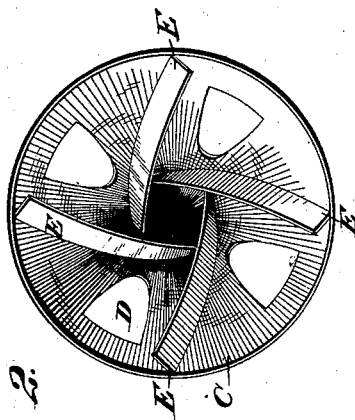


H. HUBBELL.

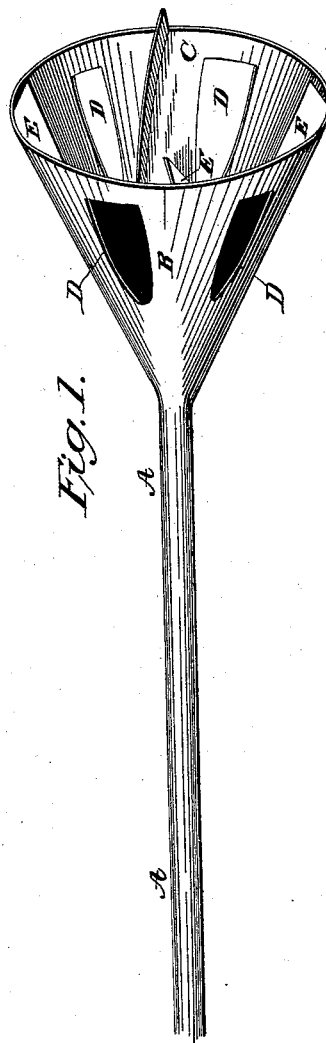
Propeller.

No. 4,111.

Patented July 14, 1845.



*Fig. 2.*



*Fig. 1.*

# UNITED STATES PATENT OFFICE.

HORATIO HUBBELL, OF MOYAMENSING TOWNSHIP, PHILADELPHIA COUNTY, PENNSYLVANIA.

## CONICAL SCREW-PROPELLER.

Specification of Letters Patent No. 4,111, dated July 14, 1845.

*To all whom it may concern:*

Be it known that I, HORATIO HUBBELL, of the township of Moyamensing, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Manner of Constructing Propellers for Steamboats and other Vessels; and I do hereby declare that the following is a full and exact description thereof.

My propeller consists of a hollow cone from the apex of which proceeds a shaft in the line of the axis of the cone produced; this shaft lies horizontally, so that the apex of the cone points toward the bows of the vessel and its base, which is open, toward its wake. The shaft is to be made to revolve by means of a steam-engine or other advantageous power within the vessel. The vanes or buckets by which the propelling is to be effected are placed on the interior surface of the hollow cone. They are made to stand at an angle of forty-five degrees, more or less, with the edge of its base and extend from that edge nearly to the apex; they should be slightly curved and their convex sides placed toward the open end of the cone.

The shell, or body, of the cone may be made of boiler iron or other wrought metal, and the propelling vanes be riveted thereon; or, if made of cast-iron, the whole may, if desired, be cast in one piece. The width of the propelling vanes, or buckets, will depend upon the size of the propelling apparatus; they may vary in this particular from a width of six to that of eighteen inches, more or less; their thickness must be such as to give them the necessary strength and stability, of which a good machinist will be a competent judge.

In order to insure the entrance of water into the hollow cone, openings may be made

through it lengthwise between the propelling vanes or buckets, a device which will, probably, be found necessary in all cases.

In the accompanying drawing No. 1 is a side view of my conical propeller with its shaft, and No. 2 is a direct view of the open mouth or base of the cone with its interior propelling vanes or buckets.

A A is the shaft; B the shell or body of the hollow cone, and C its base or open end.

D D are openings which may be made through the sides of the cone for the admission of water.

E E are the vanes, or buckets, which are placed within it; of these there are four represented which, I believe, will be found to be a proper number, but I do not intend to restrict myself in this particular.

I am aware that conical propellers have been heretofore proposed to be used; but these differed materially from that herein described, they having been furnished with propelling vanes, buckets, or threads set spirally on the outside of the cone; and to such propellers I do not, therefore, make any claim; but

What I do claim as new and desire to secure by Letters Patent, is—

The within described manner of forming a propeller for steam boats and other vessels by placing vanes, or buckets, within a hollow cone, which is made to revolve with its open mouth or base in the direction of the vessel's wake, and its apex pointing toward the bows; the whole combination and arrangement of the respective parts being substantially the same as those herein set forth.

HORATIO HUBBELL.

Witnesses:

OSCAR P. WOLFF,  
I. H. ROACH.