

No. 704,231.

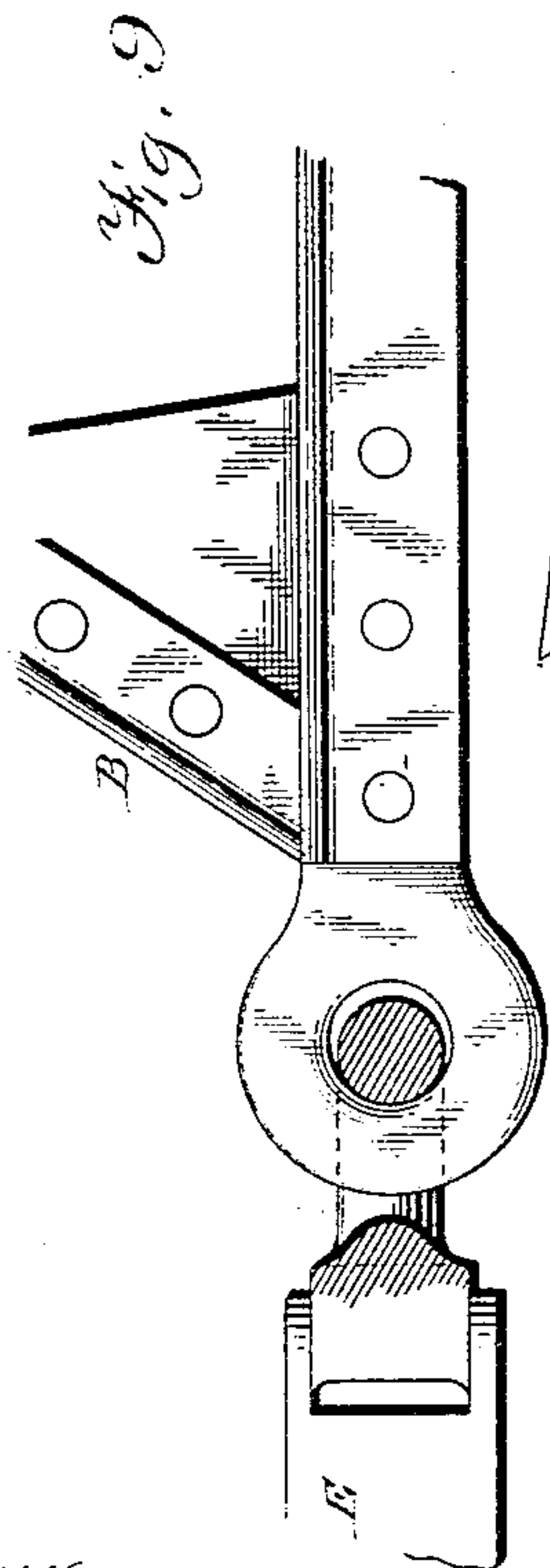
Patented July 8, 1902.

L. W. BATES.
HYDRAULIC DREDGE.

(Application filed July 19, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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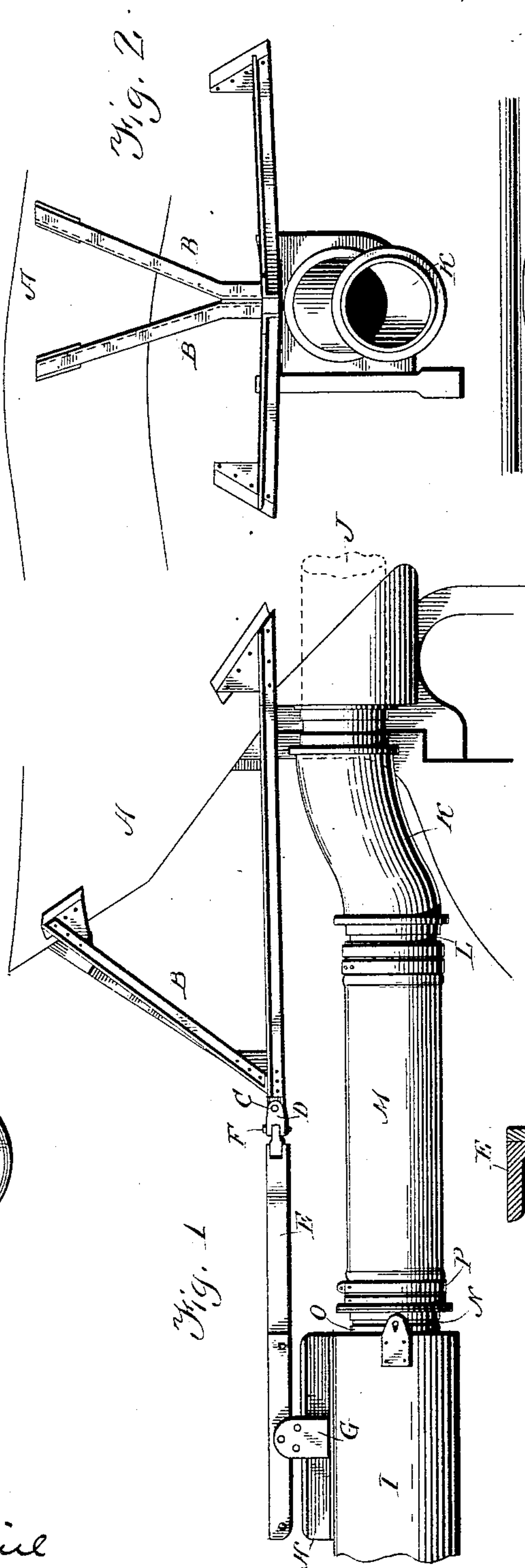


