Feb. 5, 1952 C. L. ARNESON 2,584,658

PAPERBOARD PARTITIONED ARTICLE CARRIER

Filed Sept. 23, 1949 2 SHEETS—SHEET 1

Fig. 1.

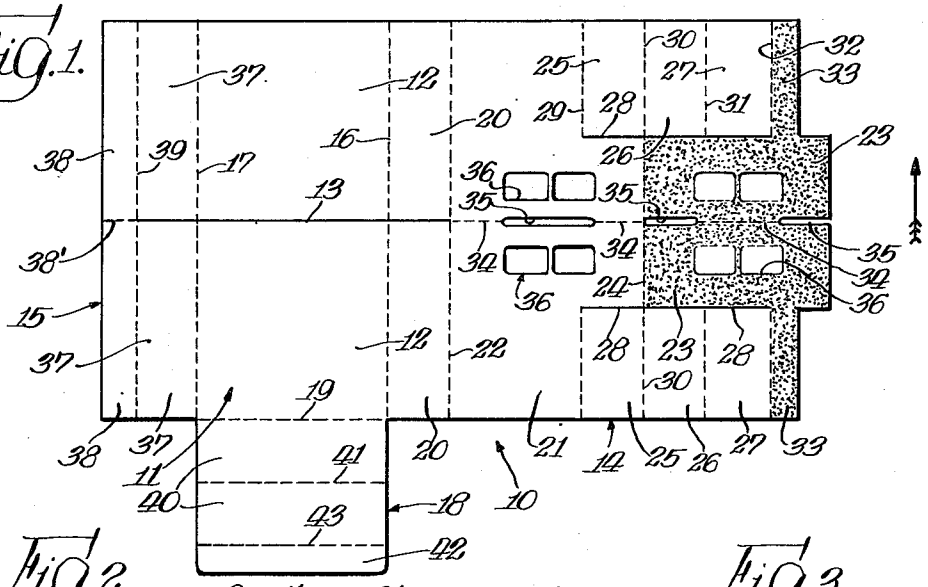


Fig. 2.

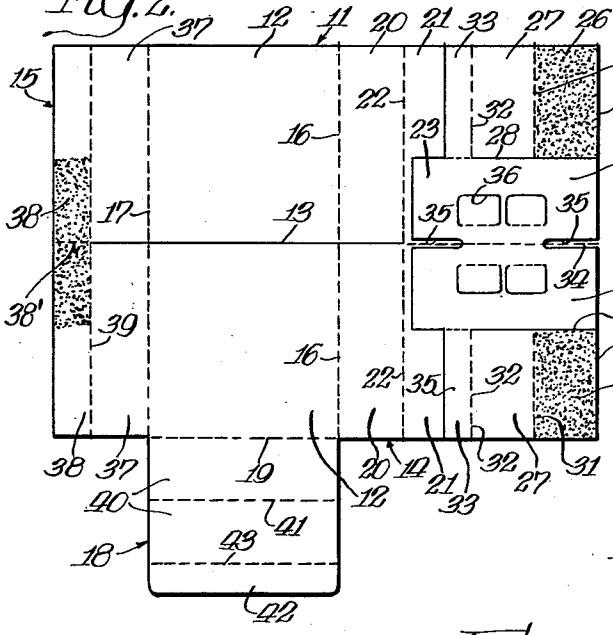


Fig. 3.

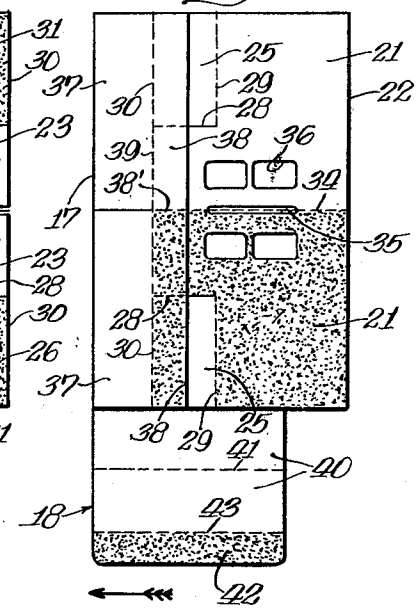
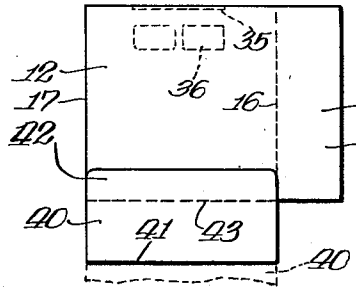


Fig. 4.



