

UNITED STATES PATENT OFFICE.

JESSE S. BUTTERFIELD, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. 32,238, dated April 30, 1861.

To all whom it may concern:

Be it known that I, JESSE S. BUTTERFIELD, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Breech-Loading Cannon; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my cannon. The remaining figures represent detached parts, to be hereinafter referred to.

Similar letters of reference indicate corresponding parts in the several figures.

The subject of my invention is a cannon having a solid breech and a barrel pivoted therein; and the invention particularly consists in certain combinations of parts, hereinafter explained, to facilitate rapid firing and to increase the strength, durability, and effectiveness of the gun.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation with reference to the drawings.

A represents the barrel or main portion of the gun bored completely through from end to end and working on trunnions *a* in a solid bed and breech piece B J. (Represented by a detached view in Fig. 3.)

C is a pivoted lock, which fills the space between the barrel B and breech J when the cannon is in position for firing, as will be understood when its operation is explained.

Fig. 2 represents a detached perspective view of the lock-piece.

E is a lever secured to one of the trunnions *a* and employed to raise and depress the rear end of the barrel for the successive operations of loading and firing.

F, Figs. 1 and 4, is a screw working in a threaded aperture in the breech J and formed with a cylindrical portion *f* and a tapered end *f'*, adapting it to be passed through the aperture D in the lock C and forced into the rear end of the barrel.

G is the limber.

H is a set-screw for adjusting the height of the breech as may be needful to govern the flight of the shot.

The barrel A and the bed and breech piece

B J may be of cast-iron and the lock-piece C of wrought-iron; but I do not wish to be understood as confining myself to any specific material. The barrel may be rifled or plain, as preferred.

The operation is as follows: The screw F is first retracted from the aperture of the lock C. The lock is then thrown up, and the barrel A either tilts by its gravity or is tilted by means of the lever E. The positions of the various parts at this stage are represented by dotted lines in Fig. 1. The cartridge is now inserted in the rear of the barrel, and, the barrel and lock being restored to their former positions, the screw J is run in and its tapered end forced firmly into the rear end of the barrel. The cannon is then ready for firing.

From the foregoing description it will be understood that during the act of firing the solid bed-piece B constitutes a secure bond between the barrel and breech of the cannon, and the tapered end *f'* of the screw F being forced into the rear of the barrel previous to every discharge forms a thoroughly tight joint, and compensates in the most perfect manner for the expansion of the barrel caused by rapid firing.

The construction of my improved cannon is simple and effective in a high degree. It admits of very rapid firing, and in strength and durability it is nearly or quite equal to a solid gun.

A suitable counterpoise may be applied to the lock-piece C to assist in raising it.

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

1. The combination of the pivoted barrel A, solid bed and breech piece B J, and pivoted lock-piece C, constructed, arranged, and operating substantially as and for the purpose set forth.

2. The combination of the taper-ended breech-screw F *f'*, pivoted barrel A, perforated lock-piece C D, and solid bed and breech B J, in the manner and for the purposes herein shown and explained.

J. S. BUTTERFIELD.

Witnesses:

W. D. MILLER,

J. B. BUTTERFIELD.