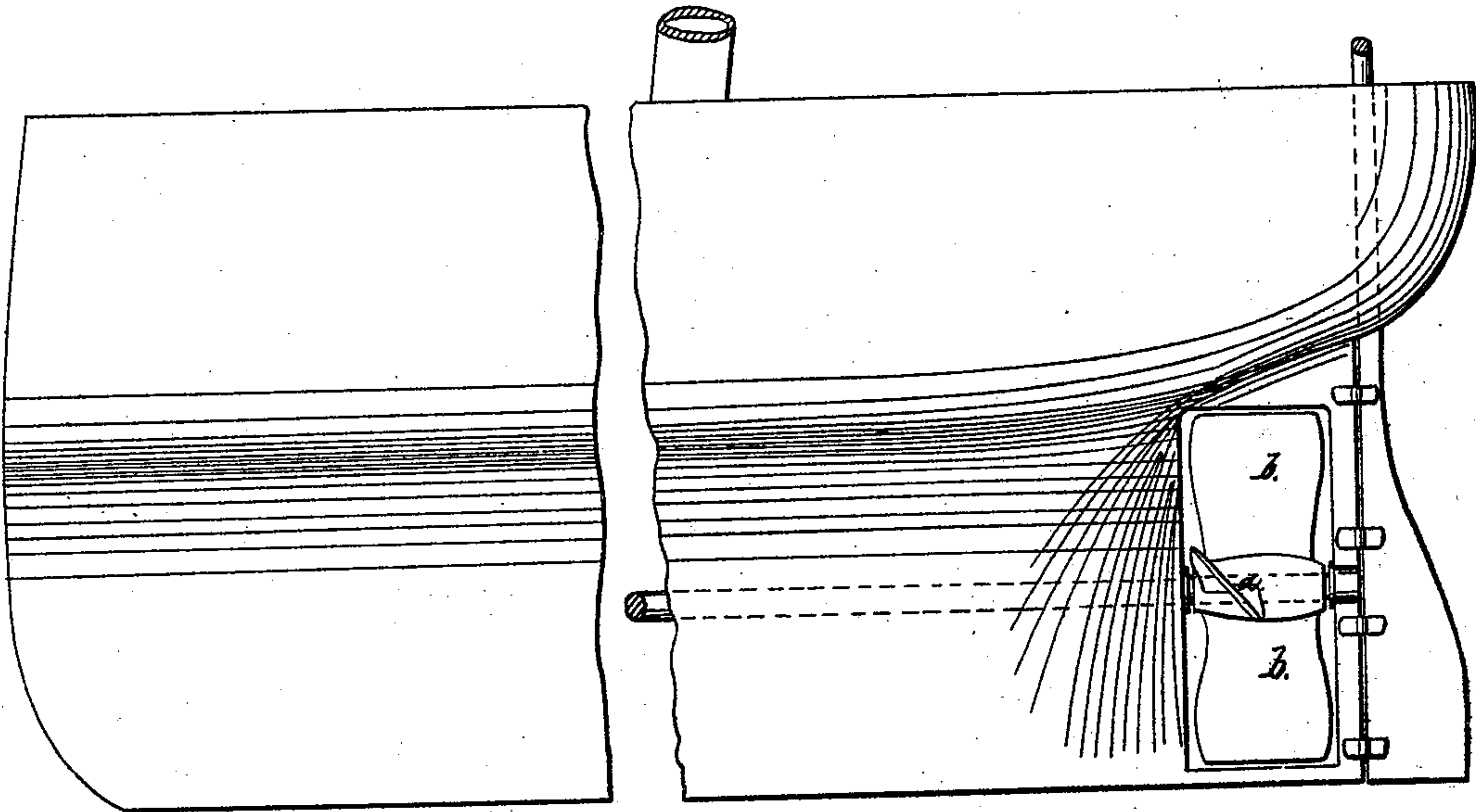
