

(No Model.)

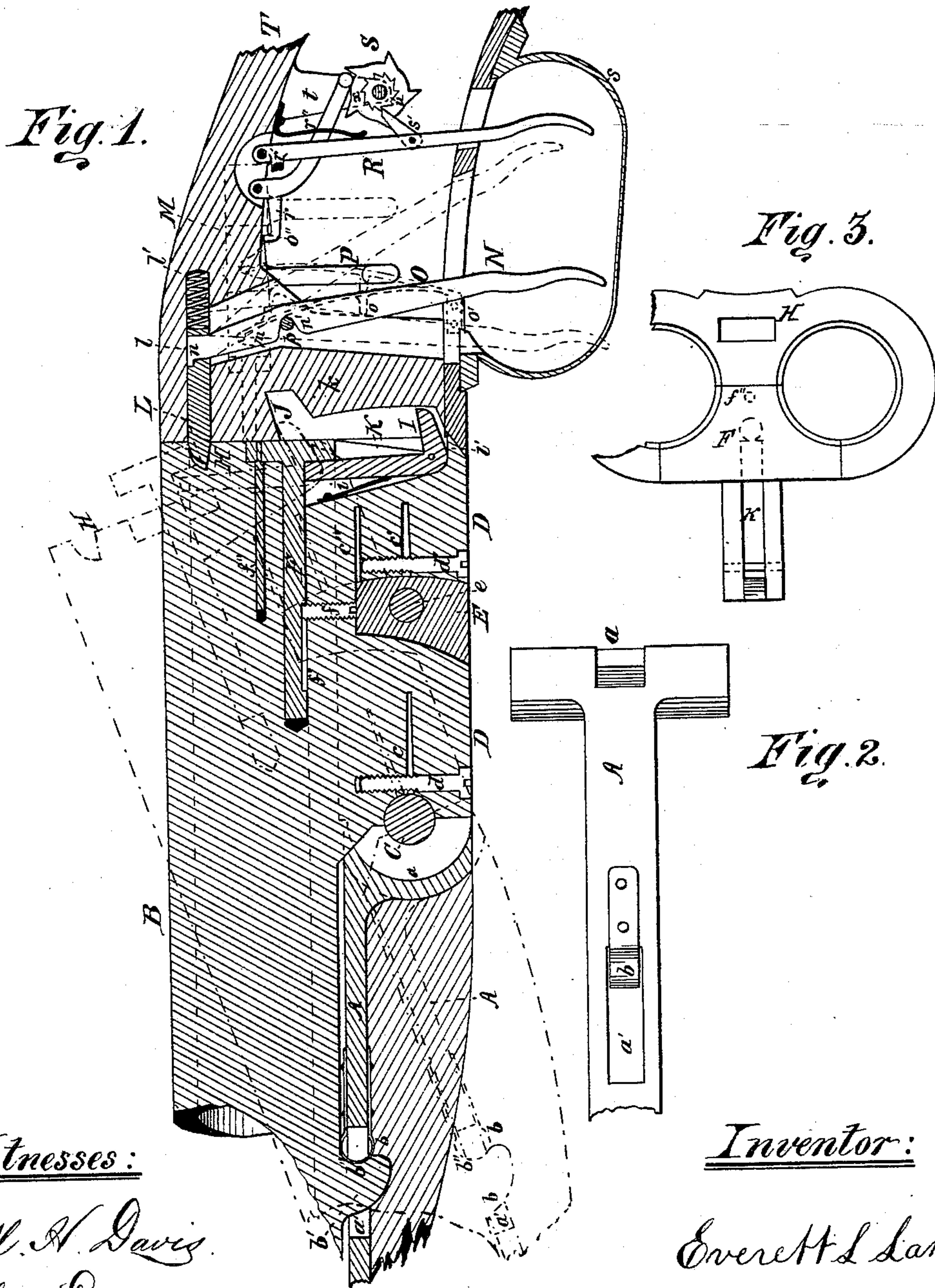
3 Sheets—Sheet 1.

E. L. LAKE.

BREECH LOADING FIRE ARM.

No. 284,213.

Patented Sept. 4, 1883.



Witnesses:

Will. A. Davis.
Thos Edwards.

Inventor:

Everett L Lake

(No Model.)

