

W. G. Weards

Improvements in

Breech Loading Fire Arms.

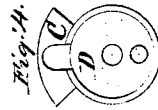
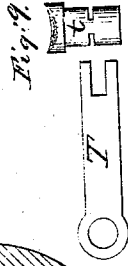


Fig. 3.

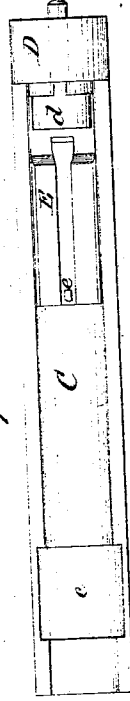
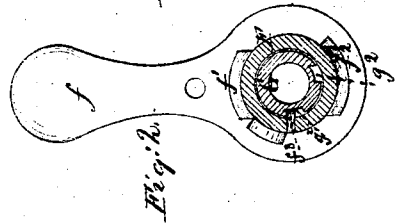


Fig. 5.



Fig. 7.



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By J C Shepley

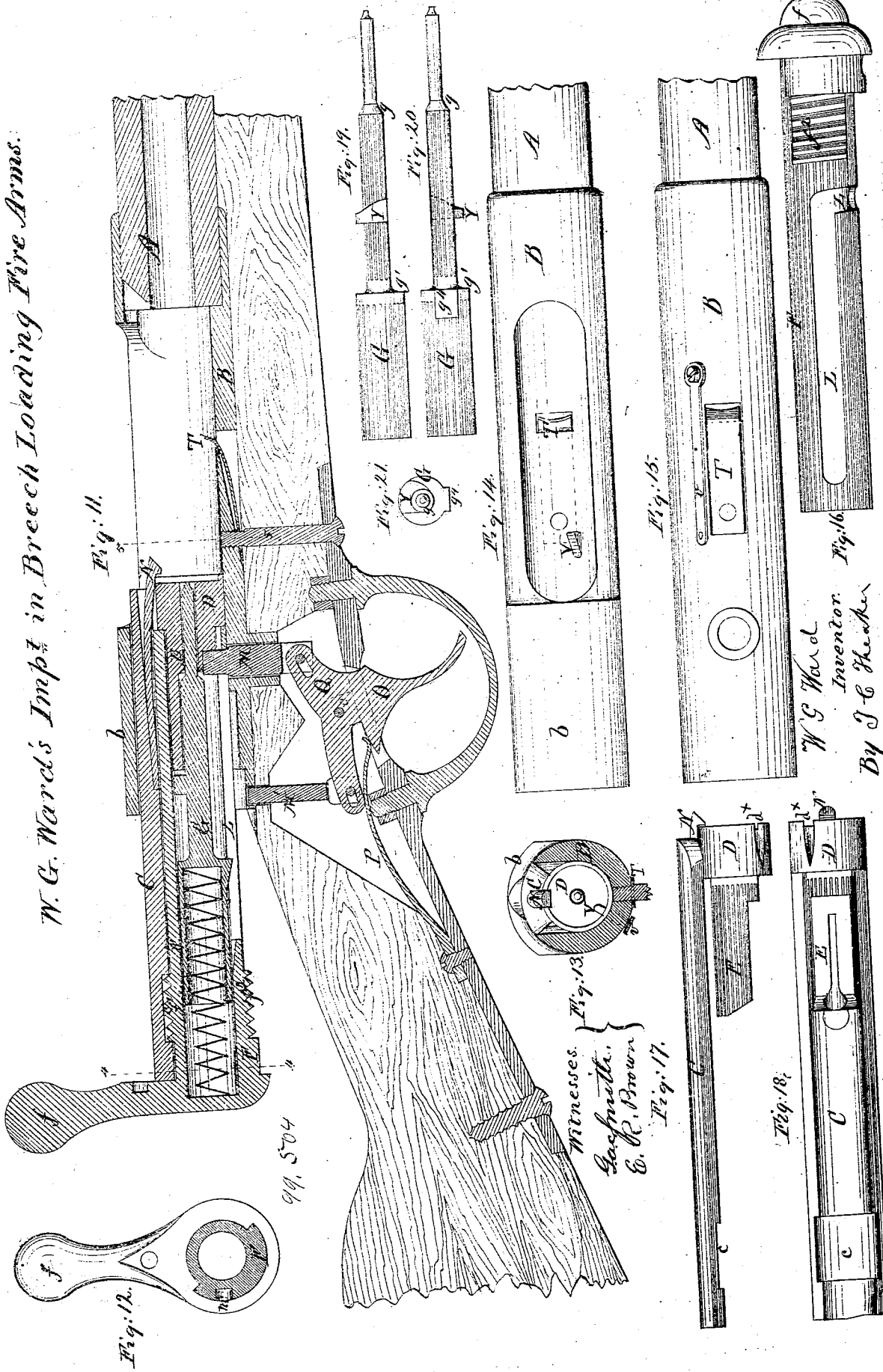
his attorney.

