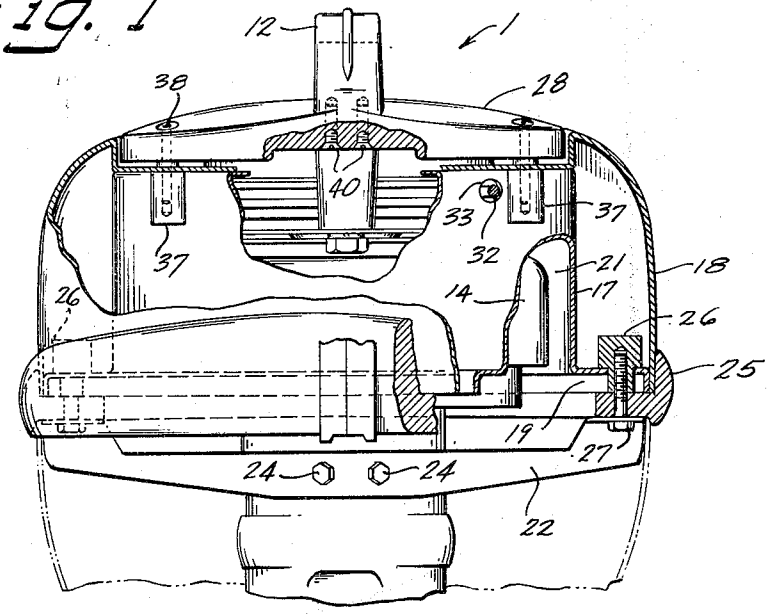
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TILT HANDLE ABOVE THE CENTER OF GRAVITY ON OUTBOARD MOTOR HOUSINGS

