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(54) Title: CONTAINER CARRIER

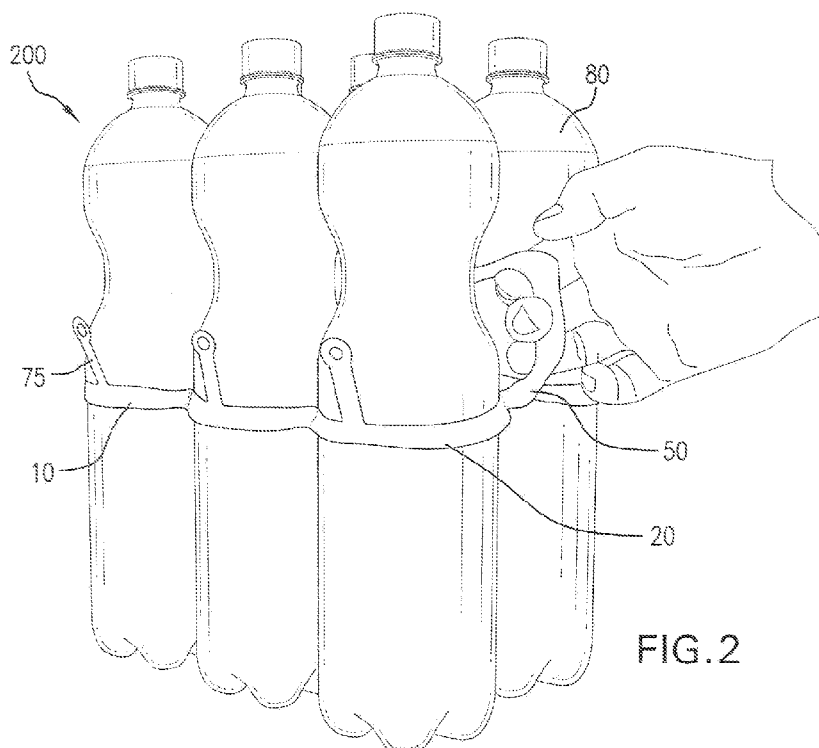


FIG. 2

(57) Abstract: A flexible carrier for carrying a plurality of containers includes a flexible sheet having two rows of container receiving apertures (25) formed therein. The flexible carrier further includes a handle (50) extending from a periphery of the flexible sheet on an end of the package and beyond a longitudinal edge of the rows of the unitized containers. The handle is preferably capable of supporting the package when grasped by a consumer.

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CONTAINER CARRIER

BACKGROUND OF THE INVENTION

CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Application No. 61/705,963, filed 26 September 2012. The co-pending Provisional Application is hereby incorporated by reference herein in its entirety and is made a part hereof, including but not limited to those portions which specifically appear hereinafter.

FIELD OF THE INVENTION

This invention relates to a flexible carrier for carrying a plurality of containers such as cans or bottles.

DESCRIPTION OF PRIOR ART

Conventional container carriers are often used to unitize a plurality of similarly sized containers, such as cans, bottles, jars and boxes and/or similar containers that require unitization. Flexible plastic ring carriers are one such conventional container carrier.

Flexible plastic ring carriers may be used to unitize groups of four, six, eight, twelve or other suitable groups of containers into a convenient multipackage. Newer flexible ring carriers may include a handle that extend upwardly from the carrier to enable a consumer to carry the package. Difficulty may arise if a traditional carrier, particularly a package of large containers or an elongated package of eight or twelve containers, is placed on a narrow shelf and/or in a refrigerator so that the top lift handle is not accessible.

SUMMARY OF THE INVENTION

The present invention is directed to a flexible carrier for packaging containers that includes an arrangement of container receiving apertures and a handle for grasping the carrier that extends outwardly from a longitudinal end of the resulting package.

According to preferred embodiments of this invention, each flexible carrier preferably includes two rows of container receiving apertures, each for receiving a container, to form a package. A handle is preferably connected between the two rows of container receiving apertures and protrudes from at least one edge of the package.

The resulting package includes a handle that extends outward from a single longitudinal edge of the package between each row of container receiving apertures. This is particularly helpful for a package of large containers and/or if the package is positioned on a narrow shelf, such as within a refrigerated cooler.

