F. W. ALEXANDER.

MUZZLE LOADING ORDNANCE.

No. 74,478. Patented Feb. 18, 1868.

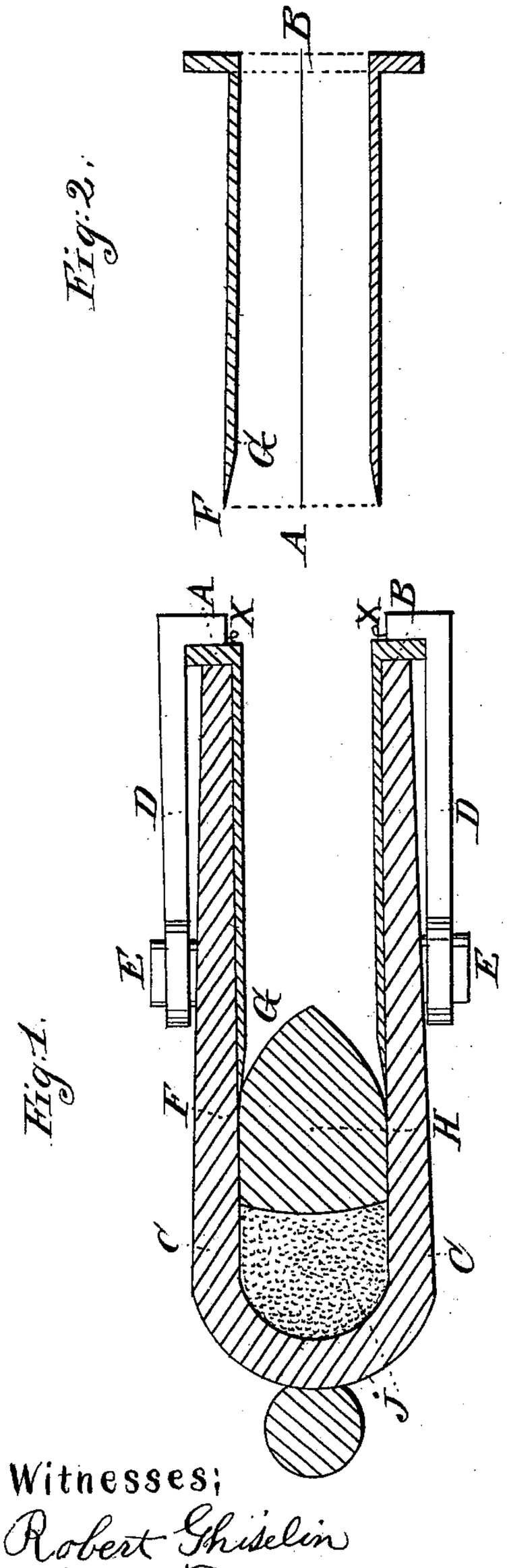

Fig. 1.

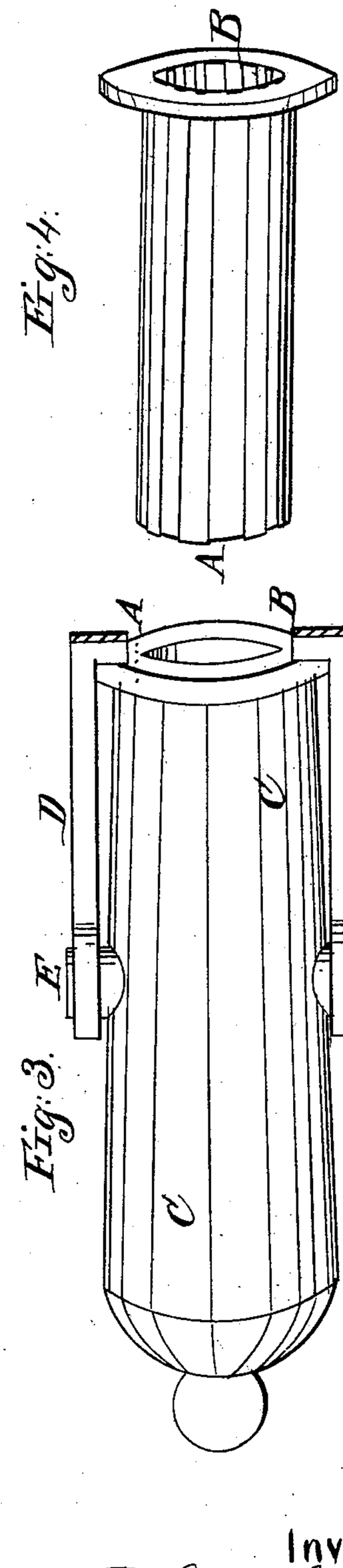

Fig. 3.

