2 Sheets--Sheet 1.

B. B. HOTCHKISS.

Means of Mounting and Operating Ordnance.

No. 161,037. Patented March 23, 1875.

Fig. 1.

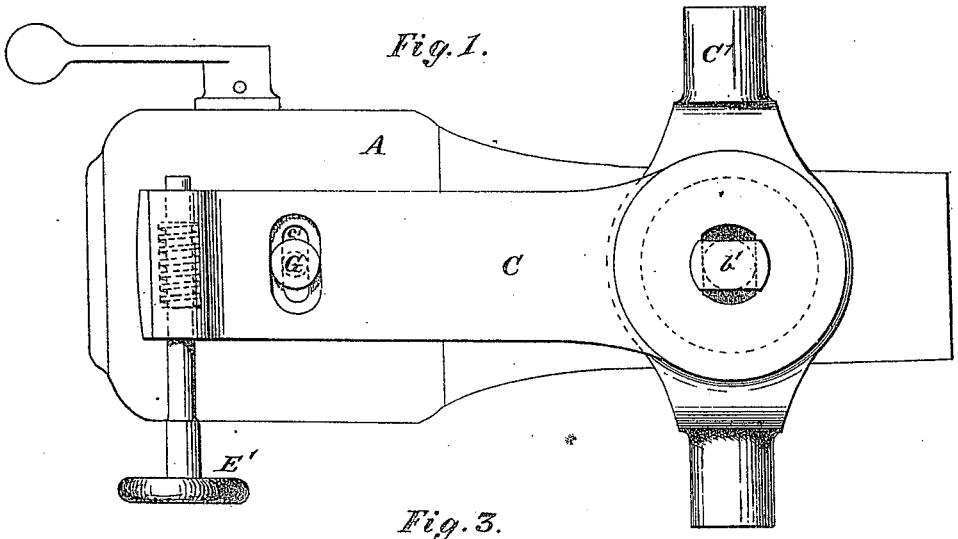


Fig. 3.

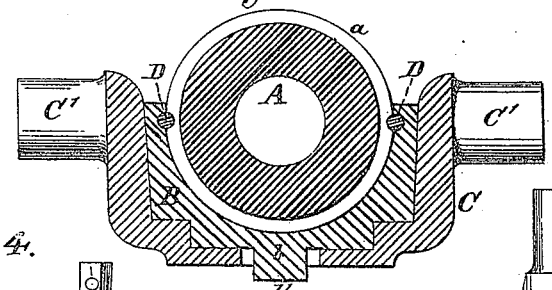


Fig. 4.

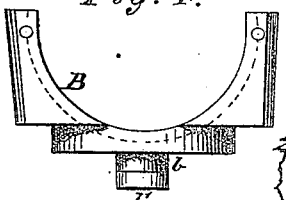


Fig. 5.

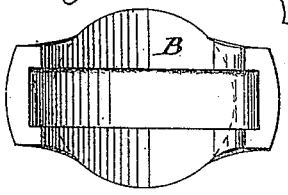
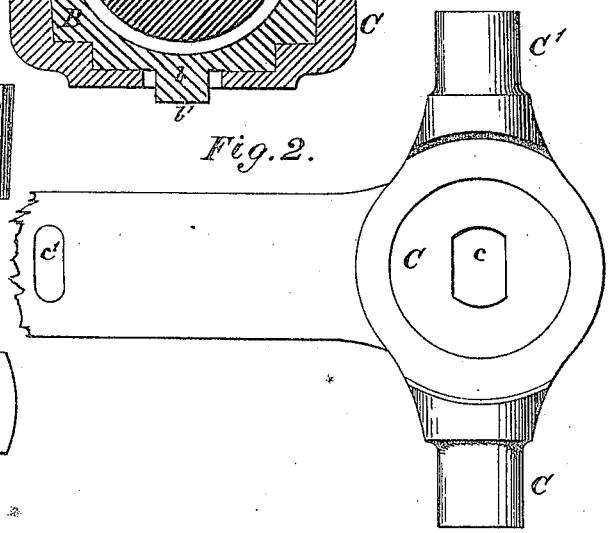


Fig. 2.



Witnesses.

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Inventor.

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B. B. HOTCHKISS.

Means of Mounting and Operating Ordnance.

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Fig. 6.

