(No Model.)

C. C. HOGUE.

WATER WHEEL.

No. 432,875. Patented July 22, 1890.

Fig. 1.

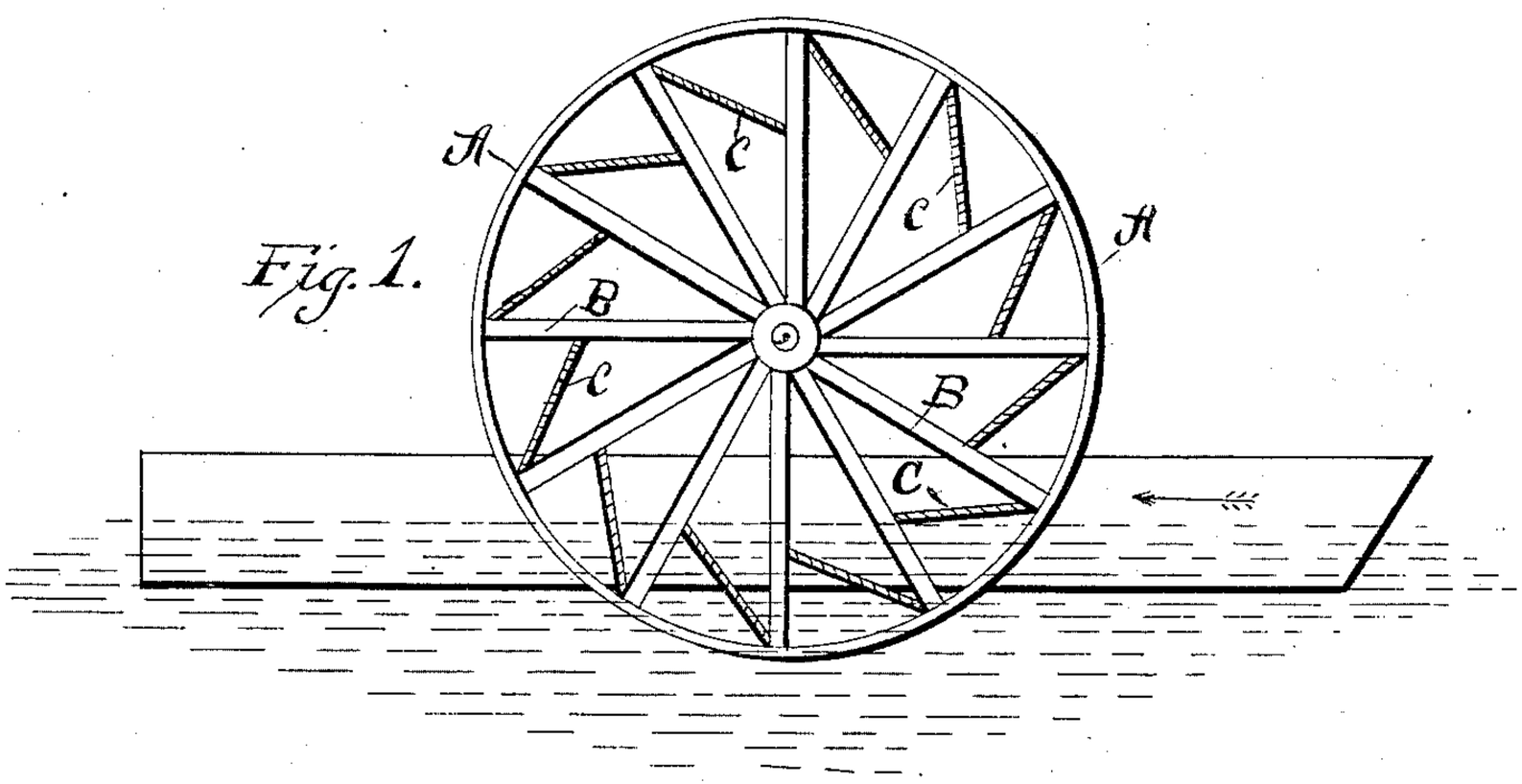

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES C. HOGUE, OF CORVALLIS, OREGON.

WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 432,875, dated July 22, 1890.

Application filed October 24, 1889. Serial No. 328,014. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. HOGUE, a citizen of the United States, residing at Corvallis, in the county of Benton and State of Oregon, have invented certain new and useful Improvements in Water-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in undershot water-motors; and it has for its objects to provide for the submersion of the wheel thereof to a greater depth below the surface of the water than heretofore, and thus secure a more extended working-surface upon the paddles for the water; to more effectually utilize the force of the running water by which the wheel is driven and obtain greater power thereby by causing an upward flow or impulse of the water from the side at which it approaches or enters the wheel toward the side at which it leaves it, so that the paddles at the entering side will not be materially retarded, as in the ordinary water-wheels, while the main force of the water will be exerted upon the paddles at the opposite side of the wheel; and, finally, to prevent the washing out of the bed of the stream by thus causing an upward movement or impulse of the water, as more fully hereinafter explained.

The above-mentioned objects are attained by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a transverse vertical sectional view of a wheel constructed according to my invention and suitably mounted, and Fig. 2 represents a similar view showing another form or modification of the wheel.

The letter A indicates a water-wheel constructed according to my invention, and B the radial arms or spokes thereof, which carry the paddles C. These are arranged between the radial spokes, and are set so as to incline upwardly and away from the direction of the current, as indicated in Fig. 1 of the drawings, the inner upper faces of the paddles being toward the force of the current. The paddles may be arranged at a greater or less angle to suit the velocity of the current without departing from the spirit of my invention.

In the modification shown in Fig. 2 of the drawings the blades are hinged or pivoted in any suitable manner at the periphery of the wheel-frame, which is provided at suitable points with abutments, against which the free ends of the blades, when in working position, bear, and by which they are held at the proper angle to the direction of the current. In the present instance each arm or spoke of the wheel forms the abutment of the blade in front of it, the side at which the water escapes being taken as the rear of the wheel.

The operation of my invention will be clearly understood in connection with Fig. 2 of the drawings, in which the course of the water through the wheel is indicated, the rise or upward impulse of the water against the working-blade as it rises to the surface of the water being plainly shown. The water, it will be perceived, enters the wheel freely at the front side, the blades being in position to offer but little obstruction, while at the opposite side they are presented broadly to the current, and at intermediate points at greater or less angles, thus effectively utilizing the force of the running water.

In the modification shown in Fig. 2 the paddles hang loosely or float on the surface of the water, except when in a working position, thus allowing the water a free passage to the working-paddles.

The wheel, it is evident, can be operated on a float, or in an open flume, or at a dam or weir.

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

1. In an undershot water-wheel, the combination, with an open wheel provided with radial spokes, of the blades or paddles located between the said spokes and set at such an angle to the same that the front blades enter the water in an approximately horizontal position and the immersed or working blades present their upper rearwardly-inclined faces to the force of the current, whereby the water is permitted to pass between the front or entering paddles without appreciable obstruction and caused to strike with full force upon the rearwardly-inclined upper faces of the

immersed paddles, thereby imparting to the current an upward impulse as it leaves the wheel, substantially as described.

2. The combination of the water-wheel, the paddles thereof located between the spokes of the wheel and pivoted at or near its periphery, and abutments so arranged that the paddles when in working position will incline upwardly and away from the direction of the current, as and for the purposes herein set forth.

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

CHARLES C. HOGUE.

Witnesses:
C. T. WARDLAW,
H. J. KORTHANER,