

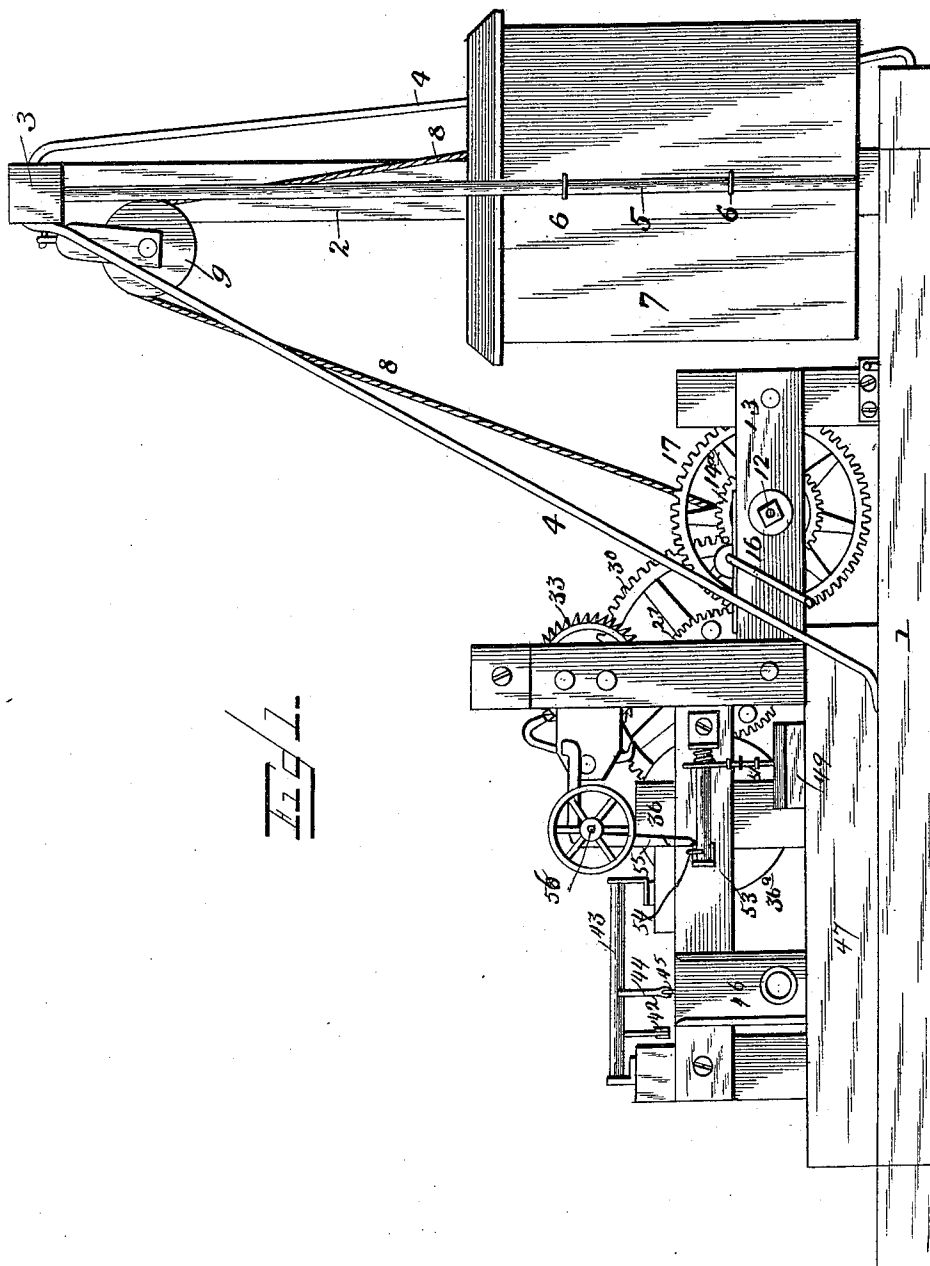
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4 Sheets—Sheet 1.

