

E. B. PORTER.
Screw-Propellers.

No. 158,734.

Patented Jan. 12, 1875.

Fig: 1.

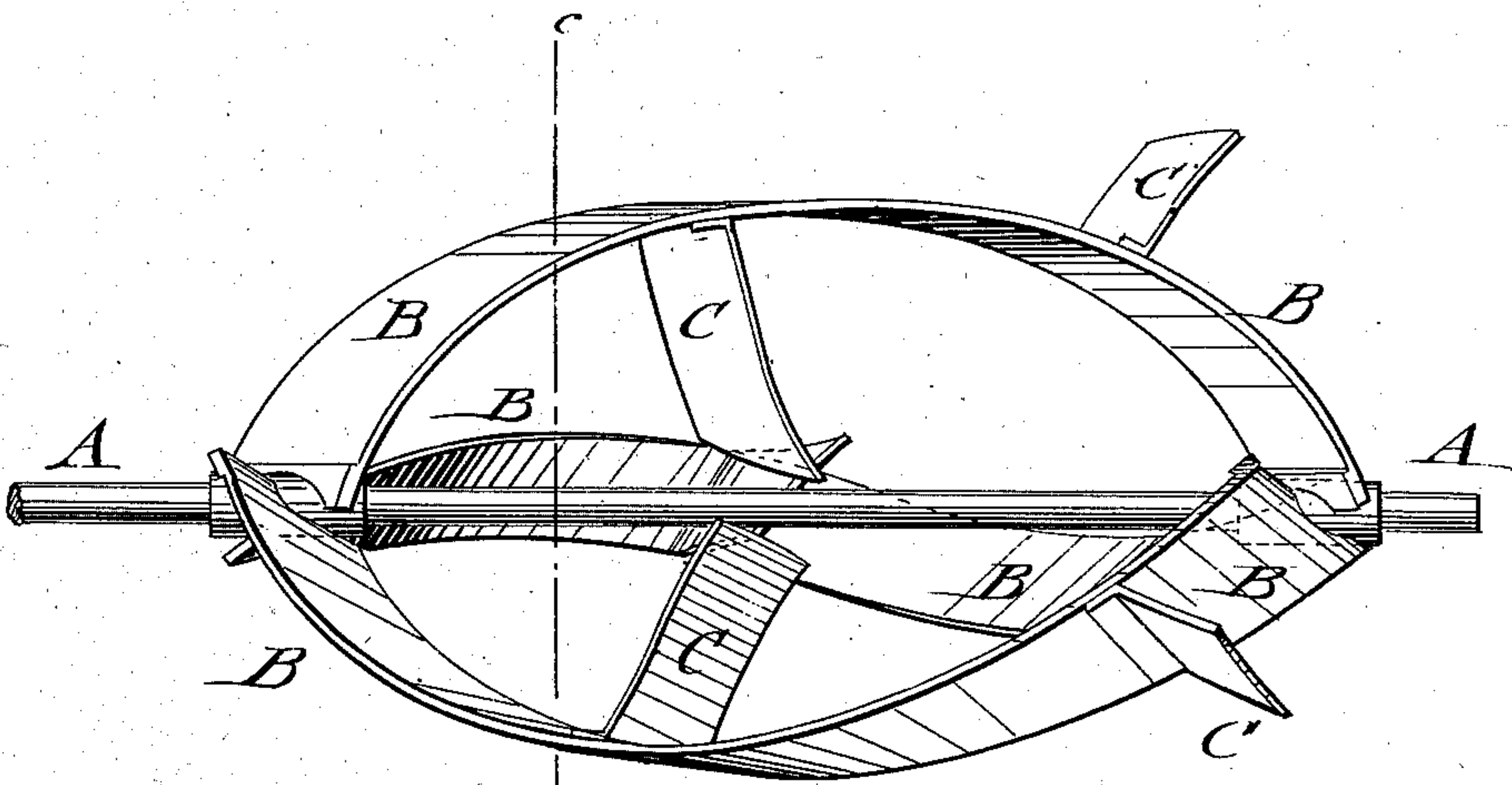
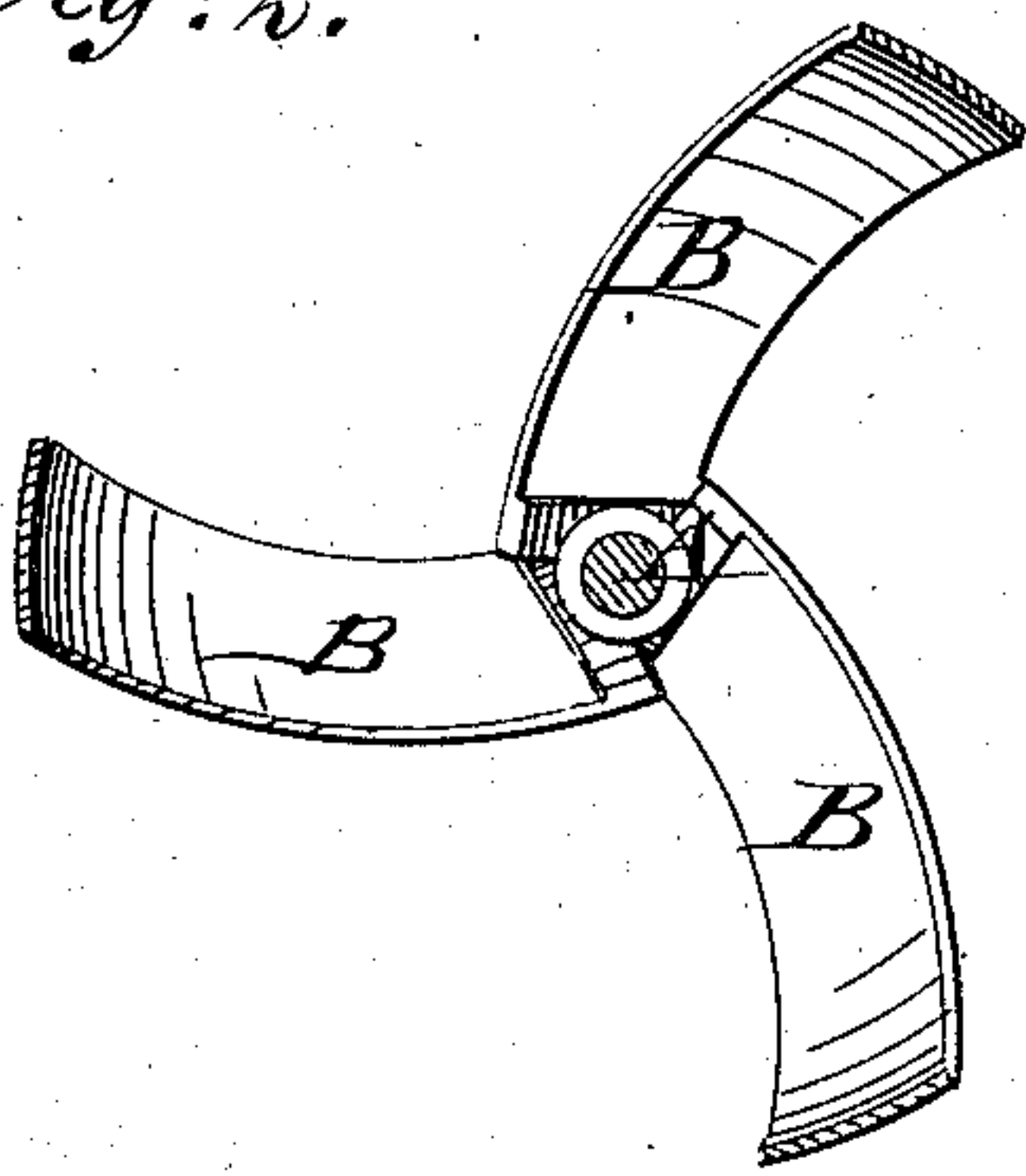


