

No. 793,373.

PATENTED JUNE 27, 1905.

E. HILL.
FEATHERING SCREW PROPELLER.
APPLICATION FILED MAY 4, 1904.

Fig. 2.

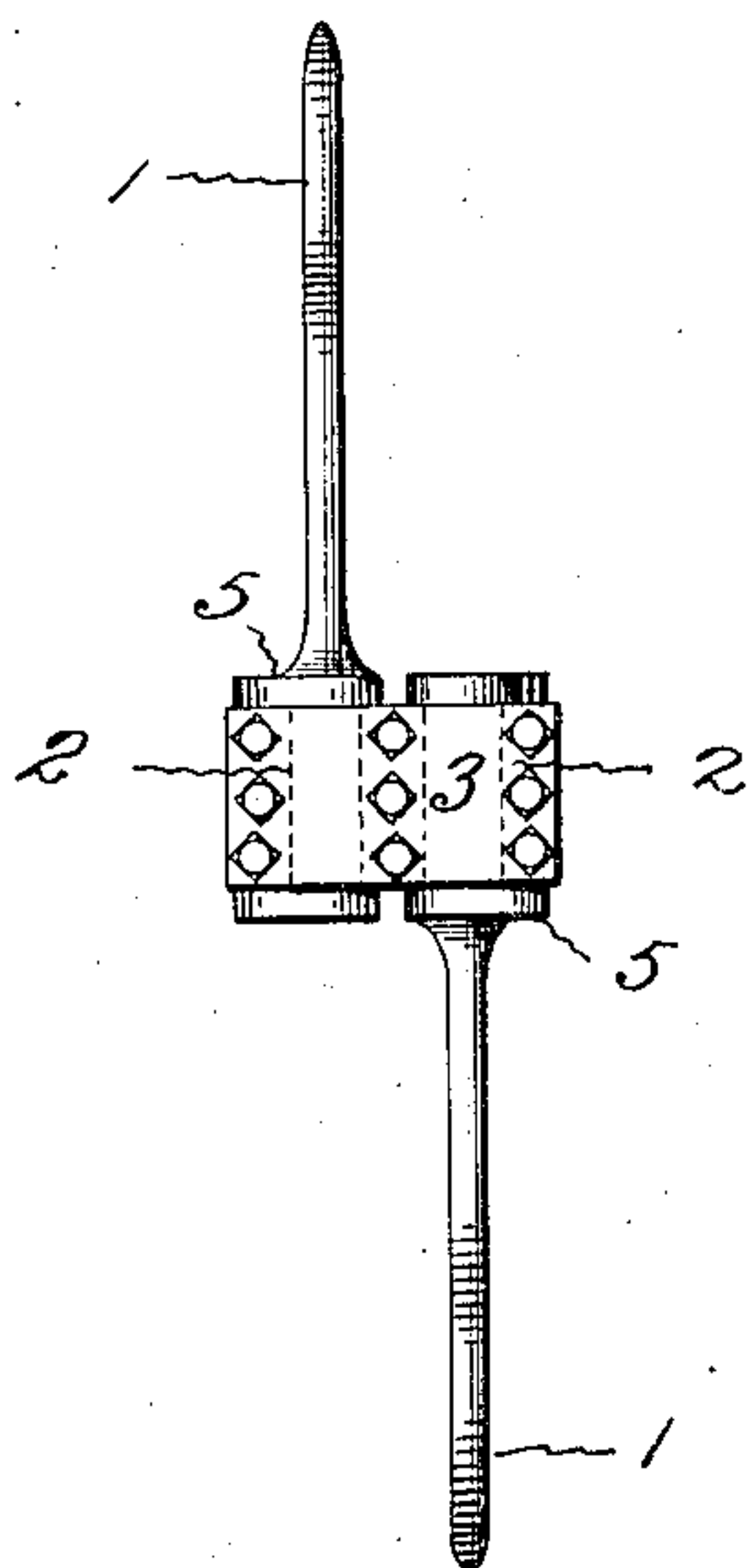


Fig. 1.