BRIEF DESCRIPTION OF THE DRAWINGS

The above-mentioned and other features and objects of this invention will be better understood from the following detailed description taken in conjunction with the drawings wherein:

Fig. 1 is a side elevational view of a flexible carrier according to one preferred embodiment of this invention; and

Fig. 2 is a side perspective view of a package of containers according to one preferred embodiment of this invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

Fig. 1 shows flexible carrier 10 for unitizing six containers to form a unitized package. Fig. 2 shows a package 200 of unitized containers 80. Although Figs. 1 and 2 illustrate various structures for flexible carrier 10 of the invention, the illustrations are exemplary, and the invention is not limited to the flexible carriers 10 or packages shown. For example, flexible carrier 10 may be configured and used to unitize four, eight, twelve or any other desired number of containers 80.

The containers 80, such as those shown in packages in Fig. 2, are preferably bottles. Although bottles are shown in Fig. 2, cans or any other commonly unitized container may be used with flexible carrier 10 according to this invention. The containers are preferably, though not necessarily, like-sized within a single flexible carrier 10.

Each flexible carrier 10 preferably includes one or more layers of flexible sheet 20 having a width and length defining therein a plurality of container receiving apertures 25, each for receiving a container 80. The plurality of container receiving apertures 25 are preferably arranged in longitudinal rows and longitudinal ranks so as to form an array of container receiving apertures 25, such as two rows by three ranks for a six container multipackage; two rows by six ranks for a twelve container multipackage, etc. Container receiving apertures 25 are preferably elongated in a longitudinal direction of flexible carrier 10.

According to one preferred embodiment of this invention, such as shown in Fig. 1, two layers of flexible sheet 20 are connected along a longitudinally extending centerline 60. As shown in Fig. 1, a double layer of the flexible sheet 20 results in two rows of container receiving apertures that fan out from centerline 60. Centerline 60 as used herein generally describes a segment between rows of container receiving apertures 25 and/or between layers of flexible sheet 20. According to one preferred embodiment of this invention, centerline 60 comprises a weld that joins the two layers of flexible sheet 20. The two layers of flexible sheet 20 may be coextruded, welded, or otherwise joined together to create flexible carrier 10. "Weld" as used in the specification and claims may be defined as a hot weld, cold weld, lamination or any other manner of connection that joins two sheets of material known to those having ordinary skill in the art.

As shown in Fig. 1, a row of container receiving apertures 25 is preferably formed on each side of centerline 60 and/or in each layer of the two layers of flexible sheet 20. As such, one row of container receiving apertures 25 is preferably formed along each side of the centerline 60. Accordingly, six container receiving apertures 25 are formed in flexible carrier 10 shown in Fig. 1, i.e. two overlapping rows of three container receiving apertures 25 each. Container receiving apertures 25 are preferably formed in a geometry that results in a tight unitization of containers 80 without excess play and/or sliding between and among containers 80 and flexible carrier 10.

As best shown in Figs. 1 and 2, a plurality of webs 40 are formed on an opposite side of centerline 60 as the rows of container receiving apertures 25. Handle 50 is preferably positioned on one side of the plurality of webs 40 relative to flexible sheet 20 so as to extend between the two rows of container receiving apertures 25 from a periphery of flexible sheet 20. Specifically, handle 50 may extend from the plurality of webs 40 extending from centerline 60, which may comprise a weld or seam between adjacent layers of flexible sheet 20.

Handle 50 preferably extends from an end of flexible carrier 10, and specifically from an end of package 200 and, preferably, a single handle 50 extends from a single end of package 200. Handle 50 preferably extends beyond a longitudinal edge of the rows of container receiving apertures 25 and, following application of flexible carrier 10 to containers 80, beyond a longitudinal edge of containers 80 within package 100.

Handle 50 preferably forms a discrete ring within the plurality of webs 40 within flexible carrier 10 and, as described in more detail below, is capable of supporting the weight of package 100 when grasped by a consumer. As a result of the configuration of handle 50 relative to flexible sheet 20, it should be apparent to a consumer that handle 50 is intended for grasping and lifting of package 200.

