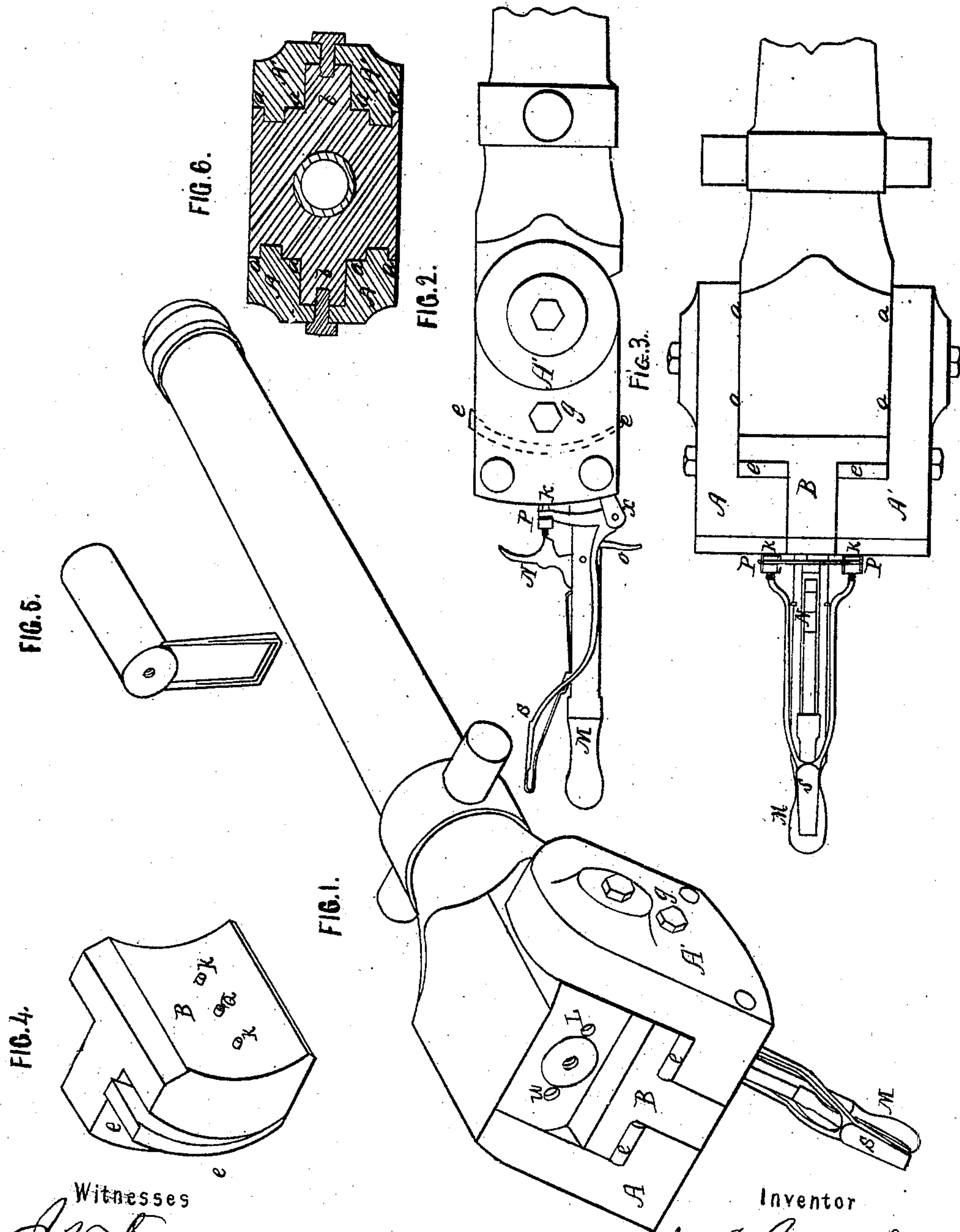


W. F. GOODWIN.
Breech-Loading Ordnance.

No. 35,311.

Patented May 20, 1862.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM F. GOODWIN, OF POWHATTAN, OHIO.

IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. 35,311, dated May 20, 1862.

To all whom it may concern:

Be it known that I, WILLIAM F. GOODWIN, of Powhattan, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Breech-Loading Fire-Arms; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is an isometrical perspective view of my improved gun, showing the breech open, a cartridge-case being inserted in the rear end of the barrel. Figs. 2 and 3 are respectively a side elevation and plan view of the rear part of the gun, showing the breech closed. Figs. 4, 5, and 6 are detail views of parts of the breech and of the cartridge-case, together with its adjustable spring-handle.

