Aug. 11, 1936. C. M. BUHL 2,050,980

BOTTLE CASE

Filed April 14, 1933 2 Sheets-Sheet 1

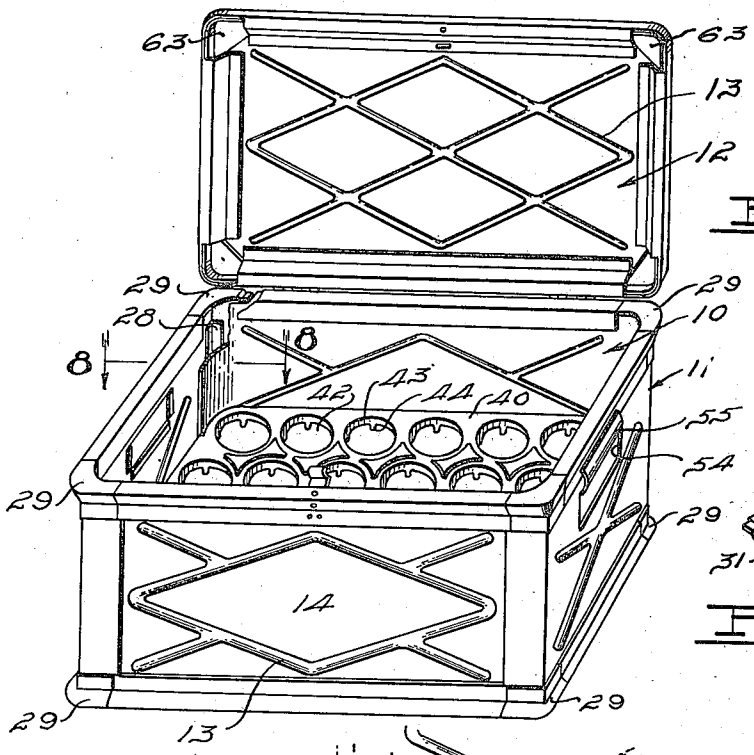


FIG. 1.

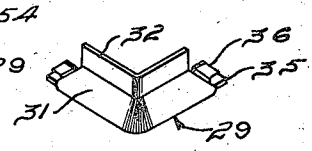


FIG. 3.

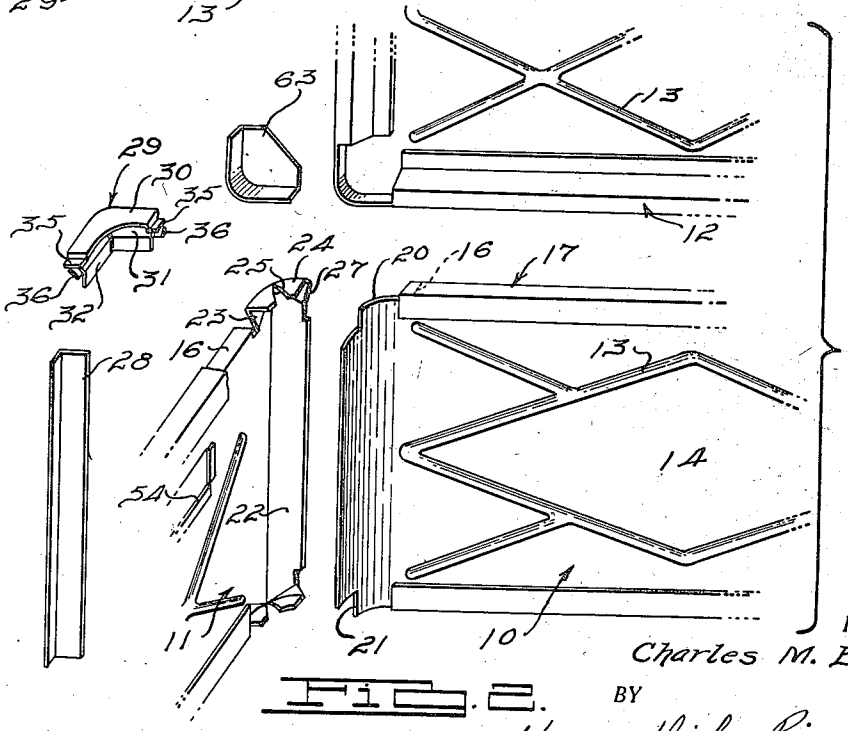


FIG. 2.

