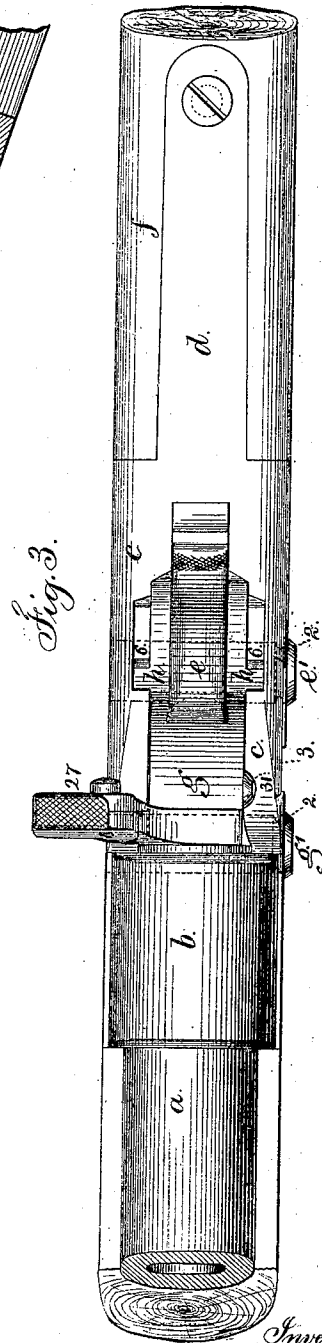
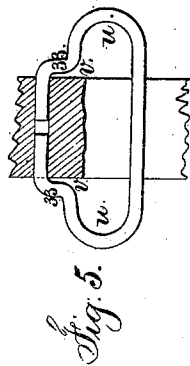
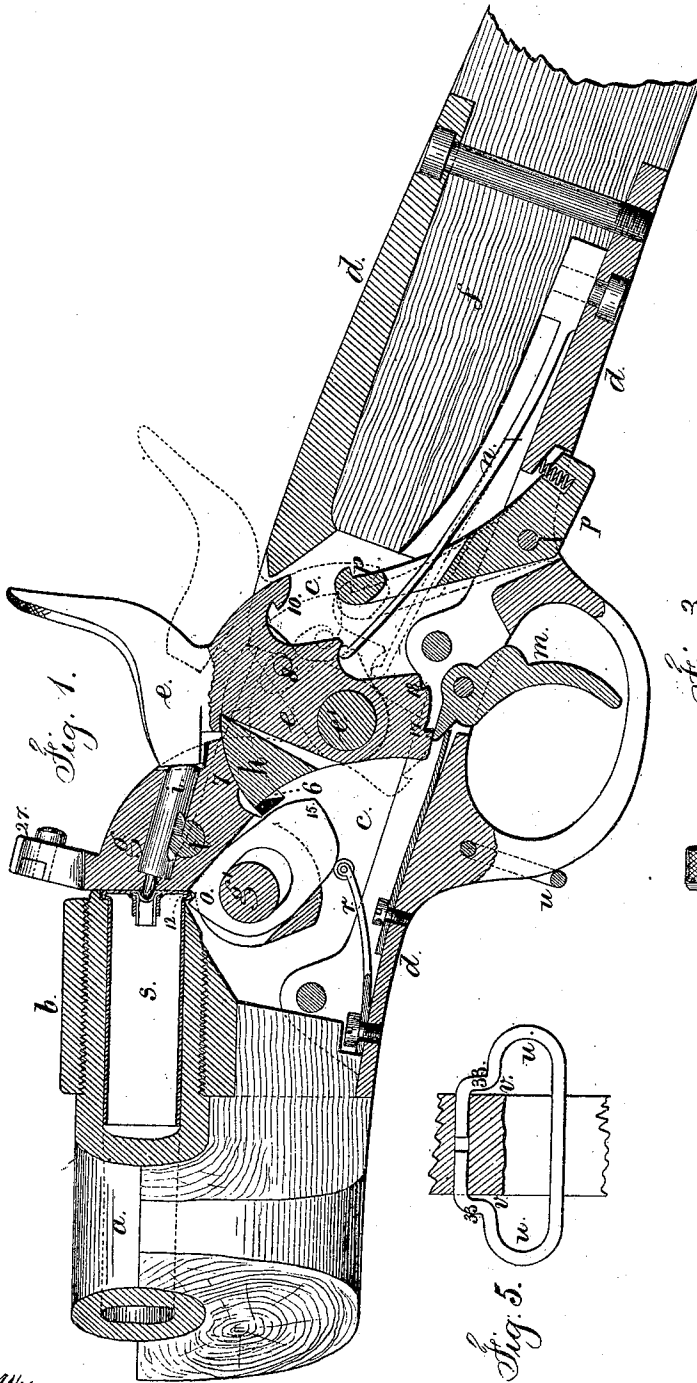


I. M. MILBANK.
Breech-Loading Fire-Arms.

No. 147,567.

