United States Patent [19]

Miller

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[54] **RETURNABLE CARTON**

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[73] Assignee: **The General Tire & Rubber Company,** Akron, Ohio

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[52] **U.S. Cl.** ..... **229/41 R,** 206/372, 229/23 R

[51] **Int. Cl.** **B65d 5/36,** B65d 13/04

[58] **Field of Search** ..... 229/23 B, 23 C, 41 B, 14 C, 229/52 R, 41 R; 206/65 R, 46 H

[56] **References Cited**

UNITED STATES PATENTS

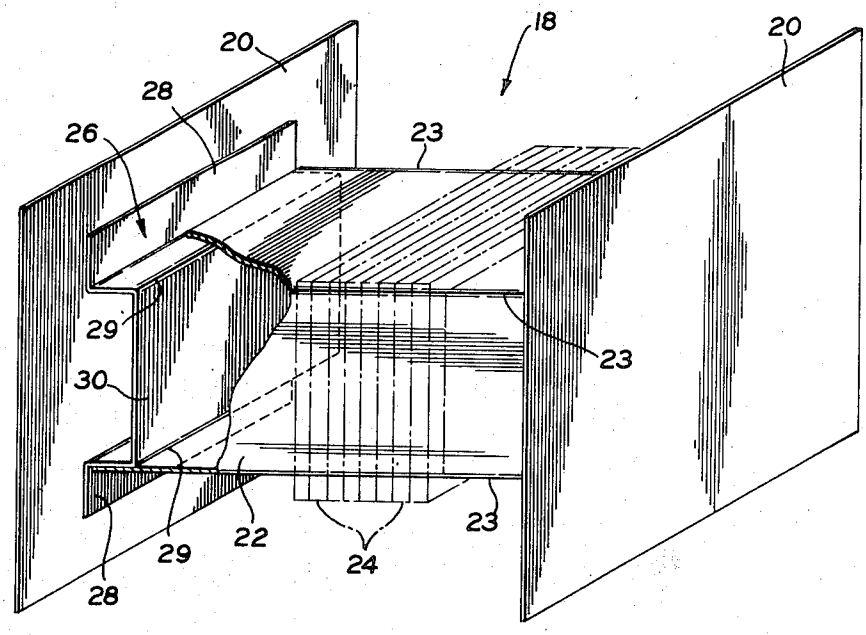
577,198	2/1897	McFadyen	229/41 R
797,201	8/1905	Hale	229/41 R
903,555	11/1908	Ferres	229/41 R
1,384,065	7/1921	Hirschwitz	229/41 R
1,640,452	8/1927	Knowlton	206/65 R
2,164,506	7/1939	Enrich	229/23 A X
2,642,989	6/1953	Keiser, Jr. et al.	206/52 R
2,782,911	2/1957	Fisher	206/65 R X
3,148,821	9/1964	Gardiner	229/41 R
3,438,562	4/1969	Connor et al.	229/41 R

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Assistant Examiner—Bruce H. Bernstein
Attorney, Agent, or Firm—Harry F. Pepper, Jr.; F. C. Rote, Jr.

[57] **ABSTRACT**

A totally returnable carton has a collapsible material mounting assembly containable internally of the collapsible return carton whether the carton is collapsed or uncollapsed. When it is collapsed, the material mounting assembly fits into the base of the collapsed returnable carton and when it is uncollapsed it fits internally of the extended returnable carton to provide a material mounting tube whose wall panels reinforce the extended walls of the returnable carton.

