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(54) **STACKABLE CARTON, BLANK AND METHOD OF FORMING**

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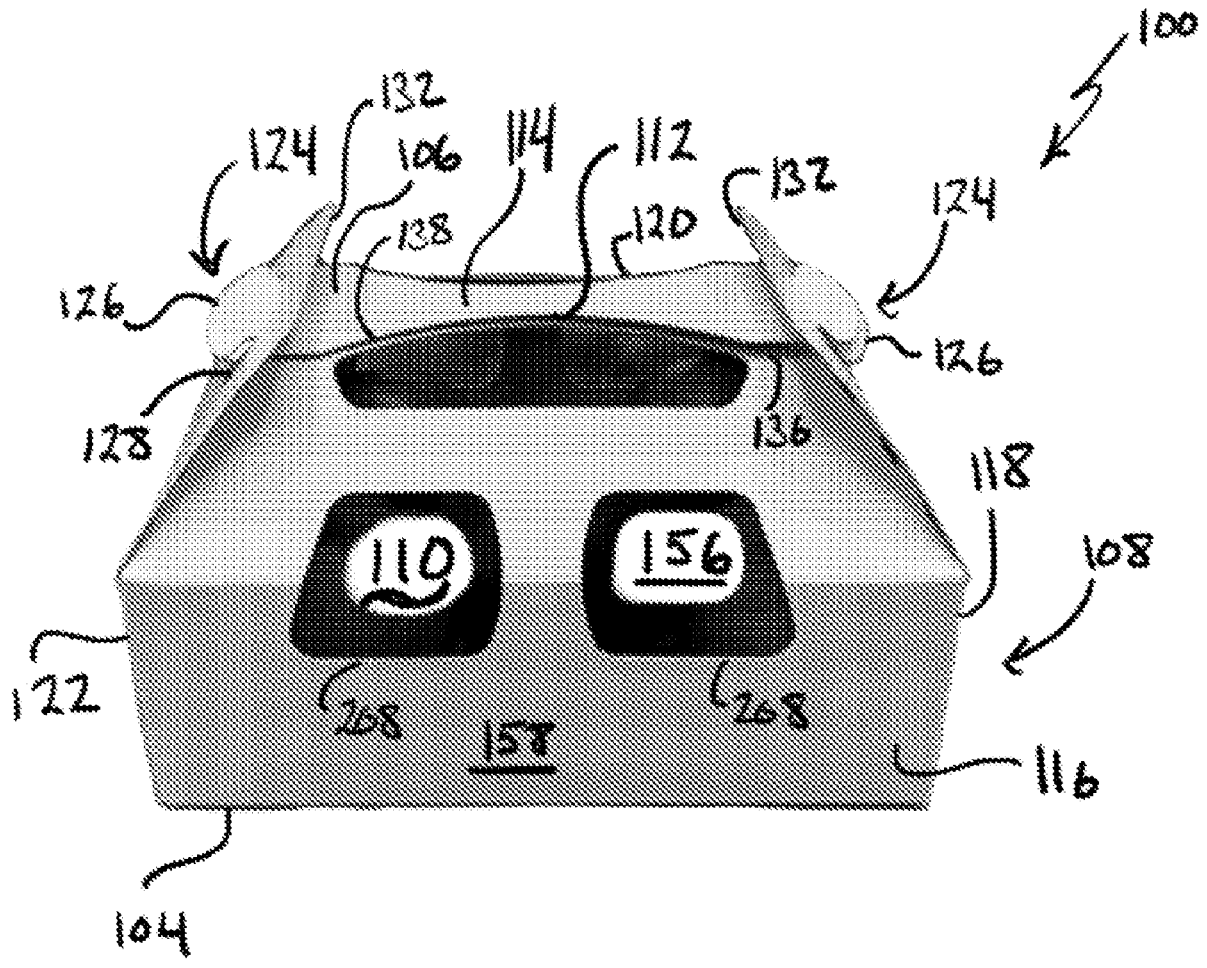
(57) **ABSTRACT**

Carton (**100**) includes a bottom wall (**104**), a plurality of side walls (**140**, **142**, **144**, **146**) connected to the bottom wall, and a top wall (**106**) releasably coupled to one of the side walls. The carton also includes a handle (**112**) formed by at least a portion of the top wall. The carton further includes a planar surface (**114**) at least partially formed by the handle (**112**) and the top wall (**106**).



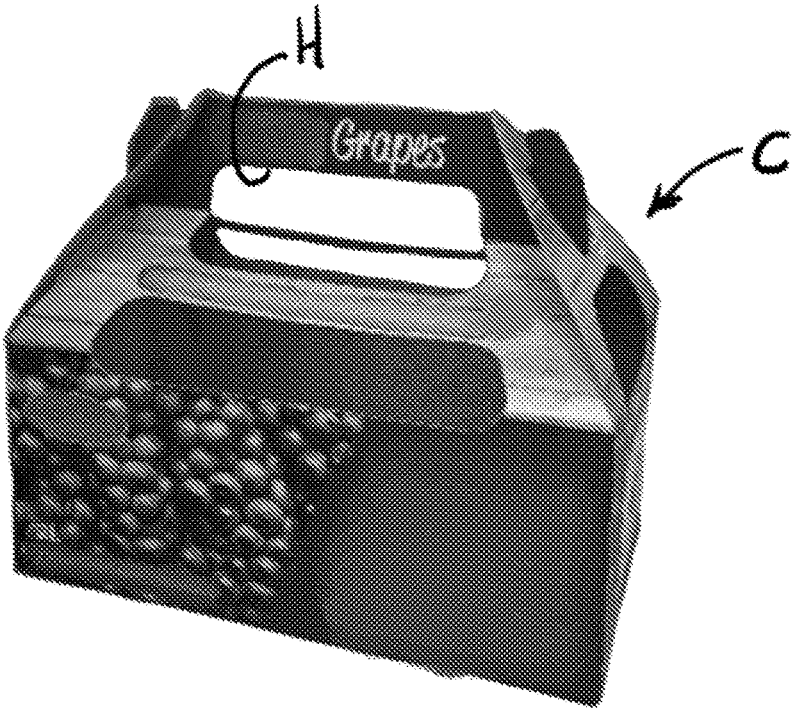


Fig. 1

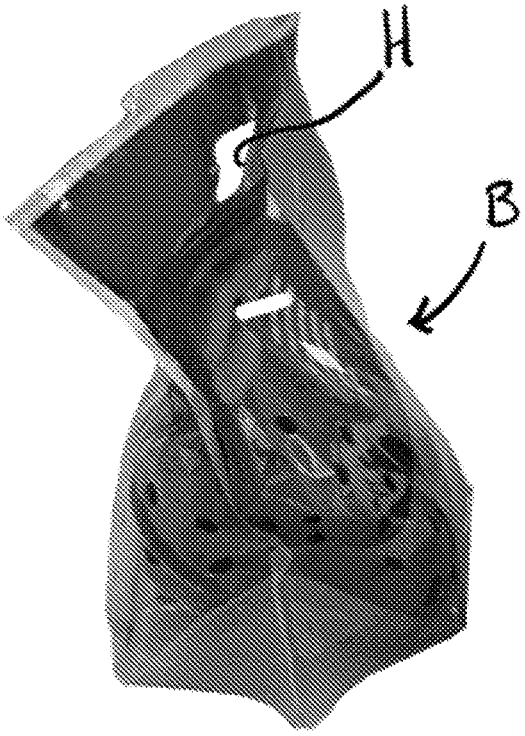


Fig. 2

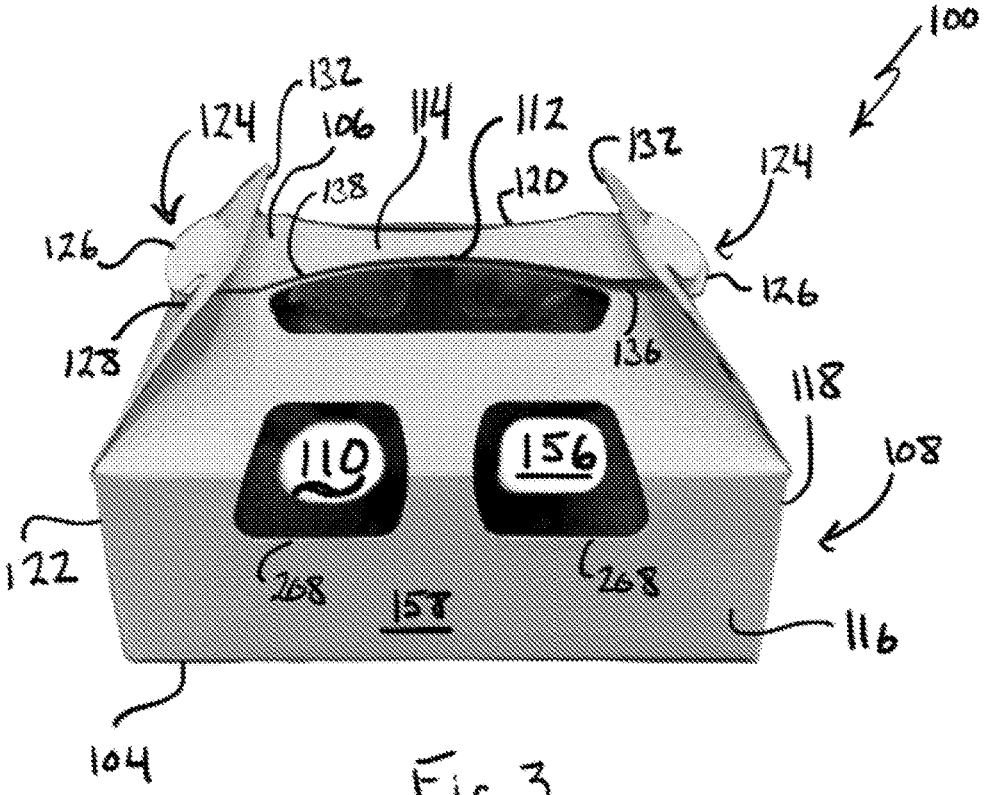

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Fig. 3

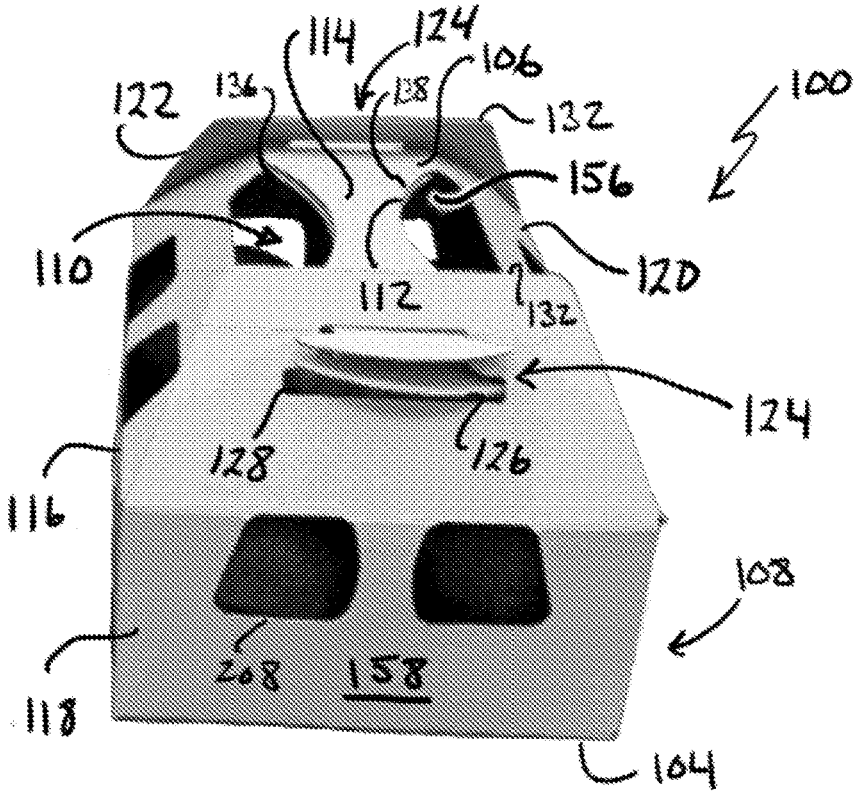
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Fig. 4

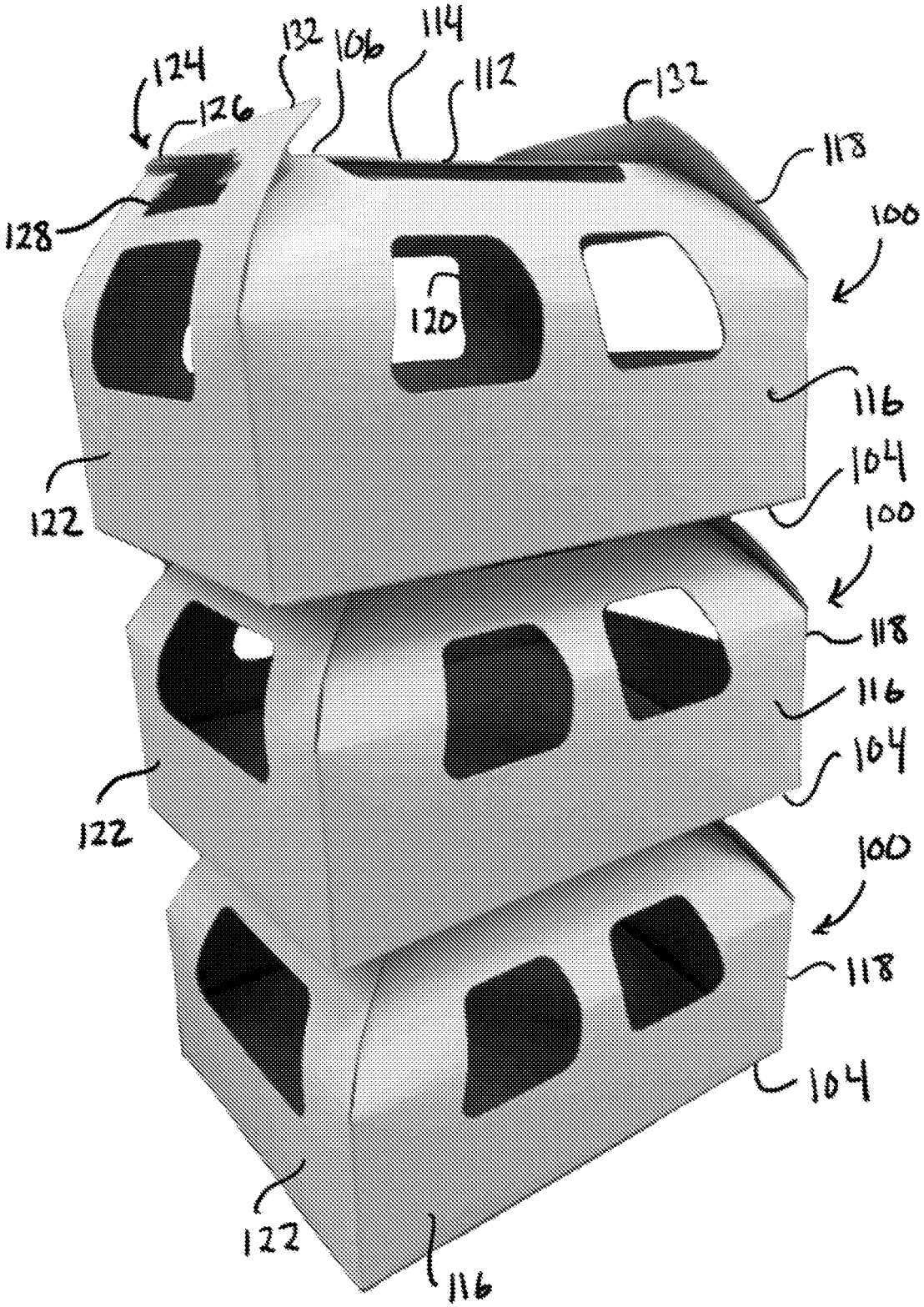
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Fig. 5

