

1,356,633.

Fig. 1

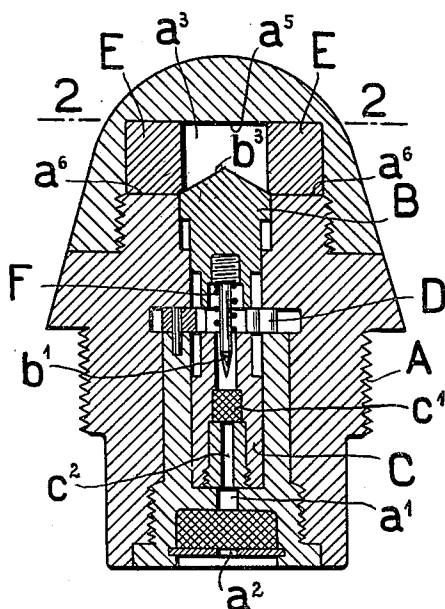


Fig. 2.

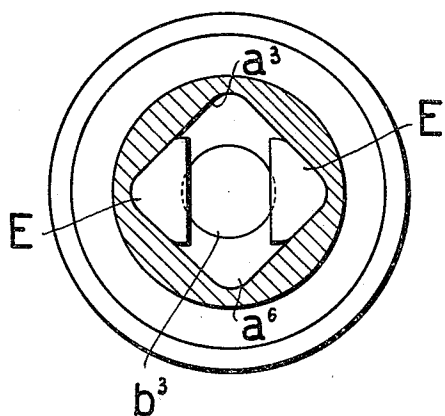


Fig.3.

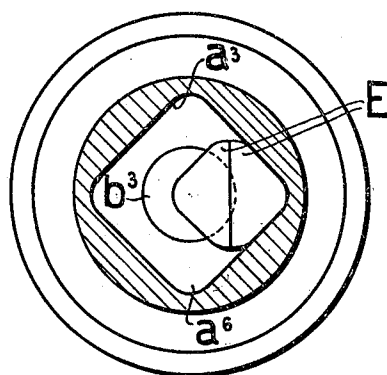
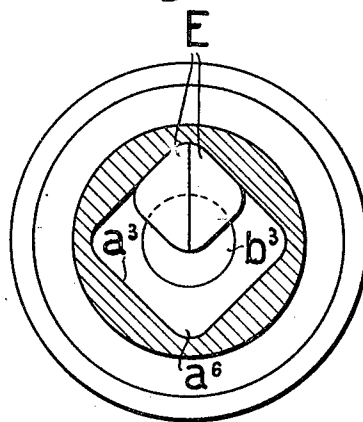


Fig. 4.



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PERCUSSION-FUSE FOR PROJECTILES.

1,356,633.

Specification of Letters Patent.

Patented Oct. 26, 1920.

Application filed September 7, 1920. Serial No. 408,748.

To all whom it may concern:

Be it known that I, HUGO KIRCHHOFF, residing at Essen, Germany, a citizen of the German Republic, have invented a certain new and useful Improvement in Percussion-Fuses for Projectiles, of which the following is a specification.

This invention relates to that class of percussion fuses for projectiles, which are adapted to effect ignition in any desired position in which the projectile strikes and the object of the invention is to provide for fuses of this class a particularly simple construction, which insures both absolute safety during transport and reliable action.

The invention will be described with reference to the accompanying drawings in which—

Figure 1 is a longitudinal section of the fuse.

Fig. 2 is a section on the line 2—2 of Fig. 1, looking from above, and

Figs. 3 and 4 are the same section as Fig. 2 with certain parts in other positions.

In the casing A of the fuse are mounted two strikers B and C, axially movable relatively to the casing, the first of which B carries a firing pin b^1 and the second C carries the corresponding primer c^1 . In the transport state of the fuse the two strikers are prevented by a centrifugal safety device D of known construction from mutual movement in the direction, in which the primer is struck. From the primer c^1 , a passage c^2 provided in the striker C and a passage a^1 provided in the casing of the fuse lead to the bursting charge a^2 .

The part of the striker B, which when the fuse is in the transport state, projects into a chamber a^3 in the casing A of the fuse is bounded by a raised frontal conical surface b^2 . The chamber a^3 , which is of rectangular section, contains two striking pieces E which are in contact with the conical surface b^2 , and are guided between two boundary surfaces a^5 and a^6 of the chamber a^3 , which surfaces are situated at right angles to the longitudinal axis of the fuse. When the fuse is in the transport state the striking pieces E are situated in two diagonally oppositely situated corners of the chamber a^3 (see Fig. 2) and are pressed by a spring F through the medium of the conical surface b^2 against the boundary faces of the chamber a^3 which meet in these corners.

Because in consequence of the described arrangement, a lateral movement of the striking pieces E, which results in the firing of the primer, is only possible, when the striker B simultaneously moves toward the striker C, this movement of these two parts toward each other, however, is prevented by the centrifugal safety device D, which at the same time indirectly also secures the striking pieces E in their transport position as shown in Figs. 1 and 2. The fuse is consequently perfectly safe against shock.

After the projectile has been fired and has left the barrel of the gun, the centrifugal safety device D automatically throws itself out of action in the well known manner, so that the two strikers B and C are only still held apart during the flight of the projectile by the comparatively weak spring F. The two striking pieces E are during this time held firmly by centrifugal force in their transport position as shown in Fig. 2, that is to say, the centrifugal force acts in opposition to an inwardly directed movement of the striking pieces, which would have the effect of causing the striker B to move in a direction to fire the primer.

If when the projectile hits the object fired at, it strikes with its point, the striker C flies forward and drives the primer c^1 on to the firing pin b^1 . If on the other hand the projectile strikes the object fired at with its base, the striker B flies forward and fires the primer. When the projectile strikes on its side and when the impact takes place at a point, which lies on the diagonal plane of the chamber a^3 , which plane passes through the striking pieces E, the striking piece, which lies next to the point of impact retains its position while the striking piece opposite it flies forward under the action of inertia (see Fig. 3) and thus imparts the firing movement to the striker B.

If on the other hand impact takes place at a point which lies on the other diagonal plane of the chamber a^3 , both the striking pieces E slide along the side walls of the chamber a^3 into the corner lying next to this point and thereby likewise impart the firing movement to the striker B. From the above it will be clear without further description that even in the general case, that the point of impact falls on any axial plane lying between the two diagonal planes, one of the two striking pieces E must in any case move

inward and by so doing bring about ignition. The fuse therefore acts in any position of impact of the projectile.

Claims.

- 5 1. Percussion fuse for projectiles, which is adapted to effect ignition in any position of impact of the projectile, characterized by the fact that it contains in addition to two strikers (B and C), which are movable in
10 the well known way in axial direction relatively to the casing independently of each other and which carry the means of ignition (b^1 and c^1), two striking pieces (E), which are movable in a lateral direction and
15 which when the fuse is in the transport state, are situated away from the longitudinal axis of the fuse and are only capable of

imparting the igniting movement to the striker (B) connected to them by a movement of approach on this axis. 20

2. Percussion fuse according to claim 1, characterized by the fact that the two striking pieces (E) are situated, when the fuse is in the transport state, in two opposite corners of a chamber (a^3) of rectangular cross section and bear with their inner faces against an end face (b^3) of the striker (B) which face rises toward the center. 25

The foregoing specification signed at Essen, Germany, this 27th day of May, 1920. 30

HUGO KIRCHHOFF.

In presence of—

HANS GOTTMANN,
JOSEF OLCERTZ.