



- (51) International Patent Classification:
B65D 21/02 (2006.01) *B65D 71/50* (2006.01)
- (21) International Application Number:
PCT/US2015/025034
- (22) International Filing Date:
9 April 2015 (09.04.2015)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/993,378 15 May 2014 (15.05.2014) US
14/662,466 19 March 2015 (19.03.2015) US
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ginia 22314 (US).
- (81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG,
MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC,
SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ,
TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU,
TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE,
DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,

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(54) Title: STACKABLE CONTAINER PACKAGE

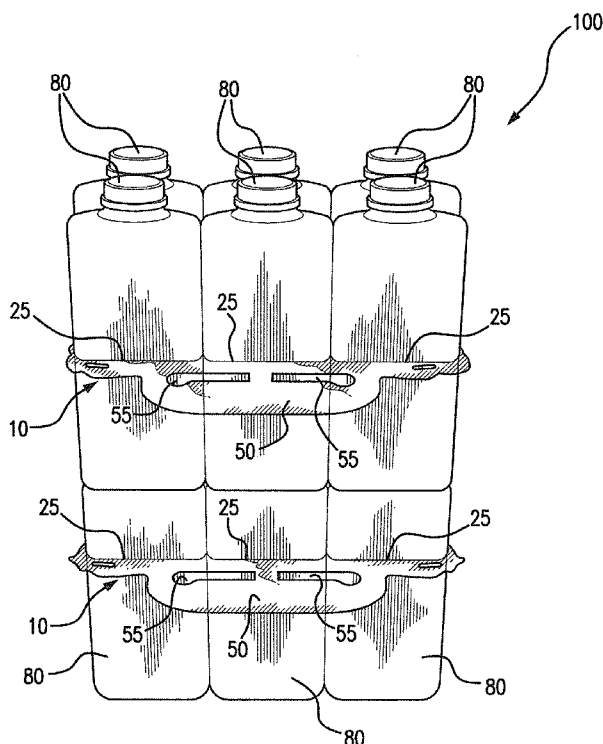


FIG. 3

(57) Abstract: A package (100) of containers (80) within an array of corresponding container receiving apertures (25) wherein each container includes a cooperative base and top geometry to permit stacking of packages of unitized containers, one upon the other.



LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, KM, ML, MR, NE, SN, TD, TG).

— *as to the applicant's entitlement to claim the priority of
the earlier application (Rule 4.17(iii))*

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii))*

Published:

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

STACKABLE CONTAINER PACKAGE

BACKGROUND OF THE INVENTION**CROSS REFERENCE TO RELATED APPLICATIONS**

This application claims priority to U.S. Provisional Application, Serial No. 61/993,378, filed on 15 May 2014. This U.S. 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 bottles in a unitized, stackable package.

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 having a plurality of container receiving apertures that each engage a corresponding container may be used to unitize groups of four, six, eight, twelve or other suitable groups of containers into a convenient multipackage. Flexible ring carriers may include a handle that extend upwardly and/or outwardly from the carrier to enable a consumer to carry the package.

Flexible ring carriers are typically fed across a rotating applying drum having a plurality of jaws that open the individual container receiving apertures to stretch them around a respective container and then release them onto the container. In this manner, a package of multiple containers is formed.

Multiple packages of cans may be stacked one upon the other to present a point-of-purchase retail display. However, packages of bottles are often more difficult to stack when packaged in this way because of the lack of support surfaces on the respective tops of the bottles. As such, a need arises for a package configuration

that permits a package of bottles to be stacked one upon another yet results in an aesthetically pleasing package to the consumer

SUMMARY OF THE INVENTION

The present invention is directed to a flexible carrier for packaging containers that includes an arrangement of container receiving apertures that are generally rectangular and engage a plurality of containers having cooperative base and top geometries to permit stacking of packages of unitized containers, one upon the other.

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. In addition, a handle is preferably connected between or along at least one row of container receiving apertures. The resulting package may be stacked one on top of the other so that each respective container of one package includes a base that cooperates with the top of a container in a package below.

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;

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

Fig. 3 is a side perspective view of two stacked packages of containers according to one preferred embodiment of this invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

Figs. 1-3 show flexible carrier 10 for unitizing two or more containers 80 and a resulting unitized package 100. Although Figs. 1-3 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 of six containers shown in Fig. 2. For example, flexible carrier 10 may be alternatively configured and used to unitize four, eight, ten, fourteen or any other desired number of containers 80.

