Dec. 21, 1943. M. E. HOLY 2,337,197

BOTTLE CARRIER

Filed Nov. 29, 1940 2 Sheets-Sheet 1

Fig. 1

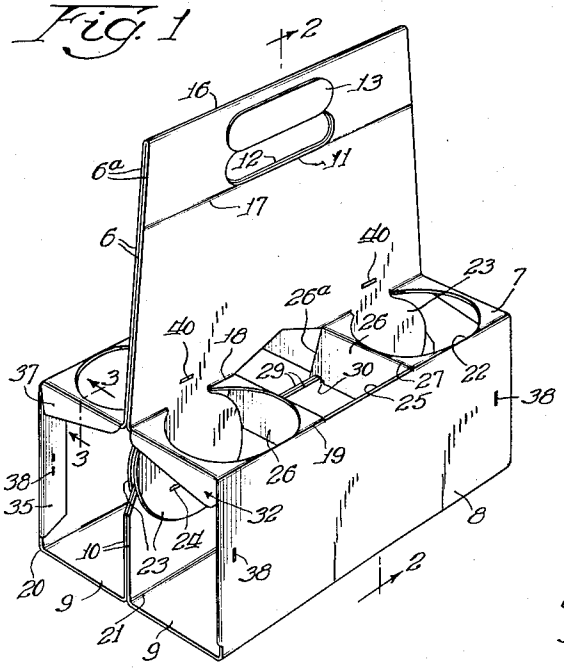

Fig. 2

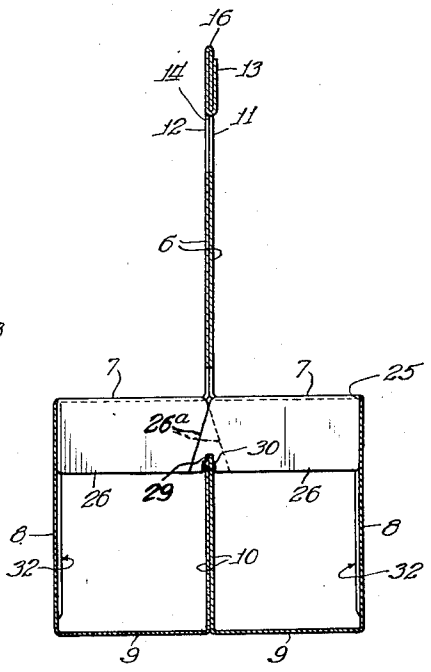

Fig. 3

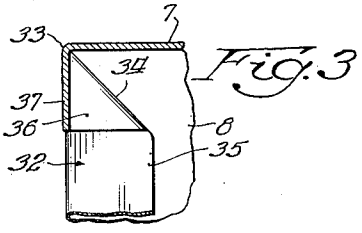

Fig. 4

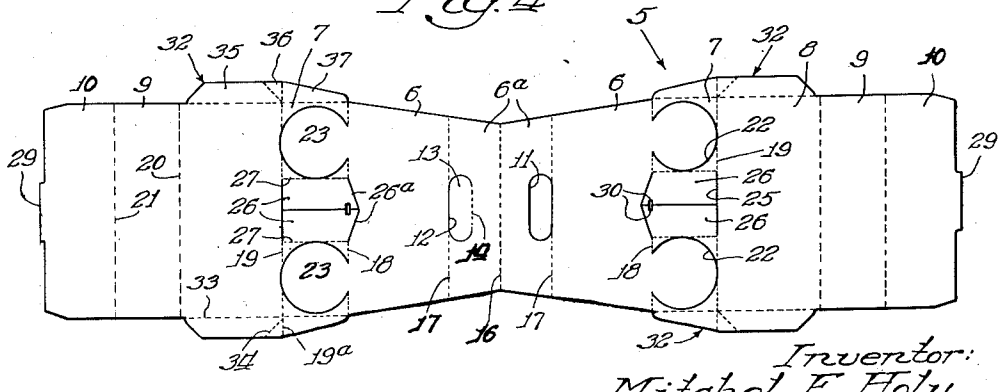

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Fig. 5

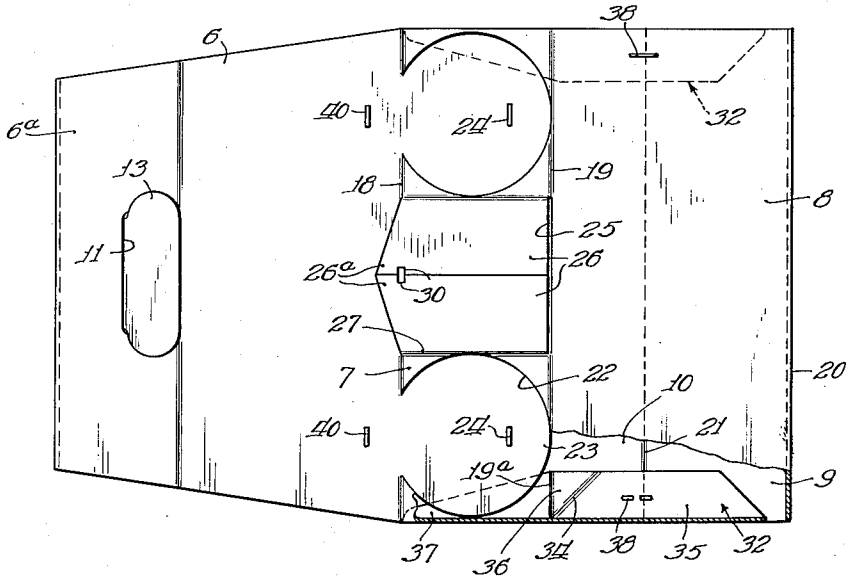
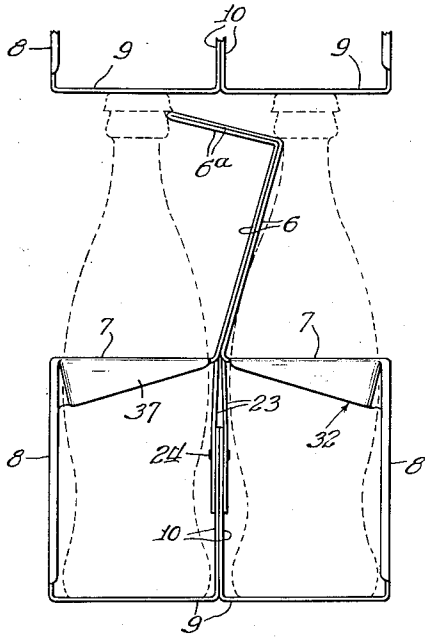



Fig. 6

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# UNITED STATES PATENT OFFICE

2,337,197

## BOTTLE CARRIER

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Application November 29, 1940, Serial No. 367,784

3 Claims. (Cl. 224—45)

The present invention relates to carriers and more particularly to collapsible carriers for bottles and the like formed of material such as folding carton board.

One object of the present invention is to provide a strong and efficient carrier for bottles and the like formed of relatively thin paperboard which can be rapidly and economically made in complete form at a box plant, shipped to the user in flat condition and readily set up for use.

Another object of the present invention is to provide a bottle carrier adapted to be set up from a collapsed condition and being formed from a minimum length strip or strips of sheet material and including a center partition extending part way up through the bottle receiving compartment and adapted to be engaged in locked arrangement with downwardly swinging flaps on an outwardly extending portion of the carrier such as an apertured top panel.

Another object of the invention is to provide a collapsible form of carrier having an apertured top panel adapted to engage bottles retained in the bottle receiving compartment of the carrier, such top panel having end reinforcing elements adapted to be swung into place upon bringing the carrier into bottle carrying condition.

Another object of the invention is to provide a bottle carrier having a handle portion including a sub-portion on the extremity thereof formed with a finger opening, such sub-portion being adapted to be disposed so that the finger opening is normally above the tops of the bottles in the carrier, the sub-portion being also adapted to be folded over so that its free edge will come into locking engagement with projecting parts on the neck of a bottle or bottles in one row of bottles in the carrier, the line of juncture of the sub-portion or finger opening portion with the remainder of the handle being brought to abutting relation with the necks of one or more bottles in the opposite row of bottles in the carrier.

