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W. R. L. Mattason.

Paddle Wheel.

No. 27,499. Patented Mar. 13, 1860.

Fig. 1.

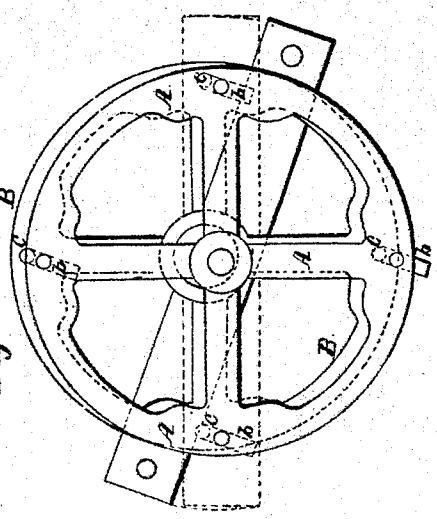


Fig 2.

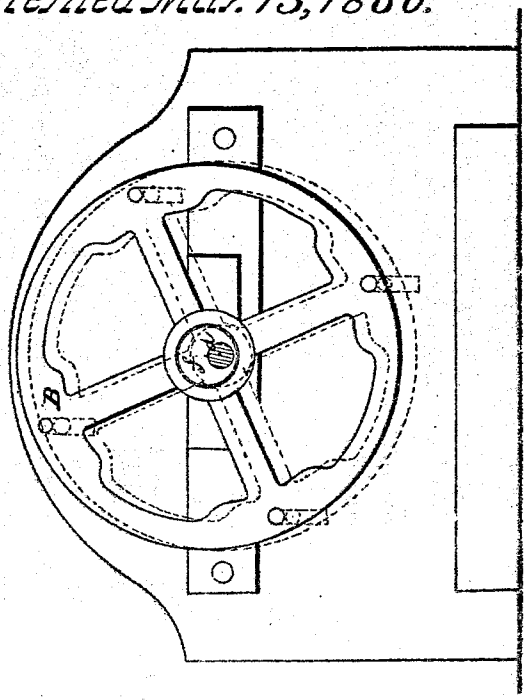


Fig. 3.

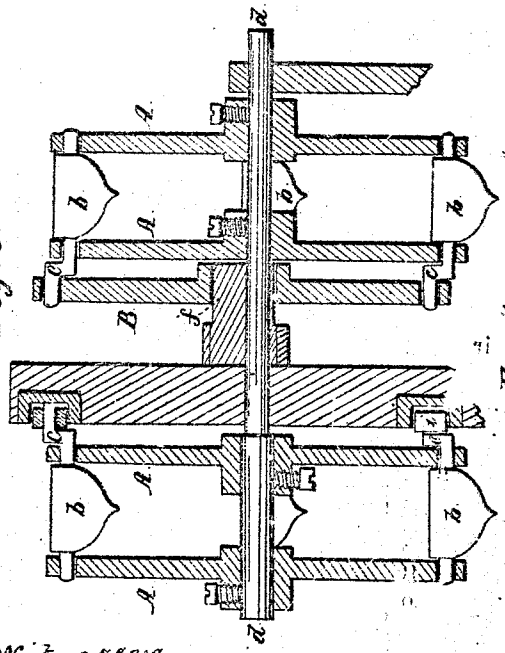
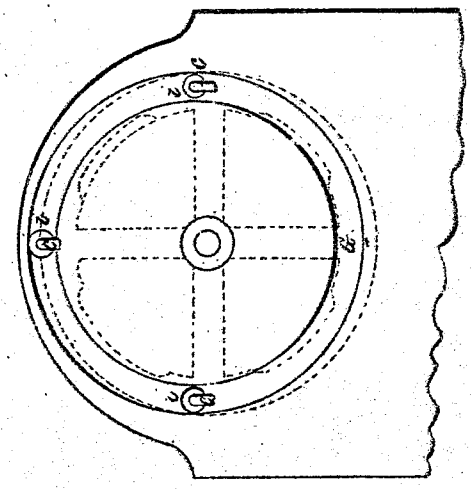


Fig. 4.



