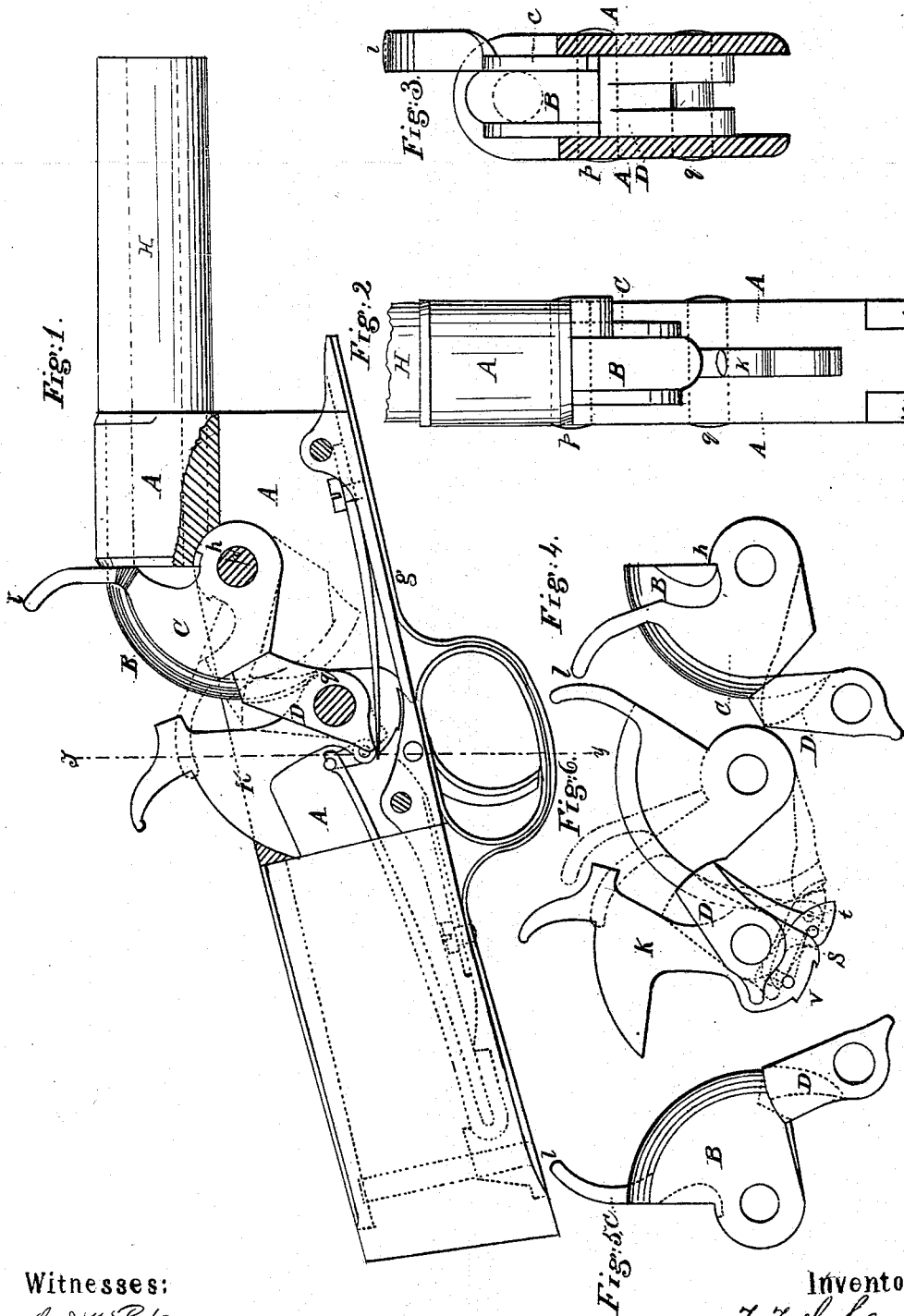


LAIDLEY & EMERY.  
Breech-Loading Fire-Arm.

No. 54,743.

Patented May 15, 1866



Witnesses:

*James W. Porter*  
*J. H. Harlings*

Inventors:

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# UNITED STATES PATENT OFFICE.

T. T. S. LAIDLEY, OF U. S. ARMY, AND C. A. EMERY, OF SPRINGFIELD, MASS.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 54,743, dated May 15, 1866.

