Aug. 11, 1931. C. G. RENTOS 1,818,356

BOAT

Original Filed Dec. 7, 1928

Fig. 1.

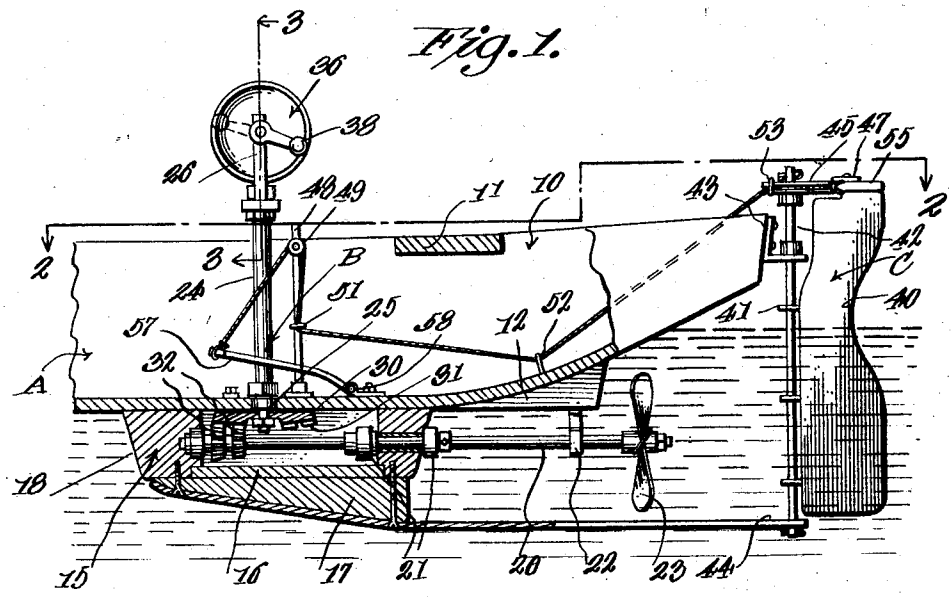


Fig. 2.

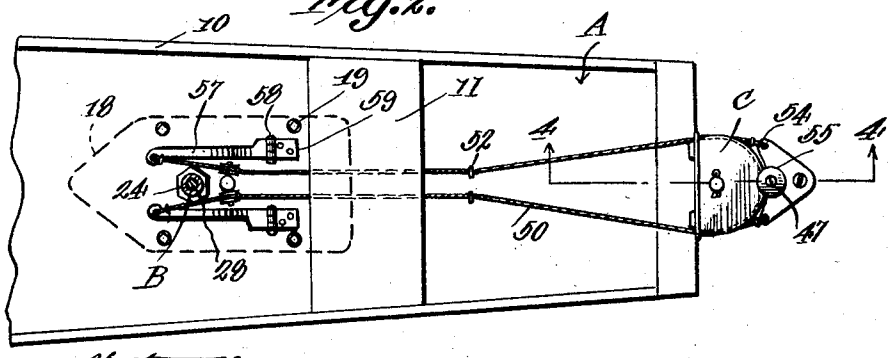


Fig. 3.

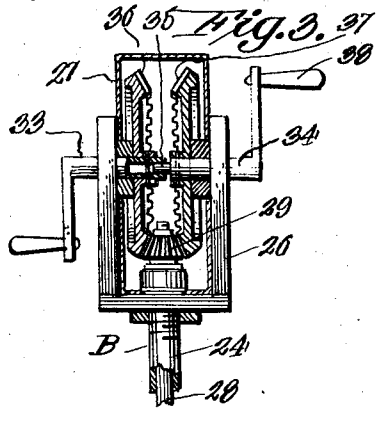
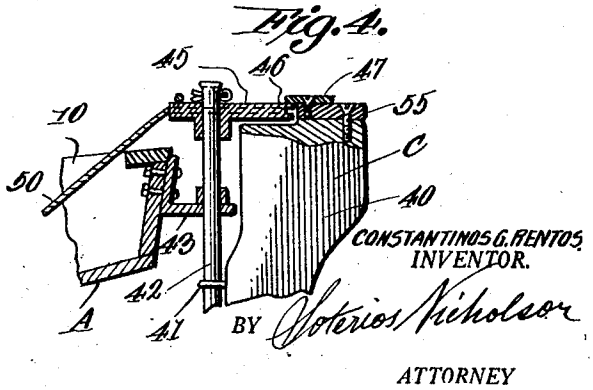


Fig. 4.



