April 20, 1926. 1,581,680

C. GUERITEY

MEANS FOR MAKING CLOSURES FOR CONTAINERS

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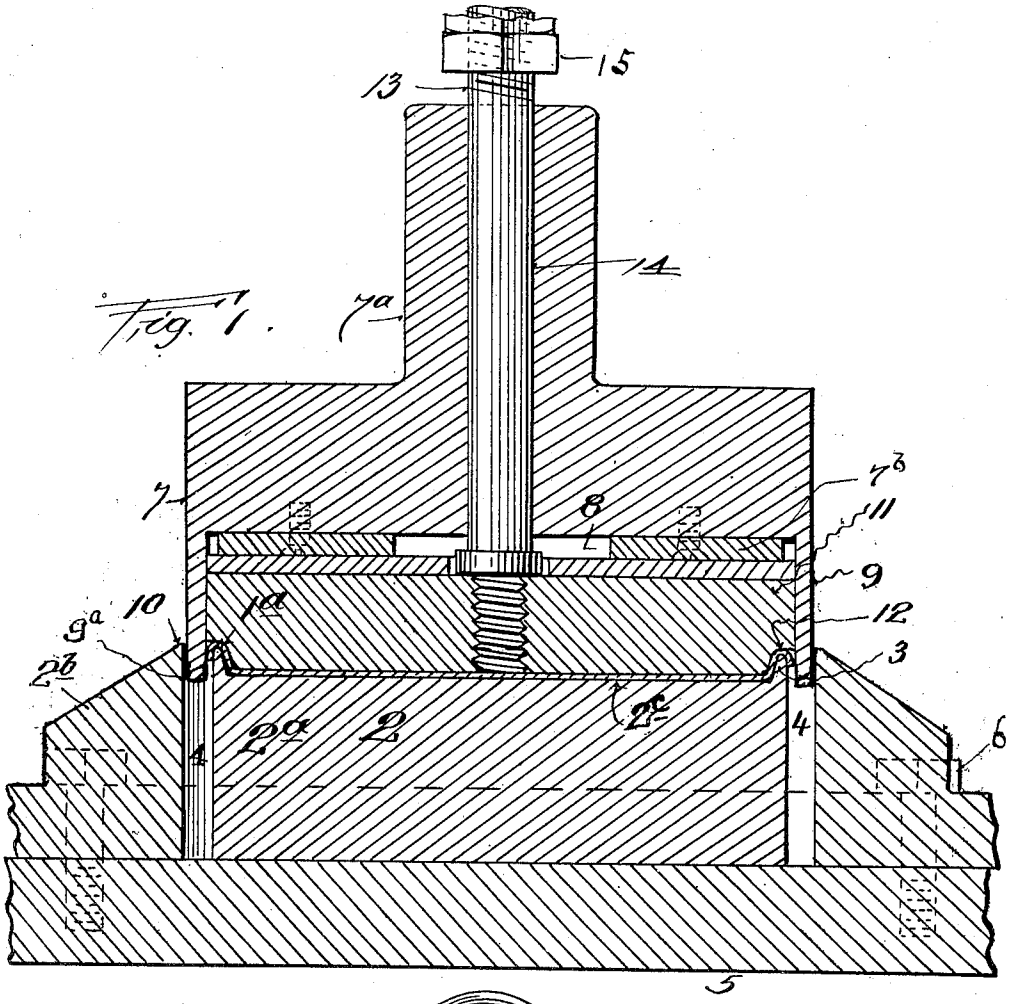


Fig. 1.

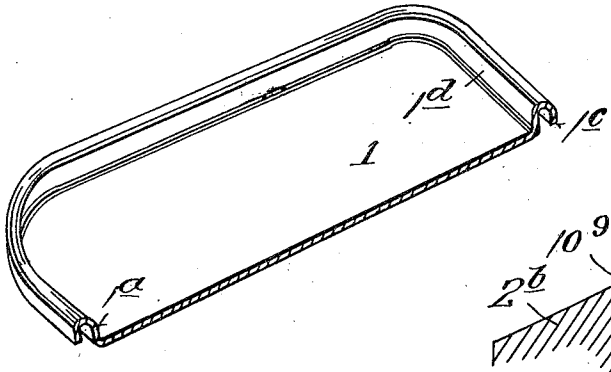


Fig. 3.

