3 Sheets—Sheet 1.

J. N. SMITH.

Magazine Fire-Arm.

No. 35,548. Patented June 10, 1862.

Fig. 1.

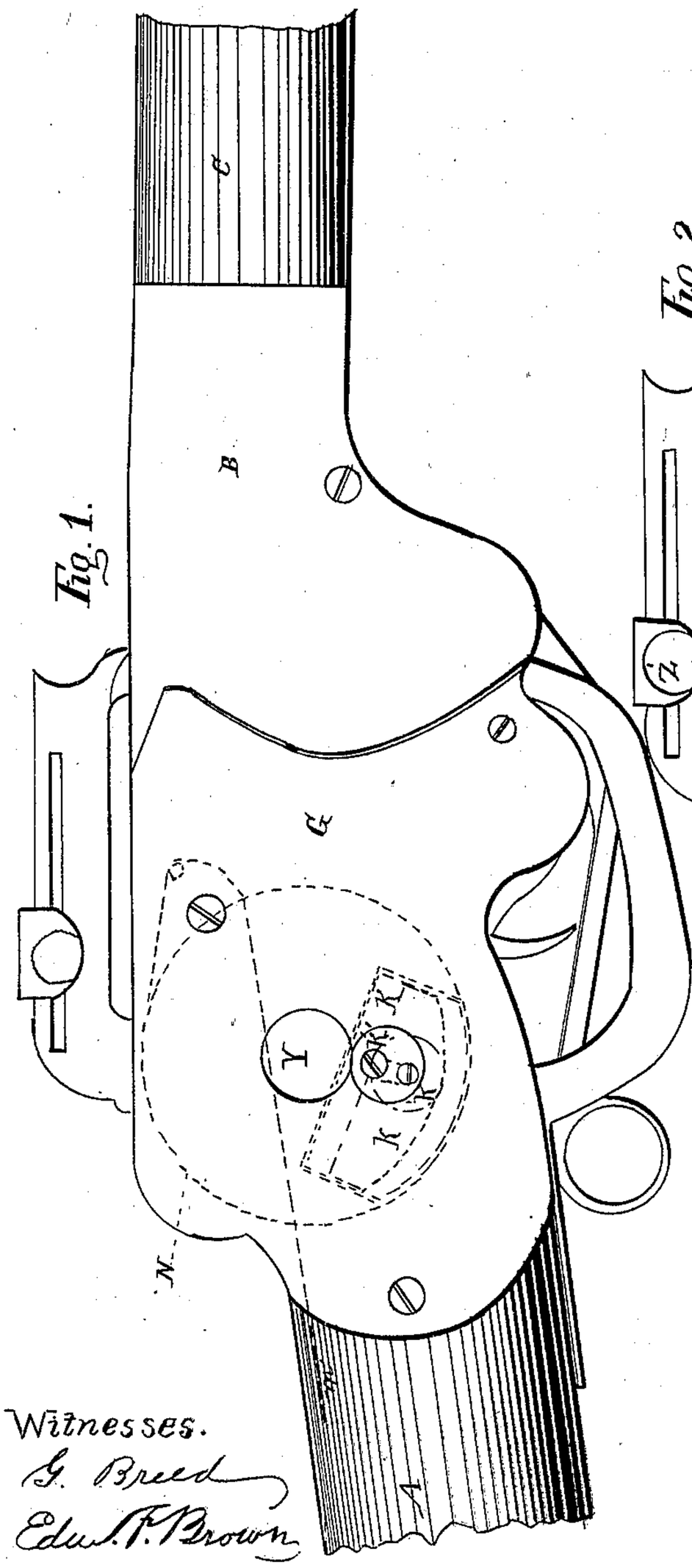
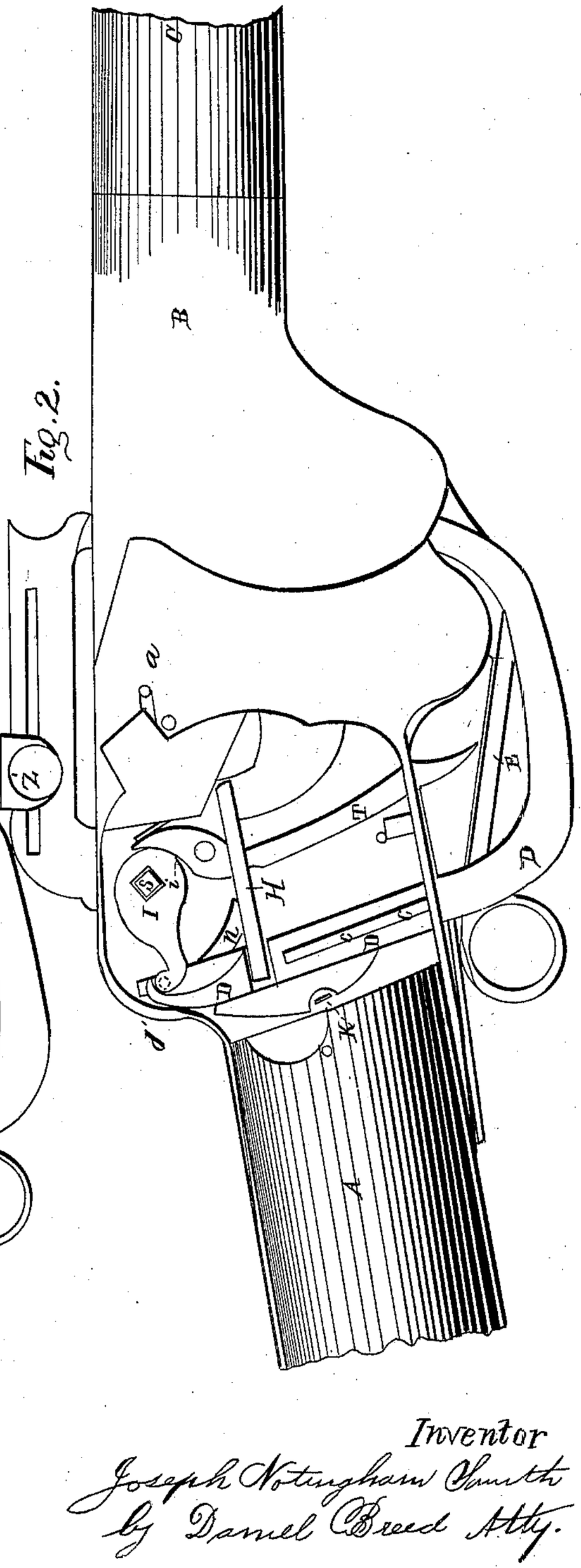


