

(No Model.)

A. L. HEASTON.  
DEVICE FOR OPERATING JIG PLUNGERS.

No. 578,988.

Patented Mar. 16, 1897.

Fig. 1.

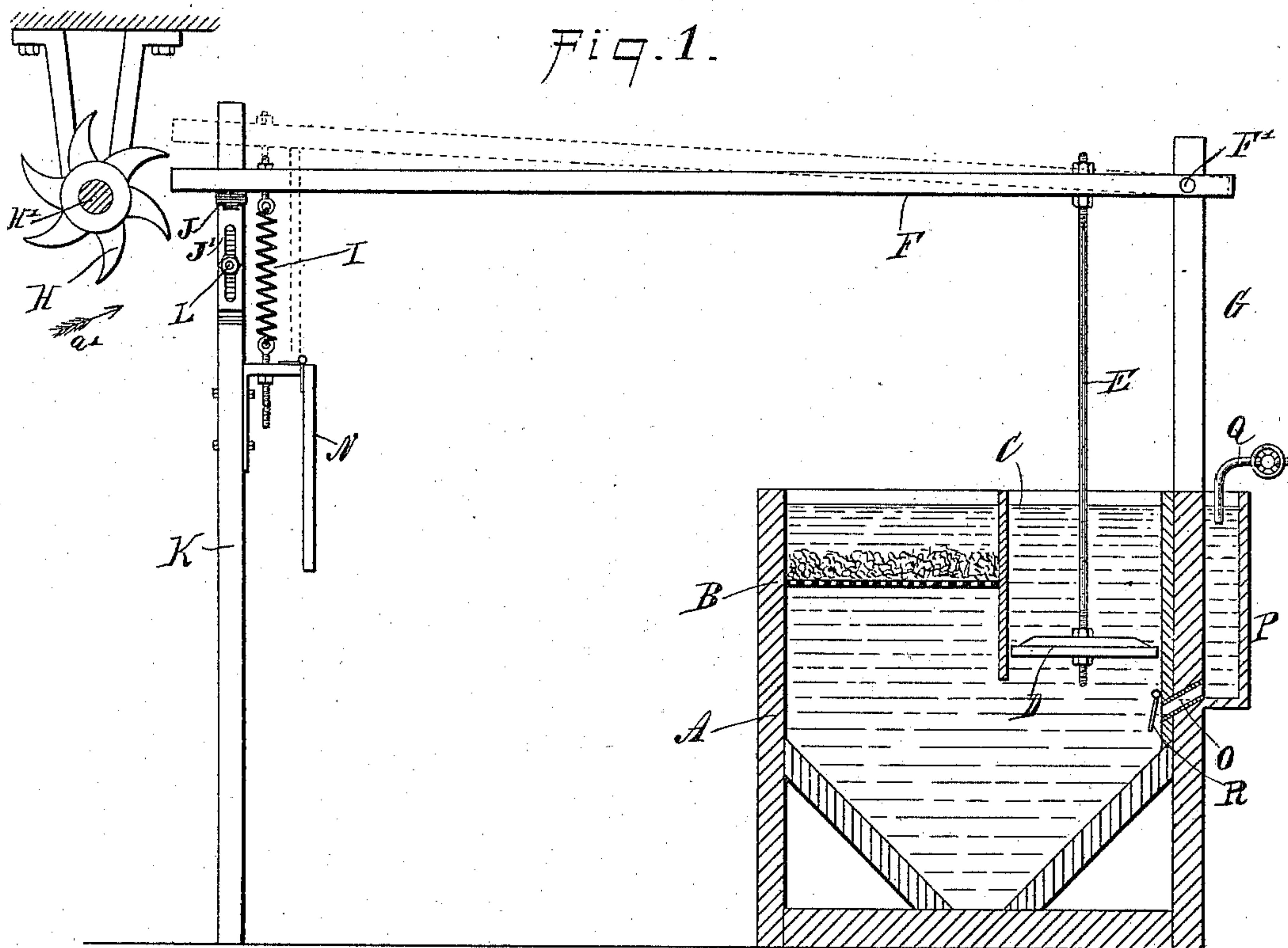
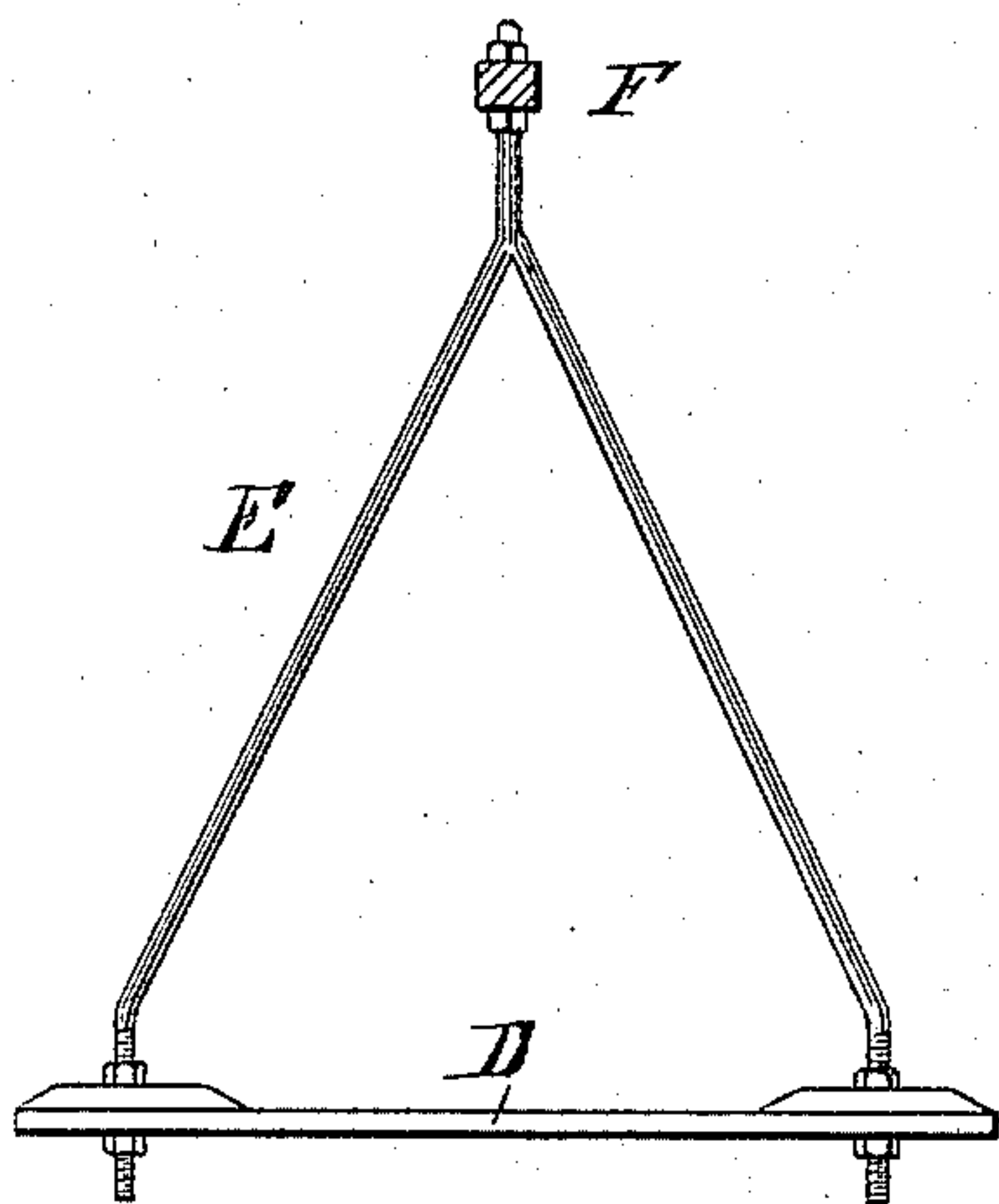


