Jan. 15, 1935. L. H. WALKER ET AL 1,987,764

SHEET METAL CASE

Filed Sept. 30, 1933 3 Sheets-Sheet 1

Fig. 1

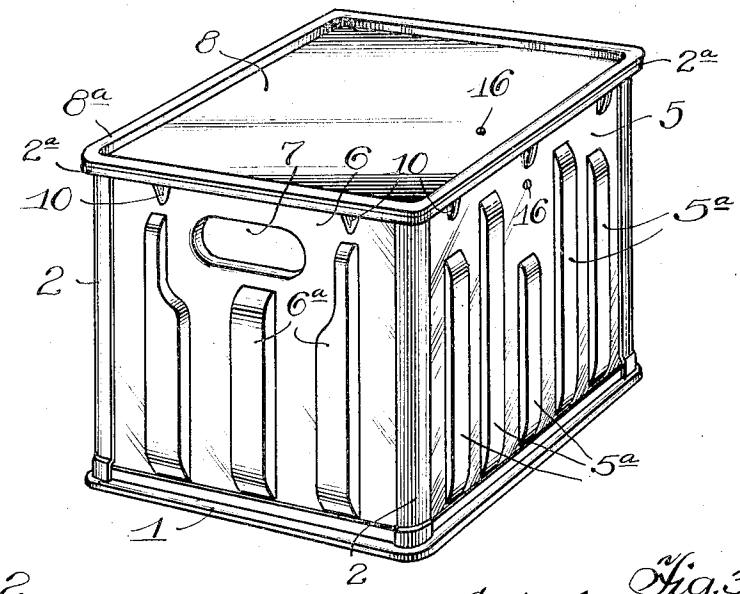


Fig. 2

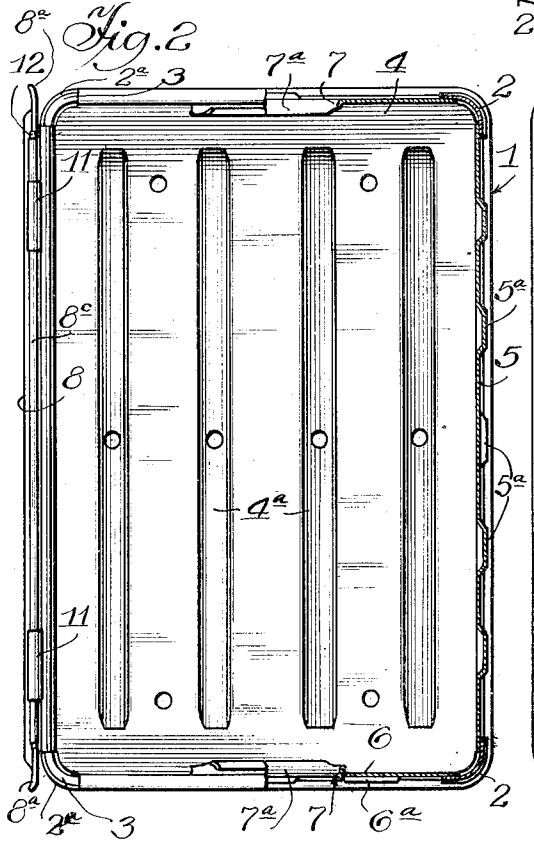
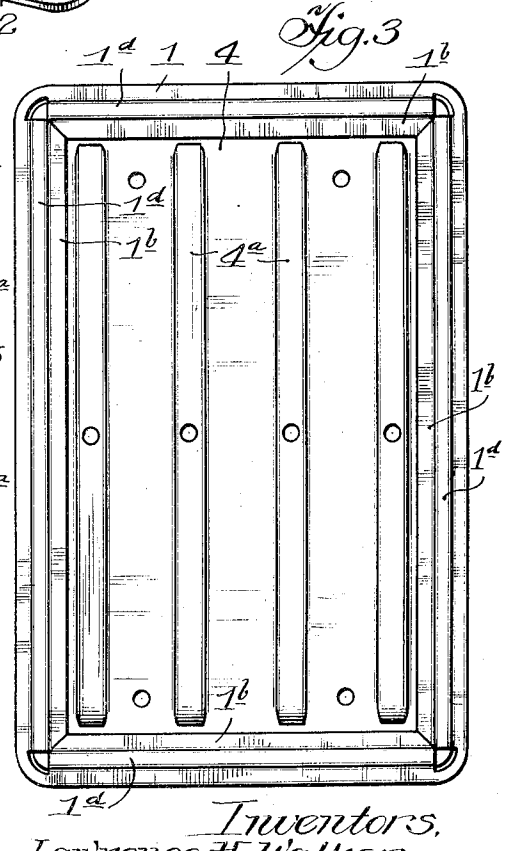


