

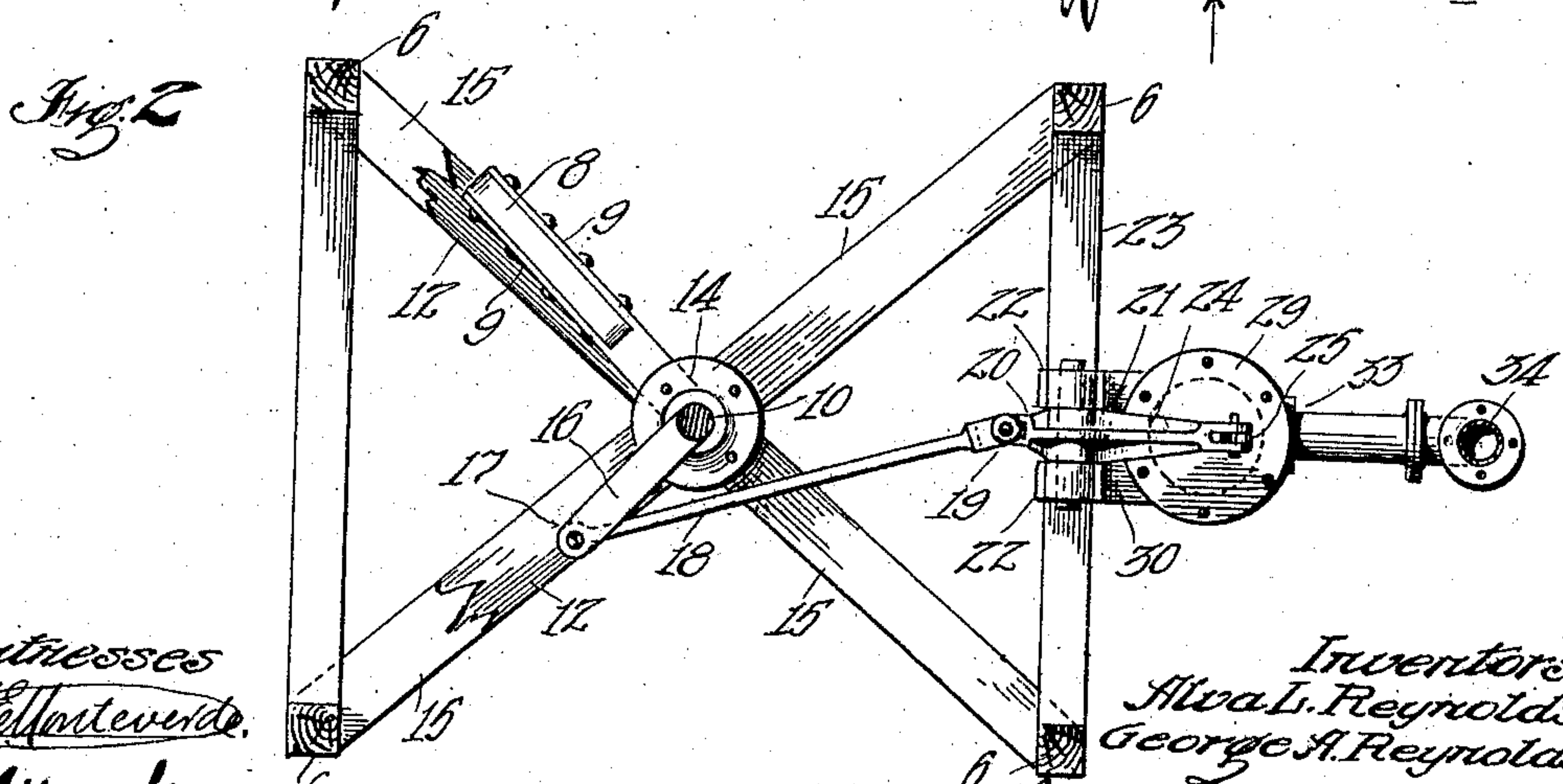
