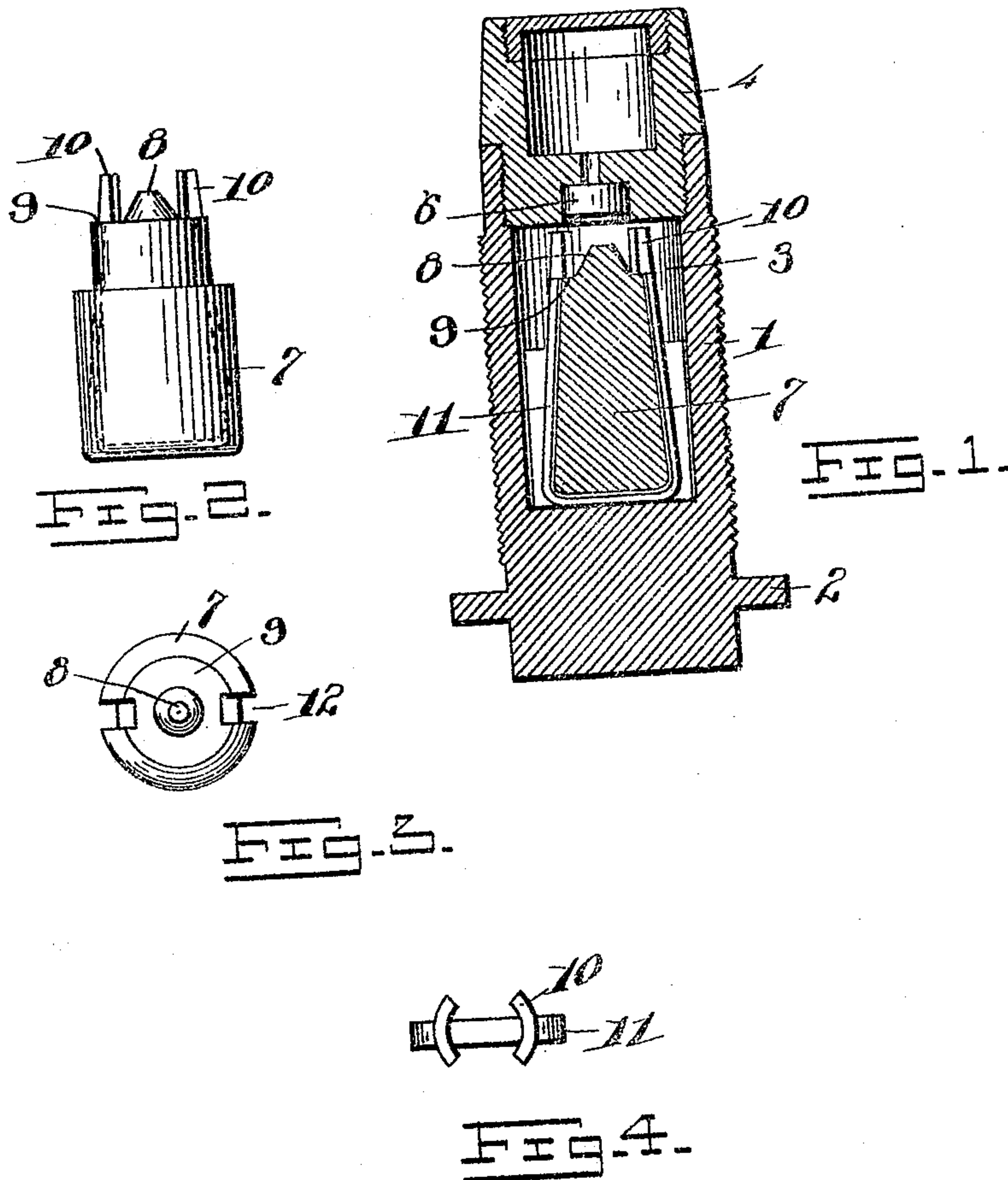


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PATENTED MAY 1, 1906.

J. F. MEIGS & E. A. GATHMANN.  
CENTRIFUGAL PERCUSSION FUSE FOR PROJECTILES.  
APPLICATION FILED JULY 22, 1905.



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# UNITED STATES PATENT OFFICE.

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## CENTRIFUGAL PERCUSSION-FUSE FOR PROJECTILES.

No. 819,668.

Specification of Letters Patent. Patented May 1, 1906.

Original application filed December 5, 1904, Serial No. 235,568. Divided and this application filed July 22, 1905. Serial No. 270,798.

