G. KLENK.

SHEET METAL BOX.

APPLICATION FILED JAN. 24, 1913.

1,193,155. Patented Aug. 1, 1916.

Fig. 1.

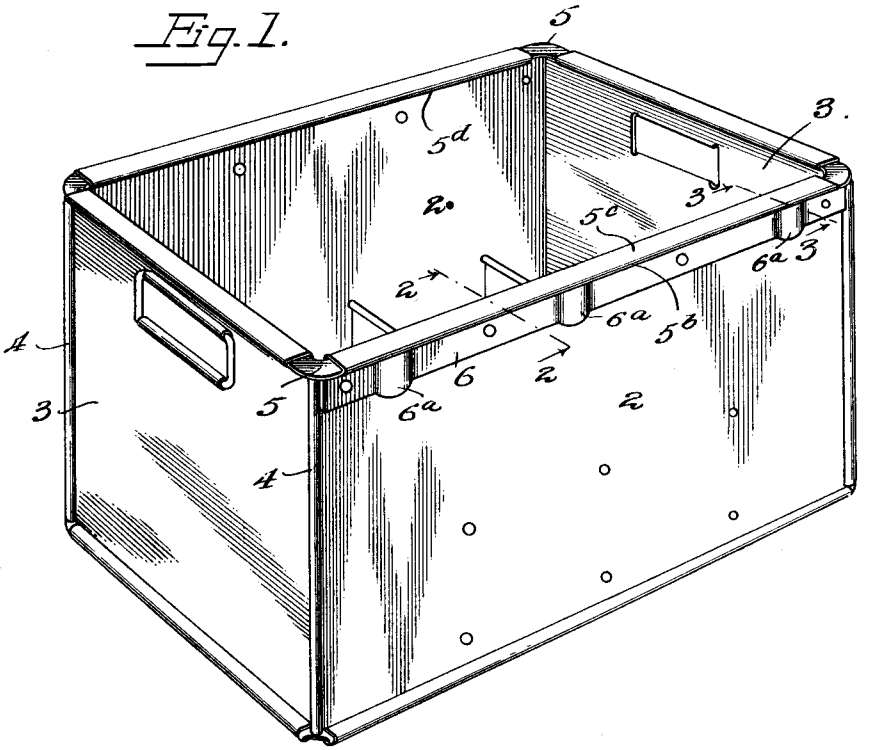


Fig. 2.

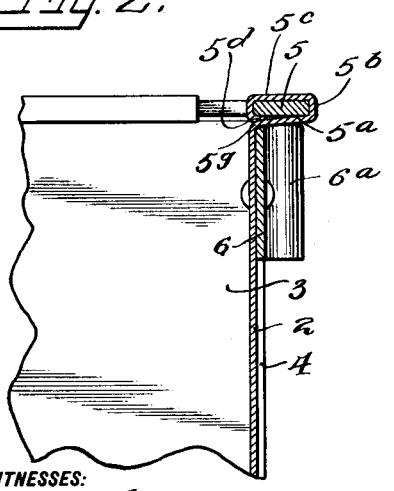
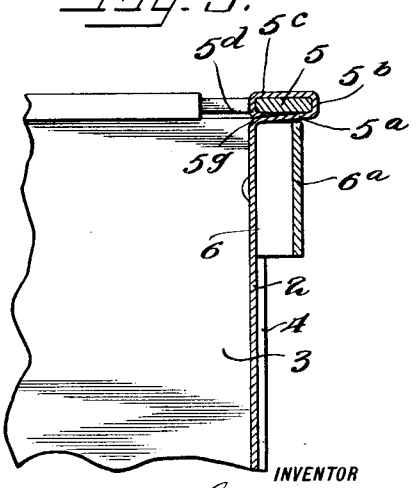


Fig. 3.



WITNESSES:

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SHEET-METAL BOX.

1,193,155. Specification of Letters Patent. Patented Aug. 1, 1916.

Original application filed April 10, 1911, Serial No. 620,068. Divided and this application filed January 24, 1913. Serial No. 743,972.

To all whom it may concern:

Be it known that I, GOTTLIEB KLENK, a citizen of the United States, residing at Defiance, in the county of Defiance and State of Ohio, have invented certain new and useful Improvements in Sheet-Metal Boxes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in sheet metal receptacles, such for instance, as boxes of the class used for storing and transporting bottles containing liquids, the present invention referring more particularly to the manner in which the top of the receptacle side walls is formed and reinforced.

This application is a division of the application filed by me April 10, 1911, Serial No. 620,068, the claims of said prior application covering such novel portions of the structure as are not herein specifically claimed.

Included among the objects of my invention is the provision of a ledge reinforcing structure of particular configuration, by means of which the walls of the box are strengthened so as to not only preserve the configuration under the strains incident to rough usage, but will also act to effectively resist pressures which would tend to open the bead forming a part of the ledge; also to provide a structure which will coöperate with the corner seams of the box to counteract twisting or torsional effects on the box walls.

To these and other ends, the nature of which will be readily understood, as the invention is hereinafter disclosed, my invention consists in the improved construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a box of the type referred to and showing my present invention as applied thereto. Fig. 2 is a detail cross sectional view on an enlarged scale taken through one portion of the ledge, and Fig. 3 is a similar view taken through another portion of the ledge.

