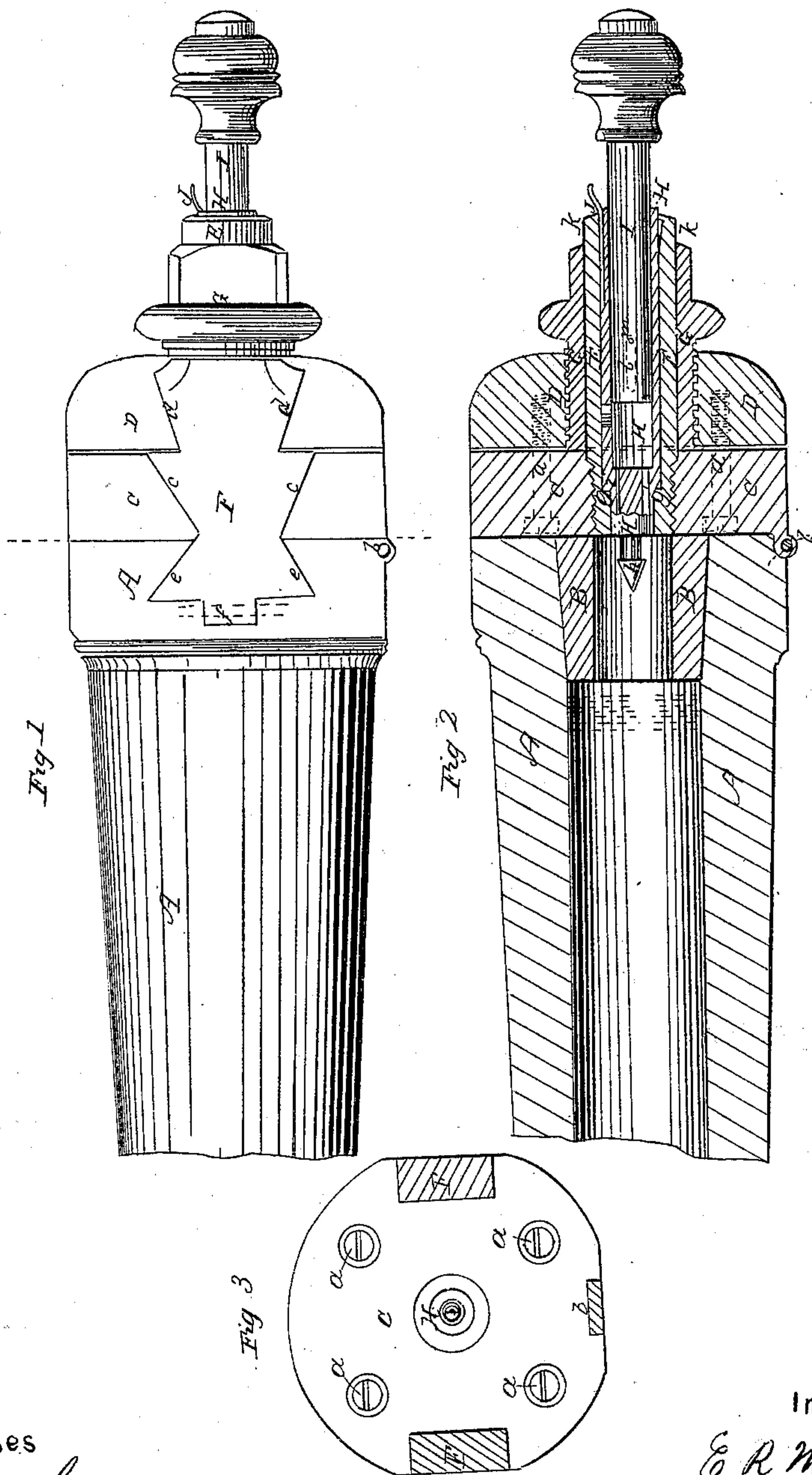


E. R. McCABE.  
Breech-Loading Ordnance.

No. 35,380.

Patented May 27, 1862.



Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD R. McCABE, OF ROCHESTER, IOWA.

## IMPROVEMENT IN BREECH-LOADING ORDNANCE.

Specification forming part of Letters Patent No. 35,380, dated May 27, 1862.

*To all whom it may concern:*

Be it known that I, EDWARD R. McCABE, of Rochester, in the county of Mahaska and State of Iowa, have invented certain new and useful Improvements in Breech-Loading Ordnance; 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, forming part of this specification, in which—

Figure 1 is a side view of the breech part of a cannon constructed according to my invention. Fig. 2 is a longitudinal central vertical section of the same. Fig. 3 is a transverse section of the same, taken immediately in front of and looking toward the breech.

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

The principal object of my invention is to obtain a gun in which gun-cotton may be used, and which will therefore be particularly serviceable in casemates and between the decks of ships, as the use of gun-cotton, owing to the little smoke produced, does not produce in the men working the gun in a confined place the choking thirst, smothering sensation, or blindness caused by using gunpowder. Owing to the danger of loading at the muzzle with gun-cotton, I employ the breech-loading system, and my improvements are more particularly directed to the strengthening of the breech and its connections and the surrounding parts to produce a breech-loading gun of the requisite strength.

The first improvement consists in fitting the chamber of a breech-loading cannon with a stout tube of steel or other tenacious metal, which I call an "internal re-enforce," the interior of which is much smaller than the caliber of the gun, and the length of which is sufficient to enable it to contain the charge, the object of the said tube being both to strengthen the gun and to reduce the amount of the area of the breech that is exposed to the force of the explosion.

The second improvement consists in a novel mode of locking and tightening up the breech, whereby the joint between it and the chamber is made very secure and close.

A third improvement consists in a novel priming and firing apparatus.

