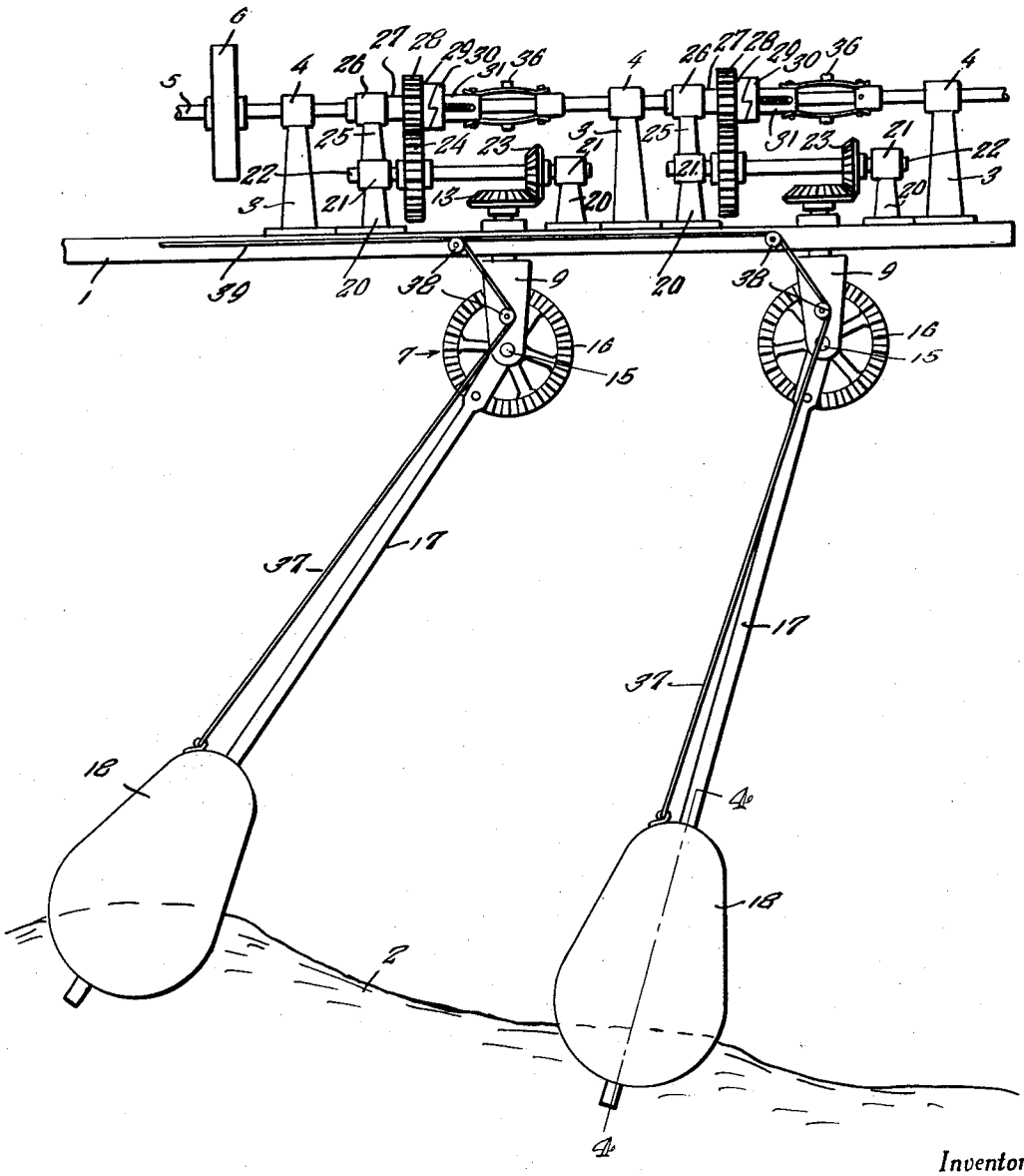
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WAVE MOTOR

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Fig. 1.



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WAVE MOTOR

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Fig. 2.

