Nov. 21, 1944. W. F. PUNTE 2,363,358

METHOD OF MAKING SHEET METAL CAN BODIES

Filed Aug. 21, 1942

FIG. 1.

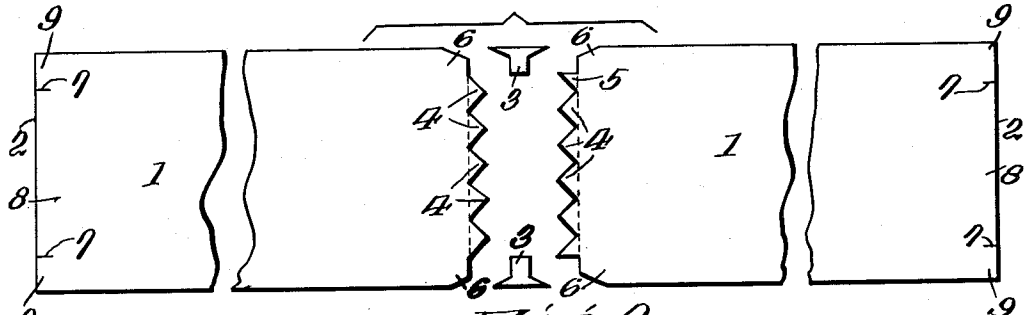


FIG. 2.



FIG. 3.

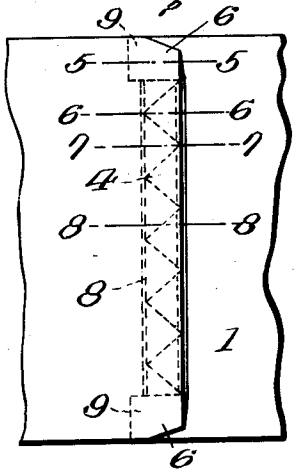


FIG. 5.

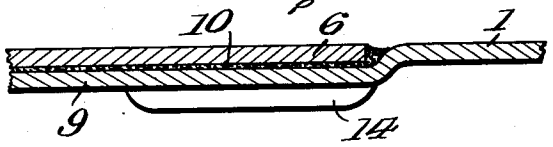


FIG. 6.

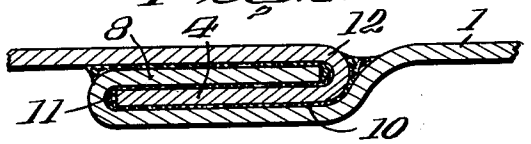


FIG. 7.

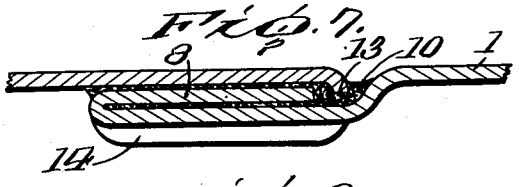


FIG. 4.

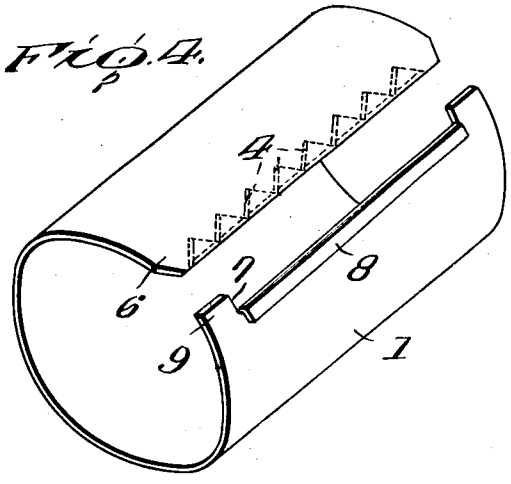
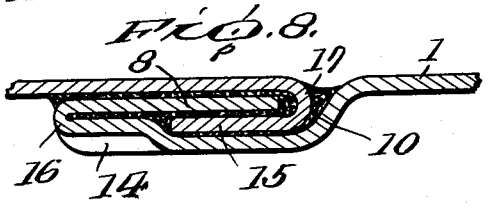


FIG. 8.



Inventor

William F. Punte

By Mason, Porter & Diller

Attorneys

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METHOD OF MAKING SHEET METAL CAN BODIES

William F. Punte, Passaic, N. J., assignor to Continental Can Company, Inc., New York, N. Y., a corporation of New York

Application August 21, 1942, Serial No. 455,643

1 Claim. (Cl. 164—17)

The invention relates to new and useful improvements in the method of making can bodies and more particularly to a can body wherein the side seam is of the lock and lap type.

An object of the invention is to provide a method of forming can bodies from metal strips wherein the portions which are to form the hooks at one end of the body blanks are so shaped that the hooks for two blanks may be formed from a metal portion in the strip which is no wider than the length of a single hook and thus reduce the waste material to a minimum.

In the drawing, which shows by way of illustration one embodiment of the invention—

Figure 1 is a plan view showing more or less diagrammatically the manner of cutting a strip to provide the body blanks for two can bodies;

Figure 2 is a sectional view through one of the body blanks with the hooks formed thereon;

Figure 3 is a view showing the blank bent to form the can body and previous to the interlocking of the hooks;

Figure 4 is an outside view of a portion of the can body and showing the completed side seam;

Figure 5 is a section on the line 6—6 of Figure 4;

Figure 6 is a section on the line 6—6 of Figure 4;

Figure 7 is a section on the line 7—7 of Figure 4;

Figure 8 is a section on the line 8—8 of Figure 4.

