No. 748,757. PATENTED JAN. 5, 1904.

J. A. LANGSTROTH.

WAVE MOTOR.

APPLICATION FILED MAR. 5, 1903

NO MODEL.

Fig. 1.

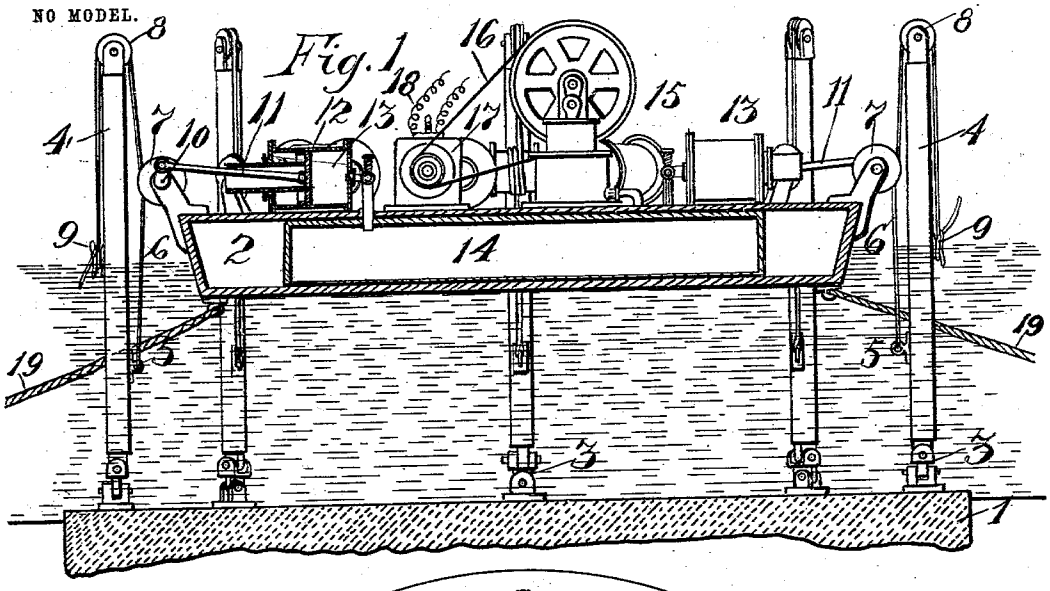
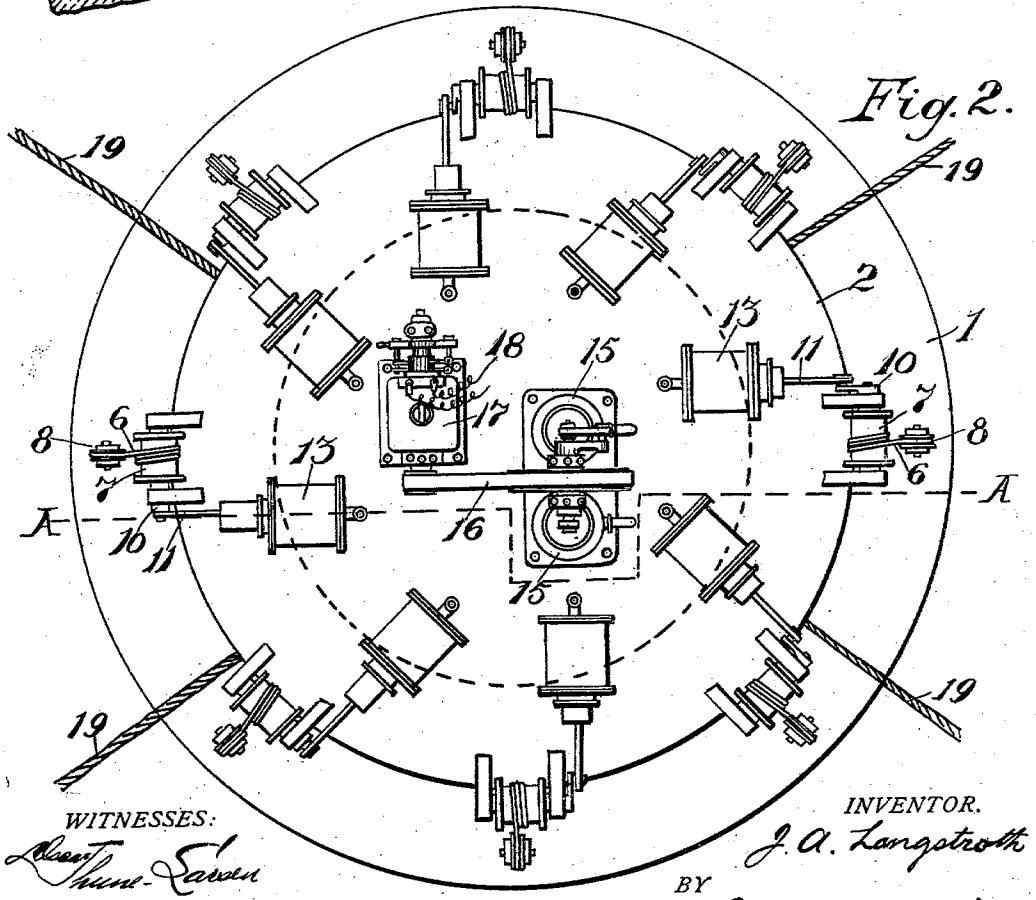


