Nov. 16, 1943. I. J. B. DEMERS 2,334,161

BOTTLE CRATE

Original Filed Feb. 18, 1938 2 Sheets-Sheet 1

Fig. 1

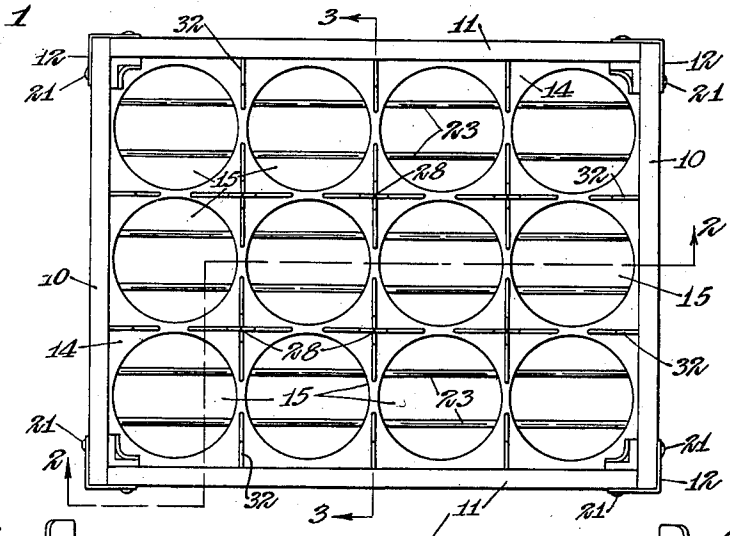


Fig. 2

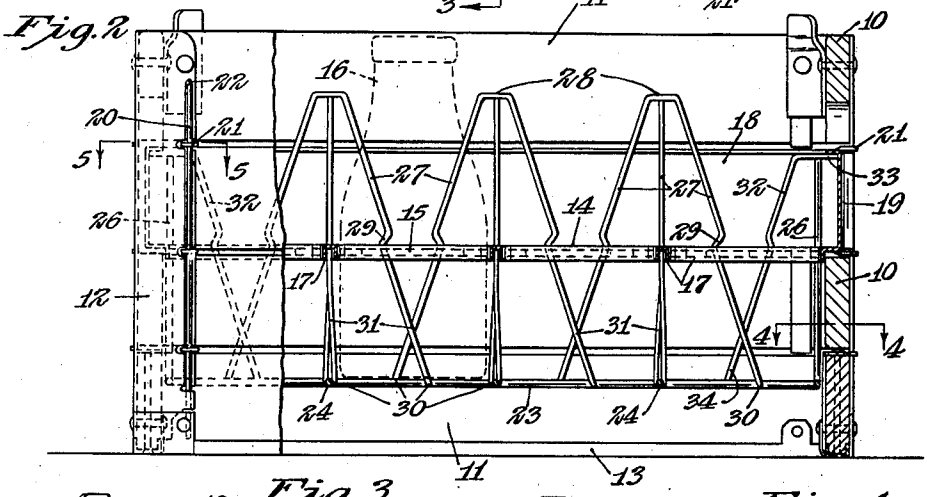


Fig. 3

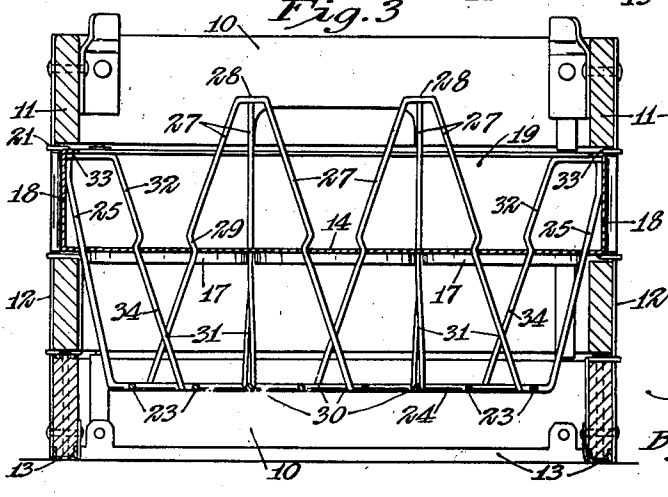
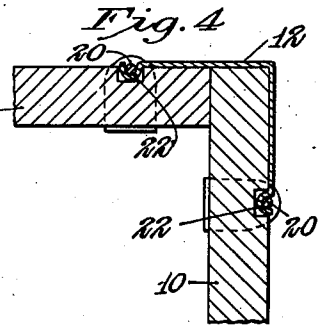