INVENTOR.
Edwin L. Arneson,
BY
Cromwell, Dreist & Warden
Attys.

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Fig. 5.

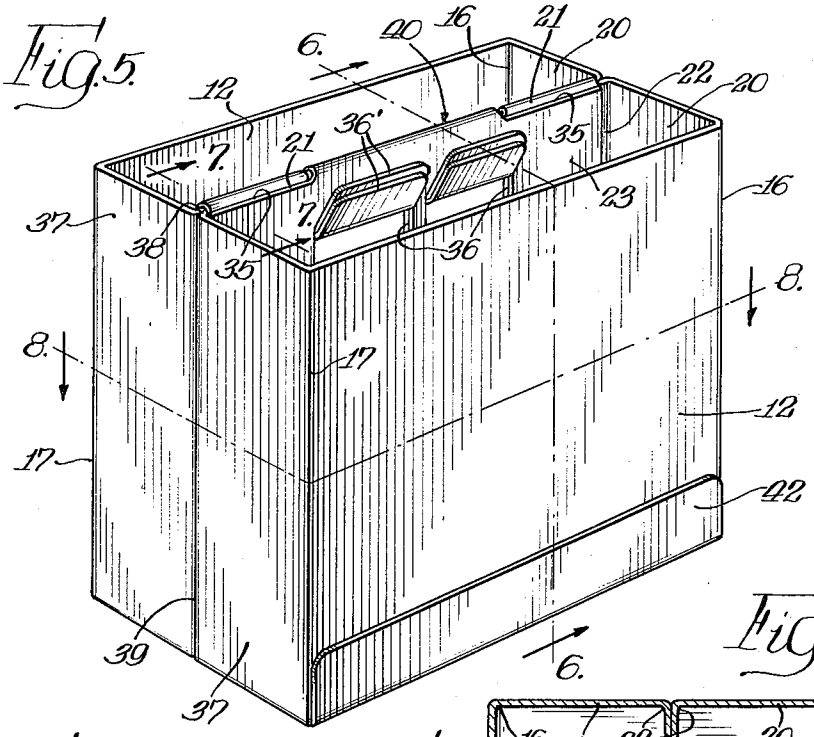


Fig. 8.

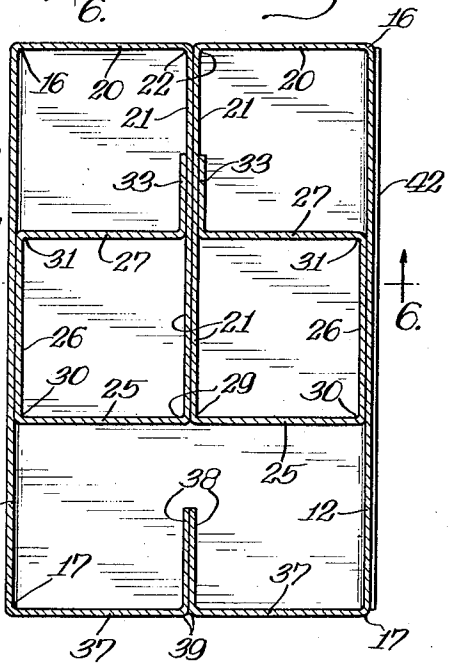


Fig. 6.

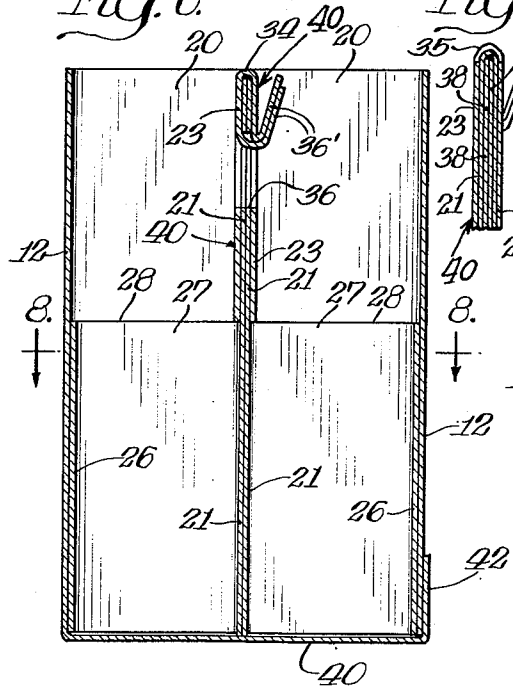
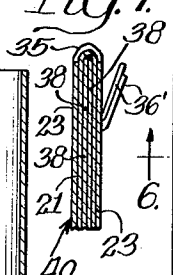


Fig. 7.



