

(No Model.)

2 Sheets—Sheet 1.

J. K. SAMPLE.

MOTOR.

No. 353,006.

Patented Nov. 23, 1886.

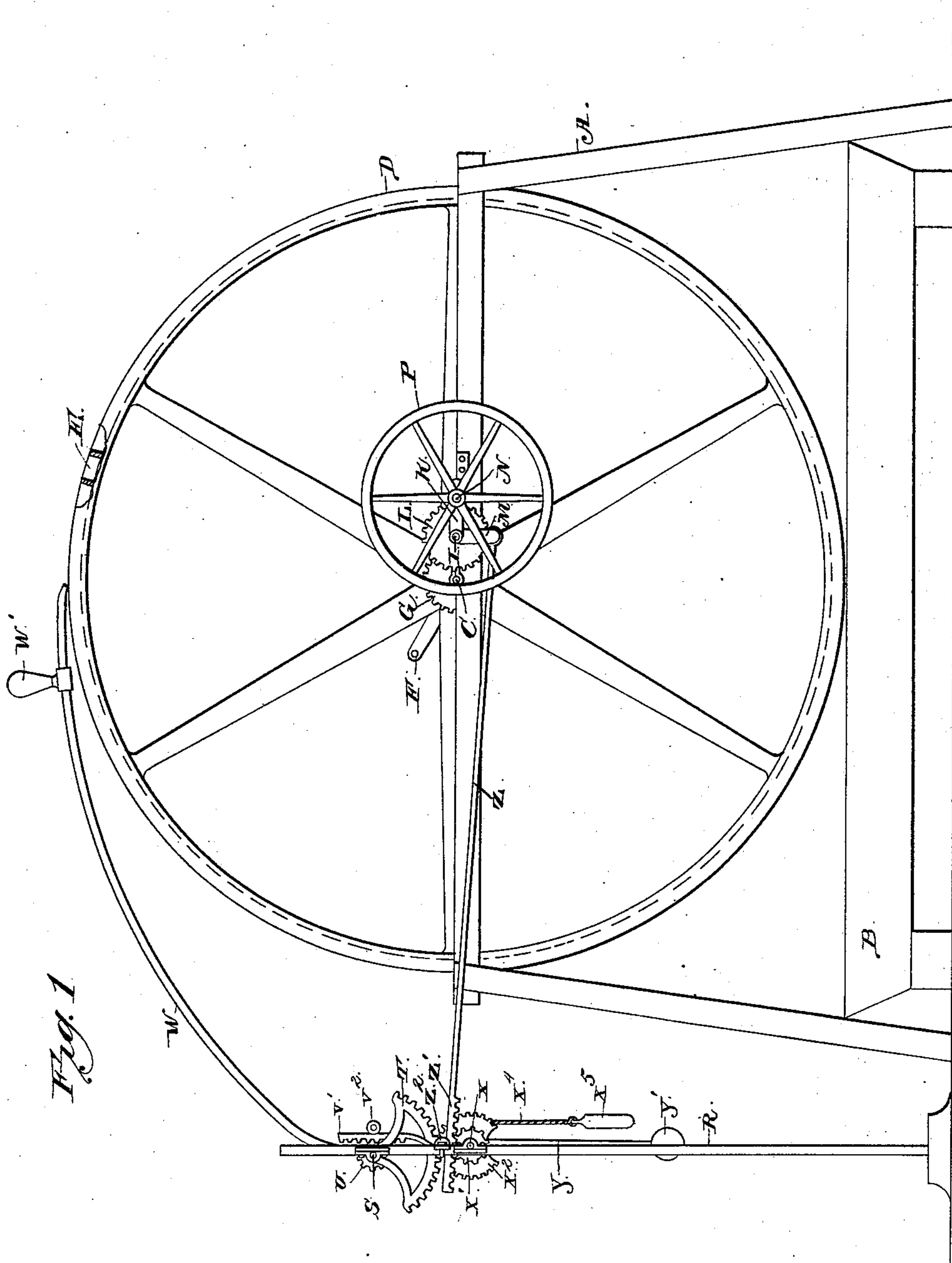


Fig. 1

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J. W. Garner

Inventor
J. K. Sample
By his Attorneys
C. A. Snowdon

(No Model.)

