Sept. 28, 1965 E. J. GRASER 3,208,632

BOTTLE CARRIER AND PROCESS

Filed March 11, 1963 6 Sheets-Sheet 1

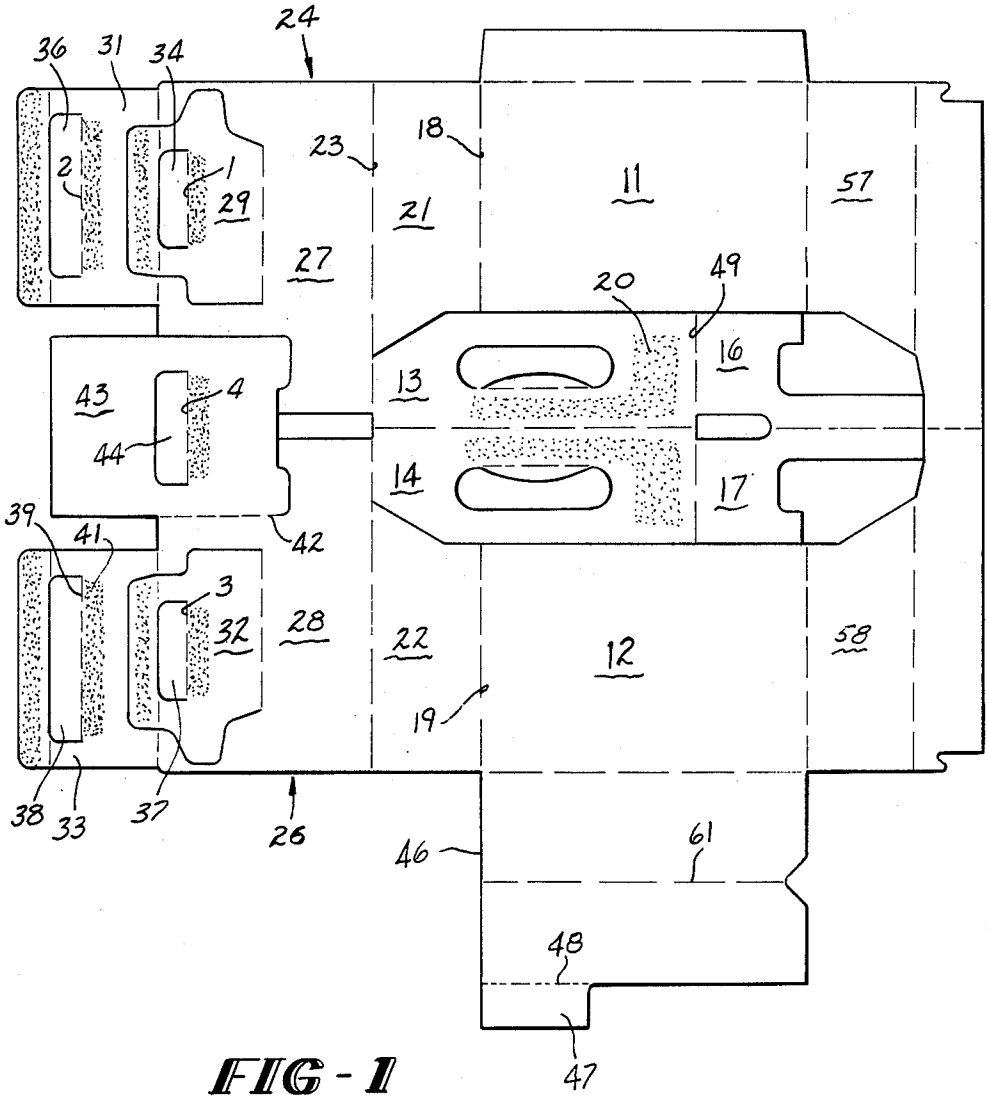

FIG - 1

INVENTOR.
EARL J. GRASER
BY R. S. Shiebler
ATTORNEY

Sept. 28, 1965 E. J. GRASER 3,208,632

BOTTLE CARRIER AND PROCESS

Filed March 11, 1963 6 Sheets-Sheet 2

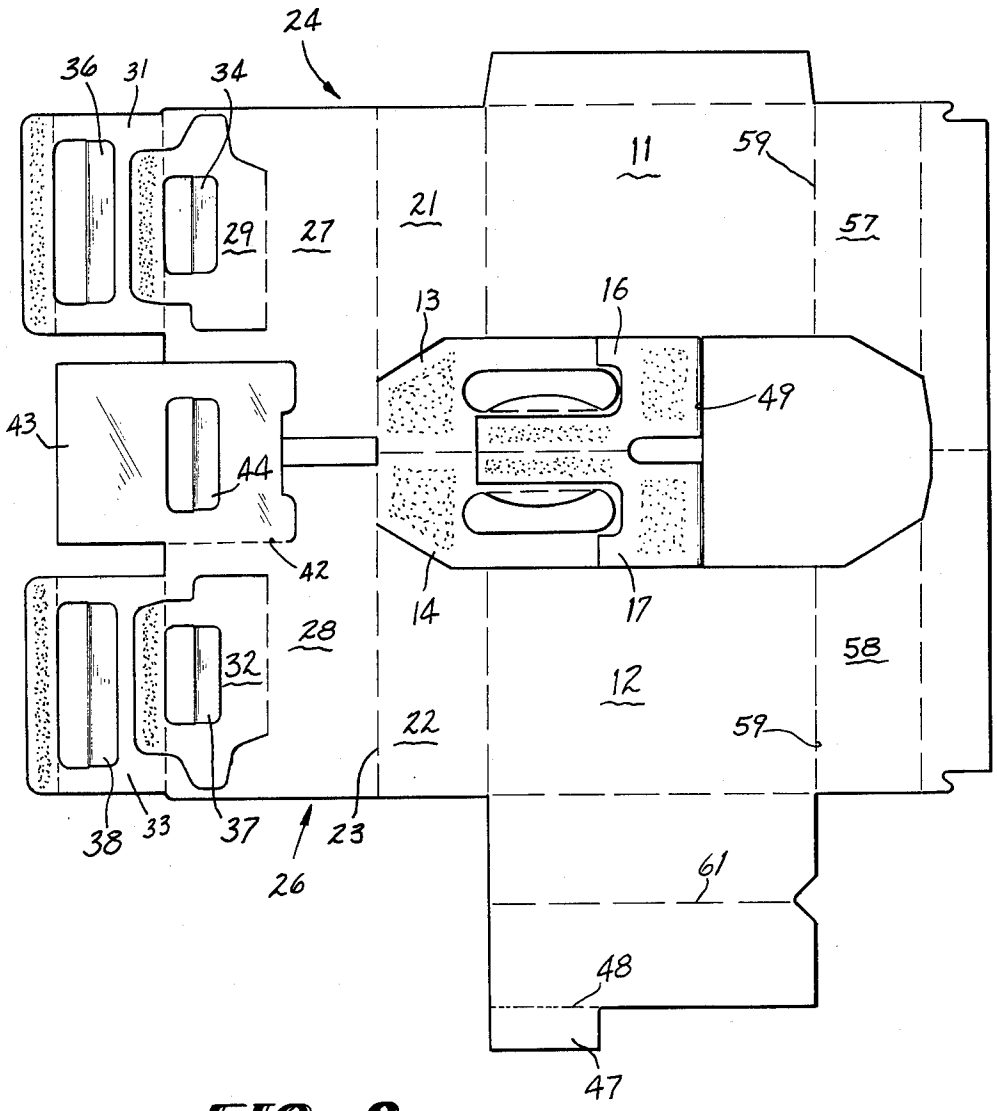

FIG - 2

INVENTOR.
EARL J. GRASER
BY R. S. Shirtles

ATTORNEY

Sept. 28, 1965 E. J. GRASER 3,208,632

BOTTLE CARRIER AND PROCESS

Filed March 11, 1963 6 Sheets-Sheet 3

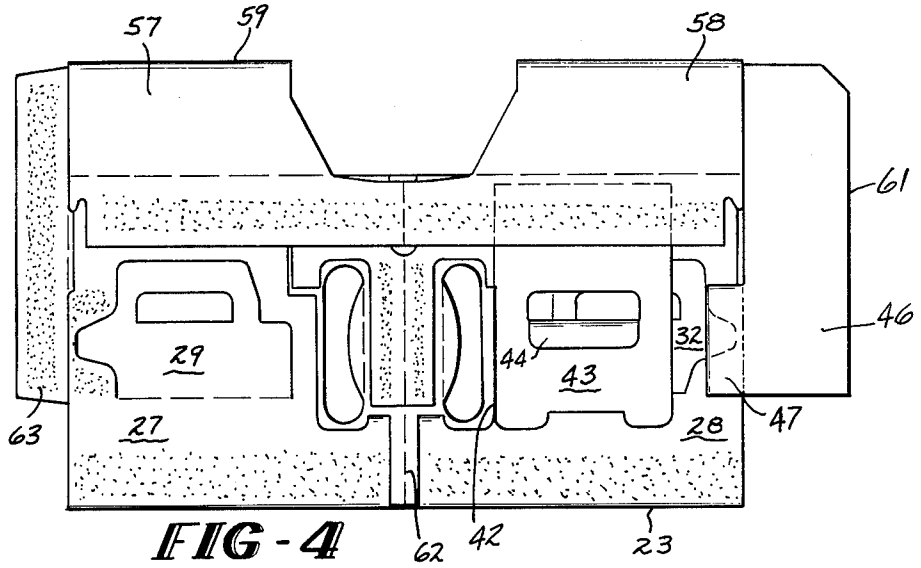

FIG - 4

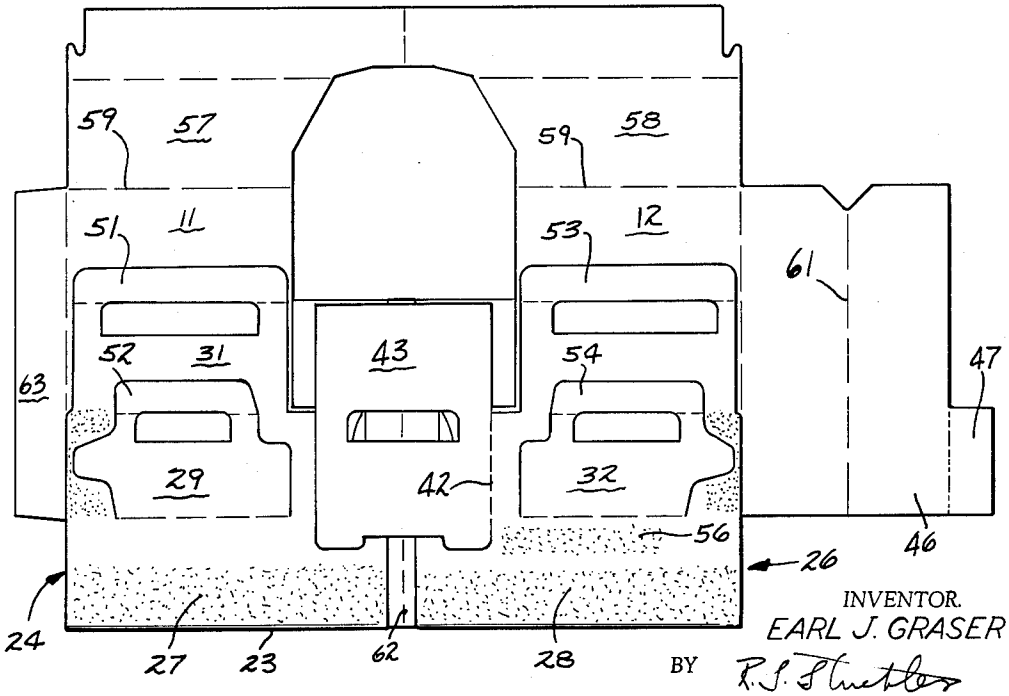

FIG - 3

INVENTOR.
EARL J. GRASER
BY R. J. Shuttleworth
ATTORNEY

Sept. 28, 1965 E. J. GRASER 3,208,632

BOTTLE CARRIER AND PROCESS

Filed March 11, 1963 6 Sheets-Sheet 4

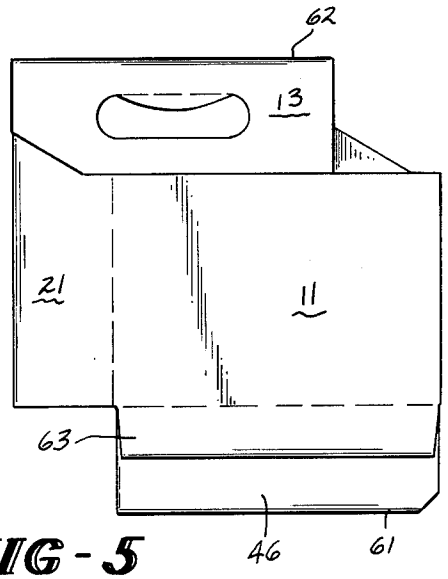

