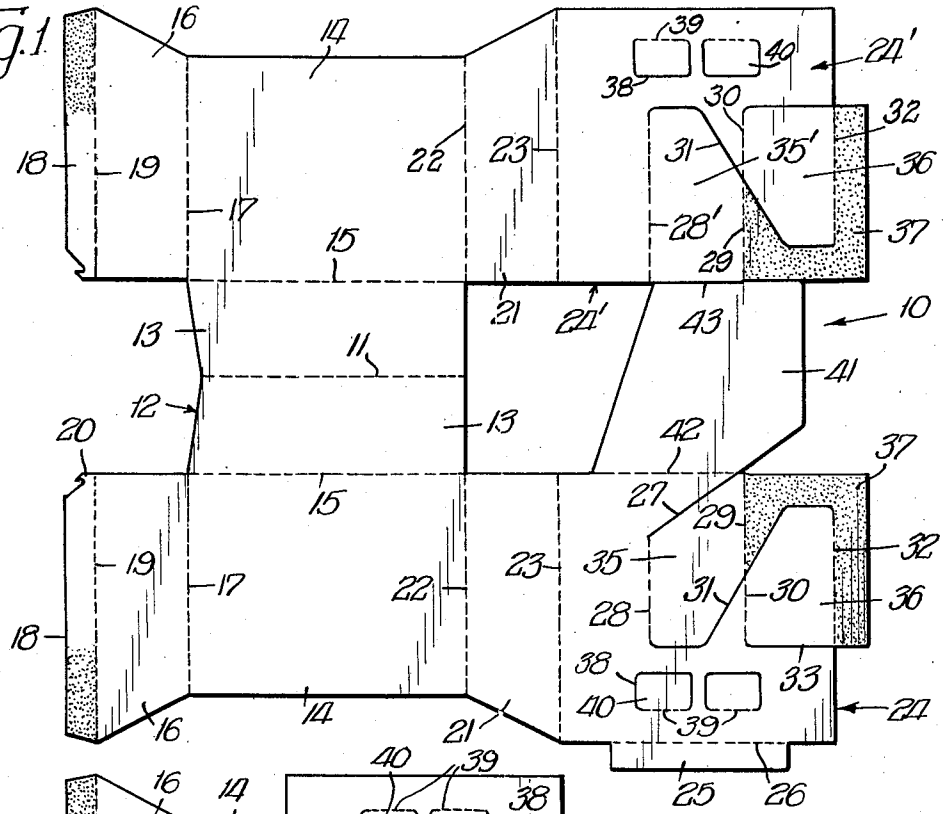
Sept. 22, 1959 E. L. ARNESON 2,905,359

ARTICLE CARRIER

Filed July 10, 1951 2 Sheets-Sheet 1

Fig. 1



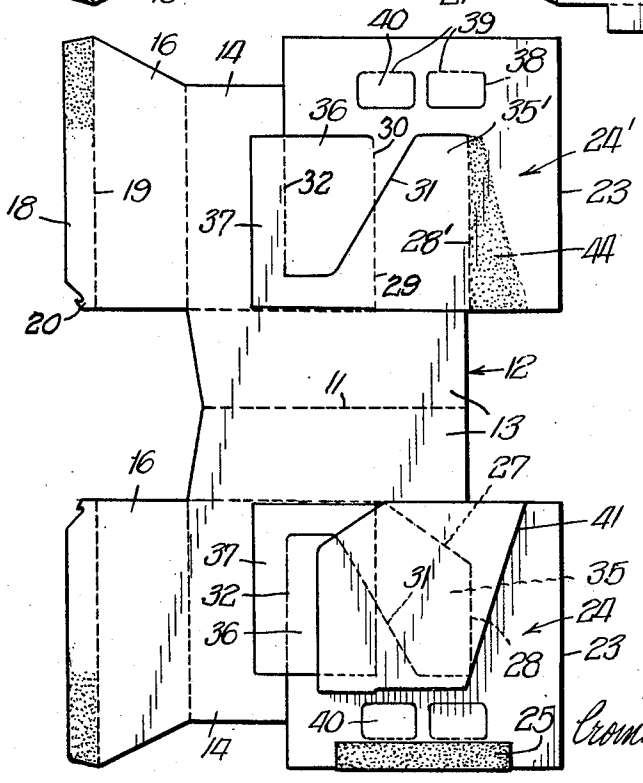


Fig. 2

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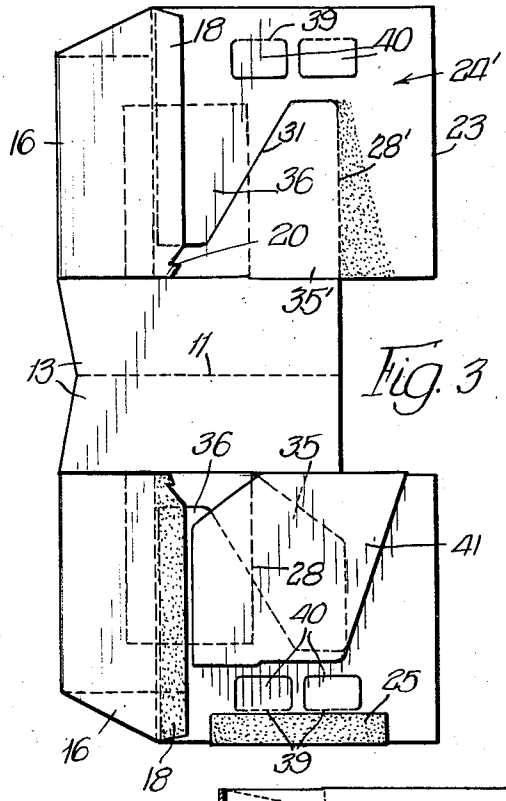


