

May 9, 1933.

R. STODDARD

1,907,606

MILK BOTTLE CRATE

Filed Jan. 31, 1931

2 Sheets-Sheet 1

Fig. 1.

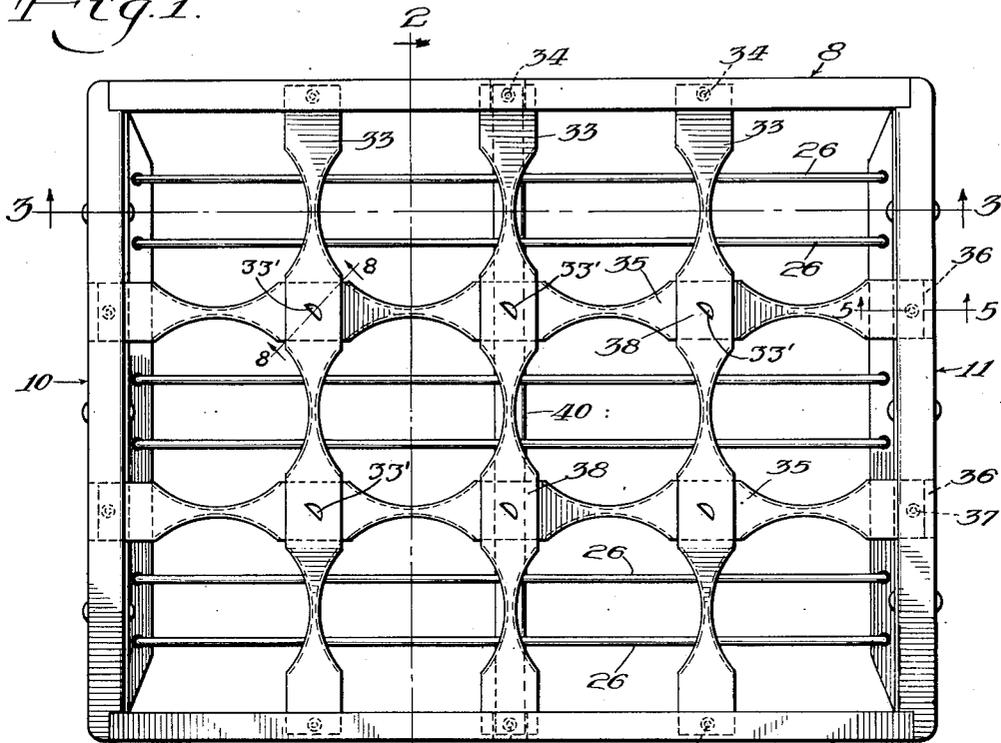
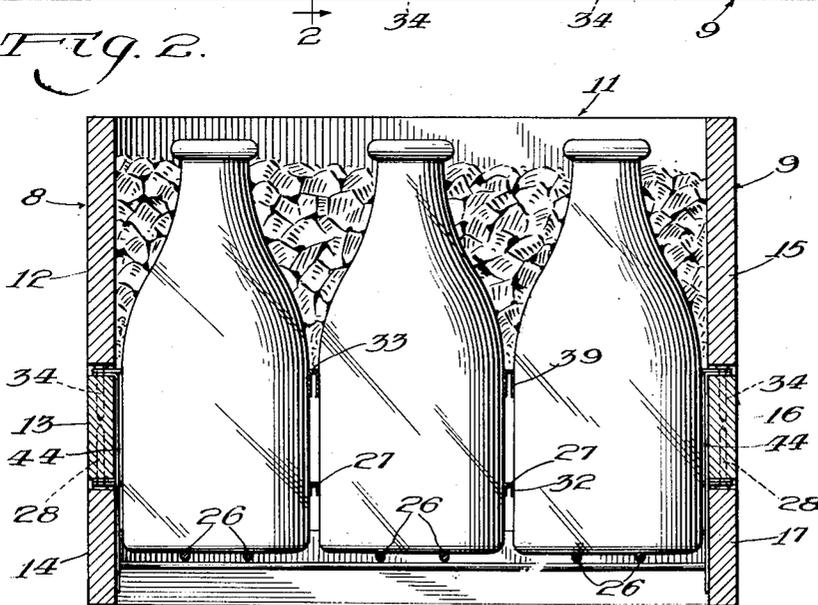


Fig. 2.



