Dec. 25, 1956 G. J. CURTIS 2,775,219

OUTBOARD MOTOR MOUNTING MEANS FOR BOATS

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Fig. 1

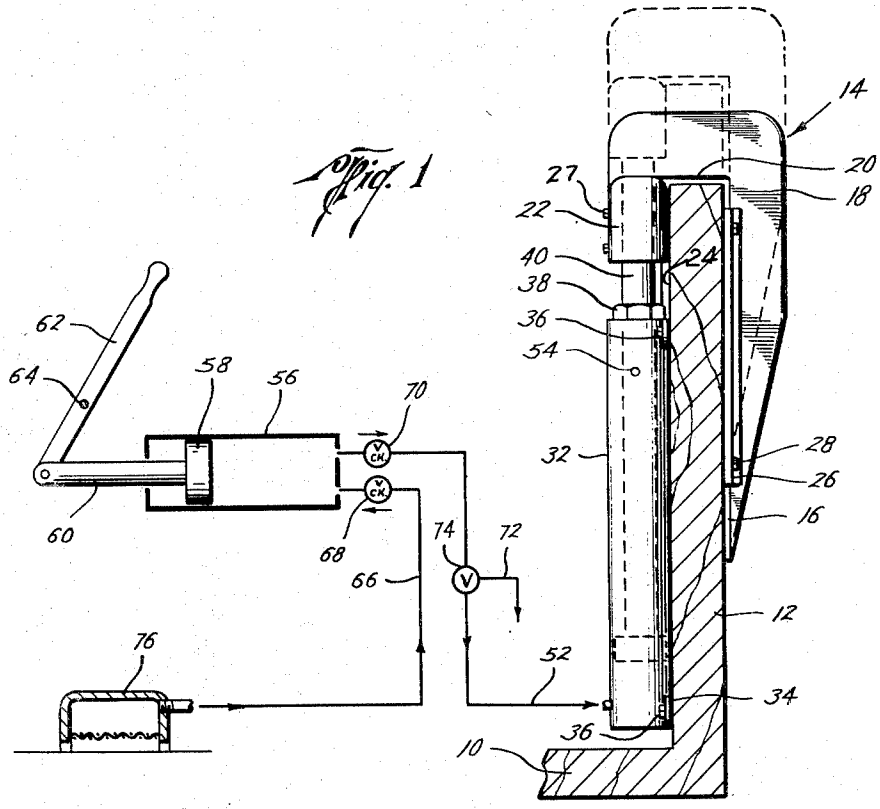
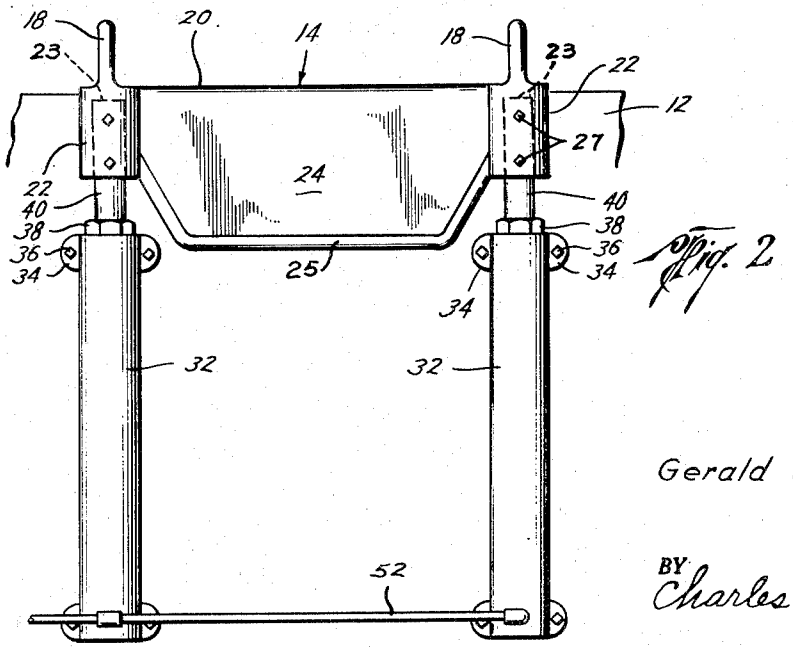