Witnesses:

J. Fraser

B. J. Ellis

Inventor:

Wm. L. R. Mattason

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM L. R. MATTASON, OF ROCHESTER, NEW YORK, ASSIGNOR TO HIMSELF AND J. M. FRENCH & CO., OF SAME PLACE.

IMPROVED FEATHERING PADDLE-WHEEL.

Specification forming part of Letters Patent No. **27,499**, dated March 13, 1860.

To all whom it may concern:

Be it known that I, WILLIAM L. R. MATTASON, of Rochester, in the county of Monroe and State of New York, have invented a new and Improved Method of Feathering the Paddle-Wheels of Vessels; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the wheel. Fig. 2 is an elevation of the governing-wheel B, the paddle-wheel being indicated by dotted lines. Fig. 3 is a vertical section through two paddle-wheels, one representing a modification of the other. Fig. 4 is a diagram of the eccentric groove G.

Similar letters refer to like parts in all the figures.

My invention consists in an improved method of keeping the floats or paddles in a vertical position while acting upon the water to secure their most efficient operation. To effect this I employ another wheel of the same or about the same diameter of the paddle-wheel placed by the side thereof, but having its axis eccentric to that of the paddle-wheel, the two being connected together only by cranks from the paddles.

As shown in the drawings, A, Fig. 1, represents the front side of the paddle-wheel, and B the eccentric or governing wheel.

b b are the paddles, the ends of the axles appearing through the rim of the wheel, and *c c* indicate the cranks on the opposite end, which take into the rim of the wheel B. This arrangement is more clearly shown in section in Fig. 3. The axle *d* of the paddle-wheel passes through that of the wheel B, (marked *f* in the drawings,) which is made large enough for this purpose, the one being eccentric to the other, as seen in Fig. 2. The wheel B turns freely on its axle and is connected to the paddle-wheel by the cranks *c c*, which being of corresponding length with the distance between the centers of the two wheels allow them to revolve together, the effect being to keep the cranks in the same direction constantly—viz., on a line with the two centers. Thus the center of the governing-wheel being placed above that of the paddle-wheel the paddles must necessarily remain in a vertical position throughout the whole revolution, as well when entering and leaving the water as when at the lowest point. Should the vessel be affected by the undulations of the waves, the paddles by remaining at right angles with the deck or guards F, as shown in Fig. 1, are still in the position to act most efficiently under such circumstances. It will be seen that varying the positions of the centers from a perpendicular line will give a corresponding inclination to the paddles, which may by this means be adjusted to any angle that may be found advantageous.

The cranks of the various paddles act unitedly, and thus but little strain falls on each in turning the wheel B, and as it offers no resistance but the friction of its axle but slight power is expended for that purpose.

I have represented in Figs. 3 and 4 a modification in the application of this principle, which consists in employing a stationary groove G instead of the eccentric wheel B. Its relative position to the axis of the paddle-wheel is the same and the cranks *c* work in the groove, being provided with pulleys or rollers *i* to reduce the friction. Instead of rollers small blocks or segments may be fitted to the groove and attached to the arm of the crank. The resistance of the water serves to turn each paddle, so as to keep its lower edge down, or the lower side may be made heavier than the other to secure this result. The cranks having greater liberty from sliding in the groove are not so certain to govern the position of the paddles, besides the friction is greater, and I prefer to employ the eccentric wheel, as always operating with certainty and less liable to get out of order.

I construct the paddles with the lower edge elliptic and pointed in form, which offers advantages in passing through ice, as the wedge-like form of the point would have the effect to break it, if not too solid, without injury to the paddles, while they would meet with less resistance from the water.

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

The bearing, resting-arm, or shoulder, substantially as and for the purpose of adjusting the center of the eccentric wheel, as described.

WM. L. R. MATTASON.

Witnesses:

J. FRASER,

S. J. ALLIS.