



# UNITED STATES PATENT OFFICE.

FORDYCE BEALS, OF NEW HAVEN, CONNECTICUT.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 43,284, dated June 23, 1864.

*To all whom it may concern:*

Be it known that I, FORDYCE BEALS, of New Haven, in the county of New Haven and State of Connecticut, have invented new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, when taken in connection with the accompanying drawings and the letters of reference marked thereon, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, a longitudinal section; Fig. 3, a transverse section cutting through 1 2 to illustrate the construction of the frame; Fig. 4, a transverse section through 3 4; and Fig. 5 a top view to illustrate the manner of holding the cartridge; Fig. 6, a transverse section through 5 6 to illustrate the operative mechanism for throwing out the discharged shell, and in Figs. 7 and 8 a different arrangement on the recoil-plate for holding the cartridge.

Similar letters in the several figures indicate like parts.

The difficulty of inserting metallic cartridges into the barrel of fire-arms, and a still greater difficulty in withdrawing the shell after discharge, when no automatic contrivance is attached to the arm for the purpose, and also the liability of such automatic apparatus failing to perform its duty, has suggested the improvements for which I now ask security by Letters Patent.

To enable others skilled in the art to construct and use my improved fire-arm, I will proceed to fully describe the same.

My fire-arm is designed to use the common metallic cartridge, which consists of a metallic case containing the powder, with a bullet attached to one end of the case, and a rim or flange at the opposite end (the rear) for containing the detonating material.

A is a metallic frame, with tangs B C for the purpose of securing the frame to a wood stock.

D is the hammer, set in a mortise or slot in the frame, (see Fig. 5,) and hung upon a pivot, E, which passes through the frame from side to side. Force for the blow is given to the hammer by a mainspring, F, fixed to one of the tangs B or C, (represented as on C.)

G is a trigger and sear combined. It is hung in the frame A on a pivot, *a*. A spring, *c*, operates to hold the trigger forward and the sear against and into the notches of the hammer at half and full cock. Forward of the hammer the frame A is divided into two parts, as seen in Fig. 3, leaving a space or slot between the two parts A' A<sup>2</sup>, Fig. 3. The upper edge of the said two parts is beveled to receive the barrel I, which is made octagonal from the breech—say one-half its length. The said barrel is bored and rifled in the ordinary manner.

Upon the under side of the barrel, and extending down and fitting between the two parts of the frame A' and A<sup>2</sup>, is a guide, K. In the said guide K, I form two slots, *b'* and *d'*, and I insert screws *b* and *d* through the frame and slot, the body of the screws fitting the slots. This arrangement allows the barrel to be moved forward and back, sliding on the frame. By turning the screws *b* and *d* in will draw the two sides A' and A<sup>2</sup> more closely against the guide K and hold the barrel tighter; or by loosening the said screws the pressure upon the guide K will be relieved, and then the barrel may be adjusted to slide more or less free at pleasure.

L is a lever hung in the frame A upon a pivot, *e*, and is curved to form a trigger-guard, and also to form a finger-hold, L'. When drawn up to the lower tang, C, of the frame, as in Fig. 1, a spring-latch, *f*, Fig. 1, catches into a notch in the said tang to hold the lever in its proper position for discharging the arm. The said lever L is connected to the barrel by a rod, M, jointed to both, as seen in Fig. 2, *m m*. By lowering the lever L from the position in Fig. 1 (the same position shown in red, Fig. 2) to the position denoted in black, Fig. 2, the barrel will be slid forward on the frame A, guided by the screws *b* and *d* in the slots *b'* and *d'*. By returning the said lever to the position in Fig. 1 and in red, Fig. 2, the barrel will be returned and held firmly against the recoil-plate N. On the said recoil-plate I fix three stationary hooks, *i i i*. The lower one may simply be a pin projecting from the recoil-plate (See Figs. 2, 4, and 5.) The hooks all turn inward to the center, as shown. I make recesses in the rear of the barrel to receive the said hooks. These said hooks are

to receive and hold the metallic cartridge, the hooks being made, as shown, so as to receive the rim of an ordinary metallic cartridge, as shown in Figs. 2, 4, and 5.