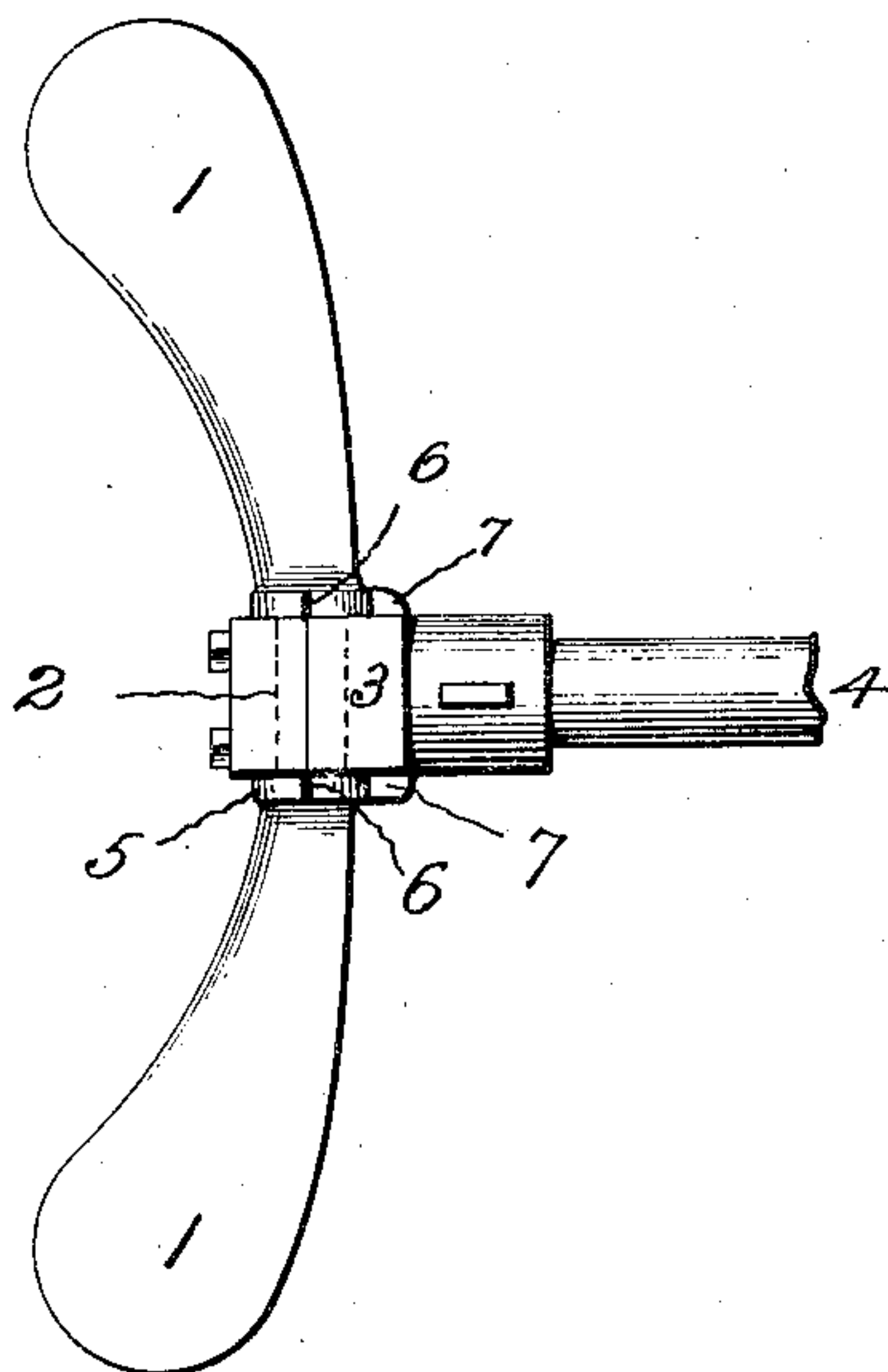


Fig. 4.

