

(No Model.)

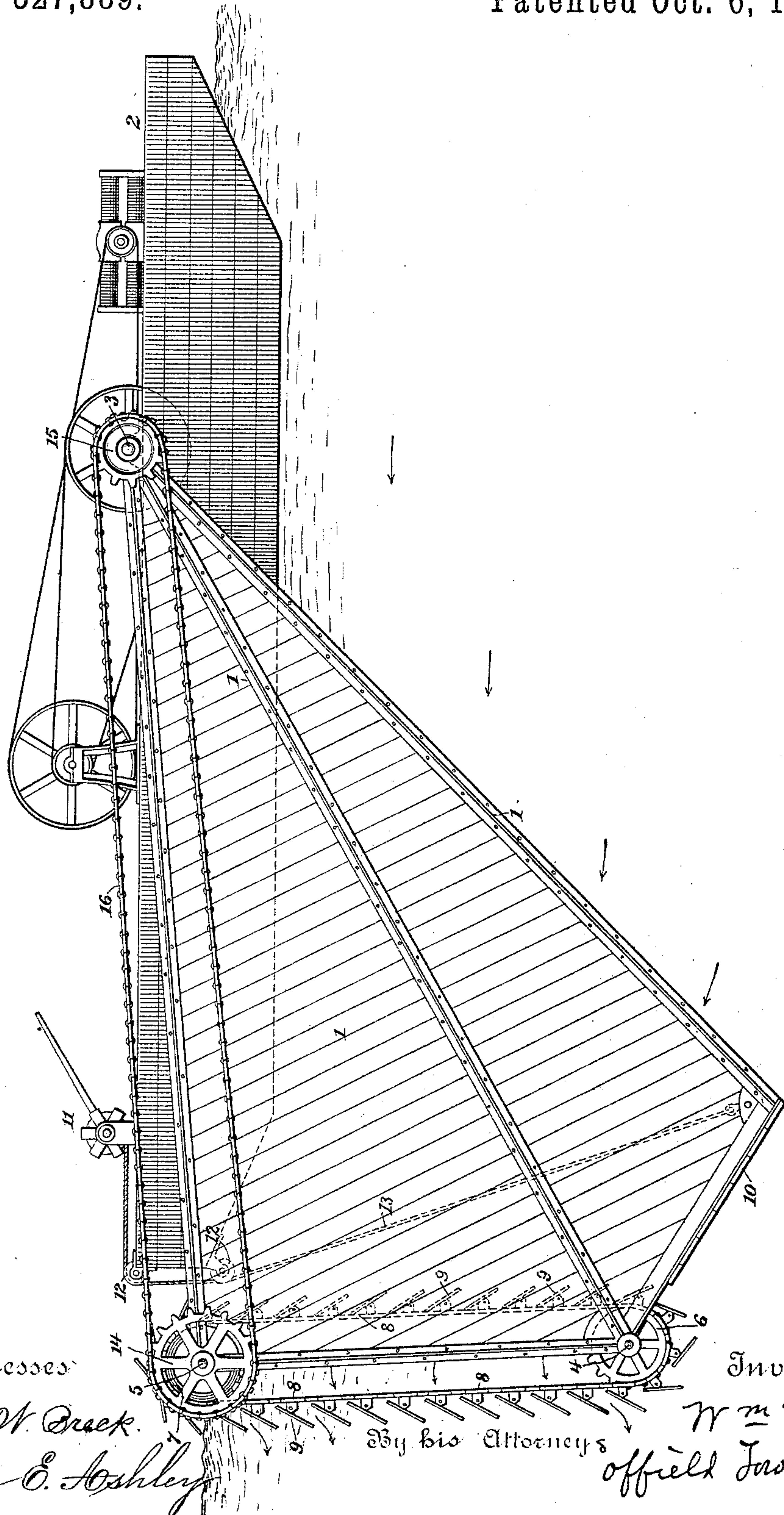
2 Sheets—Sheet 1.

W. MAIN.
FLOATING CURRENT MOTOR.

No. 327,889.

Patented Oct. 6, 1885.

Fig. 1.



Witnesses

Geo. W. Cook.

Carrie C. Ashley

Inventor

W^m Main

By his Attorneys
offield J. Phelps

(No Model.)

