G. A. COCK.

DETONATOR.

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1,211,919.

Patented Jan. 9, 1917.

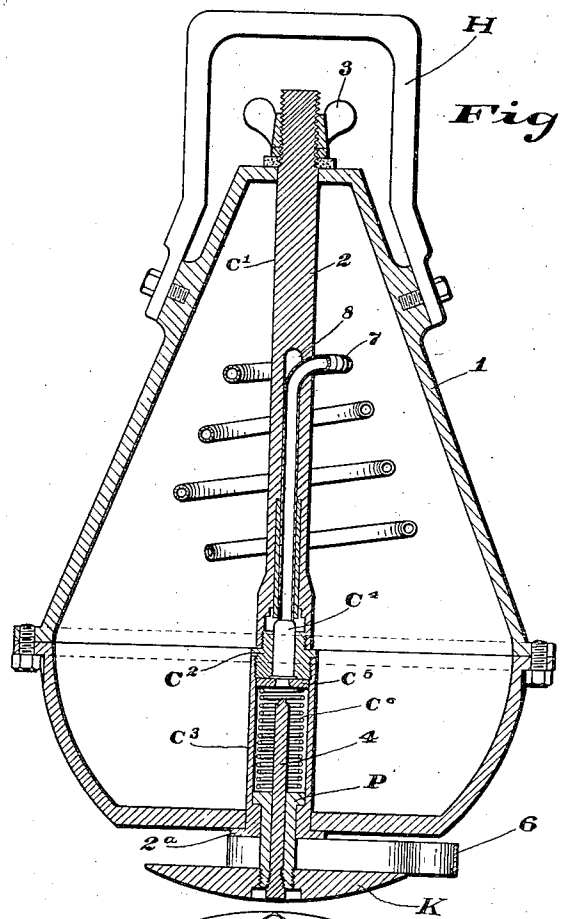


Fig. 1.

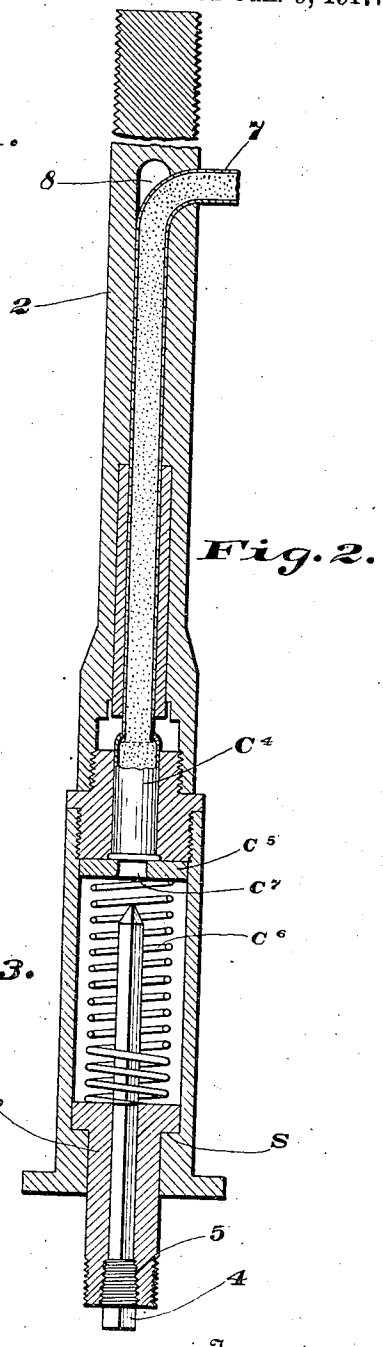


Fig. 2.

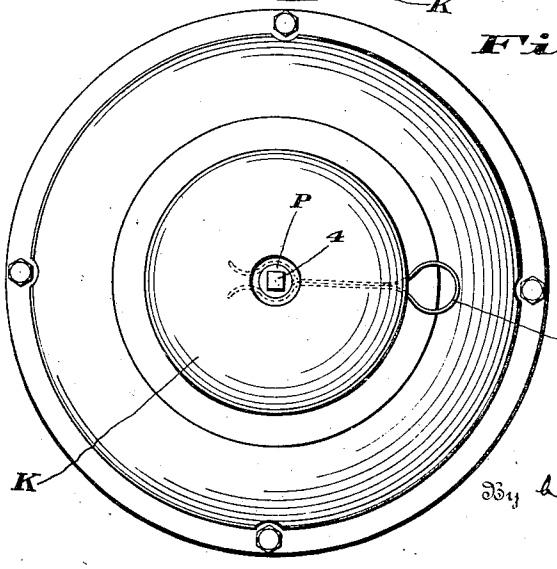


Fig. 3.

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GERALD ALFRED COCK, OF LONDON, ENGLAND, ASSIGNOR TO ERNEST A. BIGELOW AND ERNEST A. BIGELOW, JR., BOTH OF NEW YORK, N. Y.

DETONATOR.

1,211,919. Specification of Letters Patent. Patented Jan. 9, 1917.

Application filed March 10, 1916. Serial No. 83,223.

To all whom it may concern:

Be it known that I, GERALD ALFRED COCK, a subject of the King of Great Britain, residing at London, England, have invented new and useful Improvements in Detonators, of which the following is a specification.

