

June 4, 1963

R. W. STOUT

3,092,284

BEVERAGE BOTTLE CASES

Filed March 9, 1961

3 Sheets-Sheet 1

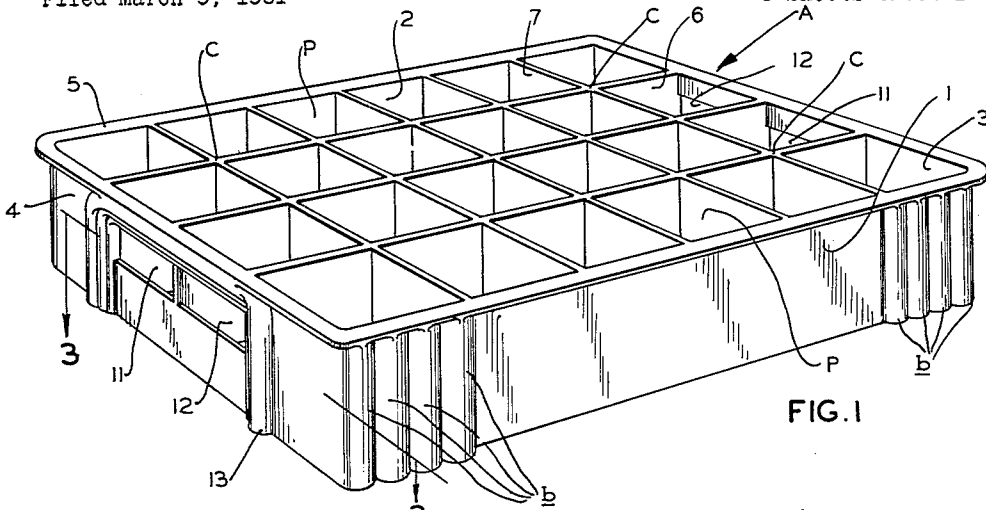


FIG. 1

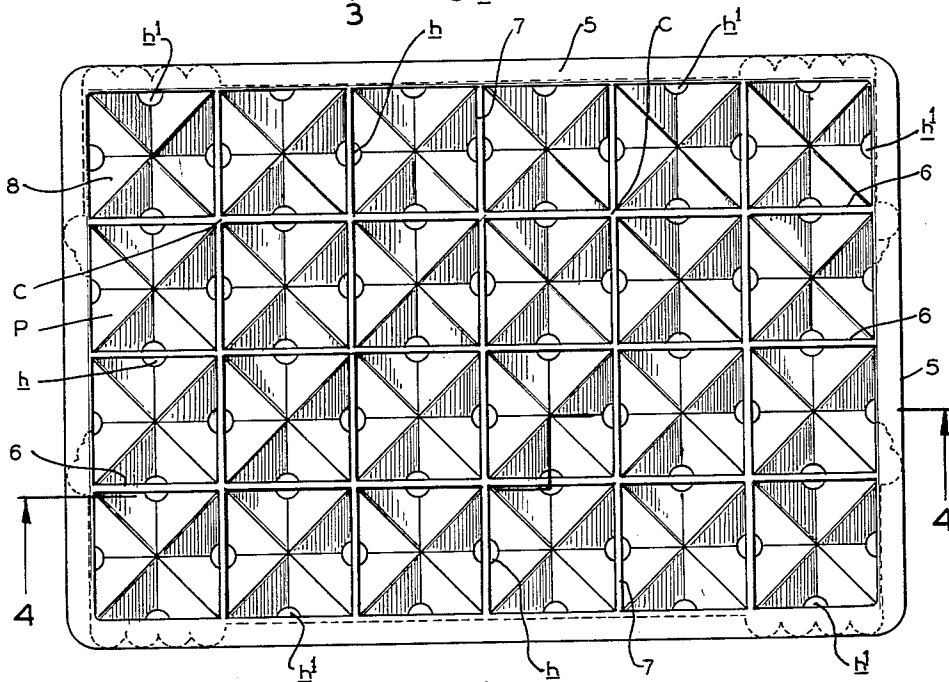


FIG. 2

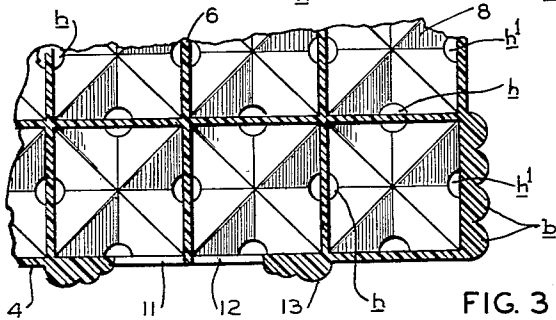


FIG. 3

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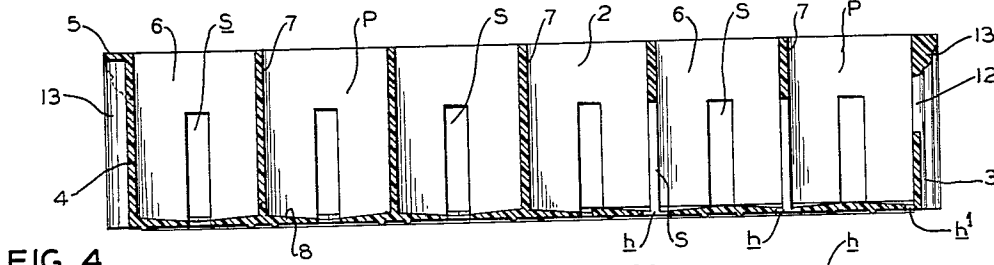