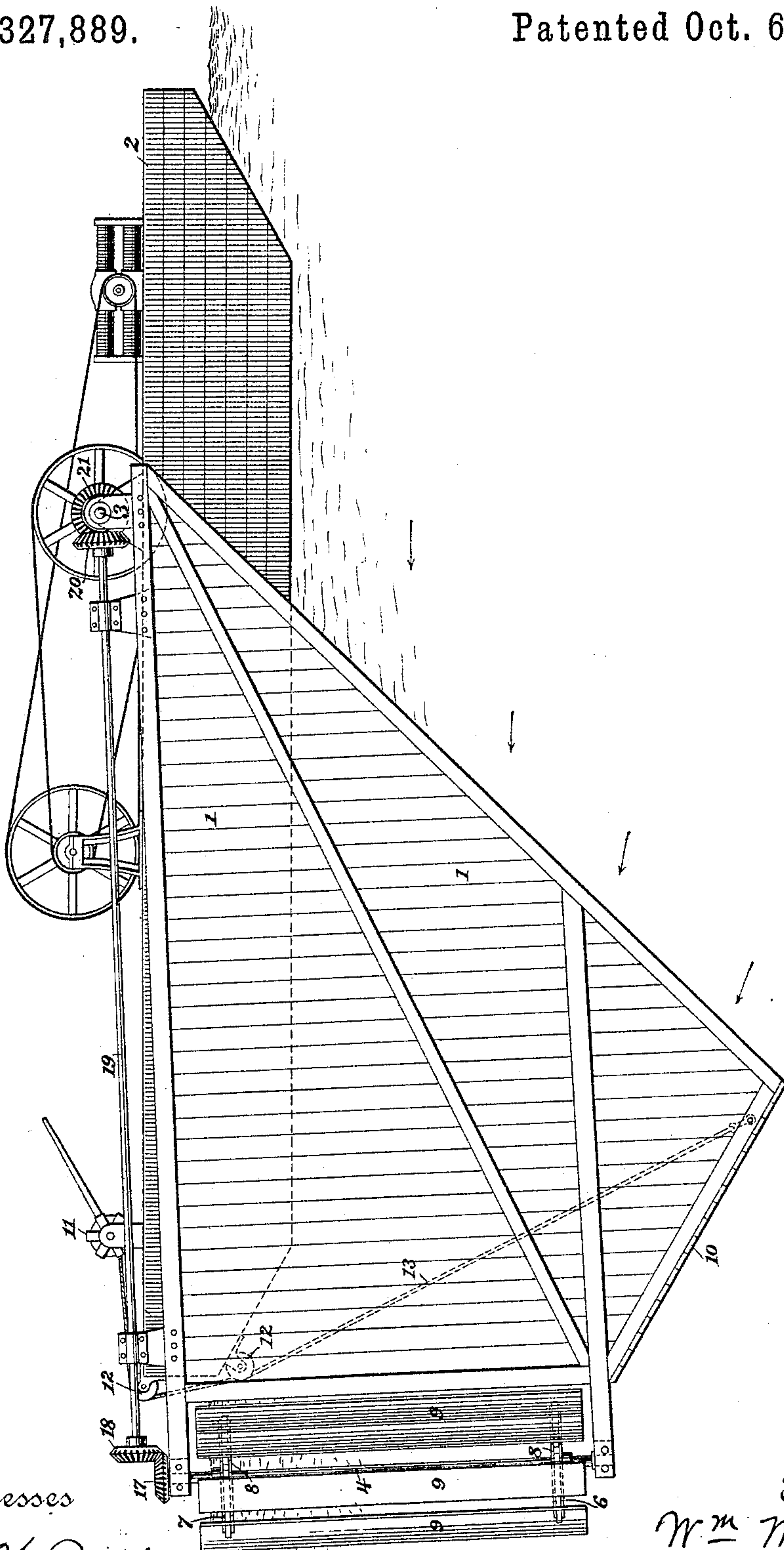
2 Sheets—Sheet 2.

W. MAIN.
FLOATING CURRENT MOTOR.

No. 327,889.

Patented Oct. 6, 1885.

Fig. 2.