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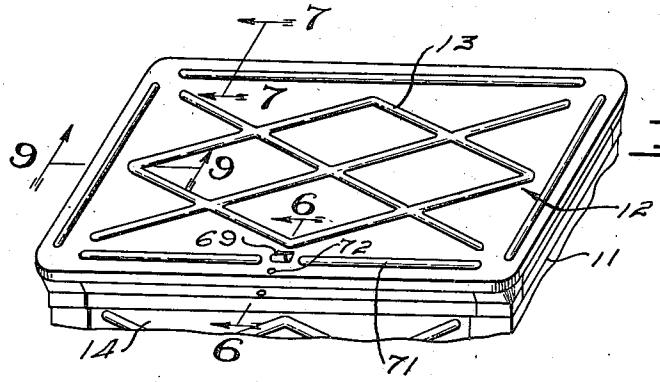


Fig. 4.

Fig. 5.

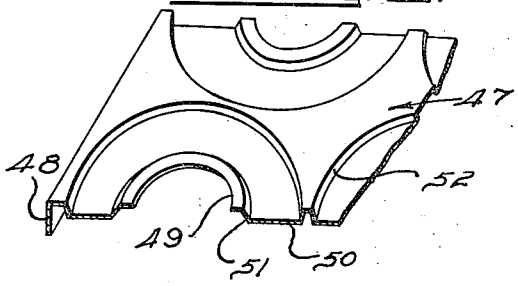
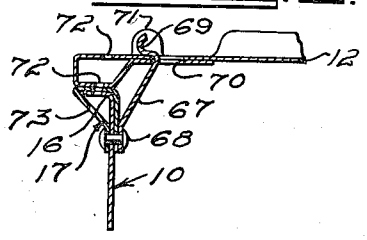


Fig. 6.



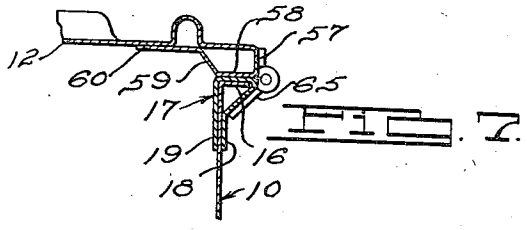


Fig. 7.

Fig. 9.

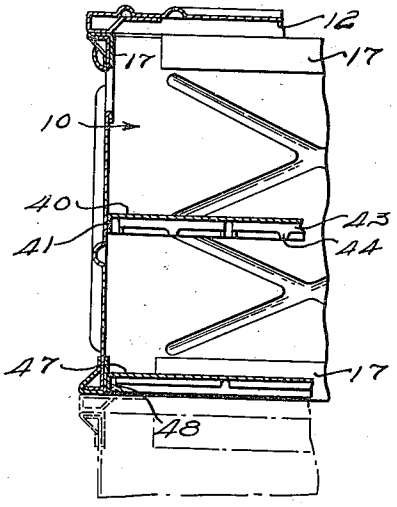
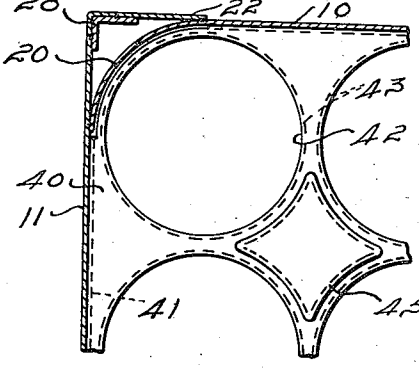


Fig. 8.



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BOTTLE CASE

Charles M. Buhl, Detroit, Mich.

Application April 14, 1933, Serial No. 666,078

8 Claims. (Cl. 220—73)

The invention relates to metal cases and it has particular relation to a metal case for receiving bottles of beverage or the like.

One object of the invention is to provide an improved sheet metal case, which is so designed that the side walls or panels of the case may be manufactured from sheet metal of very thin gauge, while still obtaining a very rigid and strong construction that is highly resistant to impact forces which may particularly be directed against edges and corners of the construction.

