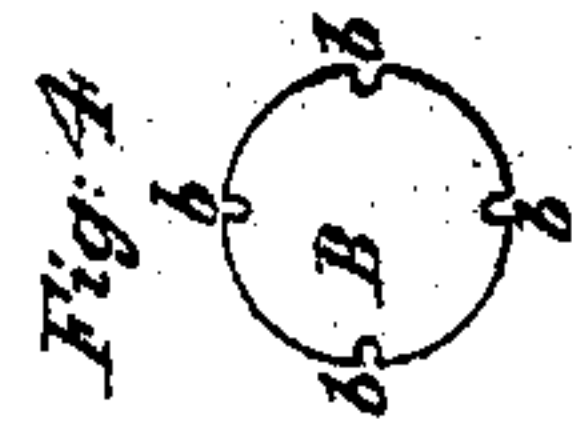
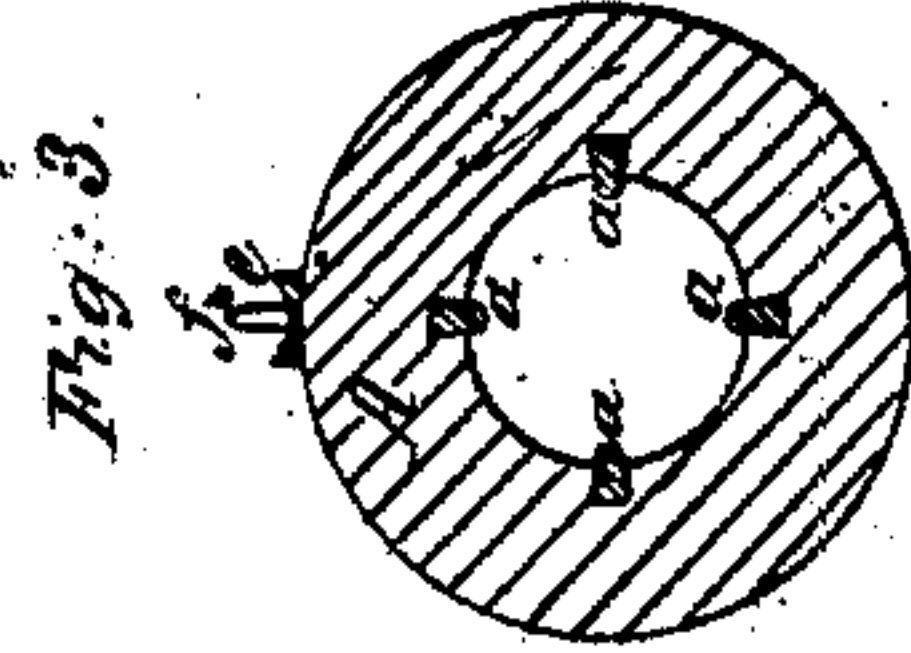
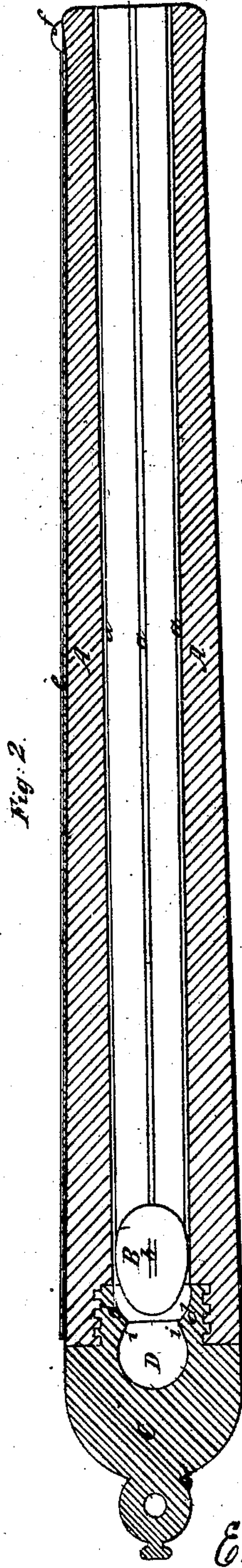
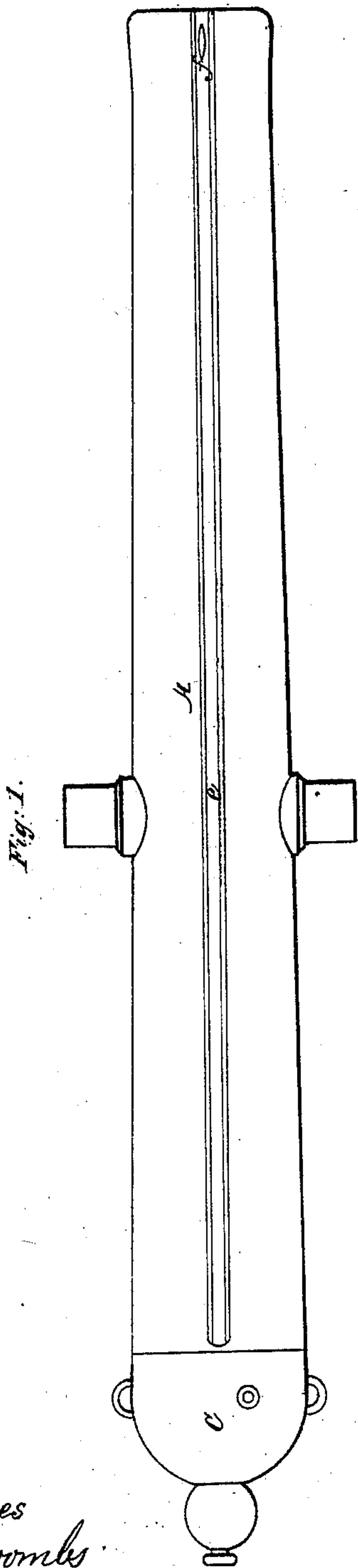


