

No. 717,113.

Patented Dec. 30, 1902.

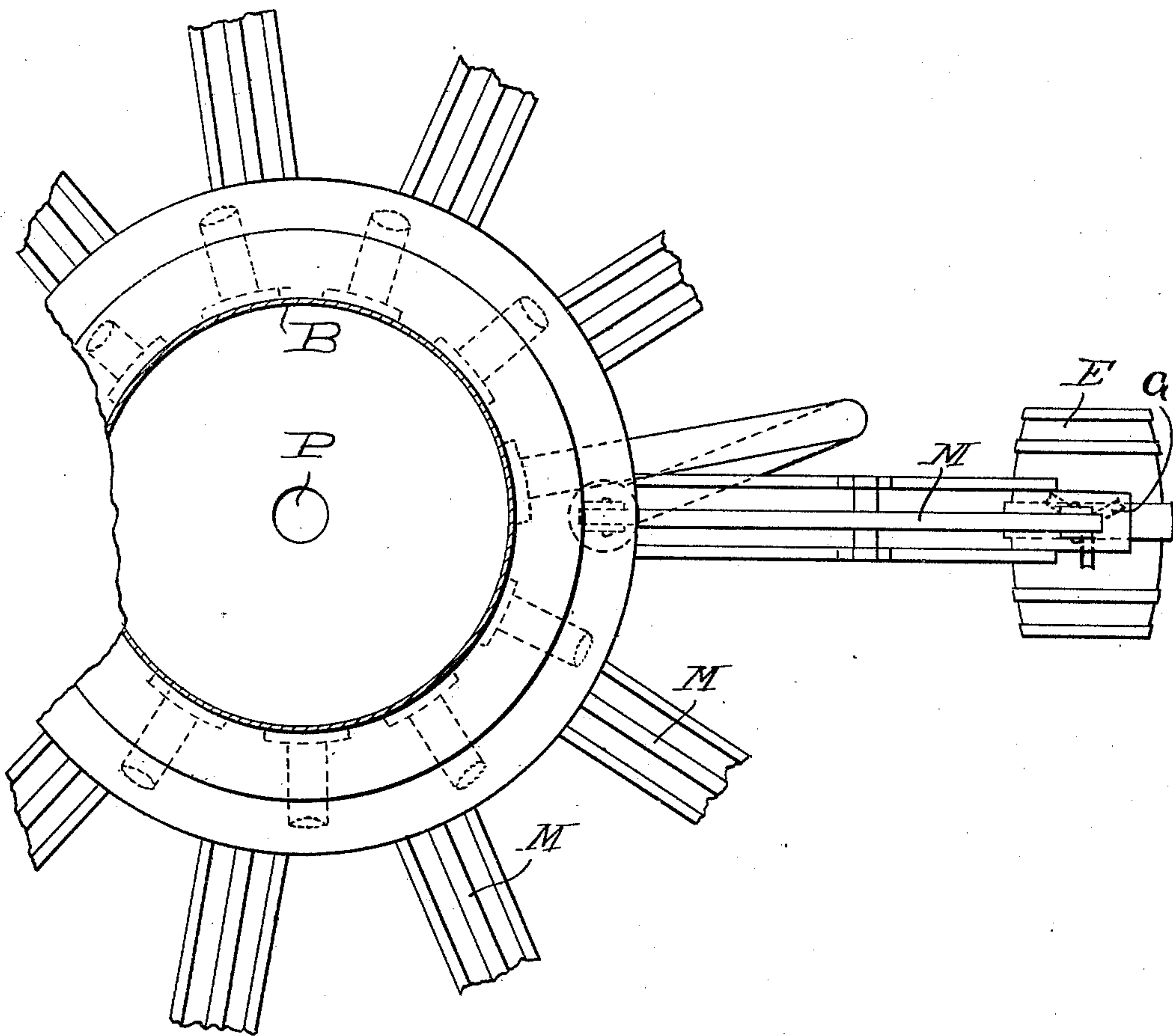
A. NELSON.  
WAVE MOTOR.