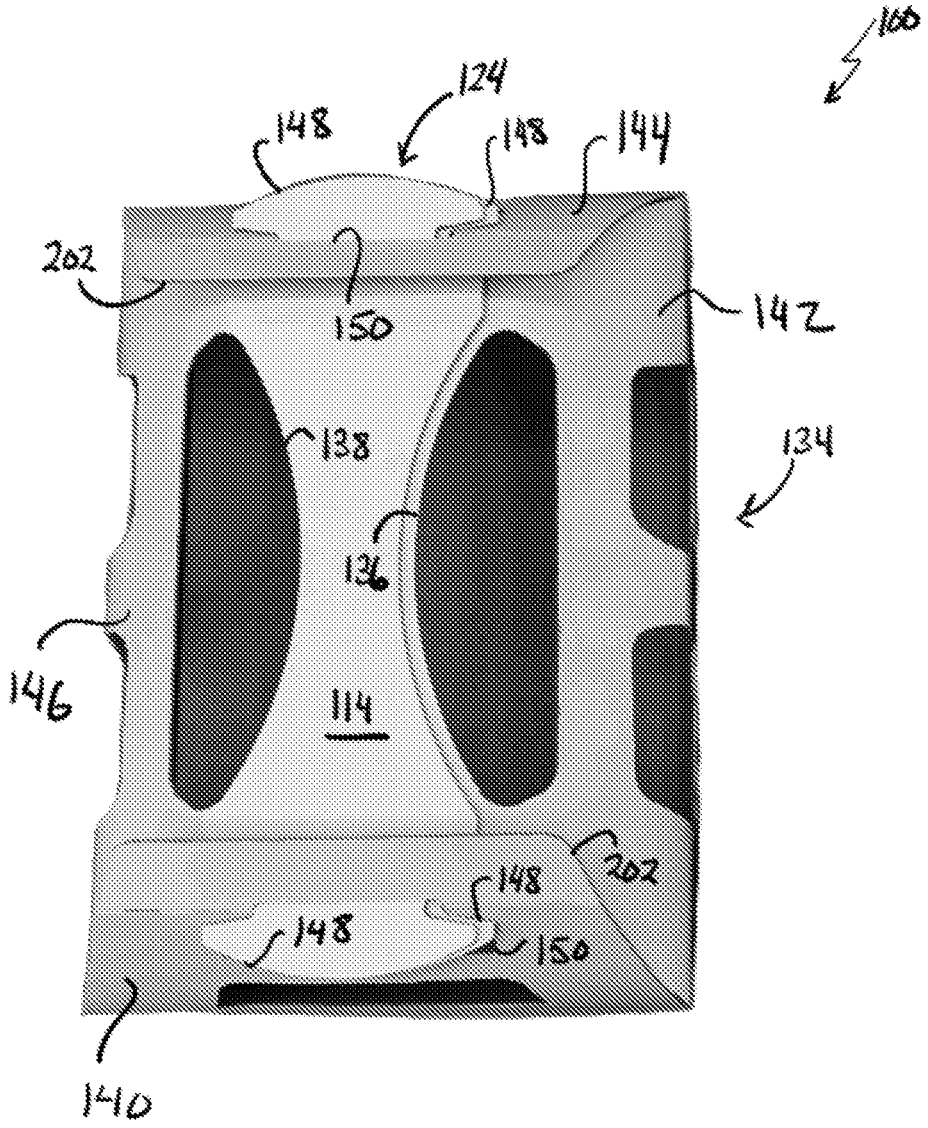
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Fig. 6

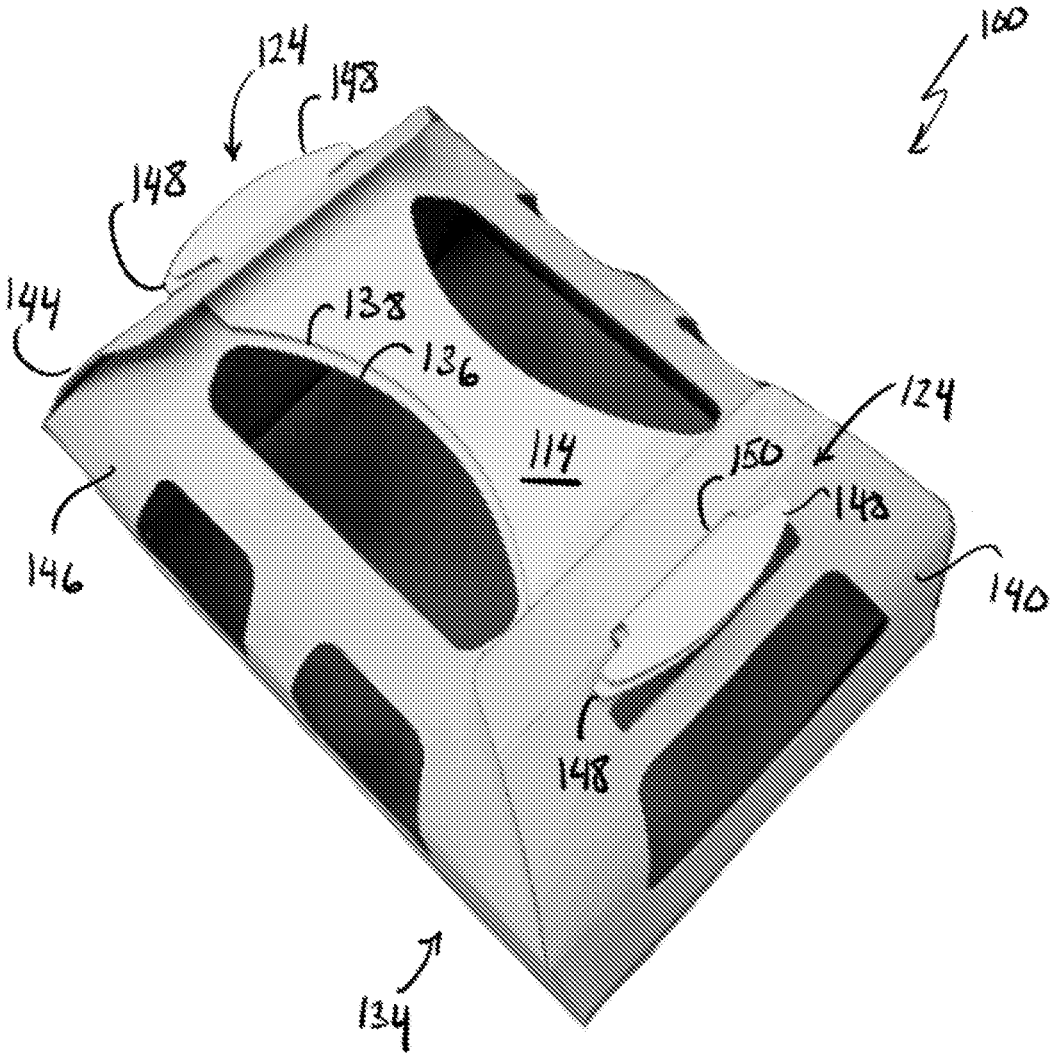

Fig. 7

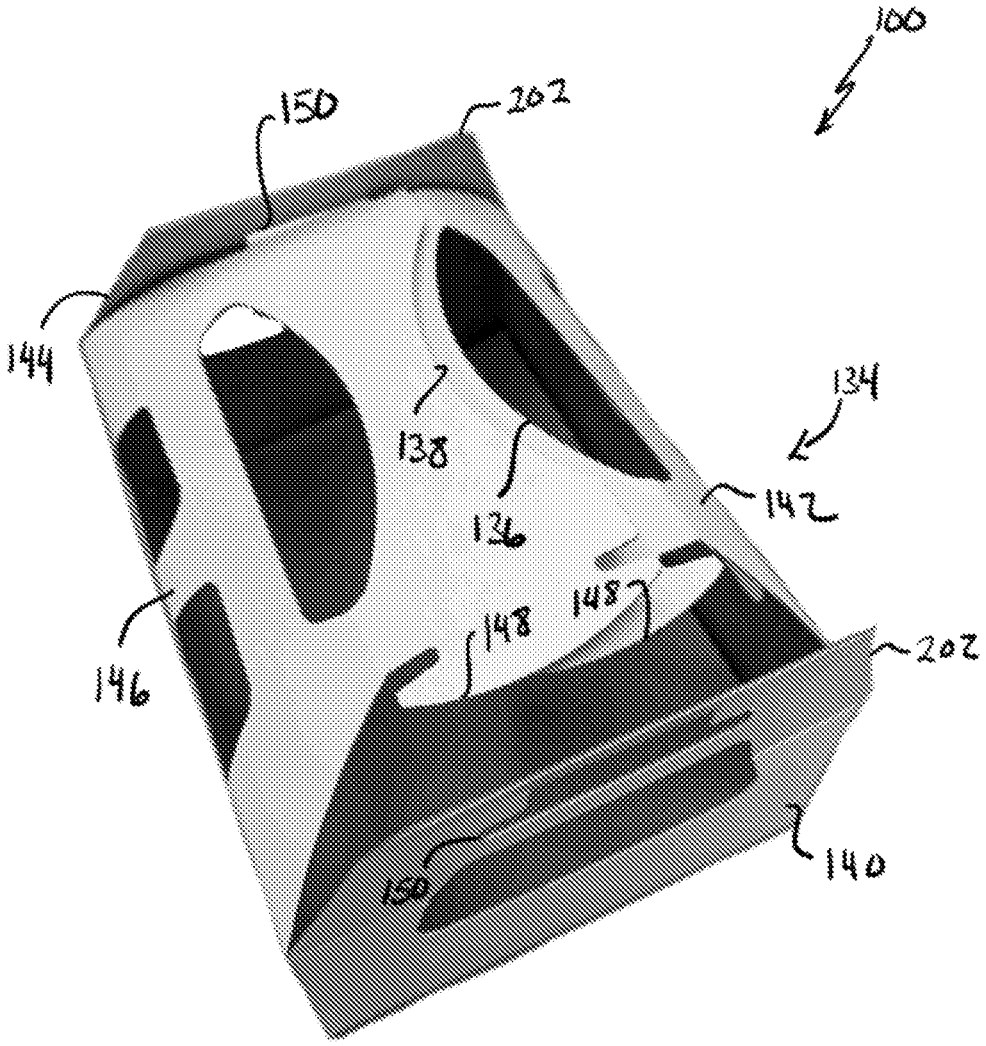

Fig. 8

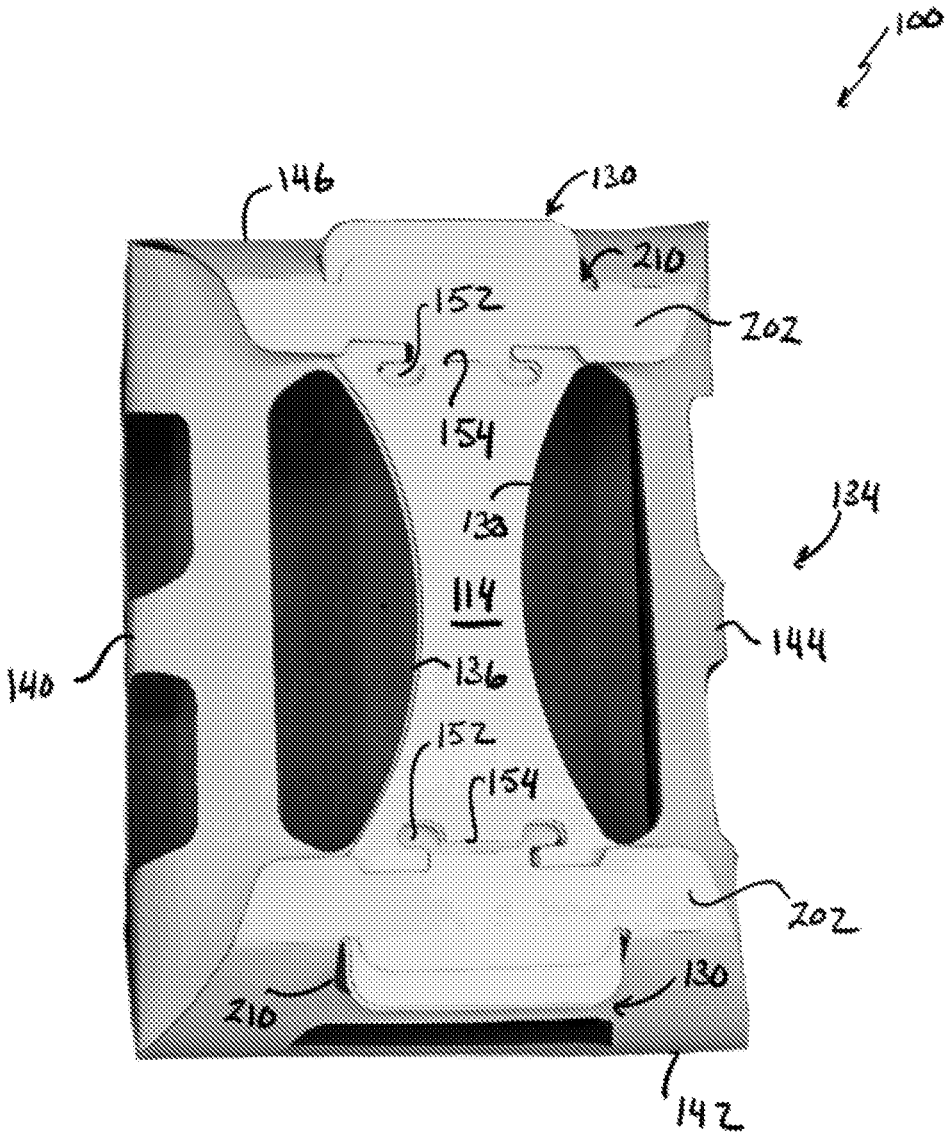
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Fig. 9

