

J. OSTERVOLD.
DREDGING APPARATUS.
APPLICATION FILED JAN. 8, 1909.

947,624.

Patented Jan. 25, 1910.

Fig. 1.

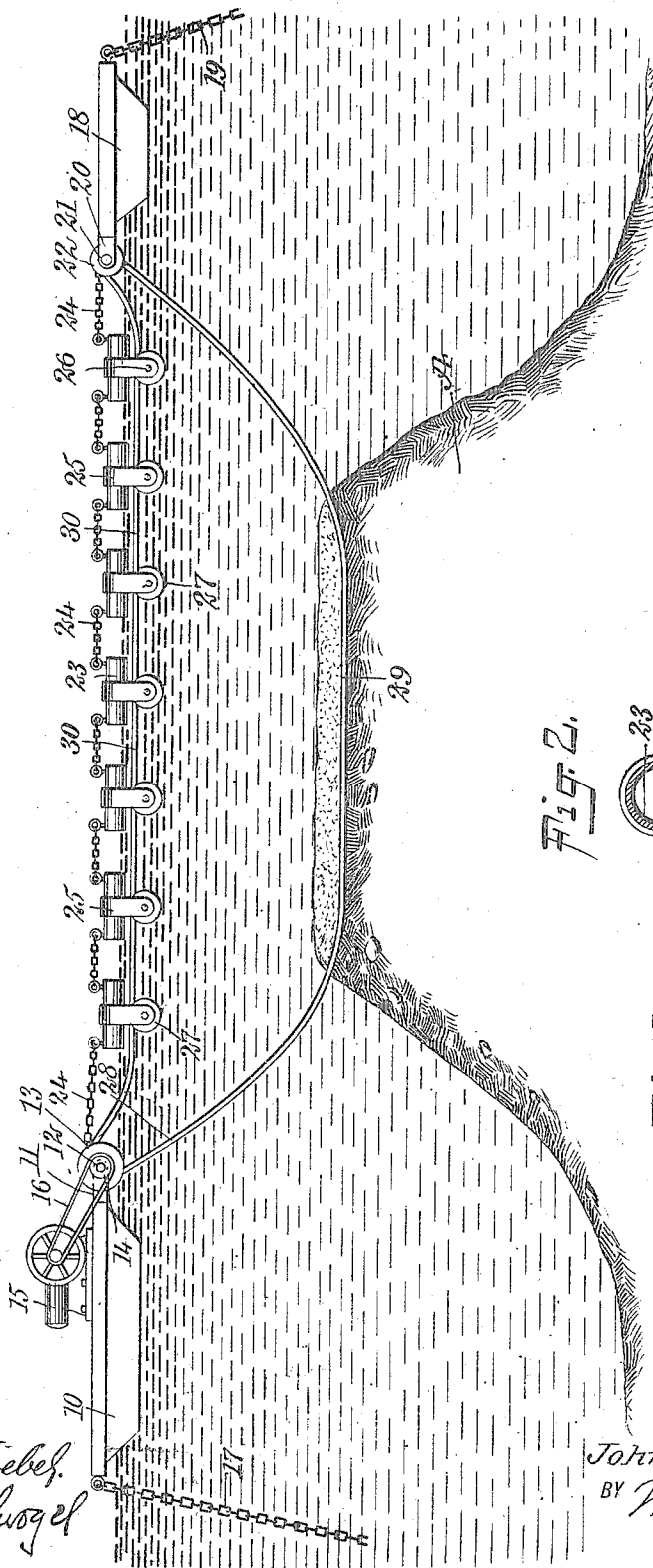


Fig. 2.

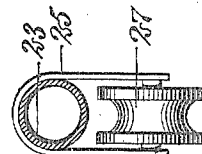
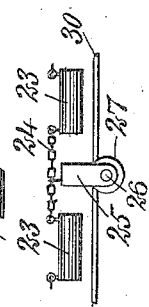


Fig. 3.



WITNESSES

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DREDGING APPARATUS.

947,624.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN OSTERVOLD, a citizen of the United States, and a resident of Westport, in the county of Clatsop and State of Oregon, have invented a new and Improved Dredging Apparatus, of which the following is a full, clear, and exact description.

This invention relates to dredging apparatus, and particularly to apparatus of this kind in which an endless flexible band or cable is arranged with one of its runs in contact with the shoal, and having means for its continuous operation, so that all points of the band are successively drawn along the shoal to loosen the sand or other material forming the same, and to permit it to be washed away by the tides or currents.

An object of the invention is to provide a simple and efficient dredging apparatus for removing sand-bars, shoals and the like in rivers, harbors and water-ways, which requires little power for its operation, and which can be adjusted for use with shoals or other obstructions of different sizes.

A further object of the invention is to provide apparatus of the class described which can be easily moved from place to place, which is continuous in its operation, and in which the normal currents, tides or other water movements are utilized to distribute and carry away the material loosened from the sand-banks, shoals or other obstructions.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 shows my dredging apparatus in operation to remove a sand-bank at the bottom of a river or harbor; Fig. 2 is an enlarged transverse section showing one of the floats which control the movement of the endless flexible band or cable; and Fig. 3 is a side view of a detail of modified form.

