

M. J. CHAMBERLIN.

Breech-Loading Fire-Arms.

No. 135,405.

Patented Feb. 4, 1873.

Fig. 1

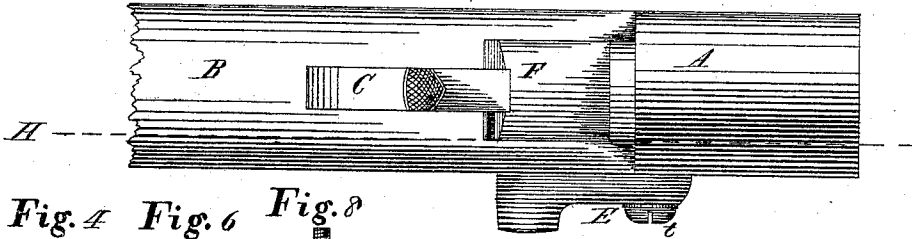


Fig. 4 Fig. 6 Fig. 8

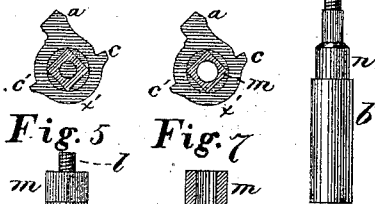


Fig. 5 Fig. 7

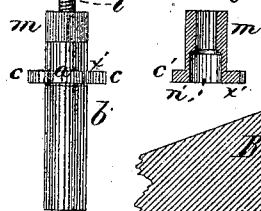


Fig. 2

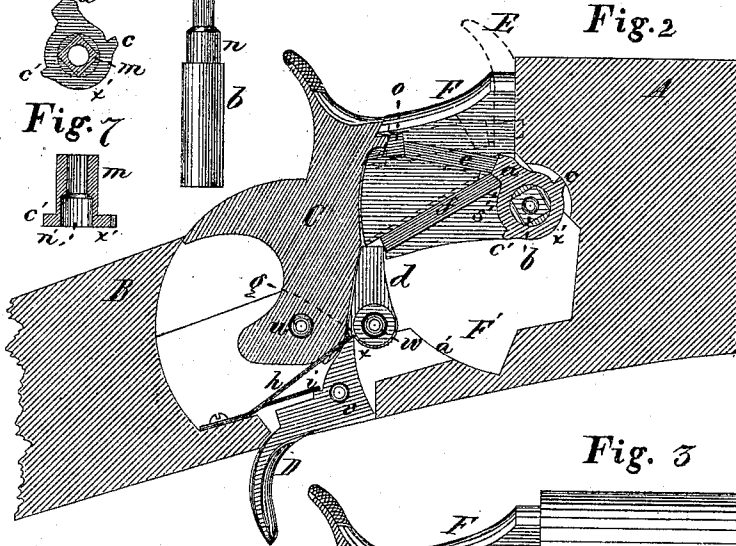


Fig. 11

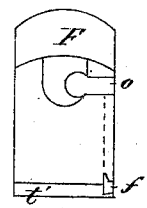


Fig. 12

Fig. 3

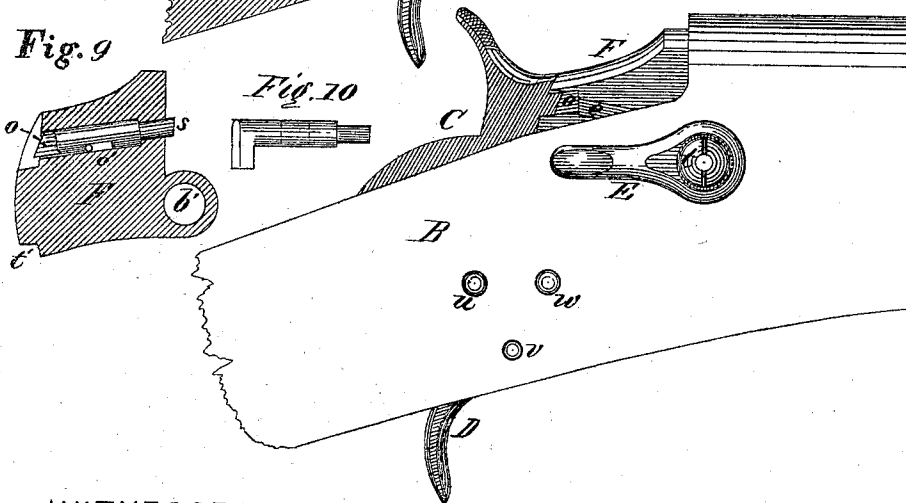


Fig. 9

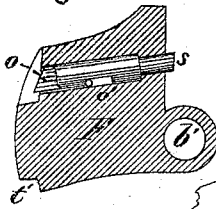


Fig. 10



WITNESSES:

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UNITED STATES PATENT OFFICE.