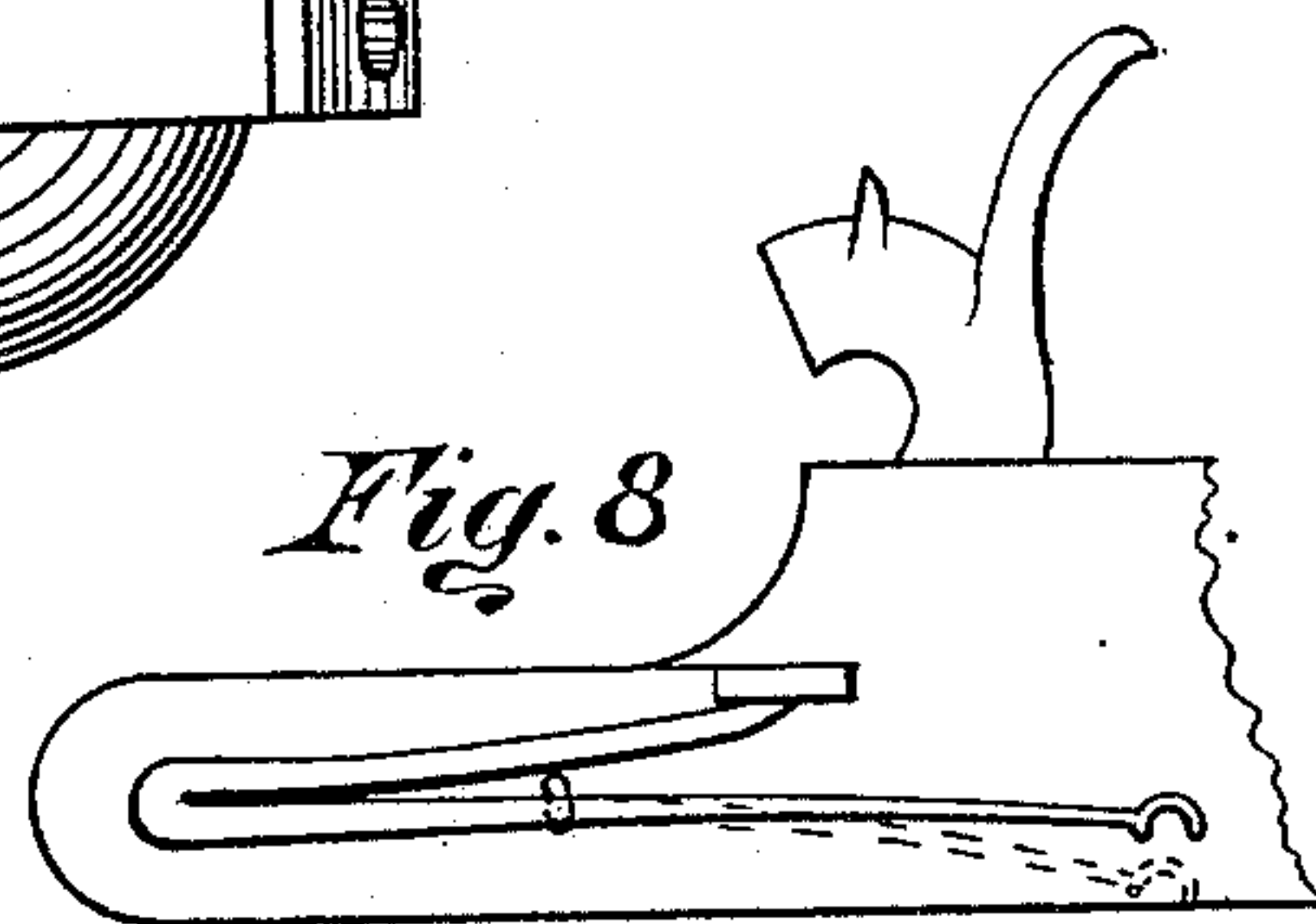
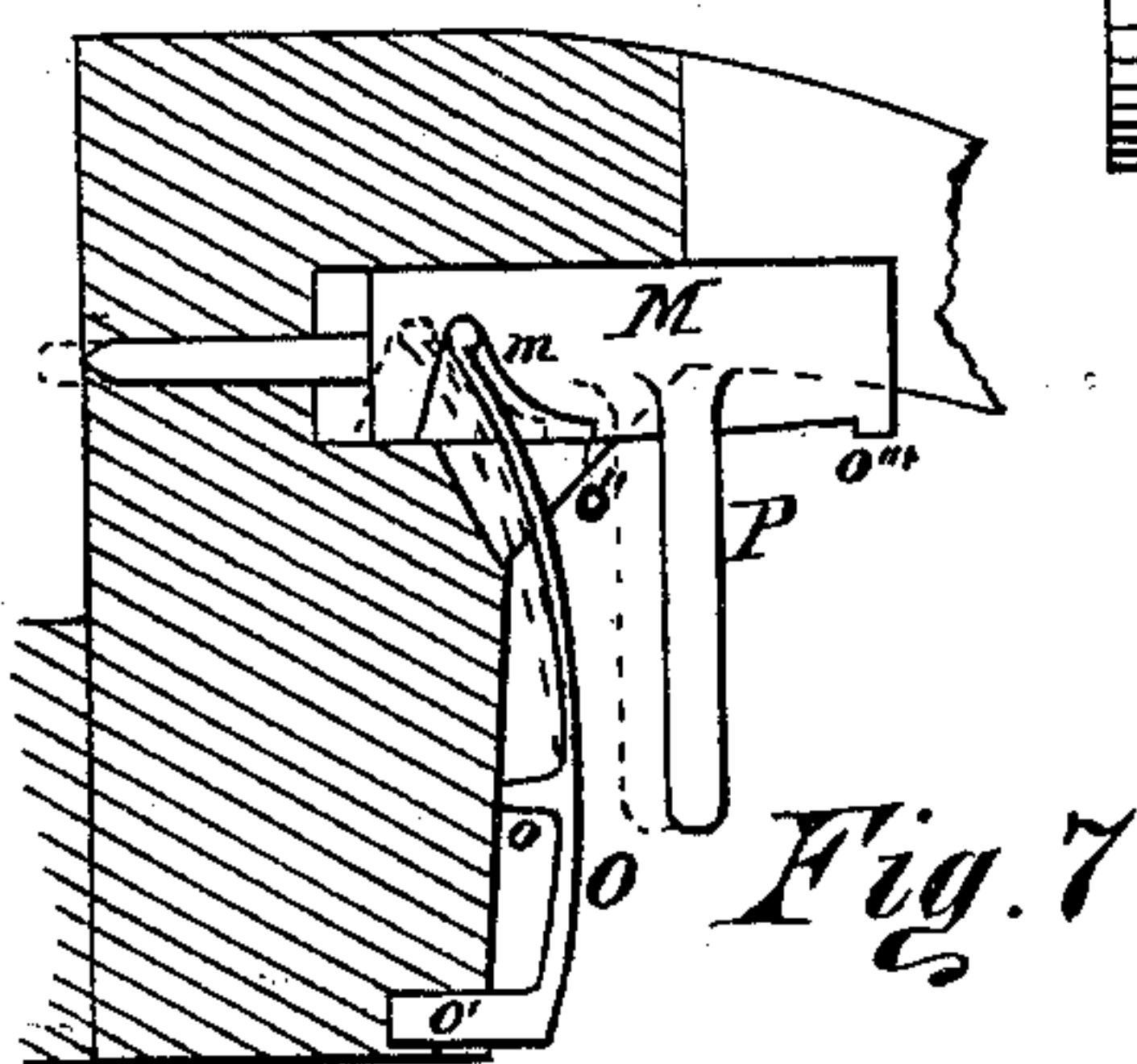