Fig. 2



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Fig. 3

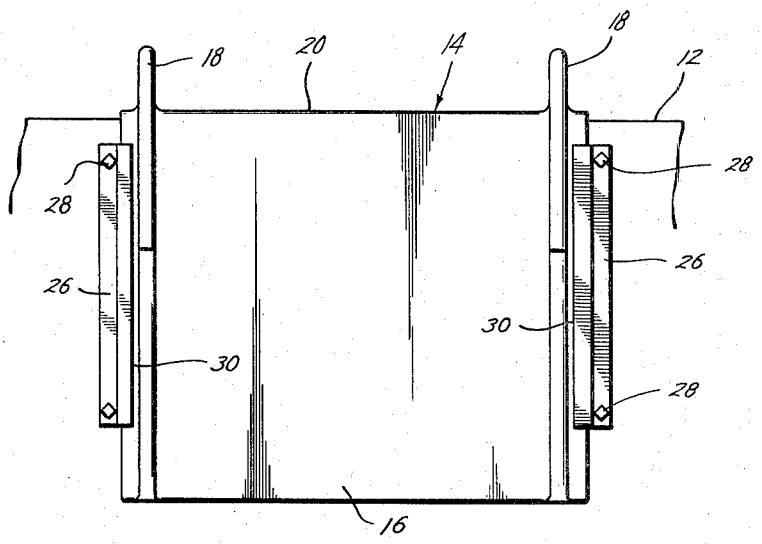


Fig. 4

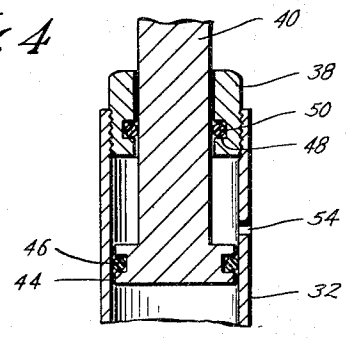
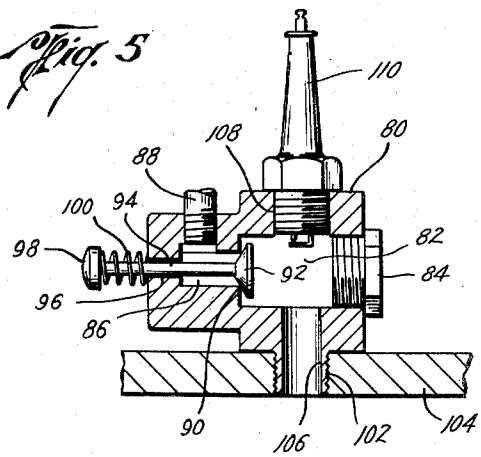


Fig. 5



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United States Patent Office 2,775,219 Patented Dec. 25, 1956

2,775,219

OUTBOARD MOTOR MOUNTING MEANS FOR BOATS

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Application March 3, 1954, Serial No. 413,843

1 Claim. (Cl. 115—41)

This invention relates to outboard motor mounting means for boats and more particularly to a device designed to be applied to a boat for attaching an outboard motor thereto and by which the position of the motor may be adjusted vertically relative to the boat.

In the use of outboard motors for propelling boats in the manner heretofore commonly practiced, the means is provided for attaching the motor to the transom of the boat with the propeller extending into the water, and in most instances the propeller is positioned a substantial distance below the bottom of the boat, so that there is danger that damage may be caused by engagement of the equipment with under water obstruction, or by coming in contact with the bottom in the event that the boat should be operated in very shallow water.

Various means have been proposed, heretofore, for preventing such damage, such as by the provision of mounting means by which the motor may be tilted or swung in a direction to move the propeller upwardly under encountering an obstruction. Such means, however, do not permit the motor to be operated while the propeller is in an elevated position to propel the boat when in shallow water, and no completely satisfactory means has been available heretofore which could be used with any conventional type of outboard motor whereby the depth of the propeller in the water could be adjusted as desired without changing the angle of the propeller relative to the boat.

