Dec. 21, 1954 E. L. ARNESON Re. 23,912

ARTICLE CARRIER

Original Filed Nov. 13, 1951 3 Sheets-Sheet 1

Fig. 1.

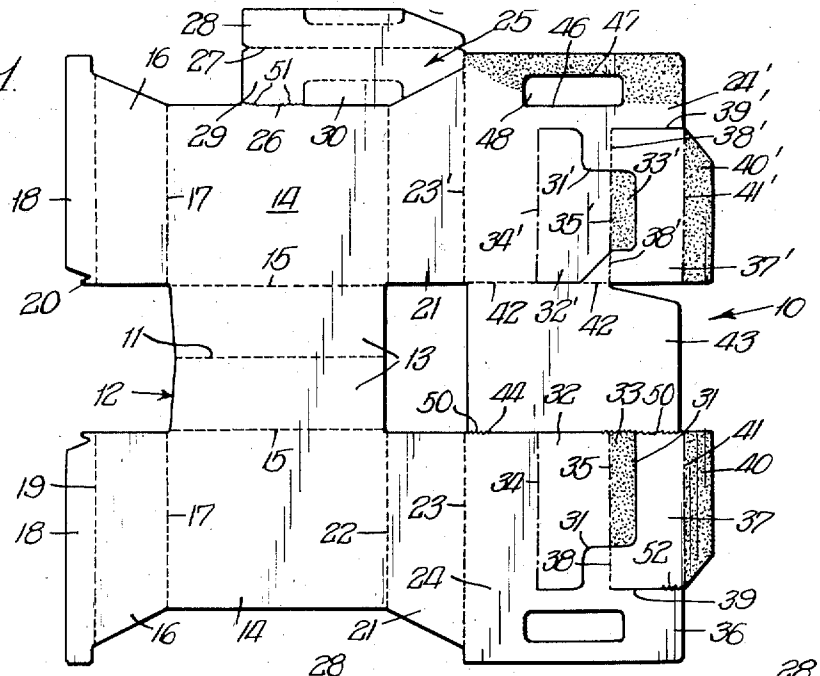


Fig. 2

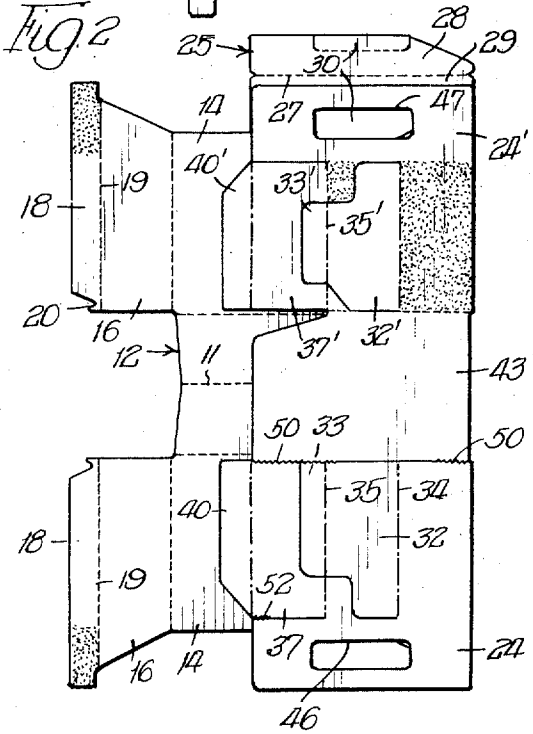
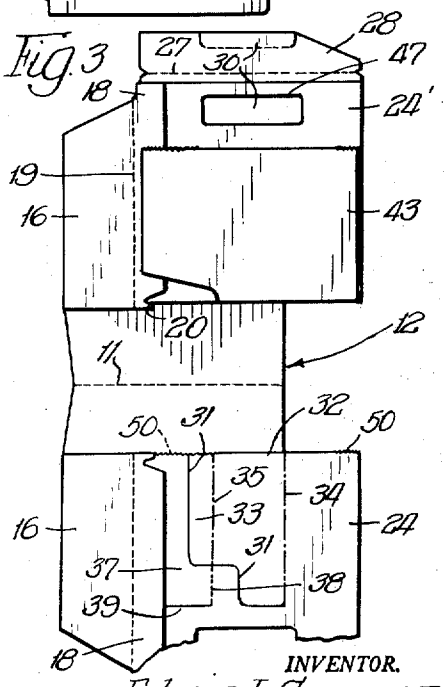