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2 Sheets-Sheet 2

Fig. 3.

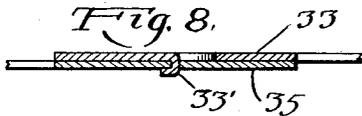
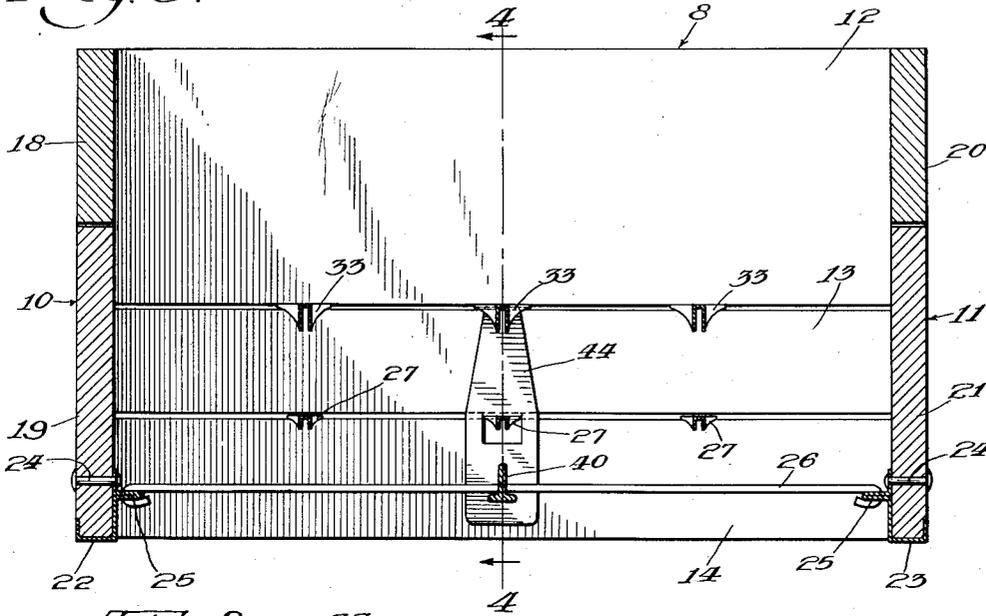


Fig. 4.

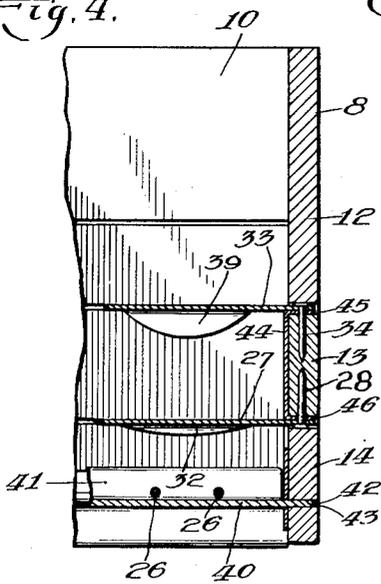


Fig. 9.

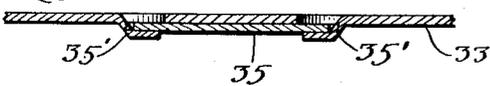


Fig. 5.

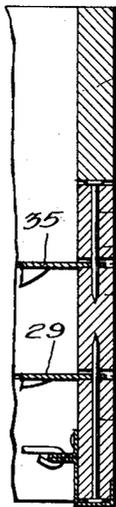


Fig. 6.

