

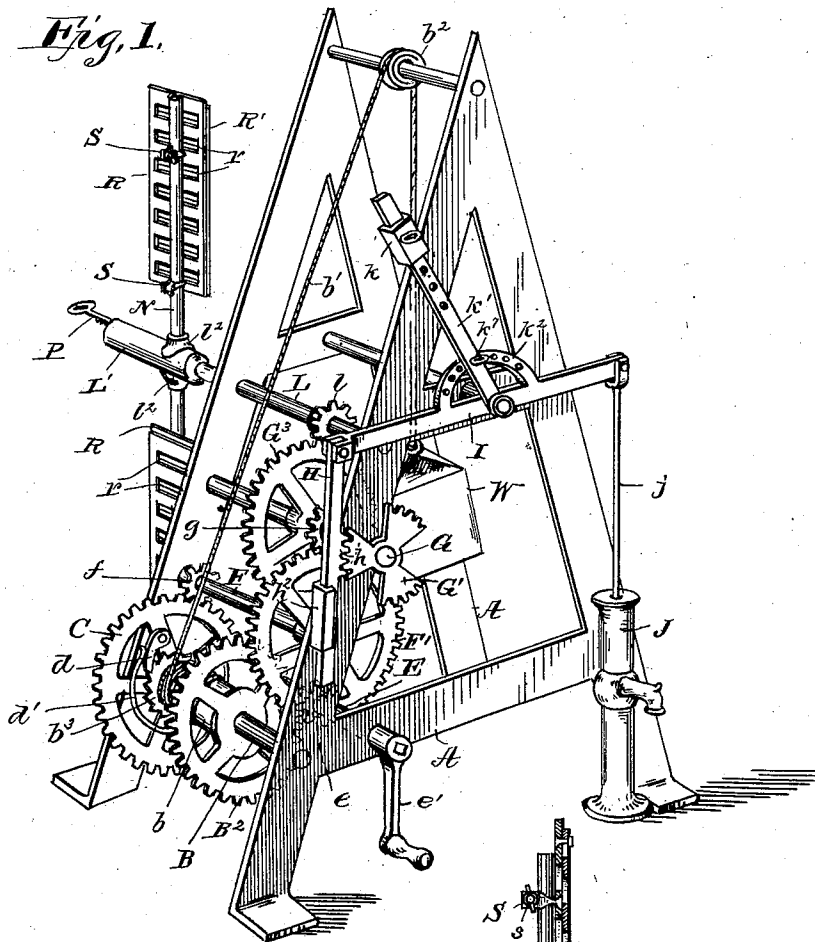
No. 703,426.

Patented July 1, 1902.

C. M. KILER.
MOTOR.

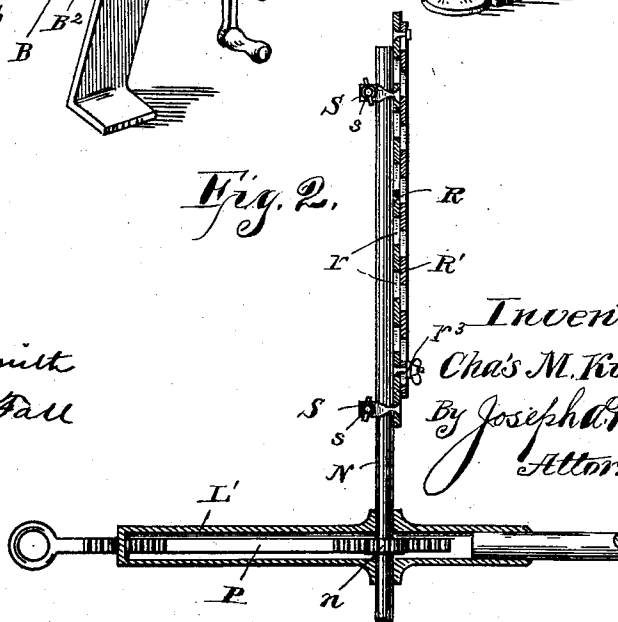
(Application filed Feb. 17, 1902.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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MOTOR.

SPECIFICATION forming part of Letters Patent No. 703,426, dated July 1, 1902.

Application filed February 17, 1902. Serial No. 94,446. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. KILER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Motors, of which the following is a specification.

This invention relates to improvements in motors, and is shown and will be described for pumping water; but it can be used for churning and for many other purposes, so that it is not desired to limit the invention to any specified kind of work.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my invention in operative position, and Fig. 2 a detail in section of the governor-carrying shaft and governor-blades.

Like letters of reference indicate like parts throughout both views of the drawings.

A represents the frame of the motor, which may be of any suitable material and construction.

B is the driving-shaft, on which is mounted the drum *b*, to which one end of cable *b'* is fastened. The cable passes from the drum up over the pulley *b²* at the top of frame and thence down to weight *W*. The drum is mounted loosely on its shaft and adjacent to it; but mounted so as to rotate with the shaft B is the wheel C. It carries the pawl *d*, which is pressed by the spring *d'* into engagement with the ratchet-wheel *b³*, mounted on the drum. The end of the drum opposite the ratchet-wheel has the cogged wheel *B²*. This engages the teeth of pinion *e*, mounted on the shaft E, and the shaft E is rotated by means of the hand-crank *e'* when it is desired to wind the cable upon the drum. Parallel with shaft B is shaft F, on which is mounted pinion *f*, the teeth of which engage the teeth of wheel C. The shaft G, parallel with shafts B and F, has the pinion *g*, which engages with wheel F' on shaft F. Mounted outside of the frame A on shaft G is the mutilated cog-wheel G'. This wheel G' is divided in six equal parts, every alternate one of which parts is removed, leaving the remain-

ing three parts mounted on a common hub with intervening recesses. There may be more than three parts or less than three without departing from the spirit of this invention. The teeth of each one of these parts or sections at each revolution of the shaft G contact with the teeth *h* of the rack-bar H. The upper end of the bar H is pivotally connected with the end of the walking-beam I, and said rack-bar is guided and held within access of the mutilated wheel G' by the guide *h²*. The opposite end of the walking-beam from bar H is pivotally connected to the pump-rod *j* of pump J.

In the operation of the above device the cogs of each section of the wheel G' by engagement with the teeth of the rack-bar draw the latter down, thereby lifting the water in the pump by the connection named; but upon the release of the rack-bar by the break in the mutilated wheel the suction of the pump will depress the adjacent end of the walking-beam, thereby raising the rack-bar into position to be lowered again by the next toothed section of wheel G'. As the amount of suction exerted by the pump will vary in different circumstances of use, I provide a balancing-weight *k*, which is adjustable on the bar *k'*, and the bar *k'* is pivotally secured at its lower end to the walking-beam. The segment *k²* from the walking-beam with a series of holes, as shown, affords means for securing the weighted lever in such position on either side of the vertical line through the pivot of the lever as may be necessary to equalize the excess or shortage of suction. The lever is secured by pin *k³*, which passes through the bar or lever and the segment.

Supported by frame A above shaft G is the shaft L, having pinion *l*, engaging the wheel G³ on shaft G. This shaft L is the governor-shaft and carries the governor for the motor, which I will now describe.

Mounted on the outside of the frame A on a projecting end of shaft L is the hollow enlargement L', having diametrically opposite lugs *l²* *l²* with openings through which is projected the shaft N. Mounted on the shaft N within the enlargement L' is the toothed wheel *n*, which turns with the shaft N.

Working in the teeth of the wheel *n* is the rack-bar *P*, which extends through a slotted opening in the outer end closure of the enlargement *L'*. The inner side of said rack-bar adjacent to the said closure is notched or toothed to engage the edge of said closure and hold the bar in any given position.

Secured to the projections of shaft *N* are the blades *R*, which are secured thereto by the clamps *S*, which are loosened and tightened by screw *s*, whereby the blades can be varied in their positions with relation to their axis of rotation to regulate the resistance, it being apparent that the farther out on said arms the blades are the greater will be the resistance to the rotation of the blades through the air. In order further to vary the resistance, I utilize the rack-bar *P* and the wheel *n* to rotate the shaft *N* and its blades, so as to present more or less of the broad side of the blades against the resistance of the air.

In order further to regulate the resistance, I provide the series of openings *r* in the blades, which are more or less closed, as occasion may require, by a shutter or sliding plate *R'*, having openings that may be made to wholly or partially register with the openings in the blades *R*. The plates *R'* are secured by set-screws *r³*, seated in blades *R*

and projecting through longitudinal slots in the sliding plates. 30

By the above construction the governor is capable of three adjustments by which the resistance may be varied—viz., by changing the distance of the blades from the axis of rotation of the fan, by varying the angle of the blades with relation to the plane of their rotation, and by changing the area of resistance of the blades by regulating the size of openings provided therein. 35 40

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

In a motor, the combination with a train of gears, means for actuating a gear at one end of the series, a governor-shaft connected with said train of gears, lateral arms connected by said shaft and blades secured to said arms, said blades having a series of openings and slides to cover more or less of said openings. 45 50

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 28th day of January, A. D. 1902.

CHARLES M. KILER. [L. S.]

Witnesses:

S. MAHLON UNGER,
J. A. MINTURN.