

(No Model.)

G. F. WIGHTMAN.
PUMP MOTOR.

No. 458,928.

Patented Sept. 1, 1891.

FIG. 2.

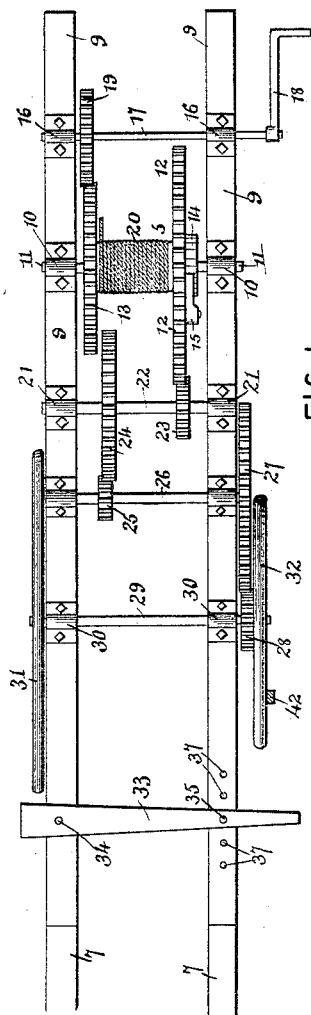
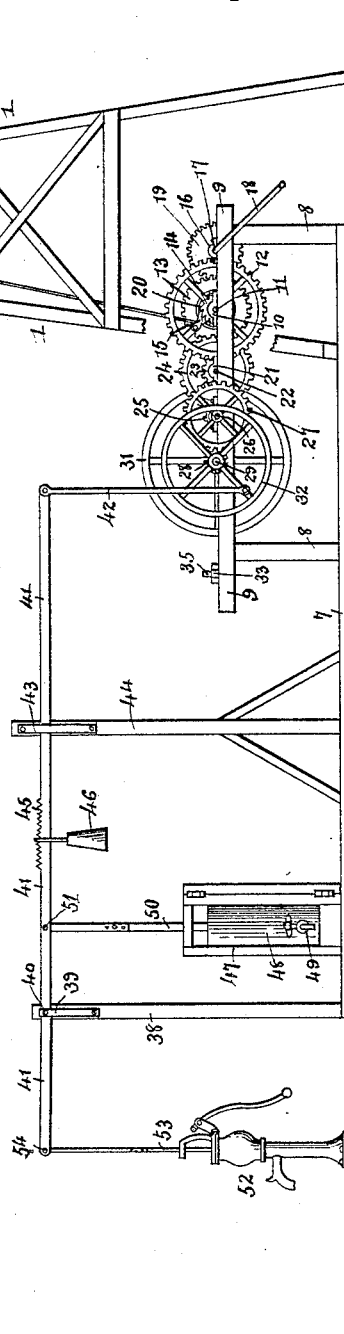


FIG. 1.



Witnesses:

James K. McElathman
W. S. Duval

By his Attorneys,

Chas. Snow & Co.

Inventor

George F. Wightman

UNITED STATES PATENT OFFICE.

GEORGE F. WIGHTMAN, OF TRAER, IOWA.

PUMP-MOTOR.

SPECIFICATION forming part of Letters Patent No. 458,928, dated September 1, 1891.

Application filed April 9, 1891. Serial No. 388,270. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. WIGHTMAN, a citizen of the United States, residing at Traer, in the county of Tama and State of Iowa, have invented a new and useful Pump-Motor, of which the following is a specification.

This invention relates to motors for operating pumps; and the objects in view are to provide a motor of cheap and simple construction which may be set and will automatically operate a pump.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will 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. Fig. 2 is a plan view of the same on a large scale.

1 designates the opposite four uprights comprising a tower, which uprights are suitably braced to form a stable structure and are capped or surmounted by a platform 2, from which depend hangers 3, carrying a loose pulley 4, over which passes a rope or cable 5, to one end of which is connected a weight 6 for operating the motor now to be described.

7 designates a pair of parallel sills located at one side of and projecting under the tower, and from said sills rise opposite pairs of vertical standards or posts 8, each pair of which supports a pair of side beams 9. Boxes 10 are mounted upon the side beams near one end, and in the same is journaled a power or drum shaft 11, at the ends of which are located a large gear 12 and a smaller gear 13, and at one side of the large gear a ratchet 14, which is engaged by a pawl 15, pivoted upon the gear 12, so that the latter gear will move with the shaft 11 when the latter is driven in one direction.

In boxes 16, located near one end of the side beams 9, is journaled a winding-shaft 17, having a crank 18 at one end, by which the shaft may be operated, and a small gear 19 at the opposite end, which engages with and drives the gear 13 and also the drum-shaft.

The shaft 11, as its name denotes, carries a drum 20, and around the same is passed the rope or cable 5.

