

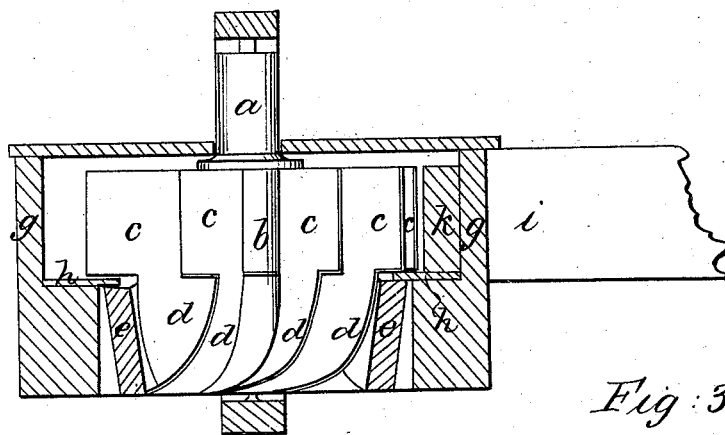
*A. Woodard,*

*Water Wheel.*

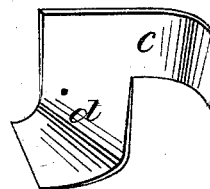
*N<sup>o</sup> 2,622.*

*Patented May 12, 1842*

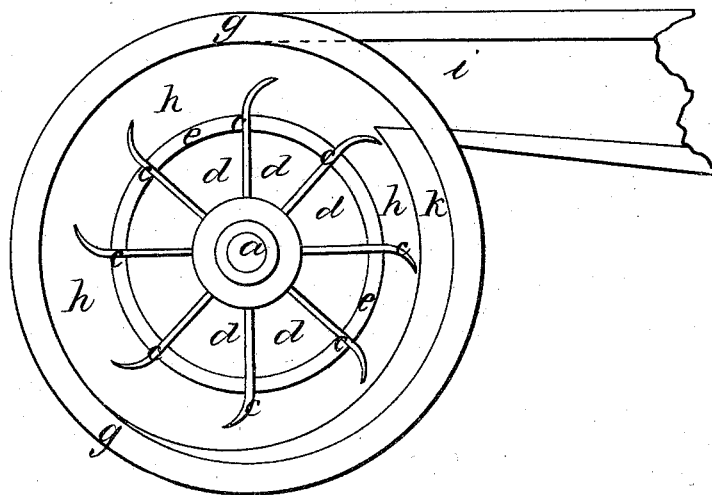
*Fig: 1.*



*Fig: 3.*



*Fig: 2.*



# UNITED STATES PATENT OFFICE.

ABIJAH WOODARD, OF SWANZEY, NEW HAMPSHIRE.

## IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 2,622, dated May 12, 1842.

*To all whom it may concern:*

Be it known that I, ABIJAH WOODARD, of Swanzev, in the county of Cheshire and State of New Hampshire, have invented a new and useful Improvement in the Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section through the penstock and rim of the wheel. Fig. 2 is a top view; Fig. 3, one of the buckets detached.

In constructing this water-wheel I form upon the shaft *a* a hub *b*, of any suitable size, from which I project buckets *c* radially, the outer ends having a backward curve. From the lower edges of these buckets rings *d* are extended downward, which run spirally round the hub with a constantly-increasing curvature to their termination. They project out about half the length of the buckets *c*. (For a detached view see Fig. 3.) Around the outer edge of the wings *d* a rim *e* is affixed, which extends from the bottom of the wheel nearly up to the lower edge of the buckets *c*. The gudgeon on the shaft of this wheel, which works horizontally or otherwise, turns in bearings in the usual manner. It is placed in a circular penstock *g*, placed concentric to it, the lower half being about the diameter to allow the lower part of the wheel to work in it. The up-

per half is about twice that diameter, being much larger than the diameter of the wheel. To the ends of the buckets between the upper and lower sections a ring *h* is put, extending out over the rim of the wheel *e* and under the ends of the buckets. The opening *i* from the flume into the penstock is above this ring, and at a tangent to its curve from this intersection, about one-third the distance round, in the direction contrary to the motion of the wheel, there is a projection *k*, that fills the cavity between the penstock and the wheel. It is then tapered off to the circumference of the interior of the penstock. It will be seen by this arrangement that the water as it issues from the flume into the penstock acts upon the buckets, a portion of it flowing by till it reaches the projection, when it is all thrown onto the wheel. As the water escapes between the hub and the rim it again acts on the wings, thereby expending all its force before it leaves the wheel.

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

The combination of the buckets *c* and wings *d*, in the manner described, with the penstock having a ring *h* and projection *k*, arranged as herein set forth.

ABIJAH WOODARD.

Witnesses:

HENRY BAXTER,

SYLVANUS BARTLETT.