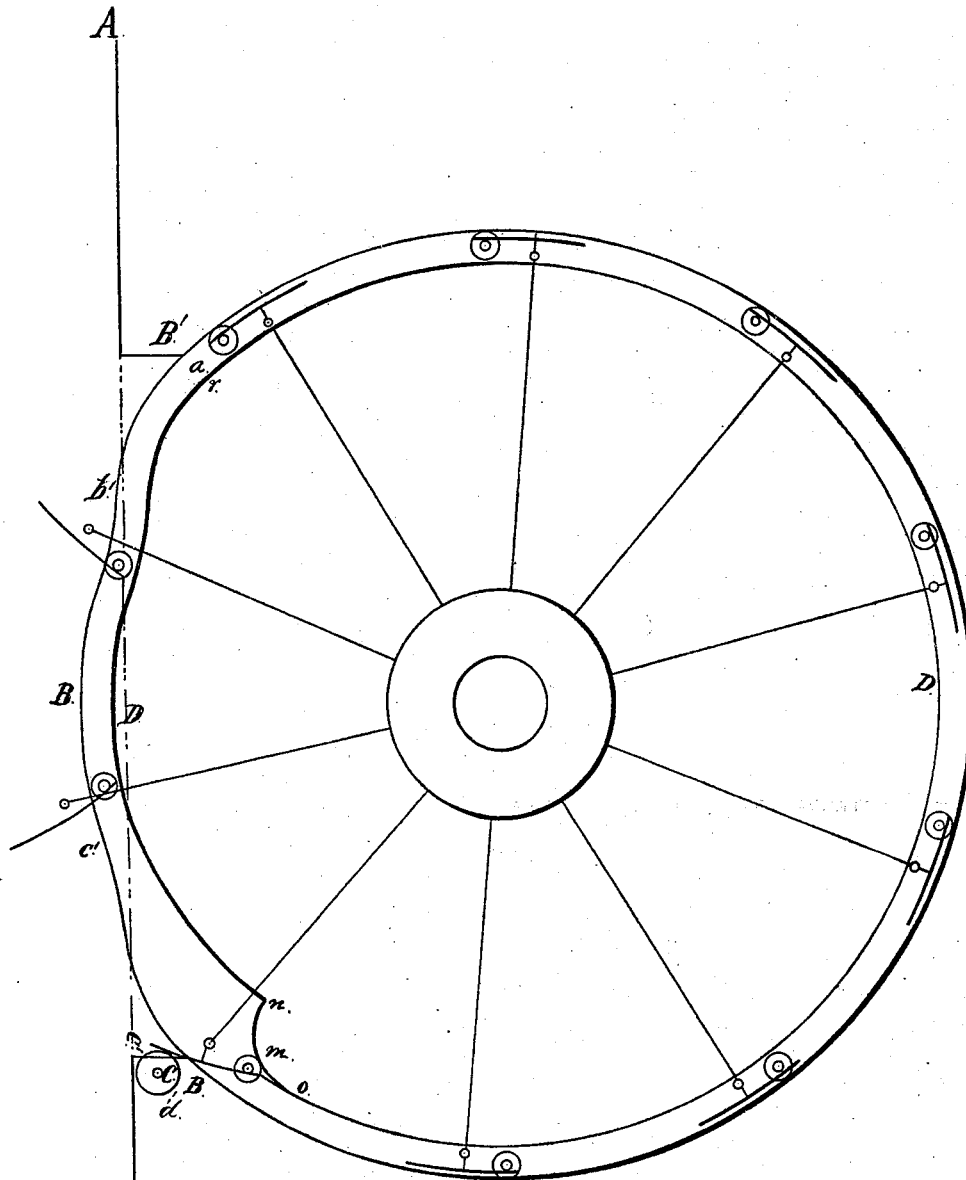


H. Everett, Paddle Wheel.

N^o 5,219.

Patented Aug. 7, 1847.



*Witnesses
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UNITED STATES PATENT OFFICE.

HORACE EVERETT, OF WINDSOR, VERMONT.

IMPROVEMENT IN PROPELLERS FOR VESSELS.

