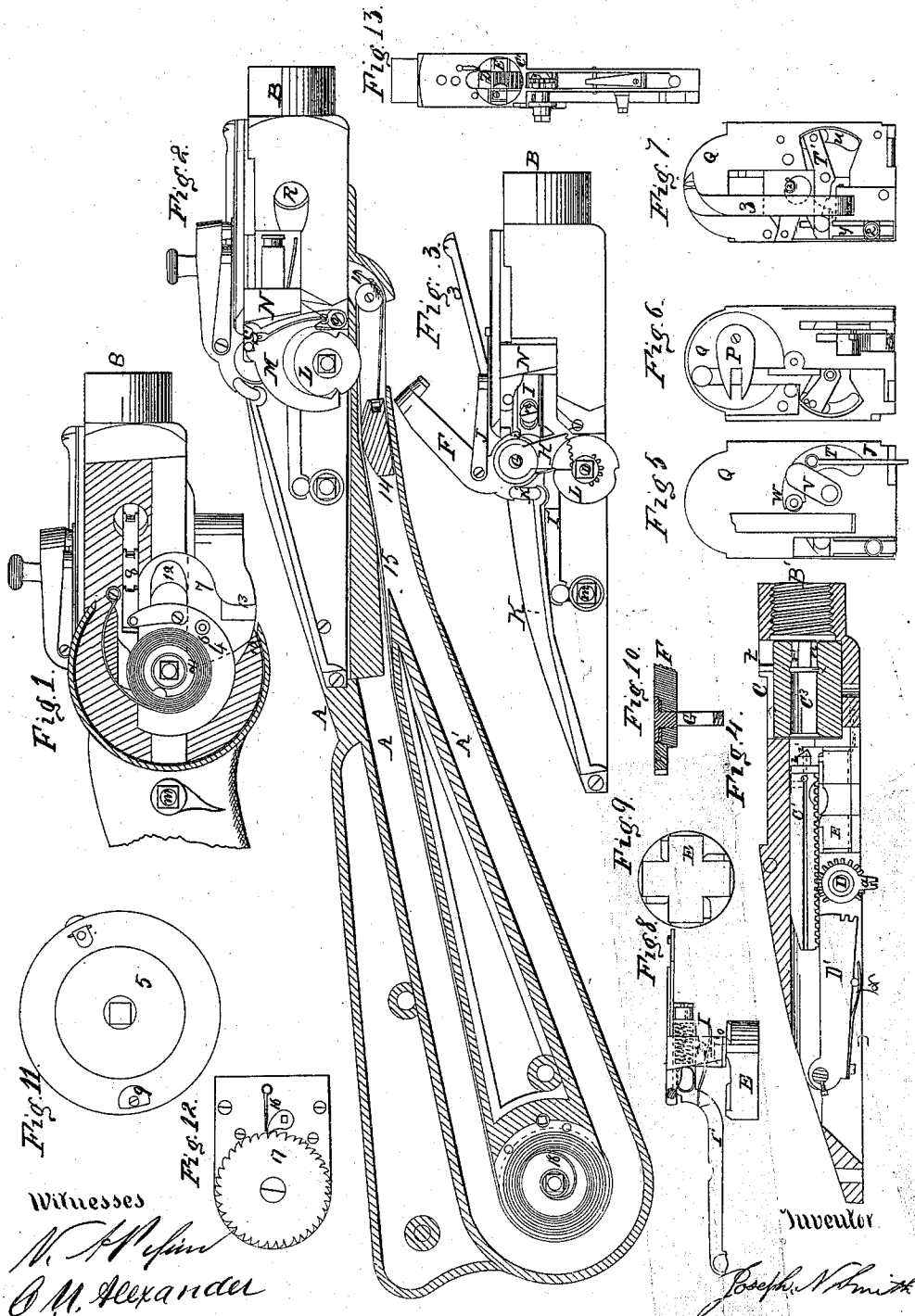


J. N. SMITH.
MAGAZINE FIREARM.

No. 39,591.

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IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. 39,591, dated August 18, 1863; antedated January 21, 1863.

To all whom it may concern:

Be it known that I, JOSEPH N. SMITH, of Cincinnati, Ohio, have invented certain new and useful Improvements in Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings; and to the letters of reference marked thereon.

In the accompanying drawings, making a part of this specification, A represents the stock of the gun, for which gutta-percha is preferable. This stock is made in two parts, being divided longitudinally and vertically. (See Figure 2, which is a longitudinal vertical section.) In each part of the stock is a groove, A', which grooves coincide throughout, so that when the two parts of the stock are applied together there results but one smooth and continuous groove for the reception of the cartridges. The depth of this groove equals the diameter and its width equals the length of the cartridge to be used, so that the cartridges, which are placed side by side and at a right angle with the line of sight, may readily obey the feeding apparatus.

In gun-stocks constructed upon the usual plan the cartridges have been placed so that they were carried either longitudinally or vertically to the stock; but in this case they are laid side by side in a horizontal position, and at a right angle with the axis of the gun-barrel, and in this position are forced up by a follower until they are turned in the right direction by the devices hereinafter set forth.

