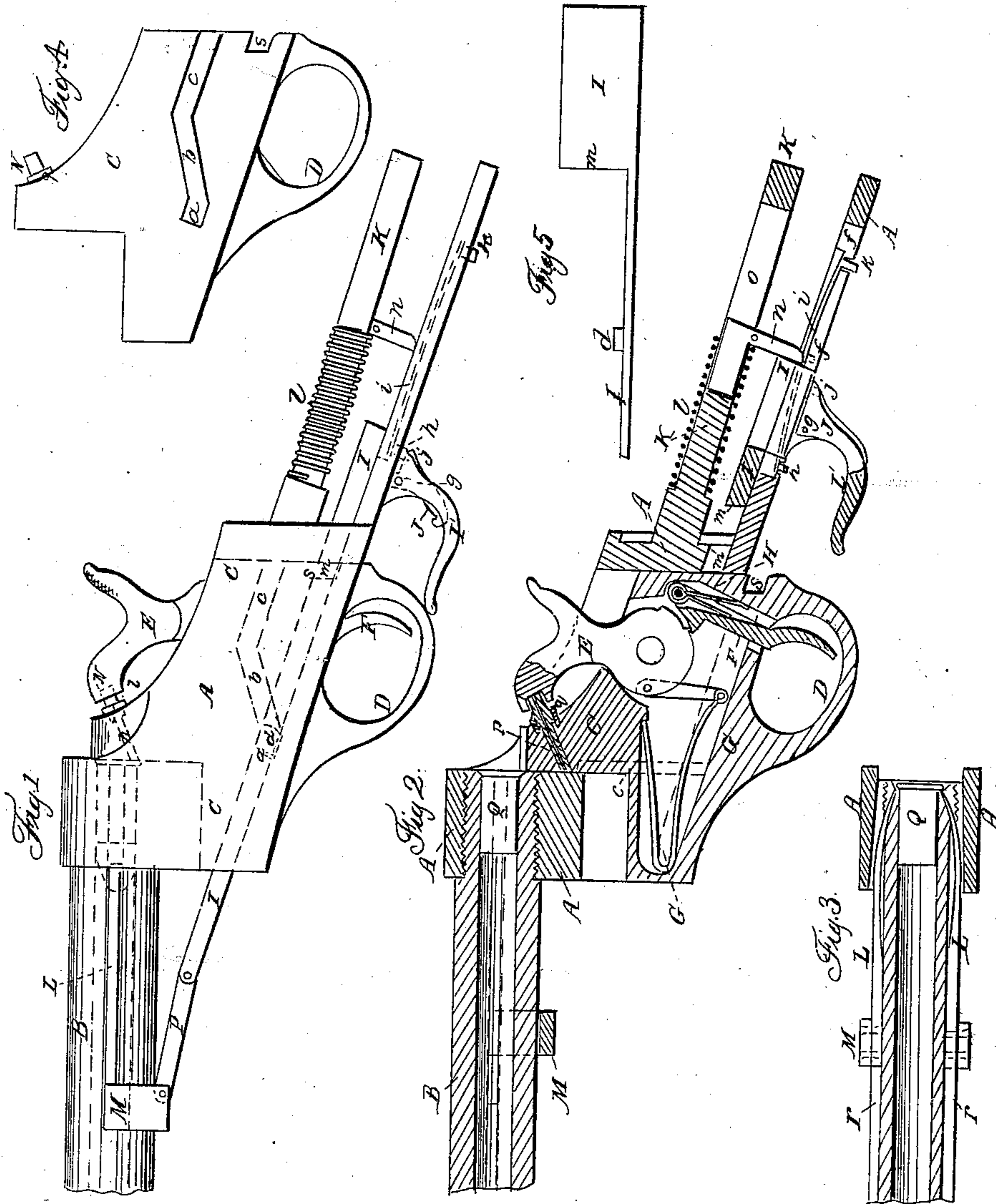


W. X. STEVENS.  
Breech-Loading Fire-Arm.

No. 41,242.

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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. 41,242, dated January 12, 1864.

*To all whom it may concern:*

Be it known that I, W. X. STEVENS, of Worcester, in the county of Worcester and State of Massachusetts, 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 of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the principal parts of a fire-arm constructed according to my invention. Fig. 2 is a central longitudinal vertical section of the same. Fig. 3 is a horizontal section of the barrel and the device for drawing out the discharged cartridge-shells. Fig. 4 is a side view of the movable breech-block. Fig. 5 is a top view of the sliding rod which operates the breech-block.

