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PATENTED APR. 3, 1906.

S. C. MILLER.  
BOTTLE CAPPING MACHINE.  
APPLICATION FILED AUG. 8, 1904.

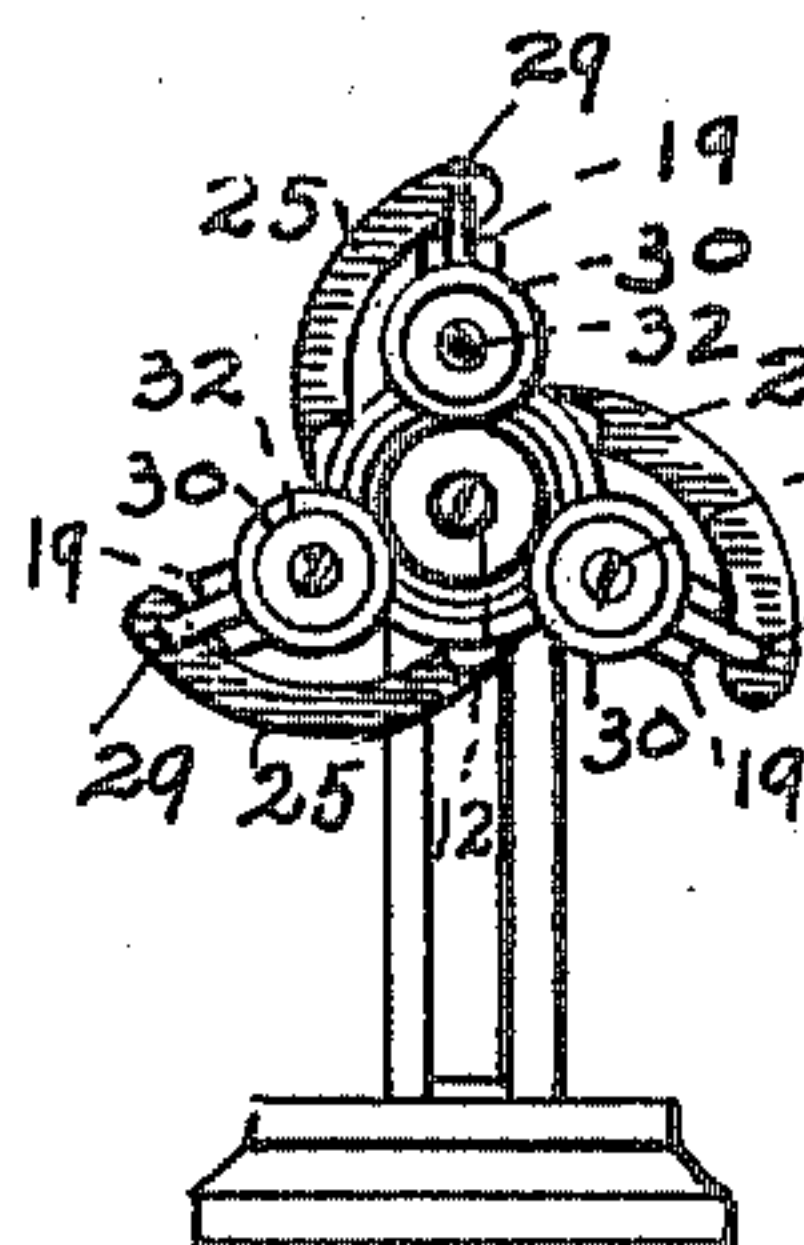
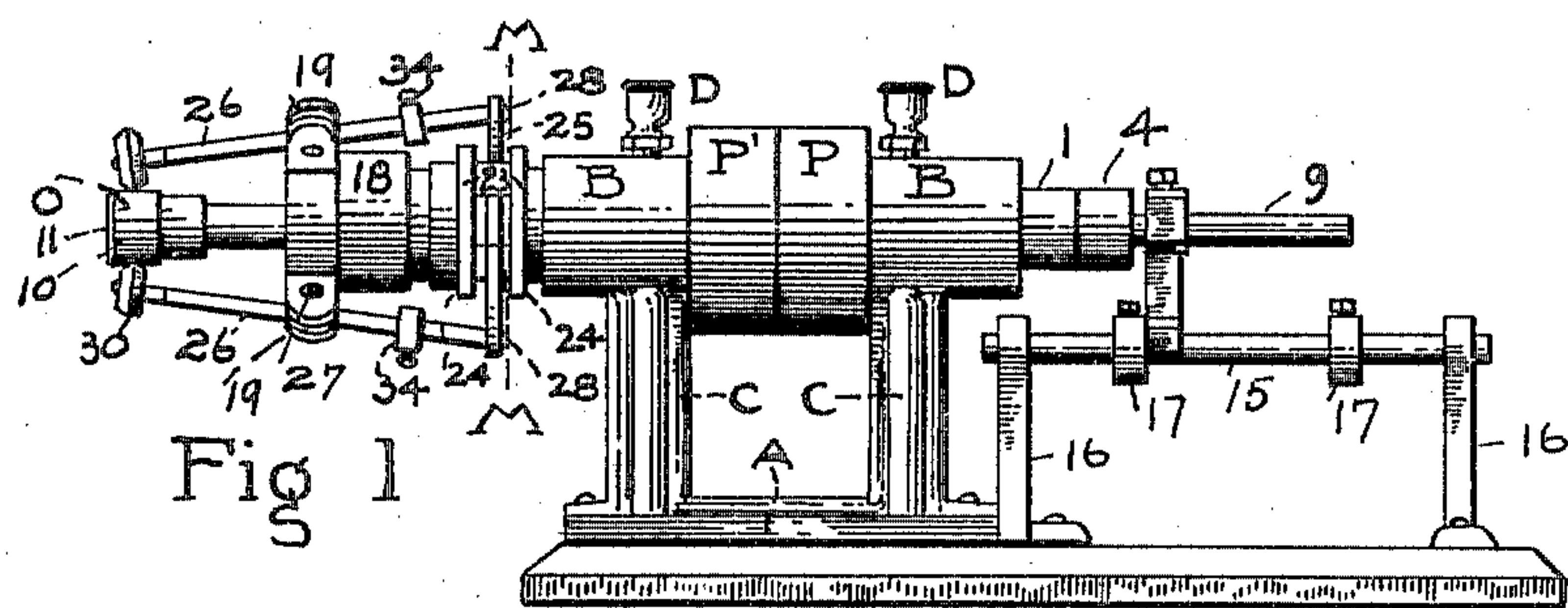


