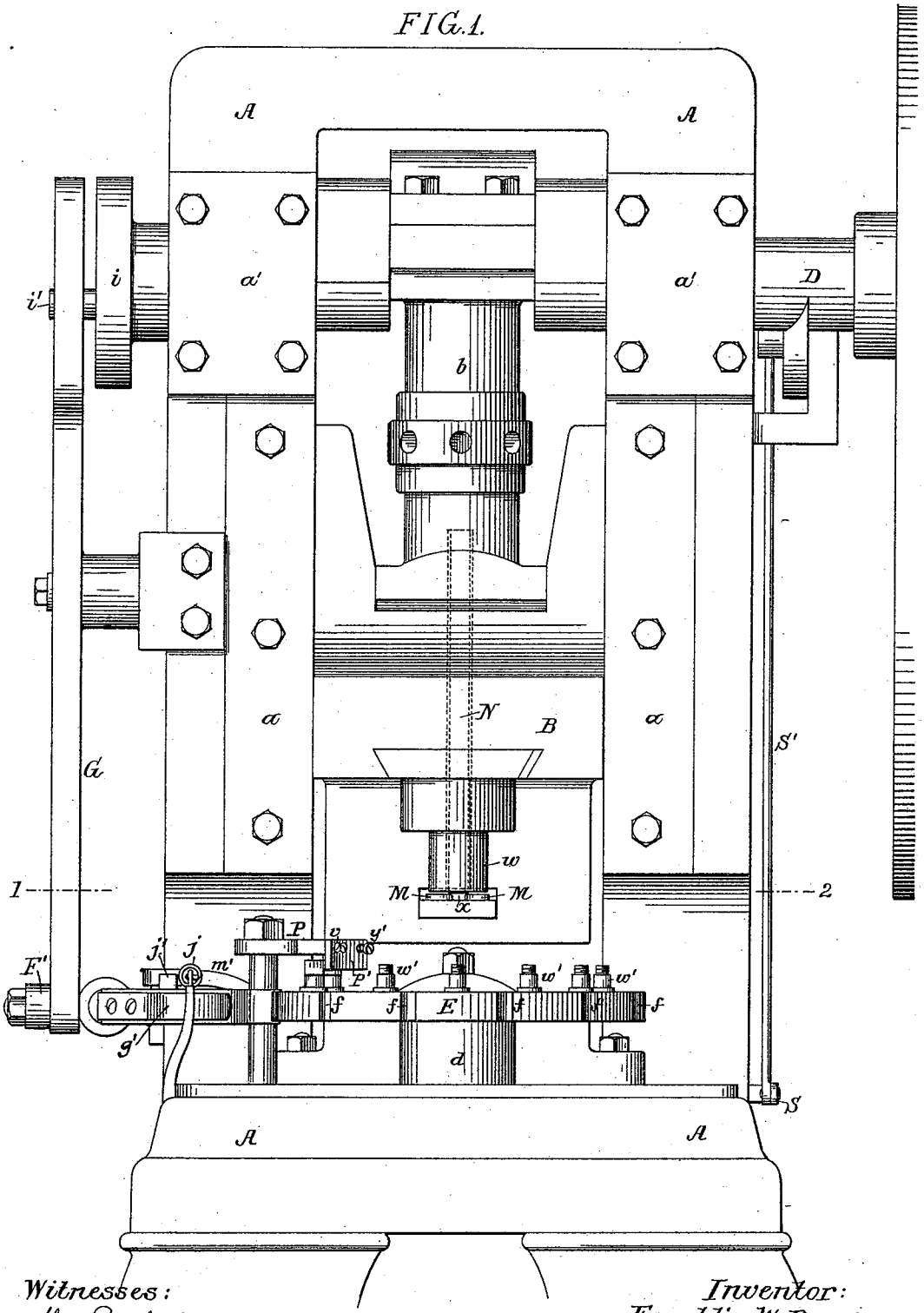
(No Model.) 2 Sheets—Sheet 1.

F. W. PERRY.

MACHINE FOR MAKING METAL CAPSULES.