MARTIN J. CHAMBERLIN, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 135,405, dated February 4, 1873.

To all whom it may concern:

Be it known that I, MARTIN J. CHAMBERLIN, of Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improvement in Breech-Loading Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a plan view of a gun made according to my invention; Fig. 2 is a side view with a part of the frame removed, so as to show the different parts of the mechanism in place; Fig. 3 is a side view of the gun; Fig. 4 is an end view of the breech-block pin, showing the cam which operates the locking brace-bar and the fire-pin bar; Fig. 5 is a side view, showing the cam and breech-block pin made in one piece; Fig. 6 is an end view, showing the cam as made separate from the pin; Fig. 7 is a longitudinal section through line I of Fig. 6; Fig. 8 is a side view, showing the pin as made separate from the cam; Fig. 9 is a vertical section of the breech-block, showing the method of securing the fire-pin in said block; Fig. 10 is a plan view of the fire-pin, showing the end projection by which it is drawn out; Fig. 11 is a rear-end view of the breech-block; and Fig. 12 is a side view of the locking-brace.

My invention relates to a breech-loading gun having its breech-block swinging backward and downward in opening; and it consists of two dovetail-grooves made in the side of the breech-block, in each of which is placed a sliding bar, the end of one to impinge against a projection upon the end of the fire-pin, operating to force out the fire-pin, and the end of the other bar to impinge against the swinging end of a locking-brace, which is pivoted at its lower end, with its upper end free to swing in beneath the breech-block to prevent said block from being accidentally opened. The breech-block is hung upon a cylindrical pin which has, opposite the ends of the sliding bars placed in their grooves in the side of the breech-block, an annular flange thereon, a part of which forms a cam to drive back the two sliding bars, one against the fire-pin to force it back, and the other against the free end of the locking-brace to

force that back from beneath the breech-block; and a small projection is made upon another part of the annular flange, which operates as an extractor to draw the cartridge-shells from the barrel; and also another projection is made opposite the last mentioned, which operates or assists in the operation of throwing up the breech-block into place at the rear end of the barrel. The end of the pin upon which the cam is made is of prismatic form, which, when the pin is in place, projects through to the outside of the gun, and a lever is placed thereon and secured, so that when all parts are in position, if the hammer is pulled back so that the sear drops back into one of the notches of the tumbler, the breech-block and locking-brace may be operated by means of the lever.

That others skilled in the art may be able to make and use my invention, I will proceed to describe its construction and operation.

In the drawing, A represents the barrel, and B the frame of the gun, having a recess made therein to receive the working parts. The breech-block F has a hole, *b'*, therein, through which extends the pin *b*, having the annular flange *a'* thereon, a projecting part of which forms the cam *a*. Another projecting part forms the cartridge-extractor *c*; and still another, the finger *c'*, which latter operates to move the breech-block up into place at the rear of the barrel; and a part of the pin near the end is of prismatic form, as shown at *m*, with a screw-thread at *l*, upon which to turn a nut to secure the lever E, when placed upon the prismatic part *m*.

The construction of the pin and its annular flange, forming the cam, extractor, and finger, is shown clearly in Figs. 4 and 5.

The breech-block has two grooves in the side, one extending from the cam *a* to the projection *o* upon the rear end of the fire-pin, and the other extending from the cam *a* backward to the lower rear corner of the breech-block; and into these grooves are placed the bars *e* and *f*, which are made of a corresponding form in cross-section, to their respective grooves, and they are made so as to slide freely in said grooves. The fire-pin *s* may be secured within the breech-block so as to have a limited longitudinal play by having a part cut away at *o'* and a small pin extending through the breech-

block and into the space *o'*, as shown clearly in Fig. 9; and a part of the lower rear corner of the breech-block is cut away, as shown at *t'* in Fig. 9, to form a small recess into which the upper end of the locking-brace falls, when the breech-block is up in place. A shoulder, *g*, is made near the lower end of the locking-brace, which is pivoted at *w*, which, when the breech-block is up against the rear of the barrel and the hammer is down, stands just over the end of the sear *x*, as shown clearly in Fig. 2; and a small recess is made in the side of the breech-block to permit the cam to make its rotary movement, and, if necessary, to assist the finger *c'* in carrying the breech-block up in place at the rear of the barrel, by the cam *a* impinging against the upper side of its recess in the side of the breech-block.

If it is desired to make a gun with a mortise-frame instead of a side plate, the opening may be made in the bottom of the frame, and it would then be necessary to insert most of the working parts of the lock through said opening, in which case the pin upon which the breech-block swings would be made separate from its cam, as shown in Figs. 6, 7, and 8, in which *b* represents the pin in Fig. 8, and *x'* the annular flange upon which are made the cam *a* and the finger *c'* and extractor *c*, the prismatic part *m* being also made upon the same piece with the flange *x'*, and the part *n* upon the pin fitting well into its recess *n'* within the flange. When thus constructed, the small part, having the cam *a* thereon, would first be inserted in place through the mortise in the bottom of the frame, with the part *m* protruding through upon the outside of the frame. The breech-block would also be inserted in position through said mortise, and the pin *b* would then be inserted through the hole in the sides of the frame and in the breech-block, with the part *n* placed in its recess *n'* in the small part having the cam *a* thereon. The lever *E* is then placed upon the part *m* with the small nut *t* turned on tightly, which would secure the part with the flange *x'* thereon firmly to the pin *b*.

