No. 743,751. PATENTED NOV. 10, 1903.

R. A. PERRY.

DREDGER.

APPLICATION FILED MAY 13, 1903.

NO MODEL. 3 SHEETS—SHEET 1.

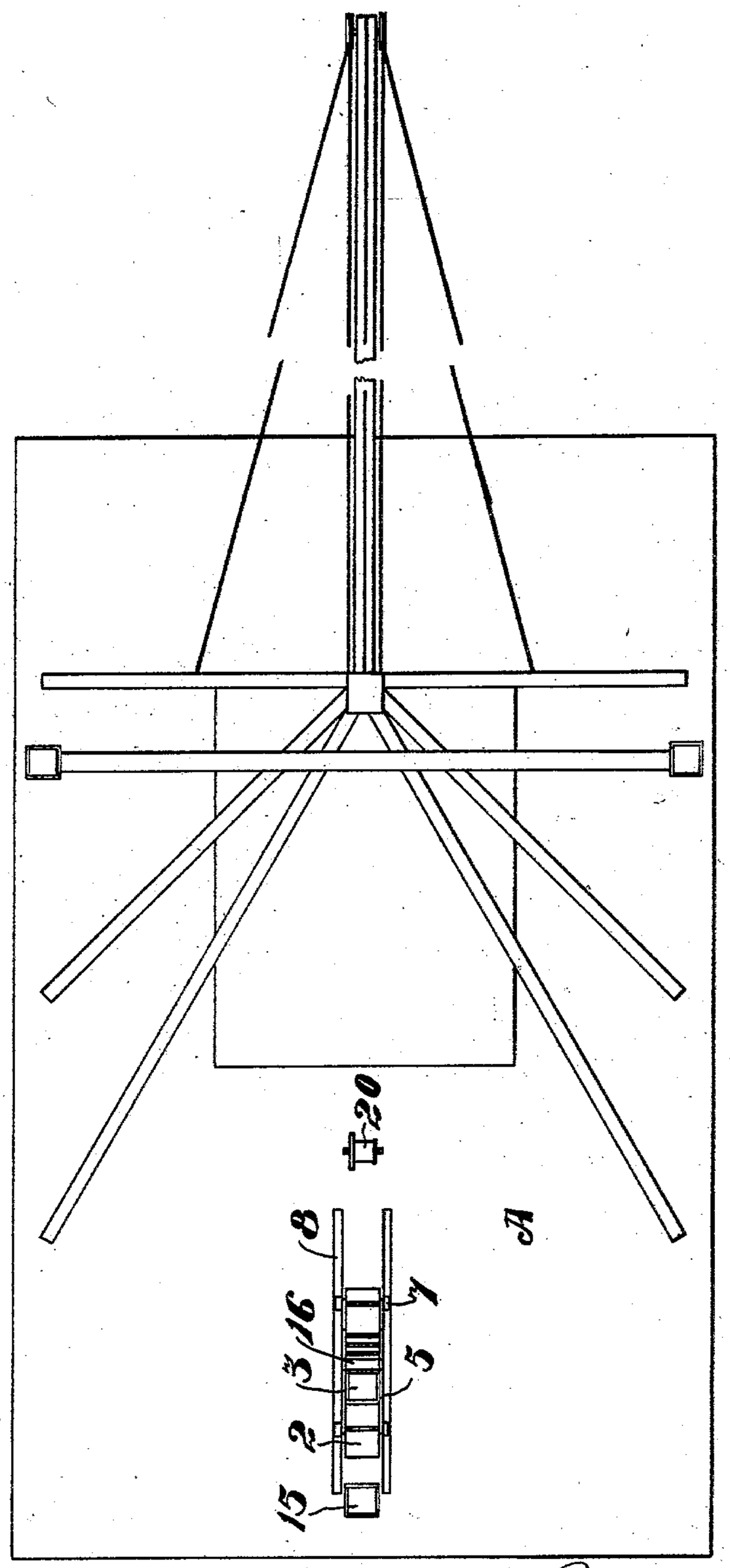

Fig. 1.

