J. Mumma,

Water Wheel,

No. 715. Patented Apr. 28, 1838.

Fig 1.

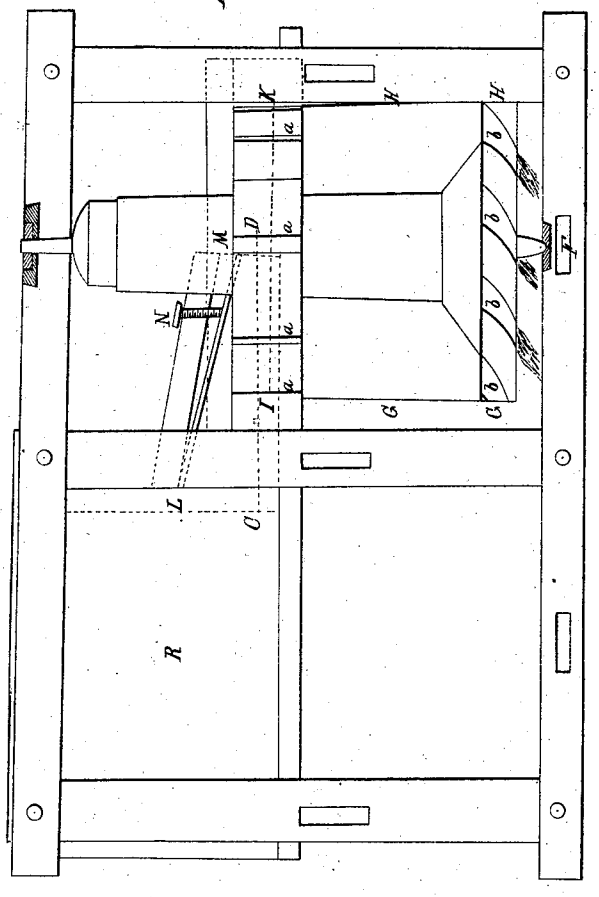
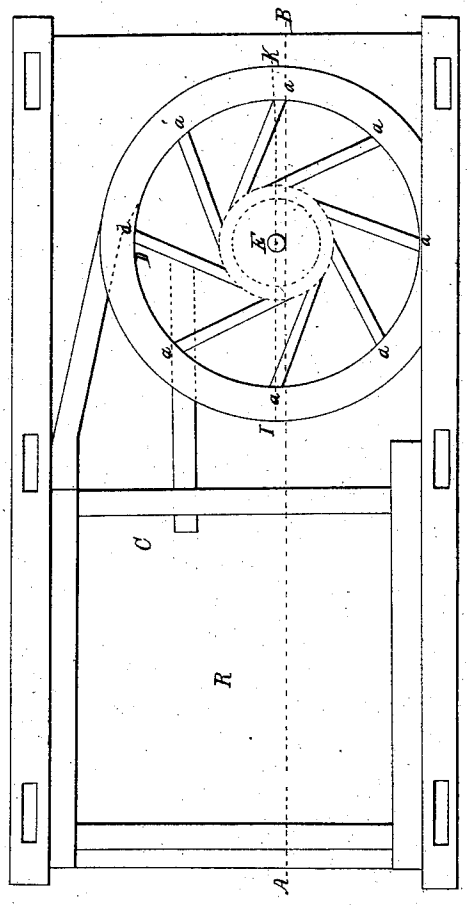


Fig 2.



UNITED STATES PATENT OFFICE.

JOHN MUMMA, OF WEST ALEXANDRIA, OHIO.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **715**, dated April 28, 1838.

To all whom it may concern:

Be it known that I, JOHN MUMMA, of West Alexandria, in the county of Preble and State of Ohio, have invented a new and useful Improvement on Reaction Water-Wheels, which I have denominated the "Overshot Reaction Water-Wheel," whereof the following is a full and exact description.

In the drawings annexed, Figure No. 1 represents a side view of the structure, and Fig. No. 2 a perpendicular view of it.

In both figures, R represents the reservoir or fore bay; C D, the chute. The water is carried down the chute in the direction from C to D, at which latter point it is forced directly against the upper buckets of the wheel, which are represented by the small letters *a*. It then falls down into a tub or receiver, which is represented by the letters G H in Fig. No. 1, and passes out at the issues or orifices denoted by small letters *b*. The tub or receiver G H is attached permanently to the same axis E F with the buckets, all revolving together. The buckets *a* are so attached to the axis that the current or head of water strikes them at right angles, or as nearly so as may be. The issues *b* are on inclined planes, so constructed that the water in passing out reacts upon the wheel, increasing its velocity. The water, after spending its force on the buckets *a*, is received into the tub G H, where it is suffered to accumulate, according to the pressure required, when it passes off through the issues *b*, thus increasing the momentum or velocity of the wheel in proportion to the head of water thus accumulated.

To regulate the quantity of water required I attach a "regulator," designated by L M in Fig. No. 1, which is a surface extending across the chute, fastened on a hinge or otherwise at some point L in the chute, and extending lengthwise to the place of issue D. It is elevated or depressed by a screw N, so as to enlarge or diminish at will the orifice at D, whence the water first issues upon the buckets *a*. The buckets *a* are inclosed by a covering I K, to which is attached in the inside a hoop or rim, extending down a short distance into the tub, so as to prevent the waste of water. The whole structure, or any part thereof, may be composed of such durable materials, whether of wood or metal, as the builder pleases.

The peculiar advantage of a wheel constructed in the above mode consists in the economy or accession of power it affords by dividing the head of water, receiving, as it does, the whole force of the water from the chute immediatelv at the point of issue D upon the upper buckets *a*, added to the momentum given by the accumulation of water in the revolving tub passing off on inclined planes or buckets, thus increasing the velocity. By means of the revolving tub the head of water may be divided into any given number of parts by dividing the tub into the number of parts required and inserting buckets in each division, constructed after the mode indicated, where the water finally passes off by the issues *b*. Dividing the head of water increases its velocity. Thus in a head of six feet, if the velocity at the point of issue be twelve feet per second, by dividing it into two parts of three feet each the aggregate velocity at the points of issue will be about seventeen feet per second.

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

The combination of one, two, or more tub-wheels with the wheel placed next the chute and the mode of regulating the outlet of water, all as above described.

JOHN MUMMA.

Witnesses:
JAS. B. DICKS,
WM. MCCHESNEY.