Fig. 3



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SHEET METAL CASE

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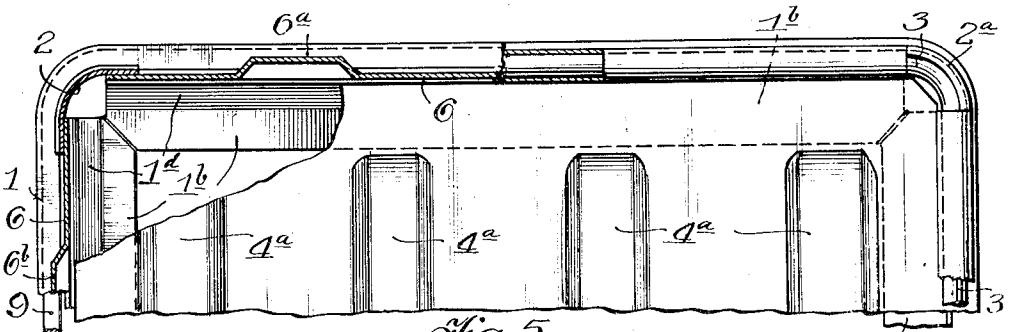


Fig. 5

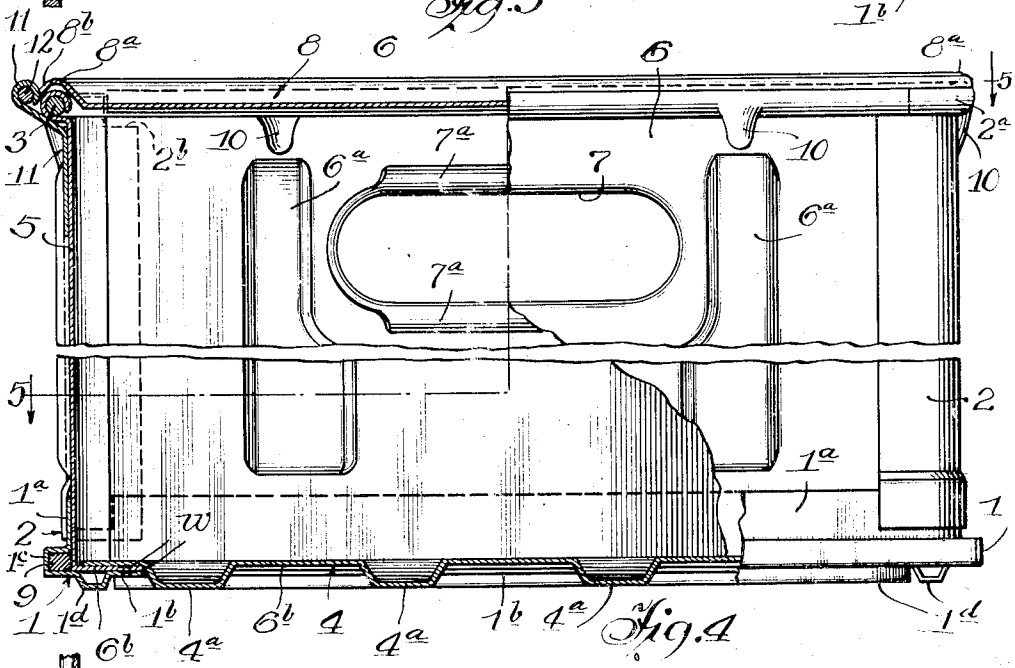


Fig. 4

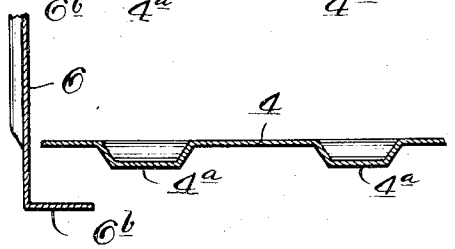


