W. H. DIBBLE.

Cartridge.

No. 40,092. Patented Sept. 29, 1863.

Fig. 1.

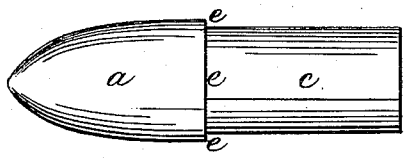


Fig. 2

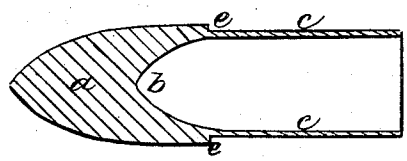


Fig. 3.

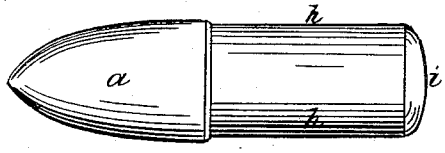


Fig. 4

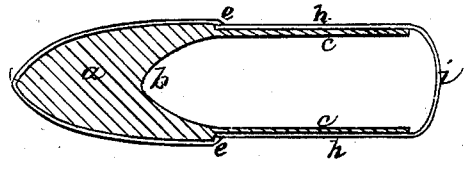
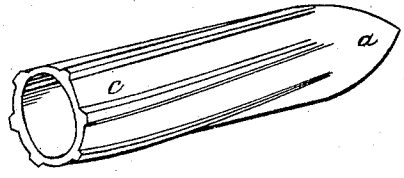


Fig. 5.



Witnesses.
R. F. Lamplacle.

Inventor.
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by his atty's
Mann, Pennell & Fairman

UNITED STATES PATENT OFFICE.

WILLIAM H. DIBBLE, OF MIDDLETOWN, CONNECTICUT.

IMPROVEMENT IN CARTRIDGE-BULLETS.

Specification forming part of Letters Patent No. 40,092, *dated September* 29, 1863.

To all whom it may concern:

Be it known that I, WILLIAM H. DIBBLE, of Middletown, in the county of Middlesex and State of Connecticut, have invented a new and Improved Projectile; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the ball and extended shell or case. Fig. 2 is a diametrical section through Fig. 1. Fig. 3 is a side view of my invention complete. Fig. 4 is a diametrical section through Fig. 3. Fig. 5 is a perspective view, representing the appearance of the shot after it has been discharged from a rifled arm.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention and improvement in projectiles for ordnance or small-arms is to cast a ball or bullet and a cylindrical case or cartridge in one homogeneous piece, and to so construct the same that it can be readily rammed into a gun (rifled or smooth-bore) which has become foul from long-continued use, fitting therein only sufficiently tight to prevent it from slipping out of place, and when the gun is discharged the lubricating-case containing the powder will be uniformly expanded throughout its entire length, and caused to fit the bore and to prevent windage.

The invention also has for its object preventing the leading of the bore of the gun, and the casual separation of the cylindrical case from the ball should the same be subjected to rough usage, all as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figs. 1 and 2 represent a conoidal ball or bullet, *a*, constructed somewhat like the Minié ball, with a conical depression, *b*, in its rear end, which in this case is intended merely to enlarge a chamber which is formed behind this ball or solid portion *a*. In casting this ball *a*, I also cast on its rear end a cylindrical shell, *c*, which, being hollow, forms the cartridge-case for containing the charge of powder. This case or tube *c*, which is made quite thin, is made somewhat smaller in diameter than the greatest diameter of the ball *a*, thus leaving, at *e*, a shoulder at the point where the thinnest part of the ball terminates, and where the thin cartridge-shell commences.

The object of making the diameter of the cartridge tube or shell smaller than that of the ball is, that I may be enabled to surround this tube with a fillet of cloth, gut, or other suitable substance, and still to keep the diameter of the tube smaller than that of the ball, so that this tube will not touch the interior surface or bore of the gun, allowing only the solid portion or ball *a* to fit the gun. In this way it will be seen that I do not bring a large surface in contact with the bore of the gun, and therefore do not increase the friction to any great degree upon the charge in ramming it into the gun. Besides, it will be seen that unless a shoulder, *e*, be formed on the exterior of the cartridge, and that unless this cartridge be made smaller than the ball, the fillet of cloth or other substance which is wrapped around this cartridge, would be liable to slip out of its place in ramming the charge home. The shoulder *e* effectually prevents this, while the reduced tube *c* prevents the fillet or covering *h* from impinging upon the surface of the bore of the gun until the powder in the tube is ignited.

The cartridge-case proper is of a uniform thickness throughout—*i. e.*, it is as thick at the point *e* as it is at its rear end. This being the case, it will be seen that the case will be dilated uniformly, and that the thin metal will be forced into the riflings of the gun equally as perfect at its forward end, or at the point *e*, as at the rear end, giving to the discharged ball and cartridge the appearance of a hollow ribbed shot. (Shown in the drawings, Fig. 5.)

Figs. 3 and 4 represent my invention complete. In these figures I have represented the covering or fillet *h* applied to the extended portion *c;* and in the sectional view, Fig. 4, I have shown the manner of cementing the powder within the tube *c*, so that water will not enter therein. This consists of a piece of gut, *i*, or other suitable substance, which is saturated in a solution that renders it highly inflammable, and at the same time

impervious to water. This fillet *i* is drawn tightly over the open end of the tube *c*, and suitably secured thereon. It will be necessary in most instances, where my invention is to be applied to ball for small-arms, to leave a small quantity of the powder projecting beyond the end of the tube *c*, as shown in Figs. 3 and 4, thus giving to this end, after the fillet or cap *i* has been applied, a rounded appearance, for the purpose of more properly exposing the powder to the spark from the percussion-cap when exploded; and the fillet *i* being made of a very thin substance and very inflammable, the powder in tube *c* will be ignited through this fillet.

In order for my invention to succeed, the cartridge-case and ball must be made of soft or ductile metal, cast in one piece, with the cylindrical case or tube *c* smaller in diameter than the ball. The ball need not be made to fit very tight in the bore of the gun, as the combustion of the powder in the cartridge will expand the thin tube *c*, and cause it to adapt itself to the interior surface of the bore of the gun, and thus prevent windage.

The fillet or wrapping which surrounds the cartridge-tube *c* prevents the external surface of this tube from coming in contact with the bore of the gun, and thus leading the gun.

With my projectile, thus constructed, I am enabled with from thirty-five to forty grains of powder to give all the effect to my projectile which from sixty to seventy grains of powder are required to produce under the ordinary use of the Minié ball.

I do not claim a steel tubular cartridge projectile; nor do I claim a ductile tubular shot with a perforated cementing-cap; nor do I claim a cartridge projectile with the cartridge-case made separate from the ball afterward attached; nor do I claim a ductile cartridge projectile *per se;* but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The within-described new article of manufacture—to wit, a quick-powder, ductile-metal tubular cartridge projectile, *a b c c*, with a quick-powder charge within it, and with a fibrous covering, *h*, and a highly inflammable cementing and igniting cap, *i*, all as set forth.

WM. H. DIBBLE.

Witnesses:

R. T. CAMPBELL,

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