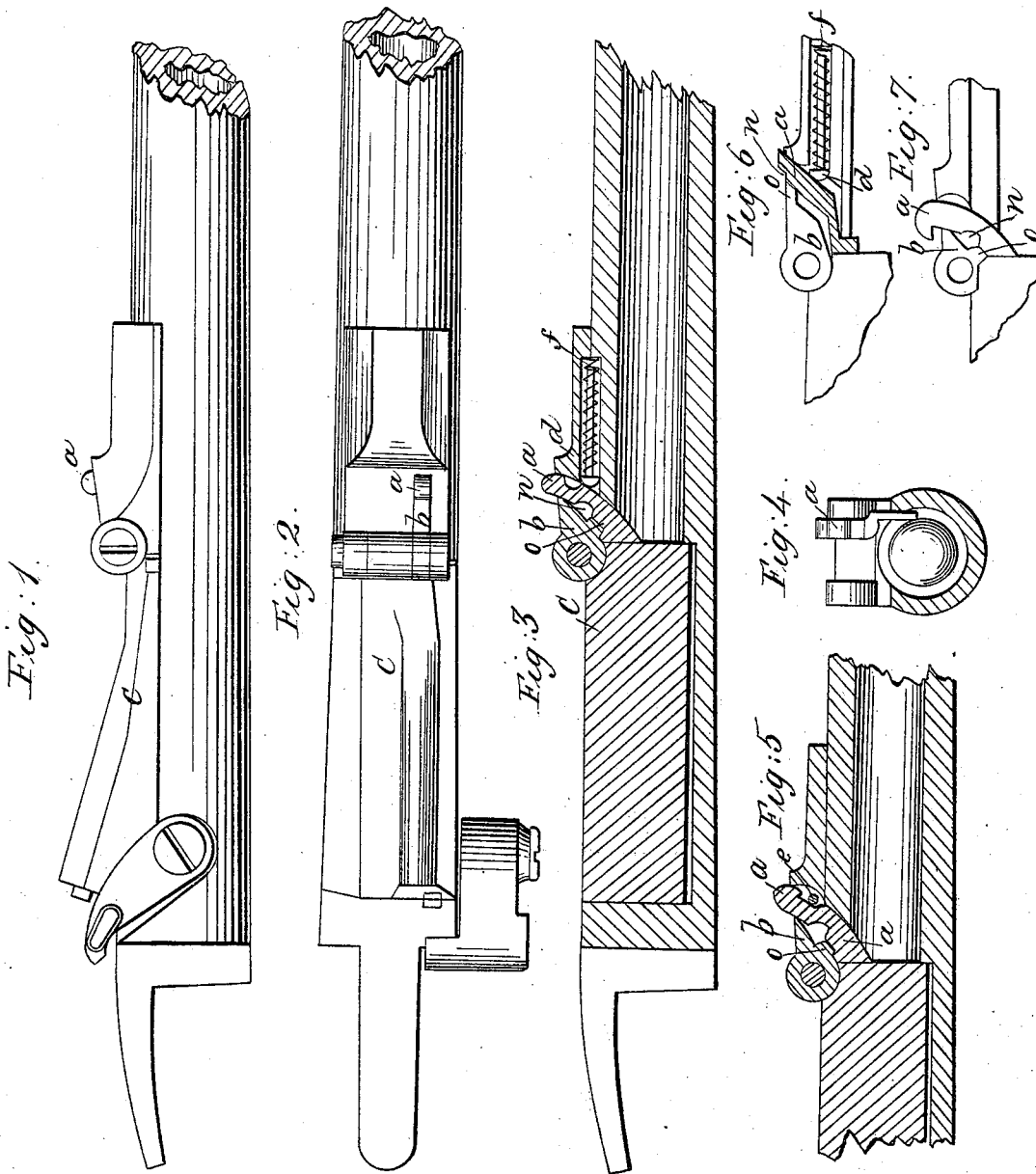


W. S. SMOOT.
Breech-Loading Fire-Arm.

No. 90,792.

