

No. 654,521.

Patented July 24, 1900.

E. P. COUTURE.
WAVE MOTOR.

(Application filed Apr. 30, 1900.)

(No Model.)

Fig. 1

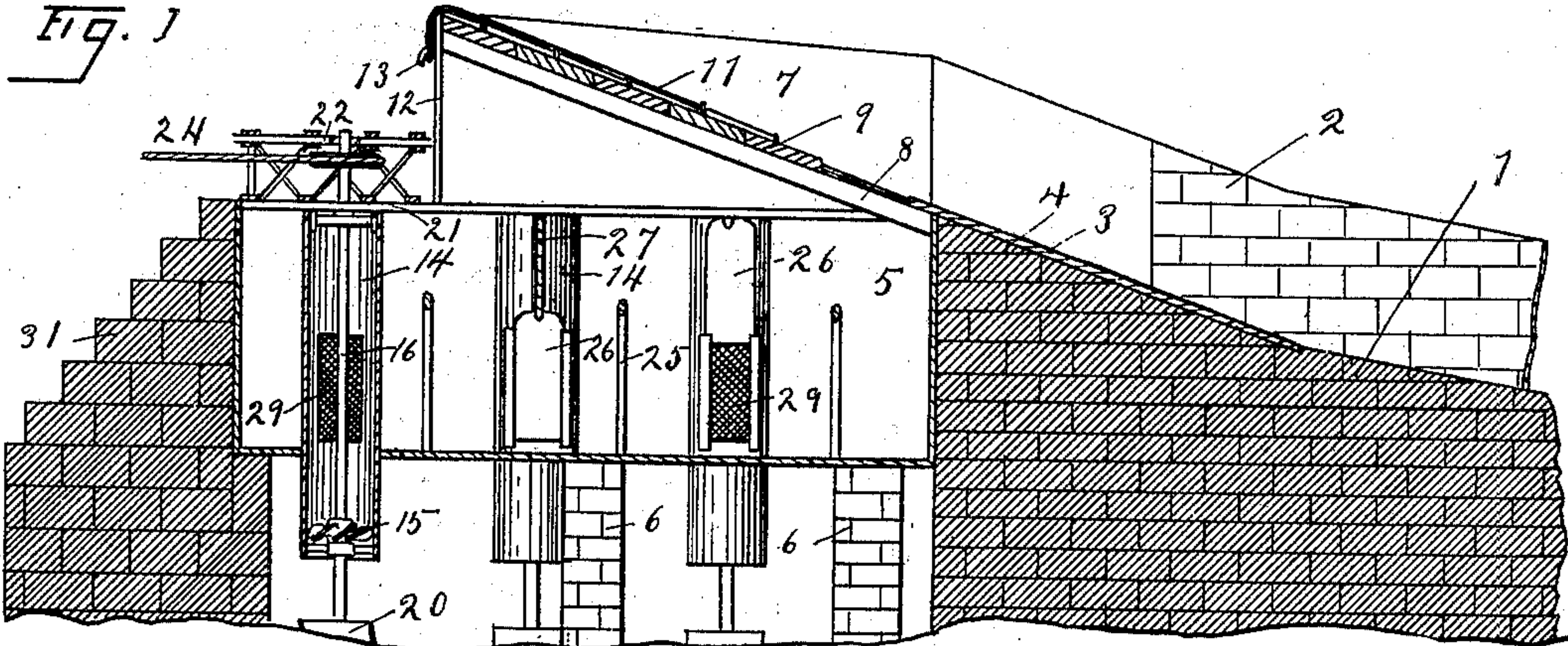


Fig. 3.

