J. G. BUTLER.

Projectile for Ordnance.

No. 168,447. Patented Oct. 5, 1875.

Fig. I.

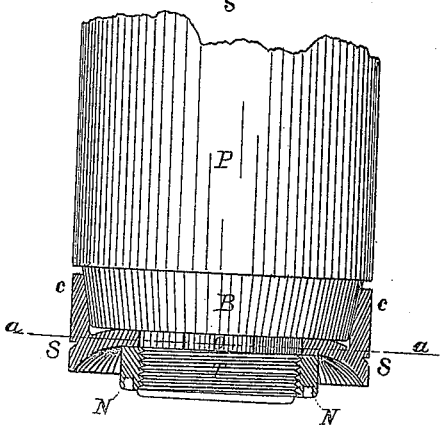


Fig. II.

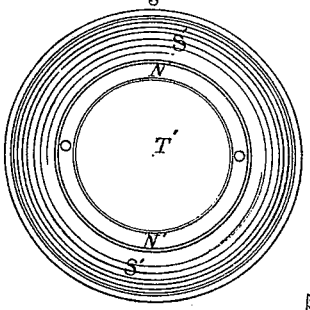


Fig. III.

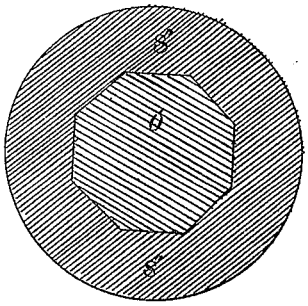
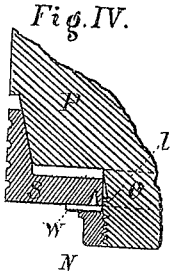


Fig. IV.



Witnesses.

Wm. Walters

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UNITED STATES PATENT OFFICE.

JOHN G. BUTLER, OF NEW YORK, N. Y.

IMPROVEMENT IN PROJECTILES FOR ORDNANCE.

Specification forming part of Letters Patent No. **168,447**, dated October 5, 1875; application filed September 20, 1875.

CASE A.

To all whom it may concern:

Be it known that I, JOHN G. BUTLER, of New York, in the county and State of New York, have invented certain Improvements in Projectiles for Rifled Ordnance, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to provide a simple and efficient means of attaching certain forms of sabots to rifle projectiles, so that they shall neither slip or turn upon the projectile nor "strip," viz, separate from the shot at the muzzle of the gun or during flight.

It has been found that rotation may be communicated to a projectile when fired from a rifled gun by means of a disk separated slightly from the base of the projectile, and provided with a circular flange or key which is driven upon the tapered base of the projectile. Slipping is usually prevented by notching the tapered portion of the projectile over which the sabot is driven by the discharge, while to prevent the stripping of the sabot from the projectile various expedients have been resorted to.

My invention consists, first, in combining, with a sabot of the form above referred to, a polygonal opening through the disk portion, which is then fitted over a corresponding polygonal extension of the base of the projectile, so that, when the sabot is expanded and wedged outward into the rifling, the rifled motion may be communicated to the projectile by means of said polygonal extension; and, second, in converting that portion of the extension of the projectile not occupied by the disk into a male screw, and screwing upon it a nut or washer of sufficient thickness to hold the sabot firmly in place.

In the accompanying drawings corresponding letters denote corresponding parts.

Figure I represents the lower half of a projectile in elevation, with a sabot showing upon it in cross-section. P is the iron body of the projectile, the base or lower end of which is formed into, first, the frustum of a cone or beveled part, B; second, into a polygonal shoulder, O, and, lastly, into a cylindrical part, T, having a screw-thread cut upon it. S is the sabot, of a kind already referred to, and so proportioned and applied that its circular flange or key C shall fit snugly over the tapered surface B of the projectile, while the polygonal shoulder O of the latter fits into a corresponding polygonal opening in the sabot S. The sabot is secured in this position by means of the nut or ring N, which is screwed upon the extension T until it confines the inner portion of the sabot snugly against the base of the projectile. When the gun is fired and the sabot is expanded and wedged outward into the rifling by being driven forward against and over the base of the projectile, the ring N will guard against stripping even under unusual distortion of the sabot, while the polygonal shoulder O will, of course, prevent any lateral movement of the sabot.

Fig. II represents a rear view of the projectile, S′ being the sabot, N′ the nut or threaded ring holding the sabot in place, and T′ the base of the projectile.

Fig. III is a cross-section through *a a* of Fig. I, in which S″ is the sabot, and O′ the polygonal shoulder of the projectile.

In Fig. IV, which is a modification of Fig. I, P is the projectile, S the sabot, O the polygonal shoulder, and N the nut, all in cross-section. When this form of sabot is employed, which is wedged out into the rifling by being driven forward upon the tapered base of the projectile, a space will necessarily obtain, after discharge, between the sabot S and the confining-nut N. Therefore, although the nut N would prevent the stripping of the sabot, nevertheless it might be loose upon the projectile, and thus affect the accuracy of flight. To prevent this the inner part of the sabot may be provided with a light flange, *l*, which is forced down into a notch provided for the purpose upon the polygonal shoulder O as soon as the sabot is driven home by the discharge, acting also as a gas-check in preventing the entrance of the gases of discharge under the sabot. As an additional security against the looseness of the sabot a lead or copper washer, W, may be applied between the nut N and the sabot S, being attached to the nut, so that, as the sabot is driven forward by the discharge, the washer will be bent or folded over, and thus occupy the space between the nut and the sa-

bot. To prevent the washer from keeping the gas shut off from the flange *l* its edge may be broken.

The sabot S should be made of a good quality of copper, brass, or a suitable alloy of expansible and tough nature; but the ring or nut N may be of wrought-iron or any baser metal.

Having thus described my invention, I do not claim the wedging-sabot S applied to the base of a rifle projectile, but claim as new and desire to secure by Letters Patent—

The combination of a projectile having a polygonal shoulder, O, at the base and a screw-thread extension, T, with a sabot, S, which is correspondingly recessed to fit the polygonal shoulder O, and retained in position by a nut, N, substantially as and for the purpose hereinbefore set forth.

JOHN G. BUTLER.

Witnesses:
WM. WALTERS,
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