

J. CANAN.
HYDRAULIC LIFT.

No. 177,372.

Patented May 16, 1876.

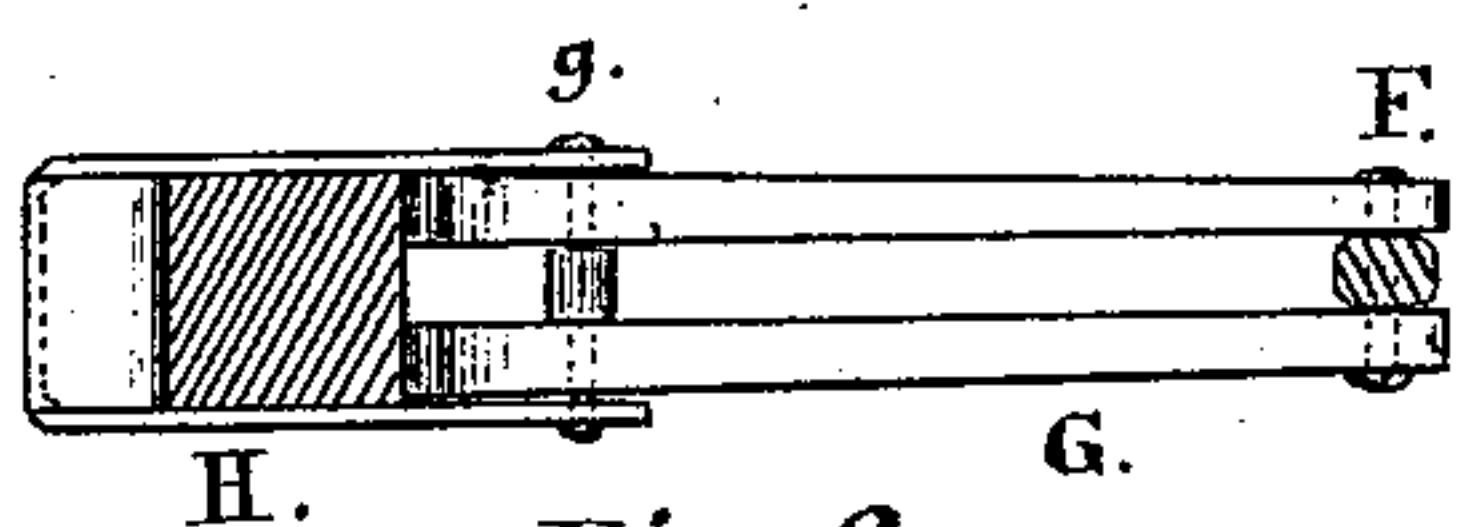


Fig. 2.