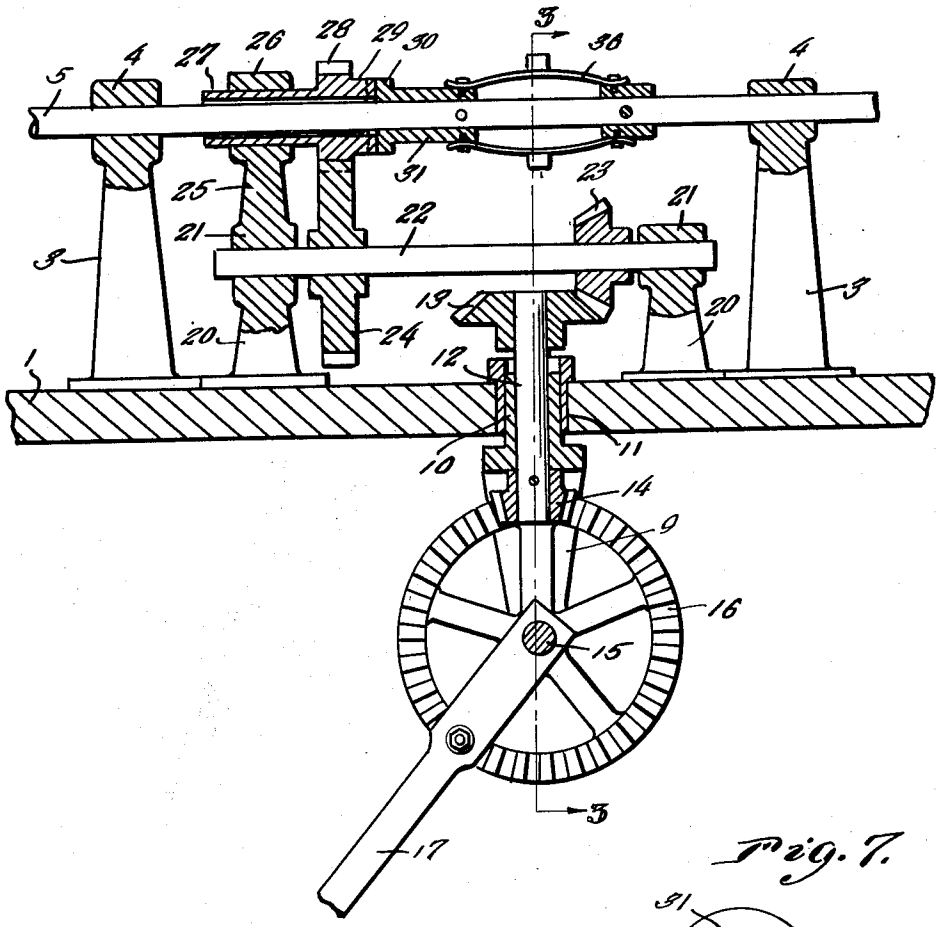


Fig. 7.

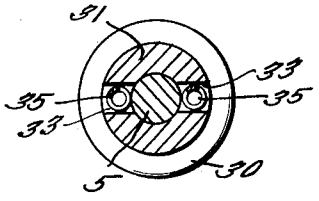
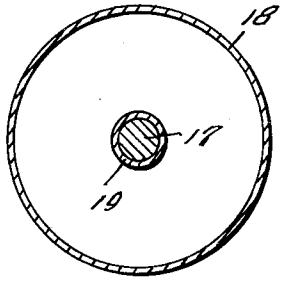


Fig. 6.



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WAVE MOTOR

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Fig. 3.

