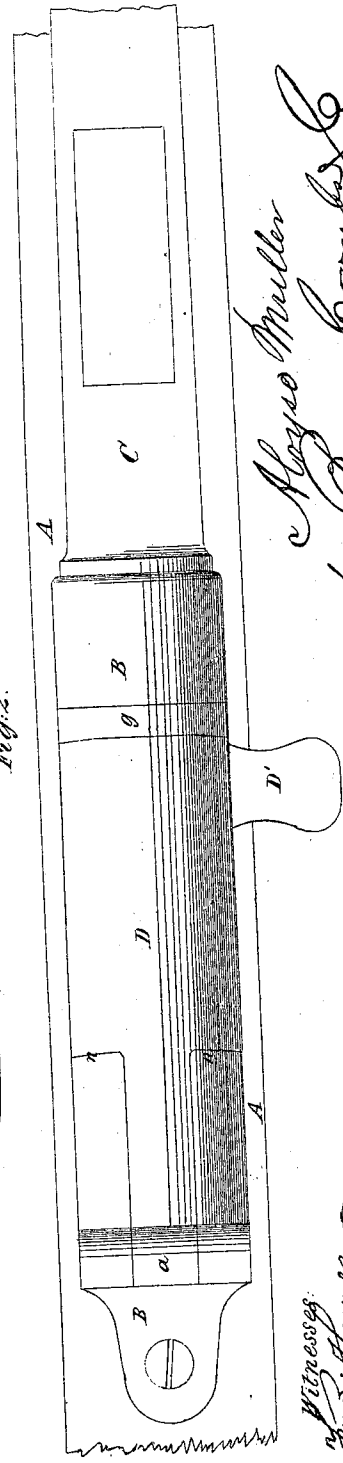
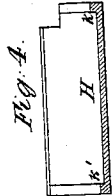
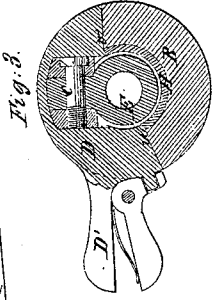
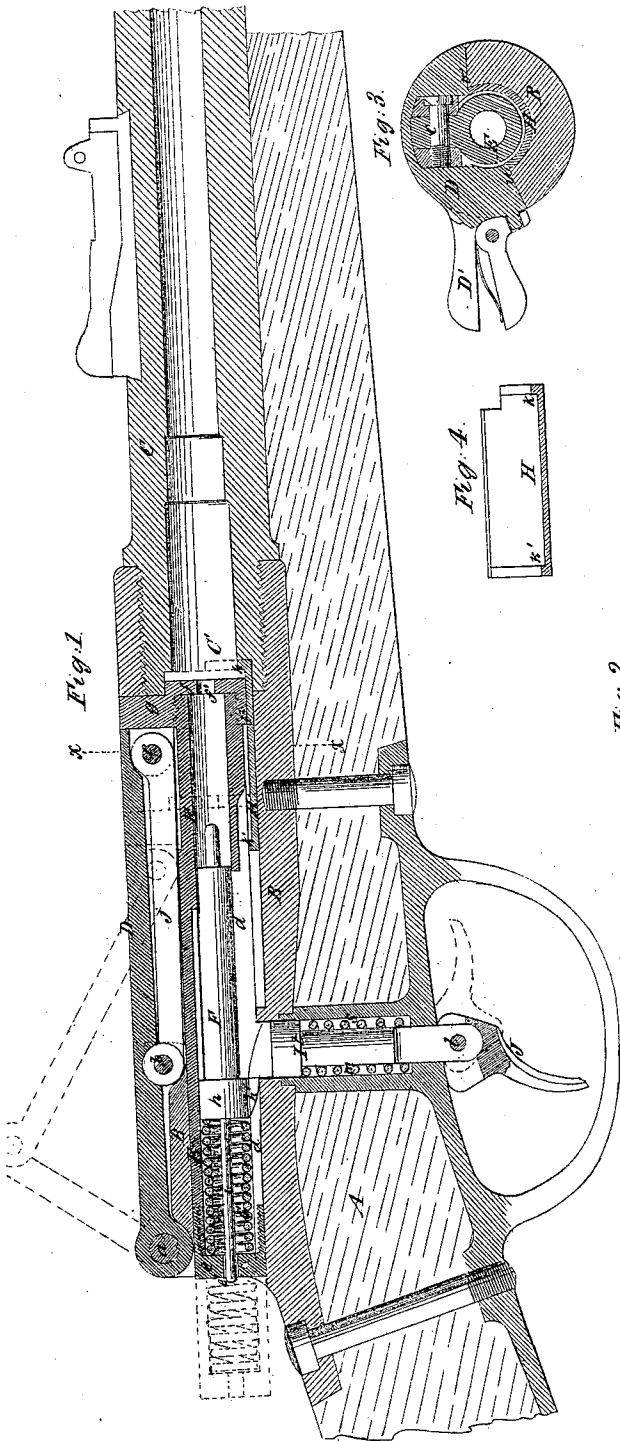


