April 29, 1924. 1,491,984

J. T. COWLES

SALVAGE DEVICE FOR SUNKEN SHIPS

Original Filed Feb. 1, 1923 2 Sheets-Sheet 1

Fig 1

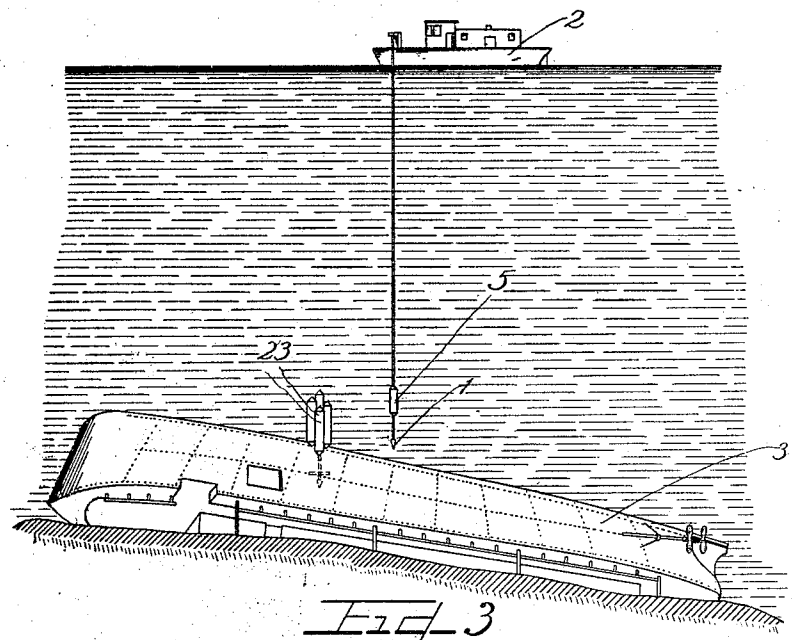
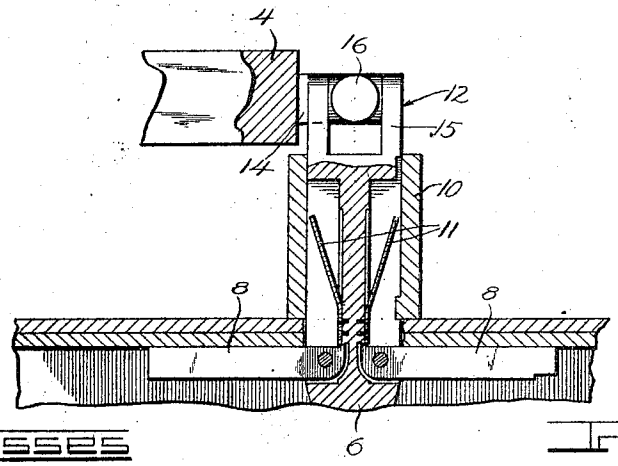


Fig 3



Witnesses

Robert E. Marks

Carson Hice

Inventor

John T. Cowles

by Charles Miller

Atty

April 29, 1924. 1,491,984

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SALVAGE DEVICE FOR SUNKEN SHIPS

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Fig 2

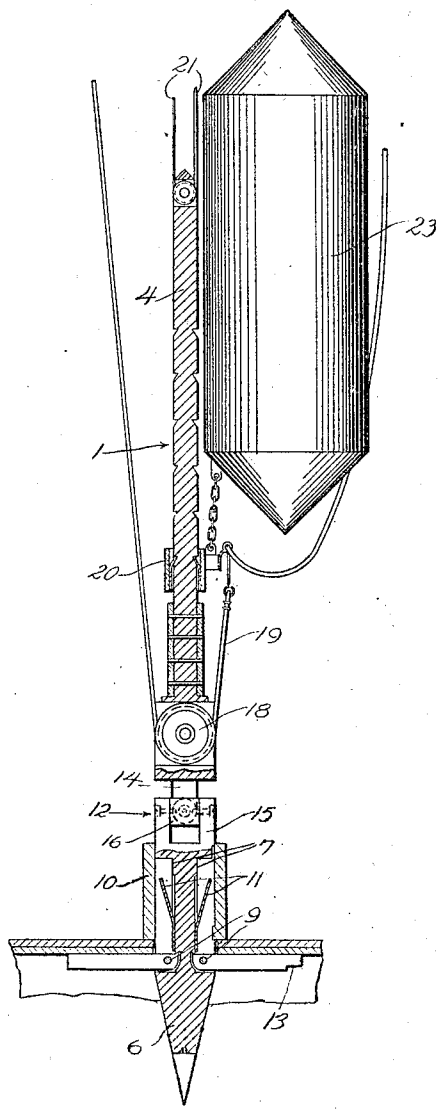


Fig 5

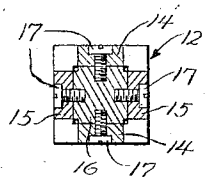
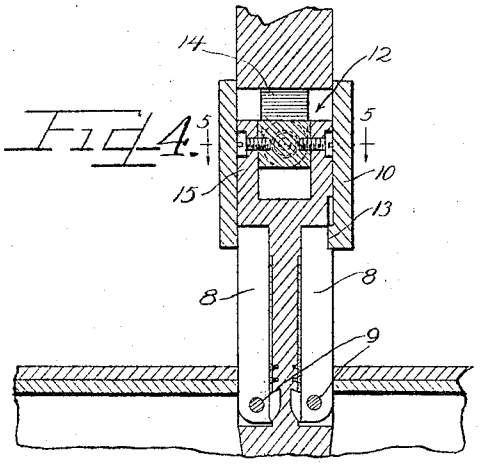


Fig 4.



Witnesses

Robert E. Marks.

