

H. C. BULL.
Breech-Loading Fire-Arm.

No. 209,010.

Patented Oct. 15, 1878.

Fig. 1.

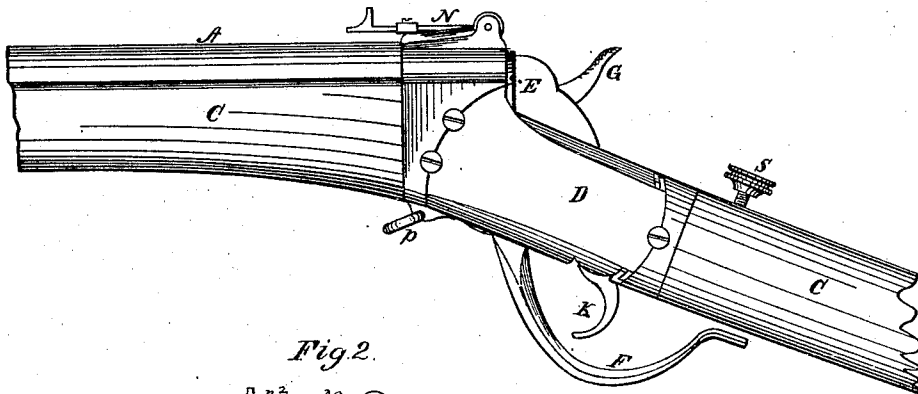


Fig. 2.

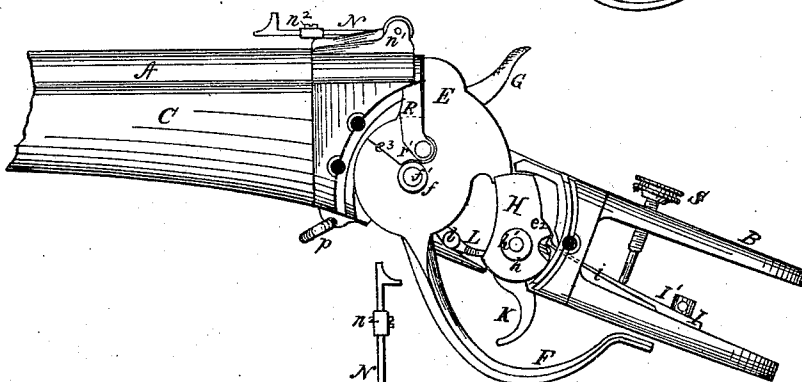
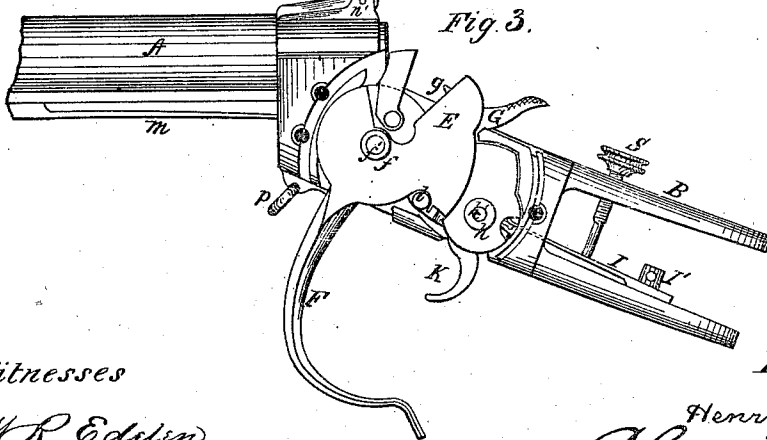


Fig. 3.



Witnesses

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Fig. 4.

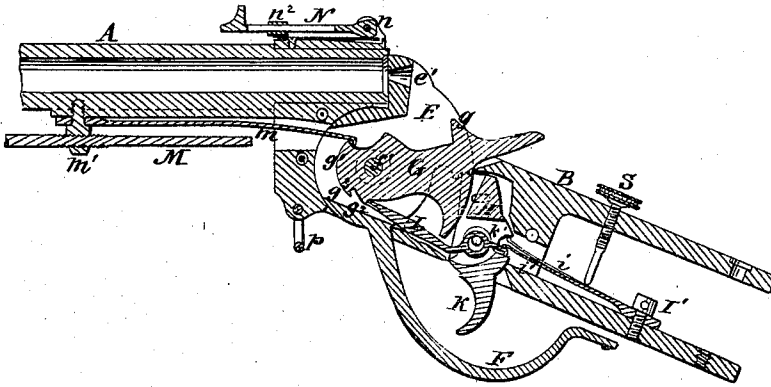


Fig. 5.

