

Sheet 1. 2 Sheets.

*J. Trees,
Screw Propeller.*

N^o 7,371.

Patented May 14, 1850.

Fig. 2.

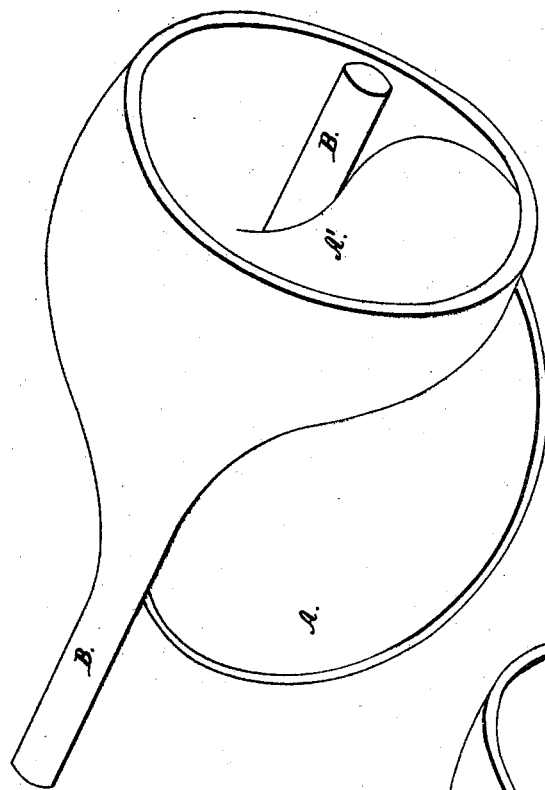
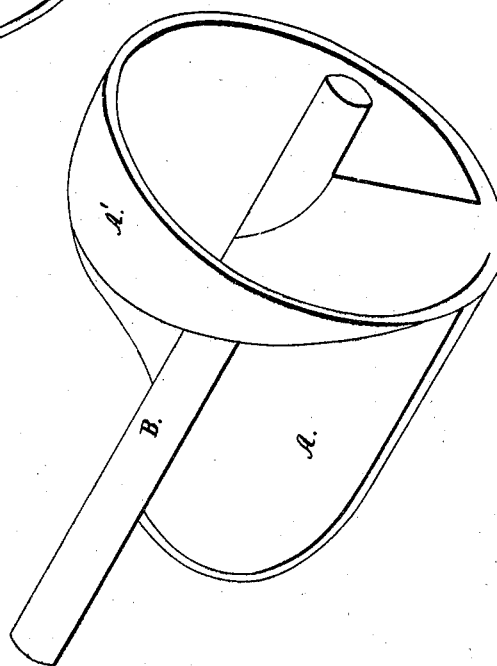


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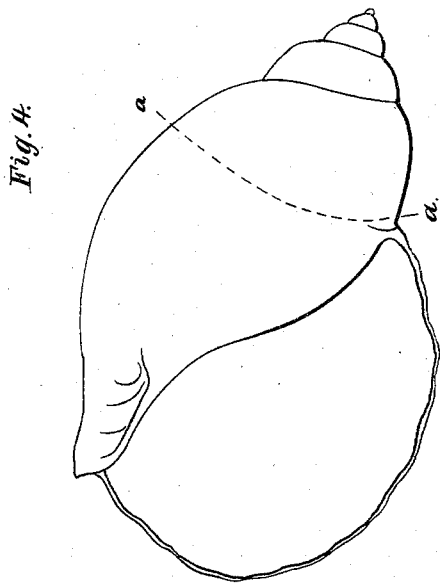
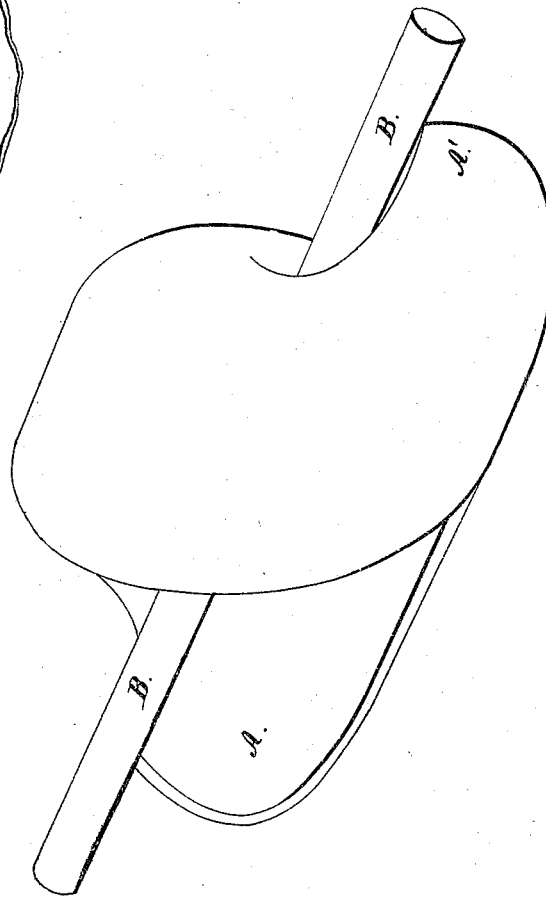


Fig. 3.



UNITED STATES PATENT OFFICE.

JAMES TREES, OF SALEM, PENNSYLVANIA.

SHELL-PROPELLER.

Specification of Letters Patent No. 7,371, dated May 14, 1850.

To all whom it may concern:

Be it known that I, JAMES TREES, of Salem, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Screw-Formed Propellers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification and which represents three views in perspective of as many modifications of my invention, and one of a voluted sea shell.

My invention is based upon the voluted form of certain sea shells, which have a single cell twisted helically around a central axis; of which class of shells, that represented in the drawing is a type.

My propeller as represented in the drawing consists of a shell A A' twisted helically around a central shaft B to which the power is applied. The shell is open at its front extremity A to gather the water, which is discharged at its hinder end A'; this open front or mouth is of greater area than the helical tube of which it forms the entrance, thus causing it to grasp a sufficient quantity of water to fill the tube with a solid column of water which passes through the propeller in an unbroken stream. Cases will arise which will render it expedient to increase the length of the helical tube which will then have the form represented at Fig. 3.

The great difficulty usually experienced with screw propellers is, that when they are revolved with sufficient velocity to propel a vessel at the requisite speed, the water is thrown out from between their vanes by the centrifugal force generated by the rotary motion. This difficulty is obviated by constructing them with a helical tube on the principle herein exemplified as the water

cannot escape until it is discharged at the hinder extremity of the propeller, while at the same time it is compressed in its passage by the diminished area of the tube and is thus forced to issue in an unbroken stream and to afford a denser medium for the propeller to act against.

If the shell, Fig. 4, was divided at right angles to its axis by a plane passing through the line *a*, the larger extremity would approximate very closely to the form of the shell of the propeller represented at Fig. 2. It is obvious however that the precise form and proportions of the propeller must be determined in each case by the power of the engine, and the size, form, and speed of the vessel to which it is to be adapted; and therefore the forms represented in the accompanying drawing are merely exemplifications of my invention, and do not comprehend all the variations which I contemplate making and which also will be absolutely necessary in practice.

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

Giving the shell of a submerged propeller the form of a section cut from the open extremity of sea shells of the class of which that represented in the drawing may be considered a type, the mouth of the helical tube at which the water enters being of greater area than its hinder extremity at which the water is discharged.

In testimony whereof I have hereunto signed my name this ninth day of January, 1850.

JAMES TREES.

Witnesses:

JOHN L. SMITH,
E. S. RENWICK.