# J. H. Wooster,

## Water Wheel,

No. 46,429. Patented Feb. 14, 1865.

Fig. 1.

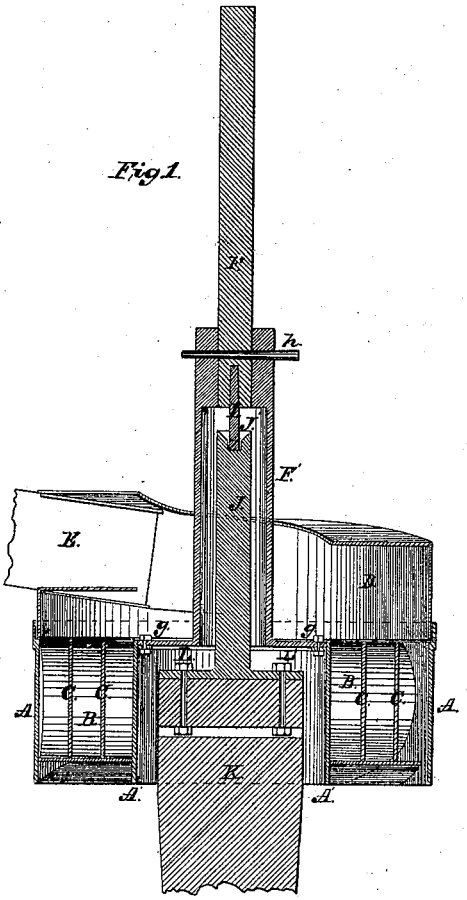



Fig. 5.

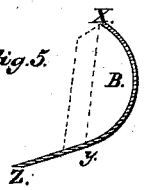



Fig. 4.

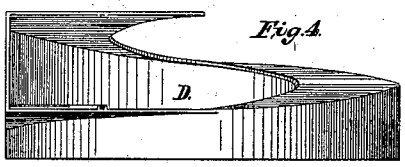



Fig. 2.

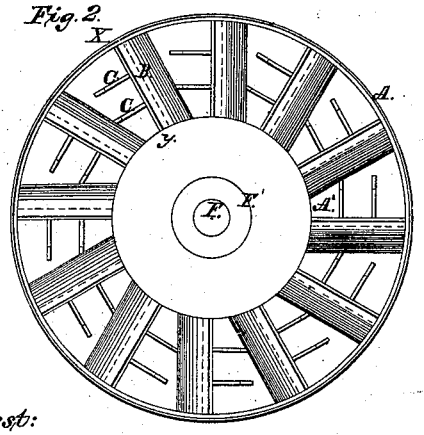
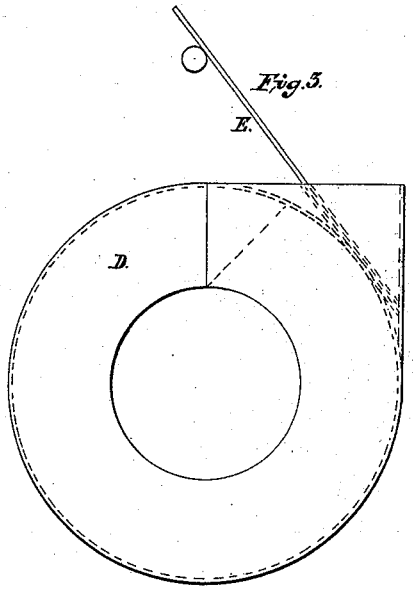



Fig. 3.

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# UNITED STATES PATENT OFFICE.

JOAB H. WOOSTER, OF STRYKERSVILLE, ASSIGNOR TO HIMSELF AND ROBERT DUNBAR, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **46,429**, dated February 14, 1865.

*To all whom it may concern:*

Be it known that I, JOAB H. WOOSTER, of Strykersville, in the county of Wyoming and State of New York, (assignor to myself and ROBERT DUNBAR,) have invented a new and Improved Spiral-Vent Water-Wheel; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is a vertical section of my improved water-wheel in its combination and arrangement with a spiral chute, improved wheel-shaft, and post, upon which it is supported. Fig. II is a plan of the wheel. Fig. III is a plan of the spiral chute or water-guide. Fig. IV is a front elevation of the spiral water-guide. Fig. V is a section of my improved bucket.

