

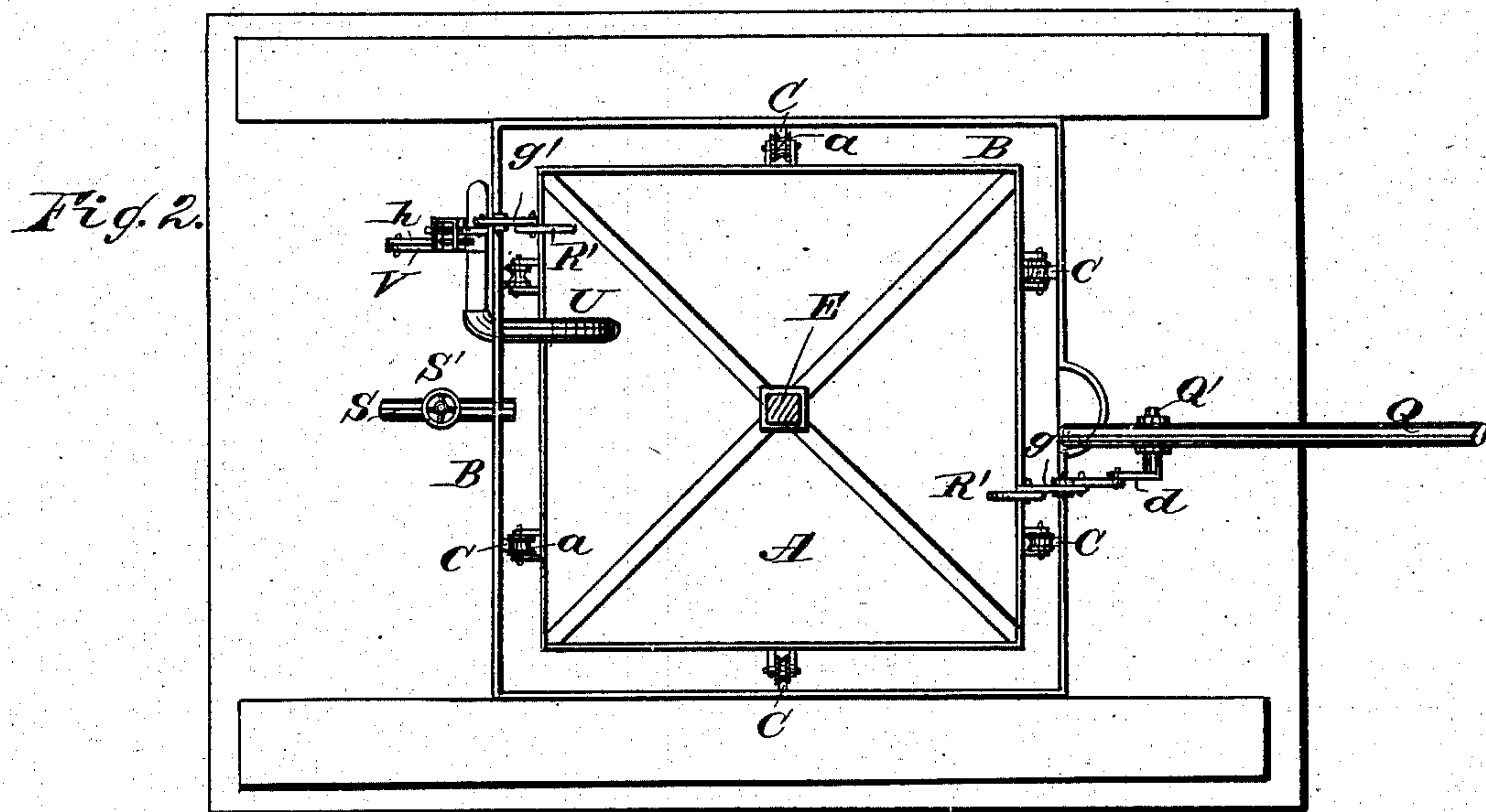
