

# UNITED STATES PATENT OFFICE.

L. C. T. WEBER, OF ROCHESTER, NEW YORK.

## BREECH-LOADING ORDNANCE.

Specification of Letters Patent No. 31,044, dated January 1, 1861.

*To all whom it may concern:*

Be it known that I, L. C. T. WEBER, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in 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 a breech-loading cannon with my improvements. Fig. 2, is a rear view of the same. Fig. 3, is a longitudinal, central section of the same. Fig. 4, is a plan of the same. Fig. 5, is a central section of part of the barrel and the breech on a larger scale than Figs. 1, 2, 3 and 4. Fig. 6, is a top view of the rear portion of the barrel without the breech. Fig. 7, is a top view of the breech. Fig. 8, is an underside view of the rear portion of the barrel and breech. Fig. 9, is a rear view of the barrel without the breech.

My invention relates to ordnance used for service in the field, on board ships, or in forts.

It consists, firstly, in a novel mode of applying a movable breech for breech-loading, whereby it is enabled to be closed very securely and to be operated very easily and conveniently, and provision is made for forcing the ball into rifle grooves.

It consists, secondly, in an improved mode of adjusting the elevation of the piece.

It consists, thirdly, in an improved mode of working the piece in a horizontal direction to bring it to bear upon any object.

It consists, fourthly, in a novel mode of applying a seat for the gunner in rear of the carriage, when the gun is used as a field piece, to enable him to load and fire while in retreat, whereby the seat can, without being detached, be brought to a position in which it is no encumbrance to the service of the gun under other circumstances.

It consists, fifthly, in a certain mode of applying springs, whereby, in guns used on board ship or in a fort, the recoil of the gun is met and its force is made to run the gun forward again to a position for firing.

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

The drawing represents a breech-loading cannon adapted for field service, but having

its carriage mounted on a platform, as for use on board ship or in a fort.

A, represents the deck of a vessel or the wall of a fort.

B, represents a horizontal platform of wood or iron, supported upon rollers, *a, a, a*, and arranged to turn about a fixed pivot, *b*, for the horizontal adjustment of the piece. On this platform there are secured long, narrow boxes, *C, C*, for the reception of the wheels, *D, D*, of the gun carriage *E*, said boxes being open at the rear but closed in front to stop the wheels. The gun carriage, *E*, is constructed like the carriage of an ordinary field-piece.

*F*, is the barrel of the piece, having its chamber in the same casting, and having rifle grooves in that portion of the bore in front of the chamber, but having its chamber counterbored from its open rear of a caliber circumscribing the bottoms of the rifle grooves. The breech is composed of two principal portions, viz: a metal block, *G*, and a screw, *H*. The block, *G*, is arranged to swing upward from the rear end of the barrel upon two pivots, *c, c*, secured in the sides of the barrel, and is connected with the said pivots by two strong strap pieces, *I, I*, working at the sides of the barrel. The breech is opened by the upward movement of the block, *G*, which is large enough to cover the whole of the rear of the barrel, and the fitting faces of the said block and barrel are concentric to the common axis of the two pivots, *c, c*. The screw plug has upon it a single or double screw thread of comparatively fine pitch, works in a female screw thread in a hole in the center of the block, *G*, and the screw on the plug has a diameter measured at the bottom of its thread equal at least to that of the bore of the chamber of the piece. The whole length of the screw plug is made greater than the thickness of the block, *G*, and its front portion, *d*, is formed like a piston, as shown in Figs. 3 and 5, to fit tightly into the chamber; and its rear portion is formed with a shoulder, *e*, to form a valve-like joint with a seat in the rear of the block, *G*. In rear of the piston-like portion, *d*, the plug has formed in it a neck, *e*<sup>2</sup>, smaller than the piston, so that the rear of the piston forms a shoulder, *f*, to come in contact with the stop pins, *e*<sup>1</sup>, *e*<sup>1</sup>, which are secured tightly in the block and project within the central opening thereof,

6" long model - breech - base ment

to constitute stops to prevent the plug being screwed back farther than is necessary to draw the piston from the chamber, preparatory to the opening of the breech. The head of the screw plug, H, is fitted like the head of a vise screw, with a lever, J, which has a heavy weight, J<sup>1</sup>, at one end, to constitute a fly to facilitate the screwing up of the plug tightly to close the breech.