FIG - 5

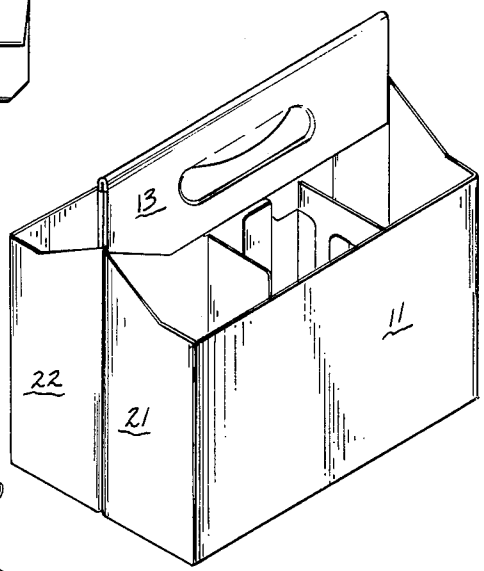

FIG - 6

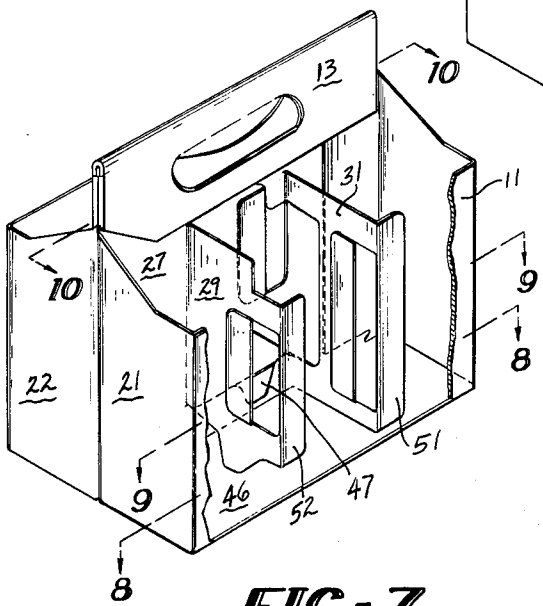

FIG - 7

INVENTOR.
EARL J. GRASER
BY R. J. Stubblefield
ATTORNEY

BOTTLE CARRIER AND PROCESS

Filed March 11, 1963 6 Sheets-Sheet 5

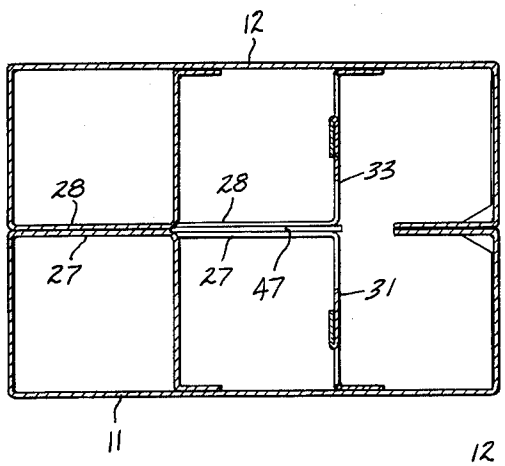

FIG - 8

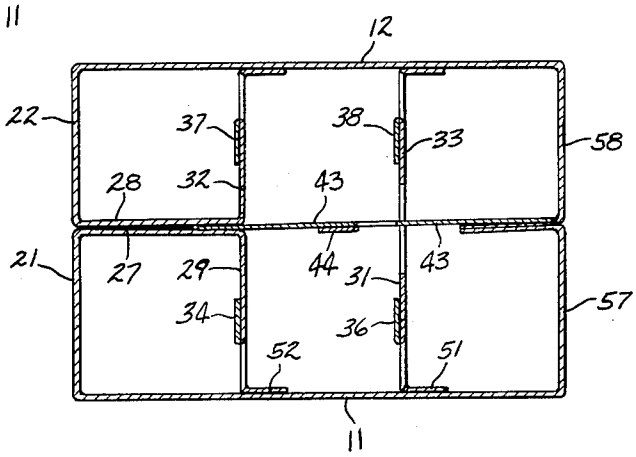

FIG - 9

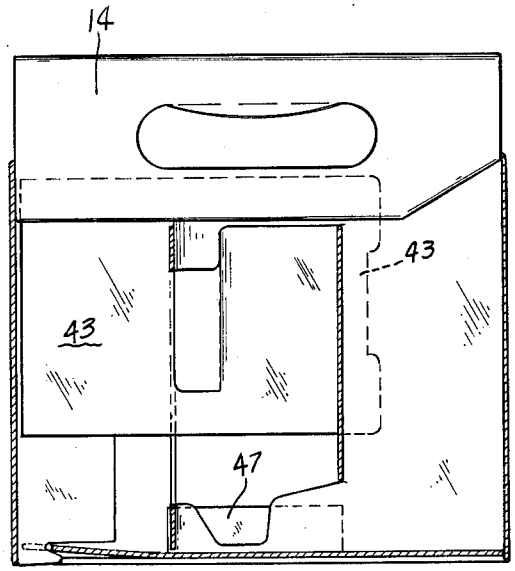

FIG - 10

INVENTOR.
EARL J. GRASER
BY R. J. Shuttleworth
ATTORNEY

Sept. 28, 1965 E. J. GRASER 3,208,632

BOTTLE CARRIER AND PROCESS

Filed March 11, 1963 6 Sheets-Sheet 6

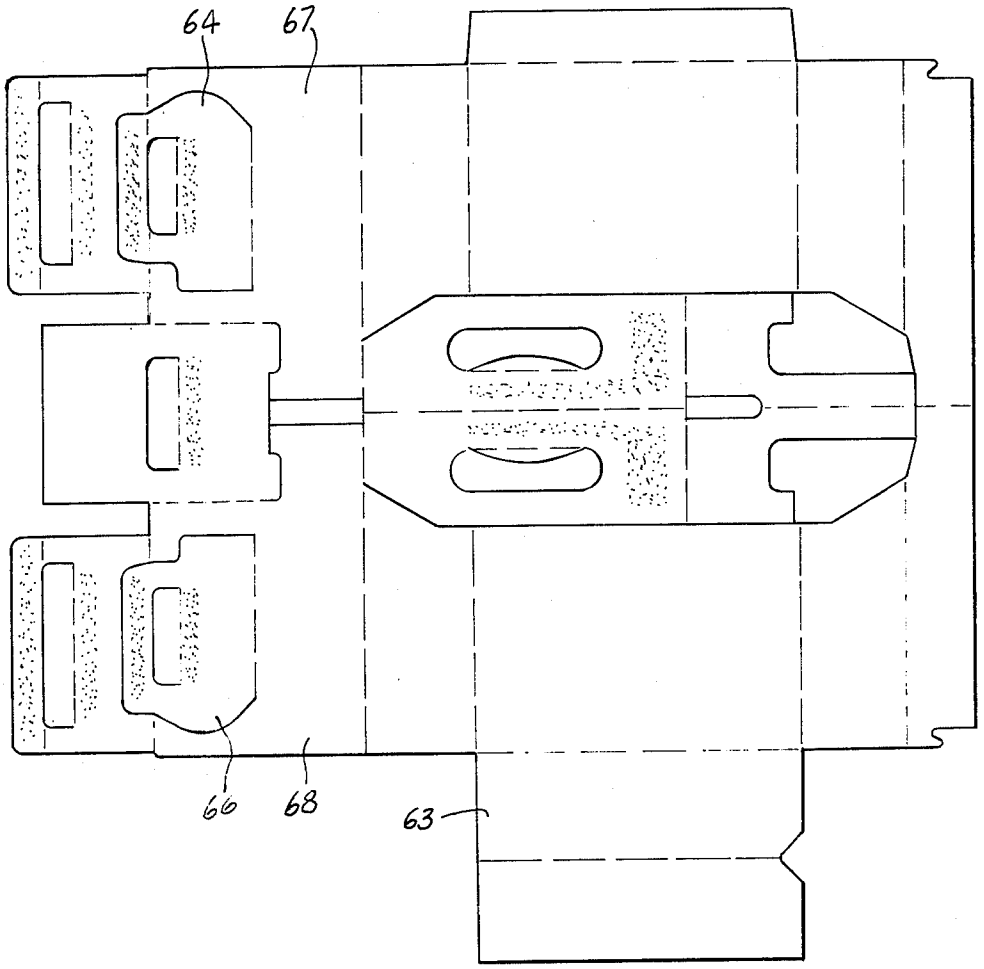

FIG - 11

INVENTOR.
EARL J. GRASER
BY R. J. Shuttles
ATTORNEY

United States Patent Office 3,208,632 Patented Sept. 28, 1965

3,208,632

BOTTLE CARRIER AND PROCESS

Earl J. Graser, Monroe, La., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia

Filed Mar. 11, 1963, Ser. No. 264,336
2 Claims. (Cl. 220—115)

The present invention relates to a bottle carrier and relates in particular to a bottle carrier of the type useful to package a plurality of beverage bottles.

A primary feature of the invention is the provision of a unique blank fabricated from a single sheet of paper board which is convertible by folding and gluing into a collapsible bottle carrier which satisfies the requirements of Rule 41 of the Uniform Freight Classification regulations as established by the Interstate Commerce Commission.

A further feature of the invention is the provision of a collapsible bottle carrier which provides a longitudinal and transverse partition arrangement which affords individual bottles protection on all sides throughout the full depth of the carrier.

The present invention also contemplates the steps of transferring a partition element, in its entirety, from a first position in which the element is disposed attached to the main body of the blank at a definite point to a second position in which the element is free and remote from said point, said first and second positions corresponding to collapsed and erect positions, respectively, of the carrier into which the blank is ultimately fabricated.

A paperboard blank convertible into a full depth multi-cell collapsible carrier and embracing certain features of the present invention may comprise a pair of spaced sidewalls, each sidewall having an end wall and a partition section hinged thereto in series in the order named, a multi-ply handle section disposed between the sidewalls, said handle section and said end walls being hinged to mating partition sections along a common fold line, a bottom panel hinged to one sidewall, each partition section comprising a longitudinal partition and a pair of spaced transverse partitions, each transverse partition having return bend flaps operable to develop double ply thickness in the central region of the transverse partition, each transverse partition having a glue flap operable to secure the transverse partition to its mating sidewall, one transverse partition of each pair comprising a cutout from its mating longitudinal partition, and a filler flap hinged to said bottom wall operable to tuck between mating longitudinal partitions effective to close a portion of said cutout when the blank is converted into a carrier.

In the art of fabricating bottle carriers from a single blank of paperboard, a method of transferring a partition element originally connected to the main body of the blank from a first position corresponding to a collapsed condition of the carrier ultimately formed from said blank to a second position corresponding to an erect condition of said carrier in which said partition element is separated from its original connection to said blank comprising the steps of creating a line of weakness between the partition element and the main body of the blank, gluing said partition element to a second partition element and moving said second partition element relative to said line of weakness so that said partition element is sheared from the main body of the blank, said moving and shearing occurring when the carrier, which is ultimately fabricated from said blank, is changed from its collapsed to its erect condition.