Witnesses

Geo. W. Brice.

Carrie C. Ashley

By his Attorneys

Inventor
W. M. Main
offield Towle & Phelps

UNITED STATES PATENT OFFICE.

WILLIAM MAIN, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE RIVER AND RAIL ELECTRIC LIGHT COMPANY, OF OHIO COUNTY, WEST VIRGINIA.

FLOATING CURRENT-MOTOR.

SPECIFICATION forming part of Letters Patent No. 327,889, dated October 6, 1885.

Application filed August 11, 1885. Serial No. 174,101. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MAIN, a citizen of the United States, residing in Brooklyn, county of Kings, State of New York, have
5 invented a new and useful Improvement in Floating Current-Motors, of which the following is a specification, and which I designate as "Case F."

My invention has for one of its chief objects
10 the production of a current-motor, which, while capable of adjustment to different depths of water independently of the draft of its supporting structure, shall have an effectiveness substantially proportional to the amount
15 of its immersion, and shall have the advantage in all its positions of a converging water-way of approach. The form of water-power mechanism which I prefer to use for this purpose is one invented by me and fully described
20 in an application filed of even date herewith, in which the floats are carried by endless chains moving in paths perpendicular to the direction of the current, and are operative to propel the driven mechanism in all parts of
25 their course. I propose to mount mechanism of this character in such a way that it may be swung up and down through the water as desired without materially changing the position of the floats with reference to the direction
30 of the current, the mechanism therefore having an effectiveness substantially proportional to its degree of immersion.

My invention further consists in certain features and details of construction, herein
35 after described, and fully set forth in the claims.

In the drawings annexed, which form a part of this specification, Figure 1 is a side elevation of my apparatus, the floats in this case having a vertical path of travel, and Fig.
40 2 is a side elevation of a modification in which the floats move in a horizontal path.

Two pivoted frames, 1, one only of which appears in the drawings, are placed one on each side of the scow or boat 2, and are journaled
45 upon or concentrically with the main shaft 3, to which the driven mechanism is geared. These swinging frames, shown in this instance as quadrilateral in form, are connected at two of their angles (reference being now had to
50 Fig. 1) by shafts 4 5, upon which are mounted two sets of sprocket-wheels, 6 and 7, over

which run two endless chains, 8, carrying between them the floats 9. These floats are pivoted a little to one side of their centers, so that as they pass from their forward to their
55 return path, the pressure of the water being greater on one side of the pivots than the other will reverse their position, and they will continue to be driven in the proper direction by the current. A second pair of
60 sprocket-wheels, 14, one of which appears in the figures, are mounted on shaft 5, from which, by means of chain 16, the power is communicated to sprocket-wheels 15, mounted on the main shaft. The frames 1 are planked over,
65 so as to confine the water which flows between them, including that which is deflected downward by the scow, and cause it to act with greater effectiveness upon the power mechanism. A construction which has advantages
70 when the stream is sufficiently deep, and which I have in this instance shown, is that of giving the sides of the frames a downward inclination from the lower end of the power mechanism for a certain distance, and connecting
75 the frames, so far as this downward inclination extends, by transverse planking 10, which will thus form an upward deflecting surface for the water, and operate to concentrate the current upon the power mechanism.
80

A hoisting apparatus, which I have shown as consisting of a windlass, 11, connected by ropes 13, passing over friction-pulleys 12, with the free ends of the frames, serves to regulate the
85 degree of immersion of the chain mechanism, thereby adapting the motor, as required, to various depths of water. It will be observed that raising or lowering the floats will not materially change their angle of inclination to the current, and therefore will not change the
90 effectiveness of the motor, except as it varies proportionally with the degree of immersion.

In the modification shown in Fig. 2, and which is a form of special value for shallow streams, the floats move in a horizontal path
95 over two sets of sprocket-wheels, 6 7, (one wheel of each set being shown in the drawings,) mounted on opposite ends of vertical shafts 4. The power is conveyed from shaft 4 by means of gears 17 and 18, shaft 19, and
100 gears 20 and 21 to the main shaft.

