United States Patent

Katzenmayer et al.

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[54] **CARTON**

[72] Inventors: **James H. Katzenmayer,** Elkhart, Ind.; **Harry J. Rossi,** Flushing, N.Y.

[73] Assignee: **Continental Can Company, Inc.,** New York, N.Y.

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[52] **U.S. Cl.** **229/33,** 229/34

[51] **Int. Cl.** **B65d 5/22**

[58] **Field of Search** 229/33, 34, 30, 16, 8; 206/45.15

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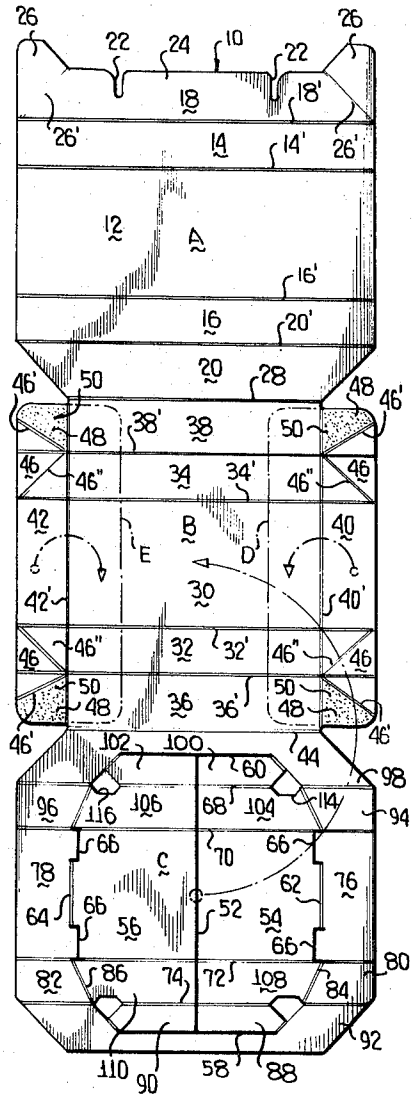
Primary Examiner—James B. Marbert

Attorney—Diller, Brown, Ramik & Holt

[57] **ABSTRACT**

A carton constructed from a rectangular blank and which includes front, rear and end walls braced relatively to each other and the bottom of the carton in a manner resisting inward or outward deflection of the front, rear or end walls intermediate their opposite ends. The carton includes double walled lower corners and inner top panels projecting horizontally outwardly from the upper edges of the end walls over which horizontal endwise extensions of the top panel of the carton lie when the top panel is closed.

24 Claims, 8 Drawing Figures



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SHEET 1 OF 4

FIG. 1

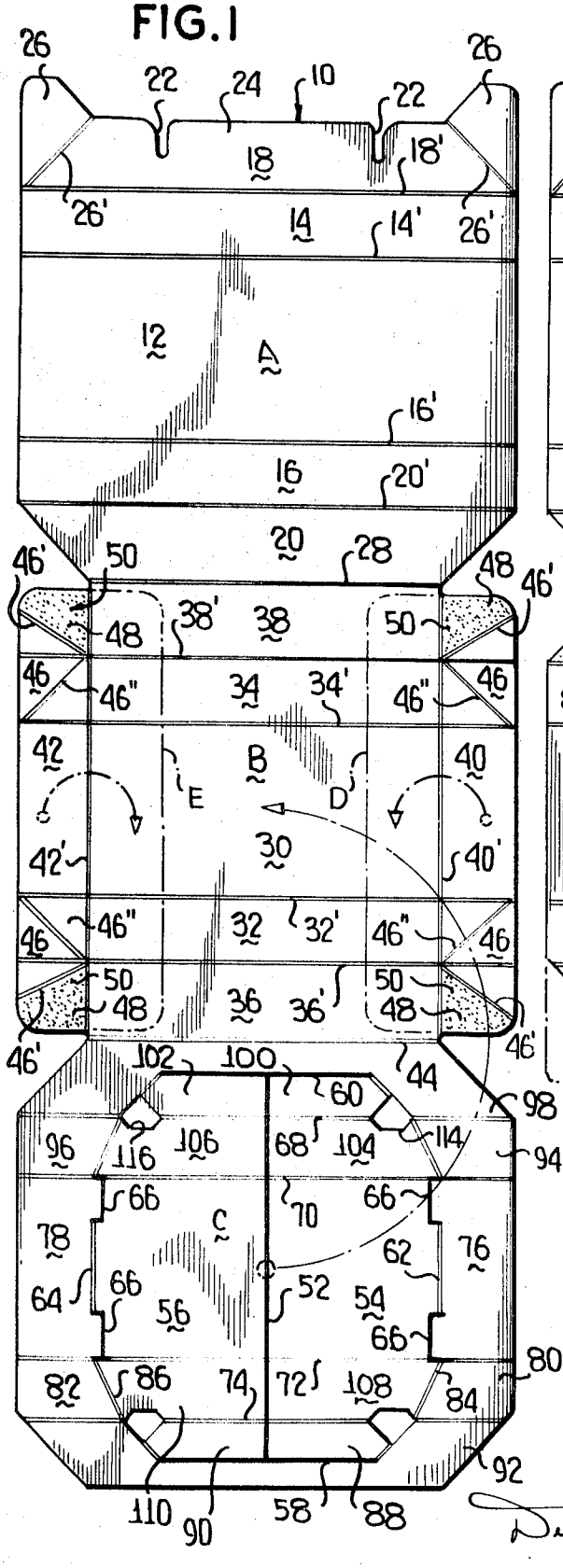
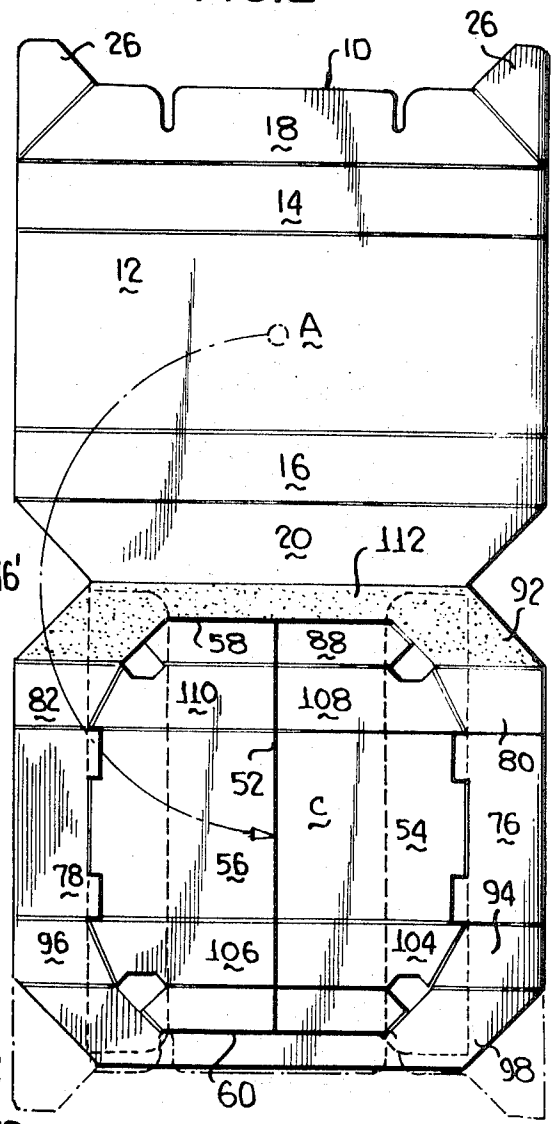


