

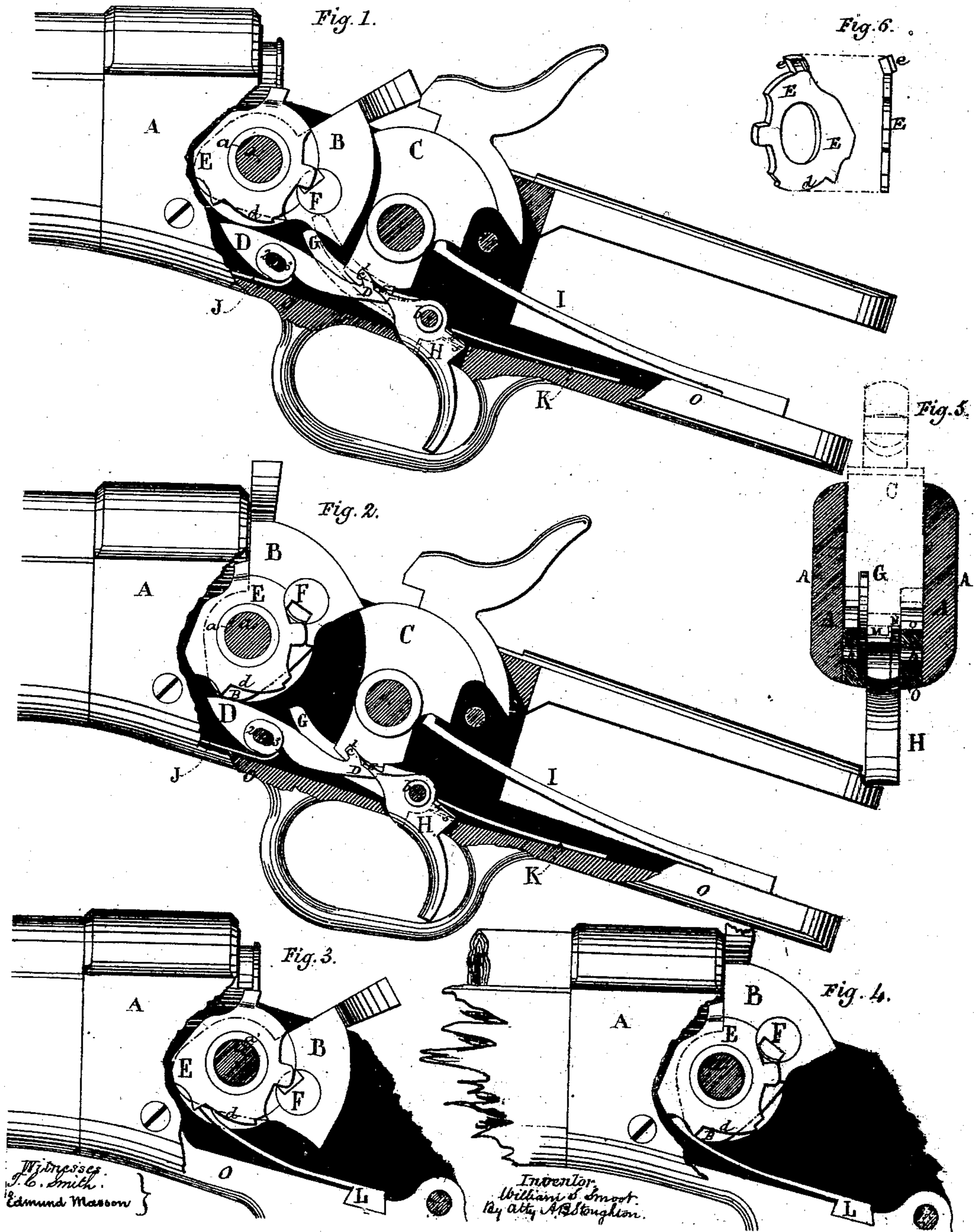
WILLIAM S. SMOOT.

2 Sheets—Sheet 1.

Improvement in Breech-loading Fire-arms.

No. 120,788.

Patented Nov. 7, 1871.