Fig. 6

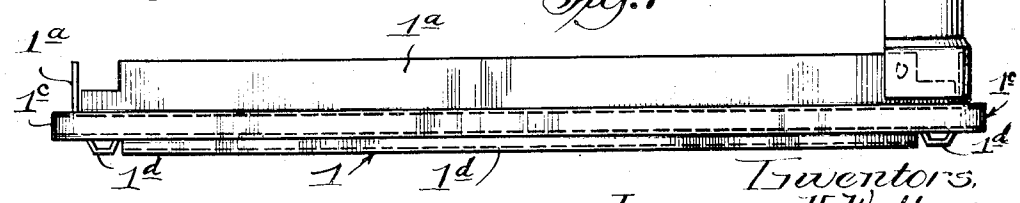


Fig. 7

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Jan. 15, 1935. L. H. WALKER ET AL 1,987,764

SHEET METAL CASE

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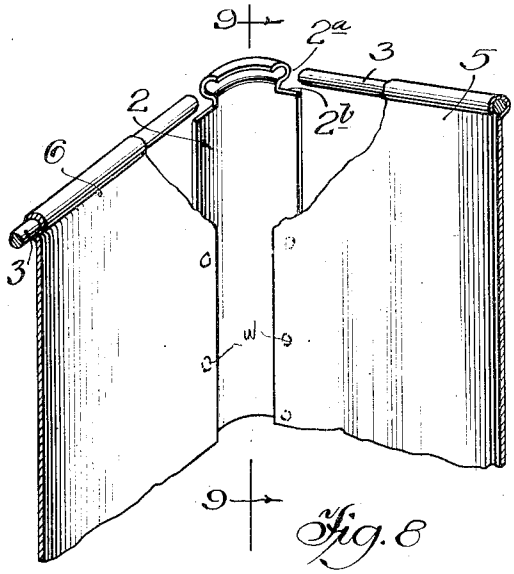