The present invention has for its chief object the provision of means for overcoming the above noted objections in connection with the use of outboard motors, whereby any conventional type of outboard motor can be quickly and easily attached to a boat and by which the vertical position of the propeller relative to the bottom of the boat adjusted in any desired manner.

Another object of the invention is to provide a motor mount for outboard motors which may be attached to the transom of a boat in a manner to permit the position of the same to be adjusted relative to the bottom of the boat, and upon which an outboard motor may be clamped.

A further object of the invention is the provision of an adjustable motor mount including a motor supporting bracket which may be positioned over the transom of a boat for vertical sliding movement thereon, and having pressure fluid operable means for adjusting the vertical position of the bracket, whereby the position of the propeller relative to the bottom of the boat may be adjusted.

A further object of the invention is the provision of an adjustable motor mount including hydraulic pressure means for adjusting the vertical position of a motor relative to the bottom of a boat and by which the motor is securely retained in any desired position of adjustment.

A further object of the invention is the provision of a hydraulically operated motor mount of the kind referred to having fluid pumping means for supplying hydraulic fluid thereto and also having means whereby the pumping means may be operated to pump water out of the boat.

Another object of the invention is to provide a motor mount of the type mentioned which is operable by pressure fluid and having means whereby the motor is utilized to supply fluid under pressure for the operation of the mount.

A still further object of the invention is the provision of a motor mount for outboard motors which is of simple design and rugged construction, capable of withstanding the large usage and extreme conditions of exposure to which equipment of this character is customarily subjected, which is easily operated, and by which a motor is securely held in any desired position of adjustment.

The above and other important objects and advantages of the invention will best be understood from the following detailed description, constituting a specification of the same, when considered in conjunction with the annexed drawings, wherein—

Figure 1 is a side elevational view, partly diagrammatic and partly in cross-section, illustrating a preferred form of the invention, and showing the same in position on a boat;

Figure 2 is a front elevational view of the invention as illustrated in Figure 1;

Figure 3 is a rear elevational view of the invention as illustrated in Figure 1, showing the appearance of the same as viewed from the outside of the boat;

Figure 4 is a detailed view on a somewhat enlarged scale, showing details of the construction of the pressure fluid means by which the position of the motor mount is adjusted; and

Figure 5 is a central, vertical, cross-sectional view, on a somewhat enlarged scale, showing details of construction of a motor attachment by which pressure fluid may be supplied from the motor to the motor mount mechanism for operating the same.

Referring now to the drawings in greater detail, the invention is illustrated in connection with its application to a boat of conventional construction, having a bottom **10**, and a transom **12**, at the stern, to which the motor mount of the invention is attached. The motor mount of the invention includes a bracket **14**, of generally U-shape in cross-section, of a size to form a secure support for a conventional outboard motor when the motor is clamped on the bracket, and having an outer, elongated, vertically extending wall portion **16**, adapted to lie along the outer face of the transom **12**, the bracket being positioned over the upper edge of the transom for vertical sliding movement thereon. The bracket is preferably formed with spaced reinforcing flanges **18**, which extend outwardly therefrom, substantially at right angles to the outer wall **16** and top wall **20** of the bracket, the flanges terminating inwardly of the top wall **20** in downwardly extending, generally cylindrical, inverted cup-shaped enlargements or lugs **22**, each of which has a downwardly opening bore **23** for a purpose later to be made apparent. The bracket is also provided with an inner vertical wall portion **24**, extending downwardly between the enlargements **22** and beyond the lower ends of the same, and which is provided with a reinforcing marginal bead **25**, along its lower edge.

The enlargements **22** form extensions of the reinforcing flanges **18**, which, together with the apron **24**, extending downwardly beyond the lower ends of the enlargements and provided with the marginal reinforcing bead **25**, serve to greatly increase the strength and transverse rigidity of the bracket.

