Aug. 11, 1953 B. L. BAXTER 2,648,456

CRATE FOR BEVERAGE BOTTLES AND THE LIKE

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FIG. 1.

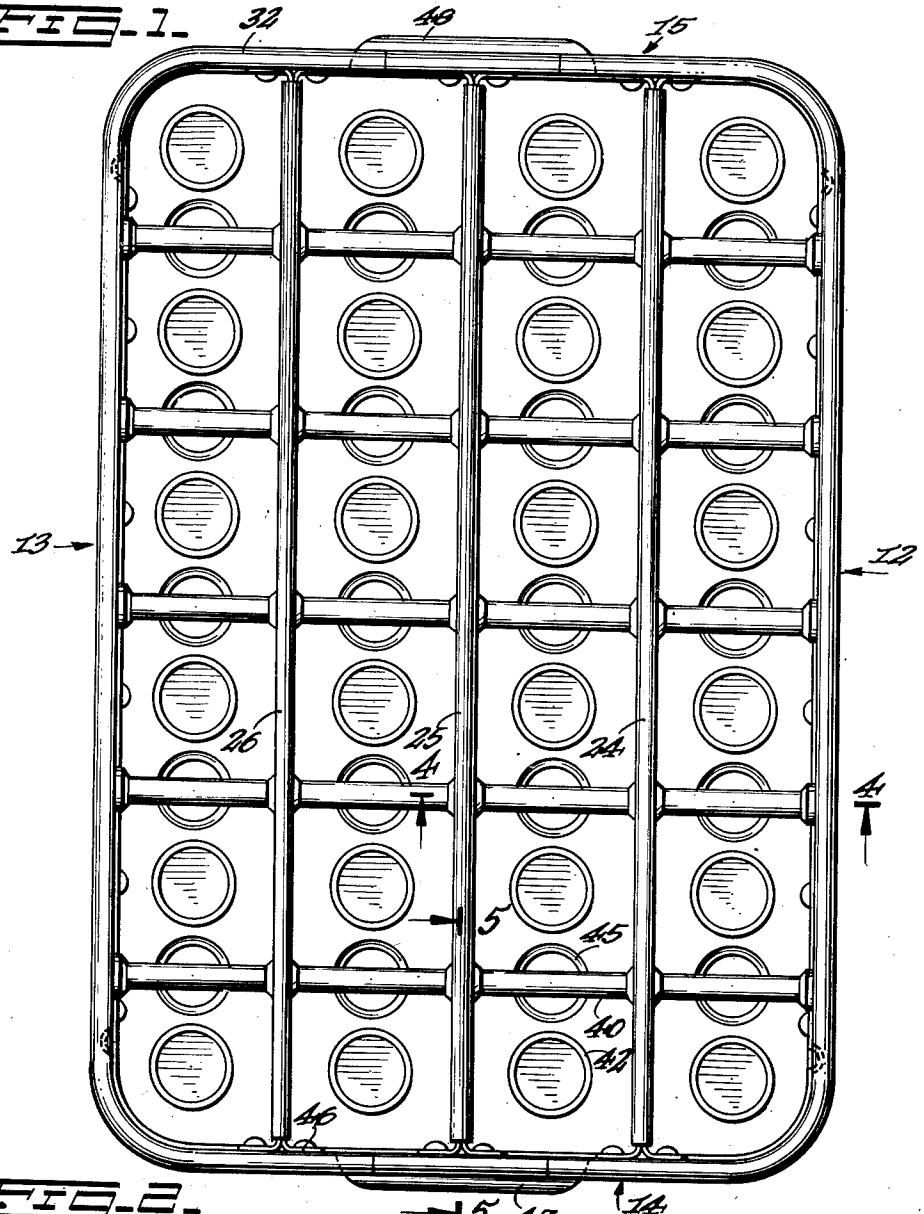
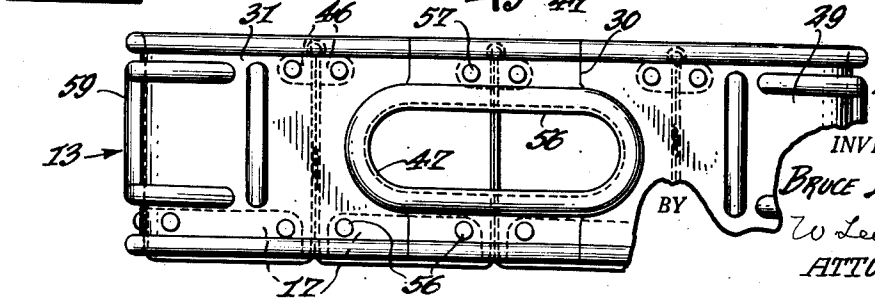


FIG. 2.



