

986,740.

R. M. MOBIUS.  
WAVE POWER GENERATOR.  
APPLICATION FILED JUNE 6, 1910.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 1.

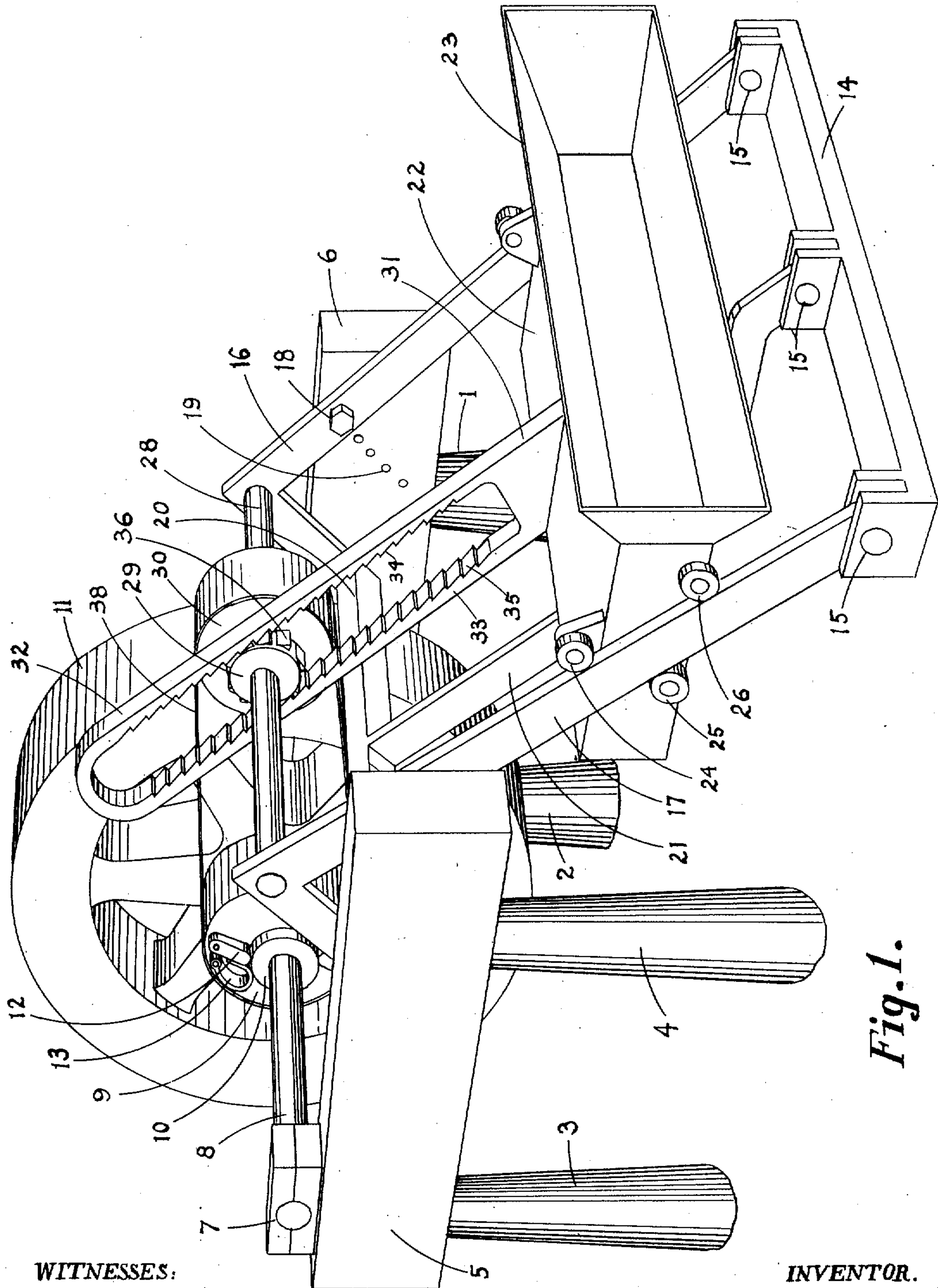


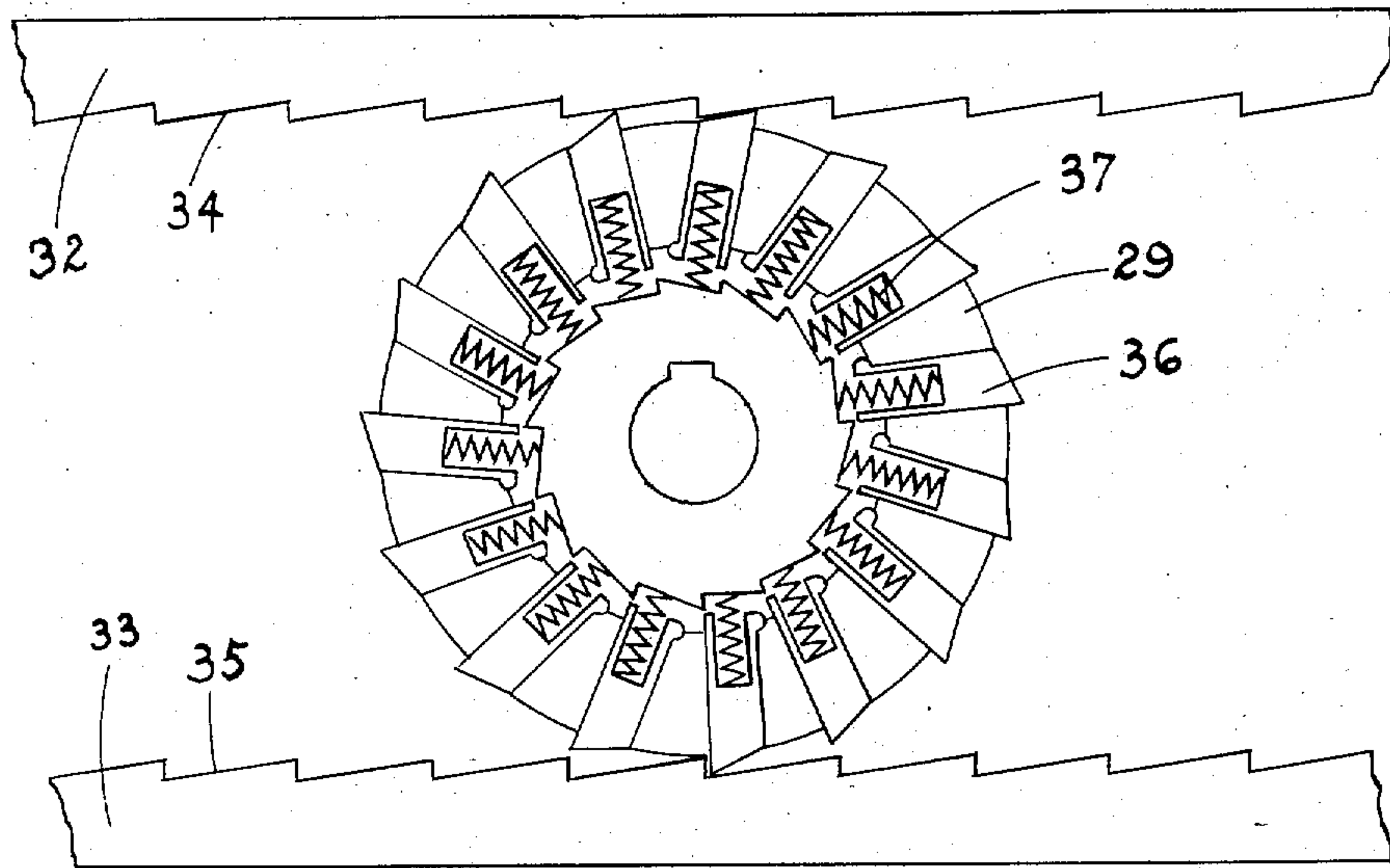
Fig. 1.