Fig. 3

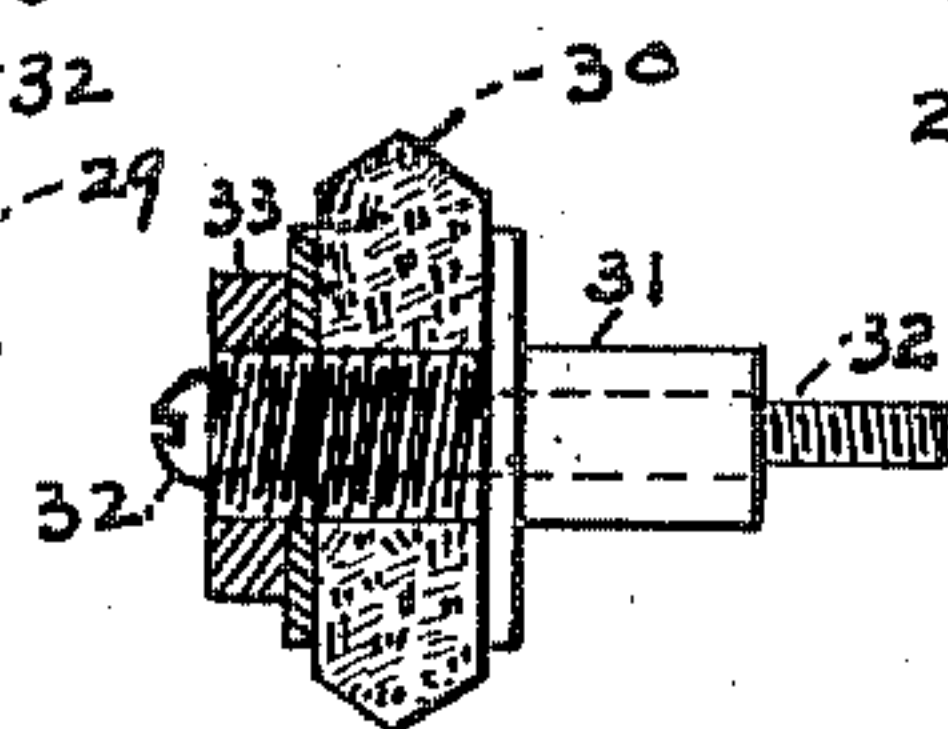


Fig. 5.