Fig: 2.



WITNESSES:

Chas. Nida.
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UNITED STATES PATENT OFFICE.

ELBERT B. PORTER, OF HAVANA, CUBA.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **158,734**, dated January 12, 1875; application filed October 31, 1874.

To all whom it may concern:

Be it known that I, ELBERT B. PORTER, of Havana, in Cuba, have invented a new and Improved Propeller, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side view, and Fig. 2 a vertical transverse section on the line *c c*, Fig. 1, of my improved propelling-screw.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improvement upon the ordinary screw-propeller, which may be constructed at less cost, more conveniently and cheaply repaired when broken or injured, and capable of producing a considerable increase of speed.

The invention consists of a screw-propeller with semi-elliptic or otherwise bent and twisted blades attached at one or both ends of shaft, and provided with interior and exterior auxiliary wings of sufficient size and twist.

In the drawing, A represents the propeller-shaft, to which are attached, at one or both ends, three or more curved and twisted blades, B. For lighter vessels it may be sufficient to attach one end of the screw-blades merely to the shaft, the other ends being rigidly connected; but for larger vessels and heavier work it will be preferable to extend

the shaft centrally to the rear end of the blades and bolt them firmly thereto. The twisted blades B may be curved in semi-elliptic, oval, or round shape, as found most effective by experiment. They are furthermore provided with interior and exterior auxiliary wings or blades C of suitable, size, curve, and twist, which are firmly bolted under suitable inclination near the middle and rear parts to the main blades, for the purpose of increasing the propelling-surface without causing the dragging or vibrating of any parts.

The propeller is made of rolled-metal plates, each auxiliary and main blade being separately attached, so that any part may be repaired without interfering with the other parts.

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

A screw-propeller constructed of three or more curved and twisted blades attached at one or both ends to the shaft, and provided with projecting interior and exterior auxiliary blades or wings, substantially in the manner and for the purpose set forth.

ELBERT B. PORTER.

Witnesses:

HENRY C. HALL, *U. S. Consul-General*,
L. V. SCHMIDT,
J. W. SANGER.