

(No Model.)

J. D. MULLER.
SCREW PROPELLER.

No. 507,502.

Patented Oct. 24, 1893.

Fig. 1.

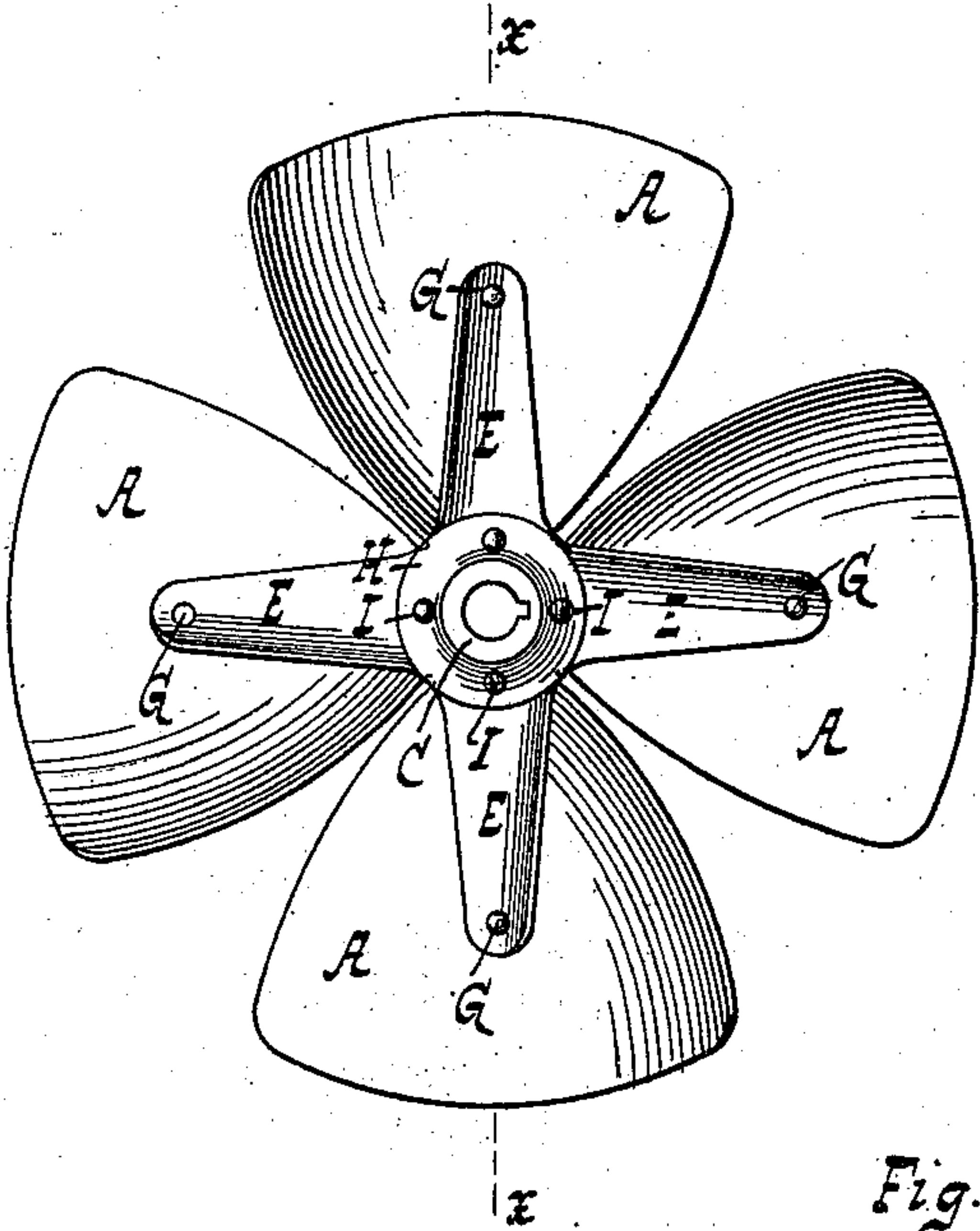


Fig. 2.