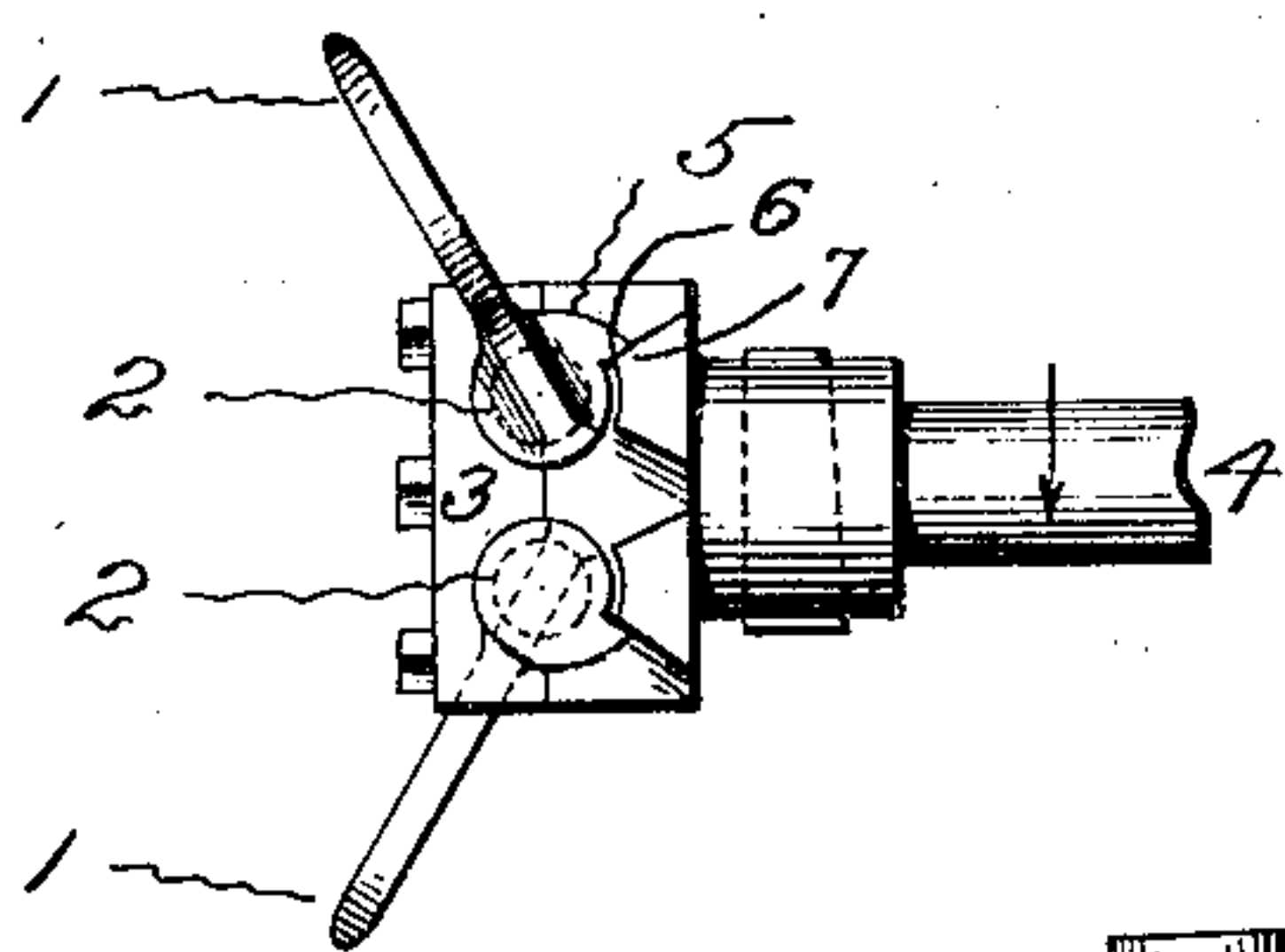


Fig. 3.