M. F. BROWN & L. A. BERGER.
MEANS FOR OPERATING PUMPS.

No. 471,942.

Patented Mar. 29, 1892.



WITNESSES:

H. L. Curand
Ernest H. Jones

INVENTORS:

Millard F. Brown
Lewis A. Berger
By Sam Daggett & Co.
Attorneys.

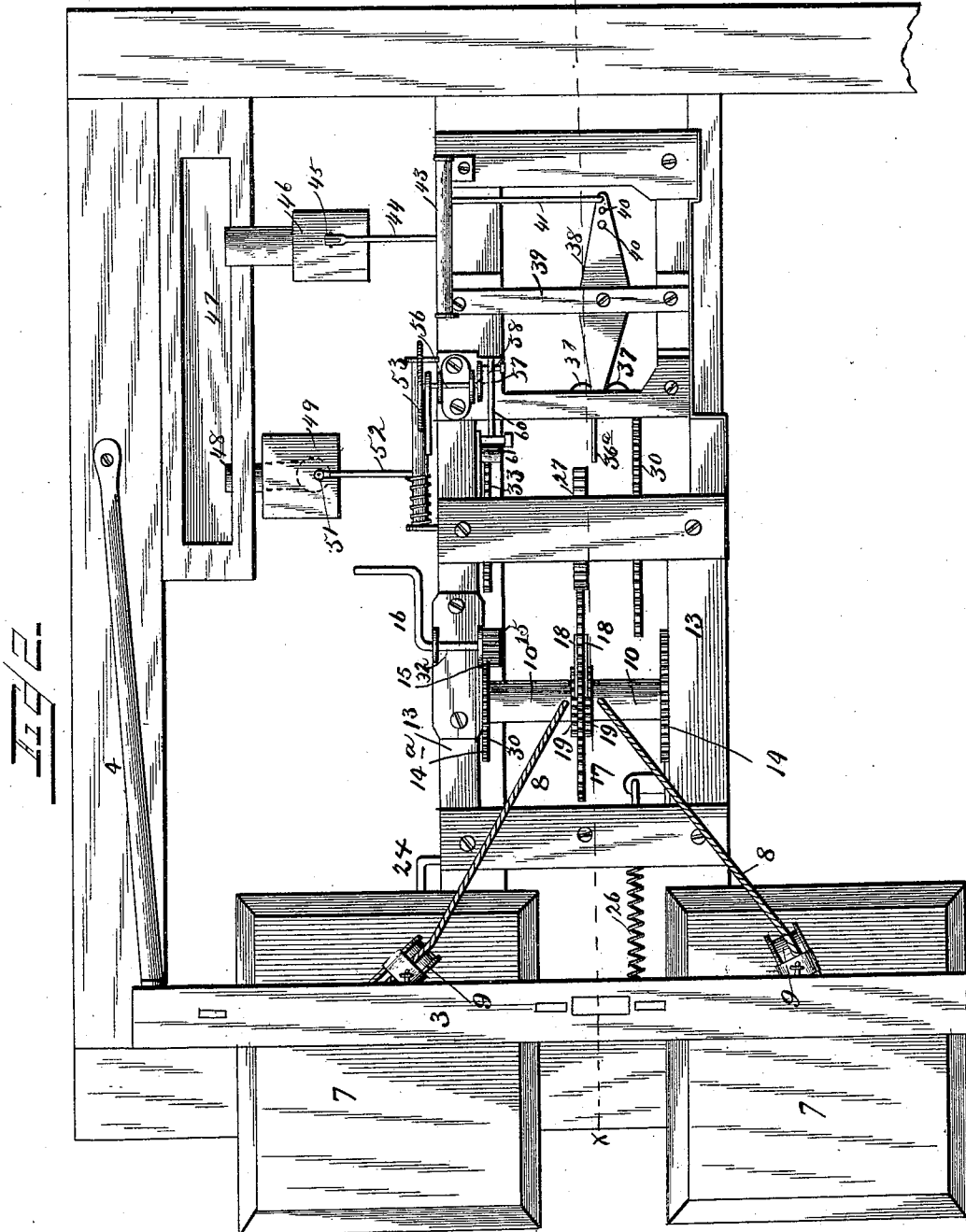
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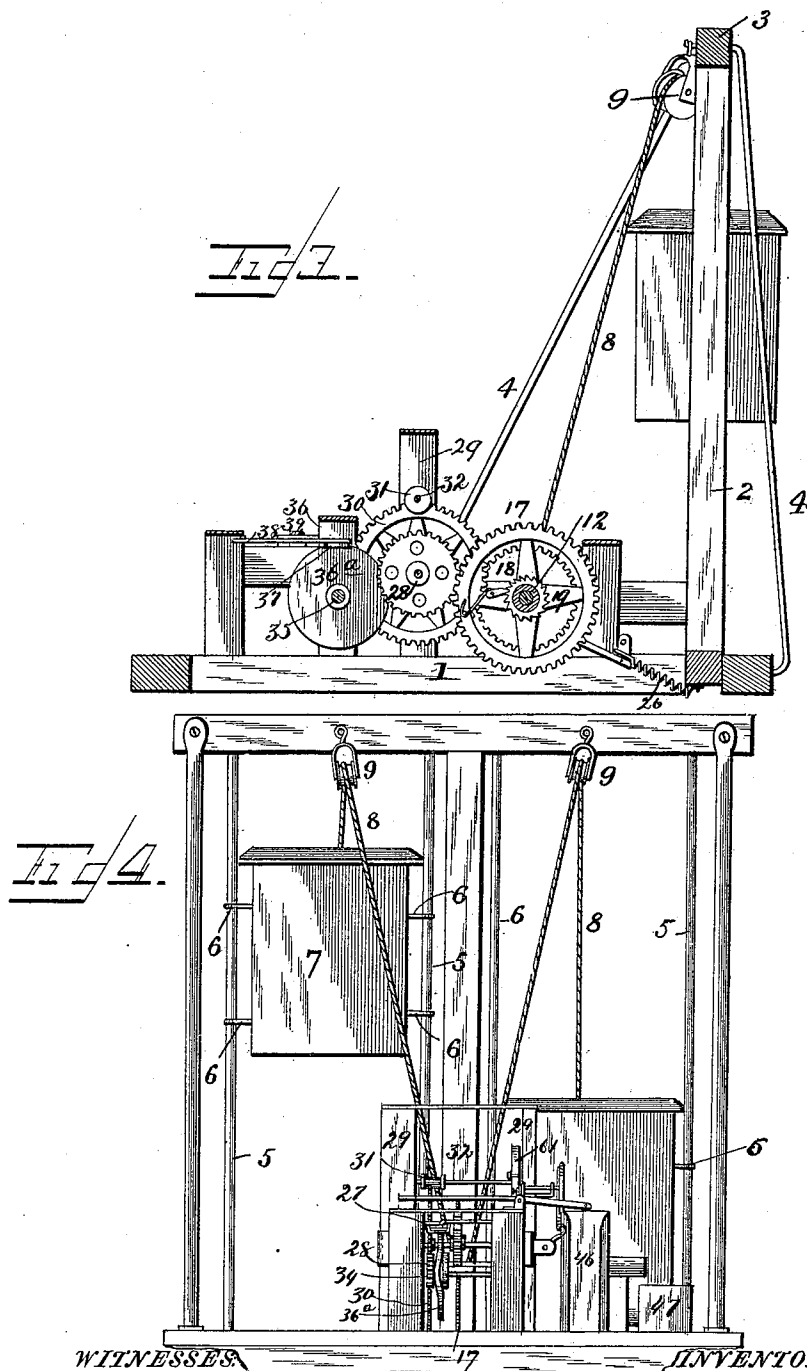
Witnesses:
F. L. Ourayd.
James Jones.

