

J. G. BUTLER.
Projectile for Ordnance.

No. 160,569

Patented March 9, 1875.

Fig. I.

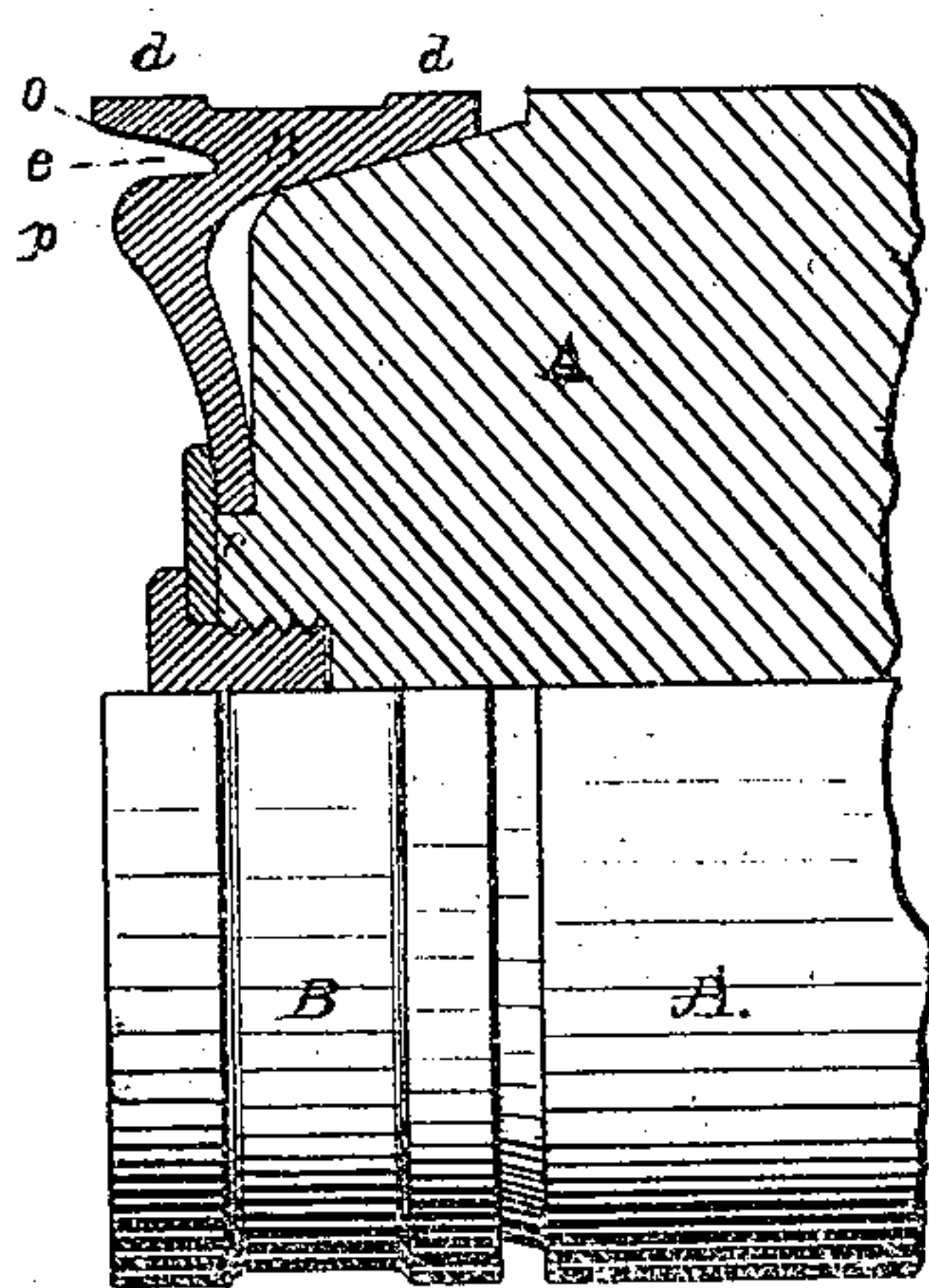


Fig. II.

