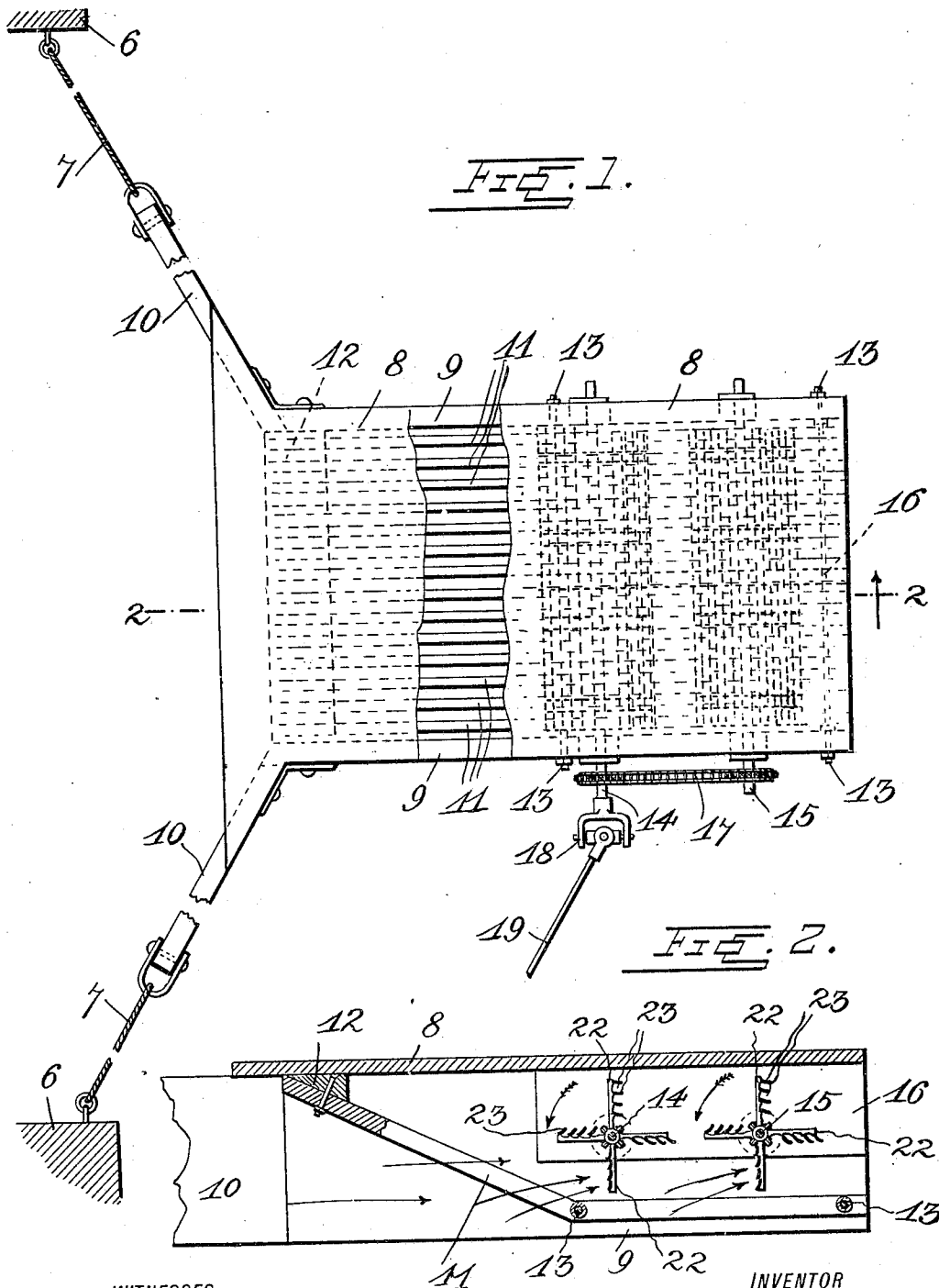


No. 830,917.

PATENTED SEPT. 11, 1906.

