Sheet 1, 2 Sheets.

W. Irwin.

App's. for Raising Sunken Vessels.

No. 8,336. Patented Sept. 2, 1851.

Fig. 3.

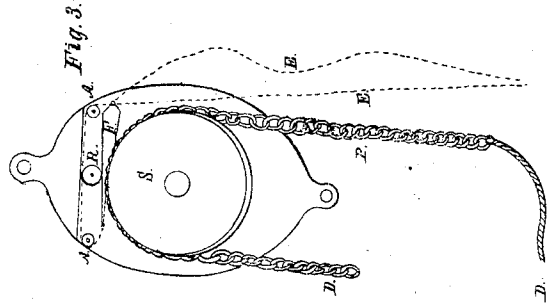
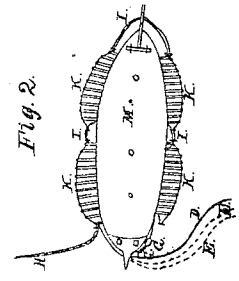


Fig. 1.

Fig. 2.



THE NORRIS PETERS CO., WASHINGTON, D. C.

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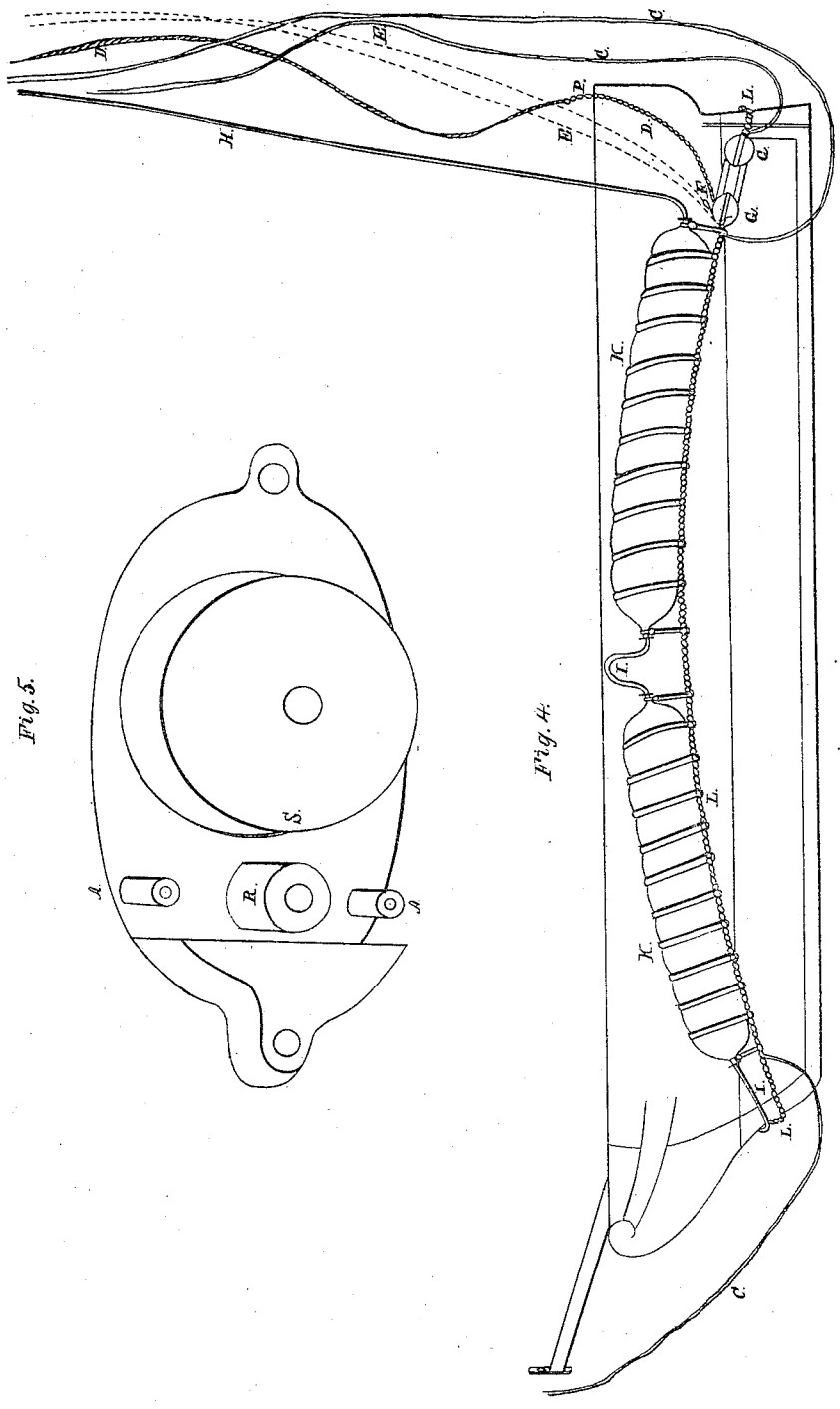