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NO MODEL. 3 SHEETS—SHEET 2

Fig. 3.

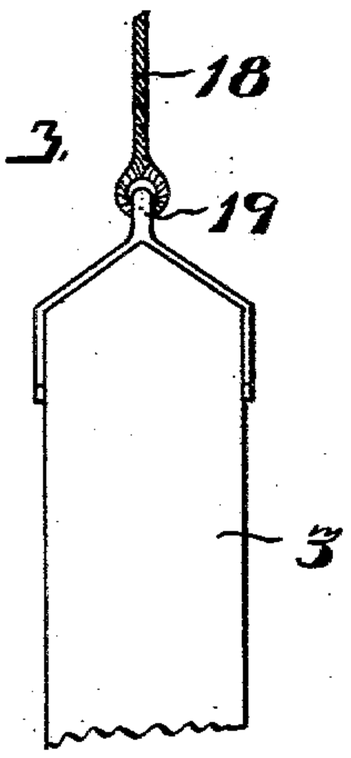
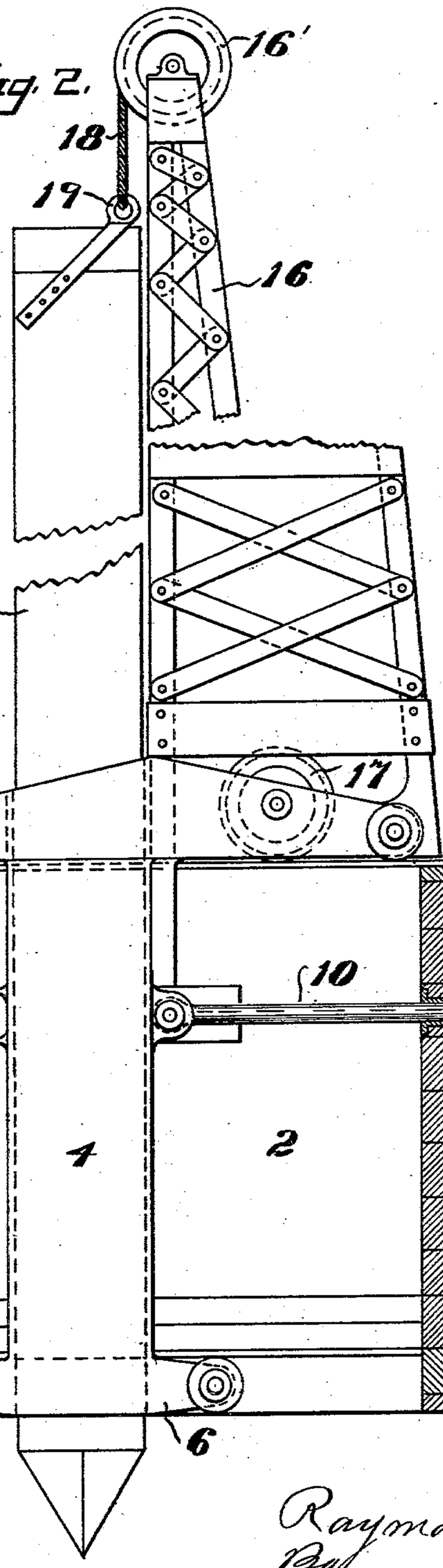


Fig. 2.



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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 4.

