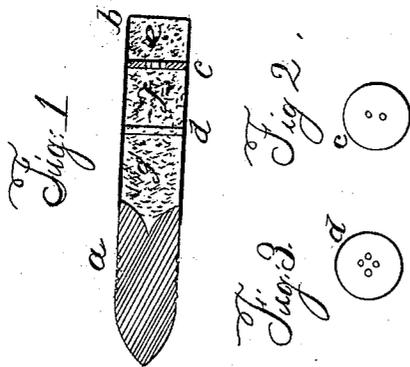


A. SHANNON.  
Cartridge.

No. 34,615.

Patented Mar. 4, 1862.



Witnesses.

James M. Small  
Chas. W. Howard

A. Shannon

# UNITED STATES PATENT OFFICE.

ALEXANDER SHANNON, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, T. W. WEATHERED, AND E. B. CHEREVOY.

## IMPROVEMENT IN CARTRIDGES FOR FIRE-ARMS.

*Specification forming part of Letters Patent No. 34,615, dated March 4, 1862.*

*To all whom it may concern :*

Be it known that I, ALEXANDER SHANNON, of the city and State of New York, have invented, made, and applied to use a certain new and Improved Mode of Accelerating Projectiles; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the annexed drawing, making part of the specification, wherein—

Figure 1 is a vertical section of a cartridge, made according to my invention, and Figs. 2 and 3 represent diaphragms introduced in said cartridge.

Similar letters denote like parts.

Rifle, musket, and cannon balls have been projected by charges of powder placed along the barrel and successively exploded. Powder has also been made to burn as a cake or mass, commencing at the rear next the breech; in all these instances either the fire-arm has to be adapted to the particular purpose, or else the powder has to be specially made.

The nature of my said invention consists in the employment of a sectional cartridge, the powder being divided by perforated diaphragms, so as to cause two or more separate and distinct explosions in the piece, the first explosion overcoming the inertia of the ball by a comparatively slow explosion, and the last explosion imparting the greatest momentum possible to the ball.

In the drawing, *a* is the ball, that represented being a rifle-musket ball; but my invention is applicable to cannon-balls, bombshells, or other projectiles. *b* is the casing of the cartridge, which may be of any desired material, although I prefer the sheets of animals' guts, dried as usual. *c* is one of my diaphragms (see also Fig. 2) between the sections of powder *e* and *f*, and *d* is another diaphragm (see also Fig. 3) between the sections of powder *f* and *g*. These diaphragms are to be perforated for the passage of fire from one section of powder to the next, and according

to the number and size of the perforations, so the fire will pass quickly or more slowly; hence, to make the third section *g* of powder explode very rapidly, the diaphragm *d* should have more holes than the one *c*, as shown.

In the use of this invention, the first section of powder *e* explodes, driving the powder *f* and ball *a* partially forward, overcoming inertia; and to avoid undue strain, this powder may burn very slowly, or have charcoal mixed with it for the purpose of retarding the explosion. The next section of powder exploding accelerates the ball, and so on; the third explosion communicates a very rapid accelerated velocity to the ball; the last section, *g*, of powder may be of the best quality, so as to explode very rapidly; and by this mode of gradually moving and then accelerating the ball, its greatest velocity is attained just before leaving the fire-arm, and I have found, practically, that very greatly beneficial results are attained by this mode of exploding the powder, both in the safety of the discharge, as the piece is not liable to burst, as well as in the penetration or range of the ball.

The diaphragms, and the gases behind them, form a resistance for the successive explosions, and, the ball being in motion, a very great pressure can be attained near the muzzle with perfect safety. The expansion of gases causes the diaphragms to come out of the gun after the ball has left, and I find the recoil is not increased, but rather diminished.

What I claim, and desire to secure by Letters Patent, is—

The perforated diaphragm or diaphragms *c*, *d*, producing a sectional charge, as and for the purposes specified.

As witness my signature this 7th day of October, 1861.

A. SHANNON.

Witnesses:

LEMUEL W. SERRELL,  
THOS. GEO. HAROLD.