No. 700,643. Patented May 20, 1902.

O. HARTMANN.

TIME FUSE.

(Application filed May 15, 1900.)

(No Model.)

Fig. 1.

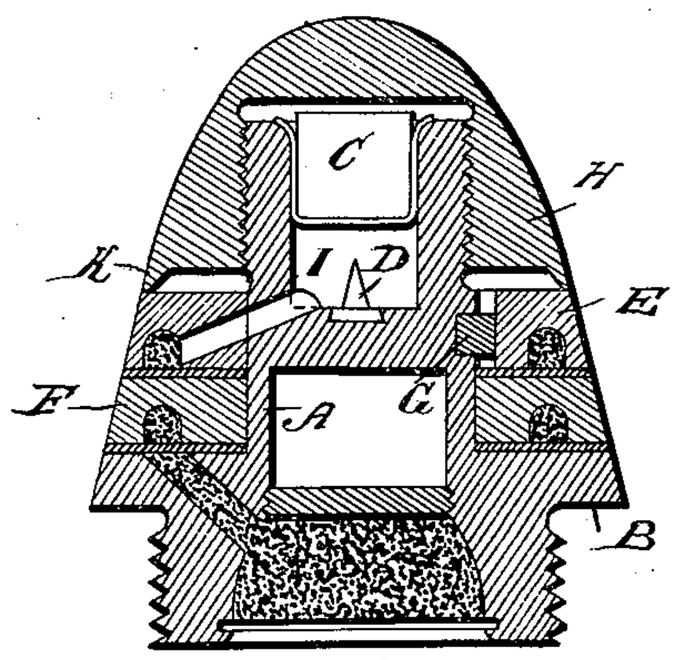
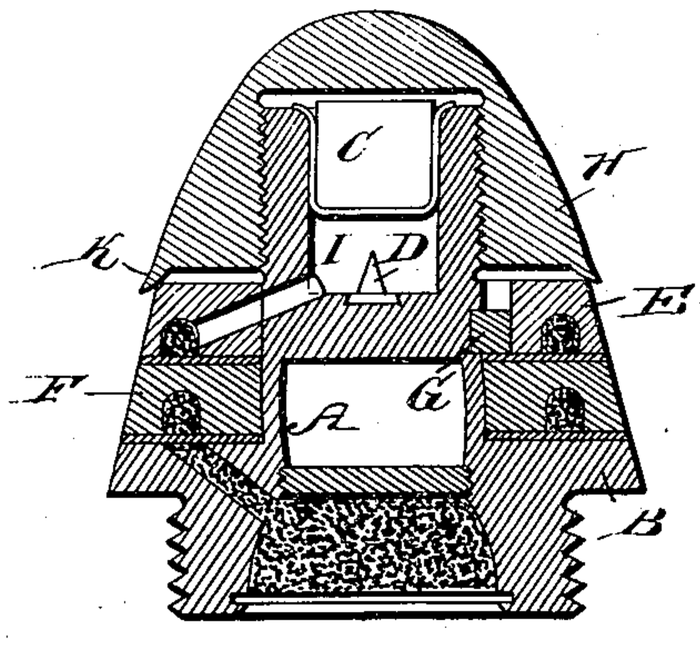


Fig. 2.



Witnesses

H. G. Dieterich

Harold Lewis.

Inventor

Oscar Hartmann

By Hervey S. Knight

Attorney.

UNITED STATES PATENT OFFICE.

OSCAR HARTMANN, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP, OF ESSEN, GERMANY.

TIME-FUSE.

SPECIFICATION forming part of Letters Patent No. 700,643, dated May 20, 1902.

Application filed May 15, 1900. Serial No. 16,722. (No model.)

To all whom it may concern:

Be it known that I, OSCAR HARTMANN, engineer, a citizen of the German Empire, residing at 11 Bahnhofstrasse, Essen-on-the-Ruhr, Germany, have invented certain new and useful Improvements in Time-Fuses, of which the following is a specification.

Figure 1 shows the fuse before the projectile is fired, and Fig. 2 shows the effect upon the fuse resulting from firing the projectile.

My invention has reference to improvements in time-fuses of the class provided with a ring containing mealed-powder composition and readily adjusted by hand without the use of a key or other tool; and it has for its object to prevent this adjustable powder-ring from being accidentally turned by the sudden rotation of the shell on firing and consequent premature ignition of the bursting charge in the shell.

