No. 730,308. PATENTED JUNE 9, 1903.

C. F. P. STENDEBACH.

PROJECTILE FOR SMOOTH AND RIFLED BORES.

APPLICATION FILED JULY 17, 1902.

NO MODEL.

Fig. 1.

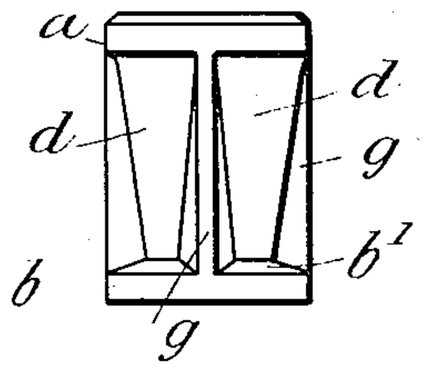


Fig. 3.

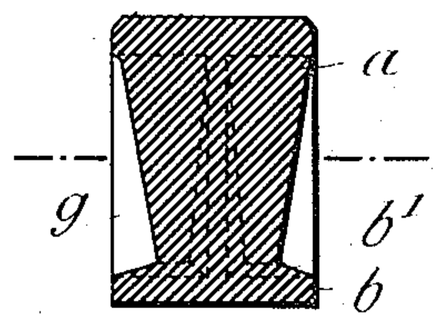


Fig. 2.

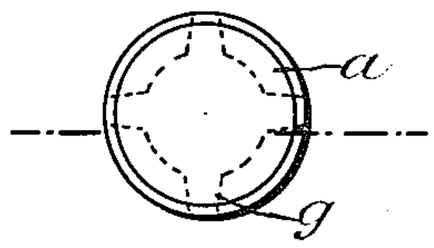


Fig. 4.

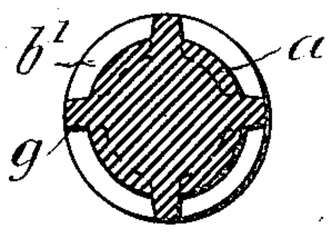


Fig. 5.

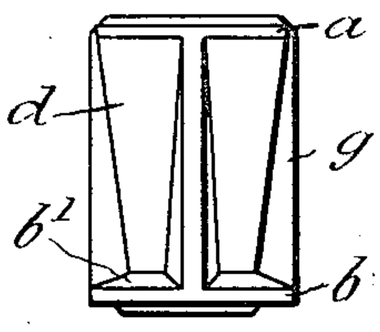


Fig. 7.

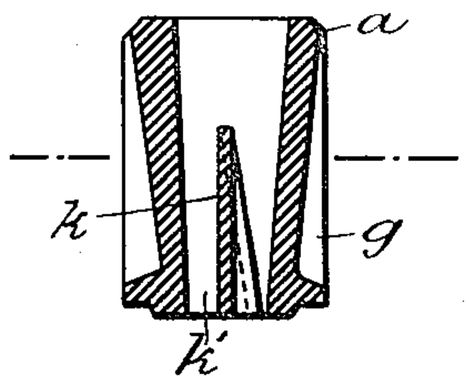


Fig. 6.

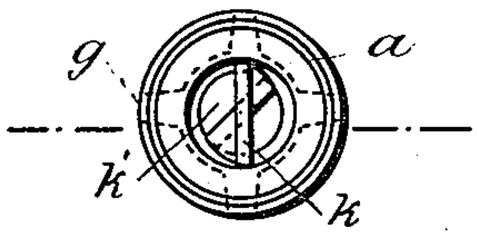
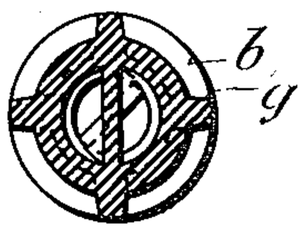


Fig. 8.



WITNESSES.

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No. 730,308. Patented June 9, 1903.

UNITED STATES PATENT OFFICE.

CARL FRIEDRICH PHILIPP STENDEBACH, OF MÖCKERN, NEAR LEIPZIG, GERMANY.

PROJECTILE FOR SMOOTH AND RIFLED BORES.

SPECIFICATION forming part of Letters Patent No. 730,308, dated June 9, 1903.