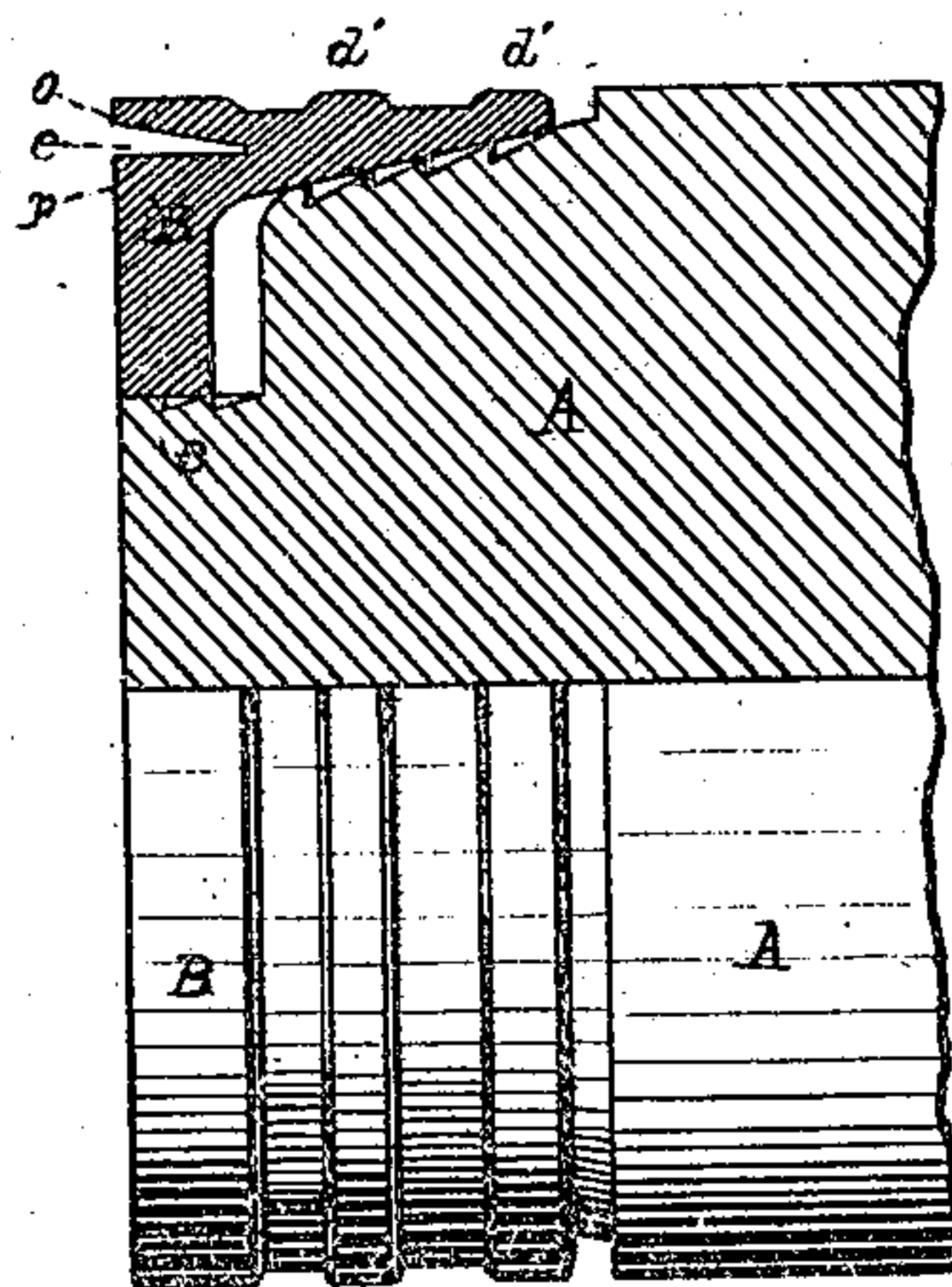
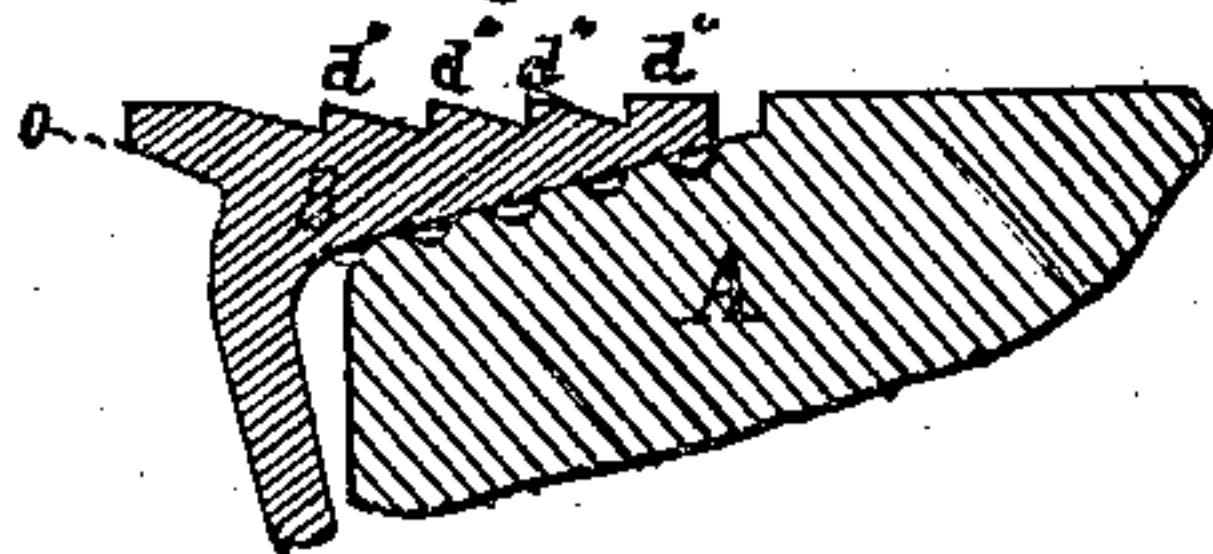