Fig. 2.



WITNESSES:

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No. 748,757. Patented January 5, 1904.

UNITED STATES PATENT OFFICE.

JOHN A. LANGSTROTH, OF OAKLAND, CALIFORNIA.

WAVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 748,757, dated January 5, 1904.

Application filed March 5, 1903. Serial No. 146,261. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. LANGSTROTH, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Wave-Motors, of which the following is a specification.

My invention relates to an improved wave-motor, the object of my invention being to provide an apparatus of this character which shall permit of a large amount of force being obtained from the motion of the waves in proportion to the cost of the apparatus, which shall be simple and durable in construction, and which shall admit of ready inspection and repair of the working parts of the apparatus.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of my improved apparatus on the line A A of Fig. 2. Fig. 2 is a broken plan view of the same.

Referring to the drawings, 1 represents a concrete foundation in the bottom of the sea at a suitable depth below the normal surface thereof. Said foundation will be preferably circular in form, corresponding to the circular form of the float or barge, which is shown at 2. However, the float and foundation may be made polygonal or of any other desired form. Upon said foundation, near the periphery thereof, are jointed, as shown at 3, a series of vertically-extending rods 4. To said rods are attached, as shown at 5, the lower ends of cables 6, preferably of wire, which extend upward and pass around drums 7 on the barge or float, and then extend again upward over pulleys 8, mounted on the tops of said rods, and then downward and secured at their lower ends to said rods by means of cleats 9. By this means the degree of tightness of the cables may be adjusted. The vertical movement of the float due to the wave motion of the sea will thus cause said drums to rotate. Cranks 10 on the shafts of said drums are connected by pitmen 11 with pistons 12 in air-compressors 13, so that the rotation of a drum in either direction compresses air in the compressor. From said compressors the compressed air is forced into a compressed-air reservoir 14 within the float, from which it is conducted to the compressed-air motors 15, which actuate, by means of a belt 16, a dynamo 17, by which an electric current is generated, which current is conducted by the cables 18 to the place where it is to be utilized. While I have in the drawings illustrated a comparatively small number of such rods and air-compressors, it will be understood that a much larger number are preferably used, the float being made of sufficient size for this purpose. It will also be observed that the opposite sides of the float may be moving in opposite directions at the same time; but this will not affect the transmission of power from the motion of the waves to the dynamo. The float is securely anchored by the cables 19 at such a distance from the shore as to secure a proper depth and the desired wave or swell action.

I claim—

1. A wave-motor comprising a float, drums mounted thereon, cables around said drums for rotating the same, rods secured against vertical movement but free to move in all directions horizontally and extending upward by the sides of the drums, said cables being secured to said rods, whereby the movement of the drums relative to said rods rotates said drums, and means for transmitting the power imparted to said drums, substantially as described.

2. A wave-motor comprising a float, rods adjacent to said float secured against vertical movement but free to move in all directions horizontally, means carried by said float for generating power, and an operative connection between said rods and said means whereby the movement of the float relative to the rods operates said means, substantially as described.

3. A wave-motor comprising a float, a series of vertical rods surrounding said float, secured against vertical movement but free to move in all directions horizontally, a corresponding series of air-compressors carried by said float, a connection between said air-compressors and rods whereby the vertical movement of the

float operates said air-compressors, and a reservoir for the compressed air, substantially as described.

4. A wave-motor comprising a float, a series of vertical rods secured adjacent to said float against vertical movement, but free to move in all directions horizontally, cables secured to said rods, a series of rotary devices carried by said float and engaged by said cables to transmit movement thereto, and means for collecting the power generated in said rotary devices, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

J. A. LANGSTROTH.

Witnesses:
FRANCIS M. WRIGHT,
BESSIE GORFINKEL.