Another object of the invention is to provide a construction such as mentioned above which is of minimum weight to the end that the cost of manufacture may be reduced to a minimum and the case may be manipulated with less effort.

Another object of the invention is to provide a sheet metal case reinforced along the edges and corners thereof, which is substantially free from openings or interstices that would not only detract from the appearance of the case but also undesirably permit ingress of water, dirt or the like during its use.

Another object of the invention is to provide a method of manufacturing a sheet metal case which includes the provision of relatively thin gauge sheet metal and sheet metal of heavier gauge along the corners and edges, so that the finished construction will have a minimum weight while still obtaining a rigidity and resistance to impact forces that adds considerably to the durability of the case during use.

Other objects of the invention will become apparent from the following description, the drawings to which the description relates, and the claims hereinafter set forth.

For a better understanding of the invention reference may be had to the drawings, wherein:

Fig. 1 is a perspective view of a metal case constructed according to one form of the invention, with the lid of the case in a raised position.

Fig. 2 is an exploded view of a corner of the case.

Fig. 3 is a detail view illustrating one of the corner caps embodied in the case.

Fig. 4 is a fragmentary view of the case as shown by Fig. 1, with the lid in its closed position.

Fig. 5 is a fragmentary view of the bottle supporting plate in the case.

Fig. 6 is a cross-sectional view on a larger scale, taken substantially along the line 6—6 of Fig. 4.

Fig. 7 is a cross-sectional view on a larger scale, taken substantially along the line 7—7 of Fig. 4.

Fig. 8 is a cross-sectional view on a larger scale, taken substantially along the line 8—8 of Fig. 1.

Fig. 9 is a cross-sectional view on a larger scale, taken substantially along the line 9—9 of Fig. 4, and also illustrating in broken lines how one case may be stacked upon another.

Referring to Fig. 1, the side and end panels, or walls of the metal case shown, are indicated at 10 and 11 respectively, and the lid is indicated at 12. In constructing a case of this character, it is desirable that it be as light as possible so as to reduce manufacturing costs, to enable easier manipulation of the case and also reduce costs of transportation, and accordingly, it is advantageous to construct the panels and lid of thin gauge sheet metal. Such panels and lid then may be reinforced by forming pressed-out ribs 13 therein and it will be noted that these ribs are so arranged and directed that the metal is reinforced in practically every portion. The side panels 10 particularly have a diamond-shaped rib and this is desirable especially in the front panel so as to leave an area 14 of plane contour upon which a label may be pasted or other indicia impressed in the metal.

Now referring to Figs. 6 and 7 particularly, each of the panels 10 and 11 at its upper and lower edges has an outwardly bent reinforcing flange 16. Each of these edges then is reinforced by means of a tubular rail 17 having a triangularly tubular portion for receiving the edge of the panel and flange 16, and leg portions 18 and 19 that substantially contact with opposite surfaces of the panel. It will be appreciated that a rail may be assembled on each edge of the panels by longitudinally telescoping it over the edge portion and flange 16 until it is in its longitudinally desired position. When the parts are so assembled, the portions 18 and 19 may be secured by welds to the panel at longitudinally spaced points by a pinch or spot welding process. The tubular rails are constructed of sheet metal which is heavier in gauge than that of the sheet metal forming the panels and when the rails are so assembled with the panel edges, the rigidity of the latter is greatly increased and they become highly resistant to deformation by impact forces occurring during manipulation and use of the case. It will be appreciated in this connection that in the ordinary metal case, it is usually the edges of the case that become bent during use and that it is much more important if the case is to be durable and efficient in use, that the edges be rigid and maintain their shape and the shape of the case. It is, of course, apparent that

the flanges 16 on the panels also lend considerable rigidity to the edges.

