No. 627,003. Patented June 13, 1899.

A. B. MARKHAM.

PERCUSSION FUSE FOR SHELLS.

(Application filed Dec. 19, 1898.)

(No Model.)

Fig. 1.

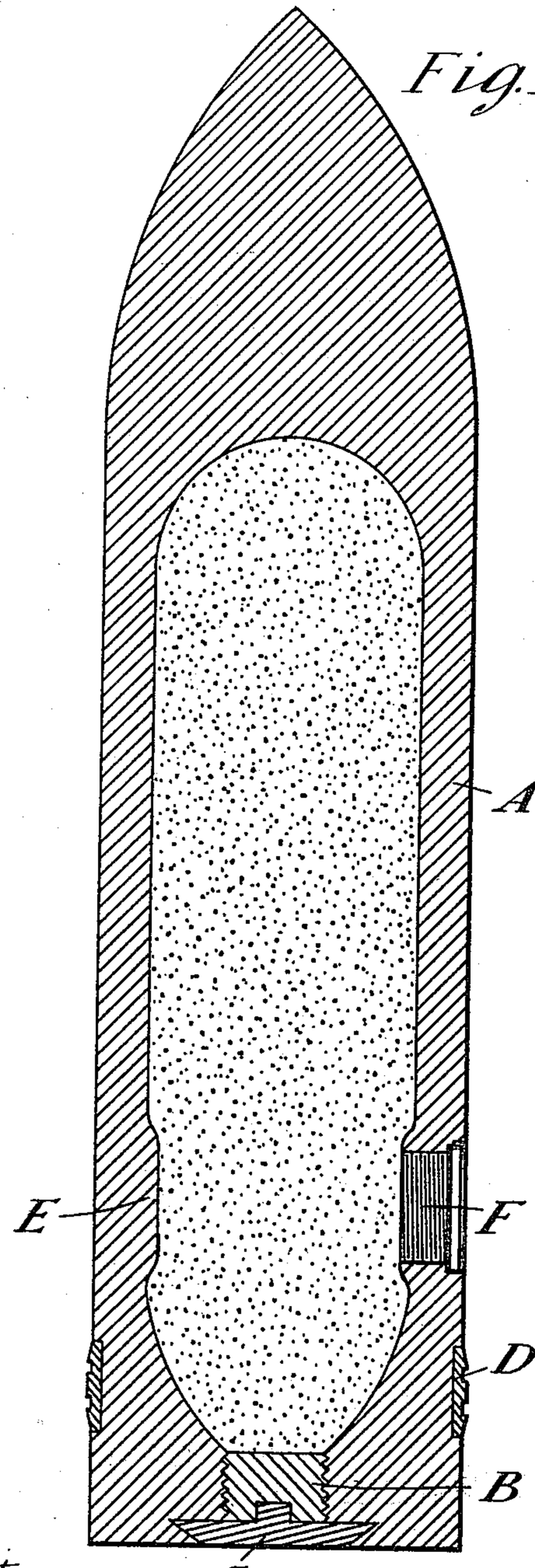


Fig. 2.