According to a preferred embodiment of this invention, a generally continuous string of flexible carriers 10 are formed during the manufacturing process whereby adjacent flexible carriers 10 are connected end to end for application to containers 80 and divided into individual packages 200 following such application. The generally continuous string of flexible carriers 10 are preferably punched from one or more layers of material using a punch press or similar equipment known to those having ordinary skill in the art.

As described above, a plurality of webs 40 formed in the flexible sheet 20 on an opposite side of the rows of container receiving apertures 25 as the centerline 60. Handle 50 suitable for manual grasping preferably extends from one side of the plurality of webs 40 and a trailing edge 70 is preferably formed in on

opposite side of the plurality of webs 40. The term “trailing edge” is simply meant to define an opposite longitudinal edge of the container carrier 10 and/or package 200 from that of the handle 50 and is not intended to define manufacturing processes or otherwise represent a following or secondary edge of the container 10 and/or package 200.

As a result of the described configuration and as shown in Fig. 1, the handle 50 extends beyond a longitudinal edge of the rows of container receiving apertures 25 and the trailing edge 70 extends short of the longitudinal edge of the rows of container receiving apertures. The string of flexible carriers 10 preferably additionally includes a web attachment area 45 formed between handle 50 of the flexible carrier 10 and trailing edge 70 of an adjacent flexible carrier such that each handle 50 is connected to a trailing edge 70 of each neighboring or adjacent flexible carrier 10 within a generally continuous string of flexible carriers 10. In addition, a row attachment area 35 is preferably formed between each row of container receiving apertures 25 of adjacent flexible carriers 10. As a result of the relative position of handle 50, the web attachment area 45 and the row attachment area 35 are not longitudinally aligned.

According to a preferred embodiment of the invention, the flexible carrier 10 and specifically the plurality of webs 40 are longitudinally asymmetric. That is, the flexible carrier is not the same at each longitudinal end, particularly in the plurality of webs 40. The plurality of webs 40 preferably form a corresponding plurality of web openings 55, each web opening 55 preferably having a distinct configuration from the other.

As shown in Fig. 2, package 200 resulting from flexible carrier 10 includes a plurality of unitized containers 80. Flexible carriers 10 are generally applied to containers 80 by stretching flexible sheet 20 surrounding container receiving apertures 25 around the perimeter of container 80, and allowing the stretched carrier 10 to recover, thereby providing a tight engagement. Carrier 10 is typically applied to a sidewall of container 80 or, where the structure exists, to a

chime or rib of container 80.

As a result of the described configuration in one preferred embodiment of this invention, two layers of flexible sheet 20 joined with the longitudinally extending centerline 60 include a row of container receiving apertures 25 formed in each layer of the two layers of flexible sheet 20. One row of container receiving apertures 25 is formed on each side of centerline 60 resulting in flexible carrier 10 fanning out at centerline 60 to permit a generally flat plane of engagement within which containers 80 are inserted. Handle 50 preferably extends in a different plane from the applied rows of container receiving apertures 25 and in a same plane as the remaining plurality of webs 40. In this manner, each row of container receiving apertures 25 engages a respective row of containers 80 to form package 200.

Handle 50 suitable for manual grasping preferably extends from an edge of flexible sheet 20. In package 200 according to one preferred embodiment of this invention, handle 50 preferably extends outwardly from between each row of container receiving apertures 25 so as to be visible and obvious to a consumer. For instance, in a narrow shelf or refrigerated cooler, package 200 is preferably presented along a two-wide side or edge of package 200 thereby encouraging use of loop 50.

As a result of the tight engagement of the containers 80 that results from the described configuration of flexible carrier 10, a release mechanism is preferably provided that enables easy release of containers 80 from the carrier 10. According to one preferred embodiment, a plurality of pull tabs 75 are formed in the flexible sheet 20 wherein each pull tab 75 extends into a respective container receiving aperture 25. A perforation 85 may further be provided that extends through the flexible sheet 20 at an angle relative to each container receiving aperture 25 and adjacent each pull tab 75.

Alternatively, or in addition, a tear strip, zipper or similar perforation or configuration may extend along an edge of container receiving apertures 25 and include some form of tab or similar gripping area for opening the perforation. Accordingly, container receiving apertures 25 are preferably separable along the tear

strip and containers 80 are removable from package 200.

