No. 630,542. Patented Aug. 8, 1899.

M. JONES.

APPARATUS FOR RAISING SUNKEN VESSELS.

(Application filed Nov. 8, 1898.)

(No Model.)

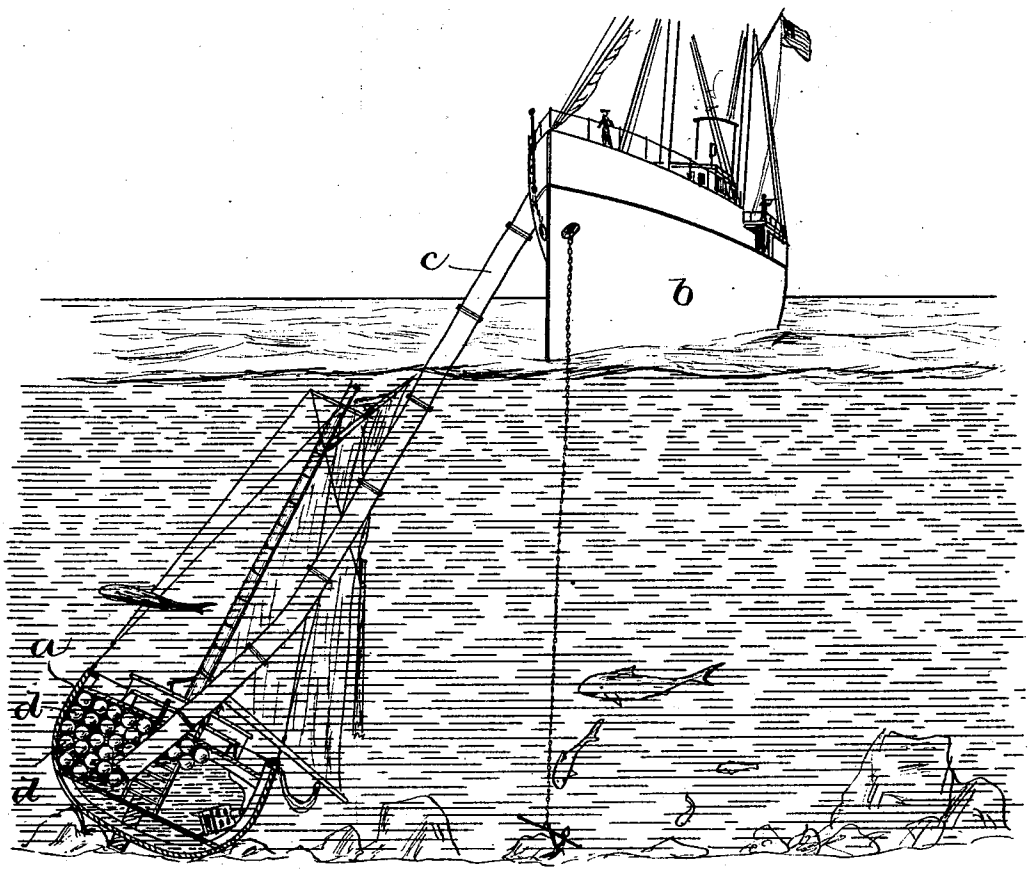


FIG. 1.

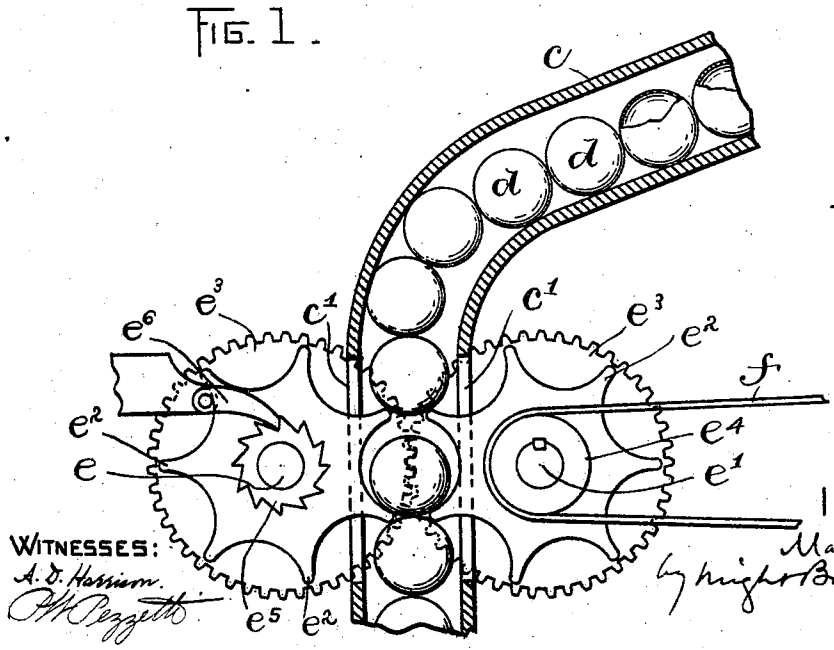


FIG. 2.

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UNITED STATES PATENT OFFICE.

MARSHALL JONES, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR RAISING SUNKEN VESSELS.

SPECIFICATION forming part of Letters Patent No. 630,542, dated August 8, 1899.

Application filed November 8, 1898. Serial No. 695,851. (No model.)

To all whom it may concern:

Be it known that I, MARSHALL JONES, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Raising Sunken Vessels, of which the following is a specification.

