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FIRING MEANS FOR TORPEDOES.

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914,371. Patented Mar. 2, 1909.

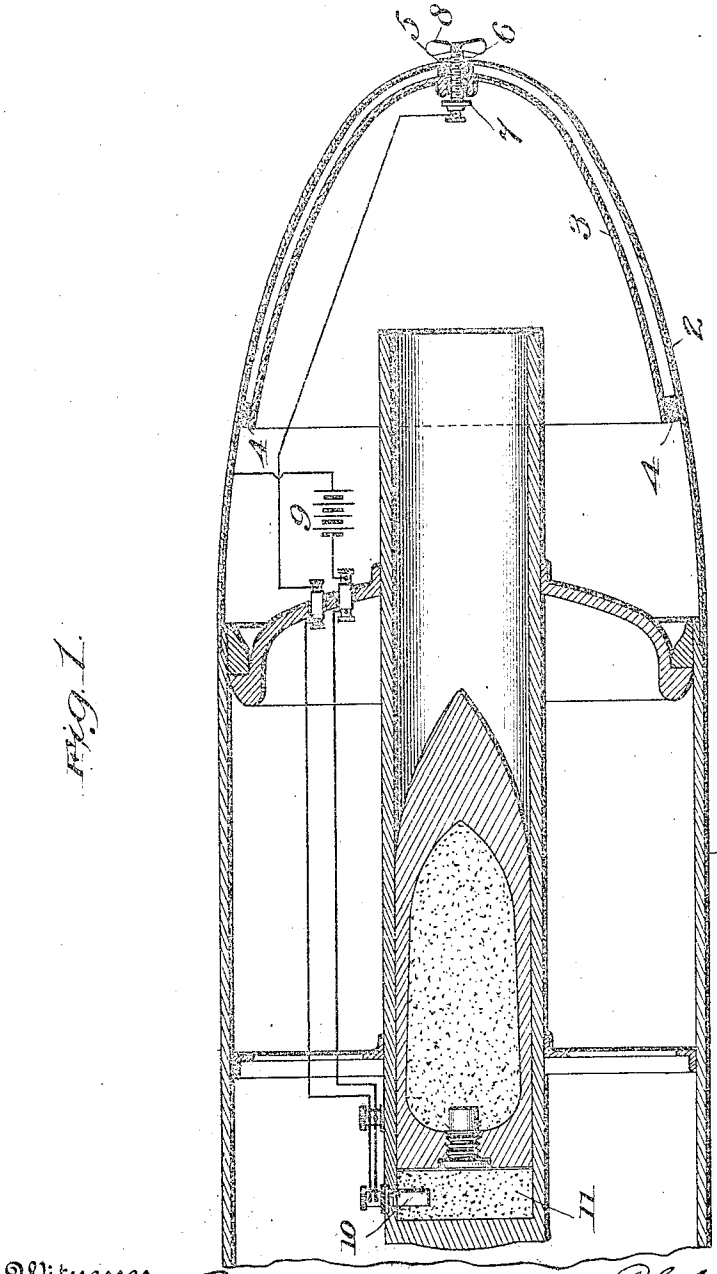


Fig. 1.

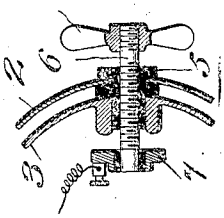


Fig. 2.

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UNITED STATES PATENT OFFICE.

CLELAND DAVIS, OF THE UNITED STATES NAVY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO NATIONAL TORPEDO COMPANY, OF NEW YORK, N. Y., A CORPORATION OF MAINE.

FIRING MEANS FOR TORPEDOES.

No. 914,371. Specification of Letters Patent. Patented March 2, 1909.

Application filed December 14, 1907. Serial No. 406,497.

To all whom it may concern:

Be it known that I, CLELAND DAVIS, lieutenant-commander, U. S. Navy, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Firing Means for Torpedoes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to firing devices for torpedoes in general, and the objects of my invention are to produce such a device as will not offer any material resistance to the passage of the torpedo through the water, one that will not tend to deflect the same during flight, one that will be certain to act no matter at what angle the torpedo may strike the object attacked, one that will be safe under all conditions of handling and which is simple and certain in action and cheap to construct.

With these ends in view my invention consists in the novel combination of parts and details of construction hereinafter more fully described and particularly pointed out in the claims.

Referring to the accompanying drawing forming a part of this specification; Figure 1, illustrates a longitudinal sectional view of the forward end of a torpedo with my invention attached, and, Fig. 2, an enlarged sectional view of the contact making device.

