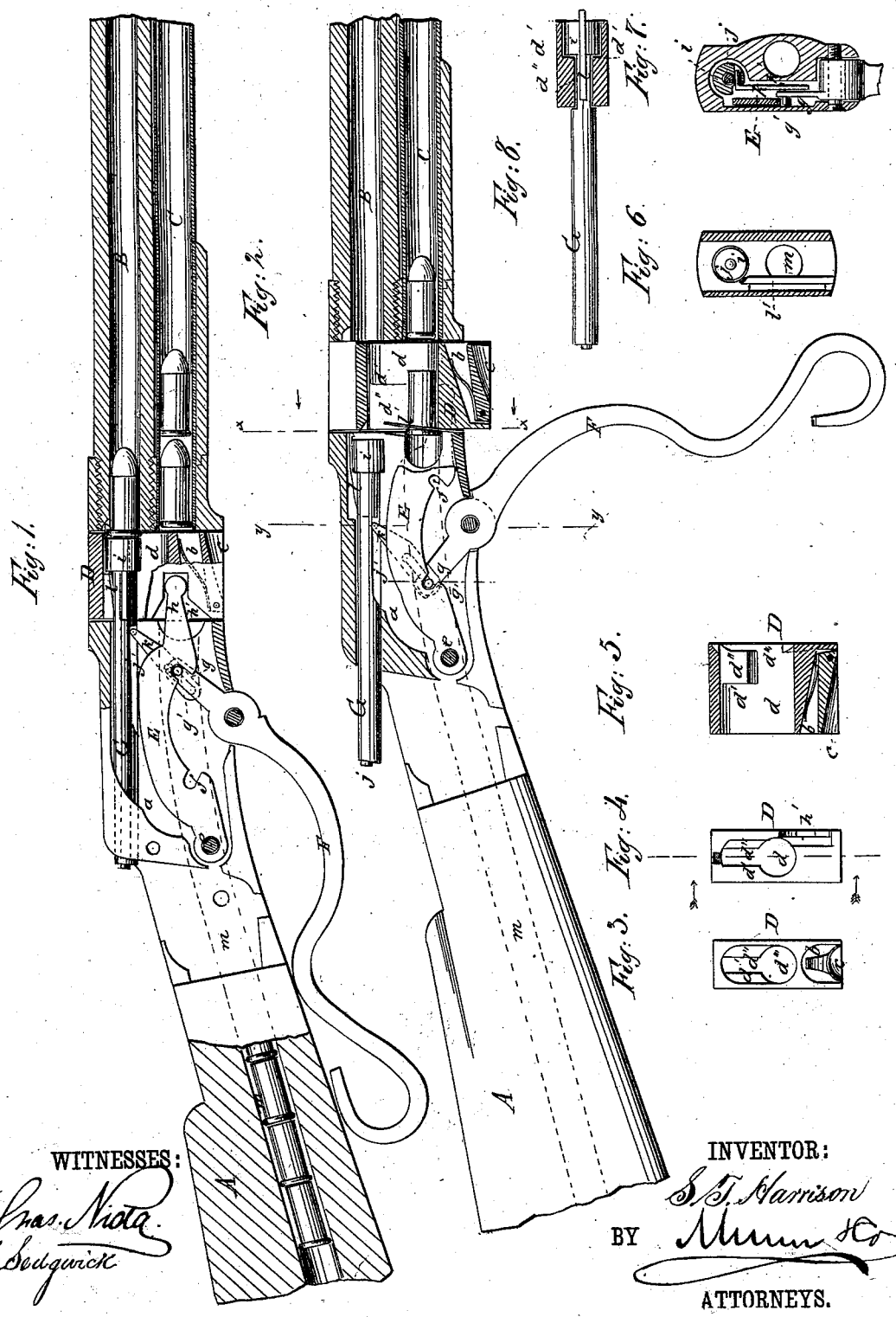
S. T. HARRISON.

Magazine Fire-Arms.

No. 216,848. Patented June 24, 1879.



WITNESSES:

Chas. Nichols.

C. Sedgwick

INVENTOR:

S. T. Harrison

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

SAMUEL T. HARRISON, OF SAN JOSÉ, CALIFORNIA.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **216,848**, dated June 24, 1879; application filed December 4, 1878.

To all whom it may concern:

Be it known that I, SAMUEL THURSTON HARRISON, of San José, in the county of Santa Clara and State of California, have invented a new and useful Improvement in Fire-Arms, of which the following is a specification.

This invention relates to improvements in the construction and operation of breech-loading magazine fire-arms, and specifically to the method and devices for loading and firing and withdrawing the shells and saving them for future use.