Fig. 3



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Fig 4

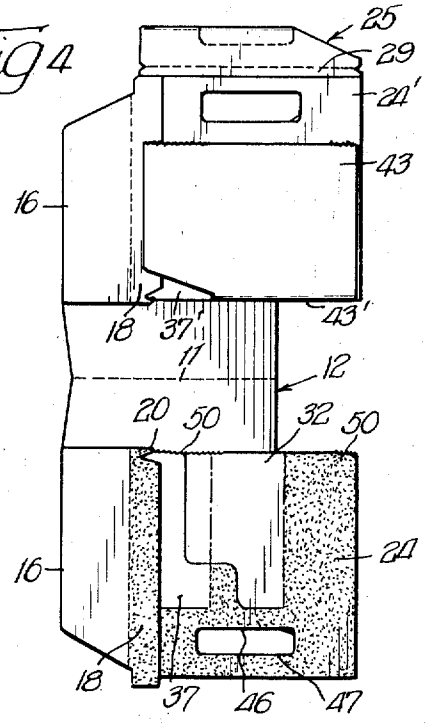


Fig. 5

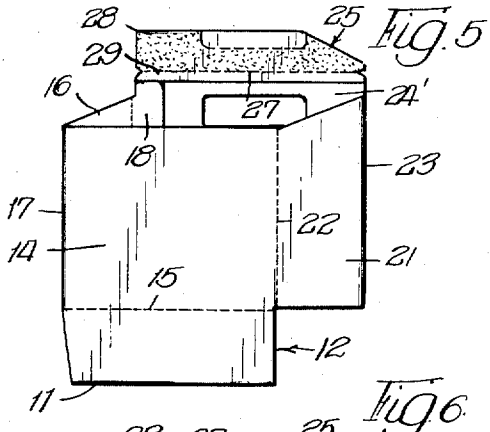


Fig 6.

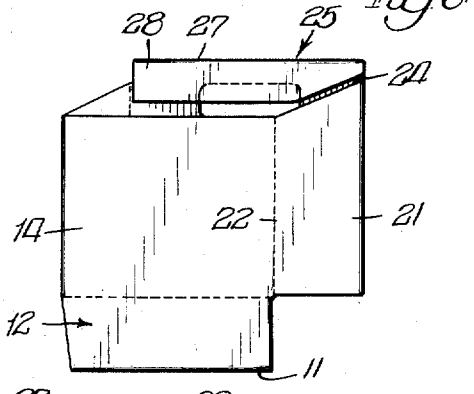
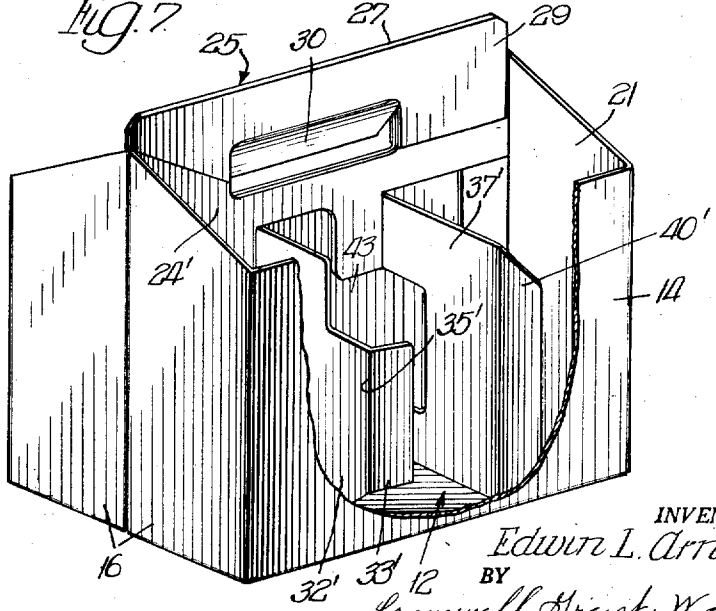


