as sheets of materials (e.g., corrugated cardboard, other paper materials, metal, plastic, and/or other material). The sheets of material may be cut and/or perforated to form a box blank or unfolded container having panels of the container and fold lines for forming a top, bottom, and sides of the container. The box blank or unfolded container may be formed (e.g., folded, bent, etc.) into a partial folded configuration or a folded configuration and one or more of the panels thereof may be connected to another panel thereof (e.g., with an adhesive or other connection mechanism). A machine and/or an operator may perform the forming of the box blank or unfolded configuration into the folded configuration.

[0040] Once a container is formed, the container may be filled with items for storing in the container. In some cases, one or more tabs or panels may be secured to another panel (e.g., via an adhesive or other connection mechanism) to secure therein the items filled into the container.

[0041] Filled (or unfilled) containers may be stacked. In some cases, the containers may be stacked by a machine and/or an operator. As discussed below, a container may include a tab on a top of the container and spaced (e.g., medially spaced) from lateral edges of the top and an opening on a bottom of the container, where the tab and opening facilitate positioning of containers on top of one another and/or stability in stacks of containers due to the opening on the bottom of the container being configured to receive the tab on the top of an adjacent container to limit general horizontal movement (e.g., movement in an x-direction and/or a y-direction) of containers stacked on top of one another.

[0042] An illustrative container 10 in a folded configuration is shown in FIG. 1. In one example of a container 10, the container 10 may include a top 12, a bottom 14, a front side 16, a back side 18, a left side 20, and a right side 22. In some instances, the container 10 may include one or more tabs 24 (e.g., a first tab 24a and a second tab 24b, or different number of tabs) in or at the top 12. As shown illustratively in the Figures, the container 10 may include one or more corner sides 26 (e.g., a first corner side 26a, a second corner side 26b, a third corner side 26c, and a fourth corner side 26d).

[0043] Although the container 10 may be depicted in the Figures with a certain number of sides, the container 10 may include any suitable number of sides. For example, the container may include four (4) sides, five (5) sides, six (6) sides, seven (7) sides, eight (8) sides, nine (9) sides, ten (10) sides, fifteen (15) sides, twenty (20) sides, or any other suitable number of sides. Sides, as used herein, may be a relative term and a side may be a portion of a container or other element that extends or partially extends between a top and a bottom of that object.

[0044] The top, bottom and each side of the container may be formed with or may include one or more panels and have any configuration. In one example of a container 10 as shown throughout FIGS. 1-9, the top 12 may include a first top piece or panel 12a and a second top piece or panel 12b, the front side 16 may be a single panel, the back side 18 may be a single panel, left side 20 may include a first left panel 20a, a second left panel 20b, a third left panel 20c, a fourth left panel 20d, and a fifth left panel 20e, the right side panel may include a first right panel 22a, a second right panel 22b, a third right panel 22c, a fourth right panel 22d, and a fifth right panel 22e,

and each corner side 26 may include three panels (e.g., first corner panel 26', a second corner panel 26'', and a third corner panel 26''', as shown in FIG. 1).

[0045] Although the panels forming the various sides may form gaps extending there between, this is not required. Between any two or more panels forming a side or between panels forming adjacent sides, there may be a gap of any suitable size, or even no gap at all such that edges of the relevant panels may be touching.

[0046] The tabs 24 may extend from the top 12 and may include any suitable number of edges and may take on any suitable shape. In one example, as shown in the Figures, a tab 24 may include four edges, where three edges 28 may be free, detached, and/or unconnected from the panel(s) forming the top 12 and one edge 30 that may be connected to and/or extend from a panel of the top 12 (e.g., a hinge or hinge link connection). In another example, one or more edges of the tab 24 may have a perforated connection or attachment to a remainder of the top 12 such that when desired the perforations on the tab 24 may be separated to allow the tab 24 to be folded or removed.

[0047] Illustratively, the tab 24 may be configured to be folded or bent about the edge 30 such that an exterior surface of the tab 24 opposite an interior surface thereof (when the container 10 is in a folded configuration) is folded onto or adjacent an exterior surface of a panel of the top 12. In some cases, the tab 24 may be configured (e.g., elongated) to be folded back one or more times to increase or decrease a thickness of the tab 24, as desired, or for other purposes. For example, if the tab 24 is folded back once, then the thickness of tab 24 may be the thickness of the material of the container 10, and if the tab 24 is folded back twice, then the thickness of the tab 24 may be twice the thickness of the material of the container 10, and so on. The additional tab thickness may reduce the likelihood of inadvertent dislodgement or disengagement from an adjacent box in a stack.