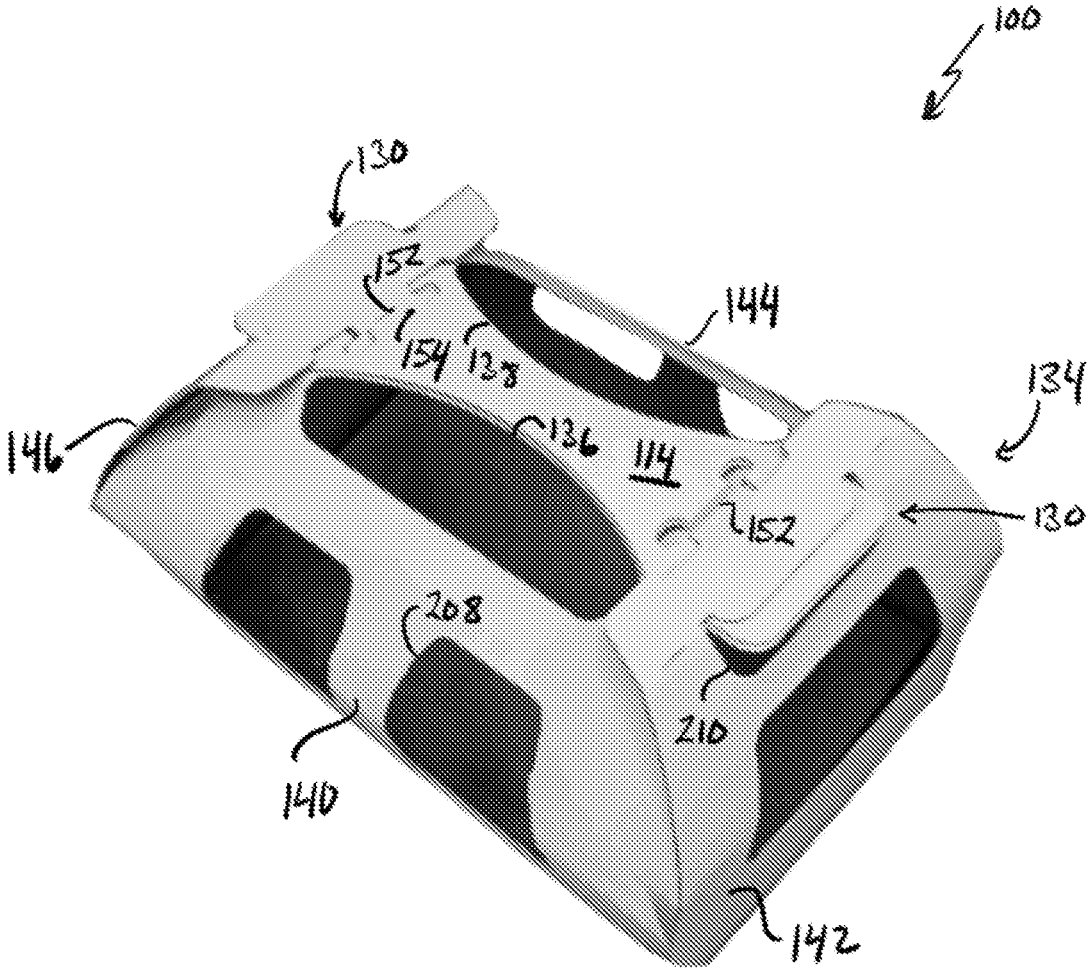

Fig. 10

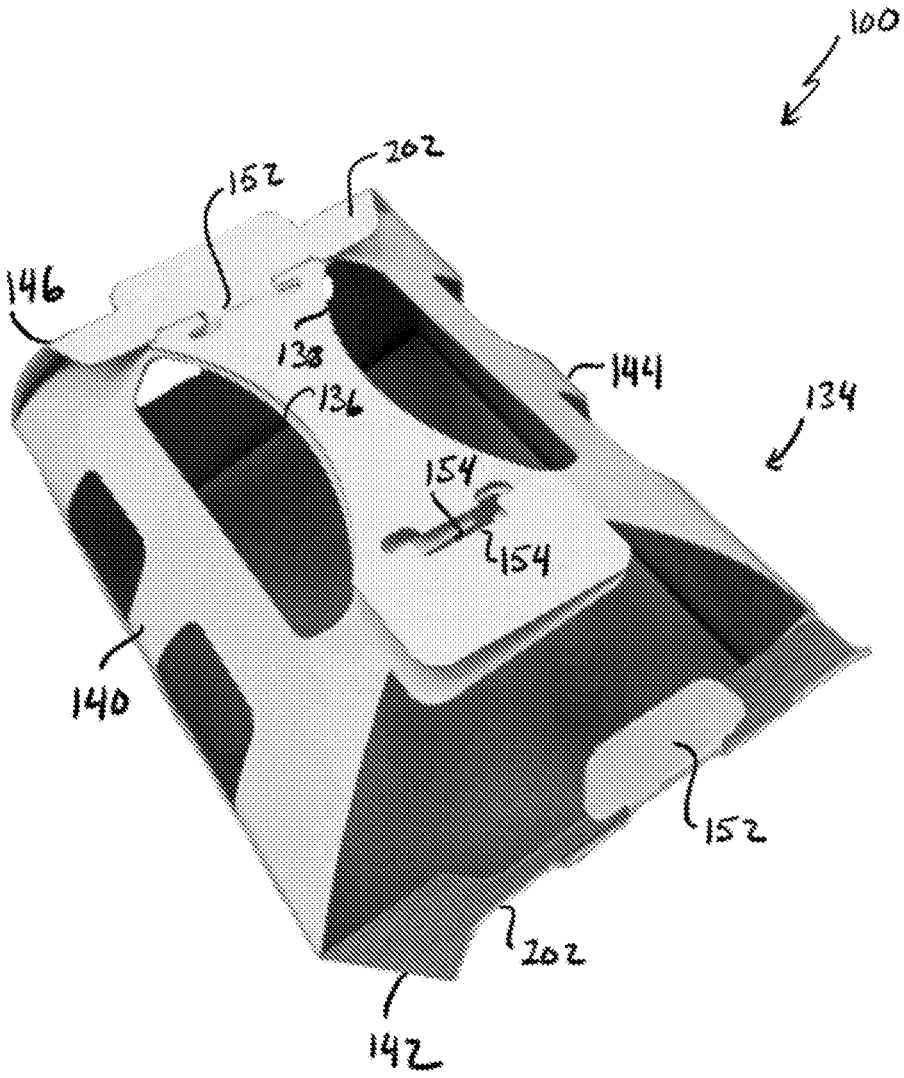

Fig. 11

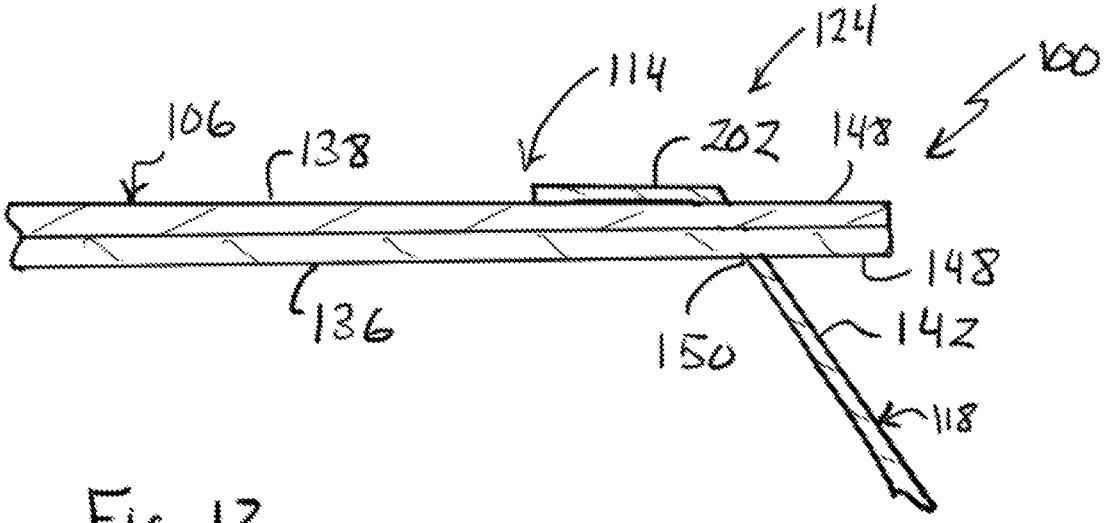

Fig. 12

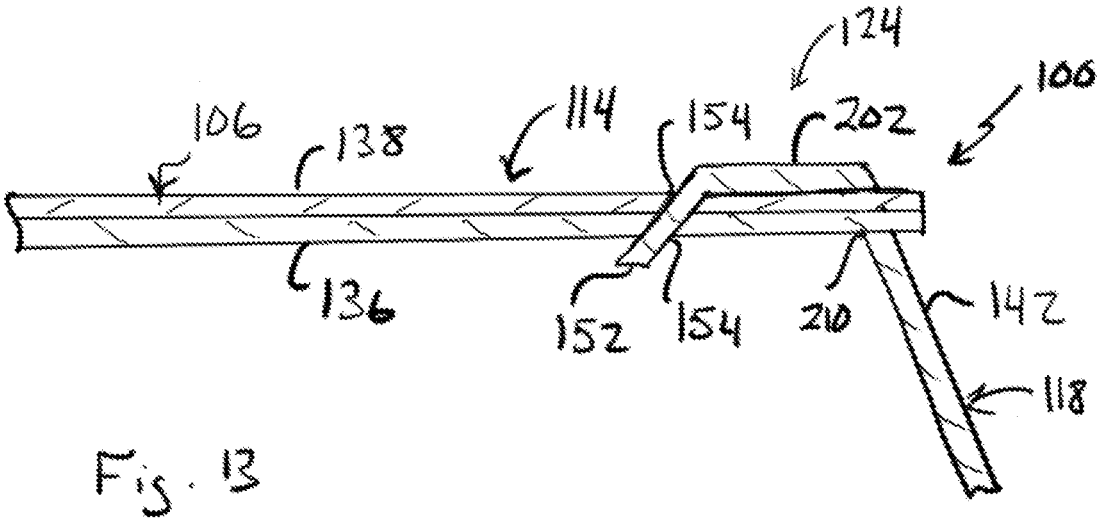

Fig. 13

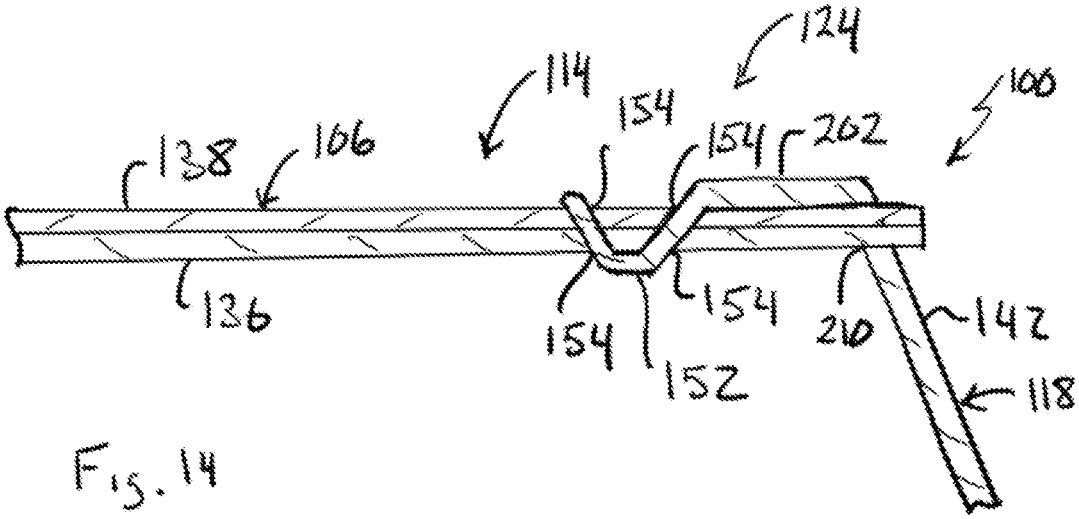

Fig. 14

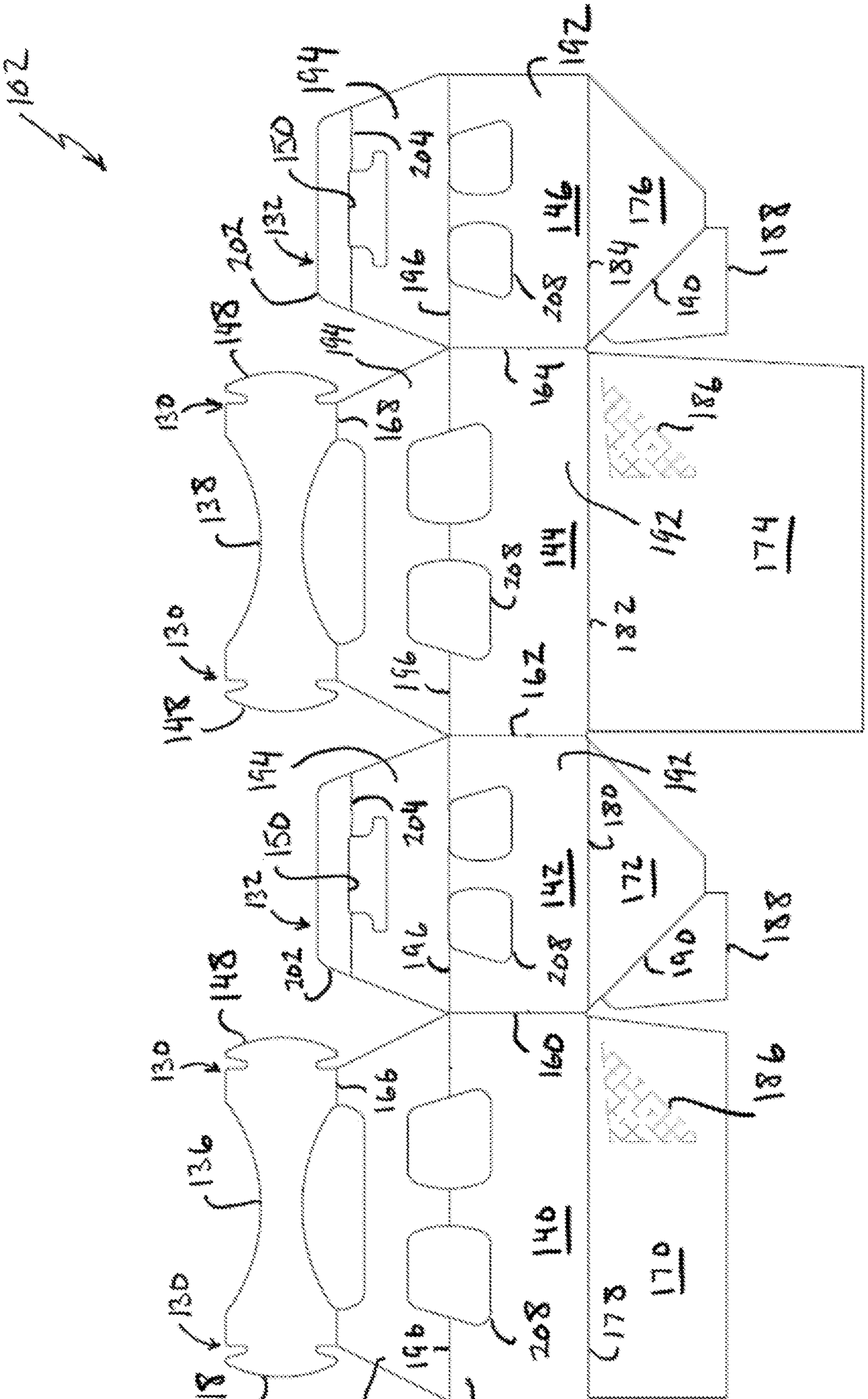
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Fig. 15

