

(No Model.)

2 Sheets—Sheet 1.

E. O. PATTERSON.
DRAG FOR SUCTION PIPES.

No. 528,022.

Patented Oct. 23, 1894.

Fig: 1.

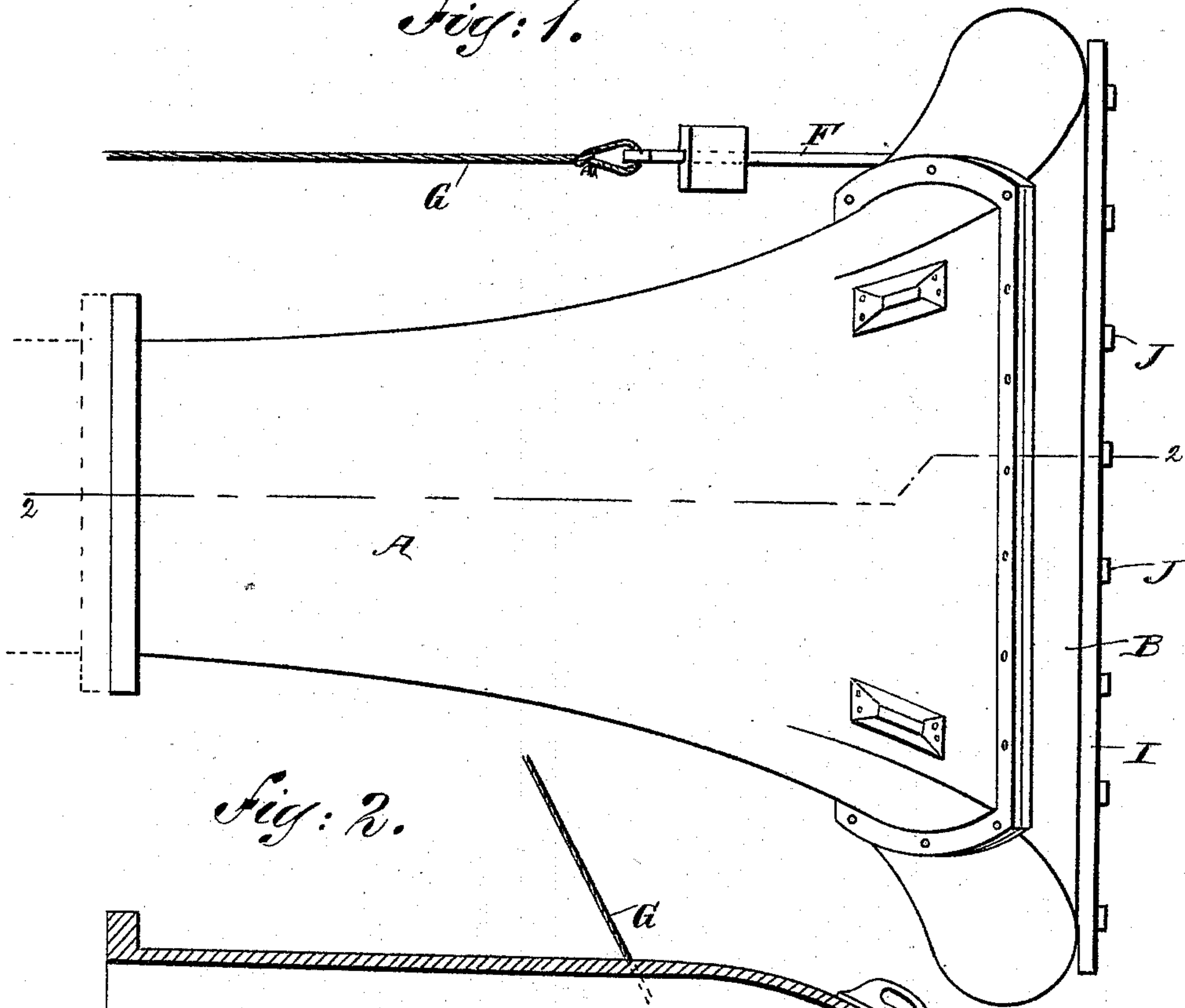
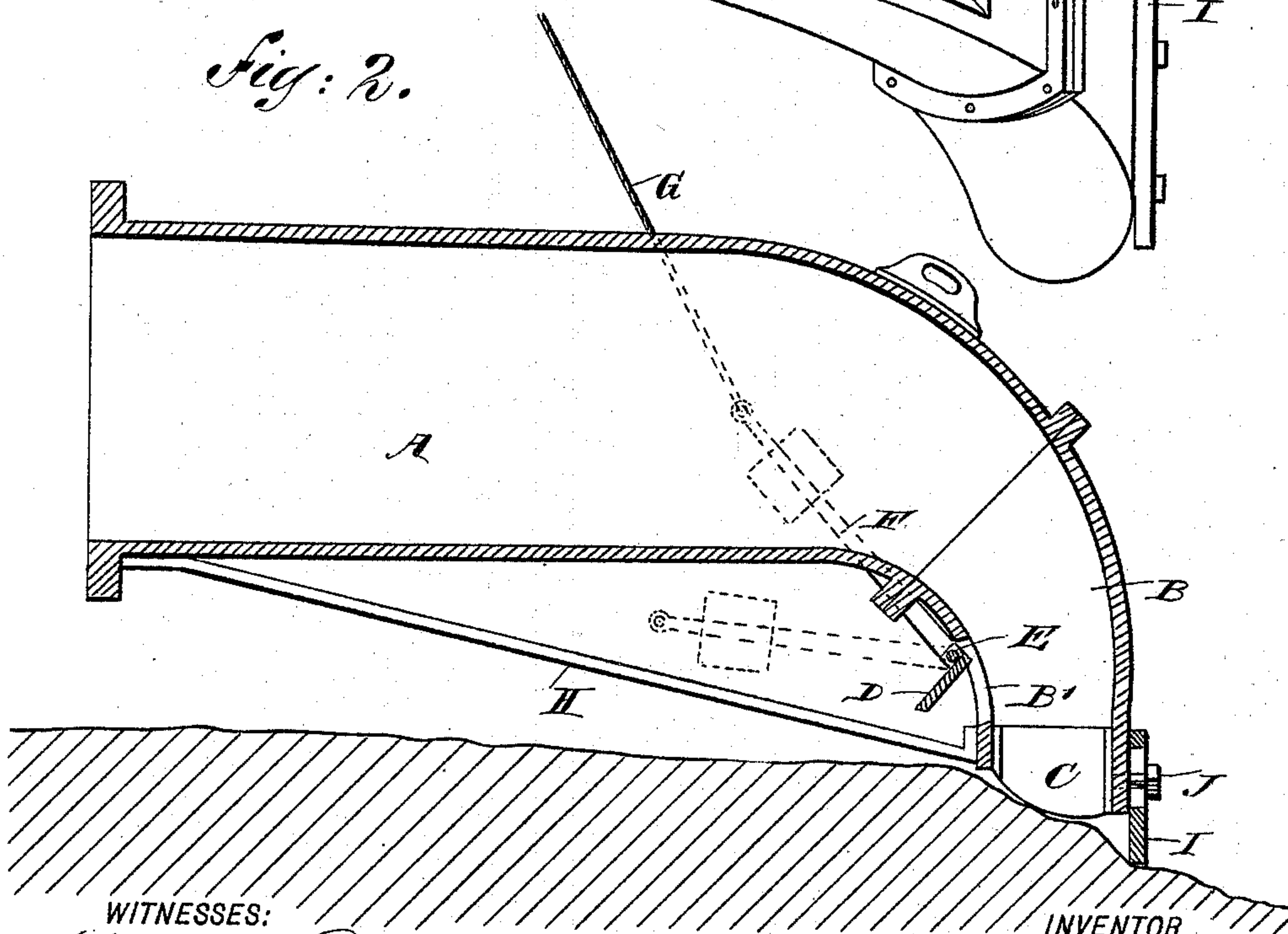


Fig: 2.



