(No Model.)

3 Sheets—Sheet 1.

J. M. BROWNING.

MAGAZINE FIREARM.

No. 499,007. Patented June 6, 1893.

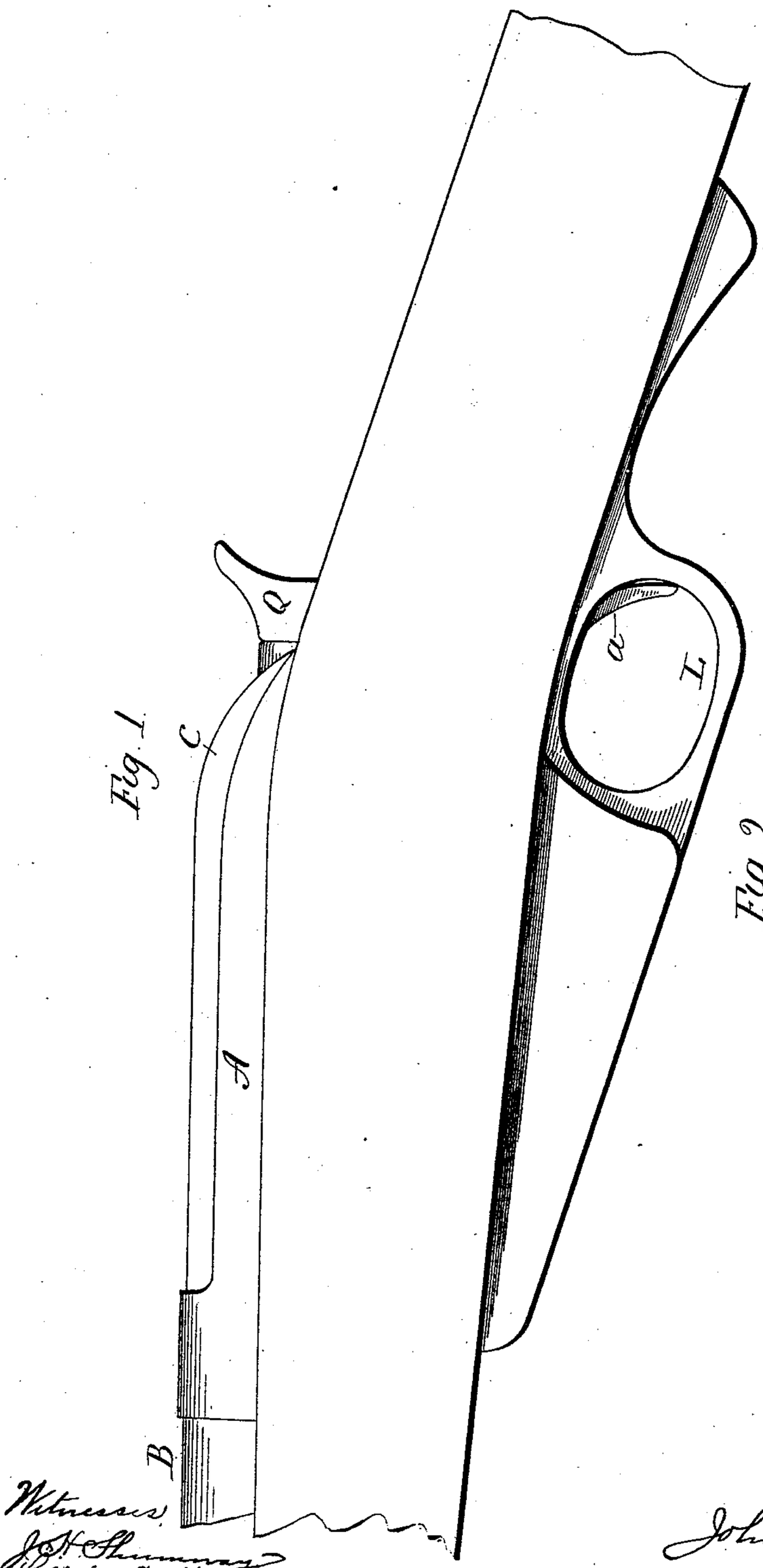

Fig. 1.

