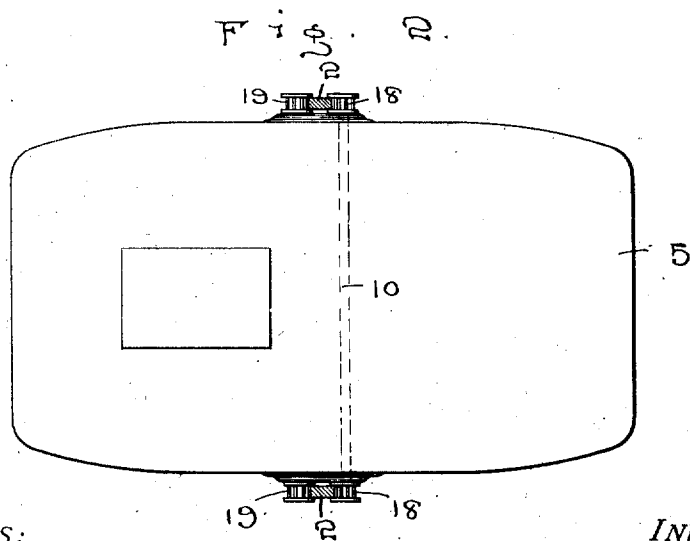
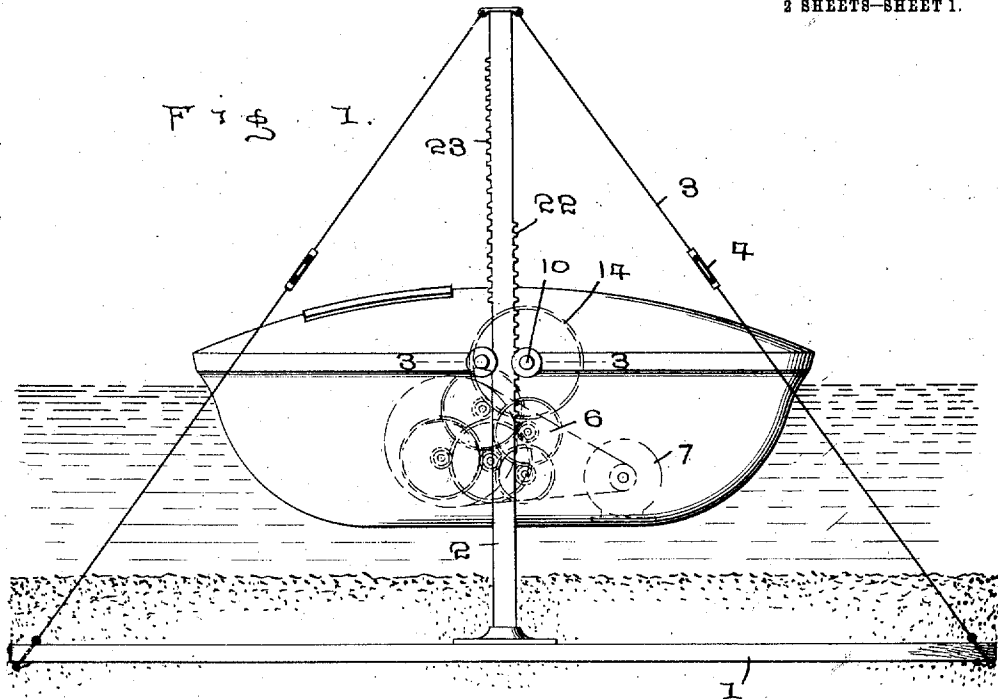


C. C. ATKINSON.
TIDE OR WAVE OPERATED MOTOR.
APPLICATION FILED MAY 16, 1910.

987,685.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.



WITNESSES:

