

No. 670,537.

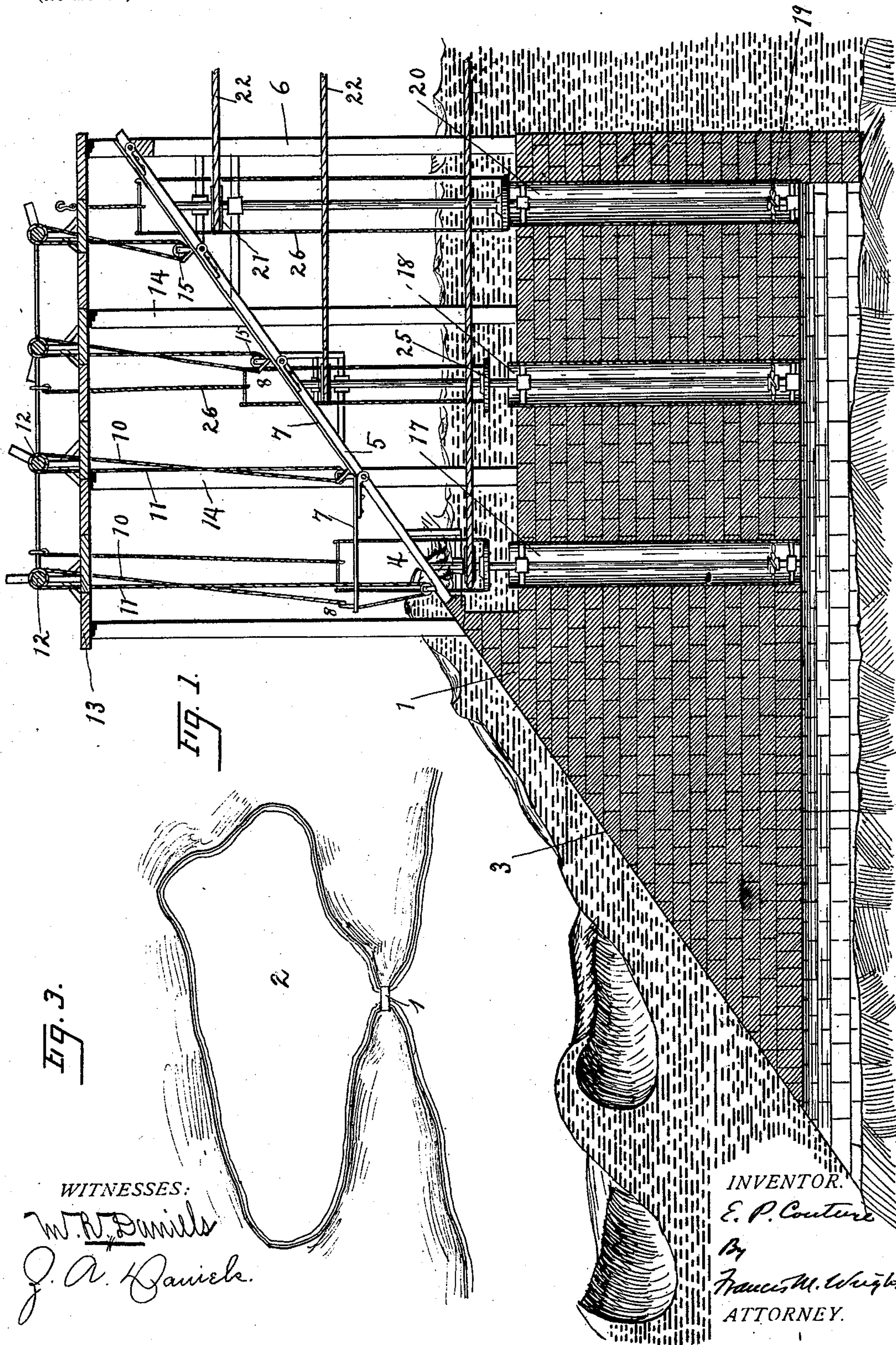
Patented Mar. 26, 1901.

E. P. COUTURE.
WAVE AND TIDE MOTOR.

(Application filed Sept. 20, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

W. R. Daniels
J. A. Daniels

INVENTOR.

E. P. Couture

By

Francis M. Wright

ATTORNEY.

