(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
27 October 2005 (27.10.2005)

PCT

(10) International Publication Number
WO 2005/100193 A1

(51) International Patent Classification[7]: B65D 71/00

(21) International Application Number:
PCT/US2005/012198

(22) International Filing Date: 8 April 2005 (08.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0408054.5 8 April 2004 (08.04.2004) GB

(71) Applicant *(for all designated States except US)*: **MEAD-WESTVACO PACKAGING SYSTEMS LLC** [US/US]; One High Ridge Park, Stamford, CT 06905 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **LEBRAS, Philippe** [FR/FR]; 13, rue de la Bievre, F-36000 Chateauroux (FR).

(74) Agents: **SUZUKI, Tsugihiko** et al.; The Mead Corporation, 4850D North Church Lane, Smyrna, CA 30080 (US).

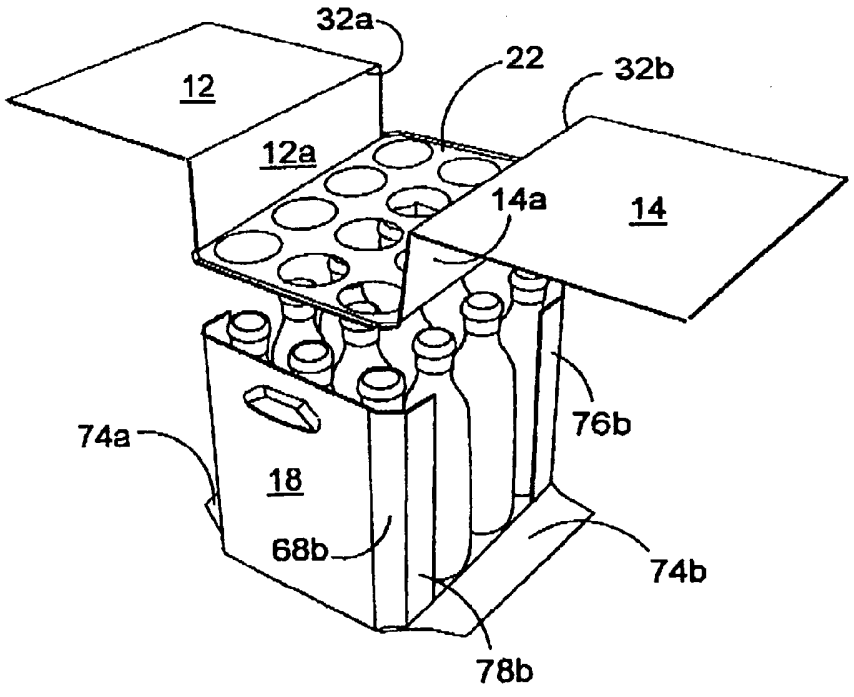
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

[Continued on next page]

(54) Title: CARTON AND TWO-PART CARTON BLANK



(57) Abstract: A carton for containing a group of bottles is constructed by combining a pair of complementary U-shaped structures (10, 20). One (10) of the U-shaped structures comprises a bottom panel (24) and opposing end walls (16, 18). The other (20) of the U-shaped structures comprises a top panel (22) and opposing side walls (12, 14). D-17063/PCT - 1 -

WO 2005/100193 A1

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

CARTON AND TWO-PART CARTON BLANK

Background of the Invention

The present invention relates to a carton for containing a plurality of similar articles, such as bottles and a means for retaining the bottles within the carton and in particular to a means of accessing the articles.

Cartons for encasing multiple articles are useful for enabling consumers to obtain and transport a desired quantity of individual articles such as soft drinks or other beverages. Such cartons need to be strong enough to support multiple articles, especially if the articles are bottles. It is also desirable for such cartons to be easy to handle and be portable.

It is often desirable for the articles contained within the carton to be displayed and also for the carton to have large areas which can be printed with advertising graphics. It is also often desirable for the articles to be easily accessible and it is also preferable for the articles to be secured in place within the carton, especially if the articles are fragile, for example glass bottles. It is however undesirable for articles to be accessed too easily, for example, before being purchased.

It is also desirable to have a carton which after the contents of the articles have been consumed can be used to return the empty articles to a recycling point.

The present invention seeks to provide a means for displaying the articles or a portion of the articles in combination with an access means for removal of the articles where the access means leaves the carton with sufficient integrity for replacement of articles for the purpose of returning to a recycling point.

Summary of the Invention

According to a first aspect of the invention, a carton for containing a group of similar articles, such as bottles, the carton comprising a top panel, bottom panel, opposing side and

end walls, wherein the carton is constructed by combining opposing complementary U-shaped structures, one of the U-shaped structures comprising a bottom panel and opposing end walls and the other of the U-shaped structures comprising a top panel and opposing side walls.

Preferably the top panel is at an elevation below that of an upper extremity of the end wall and/or opposing side wall.

Additionally one of the U-shaped structures comprises flaps which provide support to the side walls of the carton and additionally a surface to which the side walls can be secured.

Preferably the top panel comprises apertures for receiving the articles or a portion thereof, wherein each aperture has a frangible connection with at least one other aperture to facilitate removal of the articles. The carton may further comprise at least one reinforced handle aperture being struck from one of said opposing walls.

Preferably upon removal of the articles, the carton retains sufficient structural integrity such that it can be re-used for returning empty articles.

According to a second aspect of the invention, a two part blank comprising a first part comprising a bottom panel and opposing end walls and a second part comprising a top panel and opposing side walls to form opposing complementary U-shaped structures when the carton is in a setup condition.

Preferably the first part of the blank comprises flaps which provide support to the side walls of the carton and additionally a surface to which the side walls can be secured.

Preferably the top panel is at an elevation below that of an upper extremity of the end wall panels.

Additionally the top panel comprises apertures for receiving the articles or a portion thereof, wherein each aperture has a frangible connection with at least one other aperture to facilitate removal of the articles.

According to a third aspect of the invention, a unitary blank for forming a carton comprising opposed side and end walls and top and bottom panels, wherein a plane of the top panel in a setup carton is lower than an upper edge of the opposed end walls and wherein there further comprises handle apertures struck from said end walls.

