

E. SCHNEIDER.
SAFETY DEVICE FOR THE FUSES OF PROJECTILES.
APPLICATION FILED APR. 17, 1909.

939,447.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

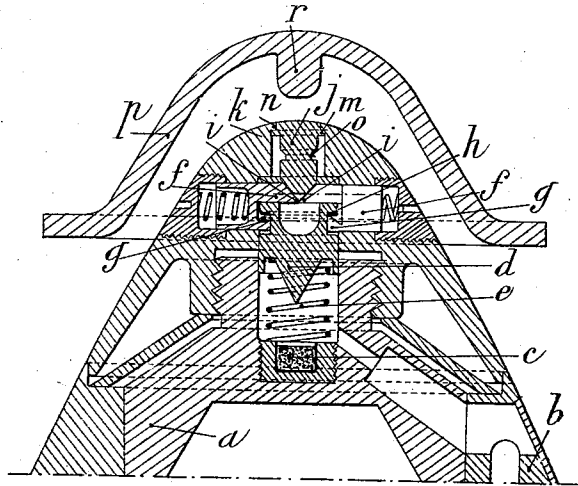
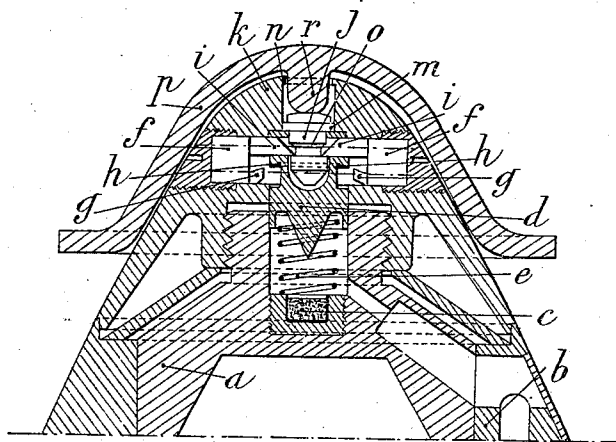


Fig. 2.



Witnesses:

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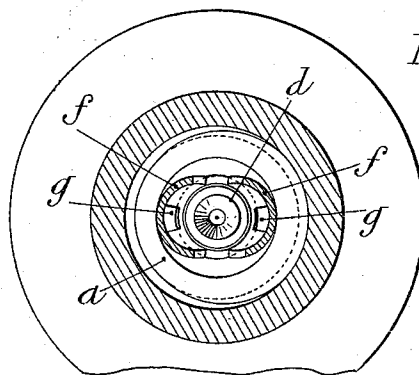
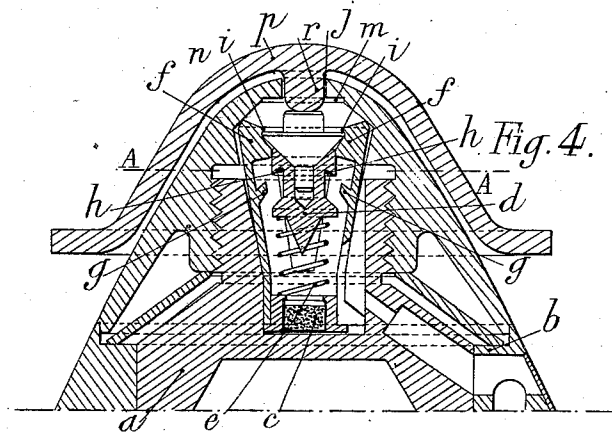
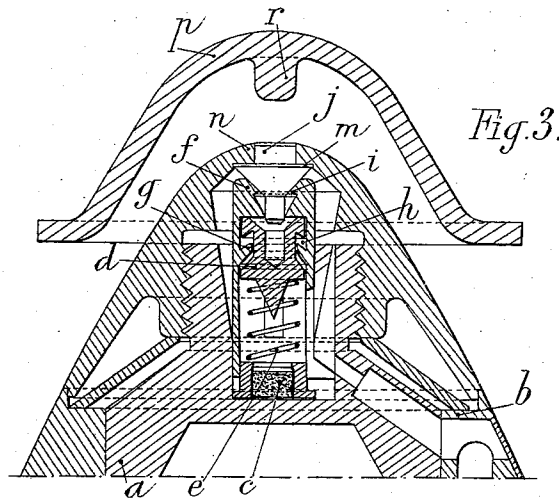
by

Mauro, Cameron, Lewis & Massie
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UNITED STATES PATENT OFFICE.