Fig. 7



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Fig. 8

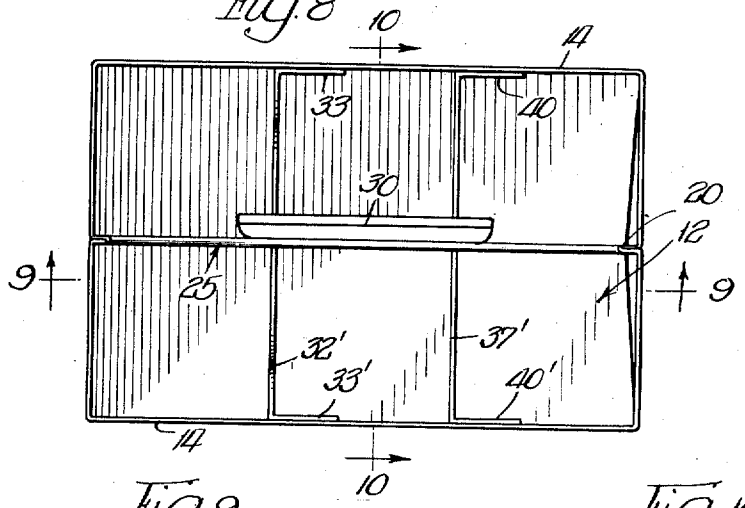


Fig. 9

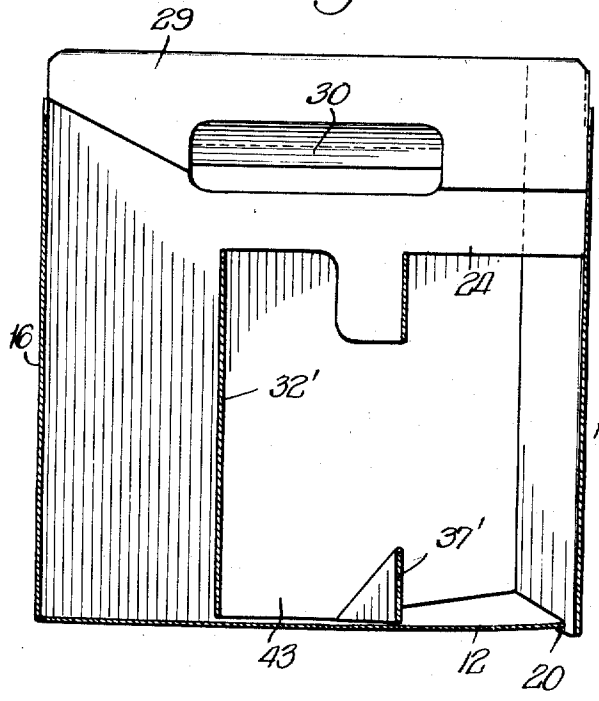
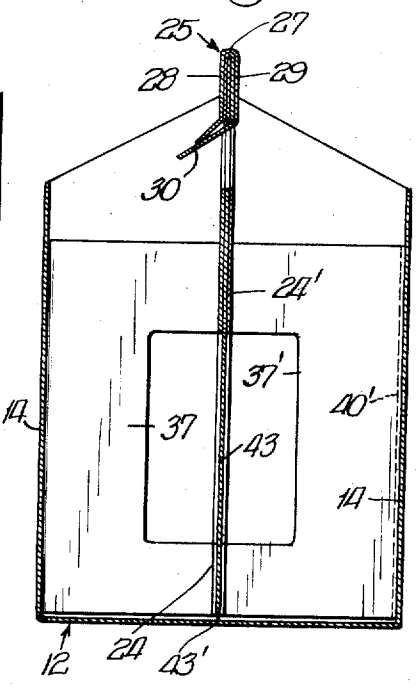


Fig. 10



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United States Patent Office

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ARTICLE CARRIER

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Original No. 2,634,043, dated April 7, 1953, Serial No. 256,065, November 13, 1951. Application for reissue June 3, 1953, Serial No. 359,453

6 Claims. (Cl. 220—111)

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

This invention relates to improvements in a paperboard carrier for bottles and similar articles of uniform size and shape. A cellular article carrier is afforded thereby which provides full depth side protection for bottles placed in the cells thereof, coupled with a suspending handle of increased strength and rigidity which also has other attractive features.