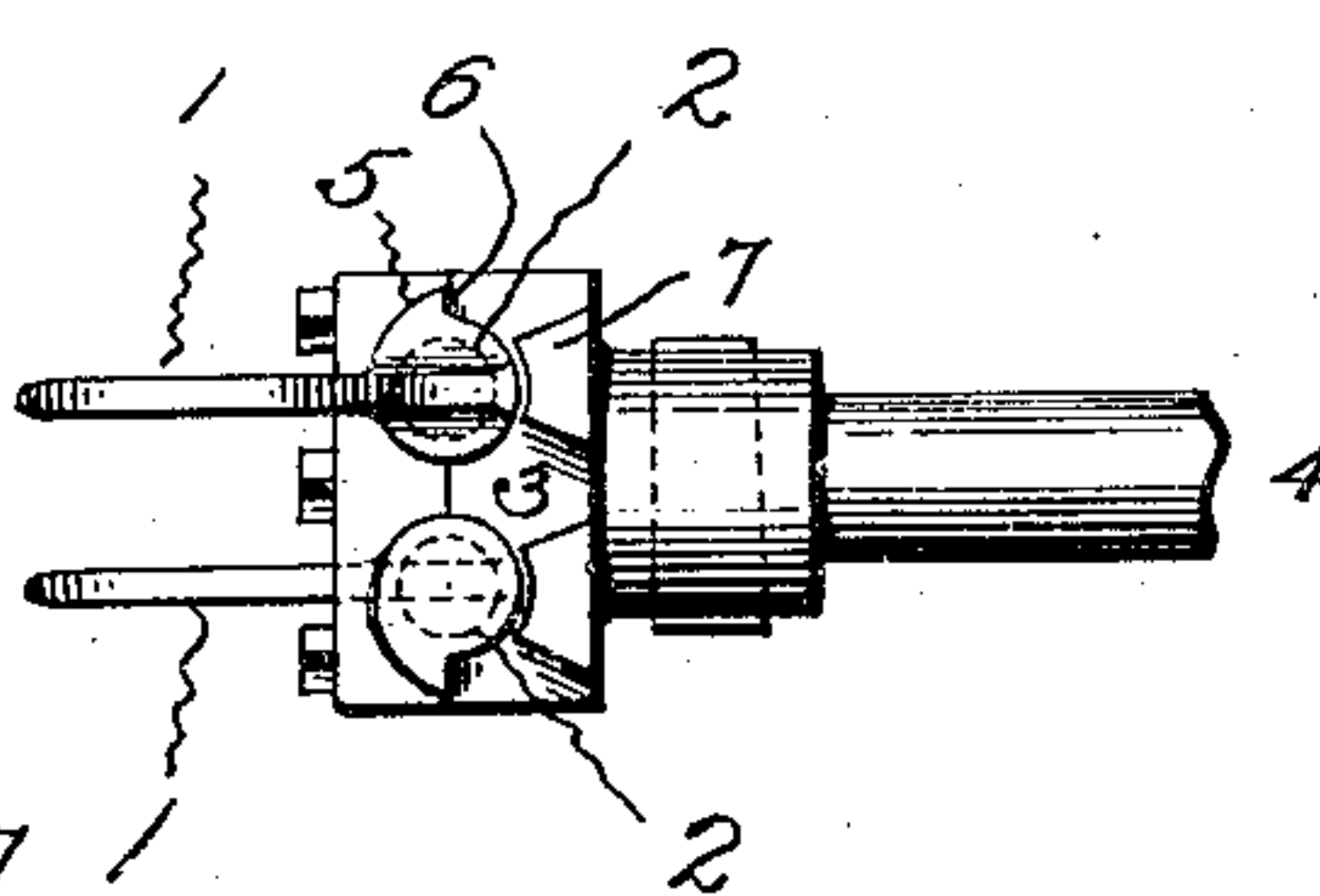