FIG. 2



INVENTORS
JAMES H. KATZENMEYER
& HARRY J. ROSSI

By Dressler Brown Ramik & Holt
ATTORNEYS

FIG. 3

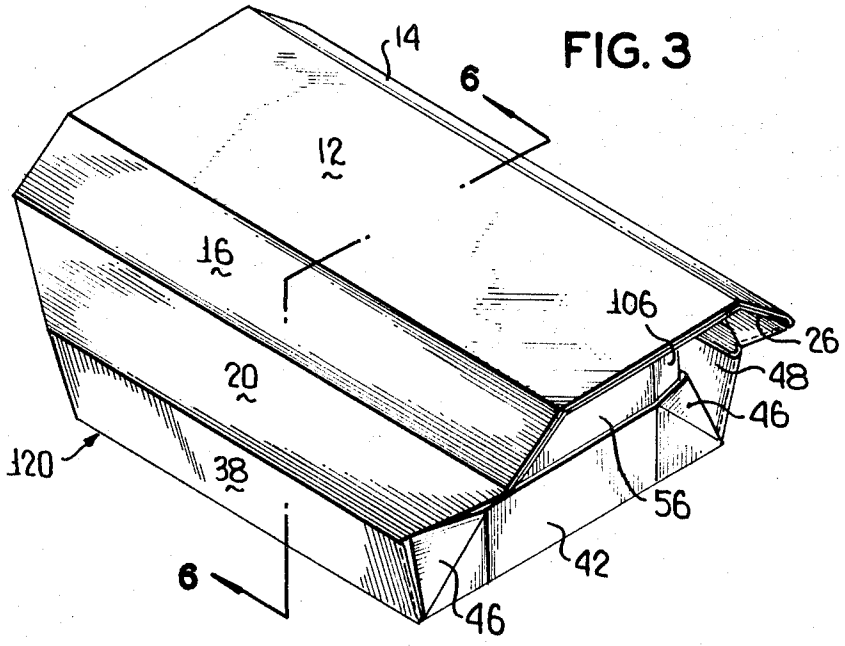
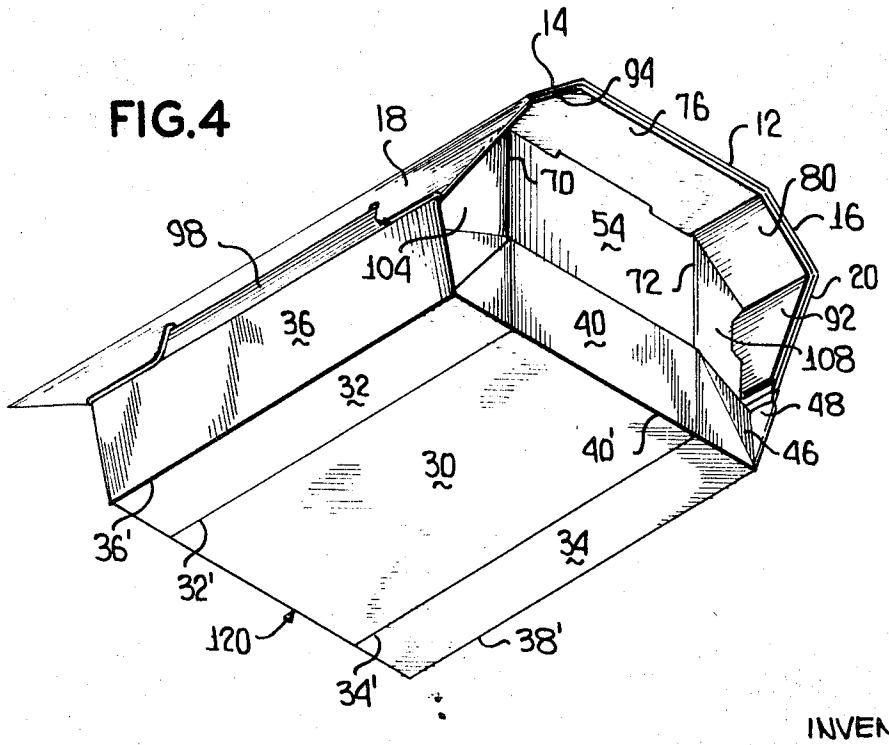


