E. W. NEWELL.

PERCUSSION FUSE FOR PROJECTILES.

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1,292,505.

Patented Jan. 28, 1919.

Fig.1.

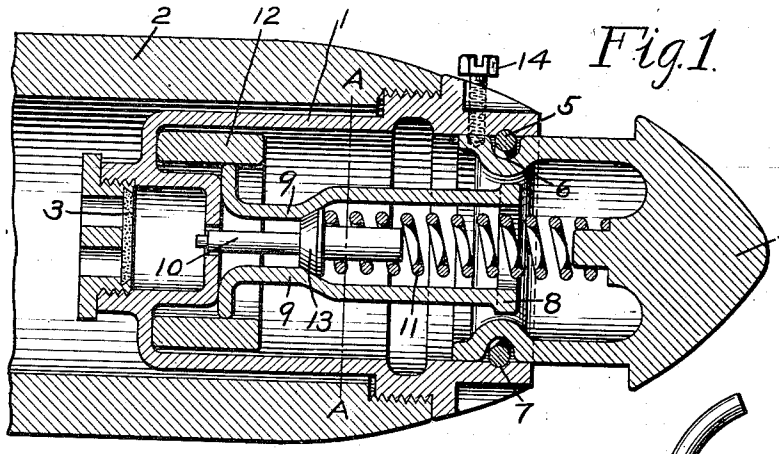


Fig.4.

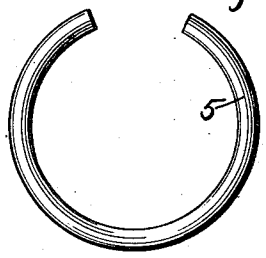


Fig.2.

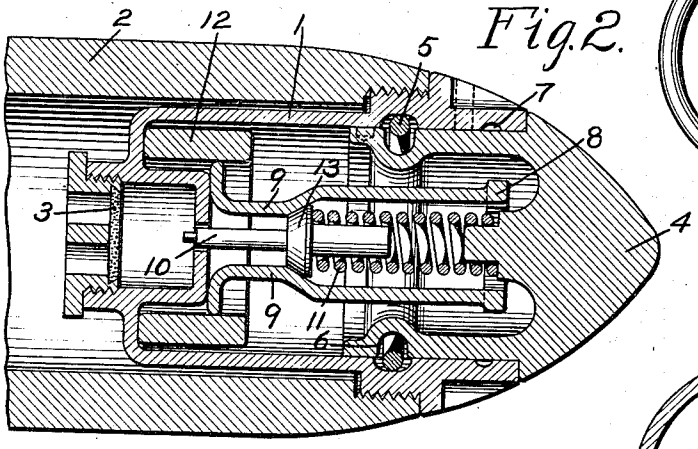


Fig.5

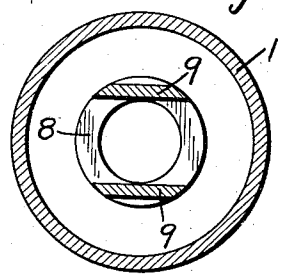
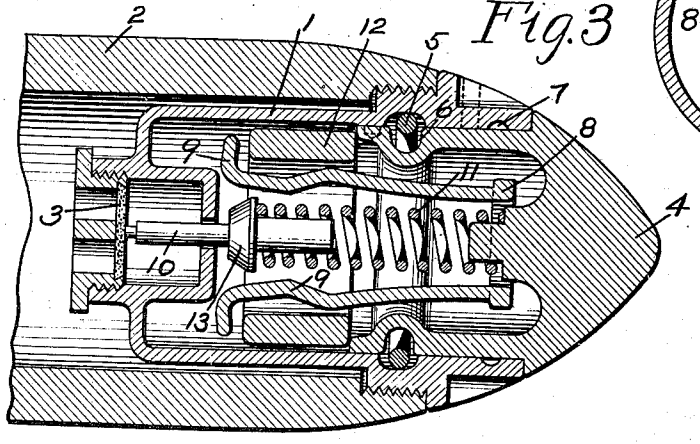


Fig.3



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UNITED STATES PATENT OFFICE.

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PERCUSSION-FUSE FOR PROJECTILES.

