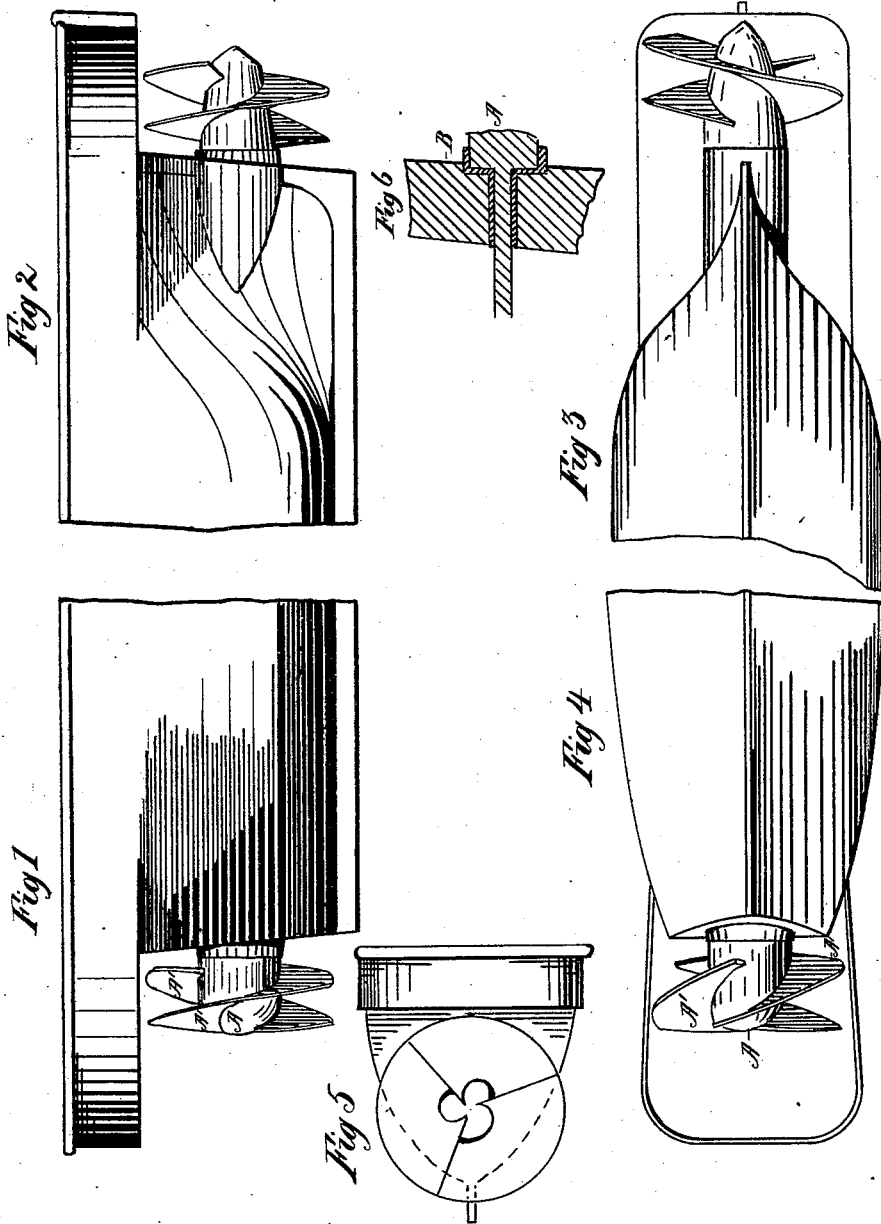


J. KELLY.  
Screw-Propeller.

No. 164,305.

Patented June 8, 1875.



Attest:  
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# UNITED STATES PATENT OFFICE.

JOHN KELLY, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF HIS  
RIGHT TO JOSEPH H. BARKER, OF SAME PLACE.

## IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. 164,305, dated June 8, 1875; application filed  
April 10, 1875.

*To all whom it may concern:*

Be it known that I, JOHN KELLY, of Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in 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 pertains 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.

