Feb. 8, 1966 P. CHERRIN 3,233,816

CONTAINER AND LINER ASSEMBLY

Filed Jan. 16, 1963 2 Sheets-Sheet 1

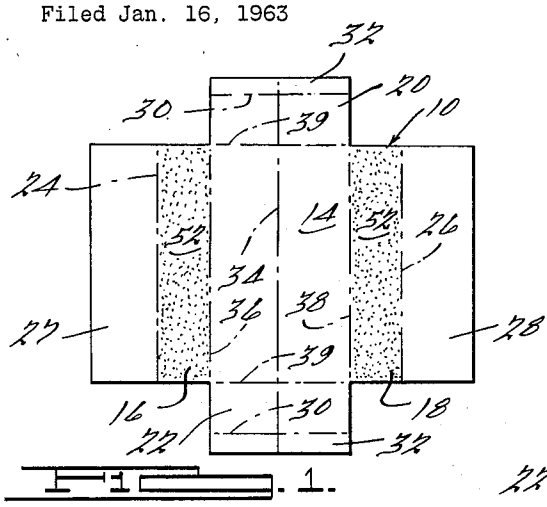


FIG. 1.

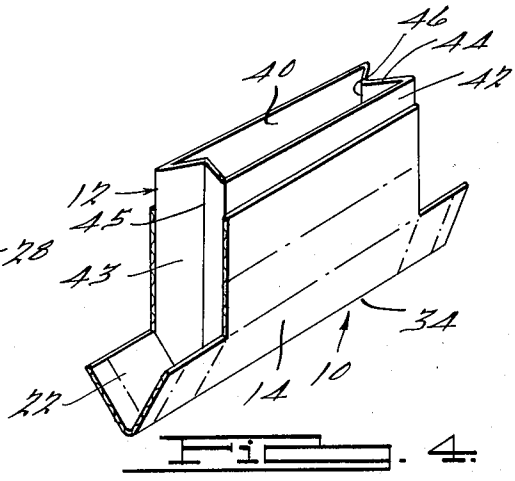


FIG. 4.

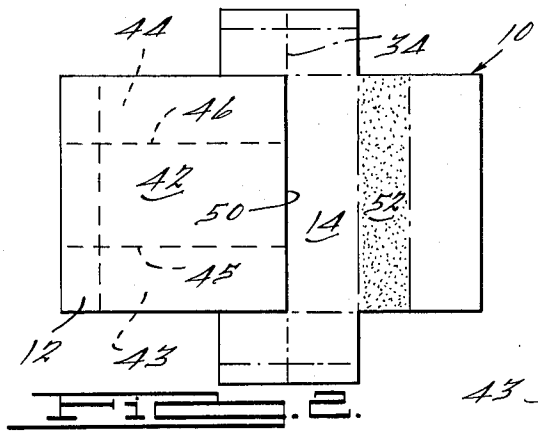


FIG. 2.

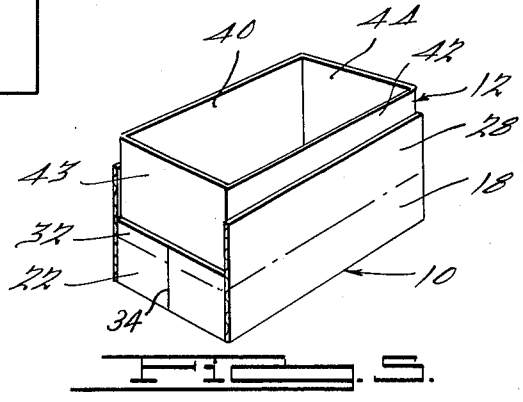


FIG. 5.

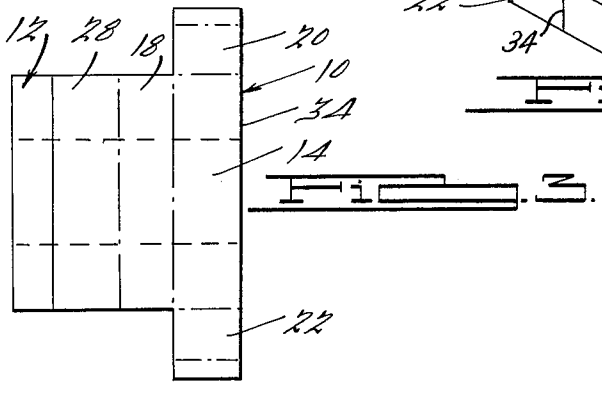


FIG. 3.