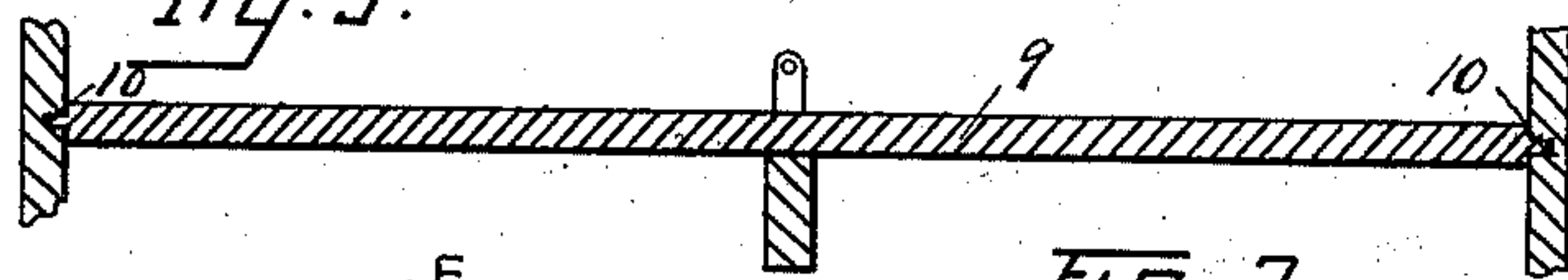


Fig. 2.