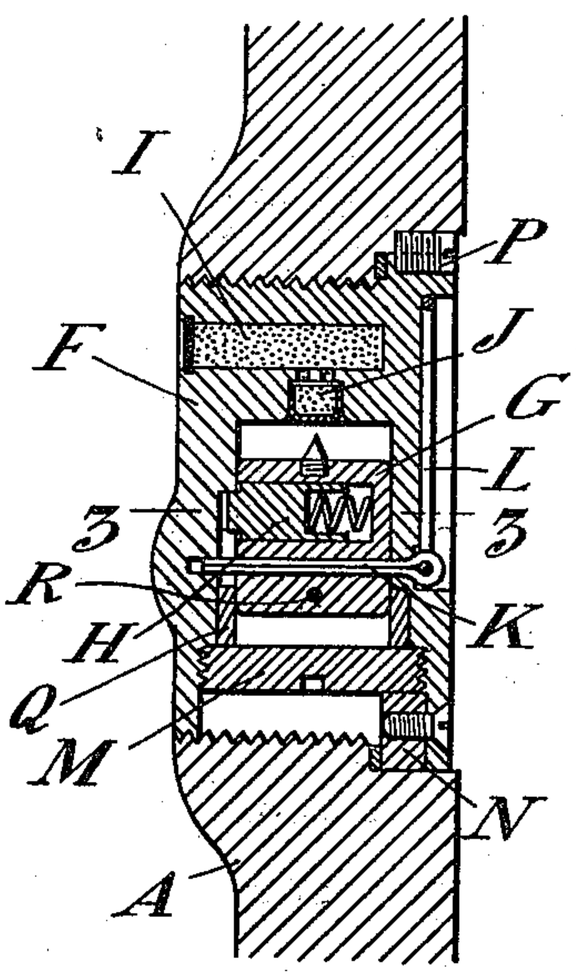
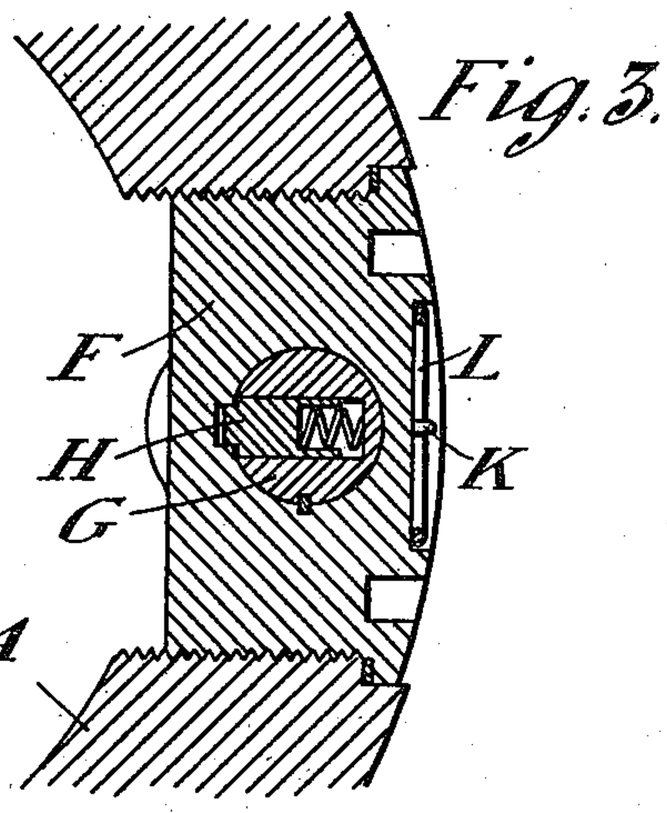


Fig. 3.



Witnesses

Bruce A. Ewistt.

Inventor

Arthur B. Markham

By James L. Norris.

Atty

UNITED STATES PATENT OFFICE.

ARTHUR BASIL MARKHAM, OF CHESTERFIELD, ENGLAND, ASSIGNOR TO THE VICKERS, SONS & MAXIM, LIMITED, OF SHEFFIELD, ENGLAND.

PERCUSSION-FUSE FOR SHELLS.

SPECIFICATION forming part of Letters Patent No. 627,003, dated June 13, 1899.

Application filed December 19, 1898. Serial No. 699,714. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR BASIL MARKHAM, a citizen of England, residing at Broad Oak Iron Works, Chesterfield, in the county of Derby, England, have invented a certain new and useful Improvement in Percussion-Fuses for Shells, (for which I have applied for a patent in Great Britain, dated May 31, 1898, No. 12,264,) of which the following is a specification.

