



US 20150191287A1

(19) **United States**

(12) **Patent Application Publication**  
**L'Heureux et al.**

(10) **Pub. No.: US 2015/0191287 A1**

(43) **Pub. Date: Jul. 9, 2015**

(54) **PAPER-BASED CONTAINER CARRYING DEVICE**

*B65D 71/52* (2006.01)

*B65D 21/02* (2006.01)

*B65D 25/20* (2006.01)

(71) Applicant: **Fishbone Packaging, Inc.**, San Marcos, CA (US)

(52) **U.S. Cl.**

CPC ..... *B65D 71/44* (2013.01); *B65D 21/0204*

(2013.01); *B65D 25/205* (2013.01); *B65D*

*71/0003* (2013.01); *B65D 85/72* (2013.01)

(72) Inventors: **Kevin Alan L'Heureux**, Santa Clarita, CA (US); **Keith James Elliott**, San Marcos, CA (US)

(57)

**ABSTRACT**

Apparatuses and embodiments related to container carrying devices. A container carrying device that includes paper-based materials has a number of apertures, each with a neck-engaging locking mechanism to receive and hold a container. The container carrying device can have a mechanical release strip that enables a portion of the container carrying device to be torn off, such as along a tear line that passes through one or more apertures. When a mechanical release strip is torn off, the container being held by the aperture through which the mechanical release strip passes is freed. The container carrying device can further have a tab, such as a marketing tab, which can be used for a number of purposes, such as for a marketing surface. The container carrying device can further have one or more handles which can be used to carry the container carrying device.

(21) Appl. No.: **14/591,495**

(22) Filed: **Jan. 7, 2015**

**Related U.S. Application Data**

(60) Provisional application No. 61/924,386, filed on Jan. 7, 2014, provisional application No. 62/067,397, filed on Oct. 22, 2014.

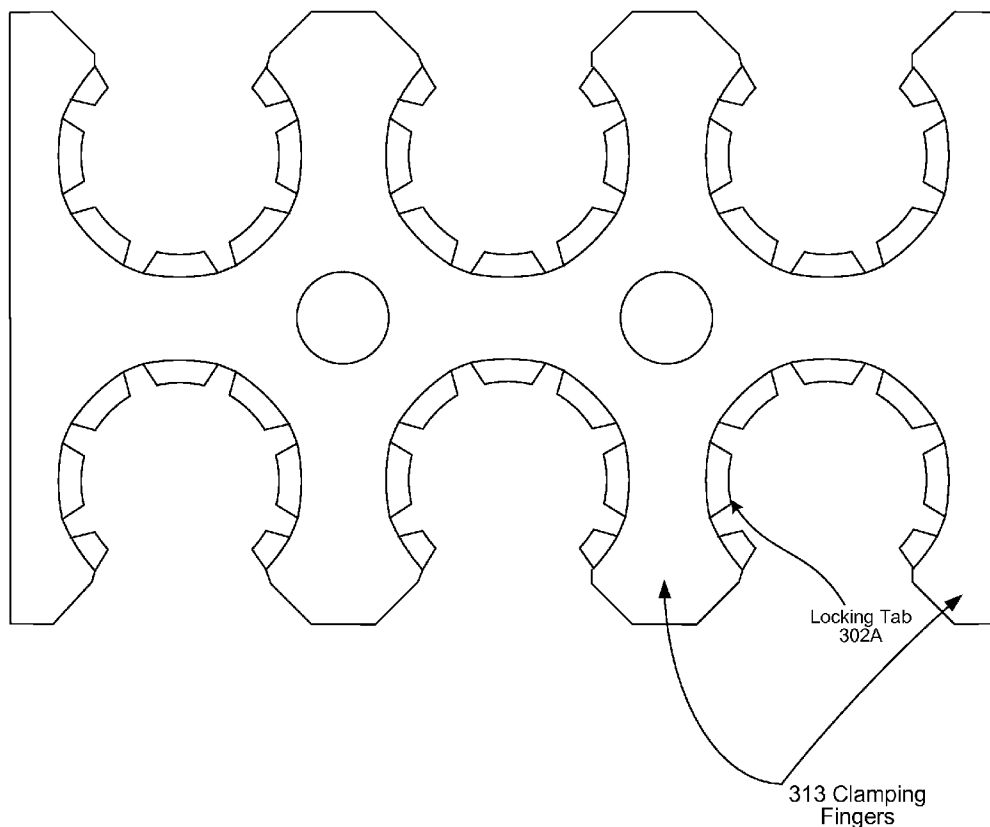
**Publication Classification**

(51) **Int. Cl.**

*B65D 71/44* (2006.01)

*B65D 85/72* (2006.01)

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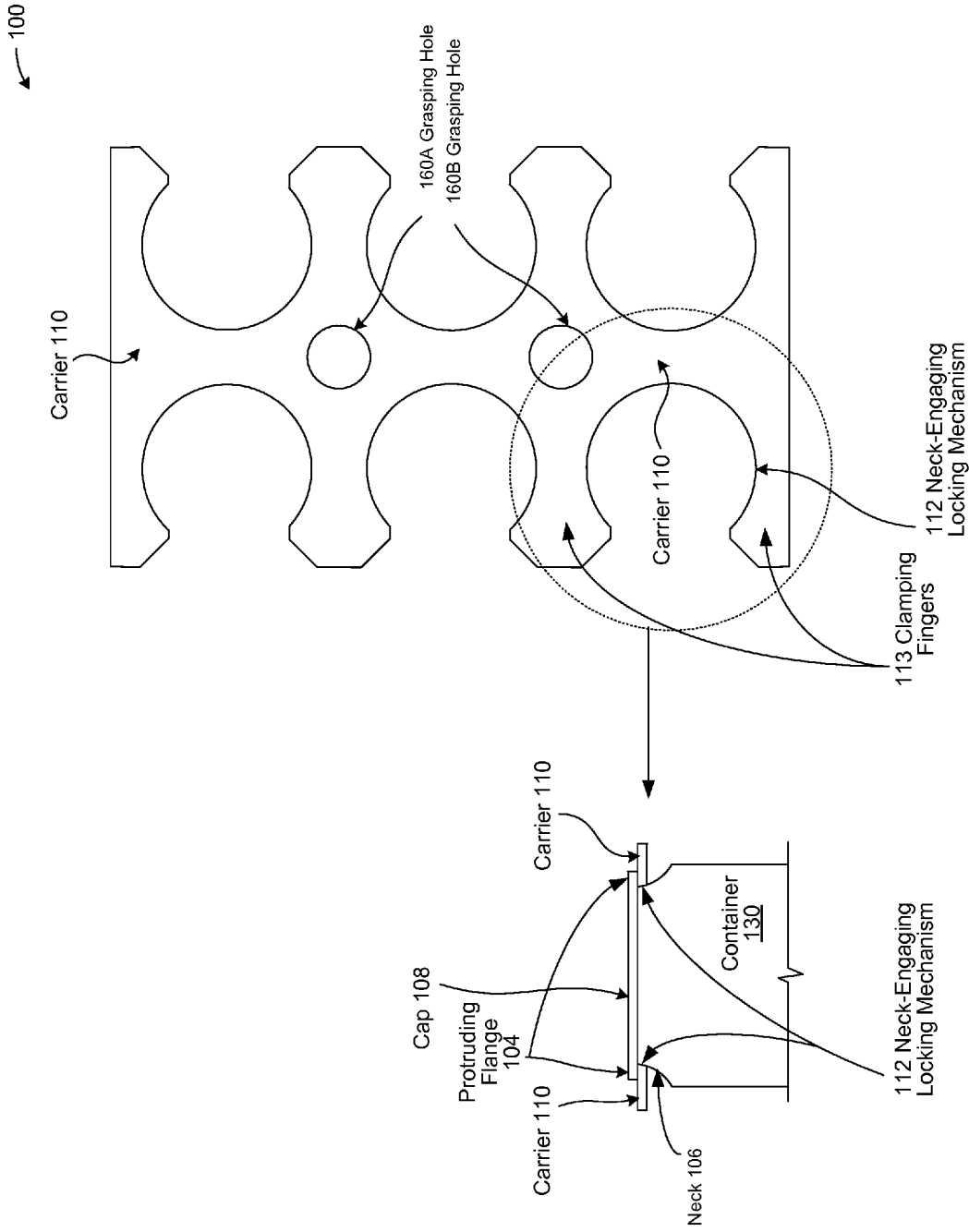
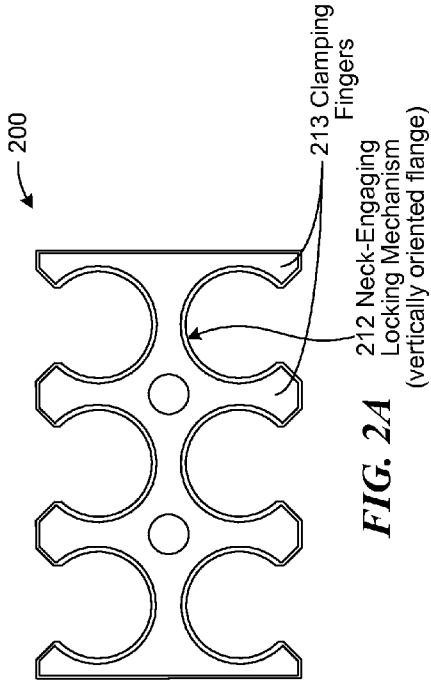
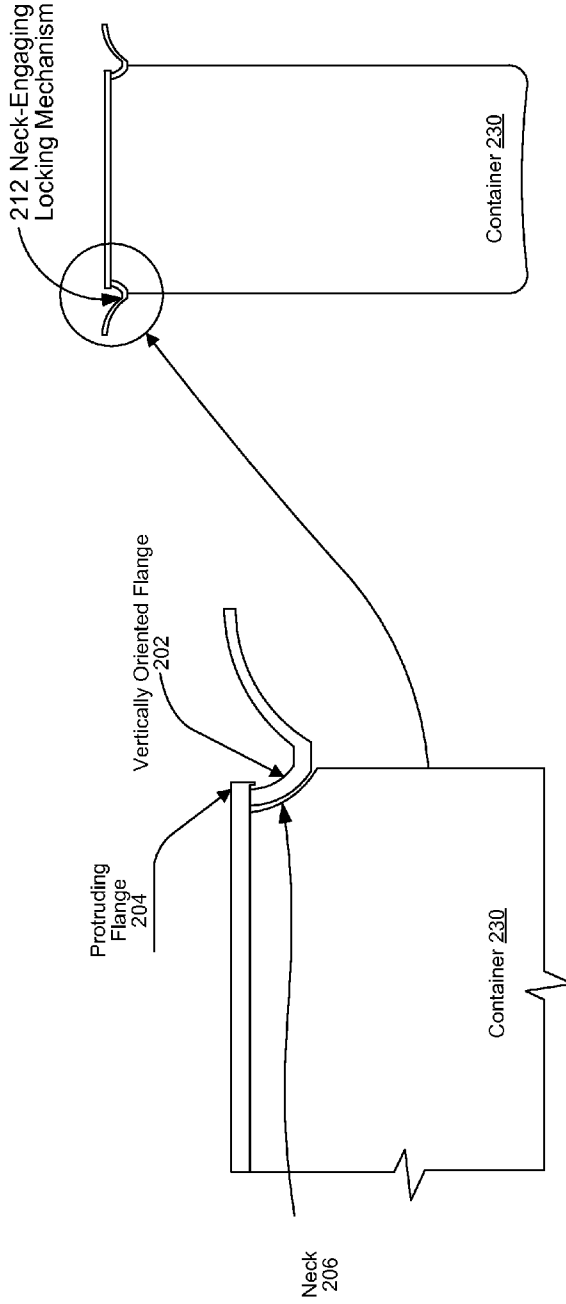