WITNESSES:

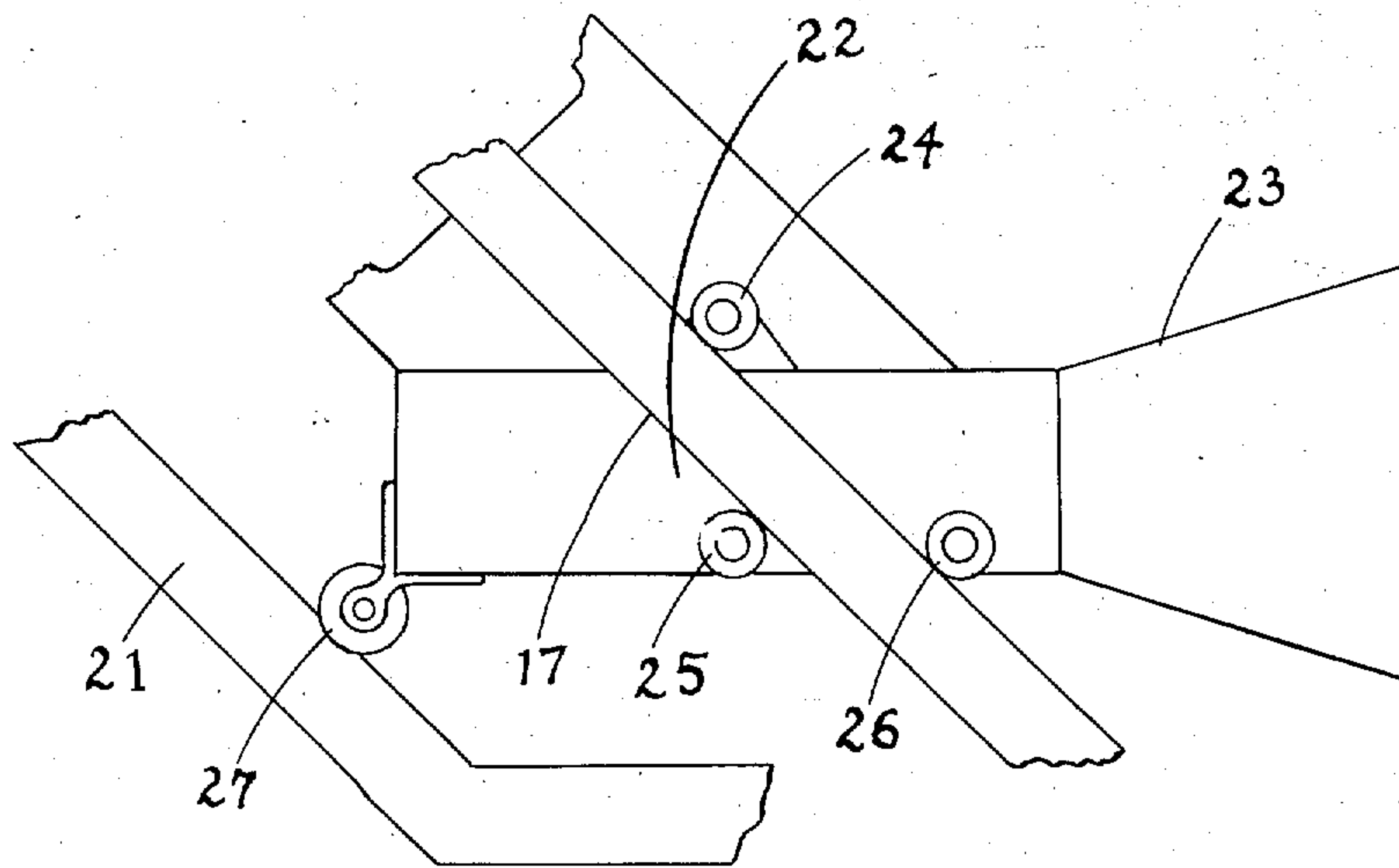
L. C. Buck  
J. M. Kearney.

INVENTOR.