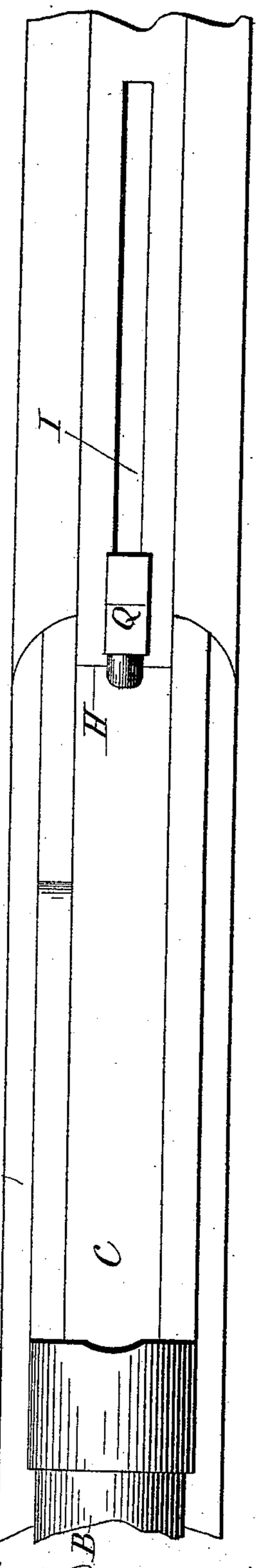

Fig. 2.

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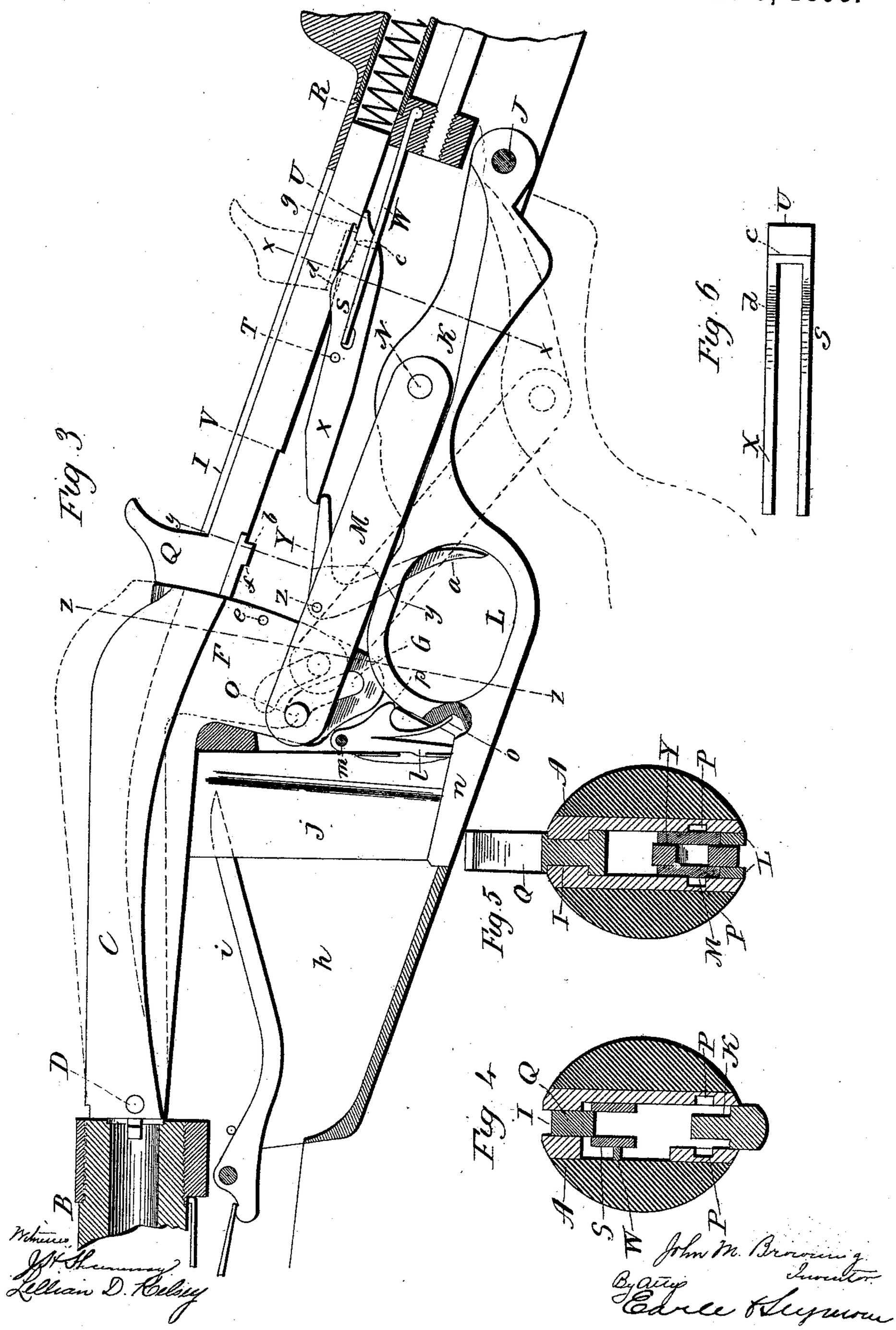

