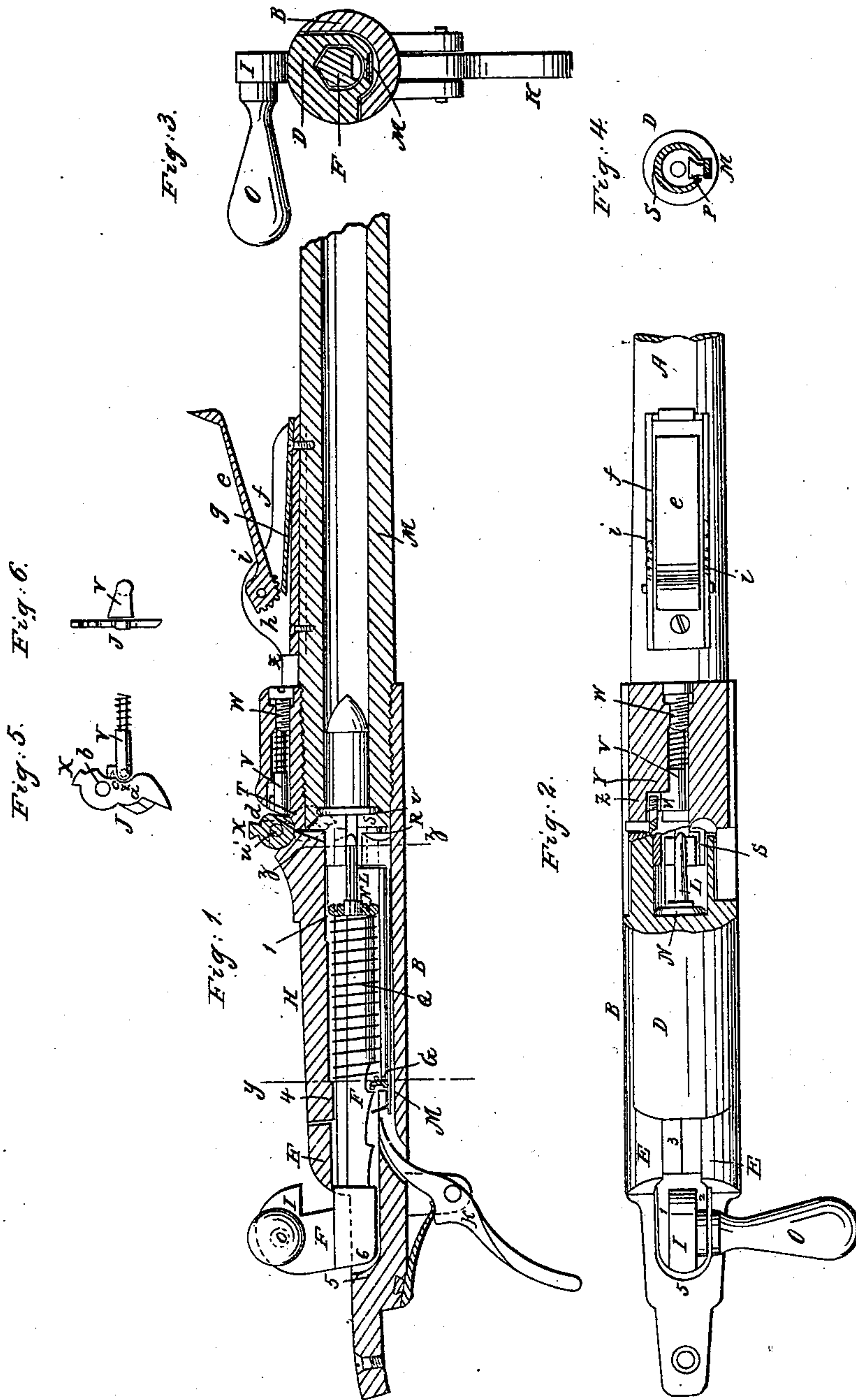


W. MORGENSTERN.  
Breech Loading Fire Arm.

No. 93,330.

Patented Aug. 3, 1869.



Witnesses:  
O. Pollee.  
Ernest F. Hasenhuber.

Inventor:  
W. Morgenstern.  
Per Jan Santvoord & Neuff.  
Atty.



# United States Patent Office.

WILLIAM MORGENSTERN, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND HERMAN FUNKE.

Letters Patent No. 93,330, dated August 3, 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 the city, county, and State of New York, have invented a new and useful Improvement in Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 is a longitudinal axial section of a breech-loading gun to which my invention is applied.

Figure 2 is a plan view, a part being shown in section along the bent line *x-x* in fig. 1.

Figure 3 is a transverse section along the line *y-y* in fig. 1.

Figure 4 is a transverse section of the breech-block along the line *z-z* in fig. 1.

