

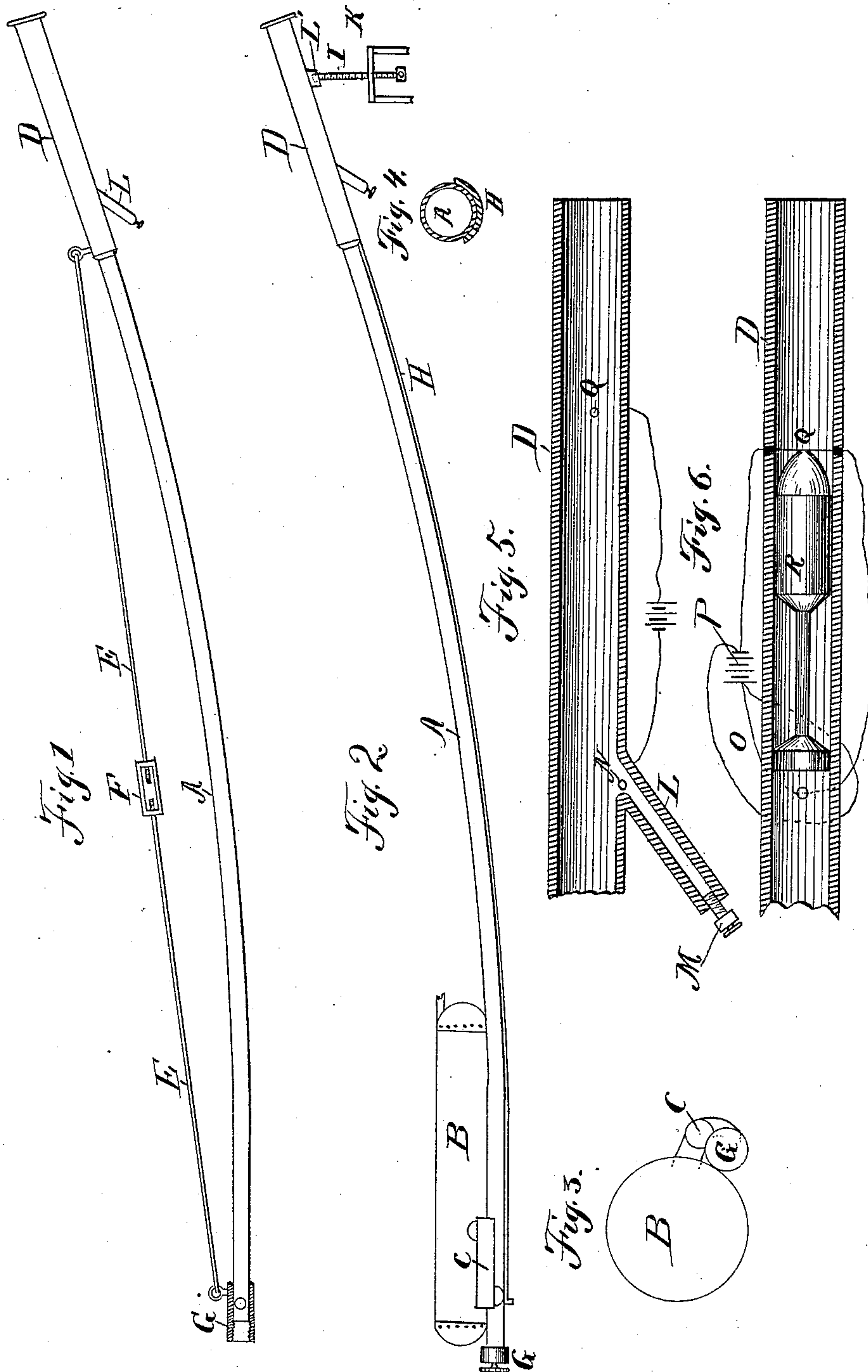
(No Model.)

W. A. BARTLETT.

PNEUMATIC CANNON AND METHOD OF OPERATING THE SAME.

No. 429,594.

Patented June 10, 1890.



Witnesses.
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UNITED STATES PATENT OFFICE.

WALLACE A. BARTLETT, OF WASHINGTON, DISTRICT OF COLUMBIA,
ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE PNEUMATIC DYNA-
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PNEUMATIC CANNON AND METHOD OF OPERATING THE SAME.

SPECIFICATION forming part of Letters Patent No. 429,594, dated June 10, 1890.

Application filed June 25, 1884. Serial No. 136,021. (No model.)

To all whom it may concern:

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

10 The invention relates to pneumatic or similar cannon for which the gas for the primary charge is developed or stored in a flask outside the bore of the gun and suddenly admitted to discharge the projectile.