[0048] Although the tab 24 is disclosed herein as a rectangle, the tabs 24 may take on any suitable shape and have any suitable number of edges. Additionally, in some instances, the tabs 24 may be sized to promote strength in a container 10 and/or in a stack of containers 10, to facilitate positioning a container 10 on top of another container 10, and/or to resist twisting between containers 10 of a stack of containers. In one example, enlarging a tab 24 relative to a top 12 of a container 10 (e.g., to coordinate a size of a tab with one or more dimensions of a container or for other purposes) may increase stability of a stack of containers and/or increase resistance to twisting of the stack.

[0049] Although the tabs 24 described herein have one or more edges 30 connected to or extending from a panel of the top 12, one or more tabs may be configured in one or more other manners. In one example, all of a tab's edges may be free from connection to the panel(s) of the top 12, such that the tab may be set on a panel of the top 12 and secured thereto rather than being folded onto the panel of the top 12.

[0050] Tab 24 may be connected to a panel of the top 12 through one or more affixing and/or connection techniques. For example, a tab 24 may be connected to a panel of the top 12 with an uncut edge (e.g., edge 30), a bonding connection (e.g., an adhesive, weld, etc.), an extension engaging an opening (e.g., extending an extension through a slit or slot), and/or through one or more other connection techniques.

[0051] FIG. 2 is a schematic top plan view of the container 10 with one tab 24 extending from each panel 12a, 12b of the

top 12 and folded over edge 30 of the tab 24 (e.g., folded in a direction of the front side 16 or the back side 18). When the tabs 24 are folded over edge 30, the respective panel(s) of the top 12 may at least partially define an opening 34 through the panels 12a, 12b of the top side 12 into an interior space 44 of the container 10. In one example as shown in FIG. 2, the opening 34 may be at least partially defined by the associated panel 12a, 12b of the top 12 and the gap 32 between panels. Alternatively, the opening 34 may be entirely defined by a panel of the top 12 (see e.g., opening 234 in FIG. 14).

[0052] The top 12 may include lateral edges 36. The lateral edges 36 of the top 12 may be formed along and/or adjacent lateral edges 36 of one or more of the sides of the container 10. In one example, the lateral edges of the top 12 may be formed along and/or adjacent one or more of lateral edges 38 of the front side 16, the back side 18, the left side 20, the right side 22, and the corner sides 26.

[0053] The tabs 24 may be formed and/or positioned at any suitable location on the top 12. In one example, the tabs 24 may be spaced (e.g., medially and/or laterally spaced) from one or more of the front side 16, the back side 18, the left side 20, the right side 22, and the corner sides 26. Illustratively, the tabs 24 may be laterally spaced from lateral edges 36 of the top 12 adjacent to and/or lateral edges 38 of the front side 16, the back side 18, the left side 20, the right side 22, and the corner sides 26. In some instances, the tabs 24 may be formed in the top side 12 such that the tabs 24 may be spaced from all lateral edges 36 of panels forming the top 12 and/or may include one or more edges that form and/or run along a central edge 36' of a panel at least partially forming the top 12. The central edge 36' may extend between two lateral edges 36 of the top 10 and may otherwise be non-adjacently spaced from the lateral edges 36 of the top 10.

[0054] The bottom 14 of the container 10 may be at least partially defined by lateral edges 39 adjacent lateral edges 38 of the front side 16, the back side 18, the left side 20, the right side 22, and/or the corner sides 26. In some cases, the bottom 14 may include one or more openings 40. The openings 40 may be at least partially defined by edges 42, where one or more or all of the edges 42 may be spaced laterally inward from lateral edges 39 of the bottom 14, as shown in FIG. 3.

[0055] The openings 40 in the bottom 14 of a first container 10a may be configured to receive tabs 24 of a second container 10b on which the first container 10a may be stacked. As shown in FIGS. 4A and 4B, when the first container 10a is stacked or positioned on a top 12 of the second container 10b, each opening 40 may receive a tab 24 (e.g., one or more tabs 24). Illustratively, the openings 40 may be configured on the bottom 14 to align with tabs 24 and receive the tabs 24 therein. The number of openings 40 on the bottom 14 of the container 10b may correspond to the number of tabs 24 on the top of the container 10b, however, it may be appreciated that the number of openings 40 on the bottom 14 of a container may differ from the number of tabs on the container so as to allow containers having a different number of tabs to be combined in a stack.

[0056] FIG. 4B is a cross-section taken along line 4B-4B in FIG. 4A and depicts a cross-section of a tab 24 received in or inserted into the opening 40. In one example, the tab 24 may be inserted into the opening 40 so as to limit side to side movement as the edges 42 defining the opening 40 are configured to engage on a tab 24 received in the opening 40 to limit side-to-side movement of one or both of the first con-

tainer 10a and the second container 10b relative to the other of the first container 10a and the second container 10b.

[0057] In some instances, the container 10 may be formed from a single piece of material (e.g., the material may be or may include corrugated cardboard, cardboard, paper, metal, plastic, or other material). FIG. 5 is a schematic plan view of a container 10 formed from a single piece of material in an unfolded configuration (e.g., as a blank). Unfolded container 10 may be folded in one or more manners. FIGS. 6-9 depict one illustrative method of folding panels of the box blank or unfolded container 10 to form a folded container 10, as shown in FIG. 1.

