(No Model.)

J. H. HUFFER.

APPARATUS FOR REMOVING SAND BARS.

No. 285,487. Patented Sept. 25, 1883.

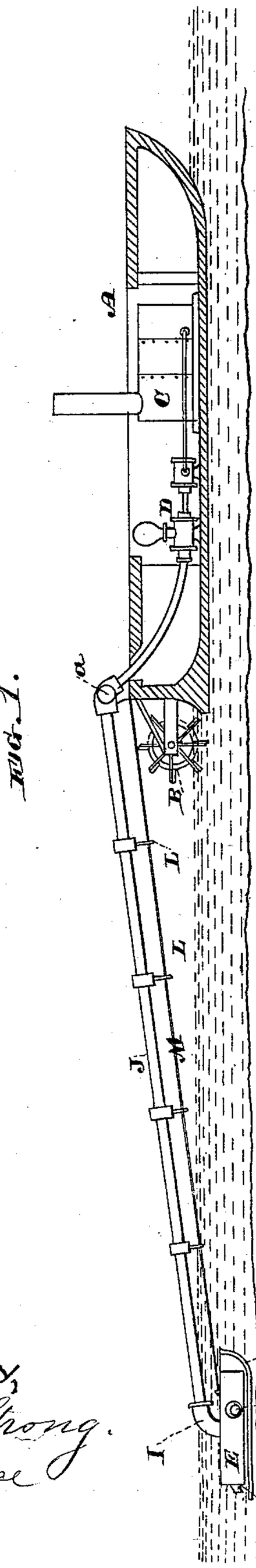

FIG. 1.

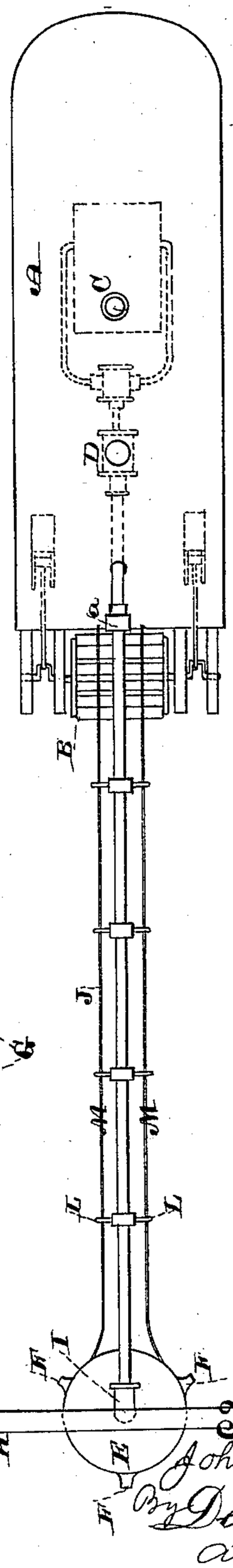

FIG. 2.

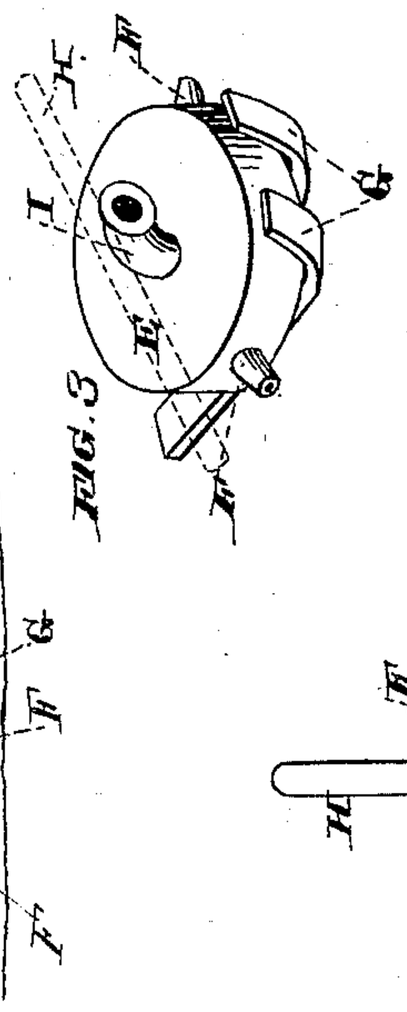

FIG. 3.

Witnesses,
Geo. H. Strong.
J. L. House

Inventor
John H. Huffer
By Dewey & Co.
Attorneys

UNITED STATES PATENT OFFICE.

JOHN H. HUFFER, OF JACKSONVILLE, OREGON.

APPARATUS FOR REMOVING SAND-BARS.

SPECIFICATION forming part of Letters Patent No. 285,487, dated September 25, 1883.