EUGENE SCHNEIDER, OF LE CREUZOT, FRANCE.

SAFETY DEVICE FOR THE FUSES OF PROJECTILES.

939,447.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed April 17, 1909. Serial No. 490,503.

To all whom it may concern:

Be it known that I, EUGENE SCHNEIDER, residing at Le Creuzot, Saône-et-Loire, France, have invented a new and useful Improvement in or Relating to Safety Devices for the Fuses of Projectiles, which is fully set forth in the following specification.

The present invention relates to safety devices for the fuses of projectiles. Heretofore such mechanism comprises a striker or plunger that is to say an impact member, which is normally held away from a priming by a spring but which on firing is intended to strike this priming and thus kindle the fuse composition. For locking the striker in an absolute manner until the projectile is used, and particularly for preventing shock occurring between it and the priming, by a displacement capable of compressing the spring and causing premature ignition, the striker has been locked by means of a stop pin which is withdrawn at the moment the projectile is used or which is sheared off automatically when the shot is fired. This known means presents numerous defects. It is frequently difficult to withdraw the pin and if it has to be sheared off the mass of the striker must be considerably increased. Then again the shearing is frequently not produced in short guns firing projectiles with variable velocity. The present invention obviates or minimizes these defects. It constitutes a perfectly efficient safety device which is withdrawn at the moment of using the projectile, in a simple and speedy manner; it may be and preferably is arranged in such a manner as to be capable of withdrawal automatically by means of a fuse governing or controlling device arranged relatively to the projectile.

As illustrating examples of the mode of carrying the invention into effect two constructions are illustrated in the accompanying drawings.

Figures 1 and 2 show in sectional elevation one embodiment of the invention, the safety parts being represented respectively in the position they occupy before the projectile is required for use and at the time of using the same. Figs. 3, 4 and 5, represent a second embodiment of the invention; Figs. 3 and 4 being sectional elevations showing the parts of the device in the safety positions and the cocked positions, respectively. Fig. 5 is a sectional plan on the line *a-a* of Fig. 4.

In these figures *a* designates the upper part

of a fuse of any known construction and *b* a fuse ring; *c* is the priming and *d* the striker which in order to strike the priming has to compress a spring *e*. The striker, instead of being locked by a pin as in the known devices, is held by one or more retaining members. In this constructional form these retaining members are constituted by two spring controlled bolts *f*, the projections *g* of which engage in a groove *h* in the striker *d*. In the engaged position, or positions of repose (Fig. 1), the noses or shoulders *i* of the bolts bear against the lower extremity of a plunger *j* arranged in an axial passage formed in the cap *k* and prevented from escaping therefrom to the exterior by a collar *m* adapted to take a bearing against a shoulder *n* on the said cap *k*. A groove *o* hereinafter referred to is also formed on the said plunger. For storing and transporting the ammunition, the striking mechanism of the fuse is therefore arranged as shown in Fig. 1, which is the safety position. In this position the projection *g* on each of the bolts *f* is engaged in the groove *h* of the striker *d*. The projections and groove present sharply inclined faces which in case of accidental fall of the projectile insure effective engagement when the striker, owing to its acquired velocity, is projected upon the said projections *g* on the bolts. When the disengaging plunger is acted upon directly it will be seen that the striker *d* does not prevent the bolts *f* which liberate it from sliding freely. The plunger *j* is held in position in the recess in the striker *d* by the extremities of the noses *i* entering the groove *o*. In case the projectile should fall upon its base, the plunger *j* and the striker *d* act upon the bolts *f*, in such a manner that the plunger acting upon the noses *i* tends to separate the bolts, while the striker *d*, applied strongly upon the inclined faces of the projections *g* opposes the sliding of the said bolts.