Specification forming part of Letters Patent No. 5,219, dated August 7, 1847.

To all whom it may concern:

Be it known that I, HORACE EVERETT, of Windsor, in the county of Windsor and State of Vermont, have invented new and useful Improvements on the Horizontal Shifting Paddle-Wheel for which I obtained Letters Patent of the United States, dated June 9, 1843, of which the following is a specification.

The nature of my invention consists in providing for the more certain and accurate opening of the paddles on the forward motion of the wheel, and in securing an efficient action of the paddles on the backward motion of the wheel, and also thereby rendering the wheel capable of being used as a vertical wheel, and as such of being placed within the body of the vessel, and when so placed, of being raised together with the cams, when sails only are used, and of having the paddles protected by side keels, and of being propelled by a crank at each end of the shaft placed at right angles to each other, and of being more readily repaired at sea; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of my said improvements, reference being had to the annexed drawings, making a part of this specification, and which represents both a horizontal section of a starboard horizontal wheel and a vertical section of a vertical wheel, and in which drawings—

The line A A represents the side of the vessel when the first wheel is used, and the bottom of the vessel when the vertical wheel is used, and the curved line D D represents the cam of the patented wheel. The improvements consist in placing an outer cam (represented by the line B B B) from *a* to *x* concentric with that from *r* to *s*, and of the same depth, and at such distance therefrom that the paddle-rollers while passing between them may roll on the one without impinging on the other, and by placing a cam of the same curves, reversed, from *x* to *d*, and by constructing the part of the cam D D—that is, between *r* and *o*—of two tangential curves, of which *n m* has a less radius than *m o*, and by placing the discharging-roller nearly or quite even with the line A A and nearly or quite even with the outer side of the cam *c d*, and

in placing the cam *n o* at such distance from the discharging-roller C as that, while (on the forward motion of the wheel) the paddle-rollers are passing from *o* to *m*, the forward ends of the paddles shall not touch the said roller C, but come in contact with it (C) when said rollers arrive at the point *m*, and that (on the backward motion of the wheel) the said rollers shall not impinge on the cam *n o* between *n* and *m*, but come in contact with it at the point *m*.

On the forward motion of the wheel the operation is that (if the paddles be not fully opened by the superior resistance of the water against their outer section) the paddle-rollers, by impinging against the inner side of the outer cam from *d* to *c*, will cause the paddles to be fully opened at the point *c*.

On the backward motion of the wheel the operation is that the paddle-rollers by impinging on the inner side of the outer cam from *a* to *b* will cause the paddles to be fully opened at the point *b*, and by continuing to impinge on the inner side of the outer cam from *b* to *c* the paddles will be kept open to the point *c*, where by the eccentricity of the curve of the cam from *c* to *d* they are free to be closed by the superior resistance of the water against their outer section; and to prevent a shock between the paddle-rollers and the cam *n m* the outer ends of the paddles will, as the wheel moves backward, impinge against the roller C at the point *e* and be stayed thereon until the paddle-rollers are deflected or elevated so far as not to come in contact with the cam *n o* before they come to the point *m*, whence they pass on to the point *o*, where they are fully closed. This arrangement will permit a more equal balance of the inner and outer sections of the paddles and avoid injury from their percussion against the paddle-arms on opening.

In a vertical wheel, the weight of the inner section of the paddles being greater than that of their outer section, will (on the backward motion of the wheel) cause the inner end of the paddles as they ascend from *c* toward *d* to fall outward, and thus aid in closing them.

What I claim as my invention, and desire to secure by Letters Patent, is—

The outer cam from *d* to *c*, whereby the perfect opening of the paddles at the point *c* is secured on the forward motion of the wheel, leaving the paddles free to commence closing at that point (*c*) on the backward motion of the wheel, and the combination of the modified inner cam from *r* to *o* with the roller C, whereby a shock between that cam and

the paddle-rollers (on the backward motion of the wheel) is prevented.

Windsor, July 26, 1847.

HORACE EVERETT.

Witnesses:

EDWARD EVERETT,
GEO. L. EVERETT.