A. MULLER.
BREECH LOADING FIREARMS.

No. 103,488.

Patented May 24, 1870.



*Alexs Muller
per Geo Coombs & Co
Attorneys*

*Witnesses:
Geo. Hames
J. W. Coombs*

United States Patent Office.

ALOYSE MULLER, OF PARIS, FRANCE.

Letters Patent No. 103,488, dated May 24, 1870.

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, ALOYSE MULLER, of the city of Paris, in the Empire of France, have invented certain new and useful Improvements in Breech-loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, and in which—

Figure 1 represents a longitudinal vertical section of a breech-loading fire-arm constructed in accordance with my invention, showing the parts in full lines in position for firing, and in dotted lines in the act of withdrawing the shell.

Figure 2 represents a plan of the same, corresponding with fig. 1.

Figure 3 is a transverse section on the line xx ; and

Figure 4 is a detached sectional view of the extractor.

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

This invention relates to breech-loading fire-arms, in which the movable breech consists of a bolt or plunger, working in line with the barrel.

It consists in a novel combination of and mode of applying trigger and sere, whereby great security against accidental discharge is obtained.

The invention is applicable to fire-arms in which the breech-receiver is formed within the barrel itself, or to those in which the breech-receiver consists of a separate piece, into which the barrel is screwed or otherwise secured.

The drawing, which I will now proceed to describe, represents a gun with the breech-receiver composed of a separate piece.

A is a gun-stock of ordinary construction, to which the breech-receiver B is firmly attached. This breech-receiver is bored centrally throughout, the front portion of its bore being larger than the diameter of the cartridge, but the rear portion of it being of reduced size.

In the upper part of this breech-receiver is an opening, $u v$, fig. 3, for the introduction of the cartridges for loading, and into this opening there is fitted the cover D, which is hinged, at a , to the rear end of the receiver, and the front portion of which is capable of being raised up with a lever-like action, as illustrated in dotted outline, fig. 1. The forward portion of this cover is of semi-cylindrical form in its transverse section, to fit closely the opening $u v$ in the top of the breech-receiver, while its rear portion is formed into a tail-piece, to connect with the hinge a .

E is the movable breech, of the form of a hollow cylindrical bolt, provided on its under side with a slot, d , along a great portion of its length.

The ends of this breech are fitted with caps $e f$, the rear cap, e , being made flush with the outer peripheral surface of the breech, while the front cap, f , is made of a diameter equal to that of the flange of the cartridge used, and is provided on its upper surface with a reinforce or flange, g , of a size to be even with the outer surface of the breech-receiver.

The said caps are bored centrally, as shown at $e' f'$, in fig. 1, for the passage of the firing-pin F.

The breech E is connected, at c in the rear of the flange g , by a rod, j , with the cover D, at a point, b , near the hinge a , the connections at c and b consisting of hinges or pin-joints.

The firing-pin is made to fit easily within the bore in the forward part of the breech E, and is furnished, on its rear part, with a collar, h , which fits the larger bore in the rear part of the breech.

