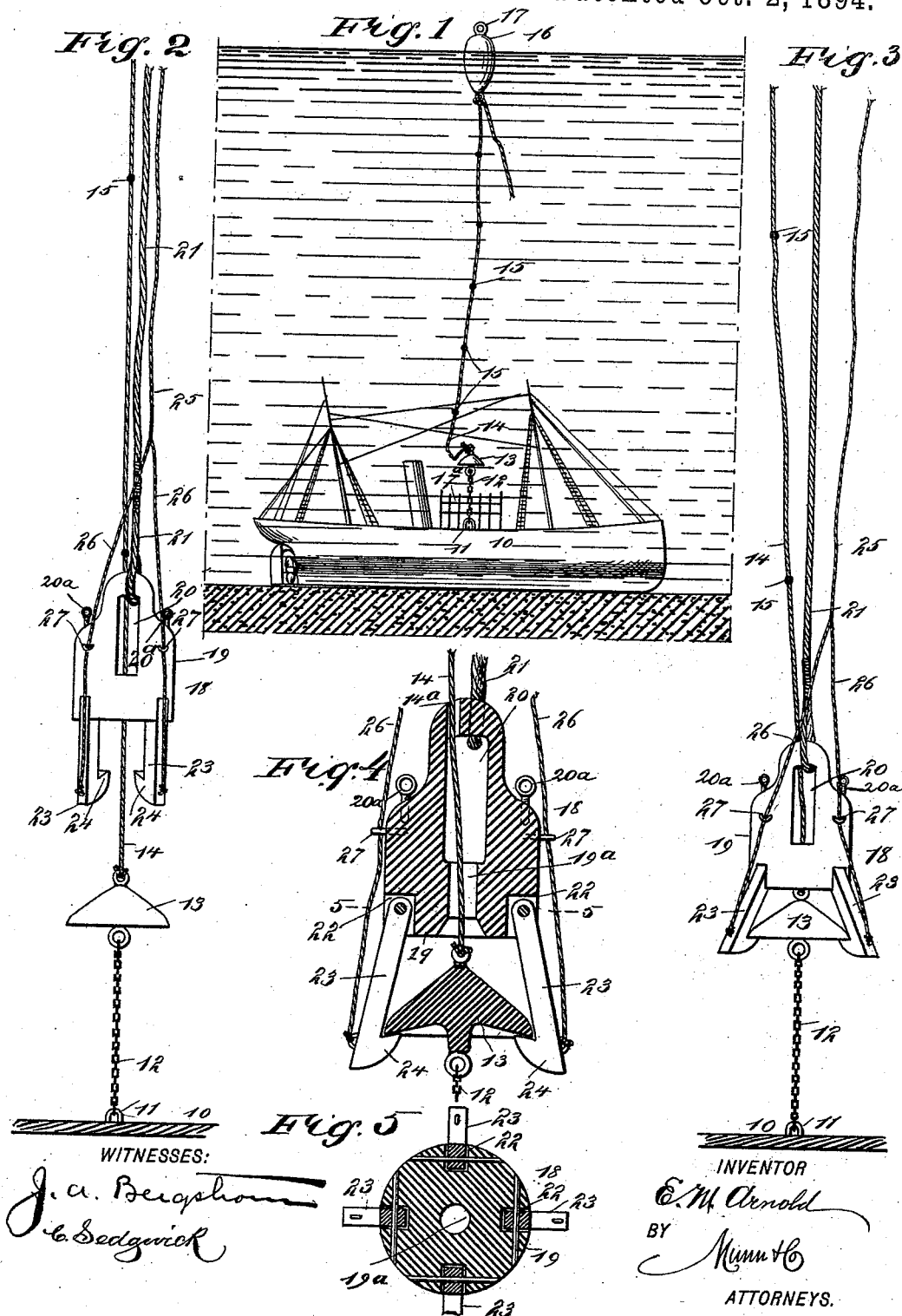


(No Model.)

E. M. ARNOLD.
MEANS FOR RAISING SUNKEN VESSELS.

No. 526,959.

Patented Oct. 2, 1894.



UNITED STATES PATENT OFFICE.

EDWARD M. ARNOLD, OF PAWTUCKET, RHODE ISLAND.

MEANS FOR RAISING SUNKEN VESSELS.

SPECIFICATION forming part of Letters Patent No. 526,959, dated October 2, 1894.

Application filed November 4, 1893. Serial No. 489,988. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. ARNOLD, of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Locating and Making Fast to Sunken Vessels, of which the following is a full, clear, and exact description.

It is well known that many vessels which sail away from port are never afterward heard from, and such vessels are presumably lost with all on board. It is of course evident that in such cases the passengers are lost beyond hope of recovery, but my invention has in view the locating and recovering of such vessel, and has also in view the saving of certain imperishable portions of the cargo.

The object of my invention, as before indicated, is to provide means for the recovery of lost vessels and also to construct a very simple and efficient apparatus which may be carried by a vessel and used in connection with sunken vessels, and by which the position of the sunken vessel may be readily ascertained and steps taken to raise the same.

A further object of my invention is to provide a simple means for making fast to a sunken vessel when it is located, to the end that ordinary appliances may be conveniently used for lifting the vessel.

