June 1, 1954 H. Z. GRAY 2,680,038

BOTTLE CARRIER

Filed March 8, 1950 2 Sheets-Sheet 1

FIG. 1

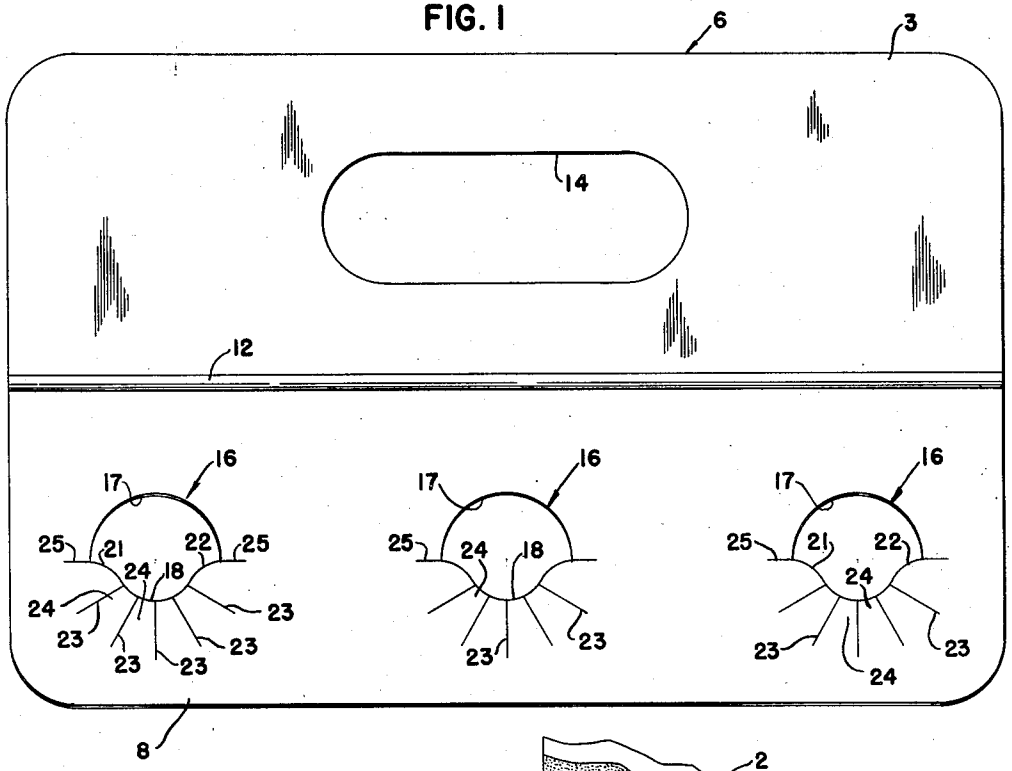


FIG. 2

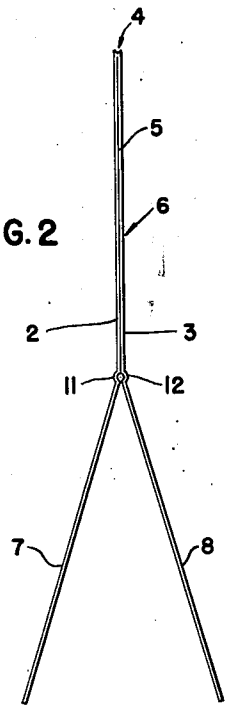
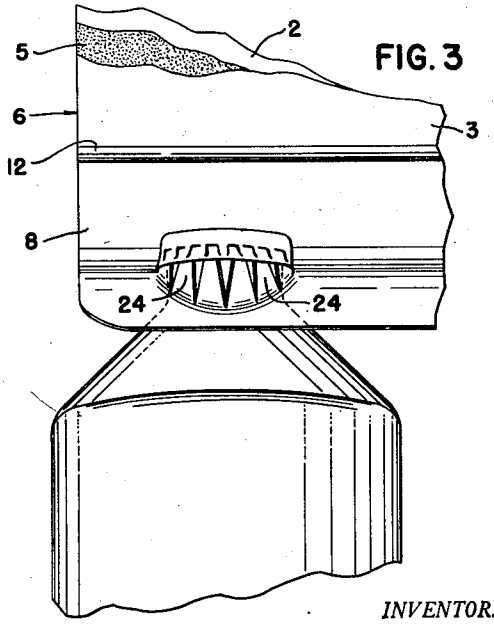


