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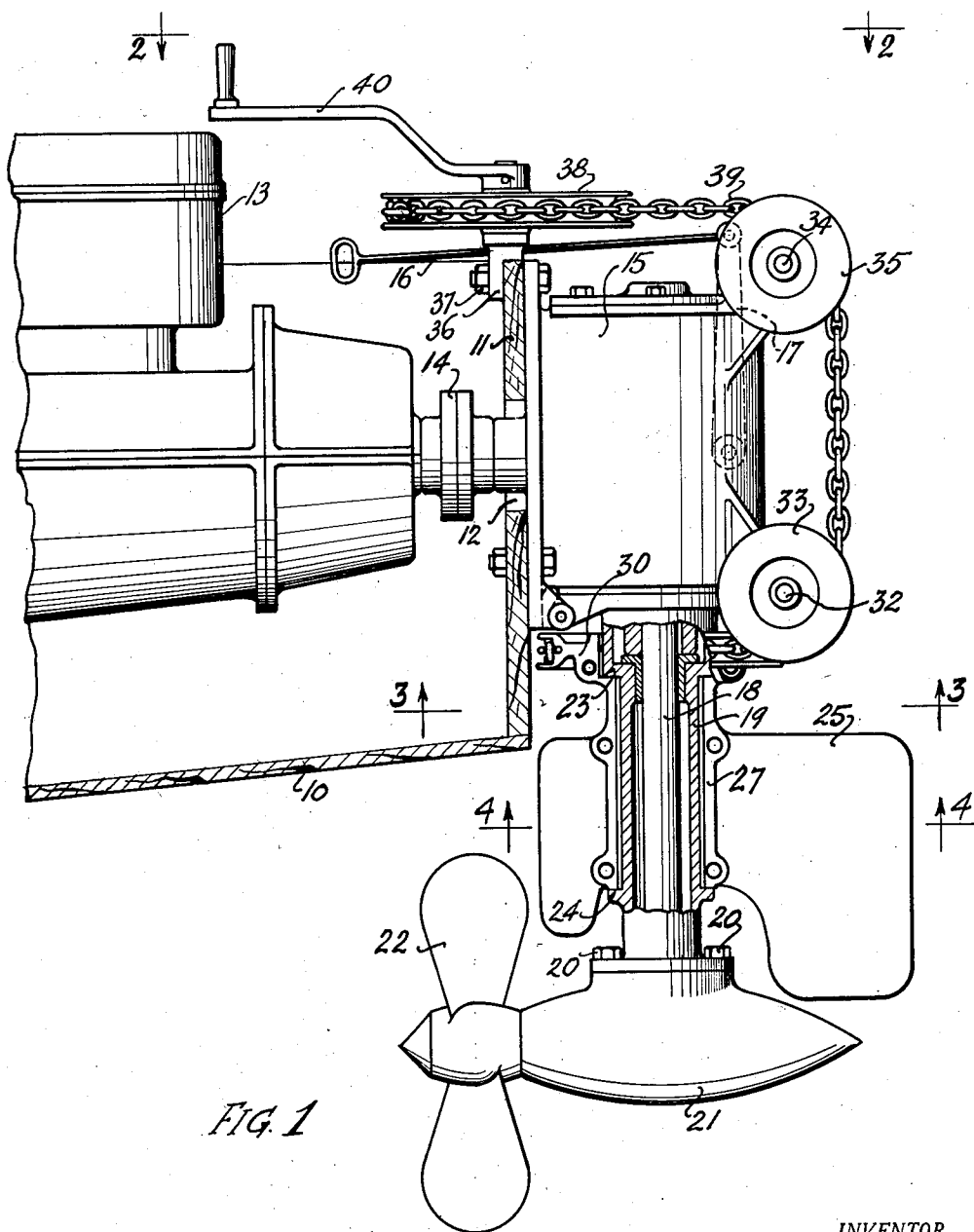
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MOTOR PROPELLING AND STEERING MECHANISM FOR BOATS