The object of the invention is to simplify the loading and firing mechanism, and to provide means for withdrawing the exploded shells and guiding them into a channel leading to the stock, wherein they are forced by the impact of the cartridge driven from the magazine into the breech-piece.

It consists, first, of a carrier having an intermittent vertical movement controlled by a lever connected with a finger on the guard, which receives the cartridge from the magazine, carries it to the breech of the piece, and when it is ejected into the breech returns and locks the breech-block in place behind it.

It consists, secondly, of a breech-block in which is sheathed the needle, connected by a link with the finger of the guard, from which it receives an intermittent reciprocatory movement, serving to drive the cartridge from the carrier into the breech. This breech-block carries on its end a spring-catch which engages the flange of the cartridge, and when the charge is exploded and the breech-block moved back it draws the shell into the carrier, (which has moved up so as to bring its chamber in line with the breech of the gun,) and when this moves down it carries the shell with it, the flange being caught by a spring that holds it back, and when it falls in line with the magazine, the cartridge therefrom, being forced backward by the spring, drives ahead of it the empty shell out of the chamber and into a channel leading down into the stock.

It consists, lastly, of the details of construction hereinafter specifically referred to and described.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal section of a fire-arm provided with my improvements in condition to be fired. Fig. 2 is the same in condition for ejecting the shell and receiving a fresh charge. Figs. 3, 4, and 5 are views of the breech-piece. Fig. 6 is a section on line *x x*, Fig. 2. Fig. 7 is a section on line *y y*, same figure, and Fig. 8 is a longitudinal section of the carrier, showing the position of the breech-block when the carrier is in condition for firing.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the stock of the fire-arm. B is the barrel, and C is the magazine, where the cartridges are placed, a spiral spring in said magazine serving to expel the cartridges in the usual well-known manner.

D is the carrier, placed in a vertical mortise at the breech of the gun and between it and the chamber *a*, containing the operating mechanism. This carrier contains the open slot *b*, with concave inclined spring-guard *c*. Above this is a cartridge-chamber, *d*, containing at the rear a wall, *d'*, with a vertical slot, *d''*, through the same. This breech-piece moves freely up and down in the mortise.

In the chamber *a* is pivoted at *e* the curved lever E, with notches *f f'* at the ends of the curve, on the under edge thereof.

The guard F has a finger, *g*, with a transverse pivot, *g'*, through it, the outside whereof runs along the under curved edge of the plate, and engages, when the guard is thrown down and up, alternately, the slots *f f'*.

The free end of lever E has a finger, *h*, which enters into the slot *h'* in the side of the carrier D. This slot is made with a flaring mouth, to give room for the movement of the lever in the operations that will be described hereinafter.

Above lever E, in a longitudinal socket, is the breech-block G, having a head, *i*, at the end near the breech of the arm. In this breech-block is incased the needle *j*, for exploding the cartridge. This breech-block has a shallow groove, *j'*, at the end whereof nearest the head *i* is pivoted the slotted link *k*, into which is entered a pivot, *k'*, on the inside of the finger *g* of the guard. By means of this link-connection the movement of the guard F communi-

cates an intermittent motion to the breech-block G. For example, when the guard is thrown down, as in Fig. 2, the pivot k' throws the link back, and when it reaches the end of the slot it moves back the breech-block to the position shown in Fig. 2; but when the guard is drawn up, the pivot travels in the slot until it reaches the upper end thereof, when it exerts an impulse upon it that throws the breech-block forward into the position it occupies in Fig. 1. In both cases, it will be observed, when the guard first moves there is no influence exerted on the breech-block. Thus, as compared with the motion of the guard, the motion is intermittent, the force being lost in the slot. This is done to give time for the movement of the carrier D, as will be presently described.

On the upper side of the breech-block G is fastened one end of a flat spring, l, which is laid in a groove in the head with the unfixed end projecting just beyond the same, and terminating in a hook or catch, as shown.

In the rear wall of the mortise where the carrier is placed is fastened to one side a spring, l', so as to just cover a small segment of the entrance to the circular channel m, extending down into the stock. The lower end of this spring is fastened, while the upper end is nearly in contact with the perimeter of the head i of the breech-block G. This spring is let into the rear wall slightly, so as to not interfere with the neat fitting of the carrier D with the wall. Channel m is the receptacle for the empty cartridge-shells, they being delivered therein in the manner that will presently be described.

