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PERCUSSION FUSE FOR RIFFLED ARTILLERIES
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Fig. 2

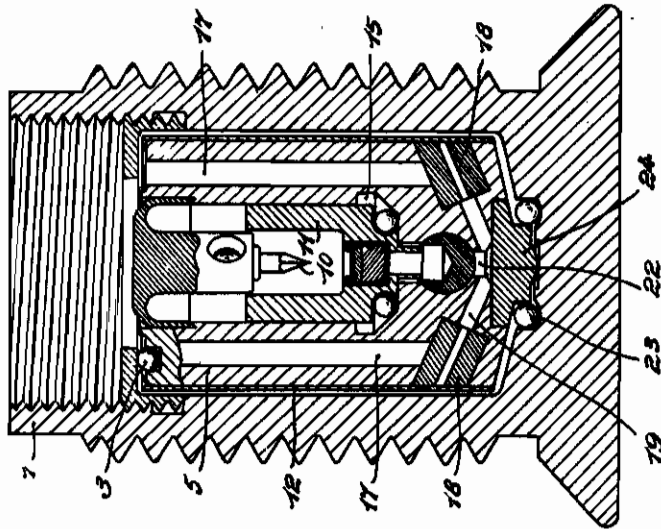
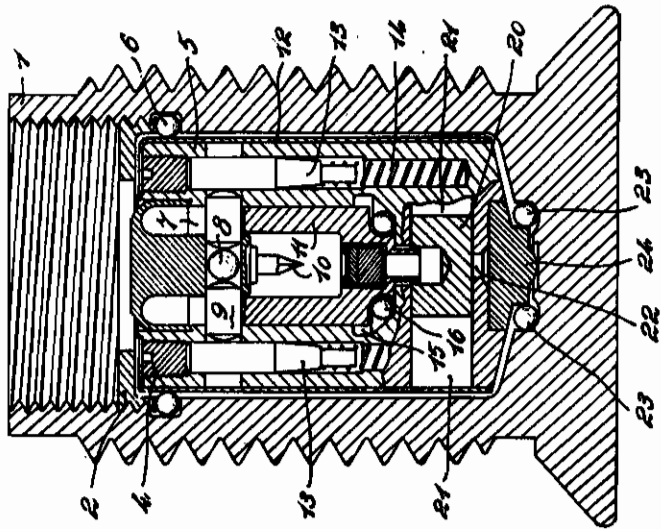


Fig. 1



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PERCUSSION FUSE FOR RIFFLED ARTILLERIES

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The present invention relates to a percussion fuse for rifled artilleries.

According to the invention, a percussion fuse for artillery is suggested comprising two complexes, the one solidary to the projectile, the other revolving with respect to the first so that the latter, only with retardation may assume the angular velocity capable of generating the necessary centrifugal force to arm the fuse.

According to the invention the percussion fuse for artilleries is further characterised by a safety device comprising two elements of such dimensions that whatever may be the excentricity of the projectile and consequently whatever may be the displacement of said elements under the action of the centrifugal force (towards opposite directions or towards a single direction) the kinematic elements of the subsequent movement are free to effect their own displacements.

The fuse according to the invention is further characterised in that the movement, essential for the functioning of the same fuse, of one of its members is determined by a component of the centrifugal force of one or several balls disposed in convenient circular seats within which said balls may freely roll.

Furthermore the invention relates to a percussion fuse for artillery characterised by one or several balls destined to generate through centrifugal force the essential movement for the functioning of the same fuse of one of its members, the balls being disposed in a circular conduit in such way that they may slide within, assuming with retardation and through friction the angular velocity sufficient to determine the essential movement above mentioned thus producing a retardation in making the fuse "live."

The invention is illustrated in the accompanying drawing in which:

Fig. 1 shows the fuse, object of the invention, in an axial section while

Fig. 2 shows the same fuse in an axial section perpendicular to the section illustrated in Fig. 1.

