

C. FOEHL.

BREECH-LOADING FIRE-ARMS.

No. 180,216.

Patented July 25, 1876.

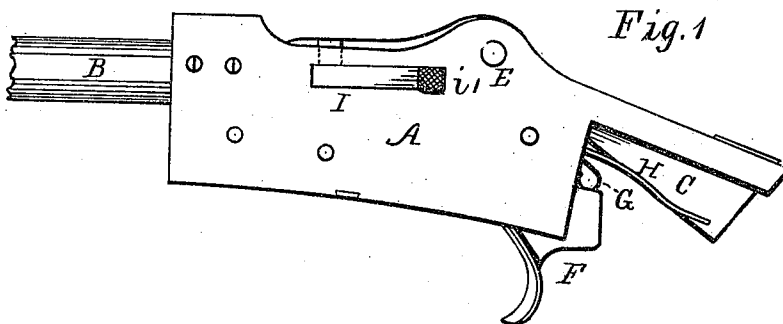


Fig. 1

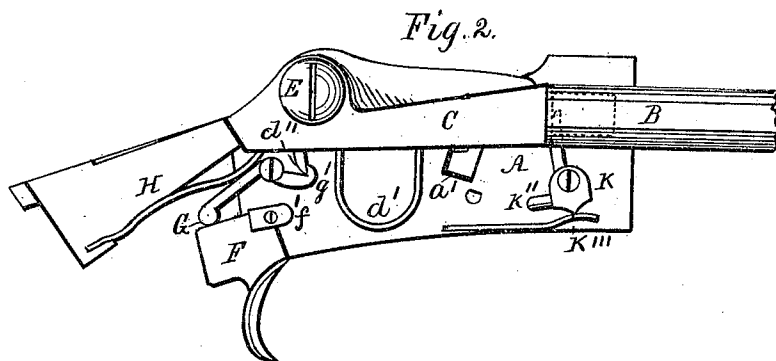


Fig. 2.

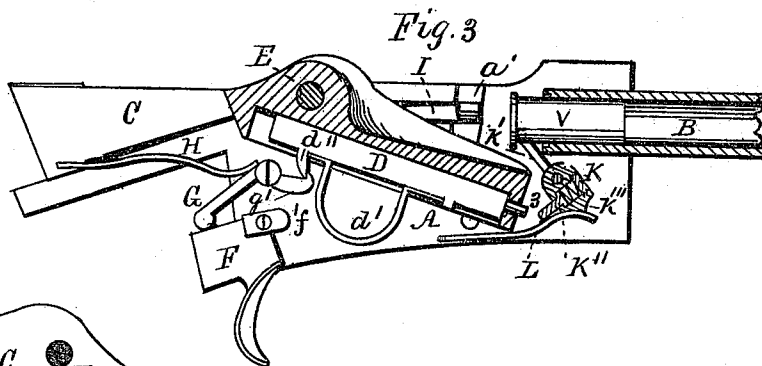
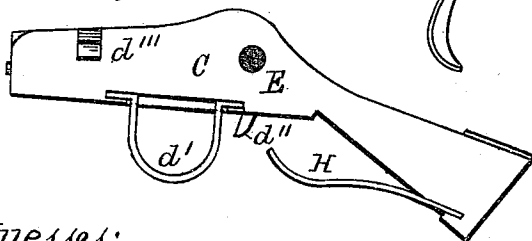


Fig. 3

Fig. 4.



Witnesses:

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Inventor:

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# UNITED STATES PATENT OFFICE.

CHARLES FOEHL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO ISAAC J. CLARK, OF SAME PLACE.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **180,216**, dated July 25, 1876; application filed May 13, 1876.

*To all whom it may concern:*

Be it known that I, CHARLES FOEHL, of the city of Philadelphia, in the State of Pennsylvania, have invented a new and useful Improvement in Breech-Loading Fire-Arms, which improvement is fully set forth in the annexed specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the left-hand side of the lock-plate and portions of its attachments detached from the stock; Fig. 2, an elevation showing the opposite side of Fig. 1 uncovered, and displaying the construction and the relative positions of the different parts of my invention when the fire-arm is in a loaded condition and at full-cock for being discharged. Fig. 3 is a like elevation of Fig. 2, showing the changed relative positions of the said parts after the load has been discharged and the plunger-lever released, and causing the empty shell of the exploded cartridge to be automatically thrown out rearward; and Fig. 4, an elevation of the left-hand side of the said plunger lever detached from the plate, for the purpose of more clearly showing the two detents for holding it at either the half or the full cocked positions, as may be desired.

The left-hand plate A is one of two like plates, between which the rear end of the barrel B is permanently fixed near their forward ends, as shown in Figs. 1, 2, 3, while the plunger-lever C is secured between the said plates, and immediately in rear of the barrel B, by means of a transversely-inserted screw-bolt, E, which serves as a fixed fulcrum for the movements of the plunger-lever, as will hereinafter be explained.

Within a long recess in the under side of the lever C the plunger D is secured, so as to allow it a limited longitudinal motion in either direction—the forward motion by the reaction of a bow-spring,  $d'$ , and the rearward motion by means of a downward-projecting catch,  $d''$ , which is caught by a detent of the forward end of a bent lever, G, the rear end of which latter bears downward upon the upper straight edge of the trigger F, under the downward pressure of a spring, H, which is secured permanently by the insertion of its rear end into

a slot in the under edge of the rear end of the lever C.

The forward end of the plunger D has a slender cylindrical elongation, 3, (see Fig. 3,) which, when the forward-end shoulder of the said plunger is in contact with the end of the recess in C, projects slightly out through a corresponding hole in the center of the square end of the lever C, so as to come directly opposite to the center of the barrel-tube or bore, or (which is the same thing) directly opposite to the center of the rear end of the cartridge, which may at any time be therein when the piece is at full-cock, as shown by Fig. 2. (See also Fig. 3.)

