(No Model.)

R. B. DAVY.

WAVE MOTOR.

No. 455,743. Patented July 14, 1891.

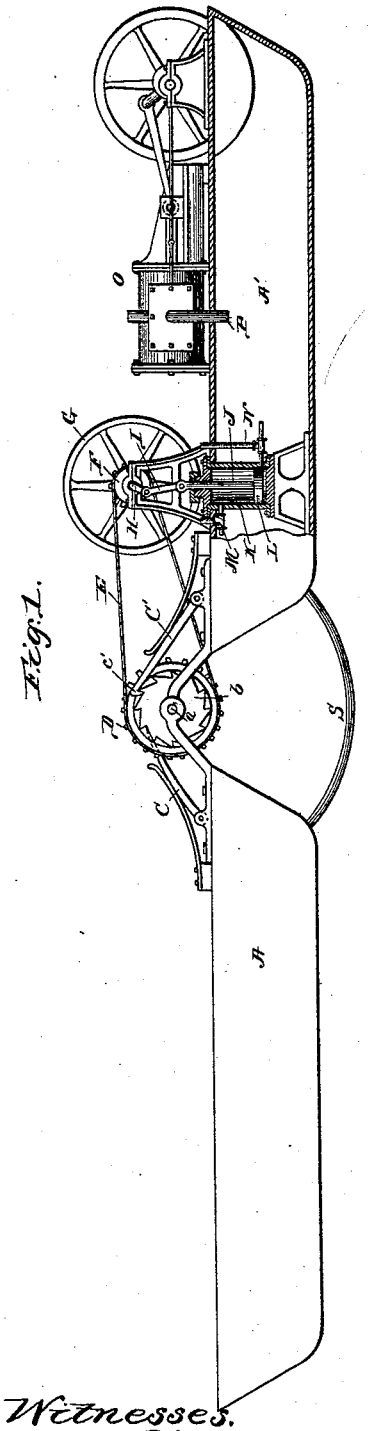

Fig. 1.

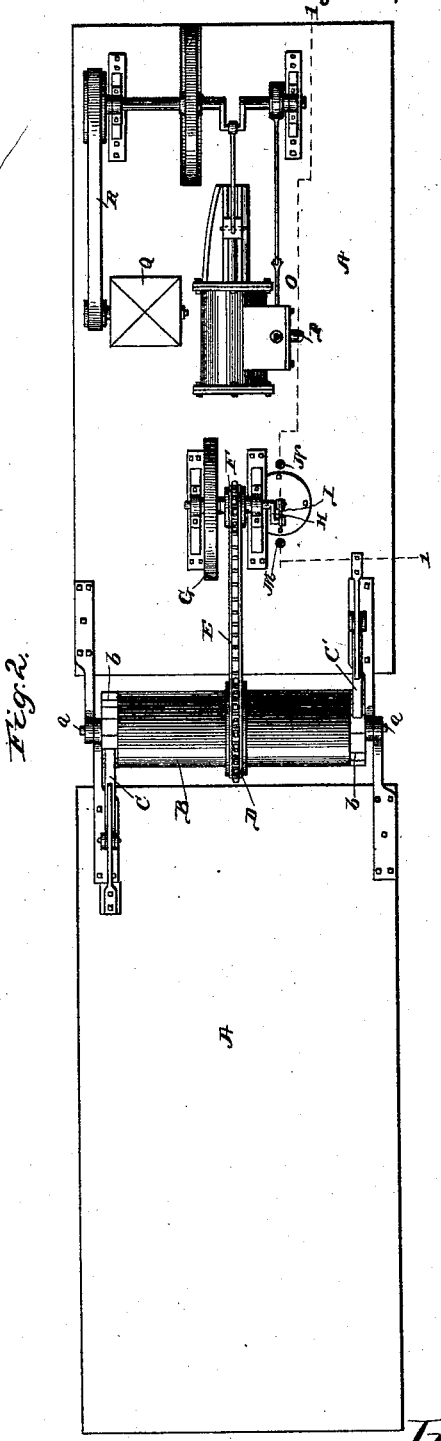

Fig. 2.

Witnesses.
Wm. M. Sheem.
S. H. Knight.

Inventor.
Robert B. Davy,
By Knight Bros Atty's.

UNITED STATES PATENT OFFICE.

ROBERT B. DAVY, OF SAN DIEGO, CALIFORNIA.

WAVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 455,743, dated July 14, 1891.

Application filed October 4, 1890. Serial No. 367,065. (No model.)

To all whom it may concern:

Be it known that I, ROBERT B. DAVY, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Wave-Motors, of which the following is a specification.

The object of the present invention is to utilize the force of waves for operating machinery for industrial purposes. To this end I employ two or more connected floats, the relative movement between which as they ride the waves is made use of for compressing air, the compressed air being stored up in a suitable reservoir, whence it is piped off for use.

The invention consists in certain features of novelty that are particularly pointed out in the claims hereinafter.

In the accompanying drawings, which form a part of this specification, Figure 1 is a sectional elevation, and Fig. 2 is a plan view, of the improved motor, the planes of the section being indicated by the line 1 1.

