

D. FREED.
Screw-Propellers.

No. 141,871.

Patented August 19, 1873.

Fig 1

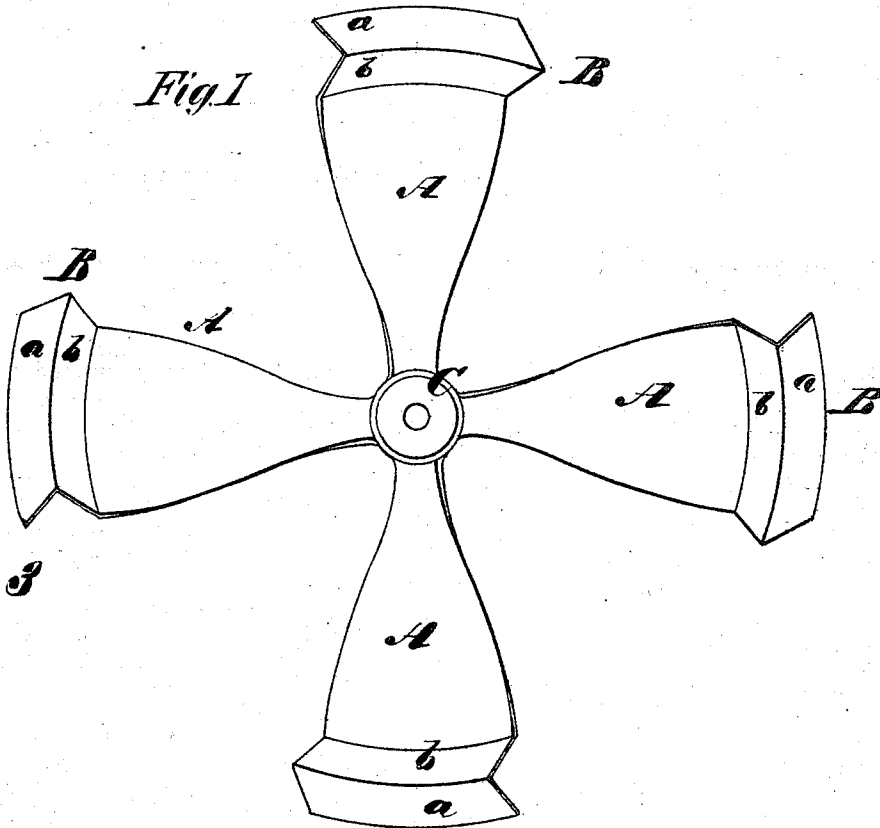
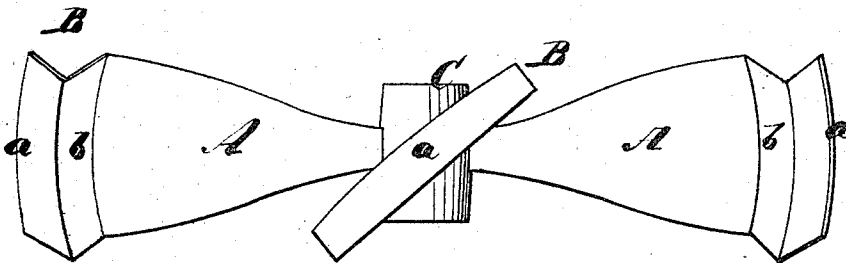


Fig 3



Fig 2



Witnesses.

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DAVID FREED, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **141,871**, dated August 19, 1873; application filed June 11, 1873.

To all whom it may concern:

Be it known that I, DAVID FREED, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and Improved Propeller; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a face view of the propeller. Fig. 2 is an edge view of the same. Fig. 3 is a section through one of the blades.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement on that class of rotary stern propellers having angular blades feathered around a hub. My object is to increase the efficiency of such wheels by so constructing the outer edges or peripheries of the blades that the surfaces at these points will not allow the water to glance off laterally from the blades, but will catch the outwardly-flaring currents and direct them backward nearly in a line coinciding with the length of the vessel, as will be hereinafter explained.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawings, A A represent the blades of the propeller, which are usually four in number, and which are secured into or cast with a hub, C, at regular intervals around the same. These blades are feathered in the usual well-known manner, and may be of the usual well-known angular shape represented in the drawings. The circumferential edges of the blades are arcs of a circle which is concentric to the axis of the wheel. Looking at the back face of the wheel,

angular furrows B are seen, and on the front or opposite side of the wheel corresponding ridges are presented. The furrows present two angular surfaces, *a b*, the outer one, *s a*, of which will catch the currents of water which are impelled obliquely outwardly and change their direction—that is to say, the surfaces *a* will direct the currents backward in the wake of the vessel, or nearly at right angles to the plane of the wheels.

When the rotation of the wheel is reversed for backing the vessel the rear faces *b* of the angles B will operate to change the direction of the outwardly-flaring currents, as described for front faces *a* of the angles B.

It will be seen that the angles B have the same feather as the plain faces of the blades; also, that the faces *a b* of the angles are concentric with the axis of the wheel.

I not only augment the propelling capacity of the blades by the formation of the angles B on them, but by means of such blades a vessel is kept more steady in its course.

Having described my invention, what I claim as new is—

The concavo-convex angular furrow circularly on the verge of the propeller-blades, the concavity being on the forward propelling-surface of the blades, and the convexity on the backward propelling-surface thereof, thereby giving propelling advantage by reason of the rush of the water thrown by centrifugal action against the grooved angular surfaces on the verge of the blades, substantially as set forth.

DAVID FREED.

Witnesses:

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