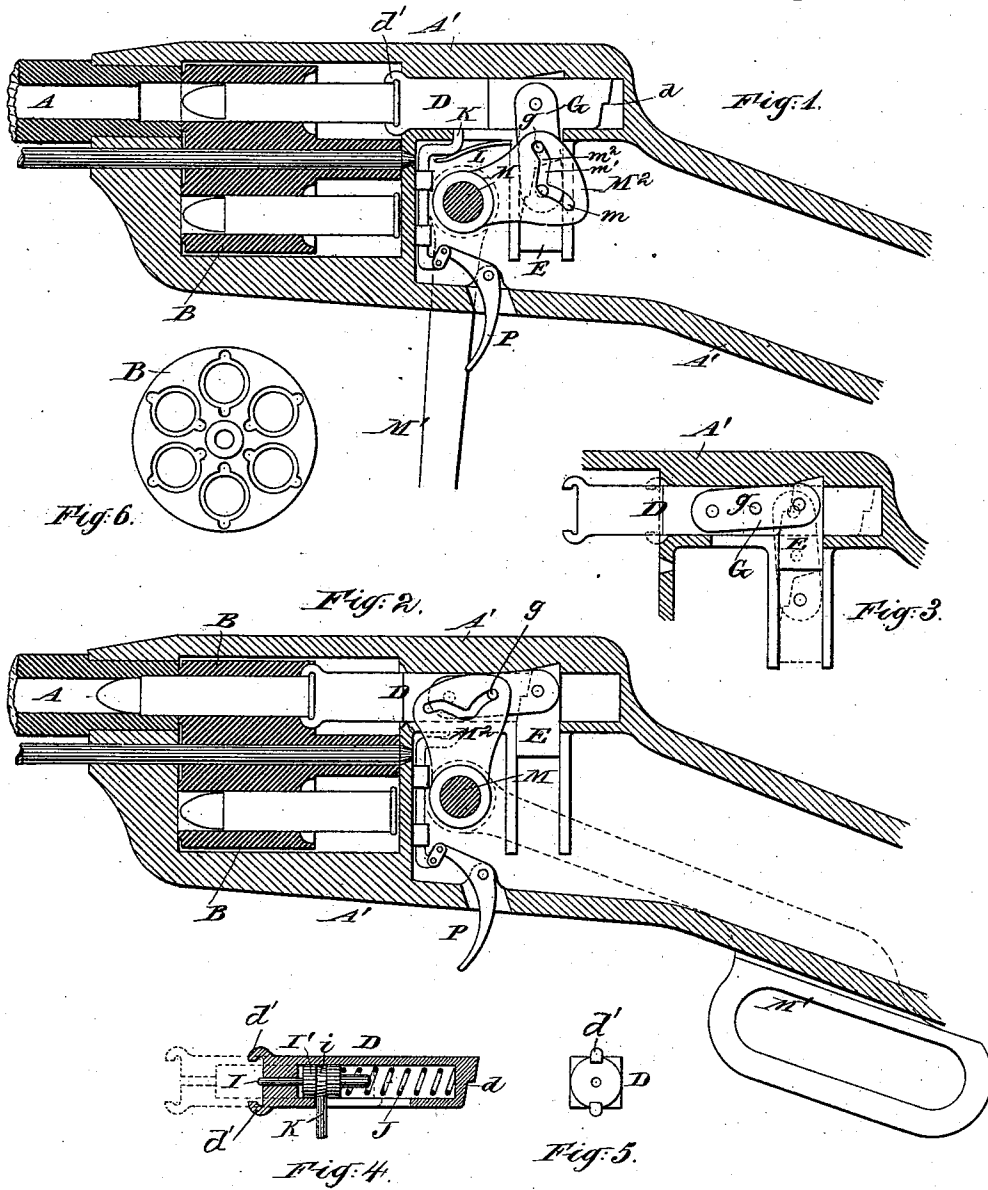


(No Model.)

F. G. D. HOLMES.  
BREECH LOADING FIRE ARM.

No. 380,682.

Patented Apr. 10, 1888.



Witnesses:

Charles R. Searle,  
M. F. Boyle

Inventor:

F. G. D. Holmes,  
by his attorney  
James Drew Stetson.

# UNITED STATES PATENT OFFICE.

FRANCIS G. D. HOLMES, OF PHILLIPSBURG, NEW JERSEY.

## BREECH-LOADING FIRE-ARM.

SPECIFICATION forming part of Letters Patent No. 380,682, dated April 10, 1888.

Application filed May 28, 1887. Serial No. 239,509. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS G. D. HOLMES, of Phillipsburg, Warren county, in the State of New Jersey, have invented a certain new and useful Improvement in Breech-Loading Fire-Arms, of which the following is a specification.

My improved fire-arm is of that class in which cartridges having metallic shells previously deposited in a revolving cylinder are by the working of a convenient lever successively brought up into line with the barrel and partially thrust forward into the latter, so that the copper shell covers and packs the joint between the barrel and the cylinder when the explosion occurs. I have made improvements in the means for bracing the sliding breech-block. I provide a stout vertically-transverse slide connected to the breech-block by a link, which, when the cartridge is thrust endwise into the barrel, and consequently the breech-block moves to its extreme forward position, extends vertically across the path of the breech-block in the rear thereof, and engages firmly with the breech above and below the same. I operate the whole by oscillating a broad arm having a cam-groove which acts on a pin or projection on the link. The same movement effects the cocking. The striking-piece corresponding to the hammer is inclosed within the breech-block.

The accompanying drawings form a part of this specification, and represent what I consider the best means of carrying out the invention.

