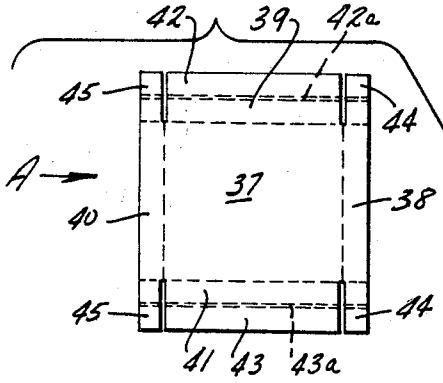
March 18, 1969 E. A. SWIFT 3,433,401

BULK CARRIER

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FIG. 1



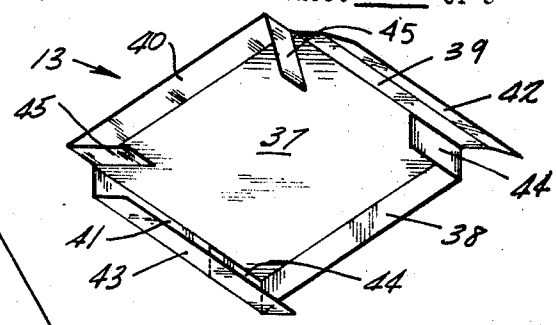
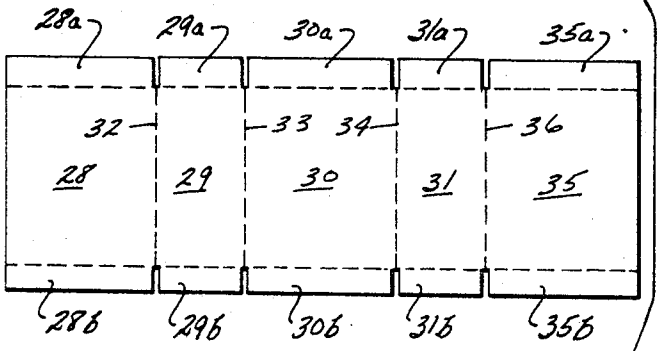
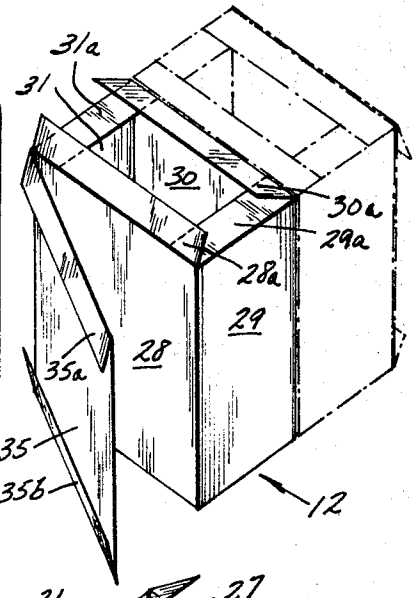


