

No. 619,025.

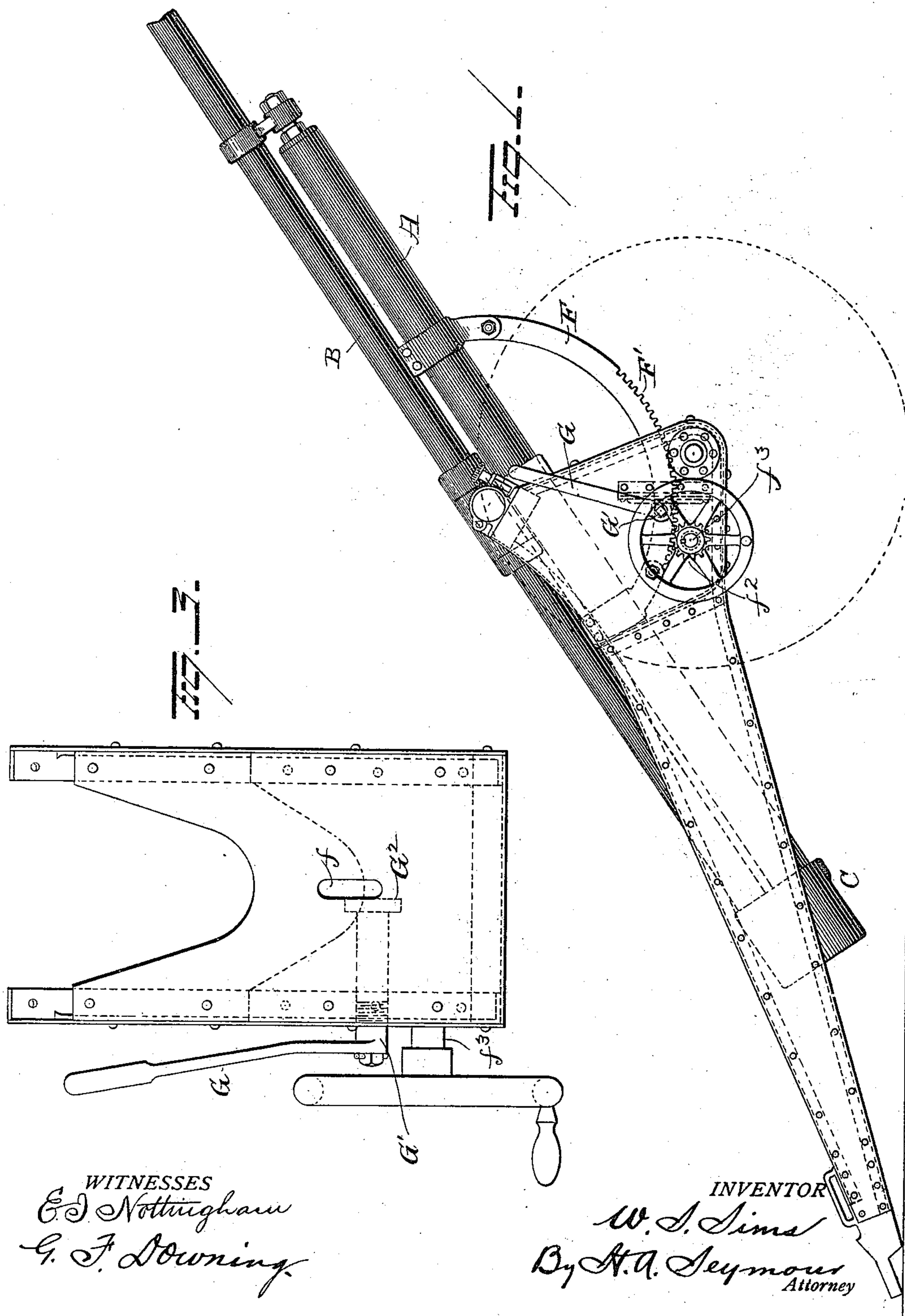
Patented Feb. 7, 1899.

W. S. SIMS.
BREECH LOADING GUN.

(Application filed June 13, 1868)

(No Model.)

