June 27, 1950 E. R. ERICKSON 2,512,855

MILK BOTTLE CARRYING CASE

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Fig. 1.

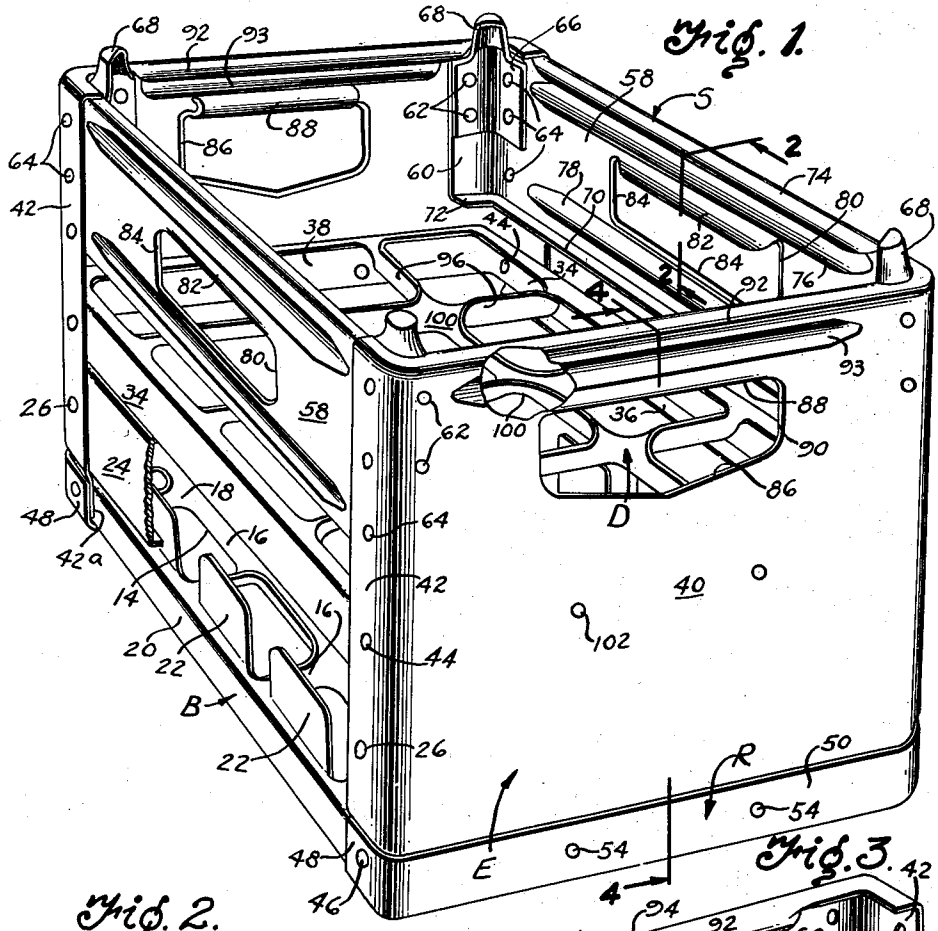


Fig. 2.

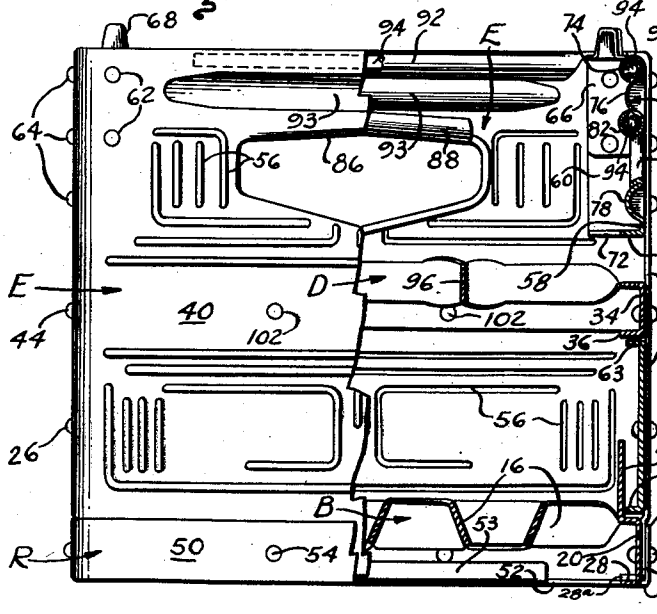
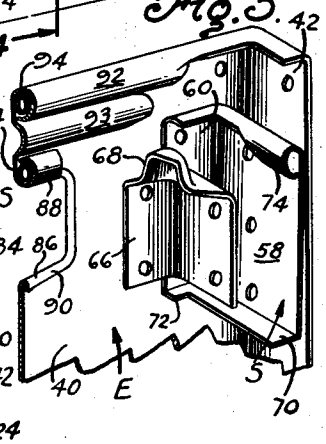


