

UNITED STATES PATENT OFFICE.

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SIPHONIC DREDGE.

No. 886,390.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM J. MONINGHOFF, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Siphonic Dredges, of which the following is a specification.

My invention relates to means for dredging and removing sedimentary or other deposits from the bottoms of bodies of water, either still or in motion, by means of siphonic action. Its objects are to provide a portable apparatus for use as above indicate, of simple construction and which can be operated at a minimum of expense.

It consists in a certain novel combination of features and parts further described and more particularly claimed.

Reference is also made to the accompanying drawing, forming part of this specification, in which similar reference characters indicate corresponding parts in the several views.

Figure 1. illustrates my method used in deepening or cleaning canals. Fig. 2. is an enlarged detail showing the universal joint connection, partly in section. Fig. 3. is a similar enlarged sectional view of the telescopic tube arrangement. Fig. 4. is an enlarged sectional view of the suction inlet, and Fig. 5. is an enlarged sectional view of the air chambers and connections.

In my apparatus 1, designates the main suction tube, or short leg, of the siphon, having an inner tube 1', arranged to move laterally within the outer tube in the manner termed "telescopically", and for the purpose of increasing or decreasing the radius or scope of operation without changing the position of the body of the apparatus.

At the extreme end of the tube 1', is a suction head 2, of any approved type, arranged with a perforated inlet hood to prevent the entrance of objects the size of which might interfere with or choke the several passages. Above the head 2, in the tube 1', is a valve 3, positioned preferably at the point of submergence, the use of which will be later described.

At the lower end of the tube 1, is a clamp, or analogous device 4, for adjustably holding the tubes in the position preferred; or, the head 2, may rest on the bed of the stream, the tubes moving freely up and down by the

movements of the supports and inequalities of the channel.

At the upper end of the tube 1, is a universal or swivel tubular joint connection 5, providing for a certain amount of freedom in swinging and swaying, as well as some actual change in relative positions between the tube 1, and the body of the apparatus 6. This body member 6, may be supported on a suitable trestle work, from the deck of a vessel, anchored in the immediate vicinity of the dredging operation, or from any other convenient place.

On the opposite end of the body 6, is a similar universal joint 8, connecting with the main discharge tube 9, having the clamping means 10, at its lower extremity and containing the telescopic tube 9', provided with the valve 11, near its outlet 12.

The discharge may be received in scows, as indicated, or deposited upon adjacent land as may be preferred, within reach of the long arm of the siphon.

Obviously the vertical point of discharge of the combined tubes must be below the point of intake in the tubes 1 and 1', in order to attain results from the apparatus; also that suitable provisions must be made to sustain and control the weight of the several tubes, and their contents.

On the upper side of the body member 6, is connected a valve 14, leading to an air chamber 15, having at its upper end a similar valve 16, connecting with the filling tube 17, this latter being arranged to take water from any convenient source of supply—as a canal on a higher level—or it may be forced in by a pump—not shown.

In Fig. 1, I have shown an adaption designed particularly for use in connection with canals, or other waterways, and in which sedimental deposit takes place, of an alluvial nature, from the washing of the banks by passing vessels, or of a mineral nature from the mines, or their products, along its course. At the present time much labor and great expense is involved in keeping such water ways of an even, proper depth by constantly removing such accumulations.

My invention obviates most of the labor and expense in leveling and clearing the channel, it being necessary only that the mud and detritus be in a relatively soft condition to be operated upon by the intake or inlet 2, which, as will readily be seen, can be moved

over the entire width of a canal and along its course by any convenient means. Provision is made in this case, for supporting the apparatus on a wheeled truck 20, movable along the tow-path 21, or other level surface adjacent to the bank of the canal 22, and preferably between it and the river 23, which flows alongside and below the canal level. I find this apparatus particularly useful in connection with canals in coal mining localities, where much culm and fine mineral deposits find their way into the water; also in placer mining, where auriferous and other metal bearing sands exist in the bed of streams, and where hydraulic mining is employed.

In operation it is merely necessary to close the foot valves 3, and 11, open the valves 14 and 16, above and below the air chamber 15, and fill the entire apparatus with water from any convenient source as indicated. When filled the valve 16, is first closed after which the valves 3 and 11, are opened and thereupon the flow begins and continues uninterruptedly. If however, any air should perchance enter, it will find its way into the air chamber 15, and can be discharged by closing the valve 14, opening valve 16, and refilling the air chamber with water, thereupon again closing valve 16, and opening valve 14, all of which said operations can be done without interfering with the performance of the apparatus.

While I am aware that siphons have long been in use, and hence do not claim the principle broadly as my own, I do believe my general arrangements of a dredging apparatus, subject to minor modifications, to be new, hence

I claim, and desire to secure by Letters Patent:

1. A siphonic dredge comprising an elevated body member having inlet and outlet

openings, universal tubular joints connected therewith, telescopic tubes attached to said universal joints, and forming suction and discharge means, a priming chamber connected with the body member and having suitable controlling valves combined therewith, and valves at the extremities of said telescopic tubes, all substantially as shown and described.

2. A siphonic dredge comprising an elevated, horizontally disposed body member, an air chamber connected therewith, valves above and below said air chamber, a filling means above and connected to said air chamber, universal tubular joints at each end of said body member, a telescopic inlet tube, having a foot valve and screened intake, attached to one of the universal joints, and a telescopic outlet tube, of greater length than the said inlet tube, provided with a foot valve and discharge orifice, attached to the other of said universal joints, all substantially as shown and described.

3. A siphonic dredge comprising a head having an inlet opening, an outlet opening and a priming opening, a chamber connected with the priming opening and a valve upon each side of said chamber, a universally movable and extensible inlet tube connected with the inlet opening, a universally movable and extensible outlet tube leading from the outlet opening, and valves at the extremities of both of said tubes, all substantially as shown and described.

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

WILLIAM J. MONINGHOFF.

Witnesses:

WARREN E. WILLIS,
EUGENE V. COGGEY.