

(No Model.)

N. M. MUZZY.

DEVICE FOR UNCAPPING AND RECAPPING CARTRIDGE SHELLS.

No. 404,855.

Patented June 11, 1889.

Fig. 1.

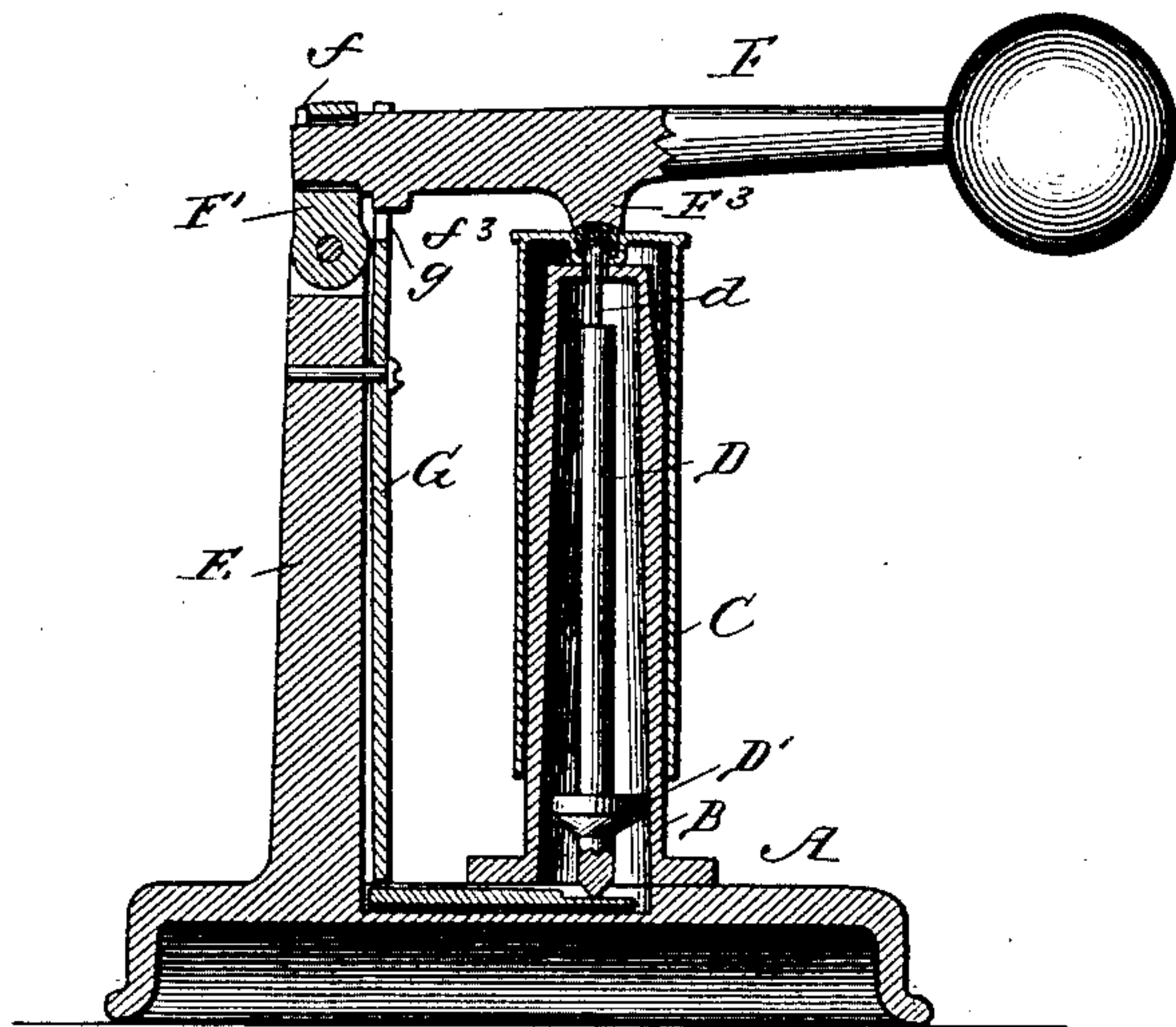


Fig. 2.