Inventors:
Millard F. Brown & L.
Lewis A. Berger,
by James Dugger & Co.,
Attorneys.

4 Sheets—Sheet 3.

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WITNESSES
H. L. Curran &
James J. Jones

INVENTORS:
 Millard F. Brown &
 Lewis A. Berger,
 by *Samuel C. Cooper & Co.*
 Attorneys.

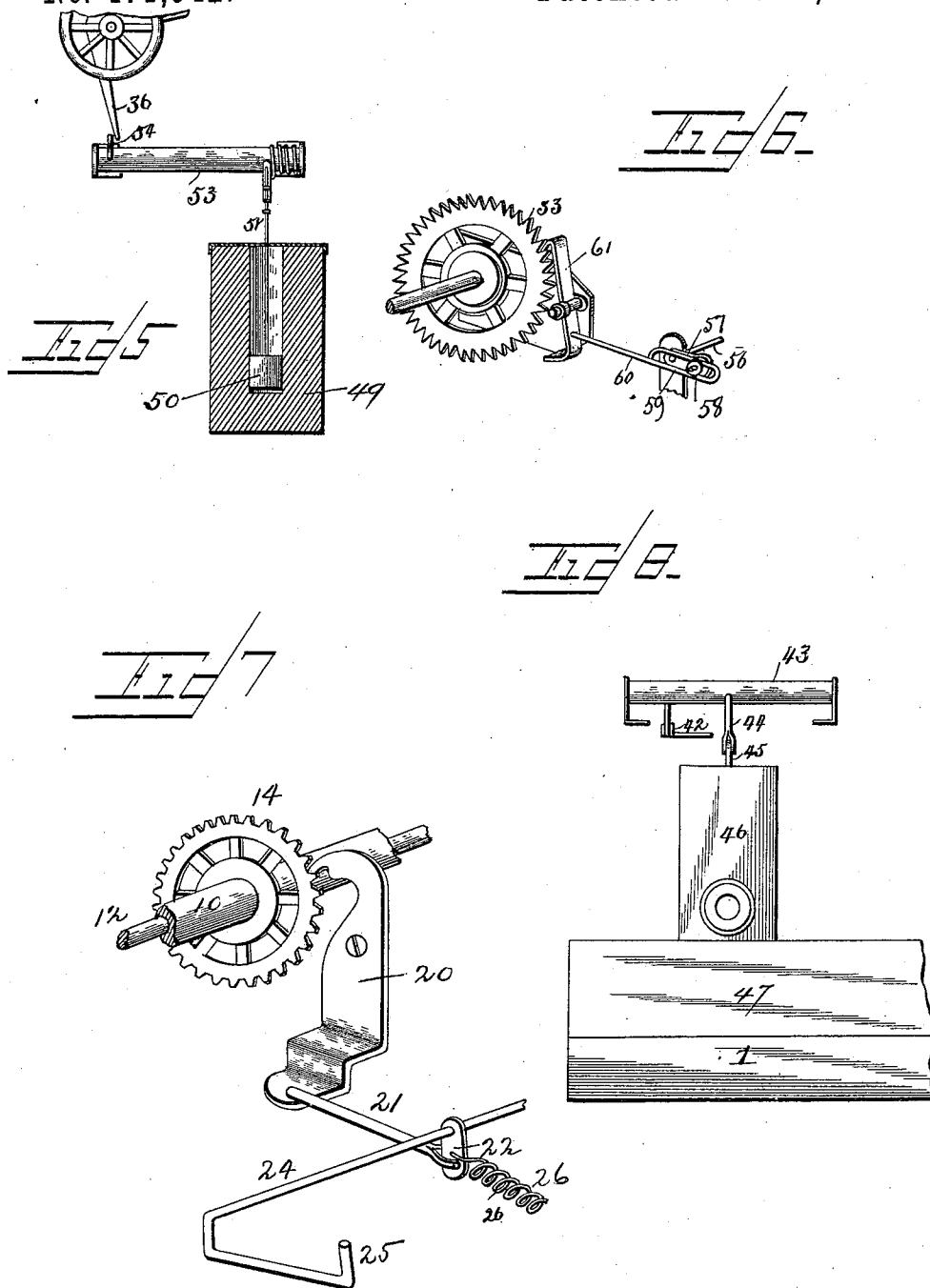
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Patented Mar. 29, 1892.



