F. J. MESLE.

Breech-Loading Fire-Arm.

No. 207,056. Patented Aug. 13, 1878.

Fig: 1.

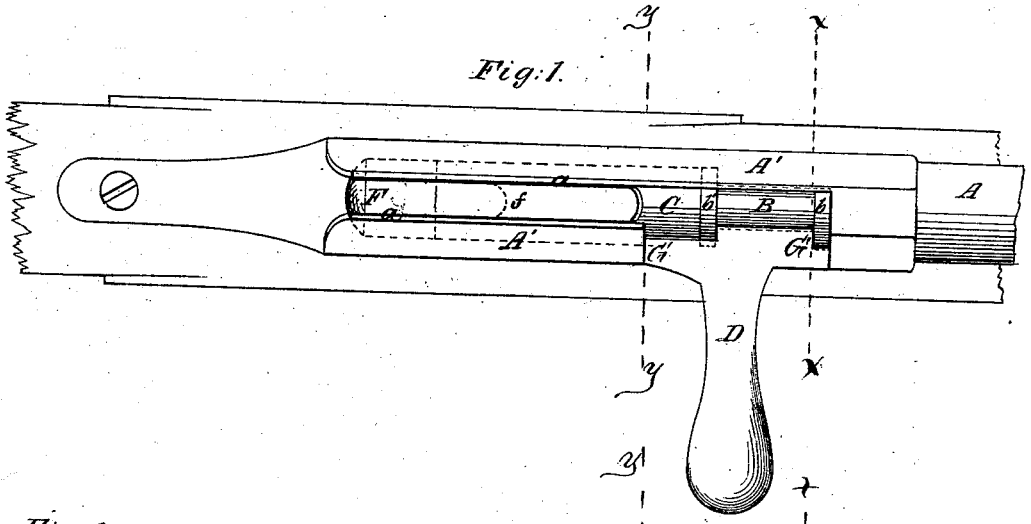


Fig: 4.

Fig: 2.

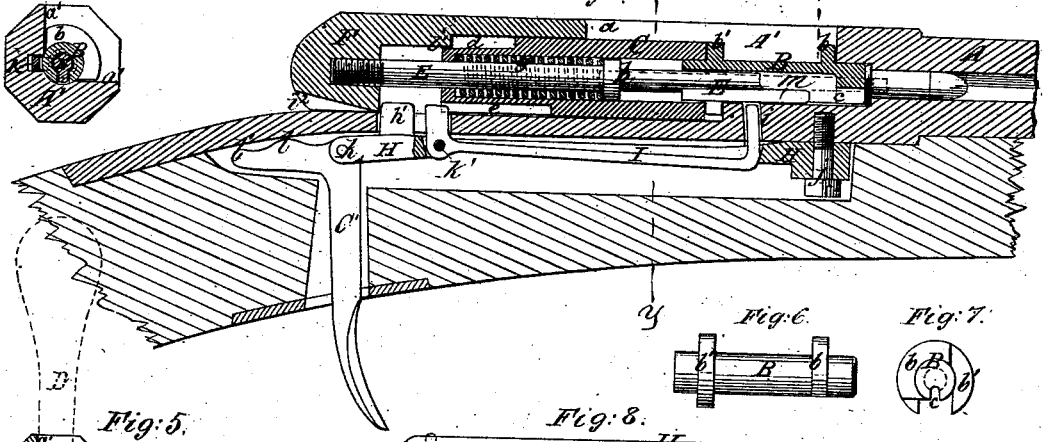


Fig: 6.

Fig: 7.

Fig: 5.

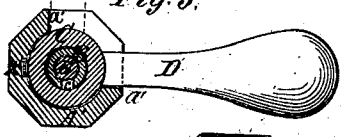


Fig: 8.

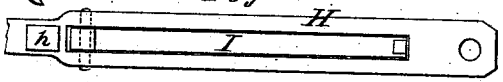


Fig: 3.

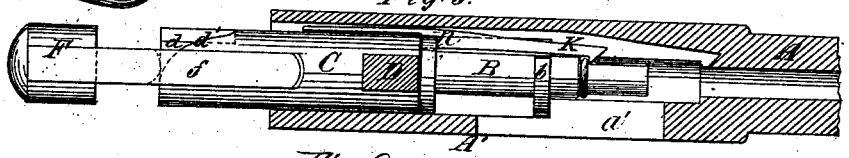
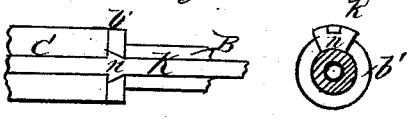


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANZ J. MESLE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. **207,056**, dated August 13, 1878; application filed April 26, 1877.

To all whom it may concern:

Be it known that I, FRANZ JOSEPH MESLE, of the city of Brooklyn, State of New York, have invented a certain Improvement in Breech-Loading Fire-Arms, of which the following is a specification:

My invention relates to breech-loading fire-arms in which the breech is closed by a sliding bolt and the cartridge fired by a spring-acted pin passing through said bolt.

