(No Model.)

E. GERLACH.

WAVE MOTOR.

No. 523,963. Patented July 31, 1894.

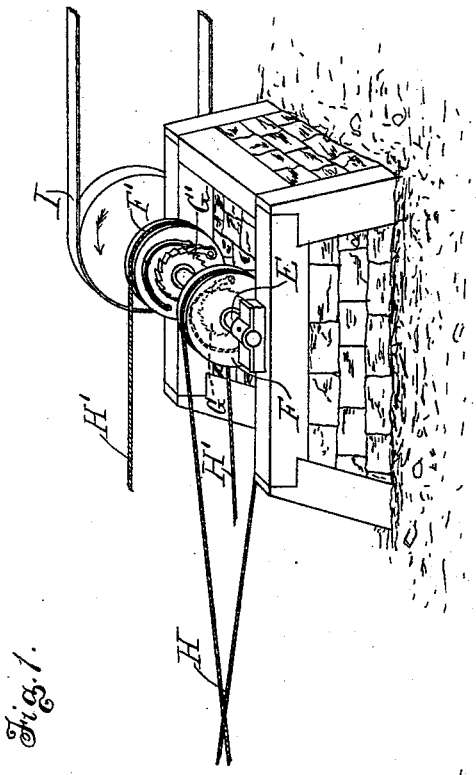
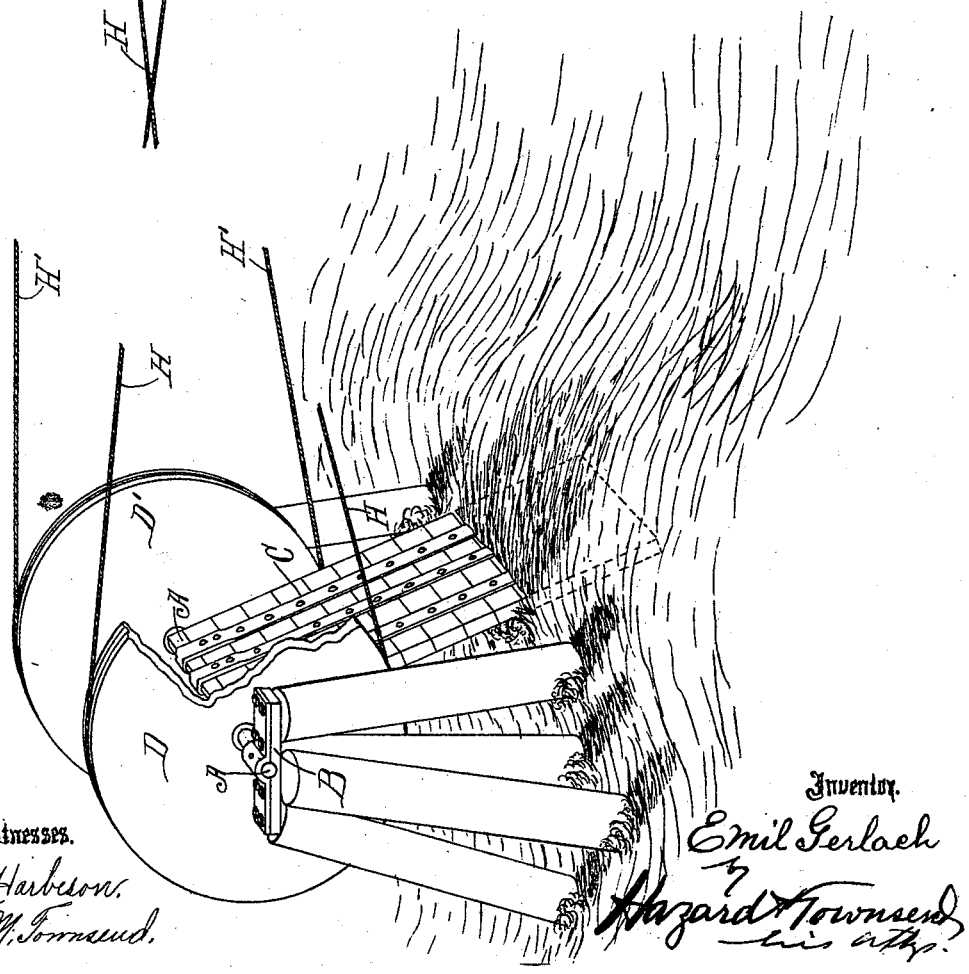


Fig. 1.