The object of my invention is to provide a simple and safe apparatus for the detonation of relatively insensitive high explosives used as bursting charges in high explosive shells, aero bombs and torpedo heads.

In the drawing forming a part of this specification, I have illustrated the preferred embodiment of my invention applied to any aero bomb.

In the drawing, Figure 1 is a sectional view of a complete aero bomb embodying my improvements; Fig. 2 is an enlarged sectional view of the priming cylinder shown in Fig. 1; and Fig. 3 is a plan or bottom view of the bomb, with priming cylinder in position.

Referring in detail to the drawing, 1 designates the shell or housing of the bomb. This is preferably made in two parts, as shown, and forms a container for the explosive charge. At its upper end it is provided with a handle H. The priming cylinder 2, shown enlarged in Fig. 2, is disposed in the housing and is held rigidly in position at one end by a collar 2^a, and at the other end by a nut 3. By loosening the nut 3, the cylinder may readily be removed. The priming cylinder is made in three parts, C^1, C^2, and C^3, each provided with threaded connections, as shown, for assembling them into a unitary structure. The end member C^1 is threaded at its outer end to receive the nut 3, and at the other end is drilled or provided with a central opening to receive one end of the fuse hereinafter referred to. It is also threaded at its inner end to engage the member C^2, which latter is provided with a central opening to hold the brass percussion cap C^4. The percussion cap C^4 is loaded with from one-half to one gram of fulminate composition, and has a percussion cap or head. A retaining washer C^5 with an opening C^7 to receive a striker fits over the cap and is held in position by the spring C^6. The member C^3 is a cylinder and contains the piston P, the spring C^6 and the washer C^5, and is provided with a shoulder S to limit the outward movement of the piston. The piston is adapted to slide in the cylinder and is held in the position shown in the drawing by the spring C^6. The piston is threaded at its lower portion to receive the head K. The square pointed striker 4 is screwed into the piston as shown at 5 and is supported thereby, and its removal renders the apparatus safe against any ordinary handling. A spring-clip safety device 6 is provided, and when this is interposed, as shown in the drawing between the head and the shoulder 2^a, the bomb may be carried with the striker in position for immediate use with comparative safety.

7 designates a lead covered fuse from 4 mm. to 6 mm. in diameter, and is made of trinitrotoluol or similar insensitive high explosive. One end of this fuse extends through the opening 8 in the member C^1, and into the percussion cap C^4, while the body of the fuse is coiled as shown in the housing of the bomb, being embedded in and surrounded by the explosive charge, the latter, however, not being shown in the drawing.

In preparing the bomb for use, the percussion cap C^4 is placed over the freshly cut end of the fuse until the latter bears against the fulminate in the cap. The end of the cap is then firmly crimped over the fuse, and the member C^2 which has been unscrewed to facilitate this operation is then assembled on the end of the member C^1. The percussion cap is pushed snugly into position, the cylinder C^3 and its associated parts are assembled and screwed into position on the end of the element C^2, the striker 4 being placed in position, or not, depending upon the situation and the likelihood of immediate use.

If the explosive to be used as the main charge is 100% blasting gelatin, the fuse is buried in the gelatin during filling, and where melted explosives such as T. N. T. are used, they may be cast to fit the bomb with grooves to receive the fuse, which grooves may be filled with ground T. N. T., after the fuse has been placed in position.

While I have described my improvements with particular reference to an aero bomb, it is obvious that they are adapted and can readily be applied to high explosive shells of many kinds, to torpedo heads, and other high explosive devices. Also, while I have described only one embodiment of my in-

vention, I am aware that modifications may be made by those skilled in the art without departing from the scope of my claims.

What I claim as my invention is:

1. A bomb of the kind described comprising a housing, a priming cylinder located therein, a percussion cap disposed in said cylinder, and a detonating fuse having one end disposed in said cap, and its body portion coiled in the body of the bomb around the priming cylinder substantially as described.

2. A bomb of the kind described comprising a housing, a priming cylinder located therein, a percussion cap disposed in said cylinder, and a detonating fuse having one end disposed in said cap, and its body portion coiled in spiral form in the body of the bomb, a striker mounted in the priming cylinder and carrying a head exposed at the lower end of the bomb.

3. A bomb of the kind described comprising a housing, a priming cylinder located therein, a percussion cap disposed in said cylinder, and a detonating fuse having one end disposed in said cap, and its body portion coiled in spiral form in the body of the bomb, a striker mounted in the priming cylinder and carrying a head exposed at the lower end of the bomb, and a spring safety-clip adapted to hold the striker in inoperative position.

4. A bomb of the kind described comprising a housing adapted to receive a charge of explosive material, a priming cylinder located therein, a percussion cap disposed in said cylinder, a fuse of insensitive high explosive having one end disposed in said cap, and its body portion coiled in spiral form in the body of the bomb in combination, with means for firing the cap and thereby igniting the fuse and explosive in the bomb substantially as described.

5. In a bomb of the kind described, a housing, a priming cylinder located in said housing comprising an end member having a central opening adapted to receive the end of a fuse, a center member having a central opening adapted to receive a cap and an end member adapted to receive and support a firing pin, the said three members being adjustably connected, and all in combination with a detonating fuse having its end disposed in an opening in the first named end member and its body coiled in spiral form in said housing.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GERALD ALFRED COCK.

Witnesses:
H. D. JAMESON,
O. J. WORTH.