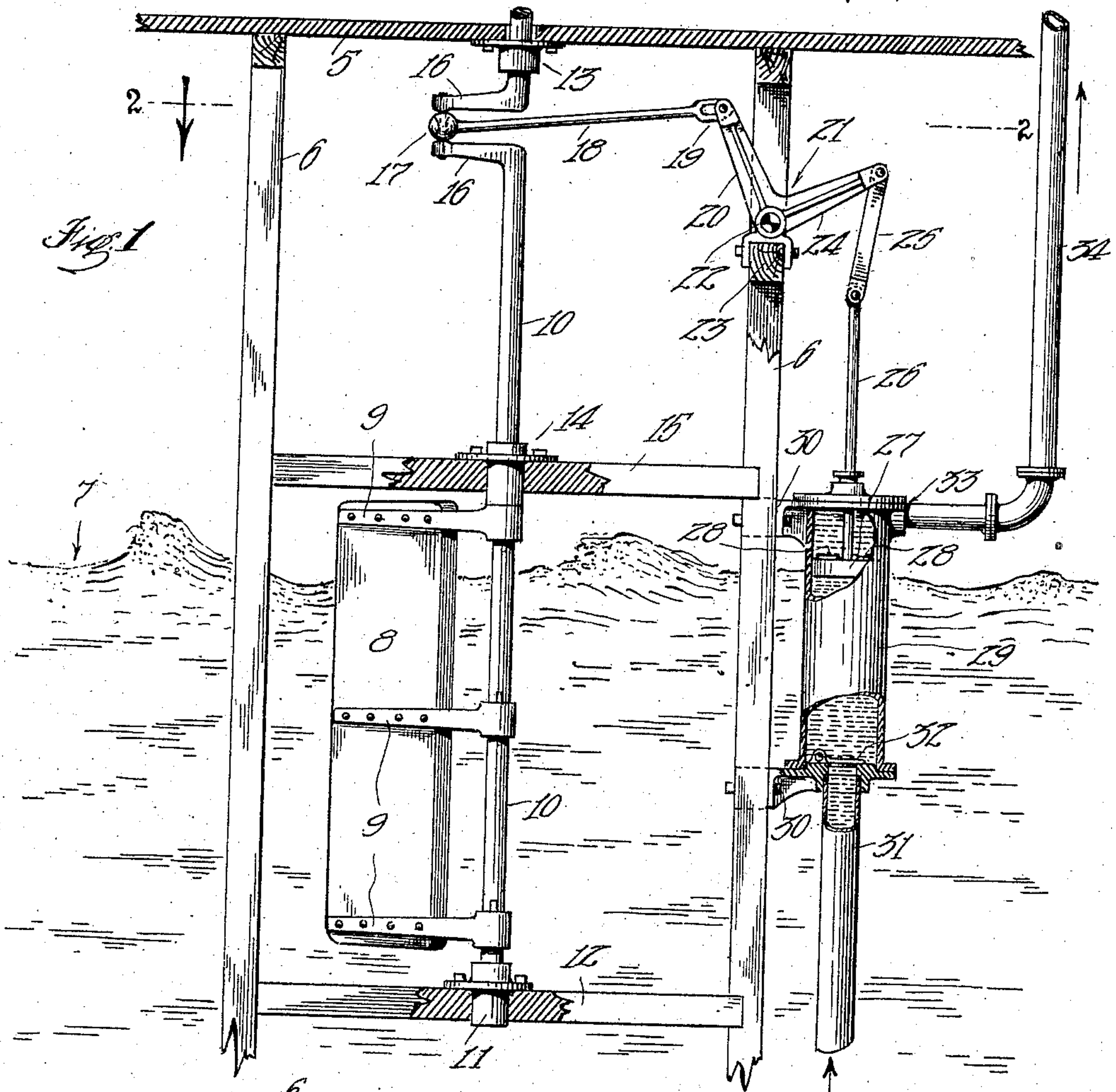
No. 850,492.

