

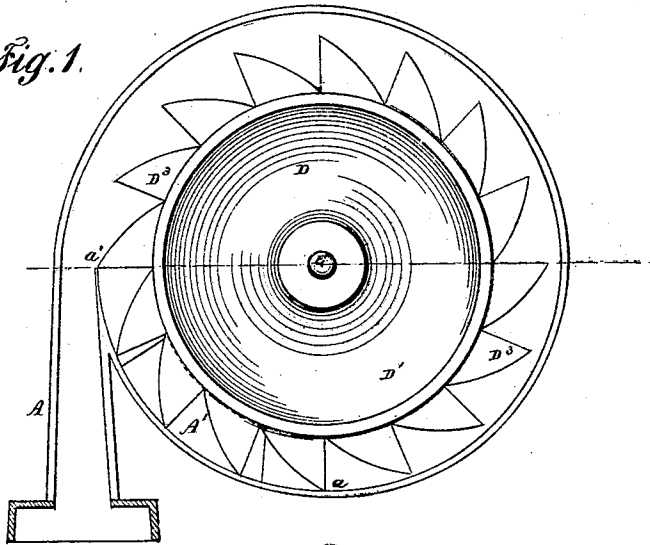
*J. B. Park,*

*Water Wheel.*

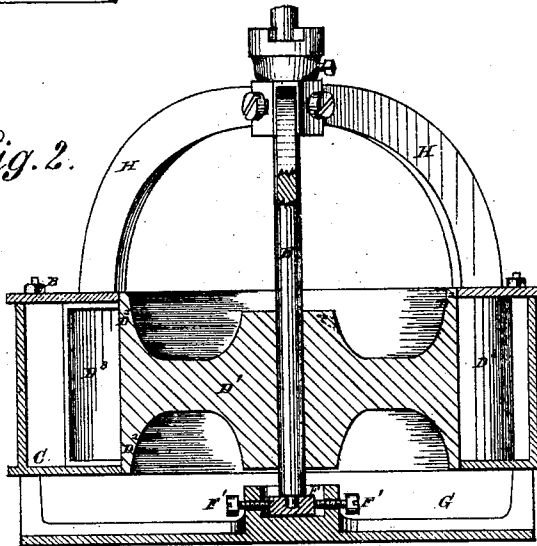
*No. 101378.*

*Patented Mar. 29. 1870.*

*Fig. 1.*



*Fig. 2.*



*Witnesses:*

*And. Artois  
P. Edw. J. Bils*

*Inventor:*

*J. B. Park  
per Robert B. Biss  
his Atty.*

# United States Patent Office.

JOSIAH B. PARK, OF NORTH PLATTE, NEBRASKA.

Letters Patent No. 101,378, dated March 29, 1870.

## IMPROVEMENT IN TURBINE WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSIAH B. PARK, of North Platte, in the county of Lincoln and State of Nebraska, have invented a new and valuable Improvement in Water-Wheels; and I 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 is a top view of the wheel, the cover of the case being removed.

Figure 2 is a vertical section on the line  $x x$  of fig. 1.

The same letters are used in all the figures to designate identical parts.

My improvements relate to that class of water-wheels in which the water is admitted to the wheel by a spirally-formed scroll, and, after acting upon the floats of the buckets, is discharged through an aperture in the case; and

My invention consists in peculiarities of construction and arrangement of the wheel and scroll, to be hereinafter specifically defined.

In the annexed drawing—

A represents the scroll, which is constructed upon a regular spiral, so that the water flowing through the gates shall first impinge at right angles against the floats of the wheel, and then, flowing around with the wheel, be discharged at an aperture at  $a'$ , in the bottom of the case.

The spiral scroll constantly approaches the points of the floats until at a distance equal to about three-fourths of the circumference of the wheel from the point at which the water enters, the convergence shall bring the scroll into such near relation to the points of the float that the wheel alone would shut off the water if it was stationary, and prevent its escape through the orifice of discharge. This point of nearest impingement I have indicated at  $a$  in fig. 1, and from that point to the point of the scroll, at  $a'$ , it is continued on a curve concentric with the wheel.

B is the cover, which, resting on the scroll, covers the wheel extending to the shaft, is preferably made of annular form, fitting neatly to a flange on the hub of the wheel, as shown at  $D^2$  in fig. 2.

The bottom plate C is similar to the top plate in form. The plates A, B, and C form a complete casing for the wheel.

D is the wheel. It is formed of a central hub,  $D'$ ,

through which passes the driving-shaft E, and which should be cut away, as represented in fig. 2, to save metal in casting it.

Attached to or cast on the periphery of the hub, are the floats  $D^3$ , the face exposed to the water being formed on a plane radial to the wheel, and the back extending on a curve from the point of the float to the base of the next float in the series.

These buckets or floats may be solid, or cast hollow, or made of plates attached to the hub. The radial faces of the buckets should be longer than the transverse diameter of the orifice of induction, so that the pressure of the column of water shall be made to take effect upon the maximum of surface.

The shaft E rests upon a bearing, F, adjusted by set-screws F' in a well-known manner, the whole being supported upon the bridge G bolted to the bottom of the case, while another bridge, H, forms an upper bearing for the shaft, as is common in other wheels.

I do not claim the wheel independently of its combination with the peculiar scroll hereinbefore described, for I am aware that wheels having floats of analogous form have been heretofore known in connection with scrolls of a uniform and continuous spiral curve.

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

1. In combination with a wheel, the floats of which are shaped substantially as described, a scroll-chute, the induction orifice of which has a transverse diameter less than the length of the radial face of floats, substantially as and for the purpose set forth.

2. In combination with a wheel, the floats of which are formed substantially as set forth, a scroll casing formed on a spiral curve from the mouth of the chute to a point,  $a$ , where it comes in close proximity to the points of the floats, and thence to the point at  $a'$ , formed on arc concentric with the wheel, substantially as set forth.

3. In combination with a wheel and scroll substantially such as described, upper and lower plates B and C, and an aperture of discharge,  $a'$ , arranged substantially as set forth.

In testimony whereof I have signed my name to this specification this 3d day of March, 1870, in the presence of two subscribing witnesses.

J. B. PARK.

Witnesses:

JOSEPH R. EDSON,  
C. T. CLAUSEN.