

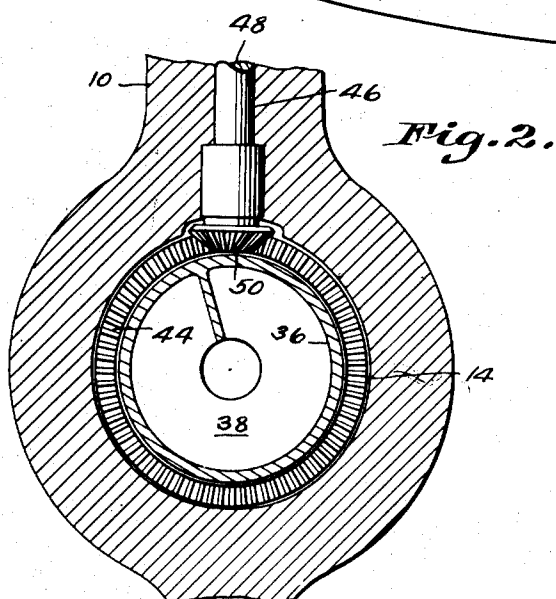
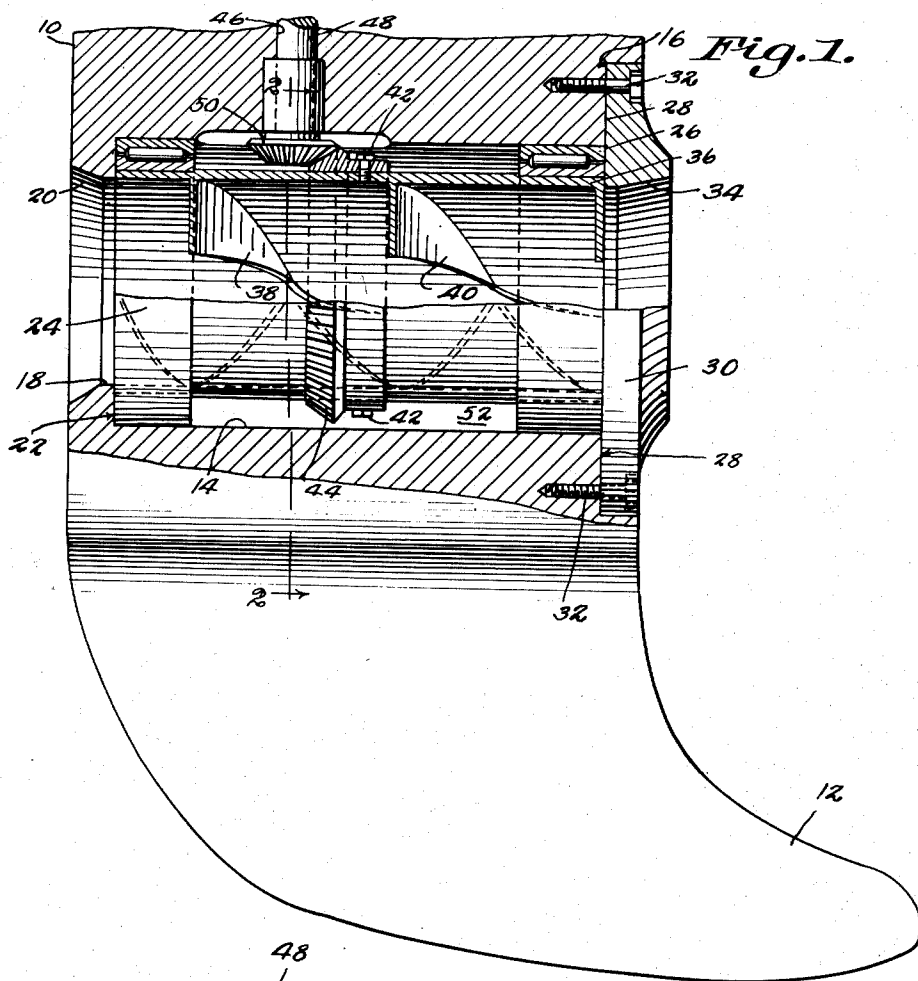
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COMBINATION RUDDER AND PROPULSION DEVICE

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COMBINATION RUDDER AND PROPULSION
DEVICE

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1 Claim. (Cl. 114-151)

1

This invention relates to a combination rudder and propulsion device, and more particularly to a propulsion device of the type employed with an outboard motor.

The primary object of the invention is to protect the propelling elements from entanglement with weeds and the like when the device is being used in shallow water.

Another object is to encase and house the drive mechanism and to retain lubricant in contact therewith.

