IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF FLORIDA
JACKSONVILLE DIVISION

GRAPHIC PACKAGING INTERNATIONAL, INC., a Delaware corporation,	)	
Plaintiff,	)	Civil Action No. 3:10-cv-0891-J-99TJC-JBT
vs.	)	
C.W. ZUMBIEL CO., an Ohio corporation,	)	
Defendant.	)	

COMPLAINT FOR PATENT INFRINGEMENT, DEMAND FOR JURY TRIAL AND INJUNCTIVE RELIEF SOUGHT

Plaintiff Graphic Packaging International, Inc. ("GPI") brings this action for patent infringement against C.W. Zumbiel Co. ("Zumbiel"), alleging as follows:

THE PARTIES

1.

Plaintiff GPI is a Delaware corporation, and has a regular and established place of business at 814 Livingston Court, Marietta, Georgia 30067.

2.

On information and belief, Zumbiel is an Ohio corporation with its principal place of business at 2339 Harris Avenue, Cincinnati, Ohio 45212.

3.

Zumbiel manufactures, offers to sell and/or sells and distributes the carton products accused of infringement herein.

JURISDICTION AND VENUE

4.

This is an action for patent infringement arising under the patent laws of the United States, including 35 U.S.C. § 271.

5.

This Court has subject matter jurisdiction over all causes of action set forth herein pursuant to 28 U.S.C. §§ 1331 and 1338(a) (1993) because this action arises under the patent laws of the United States, including 35 U.S.C. §§ 1 *et seq.*

6.

Venue is proper in this District and Division pursuant to 28 U.S.C. §§ 1391(b) and (c) (1993) and 1400(b).

7.

This Court has personal jurisdiction over Zumbiel, and venue is proper in this District and Division at least because Zumbiel has committed a tortious act within, and has established minimum contacts within, the forum. Specifically, upon information and belief, Zumbiel has sold and/or offered for sale products, herein accused of infringement, in the Jacksonville metropolitan area. Furthermore, the exercise of jurisdiction over Zumbiel would not offend traditional notions of fair play and substantial justice.

8.

This action concerns infringement of United States Patent No. 7,134,551 (the "'551 Patent") and of United States Patent No. 7,780,003 (the "'003 Patent").

9.

The '551Patent issued on November 14, 2006 from U.S. Patent Application Serial No. 11/139,827 ("the '827 Application"), filed on May

27, 2005, which is a continuation of U.S. Patent Application Serial No. 10/365,148, filed on February 12, 2003, now U.S. Patent No. 6,918,487 ("the '487 Patent").

10.

The '003 Patent issued on August 14, 2010 from U.S. Patent Application Serial No. 12/274,477, filed on November 20, 2008, which is a continuation of U.S. Patent Application Serial No. 11/558,717, filed on November 10, 2006, now U.S. Patent No. 7,467,713, which is a continuation of the '827 Application.

11.

Given the information recited in ¶¶ 9 and 10, above, both the '551 Patent and the '003 Patent issued from applications that were descendants of the application that issued as the '487 Patent.

12.

Zumbiel is the listed assignee of U.S. Patent Application Serial Number 10/680,364 ("the Zumbiel '364 Application"), which lists a filing date of October 7, 2003, and which is titled CARTON WITH DISPENSER. The '364 Application is currently pending in the U.S. Patent and Trademark

Office and is currently the subject of an appeal of a final rejection before the Board of Patent Appeals and Interferences. During prosecution of the Zumbiel '364 Application, an Examiner cited prior art references against the claimed invention. Among the references cited by the Examiner was the '487 Patent. Consequently, Zumbiel has actual knowledge of the '487 Patent. Given that actual knowledge, as well as the relationship between the '487 Patent and the '551 and '003 Patents, Zumbiel has, upon information and belief, been monitoring GPI's patent activities and has actual knowledge of the '551 and '003 Patents. Upon information and belief, Zumbiel also has actual knowledge of the '551 and '003 Patents because GPI provided notice of those patents to a Zumbiel customer, who indicated that it would inform Zumbiel of those patents.

COUNT I - INFRINGEMENT OF U.S. PATENT NO. 7,134,551

13.

GPI incorporates herein the allegations of paragraphs 1-12, above.

14.

On November 14, 2006, the '551 Patent was duly and legally issued to GPI and entitled "DISPENSING SYSTEM FOR DOUBLE STACK CARTON."

15.

GPI is the owner, by assignment, of all right, title and interest in the '551 Patent, and has the right to bring suit for patent infringement thereon. A copy of the '551 Patent is attached hereto as Exhibit "A."

16.

Zumbiel manufactures blanks (hereinafter referred to as "Zipper Pack Blanks"), some of which are formed into sleeves. Zumbiel sells such Zipper Pack Blanks, or the formed sleeves, to one or more customers. The Zipper Pack Blanks infringe one or more claims of the '551 Patent. Zumbiel has therefore directly infringed the '551 Patent by making, using, offering to sell and/or selling, the Zipper Pack Blanks within the United States, in violation of 35 U.S.C. § 271(a) (2001).

17.

Zumbiel's customers, within the United States, either form the Zipper Pack Blanks into sleeves, or take the formed sleeves, then fill the sleeves

with cans containing foodstuffs, such as beverages, and close the ends of the sleeves to form cartons (hereinafter referred to as "Zipper Pack Cartons"). Such customers then supply the Zipper Pack Cartons to consumers. The Zipper Pack Cartons infringe one or more claims of the '551 Patent, so Zumbiel's customers who make, use, sell, or offer for sale such cartons within the United States directly infringe the '551 Patent. The Zipper Pack Blanks are a material part of the invention of the '551 Patent and are not staple articles or commodities suitable for substantial noninfringing uses. Upon information and belief, Zumbiel knows that its Zipper Pack Blanks, as well as the resultant Zipper Pack Cartons, are especially adapted for use in an infringement of one or more claims of the '551 Patent. Consequently, Zumbiel's actions constitute contributory infringement of the '551 Patent, in violation of 35 U.S.C. § 271(c) (2001).

18.

Upon information and belief, Zumbiel is making unlawful gains and profits from its infringements of the '551 Patent.

19.

GPI has suffered damages by reason of Zumbiel's infringements of the '551 Patent for which GPI is entitled to relief under 35 U.S.C. § 284, and will suffer additional and irreparable damages unless Zumbiel is enjoined preliminarily and permanently by this Court from continuing its infringements.

20.

Zumbiel's acts of infringement have caused and continue to cause irreparable harm to GPI. GPI does not have an adequate remedy at law.

21.

Zumbiel's infringement of the '551 Patent has been willful, entitling GPI to an increase of the damages assessed against Zumbiel to three times the amount found or assessed pursuant to 35 U.S.C. § 284 (2001).

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 7,780,003

22.

GPI incorporates herein the allegations of paragraphs 1-12, above.

23.

On August 24, 2010, the '003 Patent was duly and legally issued to GPI and entitled "DISPENSING SYSTEM FOR DOUBLE STACK CARTON."

24.

GPI is the owner, by assignment, of all right, title and interest in the '003 Patent, and has the right to bring suit for patent infringement thereon. A copy of the '003 Patent is attached hereto as Exhibit "B."

25.

The Zipper Pack Blanks infringe one or more claims of the '003 Patent. Zumbiel's customers, within the United States, either form the Zipper Pack Blanks into sleeves, or take the formed sleeves, then fill the sleeves with cans containing foodstuffs, such as beverages, and close the ends of the sleeves to form Zipper Pack Cartons. Such customers then supply the Zipper Pack Cartons to consumers. Therefore, Zumbiel's customers who make, use, sell, or offer for sale such cartons within the United States directly infringe the '003 Patent. The Zipper Pack Blanks are a material part of the invention of the '003 Patent and are not staple articles

or commodities suitable for substantial noninfringing uses. Upon information and belief, Zumbiel knows that its Zipper Pack Blanks, as well as the resultant Zipper Pack Cartons, are especially adapted for use in an infringement of one or more claims of the '003 Patent. Consequently, Zumbiel's actions constitute contributory infringement of the '003 Patent, in violation of 35 U.S.C. § 271(c) (2001).

26.

Upon information and belief, Zumbiel is making unlawful gains and profits from its infringements of the '003 Patent.

27.

GPI has suffered damages by reason of Zumbiel's infringements of the '003 Patent for which GPI is entitled to relief under 35 U.S.C. § 284, and will suffer additional and irreparable damages unless Zumbiel is enjoined preliminarily and permanently by this Court from continuing its infringements.

28.

Zumbiel's acts of infringement have caused and continue to cause irreparable harm to GPI. GPI does not have an adequate remedy at law.

29.

Zumbiel's infringement of the '003 Patent has been willful, entitling GPI to an increase of the damages assessed against Zumbiel to three times the amount found or assessed pursuant to 35 U.S.C. § 284 (2001).

PRAYER FOR RELIEF

WHEREFORE, GPI prays:

(a) that Zumbiel be declared to have infringed one or more claims of the '551 and '003 Patents;

(b) that the Court issue a preliminary and permanent injunction pursuant to 35 U.S.C. § 283 (2001) against the continuing infringements of the claims of the '551 and '003 Patents by Zumbiel, its officers, agents, employees, attorneys, representatives, and all others acting in concert therewith;

(c) that the Court order an accounting for all monies received by or on behalf of Zumbiel and all damages sustained by GPI as a result of Zumbiel's infringements, that such monies and damages be awarded to GPI, and that interest and costs be assessed against Zumbiel pursuant to 35 U.S.C. § 284 (2001);

(d) that the Court increase the damages assessed against Zumbiel to three times the amount found or assessed pursuant to 35 U.S.C. § 284 (2001) as a result of Zumbiel's willful infringements as alleged herein;

(e) that the Court declare this an exceptional case and order that Zumbiel pay to GPI its reasonable attorneys' fees and costs, pursuant to 35 U.S.C. § 285 (2001); and

(f) that the Court award such further and other relief to GPI as the Court deems just, together with its costs and disbursements in this action.

DEMAND FOR A JURY TRIAL

Pursuant to Fed.R.Civ.P. 38, GPI hereby demands trial by jury as to all issues so triable in this action.

Respectfully submitted, this 29th day of September, 2010.

Timothy J. McDermott, Esquire
Trial Counsel
Florida Bar No. 0747531
Email: timothy.mcdermott@akerman.com
Ryan R. Fuller
Florida Bar No. 635324
Email: ryan.fuller@akerman.com
AKERMAN SENTERFITT LLP
530 N. Laura Street, Suite 2500
Jacksonville, FL 32202
Phone: (904) 798-3700
Fax: (904) 798-3730

-AND-

WOMBLE CARLYLE SANDRIDGE & RICE, PLLC
(Co-Counsel)

Kirk W. Watkins
Email: kwatkins@wcsr.com
Michael A. Cicero
Email: mcicero@wcsr.com
271 17th Street, Suite 2400
Atlanta, Georgia 30363
Telephone: (404) 872-7000
Facsimile: (404) 870-8178

ATTORNEYS FOR PLAINTIFF,
GRAPHIC PACKAGING
INTERNATIONAL, INC.

US007134551B2

(12) **United States Patent**
Harrelson

(10) **Patent No.: US 7,134,551 B2**
(45) **Date of Patent: *Nov. 14, 2006**

(54) **DISPENSING SYSTEM FOR DOUBLE STACK CARTON**

(75) Inventor: **Glen R. Harrelson**, Gainesville, GA (US)

(73) Assignee: **Graphic Packaging International, Inc.**, Marietta, GA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/139,827**

(22) Filed: **May 27, 2005**

(65) **Prior Publication Data**

US 2005/0218203 A1 Oct. 6, 2005

Related U.S. Application Data

(63) Continuation of application No. 10/365,148, filed on Feb. 12, 2003, now Pat. No. 6,918,487.

(51) **Int. Cl.**
B65D 75/00 (2006.01)
B65D 17/00 (2006.01)
A47F 1/04 (2006.01)

(52) **U.S. Cl.** **206/427**; 221/305; 229/122; 229/242

(58) **Field of Classification Search** 206/427, 206/429–430; 221/303, 305–309; 229/240–242
See application file for complete search history.