Witnesses.

Geo. Smith.

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WILLIAM G. WARD, OF EDGEWATER, NEW YORK.

Letters Patent No. 99,504, dated February 1, 1870.

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 G. WARD, of the village of Edgewater, in the county of Richmond, and State of New York, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, sufficient to enable those skilled in the art to which my invention appertains, to make and use the same.

This invention relates to certain improvements on those for which Letters Patent were granted to Bethel Burton, on the 11th day of August, 1868, (reissued November 2, 1869,) and the 29th day of June, 1869, and to myself, on the 29th day of June, 1869, and the 31st day of August, 1869; and

It consists in—

First, withdrawing the hammer and firing-pin from contact with the cartridge, during the opening and closing of the breech, by means of a cam-groove on the rear part of the hammer, operated by a stud or projection on the inside of the breech-pin, the hammer and firing-pin being prevented from rotating by means of a groove on the spindle, engaging with a stud or projection on the inside of the steady-pin.

Second, withdrawing the hammer and firing-pin from contact with the cartridge during the opening and closing of the breech, by means of a cam on the spindle, operating on an inclined surface on the inner end of the steady-pin, the hammer being guided by a projection fitting in the longitudinal slot in the breech-pin, and caused to rotate with the breech-pin.

Third, ejecting the cartridge-shell, by means of a pin working in an opening in the recoil-block, below the firing-pin, and operated by coming in contact with the trigger-bolt, or other projection in the breech-piece, when the breech-pin is drawn back.

Fourth, centring the cartridge, by means of a spring and plug, in the bottom of the breech-piece.

Fifth, preventing the withdrawal of the trigger-bolt, by means of a double-armed trigger, with a safety-bolt attached to the rear end.

In the accompanying drawings, in sheet 1—

Figure 1 is a longitudinal vertical section of one form of my invention.

Figure 2 is a transverse section, taken in the line 1 1, fig. 1.

Figure 3 is a bottom view of the slide or cover, recoil-block, and steady-pin, showing the stud or projection on the inside of the steady-pin, and the pin for ejecting the cartridge-shell.

Figure 4 is a view of the front end of the slide or cover, and recoil block.

Figure 5 is a top view of the hammer and firing-pin.

Figure 6 is a transverse section, taken in the line 2 2, fig. 5.

Figure 7 is a bottom view of the hammer and firing-pin.

Figure 8 is a transverse section, taken in the line 3 3, fig. 7.

Figure 9 is a view of the spring and plug, for centring the cartridge.

Figure 10 is a view of the pin, for ejecting the cartridge-shell.

In sheet 2—

Figure 11 is a longitudinal vertical section of another form of my invention.

Figure 12 is a transverse section, taken in the line 4 4, fig. 11.

Figure 13 is a transverse section, taken in the line 5 5, fig. 11.

Figure 14 is a top view of the breech-pin or receiver.

Figure 15 is a bottom view of the same.

Figure 16 is a bottom view of the breech-pin.

Figure 17 is a side elevation of the slide or cover, recoil-block, and steady-pin.

Figure 18 is a bottom view of the same.

Figures 19 and 20 are views of opposite sides of the firing-pin.

Figure 21 is a front view of the same.