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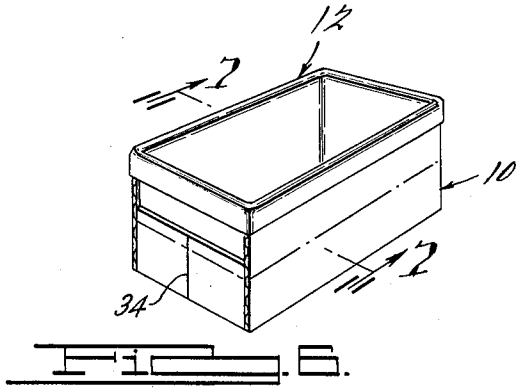


Fig. 6.

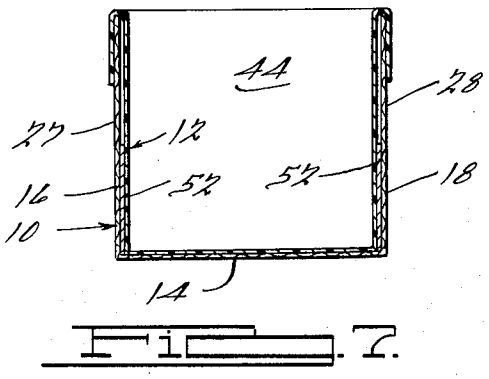


Fig. 7.

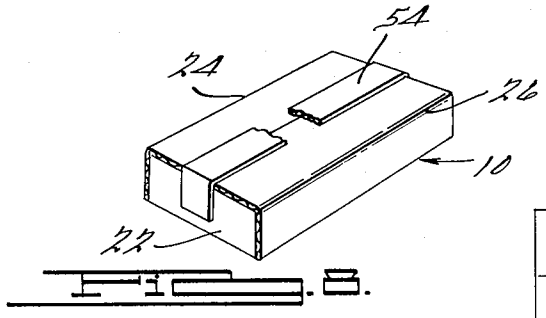


Fig. 8.

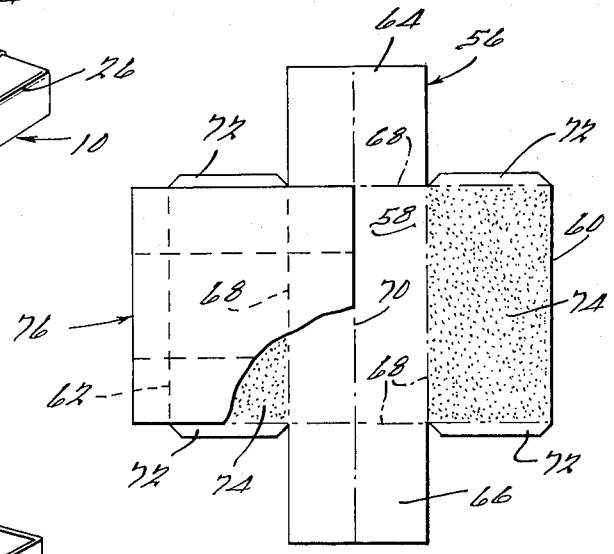


Fig. 9.

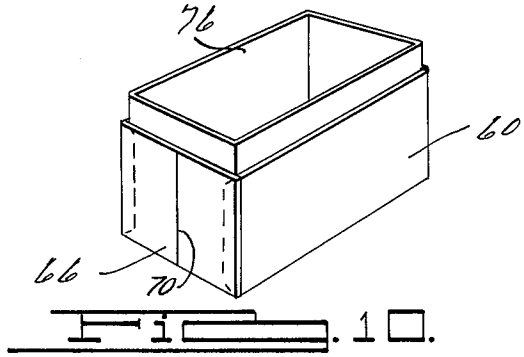


Fig. 10.

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CONTAINER AND LINER ASSEMBLY

Phillip Cherrin, Huntington Woods, Mich., assignor of one-fifth to Abe Cherrin, Detroit, Mich, one-fifth to Lem Cherrin and one-fifth to Archie Cherrin, both of Oak Park, Mich., and one-fifth to the estate of Sam Cherrin, Detroit, Mich.

Filed Jan. 16, 1963, Ser. No. 251,932
6 Claims. (Cl. 229—14)

This invention relates to containers and more particularly to an improved carton and liner assembly, the method of manufacturing the improved assembly and the method of opening of setting up the manufactured assembly.

