

(No Model.)

2 Sheets—Sheet 1.

J. D. GREENE.
MAGAZINE FIRE ARM.

No. 312,201.

Patented Feb. 10, 1885.

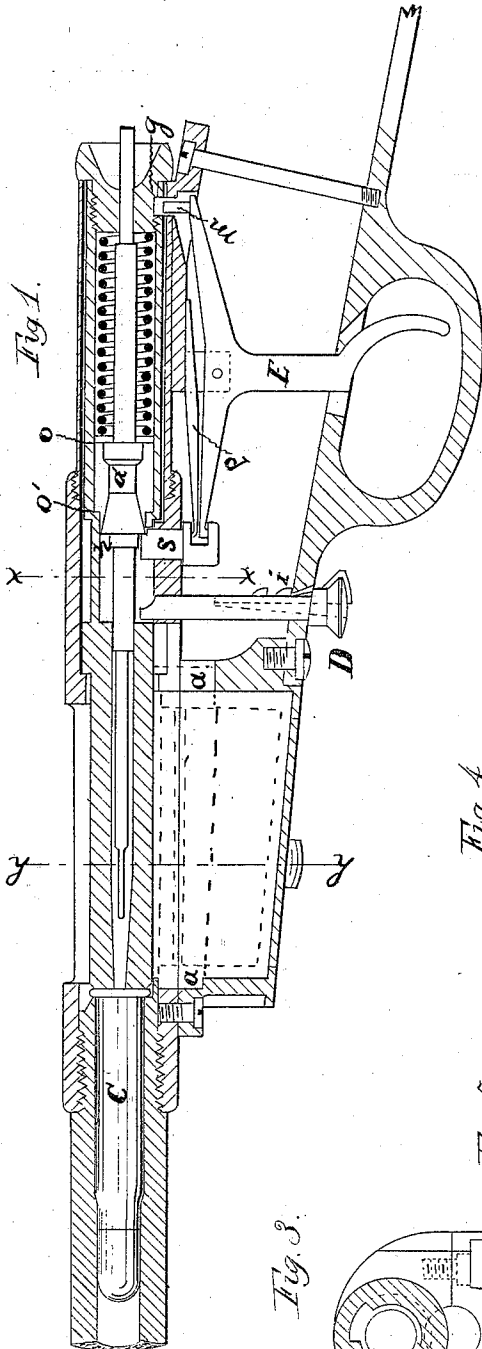


Fig. 4.

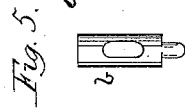
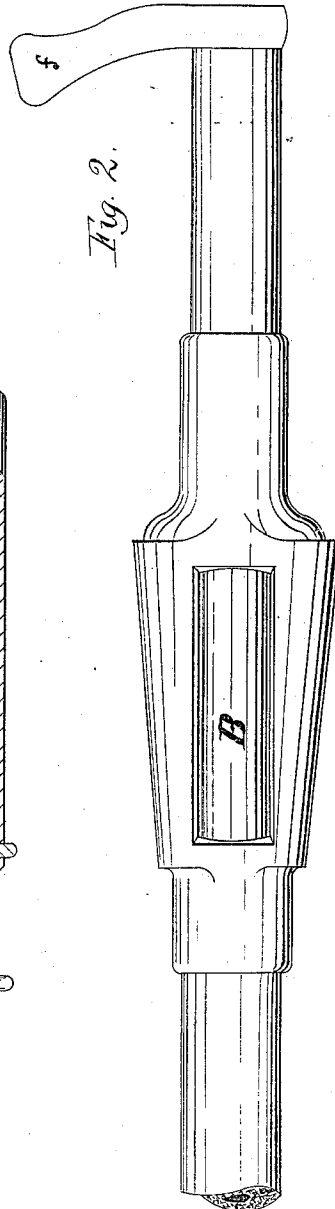
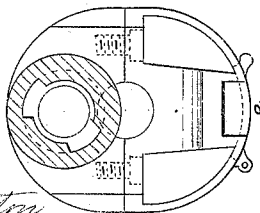


Fig. 3.



