R. L. WALTER.

Shell-Fuse.

No. 161,184. Patented March 23, 1875.

Fig. 1.

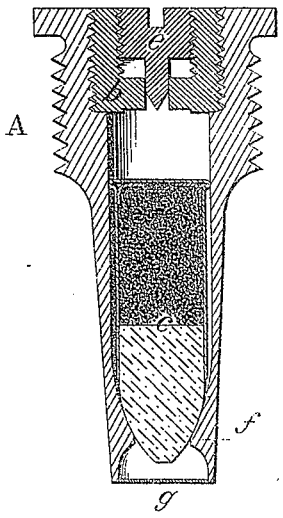
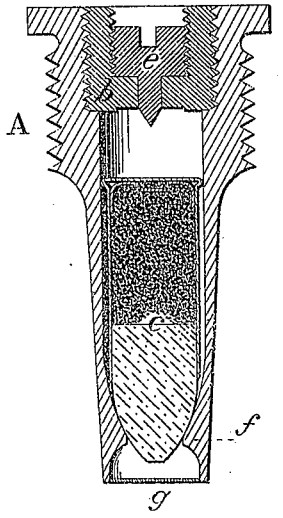


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

RUDOLPH L. WALTER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO WILLIAM A. DE CAINDRY, OF SAME PLACE.

IMPROVEMENT IN SHELL-FUSES.

Specification forming part of Letters Patent No. 161,184, dated March 23, 1875; application filed December 10, 1873.

To all whom it may concern:

Be it known that I, RUDOLPH L. WALTER, of Washington city, in the District of Columbia, have invented a new and Improved Construction of Percussion-Fuses for Rifled-Artillery Projectiles, of which the following is a specification:

Percussion-fuses as heretofore made have consisted of many small parts, requiring special preparation and adaptation, are expensive to manufacture, and from their peculiar construction are obviously liable to corrosion and failure after exposure to dampness, or being kept a long time in store. In the case of fuses using the nipple and percussion-cap the fire-duct in the nipple is small, and liable to become choked by oxidation; and under the most favorable circumstances the flame generated by the cap is not voluminous nor strong. The cap itself is often destroyed by corrosion, or drops off of the nipple under the force of the discharge, thereby rendering the fuse utterly inefficient and useless. My invention is intended to obviate all these difficulties; and I obtain a simple, strong, and reliable percussion-fuse, incapable of damage by dampness or long storage.

Fuses on my plan may at any time be loaded or unloaded, whether the fuse-plug is in the projectile or not, and the change is effected under all circumstances without the usual danger attending such an operation. A stronger ignition-flame is obtained than is produced by percussion-caps, and as certain a fire is secured as the ammunition now in use in the breech-loading arm of the military service is capable of giving.

In the drawing hereto attached, Figure 2 represents a longitudinal section through a percussion-fuse arranged for service on my plan, and Fig. 1 represents a longitudinal section with the firing-pin elevated for safety in handling and transportation.

A is the fuse-plug, having a cartridge-chamber holding an ordinary center-primed metallic ball-cartridge, *c*. *e* is the firing-pin, located immediately in front of, and in line with, the percussion composition contained in the head of the cartridge. The firing-pin has a screw-thread on its head, by which the point is maintained above the lower surface of the fuse-cap *b* for safety in handling and transportation, as in Fig. 1, and to be screwed down to its full extent, as in Fig. 2, before the projectile is placed in the gun.

I prefer the head, instead of the body, of the firing-pin to be screw-threaded, as the indentations of the screw will effectually prevent the accumulation of dirt or dust in the space underneath the head.

f is a swell in the walls of the cartridge-chamber to intercept the backward tendency of the cartridge, and to prevent too great jamming of the same at the moment of discharge of the gun. *g* is a thin metal disk secured to the end of the fuse-plug to seal the bursting charge in the projectile from exposure when the fuse-plug is opened. Longitudinal grooves or furrows in the body of the fuse-plug may be made to facilitate rupture under the force of the explosion of the cartridge.

I am aware that the heads of metallic cartridges or primed metal disks have been used in percussion-fuses; but in such cases the priming in the heads or disks is ignited by a firing-pin on the inner or primed side of the head or disk, actuated by a solid metal plunger. My plan is the reverse of this. The firing-pin explodes the priming by puncturing the exterior of the head of the cartridge, which, being driven bodily by its own inertia, or by the impact of the bursting charge, against the firing-pin at the moment the flight of the projectile is arrested, causes the explosion which is to ignite the bursting charge.

Fuse-plugs using the old-style plunger, and having cavities too large for use of metallic cartridges, may be arranged on my plan by surrounding the metallic cartridge with a metal bushing or re-enforce, and using a fuse-cap with firing-pin, as in my plan.

I do not claim, broadly, the cartridge nor

the fuse plug, independently of their arrangement and combination, as above set forth; but

What I do claim is—

1. The combination of an ordinary center-primed metallic ball-cartridge, *c*, with a fuse-plug, A, arranged and operated in the manner substantially as and for the purposes described.

2. The firing-pin *e*, substantially as described, when used in combination with a fuse-plug and metallic cartridge.

RUDOLPH L. WALTER.

Witnesses:
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