United States Patent

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[54] **COMPOSITE CONTAINER**
4 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **229/37,** 229/14
[51] **Int. Cl.** **B65d 5/56**
[50] **Field of Search** ..... 229/14 (BA), 14 (BL), 37, 14B

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ABSTRACT: A composite container is provided for use in the bulk handling of comminuted materials and the like. The container includes a foldable outer carton having sidewall panels and full overlapping end closure flaps which cooperate to define a product-accommodating compartment, and a pliable bag disposed within the compartment and having an open upper end for product loading. The wall portions of the bag are affixed to the interior surfaces of the carton sidewall panels and the portions of the bag circumjacent the open upper end are releasably affixed to the closure flaps defining the carton upper end. The bag portion of the first folded closure flap projects beyond the distal edge of the flap so that the projecting bag portion overlies a portion of the bag attached to a second closure flap, opposed to said first folded closure flap, and thus, retains the projected bag portion in linear contact with the overlapped bag portion of the second closure flap at the fold line connection between the second closure flap and a sidewall of the container.

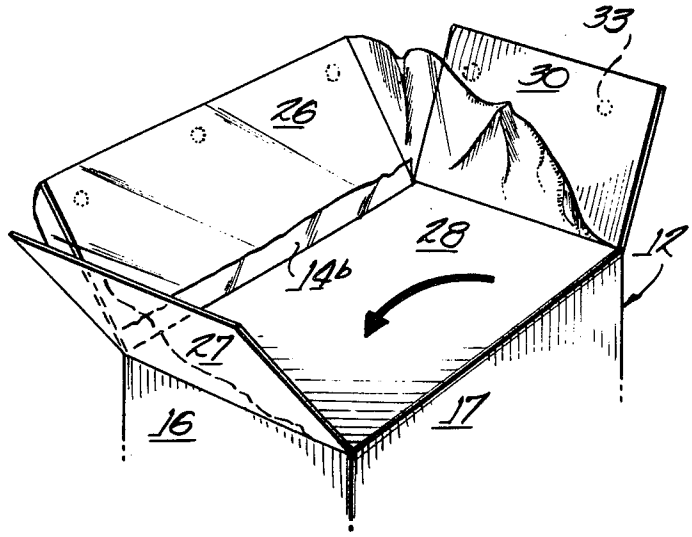

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Fig. 1.

