

May 28, 1946.

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2,401,063

BOTTLE CRATE

Filed May 16, 1944

3 Sheets-Sheet 1

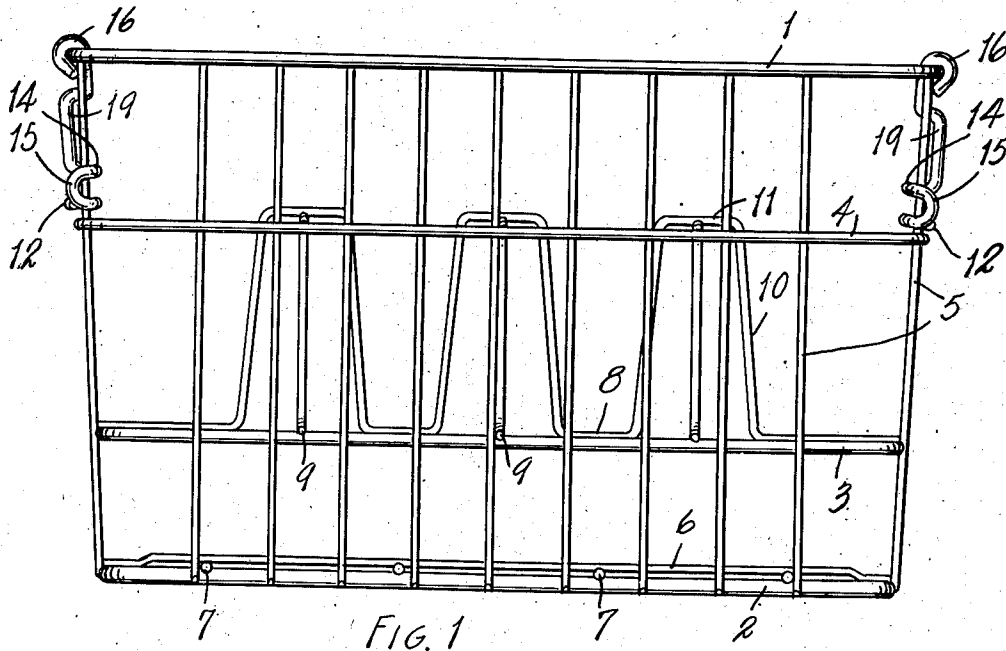