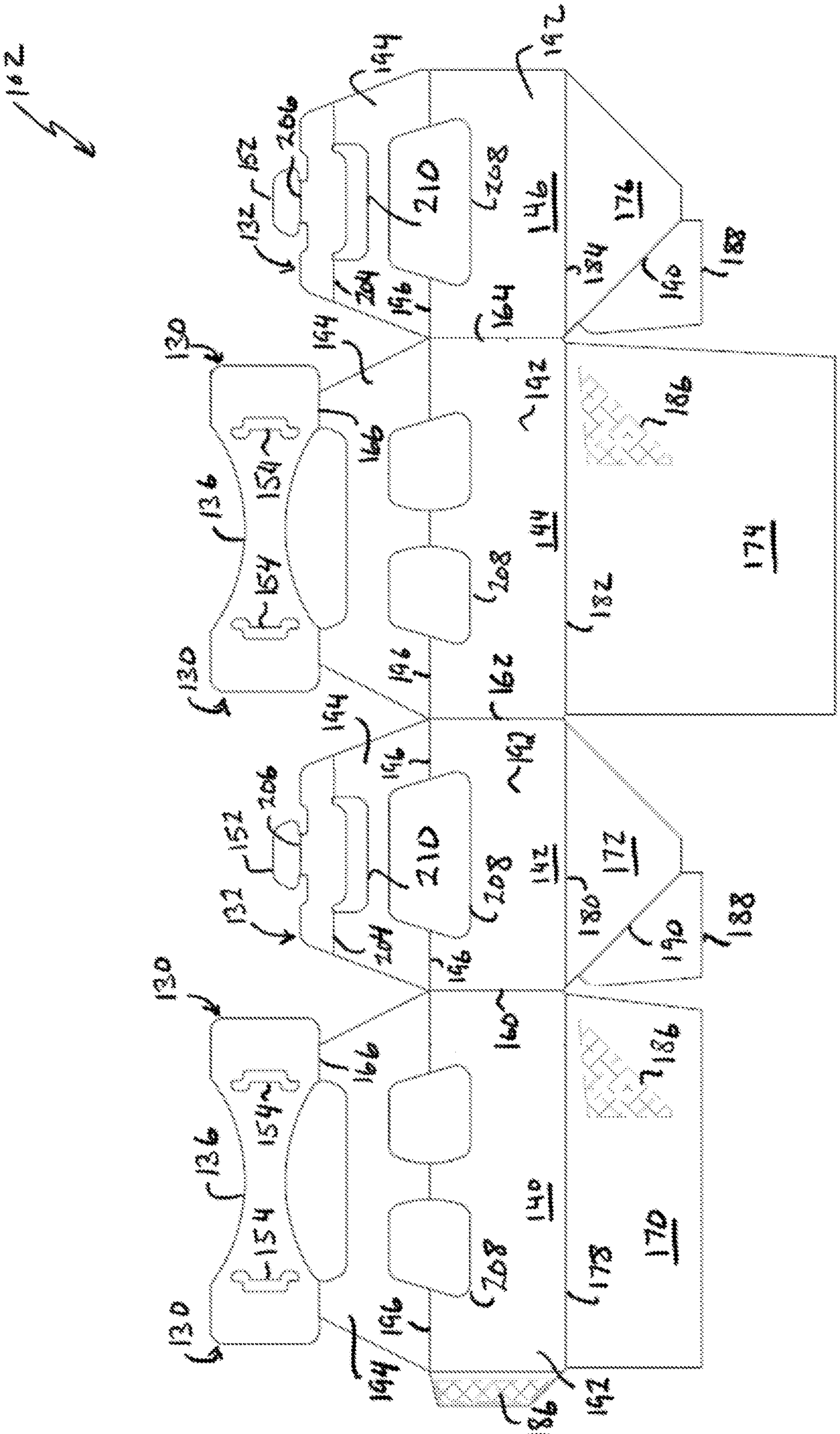

Fig. 16

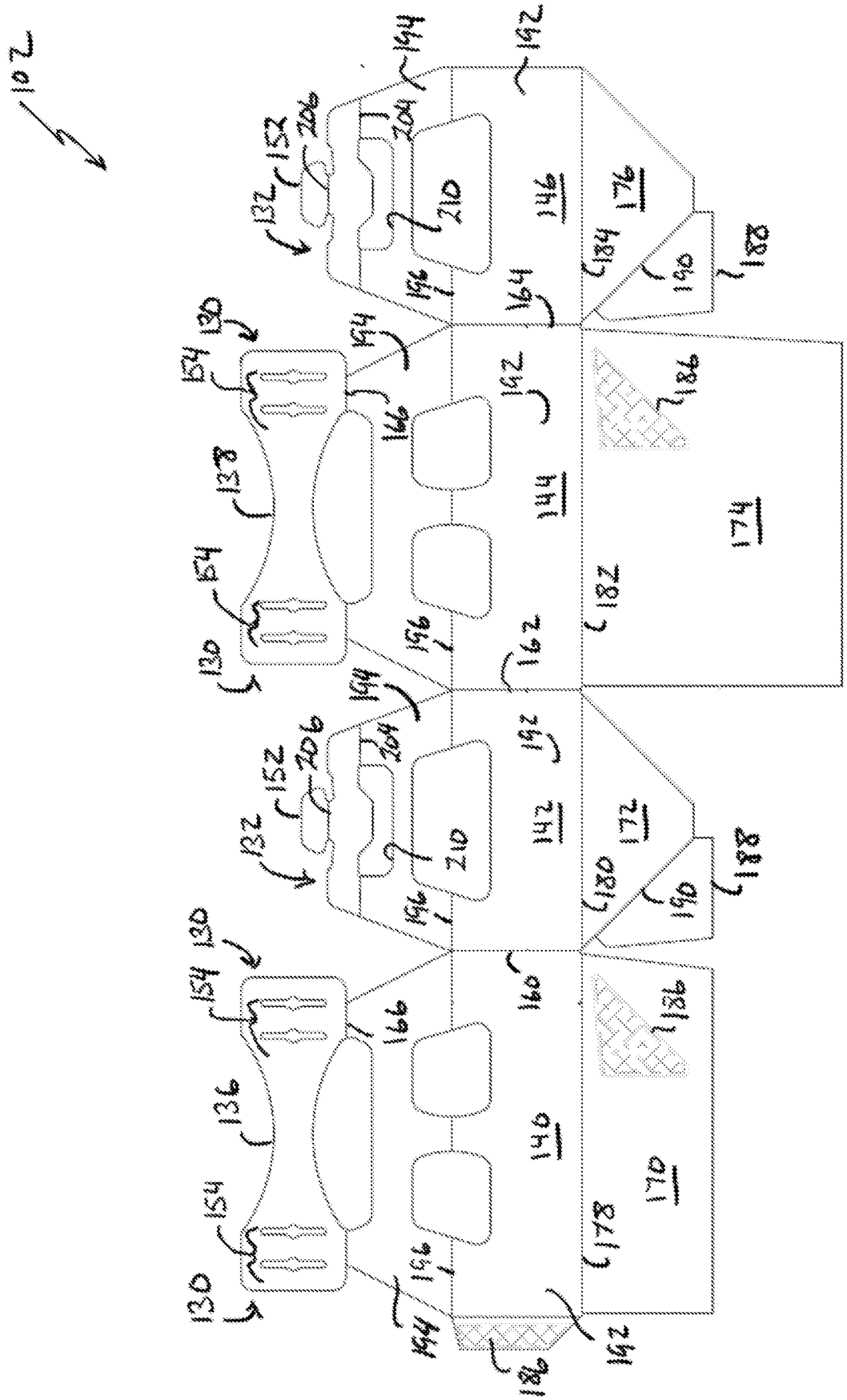
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Fig. 17

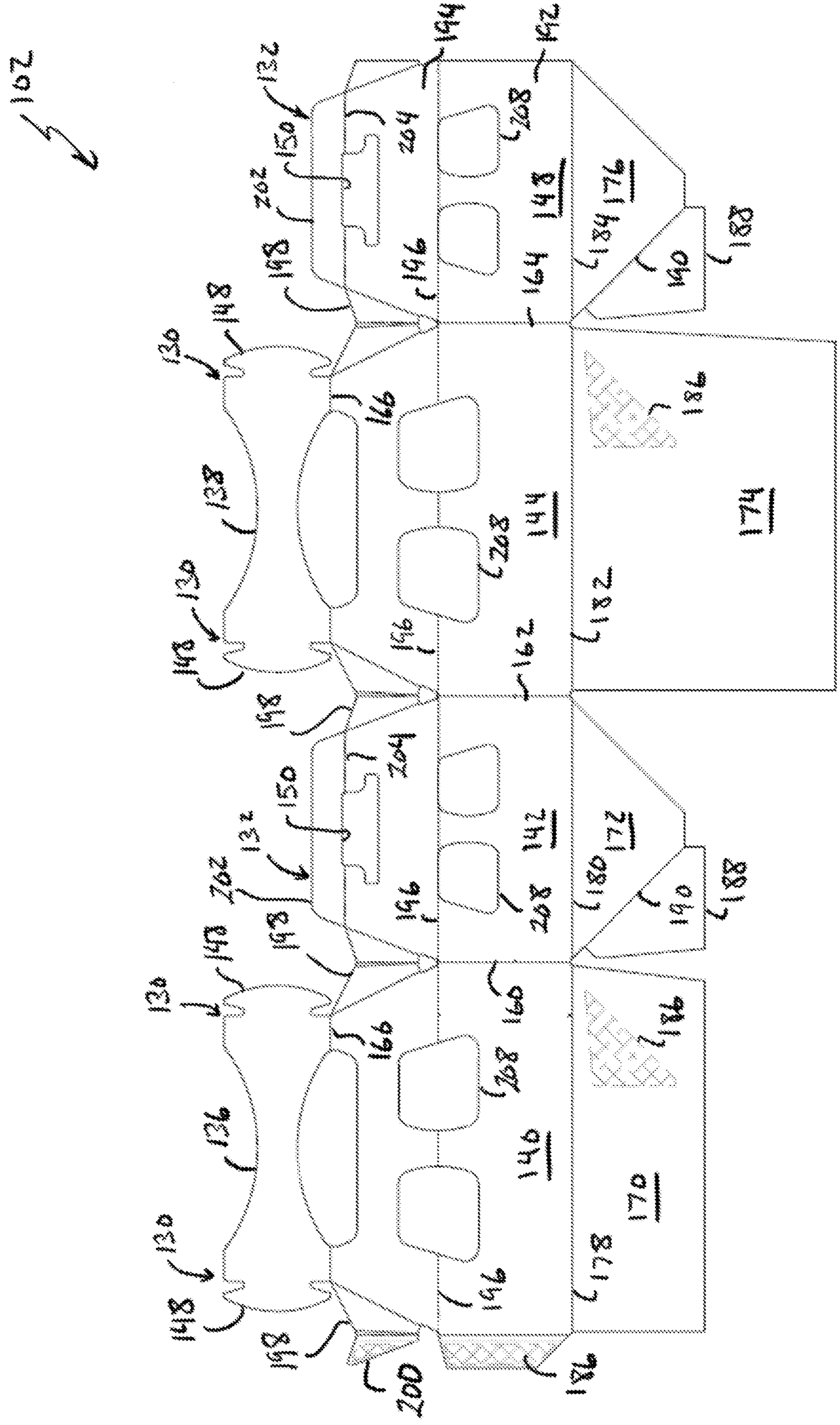
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Fig. 18

STACKABLE CARTON, BLANK AND METHOD OF FORMING

FIELD

[0001] The present disclosure relates generally to product packaging and, more particularly, to cartons for packaging product, blanks for forming cartons and methods of forming cartons from blanks. More particularly, though not exclusively, the present disclosure relates to cartons that include an integral handle and that are configured to be stacked.

BACKGROUND

[0002] In the field of packaging and, more particularly, in the field of fresh food packaging, a product is often provided with an exterior container. For example, the product, such as fresh fruit and vegetables, may be packaged in a carton C (FIG. **1**) or a bag B (FIG. **2**). Such containers are desirable for shipping and distribution, for product protection and for display of product identification or promotional information.

[0003] It is also desirable that the end consumer be able to use the container as a product carrier when the product is sold. For example, many product containers include a handle H (FIGS. **1** and **2**) that provides the consumer the ability to carry the product. Usually, the handle H is located at the top of the container and extends outwardly from the top of the container.

[0004] It is also desirable for product containers to be stackable for shipping (e.g., on a pallet), storage (e.g., in a warehouse) or display (e.g., on a store shelf). However, typical containers may make it difficult or impossible to stack the containers due to the lack of structural integrity of the container (e.g., bag B) or due to the configuration of the handle H of the container (e.g., carton C).

[0005] For shipping, product protection and consumer carrying considerations, it is also desirable to ensure that such containers have suitable strength for holding and transporting the product. For cost and environmental considerations, it is also desirable that such containers be formed from as little material as possible and cause as little wastage of the materials as possible. For cost and process considerations, it is also desirable for such containers to be formed through as simple a set of operations as possible to aid in automation of the container formation and loading process.