FIG. 4



INVENTORS
JAMES H. KATZENMEYER
& HARRY J. ROSSI

By Dellett, Brown, Ramik & Holt
ATTORNEYS

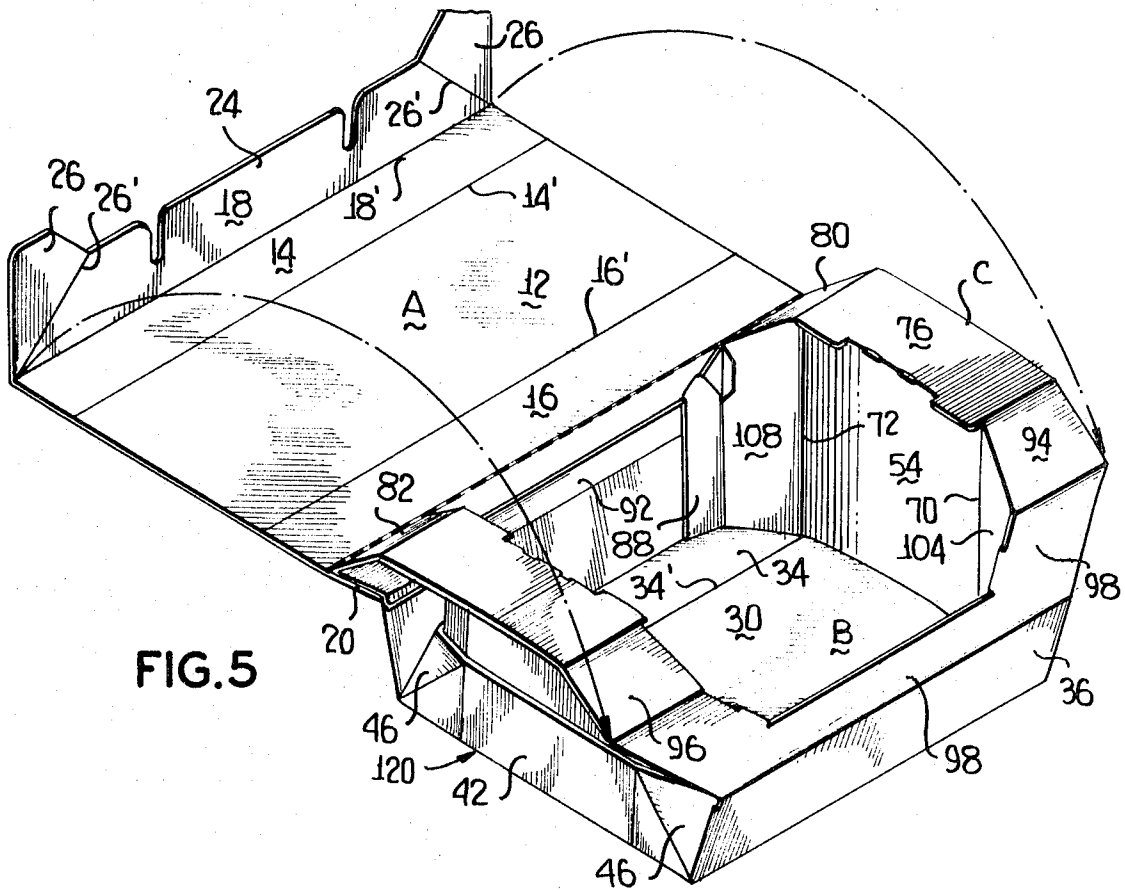
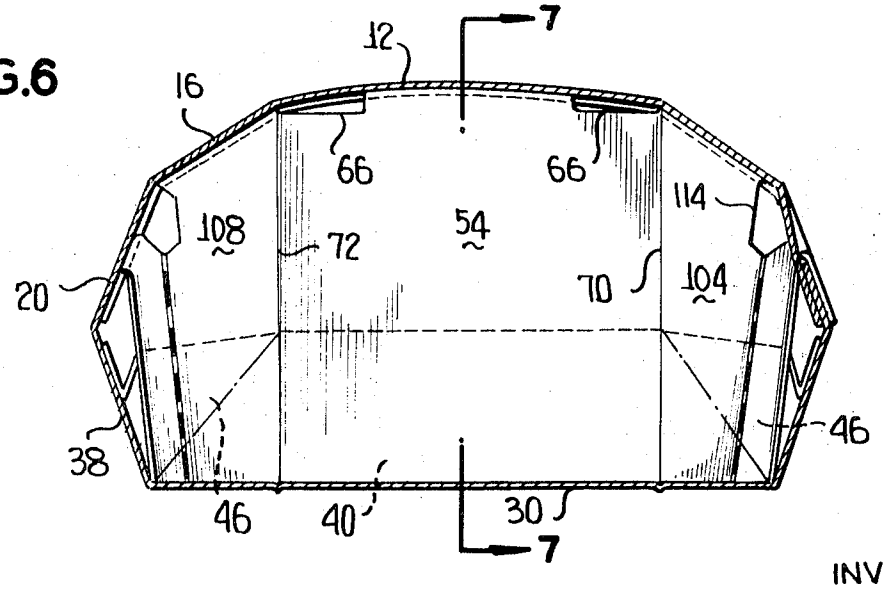


