A. Queal,

Turbine Water Wheel,

No. 13,918, Patented Dec. 11, 1855.

Fig: 1.

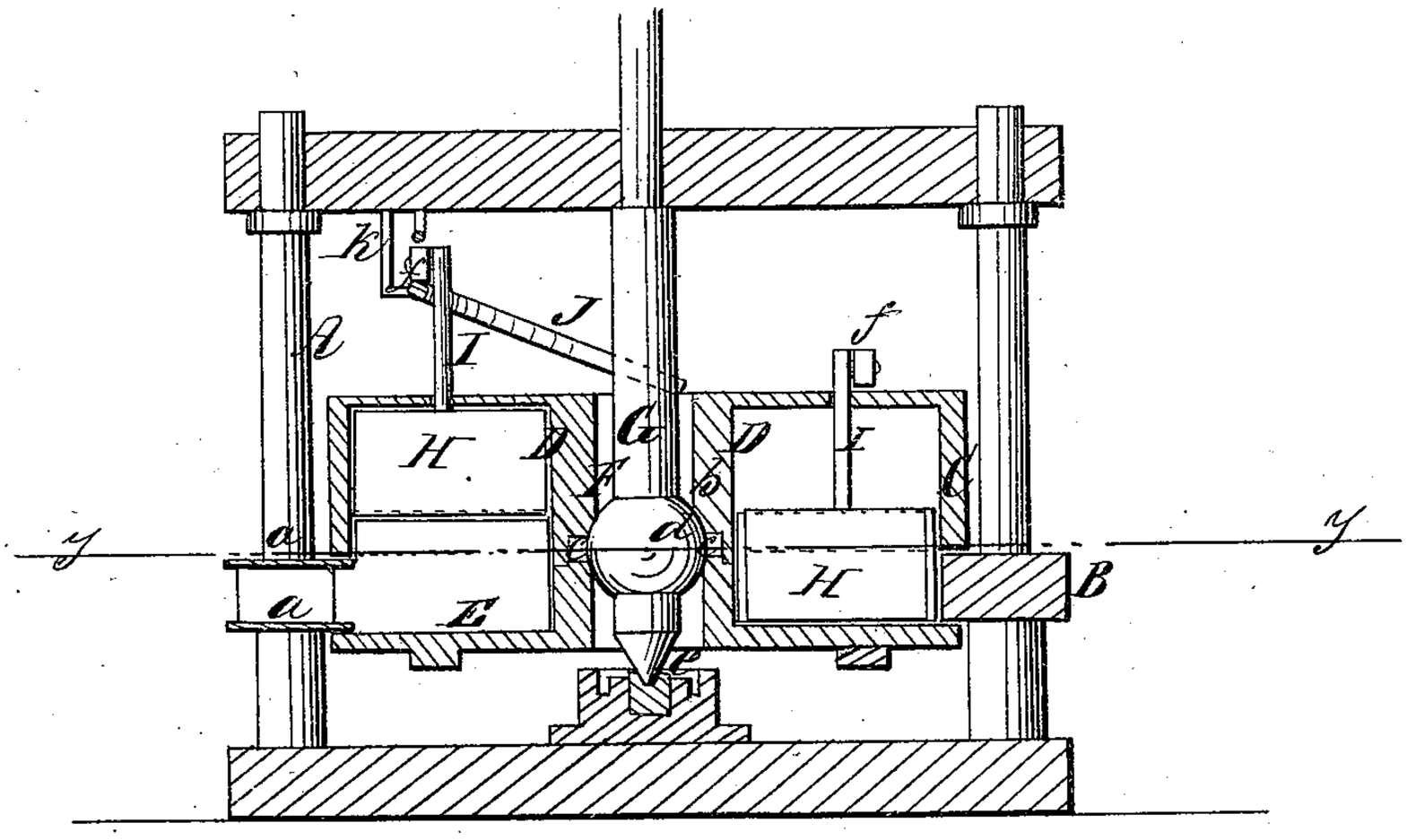