(56) **References Cited**

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Primary Examiner—Bryon P. Gehman
(74) *Attorney, Agent, or Firm*—Womble Carlyle Sandridge & Rice, PLLC

(57) **ABSTRACT**

The carton of this invention is capable of carrying the plurality of containers stacked upon their ends in two tiers with a unique dispenser that permits the dispensing of containers on their sides. The dispenser is formed in a top side wall and extends into the end wall with most of the end wall being torn open but leaving a portion near the bottom side wall to prevent the bottom layer of containers from rolling out. Angled projections in the dispensing end of the carton near the top panel and bottom panel prevent the top layer of containers from rolling out. A divider may be inserted between the two tiers of containers to facilitate loading the carton and preventing the containers from accidentally rolling out when the dispenser is open.

60 Claims, 4 Drawing Sheets

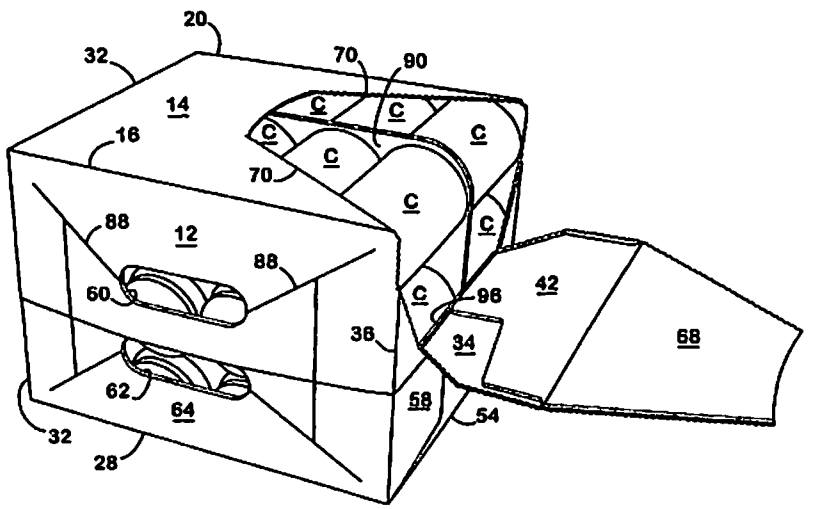

EXHIBIT "A"

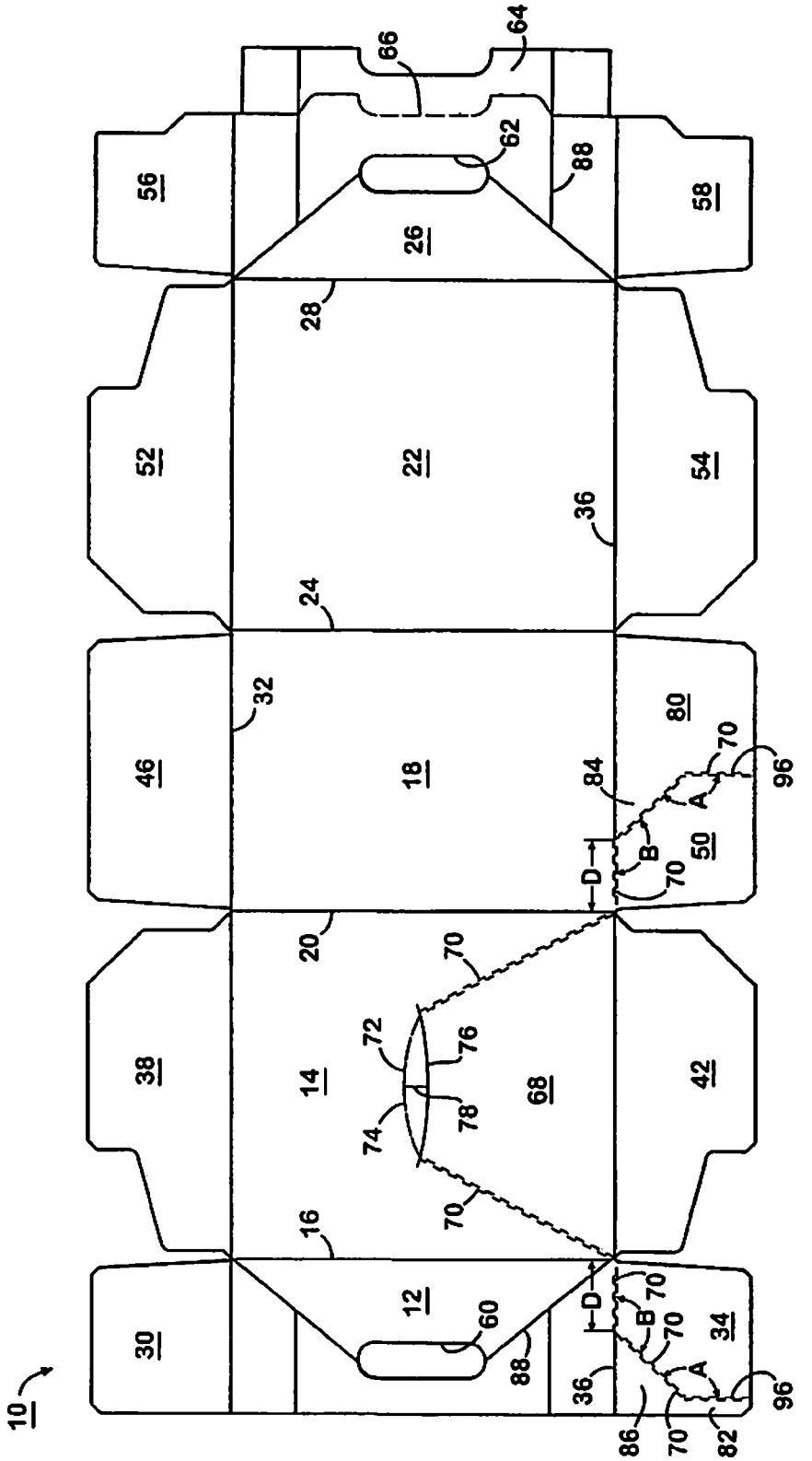
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FIG 1

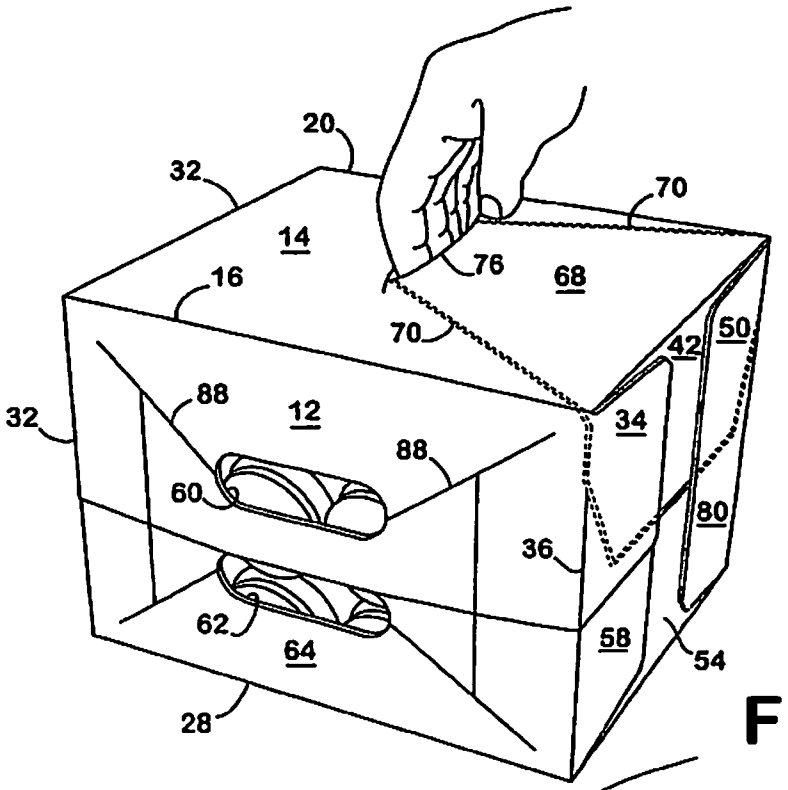
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FIG 2

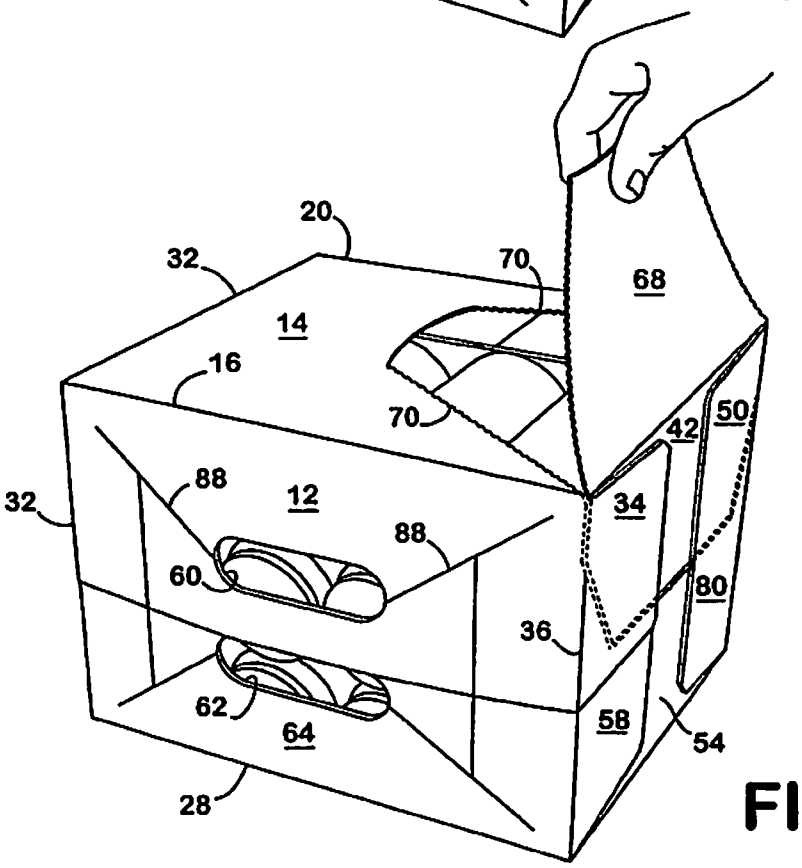
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FIG 3

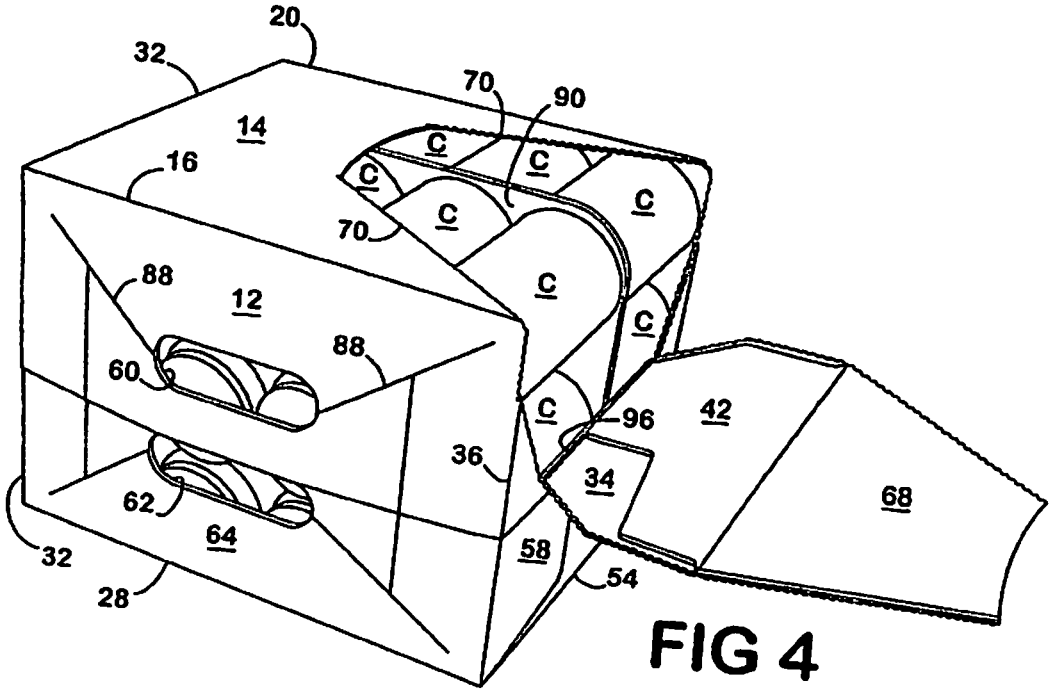
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FIG 4

