No. 858,033. PATENTED JUNE 25, 1907.

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APPARATUS FOR MOVING DREDGES.

APPLICATION FILED JAN. 10, 1907.

2 SHEETS—SHEET 1.

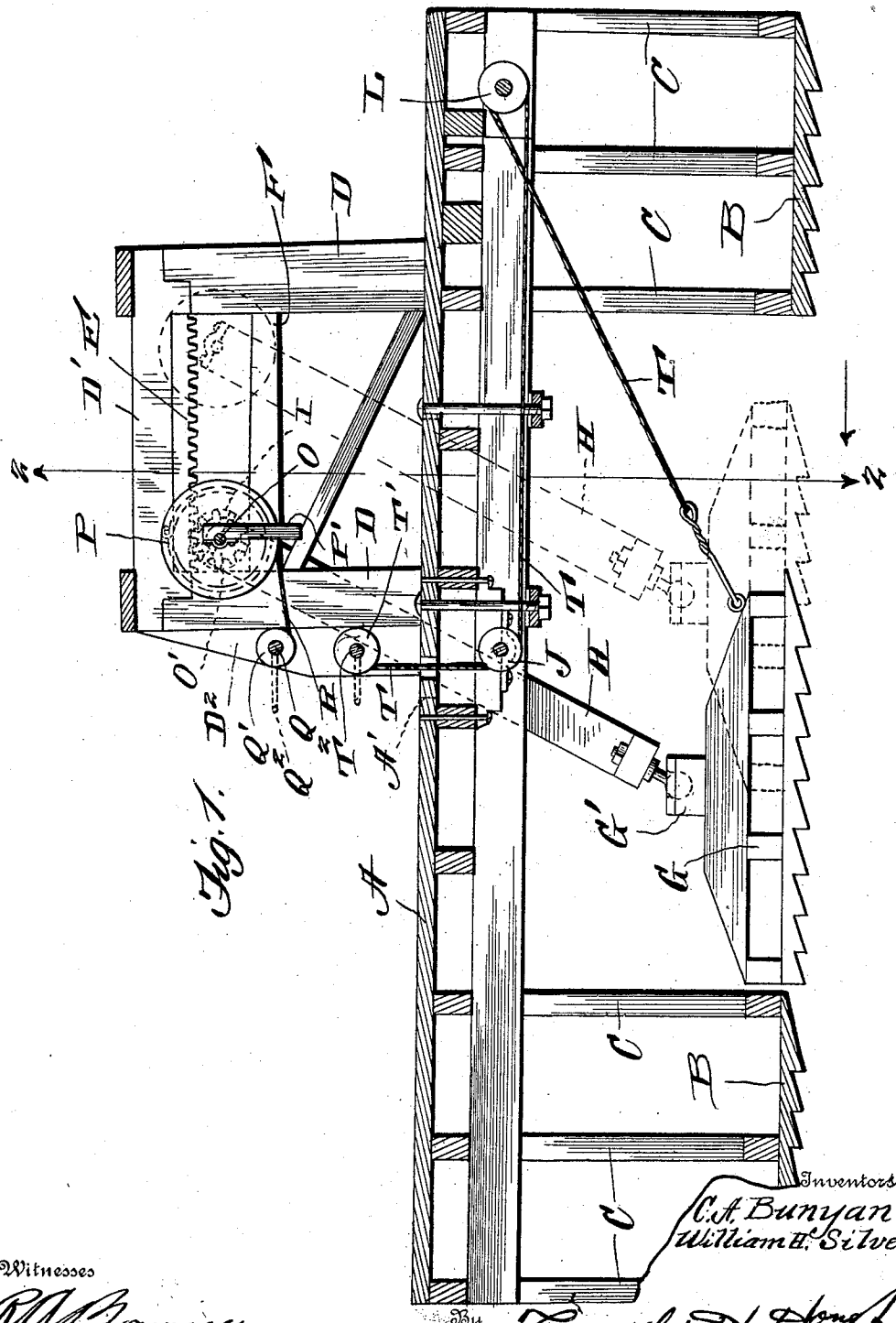


Fig. 1.

