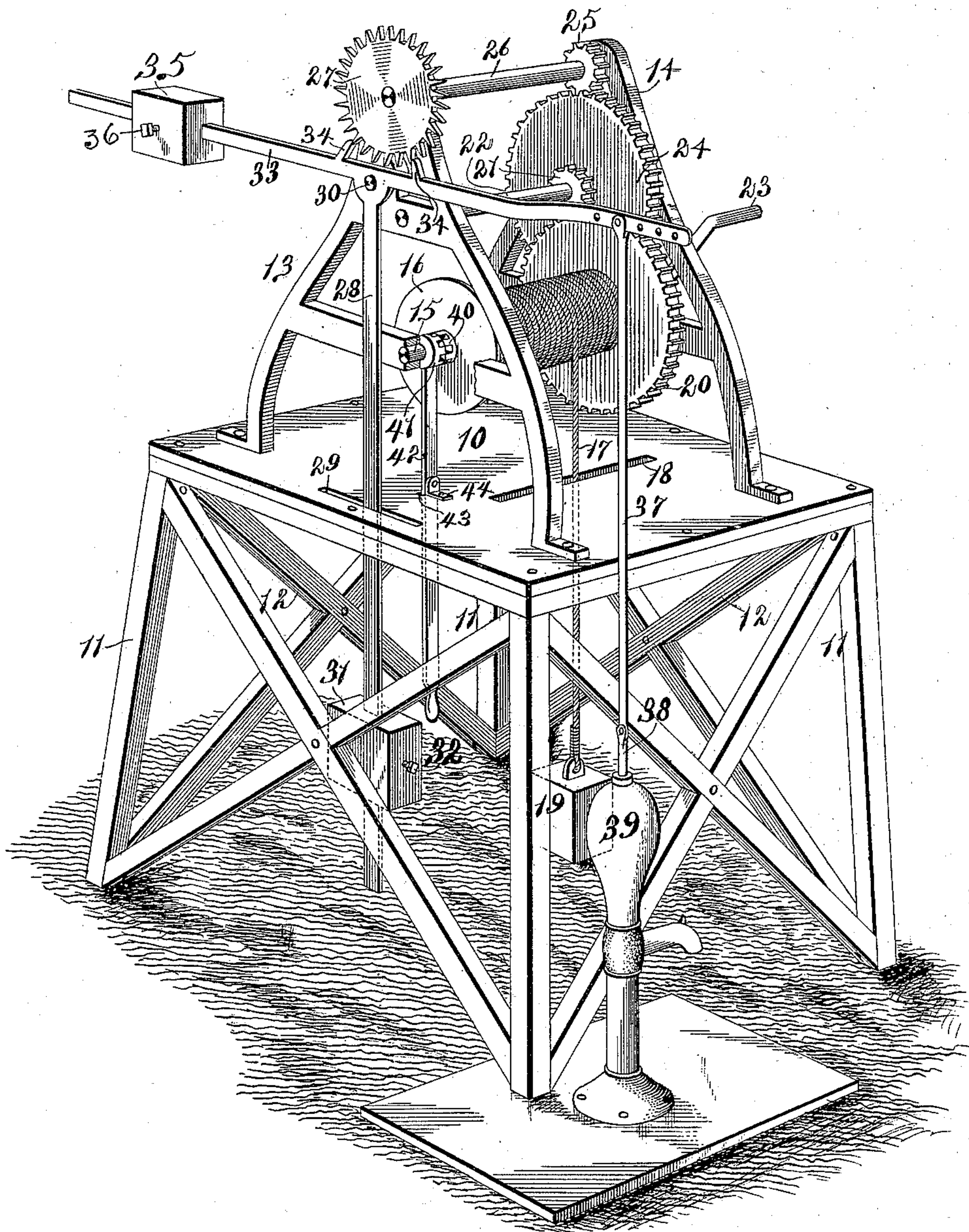


(No Model.)

S. E. HENNAGIR.
GRAVITY MOTOR.

No. 555,949.

Patented Mar. 10, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

SILES E. HENNAGIR, OF ARDAL, IOWA.

GRAVITY-MOTOR.

SPECIFICATION forming part of Letters Patent No. 555,949, dated March 10, 1896.

Application filed March 19, 1895. Serial No. 542,430. (No model.)

To all whom it may concern:

Be it known that I, SILES E. HENNAGIR, a citizen of the United States of America, residing at Ardal, in the county of Butler and State of Iowa, have invented a Gravity-Motor, of which the following is a specification.

The object of my invention is to provide improved means for operating a pump or other light machinery.

My invention consists of a motor, comprising rope and windlass mechanism, an escapement connected with said mechanism, a weight connected with said mechanism, and a pitman connected with and operated by said escapement.

My invention consists further in the construction, arrangement and combination of parts hereinafter set forth, pointed out in my claim and illustrated by the accompanying drawing, which represents a perspective of the complete motor attached to a pump.

