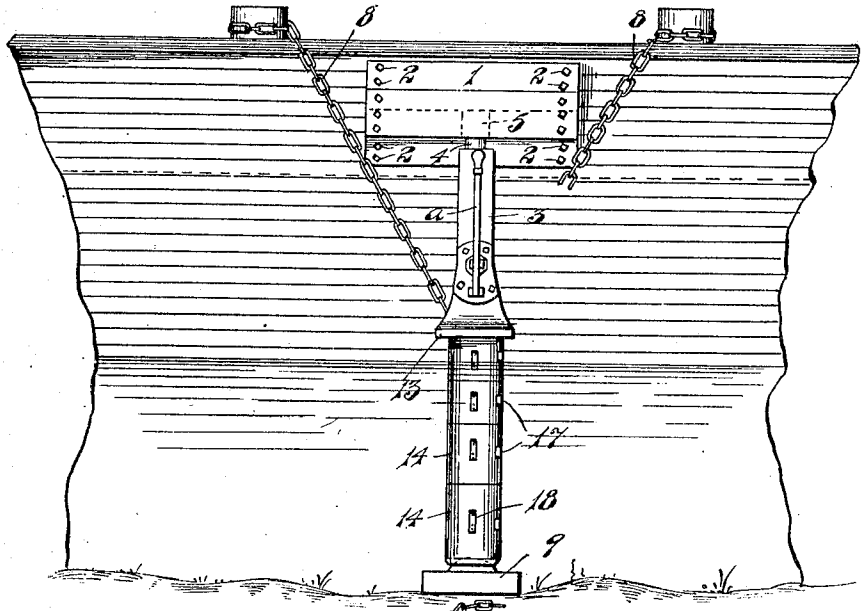
No. 856,713. PATENTED JUNE 11, 1907.

E. LOVLEY.

WRECKING APPLIANCE.

APPLICATION FILED FEB. 21, 1907.



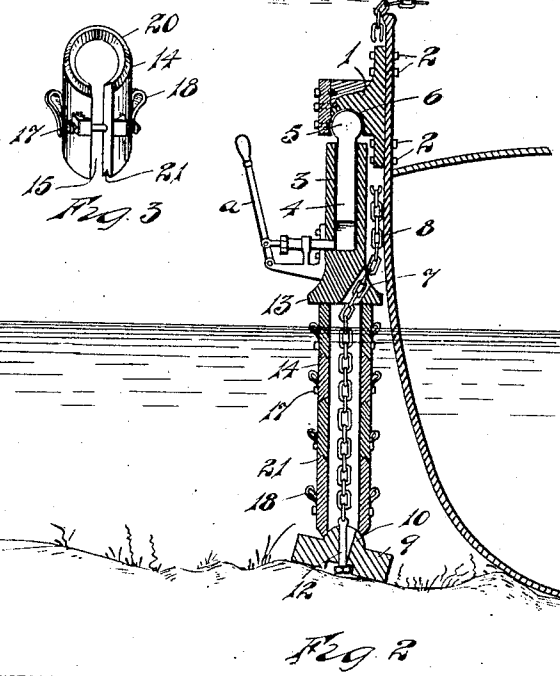


Fig. 3

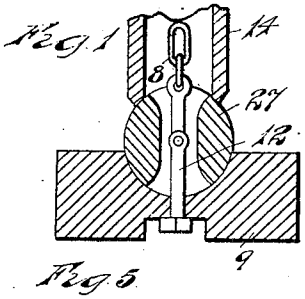


Fig. 5

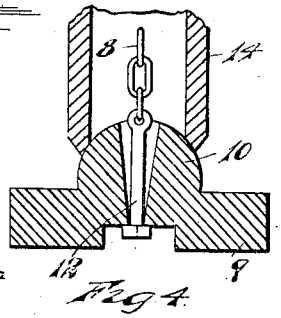


Fig. 4

Fig. 2

WITNESSES

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WRECKING APPLIANCE.

No. 856,713. Specification of Letters Patent. Patented June 11, 1907.

Application filed February 21, 1907. Serial No. 358,559.

To all whom it may concern:

Be it known that I, EDWARD LOVLEY, a citizen of the United States, residing at Sarnia, county of Lambton, Province of Ontario, Canada, have invented a certain new and useful Improvement in Wrecking Appliances; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to wrecking appliances to be employed for the purpose of lifting or raising sunken and submerged or partially submerged vessels.

In the drawings:—Figure 1, shows a side elevation of a portion of a boat with a lifting jack applied thereto. Fig. 2, is a cross section through the lifting jack as applied to the side of a boat. Fig. 3, is a perspective of a section of the extension leg forming part of the jack. Fig. 4, is a section on an enlarged scale of the foot of the extension leg. Fig. 5, is a section on an enlarged scale of a slightly modified form of foot piece.

The appliance in which this invention is embodied consists of a hydraulic ram, means for engaging the head of the ram to the side of a vessel, and means for resting the base of the ram on a support that reaches to the ground, and the invention relates especially to the means for connecting the ram to the boat, and the means for supporting the ram.

