

No. 686,637.

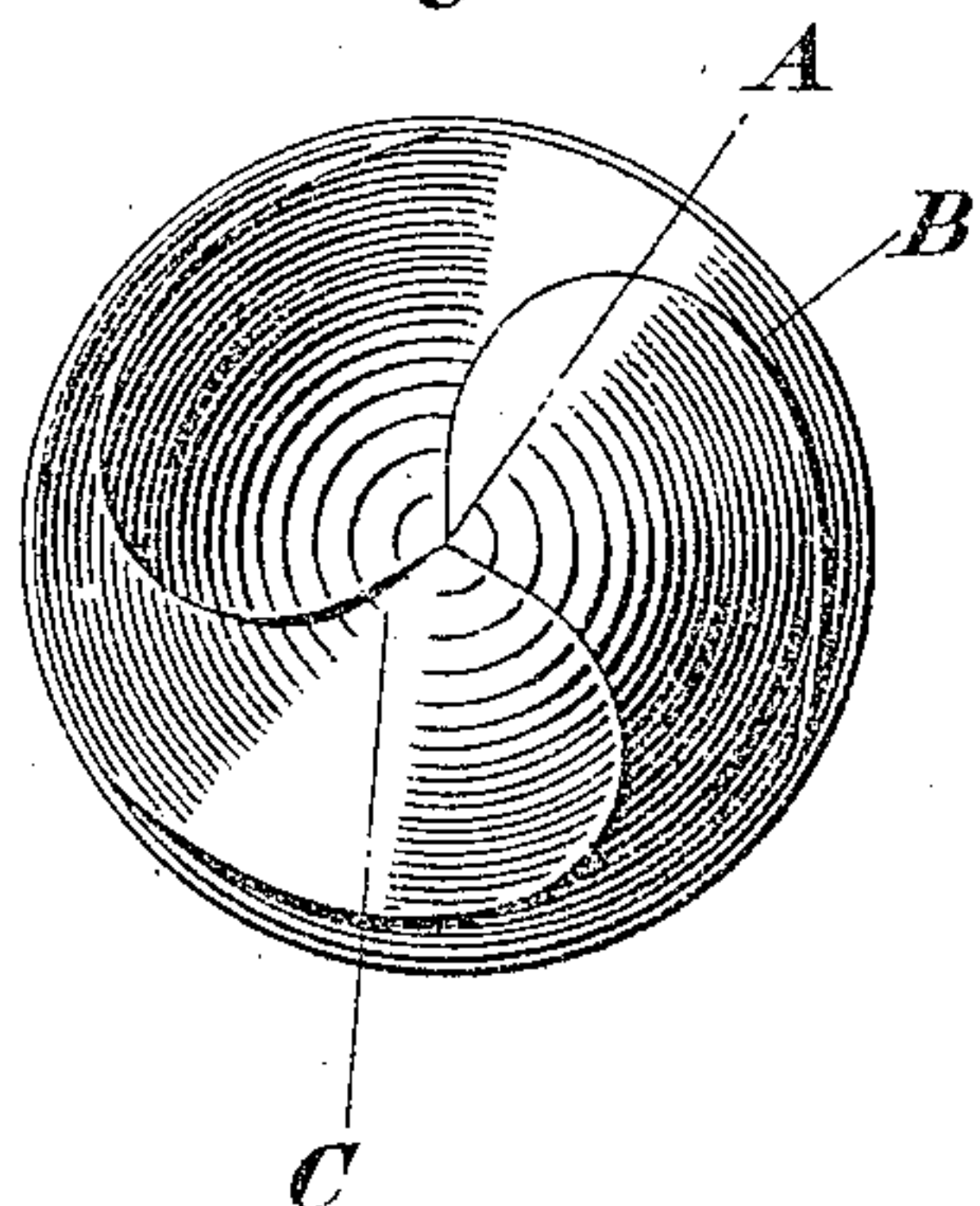
Patented Nov. 12, 1901.

