Sept. 13, 1960 H. REHRIG 2,952,382

MILK CRATE

Filed Aug. 6, 1959

2 Sheets-Sheet 1

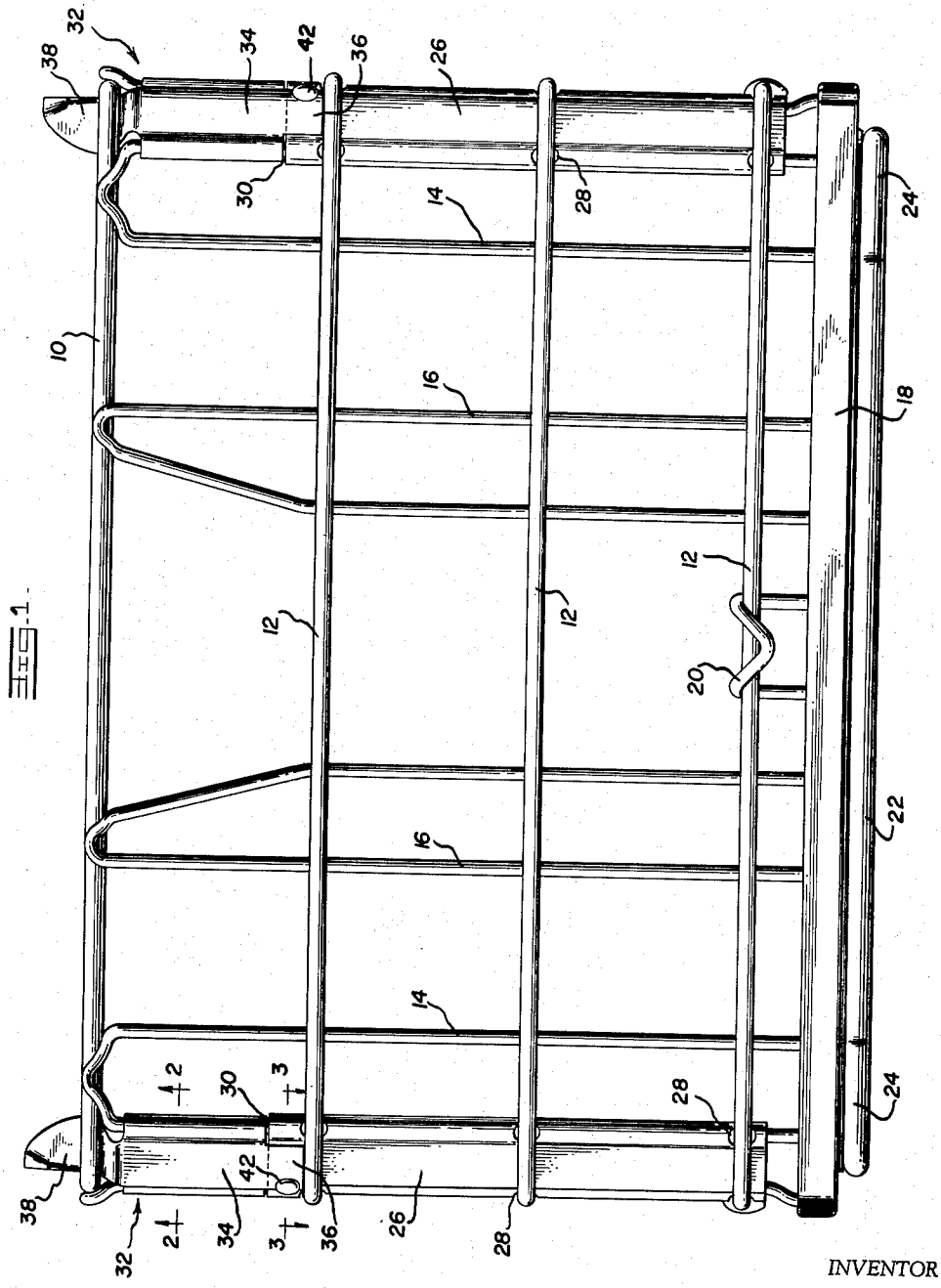



FIG. 1.

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Fig. 2.