FIG.5

FIG.6



INVENTORS
JAMES H. KATZENMEYER
& HARRY J. ROSSI

By Willis, Brown, Ramik & Hall
ATTORNEYS

FIG.7

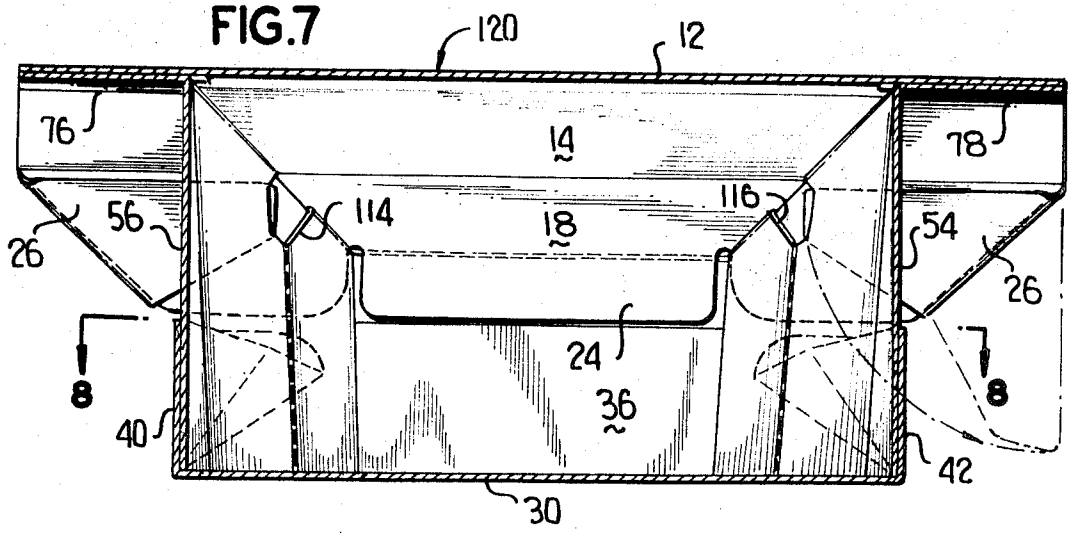
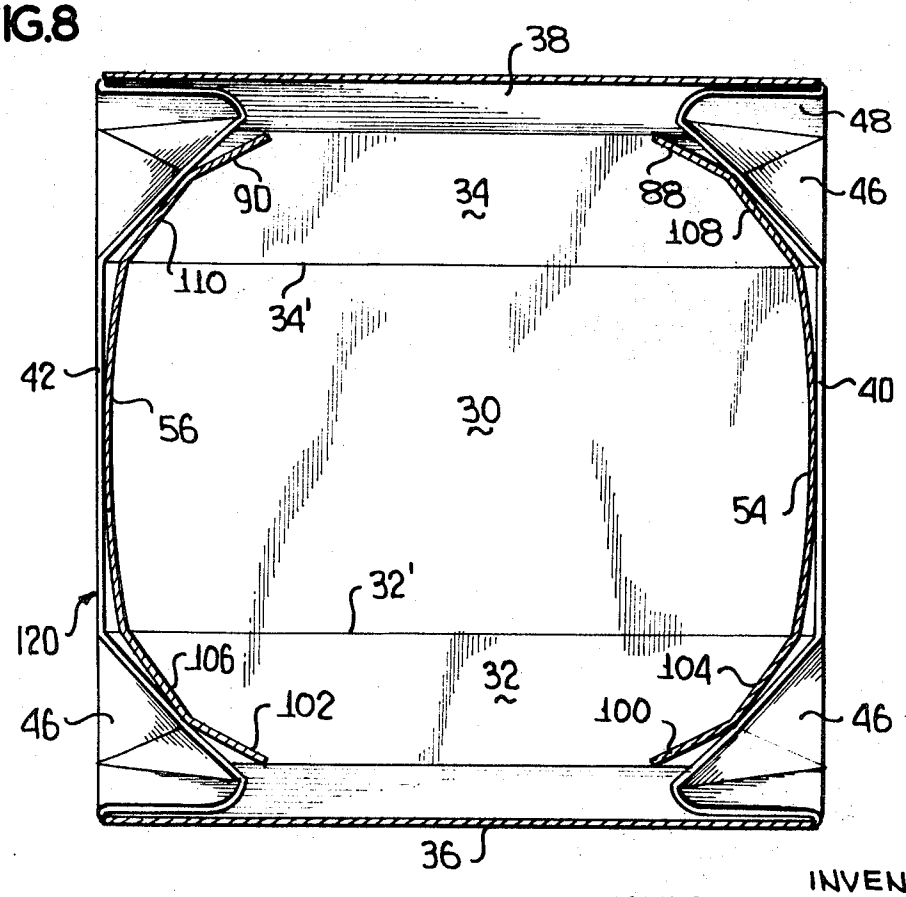


