J. Bell,

Water-Wheel.

117244

PATENTED JUL 25 1871

Fig: 1.

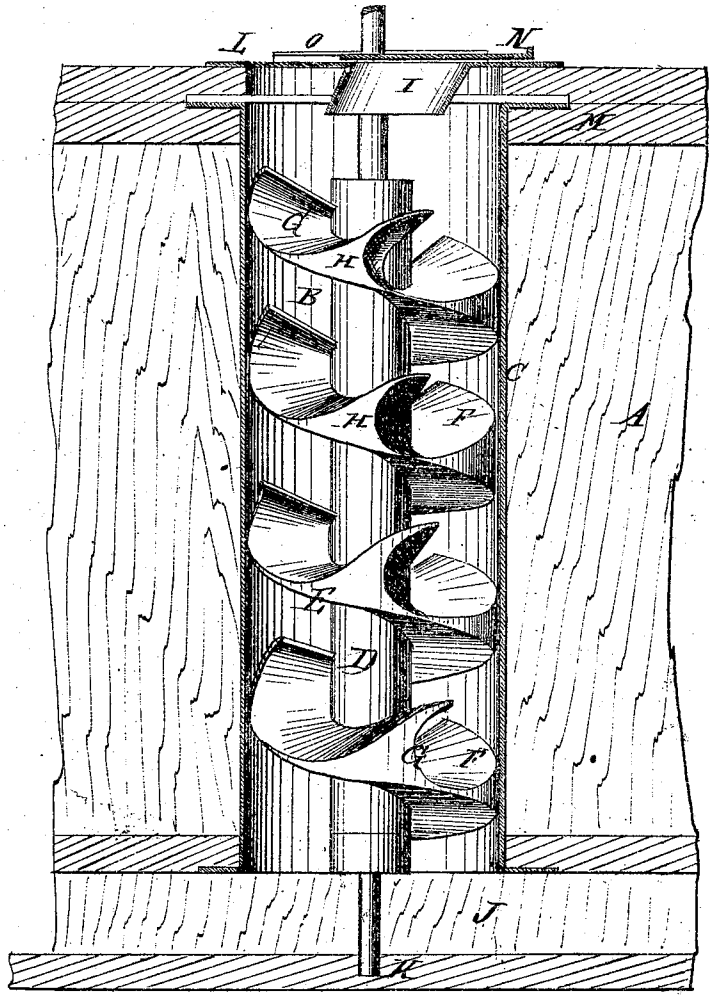
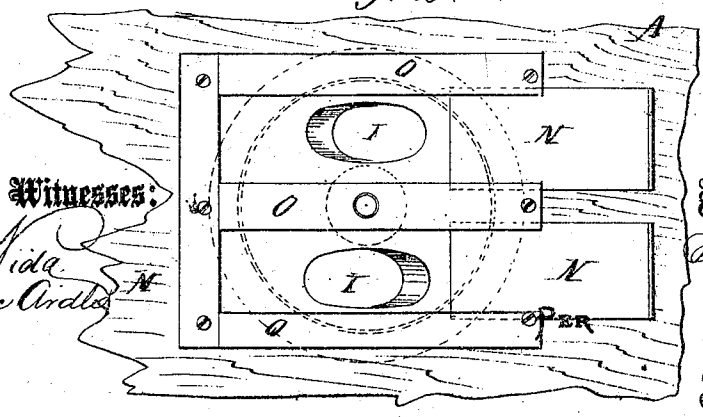


Fig: 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH BELL, OF CARROLLTON, MISSOURI.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 117,244, dated July 25, 1871.

To all whom it may concern:

Be it known that I. JOSEPH BELL, of Carrollton, in the county of Carroll and State of Missouri, have invented a new and useful Improvement in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to a new and useful improvement in water-wheels; and consists in a shaft with a spiral web thereon, with buckets on the web, the wheel in combination with a cylinder, and arranged to operate as hereinafter more fully described.

In the accompanying drawing, Figure 1 represents a side elevation, the wheel being arranged to revolve in a vertical position. Fig. 2 is an end view, showing the chutes for conducting the water onto the wheel and the arrangement of the gates.

Similar letters of reference indicate corresponding parts.

A is the trunk or frame by which the wheel and cylinder are supported. B is the wheel. C is a stationary cylinder by which the wheel is surrounded, of a diameter which just allows the wheel to revolve therein. D is the water-wheel shaft. E is the web wound spirally around the shaft, (edgewise,) of any desired pitch to suit the head of water, length of wheel, or power required. I do not confine myself to any particular pitch, length, or diameter. Attached to the web, and extending from the periphery or rim thereof to the shaft, is a series of buckets, F, three buckets, more or less, for every circle or convolution the web makes around the shaft. These buckets are dish-shaped in their faces G, and slope back to the web, the space between the buckets and the web being filled with wood H. The buckets project from the web so that their faces occupy two-thirds, more or less, of the space between the threads or the pitch of the web. The water is introduced through the chutes I I, and whether the wheel stands upright or horizontal or in an inclined position the water acts upon the buckets and revolves the wheel with a power and velocity due the head and fall or pressure and the quantity used. The water, after passing through the wheel, is discharged into the compartment J, from whence it passes off, having performed its whole duty on the wheel. The rear or lower journal of the wheel-shaft is supported by the truck, as seen at *k*. The cylinder C passes to this compartment, and here the effect of the water on the wheel ceases, as the wheel-shaft terminates at the end of the cylinder. At the other end is a head, L, having connected therewith chutes I I, which covers the end of the cylinder and tightly incloses the wheel. This end of the shaft is supported by a bridge-tree attached to the truck or in any other suitable manner. M is the end piece or head of the truck. N N represent the gates, which are made to slide over the clutches I I. The gates are kept in their proper positions by the guide-plates O, seen in Fig. 2, and the quantity of water discharged onto the wheel may be regulated thereby. The sweep of the spiral web and the buckets is designed to be but slightly less than the interior diameter of the cylinder C, so that all the water passing through the cylinder is made to act upon the wheel and is utilized.

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

The spiral wheel B with the buckets F, in combination with the cylinder C and inclined chutes I I, when the same are constructed and arranged to operate substantially as and for the purposes described.

JOSEPH BELL.

Witnesses:

THOS. W. MCGUIRE,

W. M. EADS.