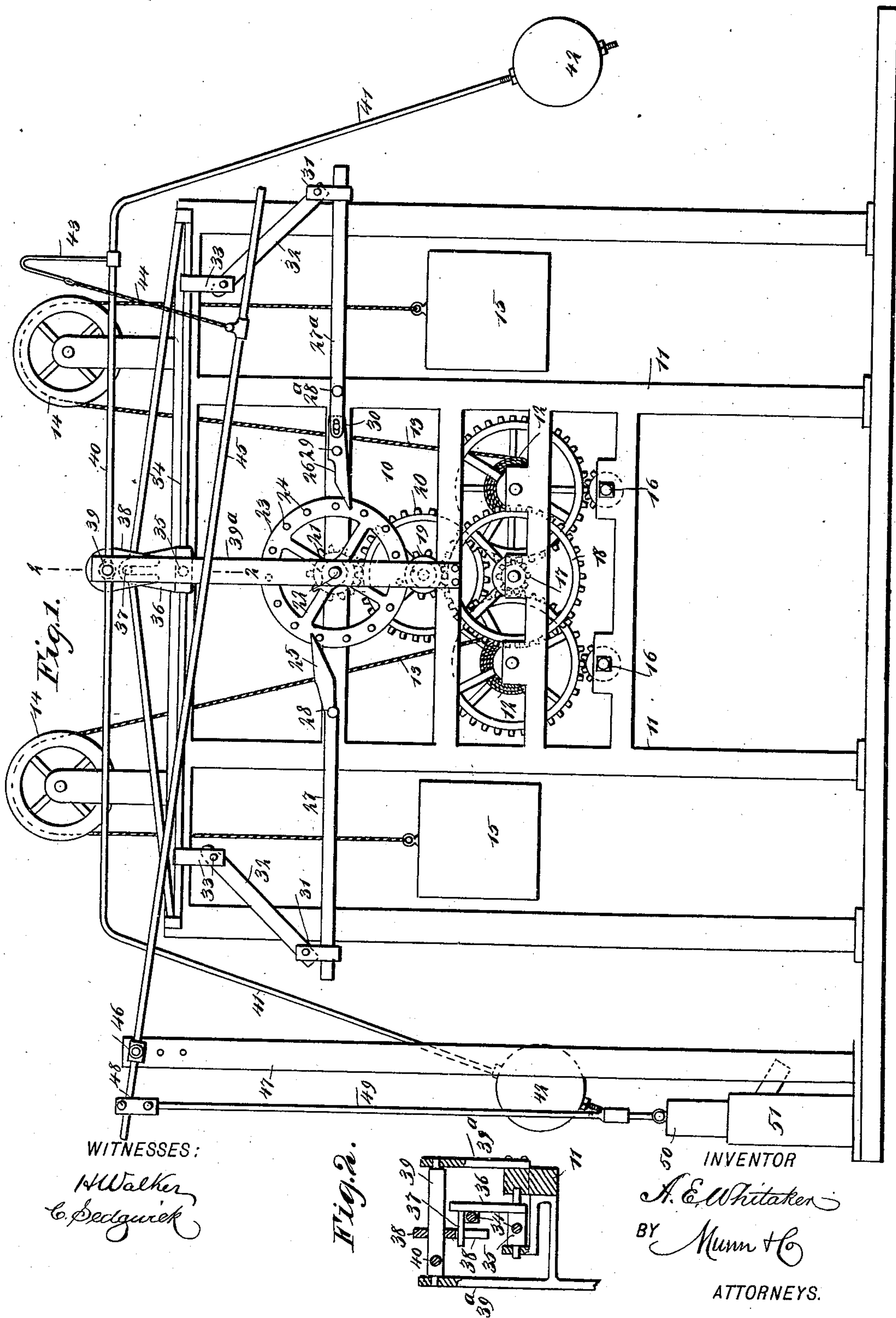


(No Model.)