The above and other objects may be attained by employing this invention which embodies among its features a rudder post of the type commonly employed with an outboard motor, a rudder carried by the lower end of the post, said post having an opening extending therethrough above the rudder and in alignment with the longitudinal axis of the rudder, a sleeve mounted in said opening to rotate about the longitudinal axis thereof, inwardly extending spiral blades carried by the sleeve, and means extending through the rudder post and engaging the sleeve for rotating said sleeve within the opening to drive the spiral blades.

Other features include anti-friction bearings, mounted in the opening adjacent opposite ends thereof, a ring gear mounted on the sleeve between the anti-friction bearings, and a drive pinion mounted within the opening and meshing with the ring gear for rotating the latter and driving the sleeve and spiral blades.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts, hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawings,

Fig. 1 is a side view partially in section of a rudder post and rudder showing this invention in place therein, and

Fig. 2 is a vertical sectional view taken substantially along the line 2-2 of Fig. 1.

Referring to the drawings in detail in substantially vertical rudder post 10 is equipped at its lower end with a conventional rudder 12 and has formed therein above the rudder a horizontally extending bore 14, the axis of which lies substantially parallel with the longitudinal axis of the rudder. As illustrated in the drawings, the bore 14 opens through one side of the rudder post

2

through an enlarged bore 16, and through the opposite side of the rudder post through a bore 18 of somewhat reduced diameter. The outer open end of the bore 18 is flared as at 20 to form a funnel-like surface for the entrance of water into the bore 14.

Seated against the shoulder 22 formed at the junction of the bores 14 and 18 is an anti-friction bearing 24, and a similar anti-friction bearing 26 is seated in the bore 14 adjacent the shoulder 28 formed at the junction of the bores 14 and 16. A retaining ring 30 is seated in the bore 16 against the shoulder 28 and is held therein by conventional cap screws 32. This ring is provided with a flared portion 34 which increases in diameter as the outer end of the ring is approached so as to facilitate the easy discharge of water from the interior of the device.

Mounted on the anti-friction bearings 24 and 26 for rotation about the longitudinal axes of the bores 14, 18 and 16 is a sleeve 36 carrying spiral blades 38 and 40 which extend into the sleeve as illustrated so that when the device is submerged, and the sleeve 36 rotated, the blades 38 and 40 will serve as propeller screws, reacting against the water to drive the rudder post and rudder and the boat to which it is attached.

Fixed to the exterior of the sleeve as by screws 42 is a ring gear 44 which operates in the bore 14 between the anti-friction bearings 24, 26, and extending vertically through the post 10 is a bore 46 in which a drive shaft 48 is mounted to rotate. This drive shaft carries a pinion 50 which operates within the bore 14 and meshes with the gear 44, so that when the drive shaft 48 is rotated, the sleeve 36 will be driven. The space within the bore 14 between the anti-friction bearings 24 and 26 forms a chamber 52 in which a lubricant may be packed.

In operation with the post 10 coupled in a conventional manner to an outboard motor, and the shaft 48 having driving connection therewith, the rudder 12 will serve as the steering device of a boat upon which the outboard motor may be mounted and with the motor in operation, it will be evident that power will be transmitted through the shaft 48 and pinion 50 to the ring gear 44, thus rotating the sleeve 36 and causing the blades 38 and 40 to react against water filling the bore 14, to thus propel the boat. The flared portion 20 of the opening 18 facilitates the entrance of water into the bore 14, and the flared portion 34 of the retaining ring 30 facilitates the discharge of the water from the tubular sleeve 36. Obviously, owing to the fact that the spiral

3

blades 38 and 40 are wholly encased within the sleeve 36, any danger of entanglement with weeds or the like will be avoided and thus the device may be used to navigate a boat in shallow water.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

In a combination rudder and propulsion device of the type employed with an outboard motor a substantially vertical rudder post, a rudder carried by the post at the lower end thereof, said post having a substantially horizontal opening extending therethrough adjacent the rudder and a bore opening through one side of the post in concentric relation to the opening, the axis of the opening lying parallel to the rudder, anti-friction bearings mounted in the bore adjacent

4

opposite ends thereof, a sleeve mounted in said bearings for rotation about the longitudinal axis of the bore, a spiral blade within the sleeve and connected thereto for rotation therewith, a ring gear carried on the exterior of the sleeve for rotation therewith between the bearings, a pinion mounted in the post for rotation about a vertical axis between the bearings, said pinion having driving connection with the ring gear, and a ring shaped cover removably carried by the post for enclosing the bearings.

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