

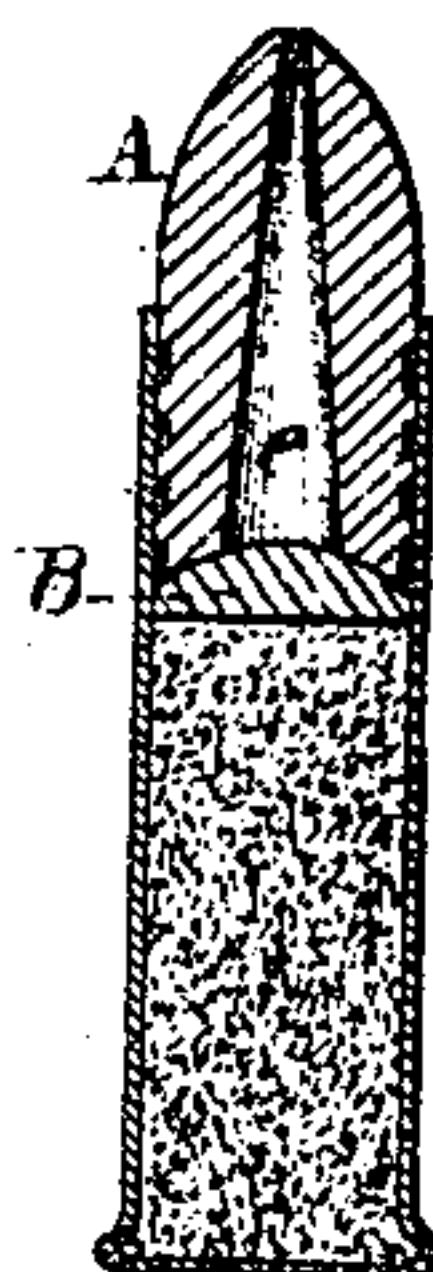
W. H. SHOCK.

PROJECTILE.

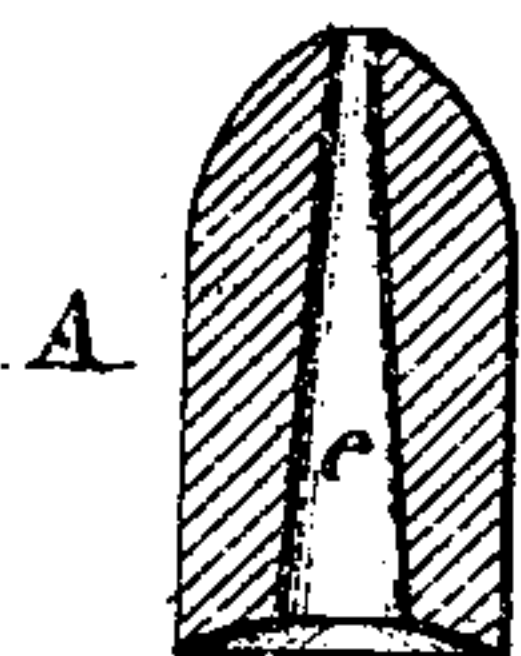
No. 103,514.

Patented May 24, 1870.

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Witnesses:*

*Phil. T. Dodge*  
*E. J. Sommer*

*Inventor:*

*W. H. Shock*  
*by Dodge Munn*  
*his atty*

# UNITED STATES PATENT OFFICE.

WILLIAM H. SHOCK, OF WASHINGTON, DISTRICT OF COLUMBIA.

## IMPROVEMENT IN PROJECTILES.

Specification forming part of Letters Patent No. 103,514, dated May 24, 1870.

*To all whom it may concern:*

Be it known that I, W. H. SHOCK, of Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Projectiles for Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to projectiles for fire-arms; and it consists in a novel construction of the same, as hereinafter more fully explained.

Figure 1 is a longitudinal section of a cartridge for small-arms with my improvement applied. Figs. 2 and 3 are longitudinal sections of the projectile detached, and Fig. 4 is an edge view of the button or wad detached.

The object of my invention is to produce a projectile which will, when fired, have a more accurate flight with a flatter trajectory, and which shall be more certain to avoid tumbling, and have less resistance to its passage through the air.

To accomplish these objects I construct my projectile with a hole extending centrally through it from front to rear, as shown in the drawings, in which A represents the projectile. This hole or passage *e*, I make more or less conical, it being larger at the rear end than at the front, by which means the front end of the projectile is made the heaviest, and will therefore keep foremost in its flight. At the same time this hole *e* permits a column of air to pass through the projectile in its flight, which thereby prevents the formation of a vacuum in its rear, whereby its flight is increased.

In order to prevent the escape of the propelling-gases through the hole *e*, I provide a button or wad, B, of a size and shape to fit

against the rear end of the ball and cover the hole, as represented in Fig. 1, the wad being shown detached in Fig. 4. This wad or button B may be made of wood or paper, or any similar material, and, if desired, may be rendered non-combustible by being soaked in a solution of alum or by any similar means, or may be made of rubber or of metal, if preferred. If desired, it may be formed with the projection to enter the hole *e*, as shown in Fig. 4, or it may be made without, as found most expedient in practice.

It is obvious that my improvement may be applied to any style of elongated projectile, the front end being pointed, as in Fig. 1, or more rounded, as in Fig. 2, or flattened, as in Fig. 3. It may also be applied to projectiles for either large or small arms, the principle being the same in both. By this plan I produce a projectile that will not tumble, but keep end on, and that will pass through the air with the least possible amount of resistance, and consequently obtain greater range and accuracy.

I am aware that it has been proposed to make projectiles with a hole of uniform diameter through them, and also to make them with a conical hole, but not with the center of gravity in front of the center of length, as in mine, and therefore I do not claim, broadly, a projectile with a longitudinal opening through it; but

What I do claim is—

A projectile in which shall be combined the following elements or features: first, it shall be elongated; second, have a conical opening extending through it from front to rear, and of such size and form as to cause the center of gravity of said projectile to be in front of its center of length, and used with the button or wad B, or its equivalent, substantially as herein described.

WM. H. SHOCK.

Witnesses:

PHIL. T. DODGE,  
E. J. SOMMER.