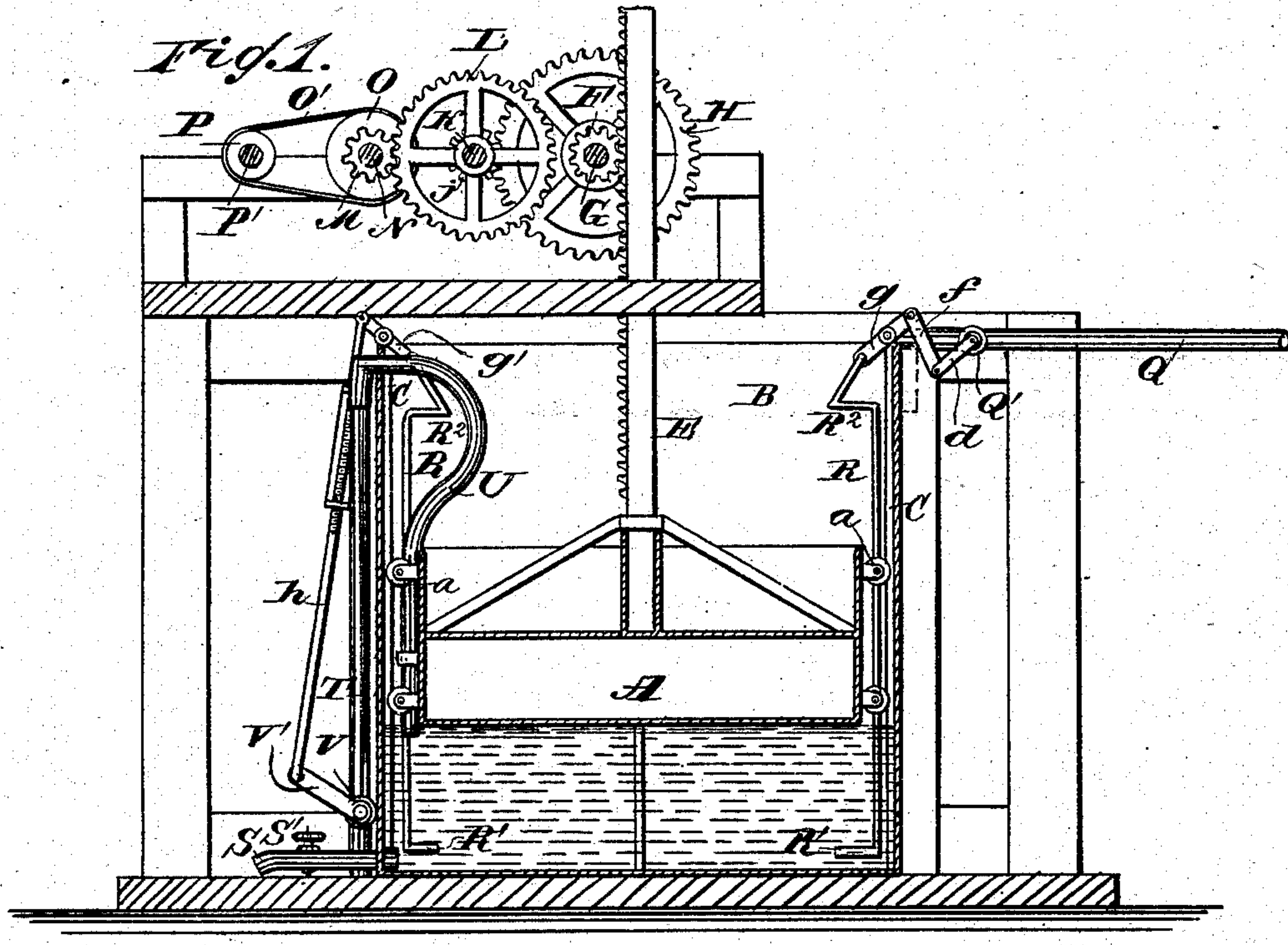
(No Model.)

