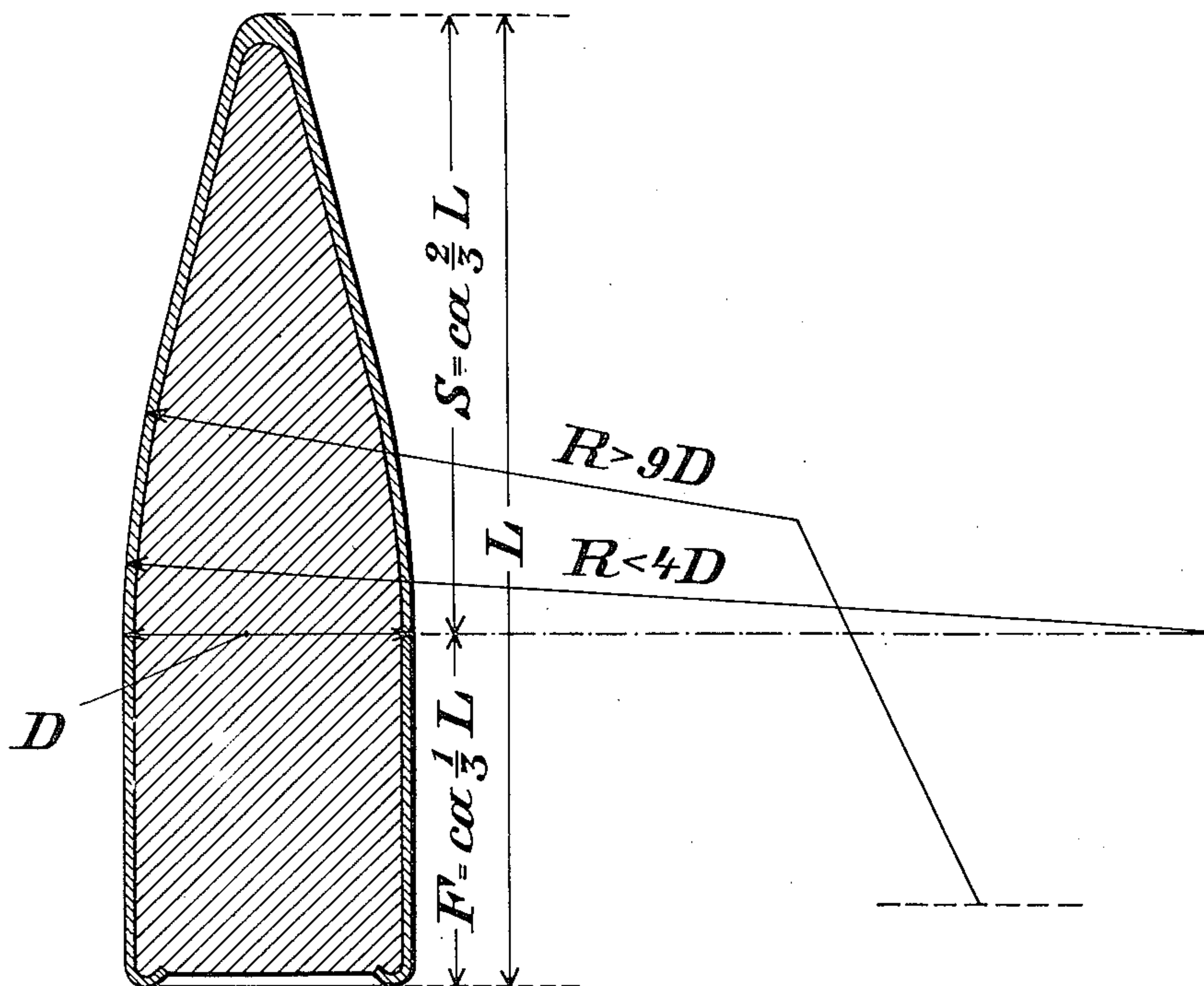


995,928.



