

(No Model.)

2 Sheets—Sheet 1.

J. A. WALSH.
MARINE TORPEDO.

No. 601,604.

Patented Mar. 29, 1898.

FIG. 1.

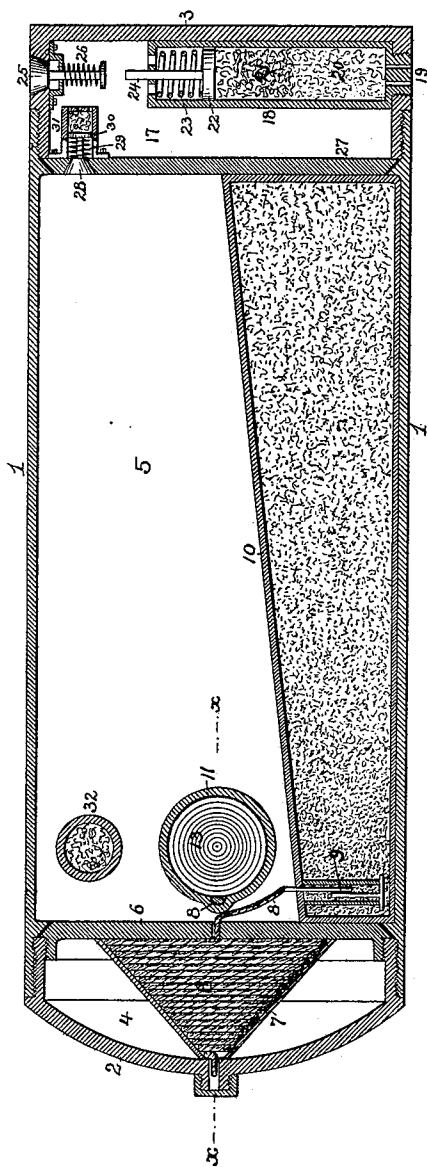
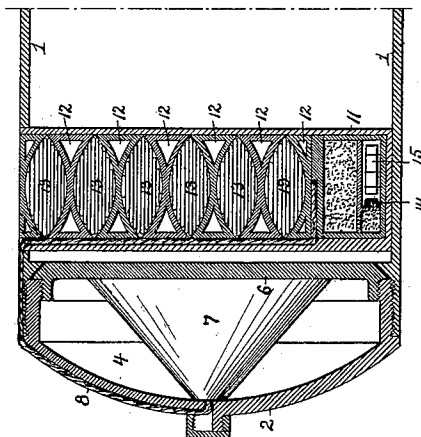


FIG. 2.



