

Magazine Fire-Arm.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. 52,934, dated February 27, 1866.

To all whom it may concern:

Be it known that I, JAMES D. SMITH, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Repeating Fire-Arms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, a top view; Fig. 3, a sectional side view; Fig. 4, a longitudinal section; Fig. 5, a section through the frame on line *x*, looking to the rear; Fig. 6, a section of the carrier-block on the same line; and in Fig. 7 a view of the under side, the frame opened for the insertion of the cartridge and the magazine.

My invention relates to an improvement in the repeating fire-arms patented by Horace Smith and Daniel B. Wesson the 14th of February, 1854, improved by B. T. Henry, patented October 16, 1860, in which several metallic cartridges are placed in a tube or magazine beneath the barrel of the arm, and carried therefrom to the barrel by the movement of the trigger-guard; and my invention consists in an improvement in the construction, whereby the cartridges may be placed in the magazine with greater facility and without other objections which exist to the tube or magazine as heretofore constructed.

Before proceeding to describe my improvement I will first describe the construction of the operative parts of the arm.

A is the barrel, of any known construction; B, the frame, to the forward end of which the barrel is secured, and to the rear end a wooden stock, C.

In the frame B, and directly in the rear of the barrel, is formed a chamber or mortise, D, in which is placed a carrier-block, E, the office of which is to receive a cartridge from the magazine and raise it for insertion in the barrel; also to throw the discharged shell from the arm after it has been withdrawn from the barrel. For this purpose the said carrier-block E is constructed with a chamber, E², (see Fig. 6,) to receive the cartridge from the magazine, and it is moved up within the chamber or mor-

tise D to present the cartridge to the barrel for insertion, and down when the cartridge has been removed from the carrier to the barrel, and is thus moved by means of the lever F, one end of which lies within the carrier-block E, the other hung to the pivot G.

H is a lever, serving both as a trigger-guard and as an instrument by which the several mechanical parts of the arm are made to operate. It is hung to the pivot G, upon which both the levers F and H may be freely moved.

By moving the lever H from the position denoted in Fig. 3 to that denoted in Fig. 4, a shoulder, *a*, formed upon the lever H strikes a corresponding shoulder, *b*, upon the lever F, raising the said lever and carrier-block E, as denoted in Fig. 4. By returning the said lever H the upper arm, I, of the lever H strikes another shoulder, *c*, on the said lever F, and returns the lever F, with the carrier-block E, to the position denoted in Fig. 3.

L, the breech-pin, is hollow, of cylindrical form, through which passes a piston, M. The rear end of the said pin L is formed, as seen in Figs. 2, 3, and 4, so as to attach upon either side to a pivot, *d*, a link, N, of a toggle-joint, as denoted in broken lines, Fig. 2. The other links, P, of the toggle are hinged to the frame by a pivot, *e*, and the two links hinged together at *f*.

The upper arm of the lever I extends up between the two toggle-joints, and through the said arm I a pin, *g*, passes, extending out upon either side, so as to enter a slot or groove, *h*, upon the inside of the links P, so that as the lever H is moved, as from the position in Fig. 3 to that in Fig. 4, the pin will act to close the toggle and draw back the breech-pin L, which moves freely back and forth in the frame B, as denoted in Fig. 4, and by the return of the lever H will extend the toggle and return the breech-pin L, as seen in Fig. 3.

The raising of the carrier-block E, as before described, occurs after the breech-pin has been drawn back, and the breech-pin is returned before the return of the carrier-block, passing through the chamber E² in the carrier-block, for the purpose, as more fully hereinafter shown, of removing the cartridge from the chamber E² in the carrier-block to the barrel. Therefore, in order to allow the carrier-block to re-

turn, it is necessary to cut a slot, E^3 , from the chamber E^2 up through the carrier-block, as seen in Fig. 6. This slot must be narrower than the chamber, in order to prevent the accidental removal of the cartridge in the said chamber, as also to cause the raising of the carrier-block to eject the discharged and withdrawn shell; and that this narrow slot may pass down over the breech-pin, which is nearly the same diameter as the chamber in the carrier-block, the breech-pin is reduced upon its two sides, as seen in Figs. 2 and 3.

On the lower side of the breech-pin L is formed a projecting lip, i , and upon the upper side a spring-latch, m . A cartridge, R , lying upon the carrier-block, as seen in Fig. 4, will, by the return of the breech-pin L , be forced into the rear of the barrel, the lip i entering a recess, n , below, and the latch m , rising and hooking over the flange of the cartridge, will enter a similar recess, r , above, as seen in Fig. 3, so that when the breech-pin is withdrawn the latch m will hold and withdraw the cartridge or discharged shell, as the case may be.