No. 447,137. Patented Feb. 24, 1891.

FIG. 1.



Witnesses:
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Inventor:
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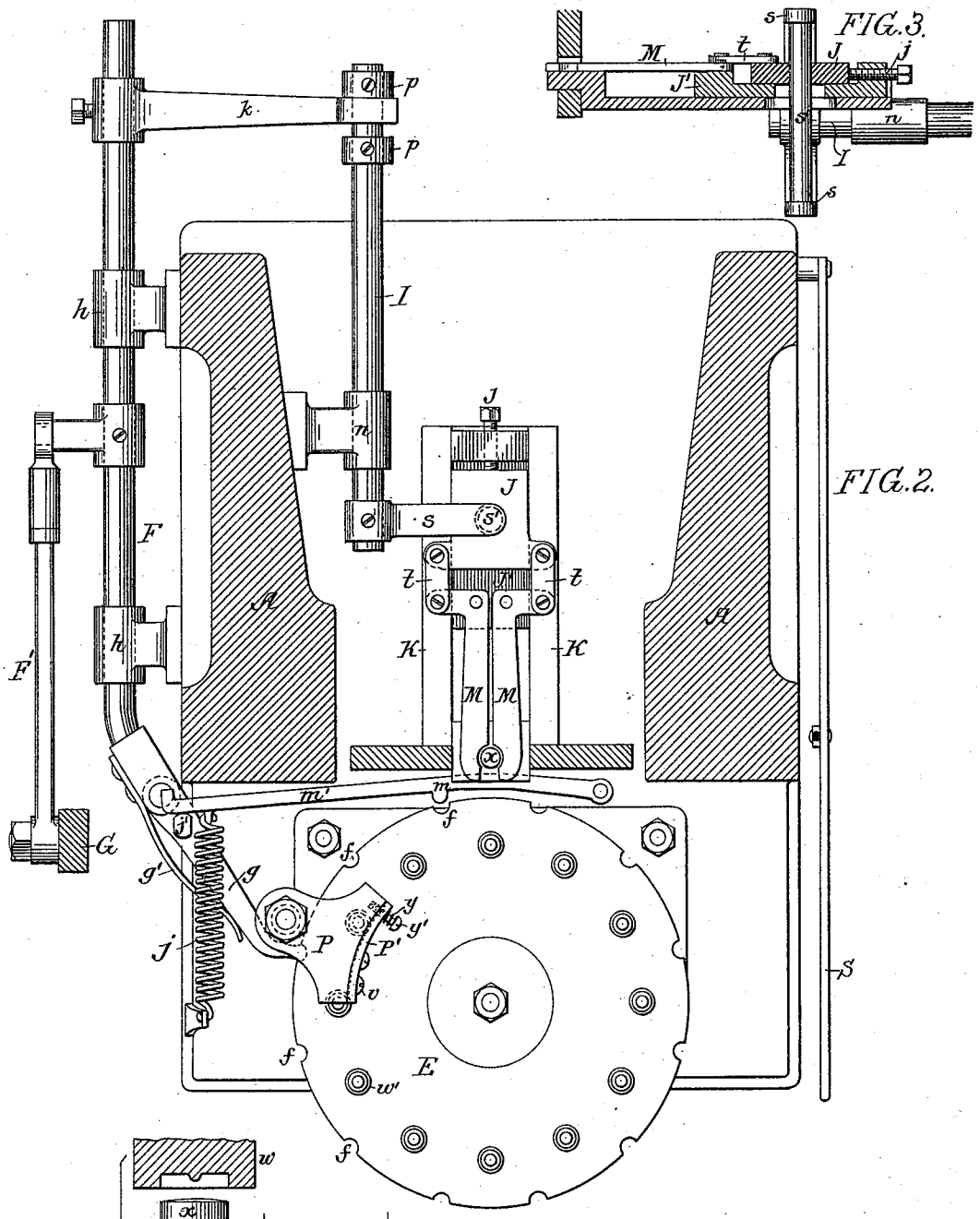


FIG. 2.