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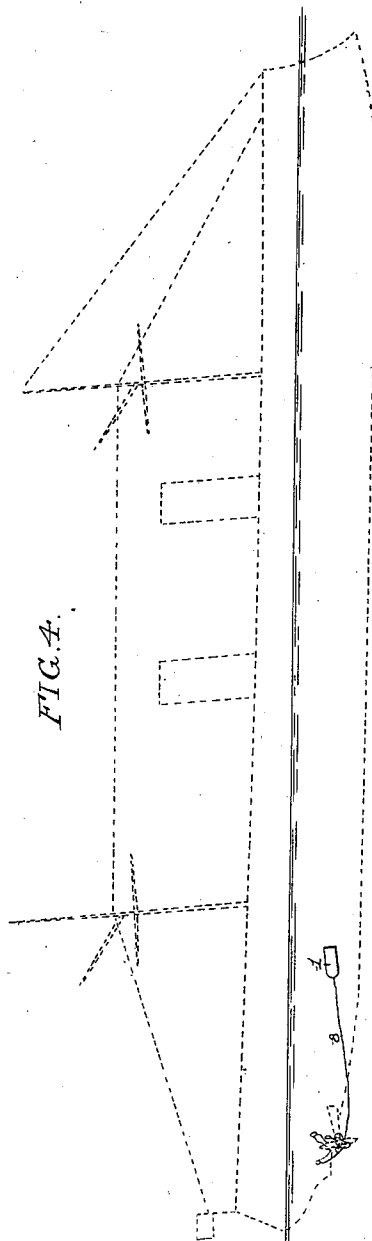
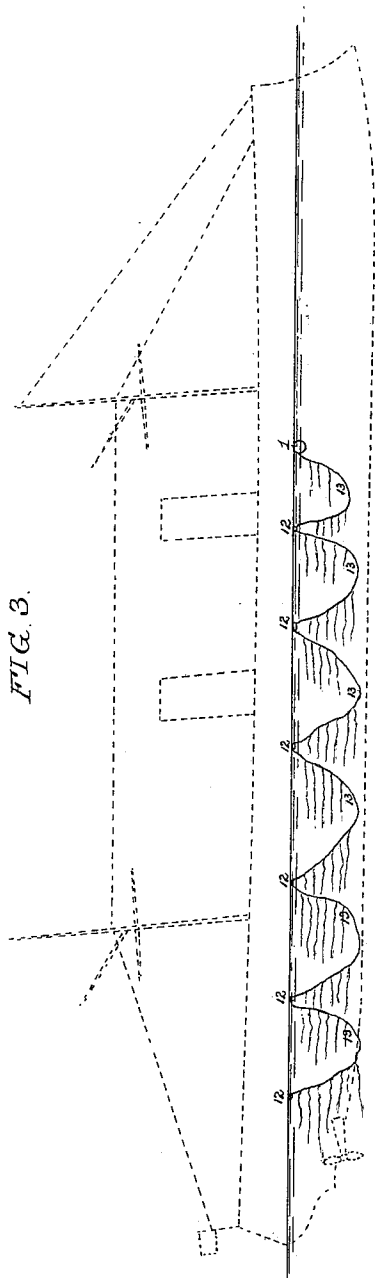
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UNITED STATES PATENT OFFICE.

JOSEPH A. WALSH, OF PHILADELPHIA, PENNSYLVANIA.

MARINE TORPEDO.

SPECIFICATION forming part of Letters Patent No. 601,604, dated March 29, 1898.

Application filed July 16, 1897. Serial No. 644,807. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. WALSH, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Marine Torpedoes, of which the following is a specification.

The object of my invention is to provide a marine torpedo intended especially for disabling the screw and rudder of an enemy's
10 ship, an object which I attain by combining the explosive shell of the torpedo with a snare intended to foul the screw and to be wound up by the latter, so as to draw the torpedo into proximity to the screw and rudder before
15 the shell is exploded.

A further object of my invention is to so construct the torpedo that in case it fails in its intended purpose or misses its aim it will in a short time become flooded with water and
20 will sink, so as to prevent it from causing injury to a ship other than that at which it is fired.

These objects I attain in the manner hereinafter set forth, reference being had to the
25 accompanying drawings, in which—

Figure 1 is a longitudinal section of a torpedo constructed in accordance with my invention. Fig. 2 is a view of the same, partly in elevation and partly in transverse section,
30 on the line *x x*, Fig. 1; and Figs. 3 and 4 are views illustrating the intended action of the torpedo.

The shell or casing 1 of the torpedo is preferably in the form of a cylinder and is closed
35 at one end by a cap 2 and at the other end by a cap 3, these caps being secured to the shell or casing of the torpedo either by screwing them into the same, as shown, or in any other available manner.

The cap 2 contains a chamber 4, which is separated from the chamber 5 in the body of the torpedo by the inner plate 6 of the cap, which forms a water-tight joint with the casing 1, and in said chamber 4 is a conical receptacle 7, containing a coil 8, of rope covered with tar or other waterproof and adhesive material and of a strength sufficient to tow the torpedo through the water, one end of this coil being connected to a friction-primer 9 in an explosive shell 10, contained
50 in the chamber 5 of the torpedo, and the

other end of the coil 8 passing out through an opening in the cap 2 and being led around the front end of the torpedo and into a chamber contained in a transverse barrel 11, which extends completely across the chamber 5 and is
55 permanently closed at one end and open at the other. That end of the rope 8 which extends into the barrel 11 is connected to the inner end of a multiple float contained in said
60 chamber, said multiple float consisting of a series of buoyant sections 12, with hollow ends, these sections being temporarily held together in any suitable way, and the chambers formed by the hollow ends of the adjoining
65 sections, containing coils of light rope 13, whereby the various sections of the multiple float are connected together.