Fig. 3.



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Fig. 4.

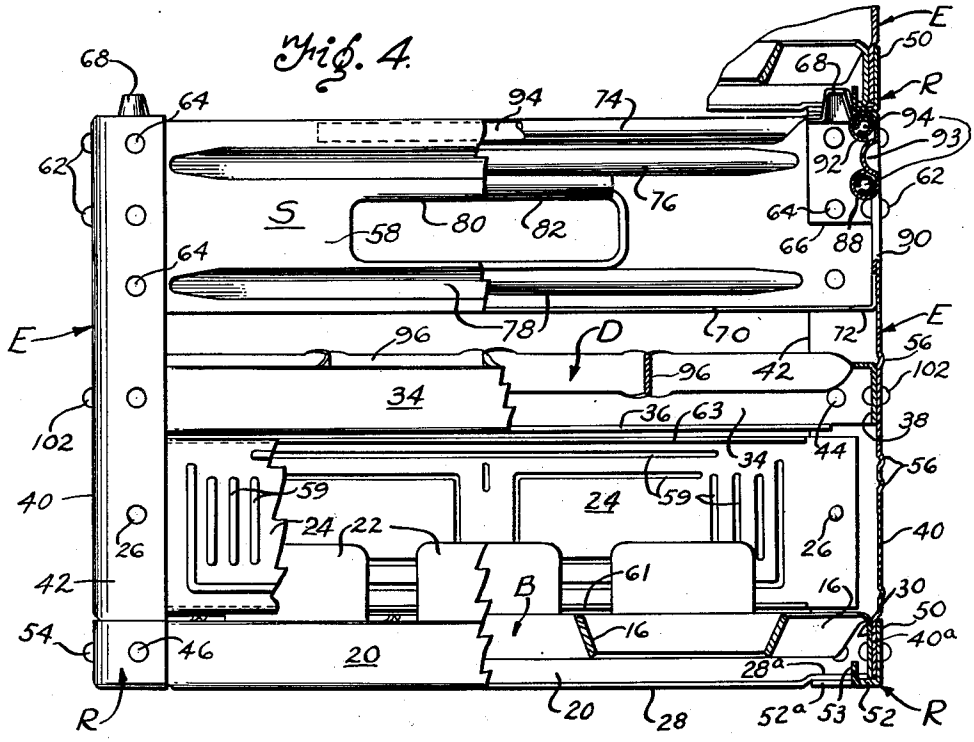


Fig. 5.