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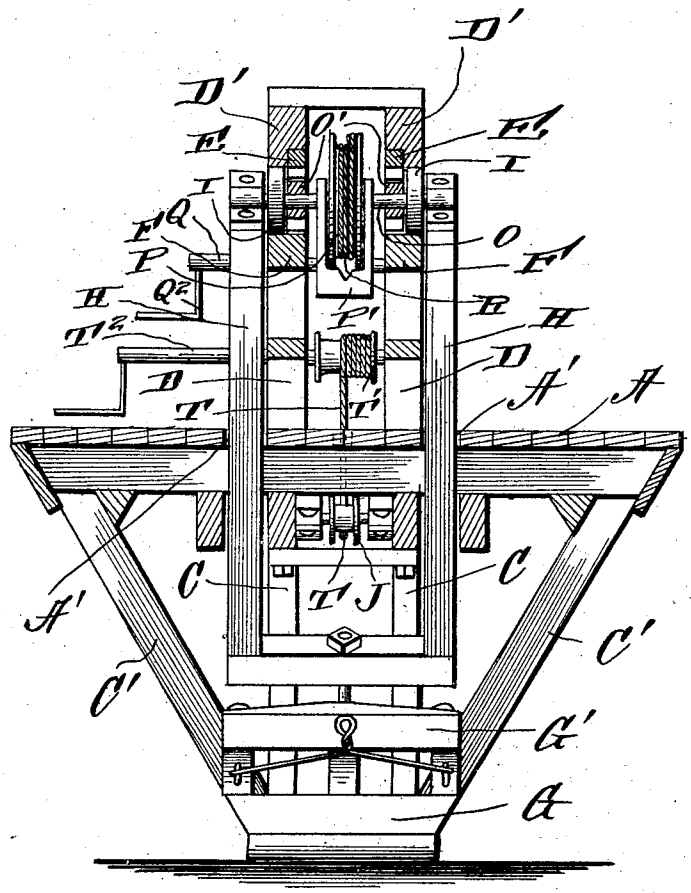
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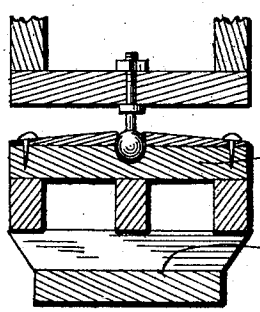
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2 SHEETS—SHEET 2.

Fig. 2.





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UNITED STATES PATENT OFFICE.

WILLIAM H. SILVER AND CHARLES A. BUNYAN, OF HAMMOND, ILLINOIS.

APPARATUS FOR MOVING DREDGES.

No. 858,033. Specification of Letters Patent. Patented June 25, 1907.

Application filed January 10, 1907. Serial No. 351,711.

To all whom it may concern:

Be it known that we, WILLIAM H. SILVER and CHARLES A. BUNYAN, citizens of the United States, residing at Hammond, in the county of Piatt and State of Illinois, have invented certain new and useful Improvements in Apparatus for Moving Dredges, &c.; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in apparatus for moving dredges or other heavy loads, and consists in the provision of means whereby the load is lifted and the latter, by its own weight, caused to move the same, and is so constructed that it will operate from the bottom of the dredge, making it very convenient in passing between deep cuts and abutments and prevents the crushing and impairing of the banks of a ditch, which are objections to the usual dredging machines.

More specifically, the invention consists in the provision of a dredge moving apparatus having a shoe swivelly connected to a yoke, the upper portion of which carries a shaft upon which a grooved sheave is mounted, and in the provision of winding drums with cables, one passing about a drum and about a traveling sheave carried at the upper end of the yoke, and by the winding of which cable upon its drum, will cause the sheave to travel toward the drum, and the dredge to move forward, after which the shoe may be returned to its starting position through the medium of a cable winding about the other drum and passing about a sheave connected to the forward end of the shoe.

Our invention consists in other details of construction and combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claims.

We illustrate our invention in the accompanying drawings, in which:—

Figure 1 is a vertical longitudinal sectional view through our improved apparatus showing, in full lines, the advanced position of the dredge, and, in dotted lines, the shoe in its starting position. Fig. 2 is a transverse sectional view, and Fig. 3 is a sectional view through the shoe and the rack which is swiveled thereto.

Reference now being had to the details of the drawings by letter, A designates the deck of the apparatus, and B, B the fixed shoes upon which the standards C are mounted and which support said deck. Said shoes have their under surfaces stepped, as shown in the sectional view of the drawings, and suitable braces C′ are connected to the various standards. Rising from the deck are the posts D having beams D′ connecting their upper ends and to the under surfaces of said beams D′ are fastened the rack bars E.

F designate two beams which are fastened to the posts D and with spaces intervening between the same and the beams D′.

G designates a movable shoe having a cross-piece G′ thereon to which the lower end of the yoke H is swivelly connected. The longitudinal beams of said yoke pass through elongated slots A′ formed in the deck of the framework, and at their upper ends is journaled a shaft O carrying antifriction rollers I which travel upon the upper surfaces of the beams F and are of a diameter equal to the space intermediate the beams D′ and F. Fixed to said shaft O are the pinion wheels O′ which are adapted to mesh with the teeth of said rack bars, and P designates a grooved sheave which is also fixed to said shaft, and P′ is a hanger block mounted upon said shaft and in a slot in which said grooved sheave is mounted.

Mounted in suitable bearings in the projecting portions D^2 of said beams D is a shaft Q with a grooved pulley Q′ fixed thereto and a crank shaft Q^2 is fastened to the projecting end of the shaft Q whereby the same may be rotated.