The invention consists in the particular construction and combination of parts as hereinafter described and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a view showing a sunken vessel provided with a portion of my improved apparatus, which portion is intended to lead to the identification and locating of the vessel. Fig. 2 is an enlarged detail view, showing the manner in which a grapple is lowered and made fast to the vessel. Fig. 3 is a similar view, but shows the grapple in engagement with a button carried by the vessel. Fig. 4 is an enlarged detail sectional view of the grapple and button in connection; and Fig. 5 is a sectional plan on the line 5-5 of Fig. 4.

The vessel 10 has secured to it, as shown at 11, a cable 12, which is preferably a chain,

and this connection between the cable and vessel may be made at any convenient part of the latter and if desired, several cables may be used together with the locating buoys, which will be described presently. The cable 12 is provided with a strong button 13, which is preferably of metal, and this button is convex on its upper side and concave on its under side, as shown clearly in Fig. 4. The button 13 has secured to its top a cable 14, which forms practically a continuation of the cable 12 and which is adapted to be carried in a convenient coil on the deck or other part of the vessel, and is of sufficient length to reach to the surface of the water when the vessel is lying at the bottom of the sea; and to enable it to be at once known how deep the water is at the point where the vessel lies or the distance from the vessel to the point where the buoy floats, the cable is provided with buttons 15 or other equivalent devices, which are marked regularly to indicate the length in fathoms of the cable. The cable has secured to its free end a buoy 16, which is of sufficient size and buoyancy to support the weight of the cable when the buoy is floating; and the buoy is preferably provided with an eye 17 at the top to enable it to be conveniently picked up; and it should also have painted or otherwise marked thereon the name of the vessel to which it is attached, so that when the buoy is found it may be at once known what vessel lies in its vicinity. The vessel is preferably provided with a sort of cage 17^a in which the coiled cable 14 and the buoy 17 may lie, and thus the buoy is free to rise to the surface of the water when the vessel sinks. If the vessel is a large one two or more cables and buoys are preferably secured to it at different points.

In connection with the apparatus above described a grapple 18 is used, which is provided with a head 19 having a longitudinal bore 19^a, and the head is slotted, as shown at 20, so as to form a sort of bail to which a hawser or cable 21 may be secured, although the cable may be attached in any convenient manner. The grapple head is also provided with eye bolts to which cables may be secured, and any suitable hoisting tackle may be fastened to the grapple, instead of using the hawser 21. The lower end of the head 19 is recessed

around its outer edge, as shown at 22, and in these recesses are hung pivotally the grappling arms 23 which terminate at their lower ends and inner sides in hooks 24, which are adapted to engage the under side of the button 13, as shown in Fig. 4, and in order that the hooks may readily slide over the button they are rounded on their under sides, as shown in the figure referred to. The top of the head 19 is provided with a hole or bore 14^a to receive the cable 14 which acts as a guide cable as described presently, and when the head 19 is threaded upon the cable 14 so that the said cable passes through the bore 19^a and hole 14^a, the grapple may be dropped to place, and as it slides down the cable, will automatically engage the button 13. To enable the arms of the grapple to be released when desired, a releasing line 25 is used, which lies parallel with the cable or hawser 21, and the line, at its lower end, is provided with branches 26 which pass through keepers 27 on the head 19 and are secured to the outer sides and lower ends of the hooked arms 23.

The apparatus is used in the following way: When the vessel sinks, the buoy 16 rises to the surface, and if the water is not very deep it will naturally drift to some little distance from a point vertically above the vessel, and when the buoy is located by a passing ship it is picked up and the cable 14 is taken in until it assumes a vertical position, then the buoy 16 is removed from the cable 14, the grapple 18 which is carried on board of the vessel which finds the sunken one, is threaded upon the cable 14 and permitted to drop until the hooks on the grapple slide over the button 13 and engage the edge of the latter, after which the hawser 21 is drawn taut and a firm connection is established between the floating ship and the one on the sea bottom. The connection being established, as specified, the ordinary steps may then be taken to raise the sunken vessel, and if, for any reason, it is desired to release the grapple, it may be done

by pulling upward on the releasing line 25 which causes the arms 23 of the grapple hooks to swing outward so that the hooks will be clear of the button 13.

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

1. The combination with a cable adapted to be secured to a sunken vessel and provided with a button at its lower end, of a grapple, comprising a head provided with a longitudinal opening for the passage of the cable and with a transverse opening to form a sort of a bail, and hooks pivoted to the lower end of the said head, substantially as described.

2. The combination of a cable adapted to be secured to a sunken vessel, a button having a convex upper surface and a concave lower surface, and to the upper and lower surfaces of which the said cable is attached, and a grapple, comprising a head having a longitudinal opening for the passage of the cable and provided at its lower end with pivoted hooks, substantially as described.

3. The combination with a cable adapted to be secured to a sunken vessel, and provided with a button at its lower end, of a grapple fitted to slide on the cable and provided with hooks for engaging the button, and a releasing line secured to the said lower ends of the hooks, and passed through guides on the body of the grapple substantially as described.

4. The combination with a vessel, and a cable secured to the vessel and having a buoy at its upper end and a button at its lower end, of a grapple comprising a head apertured for the passage of the cable and hooks pivoted to the lower end of the head for engaging the button, substantially as herein shown and described.

EDWARD M. ARNOLD.

Witnesses:

JAMES L. JENKS,
ABRAM C. MONFORT.