(No Model.) 2 Sheets—Sheet 1.

J. N. WEEKS.

WATER WHEEL.

No. 376,357. Patented Jan. 10, 1888.

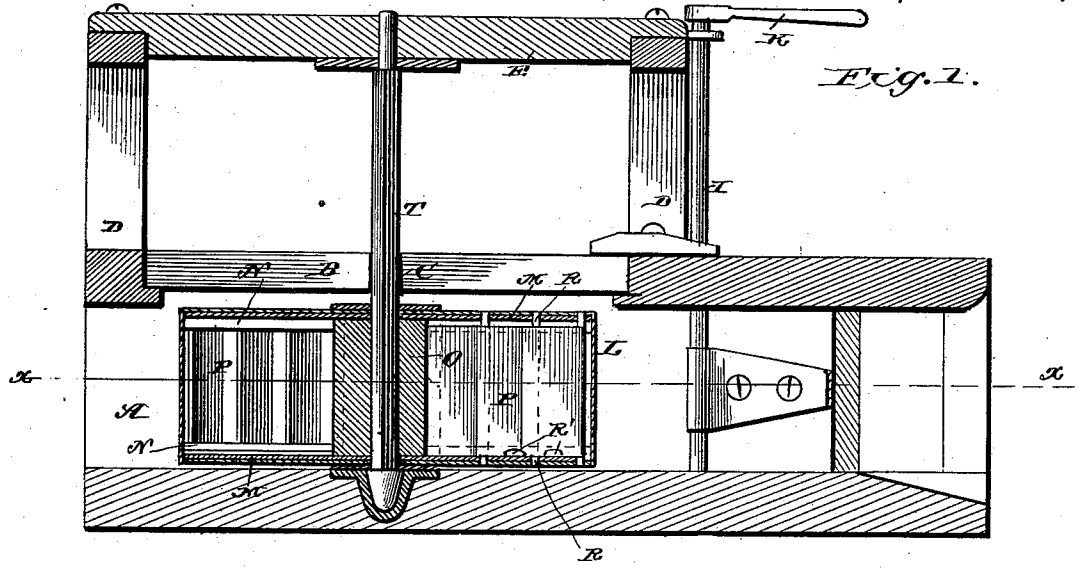


Fig. 1.

