J. C. CAPERN.

Screw Propeller.

No. 201,650. Patented March 26, 1878.

Fig. 2

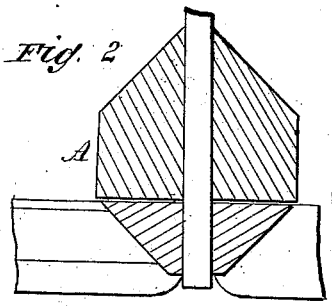


Fig. 1

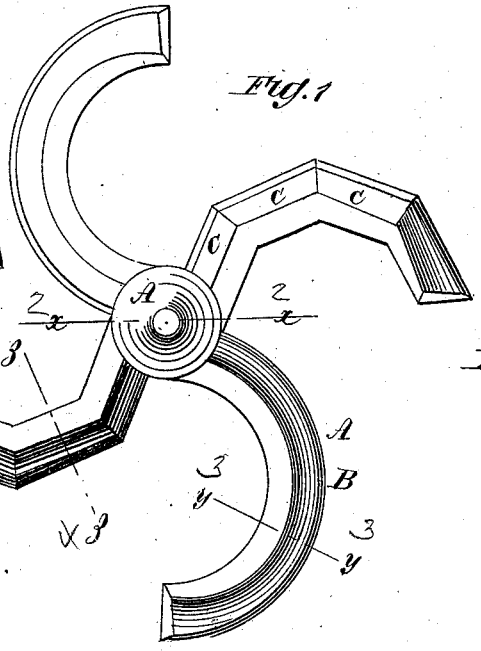


Fig. 4

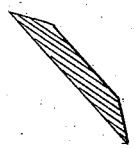


Fig. 3

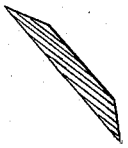


Fig. 5.

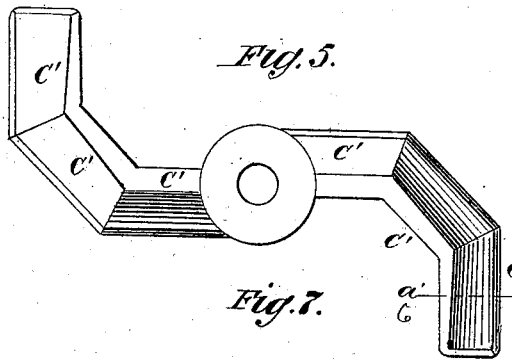


Fig. 6.

Fig. 8.

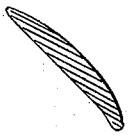
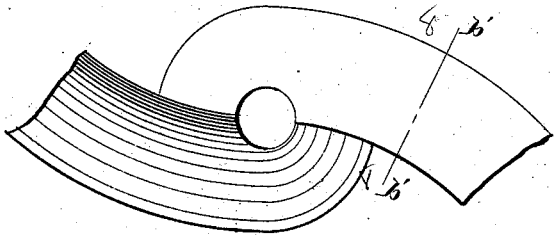


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN CHARLES CAPERN, OF NEW YORK, N. Y.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **201,650**, dated March 26, 1878; application filed August 18, 1877.

To all whom it may concern:

Be it known that I, JOHN CHARLES CAPERN, of the city, county, and State of New York, have invented a new and Improved Propeller, of which the following is a specification:

Figure 1 represents the reverse side of the propeller. Fig. 2 is a transverse section on line *x x* in Fig. 1. Fig. 3 is a transverse section on line *y y* in Fig. 1. Fig. 4 is a transverse section on line *z z* in Fig. 1. Fig. 5 represents a modified form of the propeller. Fig. 6 is a transverse section on line *a' a'* in Fig. 5. Fig. 7 represents a modification, and Fig. 8 a transverse section on line *b' b'* in Fig. 7.

Similar letters of reference indicate corresponding parts.

The object of my invention is to construct a propeller-wheel by which the greatest economical effect of the applied power may be obtained.

The invention consists, essentially, in a number of sections of hollow semi-cones attached to a conical boss or hub, having their flaring sides astern.

Referring to the drawing, A is a cylindrical boss or hub attached to the propeller-shaft, and provided with a conical face on each end, to either of which or to the cylindrical portion the blades of the wheel may be attached. These blades, while capable of being modified in various ways, are constructed on the same general principle as shown at B in Fig. 1. This blade consists of a section of a hollow half-cone attached to the hub A, with its two ends on the same radial line. Two or more of these blades attached to the hub may constitute the wheel.

When the blade is made in this form, both of its edges are formed upon a half-circle, and the angle made by the face of the blade with the axis of the cone, of which it forms a part, should be, for the best effect, forty-five degrees, although this angle may be varied to adapt the wheel to different uses, and the face of the same blade may be divided circumferentially into sections of different angles. For example, the part adjoining the inner edge of the blade may form a greater angle with the axis of the cone than body of the blade, to give the blade a more acute entering edge than it would have if the angle of the body of the blade were preserved to its extreme inner edge; and that portion near the outer edge, also, may form a less angle with the axis of the cone, to direct the water astern, and confine the water thrown back by the wheel to a path as nearly as possible parallel with the axis of the wheel. These modifications are shown in Figs. 6 and 8.

The blade may consist of a section of a hollow hexagonal pyramid; or it may be made up of a number of straight sections, C, having the same form in transverse section as the semicircular blades, and the same effect will be produced.

A further modification is shown in Fig. 5, in which the sections C' of the blade are attached to a cylindrical hub, with the inner edge of the first section arranged on a radial line drawn from the center of the hub.

In Fig. 7 two curved blades are attached to a hub, with their outer edges tangential to the periphery of the hub.

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

A propeller the blades of which are formed of a section of a hollow semi-cone, substantially as herein shown and described.

JOHN CHARLES CAPERN.

Witnesses:

JAMES H. HUNTER,

ALEX. F. ROBERTS.