J. HALL, Jr.

TIDE POWER DEVICE.

APPLICATION FILED DEC. 9, 1908.

926,408. **Patented June 29, 1909.**

Fig. 1.

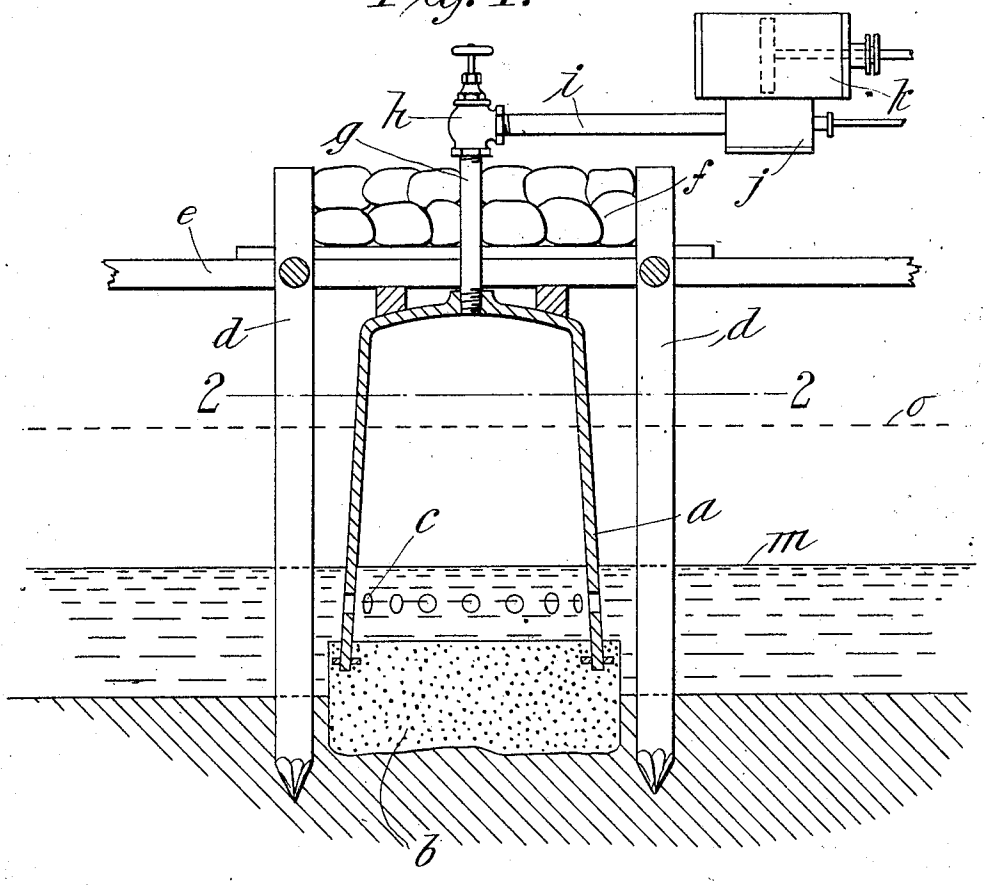
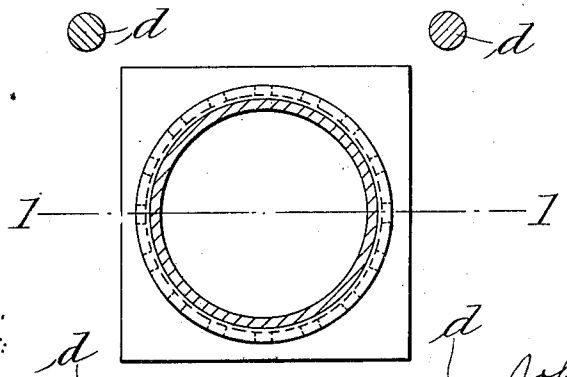


Fig. 2.



WITNESSES:

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TIDE-POWER DEVICE.

