Oct. 6, 1959 C. E. CHAMBERLIN 2,907,509

BOTTLE CARRIER CRATE

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Fig. 1.

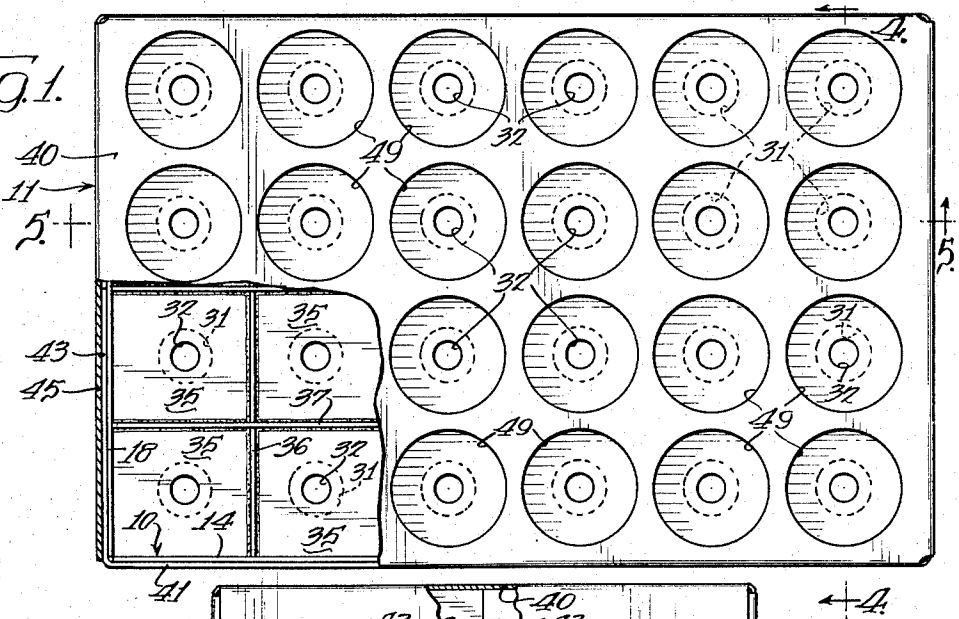
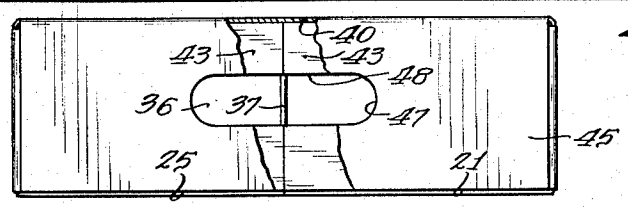


Fig. 2.



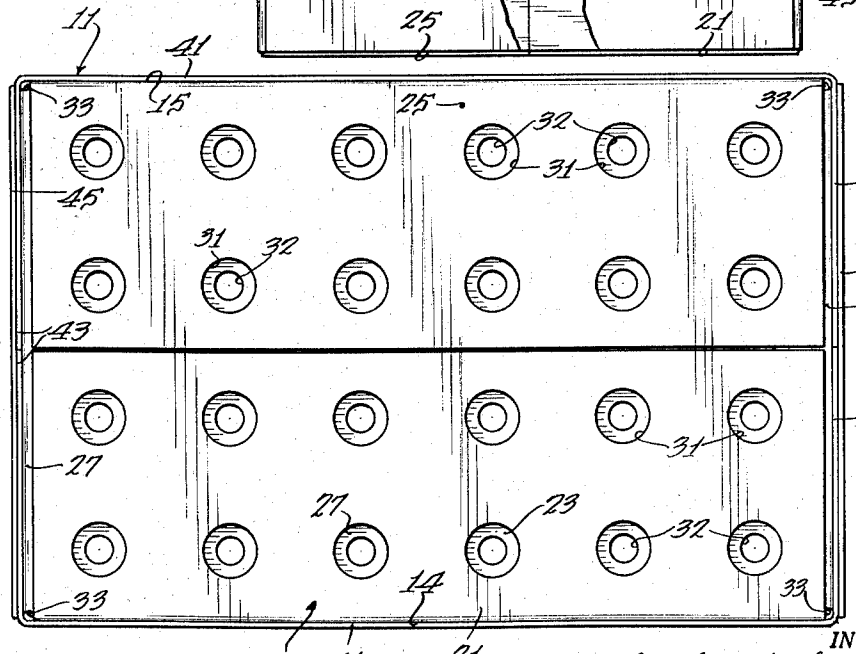


Fig. 3.