According to a preferred embodiment of this invention, the subject system is used in connection with a generally continuous string of container carriers. Each container carrier in the generally continuous string is preferably separated from adjacent container carriers by one or more apertures and/or perforations. A cutoff device, such as that described in U.S. Ser. No. 13/673,121, which is hereby incorporated by reference, makes separation of such adjacent container carriers possible without the use of additional mechanical aids such as knives. Such a bladeless cutoff system preferably includes a system wherein adjacent packages are pulled apart rather than cutting or breaking the weakened connections between such packages. To accomplish this, a set of timing screws are preferably used to accelerate a leading package away from a trailing package to create enough tension in the carrier web to separate the perforations or other weakened connection and, accordingly, the packages. This method in conjunction with carrier separation perforations located at connection points between apertures and handle connection points between adjacent carriers will create a reliable package separator without any of the aforementioned issues.

While in the foregoing specification this invention has been described in relation to certain preferred embodiments thereof, and many details have been set forth for purpose of illustration, it will be apparent to those skilled in the art that flexible carrier 10 and package 200 are susceptible to additional embodiments and that certain of the details described herein can be varied considerably without departing from the basic principles of the invention.

CLAIMS

1. A package including a plurality of containers unitized within a flexible carrier, the package comprising:

one or more layers of flexible sheet;

two rows of container receiving apertures formed in the flexible sheet, each row of container receiving apertures engaging a respective row of containers;

a handle extending between the two rows of container receiving apertures from a periphery of the flexible sheet at only a single end of the package and beyond a longitudinal edge of the rows of containers, the handle capable of supporting the package when grasped by a consumer.

2. The package of Claim 1 further comprising:

a weld extending between the two rows of container receiving apertures.

3. The package of Claim 1 wherein the flexible carrier is longitudinally asymmetric.

4. The package of Claim 1 further comprising a pull tab formed in the flexible sheet and extending into each container receiving aperture.

5. The package of Claim 4 further comprising a perforation extending through the flexible sheet at an angle relative to each container receiving aperture and adjacent each pull tab.

6. The package of Claim 1 further comprising:

a web attachment area formed at a periphery of the handle for attachment to an adjacent container carrier at a trailing edge opposite the handle.

7. The package of Claim 1 further comprising
a plurality of webs formed in the flexible sheet adjacent to the handle;
and
a centerline dividing the rows of container receiving apertures from the
plurality of webs.

8. The package of Claim 7 wherein the plurality of webs form a
plurality of web openings, each web opening having a distinct configuration from the
other.

9. A flexible carrier for carrying a plurality of containers formed of
at least one layer of flexible sheet, the flexible carrier comprising:
two layers of flexible sheet wherein a row of container receiving
apertures is formed in each layer of the two layers of flexible sheet;
a centerline formed between the rows of container receiving apertures;
a plurality of webs formed opposite the centerline from the rows of
container receiving apertures;
a handle formed at one end of the webs and a trailing edge is formed at
an opposite end of the webs, wherein the handle extends longitudinally beyond the
rows of container receiving apertures and the trailing edge extends longitudinally
short of the rows of container receiving apertures.

10. The flexible carrier of Claim 15 wherein the centerline comprises
a weld.

11. A generally continuous string of flexible carriers, each flexible carrier for carrying a plurality of containers, said string of flexible carriers comprising:

- a flexible sheet having two rows of container receiving apertures formed therein;

- a centerline formed between the rows of container receiving apertures;

- a plurality of webs formed in the flexible sheet on an opposite side of the rows of container receiving apertures as the centerline;

- a handle suitable for manual grasping extending from one side of the plurality of webs and a trailing edge formed in an opposite side of the plurality of webs, wherein the handle extends beyond a longitudinal edge of the rows and the trailing edge extends short of the longitudinal edge of the rows.

12. The string of flexible carriers further comprising:

- a web attachment area formed between the handle of the flexible carrier and a trailing edge of an adjacent flexible carrier; and

- a row attachment area formed between each row of container receiving apertures of adjacent flexible carriers, wherein the web attachment area and the row attachment area are not longitudinally aligned.