FIG. 1

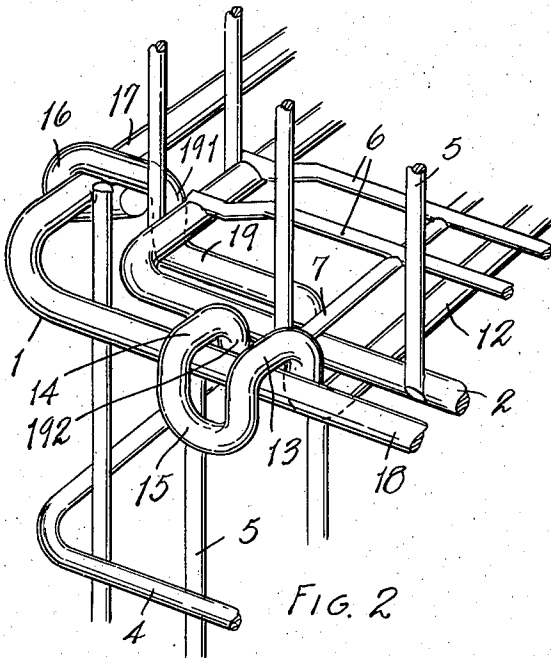


FIG. 2

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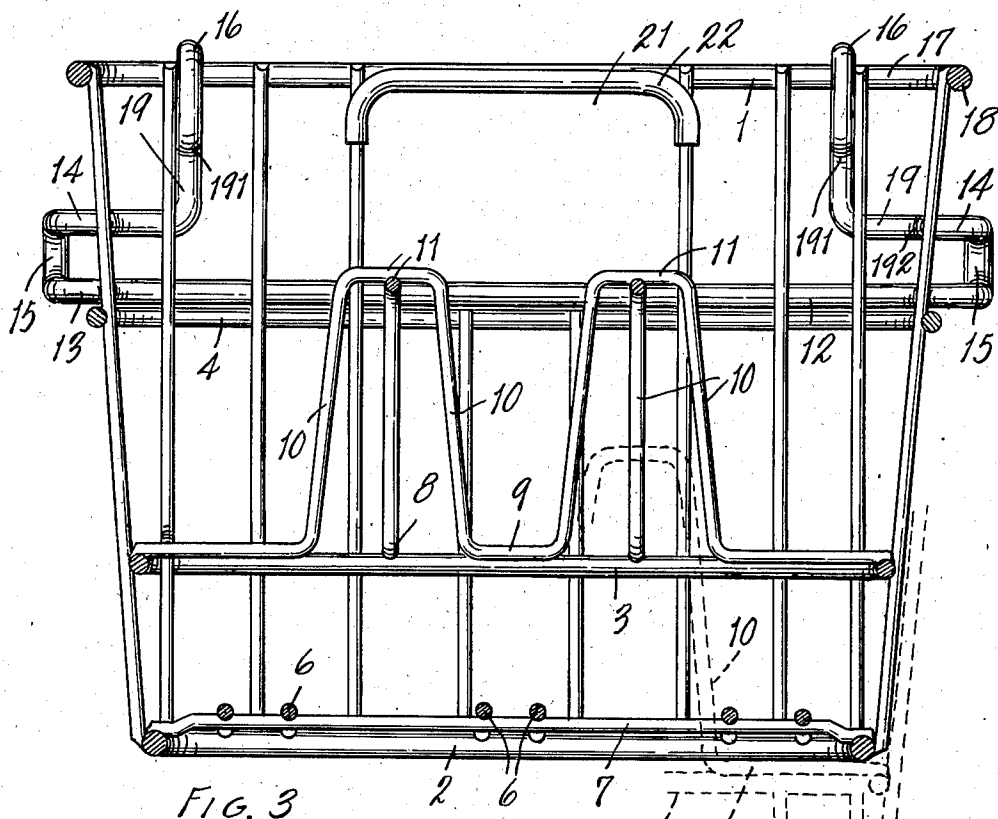


