

(No Model.)

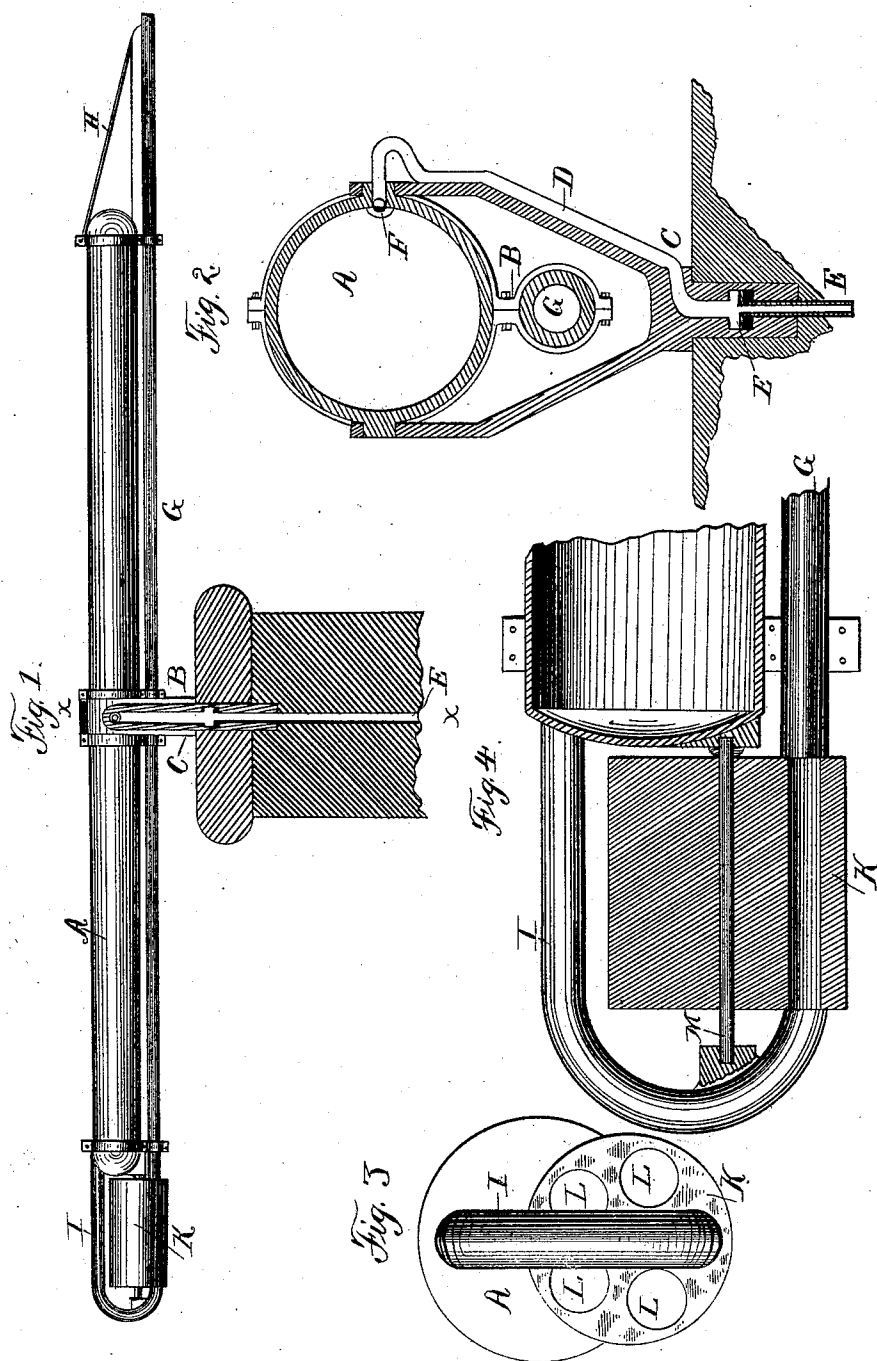
2 Sheets—Sheet 1.