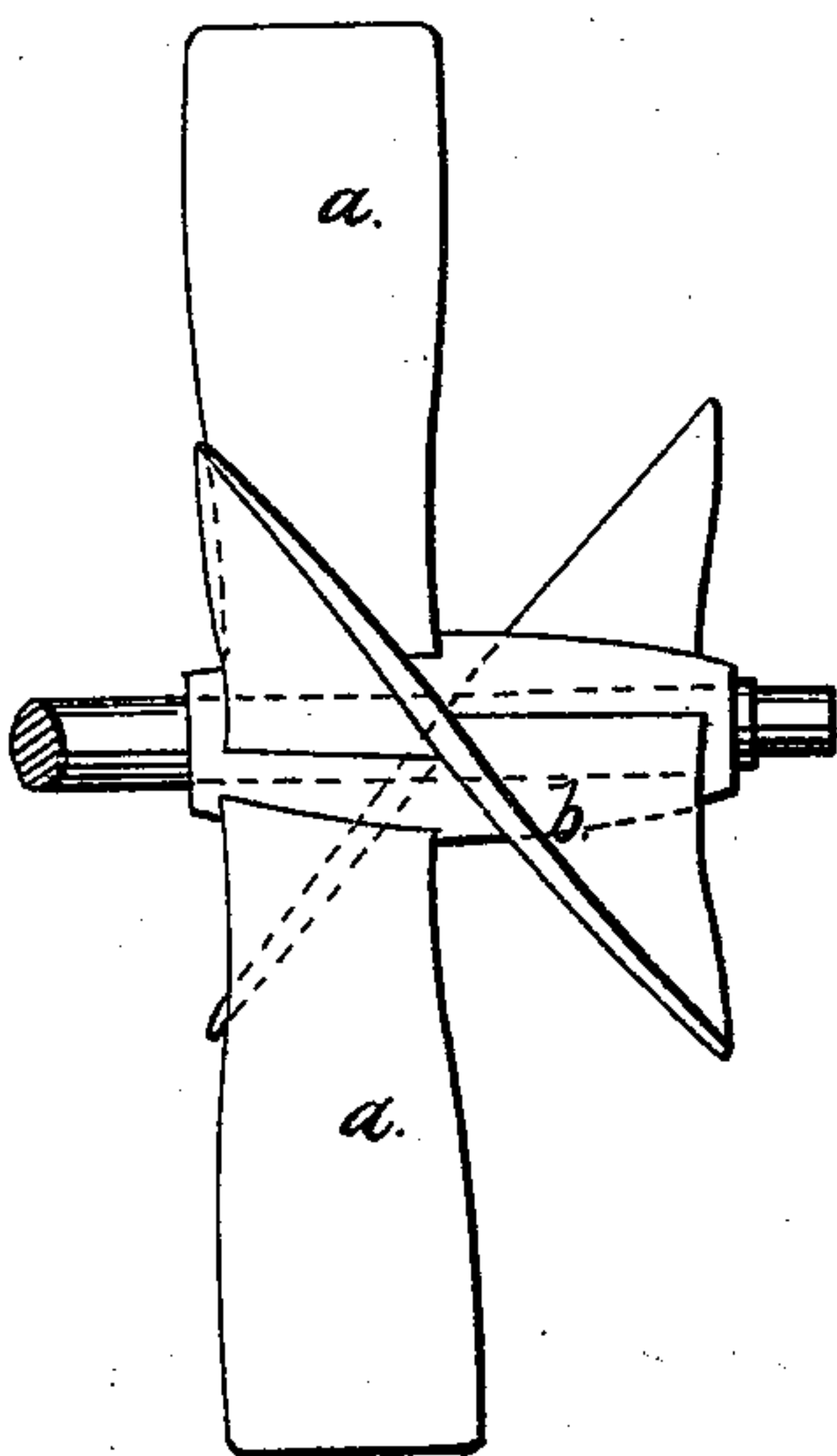


