C. F. HAKE, Jr.

METHOD OF CONSTRUCTING CAN AND PAIL BODIES.

APPLICATION FILED NOV. 15, 1916.

1,233,345.

Patented July 17, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

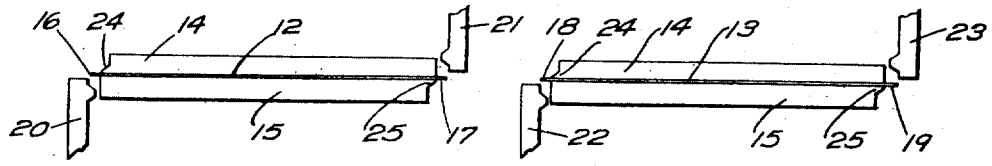


Fig. 2.

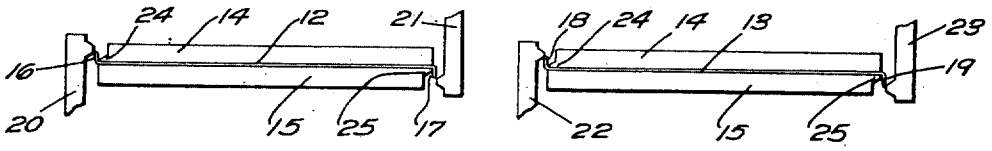


Fig. 3.

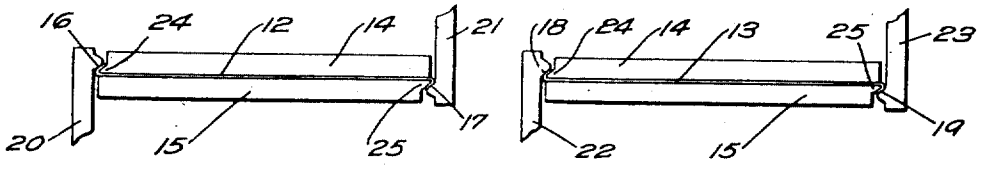


Fig. 4.

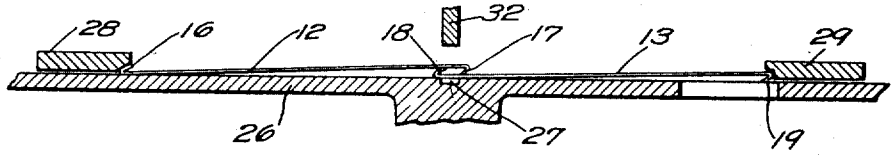


Fig. 5.

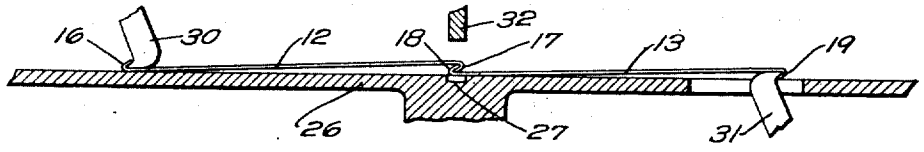
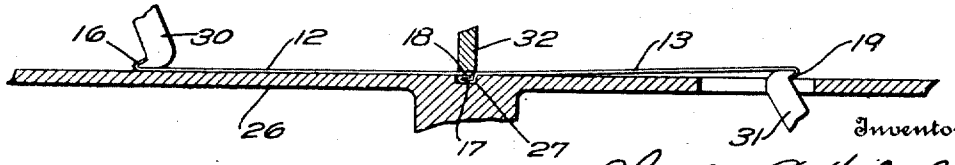


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

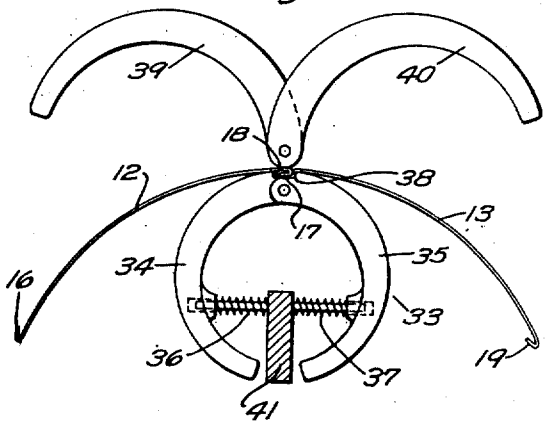


Fig. 8.

