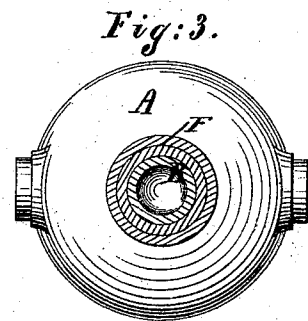
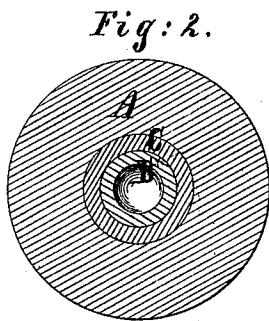
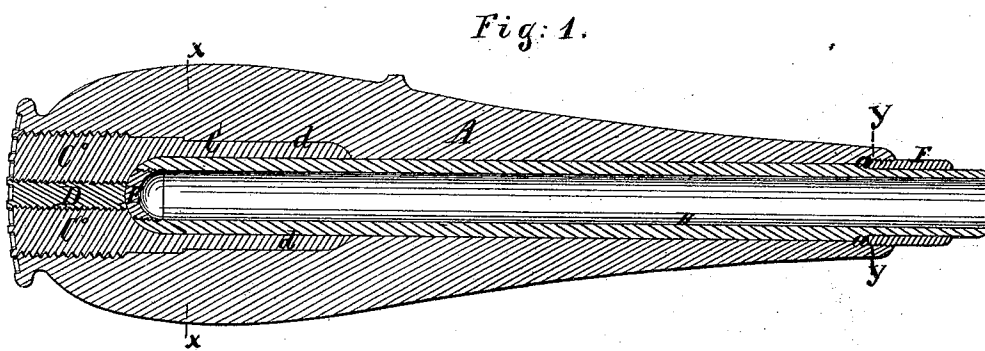


A. G. SINCLAIR.
Ordnance.

No. 156,822.

Patented Nov. 10, 1874.



Witnesses:
Henry Ginn
Chas. Wickers.

Inventor:
Allen G. Sinclair
Van Santvoord & Hauff
Attys

UNITED STATES PATENT OFFICE.

ALLEN G. SINCLAIR, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN ORDNANCE.

Specification forming part of Letters Patent No. 156,822, dated November 10, 1874; application filed September 11, 1874.

To all whom it may concern:

Be it known that I, ALLEN G. SINCLAIR, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Ordnance, of which the following is a specification:

My invention relates to an improvement in that class of heavy ordnance or guns which are constructed of a cast-iron body provided with a lining of steel, wrought-iron, or other homogeneous or suitable metal.

My invention consists in combining with a gun having an opening throughout its entire length, provided with a suitable lining, a breech-plug having an extension or jacket for surrounding a portion of said lining, in such a manner that the lining is strengthened, and consequently increased endurance and power in the construction of guns of this character are effected. It further consists in a certain combination of parts, as hereinafter set forth.

This invention is illustrated in the accompanying drawing, in which—

Figure 1 represents a longitudinal section. Fig. 2 is a transverse section in the plane $x x$, Fig. 1. Fig. 3 is a similar section in the plane $y y$, Fig. 1.

Similar letters of reference indicate like parts.

The letter A designates the cast-iron body of the gun, which is bored out to receive the tube or lining B of steel, wrought-iron, or other suitable material. The bore of this body A extends clear through from end to end, and it is enlarged at the breech for the purpose of receiving the jacket C, which is also made of steel, wrought-iron, or other suitable material, and which extends over the rear portion of the inner lining B. The rear end of the jacket C is bored out to receive a screw, D, bearing against the breech-block E of the main lining-tube B, which breech-block forms the bottom of the bore, and also acts as a gas-check. On the rear end of the jacket C is cut a screw-thread to fit a corresponding thread in the breech of the body A, and the operation of inserting said jacket and screwing it home to its place is facilitated by expanding

the body A slightly by heat. After the jacket C has been screwed into position the lining B is inserted from the muzzle, the breech-block E having previously been screwed into place, and is secured by the collar F, said lining being provided with a shoulder, a , against which the collar abuts, as shown in Fig. 1. Lastly, the screw D is inserted, the object of this screw being to substitute a sound and perfect material for that portion of the heavy forging C, which is apt to be defective; also to permit the breech to expand under heavy strains and prevent rupture, which might otherwise occur from a rigid and unyielding solid breech.

By this arrangement the gun is strengthened at or about the junction of the bottom of the bore and sides, where the longitudinal and tangential strains combine to produce rupture. A line of weakness exists in constructions heretofore made at this point, a fact which is well established by experiment. By my arrangement this weak point is avoided, and greater stiffness and stability of structure are obtained, as the extension of my breech-plug, which is obliged to resist the tangential strains of the gases resulting from the powder in firing, is assisted and strengthened by its solid head.

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

1. The combination in a gun of breech-plug C, having screw-plug D, and extension or jacket C, the block E, lining B, and jacket A, having an opening throughout its entire length, substantially as described.

2. The combination in a gun of a jacket, having an opening throughout its length, an interior lining, and a breech-plug, C, having an extension or jacket, C, for surrounding the lining, substantially as herein shown and described.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

ALLEN G. SINCLAIR. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.