

(No Model.)

F. J. LEISEN.
PROPELLER.

No. 508,324.

Patented Nov. 7, 1893.

Fig: 1.

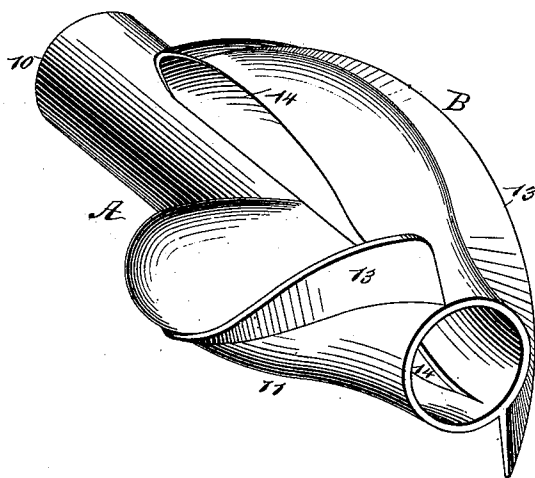


Fig: 2.

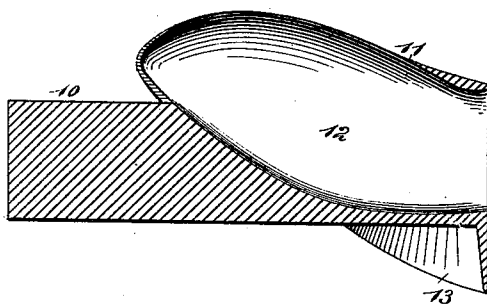
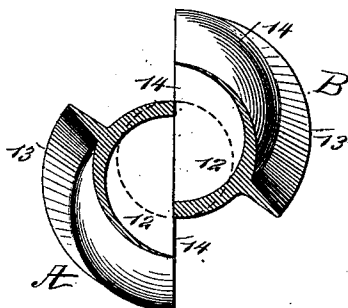


Fig: 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANK J. LEISEN, OF WOODBRIDGE, NEW JERSEY.

PROPELLER.

SPECIFICATION forming part of Letters Patent No. 508,324, dated November 7, 1893.

Application filed December 27, 1892. Serial No. 456,494. (No model.)

To all whom it may concern:

Be it known that I, FRANK J. LEISEN, of Woodbridge, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Propellers, of which the following is a full, clear, and exact description.

My invention relates to an improvement in propellers, and it has for its object to provide a propeller of simple yet durable construction, and which when in operation, will serve to produce a maximum of speed, and which will require comparatively but little power to drive it.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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

Figure 1 is a perspective view of the improved propeller. Fig. 2 is a longitudinal vertical section through the propeller, the section being centrally taken; and Fig. 3 is a transverse section through the propeller, the section being taken near its central portion.

In carrying out the invention the propeller may be said to comprise a shank 10 and a body 11. The shank is circular in cross section, and the body at its rear end lies somewhat diagonally with respect to the shank, and the body and shank are virtually integral parts, and the front end of the body is in a plane with the end of the shank. The body is hollow and comprises essentially two opposed wings A and B, one lying over the other, but the wings viewed exteriorly are of somewhat spiral formation, and while they converge at the rear end of the propeller they diverge when traveling in direction of the shank. The wings are exteriorly cylindrical or convexed, and the inner faces of the wings are concaved, forming thereby within each wing a single, somewhat spirally shaped chamber 12, as shown in Fig. 2. The chambers while in communication with each other have a common outlet at the outer end of the body of the propeller, and an independent outlet at opposite sides of the propeller, the cham-

bers discharging at their side outlets in directly opposite directions, and owing to the spiral arrangement of the wings the side discharge openings of the wings constitute pockets 14, which are located at exactly opposite sides of the body, yet the discharge from one pocket is made upon the exterior surface of the wing in which the opposite pocket is located. A spiral rib or fluke 13, is formed exteriorly upon each wing, and this rib or fluke extends from the upper inner portion of a wing to its outer extremity. The outer end of each rib or fluke is of much greater width than the inner end, and the outer end is given a most decided pitch, standing at more or less of an obtuse angle to the wing. It will be understood that the width of the ribs may be varied as occasion may demand, and also that more than one rib may be employed upon each wing; but preferably a single rib only is used, and the two ribs while curving in opposite directions throughout their length have their outer ends diametrically opposite, or substantially so.

The ribs, it will be observed, virtually constitute blades for the propeller. In the action of such a propeller the blades or ribs contribute to turn it, while the water entering the pockets is forced to take a spiral curve and is ejected with considerable force from the contracted outlet end of the propeller, which end, as will be observed in Fig. 1, is not only circular but is of less diameter than the diameter of the body at any other point, and in operation a propeller constructed as above described will create but little wash, and therefore but little back water is occasioned to interfere with the action of the propeller. Hence the propeller may be effectually revolved when comparatively but little power is applied to it.

The propeller acts as effectually when revolved in one direction as when revolved in a contrary direction.

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

1. A propeller provided with cylindrical, spirally formed and diagonally disposed opposing exterior surfaces, the interior of the propeller being hollow and formed with two pockets, their relation to each other being

essentially identical with the relation of the
outer surfaces to one another, whereby two
pockets are formed leading into the interior,
one pocket being visible from each side and
5 both pockets uniting at the outer end of the
propeller, forming a circular opening, as and
for the purpose specified.

2. A propeller provided with cylindrical,
spirally-formed and diagonally-disposed op-
10 posing exterior surfaces, the interior of the
propeller being hollow and formed with two
pockets, their relation to each other being
essentially identical with the relation of the
outer surfaces to one another, whereby two

pockets are formed leading into the interior, 15
one pocket being visible from each side and
both pockets uniting at the outer end of the
propeller, forming a circular opening, and
having spiral blades or ribs upon the exterior
surfaces of the propeller, each rib or blade 20
being above a pocket, tapered in width and
extending practically from the back to the
front of the propeller, as and for the purpose
specified.

FRANK J. LEISEN.

Witnesses:

BENJ. VALENTINE,
WM. BEELMAN.