April 18, 1967 H. S. CLOYD 3,314,568

BOTTLE CASE

Filed Nov. 2, 1964 2 Sheets-Sheet 1

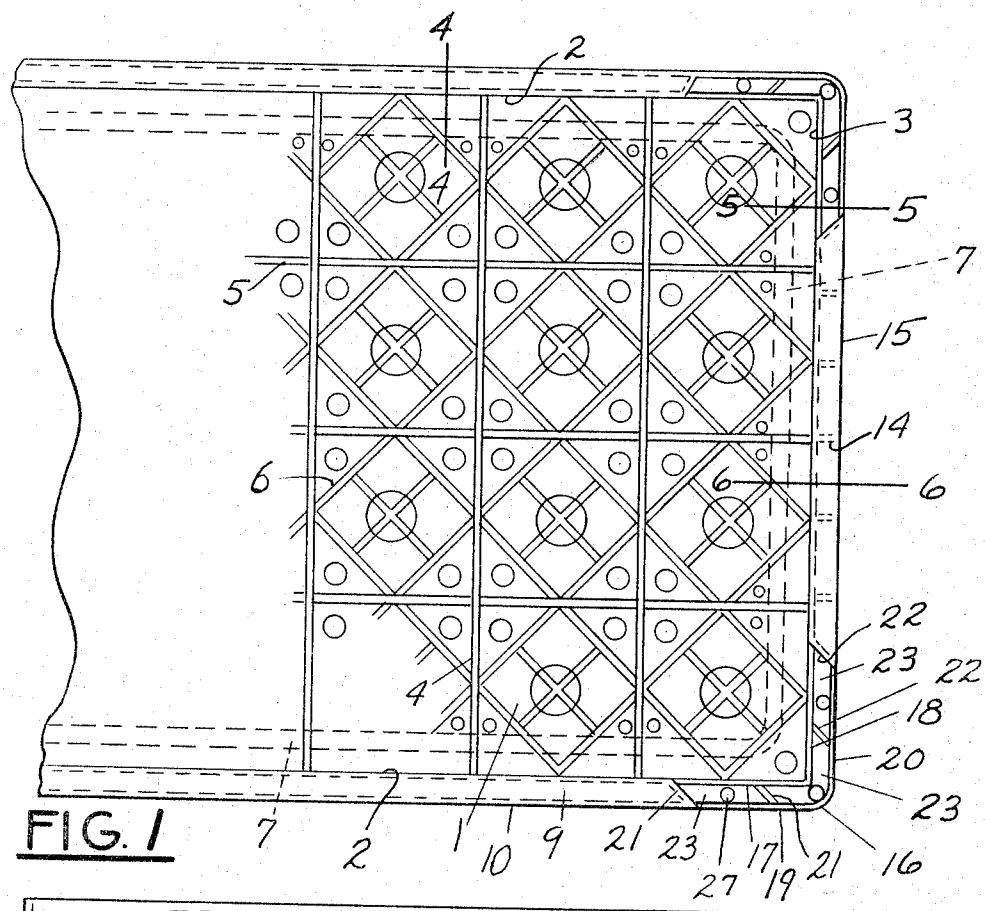


FIG. 1

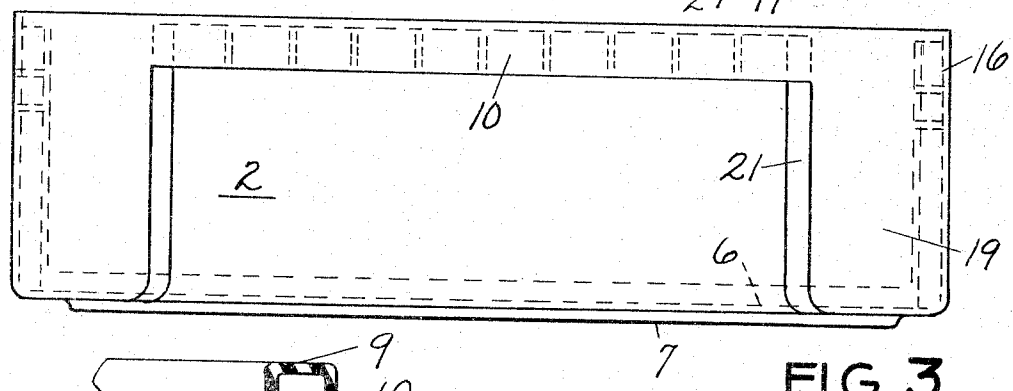


FIG. 3

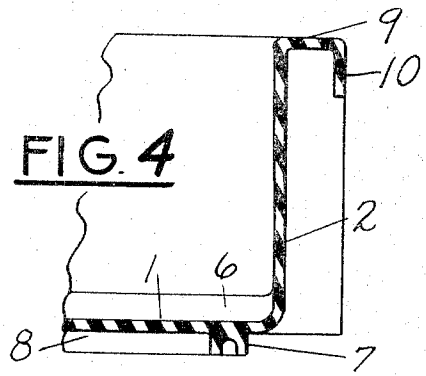


FIG. 4

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BOTTLE CASE

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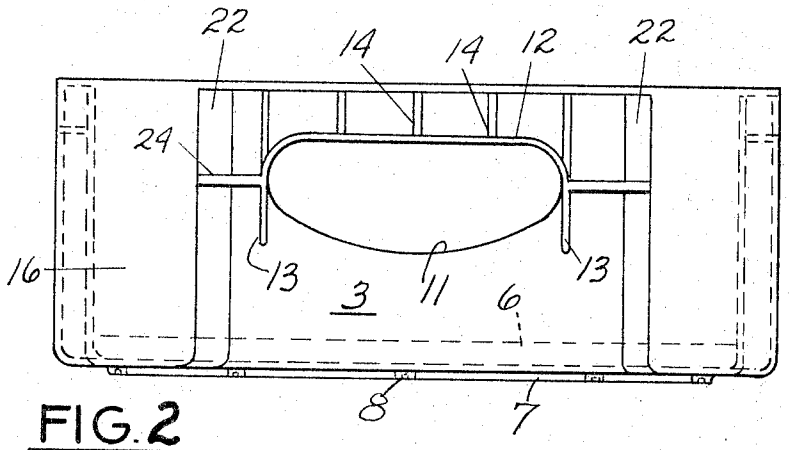


FIG. 2

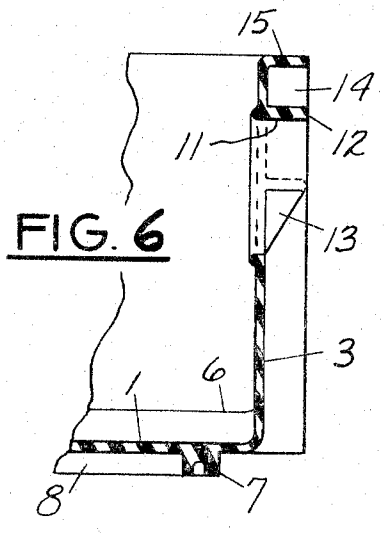


FIG. 6

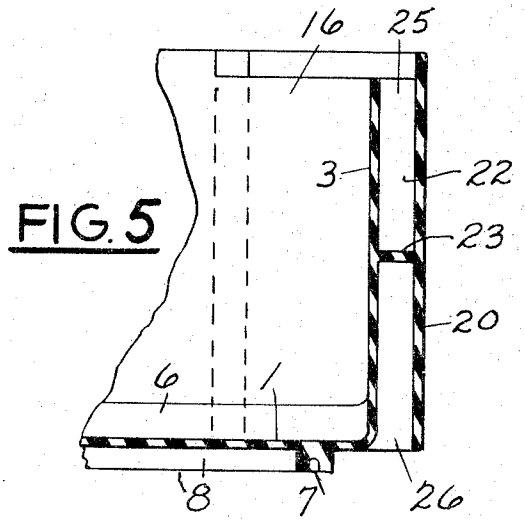


FIG. 5

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3,314,568

BOTTLE CASE

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5 Claims. (Cl. 220—21)

This invention is a plastic case for bottled beverages having a corner construction which stiffens the case and protects the bottles from impact.

In the drawing, FIG. 1 is a top plan view of a preferred form of the case, FIG. 2 is an end elevation of the case, FIG. 3 is a side elevation of the case, FIG. 4 is a section on line 4—4 of FIG. 1, FIG. 5 is a section on line 5—5 of FIG. 1, and FIG. 6 is a section on line 6—6 of FIG. 1.

A preferred form of case is adapted to be molded in one piece from one of the semi rigid, high impact plastics such as polyethylene. The case has a bottom wall 1, side walls 2, and end walls 3. Extending between the side walls are cross partitions 4 and extending between the end walls are longitudinal partitions 5. The cross and longitudinal partitions are integral with the bottom, side and end walls. Integral with the upper side of the bottom wall are a plurality of re-enforcing ribs 6 intersecting in patterns smaller than the conventional crown bottle cap so that when the cases are stacked with the bottom wall of an upper case resting on the crown caps of bottles in a lower case, the load is always shared by at least two of the intersecting ribs 6 or partitions 4 and 5.

Integral with the underside of the bottom wall is a depending rib or bead 7 bordering the bottom wall and three longitudinal ribs or beads 8 of the same cross section as the rib 7 and arranged beneath each of the longitudinal partitions 5. The lower surface of the ribs 7 and 8 lie in the same plane and provide a supporting surface for the case.

The side walls 2 have a rim 9 terminating in a depending stiffening flange 10 (FIGS. 3, 4). The end walls 3 have hand holes 11 bordered at the top by a stiffening flange 12 following the contour of the opening 11. The flange 12 is re-enforced at the ends by a rib 13 and at the top by ribs 14 extending between the flange 12 and a rim 15 integral with the upper edge of the end walls 3.

