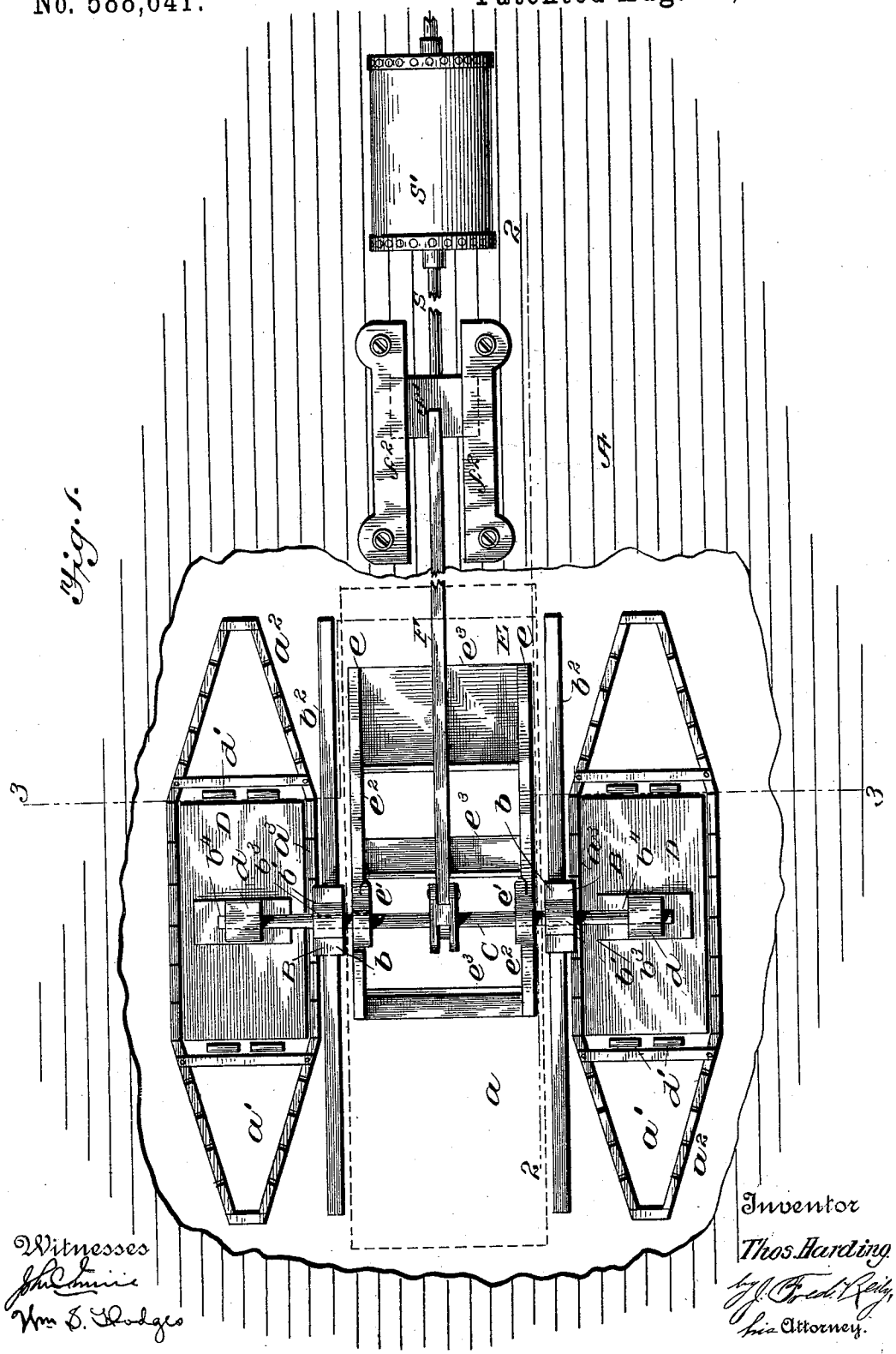
(No Model.)

2 Sheets—Sheet 1.

T. HARDING.

WAVE MOTOR.

No. 588,641. Patented Aug. 24, 1897.



