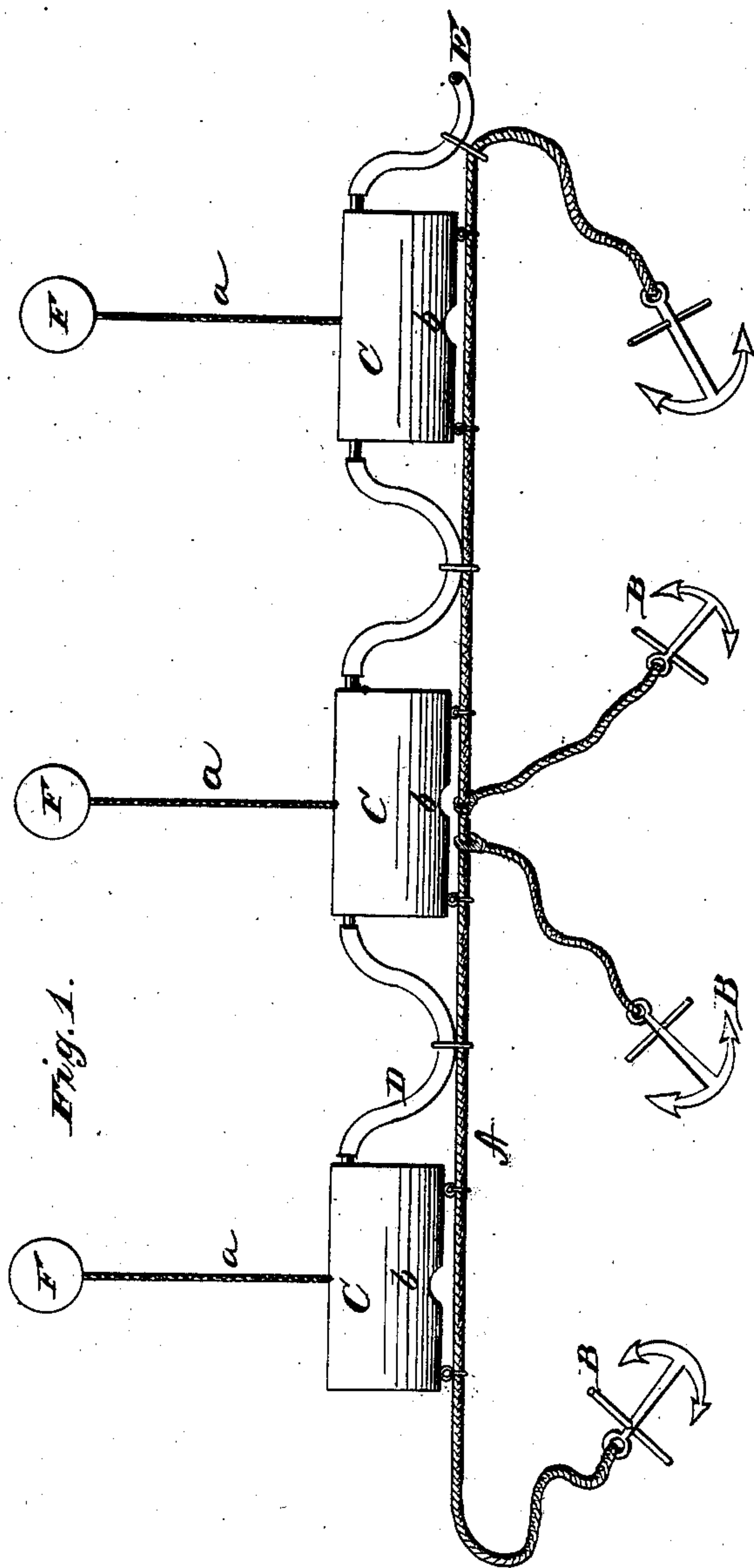


W. D. SMITH.
Raising and Lowering Torpedoes.

No. 207,564.

Patented Aug. 27, 1878.