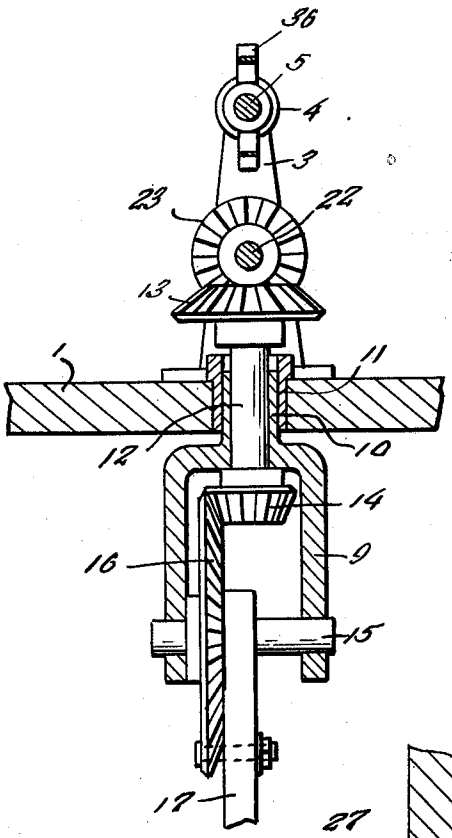
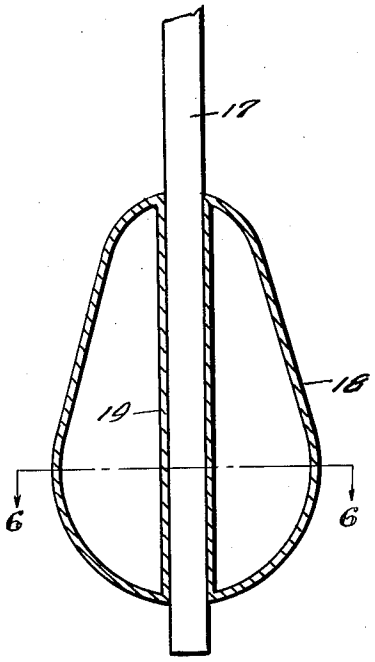


Fig. 4.



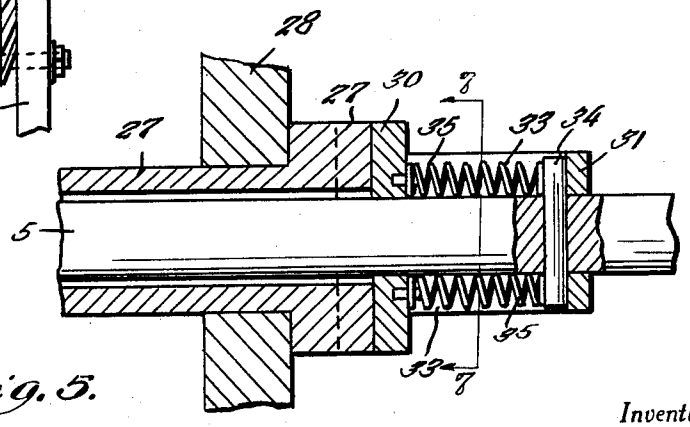


Fig. 5.

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UNITED STATES PATENT OFFICE

1,925,742

WAVE MOTOR

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Application April 21, 1932. Serial No. 606,669

1 Claim. (Cl. 253—11)

The present invention relates to a wave motor and has for one of its important objects to provide, in a manner as hereinafter set forth, a wave motor including a novel construction, combination and arrangement of parts through the medium of which oscillating motion is converted to continuous rotary motion.

Another important object of this invention is to provide a wave motor of the type including floats, said floats being adjustable for adapting the motor to meet various conditions.

Other objects of the invention are to provide a wave motor of the character described which will be simple in construction, strong, durable, efficient and reliable in operation and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation of a wave motor constructed in accordance with the present invention.

Figure 2 is a view in vertical longitudinal section through the driving mechanism.

Figure 3 is a view in vertical transverse section, taken substantially on the line 3—3 of Figure 2.

Figure 4 is a detail view in section, taken substantially on the line 4—4 of Figure 1.

Figure 5 is a detail view in longitudinal section through one of the clutches.

Figure 6 is a detail view in section, taken substantially on the line 6—6 of Figure 4.

Figure 7 is a detail view in transverse section, taken substantially on the line 7—7 of Figure 5.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a suitable supporting structure in the form of a platform 1 which is elevated a sufficient distance above the surface of the water 2.

Rising from the platform 1 are standards 3 having alined bearings 4 thereon in which a driven shaft 5 is journaled. A fly wheel 6 is fixed on the shaft 5.

Mounted on the platform 1 and operatively connected to the shaft 5 is a plurality of wave actuated drive units designated generally by the reference numeral 7. Any desired number of the units 7 may be provided. In the drawings two units have been illustrated and as the same are identical in construction and operation, a detailed description of one will suffice for both.