[0006] Accordingly, those skilled in the art continue with research and development efforts in the field of product packaging.

SUMMARY

[0007] Disclosed are cartons for packaging product, blanks for forming the disclosed cartons, methods of forming the disclosed cartons from the disclosed blanks and methods of packaging product using the disclosed cartons. The following is a non-exhaustive list of examples, which may or may not be claimed, of the subject matter according to the present disclosure.

[0008] In an example, the disclosed carton includes a bottom wall, a plurality of side walls connected to the bottom wall, and a top wall releasably coupled to one of the side walls. The carton also includes a handle formed by at least a portion of the top wall. The carton further includes a planar surface at least partially formed by the handle and the top wall.

[0009] In an example, the disclosed carton includes a plurality of panels that form an internal volume, a handle and a planar surface of the carton. The plurality of panels includes a first side panel, a second side panel foldably connected to the first side panel, a third side panel foldably connected to the second side panel, and a fourth side panel foldably connected to the third side panel. The plurality of panels also includes a first handle panel foldably connected to the first side panel and releasably coupled to the second side panel and a fourth side panel. The plurality of panels additionally includes a second handle panel foldably connected to the third side panel and releasably coupled to the second side panel and a fourth side panel. The first handle panel overlaps at least a portion of the second handle panel such that the first handle panel and the second handle panel form the handle and at least a portion of the planar surface.

[0010] In an example, the disclosed blank includes a first side panel, a second side panel foldably connected to the first side panel, a third side panel foldably connected to the second side panel and a fourth side panel foldably connected to the third side panel. The blank also includes a first handle panel foldably connected to the first side panel and a second handle panel foldably connected to the third side panel. The blank further includes a first portion of a locking mechanism on each one of the first handle panel and the second handle panel and a second portion of the locking mechanism on each one of the second side panel and the fourth side panel. When the carton is formed from the blank, the first portion of the locking mechanism and the second portion of the locking mechanism cooperate to couple the first handle panel and the second handle panel to the second side panel and the fourth side panel. When the carton is formed from the blank, the first handle panel and the second handle panel form a handle and a planar surface of the carton.

[0011] In an example, the disclosed method includes steps of: (1) providing a blank including a plurality of panels; and (2) manipulating the blank such that the plurality of panels form a bottom wall, a top wall, a plurality of side walls and a handle of the carton. The top wall is releasably coupled to an opposed pair of the plurality of side walls. The handle is formed by at least a portion of the top wall. The handle and the top wall form a planar surface of the carton.

[0012] In an example, the disclosed method includes steps of: (1) erecting a carton such that a side wall is uncoupled from a top wall; (2) loading product into an internal volume of the carton; and (3) further erecting the carton such that the side wall is coupled to the top wall.

[0013] Other examples of the disclosed cartons, blanks and methods will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. **1** is a schematic, perspective view of an example of a conventional product packaging container in the form of a carton;

[0015] FIG. **2** is a schematic, perspective view of another example of a conventional product packaging container in the form of a bag;

[0016] FIG. **3** is a schematic, perspective side view of an example of a carton for packaging product;

[0017] FIG. **4** is a schematic, perspective end view of the example of the carton shown in FIG. **3**;

[0018] FIG. **5** is a schematic, perspective side view of an example of a plurality of the cartons shown in a stacked arrangement;

[0019] FIG. **6** is a schematic, perspective top view of an example of the carton;

[0020] FIG. **7** is a schematic, perspective view of the example of the carton shown in FIG. **6**;

[0021] FIG. **8** is a schematic, perspective view of the example of the carton shown in FIG. **6**, in which the carton is depicted with an end panel detached from a pair of top panels;

[0022] FIG. **9** is a schematic, perspective top view of another example of the carton;

[0023] FIG. **10** is a schematic, perspective view of the example of the carton shown in FIG. **9**;

[0024] FIG. **11** is a schematic, perspective view of the example of the carton shown in FIG. **9**, in which the carton is depicted with an end panel detached from a pair of top panels;

[0025] FIG. **12** is a schematic, side view of a portion of an example of the carton, depicting an example of a locking mechanism of the carton;

[0026] FIG. **13** is a schematic, side view of a portion of an example of the carton, depicting another example of the locking mechanism of the carton;

[0027] FIG. **14** is a schematic, side view of a portion of an example of the carton, depicting another example of the locking mechanism of the carton;

[0028] FIG. **15** is a schematic, plan view of an example of a blank used to form the carton;

[0029] FIG. **16** is a schematic, plan view of another example of the blank used to form the carton;

[0030] FIG. **17** is a schematic, plan view of another example of the blank used to form the carton; and

[0031] FIG. **18** is a schematic, plan view of another example of the blank used to form the carton.

DETAILED DESCRIPTION

[0032] The following detailed description refers to the accompanying drawings, which illustrate specific examples of the disclosed carton and blank described by the present disclosure. It will be understood that the disclosed examples are merely exemplary embodiments of the way in which certain aspects of the invention can be implemented and do not represent an exhaustive list of all of the ways the invention may be embodied. Other examples having different structures and operations do not depart from the scope of the present disclosure. Like reference numerals may refer to the same feature, element, or component in the different drawings. The figures are not necessarily to scale and some features may be exaggerated or minimized to show details of particular components. Throughout the present disclosure, any one of a plurality of items may be referred to individually as the item and a plurality of items may be referred to collectively as the items. Moreover, as used herein, a feature, element, component or step preceded with the word "a" or "an" should be understood as not excluding a plurality of features, elements, components or steps, unless such exclusion is explicitly recited.

[0033] Illustrative, non-exhaustive examples, which may be, but are not necessarily, claimed, of the subject matter according the present disclosure are provided below. Reference herein to "example" means that one or more feature, structure, element, component, characteristic, and/or operational step described in connection with the example is included in at least one aspect, embodiment, and/or implementation of the subject matter according to the present disclosure. Thus, the phrases "an example," "another example," "one or more examples," and similar language throughout the present disclosure may, but do not necessarily, refer to the same example. Further, the subject matter characterizing any one example may, but does not necessarily, include the subject matter characterizing any other example. Moreover, the subject matter characterizing any one example may be, but is not necessarily, combined with the subject matter characterizing any other example.

[0034] Referring to FIGS. **3-14**, by way of examples, the present disclosure is directed to a carton **100** for packaging product. The carton **100** facilitates packaging, shipping and displaying of the product. In other words, the carton **100** provides, or serves as, an exterior packaging container for the product. The carton **100** also provides, or serves, as a carrier for the product, for example, after purchase by the consumer. The carton **100** further provides, or serves as, a support structure for stacking one carton **100** on top of another carton **100**.

[0035] The carton **100** may be made from any suitable packaging material. Examples of suitable packaging material include paperboard, corrugated board, cardboard, plastic, combinations thereof and any other suitable material known to those skilled in the art and guided by the teachings provided herein.

[0036] The product may be any one of various types of primary product packaged by the carton **100**. In one or more examples, the product is fresh food, such as fresh fruit or fresh vegetables. The carton **100** may be suitably sized and shaped to accommodate any reasonable number of products. Thus, throughout the present disclosure, the term "product" refers to one or more products.

[0037] Referring to FIGS. **3** and **4**, in one or more examples, the carton **100** includes a bottom wall **104**, a plurality of side walls **104** and a top wall **106**. The bottom wall **104**, the top wall **106** and the side walls **108** form an internal volume **110** of the carton **100**. The bottom wall **104**, the top wall **106** and the plurality of side walls **108** enclose the product for shipping and display.

[0038] In the examples illustrated in FIGS. **1-3**, the carton **100** includes four side walls **108**. For example, the carton **100** includes a first side wall **116** (e.g., a front wall), a second side wall **118** (e.g., a right end wall), connected to the first side wall **116**, a third side wall **120** (e.g., a rear wall), connected to the second side wall **118** opposite the first side wall **116**, and a fourth side wall **122** (e.g., a left end wall), connected to the third side wall **120** and the first side wall **116** opposite the second side wall **118**. In other examples, the carton **100** may include less than four or more than four side walls.

[0039] In one or more examples, the plurality of side walls **108** are connected to the bottom wall **104**. In one or more examples, each one of first side wall **116**, the second side wall **118**, the third side wall **120** and the fourth side wall **122** is connected to the bottom wall **104**. The top wall **106** is opposite the bottom wall **104**. In one or more examples, the top wall **106** is approximately parallel to the bottom wall **104**.

[0040] The top wall **106** is releasably coupled to (e.g., detachable from) one of the side walls **108**. In one or more examples, the top wall **106** is releasably coupled to more

than one of the side walls **108**. In one or more examples, the top wall **106** is releasably coupled to a first opposed pair of the side walls **108** (e.g., the second side wall **118** and the fourth side wall **122**). In one or more examples, top wall **106** is connected (e.g., non-detachably connected) to a second opposed pair of the side walls **108** (e.g., the first side wall **116** and the third side wall **120**). With the top wall **106** coupled to the first opposed pair of the side walls **108**, the top wall **106** is configured to hold the carton **100** in a constructed (e.g., erected) configuration and to keep the carton **100** closed around the product.

[0041] The carton **100** also includes a handle **112**. The handle **112** facilitates carrying the carton **100**. The handle **112** is integral to the top wall **106**. For example, the handle **112** is formed by at least a portion of the top wall **106**. Alternatively, at least a portion of the top wall **106** is formed by the handle **112**.

[0042] The carton **100** further includes a planar surface **114**. The planar surface **114** is at least partially formed by the handle **112** and the top wall **106**. For example, the handle **112** and the top wall **106** are approximately parallel to the bottom wall **104**. As an example, when the handle **112** forms the top wall **106**, the handle **112** is parallel to the bottom wall **104**. As another example, when the handle **112** is formed by a portion of the top wall **106**, the handle **112** and the top wall **106** are coplanar and are parallel to the bottom wall **104**.

[0043] In one or more examples, a portion of an end **132** of at least one of the first opposed pair of side walls **108** (e.g., the second side wall **118** and/or the fourth side wall **122**) extends beyond the top wall **106** and forms a portion of the planar surface **114** of the carton **100**. In one or more examples, a portion of the end **132** of each one of the first opposed pair of side walls **108** (e.g., the second side wall **118** and the fourth side wall **122**) extends beyond the top wall **106** and forms a portion of the planar surface **114** of the carton **100**.

[0044] Referring to FIG. **5**, the carton **100** is self-supporting and facilitates stacking, such as when being shipped, stored or displayed. The top wall **106** and the handle **112** are supported by the plurality of side walls **108** in an approximately horizontal and planar orientation. As such, the planar surface **114**, formed by the handle **112** and the top wall **106**, enable the carton **100** to be stacked in a vertical arrangement on top of another carton **100**. For example, a plurality of cartons **100** are shown in FIG. **5** in which each carton **100** is stacked on another carton **100** such that the bottom wall **104** of an above carton **100** is in substantially flush contact with (e.g., is substantially coplanar with) the handle **112** and the top wall **106** of a below carton **100**. The intercoupling of the top wall **106** and the first opposed pair of side walls **108** provides structural integrity to the carton **100** when the plurality of cartons **100** is stacked.

[0045] Referring again to FIGS. **3** and **4**, in one or more examples, the carton **100** includes a locking mechanism **124**. The locking mechanism **124** couples the top wall **106** and one of the side walls **108** together. For example, the locking mechanism **124** couples the top wall **106** to each one of the first opposed pair of side walls **108** (e.g., the second side wall **118** and the fourth side wall **122**). As an example, the carton **100** includes an opposed pair of locking mechanisms **124**. Each one of the pair of locking mechanisms **124** couples one end of the top wall **106** to one of the opposed pair of side walls **108**.

[0046] The locking mechanism **124** may include any suitable mechanical locking mechanism known to those skilled in the art and guided by the teachings provided herein. In one or more examples, the locking mechanism **124** includes a male portion forming a first part the complimentary locking mechanism and a female portion forming a second part of the complimentary locking mechanism.

[0047] In one or more examples, the locking mechanism **124** includes a locking tab **126** (e.g., a male portion) and a corresponding locking slot **128** (e.g., a female portion). The locking tab **126** is received by and is secured within the locking slot **128**. In one or more examples, as illustrated in FIGS. **3** and **4**, the locking tab **126** associated with the top wall **106** and the locking slot **128** is associated with one of the side walls **108** (e.g., the second side wall **118** or the fourth side wall **122**). Alternatively, in one or more examples, the locking slot **128** is associated with the top wall **106** and the locking tab **126** is associated with one of the side walls **108** (e.g., the second side wall **118** or the fourth side wall **122**).

[0048] In the illustrated examples, the carton **100** includes the opposed pair of locking mechanisms **124**. As an example, the top wall **106** includes an opposed pair of locking tabs **126** and each one of the first opposed pair of side walls **108** (e.g., the second side wall **118** or the fourth side wall **122**) includes the locking slot **128**. As another example, the top wall **106** includes an opposed pair of locking slots **128** and each one of the first opposed pair of side walls **108** (e.g., the second side wall **118** or the fourth side wall **122**) includes the locking tab **126**. As another example, the top wall **106** includes the locking tab **126** and an opposed locking slot **128**, one of the first opposed pair of side walls **108** (e.g., the second side wall **118**) includes the locking slot **128** corresponding to the locking tab **126** of the top wall **106**, and the other one of the first opposed pair of side walls **108** (e.g., the fourth side wall **122**) includes the locking tab **126** corresponding to the locking slot **128** of the top wall **106**.

[0049] The top wall **106** and, thus, the handle **112** may have a double-walled or two-layered construction. In one or more examples, the top wall **106** includes, or is formed by, a first handle panel **136** and a second handle panel **138** that overlap each other. The first handle panel **136** and the second handle panel **138** are releasably coupled to at least one of the side walls **108**, such as to the first opposed pair of side walls **108** by the locking mechanism **124**. The top wall **106** having a double-layered construction formed by the first and second handle panels **136** and **138** provide additional reinforcement and structural integrity to the carton **100**.

[0050] In one or more examples, the carton **100** includes at least one opening **208** formed through at least one of the side walls **108**. For example, the opening **208** may be formed through one or more of the first side wall **116**, the second side wall **118**, the third side wall **120** and the fourth side wall **122**. The opening **208** may have any suitable shape and dimension. The opening **208** provides visual access to the internal volume **110** of the carton **100** and, thus, the product contained within the carton **100**. The opening **208** also facilitates air circulation through the internal volume **110** of the carton **100**, which may be beneficial for keeping the product fresh.

[0051] Referring now to FIGS. **6-11**, which schematically illustrate examples of the carton **100**. In one or more examples, the carton **100** includes a plurality of panels **134**

that form the internal volume **110**, the handle **112** and the planar surface **114** of the carton **100**. Generally, the plurality of panels **134** form the walls (FIGS. **3-5**) of the carton **100**.

