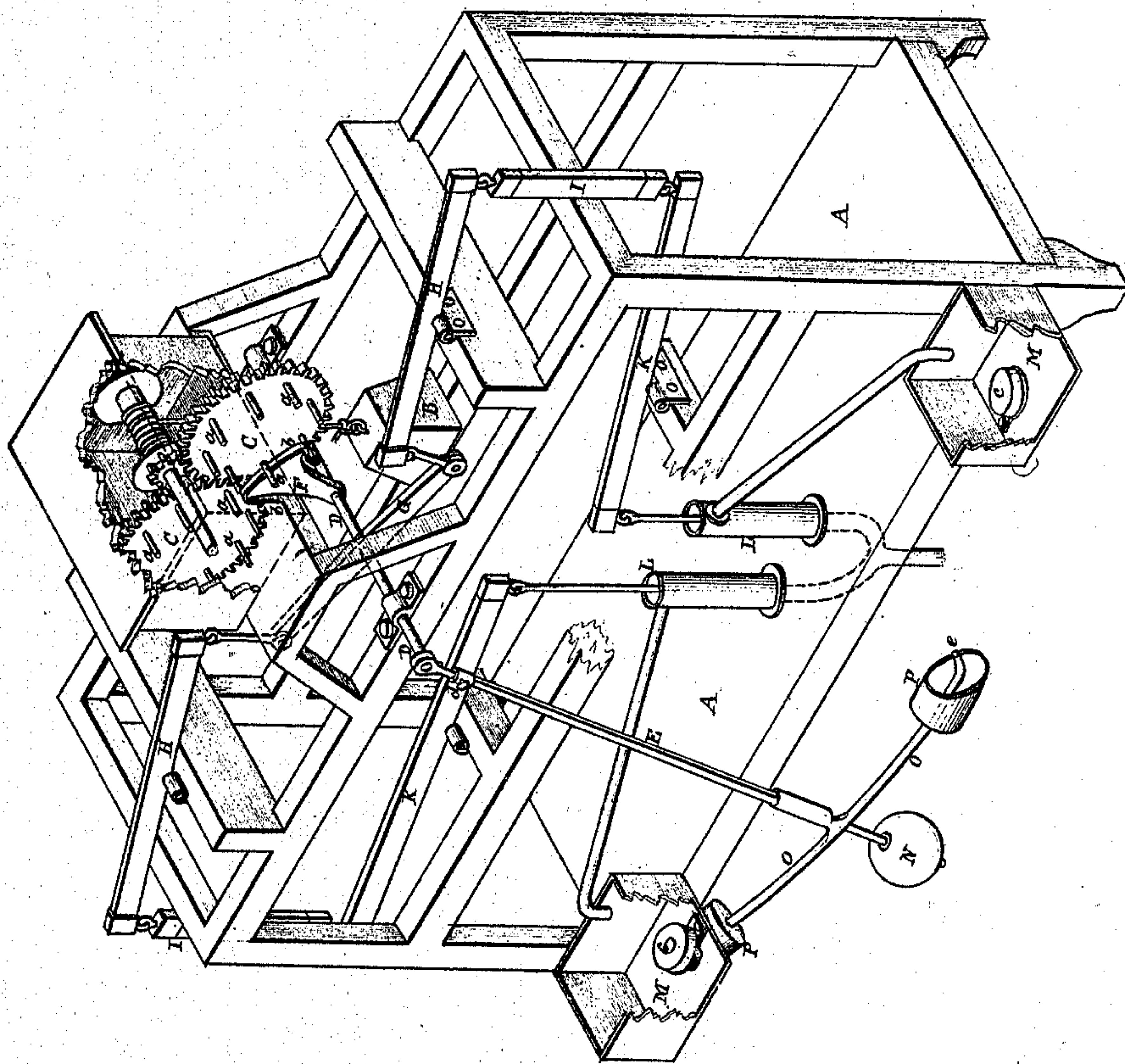


R. E. Moore.

Operating Pumps.

No. 97,673.

Patented Dec. 7. 1869.



Witnesses

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ROBERT E. MOORE, OF NAVASOTA, TEXAS.

Letters Patent No. 97,673, dated December 7, 1869.