Brief Description of the Drawings

Exemplary embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which;

Figure 1A illustrates a first part of a blank for forming a crate style carton according to a first embodiment of the invention;

Figure 1B illustrates a second part of a blank for forming a crate style carton according to a first embodiment of the invention;

Figure 1C shows a first step in the process for erecting the crate style carton formed from the blanks of Figs. 1A and 1B;

Figure 1D shows a second step in the process for erecting the crate style carton formed from the blanks of Figs. 1A and 1B;

Figure 1E shows a third step in the process for erecting the crate style carton formed from the blanks of Figs. 1A and 1B;

Figure 1F shows the crate style carton formed from form the blanks of Figs. 1A and 1B;

Figure 2A illustrates a first part of a blank for forming a crate style carton according to a second embodiment of the invention;

Figure 2B illustrates a second part of a blank for forming a crate style carton according to a second embodiment of the invention;

Figure 2C illustrates a step in the process to erect a crate style carton from the blanks of Figs. 2A and 2B;

Figure 2D shows the crate style carton formed from form the blanks of Figs. 2A and 2B

Detailed Description of the Preferred Embodiments

A first embodiment of the present invention is shown in Figs. 1A –1F. Figs. 1A and 1B, show a first and a second part respectively, of a two-part blank for forming a crate style carton 30, made from paperboard or similar foldable sheet material. In the first embodiment of the invention two blanks 10 and 20, of Figs. 1A & 1B are formed into a tray and a cover respectively. Together the tray and cover form a crate style carton 30 which is shown in Fig. 1F. The invention is designed to receive similar articles, such as bottles, but it is envisaged that the present invention could be used to contain other articles, without departing from the scope of the invention.

Turning to Figure 1A, the tray blank 10 comprises a first end wall 16, a bottom panel 24 and a second end wall 18, hingedly connected, one to the next in series, along fold lines 44 and 48 respectively. Handle apertures 54 are struck from the first and second end walls 16, 18 and finger gripping tabs 58 protrude inward from the upper edges of the handle apertures 54. The finger gripping tabs enable the erected crate style carton 30 to be easily grasped and lifted by the handle apertures 54.

The tray blank 10 further comprises corner flaps 66a/66b and 68a/68b hingedly connected to the first and second end walls 16 and 18 respectively. In this embodiment of the invention the corner flaps 66a/66b and 68a/68b provide additional protection to some of the bottles

contained within the carton. In other embodiments of the invention it is envisaged that a greater of lesser number of corner flaps could be used in order to provide a crate style carton with a specific shape, to accommodate the different types of articles which may be contained within a crate style carton.

In this embodiment of the invention the corner flaps 66a/66b and 68a/68b are hingedly connected to side flaps 76a/76b and 78a/78b along fold lines 86a/86b and 88a/88b respectively, as shown in Fig. 1A The side flaps 76a/76b and 78a/78b provide a means for securing the tray formed from blank 10 to the cover formed from blank 20 in erecting the crate style carton 30.

In this embodiment of the invention, the tray blank 10 further comprises bottom end flaps 74a and 74b hingedly connected to the bottom panel 24, along fold lines 64a and 64b. The bottom end flaps 74a, 74b provide an additional means for securing the tray and cover together.

The tray blank 10 also comprises inner handle panels 26 foldably connected to the first and second end walls 16, 18 about fold lines 40 and 42. The inner handle panels 26 comprise finger gripping tabs 58 and are shaped such that upon folding the inner handle panels 26, 180° about the fold lines 40 and 42, a 2 ply reinforced handle structure is created.

In this embodiment of the invention the inner handle panels 26 are additionally provided with glue flaps 70a/70b and 72a/72b, which can be secured to the inside faces of the corner panels 66a/66b and 68a/68b respectively. In this way some additional protection of the articles held within the corners of the crate style carton 30 may be provided. In other embodiments of the invention it is envisaged that the glue flaps 70a/70b and 72a/72b may not be required, or may in fact be secured to the inside faces of the side flaps 76a/76b and 78a/78b respectively.

A second blank, cover blank 20 is shown in Figure 1B. The cover blank 20 is used to form a cover for the tray formed from the blank 10 of Figure 1A. Blank 20 comprises a top panel 22 which is hingedly attached to first and second side walls 12, 14 along fold lines 34a, 34b. The first and second side walls 12, 14 comprise fold lines 32a and 32b.

A series of apertures 56 are struck from the top panel 22 and are structured to receive an upper portion of the articles which are to be contained within the crate style carton 30. In this embodiment of the invention the crate style carton 30 is suitable for containing bottles and the apertures 56 are designed to receive the necks of the bottles. In this embodiment the apertures 56 are circular and further comprise tabs protruding toward the centre of each of the apertures 56. The protruding tabs may help to provide a close fit of the bottle necks within the apertures 56. This may help prevent the bottles from being subject to damage, which can occur if bottles knock against each other. In other embodiments of the invention the apertures 56 may not be circular and may or may not contain additional tabs.

The top panel 22 further comprises a series of weakened lines or nicks 37 which connect each aperture 56 to at least one other aperture 56. In the first embodiment the nicks 37 extend between the apertures 56 in lines perpendicular to the first and second side walls 12, 14. In other embodiments of the invention it is envisaged that the configurations of the nicks 37 may differ from that described, for example, the nicks 37 may not fully extend to neighbouring apertures 56, they may intersect each other or the nicks 37 may extend to the edges of the top panel 22. The top panel 22 further comprises a series of glue flaps 36a/36b and 38a/38b, which are used to secure the top panel 22 to the tray of blank 10.

Turning to the construction of the crate style carton 30 from the tray blank 10 and cover blank 20, a series of sequential folding and gluing operations are required. Preferably these can be performed in a straight line machine, so that the blanks 10, 20 are not required to be rotated or inverted to complete the construction. The folding process is not limited to that described below and can be altered according to particular manufacturing requirements.

The first stage is to secure the inner handle panels 26 to the inside faces of the end wall panels 16, 18 and secure the glue flaps 70a/70b and 72a/72b to the inside faces of the corner panels 66a/66b and 68a/68b. The end wall panels 16, 18 are then folded about fold lines 44 and 48, out of the plane of the bottom panel 24 to produce a tray.

The tray is then loaded with bottles, as shown in Fig. 1C and the corner panels 66a/66b and 68a/68b and side flaps 76a/76b and 78a/78b are folded about fold lines 96a/96b, 98a/98b, 86a/86b and 88a/88b. The bottom end flaps 74a, 74b are also folded inward of the tray.

In preparation of the final folding and gluing operations to complete the erection of the crate style carton 30, the cover blank 20 is folded about fold lines 34a, 34b, 32a and 32b, as shown in Fig. 1D. The side walls 12, 14 are folded 90° about fold lines 34a and 34b, out of the plane of top panel 22. The second side walls 12, 14 are then folded about fold lines 32a and 32b to bring bottom portions of the first and second side walls 12, 14 back into the plane of the top panel 22 as shown in Fig. 1D.

