

(No Model.)

S. PETERSON.
MOTOR.

No. 478,068.

Patented June 28, 1892.

Fig. 1.

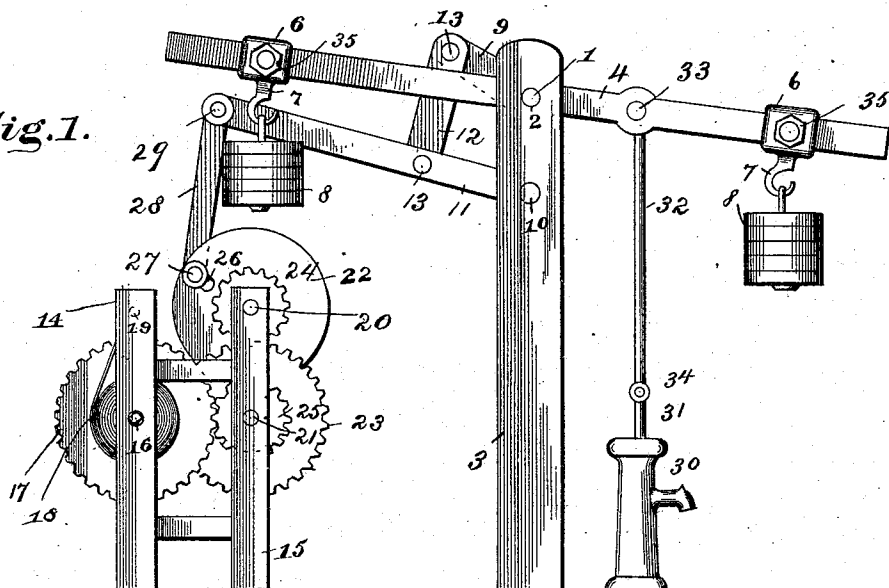
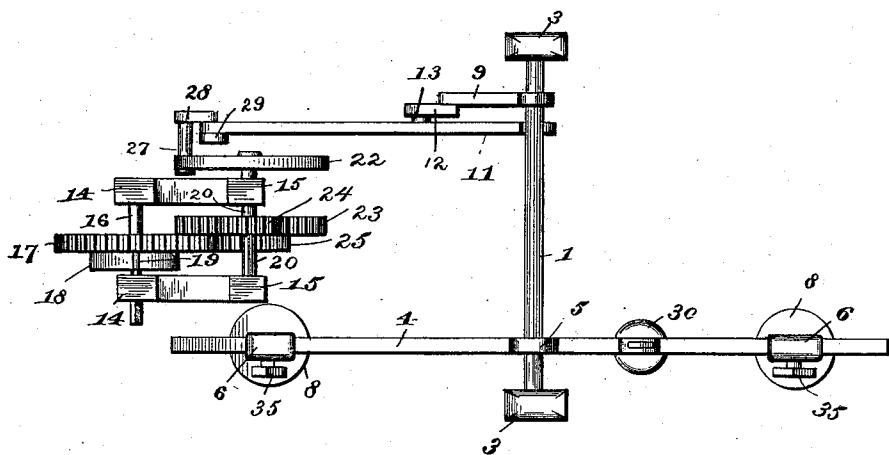


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

SWAN PETERSON, OF GIBSON CITY, ILLINOIS, ASSIGNOR OF ONE-HALF TO
ANDREW JOHNSON, OF SAME PLACE.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 478,068, dated June 28, 1892.

Application filed March 16, 1892. Serial No. 425,138. (No model.)

To all whom it may concern:

Be it known that I, SWAN PETERSON, a citizen of the United States, residing at Gibson City, in the county of Ford and State of Illinois, have invented a new and useful Motor, of which the following is a specification.

My invention relates to improvements in that class of motors that are spring-actuated; and the objects and advantages of the same, together with the novel features thereof, will hereinafter appear, and be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a motor constructed in accordance with my invention, the same being applied to and adapted to operate a pump. Fig. 2 is a plan view.

Like numerals of reference indicate like parts in both the figures of the drawings.

Any suitable frame-work may be employed for supporting the mechanism hereinafter described, and I have herein illustrated one simple form, which forms no material part of my invention and for which other forms may be substituted.

1 designates a transverse shaft, which is mounted in suitable bearings 2, formed near the upper ends of a pair of vertical standards or uprights 3. Mounted on the shaft is a walking-beam 4, which extends to opposite sides of the shaft and is provided at its center with a hub 5, through which the shaft passes. At opposite sides of the shaft there are mounted on the beam sliding sleeves 6, which terminate at their under sides in depending hooks 7, carrying a series of weights 8, adapted to counterbalance each other. From the shaft there projects a rock-arm 9, disposed slightly at an angle to the beam, and below the shaft 1 there is journaled in the aforesaid uprights or standards 3 the transverse shaft 10, upon which is fulcrumed the inner end of an actuating-lever 11. A link 12 is pivoted, as at 13 13, to the outer end of the arm 9 and to the lever 11 at the inner side of its center.

