

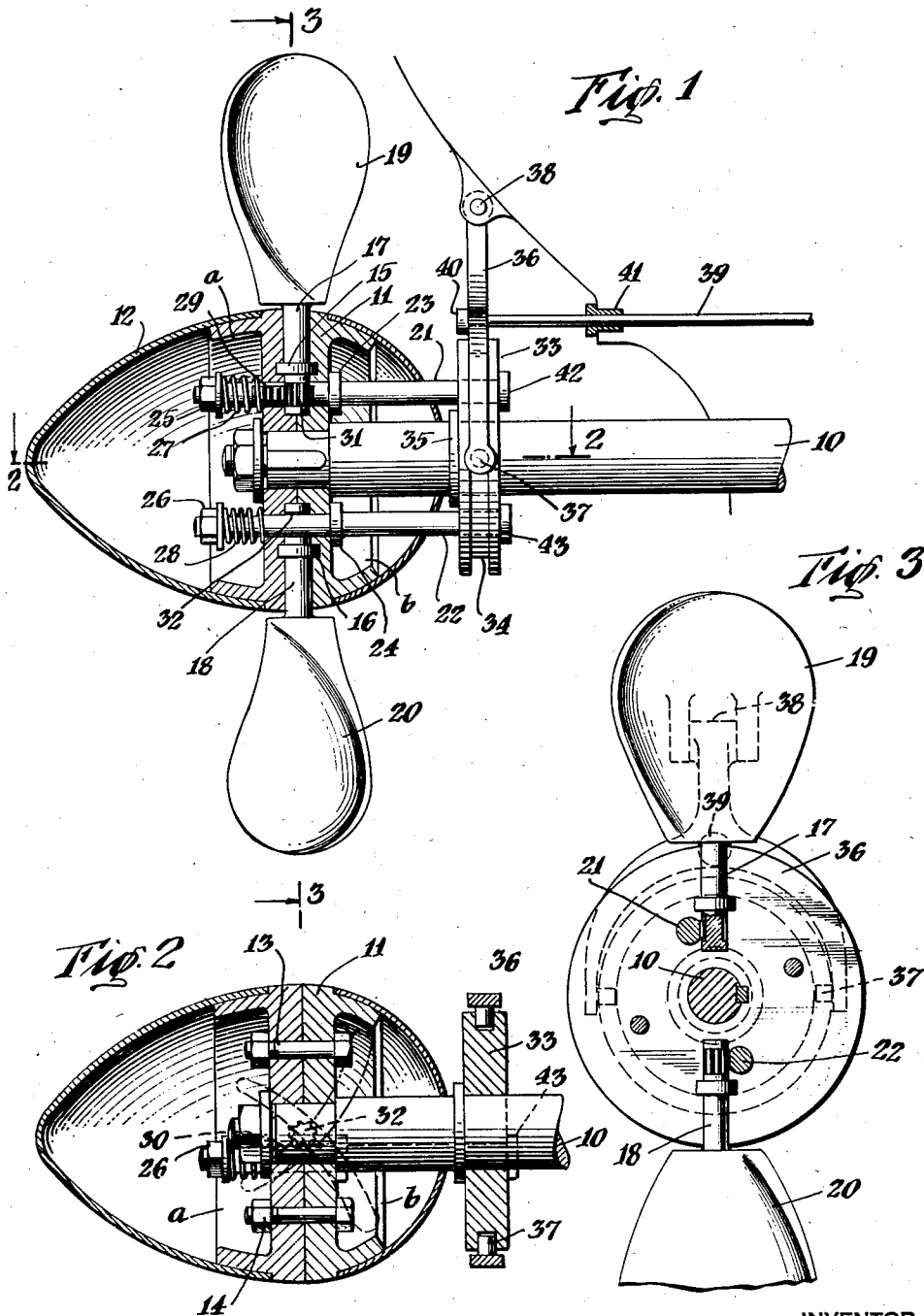
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REVERSIBLE PROPELLER

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REVERSIBLE PROPELLER

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2 Claims. (Cl. 170—163)

This invention relates to improvements in screw propellers, and it is the principal object of my invention to provide a comparatively simple and inexpensive means to reverse the action of the propeller from a distant place, as for instance the bridge of a ship without changing the direction of revolution of the propeller shaft.