Cover blank 20 is then brought into registry with the bottles which have been loaded into the tray. Top portions of the first and second side walls are placed in flat face contact with the inner faces of the side flaps 76a/76b and 78a/78b respectively, and may be secured together by adhesive of other means known in the art. The bottom portions of the first and second side walls 12, 14 are further folded about fold lines 32a and 32b so that the bottom portions of the first and second side walls are in flat face contact with upper portions of the first and second side walls 12, 14 and the outer faces of the side flaps 76a/76b and 78a/78b respectively. In this way the fold lines 32a and 32b form upper edges of the side walls of the crate style carton 30. Again glue or other means maybe used to secure the bottom portions of the first and second side walls 12, 14 to the outer faces of the side flaps 76a/76b and 78a/78b and the outer faces of the bottom end flaps 74a and 74b, as shown in Fig. 1E.

In this way a two-ply upper portion of the side walls of the crate style carton is formed. In other embodiments of the invention it is envisaged that the first and second side walls 12, 14 could further be provided with handle apertures 54 struck from the first and second side walls 12, 14. This could provide 2-ply handle structures in each wall of the erected crate style carton 30, in other embodiments, without departing from the scope of the present invention.

The crate style carton formed from the blanks 10 and 20 is shown in Figure 1F. It can be seen that the bottles are secured within the carton, once the cover made from blank 20 has been secured inside the tray, erected from blank 10. Access to the bottles is gained by separating

the nicks 37, this may be achieved by lifting a bottle from the crate style carton 30 or in other embodiments it is envisaged that an initiating means may be provided to assist in the separation of the nicks 37.

The use of the nicks 37 allows each bottle can be accessed individually, whilst the structural integrity of the carton is maintained. Bottles not accessed are held in position by the apertures 56 in the cover. Therefore the carton provides an adaptable carrying container, the structural integrity of which is not destroyed when the bottles are accessed. This enables the carton to be reused for the convenient returning of the empty bottles.

It can be appreciated that various changes may be made within the scope of the present invention, for example, the size and shape of the panels and apertures may be adjusted to accommodate articles of differing size or shape.

Figs. 2A – 2D illustrate a second embodiment of the present invention, which will now be described by way of example only. This is to illustrate some of the changes that can be made, without departing from the scope of the present invention. In subsequent figures similar reference numerals have been used to denote like features, the reference numerals in the second embodiment of the invention are increased by '200' to show that they represent features of the second embodiment. Since the second embodiment has features common to the first embodiment, only differences in the second embodiment will be highlighted.

In the second embodiment of the present invention the first and second side walls 12, 14 are not provided with fold lines and can be sized such that when the cover from blank 220 is inserted into the tray formed from blank 210, the position of the top wall panel 222 is adjustable. To accommodate this feature the side flaps 276a/276b and 278a/278b are also sized to allow the top panel 222 to have an adjustable elevation once the tray and cover have been formed into the crate style carton 230.

The crate style carton 230 is erected by carrying out a similar arrangement of folding and gluing operations as previously described however the operation of folding the first and second side walls 12, 14 about fold line 32a and 32b, is not required in this embodiment. The

second embodiment can be considered as a special case of the first embodiment wherein the fold lines 232a, 232b are positioned along the fold lines 234a/234b. An intermediate step in the erection process is shown in Fig 2C.

The present invention is designed such that a crate style carton can be formed from two blanks wherein the elevation of the top panel 22, 222 is adjustable by altering the depth of the bottom portion of the first and second side walls 12, 212, 14 and 214. The depth of the bottom portion of the first and second side walls 12, 212, 14 and 214 is defined by the position of the fold lines 32a, 32b, 232a and 232b and the size of the first and second side walls 12, 212, 14 and 214.

The present invention also allows the height of the upper edge of the first and second side walls 12, 212, 14 and 214 to be adjustable relative to the height of the end walls 16, 18, 216 and 218. The upper edge of the first and second side walls 12, 212, 14 and 214 is can also be considered as being defined by the position of the fold lines 32a, 32b, 232a and 232b.

It is envisaged that the features of the various embodiments herein described could be altered without departing from the scope of the present invention. For example in other embodiments of the invention the apertures formed within the top panel may not be circular and may also be provided with additional tabs protruding into the aperture, to aid retention of the bottle necks or other articles contained within the carton.

It will be recognised that as used herein, directional references such as "top", "bottom", "front", "back", "end", "side", "inner", "outer", "upper" and "lower" do not limit the respective panels to such orientation, but merely serve to distinguish these panels from one another. Any reference to hinged connection should not be construed as necessarily referring to a single fold line only; indeed it is envisaged that hinged connection can be formed from one or more of the following, a score line, a frangible line or a fold line without departing from the scope of the invention.

Claims

1. A carton for containing a group of similar articles, such as bottles, the carton comprising a top panel, bottom panel, opposing side walls and opposing end walls, wherein the carton is constructed by combining a pair of opposing complementary U-shaped structures, one of the U-shaped structures comprising a bottom panel and opposing end walls and the other of the U-shaped structures comprising a top panel and opposing side walls.

2. A carton according to claim 1 wherein the top panel is disposed at an elevation below an upper extremity of either end wall of the carton and/or of either side wall of the carton.

3. A carton according to any one of the preceding claims wherein the one U-shaped structure comprises flaps which provide support to the side walls of the other U-shaped structure and additionally a surface to which the side walls of the other U-shaped structure can be secured.

4. A carton according to any one of the preceding claims wherein the top panel of the carton comprises apertures for receiving the articles or portions thereof, wherein each aperture has a frangible connection with at least one other aperture to facilitate removal of the articles.

5. A carton according to any one of the preceding claims, further comprising at least one reinforced handle aperture being struck from one of said sine and end walls of the carton.

6. A carton according to claim 4 wherein the frangible connection is arranged such that upon removal of the articles, the carton retains sufficient structural integrity to be re-used for returning empty articles.

7. A two part blank for forming a carton for containing a group of similar articles, such as bottles, the blank comprising first and second parts, the first part comprising a bottom

panel and opposing end walls to form a first U-shaped structure, the second part comprising a top panel and opposing side walls to form a second U-shaped structure that is complementary to the first U-shaped structure, the first and second U-shaped structures are disposed in an opposed relationship when the carton is in a setup condition.

8. A blank according to claim 7 wherein the first part comprises flaps for providing support to the side walls of the second part and additionally a surface to which the side walls of the second part can be secured.

