

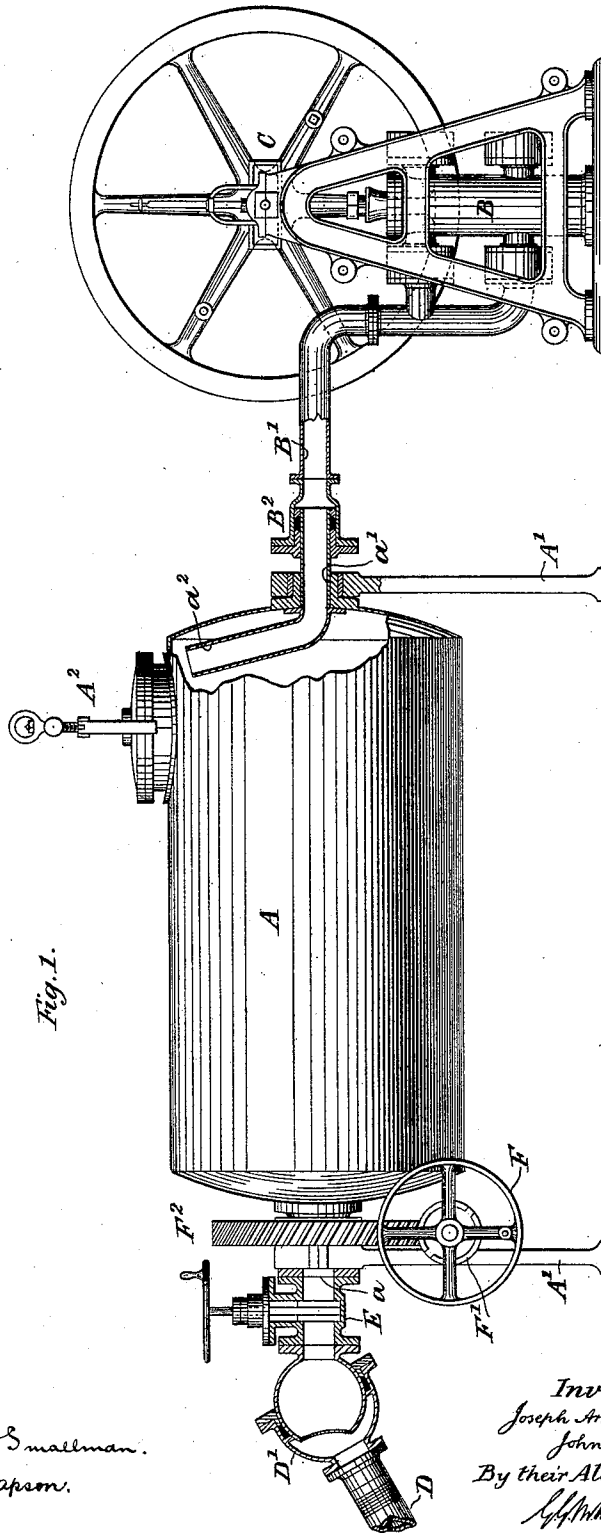
(No Model.)

2 Sheets—Sheet 1.

J. A. WADE & J. CHERRY.
APPARATUS FOR DREDGING AND PUMPING.

No. 500,445.

Patented June 27, 1893.



Witnesses:

James W. Smallman.
J. J. Rapson.

Inventors:

Joseph Amystage Wade
John Cherry
By their Attorney,
H. H. Hardingham.

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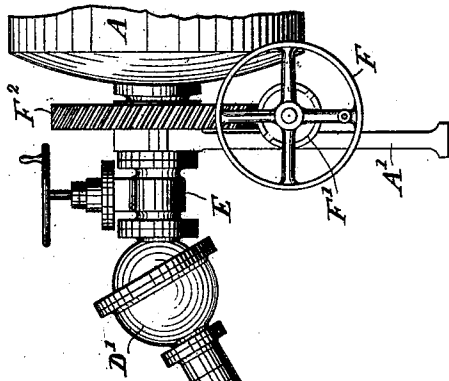


Fig. 2.

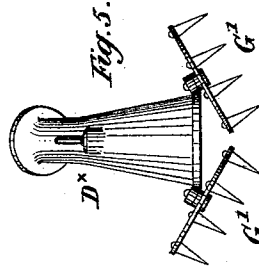


Fig. 5.

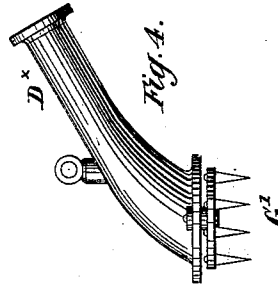


Fig. 4.

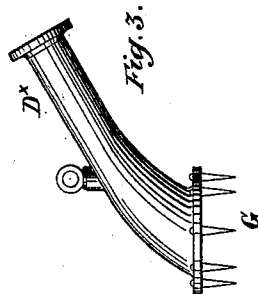


Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH ARMYTAGE WADE AND JOHN CHERRY, OF HORNSEA, ENGLAND.

APPARATUS FOR DREDGING AND PUMPING.

SPECIFICATION forming part of Letters Patent No. 500,445, dated June 27, 1893.

Application filed August 15, 1891. Serial No. 402,792. (No model.) Patented in England September 5, 1890, No. 14,001.

To all whom it may concern:

Be it known that we, JOSEPH ARMYTAGE WADE, timber-merchant, and JOHN CHERRY, mechanical engineer, subjects of the Queen of Great Britain and Ireland, residing at Hornsea, in the East Riding of the county of York, England, have invented new and useful Improvements in Apparatus for Dredging and Pumping on the Suction System, (for which we have obtained Letters Patent of Great Britain, No. 14,001, bearing date September 5, 1890,) of which the following is a specification.