Containers 80, such as those shown in Figs. 2 and 3, are preferably bottles, however, cans or any other commonly unitized container may be used with flexible carrier 10 according to this invention. The containers 80 are preferably, though not necessarily, like-sized within a single flexible carrier 10. Each container 80 includes cooperative base and top geometries to permit stacking of containers 80 and thus packages 100 of unitized containers 80, one upon the other. More specifically, the bottles preferably include a recess in a base that cooperates with a cap on a top of the container such that one package of containers 80 may be placed on another package of containers 80 and lateral movement of a top package is thus restricted by the engagement between the recess in the base of each container in the top package and the cap of each container in a bottom package. More specifically still, each container includes a generally square cross-section and a round base depression that corresponds with a round cap in an adjacently stacked package. In this manner, the round cap may fit entirely within the base depression to secure the stack of packages. The resulting stack of packages 100 is generally balanced, rigid and sturdy, as best shown in Fig. 3.

Each flexible carrier 10 preferably includes one or more layers of flexible sheet 20 having a width and length defining therein a plurality of generally

rectangular 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 as shown in Figs. 2 and 3. Container receiving apertures 25 are preferably generally rectangular shaped. In a preferred embodiment, outer webs of carrier 10 are narrower than center webs to enhance tightness of the resulting package 80 and permit predictable stacking of multiple packages 80.

As described above, the plurality of container receiving apertures 25 are preferably arranged in an array. In this manner, an array of rows and ranks of containers 80 in the package 100 can cooperate with a corresponding array of other containers 80 in a stack of packages 100. According to a preferred embodiment of this invention, the carrier 10 is positioned along the top third of the container 80, thereby minimizing interference in the bottom and cap areas of each container 80 so that stacking is not compromised.

Handle 50 may comprise one or more elongated apertures 55 positioned along the outer periphery of handle 50 or may comprise a similar configuration that provides an ample area for a consumer to grasp by inserting his hand through and still maintain the purpose and integrity of the package 100. As shown, handle is preferably positioned along the three-wide side of package 80. A tear strip 60, such as shown in Fig. 1, may be positioned along one or more edges of the carrier to facilitate removal of the respective containers.

As shown in Fig. 3, the package 100 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 container 80, and requiring the stretched carrier 10 to recover, thereby providing a tight engagement.

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 100 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.

I CLAIM:

1. A package of unitized containers comprising:
a flexible plastic carrier having an array of container receiving apertures;
a plurality of containers, each container having a cooperative base and top geometry to permit stacking of packages of unitized containers, one upon the other, wherein each container receiving aperture is engaged with a corresponding container to form the package of unitized containers.
2. The package of Claim 1 wherein the base of each container comprises a circular depression that engages with a circular top of an adjacent stacked container.
3. The package of Claim 1 wherein the package comprises six containers.
4. The package of Claim 1 wherein the flexible plastic carrier further comprises a handle extending along a longitudinal edge of the package.
5. The package of Claim 4 wherein a line of weakness extends between the handle and the flexible plastic carrier.
6. The package of Claim 1 wherein the top geometry of a lower container enters the cooperative base of an upper container to stack packages.

7. A package of unitized containers comprising:
a flexible plastic carrier having an array of container receiving apertures;
a plurality of containers, each container having a base depression and a cap fitting entirely within the base depression to permit stacking of packages of unitized containers, one upon the other, wherein each container receiving aperture is engaged with a corresponding container to form the package of unitized containers.
8. The package of Claim 7 wherein the cap is round and fits within a corresponding round base depression of a stacked container.
9. The package of Claim 7 further comprising a handle extending along one edge of the flexible plastic carrier, the handle detachable to release the containers engaged within the flexible plastic carrier.
10. The package of Claim 7 wherein the flexible plastic carrier includes an array of generally rectangular container receiving apertures.
11. The package of Claim 7 wherein six or more containers in a package mate with six or more containers in a vertically adjacent package to form a stackable combination of packages.
12. The package of Claim 7 wherein the containers include a generally square cross-section.

