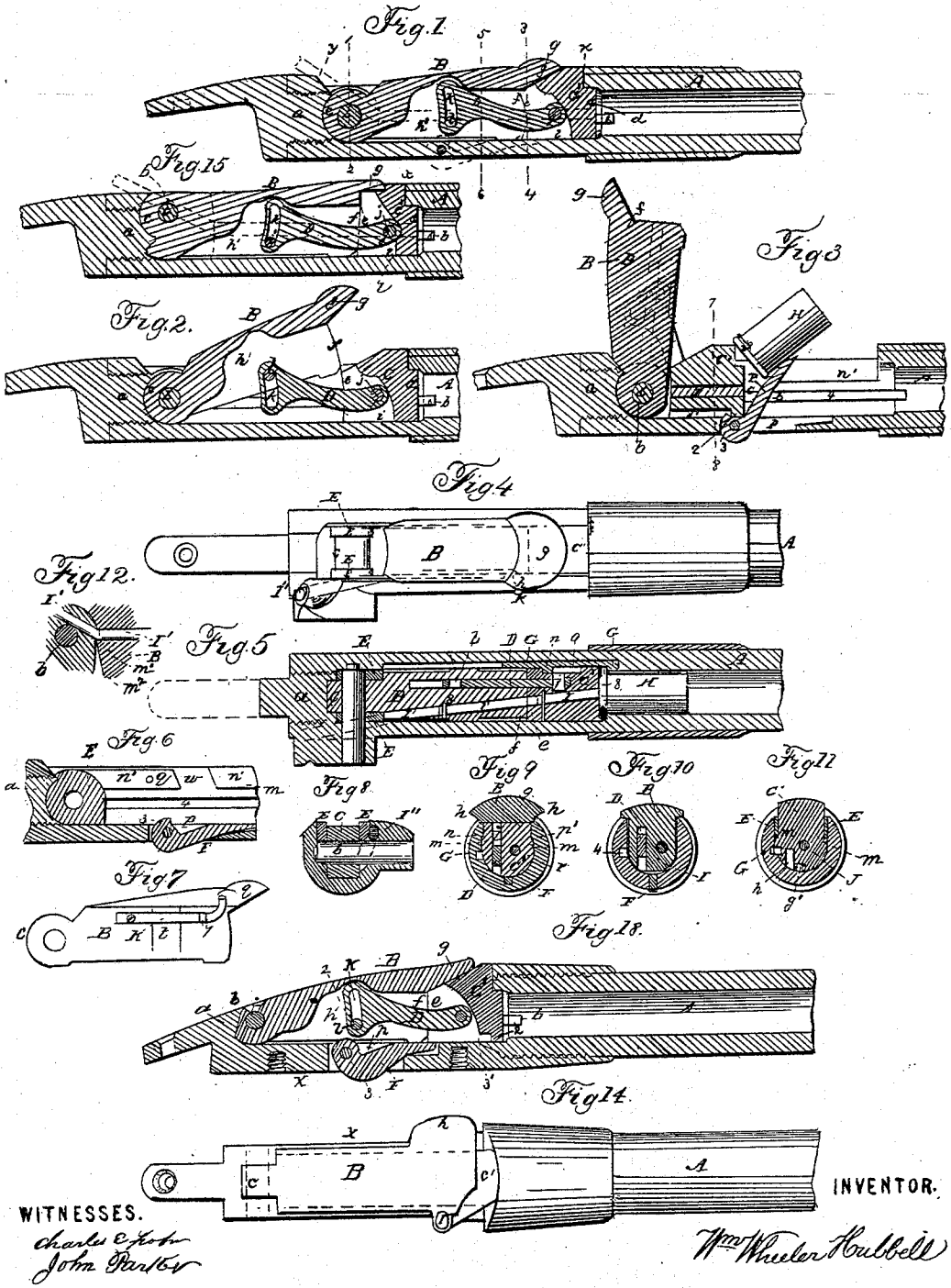
W. W. HUBBELL.

Breech-Loading Fire-Arm.

No. 65,812. Patented June 18, 1867.



WITNESSES.

Charles C. Foster

John Parker

INVENTOR.

Wm. Wheeler Hubbell

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

United States Patent Office.