FIG.8



INVENTORS
JAMES H. KATZENMEYER
& HARRY J. ROSSI

By
Dillon, Brown, Ramik & Hall
ATTORNEYS

CARTON

The carton of the instant invention may be utilized for many different purposes. As an example, the carton is particularly well designed to contain carry-out foodstuffs in a manner whereby once food has been placed in the carton and the carton has been closed, the carton may be readily handled in one hand without excess flexure of the carton rendering it difficult to be handled.

In addition to the structure of the carton providing a container which may be readily handled, the top panel section of the carton includes novel tuck and lock tab portions that may be readily displaced into the desired positions for locking the top panel of the carton in a closed position after food has been placed therein. Further, the carton is constructed in a manner whereby it may be stored in a flattened condition and thus stacked prior to being filled. Also, the structure of the carton is such that it may be readily unfolded from its flattened condition for placing foodstuffs therein.

In addition to the carton being readily handled after being filled and closed, being readily closable in a manner locking the top panel of the carton in a closed position after foodstuff has been placed within the carton and being readily stackable in flattened condition prior to its use, the blank from which the carton is constructed includes three main sections which are folded relative to each other during initial forming of the carton after the blank has been cut. Two of the main sections of the blank have adhesive means thereon and the only adhesive joints of the carton are formed as the three main sections of the blank are folded 180° relative to each other into stacked superposed relation. Once these three main folds of the blank have been made in order to form the three adhesive joints of the carton, the carton is complete and thereafter needs only to be unfolded from its flattened condition immediately prior to its use.

The main object of this invention is to provide a fold-up container or carton formed of a single struck sheet.

Another object of this invention is to provide a single struck sheet for forming a carton including three main relatively foldable sections thereof which are folded 180° relative to each other into superposed stack relation after a pair of minor sections of the sheet or blank are folded 180° in order to form a completed flattened carton for ready subsequent unfolding to form the desired carton.

Still another object of this invention is to provide a sheet or blank in accordance with the preceding objects for forming a carton in which only three adhesive joints are utilized and which joints are automatically accomplished during the folding of the two minor sections and the three major sections 180° relative to each other.

Still another important object of this invention is to provide a carton which may be readily formed from a folded blank in a minimum of time.

Another object of this invention, in accordance with the immediately preceding object, is to provide a carton, which when formed, includes a swinging top panel including tuck and lock tab portions that may be readily displaced into position locking the top panel of the container in the closed position after foodstuffs have been placed in the container.

Another important object of this invention is to provide a container, which when closed about foodstuffs contained therein, may be readily handled in one hand without the container or carton excessively flexing.

A final object of the invention is to provide a carton in accordance with the preceding objects which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free to handle.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claimed subject matter, and the several views illustrated in the accompanying drawings.

IN THE DRAWINGS:

FIG. 1 is a plan view of the extended blank from which the carton of the instant invention may be formed.

FIG. 2 is a plan view of the blank after the center pair of opposite side sections thereof have been folded inwardly over the center section and one of the main end sections has been folded over the center section of the blank.

FIG. 3 is a perspective view of the completed carton.

FIG. 4 is a further perspective view of the completed carton as seen from a different angle.

FIG. 5 is a perspective view of the completed carton with the cover or top panel thereof swung to an open position.

FIG. 6 is an end elevational view of the carton.

FIG. 7 is a rear elevational view of the carton with the rear half of the carton removed and one of the lock tabs of the top panel of the carton illustrated in an unfolded position in phantom lines.

FIG. 8 is a top plan view of the carton with the top panel thereof removed.

Referring now more specifically to the drawings, the numeral **10** generally designates the blank from which the carton of the instant invention may be formed. The blank **10** includes three main sections A, B and C defining an outer top section, a bottom section and an inner top section.

The outer top section A includes a top panel **12** including a front portion **14** and a rear portion **16**. The portions **14** and **16** are separated from the top panel **12** by fold lines **14'** and **16'**. In addition, the top section A includes a top tab **18** and a rear panel upper extension **20** which are separated from the portions **14** and **16** by fold lines **18'** and **20'**. The tab portion **18** has a pair of notches **22** formed in its free edge portion defining a tuck tab portion **24** between the notches **22**. In addition, the opposite ends of the tab **18** include lock tabs **26** separated from the opposite ends of the tab **18** by means of fold lines **26'**.