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FIG. 3.

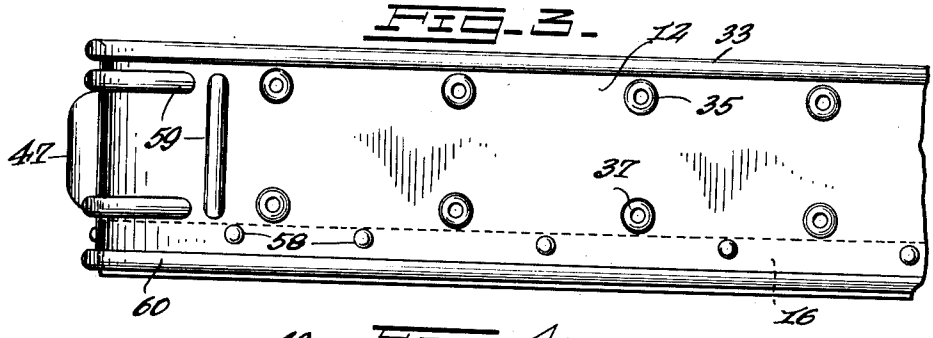


FIG. 4.

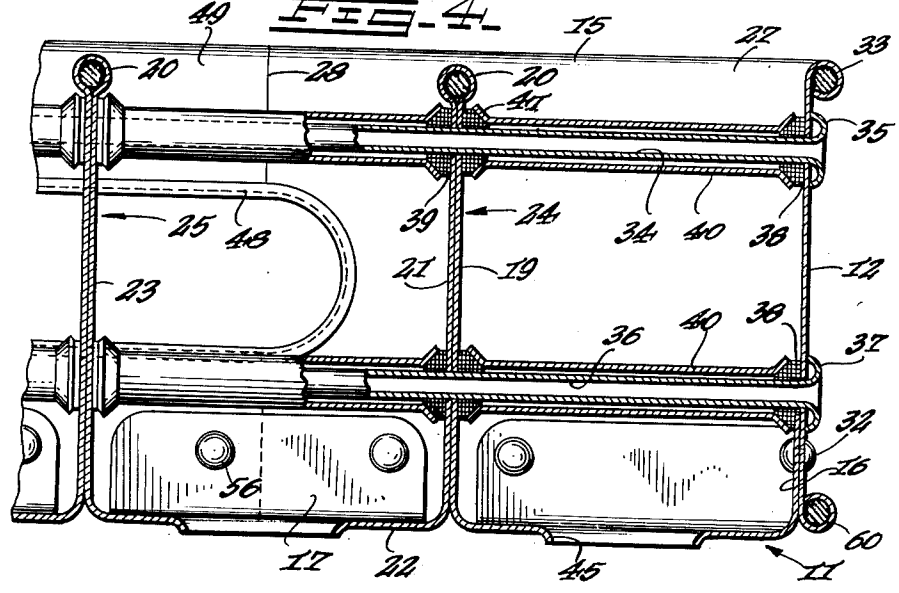


FIG. 5.

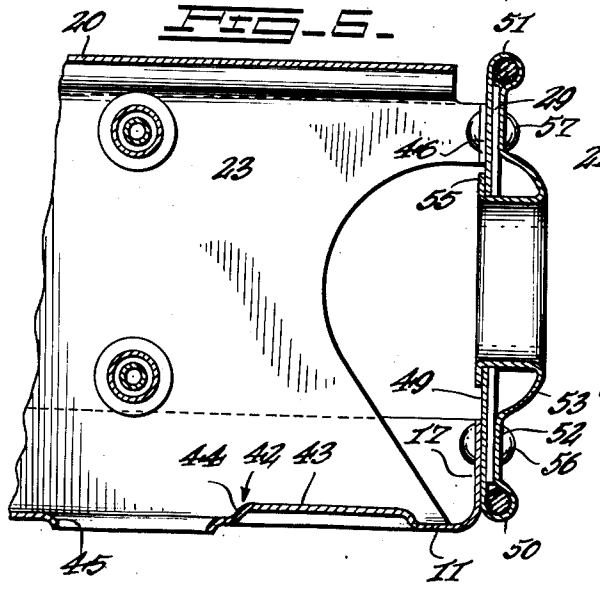
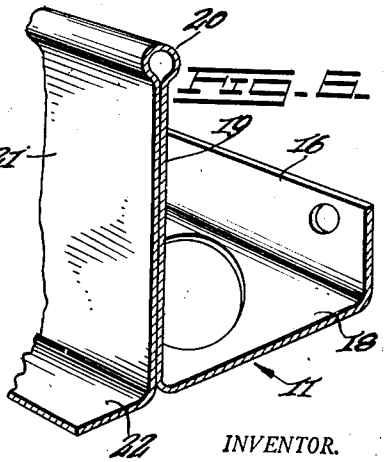


