(No Model.)

2 Sheets—Sheet 1.

L. W. BATES.

HYDRAULIC DREDGE.

No. 604,015. Patented May 17, 1898.

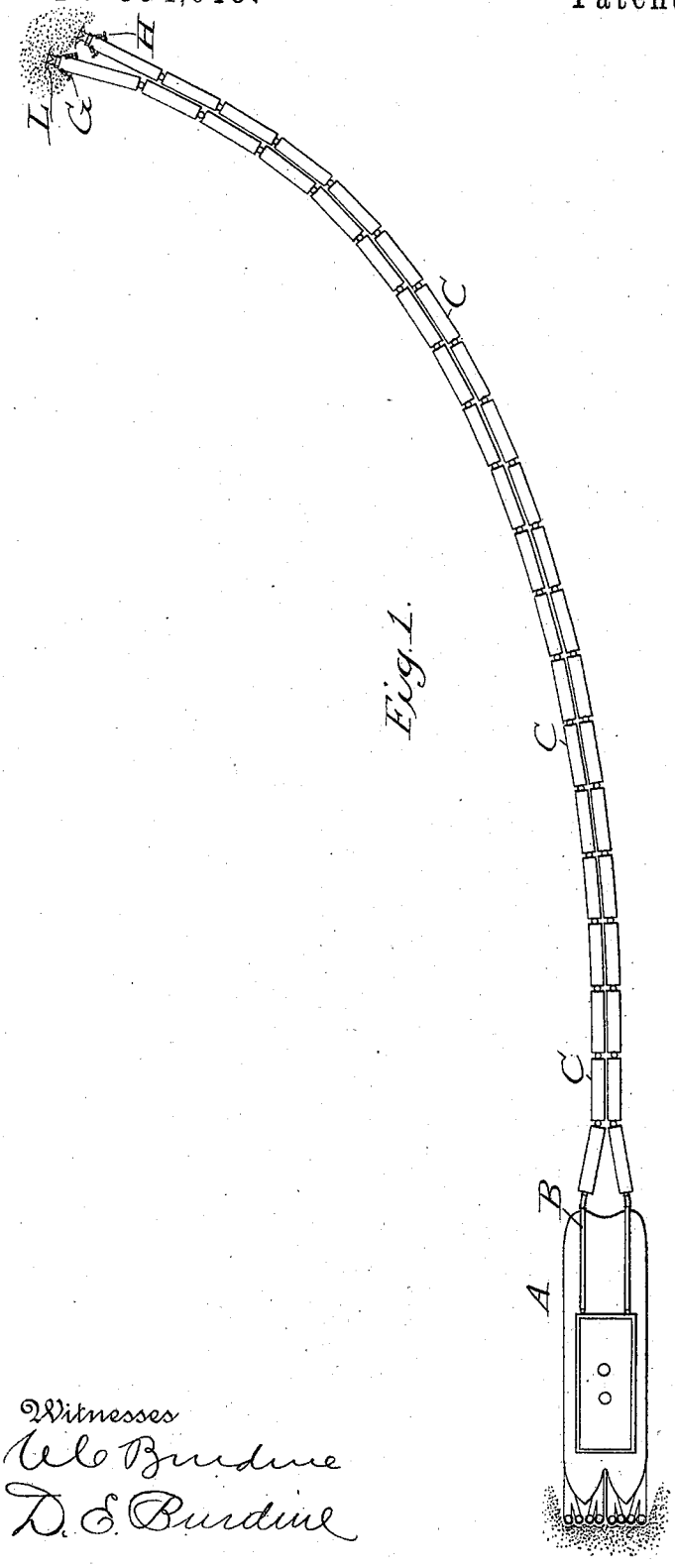


Fig. 1.

