J. Tyler,

Water Wheel,

No. 15,309. Patented July 8, 1856.

Fig. 1.

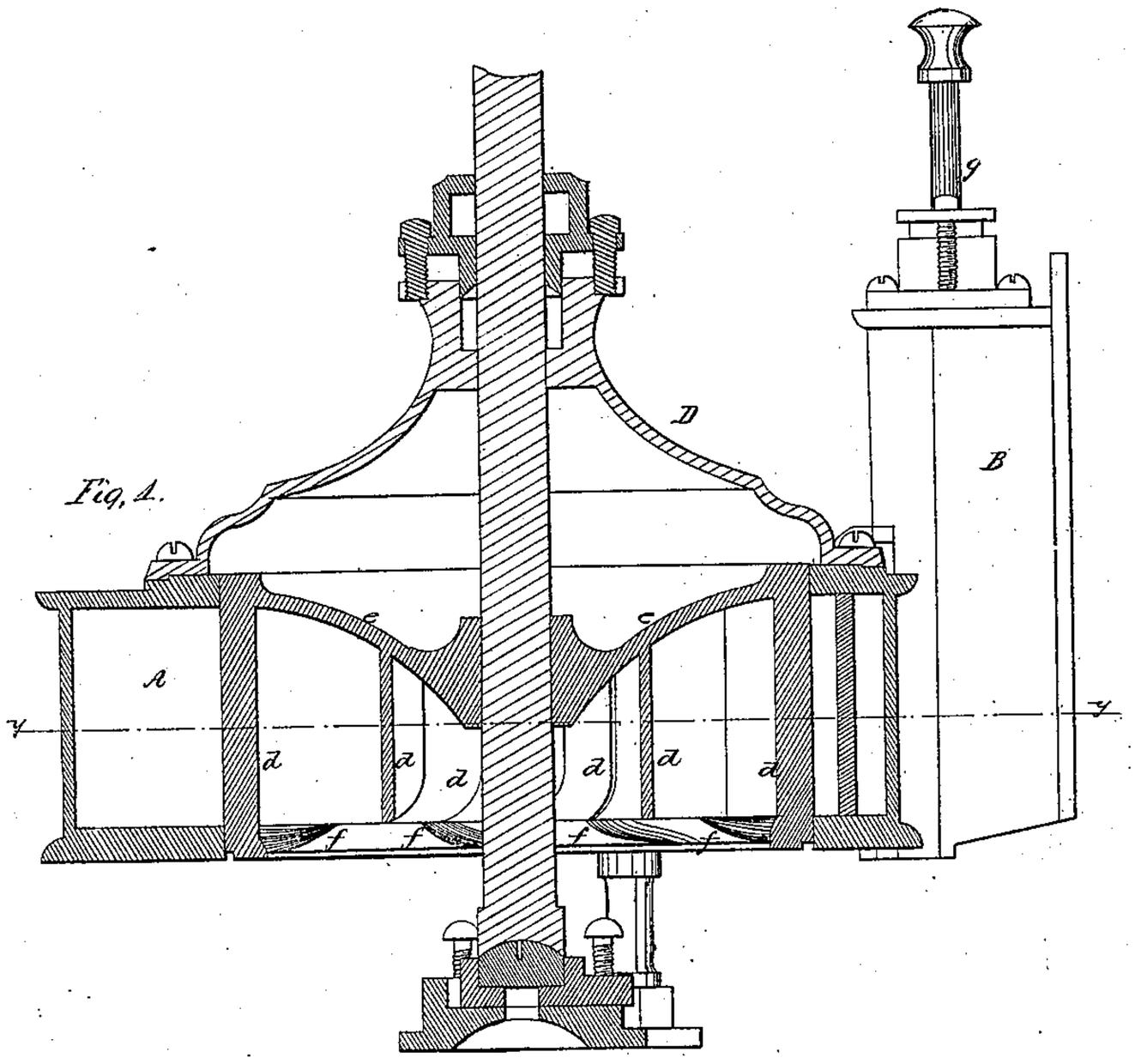
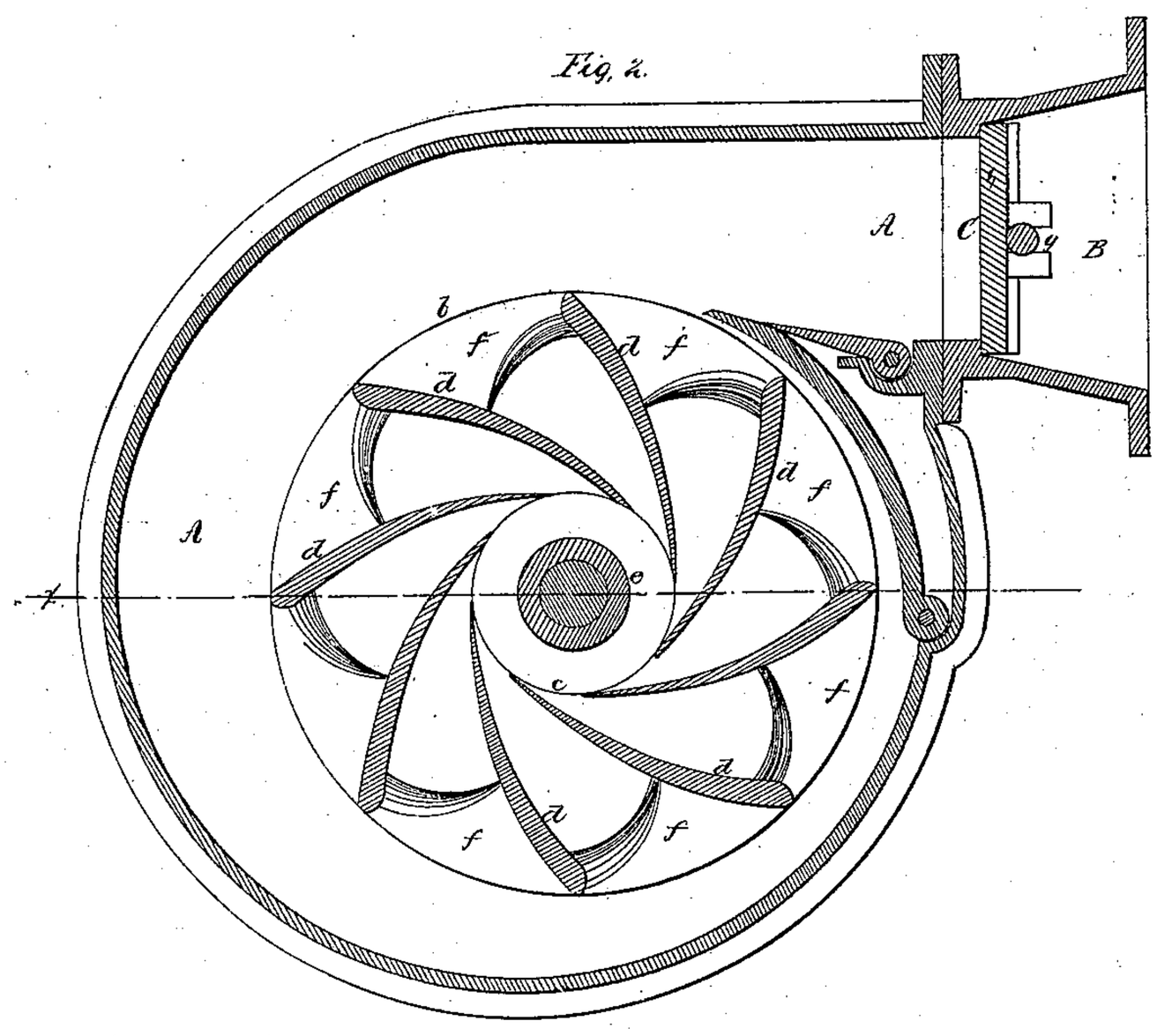


