April 8, 1930. F. E. LAWRENCE 1,754,025

WAVE POWER APPARATUS

Filed June 4, 1928

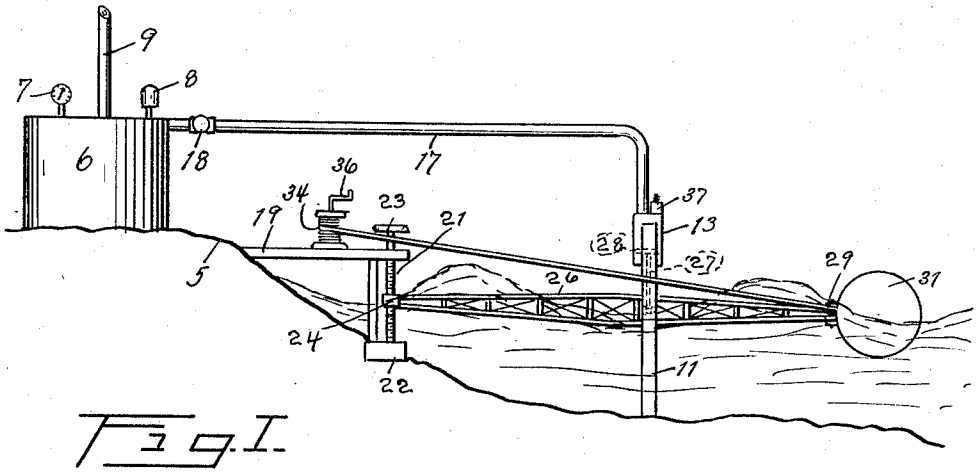


Fig. I.

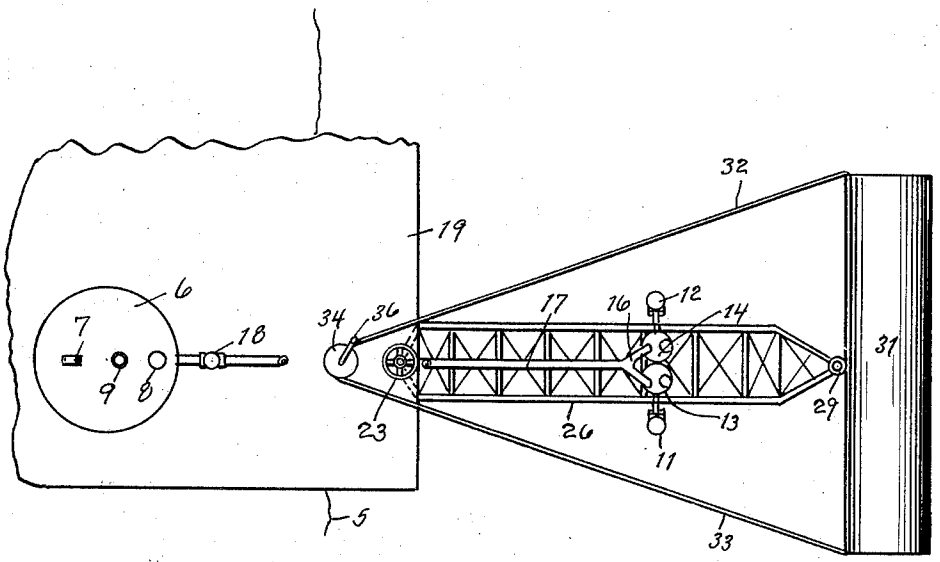


Fig. II.

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Patented Apr. 8, 1930 1,754,025

UNITED STATES PATENT OFFICE

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WAVE-POWER APPARATUS

Application filed June 4, 1928. Serial No. 282,739.

This invention relates to improvements in power apparatus, and has particular reference to a wave motor.

The principal object of this invention is to produce a device wherein the effective force of the waves may be utilized for the purpose of producing power.

Another object is to produce a device of this character which may be so positioned and so controlled that the force of the waves while delivering power, will not break or otherwise damage the device.

Another object is to provide a device of this character which will store up power to be later used at a remote point.

A further object is to provide a device of this character which is simple and therefore economical to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure I is a side elevation of my device, and

Figure II is a top plan view thereof.

At many points along the shore line there are places where the wave action is very pronounced, and if properly utilized would produce a tremendous amount of power to be employed in many ways. At the present time this power is wasted, and it is applicant's intention to employ the same by providing a structure which may be so controlled that the action of the waves thereon will be uniform, irrespective of the direction from which the waves strike.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention the numeral 5 designates the shore line against which the waves strike. Mounted upon the shore at a convenient point is a storage tank 6 having a pressure gauge 7 and a safety valve 8. The pipe 9 is adapted to conduct pressure from the tank 6 to a remote point for future use.

Positioned a sufficient distance away from the shore are piles 11 and 12. These piles serve to support a plurality of cylinders as shown at 13 and 14, which cylinders are connected by a member 16 to a pipe 17. This pipe 17 is connected to the tank 6 and has a check valve 18 positioned at a convenient point within its length.

A suitable platform is shown at 19 which platform serves to support one end of a vertically disposed screw 21, the lower end of which is mounted in a block 22, and is rotated by means of a hand wheel 23.

This screw carries a travelling nut 24 which is connected to a structural boom 26 vertically movable between the piles 11 and 12. Suitable tracks are carried upon the piles so that side movement of the boom will be prevented. This boom carries connecting rods 27 having pistons 28 secured thereto, which pistons are movable in the cylinders 13 and 14.

The forward end of the boom is pivotally connected as at 29 to a float 31. This float may be of any desired form and has its ends connected by cables 32 and 33 to a drum 34. This drum may be rotated through the medium of a hand crank 36.

The result of this construction is that when the device is installed, the float will be a sufficient distance away from the shore so as to be beyond the breakers, after which the up and down action of the waves will cause the float 31 to rise and fall.

This rising and falling will be transmitted through the connecting rods 27 to the pistons 28 with the result that air will be taken into the pistons through inlet valves 37 and exhausted into the manifold 16, pipe 17 and then through check valve 18 into tank 6, from which tank the air under pressure will be delivered through the pipe 9 to be used in any manner desired.

In order to accommodate for various changes in tide conditions, the hand wheel 23 may be rotated so as to raise or lower the screw 24 and consequently the pivotal point of the structural boom 26.

By rotating the hand crank 36, the drum 34 will be caused to draw in one of the cables 32 or 33, as the case may be, and to pay out

the other cable. This results in the float 31 rotating upon its pivot 29 so that the float may be caused to receive the waves from the direction in which they are coming.

It will thus be seen that I have provided a very simple means for accomplishing all of the objects herein set forth.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes relative to the shape, material, size and arrangement of parts may be resorted to without departing from the spirit of the invention, or the scope of the subjoined claim.

Having thus described my invention, I claim:—

In a wave motor of the character described, a pair of vertically disposed guide members, a boom adapted to move between said guide members, cylinders positioned above said boom and supported by said guide members, pistons positioned in said cylinder, connecting rods extending between said cylinders and said boom, a float pivotally secured to one end of said boom, a nut secured to the opposite end of said boom, a vertically positioned screw rotatably positioned in said nut, means for rotating said screw for anchoring said screw against vertical movement, means for pivotally moving and holding said float in adjusted position with respect to the end of said boom, said means comprising cables secured to the ends of said float, and a drum positioned adjacent the opposite end of said boom and at a point thereabove and having said cables reaved thereabout.

In testimony whereof I affix my signature.

FRED E. LAWRENCE.