A. J. ROBERTSON.  
PROJECTILE.

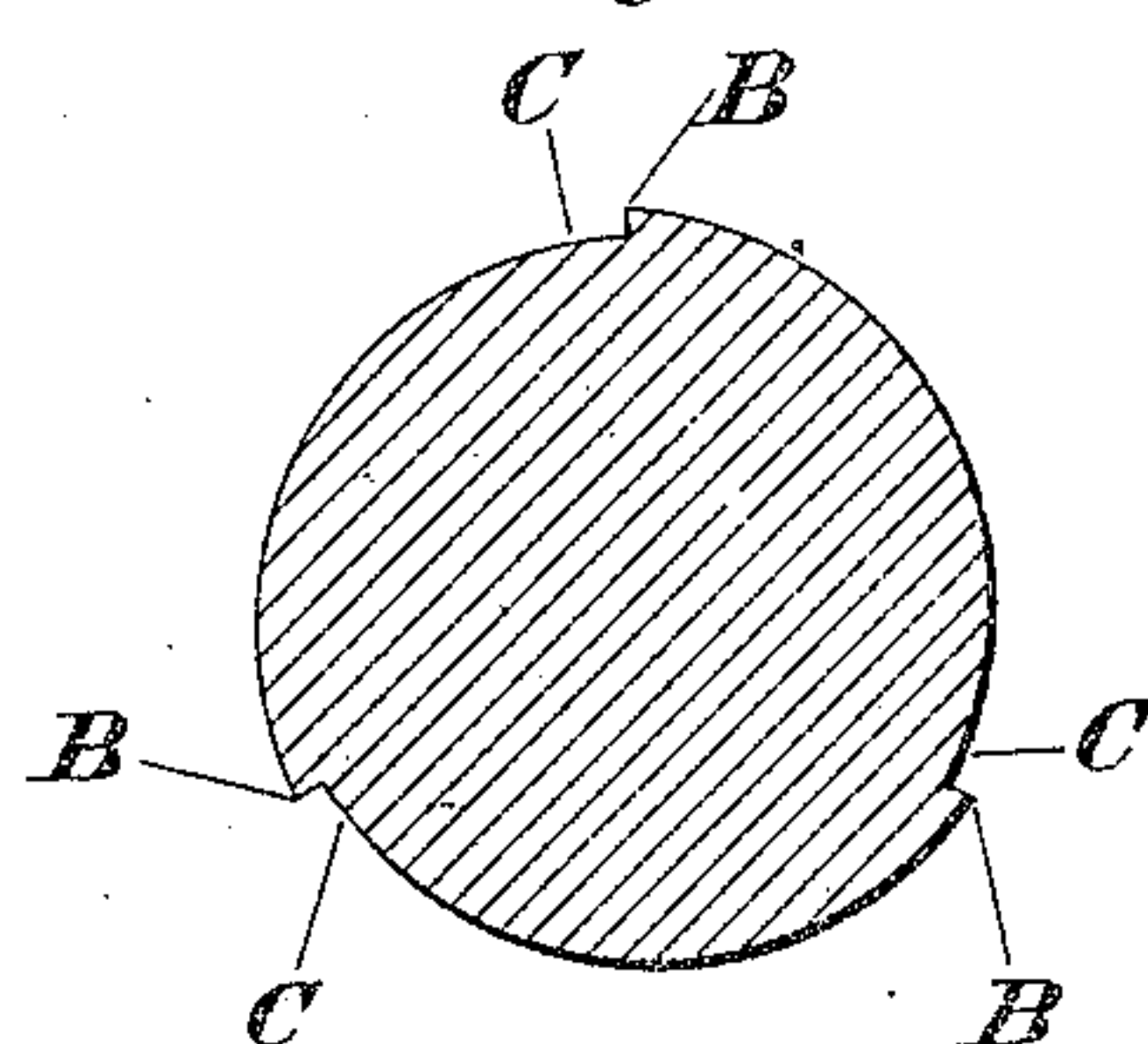
(Application filed Sept. 25, 1900.)