INVENTOR.

Charles E. Chamberlin

BY

Brown, Jackson, Boettcher & Dienner.

Attys.

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Fig. 4.

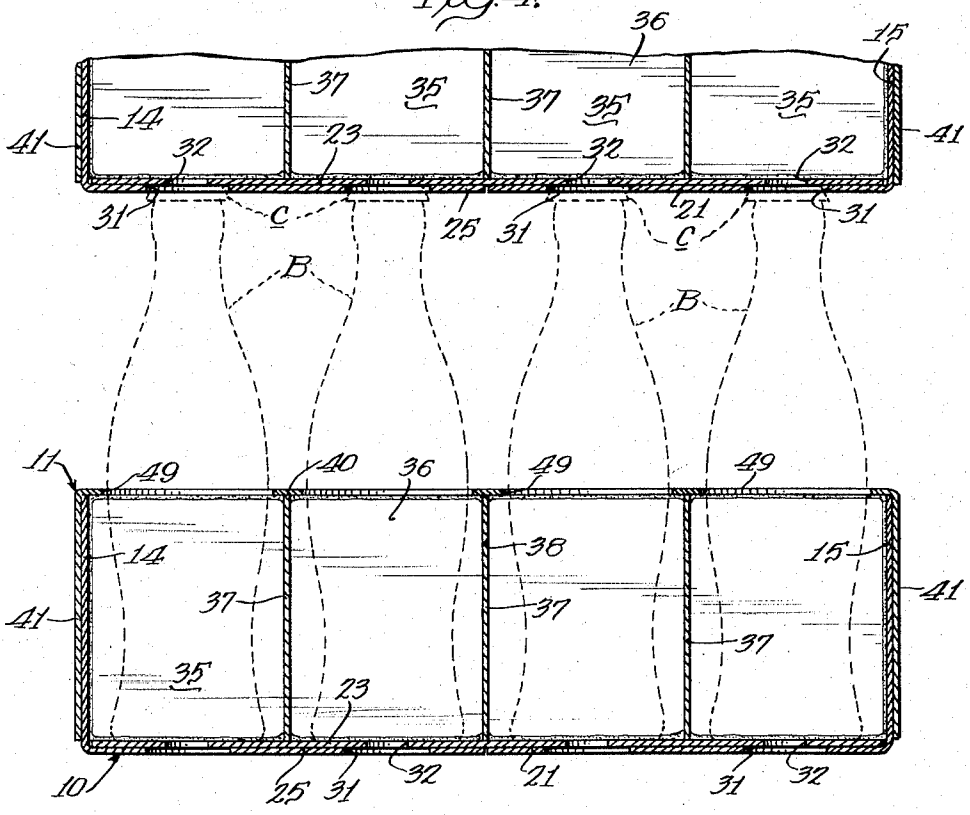
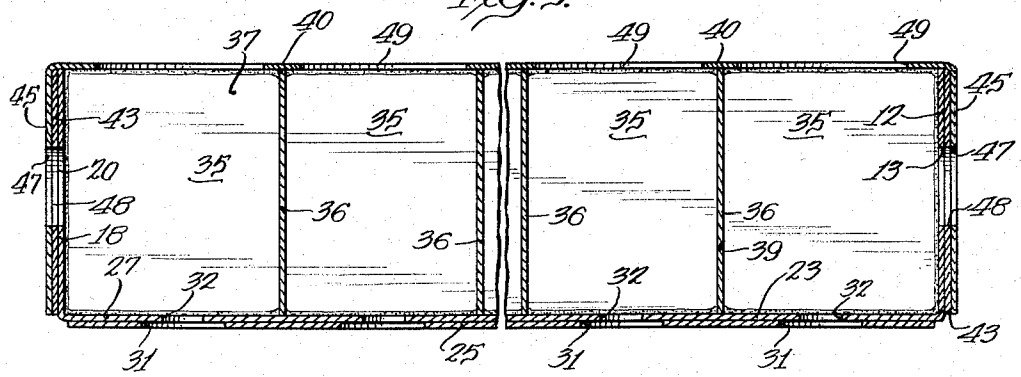


Fig. 5.



