J. F. Letellier,

Water Wheel.

No. 46,367. Patented Feb. 14, 1865.

Fig. 1.

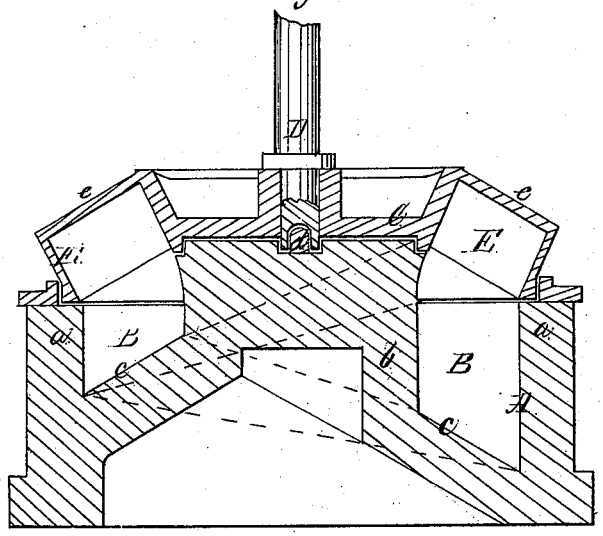
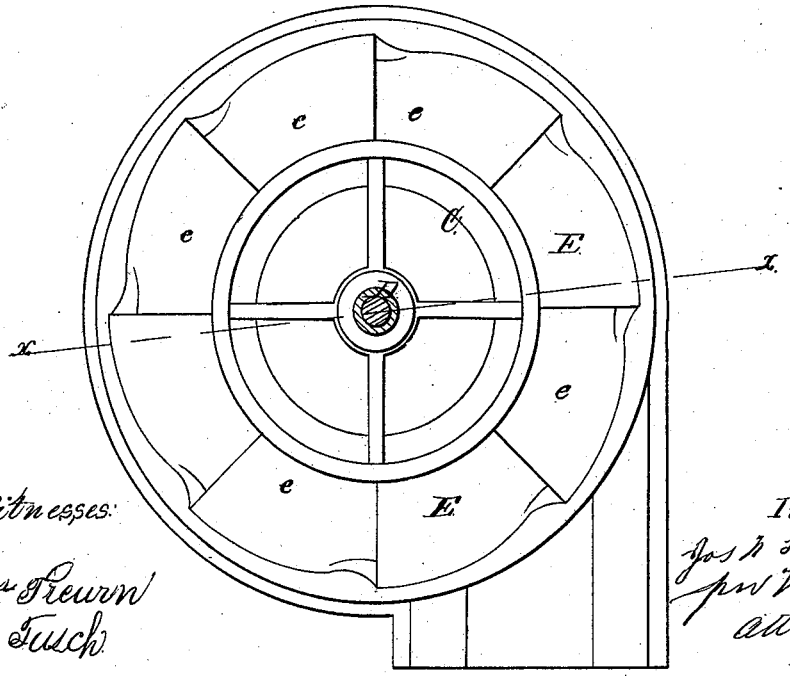


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH F. LETELLIER, OF GRAND RAPIDS, MICHIGAN.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **46,367**, dated February 14, 1865.

To all whom it may concern:

Be it known that I, JOSEPH F. LETELLIER, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and Improved Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to a new and improved water wheel of that class which are placed on vertical shafts and have the water admitted to them through a scroll, the water acting upon or against the buckets of the wheel upward from the scroll, the wheel working upon the top of the latter.

The object of the invention is to obtain a water-wheel of the class specified which will give a greater percentage than usual of the power of the water; and to this end the invention consists in having the scroll and buckets arranged angularly in such a manner that the water will act upon the wheel nearer its edge or pheriphery than hitherto, and at the same time admit of a more ready escape or discharge of the water, as hereinafter fully set forth.

A represents the scroll of wheel, the exterior or shell *a* of which is of cylindrical form, and provided with a central cylindrical core, *b*, which leaves an annular water-passage, B, between. The bottom of this water-passage is in the form of a spiral, gradually ascending from its outer to its inner end, and making one revolution or extending once around the core *b*, the inner end of the passage-way extending to the top of the scroll. The bottom *c* of the water-passage, in its transverse section is inclined at an angle of about forty-five (45) degrees, as shown clearly in Fig. 1.

C represents the wheel, which is placed on the top of the scroll A, the shaft D of the wheel being stepped at the center of the top of the core *b*, as shown at *d*. The buckets E of the wheel are in line with or directly over the water-passage B, and the buckets are also inclined at an angle of forty-five (45) degrees, corresponding with the inclination of the bottom *c* of the water-passage, as shown in Fig. 1. The bottom C of the water-passage, as well as the buckets E of the wheel, incline downward from their inner to their outer sides, and the tops *e* of the buckets are inclined in a longitudinal direction or lengthwise, and are curved in the same direction.

By the above arrangement it will be seen that the water acts upon or against the buckets angularly, or in a direction outward from the center of the wheel and at its edge or periphery, thereby operating under a greater leverage than usual, and causing the wheel to give out a greater percentage of the power of the water corresponding to the increased leverage. By this arrangement also the water is allowed to escape more readily from the wheel than usual, as the water, owing to the centrifugal force, has a tendency to pass in the direction allowed it by the position of the buckets; hence the water will not be restricted or retarded in its flow or passage through the wheel, and consequently no power lost from that cause.

I do not confine myself to the precise inclination of forty-five (45) degrees for the bottom of the water-passage and the buckets, as herein described, for that inclination may be departed from to a certain extent and good results be obtained, still the angle of forty-five (45) degrees I prefer, and the wheels will be probably thus constructed.

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

A horizontal water-wheel provided with a scroll having its bottom formed of a spiral plane longitudinally and inclined transversely, in combination with the inclined buckets of the wheel, all arranged substantially as herein set forth.

JOSEPH F. LETELLIER.

Witnesses:

THOMAS GIBBONS,

S. C. HOUGHTON.