2 Sheets--Sheet 1.

B. B. HOTCHKISS.

Breech-Loading Ordnance.

No. 160,434 Patented March 2, 1875.

Fig. 1.

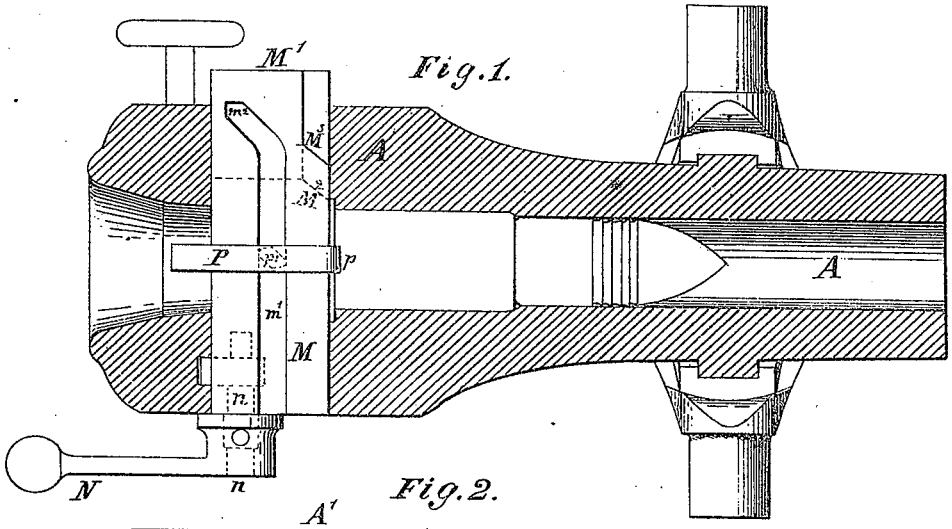


Fig. 2.

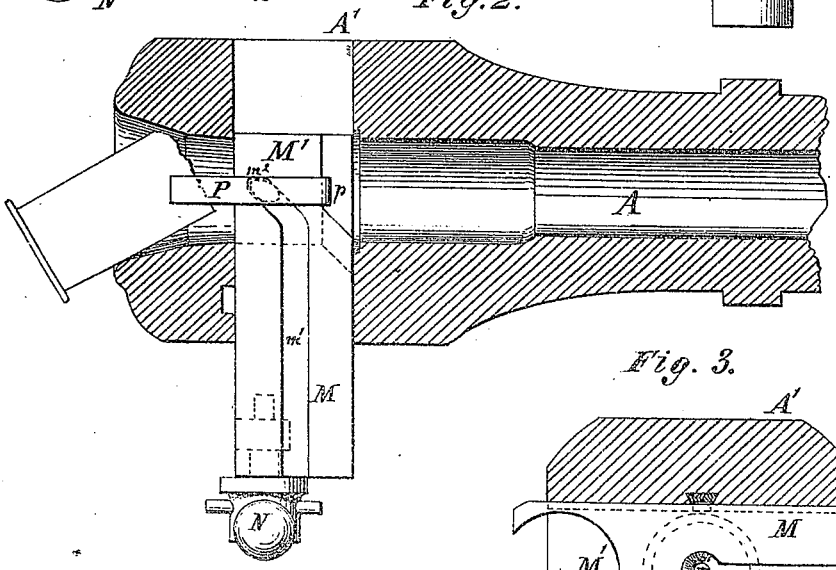
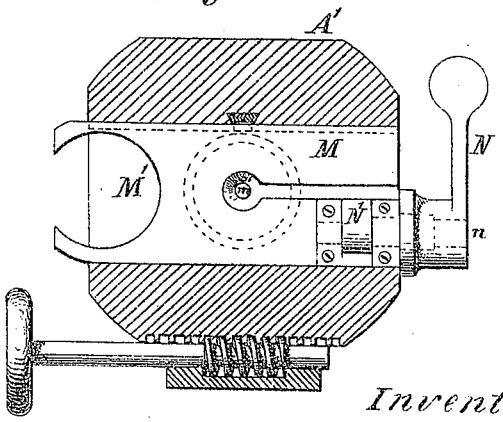


Fig. 3.



Witnesses.

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M. C. Dey.

Inventor:

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by his attorneys F. J. Stetson

New York City

2 Sheets--Sheet 2.

B. B. HOTCHKISS.

Breech-Loading Ordnance.

No. 160,434. Patented March 2, 1875.

Fig. 4.