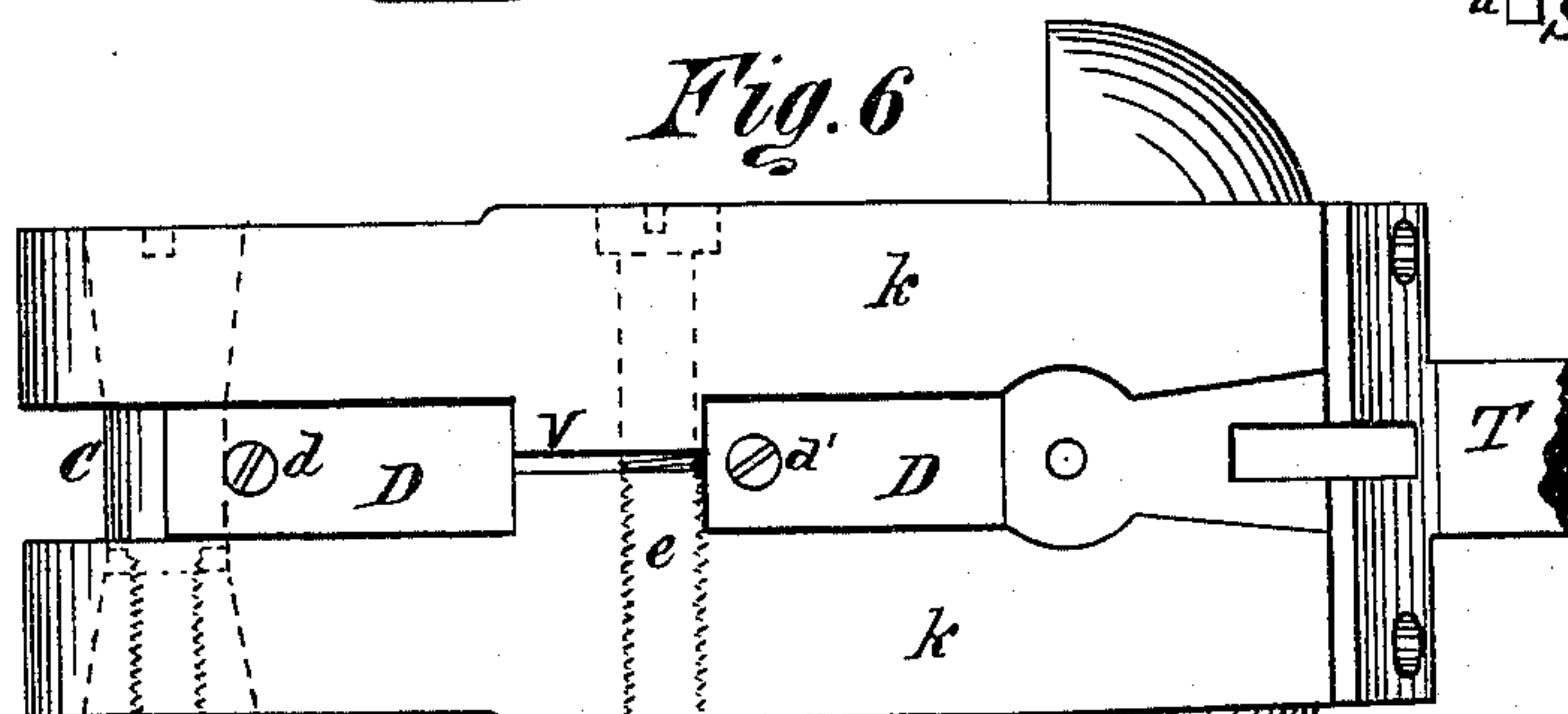
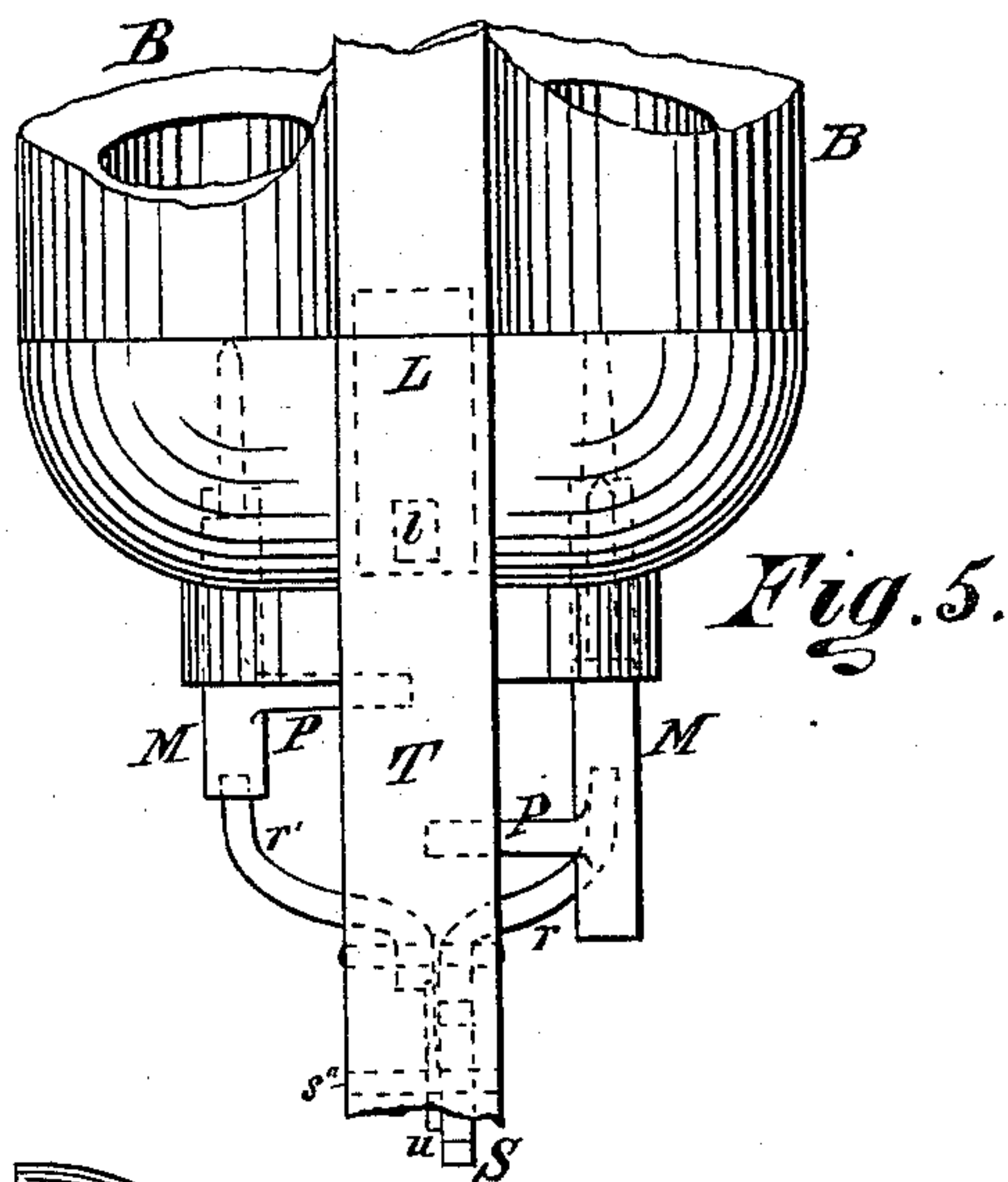
