J. C. BOWERS.

HERMETICALLY SEALED RECEPTACLE.

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1,161,445. Patented Nov. 23, 1915.

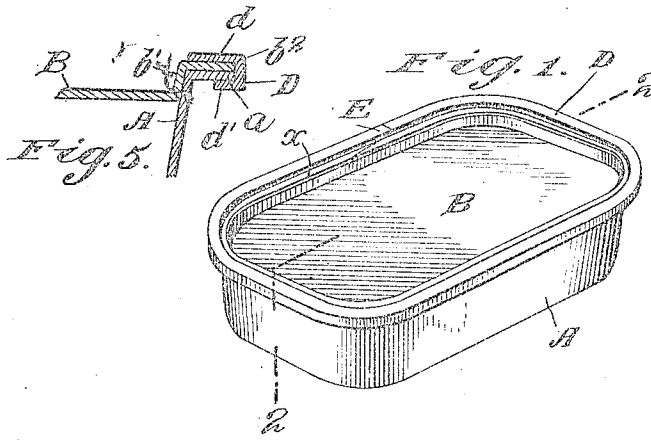


Fig. 1.

Fig. 5.

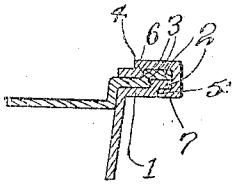


Fig. 6.

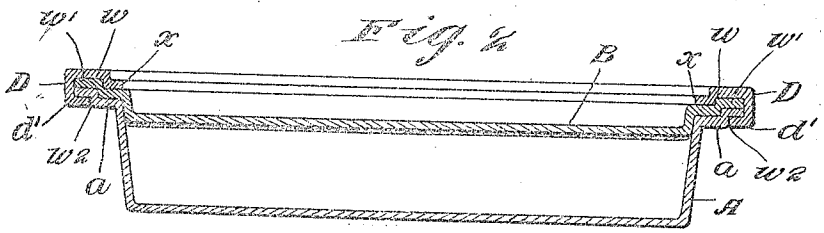


Fig. 4.

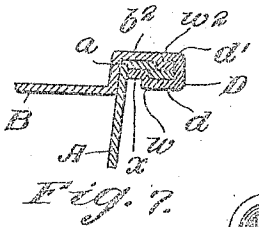


Fig. 7.

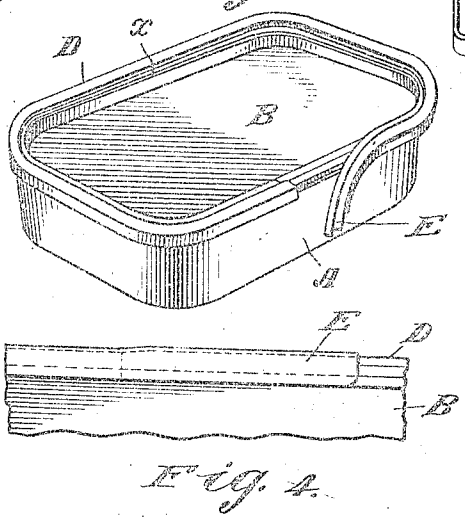


Fig. 3.

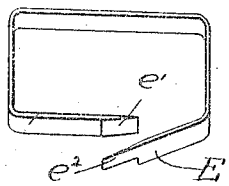


Fig. 8.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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HERMETICALLY-SEALED RECEPTACLE.

1,161,445. Specification of Letters Patent. Patented Nov. 23, 1915.

Application filed November 19, 1908. Serial No. 463,414.

To all whom it may concern:

Be it known that I, JOHN C. BOWERS, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Hermetically-Sealed Receptacles, of which the following is a specification.

My invention relates particularly to the hermetic sealing of cans, boxes, and other receptacles made from sheet metal, wherein the closure is secured to the body portion without the use of solder, and wherein such closure may be removed without the use of a key or other tool.

The invention adapts itself particularly to receptacles made of tin plate.

According to my present invention the outer edges of the seaming flanges are of single thickness. The shoulder in the seaming flanges is formed by indenting the seaming flanges, and the sealing strip is conformed to the shoulder thus formed so as to provide a tight joint, and whereby the sealing strip is held firmly in place. The shoulder is preferably formed at the time of applying the strip to the same.

In the accompanying drawing I have shown a practicable embodiment of the invention. In this illustration my improvements are shown applied to a tin box of a kind commonly employed in packing fish, meat, and the like. This form of receptacle is selected merely for convenience of illustration.

