M. D. RUSSEL.

PROPELLING MEANS FOR VESSELS.

APPLICATION FILED JULY 23, 1914.

1,122,647.

Patented Dec. 29, 1914.

2 SHEETS—SHEET 1.

FIG. 1.

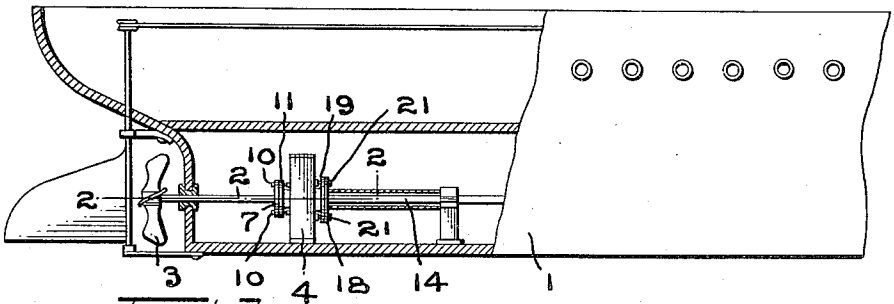
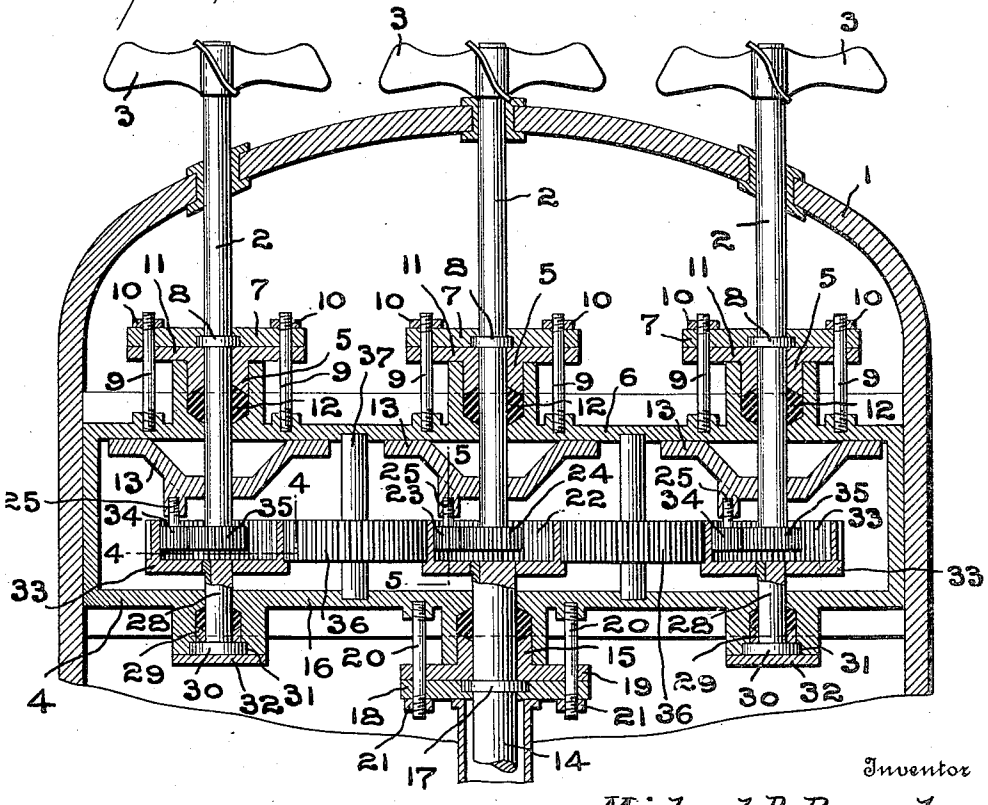


FIG. 2.



Witnesses

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2 SHEETS—SHEET 2.

FIG. 3.

