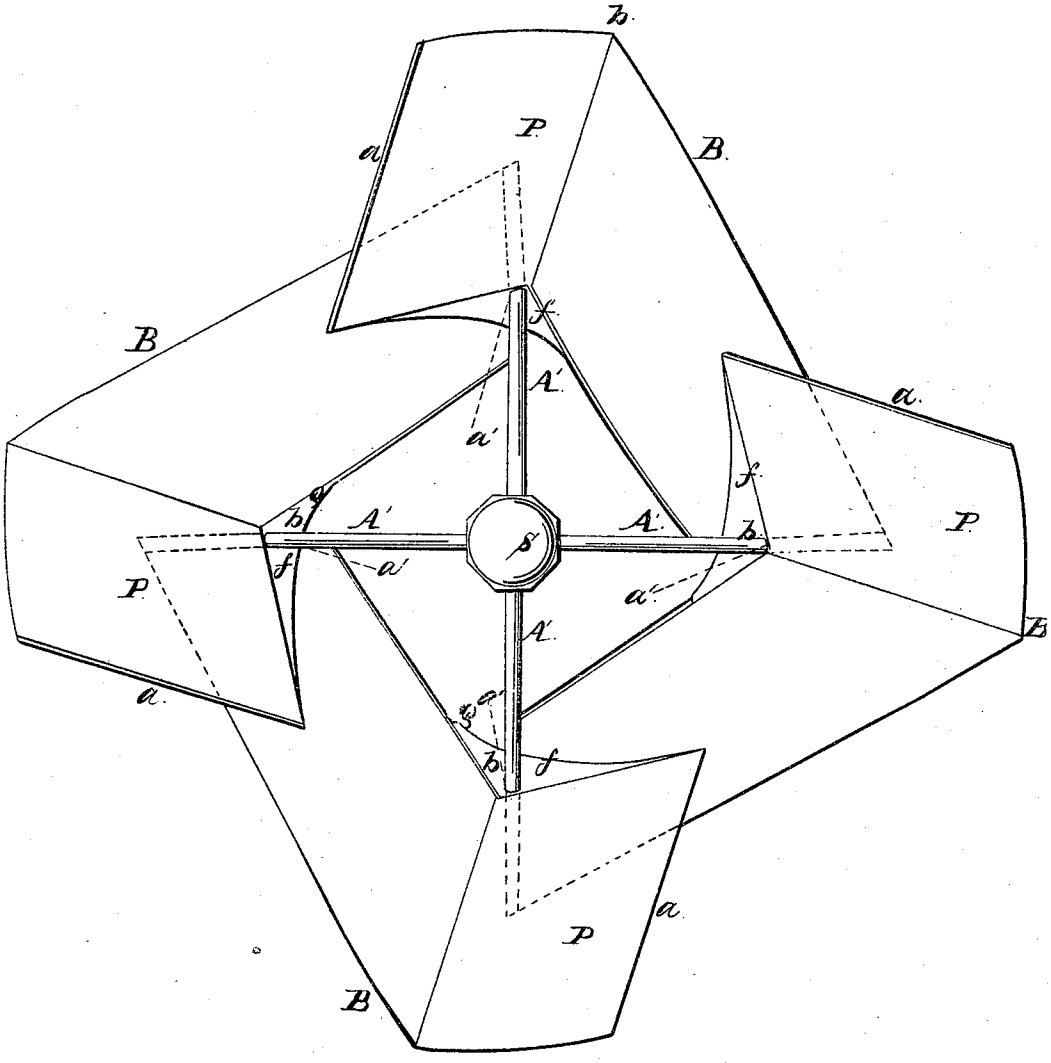
Sheet 1, 2 Sheets.

# W. Thurber.

## Screw Propeller.

No. 20,744. Patented Jun. 29, 1858.

Fig. 1.




N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

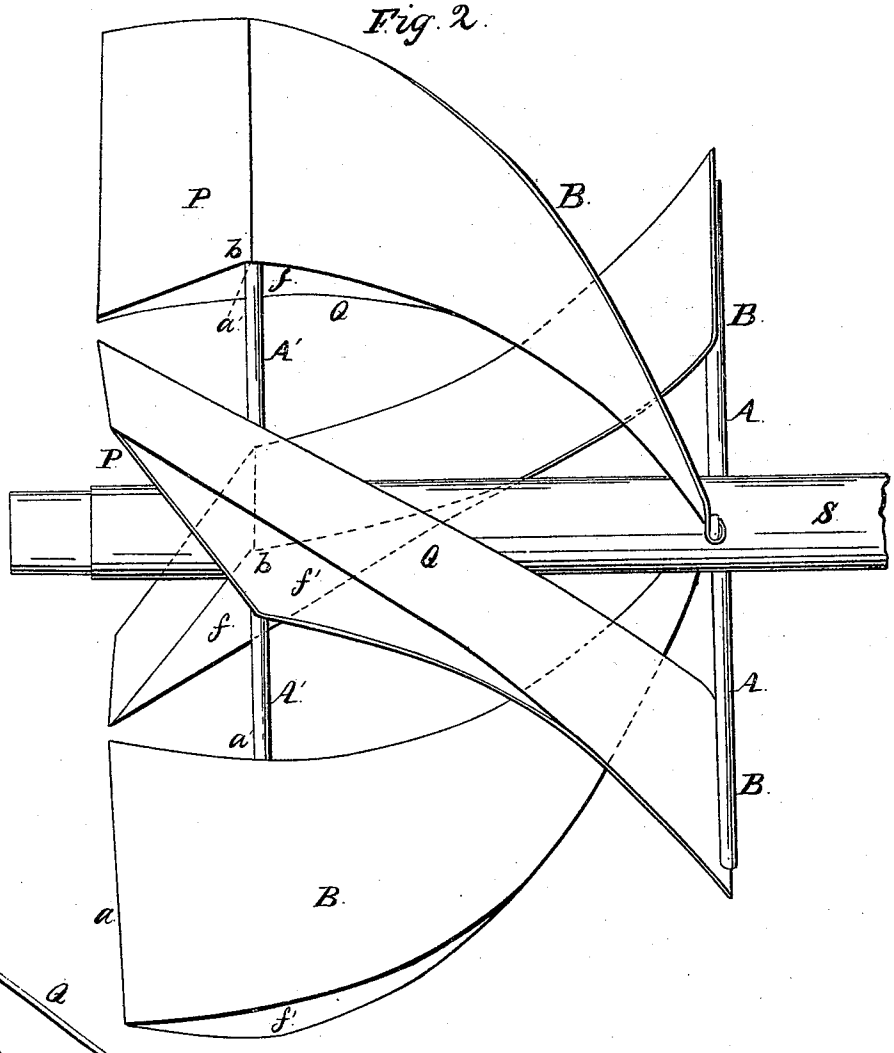
Sheets, 2 Sheets.

