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FOOT OPERABLE STEERING APPARATUS FOR BOATS AND MOTORS

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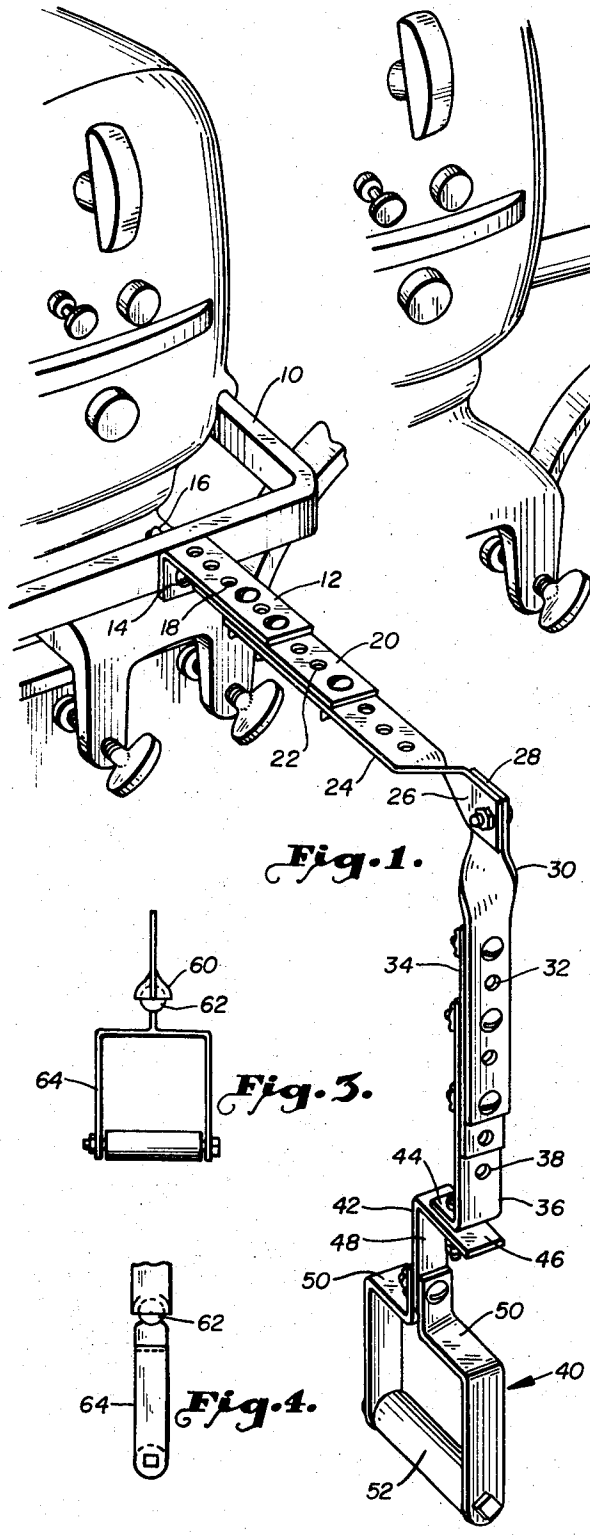


Fig. 1.

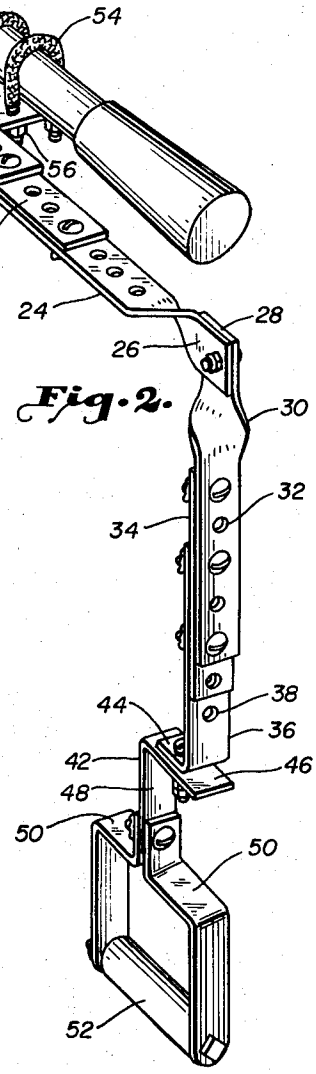


Fig. 2.

