G. KLENK.

SHEET METAL BOX.

APPLICATION FILED OCT. 26, 1909.

1,139,536.

Patented May 18, 1915.

2 SHEETS—SHEET 1.

Fig. 1

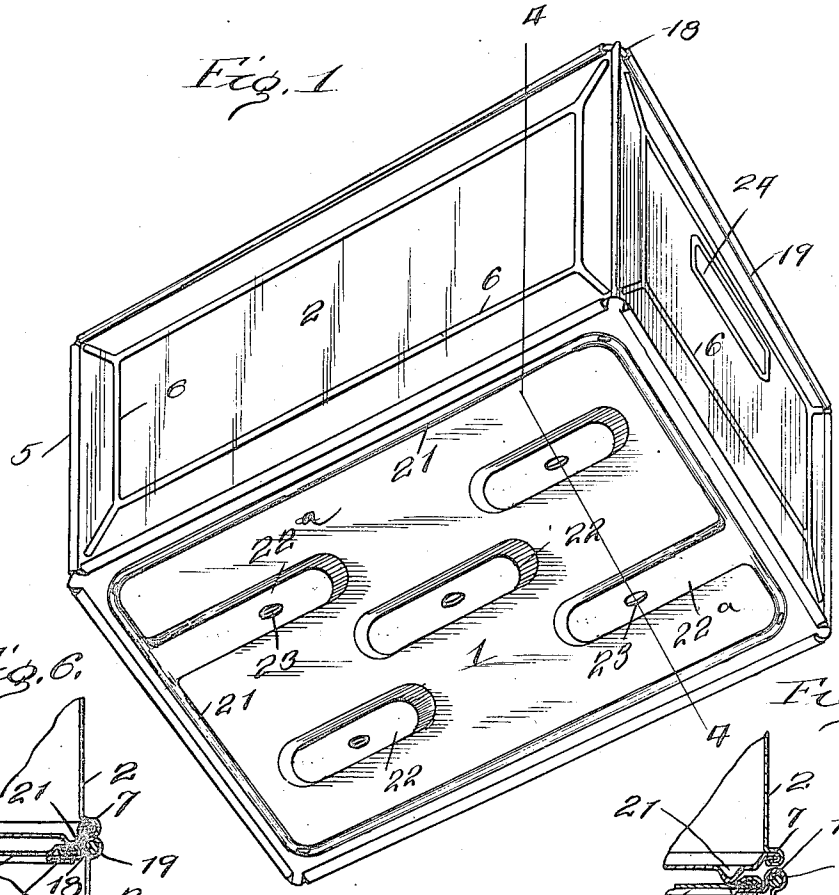


Fig. 6.

Fig. 5.

Fig 2.

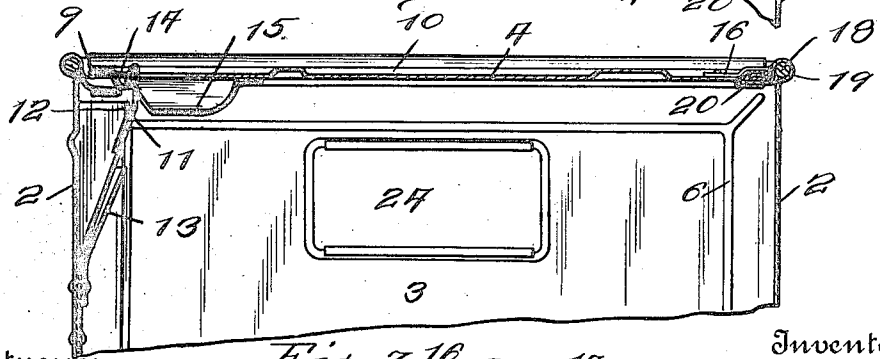
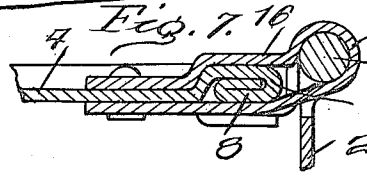


Fig. 7.



