W. T. McCREAVY.

METAL SHAPING APPARATUS.

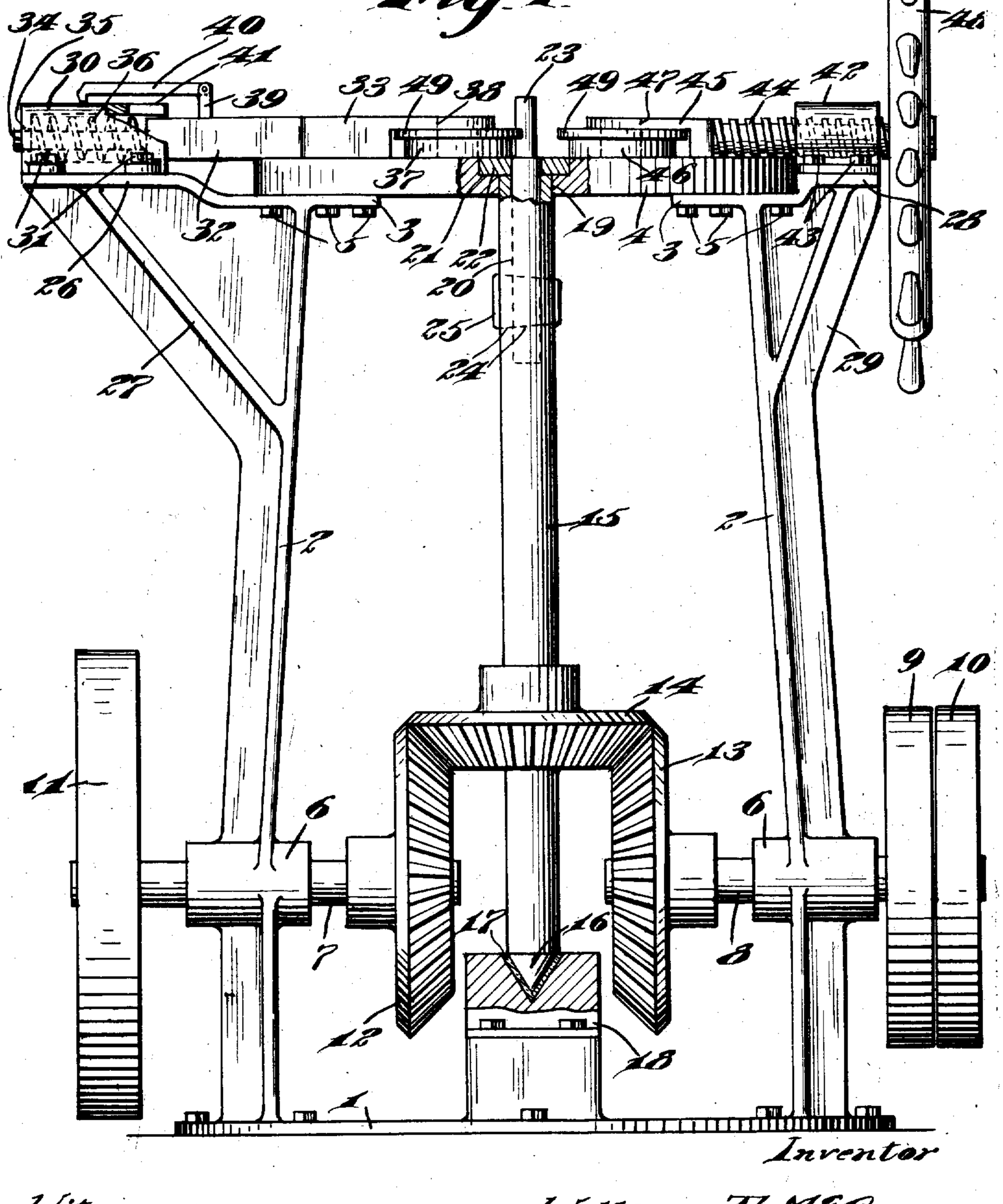
APPLICATION FILED NOV. 4, 1909.