FIG. 4

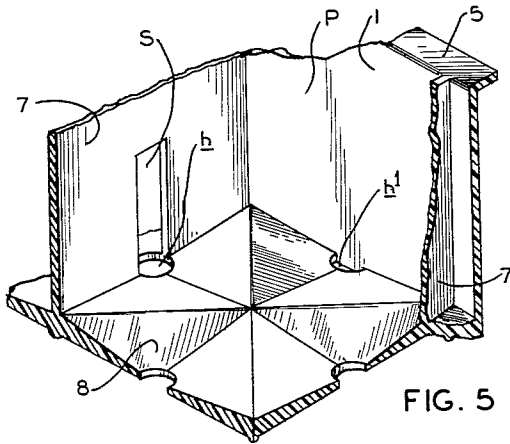


FIG. 5

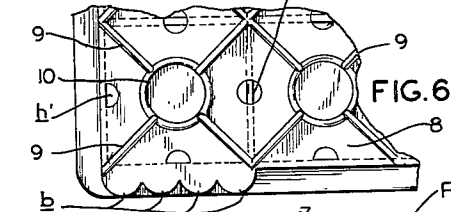


FIG. 6

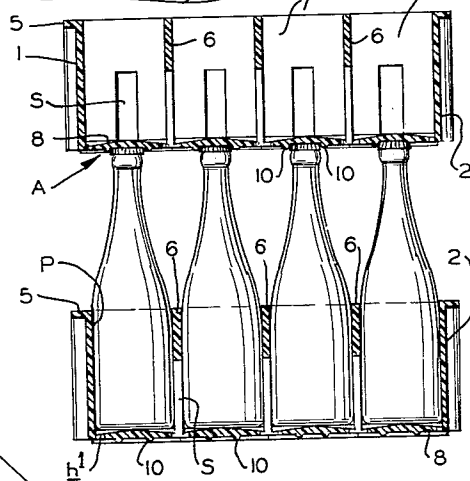


FIG. 7

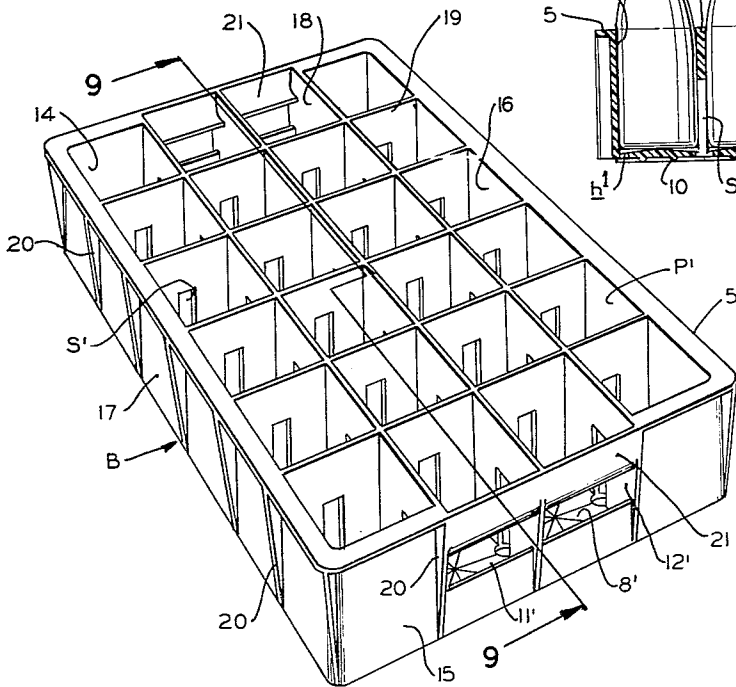


FIG. 8

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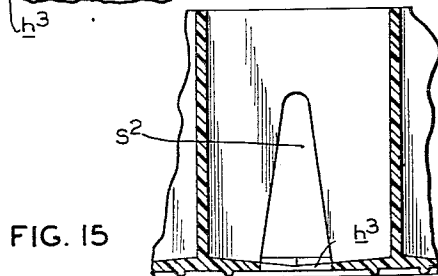