FIG. 3

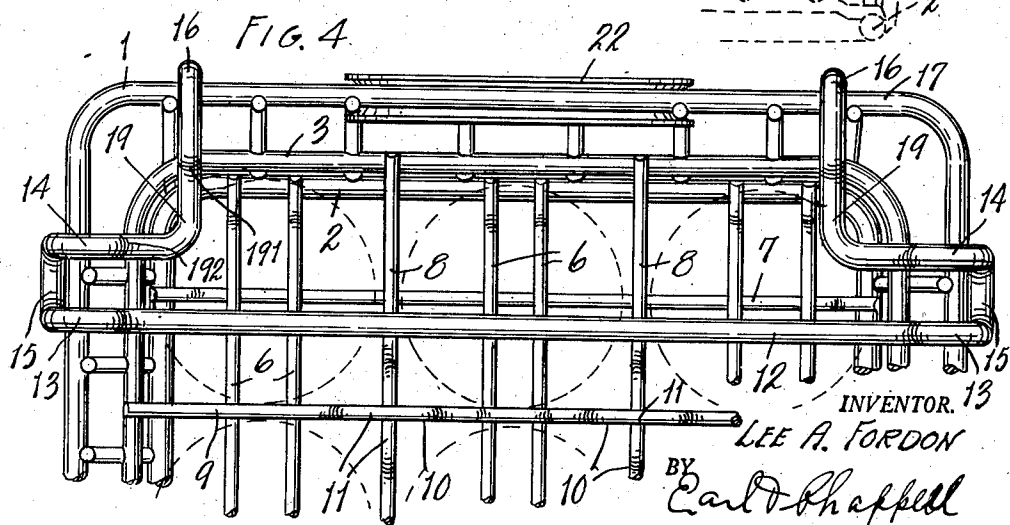


FIG. 4

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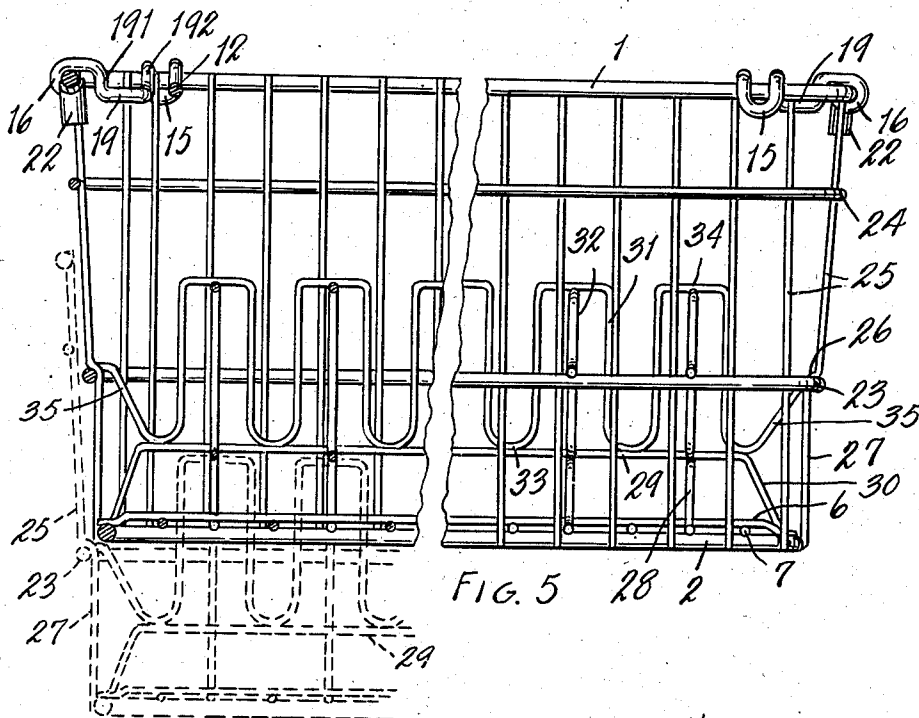