Another object of my invention is the provision of a stream-line casing for the propeller hub or boss and operating parts thereon effecting the reversal of the blades so as to minimize the water resistance.

A further object of my invention is the provision of a propeller arrangement, equipped with means to change the position of the blades so as to cause the propeller to act either by pull or thrust the change being effected by means of a remote control device whereby means are provided to automatically return the parts into their original position if the control device is inoperative.

A still further object of my invention is the provision of a propeller action reversing device by remote control equipped with a shiftable grooved plate on the propeller shaft operating the rack and gear arrangement in its casing without the necessity of reversing the direction of rotation of the propeller shaft.

These and other objects and advantages of my invention will become more fully known as the description thereof proceeds, and will then be more specifically defined in the appended claims.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a side elevation of a device for reversing the action of the propeller blades constructed according to my invention, partly in section.

Fig. 2 is a section on line 2—2 of Figure 1.

Fig. 3 is a section on line 3—3 of Figure 1.

As illustrated, a horizontal driving shaft 10 carries at its outer end a hub or boss 11 within a stream-line casing 12.

The hub or boss consists preferably of two parts *a* and *b* bolted together by means of the bolts 13 and nuts 14 and provided with suitable, oppositely disposed recesses for the reception and guidance of collars 15, 16 on the stems or studs 17, 18 of the propeller blades 19, 20.

Through suitable bores in the boss are movably guided horizontally disposed bars 21, 22, one on each opposite side of the studs 17, 18 and held in place by the collars 23, 24 and nuts 25, 26 respectively.

Springs 27, 28 are wound about the ends of the bars 21, 22 outwardly extending through the mid-

section of the boss between the same and the nuts 25, 26.

Racks 29, 30 are provided on the faces of the bars 21, 22 oppositely disposed to the studs 17, 18 and are engaged by small gears 31, 32 carried at the inner ends of the studs 17, 18.

The opposite ends of the bars 21, 22 extend from the casing 12 and are guided through a slide disk or plate 33 on shaft 10 having a median circumferential groove 34 and prevented from rearward movement by a collar 35.

This plate 33 is suspended by means of a cardanic hanger member 36 engaging with its studs 37 groove 34.

The hanger member is pivotally attached at its upper end, as at 38 between suitable eyes on the ship.

An operating bar 39 having a head 40 is guided through a packing 41 into the ship and to a point on the bridge or other suitable location.

Heads 42, 43 on the outer ends of bars 21, 22 prevent the plate 33 from slipping off the bars.

The operation of my device will be readily understood from the above description and simultaneous inspection of the drawing and it will be clear that a pull on operating rod 39 swinging or sliding plate 33 along propeller shaft 10 will turn the blades of the propeller so as to propel the ship in a direction opposite to the direction of propulsion originally imparted to the propeller and to keep this up as long as a pull is exerted on bar 39, while upon the release of this operating bar, the springs 27, 28 will return the parts into their original position to turn the propeller blades again to propel the ship as originally.

It will be understood that I have described and shown the preferred form of my device only as one example of the many possible ways to practically construct the same, and that I may make such changes in its general arrangement and in the construction of its minor details as come within the scope of the appended claims without departure from the spirit of my invention and the principles involved.

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

1. A screw propeller arrangement comprising a boss in which the propeller blades are firmly but turnably held, a pair of bars passed through the boss and having rack parts formed on opposite sides, gears on the propeller studs in mesh with said rack parts, a stream-line casing enclosing said rack parts and gears, means to shift said bars longitudinally for rotating by their rack

parts, the gears on the propeller studs to turn the propeller blades, remote control means for said shifting means and means to return the parts automatically into their original position.

- 5 2. In a device as described, a boss, propeller blades having their studs firmly but turnably held therein, a pair of substantially horizontal bars passed through said boss, and means on said studs and bars to effect a turning of the pro-
10 peller blades about their longitudinal axes, a driv-

ing shaft for said boss and blades, a grooved plate to which said horizontal bars are connected, displaceable on said driving shaft, a cardanic hanger for suspending said plate from a ship, an operating rod operated from a distant place for displacing said plate on the driving shaft to turn the propeller blades, and spring wound about the inner ends of said horizontal bars for returning the parts into their original position.

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