

(No Model.)

J. R. MILLER.
SCREW PROPELLER FOR VESSELS.

No. 562,190.

Patented June 16, 1896.

Fig. 1.

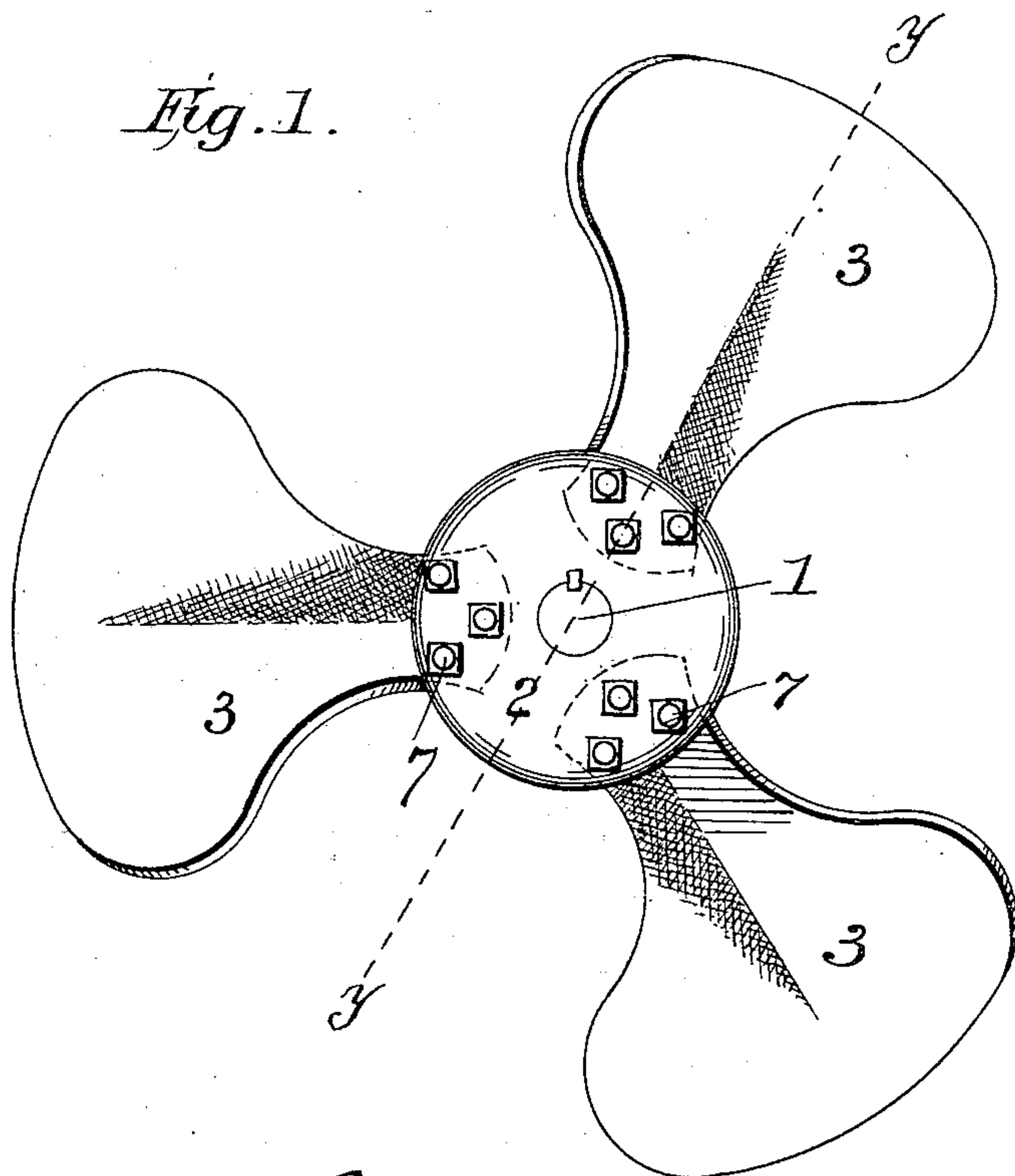


Fig. 2.

