R. R. BEVIS.

PROPELLER.

APPLICATION FILED NOV. 13, 1912.

1,133,222.

Patented Mar. 23, 1915.

2 SHEETS—SHEET 1.

FIG. 1.

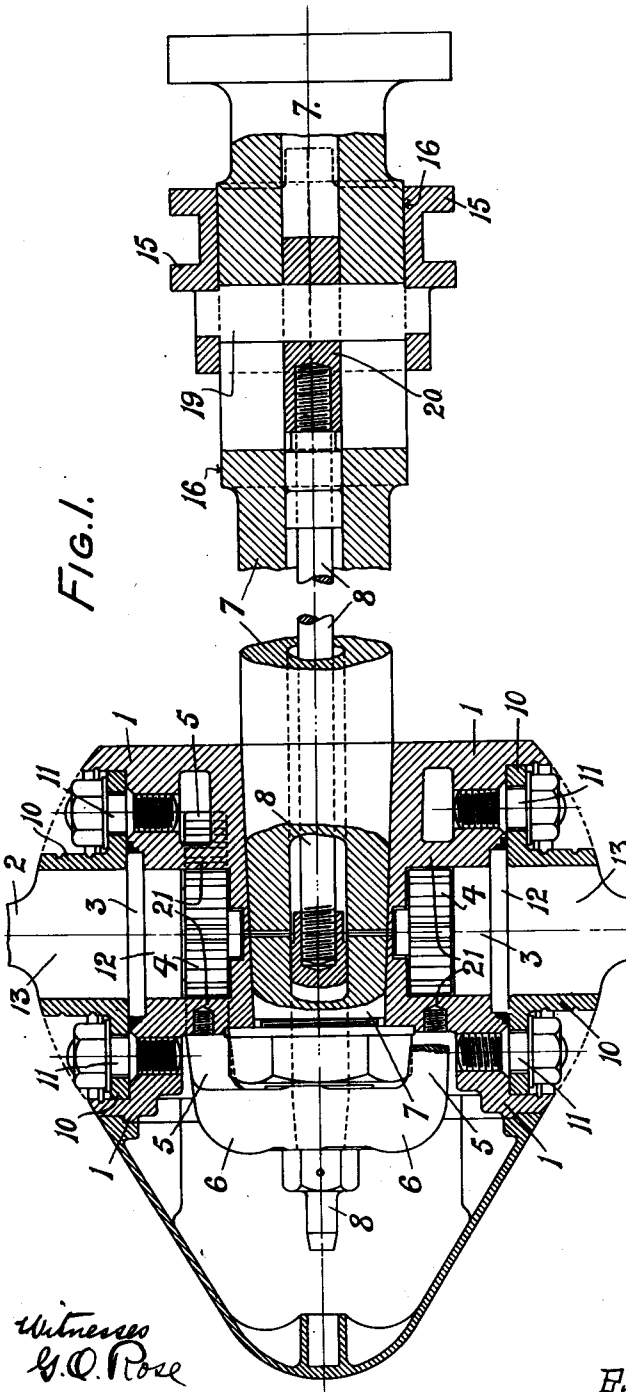
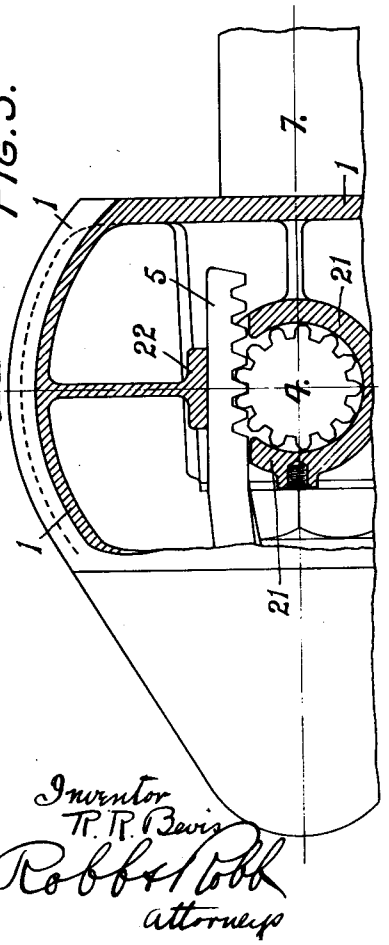


FIG. 3.



