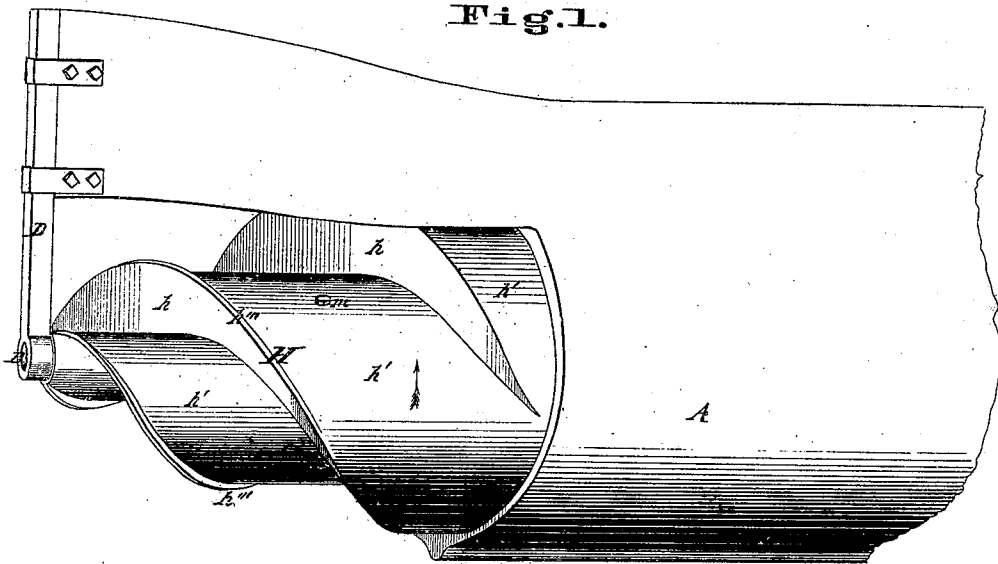


*G. B. Cocks,*  
*Propeller.*

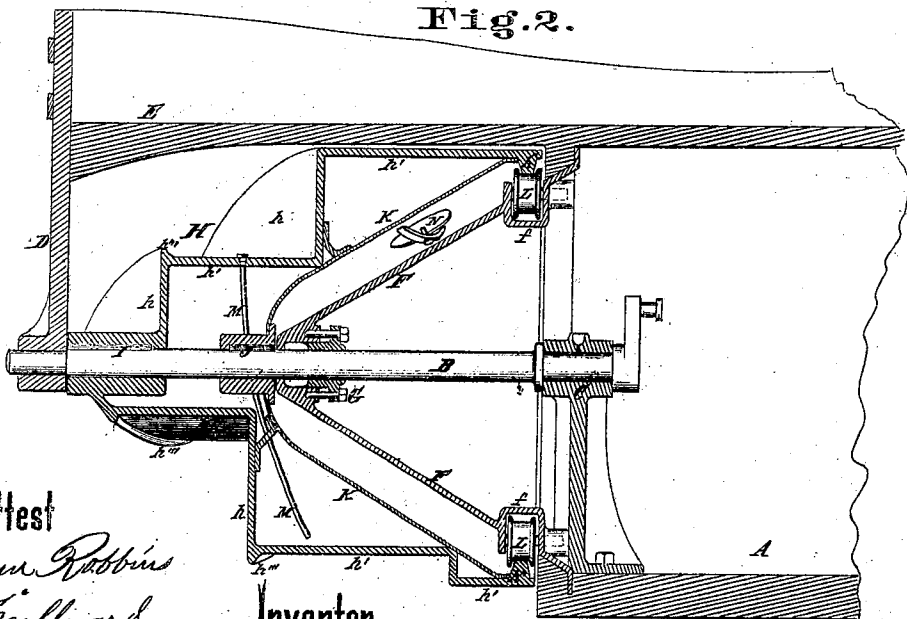
*No. 113,143.*

*Patented Mar. 28, 1871.*

**Fig. 1.**



**Fig. 2.**



*Attest*  
*William Robbins*  
*Henry Millward*

**Inventor.**  
*George B. Cocks*  
*Henry H. Millward*  
*Attorney in fact.*

# United States Patent Office.

GEORGE B. COCKS, OF CINCINNATI, OHIO.

