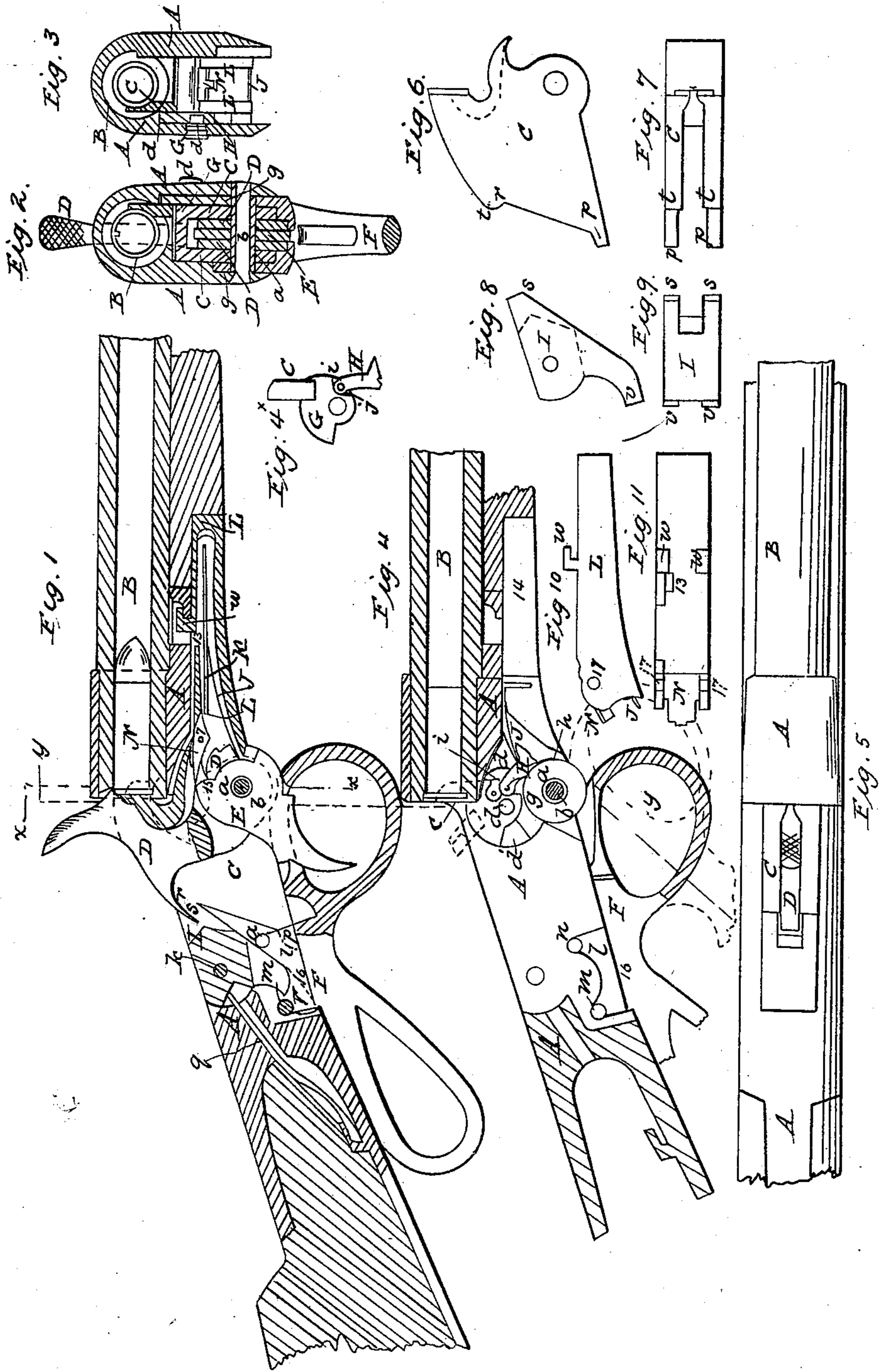


L. CONROY.
Breech Loader.

No. 91,421.

Patented June 15, 1869.



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LOUGHLIN CONROY, OF NEW YORK, N. Y.

Letters Patent No. 91,421, dated June 15, 1869.

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, LOUGHLIN CONROY, of the city, county, and State of New York, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I 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.

This invention relates, first, to an improved arrangement of, and means of working the cartridge-shell extractor, and is applicable especially to such breech-loading fire-arms as have a swinging breech-block, but is also applicable to arms with breech-blocks of other kinds, when the breech-block is operated by a lever under the stock.

The extractor is arranged in a recess in one side of the breech-receiver, where it swings upon a pivot arranged above the pin upon which the breech-block and its operating-lever, or either of them, work, and is operated by the action upon a spring-pawl, which it carries, of a projection formed upon the lever or breech-block, the operation being of such character, and so timed, as to give the extractor a positive motion, which commences after the opening of the breech-block has commenced, but is accelerated in such degree, relatively to the said opening-motion, as to throw the cartridge entirely out of the gun.

