

W. MORGENSTERN.
Breech-Loading Fire-Arm.

No. 87,190.

Patented Feb. 23, 1869.

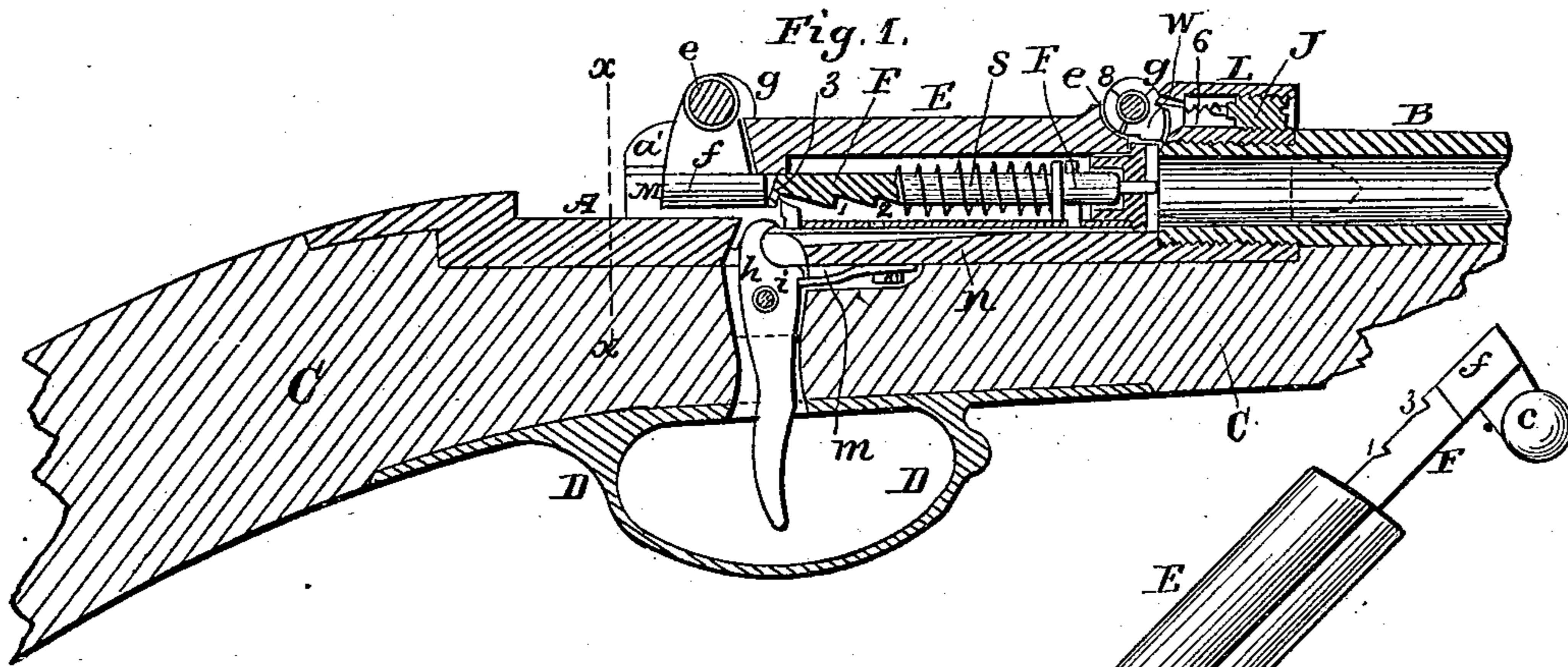


Fig. 2.