FIG. 1A

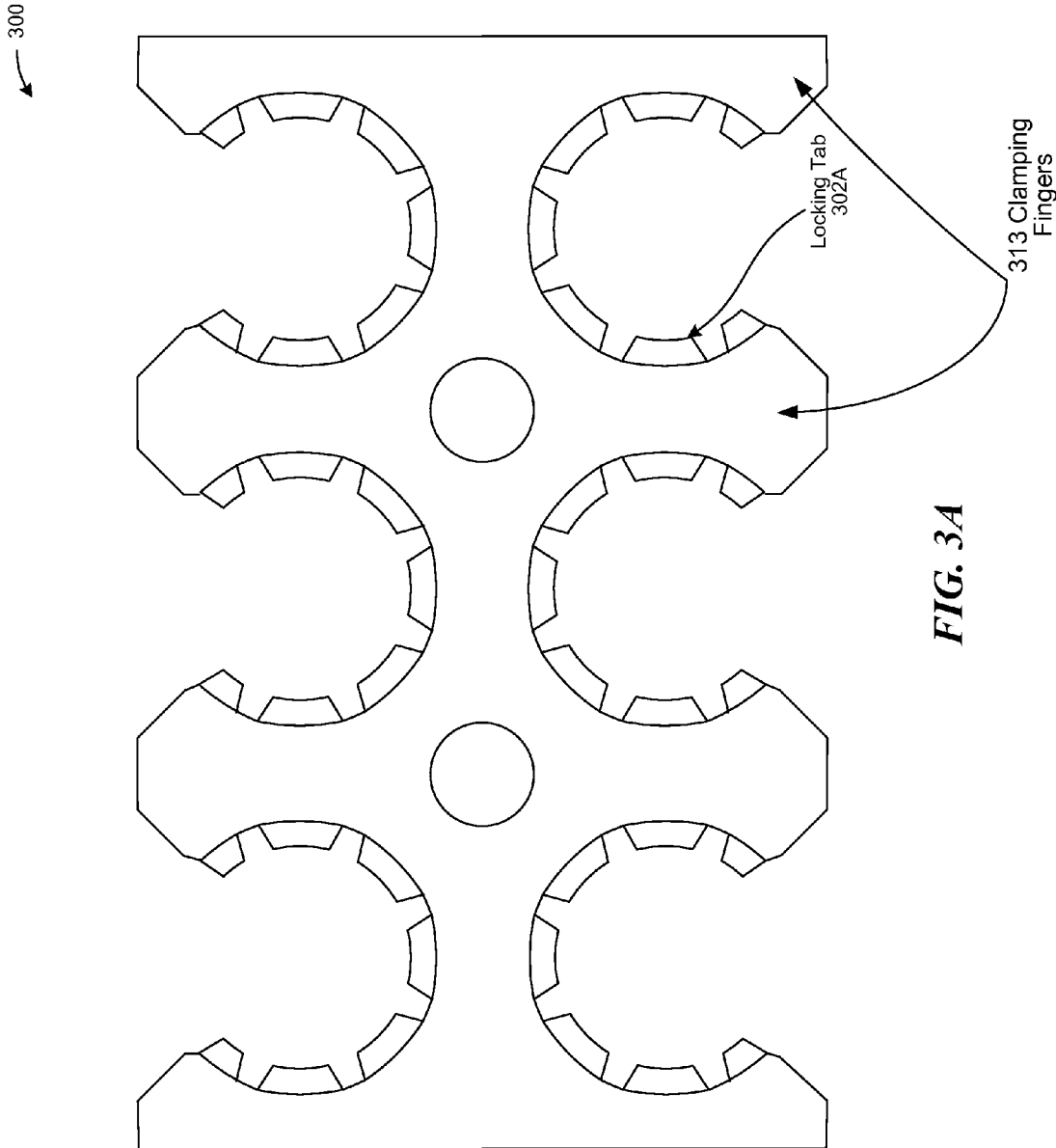
FIG. 1B



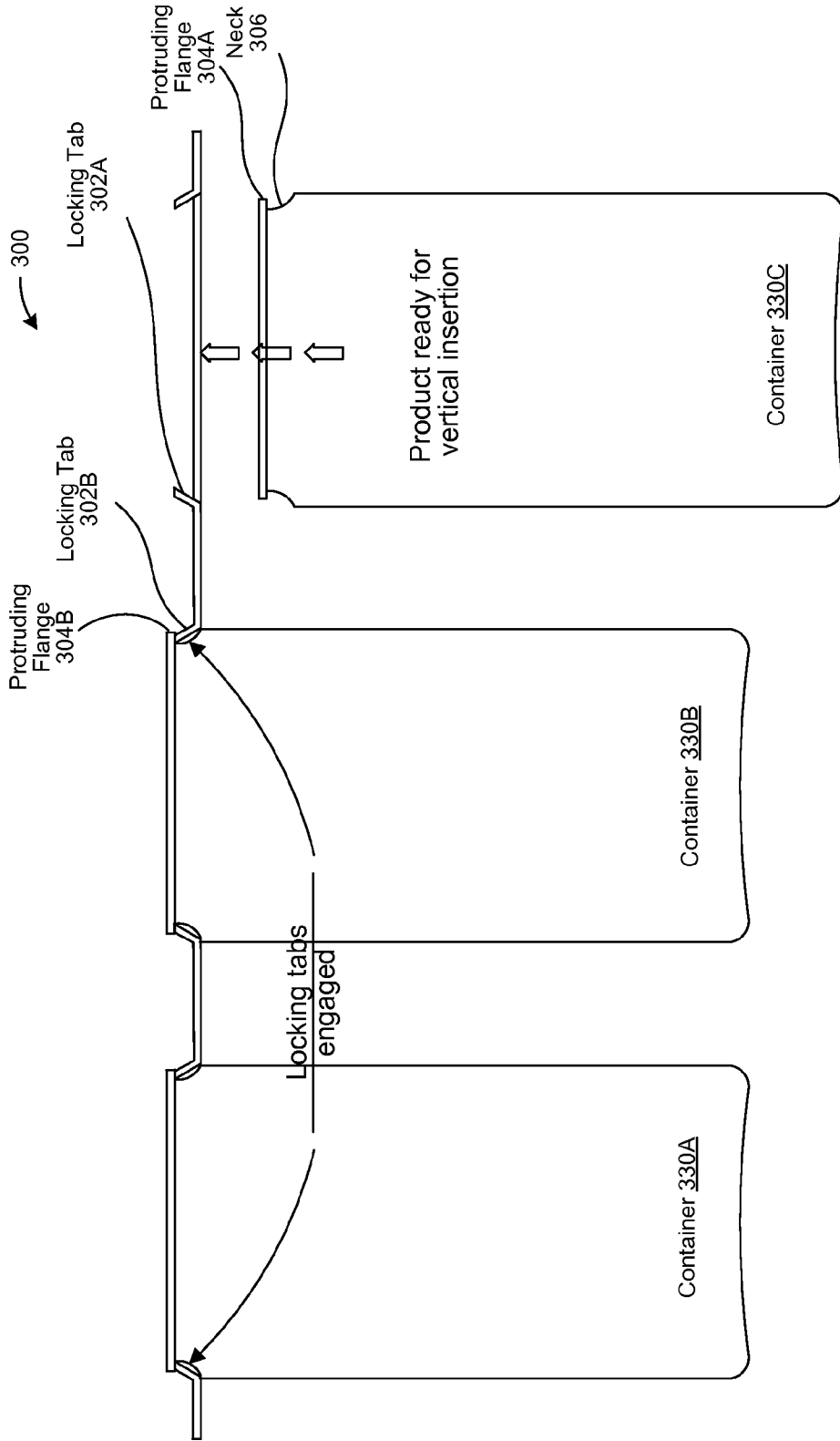
**FIG. 2A**



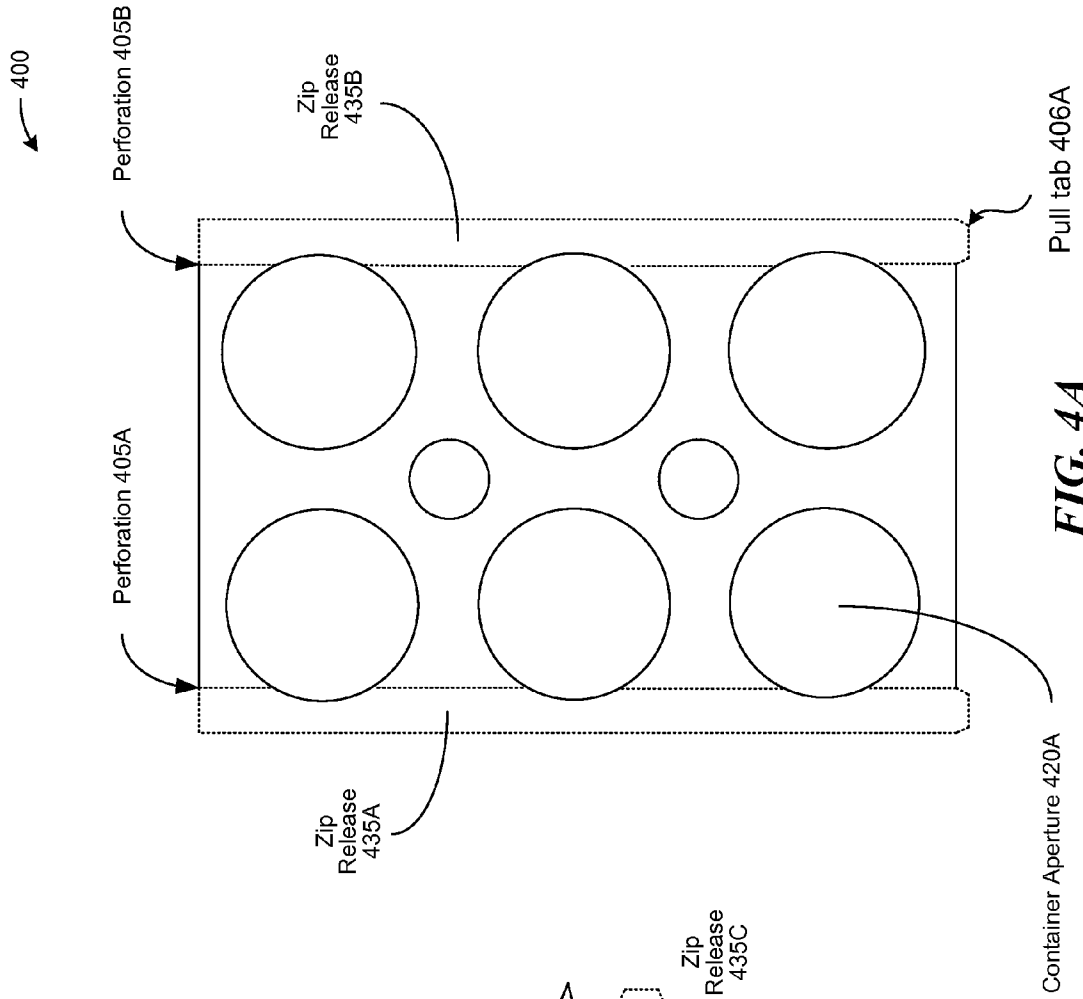
**FIG. 2B**



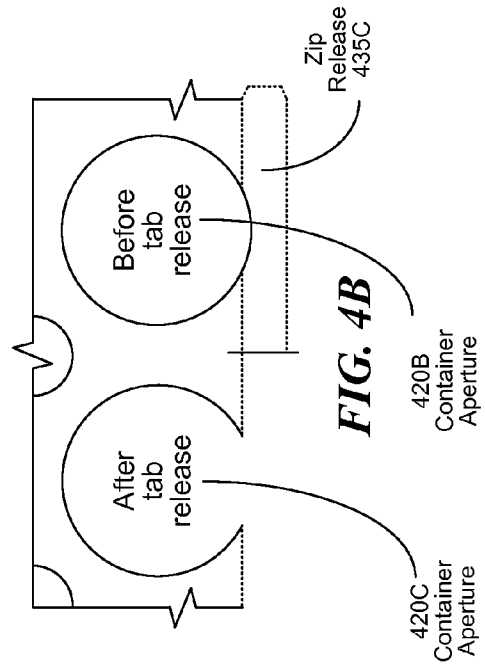
**FIG. 3A**



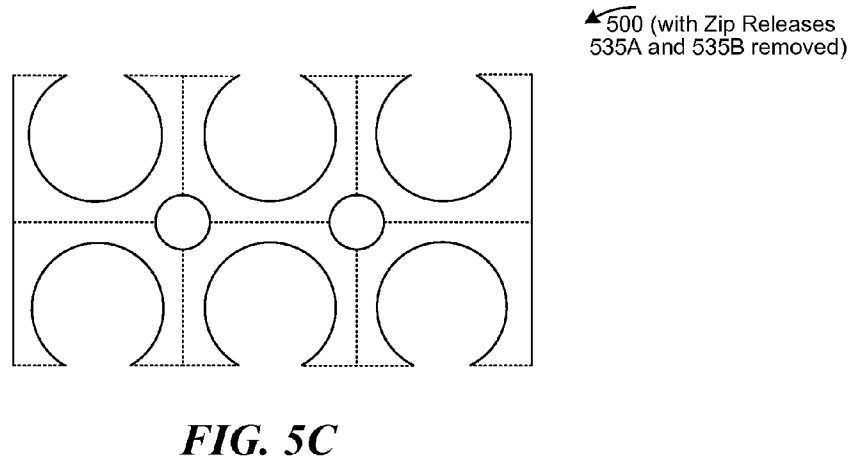
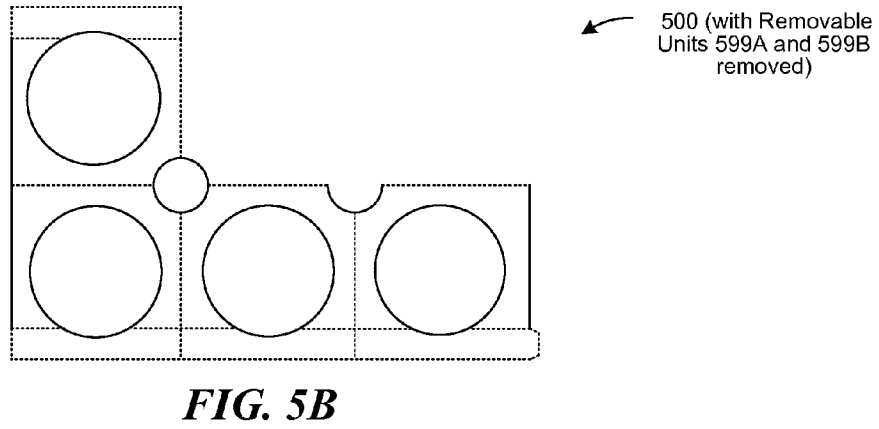
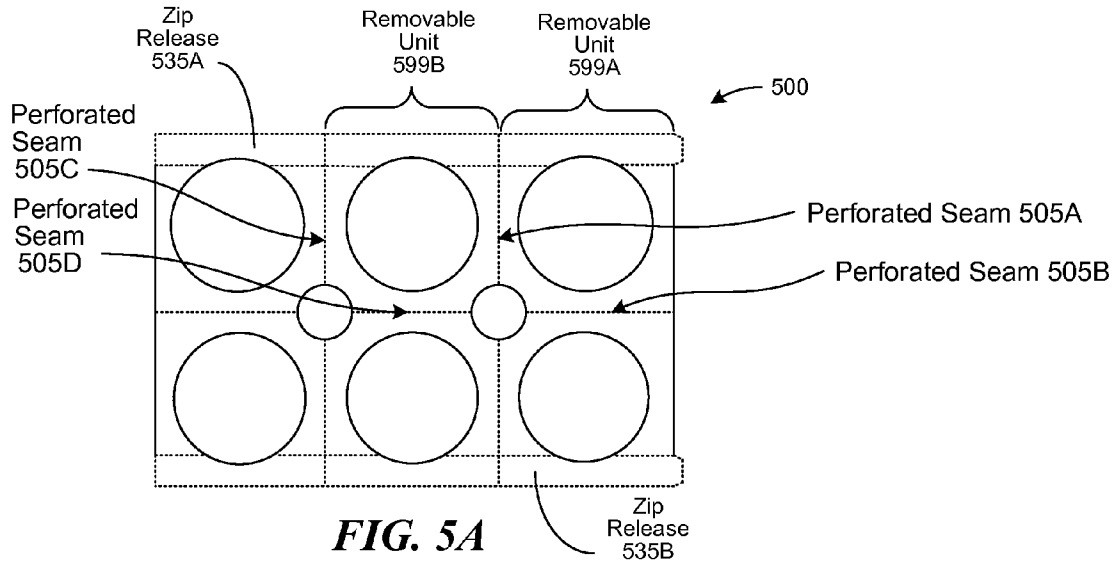
**FIG. 3B**