FIG. 3



INVENTOR.
HARRY Z. GRAY
BY Clay & Frye
ATTORNEYS

June 1, 1954 H. Z. GRAY 2,680,038

BOTTLE CARRIER

Filed March 8, 1950 2 Sheets-Sheet 2

FIG. 4

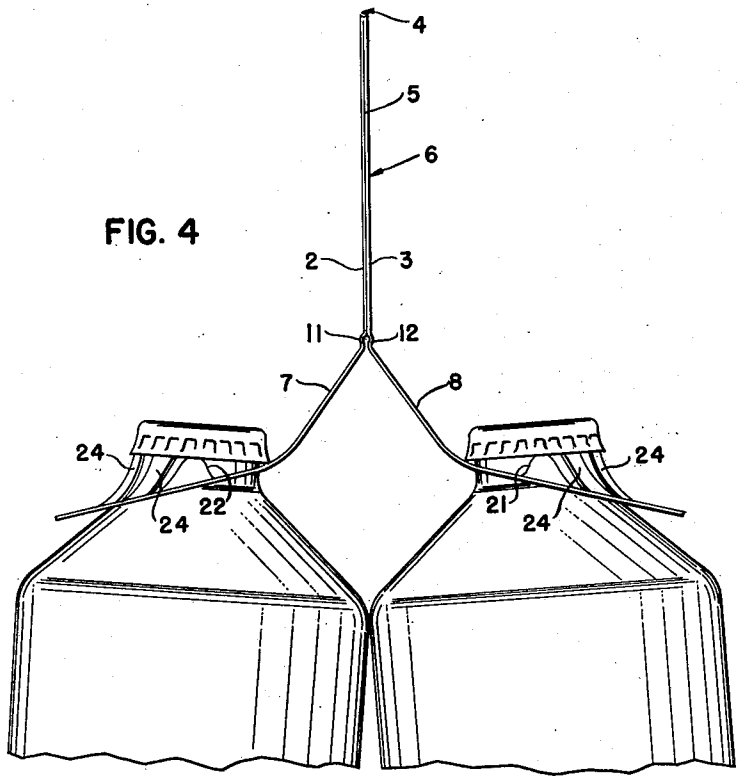
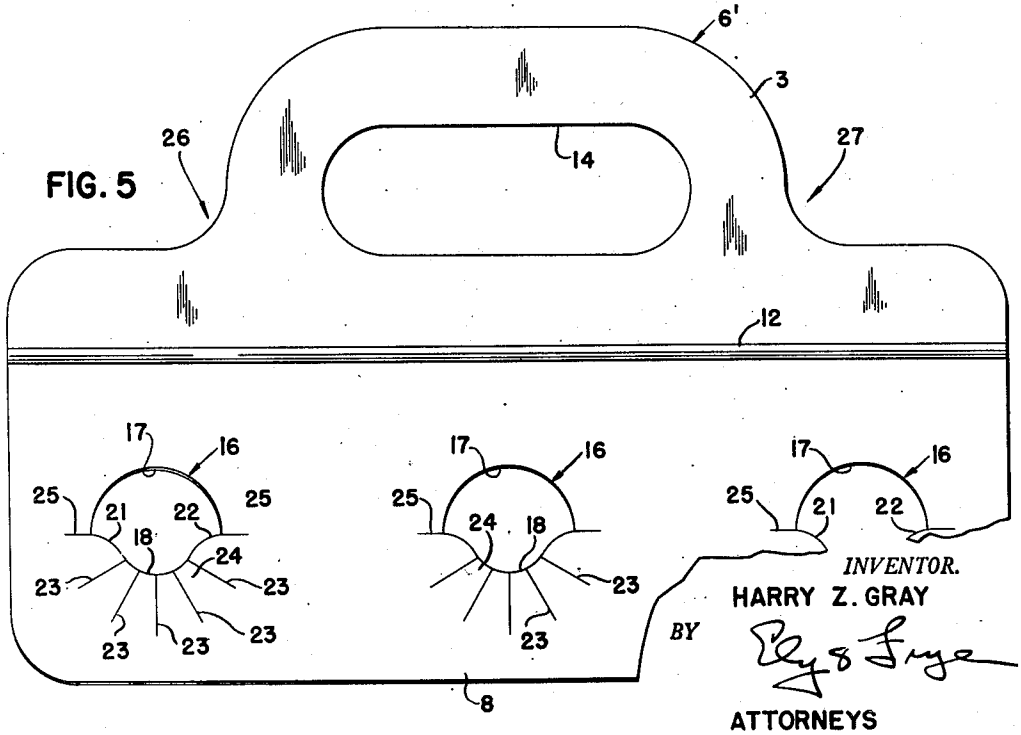