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

This invention consists in a certain novel construction and mode of applying the movable breech-block, and certain means of operating the same, whereby the construction of the arm is much simplified and the use of a large number of small pieces—such as screws and pins—which are liable to be lost is avoided, and the gun is enabled to be taken apart enough to clean all the working parts without the removal of a single screw.

It also consists in certain means whereby provision is made for loading at the muzzle when the supply of ammunition suitable for loading at the breech has been all used, or such ammunition cannot be obtained.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the frame, having a parallel-sided vertical opening extending right through it in rear of the barrel B, for the reception of the removable breech-block C, which is fitted to slide vertically therein, for the purpose of opening the rear end of the barrel for loading and closing it for firing.

Fig. 1 shows the breech-block in its highest position, in which it closes the barrel, and Fig. 2 shows it dropped to the position in which it leaves the barrel open for the reception of the cartridge. The said block has the trigger-guard D made in the same piece with it, and it contains the hammer E, trigger F,

mainspring G, and trigger-spring H, all of which can be removed when, after the block has been taken out of the frame, a movable side plate is removed from its right side, such plate being kept in place by the frame itself, without the use of screws, when the block is in the frame.

On the right side of the breech-block there is a straight upright tongue-like projection, *e*, (shown dotted in Fig. 2,) which works in a groove in the corresponding side of the frame, and serves as a guide to the front part of the block in its upward and downward movement. In the other side of the said block there is a groove, *a b c*, Fig. 4, for the reception of a stud, *d*, Fig. 5, which is made in the same piece with or rigidly secured to the side of a sliding rod, I, which works in a groove in the interior of the frame, outside of the breech-block. The groove *a b c* is of such form that when the stud *d* is in the position *a* it holds the breech-block up to its highest position, in which it closes the barrel, but that when the said stud is passing along the portion *b* it acts like a wedge upon the upper or lower side thereof, and so raises or lowers the block according as it passes forward or back, and that while the said stud is in the portion *c* the block remains stationary in its lowest position, the portions *a* and *c* being parallel with the sliding rod I and the portion *b* being oblique thereto.

To the back part of the rod I there is rigidly secured a hook, I', which protrudes through a slot, *f*, in the bottom of the frame, in rear of the trigger-guard, in a convenient position to receive within it the middle finger of the right hand, which is used to draw back the rod I, and this hook is slotted for the reception of a small elbow-lever, J, which hangs on a fulcrum-pin, *g*, inserted transversely through the said hook. When the rod I is in the most forward position, as shown in Fig. 1, and the breech-block closed, the upper end of this lever J is situated under the locking-pin *h*, which is secured to the front end of a spring, *i*, arranged in a cavity in the inside of the frame A, and which at that time enters a notch, *j*, in the back of the hook I' and stops the rod I from being drawn back, and the lower end of the said lever J then projects forward into the hook I', as shown in Fig. 1; but when the finger is placed in the hook and pressed back-



ward to draw back the rod I, it first presses back the lower end of the lever J, and so causes the upper end to press up the stop-pin out of the notch *j* and liberate the rod. When the rod I has been drawn back as far as necessary to bring the breech-block low enough to permit the introduction of the cartridge at the rear end of the barrel, the upper extremity of the lever J comes in contact with a stop-pin, *k*, which is secured to the rear end of the spring *i*, and so stops the further backward movement of the rod whose stud *d* is then near the rear extremity of the groove *a b c*\*. In case of its being desired to take out the breech-block from the frame, by removing the pressure of the finger from the lever J and still continuing to pull the hook I', the upper extremity of the lever, which is suitably rounded or beveled, will pass under the stop-pin *k*, and so allow the rod I to come back far enough to let the stud *d* pass entirely out of the groove *a b c*, and leave the block free to drop or be pulled out through the bottom of the opening in the frame. The forward movement of the rod I is partly effected by means of a spring, *l*, which is coiled round and attached to a long stationary pin, K, secured to the back part of the frame, the said spring having attached to its rear end a hook, *n*, which works in a long slot, *o*, in the said pin and presses against the rear end of the rod I. The rear portion of the rod I is widened, as shown in Fig. 5, in such manner as to form a locking-stop, *m*, to prevent the breech-block C from being drawn downward from the closed position shown in Fig. 1, for which purpose it works through a guiding-slot, *m'*, in the frame and enters a deep notch, S, cut across the back of the breech-block.

