

SMITH & CHAMBERLIN.

Breech Loading Fire Arm.

No. 112,505.

Patented March 7, 1871.

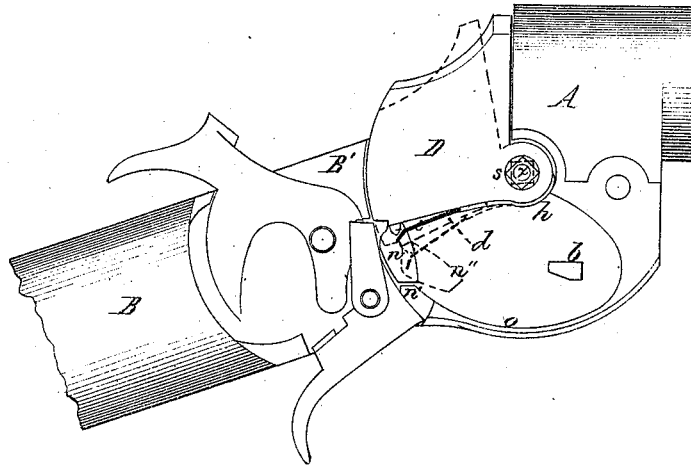


FIG. 2

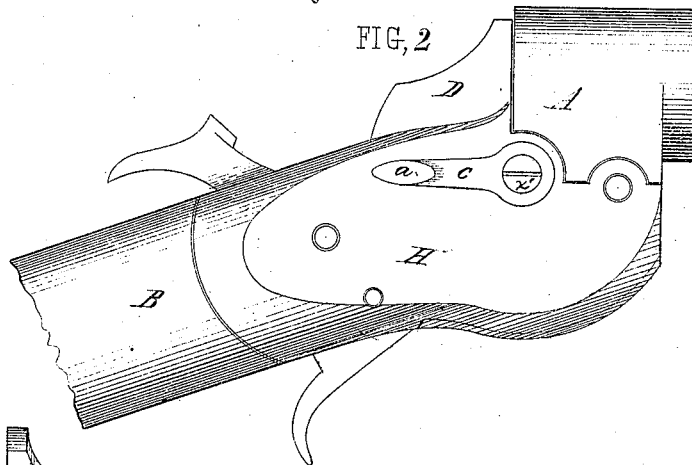


FIG. 3

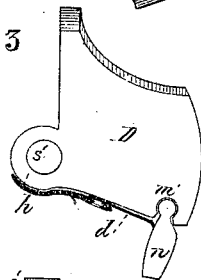


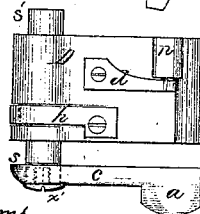
FIG. 5



FIG. 6



FIG. 4



Witnesses,
B. F. Adams
Clarence Buckland.

Dexter Smith
Martin J. Chamberlin Inventors,
By J. A. Curtis, their atty.

United States Patent Office.

DEXTER SMITH AND MARTIN J. CHAMBERLIN, OF SPRINGFIELD,
MASSACHUSETTS.

Letters Patent No. 112,505, dated March 7, 1871.

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 we, DEXTER SMITH and MARTIN J. CHAMBERLIN, both of Springfield, in the county of Hampden and 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 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 side view of a fire-arm made according to our invention, with the lock-plate removed.

Figure 2 is a similar side view, but with the lock-plate in place, and with the thumb-piece or lever attached, by means of which the breech-block is operated.

Figure 3 is a side view of the breech-block, showing the method of securing the oscillating bolt in the block.

Figure 4 is a plan view of the lower side of the breech-block, showing the connection of the oscillating bolt with its spring, and also showing the friction-spring attached to the breech-block.

Figure 5 is an enlarged front view of the oscillating bolt; and

Figure 6 is a side view of the same, showing the operation of the spring and the cam upon said bolt.

Our invention relates to that class of breech-loading fire-arms wherein a breech-block is used which swings within the frame in a longitudinal and vertical direction; and

It consists in the construction of said arm, whereby the breech-block is securely locked when brought up into place behind the bore of the barrel, after the cartridge has been placed in the gun, so that in case the cartridge is prematurely exploded after the breech-block has been brought forward into place, but before the hammer has been thrown forward, there will be no danger at the breech of the gun from such explosion, as the breech-block will remain securely locked in its place until it is moved by the operator to withdraw the shell.

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

In the drawing—

A represents the breech of the barrel;

B, the stock;

B', the lock-frame; and

H, the lock-plate.

D represents the breech-block, and the oscillating bolt is shown more fully in figs. 5 and 6, in which *m* is a cylindrical part upon the top, by which the bolt

is suspended in a correspondingly-formed recess, *m'*, made in the lower side of the breech-block, shown in fig. 3.

A projection, *i*, is made at one side of the upper part of the bolt, which projection has a point at the lower end, which may be slightly rounded, if desirable, to make it more noiseless in its operation, and the breech-block is cut away just at the entrance of the cylindrical recess *m'*, upon the lower side of the block, so that the bolt *n* may swing to and fro longitudinally with the gun.