Application filed July 17, 1902. Serial No. 115,949. (No model.)

To all whom it may concern:

Be it known that I, CARL FRIEDRICH PHILIPP STENDEBACH, a subject of the Emperor of Germany, and a resident of 16 Albertstrasse, Möckern, near Leipzig, Germany, have invented certain new and useful Improvements in Projectiles for Smooth and Rifled Bores; 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.

This invention relates to a projectile for smooth and rifled bores of firearms, which in consequence of its peculiar shape is self-guided—that is to say, keeps the direction given to it by the barrel and excludes the possibility of any deviation in the aim.

A further advantage of the projectile is that the laws relating to stability or steadiness of flight of the projectile, according to which light projectiles in consequence of their slight inertia under high-gas pressures require a higher sectional load, and in consequence of this circumstance a stronger rifle pitch, do not apply.

By means of this invention a considerably greater steadiness of flight is assured with rifled tubes than has been possible hitherto, this being due to the peculiar external form of the projectile and the effect of the resistance offered by the air, while a combination of this external arrangement with the known device in the interior of the projectile, whereby the projectile is likewise rotated through the resistance presented by the air, renders the projectile also suitable for smooth bores, so that the superiority of the rifled bore of the same caliber over the smooth bore disappears.

In the drawings, Figure 1 is a side view of the projectile; Fig. 2, a plan; Fig. 3, a longitudinal section; Fig. 4, a transverse section; Fig. 5, a side view of the projectile in combination with the known rotating device. Figs. 6 to 8 are different views of the same combination.

With the assistance of the drawings the invention will be made clear, as follows:

The projectile, Fig. 1, consists of a body *a* of a conical or tapering cylindrical form, the front part (the head of the projectile) being of the same caliber as the bore of the weapon, made with a beveled edge and having only a thin face or facet for the purpose of more easily inserting it in the bore. At the back of the projectile is a flange *b*, which is likewise of the same caliber and has inclined surfaces *b'* running to the body of the projectile. Between the head of the projectile and the flange *b* from four to six longitudinal webs *g* are axially arranged, which, with the flange *b*, form fan-like divisions *d* on the body of the projectile.

In the combination for smooth bores illustrated in Figs. 5 to 8 the longitudinal webs *g* project somewhat and serve, with the ring *b*, as a guide for the projectile in the bore.

The projectile *a* is made hollow, and in the bore running through it a transverse piece *k* is inserted and suitably shaped to form winding screw-passages *k'*, which when the projectile is in motion produce the actual rotation thereof.

The firing operation is as follows: Directly the projectile leaves the weapon the resistant air acting on it is pressed sidewise at a right angle to the axis of the projectile by the head of the projectile and closes up behind the flange *b*. By means of the longitudinal webs, which in consequence of the rotation of the projectile act similarly to a centrifugal machine, the air surrounding the projectile is prevented from prematurely entering the divisions *d* and is first brought into contact with the flange *b* on the body of the projectile. The result of this is that the air in the divisions *d* is powerfully rarefied during the flight of the projectile, this effect being heightened by the external current of air and preventing the possibility of any counter-pressure in the interior of the divisions *d* on the body of the projectile, whereby in case the projectile tends to alter the direction of its longitudinal axis the pressure of air flowing contrary to the direction of the flight acts on the surface *b'* of the flange and keeps the projectile in its trajectory, the projectile being thus

self-guiding and the greatest possible stability or fixity of rotation of the projectile assured.

What I claim, and desire to secure by Letters Patent, is—

1. A projectile, comprising a tapered body portion, a head with beveled edges, a flange arranged at the bottom of the projectile, and longitudinal stays or webs which with the flange form fan-like compartments.

2. A projectile, comprising a tapered body portion with an axial bore, a head with beveled edges, a flange arranged at the bottom of the projectile, longitudinal stays or webs which with the flange form fan-like compartments, and a transverse piece in the bore forming one or more screw-like passages, which cause the fired-off projectile to rotate.

In testimony whereof I have affixed my signature in presence of two witnesses.

CARL FRIEDRICH PHILIPP STENDEBACH.

Witnesses:

RUDOLPH FRICKE,

H. SACK, Jun.