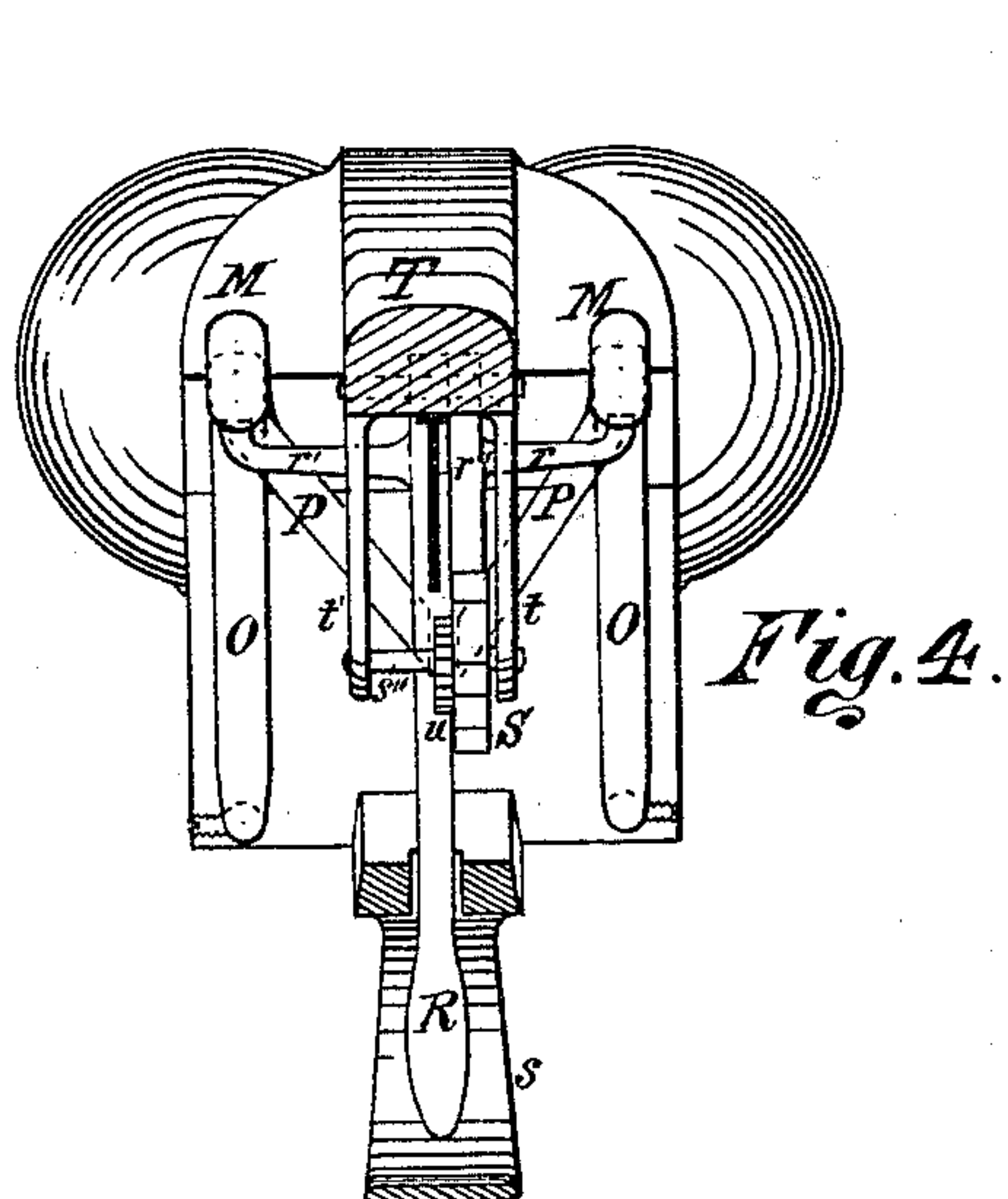
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Fig. 8.

