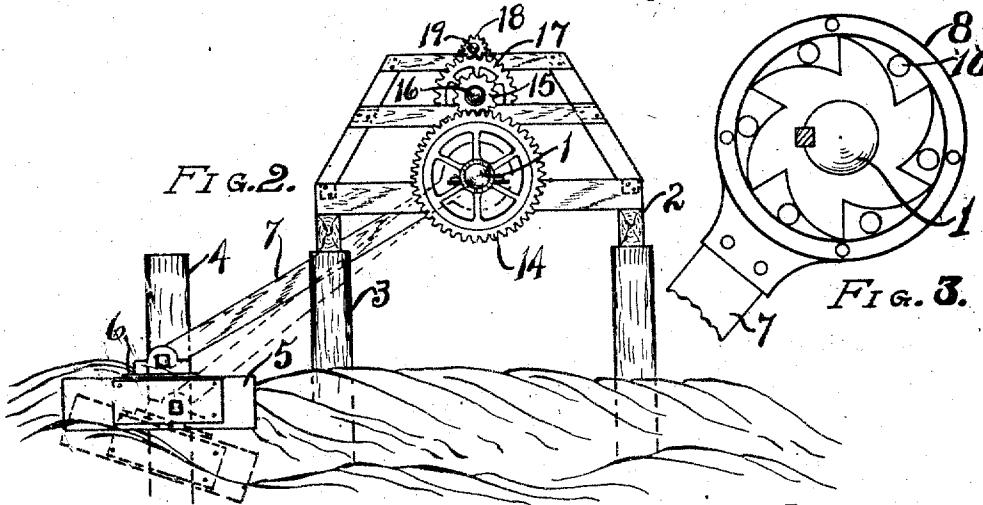
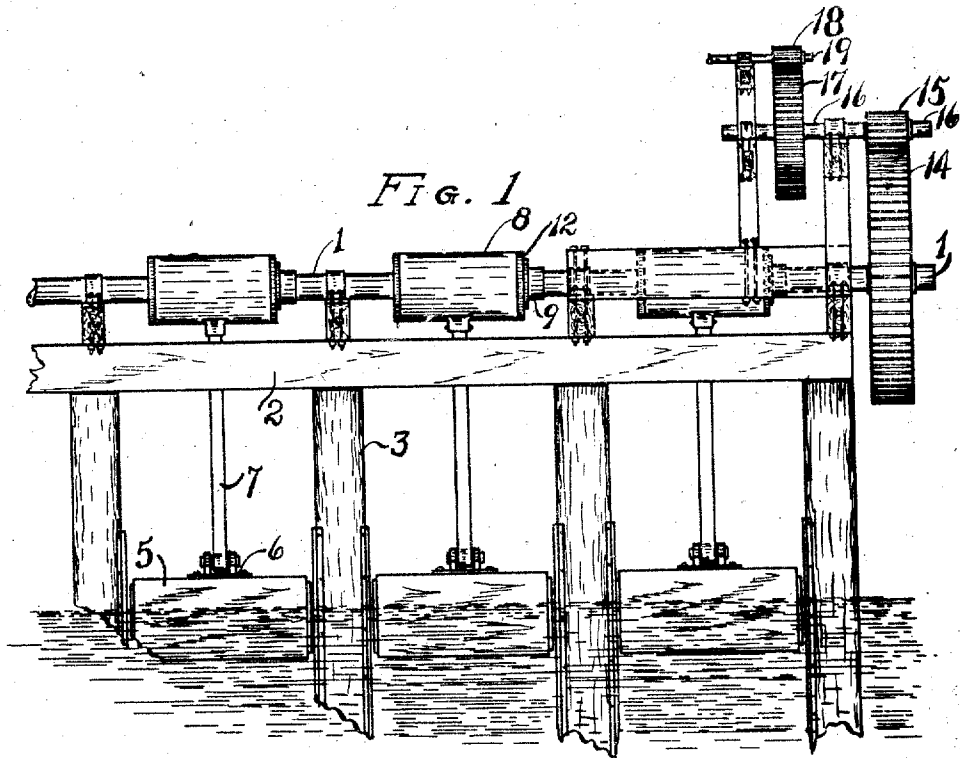


W. A. RUSSELL.
WAVE MOTOR.
APPLICATION FILED FEB. 12, 1910.

984,241.