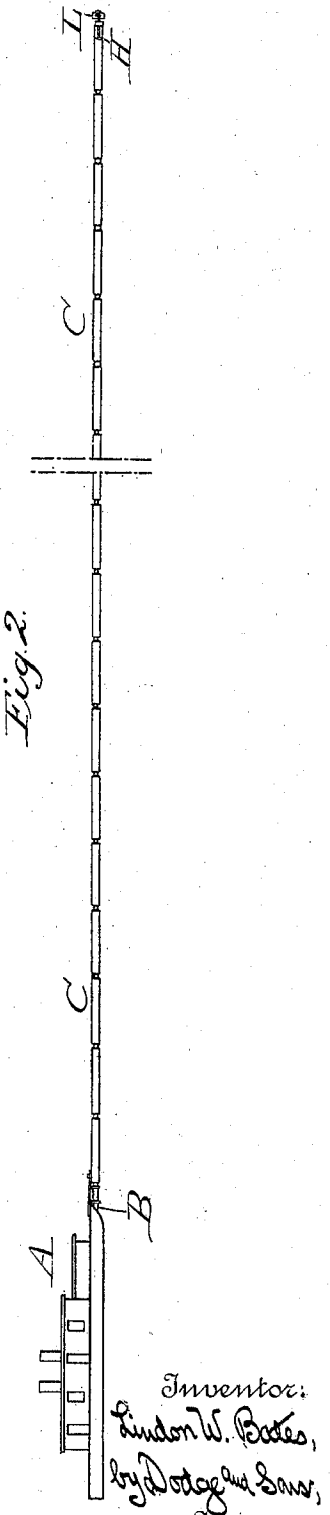


Fig. 2.

Witnesses
W. C. Burdine
D. E. Burdine

Inventor:
Lindon W. Bates,
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

L. W. BATES.

HYDRAULIC DREDGE.

No. 604,015. Patented May 17, 1898.

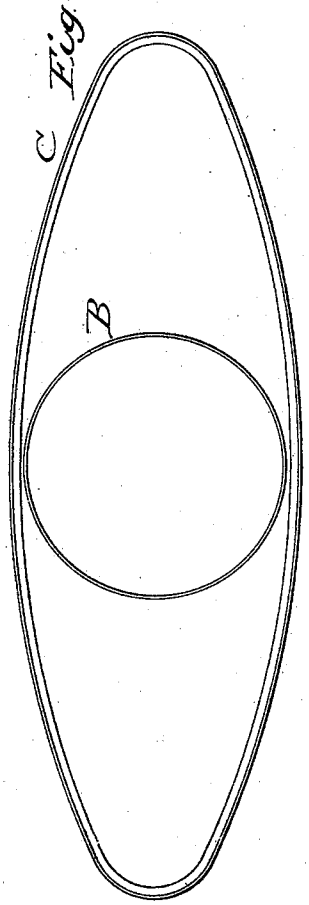


Fig. 4.

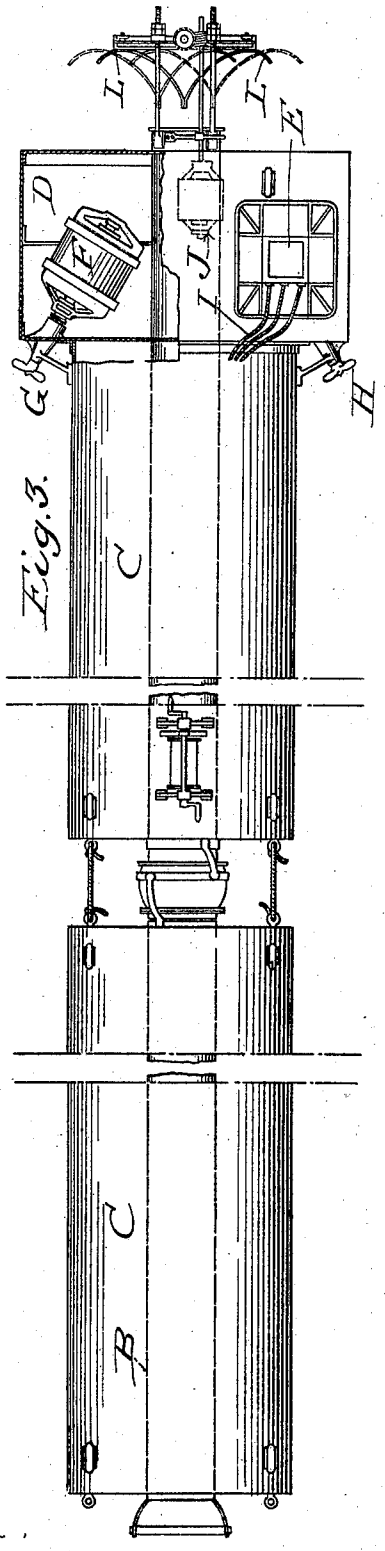


Fig. 3.

Witnesses
W. C. Burdine.
D. E. Burdine.

Inventor:
Linden W. Bates,
by Dodge and Sons,
Attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LINDON W. BATES, OF CHICAGO, ILLINOIS.

HYDRAULIC DREDGE.

SPECIFICATION forming part of Letters Patent No. 604,015, dated May 17, 1898.

Application filed August 9, 1897. Serial No. 647,602. (No model.)