Another object of the invention is to provide a bottle carrier adapted to be set up from collapsed condition including an apertured top panel having end reinforcing portions whereby the outer margins of apertures at the ends of the top panel may be formed substantially in line with the extremities of the carrier so that the dimensions of the carrier will not be substantially in excess of the total of the diameters of bottles in an individual row.

Other objects of the invention will become apparent as the description proceeds.

In the drawings:

Fig. 1 is a perspective view of a bottle carrier made in accordance with the present invention showing the carrier in set-up condition ready to receive bottles;

Fig. 2 is a cross-sectional view taken substantially along line 2—2 of Fig. 1, illustrating the arrangement of the downwardly swinging elements on the top panel in their locking relationship with the upstanding element associated with the bottom portion of the carrier;

Fig. 3 is a fragmentary cross-sectional view taken along line 3—3 of Fig. 1 looking in the direction of the arrows illustrating the end retaining members which are brought to angular position with respect to the top panel when the carrier is set up;

Fig. 4 is a plan view of one form of blank from which the carrier of the present invention can be constructed;

Fig. 5 is a plan view of the carrier as it appears after assembly but in collapsed condition; and

Fig. 6 is a view illustrating a carrier provided with bottles having projections on their necks and illustrating how the top part of the handle is adapted to be held below the tops of the bottles so as to enable the filled carriers to be readily stacked.

The bottle carrier of the present invention is of the type wherein the lower portions of the bottles are retained in a bottle receiving compartment and are insertable into the bottle receiving compartment through an apertured top panel, there being provisions for two rows of bottles, one on each side of a handle panel portion which is connected to the apertured panel and to the bottom of the carrier by tabs connected to the handle panel engaged with portions on the bottom which extend upwardly short of the apertured top panel, the carrier being held in expanded condition by portions swinging downwardly from the top panel, and this panel being reinforced at its ends by downwardly projecting strut portions which enable the outer margins of the apertures in the top panel to be brought substantially to the ends thereof without unduly weakening the construction. While the construction of the present invention has been developed particularly for bottles, it is to be understood that it is equally adapted for other articles having a similar con-

figuration, and it is desired that reference to bottles herein be considered in a generic sense.

Referring more particularly to the drawings, the carrier of the present invention as herein disclosed is formed of a single blank of folding paperboard, the blank being designated as a whole at 5. The blank 5 is suitably cut and scored to provide handle panel portions 6, 6, top panel portions 7, 7, side forming panel portions 8, 8, bottom forming panel portions 9, 9 and partition forming portions 10, 10.

The portions of the handle panels adjacent the center of the blank are formed with openings 11 and 12. The material of opening 11 is preferably entirely cut away and the material of opening 12 is left therein to form a flap 13 which is foldable along fold line 14 defining the top edge of the opening 12.

Fold line 16 is formed in the blank to define the panel portions 6, 6 from each other and fold lines 17, 17 are formed in the panel 6, 6 substantially along the lower edges of the finger openings as viewed in Fig. 1 so as to form subpanels 6a, 6a, enabling the top portion of the handle to be downwardly folded to engage with bottles placed in the carrier. This arrangement will be described more in detail below.

The top panels 7, 7 are each defined from the handle panel 6 and the side forming panels 8 by fold lines 18 and 19 which are preferably interrupted in their extension across the blank for purposes to be presently made clear. Additional fold lines 20 and 21 are provided, respectively, to define each side forming panel 8 from the adjacent bottom forming panel 9 and to define the latter panel from the partition forming panel 10.