*To all whom it may concern:*

Be it known that we, THEODORE T. S. LAIDLEY, of the Army of the United States, and CHAS. A. EMERY, of Springfield, in the county of Hampden, State of Massachusetts, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 is a view of the principal parts of a fire-arm with our improvements, the right side of the breech-frame being removed. Fig. 2 is a horizontal view, showing the mortise in the frame. Fig. 3 is a cross-section of the fire-arm in a plane indicated by the line *y y* in Fig. 1. Fig. 4 represents the breech-block, cam, and brace, and their relative positions when the breech-block is unlocked ready to be opened; Fig. 5, the same when the breech-block is locked ready for firing. Fig. 6 shows the breech-block, brace, and ratchet or pawl.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a novel mode of locking the movable breech-block of a breech-loading fire-arm, so as to prevent it from being forced open when it has been loaded by any pressure brought against it from within the barrel of the arm, and also in a certain novel arrangement for opening the breech at pleasure.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and mode of operation.

A A A is the frame of the arm, having the barrel H screwed into it in the usual manner, and having cut in it, in rear of the end of the barrel, a longitudinal mortise for the reception of the movable breech-block B, which opens and closes with a swinging movement about the horizontal pin *p*, which has suitable bearings in the two sides of the frame A A A.

On another strong pin, *q*, in rear of the first, the brace D moves freely. Its lower end is pressed by the spring *g*, so as to throw its upper end forward and cause it to bear against the cam C or bring it under the breech-block B, as represented in Figs. 1 and 5. The hammer K works on the same pin *q*, but entirely independent of the brace D.

The cam C plays on the pin *p*, and when drawn back by pressing with the thumb on the part *l* the brace D is forced from under the breech-block B, as represented in Fig. 4, and the shoulder *h*, by coming against the breech-block, forces it open, as represented by the red lines in Fig. 1, and exposes the end of the barrel for the insertion of the cartridge. The moment the breech-block is closed the spring *g* throws the brace D forward under the rear end of the breech-block and locks it at once securely. Should the spring *g* by any accident fail to perform its function, the hammer K, in its descent, would force the brace D under the breech-block, or the brace D would prevent the hammer from striking the firing-pin, so that it is impossible to fire the arm unless the breech-block be locked securely.

We are aware that arms have been constructed in which the breech-block—something similar to ours—is locked either by the hammer or by the tumbler; but the arrangement just described, in which the breech-block is locked by a piece separate and distinct from either the hammer or the tumbler, presents advantages over the others named both striking and important.

In the first place, the breech-block, by our improvement, is locked as soon as it is closed, so that if by any accident the arm be discharged the explosion cannot blow open the breech-block and allow the gas to escape to the rear, as would be the case with those arms in which the hammer or the tumbler locks the breech-block.

Second, in our arm the whole force of the mainspring is brought upon the firing-pin, and no part of it is consumed in overcoming the friction of the hammer or tumbler against the breech-block. We have seen arms in which the breech-block is locked by the hammer or the tumbler. After getting foul the hammer would fail to explode the cartridge on account of this friction just alluded to. We believe it to be a correct principle in fire-arms, as well as in other machines where certainty of action is important, that each piece should have only one function to perform. In our arm it can be seen when the gun is loaded whether the breech-block is locked, and it is then known certainly that there is nothing to prevent the hammer from performing its appropriate of-

fice—to fire the cartridge. This is more than can be said of those arms in which the breech-block is locked by the hammer or the tumbler.

Third, by our improvement we are enabled to load the arm at half-cock—a consideration of great importance for safety in using it, particularly when large bodies of men are operating together; or, instead of throwing back the brace D by means of the cam C, it may be thrown back by means of a pawl, S, Fig. 6, attached to its lower end, and operated by a pin, *v*, on the hammer or tumbler K when it is drawn back to the half-cock. The breech-block, in being opened, detaches the pawl by striking against the end *t*, and the brace D is then free to be moved by the spring, as in the case already described.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. Locking the movable breech-piece by means of a piece independent and separate from the hammer or tumbler, but moving on

the same axis, and the same operated or brought into place as soon as the breech-piece is closed, irrespective of the extent to which it may have been opened.

2. The arrangement of a cam on the same axis of the breech-piece for the purpose of throwing back the locking-piece, so that by means of a stop on the cam the breech-piece may be opened by the simple motion of the said cam.

3. The arrangement of a pawl attached to the locking-brace and operated by the hammer or tumbler for the purpose of throwing back the said locking-piece, the whole arranged and operated substantially and for the purpose specified.

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