A. GRILLET.

Breech-Loading Fire-Arm.

No. 45,152. Patented Nov. 22. 1864.

Fig: 5

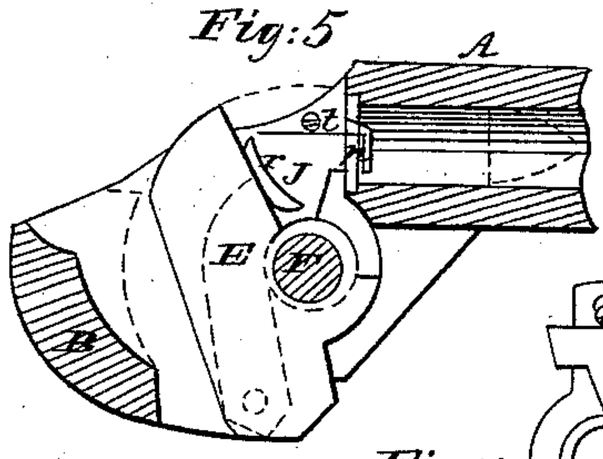


Fig: 6

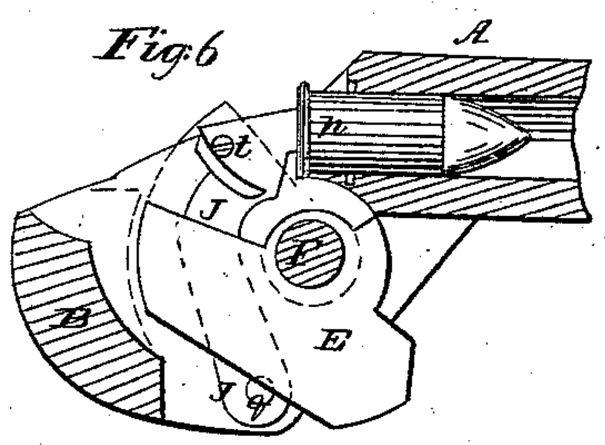


Fig: 7.

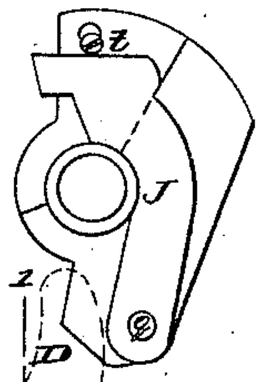


Fig: 1.

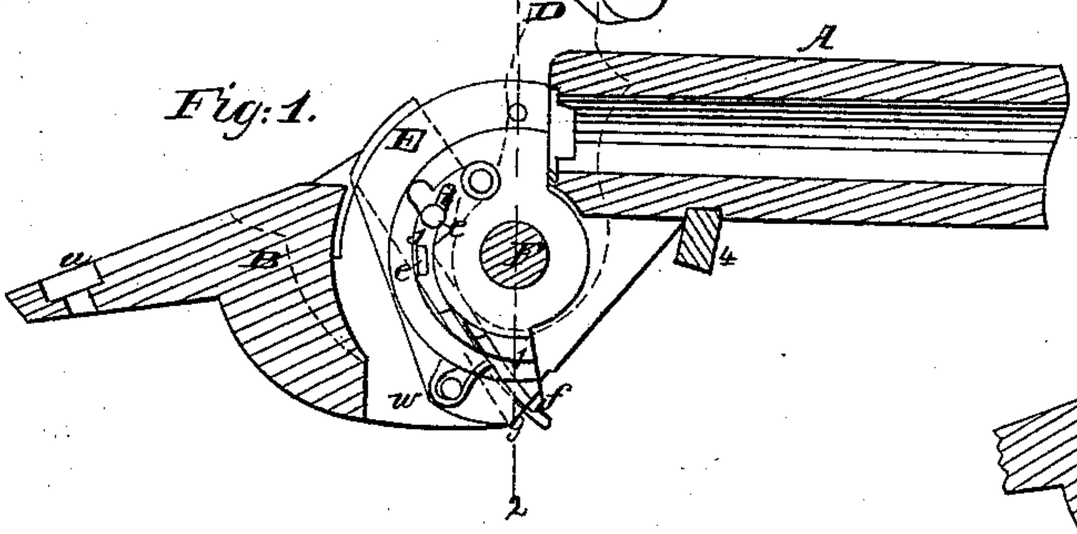


Fig: 8.