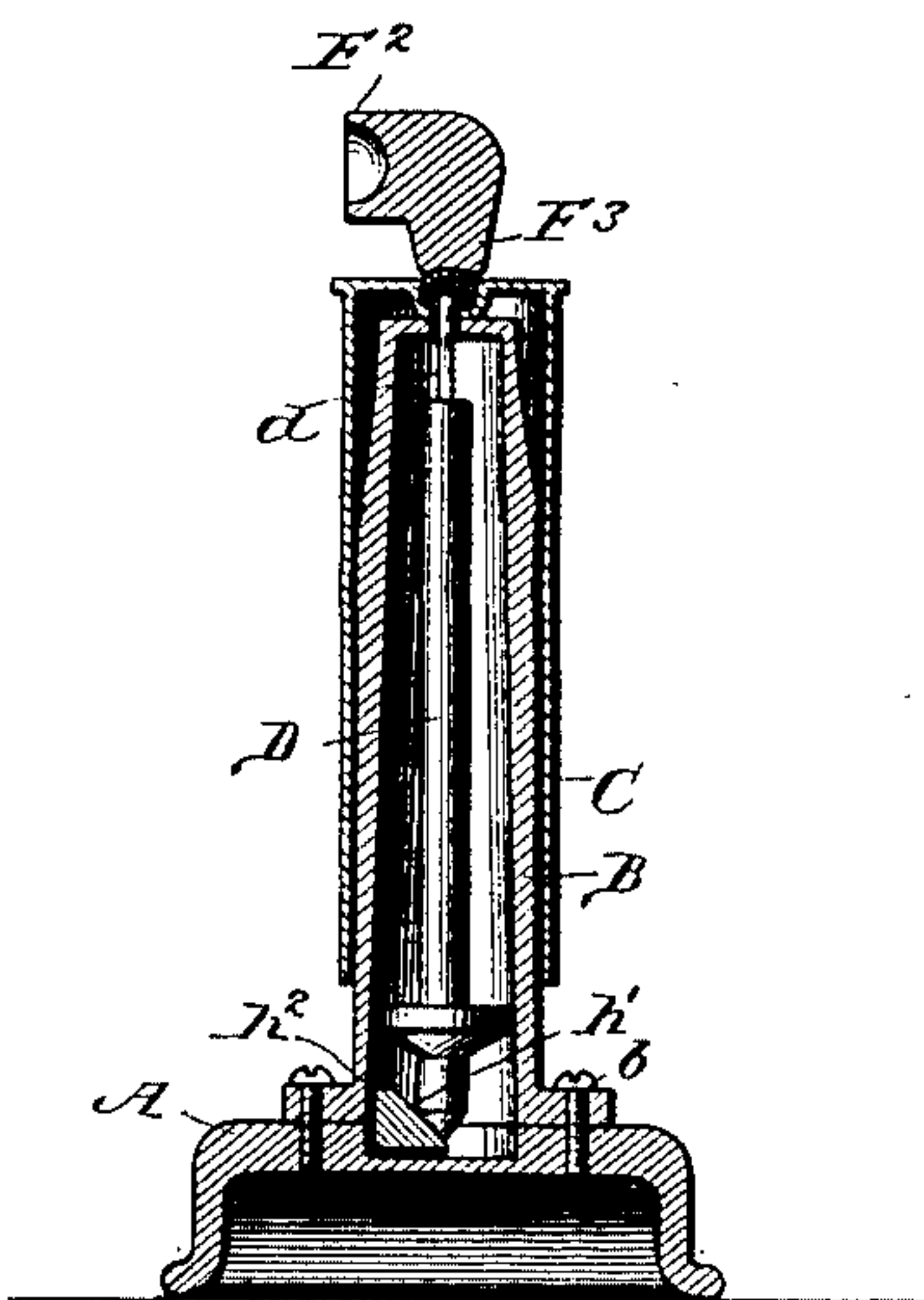


Fig. 3.