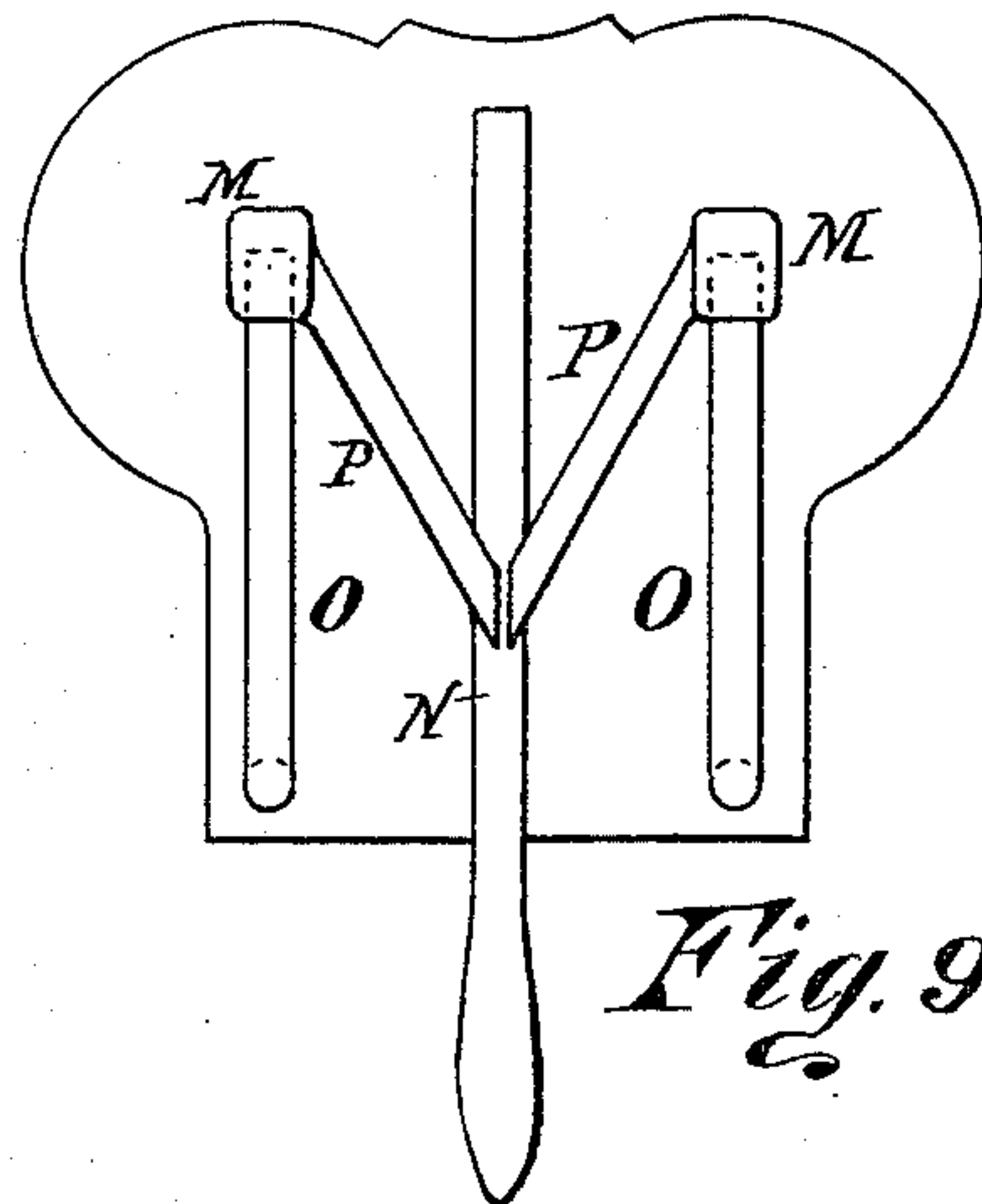
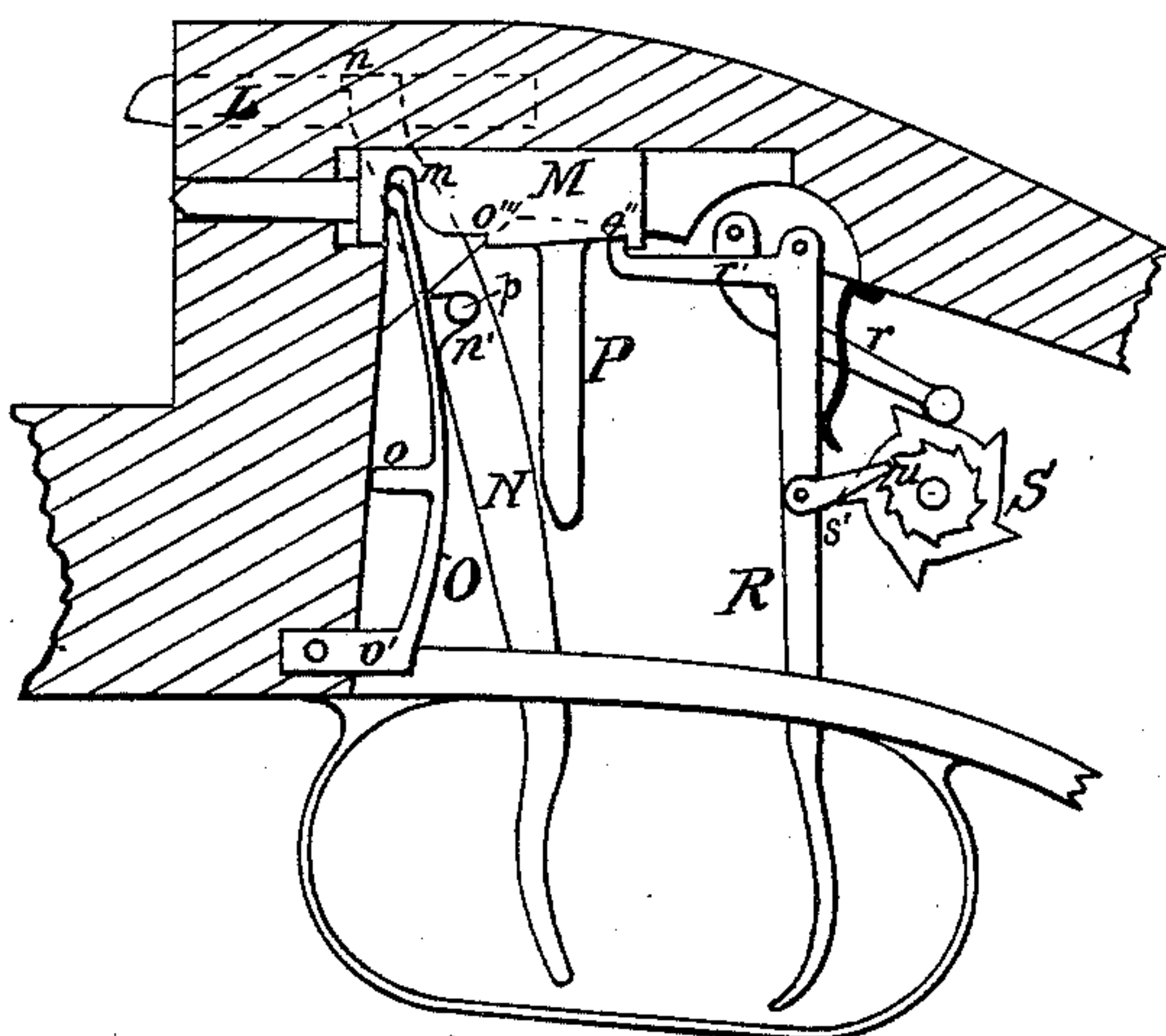