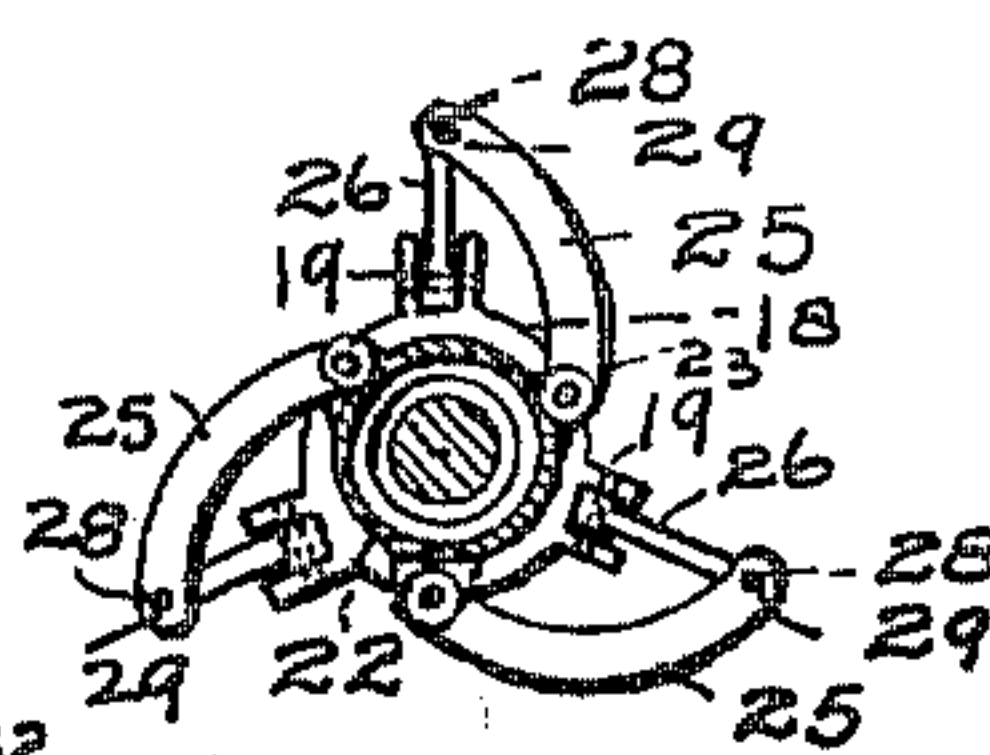


Fig. 4.