Letters Patent No. 113,143, dated March 28, 1871; antedated March 24, 1871.

## IMPROVEMENT IN MARINE PROPELLERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, GEORGE B. COCKS, of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Devices for the Propulsion of Vessels (using steam or other motive power) either in water or air; and I hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable one skilled in the art to which my invention appertains to make and use it, reference being had to the accompanying drawing making part of this specification.

### Nature and Objects of Invention.

My improved propelling device, although it may be used for stern-propulsion, acting in that position in a similar manner to the ordinary screw, is designed principally for the bow of the vessel, or bow and stern together, whether the vessel is propelled through water or through air in aerial navigation, and serves, in action, to so entirely remove or so materially reduce the natural pressure of water or air upon the bow-end of the vessel that the vessel will be "drawn powerfully forward," or in other words, propelled powerfully forward by the natural and continuous water or air-pressure upon the stern-end, which will always be, when the propeller is in motion, considerably in excess of the pressure upon the bow; the object of my invention being to produce a propelling device or method of propulsion, in which there is but little "slip," and which will by its action in propulsion relieve the forward end of the vessel of a great amount of frictional resistance to its passage through the medium.

### Description of the Accompanying Drawing.

Figure 1 is an exterior perspective view of the end of a vessel with my propelling device in position.

Figure 2 is a vertical central section through the vessel and propeller.

### General Description.

A is the hull of the vessel, and

B the driving-shaft of the propeller.

The shaft B is supported at the inner end by the journal-bearing C, and at the outer end by an arm, D, depending from the forward projection E of the vessel.

The hull terminates in a cone, F, which is provided with the stuffing-box G, to pack the revolving shaft.

The shaft may be rotated by any preferred connection with the motive power.

The cone F is designed to give additional room to the vessel, and also to provide a strong form for the termination of the hull.

The propeller H is of a peculiar form, that of a conical helix, round at the base or large end, and concentric with the shaft at that end.

I prefer to make the base of the helix of a diam-

eter equal to the width of the hull, and prefer to make the hull of as nearly circular section in front and rear as possible.

The propeller H, when used at the bow, is revolved in the direction of the arrow, and the "sides" or "tread" *h* of the spiral, when in rapid rotation, runs away, as it were, from the water in front of the vessel, and at the same time the "top" or "rise" *k* forces the water away from the front end of the vessel in every direction at right angles to the vessel's course.

In this way a tendency to vacuum is created at the bow-end of an area equal to the area of the part of the hull in the water which "draws" the vessel powerfully forward, or in other words, compels the preponderating pressure on the stern-end to propel the vessel.

The propeller H *h k* is firmly secured to the shaft by key I at the outer end, and keyed hub J at the inner end.

The cone K is firmly attached to the interior of the propeller for the purpose of inclosing within the propeller a substance of less specific gravity than water, to render the propeller buoyant.

Anti-friction rollers L are secured to the cone F in water-tight cases *f*, and the propeller H has an interior circular concentric rib, *k'*, which rests upon the rollers L.

The rollers serve to retain the base of the revolving propeller in place against unequal pressure, and permit it to revolve with but little friction.

M is a pipe, through which accidental leakages may be pumped out. It is stopped by plug *m* when the propeller is in action.

N is a man-hole, through which a person may enter the propeller to execute repairs.

The top or rise *k* of the propeller may be parallel with the shaft B, or at any angle desired, and may be provided with projecting rib *h''*.

The shell of the propeller H is, of course, properly supported, to prevent collapse, by radial ribs, connected to the shell H and cone K, and located about four feet, more or less, according to the size of the vessel, apart.

If it is found impossible to make the propeller-case H K sufficiently tight to prevent the leakage of water through the shell, the interior space may be filled up with some substance of less specific gravity than water, such as tan-bark.

### Claim.

The propeller H *h k*, substantially of the form described, operating as stated, and for the purpose specified.

In testimony of which invention I hereunto set my hand.

GEORGE B. COCKS.

Witnesses:

FRANK MILLWARD,  
J. L. WARTMANN.