Figure 1 is an elevation of the rear portion of a vessel, and showing my improved propeller attached thereto. Fig. 2 is an elevation of the front part of a vessel, showing how a propeller may be placed in the bow. Fig. 3 is a bottom view of the forward portion of a vessel, showing the propeller in position, and how the deck is made to protect the same when approaching wharves or other objects. Fig. 4 is a bottom view of rear portion of a vessel, the deck being shown as projecting over and beyond the propeller. Fig. 5 is a front view of a portion of a vessel, showing the propeller in position; and Fig. 6 is a sectional elevation of a portion of the frame-work of a vessel, showing the socket in which the hub of the propeller revolves.

Corresponding letters denote corresponding parts in the several figures.

This invention relates to propellers for vessels and boats; and it consists in the construction and combination of some of the parts of which it is composed, as will be more fully explained hereinafter.

In constructing propellers of this type a hub, A, of conical or tapering form, substantially such as is shown in Figs. 1 and 4, is surrounded with projecting flanges A' A', said flanges being arranged spirally upon the hub, and in such a manner as to cause them to form sections of a screw, they starting from the hub at a point near its inner end and terminating at the outer conical end thereof, each projection being of such length as to cause its outer end or portion to pass beyond the point of the beginning of the next in the series, the object being to cause the entire diameter of the propeller to exert a force upon the water, and thus aid in propelling the vessel. The peculiar form of the hub

A enables the propeller to perform the function just ascribed to it, and it also causes the water to be thrown from its surface at, or nearly at, a right angle with the inclination of its surface, while the continuation of each blade of the screw or propeller at its terminal point, beyond the point of beginning of the next in the series, affords ample protection against ice, floating timber, and other obstructions, as well as in coming up to wharves or alongside other vessels. Another, and a very important, feature of this propeller is that of causing the blades to act upon the water throughout their entire diameter, thus increasing its propelling power and preventing the formation of dead water around the hub.

In applying this propeller to vessels I propose to cut away a portion of the stern of such vessel, as shown in Figs. 1 and 4, the portion cut away being sufficient to cause its cross-section to be equal to or a little greater than the diameter of the hub of the propeller at its largest point. Into the vessel at about the point indicated in the figures last referred to, there is inserted a socket, B, substantially of the form shown in Fig. 6. This socket is provided with an inwardly-projecting portion, which forms a suitable bearing for the shaft of the propeller to rotate in, while in its outer portion there is a recess for the reception of the inner portion of the hub A, which enters within the projecting flange of the socket, which serves as an additional support for the wheel, and aids in preventing the vertical or lateral movement thereof, while the large amount of surface exposed to the longitudinal or endwise movement of the propeller and its shaft permanently prevents such movement.

It will be understood that the socket B is to be firmly secured to the vessel, and that it may be of any desired diameter equal to or less than the inner diameter of the hub of the propeller.

Some of the advantages due to this form and arrangement of propellers, not heretofore enumerated, may be stated as follows: First, the close proximity of the wheel to the stern-post of the vessel, its hub revolving, as it does, in a socket-disk attached thereto, causes the wheel to work in solid water, or in water which, at the time of its contact with the wheel, is in a

state of rest, or nearly so, and, at the same time, the water which flows from the bow of the vessel and along its sides is not checked in its movements by coming to the point where the wheel strikes it, but is rather accelerated in its movements, and, as a consequence, is made to aid to some extent in propelling the vessel; second, it requires less room between the stern-post and the rudder, and hence sufficient room can be had for removing the wheel from its shaft without displacing the rudder.

I have thus far described my propeller as applicable only to the stern of vessels, but it is equally applicable to the bows, and as illustrating that feature there is shown in Figs. 2, 3, and 5 a method of such application.

In applying this propeller to both the bow and stern of a vessel, the bow will be cut away, as shown, and both propellers may be attached to one shaft, or separate shafts driven by different engines may be used.

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

1. A propeller-wheel having a tapering or conical hub, and provided with spiral blades or projections, said blades being arranged in relation to the hub and to each other, so as to form sections of a full screw, substantially as and for the purpose set forth.

2. A propeller-wheel having a series of spirally-projecting blades or projections so arranged that the outer or terminal points of each shall be in advance of the point where the next of the series starts from the largest part of the hub, substantially as and for the purpose set forth.

3. The socket B for the reception of the hub A, in combination with a propeller-wheel and a vessel, substantially as set forth.

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

JOHN KELLY.

Witnesses:

C. M. CONNELL,  
E. A. BULLEY.