O is a hook attached to the lever L, and extends back to the hammer. As the lever L is drawn down, it takes with it the said hook O forward from the position in red to the position in black, Fig. 2. In this movement the hook catches upon a pin, o, (or may be a notch in the hammer,) to half-cock, for the purpose hereinafter shown.

P is a lever for throwing out the shell of an exploded cartridge, (or an unexploded cartridge, if it is necessary to draw the charge unexploded.) It is hung upon a pivot, r.

One arm, P, is operated by the lever L in the following manner: On the side of the said lever L, I form a stud, s. (See Figs. 6 and 2.) As the lever L is drawn down from the position in red to that in black, Fig. 2, the said stud s strikes the lever P, and draws it down also from its position in red to that in black, Fig. 2. In this movement of the lever P its other end, P', which is made a spring, presses against the cartridge-shell, as in black, for the purpose hereinafter shown. A spring, t, serves to return the lever P to the position in red after it has performed its duty. The barrel of the arm being moved forward and the hammer at half-cock, as in Fig. 2, in black, set a charged metallic cartridge, T, against the recoil-plate N, the rim or flange within the hooks *iii*. This will hold the cartridge axially with the barrel and opposite the bore. Draw the lever L up to the position denoted in red. The cartridge will enter the bore of the barrel, and the barrel will be drawn back against the recoil-plate, a recess being made in the rear end of the barrel, so that the barrel may set over the rim of the cartridge. Set the hammer at full-cock, release it in the ordinary manner by pulling the trigger, and the cartridge will be discharged by the blow given it by the fall of the hammer. The hammer, still resting on the discharged shell, holds it (the shell) firmly where it was placed. Release the lever L by pressing back the latch *f*. Lower the said lever L, in which operation the barrel is moved forward from and leaves the shell in the hooks, where it was set. In the same operation the lever P is forced down, as before fully shown, its spring end P' pressing against the shell, as shown in solid black lines. Move the lever L a little farther down, to the position denoted in black, in which movement the hook O draws the hammer back to half-cock. As soon as the hammer is moved from the shell, the spring-lever P will spring up, as denoted in broken black lines, and throw

the shell from the hooks. Move the lever still farther on, to the position denoted in blue. The lever P will be released from the operation of the notch or stud s on the lever L, as shown, and, by the action of the spring t, will fly back to the position denoted in red. Now, insert a second cartridge, as before, draw the lever back to the position denoted in red, and the arm is ready for a second discharge. It is necessary in returning the lever L that the stud s on the said lever L should pass the lever P, in order to draw it (the lever P) down, as before. I do this as shown in Fig. 6. That part of the lever P between the fulcrum and its forward end is made thin, so as to spring sidewise, and the stud s upon the lever L is made inclined, so that as the lever L is moved upward the inclined stud s forces the lever P to one side until the said stud passes the said lever P. Then the lever P springs back under the stud, so as to be moved down by the stud when the lever L is again lowered.

I have described the means of holding the cartridge or shell at the recoil-plate as by three hooks, *iii*, or two hooks—one upon each side—and a pin at the bottom. A groove may, however, be formed on the recoil-plate, (see Figs. 7 and 8,) into which the flange or rim of the cartridge will set and hold as well as the hooks described; but I prefer the hooks, as they are made with less difficulty, and are consequently cheaper, also are not as liable to become choked or clogged as the groove by rust or from other causes.

I do not broadly claim sliding the barrel forward from the recoil-plate, as such is not new. Neither do I claim opening the breech for loading by means of a lever underneath the frame, which said lever also forms the trigger-guard, as such is not new. Neither do I broadly claim automatically removing a discharged cartridge-shell or an unexploded cartridge, as the devices for this purpose are numerous.

I do not claim holding or attaching the cartridge to the recoil-plate for the purpose of loading or withdrawing, as such is not new. Neither do I claim automatically half-cocking the hammer, as such is not new; but

What I do no claim as new and useful, and desire to secure by Letters Patent, is—

1. The combination and arrangement described of the lever L and spring-lever P, for the purpose specified.

2. The combination and arrangement described of the lever L, hook O, and hammer, for the purpose specified.

FORDYCE BEALS.

Witnesses:

JOHN E. EARLE,  
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