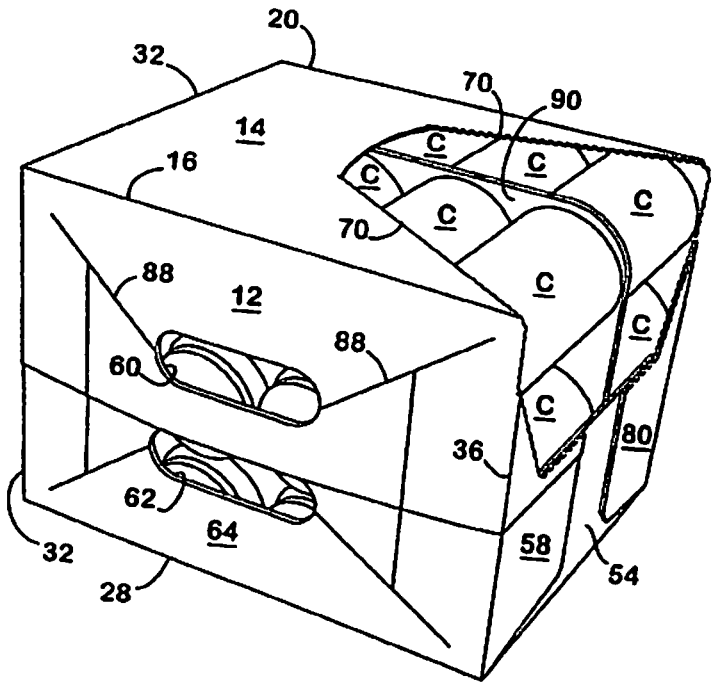
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FIG 5

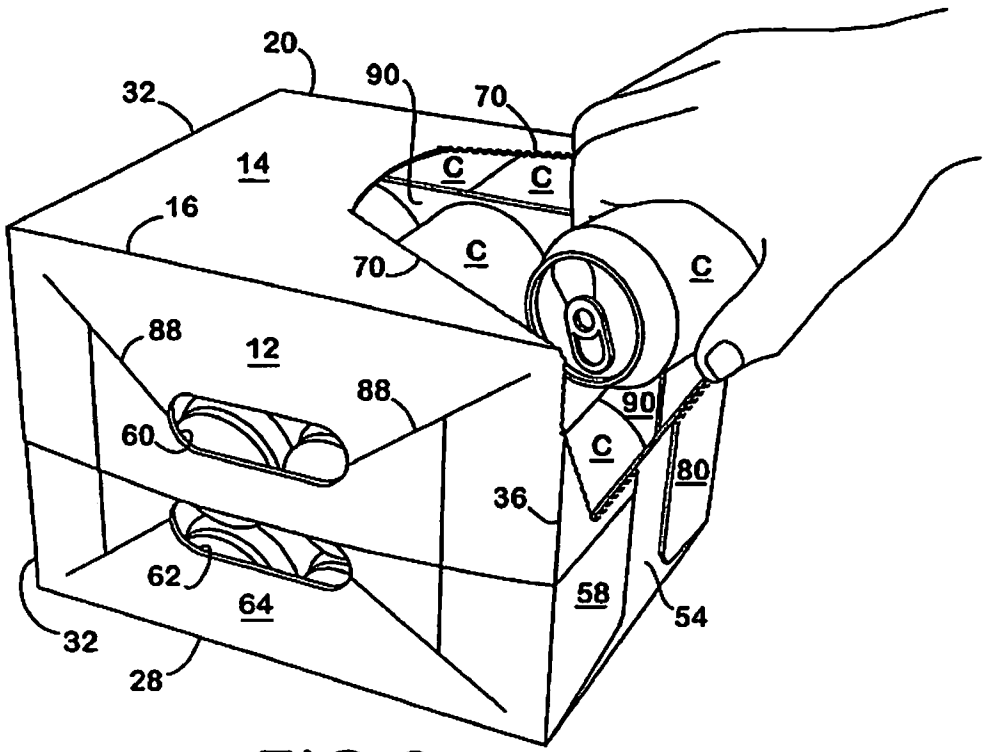
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FIG 6

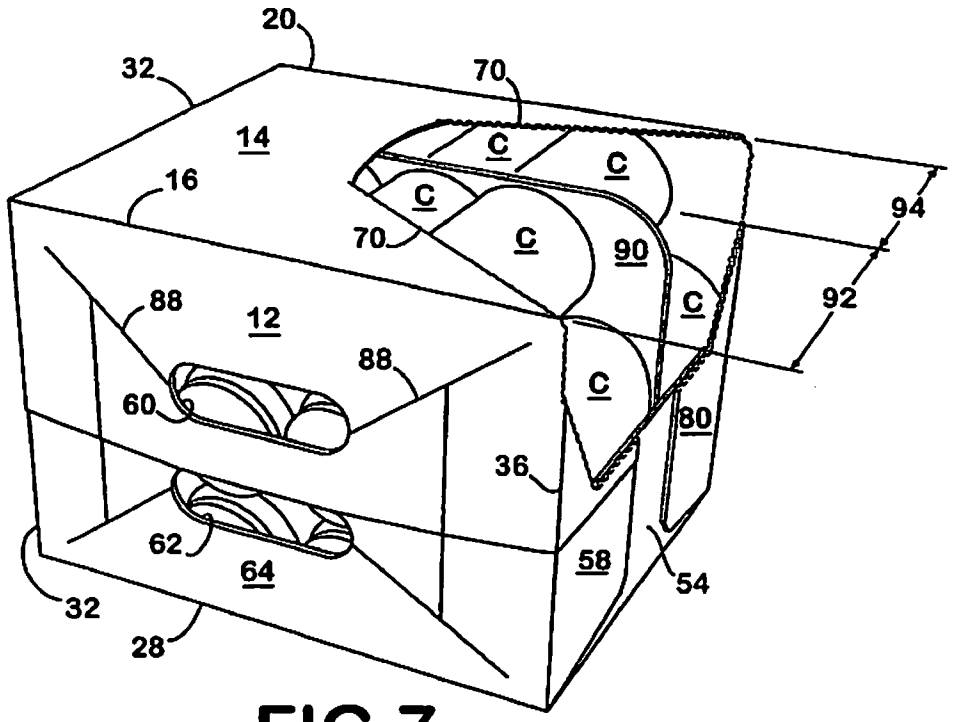
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FIG 7

DISPENSING SYSTEM FOR DOUBLE STACK CARTON

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 10/365,148, filed Feb. 12, 2003, now U.S. Pat. No. 6,918,487, which is hereby incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to an enclosed paperboard carton capable of enclosing containers in two tiers, which carton has a unique opening and dispensing feature that allows the containers, for example, cans, to be removed or dispensed one container per tier at a time without destroying the overall structural integrity of the carton. The unique opening and dispensing feature can be incorporated in cartons containing a plurality of layers of containers stacked on end and still limit the dispensing to one container per tier at a time.

2. Background

Fully enclosed cartons capable of enclosing cans have been used in the past that have a feature for dispensing the cans one at a time. Dispensers have been provided at various locations on these cartons depending on the design.

Cartons have been introduced into the marketplace that can carry 24 or more containers, for example cans, in two stacks or tiers. So far no satisfactory dispenser has been developed for dispensing the layers of cans in these two stack cartons one at a time from each stack or tier. Consequently, when these cartons are opened they tend to let a number of the cans roll out which has not allowed these twin stack cartons to achieve their full potential.

3. Prior Art

U.S. Pat. No. 3,265,283 to Farquhar discloses a fully enclosed carton having a dispenser for dispensing the enclosed cans. The end wall of the carton has a dispensing flap which can be folded down upon opening. An aperture formed by the flap extends into the side walls to permit grasping of the can to withdraw it from the carton. When the flap is opened, the cans are held in the carton by an arcuate flap portion extending downwardly in the end wall into the center of the aperture. The structural integrity of this carton is compromised because the entire bottom end of the carton is opened. It will be realized that the design of this dispenser is not satisfactory for dispensing containers, for example cans, that are stacked in twin stacks in a carton.

U.S. Pat. No. 4,364,509 to Holly, Jr. et al. also discloses a fully enclosed carton with a dispenser in one of the end walls. This dispenser is likewise formed in the end wall by tearing out an end flap and lowering it into proper position. Expansion slits are provided in the side wall for the user's fingers to grasp the ends of the existing can. The dispenser of this carton is not satisfactory for use in a twin stack carton for carrying containers.

SUMMARY OF THE INVENTION

It is an object of this invention to develop a dispenser for dispensing containers, for example cans, one at a time from a carton containing containers in two stacks or tiers. It is the further object of this invention to develop a dispenser that can be easily opened. A further object of this invention is to develop a dispenser that can be used for containers stacked in a 3 by 4 configuration in each stack to be dispensed one at a time from each stack without the containers rolling out accidentally. A final object of this invention is to develop a dispenser for a twin stack carton that does not destroy the structural integrity of the carton when it is opened.

Briefly described, in its preferred form, the objects of this invention are achieved by providing an enclosed carton for carrying containers in two tiers for dispensing the containers one at a time from each tier from the exiting end of the carton. The carton is generally rectangular and has a bottom, top, two sides, a closed end and exiting end. The carton is foldably constructed from a blank having panels and flaps. The carton is designed to carry containers, e.g. cans, that are stacked on their ends in two tiers from the bottom panel to the top panel. The dispenser is constructed by providing tear lines in one of the side panels that extend into the exiting end of the carton which is rested on the other side panel, with the dispenser being capable of dispensing the containers as they are resting on their sides. A tear line is provided in the end of the carton placed from the side upon which the carton rests while dispensing containers at a sufficient distance to prevent any of the containers below the top layer of containers from rolling out of the carton when the dispenser is open. A pair of tear lines extend from this bottom tear line from each end at an angle from the bottom tear line to the top side panel in which part of the dispenser is formed. The angle and distance of the projection is such as to restrain the top layer of cans in each tier from accidentally rolling out. The dispenser is constructed with a large enough opening in the top side panel in which it is formed to permit a person to grasp and remove a container in each tier one at a time.

This carton can be designed with a dispenser dispensing containers in a 3 by 4 configuration in each tier. The bottom tear line is located so as to prevent the bottom layers of containers from rolling out of the carton. A pair of tear lines extending from the ends of the bottom tear line are placed at an angle designed to restrain containers in the top layer from rolling out of the carton.

Because a carton for carrying 24 containers is placed under a great deal of stress, the top panel can be constructed from two handle flaps having a reinforcing strip attached to the inside handle flap folded over against the inside of the carton between the two oval handle apertures carrying the carton.

To facilitate holding the containers and dispensing them one at a time a divider may be provided between each tier of containers.

To facilitate opening the carton dispenser, a pull tab can be provided in the side panel where part of the dispenser is located, with the pull tab being loosely attached to the panel, but tightly attached to the dispenser for opening the dispenser.

Preferably the exiting end of the carton has four flaps for closing this end. An end flap attached to the side of the carton on which it is resting while the containers are being dispensed is generally not removed and serves to restrain one or more of the bottom layers of containers from rolling out of the carton. Preferably the tear lines in the end flaps attached to the top panel, and bottom panel are constructed so that a portion of each of these flaps is not removed and are glued to the flap attached to the side panel on which the carton rests during dispensing to preserve the integrity of the carton.

Other objects, features and advantages of this invention will become apparent upon reading the following specification, when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the blank of the preferred embodiment of this invention from which a carton is formed.

FIG. 2 is a perspective top view of the carton of the preferred embodiment loaded with two tiers of cans in a 3 by 4 configuration in each tier with a person starting to open the dispenser.

FIG. 3 is a perspective top view of the carton with a dispenser pulled part way open.

FIG. 4 is a perspective end view of the carton with cans in each tier in a 3 by 4 configuration with the dispenser being opened except for the bottom tear line.

FIG. 5 is perspective end view of the carton loaded with two tiers of cans in a 3 by 4 configuration with the dispenser completely removed but all the cans being contained in the carton.

FIG. 6 is a perspective end of the carton of FIG. 5 showing a person removing a can from the top tier of cans.

