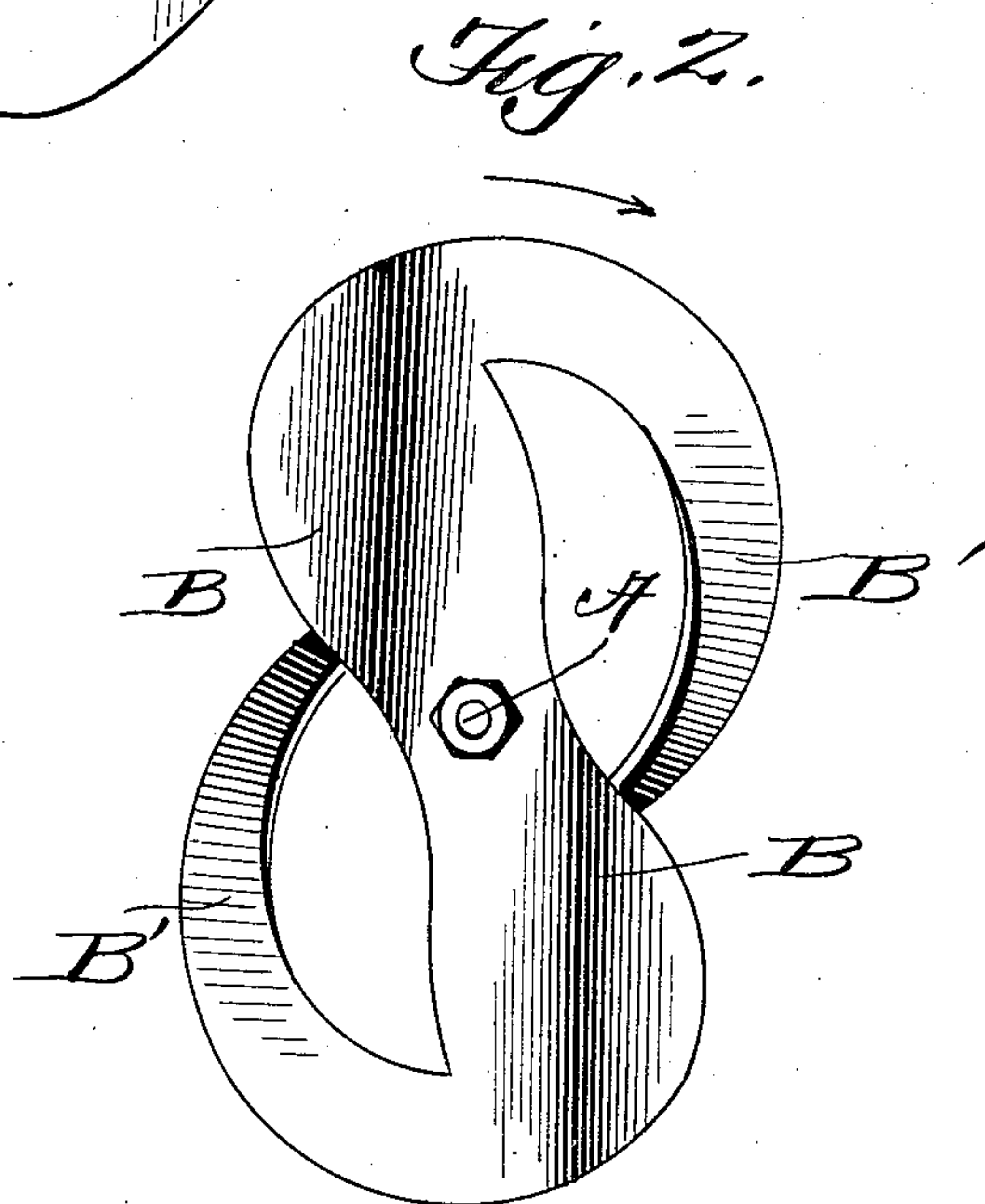
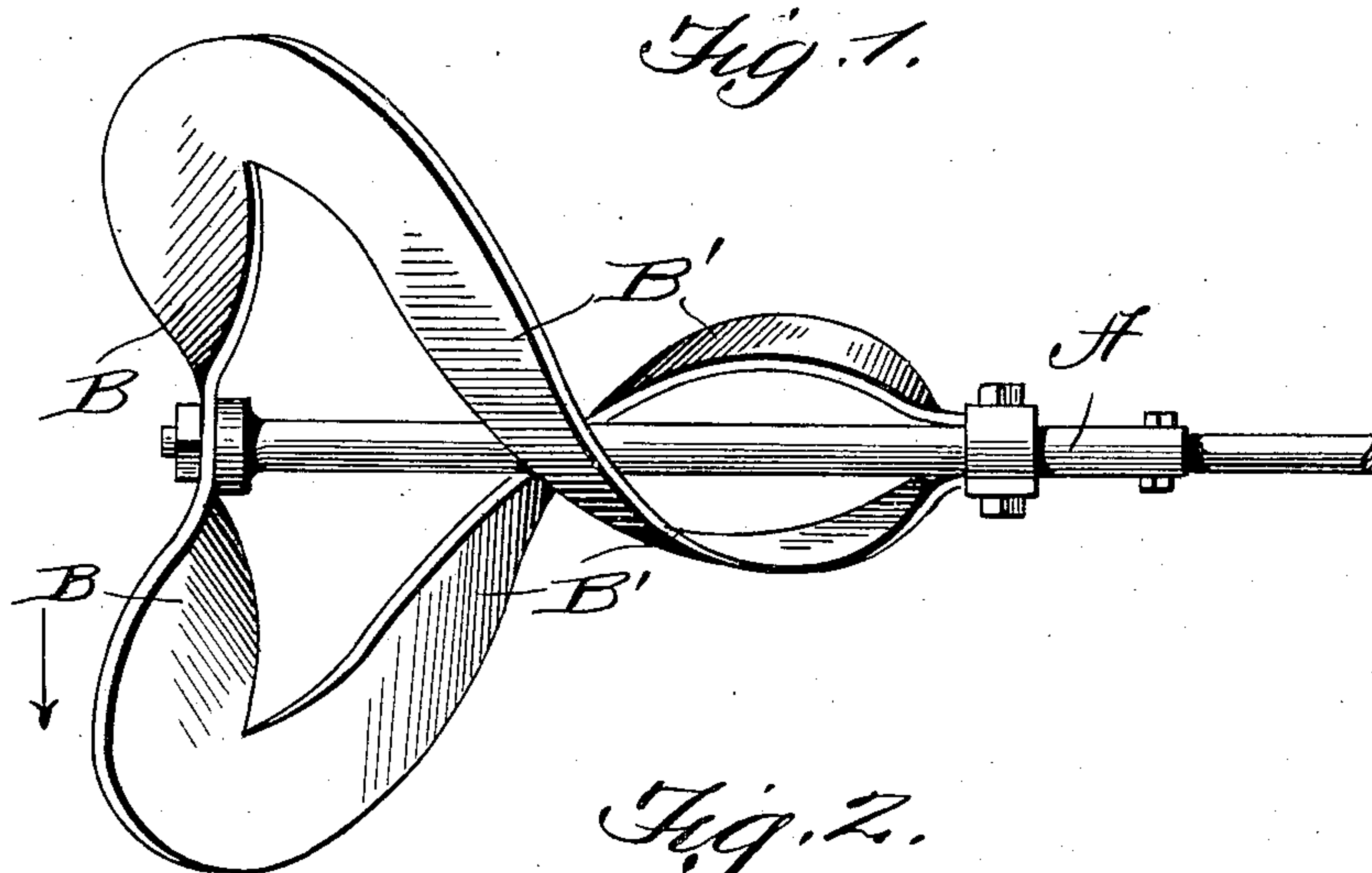