Another object of the invention is to arrange for a support of the ram that is vertically beneath the point of engagement between the head of the ram and the vessel, in order that the action of the jack in lifting may be along an exactly or substantially exactly vertical line.

The vessel to be lifted is provided with an outboard bracket 1, secured to the vessel by suitable bolts 2, either at the time the wrecking is to be carried out, or, anticipating action of this kind, the vessel may be prepared originally for the attachment of such brackets. Preferably the bracket extends along the side of the vessel for a considerable distance, not only to furnish a long bearing, containing a ball socket for another jack, but also to allow the vessel to glide forward or backward at times after it has been partially lifted, enough to raise it from the bottom, in which position it can easily be moved on its ball bearing, and in many cases such shifting will be sufficient to accomplish the desired result.

The lifting jack consists of a hydraulic ram 3, whose plunger 4 is provided with a rounded head 5 to engage in a receiving socket 6 in the bracket 1. The base of the ram is provided with a passage that enters the base from below at a point axially in line with the axis of the plunger and extends obliquely upward and out at a side of the base, which side in the structure, when in location for use, lies next adjacent to the side of the vessel. Through the passage 7 is passed a heavy chain 8 that supports at its lower end a foot piece 9; the foot piece 9 is a heavy casting provided on its upper side with a concaved seat 10 through which engages the chain 8, secured to the foot piece in any suitable way, as by a bolt 12, and in which engages the ball 27, through which the chain also passes. The chain passes over the bulwarks, and the upper end of it is stored on deck. Between the base 13 of the hydraulic ram and the foot piece 9, are used a number of split tubular pieces, each of which consists of a tube piece 14, having a slit 15 running along one side of it, and provided with projecting portions through which are inserted bolts 17 that compensate for the weakening effect due to the slit, and also hold the tube to the chain when it is placed in position as will be explained hereinafter. Each piece of the tube is preferably provided with eye bolts 18 by means of which it may be handled.

Preferably one end of the split tube 14 is provided with a rib 20, and the opposite end with a socket 21 to effect the accurate centering of one section of the strut upon another, and the accurate resting of the bottom section of the strut on the curved seat 10.

In using this device when occasion for its use arises, the ram is placed under the bracket after the bracket has been secured to the vessel, and is held by the overreaching engagement of the point of the outer or removable part of the bracket which constitutes a part of the socket piece. The chain 8 is passed through the passage 7 and its outhanging end made fast to the foot piece 9, after which the foot piece 9 is dropped until it rests on the earth, and of course is directly under the axis of the plunger of the ram. The chain 8 is drawn taut, and the tubular sections 14 placed in position by slipping

them over the chain until each section put on the chain is axially in line with the bore of the tube, and the bolts 17 are then put in place and the pieces lowered and additional pieces inserted above until a complete strut is built up from the foot piece 9 to the base of the hydraulic ram 3. A sufficient number of such structures are used with a vessel to lift the vessel, and after all have been carefully erected, the lifting is accomplished by filling the chambers of the ram under pressure in the usual way of using hydraulic rams. The lifting may be continued until the plunger of the ram has been projected to its working limit, after which the further work of lifting the wreck or shifting the wreck into deep water will be accomplished according to the circumstances of each particular case. Some times it may be necessary to set a second set of rams to accomplish a higher lift of the vessel or to prevent canting. At other times it may be sufficient to simply pull the vessel forward or backward as the case may be, allowing it to float into deep water which is adjacent to the shallow water in which it grounded. The object of this device is accomplished when the vessel is lifted without reference to the further prosecution of the wrecking which may be either a repetition of the process or some other process. It is also evident that the principal apparatus here described could be used with but little alteration for the hoisting to its proper level of a bridge or dock whose abutments were insecure or in need of repair.

What I claim is:—

1. In a wrecking apparatus, in combination with a hydraulic ram and means to furnish a bearing between the ram and the vessel, a foot piece adapted to rest on the earth means whereby the foot piece is lowered beneath said bearing, and tubular sectional pieces adapted to be superposed thereabout between the hydraulic ram and the foot piece, substantially as described.

2. In a wrecking apparatus, in combination with a bearing fixed to the side of the vessel, a hydraulic ram engaging thereagainst and adapted to assume a variety of angular positions with respect thereto, a foot piece adapted to rest on the ground, a flexible member depending from said ram and attached to said foot piece, and a plurality of removable tubular pieces adapted to be alined about said flexible member between the ram and the foot piece, substantially as described.

3. In a wrecking apparatus in combination with a hydraulic ram, extension members consisting of split tubes provided with bolts passing across the slot of the tube, substantially as described.

4. In a wrecking apparatus in combination with a hydraulic ram and a means for furnishing an extension support therefor, split tubes adapted to engage around a flexible member depending from said ram, and bolts passing across the slot of said tubes, substantially as described.

In testimony whereof, I sign this specification in the presence of two witnesses.

EDWARD LOVLEY.

Witnesses:
ALICE TOWNSEND,
WILLIAM M. SWAN.