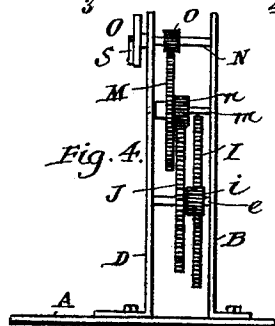
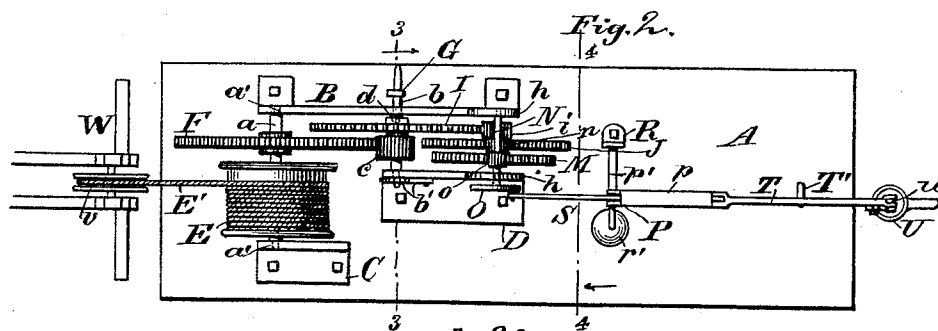
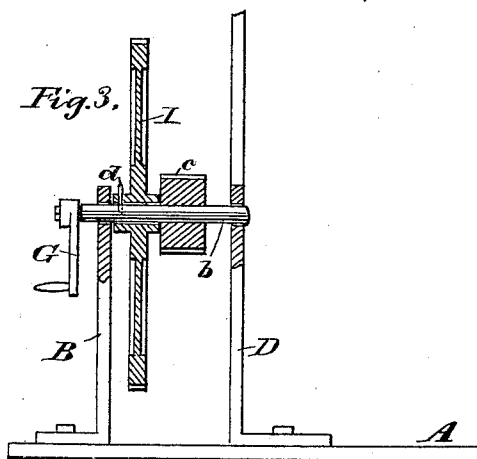
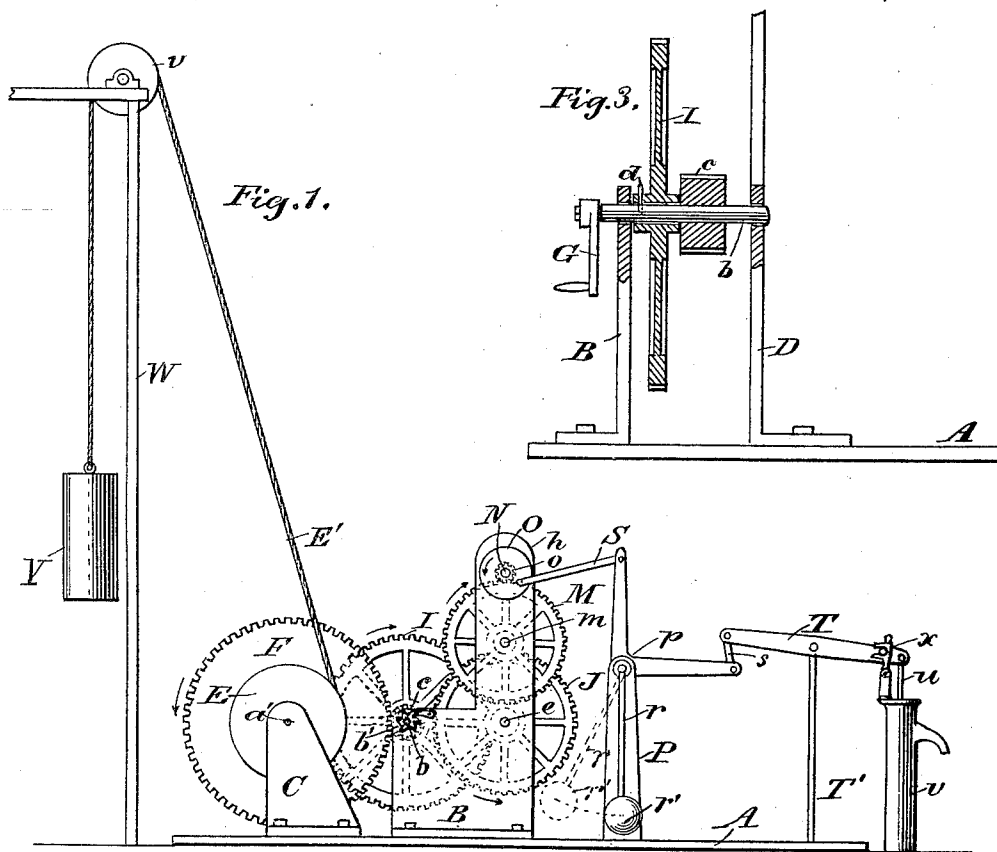