The nature of this invention relates—

First. The bucket is divided into two, three, or more compartments by means of vertical partitions rising from the face thereof, thereby adapting the wheel to be acted upon and propelled with equal proportional advantage, whether there be a large or small quantity of water applied to the wheel.

Second. In locating and supporting the step of the wheel-shaft above the water, so that it may be run in oil.

Letters of like name and kind refer to like parts in each of the figures.

A represents the outside rim of the wheel, and A′ the inside rim or core, which together constitute the shell of the wheel, and is of ordinary construction.

B represents my improved bucket. This is of peculiar construction. The upper part of it, extending from the point or line *x* to the point or line *y*, is in the form of a segment of a circle, and the lower part, extending from the point or line *y* to the point or line *z*, is a flat or plane surface. The lines *x* and *y*, which lie wholly on the face of the bucket, when extended will strike the center line of the wheel-shaft at right angles. No other line or lines drawn on the face of the curved part of the bucket, and which lie wholly on the face of the bucket, when extended, will strike the center line of the wheel-shaft at all. Any line drawn on the face of the flat part of the bucket will intersect the center line of the wheel-shaft at an acute angle. This constitutes a distinguishing feature in the form and construction of my bucket, and insures the most advantageous application and use of the water, without reference to the partitions. This bucket is connected to the outer and inner rims of the wheel in a common manner.

C represents partitions which rise vertically from the face of the bucket and divide the bucket into separate compartments. These are for the purpose of further economizing the use of water, and for directing the water, and for holding it upon the bucket in an unbroken volume and in such manner that it will exert its greatest possible propelling power upon the wheel. In low water, or when it is an object to economize the use of water and apply it upon the wheel in such manner that it will exert its greatest possible propelling force, and thereby save water for other purposes, it is thrown upon the wheel (by means of the gate) so that it will be held in a volume in the outer compartments. Here it will have its greatest leverage upon the wheel and exert its greatest power, and it will be held in a compact body, and the water is thereby prevented from spreading over the entire surface of the bucket in a thin sheet, which, if allowed, would dissipate its force. Hence a comparatively small quantity of water will be sufficient to propel the wheel with sufficient force for practical purposes, and a surplus of water is obtained for other uses. When there is a large supply of water, the gate may be hoisted sufficiently to allow the water to strike into the second inner compartment, whereby an additional propelling power is imparted to the wheel without a waste or scattering of the water. When there is a full supply of water, then the gate may be raised sufficient to allow the water to fill each inner compartment, and thus the full power of the wheel will be obtained.

D represents a spiral chute or guide, which is placed over the wheel for guiding or directing the water upon the wheel. This is of ordinary construction.

E represents a gate, which is connected and combined therewith, (and the improvement therein will be made the subject of a separate application for a patent.)

F represents the solid part of the wheel-

shaft, and F′ the hollow part thereof. The hollow part is bolted to the wheel, as shown at *g*. The solid and hollow parts of the shaft are keyed together, as shown at *h*.

I is a steel bearing inserted into the lower end of the solid part of the shaft, which runs in a step in the supporting shaft or standard.

J is a supporting shaft or standard, in the upper end of which is a step, J′, in which the steel point of the shaft runs in oil. This shaft is so much elevated as to carry it above the water, so as to keep the step out of and above the water, and allow it to run in oil. A hole is made through the hollow part of the shaft for the purpose of oiling. The shaft J is supported on the post K. This post K is inserted into the ground and stands firmly. The shaft J is firmly bolted to the top thereof, as shown at L, and stands firmly thereon.

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

1. A water-wheel bucket having partitions C, for the purposes and substantially as described.

2. The combination and arrangement of the shaft J, including the step J′, with the solid shaft F and hollow shaft F′, for the purpose of locating and supporting the step J′ above the water, substantially as herein described.

JOAB H. WOOSTER.

Witnesses:
GEO. W. WALLACE,
E. B. FORBUSH.