This application is a continuation-in-part of my copending application Serial No. 235,978, filed July 10, 1951.

It is an object of the invention to provide an improved article carrier fabricated of a paperboard blank of a minimum size to provide a multiple-ply longitudinal partition and handle panel from which certain cross partition panels are cut, one of the longitudinal partition plies having a flap of substantial size hinged to the lower margin thereof and covering certain openings therein which result from the cutting thereof to produce the cross partition elements, and the top of the longitudinal partition and handle panel being strongly reinforced by additional partial depth plies taken from an area of the blank [which would normally represent, in the main, waste material, said carrier having integral side walls and bottom] *which is in part an area died out inwardly of an outer margin of the blank and in part an area which can be nested relative to a recessed area of an adjacent blank cut from a sheet or web of the paperboard stock.*

Another object is to provide a carrier of this sort, featuring a protective ply disposed between other plies of a longitudinal partition and handle member and a two-ply top reinforcing element for said member, in which said element is excised [in the main] from [an otherwise waste area of] a blank in such a manner as to provide a finished surface at the top of the member, suitable for printing and/or decoration.

Yet another object is to provide an improved paperboard article carrier in which an outer reinforcing and finished panel is foldably associated with a longitudinal partition unit and is externally overlapped in relation to the latter to serve as a handle member of the carrier. This reinforcing and finish panel is so located in a blank from which the carrier is fabricated as to be capable of anchoring itself relative to other areas of the blank as same proceeds through a gluing and folding machine on which the carrier is made.

A still further object of the invention is to provide a carrier in which the outer reinforcing and finish panel is located at an external margin of a paperboard blank from which the carrier is constructed.

Another specific object is to provide an improved article carrier having cross partition panels of novel construction, being adapted to be swung outwardly relative to a longitudinal partition panel and secured to a side wall panel, these cross partition elements featuring an improved way of deriving a glue lap for so securing the same, in which the glue lap on one cross partition element is taken from the material of an adjacent succeeding cross partition element.

Yet another specific object is to provide an article carrier featuring an improved cross partition structure as described in the preceding paragraph, in combination with a protective panel or flap hinged at the bottom margin of a longitudinal partition unit to which the cross partition elements are hinged, whereby openings exposed by the outward swinging of the cross partition elements are covered by this panel or flap in an upwardly folded position thereof.

A general object of the invention is to provide an improved carrier having an outer protective and finish panel on its grip portion, an upturned, longitudinal partition protecting panel and the improved cross partition arrangement mentioned above, in which all of these provisions are positioned in the blank so as to permit maximum economy of material required to make the carrier.

A still further object is to provide an improved blank suitable for the manufacture of such an article carrier.

The foregoing statements are indicative in a general way of the nature of the invention. Other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

A single embodiment of the invention is presented herein for purpose of illustration. It will be appreciated that the invention may be incorporated in other modified forms coming equally within the scope of the appended claims.

In the drawings;

Fig. 1 is a top plan view of the slitted and creased flexible paperboard blank from which the improved bottle carrier is formed, showing preliminary gluing thereof;

Fig. 2 is a top plan view of the blank following a first folding operation also indicating the application of adhesive preceding a second fold;

Fig. 3 is a top plan view showing the blank following the second fold and indicating a further application of adhesive;

Figs. 4 and 5 are top plan views of the blank after still further manipulations;

Fig. 6 is a top plan view of the carrier in its finished, knocked down condition;

Fig. 7 is a perspective view in enlarged scale, partially broken away, showing the completed and erected carrier;

Fig. 8 is a top plan view of the erected carrier; and

Figs. 9 and 10 are, respectively, views in longitudinal and transverse vertical section along lines **9—9** and **10—10** of Fig. 8.

Referring to Fig. 1 of the drawings, the improved bottle carrier is manufactured from a flexible paperboard blank **10**. This blank is to a considerable extent symmetric about a medial horizontal crease line **11** of a bottom forming section **12**, which defines two like bottom panels **13** in that section. Hence corresponding parts and relationships on opposite sides of crease line **11** are indicated by like reference numerals, and only one set thereof is described.