The main section B is separated from the rear panel upper extension **20** of the main section A by means of a fold line **28** and includes a central bottom panel **30**. The center section B further includes bottom panel front and rear extensions **32** and **34** separated from the bottom panel **30** by means of fold lines **32'** and **34'** and the section B further includes front and rear panels **36** and **38** separated from the extensions **32** and **34** by means of fold lines **36'** and **38'**. The fold line **28** separates the rear panel **38** from the rear panel upper extension **20** and it will be noted that all of the previously referred to fold lines extend transversely of the blank **10**. However, the section B further includes opposite end panels **40** and **42** separated from the opposite ends of the bottom panel by means of fold lines **40'** and **42'** which extend longitudinally of the blank **10** between the opposite ends of the fold line **28** and the opposite ends of a fold line **44** which separates the section B of the blank from the section C of the blank. In addition, the opposite ends of the end panels **40, 42** include corner tabs **46** defined between fold lines **46'** and **46''** and tuck tabs **48** are defined between each fold line **46'** and the adjacent end of the corresponding longitudinal fold line **40'** or **42'**. Further, each of the tuck tabs **48** has an adhesive coating **50** thereon.

The section C includes a longitudinal slit **52** on whose opposite sides a pair of inner end panels **54** and **56** are defined. Also, the section C includes a pair of transverse slits **58** and **60** with whose center portions the opposite ends of the slit **52** intersect. The section C further includes a pair of short longitudinal fold lines **62** and **64** with a pair of shallow U-shaped slits **66** disposed at opposite ends of each of the fold lines **62** and **64** and transverse fold lines **68, 70, 72** and **74**. The fold lines **62** and **64** and the adjacent ends of the fold lines **70** and **72** define a pair of inner top panels **76** and **78** outwardly of the inner end panels **54** and **56** and between the fold lines **70** and **72**. In addition, a pair of inner top panel rear extensions **80** and **82** are defined between corresponding ends of the fold lines **72** and **74** outwardly of a pair of diagonal fold lines **84** and **86** communicating with the opposite ends of the slit **58** with the adjacent ends of the fold lines **62** and **64**. Also, a pair

of rear inner panel tabs **88** and **90** are defined between the opposite ends of the slit **58** and the opposing portions of the fold line **74** and the fold line **74** defines an inner rear panel upper extension **92** extending across the free edge of the section C outwardly of the slit **58** and the fold lines **84**.

The end of the section C adjacent the section B includes inner top panel front extensions **94** and **96** corresponding to the extensions **80** and **82**, a front panel upper extension **98** corresponding to the rear panel upper extension **92**, a pair of front inner panel tabs **100** and **102** corresponding to the tabs **88** and **90** and also a pair of opposite side inner end panel front extensions **104** and **106** defined between the fold lines **68** and **70** on opposite sides of the slit **52**. Of course, the free end portion of the section C also includes inner end panel rear extensions **108** and **110** corresponding to the extensions **104** and **106**.

From FIG. **2** of the drawings it may be seen that the under surface of the inner rear panel upper extension **92** includes a coating **112** of a suitable adhesive material. And it will be further observed from FIG. **1** that the section C includes a pair of lock tab openings **114** and **116**.

With attention again invited to FIGS. **1** and **2** of the drawings, it may be seen that in initially folding the blank **10** the opposite sides of the section B are folded upwardly and inwardly along the fold lines **40'** and **42'** to the dotted line position D and E. Of course, the adhesive **50** adheres to the opposite ends of the front and rear panels **36** and **38** to retain the end panels **40** and **42** as well as the corner and tuck tabs in folded positions. Then, the section C is folded upwardly over the section B exposing the adhesive layer **112** after which the section A is folded over the section C so as to adhesively secure the rear panel upper extension **20** over the inner rear panel upper extension **92**. At this point, construction of the folded container is completed and it will be appreciated that the folded container, except for the opposite side portions of the section B which comprise four thicknesses, is only three thicknesses thick.

The completed container is illustrated wholly or in part in FIGS. **3–8** of the drawings. In erecting the container or carton from the finally folded condition of the blank **10**, the section A is first unfolded to the open position after which manual pressure may be applied on the areas of the blank in which the fold lines **28** and **44** are formed in order to urge these areas toward each other. This pressure will elevate the center of the section C relative to the center of the section B and the adjacent edge portion of the inner end panels **54** and **56** are swung downwardly along the fold lines **62,64** which will also cause folding along the lines **84** and **86** and the corresponding unnumbered lines at the opposite ends of the inner end panels **54** and **56**. The adjacent edges of the inner end panels **54** and **56** are swung downwardly until the inner end panels **54** and **56** are vertically disposed with their free edge portions abutting against the upper surface of the bottom panel **30** and the bottom panel extensions **32** and **34**. As the inner end panels **54** and **56** are swung downwardly, folding will occur along the fold lines **68**, **70**, **72** and **74** so as to form generally trough shaped end walls opening toward each other. In addition, as the free edges of the inner end panels **54** and **56** are swung downwardly and the inner top panels **76** and **78** are elevated above the section B, the rear and front panel upper extensions **20** and **98** will be unfolded relative to the rear and front panels **38** and **36** and the end panels **40** and **42** will be unfolded from the opposite sides of the bottom panel **30**. Also, the corner tabs **46** are unfolded along fold lines **46'** and **46''** and are slightly bowed at the adjacent opposite end portions of the fold lines **36'** and **38'** as the inner end panels **54** and **56** reach their fully erected positions. The carton, which is generally designated by the reference numeral **120**, is now fully erected and may have the desired foodstuffs placed therein after which the section A may be swung from its open position illustrated in FIG. **5** of the drawings over the inner top panels **76** and **78** and have the tuck tab portion **24** inserted behind the central portion of the front panel upper extension **98**. Thereafter, the lock tabs **26** may be folded downwardly and inwardly under the opposite ends of the front panel upper extension **76** and engaged in the lock tab openings **114** and **116**. In this manner, the top panel **12** of the carton **120** is securely fastened in a closed position.