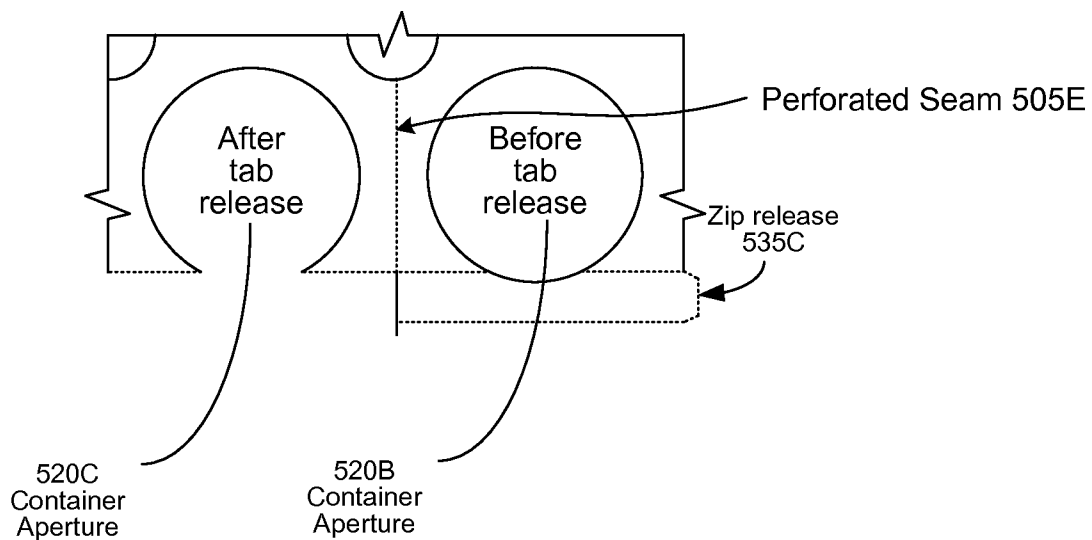


**FIG. 4A**

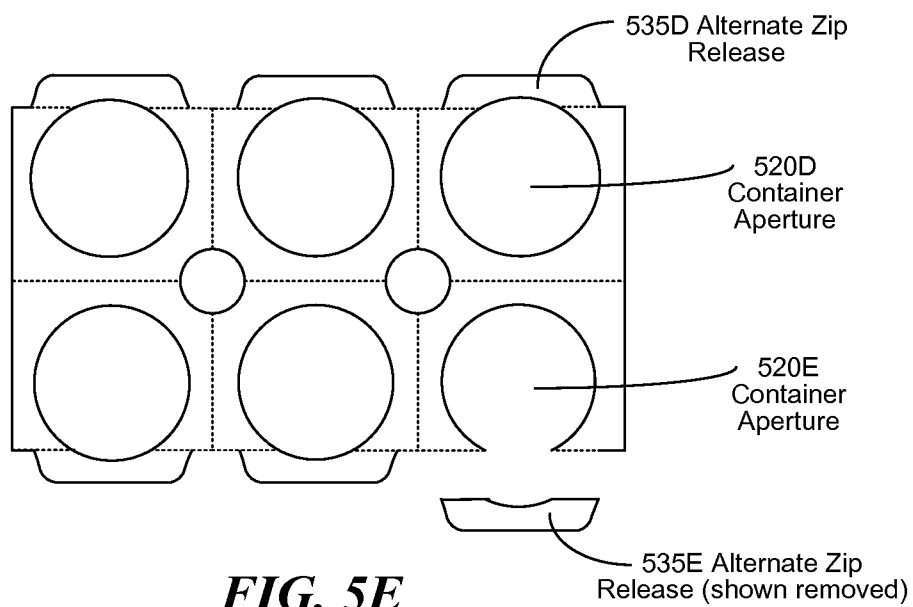


**FIG. 4B**



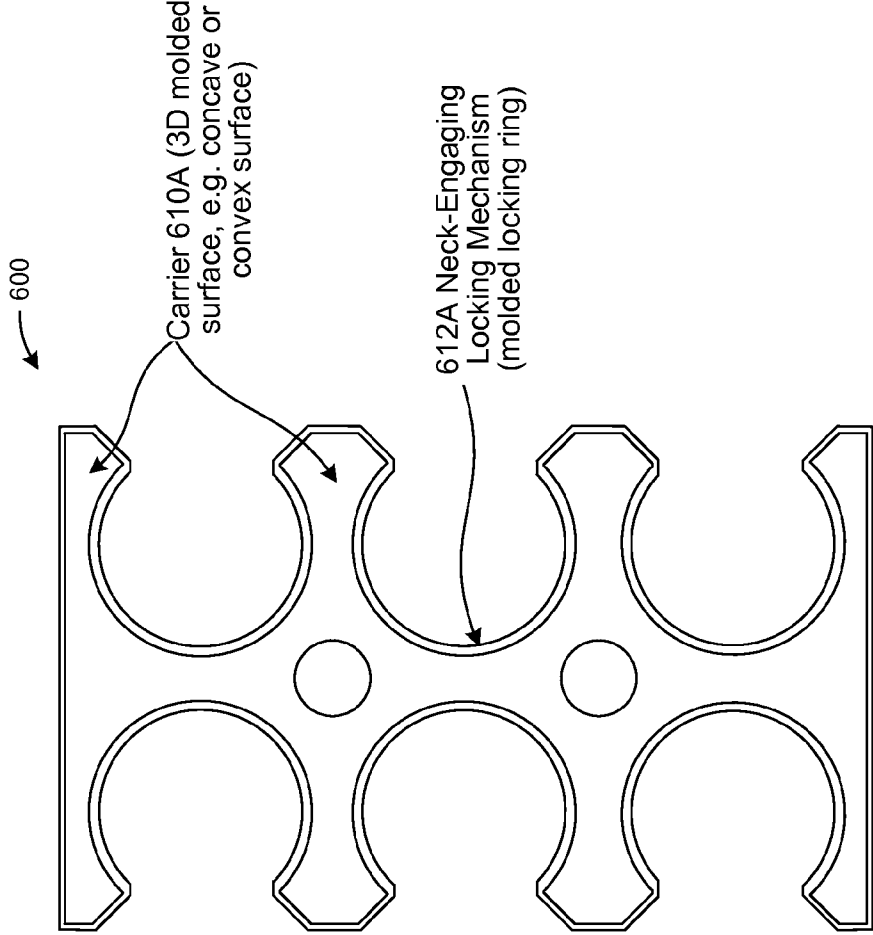


**FIG. 5D**

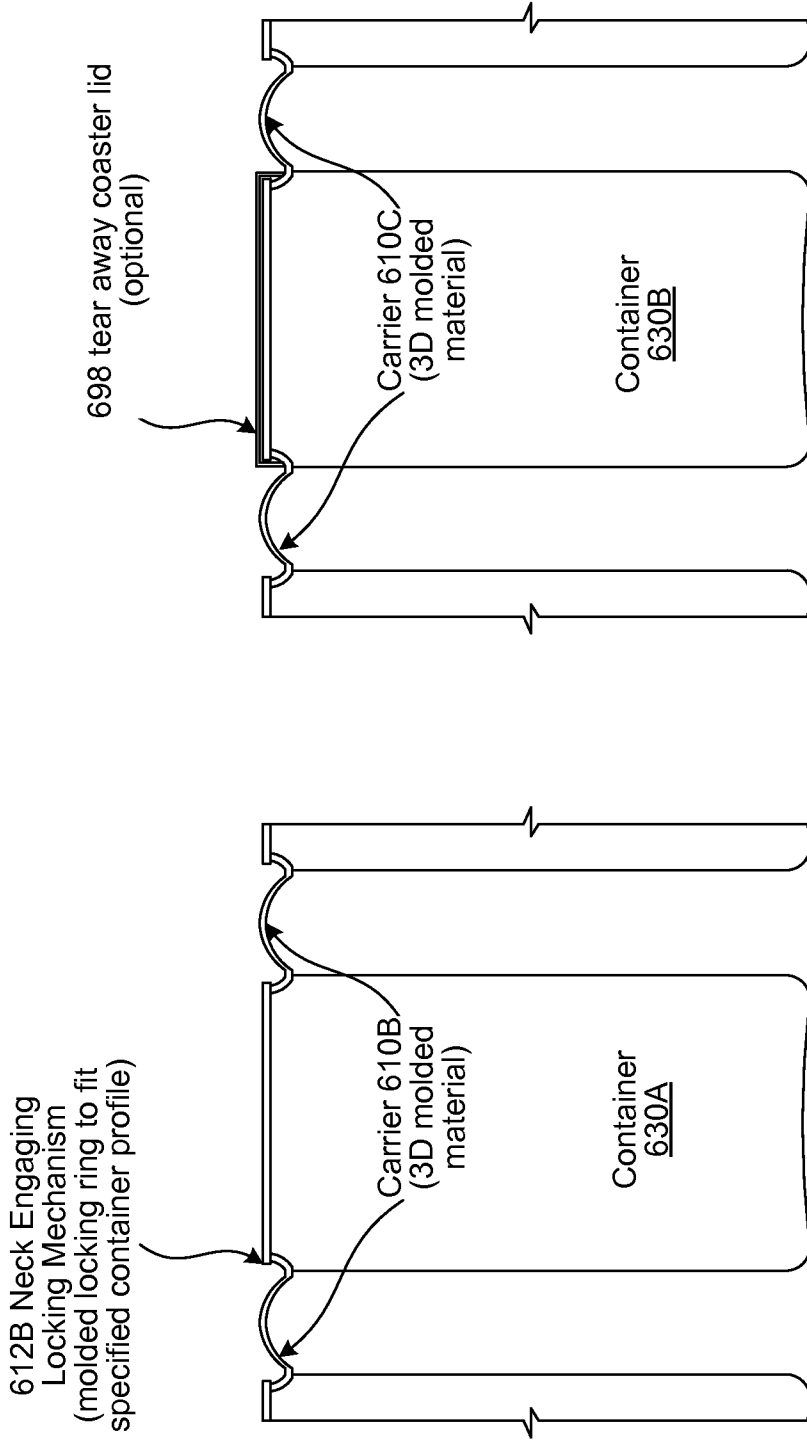


**FIG. 5E**





**FIG. 6A**



**FIG. 6C**

**FIG. 6B**

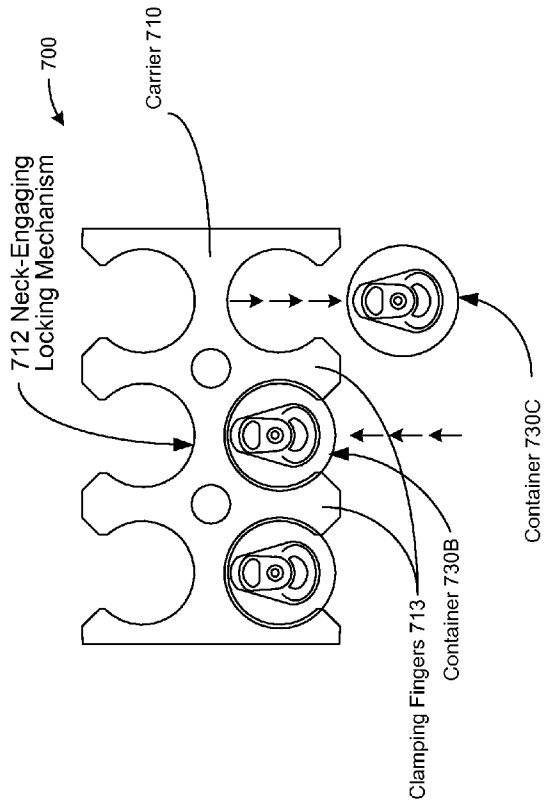


FIG. 7A

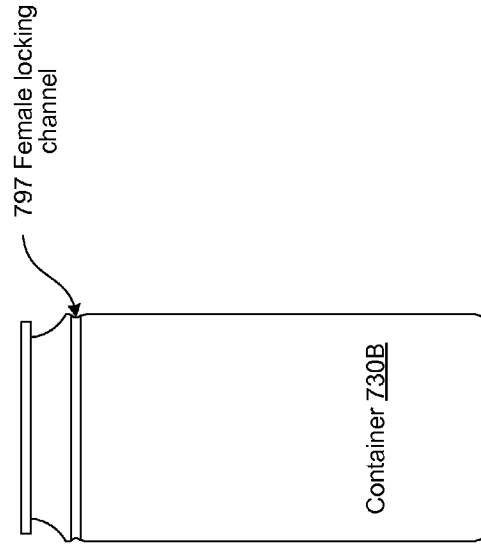


FIG. 7C

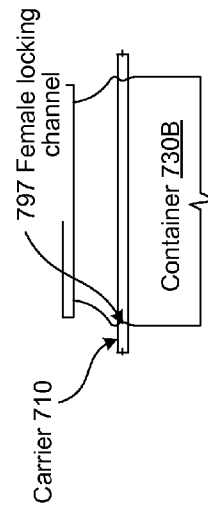
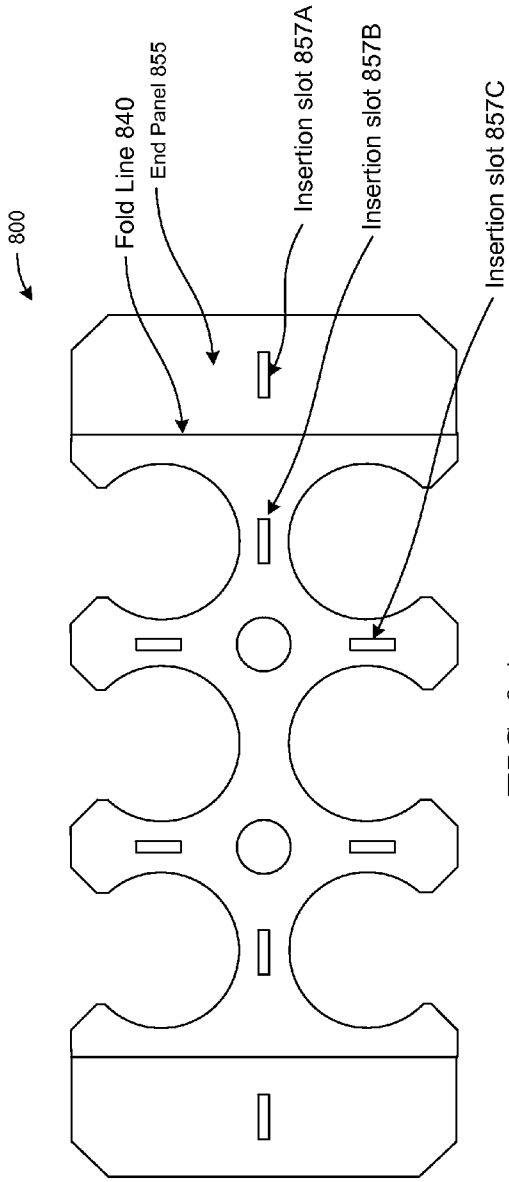
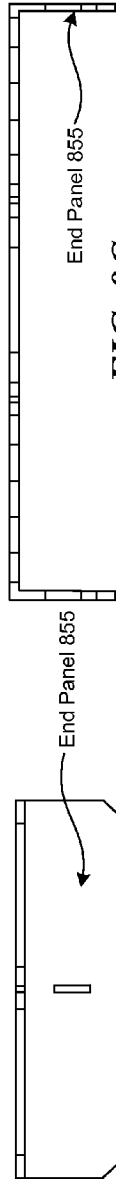