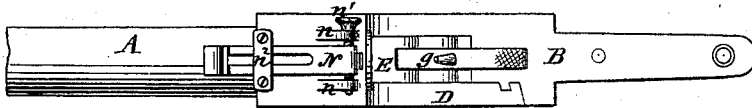


Fig. 6.

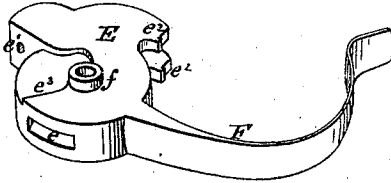


Fig. 7.



Fig. 8.



Fig. 9.

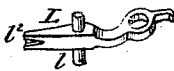


Fig. 10.



Fig. 11.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification-forming part of Letters Patent No. **209,010**, dated October 15, 1878; application filed August 5, 1876.

To all whom it may concern:

Be it known that I, HENRY C. BULL, of the city of Brooklyn, county of Kings 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, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters marked thereon.

My invention relates to that class of breech-loading fire-arms in which the mechanism for opening and closing the rear end of the barrel for the insertion or removal of the cartridge or shell is arranged upon the principle adopted by M. Flobert, and set forth in a patent obtained by him November 17, 1855, No. 14,713, (Brevet d'invention, Tome 53, page 26, Plate 8, N. S.) and incorporated in Letters Patent of the United States granted to me November 2, 1875, No. 169,413.

My present improvements consist in simplifying, strengthening, and disposing the parts in such relative arrangement, together with such changes in construction, that the manual manipulation of the mechanism is greatly facilitated, and a more rapid and certain action obtained, with greater security against accident.

In the accompanying drawings, Figure 1 represents a side elevation of that portion of the arm which includes the breech mechanism and other details embodying my improvements. Fig. 2 represents the same with the side plate removed, showing the relative arrangement of the several operative parts in a closed position. Fig. 3 represents a similar view, with the operative parts in an open position. Fig. 4 is a vertical longitudinal central section; Fig. 5 a plan view; and Figs. 6, 7, 8, 9, 10, 11 detached views, in perspective, of the breech mechanism.

Similar letters of reference indicate corresponding parts in the several figures.

A is the barrel; B, the receiver, and C the stock. The barrel A and stock C are securely attached to the receiver in the usual manner, or in any desirable or well-known way. The receiver B is recessed to contain the breech

mechanism, which is arranged therein, and inclosed by the removable side plate, D.

E is the breech-block, for opening and closing the rear end of the barrel, constructed in substantially the form shown, rigidly connected to or made a part of the operating lever or guard F, and rotated upon trunnions *f*, which have their bearings arranged within the side plates or walls of the receiver B.

A central mortise or slot, *e*, and a conical aperture, *e'*, are formed in the breech-block, to allow the pivoted hammer G to operate therein, and to be raised independently of or with the opening movement of the breech-block. A shoulder, *e''*, is provided in the rear portion of the periphery of the breech-block to receive the pivoted locking-brace H, which secures the same when closed, and forms an abutment to resist its recoil action when the cartridge is exploded.

It will be observed, Fig. 3, that the breech-block E, when opened, is in a position beneath the line of the bore of the barrel, so that the cartridge may be readily inserted, and also ejected by the action of the extractor R, directly rearward, instead of being thrown upward toward the face of the operator, as in other guns of this class.

The locking-brace H is swung upon trunnions *h*, and constructed with a concave side, that bears upon the corresponding convex surface of the breech-block, and is retained in contact therewith by the action of the spring *i*, and when the breech-block is closed it engages automatically with the shoulder *e''*.

The trigger K is pivoted at *h'* within a slot in the locking-brace, as shown in Fig. 7, a shoulder, *k*, being formed in the latter, so that they move rigidly together with the forward movement of the trigger, which disengages the locking-brace from the shoulder *e''*; and in the rearward movement of the trigger, which acts to release the sear L from the tumbler *g'*, in the usual manner, the locking-brace is not affected, except by a tendency to be pressed against the shoulder *e''*, which insures the security of the breech-block at the instant of discharge.

The hammer G is formed in one piece with the tumbler *g'*, and is constructed with a conical

cal nose, g , fitted to enter the aperture e^1 in the breech-block, and prevent the escape of gas or other matter therethrough when the cartridge is punctured and exploded, as described in my patent of November 2, 1875.

The tumbler g^1 is formed upon the lower portion of the hammer, and provided with the usual full-cock notch g^2 , while the half-cock notch g^3 is constructed in the form of an angular hook, as shown at g^3 , Fig. 8, the point l^2 , Fig. 9, of the sear L being formed to fit and engage therewith.

