F. VON MARTINI. 2 Sheets--Sheet 1.

Improvement in Breech-Loading Fire-Arms.

No. 115,546. Patented May 30, 1871.

FIG. 1.

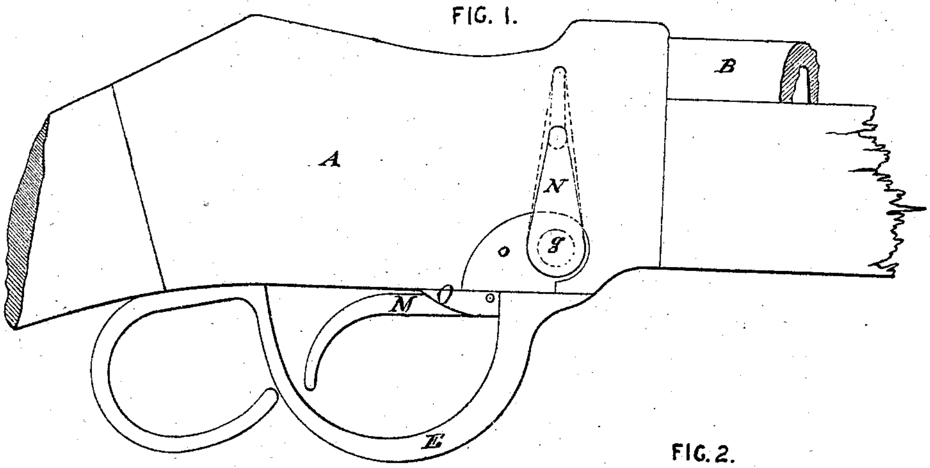


FIG. 2.

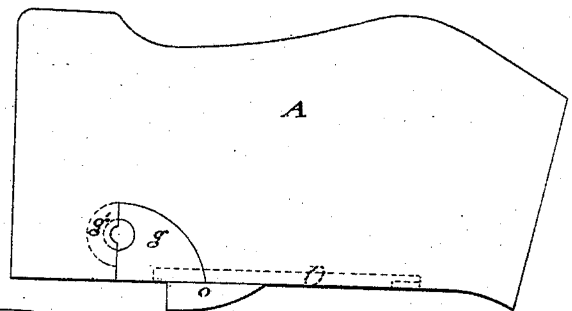


FIG. 3.

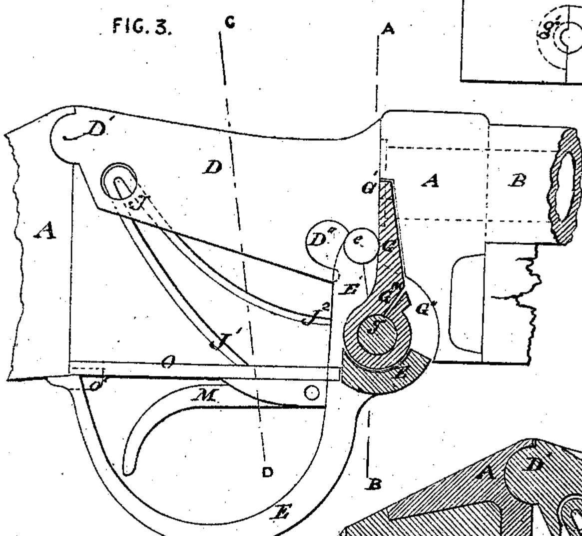
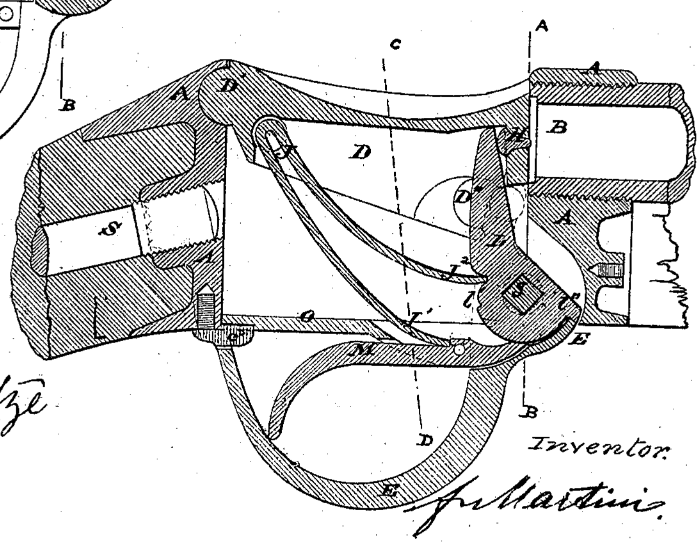


FIG. 4.