FIG. 7B

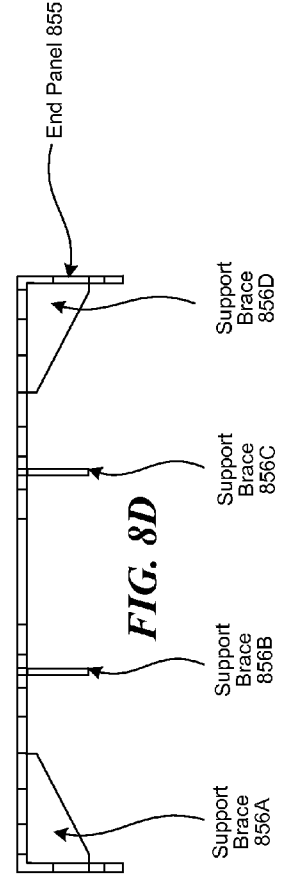


**FIG. 8A**

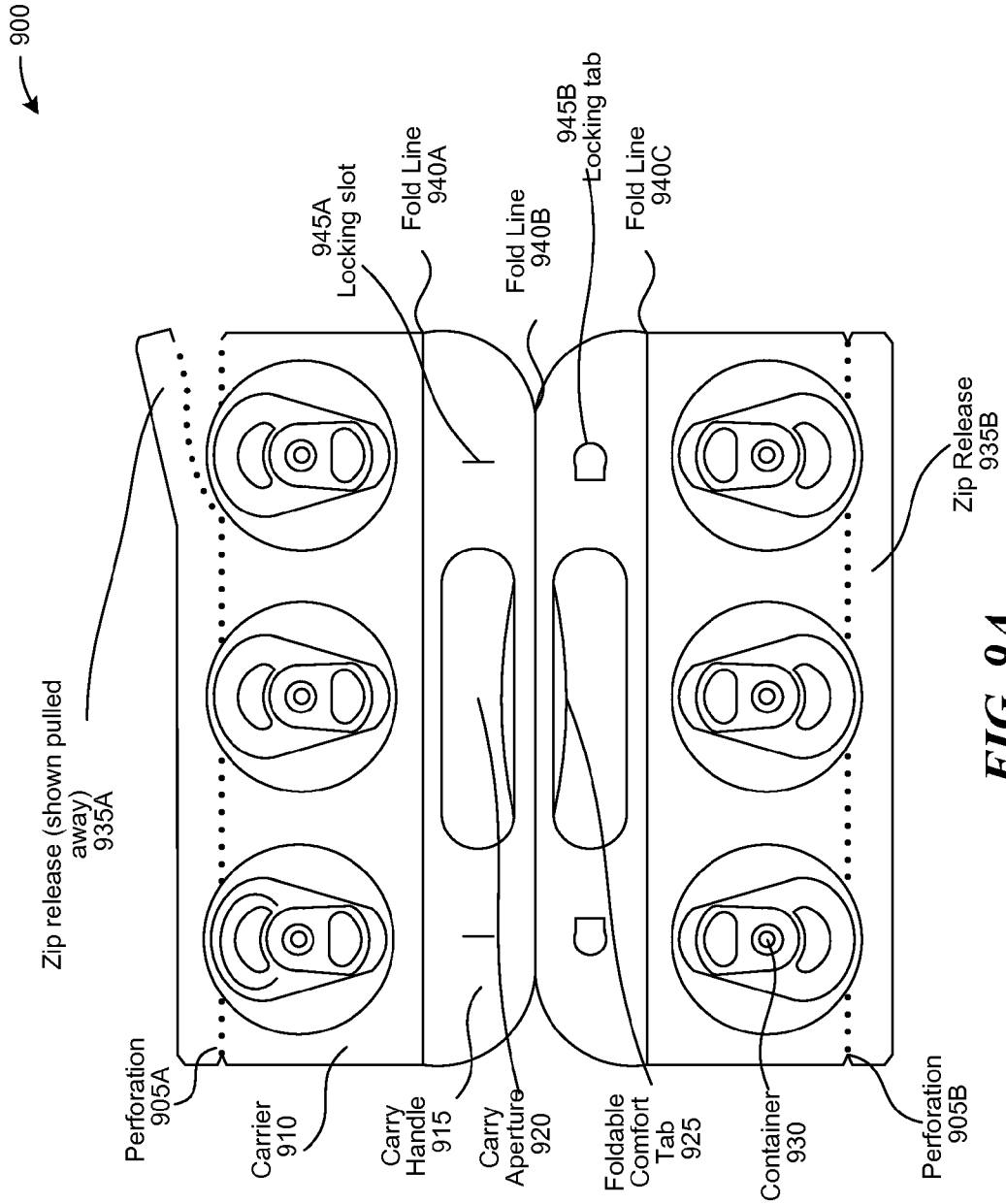


**FIG. 8C**

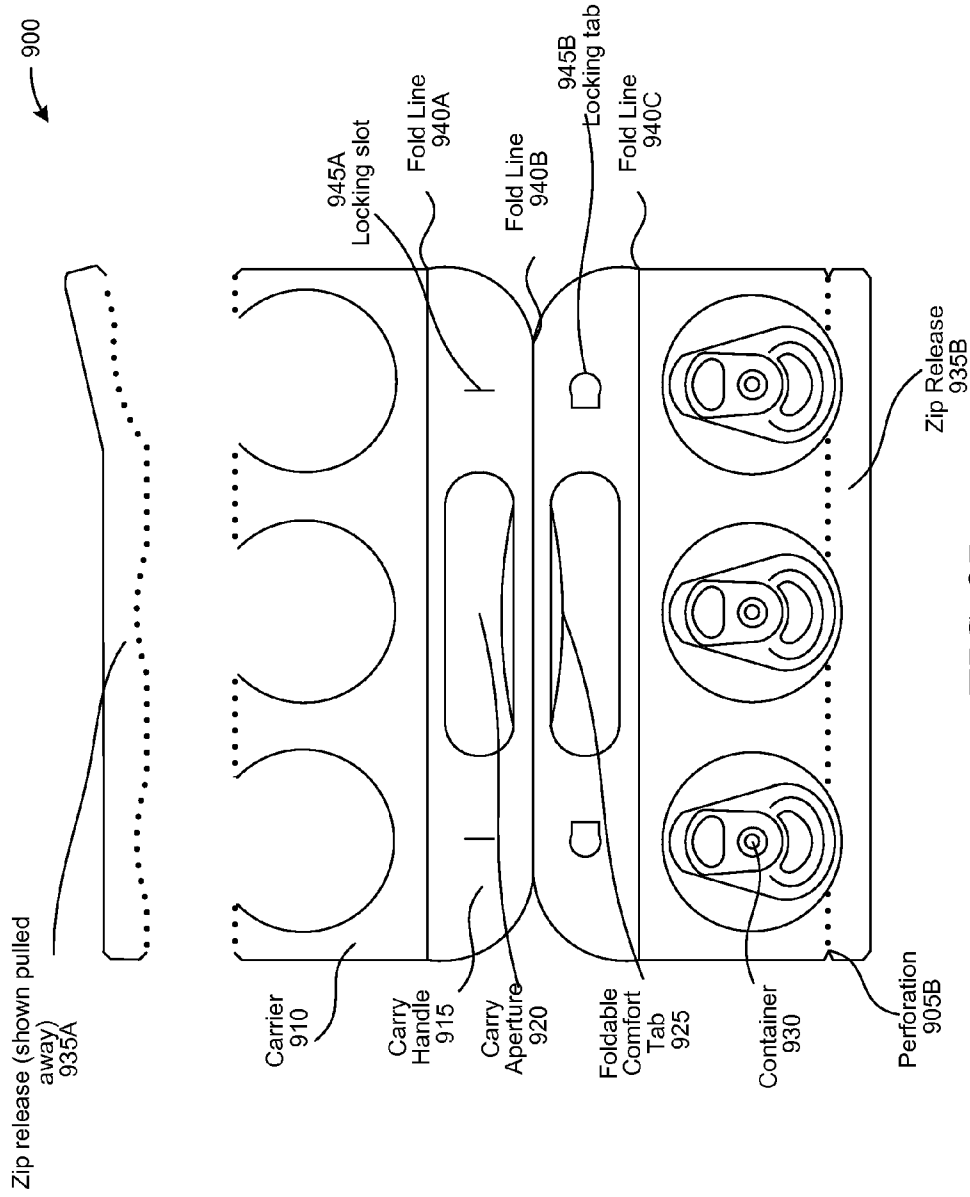
**FIG. 8B**



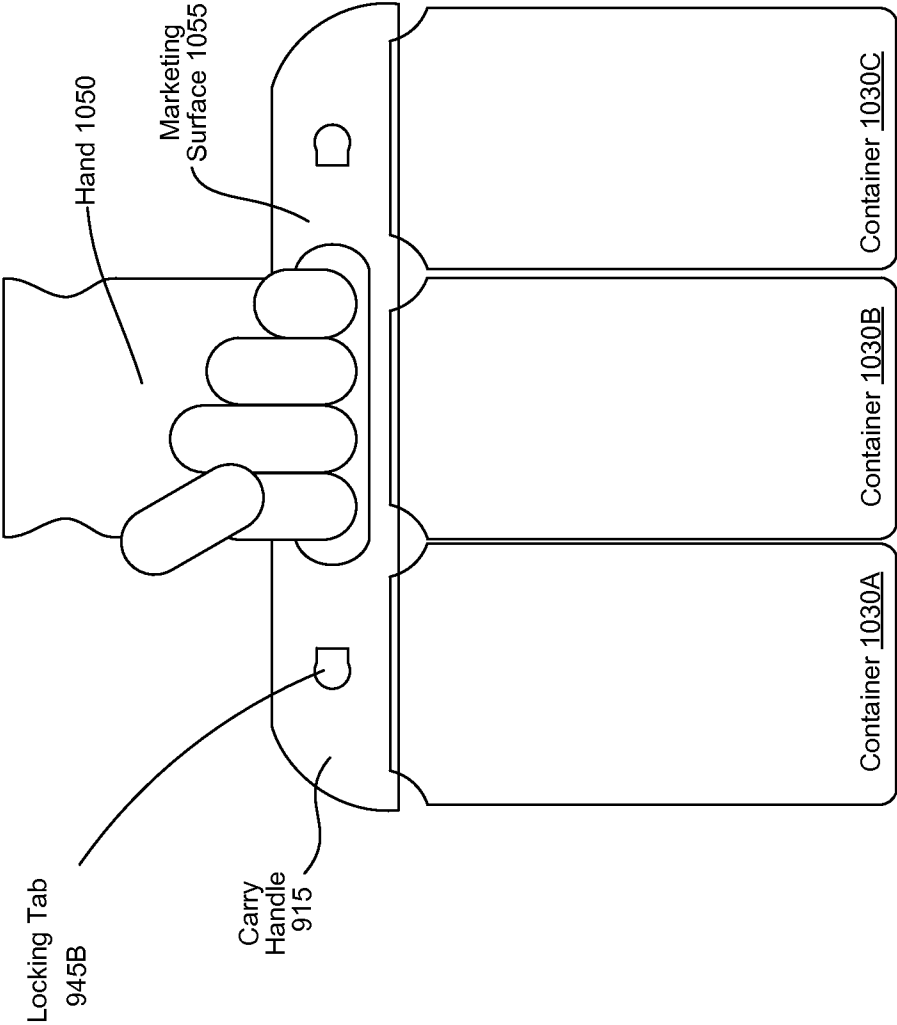
**FIG. 8D**



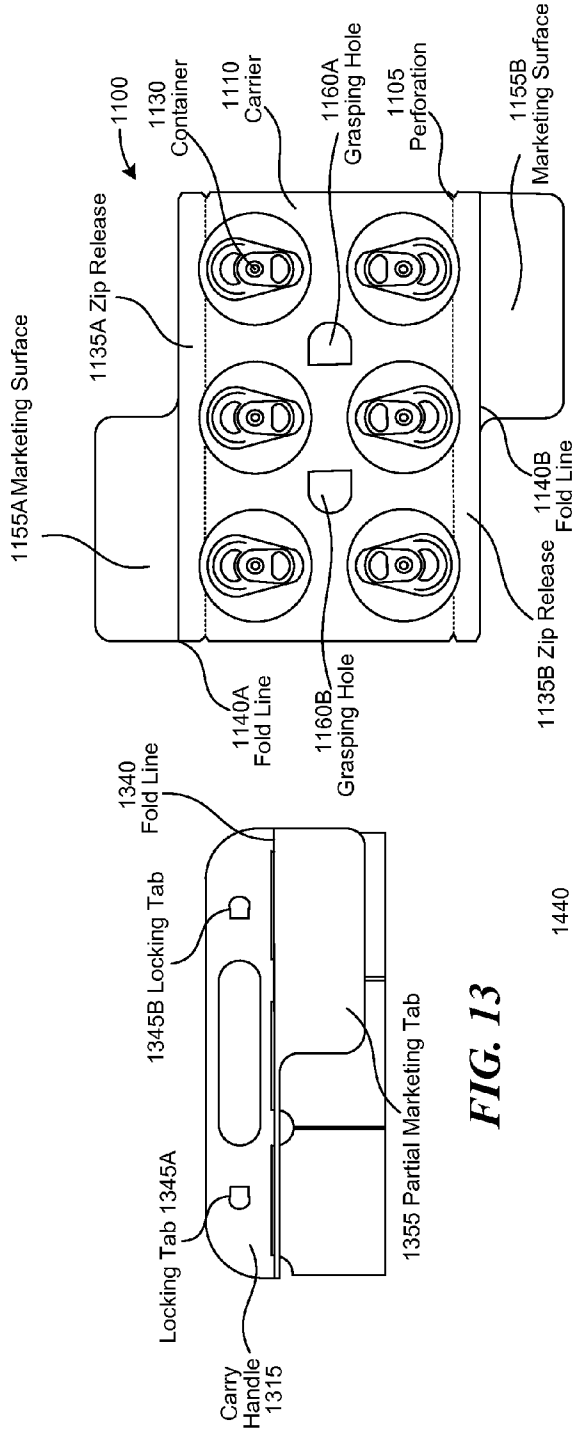
**FIG. 9A**



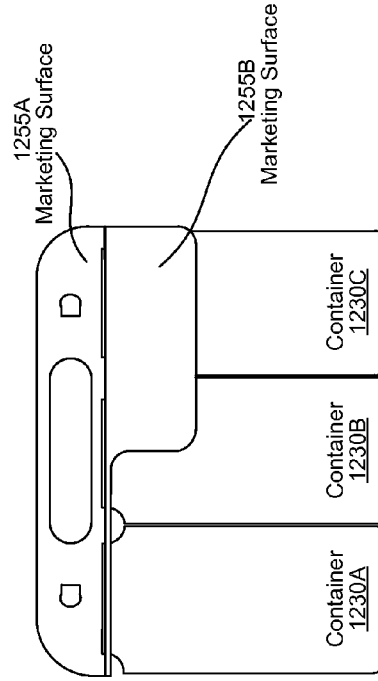
**FIG. 9B**



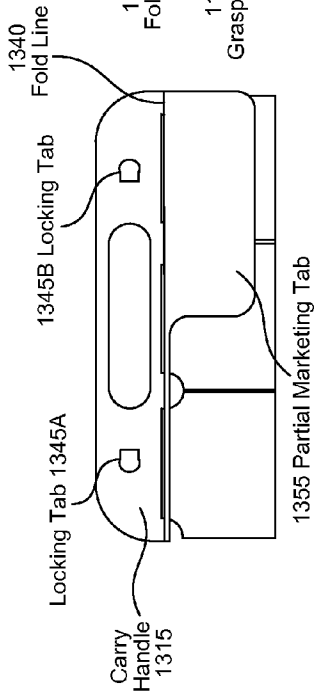
**FIG. 10**



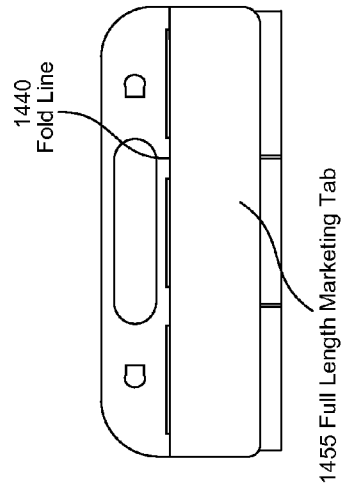
**FIG. 11**



**FIG. 12**

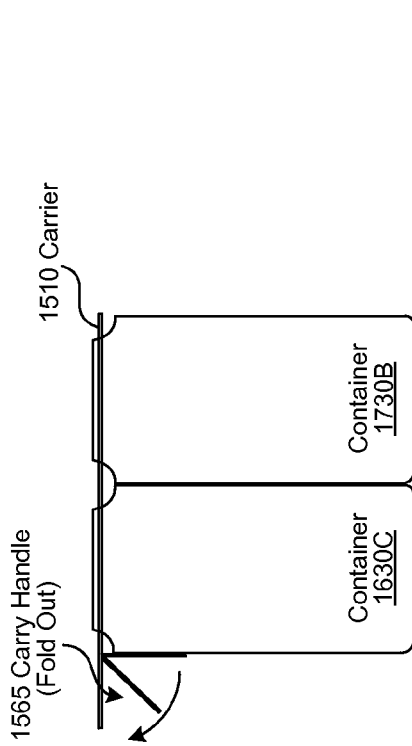


**FIG. 13**

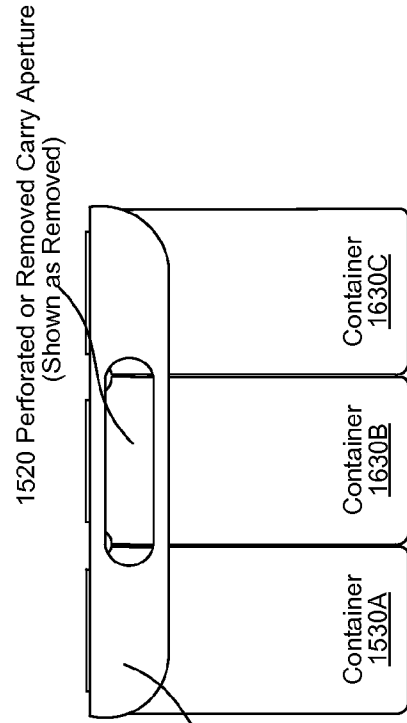


**FIG. 14**

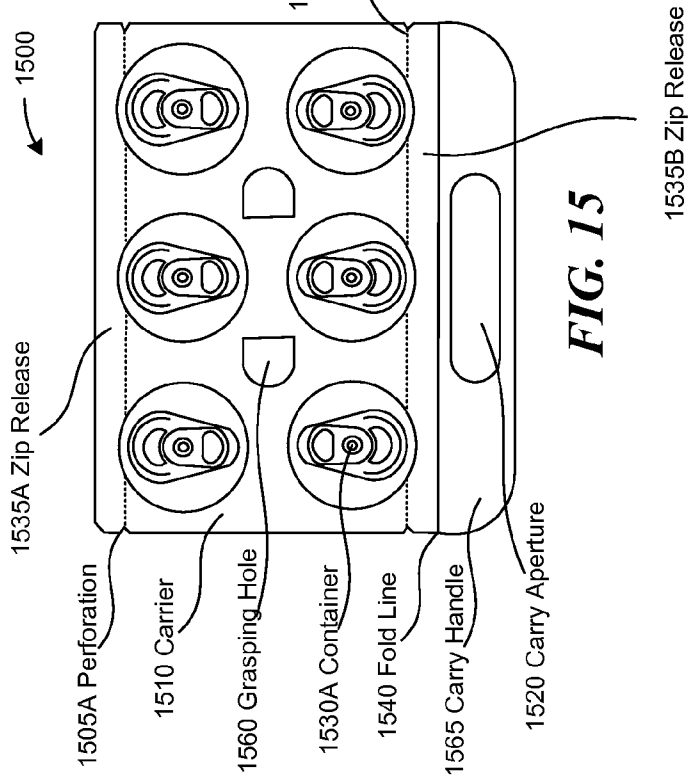




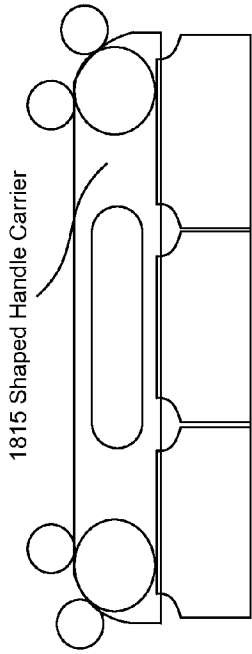
**FIG. 17**



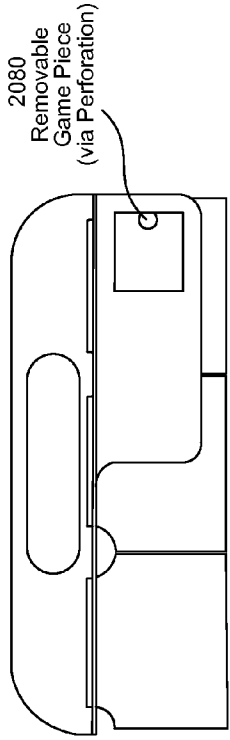
**FIG. 16**



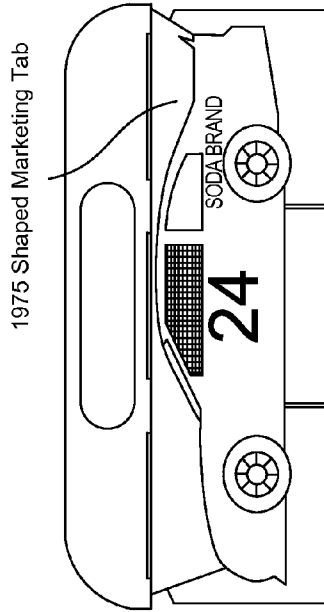
**FIG. 15**



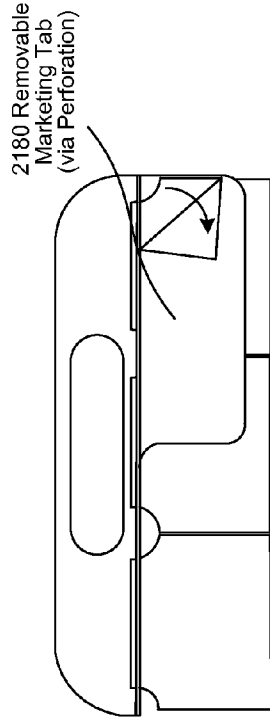
**FIG. 18**



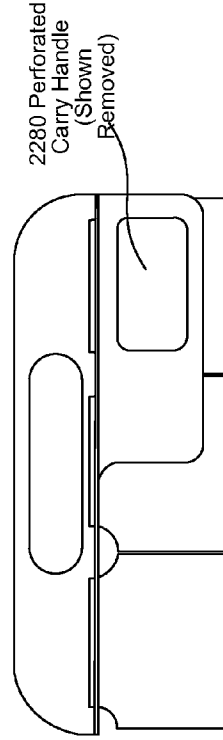
**FIG. 20**



**FIG. 19**



**FIG. 21**



**FIG. 22**

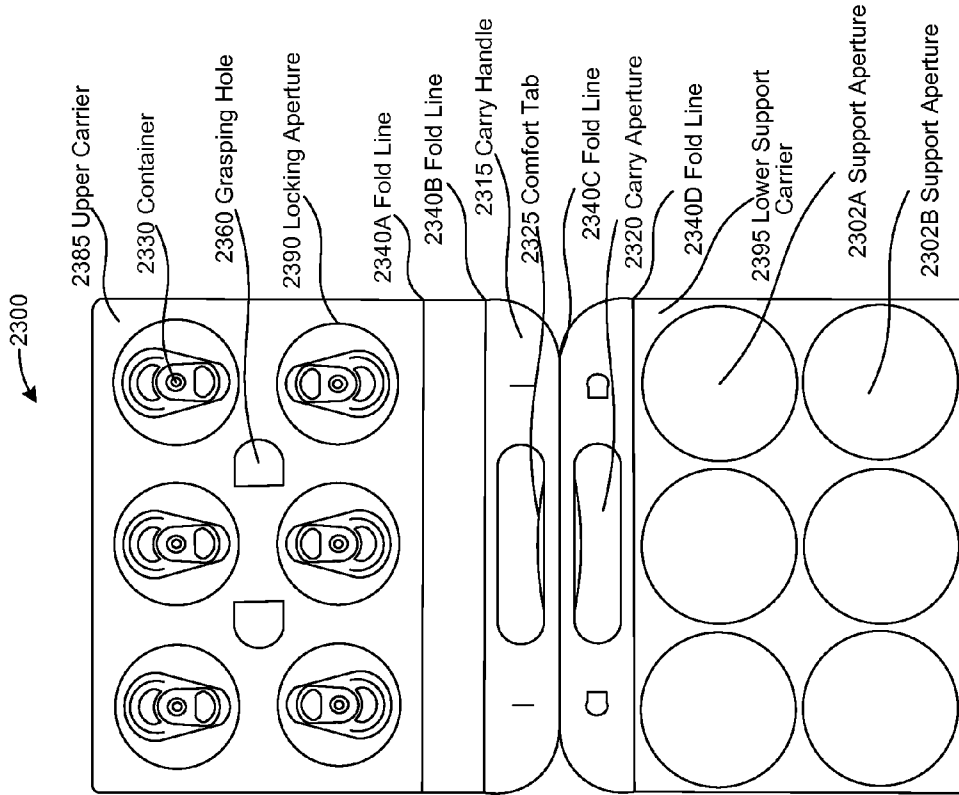


FIG. 23

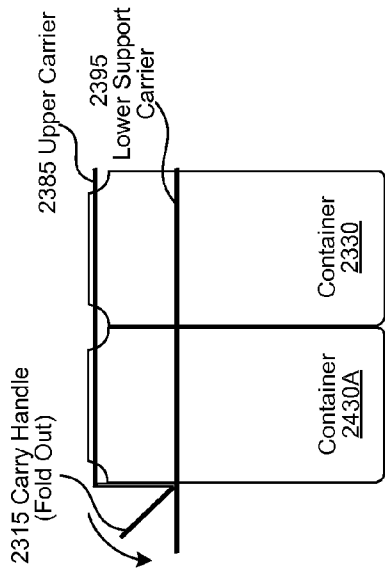


FIG. 24

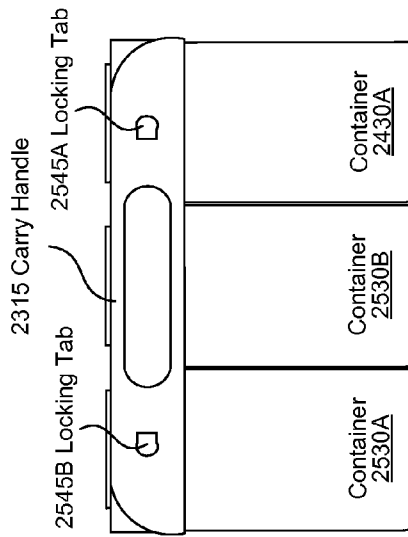
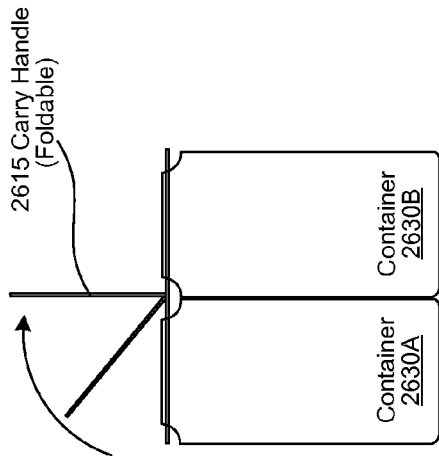
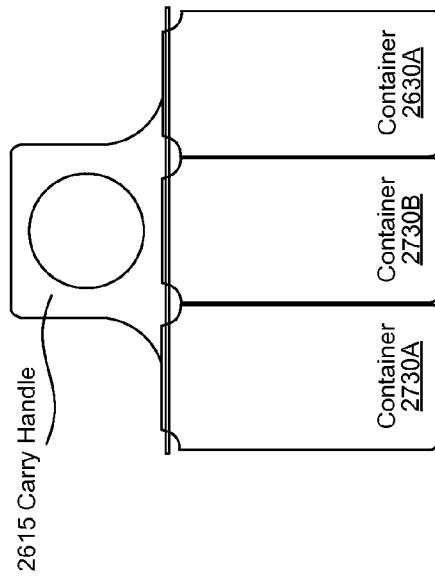