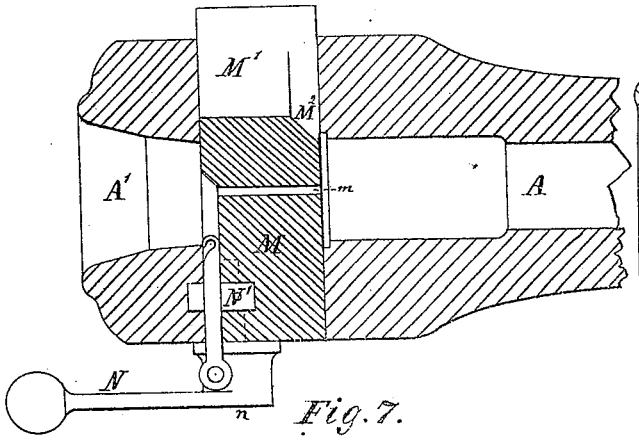


Fig. 6.

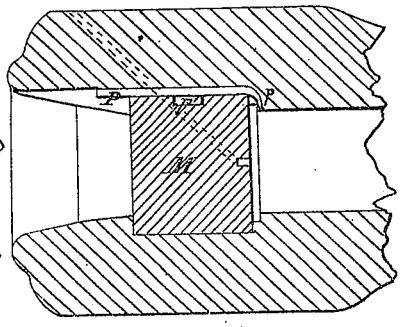


Fig. 7.

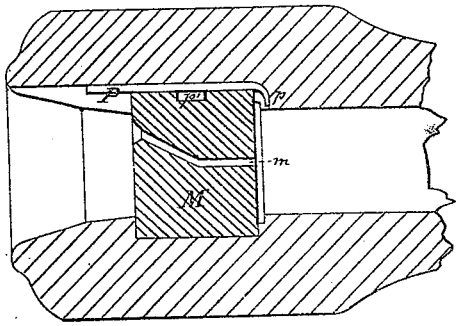


Fig. 5.

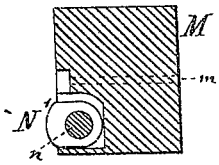


Fig. 8.

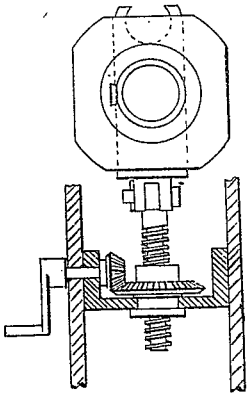
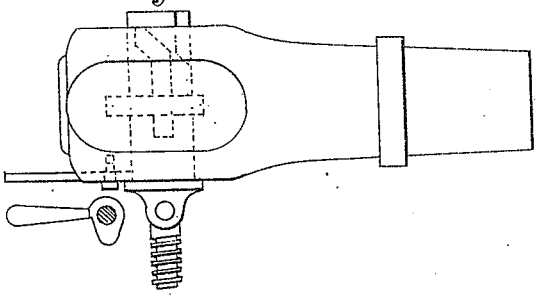


Fig. 9.



Witnesses.

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Inventor.

B. B. Hotchkiss

by his attorneys F. F. Stetson

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

BENJAMIN B. HOTCHKISS, OF NEW YORK, N. Y.

IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. 160,434, dated March 2, 1875; application filed May 25, 1874.

To all whom it may concern:

Be it known that I, BENJAMIN B. HOTCHKISS, of New York city, in the State of New York, temporarily residing in Paris, France, have invented certain Improvements relating to Breech-Loading Cannon, of which the following is a specification:

My improved gun is a breech-loader, adapted to the use of metallic cartridge-cases or gas-checks. The invention relates to the breech-block and the adjacent parts, and provisions for securing the same, and for operating, by the motion thereof, an extractor to throw out the emptied cartridge-case. I construct the gun with an enlargement at the breech, and with a block of rectangular section, adapted to be moved across through a corresponding close-fitting mortise. An extractor is fitted to traverse longitudinally of the gun immediately in contact with the transversely-sliding breech-block, and is operated by a groove therein.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a horizontal section through the main body of the gun, the other parts being represented in plan. In this view the breech-block is in position for firing. Fig. 2 is a corresponding section with the breech-block drawn out. A cartridge-shell is represented as in the act of being expelled. Fig. 3 is a cross-section corresponding to Fig. 1. Fig. 4 is a horizontal section through the breech-block and the adjacent portions of the gun. Fig. 5 is a cross-section through the breech-block. The remaining figures represent modifications. Figs. 6 and 7 are vertical sections through the gun and breech-blocks, showing two modifications. In Fig. 6 the vent leads in an inclined direction through the breech-block and body of the gun. In Fig. 7 it reaches through the breech-block, but with a change of direction at one point in its course. Figs. 8 and 9 represent another modification, Fig. 8 being a rear view, and Fig. 9 a side elevation.

Similar letters of reference indicate like parts in all the figures.

