

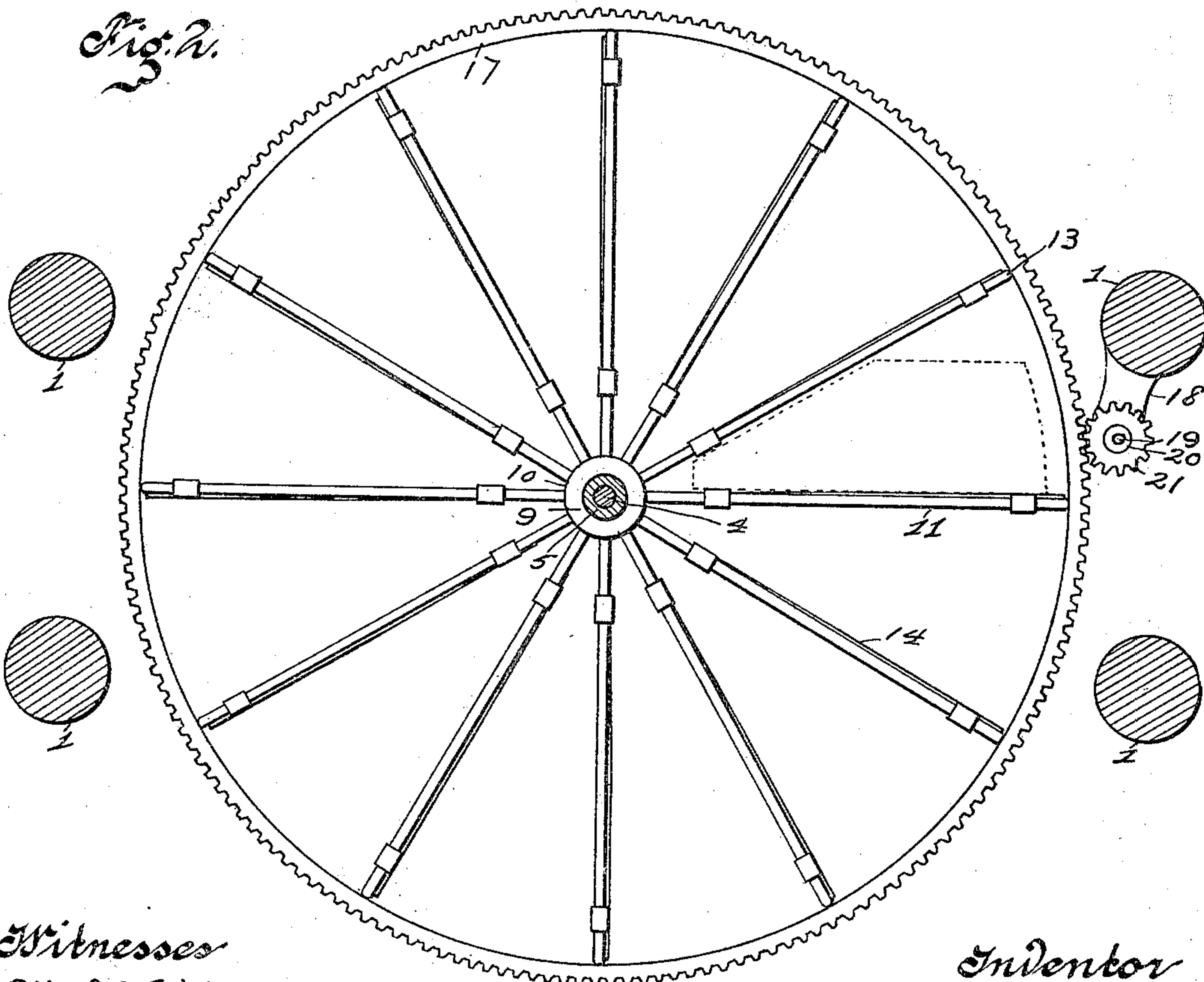
