Oct. 16, 1951 LE ROY S. HOLMES ET AL 2,571,245

OUTBOARD MOTOR

Filed Sept 13, 1947 2 Sheets-Sheet 1

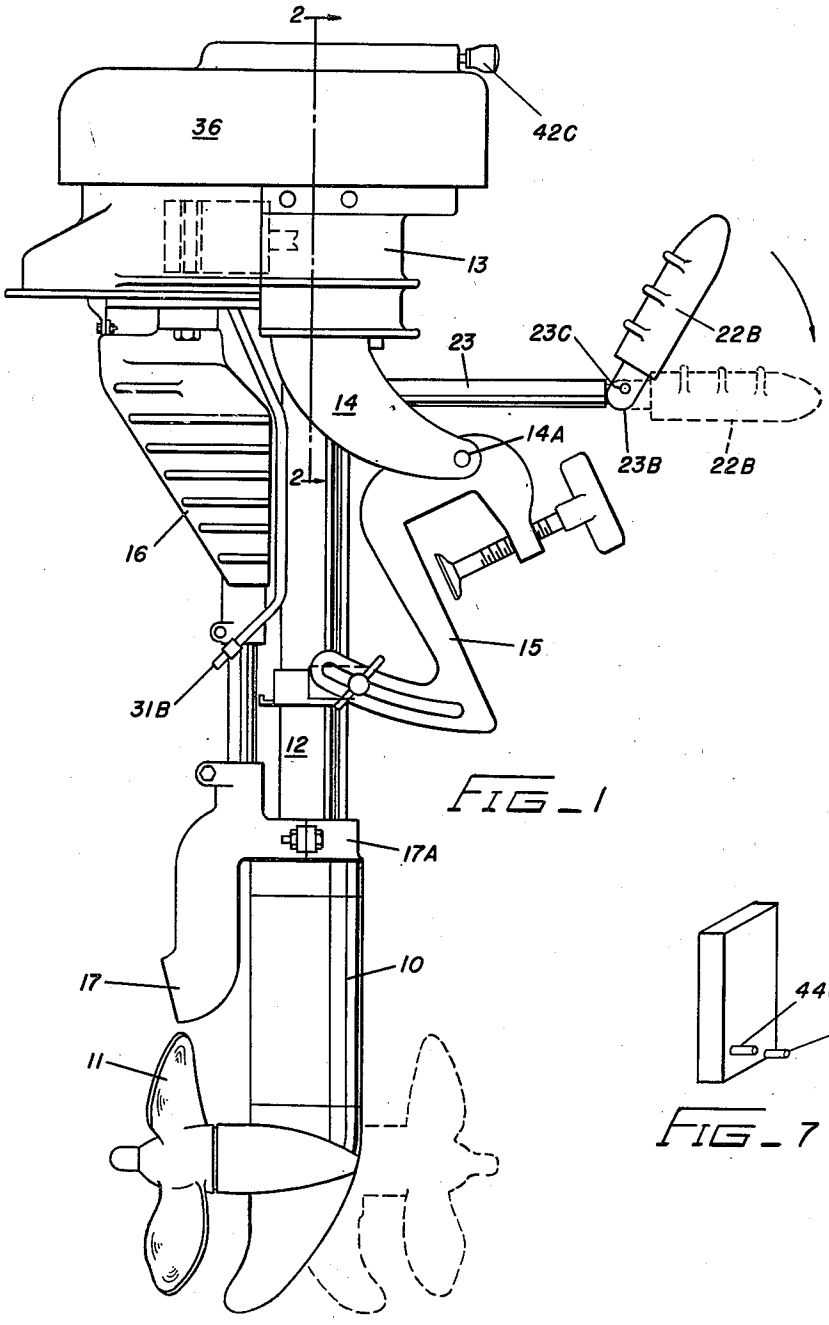


FIG_1

FIG_7

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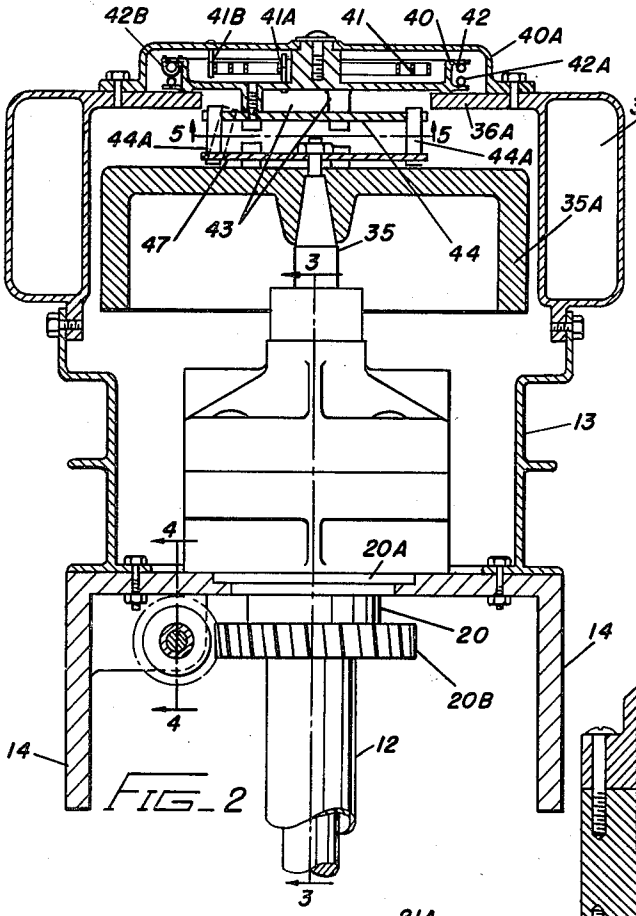