On the rear part of the hammer G is a cam-groove, g^2 , running forward longitudinally for nearly the entire length of the large portion; then turning at a right angle, and running transversely for about one-third of the circumference; then turning again at a right angle, and running backward longitudinally for about two-thirds of the length of said large portion; then turning at an obtuse angle, and terminating in the longest longitudinal portion. (See figs. 2, 7, and 8.)

On the inside of the breech-pin F, is a stud or projection, f^2 , (see fig. 2,) which engages with the cam-groove g^2 .

On the inside of the steady-pin E, is a stud or projection, e , which engages with a longitudinal groove, g^1 , on the spindle.

The hammer and firing-pin G is inserted in place in the steady-pin E, when the stud e engages with the groove g^1 , and prevents any rotation of the firing-pin.

The spiral spring H is then placed in position, and the rear end of the hammer inserted in the breech-pin, when the stud f^2 engages with the rear end of the longitudinal portion of the groove g^2 .

As the lever f is turned to the left, to couple the breech-pin and the slide or cover C, the stud f^2 engages with the inclined or obtuse-angled portion of the groove g^2 , and draws back the hammer G, by which means the front end of the firing-pin is prevented from protruding beyond the front of the recoil-block D.

As the breech-pin is moved forward, to force home the cartridge and close the breech, the trigger-bolt M catches the shoulder g^1 , compressing the spring H, and

holding back the hammer and firing-pin G, in the same manner as in my former patents, and those of Burton, hereinbefore referred to, the stud f^3 working in the shortest longitudinal portion of the groove g^2 until it reaches the transverse portion of said groove, when the lever f is turned down to the right to lock the breech-pin, which motion brings the stud f^3 opposite the longest longitudinal portion of the groove g^2 , so that when the trigger-bolt is drawn down, and the hammer and firing-pin released, it is free to move forward and explode the cartridge. If it is desired to withdraw the cartridge without exploding it, the reverse motion of that above described will withdraw the firing-pin, and prevent it from coming in contact with the cartridge.

Another mode of withdrawing the firing-pin is shown in sheet 2 of the drawings. On the under side of the large portion of the hammer G, is a projection, g^4 , which slides in the longitudinal slot L of the breech-pin F, and causes the hammer and firing-pin to rotate with the breech-pin.

About midway of the spindle, on the side opposite the projection g^4 , is a cam, Y. The rear end of the steady-pin E is bevelled or inclined at an angle opposite to that of the cam Y. As the lever f is turned to the left, to couple the breech-pin and the slide or cover, the cam Y comes in contact with the bevelled rear end of the steady-pin E, and by the pressure of the spring H, the firing-pin is drawn back and prevented from protruding beyond the front of the recoil-block.

As the breech-pin is moved forward, closing the breech, the hammer and firing-pin is held back by the trigger-bolt, as before described, and when the trigger-bolt is withdrawn, the firing-pin is released and allowed to move forward and explode the cartridge.

If it is desired to withdraw the cartridge without exploding it, the reverse motion of the lever and breech-pin will again withdraw the firing-pin, and prevent it from coming in contact with the cartridge.

For ejecting the cartridge-shell from the breech-piece or receiver, instead of using the firing-pin, as in the patents hereinbefore referred to, I employ the device shown in sheet 1, figs. 1, 3, and 10, in which d represents a pin, the shank of which works freely in a hole in the recoil-block D, below the centre.

The head of this pin is semi-cylindrical in shape, and when in place forms a continuation of the periphery of the steady-pin E, and by working between two shoulders, prevents displacement of the pin. As the breech-pin is moved forward to force home the cartridge and close the breech, the pin d is pushed back, so as not to protrude beyond the recoil-block. As the breech-pin is drawn back, the extractor-hook N withdrawing the shell, the trigger-bolt, or other suitable projection on the bottom of the breech-piece, forces the pin d forward, the front end striking the head of the shell, below the centre, tilting it up, and ejecting it from the chamber of the breech-piece or receiver.

Another mode of ejecting the shell is shown in sheet 2, figs. 13, 14, 15, 17, and 18.

To the under side of the breech-piece B is attached one end of a flat spring, e , on the free end of which is a stud, V, which projects up through a hole in the bottom of the breech-piece. The stud V is triangular in shape; the bottom and the front edge form a right angle, and the rear edge is inclined.