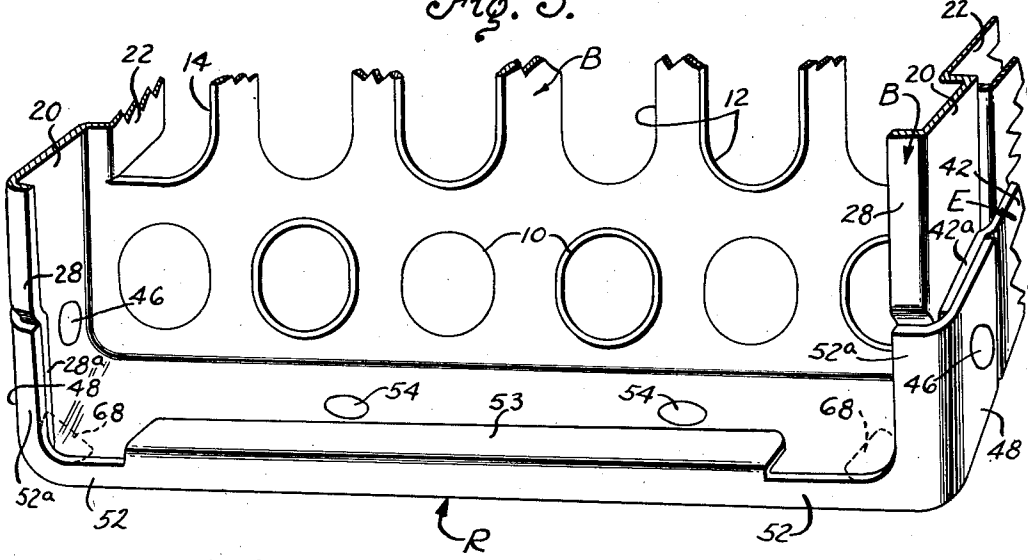
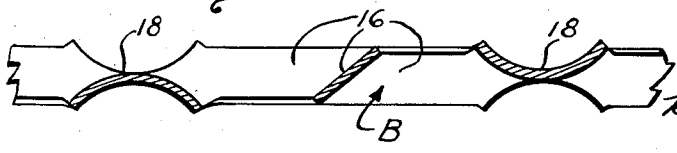


Fig. 9.



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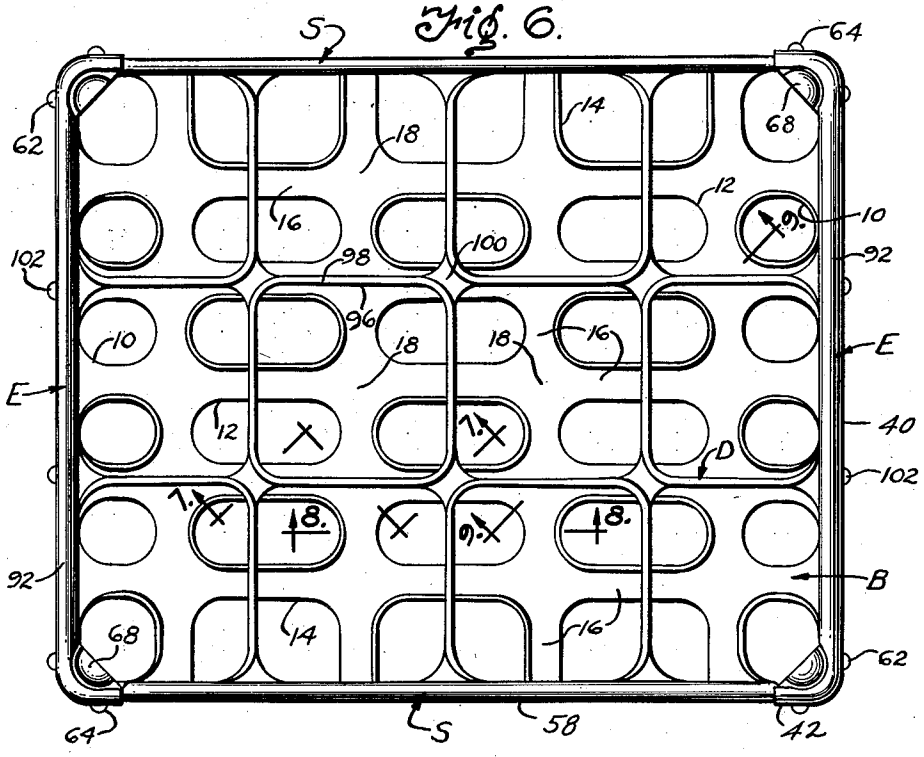
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MILK BOTTLE CARRYING CASE

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Fig. 6.



