R. P. PARROTT.

Projectile.

No. { 2,095, / 33,099 }

Patented Aug. 20, 1861.

Fig. 4.

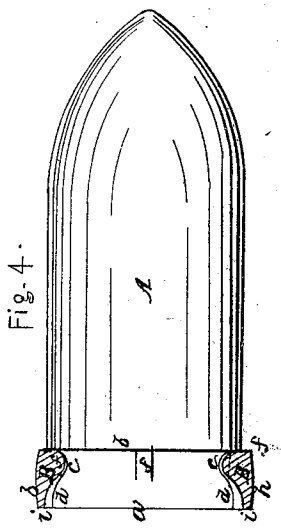


Fig. 5.

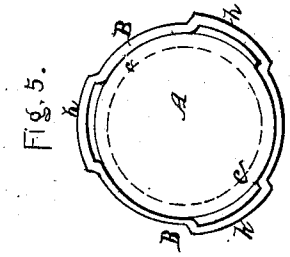


Fig. 1.

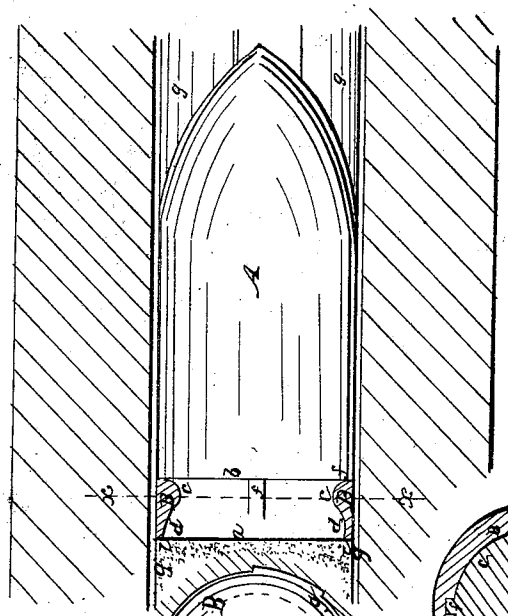


Fig. 2

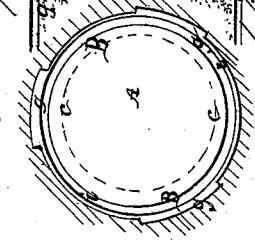
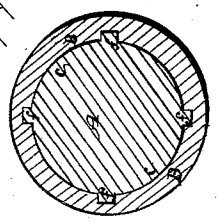


Fig. 3.



Witnesses.

Inventor.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ROBERT P. PARROTT, OF COLD SPRING, NEW YORK.

PROJECTILE FOR RIFLED ORDNANCE.

Specification of Letters Patent No. 33,099, dated August 20, 1861.

To all whom it may concern:

Be it known that I, ROBERT P. PARROTT, of Cold Spring, in the county of Putnam and State of New York, have invented a new and useful Improvement in Projectiles for Rifled Ordnance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention consists in an improved mode of fitting the rear portion of an elongated projectile for rifled ordnance, with a packing-ring of brass or other sufficiently soft metal or alloy, to be upset and expanded laterally and so driven into the grooves of the gun by the force developed by the explosion of the charge of powder.

To enable others skilled in the art to fully understand my invention, I will proceed to describe it with reference to the drawings.

Figure 1, exhibits a side view of the body of the projectile with the ring in section, showing it in the bore of a gun ready to be discharged therefrom. Fig. 2, exhibits a rear view of the projectile and a transverse section of the bore of the gun. Fig. 3, is a transverse section of the projectile, taken through the ring in the plane indicated by the line *x x* of Fig. 1. Fig. 4, exhibits a side view of the projectile with the ring in section, showing the ring in the condition it assumes in the discharge of the projectile; and Fig. 5, is a rear view corresponding with Fig. 4.

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

A, is the body of the projectile, which may be made solid or hollow and of cylindro-conoidal or other partly cylindrical form. The rear portion is of circular form, but reduced in size to form a shoulder, *b*, at a short distance, say from half an inch to one inch and a half, from the base, *a*, according to the diameter and length of the projectile; the reduction in size being in the form of an ogee, as shown in Figs. 1 and 4, making a rounded groove, *c*, immediately in rear of the shoulder *b*, and increasing in size from the said groove to the base *d*, which is somewhat smaller than the external diameter of the cylindrical portion of the body; but instead of being curved, the portion *d* in rear of the groove *c* may have a regular taper. The groove *c* has two or more small feathers or ribs, *f f*, running across it, parallel or nearly so with the axis of the projectile, said feathers or ribs being formed in the casting of the body.

B, is the packing-ring of brass or other metal or alloy softer than the body of the projectile, cast upon the reduced portion *c d*, by placing the body of the projectile in a suitable mold and pouring the metal or alloy around it.

The body of the projectile should be heated before the casting of the ring upon it, in order to prevent the injury that would result to the ring by its shrinkage upon an unshrinking substance like cold cast-iron. The degree to which the body should be heated will vary according to the fusibility of the metal or alloy of which the ring is composed. The said ring, after having cooled is turned or otherwise finished externally to correspond in size with the exterior of the cylindrical portion of the body A, as shown in Fig. 1, and its rear end is left exposed as shown at *i i* in Figs. 1 and 2, and flush with the base of the body A. The packing-ring thus cast on the body of the shell fits very tightly upon the portion *c d*, on which it can neither move lengthwise nor turn, the longitudinal movement being prevented by the shoulder *b* and the portion *d*, and the turning being prevented by the ribs or feathers *f f*. The projectile thus fitted with the packing-ring, fits easily within the lands of the bore of the gun, as shown in Figs. 1 and 2, in which portions of the gun are shown in blue outline, and so passes easily along the bore in loading. When the charge is fired, the gases evolved by the explosion of the powder, by their pressure on the exposed rear end of the ring B, tend to drive the said ring forward against the shoulder *b* and so upset the said ring to some extent and expand it laterally; and as the rear end of the ring moves forward, it passes into a smaller portion of the part *d* of the body, and a slight opening is formed between the rear of the ring and rear of the body; and the gas rushing into this opening, drives outward those portions of the ring which are opposite the grooves, *g g*, of the gun, into the said grooves, and so causes a series of projections, *h h*, (Figs. 4 and 5,) to be formed upon the exterior of the ring, the said projections fitting closely to the grooves and preventing windage, and causing a rotary motion to be given to the ring as it passes along the bore; and the ring

being prevented from turning on the body carries the body around with it and gives it the necessary rotary motion.

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

The soft metal ring B, cast in a groove, *c*, in the body of the projectile and upon a taper portion, *d*, extending from the said groove to the base, and upon ribs or feathers, *f f*, or their equivalents, formed upon the body, and having its rear edge, *i*, exposed flush or thereabout with the base of the body; all substantially as herein described.

ROBERT P. PARROTT.

Witnesses:
M. M. LIVINGSTON,
JAMES LAIRD.