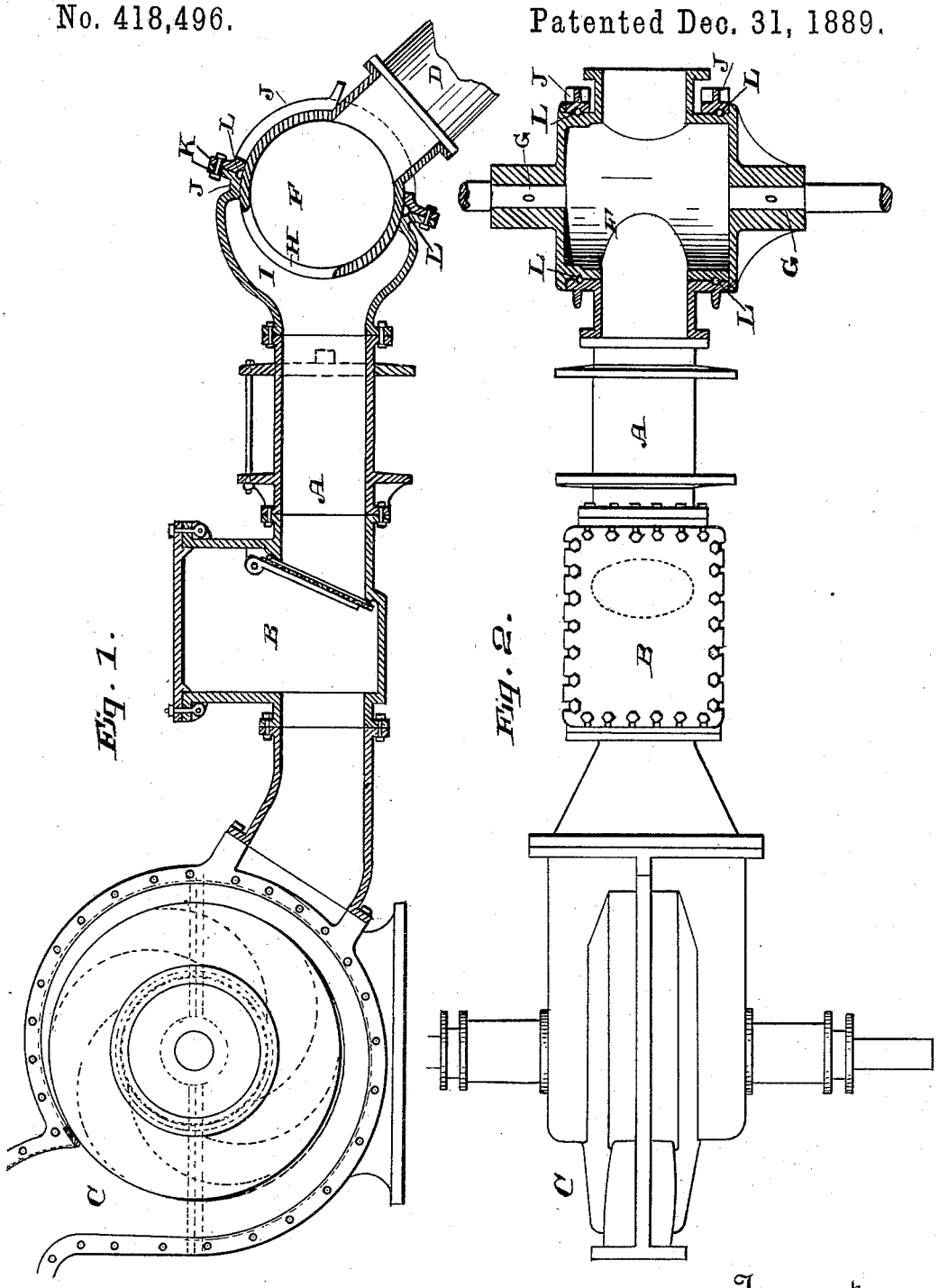
(No Model.) 2 Sheets—Sheet 1.