(No Model.)

C. C. HENDERSON.
MOTOR FOR DRIVING PUMPS.

No. 462,550.

Patented Nov. 3, 1891.



WITNESSES:

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CHARLES C. HENDERSON, OF CENTRALIA, ASSIGNOR TO THE HENDERSON-MADDOCK MOTOR COMPANY, OF GOLDENDALE, WASHINGTON.

MOTOR FOR DRIVING PUMPS.

SPECIFICATION forming part of Letters Patent No. 462,550, dated November 3, 1891.

Application filed April 16, 1891. Serial No. 389,191. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. HENDERSON, of Centralia, in the county of Lewis and State of Washington, have invented a new and useful Motor for Driving Pumps, of which the following is a full, clear, and exact description.

The object of this invention is to provide an efficient device, whereby power may be stored for subsequent use to pump water or effect other useful results.

To this end my invention consists in the constructions and combinations of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the device. Fig. 2 is a plan view. Fig. 3 is a transverse section on the line 3 3 in Fig. 2, and Fig. 4 is a transverse section on the line 4 4 in Fig. 2.

A suitable base A, of wood or metal, is provided, which is located upon the ground or on a foundation. (Not shown.) Opposite parallel bracket-stands B C D are erected vertically on the base A for the support of the motor mechanism. Between the bracket-stands B C a transverse main shaft *a* is revolubly supported by journaled engagement therewith, as at *a'*. On the shaft *a* a drum E is placed and secured; also a master-wheel F. At a proper distance from the master-wheel F a second shaft *b* is journaled in the bracket-stands B D, having one end projected exterior of the stand B to receive a crank G, and between the stands a pinion *c* is mounted and affixed in position to engage its teeth with those of the master-wheel. Aside of the small pinion *c* there is a large loose spur gear-wheel I, located on the shaft *b*, and adapted to be secured to said shaft by a pin *d* or similar means, that will allow the wheel to be conveniently fastened to and loosened from its supporting-shaft. Rearward of the shaft *b* a counter-shaft *e* is journaled in upwardly-extended standards *h*, that are preferably made integral with the bracket-frames B and D, said shaft having a small pinion *i* secured on it, which has a meshed engagement

with the spur-wheel I. Adjacent to the pinion *i* a larger gear-wheel J is mounted on and secured to the shaft *e*, said wheel being of less diameter than the spur-wheel I. In the same vertical plane and parallel to the shaft *e* another cross-shaft *m* is rotatably secured by its ends in the standards *h* a proper distance above the shaft *e* to permit a small pinion *n* to mesh with the gear-wheel J.

On the cross-shaft *m* a spur-wheel M is secured near to the pinion *n*, which wheel has a toothed engagement with a small pinion *o*, that is placed upon and secured to a crank-shaft N, which is also journaled in the bracket-standards *h* above the shaft *m*. On the outer end of the crank-shaft N, which projects through the standard that supports it, a crank-disk O is affixed.

