

(No Model.)

J. E. & G. W. JANES.
MECHANICAL MOTOR.

No. 540,670.

Patented June 11, 1895.

Fig. 1.

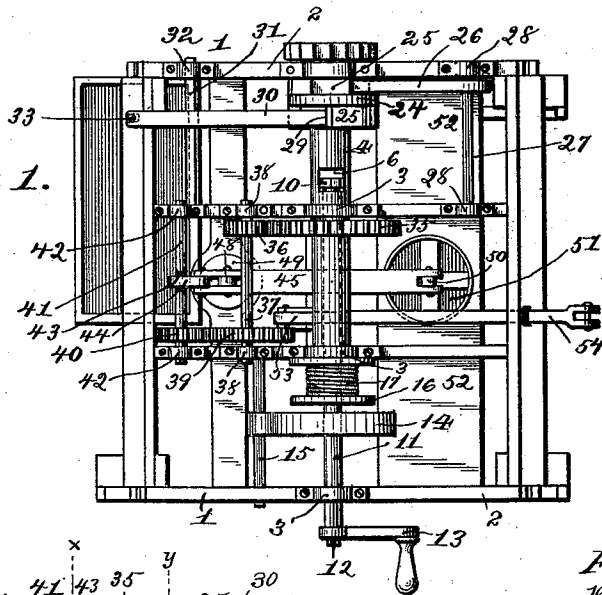


Fig. 6.

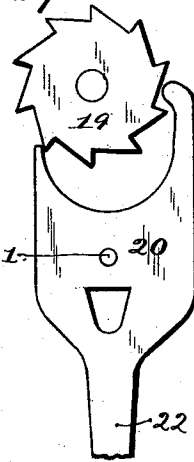


Fig. 2.

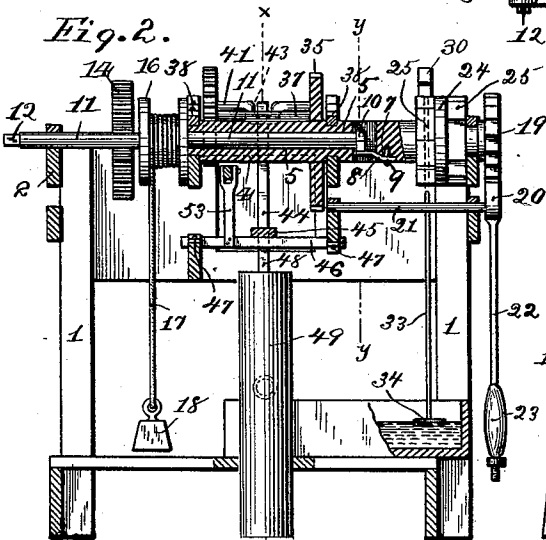


Fig. 3.

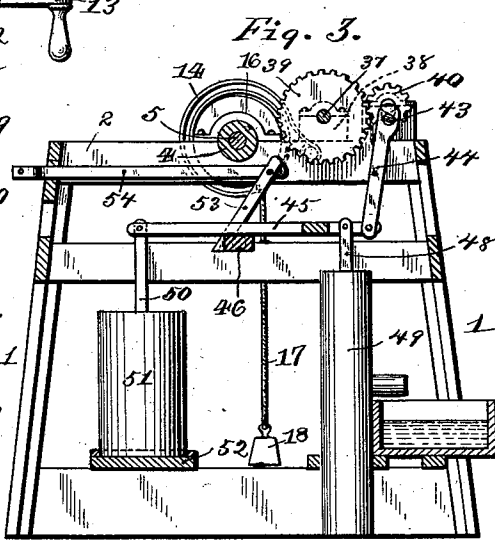


Fig. 4.

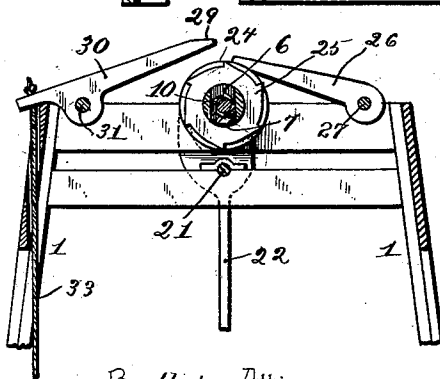
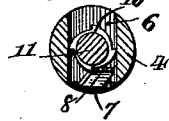


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN E. JANES, OF JACKSONVILLE, AND GEORGE W. JANES, OF INDUSTRY,
ILLINOIS.

MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 540,670, dated June 11, 1895.

Application filed June 6, 1894. Serial No. 513,886. (No model.)

To all whom it may concern:

Be it known that we, JOHN E. JANES, residing at Jacksonville, in the county of Morgan, and GEORGE W. JANES, residing at Industry, in the county of McDonough, State of Illinois, citizens of the United States, have invented a new and useful Mechanical Motor, of which the following is a specification.

This invention relates to mechanical motors; and it has for its object to provide a new and useful mechanical motor that shall be so constructed and actuated as to insure the efficient operation of pumps, churns, and washing or similar machines.

To this end the main and primary object of the present invention is to construct a combined spring and weight-actuated motor having simple and efficient means for being automatically stopped and started and also for operating a pump, a churn, and a washing or other light machine at one and the same time.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a top plan view of a combined spring and weight motor constructed in accordance with this invention. Fig. 2 is a central vertical longitudinal sectional view thereof. Fig. 3 is a similar view on the line *xx* of Fig. 2. Fig. 4 is a detail sectional view on the line *yy* of Fig. 2. Fig. 5 is an enlarged detail sectional view of the pawl-and-ratchet connection between the power and drive shafts. Fig. 6 is a detail elevation of the pendulum-escapement device.

Referring to the accompanying drawings, 1 designates a machine frame or stand constructed in a durable and strong manner of suitably connected uprights and having at the top thereof a series of transverse supporting bars 2, that provide for the support of the gearing devices comprising the motor. The said machine frame or stand 1, may be constructed in any convenient size or shape and is provided at the top thereof with a series of aligned bearings boxes 3, in certain of

which is journaled the drive shaft 4. The drive shaft 4, is hollow for a portion of its length to form the interior longitudinal bearing bore 5, that extends in from one end of the said shaft and leads into a transverse slot or opening 6, formed through the shaft 4, at the inner end of the hollow portion thereof, and said shaft is further provided at one side and communicating with the transverse opening 6, with the pawl recess 7, in which is fitted the spring pawl or dog 8, that is secured fast at one end as at 9, within the recess of said shaft and is adapted to have the free end thereof normally engage the ratchet disk or collar 10, that is mounted on the inner end of the power shaft 11, and is arranged to work within the transverse opening 6, of the drive shaft 4.

The power shaft 11, is adapted to work within the longitudinal bearing bore 5, of the shaft 4, and projects beyond the inner end of the said drive shaft and also turns in one of the bearing boxes 3, at one side of the machine frame or stand 1. The said power shaft 11, is provided with an outer squared extremity 12, that is adapted to removably receive the winding crank 13, that provides means for turning the power shaft in one direction for the purpose of winding up the spring 14, when the same is run down. The spring 14, is an ordinary coiled spring attached at one end to the shaft 11, and at its other end to the stationary attaching rod 15, secured in position at the top of the frame or stand 1, and alongside of the spring 14, is arranged a spool or drum 16, that is mounted fast on the shaft 11. The spool or drum 16, accommodates thereon the weight rope or chain 17, to the hanging end of which is attached an operating weight 18, that combines with the spring 14, to transmit motion to the shaft 11, and therefore to the drive shaft 4.

In winding up the spring and the weighted rope or chain 17, the shaft 11, is turned in one direction by means of the crank 13, and in turning in this direction the ratchet disk or collar 10, carries the teeth thereof in a direction that permits the spring pawl to ride freely thereover so that the drive shaft 4, will not operate, and when the shaft 11, is left free to be rotated by the combined action of the

spring and weight, the ratchet disk or collar 10, will positively engage the pawl 8, and thereby connect the shaft 4, and the shaft 11, so that both will be rotated together. The drive shaft 4, which is adapted to be rotated in this manner, has mounted on the outer extremity thereof the escapement disk or wheel 19, which is engaged by the oscillating escapement head 20, that is mounted on the outer end of the oscillating pendulum shaft 21, mounted in suitable bearings on the frame or stand 1, below the shaft 4. The said escapement head 20, has extended therefrom the pendulum lever or arm 22, which carries the adjustable pendulum weight 23, and provides an attachment for the motor, which steadies the operation thereof and provides for adjusting or regulating the rapidity of operation of the same. The drive shaft 4, also has mounted thereon near one end the ratchet wheel 24, that is provided with the reversely toothed ratchet disks 25, with the teeth of one of which disks or portions is adapted to normally engage the pointed end of the gravity catch dog 26, that is mounted at its other end on the short rod or shaft 27, turning loosely in the bearings 28, at the top of the frame or stand, and the engagement of said catch dog with one of the ratchet disks 25, prevents the shaft 4, from turning with the shaft 11, when the latter is turned to wind up the spring and weight. The other ratchet disk portion 25, of the ratchet wheel 24, is adapted to be engaged by the pointed catch end 29, of the check dog 30, that is mounted on the oscillating rod or shaft 31, journaled in the bearings 32, and the other end of said dog has attached thereto the upper end of the adjusting cord 33, the lower end of which is adapted to be attached to a suitable float 34, which is designed to be arranged in a trough or other receptacle, which is to be supplied with water by the pump hereinafter referred to, and when the water lowers in said trough or receptacle, the dog 30, will be lifted out of engagement with the ratchet wheel so as to permit the motor to run and vice versa.

At a point intermediate of its ends the shaft 4, has mounted thereon the gear wheel 35, that meshes with the small cog wheel 36, mounted on one end of the short counter-shaft 37, journaled in suitable bearings 38, at one side of the shaft 4, and said short counter-shaft 37, also has mounted thereon a second larger cog wheel 39, which meshes with the gear pinion 40, on one end of the crank shaft 41. The crank shaft 41, is journaled in suitable bearings 42, at one side of the shaft 37, and is provided with an intermediate crank 43, to which is loosely connected the upper end of the pitman 44, the lower end of which is pivotally connected to one extremity of the double rock arm 45, which is projected from both sides of the rock shaft 46, journaled in suitable bearings 47, below the shaft 4. The said double rock arm 45, has also pivotally

connected to the same end as the pitman 44, the upper end of the plunger rod 48, of an ordinary pump 49, that is arranged in a convenient position for discharging into the trough or receptacle in which the float 34, is arranged. The opposite end of the rock arm 45, is adapted to have pivotally connected thereto the upper end of the dasher rod 50, of an ordinary churn 51, which is supported on a platform 52, at the base of the frame or stand 1. A supplemental rock arm 53, is extended from the shaft 46, and has connected thereto the inner end of an operating bar 54, arranged to reciprocate beyond one end of the frame or stand and adapted to be connected with a washing or other suitable machine to be operated.

The above construction of motor provides means for conveniently operating several different devices at one and the same time, and it will be understood, that changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this construction.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a mechanical motor, the combination with the machine frame or stand; of a drive shaft journaled on said frame and hollow throughout a portion of its length, said shaft being provided at the inner end of its hollow portion with a transverse opening, a power shaft also journaled on said frame in alignment with the drive shaft and arranged to work within the hollow portion of said drive shaft, a ratchet disk or collar mounted on the inner end of said power shaft and working in the transverse opening of the drive shaft, a spring pawl secured to one side of the drive shaft and normally held in engagement with said ratchet disk or collar, an actuating spring coiled on said power shaft, a spool or drum mounted on said power shaft, a weighted rope or chain winding and unwinding on said spool or drum, and suitable gearing connected with said drive shaft, substantially as set forth.

2. In a mechanical motor, the combination with the frame; of a hollow drive shaft journaled on said frame, a spring and weight actuated power shaft working within the hollow drive shaft, a pawl and ratchet connection between the drive and power shafts, reversely toothed ratchet disks mounted on said hollow drive shaft, a gravity catch dog supported to normally engage with one of said ratchet disks, an oscillating check dog mounted on said frame and adapted to engage with the other of said ratchet disks, an automatically operating adjusting device connected with said check dog to engage and disengage the same, and suitable gearing connected with said drive shaft, substantially as set forth.

3. In a mechanical motor, the combination with the frame; of a hollow drive shaft jour-

naled on the frame, a spring and weight actuated power shaft working within the hollow drive shaft and having a clutch connection therewith, a pendulum escapement device
5 connected with one end of said drive shaft, a gear wheel mounted on the drive shaft at an intermediate point, a short counter-shaft located adjacent to the drive shaft and carrying different sized cog wheels the smaller of
10 which meshes with said gear wheel, a crank shaft journaled adjacent to the counter-shaft and carrying a pinion meshing with the larger cog wheel thereof, a rock shaft mounted within the frame below the drive shaft and having
15 a double rock arm extended from both sides thereof and a supplemental rock arm extending there-above, a pitman connected

with one end of the double rock arm and with said crank shaft, a pump plunger adapted to be connected with one end of said double rock arm, a churn dasher adapted to be connected with the other end of said double rock arm, and an operating bar connected with said supplemental rock arm and adapted for connection with a washing or other machine to be
20 operated, substantially as set forth.
25

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN E. JANES.

GEORGE W. JANES.

Witnesses:

ED. JANES,

O. E. KINKADE.