Patented Feb. 14, 1911.



WITNESSES

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WILLIAM A. RUSSELL, OF CORTE MADERA, CALIFORNIA.

WAVE-MOTOR.

984,241.

Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed February 12, 1910. Serial No: 543,487.

To all whom it may concern:

Be it known that I, WILLIAM A. RUSSELL, citizen of the United States, residing at Corte Madera, in the county of Marin and State of California, have invented a new and useful Wave-Motor, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

10 This invention relates to a wave motor and its object is to so simplify such machines as to make them exceedingly strong and able to withstand the ravages of storms.

Another object of the invention is to reduce the size of the floats used to as small a size as will give the necessary power, the number being increased at will to give extra power, thus producing a motor which will have the maximum strength with the smallest liability to destruction by storms.

20 In the drawings, in which the same numeral of reference is applied to the same portion throughout the several views, Figure 1 is a side view of a wharf having the motor secured thereon, Fig. 2 is an end view of the wharf, and Fig. 3 is an end view of the main shaft and the clutch used to transmit the power from the floats to the shaft.

The numeral 1 is applied to the main shaft which is supported on the wharf 2 by means of piling 3, guide piles 4 being placed in the front of the wharf to prevent the floats 5 from being moved laterally by the waves. The floats 5 are made of such size as may be deemed expedient and on their upper side they have a bearing plate 6 in which the lower ends of the lever arms 7 are pivoted. The lever arms are secured rigidly to the clutch drums 8, each of said drums fitting snugly over a cam hub 9 which is keyed to the main shaft 1, rollers being placed in the drum as shown at 10 to cause the shaft to be driven when the drum is moved in one direction, the roller releasing when the drum is moved in the reverse direction, a well known construction in clutch mechanisms. The rollers are held in their places in the drum clutches by means of plates 12 at the ends of the drums, said plates being secured by means of bolts in holes in the drums. Since the main shaft will move very slowly it becomes necessary to increase the speed of shafting driven thereby by means of a large gear 14 driving a small gear 15 on a shaft 16, a second large gear

17 on the shaft 16 driving a small gear 18 on a shaft 19, although, of course any other number of gears may be used to increase the speed of the driven shafting as desired.

The operation of the motor is as follows: 60 The number of floats being as large as may be necessary to give continuous motion to the main shaft, the waves move the floats up and down, and on the downward movement the rollers will bind on the cams and drum and cause a movement of the shaft. Since all the floats will be moving at different times the motion of the shaft will be practically continuous. More power can be had by simply increasing the number of floats, which will increase the torque on the main axle, although its speed of rotation will not be increased.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is as follows: 75

1. In a wave motor, a shaft, a large gear wheel carried thereby, a plurality of one way clutches on said shaft, a plurality of floats at a distance from said shaft, an arm rigidly secured to each of said clutches and extending therefrom to each of said floats, each arm being pivotally connected with said float, and guides at the sides of said floats whereby they are compelled to move vertically with the motion of the waves, as set forth.

2. In a wave motor, a shaft, a large gear wheel carried thereby, a gear train connected with said large gear to increase the speed of the last driven shaft, a plurality of one way clutches on the first mentioned shaft, a plurality of plates at a distance from said shaft, an arm rigidly secured to each of said clutches and having its free end pivotally connected with said floats, said arms each extending downwardly into proximity to the tops of said floats, and means to prevent lateral motion of said floats, as set forth. 95 100

In testimony whereof I have hereunto set my hand this 8th day of December, A. D. 1909, in the presence of the two subscribed witnesses.

WILLIAM A. RUSSELL.

Witnesses:

CHARLES R. HOLTON,
C. P. GRIFFIN.