(No Model.)

H. DOCK.

MARINE PROPULSION.

No. 442,615. Patented Dec. 16, 1890.

Fig. 3.

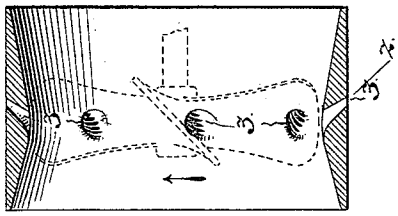


Fig. 6.

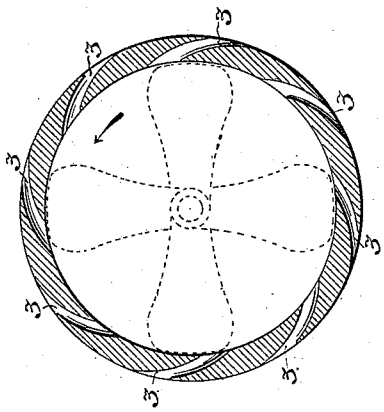


Fig. 2.

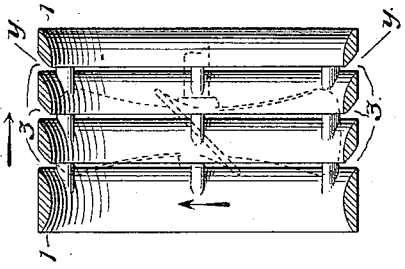


Fig. 5.

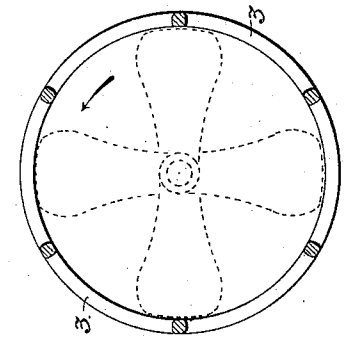


Fig. 1.

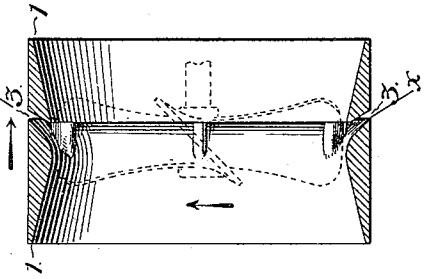
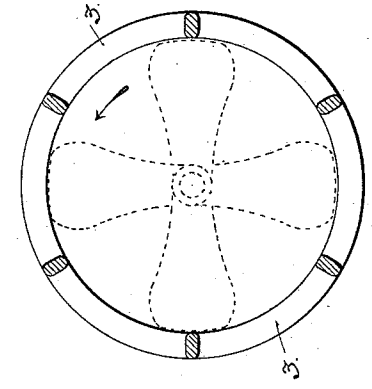


Fig. 4.



WITNESSES:

A. E. Paige

W. T. Wiegand

INVENTOR

Herman Dock

by Wiegand & Wiegand Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HERMAN DOCK, OF PHILADELPHIA, PENNSYLVANIA.

MARINE PROPULSION.

SPECIFICATION forming part of Letters Patent No. 442,615, dated December 16, 1890.

Application filed June 16, 1890. Serial No. 355,676. (No model.)

To all whom it may concern:

Be it known that I, HERMAN DOCK, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Marine Propulsion; and I do hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable others skilled in the art to make and use the said invention.

This invention relates to marine propulsion, and has for its object the increased efficiency of screw-propellers by an improved form of casing or guide surrounding the propeller and directing the water to and from the screw.

The invention is shown in the accompanying drawings, in which—

Figure 1 shows a vertical longitudinal section of the propeller-casing embodying this invention as applied to a screw-propeller at the stern of a vessel. Figs. 2 and 3 show similar sections of modified forms of the casing, and Figs. 4, 5, and 6, respectively, transverse sections in the planes indicated by the dotted lines x, y, and z in Figs. 1, 2, and 3.

1 is the casing, made cylindrical or conical in external form and internally tapering in curved lines from the forward end toward the center, forming a throat where it is of smallest internal diameter, and enlarging in straight or curved lines aft of the propeller. Through the casing 1 are oblique openings 3, (preferably tapering in form,) inclined so as to diverge toward the rear of the casing, which openings 3 permit water to enter from the exterior of the casing and discharge water rearwardly.

The direction of motion of the vessel is indicated by the horizontal arrows marked on Figs. 1, 2, and 3 and the direction of rotation of the propeller by the vertical arrows in Figs. 1, 2, and 3 and by the curved arrows in Figs. 4, 5, and 6.

As shown in Figs. 1 and 4, the opening 3 is single and annular. As shown in Figs. 2 and 5, there are several annular openings, and, as shown in Figs. 3 and 6, the openings 3 are made helical, with an angular inclination in the direction of the motion of the propeller, similar to the manner in which the guides of reaction water-wheels are inclined oppositely to the inclination of the blades or floats of the rotating wheel. The effect of such guides applied to a screw-propeller is to increase the progress of the propeller and vessel through the water and to exert a stronger propelling effect with the same driving power.

Having described the invention, what I claim is—

1. In a marine propelling apparatus, a screw-propeller, in combination with a surrounding case having the forward internal portion contracting in curved lines toward the propeller and rearwardly expanding therefrom, substantially as set forth.

2. In a marine propelling apparatus, a screw-propeller, in combination with a surrounding case having an interior converging from the forward end in curved lines toward the propeller and rearwardly expanding therefrom and provided with diverging apertures, substantially as shown and described.

3. In a marine propelling apparatus, a screw-propeller, in combination with a surrounding case having an interior contracting in curved lines from the forward end to a contracted throat and expanding aft thereof and provided with diverging helically-inclined apertures, substantially as set forth and described.

HERMAN DOCK.

Witnesses:
EDW. HAUGH,
PERCY A. BIVINS.