Fig. 3

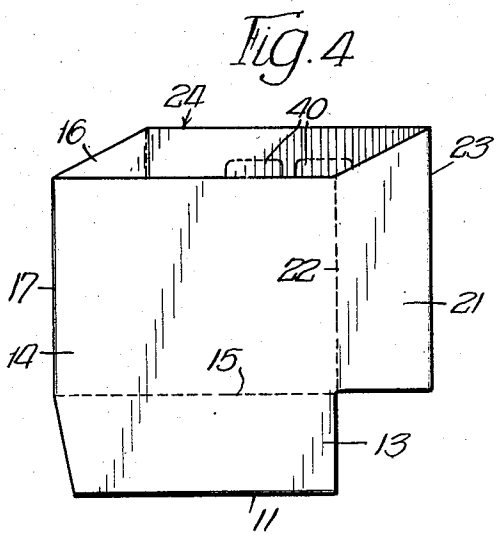


Fig. 4

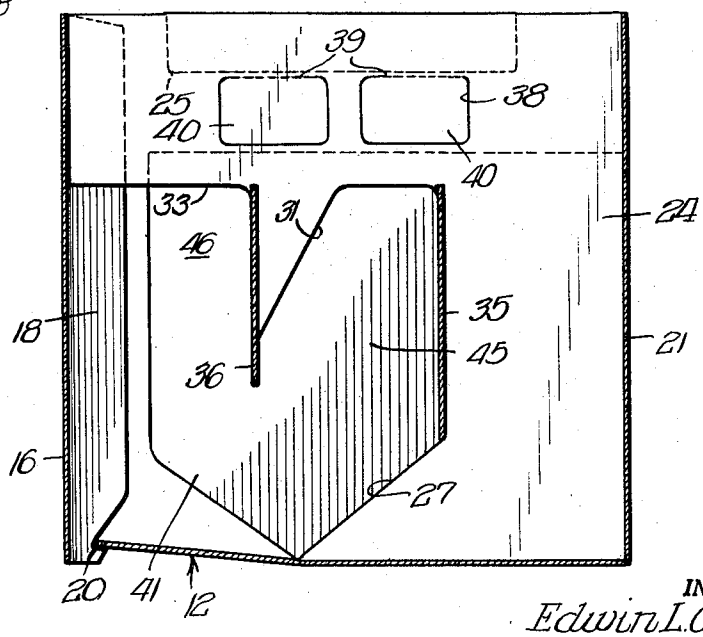


Fig. 5

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ARTICLE CARRIER

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Application July 10, 1951, Serial No. 235,978

