P. P. BRANNON & T. B. BUNTING.

Breech-Loading Cannon.

No. 224,637. Patented Feb. 17, 1880.

Fig: 1.

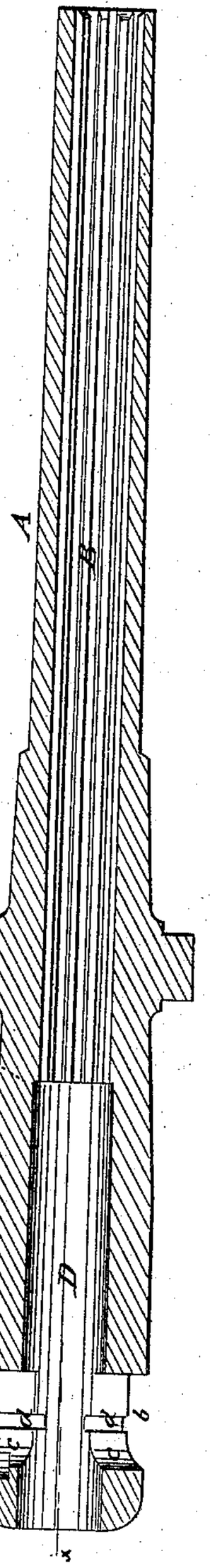


Fig: 2.

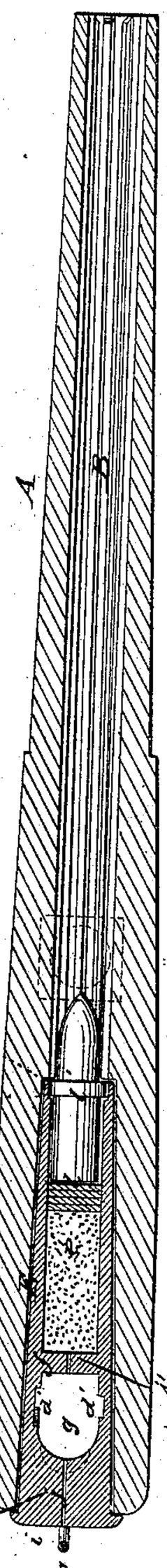


Fig: 5.

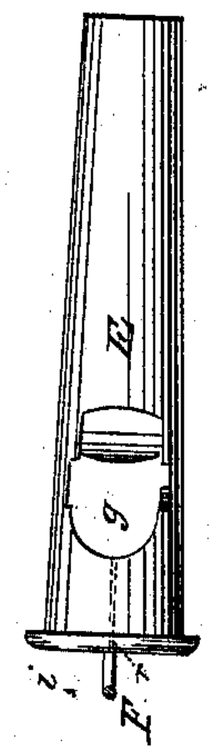


Fig: 3.

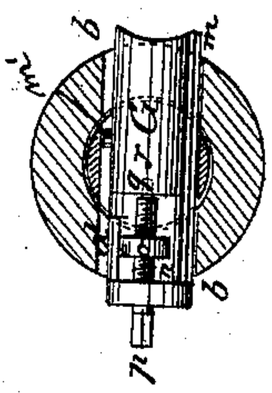


Fig: 4.

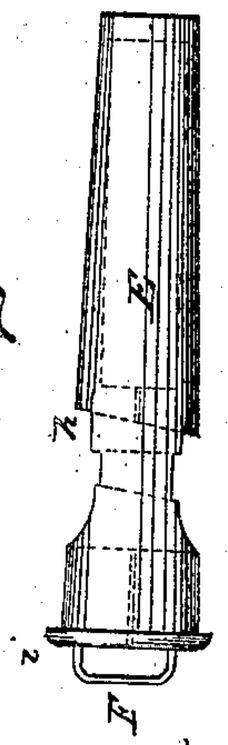
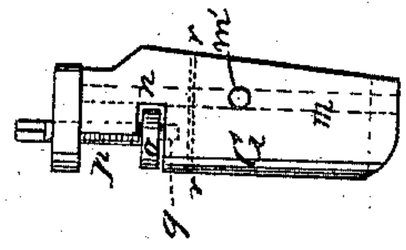


Fig: 6.