Spaced, vertically extending guides **26** are attached to the outer face of the transom **12**, in any suitable manner as by means of bolts **28**, these guides being preferably of Z-shape in cross-section, and being positioned with

their outermost arms spaced from the outer face of the transom and extending over the side edges of the outer wall **16** of the bracket, to hold the bracket against tilting movement relative to the transom and guide the same in its vertical sliding movement on the transom.

Spaced, vertically positioned pressure cylinders **32**, are attached to the inner face of the transom **12** beneath the enlargements **22** of the bracket, each of these cylinders being preferably provided with external perforated lugs **34**, through which suitable fastening means such as the bolts **36** may extend to secure the cylinder to the transom. Each of the cylinders **32** is provided at its upper end with a bushing **38**, threadably attached thereto, through which a piston rod **40** extends upwardly for attachment at its upper end to the corresponding enlargement 22 of the bracket, and which carries at its lower end a piston 42 movably disposed within the cylinder. The upper ends of the piston rods **40** extend into the bores 23 of the enlargements **22** and are removably secured therein, as by means of set screws **27**.

The piston 42 may conveniently be provided with an external annular groove 44, within which suitable packing means, such as the O-ring 46 is located to form a fluid tight seal between the inner wall of the cylinder **32** and the piston. The bushing **38** may also be provided with an internal annular groove 48, within which packing means such as the O-ring 50 is located, whereby a seal is formed between the bushing and the piston rod **40** to prevent the entrance of water or foreign matter into the upper end of the cylinder. Each of the cylinders has an inlet at its lower end, with which a pressure fluid supply pipe 52 is connected in communication, whereby pressure fluid may be admitted to and exhausted from the cylinder beneath the piston 42, and each cylinder is also provided near its upper end with an exhaust port **54**, above which the piston **42** may pass, when the piston reaches its uppermost position in the cylinder.

It will be apparent that by the application of pressure fluid to the lower ends of the cylinders, through the supply pipe **52**, such fluid will move the pistons 42 upwardly in the cylinders, thus raising the bracket 14 to any desired height relative to the bottom of the boat, until the pistons reach the upper limit of their movement in the cylinders. Should the pressure of the fluid in the cylinders be raised beyond the pressure necessary to lift the bracket **14** and the motor attached thereto, such fluid may escape through the outlets **54**, when the pistons reach the upper limit of their movement in the cylinders, so that damage to the mechanism such as might be caused by the application of excessive fluid pressure to the cylinders will be prevented.

Pressure fluid means is provided for supplying the cylinders with pressure fluid for operation of the device, which means may conveniently take the form illustrated in Figure 1, wherein a pump cylinder **56** is shown, in which a piston **58** is movably disposed, which is attached to a piston rod **60**, adapted to be operated in any convenient manner, as by means of an operating lever **62**, pivotally supported mediate ends, as indicated at **64**, and attached at its lower end to the outer end of the piston rod. An inlet pipe **66** is provided for the cylinder **56**, in which a check valve **68** is connected, which is operable to close the inlet pipe against outflow of fluid therethrough from the cylinder, and to open the inlet pipe to permit inflow of fluid to the cylinder. The cylinder also has an outlet connected in communication with the supply pipe **52** in which a check valve **70** is connected, which is operable to permit outflow of fluid from the cylinder, but which closes to prevent backflow of fluid through the supply pipe into the cylinder. The supply pipe **52** also has a three-way valve **74** therein, having a discharge port, which is connected to a discharge pipe **72**, and which is operable to regulate the flow of pressure fluid from the pump cylinder to the cylinders **32**, and which may also be positioned to permit the flow of fluid from the cylinders 32 through the supply pipe **52** and discharge pipe **72**, whereby pressure may be exhausted from the cylinders 32 to permit the bracket 14 to move downwardly on the transom.

The inlet pipe **66** may conveniently take the form of a flexible hose, having a screen device **76** connected to its outer end, and which may be positioned in the water outside of the boat, whereby water may be supplied to the pump for operation of the equipment. It will also be apparent that by positioning the screen device 76 in the bottom of the boat, and operating the pump with the valve **74** in position to permit the flow of fluid from the supply pipe **52** to the discharge pipe **72**, the pumping system may be operated to remove water from the bottom of the boat, whereby the pumping system serves as a means for bailing the boat when not in use to supply pressure fluid to the cylinders **32**.

