Dec. 11, 1956 E. L. ARNESON 2,773,625

ARTICLE CARRIER

Filed June 18, 1953 2 Sheets-Sheet 1

Fig. 1

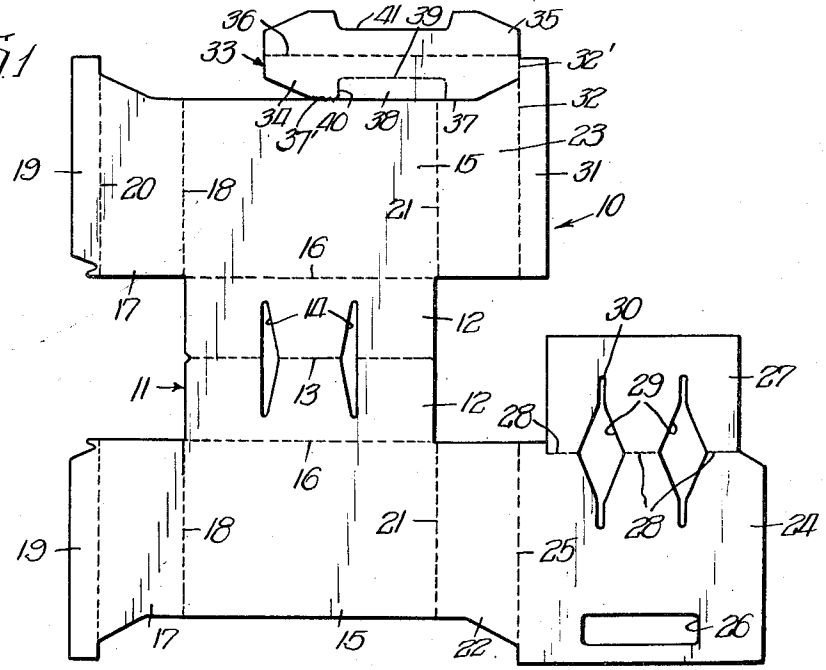


Fig. 2

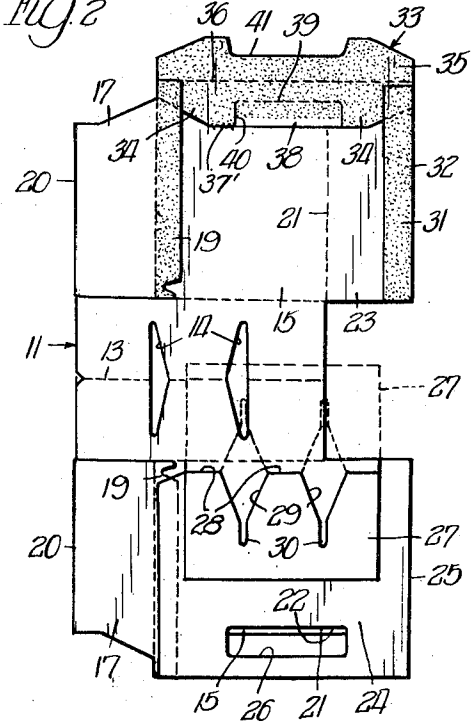


Fig. 3

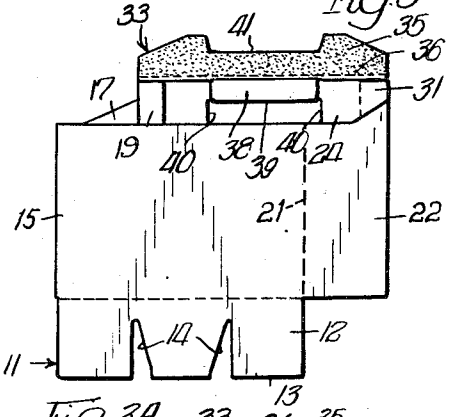
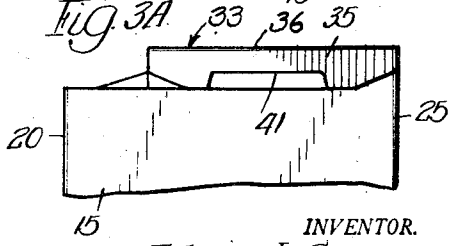


Fig. 3A



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Dec. 11, 1956 E. L. ARNESON 2,773,625