*To all whom it may concern:*

Be it known that we, JOHN F. MEIGS and EMIL A. GATHMANN, citizens of the United States, and residents of South Bethlehem, Northampton county, State of Pennsylvania, have invented certain new and useful Improvements in Centrifugal Percussive Fuses for Projectiles, of which the following is a specification.

This application is a division of our pending application, Serial No. 235,568, filed December 5, 1904.

Our invention comprises improvements in percussion-fuses for explosive projectiles; and it consists in means whereby to lock the hammer or sliding portion of the fuse securely in place until the same is released by the centrifugal force resulting from the rotation of the projectile, as fully set forth herein-after and as illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a fuse embodying our invention. Fig. 2 is an exterior view of the hammer and detent; Fig. 3, an end view of the hammer, and Fig. 4 an end view of the detent.

The plug or casing 1 is threaded externally, as shown, for insertion in the opening at the rear of the projectile and is provided with a flange 2, which acts as a gas-check. The chamber 3 of the plug or casing is open at the forward end for the reception of the head 4, which is threaded and adapted to screw-threads in the casing, and is provided with a seat 5 for the detonator or cap 6. Within the said chamber is the hammer or plunger 7, having a conical firing-pin 8 projecting beyond the shoulder or end 9 of the hammer, so as to penetrate and explode the detonator 6 when the hammer moves forward on the arrest of the projectile.

To prevent the forward movement of the hammer until the projectile is fired from the gun, we interpose a suitable detent or detents 10 between the end of the hammer and the forward wall of the chamber of such a rigid character and such dimensions that the firing-pin cannot touch the detonator while the detent is in place. The detent, however, is so constructed that it will readily move radially or laterally under centrifugal action, so that upon the firing of the projectile its rotation will insure the lateral displacement of the de-

tent, leaving the hammer free to move forward by momentum when the projectile strikes an object, so that the rotation of the shell serves to unlock the hammer.

In the construction shown there are two detents 10, connected by a U-shaped spring 11, fitting somewhat loosely in longitudinal recesses 12 in opposite sides of the hammer and a transverse recess in the outer end of the hammer connecting said longitudinal recesses, the detents being adapted to normally lie between the shoulder 9 of the hammer and the head 4 of the fuse. The spring is comparatively thin and light, so that it will readily yield under centrifugal action when the projectile is fired. It will be noted that the arrangement of the spring in the recesses of the hammer protects the spring from injury and also permits the hammer to lie solidly against the end wall of the fuse-chamber when in normal position, as shown in Fig. 1. It will also be noted that no strain can come upon the spring by reason of dropping or rough handling of the fuse. In this respect our fuse is an improvement over some older forms of fuse in which a detent-spring supports the hammer and might be injured by shock to the fuse. While the detents present a rigid barrier to the longitudinal movement of the hammer, the spring cannot be strained or broken by dropping the fuse on either end. This is important, as it permits the spring to be made light enough to yield with certainty under centrifugal action.

It will be noted that when the detents are thrown outward by centrifugal force the hammer is disengaged both from the detent and the spring and is entirely free to slide in the chamber. In some forms of fuses heretofore proposed the spring-detents have been connected to the hammer. In such constructions the detents are thrown against the wall of the hammered chamber and the friction of the detents on the wall tends to retard the hammer in its forward movement when the shell strikes, thus rendering its operation doubtful. In our improved construction the hammer is entirely free to move forward at the moment of impact of the shell upon the object which it strikes.

It will be evident that our invention may be embodied in fuses of other design than that shown. Hence we do not limit ourselves



to the precise details illustrated and described.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination in a fuse, of a chambered casing, a detonator supported at one end of the chamber thereof, a hammer adapted to slide in said chamber, a U-shaped spring surrounding the hammer and detents carried by the ends of said spring and normally located between the forward end of the hammer and the end wall of the fuse-chamber.

2. The combination in a fuse, of a chambered casing, a detonator supported at one end of the chamber thereof, a hammer adapted to slide in said chamber and having oppositely-arranged longitudinal recesses and a transverse recess in its rear end, a U-shaped spring located in said recesses and extending to the forward end of the hammer, and detents carried by the ends of said spring and nor-

mally located between the hammer and the forward end wall of the fuse-chamber.

3. The combination in a fuse, of a casing 25 having a chamber and a support for a detonator at the forward end of said chamber, a hammer movable longitudinally within the chamber, and a U-shaped spring arranged longitudinally of the hammer and provided 30 with detents at its ends adapted normally to stand between the forward end of the hammer and the end wall of the chamber, the said hammer being adapted to move longitudinally relatively to said spring when the de- 35 tents are thrown out by centrifugal force.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN F. MEIGS.

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