L. BAUROTH.

BARREL SIZING AND CRIMP ROLLING MACHINE.

APPLICATION FILED MAR. 18, 1910.

1,003,417.

Patented Sept. 19, 1911.

2 SHEETS—SHEET 1.

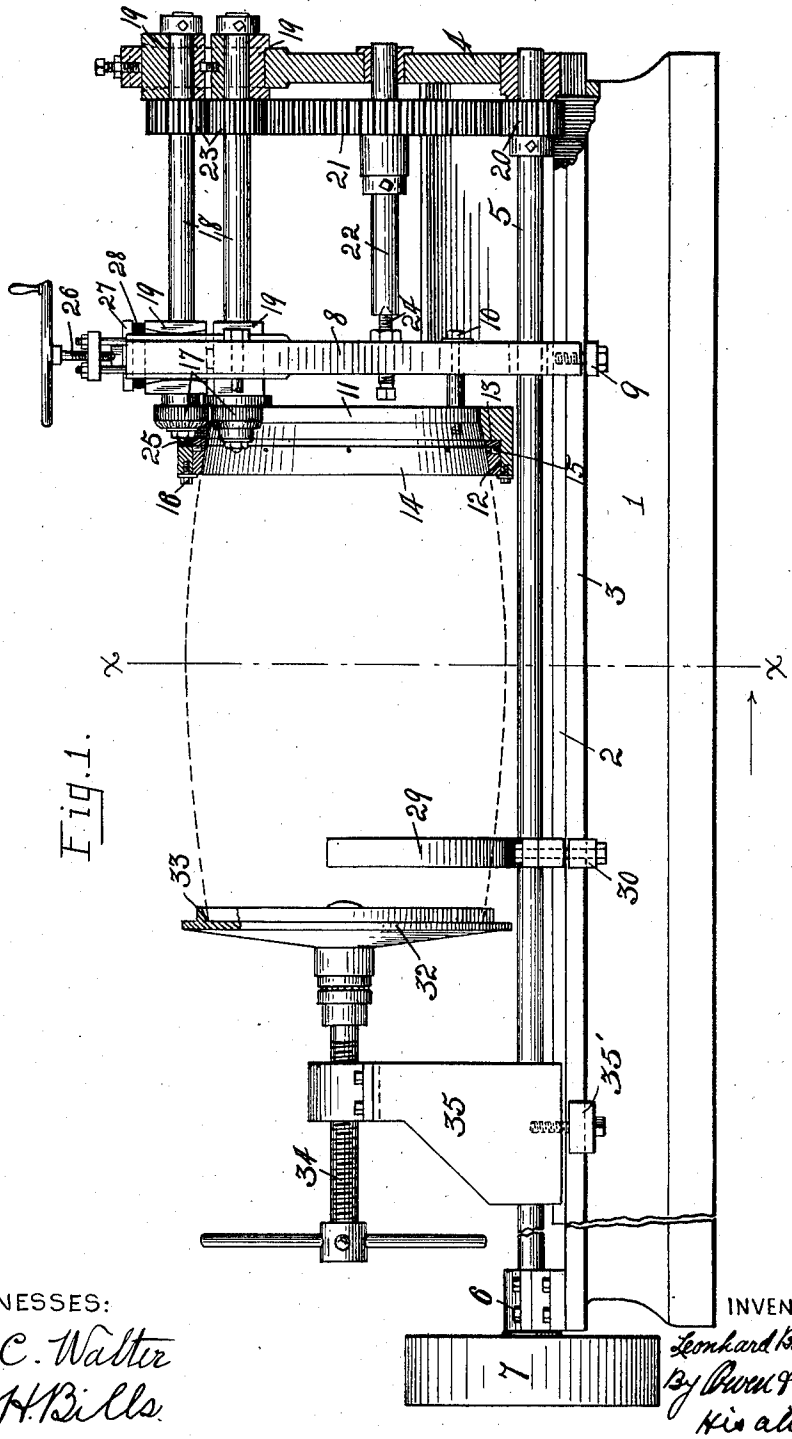

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

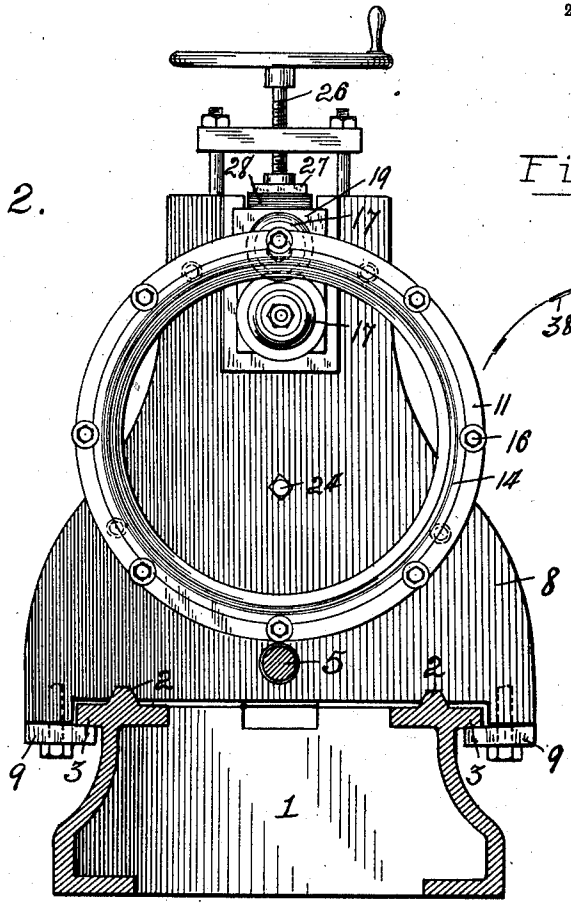


Fig. 5.

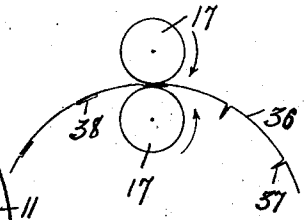


Fig. 4.

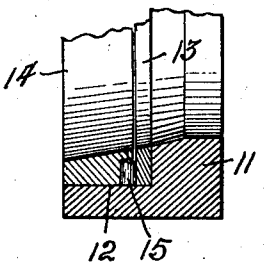
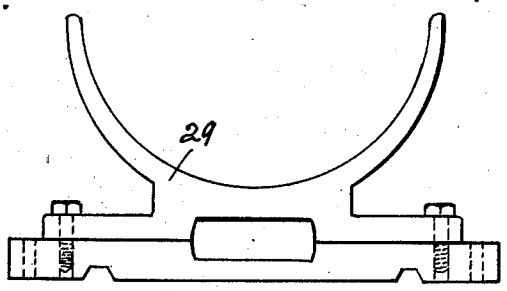


Fig. 3.



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UNITED STATES PATENT OFFICE.

LEONHARD BAUROTH, OF TOLEDO, OHIO, ASSIGNOR TO THE METALLIC BARREL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

BARREL-SIZING AND CRIMP-ROLLING MACHINE.

1,003,417. Specification of Letters Patent. **Patented Sept. 19, 1911.**

Application filed March 18, 1910. Serial No. 550,231.

To all whom it may concern:

Be it known that I, LEONHARD BAUROTH, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Barrel-Sizing and Crimp-Rolling Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to the manufacture of sheet-metal packages, and particularly to those of the type which are longitudinally crimped in the body forming operation, but the invention is not restricted to such use as it may be employed in any connection for which it may be adapted or appropriate. In the manufacture of metallic packages of this class considerable difficulty is experienced due to the difference in the tempering of different sheets of metal, whereby some are of a more resilient nature than others. The principal difficulty from this cause arises in the manufacture of ribbed or crimped packages, as it is found that the packages when they come from the ribbing or crimping machines vary greatly in diameter, some being under and some over size. It is therefore necessary to subsequently act on the packages in some manner to make them of uniform size.

The primary object of my invention, is the provision of a simple and efficient machine which will act on ribbed or crimped packages to uniformly size the same, and at the same time roll over or flatten the crimps or ribs at the package ends to fix such ends against contraction or expansion when taken from the machine and to adapt the ends for the insertion of the usual end closure.

The invention is fully described in the following specification, and a preferred embodiment thereof illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of a machine embodying the invention with portions of the same in section. Fig. 2 is a section of the same on the line *x x* in Fig. 1. Fig. 3 is a detail of the work supporting cradle. Fig. 4 is an enlarged section of a portion of the work-chuck or holder, and Fig. 5 is a diagram of the rolls acting on a blank.

Referring to the drawings, 1 designates the base or bed of the machine, which is shown in the present instance as provided on its top with the longitudinally-extending ways or guide-ribs 2, 2 on which the adjustable superimposed parts rest, and at its upper side edges with the longitudinally-extending horizontal flanges 3.

