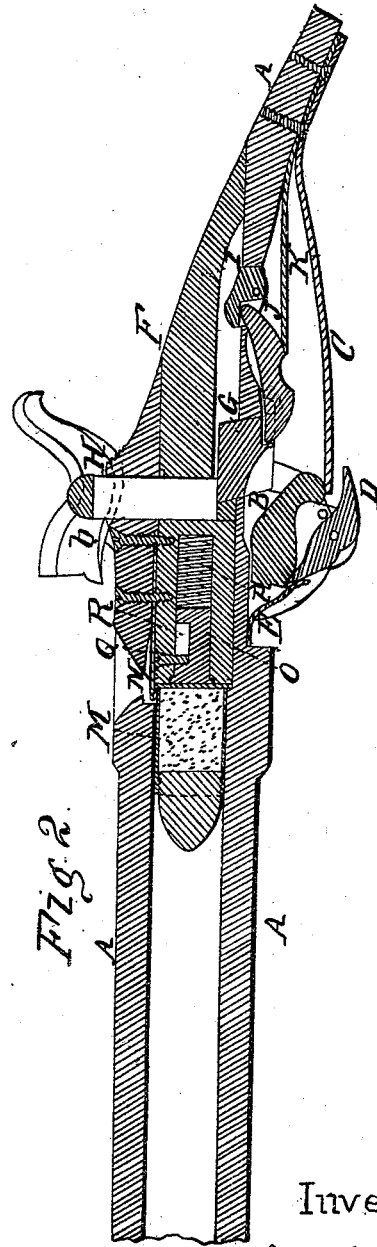
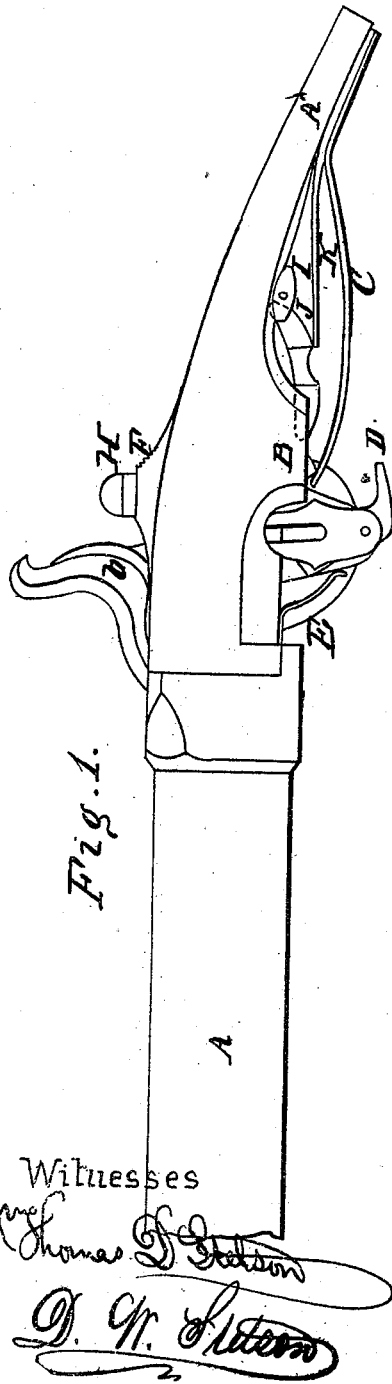