Fig. 3

Fig. 6

Fig. 5

Fig. 4

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(No Model.) 3 Sheets—Sheet 3.

J. M. BROWNING.

MAGAZINE FIREARM.

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Fig. 7.

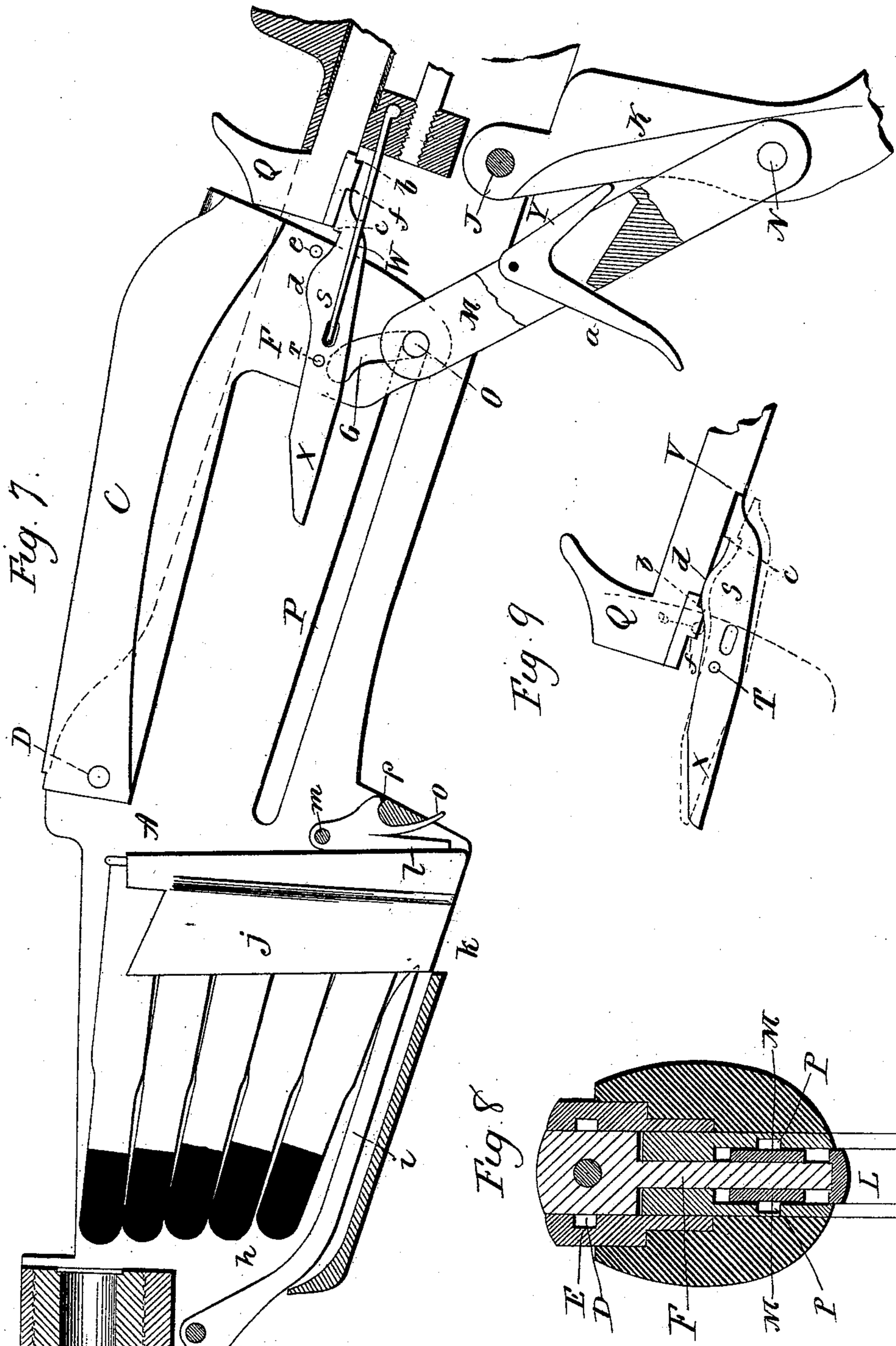
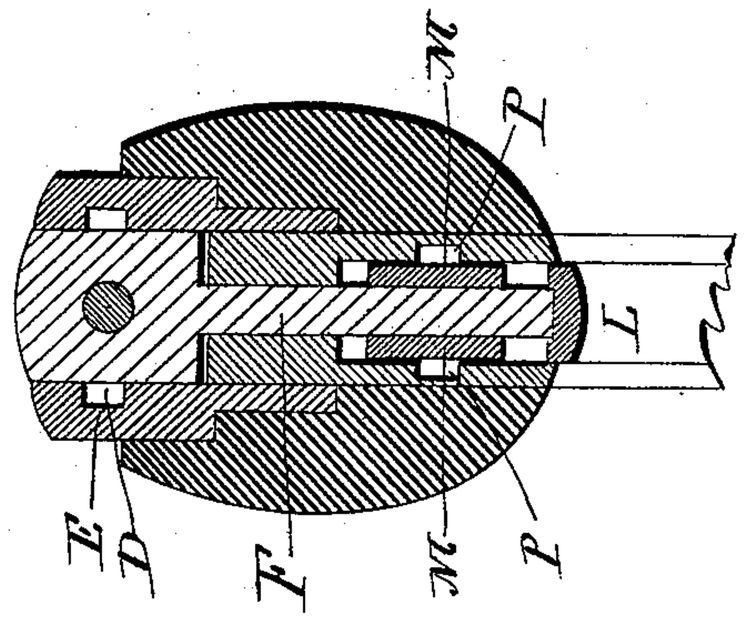


Fig. 9.

Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN M. BROWNING, OF OGDEN, UTAH TERRITORY, ASSIGNOR TO THE WINCHESTER REPEATING ARMS COMPANY, OF NEW HAVEN, CONNECTICUT.

MAGAZINE-FIREARM.

SPECIFICATION forming part of Letters Patent No. 499,007, dated June 6, 1893.

Application filed October 15, 1892. Serial No. 448,971. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BROWNING, of Ogden, in the county of Weber and Territory of Utah, have invented a new Improvement in Magazine Firearms; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view of the arm broken away at front and rear; Fig. 2, a top view of the same; Fig. 3, a longitudinal sectional side view showing the parts in the closed or normal position; Fig. 4, a transverse section on line *x—x* of Fig. 3; Fig. 5, a transverse section cutting on line *y—y* of Fig. 3; Fig. 6, a top view of the sear; Fig. 7, the same as Fig. 3, showing the parts in the open position and representing a pack of cartridges in the magazine chamber; Fig. 8, a transverse section cutting on line *z—z* of Fig. 3; Fig. 9, a detached view illustrating the operation of the sear upon the hammer.