(Application filed May 19, 1902.)

(No Model.)

3 Sheets—Sheet 1.

*Fig. 1.*



Witnesses:

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Inventor:

*Arne Nelson*

By *Rudolph M. Jones*

*Attorney*



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3 Sheets—Sheet 3.

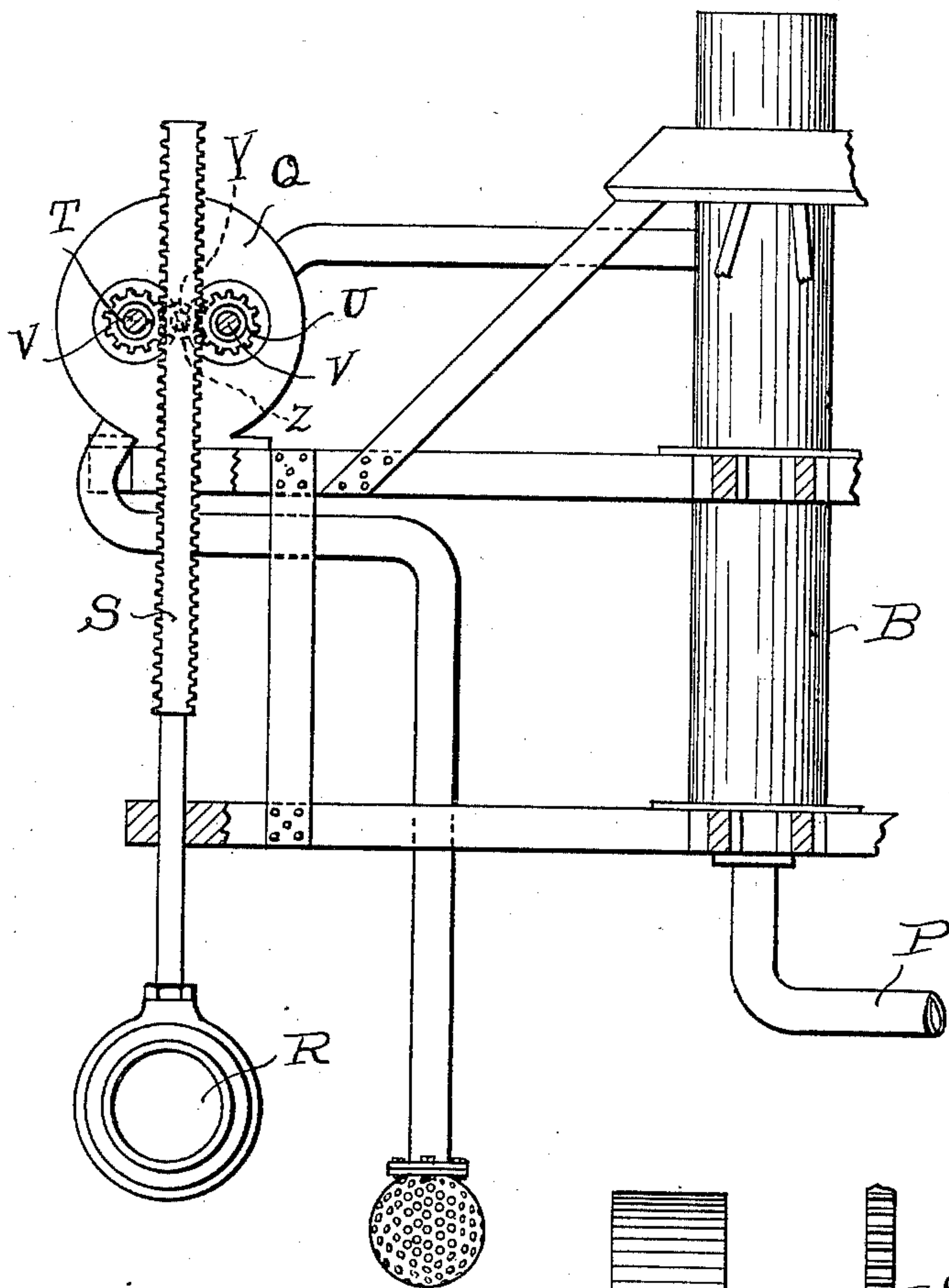


Fig. 3.