Our invention relates to improved means adapted for use in dredging and pumping; such means operating on the suction system.

The way in which we prefer to carry out our invention is represented in the accompanying drawings, whereof—

Figure 1 is a view partly in side elevation and partly in section, of our improved apparatus; Figs. 2 to 5 being detail views hereinafter more particularly referred to.

We employ a tank A, which may be an air-tight compartment in a barge, lighter or other craft. It is preferably mounted, as shown, to turn on hollow trunnions a and a' working in bearings in the brackets or standards A' . By means of a pump B and engine C, which may be carried in the same vessel, the tank or air-tight compartment A is exhausted and as near an approach to a vacuum as may be created therein. The pump is connected to the trunnion a' of the tank A by a pipe B' furnished with a stuffing-box B^2 . From the tank, a tube D or tubes branch (in the case of a floating dredger over or through the sides or ends of the craft, or through the bottom thereof) into the river, sea or other place to be dredged. The tube D is provided with a ball-and-socket joint D' and with a screw down valve E. A hand-wheel F serves to turn a worm F' , which gears with a worm-wheel F^2 mounted on the trunnions a of the tank. The rotation of the hand-wheel F brings the tank into position for being emptied; that is, with the manhole or cover A^2 downward. The extremity of the tube D descends to, or nearly to, the sand, shingle, débris or other material to be dredged; or, if it be a wreck to be emptied or raised, as nearly as may be to the point to be operated upon. The vacuum created

in the tank A serves to draw the solid matters into it; the action of the air or other pump assisting and maintaining the suction. The trunnion a' to which the pipe B' is connected has an extension a^2 bent upward inside the tank. It reaches nearly to the top of the tank, so as to prevent solid matter or water from being drawn into the pump.

The tank A, instead of being carried by a barge or lighter, may be a tank independent of any such craft.

The invention may also be used to take the place of an ordinary pump; the vacuum-tank being placed in any convenient position.

The tank is emptied through a manhole A^2 , and with the aid of a chute or otherwise as may be found convenient. This manhole may be in any suitable position, but is preferably at the top, as shown.

The suction-pipe D may be furnished with a mouth-piece D^x having a harrow G, plow or drag (see Figs. 2 and 3) for breaking up or loosening the matter to be dredged. Revolving harrows, such as G' (Figs. 4 and 5), may, however, be substituted for the fixed harrow G. Plows or drags (that is, harrows, plows or drags not attached to the suction pipes) may be employed. Or flexible hose or fixed piping may be used, and the appliances for getting hold of the material to be dredged may be fixed on the bottom or sides of the craft, or hung therefrom independently of the tubes.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. The improved means for dredging and pumping on the suction system, the same comprising a tank A mounted on suitable brackets or standards A' , a pump B connected by a pipe B' with the trunnion a' of the tank, a stuffing-box B^2 for making an air-tight joint between the pipe and the trunnion, an extension a^2 of the trunnion reaching nearly to the top of the tank, a manhole, such as A^2 , for enabling the tank to be emptied, and a suction-pipe D reaching from the tank to the matter to be dredged, substantially as herein described.

2. The improved means for dredging and pumping on the suction system, the same com-

prising a tank A adapted to rotate on hollow trunnions a and a' supported in bearings on brackets or standards A' , a pump B connected by a pipe B' with the trunnion a' of the tank, 5 a stuffing-box B^2 for making an air-tight joint between the pipe and the trunnion, an extension a^2 of the trunnion reaching nearly to the top of the tank, a manhole, such as A^2 , for enabling the tank to be emptied, a worm-wheel 10 F secured on the trunnion a , a worm F' gearing with the worm-wheel, a device for effecting the rotation of the worm F' , and a suction-pipe D reaching from the trunnion a to the matter to be dredged, substantially as herein 15 described.

3. The improved means for dredging and pumping on the suction system, the same comprising a tank A adapted to rotate on hollow trunnions a and a' supported in bearings on 20 brackets or standards A' , a pump B connected by a pipe B' with the trunnion a' of the tank, a stuffing-box B^2 for making an air-tight joint between the pipe and the trunnion, an extension a^2 of the trunnion reaching nearly to the 25 top of the tank, a manhole, such as A^2 , for enabling the tank to be emptied, a worm-wheel F secured on the trunnion a , a worm F' gearing with the worm-wheel, a device for effecting the rotation of the worm F' , a valve E at- 30 tached to the trunnion a , a suction-pipe D

reaching from the valve E to the matter to be dredged, and a ball-and-socket joint D between the suction-pipe and the valve, substantially as herein described.

4. The improved means for dredging and 35 pumping on the suction system, the same comprising a tank A adapted to rotate on hollow trunnions a and a' supported in bearings on brackets or standards A' , a pump B connected by a pipe B' with the trunnion a' of the tank, 40 a stuffing-box B^2 for making an air-tight joint between the pipe and the trunnion, an extension a^2 of the trunnion reaching nearly to the top of the tank, a manhole, such as A^2 , for enabling the tank to be emptied, a worm-wheel 45 F secured on the trunnion a , a worm F' gearing with the worm-wheel, a device for effecting the rotation of the worm F' , a valve E attached to the trunnion a , a suction-pipe D reaching from the valve E to the matter to be 50 dredged, a ball-and-socket joint D between the suction-pipe and the valve, and a harrow, such as G, on the end of the suction-pipe, substantially as herein described.

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