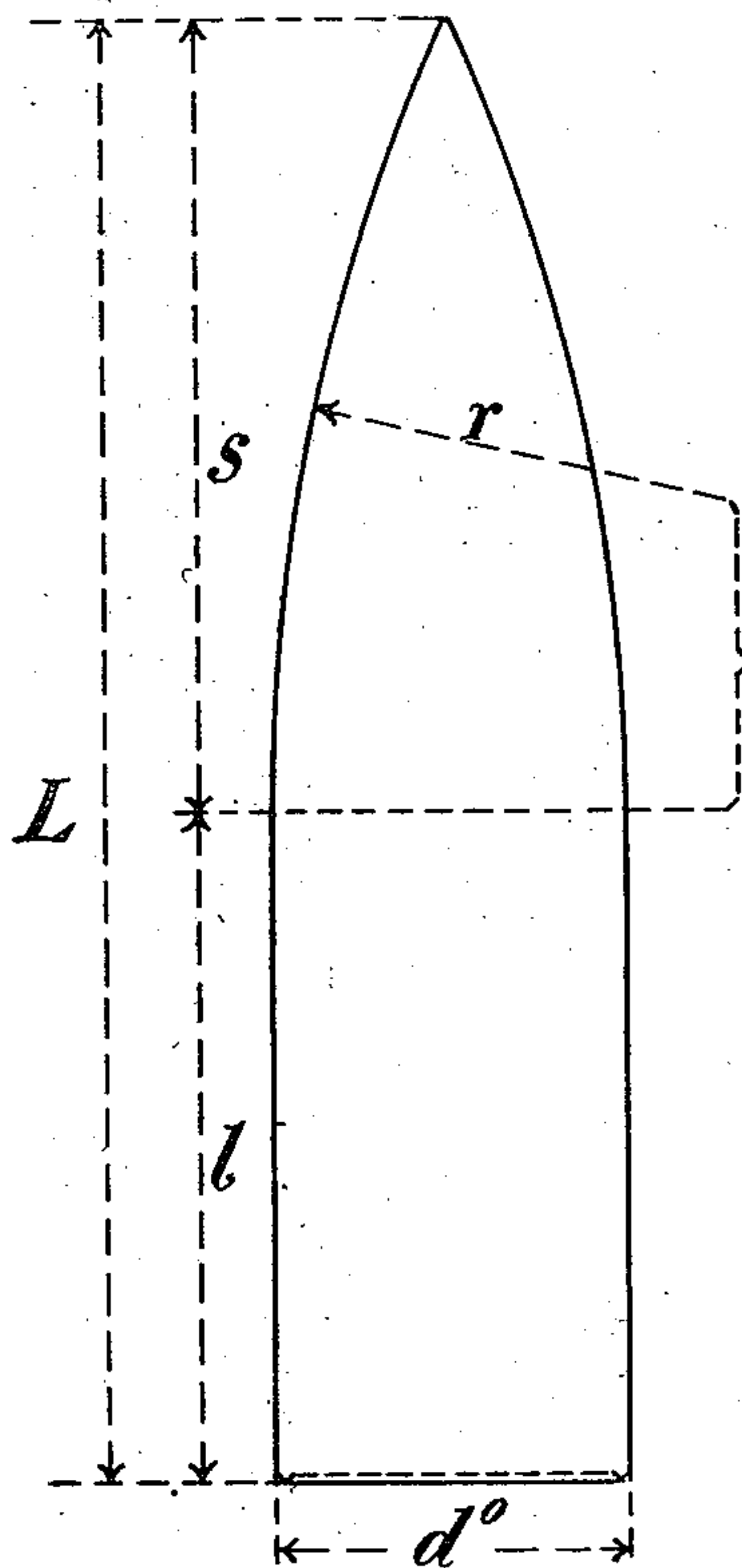


No. 841,861.

PATENTED JAN. 22, 1907.

A. GLEINICH.  
PROJECTILE FOR HAND FIREARMS.  
APPLICATION FILED FEB. 20, 1905.



Witnesses:

*E. O. McDebrano*  
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# UNITED STATES PATENT OFFICE.

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## PROJECTILE FOR HAND-FIREARMS.

No. 841,861.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed February 20, 1905. Serial No. 246,549.

