W. SMITH.

Pneumatic Dredger.

No. 165,035. Patented June 29, 1875.

FIG. 1.

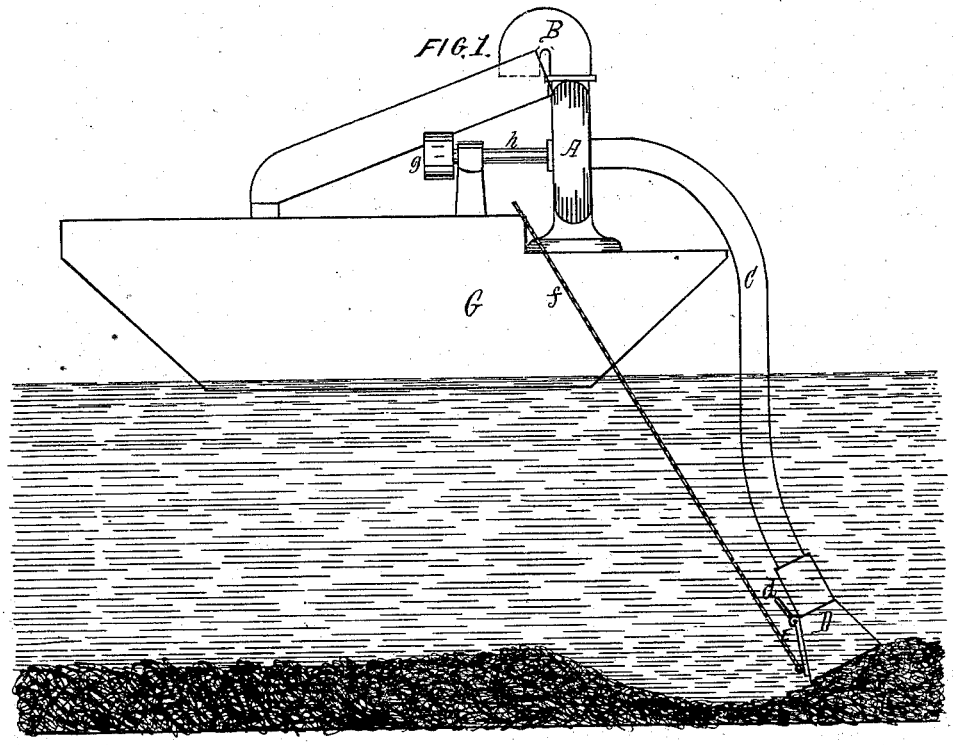
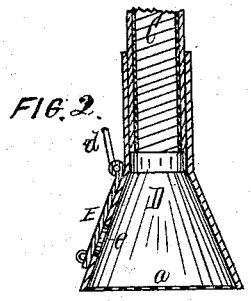


FIG. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM SMITH, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PNEUMATIC DREDGERS.

Specification forming part of Letters Patent No. **165,035**, dated June 29, 1875; application filed February 19, 1875.

To all whom it may concern:

Be it known that I, WILLIAM SMITH, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sand and Wrecking Pumps; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my said invention; and Fig. 2 is an enlarged central section of a portion of the induction-pipe, cutting the nozzle through the center.

Similar letters of reference indicate like parts in both figures of the drawings.

My invention relates to that class of pumps employed in wrecking and dredging; and its object is to so arrange the induction-pipe as to allow the receiving end of the same to be moved from one location to another irrespective of the location of the pump; and to that end it consists in the induction-pipe, constructed of flexible material, and provided with a nozzle having a ventilating-valve adapted to be opened and closed at the will of the operator, as will be more fully understood from the following description and claim.

In the drawing, A represents the cylinder of a centrifugal pump, and B the eduction-pipe; but as the same constitute no part of the present invention I will omit a description in detail, only referring to the same as may be necessary to show with clearness the operations of my invention. C is the induction-pipe, which is attached to the cylinder of the pump in the usual manner. This pipe is of sufficient length to extend downward to the bed of the river or lake at any desired point from the pump, and is made of any suitable flexible material which will allow the end of the pipe in contact with the bed of the river to be moved to any desired point thereon, and at the same time retain its original cylindrical shape. D is a metal nozzle, which is permanently attached to the depending end of the induction-pipe C, and is made funnel-shaped at its lower end. The lower or flaring end of the nozzle is provided with a strainer, *a*, which is made of wire fabric or perforated sheet metal, the object of which is to prevent any material having a tendency to clog or injure the cylinder of the pump from entering the same through the pipe. The flaring portion of the nozzle is provided with an aperture, *e*, formed through the wall of the same, the object of which is to allow a current of water to enter the pipe when desired, thus preventing the sand from clogging or filling the same. E is a valve, which is hinged to the outer surface of the nozzle, and so arranged as to tightly close the aperture *e*. Permanently attached to the end of the valve opposite to the aperture is a stop-bar, *d*, arranged to bear upon the surface of the nozzle when the valve is opened, thus preventing the valve from being drawn back against the pipe. Attached to the opposite end of the valve is a cord, *f*, which extends upward to the deck of the boat on which the pump is supported. The arrangement of this cord is such that the operator can, when desired, open the valve by pulling on the cord, the valve being held in a closed position by the suction of the pump.

My invention, when used for dredging, is operated as follows: The pump proper is secured upon the deck of the scow or boat G, as shown in Fig. 1. A belt communicating with any suitable motor (not shown) is then passed around pulley *g* on shaft *h* of the pump, by which a rotary movement is imparted to the operating parts of the latter. The pipe C is then dropped into the water, and by its gravity it is caused to descend through the water until the depending end of the nozzle rests upon the bed of the river. Motion is then imparted to the operating parts of the pump, and by the centrifugal action of the same the sand is drawn from the bed of the river through the nozzle and pipe C into the pump-cylinder, and is discharged therefrom through pipe B on the deck of the boat.

My invention may be used to remove grain in bulk from sunken vessels, in which case pipe C is passed through the deck of the sunken vessel, allowing the nozzle to come in contact with the grain. Motion is then im-

parted to the pump and the grain is carried through the pipe into the cylinder of the pump, and discharged therefrom, as before described.

It is obvious that the flexible pipe has many advantages over the rigid pipes heretofore used, for the same can be moved to any desired point without moving the pump; besides, it is more readily adjusted, and is not affected by the rocking of the boat on which the pump is supported.

Having thus described my invention, I claim—

In combination with the pump A, the flexible non-collapsible pipe C, provided with the weighted nozzle D, having the opening *e* formed through its side above the lower end, and provided with valve E and cord *f*, all arranged to operate as and for the purpose specified.

The above specification of my invention signed by me this 22d day of October, 1874.

WILLIAM SMITH.

Witnesses:
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