R. R. MOFFATT.

Projectiles for Rifled Ordnance.

No. 151,498. Patented June 2, 1874.

Fig. 1

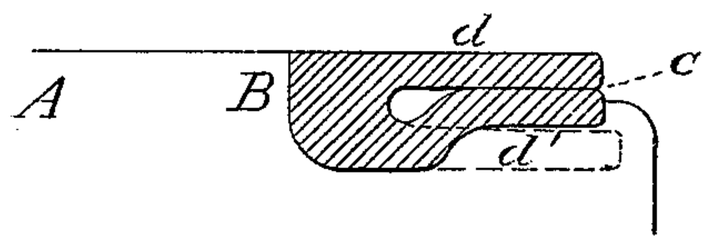


Fig. 2

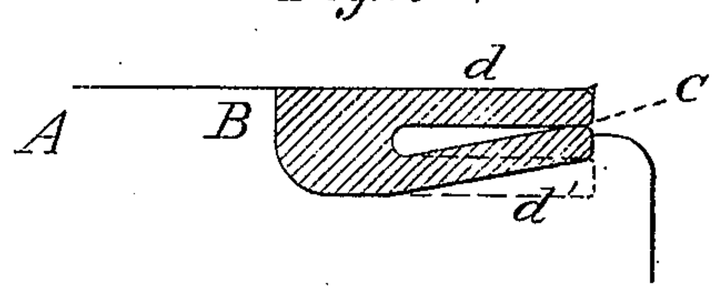
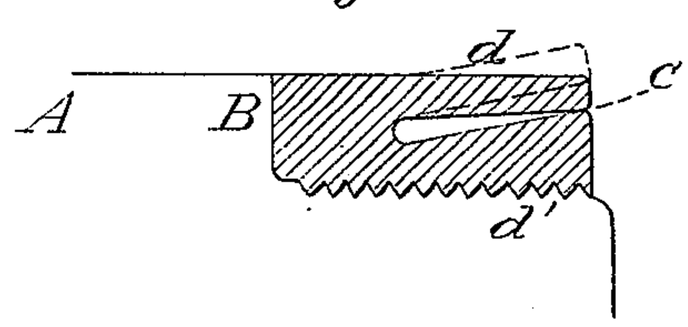


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

RICHARD R. MOFFATT, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PROJECTILES FOR RIFLED ORDNANCE.

Specification forming part of Letters Patent No. **151,498**, dated June 2, 1874; application filed November 25, 1873.

To all whom it may concern:

Be it known that I, R. R. MOFFATT, of the city of Brooklyn, county of Kings, 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 and to the letters of reference marked thereon.

It has been found highly necessary in the construction of projectiles for rifled cannon that they should be so made as to fit the bore of the gun with mechanical accuracy, to insure good results in shooting, and to prevent injury to the gun. Projectiles having a double-lipped soft-metal expanding ring at their rear end have been found to give satisfactory results in practice, and are cheaply made; but it is found that they are liable to be injuriously affected by careless handling, as the slightest fall, striking against each other, or any hard substance, will indent and misshape the outer lip of the ring, so that the projectile cannot enter the bore of the gun, or, when entered, does not lie evenly or centrally in the bore.

The object of this invention is to remedy these difficulties; and it consists in a novel method of constructing the double-lipped expanding ring so that the inner surfaces of the lips will lie against each other in such a manner as to form a solid bearing, and thus prevent the outer lip from being indented by any accidental fall or blow, while at the same time the forces from the powder-gases will enter between the lips and expand the outer one into the grooves of the gun as readily as though they were partly opened.

In the accompanying drawings, Figure 1 represents a longitudinal central section of a projectile with my improved expanding double-lipped ring attached. Figs. 2 and 3 are modifications of the same.

Letter A in the drawings represents the projectile; B, the double-lipped expanding ring, which is made of a ductile metal, such as copper or other metal suitable for the purpose. The ring B is first made in the shape as shown by the dotted lines in the drawing, having an opening, C, which may be cast in the ring or made by a tool. The lips *d* and *d'* are then compressed together, as shown in Fig. 1, and the ring B then attached to the projectile A in any known manner.

If desired, the ring B may be first applied to the projectile with the opening *c* and the lip *d* made as shown by the dotted lines in Fig. 3. The projectile is then passed through a die, and the lip *d* compressed down upon the lip *d'*; or, if desired, the ring B may be made as shown by the dotted lines in Figs. 1 and 2, and the lip *d'* is then expanded, by any known manner, into the shape as shown in said figures.

The powder-gases will enter between the lips *d* and *d'* when together as effectually as though there were an open space between them, thus forcing the outer lip against the sides of the bore, and the inner lip against the projectile.

Having thus described the nature and construction of my invention, what I desire to secure by Letters Patent is—

A projectile for rifled cannon having an expanding ring constructed with two lips, *d* and *d'*, the inner faces of which come in contact with each other, for the purpose of supporting the outer lip, thus preventing the danger of upsetting.

Witnesses: R. R. MOFFATT.

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