Feb. 12, 1924. 1,483,068

W. A. BORDEN

SAFETY DEVICE FOR BOMB FUSES

Filed June 27, 1922

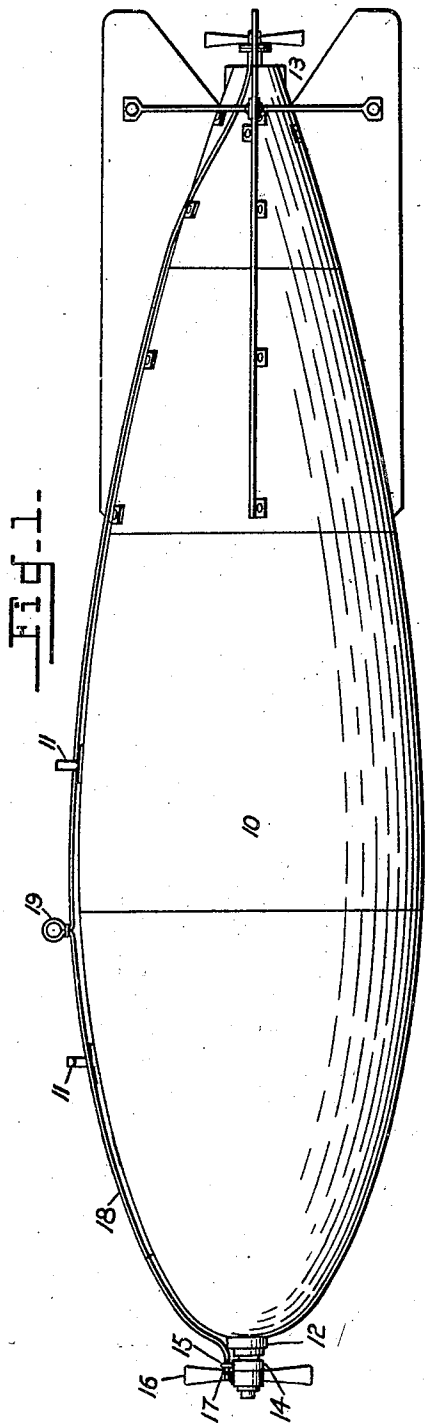


Fig. 1.

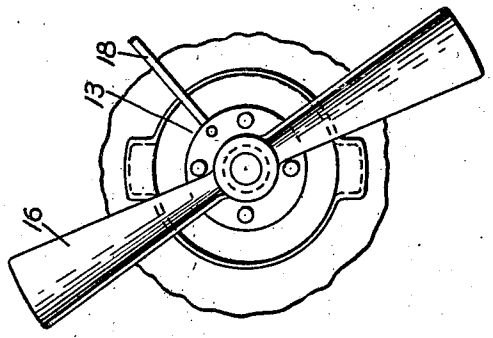


Fig. 3.

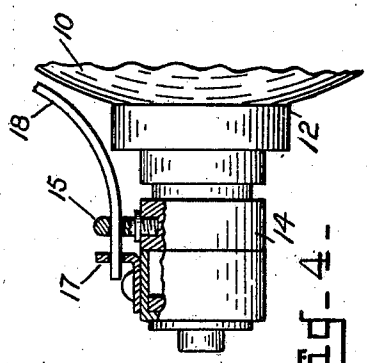


Fig. 4.

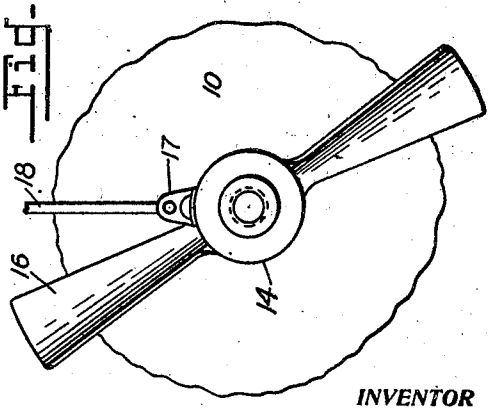


Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM A. BORDEN, OF THE UNITED STATES ARMY.

SAFETY DEVICE FOR BOMB FUSES.

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(FILED UNDER THE ACT OF MARCH 3, 1883, 22 STAT. L., 625.)

To all whom it may concern:

Be it known that I, WILLIAM A. BORDEN, major, Ordnance Department, U. S. Army, a citizen of the United States, stationed at Washington, D. C., have invented an Improvement in Safety Devices for Bomb Fuses, of which the following is a specification.