Rising from one end of the base 1 is a standard 4, in the lower portion of which is journaled one end of a shaft 5. The other end of such shaft is journaled in a bearing 6 at the opposite end of the base and carries a pulley 7. 8 designates another standard, which is mounted upon the ways 2, 2 for adjustment longitudinally of the base toward and away from the standard 4. Screw-held clamping plates or fingers 9 are carried at the lower side edges of the standard 8 for engaging under the base flanges 3 and coöperating therewith to secure such standard in adjusted position.

Carried in advance of the standard 8 by pins or other suitable carrying means 10 projecting therefrom is a ring member 11, the opening of which is fashioned to conform to the desired shape of the end or ends of the work to be acted on. The interior of the ring 11 is reamed out or enlarged from its outer edge inwardly for a suitable distance, as indicated at 12, and in this is first mounted a thrust ring 13 in abutment with the shoulder at the inner end of such enlargement and then a rotatable bushing member 14. This bushing is permitted to rotate freely within the ring 11 due to the provision of a series of roller bearings 15 between it and the thrust ring 13, as best shown in Fig. 4, and is held against outward displacement by the headed ends of screws 16 or other suitable means carried by the ring 11. The rings 11, 13 and bushing 14 combine to form what may be termed a chuck for receiving and truing ends of metallic packages such as barrels, and as it is intended more particularly for use in connection with bilged barrels, its interior surface is tapered from end to end to conform to the end formation of such articles. When an end of a barrel is forced within the chuck as hereinafter described its edge portion or

chime is acted on by a set of opposed rolls 17, 17 which are carried at the adjacent ends of a pair of parallel shafts 18, 18. These shafts are journaled in individual bearing blocks 19 the upper one of which is adapted to permit vertical oscillatory movements of the upper shaft. Rotation is communicated to the shafts 18, 18 from the shaft 5 through the medium of the gear 20 on the shaft 5, the gear 21 on a shaft 22, and the gears 23 on the shafts 18. The gear-shaft 22 is shown as having one end journaled in the standard 4 and its other end journaled on a thrust-bearing 24, projecting from the standard 8. The rolls 17, 17 work within an incut 25 in the ring 11 of the work-chuck and are adjustably and yieldingly held together or in contact with the interposed metal by a hand-screw 26, which is carried by the standard 8, and acts on a plate 27, between which and the associated upper bearing-block 19 is disposed a suitable yielding substance 28, such as rubber.

29 designates a cradle, which is suitably fashioned to provide a seat or support for the end portion of the work opposed to that being operated on. This cradle is mounted for longitudinal adjustment on the ways 2, 2 and carries clamping-plates 30 at its ends for engaging under the base flanges 3 to secure it in adjusted position to the base.

The work is forced into position within the chuck 11—14 by a thrust plate or member 32, which is flanged as at 33, to fit over the end of the work and is carried by a hand-screw 34. This hand-screw is horizontally disposed and threads through a standard or carrying block 35, which is suitably secured for longitudinal adjustment on the ways 2 by clamps 35′ engaging the boss flange 3.

In Fig. 5, 36 designates a portion of the end of a metallic barrel or package, and 37 the longitudinal crimps of the same, which are shown at 38 as being rolled flat to the body end by the action of the rolls 17.

In the use of my invention, a barrel or the like is placed with one end projected into the chuck 11—14 and its other end portion resting on the cradle 29. If the barrel is oversize the hand screw 34 is operated to move the plate or member 32 to bear on the outer barrel end and to force the barrel into the chuck to effect a closing of the crimps, which spring partly open after a forming of the same, and a contraction of such end of the barrel. This forcing operation is continued until the edge or chime of the barrel has been projected the desired distance between the working faces of the rolls 17 when the screw 26 is turned down to give the rolls the desired pressure on the work to flatten the end portions of the crimps or ribs 37 thereof. Upon a setting in motion of the mechanism driving the rolls 17 the work is caused to rotate within the chuck, the bushing 14 permitting a free turning of the same, and the rolls act on the crimp ends to flatten the same and thus fix the barrel end in the shape to which it is drawn. The rolls also act to straighten or remove the taper from the chime portion of the work to facilitate an insertion and tight fitting of an end closure therein. The clamping-plate 32 also turns with the work, being swiveled on the screw end for such purpose. In treating an undersize barrel it is not necessary to operate the screw 34 to force it within the chuck, as it fits loosely therein, but such screw is operated to place its thrust member 32 in contact with the outer work end to hold the same in position while being acted on. Upon a tightening of the rolls 17 upon the work end and a setting in motion of the same the end portions of the ribs are flattened and the work end expanded to fill the chuck and to assume the desired size, in which expanded state it it fixed by the rolling of the crimp ends.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such parts are specified in the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,—