The manner of supporting the swinging

frames which I have shown is not an essential feature of my invention, since many other effective arrangements might readily be devised—as, for instance, that of pivoting them
 5 between the hulls of a double-hulled boat, instead of on both sides of a single-hulled boat, as shown, or in front of instead of behind the boat. Neither do I restrict myself to the particular forms of water - power mechanism
 10 shown, since it is within my contemplation to mount other motors—such as screw or under-shot wheels—in my swinging water-way.

I claim—

1. The combination of a pivoted water-way,
 15 a water-power mechanism mounted therein, a supporting-boat or scow, and means for raising and lowering the free end of said water-way, substantially as described and shown.

2. The combination of a water-power mechanism, a water-way of approach therefor pivotally mounted upon a floating-support and provided with a downwardly-inclined bottom for deflecting the water upward upon the power mechanism, and means for raising and
 25 lowering the free end of said water-way.

3. The combination, with a boat or scow, of two plank-covered frames, one of said frames being pivoted on each side of and outside of the boat, the said frames extending beyond
 30 one end of the boat, a water-power mechanism mounted between and connecting the free ends of the frame and located, therefore, in plan view, outside of the contour of the boat, and means for raising and lowering the free
 35 ends of the frame and the water-power mechanism mounted thereon, this construction permitting the entire pivoted mechanism to be elevated so as not to interfere with ready movement of the float in shallow water, substantially as described and shown.
 40

4. The combination, with a boat or scow, of two frames pivoted at their ends, one on each side of the boat, planking covering each frame, a water-power mechanism mounted between
 45 and connecting the free ends of the frames, and at the end of the water-way formed thereby, and means for raising and lowering the free ends of said frames, substantially as described and shown.

5. The combination, with a boat or other floating support, of two frames pivoted at their ends, one on each side thereof, planking covering each of said frames, a water-power mechanism mounted between and connecting the free ends of the frames, transverse
 55 planking between the frames below the water-power mechanism forming an inclined surface for deflecting the water upward upon the mechanism, whereby a converging water-way of approach is formed which does not permit the water to escape except in the direction of the current and after it has acted upon the power mechanism, and means for raising and lowering the free ends of the
 60 frames, substantially as described and shown.

6. The combination of a chain-power mechanism in which the path of the float is horizontal and perpendicular to the direction of the current with a supporting-frame therefor, to one end of which the power mechanism is
 70 attached and which is pivoted at the other end to a floating support, and means for raising and lowering the free end of the frame, substantially as described and shown.

7. The combination, with a boat or a floating support, of two quadrilateral frames, shaped substantially as shown and pivoted at their ends, one on each side of the float, planking covering said frames, a water-power mechanism mounted between and connecting
 75 the free ends of said frames, a plank bottom, 10, connecting the frames below the power mechanism and forming a deflecting surface which serves as a bottom for the water-way, which has the planking of the frames for its
 85 sides and the bottom of the boat for its top, and means for raising and lowering the free ends of said frames and the water-power mechanism thereon mounted, substantially as described and shown. 90

8. The combination, with a boat or other floating support, of plank-covered frames pivoted thereto, vertical shafts with sprocket-wheels mounted thereon, carried by the free ends of said frames, endless chains carried by
 95 the sprocket-wheels, reversible floats operative to propel the chain in both directions attached to the chains, and means for raising and lowering the free ends of the frames and the mechanism carried thereby, substantially as described and shown. 100

9. The combination, with a boat or other floating support, of frames pivoted thereto and rigidly connected at their free ends, vertical shafts mounted in the free ends of the
 105 frames and provided with sprocket-wheels mounted thereon, endless chains carried by the sprocket-wheels, reversible floats pivoted upon the chains, and means for raising and lowering the free ends of the frames. 110

10. In a water-power mechanism, the combination of vertical shafts, sprocket-wheels mounted thereon, endless chains carried by the sprocket-wheels and reversible floats attached to the chains, substantially as described and
 115 shown.

11. In a water-power mechanism, the combination of vertical shafts, sprocket-wheels mounted thereon, endless chains carried by the sprocket-wheels, and floats pivoted to the
 120 chains, substantially as described and shown.

In testimony whereof I subscribe my name in the presence of two witnesses.

WILLIAM MAIN.

Witnesses:

M. H. PHELPS,
 WILLIAM H. DE LANCEY.