(Model.)

J. F. FOLMER.

SCREW PROPELLER.

No. 283,592. Patented Aug. 21, 1883.

Fig. 1.

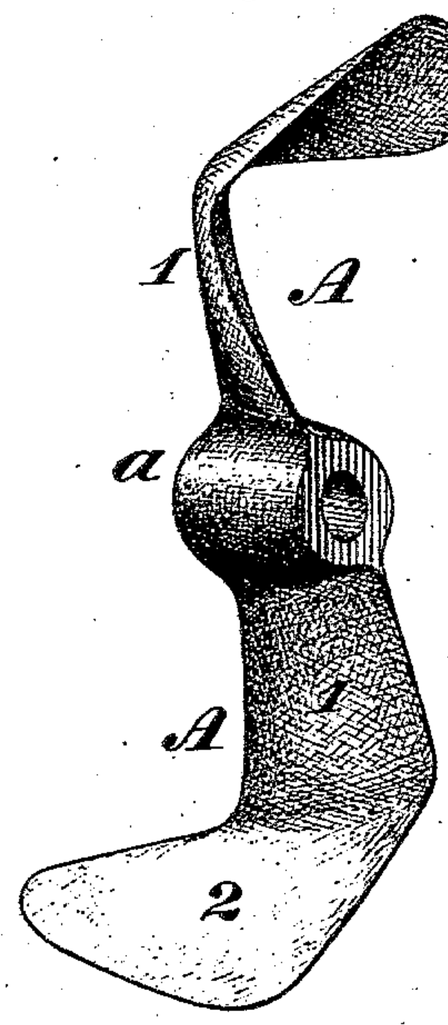


Fig. 2.

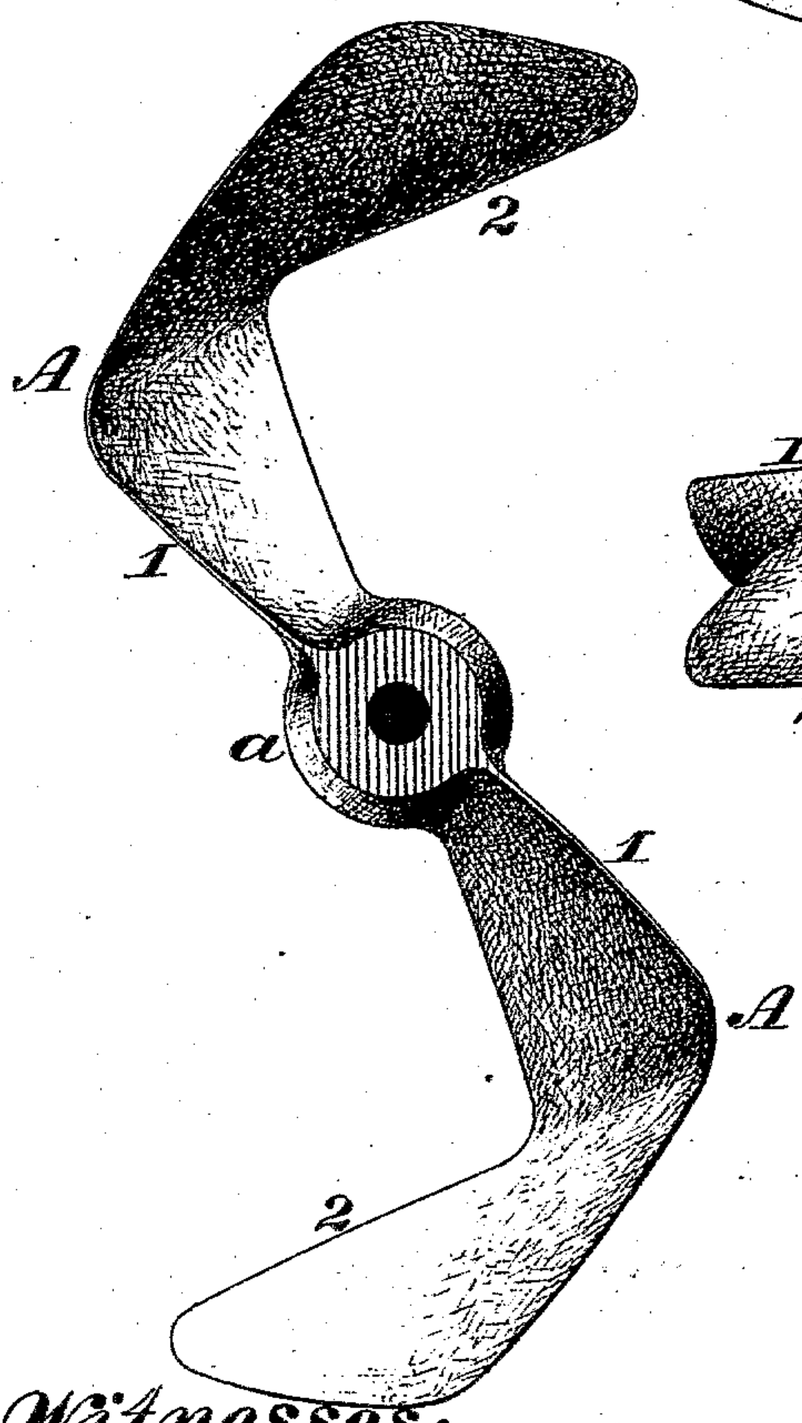


Fig. 4.