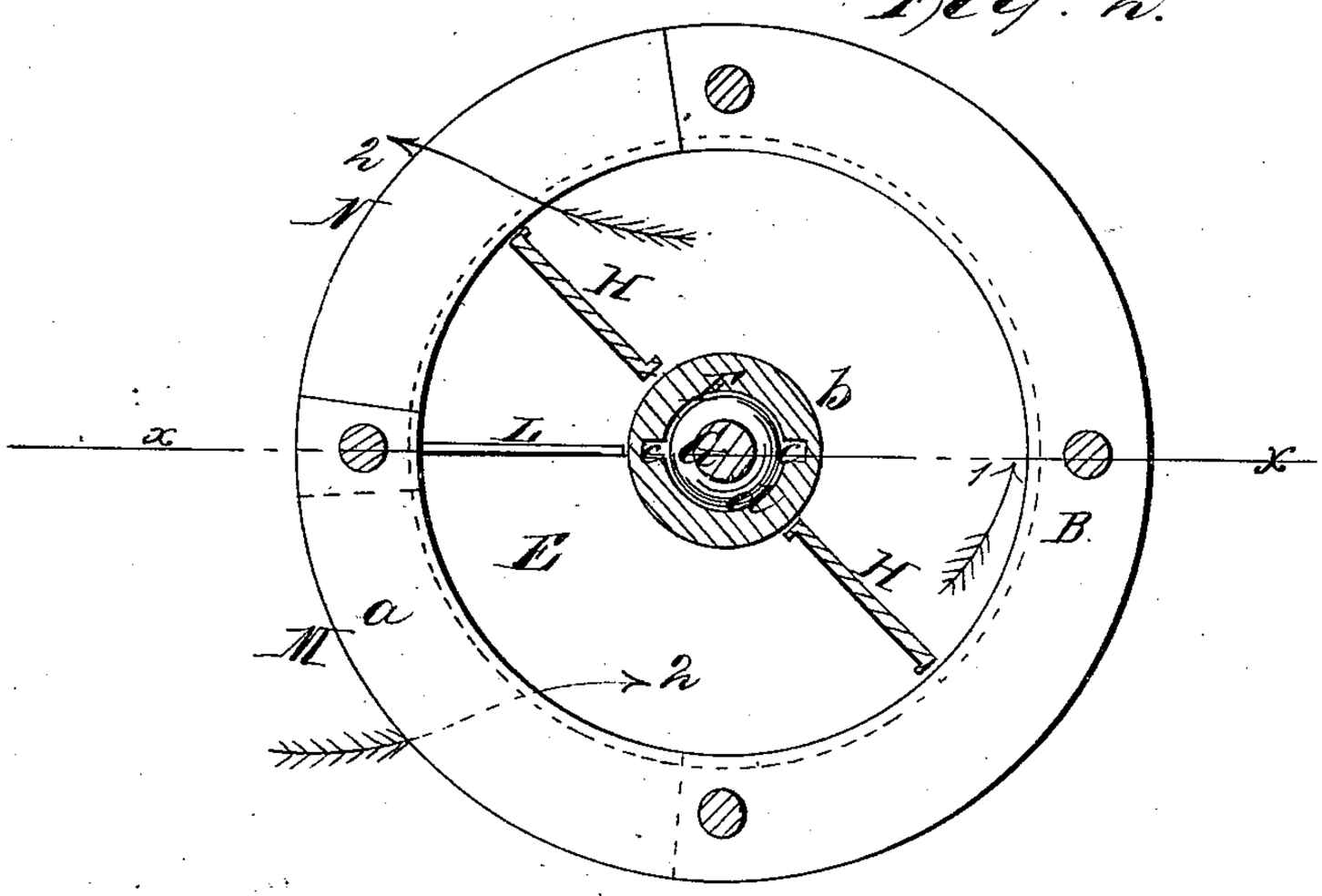


Fig: 2.



UNITED STATES PATENT OFFICE.