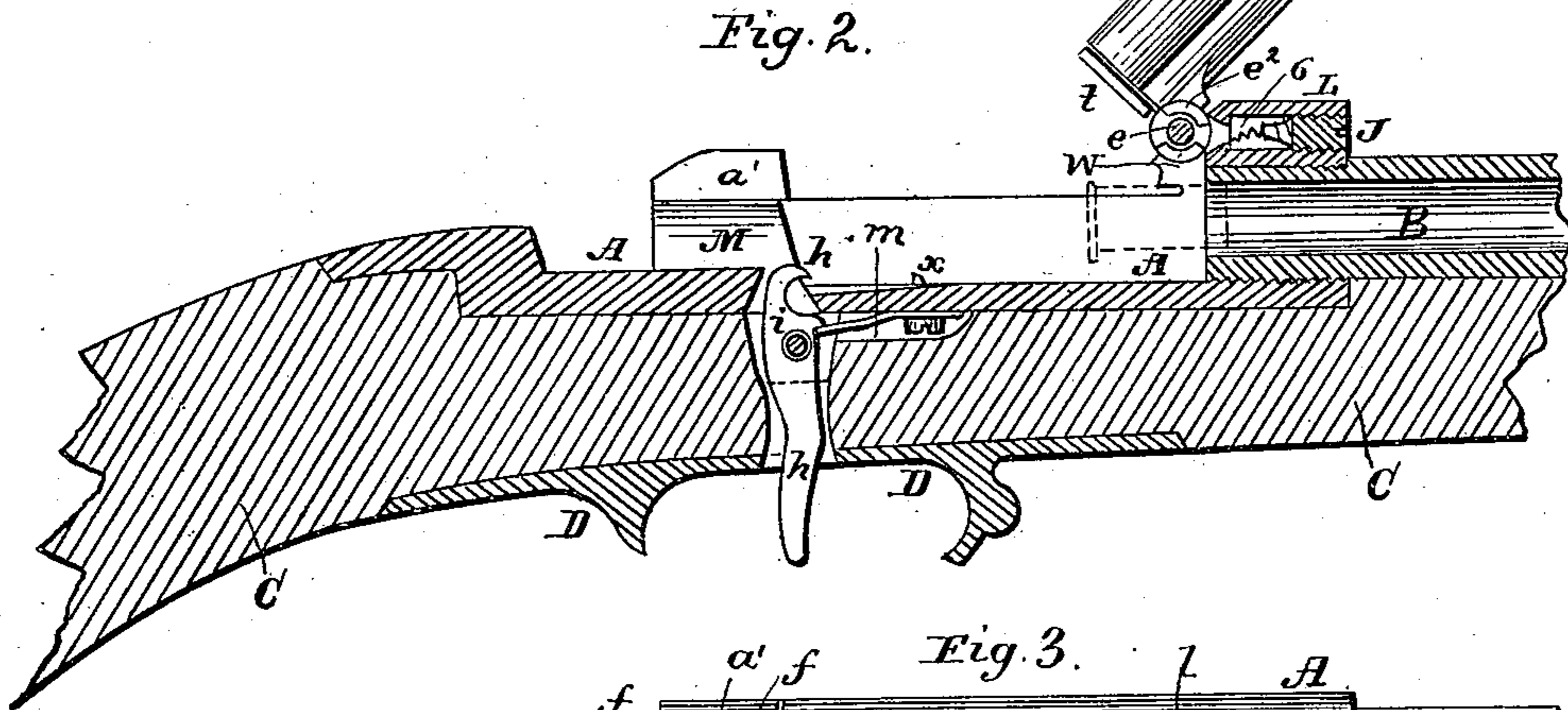


Fig. 3.

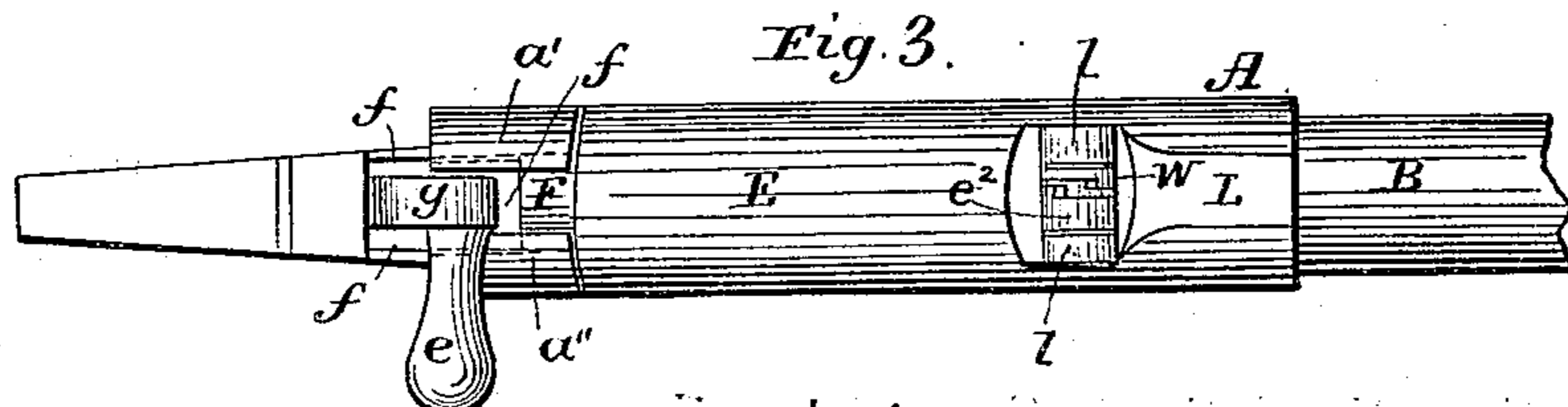


Fig. 4.