WITNESSES:
J. L. Durand
Wm. H. Jones

INVENTORS:
Millard F. Brown & L.
Lewis A. Berger
J. J. Dwyer & Co.
Attorneys

UNITED STATES PATENT OFFICE.

MILLARD F. BROWN AND LEWIS A. BERGER, OF EAST RINGGOLD, OHIO.

MEANS FOR OPERATING PUMPS.

SPECIFICATION forming part of Letters Patent No. 471,942, dated March 29, 1892.

Application filed June 12, 1891. Serial No. 395,996. (No model.)

To all whom it may concern:

Be it known that we, MILLARD F. BROWN and LEWIS A. BERGER, both residents of East Ringgold, in the county of Pickaway and State of Ohio, have invented certain new and useful Improvements in Means for Operating Stock-Pumps; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to improvements in means for operating stock-pumps.

The object of the invention is to provide an improved construction of apparatus for the above purpose, in which the pumps are operated by means of weights and a suitable train of gearing, provision being made whereby when the water in the trough shall have reached a certain predetermined height the mechanism will be automatically stopped, thus preventing waste of water, and when the water shall fall below the above-mentioned level the pumping will be resumed and the trough or tank always kept filled.

It is also an object to provide means whereby the weights which actuate the train of gearing are successively brought into operation—that is to say, when one weight reaches the limit of its downward movement it automatically starts the next weight into operation.

The invention consists in the novel construction and combination of parts hereinafter fully described, and specifically defined in the claims.

In the accompanying drawings, Figure 1 is a side view of an apparatus constructed in accordance with our invention. Fig. 2 is a plan view of the same. Fig. 3 is a section on the line *x x*, Fig. 2. Fig. 4 is an end view of the apparatus. Figs. 5, 6, 7, and 8 are detail views.

In the said drawings the reference-numeral 1 designates a rectangular base consisting of longitudinal and transverse timbers suitably secured together. At one end the base is provided with an upright 2, having a cross-arm 3 at the top, the ends of which are provided with brace-rods 4. The cross-arm and base

are also provided with vertical bars 5, which pass through loops 6 and form guides for the weights 7, having ropes or cables 8, which pass over sheaves 9, secured to the cross-arm and connected with sleeves 10, loosely mounted on a transverse shaft 12, secured in the side pieces 13 of a frame which is mounted upon the base 1. This frame also comprises a series of uprights and cross-pieces and carries the train of gearing which operates the pump. To the outer ends of the sleeves 10 are secured cog-wheels 14 and 14^a, with the latter of which meshes a pinion 15, having a crank 16. At the center the shaft 12 is provided with a loose cog-wheel 17, having spring-pawls 18 upon each side which engage with ratchets 19 on the inner sides of the sleeves. These sleeves are entirely separate and distinct from each other.

Pivoted to one of the side pieces 13 is a lever 20, one end of which is formed into a hook which is adapted to engage with the teeth of one of the cog-wheels 14. The other end of this lever is connected by means of rod 21 with the crank 22 of a transverse rod 23, having angular arm 24, with an upwardly-bent portion 25. The crank is also connected with a coiled spring 26, the object of which is to keep the hooked end of the lever 20 in engagement with the teeth of the cog-wheel.