The corners 16 of the case are specially designed to increase the rigidity and to protect the bottles from impact. The inner walls 17 and 18 of the corner sections are respectively in direct continuation of the side walls 2 and end walls 3. The outer walls 19 and 20 of the corner sections are respectively integral with the flange 10 of the side walls and with the outer edge of the rim 15 of the end walls. The walls 19 and 20 extend the full height of the case. Integral with and extending between the outer walls 19 and 20 and the inner walls 17 and 18 of the corner section are diagonally oriented vertical ribs 21 and 22, the ribs 21 extending between the walls 17 and 19 and the ribs 22 extending between the walls 18 and 20. A horizontal rib 23 is integral with the mid section of adjacent ribs 21 or 22 and with adjacent wall sections 17, 18, 19, 20, as the case may be. The vertical ribs are oriented to cushion the bottles from impact on the corners. The horizontal ribs 23 tie the vertical ribs and associated walls together, creating a structure which is particularly rigid to the twisting forces encountered in handling the cases. The corner sections are further stiffened by horizontal ribs 24 extending between the ends of the rib 12 and the adjacent vertical rib 22. Since many of the handling loads imposed upon the case originate at the hand hole 11, the tieing of the rigid corner sections to the handle section by the ribs 24 contributes to the over-all stiffness of the case.

By having the horizontal ribs 23 located midway between the tops and bottoms of the diagonal ribs 21, 22, the molding of the case is simplified. It will be noted that the space between the walls 17, 18 and the walls 19, 20 is open at the top and bottom as indicated at 25, 26 in FIG. 5. With this close spacing, injection molding would be difficult with a single core extending from only one end. By locating the horizontal rib 23 at a mid section, two cores can be used, one through each of the top and bottom openings 25, 26. Suitable drain holes 27 are provided in the horizontal ribs 23 to prevent pocketing of water when the cases are washed.

From one aspect, the outer walls 19, 20 of the corner sections serve as fenders supported by the horizontal ribs 23 and by the vertical ribs 21, 22 and having the function of cushioning the bottles against impact which most frequently occurs at the corners. From another aspect, the outer walls 19, 20 and the associated ribs 21, 22, 23, constitute stiffening sections which are very effective in resisting the twisting loads since the walls and vertical ribs extend the full height of the case. The tie-in effect of the horizontal ribs 23 is important in resisting the twisting loads.

What is claimed as new is:

1. A rectangular bottle case having spaced side walls and spaced end walls, the side and end walls being joined to form corners, external vertical walls spaced outside the side and end walls at said corners, said external walls being joined to each other to form corners outside the first corners, vertical ribs oriented in a direction generally parallel to the diagonals between the first corners and intersecting and bridging the space between the external walls and the side and end walls, and a horizontal rib intermediate the upper and lower ends of the vertical ribs and intersecting the external walls and the side and end walls, said external walls and the horizontal and vertical ribs being integral with the side and end walls.

2. A bottle case having spaced side walls and spaced end walls, the side and end walls being joined to form corners, external vertical walls spaced outside the side and end walls at said corners, said external walls being joined to each other to form corners outside the first corners, vertical ribs oriented at an angle to the side and end walls and intersecting and bridging the space between the external walls and the side and end walls, and a horizontal rib intermediate the upper and lower ends of the vertical ribs and intersecting the external walls and the side and end walls, said external walls and the horizontal and vertical ribs being integral with the side and end walls.

3. A bottle case having spaced side walls and spaced end walls, the side and end walls being joined to form corners, external vertical walls spaced outside the side and end walls at said corners, said external walls being joined to each other to form corners outside the first corners, vertical ribs oriented at an angle to the side and end walls and intersecting and bridging the space between the external walls and the side and end walls, and a transverse rib intermediate the upper and lower ends of the vertical ribs and intersecting the external walls and the side and end walls, said external walls and the transverse and vertical ribs being integral with the side and end walls.

4. A bottle case having spaced side walls and spaced end walls, the side and end walls being joined to form corners, external vertical walls spaced outside the side and end walls at said corners, said external walls being joined to each other to form corners outside the first corners, vetrical ribs oriented at an angle to the side and end walls and intersecting and bridging the space between the external walls and the side and end walls, and a horizontal rib intermediate the upper and lower ends of the vertical ribs and intersecting the external walls and the side and end walls, said external walls and the horizontal and vertical ribs being integral with the side and end

walls, a hand hole in one of said end walls between the vertical ribs on said one end wall, an integral external flange on said one end wall bordering the upper edge of the hand hole, and integral ribs extending from the external flange to the adjacent vertical ribs on said one end wall.

5. A bottle case having a bottom wall, spaced side walls and spaced end walls, intersecting longitudinal and cross partitions extending between the end and side walls and forming bottle pockets, the side and end walls being joined to form corners and the side, end and bottom walls being integral with the partitions, a depending bead integral with and bordering the under side of the bottom wall, and longitudinal beads integral with the under side of the bottom wall beneath each of the longitudinal partitions, the lower surfaces of the beads being in the same plane and providing a supporting surface for the case, external vertical walls spaced outside the side and end walls at said corners, said external walls being joined to each other to form corners outside the first corners, vertical ribs oriented at an angle to the side and end walls and intersecting and bridging the space between the external walls and the side and end walls, and a horizontal rib intermediate the upper and lower ends of the vertical ribs and intersecting the external walls and the side and end walls, said external walls and the horizontal and vertical ribs being integral with the side and end walls.

No references cited.

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