Other features and advantages of the invention will become more apparent from an examination of the succeeding specification when read in conjunction with the appended drawings in which:

FIG. 1 is a plan view of a blank illustrating a first embodiment of the invention;

FIG. 2 shows the first steps in fabricating a carrier from the blank of FIG. 1;

FIGS. 3 and 4 show succeeding steps in fabricating the carrier;

FIG. 5 shows the finished fully formed carrier in the collapsed condition;

FIG. 6 shows the carrier fully erect;

FIG. 7 is similar to FIG. 6 with certain of the sidewall portions broken away to show the internal partition struture;

FIGS. 8, 9 and 10 are sectional views of FIG. 7 taken along the lines and viewed in the directions indicated, and,

FIG. 11 is also a plan view of a blank showing a second embodiment of the invention.

Referring now to the drawings, FIG. 1 shows a one piece blank of paperboard illustrating a glue pattern, score lines and through cuts in conventional fashion.

Sidewalls **11** and **12** straddle a multi-ply handle section comprising exterior panels **13** and **14** and mating interior panels **16** and **17**.

The panels **13** and **14** are coated with blue as indicated by the hatching referenced **20**. Sidewalls **11** and **12** are hinged by score lines **18** and **19**, respectively, to adjacent end wall panels **21** and **22**. The end wall panels **21–22** are, in turn, hinged at score line **23** to partition sections **24** and **26**, respectively.

Note that the handle panels **13** and **14** are also hinged to the partition sections **24** and **26** along score line **23**.

Each partition section comprises a longitudinal partition identified by the reference numerals **27** and **28** and a pair of spaced transverse partitions, identified by the reference numerals **29** and **31** in partition section **24** and by the numerals **32** and **33** in partition section **26**.

Note that the partitions **29** and **32** are cutouts from the longitudinal partitions **27** and **28** respectively. Each transverse partition **29**, **31**, **32** and **33** is provided with a return bend flap identified by the reference numerals **34**, **36**, **37** and **38**.

The flaps **34** and **36** through **38** are operative to rotate about score lines, such as the line **39**, to contact glue **41** to develop a double ply thickness for a reason which will become more apparent hereinafter.

Hinged to the partition section **26** at score line **42** is a longitudinal partition flap **43** also formed with a return bend flap **44**.

Hinged to sidewall **12** is bottom panel **46** having a partition element or filler flap **47** hinged thereto along a line of weakness or a weakened score line **48**.

The filler flap **47** is operative to replace material removed from partition sections **24** and **26** as a result of the cutouts created by transverse partitions **29** and **32** as will be more apparent as the specification progresses.

As stated previously, the hatching in the various figures is for the purpose of showing regions in which glue is applied.

Referring now to FIG. 2, note that the initial steps in forming the carrier involve rotating handle panels **16** and **17** about score line **49** into a glued and face-to-face relationship with respect to panels **13** and **14**.

Return bend flaps **34**, **36**, **37**, **38** and **44** are rotated about their respective fold lines or score lines **1**, **2**, **39**, **3** and **4** from the positions shown in FIG. 1 to the positions shown in FIG. 2.

In FIG. 3, succeeding steps are shown, namely, partition sections **24** and **26** are rotated about score line **23** and transverse partition glue flaps **51** through **54** are glued to their mating sidewalls **11** and **12**.

In FIG. 4 longitudinal partition flap **43** is first rotated about score line **42** and is secured to longitudinal partition **28** by the glue indicated by the reference numeral **56** in FIG. 3. Next, opposite end walls **57** and **58** are rotated about score line **59** to the position shown. Next bottom panel **46** is rotated about central score line **61** so that partition elements or filler flap **47** overlays longiudinal partition **28** particularly the portion thereof cut out by the transverse partition **32**.

Glue is applied to the various regions shown by the hatching indicia. Next the blank is folded about score line **62** to develop the collapsed carrier structure shown in FIG. 5 with bottom flap **63** overlapping and gluing to bottom panel **46** in well known fashion.