Now referring to Fig. 2, it will be noted that the flange 16 at each edge of the panels terminates at opposite ends, inwardly of the ends of the rail 17 and that the ends of the rail terminate at some distance inwardly of the ends of the panel. The end portions of the side panels 10 projecting beyond the ends of the rails are arcuately bent as indicated at 20 and the upper, outer corners of the arcuate portions are notched as indicated at 21. Each end portion of the end panels 11, beyond the ends of the rails, remains in the plane of the panel and terminates in a right angular flange 22, thus defining a sharp corner. At the upper and lower ends of such corners on the end panels 11, the metal is flared outwardly as indicated at 23 and this flared portion is formed into arcuate shape relative to the side walls of the corner. Such flared portion terminates in inwardly directed lips 24 which are separated by a notch 25 so as to facilitate bending of the portions inwardly from the curved edge of the flared portions. Opposite edges of the flared portion and lips are notched as indicated at 27. After the parts are so formed on the end panels, an angle member 28 of heavier gauge metal is mounted within each corner for reinforcement purposes, and is spot or pinch welded to the side walls of the corner at vertically spaced points.

For reinforcing the upper and lower ends of each corner of the end panels 11 and hence for reinforcing the corner portions of the case as finally constructed, an arcuate metal cap 29 of heavier gauge sheet metal is provided which has an upper face portion 30 adapted to lap over the lips 24 and an arcuate, tapered flange portion 31 which is adapted to substantially contact with the outer side of the flared flange 23. Each cap also has an angular and depending flange 32 adapted to engage the sides of the corner below the flared flange 23. Each of the caps 29 also has a lip 35 at each side which is adapted to project under the upper horizontal portion of the rail 17 on the panels and it will be recalled that the flange 16 terminates inwardly of the rail, so as to provide a space for this purpose. Each cap also has an obliquely arranged lip 36 at each side and these lips are adapted to project into the tubular portions of the rails along the obliquely arranged sides thereof. One of the caps then is associated with each corner portion of each end panel 11, and in mounting the caps, the lips 35 and 36 at one side are disposed respectively under the upper face of rails 17 and projecting within the tubular portion of the rails along the tapered walls thereof. Then the flange portions 32 are pinch or spot welded to the sides of the corner portions of the panels and the face portions 29 of the caps are similarly welded to the lips 24. It may be noted in this connection that the flaring of the portions 27 of the panel corners provides a recess to facilitate the welding operation.

With each of the side panels 10 provided with the rails 17 and curved end portions 20, and with each end panel 11 provided with the rails 17, caps 29, and reinforcing member 28, the panels are ready for assembly. This is accomplished by moving the curved ends 20 of the side panels 10 into the corners of the end panels so as to dispose the curved ends 20 transversely and in substantially tangential relation to the angle parts of the corners. This relation of parts is best shown by Fig. 8. During this assembling operation, the other lips 35 on the corner caps 29 are disposed under the upper face part of the rails 17, and the lips 36, are disposed within the tubular part of the rails along the tapered wall thereof. It will be appreciated that during this assembly, the notches 21 will avoid interference between the curved ends 20 of the side panels, and the ends of the rails on the end panels. Similarly the notches 27 will accommodate the ends of the rails 17 on the side panels, while allowing sufficient space for the lips 35 and 36 to project into the rails. After such assembling operation, the curved end portions 20 of the side panels are joined by pinch or spot welding to the angular corner portions at the ends of the end panels at the points of tangential contact.

The resulting construction is free from undesirable interstices at the corners and this factor will prevent ingress of water, dirt or the like into the hollow corner portions as well as avoid an undesirable appearance. Moreover, the faces 30 of the corner caps constitute continuations of the horizontal rail faces, thus providing a smooth, relatively wide face along both the bottom and top edges of the case. Moreover, the edges and corners are very rigid and reinforced by the rails, caps and members 28, even though thin gauge metal is used in the panel bodies.

The finished case, as best shown by Fig. 9, has a central partition 40 provided with a marginal flange 41 which may be spot or pinch welded to the panels. As shown by Fig. 8, the flange is eliminated at the corners of the partition and such corner portions are rounded similarly to the portions 20 on the side panels 10, but preferably and as shown, such curved corner portions of the partition are spaced from the arcuate portions 20 of the panels not only to compensate for manufacturing tolerances but to provide an aperture through which water or the like may flow to the bottom of the case. The partition is provided with twenty-four openings 42 for receiving bottles, and around each opening, a flange 43 is turned downwardly for reinforcement purposes and also to provide a wider side support for the bottles. As best shown by Fig. 1, circumferentially spaced lips 44 project downwardly from the lower edge of the flange 43, and such lips constitute further guides for the bottles and at the same time avoid turning down a wide annular flange that might result in splitting of the metal. Between the openings 42 and as indicated particularly in Fig. 8 at 45, the partition is formed with upwardly directed pressed-out portions of diamond shape which reinforce the partition between the bottle openings.