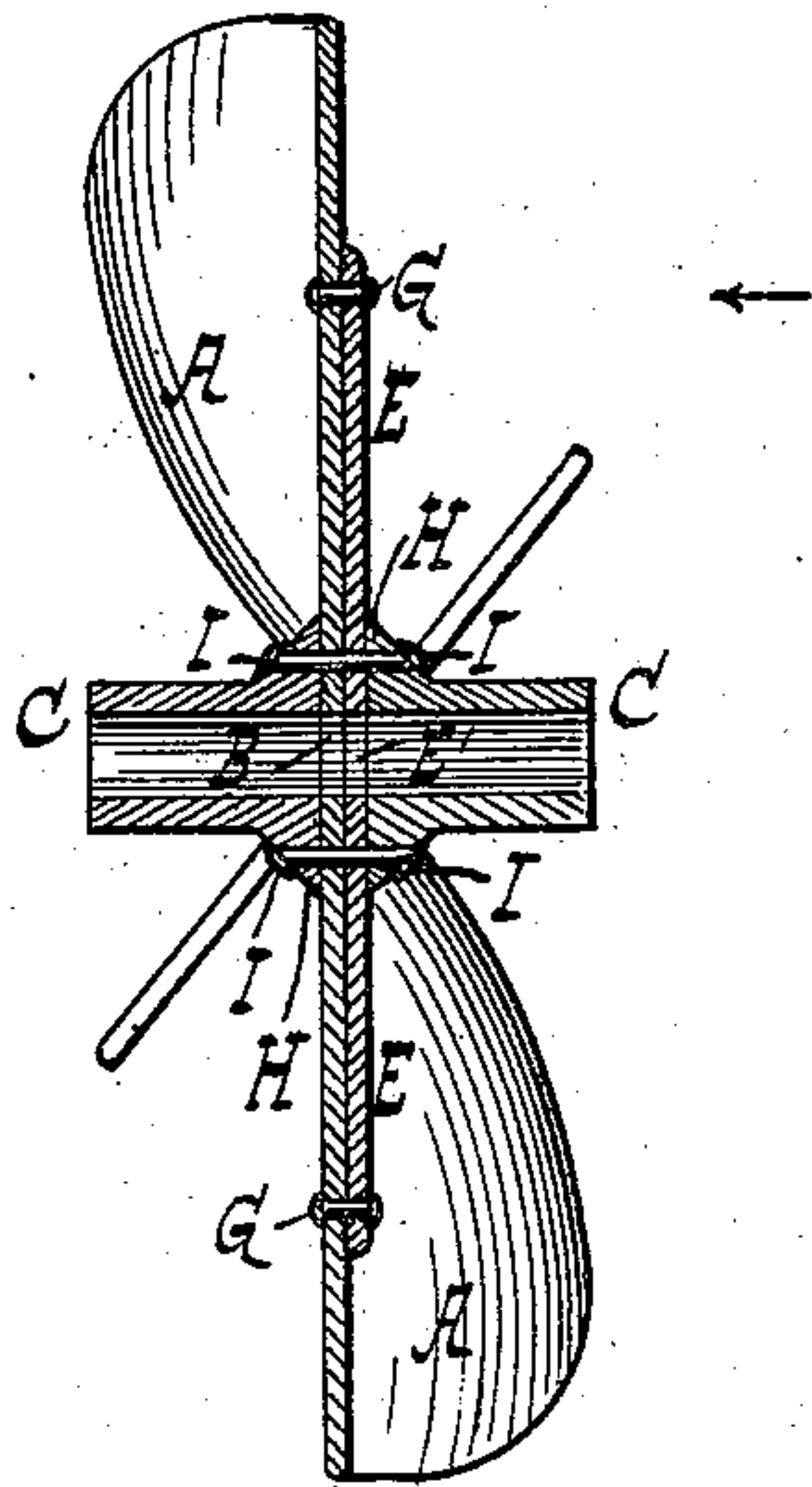
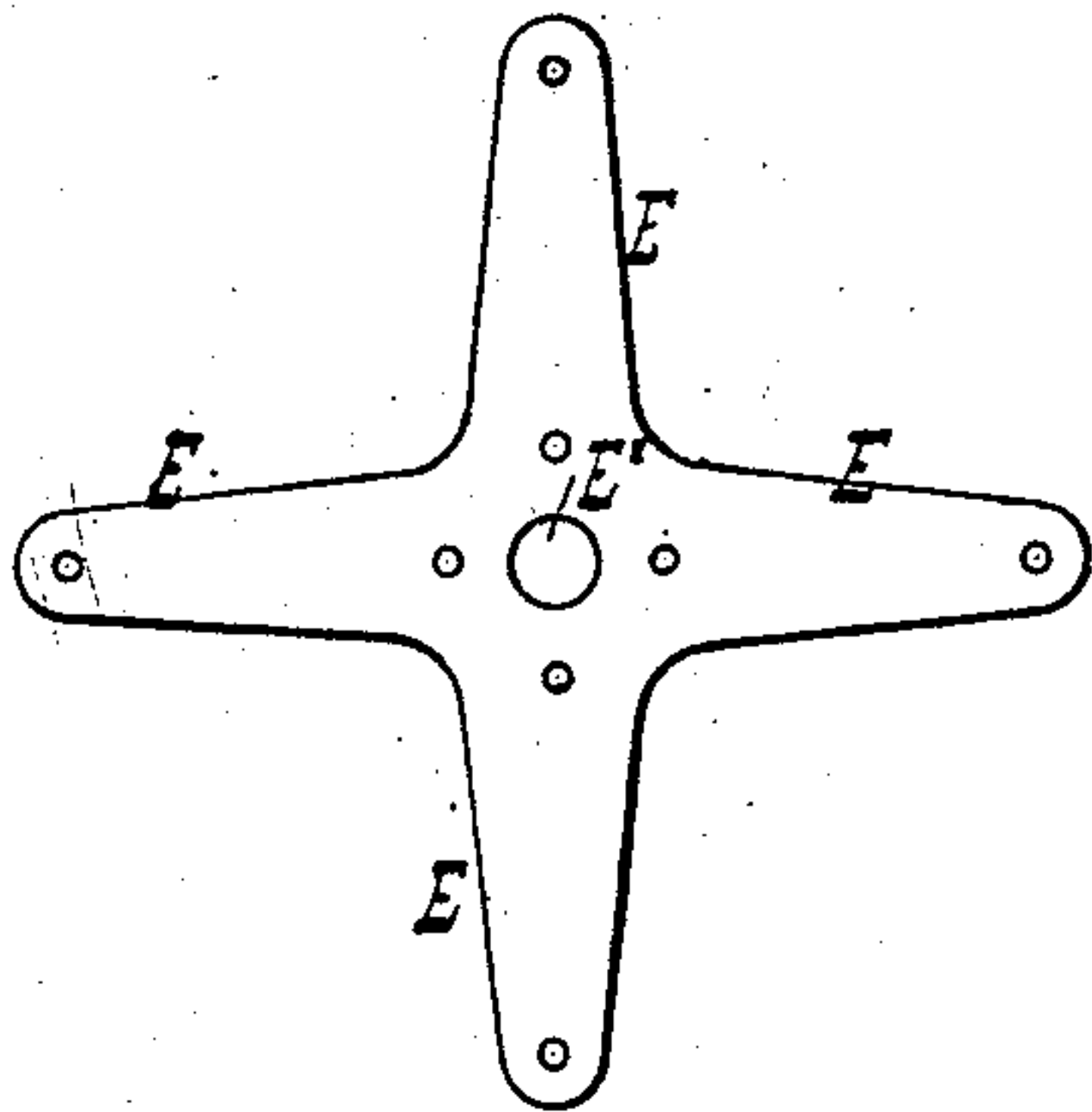