Fig. 2.



Witnesses.
G. Breed
Edw. F. Brown

Inventor
Joseph Nottingham Smith
by Daniel Breed Atty.

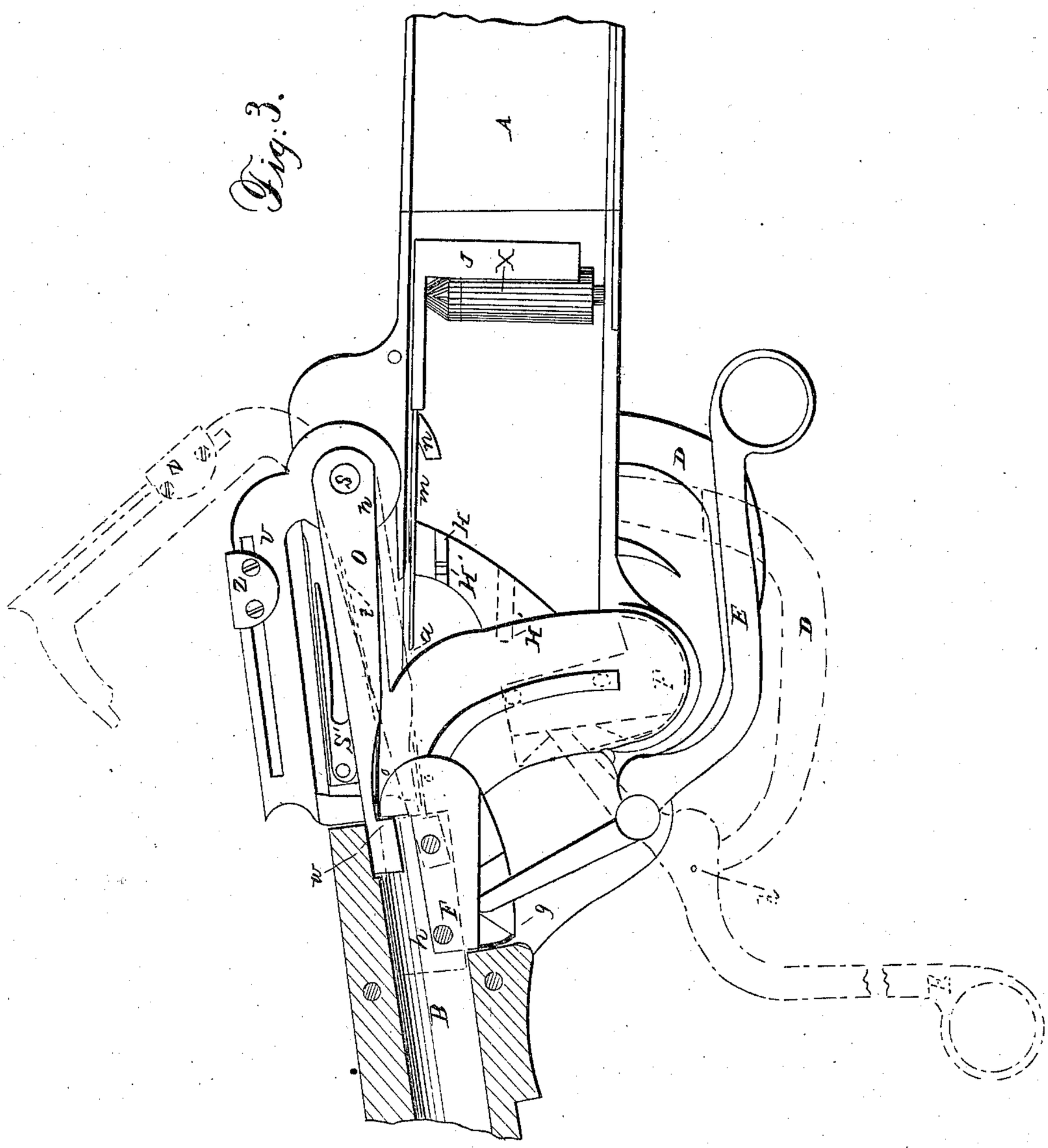
3 Sheets—Sheet 2.

J. N. SMITH.

Magazine Fire-Arm.

No. 35,548. Patented June 10, 1862.

Fig. 3.



Witnesses
G. Breed
Edwin F. Brown

Inventor
Joseph Nottingham Smith
by Daniel Breed Atty.

3 Sheets—Sheet 3.

J. N. SMITH.

Magazine Fire-Arm.

No. 35,548. Patented June 10, 1862.

Fig. 4.