A is the gun, and A′ an enlargement at the breech thereof. M is the transversely-moved piece, usually denominated the breech-block, which performs the important functions of allowing the introduction of the cartridge from the rear when in one position, and effectually and strongly closing the breech when in another position. It also operates the extractor. To allow the insertion of the cartridge a sufficent hollow is formed at the end M^1, and a bevel is formed, as indicated at M^2, to force the cartridge forward in the gun by the movement of the breech-block, because it cannot be sufficiently pushed forward previously. The movement of the breech-block may be effected by any convenient means. When it is sufficiently moved across, and is in position for resisting the immense strain experienced at the moment of discharge, it is locked in that position. This locking is effected by turning the hand-lever N, which, giving a partial rotation to the short shaft *n* on being moved, presents, beyond the rear face of the breech-block, a short arm or cam, N′, which engages in a corresponding recess formed in the gun. After the gun has been fired the lever N is again thrown forward by the attendant, bringing the short arm N′ again within the breech-block, and leaving the latter free to be again withdrawn. The extraction of the cartridge is effected through the agency of an extractor, P, which is fitted in a dovetail groove parallel to the line of the bore, and is adapted to be moved longitudinally of the gun by any suitable force. Its hooked end *p* stands forward of the flange of the cartridge, so that on being drawn backward by any means when the breech-block is withdrawn, it will dislodge the spent cartridge and project it backward through and out of the open breech. The extractor P *p* is provided with a pin, *p′*, which projects downward into the upper portion of the space traversed by the breech-block M. A groove is formed in the latter, as indicated by m^1. This groove receives the projection *p′* on the extractor P, and controls its position. This groove is straight for a large portion of its length, but it is bent near the end M^1. The groove does not extend quite out, but it terminates a little short of the end, so that it serves as a stop. While the breech-block is moved through a great portion of its motion the pin

p' stands in the straight portion of the groove m^1, and no motion is imparted to the extractor; but when the breech-block is moved nearly to its extreme outward position the bent portion of the groove m^1 receives the pin p', and the extractor is correspondingly moved backward. In this motion its hooked end extracts the cartridge. The breech-block M is constructed with an inclined offset at M^3, which accommodates the hook p when the extractor is drawn back.

My improved breech-block may be adapted to receive any ordinary or suitable discharging means. It is only important that its mass shall not be so much cut away to make room for discharging mechanism as to materially weaken it, and also that it shall not be wrought in any manner which shall tend to interfere with the tightness of its fit, or with its movements, when it shall chance to be heated somewhat above the adjacent portions of the gun.

I have represented the parts as adapted for a friction-primer fired by ordinary means. The fire is communicated from such primer through the hole m, which, when the breech-block is in position for firing, stands in the central line of the gun, and communicates the fire to the center of the rear face of the cartridge.

I have devised a construction of cartridge (which I have fully set forth in another application for patent) which has the rear of the cartridge constructed with strong and flexible valves, which open inward to allow the fire from the priming to reach the interior of the cartridge. I have also devised (and made the subject of another application for patent) provisions for mounting the gun, constructed without trunnions, in a trunnion-frame, separately formed, with provisions for traversing the gun to a limited extent to the right and left in such frame; but neither of these are essential to the success of the present invention.

I have designated by m^2 the termination of the bent or inclined end of the groove m^1. Against this stop m^2 the pin p' strikes when the breech-block has been withdrawn sufficiently from the gun. It serves as a stop to prevent the breech-block from being withdrawn too far.

The bevel or flare M^2 on the forward face of the breech-block, adjacent to the recess through which the cartridge is inserted, performs an important function in connection with the other parts.

During the whole period while the breech-block stands withdrawn, the extractor stands with its hook p drawn back into the line of the path of the breech-block. In this position it prevents the cartridge from being thrust forward to its full proper extent. The cartridge can only be pushed forward until the flange or rim (which it will be understood projects all around its rear end) strikes against the hook p of the extractor. It stands in this position when the breech of the gun commences to be closed by the proper motion of the breech-block. This motion of the breech-block soon carries the extractor forward to its proper position out of the path of the breech-block. During this movement it may be expedient to urge forward the cartridge in the gun by the hand of the attendant, or otherwise; but, in case such precaution is neglected, the breech-block will itself force it forward by the action of its incline or flare M^2.

One of the modes of operating the breech-block is shown in Figs. 8 and 9. In the arrangement here adopted the breech-block moves vertically, instead of horizontally, across the breech, and is connected with the elevator-screw. The latter performs its usual function of raising and lowering the aim, according as it is adjusted one way or the other, and also holds the breech-block, so that on forcibly depressing the muzzle of the gun by the direct application of the hands of men, or otherwise, and thus throwing up the breech, the breech-block will be withdrawn; and, restoring the gun to its original level, so that its breech rests again on the shoulder of the breech-block, it allows the elevator-screw to perform its ordinary duty, as before.

I claim as my invention—

1. The extractor P, with its hook p and pin p', in combination with the gun A, and with the groove m^1 in the breech-block M, as herein specified.

2. The breech-block M, having the groove m^1 and offset M^3, in combination with the extractor-hook P p, as herein specified.

3. The bevel or flare M^2 on the breech-block M, in combination with the groove m^1 and the extractor P p, operating together as herein specified.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

B. B. HOTCHKISS.

Witnesses:
CH. F. THIRION,
DAVID T. S. FULLER.