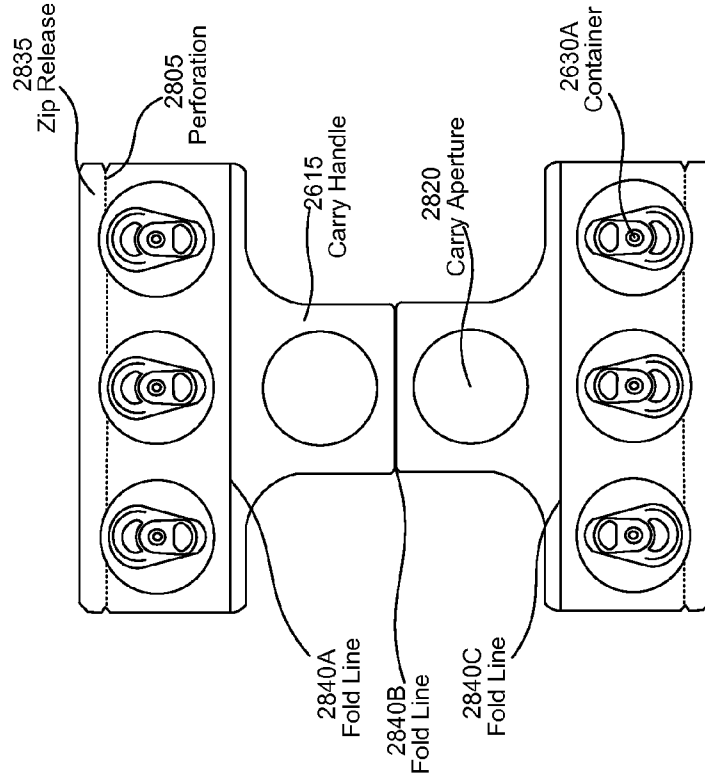
FIG. 25



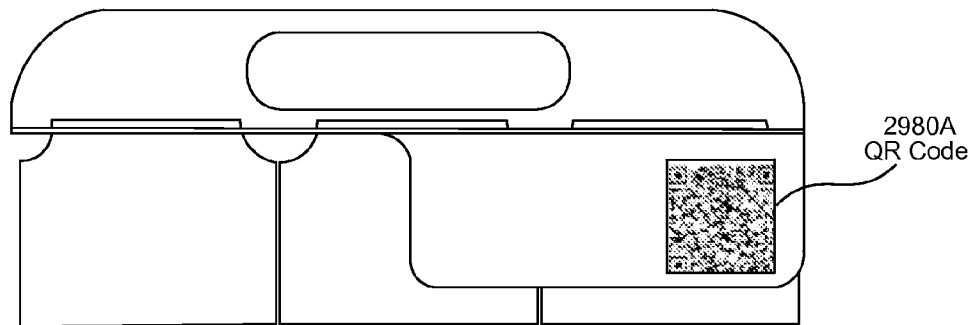
**FIG. 26**



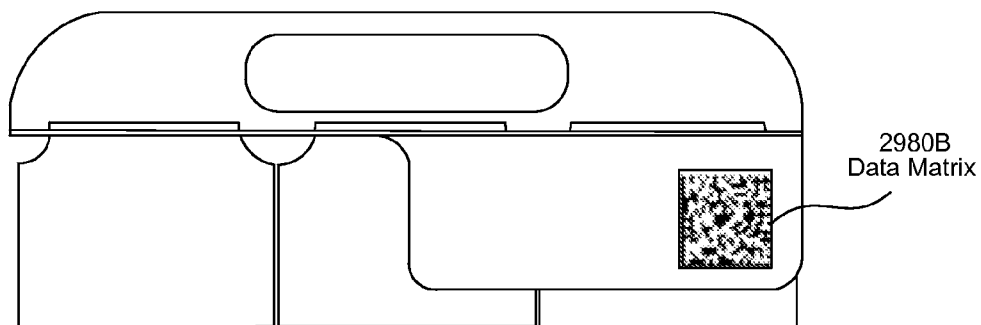
**FIG. 27**



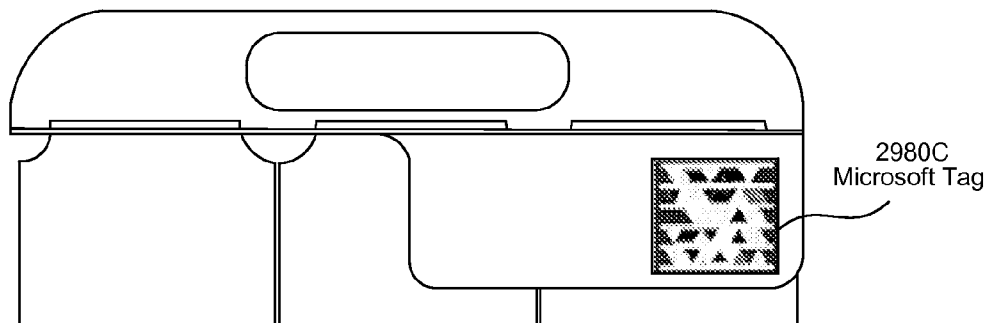
**FIG. 28**



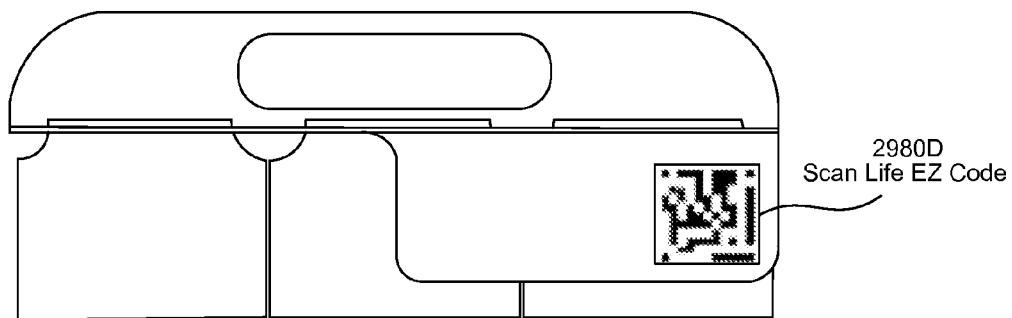
**FIG. 29A**



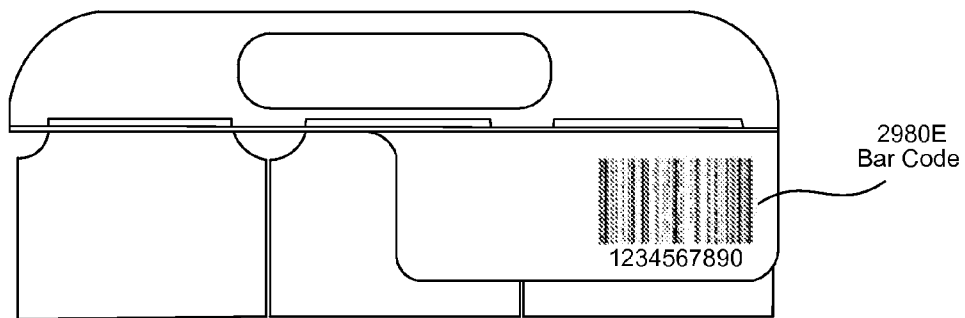
**FIG. 29B**



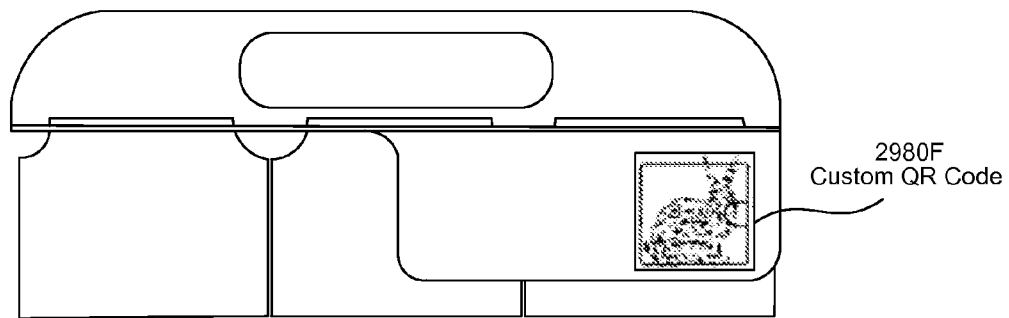
**FIG. 29C**



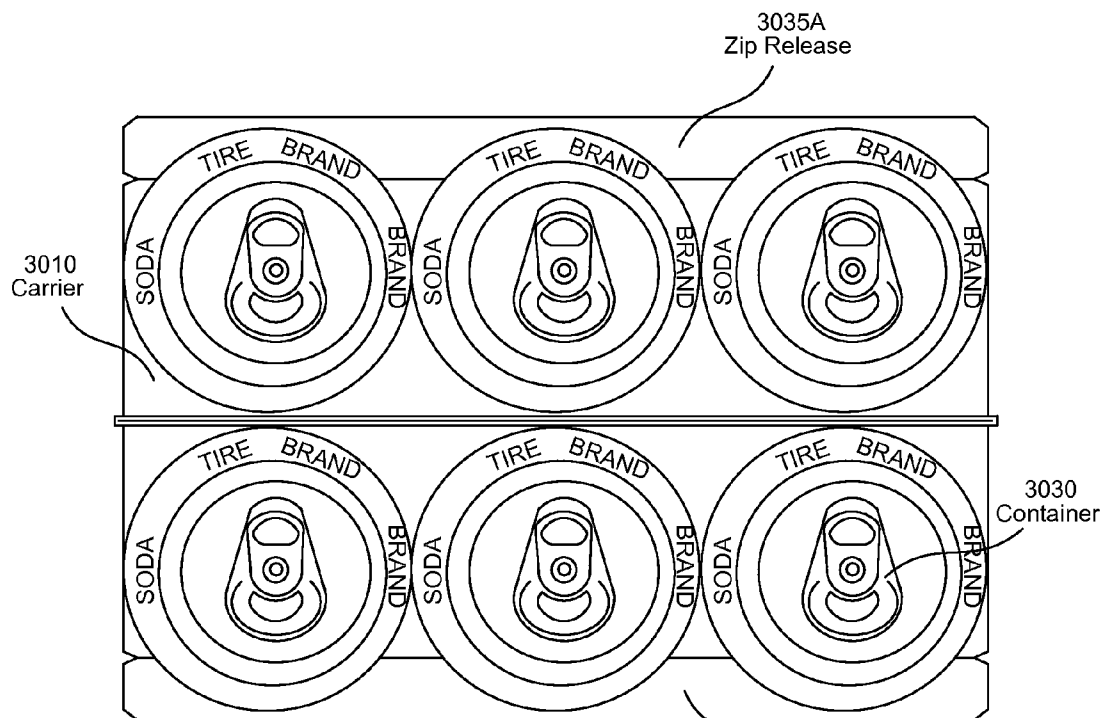
**FIG. 29D**



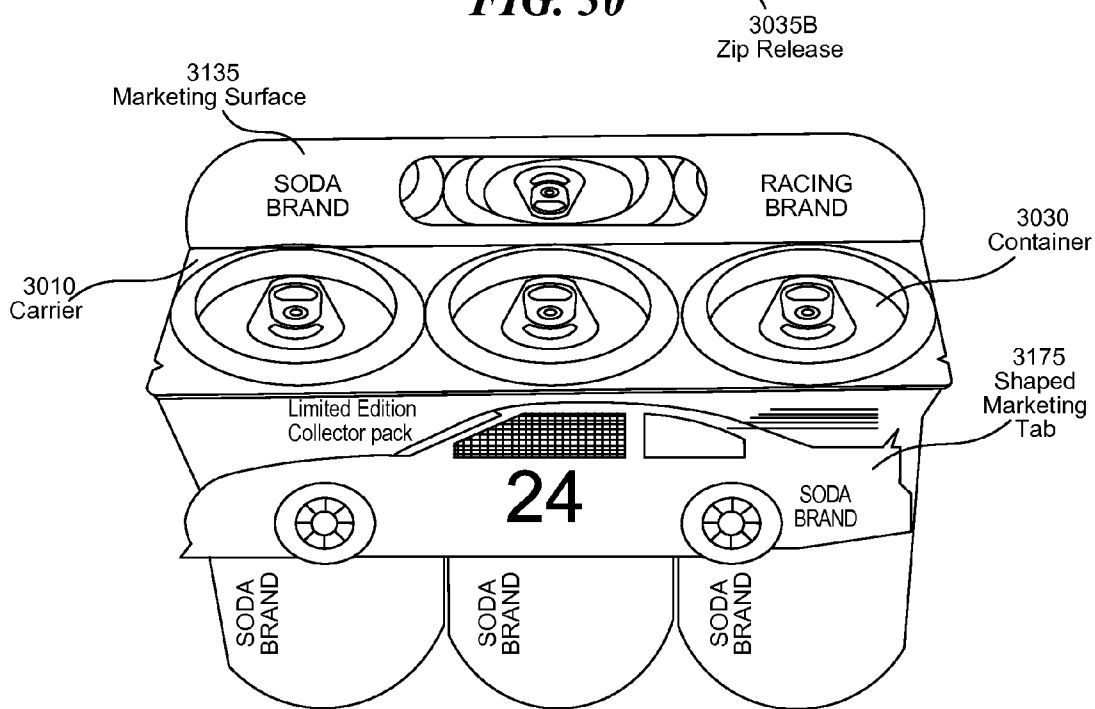
**FIG. 29E**



**FIG. 29F**



**FIG. 30**



**FIG. 31**

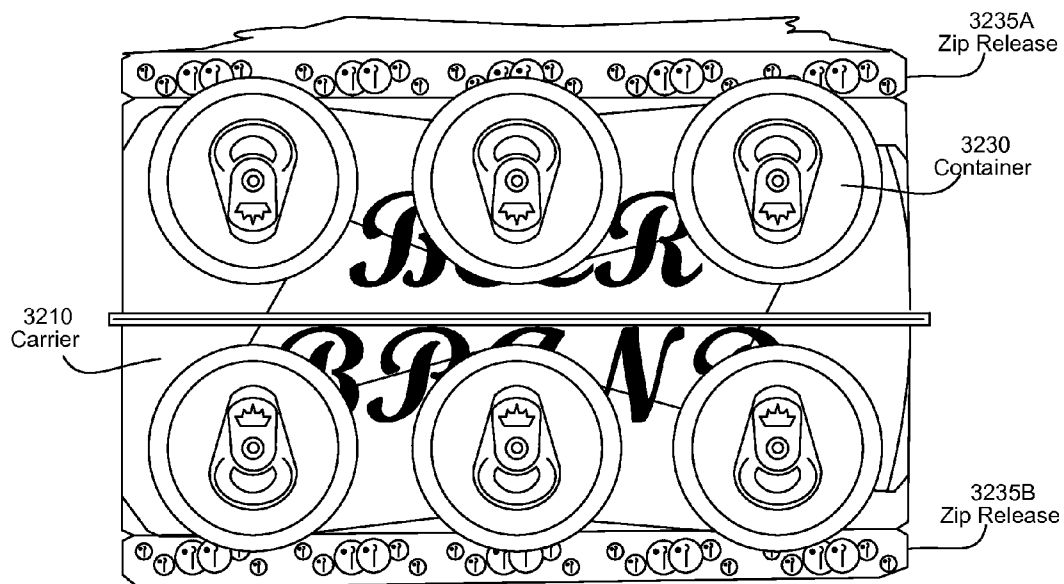


FIG. 32

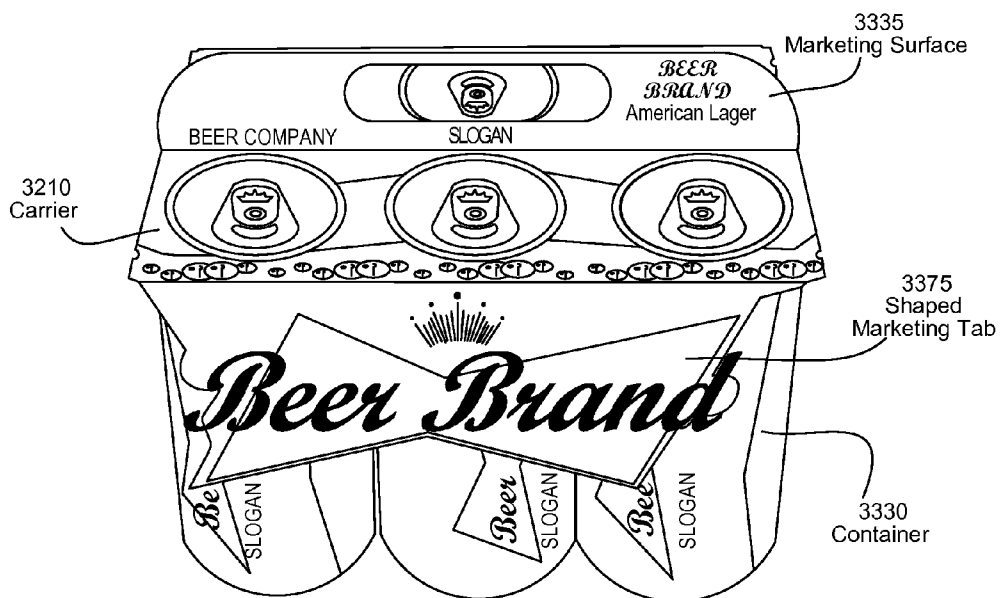


FIG. 33



**PAPER-BASED CONTAINER CARRYING  
DEVICE**

CROSS-REFERENCE TO RELATED  
APPLICATIONS

**[0001]** This is a non-provisional application filed under 37 C.F.R. §1.53(b), claiming priority under U.S.C. Section 119 (e) to U.S. Provisional Patent Application Ser. No. 61/924,386 filed Jan. 7, 2014, and to U.S. Provisional Patent Application Ser. No. 62/067,397 filed Oct. 22, 2014. The entire disclosure of both applications are hereby expressly incorporated by reference in their entirety.

BACKGROUND

**[0002]** Plastic carrying devices, or “6-pack rings” as they are often referred, are common in our marketplaces and homes. However, many consumers dislike these 6-pack rings, due to their environmental impact, difficulty in disposal, and lack of sufficient area to carry the carrying device and the containers that the carrying device is holding. These rings are commonly used to secure cans and bottles, as well as jars and other containers, for shipping, carrying, handling, and general delivery of liquid goods in the manufacturing, delivery, and consumer use chain.

**[0003]** A very common use of these 6-pack rings is in supermarkets, convenience stores, the food delivery industry, and other retail locations. Most are used for beverages. This standard carrying device often times secures containers of soda, juice, water, energy drinks, and other liquids, and is typically produced in order to retain a number of liquid containers, such as six, eight, etc. sodas. These plastic 6-pack rings, which include circular plastic rings, are an inherent danger to the environment. Animals in the wild have been severely injured or killed due to entrapment in these circular rings, and by ingestion of the plastic of these 6-pack rings.

**[0004]** Plastic 6-pack rings have other significant limitations. For example, plastic 6-pack rings have a tendency to become malformed when exposed to light, heat, ultra-violet (UV) radiation, and other elements, often causing containers to dislodge from the carrying device causing damage to the product, loss to the manufacturer, and inconvenience to the consumer. Additionally, due to environmental laws and pressure exerted by various environmental groups and organizations, the plastic ring material makeup has been altered in recent years, rendering the plastic rings weaker and less capable of retaining beverage containers, thus causing increased loss and damage.

**[0005]** Plastic 6-pack rings also have the tendency to “splay” when being transferred from the packaging line to the palletizer, which creates a need for secondary packaging in order to keep the packages secure and in line, adding cost to the packaging process.

BRIEF DESCRIPTION OF THE DRAWINGS

**[0006]** Embodiments of the present invention will be described and explained through the use of the accompanying drawings in which:

**[0007]** FIG. 1A is an illustration of a top view of a first embodiment of a container carrying device that includes clamping fingers;

**[0008]** FIG. 1B is an illustration of a side view of a neck-engaging locking mechanism of the first embodiment of a container carrying device, with a container inserted;

**[0009]** FIG. 2A is an illustration of a top view of a second embodiment of a container carrying device that includes a vertically oriented flange;

**[0010]** FIG. 2B is an illustration of the vertically oriented flange of the second embodiment of a container carrying device holding a container;

**[0011]** FIG. 3A is an illustration of a top view of a third embodiment of a container carrying device that includes locking tabs;

**[0012]** FIG. 3B is an illustration of a container being inserted into the third embodiment of a container carrying device and being held by locking tabs;

**[0013]** FIG. 4A is an illustration of a top view of a fourth embodiment of a container carrying device that includes a zip release;

**[0014]** FIG. 4B is an illustration of a container carrying device that includes a zip release with a portion of the zip release removed;

**[0015]** FIG. 5A is an illustration of a top view of a fifth embodiment of a container carrying device that includes tear away sections for individual package release;

**[0016]** FIG. 5B is an illustration of a top view of the fifth embodiment of a container carrying device with two of the tear away sections removed;

**[0017]** FIG. 5C is an illustration of a top view of the fifth embodiment of a container carrying device with the zip releases removed;

**[0018]** FIG. 5D is an illustration of a container carrying device that includes a zip release with a portion of the zip release removed;

**[0019]** FIG. 5E is an illustration of a top view of a sixth embodiment of a container carrying device that includes an alternative zip release;

**[0020]** FIG. 6A is an illustration of a top view of a seventh embodiment of a container carrying device made of a molded material and that can include tear away coaster lids;

**[0021]** FIG. 6B is an illustration of the seventh embodiment of a container carrying device with a container inserted;

**[0022]** FIG. 6C is an illustration of the seventh embodiment of a container carrying device after a tear away coaster lid has been applied;

**[0023]** FIG. 7A is an illustration of a top view of an eighth embodiment of a container carrying device that includes clamping fingers to hold containers that include an indented channel;

**[0024]** FIG. 7B is an illustration of clamping fingers engaging with a locking channel of a container to hold the container;

**[0025]** FIG. 7C is an illustration of a container with a locking channel;

**[0026]** FIG. 8A an illustration of a top view of a ninth embodiment of a container carrying device that includes insertion slots for support bracing;

**[0027]** FIG. 8B an illustration of an end view of the ninth embodiment of a container carrying device, with the end pieces folded down;

**[0028]** FIG. 8C an illustration of a side view of the ninth embodiment of a container carrying device, with the end pieces folded down;

**[0029]** FIG. 8D an illustration of a side view of the ninth embodiment of a container carrying device, with support members added;

[0030] FIG. 9A is an illustration of top view of a tenth embodiment of a container carrying device that is not assembled, and where a zip release is partially removed;

[0031] FIG. 9B is an illustration of top view of the tenth embodiment of a container carrying device that is not assembled, and where the zip release is fully removed;

[0032] FIG. 10 is an illustration of a side view of the tenth embodiment of a container carrying device that is assembled, and where the zip release is fully attached;

[0033] FIG. 11 is an illustration of a top view of a eleventh embodiment of a container carrying device that includes a grasping hole and side tab marketing surface;

[0034] FIG. 12 is an illustration of a side view of a twelfth embodiment of a container carrying device that includes both carry handle and side tab marketing surfaces;

[0035] FIG. 13 is an illustration of a side view of a thirteenth embodiment of a container carrying device that includes a partial marketing tab;

[0036] FIG. 14 is an illustration of a side view of a fourteenth embodiment of a container carrying device that includes a full length marketing tab;

[0037] FIG. 15 is an illustration of a top view of a fifteenth embodiment of a container carrying device that includes a side carry handle;

[0038] FIG. 16 is an illustration of a side view of the fifteenth embodiment of a container carrying device that includes a side carry handle;

[0039] FIG. 17 is an illustration of an end view of the fifteenth embodiment of a container carrying device that includes a side carry handle;

[0040] FIG. 18 is an illustration of a side view of a sixteenth embodiment of a container carrying device that includes a shaped handle carrier;

[0041] FIG. 19 is an illustration of a side view of an seventeenth embodiment of a container carrying device that includes a shaped marketing tab;

[0042] FIG. 20 is an illustration of a side view of an eighteenth embodiment of a container carrying device that includes a removable game piece;

[0043] FIG. 21 is an illustration of a side view of a nineteenth embodiment of a container carrying device that includes a removable marketing tab;

[0044] FIG. 22 is an illustration of a side view of an twentieth embodiment of a container carrying device that includes a perforated carry handle;

[0045] FIG. 23 is an illustration of a top view of a twenty-first embodiment of a container carrying device that is not assembled and that includes an upper carrier and a lower support carrier;

[0046] FIG. 24 is an illustration of an end view of the twenty-first embodiment of a container carrying device that is assembled and that includes an upper carrier and a lower support carrier;

[0047] FIG. 25 is an illustration of a side view of the twenty-first embodiment of a container carrying device that is assembled and that includes an upper carrier and a lower support carrier;

[0048] FIG. 26 is an illustration of an end view of a twenty-second embodiment of a container carrying device that includes a foldable carry handle;

[0049] FIG. 27 is an illustration of a side view of the twenty-second embodiment of a container carrying device that includes a foldable carry handle;

[0050] FIG. 28 is an illustration of a top view of the twenty-second embodiment of a container carrying device that is not assembled and that includes a foldable carry handle;

[0051] FIGS. 29A-F are an illustration of side views of six embodiments of a container carrying device that each has a pattern applied to a side tab;

[0052] FIG. 30 is an illustration of a top view of a twenty-ninth embodiment of a container carrying device that includes marketing material on the top of the carrier;

[0053] FIG. 31 is an illustration of an angled view that shows the top and the side of the twenty-ninth embodiment of a container carrying device that includes marketing materials on a carry handle and a shaped marketing tab;

[0054] FIG. 32 is an illustration of a top view of a thirtieth embodiment of a container carrying device that includes marketing materials on the top of the carrier; and

[0055] FIG. 33 is an illustration of an angled view that shows the top and the side of the thirtieth embodiment of a container carrying device that includes marketing materials on a carry handle and a shaped marketing tab.

