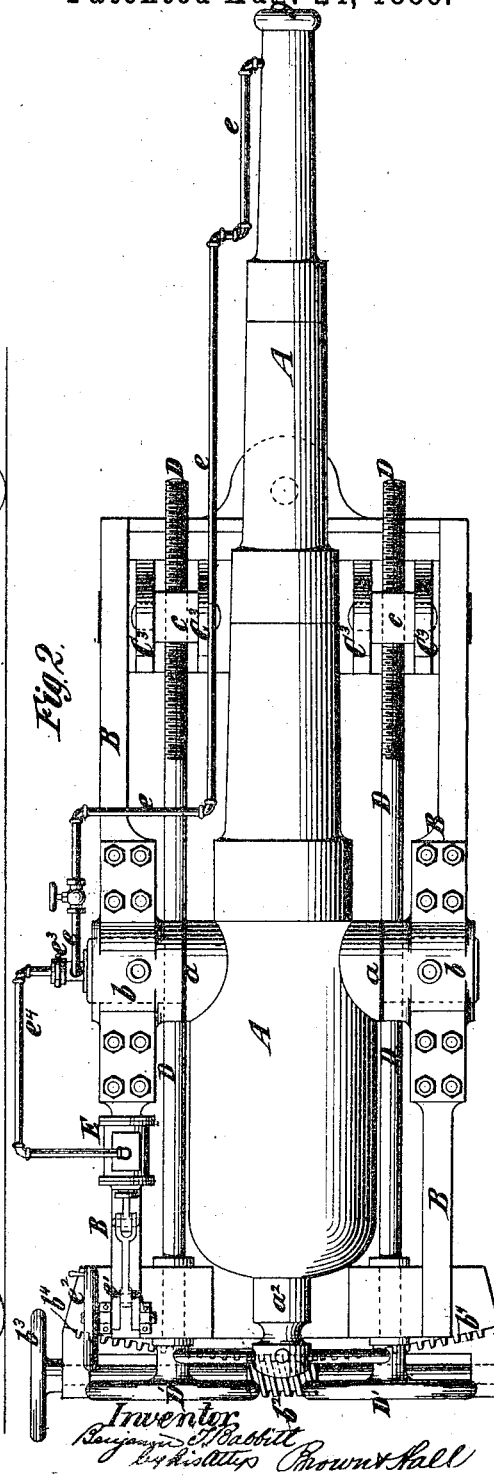
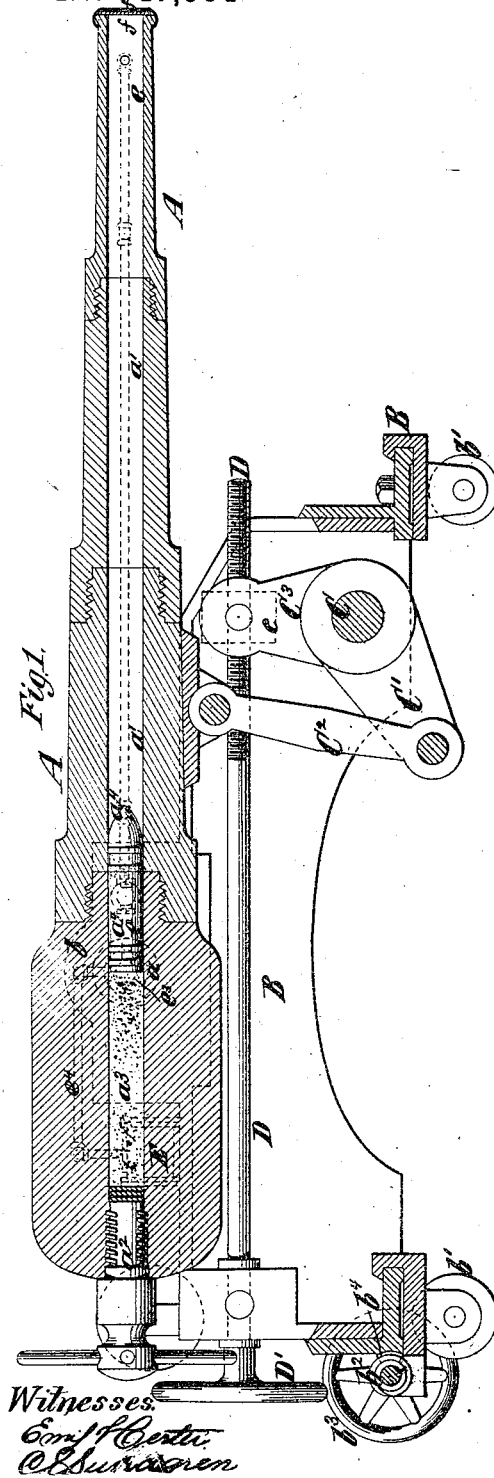


(No Model.)

B. T. BABBITT.  
OPERATING ORDNANCE.

No. 347,984

Patented Aug. 24, 1886.



# UNITED STATES PATENT OFFICE.

BENJAMIN T. BABBITT, OF NEW YORK, N. Y.