Fig. 8

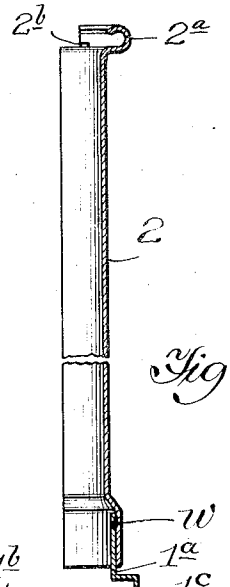


Fig. 9

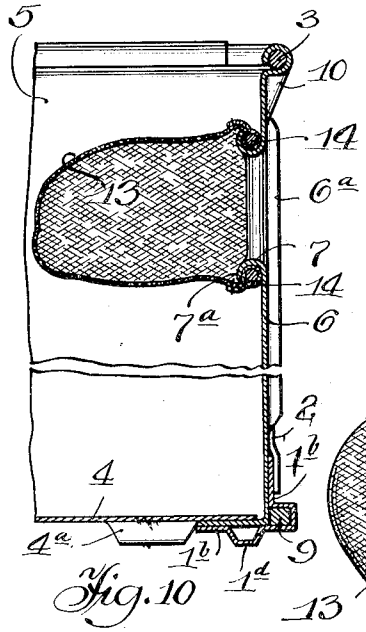


Fig. 10

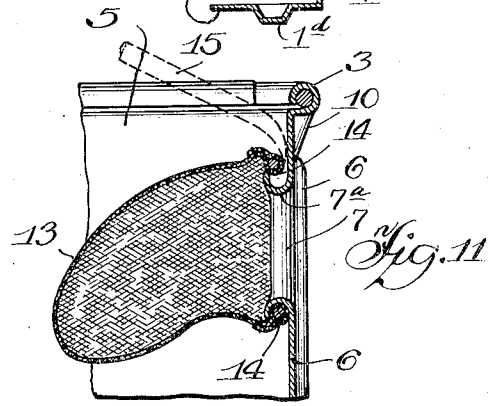


Fig. 11

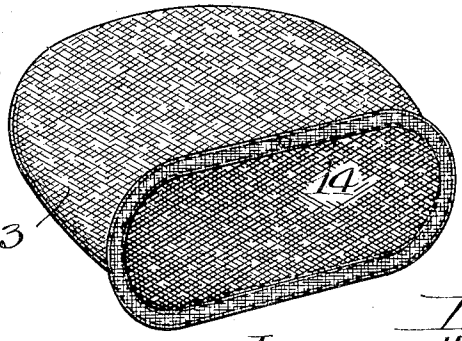


Fig. 12

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UNITED STATES PATENT OFFICE

1,987,764

SHEET METAL CASE

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Application September 30, 1933, Serial No. 691,582

9 Claims. (Cl. 220—83)

This invention relates to improvements in sheet metal cases, intended particularly for the transporting and delivery of bottled beverages from the bottler or retailer to the consumer, as well as the return of the empty bottles for refilling.

The primary object of the invention is to provide a metal case to replace the old style wood case, and by virtue of its sturdy and solid construction is capable of withstanding the hard usage and rough handling to which these containers are subjected, and thus outlasting many times over the ordinary life of its wood predecessor.

A further object of the invention is to improve upon the construction of metal cases in so far as they have heretofore been made for the same or like purposes, by introducing novel structural features calculated to combine rugged strength with lightness of weight and economy in cost of maintenance.

A preferred embodiment of our invention is disclosed in the accompanying drawings, in which

Figure 1 is a perspective view of the case.

Figure 2 is a top plan view of the case open with the cover turned and one-half of the case body shown in horizontal section.

Figure 3 is a plan view of the bottom of the case.

Figure 4 is an enlarged detail view from one end of the case with portions of the walls cut away to show the construction in section.

Figure 5 is an enlarged top plan view of one end of the case in partial section as taken on line 5—5 of Figure 4.

Figure 6 is a detailed view showing the manner in which the bottom and side or end walls are assembled.

Figure 7 is a view in elevation of the bottom frame or sill preparatory to assembly.

Figure 8 is a perspective view of one corner from the inside of the case showing the details of the corner post.

Figure 9 is a view in vertical section taken on line 9—9 of Figure 8.

Figure 10 is a view in vertical section through one end wall of the case showing the application of the hand hole closure.

Figure 11 is a view similar to Figure 10 showing the method of removing one of the hand hole closures.

Figure 12 is a perspective view of one of the hand hole closures.

The case herein described and illustrated is preferably of a size to hold twenty-four (24) bottles arranged in four rows of six each, lengthwise of the case and, therefore, it has a somewhat greater length than width. Also the case may be equipped with a hinged cover or not, as desired, although hinges are preferably provided so that a cover may be added if needed.

In its construction the case differs from the ordinary walled container in that it is made up of a frame-like structure to which the wall sections or panels are welded, the frame members being first assembled and welded together as a unit, and the walls added. Moreover, the members constituting the frame are of a heavier gauge metal than the wall panels, to the end that the strength necessary to withstand the rough treatment to which these cases are subjected is introduced without unduly increasing the weight, which incidentally is no greater than that of an ordinary wood case of the same size and capacity.