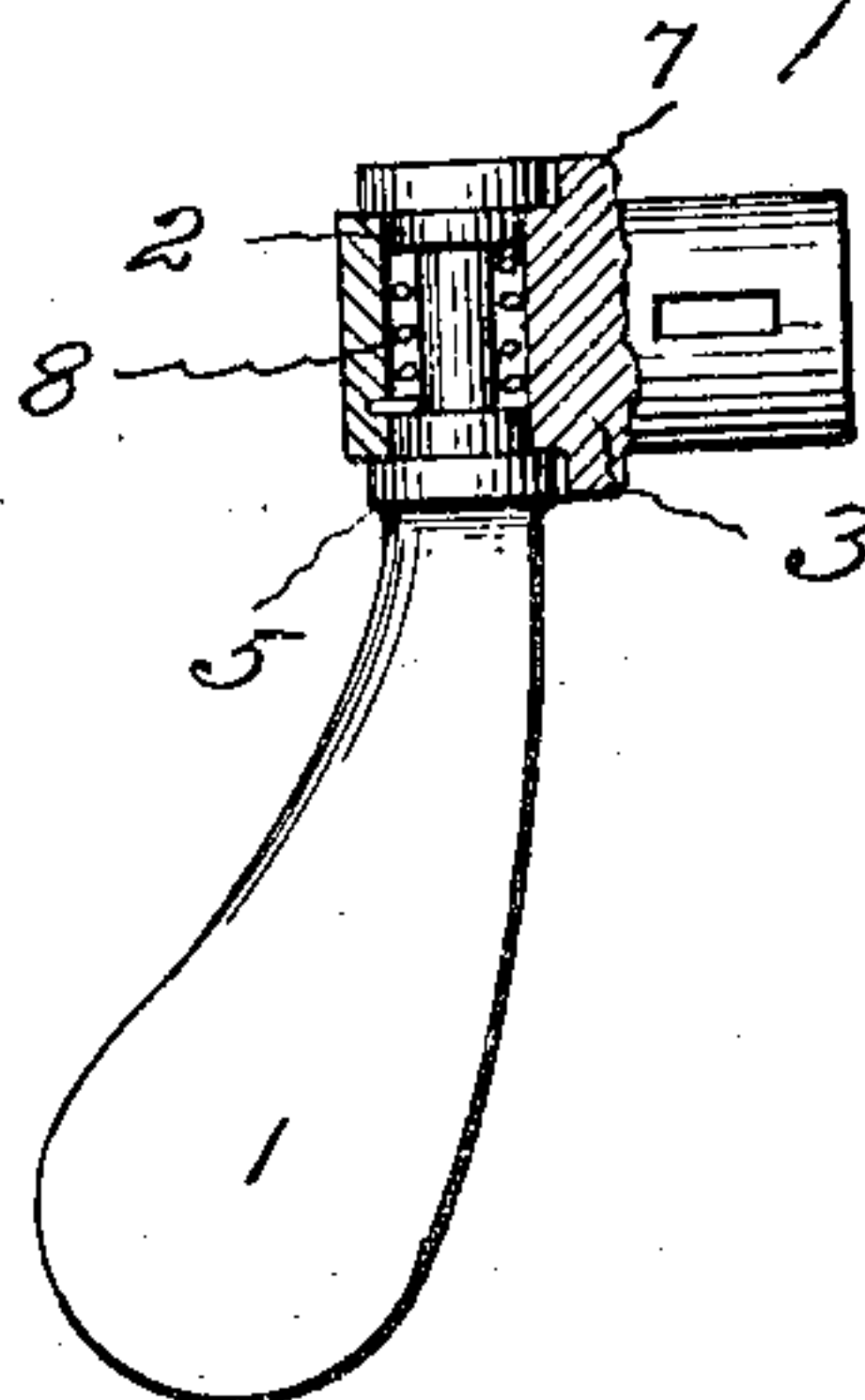


