May 8, 1923. 1,454,801

F. I. WEBB ET AL

WAVE MOTOR

Filed March 11, 1921 2 Sheets-Sheet 1

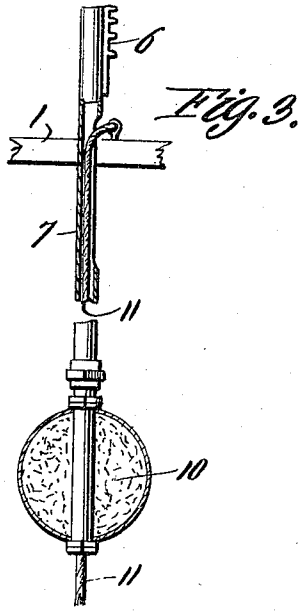


Fig. 3.

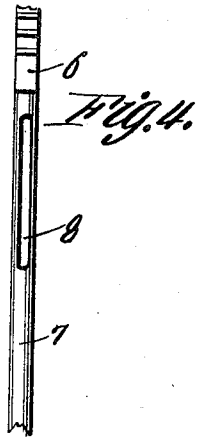
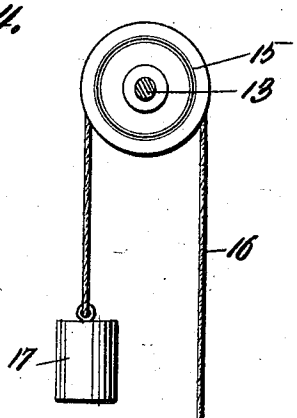


Fig. 4.



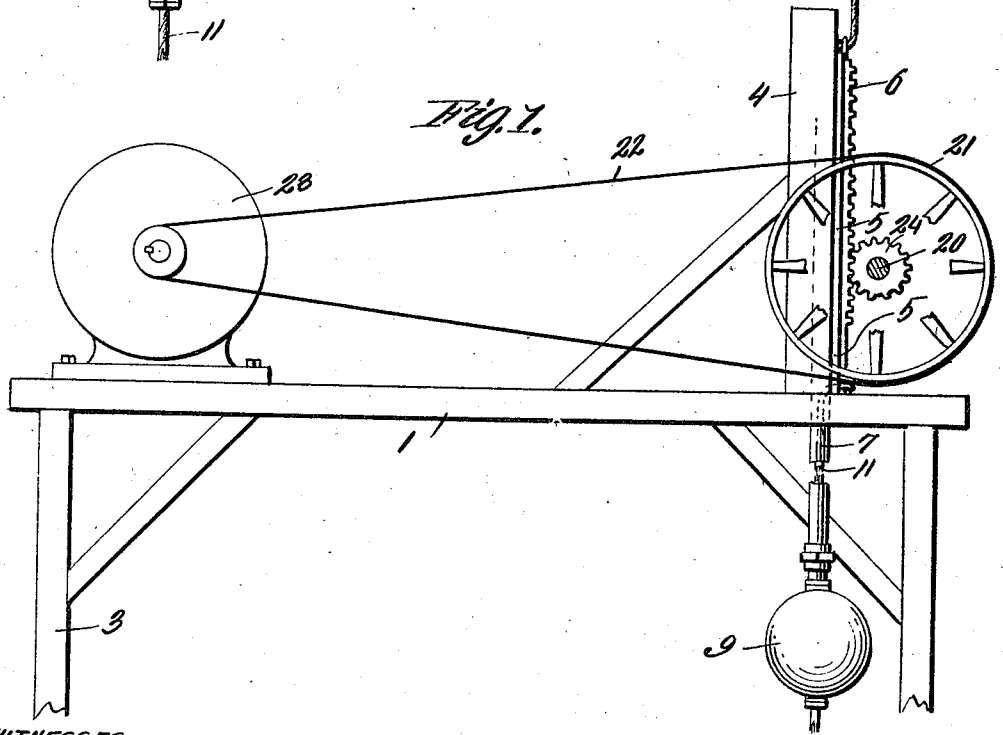


Fig. 1.

WITNESSES

Guy M. Spring

Chas. E. Smith

INVENTORS

FRANK I. WEBB

CHAS. S. HARRISON

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2 Sheets-Sheet 2

Fig. 2.

