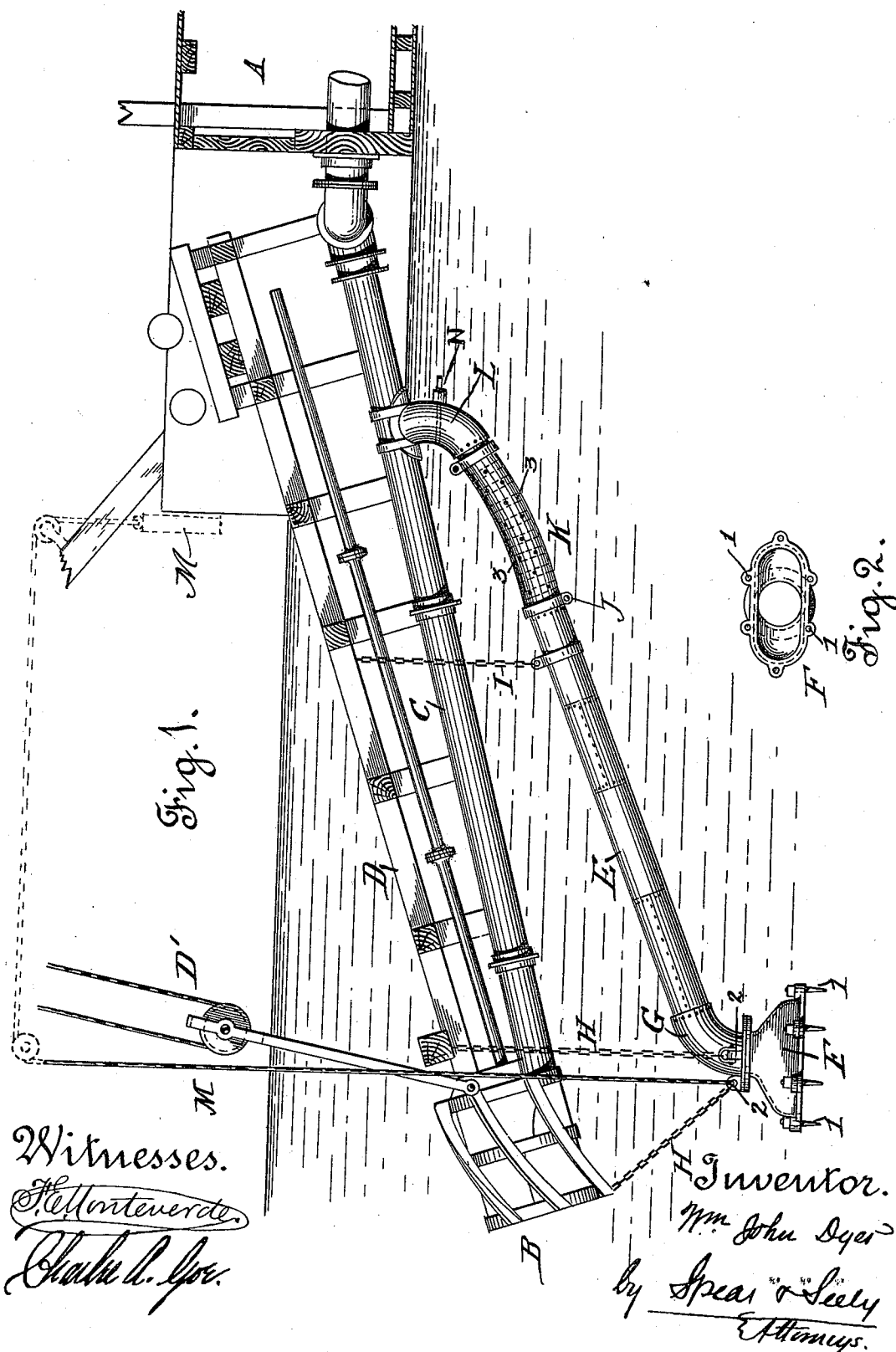


(No Model.)

W. J. DYER.
SUCTION PIPE FOR DREDGERS.

No. 510,591.

Patented Dec. 12, 1893.



UNITED STATES PATENT OFFICE.

WILLIAM JOHN DYER, OF HONOLULU, HAWAII, ASSIGNOR TO THE RISDON
IRON AND LOCOMOTIVE WORKS, OF SAN FRANCISCO, CALIFORNIA.

