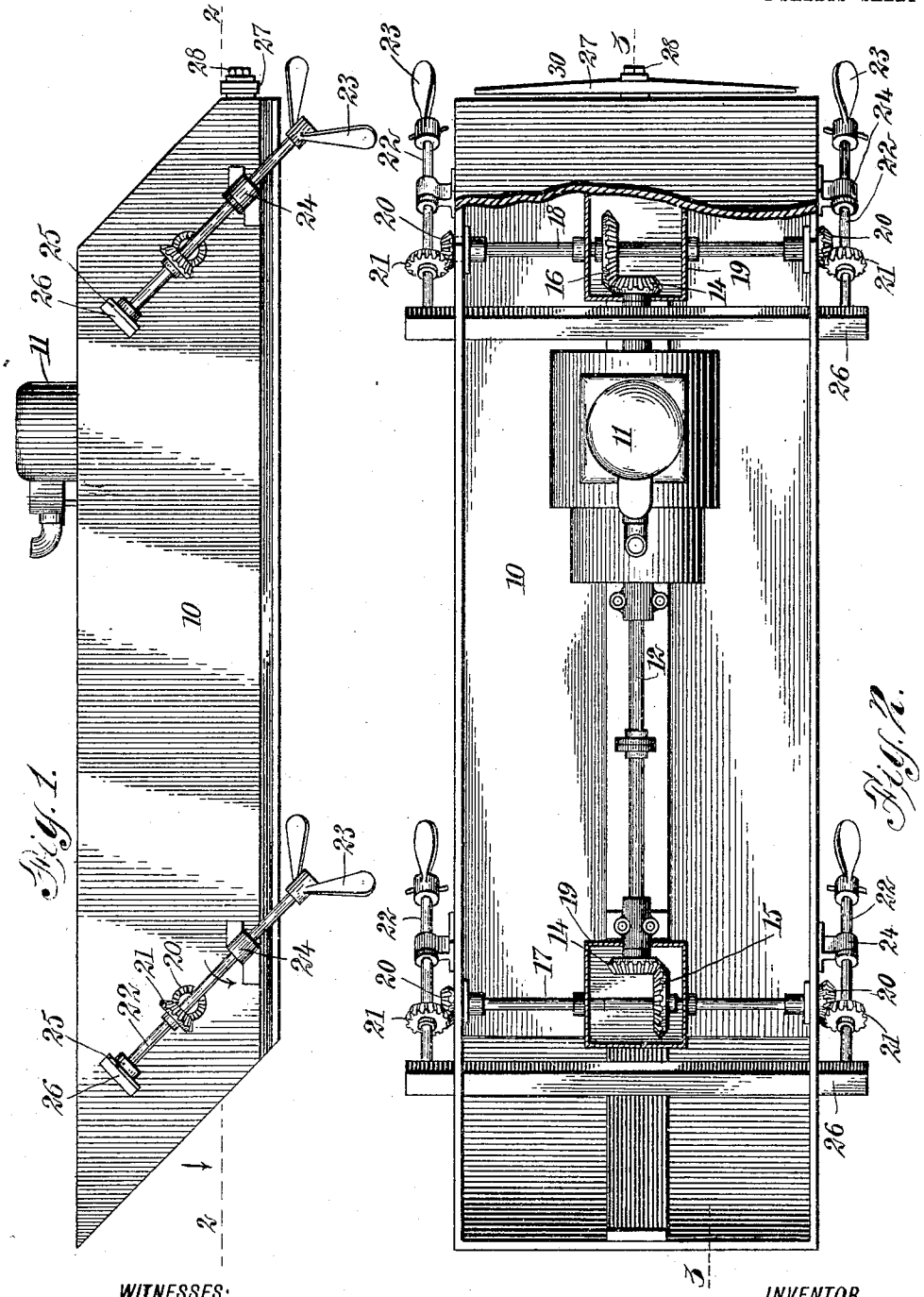
No. 809,064. PATENTED JAN. 2, 1906.

J. E. JOHNSON.

MARINE VESSEL.

APPLICATION FILED JUNE 30, 1905.

2 SHEETS—SHEET 1.



WITNESSES:
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Isaac B. Owens

INVENTOR
John E. Johnson
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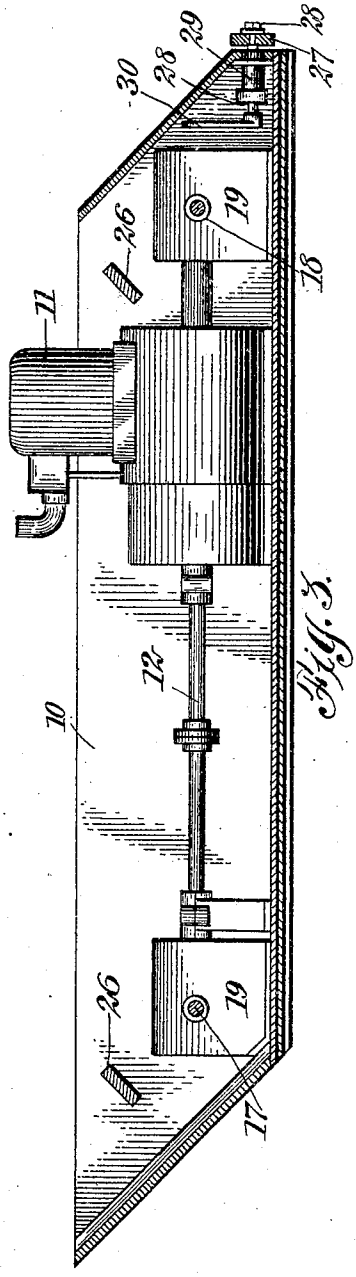


Fig. 3.

