

May 10, 1938.

H. DOXSEE, JR

2,116,883

DREDGE

Filed April 29, 1936

2 Sheets-Sheet 1

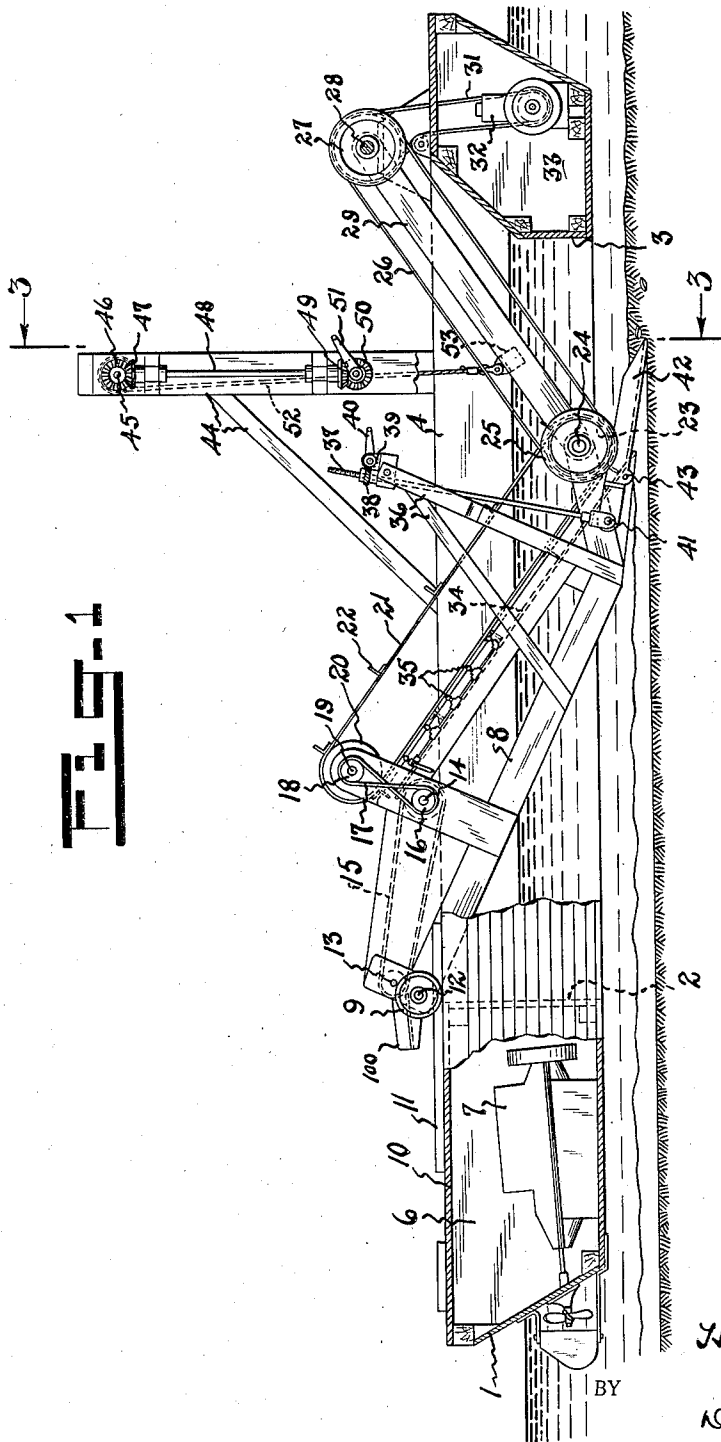


FIG. 1

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2 Sheets-Sheet 2

FIG. 2

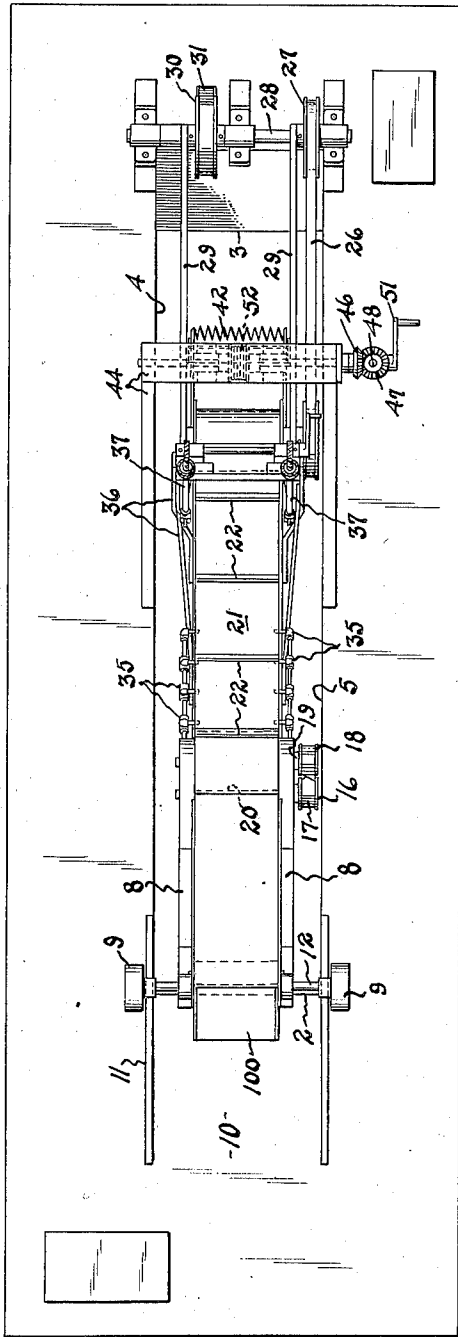
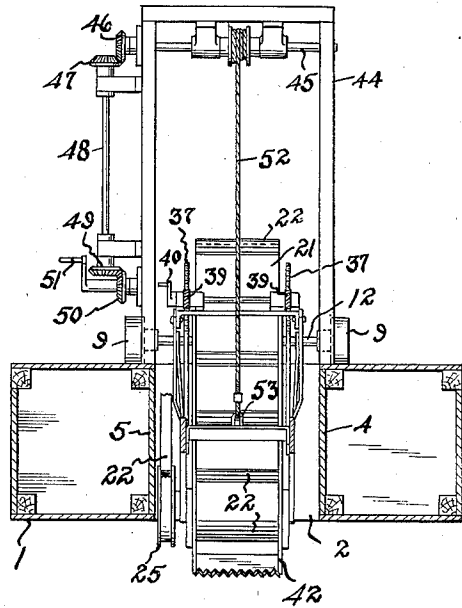


FIG. 3



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DREDGE

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4 Claims. (Cl. 37—55)

This invention relates to improvements in dredges of the type employed for recovering shell food such as oysters, clams and the like from the ocean bed.

An important object of this invention is to provide an improved form of dredge of a construction adapting it to a more rapid movement over the ocean bed.

A further object of the invention is to provide a dredge construction such that irregularities in the level of the ocean bed will not interfere with its proper action and recovery of shell food.

These and many other objects, as will be apparent from the following description are secured by means of this invention.

This invention resides substantially in the combination, construction, arrangement and relative location of parts, all in accordance with the following description.

In the accompanying drawings,

Figure 1 is a side elevational view of a dredge in accordance with this invention with some parts broken away, and some parts shown in cross section;

Figure 2 is a plan view thereof; and

Figure 3 is a sectional view on the line 3—3 of Figure 1, looking in the direction of the arrows.

At the present time the types of dredges now used for recovering shell food from the ocean bed are greatly hampered in efficient operation by irregularities in the surface of the ocean floor. With the forms of dredges now employed depressions in the ocean floor are not thoroughly explored with the result that much of the recoverable shell food is lost and in the case of high places in the ocean floor a considerable amount of power is necessary to move the dredge when it encounters them and an excess of mud and the like is collected, interfering with the operation of the dredge. In addition, a considerable strain is placed upon the dredge structure in forcing the buckets commonly employed in the present form of dredges through the mud of the high spots in the ocean floor. Because of these factors it is necessary to move the dredge which is usually towed at a much lower rate of speed than is desirable.