#### DETAILED DESCRIPTION

[0056] In this description, references to “an embodiment”, “one embodiment” or the like, mean that the particular feature, function, structure or characteristic being described is included in at least one embodiment of the technology introduced here. Occurrences of such phrases in this specification do not necessarily all refer to the same embodiment. On the other hand, the embodiments referred to also are not necessarily mutually exclusive.

[0057] This application discloses technology related to a “container carrying device”, also referred to herein as a “packaging device”, that includes paper-based packaging materials. The container carrying device includes one or more circular or other shaped openings, also referred to as apertures, each of which can hold a container by use of a neck-engaging locking mechanism. Each opening includes a neck-engaging locking mechanism that can apply a locking tension mechanism to the outside area of a container, such as the outside diameter of a can or the outside perimeter of a package, that is being held by the container carrying device. The neck-engaging locking mechanism can include any of various mechanisms, such as a clamping finger, a vertically oriented flange, a locking tab, a locking channel, etc., to help with holding and retaining a container. A person of ordinary skill will appreciate that a neck-engaging locking mechanism can be any mechanism that can hold a container in place, such as for transport via the container carrying device, when the container is inserted in a shaped opening of the container carrying device.

[0058] The container carrying device includes a mechanical release strip, such as a zip release, for freeing container(s). A mechanical release strip, such as the zip release, enables the container carrying device to be, for example, easily broken or torn apart into pieces or torn apart to create semi-circular openings out of circular openings. In an example, a consumer pulls a mechanical release strip, such as the zip release, and breaks a circular opening into a semi-circular opening, thereby enabling the container that was being held by the circular opening to be easily removed.

[0059] The container carrying device includes paper-based packaging materials, which can be biodegradable. A number of environmental issues are caused due to many existing container packages not being biodegradable, examples of

such container packages including 6-pack rings, plastic shrink-filled overwraps, high density polyethylene caps, etc. When such non-biodegradable container packages are disposed of and sent to landfills or dumped at sea, the material of the container packages does not break down, allowing the material to remain in the environment for many years. Animals ingest such packaging material, sometimes causing serious injury and even death to the animals.

**[0060]** When the container carrying device is made of biodegradable paper-based packaging materials, the material of the container carrying device can be broken down by microorganisms and other living things into its base compounds in a reasonable amount of time. Once broken down, the risk to animals of ingesting the material of the container carrying device is alleviated. Many environmentally conscious consumers and manufacturers prefer packaging materials that are biodegradable because of the reduced impact on the environment and to animals.

**[0061]** Other existing container packages are made of paper-based material. For example, some manufacturers sell sodas in a paper-board box, such as a box of twelve sodas. A container carrying device that holds twelve cans uses much less material than a paper-board box that holds twelve cans. In some cases, as many as eight container carrying devices can be made from the same amount of material that is used to make a box that holds the same amount of containers. This reduces the cost of packaging the containers, and also reduces the waste and associated environmental impact of the packaging material. Manufacturers prefer the lower material cost of the container carrying device, and some manufacturers and consumers also prefer the reduced waste and resultant reduced environmental impact of the container carrying device.

**[0062]** Further, many existing container packages include openings into which containers are inserted, and which hold the containers. For example, six cans can be inserted into the six circular openings of a 6-pack ring, and the 6-pack ring can be used to carry the six cans. Once a consumer drinks the beverage contained in the cans, the consumer throws the 6-pack ring into the trash, which can end up in a landfill or in the ocean. Animals have been trapped inside of a circular opening of a 6-pack ring, which has caused some of the animals to be severely deformed and even killed.

**[0063]** Like a 6-pack ring, a container carrying device that carries six cans has six circular openings. However, unlike a 6-pack ring, the act of removing a can, by removing the zip release to break the circular opening and free the can, causes the circular openings to become semi-circular. As a result, there is no continuous ring of material in which an animal can be trapped, greatly reducing the risk of a wild animal becoming trapped in one of the rings. Many environmentally conscious consumers and manufacturers prefer packaging, such as the disclosed container carrying device, that alleviates the risk of animals becoming trapped, and resultantly injured or killed, by the package.

**[0064]** Further, 6-pack rings are made of plastic, which is flexible. Due to the flexibility of 6-pack rings, the circular rings sometimes stretch, resulting in the container being held by the circular ring coming loose and falling out. In contrast, a container carrying device is made of material with minimal flexibility, which results in containers that are more reliably held by the container carrying device. This leads to a higher quality product distribution with less lost inventory.

**[0065]** FIG. 1A is an illustration of a top view of a first embodiment of a container carrying device that includes clamping fingers. Some embodiments of a container carrying device, such as container carrying device 100, can be formed from a piece or roll of paper-based packaging materials, such as by stamping, cutting, etc. After being stamped/cut/etc., container carrying device 100 includes six apertures for carrying six containers, such as container 130, three of the apertures on each side of container carrying device 100. Each aperture is partially, but not fully, surrounded in two dimensions by the material of container carrying device 100. Stamping/cutting/etc. also form grasping holes 160A and 160B in carrier 110.

**[0066]** Each of the six apertures has a neck-engaging locking mechanism, such as neck-engaging locking mechanism 112. FIG. 1B is an illustration of a side view of neck-engaging locking mechanism 112, with container 130 inserted. Carrier 110 can be applied to a container, such as container 130, by downward positive downward pressure placed on carrier 110. The downward pressure causes, for example, neck-engaging locking mechanism 112 to pass over protruding flange 104 of cap 108 of container 130. Clamping fingers 113 of neck-engaging locking mechanism 112 flex as they pass over cap 108, and de-flex and exert pressure on neck 106 of container 130 after passing over cap 108. The pressure exerted by neck-engaging locking mechanism 112 onto neck 106 holds container 130 in place.

**[0067]** After container carrying device 100 is applied to the containers to be held, the device is ready to be used to carry the containers. A consumer can use grasping holes 160A and 160B to grasp and carry the device and the containers that are being held by the device. When the consumer is ready to extract container 130 from container carrying device 100, the consumer pulls container 130 either downwards or outwards from container carrying device 100. Neck-engaging locking mechanism 112 flexes, such as by clamping fingers 113 flexing, enabling container 130 to be removed from container carrying device 100.

**[0068]** In some embodiments, the container is removed from the container carrying device by being pulled through or past the neck-engaging locking mechanism. For example, in FIG. 3B container 330C can be pushed vertically into the aperture associated with locking tab 302A, where the container will be locked into place by locking tab 302A. In such an embodiment, container 330C can be removed from container carrying device 300 by being pushed further vertically, until the container passes through the aperture and exits out the other side of the aperture.

**[0069]** Referring once again to FIG. 1A, after six containers are inserted into the six apertures of container carrying device 100 and locked into place with the neck-engaging locking mechanisms, container carrying device 100 and the six containers that it holds are ready for shipment to a consumer. A consumer can purchase container carrying device 100 and the six containers, and can use grasping holes 160A and 160B to carry container carrying device 100 to his destination. When the consumer is ready to drink a beverage, he can remove the beverage container from the neck-engaging locking mechanism that is holding the container. The neck-engaging locking mechanisms and container apertures of container carrying device 100 are not fully surrounded in two dimensions by the material of container carrying device 100. As a result, there are no container openings/apertures that are fully surrounded by material, and that can trap and injure an animal.

[0070] FIG. 2A is an illustration of a top view of a second embodiment of a container carrying device that includes a vertically oriented flange. Container carrying device 200 is similar to container carrying device 100 of FIG. 1, but with a different neck-engaging locking mechanism. The neck-engaging locking mechanism of container carrying device 200 includes a vertically oriented flange. The vertically oriented flange can be formed in a variety of ways, such as by die cutting, by stamping, by being thermoformed, by being injection molded, etc. The vertically oriented flange can be formed at an upward angle to ease installation of a container into the neck-engaging locking mechanism, where the container is locked into place. The upward angled neck engaging locking mechanism can further increase the strength with which a container is held by a neck engaging locking mechanism.

[0071] FIG. 2B is an illustration of a side view of neck-engaging locking mechanism 212, with container 230 inserted. Container carrying device 200 can be applied to a container, such as container 230, by downward positive downward pressure placed on the device. The downward pressure causes, for example, neck-engaging locking mechanism 212 to pass over protruding flange 204 of container 230. Clamping fingers 213 of neck-engaging locking mechanism 212 flex as they pass over protruding flange 204, and de-flex and exert pressure on neck 206 of container 230 after passing over protruding flange 204. The pressure that neck-engaging locking mechanism 212 exerts on neck 206 helps to hold container 230 in place. Additionally, vertically oriented flange 202 locks under protruding flange 204, providing a positive locking mechanism which prevents container 230 from being removed in a downwards direction from container carrying device 200.

[0072] When the consumer is ready to extract container 230 from container carrying device 200, the consumer can pull container 230 out from container carrying device 200 in a sideways/outwards direction, where container 230 passes through the space between the two fingers of clamping fingers 213. Neck-engaging locking mechanism 212 flexes, such as by clamping fingers 213 flexing, enabling container 230 to be removed from container carrying device 200.

[0073] FIG. 3A is an illustration of a top view of a third embodiment of a container carrying device that includes locking tabs. Container carrying device 300 is similar to container carrying device 100 of FIG. 1, but with a different neck-engaging locking mechanism. The neck-engaging locking mechanism of container carrying device 300 includes locking tabs, such as locking tab 302A. The locking tabs can be formed in any of various ways, such as by stamping, by being thermoformed, by being injection molded, etc.

[0074] FIG. 3B is an illustration of container 330C being inserted into container carrying device 300, where container 330C will be held by locking tab 302A. Container carrying device 300 can be applied to a container, such as containers 330A, 330B, and 330C, by downward positive downward pressure placed on the device. The downward pressure causes, for example, the locking tabs of the neck-engaging locking mechanism, such as locking tab 302A, to pass over protruding flange 304A of container 330C. Clamping fingers 313 of the neck-engaging locking mechanism flex as they pass over protruding flange 304A, and de-flex and exert pressure on neck 306 of container 330C after passing over protruding flange 304A. The pressure that the neck-engaging locking mechanism exerts on neck 306 helps to hold container 330C in place. Additionally, locking flange 302A locks

under protruding flange 304A, providing a positive locking mechanism which prevents container 330C from being removed in a downwards direction from container carrying device 300. Containers 330A and 330B have been inserted in container carrying device 300, and locking tab 302B can be seen locked under protruding flange 304B, providing a positive locking mechanism for container 330B.

[0075] When the consumer is ready to extract container 330C from container carrying device 300, the consumer can pull container 330C out from container carrying device 300 in a sideways/outwards direction, where container 330C passes through the space between the two fingers of clamping fingers 313. The neck-engaging locking mechanism flexes, such as by clamping fingers 313 flexing, enabling container 330C to be removed from container carrying device 300.

[0076] FIG. 4A is an illustration of a top view of a fourth embodiment of a container carrying device that includes a zip release. Container carrying device 400 can be formed from a piece or roll of paper-based packaging materials, such as by stamping, cutting, etc. After being stamped/cut/etc., container carrying device 400 includes six apertures for carrying six containers, three of the apertures on each side of container carrying device 400. An example of an aperture is container aperture 420A. FIG. 9A illustrates a similar container carrying device that includes a zip release with six containers inserted in six apertures. Each aperture of container carrying device 400 is surrounded in two dimensions by the material of the container carrying device. Stamping/cutting/etc. can also form two perforations, perforations 405A and 405B. Perforation 405A creates and delineates zip release 435A, and perforation 405B creates and delineates zip release 435B. Perforation 405A defines a first tear line that enables zip release 435A to be torn off at the first tear line, and perforation 405B defines a second tear line that enables zip release 435B to be torn off at the second line. A tear line can be straight, or can take any of various paths, such as a curved path, a zig-zag path, a wavy path, etc.

[0077] When a zip release is fully torn from container carrying device 400, it breaks the circular openings of three of the apertures, turning each into a semi-circular opening where the aperture is no longer surrounded in two dimensions by the material of container carrying device 400. For example, FIG. 9A shows a similar zip release, zip release 935A, starting to be torn from container carrying device 900, and FIG. 9B shows zip release 935A fully removed from container carrying device 900. A zip release can have a pull release, such as a pull tab, an example of which is pull tab 406A, to facilitate removing the zip release from a container carrying device.

[0078] As can be seen in FIG. 4B and FIG. 9B, when a zip release is separated from a container carrying device, it breaks one or more apertures and causes the aperture to no longer be surrounded in two dimensions by the material of the container carrying device. For example, in FIG. 4B, zip release 435C has been partially removed from a container carrying device, breaking container aperture 420C. Container aperture 420C, prior to the zip release being removed, was fully surrounded in two dimensions by the material of the container carrying device, similar to container aperture 420B. After zip release 435C is partially removed from the container carrying device, as is illustrated in FIG. 4B, container aperture 420C is broken and is no longer surrounded in two dimensions by the material of the container carrying device.

[0079] While a zip release is one example of a mechanical release strip, container carrying devices can utilize any of

various other types of mechanical release strips. For example, an alternative mechanical release strip can be created by taking material that is similar in shape to zip release 435A, and fastening the material to the container carrying device so that the alternative mechanical release strip can perform a function that is similar to a zip release mechanism. The material can be adhered to the container carrying device with an adhesive, with a mechanical fastener, etc. The alternative mechanical release strip can be detached from the container carrying device, thereby freeing the container in a way that is similar to the zip release, such as by being torn or otherwise decoupled from the container carrying device. As will be appreciated by a person of ordinary skill, a variety of embodiments of mechanical release strips are possible.

[0080] FIG. 5A is an illustration of a top view of a fifth embodiment of a container carrying device that includes tear away sections for individual package release. Container carrying device 500 is similar to container carrying device 400 of FIG. 4, but with the addition of perforated seams that enable sections of the container carrying device, referred to as removable units, to be removed from the container carrying device, such as by being torn away from the container carrying device. For the embodiment of FIG. 5A, a removable unit is a portion of the container carrying device whose extent is partially defined by perforated seams, and that includes a neck-engaging mechanism for holding a container.

[0081] Zip releases 535A and 535B are similar to zip releases 435A and 435B of FIG. 4, but with additional perforations that are part of perforated seams that are added to container carrying device 500, such as perforated seams 505A-505D, to enable the removal of removal of removable units, such as removable units 599A and 599B. Similar to zip releases 435A and 435B, zip releases 535A and 535B can be fully separated from container carrying device 500, as is illustrated in FIG. 5C. Unlike zip releases 435A and 435B, zip releases 535A and 535B include additional perforations that facilitate removing a portion of the zip release to free one container from one aperture or neck-engaging locking mechanism. As is illustrated in FIG. 5D, zip release 535C is perforated by perforated seam 505E, which crosses zip release 535C. This perforation enables a portion of zip release 535C to be easily removed, such as the portion that forms part of the perimeter of container aperture 520C, while leaving intact the portion of zip release 535C that forms part of the perimeter of container aperture 520B.

[0082] In some embodiments, alternate zip releases are used. For example, as illustrated in FIG. 5E, each container aperture can have its own dedicated zip release. As shown in FIG. 5E, container aperture 520D has its own zip release, alternate zip release 535D. When a dedicated zip release is removed, it causes the container aperture for which it forms part of the perimeter to no longer be surrounded in two dimensions by material of the container carrying device, as can be seen in FIG. 5E where alternate zip release 535E has been removed from a container carrying device, causing container aperture 520E to no longer be surrounded in two dimensions by material of the container carrying device.

[0083] When the container apertures of container carrying device 500 are populated with containers, a consumer who wishes to remove one or more removable units can remove or detach the removable unit(s) from container carrying device 500. For example, if a consumer wishes to take two packaged containers for use on a trip, the consumer can remove removable units 599A and 599B as one piece. The consumer can

tear perforated seams 505C, 505D, and 505B (leaving perforated seam 505A intact), and can removed removable units 599A and 599B as one piece. The consumer then has a package, which was a portion of container carrying device 500, with which to carry two packaged containers. FIG. 5B illustrates what container carrying device 500 would look like with removable units 599A and 599B removed.

[0084] FIG. 6A is an illustration of a top view of a seventh embodiment of a container carrying device made of a molded material and that can include tear away coaster lids. Container carrying device 600 is similar to container carrying device 200, with container carrying device 600 being an embodiment that is made of a 3 dimensional molded material, such as molded pulp or molded plastic. While neck-engaging locking mechanism 212 of FIG. 2 includes a vertically oriented flange, neck-engaging locking mechanism 612A, which can be formed by the same molding process that forms carrier 610A, includes a molded locking ring. The molded locking ring works to hold containers in a manner that is substantially similar to the vertically oriented flange of FIG. 2. For example, FIG. 6B shows carrier 610B with neck-engaging locking mechanism 612B, which includes a molded locking ring, which is formed of 3D molded material. Similar to the vertically oriented flange of FIG. 2, the molded locking ring provides a positive locking mechanism which prevents the removal in a downward direction of container 630A from carrier 610B.

[0085] The top of a container being held by a container carrying device, such as container 630B of FIG. 6C, can be protected by a protective lid, such as tear away coaster lid 698. A protective lid that is part of a container carrying device can serve a variety of purposes. For example, a protective lid can be used to protect the top of a container that is being held by a container carrying device, such as by preventing dust or other debris from landing on the top of the container, by preventing damage to happen to the top of the container from physical contact or a collision, etc. A protective lid can further be removed from a container carrying device and used for a variety of purposes, such as for a coaster on which the container can be placed.

[0086] A protective lid that is part of a container carrying device can be manufactured in a variety of ways. For example, when the container carrying device is made of molded material, the protective lid can be formed as part of the process of molding the container carrying device. The molded protective lid can have, for example, perforations that enable the protective lid to be torn away or otherwise removed from the container carrying device. As another example, when the container carrying device is made of a material that is die cut or stamped, the die cutting or stamping process can form the protective lid. The material that would normally be removed to make an aperture and be scrapped can instead be stamped or die cut to form the protective lid. The protective lid can be formed as part of the container carrying device, and made in way that enables easy detachment, such as via perforations around the perimeter of the protective lid. Alternately, the protective lid can be separately formed, and can be applied to the top of a container after the container is inserted into the container carrying device.

[0087] FIG. 7A is an illustration of a top view of an eighth embodiment of a container carrying device that includes clamping fingers to hold containers that include an indented channel. A neck-engaging locking mechanism of the embodiment of FIG. 7A, such as neck-engaging locking mechanism

**712**, can hold a container that includes a locking channel. An example of a container with a locking channel is illustrated in FIG. 7C, where container **730B** includes female locking channel **797**. As is shown in FIG. 7A, a container, such as container **730B**, can be inserted into carrier **710** by applying sideways/inward pressure to container **730B** that causes container **730B** to exert force on clamping fingers **713**, which causes the clamping fingers to compress and separate.

[0088] Once container **730B** passes through clamping fingers **713**, the clamping fingers decompress and move into place in female locking channel **797**, where clamping fingers **713** exert positive clamping pressure to the outside of container **730B** at female locking channel **797**. FIG. 7B is a side view of container **730B** as the container is being held by clamping fingers **713**. After container **730B** is inserted in container carrying device **700**, clamping fingers **713** move into place in female locking channel **797**. FIG. 7B shows the material of carrier **710** located in female locking channel **797**, where carrier **710** is exerting pressure on the outside of container **730B** to hold container **730B** in place. An adhesive can optionally be applied to either the can or the container carrying device to help retain the containers in the device.

[0089] To remove a container from container carrying device **700**, sideways outward pressure can be applied to a container, such as container **730C**. The sideways outward pressure causes the clamping fingers that are holding the container to separate, and container **730C** moves through the clamping fingers and is removed from container carrying device **700**, as is shown in FIG. 7A. A container can also be removed from a container carrying device in any of various other ways. For example, container **730B** can be twisted away from its approximately ninety degree angle with respect to carrier **710**, such as to a forty-five degree angle, and can be pulled down and away from carrier **710** to be ripped out of container carrying device **700**.