INVENTOR.
Edwin L. Arneson.
BY
Cromwell, Greist & Warden
Attys.

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UNITED STATES PATENT OFFICE

2,584,658

PAPERBOARD PARTITIONED ARTICLE CARRIER

Edwin L. Arneson, Morris, Ill., assignor to Morris Paper Mills, Chicago, Ill., a corporation of Illinois

Application September 23, 1949, Serial No. 117,392

2 Claims. (Cl. 229—28)

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The present invention pertains to an improved paperboard carrier for articles of uniform size and shape, such as bottled beer and carbonated beverages, and to an improved and simplified method of making the same adapted to be carried out on a standard type of right angle gluing machine.

It is an object of the invention to provide an improved portable article carrier of a collapsible type, suitable for the packaging and transporting of uniformly shaped and sized articles such as bottles, which is fabricated from a one-piece paperboard blank and is internally subdivided into cells by a vertically extending, longitudinal and transverse partition structure of height coextensive with that of the carrier walls, which partition structure is of multiple ply character in the longitudinally extending central portion thereof to substantially stiffen the carrier as a whole, when the latter is erected, and to afford a substantial gripping panel to be grasped manually in transporting the loaded carrier, the partition structure being constituted in a novel manner by panels which are compound-folded on one another and associated in a novel cell forming relation to the carrier side walls.

A still further and more specific object of the invention is to provide a collapsible, internally partitioned type of article carrier fabricated from a one piece blank and characterized by opposed pairs of flexible side and end walls and by a partition structure which is substantially coextensive in top to bottom height with the side and end walls, said structure including a relatively rigid, longitudinally extending, central partition and suspending panel of full carrier height paralleling the side walls, which is of at least two-ply thickness throughout, and integral cross partitions of less height than the longitudinal partition and cut from the material thereof, which cross partitions are adhesively secured to the side walls and are flexible to right angle relation to the longitudinal partition when the carrier is set up from its flat, knocked-down condition to an erected, article receiving condition.

A further object is to provide a partitioned article carrier of the type referred to in the preceding paragraph in which both the longitudinal partition and the cross partitions extend substantially to the bottom of the carrier in the erected condition of the latter, thereby providing full protection for articles such as bottles which are separated by the partitions.

Yet another object of the invention is to provide an improved, simplified and time conserving

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method of fabricating articles of the sort referred to above, which method is well suited for performance on existing, standard type of right angle gluing machines.

A still further object is to provide a flexible paperboard blank adapted to be manipulated in accordance with the above method to produce an improved carrier of the sort referred to.

The foregoing statements are indicative in a general way of the nature of the invention, but 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, but it will be appreciated that the invention is susceptible of incorporation in other modified forms coming equally within the scope of the appended claims.

In the drawings:

Fig. 1 is a plan view illustrating the died out flexible paperboard blank from which the present carrier is fabricated, showing the manner in which said blank is shaped, slitted, creased and preliminarily glued in certain areas thereof;

Figs. 2, 3 and 4 are, respectively, plan views illustrating progressive steps in the procedure of manipulating the blank of Fig. 1 to its final, fully completed but collapsed form shown in Fig. 4;

Fig. 5 is a perspective view illustrating the carrier in operatively expanded or erected condition, ready for the reception of its intended contents.

Fig. 6 is a view in transverse vertical cross section along a line corresponding generally to line 6—6 of Figs. 5 and 8, illustrating details of construction.

Fig. 7 is a fragmentary view in vertical cross section similar to Fig. 6, but viewed on a line corresponding to line 7—7 of Fig. 5; and

Fig. 8 is a view in horizontal cross section along line 8—8 of Figs. 5 and 6.

The shaped blank 10 from which the carrier of the present invention is fabricated is illustrated in Fig. 1. It is died from flexible paperboard stock which may be of a relatively inexpensive grade inasmuch as the carrier design is inherently very strong. Blank 10 is characterized by a medial section 11 constituted by a pair of like adjoining rectangular panels 12 which are adapted to constitute the outer side walls of the finished carrier. A longitudinally extending slit 13 separates the panels 12 from one another. Wing sections, generally designated 14, 15, of

unequal size and differing shape, extend laterally from opposite side margins of the medial section 11, which margins are defined by creased fold lines 16, 17 disposed normal to and intersecting the slit 13. The laterally extending sections 14, 15 are employed for the purpose of providing end wall and partition structures for the carrier, in a manner to be described. A further section 18 is flexibly conjoined to the section 11 by fold line 19 and ultimately provides a bottom for the completed carrier.

