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APPARATUS FOR MAKING SHEET METAL VESSELS

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Fig. 1.

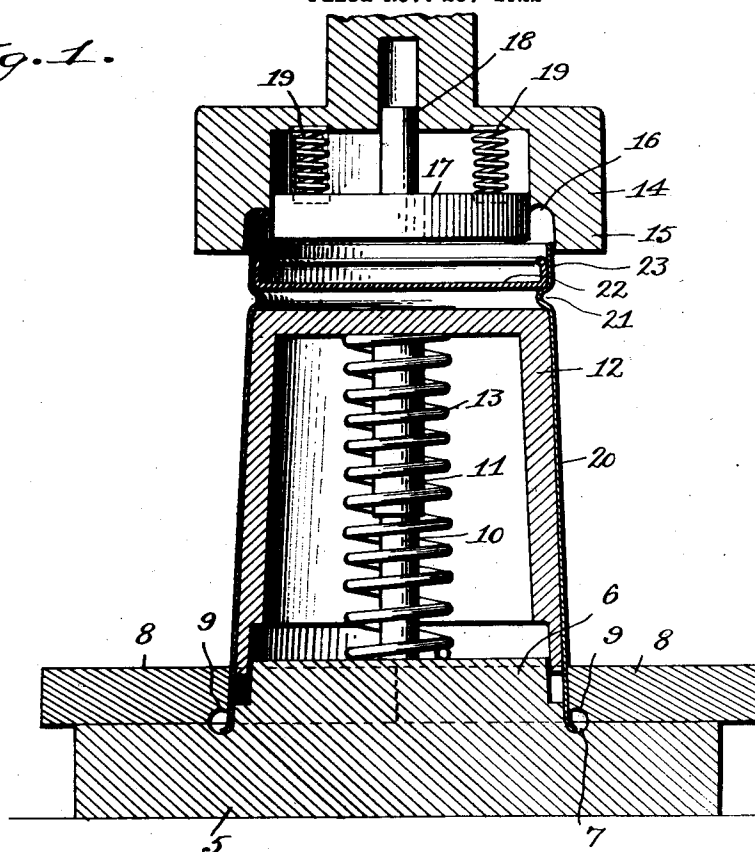
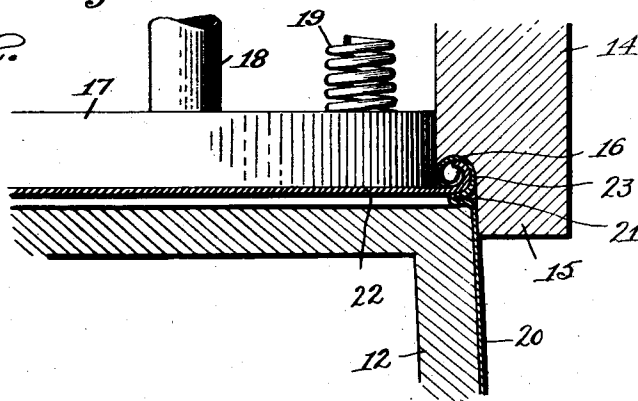


Fig. 2.



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APPARATUS FOR MAKING SHEET-METAL VESSELS.

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The object of this invention is to provide an apparatus for economically fastening the sheet-metal bottom on a sheet-metal vessel and at the same time forming the curled bead on the rim of the vessel, as more fully hereinafter set forth.

In the drawing—

Fig. 1 is a vertical sectional view showing an apparatus capable of carrying out my method;

Fig. 2 is a detail cross-sectional view showing the parts in position at the completion of the stroke of the die.

Referring to the drawing annexed by reference-characters, 5 designates a base having formed on it a central circular boss 6, at the base of which is formed an annular groove 7 forming one-half of the rim-bead die. The other half of the rim-bead die is formed in two die-plates 8 removably resting upon the base and provided with a complementary die-groove 9.

Upstanding from the center of the boss 6 is a rigid post 10, and slidingly fitting down over this post is a sleeve 11 which depends from the top wall of a cylindrical form 12 whose lower edge slidingly embraces the outer wall of the boss 6. This form 12 is tapered upwardly and is held in its up position by means of a strong coil-spring 13.

Reciprocatingly supported (by means not shown) above the form is a die-head 14 whose lower edge 15 is cylindrically shaped and is adapted, when the die-head is forced down, to embrace and fit around the upper end of the form 12. Within this die-head is formed an annular semi-circular die-groove 16, and centrally within the die-head is mounted a circular plunger 17 having an upstanding guide-pin 18 and a pair of expansible coil-springs 19 normally forcing the plunger downwardly to the limit of its downward movement, this limit bringing the lower face of the plunger 17 on a plane below the die-groove 16.

The open-ended, tapered can or bucket-body 20 is slipped down over the form 12 with its rim-edge lying in the die-groove 7, this edge being preferably slightly flared outwardly before the bucket-body is put on the form. Previously formed in the bucket-body, by pressing the metal annularly inwardly, is an inwardly-extending open bead 21; this bead being positioned at a distance from the bottom edge of the bucket, at a point where it will rest upon the top edge

of the form 12 when the rim edge is resting in the die-groove 7. After the bucket-body, previously formed and shaped as described, is thus placed on the form, the bottom disk 22 is dropped into place on the bead 21, this bottom disk being provided with an annular flange 23 extending toward the bottom edge of the bucket-body, which flange lies against the interior of the bucket-body and is desirably previously curled inwardly slightly.

After the parts of the bucket are thus placed on the form, the die-head is forcibly moved downwardly. The first result of this downward movement of the die-head is to cause a downward movement of the form 12 against the action of spring 13 and thus curl the rim-edge of the bucket-body by means of the die-grooves 7 and 9. Further movement of the die-head downwardly crushes or flattens the bead 21 and curls the bottom rim-edge of the bucket-body and the flange 23 inwardly to thus not only solidly interlock these flanges but also to solidly clamp the bottom-plate against the bead 21. The spring-pressed plunger 17 serves not only to assist in curling the bottom flange of the bucket, but also to clamp the bottom plate solidly in position against the bead throughout the area of the bottom plate during all the operations, the normal position of the plunger 17 being such that it desirably comes into contact with the bottom plate 22 at about the same moment that the die-groove 16 comes in contact with the bottom rim of the vessel. In this way, it will be observed that the entire operation of beading the rim-edge of the vessel and fastening in the bottom plate is accomplished with one stroke of the die-head. It will be observed also that the manner of forming the bottom plate 22 and the manner of fastening it in position provides the bucket with a very substantial closure which will require no further operations to make it water-tight except the usual tinning process and also which will avoid the use of objectionable exterior beads on the can-body.

I claim:

1. An apparatus for the purpose set forth consisting of a base and cooperating plates for producing a rim-bead on the bucket-body, a form adapted to fit within the bucket-body mounted on said base and normally pressed upwardly, and a reciprocating

ing die-head mounted above the form and adapted to cooperate therewith to bead the bottom edge of the bucket-body and force said form downwardly to form the rim-bead
5 of the bucket-body.

2. An apparatus for the purpose set forth consisting of a base having a boss and means forming a rim-bead on the bucket body, a bucket form having its lower open end sur-
10 rounding said boss, a spring for resiliently

supporting said form, and die means adapted when thrust downwardly on top of the form to form the bottom bead and lock the bottom disk in the bucket and simultaneously depress the form against the action of the
15 spring to thereby shape the rim-bead.

In testimony whereof I hereunto affix my signature.

MICHAEL A. ROLLMAN.