

992,979.

2 SHEETS-SHEET 1.

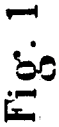


Fig. 4

E. L. Ver Wee.
A. M. Shaimon.

Fig. 6.

LEVI P. NORMANDIN.

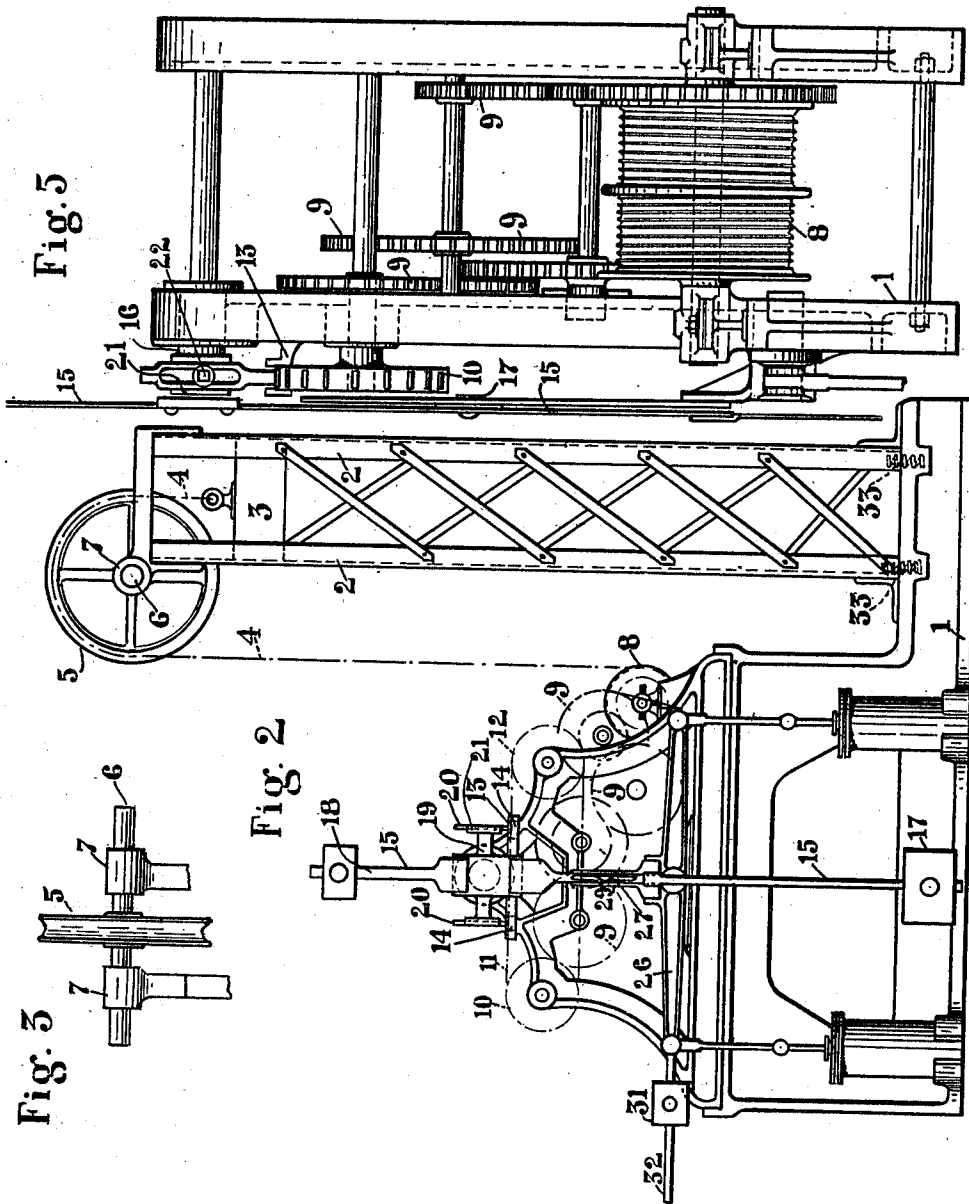
BY  ATTORNEYS

L. P. NORMANDIN.
WEIGHT MOTOR.
APPLICATION FILED MAR. 11, 1909.

992,979.

Patented May 23, 1911.

2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LEVI P. NORMANDIN, OF JACKSON, MICHIGAN.

WEIGHT-MOTOR.

992,979.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed March 11, 1909. Serial No. 482,665.