[0052] In one or more examples, the plurality of panels **134** includes a first side panel **140**. When constructed, the first side panel **140** may form the first side wall **116** (FIGS. **3-5**). The plurality of panels **134** includes a second side panel **142** that is foldably (e.g., hingedly or movably) connected to the first side panel **140**. When constructed, the second side panel **140** may form the second side wall **118** (FIGS. **3-5**). The plurality of panels **134** includes a third side panel **144** that is foldably connected to the second side panel **142**. When constructed, the third side panel **144** may form the third side wall **120** (FIGS. **3-5**). The plurality of panels **134** includes a fourth side panel **146** that is foldably connected to the third side panel **144**. When constructed, the fourth side panel **146** may form the fourth side wall **122** (FIGS. **3-5**). The plurality of panels **134** includes the first handle panel **136** that is foldably connected to the first side panel **140** and that is releasably coupled to the second side panel **142** and the fourth side panel **146**. The plurality of panels **134** includes the second handle panel **138** that is foldably connected to the third side panel **144** and releasably coupled to the second side panel **142** and the fourth side panel **146**. When constructed, the first handle panel **136** and the second handle panel **138** form the top wall **106** (FIGS. **3-5**) and the handle **112** of the carton **100** and, thus, form at least a portion of the planar surface **114** of the carton **100**.

[0053] In one or more examples, the first handle panel **136** overlaps at least a portion of the second handle panel **138**. In one or more examples, the first handle panel **136** overlaps an entirety of the second handle panel **138**. In one or more examples, the first handle-panel **136** and the second handle panel **138** have substantially identical shapes such that when overlapped a portion of the first and second handle panels **136** and **138** form the handle **112**.

[0054] In one or more examples, the locking mechanism **124** couples the first handle panel **136** and the second handle panel **138** to the second side panel **142** and the fourth side panel **146**. In one or more examples, the first handle panel **136** and the second handle panel **138** extend between and interlock with the second handle panel **138** to the second side panel **142** and the fourth side panel **146**, such that the first handle panel **136** and the second handle panel **138** provide, or serve as, a retaining strap that holds the carton **100** in the constructed and closed configuration.

[0055] As illustrated in FIGS. **6-8** and **12**, in one or more examples, the locking mechanism **124** includes a handle-locking tab **148** and a wall-locking slot **150**. The handle-locking tab **148** projects from each end **130** of each one of the first handle panel **136** and the second handle panel **138**. The wall-locking slot **150** is formed through each one of the second side panel **142** and the fourth side panel **146**. When the carton **100** is constructed, the handle-locking tab **148** is received by the wall-locking slot **150** and engages a corresponding one of the second side panel **142** and the fourth side panel **146**. Mating engagement of the handle-locking tab **148** and the wall-locking slot **150** locks the first handle panel **136** and the second handle panel **138** to the second side panel **142** and the fourth side panel **146**.

[0056] As illustrated in FIG. **12**, in one or more examples, a portion of an end **132** of the second side panel **142** and the fourth side panel **146** extends beyond the handle **112** and is foldable to form a portion of the planar surface **114**.

[0057] As illustrated in FIGS. **9-11**, **13** and **14**, in one or more examples, the locking mechanism **124** includes a wall-locking tab **152** and a handle-locking slot **154**. The wall-locking tab **152** projects from the end **132** of each one of the second side panel **142** and the fourth side panel **146**. The handle-locking slot **154** is formed through each end **130** of each one of the first handle panel **136** and the second handle panel **138**. When the carton **100** is constructed, the wall-locking tab **152** is received by the handle-locking slot **154** and engages the handle **112**. Mating engagement of the wall-locking tab **152** and the handle-locking slot **154** locks the first handle panel **136** and the second handle panel **138** to the second side panel **142** and the fourth side panel **146**.

[0058] As illustrated in FIGS. **13** and **14**, in one or more examples, a portion of the end **132** of each one of the second side panel **142** and the fourth side panel **146** forms a portion of the planar surface **114**.

[0059] Referring again to FIGS. **6-11**, in one or more examples, the carton **100** includes at least one opening **208** formed through at least one of the plurality of panels **134**. In one or more examples, as illustrated in FIGS. **9-11**, **13** and **14**, each one of the second side panel **142** and the fourth side panel **146** includes an opening **210** located proximate to the end **132** of the respective one of the second side panel **142** and the fourth side panel **146**. The opening **210** permits the ends **130** of the first handle panel **136** and the second handle panel **138** to extend through the respective second side panel **142** and the fourth side panel **146** when the first and second handle panels **136** and **138** are coupled to the second and fourth side panels **142** and **146** by the locking mechanism **124**.

[0060] Referring now to FIGS. **15-18**, the disclosure is also directed to a blank of sheet material, generally referred to herein as "blank" **102**. The blank **102** is used to form (e.g., make, erect or otherwise construct) the carton **100**. As an example, the carton **100** illustrated in FIGS. **3-8** and **12** maybe formed from the blank **102** illustrated in FIGS. **15** and **18**. As another example, the carton **100** illustrated in FIGS. **9-11** and **13** may be formed from the blank **102** illustrated in FIG. **16**. As another example, the carton **100** illustrated in FIG. **14** may be formed from the blank **102** illustrated in FIG. **17**.

[0061] The blank **102** may be made of a sheet of suitable stock material. The blank **102** may be cut (e.g., die cut) from the sheet of stock material. Suitable stock material includes all manner of foldable sheet material. In one or more examples, the stock material is a cellulosic material, such as paperboard (e.g., solid bleached sulfate paperboard), cardboard or other heavy-duty paper-based material. In one or more examples, the stock material is polymeric material, such as plastic board (e.g., plastic cardboard) or sheet plastic. In one or more examples, the stock material is made of corrugated board (e.g., cellulosic or polymeric), such as corrugated board that includes two liner sheets and an inner fluted corrugated material sandwiched between and coupled to the liner sheets.

[0062] The blank **102** includes a series of panels connected one to the next by respective fold lines. Any one of the fold lines and/or hinge lines, described herein, may include any suitable predefined or preformed line of weakening and/or line of separation known to those skilled in the art and guided by the teachings herein provided, such as a crease, a score, a perforation, or the like. Generally, the fold

lines transform the blank **102** into a plurality of separate but integrals panels, flaps, tabs and the like.

[0063] For clarity, it should be recognized that a first surface of the blank **102** is exposed (e.g., projecting towards the viewer) and is shown in FIGS. **15-18**. For example, the first surface of the blank **102** may become an interior surface **156** of the carton **100** (FIGS. **3** and **4**). The blank **102** also includes a corresponding second surface (e.g., underside) that is not seen until the carton **100** is formed from the blank **102**. For example, the second surface of the blank **102** may become an exterior surface **158** of the carton **100** (FIGS. **3** and **4**).

[0064] In one or more examples, the second surface of the blank **102**, forming the exterior surface **158** of the carton **100**, is coated (e.g., includes an exterior surface coating). The exterior surface coating may be a waterproof coating, a protective coating, an aesthetic coating and the like. In one or more examples, at least a portion of the second surface of the blank **102**, forming the exterior surface **158** of the carton **100**, is printed with various product information about the product. For example, the exterior surface **158** of the carton **100** may include branding or other product identification that is easily viewable by the consumer when the carton **100** is displayed.

[0065] In one or more examples, the first surface of the blank **102**, forming the interior surface **156** of the carton **100**, is coated (e.g., includes an interior surface coating). The interior surface coating may be a waterproof coating, a protective coating, an aesthetic coating and the like. For example, the interior surface **156** of the carton **100** may be coted to resist liquid or moisture from the product from weakening or damaging the carton **100**.

[0066] In one or more examples, the blank **102** includes the first side panel **140**, the second side panel **142**, the third side panel **144**, the fourth side panel **146**, the first handle panel **136** and the second handle panel **138**. In one or more examples, the first side panel **140** forms the first side wall **116** of the carton **100** when the carton **100** is formed from the blank **102**. In one or more examples, the second side panel **142** forms the second side wall **118** of the carton **100** when the carton **100** is formed from the blank **102**. In one or more examples, the third side panel **144** forms the third side wall **120** of the carton **100** when the carton **100** is formed from the blank **102**. In one or more examples, the fourth side panel **146** forms the fourth side wall **122** of the carton **100** when the carton **100** is formed from the blank **102**. In one or more examples, the first handle panel **136** and the second handle panel **138**, collectively, form the top wall **106** and the handle **112** of the carton **100** when the carton **100** is formed from the blank **102**.

[0067] Each one of the side panels **140**, **142**, **144** and **146** may have any suitable two-dimensional shape and/or any desired dimensions. In the illustrated examples, the each one of the side panels **140**, **142**, **144** and **146** have an approximately rectangular shape. As such, when the carton **100** is formed from the blank **102**, the side walls **116**, **118**, **120** and **122** of the carton **100** may have any suitable or desired shape, such as an approximately rectangular shape.

[0068] In one or more examples, the first side panel **140**, the second side panel **142**, the third side panel **144** and the fourth side panel **146** are connected in linear series along a longitudinal axis of the blank **102**. The second side panel **142** extends from and is foldably connected to the first side panel **140** along a fold line **160** (e.g., a first side panel fold line). The fold line **160** extends laterally and separates the second side panel **142** from the first side panel **140**. The third side panel **144** extends from and is foldably connected to the second side panel **142** along a fold line **162** (e.g., a second side panel fold line), opposite the first side panel **140**. The fold line **162** extends laterally, approximately parallel to the fold line **160**, and separates the third side panel **144** from the second side panel **142**. The fourth side panel **146** extends from and is foldably connected to the third side panel **144** along a fold line **164** (e.g., a third side panel fold line), opposite the second side panel **142**. The fold line **164** extends laterally, approximately parallel to the fold line **162**, and separates the fourth side panel **146** from the third side panel **144**.

[0069] The second side panel **142** is hingedly movable (e.g., foldable) about the fold line **160** relative to the first side panel **140** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**). The third side panel **144** is hingedly movable about the fold line **162** relative to the second side panel **142** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**). The fourth side panel **146** is hingedly movable about the fold line **164** relative to the third side panel **144** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**).

[0070] In one or more examples, the blank **102** includes at least one opening **208** formed through at least one of the plurality of panels **134**. The opening **208** may be formed (e.g., cut out) during formation of the blank **102**. In one or more examples, the opening **208** may interrupt a fold line, thereby enabling the blank **102** to fold more easily during erection of the carton **100**.

[0071] In one or more examples, one or more of the side panels **140**, **142**, **144** and **146** may include a lower portion **192** and an upper portion **194**. As an example, the lower portion **192** of each one of the side panels **140**, **142**, **144** and **146** is foldably connected to the lower portion **192** of an adjacent one of the side panels **140**, **142**, **144** and **146** along a respective fold line **160**, **162** and **164**. The upper portion **194** extends from and is foldably connected to the lower portion **192** along a fold line **196**. The fold line **196** extends longitudinally, approximately perpendicular to a respective fold line **160**, **162** and **164**, and separates the upper portion **194** from the lower portion **192**.

[0072] The upper portion **194** is hingedly movable (e.g., foldable) about the fold line **196** relative to the lower portion **192** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**).

[0073] Each one of the lower portions **192** and the upper portion **194** of a respective side panel **140**, **142**, **144** and **146** may have any suitable two-dimensional shape and/or any desired dimensions. In the illustrated examples, the lower portion **192** has an approximately rectangular shape and the upper portion **194** has an approximately trapezoidal shape. As such, when the carton **100** is formed from the blank **102**, one or more of the side walls **116**, **118**, **120** and **122** of the carton **100** may have a lower portion that has any suitable or

desired shape, such as an approximately rectangular shape, and an upper portion that has any suitable or desired shape, such as an approximately trapezoidal shape.

[0074] As illustrated in FIGS. **3-11**, in one or more examples, when the carton **100** is formed from the blank **102**, the lower portion **192** of a respective side panel **140**, **142**, **144** and **146** is folded such that the lower portion of a respective side wall **116**, **118**, **120** and **122** is oriented approximately vertically (e.g., approximately perpendicular to the bottom wall **104**). The upper portion **194** of the respective side panel **140**, **142**, **144** and **146** is folded at an oblique angle relative to the lower portion **192**, such that the upper portion of the respective side wall **116**, **118**, **120** and **122** is oblique to the lower portion of the respective side wall **116**, **118**, **120** and **122**.

[0075] Referring to FIGS. **15-17**, in one or more examples, the upper portion of each one of the side panels **140**, **142**, **144** and **146** is free from (e.g., is not foldably connected) to the upper portion **194** of an adjacent one of the side panels **140**, **142**, **144** and **146**. For example, a "V"-shaped cut out may be formed in the blank **102** between the upper portions **194** of an adjacent pair of the side panels **140**, **142**, **144** and **146** to separate each upper portion **194** from an adjacent upper portion **194**.

[0076] Referring to FIG. **18**, in one or more examples, the upper portion of each one of the side panels **140**, **142**, **144** and **146** is foldably connected to the upper portion **194** of an adjacent one of the side panels **140**, **142**, **144** and **146**. As an example, the blank **102** may include a gusset panel **198** foldably connected to the upper portions **194** of respective side panels **140**, **142**, **144** and **146**. The gusset panel **198** provides increased structural integrity to the carton **100**, when the carton **100** is formed from the blank **102**.

[0077] In one or more examples, the gusset panel **198** includes a pair of tuck-in panels. For example, a first tuck-in panel extends from and is foldably connected to the upper portion **194** of one of the side panels **140**, **142**, **144** and **146** along a fold line and a second tuck-in panel extends from and is foldably connected to the upper portion **194** of a directly adjacent one of the side panels **140**, **142**, **144** and **146** along a fold line. The first tuck-in panel and the second tuck-in panel are foldably connected along a fold line. When the carton **100** is formed from the blank **102**, the gusset panel **198** folds inwardly (e.g., within the internal volume **110** of the carton **100**), thereby holding the upper portion **194** of respective ones of the side panels **140**, **142**, **144** and **146** and, thus, the upper portion of respective ones of the side walls **116**, **118**, **120** and **122** in the constructed configuration (e.g., as shown in FIGS. **3-11**).

[0078] In one or more examples, the first tuck-in panel and the second tuck-in panel of a respective gusset panel **198** that connects the upper portion **194** of the first side panel **140** and the upper portion **194** of the fourth side panel **146** are initially separated (e.g., when in the flat configuration of the blank **102**) and are coupled (e.g., adhesively coupled) together when the carton **100** is formed from the blank **102**. For example, a flap **200** may extend from and be foldably connected to the first tuck-in panel. The flap **200** may be coupled to the second tuck-in panel when the carton **100** is formed from the blank **102**.