(No Model.)

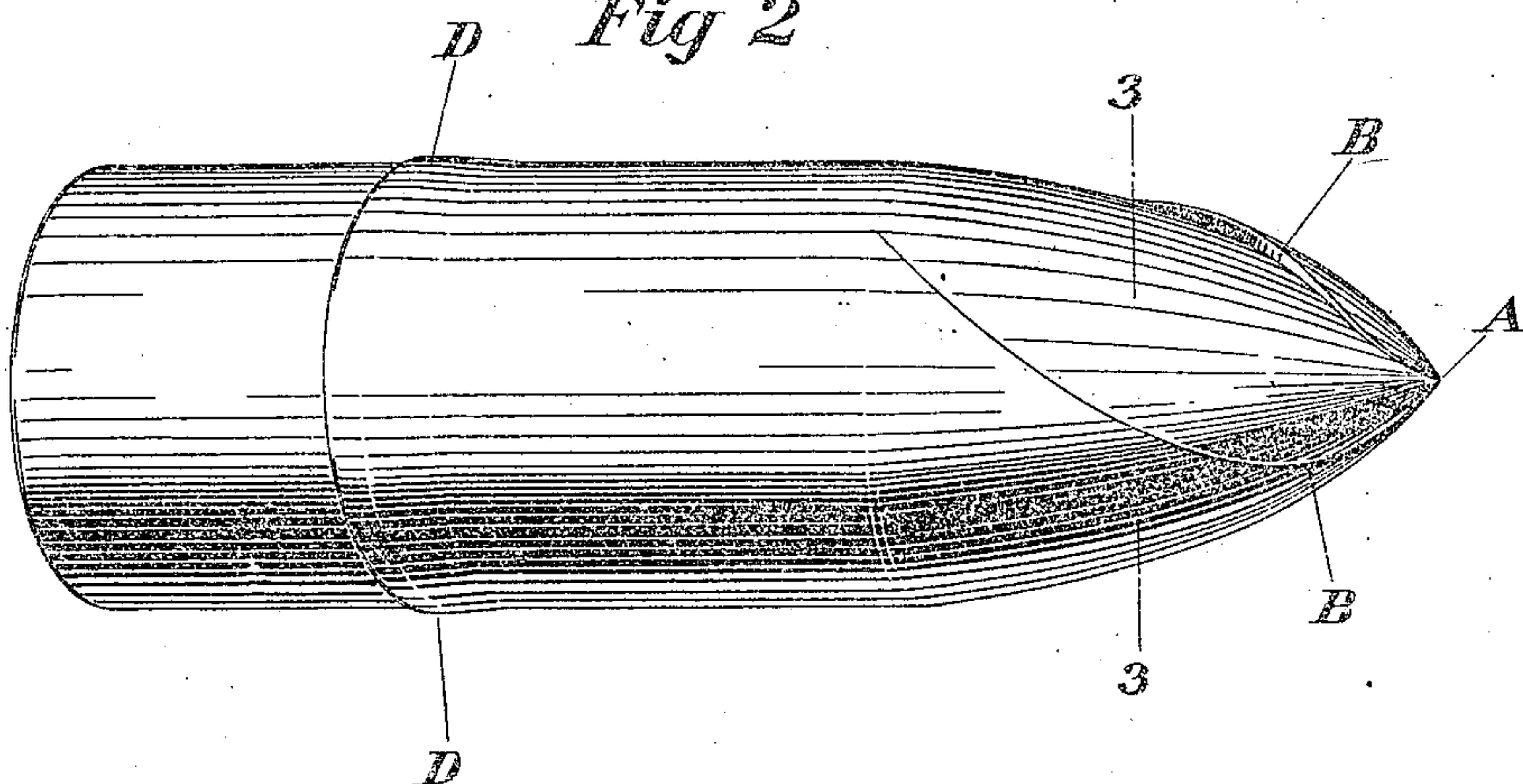
*Fig 1*



*Fig 3*



*Fig 2*



WITNESSES:

Charles M. Rhodes  
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INVENTOR

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# UNITED STATES PATENT OFFICE.