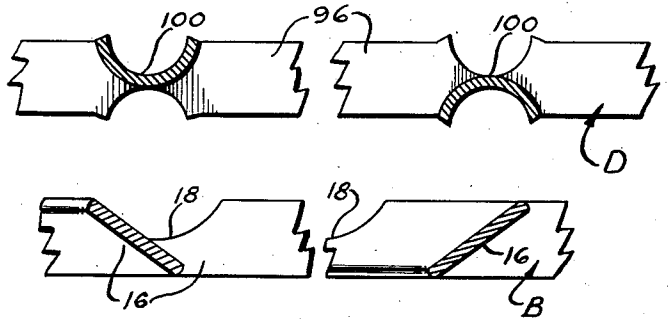


Fig. 7.

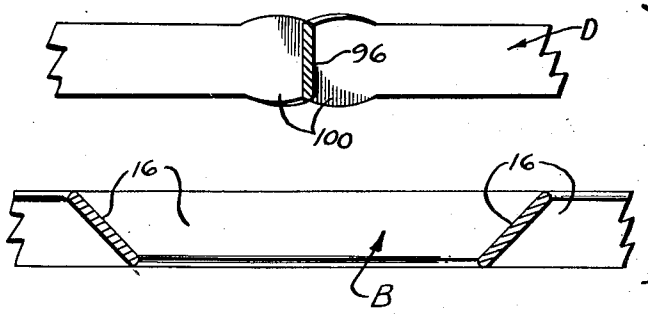


Fig. 8.

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UNITED STATES PATENT OFFICE

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MILK BOTTLE CARRYING CASE

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Application December 13, 1946, Serial No. 716,122

6 Claims. (Cl. 220—21)

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My present invention relates to a bottle carrying case formed of light sheet metal, preferably aluminum or an alloy thereof.

One object of the invention is to provide a carrying case which is rugged in spite of its lightness, and which will stand much abuse and rough handling, and yet will adequately protect the bottles carried thereby against breakage.

Another object is to provide a milk bottle carrying case, the elements of which may be quickly formed in suitable dies and which may then be assembled with relation to each other in a minimum of time whereby the resulting bottle case is inexpensive from a manufacturing standpoint.

Still another object is to provide a milk bottle carrying case having certain wall elements, such as a bottom and a divider, formed of initially flat sheets of metal provided with openings, the connecting strips between the openings being turned edgewise to vertical or semi-vertical positions in relation to the original plane of the sheet, for reinforcing purposes, the wall elements being thereby inexpensively formed in a press by punching and forming operations, and marginal peripheries of the sheet being further formed to provide vertical flanges in some instances and channel-shaped elements in other instances for further reinforcing the wall elements and for serving as a connecting frame in relation to side and end wall elements of the case.

A further object is to provide a practical divider type of wall element having a minimum of space between adjacent bottles or the like due to sheet metal divider elements turned vertically on edge so that they present a spacing of only the sheet metal thickness between adjacent bottles, thereby minimizing the over-all width and length of a milk bottle carrying case provided with my type of divider.

Still a further object is to provide a milk bottle carrying case in which wall elements such as a bottom and a divider are connected by end wall elements that serve also as corner posts, and rail members along the sides and spanning the distance between the end walls; the bottom, the divider and the rail members being connected with the end walls for providing a rigid structure wherein the various elements thereof mutually brace and reinforce each other against subsequent distortion after fabrication and during use of the case for its intended purpose.

An additional object is to provide the elements of the case so shaped that at points requiring additional reinforcement and/or where there is excessive wear, two or three thicknesses of metal

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is had for reinforcing and wear resistant purposes, the design being such that a plurality of the cases when loaded may be readily stacked in a truck, warehouse, or the like, in spite of the case being comparatively light in relation to the usual wooden type of case and thereby readily handled when stacking even to the ceiling as found necessary in many dairies between milk wagon runs.

Another additional object is to provide the end walls formed with openings so shaped that convenient handles for carrying the case result, the upper edges of the openings being rolled to provide a relatively wide handle that doesn't cut into the hand under the weight of filled bottles in the case.