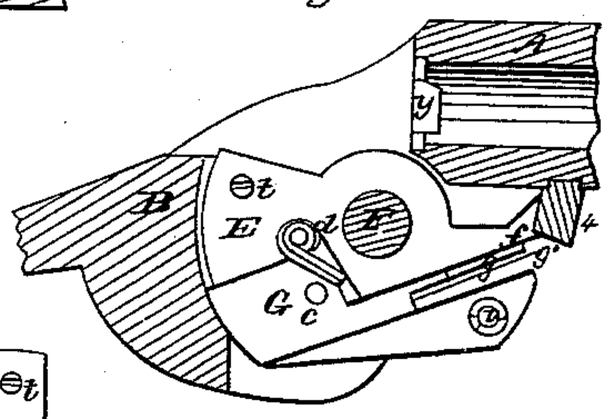


Fig: 2.

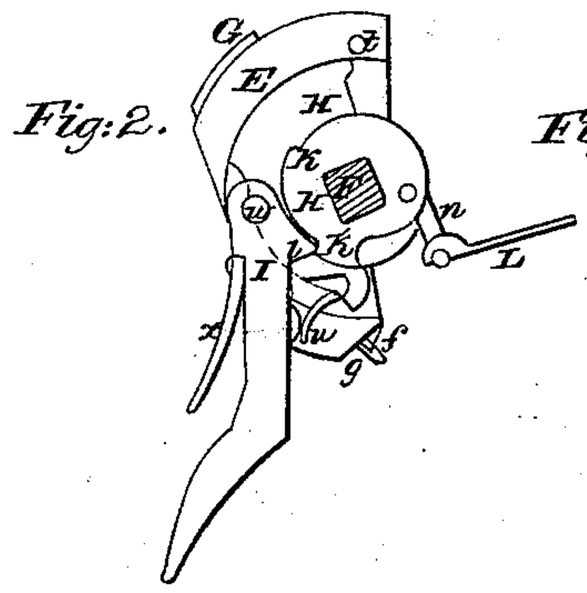


Fig: 3.

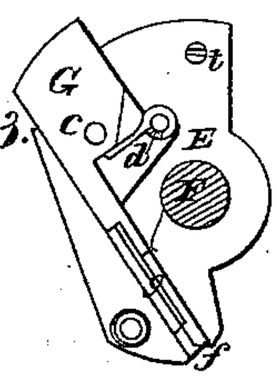


Fig: 9.

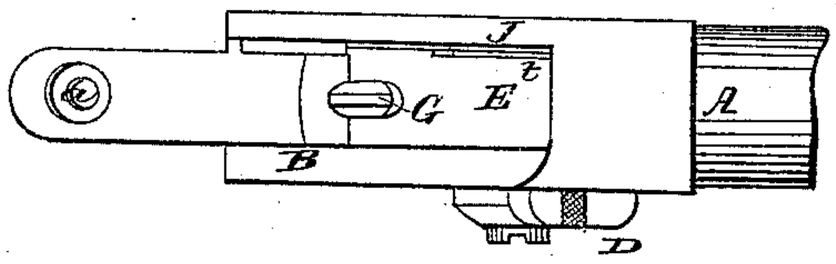
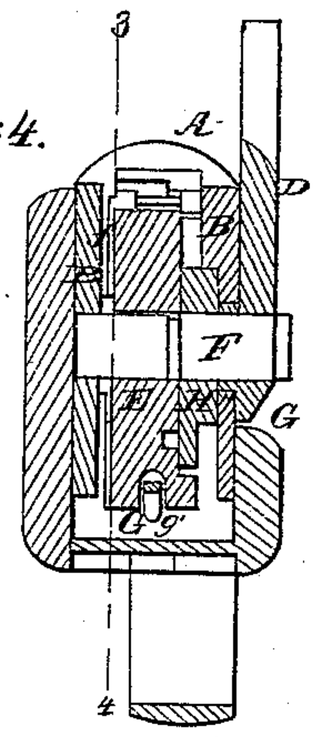


Fig: 4.