Figures 5 and 6 are detached views of the shell-extractor, and of the spring-arm or stop, which causes the extractor to act also as an ejector of the shell, and which also locks the breech-block.

Similar letters of reference indicate corresponding parts.

This invention relates to that class of fire-arms known as breech-loaders; and

It consists in certain improvements, as will be hereinafter mentioned in the description of the construction and operation of the several parts.

The letter A designates the barrel of the gun, and B, the breech-receiver.

K is the trigger, working through the bottom of the receiver, and it is so arranged that its point, when the trigger is pulled, will bear down upon the adjacent rear end of the sere M, which consists of a spring-plate that is secured on the under side of the breech-block, the rear end of said spring-plate being free, and having on its upper side a dog, G, which engages with the full and half-cock notches on the under side of the hammer F.

The hammer F and the pin L are one piece, but I have here designated them by different letters for convenience of describing my invention.

The firing-pin and hammer, when released from the sere, are driven forward by the main-spring Q, which is coiled around the hammer F, and which spring, at one end, abuts against a shoulder, 4, formed in the interior of the breech-block, and at the other end against a nut or collar, N, which is secured upon the firing-pin. By means of this nut or collar N, the spring is compressed more or less, so as to regulate its tension at pleasure.

The nut or collar N also limits the backward movement of the firing-pin and hammer, in conjunction with a shoulder, H, in the interior of the breech-block, against which shoulder the nut or collar strikes when the operator draws the hammer and pin backward in the act of lifting the breech-block up out of the re-

ceiver, thereby preventing any unnecessary compression of the main-spring, the said shoulder H being arranged at such a line as will allow the ears 1 2, on the head of the hammer, to clear the overhanging ledges E E of the receiver, the backward movement of the combined hammer and firing-pin, while the breech-block is yet in the receiver, being stopped by the abutment of the hammer-head 6 against the shoulder 5, which shoulder also limits the backward movement of the hammer in the act of cocking. Another office performed by the said nut or collar is the guiding of the firing-pin, and keeping it central to the socket of the breech-block and to the barrel of the gun.

The cavity of the breech-block is closed at its forward end by the hollow gas-plug S, which is secured in place by means of the sere, and which also serves to lock the sere to the breech-block, as will next be explained.

Upon the upper side of the sere-plate, at its front end, I form a locking-lug, P, of a branching form, as shown in fig. 4, the neck of the lug, where it is united to the sere-plate, being narrow, while the lug itself is widened out to form a locking-device.

The bottom of the breech-block, at its front end, is slotted so as to receive said lug within it, said slot being seen at R, fig. 1.

In one side of the hollow gas-plug S, I cut a slot wide enough to receive the neck of the lug P, (see fig. 4,) and having put the sere-plate in proper position, with its lug projecting into the breech-block, I then insert the plug S into the end of the block in such a manner that the slot, in its edge, receives the neck of said lug, and so that the branching lug itself comes inside of the hollow plug, as is shown in fig. 4, thus securing both the sere-plate and the gas-plug to the breech-block.

At the front end of the sere-plate, I make a notch in its edge, also seen at R, fig. 3, so as to permit the insertion of a rod or small lever inside of the gas-plug, by means of which to start the plug out of the block when it is desired to remove it.

The hammer F is made flat on one or more of its sides, and the cavity or socket of the breech-block is made of a corresponding shape, for the purpose of preventing the hammer and firing-pin from turning in the block.

The breech of the barrel has the usual rebate, in which the flange of the cartridge or shell lies; and in addition, I bevel the edge of the breech, as is shown at T, fig. 1, in order to facilitate the entrance of shells into the barrel.

The exterior of the gas-plug, or of that part of the end of the breech-block which closes the breech, is made with a counter-bevel, also shown in fig. 1, so as to form a tight joint at the breech of the gun.

The breech-block D is hinged to the receiver above



the breech of the gun, and the exterior of its hinge is flattened at two different points, as is shown in fig. 1 at  $U$   $U'$ , to form bearings which allow of the favorable action thereon of the spring-arm or stop  $V$ , which operates to keep the breech-block up or down by bearing or pressing against the flattened bearings  $U$  or  $U'$ , the face or end of the stop  $V$  being made flat so as to fit squarely against the said bearings, and prevent the breech-block from accidental displacement from either position.

The intermediate portion of the periphery of the joint is convex in this example, but it can be made with one or more flat surfaces, if desirable, so as to form a series of flat bearings, which will enable the spring-stop to hold the breech-block stationary at any elevation or position, until sufficient force is applied to overcome the friction produced between the surfaces which are in contact, and to carry the block past the angles formed along the edges of the bearings.

