

(No Model.)

A. J. EDWARDS.
PUMP.

No. 256,889.

Patented Apr. 25, 1882.

Fig. 1.

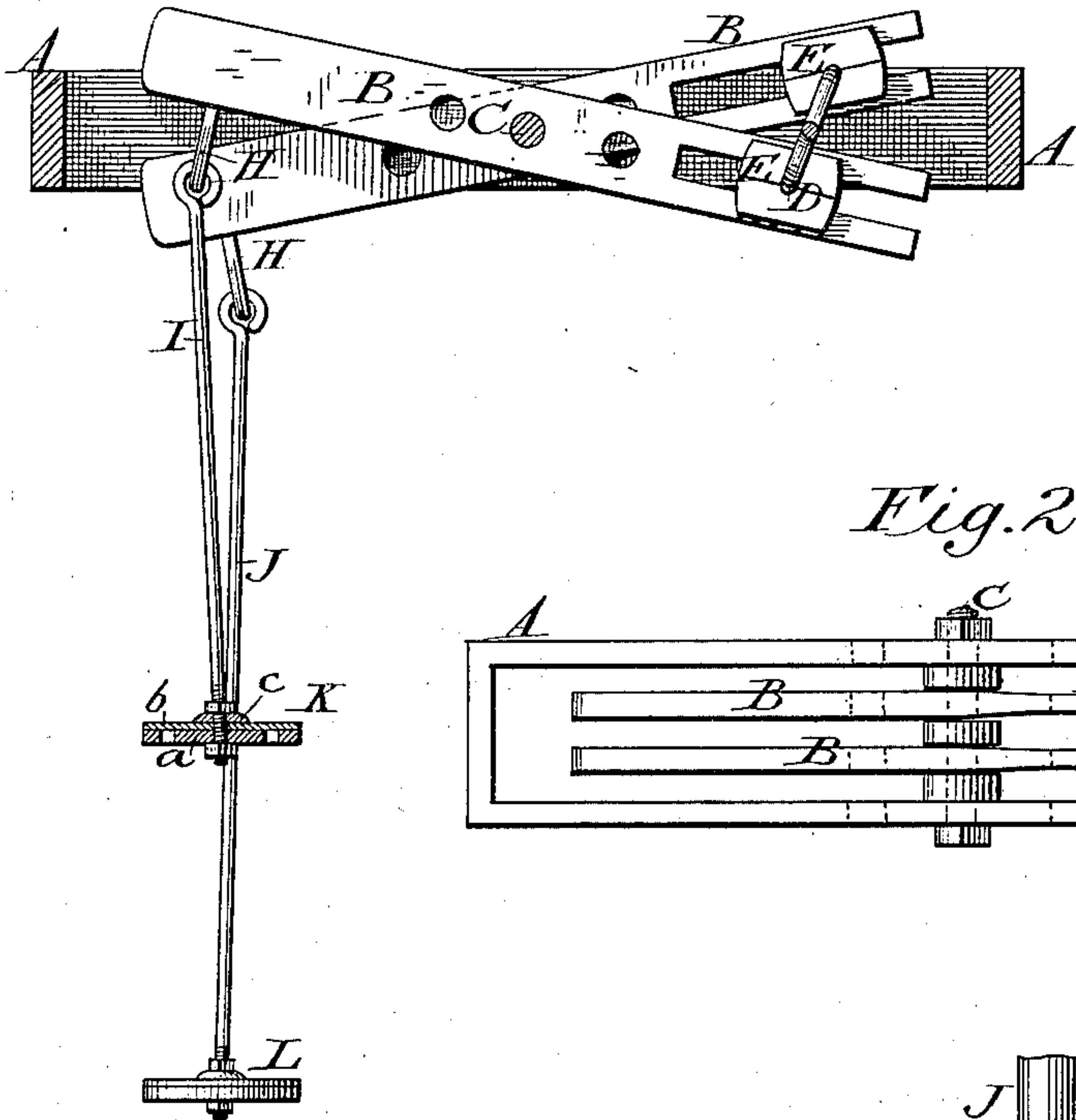


Fig. 2.

