

No. 723,122.

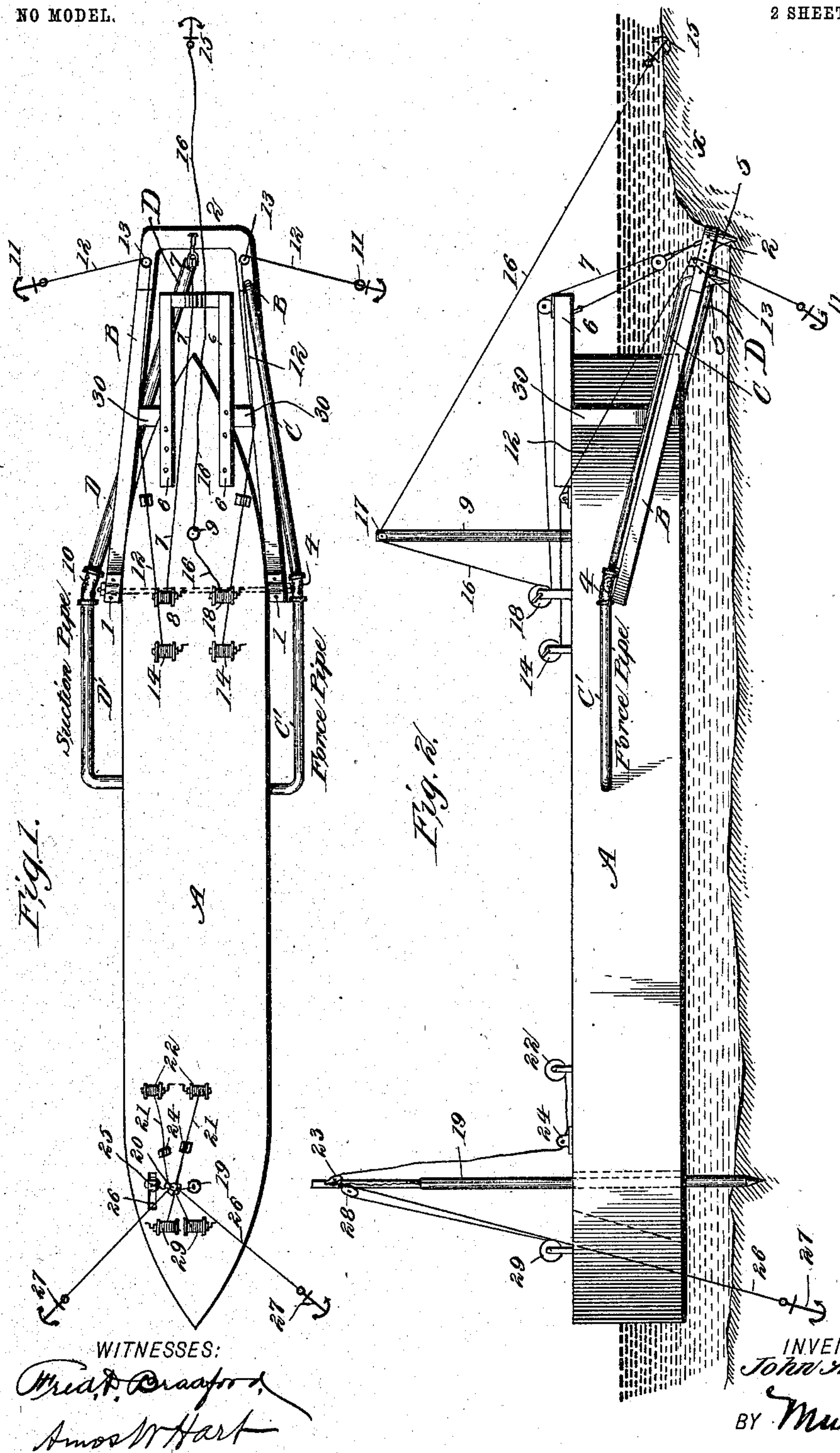
PATENTED MAR. 17, 1903.

