

R. HUNT.
Water-Wheels.

No. 156,224.

Patented Oct. 27, 1874.

Fig 1.

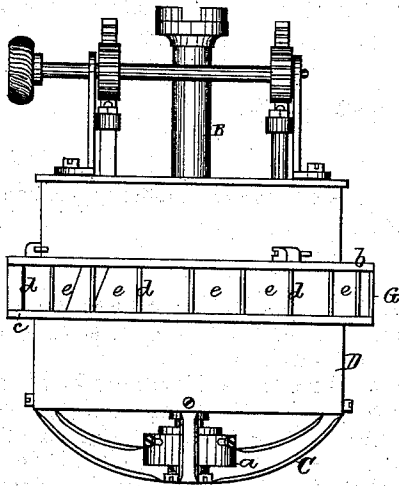


Fig 2.

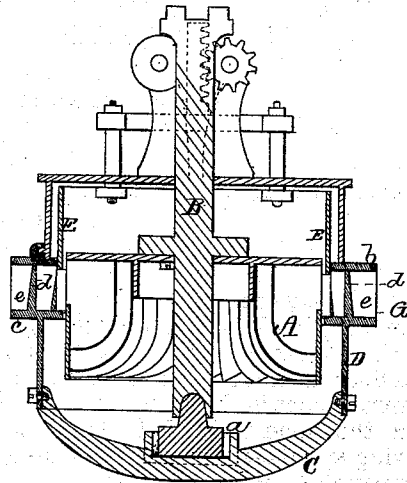


Fig 4.

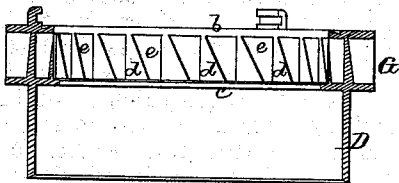


Fig 3.

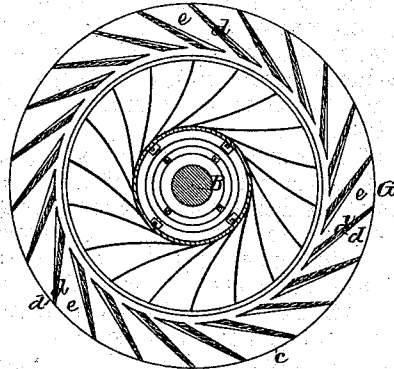
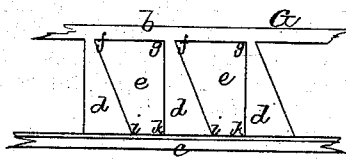


Fig 5.



Witnesses.

S. N. Piper
L. N. Hölter

Rodney Hunt.

by his attorney
R. W. Eddy

UNITED STATES PATENT OFFICE.

RODNEY HUNT, OF ORANGE, MASSACHUSETTS, ASSIGNOR TO THE RODNEY HUNT MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **156,224**, dated October 27, 1874; application filed September 16, 1874.

To all whom it may concern:

Be it known that I, RODNEY HUNT, of Orange, of the county of Franklin, of the State of Massachusetts, have invented a new and useful Improvement in Turbines; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 denotes a front elevation, Fig. 2 a vertical and transverse section, and Fig. 3 a horizontal section, of a turbine or water-wheel having my improvement. Fig. 4 is a transverse section of the guide and the draft-tube, my improvement having reference to the discharging end of each of the inducts or water-passages of the guide.

Instead of constructing each of said passages at its inner or eduction terminus square or rectangular, as heretofore, I make it triangular, trapezoidal, or tapering, or to increase in width from its bottom to its top, such being to prevent waste of water at part-gate, and to direct the effluent stream to better advantage upon the buckets of the wheel.

The drawings show a double-acting turbine, of which the wheel proper is exhibited at A, provided, as usual, with a vertical shaft, B, whose foot is pivoted in a step, *a*. This step is supported by a spider, C, having its arms projecting from and fixed to the draft-tube D of the wheel-case. The gate is represented at E. It encompasses the wheel, and is arranged to play or move up and down between it and the guide G, and in other turbines of the kind is or should be provided with mechanism for moving it. The guide G is composed of two flat rings, *b c*, and a series of

vertical partitions, *d*, arranged between and extended from one to the other of said rings, in manner as shown.

In turbines of the kind heretofore in use, it has been customary to make either rectangular or square the inner end of each water-passage between the partitions of the guide, whereby at half-gate or less a considerable portion of the water flowing through and from each passage, instead of passing directly to the wheel, became lost or spurted downward around it, without acting on its buckets, thereby causing a loss of useful effect.

To prevent this loss, I make the discharging end of each water-passage *e* of the guide triangular or trapezoidal, or, in other words, increasing in width from bottom to top, as shown in Fig. 4, or more particularly in Fig. 5 at *f g h i*. This latter figure exhibits two of the passages on an enlarged scale.

It has been demonstrated in practice that, with the eduction end of each water-passage of the gate made tapering, as described, or to increase in width from the bottom to the top, a very material saving of water, and a greater useful effect, results.

I therefore claim—

In the turbine, the eduction end of each water-passage *e* of the guide G, made tapering, or to increase in width from its lower to its upper end, all being substantially as specified.

RODNEY HUNT.

Witnesses:

R. H. EDDY,
S. N. PIPER.