E. HEATON.
Muzzle-Loading Ordnance.

No. 35,443.

Patented June 3, 1862.



Witnesses
J. W. Coombs
Geo. W. Reed.

Inventor.
E. Heaton
per M. H. C.
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD HEATON, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN ORDNANCE.

Specification forming part of Letters Patent No. 35,443, dated June 3, 1862.

To all whom it may concern:

Be it known that I, EDWARD HEATON, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Ordnance and Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top view of a cannon with my improvements; Fig. 2, a central longitudinal section of the same; Fig. 3, a transverse section of the same, and Fig. 4 an end view of the projectile.

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

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The straight parallel ways, which constitute the most important feature of my invention, are shown in Figs. 1 and 2, indicated by the letters *a a*. I prefer these ways, for the sake of durability, to be of hardened steel, and therefore I make them separate from the gun or barrel *A* and fit them tightly to dovetail grooves provided for their reception in the bore, driving them into the grooves at the muzzle or breech of the gun, as may be rendered most convenient by the construction of the gun. The portions of the ways which project within the circle of the bore have their faces of elliptical or other rounded form in their transverse section, and are polished, that the projectile may run upon them with the least possible friction. The number of ways which I at present consider preferable is four, arranged at equal distances apart—one at the top and another at the bottom of the bore, to guide the projectile, and one on each side to support it; but I do not confine myself to the use of this number of ways. The iron projectile *B* has planed in it a corresponding number of grooves, *b b*, to fit the ways *a a*, and as these constitute the bearing-surfaces of the projectile it is not necessary to have the whole of the exterior of the ball turned. The grooves *b b* are to be filled with grease before

the projectile is placed in the gun to lubricate the ways *a a*. I prefer to use projectiles of egg shape and to place the larger or less prolate end in front; but I do not confine myself to the use of projectiles of this form.

The gun furnished with ways *a a* may be made breech-loading or muzzle-loading. The example represented is supposed to be muzzle-loading; but its breech *C* is represented as made of a separate piece and screwed into the rear portion of the barrel or body for greater strength. By the use of the straight parallel ways I am enabled to direct the ball with great accuracy and to obviate much of the friction produced in other guns, especially in those having spiral rifle-grooves.

The chamber *D*, for the charge of powder, is formed in the breech *C*, which I prefer to make of steel, and the seat *d d*, for the rear end of the projectile, is also formed in the breech. The chamber is of a nearly spheroidal form and contracted toward the seat *d d*, as shown at *i i* in Fig. 2, which is formed around its mouth. The rear and smaller or more prolate end of the projectile is turned to fit the seat *d d* air-tight, or as nearly so as practicable, so that the charge within may be entirely exploded, the escape of gases prevented, and the entire force of the explosion brought to bear on the projectile.

The grooved rib on the top of the gun, to facilitate the sighting, is shown in Figs. 1, 2, and 3, indicated by the letter *e*. This rib may be made of steel or other metal separate from the gun, and may be brazed or otherwise secured firmly to the exterior of the gun. The sight *f* is formed upon or secured to or in this rib.

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

The construction of the screw-breech with a ball-seat, *d d*, and a charge-chamber, *D*, which is contracted at *i i* toward the seat, as and for the purpose herein shown and described.

EDWARD HEATON.

Witnesses:

FRED. CROWELL,
DAVID J. PEAK.