FIG. 5

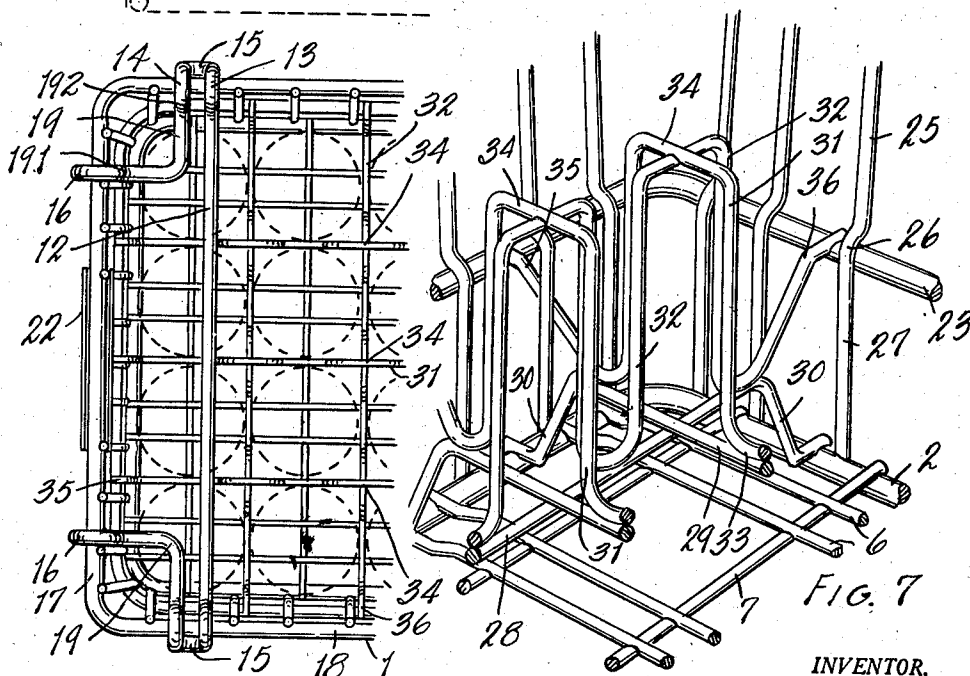


FIG. 6

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2,401,063

BOTTLE CRATE

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Application May 16, 1944, Serial No. 535,811

11 Claims. (Cl. 220-97)

This invention relates to improvements in bottle crates.

The main objects of this invention are:

First, to provide a bottle crate in which provision is made for a plurality of crates to be nested compactly or arranged in stacked position.

Second, to provide a stacking crate in which the crates when stacked are very securely retained so that the upper crates are not likely to slide off or become displaced.

Third, to provide a bottle crate having these advantages which is very strong and rigid and at the same time economical in structure.

Objects pertaining to details and economies of the invention will definitely appear from the description to follow. The invention is defined in the claims.

A structure which embodies the features of the invention is clearly illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of a bottle crate embodying my invention with the stacking bars in inoperative position.

Fig. 2 is an enlarged fragmentary perspective view illustrating portions of the stacked crates with the stacking bars in erected position.

Fig. 3 is a fragmentary transverse vertical section with one crate shown in full lines, portions of a second crate being shown by dotted lines to illustrate the nested relation.

Fig. 4 is a fragmentary plan view with a stacking bar in erected position.

Fig. 5 is a fragmentary view partially in vertical section of a modified form or embodiment of my invention, portions of a nested crate being illustrated by dotted lines.

Fig. 6 is a fragmentary plan view of the structure shown in Fig. 5.

Fig. 7 is a fragmentary perspective view illustrating further details of the structure shown in Figs. 5 and 6.

The embodiment of my invention illustrated comprises a top border frame 1, bottom border frame 2 and intermediate vertically spaced border frames 3 and 4. The intermediate border frame 3 is adjacent but vertically spaced relative to the bottom frame. The wire side slats 5 are arranged on the inner sides of the top frame 1 and the upper intermediate frame 4 and on the outer sides of the bottom frame 2 and the lower intermediate frame 3. These several parts are welded together. The welding is a common expedient and is not here illustrated. Crossed sets of bottom members 6 and 7 are provided, welded

to each other at their crossing points and to the upper side of the bottom frame 2. This arrangement provides grid-like cell bottoms with openings between them.

I provide crossed sets of partition members 8 and 9 which are welded at their ends to the border frame 3 and provided with a series of upwardly projecting loops 10 of substantial height, the loops being disposed with their bights 11 in crossed relation and welded together. The loops constitute side portions of adjacent cells and it will be noted that they are alined with the openings in the bottom so that when the crates are superimposed these upwardly projecting cell portions project through the openings as shown in Fig. 3, thus permitting the compact nesting of the crates. In nested position the bottom frame 2 rests upon the partition members.

To provide for stacking of the crates I provide stacking bars 12 having upwardly offset hooks 13 at the ends thereof to which the arms 14 are joined by means of the loops 15. The arms terminate in eyes 16 which pivotally engage opposed end members 17 of the top frame, the hooks engaging the opposed side members 18 of the top border frame when the stacking bars are in erected position. It will be noted by reference to Fig. 2 that the upward offsetting of the hooks 13 relative to the cross reach of the stacking bar 12 provides a seat for the bottom frame 2 of a superimposed crate. The arms 14 of the stacking bars are downwardly offset at 19 to provide end stops or shoulders 191 and side stops or shoulders 192. This results in a very effective anchoring of the crates, one upon another. When the stacking bars are in inoperative position they swing down at the ends of the crates as shown in Figs. 1 and 3.