Fig. 3.

Fig. 4.

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FOOT OPERABLE STEERING APPARATUS FOR BOATS AND MOTORS

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9 Claims. (Cl. 114—153)

This application is a continuation-in-part of application Ser. No. 416,276, filed Dec. 7, 1964, now abandoned.

This invention relates to an apparatus for steering a boat. More particularly, the invention relates to an apparatus for steering a boat equipped with an outboard motor by means of the attachment of the apparatus to the outboard motor.

Outboard motors, because they are adaptable to be quickly and easily attachable to many kinds and makes of boats, generally include various control mechanisms on the motor itself. The controls usually include means for starting the motor, means for controlling the speed of the motor, and means for pivoting the motor about a vertical axis when it is mounted on the boat so that the direction in which the motor is positioned in relation to this vertical axis will determine the direction of the movement of the boat.

Generally, the outboard motor includes the direction controlling or steering device in the form of a hand-graspable bracket or lever. Thus, when using an outboard motor so equipped, the operator usually has one hand fully occupied in steering the boat. Having one hand fully occupied steering the boat is particularly disadvantageous for a solitary fisherman, particularly one who is engaged in trolling.

An object of this invention is therefore to provide a means for steering a boat by foot so that the operator may have both hands free.

Another object of this invention is to provide a foot-operable steering device for outboard motors which does not include any structure attached to the boat itself.

Still another object of this invention is to provide an apparatus for steering a boat which is easily attachable to a wide variety of outboard motors.

A special advantage of this invention is that it may be quickly and easily attached to an outboard motor to provide a means for the operator to steer the boat by the movement of his foot, thus permitting his hands to be free. The invention comprises an adjustable device to permit its use with outboard motors of various geometry in relation to the boat with which the motor is used, that is, in addition to being adaptable to various motors, the device is adjustable in the horizontal and vertical directions so that the most appropriate and most efficient use may be made of the device.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings in which:

FIGURE 1 is a perspective view of a device prepared according to this invention showing one means of attachment to an outboard motor.

FIGURE 2 is a perspective view of a modified device prepared according to this invention showing another means of attachment to an outboard motor.

FIGURE 3 is a front elevational view of one type of foot-engaging component of the device.

FIGURE 4 is a side elevational view of a foot-engaging component shown in FIGURE 3.

The foot-operable steering device of this invention comprises a bracket portion, adaptable to fit various outboard motors, a normally horizontal extensible arm attached by one end to the bracket, a normally downwardly depending extensible arm pivotally mounted at one end to the end of the horizontal arm furthermost from the bracket portion, and a foot-embracing stirrup detachably and swivelably mounted to the lower end of the downwardly depending arm. Thus, when the horizontal arm is secured to the bracket portion in a rigid position and the downwardly depending arm and stirrup are properly adjusted and positioned, the stirrup will be positioned slightly above the floor of the boat so that the operator's foot may rest comfortably in the stirrup and movement of the operator's foot in a horizontal direction will move the stirrup also in a horizontal direction radially around the outboard motor so that the steering lever or other guiding component of the outboard motor will move arcuately about a vertical axis through the outboard motor.