INVENTOR.

Charles E. Chamberlin

BY

Brown, Jackson, Boettcher & Dienner

Attys.

Oct. 6, 1959 C. E. CHAMBERLIN 2,907,509

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Fig. 6.

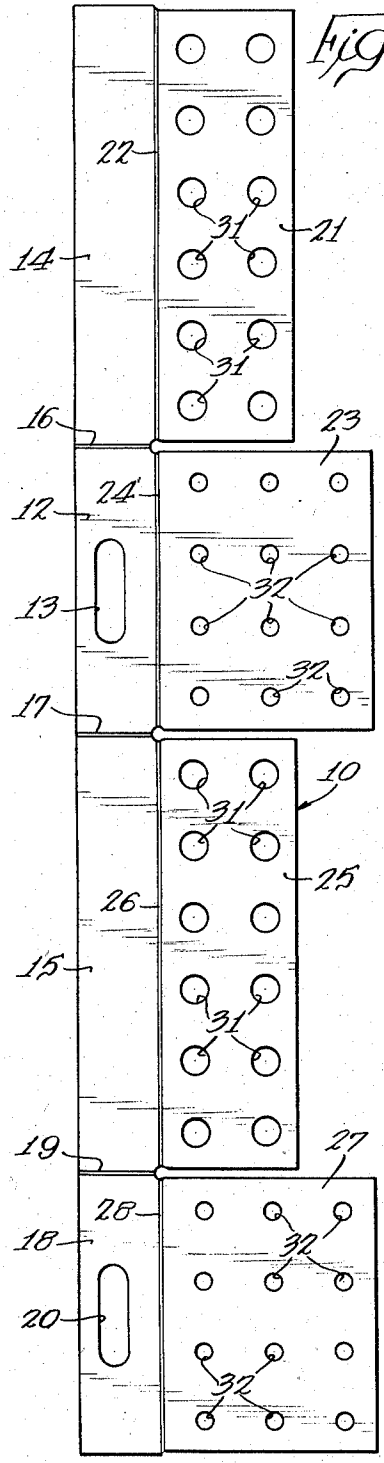


Fig. 7.

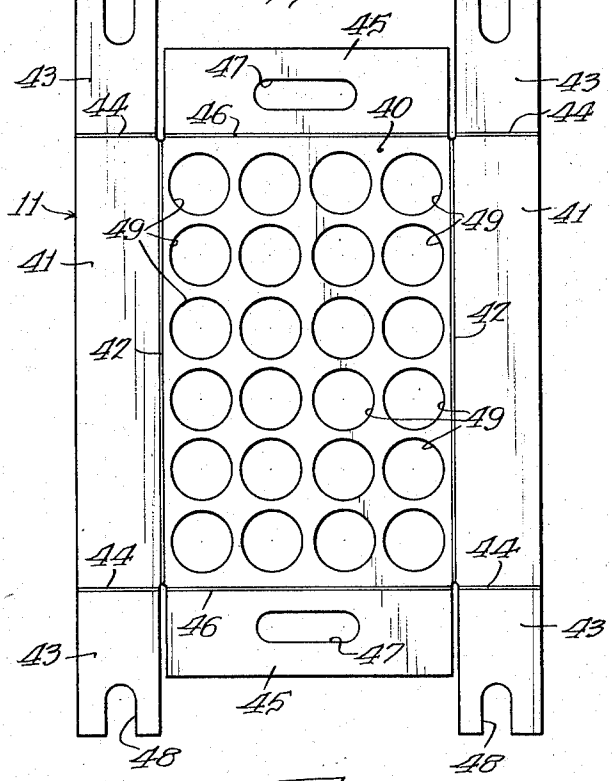


Fig. 8.

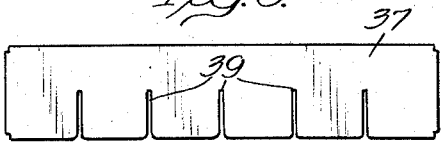
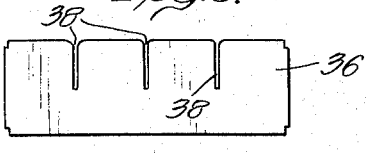


Fig. 9.



INVENTOR.
Charles E. Chamberlin
BY
Brown, Jackson, Boettcher & Dienner
Attys.