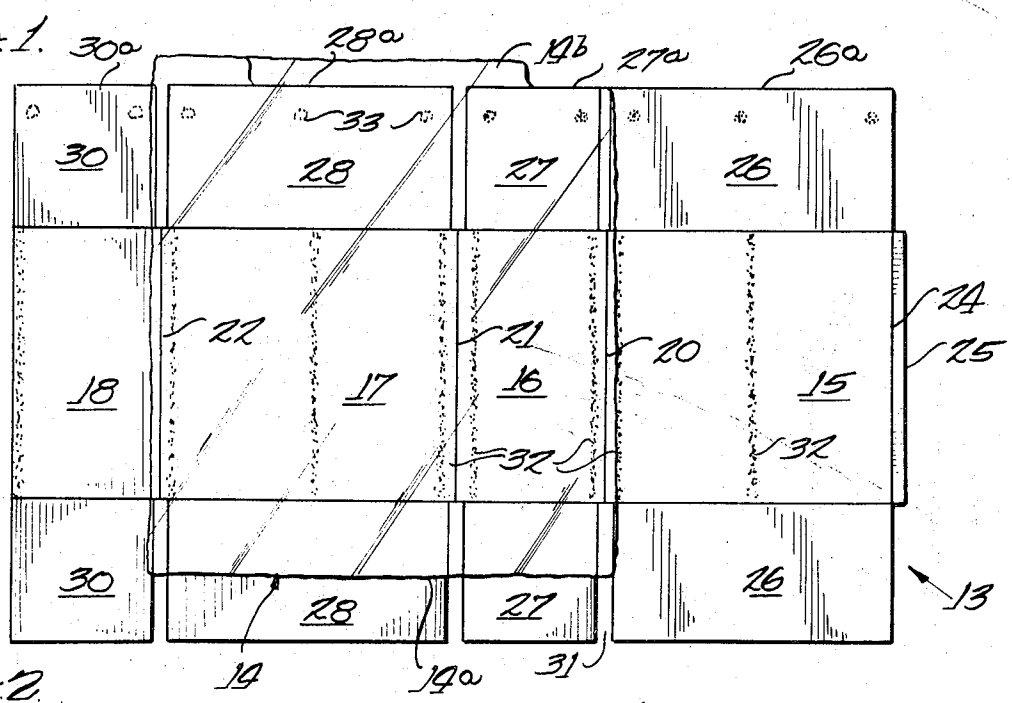


Fig. 2

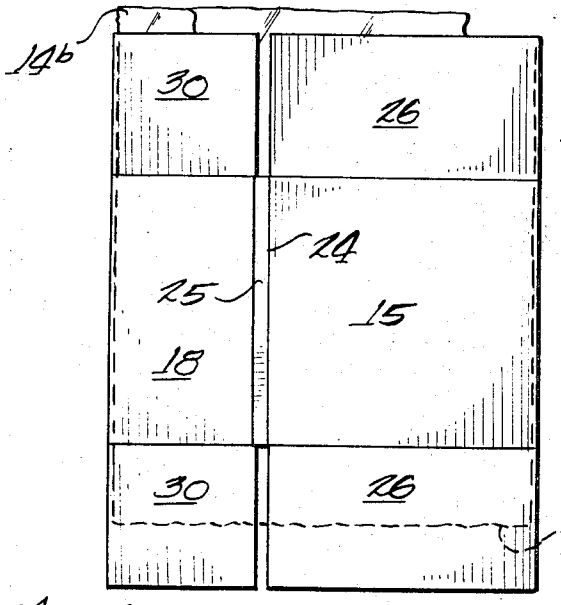


Fig. 3

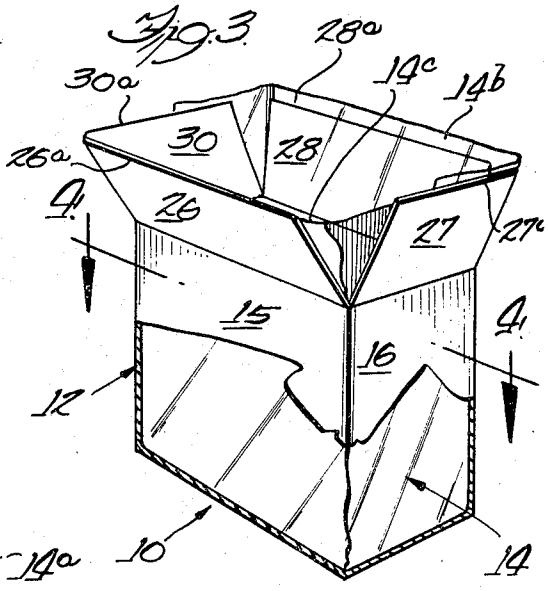
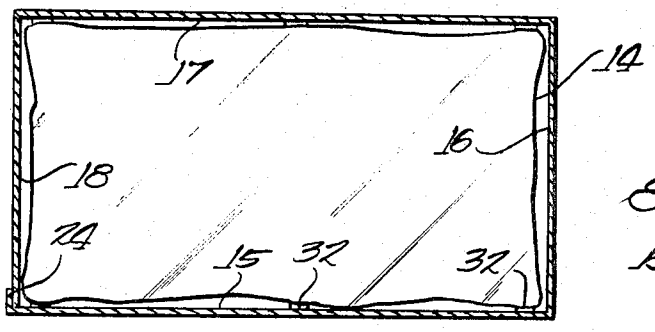