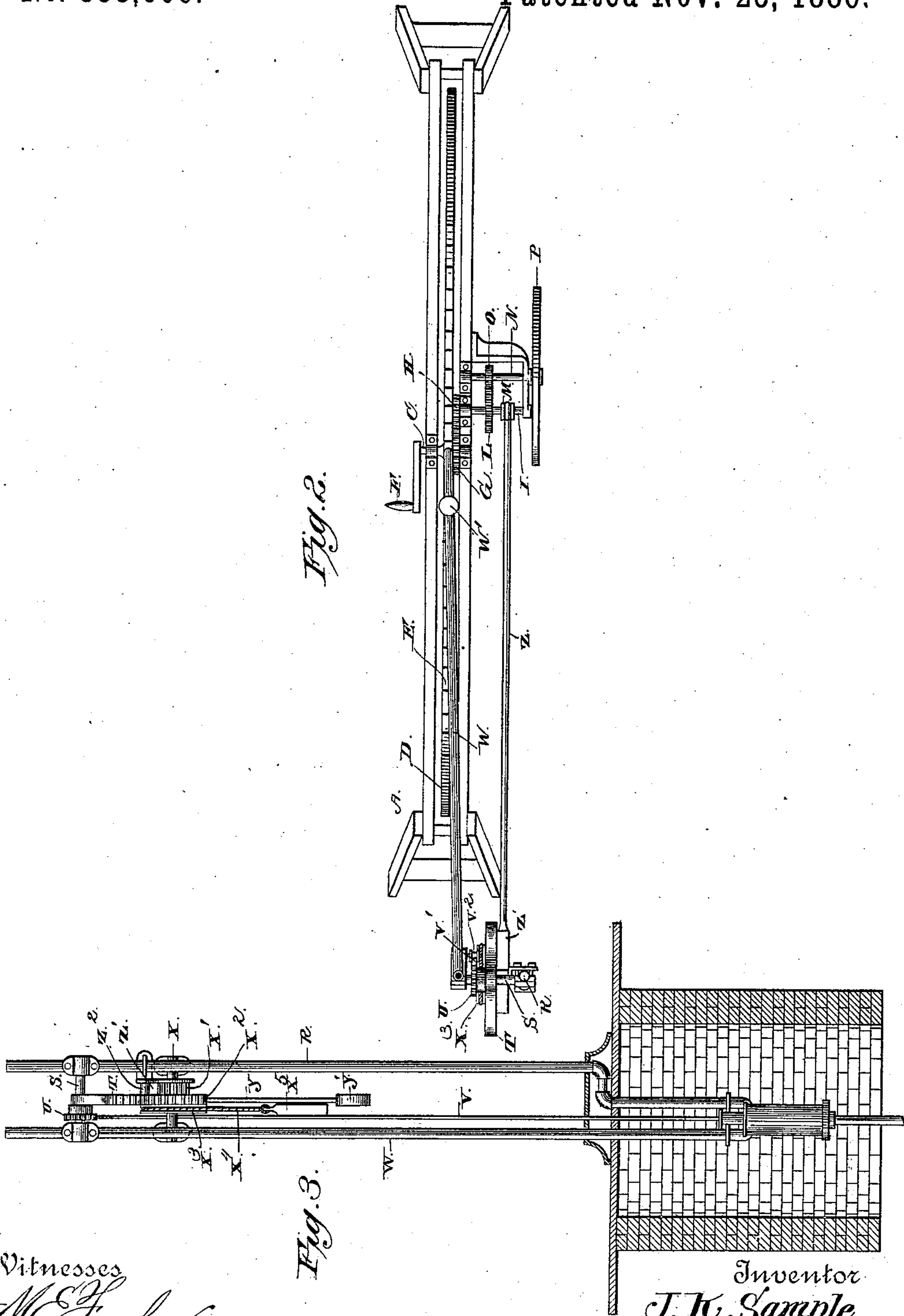
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UNITED STATES PATENT OFFICE.

JAMES K. SAMPLE, OF HASTINGS, NEBRASKA.

MOTOR.

SPECIFICATION forming part of Letters Patent No. 353,006, dated November 23, 1886.

Application filed April 3, 1886. Serial No. 157,681. (No model.)

To all whom it may concern:

Be it known that I, JAMES K. SAMPLE, a citizen of the United States, residing at Hastings, in the county of Adams and State of Nebraska, have invented new and useful Improvements in Motors, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in motors designed to lighten the labor of elevating water from a well, cistern, or other source; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a machine embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is an end elevation.

A represents a suitable supporting-frame, which is provided with a trough, B, in its lower side, and to which is journaled the shaft C, which carries the large wheel D. The periphery of the wheel D is provided with a series of buckets E. On one end of the shaft C is secured a crank-handle, F, and on the said shaft, alongside of the wheel D, is secured a gear-wheel, G, which meshes with a gear-pinion, H, which latter is attached to the inner end of a shaft, I, which is also journaled to the frame A. The outer end of the said shaft I is journaled in the extended arm of a bracket, K, which is secured on one side of the frame A. The said shaft I carries a gear-wheel, L, corresponding in diameter to the wheel G, and the said shaft is also provided with a crank, M.

