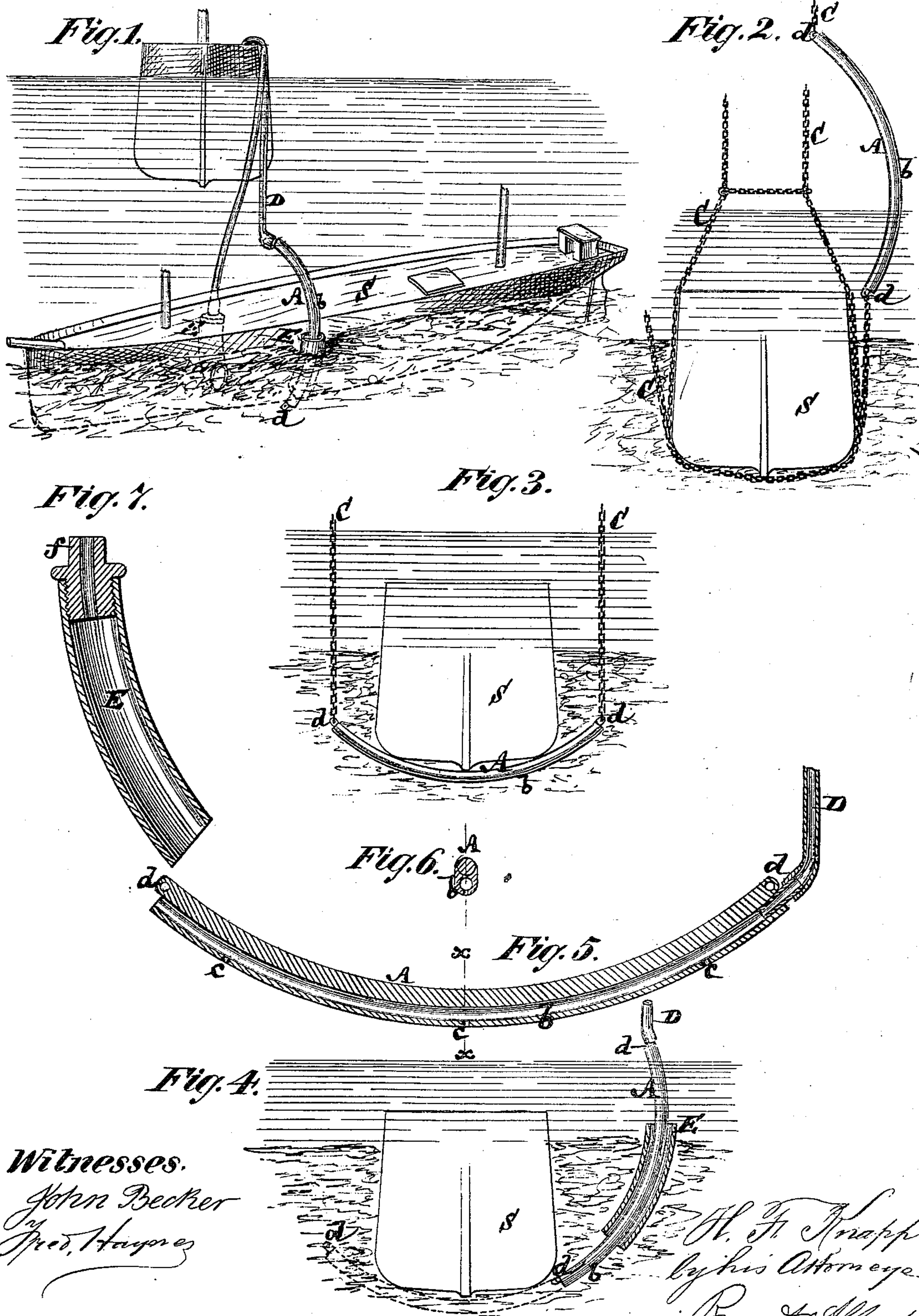


H. F. KNAPP.

Apparatus for Raising Sunken Vessels.

No. 148,715.

Patented March 17, 1874.



Witnesses.
John Becker
Fred. Hays

H. F. Knapp
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UNITED STATES PATENT OFFICE.

HENRY F. KNAPP, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR RAISING SUNKEN VESSELS.

Specification forming part of Letters Patent No. 148,715, dated March 17, 1874; application filed July 14, 1873.