As is well known in the art, it is often desirable to line shipping cartons or the like with a liner of material for protecting the contents thereof. The present invention is directed to particular classes of carton and liner assemblies often referred to in the art as one-piece die cut folders and full telescope containers, and is particularly directed to such assemblies having improved structural characteristics that enable the assemblies to be quickly and economically manufactured and set up.

It is therefore one of the objects of the present invention to provide improved cartons of the type characterized by a one-piece bottom and referred to as one-piece die cut folders and full telescope containers, as distinguished from cartons with the bottoms thereof formed by a plurality of flaps, which may be quickly and economically provided with a foldable or collapsible liner during the manufacture thereof. A related object concerns the method of manufacturing and setting up such a carton and liner assembly.

Another object of the invention is to provide an improved carton and liner assembly of the above-described type which may be easily and quickly set up with a minimum of handling.

Further objects, features and advantages of this invention will become apparent from a consideration of the following description, the appended claims and the accompanying drawing, in which:

FIGURE 1 is a developed plain view of the carton portion of a carton and liner assembly embodying the principles of this invention;

FIGURE 2 is a developed plan view similar to FIGURE 1 showing an intermediate step in the manufacture of the improved assembly;

FIGURE 3 is a plan view of the completed carton and liner assembly;

FIGURE 4 is a view in perspective of the carton and liner assembly of FIGURES 1–3 in a partially setup position;

FIGURE 5 is a view in perspective showing the step following that of FIGURE 4 in setting up the carton and liner assembly;

FIGURE 6 is a view in perspective of the carton and liner assmebly in a fully setup condition, ready to be filled;

FIGURE 7 is a view in vertical section taken along line 7—7 in FIGURE 6;

FIGURE 8 is a view in perspective of the filled carton and liner assembly of this invention after it has been closed and sealed;

FIGURE 9 is a developed plan view of a modified form of a carton and liner assembly embodying the principles of the present invention; and

FIGURE 10 is a perspective view of the modified form of the assembly in a partially setup position, almost ready to be filled.

Referring more particularly to the drawings, there is shown in FIGURES 1 through 8 a carton 10 of the type

having a one-piece bottom, often referred to as a one-piece die-cut folder, and having a liner 12 formed of a suitable collapsible or foldable material, such as polyethylene.

Carton 10 is representatively illustrated as being fabricated from an integral corrugated cardboard blank including a bottom panel 14, side panels 16 and 18 extending from opposite sides thereof, and end panels 20 and 22 extending from opposite ends thereof, as best illustrated in FIGURE 1. Side panels 16 and 18 have fold lines 24 and 26, respectively, directed longitudinally thereof to form top flaps 27 and 28, respectively, on the ends thereof, each flap having a width sufficient to extend half the width of bottom panel 14. End panels 20 and 22 each have a fold line 30 adjacent the end thereof to form tuck portions 32 adapted to be inserted under top flaps 27 and 28 when the assembly is eventually closed.

The carton portion of the assembly, best shown in FIGURE 1, further includes a median fold line 34 directed longitudinally of bottom panel 14 and transversely of end panels 20 and 22, as well as fold lines 36 and 38 parallel to median fold line 34 between side panels 16 and 18, respectively, and the bottom panel 14. Additionally, the carton includes fold lines 39 between end panels 20 and 22, respectively, and bottom panel 14. It is to be understood that the term "side," "end," "top," and "bottom" are used herein to facilitate description of the assembled carton and are not to be construed as limiting either the shape or position which the carton might assume.

In accordance with certain principles of the present invention, the carton blank illustrated in FIGURE 1 is adapted to be quickly and easily preassembled with the liner 12 of collapsible material in the manner illustrated in FIGURES 1 through 3. In the preferred embodiment liner 12 is in the form of a simple pleated bag comprising, in the collapsed flat state, a pair of opposite flat sides 40 and 42 and a pair of pleated sides 43 and 44 having virtically disposed fold lines 45 and 46, respectively, formed therein. The bag is preferably of a width corresponding substantially to the length of one of the side panels 16 or 18, as best seen in FIGURE 2. Sides 43 and 44 are preferably of a width corresponding substantially to the width of the carton end panels 20 and 22 so that when the carton is set up liner 12 will be coextensive in size with the interior thereof. The bottom end 50 of the liner bag is closed by a seam 50, formed by heat sealing or the like, so that when the bag is opened it will have a gusseted bottom.