In the construction of the machine as shown a tower or support is provided, which tower comprises a platform 10 mounted on posts 11 and secured by braces 12. Heads 13 14, preferably made of cast metal, are fixed to and extend in parallel vertical planes above the platform 10. A drum-shaft 15 is mounted for rotation in the lower portions of the heads 13 14, and a drum 16 is rigidly mounted on said shaft. A rope 17 is fixed to the drum by one end and extends downwardly through a slot 18 in the platform 10, which slot is parallel with the axis of said drum. A weight 19 is fixed to the lower end portion of the rope 17 below the platform 10. A spur-wheel 20 is mounted on the drum-shaft 15 at one end of the drum 16 and secured to said shaft by a clutch of common form, which spur-wheel meshes with a pinion 21 mounted on a counter-shaft 22, mounted for rotation in the heads 13 14 above the drum-shaft. A winch 23 is fixed to one end portion of the drum-shaft 15. A spur-wheel 24 is fixed to the counter-shaft 22 adjacent to the pinion 21, and meshes with a pinion 25, fixed to a counter-shaft 26, mounted for rotation in the upper ends of the heads 13 14. An escapement-wheel 27 is fixed to one end of the counter-shaft 26. A pendulum 28 is vertically positioned in a slot 29 in the platform 10 and is pivoted at its upper

end to an arbor 30, mounted in the head 13 below the escapement-wheel 27.

The pendulum-bob 31 is adjustable longitudinally of the pendulum and is connected thereto by a set-screw 32. A cross-head 33 is formed on the upper end of the pendulum 28 and extends approximately in a horizontal plane at right angles to the said pendulum. Escapement-lugs 34 34 are fixed to and project above the cross-head 33 and engage the teeth of the escapement-wheel 27. A counterpoise 35 is mounted on one arm of the cross-head 33 and is temporarily secured thereto by a set-screw 36. A pitman 37 is adjustably attached at its upper end to the outer end portion of the arm of the cross-head 33 opposite to the counterpoise 35, the lower end of said pitman being removably and replaceably secured to a piston-rod 38 of a pump 39.

A clutch member 40 is fixed to the end of the drum 16 opposite to the spur-wheel 20, and a mating clutch member 41 is loosely mounted on the drum-shaft 15.

A lever 42 is vertically positioned in a slot 43 in the platform 10, and fulcrumed on an angle-plate 44 fixed to said platform.

The upper end of the lever 42 is pivotally connected with the clutch member 41, and a handle 45 is formed on the lower end of said lever.

Any desired machine may be substituted for the pump and driven by the pitman 37.

In practical use power is stored by rotating the drum-shaft 15 and drum 16 by manual actuation of the winch 23, thus winding the rope 17 on said drum and elevating the weight 19, the spur-wheel 20 remaining stationary by reason of the clutch connection between said wheel and the drum-shaft. The power is retained stored by engaging the clutch member 41 with the clutch member 40 by manually oscillating the lever 42, and thereby holding the drum-shaft against rotation.

When it is desired to utilize the power to the actuation of machinery, the clutch members 40 41 are disengaged by manual oscillation of the lever 42, and the weight 19 descends, unwinding the rope from the drum and rotating said drum and drum-shaft, the pendulum being first given an initial move-

ment of oscillation by manual force applied thereto. The shaft 15 in rotating revolves the spur-wheel 20, and the intermeshing of the spur-wheel 20 with the pinion 21, of the spur-wheel 24 with the pinion 25, and the consequent rotation of the counter-shaft 26 revolves the escapement-wheel 27. The revolution of the escapement-wheel 27 results in an intermittent engagement of the teeth of said wheel with the lugs 34 34 on the cross-head 33 and perpetuates the oscillation of the pendulum. The oscillation of the pendulum results in the oscillation of the cross-head 33, and thereby a vertical reciprocatory movement is imparted to the pitman 37, and through said pitman motion is installed and sustained in the pump or driven machinery attached thereto.

The degree of oscillation of the pendulum is regulated and the speed thereof controlled by adjusting the bob 31 or counterpoise 35, or both, as desired.

I claim as my invention—

A gravity-motor comprising a supported platform 10 having a slot 18 therein heads 13, 14, fixed to said platform, a drum-shaft mounted for rotation in said heads, a drum rigidly mounted on said shaft, a rope fixed at

its upper end to said drum and wound thereon and extended through said slot 18 in the platform, a weight fixed to the lower end of said rope below said platform, a winch on said drum-shaft, a spur-wheel 20 on said drum-shaft, a counter-shaft 22 mounted for rotation in said heads, a pinion rigidly fixed to said counter-shaft and meshing with said spur-wheel, a spur-wheel 24 rigidly mounted on said counter-shaft, a counter-shaft 26 mounted for rotation in the said heads, a pinion 25 rigidly mounted on said counter-shaft 26 and meshing with the said spur-wheel 24, an escapement-wheel 27 rigidly mounted on the counter-shaft 26, a pendulum pivoted on the head 13, a bob adjustably mounted on said pendulum, a cross-head 33 fixed to the upper end of said pendulum, escapement-lugs 34, 34, fixed to said cross-head engaging said escapement-wheel, a counterpoise 35 adjustably mounted on the cross-head, a pitman adjustably secured to said cross-head, and lever-operated clutch mechanism to control the movement of the drum-shaft, as set forth.

SILES E. HENNAGIR.

Witnesses:

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