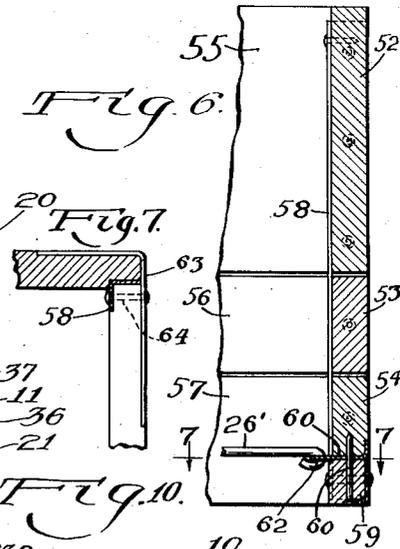
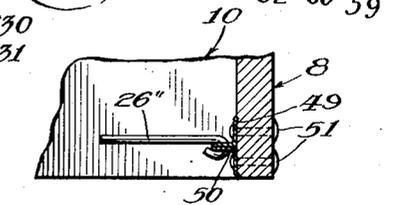


Fig. 7.



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UNITED STATES PATENT OFFICE

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MILK BOTTLE CRATE

Application filed January 31, 1931. Serial No. 512,537.

This invention relates to certain novel improvements in crates and more particularly to crates of the character used for transporting milk bottles and the like.

5 Regulations covering the transportation of milk and the like require that crates be thoroughly cleaned after each use thereof and also specify the type of structure to be used. It is, therefore, the salient object of my invention to provide a crate of this character which will comply with the structural regulations relating thereto and one which will be of a construction that will withstand frequent washing and rough usage.

15 During the transportation of bottled milk in crates it is desirable that it be cooled but due to the open construction of crates considerable difficulty has been encountered in retaining the refrigerant about the bottles. Moreover, when ice is used as a refrigerant, it is desirable that the water resulting from the melting thereof be caused to flow down over the bottles to more effectively cool the same. It is, therefore, another object to provide a crate wherein a refrigerant such as ice may be retained about the bottles and wherein the liquid resulting from the melting of the refrigerant will be caused to flow thereover.

30 Further objects are to provide a crate wherein the dividing rails for the bottles will be rigidly supported in position; wherein the supporting rails on which the bottles rest will be firmly anchored; wherein the sides of the crate will be effectively reinforced to prevent crushing thereof; wherein the dividing and supporting rails will be held against displacement in event of breakage of the walls of the crate; and wherein reinforcement for the various parts will be provided to produce sufficient rigidity without increasing the cost of construction and the weight of the crate.

45 In the selected embodiment of my invention illustrated in the accompanying drawings,

Fig. 1 is a top plan view;

Fig. 2 is a transverse sectional view taken substantially on the line 2—2 of Fig. 1;

50 Fig. 3 is a longitudinal sectional view

taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary sectional view taken substantially on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary sectional view taken substantially on the line 5—5 of Fig. 1;

Fig. 6 is a fragmentary sectional view illustrating a modified form of construction;

Fig. 7 is a sectional view taken substantially on the line 7—7 of Fig. 6;

Fig. 8 is a sectional view taken substantially on the line 8—8 of Fig. 1.

Fig. 9 is a fragmentary sectional view of a modified form of construction of that disclosed in Fig. 8; and

Fig. 10 is a fragmentary sectional view showing a modified form of construction for the retention of the supporting rails.

The crate illustrated in the accompanying drawings is of the open bottom type and includes side walls 8 and 9 and end walls 10 and 11. The opposite ends of the end walls 10 and 11 are rabbeted on the inner faces thereof and the ends of the side walls are disposed in these rabbeted portions and the wall are suitably connected together as by nailing when the crates are made of wood. Preferably the walls consist of a plurality of boards and in the present instance the side wall 8 consists of three boards 12, 13 and 14 arranged one above the other with adjacent edges in spaced relation but if desired this wall and each of the other walls may be made from a single board, without departing from the ambit of the invention. Similarly the side wall 9 consists of three boards 15, 16 and 17, likewise arranged one above the other with adjacent edges in spaced relation. As best shown in Fig. 3, the end wall 10 consists of two boards 18 and 19 while the end wall 11 consists of two boards 20 and 21 and the boards of the end walls are arranged one above the other with adjacent edges disposed in spaced relation. At the lower edges of the end walls are projecting strips 22 and 23 each consisting of a strip of metal with corresponding marginal edges thereof arranged in rabbeted grooves in the outer faces of the lowermost boards of each end wall at the lower edges thereof but if desired these marginal edges may be extended over the outer faces of the walls. A section