A further additional object is to provide rolled edges around the tops of the rail members and end walls which reinforce these edges, the rails being further reinforced by tubes inserted therein, which tubes may be formed from the metal cut from the partition and bottom wall member and which is otherwise wasted.

Still a further additional object is to provide upstanding flanges on the bottom wall member to prevent small sized bottles from falling out of the case at this point, as when bottles smaller than those for which the case is designed are placed in the case.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my case whereby the foregoing objects contemplated are attained as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view of a milk bottle carrying case embodying my present invention.

Figure 2 is an end elevation thereof partially on the vertical section line 2—2 of Figure 1.

Figure 3 is an exploded perspective view showing the elements of the case adjacent an upper corner thereof.

Figure 4 is a side elevation partially on the vertical section line 4—4 of Figure 1.

Figure 5 is a bottom perspective view showing the construction of one end of the case.

Figure 6 is a plan view of my carrying case.

Figure 7 is an enlarged sectional view on the line 7—7 of Figure 6.

Figure 8 is an enlarged sectional view on the line 8—8 of Figure 6, and

Figure 9 is an enlarged sectional view on the line 9—9 of Figure 6, showing only the bottom member of the case.

On the accompanying drawings, I have used

the reference character B to indicate a bottom member, D a divider member, and E an end wall member. In addition to these members a pair of side rails S are provided, which four members (including 2 end members E and two of the side members S) constitute the main framework of milk bottle carrying case.

Each bottom wall member B comprises a sheet of metal with three types of openings formed therein, which are as follows:

Openings 10 are substantially round, openings 12 are substantially oblong, and openings 14 are substantially square. These openings are formed somewhat smaller than shown in Figure 6 and the connecting strips between them indicated at 16 are alternately tipped in opposite directions as shown in Figure 8. Where the strips 16 cross each other (indicated at 18) the cross-section appears as in Figure 9 with the cross elements 18 alternately dished upwardly and downwardly when viewed in the direction of the arrows for the section line 9 and which have the appearance of being dished the opposite way when viewed on a section line at right angles to the arrows for the section line 9—9. Thus a flat sheet of metal is perforated and the elements 16 and 18 formed to result in a wall element of considerable strength due to the various angles and curvatures assumed by the connecting strips 16, and the cross elements 18.

The bottom member B along its side edges is formed with downturned vertical flanges 20 (see Figure 2) and upstanding vertical fingers 22 formed by the material cut out of the openings 14. The fingers 22 serve as guard members to prevent small bottles from falling out of the case when they are placed therein. The case is designed for large bottles such as quart size and sometimes the grocer or dairyman puts smaller bottles in the case. The smallest of these can fall out of the side of the case if the fingers 22 are not provided.

In some cases the milk bottle carrying case is filled with cracked ice above the divided D and around the necks of the bottles. To prevent the ice from melting rapidly it is desirable that circulation below the divider be prevented. This may be by the use of filler plates 24 having lower and upper reinforcing flanges 61 and 63 and reinforcing beads 59. Ordinarily the filler plates are not supplied with the case but may be provided if desired by the customer purchasing the case. In that event, they would be secured in position as by rivets 26.

In the event that a customer has cases that are not provided with the filler plates 24 and desires to add these plates to his cases the plates and rivets can be furnished and the plates readily installed and held in position by inserting the rivets and riveting them in position.

The vertical flanges 20 terminate in inturned horizontal flanges 28 or in other words the sides of the bottom member B are channel-shaped. The ends of the bottom member B are provided with vertical flanges 30 corresponding to the flanges 20 as shown in Figure 4. The elements 20, 28 and 30 thereby constitute a reinforcing frame for the bottom member B which frame is connected with the rest of the case as will be hereinafter disclosed.

The divider member D has downturned vertical flanges along its sides indicated at 34, and inturned horizontal flanges 36 (see Figure 2) corresponding to the flanges 20 and 28. The divider member also has downturned vertical flanges 38 at its ends corresponding to the flanges 30 (see Figure 4). The channels 34—36 and the flanges 38 thereby constitute a frame for the divider D.

