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OUTBOARD MOTOR OIL FILLER TUBE ARRANGEMENT

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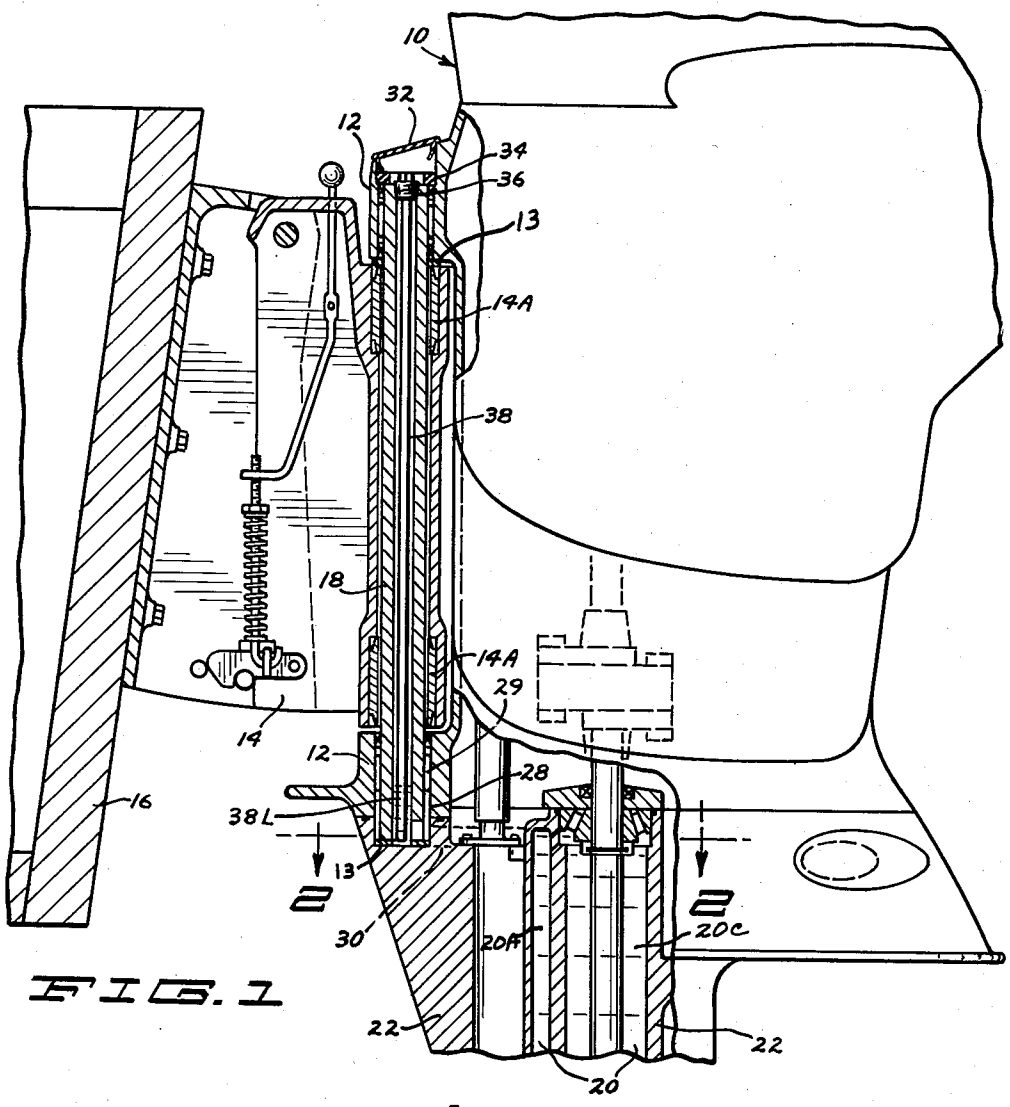