FIG. 6.



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CRATE FOR BEVERAGE BOTTLES AND THE LIKE

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Application August 23, 1950, Serial No. 180,933

2 Claims. (Cl. 220—21)

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This invention relates to crates for containing bottles.

As heretofore constructed, such crates have been provided with dividers extending through the crate interiors for dividing the latter into individual compartments each adapted to receive an individual bottle. Before the present invention the dividers were constructed as elements separate from the crates and then secured within the crates by rivets, welding or other suitable securing means. Usually the dividers were secured to the walls of the crate, and while thus serving to brace the walls, the bottom of the crate was not substantially reinforced by the presence of the dividers. Since the crate bottom is particularly subjected to shock, loads and stresses, additional members were necessary to strengthen and rigidify the bottoms or else the latter were required to be of thick cross-section. Furthermore, the necessity for securing the separate dividers to the crate resulted in increased costs of production, complicated crate structures, and the presence of undesirable obstructions preventing smooth surfaces on both the interior and exterior of the crate, and frequent failure of the securing means.

It is therefore a primary object of the present invention to eliminate the above-noted disadvantages by providing a crate wherein the longitudinal dividers are formed integral with the crate bottom, thereby resulting in a strong, rigid structure, economical to manufacture, and devoid of rivets or other means securing the longitudinal dividers to the crate.

Another object of the invention is to provide a novel resilient shock-absorbing mounting means for securing the transverse dividers to the longitudinal dividers and the walls of the crate. By this arrangement, when glass or other frangible bottles strike the dividers with considerable force of impact, the resilient mounting means will yield so as to absorb the shock and prevent the bottles from breaking. Also, the provision of the resilient mounting means enables a load imposed on the side walls of the crate to be substantially distributed through all of the dividers. The maximum stress produced in the dividers is thus considerably reduced from that which would be obtained in a conventional crate construction wherein the transverse dividers are rigidly secured to the side walls and the longitudinal dividers so as to distribute the entire load on only one or several of the dividers.

A further object of the present invention is to provide a crate bottom having raised integral

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portions on which the bottles rest, the raised portions having downwardly-sloping slides leading to the edges of drain holes so as to facilitate the flow of drain fluid through the latter.

It is to be understood that the particular embodiment of the invention shown in the drawings and described herein below is merely illustrative of one of the many forms which the invention may take in practice. The scope of the invention is delineated in the appended claims.

Other objects and advantages reside in the details of construction and are inherent in the structure as claimed and as shown in the accompanying drawings wherein:

Figure 1 is a top plan view, showing a crate in accordance with the present invention;

Figure 2 is an end elevational view of the crate;

Figure 3 is a fragmentary side elevational view;

Figure 4 is a vertical sectional view taken on the line 4—4 of Figure 1;

Figure 5 is a vertical sectional view taken on the line 5—5 of Figure 1; and

Figure 6 is a sectional detail view of the crate bottom shown in perspective.

The crate embodying the present invention comprises generally a bottom 11 having a pair of side walls 12, 13 and a pair of end walls 14, 15 secured thereto so as to form a substantially rectangular container. The construction of the bottom 11 is of particular significance and will now be described. An upwardly-extending flange or wall portion 16 is formed integral with the bottom 11 at the peripheral edge thereof and along the sides of the crate. At the ends of the crate a plurality of similar upwardly-extending flanges 17 are provided along the end edges of the bottom 11. The latter is formed of one integral piece of sheet metal and comprises a horizontal portion 18 (see Figure 6) extending inwardly from the flange 16 and adapted to support the bottoms of a row of bottles placed therein. At the inner longitudinal edge of the horizontal bottom portion 18 there is formed integral therewith a vertical wall 19, extending longitudinally of the crate and through the interior thereof. The upper edge of the wall 19 is rounded as at 20 and is continuously integral with a vertical longitudinally-extending wall 21 lying adjacent to the wall 19. A second horizontal portion 22 is formed integral with the lower edge of the wall 21 and extends inwardly therefrom. As shown in Figure 4, the horizontal portion 22 is also integral with a vertical wall 23, extending parallel