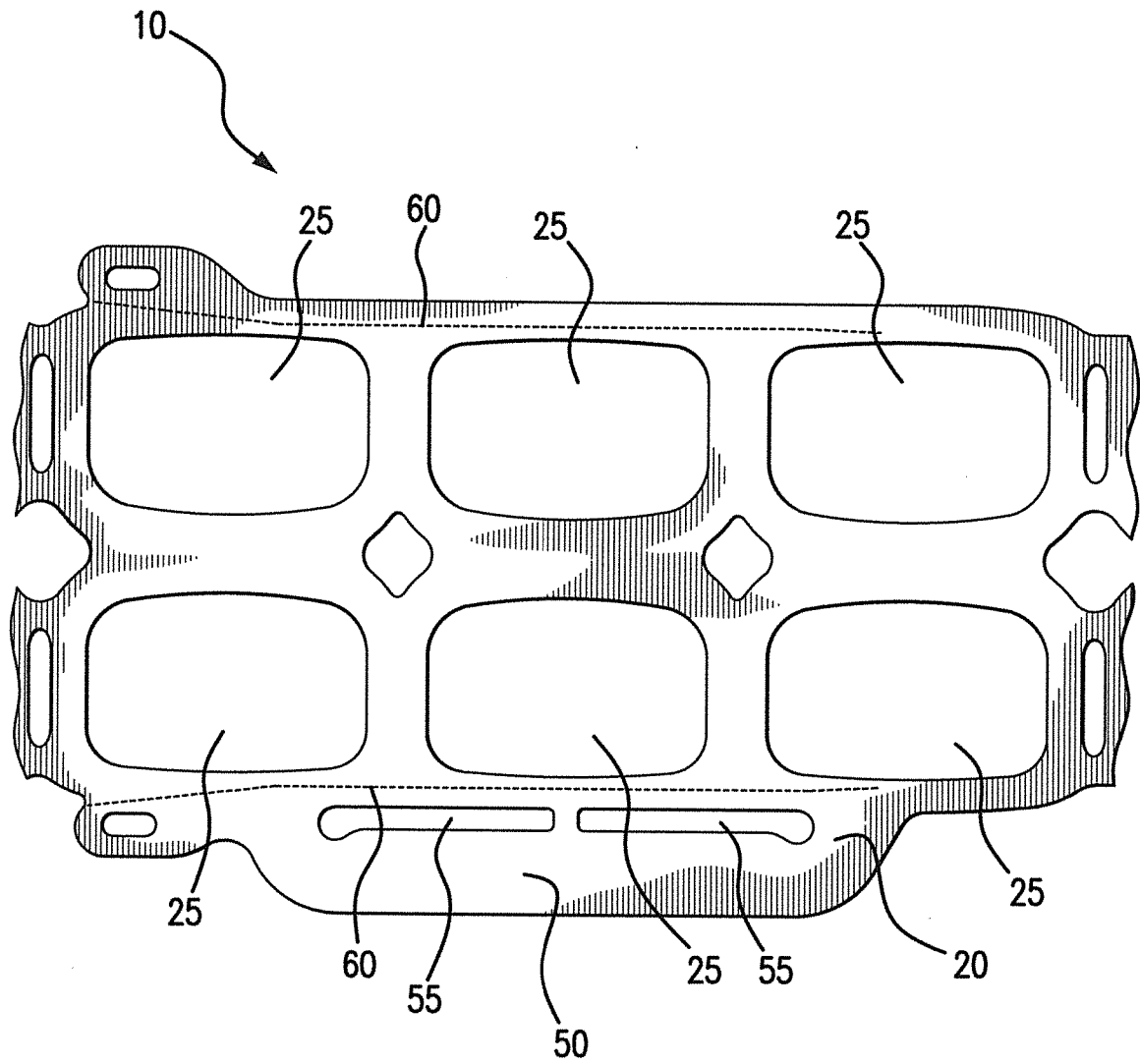


FIG. 1

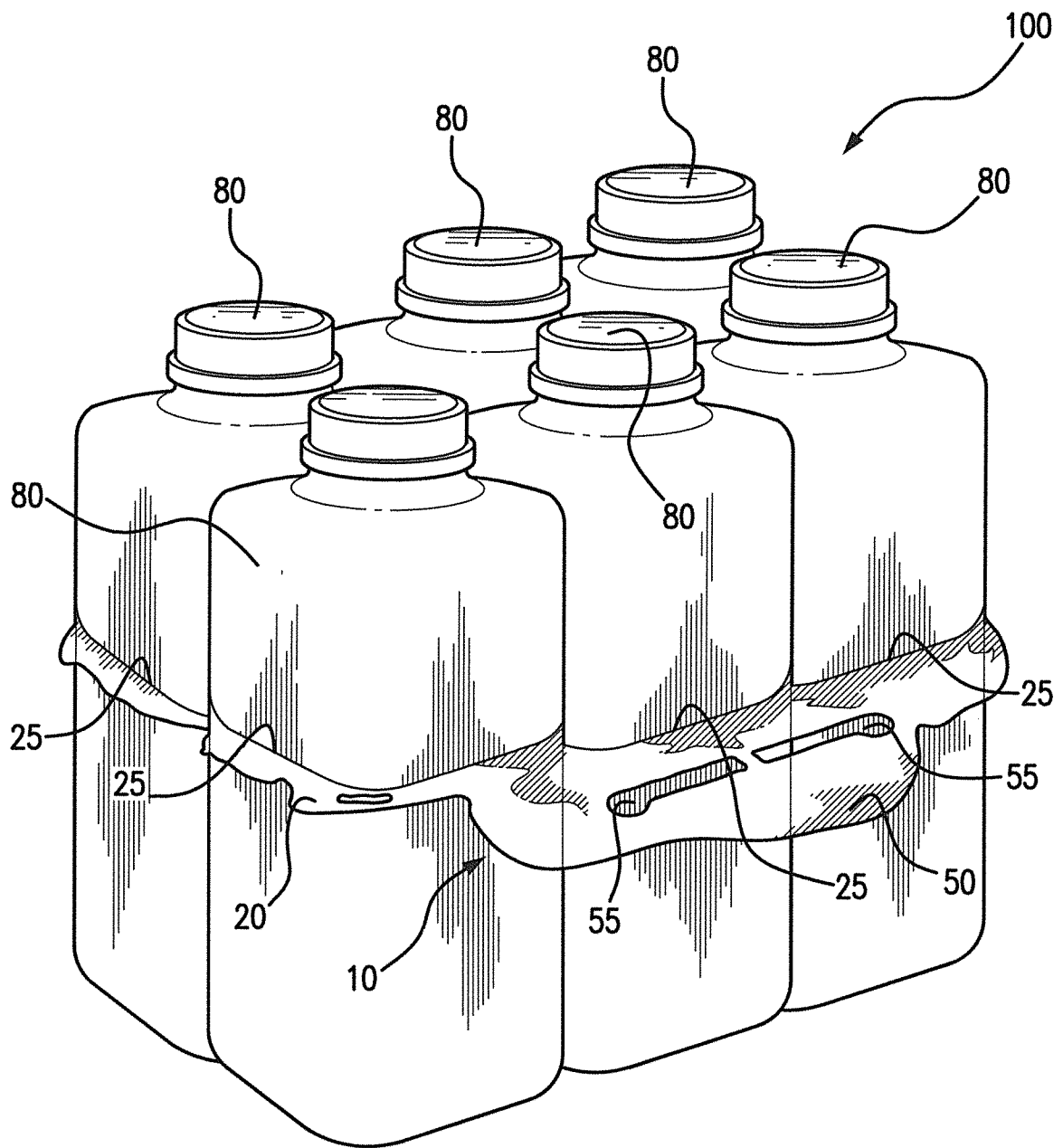


FIG. 2

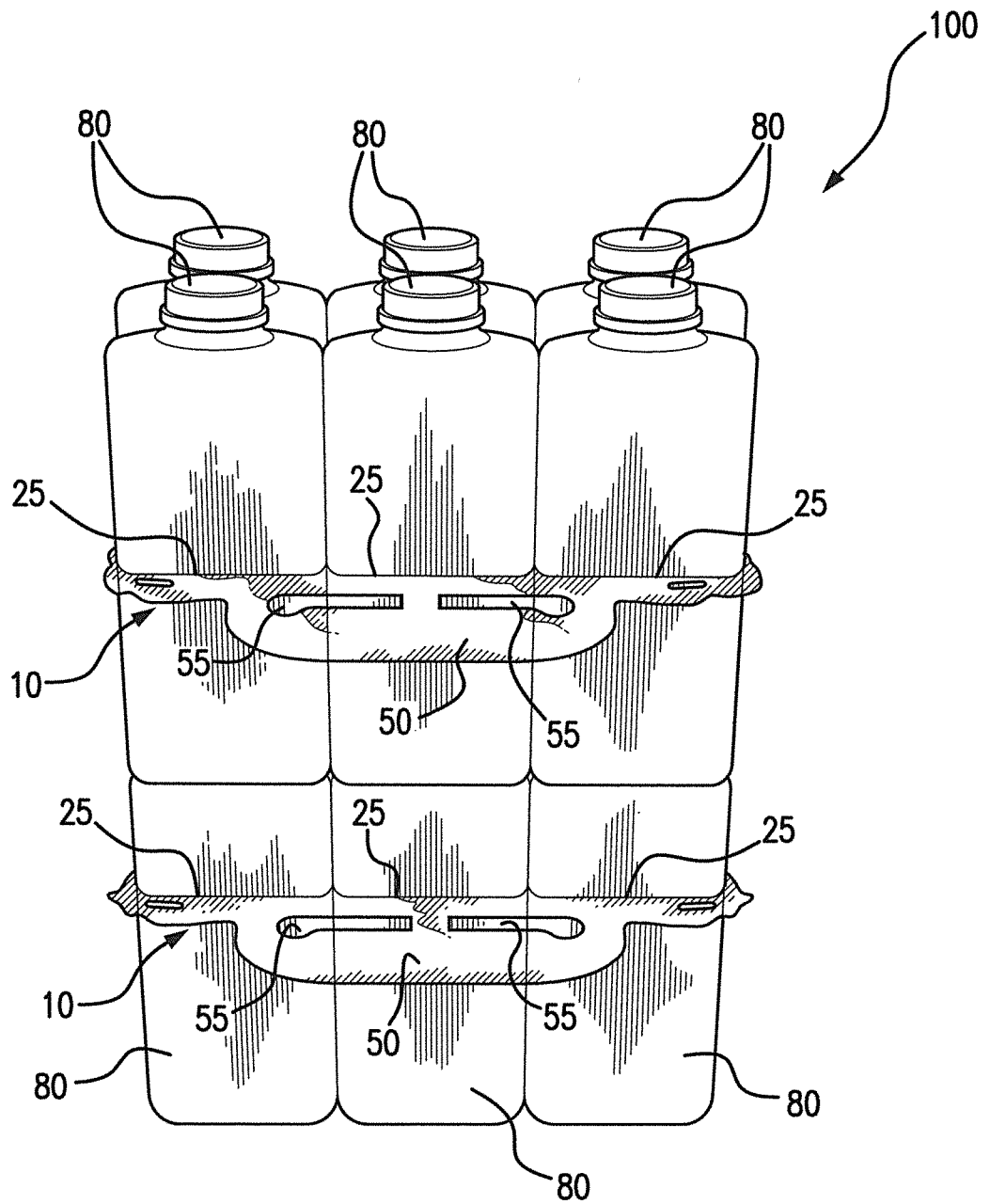


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2015/025034

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D21/02 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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/206759 A1 (EITEN CARL T [US] ET AL) 19 August 2010 (2010-08-19)	1-3,6-8, 10-12
Y	the whole document	4,5,9
Y	US 2007/193889 A1 (OLSEN ROBERT [US] ET AL) 23 August 2007 (2007-08-23)	4,5,9
Y	the whole document	