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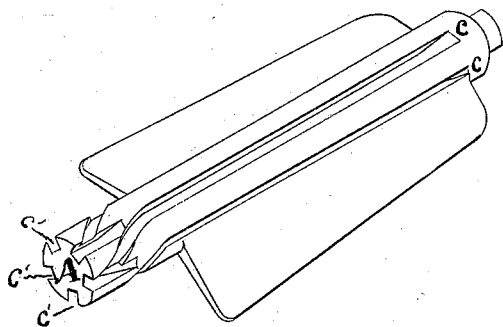


Fig. 6.

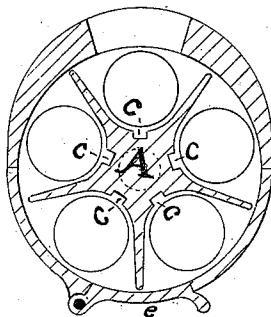


Fig. 7.

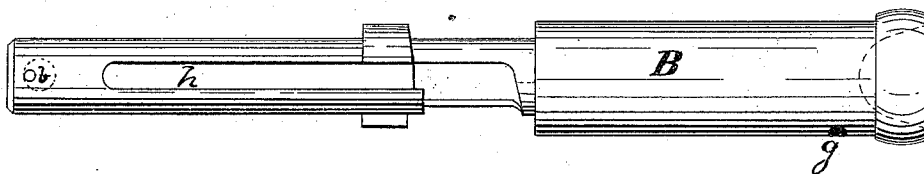


Fig. 8.

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UNITED STATES PATENT OFFICE.

JAMES DURELL GREENE, OF ANN ARBOR, MICHIGAN, ASSIGNOR OF ONE-
FOURTH TO VICTOR A. KING, OF NEW HAVEN, CONNECTICUT.

MAGAZINE FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 312,201, dated February 10, 1885.

Application filed October 8, 1884. (No model.) Patented in England June 18, 1875, No. 2,241.

To all whom it may concern:

Be it known that I, JAMES DURELL GREENE, a citizen of the United States, residing at Ann Arbor, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Breech-Loading Fire-Arms, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in the operating mechanism in breech-loading fire-arms, Letters Patent having been granted to me for the same in Great Britain June 18, A. D. 1875, No. 2,241, and is an improvement of the invention for which Letters Patent were granted to me in the United States March 23, A. D. 1869, No. 88,161, also in Great Britain, A. D. 1874, No. 785.

The design of this invention is to increase the efficiency and render more certain the operation of the mechanism in this particular style of breech-loading fire-arms; and to this end it consists in the application of a "bolt-gun," and especially to the gun for which Letters Patent were granted to me in the United States March 23, A. D. 1869, No. 88,161, and Great Britain A. D. 1874, No. 785, of an internal rotary cartridge holder or pannier, which is operated by the reciprocating action of the "bolt," and is more fully described hereinafter.

It consists, further, in the means by which the cartridge holder or pannier is retained in a stationary position whenever it is desired to use the gun as a single breech-loader.

It consists, further, in a trigger of peculiar form and arrangement, which is fully set forth hereinafter, whereby the fire-arm cannot be discharged until all of the parts of the operating mechanism are in their proper position for firing the discharge.

It consists, further, in the construction, arrangement, and combination of the parts, substantially as and for the purpose as set forth and described hereinafter.