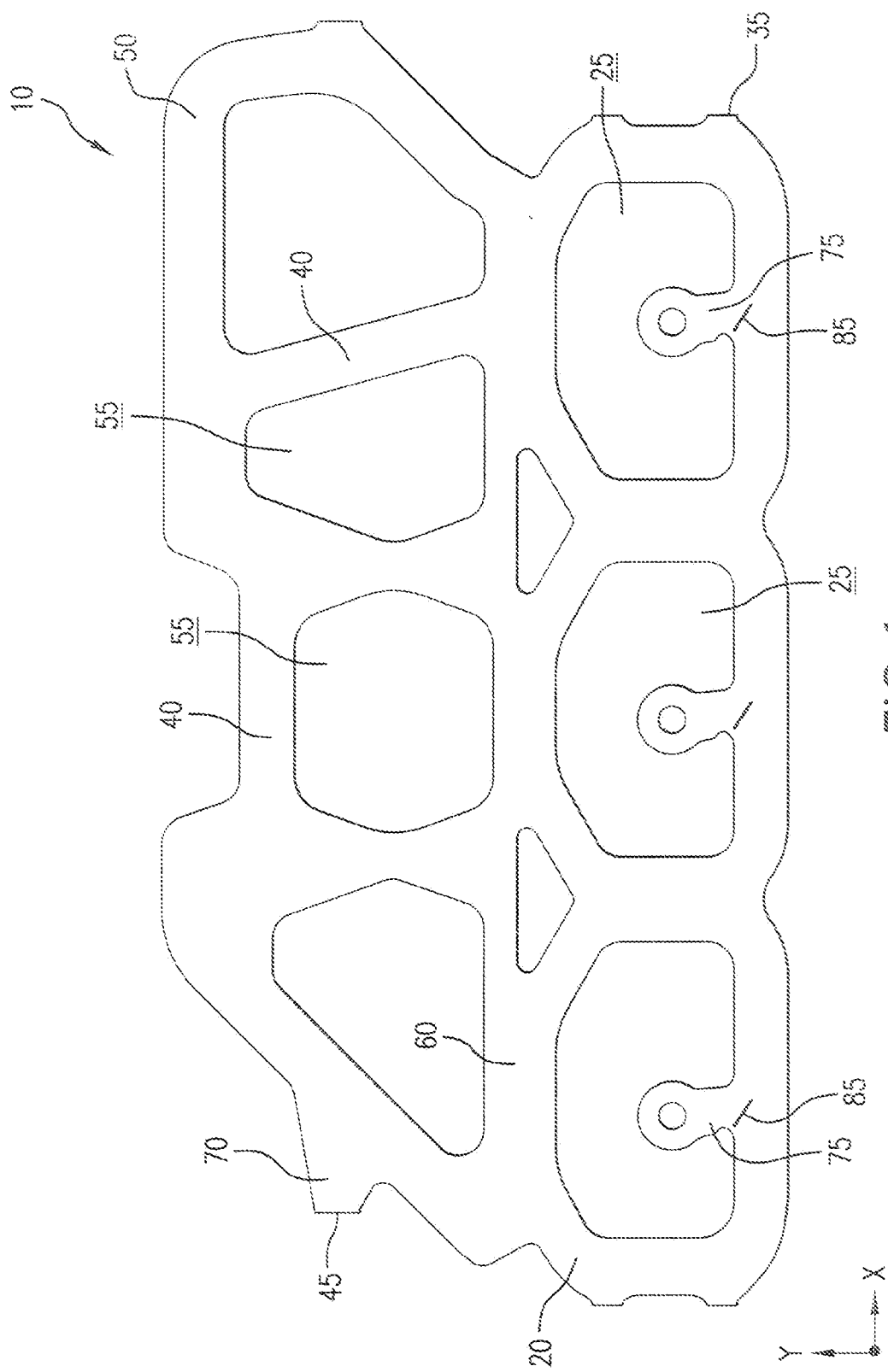


FIG. 1

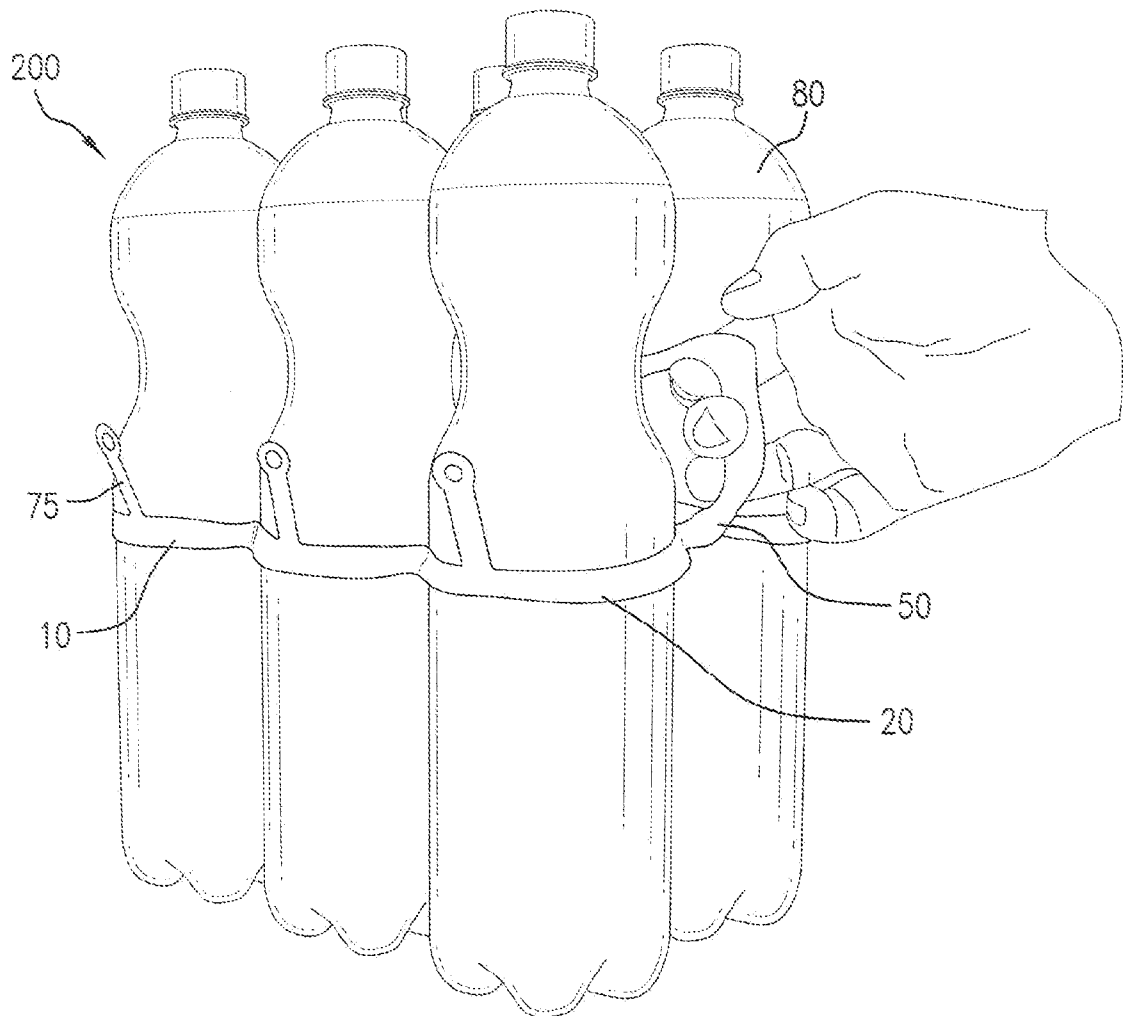


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/059068

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D71/50
ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 746 310 A (SLOMSKI EDWARD J [US]) 5 May 1998 (1998-05-05)	1-3,6-12
Y	column 2, line 42 - line 57; figures -----	4,5
X	US 5 038 928 A (MARCO LESLIE S [US] ET AL) 13 August 1991 (1991-08-13) figure 1 -----	1
Y	US 5 209 346 A (PRATT DAVID A [US] ET AL) 11 May 1993 (1993-05-11) column 2, line 4; figure 2 -----	4,5



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

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Date of mailing of the international search report

09/12/2013

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/059068

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