Each end member E comprises a flat wall element 40 having its vertical edges bent to form flanges 42. The flanges 42 are riveted to the flanges 34 of the divider member D by rivets 44. The flanges 42 have offset lower ends 42*a* riveted to the flanges 20 by means of rivets 46. The offset at 42*a* is provided for permitting end flanges 48 of an end reinforcing member R to be also riveted by the rivets 46, with the outer faces of the flanges 48 flush with the outer faces of the flanges 42.

The reinforcing members R as shown in Figure 4 (lower right corner) have vertical flanges 50, horizontal flanges 52, and vertical flanges 53. The flanges 52 have right angle extensions 52*a* at the bottom edges of the flanges 48. The end wall 40 as shown in this figure is provided with an offset 40*a* at its lower end similar to the offset 42*a*, to permit flush relationship of the elements 40 and 50. Rivets 54 are provided for connecting the flanges 30, 40*a* and 50 together. The end wall elements 40 are provided with several reinforcing beads 56 for the purpose of strengthening the otherwise flat plate. The cross-section for these beads is shown in Figure 4, and the beads have been omitted from Figure 1 to avoid excessive detail.

Each side rail S comprises a wall member 58 having end flanges 60. The flanges 60 are riveted to the end wall member E at 62, and the walls 58 are riveted to the flanges 42 at 64. On four of the rivets 62 and 64 I also provide fittings 66 of angle shape in horizontal cross-section, and terminating in reduced upper ends 68 constituting indexing pegs for one case in relation to another case stacked thereon, as shown in Figure 4. The indexing pegs 68 fit within the corner of the next above case at the position shown by dotted lines in Figure 5. The flanges 28*a*, 32, 52 and 52*a* constitute sockets for the pegs of the next lower case.

The side rails S are reinforced by inturned flanges 70 on the walls 58 and inturned flanges 72 along the flanges 60. Further reinforcement is provided by rolling the upper edge of the wall 58 as shown at 74 in Figure 2, and by providing in-struck beads 76 and 78. Openings 80 are formed in the side members S and the upper edges of these openings are rolled as indicated at 82. The horizontal lower edges and the vertical end edges are folded over as at 84 so there is no sharp edge around the opening 80. The rolled edges 82 may when desired serve as hand holds, although usually the case is grasped at the ends.

For the purpose of providing handles for carrying the case, the end members E are provided with openings 86 rolled along their top edges as at 88 and folded in along the side edges as at 90 (see Figure 4). The top edges of the wall members 40 are also rolled as at 92 and a bead 93 is formed between the rolls 88 and 92 for reinforcing purposes.

The rolled edges 74, 82, 88 and 92 are additionally reinforced by tubes 94 inserted therein and the ends of the rolls are then closed so as to exclude dirt and vermin. The tubes 94 are made of material that is otherwise wasted, such material being that which is cut from the square openings 96 formed in the divider member D.

As to the construction of the divider member itself, it is somewhat similar to the bottom member except that it has the openings 96 all of the same square shape. These openings are some-

what smaller than shown in Figure 6 due to the connecting members 98 being turned edgewise after the openings are punched. The connecting members 98 thereby present a minimum of separation between milk bottles, such separation being represented by the thickness of the metal itself and therefore the overall dimension of the milk case can be minimized as distinguished from those types of dividers that require connecting members of considerable thickness.

The cross members 100 where the connecting members 98 cross each other are formed similar to the connecting members 18 already described. These are best shown in Figure 7.

A milk bottle carrying case formed in accordance with my invention is very rugged in construction yet light in weight. It has a number of advantages among which might be mentioned minimum size for its capacity, suitable for either square or round milk bottles, and a construction that is easy to handle and readily adapts itself to be packed with crushed ice.

Milk carrying cases are subject to much rough handling and wear. When stacked in a truck a hooked rod is usually used to pull a stack of the cases toward the back of the truck where they may be removed. Then the weight of the entire stack is imposed on one point of the bottom case, that point being where the hook engages the case. The four reinforcements for the sides and ends at 74, 82, 88 and 92 are sufficient to prevent these members from bending when a pull-out rod is used in this manner.