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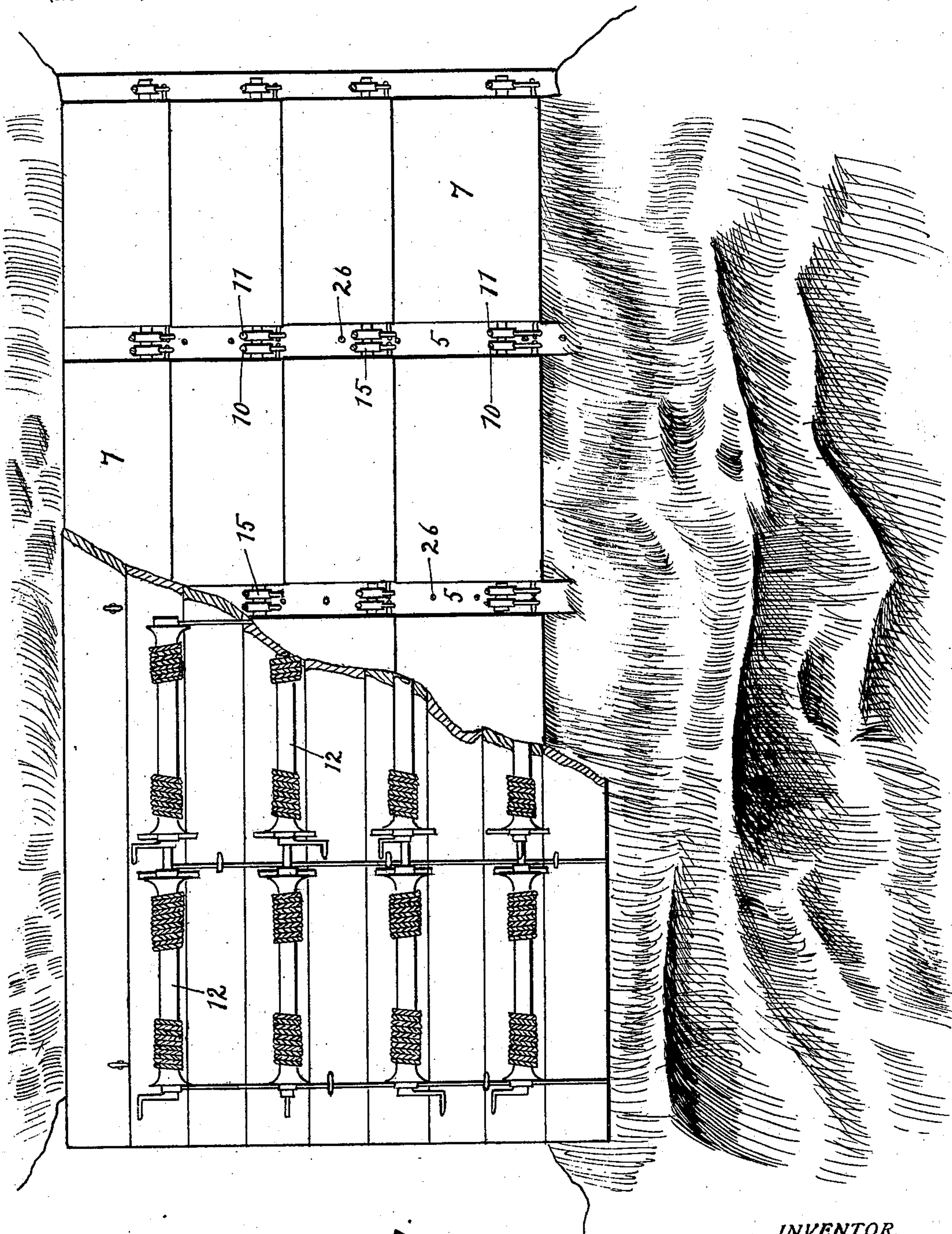
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Fig. 2.

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UNITED STATES PATENT OFFICE

EUSEBE P. COUTURE, OF GUALALA, CALIFORNIA, ASSIGNOR OF TWO-THIRDS
TO JOHN SILVA AND JOSEPH B. GRAVES, OF SAME PLACE.

WAVE AND TIDE MOTOR.

SPECIFICATION forming part of Letters Patent No. 670,537, dated March 26, 1901.

Application filed September 20, 1900. Serial No. 30,636. (No model.)

To all whom it may concern:

Be it known that I, EUSEBE PIERRE COUTURE, a citizen of the United States, residing at Gualala, in the county of Mendocino and State of California, have invented certain new and useful Improvements in Wave and Tide Motors, of which the following is a specification.

My invention relates to an apparatus for utilizing the force of the waves of the sea and the tides to generate power to be transmitted to a distant point for industrial or other purposes; and the object of my invention is to provide an apparatus of this character which shall be of substantial construction, so as to resist the impetus of the waves in stormy weather, by means of which advantage may be taken of the power of the waves at all stages of the tide, and by which also may be utilized the storage of a large body of water in a natural or artificial basin, said water being stored at high tides and released gradually during the ebb of the tide, and in its release generating power.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends, hereinafter fully specified and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of my improved apparatus. Fig. 2 is a plan view of the same; and Fig. 3 is a plan view, on a greatly-reduced scale, to show the manner in which the device may be most advantageously operated.