B represents a metallic breech-piece, into which the barrel screws. When the barrel is screwed into the breech-piece from the top toward the under side, the hole embraces a portion of the rear of the barrel, which is thereby made concave. In this hole in the breech-piece is a vertical cylinder, C, revolving in the hole after the manner of a faucet-breech. This cylinder C has a horizontal bore through it corresponding with the bore of the gun. The front portion of the cylinder-bore, *r*', Fig. 4, is rifled like the barrel.

x x, Fig. 4, represent a groove around the inside of the bore of this cylinder, and just back of the rifles, the object of which is to prevent the cartridge-case from passing backward into the chamber behind it when the gun is fired. The material of which the case is

made will be pressed into this groove, and be thus prevented from passing backward.

Behind the cylinder and in the breech-piece is formed an opening, in which a rack-bar, C', is made to play. Upon the front end of this bar C' is formed a suitable breech-pin, fitting into the bore of cylinder C. This breech-pin has a small cone, *z*, on its forward end, which is provided with a small opening in it, as is represented at *z'*, Fig. 4, through which fire passes to ignite the charge.

D is a small shaft, having a wheel gearing into the under side of the rack-bar and operating it back and forth in its chamber. D' is a brace or tumbler, which is pivoted near the rear end of the breech-piece. When the rack-bar is drawn back it passes over the tumbler-brace D'; but when it is pushed forward about its fullest extent the long teeth *a*, Fig. 4, of the pinion catch into the teeth upon a part of the forward end of the brace, raising it so that it is immediately behind and in contact with the rack, and serves as a firm brace to counteract the recoil when the gun is fired.

At the under side of the brace D' is a small spring, &c., for returning and retaining the brace in its proper place. Just forward of the pinion which moves the bar C', and behind the cylinder C, is situated a turn-table, E, a top view of which is seen in Fig. 9. This table, when it moves on its vertical axis, turns one-quarter around each movement, and is operated by means of a small projection or ratchet-tooth, *e*, (see Fig. 8,) which catches into a notch upon the upper side. The table is provided with two cross-openings, as shown, which are made large enough to receive the cartridges laterally. When the cartridges are moved up the lower groove, A', in the stock they pass under the table at the arrow 1, Fig. 2, and are one by one pressed sidewise into the opening in it.

The table moves one-quarter around after the cartridge is placed in it, and the ball is thus brought into line with the axis of the barrel, to be driven into the bore of the gun. When the table assumes this position the next ball is forced into the table from below and crosswise, driving or lifting the preceding one into the chamber behind the cylinder. The rack-bar then approaches, and the breech-pin *z* carries the cartridge before it into the bore

C³ of the cylinder. The rack-bar C¹ being then braced from behind, as has been described, the charge is ready to be fired.

F represents the cock of the gun, which is secured in position by means of a bolt, G. (Seen in Fig. 10.) This bolt has a large head, which confines not only the cock, but also a cogged segment, H, the collar of which lies in a recess in the cock. This segment has a spring at its back, which allows it a little backward play, but which catches, when pressed forward, against a portion of the collar of the cock which surrounds the head of bolt G, and thus serves to raise the cock.

A wheel upon shaft D, partly cogged, as shown in Fig. 3, meshes into the cogs of segment H, and thus when said wheel is turned the cock is raised. Upon the collar of the cock, around the bolt-head, is a notch at i, Fig. 3, which catches upon the rear of the box I, and is thus held up when the cock is raised.

I is a square box with a cylindrical bore, which is provided with a rod or bar, I', which passes back and is operated upon by the trigger. A rod passes into this box, and serves as a guide for it, and a spring (see red lines in Fig. 8) is coiled in the bore, which serves to press it toward the notch in the cock. This box is also provided with a slot or opening, through which a pin passes, as seen at n, Fig. 3. The trigger is secured to the shaft m, as shown in Fig. 1.

Upon the shaft D is a cam-wheel, L, which is provided with two notches. (Shown in Figs. 2 and 3.) Above and almost surrounding this cam-wheel is a curved plate, M, with a cam-shaped interior, and with a tooth on its end, which is loose. The other end is pivoted at o to the breech-piece. On top of this plate a square notch is cut, in which a pin, S, works, as shown in Fig. 2. The pin S is secured to a bar, N, which passes forward over the cylinder C. The forward end of this bar is also provided with a pin, which plays in the slot of a plate, P, Fig. 6. The cylinder C is also provided with a pin, t, Fig. 4, which also works in the slot or opening in plate P, which plate is pivoted to the under side of a cap-piece, Q.

The moving of the bar N, by means of its pin working in the slot of P back and forth, oscillates the plate P, thereby partially rotating cylinder C, which is attached to plate P by a screw. When the bar N moves forward the cylinder C is so moved as to bring its bore in line with that of the barrel, (see Fig. 13;) but when it is moved backward, after having been moved forward, the bore of the cylinder is made to correspond with a diagonal opening through the breech-piece, (seen at R, Fig. 2,) so that a wiper may pass through, for cleansing the opening in the cylinder and removing the cartridge-case which has been used.