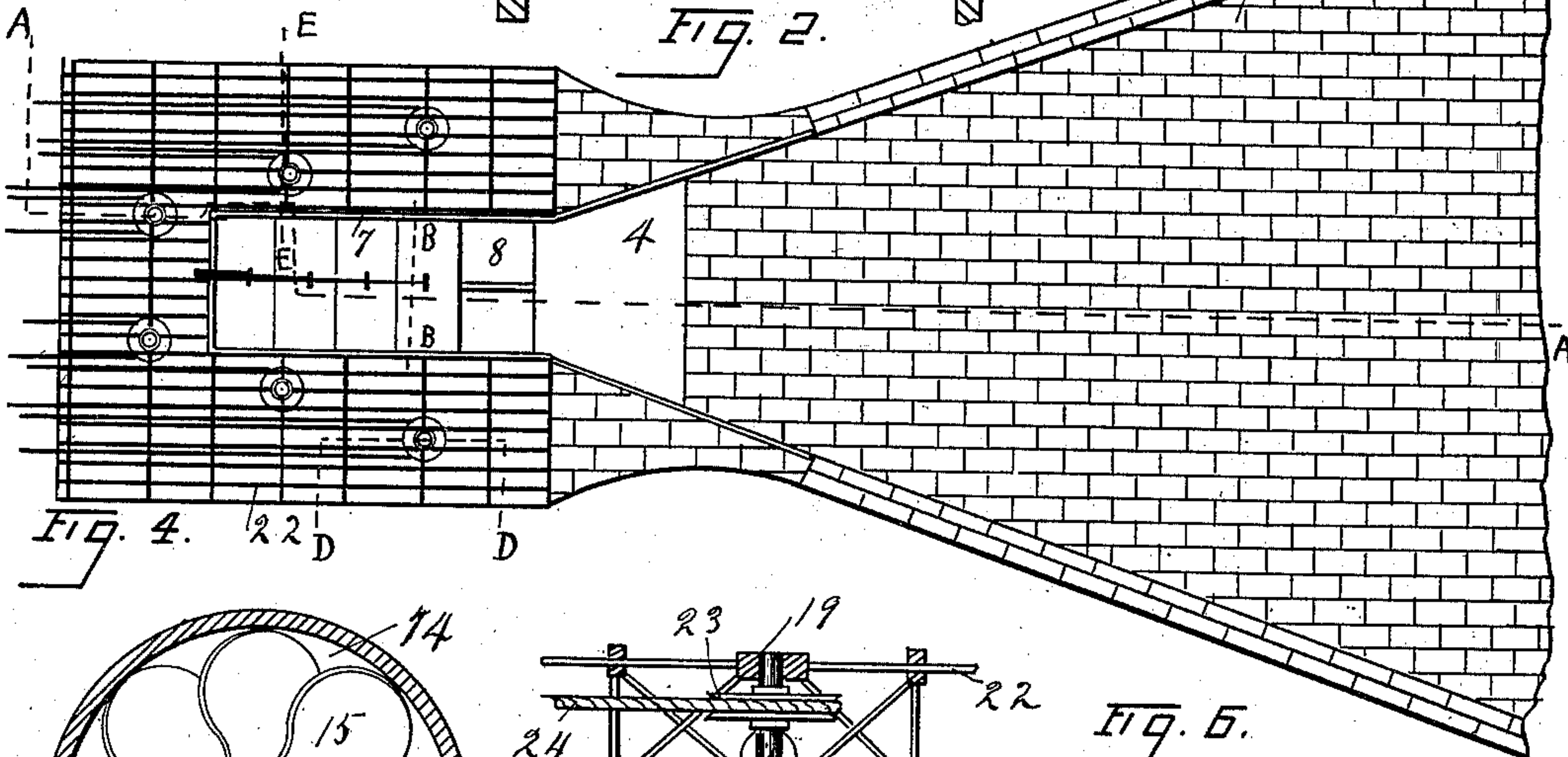


Fig. 4.