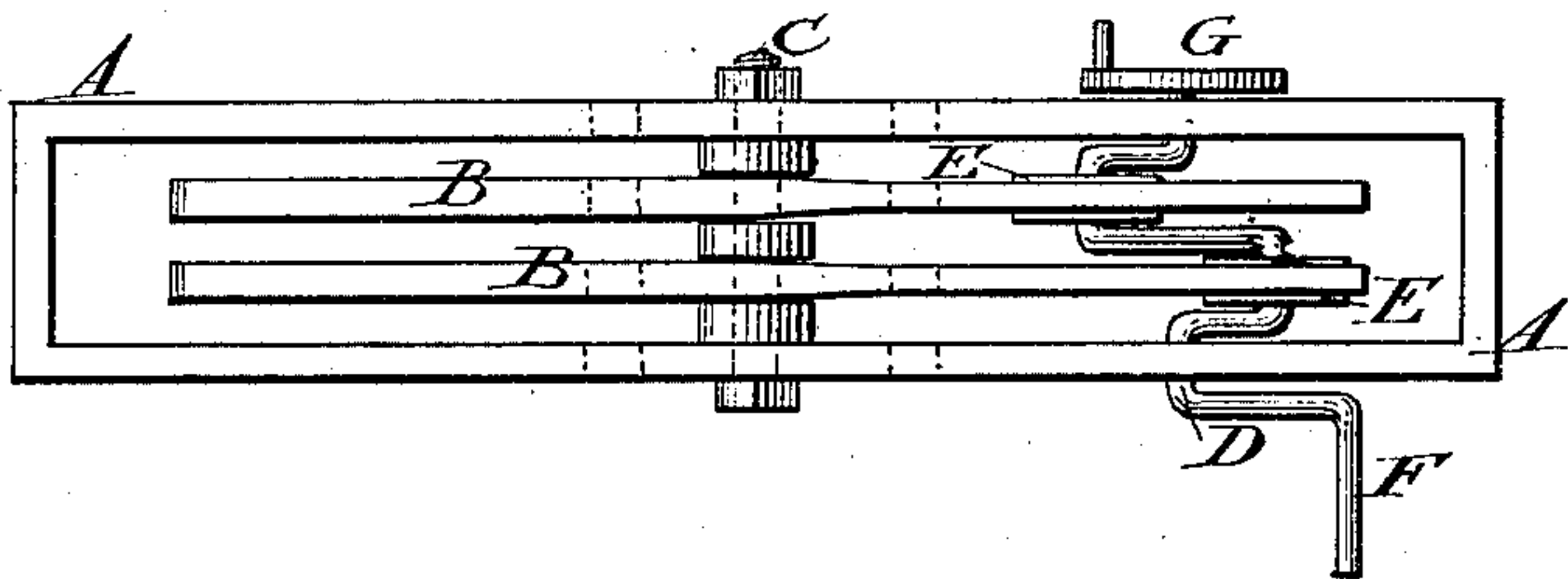


Fig. 5.