Fig. 1

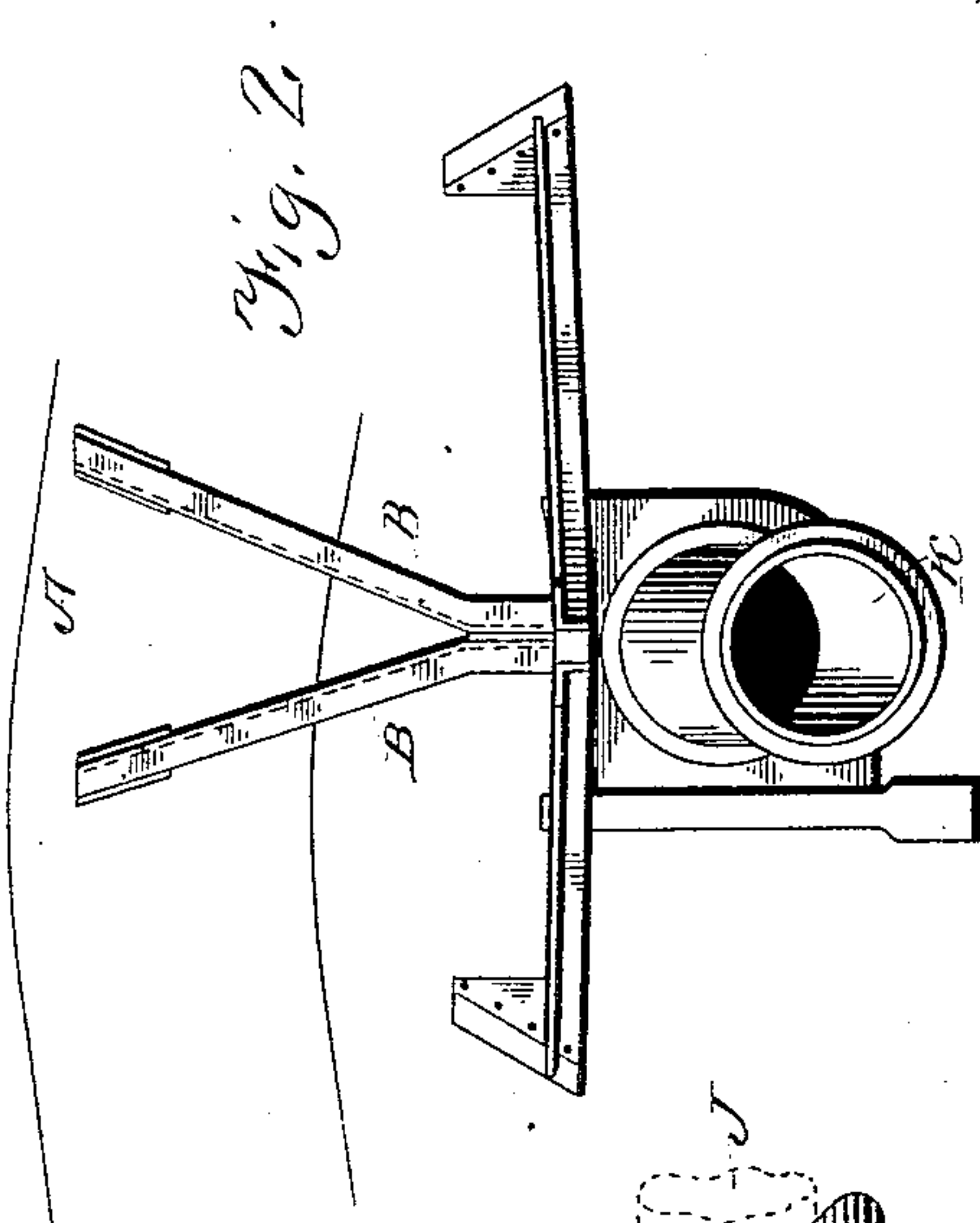


Fig. 2

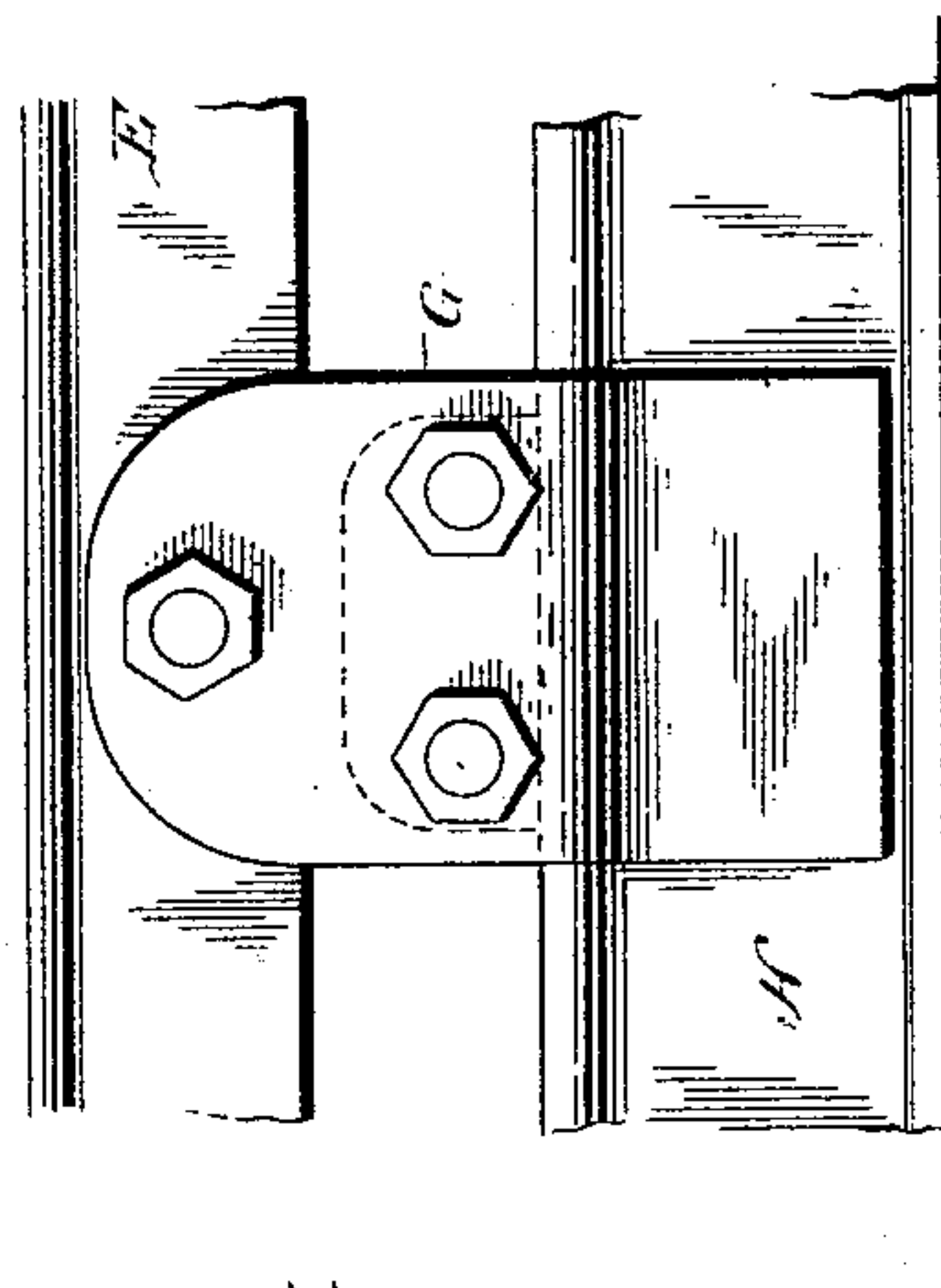


Fig. 4

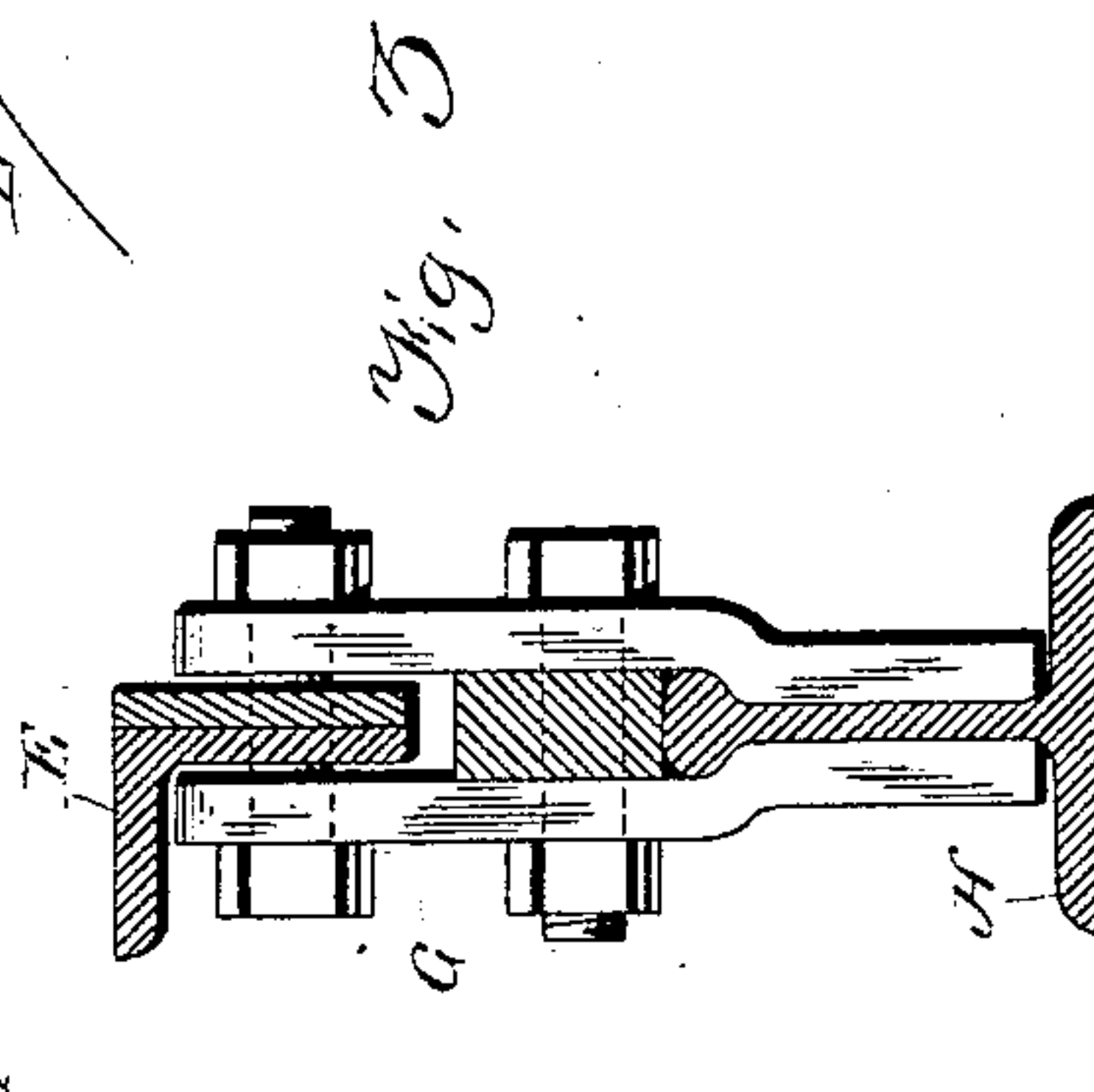


Fig. 5

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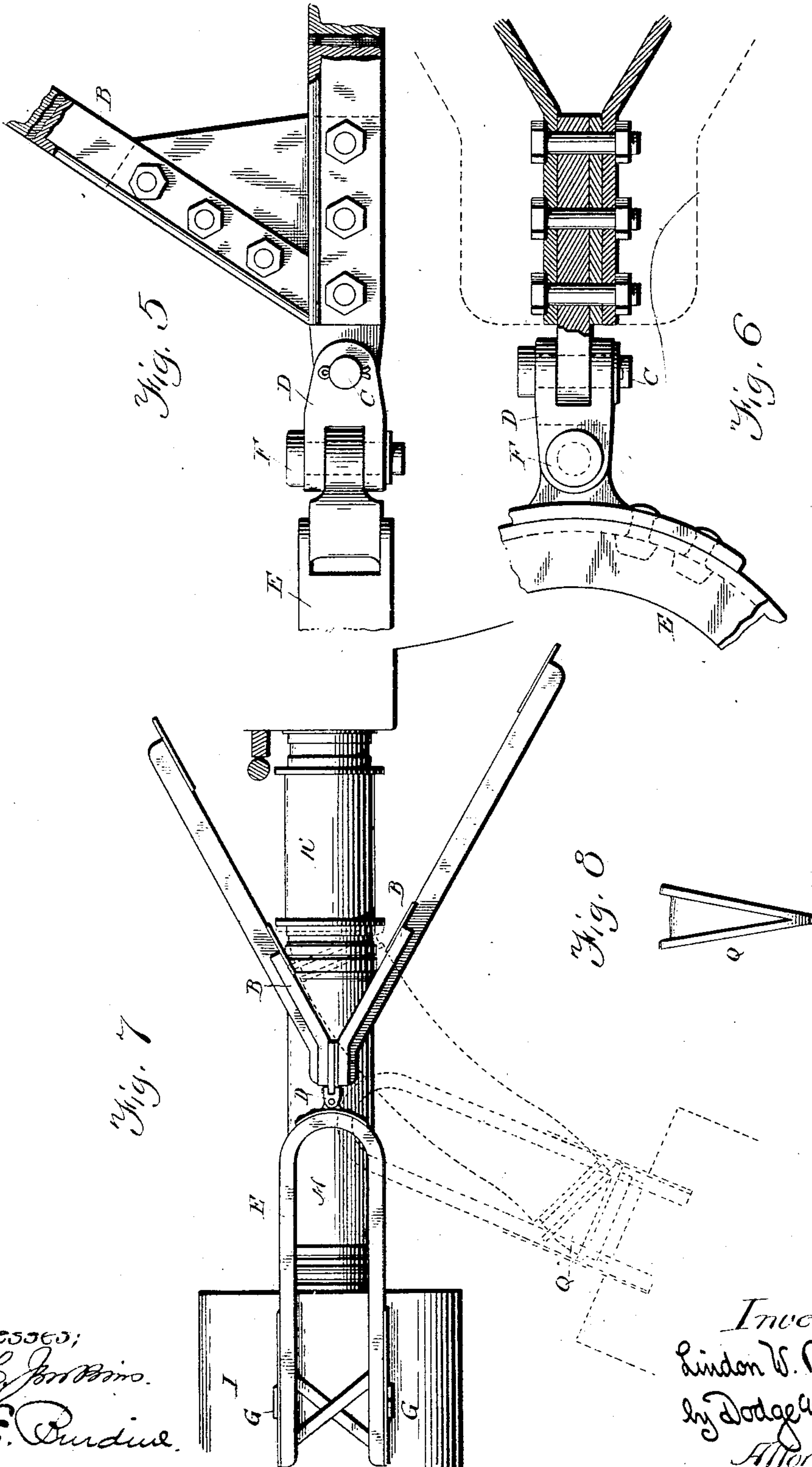
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

LINDON WALLACE BATES, OF CHICAGO, ILLINOIS.

HYDRAULIC DREDGE.

SPECIFICATION forming part of Letters Patent No. 704,231, dated July 8, 1902.

Application filed July 19, 1900. Serial No. 24,251. (No model.)

To all whom it may concern:

Be it known that I, LINDON WALLACE BATES, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydraulic Dredges, of which the following is a specification.

My present invention relates to improvements in hydraulic dredges, the construction and advantages of which will be hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of so much of a dredge as is necessary to a clear understanding of my invention; Fig. 2, a rear elevation of the same, the pontoon-section being omitted; Figs. 3 and 4, details of construction; Fig. 5, a side elevation of the connection between the strut or brace extending out from the hull of the vessel and the bracket pivoted to the pontoon; Fig. 6, a top plan view of the same; Fig. 7, a top plan view showing a modified form of construction; Fig. 8, a detail thereof, and Fig. 9 an alternative construction of connection intermediate the strut or brace and the frame.