Filed March 14, 1932

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

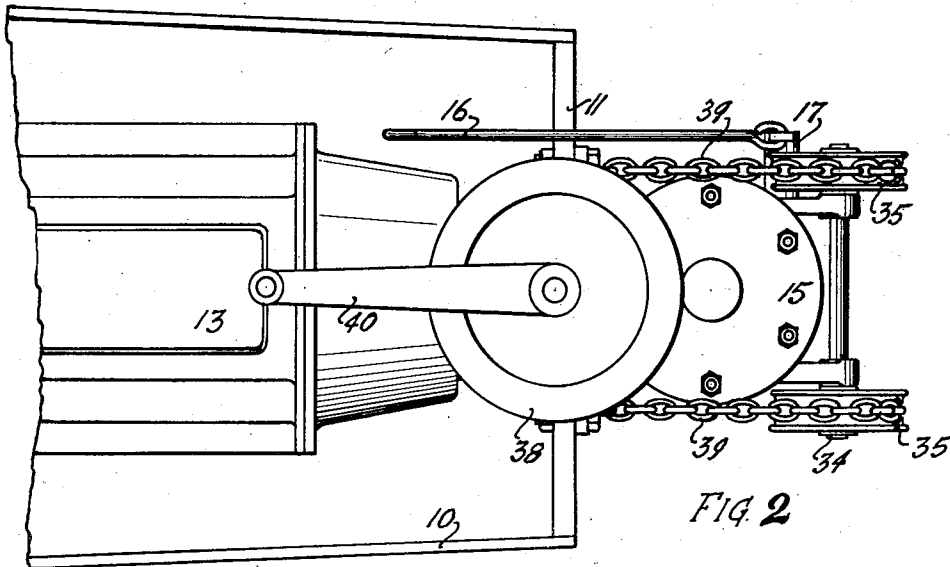


FIG. 2

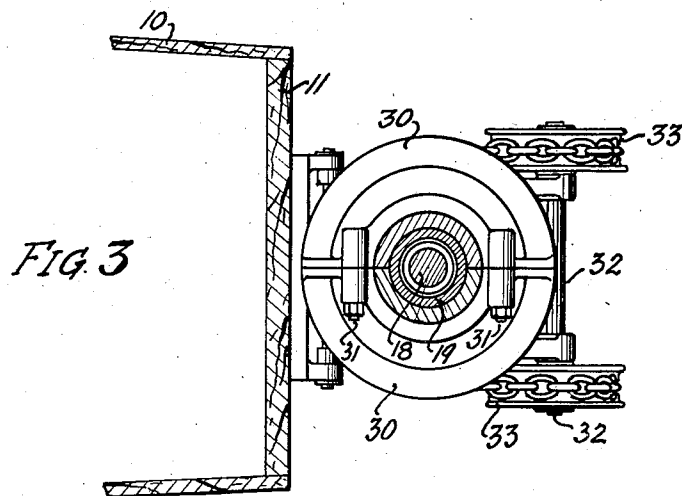


FIG. 3

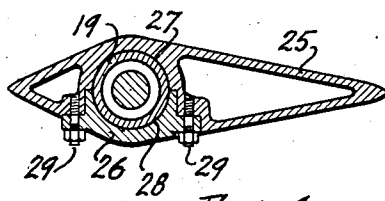


FIG. 4

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MOTOR PROPELLING AND STEERING MECHANISM FOR BOATS

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8 Claims. (Cl. 115—35)

In motor propelling mechanism of the inboard-outboard or outboard motor type there is usually provided a vertical shaft outside of the boat which is driven through the medium of gear connections with the motor shaft. The vertical shaft is provided with a housing for protecting the same, and heretofore the rudder has been usually mounted in a position that the operating mechanism therefor and especially the tiller rod are in the way of the swinging movement of the propeller shaft and housing.

It is one of the objects of the present invention to provide an improved manner of mounting and operating the rudder, the vertical propeller shaft housing being employed as the mounting for the rudder and around which the rudder will turn.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention and in which

Figure 1 is a view partly in elevation, partly in section, partly broken away and with parts omitted of the rear portion of a boat to which the propeller is connected, and showing a rudder mounting and operating mechanism applied thereto constructed in accordance with the principles of this invention.

