(No Model.)

S. H. NEALY.

MARINE TORPEDO.

No. 358,471. Patented Mar. 1, 1887.

Fig. 1

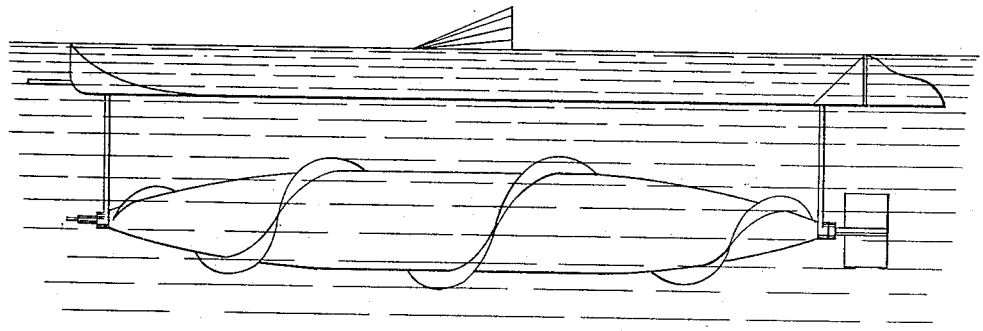


Fig 2

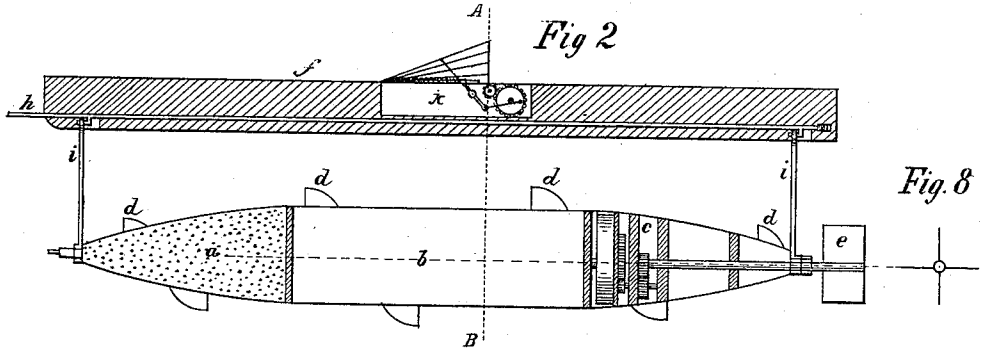


Fig. 8

Fig. 4

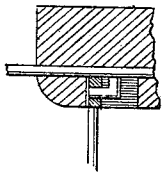


Fig. 3

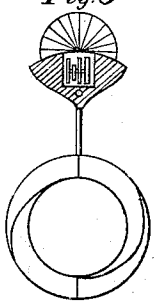


Fig. 5

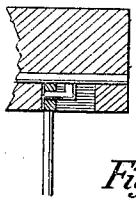


Fig. 6

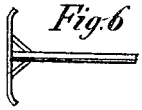


Fig. 9

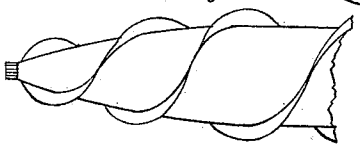




Fig. 7

Fig. 10



Witnesses:
C. C. Davidson.
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by his Attorneys
Baldwin, Hopkins & Peyton.

UNITED STATES PATENT OFFICE.

SID HUGH NEALY, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF TWO-THIRDS TO CHRISTOPHER COLUMBUS HARE, OF KANSAS CITY, MISSOURI, AND LEE HUTCHINS, OF WASHINGTON, D. C.

MARINE TORPEDO.

SPECIFICATION forming part of Letters Patent No. 358,471, dated March 1, 1887.

Application filed March 27, 1886. Serial No. 196,802. (No model.)

To all whom it may concern:

Be it known that I, SID HUGH NEALY, a citizen of the United States, and a resident of the city of Washington, in the District of Columbia, have invented certain new and useful Improvements in Marine Torpedoes, of which the following is a specification.

My invention relates to marine or fish torpedoes of the self-propelling class, which heretofore have been constructed in various ways. Some have been provided with ordinary propeller-blades actuated from a motor located within the shell or spindle of the torpedo, and in some cases, in connection with such propelling-blades, it has been proposed to cause the shell or spindle of the torpedo to revolve by reaction between the propeller and casing. In all such cases, however, such revolution of the shell has been but a minor consideration or part of the action of the torpedo, and has been intended more to insure the rectilinear direction of travel of the torpedo than for any other purpose.

My invention consists of an organization in which a motor-shaft unprovided with propelling devices is held against rotation in the direction in which the motor tends to rotate it, thus producing a reaction which causes the rotation of the motor itself, which in turn drives or rotates the torpedo-shell, having a suitable screw or propeller blade upon its outside. This method of operation, as well as several details of construction, is shown in the accompanying drawings as embodied in one apparatus in a manner deemed by me most suitable for the purpose. The details and general plan of carrying out my invention may, however, be varied within certain limits without materially departing from the principles of operation.

My torpedo is propelled entirely by the rotation of the shell. I dispense entirely with propeller-blades and substitute therefor straight guiding and holding plates, preferably mounted upon a shaft projecting from the rear of the torpedo. The faces of these plates are arranged parallel with the direction of travel, and act as a fulcrum, abutment, or purchase against the water, so that a rotary motion of the shell is set up, but no forward direction of the shell is produced by the blades.

