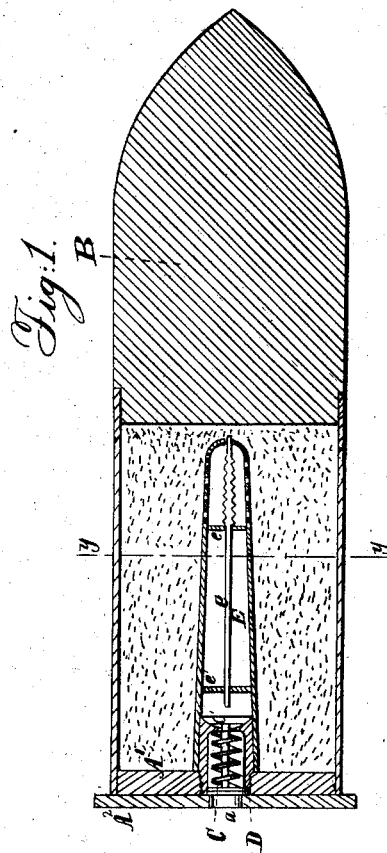
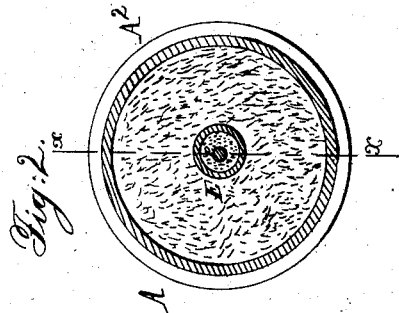


T. YATES.
Cartridge.

No. 45,666.

Patented Dec. 27. 1864.



Witnesses
C. D. Smith
J. H. Case

Theodore Yates
by James G. Lee

UNITED STATES PATENT OFFICE.

THEODORE YATES, OF MILWAUKEE, WISCONSIN.

IMPROVEMENT IN CARTRIDGE FOR ORDNANCE.

Specification forming part of Letters Patent No. 45,666, dated December 27, 1864.

To all whom it may concern:

Be it known that I, THEODORE YATES, of the city and county of Milwaukee, in the State of Wisconsin, have invented a new and useful Improvement in Cartridges for Ordnance; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a central longitudinal section of a cartridge with its charge, illustrating my invention, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a transverse section in the line *y y*, Fig. 1.

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

The object of this invention is to provide novel, simple, and unfailing means for igniting the powder in a cannon-cartridge and preventing the escape of the gases generated by the explosion of the charge.

The following description will enable others skilled in the art to which my invention appertains to fully understand and use the same.

In the accompanying drawings, A represents the metallic cartridge case or shell, which is adapted to receive the rear end of the projectile B in the manner shown, so that the peripheries of the two are coincident. To the piece A¹, which closes the rear end of the case A, is attached a disk or circular plate, A², the projecting edge of which occupies a corresponding countersink in the breech of the gun. At the center of the base A¹ A² is an aperture, *a*, which is closed by a disk, *c*, upon the rear end of a sliding rod or piston, C, which also carries a disk, *c*¹, secured upon its forward end. The disk *c* is contained by a cylindrical case, D, within which is a spiral spring, *c*², acting to hold back the disk *c* to close the aperture *a*. The spring *c*², by forcing back the rod C, retains the disk *c* in a seat formed for its reception in the forward end of the cylinder D. While the disk *c* occupies this seat a perfectly tight joint is formed, and the escape of gas from the interior of the case A is effectually prevented, the cylinder D being tightly screwed into the end piece A¹. The beak of the hammer being impelled against the disk *c*, through the aperture *a*, throws the same forward with the rod C and disk *c*¹, for the pur-

pose to be explained. After the rod C, with its disks, has been thus acted upon by the hammer, it is retracted to its original position by the spring *c*².

E is a tube, of tin or other suitable material, fitting over the cylinder D, and terminating at its forward extremity in suitable proximity to the rear end of the projectile B. In the forward end of the tube E is contained a fulminate adapted to be ignited by the movement of a wire, *e*, the forward end of which is corrugated for this purpose, and said wire extends backward nearly to the disk *c*¹, being held in proper position by the guides *e'* *e'*.

When the rod C is driven forward by the hammer in the manner described, the disk *c*¹ strikes the rear end of the wire *e* and imparts the necessary movement to the latter to ignite the fulminate in the forward end of the tube E, which is perforated to allow the fulminate to ignite the powder near the forward end of the case A and the base of the projectile B. By thus igniting the charge at the front instead of the rear end of the case A, the greatest force of the powder is obtained.

The action of the gases within the tube E aids in keeping the disk *c*¹ firmly in its seat, and hence it is impossible for any gas to escape to the rear.

No vent is required, and by using this cartridge for breech-loading guns a perfect gas-check is obtained, the parts are preserved from fouling, and no risk of accidental explosion is incurred. The cartridge may be repeatedly employed by simply renewing the tube E, which involves a trifling cost.

By dispensing with the tube and slightly modifying the cylinder D, with its appurtenances, the charge may be ignited at the rear end of the case A, if desired. When this is to be done, the priming or fulminate is contained in a recess between the head of the cylinder and the piston-head located behind it, and communicates with the charge through a small opening in the head of the cylinder.

The fulminate is ignited by means similar to those already described, or in any other suitable way.

Having thus described my invention, the following is what I claim as new, and desire to secure by Letters Patent:

1. The fulminate-tube E, employed for igniting the charge at or near the front end of the cartridge, and operating in connection with the rod C, disks c c^1 , and wire e , substantially in the manner explained.

2. The disk O^1 , held within a corresponding seat or cavity in the forward end of the cylinder D by the action of the spring c^2 , and

adapted to be pressed to its seat by the gases generated by the explosion of the charge, as stated.

THEO. YATES.

Witnesses:

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