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Filed June 18, 1953 2 Sheets-Sheet 2

Fig. 4

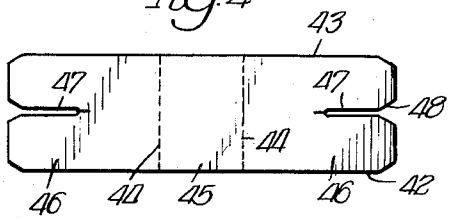


Fig. 5

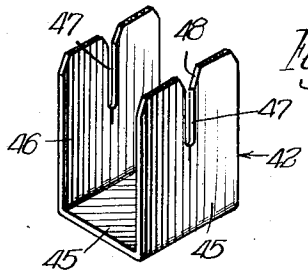


Fig. 6

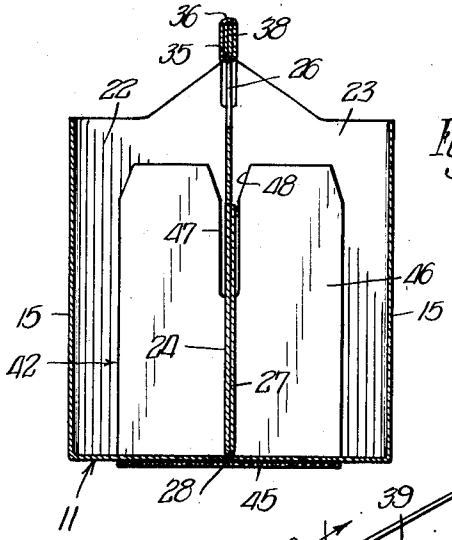
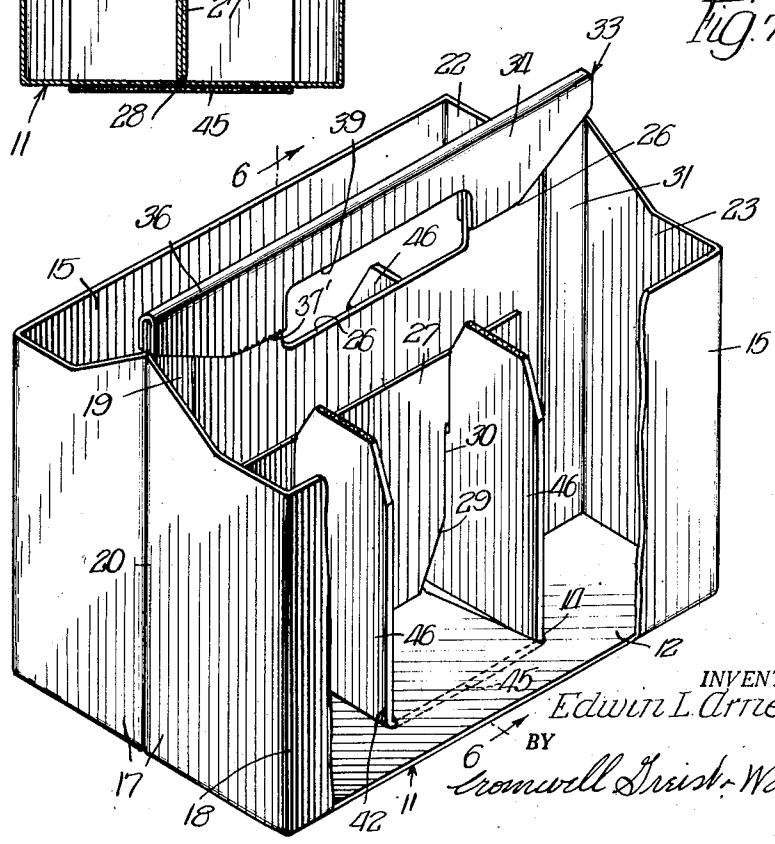


Fig. 7



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ARTICLE CARRIER

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Application June 18, 1953, Serial No. 362,622

2 Claims. (Cl. 220—113)

The present invention pertains to improvements in paperboard carriers for bottles and like articles whereby an increased thickness of paperboard stock is afforded at transverse panels which separate adjacent bottles in the carrier, as compared to the thickness of the material of the rest of the carrier. Thus it is possible to manufacture a carrier which is fabricated, in the main, of a relatively inexpensive board, yet which fully complies with commercial and shipping specifications aimed to insure against breakage of relatively thin, fragile bottles in transit and in handling. The improvements rigidify and reinforce the carrier and also involve features by which the manufacture of the carrier on a standard type of gluing apparatus is greatly facilitated.