WITNESSES:

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Fig: 3.

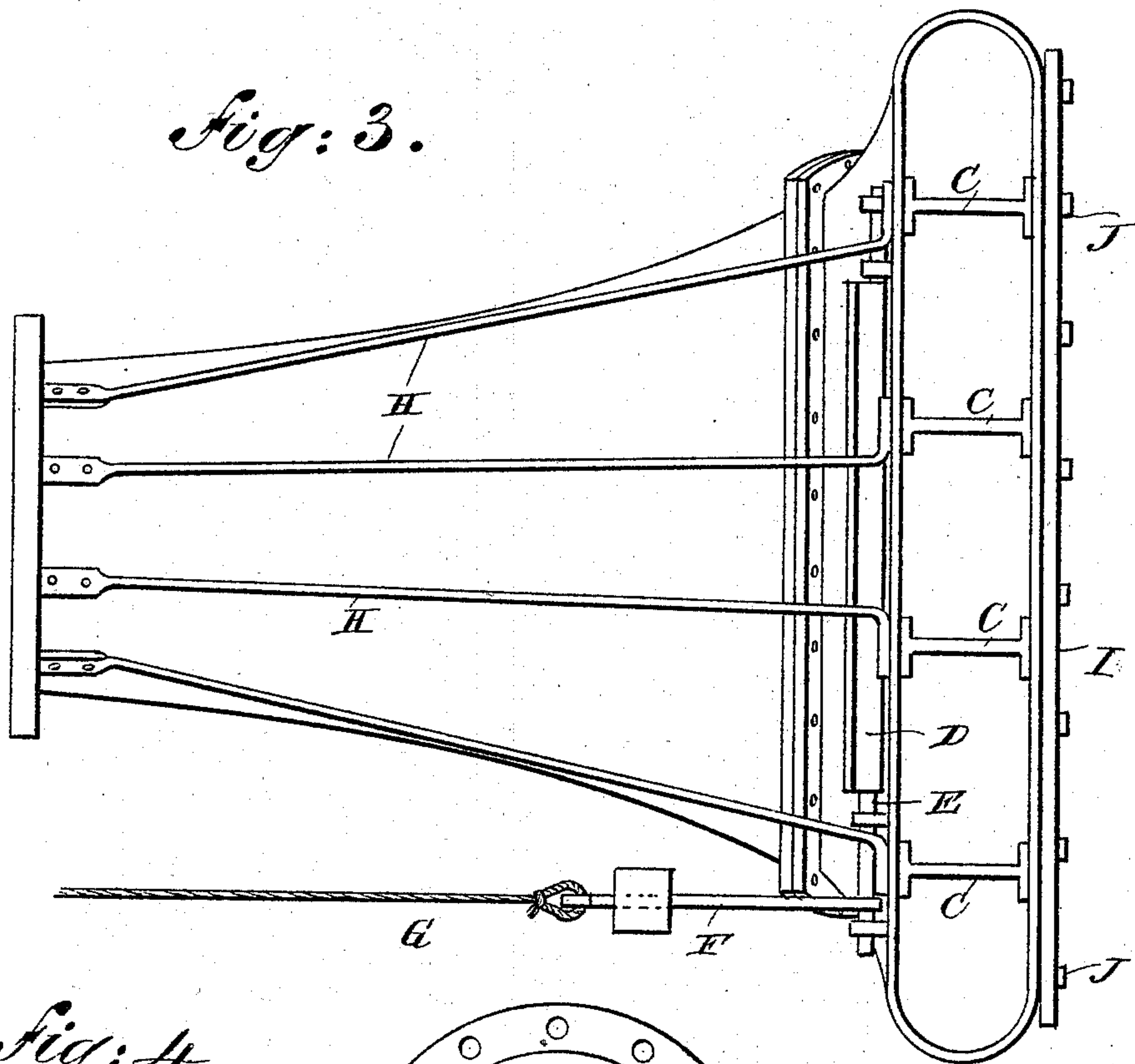
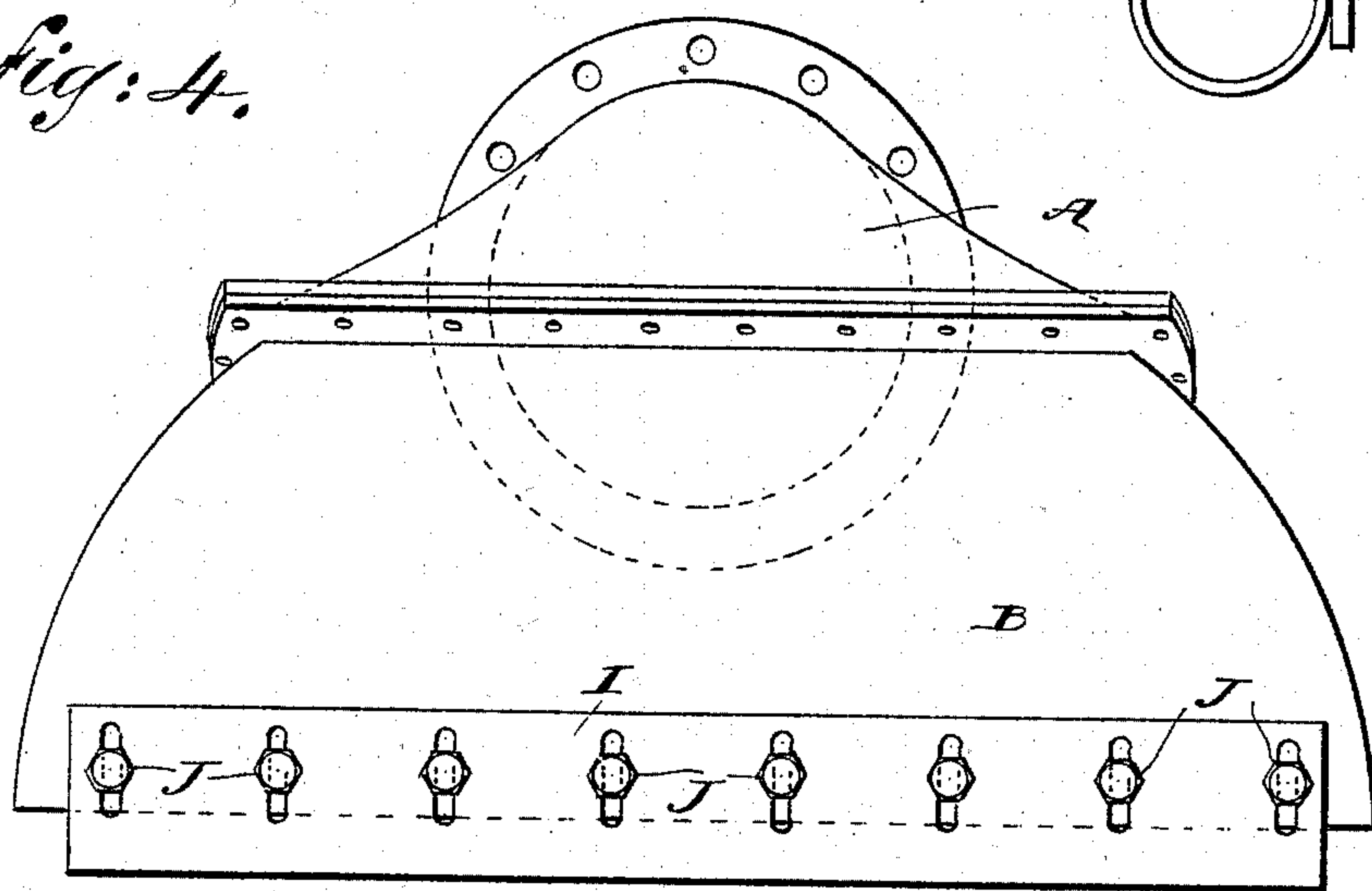


Fig: 4.