Witnesses
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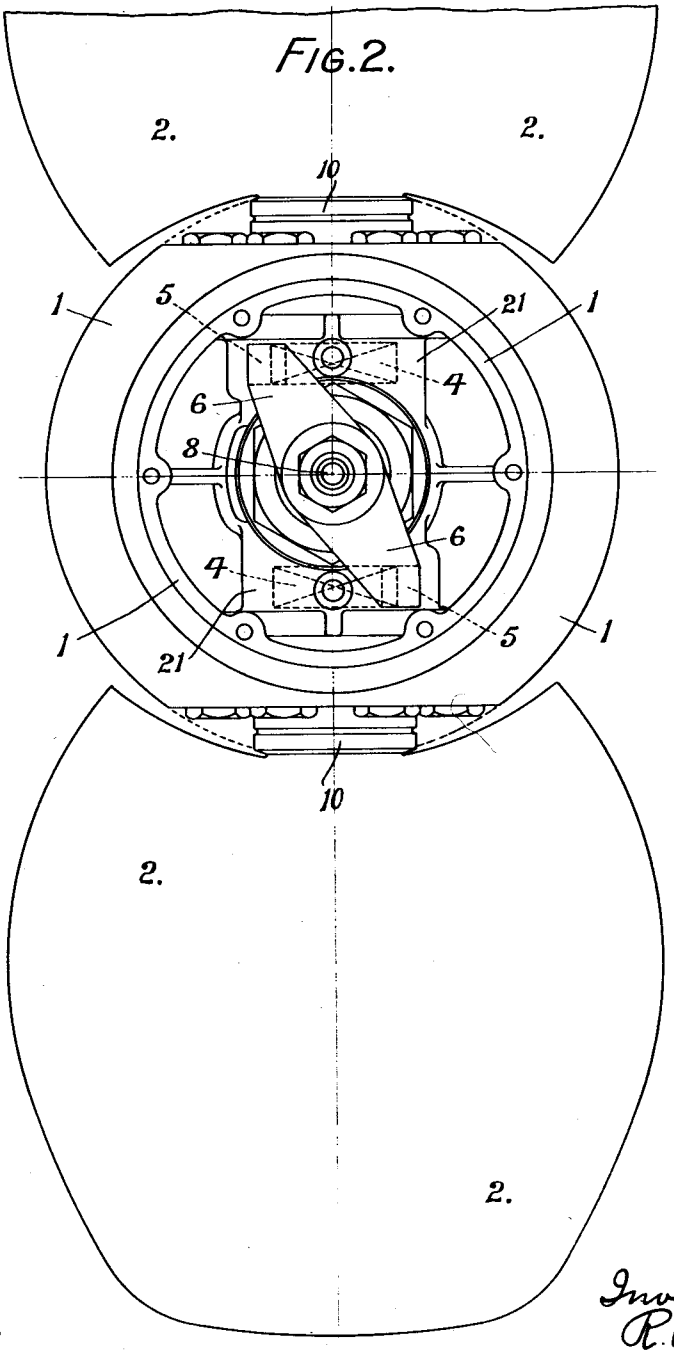
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2 SHEETS—SHEET 2.

FIG. 2.



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UNITED STATES PATENT OFFICE.

RESTAL RATSEY BEVIS, OF BIRKENHEAD, ENGLAND.

PROPELLER.

1,133,222. Specification of Letters Patent. Patented Mar. 23, 1915.

Application filed November 13, 1912. Serial No. 731,177.

To all whom it may concern:

Be it known that I, RESTAL RATSEY BEVIS, a subject of the King of England, residing at "Hamptoune," Vyner Road, Birkenhead, in the county of Chester, England, have invented new and useful Improvements in or Connected with Propellers, of which the following is a specification.