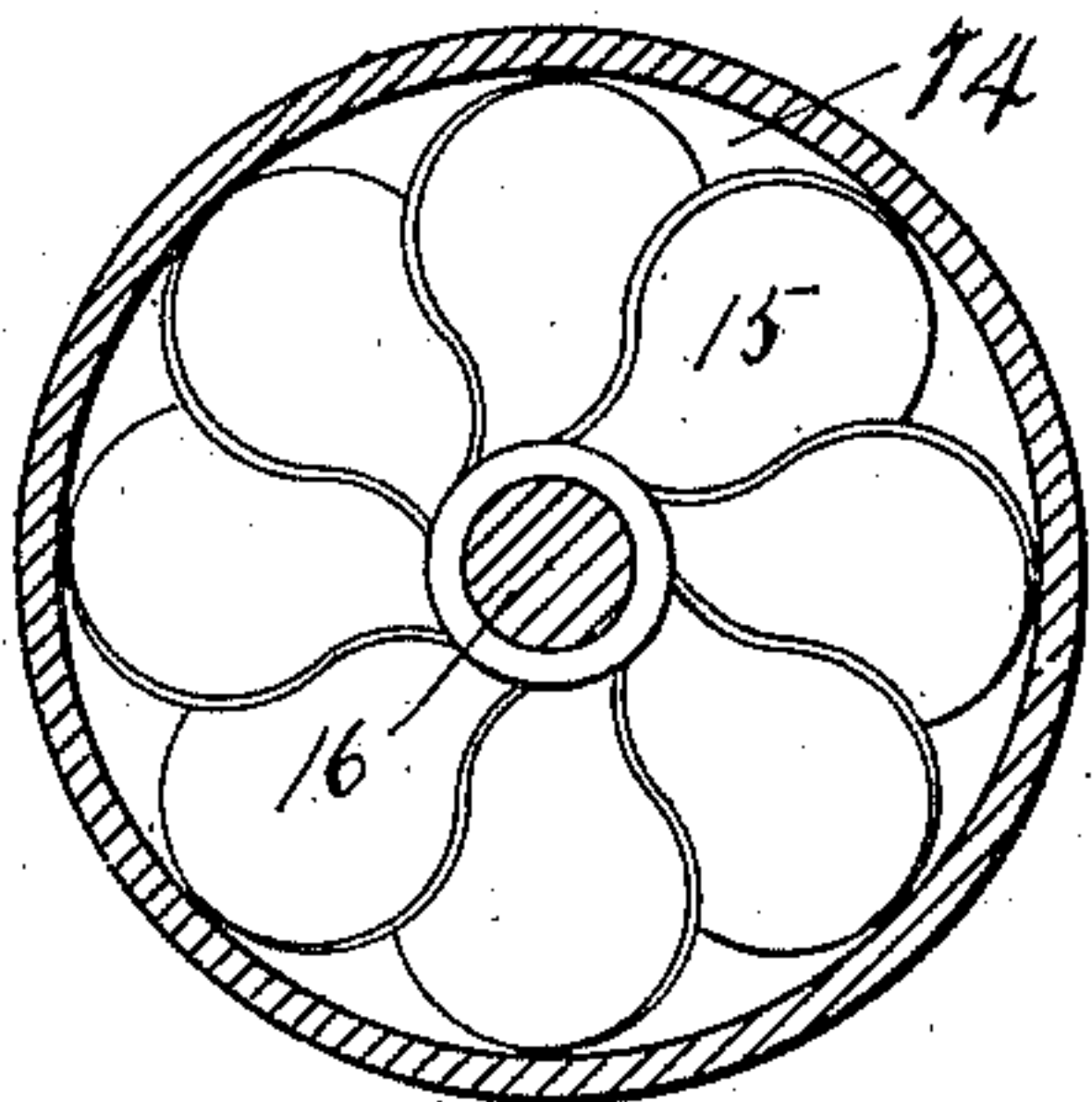
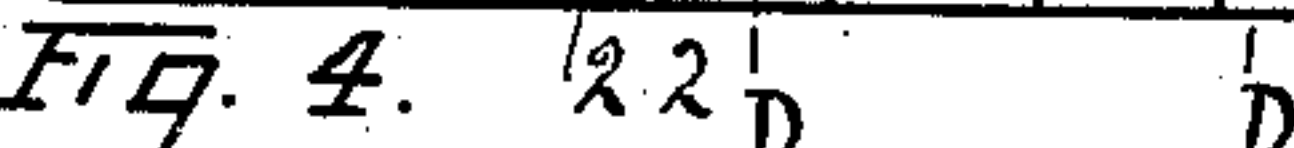


