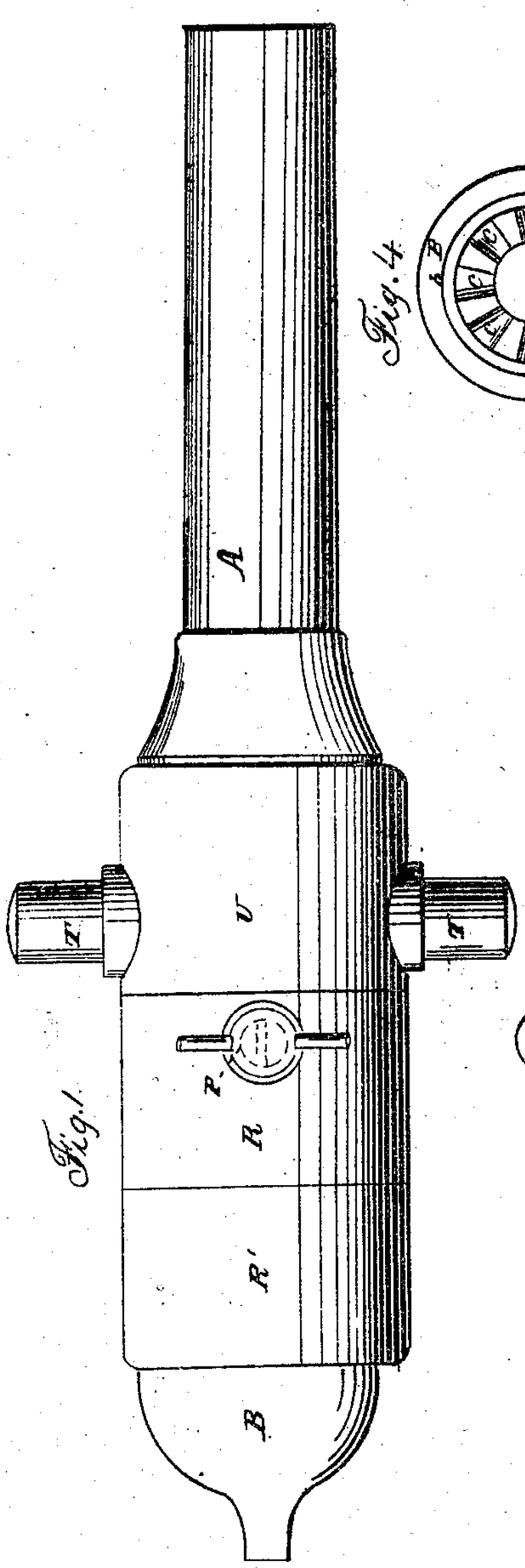
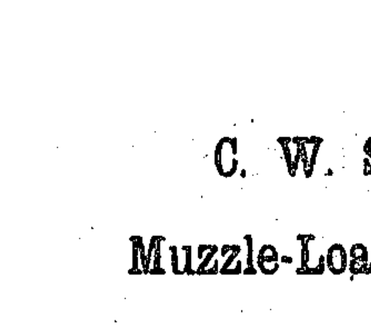
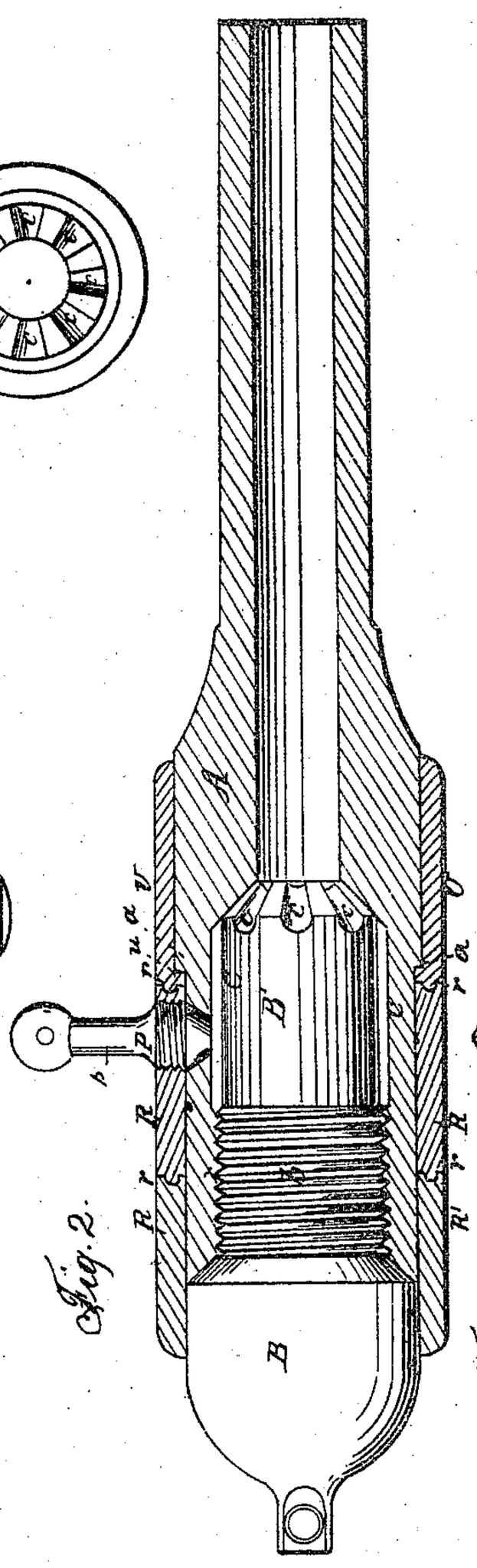
C. W. STAFFORD.