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2,907,509

BOTTLE CARRIER CRATE

Charles E. Chamberlin, Chattanooga, Tenn., assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Application February 27, 1956, Serial No. 567,854

3 Claims. (Cl. 229—15)

This invention relates to crates for handling and carrying bottled products such as soft drinks and the like.

It is common practice to sell bottled products, such as soft drinks, in case or crate lots of twenty-four bottles each. The crates for handling and carrying the bottles are usually formed of wood, are rather heavy and expensive, and are subject to splitting and breakage under the rough treatment which they receive.

My invention is directed to a bottle carrier crate formed of paperboard, which is of rugged construction and well able to withstand the rough treatment which it receives in use. The crate of my invention may be produced at comparatively small cost and comprises interior dividers providing a plurality of open topped compartments, and wall panels associated with such dividers, the elements of the crate being secured together so as to be mutually reinforcing and provide desirable rigidity as well as exceptional strength. The crate is provided with a top wall having therein circular openings respectively centered with the open top compartments, which are square in plan, the circular openings being of appreciably less diameter than the width of the compartments and such as to snugly receive the bottles and effectively restrain them against displacement from the compartment when a loaded crate is carried by one end wall, as is the common practice. The crate of my invention is also provided with a bottom wall having drainage openings and openings for receiving the caps on the upper ends of bottles for stacking the crates, the drainage openings overlying the stacking openings and being of less extent than the latter, whereby loaded crates may readily be stacked and when stacked are restrained against relative movement or displacement by the capped upper ends or tops of the bottles. Further objects and advantages of my invention will appear from the detailed description.

In the drawings:

Figure 1 is a top plan view of a carrier crate embodying my invention, the top wall of the crate being partly broken away;

Figure 2 is an end view of the carrier crate of Figure 1, with the outer end wall panel partly broken away;

Figure 3 is an underneath view of the carrier crate of Figure 1;

Figure 4 is a sectional view taken substantially on line 4—4 of Figure 1 showing the lower portion of an upper crate, in section, seated on the upper ends of bottles, indicated in dot and dash lines, in the lower crate;

Figure 5 is a sectional view taken substantially on line 5—5 of Figure 1;

Figure 6 is a plan view, on a reduced scale, of the blank from which the body portion of the carrier crate is formed;

Figure 7 is a plan view, also on a reduced scale, of the blank from which the cover portion of the crate is formed;

Figure 8 is a face view, also on a reduced scale, of one of the lengthwise dividers of the crate; and

Figure 9 is a face view, on the same scale as Figure 8, of one of the transverse dividers of the crate.

The crate comprises a box-like body portion **10** and a box-like cover portion **11** telescoped over the body portion, the interior of the latter being divided into open top compartments square in plan formed by interengaging dividers within the body portion, the dividers being secured to the body portion and to the cover portion and the latter being secured to the body portion. The body portion **10** and the cover portion **11** are each formed from a one-piece paperboard blank formed from hard or solid paperboard of substantial thickness suitably treated in a known manner to be rendered moisture resistant.

The body portion **10** is formed from the blank shown in Figure 6, which blank is cut from sheet paperboard and is suitably scored to provide an end wall panel **12** having at its midportion a hand hole **13**, two side wall panels **14** and **15** integrally attached to the ends of the end wall panel **12** along fold lines **16** and **17**, respectively, an end wall panel **18** integrally attached to the end of panel **15** remote from panel **12** along a fold line **19** and provided at its midportion with a hand hole **20**, an outer bottom wall panel **21** integrally connected to the lower edge of panel **14** along a fold line **22**, an inner bottom wall panel **23** integrally connected to the lower edge of panel **12** along a fold line **24**, a second outer bottom wall panel **25** integrally connected to the lower edge of panel **15** along a fold line **26**, and a second inner bottom wall panel **27** integrally connected to the lower edge of panel **18** along a fold line **28**. The end wall panels **12** and **18** are of elongated rectangular or oblong shape and are of equal length, as are the side wall panels **14** and **15**, which are of substantially greater length than the end wall panels. The inner bottom wall panels **23** and **27** are of rectangular shape and are offset a short distance inwardly from the ends of the respective end wall panels **12** and **18**, the length of each of the panels **23** and **27** being one-half that of the side wall panels **14** and **15** so that in the completed carrier the inner edges of panels **23** and **27** are disposed in abutting relation. The outer bottom wall panels **21** and **25** are also offset inwardly a short distance from each end of the corresponding side wall panels **14** and **15** and are of oblong shape and of a width equal to one-half that of the inner bottom wall panels **23** and **27** so that when the blank is set up into body form the inner edges of the panels **21** and **25** are disposed in abutting relation.