Fig. 4.

Fig. 5.

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM IRWIN, OF PHILADELPHIA, PENNSYLVANIA.

METHOD OF RAISING SUNKEN VESSELS.

Specification of Letters Patent No. 8,336, dated September 2, 1851.

To all whom it may concern:

Be it known that I, WILLIAM IRWIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Mode for Raising Sunken Vessels, for Supporting Vessels Off Shore and Over Banks, Reefs, Bars, Shoals, &c., and when in a Sinking Condition; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, in which the letters have reference to like parts.

Figure 1 is a perpendicular view of the deck of a sunken vessel, with the chain of receivers, in readiness to be sunk and drawn around the vessel, and secured by the purchase, and wedge. Fig. 2 represents a perpendicular view of the deck of a vessel, with the attachments perfected, and the receivers inflated. Fig. 3 is a section of the purchase block, exhibiting the action of the wedge on the halyards in perfecting the jamb, or arrest, at the point of contact. Fig. 4 represents a longitudinal section or side of a sunken vessel with the attachments perfected and receivers inflated.

K, K are the receivers by the inflation of which, the lifting power is given to the machine, I, I, hose connecting the receivers, L, L, chains to which the receivers are attached, G, G, purchase blocks fastened to the chains, D, D purchase halyards, P chain part of purchase halyards, F wedge, E, E wedge halyards, *c*, *c*, *c*, *c* guys, *o*, *o*, *o*, *o* buoys, N, N, N, N anchors, M sunken vessel, S sheave of purchase block, A, A wedge halyards sheaves, R jam roller.

The following is a description of the construction of the machine, and its mode of application in raising or supporting a vessel.

M, Fig. 1, is a sunken vessel. I ascertain her dimensions by soundings, or otherwise, and also her probable weight, procure a chain, or chains L, L, and affix to them at the proper distance, heavy purchase blocks G, G, so that when they are brought together and sunk to the bottom around the vessel with the machinery and secured by the wedge F, they may arise around the vessel below or about her bearings as seen in Fig. 4, and by the action of inflation will cause the vessel to rise to the surface receivers of the proper capacity of lifting power, manufactured from rubber, cotton or their combination or equivalents, of inflatable material, with bands and rings manufactured in them, so as to be easily secured to the chains, are to be applied and secured to the chains, in numbers as may be required guys *c*, *c*, *c*, *c* would be useful in attaching and detaching the machinery, though would not at all times be needed, the hose I in Figs. 1, 2, and 4, connect the receivers by couplings, the purchase blocks should be very strong and heavy with iron straps and sheaves, in the heel of one of which and opposite the last sheave S Fig. 3, through which the part of the halyards run that the power is applied to from the surface, is a jam roller R, so that the wedge F, by being brought by its halyards in the direction F, S, A, catches and is pressed between the links of the chain part of the purchase P and the roller R and effectually secures the purchase from slipping, by the reaction of the purchase in the direction F S A caused by the lifting power of the receivers in the course of inflation.