Robert Max Mobius



*Fig. 2.*



*Fig. 3.*

WITNESSES:  
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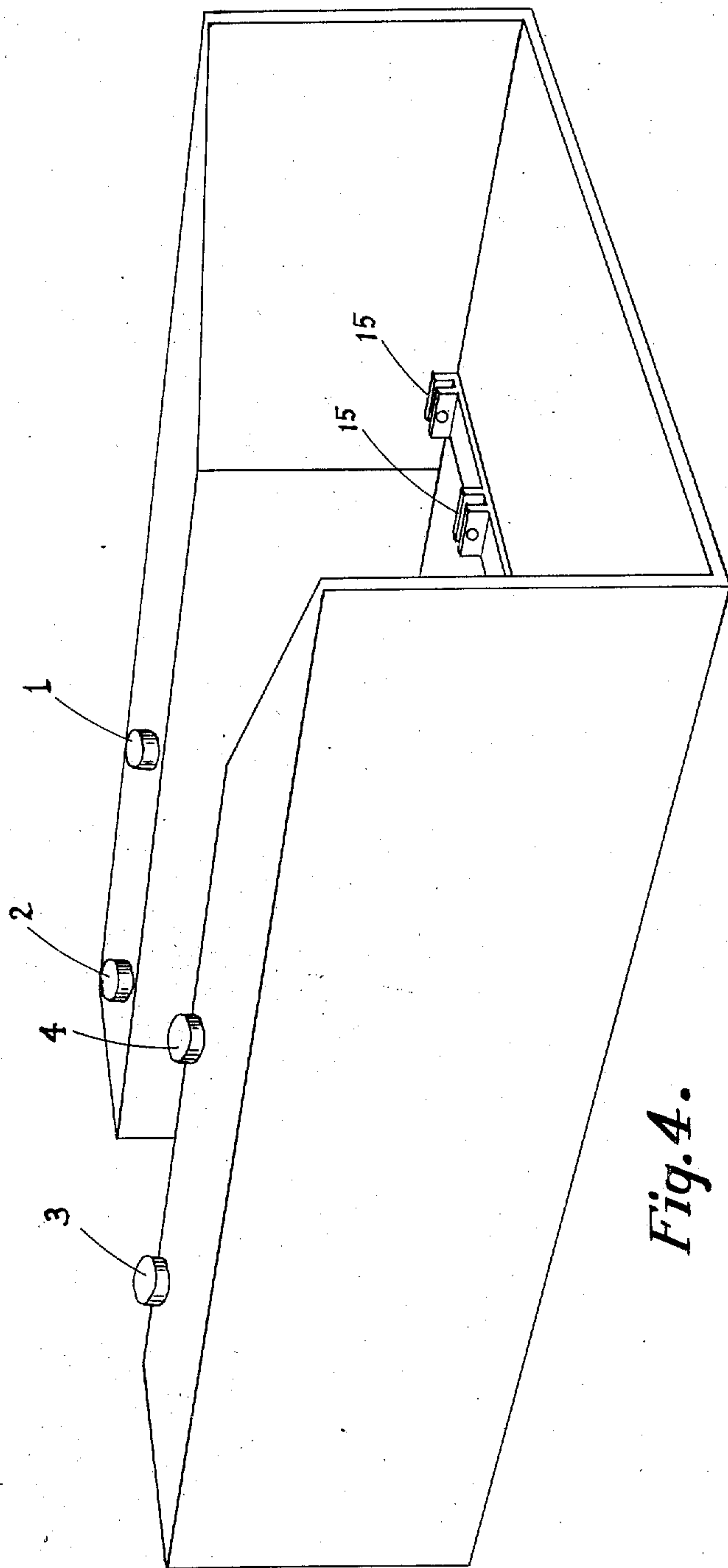


Fig. 4.

WITNESSES:  
*L. C. Buck*  
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# UNITED STATES PATENT OFFICE.

ROBERT MAX MOBIUS, OF SAN DIEGO, CALIFORNIA.

## WAVE-POWER GENERATOR.

986,740.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed June 6, 1910. Serial No. 565,388.

*To all whom it may concern:*

Be it known that I, ROBERT MAX MOBIUS, a citizen of Canada, residing at San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Wave-Power Generators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a wave power generator and has for its object the provision of an improved form of apparatus adapted to develop power from the motion of the waves or surf.

It is more particularly a device in which the reciprocating motion of a buoyant member operating on an inclined frame, is transformed into mechanical power by means of a double rack and pinion and a ratchet wheel and heavy balance wheel mounted on a power shaft.

These objects are attained by the form of invention disclosed in this specification and defined in the claims.

In the accompanying drawings in which similar characters of reference designate corresponding parts, Figure 1 is a perspective view of the device. Fig. 2 is a detail view of the rack and pinion. Fig. 3 is a detail view of the float or buoyant member which is actuated by the waves or surf. Fig. 4 is a perspective view of a float or barge on which the power generator may be mounted and thereby made a portable device.