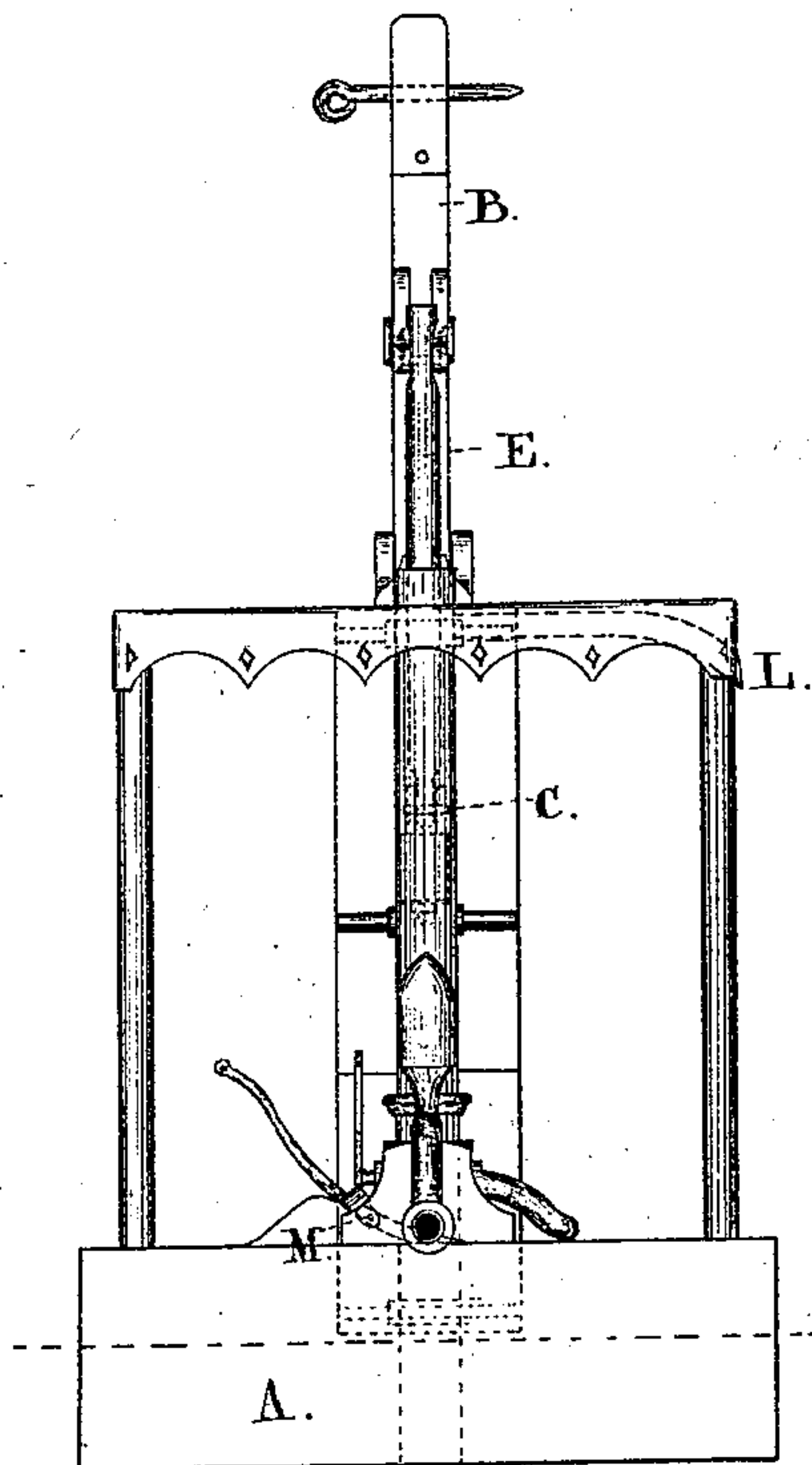


Fig. 3.

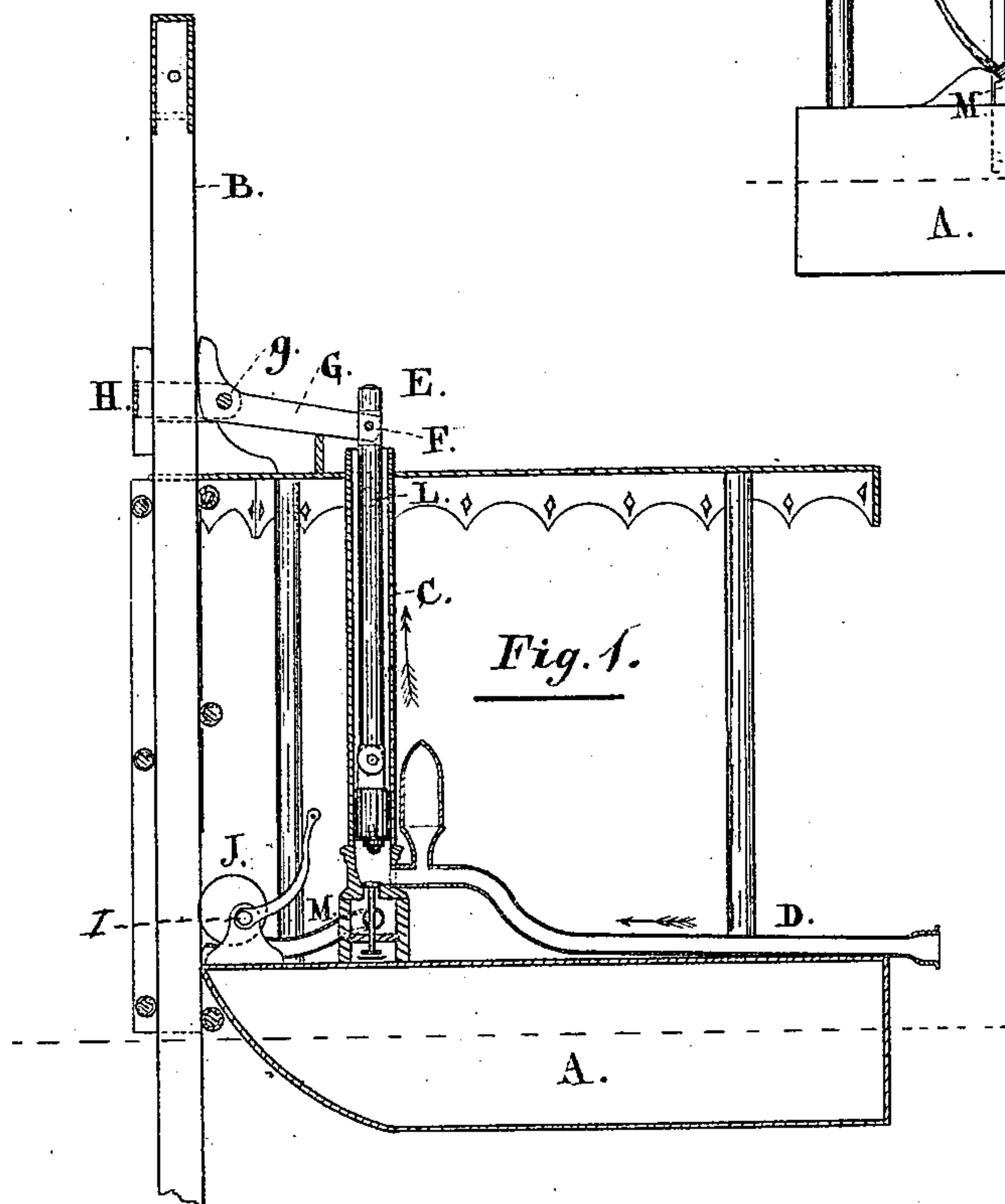


Fig. 1.

