Jan. 26, 1960 W. O. W. SMITH, JR 2,922,388

PROPULSION MEANS FOR BOATS

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Fig. 1

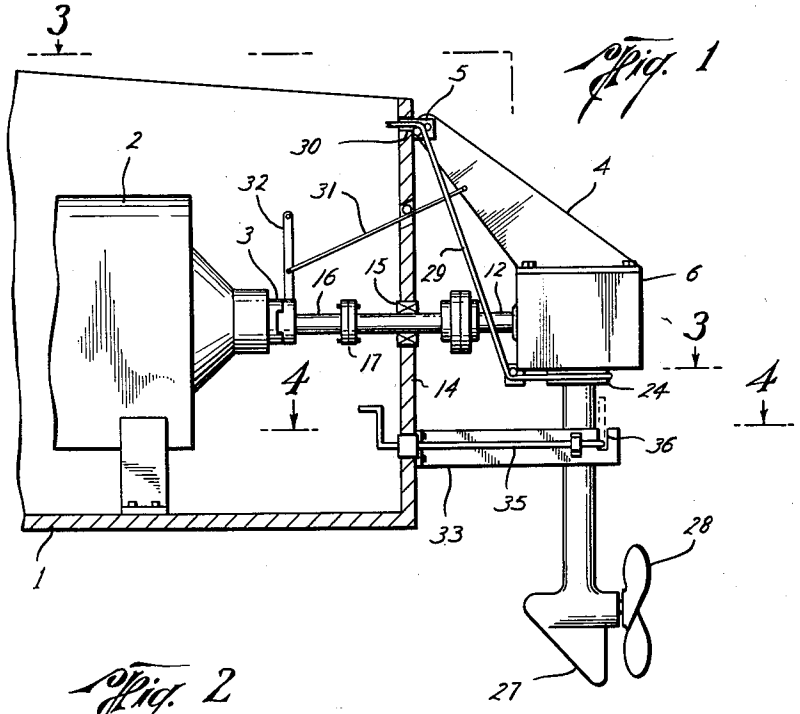
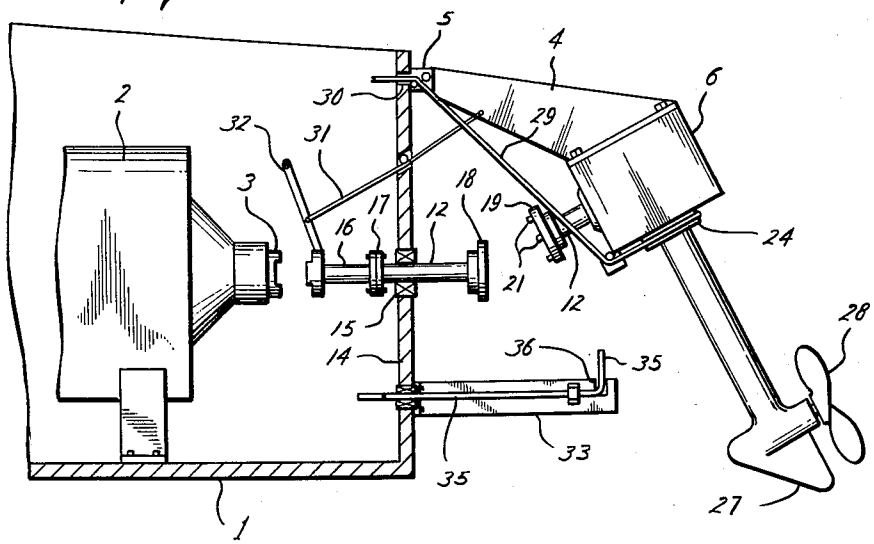


