Feb. 24, 1931. A. F. TEITSCHEID 1,793,567

SUPERSENSITIVE FUSE FOR PROJECTILES

Filed Sept. 19, 1928

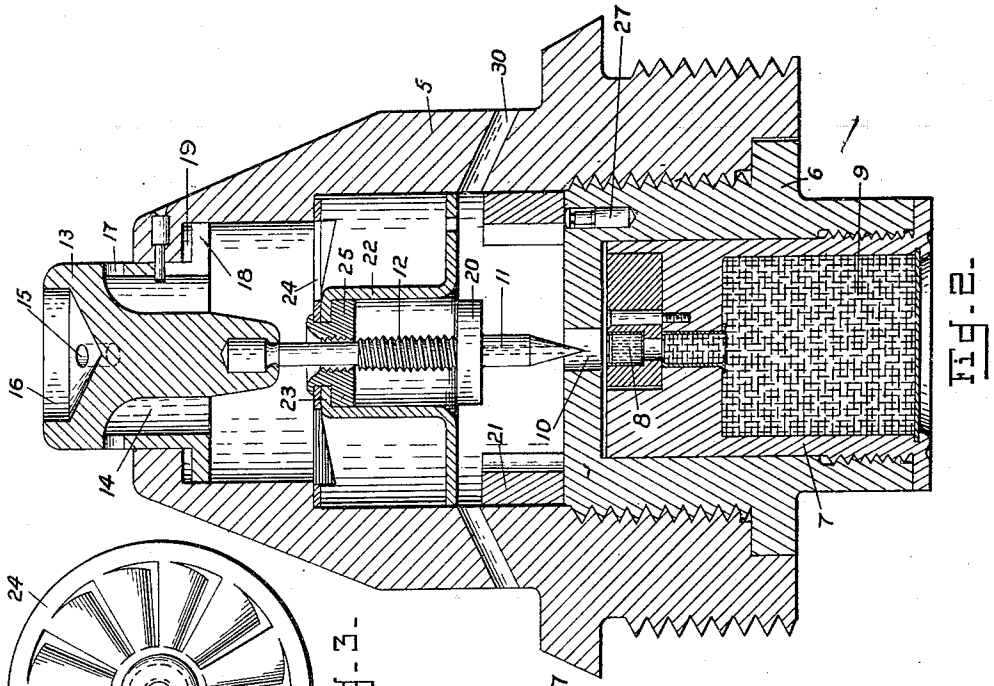

Fig. 2.

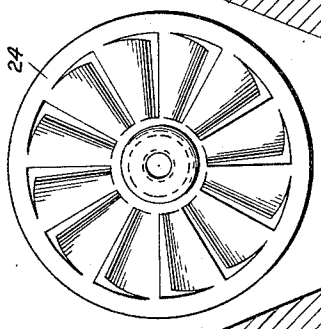

Fig. 3.

Fig. 1.

Fig. 4.

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UNITED STATES PATENT OFFICE

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SUPERSENSITIVE FUSE FOR PROJECTILES

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(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 me of any royalty thereon.

The subject of this invention is a supersensitive fuse for projectiles.

The principal object of the invention is to provide a novel mechanism for holding an air balanceable striker in the unarmed position.

With the foregoing and other objects in view, my invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a longitudinal sectional view of the improved fuse shown in the unarmed position;

Fig. 2 is a similar view of the fuse in the armed position;

Fig. 3 is a plan view of the vane;

Fig. 4 is a detail sectional view of the striker.

Referring to the drawings by numerals of reference:

The fuse container consists of a hollow one-piece casing 5 threaded externally at its rear end for attachment to a projectile and threaded internally at its rear end for attachment of a diaphragm 6 to which is secured an explosive train 7 having a primer 8 and a booster charge 9. The diaphragm is formed with a central aperture 10 to permit passage of a firing pin 11 which is provided with a threaded stem 12. The stem is fixed to an air-balanceable striker 13 formed with an annular recess 14 in its under side and this recess is in communication with the atmosphere by means of ducts 15 leading to a recess 16 in the forward face of the striker and also by means of apertures 17 in the side walls of the striker. The striker is further formed with a flange 18 which is engageable with the inturned lip 19 of the casing 5 to limit extrusion of the striker.

The firing pin carries a collar 20 which rests on segmental blocks 21 embracing the firing pin and seated on the diaphragm. The blocks are normally held against separation by means of a cage 22 whose forward end 23 is secured to a vane 24 and the hub 25 of the vane is threaded on the stem 12 of the firing pin. The lower portion of the cage 22 is formed into an annular disk 26 which extends laterally to the inner wall of the casing and overlies the diaphragm. A pin 27 mounted in the diaphragm is normally held by a split ring 28 in an aperture in the disk 26 to prevent rotation of the cage and vane. This pin is withdrawn on setback when the projectile is fired.

The air currents which are admitted to the interior of the hollow casing 5 during flight of the projectile act on the vane 24 to cause its rotation and consequent forward displacement on the stem 12 and during this movement displacing the cage 22. The vane is stopped by lack of threads on the firing pin 12 but when it has reached this point the cage will have uncovered the segmental blocks 21 which are then free to be thrown outwardly by centrifugal force to release the firing pin. The striker unit is retained in the armed position by reason of the flow of air which passes through the apertures 17 in the side walls of the striker and also by the air which is banked up between the disk 26 and diaphragm 6.

If desired, escape ports 30 may be formed in the wall of the casing 5 between the vane 24 and disk 26 when unarmed and in position to be in rear of the disk and partially obturated after the disk has been forwardly displaced. This will insure a flow of air through the apertures 17 which is necessary to maintain the striker in the armed position.

I claim:

1. A fuse embodying a hollow casing having a centrally apertured diaphragm, an explosive train carrier secured within the casing, an air balanceable striker in the nose of the casing, a firing pin having a threaded stem fixed to the striker, a collar on the firing

pin, centrifugally releasable blocks embracing the firing pin between the collar and the diaphragm, a vane threadedly mounted on the stem of the firing pin, a cage secured to the vane and confining the blocks and releasable means for normally holding the cage against rotation.

2. A fuse embodying a hollow casing, an air-balanceable striker in the nose of the casing, a firing pin having a threaded stem secured to the striker, centrifugally releasable means for retaining the firing pin against inward movement, a vane disposed within the casing and threaded to the stem of the firing pin, a cage carried by the vane and confining the firing pin retaining means and means engaging the cage for normally holding it against rotation.

3. A fuse embodying a hollow casing, an air balanceable striker in the nose of the casing, a firing pin having a threaded stem secured to the striker, centrifugally releasable means for retaining the firing pin against inward movement, a vane disposed within the casing and threaded to the stem of the firing pin, a cage carried by the vane and confining the firing pin retaining means and said casing having an air escape port in rear of the vane and positioned to be in rear of the cage when the cage is elevated.

4. In a fuse, a hollow casing having communication with the atmosphere, an air balanceable striker in the nose of the casing, a firing pin having a threaded stem secured to the striker and normally held in the safe position and a vane within the casing mounted on the threaded stem and controlling release of the firing pin.

5. In a fuse, a casing having communication with the atmosphere, an element of a firing mechanism movably mounted in the casing and normally held immovable, and a vane mounted for movement axially within the casing to control release of the firing pin.

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