J. A. FRANCE.

Breech-Loading Ordnance.

No. { 2,240. / 33,244. }

Patented Sept. 10, 1861.

Fig: 1.

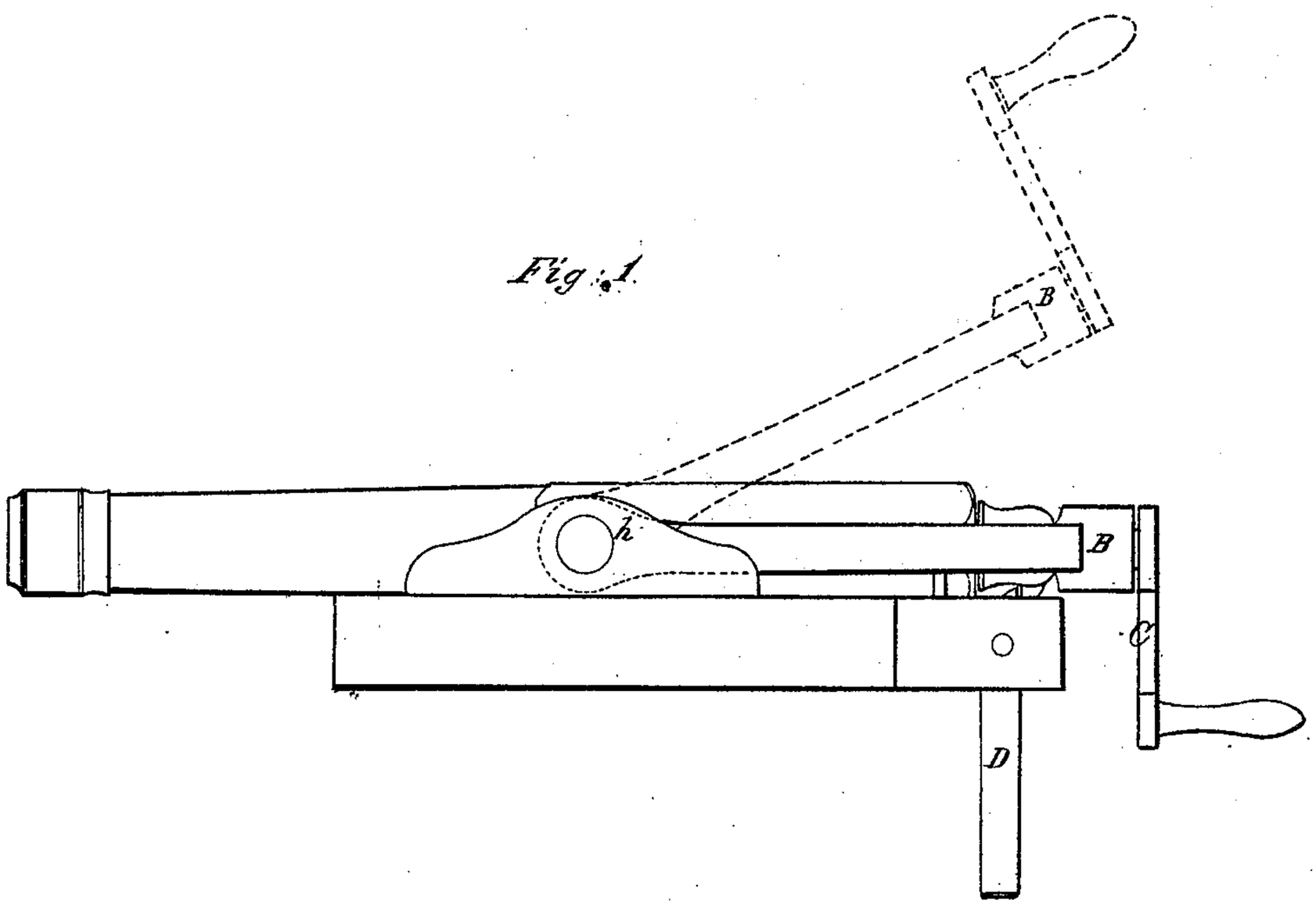
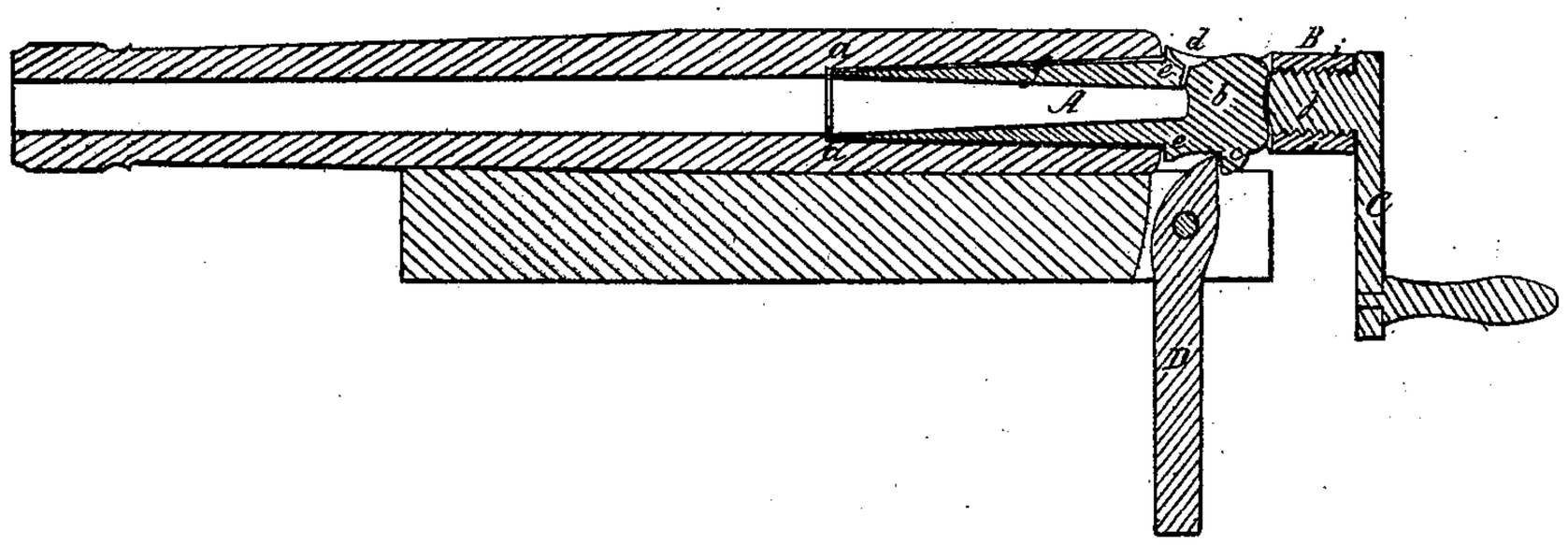