A	FR 1 406 534 A (C.VACHER) 23 July 1965 (1965-07-23)	1-12
A	the whole document	
A	FR 1 480 678 A (H.HASSELMANN) 12 May 1967 (1967-05-12)	1-12
A	the whole document	
A	FR 2 986 516 A1 (SIDEL PARTICIPATIONS [FR]) 9 August 2013 (2013-08-09)	1-12
A	the whole document	

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Further documents are listed in the continuation of Box C.

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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

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"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

12 June 2015

Date of mailing of the international search report

22/06/2015

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2015/025034

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010206759	A1	19-08-2010	NONE

US 2007193889	A1	23-08-2007	CA 2681239 A1 06-11-2008
		EP 2146909 A1	27-01-2010
		ES 2393229 T3	19-12-2012
		TW 200902392 A	16-01-2009
		US 2007193889 A1	23-08-2007
		WO 2008134132 A1	06-11-2008

FR 1406534	A	23-07-1965	NONE

FR 1480678	A	12-05-1967	NONE

FR 2986516	A1	09-08-2013	CN 104159830 A 19-11-2014
		EP 2812257 A1	17-12-2014
		FR 2986516 A1	09-08-2013
		US 2014374298 A1	25-12-2014
		WO 2013117849 A1	15-08-2013