W. A. BARTLETT.

REVOLVING PNEUMATIC CANNON.

No. 352,110.

Patented Nov. 9, 1886.



Witnesses.

J. H. T. Moore.

M. L. Williams.

Inventor.

Wallace A. Bartlett.

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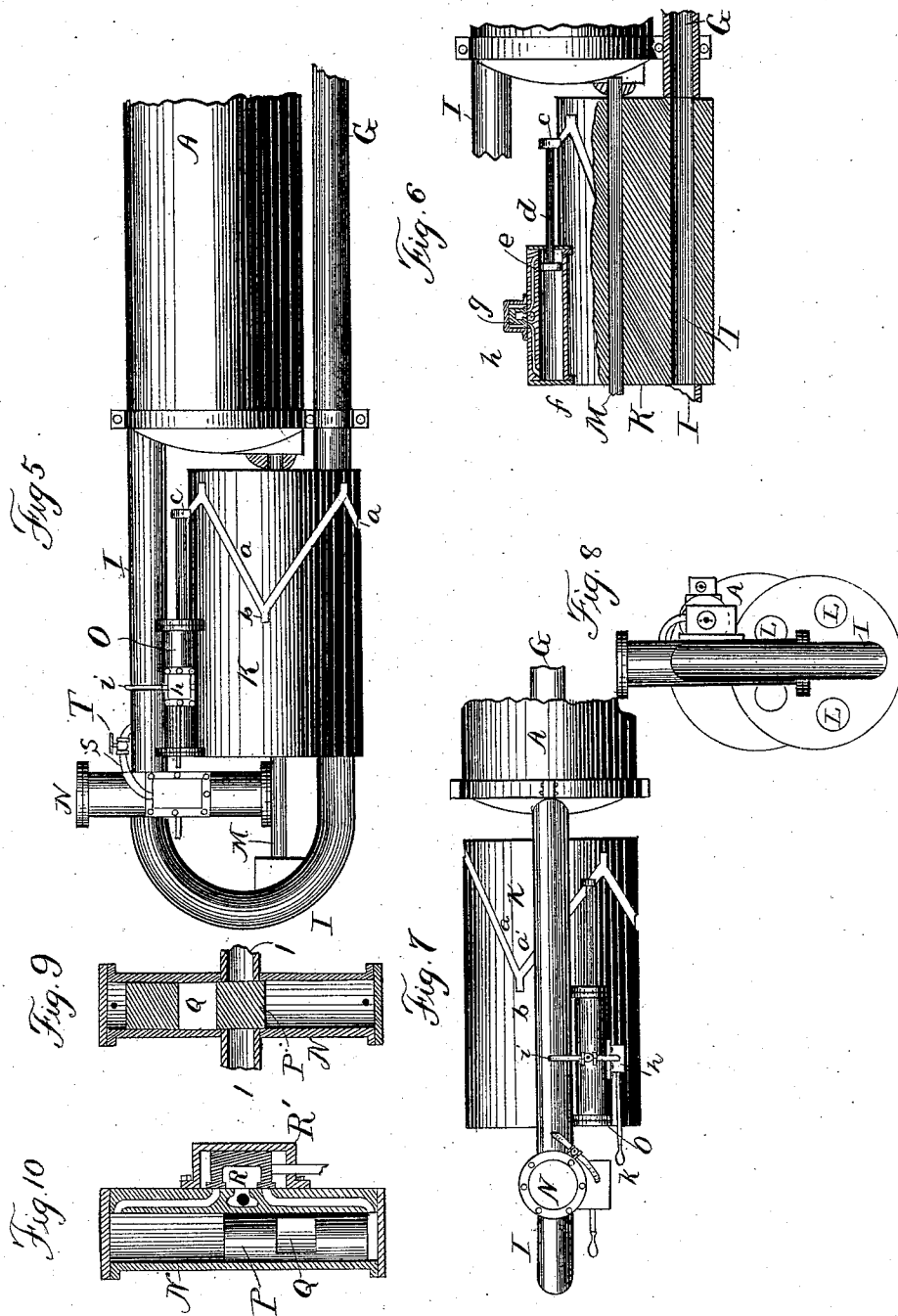
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# UNITED STATES PATENT OFFICE.