FIG_2

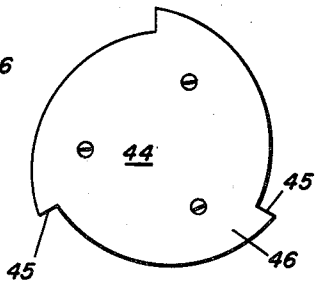


FIG_5

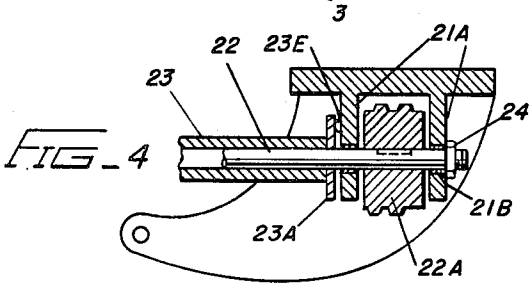


FIG_4

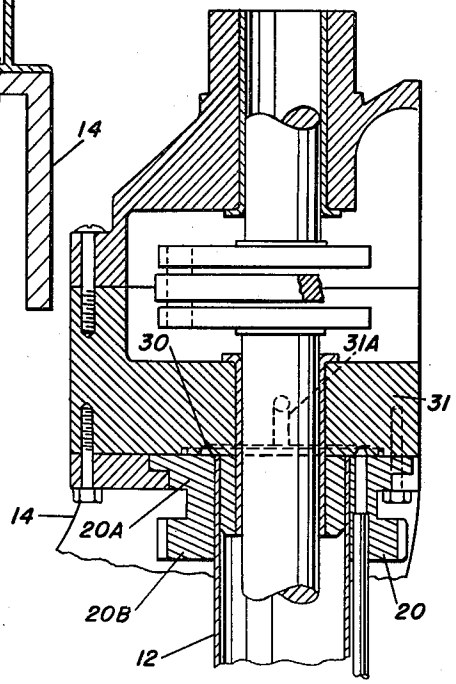


FIG_3

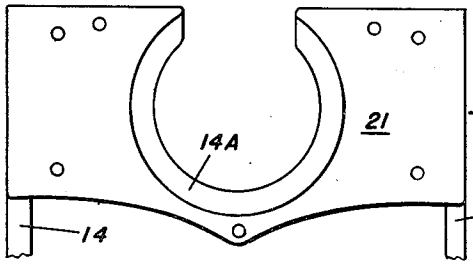


FIG_6

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2,571,245

OUTBOARD MOTOR

Le Roy S. Holmes and Raymond J. Spanski,
Detroit, Mich.

Application September 13, 1947, Serial No. 773,762

2 Claims. (Cl. 115—18)

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The present invention relates to outboard motor units and has among its objects an outboard unit involving a number of features not present in units heretofore in use.

Another object of the invention is to provide unique and advantageous steering means for such units.

Another object is to provide a simplified starting means for the engine of such units.

Still other objects will readily occur to those skilled in the art upon reference to the following description and the accompanying drawings in which

Fig. 1 is a side elevation of an outboard motor and embodying the present invention.

Fig. 2 is a section on line 2—2 of Fig. 1.

Fig. 3 is a section on line 3—3 of Fig. 2.

Fig. 4 is a section on line 4—4 of Fig. 2.

Fig. 5 is a section on line 5—5 of Fig. 2.

Fig. 6 is a plan view of the bracket member.

Fig. 7 is a perspective view of a starting pawl.

As indicated in the drawings, the unit includes an under water casing 10 carrying a propeller 11 and enclosing the usual gearing necessary to operate the propeller from a vertically arranged shaft enclosed in the tube 12 upon which the casing 10 is fixed.

The tube 12 is suspended from the engine containing housing 13 and the latter supported by a pair of brackets 14 forming part of a support 21 hinged as at 14A to a clamp member 15 by means of which the unit is attached to a suitable portion of a boat (not shown).

Also suspended from the housing 13 is an exhaust pipe 16, suitably finned as indicated, which extends downwardly to discharge under water as at 17. The lower end of the exhaust is preferably provided with a collar 17A within which, in a suitable bearing, the tube 12 rotates.