J. ANDERSEN.  
HYDRAULIC DREDGE.

APPLICATION FILED NOV. 14, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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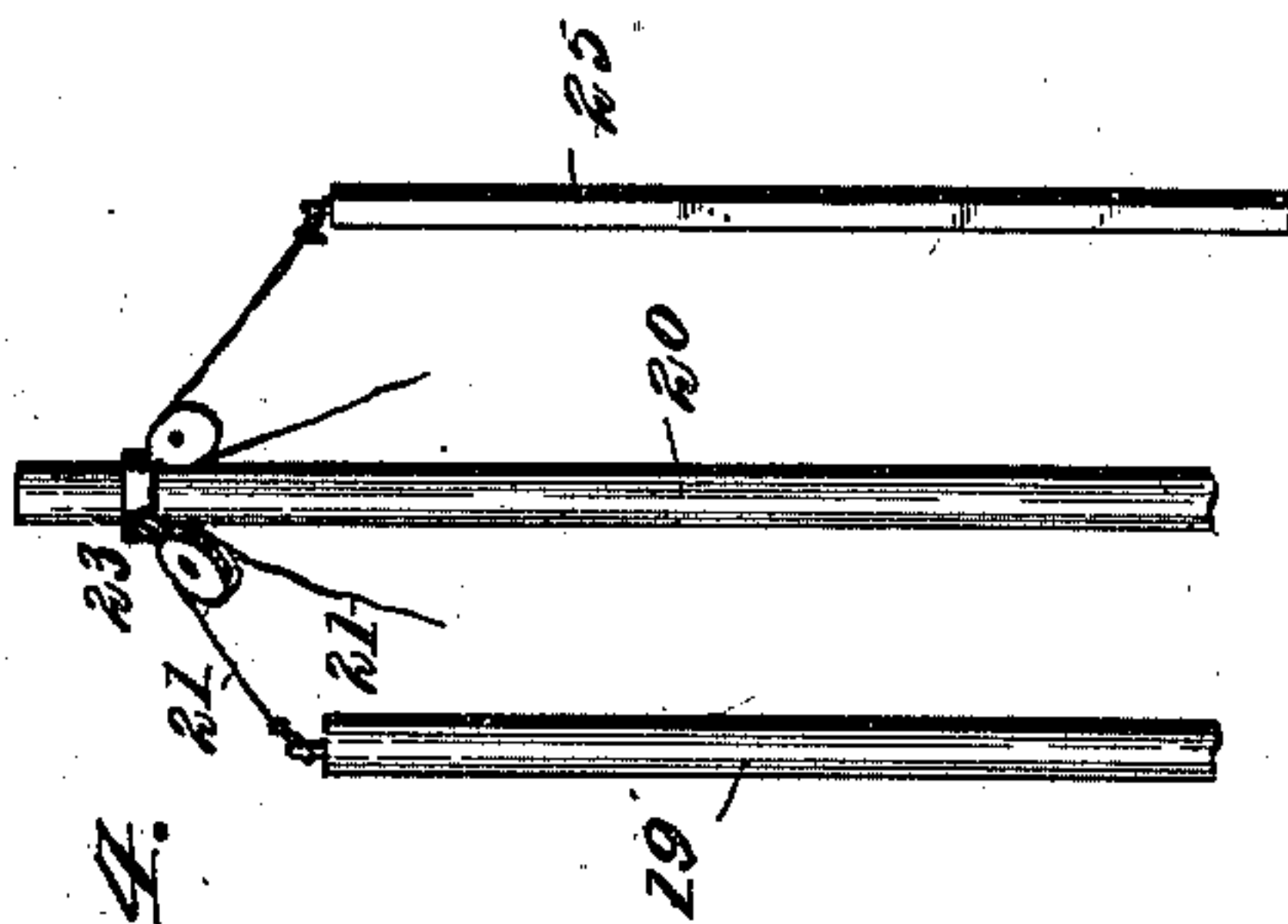
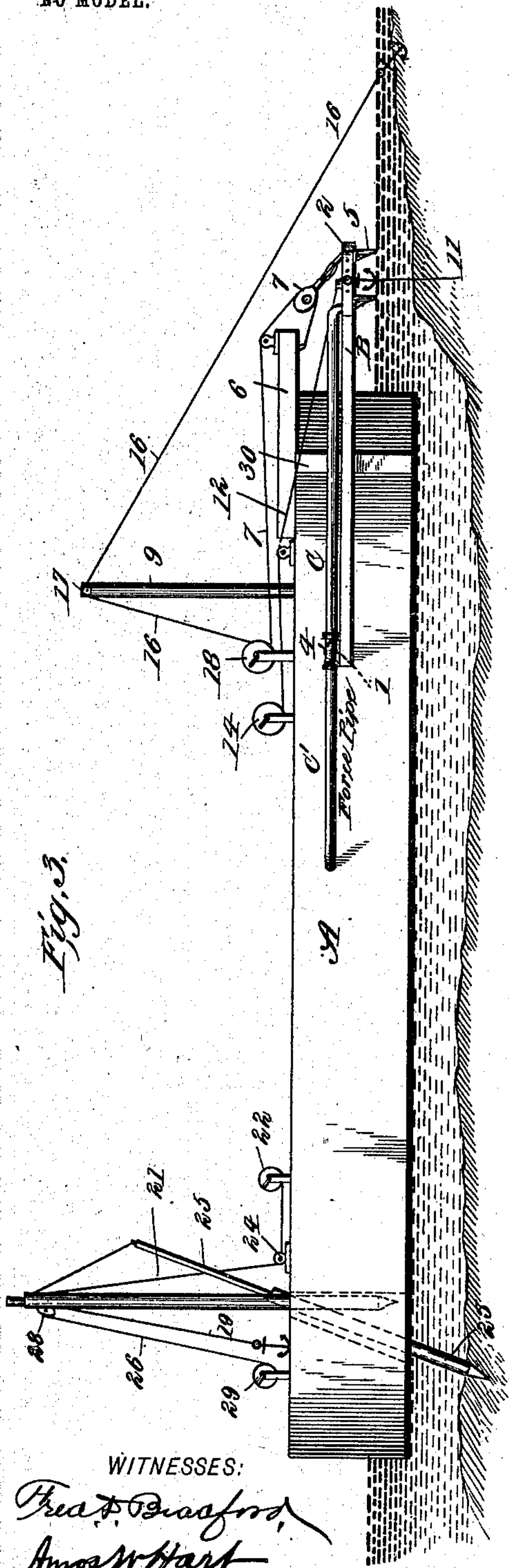
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# UNITED STATES PATENT OFFICE.

