

(No Model.)

L. A. JOHNSON & N. E. JOHNSEN.

DREDGING MACHINE.

No. 281,883.

Patented July 24, 1883.

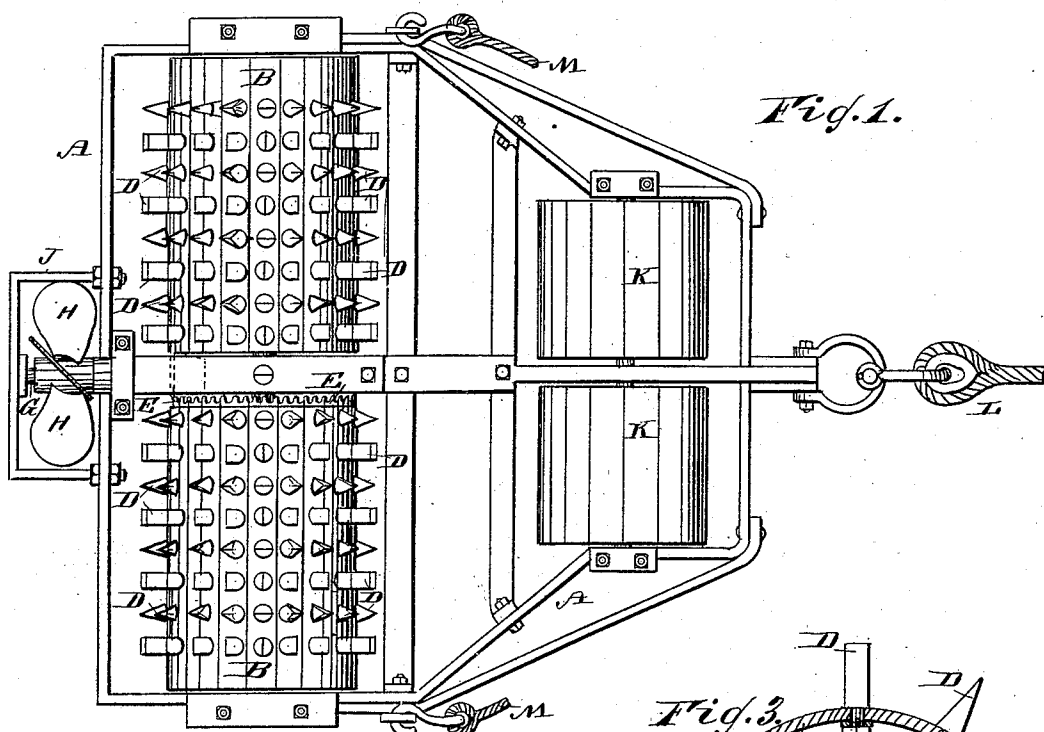


Fig. 1.

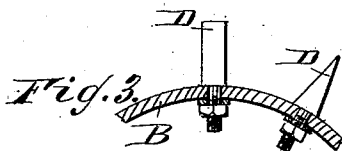


Fig. 3.

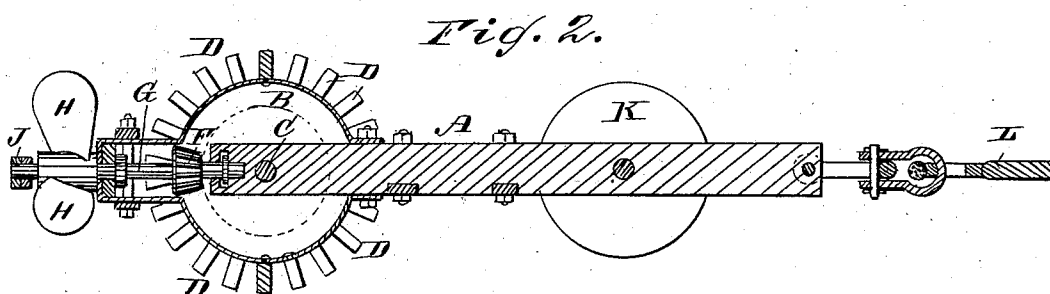
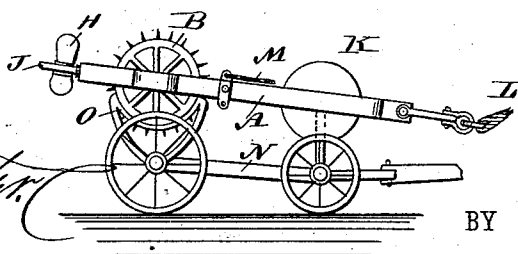


Fig. 2.

Fig. 4.



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LARENCE A. JOHNSON AND NELS E. JOHNSEN, OF PORTLAND, OREGON.

DREDGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 281,883, dated July 24, 1883.

Application filed April 11, 1883. (No model.)