In boxes 21 in front of the drum-shaft is mounted an intermediate shaft 22, carrying a small gear 23, rigidly mounted thereon and engaged and operated by the large gear 12 of the drum-shaft when the latter is operated by the rope or cable. The shaft 22 also carries a large gear 24, which engages and operates a small gear 25, located upon the shaft 26, journaled in the side beams and carrying a large gear 27. The gear 27 engages with and operates a small gear 28, which is mounted upon a shaft 29, journaled in boxes 30 and carrying at one end a balance-wheel 31 and at the other a pitman-wheel 32.

A brake-lever 33 has one end pivoted, as at 34, to one of the side beams, and beyond its pivot is adapted to bear against the periphery of the balance or fly wheel 31, thus acting as a brake upon the mechanism and serving to arrest the motion of the same. This lever may be locked either in or out of position by a removable pin 35, passed through a perforation 36, formed in the lever, and into any one of a series of perforations 37, formed in the adjacent side beams 9.

Beyond the frame-work and mechanism thus described, and at the other end of the sills 1, there is mounted upon said sills a post 38, to the upper end of which is secured a bracket 39, upon which is fulcrumed, as at 40, a long lever or beam 41. The longer end of the lever extends to a point vertically above the pitman or drive-wheel 32 of the motor, and is connected to the latter by means of a pitman 42. Intermediate its fulcrum-point and its longer end the lever is guided by a strap or keeper 43, secured to the face of a post 44, also mounted upon the sills 1 intermediate the fulcrum-post 38 and the motor.

Between the posts 38 and 44 a series of teeth 45 is formed upon the upper edge of the lever 41, and a weight 46 is mounted thereupon and may be adjusted toward or away from the fulcrum-point of said lever. A case or box 47 is located intermediate the posts 38 and 44 and upon the sills, and in the same is located

an air pump or cylinder 48, having a faucet 49 and a piston-rod 50, the upper end of which is pivoted, as at 51, to the lever 41. Beyond the sills is located the pump 52, of ordinary construction and having its pump-rod 53 pivoted, as at 54, to the shorter end of the lever 41.

In operation the operator revolves the crank 18 and transmits motion from the winding-shaft 17 to the drum-shaft 11 through the medium of the small and large gears 19 and 13, respectively. In this manner the rope or cable is wound upon the drum and the weight elevated to the upper end of the tower. The brake-lever is now removed from contact with the fly-wheel 31 and the operation of pumping begins, it being obvious that as the pitman-wheel is revolved an oscillatory motion is transmitted by the pitman to the lever 41 and a reciprocatory motion transmitted from said lever to the pump-rod 53 and the piston 50 of the air-pump. The weight 46 is adjusted to suit pumps of various drafts, and acts as a counterbalancing-weight, while the air-pump serves as a cushion, preventing jarring, jerking, and decreasing friction. By manipulating the key of the faucet 49 the motor may be regulated, as will be obvious.

From the above description, taken in connection with the accompanying drawings, it will be obvious that I have provided a weight-operated motor of cheap and simple construction, in which the weight may be rapidly wound to an elevated position, and when so elevated will exert its influence upon the motor to operate the same, and the latter is so geared as to increase to a maximum the motion transmitted thereto; also will it be obvious that the air cylinder or pump will serve to regulate the speed of the pumping as well as act as a cushion and prevent jarring and jerking of the machinery at the end of each stroke of the pump, and, furthermore, that the weight 46 counterbalances the working of the pump, so that the motor may be operated by a small weight requiring but little

energy or power to elevate it to an operative position.

Having described my invention, what I claim is—

1. The combination, with the fulcrum, the lever mounted pivotally thereon and adapted at one end for engagement with a pump or other rod, and the motor for operating the lever, of an air-pump located between the motor and fulcrum, provided with a faucet, and having its piston-rod pivoted to the lever, and the weight adjustably mounted on the lever between the fulcrum and motor, substantially as specified.

2. The combination, with the fulcrum, the lever mounted thereon and adapted at one end to engage with a pump or other rod, and the motor for operating the lever, of an air-pump located between the motor and fulcrum, provided with an air-faucet, and having its piston-rod pivoted to the lever, substantially as specified.

3. The combination, with the tower, the cable suspended therein, the weight connected to one end of the cable, a pitman-wheel, and a train of gearing for operating the same, of a fulcrum-post, a lever fulcrumed upon the post, a post located between the motor and fulcrum and having a keeper for the lever, a series of teeth located upon the lever, an adjustable weight mounted in the teeth, a pitman connecting one end of the lever with the pitman-wheel of the motor, an air-cylinder located between the two posts and having a regulating-faucet, and its piston-rod pivotally connected with the lever, substantially as specified.

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

GEORGE F. WIGHTMAN.

Witnesses:

E. J. ENDICOTT,
JOHN KOBER.