JOHN ANDERSEN, OF GULFPORT, MISSISSIPPI.

## HYDRAULIC DREDGE.

SPECIFICATION forming part of Letters Patent No. 723,122, dated March 17, 1903.

Application filed November 14, 1902. Serial No. 131,451. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ANDERSEN, a citizen of the United States, and a resident of Gulfport, in the county of Harrison and State of Mississippi, have made certain new and useful Improvements in Dredges, of which the following is a specification.

My invention is an improvement in that class of dredges which are adapted to float, the dredging mechanism proper being in the form of attachments to a boat or scow provided interiorly with chambers or tanks for receiving the mud, sand, silt, and water taken up by a suction-pipe.

The invention is embodied in certain novel features of construction, arrangement, and combination of parts, as hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the dredge-boat provided with my improvements. Fig. 2 is a side view of the boat with the dredging apparatus in position for operation. Fig. 3 is a side view of the dredge-boat with the dredging mechanism proper hoisted, so as to be out of action. Fig. 4 is a detail view illustrating the means for hoisting the spuds by which the dredge-boat is pivoted and held in position at its bow. Fig. 5 is a perspective view of the plow and the suction apparatus arranged at the stern of the boat.

The boat A may be provided with self-propelling mechanism. It may be constructed as a scow adapted to be towed by another boat. It is constructed amidships with chambers or tanks adapted to receive the material taken up by the suction-pipe forming a part of the dredging apparatus proper. The boat A will be provided with a steam-engine or other form of motor adapted to operate a hydraulic pump—that is to say, a pump adapted for forcing water into the hollow head or casting forming part of the dredging apparatus proper. At the stern of the boat A is arranged a U-shaped frame B, whose arms or legs extend rearward on the sides of the boat and are journaled at 1 on a shaft which extends transversely through the body of the boat. The side portions of this frame may be constructed of wood; but the front end 2 is a hollow casting provided with sockets or otherwise suitably constructed for rigid at-

tachment to the side bars. The said head 2 is provided with openings 3 in its under side and also its end, as shown in Fig. 5. The openings in the bottom are the more essential. A pipe C is connected with the hollow head 2 and extends along the upper side to one of the side portions of the swinging frame B and at the point opposite the joint 1, which is connected by a flexible tube 4 with a pipe C', forming an attachment of the side of the hull of the boat A. The pipe C' is connected with a force-pump (not shown) and is rigid in position. The pipe C swings up and down with the frame B, due connection between the parts C C' being maintained by the flexible tubing 4. By this means water may be forced into the hollow head 2 whenever required for washing away the earth which may be loosened by the plows or plow-points 5, forming an attachment of the head 2. The said plow-points may be constructed and attached to the casting 3 in any preferred manner. The swinging frame B, having the hollow head and plow-points, as described, is adapted to be raised and lowered by means of a wire rope 7, (see Figs. 2 and 3,) which is suitably attached at one end to an overhanging rigid frame 6, secured upon the deck of the boat A and passing through a sheave 7 and back to a winch or winding-drum 8, (see Fig. 1,) located on the deck in rear of the mast 9. It is obvious that by operating the said winch 8 the rope 6 will be taken up or paid out, as required, for hoisting or lowering the frame B. In connection with the apparatus thus far described I employ a means for taking up the soil, sand, silt, &c., that may be loosened by the plow-points and the water-jets, the same consisting (see Fig. 1) of a pipe D, which is arranged beneath one of the side bars of the hinged frame B and on the side of the boat opposite to that whereon the force-pipe C C' is arranged. The said pipe D is open at its front end, which terminates just in rear of the hollow head 2, and its rear end is connected by a flexible tube 10 with a fixed pipe D', forming an attachment of the side of the hull A. Thus the suction-pipe D is adapted to be raised and lowered along with the swinging frame B in the same manner as the force-pipe C.



Anchors 11 (see Fig. 1) are thrown out to right and left of the stern of the boat, and ropes 12 run therefrom over pulleys 13, journaled on the hollow head 2, and extend back to swinging drums or winches 14, (see also Fig. 3,) located on the deck of the boat. It is apparent that by rotating the drums 14 the ropes 12 may be taken up or paid out and that thereby one may be slackened and the other hauled in, as required, to shift the stern of the boat A laterally, so as to bring the plow and attachments into a new position. For the purpose of hauling the boat sternward I employ another anchor 15, (see Figs. 1 and 2,) from which a rope 16 passes over a pulley 17 on the stern-mast 9 and to a drum or winch 18, located on the deck of the boat. By winding this rope 16 on the drum 18 the boat may be drawn sternward in order to bring the plow against a new shoulder of the bank, as shown in Figs. 2 and 3. The bow of the boat is normally pivoted by means of a round spud 19, which passes through a vertical guideway or hole formed in the transverse center of the bow and suitably bushed with wood or metal. The said spud 19 is set laterally from the bow-mast 20, as illustrated in Figs. 1 and 4, and the top of the spud is connected with a rope 21, which is wound on a drum or winch 22, the same passing intermediately over a sheave 23 at the top of the mast and a pulley 24, fixed on the deck of the boat A. By this means the spud 19 may be conveniently hoisted when required. When lowered and set, as shown in Fig. 2, the stud 19 acts as a pivot on which the stern of the boat is adapted to swing laterally through an arc of, say, three hundred feet. On the other side of the bow-mast 20 is arranged a square spud 25, (see Figs. 1, 3, 4,) the same passing through a slot 26, which is arranged in a vertical plane and lengthwise with the boat. Such slot is about three feet wide at the top and eight feet wide at the bottom, which form allows the spud 25 to move from the vertical to an inclined position, as shown in Fig. 3, as required when the boat A is moved forward—that is to say, when the dredge-boat is in due position the round spud 19 is dropped to the bottom, and being duly set in the mud or other material there found, as shown in Fig. 2, it is adapted to act as a pivot upon which the stern of the boat swings, the proper adjustment being effected by means of the side anchors 11, the ropes 12, and the drums or winches 14, with which the latter are connected. In order to move the dredge farther along toward or on the bank, the round spud 19 is raised and the square spud 25 is dropped to the bottom, whereupon the boat A is hauled astern by the bow-anchor 15 and the rope 16, connected therewith, whereby the square spud 25 assumes an angle with the vertical, as indicated in Fig. 3. In order to duly secure the bow of the boat A, wires 26 (see Fig. 1) are attached to side anchors 27 and rove through sheaves 28, forming an attachment of the