WITNESSES

Harry Warren.

Harry

INVENTOR

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Att'y

UNITED STATES PATENT OFFICE

JAMES CANAN, OF PORT COLBORNE, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN BURROW, WALTER CHATFIELD, AND ALBERT CHATFIELD, OF ST. CATHARINES, CANADA.

IMPROVEMENT IN HYDRAULIC LIFTS.

Specification forming part of Letters Patent No. **177,372**, dated May 16, 1876; application filed April 13, 1876.

To all whom it may concern:

Be it known that I, JAMES CANAN, of the village of Port Colborne, in the county of Welland, Ontario, Canada, engineer, have invented certain new and useful Improvements in Hydraulic Machinery; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of my invention is to provide suitably-arranged mechanism for the purpose of raising the anchors of spoon and other dredges by hydraulic power. To the frame-work of each dredge, adjacent to each anchor, a vertically-placed metallic cylinder is connected by suitably-arranged pipes to a pump common to all the said cylinders, and so arranged that the power produced by the action of the said pump may be conveyed simultaneously to all the cylinders, or, if required, to only one of them. Within each of these cylinders is fitted a plunger-rod, having keyed or otherwise fastened to it, immediately above the top of the cylinder, a block designed to hold an arm, which is attached by a strap to the anchor in such a manner that upon the upward motion of the plunger referred it grips and carries with it the anchor, but releases it on the downward motion thereof. Each cylinder is also provided with an overflow-pipe for letting the water escape when the plunger has been forced to the desired height, and each is also fitted with a safety-valve, which is set so as to relieve the cylinder should the pressure at any time become greater than is desired.

Figure I, longitudinal section of dredge, exhibiting the mechanism for raising the storm-anchor; Fig. II, detail plan of arm; Fig. III, end view of dredge.

A is the frame of the dredge; B, the anchor; C, the metallic cylinder; D, the pipe to which the pipes leading to the pump are connected. These pipes, which are not shown in the drawings, should be connected with suitable stop-cocks, so that the water can be admitted into all of the cylinders at the same time, or not, as may be desired. E is a plunger-rod, which fits into the cylinder C, as shown. F is a block or pin fastened to the rod and supporting the arm C, as shown. H is a strap fitting

over the anchor B, and held to the arm C by the pin *g*. The description of connection and rounded form of the arm are such that the anchors will pass unrestrictedly through the respective straps, except when the plunger-rods move upward, when a firm hold is obtained between the straps H and arms G, as may be understood by reference to the drawings. I is an eccentric shaft pivoted to the frame A, and provided with an eccentric, J, which rest against the anchor B. The shaft and eccentric J are so placed that they have no effect upon the upward motion of the anchor B; but in the descending motion the eccentric J is caused to join the anchor within the frame, and thus arrest the anchor in its descent. L is an overflow-pipe.

Having now described the general construction of my invention, I shall proceed to explain its operation. In the first place I may mention that spoon-dredges have usually three anchors, one on each side and one at the end. In the drawing the storm-anchor only is shown; the mechanism being the same in each application, no further illustration is necessary.

Having constructed and placed in position the metallic cylinder C, with the attachments as described, I attach hydraulic piping to the pipe D, connecting the said piping to a conveniently-located pump, by which water is forced through the piping referred to into the metallic cylinder C, thereby forcing the plunger-rod E upward, and, owing to the connection described between each rod and its respective anchor, a corresponding motion is conveyed to them. As it would not be desirable to make the cylinder C sufficiently long to enable the anchors to be withdrawn in one stroke of the plungers, each cylinder is provided with a draw-off cock, M, through which, when the supply from the pump is stopped, the water in the cylinders is withdrawn, and the plunger-rod, by its own weight, descends to the bottom of the cylinder, and the operation as before can be repeated.

In my description of the construction it will be remembered that the connection between the plunger-rod E and the anchors B is such that, although in ascending the two must move

together, when the former commences to descend, the connection is broken, and the two would descend independently of each other were it not that the descent of the anchor is arrested by the action of the eccentric rollers J, as before described; consequently the plunger-rods E return alone, and when the pressure is put on again the connection is once more effected, and the anchors carried still farther up, and so on till the anchors have been raised to the height desired. The plunger-rod E may be stayed, if necessary, above to prevent it springing. Instead of water, compressed air, steam, or other similar power might be utilized for the purpose of raising the plunger E.

I do not claim, broadly, the application of hydraulic power for the purpose of raising weight; but

What I claim as my invention is—

A vertical metallic cylinder, C, connected by suitably-arranged piping to a force-pump, or its equivalent, and provided with a plunger, E, having a block or pin, F, by which is held the lifting-arm G, in combination with the strap H and anchor B, arranged and operated substantially as and for the purpose specified.

JAMES CANAN.

Witnesses:

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