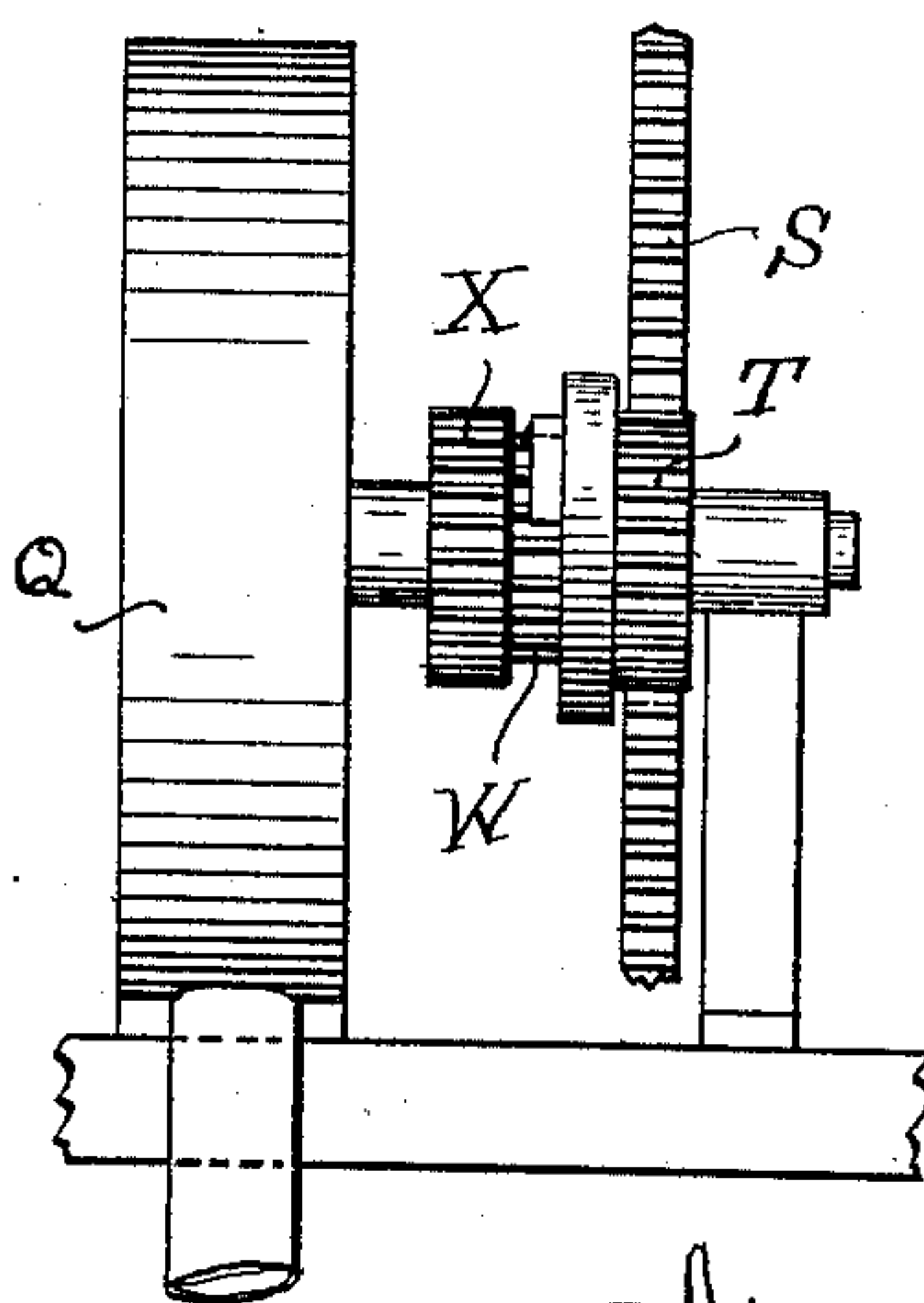


Fig. 4.