[0058] Although FIGS. 6-9 depict a method of folding the container 10, this illustrative method of folding is not meant to be limiting and the blank or unfolded container 10 may be folded using one or more additional or alternative steps (e.g., via wrapping the unfolded container 10 around a mandrel, etc.) to achieve the configuration of container 10 or one or more other container configurations. One skilled in the art may appreciate that the particular method of container assembly (e.g., an automated method or a manual method) as well as particular equipment and/or materials of a container may dictate timing and/or sequence of folding the container 10, including the tabs 24 thereof. Illustratively, the tabs 24 may be folded at any suitable time during an assembly or folding of the container 10 including, but not limited to, prior to any other folds, after all other folding steps, or any time there between.

[0059] FIG. 6 depicts the container 10 of FIG. 5 with portions of the left side 20, right side 22, and the corner sides 26 in a folded configuration. For example, second corner panels 26" of the corner sides 26 which may extend from one of a panel of the front side 16 and a panel of the back side 18 may be folded with respect to panels forming the front side 16 and the back side 18 of the container 10. Generally, second corner panels 26" of the corner sides 26 may be folded about forty-five (45) degrees with respect to the respective panels of the front side 16 and the back side 18. Alternatively, the second corner panels 26" may be folded to any other suitable angle with respect to the respective panels of the front side 16 and/or the back side 18. Similarly, although other panels of the container 10 may be discussed herein as being folded to a particular angle or to about a particular angle with respect to other panels or portions of container 10, these other panels may be folded to any other suitable angle than the one specified.

[0060] In the example of FIG. 6, panels 20c, 20d, 22c, and 22d of the left side 20 and right side 22 of the container 10 and extending from the second corner panels 26" of the corner sides 26 may be folded with respect to second corner panels 26" of the corner sides 26. Generally, each of the panels 20c, 20d, 22c, and 22d may be folded about forty-five (45) degrees with respect to the respective second corner panels 26" from which the panels 20c, 20d, 22c, and 22d extend.

[0061] FIG. 7 depicts the container of FIG. 6 with the back side 18 in a folded configuration. For example, a panel of the back side 18 which extends from a panel of the bottom 14 may be folded upward until the back side 18 reaches a position about ninety (90) degrees from the panel of the bottom 14. Such positioning of a panel of the back side 18 at about ninety (90) degrees relative to a panel of the bottom 14 may position folded second corner panels 26" extending from the back side 18, folded third left panel 20c, and folded third right panel 22c at positions approximately ninety (90) degrees from the bot-

tom 14. With folded second corner panels 26" of the corner sides 26 extending from the back side 18, the folded panels 20c and 22c of the left side 20 and the right side 22, and the folded panel of the back side 18, the container 10 begins to define an interior space 44.

[0062] FIG. 8 depicts the container of FIG. 7 with the front side 16, a portion of the top 12, and more portions of the left side 20 and the right side 22 in a folded configuration. For example, a panel of the front side 16 which may extend from a panel of the bottom 14 may be folded upward until the front side 16 reaches a position about ninety (90) degrees from a panel of the bottom 14. Such positioning of a panel of the front side 16 at about ninety (90) degrees relative to a panel of the bottom 14 may position second corner panels 26" extending from the front side 16, folded left side panel 20d, and folded right side panel 22d at a position approximately ninety (90) degrees from the bottom 14. With all of the folded second corner panels 26" of the corner sides 26, the folded panels 20c, 20d, 22c, 22d, of the left side 20 and the right side 22, and the folded panels of the front side 16 and the back side 18 in a folded position, the container 10 may further define an interior space 44.

[0063] In the illustrative method of folding the blank or unfolded container 10, the panels 20e, 22e of the left and right side may be folded upward until the panels 20e, 22e reach a position about ninety (90) degrees from a panel of the bottom 14. Such positioning of the panels 20e, 22e at about ninety (90) degrees relative to a panel of the bottom 14 may position first corner panels 26' at a position approximately ninety (90) degrees from the bottom 14.

[0064] As illustrated, the first corner panels 26' may be folded inward until the corner panels reach about forty-five (45) degrees with respect to either panel 20e, 22e from which it extends. When the panels 20e, 22e are folded to a position about ninety (90) degrees from the bottom 14 and the container 10 is in a folded configuration, the first corner panels 26' may wrap or extend around or about (e.g., underlay or overlay) the second corner panels 26". As an alternative to positioning the first corner panels 26' at a position about forty-five (45) degrees from the bottom 14, the first corner panels 26' may be folded to any other suitable angle with respect to a panel of the bottom 14.