Fig. 2



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Fig. 3

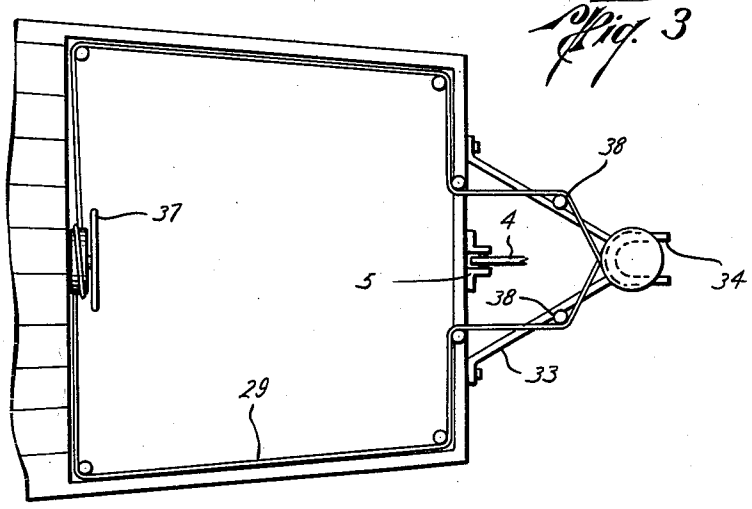


Fig. 5

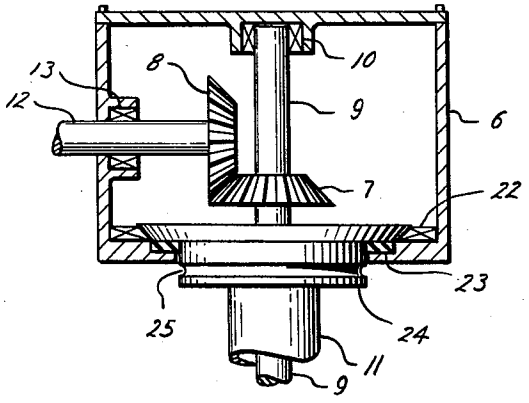


Fig. 4

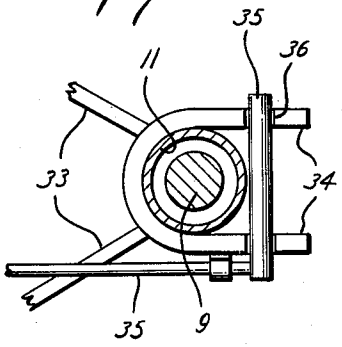
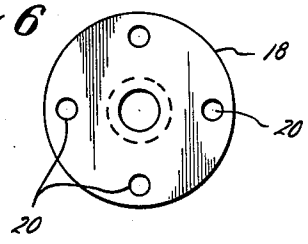


Fig. 6



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PROPULSION MEANS FOR BOATS

William O. W. Smith, Jr., Houston, Tex.

Application May 27, 1955, Serial No. 511,643

1 Claim. (Cl. 115—41)

This invention relates to new and useful improvements in a means for boat propulsion.

It is an object of this invention to provide an inboard motor for light boats having a yieldable propulsion means for riding over submerged obstacles without injury to the propulsions means.

It is another object of the invention to provide an inboard motor for boat propulsion that may be applied to light boats such as are now used for outboard motors, whereby the motor is inside of the boat hull and the propulsion means is hingedly secured to the transom whereby it may be readily raised and lowered when launching or loading the boat on a trailer.

It is still a further object of the invention to provide a propulsion means driven by an inboard motor, and having the maneuverability of an outboard motor by use of the propeller drive, in steering, rather than the water thrust against a rudder.

It is still another object of the invention to provide a novel breakaway coupling in a drive shaft and means for simultaneously operating the clutch to move the gears of the motor into neutral position upon disengagement of the breakaway coupling.

It is still another object of the invention to provide a novel means for locking the hinged propulsion means in driving relation to permit easy maneuvering of the boat when docking or when backing from a pier or launching site.

With the above and other objects in view, the invention has relation to certain novel features of construction, operation and arrangement of parts more particularly defined in the following specification and illustrated in the accompanying drawings, wherein:

Figure 1 is a side elevational view of the propulsion means in driving relation, showing the hull of the boat in cross section.

Figure 2 is a side elevational view of the device in disengaged relation, showing the hull of the boat in cross section.

Figure 3 is a top plan view taken on the line 3—3 of Figure 1 illustrating the steering means employed.

Figure 4 is a top plan view taken on the line 4—4 of Figure 1.

Figure 5 is a cross sectional elevational view of the gear box employed, and

Figure 6 is an end view of the breakaway coupling.

Referring now more particularly to the drawings, the numeral 1 designates the hull of a boat, such as is commonly used in outboard motor boating, on the floor of which may be mounted at any suitable location a motor, as 2, of the desired horsepower, having a suitable gear transmission controlled by a clutch, as 3.