It will be noted by reference to Fig. 1 that the pivot eyes 16 of the stacking bars are formed by turning upwardly the ends of the arms of the stacking bars and they are so related to the other parts of the stacking bars that when the stacking bars are in inoperative position they swing inwardly to a position against or close to the ends of the crates and thereby permit close end to end stacking or positioning of the crates without likelihood of the stacking bars becoming engaged with adjacent crates. The downward offsetting of the arms of the stacking bars provide effective seats for superimposed crates and permit superimposing of one crate on another with a minimum of attention on the part of the operator—that is, the hooks 13 and the eye portions of the arms effectively guide a superimposed crate to stacking position even though carelessly placed. The an-

gles formed by the downward offset 19, it will be noted, are rounded and this is a feature of substantial advantage.

In this preferred embodiment certain of the end slats terminate at the top intermediate border frame as shown in Fig. 3 to provide a hand hold 21. A channeled sheet metal grip 22 is secured to the under side of the top frame and to adjacent slats as shown in Fig. 3, thus providing a very effective grip for handling the crate, which it will be appreciated is quite heavy when loaded with a dozen quart bottles of milk.

In the embodiment of the invention shown in Figs. 5 to 7 the lower and upper intermediate border frames 23 and 24, corresponding to the lower and upper intermediate border frames 3 and 4 of the embodiment described, are arranged on the outside of the side slats 25, which are inwardly offset at 26 to receive the lower intermediate border frame 23, the portions 27 of the slats below the border frame 23 being substantially vertical while the portions above are outwardly inclined to permit nesting.

In this embodiment the bottom is formed as described but a modified form of cell structure is provided comprising sets of crossed cell members 28 and 29 having downwardly offset ends 30 secured to the bottom border frame 2 so that the spanning reaches of these partition members are substantially elevated above the bottom. The crossed sets of cell side members 31 and 32 are formed to provide alternating upwardly and downwardly disposed loops, the bights 33 of which are disposed upon and preferably welded to the aligned members 28 and 29. The bights 34 are disposed in crossed relation and welded together at their crossing point. The ends 35 and 36 of these partition members are welded to the border frame 23.

With this arrangement the crates may be nested as shown in Fig. 5 and the upwardly projecting crossed loops constituting portions of the cell walls are aligned with the openings in the bottom to enter the same when the crates are disposed in nested position, in this respect being the same as in the preferred embodiment.

The structure shown in Figs. 5 to 7 is somewhat more rigid, or the same degree of rigidity may be obtained with lighter stock. This is somewhat offset, however, by the additional labor required in forming and assembling the parts.

I have illustrated and described my invention in highly practical embodiments thereof. I have not attempted to illustrate or describe various embodiments and adaptations which are possible as it is believed this disclosure will enable the embodiment of the invention as may be desired.

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

1. A bottle crate having tapered side walls permitting the nesting of superimposed crates comprising top and bottom frames, an intermediate border frame adjacent to but spaced from the bottom and vertical side slats arranged on the outer sides of the bottom frame and intermediate border frame and on the inner side of the top frame, sets of bottom members secured to the bottom frame, one of said sets of bottom members crossing another set to provide bottom supports for bottles in cells in the crate, the bottom members of each set being spaced to provide openings between said bottom members, crossed sets of partition members each having a series of upwardly projecting loops disposed with the

bights of the loops in crossed relation and secured together, said upwardly projecting crossed loops being aligned with said openings in the bottom to enter the same when the crates are disposed in nested relation, and stacking bars having downwardly facing upwardly offset hooks at the ends thereof and integral pivot arms extended from said hooks and pivotally mounted on opposed members of said top frame, said arms being downwardly offset intermediate the hooks and their pivots to receive the corners of a superimposed crate arranged on said stacking bars between their said hooks, said hooks being engageable when the stacking bars are erected with opposed side members of the top frame, the upwardly offset hooks at the ends of said stacking bars being spaced to receive therebetween the bottom frame of a superimposed correspondingly shaped crate superimposed on said stacking bars, said stacking bars when the hooks thereof are engaged with the top frame being disposed above the level of the tops of said loops.