The piston M is enlarged to form a shoulder, as denoted at s , at the rear of the pin L ; thence extends back through the frame, and so as to slide freely therein to the hammer S , so that when the pin is drawn back, as before described, the said piston will force the hammer back to full-cock, as denoted in Fig. 4, and on being returned to the position denoted in Fig. 3 will leave the hammer held at full-cock by the trigger T , which, when released in the usual manner, will, by the reaction of the mainspring U , fly back to the position denoted in Fig. 3, striking the end of the piston M . To this inner end of the piston M is fixed a collar, t , having projecting points x upon either side (See Fig. 5.) The said collar t is of larger diameter than that part of the piston M to which it is attached, and the recess made in the breech-pin to receive the said collar is made a little deeper than the thickness of the collar, so as to allow the piston M , with the collar t , to move back, so that when the pin L is forced up against the cartridge, as before described, the projecting points x , as they press against the cartridge, will force the piston back, and thus situated, when the hammer strikes the piston M , as before described, the projecting points x will indent the metal of the cartridge sufficiently to explode the fulminate and ignite the powder within the cartridge.

A separate spring, z , for each of the levers F and H is secured upon the frame, the ends of which bear one upon the lever H , as seen in Fig. 3, to retain the lever in its home position, as in Figs. 1 and 3, the other upon the lever F , (see Fig. 4,) for the purpose more fully hereinafter described. The lever H is held in its position against the frame by means of a thumb-screw, W , or an equivalent therefor.

This completes the general construction of that part of the arm contained within the

frame as heretofore constructed. The space in the frame where the operative parts are placed is inclosed by a plate, S^3 , upon each side of the frame.

In the magazine as originally constructed, and as shown and described in the patent of Smith & Wesson before referred to, the magazine or tube was fixed to the barrel and a slot cut through the entire length of the tube, through which a pin or projection from the follower within the tube extended, by means of which the follower was drawn up to near the muzzle end of the said tube, where the follower, with the spring and the upper portion of the tube, were turned to one side, so as to allow the cartridges to be inserted within the tube; then the upper portion of the tube, with the follower and spring, were returned, so that the follower would again enter the tube and force the cartridges toward the rear or lower end of the tube into the carrier, in like manner as hereinbefore described.

In this construction a great objection has existed from the fact that the open slot upon the under side of the tube would admit more or less dirt, or other substances foreign and injurious to the proper workings of the follower and spring, within the magazine, and the necessary complication in the construction of the upper part of the magazine and barrel renders them very liable to get out of repair.

I will now proceed to describe my improvements, for which I seek Letters Patent.

Beneath the barrel I fix a thin metal tube, A' , its rear end entering the frame, so that when the carrier-block E is down, as in the position seen in Fig. 3, it will open directly into the chamber E^2 in the carrier-block. I secure the tube to the barrel by means of bands B' B' , and, if advisable, incase the lower portion of the tube with a wood stock, C' , as seen in Fig. 1.

For general uses I prefer to thus incase the tube; but it is not a necessity.

Within the tube I place a follower, G' , and close the upper end of the tube by a plug, D^1 , and between the follower and the plug I place a helical spring, as denoted in red, the tendency of which is to force the follower toward the lower or rear end of the tube.

Upon the under side of the frame, and so as to close the mortise D , I hinge a cover, D^2 , arranged with a spring-catch, d' , to lock into a notch, c' , in the frame, as seen in Figs. 3 and 4.

To place the cartridges in the tube or magazine A' , turn the arm upside down, open the cover D^2 , as seen in Figs. 7 and 4, move the carrier-block to the position also seen in Fig. 4, which movement opens the tube A' , so that the cartridges may be inserted, as seen in said Fig. 4.

To afford free access to the tube, I cut away a portion of the carrier-block, as seen in Figs. 3, 4, 7, yet retaining so much of the carrier-block as will form a stop to retain the cartridges after they have been placed within the

tube, the rear end of the cartridge falling down in front of the carrier-block, as denoted in red, Fig. 4; and thus one cartridge after another is inserted into the tube, forcing the follower D^1 up and compressing the spring until the requisite number have been placed therein; then close the cover, as seen in Fig. 3, and return the carrier-block to the position also seen in Fig. 3. The reaction of the spring within the tube will force the last-inserted cartridge R into the chamber E^2 in the carrier-block, as seen in Fig. 3, from which position it will be carried up to the position in Fig. 4, and inserted into the barrel, and the block returned to receive the second cartridge, as before described.

When the first cartridge has been discharged, as in Fig. 3, withdraw the shell, as before described. The latch m upon the breech-pin will hold the discharged shell until the carrier is nearly up to its full height, when the spring z will fall into a notch, a' , on the lever F , giv-

ing a sudden movement to the carrier, which will eject the discharged shell entirely from the arm, as denoted in Fig. 4; and thus the operation of firing may be continued until all the cartridges within the magazine have been each in their turn discharged.

By this arrangement the objections existing in the arm as originally constructed and before mentioned are entirely overcome.

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

The combination of the fixed magazine A' , mortise D , and carrier-block E , constructed and arranged so as to charge the magazine through the frame and beneath the carrier-block, substantially as and for the purpose specified.

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Witnesses:

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