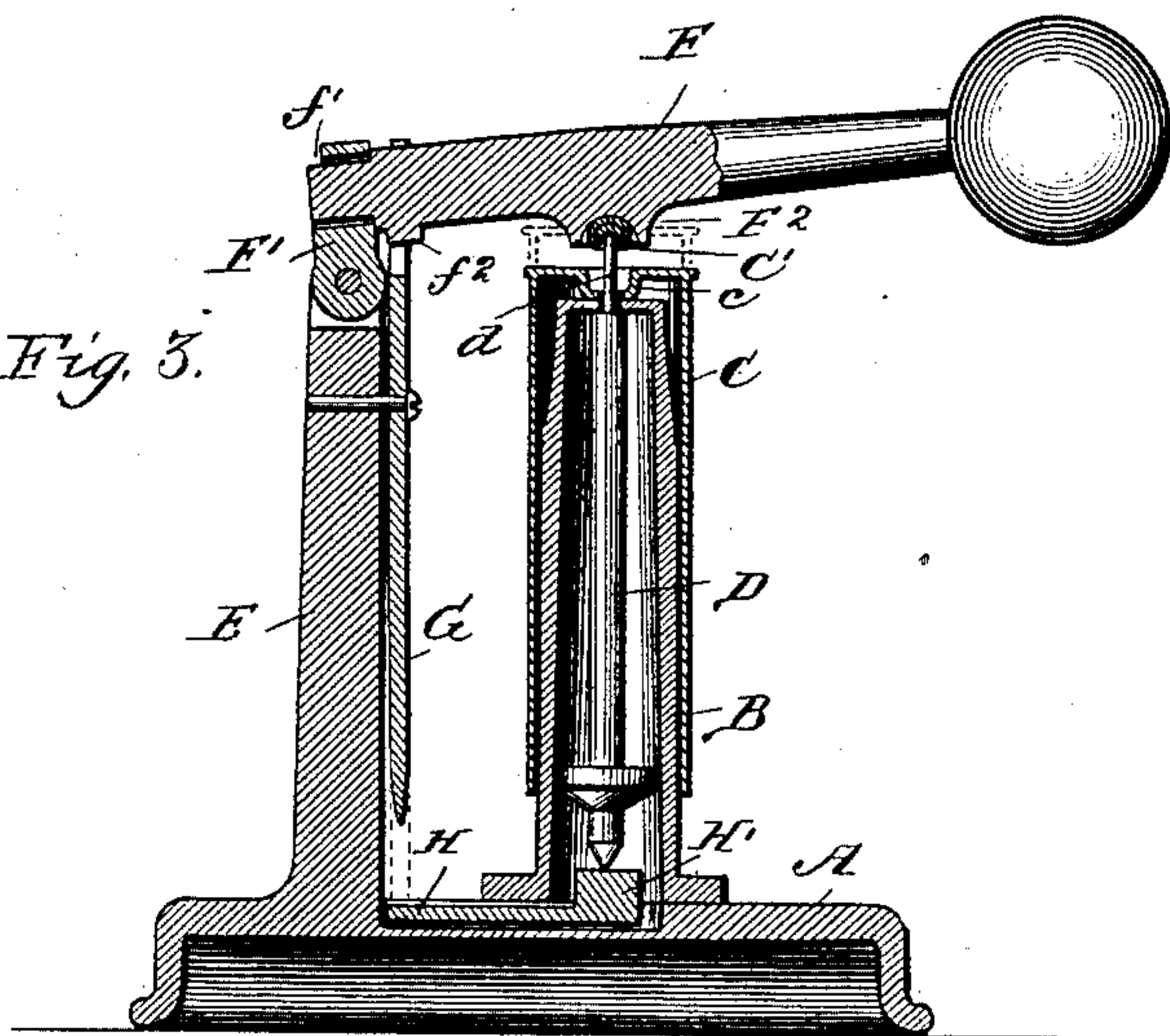


Fig. 4.