The improved can body is made from metal blanks which are indicated at 1 in Figure 1 of the drawing. The blank may be of black iron or tin coated sheets of black iron or any other suitable metal. The blanks may be made from sheets or they may be made from a strip of metal. In either case the invention has to do with the shaping of one of the hooks forming the side seam so as to save metal. The method of cutting the hooks will be described in connection with the forming of the body blanks from a strip of metal.

In Figure 1 there is shown two body blanks which are cut from a strip of metal, the width of the strip being the length of the formed can body. The strip is cut along lines transversely of the strip. Alternate lines are straight. These straight lines are indicated at 2—2 in Figure 1. The line of cutting of the strip in between the straight lines is so shaped as to form the hooks for the two body blanks from a metal portion which is no wider than the length of a single hook. The strip is notched so as to cut out portions 3—3 at each side of the strip and it is cut along a zig-zag line so as to form projecting hook portions 4—4 which are similar in construction and which are V-shaped with the side edges formed on the same angle and intersecting at the base of the hook portions.

The hook portions 5—5 on one of the blanks are only half the size of the other hooks, but the inclined edge of this portion intersects the inclined edge of the adjacent hook at the base line of the hooks. The cut-away portions 3 form lap sections 6—6 for the side seam. The body blank is slit at the ends opposite these V-shaped hooks along lines 7—7 and this forms a hook portion 8 which extends from one lap section 9 to the other lap section 9. The hook portions 4—4 are substantially the same length from the base line to the tips thereof as the hook portion 8.

After the body blanks are cut as described above, they may be selected promiscuously as they are interchangeable and then they are shaped into body form as indicated at A in Figure 3. The hooks 4—4 are then interlocked with the hook 8 and the seam is bumped. In Figure 4 the completed seam is shown and it will be noted that the hooks 4 extend to the base of the hook 8 and likewise the hook 8 extends to the base of the hooks 4. The hook 8 is usually referred to as the inner hook while the hooks 4 are the outer hooks.

Figures 5 to 8 of the drawing are sections through the side seam transversely thereof. For the purpose of illustration the body wall is shown as straight instead of curved. In Figure 5 the outer lap section 6 is shown solder bonded to the inner lap section 9 by a solder bond 10. During the bumping of this portion of the side seam the lap section is inset so that the outer face of the lap section 6 is in alignment with the outer face of the body wall.

Figure 6 is a section through the V-shaped hook at the vertex of the hook which is indicated at 11. The edge of the hook 8 which interlocks with this V-shaped portion 4 is indicated at 12. At this portion of the side seam we have in effect two full width hooks interlocked with each other and joined by the solder bond which is indicated at 10.

Figure 7 is a section through the side seam at the point where the side edges of adjacent hook portions intersect and this is the base line of the V-shaped hook portions. This intersecting line of the edges of the adjacent hooks is indicated at 13 in Figure 7. The hook 8 of course is of full

length but there is no hook portion 4 at this portion of the side seam. The metal in the body wall carrying the inner hook 8 is bumped into the space between adjacent V-shaped hook portions, as indicated at 14 in this figure. This bumping of the metal so as to inset it into the hook portion is accomplished on the bumping horn. The horn is provided with projecting portions so that when the bumping iron contacts with the outside of the interlocked seam portions, the metal of the interlocked parts will be brought into intimate contact and this results in this depressing of the metal in the body wall into the space between the hooks 4.

Figure 8 is a section taken through the seam between the extreme end of the V-shaped hooks and the point where the side edges of the hooks intersect at the base line. This, of course, provides a relatively short outer hook portion 15 which interlocks with the hook portion 8 and the metal is bent inwardly as indicated at 14 so that said inwardly bent portion makes intimate contact with the hook 8 in the region between the end of the hook portion 15 and the base of the hook 8. By the term "base of the hook 8" is meant the portion where the metal is bent back upon itself to form the hook. This base of the hook 8 is indicated at 16. The base of the hook portions 4 is indicated at 17.

From the above description it will be apparent that a can body is produced with a lock and lap solder bonded side seam wherein there is a considerable saving of metal for the reason that the hooks at the ends of the body blanks of two can bodies are formed from a portion of metal no wider than that necessary for forming a single hook. Furthermore, these hooks are formed so that the body blanks are reversible and may be promiscuously used in the forming of can bodies. Not only is there a saving of metal, but when one edge is provided with a plurality of V-shaped projecting hooks, this greatly facilitates the solder-bonding of the seam. In Figure 8 it will be noted that the solder bond which is indicated at 10 can flow into the side seam at the base of the V-shaped projecting hook portions and along both sides of the hook 8. At the portion of the side seam indicated in Figure 8, again the solder bond which is indicated at 10, can flow readily into the side seam and comes into contact with the inner hook substantially at the middle of the side seam. This construction of side seam not only aids in the solder bonding of the side seam, but it also strengthens it because of the bending of the body blank into the recesses between the V-shaped hook portions.

It is obvious that minor changes in the details of construction and arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claim.

What I claim is:

Method of forming a sheet metal can body blank comprising providing a strip of metal of a width equal to the length of the can body, cutting said strip into body blanks by transverse cutting lines alternate cutting lines being straight and at right angles to the side edges of the strip, slitting said straight edge to form a hook between the slits and laps at the ends thereof, notching said strip intermediate the straight lines for forming lap sections and cutting said strip along a zig-zag line from one notch to the other so as to provide V-shaped hook portions, the adjacent sides of which intersect at the base line of the hook portions.

WILLIAM F. PUNTE.