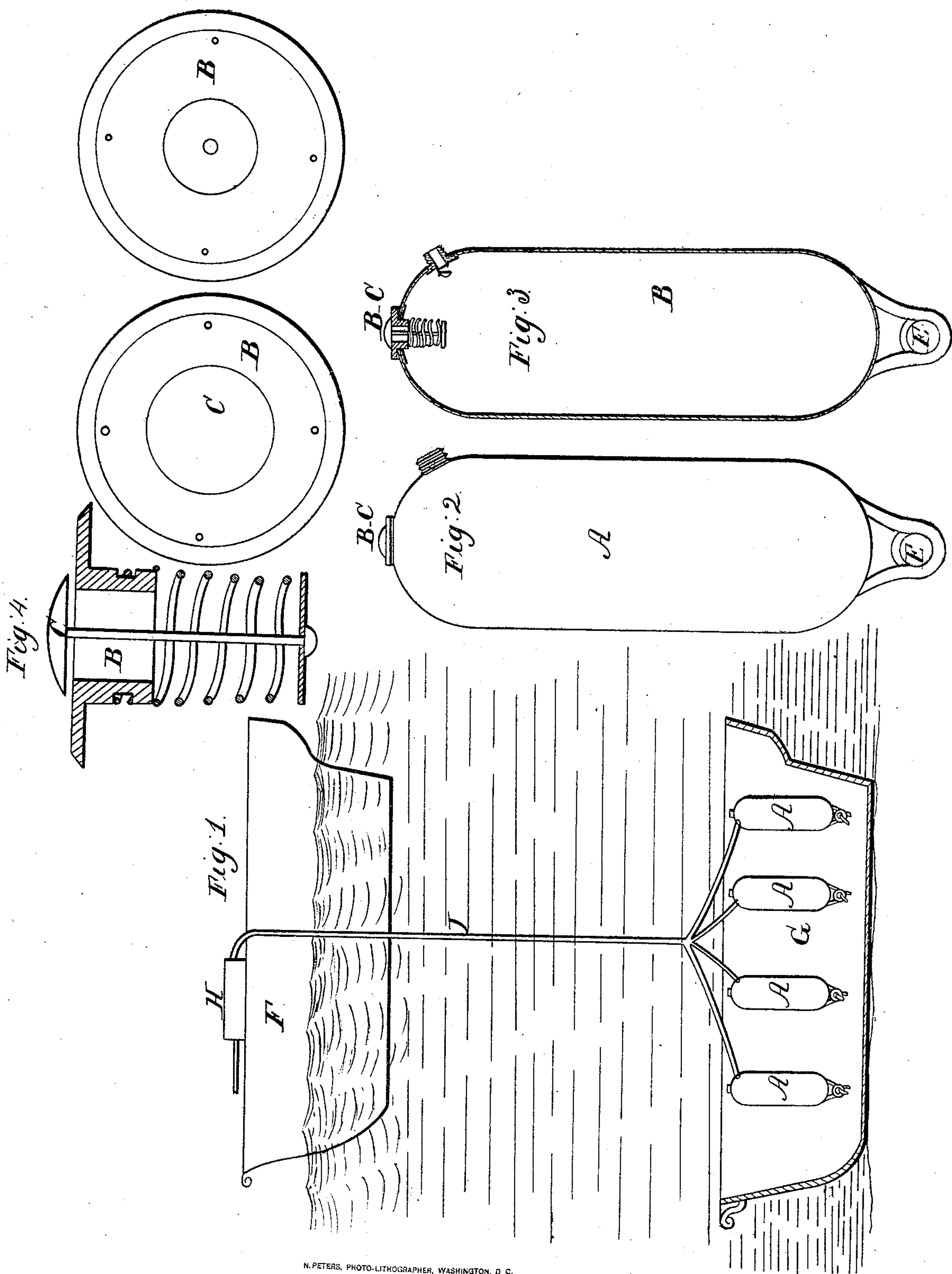


E. Fitzgerald,
Mode of Raising Sunken Vessels.
No 13,030
Patented June 12, 1855.



UNITED STATES PATENT OFFICE.

ELISHA FITZGERALD, OF NEW YORK, N. Y.

BUOY FOR RAISING SUNKEN VESSELS.

Specification of Letters Patent No. 13,030, dated June 12, 1855.

To all whom it may concern:

Be it known that I, ELISHA FITZGERALD, of the city, county, and State of New York, have invented a new and useful Improvement in Apparatus for Raising Sunken Ships; and I hereby declare that the following is a full and exact description.

To enable others to make and use my invention I proceed to describe its construction and operation, reference being had to the drawings hereunto annexed and making part of this specification.

Figure 1 represents the relative position of a ship with the apparatus arranged to raise a sunken ship; Fig. 2 represents one of the bags intended to float the ship; Fig. 3, a section of the same; Fig. 4, a top view and a section of the escape valve; Fig. 5 the screw hook to which the air bag (Fig. 2) is attached.

The relief vessel, or craft intended for raising the sunken ship, is anchored in the vicinity of it. On board the relief vessel (F Fig. 1) I fix an air-pump to be worked by power. The piston is made without packing, as the air in pumping becomes heated and would burn it. To the air pump I fix a pipe of large capacity, that will reach to the bottom, and to this pipe I attach the air bags, which in their collapsed state will sink. Previous to this I send down men clothed in submarine armor who affix to the hull of the sunken ship hooks made to screw in. See Fig. 5. The hooks are made with a pointed screw so that they can be screwed into the ship without boring holes. Each screw hook is intended to be strong enough to hold one of the bags. The screw hooks are however dispensed with, or partially dispensed with, when chains or cables can be got under the ship. Many small air bags are used in preference to a few large ones, as in case of the small ones no extraordinary strength is required either in the bags or in the hooks.

One conductor, J, Fig. 1, will serve to fill many, if not all the air bags. Smaller conductors may be attached at the lower end and connect with the different air bags, or the air bags may be connected one with the other—so that by filling or pumping in one many may be filled.

The air bags should be attached as low down on the hull of the sunken vessel as possible so that when raised it will be lifted enough above the water to allow of being pumped out.

The difficulty heretofore experienced in the attempts to raise sunken ships by air has been that no provision was made for the expansion of the air in the bags, when relieved of the pressure of deep water. This I have obviated in the escape valves. Vessels have been raised by air heretofore. Casks or bags full of water have been attached to a sunken ship and the water pumped out while the air is allowed to flow into them.

I attach to each air bag, A, at the top or elsewhere an escape valve, Fig. 4, B—C. This consists of an opening of sufficient size with a cap, c, to it. Beneath this cap is a stem reaching down a few inches with a button at the lower end of it, and a spiral spring just strong enough to hold the cap down upon the opening. Whenever the pressure from within reaches to amount or limit intended for the strain, the air will force its way out of the bag through the escape valve and thus relieve itself. If the ship were sunk in one hundred feet of water, it would require the pumping in several atmospheres to fill the bag. As the ship rose to the surface the air would constantly issue at the escape valve, until at the surface it would have only about one atmosphere.

The hole to admit the air into the bag is provided with a valve inside—self closing—so that when the service pipe is unscrewed from it, no air will escape.

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

The attaching to the air bag, A, an escape valve, Fig. 4, B—C, to prevent its bursting, when in consequence of the rising of the sunken ship, the pressure of the water around the bag is partially relieved, in the manner substantially as above described.

ELISHA FITZGERALD.

Witnesses:

OWEN G. WARREN,
STEPHEN L. BLOOM.