Fig. 4



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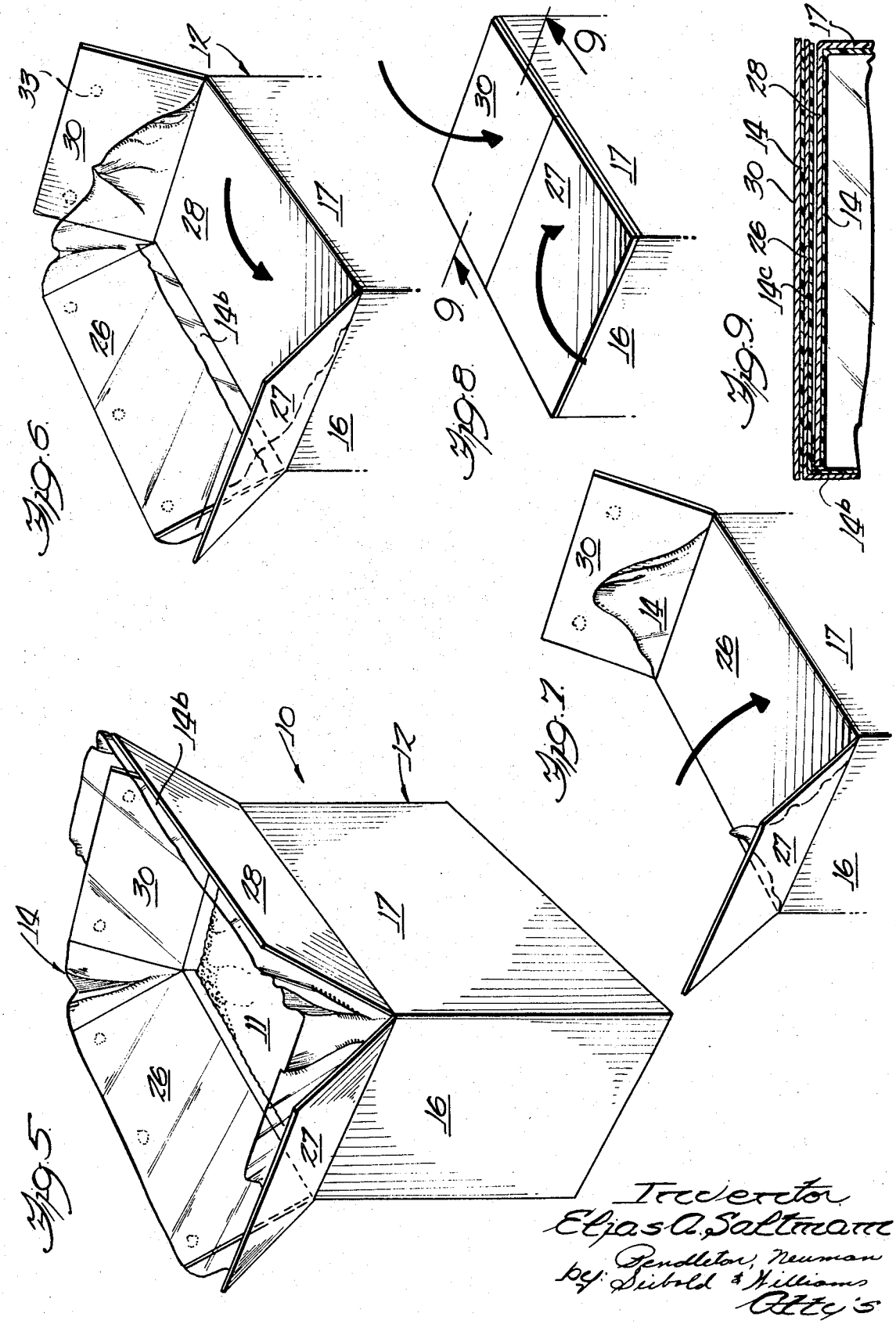

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COMPOSITE CONTAINER

BACKGROUND OF THE INVENTION

In prior composite containers of this general type, it has frequently been required that the loading end of the inner bag be heat sealed closed, securely tied, or carefully folded before final closing of the outer carton has occurred. Such procedures are undesirable because they are awkward and time consuming operations and/or in heat sealing, the heat applied might have a deleterious effect on the product being accommodated. In other prior composite containers loading thereof was oftentimes a frustrating experience because opening of the bag to receive the product could not be readily attained and/or maintained.

Because of certain structural characteristics, numerous prior composite containers were not readily suitable to be mechanically set up. loaded and closed, or capable of being collapsed prior to use, so as to form a compact unit easily stored or shipped with other containers in like condition. Furthermore, many of the prior composite containers were of complex and costly design and were not adaptable to accommodate a variety of products.

SUMMARY OF THE INVENTION

Thus, it is an object of this invention to provide a composite container that readily avoids the aforenoted shortcomings which have heretofore beset prior containers of this general type.

It is a further object of this invention to provide a composite container which may be formed, set up, loaded and closed by utilizing techniques well known and understood in the packaging art.

Further and additional objects will appear from the description, accompanying drawings and appended claims.

In accordance with one embodiment of this invention a composite container is provided which comprises a carton having a plurality of sidewall panels foldably interconnected and forming an interior product-accommodating compartment and a plurality of closure flaps foldably connected to the upper and lower edges of the sidewall panels. The closure flaps, when in one folded position, cooperate with one another so as to form the top and bottom end walls of the compartment. Disposed within the compartment is a pliable bag having the upper end thereof open to permit loading of the product. The wall portions of the bag are affixed to the interior surfaces of the carton sidewall panels and are movable therewith when said carton is manipulated to either a set up or collapsed condition. The portions of the bag circumjacent the open upper end thereof are releasably affixed to the carton closure flaps defining the top end wall. One pair of the top end wall-forming closure flaps fully overlap one another when the end wall is formed. A segment of the upper end-forming portion of the bag projects beyond the distal edge of the first folded flap of the fully overlapping flaps. A second segment of the upper end-forming portion of the bag terminates at the distal edge of the other fully overlapping closure flap.