2 Claims. (Cl. 220—113)

The present invention relates to an improved carrier for articles of uniform size and shape, particularly beverage bottles, which carrier is fabricated of flexible paperboard stock. It affords a cellular article carrier having a novel and improved longitudinal and cross partition structure providing full depth side protection for bottles placed in cells defined by certain cross partitions of the structure, together with like, full depth bottle protection at a medial longitudinal partition and handle member, from which the cross partitions extend to the side walls of the carrier.

It is an object of the invention to provide an improved paperboard article carrier of the foregoing general description, which is fabricated of a paperboard blank of a minimum size slitted and creased in a fashion to provide opposed side walls, a longitudinal partition and handle panel of multi-ply thickness paralleling these side walls, and cross partition panels integrally hinged to the longitudinal partition plies, extending at a right angle between the latter and the side walls when the carrier is in erected condition, in which carrier the longitudinal partition plies of the blank are slit in a manner to provide cross partition panels of extended depth, thereby resulting in the presence of openings of substantial area through the longitudinal partition of the completed and erected carrier, and in which one of the longitudinal partition plies has a flap of substantial size hinged to the lower margin thereof, the flap being disposed between the plies of the finished longitudinal partition and serving to cover the openings therein referred to above, thereby affording needed full depth bottle protection at the partition.

Another object of the invention is to provide an improved partition structure for a bottle carrier which in erected condition thereof, is characterized by side and end walls, dual, adhesively connected longitudinal partition plies disposed medially between and paralleling the side walls of the carrier, cross partition members which are cut from the material of the longitudinal partition plies and are also preferably hinged to the side walls, and a further flap section of substantial area which is hinged to the lower margin of one of said plies and is sandwiched between the two in a fashion to cover the openings or areas cut from those plies in producing the cross partition members, thereby to afford needed bottle protection at the longitudinal partition as well as at said member.

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, and 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 a flexible paperboard blank employed in fabricating the improved bottle carrier illustrating the manner in which the blank is died out, slitted, creased and preliminarily glued;

Fig. 2 is a top plan view of the blank following certain folding operations thereon, also indicating the application of adhesive prior to a subsequent folding operation;

Fig. 3 is a top plan view of the blank following said further folding operation;

Fig. 4 is a top plan view of the carrier in its completely assembled, knocked down condition; and

Fig. 5 is a view in longitudinal vertical section through the carrier in the erected condition thereof, being sectioned on a vertical plane parallel to a medial longitudinal partition and handle member of the carrier and on the near side of that member.

Referring to Fig. 1 of the drawings, the reference numeral **10** generally designates a flexible paperboard blank from which the improved bottle carrier is manufactured. This blank is, with only slight exception to which attention is hereinafter directed, symmetric about a medial horizontal line coinciding with a central crease **11** of a bottom forming section **12**, which crease subdivides that section into two like bottom panels **13**. Therefore, in view of the symmetric character of the blank, parts or formations thereof on only one side of the medial line **11** will be described, on the understanding that corresponding parts and relationships on the other section are indicated by like reference numerals.

An outer side wall forming panel **14** of rectangular outline is conjoined to bottom section **12** by a marginal crease **15** which coincides with the bottom margin of the completed carrier. This side wall panel has an end wall panel **16** hingedly conjoined to one end thereof by a crease **17**, and the panel **16** carries a glue lap **18**, hinged thereto by crease **19**. A notched bottom latching ear **20** is formed adjacent the bottom extremity of glue lap **18**, for a purpose to be described.

An opposite end wall panel **21** is hinged by a crease **22** to the opposite end margin of panel **14**, being similar in size and shape to the end wall panel **16**. A crease **23** serves to hinge to each of the panels **21** an inner side wall or longitudinal partition and handle panel, one of these panels being designated **24** and the other being designated **24'**, in view of certain specific differences in the slitting and creasing thereof. Panel **24** is provided with a partial length glue lap **25** hinged on the top margin thereof by crease **26**.