Referring to the drawings, 1 represents a wall, which in general will be constructed artificially of concrete, although in some cases advantage may be taken of the nature and configuration of the shore at the part where it is desired to locate the wave and tide motor. In order to employ this apparatus to the greatest advantage, it will be desirable that the wall should close the entrance from the ocean into a large basin, bay, or arm of the sea, (shown on the drawings at 2.) Said wall has its face next the sea of a suitable incline, as shown at 3, so that the waves impinging upon said wall will by the tidal force be caused to ascend said sloping surface of the wall and then fall through openings 4,

formed in a framework 5, erected upon said wall and supported by suitable pillars 6. Said openings 4 may be closed by means of shutters 7, which are pivoted at their rear or upper side upon the framework 5, their lower edges being raised or lowered by means of ropes 10 11. The ropes 10 are secured to brackets 8 on the free end of the shutter 7 and pass directly upward around a windlass or roller 12, secured upon a staging 13, erected upon the framework 5 and supported by pillars 14, which are extensions of the pillars 6, supporting said framework. The ropes 11 pass first around pulleys 15, secured upon the framework 5 along the pivotal axis of the next lowest shutter, and thence upwardly and around the same roller 12. By turning said roller or windlass in one direction the ropes 10 are raised and the ropes 11 are lowered, and thereby the shutter 7 is raised, and by turning the windlass in the opposite direction the ropes 11 are raised and the ropes 10 lowered, thereby lowering the shutter and closing the opening 4. Said opening is thus effectually closed when desired against the entrance of the waves and against the escape of the water which enters through openings higher in the framework.

It will be understood that the shutters 7 will be opened in horizontal lines one after the other as the tide rises. When the tide has reached the height of the top of the openings in one line, all the shutters in said line will be closed and the next line of shutters will be opened to admit the water there-through. The water flowing through the openings is received in a chamber which is formed above the wall 1 and behind the framework and the series of shutters, and the water escapes from said chamber through cylindrical conduits 17, formed in the wall 1, said conduits being lined with casings 18, and in so escaping the water drives turbines 19, located at the bottom of said conduits, said turbines being mounted upon vertical shafts 20. Upon the upper ends of said shafts are secured pulleys 21, around which pass ropes 22 to a distant point where it is desired to utilize the power obtained by the descent of the water in said conduits. As the tide recedes water which has overflowed the wall and passed into

the basin 2 will now escape through said conduits and will cause said turbines to revolve. By this arrangement power will be obtained not only during the rise of the tide, but during the fall thereof, said power having been stored by the excess of water flowing over the wall and through the openings 4, which are not able to escape by means of the conduits while the tide was rising. When it is desired to stop the turbines, the conduits may be closed against escape of water by means of covers 25, which fit snugly around the shafts 20 and are raised by means of ropes 26 to permit the water to flow through said conduits, but are lowered upon the top of the casings 18 to close said casings.

I claim—

1. In a tide and wave motor, the combination of a wall having a sloping front surface, and having vertical wells therein and horizontal channels, leading from the bottoms of said wells to the front of the wall, turbines at the bottoms of said wells, a sloping framework extending upwardly and rearwardly from the front of said wall, shutters mounted on said framework, and arranged to close the openings therein, a staging erected above said framework, rollers on said staging, and means for rotating the same, rope wound around said rollers and connected to said shutters to open or close the same, and means for transmitting the rotary motion of the turbines to a distant point, substantially as described.

2. In a tide and wave motor, the combination with a large basin of water having a con-

tracted outlet, of a wall closing said outlet having a sloping front surface, said wall having vertical wells, a horizontal tunnel leading from the bottoms of said wells to the front of the wall, turbines in the bottoms of said wells, means for transmitting the rotary motion of the turbines to a distant point, a framework above the wall sloping upwardly and rearwardly from the front thereof, shutters for closing the openings of the framework, and means for opening and closing said shutters, substantially as described.

3. In a tide and wave motor, the combination of a wall having a sloping front surface and having vertical wells and horizontal tunnels leading from the bottoms of said wells to the front of the wall, casings lining said wells, turbines at the bottoms of said wells, means for transmitting the rotary motion of said turbines to a distant point, inclined framework sloping upwardly and rearwardly from the front of said well, shutters for closing the openings in said framework, a staging erected upon the framework and means supported thereon for opening or closing said shutters, individual covers for the casings in the wells, a means for raising and lowering said covers arranged to be operated from said staging, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EUSEBE P. COUTURE.

Witnesses:

FRANCIS M. WRIGHT,
Z. A. DANIELS.