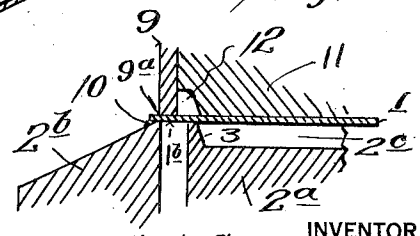


Fig. 2.

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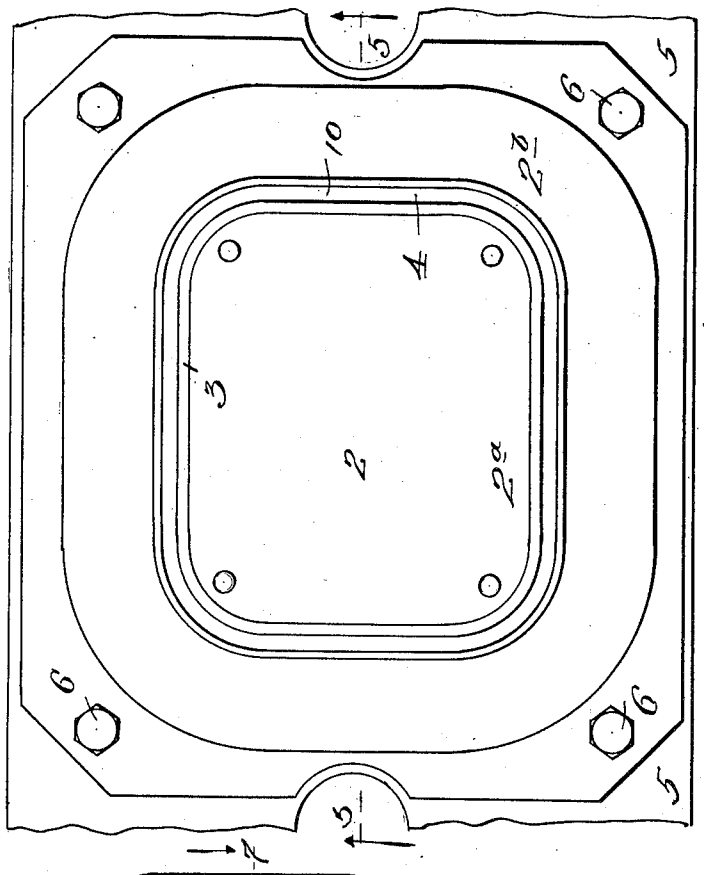


Fig. 4.

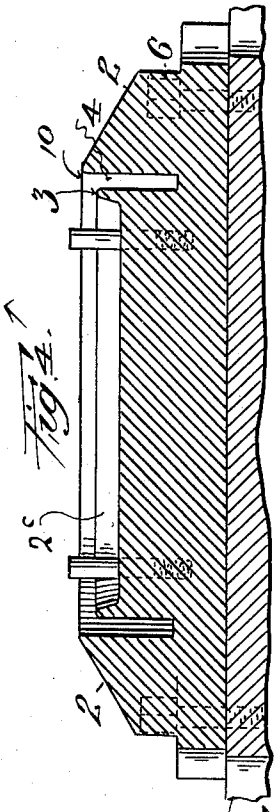


Fig. 5.

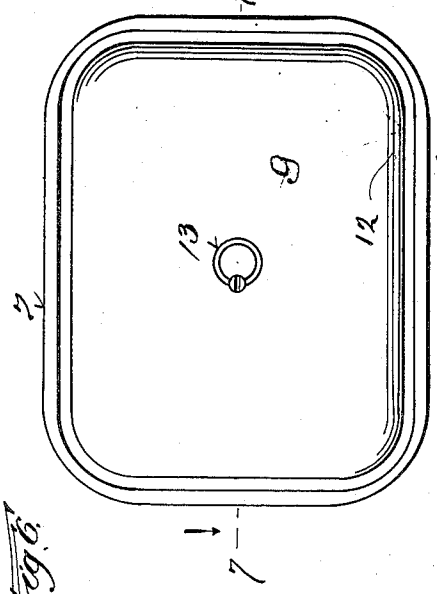


Fig. 6.