Panels **24**, **24'** are also provided with certain slits and creases which define cross partition structures in the material thereof. These structures are essentially the same; hence, to the extent that the slitting and creasing of panels **24**, **24'**, and the results thereof are the same, like reference numerals are employed to designate the parts or elements. Differences are indicated on panel **24'** by the use of primed reference numerals.

The provisions to these ends include an angled slit **27** in panel **24** which extends from the inner or lower extremity of a vertical crease **28** in that panel to the bottom margin of the panel, i.e., the margin coinciding with crease **15**. Crease **28** is spaced from crease **23** a distance equal to one-third the horizontal length of panel member **24**, and the slit **27** intersects the bottom margin of the panel at a point which is approximately the same distance from crease **28**. Aligned creases **29**, **30** paralleling crease **28** are similarly spaced from the latter, i.e., one-third the length of panel **24**. A Z-shaped, angularly extending slit **31** separates creases **29**, **30** and has an outer or upper horizontal extremity which intersects the outer terminus of crease **28**. A lower or inner horizontal portion or terminus of slit **31** intersects the lower or inner end of a final crease **32** in panel member **24**. Crease **32**

coincides with the outer end margin of the panel 24. A horizontal slit 33 extends from the upper or outer end of crease 30 outwardly through the end margin of panel 24.

The effect of the slitting and creasing described above is to define a transverse divider or cross partition section 35 in panel 24 which is hinged to the latter by the crease 28 and has its lower margins defined by inclined slit 27, together with a generally similar cross partition section 35' which is hinged to panel 24' by crease 28'. A second transverse divider or cross partition section 36 is hinged to each of the panel members 24, 24' by crease 30, and a side wall engaging portion 37 of generally L-shaped configuration is hinged to each of the first cross partition sections 35, 35' by means of the crease 29. L-shaped portions 37 are hinged to the second cross partition sections 36 by creases 32. Slits 27, 31 and 33 free the sections 35, 35' and 36 for swinging movement relative to longitudinal partition and handle members 24, 24'.

Panels 24, 24' are provided with U-shaped slits 38, the ends of which are connected by creases 39, to provide conventional handholes and hinged tabs 40 normally filling the same.

Longitudinal partition panel 24 is provided with a special auxiliary separator section 41 of substantial area which is hinged to the panel by means of a crease 42 which coincides with its inner or lower margin. A horizontal slit 43, which coincides with the inner or lower margin of the other panel member 24', serves to separate the section 41 therefrom.

In completing the carrier from the blank illustrated in Fig. 1, adhesive is applied to the L-shaped portion 37 of panel members 24, 24', as indicated by stippling and, if desired at this time, to the glue laps 18 at the opposite end of the blank. It will be appreciated by those skilled in the art that the sequence of gluing operations is susceptible of change and will be determined by the type or set-up of the apparatus on which the carrier is made. Panel members 24, 24' and their associated parts are then folded upwardly, inwardly and downwardly about creases 23 to which they are hinged to end wall panels 21. The auxiliary section 41 is next folded upwardly, inwardly and downwardly about its hinge 42 into face-to-face relation to the panel member 24 on which it is joined, leaving the blank in the condition illustrated in Fig. 2.

Adhesive may now be applied, as indicated by the reference numeral 44, to a generally triangular area on the panel member 24' immediately adjoining its cross partition hinge crease 28', or this gluing may be done at a later time. The handle grip glue lap 25 on partition panel 24 is folded upwardly, inwardly and downwardly about crease 26 and adhesive is applied to its exposed surface, as indicated by stippling. End wall panels 16 are then folded inwardly about creases 17 and their glue laps 18 secured to the outer or upper grip areas of the panels 24, 24' adjoining handholes 38. It will be noted that the application of adhesive to the glue laps 18 is confined to the zone thereof which coincides with the outer grip portion of the panels. This leaves the blank in the condition shown in Fig. 3. Adhesive is next applied to the exposed upper surface of one of the glue laps 18 and the two sections of the blank are then folded about medial bottom crease 11 into adhered relation to one another. This completes the completed, knocked down carrier illustrated in Fig. 4 of the drawings.