2 Claims, 6 Drawing Figures



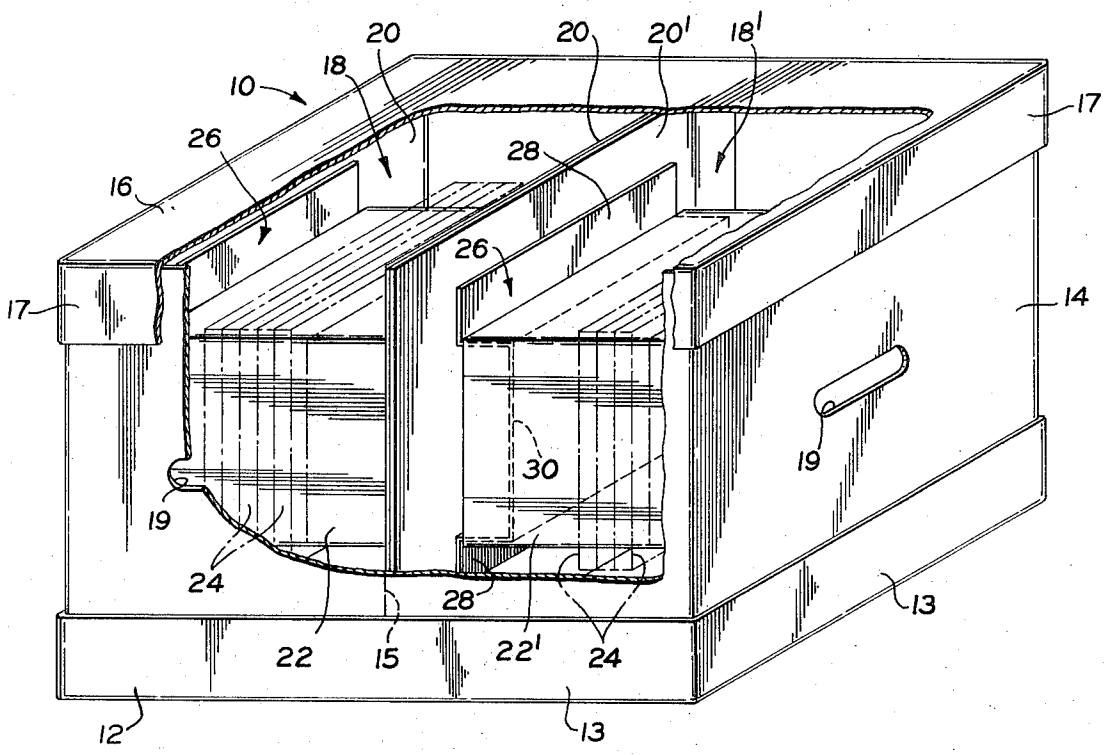

20
20
20'
18'
18
10
17
26
28
16
26
17
14
30
19
19
24
28
13
22
15
22'
24
12
13

Fig 1

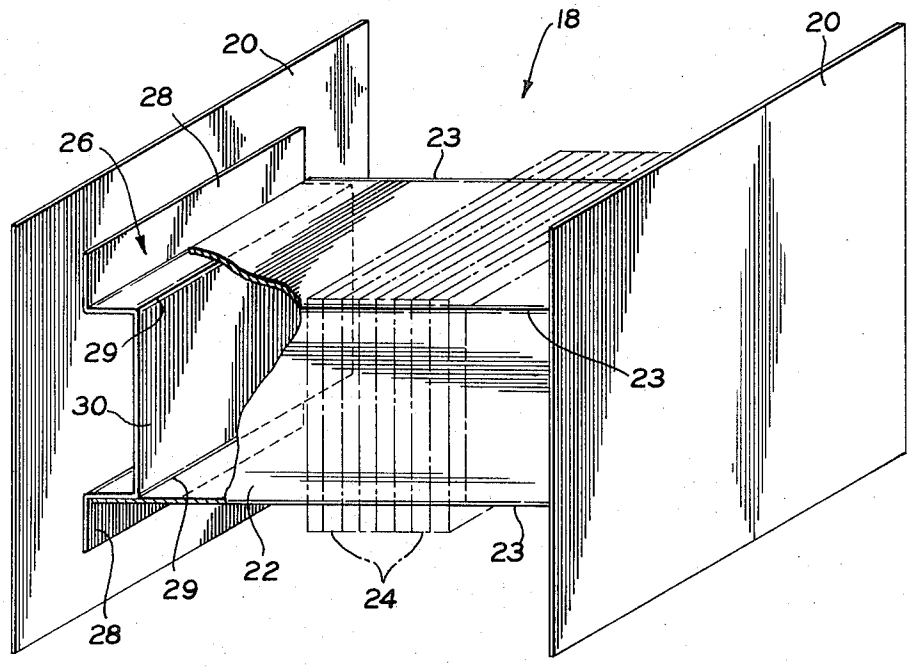

18
20
20
28
26
23
29