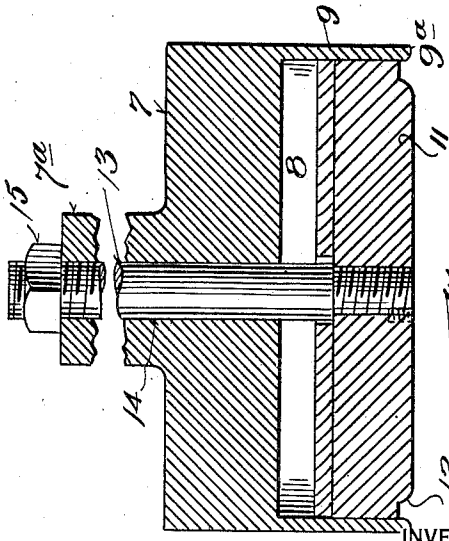


Fig. 7.

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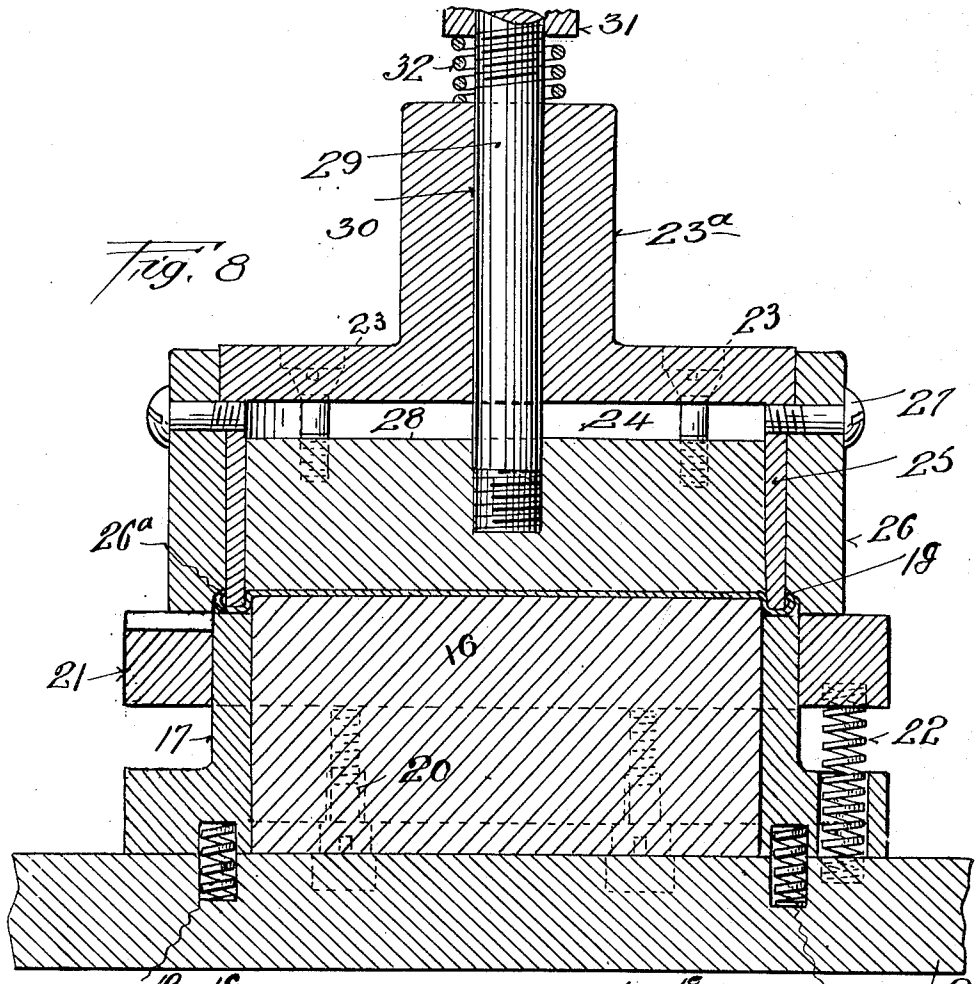