9. A blank according to claim 7 or 8 wherein the top panel of the second part is at an elevation below an upper extremity of the end walls of the first part when the carton is in a set-up condition.

10. A blank according to any one of claims 7 to 9 wherein the top panel of the second part comprises apertures for receiving the articles or portions thereof, wherein each aperture has a frangible connection with at least one other aperture to facilitate removal of the articles.

11. A blank to form a carton according to any one of claims 1 to 6.

12. A carton comprising opposed side walls, opposed end walls and top and bottom panels, wherein a plane of the top panel is lower than an upper edge of either end wall and wherein the carton further comprises handle apertures struck from said end walls.

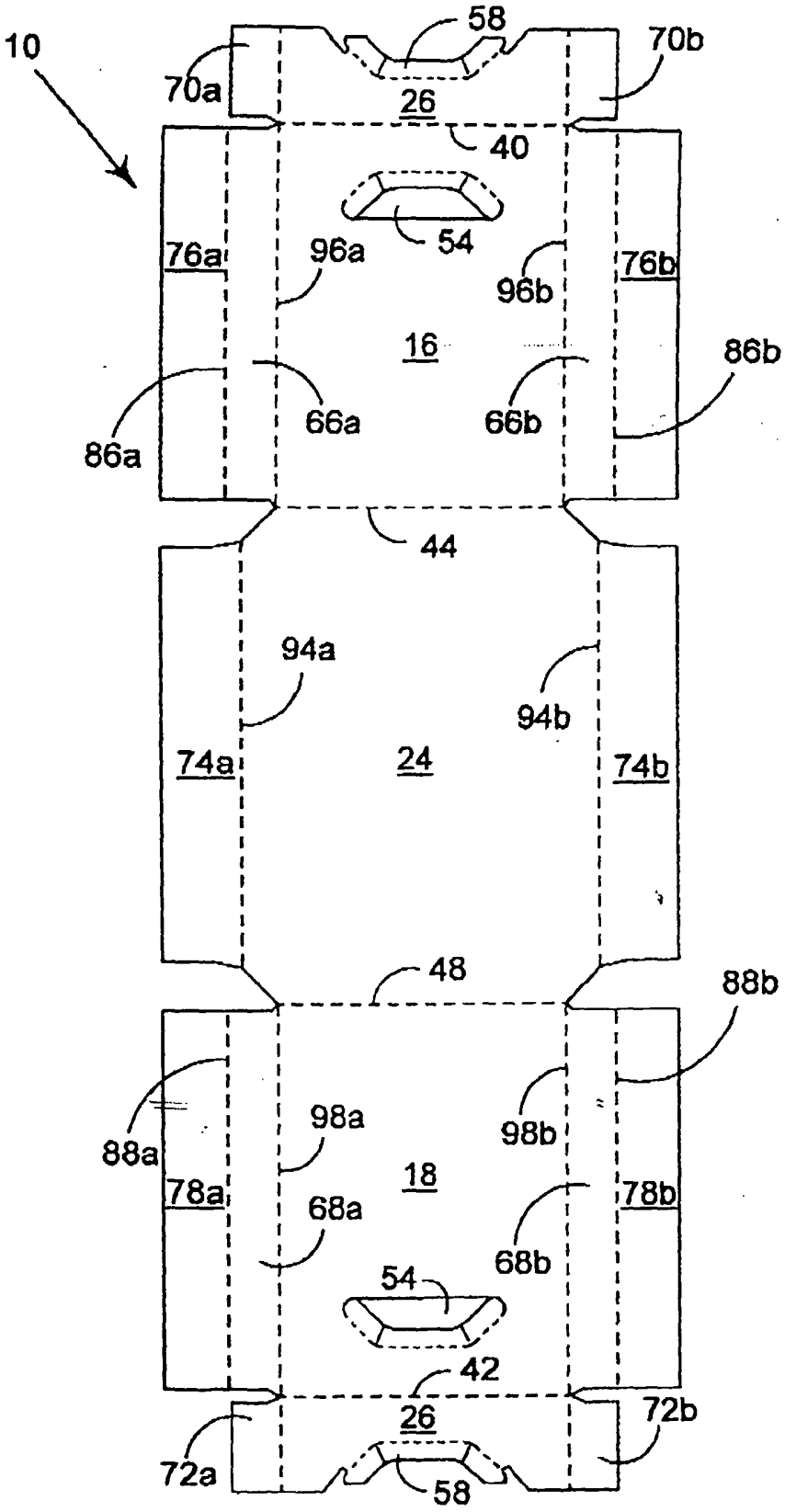

10
58
70a
70b
26
40
54
76a
96a
96b
76b
16
86b
66a
66b
86a
44
94a
94b
74a
24
74b
48
88b
88a
98a
98b
18
78a
68a
68b
78b
54
42
26
72b
72a
58

