

B. D. Beecher.

Screw Propeller.

N^o 1,459. Patented Dec. 31, 1839.

Fig. 1.

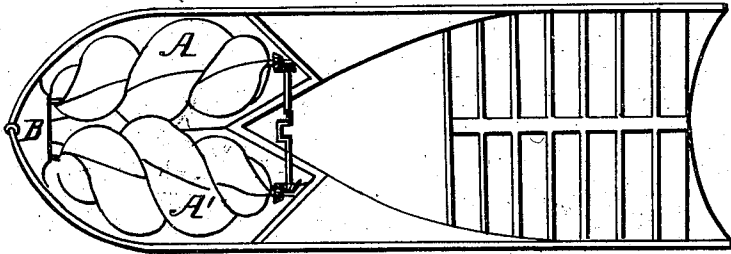


Fig. 2.

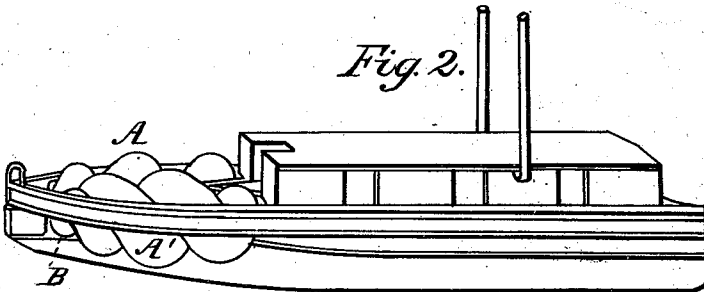
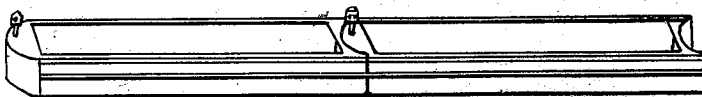
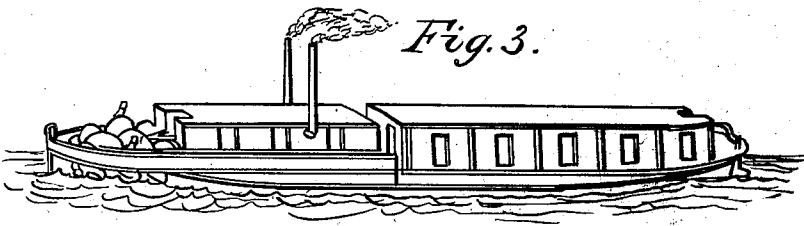


Fig. 3.



UNITED STATES PATENT OFFICE.

BENJAMIN D. BEECHER, OF PROSPECT, CONNECTICUT.

MANNER OF CONSTRUCTING AND PROPELLING BOATS AND OTHER VESSELS.

Specification of Letters Patent No. 1,459, dated December 31, 1839.

To all whom it may concern:

Be it known that I, BENJAMIN D. BEECHER, of Prospect, in the county of New Haven and State of Connecticut, have invented an
5 Improvement in the Manner of Constructing and of Propelling Boats and other Vessels Actuated by Steam or other Power; and I do hereby declare that the following is a full and exact description of my said im-
10 provement.

The accompanying drawing represents the manner in which I carry my invention into operation in canal boats, but the same principle or manner of construction, is appli-
15 cable to vessels of other kinds, whether intended for inland navigation or sea service.

The invention consists in constructing the bow or fore part of the boat or other vessel so as to accommodate the screw or other propellers which I place there, which are intended by their particular position and mode of action to draw the water directly from the bow, and to give it as it passes toward the stern such a direction as shall
25 greatly diminish the resistance offered to the passage of the boat.

Figure 1 is a top view of the bow of the boat, furnished with two screw propellers constructed and arranged upon my plan.
30 Fig. 2, is a side view of the same. Fig. 3 represents such a boat having a second boat in tow, but not otherwise presenting anything peculiar.

A, A' are two spiral or screw wheels, which I will suppose to be placed on a canal boat measuring fifteen feet in width and ninety feet in length. For a boat of this size, I would make my spiral propellers about seven feet in diameter and about
40 twelve feet in length. The screw propellers are represented as having each four spiral wings or threads, one wheel being a right and the other a left handed screw, the threads winding at an angle of about 45°. They are made to taper each way from the center toward the ends, where the wings or threads are rounded, their shafts inclining toward each other as they approach the bow, so as to be about six feet apart at their
50 fore and nine feet at their rear ends. They have their fore bearings attached to the guard or bow timbers, near the stern of the boat. Their aft ends may pass through stuffing boxes, or be in any other suitable manner connected to the driving machinery.
55 Instead of using continuous wings or

threads to the screw-wheels, said wings may be divided into segments of five, six, or more inches in width, as has been frequently done in propelling wheels. The dimensions which
60 I have given are intended merely as practical guides, deduced from experiments already tried, but they may be varied in any degree which further experience may justify.

The bottom of my boat I carry forward under my propellers, so that its fore end stands immediately under the prow, as shown at B, Fig. 2, and I give such a form to it and to the fore part of the boat as
70 that it shall occupy the space between the propelling wheels and come as near as may be in contact with the propellers without actually touching them. As represented in the drawing of the canal boat, the propelling wheels are supposed to be immersed
75 about two-fifths of their diameter under water. In deeper water they may be still more immersed, and in lakes or other waters where the depth is sufficient they may be
80 entirely submersed.

The object of locating the propelling wheels and of so constructing and arranging them as that they shall not act in the direction of or parallel to the keel, but out-
85 ward toward the bilge, as above described, is that they may withdraw the water from the bows of the vessel and give to it a direction which will lessen its retarding action and carry it most directly to the stern, by
90 which means it has been experimentally proved that the water will be left much more smooth and undisturbed than by any other mode of propelling hitherto essayed.

Having thus fully described the manner
95 in which I construct my propelling apparatus, and the boats or other vessels with which they are to be used, what I claim therein as my invention, and desire to secure by Letters Patent, is—
100

The within described manner of locating my two propellers in the bows of the boat or vessel in combination with the manner in which I construct and extend the bottom of the boat forward, and thus causing the propellers to act upon the water in a direction
105 inclined from each other, in the manner, and for the purposes herein set forth.

BENJAMIN D. BEECHER.

Witnesses:

THOS. F. JONES,
R. HENRY ISHAM.