

No. 675,993.

L. ABENDROTH.
SAFETY FUSE.

Patented June 11, 1901.

(Application filed Nov. 6, 1900.)

(No Model.)

Fig. 1.

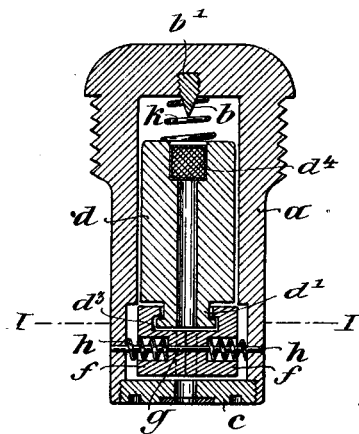


Fig. 2.

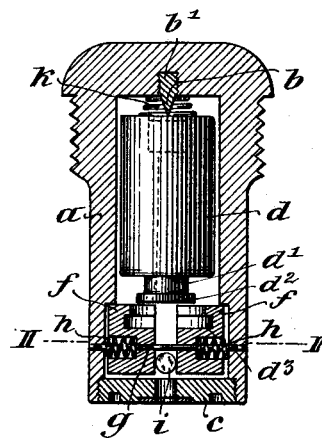


Fig. 3.

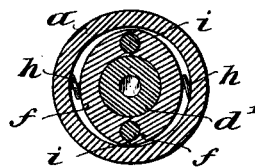
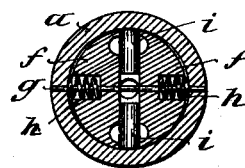


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

LOUIS ABENDROTH, OF SÖMMERDA, GERMANY.

SAFETY-FUSE.

SPECIFICATION forming part of Letters Patent No. 675,993, dated June 11, 1901.

Application filed November 6, 1900. Serial No. 35,669. (No model.)

To all whom it may concern:

Be it known that I, LOUIS ABENDROTH, captain emtd., a subject of the King of Prussia, German Emperor, residing at Sömmërda, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Safety-Fuses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to safety-fuses for high-explosive shells; and it consists, essentially, in means for preventing the inadvertent or premature explosion of the shell while handling the same either for loading ordnance or when transporting the shells.

In order to render the present specification easily intelligible, reference is had to the accompanying drawings, in which similar letters of reference denote similar parts throughout the several views.

Figure 1 is a longitudinal section through the fuse, showing the bolt or hammer in its position of rest—i. e., secured against movement. Fig. 2 is a similar section showing the position of the parts when the shot has been discharged or on impact. Figs. 3 and 4 are horizontal sections on lines I I and II II of Figs. 1 and 2, respectively.

The housing *a* of the fuse is closed at the front end and turned out interiorly to receive the bolt *d*, the interior being enlarged at the rear end to receive the two retaining-sections *ff* for securing the bolt in its position of rest. These sections are suitably guided within the housing on a transversely-mounted guide-pin *g* and are normally pressed toward each other by means of springs *h*, advantageously coiled around the said guide-pin and lying in recesses of the said sections, as will be readily understood on reference to Figs. 1 and 2 of the drawings. The rear end of the bolt *d* is turned down to form a neck *d'*, having an enlarged flange *d²* at the end, and the adjacent surfaces of the disks *ff* are turned out to fit around and inclose the said neck and collar, as indicated at *d³* in Fig. 2. The front end of the bolt *d* is provided with the detonating cap *d¹*, while a firing-pin *b'* is fixed inside the head of the fuse, a spring *k* being provided to normally press the bolt *d*

toward the retaining-sections *f*. The two retaining-sections *f* are capable of movement within the housing *a* and are each recessed at both sides of the reduced end of the bolt *d* to receive pins *i i*, which stand or lie in the said recesses when the two sections are closed one against the other to engage the neck of the bolt.

The device operates in the following manner: Normally the bolt *d* is pressed rearwardly by the spring *k*, and its neck is engaged by the recessed part of the retaining-sections *ff* by the action of their springs *h h*, so that a forward movement of the said bolt toward the firing-pin *b'* is impossible. As soon as the projectile is discharged the centrifugal power generated by the rapid rotation of the same around its longitudinal axis will throw the two halves of the retaining-block—i. e., the sections *ff*—apart, thus releasing the collar of the bolt *d*. The two sections are prevented from returning by the pins *i i*, which fall down, as illustrated in Figs. 2 and 3, between the same as soon as the sections are far enough apart. The pins *i* stand upright in the grooves in the adjacent faces of the sections of the retaining-socket while the same are in their normal positions, as shown in Fig. 3. When the sections are moved apart to a prearranged extent by centrifugal force, as shown in Figs. 2 and 4, the pins fall out of their grooves and drop sidewise between the faces of the sections, so that the sections are locked apart and cannot move toward each other if the projectile should cease to rotate upon its axis before striking. On impact the bolt *d* is therefore free to fly forward, and the firing-pin *b'* discharges the cap. The bolt *d* is longitudinally bored out, and an opening is also provided in the end plate *c* to allow the effect of the discharge of the cap free exit.

I claim as my invention—

1. The combination, with a housing, a detonating cap, and a slidable bolt for firing the cap; of a retaining-socket formed in sections and normally preventing the said bolt from sliding, and locking devices which drop automatically between the adjacent surfaces of the said socket-sections and wedge them apart when the said sections are separated by centrifugal force sufficiently to release the said bolt, substantially as set forth.

2. The combination, with a housing, a detonating cap, and a slidable bolt for firing the cap; of a retaining-socket formed in sections and normally preventing the said bolt from
5 sliding, said sections being provided with grooves in their adjacent faces, and locking-pins arranged in the said grooves and free to fall between the ungrooved portions of the
10 said faces after they have been separated by centrifugal force sufficiently to release the said bolt, substantially as set forth.

3. A safety-fuse for high-explosive shells consisting of a housing having a bolt with detonating cap mounted to slide longitudinally
15 therein, an enlarged chamber in the said housing at the rear of the bolt, two sections mounted therein and guided transversely therein, said sections being capable of movement
20 within the chamber to and from each other, means for locking the said bolt to the sections when the latter are closed against each other and means for retaining the said sections apart after they have been thrown apart by centrifugal force to release the bolt in the

manner and for the purpose substantially as 25 described.

4. In a safety-fuse the combination of a housing having a bolt longitudinally movable therein and carrying the detonating cap, two retaining-sections mounted within said hous- 30 ing and capable of transverse movement therein to and from each other, said sections being normally spring-pressed toward each other, a firing-pin in the front end of the housing and means for normally holding the 35 bolt away from the same, means for coupling the said sections to the rear end of the bolt when the former are closed against each other and means for arresting them when thrown apart by centrifugal force to release the said 40 bolt in the manner and for the purpose substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS ABENDROTH.

Witnesses:

PAUL TEICHMANN,
T. W. PETERS.