The inner section of the multiple float contains explosive material and has a nipple with
70 percussion-cap 14 and a firing-bolt 15, normally held in position away from the cap by means of light wires or other readily-breakable retainers, so that when the torpedo meets with
75 any sudden resistance to its forward movement the retaining device will be broken and the bolt 15 will explode the cap or other percussion firing device and will thus cause the ignition of the explosive compound, so that
80 the various sections of the multiple float will be forcibly ejected from the barrel 11.

The air-chamber capacity of the torpedo is so proportioned in respect to its weight that it will float on the surface of the water or at
85 a certain depth below the surface, and in using the torpedo the same is discharged either from a deck-gun or from an under-water or above-water torpedo-tube, being aimed as any other torpedo would be, so as to strike
90 the vessel it is intended to disable.

The torpedo may rely for its propulsion wholly upon the initial impulse given to it by the firing device, or it may be rendered
95 automobile by providing it with any ordinary form of pressure or electrically-operated propeller. The preferable method of firing the torpedo is from a smooth-bore deck-gun by ricochet fire, as there is thus greater likelihood of hitting the vessel aimed at than if
100 the torpedo travels under water. If the torpedo strikes any part of the vessel aimed at, the result will be the firing of the explosive

charge of the multiple float and the expulsion from the barrel 11 of the various buoyant sections of said multiple float and their connecting-lines, as shown, for instance, in the diagram Fig. 3.

In firing the torpedo the same is so placed that the open end of the barrel 11 is toward the stern of the vessel aimed at, so that the sections of the multiple float will be projected toward the stern of the vessel, the connecting-lines 13 hanging down into range of the screw. The vessel being under way, the torpedo, with its string of floats, will drift astern, and if any one of the floats or connecting-lines comes under the influence of the current drawn in toward the screw the fouling of the screw by the floats and their connecting-lines will result, the floats and lines 13 being first wound around the screw and the line 8 being then drawn in and wound up by the screw, so as to draw the shell 1 after it until finally the pull upon the line 8 fires the primer 9 and thus explodes the shell 10, this explosion taking place in such proximity to the screw and rudder as to destroy or disable the same and thus cripple the ship and render it unmanageable.

To increase the chance of fouling the screw, the lines 13 may have long floating strands or filaments which can be readily drawn into the screw and will give the latter its initial hold upon the lines 13.

To insure the firing of the secondary torpedo, in case it is discharged at an enemy ahead or astern, where the chance of hitting is less than with a side discharge, said secondary torpedo may have, in addition to the percussion-firing device, any ordinary form of time-fuse. If the torpedo missed its aim, however, and continued to float about, it would become a menace to other ships in the vicinity, friend as well as foe. Hence it is advisable to provide the torpedo with means for automatically sinking it after a certain time in case it is not exploded in accordance with the original intention. For this purpose many means may be provided. For instance, the torpedo may be furnished with clockwork mechanism, set to run for a certain number of minutes and then to open a flood-valve or explode a small charge sufficient to burst the casing of the torpedo and allow water to enter the same and sink it; but I prefer to provide for the automatic sinking of the torpedo by the slow leakage of water into the same in the manner which I will now proceed to describe.

The chamber 17 within the end cap 3 contains a cylinder 18, into one end of which water can enter through a perforated plug 19, closing an opening in the cap 3, and this cylinder contains a body 20, of sponge, cotton-waste, oakum, or other material compressed to any desired extent, and also a body 21, of cellulose or other material, which will be greatly expanded by the action of the water upon it. Upon this body of cellulose