W. WHEELER HUBBELL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND JAMES H. ORNE, OF THE SAME PLACE.

Letters Patent No. 65,812, *dated June* 18, 1867.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM WHEELER HUBBELL, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in the construction and combination of breech-pieces and their appliances, operating together as hereinafter described, to load, enclose, fire, and eject the cartridge-shell.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a longitudinal section of sufficient of a fire-arm to illustrate my improvements.

Figures 2 and 3, the same with the breech-pieces and other appliances in different positions.

Figure 4, a plan view.

Figure 5, a sectional plan.

Figure 6, a section of part of the fire-arm, with the breech-piece removed.

Figure 7, a view of one side of the main breech-piece.

Figure 8, a transverse section on the line 1–2, fig. 1.

Figure 9, the same, on the line 3–4.

Figure 10, the same on the line 5–6, fig. 1.

Figure 11, the same on the line 7–8, fig. 3.

Figure 12, a detached sectional view, showing the rear strikers and bevel faces.

Figure 13, a sectional view of a modification of the fire-arm.

Figure 14, a plan view of fig. 13.

Figure 15, a sectional view of another modification of the invention.

Similar letters refer to similar parts throughout the several views.

It should be stated in the outset that all the figures, excepting those marked 12 and 13, refer to my improvements as adapted to the alterations of any ordinary Springfield rifle; the remaining figures illustrating my improvements as arranged in constructing an entirely new fire-arm.

On reference to figs. 1 to 12 inclusive, A represents the rear of the barrel of an ordinary Springfield rifle, provided at the end with the usual screw-plug *a*. In the top of this barrel, from the point *x* to the point *y*, fig. 1, is cut an elongated opening, so as to form a recess for the breech-pieces and other appliances, described hereafter.

The breech-piece consists of two sections, B and C′, the former of which I shall term the hinged breech, and the latter the sliding breech. The breech-piece B fits in the recess formed in the barrel, and is hinged to the same by the pin *b*, the rounded rear *c* fitting snugly but so as to turn freely and bear firmly in a concave recess formed in the front end of the screw-plug *a*.

The sliding-breech C′ has in front a circular projection, *d*, adapted to the rear of the bore of the barrel, where the latter is enlarged in diameter, and covers the head 8 of the cartridge H, and the rear face *e* of the breech is hollowed and adapted to the rounded front end *f* of the hinged breech B, as seen in fig. 1, the line of junction of the two breeches forming the segment of a circle drawn from the centre of the pin *b*.

The front end of the breech B has a projection, *g*, which, when in the position shown in fig. 1, is nearly in contact with the top of the breech C′, there being lips *h*, one on each side of the projection *g*, fig. 9, to be grasped between the finger and thumb, when the said breech-piece B has to be elevated.

A longitudinal recess, *h′*, is cut in the breech-piece B, and a coinciding recess, *i*, in the sliding-breech C′ for the reception of the link D, which is jointed to the latter breech by a pin, *j*, and the rear end of which has a curved slot, *k*, for the reception of a pin, *l*, on the breech B. This slot *k*, when the breeches and link are in the position shown in fig. 2, forms the segment of a circle described from the centre of the pin *b*. It may be slotted horizontally instead of vertically, with the same effect.

On each side of the sliding-breech C′ is a shoulder, *m*, figs. 9 and 11, bearing against the under edge of a

rib, n', formed in the inside, and on each side of the recess in the barrel, so as to keep the said sliding-breech down to its place, and prevent it from moving in any other than a longitudinal direction. These ribs n' are towards the rear of the recess in the barrel, and are formed by the extension forward of two detachable cheek-pieces E E, one secured to one side, and the other to the opposite side of the recess, and secured to the same, partly by the pin b, partly by confinement between the rounded end of the breech B and the recess, and partly by small set-screws q, fig. 6.

On withdrawing the pin b, and detaching the cheek-pieces, both breeches may be removed, the breech C′ being raised vertically from the recess in the barrel. In the inside of the barrel's recess, and in one side of the same, is cut a longitudinal groove, 4, figs. 5 and 6, for the reception and guidance of the retracting-bar G, which has two projections, 5 and 6, the former fitting into an elongated recess, 9, fig. 5, in one side of the breech C′, and the latter projecting into the bore of the barrel, so that it may be in front of the flange 8 of the metal case cartridge H. In an opening, p, in the bottom of the recess of the barrel, is hung the arm F, which, when the breech B is depressed, as shown in fig. 1, occupies the position shown by dotted lines in that figure, but when the breech B is elevated, and the breech C′ consequently moved back, a lip, 2, on the latter breech, comes in contact with a projection, 3, on the arm, and elevates the latter to the position shown in fig. 3. Its front end is wider than its projection 3 and the slot 3′, so as not to catch in the latter.