Each of the top panels 7, 7 is adapted to be brought to an outwardly disposed relation to the handle panel when the carrier has been set up. The top panels are formed of suitable apertures for the reception of individual articles such as bottles, the formation of the apertures being such as to provide partitions or separating means for preventing contact between adjacently positioned bottles. In the present instance circular apertures 22, 22 are provided to receive the end bottles of a row of three bottles along the length of the top panels. The material struck from the apertures 22, 22 is preferably retained in integral connection with the panels 6, 6 over a substantial line of connection to provide tabs 23, 23 extending in the plane of the handle panel 6, 6 and being illustrated in Fig. 1 as extending downwardly into the mid portion of the bottle receiving portion of the carrier, the bottle receiving portion of the carrier being defined as the part enclosed by the top, side, and bottom panels.

In the completed form of carrier the tabs 23, 23 are brought into meeting or lapping relation with the center partition-forming panels 10, 10, and are secured thereto as by means of staples, one of which is indicated at 24 in Fig. 1. The arrangement is preferably such that the length of the center panel portion formed by the connected tabs 23, 23 and panels 10, 10 is equal to the vertical dimension of the side panels 8, 8 thereby providing for a collapsible parallelogram arrangement.

It is to be noted that the staples can be inserted in the carrier to connect tabs 23, 23 and panels 10, 10 together when the carrier is in a flattened or collapsed condition.

The center apertures 25, 25 in the top panels are preferably provided by forming two downwardly foldable flaps 26, 26 severed from each other and from the side panel and handle panel and foldable along fold lines 27, 27 formed in the top panel preferably along a line which is tangent to the adjacent margins of the openings 22, 22.

The tabs 26, 26 and the partition forming members 10, 10 are so constructed as to provide means by which the tabs can be firmly engaged with respect to the partition member. In the present instance the arrangement is such as to provide for a positive lock between these parts. For this purpose the tabs 26, 26 are each preferably formed with an end portion 26a extending into the body of the adjacent panel 6 beyond the interrupted score line 18, 18. The length of the extended portion 26a is preferably such that it will extend appreciably beyond the plane of the panels 10, 10 when in the position illustrated in Fig. 1 in which they form an upstanding partition in the bottle receiving portion of the carrier.

The vertical dimension of the panels 10, 10 in the present instance is such as to bring the edge of the panels to a line where firm engagement is caused between the edge of the panels and the flaps 26, 26 when these flaps have been swung into downwardly disposed position as illustrated in Fig. 1.

For the purpose of providing a positive lock for the flaps 26, 26 when in downwardly swung position, there are preferably provided abutment surfaces or portions on the panels 10, 10 formed in the present instance by outstanding tongues 29, 29 on the free edges of each of the panels.

Means are also preferably provided for positively retaining the flaps 26, 26 against relative endwise movement with respect to the panels 10, 10. For this purpose the flaps 26, 26 are formed with small notches 30, 30. See Figs. 2 and 4. The arrangement is preferably such that the bottom part of the notches will ride over the edges of the tongues 29 and will snap in place against the shoulder provided by these tongues. When the tongues 29 and notches 30 are provided it is not necessary that a tight frictional engagement exist between the flaps 26, 26 and the upper edges of the panels 10, 10. The reason for this is that the notches will prevent relative edgewise movement of the flaps 26 with respect to the panels 10 and the tongues 29 will prevent relative swinging movement in one direction between the flaps 26 and the panels 10. The edges of the tabs 23 will act as abutment means for the flaps 26 to prevent them swinging beyond a substantially vertical position as indicated in Fig. 1.

Means are provided for reinforcing the ends of the apertured top panels 7, 7. For this purpose the blank of the carrier is provided with an extended portion designated as a whole at 32 which preferably extends along substantially the entire extent of the side edges of panels 7 and 8 and is defined therefrom by fold line 33. The portion 32 is also provided with a fold line 19a which is an extension of fold line 19. An additional fold line 34 is formed in the part 32, this fold line being disposed at an angle of approximately 45° to the edges of panels 7 and 8 and extends from the meeting point of the score lines 33, 19, and 19a outwardly to the edge of the part 32. These score lines thus divide the part 32 into three portions indicated at 35, 36 and 37, the portion 35 being hinged to the panel 8, the portion 37 being hinged to the apertured top panel 7, and the portion 36 being a triangular gusset portion adapted to provide for the relative

positioning of the plane of the portions 35 and 37 at substantially right angles to each other.