Fig. 2.



WITNESSES:

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Fig. 3.

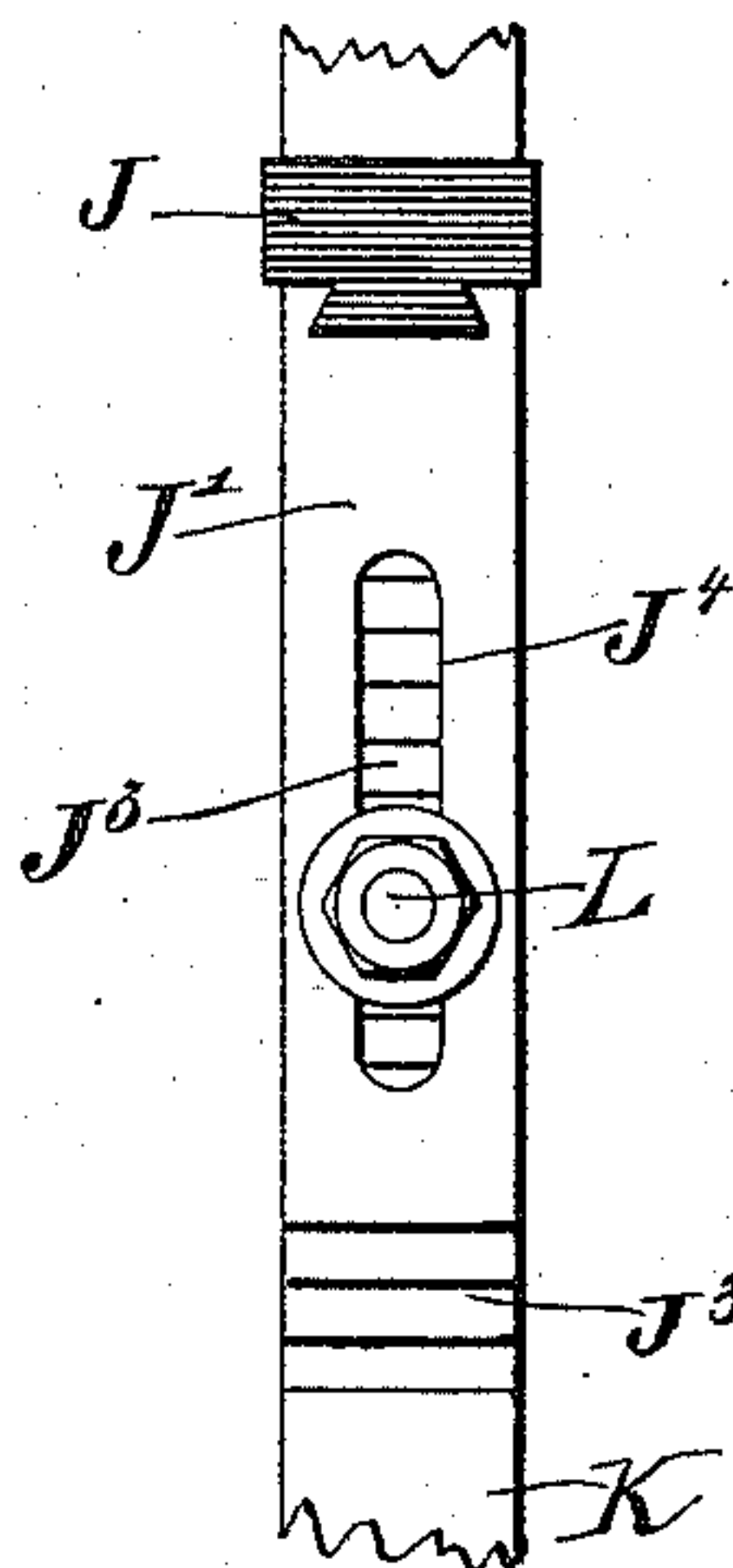
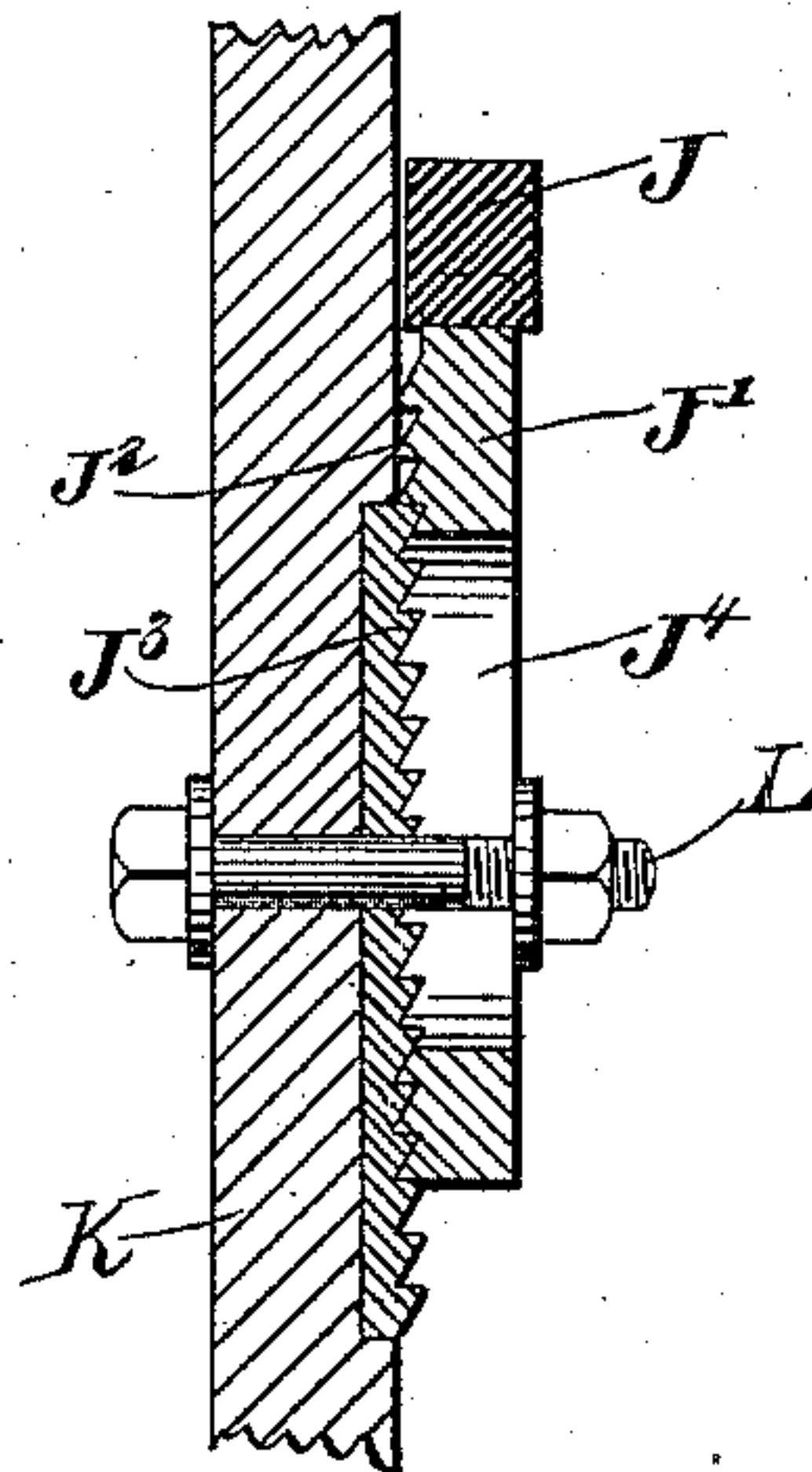