23
30
23
22
29
24
28

Fig 2

Fig 3a

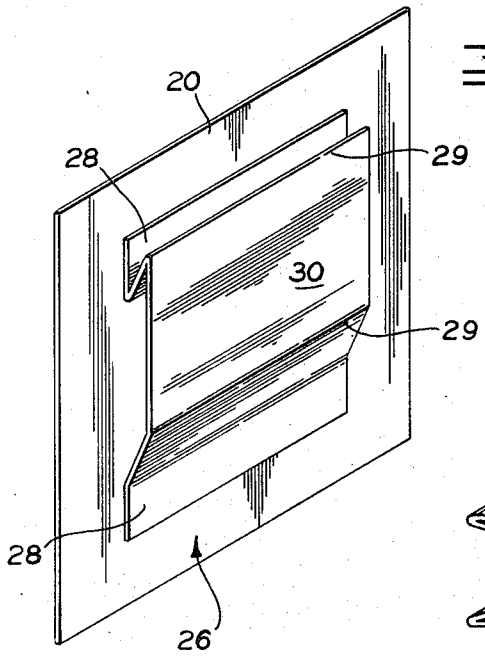


Fig 3b

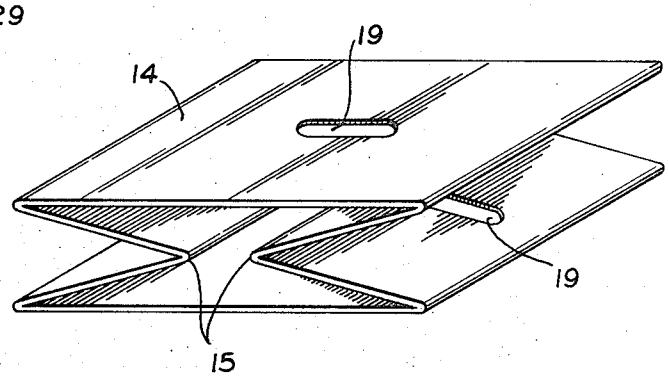


Fig 3c

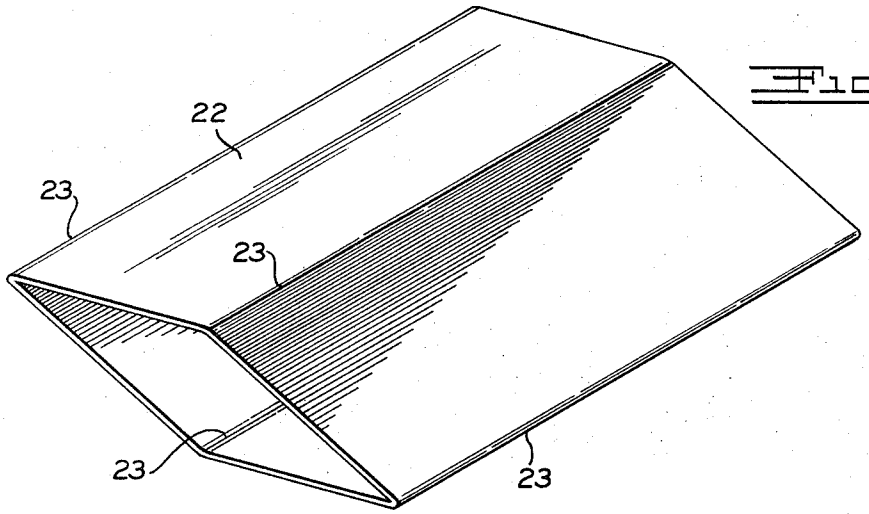
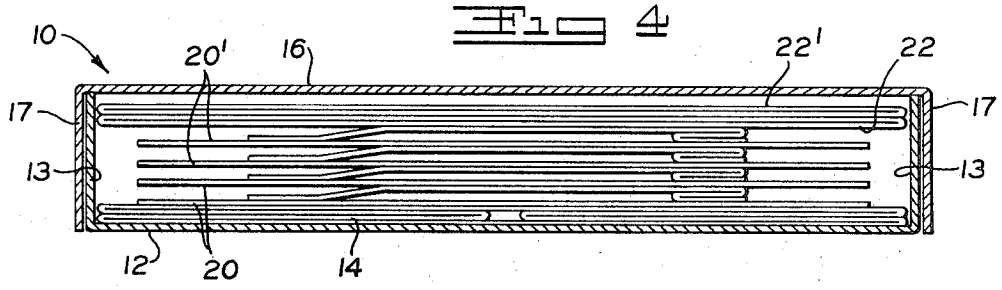


