

(Model.)

R. J. JONES.

FEATHERING PADDLE WHEEL.

No. 384,367.

Patented June 12, 1888.

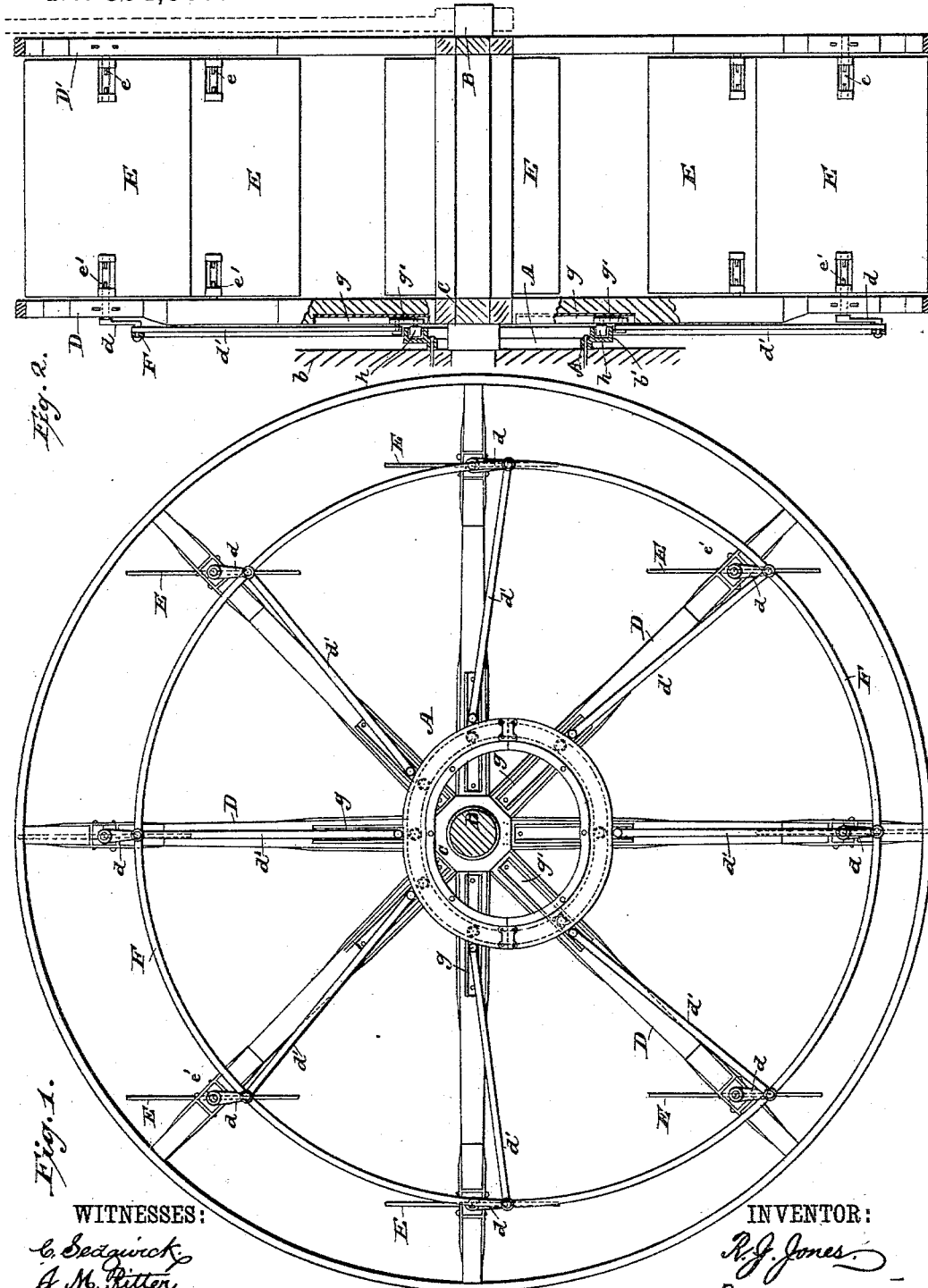


Fig. 1.

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FEATHERING PADDLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 384,367, dated June 12, 1888.

Application filed April 28, 1887. Serial No. 236,466. (Model.)

To all whom it may concern:

Be it known that I, ROBERT J. JONES, of Carrollton, in the county of Cowlitz and Washington Territory, have invented a new and Improved Paddle-Wheel, of which the following is a full, clear, and exact description.