A rectangular side wall panel **14** is hinged to bottom section **12** by a horizontal marginal crease **15**, and this panel carries an end wall panel **16**, hinged thereto by a vertical crease **17**. Panel **16** is provided with a glue lap **18**, which is hinged thereto by crease **19**. A notched bottom locking lug **20** is formed on the inner or bottom extremity of glue lap **18**.

A further end wall panel **21** is conjoined by crease **22** to the opposite end of side wall panel **14**. It is similar in size and shape to the other end wall panel **16**. A crease **23** serves to hinge to one of the panels **21** a longitudinal partition and handle panel **24** and a corresponding crease **23'** in the other section of blank **10** acts to hinge to its end wall panel a second longitudinal partition and handle member, designated **24'**.

An outer or top extension of the crease **23'** serves the purpose of hinging to partition and handle member **24'** an outer handle reinforcing and finishing member **25**. This is separated from side and end wall panels **14, 21** by a slit **26** which outlines the top margins thereof. Member **25** is subdivided by a horizontal crease **27** into a pair of outer reinforcing sections **28, 29**, both of which are slitted and creased to define handhole tabs **30** of known sort. The purpose of member **25** will be hereinafter described.

The longitudinal partition and handle panels **24, 24'**

are slitted and creased to set out similar cross partition structures. Like reference numerals, primed, are employed to designate parts or elements in panel **24'** corresponding to those of panel **24**.

Panel **24** is provided with a shaped slit **31** which outlines the free marginal edge of a cross partition element **22** and a glue lap **33** on that element. The element is hinged to panel **24** by a crease **34** paralleling the crease **23**; the glue lap **33** is foldably connected to element **32** by a parallel crease **35**. Slit **31** extends from a point beneath a grip portion **36** of panel **24** inwardly the full dimension of the panel, terminating at a point which coincides with the bottom of the latter.

A further cross partition panel element **37** is hinged to panel **24** by means of a short transverse crease **38** which is, in actuality, an extension of crease **35**. Element **37** is freed from panel **24** by a horizontal slit **39** extending from the outer terminus of crease **38** to the right hand side edge of panel **24**. Cross partition panel element **37** is also separated by the shaped slit **31** from the glue lap **33** of the other cross partition element **32**. Panel element **37** carries its own glue lap **40**, which is hinged thereto by a vertical crease **41**.

It is to be noted that the glue laps 33, 33' of elements 32, 32', respectively, are excised by the shaped slits from the material of the adjacent succeeding cross partition panel elements 37, 37'. This leaves only a relatively small opening in each of those elements, at a side thereof, hence contact of bottles separated by the partition elements is not possible at their point of maximum dimension across a cell defined by the elements. It is also evident that glue laps of still further cross partition elements, for example in a 12-article carrier, can be formed in the same way. The structural relationship is a very practical one in the construction of the carrier on existing folding and gluing machinery.

The longitudinal partition and handle panel **24'** differs from the panel **24** in that its shaped slit **31'**, which defines the free edge of cross partition element **32'** and its hinged glue lap **33'** is angled reversely at its inner extremity to intersect with a horizontal bottom crease **42** at the inner horizontal margin of panel **24'**. It is reversely directed along the line of said crease to the inner terminal of the partition hinging crease **34'**.

A reinforcing and bottle separating flap section **43** is separated from the longitudinal partition and handle panel **24** by a horizontal slit **44** which coincides with the inner or bottom margin of the last named panel. Section **43** is hinged to the inner or bottom margin of the panel **24'** by the horizontal crease **42** and is foldable upwardly about said crease in assembling the carrier, being disposed between the longitudinal partition and handle panels **24, 24'** in the completed condition of the carrier, for a purpose to be described. [The panels **24, 24'** are provided with U-shaped slits **46** and horizontal creases **47** connecting the ends thereof, thus to define handhole openings normally closed by hinged flaps **48**, in a well known manner.]

The grip portions of panel 24, 24' are provided with handhole openings 48 in the form of elongated rectangular apertures, the opening in panel 24' being defined at its inner and outer sides by horizontal edges 46, 47, for a purpose to be described.