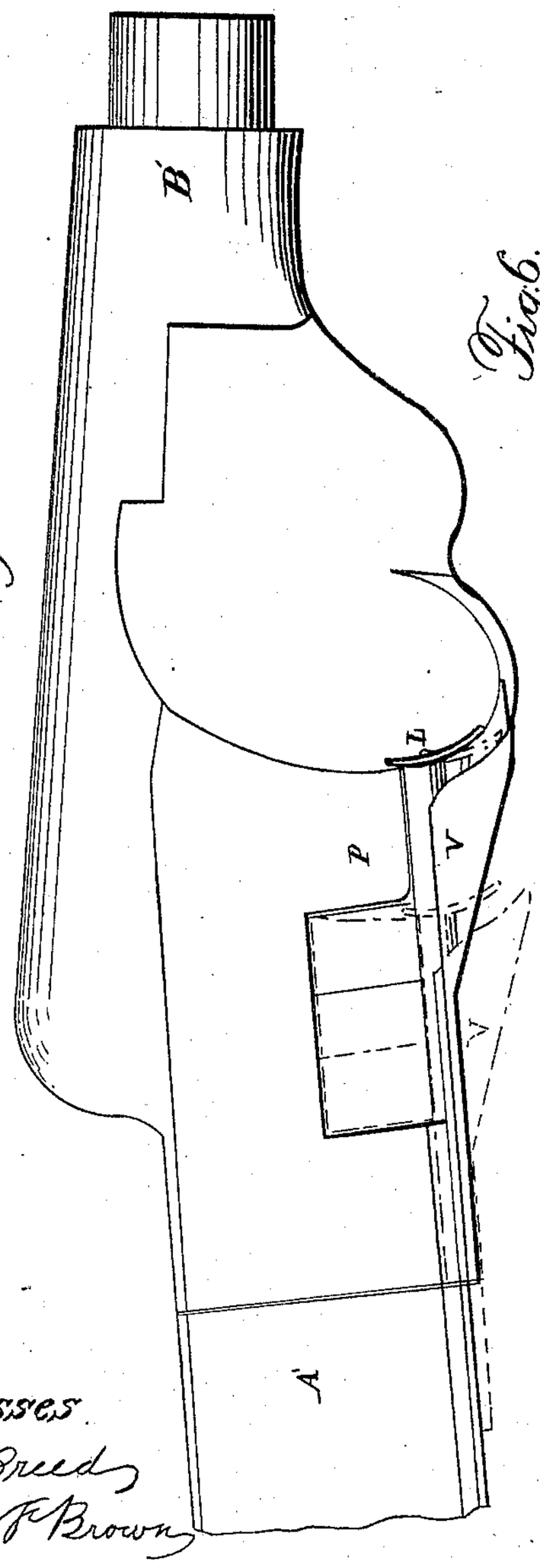


Fig. 6.

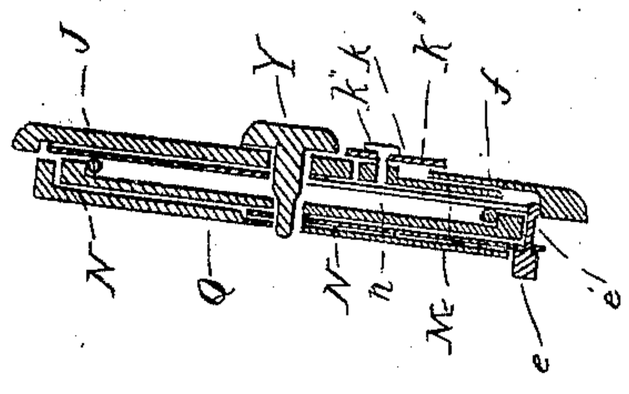
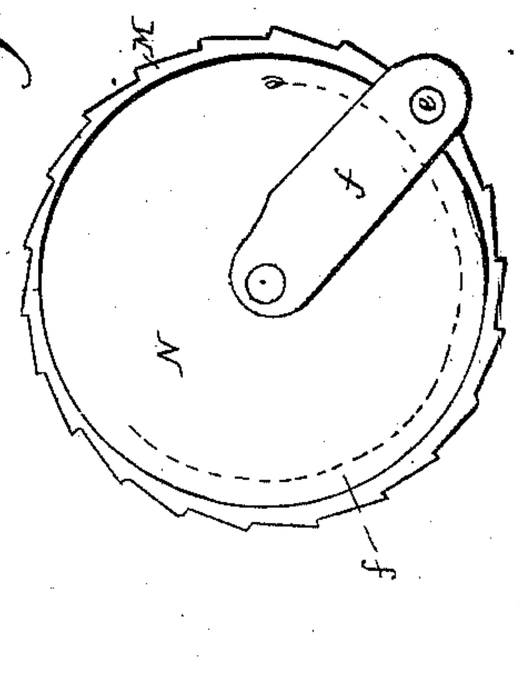


Fig. 5.



Witnesses.
G. Breed
Edw F. Brown

Inventor.
Joseph Nottingham Smith
by Daniel Breed Atty

UNITED STATES PATENT OFFICE.

JOSEPH NOTTINGHAM SMITH, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN REPEATING FIRE-ARMS.

Specification forming part of Letters Patent No. **35,548**, dated June 10, 1862.