[0065] As shown in FIG. 8, a panel of the top 12 (e.g., first top panel 12a) may be folded inward until the first top panel 12a reaches a position about ninety (90) degrees from the front side 16 from which the first top panel 12a may extend, for example. As an alternative to positioning the first top panel 12a at a position about ninety (90) degrees from the front side 16, the first top panel 12a may be folded to any other suitable angle with respect to a panel of the front side 16. With the first top panel 12a in a folded position in conjunction with other folded panels of the container 10, the container 10 may further define an interior space 44. Although the Figures depict the top panel 12a and the top panel 12b being folded at separate times, these panels 12a, 12b, along with other panels, may be folded in other orders, including but not limited to at the same time.

[0066] The second panels 20b, 22b of the left and right side 20, 22 that may extend from the first top panel 12a may be folded inward until the panels 20b, 22b reach a position about ninety (90) degrees from the first top panel 12a. When the first top panel 12a is in a folded position, the panels 20b, 22b with respect to the first top panel 12a may underlay or overlay the fourth panels 20d, 22d of the left and right sides 20, 22. As an

alternative to positioning the panels 20*b*, 22*b* at about ninety (90) degrees from the first top panel 12*a* when in a folded position, the panels 20*b*, 22*b* may be folded to any other angle with respect to the first top panel 12*a*.

[0067] As illustrated, the third corner panels 26''' that may extend from the panels 20*b*, 22*b* may be folded inward until the third corner panels 26''' reach a position about forty-five (45) degrees from the panels 20*b*, 22*b*. When the second corner panels 26'', the first top panel 12*a*, and the panels 20*b*, 22*b* are in folded positions, the third corner panels 26''' may wrap or extend around or about (e.g., underlay or overlay) the second corner panels 26''. As an alternative to positioning the third corner panels 26''' extending from panels 20*b*, 22*b* at about forty-five (45) degrees from the panels 20*b*, 22*b*, the third corner panels 26' extending from panels 20*b*, 22*b* may be folded to any other suitable angle with respect to the panels 20*b*, 22*b*.

[0068] As shown in FIG. 9, a panel of the top 12 (e.g., second top panel 12*b*) may be folded inward until the second top panel 12*b* reaches a position about ninety (90) degrees from the back side 18 from which the second top panel 12*b* may extend, for example. As an alternative to positioning the second top panel 12*b* at a position about ninety (90) degrees from the back side 18, the second top panel 12*b* may be folded to any other suitable angle with respect to a panel of the back side 18. With the second top panel 12*b* in a folded position in conjunction with other folded panels of the container 10, the container 10 may further define an interior space 44.

[0069] The first panels 20*a*, 22*a* of the left and right side 20, 22 that may extend from the second top panel 12*b* may be folded inward until the panels 20*a*, 22*a* reach a position about ninety (90) degrees from the second top panel 12*b*. When the second top panel 12*b* is in a folded position and the panels 20*a*, 22*a* are folded with respect to the second top panel 12*b*, the panels 20*a*, 22*a* may underlay or overlay the third panels 20*c*, 22*c* of the left and right sides 20, 22. As an alternative to positioning the panels 20*a*, 22*a* at about ninety (90) degrees from the second top panel 12*b* when in a folded position, the panels 20*a*, 22*a* may be folded to any other suitable angle with respect to the second top panel 12*b*.

[0070] The third corner panels 26''' that may extend from the panels 20*a*, 22*a* may be folded inward until the third corner panels 26' reach a position about forty-five (45) degrees from the panels 20*a*, 22*a*. When the second corner panels 26'', the second top panel 12*b*, and the panels 20*a*, 22*a* are in folded positions, the third corner panels 26''' may wrap or extend around or about (e.g., underlay or overlay) the second corner panels 26''. As an alternative to positioning the third corner panels 26''' extending from panels 20*a*, 22*a* at about forty-five (45) degrees from the panels 20*a*, 22*a*, the third corner panels 26''' extending from panels 20*a*, 22*a* may be folded to any other suitable angle with respect to panels 20*a*, 22*a*.

[0071] As shown in FIG. 9, the tabs 24 cut, formed, and/or extending from the top 12 of the container 10 may be folded over edge 30 of the tab 24. Tab 24 may be folded over edge 30 such that an interior surface 48 of the container 10 on tab 24 faces outward from the container and an exterior surface 46 of the container 10 on tab 24 may rest on the exterior surface 46 of the container 10 on the top 12.

[0072] The tabs 24 may have consistency in size and configuration due to being only folded over a single edge 30. In such instances, the tabs 24 may extend at least a thickness of the material of the container 10 above the exterior surface 46

of the container 10 on the top 12. Alternatively, or in addition, other positioning of the tab 24 with respect to the top 12 may be utilized such that the tab 24 may be elevated above an exterior surface 46 of the container 10 on the top 12 so as to be received in an opening 40 of a container 10 stacked thereon. For example, as discussed above, the tab 24 may be folded over multiple times to adjust a thickness of the tab 24.

