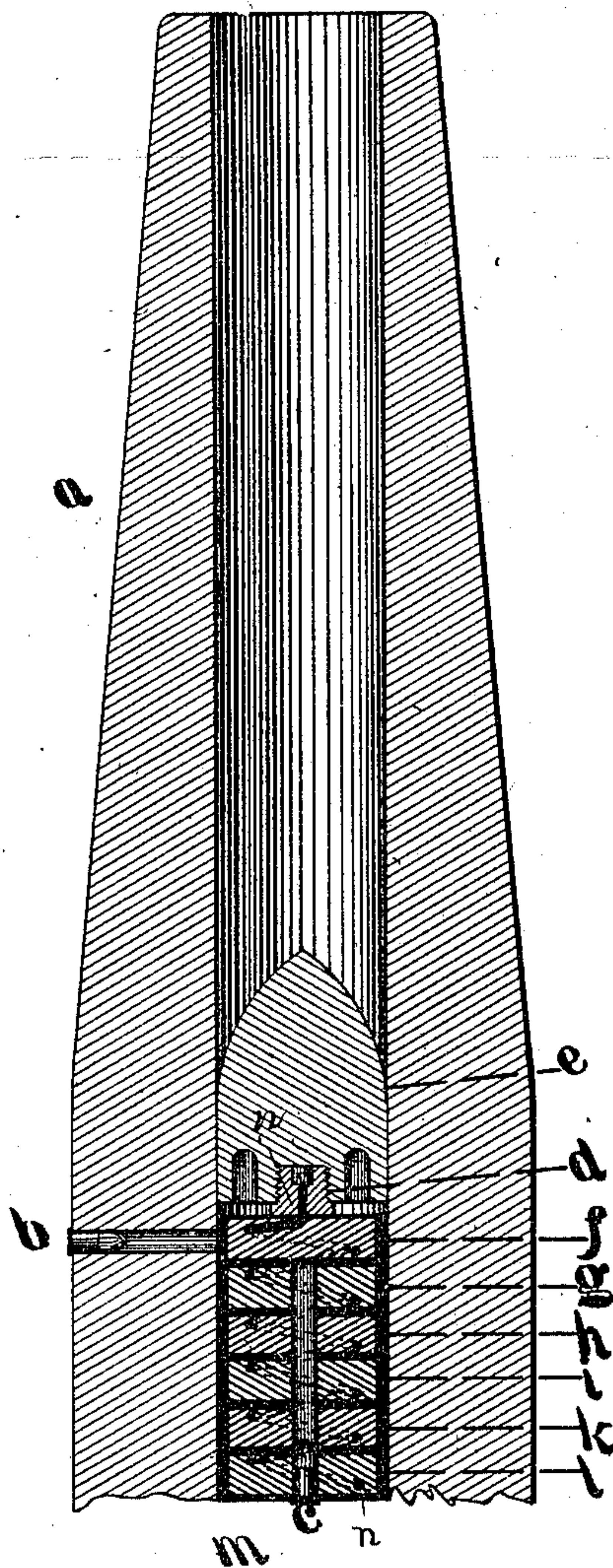


(No Model.)

T. SHAW.  
CARTRIDGE.

No. 255,542.

Patented Mar. 28, 1882.



WITNESSES:

*Wm B. Hughes*  
*Wm Garwood*

*T. Shaw* <sup>mc</sup>INVENTOR

ATTORNEY



# UNITED STATES PATENT OFFICE.

THOMAS SHAW, OF PHILADELPHIA, PENNSYLVANIA.

## CARTRIDGE.

SPECIFICATION forming part of Letters Patent No. 255,542, dated March 28, 1882.

Application filed November 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SHAW, of the city and county of Philadelphia, Pennsylvania, have invented a new and improved mode of maintaining high pressures in guns to give accelerating speed to shot and shell fired from ordnance; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists in certain improvements in means for expelling projectiles from guns by successive layers of powder exploded in succession, as hereinafter described.

The drawing represents a longitudinal section through the center of an ordinary gun, with broken section at breech, and an ordinary conical ball, *e*, and a cartridge, *m*.

The cartridge-case is formed preferably of cylinders of sheet-lead covered externally by several layers of strong paper to permit the handling of cartridges without damage to metal casing. The partitions of fusible sheet metal interposed between the several layers of powder, *f g h i k l*, are ordinary disks of metal with the edges turned at right angles (cup shape) for one-fourth to one-half inch, and are stamped or spun to size to fit into the exterior casing. Paraffine, wax, or equivalent substance is poured into the case after inserting each charge to make water-tight joints at the seams of the disk and case, after which plaster-of-paris is poured on top of the disk to make a layer more or less thick, according to the size of the cartridge, the purpose of the plaster being to prevent too rapid an access of heat from one charge of powder to the other. Any required number of layers of powder are thus similarly arranged with metal disks, paraffine, and plaster between them. When the cartridges are to be fired from the rear a metal tube is placed in the center of said cartridge in the manner shown. Said tube is made strong enough to be used as a gun-barrel for an ordinary copper-case pistol-cartridge, *c*; but when fired from a touch-hole through the cylinder of the gun a touch-hole is made of diameter to suit a similar pistol-cartridge at a point, *b*, to insure the firing of the charge of powder next to the ball first. A cable of small twisted wire, *n*, of about one-fourth of an inch in diameter, or less, according to size of gun, is coiled through the cartridge *m*, perfo-

rating the partitions, as shown. The end of the wire next to the ball is secured to the ball by a screw-plug, *d*, which screw-plug has a central bore for the reception of the wire, and an enlargement of the bore at its inner end for the soldering or riveting of the end of the wire to secure it. The other extremity of the wire is secured to any part of the rear portion of cartridge *m*. The effect of the wire is to tear through the several partitions interposed between the several layers of powder, which tearing action occurs at any predetermined lengths of the coils of wire, and determines at what points of the ball's travel in the gun the successive charges of powder shall be exploded. By such successive explosions a high average pressure can be maintained in the gun during the entire traverse of the ball.

The layers or partitions of fusible sheet metal and plaster and paraffine or wax interposed between the several charges of powder constitute shields temporarily impervious to heat, and thus prevent the heat of one charge igniting the next, until at the proper moment, determined by the arrangement of the wire, the latter will tear a passage in the partition, insuring the ignition of the charge, as before explained.

It will be seen that as the cartridge is equal in diameter to the ball it can be used in any gun in which the latter can be inserted.

I claim—

1. The combination, with the ball or other projectile, of a cartridge equal in diameter to the ball, divided by partitions into a series of closed chambers, each containing an explosive, and a coiled wire or its equivalent extending through the chambers for successively exposing each charge to the ignition caused by the explosion of the preceding one, substantially as set forth.

2. The combination, with a cartridge having a series of closed chambers, each containing an explosive, of a wire secured to the ball and coiled through the chambers, and a central passage extending from the rear of the cartridge to the front chamber, and a supplemental cartridge, *c*, adapted to the end of a tube or passage, substantially as and for the purpose set forth.

T. SHAW.

Witnesses:

WM. B. HUGHES,  
WM. GARWOOD.