This invention relates particularly to an improvement in that class of magazine firearms in which the magazine is in a chamber directly below the breech-piece, the cartridges being contained in a pack, so that several cartridges are simultaneously introduced into the magazine when the breech-piece is in the open position, the breech-piece having a longitudinal reciprocating movement, parts of the invention being applicable to other arrangements of magazine, and also to single breech-loading arms, the object of the invention being chiefly to produce the opening movement of the breech-piece by means of a lever which is drawn toward the person as the arm is held at the shoulder, and so that manipulation of the arm may be produced without moving the trigger-finger from the trigger-guard or operating lever, and the invention consists in the construction as hereinafter described and particularly recited in the claims.

A, represents the receiver, to the forward end of which the barrel B, is attached, in the usual manner, the barrel opening into the receiver at the rear.

C, represents the breech-piece, which is arranged to move longitudinally backward and forward, as from the position in Fig. 3, to that seen in Fig. 7, and return; at its forward end it is guided in a longitudinal line by means of a stud D, projecting laterally into a corresponding longitudinal groove E, in the receiver, see Fig. 8, and so that the breech-piece may swing up and down between the sides of the receiver, turning on the stud D, as a trunnion. At its rear end the breech-piece is constructed with a downward projection F, on its under side, in which is constructed a cam-slot G, inclined upward and forward.

When the breech-piece is in the closed potion, its rear end is adapted to drop forward of an abutment H, in the receiver, see Fig. 2, and so as to rest against said abutment to resist recoil, but when the rear end of the breech-piece is raised, as represented in broken lines Fig. 3, so far to take the breech-piece above the abutment, then the breech-piece may be moved longitudinally rearward.

The receiver in rear of the breech-piece is constructed with a longitudinal slot I, through which the downward projection F, of the breech-piece may run as the breech-piece is moved rearward, this downward projection corresponding substantially in thickness to the width of the said slot I. In the receiver upon a pivot J, in rear of and below the breech-piece, a lever K, is hung, see Fig. 3. This lever extends forward, and is shaped to form a trigger-guard L, the movement of the lever upon its pivot being from the closed position seen in Fig. 3, to the wide open position seen in Fig. 7. A link M, is hung to the lever upon a pivot N, forward of the pivot J, on which the lever is hung. The link extends forward from its pivot. The link is bifurcated so as to embrace the lever upon opposite sides, and is also bifurcated or recessed at its forward end to embrace the downward projection F, of the breech-piece, or, what is the same thing, the link connection may be a pair of links, one upon opposite sides of the lever, and extending to corresponding sides of the downward projection F, of the breech-piece. At the forward ends the links are connected by a pin O, which extends through the cam slot G, of the breech-piece, and the pin is

longer than the thickness of the links, so as to project at each side, and in the receiver at each side a groove P, is formed, into which the ends of the said pin O, extend, and so that the forward ends of the links will be guided in a longitudinal path, this path being here represented as inclined from the front end downward and rearward, see Fig. 7. Consequently as the lever K, is turned from its forward or closed position, as seen in Fig. 3, to its rear or open position as seen in Fig. 7, the links will be drawn backward with the lever, the end connected with the links moving with the lever, while the forward ends of the links will be guided by the slot P. When the breech-piece stands in its closed position, and the lever in its forward or closed position, the links stand with the pin O, in the upper and forward end of the cam slot G. As the lever commences its rear movement, and as in such movement the forward ends of the links cannot escape from the direction of the grooves P, it follows that the projecting ends of the pin O, will operate in the cam groove G, so as to cause the rear end of the breech-piece to rise, as represented in broken lines Fig. 3, which rise is sufficient to take the breech-piece above its supporting abutment, and when the breech-piece is so raised, the pin O, has passed to the rear end of the cam slot G, as represented in broken lines Fig. 3. From this point the continued movement of the lever K, will draw the breech-piece rearward until it reaches its full open position, as seen in Fig. 7. In this movement the rear end of the breech-piece rides upon the upper side of the receiver, while its forward end will be guided as before described. Then on the return of the lever K, the breech-piece will be moved forward until it reaches its closed position represented in broken lines Fig. 3, at which time its rear end has passed forward of the abutments. Then the pin O, again acts in the cam slot G, and so that in completing the forward movement of the lever, the rear end of the breech-piece will be drawn down to its closed or locked position, as seen in Fig. 3.