Referring more particularly to the drawings, numerals 1, 2, 3, and 4, designate piling carrying heavy timbers 5 and 6, on which are mounted bearings 7, with a power shaft 8, journaled therein. Ratchet pinion 9, smooth pulley 10, and a heavy balance wheel 11 are mounted on the power shaft. Smooth ratchet pawls 12, held in engagement with the smooth pulley by springs 13, are mounted on pinion 9. The ratchet pawls are set to bind and grip the smooth pulley when rotated in the proper direction, thus imparting motion to the power shaft.

A platform 14, securely anchored to the earth, has a frame pivoted thereto in bearings 15. Side bars 16 and 17, of the frame are mounted in an inclined position, being

adjustable with parallel horizontal timbers 55 5 and 6, and having heavy screw bolts 18, fitting a series of threaded holes 19, in said timbers. Side bars 16 and 17 are connected by cross bar 20, from which a centrally located bar 21, extends to and is pivoted to platform 14. Upon these inclined bars, a reciprocating float 22, is mounted, consisting of a hollow buoyant portion having suitably positioned impact surfaces and a flaring rectangular cup-shaped extension 23, thereon. Pulleys 24, 25, and 26, hold the float in engagement with the side bars, and double-flanged pulley 27, operating on bar 21, also supports the float.

A rotary shaft 28, carrying ratchet pulley 29, and belt pulley 30, is mounted on the adjustable frame. A double rack 31, having upper and lower members 32 and 33, arranged in a vertical plane, is connected to float 22, and is operated thereby. Members 32 and 33, are provided with teeth 34 and 35, respectively pointed in opposite directions, and engaging with teeth 36, of ratchet-pinion 29, thereby rotating the pinion in the same direction with both movements of the rack. Teeth 36, are slidably mounted in sockets in the face of the pinion, and are normally held in operative position by springs 37. The movement of the rack members in the opposite direction from that of the adjacent teeth of pinion 29, will depress the teeth, thus allowing the member moving in the same direction as the teeth, to drive the pinion. A belt 38, connects pulley 29, and ratchet pinion 9.

In operation, the float is raised upward on the inclined frame and falls again after the wave has passed onward. The movement of the float causes a reciprocating movement of the double rack, which operates the pinion and shaft mounted at the top of the frame. The motion of the shaft thus driven is transmitted to the power shaft which, by means of its heavy balance wheel maintains a continuous and uniform rotary movement.

In this device both the lifting power and the power in the horizontal movement of the waves or surf, are utilized in the generation of power, and the frame may be adjusted at such angle as to receive and transmit the greatest effective power possible with this device.



The device as herein illustrated and described, constitutes a single unit or power generator, and the apparatus may be installed with a series of such units, having adjacent power shafts connected.

This mechanism may be installed upon a floating barge, as a portable device, adapting the power generator for use on temporary work, or it may be constructed on solid foundations.

While the means herein provided are well adapted to serve the purposes for which they are intended it is to be understood that the invention is not limited to the precise construction as set forth, but includes such changes as may be made within the scope of the claims.

I claim:

1. In a device of the character described, the combination of an inclined frame, means for adjusting the inclination of the frame a float comprising a hollow buoyant portion with a large impact surface, and having a member attached thereto in position to receive the impact of the waves, a series of guide wheels attached to the float and engaging the parallel bars of the frame, and a rack and pinion mechanism for convert-

ing the reciprocating motion of the float into a continuous uniform rotary motion.

2. A wave power generator comprising an inclined frame pivoted to a securely anchored platform, means for adjusting the inclination of the frame, parallel side bars of the frame serving as guides for a reciprocating float, a parallel bar back of and between the said side bars, serving as a support for the float, guide wheels engaging the side bars, a double flanged guide wheel engaging the supporting bar, a float carried by the guide wheels, a double rack with its members arranged in a vertical plane, a pinion with ratchet teeth cooperating with said rack, a rotatory shaft carrying a belt pulley operated by the ratchet pinion, in combination with a ratchet pulley mounted on a power shaft, and a belt transmission between the ratchet pulley of the power shaft and the belt pulley operated by the ratchet pinion.

In testimony whereof, I affix my signature, in presence of two witnesses.

ROBERT MAX MOBIUS.

Witnesses:

L. C. BUCK,  
J. W. MASTER.