

No. 654,108.

Patented July 17, 1900.

T. R. R. ASHTON.
PERCUSSION FUSE FOR PROJECTILES.

(Application filed Sept. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

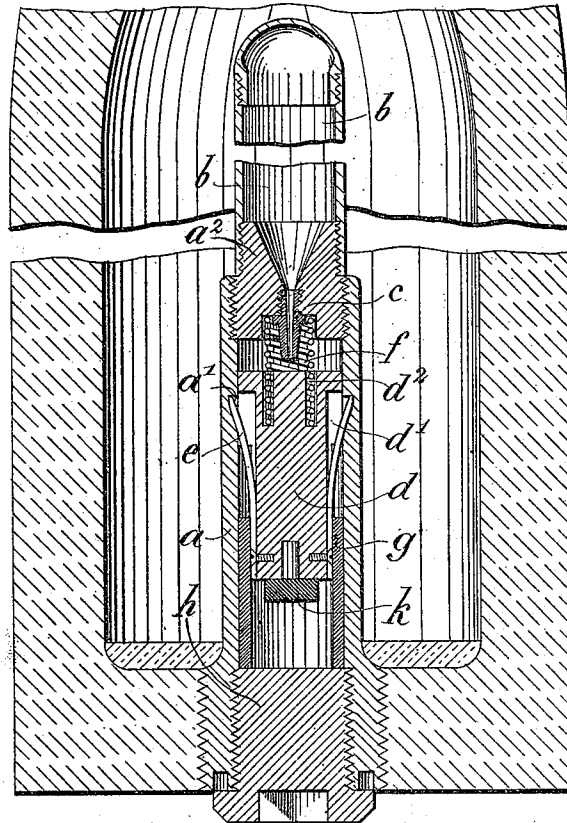
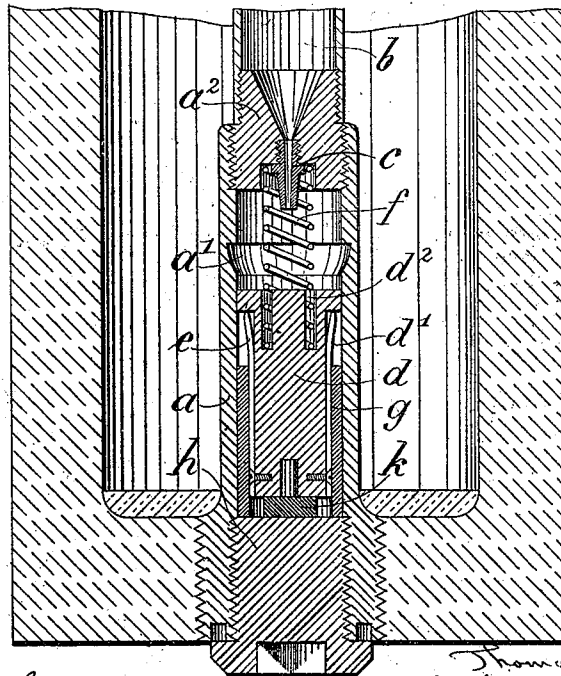


Fig. 2



Witnesses:

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Inventor:

Thomas R. R. Ashton
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2 Sheets—Sheet 2.