Fig. 5 represents a section of the purchase block, exposing the purchase sheaves S, the jam roller R and the two wedge halyard sheaves, or wheels, A, A, under and over which the wedge halyards are guided in bringing the wedge between the roller R, and purchase sheaves S, so as to jam, and prevent the further slipping, or reaction, of the purchase halyards at the point of pressure S, and R, as shown in Fig. 3.

The wedge F I construct of rope plaited or twisted in the shape of a marlin spike, the roller R of iron and without a groove, the wedge halyards E E may be made light and also their sheaves A A as not much strain may be expected. It would be necessary to have one or more heavy purchases, blocks, &c., and a proper number of receivers, always in readiness to suit any emergency, chains, cordage, anchors, &c., are always easily to be got, wherever vessels may be found. In the figures I have shown a single line of receivers or one attachment, as at 1, 2 and 4. I do not confine myself to numbers, but use them in number and power according to the necessity of the case, in most cases the machine may be drifted around a sunken vessel, partially inflated, purchase and wedge halyards roved, sunk by exhaustion, and the weight of the chains, or by the assistance of guys, anchors, and buoys,

as seen in Fig. 1, assisted by vessels or boats, but a great deal depends upon tide, wind, depth, and roughness of water, or other circumstances which are various, and known to nautical men; the object is to get the machinery around the vessel and secured as seen in Figs. 2 and 4 by which she will rest in its encircling embrace in a longitudinal manner and on a plane with the deck, the machinery being kept in place by their upward lifting force caused by the displacement, or action of the water upon the inflated receivers, and the greater the power the greater will be the upward tendency and embrace of the wedge like form of the vessel from its narrower to its broader parts or bearings. The attachments are understood to be the proper drawing together of the ends of the machinery at the blocks G, G, by the halyards D D P, and being secured by the wedge F, a vessel being sunk as at M Fig. 1 the wind, drift, or set of the tide being such that it might be proper to adopt the following plan of placing the apparatus or machinery around her. Her weight and dimensions being determined, I select a chain of the proper strength and weight L L, I place the purchase blocks G, G on the chains shorter than the horizontal girth amidships, so that the purchase may be drawn sufficiently taut, without coming block and block when hauling the machine to the desired place upon the vessel, in order to be secured by the wedge as seen at G G F Fig. 4. I then attach to the chain four receivers K K K K, couple together by the hose I, I, I and the hose H which leads to the surface for operations by the force and exhaust pump. I place four guys C, C, C, C on the chain to assist in getting the machine in position, the anchors placed and buoyed as at N, N, N, N O, O, O, O. All being ready, I partially inflate the receivers, and drop them ahead and across the bow N I N being considered the most favorable position. I allow the purchase block ends G G, to drift toward the stern of the vessel, and on a line nearly parallel with the sides of the vessel as seen at K K K K in Fig. 1. I then reeve the purchase halyards, and wedge halyards, sink the machine around and clear of the vessel, by the exhaustion of the receivers, and the weight of the chains. I then draw upon the purchase and secure it by the wedge at the point where I wish the machine to rise upon the sides of the vessel at or below the point of her beaming, when the inflation is performed through the hose H from the engine at the surface.

In cases of accident, or should it be found the lifting power not sufficient, another attachment must be perfected similar to the first, in order to place on more receivers. To perfect this the receivers must be exhausted, and the purchase hauled upon, by which the wedge F will be brought out of the sheave in the direction A, S, F, E Fig. 3, and can be brought away by its halyards E, E. The purchase blocks G, G can then be hauled asunder by the guys *c*, *c*, as seen in Fig. 1. The whole can then be raised by inflation, and drawn ahead and out of reach of the vessel in the direction I. In supporting vessels and for lifting off shore, and over bars, reefs, shoals banks, &c., the machinery can be placed and secured from the decks of the vessel, sunk by exhaustion to the proper depth by assistance of guys *c*, *c*, *c*, *c*, &c.

I claim—

The combination of the inflatable air receiver, purchase, roller, and wedge or their equivalents, as herein described, for the purpose of raising and supporting vessels.

WM. IRWIN.

Witnesses present—
CHAS. WATKIN,
PETER Y. WEAVER.