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

EBENEZER HILL, OF NORWALK, CONNECTICUT.

FEATHERING SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 793,373, dated June 27, 1905.

Application filed May 4, 1904. Serial No. 206,287.

To all whom it may concern:

Be it known that I, EBENEZER HILL, a citizen of the United States, residing at Norwalk, in the county of Fairfield and State of Connecticut, have invented a new and useful Feathering Screw-Propeller, of which the following is a specification.

This invention relates to a screw-propeller which has its blades so attached that they will feather when the shaft is not rotated, and thus will not retard the boat, but will assume the proper pitch and drive the boat forwardly when the shaft is rotated.

The object of this invention is to provide a very simple, strong, and durable screw-propeller with blades which will automatically feather when the motor is idle and will automatically set when the motor is started.

The embodiment of the invention illustrated by the accompanying drawings has two blades; but the invention is not limited to a screw-propeller having two blades. Each blade is formed eccentrically with relation to its shank, which is pivotally held in bearings in a box keyed to the tail of the shaft, so that the blades will oscillate on the shanks and tend to arrange themselves edgewise with relation to the direction of travel through the water. Each blade, however, is provided with a stop-shoulder, which is adapted to engage a stop-lug on the box, so that when the shaft is rotated and the blades tend to assume a position edgewise to the plane of rotation the stops will engage the lugs and hold the blades at the proper pitch to drive the boat forwardly.

Figure 1 of the drawings shows a side elevation of a two-bladed screw-propeller that embodies the invention with the blades feathered. Fig. 2 shows an elevation of this screw looking from the rear with the blades feathered. Fig. 3 shows a plan with the blades feathered. Fig. 4 shows a plan with the blades set as when the shaft is rotated; and Fig. 5 shows a manner of supporting a blade so that it will normally remain in feathered position.

The blades 1, of which there may be any required number, may be given any suitable shape. Each blade has a shank 2, the axis of which is eccentric with the axis of the blade.

These shanks are loosely held in bearings in a box 3, so that the blades may oscillate on the axis of the eccentric shanks and tend to assume planes of the least resistance when in the water. The box is fastened to the tail of the shaft 4 in any desired manner. Upon flanges 5 at the ends of the shanks are stop-shoulders 6, that are adapted to engage stop-lugs 7, formed on the box, to limit the oscillatory movements of the blades. When the motor connected with the shaft is idle and the boat is moving forwardly, the blades will feather on the shanks and drag in the planes of least resistance and not materially affect the speed of the boat. When the motor is started up, the blades turn on the shanks until the stop-shoulders on the flanges engage the stop-lugs on the box and hold the blades at the desired pitch for driving the boat forwardly. A spring 8 may be arranged about the shank, so as to normally hold the blade feathered, as illustrated in Fig. 5. With springs the blades would keep in feathered position when the boat was standing still and would not flap back and forth; but when power is applied the springs will yield and the blades set in driving position.

The construction of this screw is very simple and strong and provides a screw-propeller which is always ready for use and yet which will not materially interfere with the speed of the boat driven by other power than a motor.

This screw-propeller is particularly adapted for sailing-boats which have auxiliary steam or other motors intended to be employed when it is impracticable to use the sails.

Such screws as these could be used on the outside of triple-screw boats, which ordinarily are driven by the middle screw, the outside screws being used in an emergency or for speed, and when not used it is desirable that they shall not drag and impede the boat.

The invention claimed is—

1. A screw-propeller having driving-blades with shanks eccentric with relation to the blades, a box pivotally holding the shanks, the shanks and the box being provided with engaging stops for limiting the oscillations of the blades, and springs for normally retain-

ing the blades in feathered position, substantially as specified.

2. A screw-propeller having a box adapted to be secured to a shaft, said box being formed
5 in two parts and having two openings extending therethrough transversely of the axis of the box, driving-blades, each blade having a shank that is eccentric with relation to its blade and a flange at each end of the shank,
10 said shanks extending through the openings

in the box so that the flanges lie on opposite sides of the box, and stops on the box and adapted to engage stops on the flange for limiting the oscillations of the blades, substantially as specified.

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Witnesses:

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