(No Model.) 2 Sheets—Sheet 1.

A. W. DOWE.

WAVE POWER.

No. 415,812. Patented Nov. 26, 1889.

Fig. 1.

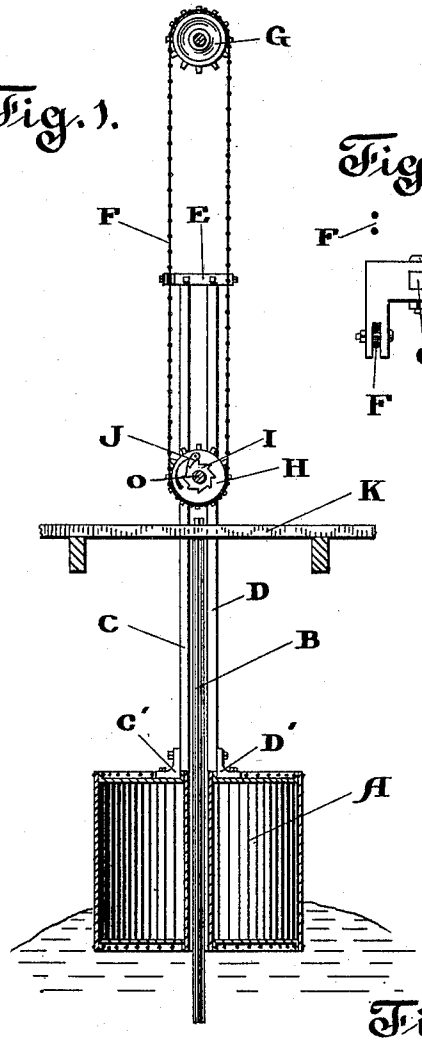


Fig. 3.

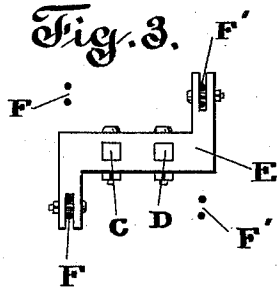


Fig. 2.

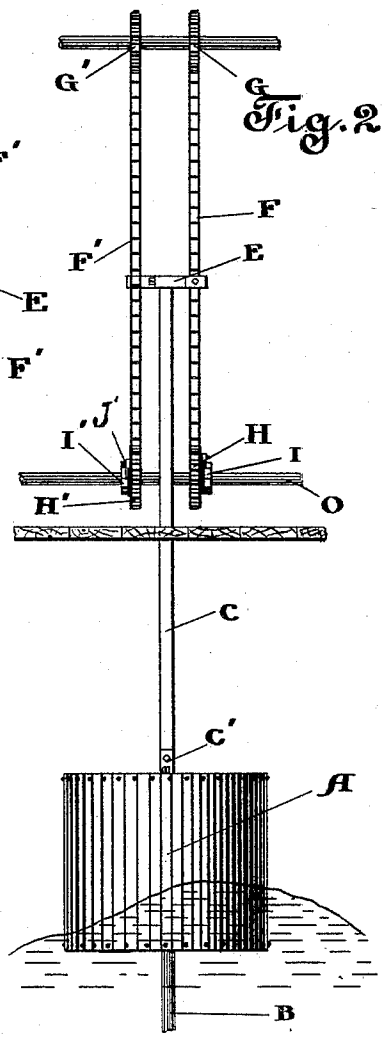
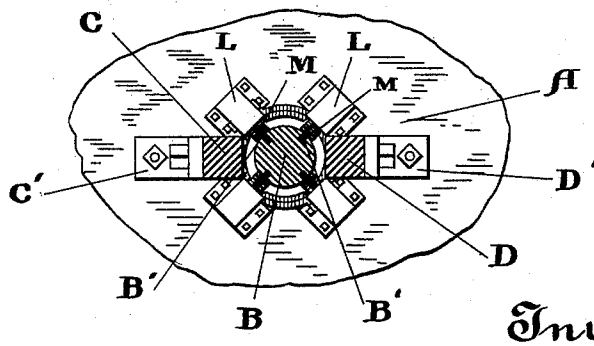


Fig. 4.