The invention relates, secondly, to the use, in combination with a swinging breech-block, of a recoil-block, substantially such as constitutes part of the subject-matter of my Letters Patent, No. 72,803, dated December 31, 1867; and

It consists in a novel and more simple construction of the said recoil-block, the swinging breech-piece, and their operating-lever, whereby a more positive locking of the recoil-block, when the breech is closed, is obtained.

The invention also consists in a spring-case, for containing the main spring, and which affords peculiar facility for supporting, and for inserting and removing the same; and

It further consists in the arrangement of the same within the said spring-case, in such manner that the main-spring may also serve as the sere-spring.

Figure 1, of the drawing, is a central vertical longitudinal section of the breech-parts of a breech-loading fire-arm, in which all of these improvements are exhibited.

Figure 2 is a transverse vertical section of the same, taken through the centre of motion of the breech-block, and its operating-lever, in the plane indicated by the line $x x$ of fig. 1, and showing the parts in rear of said plane.

Figure 3 is a transverse vertical section of the same, taken through the centre of motion of the extractor, taken in the plane indicated by the line $y y$

of figs. 1 and 4, and showing the parts in front of said plane.

Figure 4 is a vertical longitudinal section, illustrative of the application of the extractor, omitting the parts not necessary for such illustration.

Figure 4* is a side view of the extractor, detached.

Figure 5 is a plan, corresponding with fig. 1.

Figure 6 is a side view of the breech-block; and

Figure 7, a top view of the same.

Figure 8 is a side view of the recoil-block; and

Figure 9, a top view of the same.

Figure 10 is a side view of the spring-case; and

Figure 11 a top view of the same.

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

A is the breech-receiver, connecting the barrel B with the stock of the arm.

C is the swinging breech-block; D, the hammer; E, the trigger, and F, the breech-operating-lever, all working on the same pin, b , inserted through the sides of the breech-receiver, but being fitted with a sleeve, a , outside of the pin, to facilitate their insertion, and the insertion of the pin.

The above-mentioned parts are all, except in such particulars as will be hereinafter explained, substantially like the corresponding parts described in my Letters Patent, No. 72,803.

G is the cartridge-shell extractor, consisting of a sector-like plate, having an upwardly-projecting horn, c .

The sector-like portion is received within a circular recess, d , provided in one side of the breech-receiver, above the pin b , where it works upon a short pin, d , screwed through one side of the breech-receiver.

The horn c projects inward, toward the centre of the breech-receiver, and upward, in rear of the barrel, in such manner that it may occupy a position in front of the flanged head of a cartridge contained in the chamber of the barrel.

In front of the pin d , there is pivoted to the extractor, by a pin, e , a pawl, H, (see fig. 4,) which is held by a spring, f , secured within the breech-receiver, in contact with the edge of one of the cheek-pieces g , of the lever F.

The connection of the pawl H with the extractor is made within a recess, $i j$, in the inner face of the latter.

Below the pawl H, there is a projection, h , on the front portion of the cheek-piece.

The operation of the extractor is as follows:

When the breech-block is closed, the horn c lies within a recess provided for it in one side of the chamber of the barrel, just in front of the flange on the head of a cartridge-shell that may be contained therein.

The projection *h* on the operating-lever is then situated some distance below the pawl *H*, and hence, on pulling down the lever *F*, to open the breech, the extractor is not at once acted upon, but time is allowed to open the breech far enough to permit the extraction of the shell; and when that has been done, the projection *h*, coming in contact with the end of the pawl *H*, causes the continued movement of the lever to turn the extractor, and throw back the horn *c*, which, pressing against the flange of the cartridge, withdraws it from the chamber, as shown in red outline in fig. 4.

Partly in consequence of the short distance of the connecting-pin *e* of the pawl from the centre-pin of the extractor, compared with the distance therefrom of the operating-point of the horn *c*, and partly in consequence of the position of the connecting-pin *e*, in front of the centre-pin, permitting a considerable movement of the said connecting-pin with a very slight backward movement of the projection *h*, and corresponding movement of the handle of the lever *F*, the movement of the cartridge-shell from the chamber is greatly accelerated, with respect to the continued opening-movement of the breech-block, and hence the extraction of the shell is very rapid, and, though positive, is almost like a jerk, causing it to be thrown clear of the breech-receiver, and the extraction is effected during a very small movement of the breech-block.

When the horn of the extractor has moved back far enough, and the shell has been extracted, the shoulder *j* at the back of the recess *ij* in the extractor has, by coming in contact with the under side of the pawl *H*, so far lifted up the said pawl, that it will clear the projection *h* on the lever *F*, and allow the said projection to pass under its forward extremity.

The extractor, having been thus liberated from the lever *F*, is returned, by the pressure of the spring *f* on the pawl, to the position shown in black outline in fig. 4, ready for the reloading of the fire-arm.

It is obvious that a projection on the breech-block may be made to act upon the extractor in the same manner, and to perform the same duty as the projection *k* on the breech-operating lever.

I is the recoil-block, working upon the pin *k*, which is inserted through the rear part of the breech-receiver.