Witnesses:

Inventor:

Henry Howson
Atty for A Grillet

UNITED STATES PATENT OFFICE.

ALEXANDER GRILLET, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **45,152**, dated November 22, 1864.

To all whom it may concern:

Be it known that I, ALEXANDER GRILLET, of Philadelphia, Pennsylvania, have invented certain Improvements in Breech-Loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of certain novel mechanism, fully described hereinafter, whereby the operation of loading and discharging fire-arms is facilitated; also, in mechanism for withdrawing the spent cartridges.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a longitudinal sectional view of my improved breech-loading fire-arm, showing the breech-piece in contact with the rear of the barrel; Fig. 2, a detached view showing the breech-piece, hammer, and trigger; Fig. 3, a section of the breech-piece; Fig. 4, a transverse vertical section on the line 1 2, Fig. 1; Figs. 5 and 6, longitudinal sections on the line 3 4, Fig. 4, showing the device for withdrawing the spent cartridges; Fig. 7, an exterior view of the breech-piece and cartridge-extractor; Fig. 8, a longitudinal section showing the breech-piece moved back and the bore of the barrel exposed, and Fig. 9 a plan view.

Similar letters refer to similar parts throughout the several views.

A represents a portion of the rear end of the barrel, and B the frame, through which is cut an opening for the reception of the hammer, lock, breech-piece, and other appliances connected therewith. In the present instance the frame forms part of the barrel, and is snugly fitted into the stock and secured thereto by a screw at *a*, the barrel being secured to the stock in the ordinary manner.

F is a pin, part of which is round and part square, the pin passing through and fitting snugly in the frame, and the arm D being fitted to the square portion, and having on the inside a tubular projection, *c*, which turns in one side of the frame. Within the frame are the hammer H and breech-piece E, the former being fitted to the square portion of the pin F, and the latter being so hung to the round portion of the pin as to turn freely thereon. (See Fig. 4.) On one side of the hammer are two notches, *k* and *k'*, adapted to receive the projection *l* on the trigger I, Fig. 2, which is hung to a pin, *w*, secured to the frame, and which is furnished with a light spring, *x*, bearing against the frame. A link, *n*, is jointed to the hammer, and to this link is connected one end of the mainspring L. A spring, *u*, fitting in a recess formed in one side of the breech-piece, bears against a projection on the hammer, and has a tendency to maintain the front face of the breech-piece in advance of the hammer. The pin F is so situated in respect to the end of the barrel and the breech-piece is so formed that it can be moved back to the position shown in Fig. 8, thereby leaving the bore of the barrel exposed for the introduction of the metal cartridge, or may be made to assume the position shown in Fig. 1, where it closes the end of the bore and covers the cartridge contained therein.

In the breech-piece is a recess for the reception of the sliding bolt G to a projection, on which is secured a spring, *g*, the latter passing through an opening in the breech-piece, and having a shoulder, *g'*, which is arranged to catch against a beveled projection, *f*, on the breech-piece. (See Fig. 3.)

On one side of the hammer H are two pins, *i* and *i'*, Fig. 1, which project into a slot, *j*, in the breech-piece, the said slot being formed in the arc of a circle of which the pin F is the center. Into the same curved slot, at a point between the two pins *i i'*, projects a pin, *e*, on the bolt G, the latter bearing against a spring, *d*, Fig. 3, which has a tendency to force the said bolt upward.

To a pin, *q*, projecting from the inside of one side of the frame, is hung an arm, J, which terminates in a projection, *p*, the latter entering a short distance into a recess, *y*, on one side of the bore of the barrel, and having a lip which occupies a position in front of the flange of the metallic cartridge when the latter is in its place in the bore and the breech is closed. The arm J is also provided with a curved projection, *r*, against which bears a pin, *t*, the latter forming part of a spring attached to the breech-piece, and being arranged to yield under the circumstances described hereinafter.