WALLACE A. BARTLETT, OF WASHINGTON, DISTRICT OF COLUMBIA, AS-  
SIGNOR TO WASHINGTON G. BENEDICT, OF BOSTON, MASSACHUSETTS.

## REVOLVING PNEUMATIC CANNON.

SPECIFICATION forming part of Letters Patent No. 352,110, dated November 9, 1886.

Application filed October 3, 1884. Serial No. 144,635. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE A. BARTLETT, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Revolving Pneumatic Cannon, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to pneumatic cannon or similar guns from which the projectile is driven by the pressure of a gas developed or compressed in a receiver outside the bore of the gun.

The invention consists in the adaptation of a revolving cylinder for use with such guns; also, in the valve used with such guns; also, the relative arrangement of the operating parts and in the construction of some of the parts.

In the drawings, Figure 1 is a general side elevation of a revolving gun, showing many of the features of my invention. Some parts are omitted from this view and other parts are shown in section. Fig. 2 is a cross-section on line *x x*, Fig. 1. Fig. 3 is a rear elevation of Fig. 1. Fig. 4 is a view, generally in longitudinal section, of part of the breech portion of the gun. Fig. 5 is a side elevation of the breech portion, showing valve and cylinder moving devices in place. Fig. 6 is a longitudinal section of part of the same, other parts being omitted. Fig. 7 is a plan of Fig. 5. Fig. 8 is a rear elevation of same. Figs. 9 and 10 are longitudinal sections of the valve taken at right angles.

A represents the flask, which is trunnioned in yoke B, which yoke is pivoted, as at C, in a ship's rail or other support. A small pipe, D, leads into the flask, being swiveled to pipe-section E to permit of the turning of the yoke. The pipe receives a supply of compressed air or gas from any suitable source, and a check-valve may be placed in the pipe, if desired, as at F.

The trunnions may be on the flask proper, or on a collar surrounding the same, and by preference the gun and its flask are nearly balanced on these trunnions.

The barrel or tube G is secured to the flask by sleeves or collars surrounding the same, and preferably in position beneath the flask.

It will be understood, however, that the barrel and flask may be connected in any manner now known in the art without departing from the spirit of my invention. As shown in Fig. 1, the barrel extends some distance in front of the flask and is supported by brace-rod H. A supply-pipe, I, leads from the flask to the rear portion of the cylinder K, so that when the cylinder is in firing position one of the chambers L will be in line both with the supply-pipe and the barrel or tube.

The cylinder K is supported on a rod, M, passing centrally through it, which rod may have its end supports on the flask and supply-pipe, but should be removable.

N indicates the casing of the operating-valve, which controls the passage of air or gas through pipe I, and O the mechanism through which power is applied for revolving the cylinder.

The valve-casing N is connected with the supply-pipe, as seen in Fig. 9. The plunger P in the valve has an aperture, Q, through it, and when this plunger is in line with the pipe I the air or gas is permitted to pass through the valve, but when either end of the plunger is opposite pipe I the valve is closed.

The movement of the plunger P is controlled by gas-pressure, gas being admitted to one or the other end of the plunger by the movement of slide-valve R in box R'. Gas is admitted to the slide-valve through pipe S, having a regulating valve or cock, T. By increasing or reducing the amount of gas through pipe S, which can be done by turning cock T, the rate of movement of the plunger P in its casing can be regulated. The aperture Q can be made of such length and the speed of the plunger so regulated as to open the passage through Q just as long as may be necessary to effect the object in view, which is to have the valve open while the projectile is moving through the barrel, but to have it closed as soon as the projectile leaves the muzzle.

