T. STEECE.

Rifling Ordnance.

No. 37,924. Patented Mar. 17, 1863.

Fig. 1.

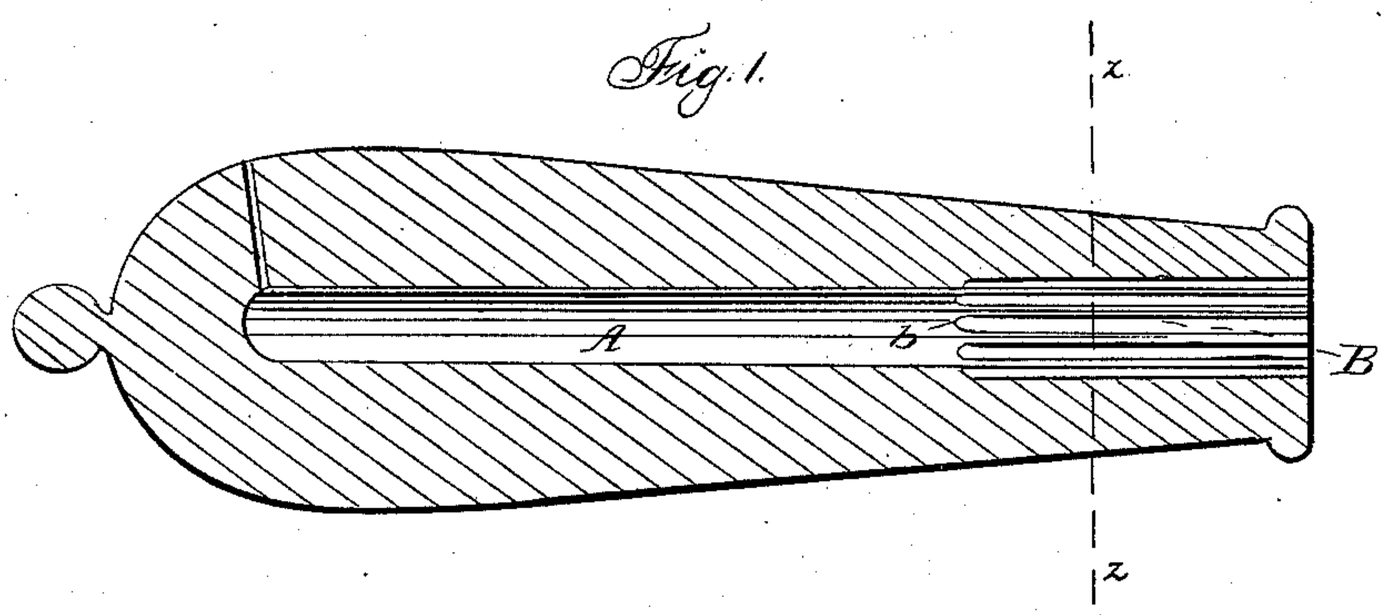


Fig. 2.