FIG. 1

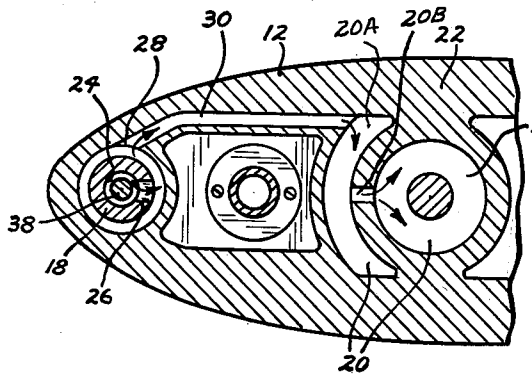


FIG. 2

INVENTOR.
LESLIE W. FOSTER
BY Carlson & Hayle

ATTORNEYS

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OUTBOARD MOTOR OIL FILLER TUBE ARRANGEMENT

Leslie W. Foster, Arden Hills, Minn., assignor to McCulloch Corporation, Marine Products Division, Minneapolis, Minn., a corporation of Minnesota

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6 Claims. (Cl. 115—18)

This invention relates to improvements in providing a lubricant filler arrangement for the lower unit lubricant cavity of an outboard motor unit.

Presently, to check the oil or grease level in an outboard motor lower unit housing the boat operator must tilt the motor up to remove the drain plug. Additionally, the operator has no idea of the oil or grease level since the plugs are either at the top (fill) or the bottom (drain). The above described procedure is quite burdensome with the larger motors which because of the lack of beaching or hoisting facilities may be left in the water over extended periods of time.

Accordingly it is an object of the present invention to provide in an outboard motor unit an oil filler tube arrangement providing access to a lower unit lubricant cavity from adjacent the boat or pivot bracket while the motor unit is in an operating position.

The present invention accomplishes the above object by providing the oil filler tube for the lower unit lubricant cavity through the pivot tube, the top of which is made readily accessible from within the boat on which the motor unit is mounted.

These and other more detailed and specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawing, in which—

Fig. 1 is a partial side elevational view of an exemplary outboard motor unit mounted on a boat transom and showing an oil filler arrangement for a lower unit lubricant cavity which includes the motor upright pivot tube.

Fig. 2 is an enlarged plan sectional view taken along lines 2—2 in the Fig. 1.

Referring now more particularly to the accompanying drawing like numbers denote like parts and structural features in the two views. An outboard motor unit including the power unit **10** has an integrally formed motor bracket **12** pivotally connected to the boat or pivot bracket **14** on the boat transom **16**. A vertical pivot tube **18** is fixedly attached to the bracket **14** in the vertically spaced apart resilient shockmounts **14A**. The upper and lower end portions of the tube are journaled in the motor bracket for permitting the bracket to pivot thereon. The usual thrust washers **13** are provided respectively between the two brackets at their upper pivotal connection and at the tube **18** lower end.

The oil filler and measuring means for the lubricant cavity **20** formed in the lower unit housing or casing **22** includes the tube **18** which has the axially extending hollow center **24**. The tube **18** lower end portion has a radially extending notch or aperture **26** providing fluid communication between the tube inside and the annular recess **28** formed between the pivot tube and the housing **22**. The enclosed fluid passageway **30** extends between the annular recess **28** and an upper portion of the vertically elongated cavity **20** section **20A**. The radial aperture **26**, passageway **30** and the cavity section **20A** upper portion are horizontally aligned for permitting lubricant or oil to flow therebetween when the motor unit is in an upright operating position as shown in Fig. 1. Thus the oil level in the tube **18** is the same as in cavity section **20A**.

The fluid port **20B** provides communication between the cavity section **20A** and the like vertically elongated cavity section **20C**. The usual upright outboard motor driveshaft **31** rotatably extends through the cavity section **20C** from the power head **10** to a set of propeller drive gears (not shown) located in a cavity **20** lower portion for rotating the usual propeller (not shown) to move a boat through water. As the power head **10** is operated the shaft **31** rotates the propeller gears forcing the lubricant throughout the cavity **20** and to the recess **28** for lubricating the motor bracket lower pivot bearings **29**. In the illustrated embodiment sufficient expansion space was provided in the cavity **20** and its connected passageway **30**, recess **28** and the tube **18** inside for the lubricant during power head **10** operation. A usual oil breather arrangement (not shown) may be added to limit the lubricant pressure in the cavity.