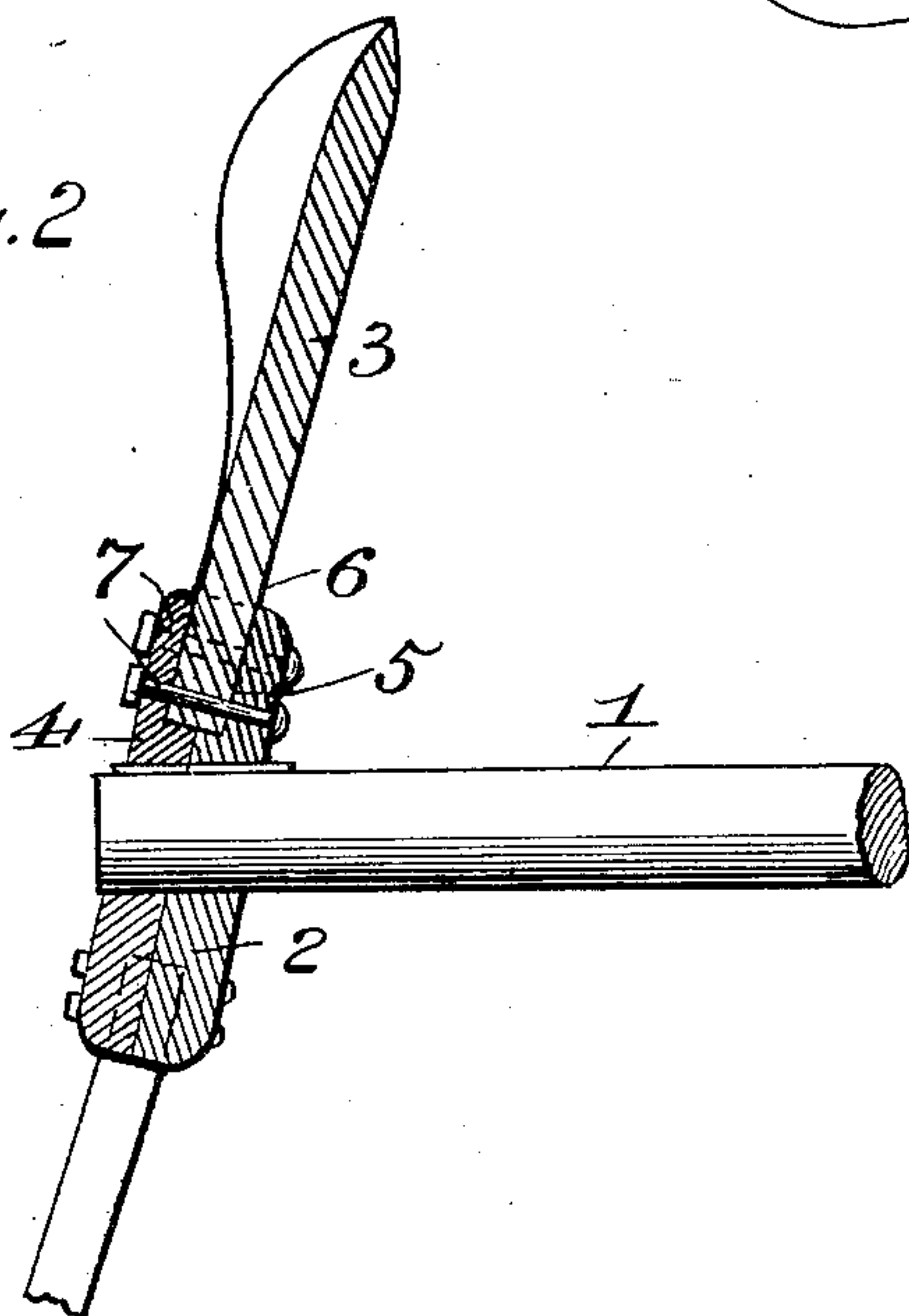
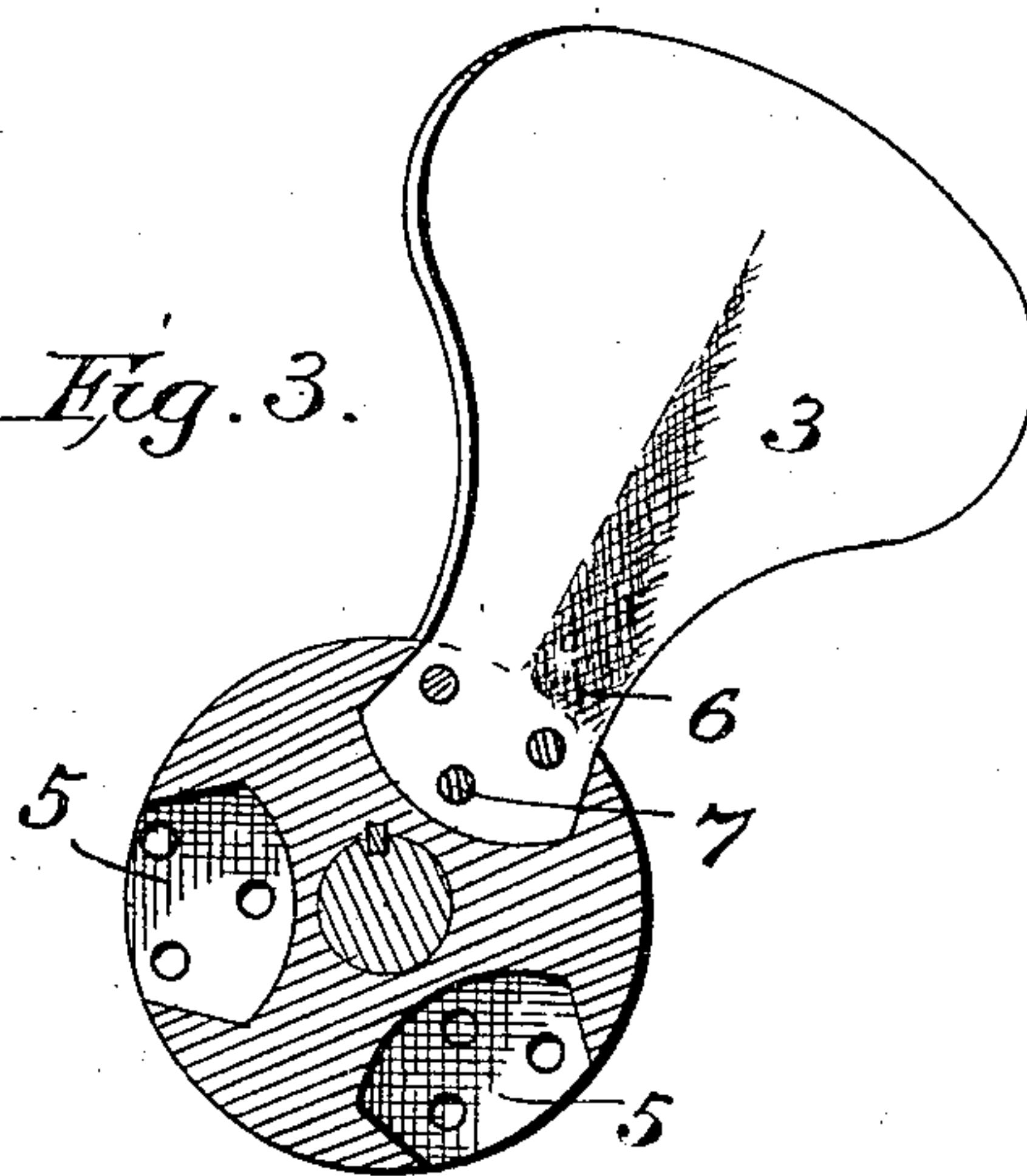