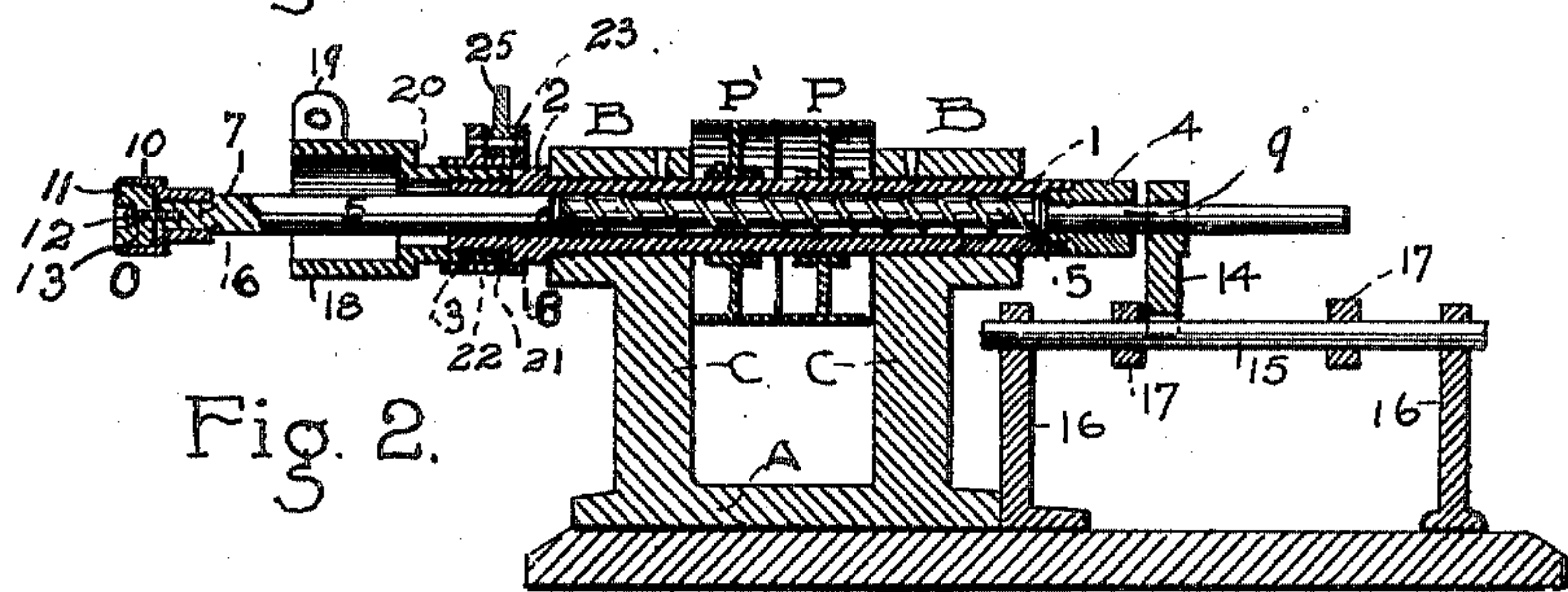


Fig. 2.

Witnesses

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# UNITED STATES PATENT OFFICE.

SAMUEL C. MILLER, OF LOUISVILLE, KENTUCKY.

## BOTTLE-CAPPING MACHINE.

No. 817,129.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed August 8, 1904. Serial No. 219,890.

*To all whom it may concern:*

Be it known that I, SAMUEL C. MILLER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Bottle-Capping Machines, of which the following is a specification.

My invention relates to spinning-rollers and certain other improvements for machines employed to affix soft-sheet-metal caps upon the corked tops of bottle-necks, and has for its object the provision of improved rollers for the purpose indicated, an improved head against which the tops of the bottles are pressed, an improved device for causing the rollers to approach and recede from the head in unison and to prevent their approach or recession independently of one another, the provision of an adjustable counterweight in connection with each spinning-roller, by means of the centrifugal action of which the rollers are pressed upon the surface of the soft-metal caps, the use of a spring-pressed rod passing through the hollow shaft or spindle of the machine, upon the forward end of which is mounted the improved head above mentioned and upon the rearward end of which is a dog which prevents the rotation of the spring-pressed rod and limits its forward-and-backward motion.

Reference is to be had to the accompanying drawings, which form part of this specification, and in which similar characters of reference indicate corresponding parts.

Figure 1 is an assembled drawing showing side view in elevation of a bottle-capping machine provided with the improvements named complete. Fig. 2 is a longitudinal sectional view of said machine with improvements. Fig. 3 is a front view of my device, showing the rollers and head in conjunction ready for capping, together with the links attached to the arms in front elevation. Fig. 4 is a sectional view through M M of Fig. 1. Fig. 5 is a longitudinal sectional view of the spinning-rollers.

My machine is more particularly described as follows:

Upon the base A are mounted or cast bearings B B, supported by brackets C and provided with oil-cups D. In these bearings runs a hollow spindle 1, having shoulder 2 and externally-threaded end 3, the other end of which contains plug 4, having a central orifice. The hollow spindle is inserted in bearings until shoulder 2 comes in contact

with the exterior face of the bearing. Through the hollow spindle a spring-pressed rod 5 is passed, this rod being provided with a shoulder 6, short stem 7, and a shoulder 8, which serves as an abutment for the spring. Shank 9 passes through the plug 4 and projects beyond the same, as shown. Within the hollow spindle and around rod 5 is a coil-spring, with one end abutting upon plug 4 in hollow spindle and the other end upon shoulder 8 of the spring-rod. This spring tends to thrust the spring-rod toward the front. Upon the forward end of the spring-rod is the head O, made up of a thimble 10, fitted rotatably upon short stem 7 and abutting shoulder 6. Head-center 11 is formed of suitable material and is inserted in thimble 10, a screw 12 being passed through said head-center and into the end of rod 5, the head-center being counterbored, as at 13, to receive the head of screw 12.

Upon the rearward end of the shank 9 of rod 5 and engaging same by a collar and a set-screw is the dog 14, which prevents the rod from rotating with the hollow spindle. The dog 14 serves as a forward and backward guide for rod, the bottom end of the same being notched or forked, so as to straddle and run upon guide-rod 15, which rests upon brackets 16 and is rigidly fastened within the same. The forward-and-backward motion of rod is limited by set-collars 17 on the guide-rod.