A and A′ represent a pair of floats, which are preferably constructed of sheet-iron and air-tight, so that their interiors may be used as reservoirs in which to store up compressed air. They are shaped somewhat like boats and are suitably braced interiorly, so as to give them the required rigidity, but the braces and other details of construction are not shown in the drawings, as the present invention is not limited thereto. On the contrary, so far as this invention is concerned, the floats may be of any construction. They may be of wood and provided with suitable reservoirs for receiving compressed air. However they may be constructed, they are hinged together so as to be incapable of horizontal movement relatively to each other, while at the same time their outer ends are perfectly free to rise and fall independently of each other, the movement being of course in an arc about the pintle *a*, by which they are connected. As wave after wave passes, there is a constant relative movement of the floats about this pintle, and to utilize this movement for industrial purposes it is only necessary to add suitable translating devices, many forms of which will readily suggest themselves to those skilled in the art. The translating devices which I have shown in the drawings are simple and effective; but I desire to have it understood that in its broadest sense my present invention includes translating devices of any construction.

B is a heavy shaft or roller which is journaled upon pintle *a*, so that its axis is coincident with the axis of motion of the floats. Upon this shaft are ratchet-teeth *b*, which are engaged by pawls C and C′, fixed to the floats A and A′, respectively. The teeth are all presented in the same direction and are engaged by the extremity of pawl C and by a beard or hook *c*′ on pawl C′, so that both pawls oppose the rotation of the shaft in one direction and cause it to turn in the other direction as the floats move relatively to each other. To the shaft is secured also a pulley or sprocket-wheel D, over which passes a belt or drive-chain E, which belt or chain embraces also a pulley or sprocket-wheel F, which is secured to a shaft journaled in the frame of the compressor. To this shaft is secured also a fly-wheel G and a crank H, the latter being connected by a pitman I to the upper end of the piston-rod J of the compressor.

The compressor-cylinder is shown at K and its piston at L.

M is a T-pipe or a pipe having three branches, one of which branches communicates with the atmosphere and is provided with a valve that opens inward and closes outward, said valve being normally held upon its seat by a light spring. A second branch communicates with the interior of the cylinder K near its upper end, and the third branch communicates with the air-reservoir in the interior of the float and is provided with a valve that opens outward and closes inward, said valve being normally held upon its seat by a light spring.

N is a second T-pipe, similar in construction and having valves similar to pipe M, this second pipe being so arranged that its second branch communicates with the cylinder K near the bottom. These parts F N constitute a double-acting air-compressor that sucks in air from the outside, compresses it, and discharges it into the air-reservoir. I desire to have it understood, however, that the present invention is not limited to an air-

compressor of this or any other particular construction.

O represents a pneumatic engine, which is secured to the deck of the float A and may be of any desired construction, compressed air for running it being conveyed to it from the reservoir through pipe P.

Q represents a dynamo, which is secured to the deck of float A and is driven by a belt R from the engine. The generated electricity is either stored in batteries located on one or both of the floats, or else conducted by a suitably-insulated wire to shore, where it may be either stored or used directly.

The drawings show only one of the floats provided with a compressor, an engine, and a dynamo; but, if desired, both of the floats may have them. Preferably both are provided with compressors, but only one with an engine and dynamo, the air-reservoirs of both being connected by a flexible pipe S, so that air may pass from one to the other. If desired, both floats may be without an engine and dynamo, in which case the compressed air would be conveyed ashore by a suitable pipe.

Instead of using the engine for driving the dynamo, one or both of the floats may be provided with a propeller, and the engine may be used for driving it for moving the device from place to place.

It is obvious that instead of an air-compressor any other piece of machinery may be driven directly by the belt or chain E.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a wave-motor, the combination of a float, a shaft on which said float is pivoted at one end, a ratchet-wheel secured on said shaft, two pivoted pawls engaging said ratchet-wheel for rotating the shaft in one direction only when the float rises and falls, and means for applying the motion thus derived, substantially as set forth.

2. In a wave-motor, the combination, with two hinged floats, of a ratchet-wheel, a pawl carried by one of the floats and engaging said ratchet-wheel, and means for applying the motion thus derived, substantially as set forth.

3. In a wave-motor, the combination, with two hinged floats, of a shaft, ratchet-teeth carried thereby, a pawl carried by each of the floats and engaging said teeth, and means for applying the motion thus derived, substantially as set forth.

4. In a wave-motor, the combination, with two hinged floats, of a shaft journaled with its axis coincident with the axis of the hinge, ratchets carried thereby, pawls carried by the floats and engaging said shaft, and a belt for applying the motion thus derived, substantially as set forth.

5. In a wave-motor, the combination, with a pair of hinged floats, of an air-compressor, means for transmitting the motion of said floats to the piston of said compressor, and an air-reservoir into which said compressor discharges, substantially as set forth.

6. The combination, with the floats A and A′, hinged together at *a*, of the shaft B, journaled with its axis coincident with the axis of said hinge, the ratchets *b*, the pawls D and D′, secured to floats A and A′, respectively, and engaging said ratchets, the pulley E on said shaft, the belt F, embracing said pulley, and a machine adapted to be driven by said belt, substantially as set forth.

ROBERT B. DAVY.

Witnesses:
CHAS. D. WHEAT,
VICTOR HUSSEY.