This invention relates to the art of raising sunken vessels; and it has for its object to provide simple and easily-applied apparatus by means of which vessels may be quickly and cheaply raised.

In carrying out the invention I propose to introduce into the hull of the submerged vessel a quantity of buoyant bodies which by displacing the water in the vessel will increase the buoyancy of the same and cause it to rise to the surface.

My invention will be readily understood from the succeeding description and claims, taken in connection with the accompanying drawings, in which—

Figure 1 represents a perspective and sectional view illustrating the operation of my improved apparatus and showing the sunken vessel, the vessel or ship from which operations are conducted, and the chute or guide. Fig. 2 represents a view in section and side elevation, illustrating a form of apparatus for forcing the buoyant bodies through the chute.

The same reference characters indicate the same parts in both figures.

Referring to the drawings, *a* designates the hull of a submerged vessel, *b* designates the vessel from which operations are conducted, and *c* designates a guide or chute extending from the vessel *b* to the vessel *a* and having its upper end supported from the former, while its lower end is inserted inside the hull of the sunken vessel *a*. The chute *c* may be of tubular form, as shown, or it may be of skeleton form or other construction suitable for the guidance of a column of buoyant bodies. A portion of the chute is preferably made flexible to allow for the motion of the ship *b* in a seaway.

d d represent a series of hollow air-tight metal balls or cans of spherical form and of diameter slightly smaller than the interior of the tube *c*, so as to readily pass therethrough. The cans *d* are contained in a column in the tube *c*, which column is propelled downwardly to cause the balls to emerge from the lower end of the chute by means of mechanism constructed as follows: On opposite sides of the chute and arranged to project thereinto through slots c' c' are two feed-wheels *e e*, mounted upon suitably-journaled shafts e' e'. The peripheries of these wheels are provided with teeth e^2 e^2, and between said teeth the peripheries are curved or hollowed to conform to the contour of the balls *d*. On the shafts of the wheels *e e* are secured intermeshing gear-wheels e^3 e^3, and on one of said shafts is secured a belt-pulley e^4, driven by a belt *f*, which connects with a suitable motor. The said pulley is rotated continuously by the motor in the direction of the arrow in Fig. 2, and the feed-wheels are thereby positively rotated and coact, as represented in the said figure, to engage the balls *d* in succession and force the column of balls down the tube. The upper portion of the tube *c*, which is represented in Fig. 2 as bent at an angle to the main portion, is filled with balls and constitutes a reservoir or chute from which the balls are fed into the said lower portion. The balls may be placed by hand or other means directly in this chute, or they may pass thereinto from a larger receptacle provided for the purpose. The return of the column of balls up the tube, due to the pressure of the water in the submerged part of said tube, is prevented by the action of the feed mechanism so long as the latter is in motion; but as an additional check one of the shafts e' may be provided with a ratchet e^5, engaged by a pivoted check-pawl e^6. The balls *d* are ejected in a steady stream from the lower end of the tube *c*, and as they emerge each one seeks the highest accessible point in the submerged vessel or the compartment of said vessel in which the tube is situated. The lower end of the tube is placed as far down in said compartment as possible, so as to fill or nearly fill the same with the buoyant receptacles and displace as far as possible the water therein. After one compartment has been filled the feed is stopped, the chute transferred to another compartment, and the operation proceeded

with as before until a sufficient amount of water has been displaced from the vessel to cause it to float.

In applying the apparatus to submerged vessels divers may be employed, if necessary, to adjust the lower end of the chute in the vessel, said chute being inserted through the hatches of the vessel or other convenient openings, while openings through which the buoyant bodies might escape are closed over as much as possible.

It will be understood that my invention is not limited to the specific embodiment herein shown and described, but includes the various modifications which will readily be suggested to those possessing ordinary mechanical skill.

I claim—

1. An apparatus for raising sunken vessels, comprising a guide adapted to be positioned in the vessel, a quantity of buoyant bodies, and means for propelling said bodies along the guide into the vessel.

2. An apparatus for raising sunken vessels, comprising a guide adapted to be positioned in the vessel, a quantity of buoyant bodies, a reservoir or receptacle for said bodies, and means for transferring said bodies from the reservoir to the guide and propelling them along said guide into the vessel.

3. An apparatus for raising sunken vessels, comprising a guide adapted to have its end positioned in the vessel, a quantity of buoyant bodies, means for propelling said bodies along the guide into the vessel, and means for preventing the return of the bodies, due to the pressure of the water.

4. An apparatus for raising sunken vessels, comprising a tubular guide or chute adapted to have its lower end positioned in the vessel, a quantity of buoyant bodies and mechanism at the upper end of said chute for propelling said bodies through said chute and ejecting them from the lower end thereof into the vessel.

5. An apparatus for raising sunken vessels, comprising a member a quantity of buoyant bodies constructed to receive and guide a column of said bodies, and adapted to have its lower end positioned in the vessel, and feeding mechanism for propelling said column of bodies along the guide member, together with provisions whereby the bodies are caused to leave the guide at its lower end.

6. An apparatus for raising sunken vessels, comprising a member a quantity of buoyant bodies adapted to receive and guide a column of said bodies, a rotary feed mechanism having provisions for engaging said bodies and propelling them along the guide member, and means for driving said mechanism.

In testimony whereof I have affixed my signature in presence of two witnesses.

MARSHALL JONES.

Witnesses:
C. F. BROWN,
E. BATCHELDER.