In the accompanying drawings, Figure 1 is a side elevation of a single-screw submerged torpedo and its supporting-float; Fig. 2, a longitudinal central section therethrough; Fig. 3, a transverse vertical section on the line A B of Fig. 2, looking forward; Figs. 4 and 5, detail views of the devices for releasing the torpedo from the float; Figs. 6 and 7, detail views of the end of the detaching-rod and the supporting-links which connect the torpedo with the float; Fig. 8, an end view or elevation indicating the guiding and supporting blades which bear upon the water, and Figs. 9 and 10 views showing the torpedo shell or spindle provided with double screw-blades or spiral feathers.

The torpedo-shell shown is of the ordinary double-cone spindle or cigar shape. A single-screw propeller blade or feather, *d*, is shown in Fig. 1 as extending from end to end of the torpedo. Double blades *d* (shown in Figs. 9 and 10) are, however, preferably employed as giving more accurate direction.

At any suitable point within the torpedo is located a motor, *c*, preferably a spring-motor, and preferably of the construction illustrated in Fig. 2. A shaft, preferably projecting from the end of the torpedo in the axial line thereof, is geared to this motor, and carries upon its outer end two, three, four, or more blades, *e*. The surfaces of these blades are arranged in planes parallel with the axis of the torpedo, and consequently parallel with its line of travel, so that instead of tending in any manner to propel the torpedo, they merely bear upon the water and form a fulcrum, abutment, or purchase for the force developed by the motor, and the shell or body of the torpedo is caused to rotate with reference to the blades *e* and their shaft.

The screw-blades or spiral feathers *d*, arranged upon the outside of the torpedo, cause the torpedo, as it is rotated, to be drawn through the water in a straight line with a uniform motion and high velocity, the straight blades *e* serving to keep it correctly aligned.

The float *f*, which may be of any suitable

material and of any desirable shape—but preferably boat-shaped in cross-section, as shown clearly in Fig. 3—is provided with recesses in its bottom, which are intersected by a longitudinal aperture, in which the torpedo supporting and detaching rod or beam *h* slides endwise. The rod is formed with hooks, which, when the rod is in the forward position illustrated in Fig. 2, engage in eyes in links *i*, which suspend the torpedo *b* at each end. A rudder, *f'*, may be arranged upon the rear of the float, and controlled from the point of launching in any well-known way. In a recess or compartment in or on the upper face of the float is arranged a small motor, preferably a spring-motor or ordinary clock-movement, which is connected by a crank with one end of a rocking lever, *k*, the opposite end of which is connected with a sliding collar on a horizontal rod attached to the float. This collar is also connected by braces with a number of ribs, which are pivoted near the forward end of the spindle. This construction is similar to that of an umbrella-frame. When the end of the rocking lever is thrown forward, the braces elevate the ribs, as indicated in Figs. 1, 2, and 3, and when the lever is moved in the opposite direction the ribs are drawn down. These ribs may be covered with any suitable light flexible material, the outside of which may be painted the same tone as the water. The inner face, as seen specially in Fig. 3, may be colored brightly, or, when used at night, may be coated with phosphorous paint.

As the torpedo moves though the water the rear end of the sight device or hood is at regular intervals collapsed and expanded or raised above the water, so that the observer may know the location and direction of the torpedo.

The detaching-rod projects a suitable distance in front of the float, so that when it meets an obstruction the rod is driven back against the force of a spring in a socket in the rear end of the float, as seen specially in Fig. 5. The supporting-rods *i* are thus detached, and the torpedo, being released, continues its forward motion, but also commences to move downwardly. Such an arrangement is specially intended to deliver the torpedo against the hull of a ship below the ordinary guard-chains with which vessels of war are now provided.

a represents the fulminate, which may be exploded by an ordinary firing-pin or in any other way

Obviously, torpedoes operating according to my invention may be propelled on the surface of the water.

I claim as my invention—

1. The combination of the torpedo-shell, its encircling screw blade or propeller, a motor within the shell, a shaft connected with the motor and projecting from the rear end of the torpedo in line with its axis, and blades on the shaft which have their faces parallel with the axis of the torpedo.

2. The combination of the torpedo-shell, its encircling screw blade or propeller, a motor accompanying the torpedo for driving or rotating it, and fulcrum or purchase plates or blades carried by the motor-shaft and having their faces arranged parallel with the axial line of the torpedo, whereby the shell of the torpedo is guided, rotated, and propelled.

3. The combination of a rotating torpedo-shell having a suitable screw blade or propeller thereon, a motor which accompanies and drives or rotates said shell, a shaft unequipped with propelling devices connected with the motor which the motor tends to rotate, and means for holding said shaft against rotation by the motor, whereby a reaction is set up, which causes the rotation of the motor and the consequent rotation of the torpedo-shell.

4. The combination of the float, its longitudinally-sliding detaching-rod, the self-propelling rotating torpedo, and links swiveled to the torpedo and detachably connected with the float through the intervention of the detaching-rod.

5. The combination of a float, a rotating self-propelling torpedo, arms or supports for suspending the torpedo from the float, and swivel-connections between said arms and the rotating torpedo.

6. The combination of the torpedo-float, the collapsible and expansible hood carried thereby, and its operating mechanism.

7. The combination of a torpedo, a float, an intermittently-acting signaling device on the float, and a motor carried by the float and isolated or disconnected from the point of launching to actuate the signaling device, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

SID HUGH NEALY.

Witnesses:
E. C. DAVIDSON,
LLOYD B. WIGHT.