It will be observed, particularly by reference to Fig. 5, a longitudinal section through the carrier in its erected condition, that the swinging of the cross partition sections 35, 35', 36 about their respective integral hinges 28, 28', 30 to the two longitudinal partition panels 24, 24' results in the presence of openings 45, 46 of substantial size in the two-ply longitudinal partition. This is due to the relatively large area and substantial height of the cross partition sections, cut therefrom, which is in turn in the interest of providing full depth bottle protection between cells. The special, large area auxiliary section 41 between the two plies of the longitudinal partition (see Fig. 5) affords full depth bottle protection in the zones of the openings 45, 46, without consuming any more paperboard stock for its blank than an integral bottom carrier unequipped with the same, as appears clearly in Fig. 1. It is evident that the section 41 adds its strength and rigidity to the associated panels 24, 24' of the longitudinal partition of which it is actually an integral part, affording improved rigidity for this part.

The carrier is erected to the position of Fig. 5 by applying compressive force to opposite ends of the collapsed article, in well known manner. The cross partitions 35, 35' and 36 move out automatically from the longitudinal partition, constituted by plies 24, 24' to which they are integrally hinged, into a 90° relation to that partition and to the side walls of the carrier, to which they are adhesively connected and hinged. In this position of the parts one end of the bottom 12 of the carrier is engaged over the latching ears 20 on the inturned glue laps 18, thus to hold the carrier in erected condition ready for loading manually or by automatic loading equipment.

I claim:

1. A flat one-piece paperboard bottle carrier blank comprising a pair of sidewall panels, a bottom forming member hinged to one thereof, end members associated with and hinged by transverse creases to said sidewall panels, a pair of longitudinal partition panels associated with and integrally hinged by transverse creases to said end members, said longitudinal partition panels each having a cross partition element cut from the material thereof and integrally hinged thereto by a transverse crease, said elements being displaceable about said respective last-named creases to expose an opening in each of said partition panels and having attaching members thereon adapted to be secured to respective sidewall panels, said cross partition elements each being of substantial size to provide full depth bottle protection between said longitudinal partition panels and said sidewall panels when secured to said sidewall panels, and a protective panel section of substantial area lying between said longitudinal partition panels intermediate the same in a transverse direction and of no greater longitudinal length than said partition panels but at least as wide as the openings exposed therein, said protective panel being integrally hinged by a longitudinal bottom margin forming crease to one of said longitudinal partition panels and being separated from said cross partition elements, the margin of said protective panel opposite the hinge crease thereof being readily displaceable out of the plane of the other longitudinal partition panel, said protective panel hinge crease being located longitudinally outwardly in a direction away from its associated sidewall panel and from the transverse crease hinging its associated longitudinal partition panel and end member together, said protective section being so positioned and of sufficient size to extend substantially upwardly of the longitudinal partition panel to which it is hinged when said protective section is folded about said hinge crease thereof to coplanar relation to said partition panels, said protective section then lying in substantially covering relation to the area of said openings.

2. A bottle carrier formed from a single blank of sheet material as defined in claim 1 comprising a pair of similar bottle-receiving compartments, said bottle carrier having a single bottom panel for both compartments, each of said compartments presenting a sidewall panel foldably connected to the adjacent side edge of the bottom panel and extending substantially the full length thereof, an end panel section foldably connected to each end of the sidewall panel and each having a width approximately equal to one-half the width of the bottom panel of the erected carrier, a longitudinal partition and handle forming panel foldably connected to the inner vertical edges of each of the opposite end wall sections, and a pair of cross par-

tition sections of substantial size cut from each partition and handle forming panel and integrally hinged by vertical creases thereto and foldably connected at the other vertical edges thereof to the inside face of the adjacent sidewall panels so as to expose adjacent openings in said partition and handle forming panels and subdivide each compartment and provide full depth bottle protection transversely thereof, said paired compartments having the longitudinal partition and handle forming panels thereof in back-to-back relation, and 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 extending upwardly between said paired partition and handle forming panels and being so shaped and of sufficient size to substantially cover said adjacent openings.

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