N. S. CLEMENT.
Breech-loading Fire-arm.

2 Sheets—Sheet 1.

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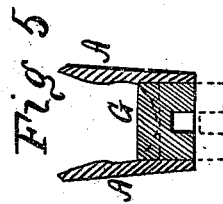
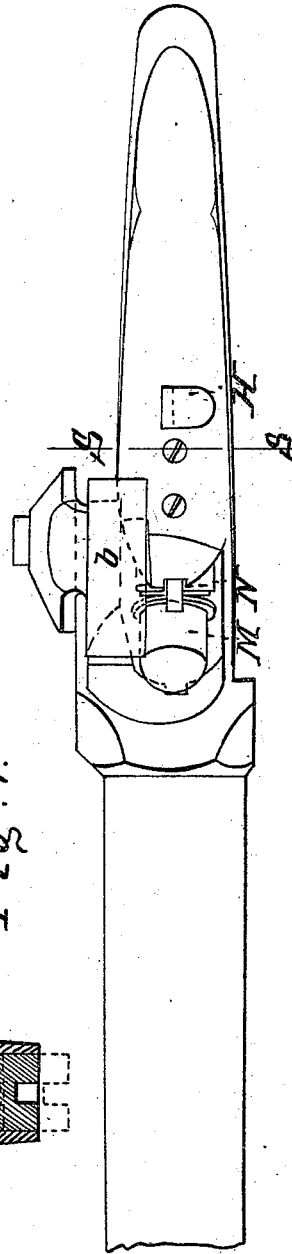
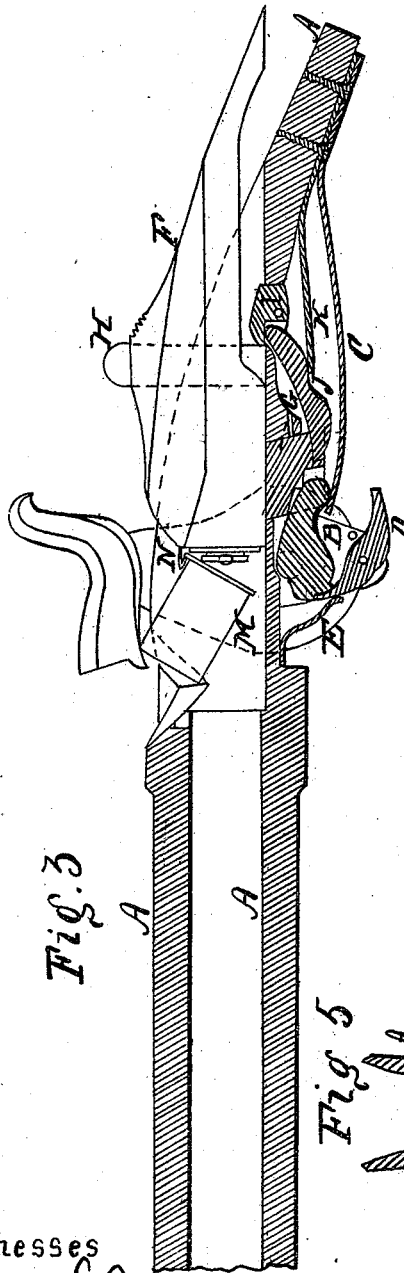
Patented Oct. 10, 1865.



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Witnesses
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UNITED STATES PATENT OFFICE.

NATHAN S. CLEMENT, OF NEW YORK, N. Y.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **50,334**, dated October 10, 1865; antedated April 29, 1865.

To all whom it may concern:

Be it known that I, NATHAN S. CLEMENT, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full and exact description of the construction and operation of the same.

The accompanying drawings form a part of this specification and represent the rear end of the barrel and the parts adjacent thereto.

Figure 1 is a side elevation. Fig. 2 is a longitudinal vertical section. Fig. 3 represents some of the parts in section, but the sliding breech-piece not sectioned. Fig. 4 is a plan view. Fig. 5 is a transverse vertical section through some of the parts on the line S S in Fig. 4.

The drawings represent the novel parts with so much of the other parts as is necessary to explain their relation thereto.

Similar letters of reference indicate like parts in all the drawings.

My arm is adapted for the use of metallic cartridges containing fulminate. One of these cartridges is shown in section in Fig. 2. In that figure the breech is represented as closed and strongly secured. In Fig. 3 the breech is represented as having been opened by sliding the breech-piece directly backward. The cartridge is supposed to have been fired, and only the shell—a thin casing of copper—remains, which it is desirable to expel preparatory to the introduction of a fresh cartridge.

My invention relates, first, to certain means of throwing out the shell; second, to certain means of preventing the hammer from exploding the cartridge when the breech is open or the breech-piece not fully secured; third, to certain means of operating the locking-bolt which secures the breech-piece in its shut position; fourth, to certain means of controlling the removal of the breech-piece; fifth, to a certain arrangement of connections and a spring for pressing inward the two bolts.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation by the aid of the drawings and letters of reference marked thereon.

A is the barrel. B is the tumbler. *b* is the hammer. C is the mainspring. D is the sear. E is the sear-spring. All these parts are arranged in the ordinary manner, and the ham-

mer *b* is properly formed to strike on a point in the flange and properly fire the ordinary style of metallic cartridges. The case of one of these cartridges is represented by M.

F is a sliding breech, adapted to move forward and backward to a limited extent in the line of the barrel.

G is a locking-bolt, adapted to move in a vertical plane and in a direction nearly at right angles to the barrel.

H is a thumb-piece, adapted to receive the pressure of the thumb on its upper end and to push down the locking-bolt G, when required, in order to allow the breech-piece F to be drawn back.

I is a back bolt, adapted to prevent the breech-piece F from becoming totally disengaged when it is drawn back in the ordinary manner, but to allow it to be removed by a further manipulation, when desired.

J is a connecting-lever. It receives the pressure of the spring K, and transmits it both to the locking-bolt G and the back bolt, I, pressing both upward.

N is a metallic spring-hook. It is secured firmly to the sliding breech F, but with liberty to yield upward to a sufficient extent to allow it to slide over and to engage the flange of the cartridge M.

O is an axial pin or clearing-piston, free to slide endwise in the front part of the breech F. It is exactly in line with the center of the bore of the piece. It is urged forward by a coiled spring, P, and is restrained by the screw-pin Q, which stands in a slot, R.