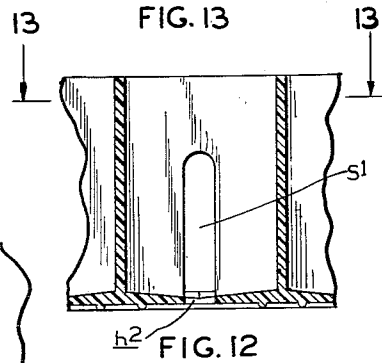
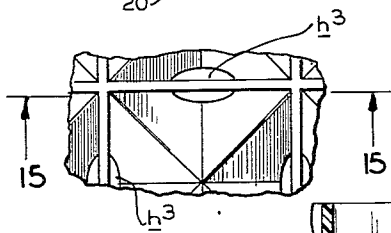
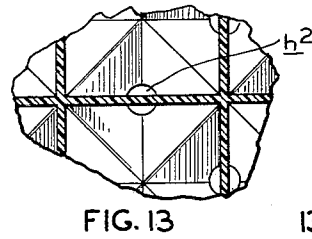
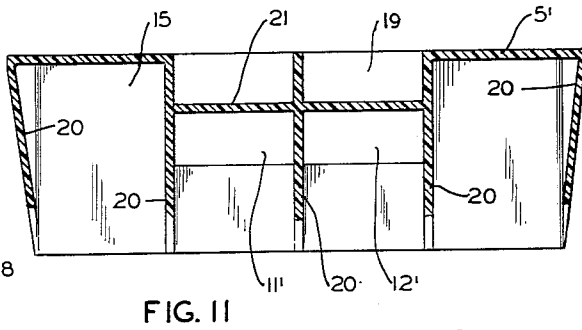
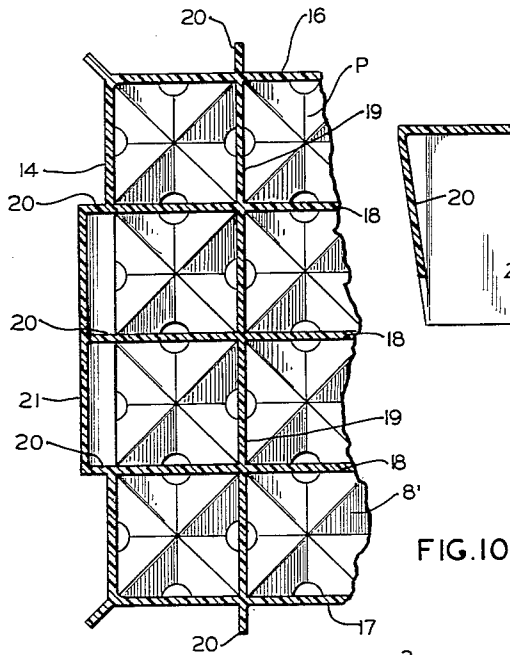
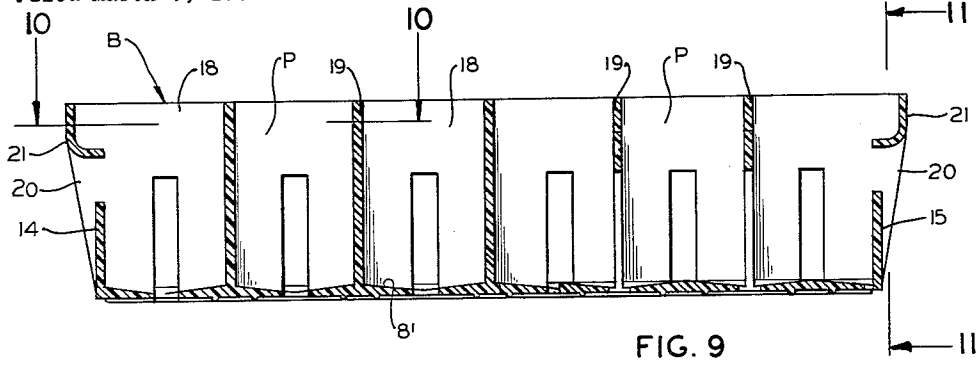
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3 Sheets-Sheet 3



