

UNITED STATES PATENT OFFICE.

OLIVER W. BAYLEY, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN BREECH-LOADING FIRE-ARMS.

Specification forming part of Letters Patent No. 35,608, dated April 22, 1862.

To all whom it may concern:

Be it known that I, OLIVER W. BAYLEY, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Breech-Loading Guns, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a breech-loading gun, showing my improvements; Fig. 2, a longitudinal vertical section of the same; Fig. 3, a view from the under side of the breech-piece.

My present invention is more particularly applicable to breech-loading cannon, but may be advantageously used on small-arms.

It consists in a peculiar construction and arrangement of the movable breech-piece, by which a tight joint is insured between the breech-piece and the barrel, and the escape of gas at this point, when the gun is discharged, is prevented and the wear of the breech-plug is compensated for.

That others skilled in the art may understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is the barrel, which is secured to a suitable carriage, (here a stand, B, only is represented.) The rear end of the barrel is enlarged to accommodate two recesses, *a b*, which are larger than the bore C of the gun. The rear or larger recess, *a*, has cut in it a female screw, *c*, a portion of which is cut away. It receives a screw, *d*, (which is also partially cut away,) on the end of the movable or swinging breech-piece, D, the two screws being so matched that when the breech-piece D is in the position shown in Fig. 2 its end will enter the recess *a*, when, by revolving the breech-piece on its axis, the screw *d* enters the other screw and locks the two parts together. I am aware that this device has been previously used for locking the breech-piece to the barrel; but where the screws *d c* alone were depended on to make the connection tight, it did not succeed, and the wear of the screws was fatal to the integrity of a gas-tight joint. To compensate for this wear and to insure a gas-tight joint, I have adopted the following construction of breech-piece: A cylinder, E, is fitted and slides within the breech-

piece D. It is closed at its rear end, thus forming a chamber, into which the cartridge or charge is introduced. Its forward end is turned down at *e* to fit the recess *b* in the barrel, the axis of this chamber and that of the bore C of the gun coinciding when the parts are in the position shown in Fig. 1. A screw, F, to which is attached a hand-lever, G, screws into the rear end of the breech-piece D and presses against the end of the cylinder E, so that as this screw is turned in the direction of the arrow, Fig. 1, the cylinder E is thrust forward till its outer end binds firmly against the end of the barrel A, the shoulders 3 and 4 of the recesses *a b* receiving the shoulder 5 and the end 6 of the cylinder. The shoulders 3 and 4 may have grooves turned in them, and the parts 5 and 6 of the cylinder be made to match. The breech-piece D is withdrawn from the barrel A and is turned up into the position shown in Fig. 2 (to receive the charge) in the following manner: A heavy sleeve, H, has attached to it trunnions *f*, which pivot on the frame B, (or the gun-carriage.) The breech-piece D revolves and slides in this sleeve. A pin or screw, *g*, Fig. 3, passes through the under side of the sleeve and enters a slot, *h*, cut part of it lengthwise and part around the breech-piece D. This connects the two and prevents the breech-piece from being turned in the sleeve until it has been pushed forward into its proper position. A hand-lever, I, for revolving the breech-piece, passes through a hole, *i*, made in the piece D, a little larger than the lever, and screws into the cylinder E. It rests on the stand B when the breech-piece is locked. The cap-nipple *m* screws into this lever, and a hole, *o*, in the lever communicates fire from the percussion-cap to the charge in the chamber E. The hole *i* is large enough to permit the required longitudinal movement of the cylinder E in the breech-piece D.

The following is the operation: The parts being in the position shown in Fig. 2, the charge or cartridge is introduced into the chamber E. The breech-piece is brought down into line with the barrel, pivoting on the trunnions *f*, and is pushed forward into the barrel, and is then revolved by the hand-lever I a quarter-turn into the position shown in Fig. 1. This locks the two screws *c d*. The screw F is now turned by the lever G in the direction of the arrow. This, as before stated, pushes for-

ward the cylinder E and binds its outer end against the rear end of the barrel A, so that no gas can escape when the gun is discharged.

Some modifications of construction will be desirable when applying my improvements to small-arms; but these may be made without departing from the spirit of my present invention.

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

The combination of the breech-piece D with the cylinder E, which is moved forward after the breech-piece is in place, to tighten the joint at the rear end of the barrel, substantially in the manner described.

O. W. BAYLEY.

Witnesses:

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