2 Sheets—Sheet 1.



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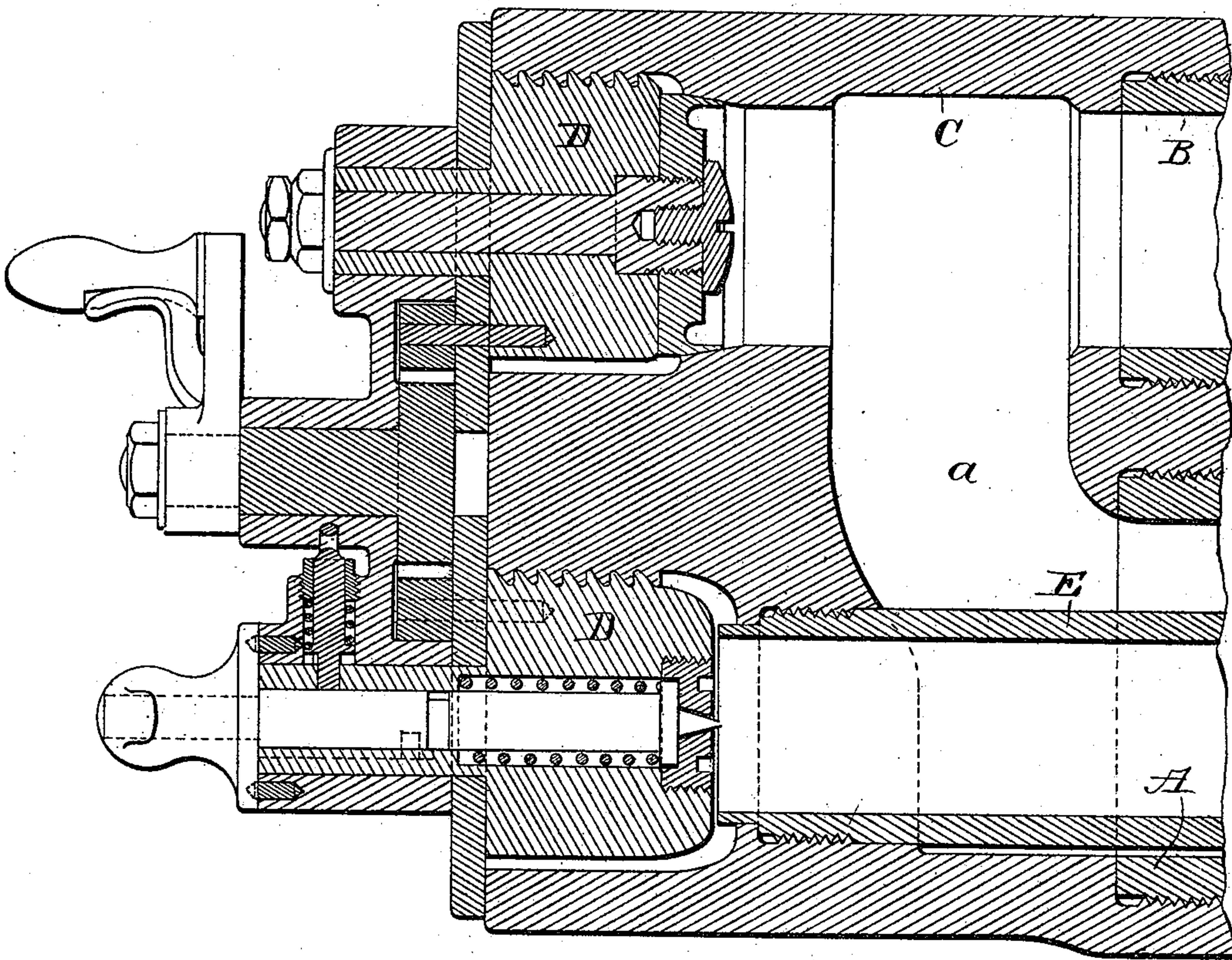
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Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

WINFIELD SCOTT SIMS, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE
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BREECH-LOADING GUN.

SPECIFICATION forming part of Letters Patent No. 619,025, dated February 7, 1899.

Application filed June 13, 1898. Serial No. 683,330. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD SCOTT SIMS, of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Breech-Loading Guns; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in breech-loading guns designed more particularly for use with shells charged with high explosives and commonly known as "dynamite-guns;" and it consists in a combustion-chamber and projectile-tube in open communication at or near the breech and a firing-tube located within the combustion-tube and extending forward beyond the part connecting the combustion-chamber and projectile-tube.

My invention further consists in parts and combinations of parts, as will be more fully explained, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of my improved gun. Fig. 2 is a view in section of same, and Fig. 3 is an end view of the carriage.