Fig 4



RETURNABLE CARTON

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to collapsible containers in general and in particular to totally returnable cartons for shipping material, which cartons have substantially larger extended shipping volumes than collapsed return volumes.

2. Description of the Prior Art

Shipping of materials from point of manufacture to points of assembly involves the continuous use of substantially duplicate containers for such materials. Upon receipt of the materials by the assembler, the containers are scrapped, resulting in added cost of scrap and refuse removal as well as remaining an eyesore and a safety hazard until such refuse removal takes place. When refuse is removed from the assembler's plant, it is merely relocated to a dump or is incinerated with either alternative causing immediate pollution of the environment as well as being a source of other ecological problems.

To alleviate these problems returning of the shipping cartons by the assembler to the manufacturer for reuse in the next shipment has been attempted. This was unfeasible from a cost standpoint since the empty cartons take up the same amount of valuable storage space as material filled cartons and are as bulky to handle and ship as the filled cartons. The problems associated with bulky containers are even more aggravated when the shipped material is relatively fragile and requires carton internal packaging during shipment such as carton reinforcers, material holders, or material isolators which retain the shipped material snug within the shipping container and leave a protective space between the outside walls of the container and the material contained therein.

Collapsible return containers are presently known which provide collapsible outside walls to minimize the volume and bulk of the empty container when it is collapsed. Such containers are disclosed in U.S. Pat. No. 3,438,562, issued to W. G. Connor, et al., as well as U.S. Pat. No. 3,503,550 and 3,611,994, issued to J. W. Main et al. and Everett R. Bailey, respectively. Such returnable cartons are useful for bulk shipping of nonfragile materials which require no internal material reinforcing and/or mounting. Where internal packaging is required during the shipment of material, this packaging does not fit into the collapsed container and must be disposed of before the carton is capable of being collapsed and returned to the manufacturer. These internal parts are scrapped and the removal cost and associated ecological problems previously mentioned are thereby only partly solved by using such returnable cartons.

The extent of internal reinforcing and mounting required generally for fragile materials is especially required in shipping magnetic refrigerator or freezer gaskets. These gaskets are assembled into a one piece gasket of rectangular shape ready to be shipped to a manufacturer where they are assembled to a refrigerator or freezer door. This rectangular shape must be maintained throughout shipping to prevent sagging and setting of the gasket into irregular patterns which would not fit the intended doors and adversely affect the required seal thereby. These gaskets also have a decorative color coordinated external coating of thermoplastic which must be protected from any skuffing, cracking or puncturing from movement within the carton. To meet these requirements necessitates a shipping carton having complicated internal packaging for the shipped gaskets. The material of the internal packaging therefore may be even greater than the material used for the external shipping carton. In those cases, the use of a reuseable external carton does not even begin to solve the problems of cost and refuse generally associated with material shipment.

SUMMARY OF THE INVENTION

According to one mode of the present invention, a totally returnable, collapsible carton is provided which solves all the previously mentioned problems and others by including material mounting means internally of the returnable carton for locating the shipped material thereon, which means is also collapsible to fit within the base of the collapsed returnable carton.

The material mounting means includes a number of wall panels which reinforce the extended walls of the uncollapsed carton and which also fit into the base of the collapsed carton. These wall panels have a collapsible locking device on one side allowing a collapsible tubular device, upon which the shipped material may be threaded, to fit between two of such wall panels thereby maintaining both the tubular device and the panel locking devices rigidly extended.

The invention obviates the need for scrapping any internal packaging material and allows a complete carton to be collapsed down to a minimal size after the material therein is removed. The collapsed external carton with the internal packaging located internally therein is returnable to the manufacturer who extends it for reuse in shipping more material to the assembler.