The bottom of the container is indicated at 47 and similarly to the partition 40 has rounded corner edges spaced sufficiently from the curved portion 20 to permit water, bottle caps and other debris to escape. The bottom also has a flange 48 spot or pinch welded to the inner sides of the rails 17, and such flange is eliminated around the corners in substantially the same manner as the flange 41 on the partition 40. As best shown by Fig. 5, the bottom wall 47 has openings 49 coinciding with the openings 42 in the partition 40, but these openings are small and around the openings the metal is pressed downwardly as indicated at 50 to provide an annular recess for the rim portion of the bottom of each bottle. Around each opening 49, the metal is crowned upwardly as indicated at 51 to provide a contacting portion for the usually concaved bottom surface of

the bottle. It may be noted in this connection that the crowned portion 51 acts as a sort of a resilient support for the bottom of the bottle and normally will contact therewith before the rim of the bottle engages the base portion of recess 50. Thus if the case is dropped on a floor, the resilient crown 51 will prevent impact forces being imparted forcefully to the bottle. Between the recessed portions 50 for the bottles, the metal is upwardly pressed into diamond shape as indicated at 52 and this not only reinforces the bottom wall but defines the outer wall for the bottle recess. It will be appreciated that the crown portion 51 as well as the outer walls of the recessed portion 50 serve as means for preventing sidewise movement of the bottle so that the bottles when disposed in the case will be maintained in proper position. The openings in the bottom and around the rounded corner edges thereof, facilitate cleaning the case of caps and other debris, and additionally such openings and the openings in the partition permit air or other cooling medium to freely circulate through the case.

For manipulating the case, the end panels 11 as shown by Fig. 3 may have handle openings as indicated at 54 and these may be formed by stamping out a sector of metal indicated at 55 to form the opening and subsequently bending this metal upwardly into arcuate shape as indicated at 55 to provide a smooth grip. Around the remaining edges of the opening, the metal may be turned inwardly and flanged over for a short distance to avoid sharp edges.

The lid panel 12, at its margin, has a downwardly turned flange 57 extending entirely around the lid. This flange, except at the corners of the lid, terminates in an inwardly directed portion 58 that is disposed in a substantially horizontal plane when the lid is in closed position and which is adapted to rest on the rails 17 and corner caps 29. Inwardly of this portion 58, the metal is angled toward the bottom surface of the lid as indicated at 59 and terminates in a plane portion 60 that may be spot or pinch welded to the under surface of the lid. At the corners and as best shown by Fig. 2, bracket elements 63 may be disposed and welded to the flange 57 and, if desired, also to the lid body. These angle brackets 63 reinforce the lid at the corners and also improve its appearance particularly in that they more or less complete the construction around the corners of the lid.

As best shown in Fig. 7, any suitable type of hinge as indicated at 65 may have its wings welded to the rail on the back of the rear panel 10 and also to the flange 57 around the lid. For latching the lid in its closed position and as shown by Fig. 6, a spring latching member 67 is provided which may be riveted as indicated at 68 to the front panel 10 and to the bottom legs of the rail 17. This spring latch terminates in an arcuated portion 69 at its upper end which is adapted to pass through a slot 70 formed in the lid. It will be appreciated that in moving the lid to its closed position, the arcuate portion 69 of the latch element will facilitate its entry into the opening 70 and that once the lid is in closed position, the arcuate portion will spring into overlapping engagement with the lid at the front side of the opening thereby holding the lid in closed position. It may be pointed out here, and as clearly shown by Fig. 4, that the lid also has front reinforcing ribs 71 which extend closely to the latch 67 and which prevent injury to the latch when the lid is in closed position in that if another case is moved over the lid, the ribs prevent the upper case from engaging the latch. Ribs such as indicated at 71 may also be formed along the other edges of the lid and such ribs and the ribs 13 are of the same height, thus insuring distribution of weight over the surface of the lid, if another case, and particularly a wooden case having a flat bottom, is supported on the lid. It may be noted in this connection and as shown by Fig. 9, that the ribs 71 are so located, that they will fit within the recessed bottom of an upper metal case and thus hold the cases in properly stacked position, although it will be appreciated that the arcuate shape of the ribs will readily facilitate moving one case sideways without much effort.

