

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 39,494, dated August 11, 1863.

*To all whom it may concern:*

Be it known that I, JOHN PERCY, of Albany, in the county of Albany and State of New York, have invented a new and Improved Fire-Arm; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of my improved breech-loading fire-arm. Fig. 2 is a longitudinal vertical section taken through the center of Fig. 1. Fig. 3 is a horizontal section through the rear end of the barrel and a portion of the lock-case. Fig. 4 is a vertical transverse section through Fig. 2, indicated by red line  $\alpha\alpha$ .

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

This invention has for its object the construction of a breech-loading fire-arm which presents a smooth uninterrupted surface on the top of the neck and breech end of the barrel and on the sides of the same, and which also prevents the admission of water to the interior of the lock or lock-chamber.

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

In the accompanying drawings, A represents the wood portion of the stock, A' the metallic frame which surrounds it, and B the neck or reduced portion of the stock, which, together with the grooved holding portion C, are cast in one piece, with the exception of a side plate, B', that is fitted on the side of neck B, and forms a water-tight cover for the lock, which is contained within this neck B, as will be hereinafter described.

D represents the barrel of the gun, which, being constructed in the usual form for a rifle or other arm, is fitted at its rear end against the vertical end of a breech-guard, a, so as to prevent the escape of gas at this point. This barrel is pivoted to the grooved supporting-piece C at b by a pin, which passes transversely through the jaws of this piece and through an ear, b', which is on the lower side of the barrel, as shown in Fig. 2. The piece C is grooved out and adapted to fit the sides of the barrel snugly, and at or near the rear end of the barrel is a spring-latch, E, which is pivoted to ears projecting from the bottom surface of the barrel, (shown in Fig. 2,) and which

is furnished on its forward edge with a notch that catches under the forward edge of a slot, c, through which the lower end of the latch or trigger passes. The flat spring c' presses against a short projection on the latch E, and tends to keep the lower end of the latch in the position shown in Fig. 2. This trigger-latch E is furnished with a guard-plate, E', and used to keep the rear end of the barrel D in its place when this end is pressed down in the groove in the piece C, as shown in Figs. 1 and 2 in black lines. By drawing the projecting finger-piece of the latch E back, this latch will release the rear end of the barrel, and, the forward end being the heaviest, the barrel will assume a position for receiving the cartridge, as shown in red lines, Fig. 2.

The breech-block a being cast with the portions C and B, it forms a solid shield, and the rear end of the barrel D should be fitted tightly against the outer surface of this shield, so as to exclude water or moisture, and, as before stated, to prevent the escape of gas at the rear or breech end of the barrel. Through the upper part of the solid block a passes a hammer-rod, e, the rear end of which is pivoted to a projection, f, on the oscillating tumbler F, Figs. 2 and 3. To the opposite end of tumbler F the rear setting-trigger, G, is pivoted by means of a coupling-link, g, which causes the backward movement of this trigger to thrust the hammer e backward and to cock the piece. The forward trigger, F', which is used for discharging the piece, catches into a notch formed in the segment of the tumbler F, when this tumbler is drawn back to its farthest extent, and otherwise operates like those on locks in common use. The fixed projection h prevents the upper end, f, of the tumbler from springing too far forward when it is released from the trigger F'. The mainspring I and trigger-spring i operate upon their respective parts in a manner common to those on locks now in use. These devices, which constitute the lock, are applied to a lock-plate, J, which is recessed into the neck of the stock and secured therein by means of a plate, B', and screw-pins j k, which confine both the lock-plate J and side plate, B', rigidly in their places. The lower portions (edges) of both triggers G F' are constructed in the form of segments of circles which are described concentrically with respect to their axes of motion. These triggers

being thus constructed, they are so fitted within the slots in portion B, through which they project, that their concentric edges preserve a close contiguity with the edges of the slots, as shown in Fig. 2. This keeps out water and moisture from the lock, and at the same time allows the triggers to be moved back and forth for cocking and discharging the piece.