OPERATING ORDNANCE.

BEST AVAILABLE COPY

SPECIFICATION forming part of Letters Patent No. 347,984, dated August 24, 1886.

Application filed February 6, 1886; Serial No. 130,971. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN T. BABBITT, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Ordnance, of which the following is a specification.

In the use of ordnance the air which is contained in the bore of the gun at the time of firing offers a considerable resistance to the projectile, and to remove this resistance it has been proposed to place a cap over the muzzle of the gun and exhaust the air from the bore before firing.

The air-pump or other exhausting apparatus may be most conveniently mounted on the gun-carriage, or in other positions independently of the gun proper; and my invention consists in a novel combination of parts, whereby I provide for maintaining communication between the air-exhausting apparatus and the bore of the gun as the gun is swung upward or downward on its trunnions.

In the accompanying drawings, Figure 1 is a sectional elevation of a cannon or piece of ordnance embodying my invention, and Fig. 2 is a plan thereof.

Similar letters of reference designate corresponding parts in both the figures.

The cannon or piece of ordnance A is mounted upon trunnions *a*, supported in suitable trunnion-bearings, *b*, in a carriage, B.

Before proceeding to describe my invention I will in brief describe the mechanism for manipulating the cannon or piece of ordnance, which forms no part of my present invention.

*a'* designates the bore of the cannon or piece of ordnance, which is here represented as closed at the breech by a breech-screw or breech-block, *a''*. The carriage B is provided with suitable wheels, *b'*, and is also provided with a worm or screw, *b''*, which is operated by a hand-wheel, *b'''*, and which, by engaging with a gear-segment, *b''''*, on one portion of the carriage, may by its operation swing the cannon or piece of ordnance in a horizontal plane.

*C* designates a rock-shaft, which is arranged forward of the trunnions *a*, and which has upon it an arm, *C'*, connected by a rod, *C''*, with the cannon at a point forward of its trunnions. The rock-shaft *C* also has other arms, *C'''*, at opposite sides of the gun, and these latter arms *C'''* support swiveled or pivoted

nuts *c*, with which engage screws *D*, capable of operation by hand-wheels *D'*. When the screws *D* are turned by the hand-wheels *D'*, the rock-shaft *C* will also be turned, and through the rod *C'* and arm *C'* will serve to raise or lower the muzzle of the gun correspondingly to the range thereof.

I have shown in the rear portion of the bore *a'* of the cannon a long powder-chamber, *a''*, which is filled with powder before firing, and in front thereof is a projectile, *a'''*. The air which is ordinarily contained in the bore of a gun at the moment of firing offers a material resistance to the passage of the projectile, and in order to remove this resistance I provide a suction-pipe, *e*, which is connected with the bore of the cannon forward of the charge and projectile, and which, as here shown, is connected therewith very near the muzzle of the cannon. I also employ an air-exhausting apparatus, E, which may be of any suitable construction, and which serves to exhaust the air through the pipe *e*. As here represented, the air-exhausting apparatus, which is mounted upon the carriage B, or in any other position independent of the gun or cannon proper, consists simply of a cylinder and reciprocating piston, which may be operated by a crank, *e'*, and hand-wheel *e''*. In lieu of this hand-operated mechanism for exhausting air, an exhauster operated by steam power might be employed; or an injector might be suitably constructed, so that a jet of steam or compressed air issuing from the nozzle of an injector would serve to withdraw the air from the bore of the cannon to produce a partial or total vacuum therein. The cannon or piece of ordnance A must of course have freedom of movement upward and downward, while the air-exhausting apparatus E, if mounted independent thereof, will be stationary.

In order to properly connect the pipe *e* with the air-exhausting apparatus, so as to afford freedom of movement for the cannon A, I have represented the pipe *e* as connected with a socket, *e'*, which is concentric with one of the trunnions *a* of the gun, and from the air-exhausting apparatus E leads a pipe, *e''*, which enters and is swiveled in the socket *e'*.

Before the gun is fired I place over the muzzle thereof a cap, which may consist of a disk

of wood or other suitable material, *f*, and an  
air-tight flexible covering, *f'*, which may be of  
india-rubber, and which is sprung or slipped  
over the muzzle end of the cannon. This cap  
5 will serve to close the muzzle air-tight as soon  
as air is exhausted from the bore, and when a  
shot is fired this cap will be readily carried  
away or thrown off the muzzle by the shot,  
and will not offer any resistance to the passage  
10 of the projectile.

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

The combination, with a cannon or piece of  
ordnance and its carriage, of an air-exhaust-

ing apparatus mounted independently of the 15  
cannon or piece of ordnance, a socket concen-  
tric with the trunnions of the cannon, a pipe  
leading from said socket to the cannon or piece  
of ordnance in front of the charge, and a pipe  
leading from the air-exhaust apparatus into 20  
said socket, and through which the air may  
be exhausted from the bore of the cannon in  
front of the charge when a cap is applied over  
the muzzle, substantially as herein described.

B. T. BABBITT.

Witnesses:

JOHN SHERIDAN,  
R. MCGOVERN.