When a shell is intended for penetrating armor, the percussion-fuse cannot be arranged in the head, which requires to be strong hard metal integral with the body of the shell, and when the percussion-fuse is inserted in the base of the shell there is great risk of premature explosion.

This invention relates to the construction of a percussion-fuse and its arrangement in the side of the shell, so as to avoid interference with strength and solidity of a head suited for penetration and also to avoid the risk of premature explosion, which results from placing the fuse in the base. For this purpose the shell and its fuse are arranged as I shall describe, referring to the accompanying drawings.

Figure 1 is a longitudinal section of the shell. Fig. 2 shows, to an enlarged scale, a part of the section with a fuse according to my invention in position. Fig. 3 is a transverse section of the fuse on the line 3 3 of Fig. 2.

As shown in Fig. 1, the shell A has in its base a charging-hole closed by a screw-plug B, over which is a safety-disk C of lead having its edges forced by pressure on the disk into an annular dovetail formed in the base.

D is the usual driving-band, at some height above which the wall of the shell is thickened at E, so as to give sufficient depth for screwing the fuse F into a hole in the thickened part and also to make up for the weakening due to the hole. The fuse is bored to receive a cylindrical pellet-striker G, within which is fitted to slide a spring-bolt H. Near one side of the fuse is a cavity or magazine I, containing the ignition-fuse, and this communicates with the bore of the fuse by an opening in which is fixed a detonating-cap and anvil J. The sides of the fuse and the pellet are bored to receive a safety-pin K, to which is hinged a ring L, that lies in a recess formed in the side of the fuse and is usually covered by paper or fabric cemented on the face of the fuse.

Q is a filling-ring through which and the pellet G a hole is bored to receive a safety-wire R. The magazine I being charged, the pellet G, with its spring-bolt and filling-ring Q, being introduced into the bore of the fuse and held by the safety-pin K and wire R the bottom M is screwed in, a segmental filling-piece N is fixed by a screw, the fuse F is screwed into the side of the shell with a packing-washer interposed and prevented from turning by a screw P, and the shell is ready for use. Before loading it into the gun the paper or fabric covering the ring L is torn off and the ring is pulled so as to withdraw the safety-pin K.

When the gun is fired and the shell is caused to rotate by the rifling, the spring-bolt H is caused by centrifugal force to move outward in opposition to the spring, its end being thus withdrawn from a recess in the bore of the fuse, leaving the pellet G free. On the shell striking any object the pellet G, owing to its momentum, breaks the wire R and flies forward, its pin-point striking the detonating-cap and so firing the ignition-fuse I, which fires the explosive charge in the shell.

Although I have shown an ignition-fuse fired by a cap, obviously other known percussion-fuses may be employed.

Having thus described the nature of my invention and the best means I know of carrying the same into effect, I claim—

1. A shell having in its side a percussion-fuse embodying a pellet movable lengthwise of the shell, a locking-bolt movable in the pellet at right angles to the length of the shell, a filling-ring, a removable bottom bearing thereagainst, a segmental filling-piece, means detachably securing the same in place and a wire for normally locking the pellet against movement.

2. A shell having in its side a percussion-fuse comprising a pellet movable in the direction of the length of the shell, a locking-bolt for the pellet movable therein at right angles to the length of the shell, a safety device holding the pellet to the shell, and means

connecting the pellet to the fixed part, breakable by the movement of the pellet, a ring connected to said safety device and retained within a recess of the fuse, and a frangible covering for said ring located in said recess, as set forth.

3. A percussion-fuse comprising a magazine, communicating by a passage with the bore of the fuse, a cap and anvil in said passage, a pellet movable toward the cap, a locking-bolt movable in the pellet, a safety-pin passed through the pellet, a safety-wire at right angles thereto, a bottom plate, a segmental filling-piece and a securing-screw, all arranged to operate substantially as described.

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

ARTHUR BASIL MARKHAM.

Witnesses:
GODFREY MAY,
HENRY SADLER.