Figure 1 is a perspective view of a tin box or can, the general form of which is well known, but which has my improvements applied thereto. Fig. 2 is a vertical central section of Fig. 1, taken on a plane at about the line 2—2. Fig. 3 is a perspective view of the receptacle showing the sealing strip partly detached. Fig. 4 is a detail showing the manner of overlapping the ends of the sealing strip. Fig. 5 is an enlarged detail view, in section, showing the seaming flanges of the receptacle and closure with the sealing strip applied thereto, but before the strip and flanges have been bent into their final form. Fig. 6 is a similar view showing the parts after they have been bent into their final form. Fig. 7 is a view showing the reversal of the parts shown in Fig. 6; and Fig. 8 is a perspective view of a form of sealing strip before it is bent into its U-shaped cross-section and showing the manner in which its opposite ends may be beveled.

The box A, is shown having at its upper edge a seaming flange *a*, projecting outwardly from the box. The closure B, herein illustrated is formed with a central depressed portion surrounded by side walls *b'*, which lie close to the vertical walls of the box A, near its upper end, and an outwardly-projecting seaming flange b^2, which surrounds the cover and overlaps the seaming flange *a*, of the body A.

The manner in which the cover may be applied to the body of the receptacle is illustrated in Fig. 5, the flat face of the flange b^2 resting on the flat face of the flange *a*. After the seaming flanges have been superposed one upon the other, a sealing strip D, is removably applied to the seaming flanges. This strip is preferably made of thin malleable metal which may be easily bent and formed into shape, which shape will be maintained during shipment and storage. The strip will be so applied that when it is desired to remove it and force is applied, it will yield and separate from the joint. Upon removal of the strip the closure may then be removed. The strip D, before being connected with the receptacle, is preferably substantially U-shape in cross-section and is provided with flanges *d*, *d'*, between which is a channel to receive the seaming flanges. The arch of the sealing strip in the present illustration covers the free outwardly-directed edges of the seaming flanges. The channel is shown sufficiently wide to allow the flanges to enter and approximately fill it. The strip is made entirely to surround the joint. One end of the strip is shown overlapping the other end, which overlapping may be in the form of a tongue E.

After the parts have been loosely assembled, suitable mechanism, such as properly formed rolls or dies will compress the strip tightly upon the seaming flanges. The rolls or dies, by their formation, will produce in the flanges indentations, producing an inwardly-directed shoulder on one flange and a corresponding recess in the other flange. The seaming flanges are indented one into the other and the flanges of the sealing strip into these. The free edges of the superposed flanges are covered by the sealing strip and held in place by the offset in the flanges which is located inwardly of such edges.

In forming the shoulder and recess in the seaming flanges, the sealing strip is given a corresponding formation. Each of the seaming flanges will, after such operation, have an inner and an outer zone 1 and 2 respectively, disposed in substantially parallel planes, and a zone 3, intermediate thereof disposed in a plane transverse thereto, the transverse zone of one flange being located in such position that the exposed surface 4, thereof will face inwardly, and the transverse zone of the other flange being so located that the exposed surface 5, thereof will face outwardly. One of the flanges of the sealing strip will overlie and mate with one of the seaming flanges and have a transversely-disposed zone 6, located inwardly of the said inwardly-facing surface 4, and the other flange of the sealing strip will overlie and mate with the outer zone 2 of the other of said seaming flanges and have its outer surface flush with the outer surface of the inner zone of such flange, and its free edge 7, adjacent the said outer-facing surface 5, of the intermediate zone of such flange.

In Fig. 7 the inwardly-facing shoulder for locking the sealing strip from outward movement is shown carried by the under face of the flange a, of the receptacle A. In the other views the inwardly-facing locking shoulder is carried by the seaming flange b^2 of the closure B.

The shoulder-forming indentations of the sealing strip and the seaming flanges are preferably formed at one operation. A blank is illustrated in Fig. 8 from which the sealing strip may be made. At one end of this blank there is illustrated a tongue E, somewhat narrower than the remaining portion of the strip. This tongue may be beveled as at e^2. The opposite end of the strip is shown suitably beveled at e' to mate therewith. In Fig. 4 the inner end of the sealing strip is shown so beveled, rolled down or tapered, that when the outer end of the strip is made to overlap it and is rolled down, no sharp or distinct shoulder is formed, but a smooth joint will be produced. The tongue E, is preferably made to lie on the top of the seam and not to extend all around it so that it may easily be taken hold of to rip the sealing strip from the seam without the assistance of a tool. In Fig. 3 the ends of the body portion of the strip are shown substantially square for abutting one with the other, and the tongue E, formed as an extension from one end for overlying the other end.