Fig. 4



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Fig. 6

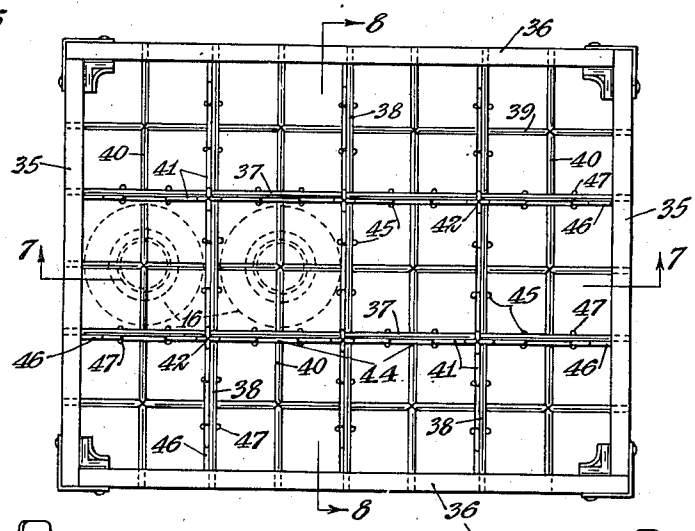


Fig. 7

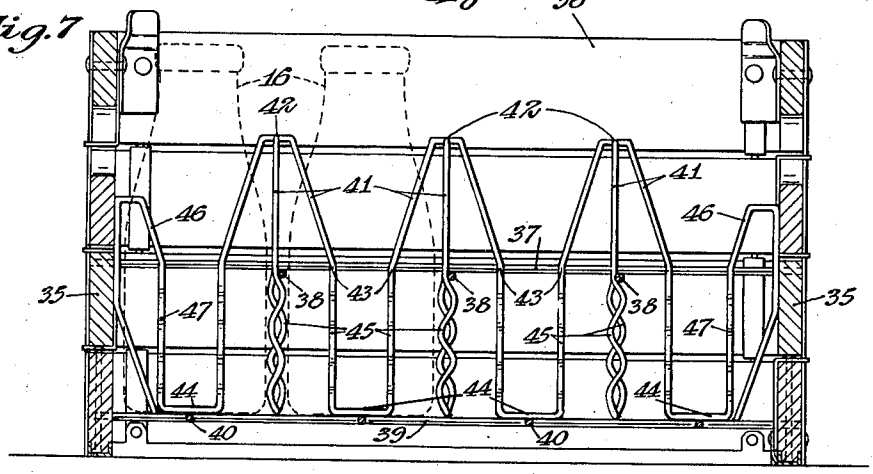


Fig. 8

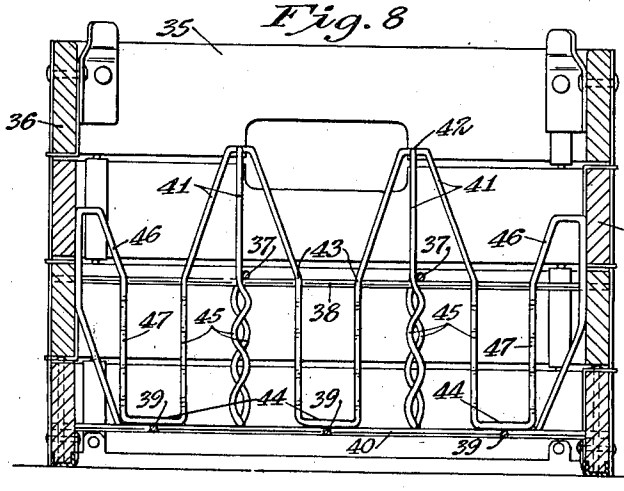
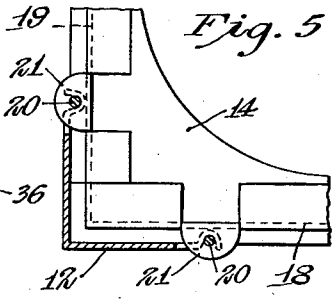


Fig. 5



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2,334,161

BOTTLE CRATE

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Continuation of application Serial No. 191,256, February 18, 1938. This application October 30, 1940, Serial No. 363,415

24 Claims. (Cl. 217—20)

This invention relates to bottle crates particularly although not exclusively adapted for transporting milk in bottles.

