(No Model.)

W. PALLISER, Dec'd.

J. L. NORRIS, Administrator.

PROJECTILE.

No. 269,101. Patented Dec. 12, 1882.

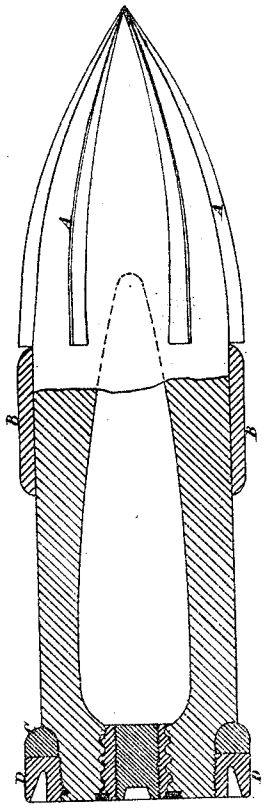


FIG. 1.

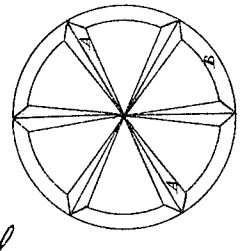


FIG. 2.

Witnesses.
J. A. Rutherford
Robert Everett.

Inventor.
William Palliser decd
By James L. Norris.
Administrator

UNITED STATES PATENT OFFICE.

JAMES L. NORRIS, OF WASHINGTON, DISTRICT OF COLUMBIA, ADMINISTRATOR OF WILLIAM PALLISER, DECEASED.

PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 269,101, dated December 12, 1882.

Application filed July 19, 1882. (No model.) Patented in England August 4, 1880, No. 3,191.

To all whom it may concern:

Be it known that I, JAMES L. NORRIS, a citizen of the United States, residing at Washington, in the District of Columbia, am in possession of an invention for a new and useful Improvement in Projectiles for Ordnance, invented by WILLIAM PALLISER, of which the following is a specification.

This invention relates to projectiles for ordnance, whether of cast-iron or of steel, so constructed as to be particularly adapted for the penetration of armor-plates, although they may be used for other artillery purposes. The body of the projectile is cylindrical, smaller than the bore of the gun. Its head extends in the form of a long-pointed conoid, the conoidal part being cast with a number of longitudinal ribs, by preference of triangular form, projecting from its surface. At the base of the ribs, which is at the springing of the conoidal curvature, the diameter, measured across from point to point of any two opposite ribs, is nearly equal to that of the bore of the gun. On the cylindrical body, close up against the ends of the ribs, I shrink a metal ring or short jacket, having an external diameter nearly equal to that of the bore of the gun. I also shrink or screw on a ring of like external diameter on the base of the projectile, which is reduced in diameter to receive it. This latter ring is turned down smaller for part of its length, and has a screw cut on the reduced part. On this is screwed a ring of copper or other comparatively soft metal, having a deep groove cut in its face. When the projectile is in the gun it rests evenly on the two rings, the one at each end of its cylindrical body, and when the charge is fired the pressure of the powder-gas, acting in the groove of the soft-metal ring, expands it outward, so that it acts as a gas-check and takes the rifling. The head may be chill-cast in one piece with the body of the projectile, according to the well-known process invented by the said WILLIAM PALLISER; or the head may be made of a separate piece and fixed to the body. Its sharp conoidal form gives great penetrating power, the angular ribs on it having the effect of initiating cracks in an armor-plate and causing it to star in its fracture. The projectile may be cast solid, or it may be cast with an internal cavity to receive a bursting-charge.

Figure 1 of the accompanying drawings is a longitudinal section of a shell according to the invention, the head portion being shown in elevation; and Fig. 2 is a plan of the head, which is cast with longitudinal chisel-edged ribs A for the purpose mentioned above, the extreme diameter from edge to edge of these ribs being a little less than the bore of the gun. Behind the ribs a wrought-iron or steel ring, B, is shrunk on, the exterior part of this ring nearly fitting the bore of the gun. It is preferably rounded off in front, as shown, so as to encounter less resistance of the air. At the base of the shell another ring, C, is shrunk on, and behind it a ring, D, of copper or other soft metal, is screwed on the base of the shell at its reduced part. This soft-metal ring is made with a deep groove, so that the pressure of the powder-gas may expand it, causing it to operate as a gas-check.

Instead of screwing on the gas-check ring D, as shown, it may be merely driven tightly on the boss at the base of the projectile, which may be slightly undercut or have one or more grooves around it, into which the pressure of the powder-gas, forcing the ring inward as well as outward, will cause it to engage firmly on firing. The projectile may be made as a shell to receive a bursting-charge, as shown, or it may be cast as a solid shot. In either case it is preferred that the head portion with its ribs be chill-cast if of cast-iron.

Having thus described the nature of this invention and in what manner the same is to be performed, I claim—

The improved projectile herein described, consisting of the conoidal head having the ribs A and a cylindrical body, the wrought-iron or steel ring B, shrunk on the cylindrical body at the base of the ribs and conoidal head, the wrought-iron or steel ring C, shrunk on the rear end of the body, and the soft-metal ring D, secured to the latter against the rear ring, substantially as set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

JAMES L. NORRIS,
Administrator of the estate of William Palliser, deceased.

Witnesses:
JOS. L. COOMBS,
J. A. RUTHERFORD