

(No Model.)

B. F. & M. F. SPARR.  
SCREW PROPELLER.

No. 445,864.

Patented Feb. 3, 1891.

Fig. 1.

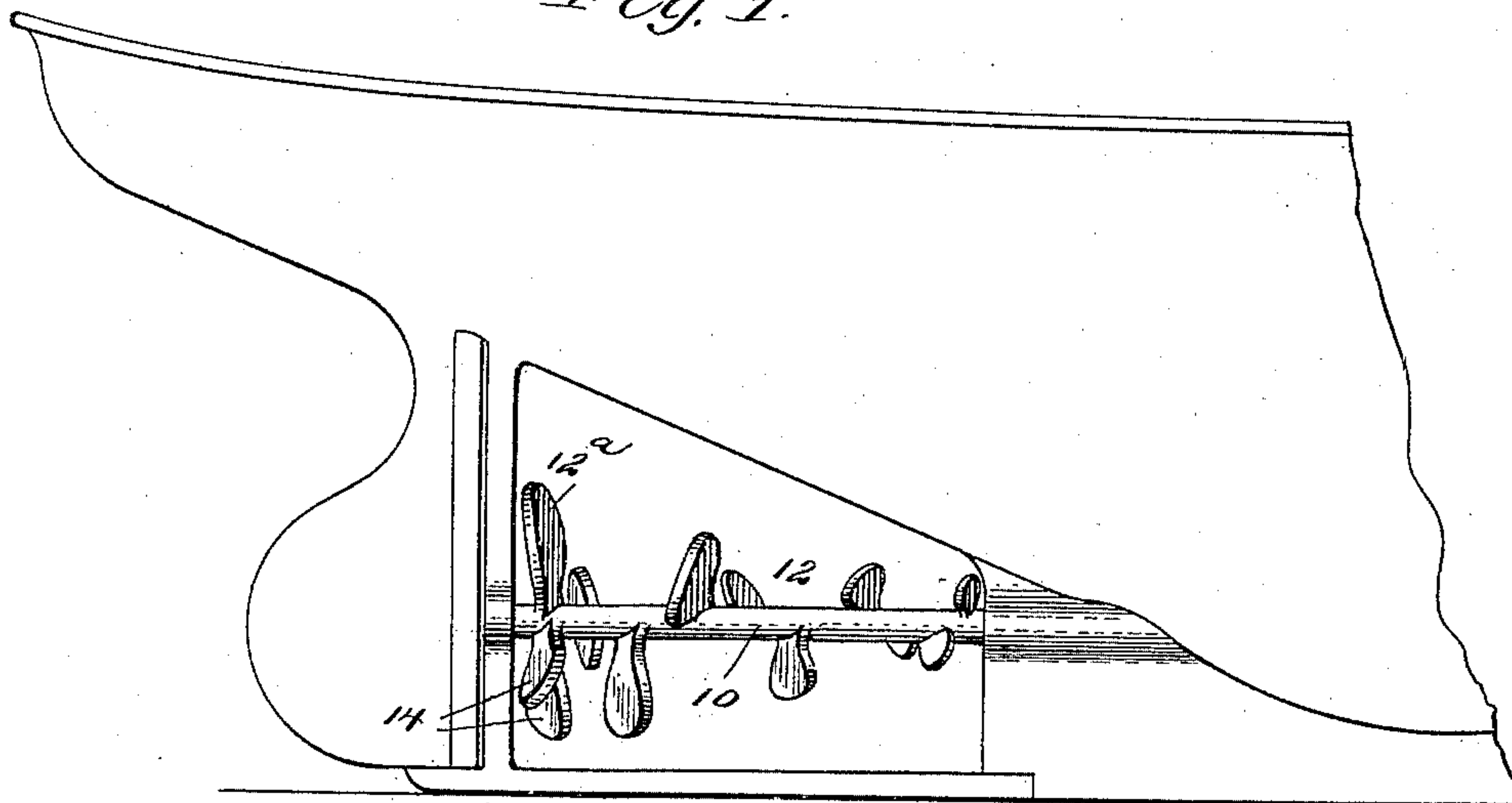


Fig. 2.