of each strip extends at right angles to these marginal portions across the lower edges of the end walls and other portions are bent at right angles to these last portions and are
5 extended over the inner faces of the walls. Rivets or other suitable securing devices extend through the end walls and these last-named portions to secure the protecting strips
10 in position and if desired the rivets may be extended through the first-named marginal edges of the strips. Inwardly of the outermost edges of the portions of the protecting
15 strips extending over the inner faces of the end walls, the strips are folded upon themselves to provide ledges to which the ends of the supporting rails are secured. This in the
20 present instance is brought about by extending the ends of the supporting rails 26 through openings in the ledges and forming eyelets to prevent displacement. In the
25 illustrated disclosure of the invention, the supporting rails consist of lengths of heavy wire or other suitable rod stock and the supporting rails may be either round or flat. Any
30 number of these rails may be provided and any desired spacing thereof across the crate may be employed but herein I have shown the rails as being arranged in pairs. These supporting
35 rails serve to support the bottles in the crate. To hold the bottles in vertical position and against displacement and from contact with each other, lower and upper sets of
40 dividing rails are provided. The lower set of dividing rails include strips 27 which extend between the side walls 8 and 9. In addition to the strips 27 the lower dividing rails
45 include strips 29 extended between the end walls 10 and 11. The strips 27 are spaced from each other as are the strips 29 and substantially square openings are defined between
50 the intersections of the rails and between the rails and the walls. The bottles may be inserted through the openings thus defined to dispose the lower ends of the bottles on the supporting rails. The ends of the
55 strips 27 are connected to the side walls 10 and 11 and in the present instance where three boards are used, these strips are retained in position by securing devices such as nails 28
60 which are extended into the middle strips 13 and 16. The end portions of the strips 29 are fixed to the end walls 10 and 11 and are extended into slots, such as are indicated by 30
65 in Fig. 5, formed in the boards 19 and 21. A long nail or other suitable securing device extends from the lower edge and through the boards, the end portions of the strips, and
the slots 30 to thereby retain the strips in position. If desired, the end portions of the
strips 27 may be secured in position in a similar manner. The strips 27 and 29 in the present
instance are formed from strips of sheet metal or flat wire. The portions of the strips
27 and 29 intermediate the intersections are folded downwardly on arcs to thereby provide
flanges 32 which embrace the bottles extended through the openings to better retain the same. In the illustrated embodiment of the
invention the rails 27 are disposed in a plane slightly above the rails 29 so that the flat
70 portions of the strips 27 at the intersection with the rails 29 will be disposed above the flat sections of said rails 29. In addition to the lower dividing rails described I provide upper
75 dividing rails which, when the crate is used for milk bottles, are preferably disposed in a vertical location wherein they will engage the bottles just below the juncture of the neck
80 and body portions thereof as illustrated in Fig. 2. These upper dividing rails consist of strips 33 extended parallel with the strips 27 and strips 35 extended parallel with the strips
85 29. In the illustrated construction the ends of the strips 33 rest on the upper edge of the boards 13 and 16 and suitable securing devices, such as nails 34, are extended there-
90 through to thereby connect the ends of these strips to the rails. The end portions of the strips 35 are disposed in slots 36 similar to the slots 30 and are retained in position by securing
95 devices such as the long nails 37 which are extended downwardly from the upper edges of the boards 19 and 21. It is of course understood that the ends of the strips 33
100 might be retained in position by being extended into slots in the side walls. However, in the present instance the ends of the strips 27 and 33 are respectively connected to the boards
105 13 and 16 while the ends of the strips 29 and 33 are respectively connected to the boards 19 and 21. Thus by joining the ends of the boards 13 and 16 to the boards 19 and 21, after
110 the rails have been secured thereto, a unit structure is provided which greatly facilitates the assembling of the crate. The strips 33 are disposed to extend above the strips 35
115 to contact therewith at the intersections thereof. To increase the rigidity of the structure it is desirable that the intersections of the rails 27 and 29 and 33 and 35 be interconnected.
120 One manner of accomplishing this is illustrated in detail in Fig. 8 wherein it is shown that a tang 33' is struck from the strips 33 which is extended through an opening in
125 the strips 35 and then folded back upon strip 35 to thereby secure the intersecting portions of the strips together. Such an arrangement may be provided at each of the intersections
130 and therefore the rigidity of the structure may be increased. In Fig. 9 a modification of this arrangement is illustrated. Herein two tangs 35' are struck downwardly from the
strips 33 which are extended into notches in the edges of the strip 35, and then bent along
the bottom edges of said strip 35. This arrangement likewise securely interconnects the
strips and it is to be understood that this arrangement might be provided at the inter-
sections of each of the rails 27 and 29 and 33 and 35. The strips 33 and 35 are also formed