This block is hollowed out in its front and upper part, for the passage of the hammer, and has its lower part, *v*, forked, for entrance of the portion *l* of the breech-operating lever which enters the breech-receiver.

Its lower forked part is turned back, in such form that its lower part is brought just within the breech-receiver, when the breech-block is locked, and that the straight shoulders *16* of the upper part of the breech-operating lever, on opposite sides of *l*, may then bear against the said part *v*, and so secure the recoil-block in place.

In the above condition of the recoil-block, a bearing is formed on the upper side of each prong of the fork, for the action of one of two pins, or tenons, *m*, projecting from opposite sides of the portion *l* of the breech-operating lever.

On the front part of each side of the said portion *l* of the lever, there is, on each side, a pin, or tenon, *n*, which, when the breech is closed, and the operating-lever is close up to the stock, occupies a position a short distance above the forked backwardly-projecting tail-like lower extremity *p* of the breech-block.

A spring, *q*, secured within the breech-receiver, or stock, as shown in fig. 1, presses upward against the recoil-block in rear of the pin *k*, and so tends to press the front part down toward the breech-block.

When the lever *F* is pulled downward from the stock, to prepare for loading, the tenons *m m*, depressing the rear and lower portion *v* of the recoil-block,

raise the upper and front portion above the shoulder *r* on the breech-block, so that the latter can pass under it, and the tenons *n*, then coming into operation on the tail-like portion *p* of the breech-block, produce the opening-movement of the latter, the tenons *m m* passing clear of the recoil-block, as those, *n n*, come into operation on the breech-block.

When the cartridge has been inserted into the chamber, and the lever is raised to close the breech, the upper portion of the said lever, coming into contact with the lower and rear portion of the breech-block, produces the closing-movement of the latter; and before this closing-movement has been quite completed, the shoulders *16* of the lever, on opposite sides of the portion *l*, come in contact with the lower extremity of the recoil-block, and, by pressing it upward and backward, cause the rounded lower corner *s* of the upper extremity of the latter block, which has been previously raised by the cam-like action upon it of the eccentric back of the upper portion of the breech-block, to press against the rounded upper edge *t* of the shoulder *r* of the breech-block, and so to complete the closing-movement of the latter block more quickly than the lever would effect it; and the upper extremity of the recoil-block slips behind the shoulder *r*, and locks the breech, the shoulders *16* of the lever *F*, as the latter completes its movement, remaining in contact with the under side of the forked portion *v* of the recoil-block, and so securing it.

During the latter portion of the upward movement of the lever, and while the upper end of the recoil-block is slipping behind the shoulder *r* of the breech-block, the forked tail-like portion *v* of the recoil-block passes under the tenons *m*.

The slipping down of the upper end of the recoil-block behind the shoulder *r* of the recoil-block, is accelerated by the spring *q*, which also helps to keep the recoil-block to its place behind the said shoulder *r*, and, through the action of tail-portion *v* of the recoil-block on the tenons *m*, to keep the lever close up to the breech-receiver, or stock.

J K is the main and sere-spring, made with two leaves, the lower, *J*, of which is the main spring, and the upper, *K*, is the sere-spring.

L, figs. 1, 3, 10, and 11, is the spring-case, which contains the said spring, inserted into a mortise, *14*, (shown in fig. 4, where the spring-case is omitted,) provided for its reception in the stock and breech-receiver, below the barrel, where it hooks, at *w*, into the breech-receiver, and is thereby held up within the stock, while it is prevented from moving backward, by the main spring being in contact with the tumbler.

The spring is kept in place within the case, by being provided, on its upper leaf, with a tenon, *13*, which fits snugly into a hole in the top of the case.

The sere *N* is pivoted into the upper portion of the spring-case, near the front end thereof.

To provide for the insertion and removal of the spring and sere, one side of the case is made removable, when the case is removed from the mortise *14*.

The sere has its two pivots, *17 17*, one on each side, made in the same piece with, or permanently secured, one entering a hole in the fixed, and the other a hole in the removable side of the case.

The sere, thus applied, acts upon the bifurcated tumbler *D' D'* of the hammer *D*, in the same manner as an ordinary sere, and is acted upon, at its rear end, with a cam-like action, to throw it out of the tumbler, by the rounded projection *15* on the trigger *E*, which works within the fork of the tumbler *D' D'*, as shown in fig. 2.

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

1. The cartridge-shell extractor, constructed as de-

scribed, and applied to work on a pivot in a recess in one side of the breech-receiver, and operated with a motion accelerated, with respect to that of the breech-block, by an attached pawl, *H*, and spring *f*, and a projection, *h*, on the breech-operating lever, or breech-block, substantially as herein specified.

2. The combination of the tenons *m n* and shoulders 16, on the breech-operating lever, the swinging breech-block, the recoil-block, and the spring *q*, substantially as herein described.

3. The spring-case *L*, containing the main spring, and applied to the fire-arm, substantially as herein described.

4. The sere, applied within the spring-case, substantially as herein specified.

L. CONROY.

Witnesses:

FRED HAYNES,
J. W. COOMBS.