[0079] Referring again to FIGS. **15-18**, the first handle panel **136** extends from and is foldably connected to the first side panel **140** along a fold line **166** (e.g., a first handle panel fold line). The fold line **166** extends longitudinally and separates the first handle panel **136** from the first side panel **140**. The second handle panel **138** extends from and is foldably connected to the third side panel **144** along a fold line **168** (e.g., a second handle panel fold line). The fold line **168** extends longitudinally and separates the second handle panel **138** from the third side panel **144**.

[0080] In one or more examples, the first handle panel **136** extends from and is foldably connected to the upper portion **194** of the first side panel **140** along the fold line **166**. The fold line **166** extends longitudinally, approximately parallel to the fold line **196**, and separates the first handle panel **136** from the upper portion **194** of the first side panel **140**. The second handle panel **138** extends from and is foldably connected to the upper portion **194** of the third side panel **144** along the fold line **168**. The fold line **168** extends longitudinally, approximately parallel to the fold line **196**, and separates the second handle panel **138** from the upper portion **194** of the third side panel **144**.

[0081] The first handle panel **136** is hingedly movable (e.g., foldable) about the fold line **166** relative to the first side panel **140** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**). The second handle panel **138** is hingedly movable (e.g., foldable) about the fold line **168** relative to the first side panel **140** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**).

[0082] In one or more examples, the blank **102** includes a cut out, or opening, formed between the first side panel **140** and the first handle panel **136** and a cut out, or opening, formed between the third side panel **144** and the second handle panel **138**. For example, the cut out may be located along, or interrupt, respective fold lines **166** and **168**. The cut out provides a contoured edge of one side of the respective first handle panel **136** and second handle panel **138**, thereby forming the handle **112** and, thus, the handle portion of the top wall **106**.

[0083] In one or more examples, the blank **102** includes at least one bottom panel that extends from and that is foldably connected to at least one of the side panels **140**, **142**, **144** and **146**. The at least one bottom panel forms the bottom wall **104** of the carton **100** when the carton **100** is formed from the blank **102**.

[0084] In the illustrated examples, the blank **102** includes a first bottom panel **170**, a second bottom panel **172**, a third bottom panel **174** and a fourth bottom panel **176**. The first bottom panel **170** extends from and is foldably connected to the first side panel **140** along a fold line **178** (e.g., a first bottom panel fold line). The fold line **178** extends longitudinally, approximately parallel to the fold line **166** and approximately perpendicular to the fold line **160**, and separates the first bottom panel **170** from the first side panel **140**. The second bottom panel **172** extends from and is foldably connected to the second side panel **142** along a fold line **180** (e.g., a second bottom panel fold line). The eighth fold line **180** extends longitudinally, approximately colinear to the fold line **166** and approximately perpendicular to the fold line **160** and the fold line **162**, and separates the second bottom panel **172** from the second side panel **142**. The third bottom panel **174** extends from and is foldably connected to the third side panel **144** along a fold line **182** (e.g., a third bottom panel fold line). The fold line **182** extends longitu-

dinally, approximately colinear to the fold line **180**, approximately parallel to the fold line **168** and approximately perpendicular to the fold line **162** and the fold line **164**, and separates the third bottom panel **174** from the third side panel **144**. The fourth bottom panel **176** extends from and is foldably connected to the fourth side panel **146** along a fold line **184** (e.g., a fourth bottom panel fold line). The fold line **184** extends longitudinally, approximately colinear to the fold line **180** and approximately perpendicular to the fold line **164**, and separates the fourth bottom panel **176** from the fourth side panel **146**.

[0085] Each one of the bottom panels **170**, **172**, **174** and **176** is hingedly movable (e.g., foldable) about a respective fold line **178**, **180**, **182** and **184** relative to a respective side panel **140**, **142**, **144** and **146** such that it can move from the orientation shown in a flat configuration (e.g., as shown FIGS. **15-18**) to an orientation shown in a constructed configuration (e.g., as shown in FIGS. **3-11**).

[0086] In other examples, the blank **102** may include a different number (e.g., less than four) bottom panels and/or a different configuration of bottom panels. As such, the illustrated examples of the bottom panels that form the bottom wall **104** of the carton **100** should not been seen as a limiting factor.

[0087] Each one of the bottom panels **170**, **172**, **174** and **176** may have any suitable two-dimensional shape and/or any desired dimensions. In the illustrated examples, one or more of the bottom panels **170**, **172**, **174** and **176** have a rectangular shape or a trapezoidal shape. As such, when the carton **100** is formed from the blank **102**, the bottom wall **104** of the carton **100** may have any suitable or desired shape, such as an approximately rectangular shape.

[0088] One or more of the bottom panels **170**, **172**, **174** and **176** may be coupled to another one of more of the bottom panels **170**, **172**, **174** and **176** by any suitable technique known to those skilled in the art and guided by the teachings provided herein. For example, one or more of the bottom panels **170**, **172**, **174** and **176** may be interlocked with each other, adhesively coupled to each other, taped to each other and combinations thereof.

[0089] In one or more examples, such as when an adhesive is used to couple the bottom panels **170**, **172**, **174** and **176** together, at least a portion of at least one of the bottom panels **170**, **172**, **174** and **176** may include a coating-free area **186** that facilitates the adhesive bond.

[0090] In one or more examples, one or more of the bottom panels **170**, **172**, **174** and **176** may include a flap **188** that extends from a respective one of the bottom panels **170**, **172**, **174** and **176**. The flap **188** may facilitate coupling of a corresponding pair of the bottom panels **170**, **172**, **174** and **176**. For example, the flap **188** of one of the bottom panels **170**, **172**, **174** and **176** may engage and be adhesively coupled to the coating-free area **186** of a corresponding one of the bottom panels **170**, **172**, **174** and **176** when the carton **100** is formed from the blank **102**.

[0091] In one or more examples, the flap **188** may be foldably connected to a respective one of the bottom panels **170**, **172**, **174** and **176** along a fold line **190** (e.g., a flap fold line). The flap **188** is hingedly movable (e.g., foldable) about the fold line **190** relative to respective one of the bottom panels **170**, **172**, **174** and **176** such that it can move during construction of the carton **100** from the blank **102**. In one or more examples, the fold line **190** may include intermittent cuts or perforations that enable the flap **188** to fold during construction more easily.

[0092] The blank **102** includes at least one locking mechanism **124** for interlocking the first handle panel **136** and the second handle panel **138** to the second side panel **142** and the fourth side panel **146** when the carton **100** is formed from the blank **102**.

[0093] In one or more examples, the blank **102** includes a first portion (e.g., a male portion as illustrated in FIGS. **15** and **18** or a female portion as illustrated in FIGS. **16** and **17**) of the locking mechanism **124** on each one of the first handle panel **136** and the second handle panel **138**. The blank **102** includes a second portion (e.g., a female portion as illustrated in FIGS. **15** and **18** or a male portion illustrated in FIGS. **16** and **17**) of the locking mechanism **124** on each one of the second side panel **142** and the fourth side panel **146**. When the carton **100** is formed from the blank **102**, the first portion of the locking mechanism **124** and the second portion of the locking mechanism **124** cooperate to couple the first handle panel **136** and the second handle panel **138** to the second side panel **142** and the fourth side panel **146**. When the carton **100** is formed from the blank **102**, the first handle panel **136** and the second handle panel **138** form the handle **112**, the top wall **106** and the planar surface **114** of the carton **100**.

[0094] Referring to FIGS. **15** and **18**, in one or more examples, the first portion of the locking mechanism **124** includes a handle-locking tab **148**. The handle-locking tab **148** is an example of the locking tab **126** (e.g., shown in FIGS. **3-5**). The handle-locking tab **148** projects from each end **130** of each one of the first handle panel **136** and the second handle panel **138**. The second portion of the locking mechanism **124** includes a wall-locking slot **150**. The wall-locking slot **150** is an example of the locking slot **128** (e.g., shown in FIGS. **3-5**). The wall-locking slot **150** is formed through each one of the second side panel **142** and the fourth side panel **146**. The handle-locking tab **148** is configured to be received by the wall-locking slot **150** and to engage a corresponding one of the second side panel **142** and the fourth side panel **146** to couple the first handle panel **136** and the second handle panel **138** and the second side panel **142** and the fourth side panel **146** together when the carton **100** is formed from the blank **102**.

[0095] Generally, the wall-locking slot **150** is located proximate (e.g., at or near) the end **132** of a respective one of the second side panel **142** and the fourth side panel **146**. In one or more examples, the wall-locking slot **150** is spaced away from an end edge of the respective one of the second side panel **142** and the fourth side panel **146** such that a portion of the end **132** of each one of the second side panel **142** and the fourth side panel **146** extends beyond overlapped first handle panel **136** and second handle panel **138** when the carton **100** is formed from the blank **102** (e.g., as shown in FIGS. **6-8** and **12**). As such, a portion of each end **132** of the second side wall **118** and the fourth side wall **122** extends beyond the top wall **106** (e.g., as shown in FIGS. **3-5**).

[0096] In one or more examples, each one of the second side panel **142** and the fourth side panel **146** includes a hinge panel **202** located at the end **132** of a respective one of the second side panel **142** and the fourth side panel **146**. The hinge panel **202** extends from and is foldably connected to the respective one of the second side panel **142** and the

fourth side panel **146** along a fold line **204** (e.g., a hinge panel fold line). For example, the hinge panel **202** extends from and is foldably connected to the upper portion **194** of the respective one of the second side panel **142** and the fourth side panel **146** along the fold line **204**. The fold line **204** extends longitudinally, approximately parallel to a respective fold line **196**, and separates the hinge panel **202** from the respective one of the second side panel **142** and the fourth side panel **146**.

[0097] The hinge panel **202** is hingedly movable (e.g., foldable) about the fold line **204** relative to the respective one of the second side panel **142** and the fourth side panel **146** such that it can move into an approximately coplanar relationship with the first handle panel **136** and the second handle panel **138** and, thus, form a portion of the planar surface **114** when a second carton **100** is stacked on the carton **100**.

[0098] In one or more examples, the fold line **204** may include intermittent cuts or perforations that enable the hinge panel **202** to fold during stacking more easily. In one or more examples, the wall-locking slot **150** interrupts, or is located along, the fold line **204**, thereby enabling the hinge panel **202** to fold during stacking more easily and positioning the hinge panel **202** directly above the overlapped first handle panel **136** and second handle panel **138**.

[0099] Referring to FIGS. **16** and **17**, in one or more examples, the first portion of the locking mechanism **124** includes a handle-locking slot **154**. The handle-locking slot **154** is an example of the locking slot **128** (e.g., shown in FIGS. **3-5**). The handle-locking slot **154** is formed through each end **130** each one of the first handle panel **136** and the second handle panel **138**. The second portion of the locking mechanism **124** includes a wall-locking tab **152**. The wall-locking tab **152** is an example of the locking tab **126** (e.g., shown in FIGS. **3-5**). The wall-locking tab **152** projects from the end **132** (e.g., the end edge) of each one of the second side panel **142** and the fourth side panel **146**. The wall-locking tab **152** is configured to be received by the handle-locking slot **154** and to engage the handle **112** to couple the first handle panel **136** and the second handle panel **138** and the second side panel **142** and the fourth side panel **146** together when the carton **100** is formed from the blank **102**.

[0100] Generally, the handle-locking slot **154** is located proximate (e.g., at or near) each opposing end **130** of a respective one of the first handle panel **136** and the second handle panel **138**. In one or more examples, the handle-locking slot **154** is spaced away from each opposing end edge of the respective one of the first handle panel **136** and the second handle panel **138**.

[0101] In one or more examples, the wall-locking tab **152** extends from and is foldably connected to the hinge panel **202** of a respective one of the second side panel **142** and the fourth side panel **146** along a fold line **206** (e.g., a locking tab fold line). The fold line **206** extends longitudinally, approximately parallel to a respective fold line **204**. The wall-locking tab **152** is hingedly movable (e.g., foldable) about the fold line **206** relative to the hinge panel **202** such that it can move during insertion into a corresponding handle-locking slot **154** when the carton **100** is formed from the blank **102**. In one or more examples, the fold line **206** may include intermittent cuts or perforations that enable the hinge panel **202** to fold during stacking more easily.

[0102] In one or more examples, the hinge panel **202** is hingedly movable (e.g., foldable) about the fold line **204** relative to the respective one of the second side panel **142** and the fourth side panel **146** such that it can move into an approximately coplanar relationship with the first handle panel **136** and the second handle panel **138** and, thus, form a portion of the planar surface **114** when the wall-locking tab **152** is received by the handle-locking slot **154** (e.g., as shown in FIG. **13**).

[0103] In one or more examples, the openings **210** interrupts, or is located along, the fold line **204**, thereby enabling the hinge panel **202** to fold during insertion of the wall-locking tab **152** within the handle-locking slot **154**. The opening **210** also permits the ends **130** of each one of the first and second handle panels **136** and **138** to extend through a respective one of the second and fourth side panels **142** and **146** during insertion of the wall-locking tab **152** within the handle-locking slot **154** (e.g., as shown in FIGS. **13** and **14**).

[0104] Referring to FIG. **17**, in one or more examples, the first portion of the locking mechanism **124** includes a pair of handle-locking slots **154**. The pair of handle-locking slots **154** is an example of the locking slot **128** (e.g., shown in FIGS. **3-5**). The pair of handle-locking slots **154** is formed through each end **130** each one of the first handle panel **136** and the second handle panel **138**.

[0105] In one or more examples, the pair of handle-locking slots **154** is spaced apart from and is parallel to each other. When the carton **100** is formed from the blank **102**, the wall-locking tab **152** is inserted through a first one of the pair of handle-locking slots **154** from a first direction and is then inserted through a second one of the pair of handle-locking slots **154** from a second direction, opposite the first direction, such that the wall-locking tab **152** loops, or winds, through the pair of handle-locking slots **154** (e.g., as shown in FIG. **14**), thereby providing a double lock. This double-locking arrangement between the wall-locking tab **152** and the pair of handle-locking slots **154** provides a more secure interlock between the first and second handle panels **136** and **138** and the second and fourth side panels **142** and **146**.

[0106] Generally, the locking tab **126** (e.g., the handle-locking tab **148** or the wall-locking tab **152**) and the locking slot **128** (e.g., the handle-locking slot **154** or the wall-locking slot **150**) have complementary and mating shapes that enable the locking tab **126** to be pass through the locking slot **128** in one direction but impedes passage of the locking tab **126** through the locking slot **128** in the opposite direction. As an example, the locking tab **126** may have a truncated arrowhead shape.