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BEVERAGE BOTTLE CASES

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5 Claims. (Cl. 220-21)

This invention relates in general to certain new and useful improvements in beverage bottle cases.

The present invention has for its primary object the provision of a unitary or so-called "one-piece" beverage bottle case molded from a suitable synthetic resin.

It is another object of the present invention to provide a beverage bottle case which, by reason of its unitary structure, has extremely high impact, thereby eliminating the very costly repair and maintenance operations encountered with conventional wooden boxes.

It is a further object of the present invention to provide a beverage bottle case which is not only light in weight, but is also provided with a uniquely vented bottom so that dirt, moisture, liquid and other undesirable materials will not collect or be retained therein.

It is an additional object of the present invention to provide a beverage bottle case of the type stated which is so designed as to achieve maximum strength with minimum weight and minimum material-requirements.

It is also an object of the present invention to provide a molded plastic beverage bottle case which will stack securely and can readily be adapted to modern palletized handling operations.

With the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawings—

FIG. 1 is a perspective view of a molded plastic beverage bottle case constructed in accordance with and embodying the present invention;

FIG. 2 is a top plan view of the beverage bottle case;

FIG. 3 is a fragmentary horizontal sectional view taken along line 3-3 of FIG. 1;

FIG. 4 is a vertical sectional view taken along line 4-4 of FIG. 2;

FIG. 5 is a fragmentary perspective view showing the interior of a bottle compartment in the beverage bottle case;

FIG. 6 is a bottom plan view of a corner of the beverage bottle case;

FIG. 7 is a vertical sectional view of a beverage bottle case filled with bottles and a second beverage bottle case resting thereon in order to illustrate the manner in which a plurality of beverage bottle cases may be stacked;

FIG. 8 is a perspective view of a modified form of beverage bottle case constructed in accordance with and embodying the present invention;

FIG. 9 is a longitudinal sectional view taken along line 9-9 of FIG. 8;

FIGS. 10 and 11 are fragmentary sectional views taken along lines 10-10 and 11-11, respectively, of FIG. 9;

FIG. 12 is a fragmentary sectional view of a modified form of beverage bottle case constructed in accordance with and embodying the present invention;

FIG. 13 is a fragmentary sectional view taken along line 13-13 of FIG. 12;

FIG. 14 is a fragmentary top plan view of a further modified form of beverage bottle case constructed in accordance with and embodying the present invention; and

FIG. 15 is a fragmentary sectional view taken along line 15-15 of FIG. 14.

