

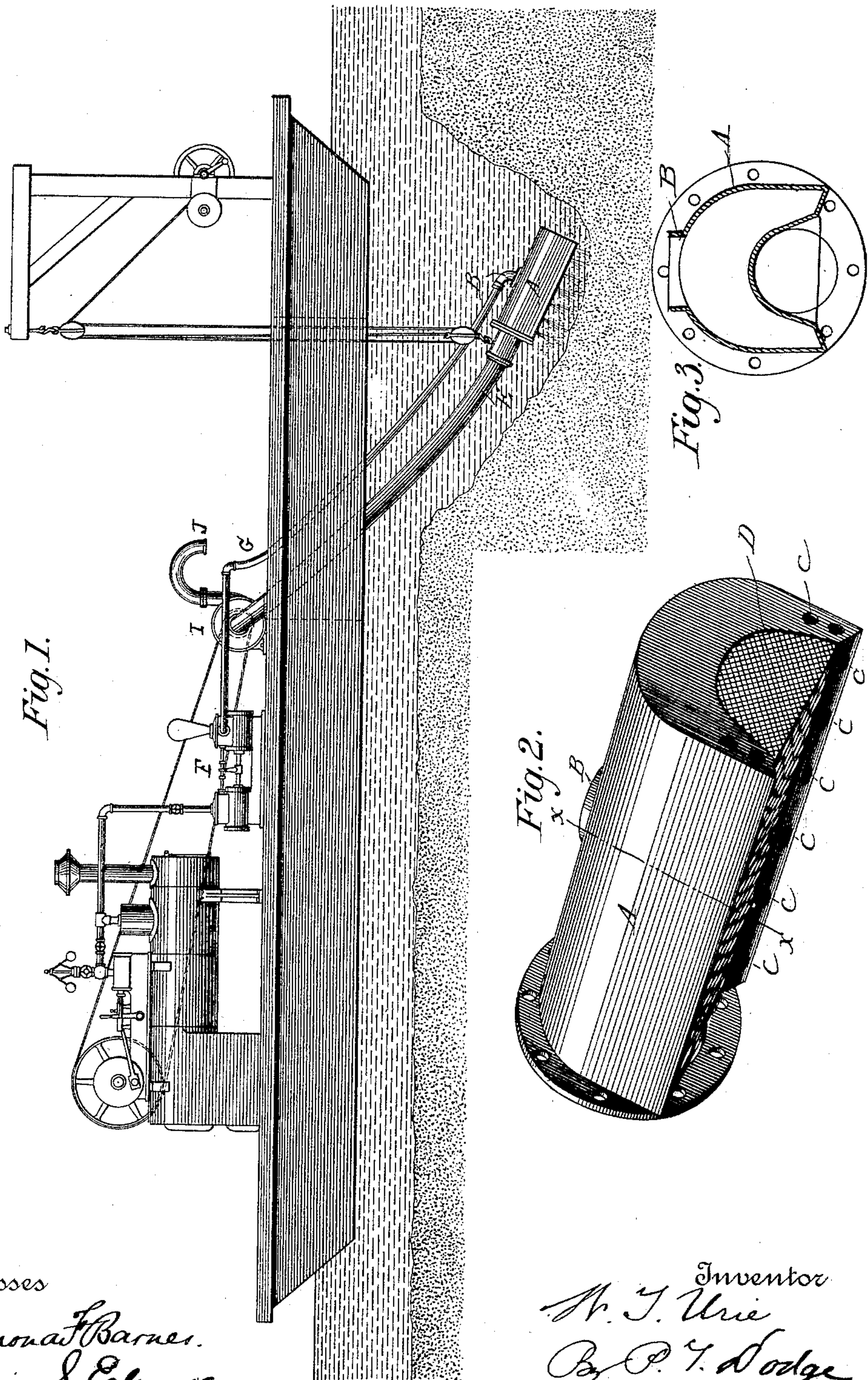
(No Model.)

W. T. URIE.

AGITATOR FOR SUCTION DREDGES AND SAND PUMPS.

No. 491,748.