ATCHISON QUEAL, OF PLYMOUTH, NEW YORK.

IMPACT WATER-WHEEL.

Specification of Letters Patent No. 13,918, dated December 11, 1855.

To all whom it may concern:

Be it known that I, ATCHISON QUEAL, of Plymouth, in the county of Chenango and State of New York, have invented a new and Improved Horizontal Water-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical section of my improvement, (*x*), (*x*), Fig. 2 showing the plane of section. Fig. 2, is a horizontal section of the same, (*y*), (*y*), Fig. 1, showing the plane of section.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates to a new and improved horizontal water wheel, and consists in the peculiar construction of the same as will be presently shown and described.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a suitable framing, on the lower part of which a semi-circular horizontal rim, B, is permanently fitted. This rim, B, has two plates (*a*), (*a*), attached to one of its ends which plates form a quarter circle in length, the plates being attached one to the upper and the other to the lower surface of the rim, B.

C, is the wheel which is formed of a circular head, D, fitted directly over the rim, B, the periphery of the head projecting a trifle over the inner edge of the rim, B. The head, D, has a circular plate, E, attached to it which plate is underneath the rim, B. An aperture F, is made through the center of the head and plate, E, said aperture being made through a solid hub, (*b*), and the shaft, G, passes through this aperture, the shaft being connected to the wheel by pins (*c*), which fit in the sides of the hub, (*b*), said pins projecting from opposite sides of a ball, (*d*), on the shaft, see Fig. 1. The lower end of the shaft G, is stepped at (*e*), at the center of the bottom of the framing, A. A space is allowed between the bottom of the head, D, and the plate E, equal of course to the thickness of the rim, B, the space being closed the distance of one half the circumference of the wheel by the rim, B.

H, H, are buckets which are allowed to slide vertically in the head, D, the upper ends of the buckets have each a rod, I, attached, which rods pass up through the head D, and have friction rollers, (*f*), on their upper ends, see Fig 1.

J, is an inclined semi-circular rod which is attached by a pendent, K, to the upper part of the framing, A. This rod, J, is placed in the path of the rollers (*f*), on the rods, I, and the rollers pass over it as the wheel C, rotates the rod J, raising and lowering the buckets H, H.

L, Fig. 2, is a partition placed radially in the space between the head, D, and plate E, see Fig. 2. The partition extends from the outer side of the hub at the center of the head, D, and plate E to the rim, B, and is fitted as snugly or tightly in said space as may be without creating unnecessary friction.

Operation: M, is the induction and, N, is the eduction opening. The two passages being at opposite sides of the partition, L. The water rushes through the induction passage M, into the space between the head, D, and plate E, and acts upon one of the buckets H, which descends within the space as its roller descends the inclined rod, J, and the wheel is turned in the direction indicated by the arrow Fig. 1. When the bucket above alluded to approaches the eduction passage N, the bucket is raised in consequence of its roller passing up the inclined rod, J, and the water is discharged through the eduction opening N, see arrows 2, Fig. 2. The other bucket is operated in a similar manner to the one described the buckets when raised within the head, D, pass over the partition L.

By the above improvements the water is not allowed to act laterally upon the shaft G, and consequently under friction in the bearings of the shaft is avoided. The head, D, and plate, E, are also kept parallel with the rim, B, by connecting the wheel with its

shaft by means of the pins (*c*), which turn in the hub of the wheel. The invention is simple economical to construct and may be used with advantage in all cases where the horizontal wheels are now employed.

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

1. The sliding buckets, H, H, placed in the heads, D, of the wheel and operated by the inclined semi-circular rod J, in combination with the partition, L, arranged as shown and described.

2. I further claim attaching the wheel, *c*, to the shaft G, by means of the pins (*c*), (*c*), fitting in the hub (*b*), the pins being attached to a ball (*d*) on the shaft for the purpose set forth.

ATCHISON QUEAL.

Witnesses:
CHARLEY CAMP,
W. G. QUEAL.