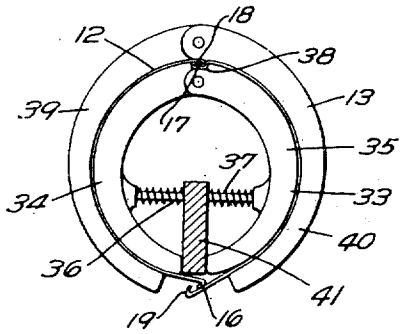


Fig. 9.

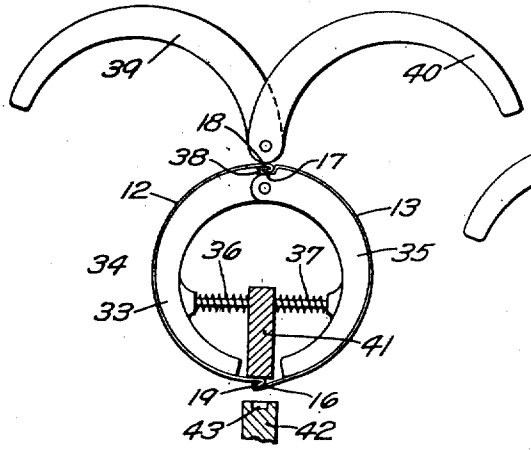


Fig. 10.

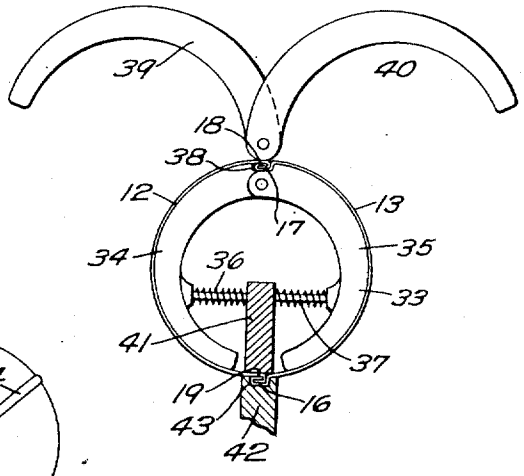
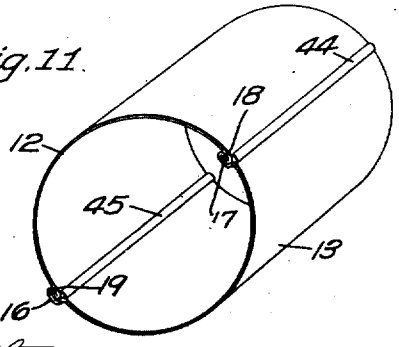


Fig. 11.



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METHOD OF CONSTRUCTING CAN AND PAIL BODIES.

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Application filed November 15, 1916. Serial No. 131,369.

To all whom it may concern:

Be it known that I, CHARLES F. HAKE, Jr., a citizen of the United States of America, and resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Method of Constructing Can and Pail Bodies, of which the following is a specification.

This invention relates particularly to an improved method of constructing the bodies of large cans such as the ordinary fifty pound lard cans.

In the manufacture of cans of large sizes the bodies are constructed of more than one sheet of metal to avoid the cost of constructing them of a single large sheet. This present method of constructing can bodies from a number of small sheets, consists in first curving and then joining the small sheets together by hand and has marked advantages in that separately curving each sheet and then joining them by hand necessitate additional handling operations which consume time and add to the cost of the product.

An object of this invention is a method of constructing can bodies from a number of small flat sheets in which the number of steps is reduced and simplified.

This and other objects are attained in the method described in the following specification and illustrated in the accompanying drawings, in which;

Figures 1 to 11 inclusive, illustrate in order the various steps taken in the manufacturing operations necessary to produce a can by means of my improved method.