973,682.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

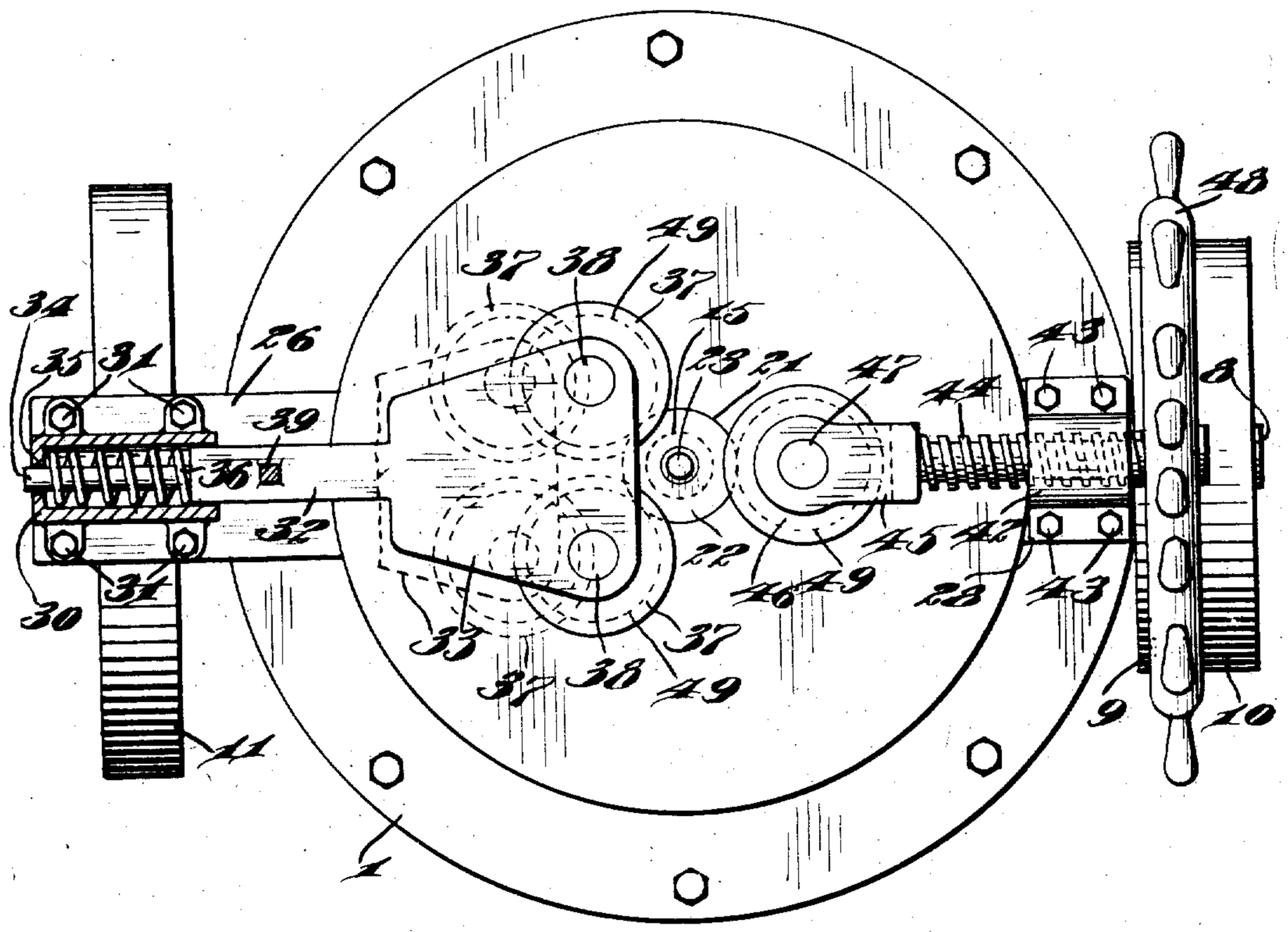


Fig. 3.

