March 22, 1938. J. WORTHINGTON 2,111,656

SHEET METAL CONTAINER AND METHOD OF MAKING THE SAME

Filed May 21, 1936

FIG. 1.

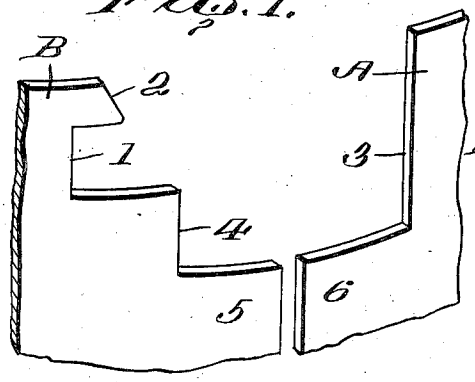


FIG. 4.

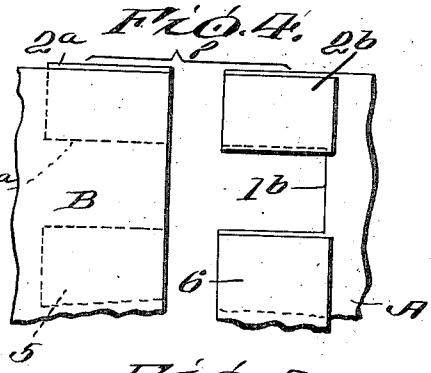


FIG. 5.

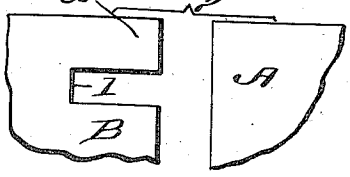


FIG. 2.

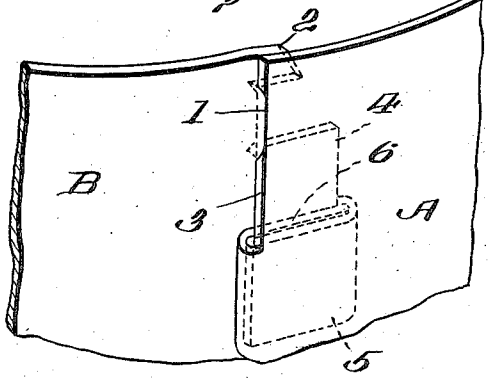


FIG. 6.

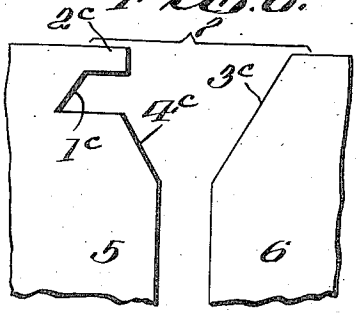


FIG. 3.

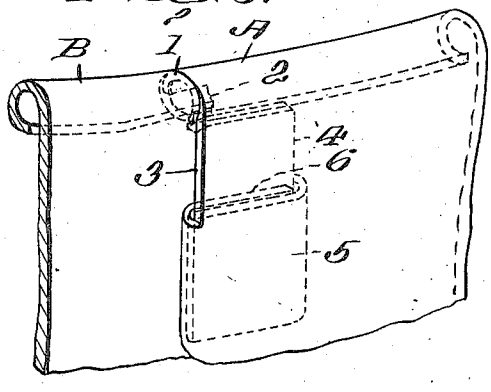
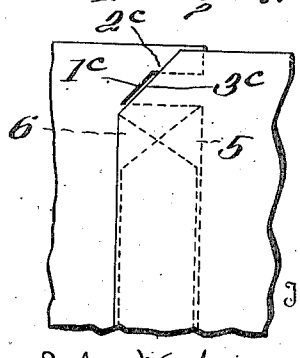


FIG. 7.



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2,111,656

SHEET METAL CONTAINER AND METHOD OF MAKING THE SAME

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Application May 21, 1936, Serial No. 81,092
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4 Claims. (Cl. 220—75)

This invention relates to sheet metal containers and a method of making the same, with special reference to a container having a curled top, which presents a sealing edge for use in conjunction with a lid having a resilient packing ring or sealing compound disposed, for example, in a groove in the lid.

Cylindrical containers have heretofore been constructed with a lock seam, with a butt joint at the curled portion which forms the mouth of the container, by forming rectangular notches in the corresponding corners of the blank from which the container is to be made, the inner edges of the notches meeting to form the butt joint when the edges of the blank are locked to form the container.

The object of the present invention is to provide an improved form of butt joint at the curled portion of the container which presents a perfectly even seating for the lid of the container and is of strong construction, so that it will not be damaged when the top of the container is curled over. In order to reinforce the seam, which is formed at the top of the curl as a butt joint, the seam at the lower portion of the curl is formed as either a lap or a lock seam.

A further object of the invention is to provide a practical method of making a reinforced butt joint of the type described.

The invention will be more particularly described in connection with the acompanying drawing, in which,—

Figure 1 is a perspective view of the two top corners of a blank for forming a can with a lock and lap seam and a curled top constructed in accordance with the invention.