The first step in the improved method of manufacture of the above-described unique carton and liner assembly is to apply a suitable adhesive 52 to side panels 16 and 18, as best illustrated in FIGURE 1. The collapsed liner is then placed over one of the side panels of the carton blank with the bottom end 50 of the liner aligned with median fold line 34 of the blank, as best illustrated in FIGURE 2. The carton blank is then folded along median fold line 34 and the sides thereof compressed will adhere to the flat sides of the liner, in the manner illustrated in FIGURE 3.

One of the advantages of folding the carton blank 14 along the median fold line thereof is that it provides for an alignment of the side panels which is maintained during the setting up of the carton. In addition, because of the symmetry of the blank about this fold line, the side panels end up with their adhesive covered surfaces facing each other so that a single clamping or compressing operation is sufficient to join both of the side panels to the liner. The unique structure of the improved carton and liner assembly, in particular the longitudinally directed median fold line 34 in the bottom panel, also enables the liner to be quickly and accurately positioned with respect

to the carton blank in such a way that when the carton is set up the liner will have a flat gusseted bottom which accurately fills the contour of the carton. Large numbers of assemblies such as that illustrated in FIGURE 3 can therefore be quickly and inexpensively manufactured by the improved method set forth above and then stored one on top of the other in a compact manner, with the carton and liner portions of the assembly integrated in a fashion which enables the assembly to be set up quickly and economically whenever desired.

In accordance with certain other of the principles of the present invention the improved carton and liner assembly shown in FIGURE 3 may be opened or set up by an extremely simple operation or method.

This improved method comprises the steps of standing the flat assembly on the edge thereof defined by fold line **34**, and then moving side panels **16** and **18** of the carton **10** apart, as best shown in FIGURE 4, to a final position wherein they are parallel and spaced a distance equal to the width of bottom panel **14**. As can be visualized, this may be accomplished by simply pushing the assembly downwardly on edge **34**. Since the sides of the liner are adhered to the side panels they are in turn moved apart to thereby cause pleated sides **42** and **43** of the liner to expand to form the end walls of the liner, as well as to form triangular gussets or reinforcing sections (not shown) at opposite ends of the bottom of the liner. The next step includes folding end panels **20** and **22** upwardly along fold lines **39** to define an open and set up carton and liner, as shown in FIGURE 5. The upper edge of the liner may then be turned over the upper edges of top flaps **27** and **28** in the manner illustrated in FIGURE 6 so that the liner will be held in a fully opened condition, to facilitate filling.

The liner is then filled and the open end thereof closed using suitable fastening means, such as tape, wire, string, heat sealing or the like. Following this, tuck portions **32** are turned inwardly of the container and top flaps **26** and **28** are then folded inwardly along fold lines **24** and **26** to fully close the container or carton. A closure tape **54** may then be applied to flaps **27** and **28** in the manner shown in FIGURE 8 to seal the container.

In FIGURES 9 and 10 the present invention is embodied in a carton and liner assembly for forming a full telescope type of container. As can be seen, the carton blank, indicated at **56**, comprises a bottom panel **58**, a pair of side panels **60** and **62**, and a pair of end panels **64** and **66**, all integrally connected to the bottom panel along a fold line **68**. In addition, there is provided a median fold line **70** directed longitudinally of bottom panel **58** and end panels **64** and **66**. Also, each of the side panels **60** and **62** has a flap portion **72** on each side thereof.

To fabricate the assembly a suitable adhesive **74** is applied to the inside surface of each side panel and a collapsed liner, indicated at **76**, identical to the previously described liner, is positioned over one of the side panels with the bottom seam of the liner aligned with fold line **70**, in the manner shown in FIGURE 9. The blank is then folded about fold line **70** and the two side panels pressed together to adhere them to the sides of the liner, this technique being the same as that used on the previously-described embodiment.

In accordance with the above set forth improved method of setting up a carton and liner assembly, the assembly illustrated in FIGURES 9 and 10 is set up by merely moving side panels **60** and **62** apart a distance equal to the width of the bottom panel **58**, which will also cause the liner to open. Flap portions **72** are then folded inwardly and end panels **64** and **66** are folded upwardly along the fold lines **68** into the position illustrated in FIGURE 10, whereupon each end panel is secured to the pair of adjacent flaps **72** by suitable fastening means, such as staples, glue, or the like. The top edge of the liner may then be turned over the upper edges of the side and end panels of the open container to facilitate easy filling, in the same manner as the previous embodiment. After being filled the container may be closed using a top tray of conventional construction.

The details of construction of the bag-like liner and the manner in which it forms a gusseted flat-bottomed liner have not been described in detail herein since they are described in great detail in my aforesaid earlier application.