The lower corners of the end wall panel **12** and the side wall panel **15** are cut off at an inclination or bevel, as is the lower corner of panel **14** adjacent fold line **16** and the lower corner of panel **18** adjacent fold line **19**; for a purpose to be explained later.

Each of the outer bottom panels **21** and **25** is provided with a plurality of circular openings **31** arranged in two rows lengthwise thereof, each row containing six openings uniformly spaced apart and the rows being parallel with the side wall panels **14** and **15**. Each of the inner bottom wall panels **23** and **27** is provided with a plurality of circular openings **32** arranged in rows lengthwise thereof parallel with the side edges of the panels with the rows spaced apart transversely of panels **23** and **27** the same as the openings **31** of the panels **21** and **25**. In setting up the blank of Figure 6 to produce the body portion **10** of the crate, the end wall panels **12** and **18** and the side wall panels **14** and **15** are folded into box-like form about the fold lines **16**, **17** and **19** with the inner bottom wall panels **23** and **27** overlying the outer bottom wall panels **21** and **25** and the free end of end wall panel **18** abutting the free end of side wall panel **14**. Preliminary to such folding operation the underfaces of the inner bottom wall panels **23** and **27** and the upperfaces of the outer bottom wall panels **21** and **25** are coated with

a suitable adhesive and, during the folding operation the panels 23 and 27 may be raised slightly so as to be held out of contact with the panels 21 and 25. Upon completion of the folding operation the panels 23 and 27 are held in pressure contact with the panels 21 and 25 until the adhesive has set. That completes the body portion 10, in which the drainage openings 32 in the inner bottom panels 23 and 27 are disposed in concentric overlying relation to the openings 31 in the outer bottom panels 21 and 25, as shown more clearly in Figures 3 to 5, inclusive, from which it will be noted that the openings 31 are of substantially greater diameter than the openings 32, for a purpose to be described later. It will further be noted that in the setup body portion 10 the cutaway lower corners of the side and end wall panels provide drainage openings 33 at each of the lower corners of the body portion 10.

The interior of body portion 10 is divided into twenty-four compartments 35, shown more clearly in Figures 1, 4 and 5, by interengaging transverse and lengthwise dividers 36 and 37, respectively, which may be formed of double faced corrugated paperboard. The transverse dividers 36 are provided with appropriately spaced slots 38 extending from their upper edges, which receive the upper portions of the lengthwise dividers 37 provided with slots 39 extending from their lower edges and receiving the lower portions of dividers 36. The lengthwise dividers 37 fit snugly between the end wall panels 12 and 18 of body portion 10 to which they are adhesively secured as indicated by the stippling in Figure 5, and the transverse dividers 36 fit snugly between the side wall panels 14 and 15, to which they are adhesively secured as indicated by the stippling in Figure 4. Further, the lower edges of all of the dividers are adhesively secured to the inner bottom wall panels 23 and 27, as indicated by the stippling in Figures 4 and 5. The dividers 36 and 37 are mutually reinforcing, due to their interengagement, and together provide a grill work adhesively secured to the bottom wall and the side and end walls of the body portion which imparts substantial strength and rigidity thereto.

The cover portion 11 of the crate is produced from the blank shown in Figure 7 formed from the same material as the blank of the body portion 10 and suitably cut and scored to provide a top wall panel 40, side wall panels 41 integrally connected at their upper edges to the side edges of top wall panel 40 along fold lines 42, inner end wall half panels 43 integrally connected along fold lines 44 to the ends of panels 41, and outer end wall panels 45 integrally connected at their upper edges to the ends of top wall panel 40 along fold lines 46. Each of the outer end wall panels 45 is provided at its midportion with a hand hole 47 and each of the inner end wall half panels 43 is provided with a slot 48 extending from its inner end and corresponding to one-half of the hand hole 47, it being understood that the length or transverse extent of each of the panels 43 is equal to one-half the length or transverse extent of the corresponding outer end wall panel 45. The corners of the top wall panel 40 and the upper corners of the side wall panels 41 and the inner end wall half panels 43 and the outer end wall panels 45 are cut away, as shown, to facilitate folding of the blank, as is understood. The width and length of the top wall panel 40 are the same as the exterior width and length of the setup body portion 10 and the height of the side wall panels 41 and the inner half wall end panels 43 and the outer end wall panels 45 is approximately the same as the height of the corresponding wall panels of the body portion 10, so that the top wall panel 40 of the cover portion will seat upon the upper edges of the end and side walls of the body portion and, also, upon the upper edges of the dividers 36 and 37 which are of the same height as the interior height of the body portion. The top wall panel 40 of the cover portion blank is provided with twenty-four circular openings 49 disposed to overlie the respective compartments 35 of body portion 10 in centered relation thereto, as will appear more fully presently.