In one embodiment of the invention the increasing of the thickness of the carrier at the above mentioned transverse bottle separating panels is in part performed by a flap foldably connected to a bottom margin of an upstanding, central, or longitudinal partition or divider member, the flap being disposed in side by side relation to the panel, and in part by the use of an auxiliary transverse divider unit. Such unit is associated with the two ply longitudinal unit by inserting the same upwardly through a bottom of the carrier, the panels of the center unit being appropriately slotted for the vertical straddling reception of the auxiliary divider unit, and the carrier bottom also being slotted for the same purpose. The thickened center partition and auxiliary transverse divider unit thus mutually brace each other, in the transverse and longitudinal senses.

It is a particular object of the invention to provide a carrier as described above in which the auxiliary partition unit is fabricated of material, such as corrugated board, which is thicker and more cushion-like than the remainder of the construction so as to preserve the advantage of low cost inherent in the latter while obtaining the advantage of desired and necessary bottle protection at the transverse bottle separating zones. In this the invention also affords a partition structure which is a rigid one and, in turn, imparts corresponding qualities of rigidity and strength to the carton as a whole.

The invention also provides improved structural features in a paperboard blank from which the carrier is fabricated, and an improved method of manipulating the same, which have the effect of facilitating the control of the blank as it traverses a gluing machine. In the illustrated embodiment of the invention the last mentioned provisions involve an outer finished handle grip panel which is flexibly hinged by a vertical crease to an end of the center or longitudinal partition unit referred to above. This handle grip panel is otherwise partially separated from the remainder of the blank and only weakly tacked to a side wall panel thereof by means of perforations. It is provided with an integrally hinged handhole tab which is manipulated, after a longitudinal partition panel has been folded into overlying relation thereto, through a handhole opening in that panel and adhesively secured to the latter.

The effect of this is to anchor the aforesaid handle grip panel to the remainder of the blank as the latter traverses the gluing machine, so that it is held from accidental separation and possible destruction as the carrier is being fabricated. The grip panel separates from the side wall as the completed carton is erected from a flat, knocked-down condition, thereafter constituting an outer finish surface for the upper grip portion of the longitudinal partition structure, and substantially rigidifying the same in addition.

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 improved carrier and the operation of the improved method by which it is made.

One embodiment of the invention is presented herein for purpose of illustration, but 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 carrier in accordance with one embodiment of the invention, in which an auxiliary transverse divider unit of corrugated board is employed;

Fig. 2 is a top plan view showing the position of parts of the blank following initial folding operations, this view indicating in dotted lines the position of a longitudinal partition forming part prior to a folding thereof, and showing an application of adhesive prior to an ensuing operation;

Fig. 3 is a top plan view showing the partially completed carton following successive foldings of certain of its parts from the condition of Fig. 2;

Fig. 3A is a fragmentary top plan view showing the carrier as completed from the condition illustrated in Fig. 3;

Figs. 4 and 5 are, respectively, top plan and perspective views illustrating in flat and set up condition, respectively, an auxiliary corrugated board partition unit which is associated with the carrier of Fig. 3A when the latter is in erected condition;

Fig. 6 is a view in transverse vertical section through the completed and erected carrier, illustrating with the auxiliary divider unit in operative position, the view being in section along line 6—6 of Fig. 7; and

Fig. 7 is a perspective view of the erected carrier, broken away to further show the relationship of its parts.

A flat flexible paperboard blank 10 to form an article carrier according to one embodiment of the invention is illustrated in Fig. 1 of the drawings. The blank is, to some extent, symmetric in character about the longitudinal center of a bottom forming panel thereof, hence corresponding parts and relationships thereof on opposite sides of this axis of symmetry are designated by corresponding reference numerals.

The blank comprises a central bottom forming section 11 constituted by a pair of like rectangular panels 12 integrally hinged to one another by a longitudinally extending center crease line 13. A pair of transversely extending, slot-like apertures 14 are formed in section 11 in longitudinally spaced relation to one another, for a purpose to be described, these apertures each being positioned inwardly one-third of the length of the section 11 from the ends of the latter, and extending equidistantly on opposite sides of crease 13.

