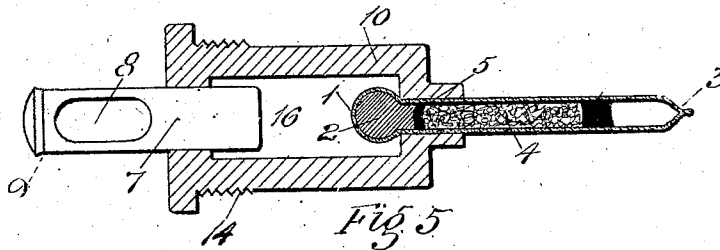
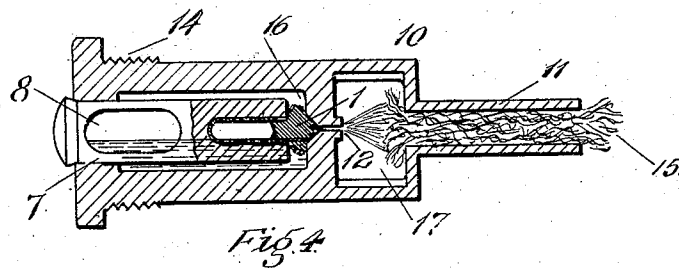
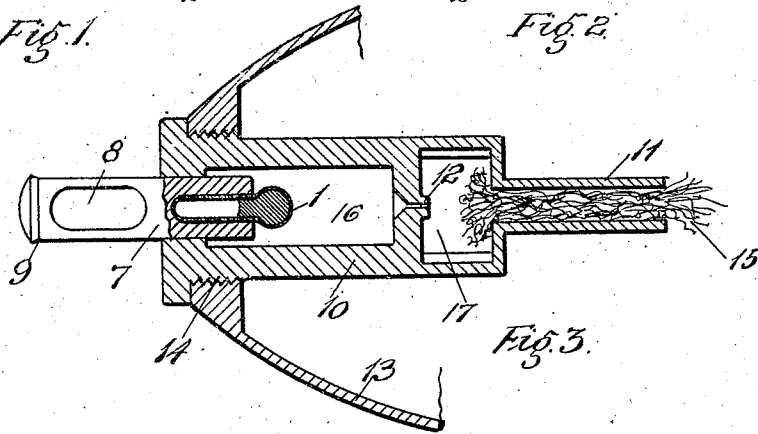
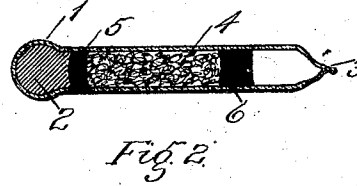
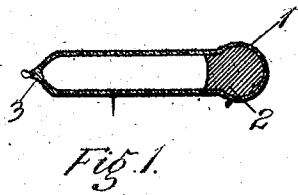


M. LARSEN.
TORPEDO.
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940,033.

Patented Nov. 16, 1909



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TORPEDO.

940,033.

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Patented Nov. 16, 1909.

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To all whom it may concern:

Be it known that I, MARTINUS LARSEN, a citizen of the United States, residing at Brooklyn, in the county of Kings, city and State of New York, have invented certain new and useful Improvements in Torpedoes, of which the following is a clear, full, and exact description.

The object of this invention is to provide an improved ignition means for a torpedo for sub-marine work.

The main object of the invention is to provide an ignition mechanism which cannot be exploded by accidental handling on ship-board or elsewhere, but which can only be fired when in the water, and when in the water can only be fired upon the torpedo striking an obstruction such as the side of a vessel.

In carrying out the invention, I locate the chemical ignitable when in contact with water, preferably in a glass tube, from which the air is exhausted, to keep the chemical in a perfect state of preservation, so that at any time even months after the completion of the tube, the chemical will be ready for ignition as soon as water is placed in contact therewith. In some instances I prefer to place within the tube containing the chemical gun cotton to absolutely insure explosion immediately upon the striking of an object by a torpedo.

In the accompanying drawings, Figure 1 is a longitudinal section of the glass tube or capsule for containing the chemical. Fig. 2 is a similar view of a tube, in which gun cotton is also inserted. Fig. 3 is a longitudinal sectional view, partly in elevation, of the end of a torpedo, equipped with my improved mechanism. Fig. 4 is a view of the plug of Fig. 3 as it should appear after striking an obstruction. Fig. 5 is a view of a plug of a modified form for use with the chemical and gun powder tube or capsule of Fig. 2.

As shown in the drawings, the torpedo shell 13 is threaded at 14 to accommodate plug 10. The plug 10 is formed with two chambers; a chamber 10 having a restricted orifice 12 communicating with a chamber 17 having an elongated sleeve 11 open to interior of the torpedo, which sleeve is preferably loosely filled with gun cotton 15. The front end of the plug 10 is bored to fit an impact impelled plug 7 tightly. The plug 7 may be soldered in place or electro-plated to

insure a tight fit. The plug 7 is formed with a beveled outer end of greater diameter than the plug, as shown at 9, and with an apertured pocket 8 in that part of the impact impelled plug 7, which extends outside of the plug 10. The interior of the plug 7 is centrally bored to receive the end of a capsule or glass tube 1 provided at one end with potassium or other chemical ignitable in the presence of water. Air is exhausted from the free part of the capsule or plug while air is freely present in the chamber 16. The plug 7 is preferably of less diameter than the chamber 16 in the plug 10.