A. E. WHITAKER.
MOTOR.

No. 517,712.

Patented Apr. 3, 1894.



UNITED STATES PATENT OFFICE.

ALBERT E. WHITAKER, OF LA PORTE, INDIANA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 517,712, dated April 3, 1894.

Application filed April 11, 1893. Serial No. 469,896. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. WHITAKER, of La Porte, in the county of La Porte and State of Indiana, have invented a new and Improved Pumping Apparatus, of which the following is a full, clear, and exact description.

My invention relates to improvements in apparatus for working pumps; and the object of my invention is to produce a clock-work mechanism which is adapted to be run by weights, which may be conveniently and easily wound up, and which is adapted to run for a comparatively long time and work a pump to advantage.

To this end my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

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

Figure 1 is a front elevation of the apparatus embodying my invention; and Fig. 2 is a detail section on the line 2—2 in Fig. 1.

The apparatus is provided with a clock-work mechanism 10 which is of substantially the usual kind, and which is carried by a suitable supporting frame 11. The clock-work mechanism is, however, provided with two drums 12 instead of one, and these carry the weight cables 13 which are secured to the drums and which extend upward over pulleys 14 in the upper part of the frame and are attached to weights 15 which are sufficiently heavy to turn the drums and the clock-work mechanism connected therewith, and which furnish the power for pumping. The drums are geared to shafts 16 in the usual way, and these shafts have squared ends to receive a crank or key by which the cables 13 are wound upon the drums and the weights 15 raised. The drums are connected by the usual pinions and gears 17, 18, 19, 20, 21 with the shaft 22, which is journaled in the frame and which carries the escapement wheel 23 having laterally projecting pins 24. The pins of the escapement wheel are adapted to engage the tilting pallets 25 and 26 in the usual way, and these pallets are arranged on diametrically opposite sides of the escapement wheel and the

pallet 25 is formed on one end of a horizontally-extending lever 27 which is fulcrumed on the main frame, as shown at 28. The pallet 26 is fulcrumed on the frame, as shown at 29, and its outer end is pivoted, as shown at 30, to the inner end of the lever 27^a, which acts similar to the lever 27, moving up and down on the frame, and the lever 27^a is fulcrumed near its inner end, as shown at 28^a; the object of arranging the pallet 26 so that it may tilt is to enable the movement to be given to the walking beam by the movement of the escapement wheel, as described below. The outer ends of the levers 27 and 27^a are pivotally connected, as shown at 31, with the pitmen 32 which extend upward and inward and are pivoted to lugs 33 which depend from the walking beam 34 near its opposite ends. This walking beam 34 tilts on a shaft 35 in the usual way, and it has a center brace 36 from one side of which projects a pin 37 and this pin enters a slot in the crank 38 which is secured to the pendulum shaft 39 which is journaled in suitable brackets 39^a carried by the main frame. The pendulum rod 40 extends from opposite sides of the shaft 39 and lies normally in a horizontal position. It has depending ends 41 to which the weights or pendulums 42 are attached, and when the machine is in operation, the pendulums swing in the usual way so as to regulate the movement of the clock mechanism, and furthermore, the momentum of the pendulum bobs will be available as a motive power.

It will be seen from the foregoing description that the clock-work mechanism is of substantially the usual kind, with the exception of the double arrangement of the weights and drums and the peculiar connections between the escapement wheel and the walking beam and the pendulum rod. On the pendulum rod is a bent arm 43 which is arranged near the end of the horizontal portion of the rod. The bent arm 43 connects by a chain 44, or similar flexible article, with a pump lever 45, the chain being arranged preferably near the free end of the lever, and this means of connection is an important feature of the invention, as by it the lever is adapted to drop of its own weight and lift the pump piston, as hereinafter described, and all sudden jerks and shocks to the clock-mechanism is thus

prevented. If the connection between the pump lever and the arm 43 was by means of a rod, the sudden jerk on the up stroke of the pump piston would stop the movement of the pendulum rod and the clock-mechanism. The lever 45 is fulcrumed near one end, as shown at 46, on a post 47 or other convenient support and the shorter end of the lever is pivotally connected, as shown at 48, with the connecting rod 49 which extends downward and is pivoted to the piston 50 of a common pump 51. The swinging of the pendulum rod causes the lever 45 to be raised and lowered, the lever dropping of its own weight, and when the lever drops, it raises the rod 49 and the pump piston, while when the lever is raised the reverse action takes place.