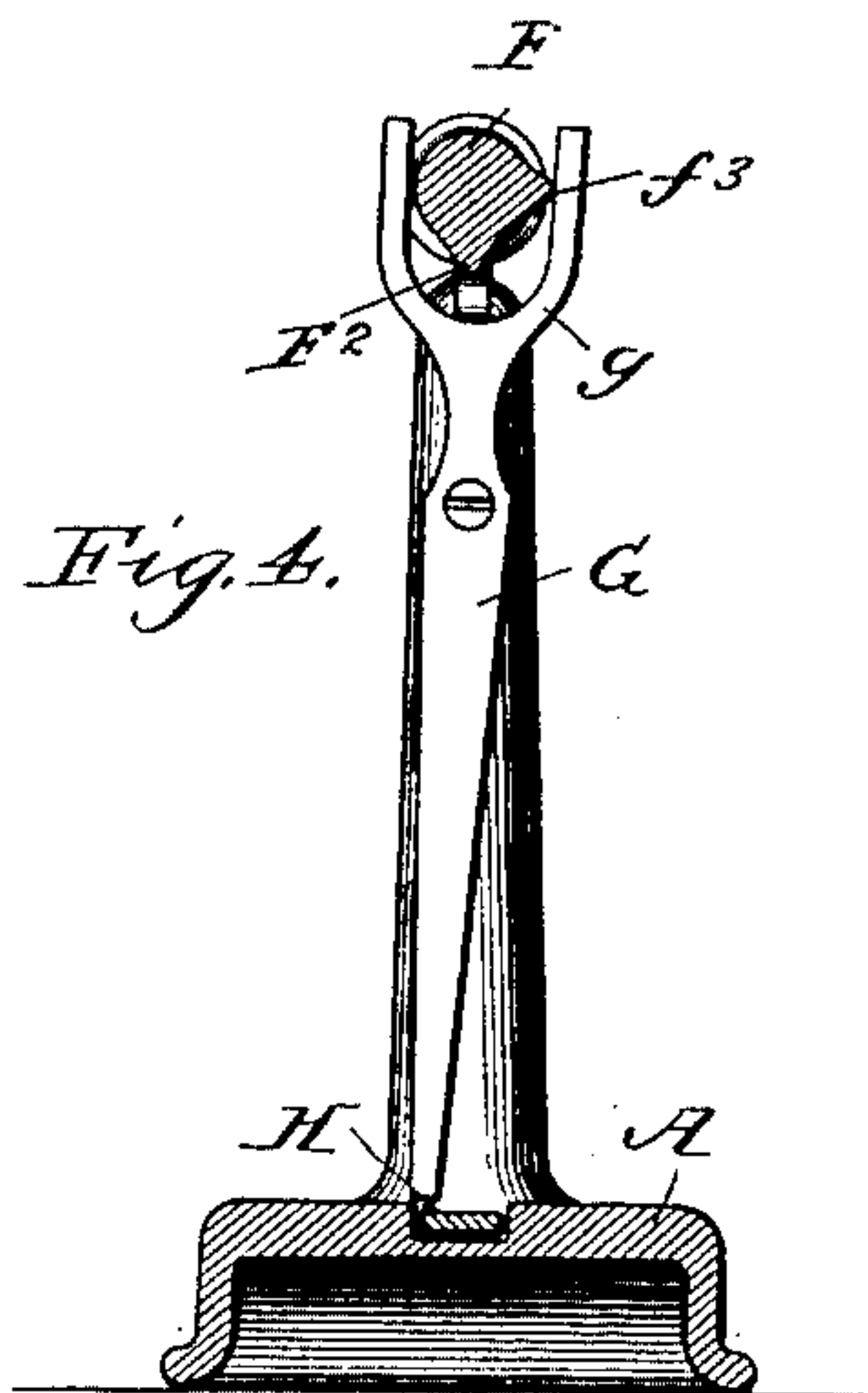
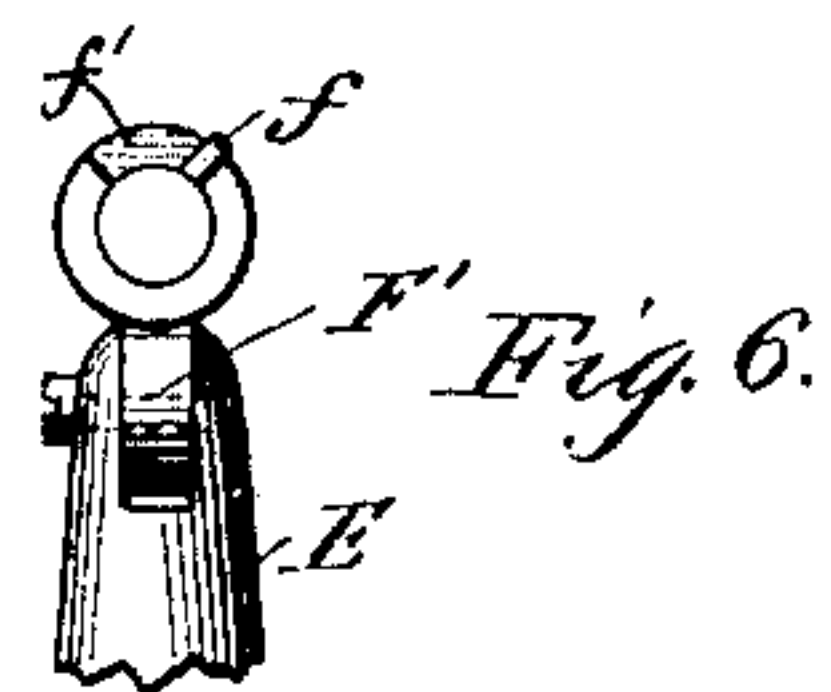