A. C. HARVEY.

WATER MOTOR.

No. 291,340.

Patented Jan. 1, 1884.



WITNESSES:

Theo. G. Spont...
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INVENTOR:

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UNITED STATES PATENT OFFICE.

ALVEY CURTIS HARVEY, OF LONE PINE, CALIFORNIA.

WATER-MOTOR.

SPECIFICATION forming part of Letters Patent No. 291,240, dated January 1, 1884.
Application filed March 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, ALVEY C. HARVEY, of Lone Pine, in the county of Inyo and State of California, have invented a new and Improved Water-Motor, of which the following is a full, clear, and exact description.

The object of the invention is to improve water-motors, as hereinafter described, and pointed out in the claims.

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 both the figures.

Figure 1 is a longitudinal sectional elevation of my improved water-motor. Fig. 2 is a plan view of the same, showing the top frame removed.

A float or buoy, A, of some suitable construction, is contained in a tank or cistern, B, in such a manner that it will move up and down in the same. Vertical guide-tracks C are attached to the inner surfaces of the sides of the tank, and on the said guide-tracks guide-rollers a run, which are journaled in jaws in the sides of the buoy or float A, the said guide-tracks and guide-rollers keeping the float or buoy in a horizontal position and guiding it in its vertical movements. A strong rack-bar, E, projects from the top of the float and engages with a pinion, F, mounted on a shaft, G, on which is mounted a cog-wheel, H, which engages with a pinion, J, on a shaft, K, on which is mounted a cog-wheel, L, engaging with a pinion, M, on a shaft, N, on which one or more belt-pulleys, O, are mounted, over which belts O' pass, which also pass over belt-pulleys P, mounted loosely on a shaft, P'. The belt-pulleys P are made integral with clutches, which are so constructed that the shaft P' will always be rotated in the same direction, which clutch devices are of the well-known character. The inlet-pipe Q is provided with a cock, Q', provided with an arm, d, which is connected, by means of a connecting-rod, f, with a lever, g, pivoted on the top of the tank.

To the lever g a rod, R, is attached, which extends to the bottom of the tank, and is provided at its lower end with a rectangular bend, R', and near its upper end with a bend, R². The outer pipe, S, is provided with a cock, S'. An additional outlet-pipe, T, is connected

with a flexible tube or hose, U, attached to the float or buoy A, and the pipe T is provided with a cock, V, having an arm, V', which is connected, by means of a connecting-rod, h, with a lever, g', pivoted on the top of the tank, which lever g' is connected with the rod R, extending to the bottom of the tank, and provided at the upper end with a bend, R², and at the lower end with a bend, R', as previously described. The rod h is provided with a screw and nut for lengthening and shortening the same, as may be desired, so as to cause the same to open the valve more or less. The tank is to be made very large, so that a very large buoy A can be used, which buoy is to fit very closely in the tank B, for the larger the tank and buoy are made the greater the power obtained will be. The water can be pumped into the tank or it may be conducted into the same from a brook or river. Tide-water can be conducted into the tank; or, where water is scarce, two tanks may be used and the water pumped from one into the other, so that the two motors will operate alternately; or the water may be derived from any other suitable source.

The operation is as follows: When the water fills the tank, it raises the float or buoy A, whereby the rack E will rotate the pinion F and operate the train of gearing, whereby the shaft P' will be rotated. After the tank has been filled, the water is withdrawn, and the float or buoy descends and again operates the train of gearing, which rotates the shaft P'. To prevent the shaft P' from being alternately operated in opposite directions, some suitable mechanism of a well-known construction must be provided for transmitting the motion in such a manner that it will always rotate the shaft in one and the same direction. When the float A rises, its top strikes against the bends R² of the rods R, and the inner ends of the levers g g' will be thrown upward, whereby the cock Q' of the inlet-pipe Q will be closed, and at the same time the arm V' of the cock V will be forced downward, and the cock V will be opened. The water remaining in the pipe T will flow off and create a vacuum, thus causing the water in the tank to rise through the flexible tube or hose U and flow into the pipe T, through which it flows off; or, in other

words, the water is siphoned off. To cause a more rapid descent of the buoy or float, the cock S' of the outlet-pipe S can also be opened. As soon as the water begins to flow off, the buoy A descends, and when it arrives at the bottom of the tank strikes the bottom bends, R', of the rods R, and moves the rods R downward. Thereby the inner ends of the levers g g' will be moved downward, the cock V of the pipe T will be closed, and the cock Q' of the pipe Q will be opened, so as to permit the water to flow into the tank and fill the same again. In this manner the device will operate automatically, and the buoy descend and ascend alternately. The power obtained is very great, and can be converted so as to produce more or less speed or more power, as may be desired.

Having thus fully described my invention, I

claim as new and desire to secure by Letters Patent—

1. The buoy A, carrying journals with rollers a and a rack, E, in its center, in combination with a cistern, B, having the vertical guide-tracks C, whereby said rack will rotate a pinion and operate a train of mechanism, as described.

2. The combination, with the buoy A and cistern B, of an inlet-pipe having cock Q', with arm d, the rod f, the lever g, the outlet-pipe V, with arm V', the rod h, the lever g', and the rods R, bent at R' R², whereby the buoy will automatically open and close the inlet and outlet cocks, as described.

ALVEY CURTIS HARVEY.

Witnesses:

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F. WHITMORE.