FIG. 7 is a perspective end view of the carton of FIG. 6 showing that a can has been removed from the top tier and from the bottom tier of cans.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is intended primarily for use with cans of the types used to contain soft drinks, beer and the like. The blank **10** is formed from a foldable sheet of material, such a paperboard. The blank **10** has an outside handle flap **12** which is attached to the top side panel **14** by fold line **16** which in turn is attached to bottom panel **18** by fold line **20**, which in turn is attached to bottom side panel **22** by fold line **24**. Bottom side panel **22** is foldably attached to inside handle flap **26** by fold line **28**. The carton is supplied with a number of end flaps for closing the ends of the carton. The outside handle flap **12** is attached to outside top end flap **30** by fold line **32** and outside handle flap **12** is attached to outside top end flap **34** by fold line **36**. Top side flap **38** is attached to top side panel **14** by fold line **32**. Top side panel **14** is attached to top side flap **42** by fold line **36**. Bottom panel **18** is attached to bottom end flap **46** by fold line **32** and to bottom end flap **50** by fold line **36**. Bottom side panel **22** is attached to bottom side flap **52** by fold line **32** and to bottom side flap **54** by fold line **36**. Inside handle flap **26** is attached to inside top end flap **56** by fold line **32** and to the inside top end flap **58** by fold line **36**.

This carton has a pair of race track handles **60** and **62** formed in outside handle flap **12** and inside handle flap **26** respectively. Because this carton is designed to carry 24 containers, such as cans, it is provided with a handle reinforcing flap **64** attached to inside handle flap **26** by fold line **66**.

A dispensing flap **68** is partially formed in top side panel **14** by tear line **70**. To facilitate opening this dispenser, a pull tab **72** is provided to facilitate opening the dispensing flap **68**. The pull tab **72** is loosely attached to top side panel **14**. Pull tab **72** has a slit **74** between it and top side panel **14** to ease pulling of the pull tab from the plane of top side panel **14**. Pull tab **72** is attached to dispensing flap **68** by fold line **76**. A slit **78** may be provided in the middle of pull tab **72** to ease its removal from top side panel **14**.

It will be understood by those skilled in the art that the carton of the present invention is generally symmetrical about a horizontal line of bisection, as viewed when FIG. **1** is rotated lengthwise. This symmetry aids in the efficient production of the present carton.

In forming this blank **10** into a carton, the handle reinforcing flap **64** is folded along fold line **66** and glued to the inside handle flap **26**. The blank **10** is then folded so that outside handle flap **12** is glued to inside handle flap **26** so that the two oval handles **60** and **62** are parallel to each other. These steps result in forming a carton sleeve in which cans can be loaded in the bottling plant. The cans can be placed in two tiers of a 3 by 4 configuration. This is best illustrated in FIG. **7** which shows the top tier **92** located near the top of the carton and the bottom tier **94** located near the bottom of the carton. In order to maintain the two tiers of cans in proper alignment during loading and when dispensed to the consumer, a divider **90** may be necessary. The divider **90** can be made out of a single sheet of paperboard.

After the two tiers of cans have been loaded into the carton various end flaps on both ends are closed and glued. To use the end of the carton where the dispenser is located as an example, the top side flap **42** is folded inwardly, bottom side flap **54** is folded inwardly, bottom end flap **50** is folded in an overlapping position, and glued to top side flap **42** and bottom side flap **54**. Outside top end flap **34** and inside top end flap **58** are glued together to form a single top end flap which is likewise glued to top side flap **42** and bottom side flap **54**. The other end of the carton is closed in the same manner.

When the dispenser is opened, dispensing flap **68**, which includes top side flap **42**, is removed from the carton along with a portion of outside end flap **34** and bottom end flap **50** along tear line **70**. In order to preserve the structural integrity of the carton after the dispenser has been opened, it is important that end retention panel **82** be glued to inside top end flap **58** which in turn is glued to bottom side flap **54**. Otherwise, the end retention projection **86** will not be firmly attached to carton. It is likewise important that end retention panel **80** be glued to bottom side flap **54** in order to ensure that end retention projection **84** is firmly attached to the carton after the dispenser is opened.

It should be realized that dispensers could be placed on both ends of the carton, but preferably it is only placed on one end. Cans can be removed from the exiting end of the carton after tear line **70** has been torn. The pair of tear lines **70** converge towards each other towards pull tab **72**. Tear line **70** extends along fold line **36** between bottom end flap **50** and bottom panel **18** for a distance D and turns at an angle B and turns again at angle A to form a portion of bottom tear line **96**. On the other side of top side panel **14**, tear line **70** extends to fold line **36** and extends along that line and turns into the interior of outside top end flap **34** at angle B until it turns to form bottom line **96** at angle A.

The consumer can open dispensing flap **68** by inserting his or her fingers into pull tab **72** which is an easy maneuver because of slit **74**. In place of slit **74**, a tear line that is loosely attached to top side panel **14** may be substituted in lieu of the slit. Insertion of the fingers into the aperture formed by depressing pull tab **72** is illustrated in FIG. **2**. It will be noticed that the carton has been turned 90° so that it rests on bottom side panel **22**. Outside handle flap **12** and inside handle flap **26** form the top panel. The consumer precedes to pull pull tab **72** upward which is connected by fold line **76** to dispensing flap **68** which is pulled up as illustrated in FIG. **3**. Continued tearing open of the dispenser is illustrated in FIG. **4**. The dispenser is opened along tear

line 70 which extends on both sides so that the dispensing flap 68 is torn open along fold line 36 and into the interior of outside top end flap 34 and bottom end flap 50 as illustrated in FIG. 4. The tearing continues down to the point where tear line 70 forms bottom tear line 96 which has not yet been torn as shown in FIG. 4. FIG. 5 illustrates a complete removal of the dispenser by tearing along bottom tear line 96. Even though the entire dispenser has been removed in FIG. 5, the cans are retained in the carton even though the cans are lying on their sides. The bottom two layers of cans in the 3 by 4 configuration are prevented from rolling out of the carton by bottom side flap 54 to which end retention panels 80 and 82 are glued. It will be noticed that bottom side flap 54 only extends part way up the diameter of the cans in the second layer of the two tiers. The top layer of cans in the two tiers is prevented from rolling out by end retention projections 84 and 86. Tear line 70 only extends along fold line 36 a distance D which is slightly less than the diameter of the top layer of cans being contained. This is sufficient to prevent the top layer of cans from rolling out of the carton but yet not prevent an obstacle to their easy removal by the consumer. Tear line 70 turns at an angle B and then turns again at angle A to form the bottom tear line 96 on both outside top end flap 34 and bottom end flap 50. It will be realized that end retention projections 84 and 86 are helpful in retaining the top layer of cans in the carton. The extent of this help depends upon the location of the bottom tear line 96 in relation to the layers of cans C.

FIG. 6 illustrates a consumer removing a can from the top tier 92 of cans C. It will be noticed that the consumer moves a can by twisting it slightly along its longitudinal axis and removing the bottom end of the can C first as it easily slides along the divider 90. It is necessary to remove the can in this way as the top of the can is retained in position by end retention projection 86. The end retention projections 84 and 86 are important as it is desirable that the cans in the top layer not roll out when the dispenser is open. The divider 90 and end retention projections 84 and 86 are designed to ensure that the top layer of cans adjacent the dispenser not roll out accidentally. FIG. 7 illustrates a carton with cans from each tier having been removed with the remaining cans held in place.

Because the blank 10 is designed to carry 24 cans in two tiers, it will be appreciated that the carton is heavy when loaded with cans. It is preferred that the top panel be composed of an outside handle flap 12 and an inside handle flap 26 and handle reinforcing flap 64 be utilized. In addition, stress lines 88 that are designed to dissipate the stress posed by lifting the carton handle 60 and 62 can be utilized. It should be realized that the carton sleeves can be glued together at other locations but is preferred to be glued at the top panel.

It will be noticed that the tear lines 70 in top side panel 14 converge towards each other and extend away from fold line 36 to provide a large enough opening when dispensing flap 68 is removed to permit a person to grasp cans in the top layer in each tier near the exiting end of the carton.

A carton for carrying cans is preferred since these containers have ends that are of the same diameter as the body of the container.

UNIQUE FEATURES OF THE DISPENSER OF THIS INVENTION

One of the unique features of the dispenser of this invention is that is permits the easy dispensing of containers that are stacked in two tiers. The carton is unique in that it carries the containers in their upright position, but dispenses them when the containers are on their side. Placement of the bottom tear line in the dispenser will restrain all but the top layer of containers from rolling out. An angled projection on each side of the dispenser can be utilized to prevent the top layer of containers from rolling out. The provision of a divider is important in maintaining the configuration of the containers into two tiers during loading and dispensing.

While the invention has been disclosed in its preferred forms, it will be apparent to those skilled in the art that many modifications, additions, and deletions can be made therein without departing from the spirit and scope of the invention and its equivalents as set forth in the following claims.

Therefore, having thus described the invention, at least the following is claimed:

1. An enclosed carton containing a plurality of cylindrical containers arranged in stacked layers from a topmost layer to a bottommost layer, including a first layer and a second layer thereabove, the containers in each layer lying on their sides with the containers in the first layer contacting the containers in the second layer along a substantially horizontal plane, the carton comprising:

a first panel adjacent and above the topmost layer and a second panel adjacent and below the bottommost layer, a third panel joining one edge of the first panel to one edge of the second panel, a fourth panel joining an other edge of the first panel to an other edge of the second panel, and two closed ends, at least one of the two closed ends being an exiting end, each closed end extending from the first panel to the second panel and from the third panel to the fourth panel;

a continuous tear line defining a removable portion that is removable from the carton to form an opening;

the opening comprising (1) a first area that includes a part of the first panel extending away from its intersection with the at least one exiting end, and (2) a second area that includes a part of the at least one exiting end extending downwardly from its intersection with the first panel;

the second area having a bottom edge which extends across the at least one exiting end below the first panel and between the third panel and the fourth panel, and comprises (1) at least one first portion positioned at a first level, the first level being lower than the substantially horizontal plane; and (2) at least one second portion that extends from a second level, the second level being below the intersection of the at least one exiting end and the first panel and higher than the substantially horizontal plane, the at least one second portion extending from said second level to the at least one first portion of the bottom edge.

2. The carton of claim 1, where the at least one first portion of the bottom edge is substantially equidistant between the third panel and the fourth panel.

3. The carton of claim 1, wherein the at least one second portion of the bottom edge extends from the intersection of the at least one exiting end and one of the third and fourth panels.

4. The carton of claim 1, wherein the bottom edge includes two second portions, each of which extends from the second level to the first portion of the bottom edge.

5. The carton of claim 1, wherein the bottom edge of the opening extends from the intersection of the at least one exiting end and the third panel at the second level to the first level, then from the first level to the intersection of the at least one exiting end and the fourth panel at the second level.

6. The carton of claim 1, wherein the bottom edge prevents the containers in the second layer from rolling out of the carton when the removable portion is removed.

7. The carton of claim 1, wherein the bottom edge prevents the containers in the first layer from rolling out of the carton when the removable portion is removed.

8. The carton of claim 1, wherein the at least one first and second portions of the bottom edge prevent the containers in the first and second layers from rolling out of the carton when the removable portion is removed.

9. The carton of claim 1, including means for facilitating opening of the opening located on the first panel.

10. The carton of claim 1, wherein there are three layers of containers.

11. The carton of claim 10, wherein the containers are stacked in a 3-by-4 configuration.

12. The carton of claim 1, wherein the containers in the second layer are removable through the opening.

13. The carton of claim 1, wherein the containers are oriented with their longitudinal axes parallel to the at least one exiting end.

14. An enclosed carton containing a plurality of cylindrical containers having a diameter and arranged on their sides in stacked horizontal layers, including a first layer and a second layer above and adjacent the first layer, the carton comprising:

a first upper horizontal panel, a second lower horizontal panel, and third and fourth vertical side panels, the first, second, third and fourth panels being joined at their edges, the carton having two closed ends, at least one of which is an exiting end;

a tear line defining a removable portion that is removable from the carton to form an opening;

the removable portion including a section of the first panel adjacent the at least one exiting end, and a section of the at least one exiting end adjacent the first panel;

the section of the at least one exiting end including an upper portion and a lower portion;

the lower portion having a width that is less than the width of the at least one exiting end, the lower portion extending upwardly to the upper portion from a first level which is part way up the diameter of the containers in the first layer;

the upper portion extending from one side of the at least one exiting end to the other;

wherein the upper portion meets the lower portion at a second level that is above the diameter of the containers in the first layer and below the top of the containers in the second layer.