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## PROJECTILE.

SPECIFICATION forming part of Letters Patent No. 686,637, dated November 12, 1901.

Application filed September 25, 1900. Serial No. 31,099. (No model.)

*To all whom it may concern:*

Be it known that I, ARCHIBALD J. ROBERTSON, a subject of the Queen of Great Britain, and a resident of the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Projectiles, of which the following is a specification.

This invention relates to projectiles for use in warfare; and it consists in certain peculiarities of the construction, novel arrangement, and operation of its parts, as will be hereinafter more fully set forth and specifically claimed.

It has been demonstrated that projectiles formed with smooth points when projected from a cannon or gun having a rifle-bore to give them rotary motion or where rotary motion is otherwise imparted to the projectiles if the plate is not immediately pierced the impact-pressure and rotary motion against the armor-plate cause the point of the projectile to fuse by reason of the intense heat caused by friction, thus destroying the piercing ability of the projectiles and causing the points to drop in a molten mass. It is therefore the principal object of my invention to prevent this melting of the points of the projectiles and give them a maximum piercing ability by providing the points of the projectiles with cutting edges, so that the impact immediately fastens the projectile to the plate, thus securing to the projectile all the elements of destruction—namely, the foot-seconds velocity and the rotary motion—whereby when the impact occurs the projectile is immediately fastened and imparts motion to the plate, whether the projectile strikes the defensive object or plate at a right angle or an acute angle, for it is obvious that a projectile constructed according to my invention would engage the plate, while a smooth-pointed projectile would glance therefrom.

Referring to the accompanying drawings, Figure 1 represents in elevation the pointed end of a projectile embodying my invention. Fig. 2 is a perspective view of the projectile with the expansion band which fills the grooves in the bore of the gun from which it is fired and causes the projectile to rotate,

and Fig. 3 shows a cross-sectional view taken on line 3 3 of Fig. 2.

Similar letters refer to like parts throughout the different views of the drawings.

A represents the extreme point of the projectile, and B represents the cutting edges thereof.

C represents depressions in front of the cutting edges.

D is a band, preferably of copper, such as is commonly used to impart rotary motion to projectiles.

In order to accomplish the purposes of my invention, I provide two or more cutting edges B on the pointed end of the projectile, which is done by depressing the material of which the projectile is composed on lines which begin at the extreme point of the projectile and from said point extend rearwardly in helical or spirally-curved lines until the extreme diameter of the projectile is reached. On one side of each of these lines the solid metal of the projectile is reduced to a depth sufficient to form an edge and furnish a clearance for the chips cut out of the object being pierced. These depressions begin at the inner portion of the cutting edges and extend to the outer portion of the next or adjacent cutting edge, thus forming cutting edges backed up by solid walls, furnishing great power of resistance. When the point of the projectile is thus finished, it is then tempered to a maximum degree of hardness. These cutting edges are not employed for the purpose of giving rotary motion to the projectile when passing through the air, but are for the purpose of engaging the plate in order to fix the projectile therein as soon as it strikes the object of resistance, and the projectile may receive its rotary motion through the medium of a rifle-bored gun. As is well known, projectiles discharged from guns of the above-named character rotate from left to right, and I therefore form the cutting edges so that their faces will be presented in the direction in which the projectile is rotated, thus causing the projectile to penetrate the surface of the plate and fasten itself therein, thus delivering to the plate through the projectile the concentrated effect of im-

pact-pressure, rotary motion, and vibration, the concentration of all its elements of destruction.

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

A pointed projectile having cutting edges extending helically or spirally from the extreme point rearwardly to the extreme diameter of the body of the projectile, said cut-

ting edges formed by depressing the material in front thereof, said depressions beginning at the inner portion of one of the cutting edges and extending to the outer portion of the adjacent cutting edge, substantially as described.

ARCHIBALD J. ROBERTSON.

Witnesses:

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