Before proceeding to a more detailed explanation of my invention, it should be understood that the same is particularly useful in water-ways which have tidal or other currents. The apparatus does not actually

remove the sand or other material forming the obstructions, but merely loosens the same so that the currents themselves, dissipate or carry away the loosened material.

The endless flexible member which I employ consists preferably, of a steel cable of suitable, uniform cross-section. However, if desired, the cable may be replaced by any other band or member adapted for the purpose. I have shown, for example, a prime mover for operating the cable, which consists of an internal combustion motor, but I wish to emphasize that I have illustrated this form for convenience merely, and that any type of prime mover adapted to the purpose can be used. Furthermore, the form of the floats, the method of connecting them, and the vessels or barges used to hold them in position, do not form essential elements of my invention but can be varied to suit individual preference or special conditions. This is likewise true of the means for anchoring or mooring the vessels.

Referring more particularly to the drawings, I provide a vessel 10 consisting of a barge, pontoon, or of any other suitable form, and having at one end a projecting platform 11 carrying a substantially horizontal shaft 12. The latter has a peripherally grooved wheel or sheave 13 rigid therewith, and a sprocket or pulley 14. The vessel 10 carries the prime mover 15 operatively connected by means of a belt 16 or in any other convenient manner, with the pulley 14. The vessel 10 is secured in position by means of an anchor chain 17, or is moored in any other manner adapted to the purpose. A second and similar vessel 18 is moored by means of an anchor chain 19 or is otherwise held in position, at a point remote from the vessel 10 and at the side of the sand bank A, which is to be removed, remote from the vessel 10. The vessel 18 has a projecting platform 20 carrying a shaft 21 having a peripherally grooved wheel or sheave 22.

Between the vessels 10 and 18 are arranged in alinement, a number of floats 23, the adjacent ones of which are joined by chains 24 or connected in any other manner adapted to the purpose. The end floats 23 are similarly secured to the vessels 10 and 18 respectively. Each of the floats has a U-shaped bracket 25 mounted thereon with the legs depending at the sides of the float. Be-

tween the legs of the brackets are pins 26 which have rotatable grooved rollers or sheaves 27.

An endless flexible band 28, consisting of 5 a cable or the like, has the lower run 29 arranged in contact with the sand-bank A and the upper run 30 guidingly carried by the sheaves 27. The band passes over the shafts 21 and 12 and is driven or caused continu- 10 ously to advance by the latter, which is in turn driven by the prime mover 15. In this way, the flexible member is dragged along the surface of the sand-bank and all points of it come successively into contact there- 15 with. As the band is drawn along the bottom it loosens the material of the same and allows this material to be gradually washed away or distributed by the currents in the water.

20 The length of the endless cable depends upon the depth of the water in which the operation is carried on, and also upon the distance between the vessels 10 and 18, which is determined by the length of the shoal or sand 25 bank undergoing removal. The direction of travel of the lower run of the endless cable should be the same as the tidal or current direction, to facilitate the carrying away of the material. The cable should preferably 30 be operated at a fairly high rate of speed.

By the provision of two vessels 10 and 18 35 securely moored in place, the series of floats is maintained in alinement and the operation of the cable is thereby rendered positive and efficient. The vessels, if so desired, may be 40 power-driven to facilitate their movement from one place to another.

It may be found convenient to attach the 45 brackets and sheaves to the chains 24 instead of the floats 23. This arrangement which is shown in Fig. 3, can be advantageously employed in rough water, where the pitching of the floats would tend to interfere with the operation of the cable.

It should be understood that the move-

ment of the cable will itself set up a current in the water to remove the loosened material, and that by arranging the cable suitably, the material can be transferred to and deposited at any predetermined point. 50

Having thus described my invention, I claim as new, and desire to secure by Letters Patent:—

1. In dredging apparatus, spaced sup- 55 ports, a series of floats arranged between said supports, an endless flexible band arranged between said supports, means for operating said band, pulleys for guiding the upper run of said band, and connections be- 60 tween the pulleys and said floats, the lower run of said band being arranged to move in contact with the obstruction to be removed.

2. In dredging apparatus, vessels adapted to be held stationary, a series of spaced floats 65 arranged between said vessels and flexibly secured successively together, said floats being secured to said vessels, an endless flexible band arranged between said vessels, pul- 70 leys for guiding a run of said band along the line of said floats, said band having the lower run thereof in contact with the bot- 75 tom, and a motor for continuously propelling said band.

3. In dredging apparatus, vessels adapted to be held stationary, a series of floats alined 75 between said vessels and secured thereto, said vessels having sheaves, and said floats having sheaves, an endless flexible band arranged to travel over said sheaves and hav- 80 ing the lower run thereof in contact with the bottom, and means for driving the sheaves of one of said vessels, continuously to propel said band.

In testimony whereof I have signed my name to this specification in the presence of 85 two subscribing witnesses.

JOHN OSTERVOLD.

Witnesses:

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E. S. SNEILING.