



# UNITED STATES PATENT OFFICE.

GEORGE MERRILL, OF EAST ORANGE, NEW JERSEY.

## IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 119,940, dated October 17, 1871.

*To all whom it may concern:*

Be it known that I, GEORGE MERRILL, of East Orange, in the county of Essex, and State of New Jersey, have invented certain Improvements in Breech-Loading Guns, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to breech-loading guns; and the invention consists in a novel construction of the breech mechanism, as hereinafter more fully explained.

Figure 1 is a longitudinal vertical section of the breech part with the breech closed. Fig. 2 is a similar view with the breech open. Figs. 3, 4, 5, and 6 are views of portions shown more in detail.

The receiver *A* is made in the usual manner for this style of guns, and has the barrel *B* screwed into its front end. The rear end of the barrel is turned off conical, as shown in Fig. 1, and has a corresponding ring, *J*, placed loosely thereon, said ring being free to turn in its seat on the end of the barrel. An inclined notch or recess is cut in the outside of this ring, as shown in Figs. 4 and 5, for the point of the extractor-hook *h* to enter when shoved forward in the act of closing the breech. A breech-plug, *C*, is provided, with a firing-pin, *c*, extending through its center and protruding at the rear, where it is to be struck by a hammer, (not shown.) Near its rear end the breech-plug is reduced in diameter so as to permit a short sleeve or ring, *R*, to be fitted thereon between the locking-lug *E* and the head *D*, as shown in Figs. 1 and 2, the ring being shown detached in Fig. 3. This ring *R* has an incline, *n*, formed on one side at its rear end, against which the laterally-projecting arm *d* of the firing-pin works or bears when the plug *C* is turned to unlock the breech, the ring being held stationary while the plug is being turned, as hereinafter explained. In the under side of the plug *C* I form a longitudinal groove, *a*, in which is placed a spring, *e*, as shown in Fig. 2, this spring extending back and resting at its free end in a notch, *o*, cut in the front edge of ring *R*. A screw, *b*, is inserted through the under side of the receiver *A*, with its point resting in the groove *a*, which serves as a stop to limit the backward movement of the breech-plug, and also to prevent it from being turned while being moved to and fro.

As the breech-plug is shoved in the spring *e* is carried forward over the point of the screw *b*, by

which the free end of the spring is pressed in out of the notch *o* in ring *R*, the point of the screw *b* then resting in the notch *o*, thus locking the ring fast and preventing it from turning with the plug, while the spring, being pressed within the hollow of the ring, turns with the bolt or breech-plug. In this way the ring *R*, with its incline *n*, is held stationary to draw back the firing-pin, while the breech-plug is turned preparatory to opening the breech. As soon as the bolt is moved back a short distance, the spring *e*, being released from the pressure of the screw *b*, springs out into the notch *o* of ring *R*, thus again locking the ring fast on the plug *C*, so that it turns with it until again closed, at which time the deepest part of the incline *n* is in front of the arm *d* of the firing-pin, thus permitting the latter to be driven forward by the hammer. In the bed of the receiver *I* form a recess, *f*, leaving a shoulder at its rear end, against which the head of the cartridge strikes as it is drawn back by the extractor-hook *h*, whereby it is thrown suddenly upward and out of the receiver. By using the loose conical ring *J* at the rear end of the barrel the extractor-hook *h* can be fastened rigidly to the breech-plug and allowed to turn with it, the ring *J* turning with the plug when the extractor-hook is shoved forward, and rests in the notch *s* of said ring. At the same time the ring *J* serves to support the conical end of the barrel, and prevents it from being expanded by the force of the gas when the charge is fired. A sliding bolt or catch, *l*, is inserted in the side of the receiver, and arranged to lock into the head *D* of the breech-plug when closed, and thus prevent it from being accidentally unlocked.

Having thus described my invention, what I claim is—

1. The ring *J* applied to the rear end of the barrel and arranged to turn with the extractor *h*, substantially as described.

2. The combination of the breech-plug *C* with its groove *a* and spring *e*, and the loose sleeve *R* with its notch *o* and incline *n*, and the firing-pin *c*, all constructed and arranged to operate as set forth.

3. The combination of the breech-plug *C* with the extractor-hook *h* and the ring *J*, all constructed and arranged to operate substantially as and for the purpose set forth.

Witnesses: GEO. MERRILL.

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