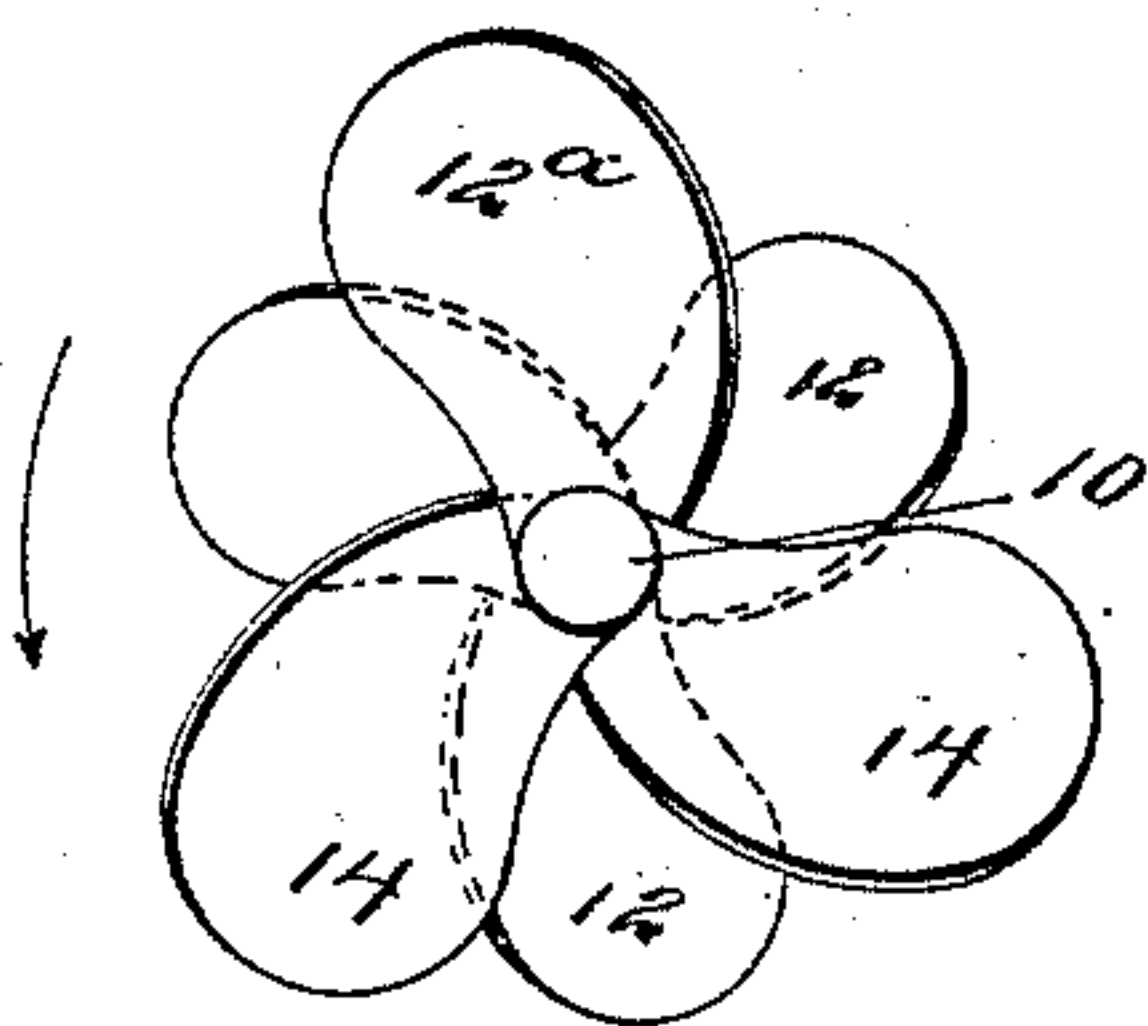
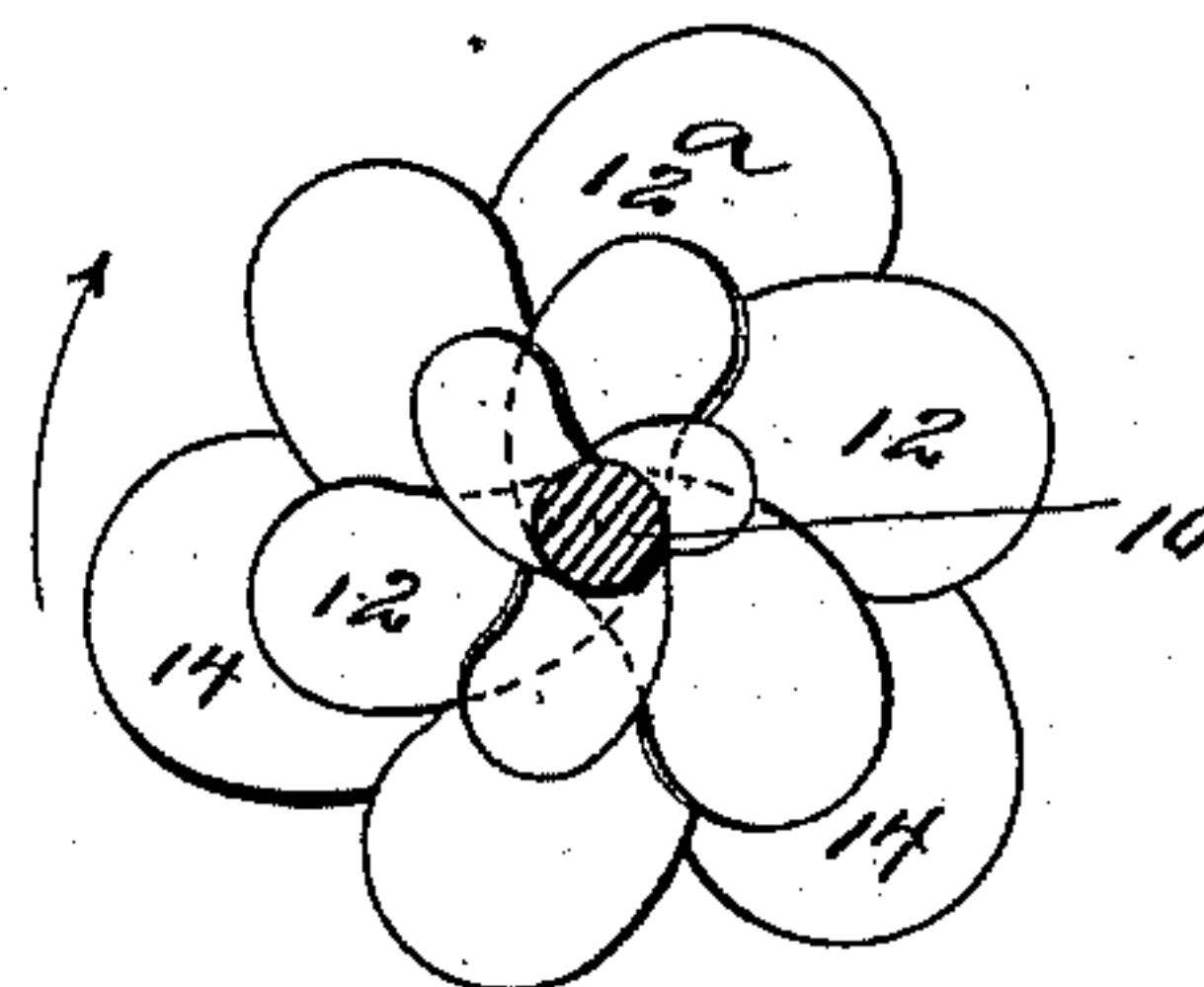