To all whom it may concern:

Be it known that I, HENRY F. KNAPP, of the city, county, and State of New York, have invented certain Improvements in Means for Raising Wrecks or Sunken Vessels, of which the following is a specification:

This invention consists in certain novel means for raising wrecks or sunken vessels, the same consisting of a needle having an attached clearing-tube, in combination with a lifting chain or chains, substantially as hereinafter described. The invention likewise consists in a primary or enlarged receiving tube or tubes, in combination with the needle to facilitate the passage of the latter beneath the wreck.

In the accompanying drawing, Figure 1 represents a view in perspective of my improvement as applied to a wreck. Fig. 2, a transverse vertical section upon a larger scale of a wreck, showing the needle as having drawn a lifting-chain under the wreck. Fig. 3 is a similar section, showing the needle used as a lifting-bar, and with lifting-chains attached to its opposite ends. Fig. 4 is a further similar section, showing the needle as about being entered beneath the wreck, and through a primary or receiving tube to facilitate its passage. Fig. 5 is a longitudinal section, upon a larger scale, of the needle with its attached clearing-tube and hose applied thereto. Fig. 6 is a transverse section of said needle and tube on the line *xx*; and Fig. 7, a longitudinal section of the primary or receiving tube with attached cap.

Similar letters of reference indicate corresponding parts.

A is what I term the needle, such term being significant of the operation of the device, inasmuch as it is used to directly thread or pass a lifting chain or chains under the wreck S, or by connecting lifting-chains with its opposite ends, to form a lifting-bar, the lifting chain or chains in either case being an attachment to the needle direct, and an element in the combination. Said needle A should be made of considerable stoutness, and may be provided with an attached clearing-tube, *b*, which is not used as a duct for the passage of the lifting-chain or a primary cord through it, as in my Letters Patent No. 133,863, of De-

cember 10, 1872; but simply serves, by forcing water through it, to clear the way for its attached solid needle that has the lifting chain or chains attached directly to its ends. The needle A may be worked under the wreck in various ways, but should be of such a length—that is, when using it directly as a lifting-bar—as to extend beyond the sides of the wreck, as represented in Fig. 3, so that the lifting-chains C C, attached to its ends, will clear any overlying spars or projections, and so that the pontoons or vessels employed in lifting the wreck may be arranged at a sufficient distance apart to admit of the wreck, with any overhanging spars or projections, being raised between the pontoons, free of contact with the latter. The attached tube *b*, which runs throughout the length of the needle, or thereabout, may not only be open at its ends to effect clearance, and for an attachment of a hose, D, by which water from a force-pump, in or on one of the pontoons above, is passed through the tube to clear a passage or soften the sand or mud for the working of the needle beneath the wreck; but said attached tube may also have intermediate perforations *c*, to further assist, by the oozing of the water through them, in clearing the passage for the needle. The needle A is formed with an eye or eyes, *d*, at its ends for the attachment of the lifting chain or chains C.

When it is preferred, instead of using the needle as a lifting-bar, to pass the lifting-chain C attached to the needle under the wreck, or rather a series of chains at suitable distances apart in succession, then the needle A is drawn clear of the wreck and out of the water, leaving a lifting-chain, C, under the wreck, and extending upward on both sides of the latter, united, if desired, by intermediate cross-ties or chains, all substantially as shown in Fig. 2.

In cases where the vessel is very deeply embedded in sand or mud, or owing to other circumstances, it is difficult to pass the needle A under the wreck, then I first introduce into the sand or mud a primary or receiving tube, E, of larger diameter, but shorter length than the needle, and provided with a perforated cap or removable top, *f*, for attachment to a hose connected with the force-pump, whereby sand or mud may be washed out of the receiving-

tube E, so as to allow of the ready insertion within and through it of the needle A, as shown in Fig. 4. This primary or receiving tube E may also be repeated or used on the other side of the wreck for the forward end of the needle to pass through, as represented in Fig. 1, said primary or receiving tube, in either case, serving to relieve the needle A of friction to the extent of the length of said tube, in passing the needle through the sand or mud; by reason of the clear passage established for it by the receiving tube or tubes. Said latter tube or tubes are absolutely essential when the wreck is a large one and deeply embedded, as in such case the aggregate amount of friction on a needle of the ne-

cessary length would be too great to allow of its easy manipulation.

I claim—

1. The combination of the needle A, with its attached tube *b*, and lifting chain or chains C, substantially as and for the purposes herein described.

2. The combination of one or more primary or receiving tubes, E, with the needle A and lifting chain or chains C, essentially as specified.

HENRY F. KNAPP.

Witnesses:

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