J represents a connecting-rod, which is secured at one end to the cock F, Fig. 3, and at its

other to a plate, T, Fig. 5. The plate T lies on the upper side of the cap-piece Q, and connects through a slot, u, in said cap with a bar, T', Fig. 7. V is a small plate, which is secured to the cap Q, and fits snugly over the plate T, Fig. 5. Immediately under the plate V, and in the path of the plate T, is a small hole, into which the fulminates are placed, and which are pressed up by means of a spring and pin under them. When the plate T moves under the plate V a fulminate is pressed by the spring into the curved end of the plate T, and is carried on by it to the opening w, Fig. 5, through which communication is had with the charge in the gun.

The bar T' is pivoted at its center, and one end lies in a groove in a bar, y, as shown, Fig. 7, and serves to give said bar y a backward and forward endwise motion. This bar y has a small slide upon it, which is regulated by means of a screw, 2, Fig. 7. The object of the slide is to strike against an arm on the lower end of the sight 3, for raising or lowering it. The sight 3 is pivoted and provided with an arm on its lower end, against which the slide can press for moving the outer end of said sight up and down. The sight can be raised higher or lower by simply changing the position of the slide upon the bar y. When it is secured close to the arm it will raise the sight more than when it is secured farther off.

K represents the mainspring, which operates upon the cock through a link, K', as is shown in Fig. 3. A small spring is used for giving the sight a downward tendency, so that it will follow the slide upon bar y down again.

Fig. 1 represents the external appearance of a portion of one side of the gun-stock with the outer disk, 5, removed. 4 represents a plate with a short barrel secured to it, around which a coiled spring, 6, winds, one end of the spring being secured to the barrel and one to the plate 7, which slides backward and forward under the plate 4. To plate 7 is secured a jointed rod, 8, with a wiper at its end. When the plate 7 is moved forward the wiper passes into the opening or bore of cylinder C and wipes it out, as has been suggested. The plate 7 is moved forward by means of a pin, 9, upon the disk 5. The disk 5 fits over the plate 4 and spring 6 upon the end of the shaft D, which passes through the barrel around which the spring 6 is wound. The plate 7 is provided with a shoulder from 10 to 11, and with beveled surfaces at 12 and 13.

The pin 9 on disk 5 is thrown out by a spring, and can be readily pressed in by a beveled surface, so that when the disk 5 is secured in proper position and partially turned the beveled surface 13 presses the pin in until it arrives at the shoulder at 10. It then drops behind the shoulder and moves the plate 7 forward, with the wiper, until the pin passes the point 11; then coming to a groove in the plate, the plate is drawn back by spring 6, and the beveled surface 12 presses up the pin, so as to

allow the plate 7 to pass under it. When the disk 5 is again turned partially around the same operation is performed, the pin passing over the inclined or beveled surface 13 and operating the plate 7. The plate returns to its position, as described, by passing its beveled surface 12 under the pin.

The operation of loading and firing this gun is performed by means of the disk 5; for, being firmly attached or secured to the shaft D, it moves all of the internal parts described, and, as has just been seen, it also moves the wiper to cleanse the chamber of cylinder C at each discharge.

The cartridges are drawn up to the turn-table E by means of a follower, 14, and cord 15, one end of the cord being secured to a drum, which is actuated by a strong coiled spring, Fig. 1. A ratchet-wheel and ratchet or detent are used upon the drum, so as not to allow the cartridges to yield or return after they have been carried forward by any sudden shock or blow which the gun may receive by dropping it or otherwise.

The bar *y* is provided with a small hole, (seen in Fig. 7 and marked 20,) which stands immediately over the opening which communicates with the bore of the gun. The fulminate is burst upon this hole, and when the gun is again cocked for use the bar *y* moves, as has been described, carrying the hole 20 under the cap Q, which forces the old copper of the fulminate from around the hole and drops it into an opening behind it, from whence it passes out through a passage in the side of the breech-piece. The force of the next fulminate drives out the preceding remains through the passage just mentioned.

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

1. Constructing the stock of the gun in two parts, with a broad groove, A', so that the cartridges may be placed in said groove horizontally transverse to the stock, substantially as herein set forth.

2. The wheel 17 and ratchet 16, used, as described, with the cord 15 and follower 14 and spring 18, for moving and stationing the cartridges, substantially as specified.

3. The turn-table E, with openings for admitting the cartridges laterally, operating substantially as specified, for the purpose of turning the cartridges in the right direction, substantially as set forth.

4. The use of the opening through the breech-piece at R, corresponding with the opening in cylinder C, for the purpose herein set forth.

5. The employment of the rack-bar O', in combination with the spring-catch or brace D, constructed and operating substantially as set forth.

6. The employment of the cam-wheel L and plate M, or their equivalents, constructed and operating substantially as set forth.

7. The use of the bar N, or its equivalent, for operating cylinder C and table E, as herein set forth.

8. The employment of the segment H, as constructed, when used in connection with the cock and the segment-pinion on the shaft D, arranged substantially as set forth.

9. The employment of the wiper 8, or its equivalent, and the plate 7, for the purpose specified.

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Witnesses:

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