*C. G. Toense.*  
*Screw Propeller.*  
*Nº 100,216. Patented Feb. 22, 1870.*

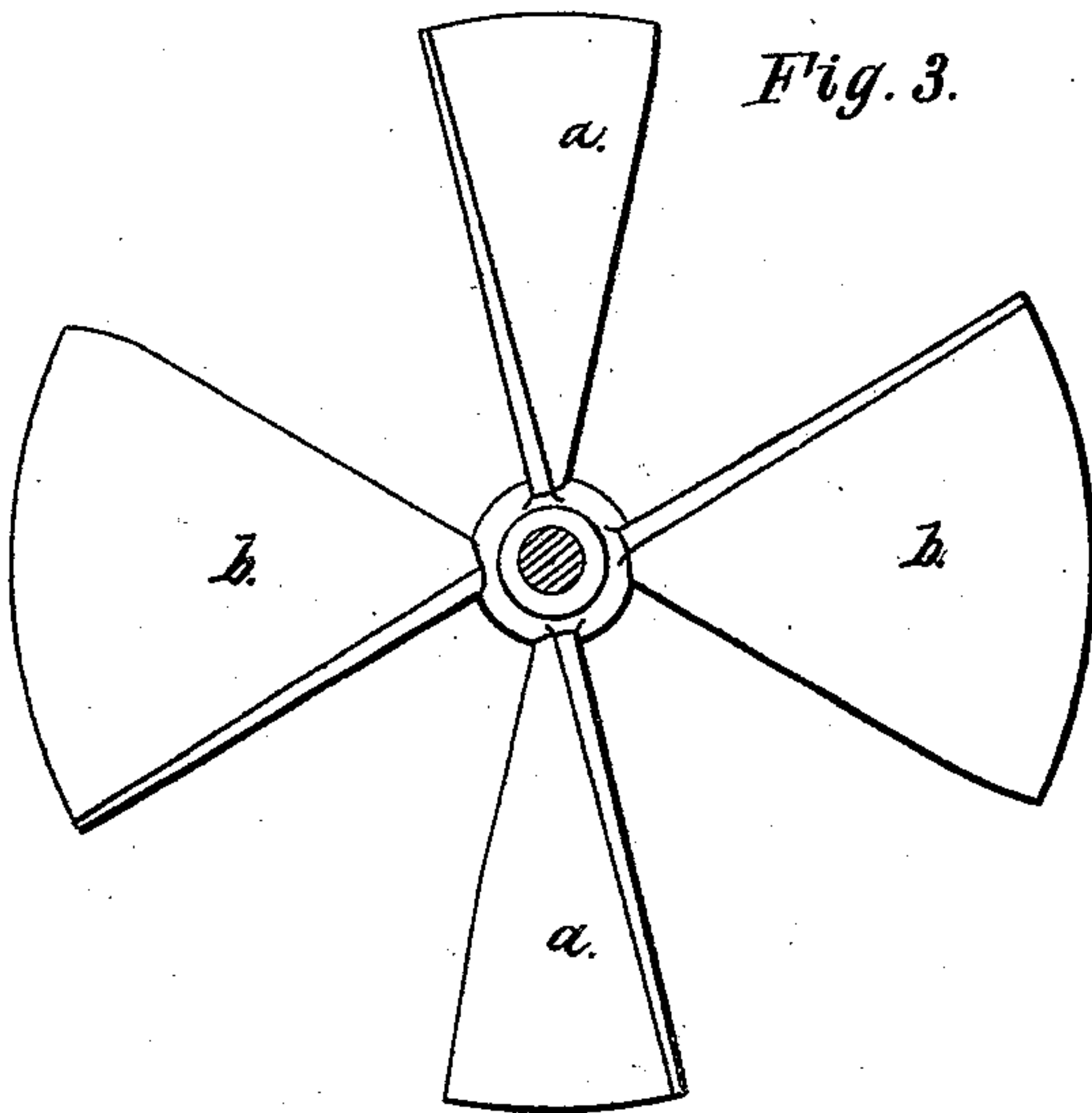
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*

*E. F. Kastnerhuber*  
*C. Wahlers*

*Inventor.*

*Chas. G. Toense*

# United States Patent Office.

CHARLES G. TOENSE, OF JERSEY CITY, NEW JERSEY.

*Letters Patent No. 100,216, dated February 22, 1870.*

## IMPROVEMENT IN SCREW-PROPELLERS.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, CHARLES GEORGE TOENSE, of Jersey City, in the county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Screw-Propellers; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a side elevation of a vessel provided with my improved propeller.

Figure 2 is a side view of the screw-propeller detached in a larger scale than the previous figure.

Figure 3 is a front view of the same.

Similar letters indicate corresponding parts.

This invention consists in a screw-propeller having two narrow wings which alternate with two wide wings in such a manner that a free discharge for the water from the space between the wings of the propeller is obtained, and the water is prevented from being thrown upward, or from being carried round and round by the propeller.

In ordinary screw-propellers, the wings are all made of uniform width, and the spaces between the wings become thereby so contracted that the water on which the propeller acts does not discharge freely from between the wings, and particularly if the propeller is revolved at a rapid rate, much power is wasted by throwing a large quantity of water up, and also by carrying much of the water round and round between its wings, instead of discharging it in the line of the

propeller-shaft, or of the keel of the vessel to which the propeller is attached.

For these reasons, a propeller of the ordinary construction cannot be worked to advantage beyond a certain speed, and even if it is worked at a moderate speed, much power is wasted.

My propeller is constructed with two narrow wings, *a*, which alternate with two wide wings, *b*, the width of said wide wings being about twice as large as that of the narrow wings.

By this arrangement the spaces between the wings are left sufficiently wide to allow a free discharge of the water, and even if my propeller is worked at great velocity, by far the largest quantity of the water acted on by the wings of the propeller is discharged in the line of the keel of the vessel, to which the propeller is attached, and comparatively little power is wasted in raising up a portion of the water.

With my propeller, therefore, a much greater speed of the vessel can be effected without a comparative increase in the power required for operating the propeller.

Having thus described my invention,

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

A screw-propeller having two narrow wings *a* alternating with two wide wings *b*, substantially as shown and described.

CHARS. G. TOENSE.

Witnesses:

W. HAUFF,  
C. WAHLERS.