Referring now to the figures in detail, FIGURE 1 describes one form of foot-operable steering attachment prepared according to this invention in which the apparatus is positionable upon a type of outboard motor having a hand-graspable bracket which serves as a guiding component. In this form of the invention a motor bracket **10**, which normally serves as a guiding component by which the motor can be swivelled about a vertical axis, is generally an integral part of the motor and serves as the means of attachment for the steering attachment. To this motor bracket is attached a motor mount bracket **12** detachably secured to the motor bracket by a bolt **14** held in place by a nut **16**. Conventional quickly removable bolts and nuts may be used as, for example, a thumb screw may be used in place of bolt **14** and a wing nut in place of nut **16**. Bracket **12** is shown in FIGURE 1 to be formed of a flat plate-like member containing a series of adjustment holes **18**. Preferably, a flat plate-like structure is used but suitable similar brackets employing, for example, tubular components may also be used. Detachably secured to bracket **12** is a horizontal extension arm **20** held in place on bracket **12** by a conventional means of attachment such as a nut and bolt. Horizontal extension arm **20** includes a number of adjustment holes **22** to provide means of lengthening the horizontal extension arm of the steering device and is designed to fit the particular outboard motor and boat with which the device is used. For most purposes, a single horizontal extension arm may be employed suitably, but this would not preclude the use of multiple horizontal extension arms, were it is necessary, such as in those instances where the horizontal adjustment is quite large and where it would be desirable to strengthen the horizontal portion of the apparatus by overlapping several extension arms. Detachably secured to horizontal extension arm **20** and extending longitudinally beyond that arm is horizontal pivot arm **24**, preferably securable to arm **20** by conventional means such as a machine bolt and nut. It can be seen that in certain circumstances pivot arm **24** may be connected directly to bracket **12** without the necessity of using an extension arm **20**. Pivot arm **24** preferably includes a flattened end section **26** describing a substantially vertical plane. End section **26** is flattened and substantially vertical so that horizontal motion of the downwardly depending components of the apparatus,

hereinafter described, will be efficiently transmitted to the horizontal arm to control movement of the outboard motor. Pivotally connected to end section **26** is a downwardly depending extensible arm. A flattened end section **28** of the downwardly depending arm is removably secured adjacent end section **26** with any conventional nut and bolt. In FIGURE 1, end section **28** is shown in a right angular plane with reference to the other portion of a vertical pivot arm **30** of which end section **28** is a part. In this arrangement of the apparatus, vertical pivot arm **30** is preferably arranged in a plane normal to the usual direction of movement of the vertically depending arm for the purpose of providing rigidity to the arm. Arm **30** includes a number of adjustment holes **32** to provide a means for lengthening or shortening the overall height of the apparatus. A vertical extension arm **34** is provided to serve a similar purpose to the horizontal extension arm as a means of adjustment. Arm **30** and extension arm **34** are connected by conventional means, preferably some form of quick-connecting devices, such as wing nuts. Removably secured to extension arm **34** and, if necessary, also attachable to arm **30** is a stirrup mounting bracket **36**. Bracket **36** includes a number of adjustment holes **38** by means of which the length of the vertically depending arm may be further adjusted. If the particular method of attachment of the apparatus is such that the vertical distance from horizontal arm **24** to the floor of the boat is quite short, then extension arm **34** would become unnecessary and the vertical adjustment of the apparatus could be accomplished by the positioning of bracket **36** in relation to pivot arm **30**. Swivelable movement of the foot engaging stirrup is provided for by the unique positioning of stirrup clip **42**. Clip **42** is removably secured to mounting bracket **36** with an adjustable nut and bolt to permit movement in two different planes. For example, in FIGURE 1 bracket **36** is seen to include a right angular portion **44** pivotally mounted adjacent a right angular portion **46** of stirrup clip **42**. Right angular portions **44** and **46** are preferably mounted by means of an adjustable nut and bolt, such as a conventional machine bolt having two nuts mounted thereon in a manner that the second nut acts as a locking nut for the first to permit the two bracket portions to be loosely and adjustably mounted to each other. Similarly, stirrup clip **42** has a second right angular portion **48** similarly mounted between two band portions **50** of stirrup **40**. Stirrup **40** includes a foot rest **52**. Thus, in use, the operator's foot fits through stirrup **40** and by the movement of his foot against band portions **50** and foot rest **52**, the operator is able to move the stirrup swivelly with relation to the other parts of the downwardly depending arm and also horizontally with respect to the outboard motor. If desired, the adjustment with relation to each other of sections **26** and **28**, **44** and **46**, and **48** and **50** permit the operator to move the downwardly depending arm in the manner most comfortable for him. Preferably, the substantially horizontal portion of the apparatus has a certain amount of flexing ability so that when the operator has moved the device to a chosen position, he may exert a downward force against foot rest **52** so that the weight of his foot bears foot rest **52** against the bottom of the boat in a stable position.