2. A bottle crate having tapered side walls permitting the nesting of superimposed crates comprising top and bottom frames, an intermediate border frame adjacent to but spaced from the bottom and side slats, sets of bottom members secured to the bottom frame, one of said sets of bottom members crossing another set to provide bottom supports for bottles in cells in the crate, the bottom members of each set being spaced to provide openings between said bottom members, crossed sets of partition members, each having a series of upwardly projecting loops disposed with the bights of the loops in crossed relation and secured together, said upwardly projecting crossed loops being aligned with said openings in the bottom to enter the same when the crates are disposed in nested relation, and stacking bars having downwardly facing upwardly offset hooks at the ends thereof and integral pivot arms extended from said hooks and pivotally mounted on opposed members of said top frame, said arms being downwardly offset intermediate the hooks and their pivots to receive the corners of a superimposed crate arranged on said stacking bars between their said hooks, said hooks being engageable when the stacking bars are erected with opposed side members of the top frame, the upwardly offset hooks at the ends of said stacking bars being spaced to receive therebetween the bottom frame of a superimposed correspondingly shaped crate superimposed on said stacking bars, said stacking bars when the hooks thereof are engaged with the top frame being disposed above the level of the tops of said loops.

3. A bottle crate having tapered side walls permitting the nesting of superimposed crates comprising top and bottom frames, an intermediate border frame adjacent to but spaced from the bottom and vertical side slats arranged on the outer sides of the bottom frame and intermediate border frame and on the inner side of the top frame, sets of bottom members secured to the bottom frame, one of said sets of bottom members crossing another set to provide bottom supports for bottles in cells in the crate, the bottom members of each set being spaced to provide openings between said bottom members, crossed sets of partition members, each having a series of upwardly projecting loops disposed with the bights of the loops in crossed relation and secured together, said upwardly projecting crossed loops being aligned with said openings in the bottom to enter the same when the crates are

disposed in nested relation, and stacking bars swingably mounted on said crate to be swung to an operative stacking position across the top of the crate or to an inoperative position outside said walls, said stacking bars when in operative stacking position being disposed above the level of the tops of said loops.

4. A bottle crate having tapered side walls permitting the nesting of superimposed crates comprising top and bottom frames, and side slats, sets of bottom members secured to the bottom frame, one of said sets of bottom members crossing another set to provide bottom supports for bottles in cells in the crate, the bottom members of each set being spaced to provide openings between said bottom members, and crossed sets of partition members each having a series of upwardly projecting loops disposed with the bights of the loops in crossed relation and secured together, said upwardly projecting crossed loops being alined with said openings in the bottom to enter the same when the crates are disposed in nested relation.

5. A bottle crate having tapered side walls permitting the nesting of superimposed crates comprising top and bottom frames, an intermediate border frame adjacent to but spaced from the bottom and side slats, sets of bottom members secured to the bottom frame, one of said sets of bottom members crossing another set to provide bottom supports for bottles in cells in the crate, the bottom members of each set being spaced to provide openings between said bottom members, and crossed sets of partition members, each having a series of upwardly projecting loops disposed with the bights of the loops in crossed relation and secured together, said upwardly projecting crossed loops being alined with said openings in the bottom to enter the same when the crates are disposed in nested relation.