[0073] Although the Figures may depict the tabs on a top of a container as being mirrored about one or more edges (e.g., edge 36') or about the top, the tabs may be non-mirrored (e.g. non-uniformly configured). In another example, a first tab on a top may have a first surface area and a second tab on the top may have a second surface area larger than the first surface area. In some cases, a top of a container may have one larger tab and two or more smaller tabs, or other combinations of tabs have various sizes. In still other embodiments, the tabs on the container may be unevenly distributed about the top of the container.

[0074] In some cases, a portion of the top 12 may be removed from around any cut edges of tab 24 so as to create space between the cut edges of the tab and a panel of the top 12, where the space may facilitate engaging the tab for folding the tab or having one or more other purposes. The space around cut edges of tab 24 is not required.

[0075] The tabs 24 may have any suitable dimension and any suitable size. For example, the tabs 24 may be at least generally square, rectangular, triangular, circular, and/or have any suitable number of sides or edges. Examples sizes of the tabs may include tabs 24 having a height or thickness (e.g., in a Z-direction) of about a caliper (e.g., a thickness of the material from which the container is formed) and measurements of dimensions in a horizontal or X-Y direction with an X-direction dimension of between 0.125"-12", 1"-10", 1"-5", 1"-3", or greater and a Y-direction dimension of between 0.125"-12", 1"-10", 1"-5", 1"-3" or greater. The height, thickness or Z-direction dimensions may be configured to be received in opening 40 of an adjacent container, but not extend substantially into the interior space 44 of the container 10. In some cases a material thickness of the container 10 may be 0.0125", 0.125", 0.25", 0.375", 0.5", 0.75", 1", a thickness there between, or other thickness.

[0076] As discussed above, the tabs 24 positioned on the top 12 on an exterior surface 46 of the container 10 may facilitate or promote stability in a stack of containers 10 stacked on top of one another. Openings 40 in the bottom 14 of the container 10 may be configured to receive the tabs 24 therein and as a result, the edges 42 of the openings 40 may engage the edges 28, 30 of the tabs 24 as one or more stacked containers 10 may be urged in a horizontal direction (e.g., an X-direction or Y-direction).

[0077] The openings 40 may be sized equal to or larger than a surface area of the tabs, and/or may have any suitable dimensions. In one example, the openings 40 may have a tolerance of between 1/32" and 1" in one or more direction, between 1/16" and 1" in one or more direction, between 1/8" and 1" in one or more direction, between 1/4" and 1" in one or more direction, between 1/2" and 1" in one or more direction, or other tolerance in one or more direction to facilitate receiving the tabs 24 while maintaining X- and Y-direction stability in a stack of containers 10. Illustratively, if a tab 24 has dimensions of 1"×1", an opening 40 may have dimensions of 1.125"×1.125" or 1.25"×1.25", and if a tab 24 has dimensions of 3"×3", an opening 40 may have dimensions of 3.125"×3.125" or 3.25"×3.25". In some instances of the opening having

a greater tolerance (e.g., 0.25" or other suitable tolerance) around a tab, the opening may be configured to receive a tab for the purpose of aligning or positioning a containers relative to one another in a stack. In some instances of the opening having a lesser tolerance (e.g., 0.125" or other suitable tolerance) around a tab, the opening may be configured to receive a tab for the purpose of promoting stability in a stack of containers and/or for the purpose of resisting twisting of a stack of containers.

[0078] In instances when a tab 24 may be positioned on an exterior surface 46 the top 12 of the container 10, the tab 24 may be connected to one or more panels of the top 12. In one example, the tab 24 may be at least partially connected to the one or more panels of the top 12 via an adhesive (e.g., resin, glue, or other adhesive). Alternatively, or in addition, the tabs 24 and/or the top 12 of the container 10 may include connectors (e.g., inserts that may engage openings on either or both of the tabs 24 and the top 12 of the container 10) configured to maintain a connection between the tabs 24 and the tops 12 with or without an adhesive or other connector.

[0079] Although the tabs 24 are shown and described in FIGS. 1-9 as being cut from a top panel 12a, 12b, one or more tabs 124 may, additionally or alternatively, extend from a center edge 136' and away from a lateral edge 136 substantially opposite the center edge 136' of one or more panels of the top 112 of the container 110, as shown for example in FIGS. 10-13. Some reference numerals represented on FIGS. 10-13 are not specifically discussed as, unless expressly indicated otherwise, reference numerals shown in FIGS. 10-13 having "100" added thereto indicate similar features as the reference numerals without "100" added thereto in FIGS. 1-9. As shown in FIG. 13, which is a schematic illustration of a blank or the container 110 in an unfolded configuration, the tabs 124 may extend from and away (e.g., outward) from a center edge 136' of the top panels 112a, 112b and may include free or unconnected edges 128 and connected edge 130. Although the tabs 124 take a rectangular form in the example of FIGS. 10-13, the tabs 124 of this example may be any suitable shape and/or size, similar to as discussed with respect to tabs 24. In some instances, as shown in FIGS. 10 and 11, the tabs 124 may be folded over edge 130 of the tabs 124 at which the tabs 124 may be connected or secured to one of the top panels 112a, 112b. In this instance, edges 130 of the tabs 124 may be coincident with the center edge 136' of the top panels 112a, 112b.