1. In a machine of the class described, means having a rotary bearing ring therein for receiving and holding an end portion of a metallic package with the terminal of such package end projecting beyond the major gripping zone of such means, means operative to force a package end within said first means and to coöperate therewith to size said end of the package, and mechanism operative to act on the said end terminal of the package to roll and fix the sizing of the same.

2. In a machine of the class described, the combination of a ring-like member, a rotatable part within such member, means for forcing and holding an end of a piece of work within such part and member for rotary movements with the part, and means for acting on such work end to annularly flatten the same.

3. In a machine of the class described, the combination of a stationary part, a work holding part rotatable in said stationary part, means coöperating with said parts to hold the work for rotary movements with said part, and means for acting on the work held by said parts for annularly flattening an end portion thereof.

4. In a machine of the class described, the combination of annular internally tapered means for receiving and holding an end of a bilged package, means in opposition to and operative to hold a package end in said first means for rotary movements therein,

and means for acting on such package end to annularly flatten the same and coöperate with said two means to size the work.

5. In a machine of the class described, the combination of a stationary member having an opening therein, a ring-like part rotatably mounted in such opening and having its opening gradually restricted longitudinally thereof, means serving to force and hold an end of the body of a metallic package within such part, and means for acting on such end to size and annularly flatten the same.

6. In a machine of the class described, the combination of a stationary member having an opening therein, a thrust ring and a rotary bushing mounted within said opening, rollers disposed between said ring and bushing, means for forcing the tapered end of a sheet metal package body into said bushing, and means adjacent such member for acting on the body end to annularly roll the same.

7. In a machine of the class described, the combination with a stationary member having a circular opening therein, a bushing rotatably mounted within such opening and fashioned to receive and serve as a holding member for one end of a barrel body, means for forcing a barrel end within such bushing, and rolls for acting on such end for annularly rolling the same.

8. In a machine of the class described, the combination with a stationary member having an opening therein, a bushing rotatably mounted in such opening and being gradually restricted longitudinally thereof, an adjustable and rotatable thrust member for coöperating with said bushing to hold a barrel body, and a set of rollers having stationary axes and adapted to act on the end of a barrel body held by said bushing to annularly flatten the chime portion thereof.

9. In a device of the class described, an annulus adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, and means adjacent the annulus for flattening the projecting end wall of the barrel, the annulus having a rotary movement about its axis with respect to the flattening means.

10. In a device of the class described, an annulus mounted for rotation about its axis and adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, a support for the other end of the barrel, and means adjacent the annulus for flattening the projecting end wall of the barrel, the annulus having rotary movement on its axis with respect to the flattening means.

11. In a device of the class described, an annulus adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, a pair of flattening members adjacent the annulus and adapted to receive the projecting end wall of the barrel between them, the annulus being mounted for rotary movement about its axis with respect to the flattening means.

12. In a device of the class described, an annulus adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, rolls adjacent the annulus for receiving the projecting end wall of the barrel between them and flattening the same, the annulus having rotary movement on its axis with respect to the flattening rolls, and means for driving the rolls.

13. In a device of the class described, an annulus adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, substantially cylindrical rolls adjacent the annulus for receiving the projecting end wall of the barrel between them and flattening the same, the annulus having rotary movement on its axis with respect to the flattening rolls, and means for driving the rolls.

14. In a device of the class described, an annulus adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, means adjacent the annulus for flattening the projecting end wall of the barrel, the annulus having a rotary movement on its axis with respect to the flattening means, and a support for the other end of the barrel and means for feeding the support toward the annulus.

15. In a device of the class described, an annulus tapered on its interior and adapted to receive an end of a barrel with its chime projecting through and beyond the annulus, and means adjacent the annulus for flattening the projecting end wall of the barrel, the annulus having rotary movement on its axis with respect to the flattening means.

In testimony whereof I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

LEONHARD BAUROTH.

Witnesses:
C. W. Owen,
E. E. Thomas.