Fig. 3, represents the breech closed, and Fig. 5, represents it open. The block, G, is formed with a T-shaped projecting piece, *g* (see Figs. 3, 4, 5 and 7) in front of its upper part, to drop into a corresponding recess, *h*, (see Figs. 5, 6 and 9) in the top of the barrel and the barrel has projecting from its rear a T-shaped piece, *i* (see Figs. 1, 3, 5 and 6) to enter a recess, *j* (see Figs. 5 and 8) that is formed in the block G, to receive it, and the strap pieces, I, I, are formed each with a projection *k*, (see Fig. 1) to drop in front of one of two lugs, *l*, *l*, (see Figs. 1, 6 and 9) formed upon the sides of the barrel, and all of these contrivances serve to lock the breech in place against the tendency of the force of the explosion to displace it, and also to cause the block, in its descent, to stop in a position in which the screw plug is opposite the chamber. To one side of the barrel there is attached by a fulcrum pin, *m*, a lever, K, (see Figs. 1 and 5) so constructed with a cam-like projection, *m*<sup>1</sup>, on its inner face, and so arranged that by raising its rear end, its cam-like projection, *m*<sup>1</sup>, may be made to act upon one of the strap pieces, I, I, to raise the breech, as shown in Fig. 5, when the screw plug is withdrawn from the barrel.

The breech is operated in the following manner: I will first suppose it to be closed, as shown in Fig. 3. To open it, the screw plug is first screwed out from the block, G, as far as permitted by the stop pins, *e*<sup>1</sup>, which is far enough for the piston, *d*, to leave the chamber of the barrel; and the whole breech is then raised to the position shown in Fig. 5, by the lever, K. The ball, with cartridge attached, is then inserted and the breech then allowed to fall in rear of the barrel by moving the lever K, and the screw, H, is then screwed in, by which action the ball, which is furnished with bands of soft metal is driven forward, and its front portion made to enter the grooved portion of the barrel. The screw is screwed up till the shoulder, *e*, is tight against the block, G, and all is ready for firing. The vent *n* (see Figs. 4 and 6) is in the barrel. In order to prevent the cartridge being burst by the action of the screw plug, in forcing it forward, I provide each ball with a rigid pin, *o*, (as shown in Figs. 3 and 5, where a cartridge is shown in section) projecting from the center of its rear nearly or quite to the rear of the cartridge case, *p*, to meet the force that is necessary to drive in the cartridge.

The mode of adjusting the elevation of the piece consists as follows: M, is a horizontal shaft fitted to suitable bearings on the top of the carriage, E, and furnished with a cam, M<sup>1</sup>, situated under the center of the rear portion of the barrel, for the barrel to rest upon, and furnished at one end outside of the carriage with a worm wheel, *q*, which gears with an endless screw *r*<sup>1</sup>, on a shaft *r*, arranged in bearings in a small frame, N, secured to one side of the carriage. The shaft, *r*, is furnished at its rear end with a crank handle, *r*<sup>2</sup>, by which it can be turned easily to work the cam to raise or lower the rear end of the barrel, as may be required.

The mode of working the piece in a horizontal direction consists as follows. P, is a shaft arranged in an inclined position under the center of the gun, in bearings in the transverse stays, *s*, *s*, of the carriage. At the rear and lower end of this shaft there is firmly secured a roller, P<sup>1</sup>, of spherical or other suitable form, which bears upon the deck, A, or upon the wall in the case of a ship's or fortification gun or upon the ground in the case of a field piece and so supports the rear end of the carriage, and at the front or upper end of the said shaft there is firmly secured a worm wheel *t*, which gears with an endless screw Q' on a horizontal shaft Q which is arranged transversely of the carriage in bearings secured to the sides thereof and which is furnished at the opposite side of the carriage to where the shaft *r*, is situated, with a hand wheel Q<sup>2</sup>. By turning the wheel Q<sup>2</sup> the endless screw Q' is made to give a rotary motion to the worm wheel *t*, shaft P and roller P<sup>1</sup>, and the latter rolling on the platform or on the ground is made to move the carriage and the platform B, about the pivot *b*, in the case of a ship's or fortification gun or about a vertical center midway between the wheels D D, in the case of a field piece, with which the platform B is not used. The platform B when used is made to turn with the gun owing to the wheels D D fitting snugly between the sides of its boxes C C. The wheel Q<sup>2</sup> and handle *r*<sup>2</sup> being on opposite sides of the carriage one man can work both at the same time one with his left and the other with his right hand.