This firing-pin is also provided, at its rear end, with a tail-piece, i , which passes through and fits the hole e' in cap e of the breech, when the latter is forced into position to close the chamber, and the firing-pin F is cocked. The front portion of the firing-pin is greatly reduced in diameter, to enable it to pass through the hole f' to explode the cartridge.

G is a spiral main-spring, placed behind the firing-pin F, in the rear portion of the breech E, to operate said firing-pin.

H is a shell-extractor, made in the form of one-half of a tube which has been divided longitudinally, and having short flanges, $k k'$, turned inside on its ends. The inside diameter of this extractor is equal to the outside diameter of the flange of the cartridge.

Said extractor slides inside the forward portion of the breech-receiver B, and is allowed to enter the enlarged end of the chamber C.

I is the sere, which is made in the shape of a piston, having both ends flattened sidewise.

This sere works vertically or perpendicularly to the bore of the gun in a tube, s , formed on the trigger-guard plate.

Its upper end is allowed to pass up through the slot d provided in the under side of the breech E, to engage with the projection k' , on the collar h of the firing-pin F.

Its lower end protrudes through the exterior of the guard-plate, and is there connected with the trigger J, by means of the pin l , upon which the trigger works.

A spiral spring, m , is placed within the tube s and around the sere below the shoulder t , provided upon the latter, forces the latter up through the slot d as far as necessary to hold the firing-pin F back when the arm is loaded.

The operation of this fire-arm is as follows:

To insert the cartridge, the cover D, which is provided on its right-hand side with a spring button or

knob, *D'*, is raised by taking hold of the latter, and, in being lifted up, is caused by its lever-like action on the rod *j*, to draw back the breech far enough to allow the free insertion of the cartridge into the breech-receiver, so that the flange of the cartridge rests on the extractor inside of the flange *k*. By this drawing back of the breech, the firing-pin *F* has also been drawn back far enough for its projection, *k*, to pass the sere, over which the said projection is enabled to pass by reason of the under surface of the said projection *k* and the upper surface of the sere *I*, being tapered in opposite directions. When the projection has entirely passed the sere, the latter rises up and locks the firing-pin fast, or, in other words, holds it cocked.

The cartridge having been placed into the breech-receiver, the cover *D* is brought down again, thereby forcing forward the breech *E*, which clamps the flange of the cartridge between it and the flange *k* of the extractor *H*, and thus forces the cartridge home into the chamber *C* in line with the axis of the bore of the barrel. By the act of forcing forward the breech while the firing-pin is held back by the sere, the main-spring is contracted, so as to exercise sufficient power on the firing-pin as soon as the latter is relieved by the action of the trigger *J*. When the cover is fully down and securely locked by the spring knob, as shown in full lines in fig. 1, the arm is ready for firing.

After the discharge of the arm, the cover *D* is raised again, when the shoulder *f'*, on the cap *f*, strikes the flange *k* of the extractor *H*, and draws the latter away from the chamber and the cartridge with it, the flange

of the cartridge being inside of the flange *k* of the extractor.

To take the action of the recoil, which occurs when the powder is exploded, off the hinges *a b c*, and prevent the cover *D* from being blown up, said hinges are so arranged as to be in line when the cover is down, but above the axis of the bore of the barrel, and slightly inclined toward the same, so that the recoil would rather have a tendency to close the cover if it was not fully down, than to blow it open.

Cheeks *n n*, formed on the rear part of the breech-receiver, against which the cover *D* closes when down, take the recoil wholly off the hinges *a b c*.

To guard against accidental discharges, the trigger *J* can be thrown up, as shown in dotted lines in fig. 1, whereby it is more securely protected against being caught. The spring *m* still exercises pressure enough on the trigger when in that position so as to hold it fast enough to resist considerable pressure.

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

The combination of the sere *I*, sere-spring *m*, and trigger *J*, the whole arranged and operating in relation with each other and with the firing-pin, substantially as herein described.

AL. MULLER.

Witnesses:

PH. GENTZ,
E. BELLOT,
F. OLCOTT.