The breech B is a trifle narrower than the middle part of the recess in the barrel below the ribs n', excepting at one point where there are ribs t, fig. 7, one on each side of the said breech, there being on each side of the barrel's recess, between the front ends of the ribs n' of the cheek-pieces E and the rear ends of the ribs n' of the barrel, fig. 6, spaces w, which receive the ribs t, which, when the breech is down, just touch the sides of the recess, and prevent all lateral movement of the breech. These spaces w are for the purpose of admitting the flange of the cartridge freely to the rear of the head 6 of the retracting-bar, which occupies a position under the rear end of the rib n', as in fig. 3, to insure the flange of the shell falling in behind this retracting-head 6; the rear end of the bar having borne against the rear end of the slot 4, the breech-piece C′ leaving it in that position when it had drawn the head or flange of the shell just past the rear end of the barrel rib n', and then the breech C′, taking up the arm F, causes it to cast the shell upwards out of the recess of the barrel, so that it may fall out or be caught between the fingers and picked out. A spring may bear underneath on the rear end of the arm F and set it down again. The ribs n' are only wide enough apart to allow the cylindrical body of the shell and the bullet to pass between them.

The detonate is in the present instance situated in the centre of the rear of the cartridge, and is struck by means of a pin, I, passing obliquely through the breech C′, its rear end coinciding with the front end of a pin, I^1, passing obliquely through the breech B, and coinciding with a third pin, I^2, passing through the metal of the rear of the barrel; its outer end always being in such a position as to be struck by the hammer of a lock situated in the same position as that of an ordinary Springfield rifle. When the shell is primed in the rim, the strikers I and I^1, of course, are extended to the lower edge of the flange to the right of the lip 2, to impinge on the fulminate.

In a recess on one side of the breech B is a spring-catch lever, K, having a projection, 7, fig. 7, to fit into a notch in one side of the recess of the barrel, (shown in dotted lines in fig. 4,) so as to lock the breech B to the same when depressed; the outer end of the catch-lever being turned upwards, so as to be within reach of, and to be compressed by, the fore-finger, when the front end of the breech B is seized between the finger and thumb prior to being elevated. The spring may lock forward into the breech C′.

Figs. 13 and 14 represent a fire-arm, made especially for my improvements. In this case a recessed frame, x, is made for the reception of the two breeches and their appliances, and for connection to the stock of the fire-arm; the rear of the barrel being screwed into the front of the frame or else made solid together in one piece, and the hammer being so situated as to strike a single oblique pin, I, passing through the sliding breech only, in order to communicate with the detonate. In other respects the construction and arrangement and operation of the breeches and their appliances are similar to those described above.

Fig. 15 is similar to fig. 1, with the joint c made flush on top. To make the top of this joint of the breech B flush with the top of the barrel, the centre of the shaft b is placed above the axis of the bore, and the curves f and e extended up correspondingly, detracting as much from the base of the curve f by increasing the bevel, shown on its lower edge, to make it clear the face e with the same extent of slot k. This does not change the principle or action, but enables the joint to be made level with the barrel when the breech-pin a is used.

There is a slot cut from the rear of the slot 9 in the breech C′ downward, of sufficient size to admit the projection 5 on the bar G, so as to insert it in place, or drop the breech C′ down into the recess in putting the parts together, fig. 5. The breech-block C′ may have two heads d to fit into a double barrel, and the ribs n' n' may be located at the base of the frame, and the breech-block B shutting in the rear, secure it in like manner; using the Lafouché ammunition for a double-barrel gun constructed on the same principle. The barrel A is banded round the charge, and the sights may be hinged on the breech B, or on the band forward of the breech.