With attention now invited to the corner portions of the carton **120** illustrated in FIGS. **3–5** of the drawings, it will be seen that the corner tabs **46** and the end panels **40** and **42** of the blank **10** back and brace the outside surfaces of the inner end panels **54** and **56** as well as the inner end panel rear and front extensions **108**, **110**, **104** and **106**. Further, it will be noted that the opposite ends of the top panel **12** overlie and are braced by the inner top panels **76** and **78** of the section C when the top panel **12** is in its closed position.

In review, the blank **10** is rectangular in configuration and therefore a plurality of the blanks **10** may be formed from a single roll of panel material with very little wastage. In addition, after the adhesive **50** and **112** has been placed in position, all that is necessary to form the collapsed container is to fold the opposite side portions of the section B disposed outwardly of the fold lines **40** and **42** inwardly and over adjacent marginal portions of the section B. Then, the section C is merely folded over the section B and the section A is folded over the section C. Further, the carton **120** may be readily formed from the folded blank **10** and the top panel **12** may be readily secured in the closed position by means of the tuck tab portion **24** and the lock tab **26**.

While preferred forms and arrangements of parts have been shown in illustrating the invention, it is to be clearly understood that various changes in details and arrangement of parts may be made without departing from the spirit and scope of this disclosure.

We claim:

1. A carton including a bottom wall interconnecting a pair of opposing front and rear walls, upper marginal edge portions of said pair of walls including extensions folded over said bottom wall in spaced relation thereto and over each other in superposed relation to form inner and outer top walls, said inner top wall including central portions thereof folded downwardly and away from each other to upstanding positions defining end panels for said carton, the forward edge portion of said outer top wall defines a lap tab overlying the outer surface of the upper marginal portion of said front wall, said upper marginal portion including a low central portion and said lap tab including a pair of longitudinally spaced notches formed therein opening outwardly of the free edge of said tab defining a tuck tab therebetween, said tuck tab being inserted behind and inwardly of said low central portion.

2. The carton of claim **1** wherein the opposite end corner portions of the front marginal edge portion of said inner top wall project outward beyond the opposite ends of the front wall and the opposite end corner portions of the front marginal edge portion of said outer top wall include lock tabs bent downward and inward beneath said inner top wall corner portions.

3. The carton of claim **2** wherein said lock tabs are carried by the opposite ends of said lap tab.

4. An elongated carton-forming blank comprising an integral foldable panel including longitudinally aligned center and opposite end sections foldable relative to each other along main fold lines extending transversely of the blank, adjacent portions of said center and opposite end sections disposed on opposite sides of said fold lines including relatively foldable transverse strips for upstanding disposition when the end sections are successively folded over the center section, said center section including a pair of opposite side inwardly foldable marginal portions whose opposite ends are securable to the underlying side areas of said center section beneath the side marginal edges of the end sections when folded, the upper surface of the free edge portion of the first folded over end section being securable to the base edge portion of the second folded over end section and the first folded over end section includes swingable central flap portions to be swung

downwardly and away from each other for forming inner wall panels extending between corresponding side portions of the second folded end section, the transverse strips and the center section when the first and second folded end sections are displaced upwardly above the center section and the strips are swung to upstanding positions extending between the base edge portions of said end sections and the underlying edge portions of said center section.

5. The carton of claim 4 wherein said inwardly foldable marginal portions of said center section are swingable to upstanding positions projecting upwardly from said center section as said end sections are elevated relative to said center section.

6. An elongated carton-forming blank comprising an integral foldable panel including longitudinally aligned center and opposite end sections foldable relative to each other along main fold lines extending transversely of the blank, the adjacent marginal edge portions of said sections each including a pair of transverse strips separated from each other and the remainder of the corresponding section by means of transverse fold lines and the free marginal portions of said end sections each also including a pair of transverse strips separated from each other and the remainder of the corresponding section by means of transverse fold lines, said end sections being successively foldable along said main fold lines over said center section in stacked relation thereto, the opposite side edge portions of said center section including longitudinal inwardly foldable panels whose opposite ends overlie the opposite ends of the endmost strips of said center section when folded for securement to said endmost strip ends and the endmost strip of one of said end sections, to be first folded over said center section, being disposed for securement to the strip of the other end section closest to the corresponding main fold line when said other end section is folded over said one end section, said one end section includes a center longitudinal slit formed therein terminating at the midportions of a pair of opposite end transverse slits formed in said one end section generally centrally intermediate the opposite sides of the strip adjacent said center section at the base end of said one end section and centrally intermediate the opposite sides of the endmost strip at the free end of said one end section, the ends of said transverse strips terminating inwardly of the opposite ends of the corresponding slits and the portions of said one panel disposed on opposite sides of said longitudinal slit being foldable downwardly, after said one section is folded over said center section, along fold lines connecting the corresponding ends of said transverse slits to form upstanding panels extending between said one end section and said center section when the former is elevated relative to the latter.