Fig. 3.



WITNESSES:

W. R. Davis.

Wm. Clark

INVENTOR:

B. F. Sparr

M. F. Sparr

BY

Munn & Co.

ATTORNEYS

# UNITED STATES PATENT OFFICE.

BENJAMIN F. SPARR AND MILLARD F. SPARR, OF NEW YORK, N. Y.

## SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 445,864, dated February 3, 1891.

Application filed July 30, 1890. Serial No. 360,349. (No model.)

*To all whom it may concern:*

Be it known that we, BENJAMIN F. SPARR and MILLARD F. SPARR, of the city, county, and State of New York, have invented a new and Improved Screw-Propeller, of which the following is a full, clear, and exact description.

The object of our invention is to provide a propeller for the propulsion of vessels that will increase the speed of the same, and that will be applicable without materially altering the construction of the vessel.

Our invention consists in the novel construction and arrangement of the screw-propeller, as hereinafter particularly described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of part of a vessel, showing our improved screw applied. Fig. 2 is an end view of the screw, and Fig. 3 is a front view of the same.

10 is a shaft journaled in the stern of the vessel and receiving rotary motion from the usual source of power located within the vessel. A series of perpendicular blades 12 are arranged and secured to the shaft 10 in convolutions following the curve of a screw, with a gradual taper from end to end of the shaft. The blades are preferably set on the shaft with a pitch of about forty-five degrees relatively to said shaft. By tapering the blades the screw gradually engages the water and acts with increasing force from its tapering to its enlarged end, forcing the water in increasing volume against the backwater, thereby giving the vessel great speed, while

reducing the jar or vibration imparted to vessels by the propellers in common use.

In following the curve of a screw the blades 12 are so arranged and placed on the shaft that the blades of one convolution intersect the spaces of the next preceding convolution, as clearly shown in Figs. 2 and 3, so that the friction of the blades is to some extent reduced, a part of the water passing directly back from one convolution to another instead of taking its course through the curve of the screw. The blade 12<sup>a</sup> is the last one of the screw, and we have found that when the body of water leaves the screw it passes off diagonally or at a tangent from the shaft, exerting its force almost entirely in one direction. The blades 14 engage the water passing from the screw and distribute its force evenly against the backwater. These blades 14 are so placed on the shaft at the end as to revolve in the same plane with the blade 12<sup>a</sup>.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent—

A screw-propeller consisting of a shaft having a series of spirally-arranged and tapering blades and provided with auxiliary blades at its rear end and in the same plane with the last blade thereof, substantially as described, whereby provision is made for causing the water passing from the screw to distribute its force evenly against the backwater, as set forth.

BENJAMIN F. SPARR.  
MILLARD F. SPARR.

Witnesses:

BENJAMIN HOLSKE,  
E. M. CLARK.