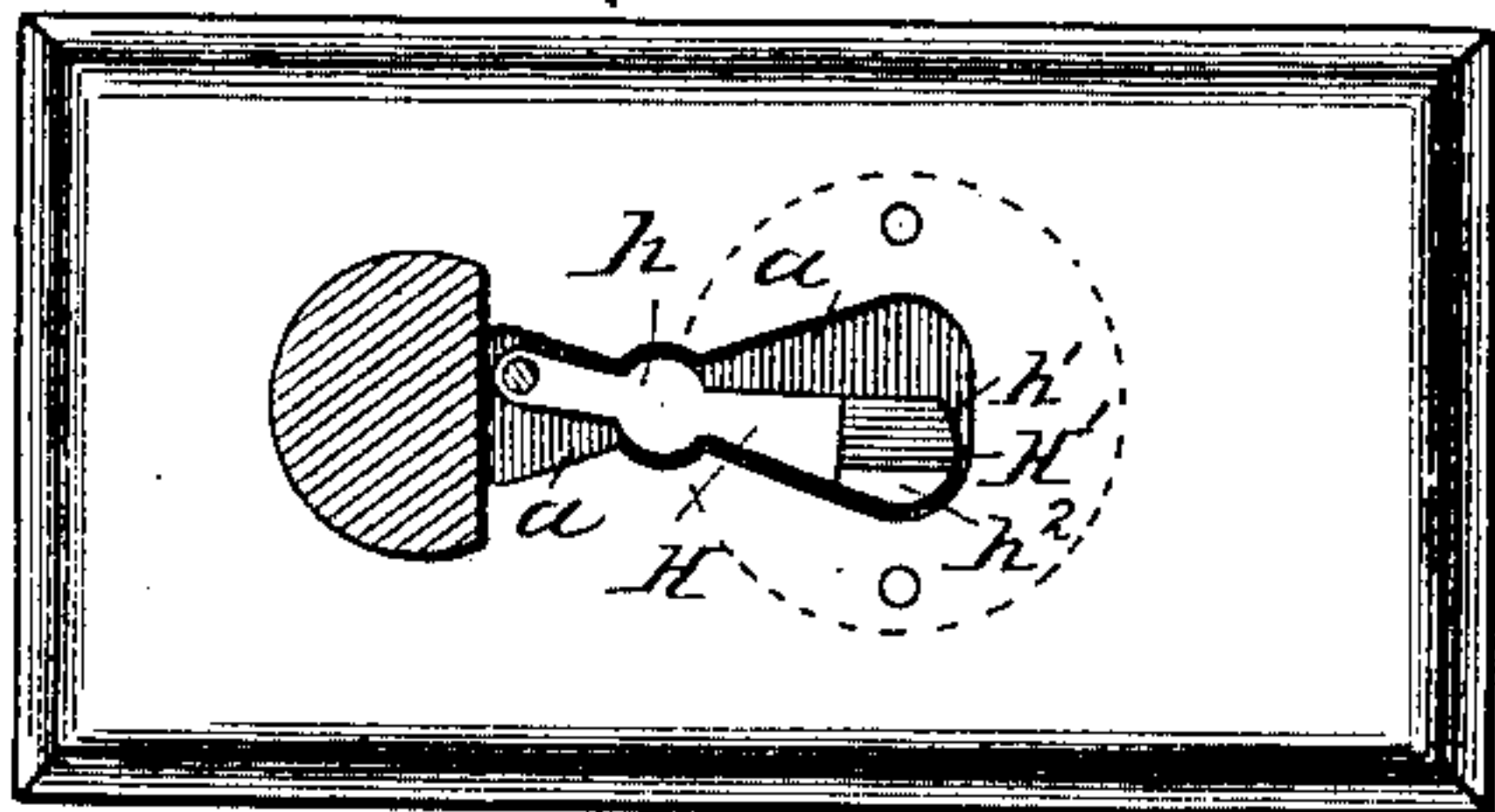