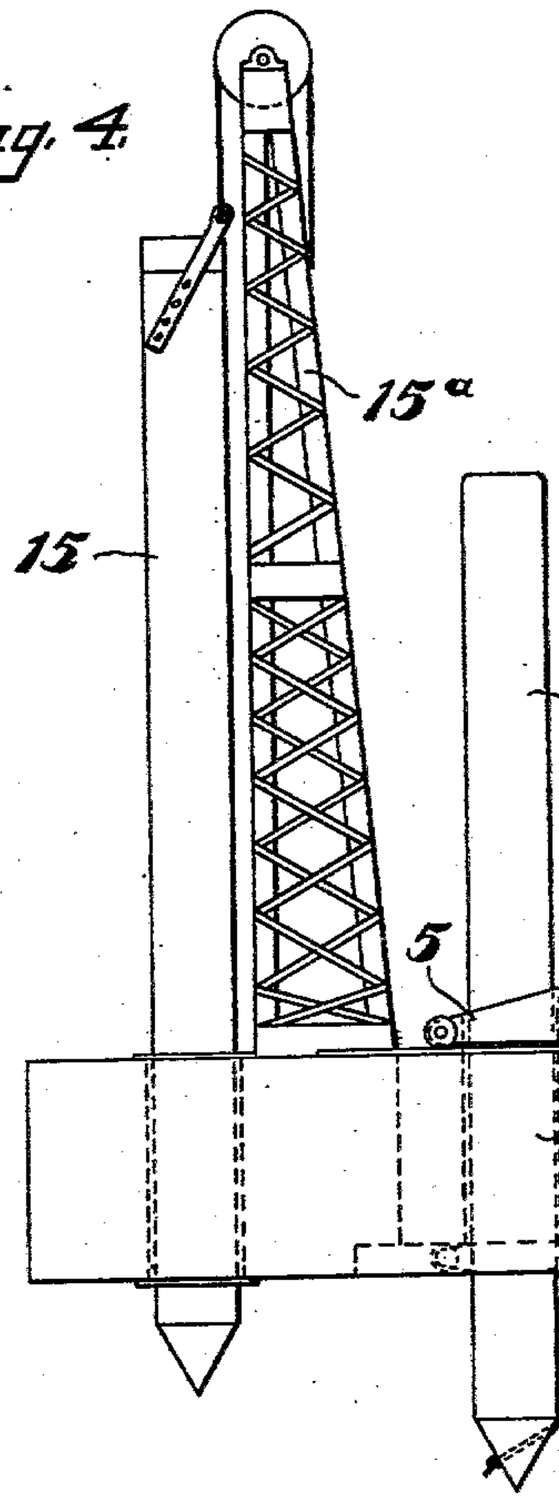


Fig. 6.

