A. C. FLETCHER.

Screw-Propellers.

No. 157,809. Patented Dec. 15, 1874.

FIG. I.

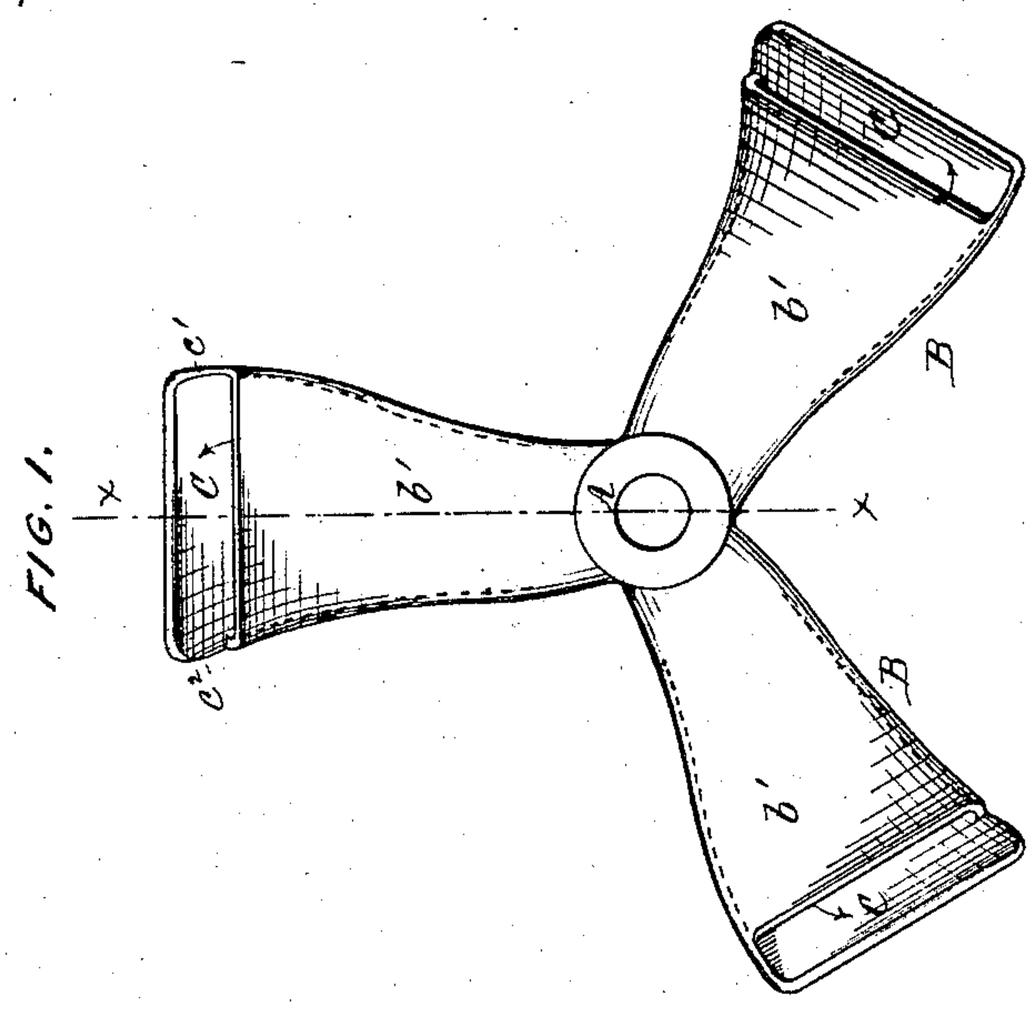


FIG. II.