15. The carton of claim 14, wherein the distance of the second level from the top of the upper portion is slightly less than the distance of the bottom of the containers in the second layer from the top of the upper portion.

16. The carton of claim 14, wherein the second level is so located that when the removable portion is removed, the second layer of containers will be prevented from rolling out of the carton.

17. The carton of claim 14, wherein the lower portion is so configured that when the removable portion is removed, the first and second layers of containers will be prevented from rolling out of the carton.

18. The carton of claim 14, wherein the width of the lower portion increases as it extends upwardly to said upper portion.

19. The carton of claim 14, including means for facilitating removal of the removable portion on the first panel.

20. The carton of claim 14, including three layers of containers.

21. The carton of claim 20, wherein the containers are stacked in a 3-by-4 configuration.

22. The carton of claim 14, wherein the containers are oriented with their longitudinal axes parallel to the at least one exiting end.

23. A carton enclosing a plurality of cylindrical articles arranged on their sides in rows and columns, a first column being adjacent a first end of the carton, a top row cylindrical article being in a top row, being in the first column, and having a diameter, the carton comprising:

a top panel, two side panels, and a bottom panel;

at least one flap forming the first end of the carton and at least one flap forming a second end of the carton;

the first end comprising a detachable portion and a retainer portion;

the detachable portion removes an upper portion of the first end that is less than the diameter of the top row cylindrical article; and

the retainer portion retains the top row cylindrical article in the carton after the detachable portion is removed.

24. The carton of claim 23, wherein an upper portion of the top row cylindrical article is adjacent the top panel of the carton, and wherein the upper portion of the top row cylindrical article is exposed when the detachable portion is removed from the carton.

25. The carton of claim 23, wherein the retainer portion extends obliquely toward a lower portion of the first end.

26. The carton of claim 23, wherein the detachable portion extends obliquely downward from a side panel to a parallel portion parallel to the bottom panel.

27. The carton of claim 26, wherein the parallel portion is disposed lower than the retainer portion that retains the top row cylindrical article.

28. The carton of claim 26, wherein removal of the detachable portion creates an opening in the first end to allow removal of a cylindrical article in a row below the top row after the top row cylindrical article has been removed from the carton.

29. The carton of claim 23, wherein the structural integrity of the carton is maintained after removal of the detachable portion.

30. The carton of claim 23, wherein a finger flap assists removal of the detachable portion.

31. The carton of claim 30, wherein the finger flap is disposed in the top panel.

32. The carton of claim 23, wherein the detachable portion is formed by a substantially continuous tear line that extends in the first end below the top panel a first distance and extends at a first angle and at a second angle on either side of a parallel portion parallel to the bottom panel.

33. A package comprising a plurality of cylindrical articles disposed on their sides in rows and columns, a first column being adjacent a first end of the package, a top row cylindrical article being in a top row, being in the first column, and having a diameter, the package comprising:

a top panel, two side panels, and a bottom panel;

at least one flap forming the first end of the package and at least one flap forming a second end of the package;

the first end comprising a detachable portion and a retainer portion;

the detachable portion removes an upper portion of the first end that is less than the diameter of the top row cylindrical article; and

the retainer portion retains the top row cylindrical article in the package after the detachable portion is removed.

34. The package of claim 33, wherein an upper portion of the top row cylindrical article is adjacent the top panel of the package, and wherein the upper portion of the top row cylindrical article is exposed when the detachable portion is removed from the package.

35. The package of claim 33, wherein the retainer portion extends obliquely toward a lower portion of the first end.

36. The package of claim 33, wherein the detachable portion extends obliquely downward from a side panel to a parallel portion parallel to the bottom panel.

37. The package of claim 36, wherein the parallel portion is disposed lower than the retainer portion that retains the top row cylindrical article.

38. The package of claim 36, wherein removal of the detachable portion creates an opening in the first end to allow removal of a cylindrical article in a row below the top row after the top row cylindrical article has been removed from the package.

39. The package of claim 33, wherein the structural integrity of the package is maintained after removal of the detachable portion.

40. The package of claim 33, wherein a finger flap assists removal of the detachable portion.

41. The package of claim 40, wherein the finger flap is disposed in the top panel.

42. The package of claim 33, wherein the detachable portion is formed by a substantially continuous tear line that extends in the first end below the top panel a first distance and extends at a first angle and at a second angle on either side of a parallel portion.

43. A carton enclosing a plurality of cylindrical articles arranged on their sides in rows and columns, a first column being adjacent a first end of the carton, the carton comprising:

a top panel, two side panels, and a bottom panel;

at least one flap forming the first end of the carton and at least one flap forming a second end of the carton;

the first end comprising a detachable portion and a retainer portion;

the detachable portion removes an upper portion of the first end that is less than a diameter of a cylindrical article; and

the retainer portion retains all the cylindrical articles in the first column in the carton after the detachable portion is removed.

44. A carton blank comprising:

a top panel including a finger flap;

a first side panel foldably connected to the top panel at a first fold line;

a second side panel foldably connected to the top panel at a second fold line;

a first side panel end flap foldably connected to the first side panel at a third fold line;

a second side panel end flap foldably connected to the second side panel at a fourth fold line;

at least one tear line defining a dispenser flap in the top panel;

wherein the at least one tear line extends from the finger flap obliquely to the first side panel end flap and obliquely to the second side panel end flap; wherein the at least one tear line extends a distance D along the third fold line and along the fourth fold line; wherein the at least one tear line extends obliquely at an angle B in the first side panel end flap and in the second side panel end flap, continues a distance, extends obliquely at an angle A in the first side panel end flap and in the second side panel end flap, and extends to a marginal portion of the first side panel end flap and the second side panel end flap.

45. A carton formed from the blank of claim 44.

46. A method of erecting a carton from the blank of claim 44.

47. In combination, a parallelepiped carton formed from the blank of claim 44, and a plurality of containers within the carton.

48. A carton blank comprising:

a first panel including a finger flap and a first panel end flap;

a second panel foldably connected to the first panel at a first fold line;

a third panel foldably connected to the first panel at a second fold line;

a second panel end flap foldably connected to the second panel at a third fold line;

a third panel end flap foldably connected to the third panel at a fourth fold line;

at least one tear line defining a dispenser flap in the first panel;

wherein the at least one tear line extends from the finger flap obliquely to the second panel end flap and obliquely to the third panel end flap; wherein the at least one tear line extends a distance D both along the third fold line and along the fourth fold line; wherein the at least one tear line extends obliquely at an angle B in the second panel end flap and in the third panel end flap, continues a first distance, extends obliquely at an angle A in the second panel end flap and in the third panel end flap, and extends to a marginal portion of the second panel end flap and the third panel end flap.

49. A carton formed from the blank of claim 48.

50. A method of erecting a carton from the blank of claim 48.

51. In combination, a parallelepiped carton formed from the blank of claim 48, and a plurality of containers within the carton.

52. A carton blank comprising:

a first panel;

a second panel;

a third panel;

a second panel end flap;

a third panel end flap;

at least one tear line in the first panel;

wherein the at least one tear line extends from an intermediate portion of the first panel obliquely to the second panel end flap and obliquely to the third panel end flap; wherein the at least one tear line extends a distance D both along the second panel end flap and along the third panel end flap; wherein the at least one tear line extends obliquely at an angle B in the second panel end flap and in the third panel end flap, continues a first distance, extends obliquely at an angle A in the second panel end flap and in the third panel end flap, and extends to a marginal portion of the second panel end flap and the third panel end flap.

53. The blank of claim 52 wherein the first panel includes a finger flap and a first panel end flap.

54. The blank of claim 52 wherein the second panel is foldably connected to the first panel at a first fold line.

55. The blank of claim 54 wherein the third panel is foldably connected to the first panel at a second fold line.

56. The blank of claim 55 wherein the second panel end flap is foldably connected to the second panel at a third fold line.

57. The blank of claim 56 wherein the third panel end flap is foldably connected to the third panel at a fourth fold line.

58. A carton formed from the blank of claim 52.

59. A method of erecting a carton from the blank of claim 52.

60. In combination, a parallelepiped carton formed from the blank of claim 52, and a plurality of containers within the carton.

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(12) **United States Patent**
Harrelson

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(54) **DISPENSING SYSTEM FOR DOUBLE STACK CARTON**

(75) Inventor: **Glen R. Harrelson**, Gainesville, GA (US)

(73) Assignee: **Graphic Packaging International, Inc.**, Marietta, GA (US)

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(58) **Field of Classification Search** 206/427-429; 221/305; 229/121-122, 235, 240, 242, 244

See application file for complete search history.

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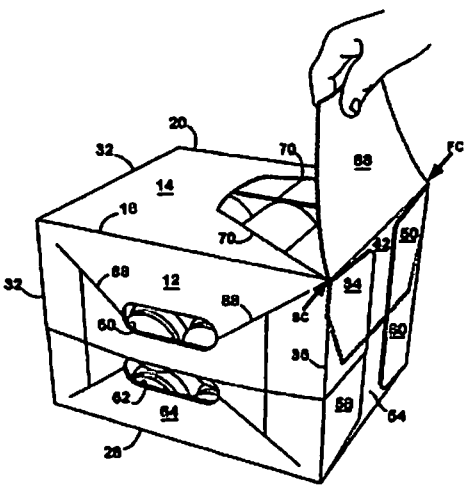
Primary Examiner—Bryon P Gehman
(74) *Attorney, Agent, or Firm*—Womble Carlyle Sandridge & Rice, PLLC

(57) **ABSTRACT**

The carton of this invention is capable of carrying the plurality of containers stacked upon their ends in two tiers with a unique dispenser that permits the dispensing of containers on their sides. The dispenser is formed in a top side wall and extends into the end wall with most of the end wall being torn open but leaving a portion near the bottom side wall to prevent the bottom layer of containers from rolling out. Angled projections in the dispensing end of the carton near the top panel and bottom panel prevent the top layer of containers from rolling out. A divider may be inserted between the two tiers of containers to facilitate loading the carton and preventing the containers from accidentally rolling out when the dispenser is open.