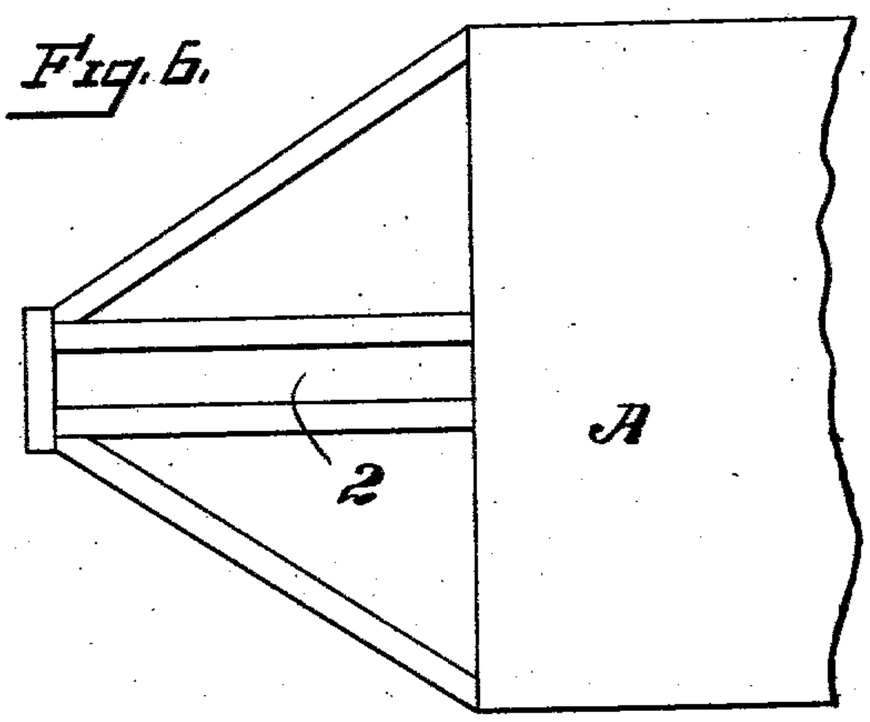
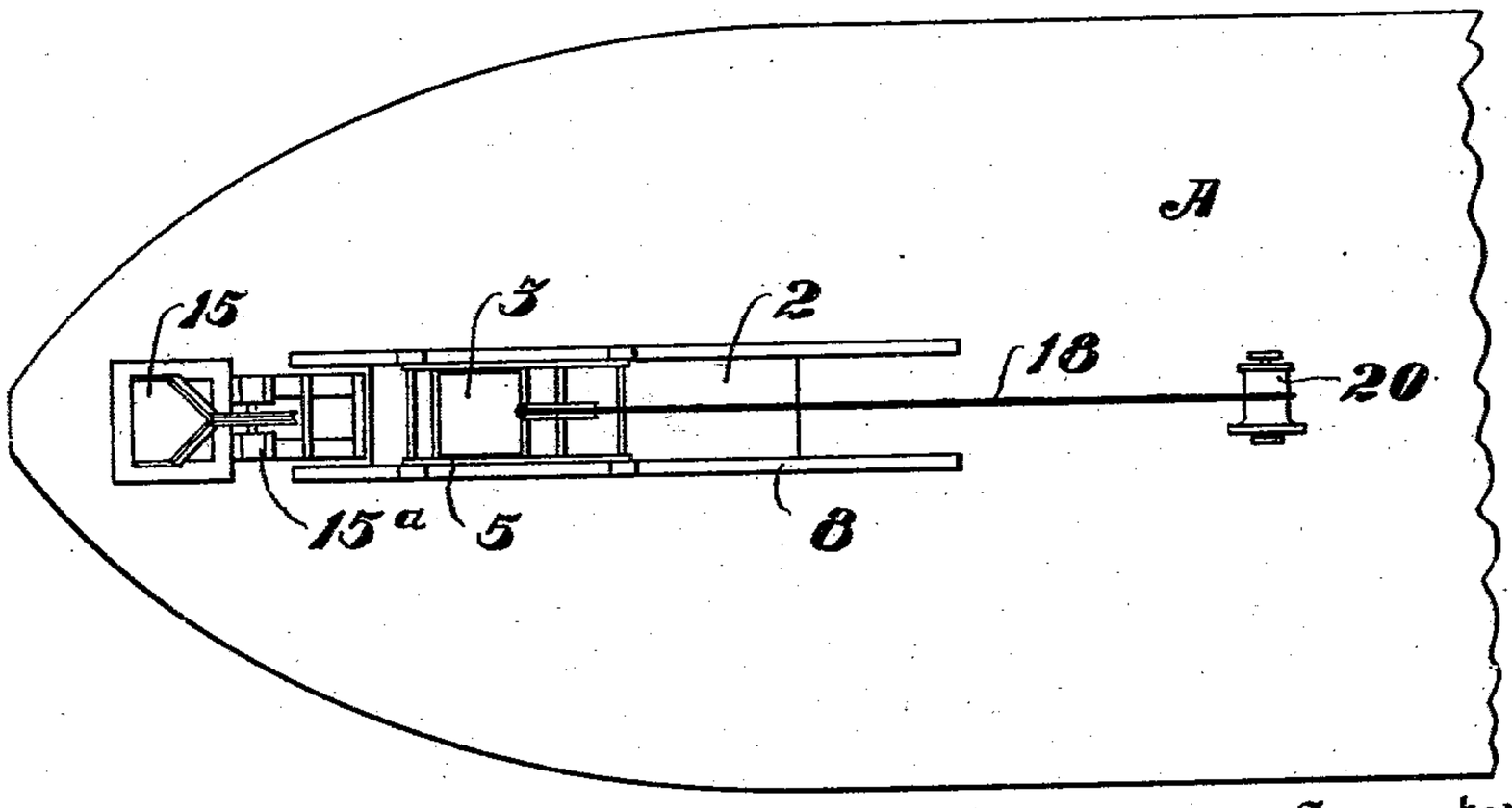


Fig. 5.