This application is a continuation of application No. 191,256, filed Feb. 18, 1938.

It is an object of this invention to provide a novel, unitary and rigid partition structure for bottle crates.

Another object is to provide a bottle crate having a novel ice ledge and bottle spacing and guiding structure adapted to more effectively guard against breakage of the bottles and having an unusually large capacity for carrying refrigerant on such ledge.

A further object is to provide a bottle crate adapted to facilitate the rapid handling of bottles and having a novel arrangement of centering posts and separating members adapted to guard against the breakage of the bottles.

A still further object is to provide a unitary, all-metal partition and supporting structure adapted to be suspended within a bottle crate and comprising a multiplicity of members secured together in an unusually rigid and durable manner.

Other objects will appear and be more fully pointed out in the following specification and claims.

Referring to the drawings:

Figure 1 is a plan view of the form of my improved crate having an ice ledge;

Fig. 2 is a section taken on the line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary section through one of the corners of the crate taken on the line 4—4 of Fig. 2;

Fig. 5 is a section taken on the line 5—5 of Fig. 2, showing the connection between the ice ledge and crate walls;

Fig. 6 is a plan view through an alternate form of my improved crate in which the partition and post structure is composed entirely of metal rods, and

Figs. 7 and 8 are sections taken respectively on the lines 7—7 and 8—8 of Fig. 6.

My improved crate has end walls 10 and side walls 11 each comprising a plurality of horizontally extending bars or wooden slats secured together at the corners of the crate in any suitable or well known manner. The corners are protected by vertically extending angle bars 12 and the lower edges of the several walls are protected by metal channel strips 13 in the usual manner.

Extending horizontally within the crate, about midway between the upper and lower extremities of the walls, is an ice ledge indicated generally by the numeral 14. This ledge is formed with a multiplicity of circular openings 15 adapted to receive and loosely fit bottles 16, indicated in Fig. 2. An annular flange 17 depends from the ledge 14 around each opening 15 and at the sides and ends of the crate respectively the ledge 14 is formed with integral, upstanding flanges 18 and 19 to contain finely chopped ice and ice water around the group of bottles in the crate. The flanges 18 and 19 are secured to the walls of the crate by vertical rods 20 and metal tabs 21, as best shown in Figs. 4 and 5. The rods 20 are confined in channels 22 formed in the corner angle bars 12. As illustrated, the flanges 18 and 19 form a part of the side and end walls, taking the place of a horizontal series of the wooden slats but it will be understood that the wooden slats may be placed on the exterior of the flanges 18 and 19, if desired.

My improved partition, post and bottle supporting structure is secured to and depends from the ice ledge 14. Extending horizontally beneath the ice ledge 14 is a grid structure for supporting the bottles. This grid structure comprises a series of longitudinally extending and parallel rods 23 and a series of horizontal, cross rods 24 severally welded to the rods 23 to rigidly space and support them. Each of the rods 24 has upwardly bent end portions 25 which are rigidly secured, by spot welding, respectively to the side flanges 18 on the ice ledge 14. Each of the rods 23 is also suspended from the ice ledge, being formed with ends 26 which are bent to extend up the walls 10 to the ice ledge, said ends being welded to the metal ledge.

To guide the bottles into the openings 15, and prevent contact of the bottles with each other beneath the ledge 14, I provide pairs of rods 27. One rod of each pair extends in a vertical plane which is approximately perpendicular to the other rod of the same pair and the two are joined together at the top 28 of the post by welding. From the top of each post the pair of rods 27 diverge obliquely downward to form bottle guides above the ice ledge 14. A bend 29 forms a stop lug in each rod just above the surface of the ledge 14 and from this bend the rods extend obliquely downward through perforations in the ice ledge and have their lower ends 30 respectively joined to the rods 23 and 24 by welding. The rods 27 cross each other at points 31 below the ice ledge and are preferably secured together, in pairs, at these points by welding.