The primary object of this invention therefore is to provide a completely reusable collapsed carton requiring no extra packaging parts for reuse nor involving any scrapping of packaging parts after use.

Another object of this invention is to provide a collapsible internal packaging means which reinforces the noncollapsed external carton and fits into the base of the collapsed external carton.

Yet another object of this invention is to provide a totally reusable carton for shipping fragile materials, such as refrigerator and freezer gaskets.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 depicts a perspective view of a partially cut away uncollapsed returnable carton.

FIG. 2 depicts an expanded perspective view of a partially cut away uncollapsed material mounting assembly found in FIG. 1.

FIG. 3*a* depicts an expanded perspective view of the wall panel found in FIG. 2 with the locking assembly collapsed.

FIG. 3*b* depicts an expanded perspective view of the collapsed mounting tube found in FIG. 2.

FIG. 3*c* depicts an expanded perspective view of the collapsed wall insert found in FIG. 1.

FIG. 4 depicts a side sectional view of the collapsed returnable carton of FIG. 1 with collapsed internal packaging therein.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings wherein the showings are for the purpose of depicting the preferred embodiment of the invention and not for the purpose of limiting same, FIG. **1** has a returnable carton assembly **10** having a rigid noncollapsible base **12,** a collapsible wall insert **14,** a noncollapsible cover **16** and a collapsible material mounting assembly **18.**

The wall insert **14** is fitted into the base **12** to lie against rigid walls **13** of the base **12** and extend the enclosure of the carton **10.** The top cover **16** is fitted over the wall insert **14** to have sides **17** of the cover **16** overlap the insert **14.** This forms the external container of the reusable carton **10.**

The material mounting assembly **18** is mounted internally of the external container and is comprised of a pair of wall panels **20** between which is mounted a tube **22** upon which shipping material is located. The shipping material may be comprised of any material which requires isolation from the external container, such as refrigerator or freezer gaskets **24.** These gaskets **24** are threaded upon the tube **22** and are retained by the wall panels **20.**

A similar material mounting assembly **18'** is located adjacent the assembly **18** to have wall panels **20, 20'** abutt against each other in the area where a crease **15** is located on the wall insert **14.** It will be understood that like numbers refer to like parts in construction and function, and although two assemblies **18, 18'** are shown abutting within the external container, any multiple number of such assemblies **18** could be enclosed. Furthermore, such assemblies could be configured in various configurations, including next to each other, on top of each other, perpendicular to each other or any combination thereof, so long as they are retained within the external container. The depicted arrangement of two assemblies **18, 18'** provides added reinforcement to the wall insert **14** in the area weakened by the crease **15** through the abutting panels **20, 20'** pressing against the wall insert **14** to prevent it from collapsing as well as pressing it against the walls **13.**

The wall insert **14** has hand holes **19** located on each side thereof to facilitate lifting and moving of the returnable carton **10.** The placement of the hand holes **19** is dependent upon how the carton is to be handled and their locations and methods of making them are obvious to those skilled in the art.

Referring now to FIGS. **2** and **3,** each wall panel **20** of assembly **18** has a tube locking assembly **26** located on one of its faces. The locking assembly **26** is affixed to the panel **20** through flanges **28** by means known to those skilled in the art, such as adhesive bonding or mechanical anchoring. A collapsible tube insert **30** is collapsed down into the plane of the panel **20** or is extended to form a rectangular bridge structure which presses into one of the ends of extended tube **22.**

The tube **22** is open ended and collapses into a plane defined by any one of its sides unless the open end of the tube is supported by having the tube insert **30** of the locking assembly **26** pressed into its extended open end.

The wall insert **14** is also open ended and may be collapsed transversally into the plane of any of its sides, or alternatively the two opposite sides having creases **15** may be pushed in at the creases **15** to collapse the remaining sides unto each other sandwiching the creased sides therebetween. The latter method allows the wall insert **14** to be collapsed into a smaller area plane which is easier to store within the base **12** of the collapsed returnable carton **10.**

Referring now to FIG. **4,** the collapsed carton **10** has the wall insert **14,** the wall panels **20,** and the tubes **22** all collapsed and located within the sidewall **13** confinement of the base **12.** The sidewalls **17** of the cover **16** telescope over the sidewalls **13** of the base **12** to form a compact returnable carton having all the internal packing parts located therein.