Fig. 9.

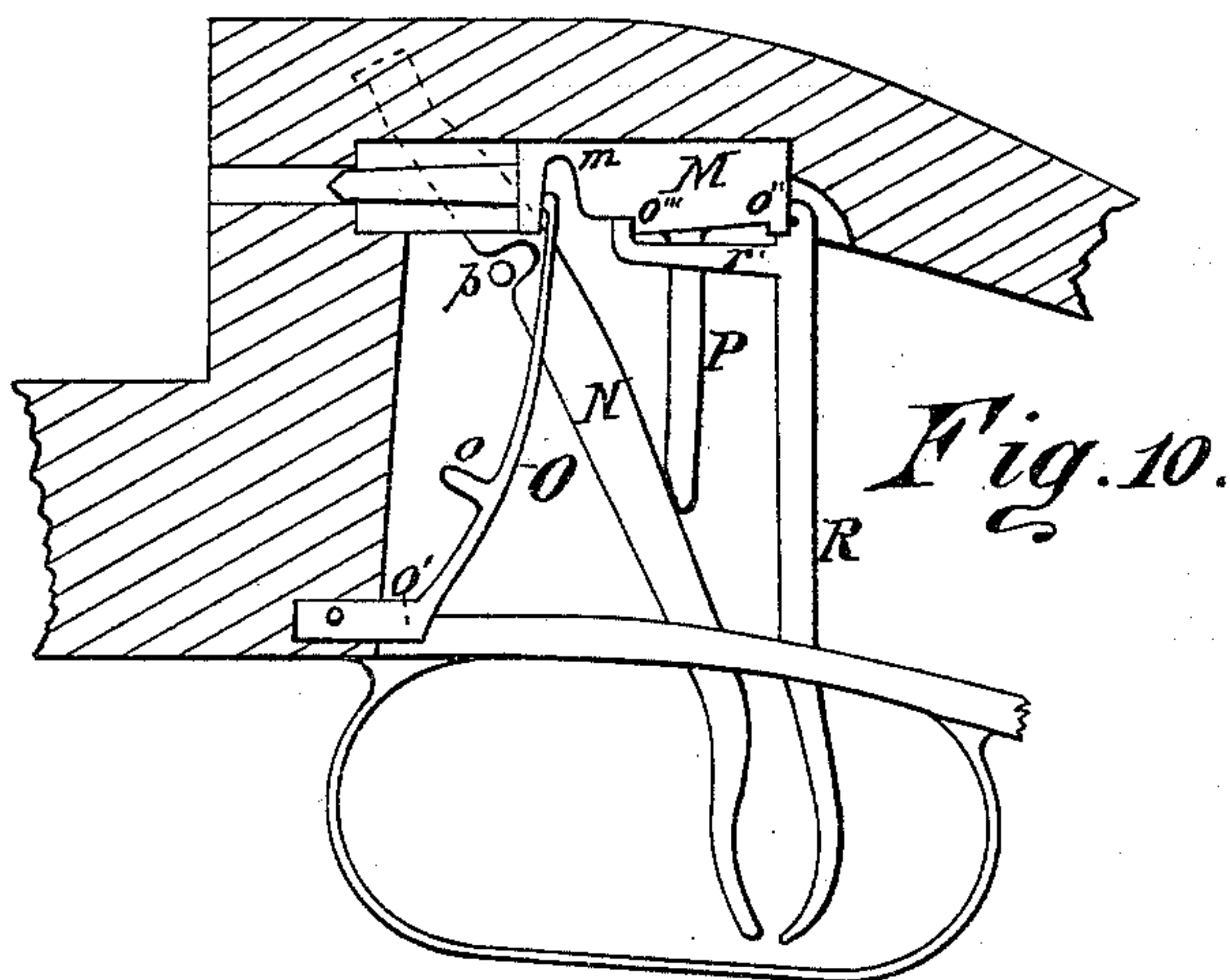


Fig. 10.

Witnesses:

Will H. Davis.
Thos. Edwards.

Inventor:

Everett S. Lake

UNITED STATES PATENT OFFICE.

EVERETT L. LAKE, OF SYRACUSE, NEW YORK.

BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 284,213, dated September 4, 1883.

Application filed February 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, EVERETT L. LAKE, a citizen of the United States, residing at the city of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Breech-Loading Fire-Arms, of which the following is a specification.