N is a nipple constructed for the reception of ordinary percussion-caps; but instead of being made with a screw and screwed into the breech of the gun, it is made with a tube, *p*, long enough to pass through the upper part of the breech-piece and through the face of the breech, and fitted to have a limited longitudinal movement with the breech-piece, in which it is secured against dropping out by means of a screwed thimble, *g*, Fig. 2. When fixed ammunition containing its own fulminate priming is used, the nipple N, thus constructed, is not capped; but the hammer, striking directly upon it, makes it act like the sliding pin used in many other breech-loading fire-arms between the hammer and the fulminate priming, and the front end of the tube *p* penetrates the shell and fires the charge; but in case the fixed ammunition is all expended, or it is desirable to load with loose powder and ball, or with other ammunition requiring a separate priming, one of the empty shells of the fixed ammunition is put into the rear portion or chamber of the barrel and perforated opposite to where the tube *p* comes, and the piece may then be loaded at the muzzle, and by applying a percussion-cap to the nipple the charge is fired in the same way

as in any other gun in which such caps are used.

L L represent a pair of spring-nippers employed to withdraw the discharged metallic shells of the fixed ammunition from the barrel. These nippers are composed of two long elastic jaws of steel arranged in grooves *r r* in the sides of the barrel and attached at their front ends to a cross-piece, M, which is arranged under the barrel, and which is connected by a link, P, with the front end of the rod I, before described. The inner faces or backs of these grooves are inclined inward from a point near the rear end of the barrel to meet the circle of the bore at the said end, as shown at *r' r'* in Fig. 3, to allow the extremities of the jaws L L to approach each other and to get behind the flanges of the shells, one of which is shown in Figs. 2 and 3, and indicated by the letter Q, as the said jaws are drawn backward with and by the rod I in opening the breech to prepare for loading.

Fig. 3 represents the points of the jaws as just having come in contact with the flange of the shell in their backward movement. As this movement continues, the said jaws, pressing against the flange, draw out the shell from the barrel, and by their elasticity grasp it between them. As the shell is thus drawn out the lower part of its butt is brought into contact with the hammer and made to force it back to half-cock, and as the hammer arrives at this position the front end of the shell passes out of the barrel, and the further backward movement of the nippers L L, with the lower part of the butt of the shell in contact with the hammer, causes the shell to be tripped up in a backward direction and thrown out of the nippers and from the gun.

To use the arm as a breech-loader with fixed ammunition, first place the middle finger of the right hand in the loop I', and pull in a backward direction till the rod I is stopped by the rear pin, *k*, when all is ready for loading, the breech-block having been brought below the bore of the barrel, and the discharged cartridge-shell (if any was previously in the barrel) having been drawn out and thrown away. Then let go the loop I', and the spring *l* will move the rod I forward far enough to draw the nippers L L forward to a position in which they will not interfere with loading. Next insert the cartridge into the barrel, and push forward the loop I' to close the breech, and all is ready for firing.

To enable it to be used as a muzzle-loader, it is only necessary to open the breech-piece, put a suitably-perforated empty metallic cartridge-shell into the rear end of the barrel, and close the breech-piece again, and the loading, capping, and firing may be performed in the usual manner.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Operating a breech-block, C, working transversely to the bore of the piece by means of a sliding rod, I, or its equivalent, working



longitudinally within the breech-frame, and combined with the said block by means of a stud and inclined groove or other devices having a similar wedge-like action, substantially as herein specified.

2. So constructing such sliding rod I or equivalent and applying it, in combination with the breech-block C, as to enable it to enter a notch in the said block, and so serve the additional purpose of securing the said block in position for firing, substantially as herein described.

3. The combination, with each other and with the sliding rod I, or its equivalent, of the spring locking-pin *h* and the elbow-lever J, substantially as and for the purpose herein described.

4. So applying a movable stop-pin, *k*, or its

equivalent, that it serves at the same time to stop the opening movement of the breech and as the means of preventing the withdrawal of the said block from the frame, and by a suitable movement will permit such withdrawal, substantially as herein described.

5. The loose nipple N, having a movement endwise to enable it to be suitably operated upon by the hammer to produce the explosion of a fixed-ammunition cartridge, and yet capable of conveying fire to a charge from an ordinary cap, substantially as herein described.

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