Under certain circumstances it may be necessary to seal the case, and for accommodating this result, the lid may be provided with openings 72 in its front margin and the rail 17 and flange 16 on the front panel may have similar openings 73. An ordinary sealing wire may be inserted through these openings and the lid may be secured in its closed position by means of the seal.

It will be appreciated that the panels 10 and 11 may be constructed of very thin gauge sheet metal owing to the provision of the reinforcing rail along the edges of the panels and the reinforcements at the corners. Such reinforcements and rail may be constructed of heavier gauge metal without appreciably increasing the weight of the case while at the same time greatly increasing the rigidity and resistance of the case to bending when it is handled during use. Moreover, it will be appreciated that any interstices are practically eliminated so as to avoid collection of dirt and water. Moreover, it will be appreciated that the inside of the case has rounded corners and this facilitates cleaning the case as well as adds to the appearance thereof. Again it will be appreciated that a firm but resilient support for the bottles is provided and that when the bottles are in the case they are efficiently prevented from tilting and sidewise movement.

Although only one form of the invention has been described and illustrated in detail, it will be apparent to those skilled in the art that various modifications may be made without departing from the scope of the appended claims.

What I claim is:

1. A metal case including a sheet metal wall, a triangular tubular metal rail enclosing an edge of said wall and joined to said wall, and a corner cap secured to said rail, said cap and said rail having faces perpendicular to said wall and in substantially the same plane.

2. A metal case including a sheet metal wall, a triangular metal rail enclosing an edge of said wall, said rail having a side extending along said wall, a side extending outwardly from said wall, and a side extending angularly toward said wall, and means connecting said rail to said wall to provide a rigid assembly.

3. A metal case including sheet metal panels arranged in rectangular relation and having a flange projecting from an edge, one of said panels having a corner portion at an end and another of said panels having a portion spaced from and extending transversely of said corner and in contact with the side walls of said corner portion, a tubular sheet metal rail resting on and enclosing each of said flanges and having sides disposed on either side of the associated

panel, means for joining the sides of each of said rails to its associated panel, and means joining said panels at said points of contact and including a cap secured to said panel for reinforcing said panels.

4. A metal case including sheet metal panels arranged in rectangular relation and having a flange projecting from an edge, one of said panels having a corner portion at an end and another of said panels having a portion spaced from and extending transversely of said corner and in contact with the side walls of said corner portion, a tubular sheet metal rail resting on and enclosing each of said flanges and having sides disposed on either side of the associated panel, means for joining each of said rails to its associated panel, means for joining said panels at said points of contact, and means including a cap having a portion projecting within said rails for reinforcing said panels.

5. A metal case including a sheet metal wall having a flange, a triangular tubular rail adapted to be telescoped longitudinally over said flange during assembly, and means securing said rail to said wall.

6. A metal case including a sheet metal wall having a flange at an edge, a triangular rail having a side extending along said wall, a side extending outwardly from said wall and resting on said flange, and a side extending angularly toward said wall, and means securing said rail to said wall to provide a rigid assembly.

7. A metal case including a sheet metal panel having a flange projecting from an edge, a triangular tubular rail enclosing said edge and resting on said flange, means connecting said rail to said panel, a corner cap, and means for securing said corner cap to said panel including a plurality of triangularly disposed lips extending from said cap and projecting within said rail between said rail and a portion of said panel.

8. A metal case including sheet metal panels arranged in rectangular relation and having a flange projecting from an edge, one of said panels having a corner portion at an end and another of said panels having a portion spaced from and extending transversely of said corner, and in contact with the side walls of said corner portion, a triangular sheet metal rail resting on and enclosing each of said flanges and having sides disposed on either side of the associated panel, means for joining each of said rails to its associated panels, means for joining said panel at said points of contact, a corner cap, and means for securing said cap to said panels including a plurality of triangularly disposed lips extending from said cap and projecting within each of said rails between said rails and the associated panels.

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