Witnesses

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SHEET METAL BOX.

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Patented May 18, 1915.

2 SHEETS—SHEET 2.

Fig 3

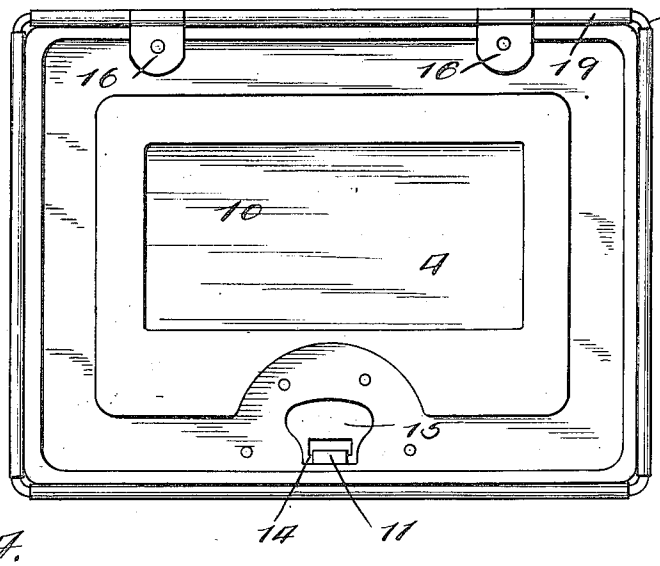


Fig. 4.

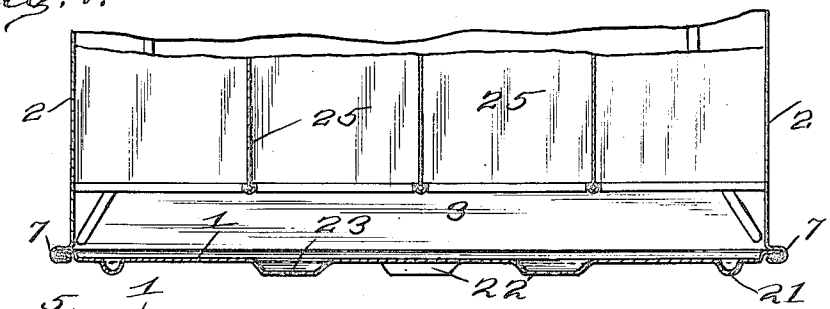
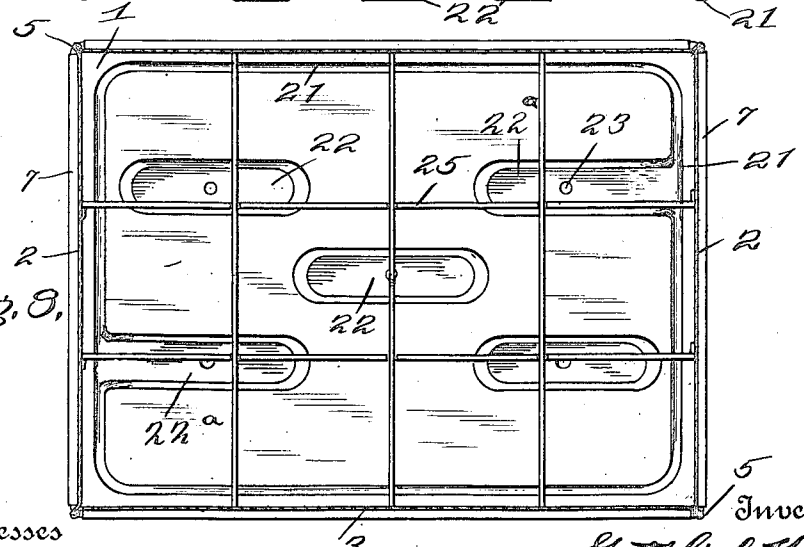


Fig. 8.