In use the mounting assembly **18** is constructed by extending the collapsed mounting tube **22** into a rectangular shape by pressing against opposite corner lines **23.** The tube insert **30** of the locking assembly **26** is extended into a rectangular bridge by pushing against the side of the tube insert **30** overlapping the flange **28** in along the pivot line **29.** The extended tube insert **30** is then pressed into one open end of the extended tube **22.** The tube insert **30** in its extended position is identical to the open ended area and configuration of the open end of tube **22** and upon mating each retains the extended configuration of the other since their respective pivot lines **29** and corner lines **23** are at right angles to each other preventing each from collapsing along said lines **23, 29.**

Refrigerator or freezer gaskets **24** are then threaded over the expanded tube **22** until the tube **22** is filled. The other open end of the tube **22** is then similarly mated with a second panel **20** to prevent any gasekts **24** from sliding off the tube **22.** Similarly, the assembly **18'** is likewise constructed and threaded with gaskets **24.**

The wall insert **14** is next extended into a rectangular shape by pushing against creases **15** and placed into the base **12** to fit against the rigid sidewall **13** of the base **12.**

The loaded material assemblies **18, 18'** are then placed inside of the extended wall insert **14** and base **12.** The wall panels **20** are of the same substantial area and configuration as one side of the extended wall insert **14** and thereby reinforce the wall insert **14** and maintain its extended shape by pressing it against the rigid walls **13** of the base **12.** Since the wall insert **14** has folding creases **15** to facilitate collapse, wall panels **20, 20'** are made to abutt in the area of the creases **15** and provide added reinforcement and extended shape retention to the insert **14** in that area.

The cover **16** is then placed over the open end of wall insert **14** and the returnable carton assembly **10** is secured by means familiar to those skilled in the art, such as banding to make it ready for shipment.

When the returnable carton is received, the securing means and cover **16** are removed and the material assemblies **18, 18'** are lifted out of the carton **10.** One wall panel **20** is retracted from each of the tubes **22, 22'** and the gaskets **24** are stripped from the tubes **22, 22'.** The remaining wall panels **20** are removed from the ends of the tube **22** and all the panels **20** are collapsed. The wall insert **14** is removed from the base **12** and collapsed by pushing in along the creases **15.** The collapsed parts are fitted within the sidewalls **13** of the base **12** and the cover **16** is telescoped over side walls **13.** The collapsed assembly is then secured and shipped back to the manufacturer for reuse in the next shipment.

Certain modifications and improvements will become obvious to those skilled in the art upon reading this specification. It is intended that such obvious improvements and modifications be included within the scope of this specification.

What is claimed is:

1. A totally returnable spring shipping carton having a collapsed return volume substantially smaller than its uncollapsed shipping volume comprising:

A. an outer structure consisting essentially of:

1. a non-collapsible base member having rigid sidewalls and one open end,

2. a collapsible open ended, rectangular, tubular wall member mounted against said sidewalls in its uncollapsed condition to extend the enclosure of said sidewalls and adapted to position within said base member in its collapsed condition, and

3. a non-collapsible cover member covering the open end of said tubular member in its uncollapsed condition and adapted to cover the open end of said base member when said carton is collapsed; and

B. at least one inner collapsible material mounting structure consisting essentially of

1. a pair of spaced, wall panels mounted internally of said tubular wall member in its uncollapsed condition and adapted to position within said base member in said carton's collapsed condition, and

2. a collapsible, open ended, rectangular, tubular mounting member extending when uncollapsed between said panels and adapted when collapsed to position within said base member, and

3. collapsible locking means located on one face of said wall panels for attaching said mounting member thereto, said locking means comprising a rectangular flat sheet having a rectangular bridge extending therefrom in its uncollapsed condition and a flat plane in its collapsed condition.

2. A totally returnable carton as set forth in claim 1 wherein the rectangular bridge of said locking means is pressed into the open end of said mounting member to prevent the collapse of both said locking means and said mounting member.

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