The spring-stop  $V$  works in a socket or recess,  $Y$ , formed for it in that part of the receiver which is above the breech-portion of the barrel, and it is constantly pushed against the hinge or other portion of the breech-block, with which said stop is in contact, by a spring coiled around the reduced part of its shank, which spring abuts, at one end, against a shoulder on said shank, and at the other end against the end of an adjusting set-screw,  $W$ , which enters a tapped hole in the forward end of the receiver.

The rear end or face-part of said stop is elongated for the purpose of obtaining as large a friction-surface as possible to bear against and act upon the breech-block.

The shell-extractor  $J$ , seen detached in figs. 5 and 6, and in plan in fig. 2, and in dotted outline in fig. 1, is mounted on the hinge-pin of the breech-block.

On its top is a projection,  $X$ , against which the breech-block strikes when thrown up, thereby turning the extractor on the hinge-pin, and starting and extracting the empty shell from the barrel, the further movement of the extractor being next accomplished by the action of the spring-stop  $V$ , the reduced end,  $Z$ , of whose arm (see figs. 2 and 6, and the dotted outline in fig. 5,) bears against the adjacent edge of the extractor, and in passing the projecting point or angle  $c$  of that edge, (at the time the extractor is turned by the breech-block,) the part  $Z$  of the stop is forced suddenly into the upper concave part,  $b$ , of said extractor, in such a manner as to throw the lower part of the extractor suddenly outward, and thereby eject the shell from the breech of the gun. This action of the spring-stop is made the more effective, because the point  $c$ , during this movement of the extractor, is moved more and more below the level of the axis of the extractor, and the stop consequently is enabled to exert an increased power in its action on the extractor.

To enable the part  $Z$  to operate with the least possible friction, I have placed thereon an anti-friction roller.

When the breech-block is pulled down, it turns the extractor again into its former position, and forces the point or angle  $c$  again above the part  $Z$  of the stop, the stop being by this action moved backward in its recess  $Y$ , until the lower concavity,  $a$ , comes opposite the part  $Z$ , when the stop is again permitted to come backward ready to repeat the operation of locking the breech-block and of ejecting a shell.

It will be observed from this description, that the

spring-stop  $V$  operates against both the breech-block and the extractor, the arrangement of parts being such that the angle  $d$  on the breech-block passes below the flat face of the spring-stop at the same time that the point or angle  $c$  of the extractor passes below the extended part  $Z$  of said stop, so that the action of the spring-stop against the bearing  $U'$  of the breech-block and the upper side of the point or angle  $c$  of the extractor, is simultaneous.

If desired, the bearings  $U'$  and  $U$  can be made more or less concave, and in that case the face of the spring-stop should be made with a corresponding convexity, but I prefer that the said bearings should be flat or nearly so.

The sight  $e$  is pivoted in an open box,  $f$ , whose edges are graduated at  $i$ , so as to express in figures or numbers the degree of elevation of the sight, the body of the sight serving as the index.

The sight is retained at any desired elevation by means of a spring-detent,  $g$ , secured in the bottom of the box at its front, and extending backward so as to engage bevelled teeth cut on the periphery of a segment formed on the hub  $h$  of the sight below, and concentrically with the pivot on which the sight turns.

The breech-block is turned upward, (whenever the combined hammer and firing-pin  $F$   $L$  are drawn far enough back to bring the ears 1-2 out from under the ledges  $E$ ,) by means of the handle  $O$ , which projects from the side of the head  $F$  of the hammer.

The upper part of said head  $F$  has a lip,  $I$ , that projects forward, as is shown in figs. 1 and 2, in such a manner, as when the hammer is at half cock, to close the opening 3, which is made between the ledges  $E$   $E$ , into which opening 3, that part of the hammer-head  $F$  which is below the lip  $I$ , enters when the gun is discharged, the object in thus closing said opening 3 being to keep out dust and other matters.

Having thus described my invention,

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

1. The angle or point  $c$ , on the forward edge of the extractor, substantially as and for the purpose described.
2. The sight  $e$ , constructed with bevelled teeth about its hub  $h$ , in combination with a spring-detent or equivalent holding-device, substantially as shown and described.
3. The device for locking the sere or sere-plate to the breech-block, consisting of a slot or recess in the bottom of said block, seen at  $R$ , fig. 1, a notch, seen in fig. 4, in the edge of the gas-plug, and the lug  $P$  on the sere-plate, substantially as shown and described.
4. The nut or collar  $N$ , on the combined firing-pin and hammer, substantially as and for the purposes set forth.
5. The shoulder  $H$ , in the interior of the hollow breech-block, to act in conjunction with the nut or collar  $N$ , as a stop to the backward movement of the hammer during the operation of raising the breech-block up out of the receiver, substantially as shown and described.

This specification signed by me, this 15th day of December, 1868.

WILLIAM MORGENSTERN.

Witnesses:

W. HAUFF,  
ERNEST F. KASTENHUBER.