Rectangular side wall panels 15 are integrally hinged by horizontal, longitudinally extending creases 16 to opposite margins of bottom section 11, and each of the panels 12 has an end wall forming panel 17 integrally hinged by a transverse vertical crease 18 to one of its end margins.

Glue flaps 19 are similarly hinged by creases 20 to the outer margins of end wall panels 17, each flap being provided with an inner bottom-engaging hook so as to engage beneath an end of the bottom section 11 when the carrier is erected, thus to sustain the carrier in erected condition prior to filling by an automatic loading apparatus.

Further end wall forming panels are integrally hinged by transverse vertical creases 21 to the opposite end margins of side wall panels 15, and these end wall panels are designated 22, 23, respectively. Panel 22 has a longitudinal center partition panel 24 integrally hinged thereto by a transverse vertical crease 25, the panel 24 being coextensive in length with the side wall panels and being wider in the transverse direction than the side walls. It is provided with a handhole opening 26 of elongated rectangular outline.

A partition reinforcing flap 27 of rectangular shape and substantial area is integrally hinged to an inner margin of panel 24 by means of a series of aligned, longitudinally extending creases 28; these are separated by longitudinally spaced diamond-shaped openings 29 extending equidistantly on opposite sides of the line of the creases 28. Slots 29 narrow to end extensions 30 of restricted width. The spacing of the slots 29 from one another corresponds to the spacing of slot-like apertures 14 in bottom section 11, and the slots 29 are transversely and vertically aligned with apertures 14 when the carrier is completed and in its erected condition, illustrated in Figs. 6 and 7 of the drawings.

The other end wall panel, designated 23, has a transversely elongated glue flap 31 integrally hinged thereto by a transverse crease 32, and an outer extension 32' of the crease 32 serves as an integral hinge for an outer handle finish grip and reinforcing panel, which is generally designated 33.

Panel 33 comprises a pair of similar inner and outer sections 34, 35, which are integrally connected with one another by a medial horizontal, longitudinally extending crease 36. Crease 36 is approximately aligned with the outer transverse extremities of the glue flaps 19, 31, and grip section 34 is, in effect, nested in relation to the side and end wall panels 15, 23 which it adjoins. It is partially separated from panels 15, 23 by a shaped slit 37 in part defining a top marginal edge of the panels and is preferably left severably connected to side wall panel, as by means of a tacked connection designated 37', which may be a line of perforations.

Panel section 34 is provided with a handhole tab 38 integrally hinged thereto by a longitudinally extending crease 39 paralleling slit 37, and the ends of crease 39 are connected to the slit 37 by short transversely extending slits 40. Outer grip panel section 35 is provided with an outwardly opening notch or recess 41 of elongated shape, somewhat longer than the handhole tab 38 and approximating the length of handhole opening 26 in panel 24.

In completing the improved carrier from the blank of Fig. 1, end wall panels 17 and their glue flaps 19 are folded upwardly, inwardly and downwardly about creases 18 into side by side engagement with the side wall panels 15. Glue flap 31 is simultaneously folded upwardly, inwardly and downwardly about crease 32 into the same relation to end wall panel 23. Following an application of adhesive to the upper exposed surface of the glue flap 19 on the other half of the blank, the center longitudinal partition panel 24, with its attached reinforcing flap 27, is folded upwardly, inwardly and downwardly about crease 25, causing its free end edge to become adhesively secured to the aforesaid glued flap 19, and the resultant article is illustrated in Fig. 2, the reinforcing flap 27 being disposed at this time as shown in dotted lines.

An application of adhesive may now be made to the upper exposed surface of the flap 27, following which the same is folded 180° about its connecting creases 28 to the position illustrated in solid lines in Fig. 2, i. e. in reversely folded, face to face contact with panel 24, to which it adheres, if glued as described.

Adhesive is now applied to the other set of glue flaps 19 and 31, as indicated by stippling in Fig. 2, and may also at this time be applied over the entire surface of the outer reinforcing handle panel 33, excepting only a portion of the handhole tab 38 directly adjoining the separating slit 37. The two halves of the blank are now folded medially upon one another about medial bottom crease 13 to bring the parts to the condition shown in Fig. 3, whereupon the handhole tab 38 is folded upwardly and outwardly 180° about its crease 39, adhering the tab to the adjacent exposed surface of the panel 24 and passing through the handhole opening 26 in the latter in so doing. This constitutes a lock positively anchoring the whole outer reinforcing and finish panel 33 to the remainder of the longitudinal partition structure 24, 27 with which it coacts.