FIGURE 1A

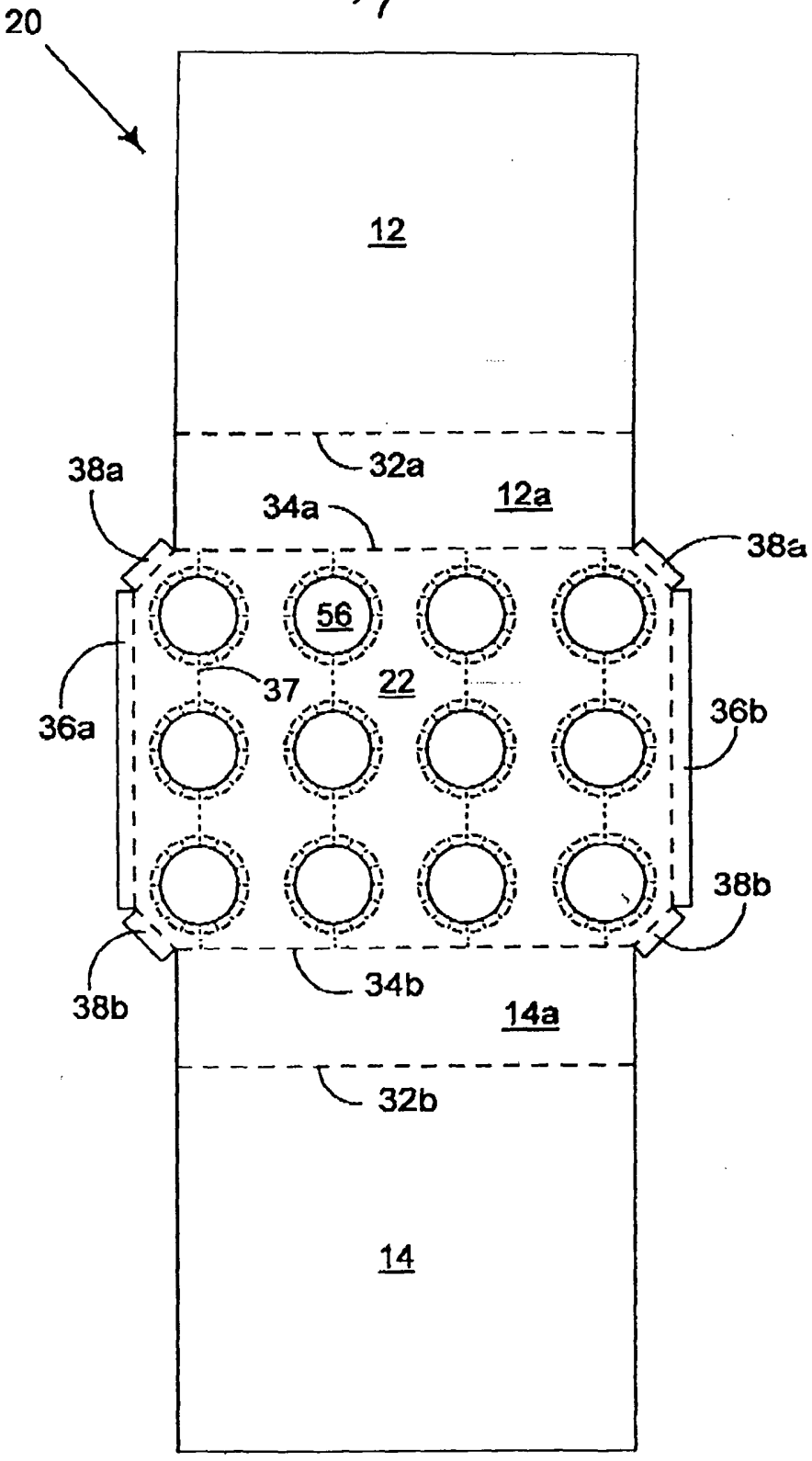


FIGURE 1B

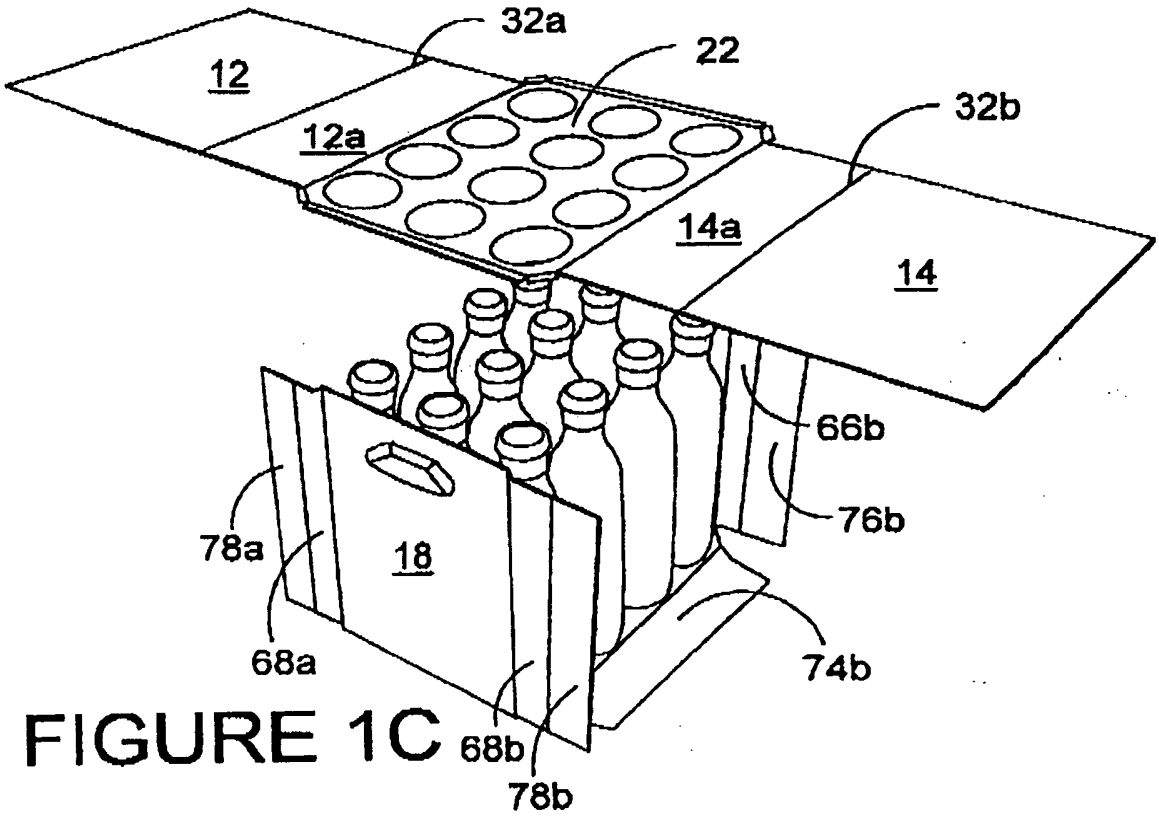


FIGURE 1C

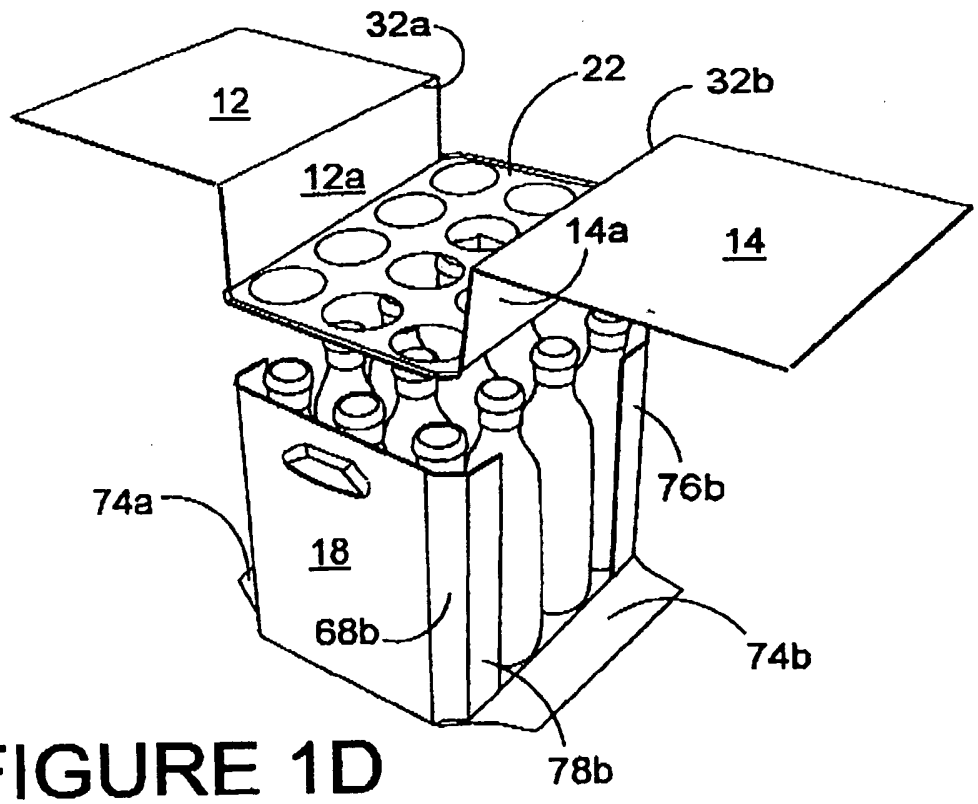


FIGURE 1D

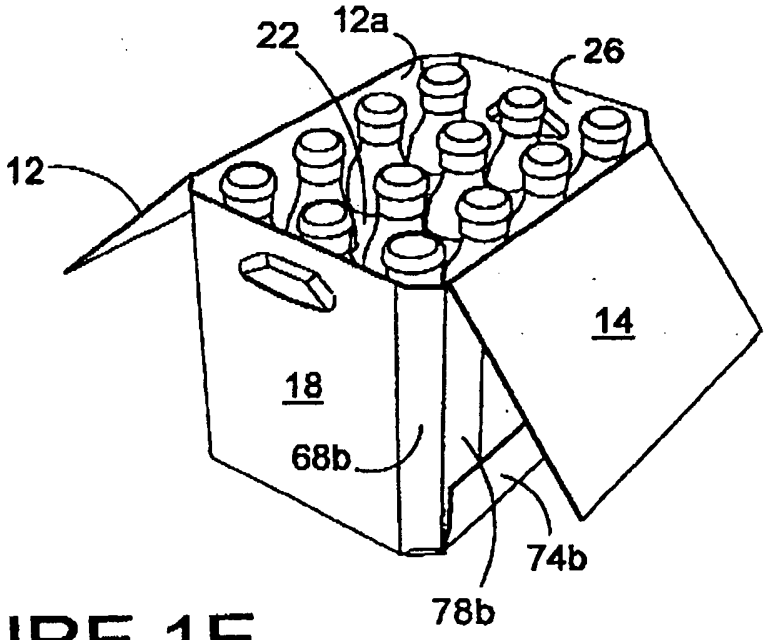


FIGURE 1E

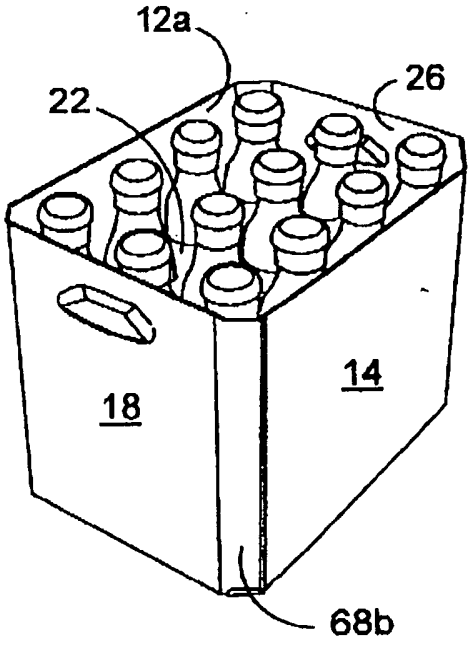


