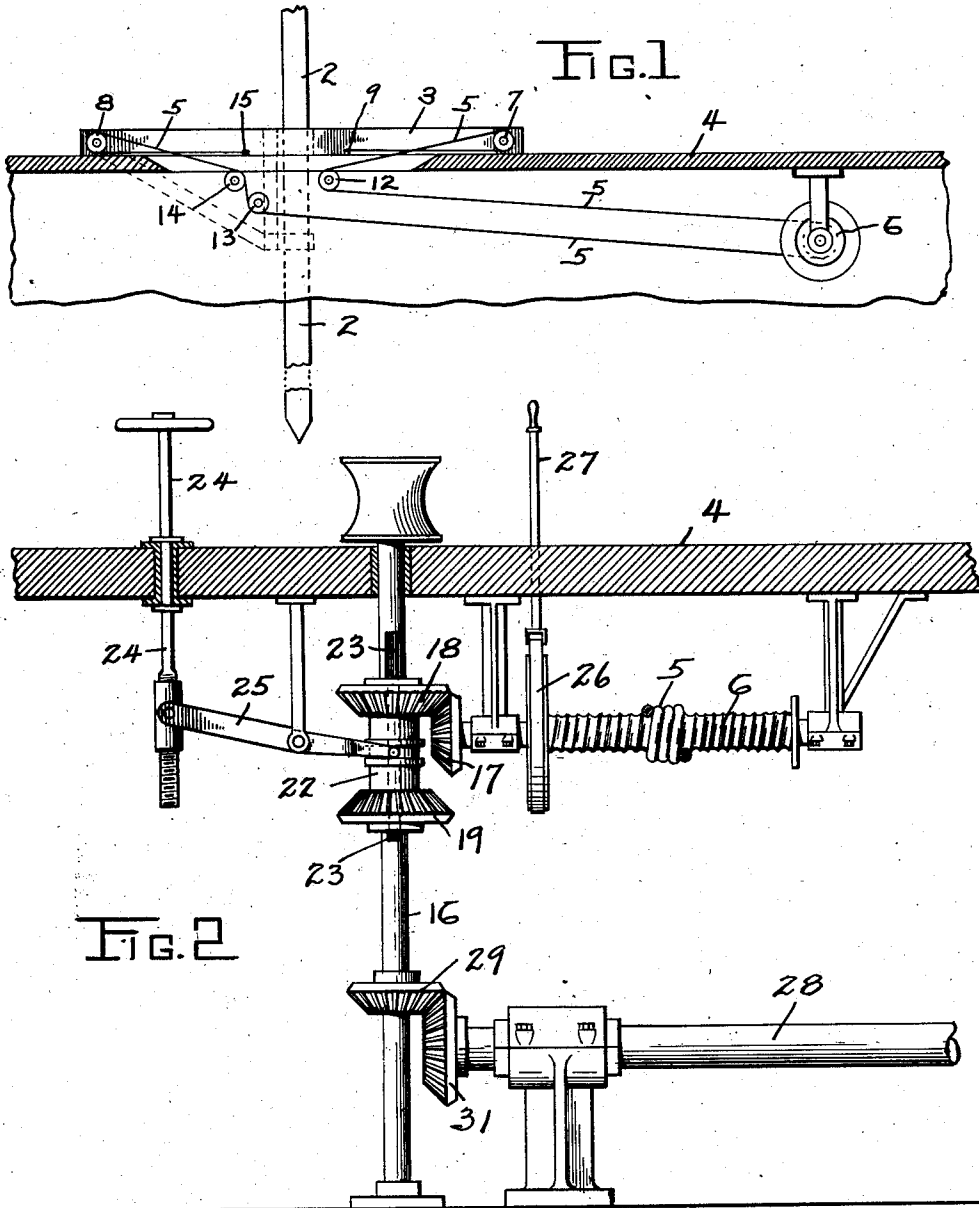


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SPUD OPERATING MECHANISM FOR DREDGERS.
APPLICATION FILED SEPT. 13, 1910.

1,021,933.

Patented Apr. 2, 1912.



WITNESSES
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UNITED STATES PATENT OFFICE.

JOHN A. JOHNSON, OF BLACK DIAMOND, CALIFORNIA.

SPUD-OPERATING MECHANISM FOR DREDGERS.

1,021,933.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed September 13, 1910. Serial No. 581,749.

To all whom it may concern:

Be it known that I, JOHN A. JOHNSON, a citizen of the United States, and a resident of Black Diamond, in the county of Contra Costa and State of California, have invented certain new and useful Improvements in Spud-Operating Mechanism for Dredgers, of which the following is a specification.

The invention relates to improvements in the mechanism for operating the fleeting spud, or that spud by which the dredger is moved, and relates more particularly to the mechanism for moving the spud longitudinally, the raising mechanism therefor being the same as is used in general practice.