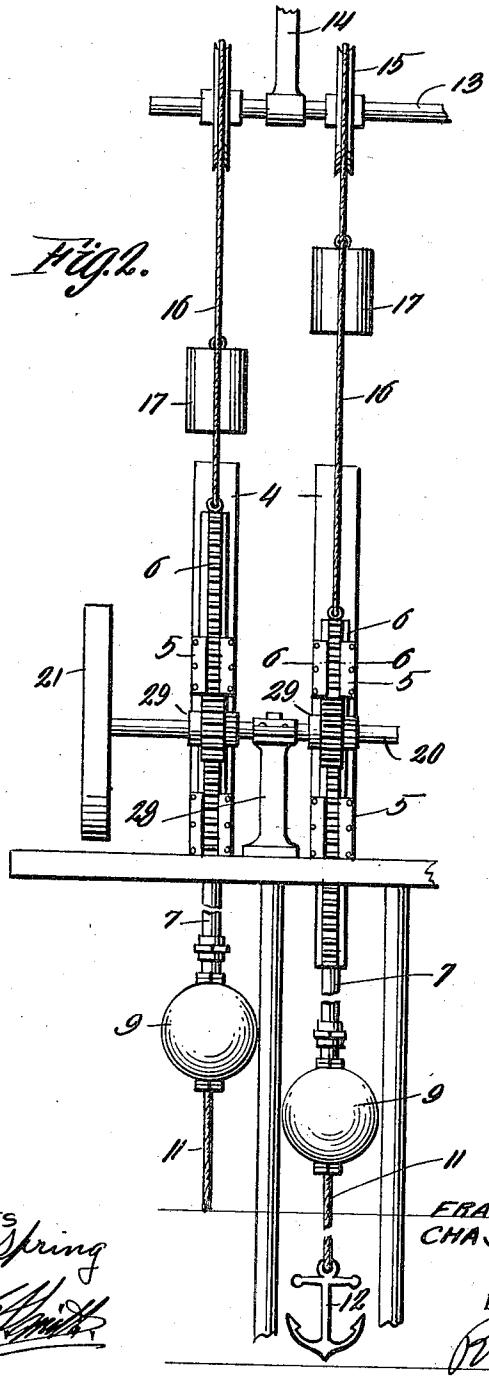


Fig. 5.

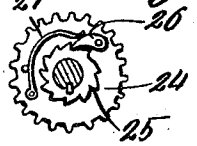
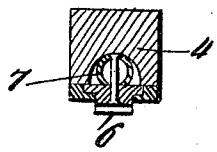


Fig. 6.



WITNESSES

Guy M. Spring

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Patented May 8, 1923. 1,454,801

UNITED STATES PATENT OFFICE.

FRANK I. WEBB AND CHARLES S. HARRISON, OF McKEESPORT, PENNSYLVANIA.

WAVE MOTOR.

Application filed March 11, 1921. Serial No. 451,446.

To all whom it may concern:

Be it known that we, FRANK I. WEBB and CHARLES S. HARRISON, citizens of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Wave Motors, of which the following is a specification.

This invention relates to wave motors and has for its principal object to produce a motor of this character which will be extremely simple, durable and inexpensive in construction, one which is efficient and reliable in operation, and well adapted to the purpose for which it is designed.

Another object of the invention is to provide simple and efficient means for guiding the buoyant members thus preventing excessive swaying thereof when the water is extremely rough because of a storm or wind.

Another object of the invention is to provide a counter-balancing mechanism which will aid in the efficient operation of the buoyant members so that the greatest amount of power possible may be taken therefrom.

With the above and numerous other objects in view, the invention resides in certain novel features of construction, and the combination and arrangement of parts as will be hereinafter fully described and claimed.

In the drawing:—

Figure 1 is an end elevation of the motor,

Figure 2 is a fragmentary front elevation thereof,

Figure 3 is a sectional view taken through one of the buoyant members,

Figure 4 is a fragmentary elevational view of one of the rods attached to the buoyant members,

Figure 5 is a sectional view through the power shaft showing the ratchet mechanisms used in connection with the gear wheels thereon, and

Figure 6 is a section taken on the line 6—6 of Figure 2.