The object of the invention is to connect the discharge-pipe at the stern of the dredge with the first length of floating discharge-pipe in such a manner as to allow the greatest freedom of movement either vertically, in consequence of the varying draft of the dredge, or horizontally when the dredge is working radially, and at the same time to preserve the length of rubber hose which forms the connection from undue strains, and more particularly from being compressed or squeezed up by the movements of the floating discharge or of the dredge. This is accomplished by means of the construction shown in the accompanying drawings.

In said drawings, referring more particularly to Figs. 1 to 6, inclusive, A represents the stern of the dredge, secured to and extending from which is a strut or brace B, having pivotally connected to its outer end by a horizontally-disposed pin or bolt C a coupling D. To said coupling there is pivotally secured a frame E, the coupling-pin F in this instance being vertically disposed, so that a universal coupling is formed between the

strut or brace and the frame. Said brace is in turn pivotally connected to brackets G, adjustably secured to rods or bars H, attached to the upper face of the first section of the pontoon I. The discharge-tube J, passing through the stern of the dredge, has bolted to it a bend K, provided with a ferrule L for taking one end of the rubber-hose-connecting piece M. The other end of the hose is passed over a similar ferrule N, attached to the first length of floating discharge-pipe O, carried in the pontoon I. The rubber hose is tightened on the ferrules by means of suitable steel bands P and may, if desired, be protected with an armor made of wire, wire rope, and other flexible and resisting material.

From the construction thus far described it will be noted that the relative position of the dredge and the first discharge-pontoon is so controlled that all buckling or squeezing up of the flexible section M is prevented, while at the same time perfect freedom of movement, both in a horizontal and in a vertical plane or in any direction between the two, may be secured. It is also manifest that the construction described prevents any pulling or outward strain being placed upon the flexible rubber section. Different lengths of the flexible connection may be accommodated by changing the pivotal connection of the brackets G with the frame E and also by shifting the brackets G along the rails H. It is clear that under no conditions can the pontoon-section approach the stern of the boat, which under constructions now in general use can and does take place, much to the detriment of the interposed section.

In Fig. 9 is illustrated a modified form of connection between the strut or brace B and the frame E, comprising simply two eyes passing through each other.

Where a very great angle between the axis of the ship and the axis of the first pontoon becomes necessary, the resultant strain on the interposed rubber connection may be kept within the limits imposed by the material by inserting short wedge-shaped bends Q (shown in dotted lines in Fig. 7 and in full lines in Fig. 8) between the two ends of the discharge-pipe and the respective ferrules.

The effect of this is to reduce the curvature of the rubber, as will be readily appreciated upon reference to Fig. 7.

Having thus described my invention, what I claim is—

1. In combination with the discharge-pipe of a dredge, a pontoon; a discharge-pipe carried by said pontoon; a flexible connection intermediate said pipes; and an adjustable universal connection intermediate the dredge and the pontoon independent of the flexible connection between the pipes.
2. In combination with the discharge-pipe of a dredge, a pontoon; a discharge-pipe carried thereby; a flexible connection intermediate the discharge-pipe and the pipe carried by the pontoon; a brace or strut connected to the rear of the dredge; a frame universally connected to said brace; and pivotal connections intermediate the frame and the pontoon.
3. In combination with the discharge-pipe of a dredge; a pontoon; a discharge-pipe carried thereby; a flexible pipe intermediate the discharge-pipe and the pipe on the pontoon; a strut or brace rigidly attached to the rear of the dredge; a frame universally jointed to the rear end of said strut or brace; and adjustable pivotal connections between said frame and the pontoon.
4. In combination with the discharge-pipe

of a dredge, a pontoon; a pipe carried thereby; a flexible pipe connecting said discharge-pipe and the pipe on the pontoon; a strut or brace extending out from the rear of the dredge; a frame universally connected to the rear end of said strut or brace; rails secured to the pontoon; brackets adjustably mounted upon said rails; and pivotal connections intermediate said bracket and the frame.

5. In combination with the discharge-pipe of a dredge; a pontoon; a pipe carried thereby; wedge-shaped sections connected to the end of the discharge-pipe and the pipe carried by the pontoon; and a flexible pipe connecting said wedge-shaped sections.

6. In combination with the discharge-pipe of a dredge; a pontoon; a pipe carried thereby; wedge-shaped sections connected to the end of the discharge-pipe and the pipe carried by the pontoon; a flexible pipe connecting said wedge-shaped sections; and means for holding the pontoon in its proper position relative to the dredge.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LINDON WALLACE BATES,

Witnesses:

PERCY E. MATTOCKS,
EDMUND S. SNEWIN.