FIG. 3.

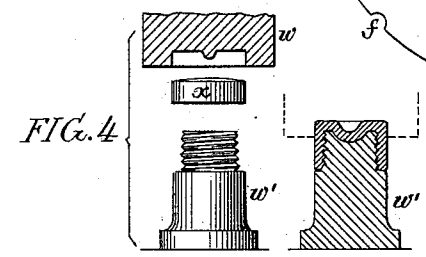


FIG. 4.

FIG. 5.

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UNITED STATES PATENT OFFICE.

FRANKLIN W. PERRY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE HERO FRUIT JAR COMPANY, OF SAME PLACE.

MACHINE FOR MAKING METAL CAPSULES.

SPECIFICATION forming part of Letters Patent No. 447,137, dated February 24, 1891.

Application filed September 15, 1890. Serial No. 365,012. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN W. PERRY, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain Improvements in Capsule-Presses, of which the following is a specification.

The object of my invention is to construct a simple and efficient form of machine for the manufacture of internally-threaded caps or capsules; and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of a capsule-press constructed in accordance with my invention. Fig. 2 is a sectional plan view of the same on the line 1 2, Fig. 1. Fig. 3 is a longitudinal section of part of the press. Fig. 4 is a view of the dies of the press and of the blank from which the screw-cap is to be formed, the parts being separated from each other; and Fig. 5 is a sectional view illustrating the action of the press.

The main frame A of the press has opposite guides *a* for the sliding die-carrier B, and at the upper end of the framing are bearings *a'* for a shaft D, which has a crank-pin connected by the usual rod *b* to the slide B. This slide carries the upper die *w* of the press, the lower dies *w'* being carried by a disk E, which is mounted upon a central stud *d* of the framework, so as to be free to turn thereon in order to bring the dies *w'* in succession beneath the die *w*.

In the periphery of the disk E is a series of notches *f*, with which engages a pawl *g*, hung to the end of a rod F, guided in suitable brackets *h* on the side of the frame, this rod being connected by a link F' to the lower end of the lever G, the upper end of which is under control of a crank-pin *i'* on a disk *i*, carried by the shaft D. The pawl *g* is caused to engage with the notches *f* of the disk E by means of a spring *g'*, so that as the rod F is reciprocated in its bearings the pawl will engage with the notches *f* in succession and will impart intermittent forward movements to the disk E, so as to bring the dies *w'* in succession beneath the die *w*, as before set forth. The disk E is locked between its movements by a lug *m*, which engages with the successive notches *f*, said lug *m* being carried by an arm *m'*, which is acted upon by a spring *j*, tending to draw the lug into engagement with the notches, a stud *j'* on the pawl *g* striking the arm *m'* as the pawl reaches the limit of its backward movement, so as to withdraw the locking-lug *m* from the notch *f*, the lug being thus held out of engagement with the notch until the disk has on the forward movement of the pawl *g* been moved, so as to carry said notch out of line with the lug, the forward movement then continuing until the succeeding notch is brought into line with the lug, whereupon the latter enters said notch and locks the disk until the next movement.

The rear end of the rod F carries an arm *k*, the outer end of which is forked and embraces a rod I, suitably guided in a bracket *n* on the frame A, this rod being provided with longitudinally-adjustable collars *p p*, between which the forked end of the arm *k* plays, so that by adjusting these collars nearer to or farther from each other the lost movement of the arm *k* can be regulated and a greater or less extent of movement thus imparted to the rod I. Said rod I has at the front end a forked arm *s*, having at its inner end a depending pin *s'*, which is adapted to an opening in a slide J, adapted to a frame K, projecting from the back of the slide B. On this frame is another slide J', slotted for the passage of the pin *s'*, and to this slide J' is hung a pair of levers M, the short arms of which are connected by links *t* to the slide J, the front ends of the levers M being recessed and terminating beneath a spout or hopper N, carried by the slide B, and shown by dotted lines in Fig. 1. The parts are so timed that when the slide B is at the limit of its downward movement the slides J J' and the pawl *g* are fully retracted and a metal blank *x*, from which the desired screw-cap is to be made, has dropped from the hopper and lies between the recessed ends of the gripping-levers M, as shown in Fig. 2. As the slide B commences to rise, however, the rods F and I move forward, so that the disk E commences to turn and the slide J moves forward, so as to first close the gripping-levers upon the blank *x*, both slides J J' then moving forward,