FIG. 5



INVENTOR.
HARRY Z. GRAY
BY
ATTORNEYS

Patented June 1, 1954

2,680,038

UNITED STATES PATENT OFFICE

2,680,038

BOTTLE CARRIER

Harry Z. Gray, Lebanon, Ohio

Application March 8, 1950, Serial No. 148,373

7 Claims. (Cl. 294—87.2)

1

This invention relates to a bottle carrier and, in particular, to that type of carrier requiring only sufficient body to provide for gripping the necks of bottles and which may be easily and economically fabricated by stamping cardboard or the like. In still greater particular, the invention relates to carriers of book form, with openings provided in the "leaves" thereof to receive the necks of bottles and having a flap adapted for a hand hold. There have been several proposals regarding carriers of this general nature and the problem has been, generally, to provide openings in which the capped ends of bottles are easily inserted but in which downward disengagement of the bottles, due to their own weight, is resisted. For the most part, these prior devices have comprised a locking feature in which two "book leaves" are employed for each carrying panel and the co-acting leaves have openings which are staggered and define a common opening which fits around a bottle neck, but is smaller than the bottle cap.

By the present invention, I have provided a carrier of book form, in which panels comprising a single layer are employed, without sacrifice to strength or holding power.

It is, therefore, an object of the invention to simplify flap-type bottle carriers. Another object is to lower the time and cost of material involved in the manufacture of such articles. More particularly, it is an object to provide a simple bottle carrier in which parts are minimized without sacrifice to holding power. A further object is to afford ease of manipulation in the application of bottles to carriers. A still further object is to provide a bottle carrier adapted for repeated use. A specific object is to provide a bottle carrier comprised of a single sheet of material.

Other objects will be apparent to those skilled in the art, in the light of the following specification, as illustrated in the drawings, in which:

Fig. 1 is a front elevation of a carrier constructed in accordance with the invention,

Fig. 2 is an end view of Fig. 1,

Fig. 3 is a fragmentary front view of the carrier with a bottle secured in one of the openings,

Fig. 4 is an end view of the carrier showing bottles secured in the openings of the opposite panels, and

Fig. 5 is a view similar to Fig. 1, showing a modified hand-hold panel.

Referring to the drawings by characters of reference, there is shown, in Figs. 1 and 2, a carrier comprised of a single sheet of cardboard, folded

2

in the middle to provide similar sides 2 and 3 in the form of the leaves of a book. Preferably, the line between the sides will be scored, as at 4, to facilitate folding.

The top parts of sides 2 and 3 are secured together, as by an adhesive 5 or by stapling, or any other convenient means to form a handling panel 6, leaving the lower portions 7, 8 of the sides free to swing open. Preferably, score lines 11, 12 will be provided along the upper margins of panels 7, 8 that they may more easily unfold, and lie, when not holding bottles, in slightly open position, as shown in Fig. 2, for ready grasping by the fingers of the user. The handle portion 6 has an opening 14 adapted to receive the fingers of a hand for carrying.

Panels 7, 8 have openings, each of which is indicated by the numeral 16. These openings comprise an upper margin 17, substantially semicircular in form, and a lower margin, spaced from the center of curvature of margin 17 by an amount less than the radius of margin 17 and having a central arcuate portion 18 and arcuate end portions 21, 22, oppositely curved from the central portion and extending from the latter at least to the ends of upper, arcuate margin 17.