15 The invention consists in a method of operating such guns by the combined pressure of the gas from the flask and the explosion of a powder-charge in the bore of the gun; also, in mechanism by which an exceedingly long gun-tube may be utilized, the muzzle-section only being trained; also, in details of construction, as hereinafter explained.

25 In the drawings forming a part hereof, Figure 1 is a side elevation of a gun having a straight stiff muzzle-section and a long slightly-flexible rear section and a mechanism for flexing the same. Fig. 2 is a similar elevation of a similar gun with a different mechanism for flexing the barrel or tube and a flexible strengthening-support for such tube. 30 Fig. 3 is a rear elevation showing in outline connection from flask to gun-tube. Fig. 4 is a cross-section of the gun-tube and its sustaining-belt. Fig. 5 is a vertical longitudinal section of a part of the gun near the muzzle. Fig. 6 is a horizontal section of same.

35 A indicates the gun-tube, which is of metal, preferably steel or brass, and only thick enough to withstand the internal pressure which it will be required to bear. As this tube may be fifty or more feet in length, it will with care permit a considerable deflection from a straight line without materially impeding the passage of a properly-constructed projectile through it.

40 D is the muzzle piece or section which forms a continuation of tube A, but is rigid and relatively stronger than the part A of the tube. This muzzle-section serves to give the final direction to the projectile. The tube

A may be supported by a band or brace H, which is also flexible, and may partially inclose the tube or may be simply a bar or framing.

Various mechanisms for flexing the tube 55 may be employed. I have shown a coupling of rods E E, leading from the muzzle-piece D to the breech-sleeve G and joined by the turn-buckle F. By turning the buckle the curve of the tube may be increased or diminished. 60 A similar result will be attained by turning a screw I, Fig. 2, said screw being swiveled to part D at L and passing through a nut K. I illustrate these as a few of many mechanisms which may be adopted. It is evident 65 that horizontal as well as vertical deflection of the tube may be attained in the same way.

The air-flask B may be connected to the tube A through operating-valve C, either in the manner shown or in any other well-known 70 way.

The muzzle portion D of the gun is made strong and rigid. A cartridge-chamber L is shown as leading into the bore of the gun. This chamber is to receive a charge of powder, rocket composition, or similar material through the opening closed by screw or stopper M. 75

An electrical wire from battery P leads through the chamber L, but does not close 80 this circuit until the circuit Q—technically known as “short circuit”—through the bore of the gun is broken by the passage of the projectile. Then the spark will ignite the cartridge at N, and the products of combustion in chamber L will commingle with the gas in tube D and highly heat the same. 85

It is manifest that the cartridge in chamber L may be ignited by the passage of the projectile R in other ways than that indicated, as by the operation of a percussion mechanism, or by the arrangement of the wires in different ways, such mechanism constituting the ignitor for the cartridge in chamber L. 95

I claim—

1. A gun-barrel having a slightly-flexible metallic body and a rigid muzzle-piece, substantially as described.

2. The combination, with a flexible gun- 100

barrel having a rigid muzzle portion, of mechanism, substantially as described, whereby the flexible body portion may be curved to a greater or less extent, substantially as described.

3. The combination, with a gun-tube having a rigid muzzle portion and a flexible body portion, of a flexible brace supporting such body portion.

10 4. The method of firing projectiles, which consists in placing a projectile in the bore of the gun and an explosive cartridge in communication with said bore, starting the projectile by means of a compressed gas admitted from outside the bore, and igniting the
15 cartridge by the movement of the projectile to increase the pressure in the bore, substantially as described.

20 5. The combination, with a gun-barrel having usual pneumatic connections for the supply of gas to the breech, of a cartridge-chamber communicating with the barrel forward of the breech, and means by which the cartridge in said chamber will be ignited by the
25 passage of the projectile, substantially as described.

6. The combination, with a gun-barrel, of

a cartridge-chamber communicating therewith forward of the breech, and an ignitor for the cartridge in said chamber in position to
30 be actuated by the passage of the projectile, substantially as described.

7. The method of igniting an accelerating-charge in a gun, which consists in starting
35 the projectile by an initial force, and by the passage of the projectile closing an electric circuit which ignites an accelerating-charge, said charge communicating its force to the projectile while still in the gun, substantially
40 as described.

8. A pneumatic or similar gun-tube having gas-flask, operating-valve, and connections, substantially as described, combined with an
45 auxiliary cartridge-chamber forward of the breech and mechanism by which the cartridge may be ignited by the passage of the projectile, as set forth.

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

WALLACE A. BARTLETT.

Witnesses:

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C. W. BROWN.