mast 20, and wound on drums or winches 29, secured on the deck of the boat in rear of said mast. The wires 26 are, in effect, guys and serve to assist the spuds in holding the boat in position during rough weather.

In order to suitably guide and support the swinging frame B in its vertical movement, I arrange bars 30 (see Figs. 1, 2, 3) on the side of the stern. As shown in Fig. 1, the side bars B work in sliding contact with the guides 30 while being raised and lowered.

From the foregoing description it will be seen that the boat A may be conveniently swung or shifted in position right or left through a large arc, so as to operate upon a corresponding extension of the bank X, and that the boat may be also quickly adjusted forward when it is required to advance the soil-disturbers. The swinging frame B being lowered in the position indicated in Fig. 2, the plows or plow-points take into the mud or other material, this being effected either by the weight of the frame with its metal casting 2 or by reason of the boat being hauled astern by means of the anchor 15 and its attached rope 16. The soil loosened by the disturbers or plow-points is further loosened or washed away by means of water-jets emitted from the openings 3 in the hollow head 2, and the suction apparatus being then brought into action the loosened soil is taken up by the pipe D and conveyed into the body of the boat. It will be understood that the plow-points will be so constructed as to face out from the center of the dredge, so that in any case they take into the soil X when the boat is adjusted and the casting B lowered into position.

In practice the boat A, being pivoted upon the round spud 20, as before described, will be swung in the arc of a circle not less than forty nor more than one hundred and fifty feet on each side.

When it is required to propel or tow the dredge to a new position, the dredge apparatus proper is raised, as indicated in Fig. 3, and both the spuds 19 and 25 are elevated by means of the ropes connected therewith and the several side anchors are taken in and duly stowed on deck.

What I claim is—

1. In a dredging apparatus, the combination, with a boat, of a U-shaped frame pivoted at the rear ends of its legs upon the sides of the hull, a hollow head, forming the outer end of said frame, and provided with points for digging, and with openings for the ejection of water, a water-conducting pipe and a suction-pipe connected with said head, and extending back on the sides of the hull and having flexible portions which permit their elevation and depression along with the frame, as shown and described.

2. The combination, with the boat, and a vertical swinging frame pivoted thereto and having a hollow head provided with openings for ejection of water, of a water-conducting



pipe forming a fixed attachment of said head and extending back along the frame to a point adjacent to the pivot of the latter, a fixed pipe arranged on the side of the hull, and the  
5 flexible tube connecting the two aforesaid pipes at a point opposite the pivot of the swinging frame, as shown and described.

3. The combination, with the boat, having a vertical slot in one end, said slot being  
10 widened from its upper end downward, of a spud adapted to work in such slot, an anchor and hauling-rope arranged at the other end of the boat, and means for taking up or paying out such rope, and means for loosening the soil, substantially as shown and described. 15

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Witnesses:

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