The striking mechanism may be cocked or armed by means of a rod of any suitable kind, adapted to cause the plunger *j* to assume the position indicated in Fig. 2. The same purpose may also be effected automatically by passing the projectile into the interior of a fuse governor or controller. With this object, the movable part *p* of the said fuse controller is provided with a small projection or nipple *r* which upon the cap of the projectile entering the hollow interior

of the controller comes into contact with the plunger and forces the latter into the desired position when the projectile is pressed right home in the said hollow fuse controller (Fig. 2). Upon the withdrawal of the projectile from the fuse controller the striker remains in its cocked position, that is to say released from the safety bolts and ready to strike the priming *c* when the projectile is fired.

In this example, referring to Figs. 3 and 4, the retaining members of the safety mechanism are constituted by the two flexible arms *f* of a slit or split cylindrical hook. These arms are provided with projections *g* which in the position of repose (Fig. 3) hold the striker *d* by engaging in the groove *h* in the striker. For storing and transporting the ammunition, the striker mechanism of the fuse is arranged in the manner illustrated in Fig. 3, which is the safety position. In this position, the arms *f* of the hook are closed upon the striker *d*; the engaging means *g* being engaged in the groove *h*. In case the projectile should fall upon its base, the disengaging plunger *j* and the striker *d* act as hereinbefore described upon the arms *f*, that is to say, the plunger *j* for opening the arms and the striker, in bearing against the projections *g*, for holding them, opposing the opening of the retaining members. When the plunger *j* is acted upon directly, the striker does not intervene the arms of the hook being permitted to open freely. The plunger *j* being completely driven in the arms of the hook are held apart as shown in Figs. 4 and 5 ("cocked" position) owing to the plunger being engaged by the noses or shoulders *i*. The engaging projections *g* are sufficiently far apart to permit of the passage of the striker, the certainty of the cocking of the striker being merely a function of the strength of the spring *e*. The striking mechanism is cocked automatically, as in the preceding example by the passage of the projectile into a fuse controller provided with a nipple *r*.

The form and number of the retaining members, bolts, hooks or the like combined with the disengaging plunger, and the corresponding form of this latter, may of course vary. In any case, the said retain-

ing members are provided with projections or notches for engaging with corresponding notches or projections on the striker; these parts are also provided with projections or notches for engaging with shoulders or in notches on the disengaging plunger.

What I claim and desire to secure by Letters Patent of the United States is:—

1. In a safety device for projectile fuses, the combination of a fuse having a striker and means normally holding the same out of exploding position, yielding means engaging said striker to lock the same in safety position, and a key-operated plunger movable into position to disengage said holding means from said striker to cock the latter for firing.

2. In a safety device for projectile fuses, the combination of a fuse having a spring-pressed striker normally held in safety position and provided with a retaining shoulder, yielding members each of which is provided with a lug adapted to engage said retaining shoulder to lock the striker in safety position against accidental advance of said striker, and a releasing plunger for engagement with said yielding members to disengage said members from said striker to cock the latter for firing.

3. In a safety device for projectile fuses, the combination of a key-operated releasing plunger, a striker in the path of said plunger and provided with a retaining groove, means normally holding the same out of firing position, oppositely disposed spring-pressed locking bolts having retaining projections for engaging said groove in the striker to normally hold the latter in safety position, said bolts being provided with noses in the path of said plunger and adapted to be engaged thereby for releasing said bolts, but inoperative to release said bolts on the accidental change of momentum of said striker.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EUGENE SCHNEIDER.

Witnesses:

DEAN B. MASON,
T. DE PORTER.