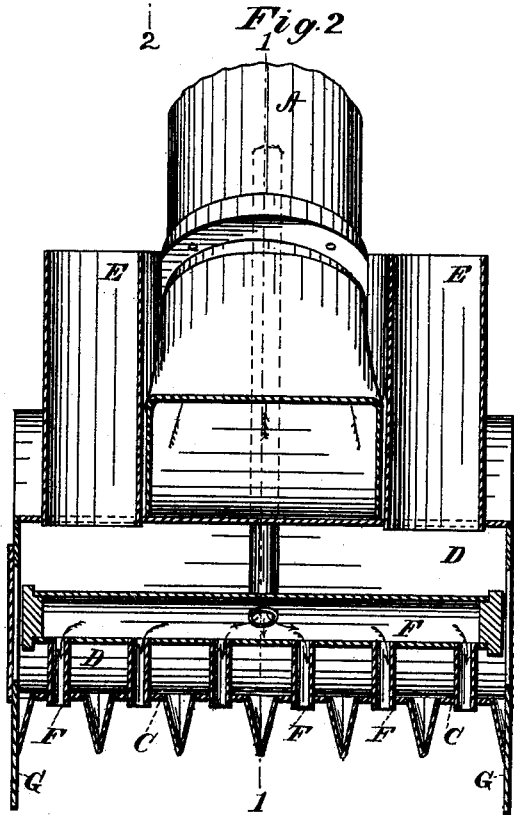
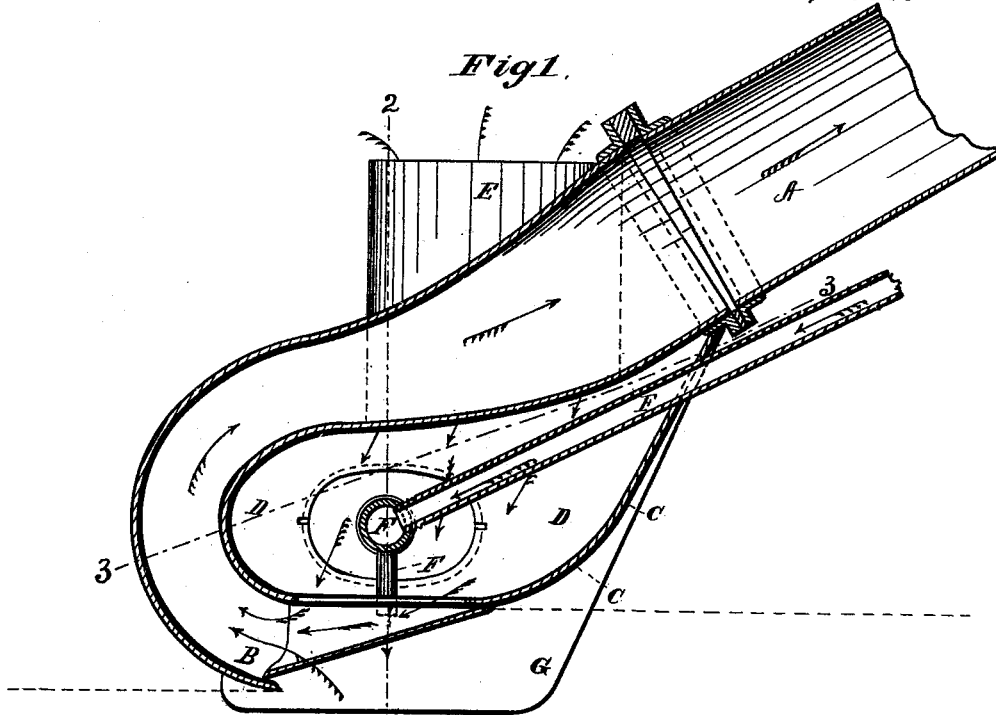


J. B. EADS.  
Dredging Apparatus.

No. 196,645.

Patented Oct. 30, 1877.



Witnesses

W. R. Edelman.

Chas. J. Gooch

Inventor

James B. Eads.

By *[Signature]*

Attorneys.