To all whom it may concern:

Be it known that I, JOSEPH NOTTINGHAM SMITH, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and useful Improvement in Fire-Arms; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of a peculiar construction and arrangement of breech-loading fire-arms.

In the accompanying drawings, Figure 1 is a side view of part of a gun containing my improvements. Fig. 2 is a view of the same, with the external plate and feed-wheels removed to show parts of the lock. Fig. 3 shows the interior of the lock, the whole breech being separated at its central line of division. Fig. 4 is a reverse view of the other half of the breech, the lock being left upon Fig. 3. Figs. 5 and 6 are views of detached parts.

In the drawings, A, Fig. 3, represents part of the breech containing the magazine, and B shows part of the barrel divided vertically and centrally. The corresponding half of the breech is shown at A′ and B′, Fig. 4, these parts being reversed. The main part of the barrel C, Figs. 1 and 2, is not divided, and it screws onto the divisions B, Fig. 1, and B′, Fig. 4, so as to fasten the latter together and hold them firmly in place.

The most important feature of my improvements is the arrangement of the divided chamber and the employment of a part of the chamber as a charge-carrier and breech-pin. This arrangement is best seen in Fig. 3, the movements being shown in red lines. The charge-carrier F is shown in place in the barrel in black lines. It is moved backward by the lever E, as shown in red lines, where the carrier F is ready to receive a charge consisting of powder, ball, and fulminate in one package, contained in a peculiar cartridge-and-ball case yet to be described. On receiving a charge the carrier F is again moved by the lever E and brought completely home to its place in the chamber, when the upper end of lever E slides up to the point *g*, Fig. 3, thus bracing the carrier F and holding the same immovably in place while the gun is discharged. When the carrier retires for a new charge the cartridge-case is left in the gun-barrel, the small spring *o* catching the rear end of the case, and thus preventing the latter from being carried back by the carrier F. As the carrier retires the arm O descends, as seen in red lines, Fig. 3, pushing the cartridge-case downward until the latter falls from the gun. This action of arm O is effected by the spring *t*, Fig. 3, in dotted lines, which rests against the mainspring S′ of the gun. It will be perceived that this arm O, as well as the carrier F, forms part of the charge-chamber, thus serving a double purpose. The cartridge-case is provided with a nipple-like protuberance, *x*, Fig. 3, which fits a small notch or recess, *w*, (shown in dotted lines) in the rear end of the carrier F. This protuberance contains the fulminate, and is struck by the beak of the cock, which enters the bore through a hole in the end of the arm O and divisions B B′.

When the cartridge-case is in position in the barrel, as seen in dotted lines, Fig. 3, it extends a little forward of the carrier F, mostly covering the joints of the divided chamber, and guarding against corrosion and fouling of the chamber. The movement of lever E in operating carrier F, as above described, also operates the lock and produces the feed-motion, yet to be explained.

The feed-wheels M and N, Figs. 5 and 6, lie under plate G, Fig. 1, as indicated in dotted lines, and a cord, *m*, from one of these wheels extends back to the breech or magazine to connect with the follower J, Fig. 3, which brings the charges X forward to the carrier F. The inner plate, Q, Fig. 6, of the box containing these feed-wheels rests upon the tumbler I, lever D, spring-arm H, and trigger T, Fig. 2, keeping all of these parts in place and preventing their lateral movement in operating the lock. The charges being introduced to the magazine through the gate or slide V, Fig. 4, they are brought forward automatically by the feed-wheels in the following manner: The two feed-wheels M and N, Figs. 5 and 6, are connected by a spring, *j*, (seen in Fig. 5 in dotted lines, and in Fig. 6,) there being a recess, *n′*, in wheel N for embedding the spring, so that the margins of the wheels come together. These wheels have a common axle, the cord-wheel N being fixed upon the axle, while the ratchet-wheel M moves freely. The

cord *m* from wheel N passes through a hole, *a*, Fig. 3, and thence along in the magazine, where it is attached to the follower J, so that the movement of the wheels may act upon the follower J and upon the charges.