PATENTED APR. 16, 1907.

A. L. & G. A. REYNOLDS.

WAVE MOTOR.

APPLICATION FILED OCT. 16, 1906.



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UNITED STATES PATENT OFFICE.

ALVA L. REYNOLDS AND GEORGE A. REYNOLDS, OF HUNTINGTON
BEACH, CALIFORNIA.

WAVE-MOTOR.

No. 850,492.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed October 16, 1906. Serial No. 339,272.

To all whom it may concern:

Be it known that we, ALVA L. REYNOLDS and GEORGE A. REYNOLDS, both citizens of the United States, residing at Huntington Beach, in the county of Orange and State of California, have invented new and useful Improvements in Wave-Motors, of which the following is a specification.

Our invention relates to means for utilizing motion imparted by the incoming and outgoing waves of a body of water; and an object thereof is to dispense with a float that has heretofore been most commonly used to obtain power therefrom and to substitute therefor a generating means that will not be injured by the power exerted by the waves. We accomplish this object by means of the device described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation with parts in section, showing our wave-motor in its operative position. Fig. 2 is a sectional plan taken on line 2 2 of Fig. 1.

In the drawings, 5 is the floor of a wharf or pier, which is supported by piles 6, driven into the bed (not shown) of the ocean 7 in the usual manner. The pier extends from the shore (not shown) a sufficient distance to give a depth of water at low tide so as to produce the proper wave effect upon the vane 8, which is rigidly secured, by means of arms 9, to a vertically-revoluble shaft 10. The end of shaft 10 is secured in a step-bearing 11, which is mounted in cross-bars 12, and the upper portion of the shaft is mounted in bearings 13, secured to the wharf 5. A bearing 14 is secured to cross-pieces 15, which are secured to the piles 6 intermediate the vane and the wharf. The upper portion of the shaft 10 adjacent the under side of the wharf is provided with a crank 16. Pivotaly secured to this crank by means of a swiveled joint 17 is a pitman-rod 18, the outer end of which is connected by a universal joint 19 to an arm 20 of a bell-crank lever 21, which is mounted in a bearing 22, secured to a stringer 23. To the outer end 24 of bell-crank lever 21 is pivotaly connected a downwardly-depending link 25, whose other end is pivotaly attached to a piston-rod 26, to which is secured a piston 27 of usual construction. This piston is provided with check-valves 28 of usual construction and is adapted to reciprocate in cylinder 29, which

is secured to the side of the wharf structure by brackets 30. To the lower end of the cylinder is secured a suction-pipe 31, having the usual check-valve 32 located at the top thereof. The upper end of the cylinder has an outlet 33, to which a discharge-pipe 34 is connected and which leads to the storage-tank. (Not shown.)

We have described a mechanism whereby water may be forced upwardly to a storage-tank located at a distance from the wharf, but instead of forcing water it could be constructed, with very little change, so that it would compress air.

The operation is as follows: The vane 8 is attached to the shaft 10 at a point where the vane will be constantly submerged at either flood or ebb tide, and pitman-rod 18 is connected to the outer end of bell-crank lever 20. As the crank 16 of shaft 10 is connected to the shaft at right angles to the vane 8, it will be seen that at no time during the operation of the device will the crank remain on a dead-center. As the incoming waves strike the vane it will force it partially around and will rotate shaft 10 and operate the mechanism connected thereto. The outgoing or receding wave will then contact with the vane and force it around in the opposite direction to that which the incoming wave forced it. This action by the waves on the vane is repeated indefinitely, so that a continuous supply of water is forced to the storage-tank (not shown) by the pumping mechanism. If more power was desired, a plurality of these pumping mechanisms could be located on the wharf, thereby increasing the pumping capacity.

It will be seen from the foregoing description that we have provided a device in which the uncertain element of floats or buoys is entirely dispensed with.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A wave-motor, comprising a vertically-disposed crank-shaft revolubly mounted in bearings; a cylinder having a piston mounted therein, said cylinder having an inlet and outlet; connecting means between said crank-shaft and piston; and a vane rigidly secured to said shaft, adapted to be operated by the incoming and outgoing waves, whereby the shaft is rotated.

2. A device of the class described, comprising a frame secured to the bed of a body of water; a vertically - disposed revoluble crank-shaft mounted in bearings secured to
5 said frame; a vane rigidly secured to said crank-shaft at an angle thereto, adapted to be operated by the incoming and outgoing waves; a bell-crank lever pivotally mounted in said frame; a pitman connecting said crank
10 and an arm of said bell-crank lever; a cylinder having a piston mounted therein; said

cylinder having an inlet and outlet and a link having its ends pivotally secured to said piston and to one of the bell-crank arms.

In witness that we claim the foregoing we
have hereunto subscribed our names this 4th
day of October, 1906.

ALVA L. REYNOLDS.

GEORGE A. REYNOLDS.

Witnesses:

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