W. H. VAN GIESON.

Projectile for Rifled Ordnance.

No. 161,579. Patented March 30, 1875.

Fig. 1.

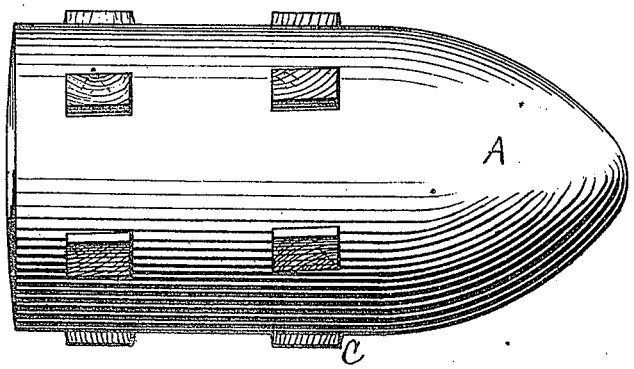


Fig. 2.

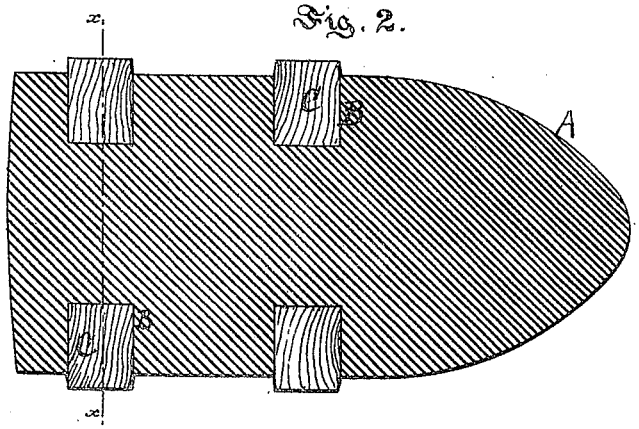
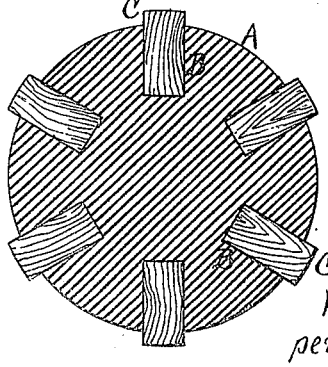


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. VAN GIESON, OF WHITEWATER, WISCONSIN.

IMPROVEMENT IN PROJECTILES FOR RIFLED ORDNANCE.

Specification forming part of Letters Patent No. 161,579, dated March 30, 1875; application filed February 4, 1875.

To all whom it may concern:

Be it known that I, WILLIAM H. VAN GIESON, of Whitewater, in the county of Walworth and State of Wisconsin, have invented an Improved Projectile, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing and the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a side view. Fig. 2 is a longitudinal sectional view. Fig. 3 is a cross-section on line *x x*, Fig. 2.

My improvement relates to that class of projectiles which are used in connection with rifled ordnance, and which are provided with studs, plugs, or other bearing of such form and dimensions as will fit in the grooves of a gun, and which serve more effectually to impart to the projectile, when fired, that rotary motion on its axis which is necessary for accuracy of firing.

The nature of my invention consists in the substitution of studs or plugs, constructed of wood or other suitable non-metallic material, for the metallic bearings now used. The projectile is cast with mortises, or mortises are formed therein similar to those in a carriage-hub, and in which the wooden studs or plugs are inserted. These plugs or studs are designed to be so formed as to fit into the grooves of the gun, so as to impart the rotary motion to the projectile, when fired, precisely as the metallic studs or bearings heretofore have done.

The construction and operation of my invention are as follows: A is the projectile, nd is constructed of any suitable material, and is of any of the usual forms. This projectile A is cast with recesses or mortises B B, or the same may be cut into the projectiles after they are cast. These mortises B B are not in a straight line with the center of the slot, so that when the plugs or studs C C are inserted, each of the series, instead of running in a straight line, shall, as it were, wind a little, so as to conform to the wind of the grooves of the gun. C C are the plugs or studs, and are constructed of wood thoroughly seasoned, or any other suitable non-metallic substance.

In connection with the use of these wooden plugs or studs, the following most important advantages are secured over and above those which are possessed by the metallic bearings which are now generally used. There will necessarily be less friction, and consequently, far less wear, on the gun. It is well known to all familiar with the use of projectiles or shot having metallic bearings that the same soon cause the gun to become useless by the wear and intense friction, and when, to avoid the destructive friction and wear which must inevitably result from the use of hard-metal bearings, those of a softer metal have been substituted, as has frequently been done, the intense heat due to the great friction often causes a portion of the metal to weld in the grooves of the gun, and which, of course, renders the gun valueless, certainly, at least, until it is re-rifled. Again, the wood studs will not fly off from the shot, as the bands of soft metal frequently do, the velocity imparted to the shell in firing often causing the band that surrounds the shot, especially when constructed of lead, to separate and fly off, often killing the men who are engaged in firing and handling the gun. And again, the gun is much cleaner, and which, in connection with the immense reduction of friction incident to the use of the wooden studs or plugs, makes the trajectory or flight of the shot much lower and much nearer a straight line, and which insures a far greater degree of accuracy, and which, in connection with cheapness of the shot and the degree of durability it adds to the gun, are some of the advantages which constitute the value of my improvement.

The studs or plugs C C are inserted in the mortises B B of the shot or projectile, and the wood is turned off to fill the grooves of the gun, and the shot is then passed through a machine that shall give such a curve to the plugs as to exactly correspond to the grooves of the gun. The studs or plugs C C, being constructed of hard wood, before being permanently inserted in the mortises B B are

soaked in hot tallow until the wood is thoroughly saturated and all its pores filled with the boiled oil or tallow. They are then driven into the mortises and painted with white lead, and which will act as a lubricator.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

The shot or projectile A, formed with recesses or mortises B B and the studs or plugs C C, constructed of wood or other suitable non-metallic material, as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

W. H. VAN GIESON.

Witnesses:

EDWIN JAMES,

JOS. T. K. PLANT.