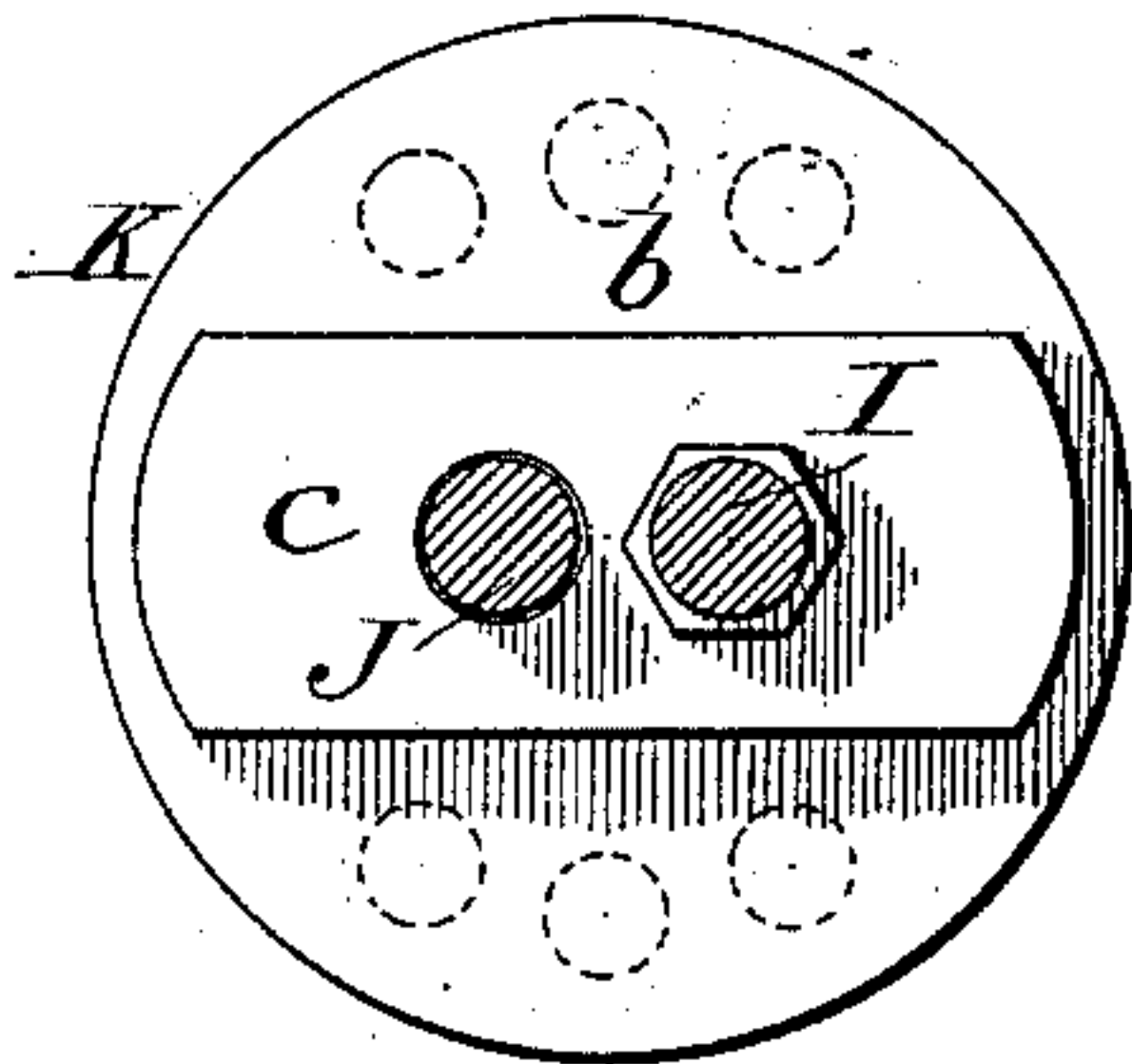


Fig. 3.