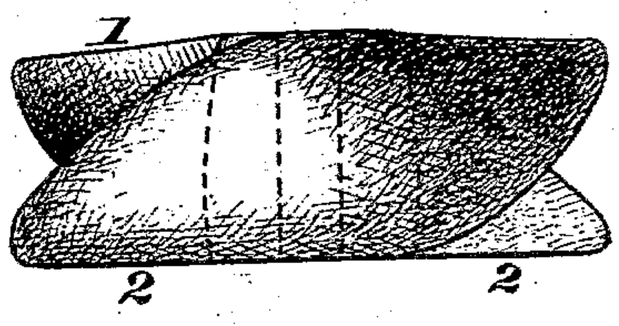
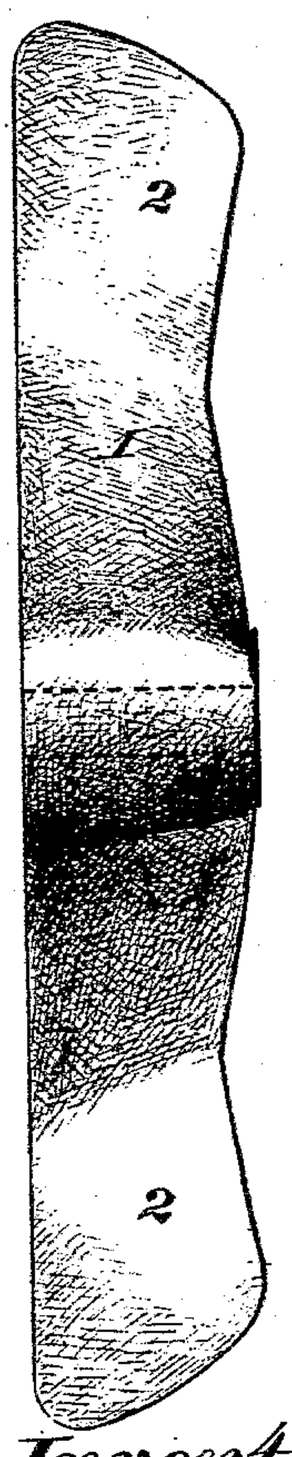


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN F. FOLMER, OF PHILADELPHIA, PENNSYLVANIA.

SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 283,592, dated August 21, 1883.

Application filed March 2, 1883. (Model.)

To all whom it may concern:

Be it known that I, JOHN F. FOLMER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Screw-Propellers, of which improvement the following is a specification.

The object of my invention is to construct a screw-propeller the blades of which will pass easily through the water while exerting their full propelling effect, so as to obviate as far as may be the jar and shock upon the vessel ordinarily experienced in the rotation of a propeller, to reduce centrifugal action, and to realize a greater useful effect than heretofore from an engine of given power.

To these ends my improvement consists in a propeller-wheel having the outer portions of its blades bent or inclined in the direction of its forward movement when in rotation, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a view in perspective of a screw-propeller embodying my invention; Fig. 2, an end view of the same as seen from the rear when in working position upon a vessel; Fig. 3, a side view as seen from the left, and Fig. 4 a top view.

My invention is herein shown as applied in a propeller having two screw-blades, A, projecting from a central hub, *a*. As ordinarily constructed the edges of the blades, as seen in line with the axis of the propeller, are either substantially radial to the axis or are spirally or otherwise curved, an instance of the curved form being found in the patent of Hermann Hirsch, No. 102,399, dated April 26, 1870. Under my invention the inner portions, 1, of the blades are of the usual configuration, and their outer portions, 2, are bent or inclined in the direction of the forward movement of the propeller at or about at right angles to the inner portions, the inclination of the outer portions, 2, relatively to the inner portions being due to and governed by the fact that they are formed of sections of helices the axis of which is located at an angle to the axis of the propeller, in lieu of coinciding therewith, as in the ordinary construction. The outer portions are made of the desired pitch and constitute substantially the propelling-surfaces of the blades. By reason of the forward inclination of the blades they act upon the water more gradually and easily than if made with radial lateral edges and a continuous helical curvature throughout, with a corresponding reduction of the jar upon the vessel in passing through the upper semicircle of their revolution, and a further useful result is attained in the obstacles to centrifugal movement of the water presented by the outer portions of the blades. In practice a propeller so formed has developed greater speed with the same power as and equal speed with less power than one of the ordinary construction.

I am aware that prior to my invention screw-propellers have been known in which the blades are of such outline, as seen in line with the axis of the propeller, that their outer portions are curved or bent forwardly relatively to their inner portions. Such construction, which, broadly, I disclaim, differs from my invention in the substantial particular that its blades are sections of true screws, or of helices whose axes coincide with the axis of the propeller, and therefore, irrespective of the form of their boundaries, their helical curvature is continuous from the hub to the circumference, while in my propeller the surfaces of the outer portions, being sections of helices whose axes are at an angle with the axis of the inner portions, are inclined to or set at an angle with the surfaces of said inner portions.

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

A screw-propeller in which the outer end portions of the blades are bent or inclined relatively to the inner portions in the direction of the forward movement of the propeller when in rotation, said outer end portions, which constitute substantially the effective propelling-surface of the blades, being of helical form throughout, and having their surfaces at an angle with the surfaces of the inner portions, substantially as set forth.

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Witnesses:

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