A. LIND.

WATER WHEEL.

No. 36,415. Patented Sept. 9, 1862.

Fig: 1.

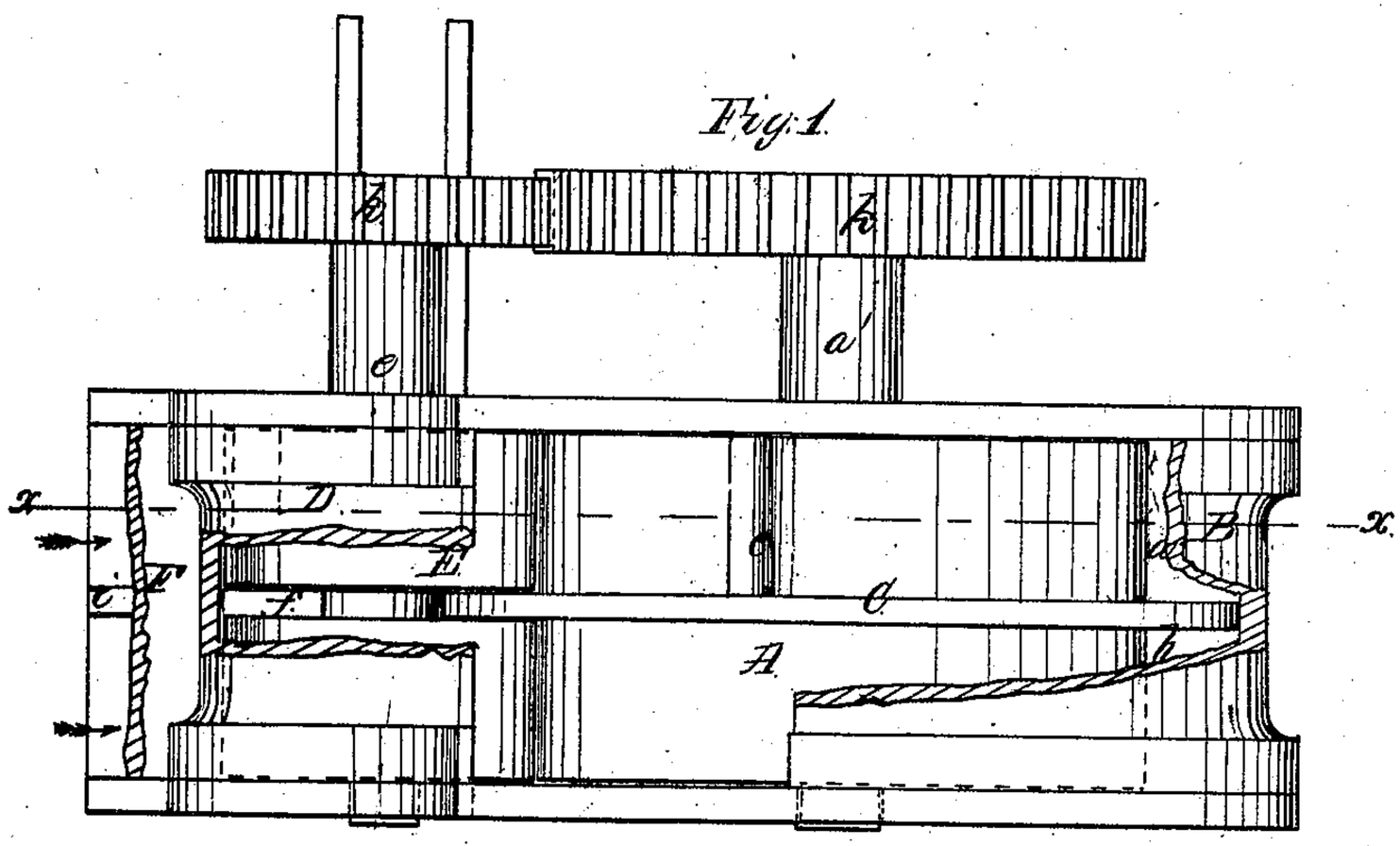
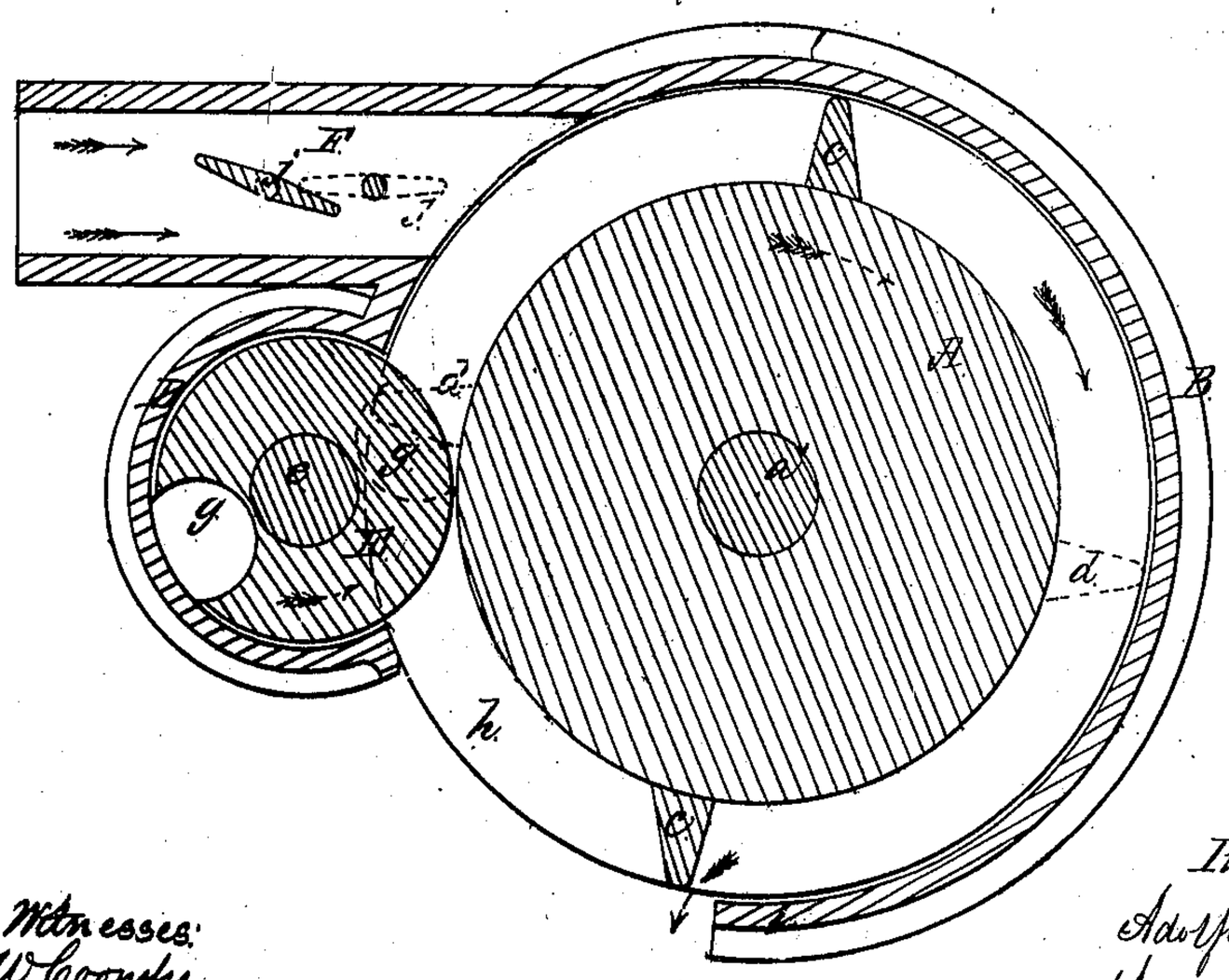