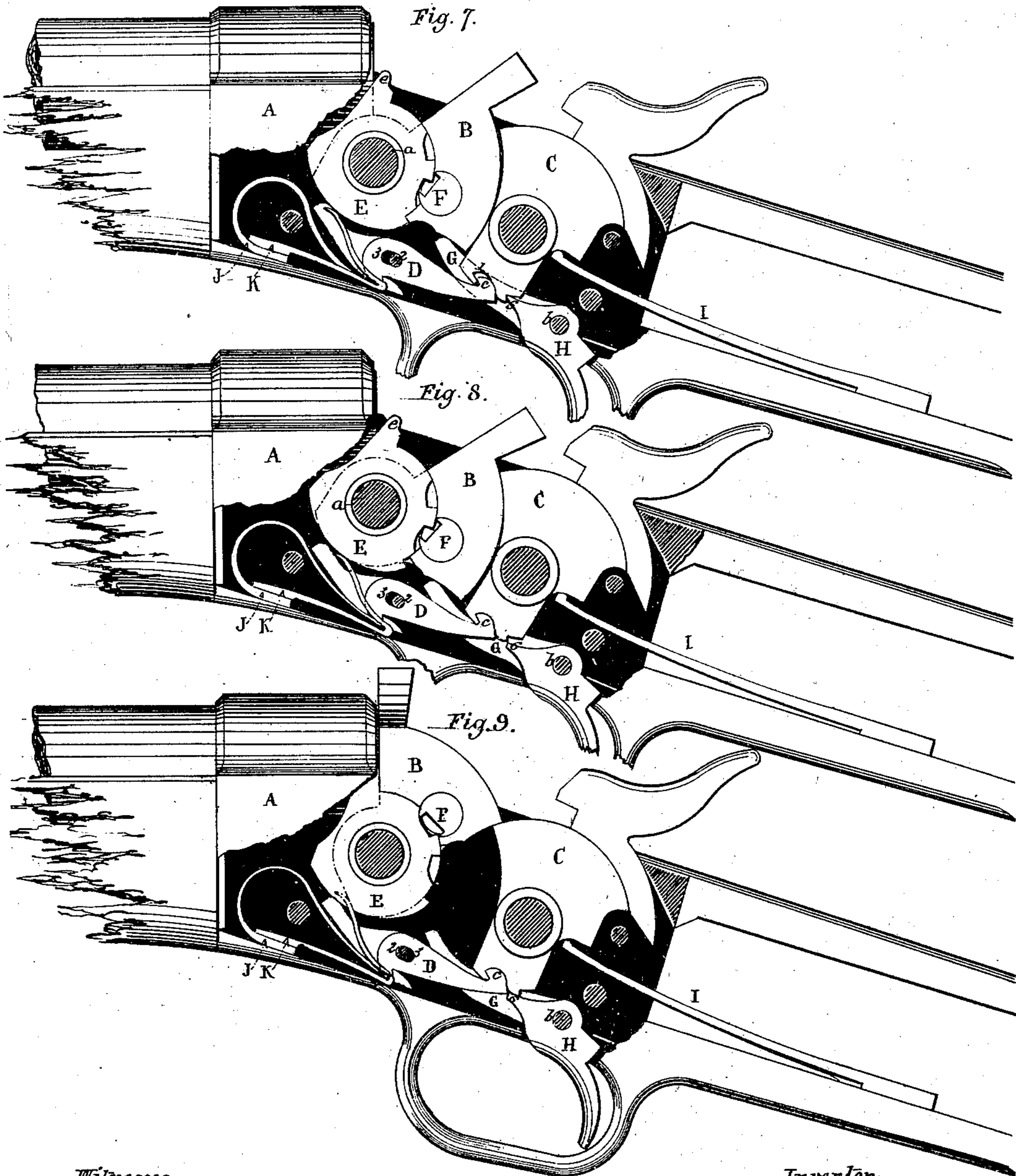


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Improvement in Breech-loading Fire-arms.

No. 120,788.

Patented Nov. 7, 1871.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM S. SMOOT, OF ILION, NEW YORK, ASSIGNOR TO HIMSELF AND E. REMINGTON & SONS, OF SAME PLACE.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 120,788, dated November 7, 1871.

To all whom it may concern:

Be it known that I, WILLIAM S. SMOOT, of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figures 1, 2, 3, 4 represent side views of the operative parts of the arm, in different positions, to show their workings. Fig. 5 represents an end view of the frame and such of the parts as are seen in that view. Fig. 6 represents a perspective and an edge view of the ejector, showing the enlargement thereon for catching the flange of the cartridge-shell and flipping it out. Figs. 7, 8, and 9 represent side views of the operative parts somewhat modified in form or position, but accomplishing the same result as those in the other figures marked 1, 2, 3, and 4.

Similar letters of reference, where they occur in the several separate figures, denote like parts of the fire-arm in the drawing.