In assembling the carrier from the blank **10** illustrated in Fig. 1, adhesive is applied to the glue laps **33, 33', 40, 40'** and to the outer portion of panel member **24'**, as indicated by stippling. Panel members **24, 24'** and their associated parts are then folded upwardly, inwardly and downwardly about creases **23, 23'** respectively, causing the glue laps to adhere to the respective side walls **14** and the glued portion of panel **24'** to adhere to the portion **29** of the outer reinforcing handle member **25**. This leaves the blank in the condition shown in Fig. 2.

Further adhesive is applied to terminal glue laps **18** and to the exposed surface of panel **24'** as indicated by stippling in Fig. 2. End wall panels **16** are now folded upwardly, inwardly and downwardly about creases **19**, adhering the glue laps **18** to the upper portions of panels **24, 24'**. The section **43** is next folded upwardly, inwardly and downwardly about its hinge **42** into face-to-face relation to the panel member **24'**, to which it is thus adhered, leaving the blank in the condition illustrated in Fig. 3.

Adhesive may now be applied, as indicated by stippling in Fig. 4, to the longitudinal partition and handle panel **24**, and a glue lap **18**, after which the two sections of

the blank are folded about medial bottom crease **11** into adhered relation to one another as shown in Fig. 5.

The carrier is completed by applying adhesive to the exposed portion or section **28** of the outer handle reinforcing and finishing member **25**, as stippled in Fig. 5. This section is then folded about the subdividing crease **27** and adhered to the exposed surface of the opposed panel **24**, leaving the carrier in the completed, knockdown condition of Fig. 6.

As shown in Figs. 7 and 9 the swinging of the cross partition panel elements **32, 32', 37, 37'** about their respective integral hinges, in erecting the carrier, results in the presence of openings of substantial size in the longitudinal partition panels **24, 24'**, due to the relatively large area and substantial height of the bottle separating cross partition panels **32, 32', 37, 37'** cut therefrom. The relatively large reinforcing and protecting section **43** covers these openings and affords full depth bottle protection, without consuming extra paperboard stock. It is evident that the section **43** adds its strength and rigidity to the associated panels **24, 24'** of the longitudinal partition and handle unit which these panels make up, affording improved rigidity for this part.

When the carrier has been erected to the set up condition of Fig. 7, one end of the bottom **12** is engaged over the latching lugs **20** on the inturned and adhered glue laps **18**, thus to hold the carrier in erected condition ready for loading manually or by automatic loading equipment.

Blank **10**, as shown in Fig. 1, is disposed with its smooth and finished, printed or decorated side underneath and its rough, unfinished surface exposed. Hence it is seen that when the carrier is in the completed condition illustrated in Figs. 6–10 inclusive the longitudinal partition and suspending or handle unit of the carrier, made up of panels **24, 24'** and section **43**, is externally encased along its top by the two-ply outer reinforcing member **25**. The exposed opposite surfaces of this member are finished in character and may bear ornamentation or printing. In addition, the rigidifying effect of the doubled-over member **25** is, of course, substantial. The carrier presents an entirely integral side wall and bottom construction, free from glued joints likely to come apart when wet. Notwithstanding this the upper edge of the carrier handle is finished off in very attractive manner.

Reference has been made to the separation of flap section **43** from panel **24** by slit **44**. In actuality the flap is temporarily held to the panel, as the blank traverses the first stages of the folding thereof, by nicks **50**. The same function is performed by the nicked connections **51** and **52**, respectively, between the handle reinforcing member **25** and side wall panel **14** and between the end cross partition elements **37, 37'** and the remainder of the respective panels **24, 24'**. The nicks readily rupture as the associated parts are manipulated by a gluing and folding machine.

The nicked connection 51 of handle reinforcing member 25 to side wall panel 14 affords control of the member in manufacture, by preventing separation from the panel 14 to which it is thus severably connected as the blank passes through a gluing and folding machine. Inspection of Figs. 1 and 2 indicates that the same function of controlling member 25 may also be served, if desired, by performing a further simple folding operation at an intermediate stage in the manufacturing cycle.