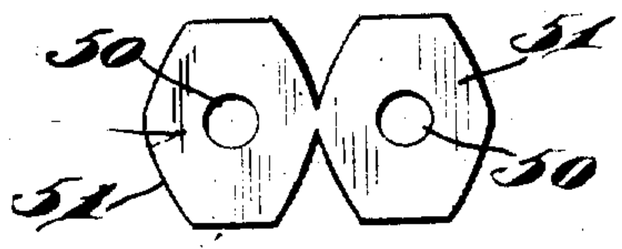
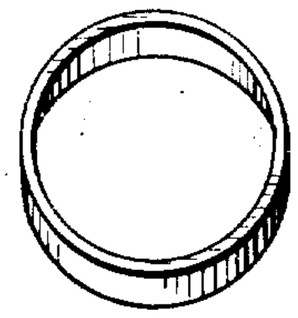


Fig. 4.



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UNITED STATES PATENT OFFICE.

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METAL-SHAPING APPARATUS.

973,682. Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed November 4, 1909. Serial No. 526,166.

To all whom it may concern:

Be it known that I, WILLIAM T. McCREAVY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metal-Shaping Apparatus, of which the following is a specification.

My invention relates to improved metal shaping apparatus, the object of the invention being to provide improved means for shaping by means of rollers, rings and particularly rings adapted for use in the connection with roller bearings.

A further object is to provide an improved apparatus of this character, which is designed particularly for utilizing the blanks made with my improved apparatus as set forth in my application Serial No. 526,165, and rolling said blanks into rings of uniform diameter and thickness.

With these and other objects in view the invention consists of certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1, is a view partly in section and partly in side elevation illustrating my improvements. Fig. 2, is a top plan view partly in section. Fig. 3, is a view of the blanks before rolling, and Fig. 4, is a view of the finished ring.

1 represents a bed plate or base having uprights 2, provided with fixed or integral inwardly projecting lateral projections 3 at their upper ends, upon which circular top plate 4 is secured by bolts 5. The uprights 2 are made with alined bearings 6 on which shafts 7 and 8 respectively are mounted. Fast and loose pulleys 9 and 10 are mounted on the shaft 8 to drive the apparatus and a balance wheel 11 is provided on the outer end of shaft 7. These shafts 7 and 8 are provided with beveled gears 12 and 13 respectively, both of which mesh with a beveled gear 14 on a vertical shaft 15. This vertical shaft 15 is made with a conical lower end 16 having a thrust bearing in a glass cone 17 supported in a block 18 on base 1. The upper end of the shaft 15 is mounted to turn in an opening 19 in top 4, and is provided with a longitudinal opening or recess 20 as shown. The top 4 is provided centrally with a circular recess 21 to receive a ring 22, which latter serves as a wearing ring and may be changed when worn, and is located directly above the upper end of shaft 15, which latter, it is understood, does not project entirely through the top 4.

23 represents a shaping journal pin, which is positioned in the recess 20 in shaft 15 and said shaft 15 and pin 23 are made with slots 24 to accommodate a locking key 25 to secure the journal pin 23 in the shaft and compel it to turn with the shaft.

26 represents a lateral extension at the top of the table preferably strengthened by web 27, and 28 is a similar extension at the diametrically opposite side of the top which is also strengthened by web 29. On the extension 26 a tubular casing 30 is mounted and secured by bolts 31. This casing is preferably of rectangular form, internally, in cross section, to permit longitudinal movement of the rectangular plunger 32 on a bracket 33. This plunger 32 is provided with a reduced end 34 which moves through an opening 35 in the end of casing 30, and a coiled spring 36 is located in the casing around this reduced end 34 and bears at one end against the end of casing 30, and at its other end against the rectangular portion, or enlarged portion, of the plunger 32 so as to normally press the plunger in a direction away from the casing.

The bracket 33 above referred to is in the form of a plate having recesses in its forward lower face, in which shaping rollers 37 are located and mounted on journal pins 38 in the brackets. These rollers are disposed an equal distance from the shaping journal pin 23 and are adapted to move backward away from the pin during the operation of the device as will more fully hereinafter appear.

A lug 39 is provided on plunger 32 and a pivoted catch 40 is connected with the lug 39 and is adapted, when the bracket 33 is moved backward, to fall behind the end of casing 30 and hold the bracket in this position against any forward movement toward pin 23, until the catch 40 is released,

and the casing 30 is made with a short slot or recess 41 to accommodate lug 39 and permit the desired movement thereof.