This invention is designed as an improvement upon the arm known as the Remington breech-loading rifle, and relates to certain improvements, as follows: First, to a device by which, after the hammer is cocked and the breech is swung down to the loading position, the sear is thrown out of the full-cock notch and the hammer engaged with a secondary sear, so that when the breech is again closed the hammer shall drop under and lock the breech in its closed position, at the same time leaving the hammer in a safety position, from which it cannot be released to discharge the arm until after it is first brought to the full-cock. Second, to the formation of an inclined surface on the under side of the breech-block, acting in combination with the extractor and ejector-spring, for the purpose of lifting the point of the spring gradually over the shoulder on the extractor. Third, to the particular construction of the rotating extractor, consisting of a flat disk with an enlarged head, forming a portion of the transverse section of the barrel of the arm.

In describing my invention I will first refer to that construction of the devices shown in Figs. 1 to 7, Sheet 1, of the drawing, in which A represents the frame of the arm in which the breech-

block B is pivoted, as at *a*. Below the breech-block B there is a lever, D, formed with a hook, *c*, at its rear end, and in such position as to pass readily into the half-cock notch 1 of the hammer *c* when the latter is at full-cock. The forward end of the lever D rests against the under side of the breech-block B. This lever D is pivoted to the guard-strap O by a pin, 2, passing through a short slot, 3, in said lever, which is thus rendered capable of a limited longitudinal movement, and is kept in its forward position by a spring, J, as seen in Figs. 1 and 2. The trigger H and sear G are formed in two separate pieces, but both pivoted upon the same pin, *b*. The sear G is formed with a shoulder, 4, at its rear end, upon which the sear-spring K presses or rests. This shoulder 4 also serves to transmit the movement of the trigger H to the sear G when the trigger is pulled for the purpose of discharging the arm, there being a shoulder or projection, 5, on the trigger which acts with that 4 on the sear. The forward end of the sear is lengthened so as to pass under the breech-block B, while the trigger H is made just long enough to reach over and engage with the end of the lever, as seen at 6. The sear G lies at the side of the lever D, and is entirely disconnected from and uninfluenced by it. In front of the pivot-pin *b*, upon which the trigger and sear are both hung, there is a lip, N, made upon the trigger, which overlies or overlaps a lip, M, Fig. 5, upon the sear, so that the movement of the trigger is communicated to the sear both in front and in rear of their mutual pivotal point. The cartridge-extractor E consists of a flat disk cut out into the shape shown in the several figures, but more distinctly in Fig. 6, and having an enlargement, *e*, at its upper end or portion of a form to correspond in transverse section with the shape of the barrel of the arm at that point. This extractor may be used in connection with an ejector-spring, L, and in that case is hollowed out, as at *d*, to permit the spring to rest directly against the block to hold it in its closed position. I is the main or hammer-spring.

The operation is as follows: When the breech-block is drawn down or back it depresses the front end of the lever D, thereby lifting its rear end and engaging it in the half-cock notch of the hammer *c*. As the breech-block reaches the end of its downward movement it strikes the

sear G and throws it out of the full-cock notch of the hammer, and allows the latter to rest against the breech-block under the pressure of the main spring I. The cartridge being then inserted and the breech-block closed, the hammer is carried or forced under said breech-block by the action of the mainspring, thereby locking the breech-block. As the hammer passes under the breech-block it draws back the lever D and compresses the spring J, the purpose of said spring being to prevent the blow that would otherwise occur when the lever D reaches the end of its movement, and also to diminish the pressure of the hammer against the breech-block.

In Figs. 7, 8, and 9 are shown the same general plan of construction and operation of the arm, the only difference in this and the above-described plan being in the shape and location of the springs J K, and that the trigger and sear H G have a uniform and not an independent movement upon their center of motion. The pin F for operating the firing-pin is the same in both modifications and in the drawing. A further modification of my invention for the purpose of obtaining greater rapidity of manipulation may be made by shaping the hook *c* on the lever or secondary sear D so that it can be pulled out of the notch in the tumbler or hammer by pressure on the trigger, and by arranging the spring L to press against the breech-block B in

such a manner as to throw it back when unlocked. With these modifications the operation of the arm is as follows: The hammer being pulled back to the full-cock position, clear of the breech, the latter is immediately swung open by the spring L, ejecting the cartridge and disengaging the sear from the full-cock notch. The cartridge being then inserted and the breech closed, the hammer drops under the breech, locking it in its closed position.

Having thus fully described my invention, what I claim therein as new is—

1. The combination of the lever D, with its spring and sear-nose *c*, with the breech-block B and hammer C, as and for the purpose substantially as described.
2. The combination of the inclined surface on the breech-block with the cut-away portions of the extractor and the spring L, as and for the purpose described.
3. In combination with the extractor E, operating as herein described and represented, the enlarged head *e*, corresponding in shape with the rear end of the barrel, as and for the purpose described.

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