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1,818,356

UNITED STATES PATENT OFFICE

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BOAT

Application filed December 7, 1928, Serial No. 324,394. Renewed February 4, 1931.

This invention appertains to boats and more particularly to a novel propelling means therefor.

One of the objects of my invention is to provide a manual propelling device for boats which is of a portable nature and which can be readily incorporated with boats already in existence.

Another important object of the invention is to provide a manual propelling means for boats embodying a casing for supporting a propeller shaft having secured thereto a screw propeller, the casing being adapted to be secured to the bottom of a row boat or the like with a cylindrical hollow casing extending into the boat supporting a drive shaft having operative connection with the propeller shaft and means for manually rotating the drive shaft.

A further object of the invention is the provision of novel means for rotating the drive shaft embodying a pair of rotatable shafts having oppositely extending hand cranks secured thereto, the shafts having opposite extending beveled gears for meshing engagement with the opposite sides of a pinion secured to the drive shaft, the arrangement of the gears and shafts being such as to permit the rotation of the cranks in the same direction with a positive and steady drive on the drive shafts.

A further object of the invention is the provision of novel means for operating the rudder of the boat whereby the rudder can be actuated by suitable foot pedals, novel means being provided for supporting the rudder and for guiding the control cables extending from the foot pedals.

A still further object of the invention is to provide a novel propelling means and steering mechanism for boats of the above character which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market and incorporated with a boat at a low cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:—

Figure 1 is a fragmentary longitudinal section through a boat showing my improved propelling mechanism and steering means incorporated therewith, parts of the propelling means being shown broken away and in section.

Figure 2 is a horizontal section taken on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a vertical section taken on the line 3—3 of Figure 1 looking in the direction of the arrows, illustrating the novel operating mechanism for the drive shaft, and

Figure 4 is a detail fragmentary vertical section through the rear end of the boat taken on the line 4—4 of Figure 2 looking in the direction of the arrows illustrating the novel steering means.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A indicates a boat, B my novel propelling means therefor and C my novel steering means.

The boat A can be of any preferred or ordinary construction, such as a row boat and includes the hull 10 provided with a seat 11 adjacent to the rear end thereof. The stern of the boat is provided with the usual keel block 12.

My novel propelling means B comprises a casing 15, which can be formed of sheet metal or wood as desired and this casing forms a housing for a gear mechanism which will be later described. It is to be noted that the housing 15 includes a lower removable wall 16 and that the housing is provided with a depending keel block 17. I preferably shape the casing or housing 15 to conform to the configuration of the bottom of the boat and the forward end of the housing can be provided with tapering sides as indicated by the reference character 18 to reduce friction during the passage of the boat through the water. It being understood that the casing 15 is to be secured to the bot-

tom of the boat as a unit and suitable bolts 19 can be utilized for this purpose.

The casing 15 supports the rearwardly extending propeller shaft 20, which shaft can be mounted in suitable roller or ball bearings 21. It is to be noted that two of the bearings 21 are arranged on opposite sides of the casing 15 and a collar secured to the shaft 20 can bear against the outer bearing. This takes up the thrust on the shaft 20 irrespective of which direction the shaft is rotated. If preferred a bearing 22 can be carried by the keel block 12 for the propeller shaft and this bearing can also be in the nature of a ball or roller bearing if preferred.

The propeller shaft 20 has secured to the rear end thereof in any desired way a screw propeller 23. Cooperating with the housing or casing 15, I provide an upright cylindrical casing or hollow standard 24 which can be secured to the bottom of the boat in any desired way or this standard can be carried by the casing 15 and the boat can be provided with an opening 25 through which the casing or hollow standard can be inserted. The upper end of the cylindrical casing 25 or hollow standard supports a U-shaped head or bracket 26, which bracket can also support a sheet metal gear boxing or casing 27. Rotatably mounted within the hollow standard or cylindrical casing 24 is a drive shaft 28, which shaft can also be mounted in suitable roller or ball bearings. The upper end of the shaft extends through the U-shaped head 26 and has keyed or otherwise secured thereto a beveled pinion 29. The lower end of the shaft extends through the opening 25 into the casing 15 and has keyed or otherwise secured thereto the relatively large drive gear 30. This gear is preferably provided with two annular rows of teeth 31, which have meshing therewith beveled drive pinions 32 keyed or otherwise secured to the propeller shaft 20. The arms of the U-shaped head or yoke 26 each rotatably support short shafts 33 and 34 and these shafts can be supported by roller bearings if preferred. It is to be noted that the shaft 33 is of hollow construction and receives the inner reduced end 35 of the shaft 34. The shaft 33 has keyed or otherwise secured thereto a relatively large beveled drive gear 36, while the shaft 34 has keyed or otherwise secured thereto a relatively large drive bevel gear 37.