Q, represents the hammer, which is arranged in rear of the breech-piece, and is adapted to slide longitudinally in the path of movement of the breech-piece. The hammer projects up through the slot I, in the top of the receiver, and so that as the breech-piece is moved rearward, the hammer will be forced rearward accordingly, and compress its spring R, the hammer being adapted to strike the firing-pin in the breech-piece in the usual manner. The hammer is provided with a thumb-piece by which it may be moved rearward against its spring independent of the movement of the breech-piece if desired.

S, represents the sear, which is in the form of a lever, hung below the hammer upon a pivot T, and so as to swing in a vertical plane; its nose U, at the rear is adapted to engage a corresponding notch V, on the under side of the hammer, and so as to hold the hammer in the cocked position.

W, represents the sear-spring, the tendency of which is to yieldingly force the nose of the sear toward the hammer. The tail X, of the sear extends forward of its pivot.

In the link M, the trigger Y, is hung, upon a pivot Z, and so as to swing in a vertical plane, and the relation of the trigger to the sear is such that when the breech-piece is in its forward or closed position, as seen in Fig. 3, the rear end of the trigger will stand beneath the forward end of the tail of the sear. The finger-piece *a*, of the trigger extends down through a corresponding opening in the lever K, and within the trigger-guard L, so that when the parts are in the closed position, the trigger may be pulled by the trigger finger in the usual manner, to release the hammer, but so soon as the operating lever K, commences its rear movement, the trigger-guard is taken away from the trigger, so that the trigger is disengaged from the finger, and at the same time the trigger itself drops with the link M, from possible engagement with the sear, and this relation exists until the parts are returned to the closed position, so that if the hammer be held at the cocked position, the sear cannot release the hammer until the parts are in the proper closed and locked position.

The extent of movement of the hammer rearward is the same as that of the breech-piece, but so long a movement of the hammer upon discharge would be greater than desirable. Consequently the cock-notch V, of the hammer is made distant from the forward end of the hammer corresponding to the length of stroke required. The hammer follows the breech-piece in return until the full cock notch is reached, when that notch will engage with the seer and hold the hammer in the cocked position, while the breech-piece is returned preparatory to firing.

When the breech-piece is in the closed position and the hammer cocked, it is desirable that the hammer be provided with a stop to prevent its being drawn backward by the thumb. To accomplish this result the hammer is constructed with a shoulder *b*, forward of the cock notch V, and the sear is constructed with a corresponding shoulder *c*, forward of its nose, and so that when the hammer stands in the cocked position, as seen in Fig. 9, the nose of the sear is engaged with the full cock notch V. Now if the attempt be made to draw the hammer rearward from this point, the shoulder *b*, of the hammer will engage the shoulder *c*, of the sear, and thus prevent any considerable extent of movement of the hammer by the action of the thumb.

To prevent the engagement of the shoulder *c*, with the shoulder *b*, of the hammer when the hammer is moved rearward under the action of the breech-piece, the sear is preferably constructed bifurcated from near its rear end forward, the two legs extending on opposite