Fig. 5.



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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR UNCAPPING AND RECAPPING CARTRIDGE - SHELLS.

SPECIFICATION forming part of Letters Patent No. 404,855, dated June 11, 1889.

Application filed April 14, 1887. Serial No. 234,840. (No model.)

*To all whom it may concern:*

Be it known that I, NATHAN M. MUZZY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Apparatus for Uncapping and Recapping Cartridge-Shells, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a central longitudinal sectional view of an apparatus embodying my invention, the parts being in the position assumed during the operation of capping or recapping; Fig. 2, a transverse sectional view taken on the line  $xx$  of Fig. 1; Fig. 3, a view similar to Fig. 1, but with the parts in the position assumed during the operation of uncapping; Fig. 4, a sectional view taken on the line  $yy$  of Fig. 3; Fig. 5, a plan section taken on the line  $zz$  of Fig. 1, and Fig. 6 a detail end elevation of the upper end of the standard.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to apparatus for uncapping and recapping cartridge-shells, and more particularly to that class in which these two operations are performed by means of one apparatus; and it has for its object to produce an apparatus whereby the used or discharged caps or primers may be readily removed from the shells and new caps or primers placed in their stead by the same apparatus without removing or handling the shell, the whole being cheap and simple in construction and easy and effective of operation.

To these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In the drawings, A represents a suitable base upon which the various parts are mounted, and B the support or post to receive the shell C. The said shell-support is preferably detachable from the base A, being secured thereon by means of screws  $b$ , and is hollow interiorly to receive the plunger D, which is arranged within the said support, and is free to move vertically therein, its reduced upper end  $d$  passing through a suitable aperture in

the top of the support, as shown. The upper portion of the support B is preferably somewhat reduced in diameter to accommodate the same to the varying internal configuration of different shells.

The plunger D may be of a sufficient diameter to fill the interior of the support B; but I prefer to construct it in the manner shown, in which it is of a less diameter and is provided with a disk or collar D', which, in conjunction with the reduced upper end  $d$  of the said plunger, passing through the aperture in the top of the support B, serves to guide the plunger and prevent lateral movement thereof.

E represents a standard rising from the base A and serving to support the pressure-lever F, which is pivoted to the said standard so as to swing in a vertical plane passing through the support B. The lever F is also capable of rotation around its longitudinal axis, and the construction which I prefer to employ in order to obtain these two movements of the said lever is that shown in the drawings, in which the rear end of the lever F has a bearing and is free to rotate in an arm F', pivoted to the upper end of the standard E. A pin  $f$  on the lever F serves to retain it in position in the arm F', the end of the said pin being also reduced, as shown, for this purpose, and the upper portion of the arm F' is cut away for some distance, as shown at  $f'$ , to accommodate the pin  $f$ , the ends of the said cut-away portion serving, in conjunction with the pin, as stops to limit the rotary movement of the lever F and prevent its being turned too far.

The pressure-lever F extends over the shell-support B, and is provided at a point above the center of the same with a projection F<sup>2</sup> for removing the caps and with a projection F<sup>3</sup> for replacing the same. These projections may be of any suitable form for their purpose, the former being shown in the present instance as hollow, so as to straddle the cap and bear upon the shell, while the latter is adapted to bear directly upon the cap and press the same into place. The projections F<sup>2</sup> and F<sup>3</sup> are arranged at equal distances from the end of the lever F, but upon differ-



ent portions of its circumference, the one being distant about one-quarter of said circumference from the other, so that by giving the said lever a quarter-turn one way or the other  
 5 either one of said projections may be brought directly over the center of the shell-support B. The lever F is also provided, near its rear end, with cam projections  $f^2$  and  $f^3$ , corresponding with the projections  $F^2$  and  $F^3$ , and  
 10 arranged in line therewith. These projections may be made continuous, if desired; or, in other words, a single cam projection of sufficient length to extend from one to the other may be substituted.

15 G indicates a vertical lever pivoted to the standard E, and having its upper end slotted or formed into a yoke  $g$  to embrace that portion of the lever F upon which the cam projections  $f^2$  and  $f^3$  are located. The lower end  
 20 of the lever G is connected to the rear end of a cam-lever H, which is arranged horizontally and extends forward under the shell-support B, where it terminates.