With reference to the drawing the fuse comprises an outside cup-shaped envelope 1 within which there is mounted a turning device constituted by a fuse body 5 with a main cylindrical axial cavity 7 widening at a certain height to build a chamber 15 with a partially conical wall and tapering downwards forming a conduit 22 for the passage of fire.

In the main cavity 7 above mentioned there is disposed a cap carrier 11 longitudinally bored provided with a lower appendix which, when at rest blocks in its place a lower safety system 20

sliding in another cavity 21 of the same body, said system, when at rest, blocking the conduit 22 above mentioned for the passage of fire.

The cap carrier in its outside lower part is provided with a throttling which comes to be in correspondence with the chamber 15 above mentioned.

In the annular room limited in the chamber 15 mentioned by the throttling of the cap carrier 11 there are disposed one or several balls 16.

Upwards in the axial hole of the cap carrier there is disposed a pin 10 solidary with the body and provided with a transversal hole which when at rest is coaxial with the corresponding bore of the body.

Within the conduit comprising the bore of the pin and the corresponding bores of the bore there is mounted an upper sliding safety system comprising balls 8 and pawls 9 or the ones together with the others said system being blocked on the spot when at rest by means of arming masses 13 disposed in convenient holes of the body and kept in their place by convenient springs 14 and plugs 4 or by means of a like system.

The elements of the safety system above mentioned are proportioned in such a way that whatever may their displacement (when arming masses have run back) the cap carrier may freely advance eventually pushing forward an element of the system till the shock occurs of the cap against the pin.

From the lower part of the fire passage, blow the lower safety system 20 there branch out one or several holes 19 ending at analogous seats containing fire elements 18 of retardation or reinforcement.

From the same seats there are detached further conduits 17 serving to convey to the explosion charge of the projectile.

The revolving device is closed by means of an outside cup socket 12 and is completed downwards by a supporting pivot 24 guided by a ball crown 23 pressing against convenient seats of the cup shaped envelope.

In the upper part there is provided a series of balls 6 as a further guide of the revolving device and at last a cup socket 2 fixed to the envelope prevents the interposition of one or more balls 3 consequently the axial advance of the revolving device with respect to the cup shaped envelope.

The fuse functions as follows: when in the safety position the kinematic members are disposed as illustrated in the drawing and cannot move since they are reciprocally blocked. When the shot is fired the arming masses run into the

rear position owing to inertness and compress the respective springs, so that the upper safety system 8 and 9 may freely move.

During the projectile path in the bore the positive acceleration prevents balls and pawls from sliding within the respective conduit. At the same time while the cup like envelope solidary to the projectile takes with this latter the revolving motion, the inside revolving device owing to rolling inertness rolls in a relative motion on the balls and assumes only with retardation, independently from a certain sliding the angular velocity of the projectile.

Similarly besides the retardation of rotation of the revolving complex with respect to the cup like envelope, the balls 16 roll also in a relative motion within the annular conduit in which they are free, so that with only a further retardation with respect to the same revolving device they assume, always independently from a further sliding, the angular velocity of the projectile.

When the revolving device has reached a suffi-

cient angular velocity the upper safety device owing to the centrifugal force, is disengaged; subsequently the balls 16 owing to centrifugal force slip away from the axis of rotation of the fuse by sliding on truncate conical wall of the chamber 15 and displacing forward the cap carrier 11 whose lower appendix blocks the lower safety system 20. This latter in its turn is displaced owing to centrifugal force setting at liberty the conduit for fire passage. At the shock on the target the cap carrier advances owing to inertness against the pin and causes the explosion of the cap, the flame thereof being propagated to the fire parts 18 determining the priming of the explosion charge of the projectile.

The present invention has been illustrated and described in a preferred form of realisation, but it is clear that constructive variations may be practically introduced therein without surpassing the limits of protection of the present industrial patent.

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