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PROJECTILE FOR HAND-FIREARMS.

995,928.

Specification of Letters Patent. Patented June 20, 1911.

Application filed January 27, 1911. Serial No. 605,045.

To all whom it may concern:

Be it known that I, WALTER THILO, lieutenant, retired, a subject of the German Emperor, residing at 17 Fülcherstrasse, Düsseldorf, Germany, have invented certain new and useful Improvements in Projectiles for Hand-Firearms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in projectiles for handfire arms, and more particularly to projectiles which are provided with a pointed head.

Theoretically it has been known for a long time, that in projectiles a pointed head is preferable to the ordinary rounded head, because the resistance of the air is smaller in the former case than in the latter. In order to make use of the favorable properties of the pointed projectile the gun and also the powder must have certain properties which have but recently been imparted thereto. The construction of guns with the proper rifling and the invention of powders of sufficient power have recently made it possible to use projectiles with a pointed head. The old constructions of the said projectiles were based on experiments, and it was believed that the most favorable form of the pointed head of the projectile consists of a body which is formed over its whole length by revolution of a curve of a definite curvature, the radius of the said curve being from four to nine fold the diameter of the projectile. Furthermore it is a well known fact, that by extending the head of the projectile the center of gravitation of the latter is moved toward the rear, whereby the stability of the projectile in its flight is impaired. Therefore the length of the head and the total length of the projectile must be at a certain ratio, and in recent years it has been suggested to choose such a ratio, that the length of the head was about one half the total length of the projectile.

My experiments made with a new form of the head of the projectile have shown that the properties of the latter can considerably be improved as to starting velocity, flat trajectory, accuracy of aim, and penetration. Therefore instead of forming the head by a

line which is curved over its whole length, my invention consists in constructing the main part of the head in the form of a regular cone which is formed by a straight line. At its rear end the surface of the said cone merges into the cylindrical part of the projectile on a curve or curves of revolution. The length of the head taken from its front end to the plane where the curved portion merges into the body or guiding part is about two-thirds of the total length of the projectile. The most favorable result is obtained, if all the other conditions of the powder, the gun, etc., remain the same as in firearms now in use.

In order that my invention may more clearly be understood an example embodying the same has been shown in the accompanying drawing in which a longitudinal section of the projectile is shown on an enlarged scale.

As shown the pointed head of the projectile consists at its front part of a regular cone which is slightly rounded at its point. The regular cone extends to the part which in the drawing is indicated by the arrow indicating the radius of curvature $R > 9 D$ (R greater than $9 D$). The curve drawn with this radius extends to the part which is indicated by the arrow indicating the radius of curvature $R < 4 D$ (R smaller than $4 D$).

D indicates the diameter of the projectile in the transverse plane in which the head merges into the body or guiding portion. The latter is substantially cylindrical, but ordinarily it is slightly tapered outward toward the bottom of the projectile, so that for example in case of a projectile of a diameter of 8 millimeters the diameter at the bottom is 8.1 millimeters. The length of the head is about two-thirds of the total length of the projectile, so that the length F of the body portion is about one-third of the total length of the projectile.

I claim herein as my invention:

1. A projectile for hand-fire arms having a body or guiding portion of about one-third its total length, and a pointed head of about two-thirds its total length, the pointed head being formed near its forward end by a conical portion which merges into the body or guiding portion on a curve of revolution.
2. A projectile for hand-fire arms having

a body or guiding portion of about one-third
its total length, and a pointed head of about
two-thirds its total length, the pointed head
being formed near its forward end by a
5 conical portion which merges into the body
or guiding portion on a curve of revolution
the radius of which is on a part of its length
more than nine fold and on another part
smaller than four fold the diameter of the
10 projectile in the plane in which the head

portion merges into the body or guiding
portion.

In testimony whereof, I have signed this
specification in the presence of two subscrib-
ing witnesses.

WALTER THILO. [L. s.]

Witnesses:

CHAS. J. WRIGHT,
WALTER VONNEGUT.