In the completed form of the carrier the portion 35 is preferably folded over against the inner face of the panel 8 and secured thereto as by means of staples indicated at 38, 38. The portions 36 and 37 are left unsecured and these portions, in the flat condition of the carrier, will lie in a plane parallel to the side and top panels. On bringing the carrier from a flat to an expanded condition the portions 37 are free to move down to assume a position at an angle to the top panel, this angle approaching a right angle as the position of the top panel approaches a right angular relationship to the handle panel.

By cut scoring the fold lines 34, 34 so as to weaken these lines, thereby forming the fold line between the parts 37 and the top panel 7 as an ordinary fold or crease line, the portions 37, 37 will tend automatically to swing downwardly to assume a position substantially at right angles with respect to the top panel.

As illustrated in Fig. 6, when the carrier has been filled with bottles, the top portion 6a of the handle panel can be folded down so that its free edge will engage beneath projections on the necks of the bottles, these projections being either bead portions on the bottles or the overhanging edges of frictional bottle caps. Disengagement is prevented due to the fact that the rear edge of the panel portion 6a is jammed against the necks of the opposite row of bottles. Thus when the handle portions are brought to a position below the tops of the bottles, the filled carriers can readily be stacked one upon the other without interference from the handles. The effect of the handle portion 6a is to slightly spread apart the necks of the bottles in the two rows and provide for a firm stacking surface upon which the superimposed filled carriers can rest.

In assembling the carrier the four extended portions 32 are folded so as to overlie the wall panels 7 and 8, after which the parts 35, 35 of the portions 32 are secured to the respective wall panels 8, 8. The blank is then folded along fold lines 20, 20 to bring the respective bottom forming and partition forming panels 9 and 10 into overlying position with respect to the side and top panels 8 and 7. This will bring the ends of the panel forming portions 10, 10 into overlapping relation with the tabs 23, 23. At this point it is also to be noted that the edge extension portions 37, 37 will overlie the respective tabs 23, 23 and the panels 10 will, in turn, overlie these extended portions. The blank is then folded along fold line 16 so as to bring the two partially assembled ends of the blank into overlying relation to each other. This step causes the two sets of tabs 23, 23 to come into registration with each other and staples inserted through the tabs will also pass through the partition forming parts 10, 10, thereby securing the handle portion to the bottom of the carrier. If desired, additional staples 40, 40 may then be inserted through the handle panels above the top panels 7, 7.

When assembled as thus described, the carrier is ready to be brought to expanded form. This may readily be done by inserting the fingers in the openings and pulling outwardly on the parts along substantially the line where the top panels 7 meet the side forming panels 8, at the same time folding downwardly the flaps 26, 26 and bringing them into locking engagement with the edges of the partition forming panels. During the expanding movement the extended portions 37, 37 will be moved to an angle to the top panel, this movement being initiated by the fact that the portions 37, 37 are in overlying relation to the edges of the tabs 23, 23. Thus, by swinging the top panels away from the plane of the handle panel, movement of the parts 37, 37 will first be opposed by the fact that they are engaged back of the edges of the tabs 23, 23. This causes some degree of flexing of the edges of the tabs during the time when the parts 37, 37 are being pulled out from contact with these edges. As soon as the parts 37 are given a preliminary swinging movement into an angular position with respect to their attached top panel, they will tend automatically to continue swinging in this direction due to the triangular gusset elements 36, 36 which connect parts 37 and 35. The carrier, as thus set up, is ready to receive bottles.

After the bottles have been inserted into the carrier the handle part formed by sub-panels 6a, 6a can be folded down so that the upper free edge will engage a projection on one or more of the bottles as illustrated in Fig. 6 and the filled carriers can then be stacked one upon the other without interference from the handle portions.

