

J. MACDONOUGH.  
SUBMARINE TORPEDO.

No. 54,183.

Patented Apr. 24, 1866.

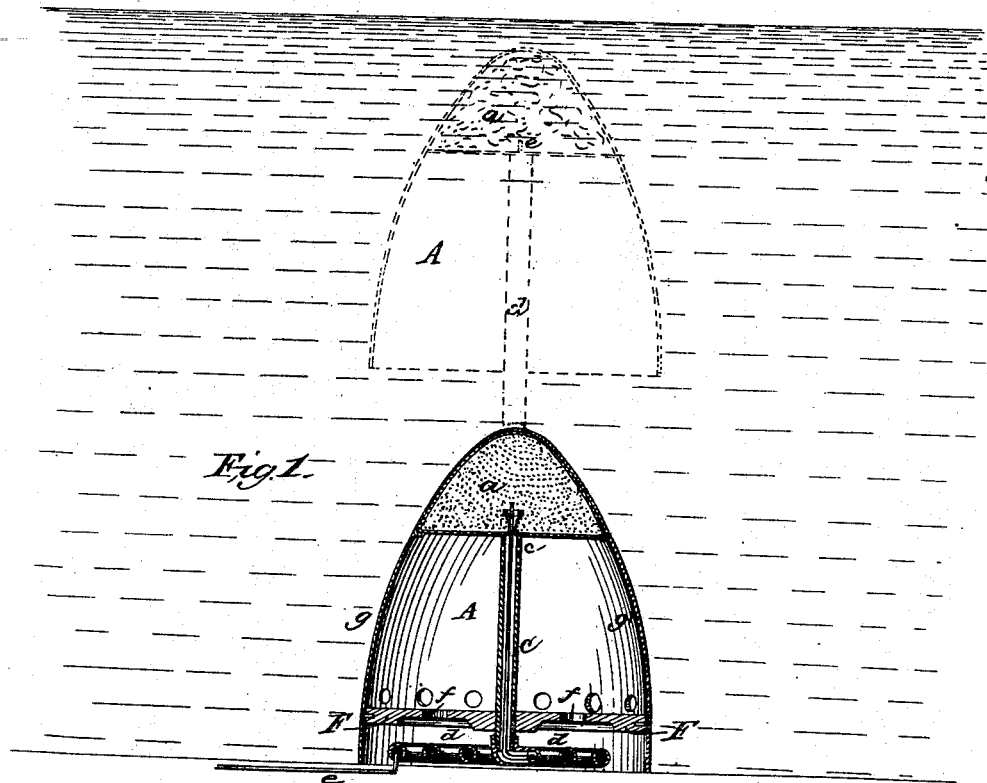


Fig. 1.

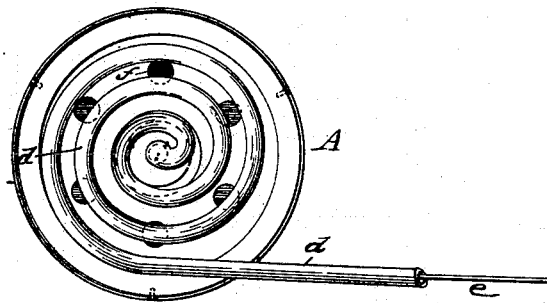


Fig. 2.

Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN SUBMARINE TORPEDOES.

Specification forming part of Letters Patent No. 54,183, dated April 24, 1866.

### *To all whom it may concern:*

Be it known that I, J. MACDONOUGH, of the city, county, and State of New York, have invented a new and Improved Submarine Torpedo; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of my invention, and Fig. 2 is a bottom view of the same.

This invention relates to a new mode of operating submarine torpedoes. When a torpedo is sprung in such a depth of water that there is a considerable body of water intervening between the torpedo and the bottom of a ship then a large portion of the blow is expended in overcoming the inertia of water, and the blow is not applied to the bottom of the ship with that force and suddenness necessary for efficiency; and, further, such blow is scattered and delivered upon a larger surface and is less liable to break through the bottom of said ship. An improved method for overcoming this objection is the object of this invention, and I accomplish this by constructing a torpedo so that it has a chamber attached which may be filled with air or water, at the will of a distant operator, and the buoyancy of the machine so controlled that it is caused to rise from the bottom at the proper time and place itself within effective range of the bottom of an enemy's vessel.

I will now proceed to describe what I consider the best means of carrying out my invention.

A, Fig. 1, is the buoying-chamber, and *a* is the powder-magazine, which is located in the apex of the machine.

F is an adjustable floor, on which ballast may be placed, and is perforated with a series of holes, *ff*, to allow free passage for water out or into the buoying-chamber A. This perforated floor F is elevated sufficiently above the base of the machine to allow room below it for coiling a portion of the air-supply tube *d d*, as shown by bottom view, Fig. 2.

The red line *e* represents the electric wires, which pass through the bore of the air-tube *d d*.

*g g*, Fig. 1, is a conical shell, which forms the body of the machine.

