

T. WALSH.

FEATHERING PADDLE-WHEELS.

No. 179,143.

Patented June 27, 1876.

Fig 1.

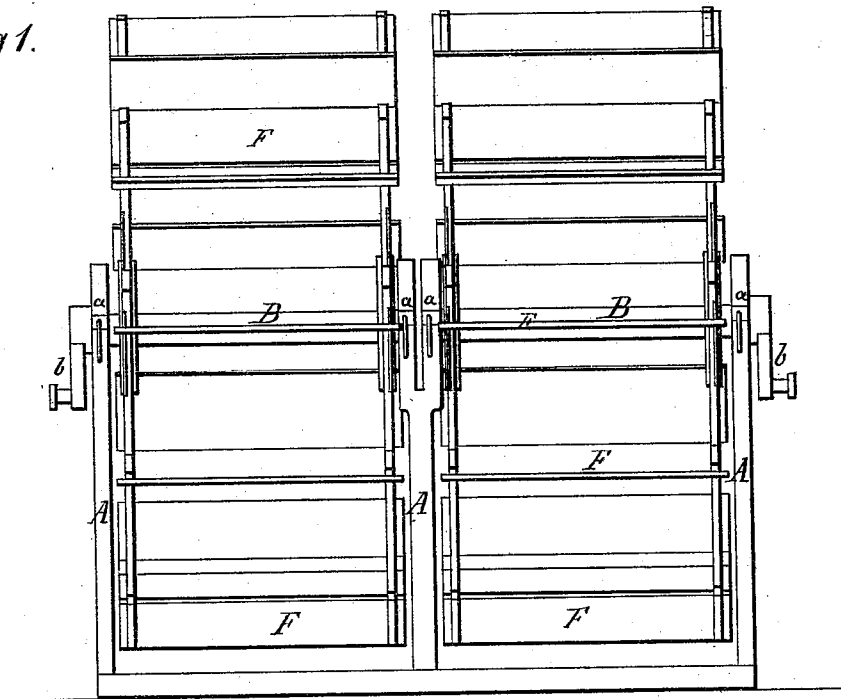


Fig 2.

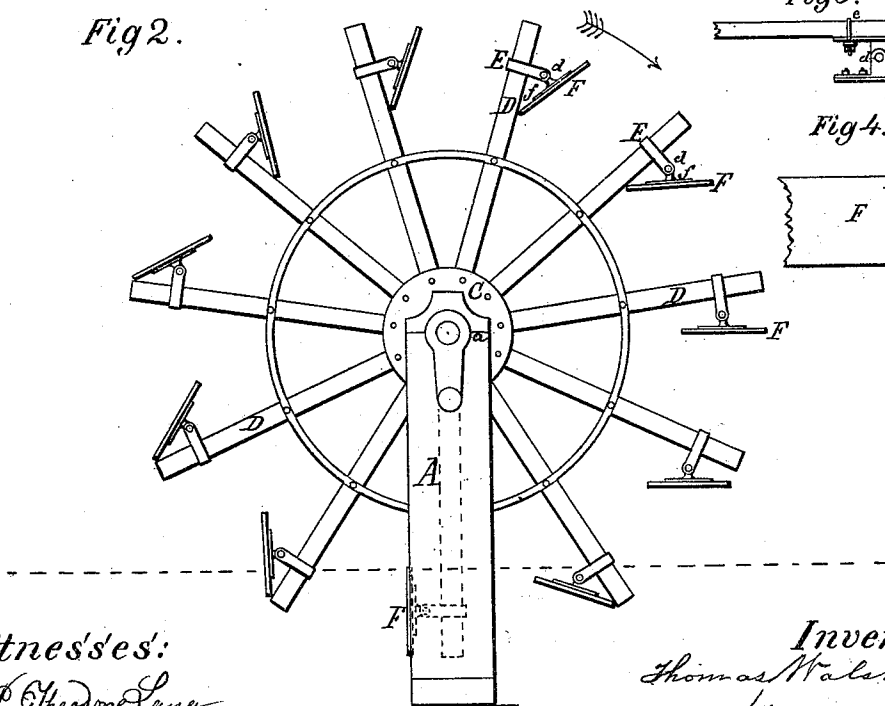


Fig 3.

