W. MORGENSTERN.

Breech-Loading Fire-Arm.

No. 86,434. Patented Feb. 2, 1869.

Fig. 2.

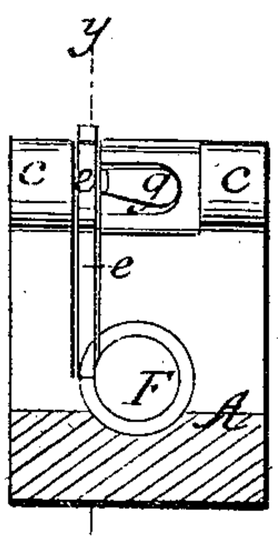


Fig. 1.

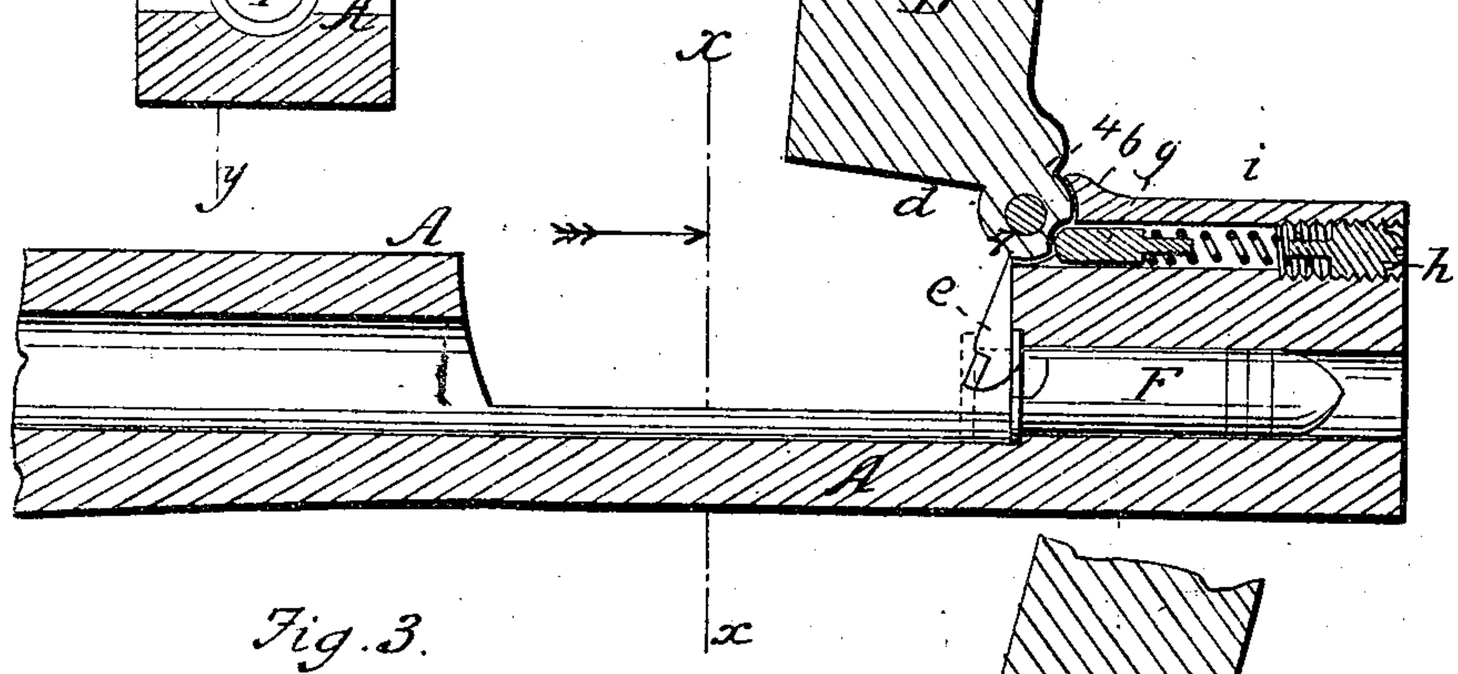


Fig. 3.