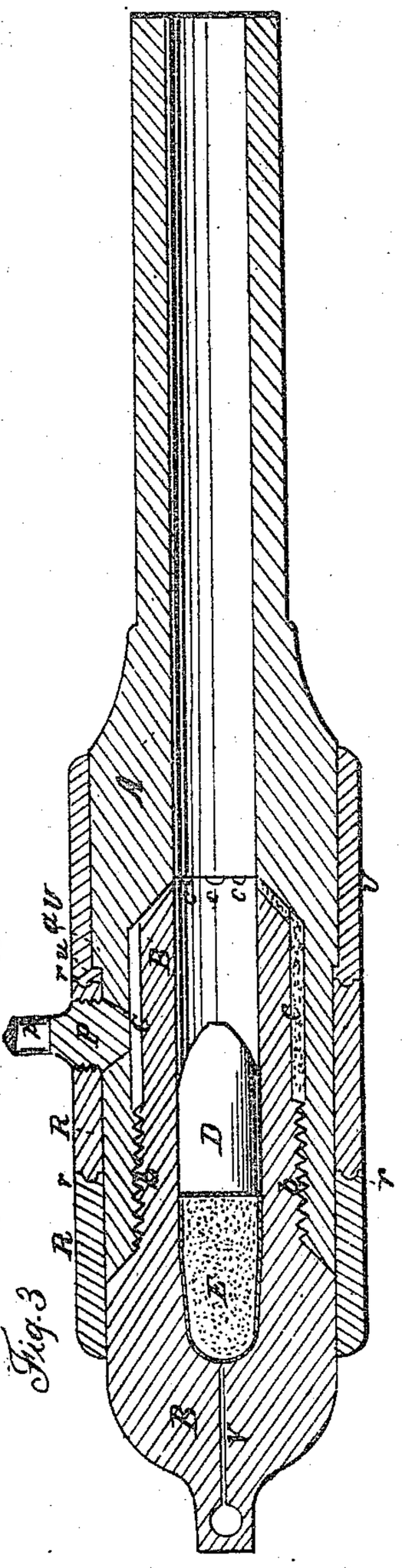
Muzzle-Loading Ordnance.

No. 44,119. Patented Sept. 6, 1864.









Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES W. STAFFORD, OF NEW YORK, N. Y.