F. W. McNEIL.
FLOATING WHEEL DAM.
APPLICATION FILED APR. 27, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

Jos. A. Ryan.
J. Middleton

INVENTOR

Fred W. McNeil

BY *Munn & Co.*

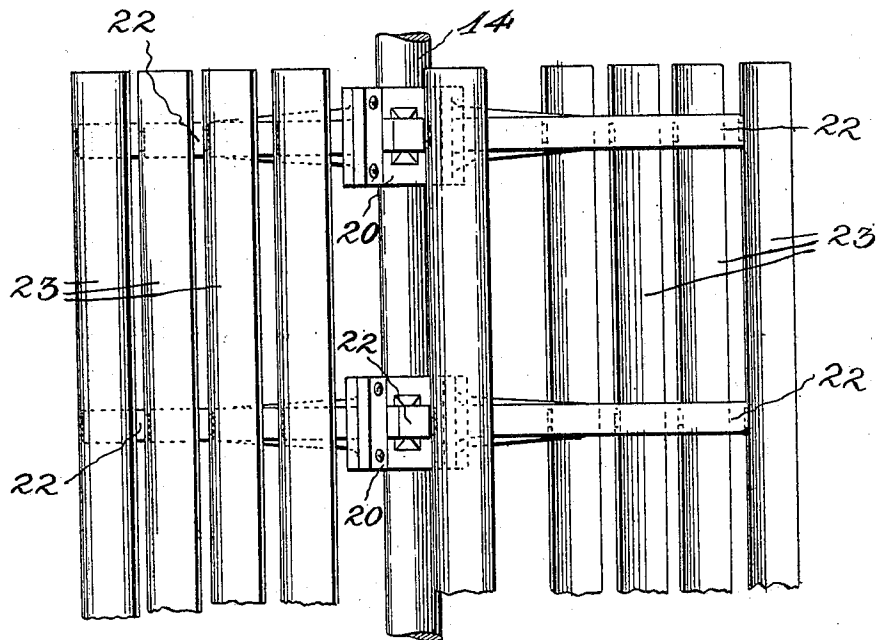
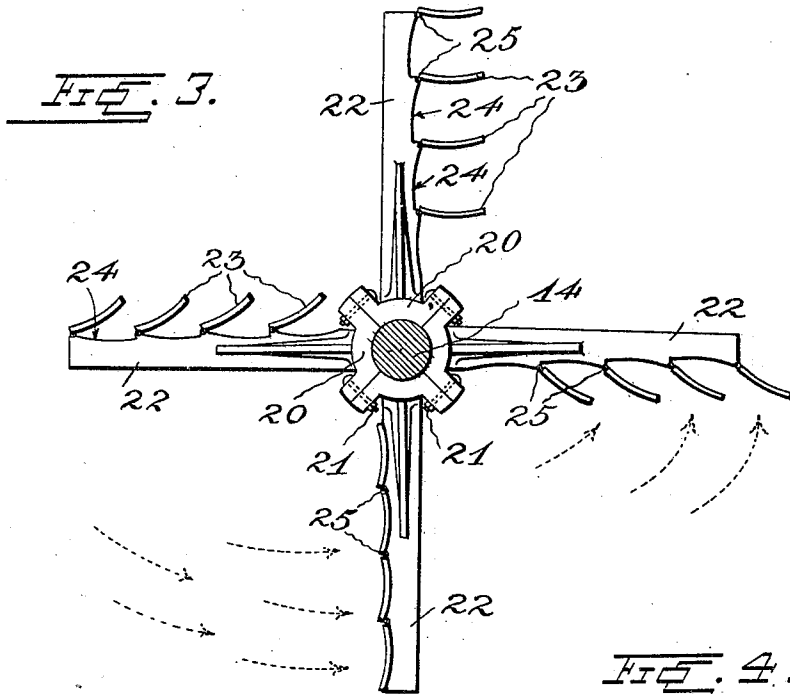
ATTORNEYS

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UNITED STATES PATENT OFFICE.

FRED W. McNEIL, OF ST. LOUIS, MISSOURI.

FLOATING WHEEL-DAM.

No. 830,917.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed April 27, 1905. Serial No. 257,734.

To all whom it may concern:

Be it known that I, FRED W. McNEIL, a citizen of the United States, and a resident of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Floating Wheel-Dams, of which the following is a specification.

This invention is a hydraulic motor of that class employing a water-wheel driven by the current of the stream or waterway in which it is placed.

The object of the invention is to utilize the force of the current to generate power which may be transformed into mechanical or electrical energy capable of transmission to any desired point of application. This object is effected by an improved construction, characterized particularly by the use of one or more pontoons or floats carrying submerged or partially-submerged water-wheels and having wings in advance of the wheels which act to contract the water channel or flow, and thus increase the head or pressure of the water at its point of application to the wheels.

An embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of one of the floats carrying the wheels. Fig. 2 is a vertical section on the line 2 2 of Fig. 1. Fig. 3 is an end view, enlarged, of one of the wheels. Fig. 4 is a plan thereof.