To all whom it may concern:

Be it known that I, LINDON W. BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydraulic Dredges, of which the following is a specification.

My invention pertains to improvements in hydraulic dredgers, and more particularly to the discharge-pipe therefor and to the means for controlling said pipe.

In the accompanying drawings, Figure 1 is a top plan view of a dredge and its discharge-pipes; Fig. 2, a side elevation of the same; Fig. 3, a top plan view, upon an enlarged scale and partly in section, of the discharge end of the pipe; and Fig. 4, a cross-section view taken through one of the floats or pontoons.

The object of my invention is to provide means whereby the movement of the end of the discharge-pipe may be controlled as desired and kept in its correct or necessary position against tide and current.

A still further object is to place the means employed for effecting this purpose under the absolute control of the operator on the dredge, thus doing away with the necessity of guy-ropes and the like.

Referring to the drawings, A represents the dredge, which may be of any approved type, and B the discharge-pipes, extending from the rear thereof, supported by suitable pontoons or floats C. The pipes are made up in sections, a section being carried by a pontoon, the pontoons and pipes being coupled together in such manner that the various sections may move one in relation to the other, forming a flexible discharge-pipe. Two such pipes are shown in Fig. 1, and at the end of each pipe I provide means whereby the position of the pipes may be controlled as desired.

Referring to Fig. 3, wherein the end section of the discharge-pipe is shown in detail, it will be seen that it is provided with a chamber D, through which the discharge-pipe extends, said chamber extending laterally to each side of the pontoon. This chamber is closed by means of hatches E, but one being shown in the drawings.

Upon each side of the discharge-pipe within the chamber are mounted electric motors F, and propellers or screws G and H are directly connected thereto, extending in general direction toward the dredge, their axis of rotation standing at an angle of about thirty degrees to the discharge-pipe or at about sixty degrees to each other. Suitable insulated cables I run from the dredge to these motors and a motor J for supplying current thereto. Switch mechanism will be employed in the dredge for regulating the current as desired.

Motor J controls the baffle-plates L, the baffle-plates being of the form shown and designed to receive the impact or pressure of the outflowing current from the discharge-pipe. The construction of these plates is fully set forth in Letters Patent No. 576,250, granted to me on the 2d day of February, 1897.

By the proper control and manipulation of the baffle-plates and the screws G and H the position of the discharge-pipe may be determined and fixed by the operator upon the dredge, and this no matter what the length of pipe may be.

The baffle-plates may be sufficient alone to determine the position of the pipes; but should the current be too strong or should the discharge not be under way then the screws can be brought into operation. It will be readily understood that the screws may work together to swing the pipe in either direction, or they may work in opposition, which of course would have the tendency to straighten the pipe out, tide and current conditions not being taken into consideration.

Having thus described my invention, what I claim is—

1. In combination with a dredge, a flexible buoyant discharge-pipe connected to and extending therefrom, and means controllable from the dredge for maintaining the discharge-pipe in any desired position.

2. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom carried upon a series of pontoons; and means controllable from the dredge for maintaining the discharge-pipe in any desired position.

3. In combination with a dredge, a flexible buoyant discharge-pipe connected to and extending therefrom; and means controllable from the dredge for swinging the end of said pipe to any desired point.

4. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe; motors mounted in said compartment; and screws connected to the motors extending out upon opposite sides of the pipe.

5. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe; motors mounted in said compartment; screws connected to the motors and extending out on opposite sides of the pipe; and means for controlling said motors from the dredge.

6. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe and extending to each side thereof; motors mounted in said compartment upon each side of the pipe; screws G, H, connected to the motors extending in the general direction toward the dredge and at an angle to the pipe; and means for controlling the motors.

7. In combination with a dredge; a flexible discharge-pipe connected to and extending therefrom; a closed compartment carried by the end of said pipe and extending to each side thereof; motors mounted in said compartment upon each side of the pipe; screws G, H, connected to the motors extending in the general direction of the dredge and at an angle to the pipe; baffle-plates mounted in rear of the end of the discharge-pipe; a motor for moving said plates; and means for controlling said motors.

8. In combination with a dredge, a flexible discharge-pipe connected to and extending therefrom; screw-propellers mounted upon each side of the pipe at or near its end; baffle-plates mounted in line with the discharge end of the pipe; and means for controlling the propellers, and varying the position of the baffle-plates.

In witness whereof I hereunto set my hand in the presence of two witnesses.

LINDON W. BATES.

Witnesses:
HENRY HASPER,
CHARLES H. DAY.