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# UNITED STATES PATENT OFFICE.

ARNE NELSON, OF CHICAGO, ILLINOIS.

## WAVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 717,113, dated December 30, 1902.

Application filed May 19, 1902. Serial No. 108,007. (No model.)

*To all whom it may concern:*

Be it known that I, ARNE NELSON, a subject of the King of Sweden and Norway, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wave-Motors; 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.

My invention relates to a novel construction in a motor adapted to be actuated by the waves of any large body of water, the object being to provide a motor of this character of simple and efficient construction; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a fragmentary plan view of a motor constructed in accordance with my invention. Fig. 2 is a sectional view of same on the line 2 2 of Fig. 1, certain parts being shown in elevation. Fig. 3 is a fragmentary side elevation showing a modified form of construction. Fig. 4 is a fragmentary end elevation of the device shown in Fig. 3.

Referring now to said drawings, A indicates a framework or foundation consisting, preferably, of piles driven into the bottom of a large body of water and projecting above the level of the latter. Mounted upon said foundation A is a tank or reservoir B of suitable dimensions, which is fed by a plurality of pumps C. The said pumps C are mounted upon the inner ends of the projecting beams D, extending outwardly from the framework or foundation A, and are operated by means of the floats E. The latter are mounted upon the lower ends of rods or plungers F, vertically movable in roller-bearings G in the outer ends of the beams D, and similar projecting beams H above and parallel with the beams D, said beams H being bolted to a flange I of the reservoir and supported at their outer ends upon the supports J and by the braces K. The said rods or plungers F are connected with the piston-rods L of said pumps C by

means of walking-beams M, pivotally mounted on said braces K, said walking-beams being connected with the plungers F and piston-rods L by means of links N. The connection between the links N and plungers F is made by means of split sleeves O, having internal annular shoulders or ribs adapted to enter annular grooves in the upper end portions of said plungers F, thereby enabling said plungers to revolve freely, thus relieving them of torsional strains in an obvious manner. The floats are raised and lowered by the waves, as indicated in Fig. 2, thereby operating the pumps to fill the reservoir. From the bottom of the latter a pipe P leads to any point of consumption.

In Figs. 3 and 4 I have shown a modified form of construction in which rotary pumps are substituted for the plunger-pumps shown in Figs. 1 and 2. The said rotary pumps are actuated by the floats R through the medium of a double rack-bar S, meshing with pinions T and U. The latter are loosely mounted on shafts V, carrying ratchet-wheels W, adapted to be engaged by dogs carried by said pinions. Gear-wheels X on said shafts V mesh with a gear-wheel Y on the pump-shaft Z. In this manner the pump is rotated continuously in one direction by the reciprocatory motion of the float.

The rods F, connected with the floats E, are telescopic to enable them to be varied in length to accord with any changes in water-level, to which small lakes particularly are subject.

I claim as my invention—

1. A wave-motor comprising a foundation having a reservoir thereon, a plurality of radially-extending horizontal beams secured to the reservoirs entirely around the periphery of the same, said beams being disposed in an upper and a lower series, suitable supports connecting the ends of the upper and lower series of braces, a series of vertically-movable rods journaled in the ends of the series of beams, pumps on the beams, a connection between said pumps and the said rods, floats on the rods, and means whereby said floats are movable in a rotary horizontal plane.

2. A wave-motor comprising a foundation

adapted to support a reservoir above a body  
of water, framework surrounding said reser-  
voir, pumps mounted on said framework, ver-  
tically-movable rods journaled in said frame-  
5 work, floats at the lower ends of said rods,  
connection between said rods and said pumps  
to actuate the latter, and devices interposed  
in said connection for permitting said rod to

rotate freely, whereby same is relieved of tor-  
sional strains, substantially as described. 10

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

ARNE NELSON.

Witnesses:

W. BJUSSHERN,  
RUDOLPH WM. LOTZ.