At one side of the standards or uprights 3 and below the beam 4 there are located opposite pairs of uprights or standards 14 and 15, suitably connected by proper tie-bars, as shown. A winding-shaft 16 is journaled in

the uprights 14, and upon the aforesaid shaft a main gear 17 is mounted and adapted to rotate therewith. Coiled about the shaft 16 and secured thereto is an actuating-spring 18; or, if desired, there may be secured to the shaft the well-known mechanical equivalent of the spring—namely, a weight. The outer end of the spring is made fast, as at 19, to a post or standard 14, and one end of the shaft 16 is squared to receive a crank-shaped key, whereby the spring may be tightened upon the shaft.

Between the uprights 15 transverse shafts 20 and 21 are located. The shaft 20 is provided with a disk 22 and a small gear 24, and the shaft 21, which is below the shaft 20, is provided with a large gear 23 and a small gear 25. The small gear 25 of the lower shaft is engaged and driven by the gear 17 of the winding-shaft, and it in turn drives the shaft 21 and the gear 23. The gear 23 engages the small gear 24 of the upper shaft 20, and the latter carries with it the disk 22, or what might more properly be called "crank-disk," so that, as will be seen, I have provided a system of speed-increasing gears from the winding-shaft to the said disk 22. The disk 22 is further provided with a radial slot 26, and adjustably mounted therein is a wrist or crank pin 27. By such adjustment, as will be observed, the pin may be adjusted nearer to or farther from the shaft 20. A connecting link or rod 28 is pivotally connected at its lower end to the pin 27, and at its upper end by a pin 29 is pivotally connected to the outer end of the lever 11. This completes the construction of the motor so far as the motor itself is concerned, and in its application it is simply necessary to supplement the same with the proper power-conveying devices. In the present instance, for the purpose of illustration I have shown the same applied to an ordinary pump 30, the same being provided with the usual plunger 31. In order to effect the connection between the two, a pump or connecting-rod 32 is pivoted at its upper end, as at 33, to the walking-beam 4 at what I have termed the "outer portion" thereof, and by which I mean that side thereof opposite to which the gearing is located, and at its lower end to the upper end of the plunger 31.

In order to operate the pump, it is simply necessary to adjust the weight-carrying sleeve 6 to proper counterbalancing-points upon the beam 4, which is readily accomplished by means of set-screws 35, passing through the sleeves and bearing upon the beams. The winding-shaft is now rotated so as to tighten the spring thereon and the mechanism permitted to operate. Motion is conveyed through the various gears heretofore described, and through such gears the motion is greatly accelerated, as will be obvious. The revolutions of the disk 22 cause a vertical vibration or oscillation of the lever 11, which communicates its motion through the link 12 to the rock-arm 9, and from thence to the beam 4. In this manner the beam is vibrated or oscillated, and the plunger 31 of the pump through the medium of the connecting-rod 32 is reciprocated and water forced and lifted and discharged from the pump. The rod 32, as will be obvious, may be mechanically connected with any other mechanism or device to be operated.

Having described my invention, what I claim is—

1. In a motor of the class described, the combination, with the frame-work, the walking-beam fulcrumed therein and provided with opposite counterbalancing-weights, and a connecting-rod extending from the beam and adapted to be connected with devices to be operated, of a train of spring-actuated speed-increasing gearing terminating in a crank-disk, a wrist-pin extending from the crank-disk, a lever fulcrumed at its upper end between the beam and crank-disk, an arm extending from the fulcrum of the beam and moving with the latter, a link pivotally connecting the outer end of the arm with the lever, and a link connecting the outer end of the lever with the aforesaid crank-disk, substantially as specified.

2. In a motor of the class described, the combination, with the suitable frame-work comprising the uprights 3, 14, and 15, the shaft 1, mounted in the uprights 3, the walking-beam fulcrumed at its center upon the shaft, the arm 9, the connecting-rod 32, loosely connected at its upper end to the walking-beam at one

side of its fulcrum, the sleeves 6, mounted on the beam at opposite sides of the fulcrum and terminating in hooks 7, the weights loosely hung upon the sleeves, the set-screws 35, passing through the sleeves and bearing on the beam, the winding-shaft 16, terminating at one end in a crank-key, journaled in the uprights 14, the gear 17 on the shaft, the coiled spring 18, secured to and wound upon the shaft and having its outer end connected to the uprights 14, the upper and lower shafts 20 and 21, the gear 23, mounted on the shaft 21, the small gear 25, mounted on the shaft 21 and engaged by the gear 17, the crank-disk 22, having slot 26 mounted on the shaft 20, and the small gear 24, mounted on the shaft 20 at one side of the gear 22 and engaged and driven by the large gear 23, of the lever 11, located between the disk 22 and the inner end of the beam 4 and having its inner end pivoted, as at 10, to the standards 3, the link 12, loosely connected, as at 13, to the lever 11 and to the free end of the arm 9, and the link 28, loosely connected to the outer end of the lever 11 and to the wrist-pin 27, loosely and adjustably mounted in the slot 26 of the disk, substantially as specified.

3. In a motor of the class described, the combination, with the shaft 1 and its bearings, of the walking-beam fulcrumed at its center thereon, a rock-arm mounted on the fulcrum and adapted to move with the beam, a connecting-rod connected with the outer end of the beam and adapted to be connected with the device to be operated, a train of speed-increasing gears terminating in a crank-disk, a spring for actuating the same, the lever pivoted at its inner end, a link between the lever and rock-arm, and a link between the crank-disk and the outer end of the lever, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SWAN PETERSON.

Witnesses:

J. H. SIGGERS,

W. S. DUVAL.