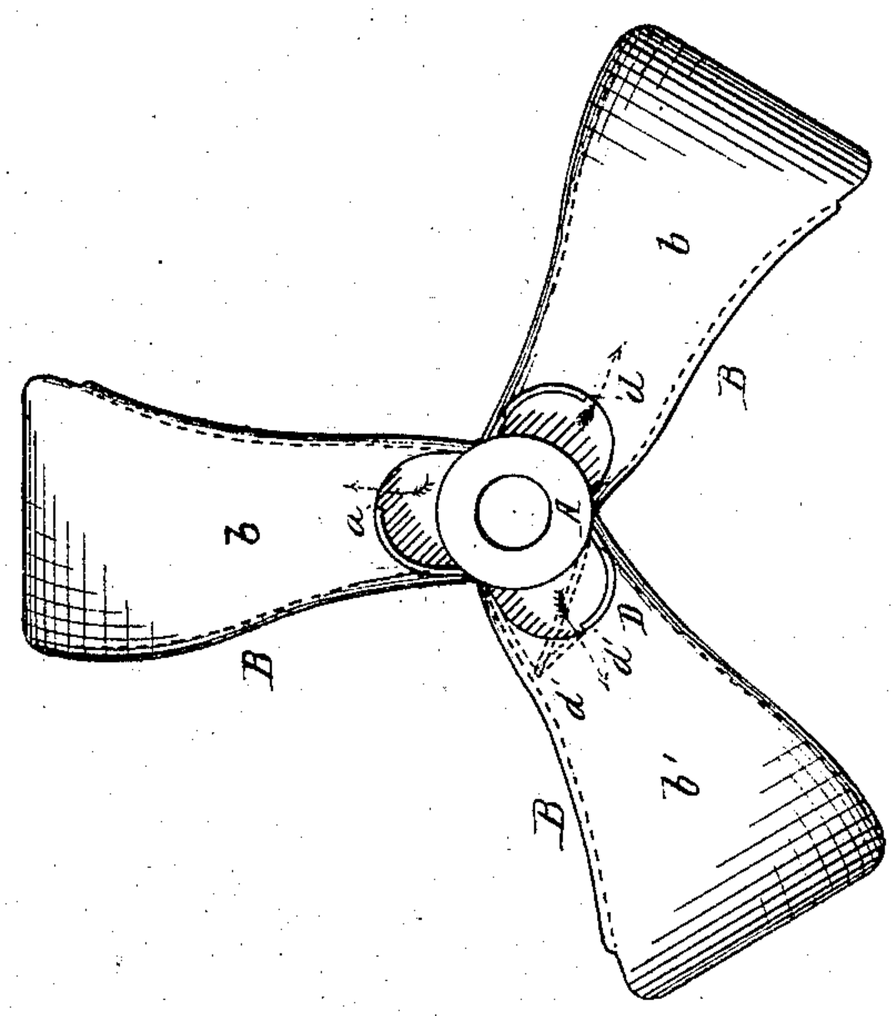
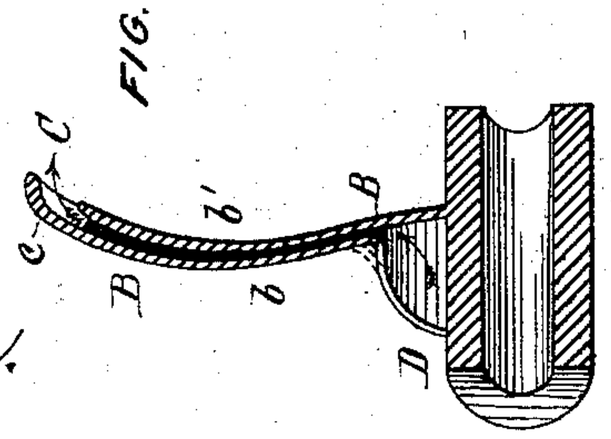


FIG. III.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **157,809**, dated December 15, 1874; application filed December 10, 1874.

To all whom it may concern:

Be it known that I, ADDISON C. FLETCHER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Propeller-Screws, of which the following is a specification:

My invention relates to certain improvements in propeller-screws, whereby the propelling power of the same is greatly enhanced and the resistance of the water in front of the screw materially lessened when in operation, giving increased velocity to the vessel.

My invention consists in forming the blades of such screws with water-passages, leading from the front of the screw, at or near the propeller journal or shaft, to the end of the blades, and opening to the rear of the same, so as to take in the water in front of the screw, at or near the center, and discharge it to the rear at the ends of the blades.

In the drawings, Figure 1 represents a rear view of my improved screw; Fig. 2, a front view of the same; and Fig. 3, a sectional view of the same, taken on line *x x* of Fig. 1.

A represents the axis of the screw, to which the blades are attached, and B the blades. The axis and blades may be constructed of any suitable material and of any approved shape. Through each blade is formed a hollow passage, extending from the axis A to the end of the blade, formed by the walls *b* and *b'* of the blade. Through the wall *b*, at or near the axis A, is an aperture or opening leading into said passage. The rear wall *b'* of each blade is made somewhat shorter than the front wall, leaving an opening, C, at the rear of the blades, near the end of the same, through which the water taken in at the center of the wheel is discharged. The end of the front wall *b*, where it extends beyond the wall *b'*, is formed with a parabolic curve to the rear, as shown at *c*, which is the most effective for throwing off the water toward the rear, offering but little resistance to the same as it passes out. To the front wall of the blade, directly over the aperture therein, is secured a shield or hood, D, which serves as a conveyer to conduct the water into said aperture as the screw revolves. Said hood extends along the axis A to its end, sloping gradually off to the center of the blade, or to its lower edge at any convenient angle, as shown at *d* and the dotted lines *d'*, Fig. 2.

It is evident that the improved screw, as described, can be constructed in various ways. It may be cast entire in one piece, complete, or may be formed of wrought-iron, the axis and blades being formed separately and afterward united; and the walls of the blades may be formed separately and united at their edges. My invention may also be applied to any screw in ordinary use by constructing or applying a front piece of proper shape to each of the blades, as will be readily understood.

In order to throw the water directly to the rear of the blades, the upper edge of the front wall is continued out flush with the rear face of the wheel, as shown at c^1, the lower edge being cut away, as shown at c^2.

It is found that a screw as thus constructed will possess many advantages over the ordinary screw-propellers. The blades of the screw act upon the water in the ordinary manner, the water discharged through the passages giving additional propelling power to the same. At the same time the water immediately at the center, in front of the screw, is rapidly removed, relieving the resistance of the same at a point where the screw has but little propelling power, and where the resistance against it is greatest.

What I claim is—

1. In a propeller-screw having hollow blades, the arrangement of passages to lead from the front, at or near the hub of the screw, to the rear, near the extremity of the blade, for conveying the water from the front to the rear of the wheel, substantially as and for the purpose described.

2. The front wall or piece *b*, constructed with a parabolic curve at the end, and adapted to be attached to the rear wall *b'* or the blades of an ordinary propeller-wheel, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand.

ADDISON C. FLETCHER.

Witnesses:

JAMES L. NORRIS,

JOS. L. COOMBS.