In a crate adapted to contain a dozen bottles,

I provide six of the centering posts, each formed by a pair of the rods 27 and each adapted to guide a bottle into any one of the four adjoining openings 15. To complete the spacing and guiding structure adjacent to each of the walls 10 and 11, I provide a series of rods 32 each having an upper end 33 secured to the ice ledge and a lower end 34 secured to the bottle supporting grid. Each of the rods 32 passes through a perforation in the ledge 14 and is preferably secured to one of the rods 27 at its intersection therewith, as at the points 31.

It will be evident that the points 31 are positioned directly between the peripheries of the bottles 16 in adjoining compartments so that the lower portions of the rods 27 space the bottles apart and effectively guard against the striking of one bottle against another when it is dropped into the crate in a somewhat oblique position. The upper portions of the rods 27, forming the centering posts, direct the bottles into the openings 15 so that the insertion of the bottles is facilitated.

In the alternate form of my improved crate illustrated in Figs. 6, 7 and 8, the ice ledge is eliminated. The crate has end walls 35 and side walls 36 connected together at the corners in the usual or suitable manner. An upper bottle spacing grid is formed by a series of parallel rods 37 extending longitudinally of the crate and a similar series of rods 38 extending across the crate and welded to the rods 38 at the intersections. The ends of the rods 27 are confined in sockets formed in the end walls 32 of the crate and the ends of the rods 38 are similarly confined in sockets in the side walls 36. Extending parallel to and spaced downwardly from the grid formed by the rods 37 and 38 is a supporting grid for the bottles formed by cross rods 39 and 40, welded together at their intersections and confined at their ends respectively in sockets in the end and side walls of the crate.

Hollow centering or guiding posts and bottle spacing members are formed by pairs of rods 41 welded together, where they cross, at the tops 42 of the posts. The two rods 41 forming each post diverge obliquely downward from the top of the post, cross and are secured to the upper grid structure formed by the rods 37 and 38 and then continue downward to the lower grid structure to which they are severally welded at points 44. Each of these rods 41 has a sinuous or wave formation 45 extending from the upper to the lower grid structure to space the peripheries of the bottles a distance greater than the thickness of the rods. It will be evident that the adjacent peripheries of any two bottles are spaced apart by a pair of the wave formations 45 formed in the same rod 41.

Projecting from each of the side and end walls of the crate are guides 46 rigidly and severally secured to the upper and lower grid structures and each formed in continuation of one of the rods 41. A wave formation 47 extends down from each guide 46 to coact with the adjacent formation 45 in spacing the peripheries of the bottles. It will be evident that the several posts and guides below the upper grid structure comprise only five rods, two of which extend in parallel planes, vertically and longitudinally of the crate, and the other three of which extend across the crate in a similar relationship to each other.

In the use of both of the illustrated forms of my invention, filling of the crate is greatly facilitated and danger of breaking the bottles, both during the filling and in subsequent transportation, is greatly reduced. During the filling, the operator usually grasps two or three bottles in each hand, thrusts the bottoms of the bottles in the general direction of the openings in the upper grid structure of the crate and then releases the bottles. With this rapid method of handling, each bottle cannot be accurately centered in its grid or partition opening and the several bottles are ordinarily released to drop from various oblique positions relative to the crate compartments. My improved posts, projecting above the grid openings, properly space and center the bottles from their oblique, off-center positions so that each is directed into an opening while being straightened as it falls. Impact between bottles is prevented by my improvement in the guide portions of the rods beneath the upper grid structure or ice ledge.

The cost of my improved crate is reduced by making the entire partition, post and bottle structure unitary so that it may be completely assembled before mounting it in the crate or forming the crate around it. The invention has the further advantage of affording an unusually strong and durable partition structure in which all joints are welded.

In the preferred form of the invention having the ice ledge, the crate has the foregoing advantages and is designed to retain a maximum of the finely chopped ice or other refrigerant in contact with the upper portions of the bottles during shipping. It will be evident that the hollow posts, projecting above the ice ledge, allow storage space for refrigerant where it is needed and the marginal flanges 18 and 19 confine the ice water as well as ice against escape, except down along the bottles in the openings 15.

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

1. In a bottle crate the combination of a metallic structure for supporting the bottles and a partition structure comprising pairs of rods severally secured at their lower ends to said bottom structure and each extending upwardly therefrom in the plane of a partition to space the bottles one from another, the upper portions of each pair of rods converging upwardly to a central point and being rigidly secured together at said point and the converging portions of the rods forming substantially V-shaped reaches between posts and above the partitions to support bottles in inclined positions and to guide them to upright positions in the crate.