Referring now in more detail and by reference characters to the drawings, which illustrate practical embodiments of the present invention, A designates a beverage

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bottle case constructed in accordance with and embodying the present invention and comprises a unitary or "one-piece" structure molded of a synthetic resin such as linear polyethylene of the rigid type, for example. The case A unitarily comprises four rectangularly arranged side walls 1, 2, and end walls 3, 4, endwise integrally connected by round corner sections. The side walls 1, 2, are integrally provided adjacent the corners with four somewhat semi-circular corrugations or bumper-columns b, which are flush along their outermost surface portions with the outwardly presented peripheral margins of a continuous horizontal flange 5 formed integrally with and extending continuously around the upper marginal portions of the side walls 1, 2, and end walls 3, 4. Formed integrally with and extending vertically between the side walls 1, 2, and end walls 3, 4, is a plurality of longitudinal and transverse partitions 6, 7, all integrally connected to each other at their several points of intersection, as at C. The entire structure is integrally connected as a one-piece unit by a bottom wall 8 which is integrally joined on its upper face to the lower marginal edges of the two partitions 6, 7, and around its perimeter to the lower marginal edges of the side walls 1, 2, and end walls 3, 4, so that the beverage bottle case A is subdivided into a plurality of upwardly opening bottle receiving compartments or pockets P.

Midway between each of the lines of intersection C, the partitions 6, 7, are provided with elongated slots s, which open downwardly through circular drainage holes h which extend through the bottom wall, each of the drainage holes h within the interior of the beverage bottle case A being common, so to speak, with two adjacent pockets P, as best seen in FIG. 5. However, around the perimeter of the beverage bottle case A, the pockets P are centrally provided with semi-circular openings h¹, which join the solid or non-slotted side walls 1, 2, and end walls 3, 4. As may also be seen from FIG. 5, the bottom wall 8 is preferably contoured rather than flat, that is to say, within the area of each pocket P, the bottom wall is inclined upwardly toward the center and downwardly toward each of the four apertures h, h¹, in a series of marginally abutting triangular planes, so that the surface drains downwardly toward the apertures h, h¹, in all directions from the center. Similarly, the bottom wall is preferably provided with a somewhat waffle-like pattern of short diagonal ribs 9, which extend inwardly and merge radially into a circular or ring-shaped flange 10, each such flange 10 being substantially concentric with a compartment P. The ribs 9 and ring-shaped flanges 10 are all flush with the lowermost peripheral margins of the side walls 1, 2, and end walls 3, 4, so as to bear the weight of the beverage bottle case A and the bottles therein contained, as shown in FIG. 7. It will be evident that the ribs 9 and flanges 10 constitute structurally strong elements within the bottom wall 8 and are integral therewith so that the flat portions of the bottom wall may be made relatively thin, thereby saving a great deal of weight and material without sacrificing strength or utility.

In addition to this, the ring-shaped circular flanges 10 are of such size and shape as to loosely encircle the crowns of the bottles which the case A is adapted to receive and, therefore, when one case A is filled with bottles it can be conveniently stacked upon another case A similarly filled with bottles.

The side walls 3, 4, are centrally provided with two rectangular handle-forming apertures 11, 12, which are symmetrically located with the center partition 6 and, in effect, open into the pockets P on either side thereof. On their outer faces, the end walls 3, 4, are integrally provided with a heavily ribbed U-shaped handle-forming frame-element 13 which somewhat resembles an inverted

U and integrally merges along its top or bight portion into the central portion of the flange 5 with its vertical leg portions, in effect, framing the ends of the openings 1, 12, respectively, as best seen in FIG. 1. The frame element 13 is substantially equal in thickness to the horizontal width of the flange, so that the outermost axial portions of its surface will be flush with the peripheral margin of the flange and, therefore, act as buffer elements to prevent one of the beverage bottle cases A from unauthorizedly slipping under the flange of an adjacent beverage bottle case when several of the beverage bottle cases are stacked side-by-side either on a warehouse floor or on a pallet. The bumper-column *b* also serves the same function. In addition to this, the leg portions of the frame-element 13 and the bumper-column *b* give very substantial vertical column-strength to the beverage bottle case, making it possible to save weight and material by the use of somewhat thinner sections for the intervening portions of the side walls 1, 2, and end walls 3, 4.