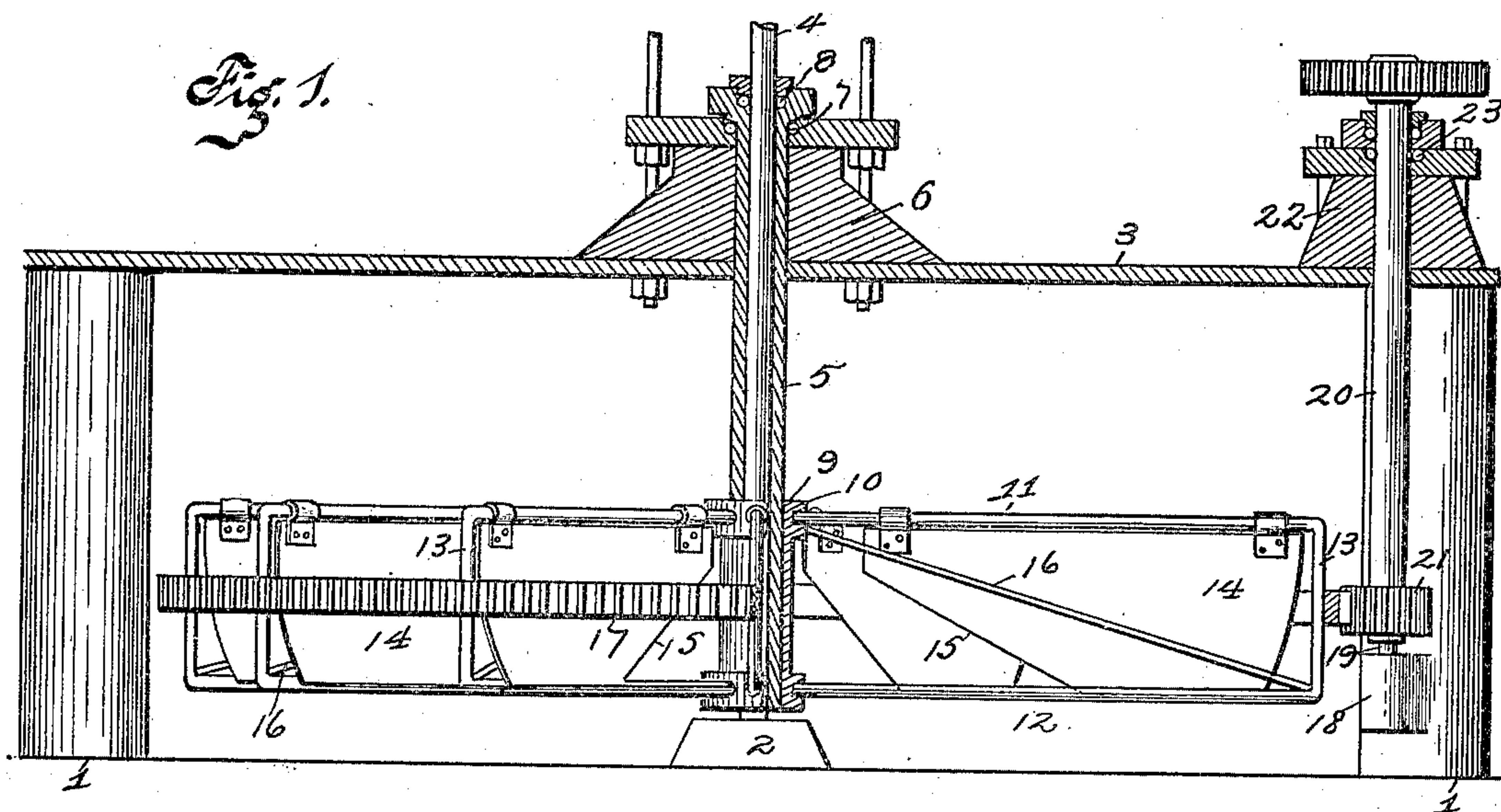
No. 684,514.