Fig. 5.

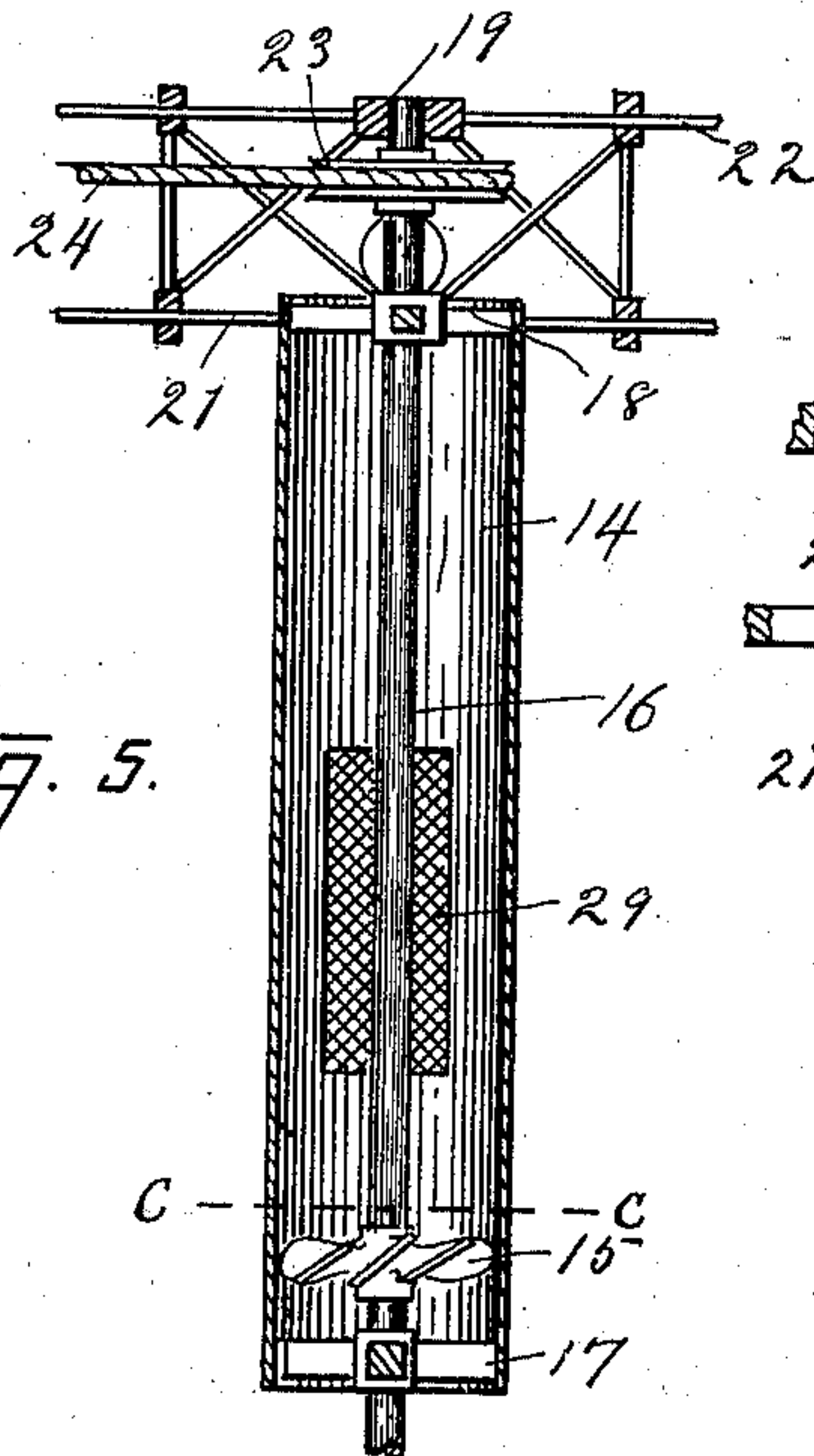
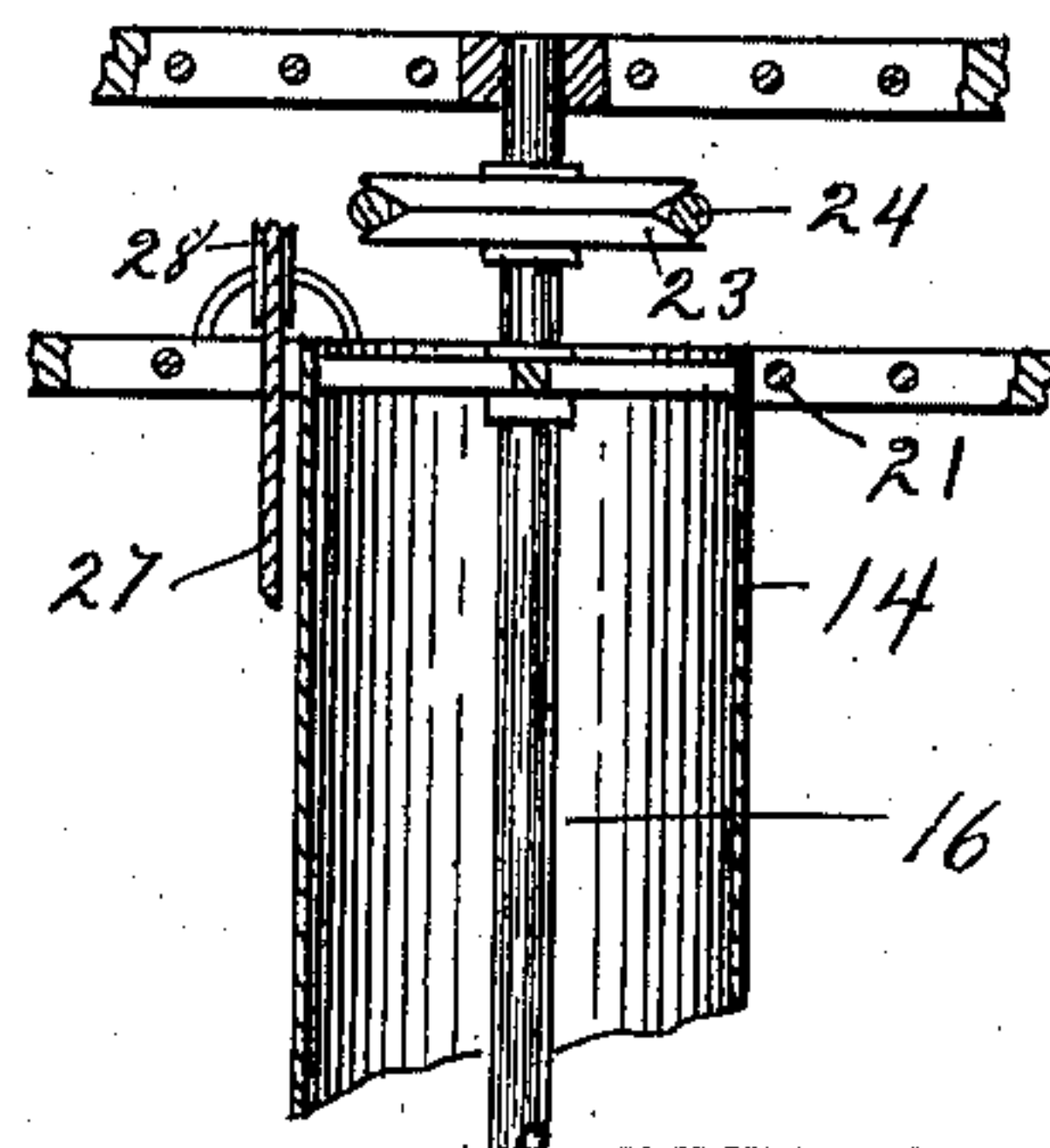