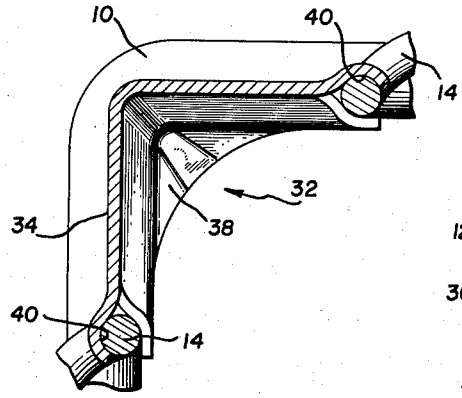



Fig. 3.

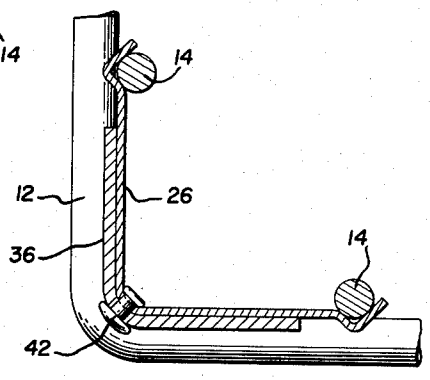



Fig. 4.

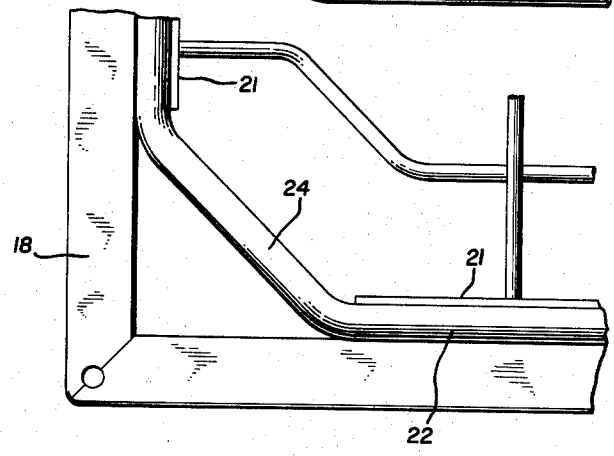
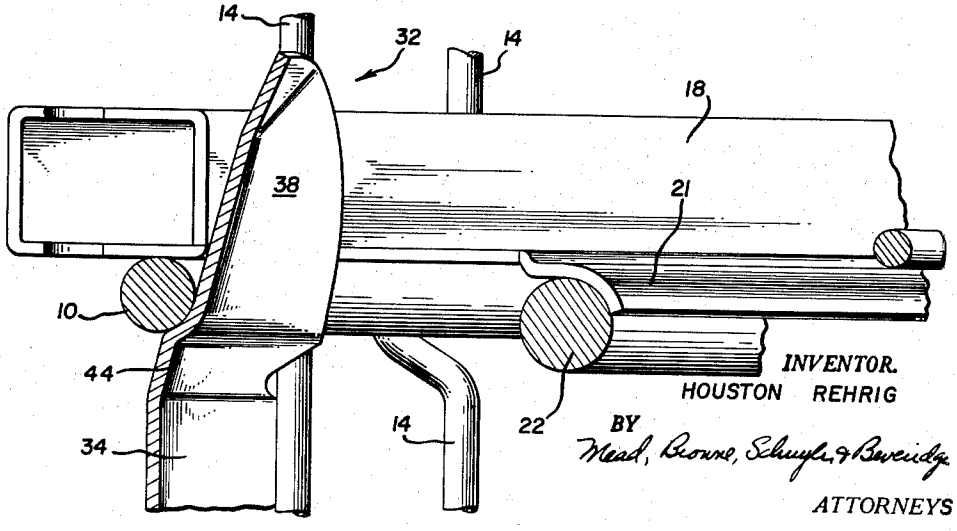



Fig. 5.




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# MILK CRATE

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6 Claims. (Cl. 220—19)

This invention relates to crates of the type utilized in the handling and delivering of milk, and more particularly to a wire sided crate of this type having an improved stacking ear.