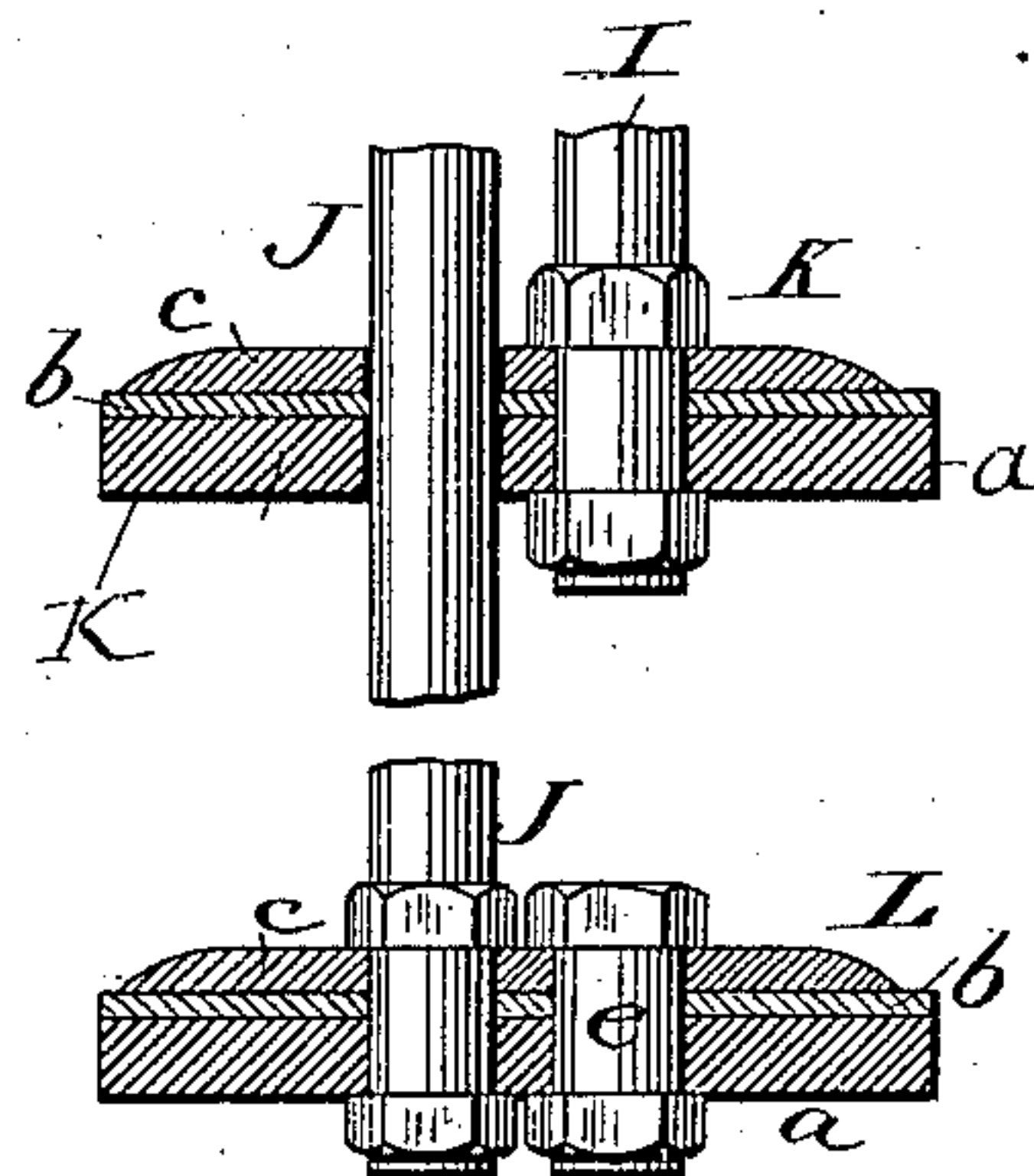
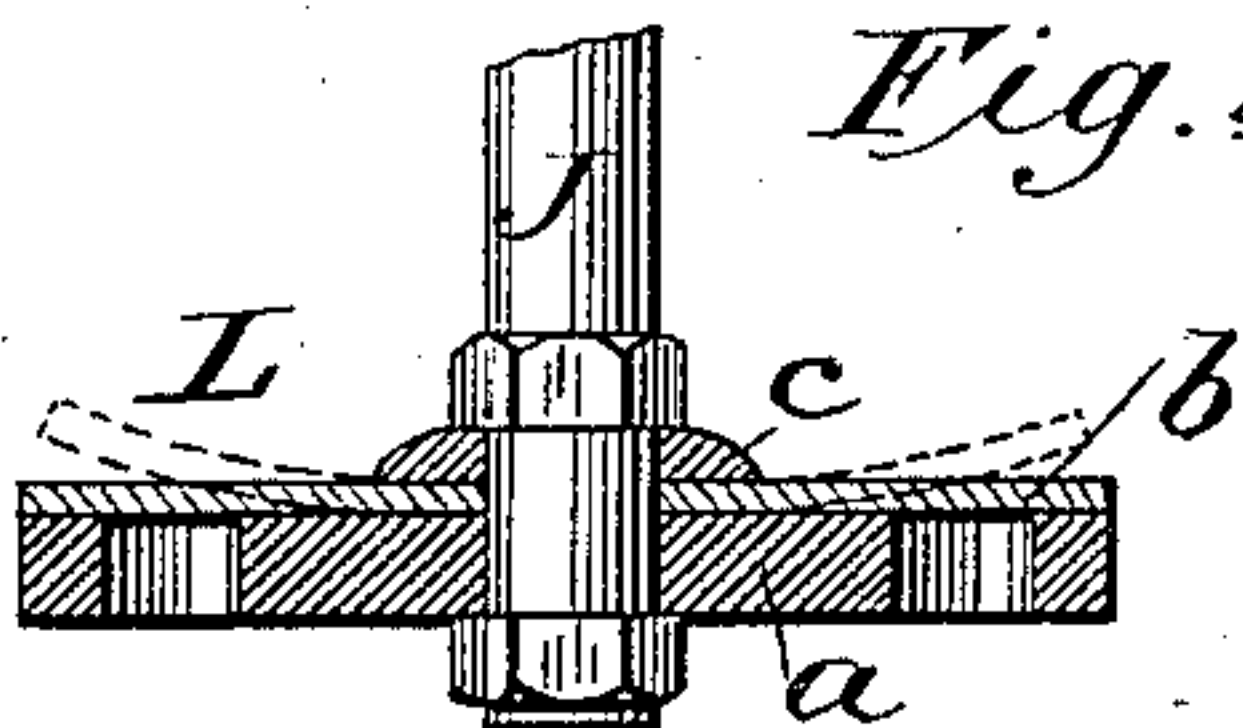