2. In a bottle crate the combination of a metallic structure for supporting the bottles, a partition structure comprising pairs of rods severally secured at their ends to said bottom structure and each extending upwardly therefrom in the plane of a partition to space the bottles one from another, the upper portions of each pair of rods converging upwardly to a central point and being rigidly secured together at said point and the converging portions of the rods forming substantially V-shaped reaches between posts and above the partitions to support bottles in inclined positions and to guide them to upright positions in the crate and means rigidly connecting each of said rods to a rod of an adjoining post at a point spaced upwardly from said bottom structure.

3. In a bottle crate, a partition structure comprising, horizontally extending metal members having openings between them to receive the bottles and a series of hollow centering posts formed from wires, rigidly secured to said hori-

zontal members and projecting above the same to guide the bottles into said openings, said posts having upwardly converging, outer guide surfaces.

4. In a bottle crate, a partition structure comprising, horizontally extending, crossed rods having openings between them to receive the bottles and a series of centering posts formed from wires, integrally and rigidly secured to said horizontal rods and projecting above the same to guide the bottles into said openings, each of said posts comprising a pair of wires crossed and secured together at the top of the post and having upwardly converging, outer guide surfaces.

5. In a bottle crate, a horizontally extending spacing structure having openings to receive the bottles, a series of hollow centering posts formed from wires secured to said horizontal spacing structure and projecting above the same to guide the bottles into said openings, said posts having upwardly converging, outer guide surfaces and bottle spacing members depending from said horizontal structure.

6. In a bottle crate, a horizontally extending, metal structure having openings to receive the bottles, a series of centering posts formed from metal, secured to said horizontal structure and projecting a substantial distance above the same to guide the bottles into said openings, said posts having upwardly converging outer guide surfaces extending to an adjoining bottle opening at widely spaced points to receive the periphery of a bottle between said points and means for spacing the lower peripheries of the bottles extending downward from said horizontal structure.

7. In a bottle crate, a horizontally extending metal grid having openings to receive the bottles, a series of hollow centering posts each formed from a pair of wires secured to said grid and projecting above the same to guide bottles into said openings and spacing members for the lower portions of the bottles formed in downward continuation of said posts and each comprising a corrugated wire disposed to engage a bottle at a plurality of vertically spaced points.

8. In a bottle crate, a partition structure comprising, a horizontally extending metal grid having openings to receive the bottles, a series of metal centering posts supported on said grid and projecting above the same to guide bottles into said openings, each of said posts having guide surfaces projecting to each of the adjoining openings at widely spaced points, spacing members for the lower portions of the bottles formed in downward continuation of said surfaces of said posts and a second metal grid structure adapted to support the bottles, rigidly secured to said spacing members.

9. In a bottle crate, an ice ledge formed from horizontally extending sheet metal having openings severally adapted to receive bottles, upstanding marginal flanges formed on said ledge, a supporting bottom for the bottles comprising a multiplicity of rods having integral end portions depending from and secured to said ledge and a multiplicity of members severally connected to said ledge and rods and supporting said rods at a multiplicity of points intermediate of said end portions.

10. In a bottle crate, an ice ledge formed from a horizontally extending, rectangular sheet of metal having openings severally adapted to receive bottles, an upstanding marginal flange formed on each of the four sides of said ledge, a supporting bottom for the bottles comprising a multiplicity of rods having integral end portions depending from and secured to said ledge and hollow centering posts projecting above said ledge to guide bottles into said openings, said posts having openings to admit refrigerant to the upper surface of said ledge beneath their upper ends.

11. In a bottle crate, a horizontally extending metal grid structure having openings to receive the bottles, centering posts projecting above said structure and each comprising a pair of crossed wires rigidly secured together at the top of the post and severally secured to said structure and means for spacing the peripheries of the bottles below said grid structure comprising, continuations of said post wires projecting below said grid structure.

12. In a bottle crate, a partition structure comprising, crossed rods forming a horizontally extending grid structure having openings to receive the bottles, centering posts projecting above the intersections of said rods and each comprising a pair of crossed wires rigidly secured together at the top of the post and severally secured to said rods at points spaced from said intersections and means for spacing the peripheries of the bottles below said grid.

