

T. T. S. LAIDLEY.
Cartridges for Fire-Arms.

No. 140,144.

Patented June 24, 1873.

Fig. 1.

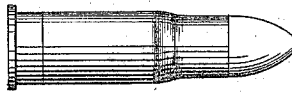
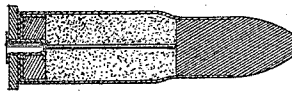


Fig. 2.



Witnesses,

Chas. A. Gregg
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UNITED STATES PATENT OFFICE.

THEODORE T. S. LAIDLEY, OF WATERTOWN, MASSACHUSETTS.

IMPROVEMENT IN CARTRIDGES FOR FIRE-ARMS.

Specification forming part of Letters Patent No. 140,144, dated June 24, 1873; application filed June 13, 1872.

To all whom it may concern:

Be it known that I, THEODORE T. S. LAIDLEY, of Watertown, in the county of Middlesex and State of Massachusetts, have invented and made an Improvement in Cartridges for Breech-Loading Fire-Arms; and I do hereby declare the following to be a full, clear, and exact description of the same:

My invention has for its object to develop the full force of the charge of gunpowder, and to shorten the length of the cartridge, which latter object is of especial importance in muskets of small caliber and in magazine-guns.

Figure 1 represents a cartridge for a 45-caliber musket, containing eighty grains of powder, made after the plan proposed; Fig. 2 is a longitudinal section of the same:

In the year of 1866 I made experiments with cartridges for a breech-loading musket, and found that by strongly compressing the powder in the case the force of the charge was much increased; and I recommended this means of shortening the cartridge, the length of which was deemed objectionable for muskets of less diameter of bore than half-inch.

It was found in compressing powder that that portion of the charge near to the drift was made much more compact than that further off, and by increasing the pressure beyond certain limits the rapidity of burning was diminished.

In order to get the full effect of a large charge of powder, it is important that its burning should be not too rapid until the ball has commenced to move. A cartridge made by pressing the powder in the case from the rear end furnishes the easy mode of burning the charge, slowly at first, and rapidly increasing its rate of burning as the inflammation progresses, and thereby imparting the greatest velocity to the projectile; and this is what I claim as my invention.

Compressed cartridges have been made, I am aware, by first compressing the powder, and then slipping it into a cartridge-case or

shell; but in bottled-shaped cartridges, as represented in the drawing, there is so great a loss of space that this plan does not produce good results.

To make my improved cartridge, I form the case by wrapping a piece of sheet-brass of proper dimensions around a former, insert the ball, and press the whole in a mold of the proper size and shape. A small wire is placed in the axis of the mold, resting against the center of the base of the ball. The charge of powder is next put in from the open or large end, and a heavy pressure is brought on a piston having a hole in its axis to receive the wire by means of a screw-press, hydraulic press or jack, or lever and weights. The wire is then withdrawn and a circular disk of card-board, *b*, with a hole in its center in which a hollow rivet, *p*, has been inserted, is pressed down on the powder, and the end of the case is turned down over it. When very heavy charges are used this end should be soldered. A cap of thin metal, *c*, is next put on and forced into a mold of proper size, and, lastly, the flange-head *f*, which is held securely by means of the hollow rivet *p*. A cap, *K*, may be substituted for the rivet *p*, cap *c*, and flange *f*. It is held fast to the cartridge by means of solder. A cartridge-case drawn out from a circular disk of metal, and the closed end cut off, may be used in place of the wrapped metal case, or a case made of paper and metal combined may be used.

What I claim as my invention is—

A tapered or bottle-necked cartridge for breech-loading fire-arms, in which the powder-charge is compacted more densely at the rear than at the front end, and is throughout its length in contact with the sides of the cartridge-case.

THEODORE T. S. LAIDLEY.

Witnesses:

CHARLES A. GREGG,
GEO. MILLS.