from sheet metal or flat wire and are preferably of greater width than the strips 27 and 29. The portions of the strips 33 and 35 intermediate the intersections are folded downwardly along arcs to provide flanges 39 which embrace the bottles. The strips 33 and 35 are preferably of a width sufficient to substantially enclose the area between the bottles, and platforms 38 are defined at the intersections of these strips. Since these platforms are provided and as the area around the bottles is substantially enclosed it is possible to arrange ice or other refrigerant about the bottles which will be supported by the platforms and the strips and this ice will cool the bottles and the milk therein. As the ice melts, the water resulting will pass from the strips and flow down over the bottles to thereby even more effectively cool the same. To insure this passage of the water to the bottles, the platforms may be embossed to include upwardly extending portions which will serve to prevent the collection of water thereon and to insure the passage of the water from the platforms to the bottles so that it may flow thereover. In use the sides of milk bottle crates are sometimes crushed and it is therefore advantageous to provide a reenforcement along the sides. Moreover, the anchorage for the supporting rails may give way and there will be a tendency for these rails to fall away from the crate. To prevent these conditions, I provide the reenforcing strip 40 of substantially T-shaped cross section which may be rolled to embody a deep stem and a flat rounded edge head or table. The stem portion 41 of the strip is extended upwardly and openings are provided therein close to the head through which the supporting rails 26 may be passed to be supported thereby. The ends of the stem portion 41 are cut away to provide foot portions 42 which are extended into slots 43 in the walls of the crate to support the reenforcing strip. The abutments provided by the cut away ends of the stem portion 41 are arranged inwardly of the side walls and serve to provide a reenforcement therefor. Relatively wide brackets 44 are disposed medially on the side walls and the abutments provided by cutting away the end portions of the stem 41 engage these brackets and therefore the reenforce provided by these abutments may be spread over a relatively wide area. However, these brackets 44 have a more important function in that they aid in supporting the reenforcing strip for the foot portions 42 are extended through openings in the brackets and rest on the lower edges of these openings to be supported thereby. To ensure connection of the brackets 44 to the side walls and therefore, to cause the reenforcing strip to be supported from the side walls, lugs 45 are provided at the upper ends of the brackets which are extended below the adjacent rails 33 to be retained in position by the retaining

means for the rails. Furthermore, tongues 46 are struck from the brackets which are rested on the ends of adjacent rails 27 to be retained in position by the securing devices for these rails, the rails extending through openings in the brackets formed by striking the tongues therefrom. Thus an effective reenforce is provided for the side walls which likewise provides a support for the reenforce for the supporting rails and as these brackets are fixed to the side walls, it is manifest that the reenforce for the supporting rails is carried by the side walls.