As is apparent to those skilled in the art, an excessive amount of power is also necessary to effect movement of the dredge because of the fact that the lower end of the bucket chain operates along a more or less fixed plane. When it is considered that oysters, clams and the like rest at a more or less uniform depth below the top surface of the floor of the ocean it will become apparent that a form of dredge which will penetrate the ocean floor to the necessary depth, regardless of the irregularities in the level thereof is highly desirable. It is equally clear that such a structure is a vast improvement over the types

now employed which do not compensate for such irregularities in the level of the ocean floor.

The features of this invention have been illustrated for purposes of this disclosure in one physical form in the drawings. The dredge consists of a barge or scow 1, having an opening or well in the center thereof formed by the vertical end walls 2 and 3 and the side walls 4 and 5. In the after hold 6 is shown, in diagrammatic form, a suitable power plant 7 for operating the propeller of the barge to cause movement thereof.

It may be noted, as will be apparent to those skilled in the art, that if desired the dredge can be towed instead of self propelled.

At 8 is a movable framework constructed of any suitable material and having any configuration adapted to the purpose. This framework is provided with a pair of wheels 9 mounted upon a shaft 12 secured to the upper end of the framework. The wheels 9 roll upon the after deck 10 and are guided in their movement by a pair of rails or guide members 11. Journalled on the framework adjacent the shaft 12 is a shaft 13 and spaced therefrom on standards secured to the framework is another shaft 14 extending parallel thereto. These shafts are provided with rollers or the like over which an endless belt 15 operates. The after end of the belt conveyor thus formed is positioned with respect to the chute 100, so that the clams and oysters are discharged onto it.

The shaft 14 is provided with a pulley 16 and is driven from a pulley 18 by means of the belt 17. The pulley 18 is secured to a shaft 19 likewise journalled on the standards which support the shaft 14. The shaft 19 has a roller or the like 20 secured thereto. At the lower end of the framework is another shaft 24 journalled thereon and parallel to the shaft 19 to which is secured a roller or the like 23. Extending around the rollers 20 and 23 is an endless belt, chain or the like, upon which is supported a plurality of cross bars or cleats 22 arranged in spaced relation. Supported on the framework 8 below the lower flight of the endless conveyor 21 is a platform or plate 34 along which the cleats 22 of the lower flight of the conveyor slide. Positioned along the sides of the platform 34 are a plurality of water nozzles or sprays 35 which discharge thereonto.

The shaft 24 is provided with a pulley 25 connected by belt 26 to a similar pulley 27 secured to the shaft 28 journalled on suitable supports on the forward end of the scow. Extending between the shafts 24 and 28 are a pair of links 29 which pivotally interconnect these shafts. Shaft 28 is also provided with a pulley 30 connected by a belt 31 to any suitable form of motor device 32 mounted in the forward hold 33. A pair of braces and standards 36 are also mounted on the framework 8 and connected by a cross

member, as is clear from Figure 2. Depending from these standards are a pair of vertical rods 37 which are threaded at their upper ends. On each of these rods is a worm wheel 38 having a threaded bore engaging the threads on the rods. A pair of worms 39 secured to a shaft operated by the handle 40 mesh with worm wheels 38. The lower ends of the rods are pivotally connected at 41 to a scraper 42 which is pivotally mounted at 43 on the lower end of the frame 8. The leading edge of the scraper is serrated or tooth-like, as is clear from Figure 2.

Secured to the deck of the barge are braces and standards 44 connected by a cross member as is clear from the drawings, in which is journaled a shaft 45. Secured to one end of this shaft is a bevel gear 46, and mounted on the shaft is a drum upon which the rod or cable 52 may be wound. Journaled on one of the standards 44 is a vertical shaft 48 provided at opposite ends with bevel gears 47 and 49. Bevel gear 47 meshes with bevel gear 46. Bevel gear 49 meshes with bevel gear 50 mounted on a short shaft journaled on one of these standards. A handle 51 is provided to effect rotation of the gear 50. The lower end of the cord or cable 52 is connected by a suitable fixture 53 to the links 29.

