

(No Model.)

P. D. STEAD.
SCREW PROPELLER.

No. 576,169.

Patented Feb. 2, 1897.

Fig. 1.

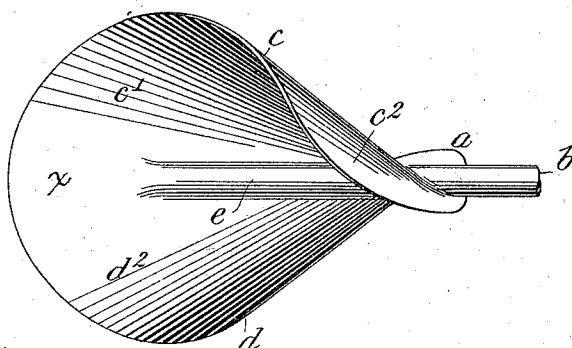


Fig. 2.

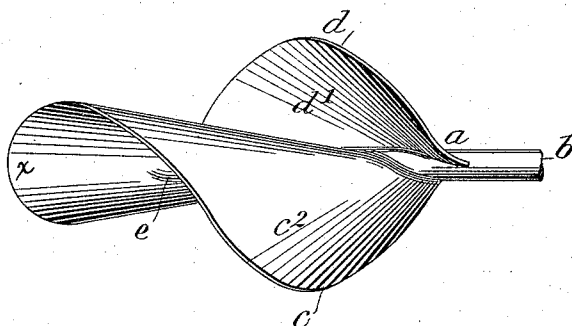
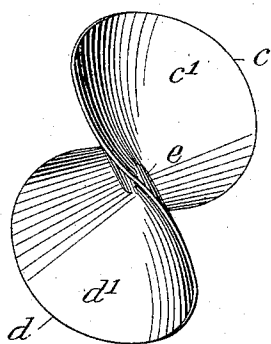


Fig. 3.



WITNESSES:

C. E. Ashley
W. W. Lloyd.

INVENTOR:

Philip D. Stead
By his Attorneys
Baldwin, Davidson & Wight

UNITED STATES PATENT OFFICE.

PHILIP D. STEAD, OF PELHAMVILLE, NEW YORK.

SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 576,169, dated February 2, 1897.

Application filed November 15, 1895. Serial No. 569,085. (No model.)

To all whom it may concern:

Be it known that I, PHILIP D. STEAD, a citizen of the United States, residing in Pelhamville, county of Westchester, and State of New York, have invented a new and Improved Screw-Propeller, of which the following is a specification.

The screw-propeller forming the subject of this invention has the blades on the opposite sides of the axis so formed as to have the characteristic properties of a flat sheet helically twisted—that is, the two blades have common continuing surfaces, the inside of one blade being included in a continuous surface with the outside of the other blade. The development of the twist of the blades is such that the pitch gradually increases from the front or leading end to the rear end of the propeller, and at the rear end the two blades meet in a plane parallel to or passing through the axis, and all parts of the blades consist of curved surface except at their juncture at the extreme rear end of the propeller, where the edges of the blades are on a common diameter. The sizes of the different parts of the blades may be varied in various ways throughout the pitch or longitudinally to the propeller—that is, the diameters of the various parts may be uniform or they may be larger at the leading end and gradually decrease in size toward the rear end, or may be the shortest at the leading end and gradually increase in size toward the rear end, where the two blades meet or connect. This last-described formation—viz., a gradual increase of diameter of the blades from the leading to the rear end—is thought to be the best for general purposes and is selected to show my invention, so that the same may be more fully understood by the accompanying drawings, in which—

Figure 1 is a side elevation of a two-blade screw-propeller embodying my invention. Fig. 2 is a view looking at the propeller from right angles to Fig. 1, and Fig. 3 is an end view.

The hub *a* of the propeller is shown extending from the end of a propeller-shaft *b*, to which it may be secured in any suitable

manner, or the shaft, the hub, and the blades may be integral and be forged or otherwise formed into shape. The hub and the blades will be preferably formed of one piece of metal.

The blades *c* and *d* are corresponding, oppositely arranged, and are helically formed around the axis, with an increasing pitch and diameter from the hub or leading end of the propeller to the rear end, where they ultimately reach the center by gradual inward sweeps and meet or connect on the line or axis *e*.

The inner face *c'* of the blade *c* and the outer face *d'* of the blade *d* are one continuing surface, and another continuing surface includes the outer face *c''* of the blade *c* and the inner face *d''* of the blade *d*. These continuing surfaces extend from the leading ends of the blades to their extreme rear ends, that is to say, the ends of the blades are symmetrically connected by the relatively flat part X, that extends on opposite sides radially from the axis and merges into and is in fact a part of the blades at their extreme rear ends. By this construction it will be seen that the two blades support and stiffen each each other and that propellers so formed may be made very light and strong.

The part X, in which the two blades unite at their rear ends, holds the water against the thrust of the blades and prevents its breaking or churning at that point.

I claim as my invention—

A screw-propeller having two diametrically-opposed blades, consisting of a relatively flat part at the rear, in a longitudinal plane of the axis, from which flat part the opposite blades extend forward helically along the axis, the pitch and diameter of the blades gradually increasing from their leading to their rear ends, substantially as set forth.

In testimony whereof I have hereunto subscribed my name.

PHILIP D. STEAD.

Witnesses:

THOS. M. WILLIS,
JOHN O'BRIEN.