Fig. 8

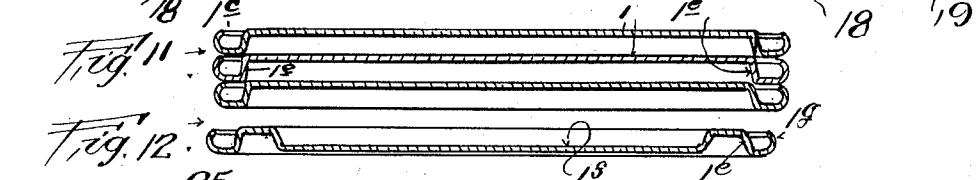


Fig. 11

Fig. 12.

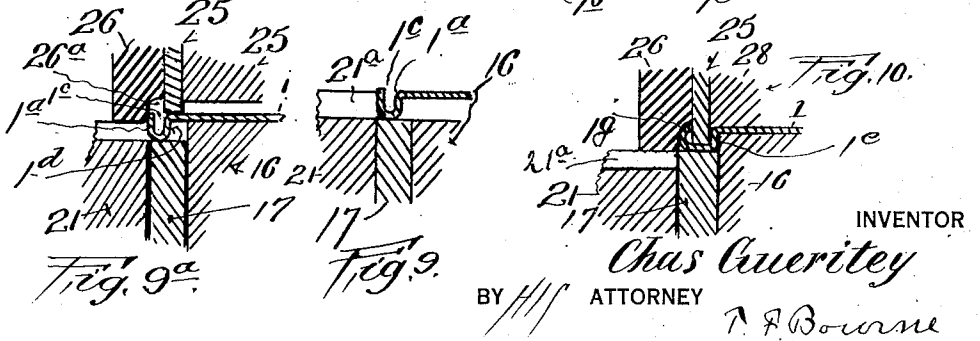


Fig. 9a

Fig. 9.

Fig. 10.

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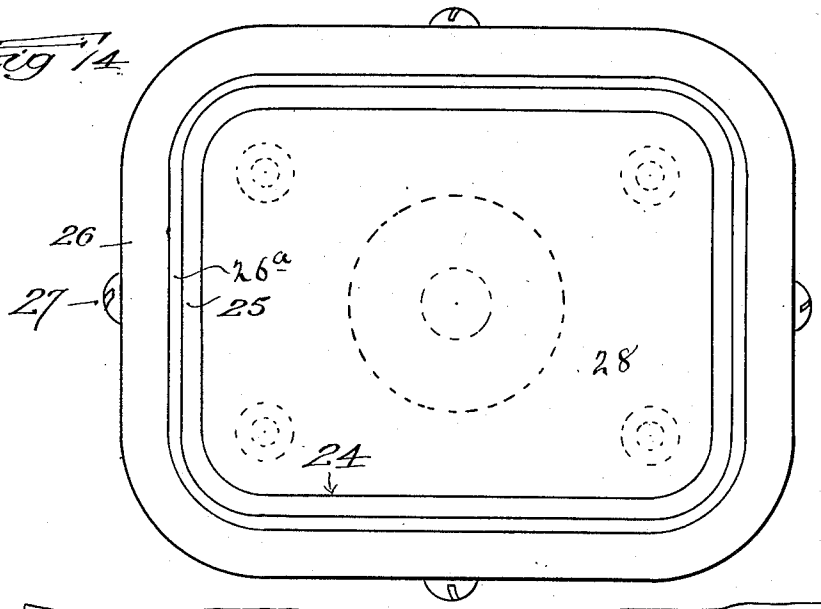
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Fig 14