Connected with the ratchet-wheel M is a radial arm, *f*, Fig. 5, moving freely upon the axis of the wheels, and lying in a depression in the inner plate of the wheel-box. This arm carries a pin, *e*, Figs. 5 and 6, which works in slot *c* of lever D, Fig. 2, and on the other side of the arm is a spring-catch, *e'*, just opposite the pin *e*, which engages the notches of the ratchet-wheel.

Now, when the lever E is carried forward, as above described, the lever D is brought downward and forward, as seen in red lines, Fig. 3, and the slot *c* carries the pin *e* and arm *f*, Fig. 5, forward, moving the ratchet-wheel until its rotation equals the space between the notches of the ratchet, when a small spring-catch, K, Fig. 2, fastens the ratchet-wheel and prevents its return with the arm F and pin *e* at the return movement of the lever D. In this way a strain is brought upon the spring *j*, Fig. 5, and thereby the wheel N is brought to strain upon the cord *m*, and thus acts upon follower J and charges. Thus the charges are pressed forward, and when the carrier F returns for a charge the carrier strikes the spring-stop L, Fig. 4, pushing it downward and letting a charge enter the carrier. In connection with this action of the feed-wheels, the spring-arm H, Figs. 2 and 3, is carried down by lever D, and the finger or projection H' on its front end pushes the point of one ball forward, thus tilting the charge ready to pass into the carrier F, when the stop L, Fig. 4, is pushed back by the carrier, as already explained. This action of lever D is consequent upon its connection with lever E by means of a small pin or pivot, *d*, Fig. 3, and a guide-pin, *d'*, Fig. 2, in dotted lines, which rides in the curved slot *n*, Figs. 2 and 3.

The movements of cocking the gun will be best understood from Fig. 2. The lever D is here seen engaging with the crank and tumbler I, so that the downward movement of lever D by means of lever E, as above explained, will turn the crank and tumbler, and with them the axis S, thus raising the cock until the trigger T catches into the notch *i* of the tumbler I. In this way the gun is cocked, and it is now impossible to move the cock or trigger until the lever E is drawn back and the carrier F brought completely home with a charge, and all is ready to discharge the gun. Therefore it is evident that there is no danger of my gun going off at half-cock.

The cock is placed over the center of the barrel, instead of being at one side. The main-spring rests upon a radial plane in the heel of the cock, said plane extending in the direction indicated by the dotted line at *r*, Fig. 3. When the cock is up the end of the spring rests near the center or pivot upon which the cock turns. As the cock descends the end of the spring travels from the center or pivot S, so as to give the greatest force to the spring just as the beak strikes the nipple containing the fulminate.

Upon the cock is arranged an adjustable sight, Z, Fig. 3, held in place by a thumb-screw, Z', Fig. 2.

The spring-plate P, Fig. 4, serves as a guide to the cartridges when the latter are being introduced into the magazine.

Single charges may be put into my gun and discharged without using the feed arrangement, the plate P pushing the rear end of the charges into position in the magazine.

The arrangement of wheels M and N may be better understood from Fig. 6, which is a transverse section of said wheels and of the parts immediately connected therewith. These wheels are held together by pivot Y, and being also united by the spring *j*, they form a compound wheel, operating as above explained.

The slide *k'*, Figs. 1 and 6, is moved by a cam, *k*, turning upon a pivot, *k''*, and working against the pivot Y. On turning this cam by the thumb, the slide *k'* is pushed down, as seen in red dotted lines, Fig. 1, when the slide strikes, the spring-catches *e'*, Fig. 6, and K, Fig. 2, disengaging them from the ratchet-wheel, relieving the tension of the cord upon the follower. Thus the ratchet-wheel may be liberated at pleasure, and the turning of crank *k* indicates the liberation of the ratchet, while the rotation of the latter is seen by the turning of the pivot-head Y.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. Ejecting the charge-case laterally from the bore of a gun through an opening made in the side of the bore, in the manner substantially as described.

2. The employment of the carrier F, or its equivalent, for opening the gun to introduce the charge, substantially as set forth.

3. I claim the arrangement of the feed-wheels M and N, the same being connected by the spring *j* and forming a compound wheel, for bringing forward the charges automatically and with precision, as specified.

JOSEPH NOTTINGHAM SMITH.

Witnesses:

EDM. F. BROWN,

DANIEL BREED.