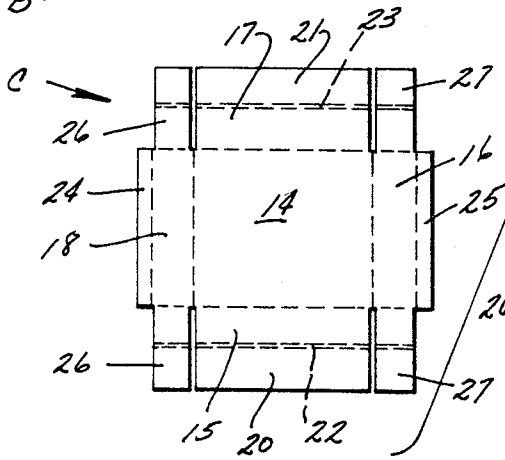
FIG. 2

FIG. 3





B



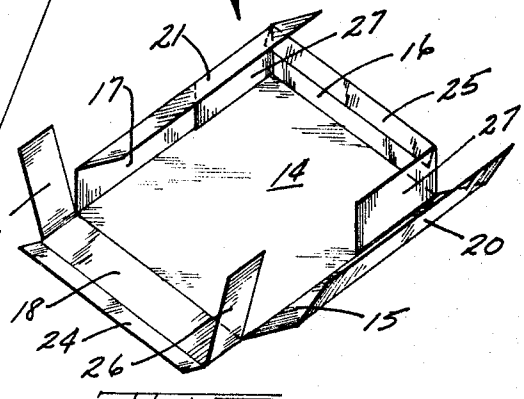


FIG. 4

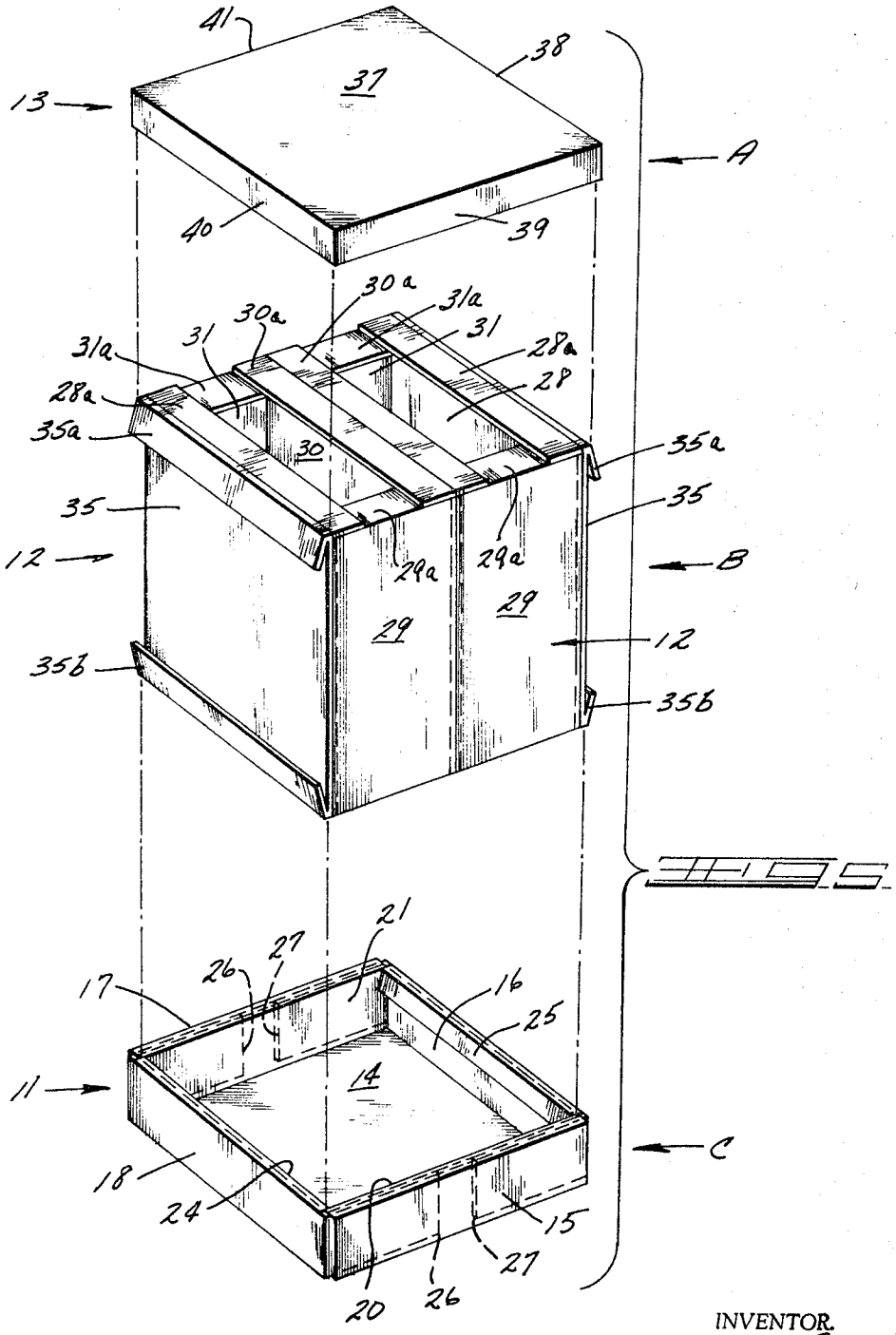
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BULK CARRIER