Fig: 2.



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UNITED STATES PATENT OFFICE.

ADOLPHUS LIND, OF SAN FRANCISCO, CALIFORNIA.

WATER-WHEEL.

Specification of Letters Patent No. 36,415, dated September 9, 1862.

To all whom it may concern:

Be it known that I, ADOLPHUS LIND, of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved 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 side view of my invention, the case being bisected or broken away in order to show the wheel; Fig. 2, a horizontal section of the same, taken in the line *x*, *x*, Fig. 1.

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

The invention consists in dividing the wheel and abutment into two parts and also the flume and providing the latter with two gates, as hereinafter described, so that the wheel may be run with only half the quantity of water when only half the maximum power of the wheel is required.

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

A, represents a drum which is placed vertically on a shaft *a'*, within a cylindrical case B, and allowed to rotate freely therein. The drum is somewhat smaller in diameter than the case and the former has a horizontal flanch C, projecting from its periphery at its center, said flanch extending to the side of the case B, and dividing the latter into two equal horizontal parts *a*, *b*, see Fig. 1.

To the drum A, there are attached buckets *c*, *d*, two buckets *c*, *c*, being above the flanch C, and two *d*, *d*, below it, and the buckets above the flanch are placed in a line at right angles to the line of the lower buckets. The ends of the buckets *c*, *c*, *d*, *d*, are in contact or just touch the case B, as shown in Fig. 2, and the top and bottom of the drum run in contact with the top and bottom of the case.

Adjoining the case B, of the drum A, there is a smaller cylindrical case D, in which a vertical drum E, is placed on a proper shaft *e*. The drum E, is in contact with the drum A, and it has a groove *f*, made in it circumferentially to receive the flanch C, of the drum A. The drum E, has recesses *g*, made in it of semi-circular form to receive the buckets *c*, *d*, as the drum A, rotates. In the case B, at one side adjoining the case D, there is a discharge opening *h*, and at the opposite side of said case D, a flume F, communicates with the case B, said flume being divided by a horizontal partition *i*, into two parts one of which communicates with the case B, above the flanch C, and the other communicates with the case B, below the flanch. Each part of the flume is provided with a gate *j*. The upper ends of the shafts *a'*, *e*, are connected by gears *k*, *k*.

The drum E, rotates of course with the drum A, and serves as an abutment and causes the water to pass around within the case B, in the direction indicated by the arrows, the water acting against the buckets until the latter reach the opening *h*, where it is discharged. The recesses *g*, receive the buckets *c*, *c*, *d*, *d*, and admit of them passing the drum or abutment E.

When the full power of the wheel is required, both gates *j*, *j*, are opened and the water passes through both compartments *a*, *b*, of the case B. When only half of the maximum power of the wheel is required, one gate *j*, only is opened and the water passes through one compartment only of case B.

By the use of the drum or abutment E, arranged in relation with the discharge aperture *h*, and flume F, as shown, the water is discharged from the wheel as soon as the full benefit of its impacting force is obtained and the water cannot serve as a drag to the wheel.

I do not claim, broadly, the invention of a pair of drums, one of which is provided with buckets and the other with sockets to receive the buckets; but

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

The employment of two sets of buckets *c*, *c*, *d*, *d*, and separating flange C, in combination with the drum A, and the drum E, recessed to receive said buckets; the said parts being arranged and operating together in the manner herein shown and described.

ADOLPHUS LIND.

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