[0107] As illustrated in FIGS. **15** and **18**, in one or more examples, the handle-locking tab **148** may include a main portion, connected to and extending from the end **130** of the respective first handle panel **136** and second handle panel **138**, and an opposed pair of anchoring portions, connected to and extending outwardly from the main portion. A notch or recess may be formed between each one of the anchoring portions and the end edge of the respective first handle panel **136** and second handle panel **138**. When the handle-locking tab **148** is received by the wall-locking slot **150**, a portion of a respective one of the second side panel **142** and the fourth side panel **146** may be located within the notch, thereby holding the handle-locking tab **148** within the wall-locking slot **150** by an interference fit.

[0108] In one or more examples, the anchoring portions of the handle-locking tab **148** may be flexed or bent relative to the main portion during insertion within the wall-locking slot **150**. Once the handle-locking tab **148** has cleared an

edge of the wall-locking slot **150**, the anchoring portions may spring back into a more planar condition relative to the main portion (e.g., flatten out due to the natural resilience of the stock material of the blank **102**) such that an edge of the anchoring portion abuts an inner surface of a respective one of the second side panel **142** and the fourth side panel **146** when tension is applied in opposition to the locking direction.

[0109] In one or more examples, the wall-locking slot **150** may have a first portion and a second portion, as illustrated in FIGS. **15** and **18**. The first portion is suitably sized (e.g., larger than the handle-locking tab **148**) to enable insertion of the handle-locking tab **148** through the first portion. The second portion is suitably sized (e.g., smaller than the handle-locking tab **148**) to impede removal of the handle-locking tab **148** through the second portion.

[0110] As illustrated in FIGS. **16** and **17**, in one or more examples, the wall-locking tab **152** may include a main portion, connected to and extending from the end **132** of the respective second side panel **142** and fourth side panel **146**, and an opposed pair of anchoring portions, connected to and extending outwardly from the main portion. A notch or recess may be formed between each one of the anchoring portions and the end edge of the respective second side panel **142** and fourth side panel **146**. When the wall-locking tab **152** is received by the handle-locking slot **154**, a portion of the first handle panel **136** and the second handle panel **138** may be located within the notch, thereby holding the wall-locking tab **152** within the handle-locking slot **154** by an interference fit.

[0111] In one or more examples, the anchoring portions of the wall-locking tab **152** may be flexed or bent relative to the main portion during insertion within the handle-locking slot **154**. Once the wall-locking tab **152** has cleared an edge of the handle-locking slot **154**, the anchoring portions may spring back into a more planar condition relative to the main portion (e.g., flatten out due to the natural resilience of the stock material of the blank **102**) such that an edge of the anchoring portion abuts an interior surface of the underling one of the overlapping first and second handle panels **136** and **138** when tension is applied in opposition to the locking direction.

[0112] In one or more examples, the handle-locking slot **154** may be approximately linear (e.g., as shown in FIG. **17**). In one or more examples, the handle-locking slot **154** may be nonlinear (e.g., as shown in FIG. **16**), thereby being configured to enable insertion of the wall-locking tab **152** when the anchoring portion is bent but not requiring as much spring back for the edge of the anchoring portion to abuts the interior surface of the underling one of the overlapping first and second handle panels **136** and **138**.

[0113] The present disclosure is further directed to a method of forming the carton **100** from the blank **102**. The method may include a series of sequential folding operations. The folding process is not limited to any particular folding process and may be altered according to particular manufacturing requirements.

[0114] In one or more examples, the method includes a step of providing the blank **102** that includes the plurality of panels **134**. The method includes a step of manipulating the blank **102** such that the plurality of panels **134** form the bottom wall **104**, the top wall **106**, the plurality of side walls **108**, the handle **112** and the planar surface **114** of the carton **100**. The top wall **106** is releasably coupled to an opposed pair of the plurality of side walls **108**. The handle **112** is formed by at least a portion of the top wall **106**. The handle **112** and the top wall **106** form the planar surface **114** of the carton **100**.

[0115] In one or more examples, the carton **100** may be erected and formed around the product. In one or more examples, the carton **100** may be partially erected and filled with the product. The erecting and filling process may be performed manually or using a machine in an automated process or a combination thereof.

[0116] The present disclosure is additionally directed to a method of packaging product within the carton **100**. The carton **100** includes the bottom wall **104**, the plurality of side walls **108**, the top wall **106**, the handle **112** formed by at least a portion of the top wall **106** and the planar surface **114** at least partially formed by the handle **112** and the top wall **106**. In one or more examples, the method includes a step of erecting the carton **100** such that one of the side walls **108** is uncoupled from the top wall **106**. The method includes a step of loading product into the internal volume **110** of the carton **100**. The method includes a step of further erecting the carton **100** such that the one of the side walls **108** is coupled to the top wall **106**. In one or more examples, the carton **100** is a first one of a plurality of cartons **100**. The method includes a step of stacking a second one of the plurality of cartons **100** on the planar surface **114** of the first one of the plurality of cartons **100** (e.g., as shown in FIG. **5**).

[0117] The disclosed carton **100** provides a minimal-material solution, with comparable performance (e.g., integrity and market) to a conventional product container. The various examples of the disclosed carton **100** formed from the blank **102** include the handle **112**, thereby enabling the carton **100** to serve as a product carrier. The handle **112** essentially forms the top wall **106** of the carton **100** and has a portion of the locking mechanism **124** (either male or female) on lateral end portions thereof that engages with a corresponding portion of the locking mechanism **124** located on an upper portion of each side wall **108**, respectively, forming ends of the carton **100**. As such, the handle **112** extends between and engages the side walls **108** (e.g., side panels) of the carton **100**, rather than being engaged with a top panel of the carton (e.g., like conventional product packaging), thereby providing the carton **100** with increased structural integrity. Additionally, the handle **112** and, thus, the top wall **106** have a double-layered construction formed by the two substantially identical handle panels **136** and **138**, which provide additional reinforcement and structural integrity to the carton **100**. Further, the configuration of the side walls **108** (e.g., the side panels) and the top wall **106** and the handle **112** (e.g., the handle panels **136**, **138**) provide the planar surface **114** upon which a second carton may be stacked, thereby enabling stacking while providing a handled carton **100**.

[0118] For the purpose of the present disclosure, the terms "interior," "exterior," "lower," "upper," "bottom," "top," "front," "rear," "side," "end" and similar terms or other forms of such terms are relative and refer to an example of a spatial relationship between structures, elements, items, components or features or indicate orientations determined in relation to fully erect and upright cartons (e.g., as shown in FIGS. **3-11**). As such, examples of the carton **100** and the blank **102**, described herein and illustrated in the figures, are not intended to be limited by the specific relative terms used

to describe any structure, element, item, component or feature of the carton **100** or the blank **102**.

[0119] Examples of the disclosed carton **100** and blank **102** for making the same are described above in detail. The blank **102** and the carton **100** are not limited to the specific examples described herein, but rather, components, elements, and/or features of the blanks and/or the containers may be utilized independently and separately from other components, elements, and/or features described herein. For example, the blanks may also be used in combination with other type of product and is not limited to practice with only the articles as described and illustrated herein. Rather, the exemplary embodiment can be implemented and utilized in connection with many other applications.

[0120] Unless otherwise indicated, the terms "first," "second," "third," etc. are used herein merely as labels, and are not intended to impose ordinal, positional, or hierarchical requirements on the items to which these terms refer. Moreover, reference to, e.g., a "second" item does not require or preclude the existence of, e.g., a "first" or lower-numbered item, and/or, e.g., a "third" or higher-numbered item.

[0121] As used herein, the phrase "at least one of", when used with a list of items, means different combinations of one or more of the listed items may be used and only one of each item in the list may be needed. For example, "at least one of item A, item B, and item C" may include, without limitation, item A or item A and item B. This example also may include item A, item B, and item C, or item B and item C. In other examples, "at least one of" may be, for example, without limitation, two of item A, one of item B, and ten of item C; four of item B and seven of item C; and other suitable combinations.

[0122] For the purpose of this disclosure, the terms "coupled," "coupling," and similar terms refer to two or more elements that are joined, linked, fastened, attached, connected, put in communication, or otherwise associated with one another. In various examples, the elements may be associated directly or indirectly. As an example, element A may be directly associated with element B. As another example, element A may be indirectly associated with element B, for example, via another element C. It will be understood that not all associations among the various disclosed elements are necessarily represented. Accordingly, couplings other than those depicted in the figures may also exist.

[0123] As used herein, the term "substantially" refers to a condition that is essentially the stated condition that performs the desired function or achieves the desired result. As used herein, the term "approximately" refers to a condition that is close to the stated condition, but not exactly, the stated condition that still performs the desired function or achieves the desired result. However, use of the terms "substantially" and "approximately" do not exclude a condition that is exactly the stated condition.

[0124] Those skilled in the art will appreciate that not all elements described and illustrated in FIGS. **1-18** need be included in every example and not all elements described herein are necessarily depicted in each illustrative example. Unless otherwise explicitly stated, the schematic illustrations of the examples depicted in FIGS. **1-18** are not meant to imply structural limitations with respect to the illustrative example. Rather, although one illustrative structure is indicated, it is to be understood that the structure may be modified when appropriate. Additionally, modifications, additions and/or omissions may be made to the illustrated structure.

[0125] Further, references throughout the present specification to features, advantages, or similar language used herein do not imply that all of the features and advantages that may be realized with the examples disclosed herein should be, or are in, any single example. Rather, language referring to the features and advantages is understood to mean that a specific feature, advantage, or characteristic described in connection with an example is included in at least one example. Thus, discussion of features, advantages, and similar language used throughout the present disclosure may, but do not necessarily, refer to the same example.

[0126] The described features, advantages, and characteristics of one example may be combined in any suitable manner in one or more other examples. One skilled in the relevant art will recognize that the examples described herein may be practiced without one or more of the specific features or advantages of a particular example. In other instances, additional features and advantages may be recognized in certain examples that may not be present in all examples. Furthermore, although various examples of the carton **100** and the blank **102** for forming the carton **100** and methods have been shown and described, modifications may occur to those skilled in the art upon reading the specification. The present application includes such modifications and is limited only by the scope of the claims.

1. A carton for packaging product, the carton comprising:
a bottom wall;
a plurality of side walls connected to the bottom wall;
a top wall releasably coupled to one of the side walls;
a handle formed by at least a portion of the top wall; and
a planar surface at least partially formed by the handle and the top wall.

2. The carton of claim **1**, further comprising a locking mechanism that couples the top wall and the one of the side walls together.

3. The carton of claim **2**, wherein:
the locking mechanism comprises:
a locking tab associated with one of: (i) the top wall or (ii) the one of the side walls; and
a locking slot associated with the other of: (i) the top wall or (ii) the one of the side walls; and
the locking tab is configured to be received by and to be secured within the locking slot.

4. The carton of claim **1**, wherein a portion of an end of the one of the side walls forms a portion of the planar surface.

5. The carton of claim **1**, wherein:
the top wall comprises a first handle panel and a second handle panel that at least partially overlap each other; and
the first handle panel and the second handle panel are releasably coupled to the one of the side walls by a locking mechanism.

6. The carton of claim **1**, further comprising at least one opening formed through at least one of the plurality of side walls.

7. The carton of claim **1**, wherein the carton is erected from a blank of stock material.

8. A blank for forming the carton of claim **1**.

9. A carton for packaging product, the carton comprising:
a plurality of panels that form an internal volume, a handle and a planar surface of the carton, the plurality of panels comprising:
a first side panel;
a second side panel foldably connected to the first side panel;
a third side panel foldably connected to the second side panel;
a fourth side panel foldably connected to the third side panel;
a first handle panel foldably connected to the first side panel and releasably coupled to the second side panel and the fourth side panel; and
a second handle panel foldably connected to the third side panel and releasably coupled to the second side panel and the fourth side panel,
wherein the first handle panel overlaps at least a portion of the second handle panel such that the first handle panel and the second handle panel form the handle and at least a portion of the planar surface.

10. The carton of claim **9**, further comprising a locking mechanism that couples the first handle panel and the second handle panel to the second side panel and the fourth side panel.

11. The carton of claim **10**, wherein:
the locking mechanism comprises:
a handle-locking tab projecting from each end of each one of the first handle panel and the second handle panel; and
a wall-locking slot formed through each one of the second side panel and the fourth side panel; and
the handle-locking tab is received by the wall-locking slot and engages a corresponding one of the second side panel and the fourth side panel.

12. The carton of claim **11**, wherein a portion of an end of the second side panel and the fourth side panel projects above the handle and is foldable to form a portion of the planar surface.

13. The carton of claim **10**, wherein:
the locking mechanism comprises:
a wall-locking tab projecting from an end of each one of the second side panel and the fourth side panel; and
a handle-locking slot formed through each end of each one of the first handle panel and the second handle panel; and
the wall-locking tab is received by the handle-locking slot and engages the handle.

14. The carton of claim **13**, wherein a portion of the end of each one of the second side panel and the fourth side panel forms a portion of the planar surface.

15. The carton of claim **9**, further comprising at least one opening formed through at least one of the plurality of panels.

16. (canceled)
17. (canceled)
18. (canceled)
19. (canceled)
20. (canceled)

21. A blank for forming the carton of claim **9**.

22. A blank for forming a carton, the blank comprising:
a first side panel;
a second side panel foldably connected to the first side panel;
a third side panel foldably connected to the second side panel;
a fourth side panel foldably connected to the third side panel;
a first handle panel foldably connected to the first side panel;
a second handle panel foldably connected to the third side panel;
a first portion of a locking mechanism on each one of the first handle panel and the second handle panel; and
a second portion of the locking mechanism on each one of the second side panel and the fourth side panel,
wherein, when the carton is formed from the blank:
the first portion of the locking mechanism and the second portion of the locking mechanism cooperate to couple the first handle panel and the second handle panel to the second side panel and the fourth side panel; and
the first handle panel and the second handle panel form a handle and at least a portion of a planar surface of the carton.

23. The blank of claim **22**, wherein:
the first portion of the locking mechanism comprises a handle-locking tab projecting from each end of each one of the first handle panel and the second handle panel;
the second portion of the locking mechanism comprises a wall-locking slot formed through each one of the second side panel and the fourth side panel; and
the handle-locking tab is configured to be received by the wall-locking slot and to engage a corresponding one of the second side panel and the fourth side panel.

24. The blank of claim **22**, wherein:
the first portion of the locking mechanism comprises a handle-locking slot formed through each end portion of each one of the first handle panel and the second handle panel;
the second portion of the locking mechanism comprises a wall-locking tab projecting from an end of each one of the second side panel and the fourth side panel; and
the wall-locking tab is configured to be received by the handle-locking slot and to engage the handle.

25. The blank of claim **22**, further comprising at least one opening formed through at least one of the first side panel, the second side panel, the third side panel and the fourth side panel.

26. (canceled)
27. (canceled)
28. (canceled)
29. (canceled)
30. (canceled)

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