To all whom it may concern:

Be it known that I, LEVI P. NORMANDIN, a citizen of the United States of America, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Weight-Motors; of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to gravity operated or weight motors and more especially to a certain arrangement thereof whereby great power is obtained together with simplicity of parts and ease of adjustment which fits
15 the apparatus for use in places remote from repair shops.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

20 Referring to the drawings, Figure 1 is a view partially broken away in side elevation of a motor embodying features of the invention. Fig. 2 is a view in end elevation of a portion of the frame and a weight
25 stand. Fig. 3 is a view in detail of a weight sheave. Fig. 4 is a view in detail in side elevation of a detent chain. Fig. 5 is an enlarged view in end elevation of the upper portion of the motor. Fig. 6 is a plan view
30 in detail of a detent chain.

In the drawings a suitable frame 1 of proper design has upright guides 2 at one end thereof in which a driving weight 3 travels. A cable 4 connected to the weight
35 is led over a sheave 5 that is made fast on a shaft 6 longitudinally reciprocable and rotatable in bearings 7 in the upper end of the guides 2. The cable 4 passes around a horizontal drum 8 on the base of the frame, the
40 longitudinal movement of the shaft 6 allowing the sheave 5 to follow the lead of the rope as the latter is taken up by the drum or pays off from the same.

A rock arm 19 secured on the pendulum
45 shaft above the guide plate has a pair of similarly disposed upright dogs 20 on its extremities each in register with an aperture 14 of the guide plate 13 and disposed to alternately hold and release the sprocket
50 chain 11. As the momentum of the pendulum raises first one dog and then the other clear of the chain, the transverse members of the chain which, as indicated, are cylindrical
55 rollers 25, underrun the beveled faces of the ends of the dogs and push them upward, thus giving a momentary impulse to the

pendulum in the same manner as in the escapement train of a clock.

As a preferred form of construction the dogs are bars longitudinally adjustable in
60 ways 21 in the ends of the rocker with clamping nuts 22.

The chain 11 consists of overlapping side links 23 with pivot pins 24 and rollers 25 thereon, the extending of the links beyond
65 the pins 24 being for the purpose of bridging the intervals 14 so that the chain does not flex when passing over the horizontal guide plate while it is still free to pass
70 around a wheel.

Power from the pendulum is transmitted by a walking beam 26 pivoted to the frame below and in alinement with the pendulum and connected thereto by a stud 27 on the
75 pendulum engaging a slot 28 in an upright arm 29 from the walking beam. Rods 30 pivoted to the walking beam ends transmit the motion of the latter to any mechanism to be driven, as, for example, a pump. A
80 counterbalance 31 and an extension 32 of one of the walking beam arms permit the removal of the adjacent rod 30 and the use of the opposite rod alone if desired.

To prevent the weight striking the frame cushion springs 33 are placed in the bottom
85 of the guide ways. To check the machine at any point desired or to allow setting the machine to stop in different lengths of time, a disk 34 with a spiral groove 35 in its face is mounted to be rotated by sprocket chain
90 or belt 36 from the main train 9, a plunger 37 traveling in a guide way 38 is spring projected against the disk with its inner end in the groove 35 or if desired the disk 34 may be directly attached to one of the shafts.
95 By placing a stop either in the form of a stud or preferably an indentation 39 in the proper place in the cam path 35 the plunger drops into it and stops the motor.

In operation, the weight is raised to the
100 top of the guides either by the crank turning up the weight thereon or by a rope wound onto the drum as the weight cable passes off, the latter mode of operation being used if horse power is available. There-
105 after the weight descends driving the sprocket chain through the gear and impelling the pendulum which in turn oscillates the walking beam.

The chief advantage of the motor is the
110 fact that it is available in places where water power and the like are absent and is so

designed that it can be set in the open without being affected by climatic conditions and affords a cheap and efficient drive means for use in isolated places.

5 Obviously, changes in the details of construction may be made without departing from the spirit of the invention and I do not care to limit myself to any particular form or arrangement of parts.

10 What I claim as my invention is:—

1. A weight motor comprising a frame, vertical ways therein, a weight sliding on the ways, a drum, a flexible member supporting the weight and operatively connected to the drum, a chain drive sprocket wheel, an idler sprocket wheel, a gear train connecting the sprocket wheel and drum, a horizontal guide plate, a sprocket chain passing over the latter and the sprocket wheels, a pendulum swinging in the frame, a pair of dogs connected to the pendulum alternately moved into engagement with the chain as it passes over the guide plate whereby the chain imparts an impulse to the pendulum, and a walking beam operated by the pendulum.

2. A weight motor comprising a frame, vertical ways therein, a weight sliding on the ways, a drum, a flexible member supporting the weight and operatively connected to the drum, springs at the lower end of the ways adapted to intercept and check the weight, a chain drive sprocket wheel, an idler sprocket wheel, a gear train connecting the sprocket wheel and drum, a horizontal guide plate, a sprocket chain passing over the latter and the sprocket wheels, a pendulum swinging in the frame, a pair of dogs connected to the pendulum alternately moved into engagement with the chain as it passes over the guide plate whereby the chain imparts an impulse to the pendulum, and a walking beam operated by the pendulum.