The trigger F has its inclosed portion in the form of a rectangular thin plate, and turns on a pin which passes through one of its upper corners, inserted in a vertical recess of a post,  $f'$ , which is permanently fixed to the left hand plate A, so that when the upper edge of the trigger is nearly horizontal, the front edge will bear against the back part of the recess, and thus prevent the upper edge of the trigger from being forced farther downward by the pressure of the spring H upon the longer arm of the lever G, and at the same time allow the horizontal edge of F to be turned upward to raise the longer arm of the lever G. (See Fig. 2.)

The shorter arm of lever G has an upward-projecting detent,  $g'$ , which, when the plunger-lever is being sprung downward at its forward end, as will be immediately explained, for the purpose of reloading the fire arm, will instantly catch in front of the lower end of the projection  $d''$  of the plunger D, and thus draw the said plunger backward, and at the same time compress the spring  $d'$  as the rear arm of the lever C is pressed inward between the plates A, and consequently the forward arm raised upward into half, and subsequent full-cock positions, and in either condition retained by a spring-catch lever, I, the power end  $i'$  of which projects through the left-hand plate A, so that when the said projection is pressed inward by the operator's thumb, the lever C will be released therefrom by the withdrawal of the catch of said lever I from either the one or the other of the two detent-catches  $d'''$ ,

which project in the left-hand side of lever C into a corresponding recess,  $a'$ , in plate A. (See Figs. 2 and 3.)

The lever C, as before stated, turns upon a fixed screw-bolt, E, and is so constructed and applied between the two side plates A that when it is in the position shown in Fig. 3, and the usual cylindrical cartridge inserted into the breech end of the barrel B until the outer or head end of the former becomes flush with the end of the barrel, the operator presses the rear end of the lever C downward into the spaces below it, or between the plates A, until the said lever is at half-cock, or until it is brought into the full-cock position, (shown in Fig. 2,) in which case the upper surface of said lever C will be in alignment with the upper surface of the barrel B, and the upper surface of the stock in rear of the same, and the point of the plunger directly opposite to the center or exploding point of the cartridge in the barrel B, ready for aiming and firing the piece by pulling the trigger F.

When at half-cock the point of the plunger D will be below the cartridge, and, if the trigger be accidentally pulled, the said point will strike the barrel only, and, therefore, the explosion of the cartridge will not occur.

For the purpose of causing the automatical discharge of the shell of the cartridge after firing the piece, K is a block of steel, turning on a screw fixed in the plate A, just below the cartridge end of the barrel B, and directly in front of the lowered forward end of the lever C, which block has a fixed arm,  $k'$ , long enough to reach upward through a recess cut across the barrel, between the latter and the plate A, and adapted to swing into and out of said recess, and a shorter arm,  $k''$ , at a right angle to the arm  $k'$ , which is provided with a surrounding spiral-wire spring in its socket in the block K, so as to allow the said arm  $k''$  to be easily pressed backward in the block K by the forward end of the lever C, as the end of said arm passes upward over the forward end of said lever when the latter is in the position shown in Fig. 3.

In the operation of inserting the usual flanged cartridge into the barrel, the flange of the cartridge comes into direct contact with the longer arm  $k'$ , as shown in Fig. 3, and thus forces forward the said arm into the position shown in Fig. 2, and allows the lever C to be again aligned with the barrel, ready for another discharge of the fire-arm. (See Fig. 2.)

The bottom edge of the block K has a transverse edge,  $k'''$ , which passes over the convex upper side of a spring, L, as the said block is moved in either direction, forward or back-

ward; and after the forward end of lever C has been passed by the compressible arm  $k''$  in being raised upward, the said arm will spring outward far enough to be struck by the descending end of lever C on preparing to reload, and thus the longer arm  $k'$  caused to throw out the exploded shell of the cartridge, substantially as indicated in Fig. 3.

It will be seen, without further description, that in this improvement in fire-arms the lock heretofore required to project on the outside of the arm, when cocked or in position for firing, is avoided, and that there is not any obstruction whatever that would interfere with aiming, or in carrying the arm through thickets of undergrowth woods; and, moreover, that it affords facility for rapid firing, because immediately after each discharge the operator has only to press his thumb upon the projecting end  $d'$  of the spring lever I, and thus drop the forward end of the lever C, to throw out the shell of the exploded cartridge, as represented in Fig. 3, insert a new cartridge, and press the rear end of said lever C down flush with the upper surface of the stock, as represented in Fig. 2, and the piece will be ready for another shot.

The invention is inexpensive of construction and application, and will be perfectly safe in use, and not liable to get out of order.

I claim as my invention—

1. The combination, in a breech-loading fire-arm, substantially as described, of the lever C and its plunger D with the lever G and trigger F, the said parts being constructed and arranged to operate together substantially as set forth.

2. The combination, substantially as described, of the bow-spring  $d'$  with the plunger D and recess in the lever C, lever G, spring H, and trigger F, arranged to operate as and for the purposes described.

3. The thumb-spring lever I, provided with its catch in the recess  $a'$  of A, and the two fixed detents  $d'''$  on the side of the lever C, the said parts being constructed and arranged to operate together substantially as and for the purposes set forth.

4. The swinging block K, provided with the rigid arm  $k'$ , yielding arm  $k''$ , and transverse edge  $k'''$ , in combination with the spring L and the recess in the rear end of the barrel B, substantially as and for the purposes hereinbefore set forth and described.

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Witnesses:

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WM. H. MORISON.