Witnesses
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W. Lydwik

Inventor.
F v Martini

2 Sheets--Sheet 2.

F. VON MARTINI.

Improvement in Breech-Loading Fire-Arms.

No. 115,546. Patented May 30, 1871.

FIG. 5.

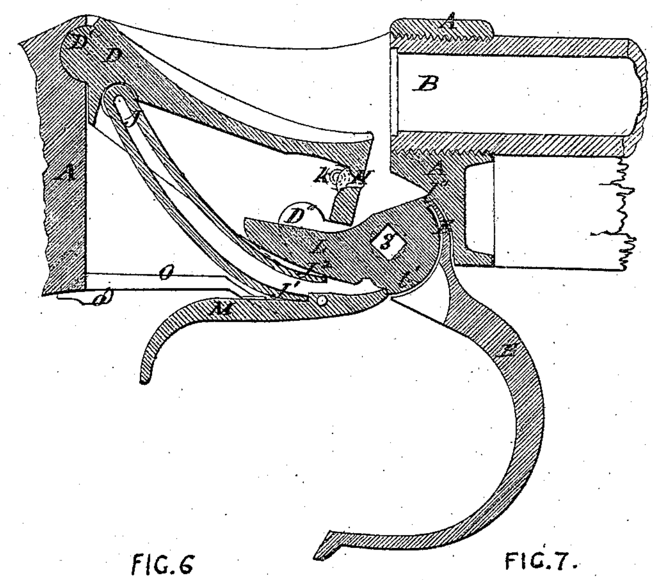


FIG. 6

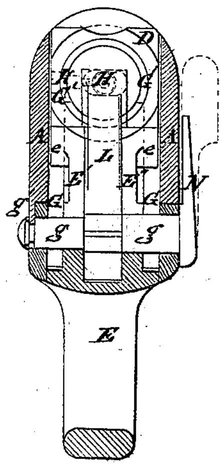


FIG. 7.

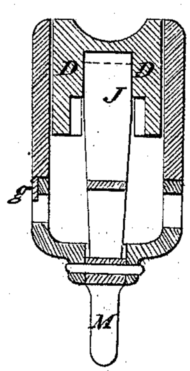


FIG. 8.

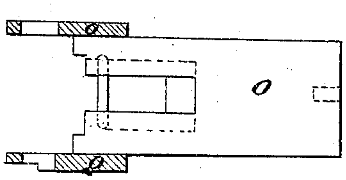
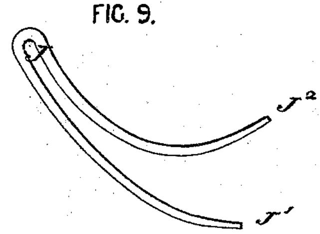


FIG. 9.



Witnesses
Henry Holz
[illegible]

Inventor
F. Martini

UNITED STATES PATENT OFFICE.

FRIEDRICH VON MARTINI, OF FRAUENFELD, SWITZERLAND.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 115,546, dated May 30, 1871.

To all whom it may concern:

Be it known that I, FRIEDRICH VON MARTINI, of Frauenfeld, Switzerland, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1, Sheet 1, is a side elevation, showing the breech-receiver, trigger-guard lever, and indicator. Fig. 2 is a corresponding view of the breech-receiver and trigger-plate. Fig. 3 is a side elevation, partly in section, showing the breech mechanism with the breech closed. Fig. 4 is a longitudinal section in a line with the axis of the barrel, showing the parts in the same position. Fig. 5, Sheet 2, is a similar section, showing the position of the parts when the breech is open. Fig. 6 is a transverse section through the line A B, Figs. 3 and 4. Fig. 7 is a corresponding section through the line C D of Figs. 3 and 4. Fig. 8 is a plan of the trigger-plate partly in section, and Fig. 9 is a detached view of the flat bent spring.

