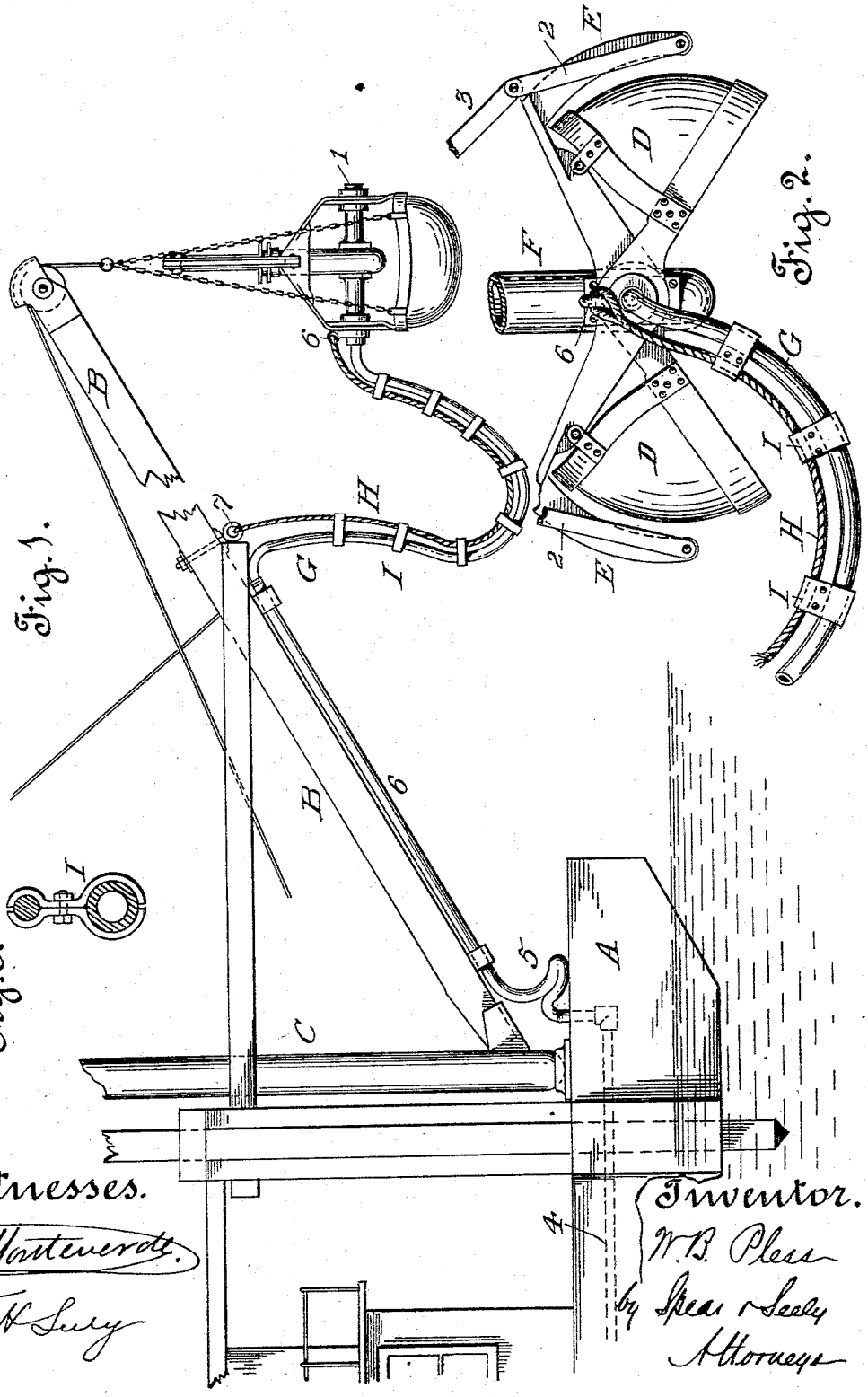
(No Model.)

W. B. PLESS.

HOSE GUARD FOR DREDGERS.

No. 533,741. Patented Feb. 5, 1895.



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UNITED STATES PATENT OFFICE.

WILLIAM B. PLESS, OF STOCKTON, CALIFORNIA, ASSIGNOR TO THE PLESS DREDGING AND RECLAMATION COMPANY.

HOSE-GUARD FOR DREDGERS.

SPECIFICATION forming part of Letters Patent No. 533,741, dated February 5, 1895.