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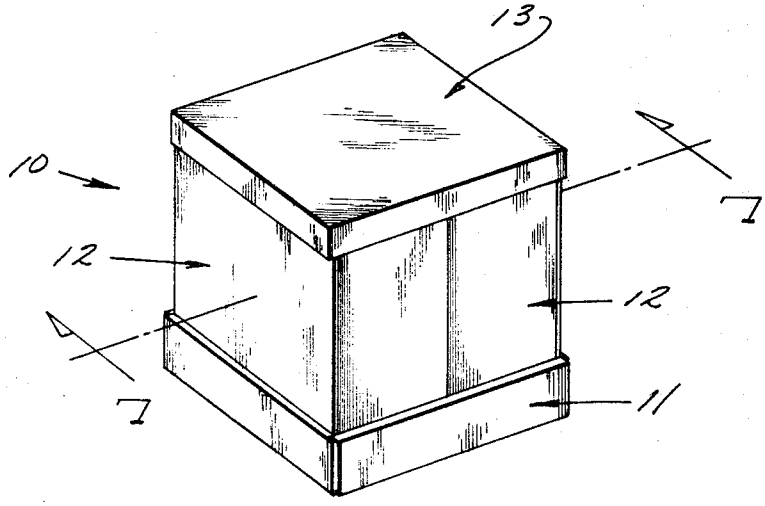
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BULK CARRIER

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FIG. 6



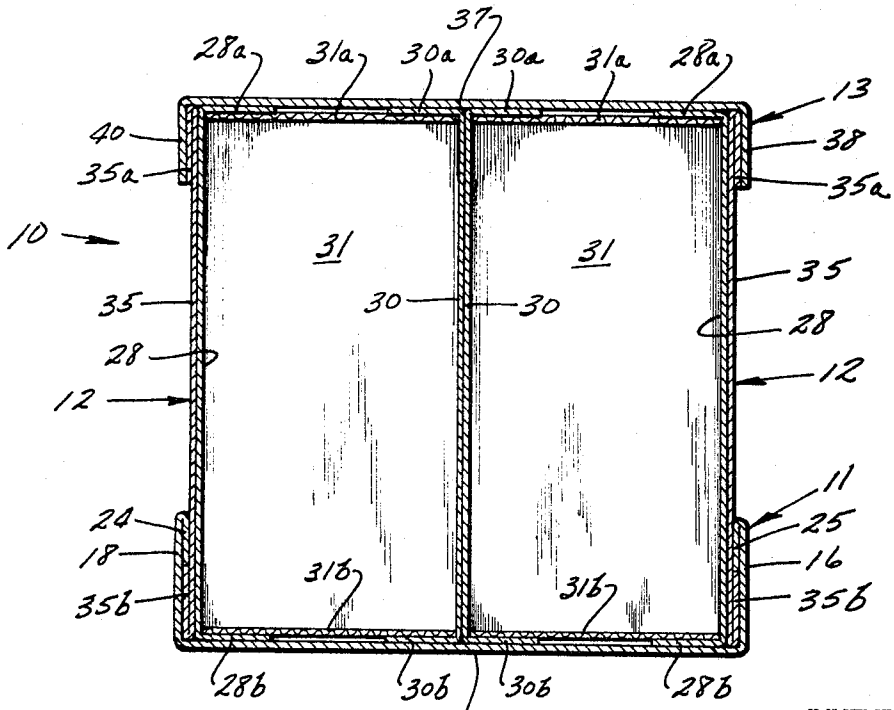


FIG. 7

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3,433,401

BULK CARRIER

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Filed June 19, 1967, Ser. No. 646,851
U.S. Cl. 229—15 7 Claims
Int. Cl. B65d 5/48, 81/00, 5/02

ABSTRACT OF THE DISCLOSURE

A twin cell package for bulk products having two rectangular cells nested in an interlocking base; each of these cells is formed from a five panel sheet and the cells are positioned side by side in the base so as to form three double thickness vertical walls for increased stacking strength.

