W. R. KING.

SUBMARINE TORPEDO.

No. 102,556. Patented May 3, 1870.

Fig. 1.

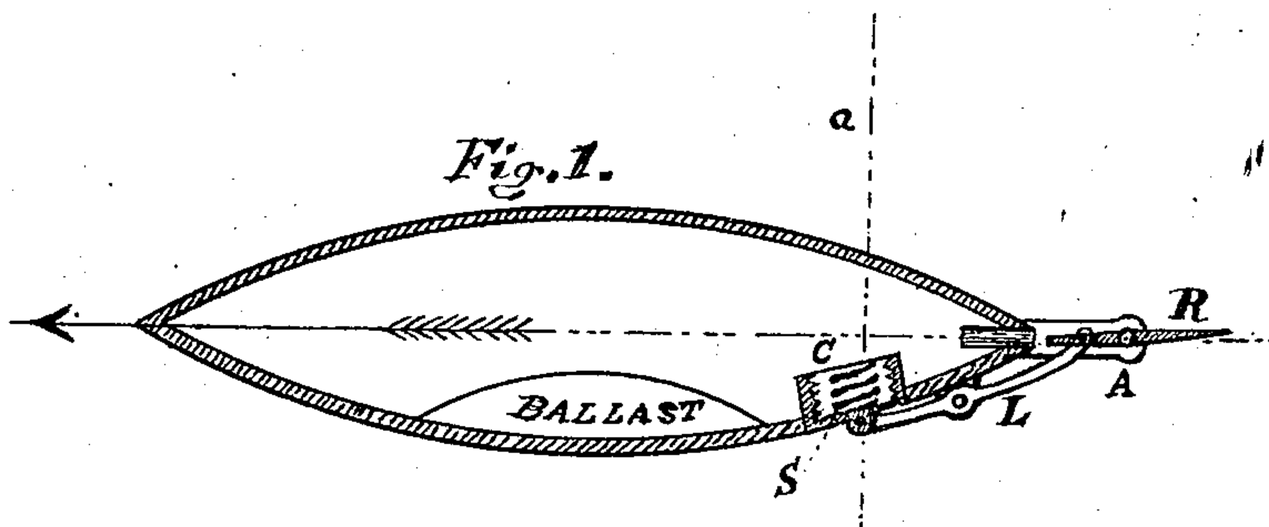


Fig. 2.

Section ab

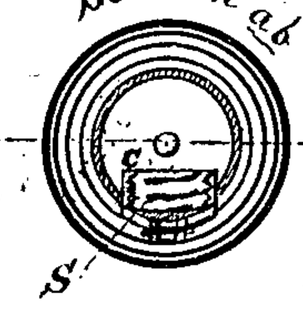
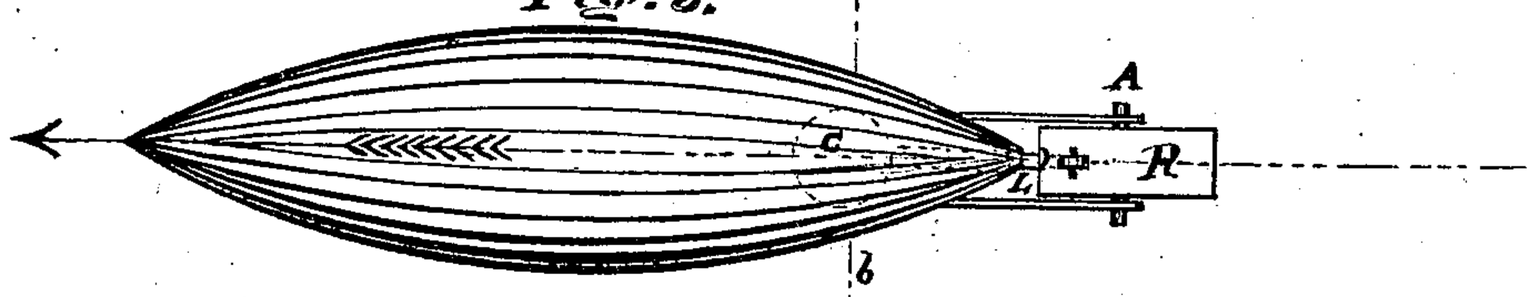


Fig. 3.