As shown best in Figs. 2 and 3, the upper end of tube 12 is fixed within a hub 20 having a stepped flange 20A and a helical gear 20B. The flange 20A is carried in a suitable seat 14A in the member 21. The tube 12 is therefore supported independently of the engine housing 13 and exhaust 17 and rotatable.

Also carried by the member 21 is a pair of lugs 21A provided with aligned openings in which are fixed bearing bushings 21B in which is mounted a shaft 22. Between the lugs 21A and keyed to shaft 22 is a small helical gear 22A.

Shaft 22 is enclosed in a tube 23 and both extend forward of brackets 14 to a convenient location, the shaft 22 at its forward end having hinged thereto a suitable handle 22B, the normal position of which is vertical or at substantially

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right angles to the shaft so as to facilitate rotation of the latter.

The tube 23 is of such length as to abut at one end the hinge 23B of the handle which has its pintle 23C slightly eccentric to the circular hinge leaves. With this arrangement, movement of the handle 22B toward alignment with the shaft 22 will cause a cam action and move the tube 23 toward the gear end of the shaft 22.

At its other end, the tube 23 abuts a plate 23A surrounding shaft 22 and extending upwardly a short distance where it rests against a fulcrum 23E. The opening in plate 23A through which the shaft 22 extends provides a close sliding fit for the shaft and when the plate is thrust against fulcrum 23E, it causes the shaft and plate to bind and hold the shaft against rotation.

The gear 22A is meshed with gear 20B so that rotation of shaft 22 will rotate tube 12 and associated parts and these may be locked in position by means of the action just described.

Also carried by tube 12 is a small conduit for engine cooling water. This conduit extends from within the casing 10, suitable water inlets being provided, up alongside the tube 12 and through hub 20, opening at the upper face of the latter, into a circular groove 30 in the lower face of the engine crankcase wall 31 and from this groove a passage 31A leads to the water pump and cylinder water jacket (not shown). The outlet for the water is shown at 31B.

At its upper end, the crankshaft 35 is shown as tapered and fixed in a suitable flywheel 35A housed in the bay of a horseshoe or U-shaped fuel tank 36 formed with a plate portion 36A extending over and covering the flywheel.

The plate 36A has mounted upon it starting means for the motor which consists of a reel 40 rotatably suspended from the starter cover 40A, suitably fixed to plate 36A.

The upper face of the reel 40 is dished to receive a suitable clock spring 41, one end of which is fixed to the reel as at 41A while the other end is fixed as at 41B to the cover 40A.

In the channel 42 about the periphery of the reel is wound a rope or cable 42A, one end of which is fixed to the reel as at 42B while the other end extends through cover 40A and is provided with a suitable handle or knob 42C (see Fig. 1).

The under face of reel 40 has fixed thereto upon suitable spacing legs 43 a plate 44 which, as shown in Fig. 5, is provided with several teeth 45 having abrupt forward faces and long sloping rear surfaces 46.

Carried upon the extended end of shaft 35 is a second plate 47 slightly larger than plate 46 and arranged opposite the latter.

This plate 47 is provided with a pair of rectangular openings near its edge and in said openings are mounted pins 44A. These consist of rectangular members 44A carrying two pins 44B and 44C set on opposite sides of the centerline of the member 44A. The pin 44C will rest on top of plate 47 and the pin 44B below and nearer the center of the plate.

Such pins 44A, when the engine is idle, automatically tilt inwardly and hence be in position to coact with the teeth 45, of plate 44. However, when the engine starts, centrifugal force will cause them to tilt outwardly away from plate 44.

The spring 41 is for the purpose of returning the reel 40 and rewinding the rope or cable 42A.

The engine will be provided with suitable accessories such as a carburetor, ignition system, etc., which, since they are conventional, are not being shown.

Now having described the invention and the preferred embodiment thereof, it is to be understood that said invention is to be limited, not to the specific details herein set forth, but only by the scope of the claims which follow.

We claim:

1. In an outboard motor unit adapted to be mounted upon a boat, a rotatable underwater unit, a gear fixed upon the latter, a rotatable shaft carried by the unit mounting means and having fixed thereto a gear adapted to coact with the first gear whereby to rotate said underwater unit, a handle for rotating said shaft, said handle being hinged to said shaft, a tube enclosing said shaft and abutting at one end said hinge, a plate loosely mounted on said shaft, said tube at its other end abutting said plate, fixed fulcrum means adapted to coact with said plate adjacent an edge thereof, and cam means

carried by said hinge and so arranged that, when said handle is swung toward alignment with said shaft, said tube is thrust against said plate to thereby incline the latter and lock said shaft against rotation.

2. In an outboard motor unit adapted to be mounted upon a boat, a rotatable underwater unit, a helical gear fixed upon the latter, a rotatable shaft carried by the unit mounting means and having fixed thereto a second helical gear adapted to coact with the first gear whereby to rotate said underwater unit, a handle for rotating said shaft, said handle being hinged thereto, a cam carried by said handle, and a member actuable by said cam and adapted to coact with a stationary element to lock said shaft against rotation.

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