6. A bottle crate having downwardly tapered side walls permitting the nesting of superimposed crates, said side walls comprising top and bottom frames and an intermediate border frame adjacent to but spaced from the bottom frame and vertical side slats, bottom members secured to the bottom border frame, said bottom members being spaced to provide openings therebetween and spaced to constitute bottom supports for bottles in cells in the crate, cells comprising upwardly projecting cell side portions disposed in vertical alinement with said openings to project through the openings in the bottom of a superimposed nested crate, and bail-like stacking bars having pivot arms pivotally engaging opposed members of the top frame, said arms being joined to the stacking bars by downwardly facing hooks adapted when the stacking bars are erected to engage opposed members of the top frame, the reach of said bars between said hooks being downwardly offset relative to the hooks to provide a seat between said hooks for a superimposed crate, the stacking bar arms being downwardly offset between the hooks and their pivotal engagement to receive the corners of a superimposed crate between them, said stacking bars when the hooks thereof are engaged with the top frame being disposed above the level of said cell side portions.

7. A bottle crate having downwardly tapered side walls permitting the nesting of superimposed crates, said side walls comprising top and bottom frames and an intermediate border frame adjacent to but spaced from the bottom frame and vertical side slats, bottom members secured

to the bottom border frame, said bottom members being spaced to provide openings therebetween and spaced to constitute bottom supports for bottles in cells in the crate, and cells comprising upwardly projecting cell side portions disposed in vertical alinement with said openings to project through the openings in the bottom of a superimposed nested crate.

8. A bottle crate having downwardly tapered walls permitting the nesting of superimposed crates, a bottom provided with spaced openings, cells comprising upwardly projecting cell side portions disposed in vertical alinement with said openings to project through the openings in the bottom of a superimposed nested crate, said bottom having portions thereof between said openings positioned beneath said cells to constitute supports for bottles in said cells, and bail-like stacking bars having pivot arms pivotally engaging opposed members of the top frame, said arms being joined to the stacking bars by downwardly facing hooks adapted when the stacking bars are erected to engage opposed members of the top frame, the reach of said bars between said hooks being downwardly offset relative to the hooks to provide a seat between said hooks for a superimposed crate, the stacking bar arms being downwardly offset between the hooks and their pivotal engagement to receive the corners of a superimposed crate between them, said stacking bars when the hooks thereof are engaged with the top frame being disposed above the level of said cell side portions.

9. A bottle crate having downwardly tapered walls permitting the nesting of superimposed crates, a bottom provided with spaced openings, and cells comprising upwardly projecting cell side portions disposed in vertical alinement with said openings to project through the openings in the bottom of a superimposed nested crate, said bottom having portions thereof between said openings positioned beneath said cells to constitute supports for bottles in said cells.

10. A bottle crate having tapered side walls permitting the nesting of superimposed crates, said side walls comprising top and bottom frames and an intermediate border frame adjacent to but spaced from the bottom frame and vertical side slats, sets of bottom members secured to the bottom frame, one of said sets of bottom members crossing another set to provide bottom supports for bottles in cells in the crate, the bottom members of each set being spaced to provide openings between said bottom members, crossed sets of cell partition cross members having horizontal reaches extending substantially across the crate and downwardly offset ends secured to the bottom frame, and crossed sets of cell side members arranged in vertical alinement with said cell partition members and each having a series of loops alined with said cell partition members and with the bights of their downward loops secured to the upper sides of the cell partition members and the bights of their upwardly projecting loops disposed in crossed relation and secured together, the end arms of said cell side members terminating in lateral extensions secured to said intermediate border frame, said crate bottom members being spaced to permit the upwardly projecting portions of said side members to project through the bottom of a superimposed nested crate.

11. A bottle crate having tapered walls permitting the nesting of superimposed crates, a bottom provided with spaced openings, crossed

sets of cell partition cross members, and crossed sets of cell side members arranged in vertical alinement with said cell partition members and each having a series of loops alined with said cell partition members and with the bights of their downward loops secured to the upper sides of the cell partition members and the bights of

their upwardly projecting loops disposed in crossed relation and secured together, said crate bottom openings being positioned to receive the upwardly projecting portions of the cell side members of a lower nested crate.

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