The cog-wheel 17 meshes with a cog-wheel 27 on a transverse shaft 28, journaled in the uprights 29, said shaft being also provided with a cog-wheel 30, meshing with a pinion 31 on a shaft 32, which carries an escapement-wheel 33. Wheel 30 also meshes with a pinion 34 on a shaft 35, journaled in uprights 36. This shaft 35 is provided with a cam-wheel 36^a, having the periphery formed of a series of opposite inclines or zigzags. This cam-wheel engages with rollers 37 upon one end of a lever 38, pivoted to a cross-bar 39, said lever being provided with a series of apertures 40, with which is connected a rod 41, which in turn is connected with a crank 42 on an oscillating rod 43, which carries an arm 44, connected with the sucker-rod 45 of a pump 46.

The numeral 47 designates a trough into which the pump discharges. At the opposite end the trough is provided with a pipe or passage-way 48, which communicates with a tank or vessel 49, provided with a float 50, con-

nected with a rod 51, which passes through the end of an arm 52, secured to a rock-shaft 53, journaled in the side of the train-carrying frame. This shaft 53 is provided with a bent arm 54, which is adapted to engage with an arm 55 depending from a shaft 56, journaled in bearings on the top of said frame. This shaft has a crank 57 and crank-pin 58, the latter working in a slot 59 in the end of a rod 60, the other end of which is secured to an escapement-lever 61, which engages with the escapement-wheel 33.

The operation is as follows: The weights are wound up by means of the cables, sleeves, cog-wheels, pinions, and cranks, as will be readily understood. As these weights are elevated, the lever 20, by means of the coiled spring 26 and connections, will be thrown into engagement with the teeth of the cog-wheel 14 on this side of the machine, thereby locking the sleeve and preventing the weight connected therewith from descending. The other weight, however, will fall and actuate the train of gearing, vibrating lever 38 by means of the cam-wheel, which in turn will actuate the sucker-rod of the pump through the intermediate connections. As said weight descends it will come in contact with the upwardly-bent end 25 of the arm 24, depressing the same and causing lever 20 to be thrown out of engagement with the cog-wheel, thus bringing the other weight into action. It will thus be seen that only one weight is in operation at a time. As the trough is filled by the pump the water will rise in the tank 49, raising the float 50 until the proper level has been reached. This will cause the bent arm 54 to be raised through the intermediary connections until it comes in the path of arm 55, whereby the vibration of the latter will be prevented, and the escapement-lever also being prevented from vibrating will engage with the teeth of the escapement-wheel and stop the operation of the apparatus. When the float falls below the predetermined height, the escapement-lever will be released, and the operation will then be automatically resumed.

Having thus described our invention, what we claim is—

1. In an apparatus for operating pumps, the combination, with the base, the upright, and cross-arm, of the weights and cables, the shaft carrying the loose sleeves, the central cog-wheel and pawls, the cog-wheels on the outer ends of said shaft, the pivoted lever adapted to engage with one of said cog-wheels, the cranked rod connected with said lever and having an angular-bent arm adapted to be struck by one of the weights for actuating the lever, and the train of gearing for operating the pump, substantially as described.

2. In an apparatus for operating pumps, the combination, with the pump and the train of gears and connections, of the trough having a passage-way or pipe, the vessel communicating with said trough, the float located in said vessel, the rod connected with said float, the rock-shaft connected with said rod and having a bent arm, the vibrating shaft having a depending arm and provided with a crank and crank-pin, the escapement-lever having an arm with a slot in which said crank-pin works, and the escapement-wheel, substantially as described.

3. The combination, with the pump, the pump-rod, the oscillating shaft connected therewith, the vibrating lever connected with said shaft, the rollers connected with said lever, and the cam-wheel and connections by which said lever is vibrated, of the trough having a pipe or passage-way, the vessel communicating with said trough, the float located in said vessel, the rod connected with said float, the rock-shaft connected with said rod and having a bent arm, the vibrating shaft having a depending arm and provided with a crank and crank-pin, the escapement-lever having an arm with a slot in which said crank-pin works, and the escapement-wheel, substantially as described.

In testimony that we claim the foregoing as our own we have hereunto affixed our signatures in presence of two witnesses.

MILLARD F. BROWN.
LEWIS A. BERGER.

Witnesses:

WM. HECKMAN,
JOHN HOOK.