Referring specifically to the drawings, 6 indicates piers to which float carrying the wheel is moored by cables 7. The float comprises a platform 8, mounted upon side sills 9, which are extended at the front end to form wings or dams 10, which converge toward the float. The cables are connected to the front ends of said wings.

The side sills preferably stand edgewise, and the float lies low in the water and so that the wheels carried thereby under the platform are submerged or partially submerged. The waterway is formed between the sills under the platform, and the water flows therethrough, receiving an increased head and amount by reason of the inclination of the wings.

To cast off driftwood and other floating objects and prevent same from becoming entangled in the wheels, a guard is provided, comprising bars 11, which are bolted at their front ends to a cross-timber 12 under the front end of the platform and incline thence downwardly to a horizontal portion located

under the wheels. These bars are spaced a few inches apart and serve to fend off all driftwood and floating objects and to cause same to slide thereunder and away without striking the wheels. These bars are further supported by cross-bars 13, extending between the side sills 9.

The wheel-shafts are indicated at 14 and 15, extending horizontally across the waterway under the platform 8 and between the sills 9 in bearing-boxes in which the shafts are journaled. When the shafts are of considerable length, they are stiffened by support in bearings in a middle brace or sill 16, extending lengthwise under the platform. The shafts are geared together by sprocket-chain 17 and wheels, and the shaft 14 is extended to a universal-joint connection at 18 with a shaft 19, by which the power is communicated to the shore. Each shaft has keyed thereto a sleeve formed of segments 20, bolted together through ears at their ends, as at 21, and each segment has extending radially therefrom an arm 22, to which the blades 23 are hinged. The sleeves and arms are spaced along the shaft, as many being used as needed, and the blades extending lengthwise are hinged to the several arms.

The blades 23 are preferably made of metal and are slightly dished or curved lengthwise, as shown, and on the front edges of the arms stepped seats are formed, as indicated at 24, into which the blades fit when they swing closed. The blades are hinged at one edge to the edges of the seats, as indicated at 25, and are free to swing through substantially a half-circle.

As heretofore stated, the wheels are submerged or partially submerged, and as a wheel revolves its blades open and close by the force of the current. As will be apparent from Fig. 3, the blades as the arms pass the center line swing down closed into the seats in the arms and remain closed during substantially half a revolution, on completing which the water-pressure strikes the back of the blades and they open and swing freely parallel to the current during the remainder of the revolution. They are thus presented crosswise or face to the driving-current and edgewise at all times during the reverse, whereby a least amount of back pressure is caused. Although shown as a horizontal wheel, the construction specified for use as a vertical wheel or as a wind-wheel.

For use in small streams which are not

navigable the apparatus may be moored to the banks and occupy the whole width of the stream. In navigable waters it may conveniently be moored to one bank and to a pier or piles out in the stream and if the stream be of sufficient width a plurality battery of the motors may be moored behind a line of piles. Various other utilizations will readily suggest themselves to those familiar with the art.

It will be understood that in this class of devices it is important for the water to circulate not only horizontally in contact with the water-wheel, but also that any upward currents or motion of the water should operate upon the wheel in order to secure the greatest power from a given current, and therefore it is important, as shown, to arrange an open bottom in the float and to so construct said bottom as to prevent the passage of drift of any kind to the wheel. Furthermore, the inclination of the front fenders downwardly is such as to direct the drift beneath the float in an easy manner and so as to avoid any injury to the float in the lifting thereof as the drift passes beneath the float, so that the wheels within the float and above the front inclined and lower horizontal fenders will be at all times in position to be operated upon by the water as it flows through the float.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus of the class described, the

combination with a floating platform having side sills thereunder, and cross-bars connecting the sills, of a plurality of shafts journaled in the sills, water-wheels secured to the shafts, sprockets on the ends of the shafts, a sprocket-chain connecting the sprockets, guard-bars beneath the wheels and secured to the front end of the platform and to the cross-bars, said water-wheels being between the guard-bars and the platform and diverging wings at the corners of the front end of the platform.

2. In an apparatus substantially as described, the combination of a float having a closed top, and flaring wings at the front end, and being provided beneath its closed top with front fender-bars spaced apart and inclining downwardly from their front ends toward their rear ends, and the bottom fender-bars spaced apart and extending from the lower rear ends of the inclined fender-bars rearwardly toward the rear end of the float, and a wheel or wheels located within the float and between the fender-bars thereof and the closed top and adapted to be operated upon by the horizontal currents passing through the inclined fender-bars as well as by any upward currents passing upwardly through the bottom fender-bars arranged below the wheel or wheels, all as and for the purposes set forth.

FRED W. McNEIL.

Witnesses:

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FRANKLIN S. TAYLOR.