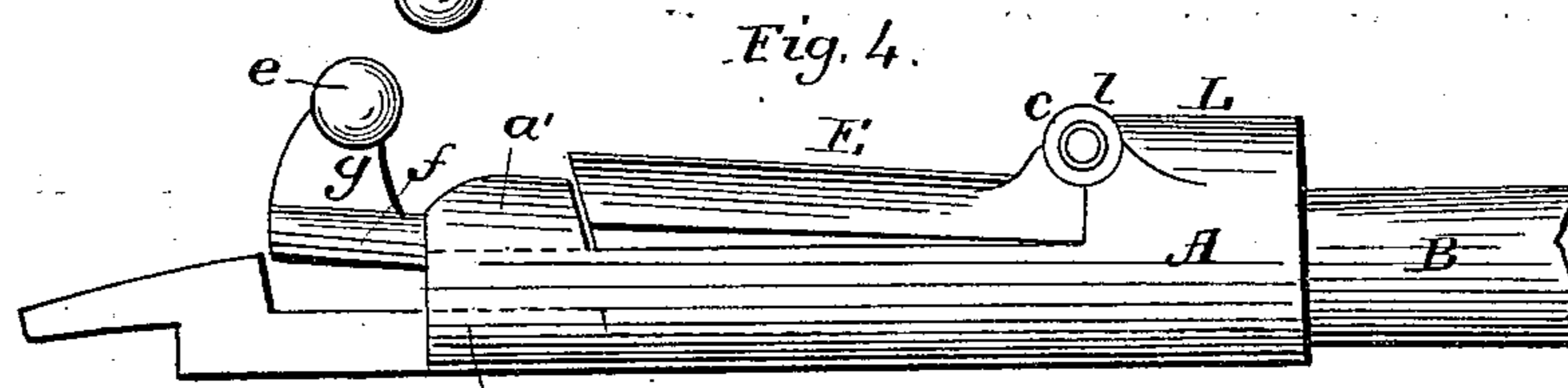


Fig. 5.

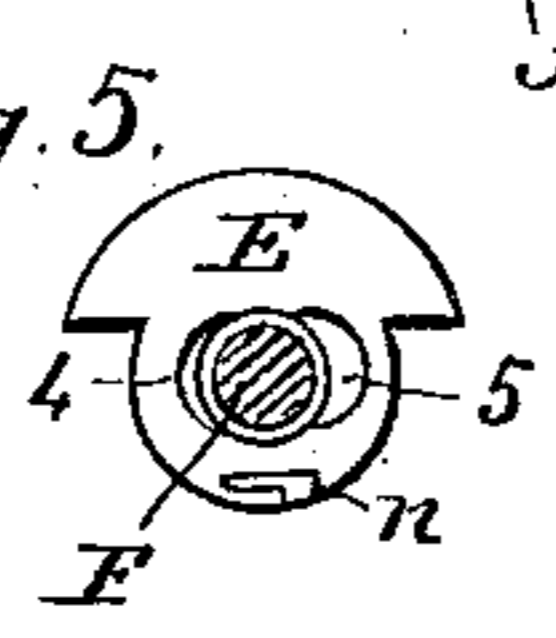
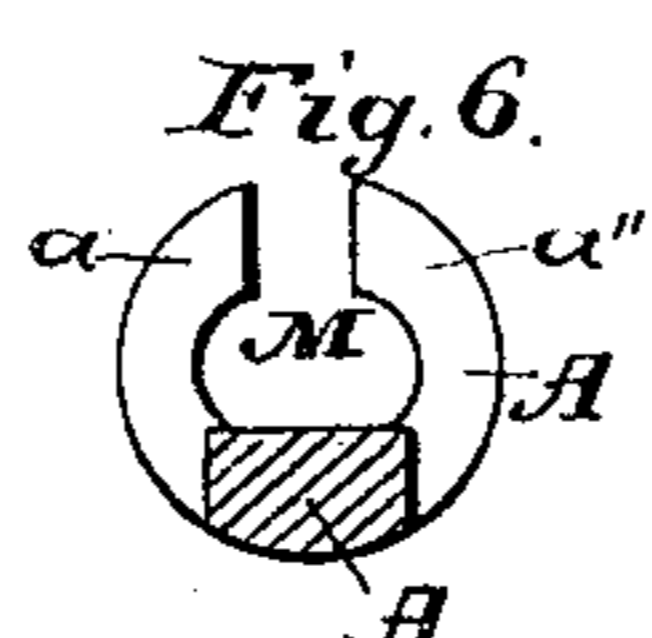


Fig. 6.