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UNITED STATES PATENT OFFICE.

PATRICK P. BRANNON AND THOMAS B. BUNTING, OF NEW YORK, N. Y.

BREECH-LOADING CANNON.

SPECIFICATION forming part of Letters Patent No. 224,637, dated February 17, 1880.

Application filed June 20, 1879.

To all whom it may concern:

Be it known that we, PATRICK P. BRANNON and THOMAS B. BUNTING, of the city, county, and State of New York, have invented a new and Improved Cannon, of which the following is a specification.

This invention relates to improvements in breech-loading cannon, and particularly to the construction of the breech, the breech block or wedge, and the manner of loading and firing the gun.

The object of the invention is to enable a very rapid firing to be maintained without heating the gun or otherwise affecting it so as to lessen its efficiency.

It consists in providing the gun with a chamber concentric to the bore, and extending from a point just back of the trunnions through the breech, the lesser diameter whereof, at the inner end, being greater than that of the bore, forming thus a shoulder.

It consists, secondly, of a charge-holder adapted to fit closely in the chamber with its inner end abutting against the shoulder and its flanged base against the breech of the gun.

It consists, thirdly, of a breech block or wedge for holding the charge-holder in the chamber.

It consists, lastly, of the details of construction and arrangement hereinafter specifically referred to and described.

In the accompanying drawings, Figure 1 is a longitudinal section of a gun through the trunnions, showing the manner of forming the breech to adapt it to our improvements. Fig. 2 is a longitudinal section of the gun on line *x x* of Fig. 1, with the charge-holder inserted, also in section. Fig. 3 is a transverse section of the breech and charge-holder with the wedge-block inserted, on line *y y*, Fig. 2. Figs. 4 and 5 represent the charge-holder in two positions, and Fig. 6 is a side view of the wedge-block.

Similar letters of reference indicate corresponding parts.

A is the chase. B is the rifled bore, and C is the breech, in which is made a chamber, D, extending from a point just back of the trunnions through the end of the breech. The diameter of this chamber is greater than that of the bore, forming thus a shoulder, *a*, at the inner end.

A short distance from the end of the breech a mortise, *b*, is made transversely through the gun at right angles to the chamber D. One side of this mortise (that next to the end of the breech) is ellipsoidal, as shown at *c*, while the opposite side is square. In the upper and lower sides of the mortise are ways or guiding-grooves *d*. In the left-hand end of the mortise, on the side *c*, is a recess, *c'*.

E is the charge-holder. It is of the same shape as chamber D, and fits closely therein with its end against shoulder *d*, while its flanged base abuts against the end of the breech, as in Fig. 2. Inside of this charge-holder is a cylindrical chamber, *e*, for the ammunition, and back of the bottom *f* of this chamber is a mortise, *g*, coinciding with the mortise *b* through the breech of the gun, and having the rear side ellipsoidal, like the side *c* of mortise *b*, while the opposite side, *h*, is inclined or at an angle to the axis of the charge-holder, corresponding thus to the side of the wedge-block.

In the top and bottom of the mortise are ways *d'*, aligning with the ways *d* in mortise *b*. Through the base E' of the charge-holder, in line with its longitudinal axis, is made a vent-hole, *j*, aligning with a vent-hole, *j'*, through the bottom *f*. On the end of the base of the charge-holder is a flange, *i*, which abuts against the end of the breech, while a hand-hold, F, takes the place of the cascabel usually forming the terminus of the breech of the gun.

In chamber *e* the cartridge *l* is placed, the metal collar *l'* on the shot fitting in the annular rabbet at the end of the chamber and against the shoulder *a*, and forming thus a gas-check.