1,292,505. Specification of Letters Patent. Patented Jan. 28, 1919.

Application filed March 3, 1917. Serial No. 152,221.

To all whom it may concern:

Be it known that I, EDWARD W. NEWELL, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Percussion-Fuses for Projectiles, of which the following is a specification.

This invention relates to percussion fuses, and more particularly to the type employed in connection with high explosive projectiles.

The principal object of my invention is to provide a percussion fuse of simple construction having few parts, easily accessible for observation and inspection and adapted to be cheaply manufactured.

Other objects and advantages will appear in the following more detailed description of the invention.

In the accompanying drawing; Figure 1 is a central sectional view of a projectile embodying the improved percussion fuse and showing the parts in normal position; Fig. 2 a similar view of the projectile, showing the parts in armed position; Fig. 3 a similar view, showing the position of parts after impact of the projectile; Fig. 4 a detail view of the locking ring; and Fig. 5 a transverse section on the line A—A of Fig. 1, the firing plunger and spring being omitted.

According to my invention, there is provided a fuse stock 1 having screw threaded engagement with the projectile body 2 and provided with a primer 3 at the inner end.

Within the cylindrical bore of the fuse stock 1 is mounted the shell nose 4 which is impositively held in normal position, as shown in Fig. 1 of the drawing, by a spring ring 5 carried in a groove 6 of the nose 4 and adapted to engage within a groove 7 formed in the fuse stock 1.

Arranged centrally and longitudinally within the fuse stock 1 is a sear device comprising a ring portion 8 having rearwardly extending spring arms 9 within which is mounted a firing plunger 10, subject to the action of a coil spring 11, engaging the nose 4.

The rear ends of the arms 9 are outwardly flared and are normally pressed inwardly by a freely movable inertia ring 12, so that a conical section 13 of the firing plunger 10 will engage corresponding faces formed on the arms 9 and thus prevent inward movement of the plunger.

Normally, the fuse members are in the positions shown in Fig. 1 of the drawing, but upon firing the projectile from the gun, the inertia of the movable nose 4 causes the same to move rearwardly of the shell, forcing the spring ring 5 out of the groove 7, so that the nose assumes the position shown in Fig. 2.

By this movement of the nose 4, the spring 11 is compressed, exerting its pressure on the plunger 10. The parts remain in the positions shown in Fig. 2 of the drawing during flight, but when the projectile strikes, the inertia of the ring 12 causes its forward movement to the position shown in Fig. 3, so that the spring arms 9 are freed and the plunger 10 is released and the same is driven against the primer 13 by the stored energy of the spring 11, so as to detonate the shell.

In order to more positively lock the parts in the normal position, a set screw 14 may be provided, which may be screwed into a tapped hole in the fuse stock 1 so as to engage a recess formed in the shell nose 4, the screw being removed before the projectile is fired.

It will now be evident that a fuse construction of few parts is provided and that inspection and observation of the mechanism of the fuse can readily be made at any time by removing the shell nose.

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

1. In an explosive projectile, the combination with a primer and a firing plunger therefor, of a spring acting on said plunger and a nose for the projectile, movable by inertia upon firing the projectile from the gun for compressing said spring.

2. In an explosive projectile, the combination with a primer and a firing plunger therefor, of a device for locking said plunger in a retracted position, a spring acting on said plunger, a movable projectile nose operated by inertia upon firing the projectile from the gun for compressing said spring, and an inertia operated device for tripping said locking device upon impact of the projectile to thereby release the firing plunger.

3. In an explosive projectile, the combination with a fuse stock, a primer mounted at the rear end and a longitudinally movable projectile nose mounted in the forward end, of a firing plunger for engaging said primer, a spring interposed between the nose and the plunger, a locking device for normally holding the plunger retracted, and means operated upon impact of the projectile for releasing the locking device and thereby the firing plunger.

4. In an explosive projectile, the combination with a primer and a firing plunger, of means operated by inertia upon firing the projectile from the gun for storing energy to act on the plunger, and a member separate from said means and operated upon impact of the projectile for releasing said plunger.

In testimony whereof I hereunto set my hand.

EDWARD W. NEWELL.