13. In a bottle crate, crossed rods forming a horizontally extending grid structure having openings to receive the bottles, centering posts projecting above the intersections of said rods and each comprising a pair of crossed wires welded together at the top of the post and severally welded to said rods at points spaced from said intersections, means for spacing the peripheries of the bottles below said grid comprising, continuations of said post wires of corrugated form arranged to space the bottles apart a distance greater than the thickness of the wires and a metal bottom structure supported by said continuations.

14. A cell unit for crates comprising a series of spaced obliquely undulated members crossing a series of spaced substantially transversely disposed obliquely undulated members, the apices of one series of spaced members being disposed in the same plane as an apex of the transversely disposed series of spaced members and forming individual compartments.

15. A bottle crate having a frame, a cell unit within the frame comprising a series of spaced obliquely undulated members crossing a series of spaced substantially transversely disposed obliquely undulated members, the apices of one series of spaced members being disposed in the same plane as an apex of the transversely disposed series of spaced members and forming individual compartments.

16. A cell unit for bottle crates whose several compartments have downwardly converging sides adapted to receive the bottom of an inserted bottle when presented at an angle to the compartment and guide the botle to a vertical position therein.

17. A cell unit for bottle crates comprising a series of spaced obliquely undulated members crossing a series of spaced substantially transversely disposed obliquely undulated members, the apices of one series of spaced members being disposed in the same plane as an apex of the transversely disposed series of spaced members and forming individual compartments, the respective V-shaped reaches of the several apices forming means to facilitate the upright seating of a bottle within a given compartment presented

thereto at an angle to the ultimate disposition of the bottle therein.

18. A bottle crate having a frame, a cell unit within the frame comprising a series of spaced obliquely undulated members crossing a series of spaced substantially transversely disposed obliquely undulated members, the apices of one series of spaced members being disposed in the same plane as an apex of the transversely disposed series of spaced members and forming individual compartments, the respective V-shaped reaches of the several apices forming means to facilitate the upright seating of a bottle within a given compartment presented thereto at an angle to the ultimate disposition of the bottle therein.

19. A horizontally extending crate for bottles or the like, said container having downwardly extending compartments in which the bottles are inserted axially, each compartment comprising an upper portion adapted to hold the inserted bottle medially thereof against tilting from approximately vertical position and each compartment having a lower portion with opposite downwardly converging sides adapted to receive the bottom of an inserted bottle when presented at an angle to the compartment and guide the bottle to a vertical position therein.

20. A crate comprising side walls and bottom, and sets of partition members disposed in crossed relation and having vertically disposed corrugation-like bends therein, the apices of which are at the crossing points of the members providing V-shaped reaches between their crossing points which facilitate the upright positioning of an object presented at an angle.

21. A cell unit for crates comprising a series of spaced obliquely undulated members forming a plurality of V-shaped reaches of a substantial depth crossing a series of spaced substantially transversely disposed obliquely undulated members which likewise form a plurality of V-shaped reaches of a substantial depth.

22. A bottle crate having a frame, a cell unit within the frame comprising a series of spaced obliquely undulated members forming a plurality of V-shaped reaches of a substantial depth crossing a series of spaced substantially transversely disposed obliquely undulated members which likewise form a plurality of V-shaped reaches of a substantial depth.

23. In a crate having a bottom and a plurality of longitudinally and transversely disposed rows of compartments for bottles, the improvements which comprise partitions between adjacent compartments in the same row each comprising a pair of members secured at their lower ends to said bottom and extending upward therefrom, the upper portions of said members lying substantially in the same plane and diverging upward to form substantially V-shaped reaches adapted to guide bottles from inclined positions to upright position in the crate and each of said members being secured to similar members of the adjacent partitions at a common point and at an elevation near the top of the crate to form an upwardly tapering centering post which projects into the upper portion of the crate.

24. In a crate having a bottom and a plurality of longitudinally and transversely disposed rows of compartments for bottles, the improvements which comprise partitions between adjacent compartments in the same row each comprising a pair of members secured at their lower ends to said bottom and extending upward therefrom, the upper portions of said members lying substantially in the same plane and diverging upward to form substantially V-shaped reaches adapted to guide bottles from inclined positions to upright positions in the crate and each of said members being secured to similar members of the adjacent partitions at a common point and at an elevation near the top of the crate to form an upwardly tapering centering post which projects into the upper portion of the crate and means rigidly connecting the members of each pair together at a point intermediate the upper and lower ends of said members.

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