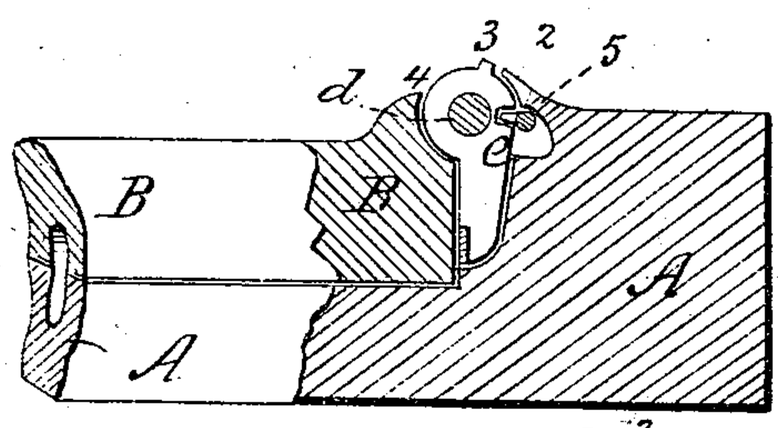
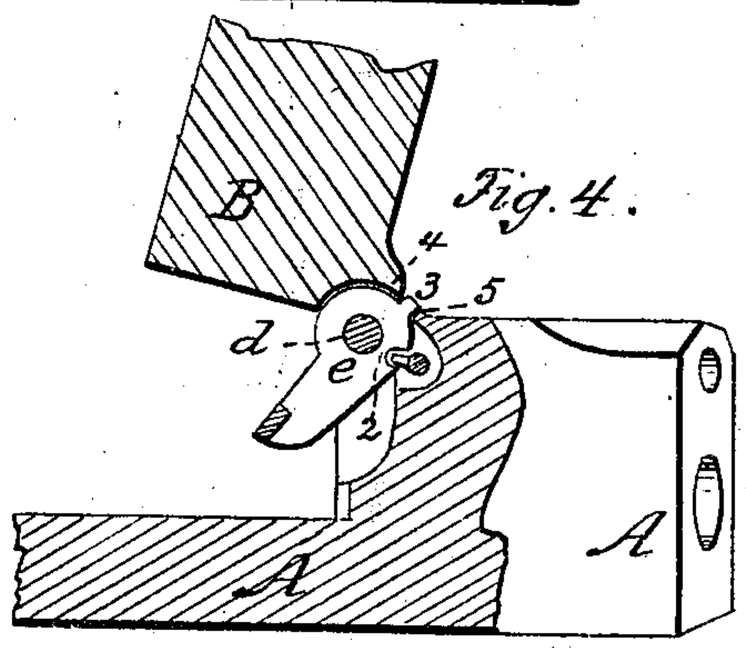


Fig. 4.



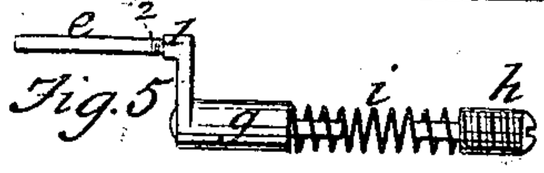
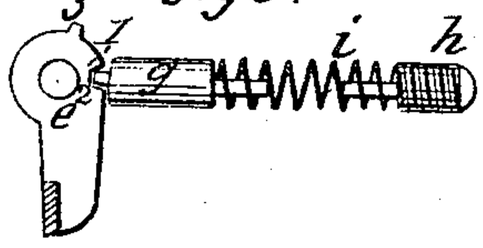


Fig. 5

Fig 6.



WITNESSES

Chas. A. Foott

Frederic A. Fuyster

INVENTOR.

Wm Morgenstern

by atty

J. McIntire.

United States Patent Office.

WILLIAM MORGENSTERN, OF NEW YORK, N. Y.

Letters Patent No. 86,434, *dated February* 2, 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, in the county of New York, in the State of New York, have invented certain new and useful "Improvements in Breech-Loading Fire-Arms;" 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 the extractor-mechanism of breech-loading guns.

Previous to my invention a great variety of means had been employed and suggested for effecting the extraction from the charge-chamber, and discharge from the gun, of the empty cartridge-case.

My invention has for its objects to overcome all the objections in practice, to extractor-mechanisms in this class of breech-loaders, and to provide a simple, effective, and durable means of extracting and throwing out the empty shell, and holding open the breech-block, without having any exposed parts; and to this end,

My invention consists in the employment of a spring presser-bolt, which is enclosed or encased in the stock of the breech-frame, and so combined with the hinged breech and extractor as to give the latter a sudden impulse, or acceleration, at the proper time to throw out the empty shell, and simultaneously catch or retain the breech-block, and hold it open, as will be hereinafter more fully explained.

To enable those skilled in the art to make and use my invention, I will proceed to more fully explain it, referring by letters to the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of the breech-frame, breech-block, and extractor-mechanism of a breech-loading gun embodying my invention;

Figure 2 is a cross-section at *x x*, (looking in the direction indicated by the arrow,) of the same;

Figure 3 is a section at *y y*, fig. 2, showing the breech closed; and

Figure 4, a similar section, showing the breech open, or thrown up, and the cartridge-extractor in the position in which it would be after having thrown out the empty shell.

Figures 5 and 6 are skeleton top and side views of the extractor and spring presser-bolt detached.

In the several figures, the same part is designated by the same letter of reference.

A is the breech-frame, and

B, the hinged breech-block of the gun.

F is the cartridge or charge-chamber, into which the cartridge is inserted from the rear, when the breech is thrown up, as seen at fig. 1, in the usual manner.