to the walls 19, 21 and longitudinally of the crate. The abutting walls 19, 21 form a longitudinal divider 24 integral with the crate bottom 11. The vertical wall 23 is formed integral with the adjacent abutting wall 23' to form a second longitudinal divider 25. A third longitudinal divider 26 is similarly constructed integral with the bottom 11 and in spaced parallel relation with respect to the longitudinal dividers 24, 25. The rounded upper edges or beads 20 of the longitudinal dividers 24, 25, 26 may be filled with steel wire or hard rubber cores around which the beads 20 may be bent in arcuate form, or the beads 20 may be left hollow, as desired. The smooth, rounded exteriors of the arcuate edges or beads 20 eliminate sharp or irregular projections that are usually prevalent with conventional types of construction.

As shown in Figure 4, the side wall 12 is formed integral with an end piece 27, the latter extending inwardly to the line of demarcation indicated at 28 and forming part of the crate end wall 15. The opposite vertical edge of the side wall 12 is similarly provided with an integral end piece 29 (see Figure 2) extending inwardly to the line of demarcation 30. A side wall 13 is similarly constructed with integral end pieces 31 and 32 at the opposite vertical edges thereof. As best seen in Figure 4, the side walls 12, 13 are secured to the upstanding flange 16 of the bottom 11 by means of rivets 32. The upper edges of the side walls 12, 13 are turned or rounded to form a bead 33.

The side walls 12, 13 and longitudinal dividers 24, 25, 26 are provided with apertures arranged in horizontally-aligned transverse rows. A tubular brace member 34 extends through each aligned row of apertures and is provided, at its opposite ends, with outwardly-flaring or turned ends 35 abutting against the exterior surfaces of the side walls 12, 13 so as to secure the tubular brace member 34 rigidly in place. The side walls 12, 13 and the longitudinal dividers 24, 25, 26 are further provided with another series of apertures arranged in transverse horizontally-aligned rows and extending in a horizontal plane spaced beneath the aforementioned series of apertures. A second series of tubular brace members 36 are provided, each extending through a transverse aligned row of the apertures of said second series and provided at its opposite ends with flared or turned portions 37 securing the tubular brace members 36 to the side walls 12, 13.

A washer or cushion 38 formed of resilient yieldable material such as rubber or the like is mounted on each of the tubular brace members 24, 36 in abutting relation with the side walls 12, 13. Similarly, resilient washers or cushions 39 are mounted on the tubular brace members 34, 36 on opposite sides of and in contact with each pair of vertical walls forming the longitudinal dividers 23, 25, 26. A plurality of transverse tubular dividers 40 surround the tubular brace members 34, 36 and extend between the side walls 12, 13 and the vertical walls forming the longitudinal dividers 23, 25, 26. Each of the transverse dividers 40 is provided at its opposite ends with a conical or tapered portion 41 partially enclosing and abutting a respective one of the resilient washers or cushions 38, 39. The tapered or conical portions 41 of the transverse dividers 40 press against the respective resilient washers 38, 39 so as to resiliently and yieldably retain the transverse dividers 40 in assembled position. The yieldable or resilient mounting of the transverse dividers 40 provides several advantages. When glass bottles placed within the compartments formed by dividers 40, 24, 25, 26 strike the transverse dividers 40 with considerable impact, the shock is absorbed by the resilient washers or cushions 38, 39, so as to prevent the glass bottles from breaking. Furthermore, when a load or shock is imposed upon the side walls 12, 13, the resilient mounting provided by the washers 38, 39, enables the shock or load to be distributed evenly throughout the dividers 40, 24, 25, 26 so as to prevent a concentration of the entire load or stress in one or several of the dividers.