No. 868,220.

PATENTED OCT. 15, 1907.

J. PORTELLI & J. D. CHAPMAN.  
PROPELLER.

APPLICATION FILED APR. 4, 1907.



Witnesses

*R. A. Gosnell.*  
*a. atough*

Inventors  
J. Portelli & J. D. Chapman,  
By *Franklin H. Hough*  
Attorney

# UNITED STATES PATENT OFFICE.

JULIAN PORTELLI AND JOSEPH D. CHAPMAN, OF LOS ANGELES, CALIFORNIA.

## PROPELLER.

No. 868,220.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed April 4, 1907. Serial No. 366,420.

*To all whom it may concern:*

Be it known that we, JULIAN PORTELLI and JOSEPH D. CHAPMAN, citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Propellers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in propellers, and the object in view is to produce a simple and efficient device of this character whereby the greatest amount of power may be obtained at a minimum expense, and consists in a propeller comprising various details of construction and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claims.

Our invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the propeller, and Fig. 2 is a rear end view.

Reference now being had to the details of the drawings by letter, A designates a shaft or stem of the propeller and B designates a single plate of metal having two wings B'. Said plate is fastened at its longitudinal center to the end of the shaft or stem, and the portions of the plate on either side of its point of connection with said shaft are curved in opposite directions, and the wings, designated by letters B', are bent spiral shaped, with their forward ends secured to the stem or shaft at points diametrically opposite.

In operation, when it is desired to drive a boat equipped with our propeller forward, the shaft is rotated in the direction indicated by arrows in Fig. 1 of the drawings, which will cause the spiral wings of the plate to cut into the water and exert a pushing force thereon, thereby causing the propeller to exert a push-

ing force upon the boat to which it is attached. A reverse movement to the propeller will cause a corresponding pulling force in the opposite direction, thereby affording means whereby a boat equipped with our improved propeller may be moved backward. By the provision of a plurality of propellers, one upon either side of the keel of a boat, and so arranged that one propeller may be driven in one direction while the other is driven in a reverse direction, means will be afforded whereby a boat may be turned around within a short compass or be readily guided.

While we have described our invention as being applicable especially to boats, it will be understood that the same may be utilized as a current wheel by which great power may be transmitted, the power increasing with the swiftness of the current, and if desired, the invention may be applied to wind-mills, in which the force of the wind may be exerted upon the wings of the plate.

What we claim is:—

1. A propeller comprising a shaft, a plate fixed at its longitudinal center to said shaft, said plate being bent laterally in opposite directions and having forwardly extending spiral wings, the ends of which are fastened to said shaft, as set forth.

2. A propeller comprising a shaft, a plate fixed at its longitudinal center to one end of the shaft and having oppositely extending curved portions with tapering and spiral wings curved in opposite directions and fastened at their forward ends to said shaft, as set forth.

3. A propeller comprising a shaft, a single plate provided with an aperture to receive said shaft, a shoulder upon the latter, a nut adapted to hold the plate at its longitudinal center against said shoulder, said plate having laterally projecting curved portions with tapering spiral wings, and a collar fixed to the shaft and engaging the forward ends of said wings, as set forth.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses.

his

JULIAN X PORTELLI.

mark

JOSEPH D. CHAPMAN.

Witnesses:

DAVID ALLEN,

WILLARD H. CLARK.