The breech-frame is formed with ears, as usual, at *c c*, between which is hinged the eye of the breech-piece B, by means of a pivot, *d*, and between the ears *c c*, the rear face of this portion of the breech A is formed with a depression, for the accommodation of the vibratory-arm portion of the presser-bolt *g*, (see fig. 2,) the shank of which lies in a hole bored through the breech A, and is provided with a spiral spring, *i*, as clearly seen at fig. 1.

The spiral spring *i* rests against a set-screw, *h*, which may be adjusted to more or less compress said spring *i*, for the purpose of inducing it to act with greater or less force upon the presser-bolt *g*, for purposes to be explained.

e is the vibratory arm, for extracting and discharging, or throwing out, the empty cartridge-case.

This arm *e* is hinged or pivoted on the pivot or axis *d* of the swing breech-block B, lies in a depression formed in the breech A, for its accommodation, and is moved primarily by the breech-block, and is accelerated in its vibration by the spring presser-bolt *g*, as will be presently fully explained.

The extractor-arm *e* is formed with a projection, 3, against which the shoulder 4 of the breech-block operates, and also with a notch, or depression, 2, into which passes a teat, 1, projecting from the arm-portion of the presser-bolt *g*.

The eye of the breech-block B is formed with two depressions at 6 and 7, into which fits, at different times, the rear end of presser-bolt *g*, to retain the said breech in its opened and in its closed positions, as will be presently explained.

With the foregoing description of the parts, and the drawings, the following explanation will serve to give a clear idea of the operation of my improved mechanism for extracting and discharging the empty case, and retaining the breech-block.

I will suppose the gun to have been discharged, and the parts in the relative positions illustrated at figs. 2 and 3, and 5 and 6. To extract and throw out the empty case, the breech-block B is raised or swung upward, as seen at fig. 1, and the shoulder 4 coming against the projection 3 of the extractor *e*, will vibrate the latter on the pivot *d*, and throw its lower end against which rests the front side of the cartridge-flanch, back, so as to force out the empty shell, as seen at fig. 1, in red lines.

This action of the extractor *e*, induced by the breech-block, withdraws the shell from the charge-chamber F, but would not be sufficient to also eject or throw it away from the gun. This is done by an accelerated and very quick and sudden further vibration of the arm *e*, induced just at this juncture by the spring presser-bolt *g*, which acts in the following manner:

When the arm *e* is in its normal position, the teat 1 of the spring presser-bolt *g*, presses against the dead-centre or axis of the pivot *d*, (see figs. 3, 5, 6,) and therefore exerts no tendency to turn the arm *e* or the said pivot, but as soon as the arm *e* has been turned into the position seen at fig. 1, by the action of the breech-block B, as already described, and the presser-bolt rocked on its centre, so as to bring the teat down below the centre or axis of *d*, which is effected

by the motion of *e*, the teat 1 projecting into the notch 2, as seen at fig. 4, then the presser-bolt is suddenly impelled backward by its spring *i*, and the extractor *e* forced into the position seen at fig. 4, whereby the empty case is ejected. As the presser-bolt flies back, the breech-block of course continuing its forward motion, its rear end passes into the depression 6 of block B, and, pressing in a line of direction below the pivot *d*, holds or retains the breech-block up and open until the gun is reloaded and the breech-block pulled down.

When the breech-block is again closed, the presser-bolt *g* will drop back into depression 7, and the spring be partially relieved by strain.

It will be seen that both the sudden movement of the extractor to eject the cartridge-case, and the retention or locking up of the breech-block, are accomplished in an effectual manner, by the presser-bolt *g*, and it will be understood that the latter bears with a solid and sufficiently extensive surface, against the breech-block, so that there is little or no wear, or cutting of the parts, while, at the same time, the desired ends are effectually and with great certainty of action attained.

It will be understood that the action and motions of the presser-bolt and ejector and breech-block are all positive, dependent partially on the action of the spiral spring, which can be set up at pleasure, and its strength increased or diminished by the set-screw *h*.

By having the bolt and spring all enclosed within, or let into the stock of the breech-frame, they are completely protected from accident and the weather, and their continuance in a state of perfection much more certain than could be expected were any of the parts exposed.

Having fully explained my invention, so that one skilled in the art can make and use it, I wish to be understood as not limiting my claim of invention to the precise form or arrangement of the devices.

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

The employment, in combination with the swinging breech-block and extractor, of the spring presser-bolt *g*, or its equivalent, for actuating the ejector, and locking or retaining the breech-block, substantially in the manner set forth.

In testimony whereof, I have hereunto set my hand and seal, this 19th day of October, 1868.

WILLIAM MORGENSTERN. [L. S.]

Witnesses:

J. N. McINTIRE,

CHAS. A. SCOTT.