The operation of my invention is as follows: The magazine is filled with cartridges by placing them one at a time in the concave groove of the spring-guard c when the carrier D is in the position indicated in Fig. 1, and by pressing downward slightly, the arm being in a reversed position, the guard being moved sufficiently out of the way to open the end of the magazine and permit the cartridge to be shoved in. As soon, however, as the pressure is removed the guard resumes its position and keeps the magazine closed. When thus filled the piece is ready for use.

To load the arm, the guard F is thrown down. This carries the pivot g' out of the notch f', along the curved edge of the lever E, to the notch f, and entering this the lever is drawn down, and the finger h, acting in the slot h', lowers the carrier until it occupies the position indicated in Fig. 2, when the bottom of cartridge-chamber d is in line with the lower side of the magazine C, and, there being nothing to obstruct, the force of the magazine-spring expels a cartridge from the magazine, and it enters the chamber d, it being just long enough to admit the cartridge.

The guard is now drawn up, and the pivot g', leaving slot f and traveling along the curved under edge of the lever, lifts the same until the bottom of chamber d is in line with the under side of head i and the bore of the arm. When at this point pivot k' has reached the end of the slot in link k, and acting thereon throws the breech-block forward into chamber d, through the opening d''', until it clears the farther side of the wall d', when the pivot g' reaches the slot f', and engaging the same draws the lever down, and with it the carrier, into the position shown in Fig. 1, and the wall d' drops down behind the head i, the breech-block lying in slot d'', as shown in Fig. 8. When, however, the breech-block head is moved forward the flange of the cartridge is carried under the catch and the breech block, while the bottom of chamber d is still in line with the under side of the head of the breech-block and the bore of the arm, forces the cartridge out of the chamber into the breech, and when the carrier drops down the head of the plunger is in contact with the butt of the cartridge in front and in close proximity to the walls d', and is thus held firmly in that position, furnishing a breech for the cartridge strong and immovable.

After the charge is exploded the guard is thrown down, first lifting the lever E, and with it the carrier D, and when the pivot reaches the end of the slot in the link k it draws the breech-block back, the carrier D having been lifted far enough for the head i to escape the walls d', and as it passes back the catch draws out the empty shell into chamber d until the flange of the cartridge is back of the end of spring l', or between it and the wall, though above it, and the body of the shell is underneath the walls d'. At this stage the pivot g reaches the slot f and draws the carrier D down, and the walls d' force the shell down with the flange behind the spring l' until it reaches the entrance to channel m, when, as is shown in Fig. 2, the bottom of chamber d is in line with that of the magazine, and a cartridge being forced into chamber d its butt comes in contact with the end of the shell and forces it back into channel m, and thus clears a way for itself, and from this point the operation is repeated.

From this description there will be no difficulty in understanding that the complex movements are accomplished with very simple mechanism, consisting of a very few parts, easily made, and of such construction that they cannot very well get out of order.

Secondly, it will be seen that the empty shells are all saved and can be filled again, and thus considerable economy is effected.

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

1. As an improvement in breech-loading magazine fire-arms, the curved lever E, pivoted at e, having notches $f f'$ and finger h, engaging notch h' in carrier D, in combination with guard F, having finger g, with pivot g', and carrier D, substantially as described.

2. As an improvement in breech-loading magazine fire-arms, the breech-block G, having

a head, *i*, with spring-catch, and connected with the pivot *k'* on finger *g* of the guard by slotted link *k*, in combination with the carrier D, guard F, and lever E, substantially as de-described.

3. As an improvement in breech-loading magazine fire-arms, the spring *l'*, in combination with breech-block head *i*, spring-catch on the same, and carrier D, substantially as described.

4. As an improvement in breech-loading magazine fire-arms, the carrier D, having cartridge-chamber *d*, wall *d'*, slot *d''*, and opening *d'''*, in combination with lever E and breech-block G, operated by the guard F through the connections, substantially as described.

5. As an improvement in breech-loading magazine fire-arms, the channel *m* in the stock, forming a receptacle for the empty shells, in combination with spring *l'*, carrier D, and magazine C, substantially as described.

6. As an improvement in breech-loading magazine fire-arms, the combination and arrangement of the following parts, to wit: the lever E, operated by guard F, and controlling the movement of carrier D, the breech-block G, operated by guard F through link *k*, and having head *i*, with spring-catch, the carrier D, with cartridge-chamber *d*, wall *d'*, slot *d''*, and opening *d'''*, the spring *l'*, channel *m* for receiving the empty shells, barrel B, and magazine C, substantially as described.

SAMUEL THURSTON HARRISON.

Witnesses:

BENJ. G. ALLEN,

EUGENE KNICKERBOCKER.