[0080] As shown in FIGS. 12 and 13, the openings 140 in the bottom 114 may be positioned therein to receive the tabs 124 extending from the center edge 136' of the top panels. When the dimensions of the container 10 in the examples of FIGS. 1-9 and the container 110 of FIGS. 10-13 are generally the same, the openings 140 may be positioned more central to an imaginary or real center line dividing the bottom 114 into substantially equal parts than the openings 40 configured to receive tabs 24 due to the positioning of the tabs 124 more central on the top 112 relative to the positioning of the tabs 24 on the top 12. However, this is not required as tabs 124 may have varying dimensions and/or positioning about the top 12.

[0081] Although the tabs 24, 124 are shown and described in the examples of FIGS. 1-13 as being adjacent center edges 36', 136' of the top 12, 112 of the containers 10, 110, one or more tabs 224 may, additionally or alternatively to one or more tabs 24, 124 being adjacent center edge 36', 136', may be positioned in a medial portion 236' of one or more panels (e.g., a single panel 212a as shown in the example of FIGS.

14-17 or multiple panels) of the top 212 of a container 210, as shown in example the container 210 of FIGS. 14-17. Some reference numerals represented on FIGS. 14-17 are not specifically discussed as, unless expressly indicated otherwise, reference numerals shown in FIGS. 14-17 having "200" added thereto indicate similar features as the reference numerals without "200" added thereto in FIGS. 1-9.

[0082] In one example container 210, the medial portion 236' may be a portion of the top 212 spaced from lateral edges 236 of the top 212 and/or spaced from lateral edges 238 of one or more of a panel of a glue tab 250 (e.g., where a glue tab 250 may be utilized to secure a top of the container in a closed position), a panel of a back side 218, a panel of a left side 220, and/or a panel of a right side 222. As depicted in FIG. 17, which is a schematic illustration of a blank or the container 210 in an unfolded configuration, the tabs 224 may be positioned in the medial portion 236' of the panel 212a of the top 212. Although the tabs 224 take a rectangular form in the example of FIGS. 14-17, the tabs 224 of this example may be any suitable shape and/or size (see discussion regarding shape and size of tabs 24, 124 above).

[0083] The tabs 224 may be defined by free or unconnected edges 228 cut into the panel 212a and a fold edge or line 230 about which the tabs 224 may be folded prior to being secured to an exterior surface 246 of the top 212 of the container 210. In one instance, space may be formed (e.g., material may be removed from the top 212) between the free or unconnected edges 228 and adjacent edges of the panel 212a of the top 212. In some instances, as shown in FIG. 14, the tabs 224 may be folded over edge 230 of the tabs 224 at which the tabs 224 may be connected to a top panel (e.g., one or more top panels 212a).

[0084] As shown in FIGS. 16 and 17, the openings 240 in the bottom 214 may be positioned therein to receive the tabs 224 of an adjacent container 210 extending from the center portion 236' of a top panel (e.g., the top panel 212a). As discussed above with respect to the examples of FIGS. 1-13, the openings 240 in the bottom side may be configured to receive tabs 224 of containers 210 on which a container 210 may be stacked and may be configured so as to be spaced, in some cases entirely, away from lateral edges 238 of the front side 216, the back side 218, the left side 220, and the right side 222 of the container 210.

[0085] The containers disclosed herein may take on one or more configurations. The containers may include, for example, three sides and a bottom; four sides and a bottom; four sides, a bottom, and a top; five sides, a bottom, and a top; six sides, a bottom, and a top; seven sides, a bottom, and a top; eight sides, a bottom, and a top; and/or any other suitable combination of sides. In the examples depicted in FIGS. 1-13, the containers 10, 110 may generally have eight (8) sides (e.g., a front side, a back side, a left side, a right side, and four corner sides), a top, and a bottom, where panels extending from panels of the left side, the right side, the front side, and/or the back side may be folded or bent to form corner sides, as discussed above. In the examples of FIGS. 14-21, the container may generally have eight (8) sides (e.g., a front side, a back side, a left side, a right side, and four corner sides), a top, and a bottom, where the ends of panels extending from the top and bottom and forming the left and right sides and extend out and over the corner sides formed from panels extending from panels of the front side and back side, but do not wrap around and form the corner sides.

[0086] A container 310 in a folded configuration is shown in FIG. 18. Some reference numerals represented on FIGS. 18-21 are not specifically discussed as, unless expressly indicated otherwise, reference numerals shown in FIGS. 18-21 having “300” added thereto indicate similar features as the reference numerals without 300 added thereto in FIGS. 1-9.