IMPROVEMENT IN ORDNANCE.

Specification forming part of Letters Patent No. **44,119**, dated September 6, 1864.

To all whom it may concern:

Be it known that I, CHARLES W. STAFFORD, of the city, county, and State of New York, have invented a new and useful Improvement in Ordnance; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan or top view of a cannon, illustrating my invention. Fig. 2 represents a vertical axial section of the main portion of the gun and a side elevation of the breech-piece and plug, hereinafter described. Fig. 3 represents a vertical axial section of the entire gun.

Similar letters of reference indicate corresponding parts in the several views.

My invention relates to an improved manner of constructing a cannon or other fire-arm with one or more accelerating charge-chambers, the nature and benefits of which peculiar construction will be clearly understood from the following description.

A represents the main body of the cannon, constructed with an enlarged open chamber for the reception of a chambered breech-piece, B, which may be of the form represented in the drawings, and may be secured within the gun by a screw-thread, *b*, secured upon its central part, fitting a corresponding thread in the gun.

T T represent the trunnions, formed upon a band, U, adapted to encircle the gun, and formed at back with an inwardly-projecting flange, *u*, which fits against a shoulder, *a*, on the gun, so as to prevent the displacement of the trunnion-band in a forward direction. One, two, or more re-enforce bands, R R′, of wrought-iron, are shrunk onto the breech in customary manner to strengthen the gun, and serve also to secure the trunnion-band in place. The edges of the said trunnion and re-enforce bands are tongued and grooved, as shown at *r*, to afford mutual strength and support to each other.

p represents a screw-plug occupying an aperture in the upper side of the breech, and affording communication with an annular chamber, C, around the smaller front part, B′, of the breech-piece B.

C C represent channels communicating between the chamber C and the bore of the gun.

In constructing a gun according to my invention the main part is first formed solid, of either cast or wrought iron, with the enlarged chamber at back, and the latter threaded to receive and hold the breech-piece. The said breech-piece, also cast solid, and formed on its exterior as shown, is then screwed in and the various bands applied in customary manner, the trunnion-band being driven on and the re-enforce-bands heated and shrunk on. The piece is then bored from the muzzle through the main body of the gun and into the breech-piece, the channels *c c*, already formed upon the forward end of the breech-piece, affording communication between the bore and chamber C.

V represents the vent, which may be formed and located in any suitable way.

D represents the projectile, and E the charge of powder, by which it is first propelled.

This gun is intended to be loaded from the muzzle in the customary manner; but portions of the invention may also be applied to breech-loading guns, if desired. The chamber C is charged by removing the plug *p* and pouring powder through the aperture. An additional plugged opening may be made to communicate with the under side of the chamber C, so that the latter may be thoroughly cleansed by running through it any suitable wash. The plug *p* may be formed with a sighting-aperture, as indicated at *p*.

Operation: The explosion of the powder E overcomes the first inertia of the projectile and sets it in motion at about the usual velocity. As soon as the projectile passes the channels or corrugations *c*, (which may communicate with the bore near its longitudinal center,) the burning gases communicating through the said channels with the charge in the chamber C ignite and explode the said powder, and the pressure from this explosion, acting upon the projectile while it is already in motion, imparts a very high velocity thereto.

I do not claim, broadly, the use of a second chamber in a fire-arm to increase the velocity of a shot after it is in motion. In my invention the breech-piece of the peculiar construction shown affords a convenient and effective means of forming the accelerating-chamber and adapting the charge therein to be exploded unfailingly after the shot has passed the trunnions. The strain upon the arm is thus ma-

terially lessened and distributed equally over the entire re-enforced part of the breech.

A further advantage of the entire invention is that it produces a gun of great strength in proportion to its capacity.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

The breech-piece B, constructed and applied, as specified, to form an accelerating-chamber around the main bore, and grooved or corrugated at its forward end to provide communication between the bore and the surrounding chamber.

The above specification of my improvement in ordnance signed this 27th day of May, 1864.

C. W. STAFFORD.

Witnesses:

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