In the illustrated embodiment of my improved method I have disclosed the operations necessary to construct a can body of two sheets of metal. In this embodiment I place two flat sheets 12 and 13 between duplicate pairs of dies 14 and 15, in such a manner that the edges of the sheets 12 and 13 extend beyond each side of the dies so as to leave projecting edges 16 and 17, 18 and 19. Adjacent to these projecting edges I preferably provide bending tools 20, 21, 22 and 23. These tools after having been brought to the position disclosed in Fig. 1, are moved to the positions disclosed in Fig. 2 in which the tools 20 and 22 have been moved upwardly and the tools 21 and 23 have been moved downwardly, this operation bending the projecting edges 16 to 19 inclusive, over the edges of the respective dies 14 and 15. The edges having been bent to these right angle positions, as disclosed in Fig. 2, are bent inwardly so that they form acute angles with the main portions of the sheets, by moving the bending tools 20 to 23 inclusive, inward, the edges being bent over the wedge shaped portions 24 and 25 of the respective dies 14 and 15. This produces hooks extending in opposite directions and located on opposite sides of the sheets.

The sheets are now passed from the dies 14 and 15 and placed upon a table 26, the adjacent hooked edges being brought into overlapping engagement with one another as disclosed in Fig. 4, and in such a position with relation to the table that the overlapping hooked edges are located above a groove 27 formed in the surface of the table and below a die 32. In order to move the sheets to this overlapping position two blocks 28 and 29 are provided, the blocks moving inward until the sheets occupy the overlapping positions shown. After having been brought to this position, the blocks 28 and 29 are removed and hooks 30 and 31 are brought into engagement with the top and bottom sides of the respective sheets 12 and 13 so as to engage the hooked outer edges. These hooks 30 and 31 are moved outward and away from one another until the overlapping hooked inner edges are brought into hooked relation with one another and centrally of the groove 27. With the hooks 30 and 31 maintaining sufficient tension on the sheets to prevent their disengagement from one another, die 32 is brought into engagement with the inner hooked edges of the sheets so as to force them into the groove 27. This forcing of the hooked edges into the groove causes them to be crimped or pressed into clamping engagement with one another, the metal of the edge 18 being off set at right angles to the sheet 13 so as to produce a shoulder against which the outer edge of the hooked edge 17, may abut. This prevents disengaging movement of the hook of edge 17 with relation to the hook of edge 18.

After having been bent to these interlocked positions, the single flat sheet so formed is removed from the table and is placed over a mandrel 33. This mandrel consists of two relatively movable members 34 and 35 which are pivotally connected at their upper ends and which are normally

held apart by means of springs 36 and 37. At the upper ends of the movable members 34 and 35, a groove 38 similar in form to the groove 27 above described, is provided. With the sheet in the position disclosed in Fig. 7, arms 39 and 40 located above the mandrel 33, are brought into engagement with the overhanging edges of the sheet so as to force them to the positions disclosed in Fig. 8 in which the outer hooked edges 16 and 19 are brought into overlapping engagement with one another. In their movement to bring these edges to this position, the wings 39 and 40 have caused the members 34 and 35 of the mandrel to move inward and into engagement with opposite sides of an anvil block 41 forming an element of the mandrel. With the edges thus overlapped, the wings are removed from the positions disclosed in Fig. 8 and are moved to the positions disclosed in Fig. 9, the members 34 and 35 thus being permitted to expand under the action of springs 36 and 37 to bring the hooked outer edges into hooked relation with one another. The inter-hooked edges are maintained in this position and a hammer 42 is brought into engagement with the hooked edges so as to press or crimp them into clamping engagement with one another, the groove 43 causing the metal of the outer portion of sheet 13 to be off set in the same manner as it was in the operation disclosed in Fig. 6. The joint thus formed is the duplicate of that formed in the operation disclosed in Figs. 4 to 6 inclusive, the hooked edges being clamped or crimped together and prevented from becoming disengaged from one another by the offset above described.

It will be noticed that in my method there is only a single curving operation of the sheets instead of the several curving operations thereof in the old method.