Fig: 2.



Witnesses.

E. S. Wilson.

Inventor

Joseph A. France

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH A. FRANCE, OF COBLESKILL, NEW YORK.

IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. **33,244**, dated September 10, 1861.

To all whom it may concern:

Be it known that I, JOSEPH A. FRANCE, of Cobleskill, in the county of Schoharie, in the State of New York, have invented certain new and useful Improvements in 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 annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal elevation, the red lines showing the yoke raised preparatory to the withdrawal or insertion of the combined breech-pin and charge-chamber; and Fig. 2, a longitudinal vertical section of the same, the yoke being in position and confining the breech-pin and charge-chamber in the breech of the gun.

The nature of my invention consists in the arrangement of the confining-screw, and its relation to the yoke and the head of the breech-pin, whereby, by a single continuous motion, the yoke is depressed and the breech-pin clamped, or the yoke is elevated and the breech-pin released. It also consists in the peculiar construction of the breech-pin and charge-chamber, and in the manner in which these are confined in their chamber in the gun.

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

The barrel of the gun is bored through from muzzle to breech, as is usual in this class of cannon; but at the point *a* a shoulder is formed from which the bore gradually increases in diameter back to the extreme breech of the gun. This is for the purpose of receiving the combined breech-pin and charge-chamber A, which is constructed with a solid head, *b*, toe *c*, touch-hole or nipple *d*, shoulder *e*, and truncated hollow cone *f*.