Each unit 7 comprises a yoke 9 which is vertically disposed and which has formed integrally therewith a tubular shank 10 which is journalled in a vertical bearing 11 mounted in the platform 1 for swivelly or rotatably mounting the yoke thereon, said yoke depending from the platform. Extending rotatably through the tubular shank 10 of the yoke 9 is a vertical shaft 12 having a beveled gear 13 fixed on its upper end portion and a comparatively small beveled gear 14 fixed on its lower end portion and operable in the yoke 9.

Mounted for rotation in a vertical plane in the yoke 9 on a shaft 15 is a comparatively large beveled drive gear 16 which is in mesh with the gear 14. Fixed to the gear 16 is an arm 17 of suitable length projecting toward the water 2. Slidably mounted on the arm 17 is a float 18 which includes a tubular sleeve portion 19 through which said arm extends.

Comparatively short standards 20 are also mounted on the platform 1 and are provided with bearings 21 in which an intermediate shaft 22 is journalled. A beveled gear 23 is fixed on the shaft 22 and is in mesh with the beveled gear 13 on the vertical shaft 12. A comparatively large gear 24 is also fixed on the shaft 22. Rising from one of the bearings 21 is another standard 25 having a bearing 26 thereon through which the shaft 5 passes, said bearing 26 being spaced from the shaft 5. This is illustrated to advantage in Figure 2 of the drawings.

Journalled in the bearing 26 is a sleeve 27 which also is spaced from the shaft 5. Integral with the sleeve 27 is a gear 28 which meshes with the gear 24 for connecting the sleeve thereto for actuation thereby. A clutch member 29 is provided on one end of the sleeve 27 for operative engagement with a clutch member 30 on one end of a sleeve 31. The sleeve 31 is provided with diametrically opposite, longitudinal slots 33 which accommodates a pin 34 mounted transversely in the shaft 5. Thus, the sleeve 31 is mounted for longitudinal sliding movement on the shaft 5 but will not be permitted to rotate independently of said shaft 5.

Coil springs 35 are mounted in the slots 33 and have one end engaged with the pin 34 and their other ends engaged with one end wall of the slots for yieldingly urging the clutch member 30 into engagement with the clutch member 29. It will thus be seen that shaft 5 is opera-

tively connected to the shaft 22 for actuation in one direction only thereby.

A centrifugal governor 36 is mounted on the shaft 5 and is operatively connected with the sleeve 31. When the maximum speed at which it is desired to have the shaft 5 rotated is passed, the governor 36 functions by sliding the sleeves 31 and the clutch member 30 away from the clutch member 29, thus disconnecting the shaft from the gear 28 on the sleeve 27. As will be apparent, the spacing of the sleeve 27 from the shaft 5 materially reduces friction.

The arms 17, due to the mounting of the yokes 9, are free to swing in any direction. Cables 37 are trained over suitable pulleys 38 and connected to the floats 18 for adjusting said floats on the arms 17. The cables 37 extend to the floats from a common adjusting cable 39 which extends to any desired location for convenient operation. As will be apparent, by adjusting the floats 18 from the arms 17, the stroke of said arms may be regulated as desired. In this way various water conditions may be met.

In operation, the arms 17 are actuated in a vertical plane by the floats 18 riding on the water 2. Said floats, of course, are actuated by the waves. Oscillating motion is thus transmitted to the various gears, and shafts between the arms 17 and the driven shaft 5. Through the medium of the clutch members 27 and 30, the shaft 5 is operatively connected to the gear 28 for actuation in one direction only thereby as hereinbefore stated, but is free of said gear when the motion in the opposite direction begins, thus permitting continuous movement of the shaft in one direction.

It is believed that the many advantages of a wave motor constructed in accordance with the present invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

Having thus described our invention what we claim as new is:

A wave motor comprising, in combination, a supporting structure, a vertical bearing mounted on the supporting structure, a yoke journalled for rotation in a horizontal plane in the the bearing and depending from the supporting structure, said yoke including a tubular neck engaged in the bearing, a vertical shaft journalled in the neck, gears fixed on the upper and lower ends of the shaft, a gear rotatably mounted in the yoke and operatively engaged with the lowermost of the first-named gears, an arm fixed on the second-named gear, a float mounted on the arm, a shaft rotatably mounted on the supporting structure, and means operatively connecting the second-named shaft to the uppermost of the first-named gears for actuation thereby.

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