To measure the lubricant level in cavity **20** or add lubricant thereto, the operator while still in the boat stops the power unit **10** and reaches over the boat bracket **14** to remove snap held cover **32** from the motor bracket **12** exposing an upwardly opening circular recess therein. A suitable wrench is inserted through the pivot tube retaining ring **34** to non-rotatably engage the upper non-circular portion of the radially enlarged outwardly threaded head **36**. The head is unscrewed from the pivot tube upper inwardly threaded end. Lastly the oil measuring rod or dipstick **38**, attached to the lower end of head **36**, is removed from the tube by axially moving it upwardly through the tube center **24**. It is important to note that the power unit **10** extends only upwardly, outwardly and rearwardly from the pivot tube **18** for permitting the rod **38** to be easily removed. Additionally the illustrated arrangement provides access to the oil filler tube at a convenient height with respect to the boat operator, i.e., substantially at the upper edge of the boat **16** transom.

The lower portion **38L** of the oil measuring rod **38** has the usual oil level markings thereon for indicating the height of the oil in the pivot tube interior **24**. Upon determining that the lower unit cavity **20** needs oil the operator, while in the boat and with the motor in operating position, pours suitable lubricant through the retaining ring **34** thence through the pivot tube interior **24** into the lubricant cavity. The rod **38** is then reinserted into the pivot tube and the head **36** screwed into the tube upper threaded end as illustrated. The cover **32** is slipped back into the bracket **12** upper recess completing the job.

It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described my invention, what I claim to be new and desire to protect by Letters Patent is:

1. In an outboard motor unit, a boat bracket, a motor bracket, an upright pivot tube on one of the brackets and being pivotally connected to the other bracket, a lower unit housing having a lubricant cavity and being stationarily associated with the motor bracket, the pivot tube extending below a cavity upper portion and being in fluid communicative relation therewith, and the lubricant level in the cavity being measurable by inspecting the lubricant level inside the pivot tube while the lower unit housing is in an operating position.

2. Apparatus as in the claim 1 wherein a power head is mounted on the motor bracket and extends only rearwardly upward and outward from the pivot tube upper end.

3. Apparatus as in the claim 1 wherein a power head housing is stationarily associated with the motor bracket in a non-obstructing relation to the pivot tube upper end for permitting manual access to said end from outside the motor unit.

4. In an outboard motor unit, a boat bracket, a motor bracket, an upright pivot tube on one of the brackets and being pivotally connected to the other bracket, a lower unit housing stationarily associated with the motor bracket and having a lubricant cavity therein, a circumferentially extending fluid recess adjacently outside the tube and being in gravitational fluid communication with an upper portion of said cavity, the pivot tube having a radially extending aperture providing fluid communication between the tube inside and said recess, and the tube upper end being open and readily accessible from outside the motor unit while it is in an operating position.

5. In an outboard motor unit, a boat bracket, a motor bracket, an upright pivot tube on one of the brackets and being pivotally connected to the other bracket, a lower unit housing having a lubricant cavity and being stationarily associated with the motor bracket, the tube lower end portion being radially spaced apart from the motor bracket for forming an annular recess therebetween which is vertically adjacent the lubricant cavity, the tube

having a radial aperture providing fluid communication between the tube inside and the recess, a horizontal fluid passageway extending between the recess and the cavity, and the upper end of the tube being open and readily accessible from adjacent the boat bracket while the motor is in an operating position.

6. An outboard motor having a lower unit with an internal lubricant cavity, a bracket for mounting the motor on a boat, the motor being pivotally connected to the bracket on an upright pivot axis, said pivotal connection including an elongated tube extending coaxially of the pivot axis, the motor having internal passage means forming closed communication between the lower end portion of the tube and the said cavity, and a member for closing the upper end of the tube and being removably associated therewith.

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