July 31, 1934.

H. D. HARVEY

1,968,684

DOUBLE BUCKET DREDGE

Filed Jan. 7, 1933

2 Sheets-Sheet 1

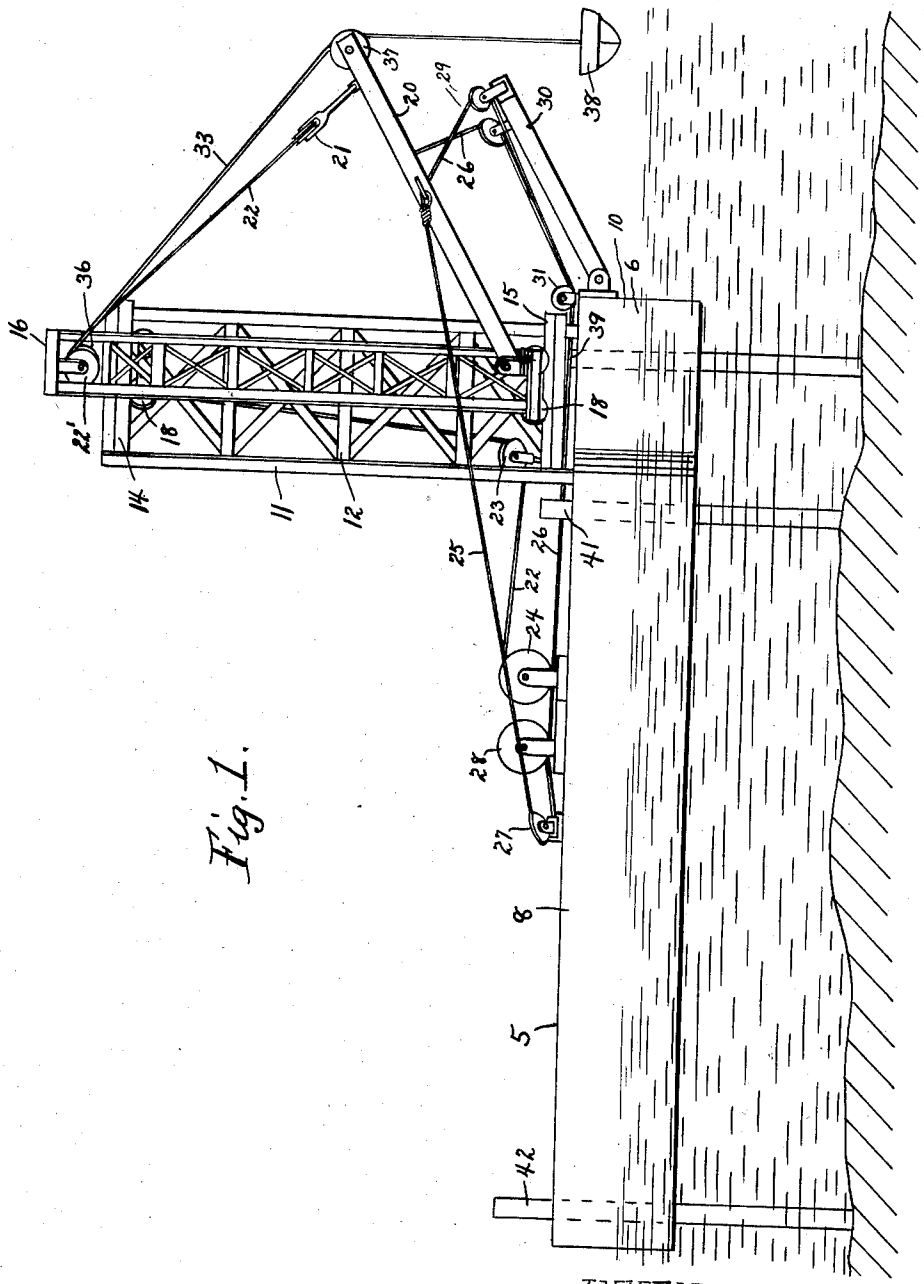


Fig. 1.