It is also possible to provide a modified form of beverage bottle case B, which is substantially similar in all respects to the previously described beverage bottle case A, being a one-piece molded unit, and comprising end walls 14, 15, side walls 16, 17, and a plurality of intersecting longitudinal and transverse partitions 18, 19, which form bottle-holding pockets P'. Formed integrally around the upper margins of the end walls 14, 15, and side walls 16, 17, is a continuous horizontal flange 5' and similarly formed integrally across the bottom is a bottom wall 8', the flange 5', and bottom wall 8' being substantially similar to the previously described flange and bottom wall of the beverage bottle case A.

In the beverage bottle case B, however, the handle-forming frame-element 13 and bumper-column *b* are eliminated and in lieu thereof the end walls 14, 15, and side walls 16, 17, are integrally provided on their outwardly presented vertical faces with a series of uniformly spaced triangular gussets 20, the apices of which are substantially flush with the bottom peripheral margin of the beverage bottle case B and slant outwardly and upwardly into flush alignment with the outer peripheral margin of the flange 5'. Along the central area of the end walls 14, 15, three such gussets 20 are interconnected at their tops by heavy horizontal L-shaped handle-forming ribs 21, which extend across and form the upper margin of two apertures 11', 12', which are similar in purpose and function to the apertures 11, 12, of the previously described beverage bottle case A.

It has also been found possible, in connection with the present invention, to provide either of the previously described beverage bottle cases A, B, with modified forms of pocket-wall slots S¹, as shown in FIGS. 12 and 13, said slots S¹ having parallel vertical side margins and a semi-circular top margin. Moreover the slots S¹ open downwardly through circular drainage holes *h*², all as best seen in FIG. 12.

It has also been found possible, in connection with the present invention, to provide either of the previously described beverage bottle cases A, B, with modified forms of pocket-wall slots S², as shown in FIGS. 14 and 15, which resemble an inverted parabola and open downwardly through elliptical drainage holes *h*³, all as best seen in FIG. 15.

The beverage bottle cases of the present invention may be molded as a unitary one-piece structure in a single molding operation from a high impact-strength synthetic resin, such as linear polyethylene and will have extremely high strength notwithstanding the fact that the various ribs, flanges, and other structural components make it possible to eliminate much weight and material. By reason of the fact that both weight and material are eliminated while maintaining maximum structural strength, it is possible to provide a beverage bottle case which will withstand the rigorous type of usage encountered in the beverage industry and at the same time

be relatively inexpensive. It will also be apparent that beverage bottle cases constructed in accordance with the present invention are comparatively light-weight and, therefore, can be handled easily by delivery men and other persons connected with the handling, sale and distribution of bottled beverages with a minimum of physical effort. This factor also contributes to long life durability inasmuch as a beverage bottle case which can be more easily handled will not be as readily abused or mishandled. Finally, the beverage bottle cases of the present invention will drain freely both when subjected to rain-water and other adverse conditions on delivery trucks and also when subjected to washing and accidental spillage within the beverage-bottling plant.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the beverage bottle cases may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A beverage bottle case molded as an integral one-piece unit from a synthetic resin and comprising side walls, a bottom wall and a plurality of pocket-forming intersecting interior walls having upwardly presented top margins and being integrally joined to the bottom wall thereby defining bottle retaining pockets, the portion of the bottom wall within each pocket being inclined upwardly toward the center of the pocket in a series of marginally abutting triangular planes, said marginally abutting planes forming four upstanding ridges which lie in the same horizontal plane and radiate outwardly from the center to the corners of the pockets, said marginally abutting planes extending downwardly from the center of each pocket, so that the bottom wall within each pocket drains downwardly in all directions from the center, each interior wall being provided with a plurality of elongated parallel-sided square-topped slots extending upwardly from the bottom and terminating below said top margins, the undersurface of the bottom wall being integrally provided with a circular flange beneath each pocket and being substantially concentric with said pocket, said flange being sized to snugly engage the top of a beverage bottle, said bottom wall further having a plurality of ribs that radiate diagonally outwardly from the circular flange.