Patented Oct. 15, 1901.

P. O. LANCASTER.
CURRENT MOTOR.

(Application filed Nov. 12, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

PHILIP O. LANCASTER, OF ROCK ISLAND, ILLINOIS.

CURRENT-MOTOR.

SPECIFICATION forming part of Letters Patent No. 684,514, dated October 15, 1901.

Application filed November 12, 1900. Serial No. 36,250. (No model.)

To all whom it may concern:

Be it known that I, PHILIP O. LANCASTER, of the city of Rock Island, Rock Island county, State of Illinois, have invented certain new and useful Improvements in Current-Motors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to current-motors; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a view showing my improved current-motor in operative position. Fig. 2 is a plan view.

In the construction of my improved current-motor the piers 1 are arranged in suitable relative positions, and a suitable base 2 is fixed in the bottom of the stream between the said piers. The piers 1 are preferably extended above the surface of the water a sufficient distance to support a building, the floor of which is indicated by 3. A stationary shaft 4 has its lower end embedded within the base 2, and its upper end projects through the floor 3 into the building. A tubular shaft 5 is mounted around the shaft 4, and a support 6 on the floor 3 retains the said shaft 5 in a slightly-elevated position to keep its lower end out of contact with the base 2. Ball-bearings 7 are provided around the upper end of the shaft 5 in order to diminish the friction resulting from its being supported by the support 6, and a similar bearing 8 is provided within the upper end of the shaft 5 and against the shaft 4 to diminish the friction resulting from the rotation of the shaft 5 on the shaft 4. By this system of opposite ball-bearings within and without the shaft 5 a minimum amount of friction is encountered in the rotation of the shaft 5. Rigid with the lower end of the shaft 5 is a spool or sleeve 9, provided on its upper and lower ends with flanges 10, having openings formed therein to receive the inner ends of the frames comprising a part of my invention. Each of the said frames consists of the upper horizontal portion 11 and the lower horizontal portion 12, the inner ends of which are projected into the openings mentioned and the outer ends of which are connected by integral vertical member 13. These frames are arranged radially

on the spool 9, and their outer ends are in circular alinement. Hinged to the upper portion 11 of each of the frames is a wing 14, which performs the functions of valves alternately opened and closed in a manner as will hereinafter appear. The lower sides of the wings 14 bear against the members 12 of the frames, so that whenever pressure is applied to the wings to force them against the frames they will be carried around, rotating the shaft 5 on the shaft 4. The inner lower sides of the wings 14 are cut away, as indicated by 15, so that they may be changed from one side to the other of the frames whenever it is desired to reverse the movement of the mechanism driven thereby. The tie-rods 16, connecting the lower outer corners of the frames to the upper end of the spool 9, serve to hold the frames in the required position and to strengthen the parts comprising the rotary wheel.

17 indicates a ring provided on its periphery with gear-teeth, the said ring inclosing the frames and being secured to the vertical portions 13. Projecting from one of the piers 1 is a bearing 18, fixed in which is the lower end of a vertical shaft 19, the upper end of the said shaft projecting through the bottom 3 of the building supported by the piers 1. A cylindrical shaft 20 is mounted around the shaft 19 and carries on its lower end a pinion 21, in mesh with the teeth of the ring 17. A suitable support 22 is provided above the floor 3, and ball-bearings 23 are made use of to diminish the frictional resistance encountered by the rotation of the said shaft 20. The upper end of the shaft 20 is provided with suitable means for transmitting the power to the mechanism to be driven, and by locating a dynamo adjacent thereto the power may be transmitted almost any distance. The said shaft 20 may be upheld by resting its lower end upon the bearing 18 or the gear or other connection at its upper end upon the bearing-blocks, or any other known means may be made use of.

In using my improved current-motor the water-wheel is submerged a sufficient distance to be out of the path of floating objects or below the draft of ships or boats. The water in moving by the motor encounters the wings 14, bearing those on one side against

the frame in a vertical position and raising those on the opposite side into a horizontal position to permit the passage of the water. The movement of the current against the vertical wing carries the wheel around, those wings moving against the current always being raised into a horizontal position and those moving with the current being in a vertical position and carrying the wheel around in its rotation. The ring 17 moving with the water-wheel and meshing with the pinion 21 rotates the shaft 20, whereby the power is transmitted to any mechanism by any known means. One or more water-wheels may be connected to the shaft 5, the means used in their connection being substantially that shown and described. Whenever any parts of the water-wheel become injured or repairs are required for any other cause, the shaft 5 can be raised on the shaft 4 to elevate the water-wheel above the surface of the water, in which position the required repairs may be made. The water-wheel, being always submerged beneath the surface of the water, is not greatly affected by the rise or fall of the water, and the power

transmitted by low water will be substantially as great as that received from the high water. In these respects my improved current-motor possesses superior advantages over those of ordinary construction, and especially those which are operated in a vertical position.

I claim—

A current-motor, consisting of a fixed shaft, a rotary shaft around it, a sleeve on the lower end of said rotary shaft, a series of frames projecting radially from said sleeve, valves or wings 14 hinged to said frames and having their inner lower corners cut away so that they can be turned to either side of the frames, a diagonal rod 16 in each frame to strengthen the frame and to brace the valve or wing carried thereby, and an outer rim or ring surrounding the frames to assist in holding them in position.

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

PHILIP O. LANCASTER.

Witnesses:

HAROLD A. WELD,

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