33 Claims, 4 Drawing Sheets



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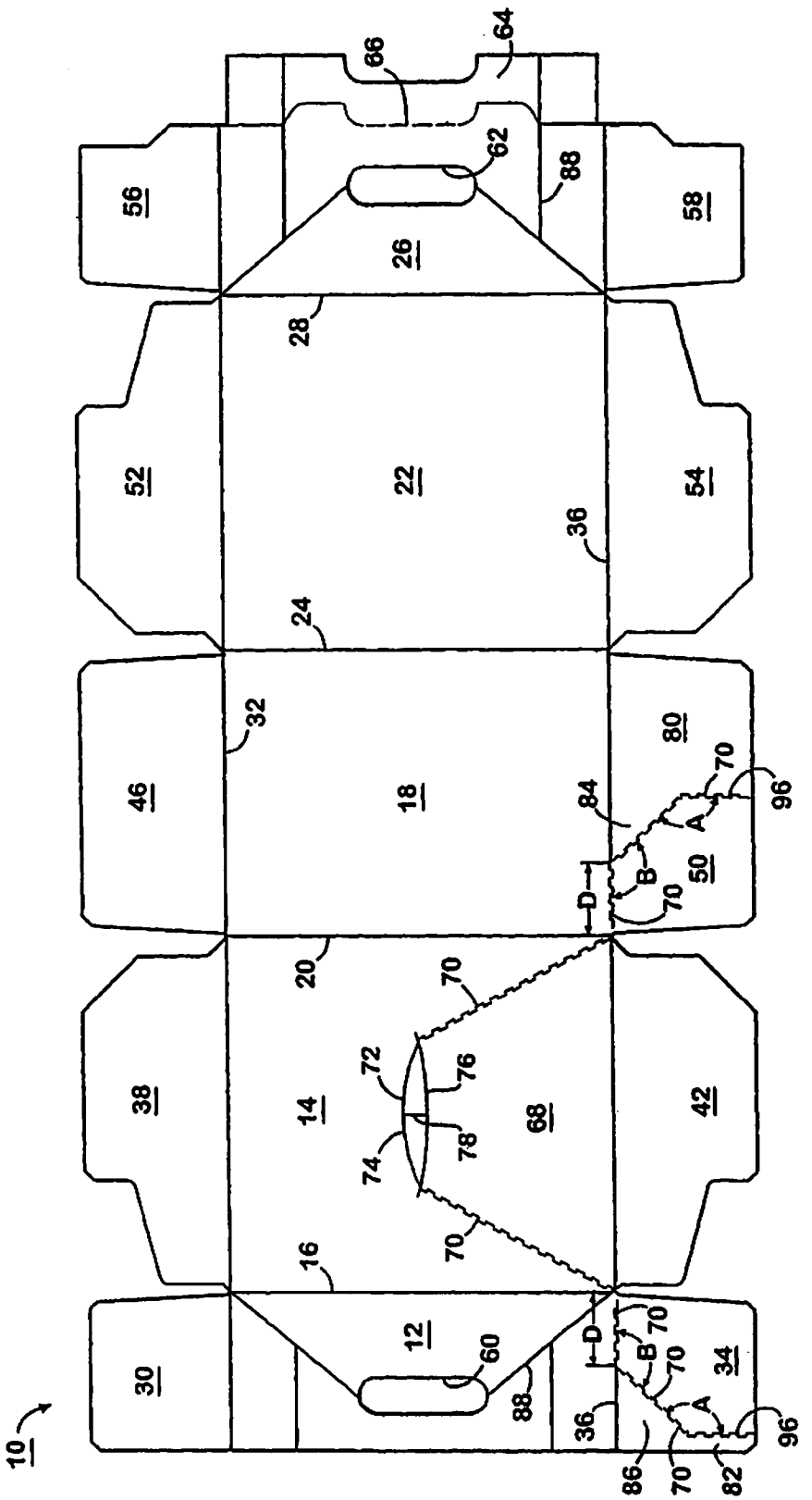
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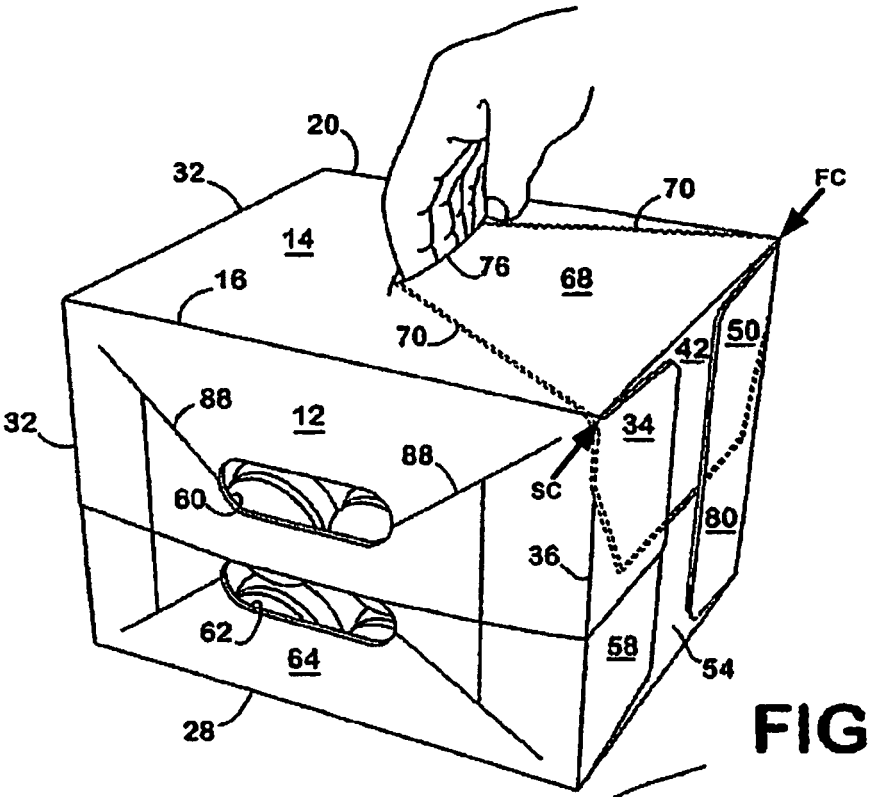
A
B
D

FIG 1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64
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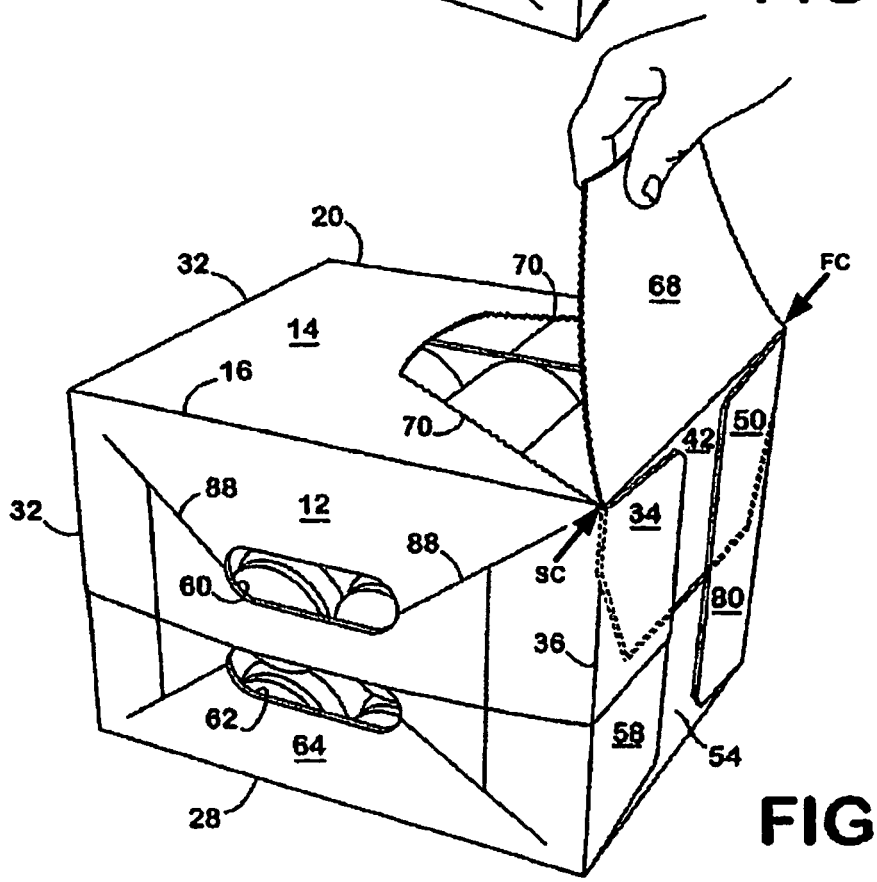
FIG 2


20
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68
FC
14
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12
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34
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SC
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80
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64
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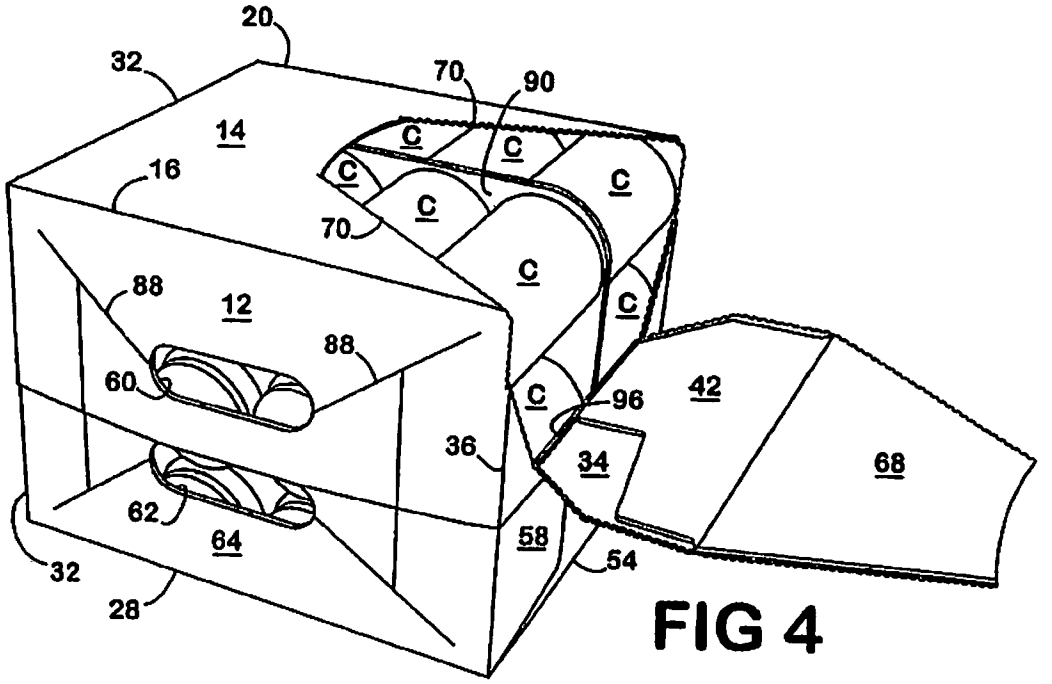
28

FIG 3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32
70
90
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C
16
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88
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96
42
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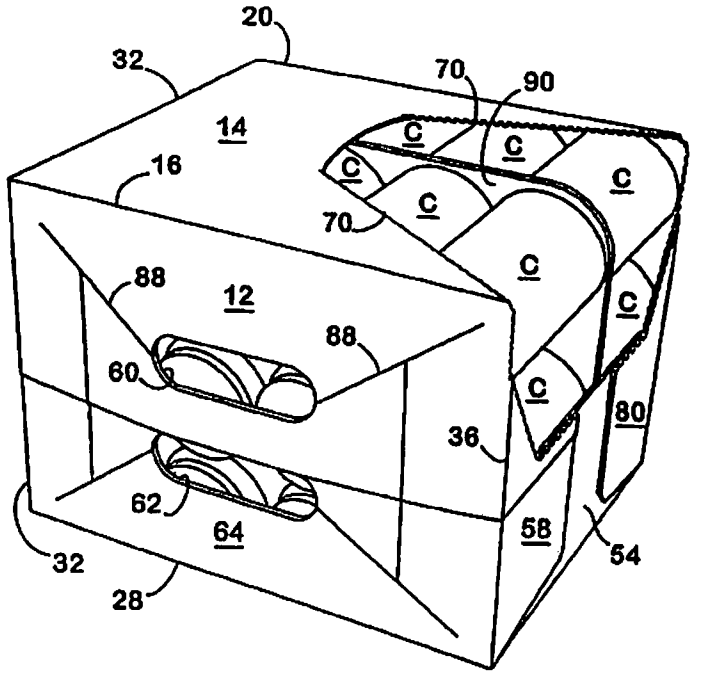
28

FIG 4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C
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88
12
88
60
80
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64
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FIG 5