2. A beverage bottle case molded as an integral one-piece unit from a synthetic resin and comprising side walls, a bottom wall and a plurality of pocket-forming intersecting interior walls having upwardly presented top margins and being integrally joined to the bottom wall thereby defining bottle retaining pockets, the portion of the bottom wall within each pocket being inclined upwardly toward the center of the pocket in a series of marginally abutting triangular planes, said marginally abutting planes forming four upstanding ridges which lie in the same horizontal plane and radiate outwardly from the center to the corners of the pockets, said marginally abutting planes extending downwardly from the center of each pocket, so that the bottom wall within each pocket drains downwardly in all directions from the center, each interior wall being provided with a plurality of elongated slots having upwardly converging side margins and extending upwardly from the bottom and terminating below said top margins, the undersurface of the bottom wall being integrally provided with a circular flange beneath each pocket and being substantially concentric with said pocket, said flange being sized to snugly engage the top of a beverage bottle, said bottom wall further having a plurality of ribs that radiate diagonally outwardly from the circular flange.

3. A beverage bottle case molded of an integral one-piece unit from a synthetic resin and comprising side walls, a bottom wall and a plurality of pocket-forming intersecting interior walls having upwardly presented top

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margins and being integrally joined to the bottom wall thereby defining bottle retaining pockets, the portion of the bottom wall within each pocket being inclined upwardly toward the center of the pocket in a series of marginally abutting triangular planes, said marginally abutting planes forming four upstanding ridges which lie in the same horizontal plane and radiate outwardly from the center to the corners of the pockets, said marginally abutting planes extending downwardly from the center of each pocket, so that the bottom wall within each pocket drains downwardly from the center, each interior wall being provided with a plurality of elongated slots extending upwardly from the bottom and terminating below said top margins, said slots each being between two interior walls which intersect the wall in which such slot is located, the undersurface of the bottom wall being integrally provided with a circular flange beneath each pocket and being substantially concentric with said pocket, said flange being sized to snugly engage the top of a beverage bottle, said bottom wall further having a plurality of ribs that radiate diagonally outwardly from the circular flange.

4. A beverage bottle case molded of an integral one-piece unit from a synthetic resin and comprising side walls, a bottom wall and a plurality of pocket-forming intersecting interior walls having upwardly presented top margins and being integrally joined to the bottom wall thereby defining bottle retaining pockets, the portion of the bottom wall within each pocket being inclined upwardly toward the center of the pocket in a series of marginally abutting triangular planes, said marginally abutting planes forming four upstanding ridges which lie in the same horizontal plane and radiate outwardly from the center to the corners of the pockets, said marginally abutting planes extending downwardly from the center of each pocket, so that the bottom wall within each pocket drains downwardly in all directions from the center, each interior wall being provided with a plurality of elongated slots extending upwardly from the bottom and terminating below said top margins, said slots each being approximately midway between two interior walls which intersect the wall in which such slot is located, the undersurface of the bottom wall being integrally provided with a circular flange beneath each pocket and being substantially con-

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centric with said pocket, said flange being sized to snugly engage the top of a beverage bottle, said bottom wall further having a plurality of ribs that radiate diagonally outwardly from the circular flange.

5. A beverage bottle case molded as an integral one-piece unit from a synthetic resin and comprising side walls, a bottom wall and a plurality of pocket-forming intersecting interior walls having upwardly presented top margins and being integrally joined to the bottom wall thereby defining bottle retaining pockets, the portion of the bottom wall within each pocket being inclined upwardly toward the center of the pocket in a series of marginally abutting triangular planes, said marginally abutting planes forming four upstanding ridges which lie in the same horizontal plane and radiate outwardly from the center to the corners of the pockets, said marginally abutting planes extending downwardly from the center of each pocket, so that the bottom wall within each pocket drains downwardly from the center, each interior wall being provided with a plurality of elongated slots extending upwardly from the bottom and terminating below said top margins, each of said slots opening downwardly through the bottom, the undersurface of the bottom wall being integrally provided with a circular flange beneath each pocket and being substantially concentric with said pocket, said flange being sized to snugly engage the top of a beverage bottle, said bottom wall further having a plurality of ribs that radiate diagonally outwardly from the circular flange.

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