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United States Patent Office.

WILLIAM MORGENSTERN, OF NEW YORK, N. Y.

Letters Patent No. 87,190, dated February 23, 1869.

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, WILLIAM MORGENSTERN, of New York, New York county, in the State of New York, have invented certain new and useful "Improvements in Breech-Loading Guns;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to certain new and useful improvements in breech-loading, and has for its objects to simplify and render more efficient, economic, and in every way more desirable, this character of fire-arms.

To enable those skilled in the art to make and use my invention, I will proceed to describe the construction and operation of one of my improved breech-loading guns, referring by letters to the accompanying drawings, in which—

Figure 1 is a longitudinal section;

Figure 2 is a similar sectional view, but with the breech-piece thrown up;

Figure 3 is a detail top view;

Figure 4 is a detail side view, illustrating the closing of the breech;

Figure 5 is a detail view, showing the form of rear end of breech-piece; and

Figure 6 is a detail view or section at $x x$, fig. 1, showing form of rear portion of breech-frame or receiver.

In the several figures I have designated the same part by the same letter of reference.

A is the frame or breech-piece receptacle;

B is the barrel;

C, the stock;

D, the guard; and

E, the hinged or swinging breech-block.

The barrel B may be screwed into the forward end of the frame A, as clearly shown, and these parts, together with the stock and guard, may be arranged and united in the usual manner.

The breech-block E is hinged, at its upper forward portion, (immediately in rear of the barrel,) to the frame A, by means of a stud or pin, c , passing through the projections or ears $l l$, and is provided with a suitable gas-plug, t , which, when the breech-block is closed, forms the breech of the charge-chamber, or support for the rear end of the cartridge, as clearly seen at fig. 1.

Within the swinging breech-block E is arranged to slide longitudinally, in suitable bearings, the hammer-pin or firing-pin F, which is actuated by a spiral spring, s , and the forward end of which may be reduced in diameter, and allowed to pass through the gas-plug t , as shown, so as to strike the centre of the base of the cartridge, or said forward end of said pin may be otherwise shaped, if deemed expedient to adapt it to other kinds of cartridges.

1 and 2 are half-cock and full-cock notches of the hammer or firing-pin F; and

$o n$ is a spring-sere, which takes into said notches, and holds the said pin F back until let off by the trig-

ger h , which is pivoted at i in such a manner that when its lower end is pulled back, its upper end will pull down the spring-sere $o n$, and withdraw the latter from the notches of pin F.

The trigger h is provided with a spring, m , and the screw, which secures the end of said spring to the lower side of frame A, passes up through said frame, and is bevelled off at x , (see fig. 1,) in such a manner as to form an inclined plane, over which the empty cartridge-case rides, and by which it is lifted, as will be presently explained.

The firing-pin F is formed with an enlargement or dog, g , about equal in thickness to the diameter of said pin F, and consequently capable of sliding back and forth through the slot or opening in the housing or breech-portion, $a' a''$, of the frame A; and said pin F is also enlarged, at f , to fit the cut-under or enlarged opening at M of the housing, as and for purposes to be presently explained.

e is a handle or hand-piece, projecting from one side of the dog, as shown, for conveniently pulling back or cocking the hammer or firing-pin, and lifting and closing the swinging or vibratory breech-block E.

Upon the axis or pin c , on which the block E turns, is hung the cartridge-extractor and ejector W, which is so formed and operated, as will be presently explained, as to withdraw and eject the empty cartridge-shell, when the breech E is swung up to reload the arm.

6 is the ejector-spring, which, together with its set-screw J, is arranged within the enlargement L of the frame A.

The mode of operation of my improved gun, in firing, may be thus briefly explained:

We will suppose the gun to have been loaded and fired, the parts would then be in the relative positions illustrated at fig. 1. To reload and fire, the operator must take hold of the dog-handle e , pull back the hammer or firing-pin to the cock-notch, and swing up the breech-block E, as seen at fig. 2. As the breech-block is swung up, the shoulder 8, of the portion e^2 , comes in contact with the shoulder 9 of the extractor w , and carrying it along with it, in its rotation about the axis c , causes said extractor to force back and out of the charge-chamber the empty cartridge-case.