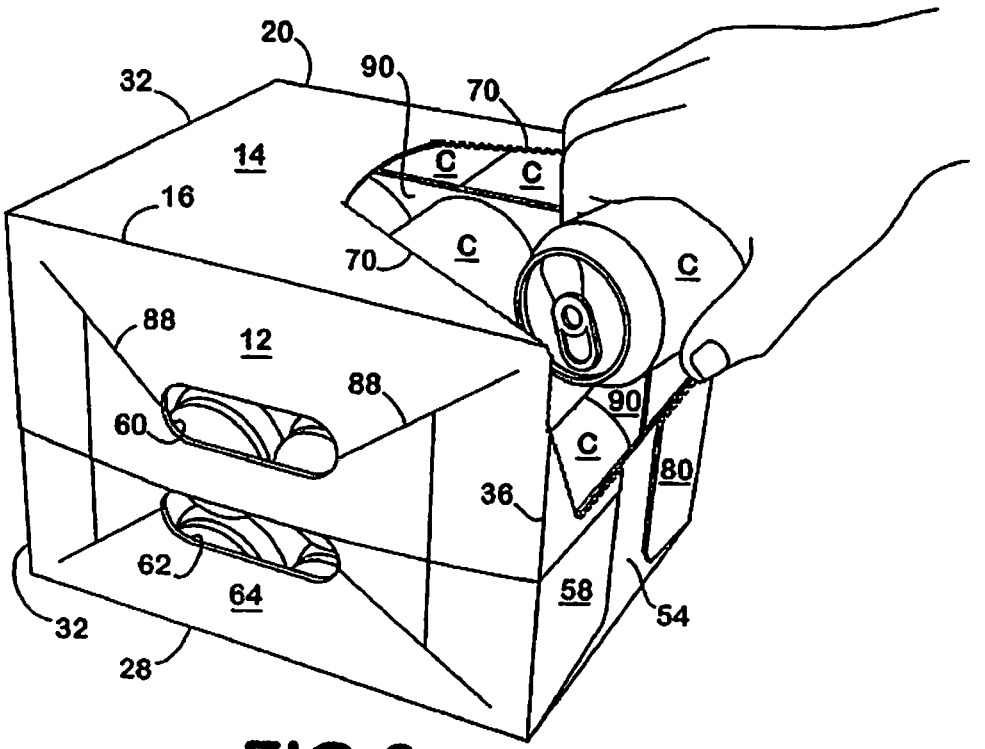
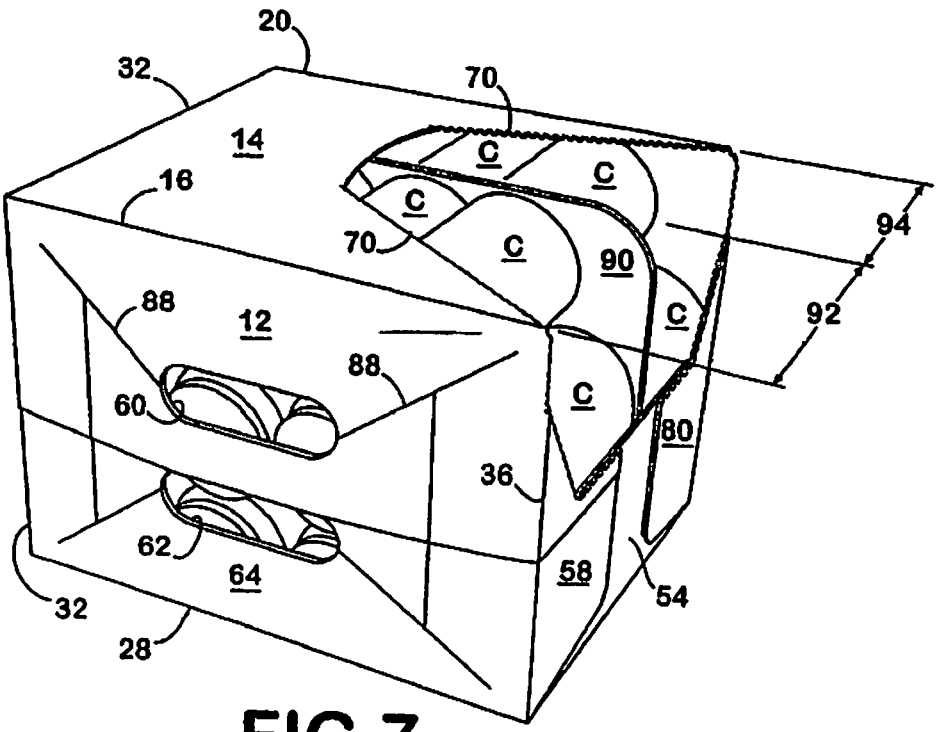

20
32
90
70
14
C
C
16
70
C
C
88
12
88
90
60
C
80
36
62
64
58
54
32
28

FIG 6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32
70
14
C
C
16
C
C
70
C
90
94
88
12
C
92
88
C
60
80
36
62
64
58
54
32
28

FIG 7

DISPENSING SYSTEM FOR DOUBLE STACK CARTON

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of U.S. patent application Ser. No. 11/558,717, filed Nov. 10, 2006, now U.S. Pat. No. 7,467,713, which application is a continuation of U.S. patent application Ser. No. 11/139,827, filed May 27, 2005, now U.S. Pat. No. 7,134,551, which is a continuation of U.S. patent application Ser. No. 10/365,148, filed Feb. 12, 2003, now U.S. Pat. No. 6,918,487, which are hereby incorporated herein by reference in their entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to an enclosed paperboard carton capable of enclosing containers in two tiers, which carton has a unique opening and dispensing feature that allows the containers, for example, cans, to be removed or dispensed one container per tier at a time without destroying the overall structural integrity of the carton. The unique opening and dispensing feature can be incorporated in cartons containing a plurality of layers of containers stacked on end and still limit the dispensing to one container per tier at a time.

2. Background

Fully enclosed cartons capable of enclosing cans have been used in the past that have a feature for dispensing the cans one at a time. Dispensers have been provided at various locations on these cartons depending on the design.

Cartons have been introduced into the marketplace that can carry 24 or more containers, for example cans, in two stacks or tiers. So far no satisfactory dispenser has been developed for dispensing the layers of cans in these two stack cartons one at a time from each stack or tier. Consequently, when these cartons are opened they tend to let a number of the cans roll out which has not allowed these twin stack cartons to achieve their full potential.

3. Prior Art

U.S. Pat. No. 3,265,283 to Farquhar discloses a fully enclosed carton having a dispenser for dispensing the enclosed cans. The end wall of the carton has a dispensing flap which can be folded down upon opening. An aperture formed by the flap extends into the side walls to permit grasping of the can to withdraw it from the carton. When the flap is opened, the cans are held in the carton by an arcuate flap portion extending downwardly in the end wall into the center of the aperture. The structural integrity of this carton is compromised because the entire bottom end of the carton is opened. It will be realized that the design of this dispenser is not satisfactory for dispensing containers, for example cans, that are stacked in twin stacks in a carton.

U.S. Pat. No. 4,364,509 to Holly, Jr. et al. also discloses a fully enclosed carton with a dispenser in one of the end walls. This dispenser is likewise formed in the end wall by tearing out an end flap and lowering it into proper position. Expansion slits are provided in the side wall for the user's fingers to grasp the ends of the existing can. The dispenser of this carton is not satisfactory for use in a twin stack carton for carrying containers.

SUMMARY OF THE INVENTION

It is an object of this invention to develop a dispenser for dispensing containers, for example cans, one at a time from a carton containing containers in two stacks or tiers. It is the further object of this invention to develop a dispenser that can be easily opened. A further object of this invention is to develop a dispenser that can be used for containers stacked in a 3 by 4 configuration in each stack to be dispensed one at a time from each stack without the containers rolling out accidentally. A final object of this invention is to develop a dispenser for a twin stack carton that does not destroy the structural integrity of the carton when it is opened.

Briefly described, in its preferred form, the objects of this invention are achieved by providing an enclosed carton for carrying containers in two tiers for dispensing the containers one at a time from each tier from the exiting end of the carton. The carton is generally rectangular and has a bottom, top, two sides, a closed end and exiting end. The carton is foldably constructed from a blank having panels and flaps. The carton is designed to carry containers, e.g. cans, that are stacked on their ends in two tiers from the bottom panel to the top panel. The dispenser is constructed by providing tear lines in one of the side panels that extend into the exiting end of the carton which is rested on the other side panel, with the dispenser being capable of dispensing the containers as they are resting on their sides. A tear line is provided in the end of the carton placed from the side upon which the carton rests while dispensing containers at a sufficient distance to prevent any of the containers below the top layer of containers from rolling out of the carton when the dispenser is open. A pair of tear lines extend from this bottom tear line from each end at an angle from the bottom tear line to the top side panel in which part of the dispenser is formed. The angle and distance of the projection is such as to restrain the top layer of cans in each tier from accidentally rolling out. The dispenser is constructed with a large enough opening in the top side panel in which it is formed to permit a person to grasp and remove a container in each tier one at a time.

This carton can be designed with a dispenser dispensing containers in a 3 by 4 configuration in each tier. The bottom tear line is located so as to prevent the bottom layers of containers from rolling out of the carton. A pair of tear lines extending from the ends of the bottom tear line are placed at an angle designed to restrain containers in the top layer from rolling out of the carton.

Because a carton for carrying 24 containers is placed under a great deal of stress, the top panel can be constructed from two handle flaps having a reinforcing strip attached to the inside handle flap folded over against the inside of the carton between the two oval handle apertures carrying the carton.

To facilitate holding the containers and dispensing them one at a time a divider may be provided between each tier of containers.

To facilitate opening the carton dispenser, a pull tab can be provided in the side panel where part of the dispenser is located, with the pull tab being loosely attached to the panel, but tightly attached to the dispenser for opening the dispenser.

Preferably the exiting end of the carton has four flaps for closing this end. An end flap attached to the side of the carton on which it is resting while the containers are being dispensed is generally not removed and serves to restrain one or more of the bottom layers of containers from rolling out of the carton. Preferably the tear lines in the end flaps attached to the top panel, and bottom panel are constructed so that a portion of each of these flaps is not removed and are glued to the flap attached to the side panel on which the carton rests during dispensing to preserve the integrity of the carton.

Other objects, features and advantages of this invention will become apparent upon reading the following specification, when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the blank of the preferred embodiment of this invention from which a carton is formed.

FIG. 2 is a perspective top view of the carton of the preferred embodiment loaded with two tiers of cans in a 3 by 4 configuration in each tier with a person starting to open the dispenser.

FIG. 3 is a perspective top view of the carton with a dispenser pulled part way open.

FIG. 4 is a perspective end view of the carton with cans in each tier in a 3 by 4 configuration with the dispenser being opened except for the bottom tear line.

FIG. 5 is perspective end view of the carton loaded with two tiers of cans in a 3 by 4 configuration with the dispenser completely removed but all the cans being contained in the carton.

FIG. 6 is a perspective end of the carton of FIG. 5 showing a person removing a can from the top tier of cans.

FIG. 7 is a perspective end view of the carton of FIG. 6 showing that a can has been removed from the top tier and from the bottom tier of cans.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention is intended primarily for use with cans of the types used to contain soft drinks, beer and the like. The blank **10** is formed from a foldable sheet of material, such a paperboard. The blank **10** has an outside handle flap **12** which is attached to the top side panel **14** by fold line **16** which in turn is attached to bottom panel **18** by fold line **20**, which in turn is attached to bottom side panel **22** by fold line **24**. Bottom side panel **22** is foldably attached to inside handle flap **26** by fold line **28**. The carton is supplied with a number of end flaps for closing the ends of the carton. The outside handle flap **12** is attached to outside top end flap **30** by fold line **32** and outside handle flap **12** is attached to outside top end flap **34** by fold line **36**. Top side flap **38** is attached to top side panel **14** by fold line **32**. Top side panel **14** is attached to top side flap **42** by fold line **36**. Bottom panel **18** is attached to bottom end flap **46** by fold line **32** and to bottom end flap **50** by fold line **36**. Bottom side panel **22** is attached to bottom side flap **52** by fold line **32** and to bottom side flap **54** by fold line **36**. Inside handle flap **26** is attached to inside top end flap **56** by fold line **32** and to the inside top end flap **58** by fold line **36**.

This carton has a pair of race track handles **60** and **62** formed in outside handle flap **12** and inside handle flap **26** respectively. Because this carton is designed to carry 24 containers, such as cans, it is provided with a handle reinforcing flap **64** attached to inside handle flap **26** by fold line **66**.

A dispensing flap **68** is partially formed in top side panel **14** by tear line **70**. To facilitate opening this dispenser, a pull tab **72** is provided to facilitate opening the dispensing flap **68**. The pull tab **72** is loosely attached to top side panel **14**. Pull tab **72** has a slit **74** between it and top side panel **14** to ease pulling of the pull tab from the plane of top side panel **14**. Pull tab **72** is attached to dispensing flap **68** by fold line **76**. A slit **78** may be provided in the middle of pull tab **72** to ease its removal from top side panel **14**.

It will be understood by those skilled in the art that the carton of the present invention is generally symmetrical about a horizontal line of bisection, as viewed when FIG. **1** is rotated lengthwise. This symmetry aids in the efficient production of the present carton.

In forming this blank **10** into a carton, the handle reinforcing flap **64** is folded along fold line **66** and glued to the inside handle flap **26**. The blank **10** is then folded so that outside handle flap **12** is glued to inside handle flap **26** so that the two oval handles **60** and **62** are parallel to each other. These steps result in forming a carton sleeve in which cans can be loaded in the bottling plant. The cans can be placed in two tiers of a 3 by 4 configuration. This is best illustrated in FIG. **7** which shows the top tier **92** located near the top of the carton and the bottom tier **94** located near the bottom of the carton. In order to maintain the two tiers of cans in proper alignment during loading and when dispensed to the consumer, a divider **90** may be necessary. The divider **90** can be made out of a single sheet of paperboard.

After the two tiers of cans have been loaded into the carton various end flaps on both ends are closed and glued. To use the end of the carton where the dispenser is located as an example, the top side flap **42** is folded inwardly, bottom side flap **54** is folded inwardly, bottom end flap **50** is folded in an overlapping position, and glued to top side flap **42** and bottom side flap **54**. Outside top end flap **34** and inside top end flap **58** are glued together to form a single top end flap which is likewise glued to top side flap **42** and bottom side flap **54**. The other end of the carton is closed in the same manner.