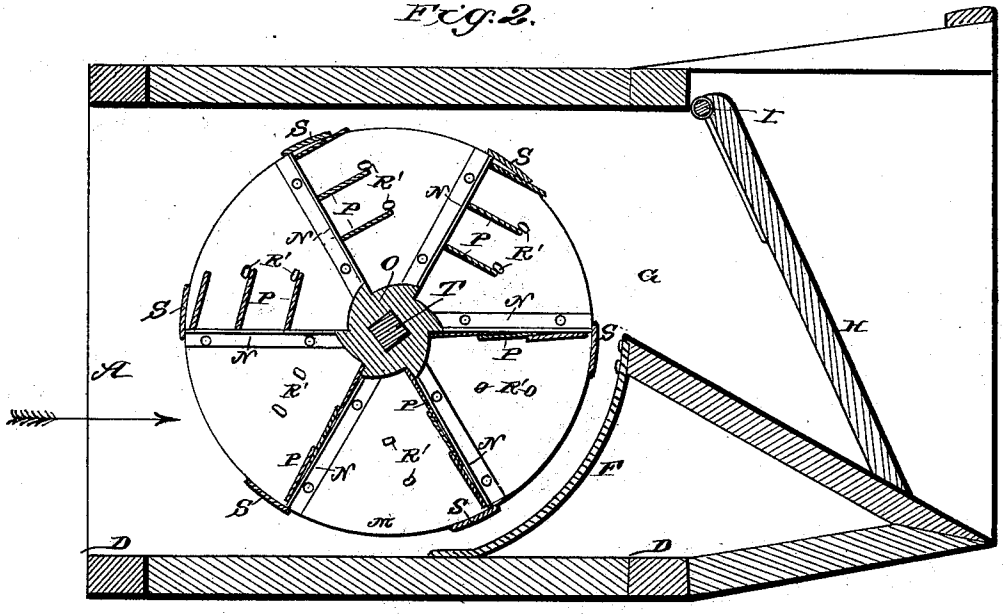


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

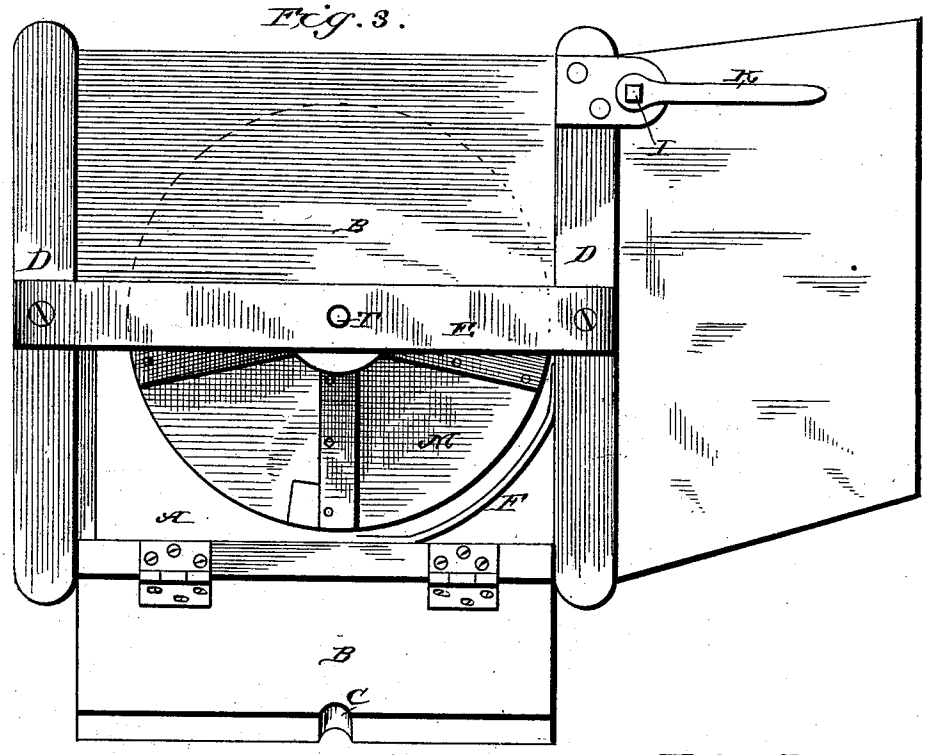


Fig. 4.

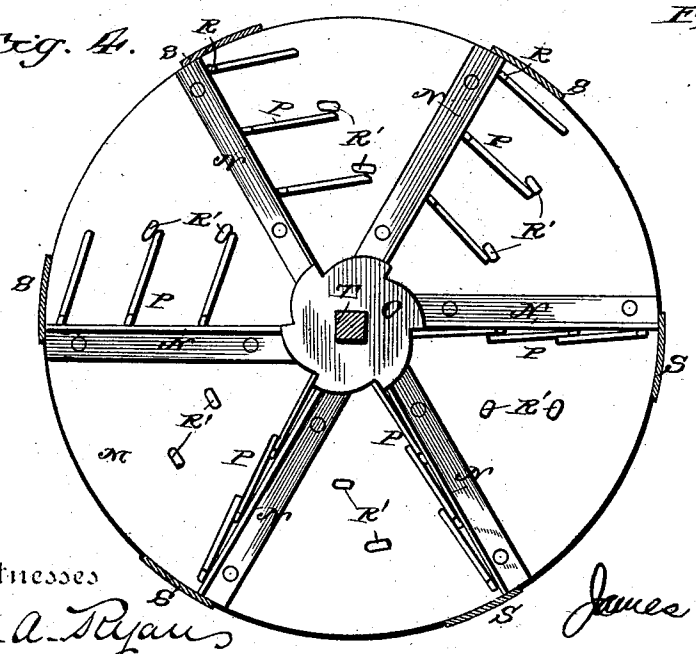
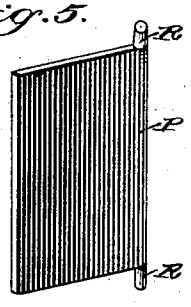


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES N. WEEKS, OF WARREN, NEW YORK.

WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 376,357, dated January 10, 1888.

Application filed April 19, 1887. Serial No. 235,401. (No model.)