Fig. 4.



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# UNITED STATES PATENT OFFICE,

ADREN L. HEASTON, OF BINGHAM CAÑON, UTAH.

## DEVICE FOR OPERATING JIG-PLUNGERS.

SPECIFICATION forming part of Letters Patent No. 578,988, dated March 16, 1897.

Application filed May 27, 1896. Serial No. 593,288. (No model.)

*To all whom it may concern:*

Be it known that I, ADREN L. HEASTON, of Bingham Cañon, in the county of Salt Lake and State of Utah, have invented a new and Improved Device for Operating Jig-Plungers, of which the following is a full, clear, and exact description.

The invention relates to ore-concentrating jigs; and its object is to provide a new and improved device for operating the jig-plungers in such a manner that a quick drop is given to the plunger to cause the water to be dashed upward with great force through the screen to readily separate the valuable particles from the tailings.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a cross-section of the lever with the plunger attached thereto. Fig. 3 is an enlarged front elevation of the adjustable cushion for the plunger-lever, and Fig. 4 is a transverse section of the same.

The improved jig on which the improvement is applied is provided with the usual water-tank A, containing the sieve B, adapted to support the ore to be concentrated. The tank A is also provided with a plunger-box C, containing the plunger D, held on the plunger-rod E, attached to a lever F, fulcrumed at F' to a bracket G, extending upwardly from the tank A.

The free end of the lever F is adapted to be engaged by the cam-teeth of a cam-wheel H, secured on a shaft H', mounted to rotate and connected with suitable machinery for imparting a rotary motion to the said shaft H' and its cam-wheel H in the direction of the arrow a'.

The teeth of the cam-wheel H are so arranged relative to the free end of the lever F that each tooth imparts a slow upward swinging motion to the lever F until the free end of the latter finally drops off the point of the tooth and the lever returns to a normal lowermost position by the action of a spring I,

attached to the said lever. The lever F when in a lowermost position rests on a cushion J, preferably made of rubber or like elastic material; the said cushion being vertically adjustable to increase or diminish the throw of the lever F and consequently of the plunger D in the box C.

The cushion J is attached to the upper end of a supporting-plate J', formed at its rear face with teeth J<sup>2</sup>, engaging corresponding teeth in a plate J<sup>3</sup>, let into and attached to a post K, erected alongside of the free end of the lever F. The plate J' is adapted to be fastened in place on the toothed plate J<sup>3</sup> by a bolt L, held on the post K and passing through an opening in the plate J<sup>3</sup> and through an elongated aperture or a slot J<sup>4</sup>, formed in the plate J'. It will be seen that by slackening the nut on the bolt L the plate J' can be vertically adjusted on the toothed plate J<sup>3</sup>, so as to bring the cushion J into the desired position relative to the lever F. The plate J is then fastened in place by screwing up the nut on the bolt L.

It will be seen that when the free end of a tooth of the cam-wheel H leaves the lever F then the spring I pulls the lever F very suddenly downward, back onto the cushion J, to cause a rapid downward movement of the plunger D to insure a sudden throwing of the water against the material contained in the sieve B to readily separate the heavy particles from the lighter tailings. If desired, the jig may be set out of action without stopping the wheel H, and for this purpose I provide a hinged rod or prop N, adapted to engage the lever F to hold the same in such high position as to be out of reach of the teeth of the cam-wheel H. (See dotted lines in Fig. 1.)

The slow ascent and the quick descent of the plunger D reduces the back suction in the tank A to a minimum, and to further assist in gaining this object I connect the tank A below the plunger D with a supply-pipe O, leading to a water-supply tank P, arranged on one side of the tank A. A pipe Q serves to fill this tank P with water.

A valve R is arranged over the inner end of the tube or pipe O, so that on the upward stroke of the plunger D the valve R opens to connect the tanks A and P with each other to supply the tank A with the necessary amount



of water. On the downstroke of the plunger D the valve R closes, so that the water is not forced back in the tank P, but is rapidly thrown against the sieve B and through the material held on the sieve.

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

1. In a device of the class described, the combination with a tank, a pivoted and spring-pressed lever above the tank, and a plunger secured to the lever near its pivoted end, of a support adjacent to the free end of the lever, a cushion on the support and against which the free end of the lever is normally held by its spring, and a cam engaging the said free end of the lever, substantially as described.

2. In a device of the class described, the combination with a tank, a lever pivoted at one end above the tank, and a plunger secured to the lever near its pivoted end, of a support adjacent to the free end of the lever, a cushion adjustably secured to the said sup-

port, a spring secured to the support and to the free end of the lever and normally holding the lever in engagement with the cushion, and a cam engaging the free end of the lever, substantially as described.

3. In a device of the class described, the combination with a tank having a bracket projecting upwardly therefrom, and provided with a sieve and a plunger-box, of a lever pivoted at one end to the bracket, a plunger-rod secured to the lever near its pivoted end and carrying a plunger at its lower end, a support adjacent to the free end of the lever, a cushion adjustably secured to the support, a spring secured to the support and lever and normally holding the free end of the lever in engagement with the cushion, and a cam engaging the free end of the lever, substantially as described.

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Witnesses:

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