

UNITED STATES PATENT OFFICE.

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TO ORLANDO H. WRIGHT AND HORACE A. WRIGHT, BOTH OF SAME
PLACE.

PUMP-MOTOR.

SPECIFICATION forming part of Letters Patent No. 300,726, dated June 17, 1884.

Application filed March 29, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. OPP, a citizen of the United States, residing at Havana, in the county of Mason and State of Illinois, have invented a new and useful Pump-Motor, of which the following is a specification, reference being had to the accompanying drawings.

This invention has relation to motors designed more especially for working pumps; and it consists in the construction and novel arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

Figure 1 is a side elevation taken from that side of the motor which is provided with the fly-wheel and the geared mechanism for winding the rope upon the drum. Fig. 2 is an elevation of the opposite side, showing the speed-regulator and pitman-rod; and Fig. 3 is an edge view showing the connection between the train of gearing.

Referring by letters to the accompanying drawings, *a* designates the frame of the motor, mounted on a suitable rectangular base, *b*, and braced to strengthen it, as shown. One end of the frame is provided with steps by which the attendant may ascend to the platform *c*, for the purposes of making repairs to or oiling the train of gearing when necessary. The main shaft *d* of the gearing is mounted in bearings on the upper end of the frame *a*, and is provided with a revolving drum, *d'*, provided at one end with a ratchet-wheel, *d''*, which is fixed to the end of said drum; and is engaged by a spring-detent, *d'''*, pivoted to the inner face of one of the arms of the main gear-wheel *e* on the main shaft *d*, which detent is controlled by the spring *e'*, secured to the inner face of the main gear-wheel *e*, to prevent backward motion of the drum upon its shaft. The main gear-wheel *e* is fixed to the shaft *d* and revolves with the drum and shaft when the rope *e''* is being unwound from the drum by the weight *e'''*, attached to the lower end of the rope. The teeth of the main gear-wheel *e* engage a trundle-gear, *f*, on a shaft, *f'*, at the opposite end of which is a large spur-gear wheel, *f''*, the teeth of which in turn engage

a trundle-gear wheel, *f'''*, on a shaft, *g*, having bearings at the edge of the frame *a*, its ends projecting at opposite sides of the frame, as shown. The longer projection *g'* of the shaft *g* is provided with a bar, *g''*, the arms of which are weighted at the ends; or a fly-wheel may be used instead, to render the motion of the gearing uniform. The opposite end of the shaft *g* is provided with a crank-wheel, *h*, to the wrist-pin *h'* of which a pitman, *h''*, is connected. This pitman is in turn pivoted near its lower end to a lever, *i*, pivoted to the side of the frame *a*, and notched in its upper edge for a portion of its length, forming a scale, *i'*, on which a movable weight-arm, *i''*, operates to regulate the speed of the motor by moving it out or in on the scale-arm, as may be necessary. The weight-arm *i''* has any suitable weight, *i'''*, suspended from its lower end. The lower end of the pitman is provided with a hinged section, *k*, which is hinged at its lower end to the upper end of the pump-rod, as shown.

On the opposite side of the frame *a* to that having the speed-regulating mechanism, and secured to the end of the main shaft *d* outside of the frame, is a bevel or miter gear wheel, *l*. Below this miter-gear wheel *l*, secured in bearings *l'* and *l''* on the end piece of the frame, is a vertical shaft, *m*, provided at its upper end with a miter-pinion, *m'*, which is adapted to be thrown in and out of gear with the miter-gear wheel *l* by mechanism hereinafter explained.

Within the lower bearing, *l''*, is a short horizontal shaft, *n*, provided with a bevel-pinion, *n'*, at its inner end, the outer end of said shaft *n* projecting outwardly from said bearing *l''*, being provided with a crank-handle, *n''*.

Within the bearing *l'* upon the vertical shaft *m*, just below the miter-pinion *m'*, is a miter-pinion, *o*, which is adapted to be thrown in and out of gear with the miter-pinion *n'* just above it.

The adjustments of the miter-pinions on the vertical shaft are accomplished as follows: The lower end of the vertical shaft projects below the lower bearing, *l'*, a short distance. The normal positions of the miter-pinions *m'*

and *o* are out of gear with the miter-wheel *l* and miter-pinion *n'*.

To the side of the frame, below the projecting end of the vertical shaft *m*, is fulcrumed a lever, *p*, which is provided with a hook-rod, *q*, near its outer end, which, when the power end of the lever *p* is depressed to raise the miter-pinions *m' o'* into gear with the wheel *l* and pinion *n'*, engages a staple, *r*, in the base *b* of the frame, and holds them in gear while the crank is being turned to wind the rope up on the drum. When the rope has been wound up, the hook-rod is released, and the pinions with their shaft drop, throwing the pinions out of gear. The weight now operates the motor, and the speed should be regulated by shifting the movable weight on its scale.

The crank-handle is preferably attached to an arm, *x*, having weights at its ends; or a fly-wheel may be used in lieu of the weighted arm.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a motor for operating pumps and the like, the combination, with the frame of the motor, having the main shaft mounted in bearings at its top, and provided with the drum, to one end of which is secured a ratch-

et-wheel, engaged by a spring-detent on the inner face of the main gear-wheel at one end of the shaft, and the rope and weight connected to the drum, of a second shaft below the main shaft, provided at one end with a small trundle-wheel and at the other with a large gear-wheel, engaging a trundle-wheel on a third shaft below, provided on one end with a fly-wheel and at the other with a crank-wheel to which the pitman is connected, substantially as specified.

2. In a motor for pumps, the combination, with the bevel-gear wheel on the end of the main shaft, carrying the drum, ratchet spring-detent, main gear-wheel, and weighted rope, of the vertical shaft adjustably mounted in bearings on the end of the frame and provided with an upper and a lower miter-pinion, the latter being adapted to engage a miter-pinion on the horizontal crank-shaft, and the shifting-lever, hook-rod, and staple in the base of the frame, substantially as specified.

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

BENJAMIN FRANKLIN OPP.

Witnesses:

JOHN R. HORSTMAN,
WM. T. LEWIS.