Witnesses

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UNITED STATES PATENT OFFICE.

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SHEET-METAL BOX.

1,139,536. Specification of Letters Patent. Patented May 18, 1915.

Application filed October 29, 1909. Serial No. 525,312.

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 sheet steel packing boxes, and especially boxes adapted to hold a plurality of bottles, and has as its object to provide a box with simply constructed and efficient stacking means and with a bottom and top which shall properly coöperate with the stacking means.

Figure 1 of the drawings is a perspective view of the box constructed in accordance with my invention, showing the bottom, one side and one end of the box. Fig. 2 is a central transverse vertical section of the upper parts of the side walls and the top of the box. Fig. 3 is a plan view of the box. Fig. 4 is a transverse vertical section of the box along the line 4—4 of Fig. 1. Fig. 5 is a fragmentary sectional view showing the bottom of one box in engagement with the top of another. Fig. 6 is a view similar to Fig. 5, but showing a modified bottom construction. Fig. 7 is an enlarged sectional view through one of the hinges for the cover. Fig. 8 is a horizontal sectional view through the box.

The box is constructed from six generally rectangular sheets of metal which form the bottom 1, side walls 2, 2, the end walls 3, 3 and the top or cover 4. Each side wall is joined at each of its vertical edges with the adjacent vertical edge of an end wall by means of a diagonally outward projecting seam 5. Each side wall 2 and each end wall 3 is provided with elongated indentations 6 of any suitable configuration to relieve the plainness of the sheets of metal and to take up any warp or slack.

The bottom wall 1 is seamed at each of its four edges with the lower horizontal edge of either an end or side wall in flat horizontal outwardly projecting crimps 7, which lie generally outside of the vertical planes of the end and side walls. The bottom plane of this crimp or bead is also flush with the plane of the bottom wall 1, the crimp being of the same general construction as that shown, described and claimed in my Patent No. 591,598.

The cover is formed of a rectangular sheet of metal, which is hemmed about its four edges by folding the metal inwardly on the under side of the cover; and the inner edge of the metal may be given another bend back between the main part of the cover and the fold 8. Just within the hem 9, the cover is depressed slightly, the body part of the cover lying in a horizontal plane a little below the horizontal plane of the upper face of the hem. The central part of the cover can be embellished by impressing in it the upwardly projecting panels 10 of any desired configuration.

The spring hasp 11, which is limited in its swing by the stops 12 and 13, is adapted to engage the edge 14 of the plate 15 which is secured to the under side of the cover, the hasp and plate co-acting to provide a locking device for the cover, which operates automatically when the cover is lowered into position and which can be manually disengaged when it is desired to lift the cover. The cover is hinged to the box by means of the strips 16, one end of each of which is secured to the top of the cover, the other end being secured to the under side of the cover. This hinge strap is formed into a cylindrical bead 17 which embraces the reinforcing wire 18 within the bead 19 formed from the upper horizontal edge portions of the side walls. The end walls are similarly beaded at their upper horizontal edges, the wire 18, which is rectangular in configuration, lying within all of these four beads 19 and strengthening the upper edges of the box. The sheet metal of the side and end walls is bent inwardly from the bead 19 and bent back upon itself to form the double walled inwardly projecting, horizontal, strengthening and cover supporting flange 20, which lies just below the bead 19.

The bottom 1 of the box is formed with an outwardly projecting impressed semicircu-

lar bead rectangular in configuration, each of the four parts of which lies in a vertical plane, which is within the corresponding hem 9 of the cover 4. This bead forms a downwardly projecting stacking flange, which is adapted on all four sides of the box to lie just within the hem of the cover of a box below when two or more of the boxes are piled in vertical rows. This coöperation of the stacking flange and cover hem, is shown in Fig. 5 of the drawings.

An alternative construction is shown in Fig. 6, wherein the stacking flange 21 is shown disposed just within the bead 19 and immediately above the hem 9.