bears a piston 22, which is held in contact therewith by means of a spring 23, interposed between the piston and the end of the cylinder 18, through which the rod 24 of the piston projects, as shown in Fig. 1. In one side of the cap 3 is an opening closed by a valve 25 opening outwardly, the inwardly-projecting stem of the valve being acted upon by a spring 26, which tends to close the valve and to keep it closed. As soon as the torpedo is discharged water finds its way through the cap 19 and begins to saturate the mass of absorbent material 20, through which the water finds its way with comparative slowness, depending upon the density with which the material is packed in the cylinder 18. Eventually, however, the water penetrates the mass 20 and gains access to the body 21 of expansible material, which is thereby caused to swell, so as to push outward the piston 22 until the rod 24 of the same strikes the inner end of the stem of the valve 25 and opens the latter against the pressure of the spring 26, thus allowing water to enter the chamber 17. This chamber is separated from the main chamber 5 of the torpedo by the inner plate 27 of the cap 3, which forms a water-tight joint; but in said inner plate 27 is an opening closed by a valve 28 opening inwardly, this valve being normally held to its seat by the action of a spring 29 upon a piston 30, connected to the stem of the valve and contained in a perforated casing 31, which likewise contains a supply of cellulose or other expansible material. Hence as soon as the water entering the chamber 17 reaches the perforated casing 31 the material contained therein is caused to expand, thereby opening the valve 28 and permitting the water to gain access to the chamber 5. The water entering the chamber 17 in the cap 3 may weight the same, so as to cause that end of the torpedo to drop below the head of the same and thus trap air in the chamber 5, and in order to prevent this I provide near the head of the torpedo valve-operating mechanism of substantially the same character as that in the cap 3, such mechanism being represented at 32 in Fig. 1.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A marine torpedo having an explosive charge, a float, an explosive charge for ejecting said float from the torpedo, and a snare-line connecting the torpedo and float.

2. A marine torpedo carrying an explosive charge, a multiple float consisting of a number of separable sections, an explosive charge for ejecting said multiple float from the torpedo, a snare-line connecting one of the sections of said multiple float to the torpedo, and other snare-lines connecting the sections of the multiple float to each other.

3. A marine torpedo adapted to be fired as a projectile and having a loose floating snare-line carried thereby for fouling the screw of

a ship, an explosive charge, and provision whereby said explosive charge is fired by the pull upon the snare-line.

5 4. A marine torpedo carrying an explosive charge and having an air-chamber whereby it is rendered buoyant, a float carried by said torpedo, a snare-line connecting said torpedo and float, and provision for discharging said float from the torpedo.

10 5. A marine torpedo having an explosive charge, a float carried by said torpedo, provision for discharging said float, and a snare-line coiled in the head of said torpedo and connected at one end to the float and at the
15 other end to the firing device of the explosive charge.

6. A marine torpedo carrying an explosive charge and having a transverse barrel, a float contained in said transverse barrel, a snare-line connecting said torpedo and float, and
20 provision for discharging the float from the barrel of the torpedo.

7. A marine torpedo having leakage-openings of limited area and provision whereby
25 the leakage through said openings is caused to provide a greater inflow of water so as to cause the torpedo to sink without exploding the same.

8. A marine torpedo valved so as to permit
30 of the flooding of the same in order to cause it to sink, leakage-openings of limited area, and provision whereby the water leaking through said openings is caused to open the flooding valve or valves.

9. A marine torpedo having a chamber 35 packed with absorbent material, leakage-openings of limited area communicating with said absorbent material, and provision whereby the saturation of said absorbent material is caused to effect the flooding and sinking 40 of the torpedo.

10. A marine torpedo valved to admit water to flood and sink the same, a chamber containing absorbent material and having leakage-openings of limited area through 45 which water can gain access to said absorbent material, and provision whereby the expansion of said absorbent material due to the wetting of the same is caused to open the flooding valve or valves. 50

11. A marine torpedo valved so as to provide for the flooding and sinking of the same, a vessel containing a body of absorbent material, and a body of material rapidly expandible by water, leakage-openings of limited 55 area whereby water can gain access first to the absorbent material and then to the expandible material, and provision whereby the expansion of the latter material is caused to effect the opening of the flooding valve or 60 valves of the torpedo.

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

JOSEPH A. WALSH.

Witnesses:

F. E. BECHTOLD,
JOS. H. KLEIN.