Upon an upright column P, that is erected on the base A, the shaft *p'*, transverse of a rock-arm *p*, having a bell-crank form, is journaled near one end, the opposite end having a similar support in the parallel upright post R, (see Fig. 2,) the end portion of the shaft that extends exterior of the column P having a pendulum-rod *r* suspended therefrom and firmly secured to it by its upper terminal, there being a "bob" or weight *r'* of proper dimensions attached to the lower end of the rod, as shown in Fig. 1. The upright limb of the rock-arm *p* is loosely connected to a pitman S, which is similarly secured to a crank-pin on the disk O, said pin having such a location thereon as will afford a proper stroke to the crank for vibration of the rock-arm limb.

On the end portion of the horizontal limb of the rock-arm *p* a short link *s* is pivoted at one end, the upper end of said link being pivotally secured to the end of a walking-beam T, which is supported to vibrate from a horizontal plane on the upper end of a post T', the opposite end of the walking-beam having a loose-jointed engagement with the upper end of the plunger-rod *u* of a pump U.

The drum E is adapted to receive a rope or chain E' that is wrapped thereon, having one end attached to the same, the free portion of said rope being extended upwardly to engage a sheave or grooved pulley *v*, which is rotat-

ably mounted on the upper portion of a derrick W, which latter is erected near to the base A in such relation thereto that the rope will travel freely and wind properly upon the drum. On the free pendent end of the rope E' a containing-box Y is secured for the reception of any weighty material, such as iron or lead, or the weight may be in solid form suspended directly to the rope's end, if preferred. The amount of weight placed in the box Y should be sufficient to insure proper movement of the gearing and actuation of the pump-plunger when the latter is operated. When the power afforded by the descent of the weight is to be stored for periodical use, the pin *d* is removed from the wheel I, so as to detach it from the shaft *b*, thus breaking the geared connection of the shaft named with regard to the reducing-gear train between the pinion *c* and the pinion *o*, a ratchet-wheel and pawl *b'* retaining the drum E from revolving when this is effected. The rotation of the shaft *b* by the manipulation of crank G will wrap the rope E' upon the drum E and elevate the weighted box Y, which, if the derrick W is of sufficient height, will afford power for the operation of the pump U a considerable period of time. When the weight is elevated, the pin *d* is inserted in place, thus connecting the gear-train with the drum E, so as to render the falling weight Y effective. When the parts are joined, as stated, the descent of the weight Y will rotate the gearing, the speed of which will be properly reduced and also controlled by the vibration of the pendulum *r r'*. The pendulum *r* is preferably so attached to the rock-shaft *p'* that it will assume the position shown in dotted lines in Fig. 1, when the pump-rod *u* is fully depressed, so that the upward movement of the rod and the lifting of water thereby will be aided by the momentum of the pendulum. The ball *r'* of the pendulum may be made adjustable for weight to suit the size of the pump and the length of stroke of the same. As it is desirable to be enabled to arrest

the motion of the pump at any time, a latching-dog *x* or other equivalent device is provided, which, when hooked fast to a pin on the walking-beam T, will restrain the latter from vibration, and consequently prevent motion in the machine until it is released by throwing off the latch-dog.

The motor herein described may also be utilized for the actuation of other devices than a pump, and is a useful adjunct to a windmill, furnishing power when the latter is rendered dormant from want of wind to drive it.

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

1. In a motor, the combination, with a drum and a rope wound thereon and having a weight at its free end, of a bell-crank lever mounted upon a support, a train of gearing between the bell-crank lever and drum, and a pitman connecting one arm of the bell-crank lever to the train of gearing, a walking-beam operated from the bell-crank lever, and a latch for locking the beam, substantially as described.

2. In a mechanical motor, the combination, with a base, bracket-stands thereon, a drum and a master-wheel journaled transversely of the bracket-stands, a rope carrying a weight, a sheave on a derrick supporting a part of the rope and weight-pendant, a second shaft having a pinion engaging the master-wheel, and a loose gear-wheel securable on the second shaft, of a reducing-gear train rotatable on the bracket-stands, a rocking bell-crank having a loose connection with a crank-disk on the reducing-gearing, a walking-beam connected by a link with the bell-crank's horizontal limb, a pendulum, and means to arrest the movement of said walking-beam, substantially as described.

CHARLES C. HENDERSON.

Witnesses:

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ROBT. G. HAMILTON.