For a more complete understanding of the invention, reference should be made to the drawings wherein:

FIG. 1 is a plan view of the carton blank and showing the bag in collapsed condition and overlying a portion of the blank.

FIG. 2 is similar to FIG. 1 but showing the blank and bag folded so as to form a collapsed tubular member.

FIG. 3 is a perspective view of the improved composite container shown in condition for loading; portions of the carton sidewall panels being removed so as to expose the bag wall portions.

FIG. 4 is an enlarged sectional view taken along line 4–4 of FIG. 3.

FIG. 5 is similar to FIG. 3 but showing the container fully loaded.

FIGS. 6-8 are fragmentary perspective views of the upper end of the container and showing the folding sequence to effect closing of the container.

FIG. 9 is an enlarged fragmentary sectional view taken along line 9–9 of FIG. 8.

Referring now to the drawings and more particularly to FIGS. 3 and 5, an improved composite container **10** is shown which is particularly adaptable for the bulkhandling of comminuted or granulated products **11**, see FIG. 5. The container **10** includes an outer carton or box **12** which is formed from a blank **13** of foldable sheet material, such as double faced corrugated fiberboard or the like. Disposed within the carton **12** is a pliable bag **14** formed of nonpervious plastic sheet material such as polyethylene.

The carton **12** in the illustrated embodiment is a style known in the art as a center special full flap slotted container; however, other styles of cartons may be used if desired. Carton **12** includes four vertical sidewall panels **15**, **16**, **17** and **18**. In blank **13** the sidewall panels are arranged in side-by-side relation and are interconnected by foldlines **20**, **21** and **22**. Connected by foldline **24** to the outer side edge of panel **15** is a manufacturer's glue flap **25**. Foldably connected to the top and bottom edges of panels **15**—**18** are closure flaps **26**, **27**, **28** and **30** which cooperate with one another so as to form top and bottom end walls.

As noted from the drawings, sidewall panels **15** and **17** and their respective closure flaps **26** and **28** are wider than panels **16** and **18** and their respective closure flaps **27** and **30**. The adjacent edges of adjoining closure flaps are separated from one another by slots **31**.

Applied to the interior surfaces of the carton sidewall panels **15**—**18**, which cooperate with one another to form a compartment, are elongated stripes of adhesive **32** arranged in spaced parallel relation. The stripes preferably extend the full height (length) of the sidewall panels.

Placed in registered relation with the interior surfaces of sidewall panels **16** and **17** of blank **13** is bag **14** in a collapsed condition. It will be noted in FIG. 1 that the bag in its collapsed condition has a width greater than the combined widths of panels **16** and **17**. In addition, the length of bag **14** is greater than panels **16** and **17** so that the lower or closed end **14*a*** of the bag overlies substantial portions of lower closure flaps **27** and **28**. The upper portions of the bag defining the upper open end completely overlie upper closure flaps **27** and **28**. It will be further noted in FIGS. **1**, **3**, **5** and **6**, that a segment **14*b*** of the upper edge of bag **14** projects beyond the outer distal edge **28*a*** of upper closure flap **28** and also preferably beyond at least a part of the distal edges **27*a*** and **30*a*** of upper closure flaps **27** and **30**. A second segment **14*c*** of the upper edge of bag **14** terminates at the distal edge **26*a*** of upper closure flap **26**, see FIGS. **3**, **5** and **6**.

In addition to the adhesive stripes **32** which affix the wall portions of the bag **14** to the carton sidewall panels **15**—**18**, there is also provided a plurality of adhesive spots **33** which are applied to the interior surfaces of the upper closure flaps **26**, **27**, **28** and **30**. These spots **33** are adapted to releasably affix the upper portions of the bag to the upper closure flaps and thus facilitate opening of the upper end of the bag for loading, see FIGS. **3** and **5**.