This invention relates to an improved box-type container and more particularly, to a novel compartmented corrugated shipping and storing container which is suitable for holding free flowing bulk commodities in granular, pellet, or powder form. Free flowing bulk commodities, such as coffee beans, exert a substantial force on the walls and bottom structure of their container. Consequently, it is necessary that such containers have substantial structural strength. Additionally, leakage of the bulk product through the bottom and side wall joints of these box-type containers often causes problems in shipping and storing filled containers. These problems are particularly acute when these bulk containers are to be collapsed or "knocked down," reassembled and re-used. For the above, and other reasons, many bulk materials such as flour, pelletized chemicals, coffee beans, grain and the like, have been shipped in non-collapsible fibreboard or metal containers. It is apparent that substantial savings could be realized if collapsible, reuseable fibreboard containers could be used to achieve these purposes.

Accordingly, it is an object of the present invention to provide a novel bulk shipping and storage container for bulk commodities.

Another object is to provide a large collapsible, corrugated box to function as a bulk carrier, the corrugated box being formed in sections, whereby the strength is increased.

A still further object is to provide a corrugated compartmentalized bulk box having a novel sidewall construction with increased stacking strength.

Yet another object is to provide a novel collapsible, twin cell bulk box having a sidewall construction of superior stacking strength, said box having an interlocking base that is resistant to product leakage.

The above as well as other objects, features and advantages of the present invention will be more clearly understood by reference to the following detailed description and drawings wherein:

FIGURE 1 generally designates plan view of the cut and scored blanks used in forming the bulk carrier.

FIG. 1A is a plan view of the cut and scored blank utilized in making one embodiment of the lid or cover of the container.

FIG. 1B is a plan view of the cut and scored blank utilized in making the tubular body portions or cells of the container.

FIG. 1C is a plan view of the cut and scored blank utilized in making the base or bottom of the container; as described below, this blank can also be used in forming the cover.

FIG. 2 is a perspective view looking up at the partially folded blank of FIG. 1A.

FIG. 3 is a perspective view of the tubular body portion of FIG. 1B in partially folded condition.

FIG. 4 is a perspective view looking down on the blank of FIG. 1C in a partially folded state.

FIG. 5 is a perspective view showing the twin cell tubular body portions preparatory to being nested in interlocking relation with the base; the cover or lid preparatory to being telescoped over the upper flaps of the tubular body portions is also shown. FIG. 5 is subdivided into FIGS. 5A, 5B and 5C corresponding to A, B and C of FIG. 1.

FIG. 6 is a perspective view of the assembled bulk box.

FIG. 7 is a vertical sectional view of the assembled box taken in the direction of arrows 7—7 in FIG. 6.

The component parts of the bulk carrier of the invention are generally illustrated in FIG. 1. The bulk box is generally designated as **10** in FIGS. 6 and 7. The bulk box **10** is formed from a base, generally designated by number **11**. In the preferred embodiments, two upstanding tubes or cells **12** are nested in interlocking relationship in the base **11**, although it will be apparent that the invention includes a pair of side by side cells of the type hereinafter described nested in a conventional, non-interlocking base. A cover or lid **13** is telescoped over the top of the cells. The bulk box **10** is of generally rectangular configuration for convenience in storage and handling.

The base **11** is folded from a flat, precut and scored blank of relatively rigid sheet like material, such as corrugated fibreboard, as shown in FIGS. 1C, 4 and 5C. This blank includes a rectangular central panel **14** which is of the same size and configuration as the bottom defined by placing two cell portions side by side. Four integral, primary flaps **15**, **16**, **17** and **18** are foldably secured to the edges of this rectangular central panel. Flaps **15** and **17** are attached to an opposed pair of edges of panel **14** and each has a secondary flap **20** and **21** foldably joined thereto at double score lines **22** and **23**. Double score lines **22** and **23** are used so as to provide a small spacing between the primary flaps **15** and **17**, and secondary flaps **20** and **21**.

Flaps **16** and **18** are attached to the other opposed pair of edges of panel **14** and each has an interlocking tab **25** and **24** respectively, foldably attached to the terminal edge thereof. These interlocking tabs **24** and **25** are dimensionally shorter in width than the primary flaps **16** and **18**. The reason for this will be described below. Each of the primary flaps **16** and **18** also have a pair of integral extension flaps **26** and **27** respectively, foldably secured thereto along the opposed end edges of flaps **16** and **18**, and adjacent to flaps **15** and **17**.