Patented Feb. 17, 1874.



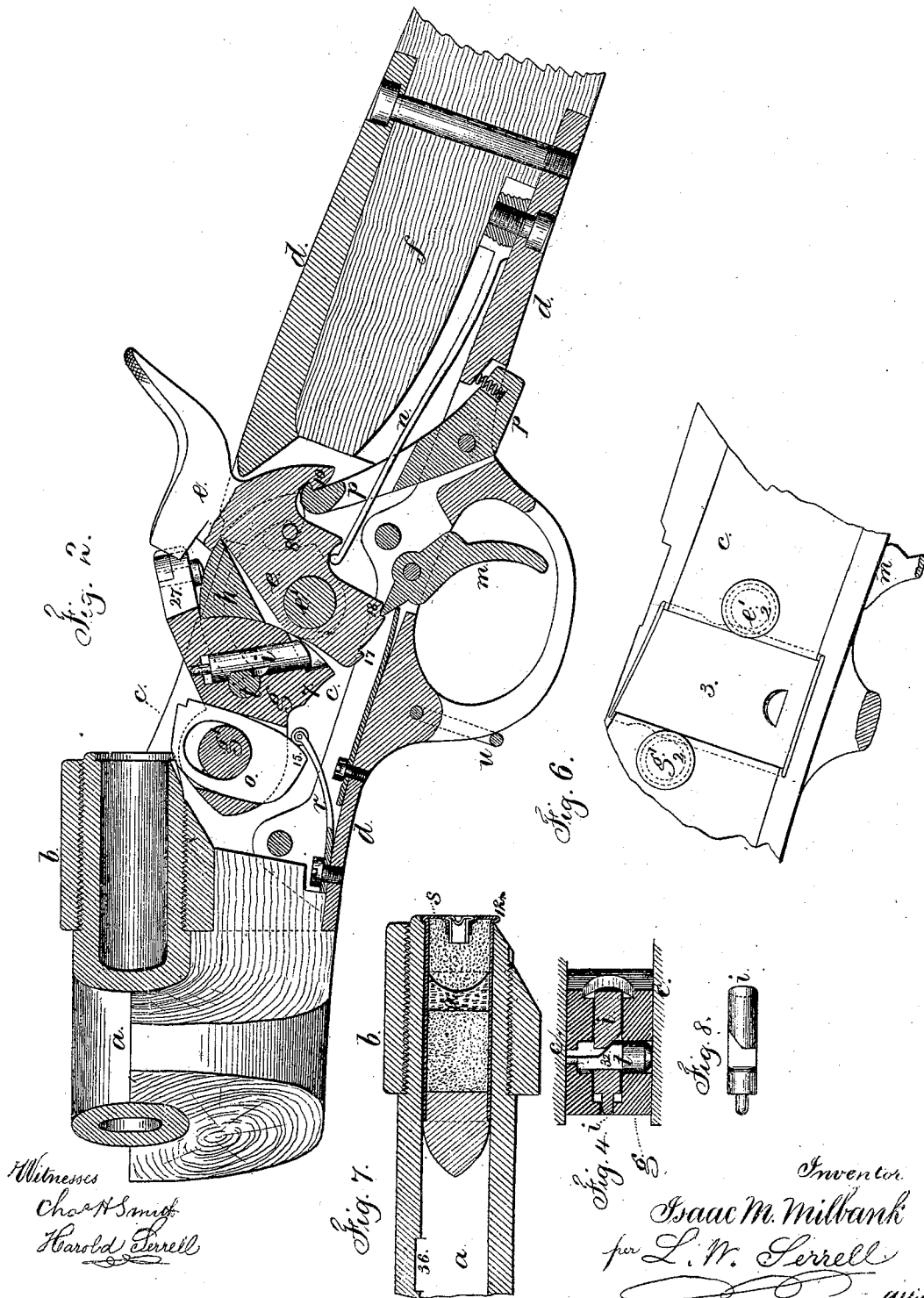
Witnesses
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Harold Smith

Inventor
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per L. N. Terrell
att'y

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UNITED STATES PATENT OFFICE.