Witnesses
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Wm. D. Hodges

Inventor
Thos. Harding
by J. Fred'k Reily,
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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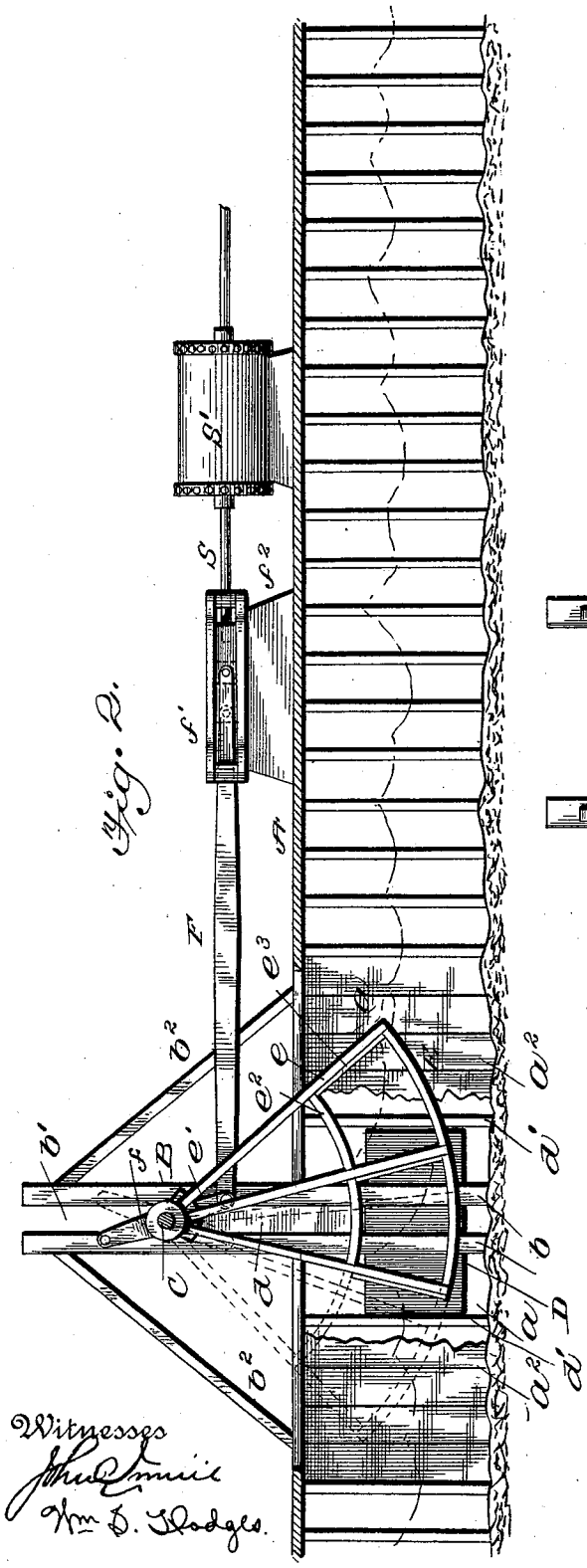


Fig. 2.

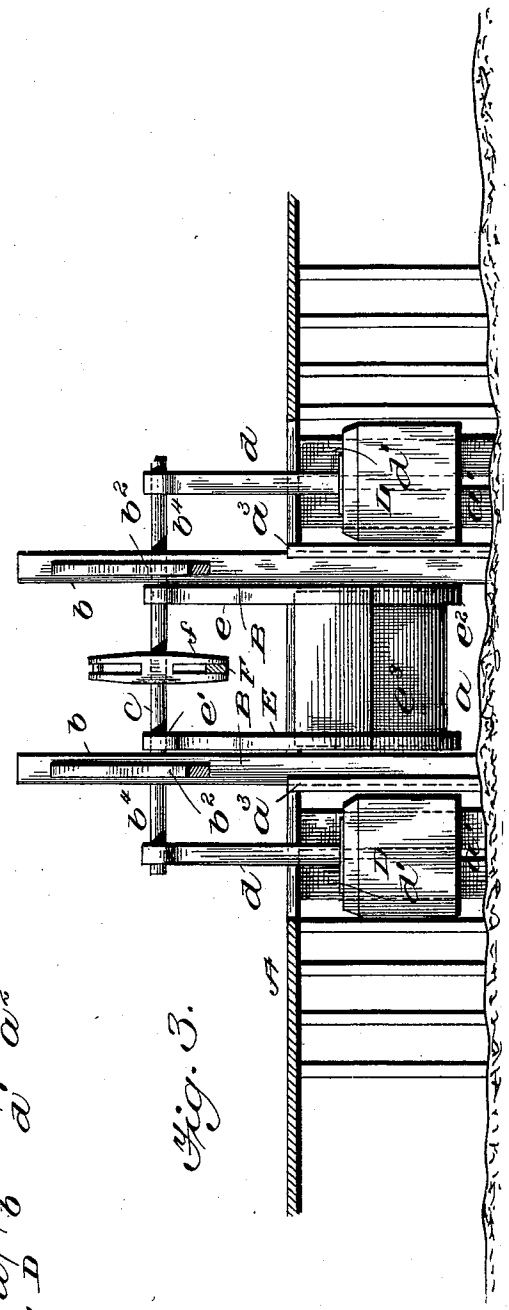


Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS HARDING, OF SAN JOSÉ, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JAMES H. HENRY, OF SAME PLACE.