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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PUMP.

SPECIFICATION forming part of Letters Patent No. 256,889, dated April 25, 1882.

Application filed December 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, A. J. EDWARDS, of Dayton, in the county of Green and State of Wisconsin, have invented certain Improvements in
5 Pumps, of which the following is a specification.

My invention relates to an arrangement of pumping devices, designed more particularly for use in connection with windmills, for the
10 purpose of securing a constant and steady flow of water and of permitting the apparatus to be adjusted according to the power of the different mills and the different distances to which it may be necessary to elevate the water.

15 To this end the invention consists in the combination of two pumping rods and valves, operating-levers with adjustable fulcrums, and a double-crank shaft for operating the same, and also in various minor details hereinafter described.
20

Referring to the accompanying drawings, Figure 1 represents a sectional elevation of the mechanism; Fig. 2, a top plan view of the same, Fig. 3 a cross-section, Fig. 4 a section,
25 and Fig. 5 a plan view, of one of the pump-pistons.

Referring to the accompanying drawings, A represents a supporting-frame, which may be constructed in any suitable form and manner,
30 and supported rigidly in position by any suitable means.

B B represent two substantially parallel horizontal levers, mounted in the frame A upon a transverse axis, C, the frame and levers being provided with a series of pivot-holes to admit of the pivot being shifted endwise in relation to the levers, as may be required. The two levers are slotted or forked at one end, and are vibrated in alternating directions with relation to each other by means of a double-crank
40 shaft, D, mounted transversely in the main frame, and provided with sliding boxes or bearings E, fitted within the slotted ends of the levers.