The carrier is completed to its flat, knocked-down condition illustrated in Fig. 3A of the drawings by folding the handle panel section 35 through 180°, inwardly and downwardly about its crease 36, into adhered relation to the upper portion of panel 24 and associated flap 38.

An auxiliary transverse divider unit 42, such as is shown in Figs. 4 and 5, is employed in association with the above described carrier. This is died out of a corrugated board stock of substantially greater thickness than the material of the carrier, preferably at least twice as thick and of desired cushioning property. It is died out in the form of a flat blank 43 subdivided by a pair of parallel transverse creases 44 into an intermediate rectangular bottom section 45 and oppositely extending cross partition sections 46 of identical shape. Each of these is provided with an inwardly extending locking slot 47 at each end thereof, at the mid-point of its transverse extending dimension. Outwardly divergent guide bays 48 lead to the slots 47.

In assembling the divider 42 to the carrier of Fig. 3, the latter is first erected to a rectangular outline of its upstanding side and end walls, in a well known manner, whereupon the divider sections 46 of unit 42 are thrust upwardly through the slots 14 in the bottom 11 of the carrier. The lock slots 47 of the unit will mate with the slot extremities 30 of the center panel 24 and reinforce flap 27, being guided unfailingly into the same by the widened triangular throats of slots 29. Unit 42 is thrust fully upwardly to the position illustrated in Figs. 6 and 7 of the drawings. In this position it functions as a device to rigidify and hold the carrier in erected condition by mutual bracing action between panels 24, 27, on the one hand and the unit 42, on the other. At the same time the unit partitions the carrier with a double thickness of cushioning material between bottles, in full compliance with existing specifications for carriers intended to handle a new type of thin walled, one-trip bottle.

I claim:

1. A paperboard article carrier comprising upstanding side and end walls and a bottom extending between bottom margins of the side walls, a central longitudinal partition hinged to the end walls and paralleling the side walls, said longitudinal partition extending substantially the full length of the carrier and comprising an upstanding partition panel and a flap section of substantial area integrally hinged by a horizontal crease to a lower margin thereof, said partition panel and flap section being provided with longitudinally spaced vertical slots opening downwardly through said hinging crease and said bottom having longitudinally spaced transverse slots extending at a right angle to the longitudinal partition and in vertical alignment with the slots of the latter, and a U-shaped transverse divider having its parallel arms received in the slots in said bottom and longitudinal partition in upstanding straddling relation to said longitudinal partition, said arms having upwardly opening slots for interlocking with the slotted partition panel and flap and extending upwardly

past the ends of the slots in said partition panel and flap section, said divider arms engaging opposite side faces of said partition panel and flap section, and said divider being fabricated of thicker material than said partition panel and flap section so as to approximate the combined width of the latter.

2. A one-piece flexible paperboard blank for a bottle carrier, said blank being cut and scored to provide a rectangular bottom forming panel which is divided transversely by a fold forming score line and which is divided longitudinally by equally spaced transversely extending slots of substantial length, rectangular side wall forming panels integrally joined to opposite side edges of said bottom forming panel by parallel bottom edge forming score lines, an end wall forming panel integrally joined by an end edge forming score line at each end of each of said side wall forming panels, three of said end wall forming panels having glue flaps integrally joined by hinge forming score lines to the terminal side edges thereof, a single longitudinal partition forming panel of substantially the same length as the side wall forming panels,

said longitudinal partition panel having an outer top forming edge and an inner bottom forming edge and being integrally joined to the terminal side edge of the fourth end wall forming panel by a transversely extending hinge forming score line, and a longitudinal partition reinforcing flap of substantial size integrally joined to the inner bottom forming edge of said longitudinal partition panel by a longitudinally extending hinge forming score line, and transversely extending equally spaced slots extending on opposite sides of said last mentioned score line with the longitudinal spacing of said last mentioned slots corresponding to the longitudinal spacing of the slots in said bottom forming panel.

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