In order to complete the crate, the upper edges of the side and end walls and dividers of the assembled body portion, and the outer faces of the end and side walls thereof, are coated with a suitable adhesive. The inner faces of the side and end wall panels of the cover portion blank may also be coated with a suitable adhesive, after which the top wall panel 40 is positioned upon the body portion of the crate, the side wall panels 41 are folded downward into pressure contact with the side wall panels 14 and 15 of the body portion, the inner end wall half panels 43 of the cover portion are folded inward into contact with the end wall panels 12 and 18 of the body portion and the outer end wall panels 45 of the cover portion are folded downward and inward into pressure contact with the half panels 43, the top wall panel 40 and the side wall panels and end wall inner half panels and outer panels being held in pressure contact with the dividers and the corresponding panels of the body portion until the adhesive has set. The side and end wall panels of the cover portion are thus secured throughout their extent to the side and end wall panels of the body portion and the cover panel 40 of the cover portion is adhesively secured to the dividers effectively reinforcing the grill structure thereof and imparting exceptional strength and rigidity to the carrier crate. When the complete crate is assembled as above, the slots 48 in the inner end wall half panels 43 of the cover portion register with hand holes 47 in the outer end wall panels 45 and with the hand holes 13 and 20 in the end wall panels 12 and 18 of the body portion, providing at each end of the crate a hand hole for carrying purposes. It will be noted that each end wall of the crate comprises three plies or thicknesses of paperboard, which is of adequate mechanical strength to sustain the load to which it is subjected.

As above stated, the circular openings 49 in top panel 40 of the cover member or portion 11 are centered with the respective compartments 35 of the crate. Referring to Figures 4 and 5, it will be seen that the diameter of the respective openings 49 is appreciably less than the width of the respective compartments 35. Soft drinks and similar products are commonly placed in bottles of standard sizes and diameters. The openings 49 are of such diameter as to receive snugly the bottles for which the crate is constructed. Due to the fact that the respective openings 49 are of materially less diameter than the width of the respective compartments 35, the top panel 40 projects inwardly an appreciable distance beyond the dividers 36 and 37 of the compartment. Accordingly, when the crate is carried by an end wall thereof, the bottles will tilt slightly downward so as to be gripped by the panel 40 about the openings 49 and thereby held against dislodgment, thereby assuring that the bottles will be retained within the crate during carrying thereof. Bottles used for the purpose stated are also closed by crimp caps of standard size secured on the upper ends thereof. Referring to Figure 4, I have shown, in dot and dash lines, bottles B mounted in a lower crate and having closure caps *c* secured upon their upper ends. The caps *c* are of standard size and the openings 31 in the outer bottom panels 21 and 25 of the body portion 10 are of proper size to snugly receive the caps *c*. As previously noted, the openings 31 are centered with the respective compartments 35 of the crate and are of considerably greater diameter than the openings 32 in the inner bottom wall panels 23 and 27. Accordingly, the upper crate is supported upon the caps of the bottles in the lower crate in vertical alignment with the latter and is restrained thereby against displacement. The crate of my invention is well suited for stacking, when loaded, and cooperates with the bottles in the next subjacent crate to guard against slippage or displacement of the stacked crates. The load of the stacked crates is carried, in the main at least, by the bottles in the crates, which are well suited to sustain such minor portion of the load as they may be subjected to.

It will be understood that changes in detail may be resorted to without departing from the field and scope of my invention, and I intend to include all such variations, as fall within the scope of the appended claims, in this application in which the preferred form only of my invention has been disclosed.