7. A carton including a bottom wall interconnecting a pair of opposing front and rear walls, upper marginal edge portions of said pair of walls including extensions folded over said bottom wall in spaced relationship thereto and over each other in superposed relationship to form inner and outer top walls, said inner top wall including central portions thereof folded downwardly and away from each other to upstanding portions defining end panels of said carton, end walls extending between said front and rear walls at opposite ends of said bottom wall, and said end walls being outboard of said end panels thereby backing up the same to limit movement of said end panels away from each other.

8. The carton as defined in claim 7 wherein said end panels are in part defined by a common I-shaped cut line.

9. The carton as defined in claim 7 wherein said end panels are in part defined by a common I-shaped cut line defined by a pair of spaced arms and an interconnecting leg, and said legs are disposed in said front and rear walls.

10. The carton as defined in claim 7 wherein said end panels are in part defined by a common I-shaped cut line, and each end panel includes a pair of fold lines inboard of and generally parallel to spaced arms of said I-shaped cut line.

11. The carton as defined in claim 7 wherein a corner is defined by adjacent ends of said rear, front and end walls, and each corner is formed at least in part by corner panel means joined to an associated rear or front wall and its adjacent end wall by fold line means.

12. The carton as defined in claim 7 wherein a corner is defined by adjacent ends of said rear, front and end walls, each corner includes at least a pair of fold lines in part defining a triangular panel, and each triangular panel is folded inwardly into the carton about one of said pair of fold lines into adjacent generally parallel relationship to said front and rear walls.

13. The carton as defined in claim 7 wherein a corner is defined by adjacent ends of said rear, front and end walls, each corner includes at least a pair of fold lines in part defining a retention panel, each retention panel is folded inwardly into the carton about one of said pair of fold lines into adjacent generally parallel relationship to said front and rear walls, and adhesive means for adhering said retention panels to said front and rear walls whereby outward movement of said end walls is precluded.

14. The carton as defined in claim 9 wherein each end panel includes a pair of fold lines inboard of and generally parallel to said arms, portions of said inner top wall outboard of said central portions having fold lines aligned with said pairs of fold lines, and said outer top wall has fold lines in superposed aligned relationship with said inner top wall fold lines.

15. The carton as defined in claim 9 wherein each end panel includes a pair of fold lines inboard of and generally parallel to said arms.

16. The carton as defined in claim 11 wherein said end panels are in part defined by a common I-shaped cut line.

17. The carton as defined in claim 12 wherein said end panels are in part defined by a common I-shaped cut line.

18. The carton as defined in claim 12 wherein said end panels are in part defined by a common I-shaped cut line defined by a pair of spaced arms and an interconnecting leg, and said legs are disposed in said front and rear walls.

19. The carton as defined in claim 12 wherein said end panels are in part defined by a common I-shaped cut line, and each end panel includes a pair of fold lines inboard of and generally parallel to spaced arms of said I-shaped cut line.

20. The carton as defined in claim 13 wherein said end panels are in part defined by a common I-shaped cut line defined by a pair of spaced arms and an interconnecting leg, and said legs are disposed in said front and rear walls.

21. The carton as defined in claim 13 wherein said end panels are in part defined by a common I-shaped cut line, and each end panel includes a pair of fold lines inboard of and generally parallel to spaced arms of said I-shaped cut line.

22. The carton as defined in claim 20 wherein each end panel includes a pair of fold lines inboard of and generally parallel to said arms, portions of said inner top wall outboard of said central portions having fold lines aligned with said pairs of fold lines, and said outer top wall has fold lines in superposed aligned relationship with said inner top wall fold lines.

23. An elongated carton-forming blank comprising a bottom panel set-off by a first pair of fold lines in generally spaced parallel relationship to each other and a second pair of fold lines in generally spaced parallel relationship to each other and normal to said first pair of fold lines, a front panel joined by one of said first pair of fold lines to said bottom panel, a rear panel joined by the other of said first pair of fold lines to said bottom panel, a pair of end walls joined one each to said bottom panel by said second pair of fold lines, said end walls having connecting end portions outboard of said first pair of fold lines and being foldable into overlying relationship to said front and rear panels about said second pair of fold lines, each connecting end portion having a fold line with the fold lines of the same end wall being in outwardly diverging relationship, said blank further including at least one top panel having a generally I-shaped cut line therein defining a pair of end panels, said I-shaped cut line being defined by a pair of spaced arms and an interconnecting leg, and said leg is in generally parallel relationship to said second pair of fold lines.

24. The carton-forming blank as defined in claim 23 including a pair of fold lines in each end panel inboard of said arms.

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