so as to carry said blank forward with them. By the time the movement of the disk E has been completed the forward movement of the gripping-levers will have deposited the blank *x* upon the top of that one of the dies *w'* which is in position for action, and the slide J will then be retracted until it strikes a set-screw *j* on the slide J', so as to first open the gripping-levers and release the blank and then withdraw said gripping-levers, so that they will be out of the way. The lower die is reduced in diameter at the upper end, and on this reduced portion is formed a screw-thread, as shown in Fig. 4, and the upper die has in it a recess of the diameter desired for the screw-cap to be produced, and is shaped in accordance with the desired pattern for the top of the cap. As the upper die descends, therefore, the blank *x* is compressed between the same and the top of the lower die *w'*, and the projecting portions of the blank are caused to flow down around the threaded upper end of said die, as shown in Fig. 5, the metal filling the threads of the die, so as to form an internal thread in the cap.

In order to effect the removal of the caps from the dies, I mount above the disk E a plate P, which carries a segmental bar P', toothed or roughened on its outer face, which face is in line concentrically with the side walls of the caps formed upon the lower dies, so that as the dies and caps are carried around by the disk E each cap will be brought into engagement with the toothed or roughened face of the bar P' and will be turned thereby, so as to unscrew it from the threaded portion of the die and permit of its ready removal from the machine.

The bar P' is secured to the plate P at one end by screws *v*; but at the other end—that is to say, at the end which first comes in contact with the cap on the die—said bar is acted upon by a spring *y*, carried by a set-screw *y'*, so that it can yield to a slight extent to accommodate itself to different thicknesses of the caps.

By reason of the lost motion of the arm *k*, before referred to, any desired extent of longitudinal movement is imparted to the rod I and to the slides J J', so that the movement of the latter and of the gripping-levers M can be gaged to accord with the diameter of the blank *x*, which is being used, blanks of small diameter requiring a greater movement than blanks of large diameter, as the center of the blank must, at the limit of the forward movement of the gripping-levers, coincide with the center of the lower die *w'*, upon which the blank is to be deposited.

The machine is thrown into and out of action by any suitable form of clutch under control of a lever S and rod S' at one side of the machine.

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

1. The combination of the rotating disk and its threaded lower dies, the reciprocated slide and the upper die carried thereby, means for intermittently rotating the lower die-carrying disk, and a toothed or roughened segment, whereby the caps formed upon said threaded lower dies are automatically unscrewed therefrom as the dies are carried past the bar, substantially as specified.

2. The combination of the disk carrying the threaded lower dies, means for intermittently rotating said disk, the toothed or roughened segmental bar, and a spring forming a backing for said bar at the front end of the same, substantially as specified.

3. The combination of the upper and lower dies, a blank-carrying hopper, feed-levers mounted upon the upper die-carrier, and means for reciprocating said levers so as to deposit the blanks in succession upon the lower dies, substantially as specified.

4. The combination of the die-carrying slide and its blank-hopper, the feed-levers, a slide carrying the same, a second slide connected to said feed-levers, and means for imparting reciprocating movement to said second slide, whereby the feed-levers are moved back and forth and are opened and closed at the limits of their movement, substantially as specified.

5. The combination of the upper die-carrying slide, the feed-levers carried thereby, a slide for operating said levers, a slide-operating rod having adjustable collars, and a reciprocated actuating-rod having an arm projecting between said collars, whereby movement to any desired extent may be imparted to the slide-operating rod, substantially as specified.

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

FRANKLIN W. PERRY.

Witnesses:
JNO. E. PARKER,
EUGENE ELTERICH.