According to my invention the chamber A, within which the cartridge is fired and which I term the "combustion-chamber," is connected to gun-barrel B, herein termed the "projectile-tube," by the port *a*, formed in the breech C of the gun. The breech C is formed of a single casting or forging and carries the projectile-tube B and the combustion-chamber A, the said tube and chamber having screw-threaded ends which engage female threads formed in the breech. This breech is open throughout its length in lines coincident with the tube and chamber, and the rear open ends are closed by the breech-blocks D. The mechanism for actuating the breech-blocks forms no part of this specification, but is fully disclosed and covered in application Serial No. 684,348, filed by me June 24, 1898.

The port *a* is formed in the breech, and, as will be seen from an inspection of Fig. 2, it passes upwardly from the combustion-chamber A to a point in rear of the attachment of

the projectile-tube B. With this construction it will be seen that when the breech-blocks D are withdrawn free access may be had to the breeches of the combustion-chamber and projectile-tube for the free insertion of the explosive charge and the projectile.

The combustion-tube rests parallel with and preferably below the projectile-tube and is closed at its front end, and the tube and chamber thus constructed and arranged are connected at their ends and at intermediate points, if necessary.

Secured to the breech C at a point in rear of the port *a* is the firing-tube E. This firing-tube is located eccentrically within the combustion-tube A and is open at both ends, its rear or breech end resting in close proximity to the breech-block when the latter is in its closed and locked position. The forward end of the firing-tube E extends well forward of the port *a*, so that the flame and gases from the exploding charge are discharged from the firing-tube E at a point remote from the port *a*, which, as before stated, leads to the projectile-tube at a point behind the projectile.

The firing-tube is adapted to receive a cartridge carrying a fixed charge of either black or smokeless powder and is of such length that upon the explosion of the cartridge the flame and gases of discharge will be directed forwardly past the port *a* and toward the closed end of the combustion-chamber, and rebounding compress the air surrounding the firing-tube and force it through the port *a*. The air near the breech end of the combustion-chamber is the first to be driven through the port, and as it is comparatively cool to that which has come in contact with the flame and gases from the exploded charge it acts as a cool-air cushion between the flame and hot powder-gases and the projectile, thus keeping them out of direct contact.

The length of the cartridge or firing-tube depends on the length of the combustion-chamber; but in any event it must be of a length sufficient to carry the flame and gases past the port leading up to the gun-barrel or projectile-tube.

The gun thus constructed and which is de-

signed to safely throw charges of high explosives may be mounted on a naval mount or on a field-carriage, and in either event I provide the carriage or mount with a slot f , centrally located, through which passes the toothed sector F , secured at its ends to the combustion-chamber. This segment is provided with teeth F' , which are engaged by the pinion f^2 on the shaft f^3 for training the gun. The shaft f^3 carries a hand-wheel, by which it is manipulated, and the gun is locked against movement by the lever G , carrying a screw G' . This screw is seated or mounted in a threaded seat. Hence when it is turned it is moved longitudinally and forces the shoe G^2 against the sector F and binds the latter between the shoe and wall of the slot. This construction permits of the rapid manipulation of the gun and being of simple construction and of few parts is not liable to disarrangement.

It is evident that many slight changes might be resorted to in the relative arrangement of parts herein shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to limit myself to the exact construction of parts herein shown and described; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a powder pneumatic gun, the combination with a projectile-tube a combustion-chamber and a port connecting them near the breech of the projectile-tube, of a firing-tube located within the combustion-chamber, the

firing-tube terminating forwardly in advance of the port.

2. In a powder pneumatic gun, the combination with a projectile-tube, a combustion-chamber and a port connecting them near the breech of the projectile-tube, of a firing-tube located within the combustion-chamber, a block for closing the breech of the projectile-tube, and a block for closing the breech of the firing-tube.

3. In a powder pneumatic gun, the combination with a breech of a projectile-tube, a combustion-chamber and a firing-tube secured to said breech, and a port located within the breech and connecting the combustion-chamber and projectile-tube, the said firing-tube being within the combustion-chamber with its muzzle end in advance of the port.

4. In a powder pneumatic gun, the combination with a projectile-tube, a combustion-chamber and a port connecting said tube and chamber, of a firing-tube located eccentrically within the combustion-chamber.

5. In a pneumatic gun, the combination of a projectile-tube, a combustion-chamber parallel therewith, a port connecting the combustion-chamber and projectile-tube near their breech ends and a firing-tube parallel with said projectile-tube and combustion-chamber and located within the latter.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WINFIELD SCOTT SIMS.

Witnesses:

L. B. LE VAKE,
E. R. LE VAKE.