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UNITED STATES PATENT OFFICE.

ERNEST OTIS PATTERSON, OF CHARLESTON, SOUTH CAROLINA.

DRAG FOR SUCTION-PIPES.

SPECIFICATION forming part of Letters Patent No. 528,022, dated October 23, 1894.

Application filed May 19, 1894. Serial No. 511,837. (No model.)

To all whom it may concern:

Be it known that I, ERNEST OTIS PATTERSON, of Charleston, in the county of Charleston and State of South Carolina, have invented a new and Improved Drag for Suction-Pipes, of which the following is a full, clear, and exact description.

The invention relates to deep sea dredging apparatus, and its object is to provide certain new and useful improvements in drags for suction pipes, whereby the capacity of the apparatus is considerably increased, and in case of choking, the suction pipe can be readily relieved of surplus material.

The invention consists in certain parts and details, and combinations of the same, as will be hereinafter fully described and then pointed out in the claims.

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

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same, on the line 2—2 of Fig. 1. Fig. 3 is an inverted plan view of the improvement; and Fig. 4 is an end view of the improvement.

The improved drag is provided with the body A, adapted to be secured on a suction pipe, and carrying at its lower end a mouth B, having an inlet contracted in height but increased in width, as plainly illustrated in Fig. 1. The mouth B is strengthened at its front end by vertically disposed stays C, preferably made of channel iron, as indicated in Fig. 3. In the front of the mouth B is formed an opening B', adapted to be closed by a water supply valve D, secured on a shaft E journaled in suitable bearings attached to the outside of the mouth B, as shown in Fig. 3. On one outer end of the shaft E is held a weighted lever F, connected at its free end with a rope G extending upward to the dredging boat containing the pumping machinery for the suction pipe.

Ordinarily the valve D is closed, but when a large amount of sand or other solid material fills the mouth then this material cuts off the supply of water necessary for properly sucking up the sand by the pump. Now when the mouth thus becomes choked, the operator in the dredging boat pulls the rope G to open the valve D so as to permit water to be drawn into the mouth by the suction action of the pump, to cut up the choking ma-

terial and to properly flow the same through the suction pipe to be discharged by the pump in the usual manner. When a proper flow of the material is again obtained, the operator releases the rope to permit the valve D to close automatically by the action of the weighted lever F. The mouth B is connected by stays H with the end of the body, to strengthen the drag and to form a shield for the valve.

By the arrangement described, the suction pipe need not be pulled up in case of choking, as is the case with drags now used.

The scraper I is held vertically adjustable by bolts J on the back of the mouth of the drag, see Figs. 2 and 4, so that the said scraper can be readily set high or low, to loosen or cut more or less material according to the nature of the material to be treated. Thus in dredging soft material the scraper is set low to permit a large amount of sand to flow into the mouth at each stroke of the pump, while for harder material the scraper is set high to reduce the inflow of material at each stroke of the pump, to prevent too much water from passing into the suction pipe instead of the material to be removed.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A drag for suction pipes, comprising a body provided with a downwardly curved mouth having an opening in its front side near the lower end thereof, a shaft mounted in bearings on the front side of the mouth, a valve on the shaft for closing the opening in the mouth, and a weighted lever on one end of the said shaft and with which a rope is adapted to be connected, substantially as and for the purpose set forth.

2. A drag for suction pipes, comprising a body provided with a downwardly curved mouth having an opening in its front side, a valve for closing the said opening, and a shield secured to the body and to the lower front end of the mouth below the valve, substantially as described.

3. In a drag for suction pipes, the combination with the mouth, of a scraper vertically adjustable on the mouth, substantially as described.

ERNEST OTIS PATTERSON.

Witnesses:

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O. C. RODE.