Attest.

John H. Redstone.

Coleridge Russell

Inventor.

Arthur W. Dowe

N. PETERS. Photo-Lithographer. Washington, D. C.

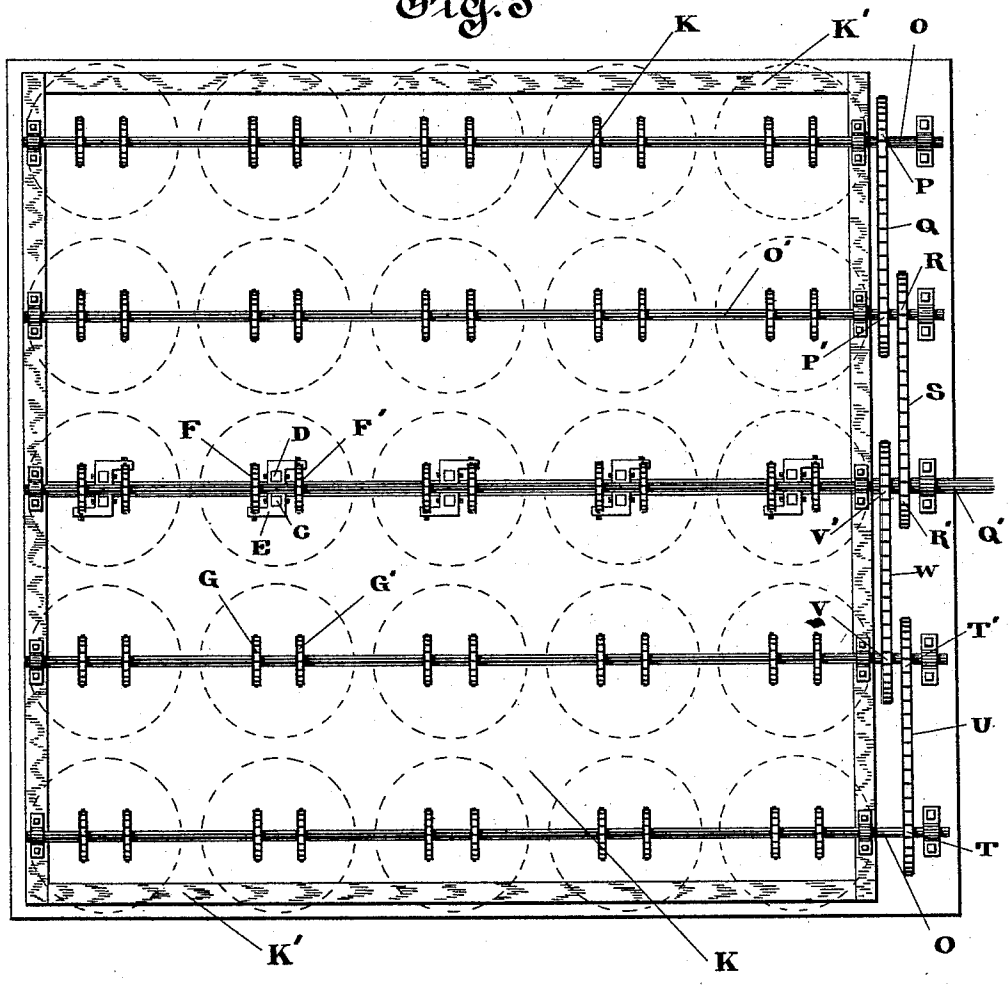
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WAVE POWER.

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Fig. 5



Attest.

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Coleridge Russell

Inventor.

Arthur W. Dowe

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UNITED STATES PATENT OFFICE.

ARTHUR W. DOWE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO W. G. RIFENBERG, OF SAME PLACE.

WAVE-POWER.

SPECIFICATION forming part of Letters Patent No. 415,812, dated November 26, 1889.

Application filed December 14, 1888. Serial No. 293,543. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. DOWE, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented a new and useful Wave-Power, of which the following is a specification.