Fig. 3

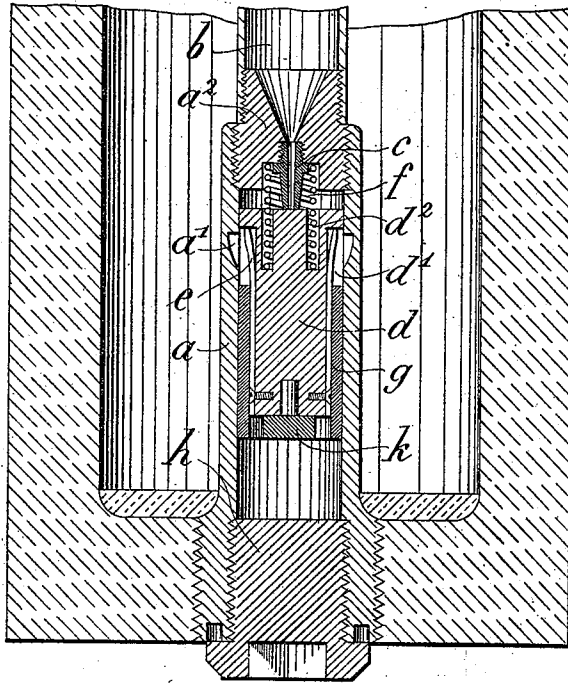
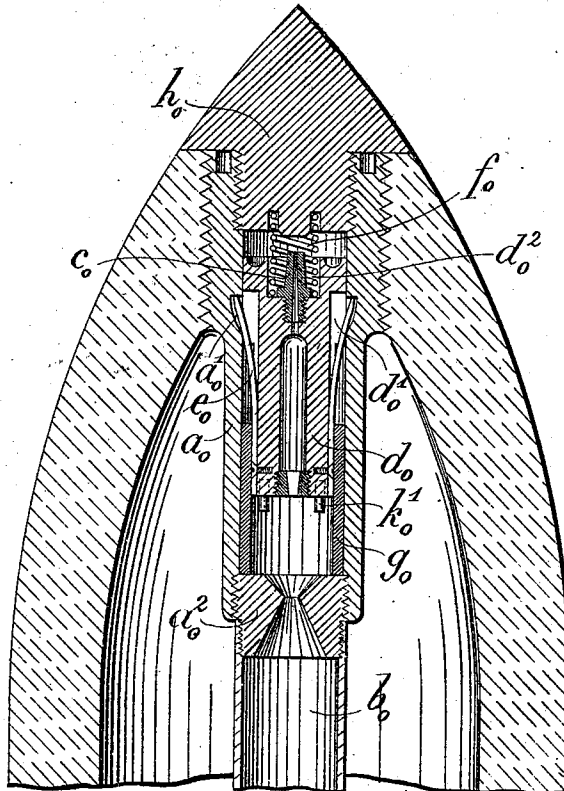


Fig. 4



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UNITED STATES PATENT OFFICE.

THOMAS R. R. ASHTON, OF LONDON, ENGLAND.

PERCUSSION-FUSE FOR PROJECTILES.

SPECIFICATION forming part of Letters Patent No. 654,108, dated July 17, 1900.

Application filed September 25, 1899. Serial No. 731,826. (No model.)

To all whom it may concern:

Be it known that I, THOMAS ROBERT RANEY ASHTON, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Percussion-Fuses for Projectiles, of which the following is a specification.

This invention has for its object to provide a safe and reliable percussion-fuse which will not ignite the powder-charge until the projectile strikes a solid or semisolid object, whether axially or obliquely.

In the accompanying drawings, Figure 1 is an axial section of a projectile provided with a base-fuse embodying my invention. Fig. 2 represents the position of the fuse after the projectile has left the muzzle of the gun, and Fig. 3 the position of the fuse after the projectile has struck a solid object. Fig. 4 represents a nose-fuse embodying my invention.

The tubular body *a* of the fuse (represented by Figs. 1, 2, and 3) is screwed into the base of the shell and carries a perforated plug *a'*, provided with a tubular extension *b*, containing the fine-grain powder and constituting the primer. The plug *a'*, screwed into the head of the body *a*, contains a nipple *c*, which has an axial perforation communicating with the interior of the tube *b*. The body *a* contains a movable piston or sliding block *d*, which is armed with a pair of locking springs or detents *e*, placed diametrically opposite each other in two longitudinal recesses *d'*, one end of each spring being fixed by a screw, while the other end is free to move in a radial direction. An annular recess *a'* is formed also in the wall of the body *a* to receive the free ends of the locking-springs *e*. The front end or face of the piston *d* has an annular recess *d''*, adapted to receive a helical spring *f*, which also surrounds the nipple *c* and tends to hold the piston *d* away from the nipple.

The rear end of the piston *d* has a smaller diameter than the head and is surrounded by a sleeve *g*, fitted into the body *a* and adapted to slide in the same. The rear end of the body *a* is closed by a screw-plug *h*.

When the shell is placed in the gun, the piston *d* occupies the position shown by Fig. 1, the free ends of the brake or locking-springs *e* being situated in the recess *a'* and abutting

against the shoulder at the front edge of the same, so as to prevent the piston *d* from sliding forward, while the friction between the springs and the body *a* forms an obstacle to backward motion of the piston.

When the gun is fired, the powder-gases will drive the shell forward, together with the body *a*, fixed to the same, but will not immediately act on the loose piston *d*, which, owing to its inertia and the pressure of the spring *f*, will lag behind until the leaden washer *k*, fixed to the piston, strikes the face of the screw-plug *h* and the fuse occupies the position shown in Fig. 2, the springs *e* having been pressed toward the axis of the piston by sliding within the sleeve *g*. As soon as the projectile strikes a solid or semisolid object the opposite action occurs—that is to say, the body *a*, fixed to the shell, is stopped—while the loose piston *d*, together with the sleeve *g*, continues its forward motion until it strikes against the percussion-cap mounted on the nipple, and thereby ignites the priming charge contained in the tube *b*.