The gears 36 and 37 are of the same size and mesh with the opposite sides of the beveled pinion 29. The outer ends of the shafts 33 and 34 have rigidly connected therewith drive hand cranks 38 and from the construction illustrated, it can be seen that when the cranks are turned in opposite directions by the hands of the user, that the shaft 28 will be positively rotated in an even manner without undue strain thereon. A person can sit on the seat 11 and manipuate the cranks and thus effectively drive the boat through the water.

The steering means C comprises a rudder 40, the inner edge of which carries eyes 41 which are rotatably mounted upon the steering post 42. The steering post 42 is carried at its upper end in a suitable bracket 43 which can be bolted to the stern of the boat and its lower end in the rear end of a strap 44 which is secured to the keel block 17 carried by the casing 15. It is to be noted that the strap 44, the rigid rudder post 42, and the bottom of the boat forms a protecting guard for the propeller shaft 20 and the propeller 23.

The upper end of the rudder post 42 has rigidly secured thereto a substantially semi-circular guide plate or disc 45, which is provided with a peripheral groove 46. The upper end of the rudder 40 is shaped to receive the guide disc 45 and carries a guide disc or roller 47 which travels over the upper face of the substantially semi-circular disc 45.

Adjacent to the cylindrical housing 24 is a stationary rigid supporting post 48 which has secured to the opposite faces thereof guide pulleys 49. Each of the guide pulleys 49 has trained thereabout a tiller cable 50, which cables are threaded through guide eyes 51 and 52 carried respectively by the post 48 and the bottom of the boat. It is to be also noted that the opposite sides of the substantially semi-circular guide disc 45 is also provided with eyes 53 through which the tiller cables 50 are trained. The rear ends of the tiller cables are connected as at 54 with the oppsite ends of a tiller block 55 which is bolted to the upper end of the rudder. It is to be noted that this tiller block carries the relatively small guide disc or roller 47. The forward ends of the cables 50 are brought down from the pulleys 49 and are secured to the forward ends of foot pedals 57 which are hingedly connected as at 58 to attaching plates 59. These plates are in turn rigidly connected to the bottom of the boat. By this construction, it can be seen that a person being upon the seat 11 and operating the hand cranks 38 can rest his feet on the foot pedals 57 and by pressing on one pedal or the other can effectively and easily change the course of the boat.

It is obvious from the foregoing, that I have provided a simple means for propelling and guiding a boat through the water which will eliminate the difficulties contingent with the rowing of a boat.

Changes in details may be made without departing from the spirit or the scope of this invention, but:—

What I claim as new is:

1. The combination with a boat, of a propelling mechanism therefor comprising a

casing adapted to be secured to the exterior of a boat at the bottom thereof, a cylindrical housing extending into the boat having communication with the casing, a propeller shaft rotatably supported by the housing and extending rearwardly therefrom, a propeller on said shaft, a drive shaft rotatably mounted within the housing, a U-shaped head supported by the housing, and a shaft rotatably supported by each arm of the head, the shafts being rotatable one relative to the other, the inner end of one shaft being rotatably received within the inner end of the other shaft, hand cranks secured to the last mentioned shaft for rotation therewith, a pinion on the drive shaft, and relatively large gears secured to the inner ends of the shafts carried by the arms meshing with the opposite sides of the pinion.

2. The combination with a boat, of a propelling mechanism therefor comprising a casing adapted to be secured to the bottom of a boat on the exterior thereof, the forward end of the casing being tapered to provide a leading edge, a keel block carried by the lower face of the casing, a propeller shaft rotatably supported by the casing and extending rearwardly therefrom, a propeller on said propeller shaft, a cylindrical housing extending into the boat and communicating with the casing, a pair of spaced pinions on the propeller shaft, a relatively large drive gear on the lower end of the drive shaft arranged in said casing having concentric rows of teeth meshing with said pinions, a keel strap secured to the keel block and extending in parallel relation to the propeller shaft and terminating in rear of the propeller, a U-shaped head supported by the housing, drive means supported by the head for the drive shafts, and a rudder structure supported by the boat and the rear end of the keel strap.

In testimony whereof I affix my signature.

CONSTANTINOS G. RENTOS.