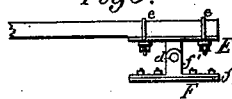
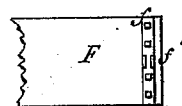


Fig 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS WALSH, OF DUBUQUE, IOWA.

IMPROVEMENT IN FEATHERING PADDLE-WHEELS.

Specification forming part of Letters Patent No. **179,143**, dated June 27, 1876; application filed February 17, 1876.

To all whom it may concern:

Be it known that I, THOMAS WALSH, of Dubuque, in the county of Dubuque and State of Iowa, have invented new and Improved Steam-Propelling Paddle - Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear or stern view of my improved wheels hung in bearings at the stern of a boat. Fig. 2 is a side view of one of said wheels. Figs. 3 and 4 represent a modification in the manner of fastening the floats to the wheel.

The nature of my invention consists, first, in a paddle-wheel having its floats pivoted to brackets of the arms of the wheel, in such a manner that the floats automatically adjust themselves to such positions that they strike the water with their faces nearly parallel to the horizon or surface of the water, and, while passing below the surface of the water and through the water, abut with their outer edges against heels or extensions of the arms of the wheel, so as to be firmly supported, and, during one-quarter of the revolution of the wheel, present an oblique-setting broadside for moving against the water, and, during the succeeding quarter-revolution of the wheel, present a face which is nearly vertical with the horizon or surface of the water, and thereby avoid lifting and bearing the weight of the water on their broadsides in emerging therefrom.

In the drawings, A represents the posts or beams carrying the journal-bearings *a* of two paddle-wheels. The said paddle-wheels consist each of a shaft, B, provided with a crank, *b*, and hubs C, to which the arms D are fastened, in the usual manner. Each arm D is provided with a bracket, E, to which, by means of a pivot, *d*, a T-shaped strap, *f*, is attached. A float, F, is fastened crosswise to two or more such straps, according to the number of hubs or parallel arms on the shaft.

The pivot *d* is at some distance from the arm D, which arm serves as an abutment for the float at either side of the said pivot, as indicated in Fig. 2. These several floats on the

paddle-wheels will right themselves above the water, according to their own facilities for balancing. In the water the said floats will, at the beginning of the stroke of the wheel, be thrown against their abutments or arms D, as seen in Fig. 2, and will be kept in this position, or nearly so, until they are wholly submerged, at which time the resistance of the water will be about equal to the upper and lower half of such float, and cause it to stand about in the same line as the arm to which it is fastened.

The angle at which the floats approach the surface of the water is such that at a normal speed of the vessel the whole forward resistance of the water falls upon the lower edges of the floats, thus causing the floats to articulate more or less upon their pivots *d*, and so avoid a waste of power by splashing, which is caused by the use of fixed floats. The floats leave the water in a nearly perpendicular position to the surface of the water, thereby avoiding the lifting of water, as in the case of fixed floats, and the loss of power.

The difficulty of steering vessels propelled by paddle-wheels at the stern is well known; but by having two paddle-wheels, each driven by a separate engine, I overcome such difficulty, either by applying more power to one of the paddle - wheels, or by stopping the operation of one paddle - wheel altogether, thereby throwing the greater propelling power on that side of the vessel where it is most needed. Under these circumstances the use of the rudder becomes unnecessary, and it may be allowed to hang loose. If the vessel is to be reversed, the two paddle - wheels are revolved in opposite directions, and the vessel will swing around the center of the two paddle-wheels the same as if it were pivoted in that place, while the old mode of reversing the vessel by aid of the rudder can only be done by moving the vessel in long curves, thus requiring a broad channel in river navigation.

I have shown in Figs. 3 and 4 a different mode of attaching the floats, whereby the clasps are substituted by T-shaped straps E, which are fastened to the arms D by U-shaped bolts *e*. The floats F are then provided with T-shaped straps *f*, with double parallel heads *f'*, as seen in Fig. 4, between which the head

of the strap E is inserted. I regard this as an equivalent of the plan of attachment shown in Figs. 1 and 2 of the drawings.

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

In a paddle-wheel for steamboats or vessels, the combination of the arms D with the brackets E, pivots *d*, and the floats F, substantially as, and for the purpose set forth.

In testimony that I claim the above as my invention, witness my hand in the presence of two witnesses.

THOMAS WALSH.

Witnesses:

JOSEPH COLLINSON,
JAMES MCCLAIN.