Witnesses,
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No. 743,751. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

RAYMOND A. PERRY, OF OAKLAND, CALIFORNIA.

DREDGER.

SPECIFICATION forming part of Letters Patent No. 743,751, dated November 10, 1903.

Application filed May 13, 1903. Serial No. 156,877. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND A. PERRY, a citizen of the United States, residing in Oakland, county of Alameda, State of California, have invented an Improvement in Dredgers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus for dredging material from beneath the water or under conditions in which material can be elevated and transported.

It consists in a means for advancing and fixing the apparatus at intervals, so that the excavating device can be made to work over a certain stated space, and a mechanism for raising the advancing spud and transferring it from the rear to the front of the channel in which it operates. In conjunction with this I may employ an independent working spud, about which the dredge is turnable while at work.

My invention also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan of a dredger, showing attachment of my invention. Fig. 2 is a side elevation of my invention. Fig. 3 is a front view of top of pile or spud. Fig. 4 is a side elevation of a modification. Fig. 5 is a plan view of same. Fig. 6 is a modification showing the guide-well outside of hull.

In dredging or excavating from beneath the surface of bodies of water it is customary to employ a float or hull, upon which the machinery for driving the excavating apparatus is carried. These hulls are usually anchored and remain stationary, while the excavating apparatus is made to do its work within the radius which can be reached from the boat or hull, and when this has been completed the hull is again advanced and a new station taken.

In my invention I have shown a means for advancing the hull A from time to time by means of a spud or pile, which is driven down into the mud through an open channel made in some part of the hull of the boat or in line exterior thereto and having a length sufficient to allow the boat to be moved with relation to the fixed pile a distance equal to the length of the channel. After the work has been completed within the radius reached by this setting the pile is pulled up and advanced to the opposite end of the channel and again set.

It is the object of my present invention to provide a means for applying a direct pull to extract the pile when it has to be moved for a new setting.

As shown in the drawings, the hull of the vessel A has an open slot or channel 2 extending lengthwise of the boat and either formed within the boat or built out in line beyond the end thereof, this channel being open at both top and bottom, and it is made of a length sufficient for the required successive advances of the boat and of a width sufficient to receive the spud or pile, which is driven into the bottom and serves as a temporary point from which the advance is made.

As shown, 3 represents the spud or pile vertically slidable within the open channel 2, so that it may be raised clear of the bottom or may be driven into the bottom to form a temporary anchor or fixed point. This pile is preferably slidable within a casing or guide 4, which has a length sufficient to properly guide the pile and hold it in an upright position. This casing may be maintained in a vertical position by guides at the top and bottom, as shown at 5 and 6. These guides may be furnished with antifrictional rollers 7, which are adapted to travel upon tracks 8, so that the spud and its casing will be maintained in a substantially erect or vertical position while being moved from one end to the other of the slot. By any suitable attachment—such as an engine piston-rod 10, connected with an attachment upon the side of the spud-casing, or by ropes, cables, block and tackle, or winding-drums of any description mounted upon the boat—the casing containing the spud or pile may be shifted from one end to the other of the slot or channel. Thus when the spud is advanced to that end of the channel nearest to the digging or excavating apparatus and driven into the ground the boat may be advanced with relation to the spud to any desired distance within the length of the channel, and this will advance the excavating apparatus an equal amount in readiness for a new cut.

If the apparatus is of a type in which the

boat is to swing from side to side, so as to allow the excavating to be done in an arc of a circle, it is preferable to employ a second or working spud, as 15, which is driven down through a casing, preferably at or near the end of the boat, opposite to the excavating apparatus, so as to give the apparatus as wide a swing as possible around this radial point. By any of the well-known means employed for the purpose the boat can be swung around this spud. After the working spud or pile 15 has been driven the fleeting spud or pile 3 may be raised from its position in readiness to be shifted to the forward end of the channel. In order to properly pull this spud or pile, it is necessary to apply the power approximately in line with the spud. This I effect by means of a traveling support movable in unison with the spud-casing and carrying a guide or device through which the pulling power may always be applied substantially in line with the spud.