Figure 2 is a similar view showing the meeting edges of the blank folded and interlocked, before the top edge is curled over.

Figure 3 shows a completed joint with the top edge curled over.

Figure 4 shows the two top corners of a blank of modified construction.

Figures 5 and 6 are views similar to Figure 4, showing other modifications.

Figure 7 shows a lock seam constructed from the blank shown in Figure 6, before the top edge is curled over.

As illustrated in Figure 1, the blank has been bent to a cylindrical shape preparatory to forming a cylindrical can. In accordance with the invention, the top corner A of the blank is formed with a rectangular recess 3 and the top corner B is formed with an opposed recess 4, the lower part of which is similar to the recess 3. At a short distance below the top of the corner B, however, a notch 1 is cut inwardly from the inner edge of the recess 4, leaving a tongue 2 at the top of the blank, which is preferably shortened and cut obliquely at the end, as shown in Figure 1.

The edges 5 and 6 are brought together and bent over upon the body of the blank into interlocking relation, as shown in Figure 2, with the inner edge of the notch 1 adjacent the inner edge of the recess 3 and pressed up into abutting relation thereto.

Preferably the straight edge of the notch 1 is maintained when the edge is pressed up but if it should incline away from the abutting edge of the recess 3, the gap may be filled with solder during the subsequent soldering operation.

Instead of pressing up the inner edge of the notch 1 into abutting relation to the inner edge of the recess 3, an equivalent result may be produced by pressing down the portions of the blank on each side of the notch.

After the seam has been formed as above described, it is soldered throughout its entire length, including the abutting portions and the tongue 2. This gives a strong combined lap and butt joint at the top of the container body and the top can then be curled over inwardly to dispose the butt joint at the top of the curl without causing any injury to the butt joint. A perfectly even surface is thus given to the top of the can, which can then form a hermetic seal with a lid having a resilient packing ring or a sealing compound disposed in a groove therein.

As will be apparent from Figures 2 and 3, by cutting away the folded edge 5 immediately below the notch 1 to form the recess 4 and by continuing the recess 3 down to the same level as the recess 4, a lap joint is formed immediately beneath the butt joint when the meeting edges are secured together, and this lap joint allows the opposed edges of the notch 1 and the recess 3 to be brought easily into abutting relation with each other, either during the locking operation as described above or during the subsequent curling operation.

In the modification shown in Figure 4, the lap joint on each side of the butt joint is dispensed with. A notch 1*a* is formed in the corner B, leaving the tongue 2*a*. A similar notch 1*b* is formed in the corner A, leaving a tongue 2*b*. The side edges 5 and 6 and the tongues 2*a* and 2*b* are folded over and united in a lock seam and the seam soldered throughout its length. The notch 1*b* is of a length equal to twice the width of the lock seam and the notch 1*a* is equal to the

width of the lock seam, so that when the seam is formed, the inner edges of the notches abut against each other to form a butt joint. The top of the can is then curled over so that the butt joint is disposed at the top of the curl.

In the modification shown in Figure 5, the invention is applied to a container having a lap seam. In such a construction, the recesses 3 and 4 are unnecessary and the notch 1 alone suffices to produce the butt joint at the top of the curl. Any slight gap at the edges of the butt joint can be bridged with solder when the seam is soldered.

While the notch 1 and the recess 4 have been shown as rectangular, any other shape may be used provided the butt joint is formed at the top of the curl and is strengthened by the tongue 2.

In the modification shown in Figures 6 and 7, the recesses 3c and 4c are formed by removing triangular portions, leaving a tongue or tongues 2c at the top. The notch 1c is then formed in the oblique edge of one recess, as 4c, and the inner edge of the notch is made oblique, as shown, to cooperate with the oblique edge of the other recess 3c to form a butt joint when the meeting edges are united in a seam.

From the foregoing description, it will be apparent that the curled top of the container, with a joint reinforced in accordance with the invention, has exceptional strength, so that the joint will not be damaged when the curl is formed.

It should be noted that the tongue 2 may be of any shape and the width of the tongue and of the notch may vary, for example, according to the size of the curl. Usually, however, it is advantageous to keep the notch 1 as narrow as possible and the tongue 2 as wide as possible, so as to maintain the strength of the structure.

While I have shown and described a number of modifications, it is to be understood that the invention is not limited thereto, but includes such other modifications as may fall within the scope of the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A sheet metal container having a side seam and a curled top, the top of the curl having a butt joint seam and the edges of the seam at the lower portion of the curl extending past each other for the purpose of strengthening the butt joint.

2. A sheet metal container having a side seam and a curled top, the seam at the top of the curl being in the form of a butt joint and at the lower portion of the curl being in the form of a lap seam.

3. A sheet metal container having a side seam and a curled top, the seam being in the form of a butt joint at the top of the curl and in the form of a lock seam at the lower portion of the curl.

4. A sheet metal container having a side seam and a curled top, said side seam being entirely a lap and lock seam except at the upper portion of the curl, where it is in the form of a butt joint.

JOHN WORTHINGTON.