Due to the arrangement by which the flaps 26, 26 may be locked with the partition element formed by the members 10, 10, the carrier may be conveniently set up and locked in such condition and may with equal convenience be collapsed to a flat condition by removing the flaps 26, 26 from locking relationship with the partition element.

While the present description sets forth a preferred embodiment of the invention, numerous changes may be made in the construction without deviating from the spirit of the invention, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. A carrier for bottles comprising a handle portion and a bottle carrying portion formed from bendable sheet material, the bottle carrying portion comprising top panels hinged to and extending outwardly from the handle portion, said top panels having side forming panels joined thereto, a bottom panel portion hingedly connected to the lower edges of the side forming panels, an upstanding member connected centrally to the bottom panel portion, means integral with and extending downwardly from the handle portion and arranged to be secured to the upstanding member, said upstanding member having an upper edge terminating short of the line of connection of the handle portion and the top panel, the top panels each having a centrally disposed bottle receiving opening formed therein by cutting the material of the top panel to provide a tab swingable downward along a line lying in a plane at a substantially right angle to the plane of the handle, said tabs having at their ends adjacent the handle an extension adapted to lockingly engage the upper edge of the upstanding member, the extension having a notch formed therein arranged to receive the edge of the upstanding member when the tabs are swung down at right angles to the top panel.

2. A carrier for bottles comprising a handle portion and a bottle carrying portion formed from bendable sheet material, the bottle carrying portion comprising top panels hinged to and

extending outwardly from the handle portion, said top panels having side forming panels joined thereto, a bottom panel portion hingedly connected to the lower edges of the side forming panels, an upstanding member connected centrally to the bottom panel portion, means integral with and extending downwardly from the handle portion and arranged to be secured to the upstanding member, said upstanding member having an upper edge terminating short of the line of connection of the handle portion and the top panel, the top panels each having a centrally disposed bottle receiving opening formed therein by cutting the material of the top panel to provide a tab swingable downward along a line lying in a plane at a substantially right angle to the plane of the handle, said tabs having at their ends adjacent the handle an extension adapted to engage the upper edge of the upstanding member, the extension having a notch formed therein arranged to receive the edge of the upstanding member when the tabs are swung down at right angles to the top panel, and locking abutments on the upstanding member behind which the downwardly swinging tabs are adapted to engage to prevent reverse swinging of the tabs with relation to the upstanding member.

3. A carrier for bottles comprising a handle portion and a bottle carrying portion formed from bendable sheet material, the bottle carrying portion comprising top panels integrally hinged to and extending outwardly from the handle portion, said top panels having side-forming panels hinged thereto, a bottom panel portion hingedly connected to the lower edges of the side-forming panels, an upstanding member connected centrally to the bottom panel portion, the top panels having apertures formed therein for receiving bottles, said apertures being formed by cutting out a tab from the top panel and leaving the tab integrally connected to the handle portion, the outer margins of the apertures being disposed substantially at the ends of the top panel, an extended edge portion hingedly connected respectively to the edge of the side forming panel and to the edge of the top panel, the extended edge portions being also hinged to each other along a line forming extension of the hinge line between the top panel and side forming panel, a diagonal fold line formed in the extended portion connected to the side-forming panel forming a triangular gusset connection between the extended portions, means connecting the side wall extended portion against the inside surface of its attached side wall, the triangular gusset connection being left unsecured, whereby the extended portion on the top panel is adapted to be swung down to a position substantially at right angles to the top panel to form a reinforcing member along the edge of the top panel, the tabs cut from said top panel openings being secured to the upstanding member on the bottom panel, said top panel extended portions in the collapsed condition of the carrier being disposed in overlapping relation to the tabs connected to the handle, whereby outward swinging of the top panels in setting up the carrier causes engagement between the tabs and the top panel extensions initiating the swinging movement of said extensions with respect to the top panel and continued swinging of the top panel will, through the triangular gusset connection between the two extended portions, cause continued swinging of the top panel extension causing said extension to be disposed at substantially right angles to the top panel in the set-up condition of the carrier and forming a reinforcement for the end edge of the top panel substantially tangent to the margin of the adjacent bottle receiving opening.

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