Since these bottle holding boxes are frequently used upon roller conveyers, it becomes necessary to provide downwardly impressed panels 22 in the bottom wall 1 of the box to prevent rollers, which are shorter than the distance from one side flange 21 to the opposite side flange 21, from being caught between the opposite end parts of the flange 21. A plurality of these panels 22 is so arranged that upon conveyers with rollers situated at the ordinary distance apart, the box will be properly transported from one point to another. As shown in the drawings, five elongated panels are impressed in the sheet metal of the bottom, four of these being disposed near the corners of the bottom and the fifth being arranged centrally with respect to the other four, all five of these panels having their longitudinal axes parallel with one another. No one of the panels need extend more than one-third to one-quarter of the box length. To provide for proper drainage, the bottom wall of each of the panels is perforated as at 23. The end walls of the box are provided with suitable hand-holes 24. The box interior is equipped with a cell forming structure 25.

If desired, some of the impressed panels 22, as 22^a, may be joined at their outer ends with the impressed beading 21. In that case, the die with which the bottom is shaped is formed with relief projections in the shape of the beading 21, and this relief is extended inward at the points where the panels 22^a are to be formed. These panels 22^a insure a smooth easy movement of the box upon the conveyer rollers.

What I claim is;

1. In a packing box, the combination of lateral sheet metal walls and a sheet metal bottom having a downward projecting rectangularly configurated stacking flange formed integrally from it and arranged to fit within and laterally abut the upper edge parts of a similar box beneath it to prevent lateral displacement of one box with respect to the other and also having downward projecting supporting panels formed integrally from it, at points within the stacking flange, the said panels being horizontally flush with the stacking flange.

2. In a packing box, the combination of lateral sheet metal walls, and a sheet metal bottom having a downward projecting stacking flange formed integrally from it and arranged to fit within and laterally abut the upper edge parts of a similar box vertically beneath it to prevent lateral adjustment of one box with respect to the other and also having downward projecting rectangularly configurated supporting panels formed integrally from it, at points within the stacking flange, the said panels being horizontally flush with the stacking flange and so arranged that every transverse line across the bottom of the box will intersect at least one of the said panels.

3. In a packing box, the combination of lateral sheet metal walls, and a sheet metal bottom having a downward projecting stacking flange formed integrally from it and arranged to fit within and laterally abut the upper edge parts of a similar box vertically beneath it to prevent lateral displacement of one box with respect to the other and also having a plurality of elongated parallel downward projecting impressed integral panels at points within the stacking flange, each completely surrounded by flat metal in the horizontal plane of the bottom, the panels being horizontally flush with the stacking flange and so arranged that every transverse line across the bottom of the box will intersect at least one of them.

4. In a packing box, the combination of lateral sheet metal walls, and a sheet metal bottom having a downward projecting stacking flange formed integrally from it and arranged to fit within and laterally abut the upper edge parts of a similar box vertically beneath it to prevent lateral displacement of one box with respect to the other and also having a plurality of elongated parallel downward projecting impressed integral panels at points within the stacking flange and horizontally flush therewith, some of the panels being connected to and continuous with the stacking flange and others being entirely and continuously surrounded within the flange by contiguous flat metal in the horizontal plane of the bottom.

5. In a packing box, the combination of lateral sheet metal walls, and a sheet metal bottom having a downward projecting stacking flange formed integrally from it and arranged to fit within and laterally abut the upper edge parts of a similar box vertically beneath it to prevent lateral displacement of one box with respect to the other and also having a plurality of elongated parallel downward projecting impressed integral panels at points within the stacking

flange, some of the panels being connected to and continuous with the stacking flange and others being entirely and continuously surrounded within the flange by contiguous flat metal in the horizontal plane of the bottom, said panels being horizontally flush with the stacking flange and so arranged that every transverse line across the bottom of the box will intersect at least one of them.

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

GOTTLIEB KLENK.

Witnesses:

HENRY NEWBEGIN,

C. C. HOFFMAN.