The area bounded by the lower margin of each opening 16 has a series of slits 23, which are arranged substantially radially of the center of upper margin 17 and which extend through lower margin 18, 21, 22 to define separate, truncated sectors 24 which are adapted to be bent away from the plane of the lower panel 7 or 8, in which they occur. As shown, the bottoms of the slits are equidistant from a common point within the boundaries of the opening and all slits extend beyond the circle defined by the radius of margin 17.

The radius of upper margin 17 is equal to or slightly less than the maximum radius of a bottle cap of the crown cap or clincher type. Thus, a bottle cap may be forced through the opening since the sectors 24 will easily yield to afford the necessary size of opening. However, the sectors or flaps 24 will have some resilience and their resistance to bending will increase in proportion to the amount they are bent; they will hug the bottle cap as it is passed through, and ultimately snap back against the bottle neck after the cap has passed entirely through. Thereafter, if the bottle is released, so that its weight is allowed to bear on the carrier panel, the underside of the cap will engage the extremities of flaps 24. The flaps present relatively great strength in this situation, where the loading is

directed along their lengths and return motion of the bottle through the opening is stoutly resisted.

Downward motion of the bottle relative to the opening becomes impossible but, in response to the weight of the bottle, the flaps swing inwardly slightly and the bottle is shifted toward the handling panel 6, with the result that the underside of the cap is brought to bear on the panel, above the upper margin 17, so that no opening remains of sufficient size to permit the cap to pass through.

While the arrangement shown is adequate to retain even a single bottle, the general result is considerably improved where the bottles are carried in adjacent pairs, as shown in Fig. 4. This ensures vertical positioning of the bottles and thus avoids eccentric loading, which would entail greater stresses on the tongues or flaps 24, as well as on the panel adjacent margin 17. In this regard, it should also be noted that the configuration of lower margin 18, 21, 22 of the bottle opening is such that, with a complement of bottles in place on the carrier, the free, upper edges of the tongues 24 lie substantially in a common plane, so that each carries a proper proportionate share of the weight of the bottle.

Generally speaking, the principles of the invention are applicable to any type of capped bottle. However, it finds its preferred employment in connection with bottles having a tapering neck of obtuse angle. Acutely tapering bottle necks would require relatively short tongues for proper holding power as compared with the length of tongues possible in holding bottle necks having an obtuse angle. However, short tongues do not flex easily and are liable to rupture due to bending stresses. In the case of widely diverging bottle necks, long tongues are feasible since the bottle neck receives them in supporting relation throughout their span, and thus provides a reinforcing backing, and the load due to the weight of the bottles is transmitted lengthwise of the tongues. Furthermore, the small angle of inclination requires bending of the tongues through much less of an angle than is the case with shorter tongues. However, the invention is not limited to a carrier for any particular range of bottle-neck angles, since the basic principles are broadly applicable to any style of neck.

As stated above, the radius of upper margin 17 may be equal to or less than the maximum radius of a bottle cap. It may even be somewhat greater than such maximum radius if lower margin 18 is properly located, since it is the vertical distance between margin 18 and margin 17 which is most important in holding the bottles. If the upper part of the opening is of less radius than the said maximum radius of the bottle cap, the sidewise or horizontal diameter of the cap will be accommodated by yielding of the extremities of margin 17 at horizontal slits 25.

Removal of a bottle from the carrier is accomplished by moving it sidewise against tongues 24, so as to bend them further away from the panel, until the bottle cap clears the upper margin 17. The bottle is then turned so that the inner part of the cap passes downward through the opening past margin 17, after which the bottle neck is merely moved through the opening, away from tongues 24.

In the process of insertion, carrying and removal, there is little or no punishment to tongues 24 and the carrier may be used for repeated loadings.

It will be seen that there has thus been provided a carrier which is light in weight, economical of manufacture, and easy to manipulate, and yet which holds the bottles securely locked in place. The bottles are easily mounted on the carrier by the simple act of forcing them through the opening in a single thickness of cardboard, and they are removable by a mere lateral pressure and a tilting of the bottle about its head.

In Fig. 5 there is shown a modified handle portion 6', in which the upper, end corners have been removed to provide recesses 26, 27. This enables the handle portion to be folded down over panel 7 or 8, even when bottles are secured in the openings, the central bottle in the panel being cleared by hand opening 14. This arrangement is useful in the case where it is desired to include the bottle carriers in packed cases of bottles. In order that entire units of six bottles may be lifted from a case for vending, the six openings of the carrier are forced down simultaneously over the caps of the bottles and the unit of six bottles is ready for removal from the container by lifting on the handle portion 6'. In closing the case cover, the handle portion 6' is merely folded down out of place.