Thomas Riley
M. Newman

INVENTOR

C. C. Atkinson

BY

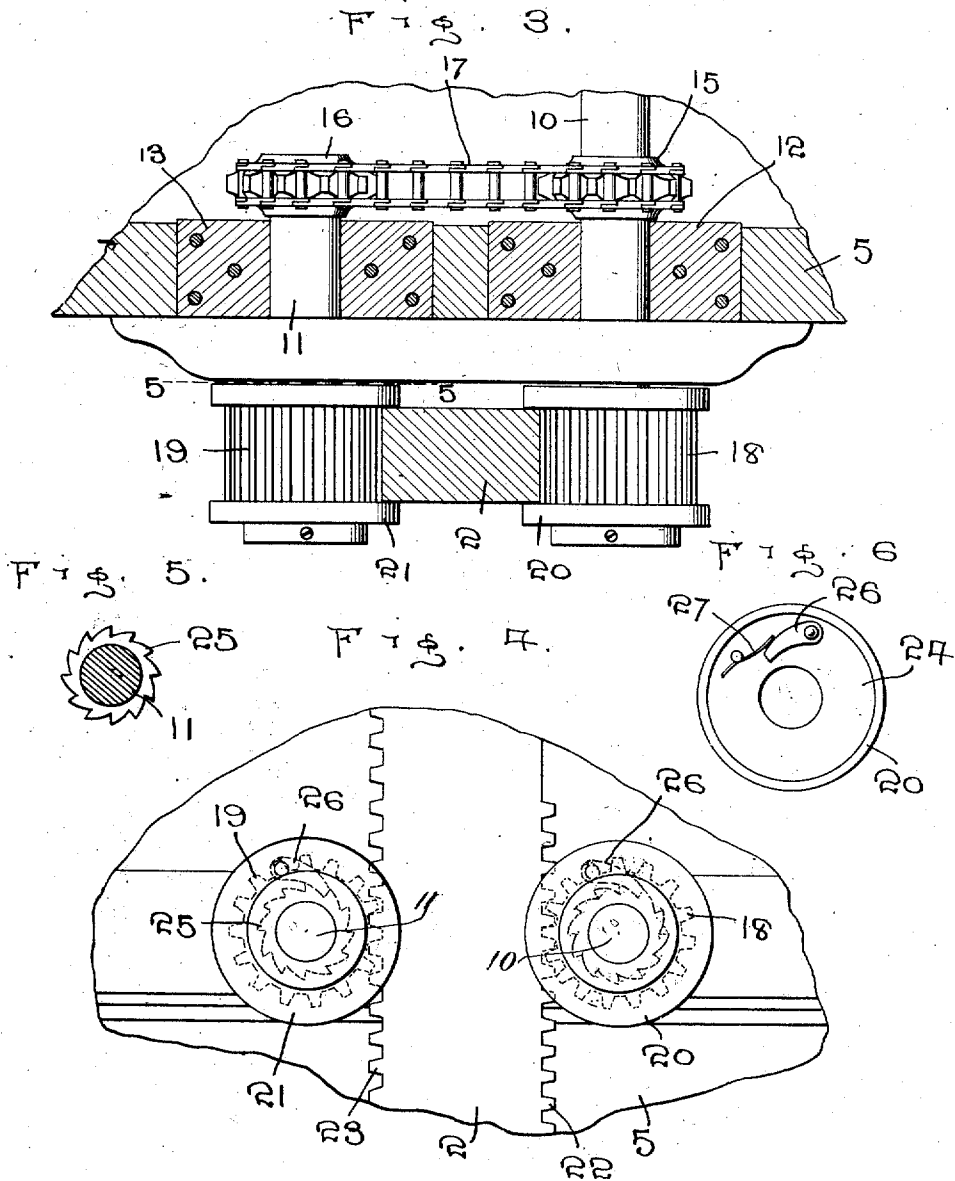
W. J. Fitzgerald & Co.
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WITNESSES:

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UNITED STATES PATENT OFFICE.

CHRISTOPHER C. ATKINSON, OF HAWKINSVILLE, GEORGIA.

TIDE OR WAVE OPERATED MOTOR.

987,685.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed May 16, 1910. Serial No. 561,653.

To all whom it may concern:

Be it known that I, CHRISTOPHER C. ATKINSON, a citizen of the United States, residing at Hawkinsville, in the county of Pulaski and State of Georgia, have invented certain new and useful Improvements in Tide or Wave Operated 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 new and useful improvements in tide or wave operated motors and my object is to provide means for anchoring a boat in position to be raised and lowered by the action of the tide or waves.

A further object is to provide means for employing the raising and lowering of the boat for operating a dynamo or other object through a train of gears, and, a further object is to provide means for operating the train of gears when the boat is either ascending or descending.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings which are made a part of this application, Figure 1 is a side elevation of the boat in its anchored position. Fig. 2 is a top plan view of the boat showing the anchoring means in section. Fig. 3 is an enlarged detail sectional view as seen on line 3—3 Fig. 1. Fig. 4 is a detail elevation of the parts shown in Fig. 3. Fig. 5 is a detail sectional view of one of the shafts with the gear therefor removed, said section being shown on line 5—5 Fig. 3, and, Fig. 6 is an end elevation of the gear co-operating with the shaft shown in Fig. 5.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates a base, which is preferably anchored on the bed of a body of water and 2 indicates standards extending upwardly from said base and spaced a predetermined distance apart, said standards being held rigidly in vertical position by providing stay rods 3, which are provided in their length with adjusting turn buckles 4 and are extended from the upper ends of the standards downwardly and outwardly to the outer edge of the base.