1, represents the body of a standard torpedo shell; 2, the war head, and 3, a hollow paraboloidal shaped shell conforming to the interior contour of the war head 2, and separated therefrom by the insulating means 4 and 5. Axially through the nose of the torpedo, passes the screw shaft 6, carrying the contact 7, and the small propeller 8. The direction of the threads of this shaft 6, are so chosen relatively to the propeller blades, that as the propeller is turned, owing to the torpedo being forced through the water, the said shaft will be forced forward to close the contact between the shell 3, and the contact 7. The friction between the propeller hub and the threads of said shaft, is furthermore such that after the contact 7, touches the shell 3, the propeller will then, as it continues to revolve, unscrew itself from said shaft and drop off. That is to say, the friction between the shaft and its nut is less than the friction between the propeller's hub and the shaft, and therefore the contact-7, will first be closed and then the propeller will automatically detach itself from the torpedo. Should it fail to drop off, however, no harm will be done, since the propeller is so small that it would not seriously interfere with the normal action of the torpedo.

9, represents any suitable source of electricity, one pole of which is connected to the outer shell of the torpedo, and the other pole to the inner shell 3, through the contact 7.

10, represents any suitable electric primer or other charge firing means, adapted to be operated by electricity, and 11, any suitable explosive adapted to be ignited by the firing means 10.

I have shown in the drawings a gun and projectile carried by the torpedo, but the same *per se* forms no part of my present invention, which is broadly adapted to torpedoes in general, although I prefer to fire such gun, by this particular invention, and consider the latter especially adapted for this particular arrangement of gun and torpedo.

The particular advantages of the above disposition of parts, lie in the important fact that the outer contour and ballistics of the torpedo are preserved intact, except for the small axially placed propeller and screw shaft, which do not affect the same; and therefore no deflection of the torpedo during flight is experienced due to the friction of the water against projections not axially placed. To the fact that the interior shell offers an infinite number of points of contact, so that no matter where the war head shell may be forced in, a contact with the inner shell will be made, and to the fact that since the circuit is normally broken at two points, one of which is, or may be, made only after the torpedo is in flight, absolutely no accidents can occur owing to the war head being accidentally crushed in.

The operation of my firing device is as follows:—The torpedo is loaded into its tube by any suitable means and fired when the propeller 8 causes the contact 7 to connect one pole of the battery with the inner shell 3, as above described. The circuit having been made to pass through the firing means 10, when the torpedo strikes, and the outer shell is crushed in, the circuit is completed through said means 10, and the charge 11, is fired. Owing to the contact 7, being insulated from

the screw shaft 6, a short circuit between the said shaft and outer shell through the salt water is obviated.

Of course I do not wish to be limited to the exact details of construction above described, since it is evident that the same may be varied without departing from the spirit of my invention.

Having now described my invention what I claim is:—

1. In a torpedo having a smooth unbroken exterior on all sides of its axis, the combination of a charge; and a contact firing means for the same adapted to operate at any angle at which the torpedo may strike; and comprising a circuit; and a plurality of contacts in series in said circuit, whereby the latter is normally broken at a plurality of points, substantially as described.

2. In a torpedo having a smooth exterior surface, except at the axis of its nose, the combination of a charge; an electric firing means for said charge, including a circuit, a plurality of contacts in series at which said circuit is normally broken, and means for automatically closing one of said contacts upon the firing of the torpedo, substantially as described.

3. In a torpedo having a war head, the combination of a shell conforming to the contour of said head, and a firing means adapted to be operated upon the contact of said head with said shell, substantially as described.

4. In a torpedo having a war head, the combination of a shell conforming to the contour of said head; an electric circuit, and a firing means adapted to be operated upon the contact of said head with said shell, substantially as described.

5. In a torpedo having a war head, the combination of a shell conforming to the contour of said head; an electric circuit; a contact adapted to connect the same with said shell, and a firing means adapted to be operated upon the contact of said head with said shell, substantially as described.

6. In a torpedo having a war head, the combination of a shell conforming to the contour of said head and insulated therefrom; an electric circuit connected to said head at one pole; a contact connected to the other pole; means for causing said contact to connect with said shell, and a firing means in said circuit, substantially as described.

7. In a torpedo having a war head, the combination of a shell following the general contour of said head and insulated therefrom; an electric circuit connected to said head at one pole; a contact connected to the other pole; means comprising a screw shaft for causing said contact to connect with said shell, and a firing means in said circuit, substantially as described.

8. In a torpedo having a war head, the combination of a shell following the general contour of said head and insulated therefrom; an electric circuit connected to said head at one pole; a contact connected to the other pole; means for causing said contact to connect with said shell, comprising a screw shaft and a propeller, and a firing means in said circuit, substantially as described.

9. In a torpedo having a war head, the combination of a shell following the general contour of said head and insulated therefrom; an electric circuit connected to said head at one pole; a contact connected to the other pole; means adapted to operate after the torpedo is fired for causing said contact to connect with said shell, and a firing means in said circuit, substantially as described.

10. In a torpedo the combination of the war head; a shell inside said head and insulated therefrom; a contact adapted to connect with said shell; an electric circuit joined to said head and contact; a firing means in the said circuit; and a screw propeller adapted to cause said contact to connect with said shell after the torpedo is fired, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

CLELAND DAVIS.

Witnesses:

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