I claim:

1. In a paperboard bottle carrier crate, a body portion rectangular in plan formed from a one-piece paperboard blank and comprising a bottom wall and rigid end and side wall panels extending upward from said bottom wall, said end wall panels being respectively provided with a hand hole at the midportion thereof; a cover portion formed from a one-piece paperboard blank and comprising a top wall and rigid end and side wall panels extending downward therefrom, rigid end wall half panels attached to the ends of said side wall panels and underlying and adhesively secured to said end wall panels, said end wall panels being respectively provided with a hand hole at the midportion thereof and said half panels having slots extending from their inner ends together defining hand holes substantially in register with said hand holes of said end wall panels, said end wall panels and half panels together providing end walls of two thicknesses of paperboard; said cover portion end walls and side wall panels extending downward along and being adhesively secured to the outer faces of said body portion end wall and side wall panels providing therewith end walls of three thicknesses of paperboard with the hand holes of said cover portion end walls in register with the hand holes of said body portion end wall panel hand holes and side walls of two thicknesses of paperboard; and a paperboard reinforcing grill fitting within said crate extending from said bottom wall to said top wall and contacting said end and side walls, said grill comprising interengaging dividers secured together and defining a plurality of compartments underlying and extending downward from said top wall, the latter being adhesively secured to the upper edges of said dividers and the lower edges of said dividers being adhesively secured to said bottom wall, the side and end edges of said dividers being adhesively secured to said side and end walls, said grill providing a rigid interior reinforcing structure imparting substantial strength and rigidity to said crate, said top wall being provided with bottle receiving openings respectively overlying and of less extent than said compartments, the portion of said top wall extending about the respective openings therein being reinforced by the portions of said dividers defining the corresponding compartment.

2. In a paperboard bottle carrier crate, a body portion rectangular in plan formed from a one-piece paperboard blank and comprising a bottom wall and rigid end and side wall panels extending upward from said bottom wall, said end wall panels being respectively provided with a hand hole at the midportion thereof; a cover portion formed from a one-piece paperboard blank and comprising a top wall and rigid end and side wall panels extending downward therefrom, rigid end wall half panels attached to the ends of said side wall panels and underlying and adhesively secured to said end wall panels, said end wall panels being respectively provided with a hand hole at the midportion thereof and said half panels having slots extending from their inner ends together defining hand holes substantially in register with said hand holes of said end wall panels, said end wall panels and half panels together providing end walls of two thicknesses of paperboard; said cover portion end walls and side wall panels extending downward along and being adhesively secured to the outer faces of said body portion end wall and side wall panels providing therewith end walls of three thicknesses of paperboard with the hand holes of said cover portion end walls in register with the hand holes of said body portion end wall panel hand holes and side walls of two thicknesses of paperboard; and a paperboard reinforcing grill fitting within said crate extending from said bottom wall to said top wall and contacting said end and side walls, said grill comprising interengaging dividers secured together and defining a plurality of compartments underlying and extending downward from said top wall, the latter being adhesively secured to the upper edges of said dividers, said grill providing a rigid interior reinforcing structure imparting substantial strength and rigidity to said crate, said top wall being provided with bottle receiving openings respectively overlying and of less extent than said compartments, the portion of said top wall extending about the respective openings therein being reinforced by the portions of said dividers defining the corresponding compartment.

3. In a paperboard bottle carrier crate, a body portion rectangular in plan formed from a one-piece paperboard blank and comprising a bottom wall and rigid end and side wall panels extending upward from said bottom wall, a cover portion formed from a one-piece paperboard blank and comprising a top wall and rigid end and side wall panels extending downward therefrom along and adhesively secured to said body portion end and side wall panels providing therewith rigid end and side walls of multiple thicknesses of paperboard, said end wall panels of said body portion and said end wall panels of said cover portion being provided with registering hand holes, and a paperboard reinforcing grill fitting within said crate extending from said bottom wall to said top wall and contacting said end and side walls, said grill comprising interengaging dividers secured together and defining a plurality of compartments underlying and extending downward from said top wall, the latter being adhesively secured to the upper edges of said dividers, said grill providing a rigid interior reinforcing structure imparting substantial strength and rigidity to said crate, said top wall being provided with bottle receiving openings respectively overlying and of less extent than said compartments, the portion of said top wall extending about the respective openings therein being reinforced by the portions of said dividers defining the corresponding compartment.

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