The yoke B is hinged at the ends of its legs to the trunnions of the gun, as shown at *h*, and has cut through the bow part a female screw, which receives the male screw *j*, which has a winch, C. Attached to lugs proceeding from the under side of the gun is the hinged lever D, the upper end of which engages with the toe *c*.

Such is a general description of my improvements. The details which go more distinctly to mark the invention may now be pointed out, and this will be best done by describing the operation of the cannon. A discharge is supposed just to have been made. One of the cannoniers, with one hand, gives the winch C (which at this point of time is in the position shown in Fig. 2) a half-revolution upward, which is sufficient to release the yoke from the breech-pin, and then, with the same hand hold of the winch, or with the other hand, which lays hold of a handle that may project from the side of the yoke, without a moment's intermission, raises the yoke just sufficient to clear the breech-pin. This done, the same cannonier, or another, if preferred, gives the lever C a rap which expels the combined breech-pin and charge-chamber onto the ground, and a duplicate breech-pin and charge-chamber, which last has in the meantime been filled with powder and ball, is instantly inserted by a second cannonier when the first depresses the yoke, and follows that motion closely with a half-turn of the winch downward, which firmly secures the breech-pin, the head of said breech-pin being concave, so that the concussion may not throw the yoke up, which might be the case were the head plane or were it beveled, so as to act like a wedge on the yoke, and the screw dispensed with.

It will be seen from the description of this part of my invention that great rapidity of loading and firing is secured, a single motion, although not in a right line, being sufficient to release the breech-pin, and a like movement in a contrary direction all that is requisite for securing it. The charge-chamber *f*, it will be observed, is thin at its edge or mouth, and is of a diameter there a little greater than that of the general bore of the gun. This last feature is for the purpose of receiving the ball at its greatest diameter, so that in effect the ball is lodged, previous to the discharge, in a chamber specially provided for it of a larger diameter than the bore of the gun. The object of the first feature is to secure a close joint between the barrel and the charge-chamber, the gas expanding the said charge-chamber so as to effect this, and, what is of equal importance, creating so much friction between the two that this of itself is nearly sufficient to retain the breech-pin in its place during the discharge, thus allowing the yoke to be made so light that a single hand can operate it unless the gun be a very heavy pounder.

Any number of combined breech-pieces and

charge-chambers may be used that is found convenient. This avoids too great heat of the parts, while the gun itself may be cooled at any time by dashing cold water on it.

The charge-chambers may be loaded in the field. The powder is poured loosely in and pressed down by the ball, which is forced into the mouth of the chamber, where it remains by friction. This method of charging avoids the use of all cartridge paper or cloth, and consequently one of the great dangers of accidental explosion.

Instead of the lever D to be operated by hand, the combined breech-pin and charge-chamber may be thrown out automatically. This is effected by extending a toe down from one or both ends of the legs of the yoke under the trunnion, and extending a rod back along one or both sides of the gun to act upon one or two projections from the sides of the head of the breech-pin. The toes and rods being thus arranged, the elevation of the yoke moves the rod or rods back and forces out the breech-pin and charge-chamber, they being moved forward again either by means of coiled springs or the projections on the breech-pin as the said breech-pin is forced into the bore of the gun; or the rod or rods may be hinged to the toe or toes.

If a nipple is used with the breech-pin, instead of the touch-hole shown, the lock or hammer may be placed either on the yoke B or in the usual place.

Having thus described my invention, I wish it to be understood that I do not claim, broadly, the use of a yoke and screw for securing the breech-pin of a cannon. I claim them only (in connection with a winch) when they are constructed and arranged so as to admit of securing and releasing the breech-pin and charge-chamber, each by a single motion in nearly a right line. Neither do I claim, broadly, a combined breech-pin and charge-chamber, the latter being a hollow truncated cone; but

What I do claim as of my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the yoke B with its screw *j* and winch C, when constructed and operating substantially as set forth.

2. The combined breech-pin and charge-chamber when the former is provided with a thick concave head and the latter has a bore at its mouth larger than the bore of the barrel, as set forth.

3. The combination, with the yoke B, screw *j*, and winch C, of the combined breech-pin and charge-chamber A, as and for the purpose described.

JOSEPH A. FRANCE.

Witnesses:
E. S. WILLSON,
A. B. LITTLE.