[0090] FIG. 8A is an illustration of a top view of container carrying device **800**, which includes insertion slots, such as insertion slots **857A-857C**, for support bracing. Container carrying device **800** is similar to container carrying device **100** of FIG. 1. Container carrying device **800** additionally includes end panels, such as end panel **855**, and insertion slots for support bracing, such as insertion slots **857A-857C**. For some applications, additional structural support is desired to, for example, more securely hold containers in a container carrying device, to hold containers that may be heavier or that may be more of a challenge to retain in a container carrying device, etc. Support bracing can be added to a container carrying device to provide any desired additional structural support.

[0091] For example, a container carrying device can include end panels, such as end panel **855**, which can be used to increase structural support, such as by being used in conjunction with support bracing. For example, end panel **855** can be folded at fold line **840**, and can be bent downwards (towards the bottom of a container that is being held by container carrying device **800**) at an approximately ninety degree angle, as is illustrated in FIGS. 8B and 8C where FIG. 8B shows an end view of end panel **855** and FIG. 8C shows a side view of end panel **855**. A support brace, such as support brace **856D** of FIG. 8D, can be added to container carrying device **800** where the support brace can be attached to the container carrying device at insertion slots **857A** and **857B**. A support brace can be attached in any of various ways, such as with a mechanical fastener, an adhesive, etc. FIG. 8D illus-

trates a support brace, support brace **856A**, added to the an end panel on the opposite end of container carrying device **800**.

[0092] Support braces can further be attached to both container carrying device **800**, as well as to a container that is being held by container carrying device **800**, to provide further structural support. For example, an adhesive can be applied to the sides of support braces **856A** and **856D** that abut containers that are being held by container carrying device **800** to enable the sides of the support braces to be removably attached to the containers. As a second example, support brace **856C** can be inserted in insertion slot **857C**, and can be attached to container carrying device **800**. Adhesive can similarly be applied to the sides of support brace **856C** to enable the sides of the support brace to be removably attached to containers that are being held by container carrying device **800**, and that abut the support brace. The attachment of the support braces to both the container carrying device, as well as to containers that are being held by the container carrying device, increase the structural stability of container carrying device **800**.

[0093] FIG. 9A is an illustration of top view of a tenth embodiment of a container carrying device that is not assembled, and where a zip release is partially removed. Container carrying device **900** can be formed from a piece or roll of paper-based packaging materials, such as by stamping, cutting, etc. After being stamped/cut/etc., container carrying device **900** includes six apertures for carrying six containers, such as container **930**, three of the apertures on each side of carry handle **915**. Each aperture is surrounded in two dimensions by the material of container carrying device **900**. Stamping/cutting/etc. also forms two perforations, perforations **905A** and **905B**. Perforation **905A** creates and delineates zip release **935A**, and perforation **905B** creates and delineates zip release **935B**. Perforation **905A** defines a tear line that enables zip release **935A** to be torn off at the tear line, and perforation **905B** defines a tear line that enables zip release **935B** to be torn off at the tear line.

[0094] When a zip release fully is torn from container carrying device **900**, it breaks the circular openings of three of the apertures, turning each into a semi-circular opening where the aperture is no longer be surrounded in two dimensions by the material of container carrying device **900**. For example, FIG. 9A shows zip release **935A** starting to be torn from container carrying device **900**, and FIG. 9B shows zip release **935A** fully removed from container carrying device **900**. As can be seen in FIG. 9B, three circular apertures have been broken and turned into three semi-circular openings.

[0095] In some embodiments, container carrying device **900** includes a carry handle, such as carry handle **915**. The inclusion of an integrated carry handle into a container carrying device allows for ease of carrying and use by the consumer, as well as an extended surface area, such as marketing surface **1055** of FIG. 10 or marketing surface **1255A** of FIG. 12, which can be used for advertising, marketing, etc. A carry handle can be shaped for marketing, advertising, or other reasons, as is shown in FIG. 18 where shaped handle carrier **1815** is illustrated. In some embodiments, extended areas of material or "tabs" (as referred to herein), such as marketing surface **1255B** of FIG. 12, can be included into the design and manufacture of the device.

[0096] The surface of the tabs can be used for advertising, marketing, gaming, contact area, collectible tear-offs, etc., as is demonstrated by shaped marketing tab **1975** of FIG. 19,

removable game piece **2080** of FIG. **20**, removable marketing tab **2180** of FIG. **21**, etc. The surface of the tabs can also be used as a handle or “grasping area”, as can be seen in FIG. **22**. The surface of the tabs can further be used for other purposes, some of which are demonstrated in the figures. For example, the surface of the tabs may be utilized in order to create an increased grasping area for the disassembly and destruction of the device for removal of containers and recycling of the device.

[**0097**] Carry handle **915** can be assembled or formed into a handle, as is illustrated in FIG. **10**. The assembly/formation of the handle can be either before or during the application process (e.g., before or when the container carrying device is applied to containers to hold the containers). In some embodiments, a carry handle is attached to a container carrying device via a mechanical or adhesive fastener, and can be attached in a vertical position for ease of use. Carry handle **915** includes carry aperture **920**, which is used to form an opening in carry handle **915**, into which a consumer can place his hand to carry container carrying device **900**, as is shown in FIG. **10** where hand **1050** is inserted into an opening in carry handle **915**. Carry handle **915** is assembled by folding carrier **910** at fold lines **940A-C**. Once properly folded, fold line **940B** is raised and a carrying handle is created. The handle is stabilized by inserting locking tab **945B** inserted locking slot **945A**.

[**0098**] Fold lines can additionally increase the ability of the container carrying device to flex when held at an angle. When a container carrying device is held at an angle, the stress imparted on the material of the container carrying device due to holding a container, such as container **930**, can significantly increase. The ability of the container carrying device to flex enables this stress to be reduced, which increases the ability of the container carrying device to successfully hold the container and increases the container retention.

[**0099**] FIG. **10** shows locking tab **945B** after it has been inserted into locking slot **945A** and folded over to stabilize carry handle **915**. FIG. **13** shows locking tabs **1345A** and **1345B** after each has been inserted into an corresponding locking slot and folded over to stabilize carry handle **1315**. Foldable comfort tab **925** can be folded to create a more comfortable handle opening for a user to grip. Containers **1030A-C** are substantially similar to container **130**.

[**0100**] In various embodiments, the handle section is printed, utilized as a substrate for game pieces, utilized as a substrate for promotional or informational items, such as extended content labels (ECL’s), etc. For example, the handle of the container carrying device of FIG. **31** includes marketing surface **3135** and the handle of the container carrying device of FIG. **33** includes marketing surface **3335**. The handle section can utilize a variety of shapes and sizes, such as an oval, crescent, square, series of holes or other design to allow fingers, digits, or other forms of lifting devices to grasp the container carrying device. In some embodiments, the handle section is cut in such a manner as to create shapes on the inner or outer handle area, for example to create a character or other likeness, such as a Mickey Mouse head, a football, etc. As an example, the handle of the container carrying device of FIG. **18** includes shaped handle carrier **1815**, which includes shapes of a Mickey Mouse head. The handle area can include artwork, designs, logos, etc. These features can be used for branding, cross promotion, etc.

[**0101**] In some embodiments, the handle section is mated, bonded, adhered, secured, or otherwise coupled to the con-

tainer carrying device via adhesive placed on a surface of the device to which the handle section is to be coupled. In some embodiments, the handle section is secured, with or without the use of secondary adhesives or bonding agents, to the container carrying device through the use of die cuts into the device, and bent or folded over or through creating a friction coupling bond or “lock”. In some embodiments, the center section of the handle area is left in place and folded inward and through the handle section by the consumer in order to complete the coupling process, thereby alleviating the need for adhesive or other coupling/bonding methods.

[**0102**] In some embodiments, such as the embodiment of FIGS. **26-28**, the handle section is manufactured in such a way that the grasping or “handle” area and carry aperture circumference are larger than the outside diameter of a laterally corresponding positioned can(s) and its “cap”. For example, carry aperture **2820** of FIG. **28** is larger than the top of a container, such as container **2730B**. This allows for a handle section, such as carry handle **2615**, to lay flat over one or more containers, such as container **2730B**, creating the ability of the packaging device to keep a low profile during packaging, palletizing and shipping in order to minimize space taken by the device during transportation and eventual use by the consumer. In some embodiments, a handle may be “disengaged” by lifting and decoupling the handle from the mated surface area beneath, such as when the consumer has brought the container carrying device and the associated containers to their final destination. In some embodiments, the handle section is secured via specifically placed fold lines, bonded, adhered, secured, and/or coupled via adhesive placed on the surface of the device. In some embodiments, the use of die cuts in the device, bent or folded over or through creating a friction coupling bond or “lock” can be utilized to secure a handle with or without the use of secondary adhesives or bonding agents.

[**0103**] A handle section can be implemented in various locations on the container carrying device, such as from the center section of the device, from an outside perimeter section and folded/secured inward or downward, etc. For example, carry handle **1565** of FIG. **17** is located on the side of carrier **1510**. In another example, carry handle **2315** of FIG. **24** is located on the side of container **2430A** and below upper carrier **2385**, where carry handle **2315** is supported by lower support carrier **2395**.

[**0104**] In some embodiments, such as the embodiment of FIG. **11**, a handle area includes carry apertures in smaller sizes (e.g., finger sized holes, such as grasping holes **1160A** and **1160B**) and placed in such a position between cans, as to allow the handle a lower profile to avoid contact with the “cap” of any of the cans when folded over.

[**0105**] In some embodiments, a container carrying device includes apertures that are part of neck-engaging locking mechanisms, and includes apertures that are for other purposes, such as to provide holes for gripping and carrying the container carrying device, or to provide support for containers, as is the case for support apertures **2302A** and **2302B** of FIG. **23**. In some embodiments, a container carrying device includes neck-engaging locking mechanisms that are part of apertures. For example, in the embodiment of FIGS. **23-25**, upper carrier **2385** includes six neck engaging locking mechanisms, such as locking aperture **2390**, and lower carrier support **2395** includes six support apertures, such as support apertures **2302A** and **2302B**. As can be seen in FIG. **24**, the apertures of lower support carrier **2395** slide over the con-

tainers such that lower support carrier **2395** supports the containers, while upper carrier **2385** engages the necks of the containers to lock the containers into container carrying device **2300**.

[0106] Neck-engaging locking mechanisms enable various embodiments of a container carrier device to carry a number of containers of soda, juice, water, energy drinks, etc. In various embodiments, a container carrying device can carry **2,3,4,5,6,7,8**, etc. containers, with each neck-engaging locking mechanism holding one of the containers that is being carried by the container carrying device. A container carrying device can be manufactured with any number of neck-engaging locking mechanisms, which can be semicircular, circular, or otherwise shaped apertures. A container carrying device can be manufactured in alternate shapes, such as a circle, trapezoid, octagon, etc., which can provide a unique packaging/marketing distinction in the marketplace.

[0107] In some embodiments, the container is removed from the container carrying device by being pulled through or past the neck-engaging locking mechanism. For example, in FIG. 3B container **330C** can be pushed vertically into the aperture associated with locking tab **302A**, where the container will be locked into place by locking tab **302A**. In such an embodiment, container **330C** can be removed from container carrying device **300** by being pushed further vertically, until the container passes through the aperture and exits out the other side of the aperture.

[0108] Referring once again to FIG. 9A, after container carrying device **900** is assembled, and six containers are inserted into the six apertures and locked into place with the neck-engaging locking mechanisms, container carrying device **900** and the six containers that it holds are ready for shipment to a consumer. A consumer can purchase container carrying device **900** and the six containers, and can use handle **915** to carry container carrying device **900** to his destination. When the consumer is ready to drink a beverage, he can tear a zip release, such as zip release **935A**, to break one or more of the apertures and turn the circular opening of the aperture into a semi-circular opening. The semi-circular opening allows the container being held by that aperture to be easily removed. As is shown in FIG. 9B, once zip release **935A** is fully removed from carrier **910**, three apertures are turned into semi-circular openings and the containers of those openings can be easily removed. Once both zip release **935A** and **935B** are fully removed, all six apertures are turned into semi-circular openings. As a result, the six apertures are no longer able to trap and injure an animal.

[0109] The disclosed technology can also increase structural stability for stacking, packaging and palletizing as a container carrying device that utilizes the disclosed technology can provide increased levels of rigidity, reducing or eliminating the need for secondary tray packaging, which reduces the costs of packaging and machinery, and reduces the overall footprint of a manufacturing area. The inclusion of a handle can increase the overall stability of a container carrying device, as well as the device's ability to nest while stacking, as the vertical handle portion of the container carrying device has the ability to extend between the container carrying device and the containers above it.

[0110] For example, when a upper container carrying device, such as the container carrying device of FIG. 26, is stacked on a lower container carrying device, the handle of the lower container carrying device can fit between the containers of the upper container carrying device, such as

between container **2630A** and **2630B** of FIG. 26. The structure of a container carrying device can also allow for the deletion of secondary tray packaging typically found when palletizing packages utilizing, e.g., plastic Hi-Cone rings and plastic overwraps.

[0111] In some embodiments, a container carrying device can be applied to containers via various methods, such as an (intermittent) cut-and-stack application line, a pick-and-place application, a (continuous motion) roll fed application, etc.

[0112] In some embodiments, a container carrying device can be manufactured to be environmentally friendly, such as by being manufactured with material(s) that use no petroleum, that are biodegradable/compostable and have the ability to fall apart quickly/degrade in ocean water and landfills, etc. In some embodiments, a container carrying device can also be easily torn apart, broken down by hand, during prescribed use and removal of containers as well as at a later point before disposal if desired.

[0113] A container carrying device can be manufactured, for example, using materials such as one or more of the following paper-based materials:

[0114] SBS (Solid Bleached Sulfate or Bleached Kraft). White bleached virgin fiber throughout, has a Clay Coated printing surface, available in calipers ranging from, for example, 0.010" to 0.030".

[0115] CCNB (Clay Coated News Back)/CRB (Clay Coated Recycled). 100% Recycled Fiber, which can include, for example, 30% Post Consumer Waste Paper, or can have a caliper range from, for example, 0.016 to 0.036.

[0116] SUS (Solid Unbleached Sulfate)/CUK (Coated Solid Unbleached Kraft). Unbleached Kraft fiber with calipers ranging from, for example, 0.013 to 0.030.

[0117] BC (Bending Chip)/URB (Uncoated Recycled Board)/PC (Plain Chip).

[0118] Kraft Pak (Uncoated Unbleached Kraft). Caliper range can be, for example, from 0.013 to 0.030.

[0119] SUS (Solid Unbleached Sulfate) or CUK (Coated Solid Unbleached Kraft). Caliper thickness range of, for example, 0.024 to 0.030. Resins can be added to SUS and CUK for increased wet strength characteristics.

[0120] In some embodiments, a container carrying device is made from molded pulp, such as type 1, type 2, or type 3 molded pulp. A container carrying device made from molded pulp can be formed in 3 dimensions, allowing for additional structural rigidity, compression channels, multi-plane, multi-angle locking mechanisms and manipulation of form factors per application.

[0121] In some embodiments, a strength coating is applied to the material of a container carrying device, such as to the surface of the material that forms an aperture for holding a container, to increase the container retention capabilities of the container carrying device.

[0122] FIG. 11 is an illustration of a top view of an eleventh embodiment of a container carrying device that includes a grasping hole and side tab marketing surface. Container carrying device **1100** includes grasping holes **1160A** and **1160B**, into which a consumer can insert, for example, a thumb and a finger in order to hold container carrying device **1100** and the associated containers, such as container **1130**. Container carrying device **1100** includes zip release **1135**, which is substantially similar to zip release **935A**, carrier **1110**, which is substantially similar to carrier **910**, and perforation **1105**, which is substantially similar to perforation **905B**.



[0123] In some embodiments, a container carrying device includes areas of the surface which allow indicia/quick response (QR) codes/information/graphics/logos or other art/indicia to be printed directly onto the device, imprinted in the mold, added into the substrate itself, have applied via surface mounted pressure sensitive adhesive decal allowing for further brand recognition, gaming or other, etc. This can provide a gaming mechanism for the manufacturer. For example, the manufacturer can imprint information/graphics on the back of a container carrying device that could reveal a game piece, instant win code, random code, bar code, QR code or other means of communication. Examples of methods of printing onto a container carrying device include silk screen printing, rotary printing, direct ink printing, spray coatings, embossing, etc.

[0124] Container carrying device 1100 includes two tabs, a first tab that is delineated by fold line 1140A and that is used for marketing surface 1155A, and a second tab that is delineated by fold line 1140B and that is used for marketing surface 1155B. A tab, such as the two tabs of container carrying device 1100, partial marketing tab 1355 of FIG. 13 (which is delineated by fold line 1340), full length marketing tab 1455 of FIG. 14 (which is delineated by fold line 1440), etc., can be used for a variety of purposes, including advertising, marketing, gaming, contact information, a collectible tear-off, etc. For example: FIG. 19 shows a tab being used for shaped marketing tab 1975; FIG. 20 shows a tab being used for removable game piece 2080; FIG. 21 shows a tab being used for removable marketing tab 2180; FIG. 22 shows a tab being used for perforated carry handle 2280; FIG. 29A shows a tab being used for quick response (QR) code 2980A; FIG. 29B shows a tab being used for data matrix 2980B; FIG. 29C shows a tab being used for Microsoft Tag 2980C; FIG. 29D shows a tab being used for Scan Life EZ Code 2980D; FIG. 29E shows a tab being used for bar code 2980E; FIG. 29F shows a tab being used for Custom QR Code 2080F; FIG. 31 shows a tab being used for shaped marketing tab 3175; and FIG. 33 shows a tab being used for shaped marketing tab 3375.

[0125] Shaped marketing tab 1975 is a tab that is formed in the shape of a race car, and that has an image of a race car applied to the surface of the tab. Removable game piece 2080 is a game piece that can be removed (via perforations), and that can be used in a game, such as a game that is offered to increase sales of the product that is held by the container carrying device. Removable marketing tab 2180 is a tab that is removable. In some embodiments, removable marketing tab 2180 can be removed via perforations that enable the tab to be easily torn off. In other embodiments, removable marketing tab 2180 is a material that is removably adhered to the tab, such that marketing tab 2180 can be peeled off of the tab and can, in some cases, be adhered to another surface.

[0126] When removable marketing tab 2180 is removably adhered to the tab, a consumer can peel removable marketing tab 2180 off the tab to reveal, for example, a game piece, QR code, collectible points for use in a brand reward program, scratch off game area that reveals an instant-win code, coupon towards current or future purchase or other gaming device, calendar, photo, etc. Perforated carry handle 2280 is a carry handle, where the aperture into which a consumer can place his hand can be created by removing the material that is surrounded by a perforation. Shaped marketing tabs 3175 and 3375 are tabs that are, respectively, formed in the shape of a

race car and a company logo, and that have an image of, respectively, a race car and a company logo applied to the surface of the tab.

[0127] A tab or other marketing surface can be shaped in a variety of shapes for a variety of purposes. For example, as is illustrated in FIG. 18 where shaped handle carrier 1815 is shown, in FIG. 19 where shaped marketing tab 1975 is shown, in FIG. 31 where shaped marketing tab 3175 is shown, and in FIG. 33 where shaped marketing tab 3375 is shown, a tab can be shaped to support marketing of the product. Further, as is illustrated in FIG. 22 where perforated carry handle 2280 is shown, a tab can be shaped to provide useful functionality, such as a carry handle.