The gunner's seat R (Figs. 1, 3 and 4) is arranged to swing upward and downward upon a fixed horizontal shaft *u*, arranged transversely within the rear portion of the carriage. When not required for use it is dropped forward to the position shown in Figs. 3 and 4 and in black outline in Fig. 1, where it rests upon a transverse brace *w* of the carriage; but when required for use it is raised up to the position shown in red outline in Fig. 1 where it is supported by its two heel-like projections *v*, *v*, resting on the rear of the carriage, and where it is secured

by a spring stop S secured to one side of the carriage and bearing upon one of its heel like projections *v, v*, to permit the seat to be lowered, the spring stop S requires to be drawn back far enough for the heel-like projection to clear it.

U, U, and V, V are the springs secured to the platform B to meet the recoil of the gun in firing. One spring U, and another V, arranged behind it to strengthen it are secured to the bottom of each box C, and these springs stand up behind the wheels D D of the carriage as shown in Fig. 1. The inner springs U U are so formed as to constitute inclined planes up which the wheels run a short distance when the recoil takes place, and they project up behind the wheels in such form as to break the recoil gradually after which by their re-action, they force the wheels forward down the inclined planes as far as permitted by the front ends of the boxes C, C, which constitute stops.

W, is a buffer spring attached to the rear of the carriage to act between the carriage and limber of a field piece, for the purpose of breaking the force of the recoil in firing when the piece is in motion during a retreat.

I do not claim combining and applying a hinged block and screw-plug so that the force applied to a lever attached to the screw-plug may serve to first withdraw the screw-plug and afterward throw the block out of line with the barrel; but

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

1. The attachment of the block G containing the screw-plug H to the barrel of the piece by strap pieces I, I, attached to pivots *c, c*, secured to the sides of the barrel, such strap pieces being arranged to swing in vertical planes from the said pivots, and the rear face of the barrel and front face of the said block having the form of corresponding arcs concentric to the said pivots, all substantially as herein described.

2. The adjustment of the elevation of the piece by means of a shaft, M, and cam M<sup>1</sup>, combined with a shaft, *r*, by means of an endless screw, *r'*, and worm wheel, *g*, and the whole applied in combination with the gun and its carriage substantially as herein set forth.

3. The employment for working the piece in a horizontal direction, of a shaft P, roller P<sup>1</sup>, worm wheel, *t*, endless screw, Q<sup>1</sup>, and shaft, Q; the whole applied, combined and operating substantially as herein described.

4. The swinging gunner's seat, R, applied and secured to the carriage and operating substantially as herein specified.

5. The employment for meeting the recoil of the gun and employing the force thereof to return the gun to its place, of springs, U, U, and V, V, arranged in combination with boxes C, C, and operating substantially as herein specified.

L. C. T. WEBER.

Witnesses:

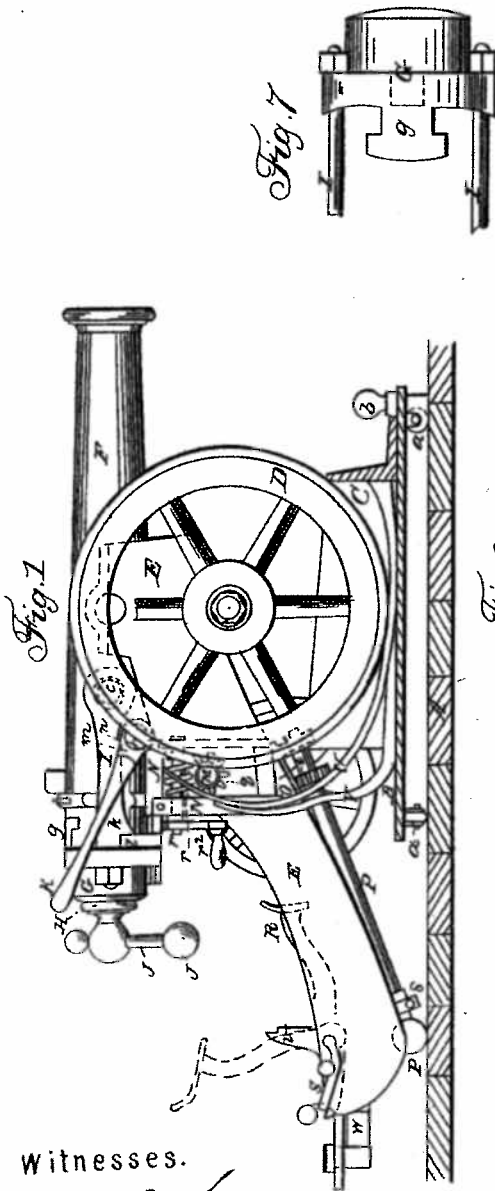
H. R. SEARLE,  
HENRY ROCKRIG.

L. C. T. WEBER.

Carriage for Ordnance.

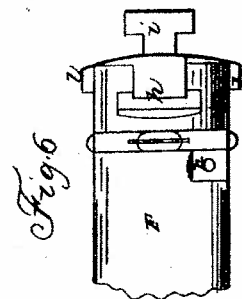
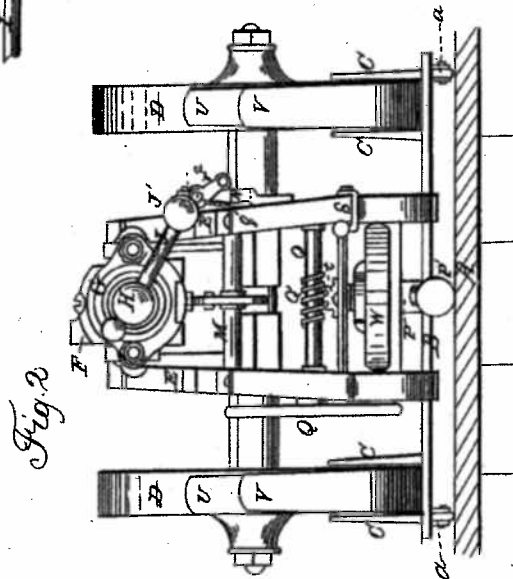
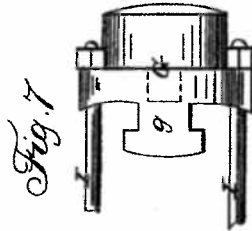
No. } 40.  
31,044. }

Patented Jan. 1, 1861.



Witnesses.

*H. R. Seale*  
*Henry Rockwell*



Inventor.