On the forward end of the hollow spindle is mounted the chuck 18, having raised notched ears 19, shoulder 20, and interior-threaded end or hub 21, which engages exteriorly-threaded end 3 of the hollow spindle. Between shoulder 20 of the chuck and the face of bearing B, with ample forward-and-backward play, is mounted rotatably upon the threaded end or hub of the chuck a loose chuck-sleeve 22, having at its rearward end a double collar 23, the sides 24 of which are uniform in width and elevation and at regular intervals are provided with corresponding ears or rivet-holes for receiving the rivets or bolts which secure one end of links 25, as in Fig. 4, to the sides 24 of double collar 23 and between the same, leaving the other ends of the links free to swing out and away from the collar when being rotated.

In raised notched ears 19 of chuck 18 are notches in which arms 26 are held at or near the center by the screw-pins 27. The rearward ends of arms 26 are flexibly connected



by link-screws 28 severally to the free ends of links 25 in Fig. 4 at 29. By this means the arms are caused to move uniformly and in concert and not independently upon their fulcrums 27.

Upon the forward ends of arms 26 are mounted the improved soft spinning-rollers 30, which consist, as shown in Fig. 5, each of a central core or bushing 31, having an axial hole that loosely receives the journal-screw 32, which is screwed into the free or forward ends of arms 26. The spinning-rollers 30 are held firmly in position on the bushing 29 by means of a lock-nut 33, which screws on the threaded end of the bushing. I do not limit myself to the size or shape of roller shown in the drawings or to rubber as the material of which the rollers may be made, but I claim the use of any material which is soft or yielding enough to prevent injury to the surface of soft-metal caps.

In order that the top ends of bottle-caps may not be marred or injured, spring-rod 5 is prevented from rotating by dog 14; but if the whole head were prevented from rotating the spinning-rollers 30 would have to rotate continually upon their journal-pins. The thimble 10 of the head is therefore left loose upon the fixed portion of the head, so that it serves as an idler and may be revolved with chuck 18 by reason of pressure upon it by the spinning-rollers 30. By this means the wear upon the bushings 31 and journal-pins is cut down to a minimum.

A counterweight 34 is mounted upon the rearward half of each arm 26 in such a manner that it may be adjustable by means of a set-screw to a backward or forward position, thus varying the pressure of the rollers upon the caps. The arms are graduated, so that the counterweights may be uniformly adjusted.

P' is a tight and P is a loose pulley, P' being fastened to the hollow spindle by means of a set-screw or key. An electric motor may be mounted upon the spindle between the bearings B B, or a single tight pulley may be used on the hollow spindle with a tight and loose pulley on the counter-shaft.

To operate the machine, the spindle, with the head mounted upon it, is revolved at the proper speed. The top of the bottle, with the soft-metal cap loosely pressed over it, is placed against the head O and is pushed inward until the whole cap has passed beyond

the rollers 30. The motion of the bottle is then reversed, the head O following it out by reason of the internal spring. During these motions the rollers spin or roll the soft-metal cap firmly down upon the neck of the bottle, causing it to conform to the shape of the bottle.

What I claim as new, and desire to protect by Letters Patent, is as follows:

1. In a machine of the type set forth, a hollow spindle, a chuck-sleeve thereon capable of rotary and longitudinal movement and provided with a double collar, links having one end attached to said collar, a chuck mounted on said spindle, arms supported by said chuck, spinning-rollers on said arms, the opposite ends of said links being attached to said arms, and means for revolving said spindle.

2. In a machine of the type set forth, a hollow spindle and bearings therefor, a chuck secured to the forward end of said spindle, and being formed with a shoulder, a chuck-sleeve movably mounted on said spindle and between said shoulder and one of the spindle-bearings, arms pivoted to said chuck and carrying spinning-rollers at their outer ends, connections between the inner ends of said arms and said chuck-sleeve, and means for rotating said spindle.

3. In combination with a spindle, a chuck thereon, a chuck-sleeve on the spindle capable of rotary and longitudinal movement, arms pivoted to the chuck and carrying spinning-rollers, means for rotating said spindle, means connecting said arms to said chuck-sleeve, and counterweights on said arms between their fulcrum-points and their connection with said chuck-sleeve.

4. In combination with a spindle, a chuck secured thereto, and formed with a shoulder, a chuck-sleeve on said spindle and having its outward movement restricted by said shoulder, counterweighted arms pivoted to said chuck intermediate their ends, spinning-rollers on the front end of said arms, links pivoted to the rear ends of said arms and to said sleeve, and means for rotating said spindle.

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

S. C. MILLER.

Witnesses:

ALEX. G. BARRET

M. F. PRICE.