Positioned between the standards 2 is a

boat 5, which is so constructed as to readily float upon the water and within said boat is placed a train of gears 6, which gears are adapted to operate any preferred piece of machinery, such as a dynamo 7 or the like.

Extending along opposite edges of the standards 2 are cogs 18 and 19, said cogs being mounted upon shafts 10 and 11 respectively, said shafts extending through suitable bearings 12 and 13 in the walls of the boat. The shaft 10 extends entirely through the boat, while there are two of the shafts 11 which project but a short distance within the boat, the shaft 10 having a gear 14 thereon, which coöperates with the train of gears 6. The shafts 11 are attached to the shaft 10 by placing on said shafts sprocket gears 15 and 16 respectively, with which coöperates sprocket chains 17 and by means of which power is applied to the shaft 10, when the shafts 11 are operated.

The boat is held in position between the standards 2 by extending the ends of the shafts beyond the outer wall of the boat and rotatably mounting thereon said cogs 18 and 19 respectively, said cogs being provided at their ends with disks 20 and 21, which disks are greater in diameter than the diameter of the cogs and project on opposite faces of the standards 2 and as the peripheries of the cogs engage the opposite edges of the standards, the boat will be securely held in position between the standards, while at the same time said boat will be permitted to rise and fall with the tide or with the action of the waves.

The shafts 10 and 11 are operated by the cogs 18 and 19 by placing series of teeth 22 and 23 on the opposite edges of the standards, the series of teeth 22 being at a point substantially midway between the upper and lower ends of the standards, while the series of teeth 23 on the opposite edge thereof are adjacent the upper ends of the standards, the two series of teeth overlapping each other for a distance. The cogs 18 and 19 are loosely mounted upon their respective shafts and are provided with circular cavities 24 on their inner ends, in which extend ratchets 25 fixed to the shafts 10 and 11 and coöperating with the teeth of the ratchets are pawls 26, which are held in engagement with the ratchets in any suitable manner, as by means of springs 27. The ratchets and pawls in the cogs 19 are arranged to rotate the shafts 11 when the boat

is ascending, while the ratchets and pawls in the cogs 18 are arranged to operate the shaft 10 when the boat is descending. As the shafts 11 are connected to the shaft 10 by means of the sprocket chains and gears, the pawls and ratchets in the different cogs are so arranged that when one set of cogs are rotating their respective shaft or shafts, the opposite cogs will run idle upon their bearings and vice versa when the opposite set of cogs are in operation.

In operation, supposing the body of water to be at low tide, the boat will be positioned, as shown in Fig. 1, and as the tide starts to rise, the boat will move upwardly until the cogs 19 engage the series of teeth 23, when the shafts 11 will be driven by said cogs and the driving motion imparted to the shaft 10 by the chains 17 and the sprocket gears with which the chains cooperate. This action will operate the train of gears within the boat and the dynamo or other object to which the train of gears is hitched and it will be readily seen that by properly arranging the train of gears, the speed of the dynamo or other object can be readily increased or decreased. Should waves be running on the water, the boat will be raised and lowered by said waves, thereby keeping the train of gears in constant operation. As the tide recedes, the boat will descend with the tide and move the cogs 18 into engagement with the teeth 22, when motion will be imparted direct to the shaft 10 and the train of gears connected therewith.

This device can be very cheaply constructed and readily applied to use and it will be seen that the machinery within the boat will be positively driven and con-

trolled by the action of the water upon which the boat is resting.

What I claim is:—

1. In a power generating device, the combination with a boat adapted to rise and fall with the action of the water upon which said boat is resting, said boat having gears therein, of standards on opposite sides of the boat, means to anchor said standards, said standards having series of teeth on opposite edges thereof, shafts projecting from said boat and connected to said gears, said shafts projecting on opposite edges of the standards, cogs mounted on said shafts, means to cause said cogs to rotate the shafts when moved in one direction and means to operatively connect said shafts together.

2. In a power generating mechanism, the combination with a boat adapted to rise and fall with the body of water upon which the boat is resting, said boat having gears therein, of standards on opposite sides of the boat, said standards having series of teeth on their edges, shafts connected to said gears and projecting from the boat, cogs rotatable on said shafts and adapted to engage the teeth on the standards, sprockets on said shafts, chains connecting said sprockets and means to cause certain of the cogs to impart motion to their respective shafts when moved in one direction and run idle when moved in the opposite direction.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTOPHER C. ATKINSON.

Witnesses:

J. B. MITCHELL,
P. T. McGIEFF.