To all whom it may concern:

Be it known that we, LARENCE A. JOHNSON and NELS E. JOHNSEN, of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Dredging-Machine, of which the following is a full, clear, and exact description.

The object of our invention is to provide a new and improved machine for breaking and loosening the soil at the bottom of rivers, bays, and other shallow waters, and also for agitating the waters to such an extent that the loosened soil will be raised by it sufficiently to be carried off by the current or tide.

The invention consists in a dredging-machine constructed with one or more spurred cylinders for breaking and loosening the bed of the river, &c., and with a propeller-screw for agitating the water, and causing the same to carry the loosened sand, mud, &c., upward, so that the same can be carried off by the current, which propeller is operated by the spurred cylinder.

The invention also consists in parts and details and combinations of the same, as will be fully set forth and described hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of our improved dredging-machine. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a detail enlarged sectional view of part of the spurred cylinder. Fig. 4 is a longitudinal elevation of the dredging-machine and the vehicle for transporting it on land.

In a frame, A, one or more cylinders, B, are mounted on a shaft, C, journaled in both sides of the frame, which cylinders A are provided with a series of spurs, spikes, or prongs, D, projecting radially from the cylindrical surfaces. The spurs D can be made any desired suitable shape, but are preferably made wedge-shaped, and are alternately arranged with the end edge parallel with the longitudinal axis of the cylinder and its diameters. One of the cylinders B is provided at the inner end with a circular rack, E, engaging with a bevel pinion, F, mounted on a shaft, G, journaled in the frame A, and projecting from the rear end of the frame A at right angles to the lon-

gitudinal axis of the cylinders B, on the outer end of which shaft G a propeller-screw, H, is mounted, which is surrounded by a guard or protecting frame, J, secured, to the rear end of the frame A. The frame A is contracted toward the front, and on the said narrowed part one or two rollers, K, are journaled, parallel with the cylinders B, which rollers support the front end of the frame A. A draft rope or chain, L, is secured, by means of a clevis ring or hook, to the front end of the frame A. The ends of a rope or chain, M, are secured, by means of hooks or otherwise, to the frame A, at or near the middle of the length of the same, which rope or chain M is used to raise or lower the machine out of or into the water. If the machine is to be transported on land, it is placed on a vehicle, N, provided at its rear end with crutches or recessed frames O, for receiving the spiked cylinders B. We have shown the machine constructed with two spiked cylinders, B, and one shaft, G, carrying a propeller-screw, H; but, if desired, it can be constructed with three cylinders B and two shafts G, carrying propeller-screws H; or with four cylinders B and three shafts G, carrying propeller-screws H. The cylinders B are to be made of iron, so that their weight can force the spurs into the bed of the river or other water.

The operation is as follows: The machine is lowered upon the bed of the river, &c., that is to be dredged and is pulled along the same by means of a steamer, or by means of a windlass or analogous device on shore. The spurs break the crust on the bed of the river and sink into the bed, and as the cylinders B are rotated by the movements of the machine the spurs will tear up and loosen the bed of the river. When the cylinders B are revolved, the shaft G, carrying the propeller H, is revolved, and the propeller agitates the water to a great extent, and causes it to carry the loosened sand, mud, &c., upward, and the same is then carried off by the current of the stream, and is deposited in deeper places of the stream, where the strength of the current is not as great as at the shallow places. The machine is moved to and fro over the same ground until a sufficient quantity of the bed of the river, &c., has been loosened and carried off by the current.

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

- 5 1. A dredging-machine constructed with a spurred cylinder for breaking and loosening the bed of the river, and with a propeller-screw operated by the spurred cylinder, and adapted to agitate the water, substantially as herein shown and described, and for the purpose set forth.
- 10 2. In a dredging-machine, the combination, with the frame A, of the spurred cylinders B, the shaft G, carrying a propeller-screw, H, and the rollers K, substantially as herein shown and described, and for the purpose set forth.
- 15 3. In a dredging-machine, the combination, with the frame A, of the spurred cylinders B, the circular rack E, on one cylinder B, the shaft G, the propeller-screw H, and the pinion F, substantially as herein shown and described, and for the purpose set forth.
- 20 4. In a dredging-machine, the combination,

with the frame A, of the spurred cylinders B, the roller K, the propeller-screw H, and the rope or chain M, substantially as herein shown and described, and for the purpose set forth. 25

5. In a dredging-machine, the cylinder B, provided with wedge-shaped spurs, which are alternately arranged with their outer end edges parallel with the longitudinal axis of the cylinder, and with the transverse section thereof, substantially as herein shown and described, and for the purpose set forth. 30

6. The combination, with a dredging apparatus constructed with a frame, A, and spurred cylinders B, of the vehicle N, provided with crutches O, for receiving the cylinders B, substantially as herein shown and described, and for the purpose set forth. 35

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Witnesses:

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