FIGURE 1F

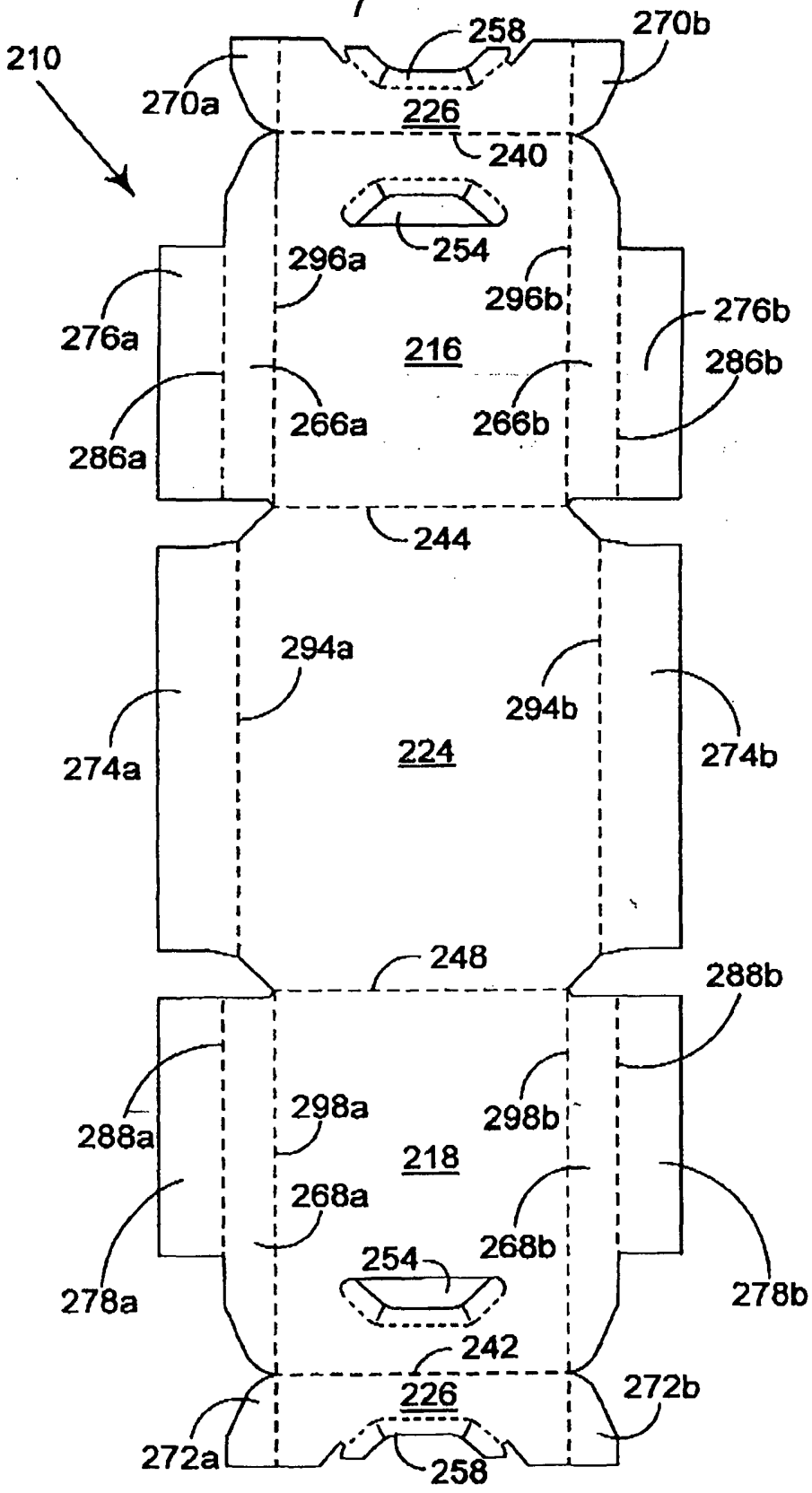

210
270a
258
270b
226
240
254
296a
296b
276a
276b
216
286b
266a
266b
286a
244
294a
294b
274a
224
274b
248
288b
288a
298a
298b
218
268a
268b
254
278a
278b
242
226
272b
272a
258