It will be understood that the rod 49 may be operatively connected with any kind of pump so as to work the pump by the up and down motion of the rod.

To start the apparatus, the weights 15 are attached to the cables 13 and the cables wound upon the drums 12 in the manner described, after which the weights will gradually unwind the drums and turn the clock-work mechanism so that the escapement wheel actuating the pallets 28 and 26, will tilt the levers 27 and 27^a and by means of the connecting rods or pitmen 32, oscillate the walking beam 34 which, by means of the pin 37 and crank 38, will move the pendulum rod and the latter will work the pump lever in the manner described, thus operating the pump.

If desired, buckets or similar receptacles may be substituted for the weights, and the buckets filled with sand or other cheap material to give them the necessary heft.

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

1. The combination, with a clock-work mechanism of an escapement wheel connected therewith and provided with parallel pins, pallets independently pivoted to the frame of the mechanism on diametrically opposite sides of the said escapement wheel and adapted to engage the pins thereof, an oscillating pendulum, and a driving mechanism between the said pendulum and the said pallets, as set forth.

2. The combination, with a clock-work mechanism of an escapement wheel connected therewith and provided with parallel lateral pins, pallets fulcrumed on the frame of the mechanism and adapted to engage the pins of the escapement wheel on opposite sides thereof, levers fulcrumed on the frame of the mechanism and each pivotally connected with one of the said pallets, a walking beam, pitmen pivotally connected with the ends of the

walking beam and the said levers respectively, and a pendulum constructed to be actuated by the movement of the walking beam, as set forth.

3. The combination with the clock-work mechanism, of an oscillating pendulum rod having a pendulum at each end, a vertically moving pump lever connected with a pump to operate it, and a flexible connection between the pendulum rod and the pump lever, substantially as described.

4. The combination, with a clock-work mechanism having a plurality of driving drums provided with cables and suitable weights, of an oscillating pendulum rod having a weight at each end, the rod being operatively connected with the clock mechanism, a weighted and vertically swinging pump lever operatively connected with the pump and adapted to lift the pump piston on its down stroke, and a flexible connection between the pump lever and the pendulum rod whereby the swinging of the rod lifts the lever, substantially as described.

5. The combination, with the weight-propelled clock-work mechanism, of the tilting walking beam actuated by the clock-work mechanism, the double pendulum rod having a pendulum at each end, the rod being pivoted at its center adjacent to the walking beam, a crank and pin connection between the walking beam and the pendulum rod, whereby the movement of one actuates the other, a weighted pump lever operatively connected with a pump, and a connection between the pump lever and the pendulum rod, whereby the movement of the rod works the lever, substantially as described.

6. The combination, with the clock-work mechanism having an escapement wheel, of tilting levers pivoted adjacent to the clock-work mechanism and connected with the escapement wheel by pallets, a walking beam pivoted on a suitable support above the escapement wheel, pitmen connecting the tilting levers with the walking beam, a swinging pendulum rod having a horizontally-extending portion and depending ends with pendulums thereon, the rod being pivoted adjacent to the walking beam, an operative connection between the walking beam and the pendulum rod, whereby the tilting of the beam moves the rod, a swinging weighted pump lever operatively connected with a pump, and a flexible connection between the pump lever and the pendulum rod, substantially as described.

ALBERT E. WHITAKER.

Witnesses:

J. F. KNIGHT,
JAMES O'BRIEN.