Fig. 3.



WITNESSES:

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INVENTOR:

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BY

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UNITED STATES PATENT OFFICE.

JOHN DIEDERICH MULLER, OF NEW YORK, N. Y.

SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 507,502, dated October 24, 1893.

Application filed December 2, 1892. Renewed October 3, 1893. Serial No. 487,109. (No model.)

To all whom it may concern:

Be it known that I, JOHN DIEDERICH MULLER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Propellers, of which the following is a specification.

This invention relates to propellers and consists in certain novel features of construction described below, reference being had to the accompanying drawings, in which—

Figure 1, is an end view of my propeller, looking in the direction of the arrow in Fig. 2. Fig. 2, is a central section on the line xx of Fig. 1. Fig. 3, is the reinforcing plate detached.

The letters A, A, A, A, designate the blades of a propeller for vessels or boats. They are preferably made from a single piece of metal and are twisted into the proper helical shape after they are cut out and are made with a central opening to receive the shaft of the propeller, corresponding with the central opening E' of the radial plate hereinafter described. In the case however of propellers of large size the several blades can be made separately and united to each other at their necks or inner ends where their coming together unites them into a central web B around the hub C. The hub C is made hollow so as to receive a shaft which may be keyed to the hub or secured to it in any other suitable manner.

The several blades are reinforced and strengthened by a radial plate E made preferably from a single piece of metal, and provided at its center with an opening E' that receives in it the shaft. The arms of said plate extend on the outer side of the blades A about half way to their ends, and are bolted or riveted to them by bolts G.

The central parts or webs of the blades and of the radial plate are secured to each other and to the hub C by conical flanges H, H, which encircle the two sections or parts of the

hub on opposite sides of the blades and which are bolted to each other and to the radial plate E, by bolts I. The flanges are conical in their exterior shape, so that they may have great strength and be the better able to support the hub C around which they are placed, and to connect the hub to the blades of the propeller and to the radial arms of plate E. This construction of the flanges H H enables me to fill up the angular depressions which otherwise would be formed around both sides of the hub and between it and the faces of the propeller blades. The hub C is by the construction shown and described practically made in two parts which are separated from each other by the central portions or webs of the propeller blades and the reinforcing radial plate E and are then united and held to each other by the bolts, I, which are required, as in the case of the other parts also, to be of great strength and resisting power.

It will be observed that the propeller blades are radial and that their ends are free so that they can not easily be obstructed by rubbish or wreckage and will be able to clear themselves from such obstructions.

What I claim as new, and desire to secure by Letters Patent, is—

A propeller, consisting of the blades A united together at the center, a hub composed of two sections each having a conical flange H, a radial plate E formed independent of and bolted to the blades and arranged between the two sections of the hub, and the bolts I extending through the conical flanges of the hub sections and through the radial plate and blades, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN DIEDERICH MULLER.

Witnesses:

J. VAN SANTVOORD,
E. F. KASTENHUBER.