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A. F. TEITSCHIED ET AL

2,336,514

FUSE

Filed April 19, 1940

Fig. 1.

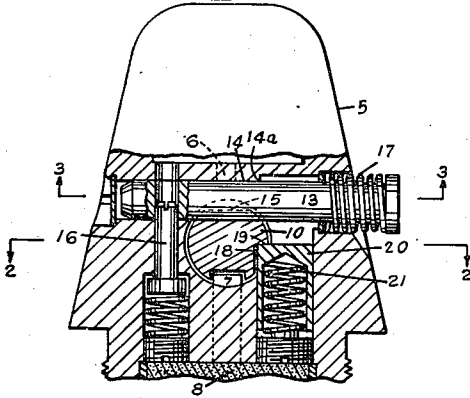


Fig. 2.

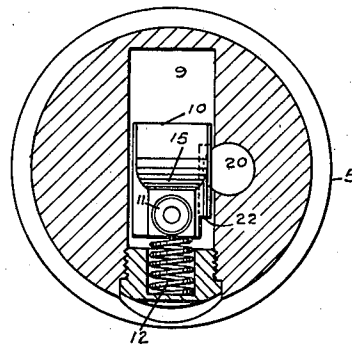


Fig. 3.

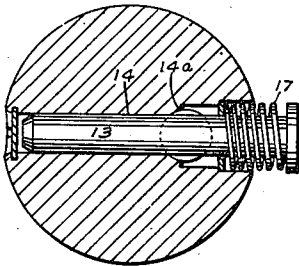


Fig. 4.

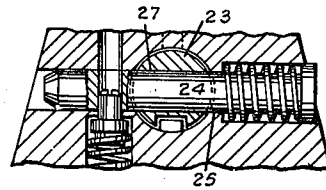


Fig. 5.

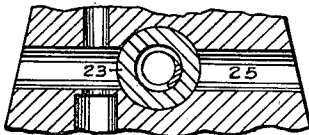
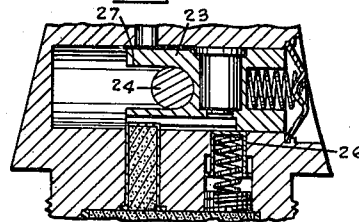


Fig. 6.



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UNITED STATES PATENT OFFICE

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FUSE

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4 Claims. (Cl. 102—78)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

This invention relates to a fuse for a projectile.

In fuses of the type used in trench mortar projectiles it is customary to provide a safety bolt which is ejected during flight to release an element of the firing mechanism for movement to armed position. The opening through which the bolt is ejected serves, on impact, as an entry for mud or dirt which may interfere with the functioning of the fuse. In U. S. Patents 1,375,466 and 1,393,585 the set-back pin provided for holding the safety bolt is utilized to close the opening and prevent the admission of foreign matter on impact.

In the present invention the set-back pin accomplishes the same purpose as in the patents but it is additionally associated with the slide to hold the slide in armed position. In a modification, the slide is dimensioned and arranged to provide a closure for the openings when it is in armed position.

The specific nature of the invention as well as other objects and advantages thereof will clearly appear from a description of a preferred embodiment as shown in the accompanying drawing in which:

Fig. 1 is a fragmentary longitudinal sectional view of a fuse constructed in accordance with the present invention;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary longitudinal sectional view of a modification of the fuse with the slide in unarmed position;

Fig. 5 is a similar view with the slide in armed position;

Fig. 6 is a sectional view on the line 6—6 of Fig. 4.

Referring to Figs. 1 to 3 there is shown a fuse body 5 having interrupted elements of a firing system, these elements being shown as a passage 6 and a thimble 7 which may contain an explosive and leads to a booster charge 8. A transversely disposed passage 9 between these elements houses a slide 10 which carries a primer detonator 11 and is restrained against rotational displacement by the thimble 7 to insure alignment of these members when the slide is in armed position.

The slide is held in the unarmed position against the action of a spring 12 by means of a bolt 13 which is disposed in an intersecting passage 14 perpendicular to the slide and engages a shoulder 15 formed by cutting away a portion of the upper part of the slide. The bolt is held in engagement with the slide by a conventional set-back pin 16. The bolt normally projects through the opening 14a in the passage 14 and it is arranged to be ejected from the fuse during flight, a spring 17 being provided in the case of a non-rotating projectile while centrifugal force may be relied on when the projectile undergoes rotation.

The slide 10 is formed with an undercut slot to provide a plane surface 18 and an overhanging shoulder 19 for engaging a plunger 20 and restraining it against movement under the influence of the plunger spring 21. The shoulder 19 is of sufficient length to engage the plunger during the movement of the slide from unarmed to armed position at which point it is just clear of the plunger so that the latter may be moved into the path of the end face 22 of the shoulder for the purpose of retaining the slide in the armed position. The end face 22 of the shoulder is spaced from the corresponding end of the slide so that the plunger will continue to be in a position with respect to the plane surface 18 to restrain the slide against rotational displacement when the slide is held in the armed position. In this respect the plunger may function in addition to or as a substitute for the thimble 7.

The plunger 20, when in slide-holding position obstructs the opening 14a through which the bolt 13 has been ejected so that the mud or dirt cannot be admitted into the fuse on impact or it cannot be admitted in sufficient quantity to interfere with the functioning of the firing mechanism.

In the modification shown in Figs. 4 to 6 the slide 23 and bolt 24 are so constructed and arranged that the slide when moved to armed position will act as a closure for the bolt passage 25 and prevent entry of mud from either side. In this instance, a separate means such as the plunger 26 is provided to oppose return movement of the slide once it is in armed position. In this construction the slide is preferably of greater diameter than the bolt and is bifurcated to provide a diametral slot 27 for the bolt.

We claim:

1. In a fuse, a body having a transversely disposed passage and an intersecting passage having an opening to atmosphere, a slide in the

transverse passage, means for moving the slide from unarmed to armed position, a bolt in the open passage for restraining the slide and ejectable from the body during flight to release the slide, and means to secure the slide when in armed position said means closing the opening when the bolt is ejected.

2. In a fuse, a body having a transversely disposed passage and an intersecting passage having an opening to atmosphere, a slide movable in the transverse passage and having a projecting shoulder, means for moving the slide from unarmed to armed position, a bolt in the open passage for restraining the slide and ejectable from the body during flight to release the slide, a spring-pressed plunger bearing against the shoulder of the slide during its movement to armed position and movable, when the slide is in position, into the path of the slide and into position to close the opening in the bolt passage.

3. In a fuse, a body having a transversely disposed passage and an intersecting passage having an opening to atmosphere, a slide movable in the transverse passage and having an undercut slot providing a plane surface and a projecting shoulder terminating short of the end of the

plane surface, means for moving the slide from unarmed to armed position, a bolt in the open passage for restraining the slide and ejectable from the body during flight to release the slide, 5 a spring-pressed plunger mounted in the body and partially disposed in the slot of the slide to be restrained by the shoulder when the slide is in unarmed position and to lie in contact with the plane surface whereby the slide is prevented from 10 rotation, said plunger being movable, when the slide is in armed position, into the path of the shoulder and into position to close the opening in the bolt passage.

4. In a fuse, a body having a transversely disposed passage and an intersecting passage having an opening to atmosphere, a slide movable in the transverse passage, means for moving the slide from unarmed to armed position, a bolt in the open passage for restraining the slide and eject- 15 able from the body during flight to release the slide, and means in the body movable into position to secure the slide in armed position said last mentioned means being further movable into po- 20 sition to close the opening in the bolt passage.

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