Referring now to the structural features of the case in its general aspects, the parts constituting the frame consist of a rectangular bottom frame or sill 1 extending around the bottom edge and roughly right angular or L-shape in cross-section, thereby forming vertical and horizontal flanges 1^a and 1^b to which the side and bottom walls are welded. The corners of the frame are formed by upright corner posts 2 consisting of metal strips of a rounded angular sectional contour, which are welded at their lower ends to the corners of the sill 1. The upper ends of the corner posts are fashioned into saddle-like brackets 2^a in which seat the rounded corner portions of a top frame member 3, consisting of a length of heavy round wire bent into rectangular shape. As before stated, the sill 1 and corner posts 2 are made of the same relatively heavy gauge of sheet steel, and when assembled with the top bead wire or frame 3, as will later be described in greater detail, provides a sturdy, rigid frame.

To complete the body of the case, a bottom wall panel 4, two side panels 5, 5 and two end panels 6, 6 close the corresponding rectangular openings formed by the skeleton frame, their edges overlapping the flanges or edges of the sill 1 and corner posts 2 on the inside and spot-welded in place, while the upper edges of the side and end walls are rolled around the top frame or bead wire 3.

The side and bottom wall panels are made of a considerably lighter gauge metal than the frame members, and except for the overlapping

of the flanged bottom edges of the side and end walls with the edges of the bottom wall around the inside of the case, these wall panels merely close the rectangular spaces formed by the frame members and are welded to them rather than being welded to each other.

Moreover, these wall panels, and especially the side and end panels 5 and 6, are stamped out to provide a series of offset parallel ribs 5^a and 6^a, the formation of these ribs being such that their width is substantially equal to the spaces between them, to the end that a section through one of the panels at right angles to the ribs would present a series of segments alternately offset in opposite directions, somewhat zig-zag in appearance. These offset ribs extend vertically of the side and end walls, beginning from a point just above the sill 1 and sloping outwardly to their full depth of, say, ¼ of an inch, and at their upper ends terminate at or near the top edge, some of the ribs being shorter than others, either for practical reasons or for appearance.

In the case of the end wall panels 6, 6, a hand hole 7 is stamped out near the upper edge center of each, so that the ribs 6^a, three in number and symmetrically spaced, are arranged accordingly, that is, the center rib stops short of the hand hole, while the other pair are reduced in width at their upper ends to clear the ends of the hand hole. Similarly the ribs 6^a of the side walls are staggered in arrangement along their upper ends, the centermost rib being somewhat shorter than the others in order to provide a flat surface for the attachment of a latch for the cover in case one is to be provided. The purposes of these ribs are, first, to stiffen the panels as is common practice in sheet metal working, and, second, to afford increased protection to the contents against breakage, by reason of the fact that the ribs are so spaced that the indented or inwardly offset portions of the metal between the ribs are in alignment with the rows of bottles in both directions, so that blows delivered against the walls are more likely to be received by the outwardly offset ribs and not against the portion in direct contact with the bottles.

The treatment of the bottom wall 4 is somewhat different from the side and end walls as regards the provision of ribs (see Figures 2 and 3). The ribs 4^a are somewhat narrower and deeper with greater distances between them and extending lengthwise of the bottom panel. Moreover, there are four such ribs so spaced that each extends centrally of each lengthwise row of bottles and, therefore, lies directly beneath them. And finally, being deeper, these bottom ribs form parallel tracks upon which the case rests, making it easier to slide the same endwise.

So much for the general structure of the case body: If the case is to include a cover or lid, the preferred type consists of a flat rectangular panel 8 of sheet metal of about the same gauge as the frame members and heavier than the wall panels is used. The lid manifestly conforms to the shape of the top of the case, and is stamped about its edge to provide a concave marginal groove 8^a adapted to seat flush upon the rounded top edge of the case proper. Moreover the main portion of the cover is depressed slightly below the concave edge, and being perfectly flat provides a recessed seat for the bottom of another case. Thus several cases can be stacked with the bottom of one nesting in the top of the case below, thus affording greater stability and uniformity in transporting and storing of the cases. In this connection it may be stated that the bottom sill of the case is provided with a narrow rail extending around the bottom surface thereof, and which is particularly designed to fit the depressed area of the cover and thus to facilitate the nesting of the stacked cases.