sides of the downward projection F, of the breech-piece, and upon the upper side in rear of the pivot, the sear is constructed with an upward projection forming a cam *d*, and the breech-piece carries a corresponding stud *e*, adapted to pass over the cam *d*, of the sear. Consequently as the breech-piece approaches its rear position, and before the shoulder *c*, can have engaged the shoulder *b*, of the hammer, the nose of the sear will be depressed by the cam *d* and stud *e*, as represented in broken lines Fig. 9, so far as to permit the shoulder *b*, of the hammer to escape the shoulder *c*, of the sear. Then as the breech-piece and hammer reach their extreme positions, the nose of the sear rises forward of the shoulder *f*, on the hammer so as to engage the hammer and relieve the breech-piece from the pressure or force of the hammer spring. Under this arrangement or locking of the hammer in its extreme rear position, the cam *d*, of the sear and the corresponding stud *e* on the breech-piece come into action when the breech-piece commences its forward movement so as to release the hammer from its locked position. The depression of the sear by the stud *e*, will throw the nose of the hammer from the shoulder *f*, and liberate the hammer, so that it may follow the breech-piece until the full cocked position is reached. The hammer is provided with a half cock notch *g*, to permit the hammer to be drawn and held at half cock as occasion may require.

In the receiver, beneath the breech-piece, the magazine chamber *h*, is arranged in the usual manner, and provided with a suitable follower *i*; the chamber is open in the usual manner from the top, when the breech-piece is in the open position as seen in Fig. 7, and so that a cartridge pack in which the cartridges are supported in a holder *j*, may be introduced into the magazine, the follower being depressed in such introduction, in the usual manner. This arrangement of magazine is too well known to require particular description. In the bottom of the magazine-chamber is an opening *k* through which the holder *j* may be forced after the cartridges it carried have been successively transferred to the barrel, such removal occurring by the introduction of the next pack of cartridges; this is also a common and well known device. The pack is locked by means of a dog *l*, hung upon a pivot *m* at the rear of the pack, the nose of the dog being adapted to engage a corresponding notch in the back of the holder; this is a well known device.

The operating lever K, extends forward to form a cover *n*, for the opening in the bottom of the magazine, see Fig. 3.

The pawl *l*, is provided with a spring *o*, adapted to yieldingly press the dog into engagement with the cartridge-holder, and the spring *o*, projects rearward, so as to engage the lever when in the closed position, as seen in Fig. 3. The nose of the dog extends down so that it may be conveniently reached when the operating lever is turned away, and so that the cartridge holder may be thereby released from engagement with the dog, and removed from the receiver should occasion require such an operation.

It will be understood that the breech-piece is provided with the usual extracting devices for the withdrawal of the exploded shell from the barrel, or the cartridge if it be not exploded.

The arrangement of the operating lever so as to swing downward and backward in opening, enables the operator to bring the opening force toward the shoulder instead of in the opposite direction, as in arms where the lever is hung forward and the movement is downward and forward in opening. This arrangement results in a more steady holding of the gun against the shoulder, because the greater force required is in the opening movement, and the lesser force of closing does not tend to throw the gun out of line, as must always be the case where the heavy opening force is applied in the opposite direction.

The illustration of the arrangement of the operating lever hung below the breech-piece and so as to swing backward and downward in opening, in connection with the breech-piece shown, will be sufficient to enable others skilled in the art to apply this arrangement of lever to other constructions and arrangements of breech-pieces without further illustration.

Instead of the magazine represented, other known arrangements of magazine and carrier may be substituted therefor, such substitution being too apparent to require particular illustration.

I am aware that it is not broadly new to operate a breech-piece by means of an operating-lever located below the receiver, for manipulation from the under side of the arm, and that it is old to positively connect a sliding breech-piece with an operating-lever. I do not, therefore, claim such construction broadly, but only my particular arrangement of parts.

I claim—

1. In a gun, the combination with the barrel and the receiver thereof, and a longitudinally reciprocal breech-piece; of an operating-lever hung by its rear end below the receiver and extending forward from its pivot, and moving downward and backward in opening; and means attached to the said lever forward of its pivot positively connecting it with the said breech-piece, substantially as described, and whereby the said breech-piece is opened by the downward and backward opening movement of the lever.