The arm illustrated is arranged for central firing, but the invention is equally applicable to arms constructed for rim-firing. This invention is designed to simplify the construction of the breech-loading action of fire-arms in which the breech end of the barrel is closed by a falling block.

It may be applied in cases where a flat spring is preferred to a spiral spring in fire-arms of the kind now well known as the Martini rifle, and described in the specification of Letters Patent No. 90,614, granted to me on the 25th day of May, 1869.

By this invention the spiral spring at present employed for actuating the discharging mechanism in the Martini rifle may be dispensed with, and the separate functions of the same and other springs heretofore usually employed in fire-arms of the kind above referred to are fulfilled by a single flat bent spring. This flat bent spring is placed in the breech-receiver behind a direct-acting or other hammer. The upper part or bend of the spring partly supports the rear part of the falling breech-block, a recess in the block resting on the bend of the spring. The lower parts of the spring are used for actuating the cocking lever or hammer to discharge the arm, and also as a trigger or sear spring.

The drawing shows this invention applied to the breech mechanism of the Martini rifle, which is constructed in all other respects according to the specification of the former patent hereinbefore referred to, and, for convenience, is principally marked with the same letters of reference.

A is the breech-receiver; B, the barrel; S, the screw, by which the butt end of the stock C is, by preference, secured to the breech-receiver; D, the breech-block, which is formed with a circular projection, D′, made to fit accurately within a corresponding recess formed in the breech-receiver A, as shown, dispensing with the hinge-pin used in the Martini rifle as heretofore constructed, the breech-block being supported by the bent spring, as hereinafter described. The breech-block D contains the firing mechanism, which is the same, excepting as to position, for rim fire and for central fire, and consists of the firing-pin H, flat bent spring J, and cocking-lever L. The cocking-lever L at its upper end bears against the end of the firing-pin H in the position of the parts which obtains when the arm has been discharged. The lower part or fulcrum of the cocking-lever is fitted onto a square-shaped portion of the pin *g*, which, therefore, moves with the said lever. The pin *g* works freely in bearing-holes formed for it in the lugs or ears *o* of the trigger-plate O. This plate closes the lower side of the breech-receiver A, and its foremost end is held in position by the lugs or ears *o*, which fit into corresponding recesses formed in the sides of the breech-receiver to receive them, and a projection, *g′*, on the breech-receiver takes into a corresponding recess in the pin *g* to prevent it from dropping out of its place. At the rear end of the breech-receiver there is a small screw or button, *o′*, which, when in the position shown in Figs. 3, 4, and 5, holds up the rear end of the trigger-plate, or a spring-catch may be used for that purpose in lieu of the button *o′*.

It will be evident that this arrangement enables the trigger-plate, with the breech mechanism attached to it, to be readily withdrawn for examination, and replaced and securely

fixed in position, by simply turning the screw or button, without the employment of a screw-driver or other tool.