The invention is particularly adapted to wire sided crates used to handle milk containers of glass, fiber or other materials. It is standard practice in the industry to construct crates for handling glass milk bottles with stacking ears projecting upwardly from each corner of the crate to be received within recesses or within internal corners of bottom frame members of similar crates rather than stacking rails on the bottom of the crate.

Recent improvements in machinery for automatically loading filled bottles into crates for delivery are such that machinery of this type may soon become economically practical for the larger scale milk producers. Since crates constructed with stacking ears cannot be filled by automatic machinery, the producer who has a large stock of crates constructed with stacking ears must either replace or modify the crates. Most crates constructed with stacking ears have the ears rigidly and securely attached to the crate to withstand the heavy abuse which the ears receive in normal usage.

It is an object of the invention to provide a crate for handling milk bottles or the like having independent stacking means at both the top and bottom of the crate.

It is another object of the invention to provide a crate for handling milk bottles which may be easily and economically converted from ear stacking to rail stacking.

It is a further object of the invention to provide a crate having a readily removable stacking ear which is rigidly secured in assembled relationship with the crate.

Still another object of the invention is to provide a crate having a stacking ear which is firmly and rigidly secured to the crate by a single fastening element.

The foregoing and other objects are achieved in a wire sided milk crate having a continuous rectangular wire top rail extending around the upper edge of the crate. The top rail is bent into a right angle at each corner of the crate and vertical wire side members are secured to the top rail to extend down from the top rail at locations equidistant from each corner of the crate. A sheet metal corner guard is mounted to extend laterally around each corner between the endmost vertical side members of each of the two adjacent sides. The upper end of the corner guard terminates some distance below the top rail.

A one piece sheet metal stacking ear extends vertically from the top of the corner guard to the side rail and extends laterally from the corner of the crate to lie against the outer sides of the vertical wire frame members adjacent the corner. Vertically extending grooves in the stacking ear are formed to receive the respective wire side members.

A tab projects downwardly from the bottom of the stacking ear to lie against the outer side of the corner guard and a single rivet secures the tab to the corner guard. A stacking ear portion is offset inwardly from the main body portion of the stacking ear to project upwardly in engagement with the inner side of the top rail at the corner and upwardly above the top rail to be received within the bottom of a similar crate. An inwardly projecting shoulder on the stacking ear lies against the bottom of the top rail.



The crate includes a continuous wire stacking rail extending around its bottom and projected below the general plane of the bottom of the crate. The stacking rail extends along each side of the crate but is bent diagonally across each corner to define a triangular recess at each of the bottom corners of the crate to receive the stacking ear of a similar crate.

Other objects and features of the invention will become apparent by reference to the following specification and to the drawings.

In the drawings:

Fig. 1 is a side elevational view of a crate embodying the present invention;

Fig. 2 is a detail cross-sectional view of the crate of Fig. 1 taken on line 2—2 of Fig. 1;

Fig. 3 is a detail cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a detail plan view, partially in section taken approximately on line 4—4 of Fig. 1; and

Fig. 5 is a detail cross-sectional view showing the respective top and bottom corners of the two crates of the type shown in Fig. 1 in stacked relationship.

In Fig. 1, the invention is shown as employed with a wire sided milk crate having a continuous wire top rail **10** extending around and defining the top edge of the crate. Although no complete plan view of top rail **10** is shown, it defines the periphery of a horizontal rectangle with slightly rounded corners as best seen in Fig. 3. A suitable number of wire side rails **12** of the same shape are interconnected to top rail **10** by vertical wire side members such as **14** and **16**, members **10**, **12**, **14** and **16** being welded to each other at each intersection. A bottom rail assembly **18**, formed of sheet material bent into a generally tubular configuration, is secured to side frame members **14** and **16** as by clips such as **20** (Fig. 1), this structure being described in more detail in my copending application Serial No. 762,333, filed September 22, 1958 of which this application is a continuation-in-part. A projecting lip **20** on each bottom rail forms a support to which a wire stacking rail **22** may be secured, as by welding.

