June 6, 1944. J. M. ROJO 2,350,824

METHOD OF MAKING CAN BODIES

Filed May 18, 1942

FIG. 1.

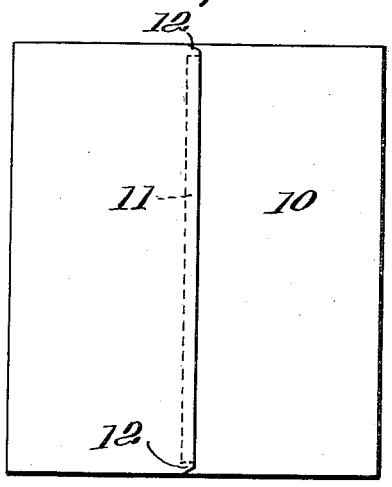


FIG. 4.

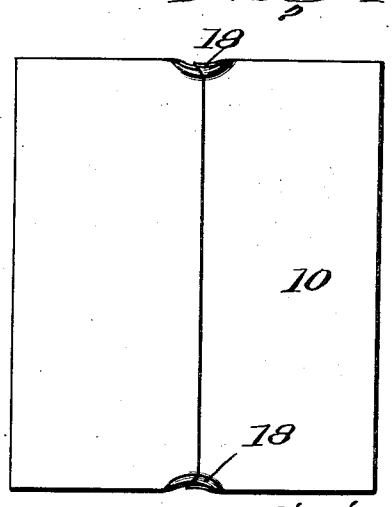


FIG. 2.

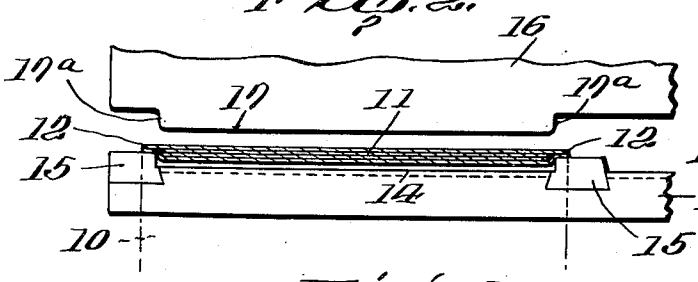


FIG. 3.

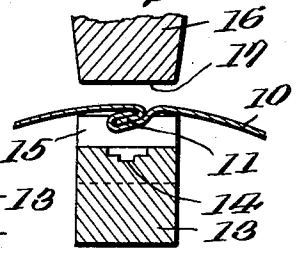


FIG. 5.

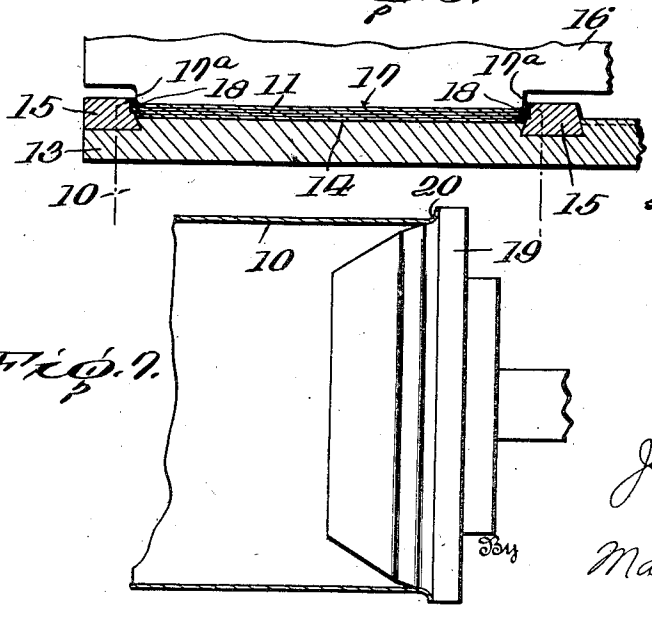


FIG. 6

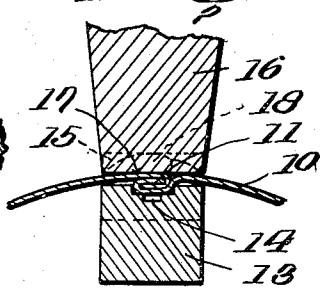


FIG. 7.

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METHOD OF MAKING CAN BODIES

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Application May 18, 1942, Serial No. 443,523

1 Claim. (Cl. 113—120)

The present invention relates to new and useful improvements in a method of making sheet metal can bodies, and more particularly to improvements in a method of flanging can bodies of the type having a solderless side seam.

Solderless side seams of can bodies of this type generally include an intermediate lock seam with lap sections at the ends thereof. The lock seam is formed in the usual manner by bumping interlocking hooks at the edges of the can body. At the opposite ends of the lock seam, there are provided relatively short lapping sections. In forming body flanges for the attachment of can ends, it has been customary to subject the formed can body to the action of a flange die which is shaped so as to outwardly expand and outwardly roll the edge portions of the can body in the region of the lap sections. This action produces an outwardly curved flange which lies in a plane substantially at right angles to the longitudinal axis of the can body. In following this procedure, considerable difficulty has been encountered in producing a sufficiently tight joint at the lap sections because of the double thickness of metal at these points and also because there is no support at the outside of the can body in the flanging operation. Thus, the lap sections tend to separate or open so that leakage is liable to occur.