In Fig. 10 a modified form of construction of the anchorage for the supporting rails is shown and herein a flat strip 49 is folded upon itself to provide a ledge 50 to which the ends of the supporting rails 26 may be secured, as for example, in the manner previously described. The strip 49 is retained in position by rivets 51.

In Figs. 6 and 7 I have shown a modified form of construction and herein both the side and end walls are formed of three boards, the boards in the end walls being respectively indicated by 52, 53 and 54, while the boards in the side walls are respectively indicated by 55, 56 and 57. An angle plate 58 has one section thereof arranged along the ends of the boards 52, 53 and 54 and when nails or other suitable securing devices are passed through the marginal ends of the boards 55, 56 and 57 into the boards of the end wall this angle plate is anchored in position. Further anchorage may be provided by extending securing devices through the other section thereof into the boards of the end walls. At the lower ends of the walls, shoe strips 59 are provided and a plate 60 may be arranged between the upper edge of corresponding of these strips and the lower edges of the board 54 to be retained in position by the securing devices 61 which secure the strips 59 in position. This plate 60 may provide a ledge 62 to which the ends of the supporting rails 26 may be secured as, for example, in the manner previously described. If desired, a right angularly extending marginal portion may be provided on the plate 60 to prevent inward movement thereof and this may be done by arranging this marginal portion on the outer face of the board 54. A corner protecting member 63 may be extended around the corner and the rivets 64 or other suitable securing devices may be extended through the strip 59 and the member 63 and a portion of the plate 58, as illustrated in Fig. 7, to not only retain the corner protecting member 63 in position but also to connect the strip 59 to the member 58 which will manifestly prevent displacement of the strip 59. If desired, a plate similar to the plate 60 might be used in the first described construction of the crate as an anchorage for the supporting rails

26, it being within the purview of my invention to provide any suitable device which will embody a ledge to which the supporting rails may be secured.

5 In the foregoing description I have set forth a structure for milk bottle crates and the like wherein a secure anchorage is provided in a simple and inexpensive manner for the supporting rails which shall be rigidly
10 retained in position. Moreover, dividing rails are provided for the bottles which serve to neatly retain them in the crate to prevent unwarranted movement thereof and to hold the bottles against contact with each other.
15 The uppermost of these dividing rails are of sufficient width to substantially enclose the area about the bottles whereby a refrigerating medium may be retained thereon around the bottles to effectively cool the same. Fur-
20 thermore, these dividing rails are neatly supported in position and may be arranged in a unit which may be installed in the crate in a manner which will greatly facilitate the construction thereof. In addition the side walls
25 of the crate are effectively reenforced and the supporting rails are retained in position by portions of this reinforce to prevent unwarranted displacement thereof.

30 While I have illustrated and described a selected embodiment of my invention it is to be understood that this is capable of variation and modification and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such
35 changes and alterations as fall within the scope of the following claims.

I claim:

1. In a milk bottle crate including side and end walls, protecting strips embracing the
40 lower edges of said end walls, means providing ledges on the inner sides of said end walls in juxtaposition to the lower edges thereof, supporting members extending between said end walls and having the ends thereof connected to said ledges, and means securing said
45 strips and the ledges to said end walls.

2. In a milk bottle crate including side and end wall members, strips at the lower edges of opposite of said members and bent to provide
50 portions embracing said lower edges and the adjacent portions of the sides of said opposite members, means securing said strips to said opposite members, inwardly extending ledges on the portions of said strips engaging the inner
55 sides of said opposite members, and supporting members extending between said opposite members and having the ends thereof secured to said ledges.

3. In a milk bottle crate including side and end wall members, strips at the lower edges of opposite of said members and including
60 portions embracing the lower edges and adjacent portions of the sides of the opposite members, means securing said strips to said opposite members, the portions of said strips

engaging the inner sides of said opposite members being folded upon themselves to provide inwardly extending ledges, and supporting members extending between said opposite members and having the ends thereof secured to said ledges.