FIG. 6 shows the collapsed carrier of FIG. 5 in the erect condition.

Referring now to FIGS. 7 through 10, details of the partition structure of the erect carrier become more apparent.

FIGS. 7 and 9 show that all transverse partitions **29** and **31** through **33** have a double ply thickness in the central region of the partition (provided by return bend flaps **34, 36, 37** and **38**) to give bottles maximum board thickness at their points of tangency.

These figures also show that the longitudinal partition is at least double ply thickness in that the longitudinal partition flap **43** has a return bend flap **44**.

FIGS. 1, 7, 8 and 10 show that the transverse partitions **29** and **32** make substantial cutouts from the longiutdinal partitions **27** and **28** particularly at the bottom of the erected carton.

Note particularly in FIGS. 7 and 10 that filler flap **47** replaces the cutout from both transverse partitions **27** and **28** at the bottom of the carrier where, were it not for the filler flap **47**, there would be a serious problem of damage between bottles straddling the cutouts.

Note, too, that the partition element or filler flap **47** is attached to the original blank by a weakened score line **48**. The flap **47** remains in this attached condition during fabrication of the carrier into the collapsed condition shown in FIG. 5.

Upon erecting the carrier to the condition shown in FIG. 6, the filler flap is sheared from the body of the blank and is transferred by the longitudinal partitions **27** and **28** (to which it has been glued) to the center of the carrier as is most apparent in FIGS. 7, 8 and 10.

Referring now to FIG. 11, there is shown a modified blank. The primary modification being that the bottom panel **63** is not formed with a filler flap. Correspondingly, the transverse partitions **64** and **66** are not cut as deeply from the mating longitudinal partions **67** and **68**. This blank is in all other respects similar to the blank of FIG. 2 and is fabricated to its collapsed condition and erected in the same fashion as previously described with respect to the blank of FIG. 1.

It is anticipated that a wide variety of modifications may be devised without departing from the spirit and scope of the invention.

What is claimed is:

1. A one piece, single ply blank convertible into a full depth multi-cell collapsible bottle carrier comprising a pair of spaced sidewalls, each sidewall having an end wall and a partition section hinged thereto in series in the order named, a multi-ply handle section disposed between the sidewalls, said handle section and said end walls being hinged to mating partition sections along a common, single fold line, a bottom panel hinged to one sidewall, each partition section comprising a longitudinal partition and a pair of spaced transverse partitions, each transverse partition having return bend flaps operable to develop double ply thickness in the central region of the transverse partition, each transverse partition having a glue flap operable to secure the transverse partition to its mating sidewall, one transverse partition of each pair comprising a cutout from its mating longitudinal partition, and a filler flap hinged to said bottom wall operable to tuck between mating longitudinal partitions effective to close a portion of said cutout when the blank is converted into a carrier.

2. A one piece, single ply blank convertible into a full depth multi-cell bottle carrier comprising a pair of spaced sidewalls, each sidewall having an end wall and a partition section hinged thereto in series and in the order named, a multi-ply handle section disposed between the sidewalls, said handle section and said end walls being hinged to mating partition sections along a common, single fold line, a bottom panel hinged to one sidewall, each partition section comprising a longitudinal partition and a pair of spaced transverse partitions, each transverse partition having return bend flaps operable to develop double ply thickness in the central region of the transverse partition, each transverse partition having a glue flap operable to secure the transverse partition to its mating sidewall, one transverse partition of each pair comprising a cutout from its mating longitudinal partition, and a filler flap hinged to said bottom wall operable to tuck between mating longitudinal partitions effective to close a portion of said cutout when the blank is converted into a carrier, and a longitudinal partition flap hinged to one of said partition sections, said flap having a return bend flap and being operable when the blank is converted into a carrier to sandwich between said partition sections.

References Cited by the Examiner

UNITED STATES PATENTS

2,393,114	1/46	Lyons	229—28 X
2,693,298	11/54	Palmer	220—118
3,061,142	10/62	Cote	220—113
3,104,027	9/63	Kulig	229—28 X

FRANKLIN T. GARRETT, *Primary Examiner.*