As best shown in Fig. 4, stacking rail **22** does not extend into each corner of the crate but is bent to cut diagonally across each corner as at **24** to define a triangular opening at each corner of the crate between the right angled juncture of adjacent bottom rails **18** and diagonal portion **24** which will receive the stacking ear of a similar crate.

At each corner of the crate, a sheet metal corner guard **26** extends laterally from the corner along the adjacent crate sides to lie against the outer sides of vertical rods **14**. Openings such as **28** in the sheet metal corner guard permit the guard to be rigidly secured into position by welding side frame members **12** directly to vertical frame members **14** within openings **28**.

As best seen in Fig. 1, corner guards **26** do not extend the entire vertical length of the corner but terminate at an upper edge **30** spaced below top rail **10** and preferably located slightly above the uppermost side rail **12**.

At each corner of the crate, a sheet metal stacking ear designated generally **32** is located.

Each ear **32** is formed from a single piece of sheet metal and for purposes of description may be said to consist of three sections: a main body section **34** lying vertically between top rail **10** and upper edge **30** of corner guard **26**; a downwardly projecting tab portion **36** complementary in shape to and overlying the outer

side of the upper portion of corner guard 26; and a stacking ear portion 38 projecting upwardly past the inner side of top rail 10.

As best seen in Fig. 2, main body portion 34 of the stacking ear includes two sides bent at right angles to each other and extending laterally from the crate corner in general vertical alignment with top rail 10. Along the vertical side edges of main body portion 34, vertically extending grooves 40 are formed complementary in shape to and adapted to overlie and receive the endmost vertical frame members 14 of the respective adjacent sides upon which the stacking ear is mounted. Tab 36 projects downwardly from the lower edge of main body portion 34 to vertically overlap the upper portion of corner guard 26 at the outer side surface of the corner guard. A single rivet 42 passes through the overlapping portions of tab 36 and corner guard 26 to secure the stacking ear to the corner guard. Preferably, as best shown in Fig. 1, tab 36 overlaps corner guard 26 to an extent such that the lower edge of stacking ear 32 may rest upon the upper surface of the uppermost side rail 12 of the crate.

As best seen in Fig. 5, an inwardly projecting shoulder 44 is formed along the upper edge of main body portion 34 to engage the lower side of the top rail 10. Stacking ear portion 38 is offset inwardly from main body portion 34 and projects upwardly from shoulder 44 to lie against the inner side of top rail 10 and to project upwardly above the top rail 10 from the inner side of the rail.

From the foregoing description it is believed apparent that forces urging stacking ear 32 inwardly of the crate are resisted by the engagement of vertical end rods 14 against the inner side of the stacking ear and the vertical overlapping engagement between tab 36 and the upper portion of corner guard 26. Forces tending to drive the stacking ear outwardly of the crate are resisted by rivet 42 and the engagement of stacking ear portion 38 with the inner side of top rail 10.

The stacking ear is assembled upon the crate by inserting stacking ear portion 38 into the opening bounded by the endmost vertical wire rods 14, top rail 10 and the uppermost side rail 12 from the outer side of the crate. Stacking ear 32 is then moved upwardly and its lower portion is moved toward the upper portion of the adjacent corner guard 26. When the stacking ear is located in the position shown in Fig. 1, rivet 42 is set to lock the stacking ear in position. To remove the ear, it is necessary only to punch out rivet 42 and the stacking ear may be removed by manipulating it in the reverse order of assembly.

While I have described but one illustrative embodiment of my invention, it will be apparent to those skilled in the art that the disclosed embodiment may be modified. Therefore, the foregoing description is to be considered exemplary rather than limiting, and the true scope of my invention is that defined in the following claims.

I claim:

1. In a crate having a vertical side wall and a vertical end wall extending laterally from each other at a corner of the crate, a wire top rail extending horizontally around said corner and along the respective upper edges of said walls to interconnect said side wall and said end wall, each of said walls having a vertical wire end rod secured to and extending downwardly from said top rail at respective locations spaced from said corner, and a corner guard extending from said corner laterally along each wall to the respective end rods and having an upper edge spaced below said top rail; a stacking ear of sheet material extending from said corner laterally along each of said walls between said corner guard and said top rail to lie against the outer side of each of said end rods, means securing the lower end of said stacking ear to the upper end of said corner guard, and an integral ear portion engaged with the inner side of said top rail between said end rods and projecting upwardly above said top rail.