Fig. 6.



WITNESSES:

W. R. Daniels

Florence B. Wigand

INVENTOR.

E. P. Couture

BY

Francis W. Wright
ATTORNEY.

UNITED STATES PATENT OFFICE.

EUSEBE P. COUTURE, OF GUALALA, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO JOSEPH F. MARTINEZ, OF SAME PLACE.

WAVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 654,521, dated July 24, 1900.

Application filed April 30, 1900. Serial No. 15,004. (No model.)

To all whom it may concern:

Be it known that I, EUSEBE P. 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-Motors, of which the following is a specification.

My invention relates to improvements in wave-motors, the object of my invention being to provide an apparatus of this character by which the momentum of the waves of the ocean breaking upon the shore may be utilized in a very effective and economical manner and which may be readily adjusted or varied for all stages of the tide.

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 the apparatus on the line A A of Fig. 2. Fig. 2 is a plan view of the same on a reduced scale. Fig. 3 is a cross-section on the line B B of Fig. 2. Fig. 4 is a horizontal section on the line C C of Fig. 5, enlarged. Fig. 5 is a vertical section, enlarged, through one of the cylindrical chambers on the line D D of Fig. 2; and Fig. 6 is a vertical section taken at right angles to Fig. 5 on the line E E.

Referring to the drawings, 1 represents an inclined brickwork-floor up which the breakers travel, and 2 are converging walls which confine the breakers, and thus compel them to rise to a much greater height than that to which they would ascend if unconfined. By the use of the inclined or converging walls 2, therefore, the shoreward movement of the waves is converted into an upward movement and a gain is obtained in the extent of the subsequent fall of the water into the turbines. Since the waves are thus given a constantly-increasing velocity as they travel between the converging walls, advantage is taken of their momentum to produce a considerable rise in the water by making the inner portion of the brickwork-floor 1 of a higher slope, as shown at 3, than the outer portion. 4 is a plate of metal laid upon the innermost portion of said brickwork at the