G represents the wedge-block for holding the charge-holder in the gun. It is made to fit closely in the mortise *b* of the gun and mortise *g* of the charge-holder, the inclined face bearing against the inclined end of the mortise in the charge-holder.

On the under side of the wedge is a feather, *m*, to enter the lower ways, *d d'*, and on the upper side is a stud, *m'*, to enter the upper ways, both serving as guides to enter the wedge through the mortise.

A recess, *n*, is made in the larger end of the wedge, and in this recess is placed a cam, *o*, forming screw-connection with a screw-shaft,

p, entered through a threaded hole in the butt of the wedge, and in the side of the recess opposite where the shaft enters is a socket, *q*, to receive the point thereof when it is screwed in.

The end of the shaft projecting from the wedge is provided with a T-lever, by which it is operated.

When the charge-holder has been entered into the chamber D the mortise *g* in the said holder coincides with the mortise in the gun, and the wedge-block is shoved in through the mortises as far as it will go. The screw-shaft is then turned, and the cam being thrown out of the recess into recess *c'* engages the same, and the screw-shaft is screwed through the cam into socket *q*, forcing the wedge into the mortise and securing it in place. When the wedge is forced in as far as it will go a hole, *r*, made through it coincides with the vent-hole *j*, and thus a continuous vent is obtained from the breech of the charge-holder through to the charge in the cylinder *e*.

The operation of the invention is as follows: Any number of the charge-holders E is provided for each gun, and they are or may be loaded before going into action. One being placed in the gun and discharged, the wedge is withdrawn far enough to release the charge-holder, which is immediately withdrawn and another placed in the gun and the empty one reloaded, and so on continuously.

The advantages attending the employment of this improvement are numerous and important. In the first place the explosion of the charge takes place wholly within the charge-holder; hence the heat does not reach the gun at all and the breech is maintained in a cool state. This enables the gun to be fired much more rapidly than can ordinarily be done. As the explosion is confined to the charge-holder it follows that the gun cannot get fouled with the powder. This enables swabbing to be dispensed with entirely. Then it is improbable that a premature discharge should occur, as there is no connection whatever between the charges. As heating is reduced to the minimum the gun can be fired very rapidly. Lastly, as the charge-holder fills the chamber tightly and the chamber containing the charge is entirely separated by the close joint of the cylinder with the walls and by the bottom *f*, little or no gas can possibly escape, except the small quantity through the vent, and thus the whole effective fire of the explosion is expended upon the projectile.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. As an improvement in breech-loading cannon, a charge-holder, E, composed of an ammunition-chamber, *e*, with bottom *f* and vent-hole *j'* through the same, a mortise, *g*, base E', with vent-hole *j*, and flange *i*, said charge-holder being adapted to receive the charge and be placed in chamber D and secured by wedge G, in the manner substantially as described.

2. The charge-holder E, adapted to fit in chamber D against shoulder *a*, and composed of an ammunition-chamber, *e*, with bottom *f*, having a vent-hole, *j'*, mortise *g*, and base E', with vent-hole *j*, flange *i*, and hand-hold F', in combination with chamber D, having transverse mortise *b* and wedge-block G, with hole *r* made through it, and adapted to be passed through the mortises *b g* when the charge-holder is inserted in the chamber to secure the charge-holder in the chamber, and through hole *r*, form a continuous vent from chamber *e* to the end of base E', in the manner substantially as described.

3. The mortise *b* in the gun, provided with ways *d*, in combination with the charge-holder E, provided with mortise *g*, said mortise being adapted to receive the wedge-block G, for the purpose of securing the charge-holder in the gun, substantially as described.

4. The wedge-block G, provided with screw-shaft *p*, operating cam *o*, to secure the same in the mortise, in combination with the mortise *d* in the gun and mortise *g* in the charge-holder, substantially as described.

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Witnesses:
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