H. C. FORNEY.
Weight-Motor.

No. 219,707. Patented Sept. 16, 1879.

Fig. 1.

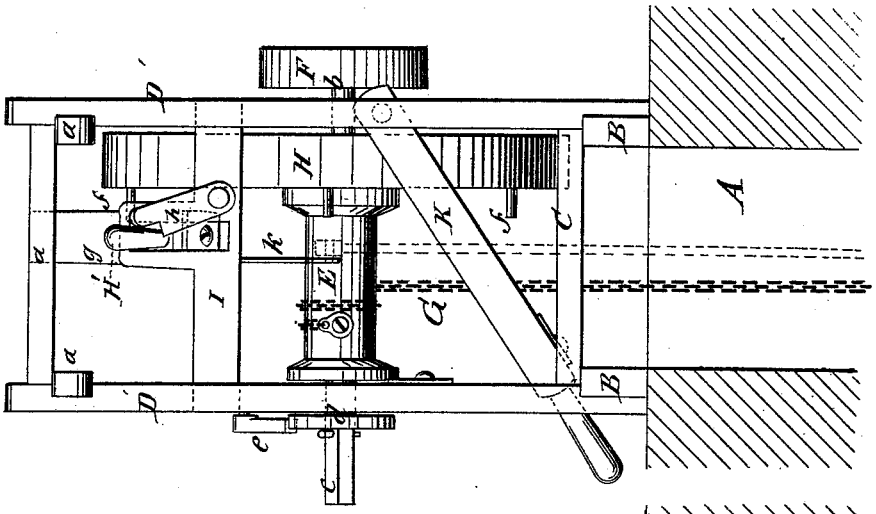


Fig. 2.

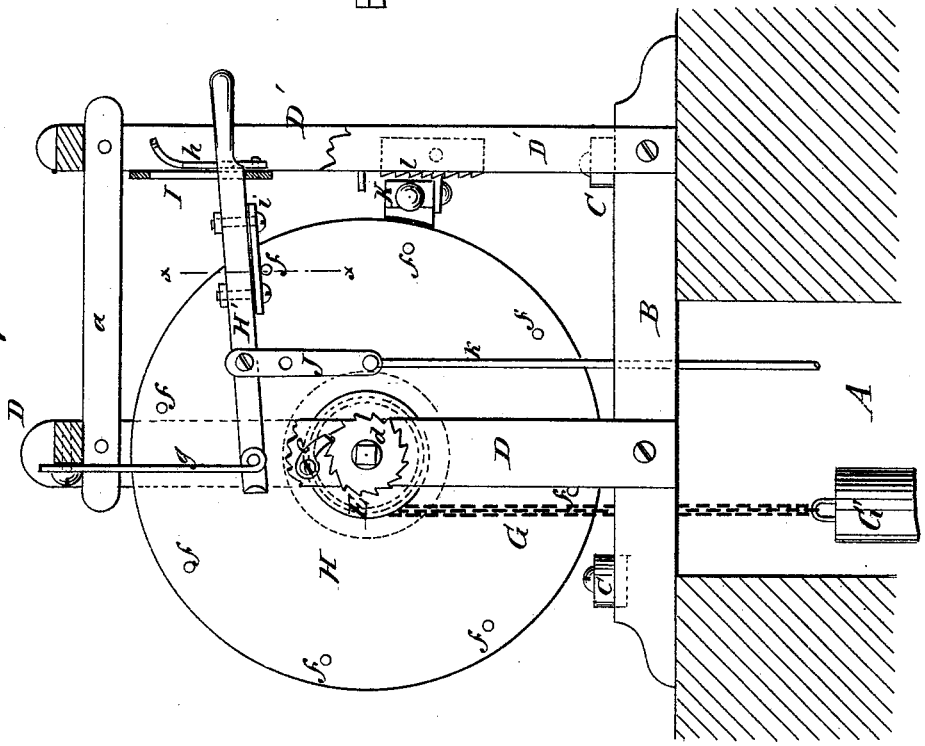
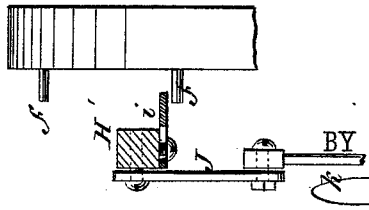


Fig. 3.



WITNESSES:

Chas. Nida
C. Sedgwick

INVENTOR:

H. C. Forney

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY C. FORNEY, OF NEW YORK, N. Y.

IMPROVEMENT IN WEIGHT-MOTORS.

Specification forming part of Letters Patent No. **219,707**, dated September 16, 1879; application filed June 2, 1879.