Patented Feb. 14, 1893.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## AGITATOR FOR SUCTION-DREDGES AND SAND-PUMPS.

SPECIFICATION forming part of Letters Patent No. 491,748, dated February 14, 1893.

Application filed January 11, 1892. Serial No. 417,740. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. URIE, of Kansas City, county of Jackson, and State of Missouri, have invented a new and useful Improvement in Agitators for Suction-Dredges and Sand-Pumps, of which the following is a specification.

In the use of hydraulic or suction dredges much difficulty is experienced in keeping the sand or other material at the bottom properly agitated and mixed with water to admit of its flowing uniformly into and through the suction pipe. Many mechanical agitators, and agitators by which jets of water were projected downward into the sand, have been tried and found objectionable because of their sinking or burying themselves in the sand.

My invention is intended to overcome this difficulty, and consists in a hollow arched body or casing provided with an inlet for water under high pressure, and with openings for delivering jets in a downward direction on opposite sides of a central space, as hereinafter explained in detail.

In the accompanying drawings,—Figure 1 is an elevation of the agitator in operative relation to the suction pipe of a dredge. Fig. 2 is a perspective view of my agitator. Fig. 3 is a vertical transverse section through the agitator and feeder on the line  $x-x$  of Fig. 2.

Referring to the drawings,—A designates the body of my agitator, which comprises a hollow box having plane ends, rounded top and sides, and concave bottom. The top, bottom and sides are formed of two concavo-convex plates, of different radius placed one within the other, and united along their adjacent edges. The inner plate or shell being of smaller radius than the outer, the edges thereof are turned outward at an angle to form flanges which are joined to the edge of the outer shell, forming practically plane surfaces inclining upward slightly from the outside. The case thus constructed is provided with a pipe connection B, to which is fitted a supply pipe G leading from a force pump F, which supplies the agitator with water under high pressure.

In the plane surfaces between the inner and outer arched walls of the agitator are formed openings C, through which the water forced in by the pump escapes in jets to

loosen, agitate, and keep in motion the sand or soil into which they are directed. If desired openings may also be formed in the end walls, as shown in Fig. 2. One end of the agitator is provided with a lateral flange, as best shown in Fig. 2, to which is attached the end of a suction pipe E, the said pipe communicating with the arched space in the under side of the agitator and leading thence to a suction pump I, which draws the loosened sand or soil, and the water holding the same in suspension, from beneath the agitator and delivers it through an outlet pipe or nozzle J, into any suitable vessel or conveyer (not shown) placed thereunder. A wire netting or screen D extends across the base of the arch, and preferably, across the outer end thereof to prevent stones, lumps or other solid bodies from entering or obstructing the suction pipe or pump. In practice it is found that the action of this device extends over a sufficient area to secure a uniform feed and to prevent burrowing or choking.

Having thus described my invention, what I claim is,—

1. The agitator and feeder for hydraulic dredges comprising an arched shaped elongated hollow vessel having an inlet opening for the introduction of water, and a series of outlet openings at the base of the arched chamber, substantially as shown and described.

2. The agitator and feeder for hydraulic dredges comprising an elongated hollow vessel having an inlet opening for the introduction of water, a concave or arched bottom, the concavity extending longitudinally from end to end, a series of openings along the base of the concavity, and a screen or netting across the concavity.

3. The agitator or feeder for hydraulic dredges comprising a hollow elongated casing or vessel having a concave or arched bottom, the concavity extending from end to end, a water inlet, and a series of openings along the base of the concavity, in combination with a suction pipe leading from one end of the concavity, and means for forcing water into the agitator under pressure.

4. The agitator and feeder for hydraulic dredges comprising an elongated hollow casing or vessel having a concave bottom, the

concavity extending from end to end, a water inlet, a series of openings along the base of the concavity, and a screen or netting across the concavity, in combination with means for  
5 introducing water under pressure, and a suction pipe leading from one end of the concavity between the arched bottom and the screen or netting.

5. The arched chamber provided with an inlet, a series of bottom outlets and the grating, 10 substantially as shown.

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