Fig. 4.

Fig. 2.

Witnesses;

Robert Ghiselin

John Tyler

Inventor:

F W Alexander

United States Patent Office.

FREDERICK W. ALEXANDER, OF BALTIMORE, MARYLAND.

Letters Patent No. 74,478, *dated February* 18, 1868; *antedated February* 6, 1868.

IMPROVEMENT IN MUZZLE-LOADING ORDNANCE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, FREDERICK W. ALEXANDER, of Baltimore city, State of Maryland, have invented a new Apparatus to be Applied to Muzzle-Loading Rifled and Smooth-Bore Guns, which I call a "Calibre-Diminisher," for the purpose of diminishing the calibre of guns after they have been loaded, so that any windage of the ball is prevented; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in inserting a hollow cylinder of steel or other metal into the muzzle of the gun after it is loaded. The thickness of this hollow cylinder is so arranged as by its insertion to form a new bore in front of the projectile, less in diameter than the previous bore of the gun itself, thus removing all windage or space around the ball, whereby the gases produced by the combustion of the powder can escape, thus rendering a muzzle-loader equal, in some respects, to a breech-loader. This hollow cylinder or calibre-diminisher is held in its place by arms of steel or other metal attached to the trunnions or other part of the gun, and after the gun is fired is removed for another load, and replaced when the gun is loaded.

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

Figure 1 represents a gun, which, for convenience, is shown as a smooth-bore, though the principle is exactly similar in a rifled gun.

A B is the hollow cylinder or calibre-diminisher, which is bevelled off at F G, so as to allow the ball to enter easily when the gun is fired. C C is the gun itself, which may be of any size or pattern, iron, steel, or brass, rifled or smooth-bore. D D are two arms, of steel or other metal, which encircle the trunnions by a ring at one end, and clasp the calibre-diminisher, A B, at its outside part at the muzzle, thus preventing it from being forced out by the ball when the gun is fired.

To remove A B, it is only necessary to remove the pins X X, and either raise or lower the arms D D, which swing on the trunnions; or the two arms, D D, may be attached together by a collar at the muzzle. H is the projectile; J is the powder.

Figure 2 represents the calibre-diminisher, A B, withdrawn. It is a hollow cylinder, of steel or other metal, with shoulders at the end which rest on the muzzle of the gun, and it is bevelled off at F G to allow the ball to enter without a shock. In fig. 4, A B is rifled within and rifled outside. These rifles must correspond with the gun the calibre-diminisher is intended for, and are designed to prevent the calibre-diminisher from turning in the gun, as it would do, as the ball presses against the rifled grooves in its passage out, thereby obtaining its twist.

In a smooth-bore gun, both the exterior and interior of the calibre-diminisher are smooth, as the only strain is direct, viz, to force it out, and the arms, D D, oppose this direct strain directly. If the calibre-diminisher be slit from A to B, fig. 2, leaving the slit about the tenth of an inch open, or more in large guns, this opening or room for play will give room for the calibre-diminisher to expand by heat after repeated firings, so as not to stick in the gun, and will also, by opening slightly, by the pressure of the ball as it goes out, allow the exterior of the calibre-diminisher to press against the interior of the bore of the gun. All the friction thereby produced will assist in the retention of the calibre-diminisher. However, this slit is not absolutely necessary, as the calibre-diminisher cools rapidly by being withdrawn while the gun is loaded.

In a rifled gun, the exterior projections of the calibre-diminisher will press sideways against the sides of the grooves of the rifled bore, thus producing a great amount of friction, and helping to retain it.

Figure 3 is a projection of fig. 1, and needs no description.

Figure 4 is a calibre-diminisher for rifled guns, and is rifled on the exterior and interior, thus making it, as much as possible, part and parcel of the gun into which it is inserted.

Further description is believed to be unnecessary, as the principle is so plain.

What I claim as my invention, and desire to secure by Letters Patent, is—

The apparatus termed a calibre-diminisher, for the purpose of diminishing the calibre of smooth-bore or rifled guns after they have been loaded, thus preventing any windage of the ball, and capable of being withdrawn, after firing, for a fresh load, and of reinsertion, &c., as heretofore described.

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Witnesses:

ROBERT GHISELIN,

JOHN TYLER.