The volute spring 6, it will be seen, presses against the extractor W, in such a manner, before said extractor is moved by the swinging breech-block, (see fig. 1,) as to tend to retain said extractor in the position seen at fig. 1, but after the said extractor has been turned so far on its axis, as to bring the point against which spring 6 bears below a right line passing through the said axis and the centre of screw J, the said spring then presses upon the said extractor in such a manner as to force the extractor into the position illustrated at fig. 2; and since this effect on the extractor W is produced suddenly by the strong spring 6, and after the empty case has been loosened from the rear end of barrel, the said empty shell will be suddenly and violently ejected or expelled backward from the charge-chamber

and, striking the inclined projection x in its backward flight, will be thrown clear of the gun.

I prefer to make the spring 6 in a volute form, and the set-screw J with a teal entering within and steadying the spring, but a plain spiral spring may be employed, with its end properly straightened out to operate on the ejector W.

The object and advantage of the set-screw J are to increase the effectiveness, as it loses its elasticity, or as circumstances may require.

If the spring be made sufficiently long, and properly encased in the portion L, it may break in one or two places and still be kept effective by crowding the portions together by the screw J.

The abutment or rear portion of frame A, which extends up in rear of the breech-block (see figs. 3, 4,) E, is slotted out so as to permit the lifting out of the pin F, and the free passage back and forth of the dog-portion g ; but the said pin F is enlarged laterally, below the dog g and on each side, as seen at f , and the housing or rear portion of frame A is cut under, as seen at M, for the accommodation of said portion f , that the whole firing-pin, dog, projection f , and all, may be free to move back and forth in the operations of cocking and firing the gun.

And it will be understood that so long as the enlarged portion f is within or partially in the opening M, the said portion f , and consequently the firing-pin and breech-block, will be held down by the overhanging ears $a' a''$, (see figs. 1, 2, 3, 6,) and that it is only when the hammer is pulled clear back, as seen at figs. 2 and 4, that the breech-block can be raised. Thus, by means of the enlarged portion f , and cutting under the slotted-out portion of the frame, as seen at M, the dog and firing-pin are prevented from lifting, except when drawn back, and are at the same time free to slide back and forth.

In order to securely lock the breech-block E to the firing-pin, to keep the two down together, the rear end of block E is cut out, as shown at 4, 5, fig. 5, and the forward-end of enlargement f fits into said cut-away portion, thus coupling the breech-block and rear portion of frame together. And to more firmly hold the said block down, I propose to form the dog g , which is made solid with the firing-pin, so as to lap over the top of said breech-block, as shown at fig. 1.

The housing is cut out at M, and so shaped otherwise that the firing-pin and dog cannot move forward until the breech-block is clear down to its seat, the enlarged portion f bearing against the rear faces of ears $a' a''$, (see figs. 4, 6,) until the breech is clear down.

By reason of this mode of construction and operation, I am enabled to successfully employ the firing-

pin and hammer, and use the arm with facility, without any trigger or sere, so that if both these parts of the lock-mechanism be broken out, the efficiency of the arm is not very materially reduced, for I can load, pull back and down the breech-block and hammer into position shown at fig. 4; and since the firing-pin is always prevented from flying forward by the ears $a' a''$, until the breech-block has arrived at its seat, I have only to allow the force of the main-spring S to hold the portion f hard against the ears $a' a''$, and press down on the hand-piece e , (when I want to fire,) until the portion f can slide through opening M.

This operation can be very easily performed, and in this way I have been able to easily and accurately aim and fire my improved arm, even with the sere $o n$, and trigger, and spring h and m , all detached from the gun.

It will be seen that by my invention the great desiderata of simplicity, efficiency, durability, economy of manufacture, lightness, and capacity to be quickly loaded and fired, are all attained to a greater degree than by any breech-loading gun heretofore made.

It will be seen that the motions of the hand necessary to manipulate the arm are fewer and more convenient than those required with other breech-loading guns, embodying all the operations necessary to extract and expel the empty shell, load, and fire.

The lock-mechanism, except the trigger, being all encased within the breech-block, is protected from all causes of derangement, and is kept in a clean and operative condition.

Having explained the construction and operation of my improved breech-loading gun, so that one skilled in the art can make and use it,

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

1. The counter-sink 4.5, in rear end of breech-block, in combination with the enlarged portion f of firing-pin, and slotted housing, the whole arranged to operate substantially as described, for the purpose set forth.

2. In combination with the swinging breech, hammer, and housing $a' a''$, the overlapping dog g , and enlargement f , the whole arranged to operate substantially as and for the purpose described.

3. In combination with the ejector W, the spiral spring 6 and set-screw J, the whole arranged to operate substantially as and for the purpose set forth.

In testimony whereof, I have hereunto set my hand and seal, this 28th day of February, 1868.

WILLIAM MORGENSTERN. [L. S.]

Witnesses:

J. N. McINTIRE,
CHAS. A. SCOTT.