This invention has reference to ships' screw propellers wherein the blades are movable circularly in the boss, for "feathering" and reversing; and this movement is effected by racks engaging with teeth or the like on the blade roots, and connected together by a common crosshead or connection; the object of the present invention being to provide an improved arrangement and combination of parts in "feathering" screw propellers of the kind above referred to.

Under this invention, the arrangement and combination of parts of the propeller are as follows—The axes of the propeller blades in the boss lie in the same transverse plane, and the blade roots are each provided with teeth in the form of a pinion, and the racks which engage with these pinions, are carried from a common yoke or connecting piece or crosshead, fitted on and fastened to and moved longitudinally, by a longitudinally movable central rod or shaft within the main propeller shaft; while the end of this main shaft passes through the boss, and it—the boss—is held on the shaft by a nut or the like at the after end. This special arrangement and combination, of which the invention consists, is illustrated in the annexed drawings, in which is shown, in—

Figure 1, a longitudinal section, in Fig. 2 an end view, and in Fig. 3 a part plan, of a propeller so constructed and arranged.

In these drawings, 1 represents the boss of the propeller; 2 are the movable blades; 3 are the roots of the blades; and 4 the toothed pinion on each. 5 are the two racks engaging with the pinions 4 on the opposite side of the axis; and 6 is the yoke or crosshead which carries these racks, the crosshead being common to and carrying both; and 7 is the main propeller shaft over which the boss is fitted and held; and 8 the inner central longitudinal movable spindle or shaft on which the crosshead carrying rack 6 is fixed.

The propeller blades 2 are held in position in the boss 1 by angular flange rings 10, the flanges of which are held on to the boss 1 by the stud bolts 11, and come outside and hold in position the shoulder or collar 12 on the root 3; while the other portion of the angular flanges, fit over the circular or cylinder portion 13 of the root of the blade which comes outside the collar 12; and supports the blade at this point or part, while the part 3 which lies within the boss proper 1, is supported by it.

The two racks 5, so far as concerns their relation to the longitudinal vertical plane of the shaft axis, is shown clearly in Fig. 2; and they face each other so that the blades 2 are both turned in the same direction as regards rotation.

The means of moving the racks 5 longitudinally through the shaft 8 is by a groove sleeve device of known type marked 15, adapted to slide along the part 16 of the shaft; the connection between the sleeve 15, and the inner rod or shaft 8 being by a pin 19, fixed at its end in the sleeve 15, and passing through a part 20 fixed on the end of the shaft 8; the aperture through which the pin 19 passes and in which it works, being elongated, and the grooved sleeve 15 being adapted to be moved to and fro by a lever, not shown, similarly as used in operating a clutch.

It is to be noted that the racks 5 pass through a metal ring 21, in the boss 1 of the propeller, they being supported at the back by a part 22; the propeller boss itself being chambered as shown internally; and by the manner of attaching and holding the blades in the boss 1, that is, by the annular flange or ring 10 near the root of the blade, they cannot become unseated or work loose, or fall out.

It is to be stated that it is well known that racks have been proposed to be used for operating upon teeth or toothed pinions on the roots of propeller blades for turning them; and that these racks, on opposite sides of the roots have been connected up by a yoke or crosshead, and worked by a longitudinally disposed inner shaft or rod; and no claim generally is made to same.

What I claim is:—

A reversible propeller comprising in combination propeller blades having roots fitted with pinions and provided with cylindrical portions and collars; a main propeller shaft; a central shaft in said main shaft; a yoke

with racks on the end of the central shaft and meshing with the pinions; a hollow boss having recessed parts; and angular flanges which inclose the cylindrical portions of the blades, and take into the recessed parts of the boss, and secure the collars on the roots against the boss part; substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RESTAL RATSEY BEVIS.

Witnesses:
F. R. PENNINGTON,
JAMES A. BROWNE.