Figure 2 is a view taken on line 2—2, Figure 1, with parts omitted.

Figure 3 is a sectional view taken on line 3—3, Figure 1, with parts omitted.

Figure 4 is a detail sectional view taken on line 4—4, Figure 1.

Referring more particularly to the drawings, the numeral 10 designates generally a boat construction, and 11 the rear wall thereof having an opening 12 therethrough. A motor 13 is mounted within the boat in any suitable manner, and 14 designates a coupling between the motor and the propeller shaft operating mechanism. Secured to the outer face of the rear wall 11 of the boat is a housing 15 in which the usual transmission gearing is arranged, and 16 designates a shifting rod connected to a lever 17 that is in turn connected with one of the gears for effecting the shifting or changing of the gears, as is usual in devices of this character.

The numeral 18 designates a vertical propeller shaft which receives its motion in the usual manner from the gear within the housing 15. This shaft 18 depends for a considerable distance

below the bottom of the boat and is arranged within a housing 19. To the housing 19 and at the lower end thereof is connected as at 20 another housing 21 in which is arranged a horizontal shaft (not shown) connected by means of the usual gear connection (not shown) with the shaft 18. A propeller 22 is connected with one of the shafts in the housing 21 so that through the operation of the shaft 18 the propeller 22 will be operated.

The housing for the shaft 18 is provided with a reduced portion to form a circumferential shoulder 23 and a circumferential shoulder 24 spaced from each other in directions lengthwise of the shaft 18.

A rudder preferably comprising sections 25 and 26 is arranged above the housing 21 and the section 25 is provided with a bearing 27 which is preferably of a length to project above the rudder section 25. This bearing 27 receives the reduced portion of the shaft housing 19, between the shoulders 23 and 24 and the section 26 of the rudder is also provided with a bearing 28 adapted to co-operate with the bearing 27 and to also extend about the housing 19. The rudder sections are secured together in any desired or suitable manner such as by means of fastening bolts 29, and the bearings 27 and 28 are of such a size and depth that when the rudder sections are assembled upon the housing the rudder will be adapted to turn freely about the housing as a pivot and the circumferential shoulder 24 will support the weight of the rudder.

The rudder section 25 is of any desired length, width and configuration, but is preferably hollow and connected with the upper end of the bearings 26—27 is a chain wheel 30 which is also formed in sections, and the sections are secured together by suitable fastening devices 31, but in such a manner as not to clamp the housing 19 to the shaft 18 sufficiently to prevent a free rotation of the chain wheel together with the rudder about the housing 19.

Arranged on opposite sides of the gear housing 15, at suitable points, preferably in proximity to the chain wheel 30, is a shaft 32 journaled in suitable bearings and to the end of this shaft 32 are secured for rotation therewith chain wheels 33.

Spaced above the shaft 32 is another shaft 34 journaled in suitable bearings, and connected to the shaft 34 for rotation therewith are chain wheels 35 which are preferably arranged in alignment with the co-operating and respective chain wheels 33.

Mounted upon a suitable support 36 preferably

in the form of a bearing post or bracket secured by suitable fastening means 37 to the rear wall 11 of the boat, is a chain wheel 38 which may be of any desired diameter and is arranged intermediate the chain wheels 35, the axis of the wheel 38 being transverse to the axes of the wheels 35.

Passing over the chain wheel 38 is an endless flexible member 39 preferably in the form of a chain, the runs of which pass over the chain wheels 35, thence downwardly and over the chain wheels 33 and thence around the chain wheel 30 which is secured to the rudder 25, so that by rotation of the chain wheel 38 and through the medium of the flexible member 39 passing over the chain wheel 30, the rudder 25 will be correspondingly moved so as to swing about the housing 19 of the shaft 18 as a pivot.

Any suitable means may be provided for rotating the wheel 38 such as a tiller rod or handle 40 connected to the chain wheel 38 in any suitable manner.