The sections 14, 15 are symmetric in their respective component parts, shapes, etc., about an axis which coincides with the slit 13. Accordingly, like reference numerals are employed to indicate these various features and reference will be made, in the main, to only one of the symmetric features.

The larger wing section 14 includes the following primary components: a relatively narrow, rectangular, end wall defining panel 20, located immediately adjoining the crease 16, the two panels 20 being separated from one another by an extension of the slit 13; a first longitudinal partition forming panel 21 foldably conjoined to the end wall panel 20 by a crease 22 normal to and intersecting the end of slit 30; a further or second longitudinal partition forming panel 23 flexibly conjoined to the panel 21 by crease 24 parallel to crease 22; and a plurality of hingedly connected cross partition defining panel elements 25, 26 and 27 which are hingedly connected to one another and to the first partition panel 21.

These partition elements lie on opposite sides of the partition panel sections 21, 23, being separated therefrom by the slits 28 paralleling slit 13. Partition element 25 is hinged to the partition panel 21 by a crease line 29, while an extension 30 of the crease 24 hingedly articulates element 26 to section 25 and a parallel crease 31 similarly hinges element 27 to element 26. The last element 27 is foldably connected along its opposite margin by a crease line 32 to a glue strip 33 which is integral with and projects from the second partition panel 23. This strip is secured to and lies coplanar with the panel 21 when the carrier is in completed condition. The alternate creases 29, 30, 31 and 32 are formed in a manner to facilitate flexing of the sections 25 and 27 to position as cross partitions for the carrier when the latter is erected, on the understanding that the partition element 26 is to be adhesively secured to the side wall 12 of the completed carrier and the elements 25 and 27 are to extend inwardly therefrom to the central longitudinal panel structure.

A series of longitudinally aligned creases 34 and elongated slots 35 which extend outwardly from the slit 13 hingedly connect the respective panels 21, 21 and 23, 23 to one another, the slots being located so as to accommodate the multiple thickness of stock which is present at the fold connecting the sections when the carrier is completed. The panels 21, 23 are further slitted and creased for the purpose of affording hand holes therein, generally designated by the reference numeral 36, to be grasped by a user in transporting the carrier and its contents, all in a fashion well known to those skilled in the art.

The opposite, smaller, laterally extending wing section 15 includes the narrow end wall forming panel 37 foldably conjoined to the adjacent side wall panel 12 by the crease 17 and to a terminal glue flap 38 by the parallel crease 39. An extension of slit 13 separates the panels 37 from

one another and the glue flaps 38 are hinged together by the medial crease 38'.

Bottom forming section 18 comprises the like bottom panels 40 hingedly connected to one another by the medial crease 41 and a glue flap 42 which is hinged to the outer panel 40 along the crease line 43.

In completing the carrier from the blank 10 illustrated in Fig. 1, adhesive is applied to the second or outer longitudinal partition forming panels 23 of the latter and to the oppositely extending glue strips 33 of said panels, as indicated by stippling in Fig. 1. This is done while the blank is traveling in the direction of the arrow in Fig. 1 through a standard, right angle type glueing machine, such as is widely employed in the paper converting industry. Following the application of the adhesive, and during continued travel of the blank in the same direction, the panels 23, together with the two outer cross partition elements 26 and 27, are folded upwardly and inwardly about the crease lines 24—30 into superposed relation to the respective panels 21 and partition elements 25 and are pressed downward thereon, whereby to be adhesively secured thereto in the glued area.

Further adhesive is then applied to the still traveling, partially folded blank in the areas indicated by stippling in Fig. 2, after which the adhered panels 21, 23 are folded upwardly and inwardly about the crease line 22, causing the partition elements 26 to adhere to the respective side wall panels 12 as the blank continues to travel longitudinally in the direction of the arrow in Fig. 1. Immediately following this, the end wall panels 37 and glue flaps 38 are folded upwardly and inwardly about crease line 17 and the glue flaps are adhered to the subjacent end of the previously folded panel sections 21. The glue flaps 38 are not adhered to the partition sections 25, enabling the latter to shift away from the end wall 37 when the container is erected.

The traveling blank is now in the condition shown in Fig. 3, in which condition it abuts an end stop of the machine, whereupon it comes under the influence of transversely traveling conveyor means and is caused to travel in the direction of the arrow in Fig. 3, at a right angle to its previous path of travel. Adhesive is now applied to the article as indicated by stippling in Fig. 3, whereupon the halves of the container are folded upon one another about an axis coincident with slit 13 and creases 34, 38', bringing the partition panels 21, the associated end wall panels 37 and the glue flaps 38 into adherent relation to one another. Following this, the bottom forming section 18 is folded upwardly and inwardly about the crease 41 to adhere the glue flap 42 to the exposed, upper surface of the opposite side wall 12. This completes the carrier, leaving the same in the flat, collapsed condition illustrated in Fig. 4, ready for shipment or storage.