The object of this construction is to arrest the hammer at the half-cock notch in the event of the sear becoming disengaged from the full-cock notch by accident, which is liable to occur when set with a "hair-trigger."

The sear L is pivoted at l , and extended rearward to engage with the spring i' , which retains it in contact with the tumbler g^1 and in position to be acted upon by the trigger K for disengaging it. The pivot l' being arranged in a line with the desired position of the sear, the latter is formed to encircle and pass by the same without interfering with the vertical movement of the sear.

The extractor R , Fig. 11, is pivoted at r to the side plate, D , and arranged to engage with the flange of the cartridge when in the position shown in Fig. 2. The breech-block is recessed about equal in depth to the thickness of the extractor, and the sides of this recess, e^2 , are formed in the proper radial lines, to act upon the extractor and cause it to move rearward when the breech-block has opened a sufficient distance, and to return to its first position when a new cartridge is inserted and the breech-block closed. The forward side of the extractor is constructed with an angular projection, r' , which is acted upon by the shoulder e^2 , Figs. 2 and 6, which imparts a quick movement to the extractor, and projects the cartridge entirely clear of the arm.

The mainspring m is arranged beneath the barrel by means of the screw m' , the free end of the spring acting within a concavity in the hammer formed below its center of motion, as shown in Fig. 1. The screw m' is constructed with a conical head, as shown, which is provided with an aperture to allow the ramrod M to pass through. This aperture may be threaded to engage with a corresponding thread upon the ramrod and serve to retain it in its socket.

The rear sight, N , which I have devised and applied to this arm, is attached by means of two cheek-pieces, n n , secured by brazing, or otherwise, to the top of the barrel, through which and the sight-leaf an adjusting-screw, n^1 , passes, which also serves as a pivot. The sight-leaf is constructed somewhat narrower than the space between the said cheek-pieces, to provide for a lateral adjustment, that may be desirable to allow for the effect of the wind. The cheek-pieces n n are downwardly inclined

toward the muzzle of the barrel, and serve to elevate and form a rest for the sight-leaf at short ranges by sliding the cross-bar n^2 thereon. For long ranges the sight-leaf is elevated and the cross-bar n^2 raised or lowered, in the usual manner.

The spring I is formed in one piece and with prongs i i' , the two former, i i , acting upon the locking-brace H , and the latter or intermediate prong, i' , acting upon the rear end of the sear L , to retain them in their proper position.

The tension of the intermediate prong, i' , may be varied by means of the adjusting-screw S when it is desired to diminish the force of the pulling action required in operating the trigger in firing.

The manual manipulation of this mechanism is as follows: The neck of the stock O is grasped in the usual manner by the right hand, with the thumb over the top of the same, the forefinger forward of the trigger, the second finger behind it, (both within the lever or guard F ,) and the remaining fingers beneath the lever or guard. The trigger is then pressed slightly forward by the second finger, which releases the locking-brace H from the shoulder e^2 in the breech-block E , and at the same time the lever or guard is pressed downward, thereby opening the breech-block, which acts upon the extractor R , and ejects the cartridge from the barrel and raises the hammer to a full-cock. This action is effected by a single movement of the hand and without changing its position, and may be simultaneous with the handling of the gun when lowering it from the shoulder to the hip immediately following a discharge. This movement places the hand and gun in close proximity to the cartridge box or belt, and during the insertion of a new cartridge a return movement of the hand, simultaneous with the act of bringing the arm to the shoulder, draws the lever up, which closes and locks the breech-block, leaving the hammer cocked ready for firing.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The extractor R , pivoted within the receiver B , and constructed with an angular projection, r' , in combination with the rotating breech-block E , provided with a recess, e^2 , inclosing and operating the extractor, substantially in the manner set forth.

2. The half-cock notch g^3 , constructed of an angular hooked form, substantially as shown, in combination with the sear L , provided with the angular notch l^2 , as and for the purpose specified.

3. The pivoted locking-brace H , provided with a central slot or mortise and shoulder, k , in combination with the trigger K , pivoted within said slot, vibrating independently when operated to release the sear, and in connection with the locking-brace when operating to

disengage the same from the shoulder e^2 of the breech-block, as set forth.

4. The combination of the compound spring I, by its two outside members, with the locking-brace H, so as to engage it with the breech-block E, and by its middle member with the sear L, in the manner and for the purposes substantially as described.

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

HENRY C. BULL.

Witnesses:

A. J. A. POLLOCK,
OCTAVE WHITTAKER.