In the operation of dredgers several spuds are used to hold the dredger in position and one or more to advance the dredger to the work. This last named spud, generally called the fleeting spud, is adapted to be driven into the bed of the stream and moved longitudinally of the dredge with the effect of moving the dredge in the desired direction. While this spud is in operation, the other spuds are lifted clear of the bed of the stream, and these spuds are again dropped when the fleeting spud has reached the end of its run. When the dredge is advancing to the work the fleeting spud is moved to its forward position, dropped into engagement with the bottom, the holding spuds are raised and the barge is moved forward until the fleeting spud reaches its new position. When the fleeting spud has reached the end of the run, the holding spuds are dropped, the fleeting spud is raised and again moved to its forward position in readiness to advance the dredge another step.

The object of the invention is to provide a simple and easily operable mechanism whereby the fleeting spud may be readily moved backward and forward in the operation of the dredge.

With this and other objects in view, as will more fully hereinafter appear, the invention consists of certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawings: Figure 1 is a

sectional view through a part of the dredge showing the means of operating the fleeting spud. Fig. 2 is a section taken transversely of the dredge showing the mechanism for operating the fleeting spud.

The fleeting spud 2 is loosely attached to the beam 3 so that it is movable vertically with relation thereto. In the drawings I have not shown the means for moving the spud vertically, as this means is well known to persons familiar with the art. The beam 3 is arranged on the deck 4 of the dredge and is adapted to be moved longitudinally to cause a similar motion of the spud 2 with relation to the barge. The beam 3 may be laid along the deck 4 or may be provided with rollers or bearings, so that it moves with less friction. In the present invention the beam is moved relatively to the barge or when the spud is fixed the barge is moved relatively to the beam by means of a cable 5 passing around the winding drum 6 below the deck 4 and engaging the pulleys 7-8 on the ends of the beam. One end of the cable 5 is secured to the deck at 9 whence it passes over the pulleys 7 and 12, thence around the winding drum 6, thence around the pulleys 13-14-8, and is attached at the other end to the deck at 15. By the use of the pulleys as shown the necessary leverage is obtained on the beam and it is more readily movable than if the force were applied to it directly. My invention, however, is concerned primarily with the mechanism for operating the cable 5 regardless of the manner in which the cable is attached to the beam, and I do not desire to limit myself to the method of attachment shown, although such method is preferable.

The winding drum 6 is arranged below the deck and transversely of the dredge. It is preferably provided with a helical groove extending for the entire length of the drum for engaging and guiding the cable 5 as it is being wound in either direction. I find that three or four turns of the cable 5 around the drum are sufficient to obtain a positive drive. As the cable is being wound in either direction, the turns will move to one side or the other. The drum is made of sufficient length to allow for the movement of the spud 2 to the extreme front and rear positions.

The winding drum 6 is rotated from the gipsy shaft 16 through the bevel gear 17 mounted on the shaft of the drum and the

gears 18—19 oppositely placed on a sleeve 22. The sleeve 22 is provided with a key which engages the key-way 23 in the shaft 16, so that it is movable longitudinally with respect to the shaft 16, but is constrained to rotate therewith. The motion or direction of rotation of the winding drum 6 is controlled by the screw-rod 24 which operates the lever 25 to move the gears 17—18 or 17—19 in or out of mesh. When both gears 18—19 are out of mesh with gear 17, the winding drum is held from rotation by means of the band brake 26 operated by the lever 27. The screw rod 24 governing the position of gears 18—19 may be placed in close proximity to the lever 27 so that the operation may be more easily carried on.

Motion is imparted to the gipsy shaft 16 from the spud shaft 28 through the bevel gears 29—31. The spud shaft 28 carries the winding drums for raising or lowering the spuds and is generally rotated from a separate engine known as the spud engine.

It is evident, therefore, that the shaft 16 will be in motion at times when it is desirable to hold the winding drum 6 stationary, in which event the sleeve 22 is moved to a position in which the gears 17—18—19 are out of mesh.

Instead of mounting the gears 18—19 on the sleeve 22, they may be loosely mounted on the shaft 16 in such position that they are always in mesh with gear 17, and a clutch keyed to shaft 16 may be arranged

between them to engage either gear 18—19 so that either gear may be thrown into connection with shaft 16 and thereby rotate gear 17 in the required direction.

I claim:

1. In an apparatus of the class described, the combination with a spud carrying beam, of a winding drum, a cable attached at its ends to the deck passing over pulleys spaced apart longitudinally of the beam and passing around the winding drum, and means for varying the direction of rotation of the winding drum.

2. In an apparatus of the class described the combination with a spud carrying beam, of a winding drum, a cable operating on the opposite ends of the beam, and passing around the winding drum and means for varying the direction of rotation of the winding drum.

3. In an apparatus of the class described the combination with a spud carrying beam of a winding drum having a helical groove on its face, a cable passing around the winding drum, and lying in a portion of the groove, the opposite ends of the cable operating on opposite ends of the beam, means for rotating the drum and means for varying the direction of rotation thereof.

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Witnesses:

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