[0087] In one example of a container 310, the container 310 may include a top 312, a bottom 314, a front side 316, a back side 318, a left side 320, and a right side 322. In some instances, the container 310 may include one or more tabs 324 (similar to or different than the tabs 24, 124, 224 discussed above) in or at the top 312. As shown illustratively in the Figures, the container 310 may include one or more corner sides 326 (e.g., a first corner side 326a, a second corner side 326b, a third corner side 326c, and a fourth corner side 326d (see FIGS. 20 and 21)). Similar to as discussed above with containers 10, 110, 210, the container 310 may have any number of sides.

[0088] Each side of the container 310 may be formed with or may include one or more panels. In one example as shown throughout FIGS. 18-21, the top 312 may include a first top panel 312a and a second top panel 312b, the front side 316 may be a single panel, the back side 318 may be a single panel, the left side 320 may include a first left panel 320a (e.g., extending from a second top panel 312b), a second left panel 320b (e.g., extending from the first top panel 312a), a third left panel 320c (e.g., extending from the panel of the back side 318), a fourth left panel 320d (e.g., extending from the panel of the front side 316), and a fifth left panel 320e (e.g., extending from a panel of the bottom 314), the panels of the right side 322 may include a first right panel 322a (e.g., extending from the second top panel 312b), a second right panel 322b (e.g., extending from the first top panel 312a), a third right panel 322c (e.g., extending from the panel of the back side 318), a fourth right panel 322d (e.g., extending from the panel of the front side 316), and a fifth right panel 322e (e.g., extending from a panel of the bottom 314), and each corner side 326 may include a single panel (e.g., extending from either the panel of the front side 316 or extending from a panel of the back side 318).

[0089] As shown in the example of FIGS. 18-21, one or more panels of the left side 320 and one or more panels of the right side 322 may overlap the corner sides 326. As shown, for example, in FIG. 20, a gap as depicted by dotted line G may be formed between a panel of a corner side 326 and the second side panel 320b of the left side 320 of the container 310. Similarly, one or more gaps may be formed between each corner side 326 and one or more panels of the left side 320 and one or more panels of the right side 322 (e.g., at the positioning of panels of the left side 320 and panels of the right side 322 over the corner sides 326). In some instances, the gap G between the corner sides 326 and panels of the left side 320 and panels of the right side 322 may facilitate carrying, moving, forming, and/or breaking down of containers 310 by providing a location to grip the container 310 at a portion of the left side 320 and/or the right side 322 overlaying the corner sides 326.

[0090] FIG. 21 depicts an illustrative box blank or unfolded container 310. The openings 340 in the bottom 314 and the tabs 324 in the top 312 of the container 310 are similar to the openings 40 and tabs 24 described above with respect to the example container 10 of FIGS. 1-9. In the box blank or unfolded configuration of the container 310, the container 310 may include panels having tapered edges 352 along one

or more edges of the panels forming the left side 320 and/or the right side 322. The tapered edges 352 may be angled at the same or different angle as one or more other tapered edges 352. In one case, the tapered edges 352 of panels of the left side 320 and the right side 322 may facilitate stacking containers 310 next to one another as the tapered edges 352 may prevent panels of adjacent containers 310 from catching on one another. Additionally, or alternatively, the tapered edges 352 may be utilized for other purposes.

[0091] The containers described herein and the panels thereof may have any suitable dimension, as measured in width, height, and depth directions. As an example of containers with various dimension, FIGS. 22-25 depict containers 410, 510, 610 having various dimensions, where each of containers 410, 510, 610 may include one or more feature of containers 10, 110, 210, and/or 310 described herein. FIG. 22 depicts container 410 having a measurement of the width dimension that may be about two (2) times a measurement of the height dimension or a measurement of the depth dimension. FIG. 23 depicts container 510 having a measurement of the width dimension and a measurement of a height dimension that may both be about two (2) times a measurement of the depth dimension. FIG. 24 depicts container 610 having a measurement of the height dimension that may be about two (2) times a measurement of the width dimension or a measurement of the depth dimension. FIG. 25 depicts container 710 having a top 712 with two top panels 712a, 712b, where the top panels 712a, 712b have different dimensions (e.g., interior and/or exterior surface areas of the top panel 712a differs from the respective interior and/or exterior surface areas of the top panel 712b). As discussed, although specific relative dimensions may be provided with respect to containers 10, 110, 210, 310, 410, 510, 610, 710, and features thereof, the containers disclosed herein may have other dimensions, as desired.

[0092] Those skilled in the art will recognize that the present invention may be manifested in a variety of forms other than the specific embodiments described and contemplated herein. Accordingly, departure in form and detail may be made without departing from the scope and spirit of the present invention as described in the appended claims.