SUCTION-PIPE FOR DREDGERS.

SPECIFICATION forming part of Letters Patent No. 510,591, dated December 12, 1893.

Application filed September 21, 1892. Serial No. 446,370. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JOHN DYER, a citizen of the United States, residing at Honolulu, in the Island of Oahu, Hawaii, have invented certain new and useful Improvements in Suction-Pipes for Dredgers; and I do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide a suction-pipe for hydraulic dredging machines to be used when such dredgers are required to work in rough water, or in a sea way where the dredger is subject to a pitching or rolling motion from the action of the waves or swell. It is well known that dredgers of this character when employed in coast and harbor work are frequently compelled to lie idle on account of rough water, the effect of which is to constantly displace the cutter and suction mouth from the material being dredged, rendering it impossible to do effective work. My improved suction-pipe may be used either as an auxiliary to the ordinary suction-pipe, when the latter cannot be used, or may be substituted for it; it being so constructed that it is really more effective in rough water than in smooth.

My invention consists of an auxiliary suction pipe suspended from the main suction pipe and having a flexible section.

It consists further in a suction-pipe having such a flexible section and provided at its lower end with a mouth piece, having downwardly projecting prongs for stirring up the material.

It consists further in novel means for suspending and sustaining the pipe, and finally in various details of construction, all fully hereinafter explained, and all shown in the accompanying drawings, in which—

Figure 1, is a side elevation of a portion of a dredger, provided with the ordinary cutter and suction-pipe, my improvements being shown as auxiliary thereto. Fig. 2, is a bottom view of the mouth piece of my suction-pipe.

A represents a part of the hull of a dredger, and B, C, D, and D', respectively, the cutter,

suction-pipe, framing of ladder and adjusting tackle of the ordinary kind. The existing style and construction of suction-pipe and cutter are found to do satisfactory work in smooth water, but, when in operation in a sea-way or other swell, with a continuous rise and fall of the dredgerscows this arrangement is useless for the purpose intended, as the cutter is in the material to be dredged only for a moment as it falls and then rises. To obviate this continual rise and fall and to arrange a suction-pipe that will remain upon the bottom with any ordinary motion of the dredger, I have constructed the suction-pipe E. The mouth piece F, has an oblong opening 1, of the same sectional area as the pipe, and the lower edge or periphery of the mouth piece is fitted with a suitable number of teeth projecting downwardly so as to agitate the material being dredged. The elbow G of the mouth piece is provided with lugs 2, to which are secured the bridle chains H, by which the pipe E is suspended from the main suction-pipe, or its framing as shown. The main portion of the pipe E is a light tube of steel or iron and has near its upper end an additional suspension chain I.

Connected to the suction-pipe by a clamp J, is the flexible section or hose K, which is a rubber tube strengthened internally by bands or rings 3, placed a sufficient distance apart and riveted or bolted to the rubber. The upper end of this hose is clamped to the elbow L, which in turn is secured to and opens into the ordinary suction-pipe, as shown.

I have not shown in the drawings any pumps or other apparatus either for raising or discharging dredging material as they are unnecessary to a full comprehension of my present invention.

M indicates a line connected to the suction-pipe and passing (as over a derrick) to the scow. The end of this line on board, properly weighted, serves as an automatic indicator to show at all times the position of the mouth piece relatively to the bottom.

I have shown at N in Fig. 1, a cut off valve in the auxiliary suction pipe to prevent either

water or air from being pumped through said pipe when the main suction pipe is at work and the auxiliary pipe idle.

Having described my invention, what I claim is—

1. The combination with the main suction-pipe of a dredger, of an auxiliary suction-pipe suspended therefrom and having a flexible part or section, substantially as set forth.
2. The combination with the main suction-pipe of a dredger, of an auxiliary suction-pipe suspended therefrom, and having a flexible part or section provided with an inlet mouth-piece, and having its discharge end connected to the main suction-pipe, substantially as set forth.
3. The combination with the main suction-

pipe of a dredger of an auxiliary suction pipe having a flexible part or section and having a mouth-piece provided with projecting teeth, substantially as and for the purpose set forth.

4. In combination with the flexibly connected suction pipe of a dredger and a weighted line M extending from the lower end of said pipe to serve as an indicator, substantially as described.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 16th day of August, 1892.

WILLIAM JOHN DYER.

Witnesses:

C. H. ELDREDGE,
THOS. S. DOUGLAS.