ISAAC M. MILBANK, OF GREENFIELD HILL, CONNECTICUT.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **147,567**, dated February 17, 1874; application filed December 23, 1873.

To all whom it may concern:

Be it known that I, ISAAC M. MILBANK, of Greenfield Hill, in the county of Fairfield and State of Connecticut, have invented an Improvement in Breech-Loading Fire-Arms, of which the following is a specification:

This invention relates to that class of breech-loading fire-arms in which the breech-block swings away from the rear of the barrel to open the chamber, and said block is secured in place by a swinging abutment moved by the hammer. In guns of this character the recoil of the abutment is usually taken upon the pin or bolt that the hammer swings upon. One feature of my improvement relates to a swinging abutment moving in grooves in the metal stock containing the mechanism, so that the pins are relieved of strain. I also make use of a peculiar cartridge-extractor, and construct the firing-pin, and parts connected therewith, so that it will be withdrawn as the breech is opened; and I employ a safety-trigger to prevent accident.

In the drawing, Figure 1 is a longitudinal section of the gun at the breech, with the parts in the position after discharge. Fig. 2 is a similar view with the hammer drawn back or cocked, and the breech open. Fig. 3 is a plan of the parts in the position corresponding with Fig. 1. Fig. 4 is a section of the firing-pin and its withdrawing mechanism. Fig. 5 is an elevation of the sling-loop. Fig. 6 represents the plate that secures the fulcrum-pins. Fig. 7 shows the cartridge in section, and Fig. 8 is an elevation of the firing-pin.

The barrel *a* is secured into the cylinder or socket *b* of the metal stock *c*, between which the operative mechanism is introduced, and *d* *d* are the metal straps extending above and below the wooden stock *f*, and connecting the same to the gun. The breech-block *g* swings upon the pin *g'*, and the hammer *e* swings upon the pin *e'*. These pins are easily removed or inserted, as the holes for them pass entirely through the metal stock *c*, and the pins are made with heads 2 at one end, and grooves or necks contiguous to the same, and the plate 3, that slides in a recess in the side of *c*, enters these necks to secure them. The edges of the plate 3 are notched, as shown in Fig. 6, so that by moving the same endwise a sufficient dis-

tance the notches are brought into line with the pins, so that they may be removed. The plate 3 does not require to be slipped out of its grooves, but the extent of motion may be limited by a stop, and a slight bend in the plate makes it sufficient of a spring to retain it properly in the grooves, but allows of the movement when necessary. The breech-block *g* swings up against the rear end of the chamber in the barrel to close the same, as has been before done; but instead of the breech being held in place by a projection upon the hammer passing beneath or behind it, I make use of the separate abutment *h*, the ends of which enter grooves 6 in the metal stock *c*, so that the recoil is taken directly upon the metal of *c*, instead of the pin *e'*. This moving abutment *h* is operated by the hammer, and slides or swings in behind or beneath the portion 7 of the breech-block previous to the hammer descending sufficiently to strike the firing-pin *i*. As a consequence, the piece cannot be fired unless the parts are properly supported against the explosion. The connection between the hammer *e* and abutment may be of any desired character, such as a link; but I have shown the pin 8 through the hammer entering a hole or slot in the side plates of the abutment *h*, which plates, for convenience, are shown at each side of the hammer-tumbler, and between that and the stock *c*, and the pin *e'* of the hammer passes through them. The trigger *m* acts in the notch 17 or 18 of the hammer-tumbler to hold the hammer at either half-cock or cocked, and the mainspring *n* is of usual character. The spring safety-trigger *p* is made with a latch at the end, and the hook 10 upon the hammer passes behind this latch when the hammer is cocked; hence, unless the safety-trigger *p* is pressed upon at the time the trigger *m* is pulled, the hammer is caught by the safety-trigger, thus preventing the piece being accidentally fired. In the lower part of the swinging abutment is a mortise, into which is received the extractor *o*, that draws out the cartridge and delivers it from the rear of the barrel. The spring *r* acts against the lower end of this extractor, and serves to hold the breech-block to the rear of the barrel when the parts are positioned as in Fig. 1, and also to press the notched angle of the extractor against the flange