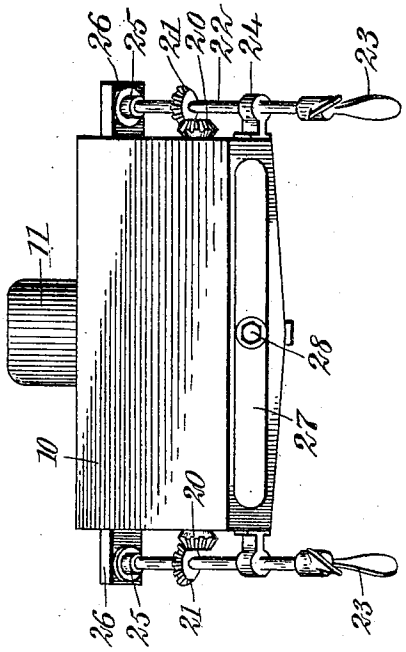


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN E. JOHNSON, OF ISHPEMING, MICHIGAN.

MARINE VESSEL.

No. 809,064. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed June 30, 1905. Serial No. 267,746.

To all whom it may concern:

Be it known that I, JOHN E. JOHNSON, a citizen of the United States, and a resident of Ishpeming, in the county of Marquette and State of Michigan, have invented a new and Improved Marine Vessel, of which the following is a full, clear, and exact description.

The object of this invention is to provide means for propelling marine vessels which will at the same time decrease the resistance offered by the hull to this propulsion. In attaining this end I provide peculiarly-arranged propeller-shafts mounted diagonally on the vessel with respect to the water-line and carrying propellers at their lower ends, so that upon the rotation of the shafts the propellers exert a combined lifting and propelling force on the hull, causing it to displace less water, and consequently enabling it to be driven with less resistance.

Reference is had to the accompanying drawings, which illustrate, as an example, the preferred embodiment of my invention, in which drawings like characters of reference indicate like parts in the several views, and in which—

Figure 1 is a side view of the invention. Fig. 2 is a partly sectional plan view of the same substantially on the line 2 2 in Fig. 1. Fig. 3 is a longitudinal section of the same, substantially on the line 3 3 in Fig. 2; and Fig. 4 is a rear elevation of the same.

10 indicates the hull of the vessel, the model of which is not essential to my invention.

11 indicates the engine, the shaft 12 of which runs fore and aft in the hull from one end portion to the other. At each end of the shaft is carried a bevel-gear 14, and these gears are in mesh, respectively, with gears 15 and 16, which are in turn respectively carried by transverse shafts 17 and 18. The gears 14, 15, and 16 are inclosed in cases 19, as shown. The shafts 17 and 18 extend transversely through the sides of the hull and carry bevel-gears 20, which are in mesh with gears 21, fastened, respectively, on propeller-shafts 22. As here shown, there are four propeller-shafts, arranged two at each side of the hull, respectively at the forward and after end portions thereof. Said shafts incline downwardly and rearwardly from their upper ends and have propellers 23 attached to their lower ends. The shafts are carried in bearings 24, arranged at the lower portions of the sides of the hull, and at their upper ends they are held by thrust-bearings 25. The thrust-bearings 25 comprise disks attached to the ends of the shafts and running against balls which are held in a cup attached to supporting-beams 26. Said cups have inwardly disposed and overhanging flanges removably secured in place in the cups and lying against the outer sides of the disks, which are attached to the shafts, so as to prevent accidental displacement of the disks from the cups. The thrust-bearings serve the double purpose of holding the shafts in position and of resisting the thrust of the propellers. Said supporting-beams 26 are two in number and extend transversely to both sides of the hull and beyond the same, as shown in Fig. 2.

27 indicates the rudder, which is in the form of a lath extending across the transom of the hull and mounted at its middle on a shaft 28. The shaft 28 extends to a suitable stuffing-box 29 in the transom and at the inner end the shaft carries a tiller 30, which is intended to be connected to the usual tiller-ropes and steering-wheel. By rocking the shaft 28 one end or the other of the rudder is caused to project into the water below the hull, thus tending to throw the hull to one or the other side of its straight course.

In the operation of the apparatus upon starting the engine and rotating the shaft 12 the shafts 17 and 18 are correspondingly driven, and this movement in turn is imparted to the propeller-shafts 22. Owing to the inclination of these shafts and their position with respect to the hull, the propellers 23 exert not only a force tending to move the hull ahead, but also a force tending to lift it from the water, thus decreasing the displacement of the hull, and consequently the resistance to the propulsion thereof.

Having thus described the preferred form of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A marine vessel having a hull, a propeller-shaft mounted at each side thereof and inclining with respect to the water-line of the hull, the lower ends of the shafts projecting below the hull, propellers carried by said ends of the shafts, means for mounting and driving the shafts, thrust-bearings engaged with the upper ends of the shafts, and a supporting-beam extending transversely across the hull and having its ends projected beyond the sides thereof, said ends of the supporting-beam carrying said thrust-bearings.

2. A marine vessel having a hull, a shaft mounted thereon, an engine-shaft extending fore and aft in the vessel, transverse shafts extending through the sides of the hull and geared with the engine-shaft, outside propeller-shafts mounted at each side of the hull and respectively geared with the ends of the transverse shafts, said propeller-shafts inclining downwardly and rearwardly, and propellers attached to the lower ends of the shafts.

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

JOHN E. JOHNSON.

Witnesses:
M. J. KENNEDY,
HANS GUNDERSON.