J. W. BROWN.

SUCTION DREDGE.

No. 418,496. Patented Dec. 31, 1889.



Witnesses,
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J. H. Howe

Inventor,
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(No Model.) 2 Sheets—Sheet 2.

J. W. BROWN.

SUCTION DREDGE.

No. 418,496. Patented Dec. 31, 1889.

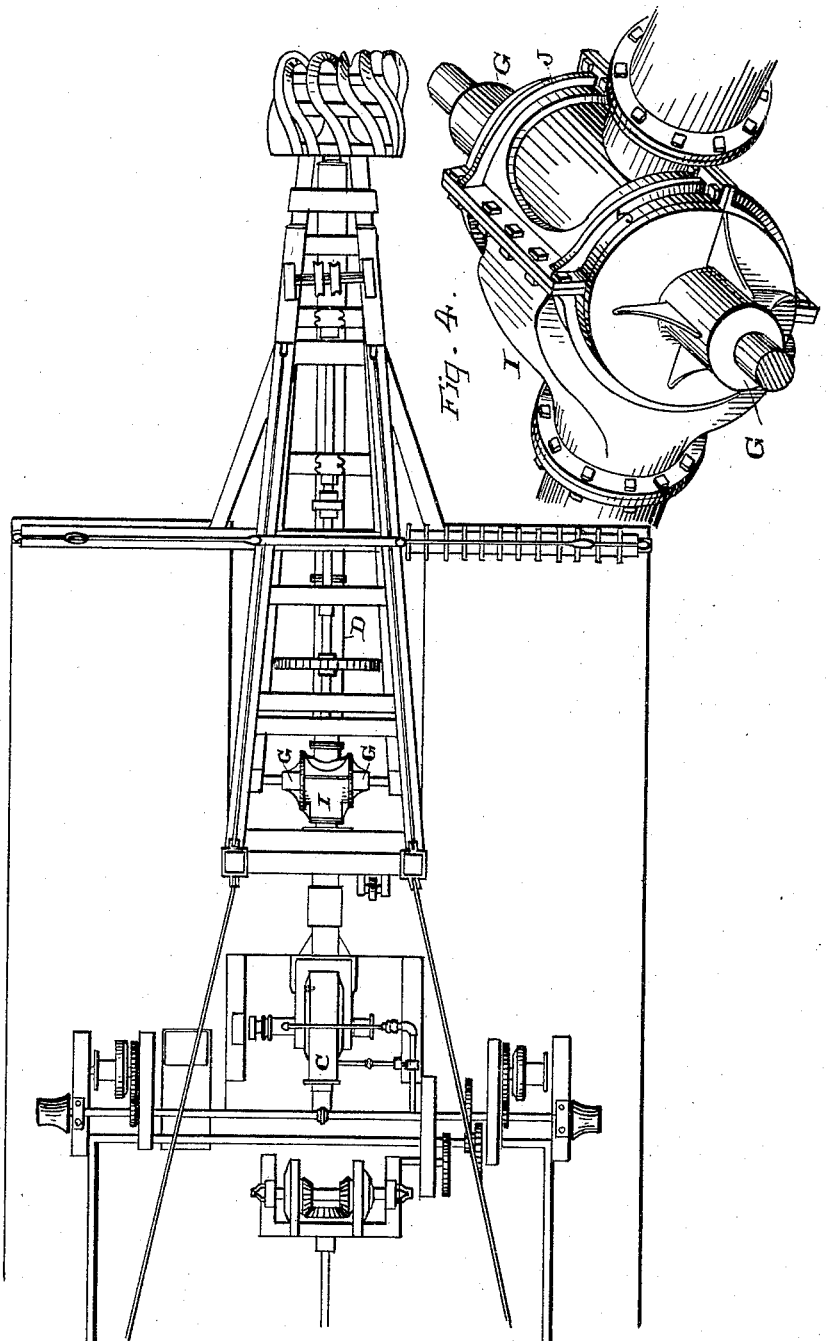

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN W. BROWN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE GOLDEN STATE AND MINERS IRON WORKS, OF SAME PLACE.