WITNESSES

F. L. Curand
J. J. McCarthy

INVENTOR

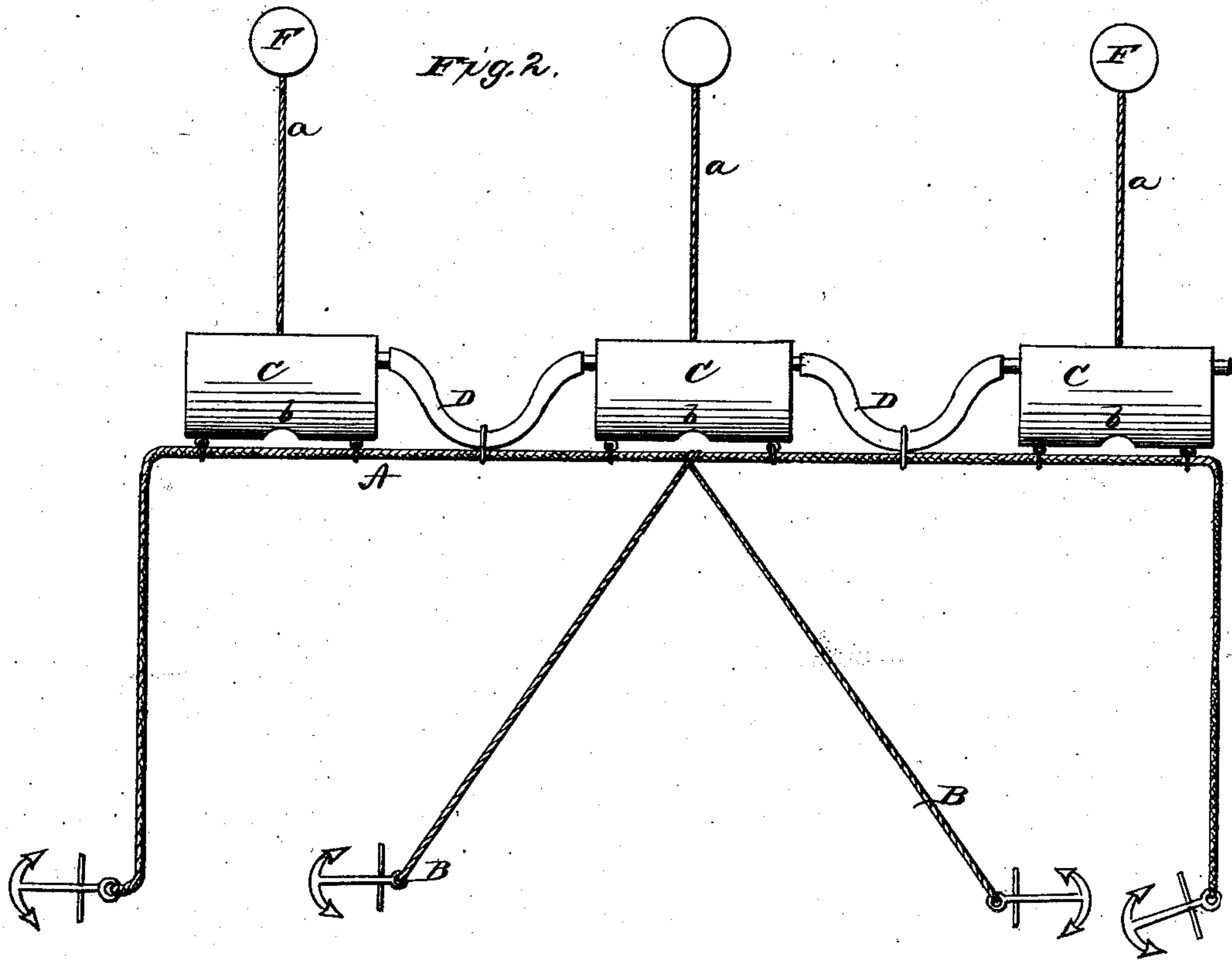
Walton D. Smith
Alexander Mason

ATTORNEY

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BY

INVENTOR
Walton D. Smith
Alexander Mason
ATTORNEYS

UNITED STATES PATENT OFFICE.