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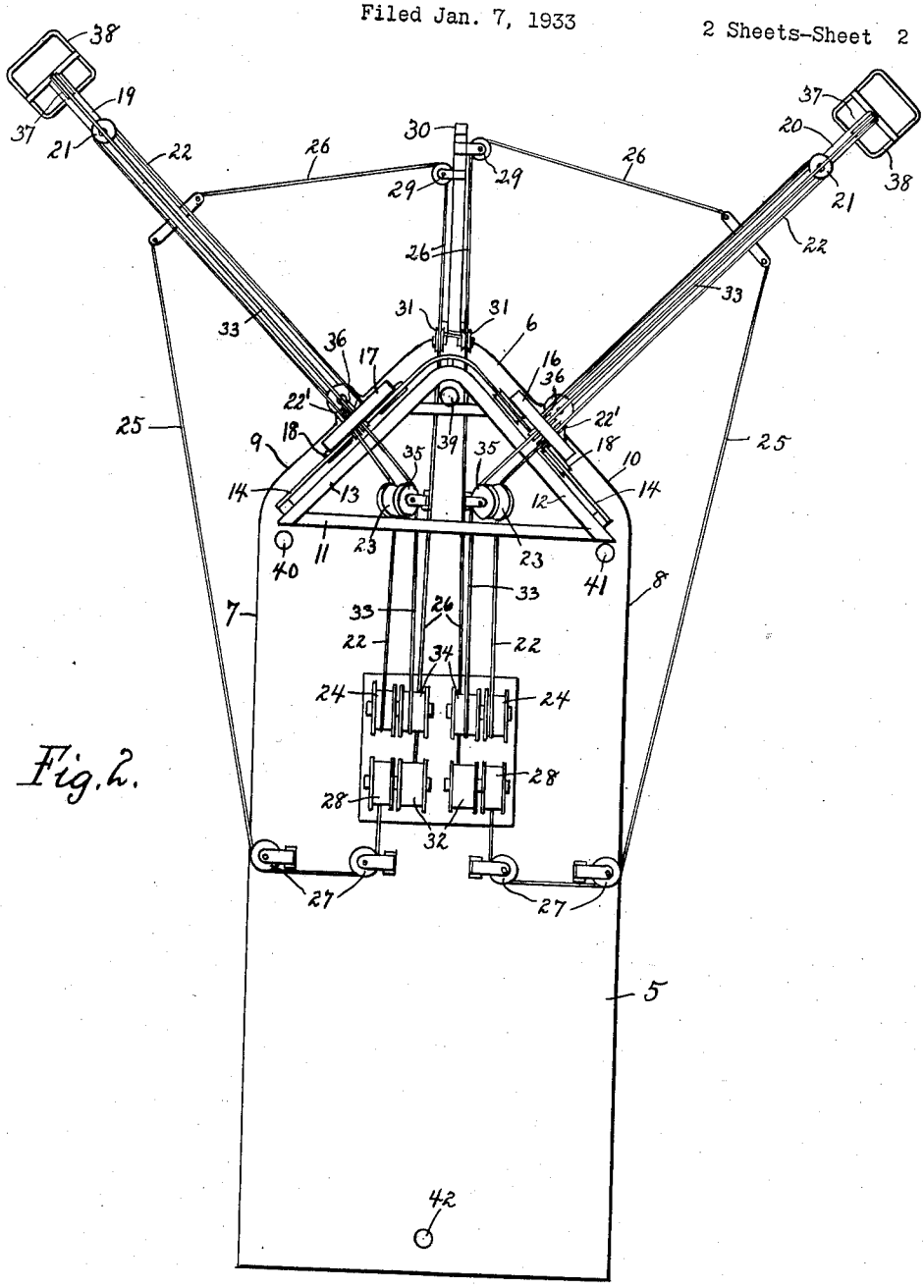


Fig. 2.

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UNITED STATES PATENT OFFICE

1,968,684

DOUBLE BUCKET DREDGE

Harry Doan Harvey, Westville, N. J.

Application January 7, 1933, Serial No. 650,606

1 Claim. (Cl. 212—3)

My invention relates to new and useful improvements in a double bucket dredge, and has for one of its objects to so build a dredge that two hoisting buckets may be operated substantially at the same time without interference with one another.

Another object of the invention is to provide a dredge including a hull having a tapered or salient bow.

Another object of the invention is the provision of a dredge including a hull having a tapered bow and derrick mechanism installed in said bow and including two hoisting buckets arranged for operation from opposite sides of the bow, but which may be adjusted, shifted or positioned for operation so that both buckets may be operated from the same side of the bow.

Another object of the invention is to provide a derrick upon the dredge hull in the tapered bow thereof including a generally triangular or A-shaped frame, a pair of booms adjustably mounted on the frame, a bucket for each boom and suitable rigging for swinging the booms horizontally sidewise and moving them vertically and for raising and lowering the buckets.

A further object of the invention is to provide specific locations for spuds relative to the triangular frame to prevent undue rocking of the dredge during operations.

A still further object of the invention is to provide a dredge hull with a tapered bow in which is mounted a generally similarly shaped frame carrying tracks on which are mounted adjustable mast elements supporting the booms and rigging for a pair of buckets which may be simultaneously operated from opposite sides of the bow or positioned to permit operation of both buckets from one side of said bow.

With these and other ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by numerals to the accompanying drawings forming a part of this application, in which:—

Fig. 1 is a view looking at the side of a dredge constructed in accordance with my invention and showing the same anchored in a body of water by means of spuds arranged in a unique manner.

Fig. 2 is a top plan view of Fig. 1.

In carrying out my invention as herein embodied, 5 represents the boat or hull of the dredge which is so constructed as to provide a tapered or salient bow 6. Of course if for any reason it should be desirable that the aft end be tapered in preference to the forward end, then it is to be understood that wherever I refer to a tapered bow it is also to cover a tapered stern. In other words, it is my intention to cover a dredge having either or both ends tapered for the purpose of using two buckets or derricks at one end of the ship.