My invention relates to improvements in hammerless breech-loading fire-arms; and the objects of my improvement are, first, to provide for compensating the wear of the several parts; second, to reduce the strain upon the parts to the minimum in the opening of the gun; third, to use a plunger which shall strike the center of the cap in a line straight with the bore of the barrels, and, fourth, to discharge both barrels with one trigger. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of that portion of the gun to which my invention relates. Fig. 2 is a top plan view of the fore-end piece, with the loop-spring. Fig. 3 is a view of the breech end of the barrels, with the mortise for the locking-bolt and for the combined ejector and check-lever. Fig. 4 is a back end view of the plungers, plunger springs and arms, sears, and combined sear and trigger, hangers, ratchet, and star-wheel. Fig. 5 is a top plan view of Fig. 4, the dotted lines indicating the invisible parts. Fig. 6 is a bottom plan view of the frame and lug; and Fig. 7 is a view of the back end of the frame, plunger and arm, and plunger-spring. Figs. 8, 9, and 10 are additional views, showing in full lines the connection of the plungers with the sears, cocking-lever, and spring.

Similar letters refer to similar parts throughout the several views.

A represents the fore-end piece, in which there is a half-circle, *a*, at one end, and near the other the mortise *a'*, and riveted to the metal which forms the basis of the fore-end piece is the loop-spring *b*, which spring is secured and held fast at both ends, and the loop extends into the mortise. (See Fig. 2.)

B represents the barrels, *b'* the arm extending below the barrels, and *b''* the arm-pit.

C is the hinge pin or bolt with slot in the head, and the head is tapered from the outside

to the socket or hinge-pin hole. It is then straight; but after entering the frame beyond the socket or hinge-pin hole it is threaded and screws into a tapering nut. (See Fig. 6.)

D D represent the lug; *c c'*, the horizontal splits in the lug. *d d'* are compensating or grip screws passing up into the lug and across the splits *c* and *c'*.

E is the bridge in the frame; *e*, the compensating or grip screw passing through the frame and across the vertical split *v* in the frame; *f*, a screw passing through that part of the lug which is over the bridge into a slot, *f'*, in the extractor; F, the extractor, and *f''* the extractor steady-pin; H, a mortise for the locking-bolt; I, the combined ejector and check-lever, fastened or hinged to the lug by a pin through the elbow, the lug being cut out to receive the lever operating the extractor and stopping the barrels when the gun is opened; *i*, a spring fastened to the lug for holding the lever in position; *i'*, a shoulder on the lug which stops the lever, and upon which the check-lever is pushed by the end thereof coming in contact with hook T in the frame, which operation moves the tail end or ejector back or out, pushing the extractor, which draws or throws out the broken shell positively without straining the hinge-joint, and stops the barrels from dropping down too far.

K is a mortise in the frame *k* to allow the operation of the check-lever in opening the gun; L, a locking-bolt, with mortise *l* and spiral spring *l'*; N, a lever with hook *n* on the head to hold the lever from dropping down when the fore-end is moved backward, freeing the mortise *n'* from the pin *p*; M, a plunger with mortise *m* for receiving the free end of the plunger-spring; *o''*, a notch or hook for receiving the sear when the plunger is cocked; O, the bent plunger-spring with arm *o* below the center and extending forward and coming in contact with the frame in front, stopping the spring at that point, while the free end whips or vibrates forward, carrying the plunger forward, so as to explode the cap, and then vibrates backward, drawing back the plunger, (see Fig. 7,) the foot or stem of the spring entering hole *o'*, drilled therefor in the frame, and fastened therein.

P is an arm of the plunger to engage the le-

ver N, and the lever, when drawn back, moves the plunger back till the nose of sear *r* engages the hook *o''* and the plunger is cocked. The lever, when released, drops back to its point of rest upon *p*.

Sears *r* and *r'*, the latter being broken off, as shown in Fig. 1, are fastened or hinged to the tang T, the tail end of *r* connecting with the star-wheel S, while *r'* is combined with the trigger R.

r'' is a spring fastened to the tang, the free end pressing against the trigger, and throws the nose of the sear up so as to engage the notch in the plunger when drawn back.

s is a pawl or dog fastened to the lever, and operates the ratchet-wheel *u*, and revolves both ratchet and star wheel when the trigger is pulled back, and by the pulling of the trigger the left barrel is discharged, the star-wheel revolving so that sear *r* rests at the point X, and the second pulling of the trigger revolves the star-wheel, which throws up the tail of sear *r*, disengaging the nose from notch *o''* and the right barrel is discharged, the sear *r'* not interfering with the movement of the trigger.

t t are hangers from the tang supporting the axle *s''* of the ratchet and star wheel, (see Fig. 4,) and *s* is the guard.

The fore-end piece A is secured to the gun by means of the half-circle *a*, inclosing the end of the frame, and the loop-spring *b*, fitting into the arm-pit *b''*. This piece is removed from the barrels by taking hold of the extreme forward end with the fingers and pulling away from the barrels, the loop-spring flattening out with the pressure sufficiently therefor. The loop-spring by its elasticity automatically compensates for the wear upon the half-circle *a* in the opening of the gun. By means of the hinge pin or bolt C, made as described, and the screws *e*, and the vertical split *v* in the bridge of the frame, I compensate for the lateral wear of the obvious parts. To compensate for the longitudinal wear of the lug upon the bridge and hinge pin or bolt, I provide the horizontal splits *c c'* *c''* in the lug, and with the operating or grip screws *d d'* close up these splits, and thus the wear is taken up.

To operate the extractor and stop the barrels from dropping too far and save the parts of the gun from unnecessary strain, I have combined the ejector with a check-lever in the manner shown in Fig. 1, so that in unlocking the barrels, when the head of the lever comes in contact with the hook J in the frame, the tail end of the lever then pushes the extractor back, which throws out the shell until the lever is stopped by and rests upon the shoulder *i'* of the lug, when the further opening is stopped, as indicated by the dotted lines. The mortise H in the barrels receives the locking-bolt L, and this bolt is withdrawn from the mortise by a forward pressure upon the end of the lever N extending down within the trigger-guard. The mortise *n'* in the lever N allows the lever to be moved back free from the pin *p*, the

hook *n* on the head holding the lever from dropping down, and by drawing back this lever, it striking the arm P of the plunger, moves the plunger back till the sears *r r'* catch the notches *o''* in the plungers and cock them, the lever falling forward to its position of rest upon the pin *p*. The spring O has a foot or stem to enter the hole *o'*, drilled in the frame, (see Fig. 7,) and is there fastened, the free end being in the mortise *m* of the plunger M, and when the trigger is pulled the power of the spring carries the plunger forward, and by the whip or vibration of the free end of the spring explodes the cap after the spring is stopped by the arm *o*, and then withdraws the plunger within the frame. The plunger M moves in a straight line with the bore of the barrels, and is provided with the mortise *m* for the free end of the plunger-spring to enter, and the notch *o''* for the sear to catch and cock the plunger.