WAVE-MOTOR.

SPECIFICATION forming part of Letters Patent No. 588,641, dated August 24, 1897.

Application filed April 25, 1896. Serial No. 589,080. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HARDING, a citizen of the United States, residing at San José, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Wave-Motors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to certain new and useful improvements in hydraulic motors, and has reference more particularly to that class operated by wave action.

The object of the invention is to produce a simple and efficient motor of this class which will always be maintained in such a position in the water that the paddle-segments thereof will be constantly subject to the action of the waves whether the tide be high or low, whereby the motor is kept constantly in operation and at the same time obtaining a maximum power therefrom.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view illustrating my invention. Fig. 2 is a longitudinal sectional view on line 2 2, Fig. 1. Fig. 3 is a transverse sectional view on line 3 3, Fig. 1.

Referring to the drawings, A designates a wharf or pier, in which is formed a central compartment a and two exterior compartments a', the end walls of which latter are tapered, as shown at a^2. All of these compartments are open and allow of free access of the water thereto and are separated from each other by division-walls a^3.

Adjacent the division-walls a^3 and within chamber or compartment a are secured two guideways B, each of which consists of two parallel stakes or posts b, having an intervening space b' between them and held rigidly in position by means of brace-beams b^2, secured thereto and to the flooring of wharf or pier A. In the spaces b' of the guideways are mounted boxes b^3, which are adapted to move up and down and guide the main shaft C of the motor, said shaft being loosely mounted in said boxes and having its ends b^4 extended beyond the same.

To the extended ends b^4 of shaft C are pivotally connected arms d of floats D, which latter rest on the water in chambers or compartments a', one of said floats being located in each compartment. Timbers or guides d' are located in said chambers or compartments adjacent each float, so as to prevent displacement of the latter except in a vertical direction. By this means the shaft C is always maintained in the same relative position to the water whether at high or low tide, the tapering ends of compartments a' allowing of the free entrance of water to said compartments, but preventing the waves from affecting the floats.

E represents the segment, against which the waves exert their force in operating my improved motor. This segment comprises two end sections e, each in the form of a segment of a circle, the upper tapering ends e' of which are keyed to shaft C. The frame-bars e^2, forming the end sections e, are connected by timbers e^3, which are adapted to form paddles, said paddles being presented to the action of the waves entering the open-ended compartment a.

It will be seen that the action of the waves on paddles e^3 will impart a reciprocating movement upon segment E, which in turn will be transmitted to shaft C. The power or motion thus obtained is imparted to a shaft F, which at one end is connected to an arm f, keyed on shaft C, the other end of said shaft being pivotally connected to a cross-head f', mounted in guides f^2 of a base f^3, secured to the wharf or pier. Motion from the cross-head is applied to the piston-shaft S of a pump S' or to any other preferred mechanism.

The advantages and operation of my improved water-motor will be at once apparent to those skilled in the art to which it appertains, and it will be specially noted that the same is always presented to the action of the waves whether the tide be high or low, the floats serving to maintain the segment E al-

ways at the same relative position in the water.

The invention is also extremely simple and is not liable to readily get out of order or become deranged.

I claim as my invention—

1. The combination with a wharf or pier having a central compartment and two exterior compartments, of guideways located on each side of said central compartment, a shaft adapted to slide in said guideways, floats in said exterior compartments adapted to support said shaft, and a paddle-segment located in said central compartment and adapted to rock said shaft, substantially as set forth.

2. The combination with a wharf or pier having a central open-ended compartment and two exterior compartments provided with tapering ends, of guideways located on each side of said central compartment, a shaft adapted to slide in said guideways, floats in said exterior compartments adapted to support said shaft, and a paddle-segment located in said central compartment and adapted to rock said shaft, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS HARDING.

Witnesses:
J. S. McGINNIS,
MAYNARD WRIGHT.