W. D. SMITH.
Screw-Propeller.

No. 197,419. Patented Nov. 20, 1877.

Fig. 2.

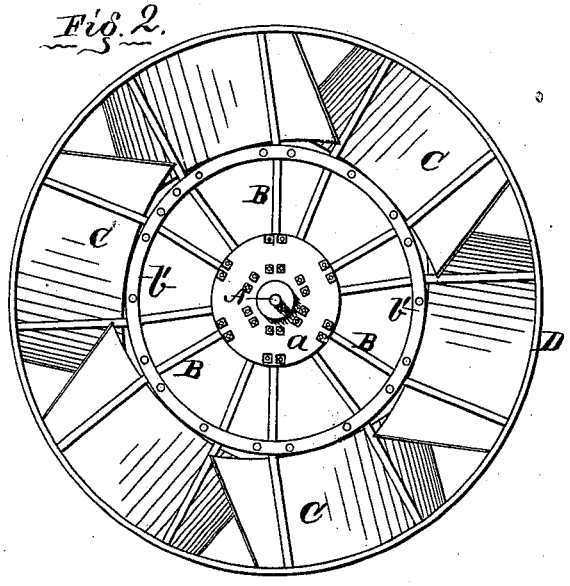
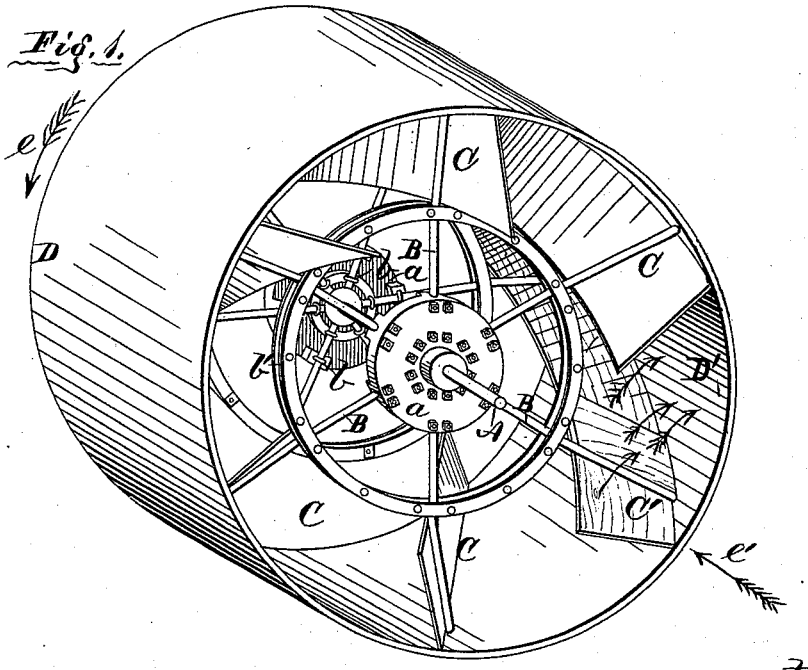


Fig. 1.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM D. SMITH, OF KEITHSBURG, ILLINOIS.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **197,419**, dated November 20, 1877; application filed June 16, 1877.

To all whom it may concern:

Be it known that I, WILLIAM D. SMITH, of Keithsburg, in the county of Mercer and State of Illinois, have invented certain new and useful Improvements in Marine Propellers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of this invention relates to improvements in screw-propellers; and consists in a new and improved combination of devices embodied in the construction of the wheel, all as hereinafter fully described, and set forth in the claim hereto annexed.

In the accompanying drawing, Figure 1 is a perspective view of a propeller embodying my invention, and Fig. 2 is a side elevation.

Referring to the parts by letters, A represents one end of the shaft, B the radial arms, and C the blades, of a propeller. The arms B are removably secured to the shaft A by being bolted by yokes *b* to bosses *a*, which are mounted on said shaft, and are stayed by an annular stay-bar, *b'*. D is a rim, which entirely encircles the wheel of blades, as shown in the drawings, and is secured thereto, so as to be rotated with the blades.

The blades C are of curved form, and set at an angle, as clearly shown by the drawings. They are inclosed within the rim D and secured thereto, so that both revolve together. The wheel thus formed is fixed on the end of the shaft A, which may be seated and project in rear of the vessel, in the ordinary manner.

The propeller being rotated in the direction shown by the arrow *e* at Fig. 1, the vessel and wheel would be carried in the direction shown by the arrow *e'*; and in illustration of the effect of the rotating rim D, one blade, C', may be cited, the rotary action and tendency of which will be to throw the water upward and outward by centrifugal force, as shown by the arrows, and the action and tendency of the section of rim D' which is between the blade C' and the blade immediately in advance of it will be to deflect the water back and cause it to react upon the blade, thus greatly increasing the power of the wheel.

The blades C and rim D are secured together, and made detachable from shaft A. This construction allows the blades and rim to be removed for repairs and cleansing, but keeps them together, so that the said blades are always protected by the said rim, and are never in danger of being lost.

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

The combination of shaft A, having bosses *a*, radial arms B, blades C, and rim D, with stay-bar *b'* and yokes *b*, said blades and rim being secured together, and said rim being detachable from said shaft, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM D. SMITH.

Witnesses:
GEO. C. SEARLE,
J. A. SWAZY.