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Fig. 1



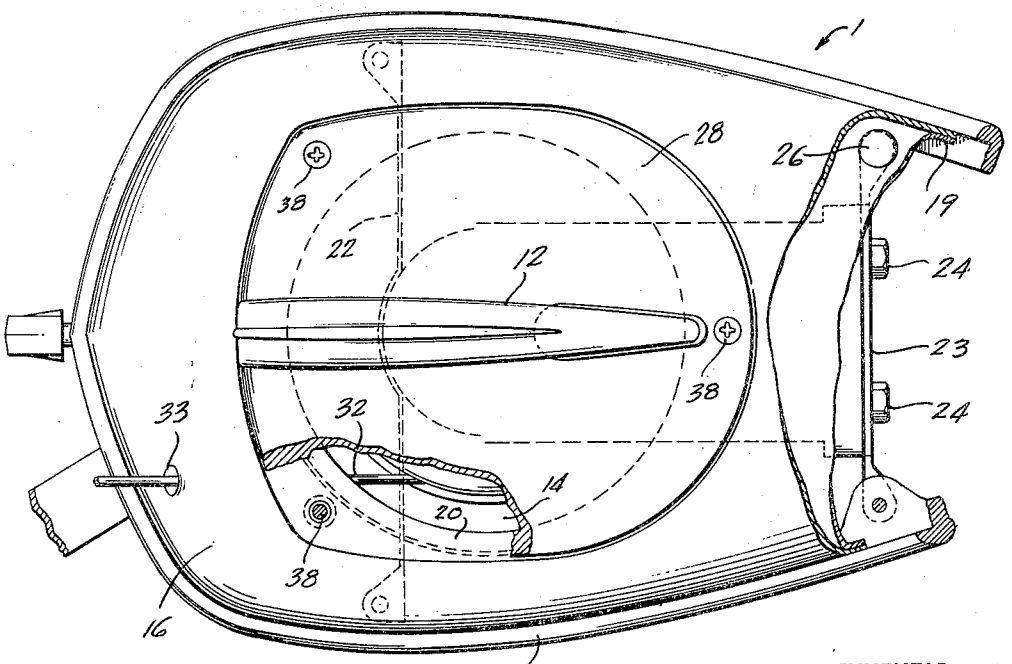


Fig. 2

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Fig. 3

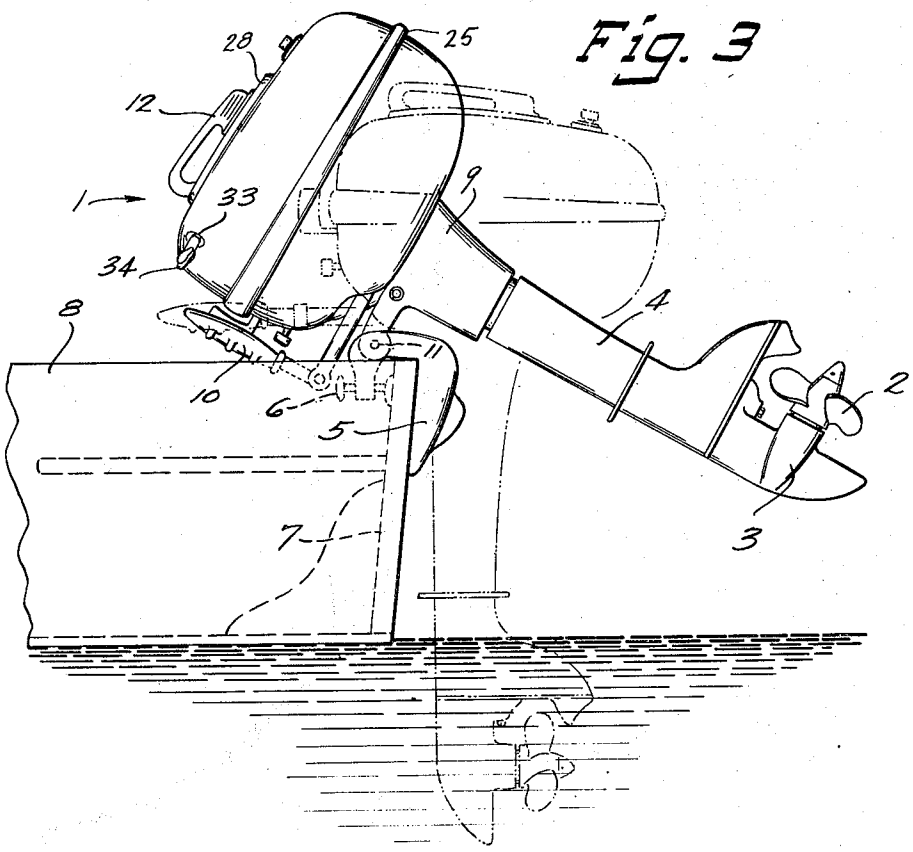
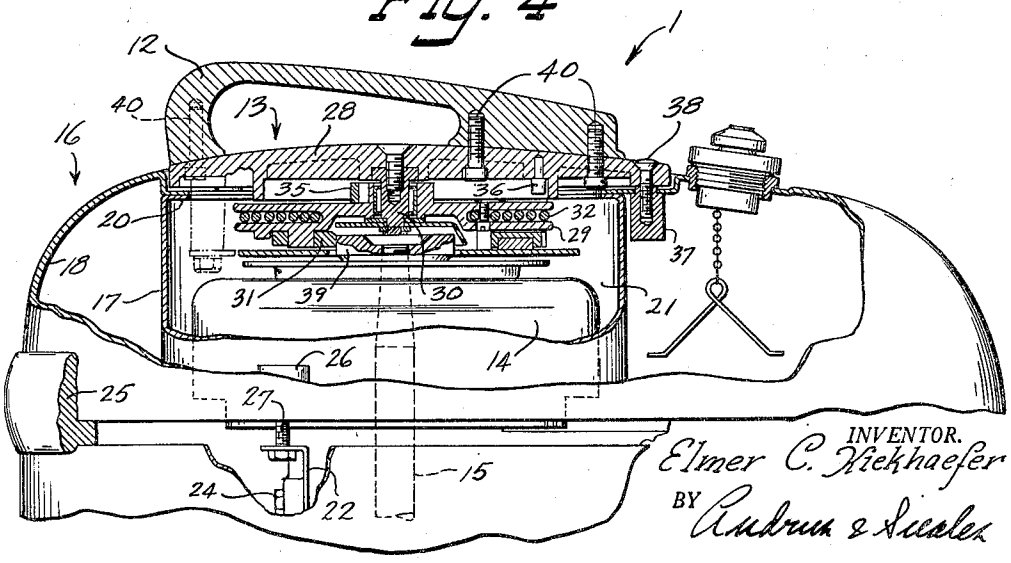


Fig. 4



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2,549,483

TILT HANDLE ABOVE THE CENTER OF GRAVITY ON OUTBOARD MOTOR HOUSINGS

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Application April 8, 1949, Serial No. 86,144

5 Claims. (Cl. 115—17)

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This invention relates to outboard motors and particularly to means by which the motor may be more conveniently handled.