2. In a gun in which the barrel opens at the rear into the receiver, the combination therewith of a breech-piece arranged in the receiver at the rear of the barrel, and adapted for longitudinal reciprocating movement, the forward end of the breech-piece guided in a longitudinal path, its rear end adapted for a

united up and down movement, the receiver constructed with abutments against which the rear end of the breech-piece will bear when in the closed position, the breech-piece constructed with a downward projection at its rear end the said projection constructed with a cam-shaped slot, an operating lever below the breech-piece, hung by its rear end to the receiver at the rear of the breech-piece, the lever extending forward and adapted to swing downward and backward in opening, a link pivoted by one end to said lever, the other end of the link provided with a pin extending into said cam-slot of the breech-piece, and the receiver constructed with a longitudinal guide adapted to confine the breech-piece end of the link in a longitudinal path independent of the breech-piece, substantially as and for the purpose described.

3. In a fire-arm having a longitudinally reciprocating breech-piece, the combination therewith of a hammer arranged at the rear of the breech-piece and adapted to move rearwardly therewith, a spring for the hammer, which is compressed by said rear movement, a lever hung in the receiver below and at the rear of the breech-piece, adapted to swing backward and downward in opening, a connection from said lever to said breech-piece whereby the swinging movement of the said lever imparts corresponding reciprocating movement to the breech-piece, a sear hung upon a pivot in the receiver so as to swing in a vertical plane, the sear extending rearward and adapted to engage the hammer at the full cock notch, the hammer constructed with a shoulder forward of the said full cock notch, and the sear constructed with a shoulder forward of its nose corresponding to said shoulder of the breech-piece and adapted to engage therewith, the sear constructed with a cam and the breech-piece with a stud corresponding to said cam, and adapted to pass over said cam to disengage said shoulder of the sear from the said shoulder of the breech-piece, substantially as and for the purpose described.

4. In a fire-arm having a longitudinally reciprocating breech-piece, the combination therewith of a hammer arranged to move rearwardly under the rearward movement of the breech-piece, a spring for the hammer compressed by such rearward movement, a sear hung in the receiver adapted to engage the hammer at full cock, a lever hung upon a pivot below and in rear of the breech-piece, and adapted to swing downward and backward in opening, a link connecting said lever with the breech-piece, whereby the said swinging movement of the lever will impart corresponding reciprocating movement to the breech-piece, a sear hung in the receiver so as to swing in a vertical plane, and adapted to engage the hammer at the full cock notch, the tail of the sear extending forward of its pivot, and a trigger hung in said link adapted to engage the tail of the sear when the parts are in the closed position, substantially as described.

5. In a fire-arm having a longitudinally reciprocating breech-piece, the combination therewith of a hammer arranged to move rearwardly with the breech-piece, a hammer spring adapted to be compressed in such rear movement of the hammer, a sear hung upon a pivot in the receiver so as to swing in a vertical plane, the nose of the sear extending rearwardly from its pivot, and adapted to engage the hammer at full cock, a shoulder forward of the full cock notch, and in such position with relation to the breech-piece and nose of the sear that the nose of the sear will engage the said shoulder when the breech-piece is in its full open position, the sear constructed with a cam and the breech-piece with a corresponding stud, whereby in the first part of the forward movement of the breech-piece it will release the said shoulder of the hammer from the nose of the breech-piece, substantially as and for the purpose described.

6. In a magazine gun in which the barrel opens into the receiver at the rear, and having a longitudinal reciprocating breech-piece, and the receiver constructed with a magazine-chamber below the breech-piece adapted to receive a cartridge-holder containing several cartridges, and the bottom of the chamber constructed with an opening at its rear end through which the said holder may pass downward and out from the chamber, the combination therewith of an operating-lever hung upon a pivot in the receiver in rear of said magazine chamber, the lever extending forward and so as to swing downward and backward in opening, connection between said lever and breech-piece whereby through the movement of said lever the reciprocating movement is imparted to the breech-piece, the forward end of the lever adapted to close the said opening in the bottom of the magazine chamber, substantially as described.

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

JOHN M. BROWNING.

Witnesses:

JOHN E. RAMSDEN,

E. A. ENSIGN.