Fig. III.



Witnesses.

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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. 160,569, dated March 9, 1875; application filed November 23, 1874.

To all whom it may concern:

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

It has been found practicable to give rotation to elongated projectiles by causing them to take the rifling by means of a cup or saucer shaped device, which is forced by the gases of discharge over the base of the projectile, which is arranged in a conical form, so as to facilitate such action. This character of projectile has heretofore been open to serious objections. First, the power necessary to force the solid ring of metal throughout its entire width, with the unyielding base of the projectile under it, into the groove is so enormous that a full and fair impression of the rifling upon the cup or sabot cannot be obtained without a powerful and dangerous wedging strain upon the gun; and, secondly, obliged to forego the advantage of a full and perfect impression of the rifling, there is an undue escape of gas over the projectile through the unfilled grooves, and a hurtful shearing action upon the edges of the bands.

The object of this invention is to remedy these difficulties; and it consists in reducing the area of that portion of the sabot which is brought into contact with the rifling, thereby insuring its more ready compression, and also in providing an additional guaranty to this end by combining with the wedging cup an expansive device which shall readily fill the grooves and close windage by the expansive effort of the gases of discharge.

In the accompanying drawings, Figures I, II, and III represent partial longitudinal sections and elevations of projectiles with my improved sabot attached.

In each of these figures, which are simple modifications of the same principle, A is the iron body of the projectile. B is the cup-shaped sabot fitted upon the base of the same. This sabot should be of brass, copper or suitable ductile material. d , d' , and d'' are ribs or re-enforces of metal encircling the cylindrical surface of the sabot, and flush with the exterior cylindrical surface of the projectile. These ribs may be cast upon or formed by simply cutting circular grooves around the sabot. e and e' show, in cross-section, an annular groove or channel made in the base of the sabot, thus dividing it into an upper lip or flange, o , and a lower lip, p .

The action of this projectile is as follows: When the gun is discharged the sabot is driven up the conical base of the projectile, thereby wedging the ribs d , d' , and d'' into the rifling. At the same time the gas, finding entrance into the annular groove e , expands the upper lip o yet more perfectly into the grooves, while the pressure upon the lower lip or base of the groove, p , forces the sabot into tight contact with the projectile at C.

I do not claim as my invention the cup-shaped wedging-sabot B, nor do I claim the annular groove e , which divides the otherwise solid base into upper and lower expansible portions, and which is substantially shown in Letters Patent No. 119,313, to me granted in 1871.

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

The combination of the ribs d , d' , and d'' and the annular groove e with the cup-shaped sabot B, substantially as and for the purpose hereinbefore set forth.

JOHN G. BUTLER.

Witnesses:

CHAS. I. MCGOWAN,
CHAS. H. CAMPBELL.