In the accompanying drawings, Figure 1 is a view of a longitudinal section of the breech-piece, bolt, and firing-spring, the firing-pin, sear, and trigger in full view, armed ready for a discharge of the gun, also giving a full view

of the stop-pin, which regulates the throw of the bolt, the cartridge holder or pannier being shown in part by dotted lines. Fig. 2 is a top view of breech-piece, with the bolt inserted in firing position, showing the opening in the top of the breech-piece. Fig. 3 is a view of a cross-section of the breech-piece on line *x x*, Fig. 1, also a view of rear end of lower projection of breech-piece forming the magazine. Fig. 4 is a view of a longitudinal section of a detached portion of the bolt. Fig. 5 is a detached part, fully explained hereinafter. Fig. 6 is a perspective view of the cartridge holder or pannier, in which it is represented as having two blades or divisional wings. Fig. 7 represents a transverse section of breech-piece and cartridge holder or pannier on line *y y*, Fig. 1. Said sectional view shows a modification of the pannier, having divisional blades between each cartridge. Fig. 8 is a detached view of the bolt.

Letters of like kind and name refer to like parts in each of the figures.

The cartridge holder or pannier A, as shown in perspective view, Fig. 6, transverse section, Fig. 7, is constructed with radial blades or divisional wings, dividing it from its central axis to the circumference into the required divisions for the cartridges, and of the length required. Its outer lines on the circumference form a slight cone, corresponding with the interior of the breech-piece or receiver. Its axle projects at each end and rests in bearings in the breech-piece, as at *a a*, Fig. 1. The central axis of the pannier is provided with a series of longitudinal grooves, *c*, corresponding with the number of cartridges required, each groove having a helical terminus at the rear end. It is provided with another corresponding series of short grooves, *c'*, the bottoms of which present an incline plane, ascending as they approach the long groove *c*. (Shown in Fig. 6.) The bolt B is provided with an operating-handle, *f*, also a pin, *b*. Said pin *b* is made of two diameters of cylinders, with eccentric axes, so that when placed in position, as shown in Figs. 4 and 8, it cannot rotate. As the point of the firing-pin must pass through the pin *b*, and said pin *b* is required to move in a vertical plane, it is slot-

ted, as shown in a detached front view, Fig. 5. The spring *d* performs the double function of pressing the pin *b* down upon its seat, also as an extractor to withdraw the cartridge-shell C from the barrel of the gun. The pannier A is mounted in the magazine in the breech-piece so that the cartridge on the uppermost side will be in a line with the bore of the gun and the reciprocating action of the bolt.

To charge the magazine, withdraw the stop-pin D, which has a ratchet-blade, *i*, to hold it in the desired position, then by drawing the bolt B back its full limit the pin *b* is disengaged from the cartridge holder or pannier, permitting a free rotation of the pannier in the magazine.

The cartridges may be inserted through the opening in the top of the breech-piece, also through the opening at the bottom, which is covered with the spring-cover *e*, Figs. 3 and 7.

The magazine having been filled as represented in Fig. 7 by small circles, the operation and functions of the several parts which constitute my invention, when being manipulated in repeated discharges of the gun, are as follows, viz: Rotating the bolt B until the operating-handle *f* is brought into a vertical position, (when the gun is held in proper position for firing,) then it is moved forward, by which movement the cartridge C is carried into the barrel of the gun. Before the bolt B has wholly entered the cartridge C into the barrel the sear *s* (projecting upward through the breech-piece and bolt) engages with the shoulder *n* on the firing-pin, arresting any further movement of the firing-pin. The continued forward movement of the bolt B enters the cartridge C into the barrel. It also compresses the helical firing-spring, surrounding the firing-pin within the bolt B, as shown in Fig. 1. The cartridge C now being seated in the barrel, the operating-handle *f* is rotated to the right, thereby securely locking said bolt B to receive the recoil of the discharge, also bringing the recess *g* in the bolt B over the projection *m* of the trigger-lever E, as shown in Figs. 1 and 8. Pressing upon the trigger-lever E with the finger moves the projection *m* upward into the recess *g* at the same time the other end of the tilting lever E (seated in the sear *s*) is depressed, moving the sear *s* down, thereby releasing the firing-pin, which is now impelled forward by the expansive force of the compressed firing-spring. The expansion of this spring is arrested by the washer *o* impinging upon the shoulder *o'*, the firing-pin making the impact by the momentum received from the expanding firing-spring. By this arrangement of the firing pin and spring the firing-pin is (immediately after the impact with the cartridge and the removal of the finger from the trigger-lever E) drawn back into the bolt B, so that the percussion-point is protected from injury and premature contact with the cartridge C by the sear *s*, which is pressed upward by the sear-spring *p* impinging upon the beveled

