# J. G. BUTLER.

## Sabot for Projectiles.

No. 168,318. Patented Oct. 5, 1875.

*Fig. I.*

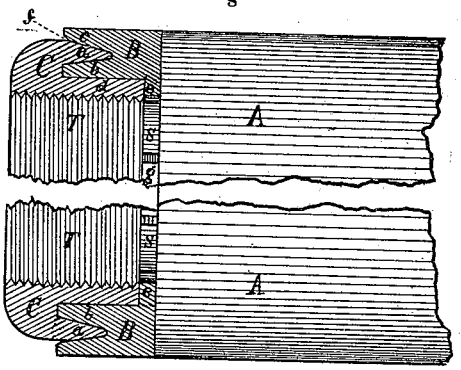



*Fig. II.*

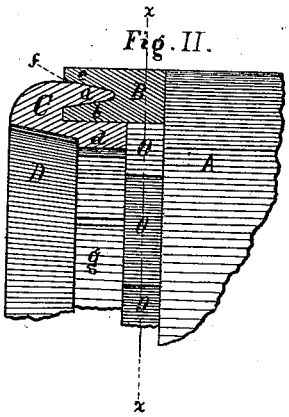



*Fig. III.*

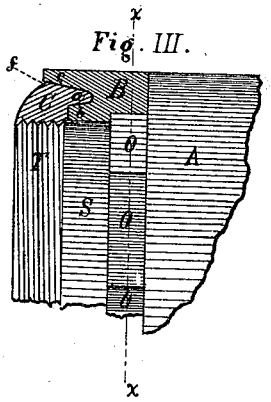
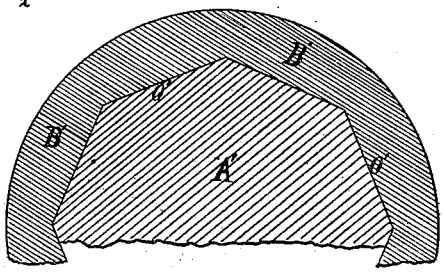



*Fig. IV.*




Witnesses.

Wm. Walters.

Frank D. Ritter

Inventor.

John G. Butler

# UNITED STATES PATENT OFFICE.

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

## IMPROVEMENT IN SABOTS FOR PROJECTILES.

Specification forming part of Letters Patent No. 168,318, dated October 5, 1875; application filed September 20, 1875.

CASE C.

*To all whom it may concern:*

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

It has been found that the rifle-motion may be satisfactorily imparted to elongated projectiles by means of a double-lipped ring or annular band having a deep posterior slit, dividing said band into upper and lower expansible portions or lips, so that the gases of discharge entering the slit or opening will cause the lower or inner lip to hug the projectile, while the upper or outer lip is expanded into the rifling of the gun, thus insuring the rotation due to the twist; but it has been urged against this form of sabot that the upper lip is easily bruised, and that, therefore, the projectile is peculiarly liable to injury from rough handling and in transportation, and might become unserviceable from a fall or blow upon the edge of the sabot mashing in the upper or outer lip.

It is the object of my invention to remedy this defect by providing a proper support to the upper lip of the sabot, so that when it receives a blow it may not be injuriously indented or distorted.

My invention consists in applying to the projectile a second annular band, flush, or nearly so, with the extreme base of the projectile, and having an annular tongue and groove, the former filling the groove of the sabot, while the latter receives the lower lip or flange of the sabot. Advantage may also be taken of this auxiliary band as a means of attaching the sabot to the projectile without entailing additional expense in the manufacture.

In the accompanying drawings, Figure I represents part of a projectile in side elevation, with the double-lipped sabot and the auxiliary band shown in cross-section.

A is the iron body of the projectile, having a shoulder, S, upon the greater part of which is cut a screw-thread, T. B is the double-lipped ring or sabot, the upper lip *c* of which is intended to be expanded into the rifling. C is the auxiliary band, very similar in cross-section to the sabot B. As applied to the projectile, the lip or tongue *a* of the band C fits into the annular groove of the sabot B, and the lower lip or tongue *b* of the sabot B fits into the groove of the band C, and thus, when the band C is screwed firmly into place over the threaded base T of the projectile, not only will the sabot B be held firmly in position, but the upper lip *c* of the same being supported by the tongue *a* of the band C it cannot be mashed in by any ordinary blow upon the exterior. The upper lip *c*, however, being slightly beveled at its extremity *f*, the gases of discharge will find no difficulty in entering there and expanding the lip *c* into the rifling of the gun; or the outer surface of the band C may be grooved or serrated to effect the same purpose.

In order to prevent the independent rotation of the sabot B upon the projectile the shoulder S may be of polygonal shape, as shown in Figs. II and III, or may have a broken or recessed surface, the shoulder of the sabot being made to fit it, as in Fig. I, where the lugs *e* upon the sabot fit into corresponding recesses or depressions *g* on the shoulder S. This is no part of my invention, but is mentioned as going to make up the complete projectile.

The sabot B should be of good quality brass or expansible and ductile alloy; but the band C may be of wrought-iron or baser metal, a wide range of alloys being suitable.

In Fig. II the band C is intended to be cast on the projectile, and may be of any suitable alloy, such as lead hardened with antimony, &c. In this case the band B is placed in position upon the projectile, the base of which is then clamped by a cylindrical mold, and the molten metal poured in. When cool, the band will have the form of C in Fig. II, and will lock the sabot B firmly in place, being itself locked upon the projectile by means of the bevel D and the depressions *g*. In this figure, A represents the body of the projectile; O, the octagonal base; B, the sabot, fitted over the base O; *b* and *c*, the lower and upper lips of the sabot, and *a* and *d* the interlocked tongues of the band C.

In Fig. III the lower tongue of the band C is dispensed with, the lower lip of the sabot B fitting closely over a cylindrical part, S, of the projectile, over the threaded portion T of which the band C is screwed into place.

In Fig. IV is a partial cross-section through *x x* of Figs. II and III. B′ is the solid part of the sabot in circular section. A′ is the body of the projectile, and O′ O′ are the octagonal faces over which the solid part of the sabot is fitted.

It will thus be seen that the auxiliary band C performs two functions—first, increasing the strength and stiffness of the upper lip of the sabot B, thereby rendering it less liable to injury; and, second, securing the sabot B firmly to the projectile.

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

1. The combination of a projectile having a double-lipped ring, B, fitting over a polygonal or recessed shoulder, with a tongued and grooved auxiliary band, C, substantially as and for the purpose hereinbefore set forth.

2. The tongued and grooved band C, substantially as and for the purpose hereinbefore set forth.

JOHN G. BUTLER.

Witnesses:
FRANK D. RIKER,
WM. WALTERS.