The operation of forming the joints necessary to construct the can body, having been completed, the body is removed from the mandrel and, if desired, is passed through a soldering operation in which the joints are soldered as disclosed at 44 and 45 in Fig. 11, the joints having preferably been formed in the manner described, so that solder may be applied to the outside of the top sheets as disclosed at 44 in Fig. 11 and so that solder may be applied to the inside of the bottom joint, as disclosed at 45 in Fig. 11, the object being to facilitate the handling of the bodies by eliminating the necessity of having to perform the additional operation of rotating the can through a half circle in order to reach the same point of both seams, this operation eliminating time in the handling of many can bodies and consequently aiding in reducing the cost of production theerof.

In place of performing the complete soldering operation after the body has been formed, the joint first formed may be soldered while the sheet is still flat and then after the sheet has been bent and the second joint formed, the second soldering operation may be completed.

The body thus having been constructed, the operation of placing the bottom, ears, and bail in position may be performed in the usual manner, the top edge of the body being beaded if desired, to strengthen it.

Having thus described my invention, what I claim is:

1. A method of constructing can and pail bodies consisting of bending the opposite edges of a plurality of flat sheets to form oppositely extending hooks, overlapping the oppositely extending hooks of adjacent edges of adjacent flat sheets, drawing the hooked edges into hooked engagement with one another, maintaining the edges in hooked engagement, crimping the interhooked edges to lock the flat sheets together, bending the free edges of the joined flat sheets to form a cylinder, interlocking the free edges, maintaining the free edges in hooked relation to one another, and crimping the edges to lock them together.

2. A method of constructing can and pail bodies consisting of forming hooks on the opposite edges of a plurality of flat sheets, interhooking and crimping adjacent hooked edges of adjacent flat sheets, bending the joined sheets to bring the free hooked edges into interhooking relation with one another, and crimping the last mentioned edges together.

3. A method of constructing can and pail bodies consisting in bending opposite edges of a plurality of flat sheets to form hooks, interhooking adjacent hooked edges of adjacent flat sheets, crimping the interhooked edges to press them together and to form an offset adapted to prevent displacement of one from the other, bending the single flat sheet so formed, to bring the free edges together, interhooking the free edges, and crimping the interhooked free edges to clamp them together and to form an offset therein adapted to prevent displacement of one from the other.

4. A method of constructing can and pail bodies, consisting in locking adjacent edges of a plurality of flat sheets into locking engagement with one another, bending the single flat sheet thus formed, and crimping the free opposite edges of the sheet into locking engagement with one another.

5. A method of constructing can and pail bodies consisting in bending the opposite edges of a plurality of flat sheets, to form oppositely extending hooks, overlapping oppositely extending hooks of adjacent edges of adjacent sheets, drawing the hooked edges into hooked engagement with one another, maintaining the edges in hooked engage-

ment, crimping the interhooked edges to lock the sheets together, bending the joined sheets to form a cylinder, interhooking the free edges, maintaining the free edges in hooked relation to one another, offsetting the edges to lock them together, and soldering the edges to seal the joints thus formed.

6. A method of constructing can and pail bodies consisting in crimping the adjacent edges of a plurality of flat sheets into locking engagement with one another, bending the single flat sheet so formed to bring its opposite free edges into engagement with one another, crimping the free edges into locking engagement with one another, and soldering the crimped edges to seal the joints thus formed.

7. A method for forming sheet metal cans and pails from a series of flat metal sheets consisting of bending the opposite edges of the sheets to form an inwardly and an outwardly turned hook, placing the sheets in a flat condition and interlocking adjacent hooks, curving the interlocked sheets to a cylindrical form and causing the free hooks to engage, expanding the cylinder to interlock the hooks, and compressing the hooks together.

8. A method of constructing sheet metal can and pail bodies consisting in crimping the adjacent edges of a plurality of flat sheets into locking engagement with one another, bending the single flat sheet so formed to bring its opposite free edges into engagement with one another, crimping the free edges into locking engagement with one another, and soldering certain of said joints interiorly of said body and other of said joints exteriorly of said body.

In testimony whereof, I have hereunto subscribed my name this 3rd day of November, 1916.

CHARLES F. HAKE, JR.

Witnesses:

ANTON MILL, JR.,

WALTER F. MURRAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."