As best shown in Figure 5 the bottom 11 has formed integral therewith a plurality of raised platforms 42. Each of the latter is located centrally of a respective compartment formed by the longitudinal dividers 24, 25, 26 and the transverse dividers 40 and comprises a flat circular horizontal portion 43 upon which the bottom of a bottle may rest. The periphery of the flat portion 43 is continuously integral with an annular downwardly-sloping surface 44. The bottom is further provided with a plurality of apertures or drain holes 45, located between the raised platforms 42 and beneath the transverse dividers 40. The downwardly-sloping surfaces 44 lead to the peripheral edges of the adjacent drain holes 45 so as to facilitate the flow of drain fluid from the platforms 42 down to and through the drain holes 45.

The vertical walls forming each of the longitudinal dividers 24, 25, 26 are provided with integral lateral flanges 46 at their ends adjacent their upper edges. Unitary integral handle pieces 47, 48 are provided at opposite ends of the crate and are located between and secured with respect to the inner vertical edges of the end pieces 27, 29, 31, 32 formed integral with the side walls 12, 13. As shown in Figure 5, each of the handle portions 47, 48 comprises a flat inner wall 49 having a rounded bead 50, 51 at its upper and lower edges and formed integral therewith. A front wall 52 extends integrally from the beads 50, 51 and is bent outwardly as at 54 so as to project through an elongated aperture formed in the inner wall 49. The edge 55 is then bent outwardly so as to lie against the inner wall 49. There is thus provided a smooth, rigid and durable handle member having a smooth-edged aperture 56 adapted to be manually gripped.

The upwardly-extending end flanges 17 formed integral with the bottom 11 are secured to the handle members 47, 48 and to the end pieces 27, 29, 31, 32 by means of rivets 56. The flanges 46 formed integral with the vertical walls of the longitudinal dividers 24, 25, 26 are secured to the end pieces 27, 29, 31, 32 and also to the handle member 47 by means of rivets 57. The side walls 12, 13 are similarly secured to the upstanding side flanges 16 formed integral with the bottom 11 along the sides thereof by means of rivets indicated at 58. The side walls 12, 13 and their integral end pieces 27, 29, 31, 32 may be provided with integral outstruck ribs 59 so as to increase the strength and rigidity of the crate.

It will thus be seen that a strong, durable and rigid crate is provided for containing glass bottles. The longitudinal dividers 24, 25, 26 are formed integral with the bottom 11 so as to provide both a bracing and a dividing function. The resilient mounting of the transverse dividers 40 prevents the breaking of glass bottles when the latter impact against the dividers and also serves to distribute evenly throughout the dividers a load or shock imposed upon the side walls 12, 13. It will be noted that the construction of the crate is such that the surfaces are entirely smooth and

devoid of sharp or irregular projections. The raised platforms **42** integral with the bottom **11** serve not only to support the bottles but also facilitate the drainage of fluid through the drain holes **45** and they further serve as a stacking or nesting means when a plurality of crates are filled with bottles. That is, the platforms **43** of an upper crate are of a size and configuration adapted to be mounted over the tops of bottles within a lower crate, whereby the upper crate may be stacked upon the lower crate. The lower beads **50** of the handle members **47**, **48**, are continuous with lower beads **60** formed at the lower edges of the side walls **12**, **13** so as to form a continuous bead extending peripherally about the crate adjacent the bottom thereof and adapted to cooperate with the upper beads **33**, **51** of another crate so as to enable the crates to be stacked in superimposed relation when they are empty of bottles.

Having described my invention, what I claim and desire to secure by Letters Patent is as follows:

1. A rectangular bottle carrying crate adapted for carrying a plurality of bottles comprising a sheet metal bottom portion having a plurality of double walled longitudinal dividers having cylindrical ends and of a height equal to the depth of the crate and vertically disposed and integral with said sheet metal bottom, said bottom having upturned end wall flanges and side wall flanges, end walls and side walls riveted to said flanges, said longitudinal dividers having a plurality of vertically disposed and horizontally aligned apertures, tubular brace members transversely disposed within said apertures

and between said side walls thereby dividing said crate into individual bottle carrying compartments, a plurality of tubular spacers having flared ends disposed about said brace members and both between said longitudinal dividers and also between the longitudinal dividers and the adjacent side walls, and a plurality of flared resilient rubber ring-like cushions disposed in the flared ends of said flared tubular spacers to produce resiliently disposed spacers adapted to absorb shock thus preventing bottle breakage.

2. The crate of claim 1 comprising a rolled over top edge disposed about the top perimeter of the crate, and a rolled over bottom edge disposed about the entire base of the crate, the bottom sheet being provided with raised platforms centrally disposed in each compartment.

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