The completed carrier is illustrated in Fig. 5 in its operative, erected condition, ready for the reception of its intended contents. It is brought to this condition by simply exerting compressive force on the end margins of the collapsed carrier, represented by the hinge crease 22 of the adhesively joined sections 21, 23, and by the hinge crease 17 between one of the side walls 12 and the end wall panel 37 adjoining the same. The medially foldable bottom unit 18 automatically rises to flat, horizontal position at a right

angle to the surrounding four walls, 12, 20 and 37.

The side and end walls of the above carrier are of full height approximating that of the bottle contents, and preferably somewhat greater than the height of said bottles, thus to properly shield bottled malt beverage against light deterioration. The central partition and the suspending panel, generally designated 40 for the purpose of convenience, is of desirable rigid character by reason of the multiplicity of plies incorportated therein, as particularly illustrated in Figs. 6 and 7. This affords a very stable, strong and non-twisting means for grasping and suspending the carrier and its contents. This panel 40 extends the full depth of the carrier (see Fig. 6) for full protection of the bottles against destructive contact with one another. The cross partition structure, represented by the partition elements 25, 26 and 27, is produced from the material of the central partition and suspending panel, yet because of the multiple thickness of the latter, its function of protecting the bottles is unimpaired, since that portion of the respective panels 21 of blank 10 which is located outwardly of the slits 28 of the blank still extends downwardly to the bottom of the carrier. The same is true of the cross partition elements 25 and 27, so that the bottles are fully protected in the large diameter portions thereof against rubbing or striking.

The method employed in constructing the carrier, involving the preliminary slitting at 13 to separate the respective side wall panels 12 and the sets of end wall panels 20 and 37 from one another, the successive, compound inward folding of the panel sections 21 and 23, and the further right angle folding of the compound-folded panel units onto one another about the medial creases 34, 38', is believed to be novel in the art of fabricating paperboard bottle carriers and like type of collapsible, compartmented carriers. It is ideally suited to being performed on well known, standard types of right angle gluing machines and it requires a minimum of set-up and adjustment work to accomplish mass production.

Although the carrier is shown in a high side walled embodiment, it may be readily converted to a low walled style by merely removing a rectangular area of the material of side wall panels above the top extremities of partition elements 25, 26, 27, instead of employing the straight slit 13, and by cutting the upper margins of end wall panels 20, 37 along an inclined line extending from the creases 34, 38' to the thus lowered side wall upper edge.

I am aware that those skilled in the art will perceive the feasibility of various slight changes in the above described carrier structure and method, without departing from the principle of the invention. I therefore desire that all such more or less obvious modifications be incorporated within the scope of the appended claims.

I claim:

1. An article carrier fabricated of flexible stock comprising pairs of side and end walls hingedly connected to one another along parallel margins, said end walls each comprising a pair of like end wall panels extending from the respective side walls midway of the carried width, a bottom disposed between said side walls and an upright partition structure extending parallel to said side walls between said end walls and hingedly connected to inner margins of the respective sections of the latter, said partition structure comprising a pair of inner partition panels integrally connected to one another by a fold line lying along the top of the structure, said partition panels extending downwardly substantially to said carrier bottom, and a pair of integrally connected, outer partition panels nested over said inner panels, portions of said inner and outer partition panels being separated therefrom and secured to said respective side walls to constitute cross partitions adapted to be disposed transversely of the carrier, said cross partitions extending downwardly substantially to said carrier bottom.

2. A paperboard article carrier comprising, in the completed and erected condition thereof, pairs of marginally connected side and end walls, a bottom extending between and connected to the lower margins of said side walls, a longitudinal partition extending between and connected at its ends to said end walls, said partition comprising a pair of sections disposed in face-by-face relation, and a cross partition structure cut from the material of both of said sections and integrally hinged thereto by vertically extending fold lines at opposite extremities of the structure which are disposed inwardly of the end margins of said respective sections, said cross partition structure being separated from said longitudinal partition sections by a generally horizontally extending cut terminating at said last named vertically extending fold lines, and comprising at least three panels of substantial area arranged in integrally hinged, longitudinal succession, an intermediate panel thereof being secured in face-to-face engagement with a side wall and panels on either side of the intermediate panel extending between said side wall and longitudinal partition to constitute cross partition members subdividing the space on a side of the partition.

EDWIN L. ARNESON.

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