It consists in a novel construction, combination, and arrangement of parts, and has for its objects to simplify the construction, improve the operation, and facilitate the manipulation of the weapon, as will be fully hereinafter set forth.

In the drawings, Figure 1 is a plan or top view of a rifle-breech provided with my improvements. Fig. 2 is a vertical longitudinal central section of the same. Fig. 3 is a horizontal longitudinal section of a portion of Figs. 1 and 2. Fig. 4 is a transverse section on the line *x x*, Figs. 1 and 2. Fig. 5 is a transverse section on the line *y y;* and the remaining figures are detail views.

The invention is shown as applied to a rifle in which the breech is closed by a sliding bolt the axis of which is coincident with that of the barrel. This bolt is formed of two parts—a rear piece and a forward piece. The forward portion is capable of sliding to and from the breech, but not of turning. The rear piece is swiveled to the forward piece, and is capable both of sliding back and forth and of turning. On its side is formed a locking-block, from which projects a handle for operating the parts.

The bolt as thus described moves in a cylindrical bore in a breech-piece, forming a rear extension of the barrel. The top of this breech-piece is slotted, and its side at its forward part is cut away for receiving the locking-block formed on the rear piece of the bolt, when the handle is turned down to a horizontal position. On turning the handle up to a vertical position the bolt may be slid back, the locking-block sliding in the slot in the breech-piece.

The firing-pin passes centrally through both portions of the bolt, and is drawn back or cocked by the turning of the handle, preparatory to opening the breech, by an incline or cam surface on the rear end or the rear piece of the bolt, which, as the bolt is rotated, acts on a shoulder or projection on an arm or bar projecting from the block to which the firing-pin is secured, which arm or bar slides in the slot in the breech-piece.

The pin is held cocked by a spring-trigger, which, on being tripped, allows the pin to fly forward.

The extractor is secured on the side of the bolt, and moves with it. It is provided at its forward end with a hook operating in the usual way.

The shell-ejector, for throwing out the empty shells after they have been extracted, consists of a lever both ends of which project upward through holes in the breech-piece. As the breech-bolt is moved back a projection or shoulder on it comes against the rear limb of the lever, and throws up its front extremity through the hole in the breech-piece, and thus ejects the shell.

I will now describe the fire-arm with reference to the drawings, and set forth more particularly the improvements therein which I consider of my invention.

A is the barrel, and A′ the breech-piece, which may be formed directly on the rear end of the barrel or be properly attached thereto. It is formed, as shown, with a bore, the rear part of which is of a larger diameter than the forward portion. The rear of the breech-piece is slotted at *a*, while the forward portion of it is cut away, as shown at Figs. 4 and 5, forming two surfaces, *a′ a′*, at right angles to each other.

B C represent the sliding breech-bolt, B representing the front and C the rear piece. The diameter of the rear piece of the bolt is equal to the diameter of the larger bore of the breech-piece, while the diameter of the part B is equal to that of the smaller bore. The two parts of the bolt B C are united by a flange or shoulder, *b′*, on the one, B, fitting into a recess or groove in a block or bar, G′, projecting from the front end of the other piece, C. The piece C is provided with a central bore for the reception of the firing-pin E, which passes through it, the diameter of the bore being sufficiently large at the forward extremity to receive one end of

the piece B, which enters it when the pieces are together. It (the piece C) has projecting from its forward end the locking-block G′, on which is formed the handle D. The piece B is provided at a short distance from its forward end, for a portion of its circumference, with a flange or shoulder, *b*, which slides against the surfaces *a′ a′* of the cut-away part of the breech-piece, thus preventing the turning of the piece B, and also acts to more effectually close the breech and cover the vent. Another flange, *b′*, is formed at the other (the rear) end of the piece B at a short distance from its extremity. This flange is partly cut away, as shown at *c*, Fig. 7, to allow the piece to be slid on over the firing-pin and its extremity to be inserted in the bore of the piece C, which having been done, it (the piece B) is turned partly around, and its flange *b* enters a notch or groove in the under side of the bar or block G′, thereby locking the two pieces together. The bar G′ fits closely against the piece B, being cut away at its forward extremity to accommodate the flange *b* of the piece.

Such is a description of the breech-bolt. It slides in the bore of the breech-piece to and from the breech, being manipulated by the handle D, and it is locked in position, when closed, by the block or bar G′, the length of which is just equal to the width of the cut in the breech-piece.

E is the firing-pin, passing centrally through both pieces of the bolt, as shown. It moves in the bore of the pieces C and D, and is provided with the collar or shoulder *h*, between which and the end of the piece C is the spiral spring *g*. It is secured to a cylindrical block, F, by being screwed into it, or by a binding-screw. This block F has formed on it and extending from it a bar, *f*, which slides in the slot *a* in the breech-piece, and on the under side of this bar *f* is formed a shoulder, i^1.

