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Improvement in Pneumatic Dredging-Machines.

No. 133,022.

Patented Nov. 12, 1872.

Fig. 1.

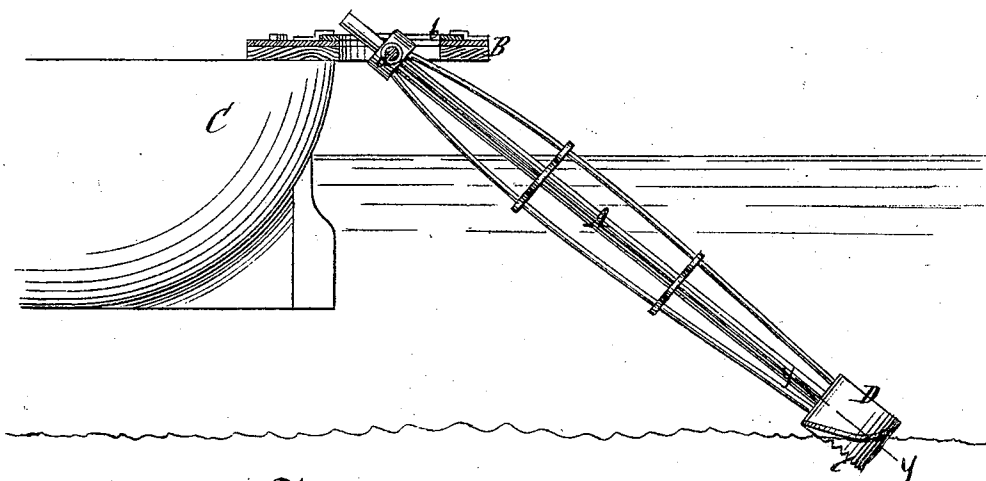


Fig. 2.

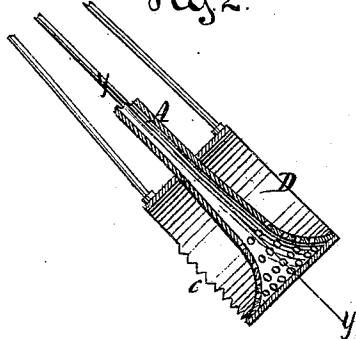


Fig. 3.

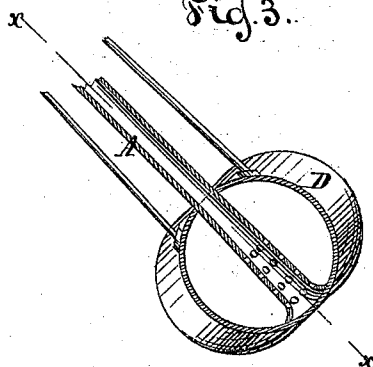
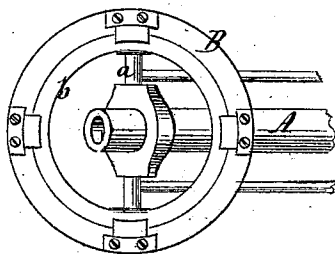


Fig. 4.



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UNITED STATES PATENT OFFICE.

ADOLPH FABER DU FAUR, OF NEWARK, NEW JERSEY, AND CHARLES H. CAMPBELL, OF NEW YORK, N. Y.

IMPROVEMENT IN PNEUMATIC DREDGING-MACHINES.

Specification forming part of Letters Patent No. 133,022, dated November 12, 1872.

To all whom it may concern:

Be it known that we, ADOLPH FABER DU FAUR, of Newark, in the county of Essex and State of New Jersey, and CHARLES H. CAMPBELL, of the city, county, and State of New York, have invented a new and Improved Pneumatic Dredging-Machine; and we do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a sectional side view of this invention; Fig. 2 is a longitudinal section of the lower end of the suction-pipe, with its scoop in a larger scale than the previous figure, the line *x x*, Fig. 3, indicating the plane of section; Fig. 3 is another section of the same in the plane *y y*, Figs. 1 and 2; and Fig. 4 is a plan of the dredging attachment detached from the vessel.

Similar letters indicate corresponding parts.

This invention has for its object to construct a pneumatic dredging-machine for removing sand-bars and the like, which is specially designed for use in surging waters, the suction-pipe and its appendages being suspended on a universal joint, so that the stirring device acts upon the material to be removed, no matter what may be the position of the vessel caused by a rolling sea; and our invention consists, first, of an annular scoop, open at the top and bottom and provided with teeth at the bottom, and adapted to the end of the suction-pipe of a pneumatic dredging-machine, as hereinafter set forth. Second, it consists in making the lower or mouth end of the suction-pipe of a pneumatic dredging-machine bell-shaped and providing the same with a series of perforations, said suction-pipe being combined with a scoop open at its top and bottom and carrying a series of teeth at the bottom, the whole suspended from a universal joint, so that the same is free to rise and fall by its inherent gravity, and free to move laterally or in the arc of a circle, its movements not being controlled by complicated gearing nor demanding the attention of operators, as is the case in machines of this class.

In the drawing, the letter A designates the

suction-pipe of a pneumatic dredging-machine which is suspended from a rod, *a*, that turns in bearings secured to a ring, *b*, which swivels in a stationary annular bracket, B, so that, by means of said rod and ring, a universal joint is produced, whereby the suction-pipe is allowed to rise and fall by its inherent gravity and to swing laterally or in the arc of a circle, its position being governed in surging water by the movements of the vessel, but in still water it can be acted upon by any suitable mechanism in the ordinary manner of dredging. The bracket B is secured either to the stern or sides of the vessel C, and it may be so constructed that it can be folded upward so as to give to the suction-pipe additional freedom of motion. The bottom end or mouth of the suction-pipe A is made bell-shaped, and it is perforated with a large number of holes, through which sand and water or mud and water can find access to the interior of said suction-pipe, while large pieces of mud, &c., which would be liable to choke up the suction-pipe, are excluded. To the mouth of the suction-pipe is secured a peculiarly-constructed scoop or stirring device, D, made in the form of a ring, as clearly shown, and which is provided with teeth *c* at the bottom, so that if the suction-pipe, together with the stirring device, is dragged along on the ground from which sand or mud is to be removed, or if a lateral motion is imparted to said suction-pipe, causing the stirring device to sweep over the ground by the action of said stirring device, a quantity of sand or mud will be constantly thrown up over the mouth of the suction-pipe; and, if this pipe be connected with a pump, the sand or mud thus stirred up will be sucked in and discharged into the vessel to which the suction-pipe is attached. One or more of these suction-pipes and stirrers may be used in connection with a vessel when desired. By making the stirring device ring-shaped all surplus sand or mud stirred up by the same is permitted to discharge therefrom, and the suction-pipe is prevented from being choked. This pneumatic dredging-machine is specially designed for removing sand-bars or mud in localities where there is surging or rolling water, in which case the motion of the vessel moving ahead will govern the suction-pipe and stirrer;

but when the vessel is in still water the said pipe and stirrer can be controlled in their movements by any suitable mechanism.

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

1. The annular scoop or stirrer D, open at the top and bottom, substantially as described, and adapted for use in connection with the suction-pipe of a pneumatic dredging-machine, as set forth.

2. The suction pipe A of a pneumatic dredging-machine, provided with a perforated bell-shaped mouth and with a scoop, D, as set forth, the whole combined and suspended from a universal joint, for the purpose set forth.

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