edge of the enlargement of the firing-pin, as at *a'*, Fig. 1. Rotating the operating-handle *f* into a vertical position after the discharge and drawing it backward the extractor-catch of the spring *d* removes the shell from the barrel. When the bolt B is moved backward, the pin *b* travels in the longitudinal groove *c* in the central axis of the pannier A until it reaches the helical terminus of groove *c*, whereby the pannier is rotated sufficiently to bring the next cartridge into alignment with the bolt B and barrel of the gun. In the forward movement of the bolt B the rotating pin *b* enters the short straight groove *c'* at the rear end of pannier-axle, the extractor-spring *d* yielding to the upward pressure of the pin *b* as it ascends the inclined bed of groove *c'*, allowing the rotating pin *b* to pass over into the next long groove *c*. This operation is repeated until the magazine is exhausted.

Should it be desired to use the arm as a single loader, by pressing the stop-pin D upward when the bolt B is forward the end of said stop-pin D operates in the longitudinal groove *h* in bolt B (shown in Fig. 8) to arrest the backward movement of the bolt B at a point when the rotating pin *b* arrives at the helical terminus of the groove *c* in the pannier A, thereby avoiding the rotation of the pannier A, when the cartridge may be placed into the gun through the opening in the top of the breech-piece.

Having described my invention sufficiently to enable those skilled in the art to make and use the same, what I claim as new, and desire to secure by Letters Patent, is—

1. In a breech-loading gun, the rotary cartridge holder or pannier A, consisting of a series of blades radiating from a central shaft, said central shaft being provided with a series of longitudinal grooves, *c*, each of the grooves *c* having a helical termination at the rear end of the axle, as shown, the pannier-axle also provided with a corresponding series of short graduated grooves, *c'*, the grooves *c* and *c'* operating in conjunction with the bolt B to rotate the pannier A by means of the lug or pin *b* upon the bolt B, substantially as and for the purpose described.

2. In a breech-loading gun, the combination of the rotary cartridge holder or pannier A, provided with the longitudinal grooves *c* and graduated grooves *c'*, as shown, and the lug or pin *b*, arranged in the reciprocating bolt B, so as to permit the firing-pin to pass through the same, as shown, and not impede the movement of the pin *b* when passing through the graduated grooves *c'* into the next groove *c* when the bolt B is being moved forward, substantially as and for the purpose described.

3. The combination, in a breech-loading gun, of the rotary cartridge holder or pannier A, provided with the grooves *c* and *c'*, as described, with a reciprocating bolt, B, having a longitudinal groove, *h*, and the adjustable stop-pin D, said stop-pin being arranged so

that one end may be entered into the groove *h* in the bolt B to arrest the backward movement of said bolt B before the pin *b* shall enter the helical termination of the groove *c* to prevent the rotation of the pannier A, substantially as and for the purpose described.

4. In a breech-loading gun, in combination with the firing-pin and sear *s*, the reciprocating bolt B, provided with a recess, *g*, and the herein-described trigger-lever E, said trigger-lever E having one arm projecting forward and engaging with the sear *s*, and another

arm projecting to the rear of the fulcrum upon which the trigger-lever operates, the rear arm having a lug, *m*, arranged to enter the recess *g* when the bolt B is in the proper position for a discharge of the gun, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

J. DURELL GREENE.

Witnesses:

ANNA D. GREENE,
CHAS. E. GREENE.