The firing-pin H is prevented from leaving its bearing in the front part of the breech-block by a couple of small screws, *k*, one of which is shown in Figs. 5 and 6, which are tapped into the sides of the breech-block D. The ends of these small screws form stops or abutments, which fit into longitudinal recesses or slots in the sides of the firing-pin H at its rear end, thus limiting its backward movement. The shorter arm *l'* of the cocking-lever L is notched to receive the upper arm of the trigger M, which is pressed therein when in suitable position by the lower end J^1 of the spring J. The upper part or bend of this spring holds the breech-block D in its proper place, thus dispensing with the hinge-pin, and partly supporting the rear part of the said breech-block, a recess in the block resting on the bend of the spring, as shown; and the bend of the spring is placed so as to give an upward tendency to the breech-block, thereby assisting to firmly close the breech end of the barrel when the gun is fired; and the end J^2 of the spring is used for actuating the cocking-lever L to discharge the arm, for which purpose this end of the spring takes into a notch or recess formed in the rear part of the cocking-lever, as shown. The cocking-lever L is provided with a projecting shoulder, *l''*, which forms an abutment for a corresponding face on the hand-lever E, which lever serves also as a trigger-guard. The hand-lever works freely upon the fulcrum-pin *g*, and consists of a long arm curved, as shown in Fig. 1, to which the hand is applied, and two short arms, E' E'', each formed with a small projection, *e*. The projection *e* of each arm takes into a cam-recess formed in its own side of the breech-block D. The form of the two recesses is the same, and is shown at D'' in Figs. 3, 4, and 5. They are of irregular shape, and so formed that the breech-block is lowered, raised, and retained or locked by the hand-lever E in the proper positions for loading and firing the piece. At N, Figs. 1 and 6, is shown the external indicator, which is made in one piece with the fulcrum-pin *g* at the right-hand side of the breech-receiver A, so as to follow the movements of the cocking-lever L, thereby invariably indicating its exact position. This indicating-pin may be made as shown dotted in Figs. 1 and 6, so as to serve for cocking and uncocking the lever L independently of the hand-lever E, by being operated like the cock of an ordinary side lock. In this case, when it is desired to effect the position of half-cock, an additional notch for that purpose will have to be provided in the cocking-lever L below the full-cock notch already described. G G are the extractor-levers for expelling the cartridge-case. They work freely upon the pin *g*, one at each side of the forked lever E, and at their upper ends are provided with projecting parts G', which bear against the fore side of the rim of the cartridge-case. These extractor-levers G are provided with faces of metal G'', which form abutments for corresponding faces on the hand-lever E. The faces on the hand-lever E do not come in contact with the abutments G'' until the fore part of the breech-block D has been caused to descend so as to completely open the breech end of the barrel, whereupon the continued depression or forward movement of the hand-lever E brings the metal faces against the abutments G'' of the extractor-levers, thereby suddenly expelling the cartridge-case. This continued movement of the hand-lever causes the breech-block to descend below the point requisite for inserting the cartridge into the barrel; but as soon as the hand of the operator is withdrawn from the hand-lever the block is, by the peculiar action of the flat bent spring J, caused to assume the proper position for guiding the cartridge into the barrel. In order to facilitate the expulsion the extractors are cut or slit at G''' from the holes to the peripheries of their bosses, thus forming in themselves powerful springs, and dispensing with the use of separate extractor-springs.

The operation of the improved breech-loading mechanism is as follows: Referring to Figs. 3 and 4, it will be seen that the mechanism is in that position which obtains when the gun has been discharged. To open the breech for a fresh cartridge, the hand-lever E is depressed, thus causing the upper end of the cocking-lever L to move in the direction of the rear end of the arm, and to carry the upper end J^2 of the spring with it until the notch of the arm *l'* receives the upper arm of the trigger M, as shown in Fig. 5. Simultaneously with this withdrawal of the firing mechanism from the position shown in Fig. 4 to that shown in Fig. 5, the breech-block is caused to descend by the forked ends E' E'' of the hand-lever E, acting in the cam-recesses D'', shown in Figs. 3, 4, and 5. The parts are now in position for the insertion of the cartridge. The piece having been loaded, the lever E is then to be returned to its position against the under part of the stock, which operation will cause the block D to be moved upward into the position for firing, leaving the cocking-lever and upper end J^2 of the spring still held back by the projecting part *l'* of the cocking-lever. After the lever E has been returned to the position in which it is shown in Fig. 2, then, on the trigger being pulled so as to release the cocking-lever L and spring, the firing-pin H will be forced forward by the action of the spring J and cocking-lever until it strikes the cartridge so as to explode it.

Having described my invention, and the manner in which the same is or may be carried into effect, I hereby declare that I do not claim any of the several parts above described

or referred to when taken separately or used otherwise than in combination with a flat bent spring.

What I do claim, and desire to secure by Letters Patent, is—

The combination, in a breech-loading fire-arm, with the breech-block, the cocking lever or hammer, and the trigger, of a single flat bent spring, which shall perform the three separate functions of holding the breech-block in its proper place and position, of actuating the cock or hammer for discharging the arm, and of a trigger or sear spring, substantially as herein shown and described.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

FR. MARTINI.

Witnesses:
GEO. J. B. FRANKLIN,
EDWD. YOUNG.