My invention relates to improvements in "wave-powers."

Figure 1 is a sectional elevation of a single buoy with its operating-connections. Fig. 2 is an elevation of a single buoy with the operating-connections, the whole being turned one-fourth around from the position of Fig. 1. Fig. 3 shows an attaching cross-head detached. Fig. 4 is a sectional plan view showing the guide-connections of the buoy upon its upright guide; and Fig. 5 is a plan view of my improved wave-motor, showing the mode of combining the buoys and line-shafts.

A represents the buoy; B, the guide-pile; C and D, the operating guide-frames; E, the cross-heads; F and F′, the operating-chains; G and G′, the upper and H and H′ the lower chain-wheels; I, the ratchet-wheel, and J the pawl; K, the floor of the main frame of the buoy-frame; K′, the buoy-frame; L, the buoy guide-posts; M, the guides for the bearing-rolls; B′, the guide-bearing rolls; O, the line-shafts. P and P′, R and R′, and T and T′ represent the connecting-chain wheels. Q, S, W, and U represent the connecting belts or chains.

The following is the construction of my improved wave-power: I construct any suitable buoys—as of sheet metal—with a guide-passage through the center, through which I pass the guide-pile B. I generally arrange the guide-piston L as shown in Figs. 1, 2, and 4, and bolt them fast to the top of the buoy A. I attach the cross-head E to the top of the guide-pistons C and D, and chains F and F′ are attached at the arms of the cross-head E, as shown in Fig. 3. The chain-wheels G and G′ and H and H′ are arranged over the buoys upon the line-shafts O and connected by the chain belts F and F′. The ratchets I I′ and pawls J J′ (well-known devices) are shown as one mode of clutching to secure the forward motion of the shaft as the chains are moved up and down for the purpose of securing the continuous motion in one direction. I generally connect the line-shafts horizontally either at the upper or lower series of shafts, as may be most convenient, by employing the chain-wheels Q, S, W, and U, although a bevel-gear and connecting-shafts may also be employed, as in other machinery of this class.

In Fig. 4 I have shown the guide arranged in the central part of the buoy; but any other well-known system of guides may be employed to secure a direct vertical motion of the buoys.

The following is the operation of my improved wave-power: As the buoy A is raised by the waves, the arms of the cross-head E, which is attached to the chains, is moved up, carrying the shaft O forward by means of the pawl J and ratchet I and chains F, the ratchet I′, the pawl J′ being free, but as the buoy descends carrying the chains in the opposite direction. The ratchet I′ is held by its pawl J′, and the ratchet I and pawl J are free, thus continuing the revolutions of the shaft in the same direction. Any suitable well-known spring attachment may be employed in connection with the ratchet to hold the same in proper adjustment.

It will be seen that as the buoys are allowed to move independently the action of every wave under the buoy-frame will be utilized both in its upward and downward motion, and as all the buoys are attached to the line-shaft O, and said shafts are connected by chain belts Q, S, W, and U, or other suitable belt-pulleys or gearing, to the main shaft Q′, a uniform and reliable power is secured therefrom by any well-known means.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is, in wave-powers—

1. The buoy A, having the operating guide-frames C and D, and cross-heads E, in combination with the chain belts F and F′, the chain-wheels G and G′ and H and H′, and line-shafts O, for the purpose of receiving and utilizing the combined force of a series of waves at the same time or alternately upon the shaft, constructed and operated substantially as and for the purposes set forth.

2. The combination of a series of buoys A,

by means of the operating guide-frames C and D, cross-head E, chain belts F and F′, chain-wheels G and G′ and H and H′, the ratchets and pawls I I′ and J J′, and line-shafts O, the chain-wheels P, P′, R and R′, V and V′, T and T′, the chain belts Q, S, W, and U, for the purpose of utilizing the buoying force of a number of waves at the same time, constructed and arranged substantially as and for the purposes set forth.

ARTHUR W. DOWE.

Witnesses:
JOHN H. REDSTONE,
COLERIDGE RUSSELL.