The cam-lever H is preferably arranged in  
 25 a recess  $a$  in the base A, and its pivot may be formed, as shown, by means of a central circular portion fitting in a correspondingly-shaped portion of the said recess  $a$ . At its forward end the cam-lever H is provided, immediately underneath the plunger D, with a  
 30 cam  $H'$  for operating the said plunger, said cam having an inclined portion  $h'$  for lifting the plunger, and a flat top portion  $h^2$  for the said plunger to rest upon when raised.

35 The operation of my improved apparatus is as follows: It being desired to remove the old cap from a discharged shell and replace it with a new one prior to reloading the shell, the shell C, having the usual recessed and  
 40 apertured anvil  $c$ , in which the cap  $C'$  is in position, is placed upon the shell-support B, upon which it rests in the manner shown in Figs. 1 and 2 of the drawings. The pressure-lever F is then given a quarter-turn, thus  
 45 bringing the uncapping projection  $F^2$  into operative position. This rotary motion of the lever F actuates, through the medium of the cam projections  $f^2$  and  $f^3$ , the yoked lever G, and this latter in turn actuates the cam-lever  
 50 H, which lifts the plunger D by means of its cam  $H'$  until the said plunger rests upon the flat top surface  $h^2$  of the said cam. The upward movement of the plunger D carries the shell C upward into the position shown in  
 55 dotted lines in Fig. 3 of the drawings, and the pressure-lever F is then depressed, so that the projection  $F^2$ , bearing upon the base of the shell, will force downward until clear of the cap  $C'$ , which is supported by the plun-  
 60 ger. The shell will, when clear of the cap, drop into the position shown in full lines in Fig. 3, and the old cap being removed and the lever F rotated so as to bring the projection  $F^3$  into operative position, the said rota-  
 65 tion of the lever will lower the plunger through the mechanism described. A new

cap may then be placed in position and forced home by the projection  $F^3$  by depressing the lever F, as shown in Figs. 1 and 2 of the drawings. The recapped shell may then  
 70 be removed from the support and the same series of operations performed upon the next shell.

It will be seen that no handling of the shell is necessary from the time it is placed  
 75 upon the support until it is removed, and that the act of turning the pressure-lever to bring the uncapping or recapping projection into position serves to move the plunger into  
 80 proper position to co-operate.

The apparatus is simple and strong as well as cheap in construction and easy and reliable in operation, performing its functions rapidly and efficiently.

It is obvious that various modifications in  
 85 the details of construction may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown  
 90 in the drawings.

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

1. In an apparatus for uncapping and re-  
 95 capping cartridge-shells, the combination, with the shell-support and the vertically-movable plunger therein, of the pivoted pressure-lever capable of rotation around its longitudinal axis, and provided with the uncapping and recapping projections at different  
 100 points of its circumference above the shell-support, the cam-lever for actuating the plunger, and the intermediate lever connected to said cam-lever and actuated by the rotation  
 105 of the pressure-lever, substantially as and for the purposes specified.

2. In an apparatus for uncapping and re-  
 110 capping cartridge-shells, the combination, with the shell-support and the vertically-movable plunger therein, of the pivoted pressure-lever capable of rotation around its longitudinal axis, and provided with the uncapping and recapping projections arranged at  
 115 different points of its circumference above the shell-support, and the cam projection or projections on said pressure-lever, the cam-lever for operating the plunger, and the intermediate lever connected to said cam-lever  
 120 and having a yoke to embrace the said cam projections, substantially as and for the purposes specified.

3. In an apparatus for uncapping and re-  
 125 capping cartridge-shells, the combination, with the shell-support and the vertically-movable plunger therein, of the pivoted pressure-lever capable of rotation around its longitudinal axis and provided with stops to limit said rotation, the uncapping and recapping  
 130 projections arranged at different points on the circumference of said lever above the shell-support, and suitable connecting mech-

anism, actuated by the rotation of the pressure-lever, to operate the plunger, substantially as and for the purposes specified.

4. In an apparatus for uncapping and re-  
5 capping cartridge-shells, the combination, with the shell-support and the vertically-movable plunger therein, of the cam-lever H, for operating said plunger, said cam-lever being arranged below the lower end of said

plunger, and being provided with cam H', 10 having inclined surface  $h'$  and flat top surface  $h^2$ , substantially as and for the purposes specified.

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