Figure 1 is a longitudinal vertical section showing the breech-block retracted. Fig. 2 is a corresponding section showing the breech-block thrust forward and securely locked. Fig. 3 is a section of a portion. The strong lines correspond to Fig. 2, the dotted lines to Fig. 1. Fig. 4 is a longitudinal section through the breech-block. Fig. 5 is a front end view of the same. Fig. 6 is a view of the cylinder detached, as seen from the rear.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the barrel, and A' the frame of the breech.

B is the intermittently-rotating cylinder in

which the cartridges are inserted; and D is a reciprocating hollow breech-block in line with the barrel A, its forward end being provided with fingers *d'* at the top and bottom thereof, adapted to receive the rear end of the cartridge as it is presented thereto and passed laterally between them by the partial rotation of the cylinder, and to withdraw the shell from the barrel back into the cylinder whenever the breech-block is moved rearward after the explosion.

E is a slide, which, when the breech-block D is moved forward, extends vertically across the rear thereof. This slide E bridges vertically across the path of D, engaging strongly and reliably above and below the same and abutting firmly against the entire rear end of D. The rear of D is formed with an offset at *d*, and the surfaces each side of the offset are inclined slightly, as shown. The adjacent portion of the vertically-transverse slide E is correspondingly formed.

M' is a lever conveniently arranged on the exterior of the stock to be rocked by the left hand. Its shaft M carries a broad arm, M', in which is a cam-slot, *m m' m''*, which receives a pin or projection, *g*, on the side of a link, G. This link is pivoted at one end to the breech-block D and at the other end to the vertically-transverse slide E. The rocking of the lever M' acts through the pin *g* and link G to produce the required motions of these important parts in one direction and the other. When the breech-block is forward, the vertically-transverse slide E extends directly across its path in the rear, and, supported by engaging strongly with the frame on top and bottom of the path, bears fairly against the entire rear of the breech-block.

When the shaft M commences its opening movement, the pin *g* is urged mainly downward by the portion *m* of the slot in which it is then traversing. This results by the action of the link G in rapidly withdrawing the vertically-transverse slide E and slowly moving the breech-block rearward. Later the pin *g* is received in the portion *m'* of the slot, and the farther movement in the same direction urges the pin *g*, and consequently the link G, mainly rearward. This results in moving the slide E but little, while the breech-block D

moves rapidly across its upper end. Still later the pin *g* is received in the portion *m*<sup>2</sup> of the slot, and the shaft *M* continues to move farther in the same direction without inducing any further motion of these parts. During this latter movement the shaft *M*, by suitable appliances, (not shown,) performs other functions, as the partial rotating of the cylinder, the means for which, being common in all arms of this class, need not be detailed. On the return movement of the shaft *M* the reverse motions are induced in the link *G* and its connections *D E*. At the end of the movement the slide *E* bridges vertically across the rear of *D* and supports it with firmness, ready for the shock of the discharge.

The firing-pin *I* is mounted within the hollow interior of the breech-block *D*, and is provided with a helical spring, *J*, pressing against its heavy collar *I'*. The latter is provided with a groove, *i*, which, when the breech-block is moved backward, receives the upper end of a sliding dog, *K*, urged upward by a spring, *L*. This dog is subject to the action of the trigger *P*, so that when the latter is pulled it moves downward out of engagement with the groove in the collar *I'*, and its firing-pins are driven smartly forward by the spring *J*, and, acting on the fulminate in the center of the rear face, explode the cartridge.

Modifications may be made in the details without departing from the principle or sacrificing the advantages of the invention.

I can make the slot *m m' m*<sup>2</sup> wider and mount a roller on the pin *g*. I can provide two or more offsets in the rear of *D*, taking care always to give a corresponding form to the adjacent portion of the vertically-transverse slide *E*. It is important to give such form that the early downward movement of the slide *E* shall take it clear of the slowly-moving breech-block *D*, and that the surfaces shall not be so much beveled as to induce at the period of the discharge any considerable wedging force tending to depress the slide *E*.

I can use two links, *G*, and two corresponding arms, *M*<sup>2</sup>, with their slots *m*, &c. Such would induce a more equal action on the two sides of the breech-block; but I do not deem such necessary or expedient in practice.

I claim as my invention—

1. In combination with the cylinder *B*, barrel *A*, and breech *A'*, the longitudinally-reciprocating breech-block *D*, the slide *E*, reciprocating vertically across the rear end of the breech-block, the link *G*, pivoted to and connecting said breech-block and slide, and the lever *M*, connected to said link for operating said parts, substantially as specified.

2. In combination with the cylinder *B*, barrel *A*, and breech *A'*, the longitudinally-reciprocating breech-block *D*, the slide *E*, reciprocating vertically across the rear end of the breech-block, the link *G*, pivoted to and connecting said breech-block and slide, said link being provided with a laterally-projecting pin, *g*, shaft *M*, and lever *M'*, provided with the arm *M*<sup>2</sup>, having slot *m m' m*<sup>2</sup>, engaging said pin *g*, substantially as specified.

3. In combination with the barrel *A* and breech *A'*, the longitudinally-reciprocating hollow breech-block *D*, having a slot in its bottom, the firing-pin *I*, collar *I'*, mounted thereon and sliding within said breech-block, said collar being provided with the groove *i*, spring *J* for forcing said pin and collar forward, spring-actuated dog *K*, adapted to extend through said slot and engage said groove, and trigger *P*, substantially as specified.

In testimony whereof I have hereunto set my hand, at Phillipsburg, Warren county, New Jersey, this 24th day of May, 1887, in the presence of two subscribing witnesses.

F. G. D. HOLMES.

Witnesses:

JOHN INGHAM,  
EDWARD S. KLINE.