D. L. CROSS.
Water-Wheel.

No. 199,035. Patented Jan. 8, 1878.

Fig. 1.

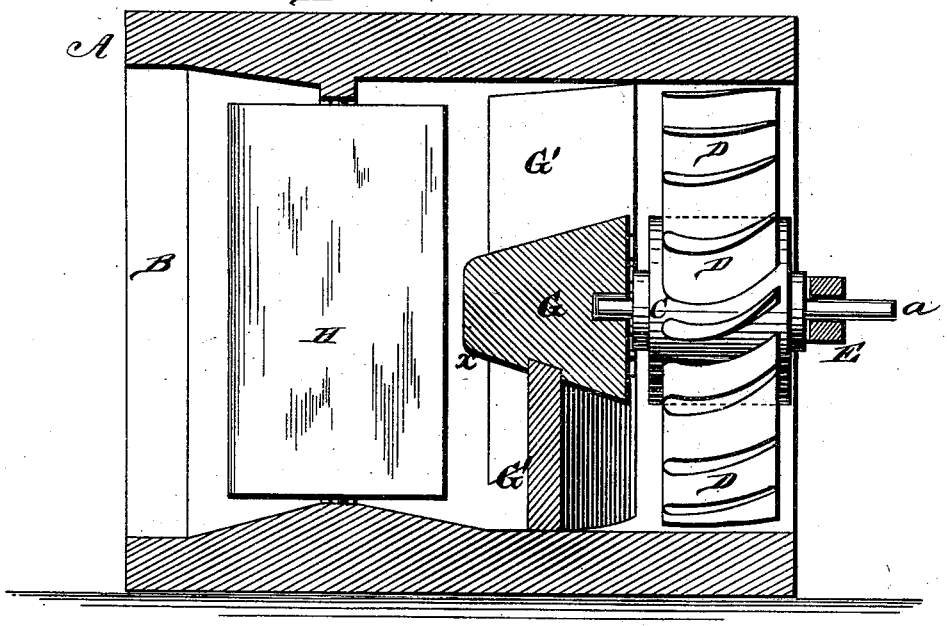
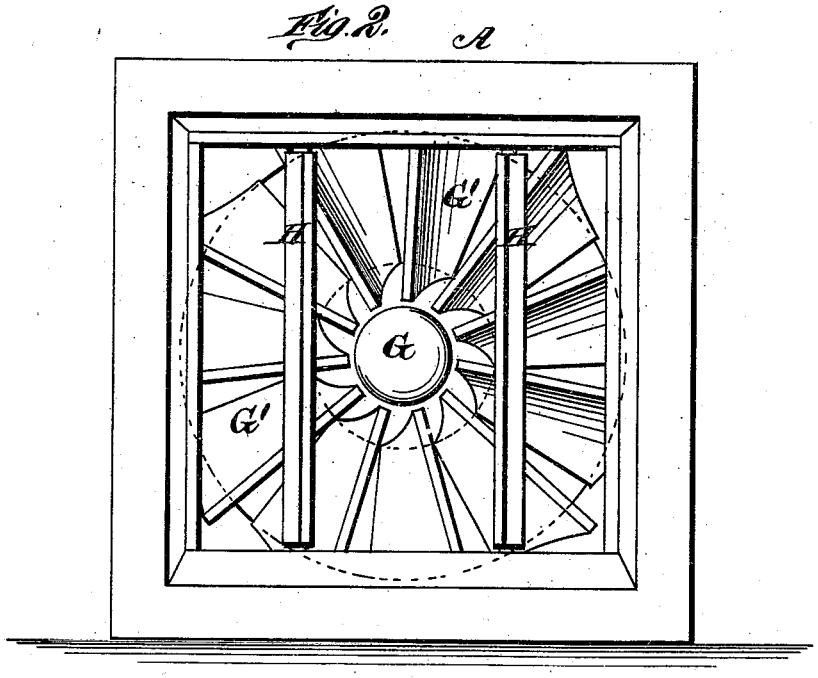


Fig. 2.



WITNESSES

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DAVID L. CROSS, OF AUSTIN, TEXAS.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **199,035**, dated January 8, 1878; application filed November 17, 1877.

To all whom it may concern:

Be it known that I, DAVID L. CROSS, of Austin, in the county of Travis and State of Texas, have invented a new and valuable Improvement in Water-Wheels; and do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a vertical section of my water-wheel, and Fig. 2 is a front view thereof.

The nature of my invention consists in the construction and arrangement of a current water-wheel, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate my invention.

A represents the box or casing, formed with a flaring mouth or entrance, B. This mouth or entrance is made square, as is also the outside of the entire back; but the interior of the box, back of the mouth or entrance, has its corners filled up, so that its rear end will be perfectly round where the wheel is located.

The wheel is composed of a central hub, C, with a series of radial blades, D, projecting therefrom. These blades are made concave, and set in an inclined position, their front edges being rounded and thicker, and the blades decreasing in thickness to the rear edge, as shown in Fig. 1.

The wheel C D is secured upon or formed with a central shaft, *a*, which has its rear bearing in a cross-bar, E, secured to the rear end of the box. The front bearing of the shaft *a* is in a recess made for that purpose in the larger rear end of a conical hub, G. From this hub radiate a series of blades, G′, which are rigidly fastened to the inside of the box A.

The center piece or hub G is in the form of a truncated cone, the edges at the smaller front end being made rounded, as shown at *f*, so that the water can easily pass by the same without being retarded in its movement. The conical shape of the hub G also guides the water outward toward and against the blades G′, which act as chutes to conduct the water to the wheel behind.

These blades G′ are made concave and set inclined in the opposite direction from the inclination of the blades D of the wheel, whereby the water obtains more force as it strikes and acts against the wheel-blades.

In the mouth or entrance B are pivoted two gates, H H, which are intended to be provided with shafts running up above the surface of the water, so that they can be closed or opened, as required.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a current water-wheel, the combination of the stationary truncated conical hub G, with concave radial blades G′ set inclined, and the rotating wheel, composed of the hub C, with the radial, concave, and tapering blades D, set inclined in the opposite direction to the blades G′, substantially as herein set forth.

2. The combination of the box A, pivoted gates H, stationary hub G, with blades G′, and the wheel C D, all constructed substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DAVID L. CROSS.

Witnesses:
J. A. WILLIAMSON,
D. E. THOMAS.