Fig. 3.



Witnesses
J. L. Cuykendall
A. D. Smith

Inventor
John R. Miller
By *H. B. Wells* Attorney

UNITED STATES PATENT OFFICE.

JOHN R. MILLER, OF THOMASVILLE, GEORGIA.

SCREW-PROPELLER FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 562,190, dated June 16, 1896.

Application filed May 9, 1895. Serial No. 548,705. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. MILLER, a citizen of the United States, residing at Thomasville, in the county of Thomas and State of Georgia, have invented certain new and useful Improvements in Screw-Propellers for Vessels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to screw-propellers for vessels and more particularly to that class of propellers comprising a hub and a series of blades having the pitch of a screw.

The object of my invention is to provide a propeller of this character which will materially increase the speed of vessels and which may be applied to the propeller-shafts of vessels now in use without disturbing the shaft or other operating parts.

With this and other objects in view the invention consists of certain features of construction and combination of parts, which will be hereinafter fully set forth.

In the drawings, Figure 1 is an end view of my improved propeller. Fig. 2 is a longitudinal vertical sectional view on line *y y*, Fig. 1. Fig. 3 is a cross-sectional view through the hub and the tenon.

In the drawings, 1 denotes the propeller-shaft, 2 the hub, and 3 the blades of the propeller. In the present instance I have shown three blades whose acting surfaces are portions of helices of true screws, but it is evident that blades of other forms may be employed without departing from the spirit of my invention. The hub consists of two parts 4, having sockets 5 in their opposing faces, which conform in shape to the elliptical tenons 6 of the blades. These tenons are placed between the two parts of the hub in the sockets and bolts 7 are passed through the hub and the tenon and securely fasten the blades to the hub. I find this a very desirable way to construct the propeller, as it enables me to easily remove one of the blades should it become damaged and replace it with a new

one without necessitating the removal of the propeller from its shaft; furthermore a great saving is effected, in that when a blade is damaged or broken it is only necessary to replace it with a new blade, while on the other hand, when the blades and hub are cast in one piece and one blade becomes damaged, the propeller is rendered useless and must be removed.

In order to secure an increase of speed, I have slanted the blades of the propeller with respect to the hub and have connected the hub to the shaft so as to have a slanting relation therewith. To do this, I provide the two parts of the hub with registering apertures, which are arranged obliquely to the faces of the wheel. The propeller-shaft is passed through these apertures and is fastened to the hub in any well-known or desired manner.

A propeller thus constructed is simple, may be produced at a small cost and will materially increase the speed of the vessel, while the removability of the blades will permit of its repair without incurring the expense of providing a new propeller when one of the blades is damaged.

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

The combination with a propeller-shaft, of a propeller, consisting of a hub composed of two parts, said parts being mounted upon the shaft obliquely with relation to the longitudinal axis thereof, blades having tenons terminating in semielliptical or curved ends fitting in sockets in the opposing faces of the sections of the hub, said blades being arranged at an angle corresponding to that of the hub relatively to the longitudinal axis of the shaft, and bolts securing the blades to the hub-sections, all as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN R. MILLER.

Witnesses:

R. C. BALFOUR,
T. N. HOPKINS.