entrance of the tank 5. Said tank is closed at the bottom and sides and is supported by suitable pillars or columns 6. It is also supported at the rear by a wall 31. The walls 2 are continued along the top of said tank, but now run parallel with each other, as shown at 7, and the water confined within said walls is permitted to fall into the tank through an opening 8. This opening may be adjusted according to different stages of the tide by raising or lowering the shutters 9, of which there are any suitable number, fitting side by side, thus leaving an entrance into said tank of any desired size. At low tide all the shutters 9 will be drawn up to the highest point, so as to leave the entrance into the tank at the lowest part of the space between the parallel walls 7. As the tide rises the lowest shutter is let down, so that the entrance into the tank is now at a higher point than before, and so on until the entrance into the tank is at the uppermost portion of the space inclosed by the parallel walls 7. Said shutters 9 slide in grooves 10 and are raised by means of ropes 11, one attached to each shutter, said ropes passing over the upper edge of the rear wall 12, surrounding the entrance of the tank, and being secured on the rear side of said wall around the hook 13 thereon or in any suitable manner.

The water in the tank 5 flows therefrom into the vertical cylindrical chambers 14, which extend down below the bottom of the tank to a point near the ground, and the water in falling down said chambers actuates turbines 15, mounted in the lower end of said chambers. Said turbines 15 are on vertical shafts 16, extending upward centrally of said chambers and having bearings 17 and 18 in said chambers, 19 above the chambers, and bearings 20 on the ground. The bearings 17 and 18 are respectively at the bottom and top of the chambers, the bearing 18 being supported by a strong grating 21, which extends over the top of the tank around the tops of the chambers. Said grating serves to exclude from the tank pieces of driftwood, which might injure the parts thereof. The bearing 19 is supported by a second grating 22, which is suitably braced and supported upon the first grating 21, and the shafts 16 between

said bearings 18 19 carry pulleys 23, around which are wire ropes 24, extending to a point higher on the shore to which the power is to be transmitted from said vertical shafts 16.

5 The sides of the tank are suitably secured against the strain due to the weight of the water therein by means of ties 25.

In order to vary the amount of water permitted to flow into the chambers 14 from the 10 tank, there are provided gates 26, two for each chamber, on opposite sides thereof, vertically movable on the sides of said chamber. Said gates are raised by means of ropes 27, passing over pulleys 28. In order to exclude 15 from said chambers driftwood or seaweed which might have entered the tank by means of the opening 8, there are provided over the entrances of each chamber 14 screens 29.

I claim—

20 1. In a wave-motor, the combination of a rising and convergent path for the waves, a tank at the upper end of said path into which the waves enter, vertical chambers in said tank for the descent of the water therefrom, 25 turbines at the bottom of said chambers, and means for transmitting the motion of said turbines to a distant point, substantially as described.

2. In a wave-motor, the combination of a 30 rising and convergent path for the waves, a tank at the upper end thereof, means for varying the point of entrance into said tank, turbines located below said tank, and operated by the water escaping therefrom, and means 35 for transmitting the motion of said turbines to a distant point, substantially as described.

3. In a wave-motor, the combination of a rising and convergent path for the waves, a tank at the upper end thereof, sliding shut- 40 ters for varying the point of entrance into

said tank, turbines located at the bottom of said tank, and adapted to be rotated by the waves escaping therefrom, vertical shafts rotated by said turbines, pulleys carried by said shafts, and ropes extending from said 45 pulleys to a distant point to transmit power thereto, substantially as described.

4. In a wave-motor, the combination of a rising and convergent path for the waves, a tank at the upper end of said path, the bot- 50 tom of said tank being suitably supported at a height from the ground so as to leave a space for water escaping therefrom, vertical chambers extending through said tank and below the same, and screens at the sides 55 thereof through which the water flows into said chambers from the tank, turbines at the bottom of the said chambers, vertical shafts rotated by said turbines, and means for transmitting the power from said shafts to a dis- 60 tant point, substantially as described.

5. In a wave-motor, the combination of a rising and convergent path for the waves, a tank at the upper end of said path, the bot- 65 tom of said tank being suitably supported at a height from the ground so as to leave a space for water escaping therefrom, vertical chambers extending through said tank and below the same, and gates vertically movable against the sides of said chambers to vary the 70 amount of water admitted thereinto, substantially as described.

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

E. P. COUTURE.

Witnesses:

FRANCIS M. WRIGHT,
M. R. DANIELS.