To all whom it may concern:

Be it known that I, JAMES N. WEEKS, a citizen of the United States, residing at Warren, in the county of Herkimer and State of New York, have invented a new and useful Improvement in Water-Wheels, of which the following is a specification.

My invention relates to an improvement in water-wheels; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a water-wheel embodying my improvements. Fig. 2 is a horizontal longitudinal sectional view of the same, taken on the line *x x* of Fig. 1. Fig. 3 is a top plan view of my improved water-wheel. Fig. 4 is a horizontal sectional view of the wheel only, enlarged. Fig. 5 is a detail view of one of the paddles.

A represents an inclosing case or trough, which is adapted to be submerged longitudinally in a running stream, and is open at its front and rear ends. The upper side of the case is provided with a pair of hinged doors, B, which are adapted to fold together and to meet at the center of the case. Between the opposing meeting edges of these doors is formed a vertical central opening, C. Vertical frames D project from the upper side of the case, near the front and rear ends thereof, and the said vertical frames are connected by a longitudinal beam, E.

F represents a curved offset, arranged in one side of the case at a suitable distance from the rear edge thereof, the function of the said offset being to narrow the discharge-channel G of the case. A gate, H, is hinged in one side of the case, and is adapted to close the discharge end thereof. The said gate is provided with a vertically-projecting pivotal bar, I, having a lever, K, at its upper end, by means of which the gate may be opened or closed.

L represents the water-wheel proper, the construction of which is as follows:

M represents a pair of circular top and bottom plates, which are provided on their opposing sides with radial tongues or flanges N. The central portions of the circular plates are connected together by a hub or sleeve, O.

P represents a series of blades or paddles, which are arranged in radial series between the upper and lower plates, and have their outer edges provided at their upper and lower sides with projecting studs R, that are journaled in vertical openings made in the circular plates. These radial series of blades or paddles are adapted to close against each other and against the radial tongues or flanges N. The free edges of the said blades or paddles are adapted to swing outward against the vertical stops or studs R', with which the bottom plate is provided. The radial series of blades or paddles are arranged on the same sides of all of the radial tongues or flanges, and thereby the said paddles are free to swing in the same direction away from the radial tongues or flanges, and are adapted to close against the same. The outer edges of the circular plates are connected together by means of vertical plates S.

T represents a vertical shaft, which has its lower end stepped in a socket in the bottom of the inclosing-case at the center thereof. This shaft extends through and is keyed to the central hub of the water-wheel, and the upper end of the said shaft is journaled in a vertical central opening in the beam E.

The operation of my invention is as follows: The water, running in the direction indicated by the arrow in Fig. 2, causes the radial series of paddles or blades of one side of the water-wheel to close against the tongues or flanges N, and causes the blades or paddles on the opposite side of the water-wheel to swing open. By this means the water is permitted to flow freely through one side of the water-wheel; but its passage is obstructed by the radial paddles on the opposite side of the wheel, and thereby the latter is rotated by the force of the water, as will be readily seen. The curved offset in the inclosing-case of the water-wheel, by reducing the size of the escape-channel of the water-casing, causes the water to flow more swiftly through the same and to operate upon the wheel with increased force. By closing the gate the wheel is caused to stop. The hinged doors B on the upper side of the case enable the wheel to be removed therefrom when necessary to effect repairs.

A water-wheel thus constructed is cheap and simple, and is adapted to be operated by

running streams, thus obviating the necessity of building dams, and thereby effecting a great economy of time, labor, and money.

It will be obvious that by arranging the wheel horizontal the blades will be free to act laterally on their pivots, and upon clearing the discharge-outlet will lie parallel with the opposing portion of the stream, so as to exert the least possible resistance.

Having thus described my invention, I claim—

The improved water-wheel herein described, comprising the case having inlet and outlet openings, the frames D, mounted on the case, the beam E, secured upon said frames, the wheel arranged in the case and having its shaft extended up to and journaled in the beam E, the doors B C, hinged to the case below the said beam, the pivot-rod I, mounted on the side of one of the frames D and extending into the case, a lever, K, on the upper end of said rod, and the gate H, mounted on the lower portion thereof and operating in the outlet-opening of the case, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JAMES N. WEEKS.

Witnesses:
WALTER A. ACKERMAN,
ALLEN W. SOMERS.