Operation: When the fire-arm is loaded and

ready to be discharged, the several parts are in the following positions: The breech-piece bears against the rear of the barrel, the bolt G has been projected outward from the breech-piece by the spring *d*, so as to bear against the frame, thereby locking the breech-piece and preventing it from receding on the discharge of the cartridge. On drawing back the arm D, the pin F will be partly turned, and consequently the hammer H will be drawn back until cocked, and this without disturbing the breech-piece, which is held by the bolt G. When the hammer is released by pulling the trigger I, its projection strikes the flange of the cartridge and the charge of the latter is thereby exploded. The bolt G is now pushed down until the end of its spring *g* catches against the projection *f* of the breech-piece. In doing this the pin *e* on the said bolt is moved to the position shown in Fig. 1—that is, between the two pins *i* and *i'* on the hammer. On now drawing back the arm D, and with it the hammer, the projection *i* on the latter bears against the pin *e*, and therefore the breech-piece must be turned on the pin F and moved back to the position shown in Fig. 8, where it is held by the trigger, the projection *l* of which catches in the notch *k* of the hammer. As the breech-piece approaches the position shown in Fig. 8, the end of the spring *g* of the sliding bolt G comes in contact with the projection 4 on the under side of the barrel, and the catch *g'* is thereby released from the projection *f* of the breech-piece, after which the bolt G will be projected outward by the spring *d* until its end comes in contact with the concave faces of the breech-piece. After the new cartridge has been inserted into the bore of the barrel, the breech-piece is gently lowered by a proper manipulation of the trigger I and arm D until the front face of the breech-piece is in contact with the end of the barrel, when the bolt G is projected farther outward by the spring *d* and the breech-piece is locked, as before. The pin *e* of the breech-piece being now moved away from the range of the pins *i* and *i'* of the hammer, the latter may be cocked at leisure by operating the arm D, and without disturbing the locked breech-piece.

In carrying the loaded fire-arm about, the end of the hammer is maintained free from contact with the cartridge by the projection *l* of the trigger fitting the notch *k'* of the hammer. No discharge of the cartridge can take place before the breech-piece has been locked to the frame, for should both hammer and breech-piece be released simultaneously, the former being in advance of the latter, the bolt G will be projected outward before the hammer can come in contact with the flange of the cartridge. When the breech-piece has been drawn back from the end of the barrel as far as the position shown in Fig. 6, the pin *t* will come in contact with the front concave side of the projecting flange of the arm J, and on continuing to move the breech-piece back the arm J will be moved in the same direction, the end of the pin *t* sliding over the hollow surface of the projection until it reaches the lower pointed end of the same, around which the pin will pass and leave the arm J at liberty. By this movement of the arm J the spent cartridge will be so far withdrawn from the bore of the barrel that it can be readily removed from the same by the finger and thumb. Prior to inserting another cartridge into the bore the arm J may be simply pushed forward to its former position; or it may be restored by any suitable spring. When the breech is again moved forward toward the end of the barrel, the pin *t* will be in a proper position to again come in contact with the flange *r*, when the breech-piece is again moved back.

In order that the pin *t* may effectually accomplish the above-described duties, it is necessary that the point which comes in contact with the projection *r* should be cut away, as shown in the drawings, and that the pin should form part of a spring which yields when the pin comes in contact with the projection *r*, and recoils after passing the corner of the said projection.

I claim as my invention and desire to secure by Letters Patent—

1. The breech-piece E and hammer H, hung to the pin F, and combined with the devices herein described, or the equivalents to the same, whereby said breech-piece and hammer may be made to operate together or independently of each other, as set forth.

2. The spring-bolt G, with its spring-catch *g'*, combined with the breech-piece, substantially in the manner set forth, for the purpose specified.

3. The breech-piece, its spring-bolt G, the pin *e*, attached to the same, and the curved slot *j*, in combination with the hammer H and its two pins *i* and *i'*.

4. The combination of the breech-piece E, hammer H, and the spring *u* or its equivalent, for maintaining the breech-piece in advance of the hammer.

5. The arm J, its projection *p*, and curved projection *r*, in combination with the pin *t* on the breech-piece, the whole being constructed and arranged substantially as and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALEX. GRILLET.

Witnesses:
JOHN WHITE,
CHARLES HOWSON.