To operate my invention the cartridges are introduced while the sliding breech F is drawn back. On pushing the breech forward it forces the cartridge firmly into its place, with the hook N in a position ready to withdraw the shell after a cartridge has been fired. The locking-bolt G rises in obedience to the pressure of the spring K transmitted through the lever J, and holds the breech very strongly in place. The arm is fired by pulling the trigger (not represented) and operating the sear D, and allowing the hammer B to fall in obedience to the stop-spring C in the ordinary manner. The hammer is next placed at half-cock, which is the position represented in Fig. 3. The thumb is next applied on the top of the thumb-piece H, and the vertical pressure applied thereby forces down the locking-bolt G. The breech F is next drawn rearward, and

it yields to the pull of the thumb, dragging rearward with it the shell M of the exploded cartridge. When the rearward motion of the breech-piece F has progressed sufficiently far to withdraw the entire length of the shell M from the bore of the barrel the shell is thrown upward and discharged from the arm altogether. This is effected by the pressure of the coiled spring P, transmitted through the clearing-piston O, acting in connection with a clearing-hook, N, in the manner indicated in Figs. 3 and 4. The operation may now be repeated, taking care, of course, to always place the hammer at full cock before the trigger is pulled.

It will be observed that my spring P acts through the piston or slide O in such a manner as to be unaffected by the discharge, and to require but a gentle force to throw out the shell M. The latter is held only by one edge, and the spring P acts against its center in the line of the axis. This combination turns and throws up the shell with a very slight tension on the spring; but it is difficult in practice to graduate springs so as to permanently exert a given exact rate of tension; and my arrangement of these parts allows the spring P to be indefinitely stiffer than is required without inducing any evil. This fact I consider very important.

Ejecting-springs have been before known differently arranged, and tending by their action to displace the cartridge when it is being loaded and fired; but with my arrangement the force of the spring is of no account in thrusting the cartridge in, except to place it home sooner than necessary, and when the cartridge is in position for firing the force of the spring P holds it very tightly against the rear of the barrel and exactly in line, even if the parts of the arm are slightly malformed or are worn out, or if the arm is used with cartridges a little smaller than it is intended for.

It is very important in all breech-loading arms to provide, as far as possible, against any liability to derangement, and especially against all possibility of serious accident. Fatal results might follow an accidental discharge of a cartridge by a premature fall of the hammer *b* before the breech-piece F should be properly secured. To guard against this I have so arranged the locking-bolt G and the tumbler B that the latter will strike against and be stopped by the former before the hammer *b* can touch the cartridge, unless the locking-bolt G is fully up to its place, so as to strongly secure the breech-piece F against any rearward movement.

It is also important to simplify the mechanism and to guard against probabilities of derangement or a refusal to act from any cause. With this view I have arranged the thumb-piece H so as to act directly against the locking-bolt G by an endwise-sliding movement.

In order to remove the breech-piece F for cleaning or repairs, it is necessary simply to slide back the breech-piece by the means just

described until the thumb-piece H strikes against the back bolt, I, then to lift the thumb-piece and slide the breech-piece F and its connections a little farther back, then to press down again on the thumb-piece H, which will have the effect to press down the back bolt, I. The breech-piece F may now be drawn back as far as may be desired, and may be entirely removed from the arm without further difficulty. To replace it the bolts I and G may be pressed down by the finger or any suitable means in advance of the forward end of the breech-piece. The fact that the bolts G and I both operate in the same plane—to wit, both extend upward into the cavity in the base of the breech-piece F—allows them to be connected by the simple lever J, and be both operated by a single spring, K.

My invention is adapted to all the ordinary sizes and varieties of arms. Some of the parts which are well known, such as the bridle and the various fastening-screws, are represented in the drawings. The parts which are omitted, including, of course, a suitable stock, trigger, &c., will involve no difficulty for a skillful gunsmith.

The movement of the clearing-piston O is usually so active as to throw the shell H to a sufficient height and to deflect it forward or to one side, so that it falls entirely clear of the arm.

It will of course be understood that in practice the part A, which I have called by the general name of "barrel" will usually be made in two pieces screwed tightly together. The part B may be made, also, in two pieces, as is represented in the drawings; but so far as my invention is concerned the part A and part B will operate together as if each were single pieces.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. The spring P, arranged relatively to the cartridge and to the retracting-hook N or its equivalent, substantially in the manner and for the purposes herein set forth.

2. So arranging the locking-bolt G relatively to the breech-piece F and the tumbler B that the hammer cannot strike and discharge the cartridge, except when the breech-piece F is firmly locked, substantially as herein set forth.

3. The thumb-piece H, as arranged relatively to the breech-piece F and locking-bolt G, for the purposes herein set forth.

4. The back bolt, I, arranged to operate in the same plane as the locking-bolt G, for the purpose herein set forth.

5. In combination with the sliding breech-piece F, the within-described arrangement of a single spring, K, connecting lever J, and bolts G and I, for the purposes herein set forth.

N. S. CLEMENT.

Witnesses:

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