4. In a milk bottle crate including side and end wall members, strips at the lower edges of opposite of said members and including
75 portions embracing the lower edges and adjacent portions of the sides of the opposite members, plates including portions mounted in said end walls adjacent said strips and including other portions providing inwardly projecting ledges, supporting members extending between said opposite members and having the ends thereof secured to said ledges, and means securing said strips and said plates to said end walls.

5. In a crate which has side and end walls and dividing rails extending transversely and longitudinally thereof, the combination therewith of supporting members at the bottom of the crate and extending between the end walls, means connecting the ends of the supporting members to the end walls, a reinforcing strip for said supporting members and positioned substantially midway between said end walls, and means connected to the side walls and to certain of the dividing rails
85 and supporting said reinforcing strip.

6. In a crate which has side and end walls and dividing rails extending transversely and longitudinally thereof, the combination therewith of supporting members at the bottom of the crate and extending between the end walls, means connecting the ends of the supporting members to the end walls, reinforcing plates connected to the side walls and certain of the dividing rails and positioned
100 substantially midway between the end walls and having openings therein, and a reinforcing member for the supporting members and having the ends thereof extended through the openings in said reinforcing plates.

7. In a crate which has side and end walls, supporting members at the bottom of the crate and extending between the end walls, means connecting the ends of the supporting members to the end walls, reinforcing plates
110 connected to the side walls and positioned substantially midway between the end walls and having openings therein, and a reinforcing member for the supporting members and having the ends thereof extended through the openings in said reinforcing plates.

8. In a crate which has side and end walls and dividing rails extending transversely and longitudinally thereof, the combination
115 therewith of reinforcing plates connected to the side walls and certain of the dividing rails and positioned substantially midway between the end walls and having openings therein, said side walls having openings
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therein in alignment with the openings in said reinforcing plates, supporting members at the bottom of the crate and extending between the end walls, means connecting the ends of the supporting members to the end walls, and a reinforcing strip for the supporting members and having the ends thereof extended through the openings in said reinforcing plates and side walls.

and side walls and the ends of the stem engaging and reinforcing said plates, supporting members extended through the openings in the stem of said reinforcing strip, means connected at the lower edges of said end walls and providing ledges, and means connecting the ends of said supporting members to said ledges whereby said supporting members are held in position by said end walls and said reinforcing strip.

ROBERT STODDARD.

9. In a crate which has side and end walls and dividing rails extending transversely and longitudinally thereof, the combination therewith of reinforcing plates connected to the side walls and certain of the dividing rails and positioned substantially midway between the end walls and having openings therein, said side walls having openings therein in alignment with the openings in said reinforcing plates, supporting members at the bottom of the crate and extending between the end walls, means connecting the ends of the supporting members to the end walls, and a substantially T-shaped reinforcing strip having openings in the stem thereof through which the supporting members are extended, said reinforcing strip having its stem cut away at the ends thereof and having said ends extended through said openings in said reinforcing plates and side walls whereby the ends of the stem thereof engage and reinforce said supporting plates.

10. In a crate which has side and end walls and dividing rails extending longitudinally thereof, the combination therewith of reinforcing plates connected to the side walls and certain of the dividing rails and positioned substantially midway between the end walls and having openings therein, said side walls having openings therein in alignment with the openings in said reinforcing plates, a reinforcing strip having the ends thereof extending through the openings in said reinforcing plates and said side walls, supporting members having the medial portions thereof connected to said reinforcing strip, means connected at the lower edges of said end walls and providing ledges, and means connecting the ends of said supporting members to said ledges whereby said supporting members are held in position by said end walls and said reinforcing strip.

11. In a crate which has side and end walls and dividing rails extending longitudinally thereof, the combination therewith of reinforcing plates connected to the side walls and certain of the dividing rails and positioned substantially midway between the end walls and having openings therein, said side walls having openings therein in alignment with the openings in said reinforcing plates, a substantially T-shaped reinforcing strip including openings in the stem thereof and having the ends of its stem cut away, the ends of said reinforcing strip being extended through openings in said reinforcing plates

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