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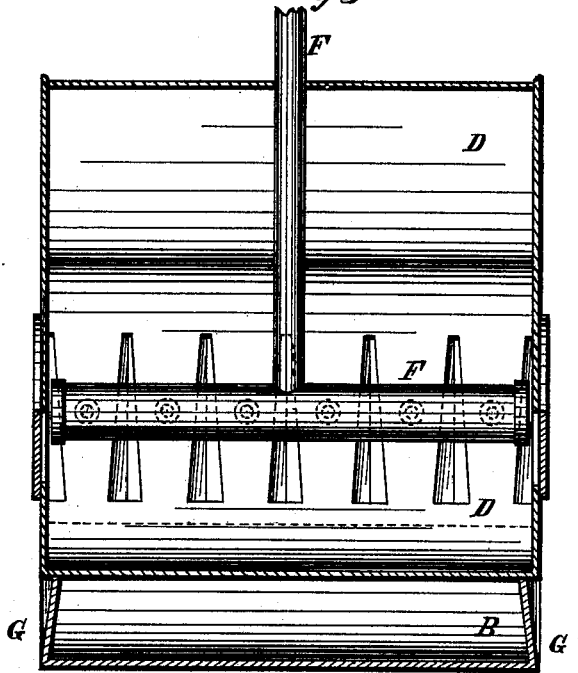
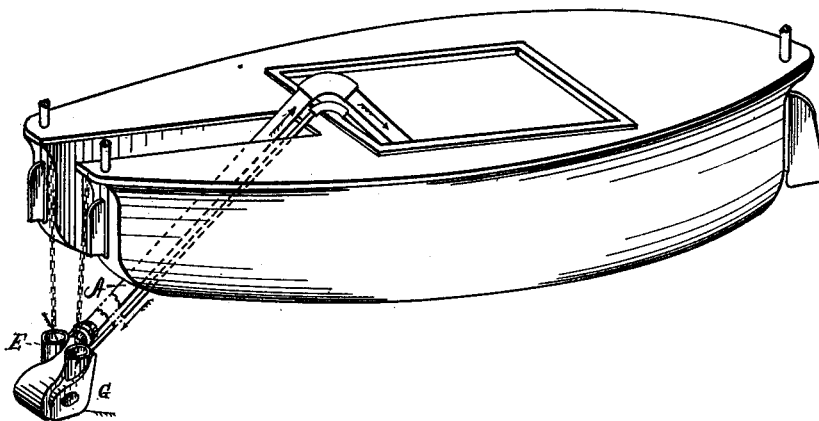


Fig. 4.



Witnesses

H. R. Edelin.

Chas J. Coe

Inventor.

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Attorney

# UNITED STATES PATENT OFFICE.

JAMES B. EADS, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN DREDGING APPARATUS.

Specification forming part of Letters Patent No. **196,645**, dated October 30, 1877; application filed July 3, 1877.

*To all whom it may concern:*

Be it known that I, JAMES B. EADS, of the city of St. Louis and State of Missouri, have invented a certain new and useful Improvement in Hydraulic Dredging-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

The invention consists in combining with the lower end of a suction-pipe, A, a scraper, B, to raise and collect the sand, earth, or materials to be dredged up; a gage-plate, C, to regulate the depth of the cut to be made by the scraper B; a water-chamber, D, to supply the necessary quantity of water to keep the suction-pipe A from choking; inlets E, to regulate and direct the water thus supplied onto the scraper B; a system of pipes and nozzles, F, to direct jets of water from a forcing-pump onto the sand or material to be removed, so as to loosen and disintegrate the same; and side plates G, attached to the gage-plates, to act as runners, to raise the apparatus over any logs or fixed obstructions on the bottom, and to form, with the gage-plate C, an inverted chamber, D, in which the water from the jets, with its loosened material, is retained and more effectually directed into the suction-pipe A.

In the accompanying drawings, Figure 1 represents a longitudinal vertical section taken through 1 1 of Fig. 2. Fig. 2 represents a transverse vertical section taken through 2 2 of Fig. 1. Fig. 3 represents a plan section taken through 3 3 of Fig. 1. Fig. 4 represents a perspective view of the dredging apparatus in connection with a boat.

Where the surface of the water is smooth, the suction-pipe A may be provided with a telescopic joint, and worked vertically; but where large waves are to be encountered, the pipe should be inclined, and provided with a universal joint near its juncture with the dredging-boat.

The vacuum may be created in the suction-pipe A by attaching to it any kind of pump suited to discharge sand, gravel, earth, or the like, without injury or choking; and from the pump the dredged material and water may be discharged through suitable pipes, ashore, or at a distance from the excavation; or it may be discharged into tanks or chambers fixed on the dredge-boat, or into scows, for removal to any desired locality.

The boat may be moved with the current or by steam-power, or by anchor-lines, so as to draw the scraper B against the material to be dredged.

I prefer to move the boat slowly along over the place to be dredged, and have it draw the apparatus described over the surface of the bottom by means of the suction-pipe A, the latter being strongly secured by its universal joint; and safety-chains, from the hull to the apparatus, being attached to prevent too great a lateral movement in it.

The apparatus should likewise be supported vertically by chains or ropes, by which it may be raised and lowered, and its depth limited and regulated.

In dredging on sea-bars, the boat should be constructed with a central opening in the after part, into which the suction-pipe A may be raised and secured against oscillation while the boat carries its load out to sea, beyond the bar, for dumping.

The boat should likewise be provided with rudders at each end, to avoid loss of time by turning. Thus provided, she would pass over the bar on her outward trip with the apparatus described lowered to the proper depth for a cut, and as soon as the cut was made the apparatus would then be raised until the boat proceeded out beyond the bar and discharged her load; after which she would return within the bar and repeat the operation.

What I claim as new and original, and desire to secure by Letters Patent, is—

1. The combination of the suction-pipe A with the scraper B, gage-plate C, with chamber D, inlets E, jet-pipes and nozzles F, and side plates G, for the purposes herein stated.
2. The combination of the scraper B with the water-chamber D and inlets E, substantially as and for the purposes set forth.
3. The combination of the water-chamber D and inlets E with the jet-pipes F, substantially as and for the purposes set forth.
4. The combination of the inverted chamber formed by the gage-plates C, the side plates G, and the scraper B with the suction-pipe A, for the purpose set forth.
5. The combination of the jet-pipes and nozzles F with an inverted chamber, as described, for the purposes mentioned.

In presence of— JAS. B. EADS.

SAML. KNIGHT,  
R. S. ELLIOTT.