If the fuse-body *a* is fixed in the nose of the shell, as represented by Fig. 4, the nipple *c* is sunk in the face of the piston *d*, provided at the rear end with a small ferrule *i*.

The annular recess for the helical spring *f* is formed in the face of the screw-cap *h*, and the projecting middle part *h''* serves as an anvil, against which strikes the percussion-cap when the projectile meets a solid or semisolid object.

What I claim is—

1. A fuse, comprising a hollow body having a shoulder thereon, a piston movable in said body, a compressible detent secured to said piston adapted to engage said shoulder for preventing the forward movement of said piston, and a movable sleeve between said piston and said hollow body actuated by a shock at the rear of the fuse for compressing and thereby releasing said detent, as and for the purpose set forth.

2. A fuse comprising a hollow body having a shoulder thereon, a piston movable in said body, a spring-actuated detent on said piston adapted to engage said shoulder for preventing the forward movement of said piston, and a movable sleeve between said piston and

said hollow body, actuated by a shock at the rear of the fuse, to release said detent and maintain it in released position.

3. A fuse comprising a hollow body having
5 a shoulder thereon, a piston movable in said body, a leaf-spring on said piston extending forwardly and outwardly therefrom and normally engaging said shoulder for preventing the forward movement of said piston, and
10 means actuated by a shock at the rear of the fuse, for compressing said spring and holding it out of engagement with said shoulder.

4. A fuse comprising a hollow body having an annular shoulder thereon, a plug at the
15 rear end of said body, a piston movable in said body, leaf-springs secured to said piston, extending forwardly and outwardly therefrom and normally engaging said shoulder, a sleeve surrounding the rear end of said piston, normally engaging said plug, and adapted,
20 when said piston is moved rearwardly, to compress said springs and hold them out of engagement with said shoulder, and a washer of soft compressible material on the rear end
25 of said piston for preventing the rebound of the latter when it strikes against said plug.

5. A percussion-fuse comprising in its construction a tubular fuse-body fixed at one end to the extremity of the shell, extending axially
30 into the interior of the same and provided with an internal shoulder, the outer end of the fuse-body being provided with a screw-plug and the inner end with a plug carrying a tubular primer communicating
35 with the interior of the fuse through a narrow duct; a piston movable in the interior of the fuse-body and fitting into the same with its head, while the rear part is reduced in diameter and carries in its circumference a
40 set of leaf-springs, each of which is fixed at its rear end in a recess of the piston and adapted to project over the same and engage the shoulder in said fuse-body with its front end; a perforated nipple projecting axially
45 into the space formed between the face of the sliding piston and the plug at the inner end of the fuse-body, a helical spring adapted to hold the piston away from the plug at the inner end of the fuse-body, and a movable
50 sleeve fitting into the fuse-body and over the

rear part of the piston, the whole being adapted to operate substantially as described.

6. In a percussion-fuse, the combination of a fuse-body *a* having a shoulder *a'*, an axially-perforated plug *a²* and a tubular extension *b*,
55 with an end plug *h*, a movable piston *d* provided with leaf-springs *e* adapted to engage said shoulder a movable sleeve *g*, nipple *c*, and a helical spring *f*, substantially as described.
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7. A percussion-fuse comprising in its construction a tubular fuse-body fixed at one end to the extremity of the shell and extending axially into the interior of the same, the outer
65 end of the fuse being provided with a screw-plug, the inner end with a similar plug carrying a tubular primer communicating with the interior of the fuse through a narrow duct, and the inside of the cylindrical walls having an annular recess; a piston movable in
70 the interior of the fuse-body and fitting into the same with its head, while the rear part is reduced in diameter and carries in its circumference a set of leaf-springs, each of which is fixed at its rear end in a recess of the piston
75 and adapted to project with its front end into the annular recess of the fuse-body; a perforated nipple-projecting axially into the space formed between the face of the sliding piston and the plug at the inner end of the fuse-body; a spring adapted to hold the piston
80 away from the plug at the inner end of the fuse-body; and a movable sleeve fitting into the fuse-body and over the rear part of the piston, the whole being adapted to operate
85 substantially as described.

8. In a percussion-fuse, the combination of a fuse-body *a* having an axially-perforated plug *a²*, a tubular extension *b*, and a recess *a'*,
90 with an end plug *h*, a movable piston *d* provided with leaf-springs *e* and a movable sleeve *g*, nipple *c* and a helical spring *f*, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.
95

T. R. R. ASHTON.

Witnesses:

J. WETTER,
C. ROCHE.