What is claimed is:

1. A container having an unfolded configuration and a folded configuration, the container comprising:

a bottom;
a first side at least partially adjacent to the bottom;
a second side at least partially adjacent to the bottom;
a third side at least partially adjacent to the bottom;
a fourth side at least partially adjacent to the bottom; and
a top at least partially extending from one of the sides, the top including one or more tabs laterally spaced from the first side, the second side, the third side, and the fourth side.

2. The container of claim 1, further comprising an opening extending through the bottom.

3. The container of claim 2, wherein the opening is formed in a panel of the bottom and the opening is spaced from all exterior edges of the panel of the bottom.

4. The container of claim 2, wherein the opening extending through the bottom is laterally spaced from first side, the second side, the third side, and the fourth side.

5. The container of claim 1, wherein the first side at least partially extends from the bottom and the second side at least partially extends from the bottom.

6. The container of claim 1, wherein the one or more tabs of the top include a first tab and a second tab.

7. The container of claim 1, wherein the top comprises a first top panel extending from the second side and a second top panel extending from the fourth side.

8. The container of claim 7, wherein the first top panel and the second top panel have substantially the same dimensions.

9. The container of claim 7, wherein when the container is in a folded configuration, the first top panel has an exterior surface with a first surface area and the second top panel has an exterior surface with a second surface area different in size than the first surface area.

10. The container of claim 7, wherein:

the first top panel includes a first tab of the one or more tabs; and

the second top panel includes a second tab of the one or more tabs.

11. The container of claim 7, wherein:

the first top panel has a first edge at a lateral edge of the second side and a second edge non-adjacently spaced from the first edge; and

the first top panel has one or more of the tabs extending from the second edge and in a direction away from the first edge.

12. The container of claim 7, wherein:

the first top panel has a first edge at a lateral edge of the second side and a second edge non-adjacently spaced from the first edge; and

the first top panel has one or more of the tabs extending from a position between the first edge and the second edge and terminating at about the second edge.

13. The container of claim 7, wherein:

the first top panel has a first edge at a lateral edge of the second side and a second edge non-adjacently spaced from the first edge of the first top panel;

the second top panel has a first edge at a lateral edge of the fourth side and a second edge non-adjacently spaced from the first edge of the second top panel; and

the second edge of the first top panel and the second edge of the second top panel are spaced from one another by a gap at least substantially along an entirety thereof when the container is in a folded configuration.

14. The container of claim 1, wherein in an unfolded configuration:

a panel of the second side extends from the bottom in a direction substantially perpendicular to a direction a panel of the first side extends from the bottom;

a panel of the third side extends from the bottom in a direction substantially perpendicular to the direction the panel of the second side extends from the bottom; and

a panel of the fourth side extends from the bottom in a direction substantially perpendicular to the direction the panel of the third side extends from the bottom.

15. A box blank for forming a container, comprising:

a bottom panel having one or more openings spaced from lateral edges of the bottom panel;

a first side panel extending from a first lateral edge of the bottom panel;

a second side panel extending from a second lateral edge of the bottom panel;

a top panel extending from one of the first side panel and the second side panel; and

a tab in the top panel, the tab being spaced from all side panels of the box blank.

16. The box blank of claim 15, wherein the top panel has a plurality of outer edges defining the top panel and the tab is spaced inward from each of the outer edges of the top panel.

17. The box blank of claim 15, wherein:

the top panel has a first edge at a lateral edge of one of the first side panel and the second side panel from which it extends;

the top panel has a second edge non-adjacently spaced from the first edge; and

wherein the tab extends from the second edge of the top panel and extends away from the first edge.

18. The box blank of claim 15, wherein:

the top panel includes a first top piece having a first edge extending along a lateral edge of the first side panel and a second edge non-adjacently spaced from the first edge; and

the top panel includes a second top piece having a first edge extending along a lateral edge of the second side panel and a second edge non-adjacently spaced from the first edge.

19. The box blank of claim 18, wherein the tab in the top panel has a lateral edge formed from a lateral edge of the second edge of one of the first top piece and the second top piece.

20. A method of using a box blank, the method comprising: folding each of two side panels extending from a bottom panel of the box blank, such that the two side panels are folded to a position substantially perpendicular to the bottom panel;

folding a top panel extending from one or more of the two side panels to a position substantially perpendicular to one or more side panels from which the top panel extends to form an interior space at least partially defined between the bottom panel, the two side panels, and the top panel; and

folding a tab of the top panel away from the interior space, wherein the tab of the top panel is spaced from lateral edges of the top panel.

21. The method of claim 20, wherein the tab has a lateral edge formed at about a medial edge of the top panel, the medial edge of the top panel is located substantially parallel to a first lateral edge of the top panel and extends between a second lateral edge and a third lateral edge of the top panel.

22. The method of claim 20, wherein the top panel includes a first tab and a second tab both spaced from lateral edges of the top panel, the method further comprising folding each of the first tab and the second tab away from the interior space.

* * * * *