My invention relates to an improved paddle-wheel, and has for its object to provide a wheel wherein the buckets will occupy a proper position to enter and be drawn from the water without causing "break water" or lifting a vast volume of water from the current, and wherein also the bucket may be made of a great width.

The object of the invention is further to provide a wheel which may be operated the full depth of the vessel, whereby loss of power and strain are avoided by being thrown out of the water when the vessel lurches in a rough sea.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a side elevation of the wheel, and Fig. 2 a central vertical section through the same.

In carrying out the object of the invention, A represents a cam plate made in two equal sections, united around the shaft B of the wheel in any approved manner, the said cam-plate being adapted for attachment to the ship's side *b*, and provided upon its surface fronting the wheel with an endless groove, *b'*.

From the hub C of the wheel, which is keyed to the shaft B, two series of arms, D D', are made to radiate, the distance between the series of arms regulating the width of the wheel. Buckets E are pivoted between each opposite arm D D' by means of a pivot-pin, *e*, passing through the arm D' and secured in lugs formed upon said buckets, as shown in Fig. 2, or in any equivalent manner, the opposite pivot-pin, *e'*, which is similarly secured, being made to project beyond the arm D.

Integral with the outer end of each pivot-pin *e'* a crank-arm, *d*, is provided, the pin of which is adapted to pass through a circular band, F, which band is of a less diameter than

the diameter of the wheel, as shown in Fig. 1. To the pin of each crank-arm *d*, inside the said circular band F, a connecting-rod, *d'*, is pivotally connected, the said connecting-rod being projected at a slight elevation outside the arms D to a point near the periphery of the cam-plate A. At this point in the said arms D a longitudinal groove, *g*, is made, extending from a point outside the cam to the hub of the wheel.

Within each groove *g* a plate, *g'*, is held to slide, and is pivotally connected at one end to the connecting-rod *d'*, and at the other end of said plate *g'* a friction-roller, *h*, is pivoted, adapted to travel in the groove *b'* of the cam-plate, as illustrated in Fig. 2.

The groove *b'* in the cam-plate A is made eccentric with axis of the wheel, the greatest point of the eccentricity being in a vertical line from said axis downward.

It will be observed that a true perpendicular of the buckets is attained at top and bottom of the wheel, and that each of the other buckets is also retained in substantially a perpendicular position, whereby they enter the water with the least possible resistance and present the greatest resistance thereto when entered, until after having passed the center of the wheel, whereupon they again assume substantially a perpendicular position, and thereby leave the water without carrying any weight with them.

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

1. In a paddle-wheel, the combination, with the arms of the wheel and buckets pivoted therein, of an annular band of less diameter than said wheel, having a crank-connection with said paddles, a plate attached to the vessel, having an eccentric groove, pins adapted to slide in said grooves, and a crank-connection between said pin and band, substantially as shown and described.

2. In a paddle-wheel, the combination, with the arms of the wheel, the buckets pivoted therein, and an annular band having a crank-connection with said buckets, of a plate attached to the vessel's side, having an eccentric groove in its face, a plate adapted to slide in the arms of said wheel, carrying pins adapted to enter the said eccentric groove, and a piv-

oted connection between said plate and annular band, substantially as shown and described.

3. In a paddle-wheel, the combination, with the grooved arms of the wheel and a plate having an eccentric groove and attached to the side of a vessel, of an annular band of less diameter than the wheel, buckets pivoted between the arms and each provided with a crank-arm connected to the annular band, a plate sliding in the groove of the arms and provided with pins working in the eccentric groove of the said plate, and a rod connecting the sliding plate with the cranks of the buckets, substantially as herein shown and described.

4. The combination, with the arms D D', of a paddle-wheel provided with a longitudinal groove, *g*, at their inner ends, buckets E, piv-

oted near the outer ends of said arms, crank-arms *d*, attached to the inner pivots of said buckets, an annular band, F, of less diameter than the wheel, pivotally attached to said crank-arms, a plate, *g'*, sliding in said grooves *g*, united at one end with said band by a connecting-rod, *d'*, and having a pin, *h*, upon the other end, of a plate, A, attached to the vessel's side, provided with groove *b'*, eccentric with the axis of said wheel, said groove adapted to receive the pin *h* of the plates *g*, substantially as shown and described, and for the purpose herein set forth.

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Witnesses:

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