With this object in view my invention consists, essentially, in the combination, in a time-fuse of the character set forth, of a spindle and a powder-ring adapted to turn freely about said spindle, and said spindle having its sectional area at the portion adjacent to or in contact with the powder-ring reduced sufficiently to insure lateral expansion or upsetting of the spindle against the powder-ring by the inertia of the several parts on firing, whereby the powder-ring is automatically jammed against rotation at the moment of firing.

The nature of my invention will best be understood when described in connection with the accompanying drawings, which represent a vertical cross-section of a time-fuse embodying my invention.

Referring to the drawings, wherein I have shown a time-fuse provided with a fixed and a movable powder-ring, the letter A designates the spindle or body of the fuse, which is made in one piece with the time-disk B and which, as usual, carries within its outer hollow portion I a plunger C and a firing-pin D. On the spindle A are mounted two powder-rings E and F, of which the ring E is prevented from being turned about the spindle by a key G and a suitable seat, while the latter ring, F, is mounted to turn sufficiently free on said spindle to permit a ready adjustment by hand without the necessity of employing a key or other tool for this purpose. The inner part of the spindle A—that is to say, the part adjacent to or in contact with the movable powder-ring F and forming a journal for the same—is bored or hollowed out for the purpose of reducing its sectional area at said portion sufficiently to insure upsetting or expansion of the spindle at this portion against the powder-ring by the inertia of the various parts on firing. The outer end of the spindle is externally threaded to receive a threaded cap H, provided at its inner end with a thin circumferential rest or bearing K, engaging the outer ring E and adapted to yield under pressure.

After the fuse has been timed by properly turning the powder-ring F the shell is placed into the breech of the gun. At the moment of firing a small retardation of the cap H and the upper thicker part of the spindle I takes place in view of the inertia of the said two parts, while by the impact and in view of the simultaneous spreading of the ledge K the lower or thinner part of the spindle A is upset or expanded at that portion adjacent to or in contact with the movable part of the powder-ring F. By virtue of this upsetting or expansion of the spindle the powder-ring F is locked or jammed against turning on the commencement of the rotation of the shell.

The time-fuse herein shown operates in the usual manner, and with the exception of the means for jamming the movable powder-ring is of a usual well-known construction. It is evident that the novel construction herein described may be embodied in time-fuses of other construction without departing from the spirit of my invention.

What I claim as new is—

1. In a time-fuse, the combination of a spindle and a powder-ring mounted to turn about said spindle, and said spindle having its sectional area at the portion adjacent to the powder-ring reduced sufficiently to insure lateral upsetting of said reduced portion against the powder-ring by the inertia of the several parts on firing; whereby the powder-ring is jammed and prevented from turning, substantially as described.

2. In a time-fuse of the character specified,

the combination of a spindle, a cap affixed to the outer end of the spindle and provided with a yielding bearing engaging the adjacent part of the fuse, and a powder-ring mounted to turn about said spindle, and said spindle having its sectional area at the portion adjacent to the powder-ring reduced sufficiently to insure upsetting of the spindle at said reduced portion by the inertia of the several parts on firing; whereby the powder-ring is jammed and prevented from turning, substantially as described.

3. In a time-fuse of the character specified, the combination of a spindle, a cap affixed to the outer end of the spindle and provided with a thin, circumferential rest or bearing engaging the outer fixed powder-ring, and an inner powder-ring adapted to turn about said spindle, and said spindle having its sectional area at the portion adjacent to the inner powder-ring reduced sufficiently to insure upsetting of the spindle at said reduced portion by the inertia of the several parts on firing; whereby the inner powder-ring is jammed and prevented from turning, substantially as described.

4. In a time-fuse, the combination of a spindle and a powder-ring mounted to turn about said spindle, and said spindle being hollowed out to reduce the sectional area at the portion thereof in contact with the powder-ring sufficiently to insure lateral upsetting of said reduced portion against the powder-ring by the inertia of the several parts on firing; whereby the powder-ring is jammed and prevented from turning, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

OSCAR HARTMANN.

Witnesses:
WILLIAM ESSENWEIN,
ERNEST ANDRÉ.