FIG. 4 illustrates the partially folded base and FIG. 5 shows the finished base. Flaps **16** and **18** are folded at right angles to the base central panel **14**, with the two pairs of flaps **26** and **27** extending at right angles to the flaps **16** and **18**, and to the base panel **14**. The flaps **15** and **17** are then folded at right angles with the base panel **14**. The flaps **20** and **21** are folded generally parallel to flaps **15** and **17**, into overlapping relation with respect to the two pairs of flaps **26** and **27** as is best shown in FIGS. 4 and 5. The interlocking tabs **24** and **25** are then folded inwardly and downwardly so as to be generally parallel to flaps **16** and **18** as shown in FIGS. 4 and 5C. The finished base is then in the form of a shallow tray having an upstanding peripheral flange formed by the folded flaps, with a pair of interlocking tabs attached to the top edges of opposing faces of the flange. The base can also be of a design similar to the cover or lid design shown in FIGS. 1, 2, 5 and 7. This is a conventional design and does not include the interlocking tabs **24** and **25**. When this type of base is used the two tubular body portions are nested but not interlocked in the base.

The construction of the tubular body portions is shown in FIGS. 1B, 3 and 5B. As best shown in FIG. 1, the

tubular body blank which may also be formed from corrugated fibreboard, includes a side wall panel **28**, a rear wall panel **29**, side wall panel **30** and a front wall panel **31** connected together along parallel fold lines **32**, **33** and **34**. A reinforcing panel **35** is connected to the panel **31** along the fold line **36** parallel to the fold lines **32**, **33** and **34**. The panel **28** in the assembled form as shown in FIGS. 3 and 5B, underlies the reinforcing panel **35** so as to form a side wall panel of double thickness.

Panels **28**, **29**, **30** and **31** have integral foldable flaps **28***a*, **28***b*; **29***a* **29***b*; **30***a*, **30***b*; and **31***a*, **31***b* respectively, attached thereto along the upper and lower panel edges. These flaps fold inwardly and at right angles to their respective panels when the body portion is in the assembled condition as shown in FIG. 3 and 5B. This design provides increased lateral structural stability.

The reinforcing panel **35** has interlocking flaps **35***a* and **35***b* foldably connected thereto along the upper and lower panel edges. These tabs, **35***a* and **36***b*, fold outwardly and extend generally parallel to the exterior face of the panel **35** as shown in FIGS. 3, 5B and 7.

To form the twin cell bulk box, two of these tubular-body-portions described above are folded and nested side by side in the base **11**, with the double thickness side wall panels facing outwardly as shown in FIG. 3, 5B and 7. This provides three walls of double thickness for increased vertical structural strength as shown in FIG. 7.

The interlocking tabs **24** and **25** of the base **11** interlock in abutting relation with the reinforcing panel flaps **35***b* to secure each of the cells in position within the base as shown in FIG. 7. The interlocking of the base with cells is achieved by designing the height of flap **16** (and **18**) to be approximately equal to the sum of the height of tab **25** (and **24**) plus the height of flap **35***b*. The cells are shown interlocked in the base in FIG. 7. When the base employed is the conventional open topped, non-interlocking type (i.e., similar to the cover design shown in FIGS. 1, 2, 5 and 7) the twin cell bulk box is similarly formed by nesting two of the four sided, five panel, tubular body portions side by side so as to form three double thickness vertical walls.

One embodiment of the cover or lid **13** which may be formed from a blank of corrugated fibreboard, is shown in FIGS. 1A, 2, 5A and 7. This lid includes a rectangular central panel **37** which is of the same size and configuration as the opening defined by two cells in side by side relation. Along the four edges of the central panel **37** there is provided a series of flaps **38**, **39**, **40** and **41**. Flaps **39** and **41** are of similar design and each has a secondary flap **42** and **43** respectively, foldably attached thereto along double score lines **42***a* and **43***a*. Double score lines are used so as to provide a small spacing between the primary flaps **39** and **41**; and then secondary flaps **42** and **43** respectively. Flaps **38** and **40** are also of similar design and are each provided with a pair of extension flaps **44** and **45** extending from the flap edges adjacent to flaps **39** and **41**. As best shown in FIGS. 2 and 5A, flaps **38** and **40** are folded at right angles to the cover central panel **37** and extension flaps **44** and **45** are then folded at right angles to both the cover central panel **37** and the flaps **38** and **40**. The secondary flaps **42** and **43** are then folded parallel to flaps **39** and **41** and in overlaying relation to flaps **44** and **45** to form the cover structure as shown in FIG. 2 and 5A. This cover then telescopes over the tubular body portions as shown in FIGS. 6 and 7, and is held snugly in place by the flaps **35***a*. It is understood that any tray-like cover means having a peripheral flange can be telescoped over the two cells in this manner.