R designates a cable which has one end fixed to and adapted to wind upon the drum Q′, and said cable passes about the grooved sheave upon the shaft O a plurality of times has its end secured to said sheave and is adapted, as the drum Q′ is rotated in one direction, to cause the sheave to rotate. As the yoke H is held at an inclination and when the sheave commences to rotate, the pinion wheels will rotate therewith and the shaft rotating while stationary and its pinion wheels bearing against the teeth of the rack bar, will cause the dredge frame to be moved forward, the limit of the movement being the length of the space intermediate the upright beams D.

A second cable, designated by letter T, winds upon a drum T′ which is fixed to a shaft T² also journaled in the projecting part D′ of the upright beams D, and passes over a sheave J, thence passes forward over a pulley L, and its other end is fastened to the forward end of the traveling shoe G. When it is desired to return the shoe G to its starting position, shown in dotted lines in Fig. 1 after the dredge boat has been moved forward, the cable, which has been wound upon the drum Q′, is slackened, and the shaft T² is rotated by the handle fastened at the end thereof and the cable T made to wind upon the drum T′ which, drawing upon the forward end of the shoe, will cause the latter to be drawn forward while the dredge remains stationary. As the movable shoe travels forward, the yoke will also move forward and carrying with it the grooved sheave at the upper end thereof. This being done, the operation may be repeated and the dredge given an intermittent forward movement.

The tendency of the apparatus, as shown and described, is to raise the forward end of the apparatus, but by locking the drum T′ and tightening the cable upon the drum Q′, the rear end of the apparatus may be raised and the entire machine pivoted upon the swivel at the lower end of the yoke, turned at a small space.

What we claim is:—

1. A dredge moving apparatus, etc., comprising, in combination with a frame, a shoe, a yoke swiveled thereto, a sheave mounted upon said yoke, a winding drum mounted in suitable bearings upon uprights from the frame, a cable fixed to and winding about said drum and also winding about said sheave, horizontally disposed rack bars, pinions meshing with said rack bars, and means for returning the movable shoe for a new purchase, as set forth.

2. A dredge moving apparatus comprising, in combination with a boat having upright standards thereon, cross-beams connecting the same, a movable shoe, a yoke swiveled to said shoe, a shaft journaled at the upper end of said yoke, a grooved sheave fixed to said shaft, anti-friction rollers upon said shaft and mounted to travel between horizontally disposed cross-beams connecting said standards, rack bars mounted upon the under surfaces of the upper of said cross-beams, pinions fixed to said shaft and meshing with the teeth of said rack bars, a winding drum, a cable thereon and adapted to wind upon said grooved sheave, and means for moving the sheave and rack bar to their starting positions, after the dredge boat has been moved forward, as set forth.

3. A dredge moving apparatus comprising, in combination with a boat having upright standards thereon, cross-beams connecting the same, a movable shoe, a yoke swiveled to said shoe, a shaft journaled at the upper end of said yoke, a grooved sheave fixed to said shaft, anti-friction rollers upon said shaft and mounted to travel between horizontally disposed cross-beams connecting said standards, rack bars mounted upon the under surfaces of the upper of said cross-beams, pinions fixed to said shaft and meshing with the teeth of said rack bars, a winding drum, a cable thereon and adapted to wind upon said grooved sheave, a second winding drum, a cable winding thereon, and a sheave over which said second cable turns and connected to said shoe, as set forth.

4. A dredge moving apparatus comprising, in combination with a boat having upright standards thereon, cross-beams connecting the same, a movable shoe, a yoke swiveled to said shoe, a shaft journaled at the upper end of said yoke, a grooved sheave fixed to said shaft, anti-friction rollers upon said shaft and mounted to travel between horizontally disposed cross-beams connecting said standards, rack bars mounted upon the under surfaces of the upper of said cross-beams, pinions fixed to said shaft and meshing with the teeth of said rack bars, a winding drum, a cable thereon and adapted to wind upon said grooved sheave, grooved sheave blocks mounted underneath the deck of the boat, a second winding drum, a cable passing about the latter and adapted to wind about the groove in said movable sheave and fastened to the forward end of said movable shoe, as set forth.

5. A dredge moving apparatus comprising, in combination with the boat having a deck with fixed shoes having standards mounted thereon and supporting said deck, a movable shoe intermediate the fixed shoes, a yoke swiveled to said movable shoe, the longitudinal beams of said yoke passing through elongated slots in the deck, a shaft journaled at the upper end of said yoke, standards rising from the deck, cross-beams connecting said standards and spaced apart, anti-friction rollers mounted upon said shaft and adapted to travel between said cross-beams connecting the standards, rack bars on the under surfaces of the upper of said cross-beams, pinions fixed to said shaft and meshing with said rack bars, a drum, a cable winding thereon and passing about said sheave a plurality of times, a second drum, and cable connections between the same and the forward end of the movable shoe, as set forth.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

WILLIAM H. SILVER.
CHARLES A. BUNYAN.

Witnesses:
JOHN LARSON,
JOHN KILBURN.