The box is made of sections of sheet metal suitably secured together and properly reinforced. 2, 2 indicate the side walls, and 3, 3 the end walls, each formed of a section of sheet metal which in general formation is rectangular. The side sections and the end sections are crimped or seamed together to form the vertical corner flanges 4.

In the present invention the top of the box is in the form of a ledge projecting outward from the vertical plane of the side and end walls, this ledge being provided by a strong flat binding and reinforcing metal bar 5, preferably conforming to the shape of the top of the box vertical walls, the direction of greatest length of a cross section of the bar, however, extending at approximate right angles to a vertical plane corresponding to the vertical box walls. The bar 5 practically forms the reinforcing element of a bead which includes the upper edges of the vertical wall, the manner in which such upper edges is carried around the bar being more particularly shown in Figs. 2 and 3 of the drawings. However, as will be seen in Fig. 1, said bead portions do not extend around the corners of the bar, said corners being preferably exposed.

As shown more particularly in Figs. 2 and 3, the upper edge parts of the vertical wall sections are first led to the under face of the bar 5, then bent outward forming a comparatively sharp bend at the point of juncture of the vertical and horizontal portions, said bend being indicated at 5^{g}, and the outwardly extending portion being indicated at 5^{a}. The metal is then carried around the outer edge of the bar 5, as indicated at 5^{b}, then inwardly over the top of the bar, as indicated at 5^{c}, and over the inner edge of the bar. The extreme edge part is in the form of a lip 5^{d} which is deflected outward and adapted to lie between the under face of the inner edge of the bar 5 and the opposing portion of the horizontal part 5^{a}. This form of bead practically encircles the bar in cross section and places the extreme end at a point where it is overlapped by the part 5^{a}. While the general structure of the box is such that this configuration of the bead, when employed in connection with each of the vertical walls of the box, will normally act to retain said walls in their intended configuration, especially where the corners of the walls are formed with out-

wardly projecting seams as shown in the drawings, there might be a tendency for the bead to open under rough usage or handling, and for the purpose of preventing this, I preferably employ, in connection with the vertical side walls, a reinforcing strip 6 in the form of a flat bar. This bar is secured to the vertical wall by suitable means such as rivets, with the upper edge thereof extending into the bend 5^g as close as it is possible to place it. The bar is of a length to fit within the spacing between the corner seams 4 of the side and has a sufficient width to project downwardly a suitable distance from the ledge, the direction of greatest length of the bar 6 in cross section being parallel with the plane of the vertical wall and hence at right angles to the similar direction of length of the bar 5. It will thus be seen that the bend 5^g is reinforced against a movement which would tend to distort it and also against rough usage, the configuration in cross section of the bend being supported against downward pressure on the bar 5 by said strip 6, with the result being that lip 5^d is more firmly held in position and thus tends to prevent upward movement of the bar 5, which movement would practically require a change in the position of said lip. Furthermore, the bar 6 acts to prevent distortion of the vertical walls at the top of the box, co-acting with the vertical seams or crimps 4 to preclude the strains from becoming effective on these walls. In addition, said strip 6 serves as a support for the ledge and bar 5 under the weight of superposed boxes. As an aid in this service, I prefer to provide crimps or bulges in the bar, as shown at 6^a, these crimps or bulges, however, not extending beyond the outer edge of the ledge to avoid the presence of projecting portions which would be dangerous in the handling, shoving, or throwing of the boxes. These crimps or offsets 6^a serve as pillars or abutments to prevent the parts 5 and 5^b from being bent or distorted downward.

Having thus described my invention, what I claim as new is:—

1. A sheet metal box of the class described having end sections and side sections secured together at the vertical corners of the box by crimps or bends, each side section and each end section having a flat bead with a bottom horizontal part 5^a, a top horizontal part 5^c, a flat reinforcing band 5 inclosed within the said flat bead, and reinforcing bars 6 rigidly secured to the side wall sections of the box, and having the crimps or offsets 6^a under the flat bead and band 5, substantially as set forth.

2. A sheet metal receptacle having a peripheral projecting ledge at its top, said ledge comprising a reinforcing element having a flat under face with a sheet metal vertical wall of the receptacle leading to and surrounding said element, said wall having a sharp bend beneath said flat face, and a strip secured to the wall and having an edge extending into the bend to retain the latter against distortion, said strip being crimped or bulged intermediate its ends to form an abutment beneath the ledge.

3. A sheet metal receptacle having a peripheral projecting ledge at its top, said ledge comprising a reinforcing element having a flat under face with a sheet metal vertical wall of the receptacle leading to and surrounding said element, said wall having a sharp bend beneath said flat face, and a strip secured to the wall and having an edge extending into the bend to retain the latter against distortion, said strip being crimped or bulged intermediate its ends to form a pillar or abutment extending laterally of the direction of length of the strip, said pillar or abutment being located entirely beneath the ledge.

In testimony whereof I hereunto affix my signature, in presence of two witnesses.

GOTTLIEB KLENK.

Witnesses:
LEO KEHRES,
DEY AYERS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."