FIGURE 2 discloses a slight modification of the apparatus in that the apparatus shown here is adapted to be received on a slightly different form of outboard motor. This modification includes a holding means formed from a U-bolt **54**, removably secured by nuts **56** to plate **58** which in turn is removably secured to a horizontal extension arm **20**.

FIGURE 3 discloses another type of swivel device which may be used in place of angular portions **44**, **46**, **48** and **50**. In this modification, stirrup mounting bracket **36** is modified at its lower end to have a socket portion **60** which receives a ball portion **62** attached to a unitary band portion **64**. FIGURE 4 shows the ball and socket swivel in side elevational view.

Preferably, the substantially horizontal extending arm member and the downwardly depending arm member are formed of plate-like members for ease of production, strength and flexibility. But these members may also be prepared of tubular telescopic components co-acting in a similar manner.

Since many different embodiments of this invention may be made without departing from the spirit and scope of this disclosure, it is to be understood that the specific embodiments described in detail herein are not to be taken in a limiting sense, since the scope of the invention is best defined by the attached claims.

What is claimed:

1. A foot operable steering attachment for an outboard motor comprising:
- a bracket detachably securable to a guiding component of an outboard motor;
- a normally horizontal extensible arm detachably secured at one end to said bracket;
- a normally downwardly depending extensible arm pivotally mounted at one end thereof adjacent a second end of said horizontal arm; and
- a stirrup detachably mounted to the lower end of said downwardly depending arm wherein movement in a horizontal direction of said stirrup imparts arcuate movement to said guiding component.

2. A foot operable steering attachment as described in claim **1** wherein said stirrup is swivelably attached to said downwardly depending arm.

3. A foot operable steering attachment as described in claim **1** wherein said stirrup is fixedly positioned in a vertical attitude.

4. A foot operable steering attachment as described in claim **2** wherein said normally horizontal extensible arm includes at least one horizontal extension arm and a horizontal pivot arm detachably securable to said extension arm and said downwardly depending extensible arm includes a downwardly depending pivot arm pivotally mounted to said horizontal pivot arm and at least one downwardly depending extension arm detachably securable to said downwardly depending pivot arm.

5. A foot operable steering attachment as described in claim **4** wherein said horizontal extension arm and said horizontal pivot arm are formed of plate-like members, said downwardly depending pivot arm and said downwardly depending extension arm are formed of plate-like members, and said downwardly depending pivot arm and said horizontal pivot arm are pivotally mounted to pivot in a vertical plane.

6. A foot operable steering attachment as described in claim **5** wherein said stirrup is swivelably attached to said downwardly depending arm by a swivel bracket pivotally attached at a first side to said downwardly depending extension arm and pivotally attached to a second side to said stirrup.

7. In combination with an outboard motor, including means adapted to be supported from the transom of a boat, a foot steering control including a mounting portion secured to a forward portion of said outboard motor, a steering arm assembly including an upstanding leg means freely pivotally mounted at its upper end portion to said mounting portion for rotation about a generally horizontal disposed axis extending transversely of said motor and terminating at its lower end portion in a foot engageable portion adapted to be engaged by one foot of an operator of said boat and to swing through a horizontal plane about an upstanding axis as said motor is rotated about said upstanding axis.

8. A steering arm assembly for an outboard motor including means adapted to be supported from the transom of a boat, said steering arm assembly including a mounting portion adapted to be secured to a forward portion of said motor, an upstanding leg means freely pivotally mounted at its upper end portion to said mounting portion for rotation about a generally horizontally

disposed axis extending transversely of said motor and terminating at its lower end portion in a foot engageable portion adapted to be engaged by one foot of an operator of said boat and to swing through a horizontal plane about an upstanding axis as said motor is rotated about said upstanding axis.

9. The combination of claim 7 wherein said foot engageable portion includes a generally horizontally disposed leg.

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