I claim as my invention:—

1. An easily opened air tight receptacle comprising a body portion, and a cover, the body at its upper edge and the cover both being formed with outwardly projecting lapping seaming flanges, one of which is bent to form a shoulder while the other is correspondingly bent to coincide therewith, and a readily removable thin malleable metal sealing strip applied to the flanges and compressed to snugly engage or fit the shoulders so formed.

2. A seam for receptacles, comprising lapping flanges on the receptacle parts, and a readily removable sealing strip comprising a channel-shaped member of thin malleable metal extending around the flanges and embracing them, the strip and flanges being offset and pressed together and the strip having a beveled tongue at one end overlapping the other end thereof.

3. A seam for receptacles comprising superimposed flanges on the receptacle parts, and a readily removable sealing strip having flanges inclosing the flanges of the receptacle parts, said seaming strip being formed of thin malleable metal, the receptacle flanges and a strip flange being bent to form interlocking coincident shoulders.

4. An easily opened air tight receptacle comprising two sheet metal parts having superimposed flanges each comprising a single thickness of the metal, and a sealing strip embracing said flanges and surrounding the receptacle, said sealing strip comprising a channel-shaped piece of thin malleable sheet metal held in place by its contact with the flanges.

5. A seam for receptacles comprising flanges on the receptacle parts, said flanges being of substantially uniform thickness and being superimposed, and a readily removable sealing strip embracing said flanges and interlocking therewith, said sealing strip being formed of thin malleable metal and constituting the only means for holding the receptacle flanges together, the sealing strip being retained in position by its frictional and interlocking engagement with the flanges.

6. An easily opened air tight receptacle comprising a can body having an outwardly extending flange about its open end, a cover having a depressed portion fitting in the open end of said can body, and having an outwardly extending flange superimposed on the flange of the can body, and a sealing strip comprising a channel-shaped piece of thin, malleable sheet metal embracing said flanges, said flanges and a flange of said sealing strip being bent to form interlocking shoulders, said sealing strip being held in place by frictional and interlocking engagement with said receptacle and cover parts.

7. An easily opened air tight receptacle comprising a sheet metal can body having an outwardly extending flange comprising a single thickness of the metal, a sheet metal cover having a depressed portion fitting in the open end of said can body and having

an outwardly extending flange comprising a single thickness of the metal and superimposed upon the flange on said can body, and an easily removable sealing strip comprising a channel-shaped piece of thin malleable sheet metal of substantially uniform thickness surrounding and embracing said flanges and held in place by its engagement therewith.

8. An easily opened air tight receptacle comprising two sheet metal parts having superimposed flanges and a sealing strip surrounding and embracing said flanges, said sealing strip comprising a channel-shaped piece of thin malleable sheet metal of substantially uniform thickness, one flange of said sealing strip and the flanges of said receptacle parts being offset a distance approximately equal to the thickness of the metal of said sealing strip.

9. A seam for receptacles comprising flanges on the receptacle parts, and a readily removable sealing strip comprising a channel-shaped member of thin malleable metal embracing said flanges, said sealing strip and receptacle flanges being pressed together and the receptacle flanges and a flange on said sealing strip being offset between the edges thereof to form two zones lying in substantially parallel planes.

10. The combination with a receptacle and a cover therefor, each of these having an outwardly directed flange, such flange having an outer and an inner zone disposed in substantially parallel planes and a zone intermediate thereof disposed in a plane transverse thereto, the transverse zone of one flange being located in such position that the exposed surface thereof will face inwardly and the transverse zone of the other flange being so located that the exposed surface thereof will face outwardly, and a readily removable thin malleable metal sealing strip having two united flanges one overlying and mating with one of said first mentioned flanges and having a transversely disposed zone located inwardly of the said inwardly facing surface, and the other flange of the fastening member overlying and mating with the outer zone of the other of the said first mentioned flanges and having its outer surface flush with the outer surface of the inner zone of such flange.

In testimony whereof, I have hereunto subscribed my name.

JOHN C. BOWERS.

Witnesses:
GEORGE B. GLIDDEN,
ROBERT GORTON