In Fig. 2 I have shown a mast 16, which may be of any suitable construction, but is preferably built of angle or equivalent iron, with lattice or cross bars to give it the necessary rigidity as well as lightness. This mast or structure is movable in unison with the carriage of the movable pile 3, so that it is always essentially in the same position with relation to the pile, whether the latter be at one end or the other of the channel in which it is movable. At the top of this mast is a pulley or sheave, as at 16, and journaled near the bottom is another sheave or pulley, as 17. The top of the spud or pile 3 has fixed to it any suitable device for the attachment of the hoisting rope or cable, as at 19. The rope or cable 18, being connected with this device, passes over the pulley at the top of the mast, thence down around the pulley at the bottom, and thence leads to any suitable or convenient winding-drum, as at 20, conveniently located on some part of the boat, so that power may be applied to hoist the pile from its bed.

In Figs. 4 and 5 I have shown a modification in which the sheave 16 is journaled or carried upon the guide 5 at the top of the casing or some convenient extension of or attachment thereto. In this construction the hoisting rope or cable 18 may be secured at or near the bottom of the pile and lead through suitable grooves or channels in the spud or casing. This allows the spud to be raised clear of the bottom for ordinary moving, and if it is desired to remove it entirely from its casing it may be done by means of the hoisting mechanism carried by the mast 15^a of the working spud 15. By this construction the pull upon the pile is always in a direct line, because the pulling device is movable in unison with the pile and its casing. Therefore the pile will not be pulled or tilted to one side, but will be raised directly within its casing.

This apparatus is applicable to all forms of dredgers which are commonly in use and in which it is desirable to advance them periodically as the work progresses, and it will be understood that any of the mechanisms usual to such dredgers may be employed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A dredge-boat having an open vertical longitudinally-disposed channel, a spud or pile adapted to be driven through said channel into the mud beneath the boat, means by which the boat is movable in the direction of its length with relation to said fixed pile, and a device carried upon the boat and movable with the pile and operating substantially in line therewith, by which the pile may be withdrawn from the bottom.

2. A dredge-boat having a longitudinal open vertical channel, a spud or pile, a casing therefor and guides upon which it is movable within the channel, and a mast or structure movable in unison with the casing, said mast being provided with devices for the raising and extraction of the pile from the mud.

3. The combination with a dredge-boat having a longitudinal vertical channel, a pile adapted to be driven within said channel, a vertically-guided casing for the pile of a mast or support fixed and movable in unison with the pile-guide, and mechanism carried by said mast substantially in line above the pile whereby the latter may be extracted from the mud.

4. A dredge-boat having an open longitudinal channel a vertically-guided casing movable from end to end in the channel, a spud or pile adapted to be driven through said casing, a mast or structure fixed and movable in unison with the casing whereby its position relative to the spud is maintained, guide-pulleys carried upon the mast, means for attaching a rope or cable to the spud, said rope or cable passing over the guide-pulleys on the mast and a winding-drum or the like carried upon the boat around which the cable is wound to raise the spud.

5. The combination with a dredge or like boat of a guided vertically-movable spud, a channel therefor lengthwise of the boat, means carried by the boat whereby it may be advanced with relation to the spud when said spud is fixed, and a device movable with the spud and operating substantially in line therewith to pull the spud.

6. The combination with a dredge-boat, a vertically-guided slidable pivot working spud and pulling device, of a second vertically-guided and slidable spud, a longitudinally-disposed open channel therefor, and means carried and movable in unison with said spud, whereby power may always be applied in the direction of the spud-axis to lift it.

In witness whereof I have hereunto set my hand.

RAYMOND A. PERRY.

Witnesses:
W. A. H. CONNOR,
FRANK M. WATSON.