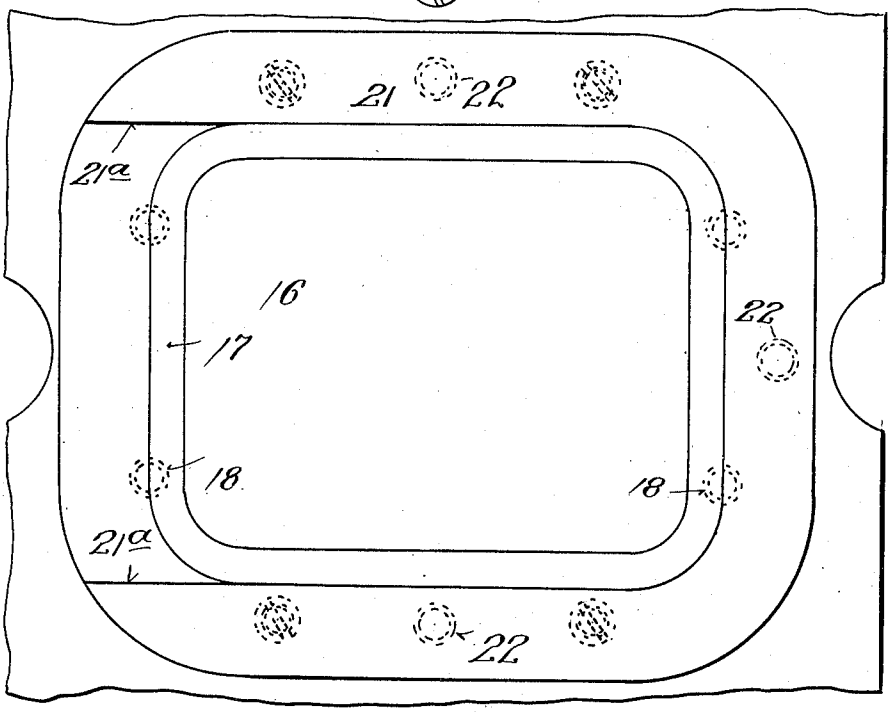


Fig 13.

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D A Bourne

Patented Apr. 20, 1926. 1,581,680

UNITED STATES PATENT OFFICE.

CHARLES GUERITEY, OF PASSAIC, NEW JERSEY, ASSIGNOR TO PASSAIC METAL WARE CO., OF PASSAIC, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MEANS FOR MAKING CLOSURES FOR CONTAINERS.

Application filed November 27, 1922. Serial No. 603,609.

To all whom it may concern:

Be it known that I, CHARLES GUERITEY, a citizen of the United States, and resident of Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Means for Making Closures for Containers, of which the following is a specification.

In making containers, such as tin cans, having closures, such as heads and bottoms, that are seamed to the container bodies by suitable seaming mechanism, the closures frequently have marginal grooves to facilitate seaming the closures to the containers by seaming tools. For expeditious work the closures are stacked for rapid application to the containers but the closures are liable to stick to one another and prevent the successive feeding in a manner desired.

The object of my invention is to simplify the manufacture of such closures, and to provide closures with marginal flanges the edges of which are turned inwardly so that when the closures are stacked they will rest upon one another in such a manner as to be readily removed successively from the stack without danger of sticking to one another.

A further object is to enable the sheet metal for the closures to be first stamped to the proper size and reduced to the final form without drawing the metal, whereby danger of fracture of the metal, particularly at rounded corners, is avoided when the metal is being brought to its final shape for the closures.

In carrying out my invention I provide a sheet of metal of the desired size for a closure and indent its marginal portion to produce a groove, and then I press the metal adjacent to the groove to produce the desired recess adjacent to the margin of the closure with the extreme edge turned inwardly slightly, so that such inwardly turned edge of one closure will bear against a surface of an adjacent closure in a stack of the closures to keep the closures from sticking together and permitting them to be readily separated successively when slid along one another.

My invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

In the acompanying drawings I have illustrated devices whereby my invention may be carried out and wherein;

Figure 1 is a sectional view of dies adapted to cut blanks for the closures and form preliminary grooves at their edges;

Fig. 2 is a detail section of the dies in position to cut the blank to size;

Fig. 3 is a detail of a closure formed according to the position of the parts in Fig. 1;

Fig. 4 is a plan view of lower die members;

Fig. 5 is a section on line 5, 5 in Fig. 4;

Fig. 6 is an underside view of the upper die member of Fig. 1;

Fig. 7 is a section on line 7, 7, in Fig. 6;

Fig. 8 is a section of the finishing dies;

Figs. 9, 9^a and 10 are sectional details illustrating steps of the dies of Fig. 8;

Fig. 11 is a sectional detail illustrating several complete closures stacked;

Fig. 12 is a similar view illustrating a modified closure;

Fig. 13 is a plan view of the lower die members of Fig. 8, and

Fig. 14 is an underside view of the upper die members of Fig. 8.