[0128] A tab can be folded at a fold line, such as fold line 1140, and folded at substantially a 90 degree angle to abut containers that are being held by a container carrying device, as is shown in FIG. 12 where the tab that contains marketing surface 1255B abuts containers 1230B and 1230C. In some embodiments, a tab can include an area of adhesive on the inside surface, and can be adhered to one or more containers. For example, the tab that is used for marketing surface 1255B can have adhesive applied to the inside surface of the tab, and can be adhered to containers 1230B and 1230C via the adhesive. The tab can be affixed to the containers for a variety of reasons, such as to provide increased rigidity in overall package strength, to secure a tab such that a marketing surface of the tab is in a position where it is optimally or desirably visible, to keep the tab in a position that optimizes the integration of the package and the containers, such as by appropriately aligning artwork on the tab with the containers, etc.

[0129] Tabs, such as shaped marketing tab 1975 of FIG. 19, shaped marketing tab 3175 of FIG. 31, or shaped marketing tab 3375 of FIG. 33, can be specially cut or shaped in order to mimic the outline of the printed package artwork, adding a unique look to the package. These areas can be utilized for promotion in a number of ways, including the utility of removing the area (tab) in order to create a collectible section of artwork, game piece, coupon, etc. Any of the described components including the tab can be integrated into any variant of the base design, and with or without the handle, zip release or other element.

[0130] In some embodiments, a tab includes a handle area for the manipulation of the package by the consumer. For example, a tab of the embodiment of FIGS. 15-17 includes carry handle 1565 (where fold line 1540 delineates an edge of the tab, which includes carry aperture 1520 and which is used to create carry handle 1565), a tab of the embodiment of FIG. 22 includes perforated carry handle 2280, and a tab of the embodiment of FIGS. 23-25 includes carry handle 2315. The handle can be in the form of a hole that is pre-cut into the packaging, such as grasping holes 1160A and 1160B of FIG. 11, a perforated shape/outline allowing for additional visible printed artwork area, such as perforated carry handle 2280 of FIG. 22, etc. This functionality can add the ability for the consumer to push through and create a handle if desired. In some embodiments, such as the embodiment of FIGS. 15-17 and the embodiment of FIG. 22, a container carrying device has multiple handles. FIGS. 15-17 illustrate an embodiment that includes a first handle formed of grasping holes, such as grasping hole 1560, and a second handle, carry handle 1565 which includes carry aperture 1520. FIG. 22 illustrates an embodiment that includes two handles, a first handle that is similar to carry handle 915 of FIG. 9, and perforated carry handle 2280.

**[0131]** In some embodiments, a “tab” can be included and utilized in a container carrying device without using other aspects of the disclosed technology, such as a mechanical release strip. Tabs can vary in both width and height depending on the desired look or functionality, among other reasons.

**[0132]** In some embodiments, the extended area or tab is used in conjunction with a mechanical release strip, such as a zip release, to create a removable indicia/quick response (QR) codes/information/graphics/logos or coupon area, which the customer can remove and utilize during purchase, after purchase, etc.

**[0133]** In some embodiments, one or more tabs allow for artwork placed on the container carrying device to be incorporated into the physical design, for example to compliment the containers packaged as a unit, as is demonstrated in FIGS. 30-33. For example, artwork can be placed around the locking apertures to accent the containers while the containers can also be decorated in order to compliment or complete the artistic image as a whole or partial design. As another example, a container carrying device may incorporate artwork around the locking aperture area in order to recreate the look of an automobile tire, while the “cap” of a drink container may be decorated to look like the wheel of an automobile thus creating another component and complimenting the overall package design.

**[0134]** In some embodiments, a tab, such as the two tabs of container carrying device 1100, can create added space that can be used for increased marketing opportunities, such as cross promotion of products in order to drive customers to complimentary purchases at the time of the visit and associated purchase, or at a subsequent visit. For example, marketing surfaces 1155A and 1155B can be used to place brand information for the soda that is carried by container carrying device 1100, and can additionally be used to cross promote a brand of chips that may be purchased by the consumer during the same visit for consumption with the soda.

**[0135]** In some embodiments, a container carrying device includes a communication device, such as a RFID (Radio Frequency Identification), NFC (Near Field Communications), iBeacon (Apple, Inc.), Bluetooth, Bluetooth Low Energy (BLE), or other close range communication device or data system. The communication device can be integrated/embedded in a container carrying device, or attached to or printed on a surface area, label, substrate, tab, etc. of the container carrying device, for example, to facilitate inventory management.

**[0136]** In some embodiments, integrating/embedding/attaching/printing/etc. a communication device, such as NFC or any other close range communication device, or a product marking, such as a QR code or similar machine readable indicia, with a product enables a customer to purchase the product directly from their mobile device, such as via a payment service such as Apple Pay or Google Wallet application operating on their smart phone. A payment service is any application that can operate/execute on a mobile device and that can be used to pay for the purchase. Examples of mobile devices include smart phones, tablets, portable media devices, wearable devices, laptops, and other portable computers.

**[0137]** In some embodiments, the consumer can purchase the product without having to pay for the item at a check stand. For example, the consumer can place his smart phone or other mobile device close to the product to enable the mobile device to receive a communication from the product

via a close communication technology, such as NFC, or can scan the product marking with his smart phone or other mobile device, where the mobile device recognizes the product and its associated price.

**[0138]** The consumer can then use his mobile device to pay for the product, and can receive an electronic receipt for the purchase via his mobile device. In some embodiments, the receipt can be received via the mobile device substantially instantly or immediately. The consumer can then bypass checkout lines and leave the store carrying the product that he purchased. In case any issue arises due to possible theft of the product, the consumer can present the electronic receipt, or the merchant can perform a scan of the product when leaving the store to verify payment status.

**[0139]** In various embodiments, a surface of a container carrying device, such as a marketing surface, includes machine readable indicia, such as QR code 2980A, data matrix 2980B, Microsoft tag 2980C, Scan Life EZ code 2980D, bar code 2980E, or custom QR code 2980F, which are illustrated in FIGS. 29A-F. The machine readable indicia may include any linear, 2-dimensional, or 3-dimensional indicia or code as known in the art that may be readable by a machine, such as an electronic device. For example, the machine readable indicia can include any of the following:

**[0140]** 3-DI, a 2-dimensional matrix of circular symbols;

**[0141]** ArrayTag, a 2-dimensional matrix of groups of hexagonal symbols;

**[0142]** Aztec Code, a 2-dimensional square matrix of square symbols;

**[0143]** Codablock, a 2-dimensional array of stacked linear codes;

**[0144]** Codablock, a 2-dimensional array of stacked linear codes;

**[0145]** Code 1, a 2-dimensional matrix of horizontal and vertical bars;

**[0146]** Code 16K, a 2-dimensional array of stacked linear codes;

**[0147]** Code 49, a 2-dimensional array of stacked linear codes;

**[0148]** ColorCode, a 2-dimensional color matrix of square symbols;

**[0149]** CP Code, a 2-dimensional square matrix of square symbols;

**[0150]** DataGlyphs, a 2-dimensional matrix of “/” and “\” marks;

**[0151]** Data Matrix, a 2-dimensional square matrix of square symbols;

**[0152]** Datastrip Code, a 2-dimensional matrix of square symbols;

**[0153]** Dot Code A, a 2-dimensional square matrix of dots;

**[0154]** High Capacity Color Barcode (HCCB), a 2-dimensional cluster of colored triangles;

**[0155]** hueCode, a 2-dimensional matrix of blocks of cells in varying shades of gray;

**[0156]** MaxiCode, a 2-dimensional square matrix of interlocking hexagonal symbols;

**[0157]** MiniCode, a 2-dimensional square matrix of square symbols;

**[0158]** PDF 417, a 2-dimensional matrix of a combination of linear barcodes and square symbols;

**[0159]** Snowflake Code, a 2-dimensional square matrix of dots;

[0160] SuperCode, a 2-dimensional matrix of a combination of linear barcodes and square symbols;

[0161] Ultracode, a color or monochrome 2-dimensional array matrix of variable length strips of pixel columns; or

[0162] 3D Barcode, an embossed linear barcode of lines of varying height.

[0163] The machine readable indicia can cause an electronic device to execute a function when the electronic device scans the machine readable indicia. The machine readable indicia can further include a variety of shapes, such as triangular shapes, circular shapes, etc.

[0164] The machine readable indicia described above represent a sampling of exemplary machine readable indicia currently available and are not to be construed as limiting in any manner. Other linear, 2-dimensional, and 3-dimensional codes, currently known or developed in the future, are within the scope of the present disclosure. In some embodiments, a container carrying device includes base label indicia that includes both machine readable indicia and non-machine readable indicia.

[0165] In some embodiments, the consumer uses an electronic device, such as a smartphone or other mobile device, to read or scan the base label indicia. The smartphone may include an application that enables the smartphone to read or scan the base label indicia. Once the smartphone (or other electronic device such as a tablet computer, scanner coupled to a computer, etc.) reads or scans the base label indicia, the base label indicia can cause the smartphone to execute a function. The function executed by the smartphone can cause the smartphone to open a web browser program and direct the browser to a pre-designated website.

[0166] In some embodiments, the base label indicia includes a barcode and additional text that indicates that information about additional products may be obtained by scanning the barcode. For example, a consumer can scan a barcode, and the barcode can cause the smartphone to open a web browser and direct the web browser to a pre-determined website corresponding to the additional products.

[0167] In various embodiments, the indicia may be imprinted, embossed, molded directly, etc. on an outer surface of the container carrying device. The imprinting or embossing may be carried out using any printing or image transfer method. In some embodiments, the printing or image transfer method is an offset process in which an image is transferred from a plate to an intermediate carrier, then to the surface of the container carrying device. In some embodiments, the offset process involves lithographic techniques. Other printing or image transfer methods may comprise, for example, flexography, pad printing, relief printing, rotogravure, screen printing, and electrophotography. In various embodiments, the indicia may be digitally printed on the surface of the container carrying device using, for example, inkjet printing or laser printing. Chemical printing technologies, such as blueprint or diazo print can also be used in various embodiments.

[0168] FIG. 15 is an illustration of a top view of a fifteenth embodiment of a container carrying device that includes a side carry handle. Container carrying device 1500 includes carry handle 1560, which is a side carry handle. Container carrying device 1500 includes two zip releases, zip releases 1535A and 1535B. Zip release 1535B includes a tab, which is delineated by fold line 1540 and which is used to form carry handle 1565. Perforation 1505A delineates zip release 1535A

and perforation 1505B delineates zip release 1535B. During the process of applying carrying device 1500 to containers, carry handle 1565 is folded downwards an amount substantially equal to 90 degrees resulting in carry handle 1565 abutting and/or covering containers 1530A, 1630B, and 1630C, as is illustrated in FIG. 16. Carrier 1510 includes six apertures that include neck-locking mechanisms that can grip and hold the containers that are to be carried by container carrying device 1500. When a consumer purchases container carrying device 1500 and the beverages that are held by container carrying device 1500, the consumer can fold out carry handle 1565, as is illustrated in FIG. 17, and can use carry handle 1565 to carry container carrying device 1500 and the associated beverages.

[0169] FIG. 23 is an illustration of a top view of a twenty-first embodiment of a container carrying device that is not assembled and that includes an upper carrier and a lower support carrier. Container carrying device 2300 includes upper carrier 2385 and lower support carrier 2395. Upper carrier 2385 includes six apertures, such as locking aperture 2380, which each includes a neck-engaging locking mechanism to receive and hold a container, such as container 2330. In some embodiments, upper carrier 2385 includes one or more zip releases. Lower support carrier 2395 includes six apertures, such as support apertures 2302A and 2302B. In some embodiments, lower support carrier 2395 includes one or more zip releases. During manufacturing, container carrying device 2300 is folded into the proper shape for container insertion. Container carrying device 2300 is folded at fold lines 2340A-D to cause carry handle 2315 to be properly formed, and to align the apertures of upper carrier 2385 with the apertures of lower support carrier 2395, as is illustrated in FIG. 24. Once folded into the proper shape, containers can be inserted into container carrying device 2300.

[0170] For example, container 2430A can be inserted through support aperture 2302A and into locking aperture 2390, where locking aperture 2390 receives and holds container 2430A, such as via a neck-engaging locking mechanism of locking aperture 2390. In some embodiments, the six apertures of lower support carrier 2395 are configured to support the containers that are being carried by container carrying device 2300. For example, support aperture 2302A can be sized to be larger than the top of container 2430A to enable support aperture 2302A to be slide over the top of container 2430A when container 2430A is inserted into container carrying device 2300 where the top of container 2430A is received and held by locking aperture 2390.

[0171] Before or after insertion of the containers, carry handle 2315 can be folded so that carry handle 2315 abuts the containers, as is illustrated in FIG. 25. To keep carry handle 2315 properly formed, locking tabs 2545A and 2545B of FIG. 25 can be inserted into corresponding locking slots, and can be folded over to lock the handle together. A consumer can fold out carry handle 2315, as is depicted in FIG. 24, and can use carry handle 2315 to carry container carrying device 2300. For example, the consumer can insert his hand into carry aperture 2320, where comfort tab 2325 can be bent over to make carrying container carrying device 2300 more comfortable. When being carried, lower support carrier 2395, e.g., via the six apertures of lower support carrier 2395, provides support for both the containers that are being carried, as well as for carry handle 2315. Container carrying device 2300 further includes a second handle, which is located in upper carrier 2385 in the form of two grasping holes, such as grasp-

ing hole **2360**. A consumer can carry container carrying device **2300** by inserting his finger/thumb into one or both of the grasping holes, and using the grasping holes to hold container carrying device **2300**.

1. A six-pack packaging device for carrying six cans or bottles comprising:

a carrier, formed from a sheet of a paper-based material, that includes six apertures for receiving six cans or bottles, each of the six apertures being surrounded in two dimensions by the paper-based material;

six neck-engaging locking mechanisms formed from the sheet of material, each of the six neck-engaging locking mechanisms associated with a different one of the six apertures and configured to hold one can or bottle of the six cans or bottles; and

a zip-release that is delineated by a tear line that passes through a particular aperture of the six apertures, the tear line configured to enable the zip-release to be torn from the six-pack packaging device to cause the particular aperture to no longer be surrounded in two dimensions by the paper-based material, and to enable a can or bottle of the six cans or bottles to be removed from the six-pack packaging device.

2. The packaging device of claim **1**, further comprising: a handle formed from the sheet of material, the handle including one or more holes to enable a person to grasp the handle.

3. The packaging device of claim **1**, further comprising: a marketing tab formed from the sheet of material and delineated by a fold line, the fold line configured to enable the marketing tab to be bent at an angle substantially equal to 90 degrees resulting in the marketing tab covering a can or bottle of the six cans or bottles.

4. A container carrying device for carrying a plurality of containers comprising:

a carrier, formed from a sheet of a paper-based material, that includes a first plurality of apertures for receiving the plurality of containers,

each of the first plurality of apertures including a neck-engaging locking mechanism to receive and hold a container of the plurality of containers,

each of the first plurality of apertures being surrounded in two dimensions by the paper-based material,

the carrier including a mechanical release strip to enable the container carrying device to be broken or torn apart to cause each aperture of a subset of the first plurality of apertures to no longer be surrounded in two dimensions by the paper-based material, and to enable containers received by neck-engaging locking mechanisms of the subset of the first plurality of apertures to be removed from the container carrying device.

5. The container carrying device of claim **4**,

wherein the mechanical release strip is a zip release that is delineated by perforations in the sheet of material, the perforations being arranged to create a tear line that passes through the subset of the first plurality of apertures, the tear line to enable the zip release to be torn off at the tear line to cause each aperture of the subset of the first plurality of apertures to no longer be surrounded in two dimensions by the paper-based material.

6. The container carrying device of claim **5**, wherein the tear line is not a straight line.

7. The container carrying device of claim **4**,

wherein the mechanical release strip includes a marketing tab that is delineated by a fold line, the fold line enabling the marketing tab to be bent at an angle substantially equal to 90 degrees resulting in the marketing tab covering a first container, the first container being one of the containers being held by the neck-engaging locking mechanisms of the subset of the first plurality of apertures.

8. The container carrying device of claim **7**, wherein the marketing tab is adhered to the first container.

9. The container carrying device of claim **7**, wherein the marketing tab includes a peel or scratch off label that covers any of a game piece, a quick response (QR) code, an instant-win game code, or a coupon.

10. The container carrying device of claim **7**, wherein the marketing tab has a surface on which machine readable indicia is printed.

11. The container carrying device of claim **4**, further comprising:

a handle formed from the sheet of material, the handle including one or more holes to enable a finger to grasp the handle.

12. The container carrying device of claim **11**, wherein the container carrying device is folded at three substantially parallel fold lines to form the handle.

13. The container carrying device of claim **10**, wherein, when a second container carrying device that is fully populated with containers is stacked on top of the container carrying device with the second container carrying device being placed on top of the handle, the handle fits between containers being carried by the second container carrying device.

14. The container carrying device of claim **11**, wherein a first hole of the one or more holes is larger than the top of a container that is being held by a neck-engaging locking mechanism of a first aperture the first plurality of apertures to enable the top of the container to pass through the first hole when the handle is folded to be substantially parallel to the carrier.

15. The container carrying device of claim **4**, wherein the paper-based material includes any of solid bleached sulfate, bleached Kraft, clay coated news back, clay coated recycled, solid unbleached sulfate, coated solid unbleached Kraft, bending chip, uncoated recycled board, or uncoated unbleached Kraft.

16. The container carrying device of claim **4**, wherein the paper-based material includes any of solid unbleached sulfate or coated solid unbleached Kraft.

17. The container carrying device of claim **16**, wherein the paper-based material has a caliper thickness range of between 0.024 and 0.030.

18. The container carrying device of claim **16**, wherein resins are added to the solid unbleached sulfate of the coated solid unbleached Kraft.

19. A container carrying device for carrying a plurality of containers comprising:

an upper carrier formed from a sheet of paper-based material, the upper carrier including a first plurality of apertures,

each of the first plurality of apertures being surrounded in two dimensions by the paper-based material,

a first aperture of the first plurality of apertures including a neck-engaging locking mechanism to receive and hold a first container of the plurality of containers; and

a lower support carrier formed from the sheet of material, the lower support carrier including a second plurality of apertures, each of the second plurality of apertures being surrounded in two dimensions by the paper-based material, a second aperture of the second plurality of apertures configured to support the first container, the second aperture being larger than the top of the first container to enable the second aperture to slide over the top of the first container.

**20.** The container carrying device of claim **19** further comprising:

a zip release, the zip release formed from the sheet of material and delineated by perforations in the sheet of material, the perforations arranged to create a tear line that passes through the first aperture, the perforations enabling the zip release to be torn off at the tear line to cause the first aperture to no longer be surrounded in two dimensions by the paper-based material, and to enable the first container to be removed from the container carrying device.

**21.** The container carrying device of claim **19**, further comprising:

a marketing tab formed from the sheet of material and delineated by a fold line, the fold line enabling the marketing tab to be bent at an angle substantially equal to 90 degrees resulting in the marketing tab covering the first container.

**22.** A container carrying device for carrying a plurality of containers comprising:

a carrier, formed from a sheet of a paper-based material, that includes an aperture to receive a container of the plurality of containers, the aperture including a neck-engaging locking mechanism to receive and hold the container, the aperture being surrounded in two dimensions by the paper-based material, the carrier including a zip release that is delineated by perforations in the carrier, the perforations arranged to create a tear line that passes through the aperture, the perforations enabling the zip release to be torn off at the tear line to cause the aperture to no longer be surrounded in two dimensions by the paper-based material, and to enable the container to be removed from the container carrying device.

**23.** The container carrying device of claim **22**, wherein the zip release includes a marketing tab that is delineated by a fold line, the fold line enabling the marketing tab to be bent at an angle substantially equal to 90 degrees resulting in the marketing tab covering the container.

**24.** The container carrying device of claim **22**, further comprising:

a handle formed from the sheet of material, the handle including one or more holes to enable a finger to grasp the handle.

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