Application filed May 2, 1894. Serial No. 509,795. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. PLESS, a citizen of the United States, residing at Stockton, in the county of San Joaquin and State of California, have invented certain new and useful Improvements in Hose-Guards for Dredgers; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to dredgers, but more particularly to a dredger of the kind shown in an application for patent filed by me January 2, 1894, Serial No. 495,338. In this machine, the bucket is shown as closed by means of a power cylinder, the plunger of which is connected to the levers by which the jaws of the bucket are closed. In order to convey the motive power (whether water or air or steam) from the generator upon the dredger, it is necessary to make a portion of the conveying pipes of a flexible character. This is obvious from the fact that the bucket is suspended from the end of a swinging boom, which gives it a lateral motion to the point of discharging the load, and in returning to the dredging point, while the bucket itself has an independent movement caused by hoisting it from and lowering it to the place of excavation. All these independent movements require some kind of flexible connection in the conveying pipe from the air compressor or the force pump, or other generator of the power required in closing the jaws of the bucket. I prefer to use for this purpose, and showed in the application referred to, a length of flexible hose or tubing which may extend from the bucket to any point on the deck of the scow, or if preferred, to some point upon the boom, where it is connected to a rigid pipe passing up the boom from the scow to a convenient height.

The object of the present invention is to insure the safety of this hose from strains which one of the movements of the boom or bucket before mentioned might bring upon it.

A hose of the flexible nature described could by itself withstand very little strain produced by the motion of heavy and powerful machinery of the kind in question; and the present invention therefore consists in providing the hose with a flexible guard, which moves freely with it without interference, but which would receive it in the first place and withstand any strains which would otherwise come upon the hose alone.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of such parts of a dredger as are necessary to a full comprehension of my invention. Fig. 2 is an elevation of the bucket opened. Fig. 3 is a cross section of the hose and guard.

A represents the hull or scow of a dredger and B the swinging boom, which is shown in this case as attached to a rotary mast C. The boom, however, so far as the present invention is concerned, might be pivoted to the deck of the scow. The bucket is composed of two sections or jaws D D hinged upon a common shaft 1, and having lever arms E E. These arms are connected to the plunger of the cylinder F by chains or by links 2, 3 as shown. The upward movement of the plunger in its cylinder closes the jaws of the bucket when the latter is taking its load. The plunger is acted upon by power transmitted from the dredge boat, such as a stream of water, forced by a pump through the pipe 4, the flexible connection 5, and the pipe 6, to the hose G. The stream flows through the hose, and enters the shaft 1 of the bucket, which communicates with the power cylinder, as described and shown in my application referred to. It must be understood, however, that it is not essential to carry a rigid pipe 6 up the boom, although this is a convenient arrangement. The hose G might extend continuously to the deck, and there join the flexible section 5, forming one flexible hose. The construction shown is the one I prefer to use. However constructed, the hose admits water or other motive power from a supply on the hull to the power cylinder connected to the bucket; and at the same time allows the boom to swing and the bucket to open and close, to be hoisted and lowered without in any manner interfering with these various operations. In order, however, that no unusual strain caused by any of the operative motions of the boom or bucket shall be brought to bear upon the hose, I provide the flexible guard H. This guard may be a chain, but I prefer to use a

strong wire cable. One end of the cable is connected at 6 to the bucket near the joint between the hose and bucket shaft. The other end is secured to the dredge near the other end of the hose. In the present case, the cable is connected to the boom at 7. The intermediate part of the cable follows the hose, and, by means of double clamps I or other suitable devices is connected to it throughout its full length, swings with it, and practically becomes a part of it. The cable is made a little shorter than the hose, and hence any strain that would come upon the hose alone and tend to break it, will first be transmitted to the cable, which has strength enough to resist any such strain, and thus saves the hose.

I thus render the use of a flexible hose for conveying power to a dredge bucket, perfectly secure and practicable, and avoid accidents from extraordinary or erratic motions of the boom or bucket, which cannot always be guarded against and which would probably bring strain enough upon the hose to break it.

What I claim is—

1. In combination with the swinging boom of a dredge, and its suspended bucket, a power cylinder for operating the jaws of the bucket, a flexible hose connected to the cylinder, and a guard chain or cable secured so as to follow the general direction of the hose.

2. In combination with the swinging boom of a dredge and the suspended bucket, a power cylinder for operating the jaws of the bucket, a flexible hose connected to the bucket and to a source of power on the dredge, and a guard chain or cable secured at or near the points of attachment for such hose, substantially as set forth.

3. In combination with the boom and bucket of a dredger, a flexible hose connected to a source of power on the dredge hull, a power cylinder connected to the bucket for operating the same, and a cable or chain attached at intervals to the hose and moving with it, substantially as set forth.

4. In a dredger having a swinging boom, a suspended bucket and a power cylinder for operating the jaws of the bucket, a hose for conveying power such as water to the cylinder, in combination with a shorter cable following the general direction of the hose, and secured at its ends, near the points of attachment of the hose, substantially as set forth.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 12th day of April, 1894.

WILLIAM B. PLESS.

Witnesses:
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