Similar numerals of reference indicate corresponding parts in the several views.

To form the closure to the size desired and produce the first edge grooving step thereon, a suitable metal sheet or plate 1 is passed between the die members shown in Figs. 1, 2 and 4 to 7. The female die comprises a lower block 2 having a marginal projection 3 around an inner recess 2^c and a correspondingly shaped recess 4 therearound. The block may be fastened to a plate 5 by screws 6. The block 2 may be made in two parts, 2^a, 2^b as indicated in Fig. 1, or may be in a single piece as indicated in Fig. 2. Block 2 may be considered as the female member of the die. The pressing or male member of the die is shown comprising a block 7 having an interior recess 8 providing a cutting and metal folding rim or projection 9 adapted to enter the recess 4 of the female member. The cutting edge of block 2 is indicated at 10 at the upper edge of and surrounding the recess 4, whereby the outer edge 9^a of the rim portion 9 of the male member may cooperate with the cutting edge 10 to cut the stock or plate 1 to the required size. Within the recess 8 of block 7 is a head or plunger 11 that is movable within said recess and fits snugly within the rim portion 9 of block 7, the lower outer edge of which head or plunger is recessed at 12 and shaped to co-

operate with projection 3 to form an initial marginal groove 1^a in the closure 1, as illustrated in Figs. 1, 3 and 9. The head or plunger 11 is shown secured to a stem 13 slidable in a bore 14 in block 7, shown passing through a stem 7^a on said block, a nut 15 on stem 13 limiting relative movement of said stem and the head or plunger 11 with respect to block 7.

When the die members described are fitted in a suitable punch press, the stem 7^a being attached to the reciprocative member of said press, a piece of suitable stock or metal plate 1 will be placed in position on die 2 beneath the upper male die when the latter is in the elevated position, and the head or plunger 11 will hang within recess or chamber 8, as indicated in Fig. 7, being supported by nut 15 stopped on stem 7^a. When the upper or male die member is advanced to the work, the head or plunger 11 will rest upon stock 1 (Fig. 2), and the block 7 will advance, whereupon its cutting edge 9^a in cooperation with the cutting edge 10 will cut the stock to shape and dimensions, and the rim or projection 9 will continue to advance to bend the metal at 1^b beneath it, (Fig. 2), along the outer side of the projection or rim 3, in recess 4, and when the solid part of block 7 opposes and bears against the head or plunger 11 the latter will be forced against the stock 1 to press it into the recess 2^c of block 2, the extreme edge of the stock being forced by the rim portion 9 of block 7 against projection 3 to produce the marginal groove 1^a, as illustrated in Figs. 1 and 3, whereby the closure is partially formed. Spacers 7^b may be interposed between block 7 and head 11.

After the closure has been formed with its marginal groove 1^a, as before described, it is placed between dies illustrated in Figs. 8, 9, 9^a, 10, 13 and 14. The lower or female die comprises block 16 corresponding in shape to the closure and adapted to have the body portion of the partly finished closure placed thereon. Around the block 16 is located a movable die member 17 which fits snugly to and is guided by the block 16, having an outline corresponding to the shape of the closure to be completed. The movable die member 17 is normally held raised to a position substantially flush with the top of block 16 by means of springs 18 shown operative in recesses in the bottom of member 17 and in plate 19 on which block 16 rests and to which the block is secured by screws 20. A guide 21 is free around die member 17, and at one end the guide is reduced at 21^a to permit the partially formed closure blanks to be slid to position over the block 16 and member 17. The guide 21 is normally held elevated by means of springs 22, bearing against said guide and against plate 19, said springs maintaining said guide elevated to a position substantially as shown in Fig. 9 when the blank is to be received. The male member of the finishing die comprises a block 23 having a recess or chamber 24 providing a pressing or rim member 25 adapted to operate over the member 17. Outside of the pressing member 25 is a closure edge bending member 26, shown secured to rim 25 by screws 27, the inner edge of which member 26 is recessed at 26^a to engage the extreme edge 1^c of the partially formed closure, recess 26^a being suitably curved or rounded to turn edge 1^c inwardly. Within the recess 24 of the block 25 is a head or plunger 28 adapted to bear upon the main body portion of the closure blank that rests upon block 16, (see Fig. 8), within the grooved portion 1^a of the blank. The head or plunger 28 is provided with a stem 29 guided in a bore 30 in stem 23^a of die block 23. Said stem 29 is provided with a stop 31, between which stop and the stem 23^a a spring 32 is located to resiliently support the head or plunger 28.