The invention provides a handle at the top of the motor which is connected by intermediate supporting brackets carrying the fuel tank with the motor whereby the motor may be tilted forwardly more easily and otherwise manipulated.

An object of the invention is to secure a handle at the top of the motor which will provide the operator a more convenient means of tilting the motor on the transom of the boat and which will also provide for lifting of the motor as from a dock for installing the same on the transom of the boat.

Another object is to provide sufficient rigidity and strength to support the full weight of the motor in the handle secured to the upper portion of the motor for manipulation of the same.

Another object is to secure the handle to the fuel tank at the top of the motor in a manner so that the tank will not become damaged with hard use.

These and other objects and advantages will be more fully set forth in the following description of a preferred embodiment of the invention as illustrated in the accompanying drawings.

In the drawings.

Figure 1 is a front elevation of the upper end of an outboard motor with portions broken away and sectioned;

Fig. 2 is a view of the top of the outboard motor partly broken away and sectioned;

Fig. 3 is a side elevation of the outboard motor shown as carried on the transom of a boat and tilted out of the water, and showing the normal operating position of the motor in dotted lines; and

Fig. 4 is a vertical section taken through the upper portion of the motor showing the construction of the same and the disposition of the handle with respect thereto.

The outboard motor shown in the drawings comprises the upper power unit or engine 1, the propeller 2 carried by the lower underwater unit 3 and the intermediate housing 4 enclosing the drive shaft, not shown, through which propeller 2 is driven by engine 1.

The supporting bracket 5 for the motor is provided with the clamping screws 6 to be removably secured to the transom 7 of the boat 8.

The swivel bracket member 9 supports housing 4 for rotation on a vertical axis for steering of the boat by turning the motor as with the steering handle or tiller 10.

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The transverse pin 11 carried by bracket 5 extends through swivel bracket member 9 to pivotally support the latter and the motor in either of the positions shown in Fig. 1.

The provision for lifting of the underwater unit 3 by tilting the motor forwardly on pin 11, as described, permits boat 8 to be operated in shallow water, and by raising unit 3 entirely out of water allows the boat 8 to be beached. Particularly where the motor is being operated in salt water, the tilting of the motor out of water, at all times when the motor is not in use is recommended.

As shown in the drawing, the axis of pin 11 is disposed somewhat forwardly of the motor in its operating position for clearance of certain of the operating parts of the motor so that the motor must be raised in tilting the same forwardly.

The invention provides the handle 12 at the upper end of the motor, as will be described, as a convenient means for tilting of the motor.

The motor, as shown, includes the starter unit 13, and the flywheel 14 carried at the upper end of the crankshaft 15 of engine 1 beneath starter unit 13.

The fuel tank 16, disposed at the upper end of the motor, is of sheet metal construction for light weight and comprises the inner and outer shells 17 and 18, respectively. The overlapping lower circumferential flanges 19 of the shells are seam welded together to form the base of the tank. The upper overlapping rims 20 of shells 17 and 18 are welded together to complete tank 16 with an interior well 21 or vertical opening through the tank to accommodate flywheel 14.

The brackets 22 and 23 are secured respectively by the bolts 24 forwardly and rearwardly of engine 1 and support at their ends the flanged rim 25 extending around the engine. The bushings 26 in the base of inner shell 17 of tank 16 receive the bolts 27 which secure tank 16 on rim 25 and the rim to the ends of brackets 22 and 23.

Starter unit 13 is mounted on the underside of the cover 28 and comprises the sheave 29 journaled on the stub shaft 30 carried by cover 28 and the pawls 31 carried by sheave 29. The rope 32 wound on sheave 29 extends through the forward opening 33 in tank 16 and is provided with the handle 34 for rotating sheave 29 in one direction by pulling the handle. The spring 35 shown in part in Fig. 4 is secured to the pin 36 and provides for rewinding of rope 32 on sheave 29 by rotation of the latter in the opposite direction.