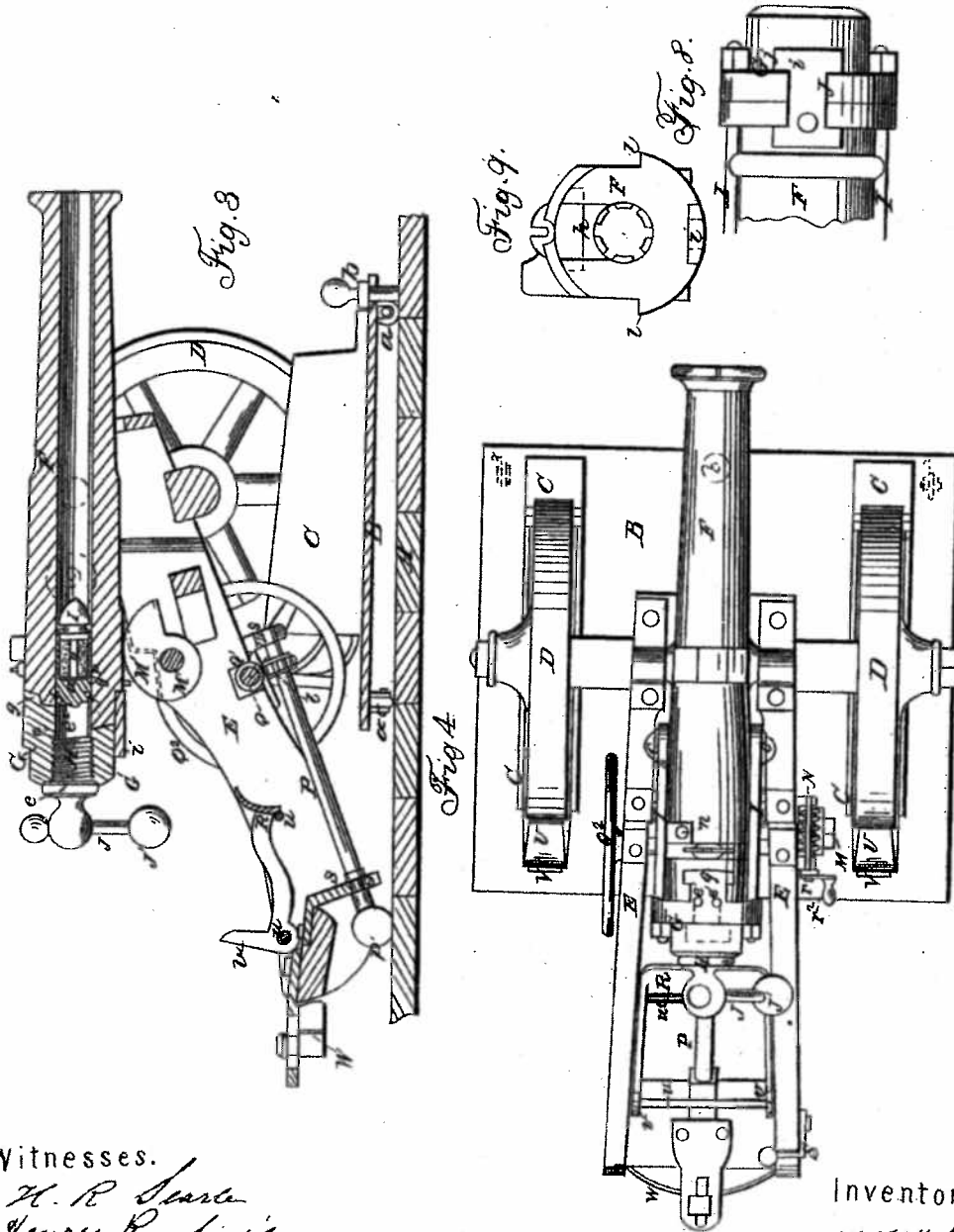
*L. C. T. Weber*

L. C. T. WEBER.

Carriage for Ordnance.

No. } 40, {  
31,044. }

Patented Jan. 1, 1861.



Witnesses.

H. R. Searle  
Henry Reitz

Inventor.

L. C. T. Weber

L. C. T. WEBER.  
Carriage for Ordnance.

No. } 40, {  
      } 31,044. {

Patented Jan. 1, 1861.

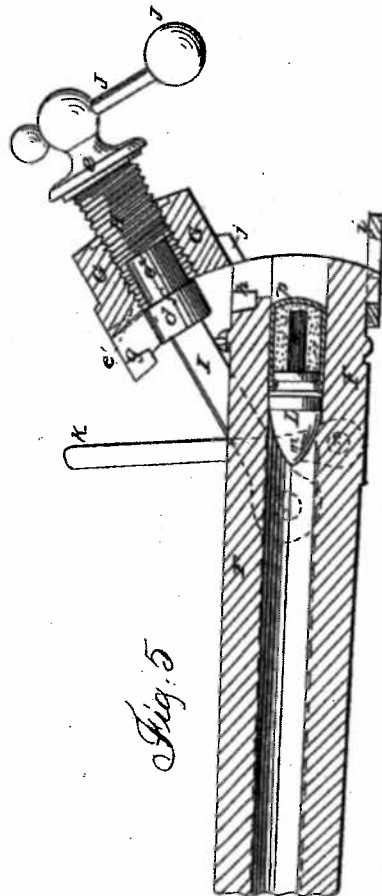


Fig. 5

Witnesses.

*H. R. Searle*  
*Henry Richmond*

Inventor.

*L. C. T. Weber*