It is important in order that a proper leakproof closing be effected at the upper end of the container that the portion **14*b*** of the bag project beyond the distal edge **28*a*** of the first folded flap **28**. This fact becomes apparent when the manner of closing the loading end of the container **10** is described. As seen in FIG. **6**, the bag portion **14*b*** partially overlies the interior surface of flap **26**, after flap **28** is first folded across the end of the carton. It will be noted that flap **28** spans the distance between wall panels **15** and **17** as well as between wall panels **16** and **18**. Subsequent to flap **28** being folded, as shown in FIG. **6**, flap **26** and the portion of the bag affixed thereto, as well as extension **14*b*** are folded so as to overlap the first folded flap **28**. Suitable adhesive may be applied to the exposed surface of flap **28** so as to retain the bag portions carried by flap **26** in

overlapping relation. Both flaps **26** and **28** are in full overlapping relation. Both flaps **26** and **28** are folded into proper relative positions, the portions of the bag releasably affixed to closure flaps **27** and **30** will be pulled therefrom and thus prevent any tearing of the bag material, see FIGS. **6** and **7**. Once flaps **26** and **28** are in proper overlapping relations, the remaining two flaps **27** and **30** are then folded inwardly towards each other so as to overlap the exposed surface of flap **26**. In the illustrated embodiment, flaps **27** and **30** are of like configuration and their combined lengths span the distance between sidewall panels **16** and **18**.

It will be noted in FIG. **7** that as the flaps **27** and **30** are folded into their proper overlapping relation with respect to flap **26**, the portions of the bag which had previously been affixed to flaps **27** and **30** become sandwiched between flap **26** and the respective flap **27** or **30**. Flaps **27** and **30** are retained in their folded positions, as shown in FIG. **8** by suitable means such as adhesive or tape.

Thus, by reason of the interfolding of the closure flaps and the upper portions of the bag, an effective sealed closure is obtained without heat sealing, tying, separate internal folding or the like; and in addition, the strength of the end of the container is materially enhanced because of its multi-ply construction, see FIG. **9**. It is to be further noted that the sealed closure is attained without the necessity of heat sealing closed the open end of the bag subsequent to loading thereof.

As aforementioned, the size and configuration of the composite container may be varied from that shown in the drawings without departing from he scope of the invention. By avoiding affixing wall portions of the bag to the carton interior at the foldlines between the carton wall panels, erecting or setting up of the container from its collapsed state, as shown in FIG. **2**, is facilitated.

While the closed lower end of the bag partially overlies lower closure flaps **27** and **28**, as seen in FIG. **1**, this condition does not interfere with the closing of the bottom of the carton because of the pliable character of the bag material. The lower closure flaps may be the full overlap style, if desired, and thereby give added strength to the bottom of the container.

Thus, the improved composite container is of simple yet sturdy construction and provides a leakproof construction for the accommodated product without requiring that both ends of the inner bag be heat sealed closed. The improved container is capable of accommodating a variety of products and may be readily set up, loaded and closed by conventional mechanical equipment.

While a particular embodiment of the invention has heretofore been described, it is to be understood, of course, that the invention is not limited thereto, but further modifications are contemplated and it is intended by the appended claims to cover such modifications.

I claim:

1. A composite container comprising a foldable carton having four sidewall panels foldably interconnected and defining a product-accommodating compartment, and closure flaps foldably connected to the top and bottom edges of said sidewall panels and being foldable into overlapping relation so as to form top and bottom end walls for the compartment, a first of said closure flaps forming the top end wall spanning the entire distance between the opposed sidewall panels defining said compartment; and a pliable bag disposed within said compartment, said bag having a closed bottom subtended by the carton bottom end wall-forming closure flaps, wall portions of said bag being affixed to the interior surfaces of said sidewall panels forming said compartment, and portions of said bag circumjacent the open end thereof being releasably affixed to the carton top end wall-forming closure flaps, the segment of the bag releasably affixed to said top end wall-forming first closure flap projecting beyond the distal edge of said first folded closure flap and said bag segment overlying a portion of the bag attached to the inner surface of a second closure flap opposed to said first closure flap at the foldline connection between said second closure flap and a sidewall panel, whereby the overlying bag segment and bag portion are retained in linear contact at said foldline connection.

2. The composite container of claim **1** wherein a second segment of the bag releasably affixed to the inner surface of said second closure flap terminates at the distal edge of said second closure flap.

3. The composite container of claim **2** wherein the segments of the bag wall portions adjacent the folding connections between the carton sidewall panels are not affixed to the interior surfaces of said sidewall panels.

4. The composite container of claim **3** wherein said first and second closure flaps fully overlap one another when forming said top end wall.