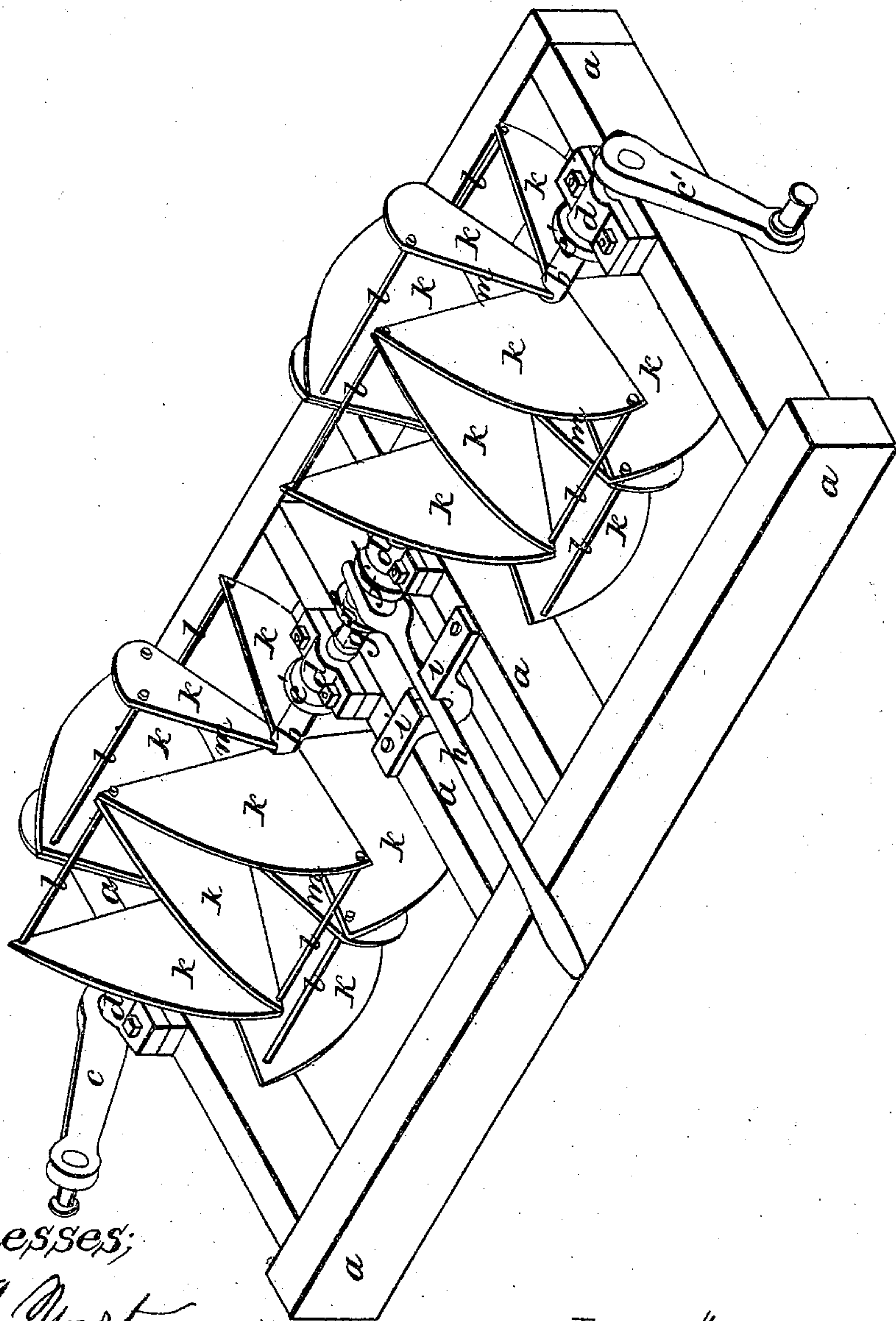


*B. Reed.*  
*Paddle Wheel.*

*N<sup>o</sup> 39,423.*

*Patented Aug. 4, 1863.*



*Witnesses;*

*John A. Martin*  
*Jm M. Trade*

*Inventor;*  
*Benjamin Reed*

# UNITED STATES PATENT OFFICE.

BENJAMIN REED, OF ALLEGHENY CITY, PENNSYLVANIA.

## IMPROVED WHEEL FOR MARINE PROPULSION.

Specification forming part of Letters Patent No. 39,423, dated August 4, 1863.

*To all whom it may concern:*

Be it known that I, BENJAMIN REED, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Propeller-Wheels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in providing propeller-wheels with angular "floats" or "buckets," one point of which is secured to the shaft or axis of the wheel and the other two points being out at the periphery of the wheel and staid and supported by means of rods or bars, said floats or buckets being so arranged that their outer points first enter the water, and so that the greatest point of power is brought near to the shaft or axis, and that the openings between the floats or buckets are angular or V-shaped, said openings being used for the purpose of avoiding the lift of water, thereby gaining power and preventing back action in the wheel, the shaft being transverse to the length of the boat.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, *a* represents the frame for supporting the wheel.

*b b'* represent the shaft, which is divided in the center, and is united or separated by means of an ordinary coupling consisting of parts marked *f f*, *g*, *h*, and *i*, the operation of which is well understood.

The object in making the shaft in two parts is to get a back and a forward action of the wheel—that is to say, one half of the wheel to move in one direction, and the other half in an opposite direction, for the purpose of assisting in controlling the boat when making a short turn.

*d* represents the plumber-blocks.

*e* and *e'* represent the cranks of the shaft *b b'*.

*e* and *e'* represent collars on the shaft, used for preventing it from moving endwise.

*K* represents the angular floats or buckets, one point of which is secured to the shaft, and the other two points are secured and staid by means of rods or bars *l*. The floats or buckets are arranged on the shaft so that their outer points approach each other, thereby forming the angular or V-shaped openings between them, (marked *m*.) These angular openings avoid all lift of the water.

The operation of my improvement is as follows: The points of one set of the angular floats first enter the water, and gradually increase in power until the next set in the same manner enters the water, and in proportion as the second set gain power in the same proportion will the first set diminish in power, and so on in like manner will follow and act each succeeding set. The points of the floats entering the water first obviate the jarring and splashing action, so common in propeller-wheels.

It will be observed that the greatest point of power in the floats is near their center. This will be seen by drawing a straight line from one point to the other of the two outer points of the floats; hence the point of greatest resistance is brought nearer the shaft without loss to the power of the wheel.

I am aware that floats have been placed diagonally on the shaft, and that inclined and curved floats have been used, and also that floats placed at an angle and twisted have been made. Therefore, I do not claim inclining, curved, or twisted floats; neither do I claim placing floats diagonal to the shaft; but

What I do claim as of my invention is—

The use of angular floats or buckets having one point secured to the shaft and the two outer points staid by means of rods or bars when said shaft is placed transverse to the length of the boat, the whole being arranged and constructed substantially as described, and for the purpose set forth.

BENJAMIN REED.

Witnesses:

JAMES J. JOHNSTON,  
ALEXANDER HAYS.