It should be noted that the present, single-layer carrier is especially adapted for applying to cased bottles, due to the simple action of attachment which involves only forcing the carrier openings down over the bottle caps. In prior devices involving double-layered panels, attachment is not made by a direct thrust but involves relative sliding of the layers upon swinging thereof.

While a certain, preferred embodiment has been shown and described, the invention is not to be considered as limited thereby, since changes in the size, shape and arrangement, for instance, of the various parts may be resorted to without departing from the spirit or scope of the appended claims.

While the tongues 24 have been shown as defined by slits, tongues of any convenient form will be adequate for the purposes intended and, therefore, the slits may have varying widths. The length and number of the slits may likewise be varied, as well as the configuration of the boundaries of the lower half of the bottle-receiving openings.

Whereas the panels of the carrier have been referred to as composed of a single layer of material, this means that the panel is unitary, but is not necessarily of a single thickness of material, since laminated sheets or the like may be employed to produce the panel if further strength is desirable or necessary. In particular, a conventional, "sandwich" type board with flat, outer sheets covering a corrugated, inner sheet has been found useful as a material for the panels.

What is claimed is:

1. A carrier for containers having caps, comprising a handle portion and a single-layer panel, said panel having openings to receive the capped ends of said containers, said openings each having a portion adjacent said handle portion of substantially semi-circular, marginal outline to engage said containers beneath said caps, and the balance of each of said openings having a boundary lying within the complementary part of the full circle defined by the said semi-circular outline, and peripheral slits in said boundary.

2. A device as in claim 1, said boundary com-

prising a central arcuate portion of lesser radius than the first-mentioned portion of said opening.

3. A device as in claim 1, said boundary comprising a central arcuate portion substantially co-centered with but of lesser radius than the first-mentioned portion of said opening.

4. A carrier for containers having caps, comprising a handle portion and a single-layer panel, said panel having openings to receive the capped ends of said containers, said openings having substantially semi-circular boundaries on the side thereof adjacent said handle portion, and tongues on said panel with free ends forming the balance of the boundary of each of said openings and defining a sinuous line having a central portion substantially concentric with but of less radius than the semi-circle complementary to said semi-circular boundary.

5. A carrier for containers having caps, comprising a handle portion and a single-layer panel, said panel having openings to receive the capped ends of said containers, said openings each having a substantially semi-circular boundary on the side thereof adjacent said handle portion to engage said containers beneath said caps, and a boundary on the opposite side thereof lying within the semi-circle complementary to said semi-circular boundary, and slits in said panel converging substantially upon the center of curvature of said semi-circular boundary, and dividing the said boundary on the opposite side thereof into segments, said slits including a slit at each terminus of said semi-circular boundary.

6. A carrier for containers having caps, comprising a handle portion and a single-layer panel, said panel having openings to receive the capped ends of said containers, said openings each having a substantially semi-circular boundary on the side thereof adjacent said handle portion, and a boundary on the opposite side thereof lying within the semi-circle complementary to said semi-circular boundary, and slits in said panel converging substantially upon the center of curvature of said semi-circular boundary, and dividing the said boundary on the opposite side thereof into segments, said last mentioned boundary having an arcuate central portion concave to said semi-circular boundary and end portions convex to said semi-circular boundary and connecting the said central portion with the extremities thereof.

7. A carrier for containers having caps, comprising a handle portion and a pair of single-layer panels dependent from said handle portion and adapted for folding in diverse relation, said panels each having a plurality of openings to receive the capped ends of said containers, said openings each having a portion adjacent said handle portion of substantially semi-circular marginal outline to engage said containers beneath said caps, and the balance of each of said openings having a boundary lying within the complementary part of the full circle defined by the said semi-circular outline, and peripheral slits in said boundary.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
2,299,625	Holmes	Oct. 20, 1942
2,348,187	Beskin	May 9, 1944
2,397,716	Wendler	Apr. 2, 1946
2,415,218	Rhodes et al.	Feb. 4, 1947