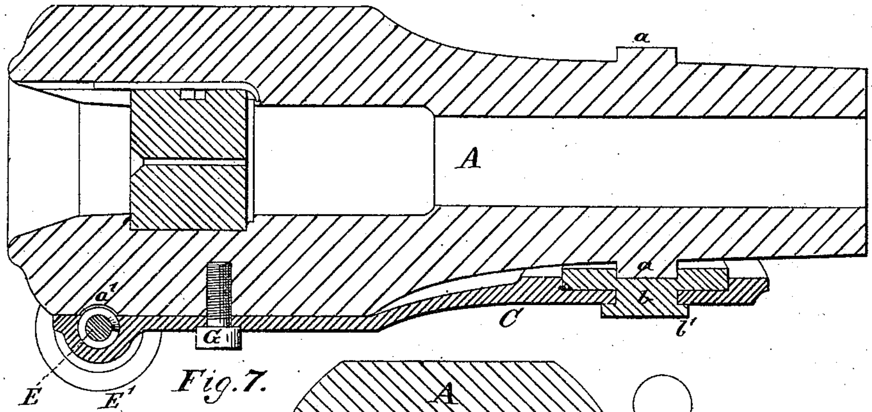


Fig. 7.

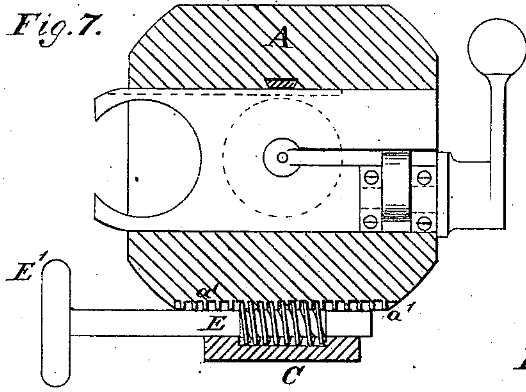


Fig. 8.

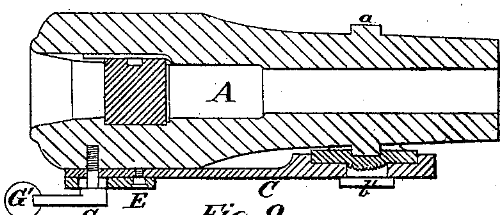


Fig. 10.

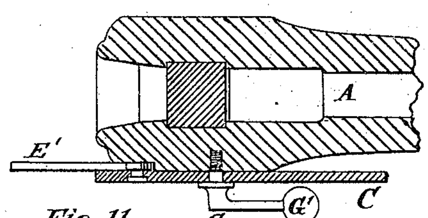


Fig. 9.

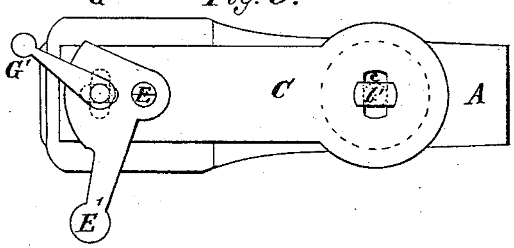
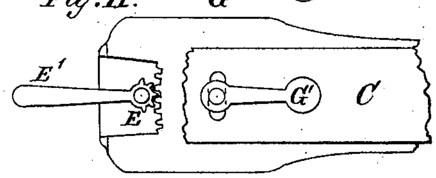


Fig. 11.



Witnesses. *Inventor.*

Arnold Hörmann. B. B. Hotchkiss

W. C. Dey. by his attys 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 MEANS OF MOUNTING AND OPERATING ORDNANCE.

Specification forming part of Letters Patent No. **161,037**, dated March 23, 1875; application filed May 23, 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 Cannons, of which the following is a specification:

The improved cannon is constructed without trunnions. The trunnions are formed on a separate piece, and I provide simple means for giving a lateral motion or traverse to the gun within certain limits. This traverse is very important in laying the gun. The object has been long known to be desirable, and many means have been attempted for attaining it, all of which have been too complicated for general adoption.

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 view of the rear portion of the improved cannon seen from below. Fig. 2 represents certain parts detached. Fig. 3 is a cross-section through the gun and some of the connected parts. Fig. 4 is a front view of one of the parts detached. Fig. 5 is a top view of the same. Fig. 6 is a vertical longitudinal section through the rear portion of the gun and the provisions for traversing. Fig. 7 is a cross-section through the breech of the gun in the plane of the traversing-screw. The additional figures represent certain modifications on a smaller scale. Figs. 8 and 9 are, respectively, a vertical section and a plan view from below, showing one modification. Figs. 10 and 11 are corresponding views, showing another modification.