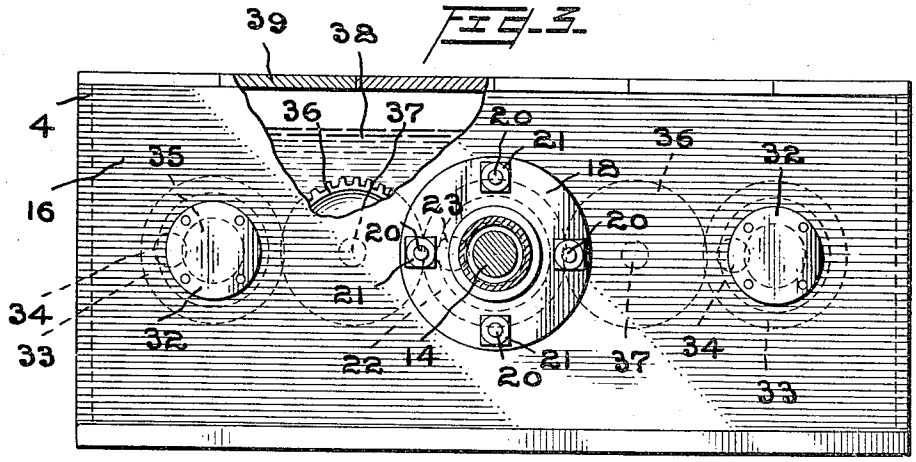
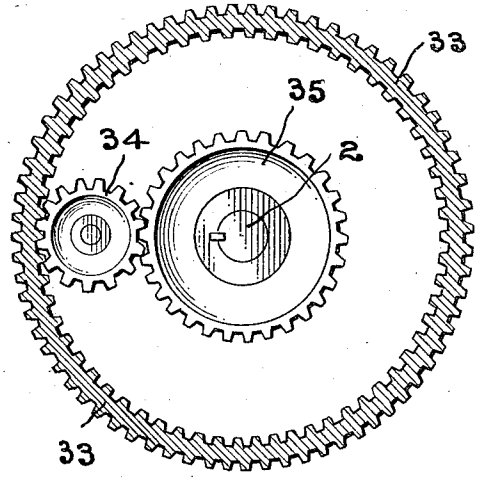


FIG. 4.



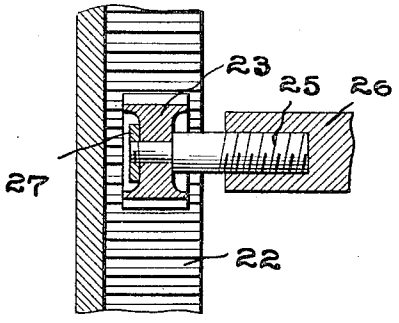


FIG. 5.

Witnesses

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PROPELLING MEANS FOR VESSELS.

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To all whom it may concern:

Be it known that I, MICHAEL D. RUSSEL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Propelling Means for Vessels, of which the following is a specification.

My invention relates to improvements in propelling means for vessels, the object of the invention being to provide improved means compelling a series of propeller shafts to be turned simultaneously by a single drive shaft.

A further object is to provide an improved mounting for an improved arrangement of gears, whereby the latter are inclosed in an oil tight casing extending transversely of the vessel, and provided with an improved arrangement of bearings and stuffing boxes for the several shafts supported therein.

A further object is to provide improved means of the character stated which compel the propeller shafts to turn at a greatly increased speed over the speed of the drive shaft, and which compels all of the propeller shafts to turn in the same direction and uniformly.

With these and other objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a view partly in vertical section through the hull of a ship illustrating the same provided with my improved propelling means. Fig. 2 is a fragmentary view in horizontal section on an enlarged scale on the line 2—2 of Fig. 1. Fig. 3 is a view in elevation of the gear casing showing the latter partly broken away and illustrating the drive shaft in cross section. Fig. 4 is a view in section on an enlarged scale on the line 4—4 of Fig. 2, and Fig. 5 is a fragmentary view in section on the line 5—5 of Fig. 2.

1 represents the hull of a vessel, and 2 represents propeller shafts projecting through the hull and provided on their rear ends with propellers 3.