Patented July 1, 1869.



Witnesses
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WILLIAM SYDNEY SMOOT, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO
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Letters Patent No. 90,792; dated June 1, 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 SYDNEY SMOOT, of Washington, District of Columbia, have invented a new and useful Improvement in Breech-Loading Fire-Arms; of which the following is a full and exact description, reference being made to the accompanying drawings.

In the accompanying drawings, I have shown the several modifications of the device by which I propose carrying my invention into effect.

Figures 1, 2, and 3 show respectively a vertical and horizontal projection, and longitudinal section of a gun-breech, with my improvement attached.

Figure 4 is a transverse section, and

Figures 5, 6, and 7, modifications of the same design.

I will first describe the device shown in figs. 1, 2, 3, and 4.

In front of the swinging breech-block C, a slot is cut into the upper side of the barrel and hinge.

This slot is curved on the arc of a circle, described from a point above and in rear of the charge-chamber, as a centre.

In this slot is placed a plunger, *a*, moving in the same curve upon which the slot is cut, under the impact of the breech-block when the latter is swung over in loading.

A piece is cut off the fixed portion of the hinge, of the thickness of the slot in the barrel, and in front of this slot. The piece so removed is replaced by a disk, or plate *b*, of the shape shown in the drawing.

This disk *b* is firmly attached to that part of the hinge fixed to the barrel, and constitutes a part thereof, but is preferably made and attached in the manner described, on account of the inconvenience of forming the tooth *o* on the hinge itself.

A notch, *n*, is cut in the upper side of the plunger *a*, and in front of it, and bearing against the plunger, is a spiral spring *f*.

Operation.

When the breech is swung forward, it strikes the end of the plunger *a*, which moves longitudinally in a curve, its motion being guided by the tooth *o*, until the plunger reaches the end of its longitudinal movement, at which time the notch *n* coincides in position with the tooth, and the plunger is then free to be vibrated by the spring.

A notch is cut in the under side of the plunger, so that the spring may act with full force and in a direct line.

This vibration ejects the shell, which has been

already started from its seat by the positive movement of the plunger.

In fig. 5 a simpler form of my device is shown. The accelerating-spring is omitted, and a shoulder, *a'*, at the upper end of the plunger, comes in contact, when the plunger is in its lower position, with a pin, *e*, inserted transversely from the exterior of the hinge-strap.

The forward or longitudinal movement of the plunger being thus arrested, and the notch *n* coming at the same time opposite the tooth *o*, the plunger is converted into a lever, with the pin *e* as a fulcrum, and the power being applied on the curved head of the plunger, at the short arm of the lever, induces a rapid vibration, which ejects the shell from the chamber.

The same object may be obtained by enlarging the head of the plunger, thus forming a shoulder, which performs the same function as the pin *e*.

Fig. 6 shows another modification of my invention, in which that part of the plunger next the cartridge has a movement nearly parallel with the axis of the barrel, while the withdrawal of the cartridge is effected by the oblique movement of its anterior portion, and its removal from the chamber by the action of the spring *f*.

It is evident that in place of the curvilinear movement shown, a rectilinear movement may be given the plunger *a*, without altering the general features of my invention, and also that my device may be used not only with breech-blocks, swinging upward and forward, but with pivoted or swinging breeches of every description, and in connection with any of the devices now employed, such as ways on either side of the recoil-bearing or oblique-faced studs in the bottom of the barrel, for the purpose of deflecting the case, so that it may pass entirely out of the receiver.

I know that, previous to my invention, cartridge-retractors have been made to withdraw the shell, by means of a lever swinging on the same centre with the breech, but independent thereof; also, by a stud on the hinge of the breech, and by plungers moving parallel with the axis of the barrel. All of these I disclaim.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

The plunger *a*, in combination with the stud *o* and notch *n*, when arranged and operating substantially as and for the purpose set forth.

W. S. SMOOT. [L. S.]

Witnesses:

PETER RIORDAN.

JOHN NYGREW.