The details of the forming and assembling of the several parts of the case will now be discussed: The sill 1 is formed from an elongated blank which is first stamped, then formed to its cross-sectional contour and finally bent into a rectangular shaped loop. The sill has been described as being generally L-shape in cross section, but this merely takes into account the vertical and horizontal flanges 1^a and 1^b. Actually, however, the formation of the sill includes the following details: At the junction of the flanges 1^a and 1^b, and more particularly along the lower edge of the vertical flange, is formed an outwardly projecting rectangular bead 1^c of a square U-shaped contour and projecting outwardly, say ¼ of an inch from the plane of the vertical flange 1^a, and having a depth of about the same dimension. Within this square hollow bead is a reinforcing member consisting of a length of stout wire 9 of rectangular cross section, which is first inserted in the process of shaping the blank into its rectangular form, and at the point where its ends meet it is spot-welded to the bead so as to form a solid internal reinforcement for the sill. Also around the bottom of the sill and extending along the four sides thereof are narrow rails 1^d stamped from the horizontal or bottom flangs 1^b of the sill and offset just inwardly from the laterally projecting reinforced bead 1^c. These rails project from the under side of the sill and form a rectangle of the same dimensions as the depressed surface of the cover 8, and of practically the same depth, so that one case will nest securely upon another when stacked upon each other.

It is to be particularly noted that in the blanking out of the sill 1, angular segments are removed from the bottom flange 1^b at the corners, so that when the sill is bent in its rectangular form the ends of the flange come together in a mitered joint. In fact, at the very corners of the sill wedge-shaped openings are left so as to permit the metal to bend in the rounded form at the corners.

The sill 1 having been completed, the corner posts 2 are then added by spot-welding their lower ends to the corners of the vertical flanges 1^a of the sill, as at *w* (Figure 9), the end portions of the corner posts overlapping the sill and therefore offset outwardly to the thickness of the metal so that their inner surfaces will be flush. The brackets 2^a at the upper ends of each corner post are formed by cutting back or notching the blank as at 2^b (Figure 8) to provide tongues of decreased width, having the same rounded contour as the central portion of the post and shaped or rolled at the edge to provide a concave seat for the bead wire 3. As clearly shown in Figure 9, the brackets do not completely encircle the bead wire, but merely enclose the outer edge. However, the bracket is joined to the wire by spot-welding the two together.

The adding of the side, end and bottom walls

is the next operation which consists in setting them in place against the inside of the frame and spot-welding the overlapping edges together at intervals, although no attempt is made to indicate every point of welding, since it will be understood that the usual practice in this respect is followed. However, in some instances the welding points are indicated by the letter *w*.

In the assembly of the wall panels it will be noted that along the lower edges of the side and end panels are inturned flanges 5^b and 6^b (Figures 5 and 6) which bear against the bottom flanges 1^b of the sill, and that the bottom panel 4 is set in place with its edges overlying these flanges, and that the three thicknesses of metal are spot-welded as at *w*, thereby producing a very strong and solid connection between the walls and the sill and likewise between the bottom and upright wall panels. Similarly, the lower edges of the side and end panels are spot-welded to the vertical flange 1^a of the sill, and their side edges spot-welded to the overlying edges of the corner posts (Figure 8).

At the top of the case the side and end walls are brought up to a point immediately below and slightly inward from the center of the bead wire 3 and then bent or rolled over and completely around the same from the outside inwardly in quite the same manner as are the brackets 2^a of the corner posts 2, except that the latter do not encircle the wire. This is a rather important feature of the construction, in that the walls and corner posts serve as struts or compression members directly beneath the bead wire, and thereby resist the impact of blows delivered upon the top of the case, whereas if the metal was rolled over the bead wire from the inside with the seam on the outside, as is the usual practice in sheet metal work, the edges of the case would receive practically no support from the walls and in time would tend to break down. And to further strengthen the top edge of the case, reinforcing brackets 10 are preferably pressed into the side and end walls at intervals around the top of the case, these brackets extending tangentially from the outer edge of the tubular or rolled edges of the wall panels and merging into the same a short distance below, thus forming additional braces to reinforce the top edge of the case.