WALTON DUANE SMITH, OF PROPHETSTOWN, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO A. J. WARNER, OF SAME PLACE.

IMPROVEMENT IN RAISING AND LOWERING TORPEDOES.

Specification forming part of Letters Patent No. **207,564**, dated August 27, 1878; application filed July 10, 1878.

To all whom it may concern:

Be it known that I, WALTON DUANE SMITH, of Prophetstown, in the county of Whiteside, and in the State of Illinois, have invented certain new and useful Improvements in Devices for Raising and Lowering Torpedoes and Harbor-Defenses; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in means for raising and lowering torpedoes and other harbor and channel defenses by means of compressed air, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 represents my invention when the torpedoes are lowered to, or nearly to, the bottom. Fig. 2 represents the same when raised to the desired position.

A represents an iron cable or chain of sufficient weight to keep the whole device permanently to its place on the bottom when the air is not applied. B B are anchors attached to the chain. C C represent a series of air cylinders or receptacles for raising the device when the air is applied, said cylinders being connected by hose or pipes D, and one of the cylinders being provided with a pipe, E, which is to run to an air-pump or other device for compressing the air, such device being located at any convenient point.

F F represent the torpedoes, which may be connected directly to the cylinders, or indirectly by means of ropes *a*, as shown. These torpedoes are designed to be so ballasted that they will displace just a trifle more than their own weight of water, thus keeping them in the same relative position to the rest of the device, whether the same is at rest upon the bottom or raised to the full length of the anchor-ropes. The design is to have the ropes or wires *a* of sufficient length so that should one of the torpedoes be exploded by a

passing vessel the rest of the device will not be injured by the explosion.

This device must be used in such places where there is sufficient depth of water, so that the torpedoes will be out of the way of passing vessels when the device is lying upon the bottom; but the cable without the torpedoes would alone be a serious obstacle to an enemy's vessel by disabling her rudder or screw or both.

When it is desired to raise the device to obstruct the passage of an enemy, the compressed air is applied at E, and, by means of the pipes D, enters the air-cylinders C at the top, as shown, thus displacing the water by forcing it out at the orifices *b* in the bottoms of the cylinders. After enough air has been forced into the cylinders the device will begin to rise, and will finally assume the position shown in Fig. 2.

To prevent the water from filling up the air-pipe after the device is let down to the bottom again, the air is to be shut off as soon as the device reaches the bottom; or floating valves may be applied to the inlet ends of the air-cylinders, which will rise and fall with the water when the air is forced in or drawn off, thus preventing the escape of the air after enough has been liberated to sink the device.

It is evident that any number of air-cylinders (from one upward) may be used; and, instead of cylinders, I may use bags, to be expanded by the compressed air, or many other equivalent receptacles for compressed air.

This system of raising and lowering harbor-defenses can also be applied to buoys to designate to friendly vessels the locality of danger, and to be lowered out of sight at the approach of an enemy.

I am aware that it is not new to construct a torpedo so as to be capable of elevation or depression under water at the will of the operator; hence I do not claim such, broadly, as my invention. In my invention the rise of the torpedoes is limited by the anchoring device, and the torpedoes then remain stationary at a certain depth in the water.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of one or more cylin-

ders or other receptacles with torpedoes connected to them, an anchoring device, and suitable tubes connecting with said cylinders, whereby compressed air may be supplied to and withdrawn from the same, as and for the purposes herein set forth.

2. The combination of a series of air-cylinders, C, with openings *b* in their bottoms, and connected by pipes D, the cable A, anchors B,

torpedoes F, and air-supply pipe E, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of June, 1878.

WALTON DUANE SMITH.

Witnesses:

A. J. WARNER,

HENRY R. KEVOT.