To enable others skilled in the art to make

and use my invention, I will proceed to describe its construction and operation.

The gun A should be made very stout at the breech. It is bored right through and counter-bored a little larger for a sufficient distance from the rear for the reception of the internal re-enforce B, which, when inserted as far as it will go, has its rear end flush with the rear end of the gun, which is faced perfectly true and flat and perpendicular to the axis of the bore. The interior of the re-enforce B is cylindrical, and its caliber may be about half of that of the regular bore of the gun. Its front end may be flat, or of other form, according to the form of the projectile used, the latter being arranged close in front of it, as shown in red outline in Fig. 2. If made of steel, this re-enforce will add very greatly to the strength of the gun. The charge is to be inserted in the interior of the re-enforce B in a cartridge of thin metal, and is intended to fill up its interior. Two or more of these re-enforces may be used and changed after one or more discharges to allow them to cool. The one in the gun is always withdrawn for loading, as otherwise the projectile could not be inserted at the breech. The withdrawal is effected by an elastic hooked fork, which may be compressed to allow it to pass through in a forward direction far enough for the hooks to spring in front of the re-enforce. By removing the re-enforce the gun is enabled to be used like ordinary guns for gunpowder.

The breech is composed, principally, of two very stout plates or blocks, C D, of metal, arranged one behind the other, and connected by screws *a a* in such manner as to permit them a slight movement toward and from each other. These screws are merely to hold the two plates or blocks together. The front plate or block, C, has screwed into it or otherwise rigidly attached to it a socket, E, which passes through the center of the plate or block D, surrounded by a hollow screw, G, which is screwed through the latter plate or block from the rear. The plate or block C is attached at the bottom by a hinge-joint, *b*, to the bottom part of the rear end of the gun, so that the breech may open by swinging backward and downward. To each side of the gun, at a short distance from the rear end, there is secured by a hinge-joint, *f*, one of two dovetail cheek-



pieces, F F, of steel or wrought-iron. These cheek-pieces have each three dovetails, *c*, *d*, and *e*, two having the same direction and fitted to separate dovetail recesses in the corresponding side of the plates or blocks C and D, and the third, *e*, fitted to a dovetail recess in the corresponding side of the portion of the gun in rear of the hinge-joint *f*. This arrangement of the dovetails of the cheek-pieces causes them to lock the breech to the gun independently of the hinges *f*, which are only to attach the cheek-pieces to the gun in a suitable manner to have them always in the proper position. The screw G screws up against the front plate or block C to set it up tight against the rear end of the gun after the breech has been secured by the cheek-pieces, which have their dovetails *c d* fitted very easily into the plates or blocks C D. To open the breech, the screw G is first turned back about one-fourth of a revolution to loosen the cheek-pieces in the plates or blocks C D. The cheek-pieces are then swung aside and the breech thus allowed to drop down. To close and lock the breech, it is first raised up to the rear of the gun. The cheek-pieces are then brought into the dovetail cavities in its sides, and the screw G is then screwed up tightly against the plate or block C, thus tending to separate the plates or blocks C and D and bring C close up to the rear of the gun, and D back hard against the dovetails *d d*. The object of making the breech of the two plates or blocks C D and applying the screw G is to afford facility for opening it easily, and to enable it to be made very tight when closed and secured.

The socket E is for the reception of the priming-tube H, which is fitted to work easily back and forth within it, a shoulder, *g*, being provided in the socket, and a corresponding shoulder on the tube to prevent the latter from entering too far. The front end of the tube H is closed except that there are vents *i i*, to permit the passage of the fire of the priming to the charge, and it is made with a point, *h*, to penetrate the cartridge for the fire to enter. Some distance from the closed front end there is an opening, *n*, in one side of the tube for the admission of pellets of percussion-priming. The tube H is furnished near its front end with a spring-catch, *j*, to retain it in the socket, by entering a groove, *k*, provided in the latter; but this spring is constructed and arranged to be liberated from the socket by pressing it with the thumb or finger. I is a

plunger working in the priming-tube H, for the purpose of exploding the priming, and attached to the tube by a slot, *l*, and pin *m*, or other means that will allow it to move back and forth some distance within the tube. The plunger has at its outer end a knob by which to take hold of it and withdraw it and the tube from the breech. I will here remark that the drawing represents the priming apparatus very much larger relatively to the gun than it would require to be in practice. To apply the priming the knob of the plunger I is taken hold of, and the spring *j* pressed with the thumb or finger and both the plunger and the priming tube are withdrawn together from the breech. A pellet of priming is then dropped into the tube in front of the plunger through the hole *n*, and the tube and plunger are replaced in the socket. To fire, the head of the plunger is struck sharply with a mallet or hammer, and the plunger and tube thus driven forward together, making the point of the tube penetrate the cartridge and causing the priming to be exploded between the end of the plunger and the front of the cavity of the tube.

I do not claim, broadly, fitting the chamber of a breech-loading gun with a tube, as I am aware that a light tube has been used therein, to obtain convenience in loading, without adding to the strength of the gun, but, on the contrary, its interior being of the full size of the bore of the gun. Neither do I claim, broadly, the reduction of the size of the chamber, as that is done in muzzle-loading guns; but

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

1. Fitting the chamber of a breech-loading gun with a removable tube, B, of the character herein described, and termed an "internal re-enforce," for the purpose specified.

2. The breech composed of two plates or blocks, C D, combined with each other and with the gun by means of the dovetail cheek-pieces F F, and screw G, applied and operating substantially as and for the purpose herein specified.

3. The priming-tube H, and plunger I, applied in combination with each other and with the breech, substantially as herein specified.

EDWARD R. McCABE.

Witnesses:

JOHN R. BARNES,  
CHAS. STODDARD.