*To all whom it may concern:*

Be it known that I, ARTHUR GLEINICH, en-  
gineer, a subject of the German Emperor, re-  
siding at Friedrichstrasse 3, Königs-Wuster-  
hausen, Germany, have invented a new and  
useful Improved Form of Projectiles for  
Hand-Firearms, of which the following is a  
specification.

This invention relates to projectiles, and  
particularly those designed for use in small-  
arms at high pressures and great velocities.

Heretofore the search for an ideal project-  
ile has not been merely a matter of mathe-  
matical calculation based upon ballistic prin-  
ciples, but rather a succession of experiments  
upon theoretical lines suggested by such cal-  
culations, the reason being that the action of  
the projectile in flight is modified by many  
extraneous forces—such as the resistance of  
the air, the head-wave, suction, &c.—all of  
which influence and are influenced in a varying  
degree by the constantly-changing velocity  
of the projectile.

Recent researches by photography of fly-  
ing projectiles, according to known methods,  
at different velocities serve to indicate the  
pointed nose as productive of the most desir-  
able form of head-wave for projectiles at high  
velocities; but any conclusions based hereon  
have been and must be qualified by other re-  
quirements and conditions present as to  
course of flight, range, penetration, stopping  
effect, &c., and these are only satisfied by a  
proper combination of body dimensions, dis-  
tribution of mass, and form of body and head.

I have as a result of extensive research  
and experiment ascertained that the pro-  
jectile best meeting all requirements of a  
small-arm shooting at high velocities—say in  
excess of five hundred meters per second—is  
that forming the subject of my present in-  
vention, as hereinafter more particularly de-  
scribed and claimed and as set out for pur-  
poses of illustration in the accompanying  
drawing.

As will be seen by an inspection of the  
drawing, the new projectile consists of two  
parts—the cylindrical body or guide part  $l$   
and the head  $s$ , the lines of which latter are  
curved upon a fixed radius  $r$ . Each of these

two constitutes about one-half of the total  
length of the projectile.

Taking the caliber of the gun or the diame-  
ter  $d^0$  of the projectile-body as unity the di-  
mensions of a projectile of my preferred  
form may be given as follows: length of  
body  $l$ , 1.85; length of head  $s$ , 2.19; radius of  
curvature of head  $r$ , 4.7 to 8.2; radius of curva-  
ture of nose-point, .5 millimeters. The di-  
mensions given are those found to be best  
adapted for general requirements; but some  
deviations are permissible and may, to meet  
special conditions, be desirable. Such devia-  
tions, however, should, to obtain the best re-  
sults, be within the following limits, again  
taking the caliber as unity: for the length of  
body  $l$ , + .60; for the length of head  $s$ , + .46  
or — .37. A projectile constructed accord-  
ing to these relative dimensions is found to  
possess a capacity for speed of flight in ex-  
cess of the ordinary projectile, great penetra-  
tion, superior stopping effect, flat trajectory,  
accuracy, and extended range.

Having fully described my invention, what  
I claim as new, and desire to secure by Let-  
ters Patent of the United States, is—

1. A projectile having a pointed head of  
substantially one-half the total length of the  
projectile, and having its other dimensions  
substantially as set forth.

2. A projectile having a pointed head  
formed by lines curved upon a radius of four  
to nine fold the caliber, and having its other  
dimensions substantially as set forth.

3. A projectile having a pointed head of  
substantially one-half the total length of the  
projectile and curved upon a radius of four to  
nine fold the caliber, and having its other di-  
mensions substantially as set forth.

4. A projectile having a body part substan-  
tially 1.85 calibers in length, and a pointed  
head substantially 2.19 calibers long, and  
having its other dimensions substantially as  
set forth.

5. A projectile having a body part substan-  
tially 1.85 calibers in length, and a pointed  
head substantially 2.19 calibers long, the  
lines of the pointed head being curved upon  
a radius of from 4.7 to 8.2 calibers.

6. A projectile having a body part substan-

tially 1.85 calibers in length, and a pointed  
head substantially 2.19 calibers long, the  
lines of the pointed head being curved upon  
a radius of from 4.7 to 8.2 calibers, and the  
5 head terminating in a point curved upon a  
radius of substantially .5 millimeters.

In testimony whereof I have signed my

name to this specification in the presence of  
two subscribing witnesses.

ARTHUR GLEINICH.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.