2. In a crate having a vertical side wall and a vertical end wall extending laterally from each other at a corner of the crate, a wire top rail extending horizontally around said corner and along the respective upper edges of said walls to interconnect said side wall and said end wall, each of said walls having a vertical wire end rod secured to and extending downwardly from said top rail at respective locations spaced from said corner, and a corner guard extending from said corner laterally along each wall to the respective end rods and having an upper edge spaced below said top rail; a stacking ear of sheet material extending from said corner laterally along each of said walls between said corner guard and said top rail to lie against the outer side of each of said end rods, an integral tab projecting downwardly from the lower end of said stacking ear complementary in shape to and lying against the outer side of said corner guard adjacent the upper end thereof, a rivet passing through said tab and the upper end of said corner guard to secure said stacking ear to said corner guard, and an integral ear portion engaged with the inner side of said top rail between said end rods and projecting upwardly above said top rail.

3. In a crate having a vertical side wall and a vertical end wall extending laterally from each other at a corner of the crate, a wire top rail extending horizontally around said corner and along the respective upper edges of said walls to interconnect said side wall and said end wall, each of said walls having a vertical wire end rod secured to and extending downwardly from said top rail at respective locations spaced from said corner, and a corner guard extending from said corner laterally along each wall to the respective end rods and having an upper edge spaced below said top rail; a stacking ear of sheet material extending from said corner laterally along each of said walls between said corner guard and said top rail to opposite side edges located respectively beyond said end rods from said corner, said ear having an inwardly opening groove extending vertically along each of said side edges complementary in shape to and adapted to receive the outer sides of said end rods therein, means securing the lower end of said stacking ear to the upper end of said corner guard, and an integral ear portion engaged with the inner side of said top rail between said end rods and projecting upwardly above said top rail.

4. In a crate having a vertical side wall and a vertical end wall extending laterally from each other at a corner of the crate, a wire top rail extending horizontally around said corner and along the respective upper edges of said walls to interconnect said side wall and said end wall, each of said walls having a vertical wire end rod secured to and extending downwardly from said top rail at respective locations spaced from said corner, and a corner guard extending from said corner laterally along each wall to the respective end rods and having an upper edge spaced below said top rail; a stacking ear of sheet material having a main body portion extending laterally from said corner along each of said walls between said top rail and said corner guard to lie against the outer side of each of said end rods, said body portion of said stacking ear being located in vertical alignment with said top rail, a tab projecting downwardly from said body portion to lie against the outer side of said corner guard, means securing said tab to said corner guard adjacent the upper end thereof, and an integral ear portion offset inwardly of said crate from said body portion engaged with the inner side of said top rail between said end rods and projecting upwardly above said top rail.

5. In a crate having a vertical side wall and a vertical end wall extending laterally from each other at a corner of the crate, a wire top rail extending horizontally around said corner and along the respective upper edges of said walls, a wire side rail extending horizontally around said

corner and along said walls at a location spaced below said top rail, each of said walls having a vertical wire end rod secured to said top rail and said side rail at respective locations spaced from said corner, and a corner guard extending downwardly from an upper edge located above said side rail and laterally around said corner along the inner side of said side rail to the respective end rods; a stacking ear comprising a main body portion extending laterally around said corner between said top rail and said corner guard to lie against the outer side of each of said end rods, said body portion of said stacking ear being located in vertical alignment with said top rail, a tab projecting downwardly from said body portion to a lower edge resting upon the upper side of said side rail, said tab lying in face to face engagement with the outer surface of said corner guard, means securing said tab to said corner guard, an inwardly projecting shoulder on the upper end of said main body portion engaged with the



lower side of said top rail, and an integral ear portion projecting upwardly from said shoulder engaged with the inner side of said top rail between said end rods and projecting upwardly above said top rail.

6. In a crate as defined in claim 5, means on said main body portion of said stacking ear defining vertically extending inwardly opening grooves on said main body portion complementary in shape to and adapted to receive the outer sides of said end rods therein.

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