No. 926,408. Specification of Letters Patent. Patented June 29, 1909.

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To all whom it may concern:

Be it known that I, JOHN HALL, Jr., a citizen of the United States of America, residing at West Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Tide-Power Devices, of which the following is a specification.

My present invention relates to improvements in tide powers and the particular feature of the improvement lies in the utilization of the rising and falling of the tides, whereby the difference of level occasioned thereby can be utilized to subject a confined volume of air to compression, and after the air has been compressed by the flood tide to utilize the same for operating motors of various kinds.

Broadly considered, the invention consists in providing an inverted tumbler-shaped member, the open ends being downward, for receiving the in-flow of water, the upper portion of said member having connected thereto a pipe for conveying the compressed air to a suitable motor.

It is understood that during the ebb tide a vacuum will be produced in the inverted tumbler-shaped member whereby the motor may be operated as a vacuum machine.

In the drawings forming part of this application,—Figure 1 shows the tumbler or cylindrical shaped member in an inverted position, and means for securing the same against movement from this position, also indicating in conventional form a motor with suitable pipe connections between the valve-chest of the motor and the upper portion of the cylindrical-shaped member. Fig. 2 is a sectional plan view on the line 2—2, Fig. 1, showing the openings arranged through the lower portion of the cylindrical element for the admission of water.

Referring to the drawings in detail,—*a* designates a cylindrical inverted tumbler-shaped member, the lower portion of which is embedded in a block *b* of concrete or other suitable material for providing a firm foundation for this member.

c designates openings for permitting the water to enter the interior of a casing.

d designates piles driven into the bed of a body of water, and connecting the same at the upper end thereof is a timber or other framework *e* for supporting a weight of any suitable kind for holding the framework down. This weight is designated by means of the rocks or stones *f*.

The upper end of the casing *a* is threaded for receiving an outlet pipe *g* that is provided with a shut-off valve *h*, and leading from this valve is a pipe *i* that extends to a valve-chest *j* of a motor *k*.

The low water level is indicated at *m* and high water or flood tide at *o*.

Although the drawings show only a single inverted cylinder or casing it is evident that a plurality of them may be employed with suitable pipe connections leading from one to another, whereby the combined effect of several cylinders may be obtained for operating the motor.

Referring now briefly to the operation of my improvement: It should be understood that the shut-off *h* is closed when the water is at low tide, and as the water level rises within the casing, the air that is confined in the space between low water level and the top of the casing will be placed under pressure, the degree of pressure being determined by the amount that the water rises.

Admission to the interior of the cylinder is, as readily understood, through the opening *c*.

When the water reaches the level indicated at *o*, the shut-off valve *h* is opened allowing the compressed air to flow through the pipes *g* and *i* to the motor *k* for operating the same.

The motor will continue to work as long as the pressure of the air within the casing is greater than the atmospheric pressure, and after the two pressures are equal the valve *h* is closed; then as the water recedes or falls back to low tide a vacuum will be produced within the casing, as readily understood. Upon opening the valve *h* again, the motor can be operated as a vacuum motor, the vacuum in the cylinder causing a difference in pressure on the other side of the piston whereby the piston will move under the differences of pressure, as readily understood.

What I claim, is:—

1. A tide power device having in combination, an inverted cylindrical member, means for securing said member in position on the bed of a body of water, the lower end of the casing being provided with inlet openings and normally below low water level, the

upper end of the casing having a pipe connection leading to a suitable motor, and a shut-off in the pipe connection.

2. A tide power comprising an inverted casing having an inlet opening in its lower portion, a pipe connection leading to the interior of the casing and arranged in the upper part of the same, a shut-off in the pipe connection, means for securing the casing against movement, whereby when the shut-off is closed and the water level in the casing changes from low-tide to high tide, the volume of air confined therein will be placed under pressure, and when the shut-off is closed and the water level changes from high to low tide a vacuum will be produced in the inverted casing, as described.

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