N represents a horizontal shaft, which is journaled to the frame A and in the arm of the bracket K, and is provided with a gear-pinion, O, which meshes with the wheel L, and carries on its outer end a fly-wheel, P.

R represents a suitable supporting-standard, which is secured to a suitable platform or base, at one end of the frame A, and to the standard or frame R, near the upper end thereof, is journaled a horizontal shaft, S. To this shaft is rigidly attached a large segmental gear-wheel, T, and on one side of the said segment, and to the said shaft, is attached a gear-pinion, U.

V represents a reciprocating pump-rod, which carries the piston at its lower end, that works in a pump-barrel suspended in a well or cistern, or other suitable source of water, and the said pump-barrel is provided with a discharge-pipe, W, which extends to the upper side of the water-wheel D, and is provided near its outer end with an air-chamber, W'. The upper end of the pump-rod V is provided with a rack-bar, V', the teeth of which engage with the teeth of the pinion U. The said rack-bar is held in engagement with the said pinion by means of an anti-friction roller, V², which bears on the outer side of the rack-bar.

X represents a horizontal shaft, which is journaled in the frame or standard R at a suitable distance below the shaft S, and to the said shaft X is attached a gear-pinion, X', a gear-wheel, X², which meshes with the segment T, and a drum, X³. To the latter is attached a cord, X⁴, provided with a depending weight, X⁵. From the said shaft X also depends a pendulum-rod, Y, which is provided with a vertically-adjustable pendulum-weight, Y'.

Z represents a pitman, one end of which is attached to the crank M on the shaft I, and the other end of which is provided with a rack-bar Z', the teeth of which engage with the pinion X'. An anti-friction roller, Z², bears on the upper side of the rack-bar Z', and keeps the said bar engaged with the pinion X'.

The operation of my invention is as follows: The wheel D is rotated by means of the crank-handle F, this causing the pitman Z to reciprocate and impart an oscillating motion to the shaft X, and causing the pendulum to swing to and fro. As the shaft S is geared to the shaft T by means of the mechanism hereinbefore described, it follows that the shaft S is also oscillated, and the pinion B', carried by the said shaft S', being engaged with the rack-bar Z² of the pump-rod, reciprocates the latter vertically, thus causing the pump to elevate water from the well or cistern and discharge it through the pipe W onto the upper side of the wheel D. The combined weight and velocity of the water in the buckets of the wheel on one side thereof assist in rotating the wheel, and thereby greatly lessens the labor of elevating the water. The function of the air-chamber W' is to cause a constant stream of

water to flow through the pipe W onto the wheel D, and thus exert a constant force on the wheel. The function of the weight X' and its suspending cord and drum is to counter-
5 balance the crank M.

Having thus described my invention, I claim—

1. The combination of the water-wheel having the crank-handle F, the pump having the
10 pipe to discharge water on the wheel, the shaft geared to the wheel and having the crank M, the pump-rod having the rack-teeth, the shaft S, having the pinion meshing with the rack-teeth of the pump-rod, and the rod Z, attached
15 to crank M and having the rack-teeth Z', and the shaft X, geared to shaft S, and having the pinion with which the toothed rod Z engages, whereby the pump-rod will reciprocate when the water-wheel is rotated, substantially as
20 described.

2. The combination of the water-wheel having the crank-handle F, the pump having the pipe to discharge water on the wheel, the shaft geared to the latter and having the crank M,
25 the pump-rod, the shaft S, connected thereto to reciprocate the rod, the shaft X, geared to shaft S, and having the pinion X', and the rod Z, attached to the crank M, and having the rack-teeth meshing with pinion X', substan-
30 tially as described.

3. The combination of the water-wheel having the crank-handle F, the pump having the pipe to discharge water onto the wheel, the pump-rod, the rock-shaft S, connected thereto to operate the pump-rod, the shaft X, geared
35 to shaft S, and having the pendulum, and the rod Z, connecting the water-wheel with the shaft X, to impart motion from the former to the latter, substantially as described.

4. The combination of the water-wheel hav-
40 ing the crank-handle F, the pump having the pipe to discharge water onto the wheel, the shaft geared to the latter and having the crank M, the shaft S, the pump-rod geared thereto and actuated thereby, the shaft X, geared to
45 shaft S, and having the pinion X', the drum X³, the weighted cord attached to the drum and the weighted pendulum, and the rod Z, connected to crank M, and having the rack-teeth meshing with the pinion X', substan-
50 tially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES K. SAMPLE.

Witnesses:

MELVILLE C. HESTER,
W. B. HARRISON.