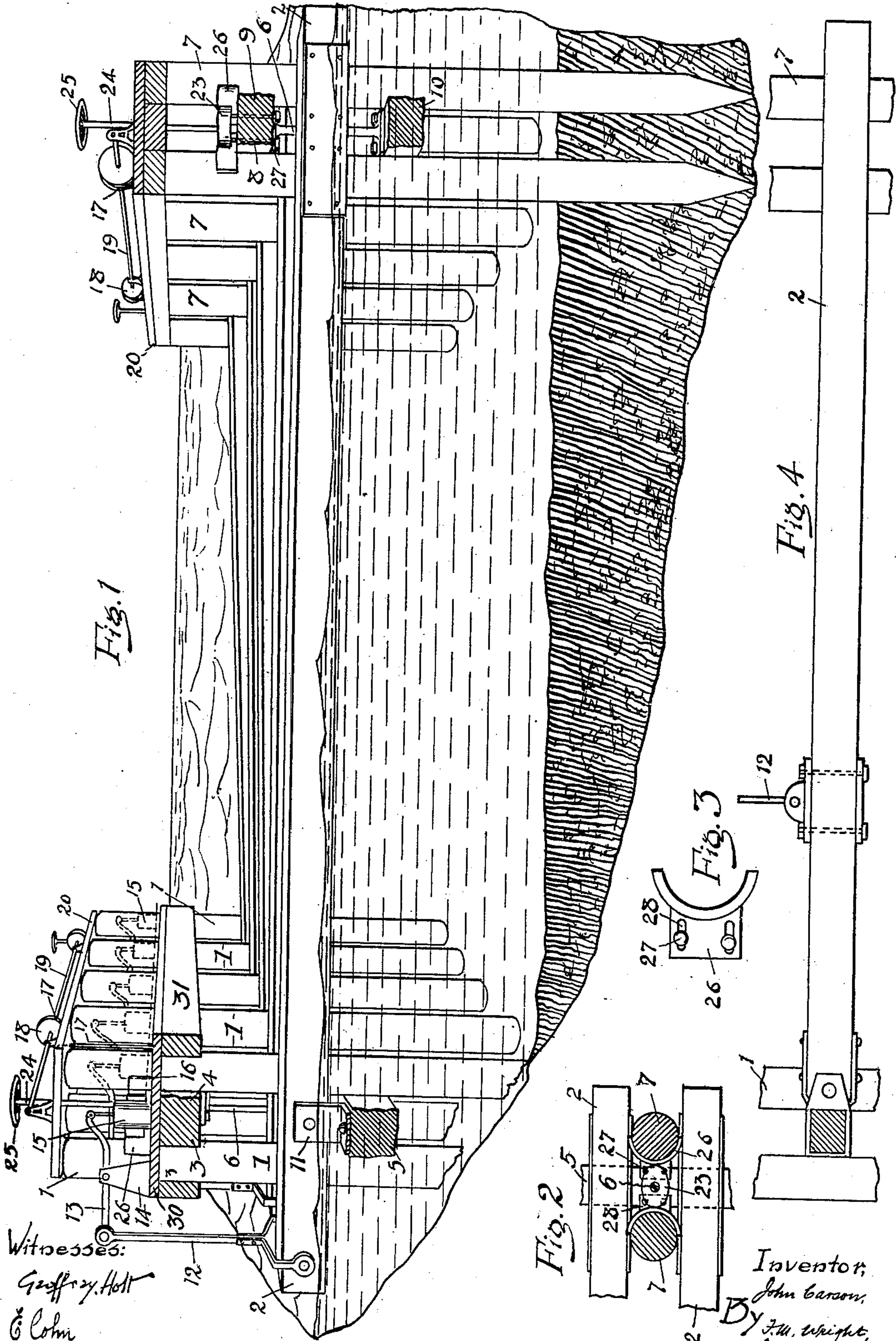


No. 862,807.

PATENTED AUG. 6, 1907.

J. CARSON.
WAVE MOTOR.

APPLICATION FILED JAN. 10, 1907.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN CARSON, OF SAN FRANCISCO, CALIFORNIA.

WAVE-MOTOR.

No. 862,807.

Specification of Letters Patent.

Patented Aug. 6, 1907.

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To all whom it may concern:

Be it known that I, JOHN CARSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented
5 new and useful Improvements in Wave-Motors, of which the following is a specification.

The object of the present invention is to provide an apparatus for utilizing the power of the waves of the ocean or other large body of water, which apparatus
10 shall be efficient in its action, durable in use, able to withstand severe storms, and capable of being quickly adjusted for operation at various heights of the tides.

In the accompanying drawing, Figure 1 is a sectional perspective view of my apparatus; Fig. 2 is an enlarged plan view of the clamp; Fig. 3 is an enlarged
15 plan view of a shoe; Fig. 4 is a side view of a modified form of the float.