Witnesses.
C. W. Harbeson.
F. M. Townsend.

Inventor.
Emil Gerlach
by Hazard & Townsend
his attys.

UNITED STATES PATENT OFFICE.

EMIL GERLACH, OF SANTA MONICA, ASSIGNOR OF ONE-HALF TO HENRY MATSON AND ASMUS N. BRUHN, OF LOS ANGELES, CALIFORNIA.

WAVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 523,963, dated July 31, 1894.

Application filed October 19, 1893. Serial No. 488,565. (No model.)

To all whom it may concern:

Be it known that I, EMIL GERLACH, a citizen of the United States, residing at Santa Monica, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Wave-Motors, of which the following is a specification.

The object of my invention is to provide improved means for utilizing the wave power of the ocean and other large bodies of water. I accomplish this by means of the device described herein and illustrated in the accompanying drawing.

The figure is a perspective view of mechanism embodying my invention.

My invention comprises the combination of an axle A journaled in a suitable frame or support B and provided with a paddle C arranged to be operated upon by the waves; two driving wheels D D′ fixed upon the axle to rotate with such axle; a motion converting shaft E journaled to revolve; two power receiving pulleys F F′ journaled upon the motion converting shaft E and respectively connected therewith by ratchets G G′ which are arranged to drive the converting shaft in one and the same direction; a crossed band H connecting the driving wheel D with the receiving pulley F, and a straight band H′ connecting the driving wheel D′ with the receiving pulley F′. The arrangement of the driving wheel D, crossed band H, receiving pulley F and ratchet G with relation to the driving wheel D′, straight band H′, receiving pulley F′ and ratchet G′ is such that the rotation of the wheels D D′ in one direction will operate to rotate one of the receiving pulleys (F) in one direction to bring the ratchet in operation to drive the shaft E, and at the same time will operate the other receiving pulley F′ in the opposite direction with its ratchet slipping to release the shaft E and to allow it to be rotated by the other receiving pulley.

The bands H H′ shown in the drawing are designed to represent wire cables but it is to be understood that sprocket wheels and chains may be used in place of the mechanism shown and that I do not desire to limit my claim specifically to the particular structure of parts detailed in the drawing.

In operation the apparatus is placed with the paddle C in position to receive the impulse of the waves and the force of the undertow. The waves operate upon the paddle C and swing it forward and the undertow swings it back, thus partially rotating the axle A and the wheels D D′. This partial rotation will be transmitted through the cables to the pulleys, rotating them simultaneously in opposite directions, thus always driving one of the pulleys to rotate the shaft, except at the moment when the paddle comes at rest to begin its return movement.

In the practical application of my invention, the power is to be applied through the medium of an air compressor, thus to secure uniform power. Such air compressor, is not shown in the drawing because it has heretofore been suggested that air compressors may be used for a like purpose and such use requires no invention for its application to my device.

The wheels D D′ might be united and both placed on the same side of the paddle C thus constituting practically a single wheel which would then be connected with the pulleys F F′ through the reverse bands H H′. The pulleys F F′ in that case would be placed close to each other to correspond with the position of the driving wheels. Such construction would be within the spirit of my invention. Also more than one paddle might be applied to the axle but these modifications are deemed obvious and not requiring illustration.

The ratchet mechanism G G′ is of common construction and therefore is not illustrated herein in detail.

I indicates means for transmitting power to the air compressor or other mechanism.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The wave motor set forth comprising an axle journaled in a suitable support and provided with a paddle fixed upon the axle and arranged to be operated upon by the waves; a driving wheel fixed upon the axle to rotate

with such axle; a motion converting shaft journaled to revolve; two power receiving pulleys journaled upon the motion converting shaft and respectively connected therewith by ratchets arranged to drive the converting shaft in one and the same direction; a crossed band connecting the driving wheel with one of the receiving pulleys and a straight band connecting the driving wheel with the other receiving pulley.

EMIL GERLACH.

Witnesses:
JAMES R. TOWNSEND,
ALFRED I. TOWNSEND.