

D. B. FLINT.
Turbine-Wheels.

No. 138,239.

Patented April 29, 1873.

Fig. 1.

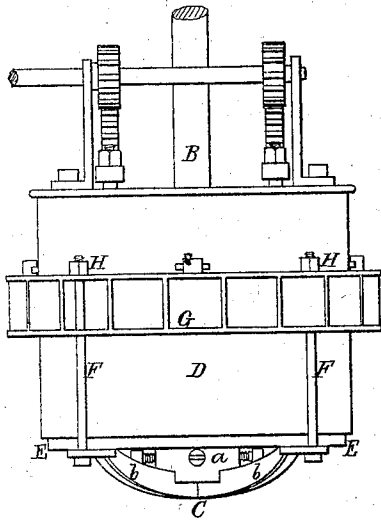


Fig. 3.

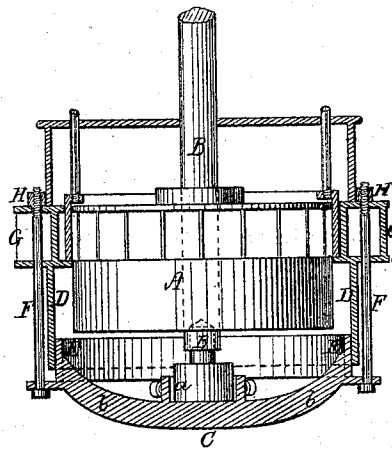
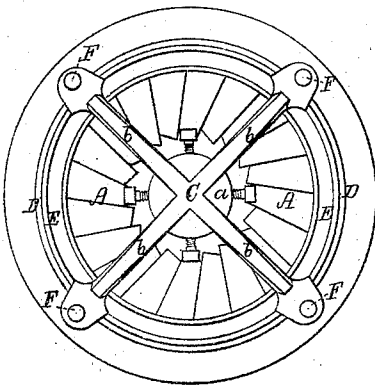


Fig. 2.



Witnesses.

S. W. Piper

J. A. Howell

David B. Flint.

by his attorney

R. H. Eady

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN TURBINE-WHEELS.

Specification forming part of Letters Patent No. **138,239**, dated April 29, 1873; application filed March 6, 1873.

To all whom it may concern:

Be it known that I, DAVID B. FLINT, of Orange, of the county of Franklin and 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 drawing, of which—

Figure 1 denotes a front elevation; Fig. 2, a bottom view; and Fig. 3, a transverse section of a horizontal water-wheel or "turbine" provided with my invention, which has reference to the vertical adjustment of the step of the wheel-shaft.

The drawing shows a "double-acting turbine" with my improvement.

In such drawing, 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 or cross, C, having four or other suitable number of arms, *b*, arranged at right or proper angles to each other. They project beyond the draft-tube D of the wheel-case, and have fixed to them a short tube or centralizing ring, E. This latter fits so as to be able to slide within the draft-tube. Instead of being arranged within the draft-tube the centralizing tube may encompass it so as to slide up or down upon the outside of it, the object of the tube or ring E being to maintain the spider

duly centralized with respect to the draft-tube. From each of the arms of the spider one of a series of screw-bolts or rods, F F, is extended upward to and through the guide G; there being, on the top of the guide, and to each screw-bolt or rod, a nut, H, which is screwed upon the said bolt or rod. By turning the said nuts on their screws the spider and its step may be adjusted, or raised, or lowered vertically, as occasion may require, from time to time, particularly as the step and pivot may become worn. As the floor of the flume is usually on, or about on, a level with the bottom of the guide, it will be seen that the guide and all of the wheel and case above it will be within the flume, the draft-tube going through and projecting below the bottom thereof. From this it will be seen that, in order to adjust the step vertically, there will be no necessity of going beneath the flume, as it can be effected by the said bolts F and the nuts H thereof.

I therefore claim—

The centralizing ring or tube E, the draft-tube D, the spider C, the screw-rods F, nuts H, and guide G, arranged and combined substantially as specified.

DAVID B. FLINT.

Witnesses:

R. LIVERMORE,
HIRAM WOODWARD.