A spring, *d*, is attached to the lower side of the block, and the free end of said spring is bent at a somewhat sharp angle, as shown fully at *x*, in fig. 6.

A shoulder, *n'*, is made in the lock-frame, beneath the breech-block, and a projection, *b*, is made in the bottom of the recess, in which the breech-block swings.

The spring *h* is secured to the lower side of the breech-block, the free end of said spring being slightly curved, and made to impinge against the lock-frame beneath the rear end of the barrel, for the purpose of holding the breech-block in any desired position when swung partially back.

One of the pivots upon which the breech-block swings is made prismatic in form at the extreme end, as shown in fig. 1, at *s*, and a threaded hole, *x*, is made in the end of said pivot.

A lever, *c*, having a hole in one end to fit well the prismatic end *s* of said pivot, is placed thereon, and secured in place by a screw, *x'*, the lock-plate H, however, being first put in place before the lever *c* is placed upon the pivot *s*, and the other end of said lever *c* has a projection thereon at *a*, by means of which the said lever may be the more readily operated or rotated by the thumb or finger.

The operation of our invention is as follows:

If the breech-block is up in place at the rear of the barrel and the hammer is at full cock, as shown in fig. 1, if the trigger is pulled to let off the hammer, the upper part of the trigger, as it moves forward from under the hammer, forces the bolt *n* forward from off the shoulder *n'*, throwing said bolt into the position shown in dotted lines at *n''*, in fig. 1.

When in this position the point of the projection *i* bears upon that side of the angle *x* of the spring *d* which is longest or nearest the point of attachment, as shown in fig. 6. This projection *i*, I denominate a cam, and the spring in this position serves to retain the bolt *n* in this same relative position with the breech-block, which moves downward and forward until the bolt, in its forward movement, impinges, upon its upper side, against the projection *b*.

When this occurs, the said bolt is forced downward, striking against the side *o* of the recess, and the point of the cam *i* passes to the other side of the apex or angle α of the spring, and the bolt is held against the curved side *o* by this action of the short bent end of said spring upon the cam *i*, until the breech-block is brought up to its place at the rear of the barrel, when the bolt *n* is forced into its place over the shoulder *n'* by this action of the spring, where it is held until forced out again by the trigger.

Instead of throwing the bolt forward by the upper part of the trigger, as thus described, that part of the trigger which bears against the bolt to throw it forward might be cut away, and a projection made upon the lower part of the hammer, in front, so that the hammer would throw the bolt forward when it was let off by the trigger and moved forward.

It will be seen that although the breech-block *D* is locked by the bolt *n* as soon as said block is brought up to its position behind the barrel, yet it is immediately thrown out again, or unlocked, by throwing the upper part of the trigger forward to let the hammer down; but the upper part of the trigger passes forward beneath the breech-block, and locks it at the same time the bolt *n* is thrown forward. This method of locking the block by the trigger, however, was the subject-matter of another invention, for which Letters Patent have already been granted to Martin J. Chamberlin, and is not therefore included in this application, and forms no part of this invention, the locking device herein described relating wholly to the plan of locking the breech-block during the operation of loading the arm, and until after the cartridge has been introduced into the barrel and the breech-block brought up to its place; as persons have been seriously injured by quickly throwing up the breech-block after the cartridge was inserted, as the firing-pin, just protruding through the block, was sufficient to explode the cartridge by striking it when the block was brought up suddenly.

The breech-block is swung or rotated upon its pivots or bearings by pressing down upon the thumb-

piece *a* upon the lever *c*, and if pressed downward and forward the breech-block will move with it until the bolt *n* has been thrown back or down against the side *o*, when the block may be moved back by pressing upon said thumb-piece *a*, the breech-block being in this manner operated from its center of motion.

It will be seen that the trunnions or pivots *s* and *s'* are made firm upon the breech-block, and they may be made either in one piece with the said block, or in separate pieces, and attached thereto, so that said trunnions or pivots shall rotate with the breech-block, and not independently of it.

We are aware that various devices have heretofore been known and used for securing a swinging breech-block in its proper position behind the barrel, and for moving said breech-block to and from its place behind the barrel, but never, to our knowledge, has the device substantially herein described been known or used before.

Having thus described our invention,

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

1. The swinging or oscillating bolt *n*, when retained in position by the spring *d*, and operated by the ordinary movements of the hammer, trigger, and breech-block, in loading and discharging the arm, substantially as described.
2. The breech-block *D*, when provided with trunnions or pivots *s* and *s'* firmly secured thereto, in combination with the lever *c*, whereby the said block is operated, substantially as described.
3. The friction-spring *h*, secured to the swinging breech-block *D*, in combination with the lock-frame and the operating lever *c* attached to the pivot or bearing of the said breech-block, substantially as herein described.

DEXTER SMITH.
MARTIN J. CHAMBERLIN.

Witnesses:

T. A. CURTIS,
CLARENCE BUCKLAND.