Application filed June 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. HUFFER, of Jacksonville, in the county of Jackson, State of Oregon, have invented an Improvement in Apparatus for Removing Sand-Bars; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in apparatus for removing sand-bars or similar deposits at the mouths of rivers or harbors; and it consists of a receiver or chamber of sufficient diameter to rest upon the bottom, provided with jet-nozzles, through which water is forcibly ejected against the bottom, so as to wear it away. This receiver is connected with the vessel or boat carrying the pumps and machinery by a flexible tube, through which the water passes from the pumps, and the tube is provided with bands surrounding it at intervals. These bands have eyes at each side, through which wire ropes or chains pass from the boat to the receiver and hold them together without strain upon the tube.

My invention also consists of certain other details of construction, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my apparatus. Fig. 2 is a plan view. Fig. 3 is a detached perspective view of the receiver or tank with its appurtenances.

A is a flat-bottomed boat or scow for use in shallow water, and specially adapted for carrying the machinery employed with the apparatus. This boat may be moved from place to place by any suitable devices; but I have shown in the present case a propeller, B, which may be driven by an engine situated within the vessel, and supplied with steam from boilers C, which also supply steam to the force pump or pumps D. This apparatus may be suitably placed upon the vessel, but preferably below the deck, so as to be sheltered from the weather, and the pumps are placed low to facilitate the supply of water from the exterior of the vessel. These devices are not materially different from those shown in my patent of June 27, 1882.

My present improvements are designed to enable the apparatus to be used in exposed positions, as upon bars where there is a heavy swell from the sea, and in other similar places; and it consists of a receiver or tank, E, which is made about eight or ten inches deep and of any suitable or desired diameter—as four or six feet. At the sides and near the bottom of this tank are nozzles or discharge-openings F, so fitted as to discharge downward and outward. The number of these discharge-nozzles may be three or more; but in any case they should be relatively so placed that the outward pressure from the discharging jets shall be equalized, and not tend to force the tank away from its position in any direction. Upon the bottom of the tank are shoes or runners G, formed of broad pieces of iron or steel, turned up at the ends, and upon these the tank may be drawn along over the bottom whenever desired. Across the top of the tank is a long transverse bar, H, which prevents its being overset when there is a heavy swell on.

I is an elbow connecting with the top of the tank, and fitted to receive a coupling from the flexible hose or pipe J, which extends from the tank to the boat, where it connects with a pipe leading from the pump by means of a swivel or other joint, *a*, which allows the boat to move up and down upon the sea without disturbing the connection. The hose or pipe has bands fitted around it at intervals, and these bands have eyes L upon each side, through which chains or wire ropes M extend from the boat to the tank, being secured at each end, so that the tank is flexibly connected with the boat by the wires or chains, and all strain is thus removed from the tube. The tube and chains are of such length as to allow the boat a free vertical motion without in any way disturbing the tank through which the water is discharged.

The pumps being set at work, a strong current of water is forced out through the nozzles, and the sand will be stirred up, so that it will be carried away by the current. The boat is kept moving slowly across the space to be dredged, dragging the tank to and fro, while the jets act upon the bottom and loosen it and lift it from its bed, to be carried away by the tide or current, until a sufficient depth has been reached.

I am aware that heretofore submerged excavators have been provided with flexible tubular

connections to the vessel containing the pumping apparatus, and that such tubular connections have been provided with supporting-chains extending from the vessel to the submerged excavator. I am also aware that a submerged tank has heretofore been devised, which tank is provided with water-ducts opening obliquely through its bottom. These previous structures are, however, clearly distinguishable from mine, and I do not claim them as my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a dredging apparatus, a closed receiving chamber or tank mounted on runners, and having discharge-nozzles opening outward and downward around its sides, and a flexible hose or pipe connecting it with a boat or scow, upon which are placed means for forcibly ejecting water through the pipes and nozzles, substantially as herein described.

2. In a dredging apparatus, a closed tank mounted on runners, and having discharge-nozzles opening outward and downward around its circumference, a boat upon which is carried means for forcibly ejecting water through a flexible pipe extending from the boat to the tank, and flexible wire ropes or chains extending from the boat to the tank by the side of the tube, substantially as herein described.

3. In a dredging apparatus, a closed tank having discharge-nozzles opening outward and downward around its periphery, a boat upon which is carried means for forcibly ejecting water through a flexible pipe which extends from the boat to the tank, said pipe having surrounding bands at intervals, with eyes through which wire ropes or chains are supported, so as to connect the tank with the boat, substantially as herein described.

4. In a dredging apparatus, a closed tank having discharge-nozzles around its periphery, a flexible pipe leading from it to a boat, upon which are carried means for forcibly ejecting water through the pipe and nozzles, and ropes or chains connecting the tank with the boat, so that it may be moved thereby, in combination with shoes or runners upon which the tank is supported and drawn, and the transverse steadying-bar H, substantially as herein described.

5. In a dredger, a boat carrying means for forcibly ejecting water, and having a propeller by which it may be moved, a flexible pipe extending from the boat to a closed tank resting upon the bottom, and having discharge-nozzles through which water may be forcibly ejected against the bottom, and a transverse bar or outrigger to prevent its upsetting, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN H. HUFFER.

Witnesses:
WM. F. BOOTH,
S. H. NOURSE.