If the torpedo be roughly handled on ship-board so that the striking plug 7 will be thrown inward, the glass tube 1 will be broken, but the potassium will remain inert due to the absence of water. On the other hand, if the plug 7, after the submerging of the torpedo, strikes an object, water will be admitted by the aperture or pocket 8, when the plug is in the position of Fig. 4, partially fill the chamber 16 so that the potassium when the tube is broken, will come in contact with the water, the potassium will become ignited, generate heat and steam in the chamber 16, which will force a flame of the potassium through the orifice 12 directly upon the gun cotton, explode the same, and ignite the contents of the combustion chamber of the torpedo.

In the device shown in Fig. 5, in place of the orifice 12, the chamber 17, the sleeve 11 and the gun cotton 15, I insert the tube or capsule shown in Fig. 2 into the chamber 16 before inserting the plug 7, so that the end of the glass tube 6 will project outwardly from the chamber 16, leaving the bulbous end of the glass tube within the chamber 16. In the capsule shown in this figure gun cotton 4 separated by walls of paraffin 5 and 6 from the free end of the tube, and from the potassium, is provided.

In the device of Figs. 5 and 2, the plug 7, upon being projected inwardly, will strike and break the bulbous end of the frangible capsule or tube, the water from the part 8 will ignite the potassium, the flame and heat ignite the gun cotton 4, blow out the plug 6 and the tube 3, and ignite the contents of the combustion chamber of the torpedo.

I claim as my invention:

1. The herein described ignition device for a torpedo, comprising a chamber containing a chemical which will ignite in the presence

of water, a protruding movable plug for contact with bodies exterior to the torpedo, a pocket in the plug for water exterior to the chamber, whereby upon the plug striking an obstruction water will be caused to enter the chamber from said pocket, an inclosing tube for said chemical, adapted to be broken upon impact of the torpedo.

2. The herein described ignition device for a torpedo, comprising a chamber containing a chemical which will ignite in the presence of water, a protruding movable plug for contact with bodies exterior to the torpedo, a pocket in the plug for water exterior to the chamber, whereby upon the plug striking an obstruction water will be caused to enter the chamber from said pocket, an inclosing tube for said chemical, adapted to be broken upon impact of the torpedo, said inclosing tube having the air exhausted therefrom.

3. In a torpedo ignition device, a chamber having a chemical ignitable in the presence of water, and an impact impelled mechanism movable into said chamber and formed to deliver a quantity of water of submersion to said chamber upon impact, said chemical being inclosed in a capsule, said impact impelled mechanism being adapted to break said capsule.

4. In a torpedo ignition device, a chamber having a chemical ignitable in the presence of water, and an impact impelled mechanism movable into said chamber and formed to deliver a quantity of water of submersion to said chamber upon impact, said chemical being inclosed in a capsule, said impact impelled mechanism being adapted to break said capsule, said capsule containing a vacuum.

5. In an ignition device for a torpedo, a chamber having a chemical ignitable in the presence of water, said chemical being contained within a capsule, and a movable element projecting from said chamber, and movable therinto by impact, said element being formed to provide a delivery of the limited quantity of water of submersion to said chamber during its movement under impact.

6. In a torpedo ignition device, a chamber having therewithin a chemical ignitable in the presence of water, a capsule containing said chemical, an explosive in said capsule, an impact impelled mechanism movable into said chamber and formed to deliver a limited quantity of water of submersion to said chamber upon impact, and adapted to disrupt said capsule.

7. In a torpedo ignition device, a chamber having a chemical ignitable in the presence of water, said chemical contained in a capsule, an impact impelled mechanism movable into said chamber and formed to deliver a limited quantity of water of submersion, and to disrupt the capsule upon impact, an

orifice from said chamber and an explosive in line with said orifice, whereby flames of ignition from the chemical will directly impinge upon the explosive.

8. In a torpedo, an explosive charge, a chamber having a chemical ignitable in the presence of water, and an impact-impelled mechanism movable into said chamber, and formed to deliver a limited quantity of water of submersion to said chamber upon impact.

9. In a torpedo, an explosive charge, a chamber having a chemical ignitable in the presence of water, and a movable element projecting from said chamber and movable therinto by impact, said element being formed to provide a delivery of a limited quantity of water of submersion to said chamber during its movement under impact.

10. The herein described torpedo, comprising the explosive charge, a chamber containing a chemical which will ignite in the presence of water, a protruding plug for contact with bodies exterior to the torpedo, a pocket in the plug for water, said pocket being so arranged that upon the plug striking an obstruction, water will be caused to enter the chamber from said pocket.

11. The herein described torpedo comprising a casing and explosive charge, an ignition plug having a chamber, a substance which will ignite in the presence of water in said chamber, a projecting rod for said chamber, an opening from said plug to the interior of the torpedo, said projecting rod extending from the torpedo, and carrying a water pocket, said projecting rod being so designed that when it is pressed inwardly the water pocket will occupy a position within the chamber, and means for opening communication between the chamber and the interior of the torpedo upon the inward pressure of the protruding plug.

12. The herein described torpedo comprising a casing and explosive charge, an ignition plug having a chamber, a substance which will ignite in the presence of water in said chamber, a projecting rod for said chamber, an opening from said plug to the interior of the torpedo, said projecting rod extending from the torpedo, and carrying a water pocket, said projecting rod being so designed that when it is pressed inwardly the water pocket will occupy a position within the chamber, and means for opening communication between the chamber and the interior of the torpedo upon the inward pressure of the protruding plug, said chemical being carried within a frangible air exhausted tube.

Signed at New York city this 23rd day of June 1909.

MARTINUS LARSEN.

Witnesses:

F. WARREN WRIGHT,
MABEL DITTENHOEFER.