In an alternative embodiment, the cover can be identical to the base structure shown in FIGS. 1C, 4 and 5C. In this embodiment then, both the cover and base are interlocking.

It will be apparent that the present bulk carrier is designed for ease of handling and ease of construction as well as economy of use. The design also minimizes side wall bulging while increasing vertical structural strength so that a number of the bulk boxes can be stacked in a column.

The bulk box is also easily collapsed or "knocked down" for convenience in shipping and storing while empty.

Those skilled in the art will recognize that while the described invention is particularly applicable to corrugated boxes it can be applied to boxes formed from any foldable sheet material such as solid fibreboard, folding boxboard and other grades of paperboard, any of the well-known thermoplastics, for example, polystyrene, polyethylene or polyvinyl chloride, or foil fibre laminates.

Other modifications of this invention will be obvious to those skilled in the art which do not depart from the scope of the appended claims.

I claim:

1. A multiple compartment container comprising in combination:

an open topped base formed from a unitary sheet of relatively rigid sheet like material comprising a rectangular central panel and an upstanding peripheral flange surrounding said central panel, said flange having downwardly and inwardly projecting tabs foldably secured to at least two of the top edges of opposing faces of said flange; and

two tubular compartment defining members having abutting vertical faces, and nested and interlocked in said base so as to form three vertical panels of double thickness, each of said members comprising a series of four panels and a reinforcing panel foldably joined together, said reinforcing panel being arranged in overlapping relation with the first panel of the series to form one of said double thickness panels,

said reinforcing panel including an upwardly and outwardly projecting flap, foldably joined to the nesting edge of said panel, and positioned in abutting, interlocking relation with said tab.

2. The container of claim **1** and further comprising closure means having a peripheral flange telescoping over the opening defined by the two tubular compartment defining members.

3. The container of claim **2**, wherein each of said four panels is provided with two integral, foldable flaps, one of said two flaps positioned along the upper panel edge and the other of said two flaps positioned along the lower panel edge, said two flaps being folded inwardly and at right angles to their respective panels.

4. The container of claim **3**, wherein said reinforcing panel is provided with a downwardly and outwardly projecting flap foldably joined to the edge of said panel and snugly engaging the peripheral flange of said telescoping closure means.

5. The container of claim **4**, wherein the telescoping flange of said closure means is provided with upwardly and inwardly projecting tab foldably secured to at least two of the lower edges of opposing faces of said flange, and positioned in interlocking, abutting relation with said downwardly and outwardly projecting reinforcing panel flap.

6. In combination, a two cell fibreboard container comprising:

a rectangular base having an upstanding peripheral flange integrally connected thereto, said flange having downwardly and inwardly projecting tabs foldably secured to two of the top edges of opposing faces of said flange,

two upstanding individual compartment defining, rectangular-cross-sectional, tubular members having open upper and lower ends with said members being seated with vertical panels abutting to form three vertical panels of double thickness and interlocked in said base, each of said tubular members comprising a series of four panels and a reinforcing panel

foldably joined together, said reinforcing panel being arranged in overlapping relation with the first panel of the series to form one of said panels of double thickness, said reinforcing panel including an upwardly and outwardly projecting flap foldably joined to the lower edge of said panel and positioned in abutting, interlocking relation with said tabs, and closure means telescoped over the opening defined by said two tubular members.

7. The container of claim **6**, wherein each of said four panels is provided with two integral, foldable flaps, one of said two flaps positioned along the upper panel edge and the other of said two flaps positioned along the lower

panel edge, said two flaps being folded inwardly and at right angles to their respective panels.

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DAVID M. BOCKENEK, *Primary Examiner.*

U.S. Cl. X.R.

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