Thus it will be manifest that by the actuation of the tiller rod 40 the rudder 25 will be swung in one direction or the other about the housing 19 of the shaft 18, through the medium of the intermediate or connecting endless flexible member or chain 39.

Obviously, the chain wheels may be of any desired construction and configuration and ordinary sprocket wheels may be employed if desired. Similarly, any form of flexible member 39 may be employed which is adapted to co-operate with and pass over the respective chain wheels.

With this improved construction it will be manifest that there is provided a compact arrangement for effectively swinging the rudder and which mechanism is such that the rudder may be mounted upon the housing of the shaft 18 above the propeller 22.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. In combination, a boat, propelling mechanism therefor, said propelling mechanism embodying a vertical shaft arranged outside of the boat, a housing for the shaft, a rudder rotatably connected directly to the housing, and means for actuating the rudder to cause the same to rotate about the housing independently with respect to the propelling means, said housing forming the axis about which the rudder rotates.

2. In combination, a boat, propelling mechanism therefor, said propelling mechanism embodying a vertical shaft arranged outside of the boat, a housing for the shaft, a propeller operatively connected with the shaft, a rudder rotatably connected directly with the said housing above the propeller, and means for actuating the rudder to cause the same to rotate about the housing independently with respect to the propelling mechanism, said housing forming the axis about which the rudder rotates.

3. The combination with a boat, propelling means therefor, said propelling means embodying a vertically disposed propeller shaft, a housing for the shaft, a rudder mounted directly upon said housing and rotatable about the housing as

an axis and independently with respect to the propelling means, for steering, means for thus rotating the rudder, a portion of said rudder being of sectional construction, and means for securing said sections together with a portion of the said housing therebetween.

4. The combination with a boat, propelling means therefor, said propelling means embodying a vertically disposed propeller unit outside of the boat and also embodying an enclosing housing for the mechanism, a rudder mounted upon and rotatable about said housing and independently with respect to the propelling means for steering, said housing forming an axis for the rudder, a chain wheel connected with the rudder for rotation on an upright axis, a second chain wheel mounted upon an upright axis upon the boat, additional chain wheels intermediate the first two recited chain wheels, and an endless flexible element passing over the chain wheels whereby the rudder may be thus rotated.

5. The combination with a boat, propelling means therefor, said propelling means embodying a vertically disposed propeller unit outside of the boat and also embodying an enclosing housing for the mechanism, a rudder rotatable about said housing and independently with respect to the propelling means for steering, said housing forming an axis for the rudder, a chain wheel connected with the rudder for rotation on an upright axis, a second chain wheel mounted upon an upright axis upon the boat, additional chain wheels intermediate the first two recited chain wheels, an endless flexible element passing over the chain wheels whereby the rudder may be thus rotated, and an operating handle connected with one of the said chain wheels.

6. The combination with a boat, propelling means therefor, said propelling means embodying a vertically disposed propeller unit outside of the boat, said unit embodying a housing for the mechanism, the exterior of a portion of the housing being shaped to form shoulders spaced one above the other, a rudder, a portion of the rudder being of sectional construction, to form a clamp for clamping the rudder about the housing between said shoulders and for free rotation about the housing as an axis, and means for thus rotating the rudder.

7. The combination with a boat, propelling means therefor, said propelling means embodying a vertically disposed propeller unit outside of the boat, said unit embodying a housing for the mechanism, the exterior of a portion of the housing being shaped to form shoulders spaced one above the other, a rudder, a portion of the rudder being of sectional construction, to form a clamp for clamping the rudder about the housing between said shoulders and for free rotation about the housing as an axis, and means embodying an endless flexible element operable from the inside of the boat for thus rotating the rudder.

8. The combination with a boat, propelling means therefor, said propelling means embodying a vertically disposed propeller shaft disposed outside of the boat, a housing for the shaft, a hollow rudder mounted directly upon and rotatable about said housing as an axis for steering and independently with respect to the propelling means, and means for thus rotating the rudder.

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