This completes the assembly of the case, except for the mounting of hinge plates 11, 11 on one of the side walls, these plates being welded in place and located to engage the notches 8^b in the edge of the cover 8. The upper edges of these plates are shaped to provide outwardly offset tubular beads 11^a for a removable hinge pin or wire 12, which also passes through a tubular bead 8^c along the notched edge of the cover. If desired, the hinge plates can be omitted if the case is not to be provided with a cover, but as already explained, it is preferred to equip each case for the mounting of a cover, even though one is not originally provided.

Now, apart from the structural features of the case, provision is made for closing the hand holes 7 to the entrance of light, these closures being applicable for cases to be used for the handling of beverages which deteriorate when exposed to light, (Figures 10 to 12), and since their application is optional, they are capable of being attached or detached as desired. In a word, these closures are pocket-like members 13 of an opaque fabric, having a hem around their mouth or entrance in which is a wire ring or loop 14 having the same shape and dimensions as the hand hole. In the stamping out of these hand holes, a portion of the metal at the top and bottom edges is bent inwardly and away from the hole to provide flanges 7^a which eliminate what would otherwise be sharp edges. These flanges are spaced away from the inner surface of the end panels, so that it is possible to expand the rings 14 of the closure pockets so that they can be clamped around the flanges and held in place. These closures being flexible do not interfere with the removal of the contents, and yet are voluminous enough to permit a firm grip in the hand holes by the person handling the case. Thus a case equipped with both a cover and the hand hole closures is amply light-proof to fully protect the contents, although if not needed they can be easily removed by springing open the wire ring 14 by inserting a suitable tool 15 with a flat curved end between the inside of the case and the ring, as shown in Figure 11.

And lastly, a case provided with a cover would have a suitable latching or locking device, although for the purpose of this disclosure, holes 16, 16 are punched in the lid and what would be the front wall, through which a wire can be threaded and sealed.

Having emphasized the advantages of various structural features of the case as they are discussed herein, and otherwise differentiating the case as a whole from containers heretofore used for the same or like purposes, it is deemed sufficient to close with the statement that the details of construction may obviously be variously modified without departing from the spirit of the invention.

We claim as our invention:

1. A sheet metal case comprising a bottom sill of substantially L-section, corner posts of angular cross section fixed to the corners of the sill with their end portions overlapping the upright portions thereof and having their upper ends shaped to form inwardly opening brackets, a top frame member anchored at its corners in said corner post brackets and bottom and side wall panels having their marginal portions fixed in overlapping relation to the corresponding margins of said sill and corner posts, and the upper edge portions of said side wall panels bent around said top frame member from the outside inwardly.

2. A sheet metal case comprising a bottom sill of sheet metal having upright and inwardly extending marginal portions, corner posts of angular cross section fixed at their lower ends to the corners of the sill and having their upper ends shaped to provide inwardly opening concave brackets, a rectangular top frame member supported at its corners in said corner post brackets, and bottom and side wall panels fixed in overlapping relation to the corresponding margins of said sill and corner posts, the upper edge portions of said side wall panels embracing said top frame member in the form of beads extending from beneath the same and thence around from the outside inwardly.

3. A sheet metal case comprising a bottom sill of substantially L-section having vertical and inwardly extending horizontal flanges and a hollow bead extending around its bottom edge and projecting outwardly therefrom, a solid reinforcing member enclosed within said bead, vertical cor-

ner frame members fixed at their lower ends to the vertical flanges of said bottom sill, a top frame member anchored at its corners to the upper ends of said corner frame members, a bottom wall panel supported by the horizontal flanges of said sill, and side wall panels having their edges fixed in overlapping engagement with the vertical flanges of said sill and the edges of said corner frame members and their upper edges rolled over and around said top frame member intermediate the corners thereof.