Fig. 2.



UNITED STATES PATENT OFFICE.

JOHN TYLER, OF WEST LEBANON, NEW HAMPSHIRE.

IMPROVED WATER-WHEEL.

Specification forming part of Letters Patent No. **15,309**, dated July 8, 1856.

To all whom it may concern:

Be it known that I, JOHN TYLER, of West Lebanon, in the county of Grafton and State of New Hampshire, have invented sundry new and useful Improvements in Water-Wheels; 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.

Figure 1 is a vertical section of my improved water-wheel in the line *x x* of Fig. 2, and Fig. 2 is a horizontal section in the line *y y* of Fig. 1.

Similar letters indicate like parts in both figures.

My improved water-wheel is inclosed by a scroll-shaped water-way A, and is constructed in the following manner—to wit, draw a circle *b* corresponding with the periphery of the wheel to be constructed. Then from the same center draw an inner circle *c* of only one-third the diameter of the said outer circle. Then place the stationary leg of the compasses upon said outer circle and so adjust the marking-leg of the instrument that its point will form a tangential curve to the inner circle *c*, which curve, when extended to the outer circle *b*, will give the required shape of the convex surface of each of the buckets *d* and the relative position that each bucket should hold to the periphery and center of the wheel. The upper edges of the buckets *d d* are cast in one piece with the head *e*, whose under surface curves upward and outward from the aperture in its center to its periphery in lines whose radius corresponds with that of the periphery of said head. The lower edges of the series of buckets *d d* are connected to each other by means of a rim *f*, whose inner edge is of the scallop shape represented in the accompanying drawings. The said rim *f* extends inward in contact with the convex surface of each bucket a distance equal to about three-sevenths of the length of said surface, and from that point curves outward and downward to a narrow connection between said rim and the outer extremity of the concave surface of the next bucket in succession. The object of giving the aforesaid shape to the rim *f* is to conduct the water in a solid body from the water-way A against the central portion of the convex surface of each bucket, and then, as soon as it has performed its propelling function, allowing it freely to fall out of the wheel and not react upon the concave surfaces of the buckets. The object of giving the aforesaid curving or dish shape to the head of the wheel is to enable the water as it enters the wheel to exert an upwardly-lifting action upon it, also to cause the water to be kept in a compact mass and to pass so rapidly and so cleanly through the wheel that there can be no loss from the reaction of sluggish water between the buckets. The lifting action of the water as it enters the wheel will cause it to run more lightly and consequently with a much less amount of friction.

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

1. Giving the head *e* of my improved water-wheel an upward curvature from center to circumference, for the purposes substantially as herein set forth.

2. The peculiar shape and position of the series of buckets within the wheel—viz, the convex surface of each bucket having the shape of the segment of a circle whose radius is one-third longer than the radius of the wheel, while the said buckets are so arranged that the convex surface of each bucket is tangential to an imaginary circle whose center is the center of the wheel and whose radius is one-third the length of the radius of the wheel, substantially as herein set forth.

3. Connecting the lower edges of the buckets to each other by means of a scallop-edged rim *f* of such a shape that the water will be conducted from the scroll-shaped water-way directly against the central portion of the convex surfaces of each bucket and then pass freely downward between the buckets, substantially as herein set forth.

The above specification of my improvements in water-wheels signed and witnessed this 20th day of May, A. D. 1856.

JOHN TYLER.

Witnesses:

DANIEL HINKLY,

DANIEL RICHARDSON.