When the dredge moves either under its own power or is towed with the parts in the position shown the toothed edge of the scraper 42 rides along the ocean floor scraping up the top layers thereof in which are embedded the oysters, clams and the like. The depth to which the leading edge of the scraper penetrates is easily controlled by means of the crank 40 which when rotated will cause the rods 37 to move up and down, which in turn pivots the scraper on its pivot supports 43. Thus the depth to which the scraper penetrates may be easily controlled. The mud and shell food moves up under the scraper as a result of the forward motion of the dredge until it moves into the path of the cleats 22. The conveyor 21 is moved in an obvious manner by the motor 32 by reason of its connection therewith through the belts 26 and 31. The mud and shell food is thus moved upwardly along the platform 34. When it moves into the range of the nozzles or sprays 35 the mud is washed away being free to fall from the sides of the platform 34. The shell food continues on its upward travel until it is discharged onto the conveyor 15, which in turn carries it to and discharges it onto the chute 100.

When the dredge is not in use the entire structure may be pulled up above the bottom of the barge by rotating crank 51. This causes the cable 52 to wind up on the drum in an obvious manner raising the lower end of the framework 8 by reason of its connection with the links 29. As the lower end of the framework moves upwardly the wheels 9 roll aft along the after deck. Thus, it will be seen that the equipment may be moved into and out of operating position very quickly, and may be readily adjusted to scrape along the ocean floor at the desired depth.

In addition the construction is such that the vertical height of the scraper and the lower end of the framework may vary under the strains imposed thereon, especially when resistance to the movement of the barge is encountered by reason of the engagement of the scraper with elevated portions of the ocean floor.

Another important feature resulting from the structure of this invention is that practically none of the mud in which the shell food is embedded reaches the deck of the dredge, which is an important advantage over the forms of dredges now used for this purpose. With this arrangement the mud is all washed away and falls back to the ocean floor before it can reach the deck. Thus the shell food is recovered entirely free of mud and thoroughly washed and cleaned.

I am of course well aware that those skilled in the art will readily appreciate the various forms the features of this invention may take. I do not therefore desire to be strictly limited to this disclosure which has been set forth with a view to illustrating the invention, but rather to the scope of the appended claims.

What I claim is:

1. A dredge of the type described comprising a float having a well therein, a framework mounted in said well having rollers operating on the deck of the float, link members pivotally connecting the end of the framework with the float, means connected to said members for raising and lowering the framework, a scraper mounted on said framework, a conveyor mounted on said framework for gathering the material collected by the scraper and moving it to deck level, and means for operating said conveyor.

2. A dredge of the type described comprising a float having a well therein, a framework mounted in said well having rollers operating on the deck of the float, members pivotally connecting the other end of the framework with the float, means connected to said members for raising and lowering the framework, a scraper mounted on said framework, a conveyor mounted on said framework for gathering the material collected by the scraper, means for operating said conveyor, a platform mounted on the framework adjacent the lower flight of the conveyor so that the material gathered by the conveyor is moved to deck level over the platform, and means for floating water over the platform.

3. A dredge of the type described comprising a float having a well therein, a framework mounted in said well, supported at one end for movement on the deck of the float, members for pivotally connecting the other end of the framework with the float, means connected to said members for raising and lowering the framework, and causing it to move on the deck, a scraper mounted on said framework, a conveyor mounted on said framework for gathering the material collected by the scraper, means for operating said conveyor, and a platform mounted on the framework adjacent the lower flight of the conveyor so that the material gathered by the conveyor is moved over the platform.

4. A dredge of the type described comprising a float having a well therein, a framework mounted in said well, means at one end of the framework for supporting it for longitudinal movement along the deck of the float, means for pivotally connecting the framework at its other end with the float, means connected to the framework for raising and lowering it, a scraper mounted on said framework, a conveyor mounted on said framework for gathering the material collected by the scraper and moving it to deck level and means for operating said conveyor.

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