12 of the cartridge-case *s*. As the abutment is drawn backward and downward, the extractor is moved from the position of Fig. 1 to that of Fig. 2, and in so doing the spring *r* causes the extractor to slide endwise and its notched angle to remain in contact with the flange of the cartridge-case, and just before the breech-block completes its movement the angle 15 of the extractor passes over the roller on the spring *r*; hence there is a sudden backward movement of the extractor at its notch, and of the cartridge with it, in consequence of the looseness of the extractor in its mortise, allowing it to swing, and by this sudden movement the cartridge-shell is forcibly thrown to the rear and discharged.

The handle 27 of the breech-block *g* is united to the arm of that block by a transverse joint, so that it may be swung upward and increase the length of leverage, or swung downward and decrease the same, thereby allowing the person using the arm to regulate the leverage for opening and closing the breech to suit his own power or size of hand.

In breech-loading fire-arms in which the swinging abutment contains a central firing-pin, accidents have occurred in consequence of the firing-pin becoming obstructed in its hole, and striking the cartridge and exploding the fulminate as the breech-block is closed up to place. To avoid this risk I draw back the firing-pin by a positive movement as the breech is opened. The firing-pin *i* is intersected by a pin, *t*, passing across below it, and the adjacent surfaces are made with inclines, and the outer end of this pin *t* passes freely into a recess, 31, in the inner face of the metal stock *c* when the breech *g* is turned up to place; but as the breech-block is turned down, the stock *c* presses the pin *t* inward, and its incline 32 (see Fig. 4) moves the firing-pin back bodily, thereby preventing the end from remaining projected; hence the firing-pin cannot go forward, even by its inertia, until the breech is closed, and the pin *t* in a position to move endwise.

The cartridge *s* is made with two powder-spaces, separated by the wad *x*, that is to be of paper or other slightly-yielding material, so that the powder in the front space does not ignite, but is driven forward out of the sheet-metal case until the wad comes to one or more recesses, 36, in the interior of the gun, (see Fig. 7,) that allow the gases to pass the wad and explode the forward section of powder, and thus increase the propelling force acting upon the ball.

I am aware that a notched turning-button

has been employed to secure an axial pin, but it is not adapted to use in my gun. By employing a plate sliding in the side of the stock between the two axial pins, and notching such plate, the pins are firmly secured when the plate is in a normal position, and it is not liable to be displaced in handling the gun; and, besides this, the holes for the axial pins are the same size all the way through.

In my patent of April 16, 1872, the firing-pin is withdrawn by the turning of the handle that is attached to the breech-block, and that breech-block moves longitudinally behind the barrel. In my present invention the firing-pin is withdrawn by the act of moving the breech-block itself, such withdrawing pin being brought into contact with the metal stock.

I claim as my invention—

1. The separate abutment *h*, supported at its ends in the grooves 6, in combination with the swinging breech *g* and the hammer *e*, the parts being constructed and operating substantially as set forth.

2. The safety-trigger *p*, combined with the hammer *e* and latch 10, substantially as and for the purposes set forth.

3. The extractor *o*, passing through a mortise in the swinging breech-block *g*, and having a rocking motion therein and a limited endwise motion, in combination with the spring *r*, operating upon the extractor and swinging breech-block, as set forth.

4. The handle 27 to the swinging breech-block *g*, united by a transverse joint, so that the length of leverage may be varied, as set forth.

5. The breech-block *g*, containing the firing-pin *i* and the inclined withdrawing pin *t*, and swinging upon the pin *g* within the metal stock *c*, in which stock is the recess 31, the parts being arranged and operating substantially as set forth.

6. The metal stock *c*, having a recess upon the outside for receiving the sliding plate 3, in combination with the parallel pins *g* *e*, that are formed with necks, into which the edges of the sliding plate 3 pass, as and for the purposes set forth.

7. The cavity 36 in the bore of the gun, to allow the ignited gases to pass the wad *x* and reach the second section of powder contiguous to the ball, as and for the purposes set forth.

Signed by me this 18th day of December, A. D. 1873.

I. M. MILBANK.

Witnesses:

CHAS. H. SMITH,

GEO. T. PINCKNEY.