The operation of my invention is as follows: All the parts being in place, the hammer is pulled back until the sear *x* drops into the notch in the tumbler; if the free end of the lever *E* is then pressed down the pin *b* is made to rotate, together with the cam *a*, extractor *c*, and finger *c'*. As the cam *a* passes down, it presses against the bar *e*, and also the bar *f*, causing the bar *e* to force back the fire-pin, and also causing the bar *f* to force back the swinging upper end of the locking-brace *d*. When the locking-brace is forced back sufficiently to permit the breech-block to swing down freely the cam *a* impinges against the bottom of the recess *s'* in the side of the breech-block, and as the cam then continues to rotate it causes the breech-block to rotate with it, and the breech-block is thereby opened or swung down by the force exerted upon the lever *E*.

If there should be a cartridge-shell within the chamber the small projection *c* strikes its flange as it rotates, and moves the shell out far enough to be seized by the fingers and entirely removed.

The recess *F'* in which the breech-block swings is made deeper on each side than the recess for the other parts of the lock, leaving a curved shoulder at *a'*, and when the breech-block swings down the ends of the bars *e* and *f* may ride upon this curved part *a'*, which prevents the said bars from dropping out of their grooves during the movement of the breech-block. If the free end of the lever *E* be carried upward, the small finger *c'* strikes against the bottom of the breech-block, and as the finger continues to rotate, by the movement of the said lever, upward, the block is thereby carried up into place at the rear of the barrel, the cam *a* assisting somewhat, perhaps, in that operation by striking against the upper side of its recess *s'* in the side of the breech-block. When the breech-block is entirely up in place the upper end of the locking-brace *d* quickly moves forward into the recess *t'* beneath the breech-block by the action of the spring *h* upward against the shoulder *g*; as the cam *a* is then in the upper and forward part of its recess *s'* in the breech-block, both levers *e* and *f* are free to move forward again, the end of the locking-brace moving the bar *f* forward as the former moves into position beneath the breech-block, and the projection *o* upon the fire-pin moving the bar *e* forward when the fire-pin is struck by the hammer.

It will be seen that as long as the sear is kept in position beneath the shoulder *g* of the locking-brace said brace cannot be thrown back from beneath the breech-block, and the block will be locked up firmly in position at the rear of the barrel; and it will be seen, also, that the power applied by the cam to the end of the bar *f* is thus applied to great advantage, as the cam is very short as compared with the length of the lever *E* used to move the cam, and the end of the bar *f* is forced against the swinging end of the locking-brace, so that the amount of force as applied to the locking-brace to press it back from beneath the breech-block is greatly multiplied while being transferred from the lever *E* to the locking-brace, and the working parts of the gun are operated with the most perfect ease and facility.

Instead of using the lever upon the outside of the frame the cam *a* may be extended upward and out at the top, as shown in dotted lines at *E* in Fig. 2, thus forming a lever to be used inside the frame, with a corresponding recess in the side of the breech-block extending back sufficiently far, as indicated by the dotted line *v*, for the said lever to have its required play before the cam acts upon the breech-block. I prefer, however, in the present arrangement, to use the lever outside the frame.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. The longitudinally-moving bar *f*, and cam *a* operated by the lever *E*, whereby the locking-brace *d* is moved from beneath the breech-block, and the breech-block moved down by the same movement of the said lever, substantially as described.

2. The longitudinally-moving bar *e* and cam *a* operated by the lever *E*, whereby the fire-pin *s* is forced back and the breech-block moved down by the same movement of said lever, substantially as described.

3. The pin *b*, in combination with the cam *a*, when operated by means of the lever *E*, all constructed and operating substantially as and for the purpose described.

4. The fire-pin *s* having thereon the projec-

tion *o*, in combination with the sliding bar *e*, whereby the said pin is forced back by suitable mechanism operating against said bar, substantially as described.

5. The pin *b* having combined therewith the cam *a*, the extractor *c*, and the finger *c'*, all substantially as and for the purpose described.

6. The combination of the lever *E*, pin *b*, cam *a*, bar *f*, and locking-brace *d*, all substantially as described.

7. The combination of the lever *E*, pin *b*, cam *a*, bar *e*, and fire-pin *s* having the projection *o* thereon, all substantially as and for the purpose set forth.

MARTIN J. CHAMBERLIN.

Witnesses:

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