FIGURE 2A

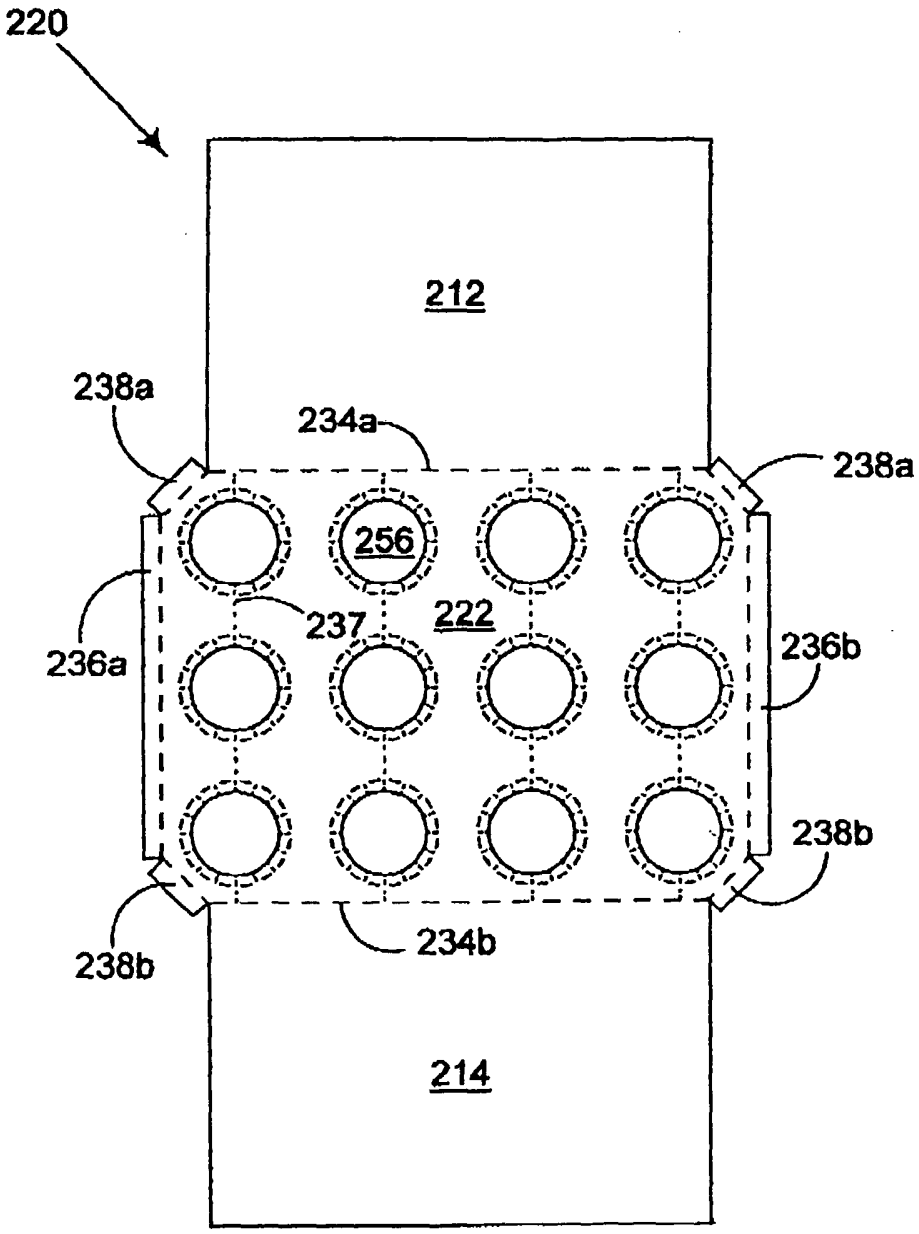

220
212
238a
234a
238a
256
237
222
236a
236b
238b
238b
234b
214

FIGURE 2B

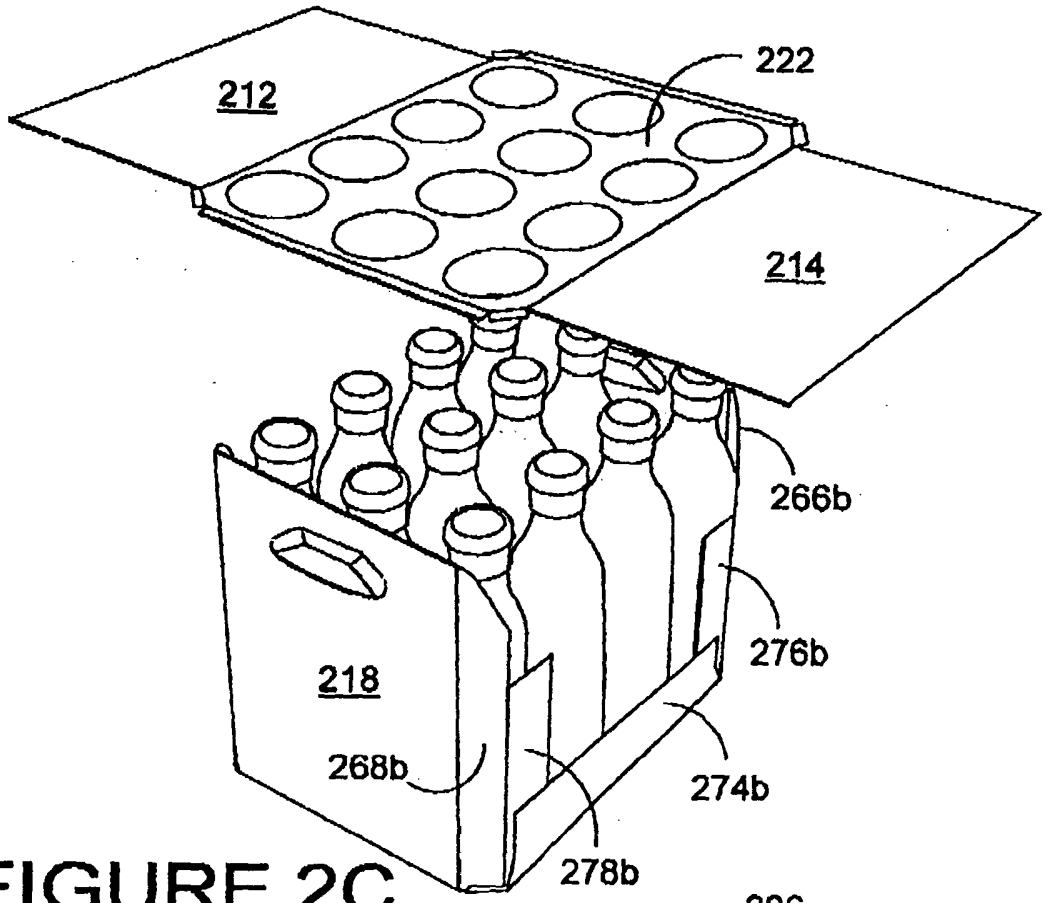


FIGURE 2C

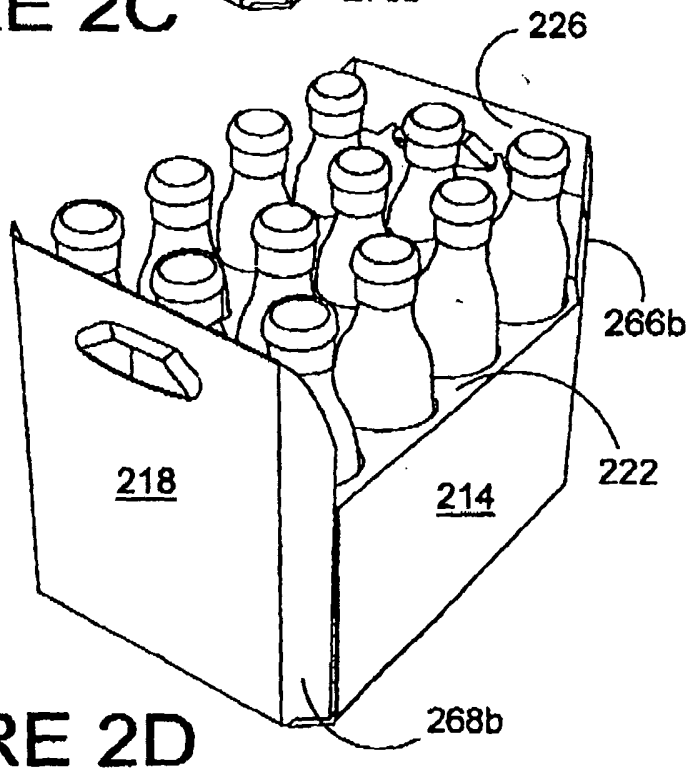


FIGURE 2D

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2005/012198

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D71/00

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)
IPC 7 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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	GB 2 171 672 A (THE MEAD CORPORATION) 3 September 1986 (1986-09-03) page 1, line 94 - page 2, line 19; figures 1-4	1,3,5,7, 8,11 2,4,6,9, 10
Y X	GB 406 511 A (KENNETH JAMES MARDON) 1 March 1934 (1934-03-01) page 2, line 51 - line 123; figures 1-5	2,9 12
Y	US 5 022 525 A (SCHUSTER ET AL) 11 June 1991 (1991-06-11) column 3, line 4 - column 5, line 23; figures 1-7	4,6,10
X A	US 2 899 051 A (BARNBY H A) 11 August 1959 (1959-08-11) column 1, line 66 - column 3, line 19; figures 1-7	1,7,11 3,4,8,10

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in 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 document 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	Date of mailing of the international search report
13 July 2005	27/07/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Grondin, D