The action just referred to is made possible due to the position of the handhole tab designated 30 in Fig. 1, the hinging of this tab to handle portion 29 along a line paralleling and spaced outwardly from slit 26, and the positional relationship of this hinge to the outermost horizontal margins 46, 47 of a rectangular handhole 48 in panel 24'. That is, the handhole tab may be manipulated, once the blank is in the position shown in Fig. 2, by bending the same 180° upwardly through opening 48 and then outwardly, adhering the same to the adjoining upper exposed surface of member 24' by previously applied adhesive. Such manipulation will result in a positive interlock of handle member 25 to a member 24' as the blank proceeds through the gluing machine.

I claim:

1. A one-piece article carrier blank of flexible paperboard stock, comprising two sets of side wall, end wall and longitudinal partition and handle-forming panels, the respective panels of each of said sets being integrally connected by vertical creases in the order named, a one-

piece bottom-forming panel disposed between and integrally connected by horizontal creases to adjacent bottom-defining margins of said side wall panels, cross partition sections integrally hinged by vertical creases to said partition and handle-forming panels and swingable about those hinge creases out of the planes of the respective last named panels, a protective section of substantial area integrally hinged by a horizontal crease to a bottom-defining margin of one of said partition and handle-forming panels, said protective section lying between said partition and handle-forming panels and being readily displaceable by swinging about its said hinge crease out of the plane of one thereof, and a handle reinforcing unit associated with one of said sets of panels, said unit being integrally hinged by a vertical crease to an end of the partition and handle-forming panel of its associated set and being separated at least in part by a cut from a top-defining margin of the end and side wall panels of said last named set, the outer margin of said reinforcing unit lying substantially outwardly, in the lateral sense, of the outer margin of its associated partition and handle-forming panel and opposed outer margins of said side wall panels lying substantially inwardly of the outer margins of said respective partition and handle-forming panels, *a substantial part of* said reinforcing unit occupying a space between said separating cut therefor and a longitudinal projection of said outer margin of its associated partition and handle-forming panel, and being provided with a horizontal crease in substantial alignment with said outer margin of its associated partition and handle-forming panel.

2. An article carrier blank in accordance with claim 1, in which said protective section hinge crease is disposed outwardly, in the longitudinal sense, of the vertical crease hinging to one another the partition and handle-forming panel and the end wall panel of a panel set.

3. A blank in accordance with claim 1 in which said partition and handle forming panels each have a handhole therein and said reinforcing unit has a tab pivoted thereon in a position to swing through at least one of said handholes when the article carrier is completed.

4. A blank in accordance with claim 1 in which said partition and handle forming panels each have a handhole therein and said reinforcing unit has a tab pivoted thereon inwardly of the outer margin thereof and in a position to swing through at least one of said handholes when the article carrier is completed.

5. A one-piece article carrier blank of flexible paperboard stock, comprising two sets of side wall, end wall and longitudinal partition and handle-forming panels, the respective panels of each of said sets being integrally connected by vertical creases in the order named, a one-piece bottom-forming panel disposed between and integrally connected by horizontal creases to adjacent bottom-defining margins of said side wall panels, a longitudinal partition section of substantial area integrally hinged by a horizontal crease to a bottom-defining margin of one of said partition and handle-forming panels, said longitudinal partition section lying between said partition and handle-forming panels and being readily displaceable by swinging about its said hinge crease out of the plane of one thereof, and a handle reinforcing unit associated with one of said sets of panels, said unit being integrally hinged by a vertical crease to an end of the partition and handle-forming panel of its associated set and being separated at least in part by a cut from a top-defining margin of the end and side wall panels of said last named set, the outer margin of said reinforcing unit lying substantially outwardly, in the lateral sense, of the outer margin of its associated partition and handle-forming panel, which panel outer margin generally coincides with the top of a carrier partition and handle of which said last named panel is a part, and opposed outer margins of said side wall panels lying substantially inwardly of the last named outer margins of said respective partition and handle-forming panels, a substantial part of said reinforcing unit occupying a space between said separating cut therefor and a longitudinal projection of said outer margin of its associated partition and handle-forming panel, and being provided with a horizontal crease in substantial alignment with said outer margin of its associated partition and handle-forming panel.

6. An article carrier blank in accordance with claim 5, in which said protective section hinge crease is disposed outwardly, in the longitudinal sense, of the vertical crease hinging to one another the partition and handle-forming panel and the end wall panel of a panel set.

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