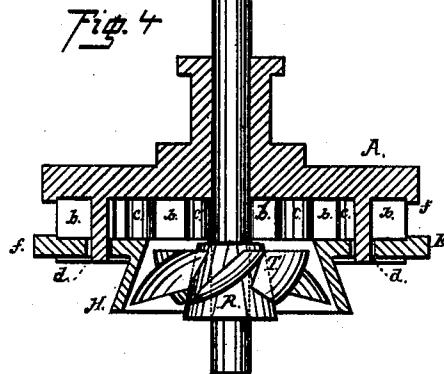
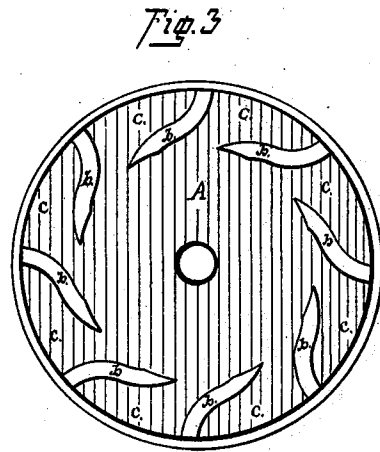
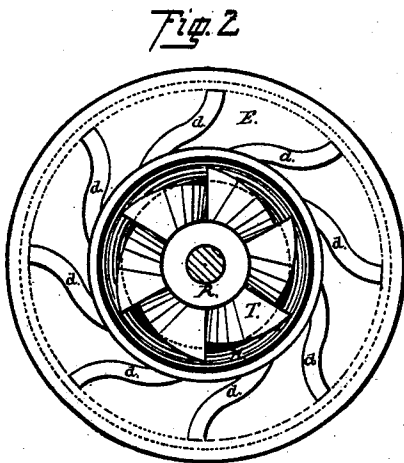
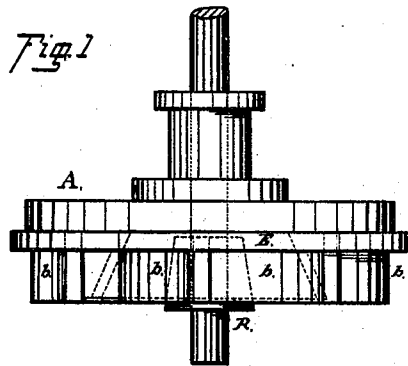


J. G. THOMPSON.
Turbine Water-Wheels.

No. 199,123.

Patented Jan. 8, 1878.



Witnesses.

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JESSE G. THOMPSON, OF CLARION, PENNSYLVANIA.

IMPROVEMENT IN TURBINE WATER-WHEELS.

Specification forming part of Letters Patent No. **199,123**, dated January 8, 1878; application filed January 8, 1877.

To all whom it may concern:

Be it known that I, JESSE G. THOMPSON, of Clarion, in the county of Clarion and State of Pennsylvania, have invented a new and useful Improvement in Turbine Water-Wheels; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, wherein—

Figure 1 represents a side view or elevation of a turbine water-wheel embodying my invention; Fig. 2, a bottom view of the same, with the upper disk and its buckets removed; Fig. 3, a bottom view of the upper disk, showing the shape and arrangement of the several buckets attached thereto; Fig. 4, a transverse vertical section of so much of the wheel as is necessary to give a correct idea of the combination and arrangement of parts.

My invention is an improvement on that class of turbine water-wheels in which the water is admitted between two disks to all of the sluiceways and buckets around the wheel at once in a horizontal direction, or nearly so, and which discharge all or most of the water centrally in a vertical, or nearly vertical, direction beneath the wheel.

The wheel I have constructed consists of an upper disk, A, provided with a series of radial curved buckets, *b b*, connected thereto by their upper edges, and cast as a part thereof. These buckets curve forward and outwardly from near the center tangentially of the wheel almost to the periphery, and, by being separate the one from the other some distance, form a series of intermediate chutes or sluiceways, *c*.

Each bucket *b* in the series is made to fit and slide into and through a correspondingly arranged and shaped opening, *d*, formed in the bottom disk E, so that their approximate faces may be brought together, or so near as the projecting rim *f* close to the edge or periphery of each will allow, which rims, when brought together, are intended to form a perfectly watertight joint, and when open, by raising the upper disk, constitute a circular gate, extending around the entire wheel, through which the water may enter all of the sluiceways simultaneously. Encircling a large central dis-

charge-orifice through the lower disk E is a deep conically-shaped flange, H, projecting and opening downward a distance equaling the depth of the several curved buckets when the sluiceways are closed by bringing the disks together.

Within the area surrounded by this circular flange is placed a wheel, T, provided with spirally-arranged blades or vanes, similar in construction to other contrivances of this nature. This wheel is attached by a strong hub, R, to a vertical shaft, the lower end of which is intended to be fitted to and run in a properly-designed step or box, after the manner of those used in turbine wheels generally. The upper part is lengthened not only to extend upward through the disks, but sufficiently far to enable any requisite gearing or attachments to be easily made thereto.

The whole wheel is to be placed in a suitable "stock-pen," (not here represented,) and when all the adjustments have been carefully made, and the water allowed to enter said stock-pen, it will surround and cover the entire wheel, when, on raising the upper disk by any suitable means, the water will enter between the disks and fill all of the radially-curved gradually-narrowing sluiceways *c* instantly, and that under full pressure being limited in quantity only by the relative position that one disk may occupy to the other. As the water enters the several chutes it becomes compressed and strikes the buckets in a solid body, causing an immediate action to take place in that direction. The water, after passing through the chutes, escapes into the circular area cut through the lower disk E, and impinges against the vanes or blades of the central wheel T, which blades, being set or inclined in a spiral direction, receive the full impact of water on its downward flow, giving a quick rotative movement thereto, and that without any apparent back pressure. Thus these two separate and distinct sets of buckets so acting together enable a greater amount of power to be derived from the wheel than it would have if otherwise constructed.

Having briefly described my improved turbine water-wheel, I claim as my invention—

1. A turbine water-wheel in which the buckets upon which the water primarily acts are arranged between two independent disks, so constructed with relation the one to the other as that the approximate faces of such disks may be brought closely together to form a tight joint between them, or separated for the purpose of allowing the water to enter the several sluiceways simultaneously, substantially as hereinbefore set forth.

2. The upper movable disk A, provided with curved buckets *b*, attached thereto, in combination with the lower disk E, having corre-

spondingly-shaped openings, through which the said buckets are arranged and made to slide, substantially as shown and set forth.

3. The movable upper disk A and lower fixed disk E, together with the adjustable sluiceways *c c*, in combination with the central spiral-bladed wheel T, substantially as shown and set forth.

J. G. THOMPSON.

Witnesses:

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