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2005/012198

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 394 800 A (BRACKETT JOHN C ET AL) 30 July 1968 (1968-07-30)	1,7,11
A	column 2, line 24 - column 3, line 38; figures 1-6	4,10
X	WO 03/070580 A (MEADWESTVACO PACKAGING SYSTEMS LLC; BLIN, PATRICK) 28 August 2003 (2003-08-28)	12
A	figures 1-10	2,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US2005/012198

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
GB 2171672	A	03-09-1986	DE	8605398 U1	03-07-1986
GB 406511	A	01-03-1934	NONE		
US 5022525	A	11-06-1991	AT	123464 T	15-06-1995
			AU	657682 B2	23-03-1995
			AU	7773591 A	11-11-1991
			BR	9106368 A	27-04-1993
			CA	2080833 A1	26-10-1991
			DE	69110282 D1	13-07-1995
			DE	69110282 T2	19-10-1995
			DK	526586 T3	31-07-1995
			EP	0526586 A1	10-02-1993
			ES	2073179 T3	01-08-1995
			FI	924837 A	23-10-1992
			IE	911370 A1	06-11-1991
			JP	3004716 B2	31-01-2000
			JP	6508086 T	14-09-1994
			NO	924123 A ,B,	12-11-1992
			NZ	237839 A	27-06-1994
			WO	9116245 A1	31-10-1991
			ZA	9103137 A	25-03-1992
US 2899051	A	11-08-1959	NONE		
US 3394800	A	30-07-1968	NONE		
WO 03070580	A	28-08-2003	AU	2003216275 A1	09-09-2003
			CA	2476110 A1	28-08-2003
			EP	1474334 A1	10-11-2004
			WO	03070580 A1	28-08-2003