The flanges 28 and 52 constitute the lowermost surfaces of the case and take the wear caused by dragging the case across a truck bed or along a concrete floor of the dairy. Referring to Figure 4 it will be noted that the flange 28 has offset ends 28a to assume a position above the flange 52 so that the bottoms of the flanges 28 and 52 are flush with each other.

The cases are readily stacked with the indexing pegs 68 preventing any horizontal movement of one case in relation to the next above case. When the milk bottles are empty sometimes the storekeeper puts smaller bottles than the maximum size in the case and the bottom member B is so formed that it will prevent these bottles from falling on through due to the small size of the openings 10, 12 and 14 and the positioning of a cross-portion 18 at the center of each divider opening 96.

The various elements of the case can be readily fabricated in punching and forming presses and the assembly of the parts involves only a riveting operation. In addition to the rivets thus far mentioned, the end flanges 38 of the divider member D are riveted to the end walls 40 at 102. The connecting elements 98 of the divider member D merely separate the bottles from each other and take some side stresses due to the inertia and momentum of the bottles as the case is alternately moved and stopped in a horizontal plane. Accordingly, the elements 96 can be vertical to minimize space and will yet have sufficient strength (particularly in tension when an attempt is made to bend any of them) for the purpose of serving as dividers between the bottles.

Some changes may be made in the construction and arrangement of the parts of my bottle case without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalent which

may be reasonably included within their scope.

I claim as my invention:

1. A bottle carrying case of the character disclosed comprising a pair of wall elements having openings formed therein and the material thereof between said openings in elongated strip form and turned out of the planes of the wall elements, and wall members connecting said wall elements in vertically spaced relation, the turned-out strip material of one of said wall elements being at an angle relative to the vertical to serve as supports for bottles in the case, and the turned-out strip material of the other of said wall elements being vertical to serve as vertical divider strips between such bottles and the material of said one of said wall elements between all pairs of openings therein which are diagonal to each other being substantially centered with relation to the openings in said other wall member.

2. In a carrying case for bottles and the like, a bottom member, a divider member, a pair of rails, and a pair of end wall members connecting the foregoing members and rails together in spaced relation, at least one of said members comprising a single sheet of metal having rectangular openings formed therein with elongated metal strips only of the sheet between said openings twisted to positions out of the plane of the sheet and the material of the sheet positioned among any four of said openings being U-shape in diagonal cross section and inverted U-shape in cross section at right angles to said diagonal cross section.

3. In a carrying case or the like, horizontal wall elements spaced vertically from each other, vertical end walls connecting said horizontal walls together, rails connected with said end walls and spaced from said wall elements, one of said wall elements constituting a bottom member and the other a divider member, one of said wall elements being formed of sheet metal provided with openings and the sheet metal between said openings twisted out of the plane of the sheet, said one of said wall elements having crossing portions diagonally between said openings which are downcurved in diagonal cross section and upcurved in cross section at right angles thereto.

4. A carrying case for milk bottles comprising a bottom member, a divider member, rails, and end walls connecting the foregoing members and rails together in spaced relation, said bottom member comprising a sheet of metal having openings formed therein with strip-like portions of the metal of the sheet between said openings twisted out of plane of the sheet, said bottom member having pieces of the material cut from some of said openings bent upwardly along straight lines at the edges of the openings to form guards.

5. A wall member for a carrying case of the character disclosed comprising a horizontal sheet of metal having openings formed therein and the metal between the openings twisted out of the plane of the sheet to substantially vertical positions, the crossing portions of said metal between the openings being U-shape in diagonal cross-section and inverted U-shape in diagonal cross-section at right angles thereto.

6. A wall member of the character disclosed comprising a sheet of metal having rectangular openings formed therein, with elongated strips only of the sheet metal remaining between the openings and being twisted out of the plane of the sheet, the crossing portions of said strips at the corners only of said rectangular openings

being U-shape in cross section to permit single thicknesses of said strips to extend between said U-shaped corner portions and lie in planes substantially normal to the plane of said wall member.

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