My invention consists, first, in the method herein described of constructing, arranging, and operating the breech of breech-loading ordnance or fire-arms by so forming the rear part of the barrel as to present an outer cylindrical surface, and by combining therewith a breech-piece having an inner surface conforming and concentric with and sliding upon the said barrel, in the manner and for the purposes hereinafter set forth; second, in the method of locking the breech-piece with and unlocking it from the rear end of the barrel by means of one or more keys passing through the breech and entering recesses in the barrel, as hereinafter described, and by combining with said keys a system of levers arranged in relation to the breech-handle and the said keys so as to operate the latter in the act of depressing the breech by grasping the handle, as hereinafter set forth; third, the method hereinafter described of constructing the breech-piece in three parts under the arrangement set forth, and when combined with wedges or keys to tighten the breech, and thus insure perfect frictional contact of the breech and the barrel; fourth, in the combination, with a cartridge-case countersunk in the barrel, and provided with a cap-bearing nipple, of the sliding percussion-rod in the breech, operated by hammer and trigger, substantially as hereinafter set forth; fifth, in providing the sides of the rear end of the barrel with trunnions upon which to hang the breech, in combination with the steps or projection and grooves, in the manner and for the purpose hereinafter set forth.

To enable others skilled in the art to make

and use my improved breech-loading fire-arm, I shall now proceed to describe its construction, arrangement, and operation.

The breech-loading mechanism is composed of three parts—viz., the breech proper, and which I shall call, to distinguish it from other parts of the gun, the “rear end” of the barrel, the breech-closing piece or breech-piece, and the mechanism for locking the breech with and locking it from the rear end of the barrel, for tightening the joint of the breech, and for operating the breech. The rear part of the barrel is made square at the top and sides, its end being formed cylindrically, presenting a rear curved surface. The sides *a a*, Fig. 3, are provided with bearings or trunnions *b b*, (see Fig. 6,) for the attachment thereto of the movable breech *A A'*. The bearings of the trunnions are multiplied by means of concentric grooves, producing, as it were, two or more concentric trunnions, whereby additional strength is attained in the attachment of the movable parts of the breech to the barrel, and thus better withstand the concussion or strain attending the discharge of the gun. The curved surface in the rear end of the barrel is cylindrical, its axis coinciding with that of the trunnions *b b*. The bore of the gun is enlarged in the rear part, its diameter being sufficiently large to admit of a cartridge-case of suitable capacity for the size of the gun. The closed end of this case is curved on the outside, to conform with the general surface of the rear end of the barrel, and is furthermore provided at its center with a nipple intended to bear a cap for the explosion of the charge contained in the case. In the rear part of the barrel are cut two holes or recesses that are diametrically opposite and opening into the aperture provided for the cartridge-case, the object of which is to allow the case to be withdrawn from the chamber by means of tongues or fingers or other gripping device for seizing and holding the case. (See Fig. 5.)

The movable breech is formed of three parts. (Marked in the drawings as *A*, *A'*, and *B*.) The latter, which is the middle piece, is adjustable in relation to the former by means of keys or wedges *e e*, so as to fit it to the cylindrical surface of the rear part of the barrel. This middle piece is shaped into the form of a **T**, the stem extending backward, and is confined between the side pieces, *A A'*, by means of a bolt or bolts, *g*, Fig. 3, while the top and cross piece

are curved to conform with the rear part of the barrel. The keys or wedges, by being driven down, have a tendency to force the curved part of the middle piece forward, to establish perfect contact with the barrel end. The curved surface at the rear end of the barrel is formed upon a segment of a circle the center of which is the axis of the trunnions. If the segment on the rear end of the barrel be about one-half of a circle, then that of the breech-piece should be about one-fourth of a circle, or as much of a segment or part of a circle as may be necessary to allow the movable breech A to move up and down, and give room to insert or to withdraw the cartridge-case into or from the chamber in the bore of the gun or barrel.

The movable breech A is provided with a handle, M, for working the breech by depressing or fitting it at pleasure. Upon this handle are arranged the hammer N and trigger O, for exploding the cap in the cartridge-case. This is done in the following manner: Centrally and corresponding with the axis of the bore of the gun there is a rod, Q, passing through the breech-piece. This rod, although held away from the cap by a cross-bar, P, that also couples the two keys for locking the breech, is capable of play back and forth in the direction of its length when struck by the hammer, the blow of which is thus imparted to the cap.

On either side of the handle are arranged, upon fulcrum x , levers to operate spring-keys K K, whose function it is to enter and lock in with the recesses y and z in the rear part of the barrel, and to which already reference has been made in connection with the withdrawal and

insertion of the case. These keys are operated by a spring-handle, S, arranged in relation to the handle M so that in the act of depressing the breech the handle S shall operate the keys, and thus release their grasp on the barrel.

Having thus described my invention and the manner in which the same is or may be carried into effect, I claim—

1. The method of locking the breech-piece with and unlocking it from the rear end of the barrel by means of one or more keys passing through the breech and entering recesses in the barrel, as herein described, and by combining with said keys a system of levers arranged in relation to the breech-handle and the said keys so as to operate the latter in the act of depressing the breech by grasping the handle, as herein set forth.

2. The method described of constructing the breech-piece in three parts under the arrangement set forth, and when combined with wedges or keys to tighten the breech, and thus insure perfect frictional contact of the breech and the barrel.

3. Providing the sides of the rear end of the barrel with trunnions upon which to hang the breech, in combination with the steps or projections and grooves, in the manner and for the purpose herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

WM. F. GOODWIN.

Witnesses:

A. POLLAK,

EDM. F. BROWN.