It is obvious that, having my cocking-lever and trigger inside of the guard, and the gun being without hammers, there is not even the possibility of an accidental discharge; that, having a single trigger, the wrong one can never be pulled; that, the ejector acting directly against the head of the extractor and the strain thereon, the extractor cannot slip by or off the shell; that there is a large gain in the leverage of the ejector and check-hook by placing them in the rear of the lug; that the end of the locking-bolt being wedging, the cocking-lever, having the power of the plunger-springs against it, locks the barrels tighter, the spring in the rear of the bolt securing the gain; that the lock is dispensed with; that the vibrating spring communicates power to the plunger over all the space it passes, and hence the plunger strikes the cap a positive blow, certain to explode the cap; that the device which stops the barrels when gun is opened reduces the strain upon the parts to the minimum.

I am aware of the several devices for compensating the wear of the several parts and for opening and closing, and for dispensing with hammers, and especially of my previous application, Serial No. 58,766, and hence

What I claim is—

1. The combination of the lever N, with free end within the trigger-guard and power end in locking-bolt, having hook *n*, mortise *n'*, with the locking-bolt L, provided with mortise *l*, pin *p*, the lever N being adapted to swing upon either pin *p* or hook *n*, plunger M, provided with arm P, extending in the path of lever N when said lever N is pulled backward, and notch *o''* to receive sear *r'* to unlock the barrels or cock the plungers, as shown, and for the purposes specified.

2. In combination, the locking-bolt L, having mortise *l* to receive the power end of lever N, with lever N, provided with hook *n* and mortise *n'*, plunger M, having arm P and mortise *m*, vibrating spring O, and barrels B to force the locking-bolt forward into the mortise

in the barrels when cocking the plungers, and thereby preventing the accidental dropping down of the barrels, as shown, and for the purposes specified.

5 3. The lever N, provided with a mortise, *n'*, to permit its being moved off from the pin *p*, the head entering a mortise in the locking-bolt L, and being provided with the hook *n*, in combination with the plunger M, provided
10 with the arm P to engage the lever, and the notch *o''* to receive the sear *r* in cocking the plunger, as shown, and for the purposes specified.

15 4. The plunger M, provided with the mortise *m* to receive the free end of the spring O, and the sear-notch *o''*, in combination with the cocking-lever N, the sear *r*, provided with suitable mechanism for operating the same, and the vibrating spring O, as shown, and for
20 the purposes specified.

25 5. The vibrating spring O, fixed at one end in the hole *o'* in the frame, and provided with the arm *o* below the center to stop the forward movement of the spring at that point, the free end of the spring entering the mortise *m* in the plunger M, in combination with the plunger M, provided with the mechanism described for cocking and discharging the plunger, which
30 moves in a straight line, as shown, and for the purposes specified.

35 6. In hammerless guns, the vibrating spring O, having the arm *o* for stopping the spring at the point where the arm is attached, when the arm strikes the back end of the frame in front thereof as the plunger is discharged, while the free end of the spring carries the plunger, moving in a straight line forward to explode the cap, and then draws the plunger back to a position at rest, the front end of the plunger being within the frame, in combination with the
40 plunger M, as shown, and for the purposes specified.

45 7. The single trigger R, combined with the sear *r'*, and provided with the position-spring *r''* and pawl or dog *s'*, connecting with the star-wheel S, provided with a ratchet-wheel, *u*, arranged to operate the sear *r* and release the right-hand plunger M to discharge the right-

hand barrel without discharging the left-hand barrel, or vice versa, as shown, and for the purposes specified. 50

8. Spring O, having the arm *o*, in combination with the frame *k*, against which the arm *o* strikes, and thereby stops the forward movement of the spring at the point where the arm is attached, plunger M, having mortise *m* to receive the free end of spring, notch *o''* to receive the sear *r'*, and arm P to engage the lever, lever N, and the discharging mechanism described, to render the spring vibrating, as
55 shown, and for the purposes specified. 60

9. The star-wheel S, in combination with the ratchet-wheel *u* to engage pawl *s'* of the trigger, trigger R, having sear *r'*, which enters notch *o''* of the left plunger, and pawl *s'*, connecting with the ratchet-wheel and thereby with the star-wheel, sear *r*, entering the notch *o''* of the right plunger, and plungers M, having notches *o''* to receive sears *r'* and *r* to release the plungers, as shown, and for the purposes specified. 65 70

10. In a hammerless gun, the combination of the lever N, having hook *n*, securing it to the locking-bolt L, and mortise *n'*, allowing the lever to swing back off from pin *p*, with the trigger R, having sear *r'* to enter the notch *o''* of the left plunger, and pawl *s'*, connecting with the ratchet-wheel *u*, locking-bolt L, entering mortise in the barrels and connecting with lever N, pin *p*, serving as a fulcrum for the lever, springs O, with free ends in the plungers, having arms *o* to make them vibrate, plungers M, having mortises *m* to receive springs, notches *o''* to receive sears *r'* and *r*, and arms P to engage the lever, sear *r*, connecting with right plunger and star-wheel, and star-wheel S, having ratchet-wheel *u* to drop down the barrels, cock the plungers, and discharge the gun inside the trigger-guard, thereby preventing accidental discharge of the gun, as shown and specified. 75 80 85 90

EVERETT L. LAKE.

Witnesses:

HOMER WESTON,
M. F. SHERLOCK.