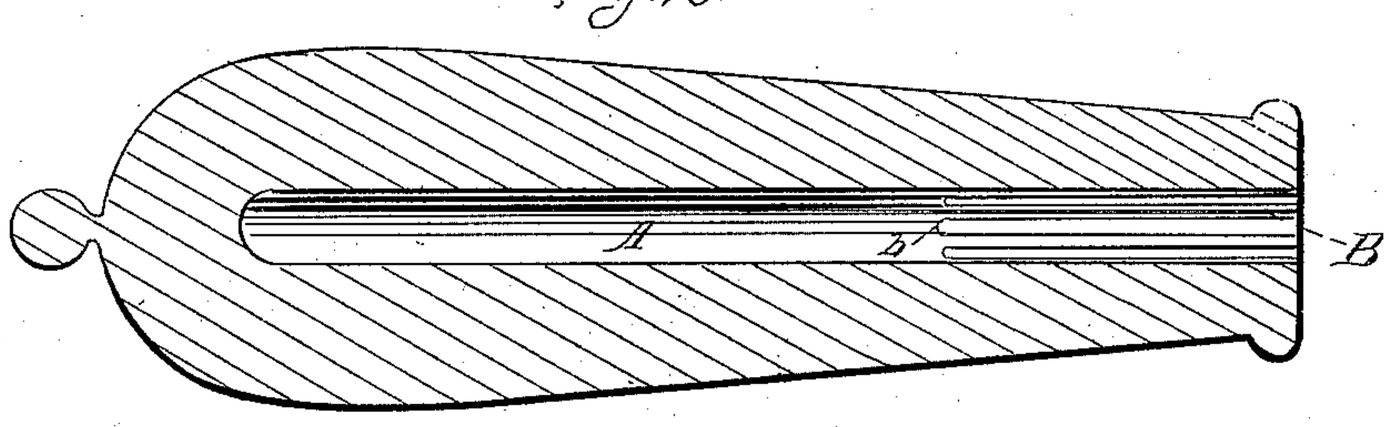


Fig 3

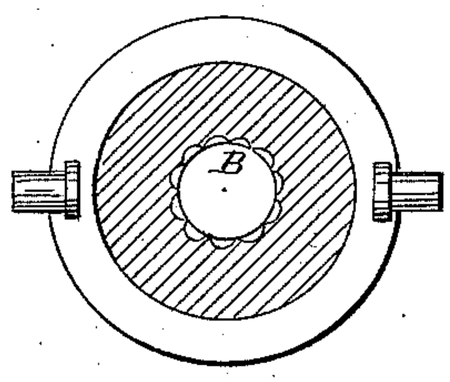
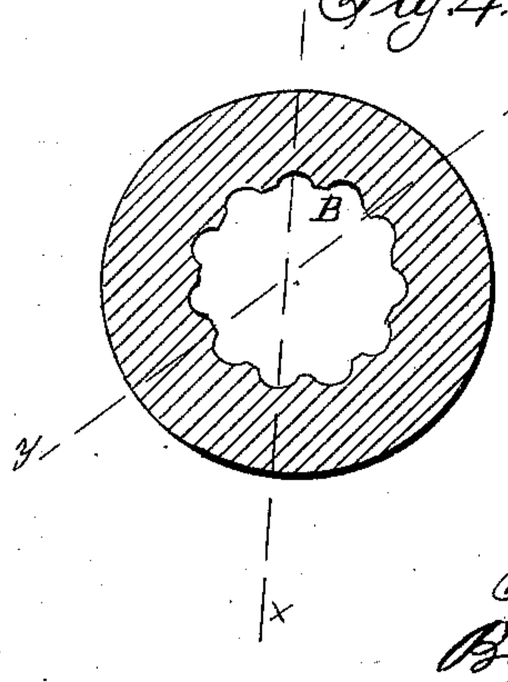


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

TECUMSEH STEECE, OF THE UNITED STATES NAVY.

IMPROVEMENT IN RIFLING ORDNANCE.

Specification forming part of Letters Patent No. **37,924**, dated March 17, 1863.

To all whom it may concern:

Be it known that I, TECUMSEH STEECE, of the United States Navy, have invented a certain new and useful Improvement in Cannon; 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 longitudinal section of a cannon illustrating my invention at *x x*, Fig. 4. Fig. 2 is a longitudinal section at *y y*, Fig. 4. Fig. 3 is a transverse section at *z z*, Figs. 1 and 2. Fig. 4 is a transverse section on a larger scale, taken on the same plane, but looking in an opposite direction.

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

The subject of the said invention is a cannon adapted to impart rotation to a suitably-formed projectile by the force of the gases escaping in the act of firing.

The invention particularly consists in so forming the bore of the gun that a projectile of suitable size and form may be guided in its passage throughout the bore, fitting the latter with the least possible windage at the rear end, in order that it may receive the full explosive force of the charge, but receiving rotation immediately before leaving the gun by the action of gases escaping through grooves in the gun, as hereinafter explained.

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

The cannon is first bored of an equal caliber throughout. A number of longitudinal or nearly longitudinal grooves, B, are then formed near the muzzle, the bands *b* between the said grooves being a continuation of the main part A of the bore, and of equal internal diameter therewith.

The projectile to be used with this cannon will be made for a part or the whole of its length of a diameter to accurately fit the main part A of the bore, and provided at its rear end with oblique wings adapted to impart rotation to the shot when acted upon by the escaping gases. It will be apparent that on fire being communicated to the charge the resultant gases will be confined by the projectile fitting close within the bore, and hence their whole expansive force will be employed to drive it forward. On reaching the rear end of the grooves B, the projectile will have acquired the necessary momentum and the gases will have expended much of their expansive force. At this period the gases find an exit through the grooves B, and in passing the shot impart a rotary motion thereto by acting upon its oblique wings. The lands *b*, forming a continuation of the bore A, so guide the shot that its position and direction will be correct when leaving the mnzzle of the gun.

The invention is applicable not only to muzzle-loading but equally so to breech-loading guns of any form, either with or without an enlarged breech-chamber.

The projectile employed may be of various forms, either fitting the bore through the chief part of its length or provided with latitudinal bands of soft metal, or a packing or sabot of any suitable form fitting the bore. The forward part of the projectile may be provided with wings or grooves adapted to maintain, by the resistance of the atmosphere, the rotation initiated by the action of the escaping gases upon the rear wings, as before explained. The said wings upon which the escaping gases act may be formed either upon the shot itself or upon a sabot, which, after imparting its rotation to the shot, will be separated therefrom after leaving the gun. I do not desire to be understood as limiting myself to any specific form of projectile, but propose to use any form which may be adapted to operate with my improved gun, as hereinbefore described.

The invention may also be adapted for small-arms as well as ordnance.

The length of the grooves B relatively to that of the whole bore may be varied as preference or experience may suggest.

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

A cannon or other fire-arm having at its rear end a smooth cylindrical bore, A, and near its muzzle longitudinal or nearly longitudinal grooves, B, which constitute enlargements in the bore, and are separated by lands *b*, the ridges or inner surfaces of which lands

are in their radial distance from the center equal to the radius of the smooth portion A of the bore, all as herein described, so as to guide the projectile during its entire passage through the bore, confine the gases as much as possible until the projectile approaches the muzzle, and then permit their escape longitudinally, to impart rotation to the projectile by acting against oblique surfaces thereon, or on a sabot or casing to be used therewith.

TECUMSEH STEECE.

Witnesses:
B. F. MONROE,
F. J. HIGGINSON.