In Figure 5 there is illustrated an attachment to be applied to a motor, such as an outboard motor, whereby fluid under pressure may be supplied to the cylinders **32** to operate the motor mount mechanism, while the motor is running. This attachment comprises a hollow body or casing **80**, having an internal chamber **82**, closed at one end by a screw plug **84**, and having a counterbore **86**, which opens into the bottom of the chamber **82**, and from which an outlet pipe **88** leads to the pressure fluid supply pipe **52**. The casing has an internal valve seat **90** surrounding the counterbore **86**, and a valve **92** is positioned in the chamber for movement into and out of engagement with the seat, said valve having a valve stem **94**, extending through the wall of the casing through an opening **96** at the bottom of the counterbore and provided at its outer end with an operating button **98**. A coil spring surrounds the stem **94** beneath the button **88**, in position to engage the casing and button to urge the stem in a direction to close the valve **92**. The casing is provided with an externally threaded extension **102**, whereby the casing may be threadably secured in the spark plug opening of the cylinder head **104** of the motor, there being a passageway **106** in the casing, in communication with the chamber **82** and leading into the combustion chamber of the motor. The casing also has an internally threaded spark plug opening **108**, opening into the chamber **82**, within which a spark plug **110** may be screwed.

It will thus be apparent that the chamber **82** forms a part of the combustion chamber of the motor and that by pressing on the button **98**, the valve **92** may be opened to permit pressure fluid from the combustion chamber to flow into the supply pipe **52**, through the outlet pipe **88** to the cylinder **32** to operate the motor mount mechanism. In making use of this form of the invention, when it is desired to raise the motor, during the operation of same, the button **98** is depressed to permit pressure fluid to enter the cylinder **32**, whereby the bracket **14** will be elevated on the transom, and when the motor has been raised to the desired extent, the valve **92** may be closed to retain the motor in adjusted position. Should it be desired to lower the motor the valve **74** may be positioned to establish communication between the supply pipe **52** and the discharge pipe **72**, in the manner previously described, whereupon pressure fluid will be exhausted from the cylinders to permit the bracket **14** to move downwardly on the transom.

It will thus be seen that the invention, constructed as described above, provides a vertically adjustable motor mount mechanism for a boat, which is of simple design, and economical to manufacture, and which is easily operated to position the motor at any desired elevation relative to the bottom of the boat, so that the boat may be quickly placed in condition for operation in shallow water, or to avoid contact of the propeller with a submerged obstruction.

The invention has been disclosed herein in connection with certain specific embodiments of the same, but it will be understood that this is intended by way of illus-

tration only, and that numerous changes can be made in the construction and arrangement of the various parts, without departing from the spirit of the invention or the scope of the appended claim.

Having thus clearly shown and described the invention, what is claimed as new and desired to secure by Letters Patent, is:

A motor mount for boats comprising an elongated motor supporting member of inverted U-shape in cross-section adapted to be positioned over the transom of a boat, for vertical sliding movement on the transom, with one arm of the U lying along the outer surface of the transom and the other arm thereof lying along the inner surface of the transom, laterally spaced, external, substantially parallel, reenforcing flanges on the member extending longitudinally of the arms positioned to receive between them a U-shaped mounting bracket of an outboard motor to secure the motor to the member for vertical movement therewith relative to the transom, said member being formed with horizontally spaced external enlargements on the inner arm of said U forming downward extensions of said flanges, each of said enlargements having a downwardly opening bore, said inner arm extending downwardly beyond the lower ends of the enlargements between the enlargements, vertically disposed pressure fluid cylinders mounted on the transom beneath said enlargements, pistons movably disposed in said cylinders, piston rods on the pistons and extending upwardly beyond the upper ends of the cylinders, for engagement with said enlargements in said bores, means for releasably securing the piston rods in the bores of said enlargements and means for introducing fluid under pressure into said cylinders beneath said pistons to move the pistons upwardly to elevate said member relative to the transom.

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