The principal object of the present invention is to produce a sufficiently tight seam in can bodies of the type referred to above.

Another object of the invention is to provide a method of forming can bodies of the above type wherein the lap sections of the solderless side seam are maintained in tight contact during the flanging operation so as to produce a sufficiently tight container.

A further object of the invention is to provide a method of forming can bodies of the above type wherein the body flange in the region of the lap sections is preformed during bumping of the lock seam and prior to completion of the body flange under the action of flanging dies.

The above and other objects of the invention will in part be obvious and will be hereinafter more fully pointed out.

In the accompanying drawing:

Figure 1 is a side elevation of a can body prior to the formation of the body flanges.

Figure 2 is a side view with the can body in section, showing the position of the can body between the spline and the bumping iron prior to the bumping operation.

Figure 3 is an enlarged end sectional view of Figure 2.

Figure 4 is a side elevation of the can body after the preforming of the body flanges in the region of the lap sections.

Figure 5 is a sectional view through the spline and showing the formation of the preformed flange portion during bumping of the lock seam.

Figure 6 is an enlarged end sectional view of Figure 5.

Figure 7 is a diagrammatic view showing the completed flanging operation under the action of a flanging die.

The method of the present invention will be described in connection with the flanging of a can body having a solderless side seam which includes interlocking hooks throughout the major portion thereof and lap sections at the ends of the side seam. This type of container is well known so that only brief reference need be made thereto. As shown in Figure 1 of the accompanying drawing, the can body 10 has the edges thereof secured together by a solderless side seam. This side seam includes interlocking hooks 11 which form a lock seam. The opposite ends of the side seam are formed by lap sections 12. The can body is preferably cylindrical in shape and is formed in the usual manner about a horn and the hooks 11 are interlocked after which they are bumped into tight and intimate contact with each other. This is accomplished by placing the interlocked hooks on a spline 13 which is carried by the horn (not shown) in the usual manner.

The spline 13 is provided with the usual recess 14 for receiving the interlocking hooks 11 during the bumping operation. The spline is also provided with outwardly projecting blocks 15 which are longitudinally spaced along the recess 14 so that the hooks 11 fit between the blocks with the lap sections 12 resting on the blocks, as particularly shown in Figure 2 of the accompanying drawing. In the position of Figure 2, the can body is in position for the bumping operation which is accomplished by a bumping iron 16 which has a rib portion 17 terminating at the ends of the hooks 11 and within the blocks 15 on the spline.

As the bumping iron 16 is moved toward the spline for bumping the hooks 11 forming the lock seam, the outer surface of the rib 17 will force the lock seam into the recess 14, as shown in Figures 5 and 6. The ends 17a of the rib 17 provide shoulders which fit within the blocks 15 during the bumping operation so that the lap sections 12 are forced outwardly and in tight contact with one another between the blocks 15 and the shoulders 17a on the bumping iron. This

position of the can body is shown in Figures 5 and 6 and this bumping action results in the preforming of limited flange portions 18 in the region of the lap sections, as shown in Figure 4. Thus, the body flanges to which the can ends are secured are partially preformed during the lock seam bumping operation so that the lap sections 12 are maintained in tight contact with one another.

After the bumping and partial flanging operation, the can body is subjected to the action of a flange die 19 (Figure 7) so that the body flange 20 is completed around the edges of the can body and this completed body flange 20 forms a continuation of the preformed flange portion 18.

From the foregoing description, it will be seen that the present invention provides an efficient method of forming sheet metal can bodies with solderless side seams. The initial formation of a part of the body flange at the lap sections serves to maintain these lap sections in tight contact with each other in order to prevent leakage when the can ends are secured thereto. This preforming of a part of the body flange at the lap sections is accomplished during bumping of the lock section of the side seam and the bumping iron and blocks on the spline are shaped to cooperate with one another in maintaining this tight contact between the flanged lap sections. After this initial preforming of a part of the body flange, the formed can body is subjected to the action of conventional flanging dies which complete the formation of the body flanges as continuations of the preformed flange portions at the lap sections. Heretofore, the lap sections tended to separate or open up during the flanging operation so that leakage was apt to occur but with the present method, the lap sections are maintained in tight contact with one another during the initial flanging operation and the final flanging operation does not disturb the previously flanged lap sections.

It is to be clearly understood that the method can be carried out with minor variations without distinguishing from the scope of the invention as set forth in the appended claim.

I claim:

The method of forming a sheet metal can body having a solderless side seam including interlocking hooked portions and lapping portions, comprising shaping the can body and engaging the hooked portions, subjecting said engaged hooked portions to pressure for interlocking the same in a tightly-formed seam, simultaneously pressing the lapped portions of the side seams into contact, one with the other, and curving said contacting lapped portions outwardly to form a partial flange and then simultaneously die-shaping the body wall and the partially formed flange into a completed seaming flange extending all away around the end of the can body.

JESÚS MIGUEL ROJO.