On the under side of the recoil-block D is an inclined groove, d^4 . (See figs. 17 and 18.) As the breech-pin is moved forward, the inclined groove d^4 passes over the stud V, pressing it down, and allowing the breech-pin to move freely.

When the breech-pin is drawn back, the extractor-hook N withdrawing the shell, as soon as the front

of the recoil-block D clears the stud V, the spring e forces the stud V up through the hole in the bottom of the breech-piece, the front edge striking the head of the shell below the centre, tilting it up, and ejecting it from the chamber of the breech-piece or receiver.

A device for centring or guiding the cartridge when placed in the breech-piece or receiver, is shown in sheet 2, figs. 11, 13, 14, and 15, consisting of a flat spring, T, one end of which is attached to the under side of the breech-piece, and the other end is curved upward and passes through an opening in the bottom of the breech-piece. When a cartridge is placed in the breech-piece, the upper end of the spring T raises it, so as to guide the front end into the barrel.

I am aware that this form is not new, and therefore I do not claim broadly a spring-centring device.

I am also aware that when made in this form, the opening in the bottom of the breech-piece is necessarily larger than the portion of the spring which passes through it, rendering the parts liable to be clogged by dirt, gas, and smoke. Therefore I prefer to use the centring-device shown in sheet 1, figs. 1 and 9, in which the free end of the spring T lies straight along the under side of the breech-piece, and is forked so as to receive the lower part of a valve or plug, t , working in an orifice in the bottom of the breech-piece, and operating upon the cartridge in the same manner as the device shown in sheet 2, before referred to. The plug t is depressed when the breech-pin is moved forward, and is forced upward by the spring T, when the breech-pin is drawn back.

The plug t is formed with a head corresponding with a shoulder in the orifice, in the bottom of the breech-piece, and the entire plug fits the orifice, so as to form a tight joint. It also acts as a valve, as any escape of gas and smoke into the breech-piece will have a tendency to force the plug downward, until the head rests against the shoulder in the orifice, in the bottom of the breech-piece, and thus effectually close the orifice, and prevent the possibility of clogging by gas and smoke.

In sheet 2 of the drawings, the L-shaped slot in the breech-pin is represented as formed without the longitudinal rib, and the lip or cam described in my former patents, and those of Burton aforesaid; and the trigger-bolt M is formed without the hooks on the upper end.

The trigger O is formed with a double arm, Q, to the rear end of which is pivoted a bolt, M, which extends vertically upward.

A portion of the collar at the rear end of the breech-pin is cut away, leaving a projecting portion equal to about one-half the circumference, as shown in fig. 12.

This projecting portion serves in lieu of the "stops," shown and described in my patent of August 31, 1869, aforesaid.

Near the upper end of the projecting portion is a hole, m' , large enough to admit the end of the bolt M.

When the lever f is turned down to the right, to lock the piece, the upper end of the bolt M bears against the projecting portion of the collar, and is prevented from rising until the piece is securely locked, when it is free to enter the hole m' , and allow the trigger-bolt M to be withdrawn.

Having thus described my invention;

What I claim as new, and desire to secure by Letters Patent, is—

1. The hammer and firing-pin G, provided with the groove g^3 , and cam-groove g^4 , in combination with the steady-pin E, and breech-pin F, provided respectively with the studs e and f^3 , when constructed and operating as shown and described.

2. The hammer and firing-pin G, provided with the projection g^4 , and cam Y, in combination with

the breech-pin F, provided with the slot L, and the steady-pin E, formed with the inclined rear end, when constructed and operating as shown and described.

3. The pin or bolt d, working in an opening in the recoil-block, and operated by the trigger-bolt or other projection in the breech-pin, for ejecting the cartridge-shell, substantially as shown and described.

4. The spring-plug t, in combination with the breech-piece B, as described, so that said plug serves the

purpose of centring the cartridge, and acts as a valve to prevent the passage of dirt, or gas and smoke, as set forth.

5. The double-armed trigger, provided with the safety-bolt M, substantially as shown and described.
W. G. WARD.

Witnesses:

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H. H. WARD.