The construction of the ship or dredge hull is such that there is a substantially straight wall on opposite sides as indicated at 7 and 8, and from these walls project walls 9 and 10 respectively, at suitable angles which form the tapered end or bow.

In the tapered end of the ship or dredge hull is located a frame 11 of general triangular or A-shape in plan when looking down upon the same as in Fig. 2. Such construction provides two sides 12 and 13 corresponding in general to the shape of the tapered end of the ship and on this frame are mounted the upper and lower tracks 14 and 15 which extend all the way around from the after end of one side to the after end of the other side.

A pair of suitably fabricated masts 16 and 17 are provided having trucks or wheels 18 thereon for coaction with the tracks, thereby permitting the masts to be moved or transported from one side of the frame to the other as desired and after being positioned they may be lashed or chocked in any suitable manner which will hold them against accidental movement during dredging operations or at other times.

On the masts 17 and 18 are mounted booms 19 and 20 for both vertical and sidewise movements, the vertical movements being imparted by suitable rigging including pulleys 21, cables 22, guide pulleys 22' at the top of the masts, guide pulleys 23 near the deck and drums 24 of a winch or winches.

The sidewise movements are imparted to each boom by a pair of cables 25 and 26, the cable 25 being attached to one side of the boom and running over suitable guide pulleys 27 to a drum 28 on the winch or winches, while the cable 26 is attached to the opposite side of the boom and runs over a guide pulley 29 on the bow sprit 30 and then over another or other guide pulleys 31 located at any suitable point or points along the path of travel of the cable, the latter being finally wound upon the drum 32.

There is a bucket cable 33 provided for each boom and for purposes of illustration each of

these is shown as wound upon a drum 34 running over a guide pulley 35 on or near the deck of the ship or dredge hull, then over another guide pulley 36 at the top of the mast, hence over still another guide pulley 37 at the outer end of each boom and each cable has a bucket 38 connected therewith of the clam shell or other desirable type.

With the derrick mechanisms located on opposite sides of the tapered end of the ship or dredge as shown in Fig. 2, the buckets may be on either side of the center line of the ship or an imaginary extension of said center line and the material dredged can be emptied at any place of disposal within reach as into a barge tied up along a side 7 or 8 adjacent the bucket to be emptied, but when occasion requires or it is desirable that both buckets be operated from one side of the tapered end of the ship or hull, then the masts and their component parts are moved so that both masts are on the same side of the frame 11 and in that case one barge will be made fast to one of the angular side walls of the tapered end of the ship and the other barge is tied up to one of the side walls 7 or 8 as the case may be. When the buckets are operated on the one side of the ship or dredge, the hoisting and other rigging is changed to suit the purpose and therefore the necessary fittings are duplicated on both sides of the ship. This re-rigging can be accomplished by merely shifting the different cables from one set of guide pulleys to another set or the pulleys may be bodily disconnected from suitable eyes and connected to others located in the proper positions for guiding the cables to their respective drums.

The several drums may be actuated by separate motors or engines and they may be connected with separate or a common source of supply. The drums or winches may be arranged in different locations or they may be situated at a single central station.

In order to properly anchor the dredge and prevent undue rocking thereof, I provide a spud 39 on the center line close to the cutwater, but preferably inside of the frame 11 and two other spuds 40 and 41 near the port and starboard sides of the ship or dredge hull and preferably aft of the frame, although it will be obvious that they could be inside of the frame or even outside thereof just forward of the after part of the frame. Any additional number of spuds can be located throughout the length of the ship but especially there should be one at the far end opposite the tapered end as indicated by the numeral 42. These several spuds are placed in position and removed in the usual well known manner, being projected through spud shafts, wells, or collars as is usual.

From the foregoing, it will be obvious that with a dredge constructed in the manner herein set forth that substantially twice the amount of work can be accomplished as with a single bucket dredge with the use of less than double the crew, thereby reducing the cost of dredging and expediting the work.

Of course I do not wish to be limited to the exact details of construction herein shown and described as these may be varied within the limits of the appended claim without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is:—

In a device of the character described, a ship having a tapered bow, a bow sprit projecting from the cutwater of the bow, a triangular frame located on said tapered bow, tracks supported by said frame and extending from the after end of one side all the way around to the after end of the other side, fabricated masts, wheeled trucks carried by said masts and cooperating with the tracks to permit adjustment of the masts relative to the frame whereby one of the masts may be located on each side of the frame or both of said masts located on either side of said frame, booms connected with said masts, guide pulleys carried by the outer end of the bow sprit and the sides of the ship, winch drums, cables connected with the booms and certain of said drums and passing over the guide pulleys for swinging the booms from side to side, other guide pulleys carried by the masts and frame, additional cables running over said other guide pulleys and connected to winch drums and the booms for moving them vertically, buckets, and other cables connected with said buckets, the cable of each bucket associated with a separate boom and connected with others of the drums.

HARRY DOAN HARVEY.