

UNITED STATES PATENT OFFICE.

JOSEPH B. COLLINS, OF GRAND RAPIDS, MICHIGAN.

WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 326,718, dated September 22, 1885.

Application filed June 15, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. COLLINS, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and Improved Water-Wheel, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved water-wheel which will utilize to the greatest advantage the force of a current of water.

The invention consists in a pair of water-wheels having a common sluiceway and provided with folding buckets, in a rim which prevents the waste of water and holds the same in full force on the buckets, and in a casing which protects the folded buckets in returning.

The invention also consists in various parts and details, hereinafter more fully set forth and described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a plan view of my improved water-wheel. Fig. 2 is a vertical-cross-section of the same on the line *xx* of Fig. 1.

I prefer to combine two or more water-wheels of like construction in such a manner that both derive their driving-power from a current of water which enters the sluiceway and divides its force equally to the wheels.

Each of the wheels *A A* is provided with the buckets *B*, pivoted to the hub *C*, which is mounted on the upright shaft *D*, rotating in suitable bearings on the frame *E*. The shafts *D* transmit their movement by beveled gear-wheels *D' D'* meshing in beveled gear-wheels *D² D²* to the shaft *D³*, which is provided with the driving-pulley *D⁴*.

The sluiceway *F* is divided by the angular partition *F'* in such a manner that each of the wheels *A* receives an equal share of the current of water when the two hinged gates *G G* are thrown open. The partition *F'* rounds off

into the rims *F² F²*, partly encircling the wheels *A*, holding the water thereto and preventing any waste of the water. The casing *H* incloses partly the folded returning buckets on the opposite sides and extends over their tops, and is provided with the stationary entrance partition *H'*, which, in connection with the hinged gates *G G*, directs the current of water on the buckets *B*.

The buckets *B* are provided with the curved hinges forming stops *B'*, and are hinged in such a manner in the annular groove *C'* of the hub *C* that they open radially when struck by the force of the current and fold as soon as the water leaves the buckets at the rear, the opening movement being limited by the stops *B'* striking the back of the groove *C'*.

By closing one of the gates *G* the full force of the water will be directed against the other wheel.

It will be seen that the force of the current will be exerted against nearly half of the buckets *B* of the wheels *A*, and only ceases to act when leaving the buckets *B* at the rear.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of two or more water-wheels in the same sluiceway, the annular partition *F'*, the rim *F²*, the gates *G*, the casing *H*, and the partition *H'*, all arranged substantially as shown and described.

2. The combination of two or more water-wheels, each provided with the hinged buckets *B*, having the stops *B'*, the hub *C*, having the annular groove *C'*, and the shaft *D*, in combination with the sluiceway *F*, the angular partition *F'*, the encircling rims *F²*, the gates *G*, the casings *H*, and the partitions *H'*, substantially as shown and described.

JOSEPH B. COLLINS.

Witnesses:

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