Supposing the several parts described above to be in the positions shown in figs. 1 and 2, that a cartridge has been recently discharged, and that it is necessary to reload the fire-arm and discharge another cartridge: The operator seizes the end of the breech between his finger and thumb, compresses the spring-latch so as to unlock the said breech and elevates the latter. During this first movement of the breech B, its pin l traverses the segmental slot in the link D, and consequently the sliding-breech C′ remains undisturbed at the rear of the bore of the barrel until the pin l reaches the upper end of the segmental slot, and the breech B has been elevated to the position shown in fig. 2, when the breech C′ is unlocked or relieved of the resistance of the breech B, and is at liberty to be moved rearwards. On the further elevation of the breech B, the breech C′ will, through the

medium of the link D, be drawn back along the recess in which it is guided in the manner described. After it has been drawn back a short distance the front end of its recess 9 will come in contact with the projection 5, fig. 5, on the retracting-bar G, which will consequently be drawn back along its groove with the breech C′, drawing with it the empty cartridge-case.

As the breech B approaches the position shown in fig. 3, the bar will have drawn the flange of the shell clear of the rear end of the barrel's rib n', and then the lip 2 on the breech C′ will come in contact with the projection 3 of the arm F, will suddenly elevate the arm F, and cause the cartridge-case H to be projected by the said arm out of the recess, and fall or picked clear of the fire-arm. The operator now takes another cartridge, places it on the arm F, in the position shown in fig. 3, depresses the cartridge, and with it the arm F, into the recess. This depression of the arm F imparts the first forward movement to the breech C′, and the first downward movement to the breech B. The latter is now depressed by hand and pushes forward the breech C′, and which forces forward both the retractor and the cartridge until the latter is forced into the rear of the bore. The breech C′ has now arrived at the limit of its forward movement, and the breech B has reached the inclined position shown in fig. 2.

During the further depression of the breech B, its pin l traverses the segmental slot k of the link D, the rounded end f of the breech moves in contact with the hollow rear face e of the breech C′, until the latter is securely locked to its place by the depression of the breech B to the position shown in fig. 1, ready to receive the recoil strain of the discharge. The cartridge is then discharged by the release of the hammer, which, striking the pin I^2, causes the pin I to ignite the detonate at the rear of the cartridge.

Each of the pins I I^1 I^2 is retained in its proper position, and permitted to have a limited movement by a transverse screw-pin, s, fig. 5, but no springs are necessary for restoring the several pins to their proper position after being struck by the hammer, for the following reason: The pin I^2, which passes through the solid metal of the fire-arm, will, when struck by the hammer, penetrate a short distance in the opening of the breech B, which contains the pin I^1, as seen fig. 12. There is, however, a slight bevel, m^1, and counter-bevel m^2, at the entrance of the orifice in the breech B, so that when the latter is raised or lowered, the bevels acting on the pin I^2 will restore the latter to the position it occupied prior to being struck with the hammer. The same arrangement is observed at the junction of the two breeches where the pins I and I^1 coincide with each other, the counter-bevels here being in the breech C′ above the pin I; and as for the pin I, it is of necessity pushed back on forcing the breech C′ against the cartridge when reloading.

Until the several pins I I^1 I^2 properly coincide with each other they cannot serve as a medium for communicating the blow of the hammer to the cartridge, and as the pins cannot coincide with each other until the breech B is depressed and locked, and the breech C′ secure in its place, it follows that a premature discharge of the cartridge cannot take place.

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

1. The breech B, with its rear face c, secured firmly in the concaved front of the ordinary screw-base a of the barrel by the fixed shaft or centre b, with this breech B operating the breech C′ under the side ribs n', by means of the link D, and locking by their faces f and e, and by the projection d into the bore of the barrel, all within the recess, substantially as described.

2. The detachable cheek-pieces E E, arranged for the introduction of the breech C′ to and its withdrawal from the recess and the rear of the barrel, substantially as described.

3. The single retracting-bar G, moving in a groove, 4, in one of the two opposite sides of the recess, both in loading and extracting the cartridge-shell, by the projection 5 in the slot 9, and intercepted at each end of the latter by the breech C′, substantially as described and shown.

4. The stationary rear striker I^2, and the breech B, and its striker I^1, operating together as described, both with and without the front striker I, when the ends of the striker and breech-pieces are bevelled, substantially as specified.

5. The ribs n', in combination with the rear space w, and with the retractor G, to insure the insertion of the flange of the shell in the rear of the retractor-head 6, as described.

6. The combination of the breech B, link D, breech C′, retractor G, arm F, with the strikers, constructed and operating together successively in the recess, and with the barrel, to insert, fire, withdraw, and eject the primed ammunition or shell, as described.

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

WM. WHEELER HUBBELL.

Witnesses:

CHARLES E. FOSTER,

W. J. R. DELANY.