A suitable bracket 4 is hinged to the rear of the boat as at 5, and supports the gear box 6. Mounted in the gear box 6 are the meshed pinion gears 7, 8, the gear 7 being mounted on the shaft 9 which is provided with suitable bearings as 10 and which extends through the box 6 into the housing 11. The gear 8 is mounted on

the shaft 12 which extends laterally through the box 6, and has suitable bearings as 13, and extends through the transom 14 of the boat 1, at which point a bearing as 15 may be provided. The shaft 12 joins the drive shaft 16 of the motor 2, as at 17, which said shaft 16 is in operative connection with the clutch 3. A breakaway coupling having the members 18, 19 is mounted in the shaft 12, the member 18 being provided with stud receiving sockets 20, 20 and the member 19 being provided with studs 21, 21, the sockets 20 and the studs 21 being preferably arranged in quadrants to permit engagement of the studs with the sockets by a quarter turn of the coupling. Suspended from the box 6 is the propeller shaft housing 11, which is rotatable in the box 6 and is mounted in suitable bearings as 22, and which are sealed in the box in any suitable manner as by the seal 23. On the upper end of the housing 11 is a steering cable pulley 24 having a suitable peripheral groove 25. The lower end of the housing 11 terminates in a rudder 27 and rotatably mounted on the said housing 11 is a propeller 28. A steering cable 29 is mounted on the boat, as shown in Figure 3, or in any other suitable manner, and is mounted on the pulley 24 so that the housing 11 may be rotated. A port 30 is provided through the hull of the boat 1, through which the steering cable 29 extends. The cable 29 is mounted on the steering wheel 37 at one end and the pulley 24 at the other.

On the bracket 4 is mounted a connecting line 31, leading to the clutch control lever 32. It is to be noted that the steering cable 29 passes through the boat at the same level that the bracket 4 hinges to said boat, so that the steering cable will be maintained tight at all times.

Mounted on the transom of the boat and extending outwardly therefrom is the bumper 33 which provides a stop means for the housing 11. The extended end of the bumper 33 is substantially U-shaped, forming the bracket 34, providing a receiving means to receive the housing 11. Mounted on the bumper 33 is a latch 35 which extends through a bearing in the boat transom to a point convenient to the reach of the operator. The latch 35 is pivotally mounted and the extended end is turned at right angles to be received by the notches 36 in the bracket 34.

If desired, the steering diagram as shown in Figure 3 may be employed using the series of pulleys 38, 38 to maintain the line 31 taut.

In operation, the latch 35 will be in locked position in the notches 36, locking the housing 11 in the extended end of the bumper, as at 34, in which position the boat may be maneuvered, with the propeller in either forward or reverse rotation. When it is desired to release the housing 11, as when the boat is under way, the latch 35 is rotated, lifting the latch out of the notches 36. The boat may be steered through the cable 29, the housing 11 rotating in the box 6. When an obstacle is encountered in the water, such as a submerged log, or the like, the housing 11 will swing outwardly and upwardly, disengaging the coupling members 18, 19, and the line 31 disengaging the clutch 3. When the submerged obstacle is passed, the weight of the housing 11 will swing the same back into position in the bracket 34, re-engaging the clutch 3 and the coupling members 18, 19 will be in contact with each other and the studs 21 will, within a quarter turn of the member 18, reengage the sockets 22, and the propulsion of the boat will continue.

While the device herein described will be, in effect, an inboard motor, it will have all of the advantages of an outboard motor, including lightness in weight and shallow draught. The use of the gear box outside of the boat will permit the necessary reduction of speed of the propeller with relation to the speed of the motor without

the necessity of further speed reduction gearing in the motor in the boat. The simplicity of the gear arrangement in the gear box 6 will make it possible to quickly and easily effect repairs and, if desired, to change gears to accomplish changes in propeller speed.

While the foregoing is considered a preferred form of the invention, it is by way of illustration only, the broad principle of the invention being defined by the appended claim.

What I claim is:

In a propulsion means for boats, a boat hull having a transom, a bracket mounted on said transom, a gear box in said bracket pivotally suspended from said transom, a propeller drive shaft and a propeller extended from said gear box and a propeller shaft housing and rudder extending from said gear box and rotatably

mounted therein, a motor in said boat and a drive shaft extending from said motor through said transom to said gear box, a clutch in said drive shaft between said motor and transom, a breakaway coupling in said drive shaft between said transom and gear box comprising a pair of interlocking members, one of said members having a series of sockets and the other of said members having a series of studs receivable in said sockets.

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