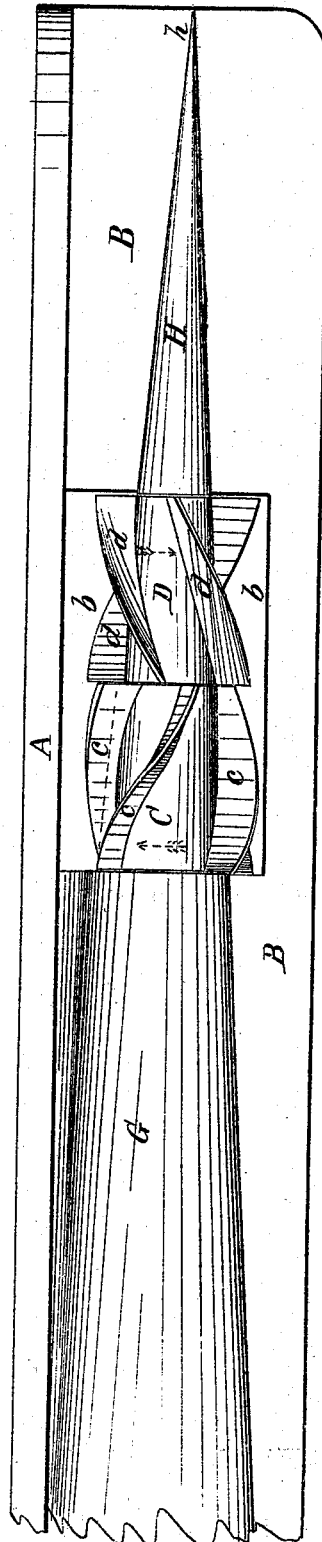


A. S. Hatch.
Screw Propeller.

Nº 47,419.

Patented Apr. 25, 1865.



Witnesses:

W. H. C. Smith.
Frank Smith

Inventor.

Austin, S. Hatch

UNITED STATES PATENT OFFICE.

AUSTIN S. HATCH, OF ADDISON, NEW YORK.

IMPROVED MARINE PROPELLER.

Specification forming part of Letters Patent No. 47,419, dated April 25, 1865.

To all whom it may concern:

Be it known that I, AUSTIN S. HATCH, of Addison, in the county of Steuben and State of New York, have invented a new and Improved Propeller; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and representing my improvements with the parts of a vessel to which they are applied.

Let A represent or indicate the lower deck or other equivalent part at the rear end of a vessel, and B the keel, &c., beneath the same.

As one part of my improvement I employ two propeller screws or wheels, C D, situated and turning in an opening, *b*, of the dead-wood of the vessel, one screw or wheel, C, turning in one direction, and the other, D, turning in the other direction, (with equal or nearly equal velocities,) as indicated by arrows thereon. The vanes or paddles *cc* of the screw or wheel C have their spiral twist in the proper direction, as shown, while the vanes or paddles *dd* of the other screw or wheel, D, twist in the other direction to an equal or nearly equal degree. The effect of two screws or wheels thus revolving equally in opposite directions in the same line is to cause the water through which they pass, and upon which their vanes or paddles successively act, first to be moved laterally in one direction by the forward screw or wheel, C, and then immediately to be checked in that side motion thereby produced by the opposite motion of the vanes or paddles of the rear screw or wheel, D, and thus when the actions of the two screws or wheels are properly balanced the lateral motions of the water are exactly neutralized, and it is left nearly in a state of repose, except the rearward motion caused by the reaction upon it in propelling the vessel forward; hence there is no side motion or tendency of the vessel, and the water is in the best condition to give the

proper reaction on the propeller to move the vessel forward.

The opposite revolving motions of the two screws or wheels are produced by any convenient means, that which I contemplate being to have the shaft of the forward screw or wheel tubular, and the shaft of the rear screw or wheel pass through the same. The power of the engine or engines is readily communicated to the shafts by bevel-gearing.

The second feature of my improvements consists in giving a long taper form to the hull, or other equivalent part of the vessel, both at G in front of the propeller screws or wheels and at H behind the same, the latter finally terminating in a point at *h*, or as sharply as practicable. The whole taper is to be continuous, substantially as shown, and the close bodies or drums of the screws or wheels C D are to have a continuation of the same form nearly or exactly coinciding with that before, that behind, and with each other. The effect of this form of construction is obvious. The surrounding water is very gradually displaced, and is not put in commotion, and where the screws or wheels act upon it it flows closely and compactly around the same.

I contemplate giving the same taper form to the hull of the vessel, both fore and aft, so that the cut of the water shall be easy, free, and quiet; also, the propeller screws or wheels may be either at the bow or the stern of the vessel, or, if preferred, at both.

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

The combination and arrangement of the double screws or wheels C D, revolving in opposite directions, and the taper form of the hull or bottom of the vessel, before and behind the said screws or wheels, and in continuation of the form of their bodies, substantially as and for the purposes herein specified.

AUSTIN S. HATCH.

Witnesses:

J. S. BROWN,

EDM. F. BROWN.