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WILLIAM R. KING, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 102,556, *dated May* 3, 1870.

IMPROVEMENT IN SUBMARINE TORPEDOES.

The Schedule referred to in these Letters Patent and making part of the same.

I, WILLIAM R. KING, of the city of Washington, District of Columbia, have invented certain Improvements in Submarine Projectiles, Rockets, or Torpedoes, of which the following is a specification.

The object of my invention is to cause submarine projectiles, whether propelled by a power residing within themselves, as compressed air, mainspring, or rocket composition of any kind, or whether they are projected from a gun, to move parallel with the surface of the water, or, in other words, to keep at a uniform distance below the surface, this distance being adjusted by the operator before the projectile is started.

This I accomplish in the following manner:

Referring to the annexed drawing, which forms a part of this specification—

Figure 1 is a longitudinal section of a torpedo, to which my invention is applied.

Figure 2 is a cross-section of the same, and

Figure 3 is a plan, or horizontal projection.

I assume as already existing, but as forming no part of my invention, a rocket or torpedo, of any form and propelled in any convenient manner, as by compressed air, a rocket composition, or by a propeller-wheel turned by a mainspring.

If this torpedo be made of nearly the same specific gravity as water, and provided with flanges on the top, bottom, and sides, like the center-board of a sail-boat, it will have a tendency to preserve its initial direction, both vertically and horizontally, but, for long distances, this method would not be sufficient to prevent the torpedo from coming out at the top of the water, or going so low down as to pass under the bottom of a ship. I, therefore, place in rear of the center of gravity of the torpedo a water-tight cushion or bag, of any form or material, filled with air, or containing springs so arranged that the compression due to the weight of the water may reduce its volume, and thus increase the specific gravity of the rear end of the torpedo as the depth of the water increases above it. If, now, the torpedo gets too deep in the water this will cause it to take an inclined position, and the front end being the higher, its forward motion will carry it toward the surface.

The pressure upon the cushion will then diminish, and the rear end of the torpedo will rise, causing it to take a downward motion, and this oscillation will continue until the torpedo comes into a line parallel with the surface of the water, and at a distance below it depending upon the pressure to which the air-cushion was previously adjusted.

I have called this an "air-cushion" but it may consist of a metallic cylinder with corrugated sides or head, like that of an Aneroid barometer, or it may be an elastic bag or cylinder, C, distended by a spring, S, as shown in the drawing.

The apparatus may be rendered more sensitive by adding a horizontal rudder, R, moved by the cushion, with which it is connected by the lever L.

The spring S being set so that when, in the desired depth of water, the pressure will bring the rudder into a horizontal position, the torpedo will continue at that distance below the surface, and, if started too high or too low, it will come back to that level as before stated.

The rudder may be either in front or rear, or two or more of them may be attached to the sides of the torpedo, and moved by similar means to those described.

By placing the axis of motion, A, of the rudder nearly through the center of pressure of the water against it, it may be made as sensitive as may be desired.

The torpedo should be ballasted, so as to retain the axis A of the rudder in a horizontal position, and a vertical rudder may be added, in all respects like the rudder of a vessel, and provided with set-screws, by means of which the effect of currents could be counteracted, or the torpedo made to move in a horizontal circle.

The torpedo should contain a bursting-charge of powder, or other explosive compound, sufficient to destroy a vessel, and the explosion should be effected by any form of time or percussion fuse.

The cushion may be attached directly to, or form part of, the horizontal rudder R.

Claims.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A compressible cushion C attached to a moving torpedo, rocket, or projectile, substantially as and for the purposes set forth.

2. The combination of a horizontal rudder R, cushion C, and lever L, substantially as and for the purposes set forth.

3. The combination of a ballasted, moving torpedo, with a compressible cushion, C, and horizontal rudder R, substantially as and for the purposes set forth.

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Witnesses:

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