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by

Inventor

John T. Cowles

Charles W. Hills

Atty

Patented Apr. 29, 1924. 1,491,984

UNITED STATES PATENT OFFICE.

JOHN T. COWLES, OF CHICAGO, ILLINOIS, ASSIGNOR TO SOPHIA E. COWLES, OF CHICAGO, ILLINOIS.

SALVAGE DEVICE FOR SUNKEN SHIPS.

Application filed February 1, 1923, Serial No. 616,420. Renewed January 14, 1924.

To all whom it may concern:

Be it known that I, JOHN T. COWLES, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Salvage Devices for Sunken Ships; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to appliances for raising sunken ships, more particularly those shown in my Patents No. 1,186,899, issued June 13, 1916; No. 1,258,197, issued March 5, 1918, and No. 1,323,249, issued December 2, 1919.

In these patents I have disclosed apparatus by means of which a pointed member or harpoon is driven through the plates of a sunken ship by a device resembling a pile driver in its operation. After the harpoon has been driven through the plates, arms spring outwardly to engage the underside of the plate and prevent the retraction of the harpoon. The necessary lifting force is then obtained by attaching caissons to the harpoon or by a direct pull on the cable attached to the harpoon by means of a winch or capstan or even by a steam tug. The direction in which the cable is pulled by such means is frequently at a considerable angle to the harpoon thereby causing undesirable side and other strains on the shank of the harpoon and its arms.

One of the principal objects, therefore, of the present invention is to provide means for lessening these side and other strains on the harpoon.

Another object of the invention is to enable a more direct pull to be obtained on the vessel at the point of attachment of the harpoon without interfering with the means for attaching such harpoon to the hull of the vessel to be salvaged.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawings and the following specification.

In the drawings:

Figure 1 is a general view illustrating the use of my improved apparatus.

Figure 2 is a vertical section through one of my improved forms of harpoon.

Figure 3 is a vertical section through a portion of the harpoon in another position.

Figure 4 is a vertical section through a portion of the harpoon as it is being driven through a plate.

Figure 5 is a section on the line 5—5 of Figure 4.

In the drawings 1 represents a harpoon which is dropped from a salvage boat 2 onto the hull of the vessel 3 to be raised. The harpoon comprises a shank 4 on which slides the driving member 5 (Figure 1) whilst the harpoon is being driven through the ship's plates.

At the other end of the harpoon a hard pointed nose 6 is provided, adapted to be readily driven through a plate. The shank 4 and nose 6 are connected together by means of a universal joint 12 which allows the shank to lie in the line of pull thereon independently of the position of the nose portion of the harpoon. While the harpoon is being driven through the plate it is necessary that the joint should be held rigid and this is accomplished by means of a sleeve 10. Above the pointed nose are arranged in suitable recesses 7 pairs of arms 8 pivotally secured to the harpoon at 9.9. One or more of these arms is also provided with a notch 13 which provides a shoulder against which the lower end of the sleeve 10 rests. By this means the sleeve is held in such a postion that it not only retains the arms 8 in place but at the same time holds the universal joint 12 rigid. During the driving operation the arms 8 are retained in these recesses against the action of springs 11 by means of the sleeve 10. When, however, the plate has been pierced, further inward movement of the harpoon causes the sleeve to contact with the outer face of the plate and be thereby prevented from further movement and at the same time the ends of the arms pass through the hole in the plate and then fly outwards under the action of the springs 11. When the harpoon is then pulled upwards, the parts assume position shown in Figure 2. In this position the universal joint is free to operate and if necessary the parts can assume the position shown in Figure 3.

The universal joint comprises a fork 14 on

the lower end of the shank and a fork 15 on the upper end of the nose portion of the harpoon. Pivotally secured between the arms of these forks by screws 17 is a rectangular block 16.

Immediately above the universal joint 12 is a sleeve 18 for the cable 19 by which another sleeve 20 may be drawn down the supporting cable 21 of the harpoon onto the shank 4. Attached to this sleeve 20 is a chain 22 connected to the lower end of a caisson 23.

The operation is as follows:

The harpoon is lowered by cable 21 to the hull of the vessel 3 to be raised. The harpoon is then driven into the plates by alternately raising and dropping the member 5 as described in my earlier patents. When the plate has been pierced the sleeve 10 is moved upwardly along the shank of the harpoon and the arms 8 fly outwardly under the action of springs 11 as soon as the ends of the arms are clear of the edges of the plate.

The driving member is then hauled up for use with another harpoon and a caisson is drawn down for engagement with the shank 4 as above described. The buoyancy of the caisson draws the harpoon upwardly until the arms 8 rest firmly against the underside of the plates as shown in Figure 2. Three or four caissons may be attached to a single harpoon, as shown in Figure 1, or in some cases the desired lifting force may be obtained by pulling on the cable 21. In all cases the shank 4, by reason of the universal joint 12, is free to align itself with the direction of pull upon the harpoon.

I am aware that many changes may be made and numerous details of construction varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. A device of the character described comprising a pointed piercing member, a plurality of members pivoted thereto, a sleeve slidable along the shank of said piercing member and adapted to lock the pivoted members in their closed positions, a universal joint in said shank held rigid by said sleeve when in position to lock said pivoted members.

2. A device of the character described comprising a pointed piercing member adapted to be driven through a plate, a universal joint in the shank of said member, means for holding said joint rigid during the driving operation and allowing the joint to operate after the plate has been pierced.

3. A device of the character described comprising a pointed piercing member, a universal joint in the shank of said member, a sleeve slidable on said shank adapted in one position to hold said joint rigid and in another position to allow of free movement of said joint.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

JOHN T. COWLES.

Witnesses:

CARLTON HILL,

OSCAR HARTMANN.