Referring to the drawing, 1 indicates piles, driven into the bed of the ocean, or other body of water, and
20 arranged in two parallel rows, the rows being spaced a short distance apart, and the piles of each row being also spaced a convenient distance to receive between them the floats 2, which are preferably in the form of beams or logs.

Between the two rows of the piles 1 is a frame 3 consisting of the upper beam 4 and the lower beam 5, connected at suitable intervals by the stanchions 6, (one such stanchion being here shown).

At a suitable distance from the rows of piles 1, depending upon the length of the floats, and arranged parallel with said rows, are two other rows of piles 7,
30 and between the rows is a frame 8 consisting of upper and lower beams 9, 10, connected, like the beams 4, 5, by stanchions 6, also a flooring 30 through which pass the piles 1, and side guide beams 31, which strengthen
35 the frame and additionally guide it in its vertical movement.

The frame 3 serves as a support for the bearings 11 which are secured on the lower beam 5, and on which the
40 floats are individually pivoted, so that the other ends of said floats can rise and fall freely with the motion of the waves, and the frame 8 serves to limit the motion of said free ends to prevent destruction or injury in case of severe storms.

The ends of the floats nearest their pivots are connected by links 12 with levers 13, fulcrumed upon standards 14 on the upper beams 4, and connected individually with air compressors 15, which serves to convert the power furnished by the waves into a form suitable for transmission, and from which a pipe 16 conducts the compressed air to any desired point where it
50 can be utilized.

I provide convenient means for rapidly adjusting the apparatus for the varying height of the tide. For this
55 purpose the frames 3 and 8 are secured to cables 17 passing around drums 18 on shafts 19 on the platforms

20 secured on the tops of the piles. By turning the shafts 19, the frames 3 and 8 can be raised or lowered. Said frames are of such specific gravity that they float, or nearly so, when in their proper position in the water, 60 and when they have taken this position they are quickly clamped by means of double cams 23 on shafts 24 extending through the platforms and operated by handles 25, said cams bearing against shoes 26 which are thus pressed against opposite piles, said shoes being 65 slidably attached to the frames by means of bolts 27 in the upper beams passing through slots 28 in said shoes.

In the modification shown in Fig. 4, the floats are pivoted at their extreme ends, and the links 12 are connected to the floats at points between said pivoted 70 ends, and the free ends which rise and fall between the piles 7.

By providing the several floats individually pivoted, so that they can rise and fall independently of each other, the force of the waves is very effectively 75 utilized. It will be seen, moreover, that the apparatus is very durable, and will withstand the action of severe storms. Also that it can be quickly adjusted to varying heights of the tides. Moreover the arrangement of the floats between the piles serves to concentrate the force of the waves at points where they will 80 produce the most effect in furnishing power.

I claim:

1. The combination of two parallel rows of piles, a pivot frame between said rows consisting of upper and lower beams and suitable connections, two other rows of piles parallel with the first rows, a limiting frame between the latter two rows, solid floats each passing at one end between adjacent piles of the first two rows, and at the other end through the limiting frame, and between 90 piles of the rows adjacent to said latter frame, individual pivots for the floats on the pivot frame, means on said pivot frame for converting power, individual connections from said floats to said means, means supported at the top of the corresponding rows of piles for raising each frame, and means operatable from said top for clamping each frame at any desired height relative to the piles, substantially as described. 95

2. The combination of two parallel rows of piles, a pivot frame between said rows consisting of upper and lower beams and suitable connections, two other rows of piles parallel with the first rows, a limiting frame between the latter two rows, each frame being of a specific gravity approximating that of water, solid floats each passing at one end between adjacent piles of one of the first rows, and at the other end through the limiting frame and between adjacent piles of the rows adjacent to said latter frame, individual pivots for the floats on the pivot frame, means supported on said pivot frame for converting power, individual connections from said floats to said 110 means, means supported at the top of the corresponding rows of piles for raising each frame, and means operatable from said top for clamping each frame at any desired height relative to the piles, substantially as described.

3. The combination of two parallel rows of piles, a pivot frame between said rows consisting of upper and lower beams and suitable connections, two other rows of piles parallel with the first rows, a limiting frame between 115

the latter two rows, solid floats each passing at one end between adjacent piles of one of the first two rows, and at the other end through the limiting frame, and between adjacent piles of the rows adjacent to said latter frame, 5 individual pivots for the floats on the pivot frame, means supported on said pivot frame for converting power, individual connections from said floats to said means, means supported at the top of the corresponding rows of piles for raising each frame, and means operatable from said 10 top for clamping each frame at any desired height relative to the piles, said means comprising shoes adapted to be

pressed against opposite piles of the two rows, double cams adapted to engage said shoes for pressing them against the piles, and shafts for said cams extending to the top of the piles, substantially as described. 15

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN CARSON.

Witnesses:

FRANCIS M. WRIGHT,
D. B. RICHARDS.