To all whom it may concern:

Be it known that I, HENRY C. FORNEY, of the city, county, and State of New York, have invented an Improvement in Weight-Motors, of which the following is a specification.

My invention relates to an improvement in motors for pumping water from wells; the object whereof is to utilize the force produced by the gravitation of a weight down into the well or from any height to operate the pump-lever.

The invention consists of a weight attached to a chain running over a windlass journaled in a frame erected over the mouth of a well, said windlass carrying a wheel provided with tappets, which, as the wheel revolves by the gravitation of the weight, come in contact with a lever connected with the pump-rod and throw it upward, permitting it to fall back by its own weight, whereby a reciprocating motion is given to the pump-rod.

It further consists of devices for throwing the lever out of gear with the tappets, and brakes for stopping the motor, and other details of construction, that will be fully described farther on.

In the accompanying drawings, Figure 1 is an end elevation of my improvement placed over a well. Fig. 2 is a side elevation of the same; and Fig. 3 is a section of the lever on line *x x*, Fig. 2, and a detail of the connection of the said lever with the pump-rod.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A is a well, on the curb whereof are laid two sills, B B, connected together by cross-pieces C C. From the sills rise four uprights, D D and D′ D′, connected together at the top by bars *a*, forming thus a quadrangular frame.

The two uprights D D are immediately over the well, and in these are journaled a windlass, E, having a short shaft, *b*, on one end, projecting out through the frame, and carrying a pulley, F, and a square projection, *c*, at the opposite end, carrying a ratchet-wheel, *d*, under a pawl, *e*, said square projection being designed for the application of a winch for operating the windlass.

To the windlass is attached one end of a chain, G, sustaining a weight, G′, and to the end of the windlass next to the far upright is fixed a large wheel, H, having projecting from its side, near the periphery, tappets *f*, in a circular line concentric to the wheel.

From the front cross-bar *a* depends a plate, *g*, in the end whereof is fulcrumed a lever, H′, the opposite end whereof extends back through a slot in the plate I, fixed crosswise to the uprights D′. Alongside of the slot is pivoted a latch, *h*, which is used to support the lever in the upper part of the slot, as shown in Fig. 1.

The lever is placed parallel to the face of the wheel H, and to it, in line with the tappets, is attached a slotted plate, *i*, by set-screws passed up through the slots. This plate projects out sufficiently far to be in the path of the tappets when the wheel is in motion. By means of the set-screws the plate can be set to and from the vertical line passing through the center of wheel H, so that the tappets can strike it nearer to or farther from the end, and thus change the length of the stroke given to the lever by the tappets, this stroke being regulated by the escape of the tappets from the plate *i* when the wheel is revolving. When the lever is down this plate is in position to be operated upon by the tappets; but when lifted and held by the latch *h* it is out of the way of the tappets.

J is a connecting-rod, pivoted to the lever H′, which connects the lever with the pump-rod *k*. K is a brake-lever, fulcrumed to one of the standards D′, and extending across to the next, where a ratchet, *l*, is provided for supporting it when braking the wheel, as shown in Fig. 2.

The pulley F may be used as a band-wheel for running a light machine, say a grindstone; and the larger wheel H may also be employed as a band-wheel for running some light machine.

The operation of this device is as follows: The lever H′ is lifted so that the plate *i* will avoid the tappets, and is supported by the latch *h*. The chain is now wound on the windlass by means of a winch applied to the square projection *c*. The pawl *e*, engaging the ratchet, prevents the weight from drawing back. The motor is now prepared for use by putting the brake K against the wheel and throwing up the pawl out of the way of the ratchet-wheel *d*. The lever is then dropped, so that its plate

will be allowed to come in contact with the tappets. Now, when it is desired to operate the pump, the brake K is released from the wheel, the weight gravitating sets the wheel in motion, and the tappets *f*, striking the plate, throws the lever up, and as soon as one tappet passes the plate the weight of the lever and the piston and rod draws the lever down. Thus a reciprocating motion is given to the rod and piston. When enough water is drawn the brake is applied to the wheel, and this stops the working of the motor.

If by any mishap the weight should run down and there should be no one present able to wind it up again, the lever can be used to operate the pump-rod alone, it having a projecting handle for this purpose.

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

As an improvement in motors, the windlass E, with chain G, carrying the weight G′, and wheel H and tappets *f*, in combination with the lever H′, connected with the pump-rod *k*, and provided with the adjustable plate *i* for receiving the stroke of the tappets, whereby when the wheel is turned by the gravitation of the weight G′ a reciprocating movement is communicated to the pump-rod through the lever H′, substantially as described.

HENRY C. FORNEY.

Witnesses:
W. C. DONN,
C. SEDGWICK.