3. A weight motor comprising a frame, vertical ways therein, a weight sliding on the ways, a drum, a flexible member supporting the weight and operatively connected to the drum, a chain drive sprocket wheel, an idler sprocket wheel, a gear train connecting the sprocket wheel and drum, a horizontal guide plate, a sprocket chain passing over the latter and the sprocket wheels, a pendulum swinging in the frame, a pair of dogs connected to the pendulum alternately moved into apertures in the plate and into engagement with the chain as it passes over the guide plate whereby the chain imparts an impulse to the pendulum, said chain having overlapping links adapted to bridge the guide plate openings and to prevent flexing of the chain by the impact of the dogs, and a walking beam operated by the pendulum.

4. A weight motor comprising a frame, provided with upright ways and a drum, a weight traveling in the ways, a laterally

shiftable sheave wheel journaled above the ways, a flexible member supporting the weight and passing over the sheave around the drum, a horizontal guide plate having a pair of apertures, a pendulum oscillatory in the frame, a rock arm on the pendulum above the guide plate, vertically adjustable dogs on the rock arm adapted to alternately enter the guide plate apertures, a sprocket drive wheel at one end of the guide plate, an idle sprocket at the other, a sprocket chain passing over the sprocket wheels across the guide plate, a gear train connecting the drum and driving sprocket, and a walking beam pivoted on the frame and operatively connected to the pendulum.

5. A weight motor comprising a frame, provided with upright ways and a drum, a weight traveling in the ways, a laterally shiftable sheave wheel journaled above the ways, a flexible member supporting the weight and passing over the sheave around the drum, a horizontal guide plate having a pair of apertures, a pendulum oscillatory in the frame, a rock arm on the pendulum above the guide plate, vertically adjustable dogs on the rock arm adapted to alternately enter the guide plate apertures, a sprocket drive wheel at one end of the guide plate, an idle sprocket at the other, a sprocket chain passing over the sprocket wheels across the guide plate, a gear train connecting the drum and driving sprocket, a walking beam pivoted on the frame and operatively connected to the pendulum, and a counterbalance arm on the pendulum.

6. A weight motor comprising a frame, provided with upright ways and a drum, a weight traveling in the ways, a laterally shiftable sheave wheel journaled above the ways, a flexible member supporting the weight and passing over the sheave around the drum, a horizontal guide plate having a pair of apertures, a pendulum oscillatory in the frame, a rock arm on the pendulum shaft above the guide plate, vertically adjustable dogs on the rock arm adapted to alternately enter the guide plate apertures, a sprocket drive wheel at one end of the guide plate, an idle sprocket at the other, a sprocket chain passing over the sprocket wheels across the guide plate, a gear train connecting the drum and driving sprocket, a walking beam pivoted on the frame and operatively connected to the pendulum, said sprocket chain consisting of overlapping parallel links pivoted by cross pins whereby the chain bridges the guide plate apertures without flexing under the impact of the pendulum dogs.

7. A weight motor comprising a frame, provided with upright ways and a drum, a weight traveling in the ways, a laterally shiftable sheave wheel journaled above the ways, a flexible member supporting the

weight and passing over the sheave around the drum, a horizontal guide plate having a pair of apertures, a pendulum oscillatory in the frame, a rock arm on the pendulum above the guide plate, vertically adjustable dogs on the rock arm adapted to alternately enter the guide plate apertures, a sprocket drive wheel at one end of the guide plate, an idle sprocket at the other, a sprocket chain passing over the sprocket wheels across the guide plate, a gear train connecting the drum and driving sprocket, a walking beam pivoted on the frame and operatively connected to the pendulum.

15 8. A weight motor comprising a frame, provided with upright ways and a drum, a weight traveling in the ways, springs for gradually checking the weight at the bottom of the guides, a laterally shiftable sheave

20 wheel journaled above the ways, a flexible member supporting the weight and passing

over the sheave around the drum, a horizontal guide plate having a pair of apertures, a pendulum oscillatory in the frame, a rock arm on the pendulum above the guide plate, vertically adjustable dogs on the rock arm adapted to alternately enter the guide plate apertures, a sprocket drive wheel at one end of the guide plate, an idle sprocket at the other, a sprocket chain passing over the sprocket wheels across the guide plate, a gear train connecting the drum and driving sprocket, a walking beam pivoted on the frame and operatively connected to the pendulum.

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

LEVI P. NORMANDIN.

Witnesses:

OTTO F. BARTHEL,
A. M. DORR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