4. A metal case comprising a sheet metal bottom sill of substantially L-section having an outwardly projecting bead around its lower edge, corner posts of angular cross section fixed to the corners of the sill with their lower end portions overlapping the upright portions thereof and provided at their upper ends with integrally formed U-shaped brackets, a wire top frame member anchored at its corners in said corner post brackets, wall panels of a relatively light gauge metal fixed in overlapping marginal contact with the inner edge portions of said sill and corner posts and a sheet metal cover hinged to one of the side wall panels and having a concave groove extending around its edges to seat upon said top frame member in closed position.

5. A sheet metal case comprising a bottom sill of substantially L-section, corner posts of angular cross section fixed to the corners of the sill with their end portions overlapping the upright portions thereof and provided at their upper ends with integrally formed brackets, a wire top frame member anchored at its corners in said corner post brackets and bottom side, wall panels of relatively light gauge sheet metal fixed in overlapping marginal contact to the inner edge portions of said sill and corner posts, the side panels having their upper marginal portions rolled around the wire top frame, and a hinged cover having a depressed central area and a grooved edge adapted to seat upon the rounded top edge of the case.

6. A sheet metal case comprising a bottom sill having upright and inwardly projecting flanges, corner posts of angular cross section fixed at their lower ends to the corners of the sill, a wire top frame member fixed at its corners to the upper ends of said corner posts, side wall panels fixed in overlapping contact with the inner faces of the vertical flanges of said sill and the edges of said corner posts and having inturned flanges along their lower edges bearing against the inwardly projecting flanges of said sill, and a bottom wall panel fixed to said sill with its marginal portions overlying the flanges of said side wall panels.

7. A sheet metal case comprising a bottom frame member having vertical flanges and inwardly extending horizontal flanges, and an outwardly projecting bead extending around its bottom edge and opening inwardly, a wire reinforcing member fixed within said bead and extending around the frame member, corner posts fixed to the meeting ends of the vertical flanges of said bottom frame member, a top frame member supported at the upper ends of said corner posts, and side wall panels of relatively thinner sheet metal fixed along their bottom and side edges in overlapping contact with the inner surfaces of the vertical flanges of said sill and the edges of said posts and having their upper edges rolled around said top frame member in the form of tubular beads extending outwardly from beneath the same and thence around from the outside inwardly.

8. A sheet metal case comprising an open bottom frame member having vertical flanges and inwardly extending horizontal flanges, and an outwardly wire-reinforcing beading around its base, posts of angular section extending upwardly from the corners of said sills and welded thereto with its lower ends overlapping the corner portions of the vertical flanges thereof, a wire top frame member supported and welded at the corners in outwardly projecting U-shaped brackets formed at the upper ends of said posts, and side wall panels of relatively thinner metal enclosing the openings formed by said sill, corner posts and wire top frame member, said side wall panels being fixed to said sill and to said posts with their corresponding edges in overlapping contact with the inside of the vertical flanges of the sill and the edges of said posts, their upper edge portions terminating beneath said wire top frame member and thence rolled upwardly and around said wire from the outside inwardly, and a bottom wall panel supported at its edges by said horizontal flanges of said sill, said side wall panels having flanges along their lower edges extending between the edges of said bottom panel and said last-mentioned flanges of said sill, said three overlapping thicknesses of metal being spot-welded.

9. A sheet metal case comprising an open bottom frame member having vertical flanges and inwardly extending horizontal flanges, corner posts of angular section at the corners of said sills, a wire top frame member supported by said corner posts, and side wall panels of relatively thinner metal enclosing the openings formed by said sill, corner posts and wire top frame member, said side wall panels being spot-welded along their edges in overlapping contact with the inside of the vertical flanges of the sill and the edges of said posts, their upper edge portions terminating beneath and inwardly of said wire top frame member and thence rolled upwardly and around said wire from the outside and bracket-like projections stamped in said side wall panels at intervals along their upper edges and extending downwardly beneath the rolled edges of the panels to provide additional support for the wire.

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