The invention described herein may be used by the Government, or any of its officers or employees in prosecution of work for the Government, or by any other person in the United States, without payment to me of any royalty thereon, in accordance with the act of March 3, 1883.

The subject of this invention is a safety device for bomb fuses intended especially for use with fuses armed by the rotation of a wind wheel during flight of the bomb.

The main object of the invention is the provision of a safety device which will lock the fuse against arming during transportation of the bomb or when the bomb is dropped safe and which may be readily released when the bomb is dropped from the bomb rack of aircraft with destructive intent, said device so constructed that it will lock one or more fuses at either end of the bomb or at both ends.

A still further object of the invention is the provision of a simple, cheap and efficient safety device for bomb fuses.

With these and other objects in view which will hereinafter more fully appear the 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 drawing, wherein:

Fig. 1 is a side elevation of a bomb equipped with my safety device;

Fig. 2 is a front elevation;

Fig. 3 is a rear elevation;

Fig. 4 is an enlarged fragmentary view in side elevation, partly in section of the safety device.

A bomb is indicated by the numeral 10, provided with the usual carrying lugs 11, and with the nose fuse 12 and the tail fuse 13.

While I have shown a fuse in both the nose and tail, it is to be understood that either fuse may be dispensed with without departing from the spirit of the invention.

As the specific structure of the fuse forms no part of the present invention the same will not be described in detail.

Referring to the nose fuse 12, as both fuses may be of the same construction, the parts essential for the purpose of the present invention are the body or casing 14, immovable with respect to the fuse body and provided with a suitable aperture, herein shown as screw eye 15, the parts lying adjacent a wind wheel 16 which is rotated by the air during flight of the bomb, after launching, to arm the fuse. The wind wheel 16 is provided with an aperture 17, conveniently located in the hub or other suitable part of the wind wheel, adapted to be brought into alinement with the aperture in the screw eye 15.

A wire 18 extends longitudinally of the bomb body and may conveniently be passed through the carrying lugs which act as guides for the wire, and the end of the wire passes through the apertures thereby normally locking the wind wheel against rotation to arm the fuse. The wire is provided with a loop 19 adapted to engage a hook (not shown) on the bomb rack so that the wire may be held and withdrawn from the bomb as the bomb is launched, or the loop may disengage from the hook when the bomb is dropped safe, the parts being so constructed that the frictional engagement of the wire in the apertures is sufficient to overcome the frictional engagement between the loop and hook when the hook is released.

From the foregoing it is evident that the main object of the invention is the provision of an aperture in the hub of the wind wheel, or any portion attached thereto and rotatable therewith, and an aperture in an adjacent stationary portion through which apertures the wire may be passed.

I claim:

1. The combination with a fuse, including a wind wheel formed with a radially extending portion provided with an aperture, a portion stationary with respect to the wind wheel and adjacent thereto, said

portion formed with a radial extension provided with an aperture with which the aperture in the wind wheel may be brought into alinement, of a wire passing through the apertures and formed with a loop whereby the wire may be withdrawn from the apertures when a bomb carrying the fuse is launched.

2. The combination with a fuse, including a wind wheel having a radially extending portion provided with an aperture, a portion stationary with respect to the wind wheel and adjacent thereto provided with a radially extending portion having an aperture therein with which the apertures in the wind wheel may be brought into alinement, of releasable means engaging the apertures for locking the wind wheel against rotation, said means withdrawn by launching of the bomb.

3. The combination with a fuse, including a wind wheel formed with a radially extending portion provided with an aperture, a portion stationary with respect to the wind wheel and adjacent thereto formed with a radially extending portion provided with an aperture with which the aperture in the wind wheel may be brought into alinement, of a wire passed through the apertures and formed with a loop through which the wire may be withdrawn when a bomb is launched, the frictional engagement of the parts with the wire being such that a bomb may be dropped without releasing the wire whereby the fuse is maintained unarmed.

4. The combination with a fuse, including a wind wheel formed with a radially extending portion provided with an aperture, a portion stationary with respect to the wind wheel and adjacent thereto formed with a radially extending portion having an aperture with which the aperture in the wind wheel may be brought into alinement, of releasable means engaging the apertures for locking the wind wheel against rotation, said means withdrawn by launching of a bomb, the frictional engagement of the parts being such that the bomb may be dropped without releasing said means, whereby the wind wheel is maintained against rotation.

WILLIAM A. BORDEN.