IMPROVEMENT IN MACHINES FOR OPERATING PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ROBERT E. MOORE, of Navasota, in the county of Grimes, and State of Texas, have invented a new and useful Machine for the Working of Pumps, and for other purposes; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawing, making part of this specification, and which is an isometrical projection of my invention.

My invention has for its object the development of power for any mechanical purpose, but more especially for the elevation of water to a height sufficient for irrigation, for supplying stock, and for other purposes, in localities where no head of water can be made available without the aid of machinery.

It consists in an arrangement of levers, and combination of the same with the motive-power, and with a system of pumps, in such a manner that water may be drawn from wells, springs, or other sources, and be carried to a position from which it can be conducted to the point required.

In order that others may be enabled to construct my invention, I will proceed to describe it and its operation.

In the drawing—

A A is a platform, erected over a water-source.

On an upper platform, sustained by the uprights of the frame-work, is supported a train of gearing, connected with a barrel or cylinder, moved by the gravitation of a weight, B, as shown, or by the action of a powerful spring, which may be wound up and set free to act by any of the devices commonly in use.

The train of gearing gives motion, in equal times, to two escapement-wheels C C, geared into each other, and arranged with pins *a a* projecting at right angles with and from their faces, so that the pins of one wheel shall, as both revolve, move into a position that shall bring them successively opposite the space between the pins of the other wheel.

D is a rock-shaft, having its bearings on the upper part of the frame-work of the machine, and attached, at one end, to the rod of the pendulum E.

An escapement-pallet, F, is firmly secured to the rock-shaft, and is arranged in such a manner, that when it is disengaged from a pin, *a*, on one of the wheels C, and permits that wheel to move, it shall vibrate far enough to catch a pin on the other wheel, and retard its motion until, by the return-swing, the pendulum repeats the movement with the other wheel.

Springs *b b* are attached to each side of the head of the escapement-pallet F, in order that the parts

may be relieved from jar and concussion as the escapements occur.

G is a walking-beam, securely attached to the rock-shaft D, which gives motion, by its vibration, to the levers H, I, and K, and through them to the plungers of the pumps L L.

These pumps may be lifting or force-pumps, as circumstances may require, and both communicate with the same source of water.

The water raised by the pumps is conducted to two reservoirs or tanks, M M, each of which is provided with a valve, *c*, in its bottom, opening upward, for the discharge of a portion of the water at the proper time, and will be operated as follows:

The rod of the pendulum E is made in two lengths, so that the distance from the point of suspension, at the end of the axis of the rock-shaft, to the pendulum-ball N, may be increased or lessened, for the purpose of regulating the number of strokes of the pump in a given time, to suit the requirements of the locality and the supply of water.

A set-screw, *d*, or a key, or any equivalent device, may be used to secure the pendulum at the required adjustment.

A cross-head, O, at the lower end of that part of the pendulum-rod which is attached to the end of the rock-shaft D, is provided at each end with a cup, P, so arranged and set upon the cross-head, that, as the pendulum swings, each cup may come up alternately against the bottom of a tank, M, immediately under a valve, *c*, which shall be lifted open by the end *e* of the cross-head, projecting through and beyond the mouth of each cup, at its centre, as shown.

The water thus liberated suddenly from the tank, falls into the cup, and, by its impact, aids the pendulum in its return.

The water is discharged through holes in the bottom and sides of each cup, before the opposite cup receives its blow from the water in the other tank, so that there is a preponderance as well as blow, at the higher end of the cross-head, to help it on its downward swing at every vibration.

In the operation of this machine, the weight, B spring, or other force employed, is wound up, and the pendulum started to work the pumps.

Of course, until the pumps have thrown water enough into the tanks to act on the cups, through the valves *c*, the pendulum will only be aided in its power over the pumps by the action of the escapement C C and F, but as soon as the water begins to act on the pendulum, the resistance of this last to the action of the escapement is lessened, and its power over the pumps greatly increased.

It will be seen that the position of the machine may be such as to allow all or any part of the water to be carried where wanted, after being made available for easing the action of the machine, as described.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the escapement C C F, levers H I K, pendulum and rock-shaft D, with the

pumps L L, substantially as and for the purpose set forth.

2. In combination with the devices cited in the first clause of claim, the adjustable pendulum-rod E, cups P, valves c c, operating as described, and for the purpose set forth.

Witnesses:

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