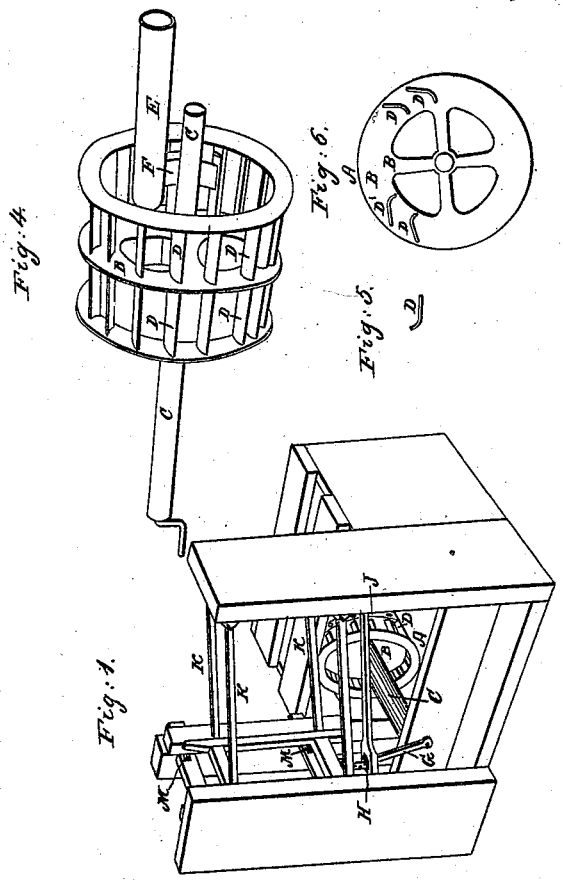
S. CURTIS.

Water Wheel.

No. 412. Patented Sept. 28, 1837.



UNITED STATES PATENT OFFICE.

SAMUEL CURTIS, OF EAGLE, NEW YORK.

WATER-WHEEL AND MODE OF LETTING THE WATER ON THE SAME.

Specification of Letters Patent No. 412, dated September 28, 1837.

To all whom it may concern:

Be it known that I, SAMUEL CURTIS, of the town of Eagle, in the county of Allegany and State of New York, have invented a new and useful improvement in the construction of water-wheels for propelling mills and in the method of letting the water on the same, called "Curtis's centrifugal flutter-wheel," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The nature of my improvement consists in constructing a water wheel A by placing a circular head B of any required diameter vertically on a horizontal shaft C and securing it thereon; or instead of a head, arms may be substituted for supporting and carrying a circular rim of sufficient width and thickness to contain the buckets D secured thereto; which is done by making as many mortises of the shape and size of a cross section of the buckets, through the rim and placing them therein. The curved pieces of metal intended to form the buckets are inserted in these mortises so that their ends shall project equally on each side of the rim, in order to form from each piece two buckets, one on each side. The curvature is similar to that represented at Figure 5, in which it will be seen that the inner part of the bucket, or that which receives the water is formed the segment of a regular curve and that the outer part which discharges it is a plane continued in a line nearly a tangent to the curve just mentioned, by which the water is made to act by percussion as well as reaction—causing the wheel to turn in the same direction in which the water strikes it and in a contrary direction from that in which it leaves it—producing no impediment to the motion of the wheel from back water—the water flying off from the center and discharged in front of the wheel. The inner edge of each bucket is made sharp so that, in returning, it shall pass through the water without breaking the sheets. To strengthen the buckets there may be another rim placed parallel to the former on the outer ends thereof. The water is conveyed inside the wheel by means of a horizontal trunk E closed at one end, having a tube F on the under side to direct the water and cause it to strike the buckets at the required angle, below the center of the axle. To multiply the power there may be any required number of these wheels placed parallel to each other on the same shaft. There is no breast around these wheels—consequently their motion is not impeded by confined water.

In the application of this improvement to the propelling of saw mills the friction of the saw gate may be considerably reduced by making use of a pitman rod G with a joint H: the upper part or that which is attached to the under side of the gate, also by a joint, is retained in a vertical position by means of an arm I attached to the joint of the pitman rod by a bolt passing through the same and to a post of the frame of the mill by another joint J.

The saw gate may be made to move vertically and true without channels in the fender posts by having four arms K attached to the sides of the gate by round pins, and to the frame of the mill by joints, which will cause the gate to move parallel with the fender posts and allow the saw to have a forward rake, in the descent of the gate;—the ends of the arms being made to project and move between the fender posts for preventing the gate having any side movement. When the crank is vertical above the axle the arms must be horizontal. By this arrangement and movement the ordinary rake of the saw may be dispensed with.

In the fender beams are made slots M in which are placed screws N turning in the fender posts for moving them farther from, or nearer to, each other as may be required so as to plumb the saw gate. The arm of the jointed pitman rod moves the feed beam.

The invention claimed by me, the said SAMUEL CURTIS, and which I desire to secure by Letters Patent consists—

In the manner of introducing the water inside the wheel and causing it to act by percussion as well as gravity, as above described and the mode of forming and adapting the buckets thereto.

SAMUEL CURTIS.

Witnesses:
WM. HURITT,
WM. P. ELLIOT.