When the die members last described are fitted in a punch press, the female members will be elevated and a partially formed closure blank, as illustrated in Fig. 3, will be laid upon the die block 16 with the groove 1^a upwardly, and substantially as indicated in Fig. 9. When the female die is advanced to the work the member 26 will engage the guide 21 to push it, and pressing member 25 will bear upon the metal 1 adjacent to the inner wall 1^d of the blank and will force the same downwardly against the resilient resistance of member 17 while the groove 26^a in member 26 will engage the edge portion 1^c of plate 1, (Fig. 9^a), whereby the metal of plate 1 projecting beyond die block 16 will be forced downwardly and transferred from a position in the plane of the plate to a position offset from said plane or angular thereto as indicated at 1^e, (Figs. 11 and 12). During such operation the groove 26^a not only prevents the original groove 1^a of plate 1 from being displaced laterally but the outer edge 1^c will be rolled or turned inwardly, as indicated at 1^g. By the operations described the metal for the closure 1 is not drawn, in the ordinary sense of drawing metal, to produce the wall 1^e, but is transferred or reduced from the position shown in Fig. 9^a to position shown in Fig. 10, while at the same time the original groove 1^a is not removed from the plate but is reshaped, having its edge at 1^g rounded inwardly by reason of contact with the curved recess 26^a of die member 26.

While in several of the figures the main body portion of closure 1 is shown flat, said body portion may be given any desired shape

by suitably shaping the die members 2 and 11, or 16 and 28, so as to provide a recessed mid portion of the closure, as indicated at 1^f in Fig. 12, which is a well known shape for tin can closures.

By means of my improvements I am enabled to produce the closure described from a sheet of stock originally cut by the dies to the desired dimensions without having to provide for drawing of the metal to produce the finished closure. A further advantage of my invention is that as the metal is not required to be drawn, but is merely bent to the desired shape, the metal is not liable to crack at the cooperating edges or corners of the die members, since it is not necessary to unduly squeeze the metal or cause it to flow as the cooperating die members may fit with sufficient freedom with the metal for the closure therebetween to not unduly strain or crack the metal.

Having now described my invention, what I claim is:

1. Means for reducing the marginal portions of blanks for closures having marginal grooves, comprising a block to receive a portion of the blank within its marginal groove, a movable member around said block to oppose the grooved portion of the blank, a blank reducing member comprising a block having a recess and provided with a pressing member to cooperate with the first named block to reduce a portion of the blank projecting therebeyond, a member outside of the pressing member having a curved recess at its inner edge to cooperate with the outer edge of the blank for turning such edge inwardly, a head or plunger within the recess of the second named block adapted to oppose the mid-portion of the blank, and means movably connecting said head or plunger with the second named block, a guide movably supported outside of the first named movable member, and resilient means supporting said guide.

2. Means for reducing the marginal portions of blanks for closures having marginal grooves comprising a base, a block thereon, a movable member around the block to oppose the grooved portions of the blanks, springs normally elevating said member, a second block having an interior recess and provided with a pressing member to oppose a portion of the blank located between the first named block and the outer edge of the groove of the blank, said second block being provided with a member having a recessed inner corner provided with a portion curved toward said pressing member, and a head or plunger within the recess of the second named block to oppose the blank on the first named block, said head or plunger being provided with a stem movably guided in a bore in the first named block, a guide around the first named movable member, and springs normally retaining said guide with its upper surface above the first named block.

Signed at Passaic in the county of Passaic and State of New Jersey this 23rd day of November A. D. 1922.

CHARLES GUERITEY.