The manner of its operation is as follows: The torpedo is first ballasted by weights attached to its base or placed upon the floor F, so that it will sink properly. It is then taken and planted at the desired point by lowering it down in the water, base downward, until it rests upon the bottom or ground, and the flexible air-tube *d d* and electric wires are then carried to land and to the point where the operator is to be concealed, and the shore end of said air-tube is connected with a reservoir of compressed air or to an air-pump. The specific gravity of the air-tube is such that it sinks in the water and rests upon the bottom across the intervening space between the torpedo and the shore. The electric wires may be led to the torpedo in the usual manner, or they may reach the torpedo by traversing the bore of the air-tube, or, if preferred, electricity may be dispensed with for exploding the magazine and any other known device substituted.

When the torpedo is placed in the water the air is allowed to escape from the buoying-chamber A, either wholly or in part, so that a less weight than that equal to its whole buoying capacity is sufficient to sink it. Then when the reserved portion of chamber A is filled with compressed air by means of the tube *d* its reserve buoyancy is called into action and the buoyancy is sufficient to overcome the weight of ballast, &c.; but a portion of air may be left in the chamber when the torpedo is sunk, so as to prevent water from reaching the magazine parts of the machine.

When a torpedo is to be sunk, sufficient slack tube is coiled into the base of the torpedo to allow it to rise freely from the bottom without lifting too much of the tube, and this slack of tube also allows the torpedo to rise perpendicularly, so that the torpedo does not change its position horizontally.

One machine will fully illustrate its operation, although in practice most channels would be protected or fortified by planting more than one, so that if a ship avoided one another would intercept her.

Everything being prepared, the operator takes his station, and as a hostile ship approaches he discovers, by means of ranges, her proximity to the known locality of a certain torpedo, and he then allows compressed air to escape from the reservoir into the tube for that

torpedo, and the water is immediately expelled from its buoying-chamber, and it moves up from the ground or bottom, and at the proper moment the electric circuit is closed and the magazine of that torpedo is fired.

If the torpedo should be elevated without being used or exploded, it may be returned to its bed by allowing the air to escape from the shore end of the tube *d*. A large air-pipe or main may be used where a number of torpedoes are planted, and each torpedo have a small branch pipe leading thereto, so that the whole be caused to rise simultaneously or depressed as the circumstances of the case may require.

Some of the advantages due to certain features of my invention may be separately enumerated as follows: First, by reason of the fact that my torpedo is capable of being elevated and depressed under water at the will of the operator by increasing and diminishing the specific gravity of the torpedo I am able to keep the torpedo out of use on the bottom while friendly vessels are passing, and on all ordinary occasions, and to bring it up to operate in direct contact with an enemy's vessel passing over it, and am also able to elevate and depress it any number of times in experiments to ascertain the proper time and manner of manipulating; second, by reason of the fact that my water-chamber *A* in the torpedo is open at the bottom, as represented, I insure a freedom of escape for the water whenever air or other gas is presented in the interior without allowing any loss of the gaseous fluid until the water is all expelled; third, by reason of the fact that my air-supplying pipe or hose *d d* leads from the bottom of the shell to receive air from the outside source, and at the same time opens into the air and water chamber *A* near its top, I am able to prevent the access of water to the receiving-pipe *d d* so long as there is only a small quantity of air in the chamber *A*, which could not be prevented if the pipe opened into the bottom, and also to avoid the tendency of the pipe *d d* to overturn the torpedo, which would be experienced if the pipe were connected to the top of

the torpedo; fourth, by reason of the fact that the flexible tube *d d* is coiled and slightly retained within the base of the torpedo in such quantity that its uncoiling allows the ascent of the torpedo from the bottom to the surface of the water, I am able to avoid all tendency of the pipe *d d* to draw the torpedo to one side, which it would otherwise be certain to exert; fifth, by reason of the fact that the electric wire *E* is inclosed within the air-tube *d d*, I am able to obtain a very perfect insulation and very efficient protection of the former against injuries, as also to diminish the risk of entanglement with objects on the bottom.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. The construction of a torpedo so as to be capable of elevation or depression under water, at the will of the operator, by means of air, substantially as described.
2. The combination, with a torpedo, of a water-chamber, *A*, open at the bottom and adapted to allow the water to be expelled by air or gas, when required, substantially in the manner and for the purpose set forth.
3. The shell *G G*, with a water and air chamber open at the bottom, a closed powder-chamber near the top, and a passage extending from near the top of said water and air chamber, adapted to be connected by a flexible pipe from the bottom of the shell to an outside source, from which air or gas may be received, substantially in the manner and for the purpose herein set forth.
4. In combination with the above, coiling a quantity of the flexible tube *d d* within the base of the torpedo, so as to be uncoiled as the torpedo rises, substantially as and for the purpose herein set forth.
5. The combination of the electric wires *e* with the air-tube *d*, substantially in the manner and for the purpose herein set forth.

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Witnesses:

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