Thus, there are disclosed in the above description and in the drawings several exemplary embodiments of the invention which fully and effectively accomplish the objects thereof. However, it will be apparent that variations in the details of construction may be indulged in without departing from the sphere of the invention herein described, or the scope of the appended claims.

What is claimed is:

1. A carton and liner assembly comprising: a carton blank having a one-piece bottom panel and pairs of opposed side and end panels extending therefrom; means defining a straight fold line extending through the centers of said end panels and said bottom panel, said blank being folded upon itself about said fold line so that the inside faces of said side panels are facing one another; and a collapsed bag-like liner positioned between and secured to each of said faces with each of said faces secured to the adjacent side of said liner, whereby when said carton is set up said liner will automatically open.

2. A carton and liner assembly comprising; a carton blank having a one-piece bottom panel and pairs of opposed side and end panels extending therefrom; means defining a fold line extending through the centers of said end panels and said bottom panel, said blank being folded upon itself about said fold line so that the inside faces of said side panels are facing one another; and a collapsed bag-like liner positioned between and secured to each of said faces, said liner having a width substantially the same as the width of said bottom panel as measured along said fold line and the bottom edge thereof being positioned along said fold line in said bottom panel.

3. A carton and liner assembly comprising: a carton blank having a one-piece bottom panel, and pairs of opposed side and end panels extending therefrom; means defining a fold line extending through the centers of said end panels and said bottom panel, said blank being folded upon itself about said fold line so that the inside faces of said side panels are facing one another; and a collapsed bag-like liner positioned between and secured to each of said faces, said collapsed liner being rectangular in shape with parallel pleated sides, an open top, and a straight closed bottom edge, the width of said liner being substantially the same as the width of said bottom panel as measured along said fold line and the bottom edge thereof being positioned along said fold line in said bottom panel.

4. An assembly as claimed in claim 3, wherein the open end of said collapsed liner extends beyond the upper edges of said end panels.

5. A carton and liner assembly comprising: a carton blank having a one-piece bottom panel, a pair of opposed side panels extending from said bottom panel and having top flaps thereon, and a pair of opposed end panels extending from said bottom panel and having tuck portions thereon; means defining a fold line extending through the centers of said end panels and said bottom panel, said blank being folded upon itself about said line so that the inside faces of said side panels are facing one another; and a collapsed bag-like liner positioned between and secured to each of said faces, said liner having a width substantially the same as the width of said bottom panel as measured along said fold line and the bottom edge thereof being positioned along said fold line in said bottom panel.

6. A carton and liner assembly comprising: a carton blank having a one-piece bottom panel, a pair of opposed side panels extending from said bottom panel and having flap portions along the side edges thereof, and a pair of

opposed end panels extending from said bottom panel, said side and end panels being of substantially the same heighth; means defining a fold line extending through the centers of said end panels and said bottom panel, said blank being folded upon itself about said line so that the inside faces of said side panels are facing one another; and a collapsed bag-like liner positioned between and secured to each of said faces, said liner having a width substantially the same as the width of said bottom panel as measured along said fold line and the bottom edge thereof being positioned along said fold line in said bottom panel.

References Cited by the Examiner

UNITED STATES PATENTS

802,884	10/1905	Purchas	229—56
892,179	6/1908	Parmenter	229—56
2,331,582	10/1943	Trost.	
2,432,052	12/1947	Waters	229—14
2,645,405	1/1953	Dorfman	229—41 X
2,791,609	9/1956	Arkin	229—41 X
2,930,517	3/1960	Mensing et al.	229—14
2,973,698	3/1961	Orlando	93—36.01
3,041,942	7/1962	Repking	93—36.01
3,074,617	1/1963	Kindseth et al.	229—41
3,079,060	2/1963	Cherrin	229—14

FOREIGN PATENTS

225,553	11/1959	Australia.
216,955	8/1961	Austria.
1,282,996	12/1961	France.
472,044	6/1952	Italy.
564,836	8/1957	Italy.

JOSEPH R. LECLAIR, *Primary Examiner.*

FRANKLIN T. GARRETT, *Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,233,816 February 8, 1966

Phillip Cherrin

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 43, for "plain" read -- plan --; line 58, for "assmebly" read -- assembly --; column 2, line 57, after "compressed" insert -- together so that the adhesive portion on each of the side panels --; column 6, line 3, for "2,791,609" read -- 2,761,609 --.

Signed and sealed this 27th day of December 1966.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents