

(No Model.)

2 Sheets—Sheet 1.

J. B. SILLIMAN.
MECHANICAL MOTOR.

No. 462,817.

Patented Nov. 10, 1891.

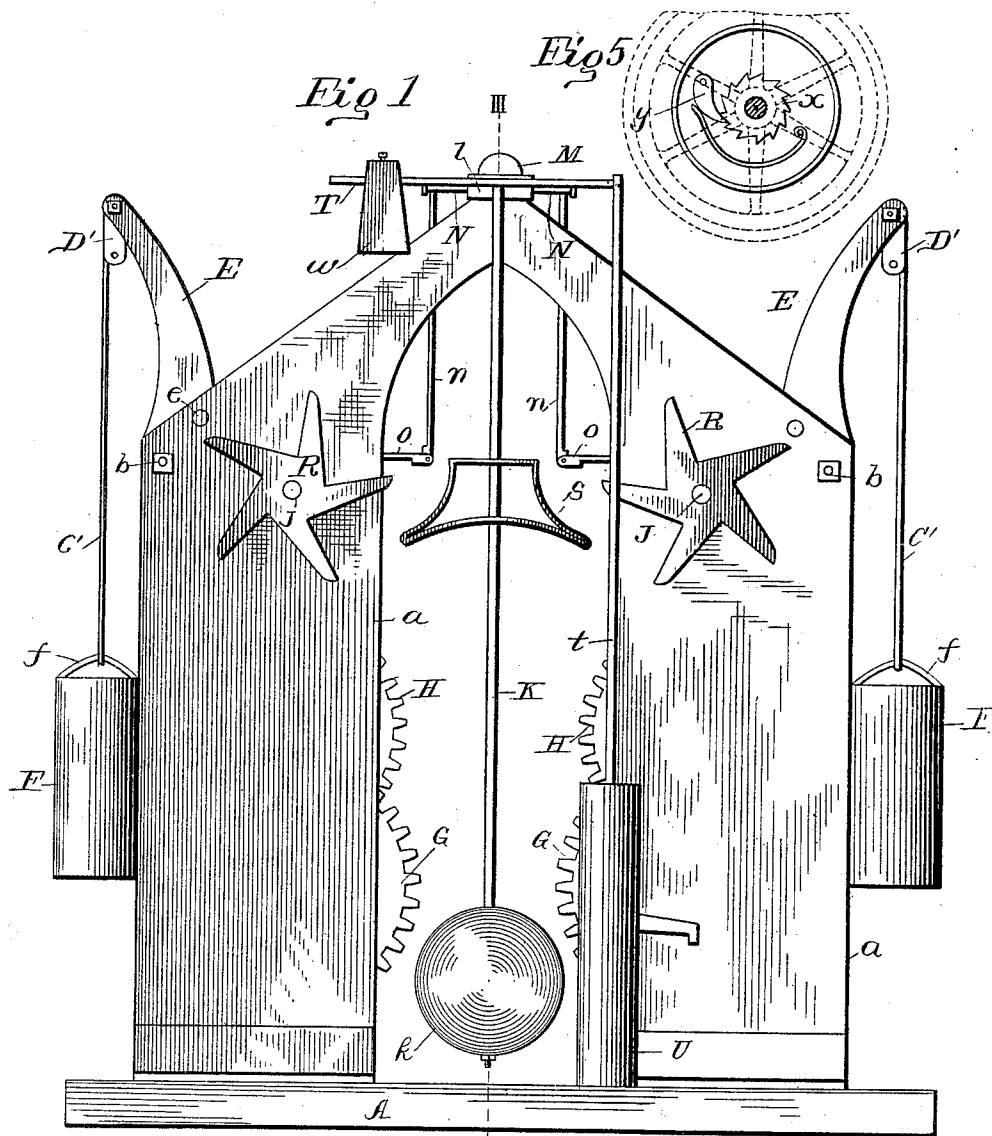


Fig 5

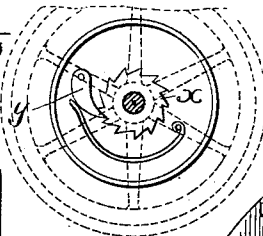
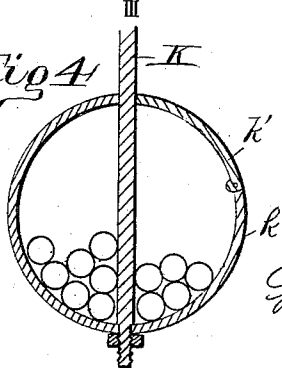


Fig 1

Fig 4



Witnesses

C. C. Burdine
Geo. L. Wheelock

Inventor

John B. Silliman,
per R. K. Davis,
his Attorney.

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Fig 3

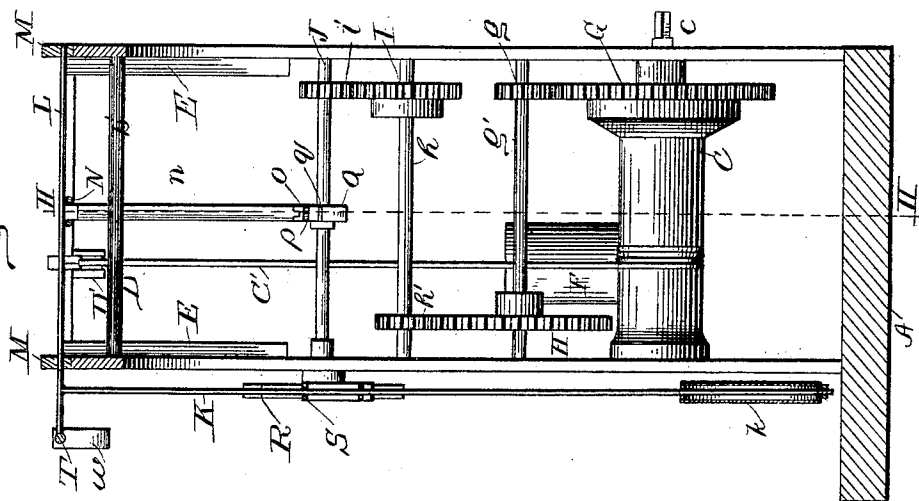
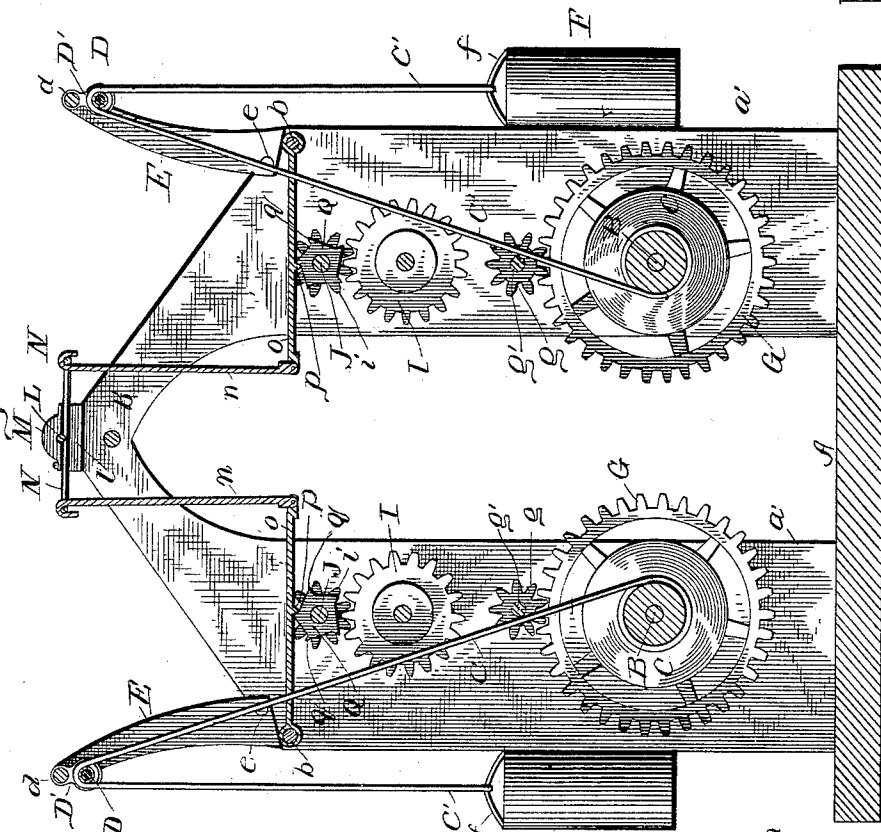


Fig 2



Witnesses

C. C. Burdure
Geo. L. Wheelock.

Inventor

John B. Silliman
per *Attorney*
his Attorney

UNITED STATES PATENT OFFICE.

JOHN B. SILLIMAN, OF LA PORTE, INDIANA.

MECHANICAL MOTOR.

SPECIFICATION forming part of Letters Patent No. 462,817, dated November 10, 1891.

Application filed June 6, 1891. Serial No. 395,338. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. SILLIMAN, a citizen of the United States, residing at La Porte, in the county of La Porte and State of Indiana, have invented certain new and useful Improvements in Mechanical Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved motor, its object being to provide a simple and effective motor for pumping water, &c., and to bring the motor down to such cost that any person requiring one may procure one at a small outlay.

To these ends my invention consists in certain features of construction and combinations of parts to be hereinafter described, and then particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of my motor. Fig. 2 is a vertical section on line II II, Fig. 3. Fig. 3 is a vertical section on line III III, Fig. 1. Fig. 4 is a sectional view of the pendulum-bob. Fig. 5 is a detail view of the pawl and ratchet.

A represents the base on which the frame is supported, such frame consisting of a front plate *a*, back plate *a'*, and tie-rods *b*, connecting the upper ends of the plates at their outer sides, between which rods *b* a tie-rod *b'* is located. On each side of the frame near its base is journaled a transverse shaft B, each provided at its rear end with a squared portion *c* to receive any suitable crank, whereby the shaft may be turned to wind up the mechanism now to be described.

A pair of windlasses C is mounted on the shafts B, and upon each windlass a rope or cable C' is adapted to be wound. These ropes or cables pass up over pulleys D, journaled in pulley-blocks D', which are hung from cross-bars *d*, connecting the arms or uprights E. These arms or uprights E are secured at their lower ends to the upper outer corners of the plates *a* and *a'* by means of the pivots *e*, and with their cross-bars *d* constitute folding-frames for the purpose of enabling the motor to be boxed in a smaller compass.

To the outer ends of the ropes or cables C' are secured suspended weights F, having bails *f*.

A train of gearing is arranged on each side of the frame-work, and each train comprises a cog-wheel G on each shaft B, above and intermeshing with which is a pinion *g*, mounted on the rear end of a transverse shaft *g'*, journaled in the plates *a* and *a'*; also mounted on each shaft *g'* at the front end is a cog-wheel H, located above which is another transverse shaft *h*, journaled in the plates *a* and *a'*, and provided at its front end with a pinion *h'*, which intermeshes with the cog-wheel H. On the rear end of each shaft *h* is a cog-wheel I, which intermeshes with a pinion *i*, located on the rear end of a transverse shaft J above it, which shaft is also journaled in the plates *a* and *a'*. The cog-wheels G, H, and I of the two trains of gearing gradually decrease in size in the order of their sequence, as is usual in clock mechanism. In front of the plate *a*, midway between its sides, is a pendulum K, provided with a bob *k*. The pendulum-bob is hollow, so that it may receive a suitable quantity of weights or pellets, and its opening is closed by a door *k'*. The pendulum K hangs from a transverse rock-shaft L, which is journaled in boxes or bearings *l* at the apices of the plates *a* and *a'*. These bearings *l* are open at the top, the shaft L being held in position by means of pivoted caps M, which swing over the bearings. Projecting horizontally on both sides of the rock-shaft L are rock-arms N, located intermediately of the plates *a* and *a'*, from the outer ends of which hang pivoted reciprocating parallel bars *n*. To the lower ends of the vertical reciprocating bars *n* are pivoted the inner ends of the horizontal oscillating bars *o*, the outer ends of which are pivoted on the tie-rods *b*. On the under side of each oscillating bar *o* is a detent-tooth *p*, that engages the teeth *q* of the cam-wheel Q, with which the upper shaft J of each train of gearing is provided. On the front ends of the shafts J, which project through the front plate *a*, are escape-wheels R, between which the pendulum K oscillates. Impulse is given to the pendulum through the medium of a double pallet S on the same. On the front end of

rock-shaft L is a working beam T, to which is pivotally connected at one end the upper end of piston-rod *t* of the pump U. The other end of the beam T is provided with an adjustable counterbalance-weight *w*.

The motor is operated as follows: The ropes or cables C' are first wound upon the drum, so as to raise the weights F. Upon the pendulum being swung to one side, one of the detents *p* will be released from the tooth of the cam-wheel Q, with which it is in engagement, permitting the train of gearing under said detent, which train is actuated by its weight F to move its escape-wheel R, which engages the pallet S and throws the pendulum to the other side, and the same movements are then produced on this latter side. The trains of gearing are caused in this manner to work intermittently and alternately. Each large cog-wheel G is loose on its shaft B, but is locked to the windlass C to cause both to revolve together in one direction by means of ratchet *x*, fixed to the shaft, and the spring-actuated pawl *y*, pivoted to the said wheel, said devices permitting each windlass and shaft to revolve independently of said wheels when the rope or cable is being wound up.

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

1. In a mechanical motor, the combination of two trains of gearing, an escape-wheel for each train, a pendulum between the wheels provided with a pallet, a rock-shaft from which the pendulum hangs, devices between the rock-shaft and trains of gearing for releasing the latter and permitting them to work

intermittently and alternately, and a working beam carried by the rock-shaft for operating a suitable device, substantially as set forth.

2. In a mechanical motor, the combination of two trains of gearing provided with cam-wheels, an escape-wheel for each train, a pendulum between the wheels provided with a pallet, a rock-shaft from which the pendulum hangs, devices between the rock-shaft and trains of gearing provided with detents for engaging the cam-wheels, whereby the trains of gearing are released and permitted to work intermittently and alternately, and a working beam carried by the rock-shaft for operating a suitable device, substantially as set forth.

3. In a mechanical motor, the combination of two trains of gearing provided with cam-wheels, an escape-wheel for each train, a pendulum between the wheels provided with a pallet, a rock-shaft from which the pendulum hangs, rock-arms on said shaft, vertical reciprocating bars depending loosely from the arms, oscillating bars fulcrumed at their outer ends and pivoted to the lower ends of the reciprocating bars at their inner ends, detents projecting from the oscillating bars for engaging the cam-wheels, and a working beam on the rock-shaft, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN B. SILLIMAN.

Witnesses:

CHAS. S. MCCLUNG,
FITCH D. BOWEN.