The mechanism about to be described may be mounted upon any suitable support, and as here shown it is mounted on the platform 1 which is suitably supported by the legs 3 so that the platform 1 may be situated a relatively short distance above the surface of the water. A plurality of standards 4 are situated on the platform 1 and extend upwardly therefrom. The guide plates 5 are suitably mounted on these standards 4 and receive the rack bars 6 which are slidably mounted between the guide plates 5 and will move longitudinally of the standards 4. A rod 7 is attached to each of the rack bars 6 and is of a hollow construction having an elongated opening 8 in its upper end adjacent the rack bar 6. At the lower end of these hollow rods 7 there are mounted the buoyant members 9 which are preferably constructed from hollow globes having a buoyant material such as cork 10 therein. A cable 11 extends through each of the rods 7 and is provided at its lower end with anchoring means 12. These cables act as guides for the rods 7 and the buoyant members 9 and prevent unnecessary swaying thereof which is usually caused during a severe storm.

The counter-balancing mechanism consists of the member 13 which is supported in the brackets 14 and has situated thereon a plurality of pulley wheels 15. Cables 16 extend over these wheels 15 and are attached at one end to the rack bar 6. At the other end a counter-balancing weight 17 is hung from the cables 16. The waves will actuate the buoyant member 9 to the left in Figure 2 first raising it and as the wave moves to the right it will raise the next member 9 et cetera. There may be as many of these buoyant members as may be desired. The weight of the buoyant member, the hollow rod, and the rack bar will be greater than that of the counter-balancing weight 17 that as soon as the wave is out of engagement with the buoyant member 9 it will return to its original position.

A shaft 20 is suitably journalled in the standards 28 mounted on the platform 1 and is provided at its end with a wheel 21 over which passes the belt 22 which will operate a dynamo or any other power device 23. This shaft 20 is turned through the intermediacy of the gear 24 and its cooperating mechanism consisting of the ratchet wheel 25, dog 26 and spring 27. The gear wheel 24 is in mesh with its corresponding rack bar 6. This gear wheel is loosely mounted on the shaft 20 and will be held in place by means of the ratchet wheel 25 which is geared to the shaft 20 and a collar 29. The dog 26 is mounted on the gear wheel 24 and is normally held in engagement with the ratchet wheel 25 by means of the spring 27

which is also mounted on the gear wheel 24. As the buoyant means 9 is raised by the wave the dog 26 will be in engagement with the ratchet wheel 25 and thus the shaft 20 will be actuated. As the buoyant member 9 returns to its lowered position the dog 26 will slip over the teeth of the ratchet wheel 25 and the shaft will not be actuated as will be readily understood.

From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the wave motor will be readily understood without a more extended explanation. As numerous changes in form, proportion, and in the minor details of construction may be resorted to without departing from the spirit of this invention, we do not wish to be limited to the construction herein shown and described other than as claimed.

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

1. In combination, a support, buoyant members, hollow rods attached to said buoyant members, the hollow rods provided with an elongated slot adjacent their upper ends, a flexible cable extending through said hollow rods and said support at one end, anchoring means provided at the other end of said flexible cables, and means for utilizing the power made by the rise and fall of the buoyant members.

2. In combination, a support, a plurality of standards rising from the support, guide members on said standards, rack bars slidably mounted in said guide members, hollow rods depending from the rack bars, said hollow bars provided with an elongated slot at their upper ends, a cable attached to the support at one end extending through the slot and through the hollow rods, anchoring means provided at the other end of the cable, a power shaft, a plurality of gear wheels meshing with said rack bars loosely mounted on the shaft, a pawl and ratchet mechanism associated with the gear wheels and the shaft.

3. In combination, a support, a guide member on said support, a rack bar slidably mounted in said guide member, a hollow rod depending from the guide bar, said guide bar provided with an elongated slot at its upper end, a cable attached to the support at one end extending through the slot and through the hollow bar, anchoring means provided at the other end of the cable, a power shaft, and means for rotating the power shaft by the rise and fall of the hollow rod, and bouyant means provided on the lower end of said hollow rod.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK I. WEBB.
CHARLES S. HARRISON.

Witnesses:
CHAS. J. KOUGHAN,
M. H. BASSLIN.