The threaded supports 37 in the upper part of

shell 18 of tank 16 are spaced about the upper end of well 21 to receive the bolts 38 which secure starter cover 28 to tank 16 over flywheel 14 to close the upper end of the well. The starter unit 13 is disposed above flywheel 14 so that pawls 31 rotatively engage the ratchet wheel 39 on crankshaft 15 to start the engine by pulling handle 34.

The tank 16 constitutes a casing or cowl supported on the engine and housing the flywheel 14 and starter unit 13 to protect the same. The cover plate 28 extends across the top of the flywheel 14 to carry the starter unit 13 and to complete the closure for the casing or cowl, to fully enclose the flywheel and all moving parts above the engine. The cover plate serves to strengthen the tank or casing 16 against distortion and to provide rigidity to the protecting housing for the starter and flywheel.

Handle 12 is secured to the upper side of cover 28 by means of the screws 40 and is removable from the motor with starter unit 13 by removing bolts 38 securing cover 28 to tank 16. The number of bolts 38 required to carry the full weight of the motor when lifted by handle 12 should be employed.

By interspacing bolts 38 about cover 28, the weight of the motor is distributed throughout tank 16 to prevent any concentration of load which would damage the relatively thin wall section of outer shell 18 of the tank. By distributing the weight of the engine carried by the tank additional supporting structure or reinforcement of the tank is not required.

By locating handle 12 at the top of the motor the same is disposed with respect to the center of gravity of the motor and tilt pin 11 so that the motor may be easily tilted forwardly from the operator's position in boat 8 by pulling handle 12 forwardly. Thus the operator need not stand within boat 8 or lean over transom 7 to lift the motor for tilting.

Various embodiments of the invention may be employed within the scope of the accompanying claims.

I claim:

1. In an outboard motor having a substantially vertical drive shaft with an engine at its upper end mounted with its crankshaft in line with and coupled to the drive shaft and an underwater propeller unit at its lower end, a support bracket adapted to secure the same to the transom of a boat in operative position with the drive shaft substantially vertical, a tilt bracket adapted to provide for tilting of the motor on a horizontal transverse pivotal axis ahead of said drive shaft to an inoperative position with the propeller out of water, a flywheel at the upper end of the engine crankshaft with a starter unit above the flywheel and engageable with said crankshaft for starting the engine, and a housing secured on the engine and enclosing the flywheel and carrying the starter unit; the housing construction comprising a sheet metal cowl extending over the top of the engine and having an opening in its top above the flywheel, a rigid cover plate extending across and closing said opening, said cover plate carrying the starter unit on its underside centered with respect to said flywheel and engine crankshaft, a handle incorporated in the structure of said cover plate and disposed to facilitate the manual tilting of the motor upon the pivotal axis of said tilt bracket, said handle being adapted for manual lifting of the motor and being disposed near to the vertical axis of said drive shaft and engine crankshaft whereby suspension of the motor solely from said handle effects a substantially vertical positioning for the drive shaft to facilitate installation of the motor upon the transom of the boat, and marginally distributed means removably securing said rigid cover plate to said cowl and disposed to effect reinforcement of said cowl by said plate against concentrated stresses tending to distort the same from operative use of said handle.

2. The construction of claim 1 in which the cowl comprises a fuel tank having a vertical cylindrical wall defining the central opening containing the flywheel and starter unit and which wall reinforces the cowl for transmitting and distributing the load from the cover plate when the motor is lifted by the cover plate.

3. The construction of claim 1 in which the cowl includes a fuel tank having a rim defining the cowl opening and comprising a seam of the tank, the cover plate additionally serving to protect said seam against stresses developed in lifting and supporting of the motor by said handle.

4. The construction of claim 1 in which the cowl comprises a fuel tank having a sheet metal lower member secured to the motor and including a vertical cylindrical wall defining a central opening containing the flywheel, said starter cover being secured to the tank adjacent said vertical wall whereby the load is transmitted directly therethrough.

5. The construction of claim 1 in which the handle is constructed of a rigid generally inverted U-shaped member extending centrally across the top of the cover plate and secured thereto at its ends to add substantial rigidity to the construction.

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