SUCTION-DREDGE.

SPECIFICATION forming part of Letters Patent No. 418,496, dated December 31, 1889.

Application filed May 9, 1889. Serial No. 310,161. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. BROWN, of the city and county of San Francisco, State of California, have invented an Improvement in Suction-Dredges; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in suction-dredges; and it consists of an improved construction of what is termed the "ladder-joint," at which point the vertically-movable suction-pipe is connected with the stationary portion of the pipe which is fixed upon the scow.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical section taken through the joint and a portion of the pipe, showing also the centrifugal pump. Fig. 2 is a top view of the same and horizontal section of the joint. Fig. 3 is a plan view of part of the dredging apparatus. Fig. 4 is a perspective view of the joint.

A is a section of the stationary conveying-pipe, which is suitably and permanently fixed upon the dredge boat or scow, and connects through the valve-chamber B with an exhaust or suction pump C.

D is the upper section of the movable portion of the suction-pipe, which pipe connects at the lower end with the digging or excavating device, and F is a cylindrical portion which connects with and forms the upper end of this movable section. The cylinder lies transversely, and its ends form trunnions, as shown at G, about which the ladder or frame supporting the pipe and the digging apparatus may turn as they are raised or depressed, and it also forms the center about which the movable joint in the pipe turns. The rear portion of the cylinder-head F is cut away, as shown at H, and opens into the enlarged chamber I, which forms the end of the stationary conveyer A upon the boat. This enlarged chamber extends far enough around the cylinder-head F to allow the opening H in the rear of this head to discharge into the chamber when the movable section has been either raised or depressed to its greatest extent, as plainly shown in Fig. 1.

In order to firmly connect the head F and the chambered section I, I employ the cylindrical clamps J, having flanges K, through which bolts pass to secure them firmly to the front of the chambered section I. These clamps are cut away so as to form a semi-circular opening toward the front, within which the movable pipe-section may be raised and depressed freely, and the clamps extend upon each side of this pipe-section, as shown in the plan view, Fig. 3, and have flanges K, through which they are bolted together on each side of the movable pipe-section which extends out between them.

In order to make a tight-joint, grooves or channels are turned around the cylindrical head F, and correspondingly in the interior of the stationary chambered section I, to receive a packing, as shown at L, which makes a tight joint and prevents any leaking at that point. By this construction I greatly simplify the joint connecting the movable and stationary sections of the suction-pipe, and also the journals or trunnions, about which the movable portions are raised or depressed.

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

1. In a dredge, the stationary portion of the suction-pipe fixed to the boat, a movable section connected with a digging apparatus and supported upon a ladder or frame so as to have a vertical movement about horizontally-disposed trunnions at the front of the boat, in combination with a cylindrical head forming a part of the movable section and having its axis in line with the trunnions, and the chambered stationary section forming the end of the stationary pipe and partially surrounding the cylindrical head, the cylindrical clamps having the flanges cut away to form a semi-cylindrical opening of the chambered section, substantially as and for the purpose herein described.

2. In a dredger, the suction-pipe having a stationary portion fixed to the boat, a movable section connected with a digging apparatus and supported upon a ladder or frame, so as to have a vertical movement about horizontally-disposed trunnions at the front of

the boat, in combination with a cylindrical head forming a part of the movable section, with its axis in line with the trunnions, and the chambered stationary section forming the end of the stationary pipe and partially surrounding the cylindrical head, a packing fitted between these movable parts, the cylindrical clamps cut away so as to form a semicircular opening through which the movable section of the pipe passes, and having flanges whereby they may be bolted to the front of the chambered section, substantially as described.

In witness whereof I have hereunto set my hand.

JOHN W. BROWN.

Witnesses:
ISRAEL W. KNOX,
W. E. PALMER.