# W. Thurber.

## Screw Propeller.

No. 20,744. Patented Jun. 29, 1858.

Fig. 2.



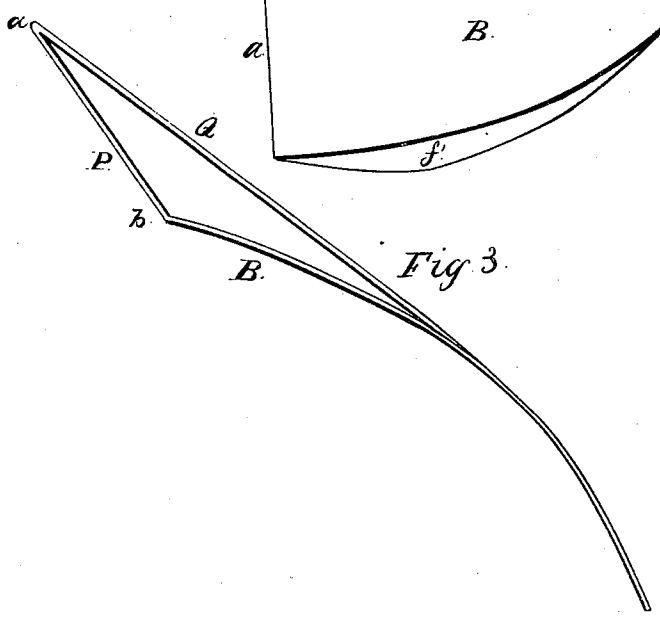




Fig 3.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

W. THURBER, OF OLEAN, NEW YORK.

## PROPELLER.

Specification of Letters Patent No. 20,744, dated June 29, 1858.

*To all whom it may concern:*

Be it known that I, WM. THURBER, of Olean, in the county of Cattaraugus and State of New York, have invented a new and useful Improvement in Propellers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, forming part of this specification, in the several figures of which similar characters of reference denote the same parts.

Figure 1 is an end view of the propeller. Fig. 2 is a side view of same. Fig. 3 is a longitudinal section of blade.

The nature of my invention consists in a peculiar construction of blade hereinafter to be set forth.

The propeller is made up of four blades B B B B, held by eight arms A A′, projecting from the shaft S. The blades are held at opposite extremities by arms alternately situated, and are so formed that their faces fall from an angle of 45° at arm A to about an angle of ten degrees with the axis of the shaft, at arm A′. In rear of arms A′ the faces of the blades turn backward at about an angle of thirty degrees, and run in that direction a distance equal to about one third of the remainder of the blade. This is for preventing the eddy that would otherwise be formed at the rear extremity of the blade.

From the edge *a* of face P there runs the back of the blade, filling up the angle *b*, and thereby diminishing the water way or space between consecutive blades, at the exit: thus causing the water to act with greater effect against the faces of the blades. The edges *f f′* of this filling are beveled off so as not to obstruct the passage of the blade in the water. The forward portion of the blade is secured to arm A closer to the shaft than the point *a′* on arm A′, and the face of the blade made to vary between the limits of forty-five degrees and five in its angle of impact with the water. This causes the pressure of the blade upon the water to increase gradually from head to heel. Preventing the lateral throwing off of the water which would take place, did the blade at its heel make a large angle with the axes of the shaft. This throwing of the water to the rear renders the propeller valuable for navigating canals.

The surface P in preventing the eddy that would be formed behind the blade increases the effectiveness of the propeller. And the diminution of water way by surface Q has a similar result.

I claim—

The falling face of the blade in combination with the rear inclined surface P and the filling Q on the back of the blade; the construction and operation being substantially as, set forth.

In testimony whereof, I have hereunto signed my name before two subscribing witnesses.

WILLIAM THURBER.

Witnesses:

GEO. PATTEN,

JOHN S. HOLLINGSHEAD.