45 The driving-shaft D is provided at one end with a hand-crank, F, and at the opposite end with a crank-wheel, G, the latter being intended as a means of connection with the pitman or driving device of the wind-wheel.

50 By shifting the fulcrum of the levers it will be seen that the length of movement of their

forward ends and the amount of power applied to the latter may be increased or diminished at will. When the apparatus is used in connection with small wheels or in places where
55 the water requires to be lifted to a great distance, requiring the application of a large amount of power, the fulcrum will be shifted toward the forward end of the levers, and vice versa.

To the forward ends of the respective levers, which are provided with eyebolts or couplings H on the inside, I connect two pump-rods, I and J, provided at their lower ends with pistons K and L, respectively. These pistons,
60 which will be mounted, as shown, in an ordinary pump-body, consist each of a perforated metal plate, a, and a disk of leather, b, centrally secured to said plate by means of a transverse metal bar, c.
70

It will be observed that the bar c lies centrally across the upper surface of the leather, and that the leather is confined between the bars and the plate by means of nuts applied to the threaded ends of the piston-rods above
75 and below the pistons.

The bar of the lower piston, L, is also secured in place by means of a short bolt, e, passed downward through the bar, the leather, and the plate, as represented. The bar upon the
80 upper piston is prevented from shifting laterally by means of a piston-rod, J, which passes downward through it, as represented in the drawings.

Under this construction it will be seen that
85 the plate of the upper piston serves also as a bearing for the piston-rod J, preventing the latter from unduly wearing or cutting the leather and the bottom plate. The leather disks, being secured at the center only, are free to rise
90 at their edges as the pistons descend, in order that the water may pass them, the pressure of the water serving to shut the leather down upon the disk at the moment the descending motion of the piston ceases, the leather thus serving
95 as a simple and noiseless valve. The operation of the leather upon the upper piston, between the metal bar and the bottom plate, serves to force the leather snugly around the piston-rod J, whereby it is caused to serve as
100 a packing and to prevent leakage of water around the rod.

It will of course be understood that the pump-body will be provided at its foot with the usual inlet-valve and at the top with the usual delivery-spout or its equivalent, these features
5 constituting no part of my invention.

It will be seen that, owing to the fact that the cranks travel in the slotted levers, the latter receive, when the crank is turned in the proper direction, a more rapid motion during
10 their descent than during their ascent, the cranks operating during their ascent at a greater distance from the fulcrum, and consequently giving increased power for elevating purposes. The adjustment of the fulcrum length-
15 wise with respect to the levers is advantageous, in that it permits the apparatus to be adjusted to suit mills of greater or less power, and to utilize the full power of the mill in each instance. In mills of great power the fulcrum
20 will be placed nearer the cranks than with those of less power, the adjustment of the fulcrum toward the cranks causing a corresponding increase in the length or stroke of the pistons and in the amount of water elevated under a
25 given speed of the cranks.

Having thus described my invention, what I claim is—

1. The pump attachment for windmills, con-

sisting of the two slotted levers, the double-crank shaft operating directly upon said levers, 30 and the two pump-rods provided with pistons, one rod passing through the piston of the other rod, as shown.

2. The combination of the two pump rods and pistons, as described, the levers, the double-crank shaft, and the lever-fulcrums adjustable lengthwise with regard to the levers, substantially as shown, whereby the stroke of the pistons may be varied and the attachment
40 adapted for mills of different powers.

3. The combination, with the double-crank shaft and the slotted levers operated thereby, of the two piston-rods and their respective pistons, one rod being passed eccentrically through the piston of the other rod, as de- 45 scribed and shown.

4. In combination with the piston K, consisting of the parts *a b c*, the piston-rod I, inserted through and secured to the same, and the piston-rod J, passed through said parts 50 and closely encircled by the leather *b*, as described and shown.

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Witnesses:

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