The rear end of the bolt-piece C has formed on it an inclined or cam surface, *d*, as shown at Fig. 3, which acts on the shoulder i^1 to draw the pin back as the piece C is turned in the act of unlocking the breech.

h′ is the catch of the trigger, formed on or secured to the free extremity of a long flat spring, H, secured at one extremity to the under side of the breech-piece by the screw *j*. The catch-piece *h′* projects through an opening in the rear of the breech-piece, and an incline, i^2, formed on the under side of the block F, slides over the trigger-catch as the block moves back, and presses it down, and, having passed behind it, the catch springs up in front of the block to hold it back. While the handle D is in a vertical position and the breech unlocked the pin E is held back by the cam *d* itself, and the block does not bear on the trigger-catch *h′* until the handle is turned to lock the breech-bolt. The pin is tripped by the trigger C′, which is a right-angled lever pivoted to the catch-spring at *k*, and having formed on its horizontal limb two projections or undulations, *l l′*, which act as the fulcra of the lever. For rim-firing cartridges, the forward flange, *b*, is grooved at *c*, as shown at Fig. 7, and the forward end of the pin provided with a projecting piece, *m*. For center-firing, the pin passes centrally through the breech-bolt B.

K is the extractor for withdrawing the shells of the fired cartridges from the breech. It is secured to the breech-bolt B by means of a dovetail piece or enlargement, *n*, formed at its rear extremity, which fits into a correspondingly-shaped groove or recess in the flange *b′* of the piece B. It is inserted in this recess and prevented from coming out by the piece C abutting against its end, as will be readily understood.

I is the ejector for throwing out the shells after they have been extracted. It consists of a bar, I, both ends of which are bent up, as shown, and pass up through holes in the breech-piece. The ejector is pivoted at *k′* in a slot in the spring H. The under side of the piece C is grooved, as shown at *e*, the rear projection of the ejector entering this groove as the piece slides back, and as the end of the groove arrives at the projection it strikes against it and throws up the front part of the instrument.

It will be seen that by making the bore of the breech-piece or shoe A′ of different diameters I am enabled to construct a rifle of the smallest bore without reducing the size of the rear portion of the breech-bolt containing the firing-pin and spring, as would have to be done were the bore plain and of the same diameter throughout. The forward part of the bore constitutes the receiving-bed, on which the cartridge is placed to be pushed into the chamber. The diameter of its bore is about equal to that of the rear or flange of the cartridge.

The operation of the device is as follows: An exploded shell being supposed to be in the breech, the first motion is to turn up the handle D to a vertical position—a position at right angles to that in which it is shown in Fig. 1. This motion unlocks the breech-bolt and turns the piece C, the cam *d* at the rear of which acts on the shoulder of the bar i^1 and draws back or cocks the firing-pin, it being held back by the cam *d*. The next motion is to open the breech by drawing back the bolt. In this motion the extractor K extracts the shell, and as the shoulder of the groove *e* in the under side of the piece C comes against the rear projection of the ejector it suddenly and with considerable force throws up the other extremity, which, striking the shell, throws it out of the breech-piece. A fresh cartridge having been placed in position, the third motion is to move the bolt forward, thus inserting the cartridge in the breech. The fourth motion is to turn down the handle to a horizontal position, thus locking the breech and leaving the firing-pin retained by the trigger-catch *h′*. On pulling the trigger its projections *l l′* act successively as its fulcra. The first one brings the catch *h* just on the verge of being tripped, and the second determining the firing. On trip-

ping the catch the pin flies forward, exploding the cartridge as usual.

It will be seen that the bolt and firing-pin can be readily removed from the breech-piece by merely holding back the trigger, and thus depressing the projections h' I below the surface of the bore of the breech-piece, when the bolt may be readily withdrawn, it being retained in the breech-piece solely by the catch h', or the rear projection of the ejector, acting on the shoulder of the groove in the under side of the piece C.

I am aware of the Letters Patent of the United States Nos. 97,167, 1869, and 169,641, 1875, granted respectively to A. A. Chassepot and B. B. Hotchkiss, and No. 78,603, 1868, granted to Norris, Mauser and Mauser, for improvement in breech-loading fire-arms, and I disclaim any and every construction, arrangement, or combination of parts shown or described in said patents.

I claim—

1. The breech-piece or shoe formed with bores of different diameters, constituting the receiving-bed for the cartridge and the retaining-shoe for the rear of the bolt, in combination with a bolt consisting of a forward and rear portion corresponding in their diameters respectively with the bores of the breech-piece in which they slide, constructed and operating substantially in the manner described and specified.

2. The combination, with the sliding piece F, provided with an incline, i^2, the flat spring H, secured at j and provided with a projection, h', and the trigger C′, consisting of a right-angled lever, the horizontal limb of which is formed, as shown, with two projections or undulations, l l', for becoming successively the fulcra of the trigger, constructed and operating substantially in the manner described and specified.

FRANZ JOSEPH MESLE.

Witnesses:

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