When the dispenser is opened, dispensing flap **68**, which includes top side flap **42**, is removed from the carton along with a portion of outside end flap **34** and bottom end flap **50** along tear line **70**. In order to preserve the structural integrity of the carton after the dispenser has been opened, it is important that end retention panel **82** be glued to inside top end flap **58** which in turn is glued to bottom side flap **54**. Otherwise, the end retention projection **86** will not be firmly attached to carton. It is likewise important that end retention panel **80** be glued to bottom side flap **54** in order to ensure that end retention projection **84** is firmly attached to the carton after the dispenser is opened.

It should be realized that dispensers could be placed on both ends of the carton, but preferably it is only placed on one end. Cans can be removed from the exiting end of the carton after tear line **70** has been torn. The pair of tear lines **70** converge towards each other towards pull tab **72**. Tear line **70** extends along fold line **36** between bottom end flap **50** and bottom, or second, panel **18** for a distance D and turns at an angle B and turns again at angle A to form a portion of bottom tear line **96**. On the other side of top side, or first, panel **14**, tear line **70** extends to fold line **36** and extends along that line and turns into the interior of outside top end flap **34** at angle B until it turns to form bottom line **96** at angle A.

The consumer can open dispensing flap **68** by inserting his or her fingers into pull tab **72** which is an easy maneuver because of slit **74**. In place of slit **74**, a tear line that is loosely attached to top side panel **14** may be substituted in lieu of the slit. Insertion of the fingers into the aperture formed by depressing pull tab **72** is illustrated in FIG. **2**. It will be noticed that the carton has been turned 90° so that it rests on bottom side, or fourth, panel **22**. Outside handle flap **12** and inside handle flap **26** form the top, or third, panel. As shown in FIGS. **2-3**, the first panel **14**, second panel **18**, and the exiting end meet at a first corner FC, and the first panel **14**, third panel **12**, **26**, and the exiting end meet at a second corner SC. As shown in FIGS. **2-7**, one of the pair of tear lines **70** that converge towards each other extends from the first corner FC into first panel **14** and the other of the pair of tear lines **70** that converge towards each other extends from the second corner SC into

first panel 14. The consumer proceeds to pull pull tab 72 upward which is connected by fold line 76 to dispensing flap 68 which is pulled up as illustrated in FIG. 3. Continued tearing open of the dispenser is illustrated in FIG. 4. The dispenser is opened along tear line 70 which extends on both sides so that the dispensing flap 68 is torn open along fold line 36 and into the interior of outside top end flap 34 and bottom end flap 50 as illustrated in FIG. 4. The tearing continues down to the point where tear line 70 forms bottom tear line 96 which has not yet been torn as shown in FIG. 4. FIG. 5 illustrates a complete removal of the dispenser by tearing along bottom tear line 96. Even though the entire dispenser has been removed in FIG. 5, the cans are retained in the carton even though the cans are lying on their sides. The bottom two layers of cans in the 3 by 4 configuration are prevented from rolling out of the carton by bottom side flap 54 to which end retention panels 80 and 82 are glued. It will be noticed that bottom side flap 54 only extends part way up the diameter of the cans in the second layer of the three tiers. The top layer of cans in the two tiers is prevented from rolling out by end retention projections 84 and 86. Tear line 70 only extends along fold line 36 a distance D which is slightly less than the diameter of the top layer of cans being contained. This is sufficient to prevent the top layer of cans from rolling out of the carton but yet not prevent an obstacle to their easy removal by the consumer. Tear line 70 turns at an angle B and then turns again at angle A to form the bottom tear line 96 on both outside top end flap 34 and bottom end flap 50. It will be realized that end retention projections 84 and 86 are helpful in retaining the top layer of cans in the carton. The extent of this help depends upon the location of the bottom tear line 96 in relation to the layers of cans C.

FIG. 6 illustrates a consumer removing a can from the top tier 92 of cans C. It will be noticed that the consumer moves a can by twisting it slightly along its longitudinal axis and removing the bottom end of the can C first as it easily slides along the divider 90. It is necessary to remove the can in this way as the top of the can is retained in position by end retention projection 86. The end retention projections 84 and 86 are important as it is desirable that the cans in the top layer not roll out when the dispenser is open. The divider 90 and end retention projections 84 and 86 are designed to ensure that the top layer of cans adjacent the dispenser not roll out accidentally. FIG. 7 illustrates a carton with cans from each tier having been removed with the remaining cans held in place.

Because the blank 10 is designed to carry 24 cans in two tiers, it will be appreciated that the carton is heavy when loaded with cans. It is preferred that the top panel be composed of an outside handle flap 12 and an inside handle flap 26 and handle reinforcing flap 64 be utilized. In addition, stress lines 88 that are designed to dissipate the stress posed by lifting the carton handle 60 and 62 can be utilized. It should be realized that the carton sleeves can be glued together at other locations but is preferred to be glued at the top panel.

It will be noticed that the tear lines 70 in top side panel 14 converge towards each other and extend away from fold line 36 to provide a large enough opening when dispensing flap 68 is removed to permit a person to grasp cans in the top layer in each tier near the exiting end of the carton.

A carton for carrying cans is preferred that these containers have ends that are of the same diameter as the body of the container.

UNIQUE FEATURES OF THE DISPENSER OF THIS INVENTION

One of the unique features of the dispenser of this invention is that it permits the easy dispensing of containers that are stacked in two tiers. The carton is unique in that it carries the containers in their upright position, but dispenses them when the containers are on their side. Placement of the bottom tear line in the dispenser will restrain all but the top layer of containers from rolling out. An angled projection on each side of the dispenser can be utilized to prevent the top layer of containers from rolling out. The provision of a divider is important in maintaining the configuration of the containers into two tiers during loading and dispensing.

While the invention has been disclosed in its preferred forms, it will be apparent to those skilled in the art that many modifications, additions, and deletions can be made therein without departing from the spirit and scope of the invention and its equivalents as set forth in the following claims.

What is claimed is:

1. A package comprising:

a carton enclosing a plurality of containers;

the carton comprising:

two ends including an exiting end;

four panels connected to the two ends, the four panels including a first panel connected to a second panel the first panel connected to a third panel, and a fourth panel opposite the first panel; the first panel, the second panel, and the exiting end meet at a first corner; the first panel, the third panel, and the exiting end meet at a second corner;

a first panel flap connected to the first panel along a first fold line, a second panel flap connected to the second panel, a third panel flap connected to the third panel, and a fourth panel flap connected to the fourth panel; the first panel flap, the second panel flap, the third panel flap, and the fourth panel flap form the exiting end;

a dispensing flap at the exiting end; the dispensing flap including a first section and a second section; the first section and the second section being connected along the first fold line; the first section being defined at least partially by the first fold line; the second section being defined at least partially by the first fold line, a first tear line, and a second tear line; the first tear line extending at least partially along and collinear with a second fold line;

wherein the first section is defined at least partially by a third tear line and a fourth tear line; the third tear line extending from the first corner and the fourth tear line extending from the second corner;

wherein the dispensing flap extends from the first corner to the second corner in the first panel and in the exiting end;

wherein the third tear line and the fourth tear line converge towards each other from the first corner and the second corner, respectively, to at least partially define the first section; and

wherein all the containers are retained in the carton when the dispensing flap is separated along the first tear line.

2. The package of claim 1, further including a pull tab formed in the first panel.

3. The package of claim 1 wherein each container has an axis and wherein the axes of said plurality of containers are arranged in the carton parallel to the first panel.

4. The package of claim 1 wherein the first section is detachable along the third tear line and fourth tear line, and the second section is detachable along the first tear line and the second tear line.

5. The package of claim 1 wherein the third tear line does not extend along the first fold line; and wherein the fourth tear line does not extend along the first fold line.

6. The package of claim 5 wherein the first section extends from the first corner to the second corner.

7. The package of claim 1 wherein the first section extends from the first corner to the second corner.

8. The package of claim 1 wherein the containers are cans.

9. The package of claim 1 wherein the dispensing flap is capable of being hinged along the second section.

10. The package of claim 9 wherein the dispensing flap is capable of being detached from the carton.

11. The package of claim 1 wherein the dispensing flap is capable of being detached from the carton.

12. The package of claim 1 wherein the second tear line extends at least partially along and collinear with a third fold line.

13. The package of claim 12 wherein the second tear line extends from the second corner along the third fold line; and wherein the second section of the dispensing flap is detachable along the second tear line.

14. A package comprising:

a carton and a plurality of containers;

the carton comprising:

four panels connected to two ends, the two ends including an exiting end; the four panels including a first panel connected to a second panel, a third panel connected to the first panel, and a fourth panel opposite the first panel; the first panel being connected to the exiting end along a first fold line; the first panel, the second panel, and the exiting end meet at a first corner; the first panel, the third panel, and the exiting end meet at a second corner;

a dispensing flap at the exiting end; the dispensing flap including a first section and a second section; the first section and the second section being connected along the first fold line; the first section being defined at least partially by the first fold line; the second section being defined at least partially by the first fold line, a first tear line, and a second tear line; the first tear line extending from the first corner at least partially along and collinear with a second fold line;

wherein the first section is defined at least partially by a third tear line and a fourth tear line; the third tear line extending from the first corner and the fourth tear line extending from the second corner;

wherein the third tear line is not collinear with the first fold line;

wherein the fourth tear line is not collinear with the first fold line;

wherein the third tear line and the fourth tear line converge towards each other from the first corner and the second corner, respectively, to at least partially define the first section; and

wherein all the containers are retained in the carton when the dispensing flap is separated along the first tear line.

15. The package of claim 14 wherein each container has an axis and wherein the axes of said plurality of containers are arranged in the carton parallel to the first panel.

16. The package of claim 14 including means for facilitating separation of the dispensing flap.

17. The package of claim 16 wherein the means is a pull tab that is spaced from the first fold line.

18. The package of claim 14 wherein the containers are cans that are positioned in rows and columns.

19. The package of claim 14 wherein the dispensing flap includes an entirety of the first fold line.

20. The package of claim 14 wherein the first tear line extends from the first corner.

21. The package of claim 14 wherein the third tear line extends from the first corner to a means for facilitating separation of the dispensing flap.

22. The package of claim 21 wherein the means is a pull tab.

23. A carton comprising:

four panels connected to two ends; the two ends including an exiting end; the four panels including a first panel connected to a second panel, a third panel connected to the first panel, and a fourth panel opposite the first panel; the first panel being connected to the exiting end along a first fold line; the first panel, the second panel, and the exiting end meet at a first corner; the first panel, the third panel, and the exiting end meet at a second corner;

a dispensing flap at the exiting end; the dispensing flap including a first section and a second section; the first section and the second section being connected along the first fold line; the first section being defined at least partially by the first fold line; the second section being defined at least partially by the first fold line, a first tear line, and a second tear line; the first tear line extending from the first corner at least partially along and collinear with a second fold line;

wherein the first section is defined at least partially by a third tear line and a fourth tear line; the third tear line extending from the first corner and the fourth tear line extending from the second corner;

wherein the third tear line is not collinear with the first fold line;

wherein the fourth tear line is not collinear with the first fold line; and,

wherein the third tear line and the fourth tear line converge towards each other from the first corner and the second corner, respectively, to at least partially define the first section.

24. The carton of claim 23 wherein the dispensing flap includes an entirety of the first fold line.

25. The carton of claim 24 wherein the first section extends from the first corner to the second corner.

26. The carton of claim 23 wherein the first section extends from the first corner to the second corner.

27. The carton of claim 23 wherein the carton encloses containers and wherein all the containers are retained in the carton when the dispensing flap is detached along the first tear line and the second tear line.

28. The carton of claim 27 wherein the containers are cans.

29. The carton of claim 23 wherein the dispensing flap is capable of being hinged along the second section.

30. The carton of claim 29 wherein the dispensing flap is capable of being detached from the carton.

31. The carton of claim 23 wherein the dispensing flap is capable of being detached from the carton.

32. The carton of claim 23 wherein the second tear line extends at least partially along and collinear with a third fold line.

33. The carton of claim 32 wherein the second tear line extends from the second corner along the third fold line; and wherein the second section of the dispensing flap is detachable along the second tear line.

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