No. 760,338. PATENTED MAY 17, 1904.

E. L. KWIATKOWSKI.

PROJECTILE.

APPLICATION FILED JULY 15, 1903.

NO MODEL.

Fig. 1.

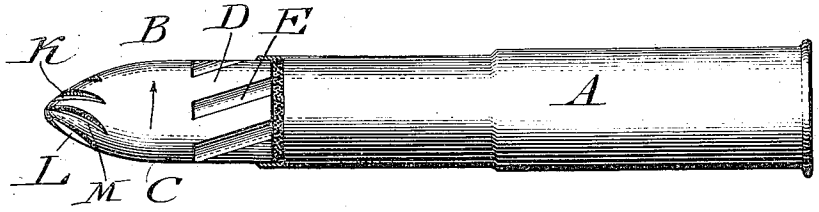


Fig. 2.

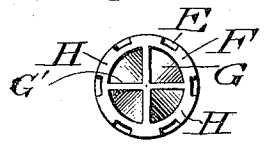
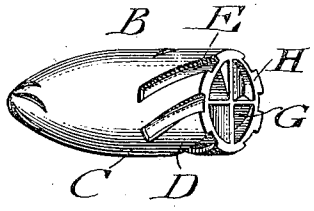


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

EDWARD L. KWIATKOWSKI, OF PHILADELPHIA, PENNSYLVANIA.

PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 760,338, dated May 17, 1904.

Application filed July 15, 1903. Serial No. 165,570. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. KWIATKOWSKI, a subject of the King of Prussia, Emperor of Germany, (but having resided in the United States over one year last past and having declared my intention of becoming a citizen thereof,) residing in the city and county of Philadelphia, State of Pennsylvania, have invented new and useful Improvements in Projectiles, of which the following is a specification.

My invention relates to projectiles; and it consists in increasing their initial velocity, their speed of rotation, and their penetration. Trajectory is flattened, impact augmented, and glancing minimized.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

Figure 1 represents an elevation, partly sectional, of a cartridge provided with a bullet embodying my invention. Figs. 2 and 3 represent, respectively, a rear elevation and a perspective view of the bullet or projectile detached.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a cartridge-shell, which may be of the form required for any well-known or desired rifle or other arm.

B designates a bullet of the usual conical form, having a plane cylindric body C, at the rear of which is a butt D, in which are grooves E, which extend spirally in the direction of rotation from the body C to the rear face of the bullet. In said base is a plurality of depressions G, the bottom wall of each of which is sector-shaped and theoretically sections of a screw of a desired pitch separated by cross-bars G'. In practice it may vary from this figure, with no material detraction from its value. It will be noted that the outer curved sides of depression G do not extend to the edge of the bullet or communicate with groove E, these being circumscribed by a plane annulus H, which acts to protect the gun-barrel from erosion, the bars G' joining said annulus and serving to strengthen said annulus. The point K of the bullet is provided with a plurality of helical grooves L, forming cutting edges M.

The operation is as follows: When the piece is fired, the cylindric body C of the bullet B fills the bore and prevents any escape of gas. At the same time the bullet is rotated in the direction of the arrow shown in Fig. 1 by the gas-pressure on the sides of the grooves E and on the faces of the depressions G. It will be noted that the "twist" of the grooves E is in such a direction as to rotate the bullet from left to right, as usual. This rotation is assisted by the pressure against the faces of the depressions G, escape of such pressure directly against the sides of the gun-barrel being prevented by the circumscribing annulus H, which is strengthened by the intersecting cross-bars G. In this way erosion of the barrel is greatly reduced.

When the bullet strikes, the cutting edges M of the depressions L being faced in the direction of rotation enable the bullet to engage with and bore into an object. Because of this boring action the bullet will not glance even at a considerable incidental angle.

My invention is applicable to projectiles made of any proper metal and of varying degrees of hardness.

Various changes may be made in the details of construction shown without departing from the general spirit of my invention, and I do not, therefore, desire to be limited in each case to the same.

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

1. A projectile comprising a cylindric body adapted to fill the bore of a gun and a butt portion having grooves which extend spirally in the direction of rotation from said body to the rear face of the bullet.

2. A projectile comprising a cylindric body adapted to fill the bore of a gun, a butt portion having grooves which extend spirally in the direction of rotation from said body to the rear of the bullet and a rear face consisting of

a plane annulus inclosing depressions, the bottoms of which are inclined in the direction of rotation.

3. A projectile comprising a cylindric body adapted to fill the bore of a gun, a butt portion having grooves which extend spirally in the direction of rotation from said body to the rear of the bullet and a rear face consisting of a plane annulus inclosing a plurality of depressions separated by intersecting cross-walls, the bottoms of said depressions being inclined in the direction of rotation.

EDWARD L. KWIATKOWSKI.

Witnesses:

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