42 represents an internally screw threaded sleeve, which is secured by the bolts 43, and receives a screw 44. The inner end of this screw 44 is swiveled in a bracket 45, the latter having a recess in its end face to accommodate a shifting roll 46, which is mounted upon the journal pin 47. The outer end of the screw 44 is provided with a hand wheel 48 to facilitate its turning to exert the desired pressure on the blank. These rolls 37 and 46 are provided with annular flanges 49 around their upper edges, so as to prevent the spreading of the blank.

Fig. 3 represents the blanks as they come from the apparatus disclosed in my application above referred to and these blanks when heated are placed over the pin 23, the latter projecting through the hole 50 in the blank. Roller 46 is then moved up into close engagement with the blank 51 and the shaft 8 turned by means of the driving pulley to transmit motion through gears 13 and 14 to shaft 15, to turn pin 23, and as the latter turns the blank illustrated at 51 will be turned between the pin 23 and roller 46, and will be shaped, so as to have a uniform annular thickness after one or more revolutions, it being understood that wheels 37 will move backward to accommodate any irregularities in the surface of blank 51. As the apparatus continues to operate the workman will slowly turn hand wheel 48 so as to press the wheel 46 nearer pin 23, and as he does this the thickness of the ring being shaped will be gradually diminished, and at the same time, the diameter of the ring will be increased, and rollers 37 will move backward to accommodate this increased diameter of the ring. When the catch 40 falls behind casing 30 the operation will be completed. The workman then simply unscrews the screw 44 and draws the wheel 46 back when he can readily remove the finished ring. As shown in Fig. 3 these blanks preferably come from my improved apparatus above referred to in the form of a plurality of blanks having a fragile juncture, which renders it easy to handle the blanks which may be heated and placed over the pin 23, when by a twisting movement, the blank may be broken at its point of fragile connection.

A great many slight changes might be made in the general form and arrangement of parts described without departing from my invention and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. In an apparatus of the character described, the combination with a support, of a vertical shaft in said support, a vertical pin secured in said shaft, means for transmitting rotary movement to said shaft, brackets mounted at opposite sides of said pin, rollers in said brackets, means exerting elastic pressure on one of said brackets to move the same toward the said pin, and positive means for actuating the movement of the other of said brackets.

2. In an apparatus of the character described, the combination with a supporting top or table, of a rotary shaft projecting above said top, two brackets mounted on said top at opposite sides of said pin, a single roller in one of said brackets, a screw for positively moving said bracket toward and away from said pin, two rollers mounted in the other of said brackets, a spring normally pressing said last mentioned bracket toward said pin, and a catch on said last mentioned bracket, adapted to hold the bracket against movement toward the pin.

3. In an apparatus of the character described, the combination with a support, a top on said support, a vertical shaft projecting into said top, means for transmitting rotary movement to said shaft, a pin removably secured in the upper end of said shaft and projecting through said top, a wearing ring around said pin located in a recess in the top, brackets mounted to move on the top at opposite sides of said pin, a single roller in one of said brackets, two rollers in the other of said brackets, a screw connected with the single roller bracket and adapted to positively move said bracket, a casing, a spring in said casing, a plunger on the bracket in which the two rollers are mounted, said plunger projecting into the casing and against said spring, a lug on said plunger and a pivoted catch on said lug adapted to catch upon the end of said casing.

4. In an apparatus of the character described, the combination with a support, a top on said support, a vertical shaft projecting into said top, means for transmitting rotary movement to said shaft, a pin removably secured in the upper end of said shaft and projecting through said table, a wearing ring around said pin located in a recess in the top, brackets mounted to move on the top at opposite sides of said pin, a single roller in one of said brackets, two rollers in the other of said brackets, a screw connected with the single roller bracket and adapted to positively move said bracket, a casing, a spring in said casing, a plunger on the bracket in which the two rollers are

mounted, said plunger projecting into the casing and against said spring, a lug on said plunger, a pivoted catch on said lug adapted to catch upon the end of said casing, and annular flanges around the upper edges of all of said rollers.

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

WILLIAM T. McCREAVY.

Witnesses:
R. H. KRENKEL,
S. W. FOSTER.