Similar letters of reference indicate corresponding or nearly corresponding parts wherever they occur.

A is the body of the gun. It is formed with a collar or rib, *a*, at the place where the trunnions should be mounted. B is a saddle, with a groove corresponding with and adapted to receive the rib *a*. The saddle B is formed with a locking projection, *b b'*, which engages in a hole in the trunnion-frame C. This latter is formed with trunnions C' C', adapted to perform their usual functions. The inner surfaces adjacent to the sides of the saddle B are concave, and the sides of the saddle B are rounded or made portions of an upright cylinder. This allows the gun to be traversed, or its breech swung from right to left and from left to right, by the turning of the saddle-piece B within the cylindrical and inclosing box formed by the upright sides of the stout trunnion-frame C. The locking of the projection *b b'* in the hole in the trunnion-frame C will be understood from the figures. The projection has a cylindrical neck, *b*. A transverse slot, *c*, is formed in the trunnion-frame, the width of which slot is just equal to the diameter of the neck. A head, *b'*, is formed on the projection, which head has a length nearly equal to the length of the slot.

In applying the parts together the saddle B *b b'* is first turned at right angles to its final position. It then allows its head *b'* to pass through the slot *c* in the trunnion-frame. After having sunk its head through this slot the saddle-piece B, with its connected neck *b* and head *b'*, is turned around ninety degrees, which brings it to its right position. The neck *b* stands ever after in the slot free to turn; but the saddle-piece and the connected gun are locked down to the trunnion-frame by means of the long head *b'*.

The gun is firmly locked in the saddle-piece by means of pins or bolts D, which extend fore and aft through the saddle-piece on each side, and also engage in the rib or collar *a*.

The trunnion-frame extends backward under the cannon to the breech of the gun at the back end, and carries a traversing-screw, E, with a hand-wheel, E', for conveniently operating it. This screw is mounted in fixed bearings in the trunnion-frame C, and takes in threads or partial threads formed in the under side of the breech of the gun, as indicated by *a'*. G is a tightening-screw or holding-screw, tapped into the gun a little forward of the traversing-screw E. It stands in a slot, *c'*, in the trunnion-frame, which slot is of sufficient length to allow all the traversing which will usually be required. When the gun has been traversed by turning the hand-wheel E', and has been laid in exactly the right position, the screw G is tightened to hold the parts fast by swinging the loaded lever G'.

The gun, with its trunnions C′ thus attached, may be elevated and depressed by the ordinary means. The cartridges and the entire construction in other respects may be of any ordinary character. I have represented certain parts adapted for breech-loading; but such will be the subject of a separate application for patent, and form no part of the present invention.

The modification, Figs. 8 and 9, shows a lever pivoted on the trunnion-plate C at the point E, instead of the traversing-screw before shown. The lever has a convenient handle, E′, and takes hold by a short slot on the shank of the pinching-screw G, which is formed with a heavy permanently-attached lever, G′, and on being turned to tighten it pinches the gun through the medium of both the trunnion-frame C and the lever E. There is a sufficiently long curved slot in the trunnion-frame, as indicated in Fig. 9, to allow all the traverse motion necessary.

The modification, Figs. 10 and 11, shows a rack or short segment formed in the under side of the breech of the gun, with a partial pinion, E, controlled by the hand-lever E′, pivoted on the trunnion-frame for operating it. The pinching-screw G is in this modification also formed with a permanently-attached lever and weight, G′.

I claim as my invention—

1. The saddle-piece B, formed with swelled sides, adapted to match in the inclosing-box C, in combination with the gun A, collar *a*, and convenient locking means D, as herein specified.

2. The combination of gun A *a*, saddle B, and trunnion-frame C C′, the parts being secured together by the locking projection *b b′* engaging in the opening *c*, as herein specified.

3. In combination with the gun A, trunnion-frame C C′, and traverse means E, the pinching-screw G, having the loaded lever attached thereto for holding the trunnion-frame firmly to the gun, so as to relieve the traversing means from concussion, 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, Jr.,
DAVID T. S. FULLER.