The movement of slide-valve R may be effected by a lever, which should be convenient to the hand of the gunner. A movement in either direction will cause the plunger to move correspondingly, so that, no matter which end of its box the slide-valve may occupy, it is only necessary to move it to the other end to

cause the operating-valve to be opened and closed in rapid succession by a single movement in one direction.

The cylinder K is grooved in zigzag direction, as shown at *a a'*, the oblique grooves *a a'* terminating in a groove, *b*. A projection, *c*, from rod *d* enters these grooves. This rod *d* has a piston, *e*, inside the chamber *f*, the movement of the piston being controlled by slide-valve *g* in chest *h* through pipe *i*, and the movement of slide-valve *g* being determined by a lever, *k*, within easy reach of the gunner. Thus the movement of the valve *g* to either end of its chest will admit gas to chamber *f*, and thus move piston-rod *e*. The projection *c* entering the zigzag groove will cause the cylinder *k* to revolve as the piston moves out or in. The grooves *b* are in such relation to the chambers in the cylinder that when the cylinder *k* comes to a stop by reason of the projection *c* resting in groove *b* one of the chambers *L* will be opposite the barrel and supply-pipe. This arrangement of zigzag grooves and a sliding piece operating therein is common in revolving fire-arms, and the necessary construction of the projection *c* is known to those familiar with such arms. I believe it to be new, however, to revolve the cylinder by the pressure of gas from the same source from which it is taken to propel the projectile.

It is obvious that the zigzag groove may be placed in the end of the cylinder instead of the side. Also that a reciprocating movement being given to rod *d* this rod may act on a ratchet instead of in inclined grooves.

The same lever which operates the slide-valve *g*, and thus causes the cylinder to revolve one step, may be linked to the valve *R*, and thus open the firing-valve at the completion of the movement of the cylinder.

Projectiles may be placed in the cylinder by hand, or by a method and mechanism similar to that described in my application filed June 27, 1884, to which application the Patent Office has given the No. 137,119. A projectile or projectiles having been placed in the chamber in the cylinder, the cylinder is moved, as hereinbefore described, until the cylinder is in line with the barrel. Then by opening the passage through the supply-pipe the compressed air or gas is admitted behind the projectile and the projectile is driven from the gun.

It will be understood that where applicable

other parts known in this art may be substituted for the parts herein described without departing from the spirit of my invention.

I claim—

1. A pneumatic gun provided with a gas-flask, and a revolving cylinder having a series of chambers arranged and adjusted with respect to the barrel to register in successive alignment therewith and rotated by the force of gas from said flask.

2. The combination, with the barrel of a gun, of a gas-flask, an interposed cylinder, and mechanism actuated by the pressure of the gas from the flask for rotating the cylinder on its axis.

3. A gas-flask, a supply-pipe leading therefrom, an operating-valve controlling the supply-pipe, a gun-barrel, and a revolving chambered cylinder, the chambers open at both ends, interposed between the supply-pipe and the gun-barrel.

4. The combination, with the flask, of a supply-pipe leading therefrom to a cylinder, a plunger-valve controlling said supply-pipe, a revolving chambered cylinder, and a gun-barrel, said cylinder between the supply-pipe and barrel, all relatively arranged substantially as described.

5. The combination, with the barrel of a gun, and a gas-flask, of a revolving cylinder between the same, and reciprocating mechanism actuated by the pressure of gas from the flask and turning the cylinder on its axis.

6. The combination, with the revolving cylinder of an arm, of a reciprocating rod operating on said cylinder to turn the same, and mechanism, substantially as described, actuated by gas-pressure operating the reciprocating rod, as set forth.

7. The combination, with the flask, supply-pipe, and barrel of a gas-pressure gun, of a revolving cylinder between the pipe and barrel, revolving mechanism for the cylinder, and operating mechanism for a valve in the supply-pipe, both operated by gas-pressure from the flask, all relatively arranged substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WALLACE A. BARTLETT.

Witnesses:

M. L. WILLIAMS,  
PHILIP MAURO.