On one side (right side) of the barrel D, I form a longitudinal dovetail groove, into which is inserted a sliding plate, n, having a thumb-button, p, affixed to its forward end and projecting therefrom a short distance. The rear end of the slide n has a segmental finger, r, formed on it, which piece, it being at right angles to the slide n, is recessed into the rear end of the barrel D, flush with this end, (shown in Fig. 3,) and being thus applied, the finger r is grooved to correspond with the groove s, which is made in the edge of the bore of the barrel, as shown in Fig. 3. Thus it will be seen that when the finger r is in its place in the barrel an annular groove or depression slightly larger than the bore of the barrel will be formed, a portion, r, of which is removable or attached to a sliding plate, n, by means of which said piece can be thrust backward out of its seat. The object of finger r is to remove the cartridge-case after the gun has been discharged, and the cartridge being constructed with a circular flange on its rear end adapted to fit the groove s, as shown in Figs. 2 and 3, this flange is caught by the finger r, and thus the cartridge can be removed from the gun by drawing back the slide n when the barrel D is in the position indicated by the red lines, Fig. 2. This flange, which is formed around the rear edge of the cartridge-case, not only serves in my improved arm as a means whereby the case can be removed from the barrel after a discharge of the gun, but it also serves as a means whereby the hammer e, inclosed within the neck of the stock, may be employed as an exploder for the charge. This flange referred to, being filled with fulminating powder, is struck by the forward end of the hammer e, and the charge is in this manner ignited. It will therefore be seen that the finger r forms a very important part in the perfection of my improved fire-arm, as it enables me to use a cartridge which may be exploded by means of a hammer inclosed within the stock of a pivoted-barrel breech-loader.

In loading and discharging my gun, the operation is as follows: The gun having been discharged, the latch E is moved backward, thus disengaging and allowing the rear end of the barrel D to tilt upward, as indicated in red lines, Fig. 2. The cartridge is now introduced into the rear end of the barrel and the barrel returned to its former position. The hammer e should be drawn back previously to releasing the barrel to insert the cartridge, and this can be done by pulling back the trigger G un-

til the tumbler F is caught and held by the forward trigger, F'. Then, when the charged barrel is returned to its position in the supporting-piece C, the piece is ready for firing.

It will be seen from the above description of my inclosed-hammer breech-loading arm that the lock-chamber is formed in a solid metallic portion, B a C C, and that this lock-chamber is closed by means of a metallic plate, B', the edges of which are made to fit tightly in their seat in the portion B, so as to exclude water at this point. This, with the segmental form of the parts G F' and the closely-fitting hammer-rod e, prevents, for all practical purposes, the admission of water into the lock-chamber and keeps the parts which compose the lock from speedily rusting. The inclosed hammer e strikes directly upon the bead or flanged edge of the cartridge, and the arrangement of this hammer enables me to use a metallic cartridge, which remains in the gun after the explosion and swells out, so as to tightly fit the parts surrounding it, thus preventing the escape of gas at the breech—a serious objection to most breech-loading guns wherein a needle or inclosed hammer is used. After the load has been discharged and the breech of the barrel tipped up, the metallic cartridge-case can be readily removed by means of the extractor, which is applied to the barrel D and moves with it, as before described.

I am aware that cartridges have been exploded in fire-arms by the cock striking a slide-bolt, which is in immediate contact with the cartridge; but in that mode there is a crack for windage during the firing, and the hammer or cock is in sight and in the way and liable to be caught against objects, and thereby injured or destroyed. The lock is also liable to be impaired from dampness or water. I do not therefore claim, broadly, the direct contact of an exploder with the cartridge; but,

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

1. The construction of the neck of the stock of the gun with a chamber which has segmental seats for the triggers, a removable plate, J, and a perforated diaphragm, a, in combination with the lock and hammer mechanism, which is arranged and operates substantially as described, the whole constituting a device which is sufficiently water-proof for all practical purposes, as set forth.

2. In combination with the solid shield or diaphragm a, pivoted hammer e, and breech-loading barrel D, the water-tight lock-chamber formed in the casting or portion B C, substantially as described.

JOHN PERCY.

Witnesses:

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CHARLES HORTON.