4 is a gear casing which extends transversely of the hull and into which the propeller shafts 2 project. While I have illustrated three of these propeller shafts 2, I would have it understood that I do not limit myself to any particular number, but find three a preferable number.

The shafts 2 project through stuffing boxes 5 in the rear wall 6 of casing 4, and these stuffing boxes are provided with recessed bearing plates 7 in which circular enlargements 8 on the shafts 2 are mounted to turn, and by reason of this arrangement the shafts 2 are held against longitudinal movement. Bolts 9 and nuts 10 are utilized to secure the bearing plate 7 against the glands 11, and hold the latter against the packing 12. Bearing brackets 13 are provided in the inside of the casing 4 and are secured to the rear wall 6, and these brackets 13 provide bearings for the shafts 2.

14 represents a drive shaft which extends through a stuffing box 15 in the center of front wall 16 of casing 4, and this drive shaft has a circular enlargement 17 mounted in a bearing plate 18 secured to the gland 19 of the stuffing box 15 by means of bolts 20 and nuts 21, corresponding to bolts 9 and nuts 10 above referred to.

A drive gear 22 is keyed to the inner end of drive shaft 14, and this drive gear is hollow and is provided with external and internal teeth, the internal teeth engaging a pinion 23 interposed between the same and the pinion 24 on the center shaft 2. The pinion 23 is supported upon an arbor 25 which is screwed into an enlargement 26 on the bracket 13, and held in place by a nut 27. In line with the outside shafts 2, short shafts 28 are supported in the front walls 16 of casing 4. These shafts 28 extend through stuffing boxes 29, and have circular enlargements 30 on their outer ends which are confined in bearings 31 by plates 32 secured to the outer ends of the stuffing boxes 29. These shafts 28 on their inner ends, have gears 33 keyed thereto. These gears 33 are similar to the gear 23, and they mesh with pinions 34 interposed between the same and pinions 35 on the side shafts 2.

Idle gears 36, supported on short shafts 37, are interposed between the drive gear 22 and the gears 33, so that all of the gears are compelled to turn in unison, and by reason of the arrangement of gears and pinions, the speed of the drive shaft 14 is multiplied, so that the propellers are turned at a greatly increased speed over the speed of the drive shaft, and all of the propellers

are compelled to turn in unison and at the same speed.

The gear casing 4 is filled or partially filled with oil indicated at 38, so that the gears run freely in oil, and removable covers 39 are provided on top of the gear casing so that access may be had to any or all of the gears whenever desired.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. A propelling means for vessels, comprising a plurality of propeller shafts, and propellers on the shafts, a casing into which all of the propeller shafts project, a drive shaft projecting into the casing, short shafts parallel with the parallel shaft and projecting into the casing, relatively large gears secured to the drive shaft and to the short shafts, and having internal and external gear teeth, idle gears connecting said relatively large gears, pinions on the propeller shafts, and idle gears interposed between the pinions and the internal teeth of the first-mentioned gears, substantially as described.

2. A propelling means for vessels, comprising a plurality of propeller shafts, and propellers on the shafts, a casing into which all of the propeller shafts project, a drive shaft projecting into the casing, short shafts parallel with the parallel shaft and projecting into the casing, relatively large gears secured to the drive shaft and to the short shafts. and having internal and external gear teeth, idle gears connecting said relatively large gears, pinions on the propeller shafts, idle gears interposed between the pinions and the internal teeth of the first-mentioned gears, bearing brackets in the casing supporting the propeller shafts, and arbors secured to said brackets and supporting the last-mentioned idle gears, substantially as described.

3. A propelling means for vessels comprising a hull, a casing located transversely of the hull and adapted to contain oil, a series of propeller shafts projecting through one wall of the casing, a series of shafts projecting through the other wall of the casing, one of said last-mentioned shafts constituting a drive shaft, stuffing boxes in the walls of the casing through which the shafts project, bearing plates secured to the outer ends of the stuffing boxes, circular enlargements in the shafts turning in the bearing plates, and a train of gearing in the casing connecting all of the shafts, substantially as described.

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

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."