FOOT STEERING APPARATUS

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2 Claims. (Cl. 114—153)

1 This invention relates to a foot steering apparatus for use in outboard motor boats and the like.

The primary object of the invention is to provide a device which will enable the operator of an outboard motor boat to steer it with his feet, thereby leaving him free to use both hands in fishing. This is accomplished by providing a portable foot pedal control apparatus that can readily be seated within a boat and connected to the steering handle or tiller with a minimum of effort and time.

As is commonly known, it is necessary for the operator of an outboard motor boat to sit sideways in order to steer the boat effectively. This is not only uncomfortable but does not assure the maximum of safety, by reason of the operator's inability to see all approaching traffic, particularly that approaching from the direction opposite to that in which he is facing. This hazard is considerable in small resort lakes where many outboard motor boats are in use. It is the purpose of this invention to eliminate this hazard by enabling the operator or "pilot" to face forward and to see all approaching traffic. In addition, by reason of the fact that he does not have to set sideways in operating the present invention, the operator is much more comfortable.

A still further object of the present invention is to provide a steering apparatus which will enable the operator to make a sharp turn or a complete reverse in direction with a minimum of effort and a maximum of speed. In the standard outboard motor powered boat, which is steered by a tiller, such a sharp turn or a complete reverse in direction is difficult by reason of the fact that in trying to negotiate such, it is necessary to swing the tiller a considerable distance rearwardly and outwardly from the rear of the boat. While it is possible to do this, it is difficult by reason of the limited reach of many operators. On the other hand, with the present invention it is possible to negotiate a 180 degree turn with ease, merely by pressing forwardly on either of the foot pedals hereinafter described.

Many outboard motor powered craft are used on small resort lakes for fishing purposes, particularly in connection with trolling. At such times it is a considerable advantage to the fisherman to have both hands free rather than to be hampered by a hand steered outboard motor. The present invention leaves both hands free at all times, as aforesaid.

One of the features of the present invention resides in its adjustability. It can be adjusted not only as to width but as to height as well, thereby fitting any normal type or size of boat in which an outboard motor is used.

A further feature of the present invention lies in the fact that it is portable and may be transferred from one boat to another as desired, with a minimum of effort.

A still further feature of the present invention resides in enabling the operator to sit forward in the boat, in which position, by reason of the weight distribution, he can gain more speed out of the boat when and if he so desires.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

Fig. 1 is a top plan view of a boat in which the present invention has been placed for operation.

Fig. 2 is a transverse section view thereof taken on line 2—2 of Fig. 1 in the direction of the arrows.

Fig. 3 is a side elevation of one of the foot pedals and its associated wheel and support members.

Fig. 4 is a perspective view of the quadrant member or sector shaped attachment to which the tiller is connected.

In the drawings 10 indicates the boat in which the invention is installed and 11 represents the usual outboard motor with its steering control arm or tiller 12. The frame of the invention which supports the operating mechanism comprises a substantially U-shaped member 13 which has flared or inverted leg portions 14 at its upper extremities. At 15 is shown a shaft which extends through accommodating bores in the arms 16 of the U-shaped member 13. This shaft extends transversely of said U-shaped member, as shown, and projects outwardly therefrom a short distance. The outer ends of the shaft are reduced in size and are adapted to have mounted thereon the wheels 17. These wheels are held in position by means of the nuts 18. Each of the wheels is grooved about its periphery as shown at 19 in order to receive the cable hereinafter more fully discussed.

Mounted upon shaft 15 adjacent said arms 16, and on the inner side thereof are the pinions 20 with their respective hub portions 21. Each of the pinions is held in spaced relation by the center bearing 22, which is in the shape of an inverted T and the base of which is integral with said U-shaped member 13.

At 23 are shown the foot pedals which control the operation of the invention. Each pedal is
suitably secured to a ratchet bar 34 which is slidably mounted in a housing 25. The housings are secured one to each of said U-shaped members and at a right angle thereto. A portion of the upper wall of each housing is cut away intermediate its ends to provide openings 26, thereby enabling the ratchet bar 24 to mesh with their respective pinions 20. In order to operate the invention successfully, it is necessary to position one ratchet bar and its housing above the pinion and the other below.

Secured to the inverted leg portions 14 by means of the screws 27 is the cross rod 28 which extends transversely of said U-shaped member, as shown in Fig. 2. This cross rod 28 has an adjustable extension 29 positioned adjacent each of its extremities. Each adjustable extension 29 has a pair of bolts 30 mounted therein. The shank portions 31 of each bolt are adapted to extend through the slots 32 formed in said cross rod 28 adjacent each extremity. The extension can be secured in any desired position relative to the cross rod slots 32 by means of the wing nuts 33 which are threadedly secured to the bolts 30.

The outer extremity or leg 34 of each adjustable extension 29 flares upwardly and to a slight degree outwardly, conforming substantially to the incline of the sides of a boat. Each of said legs 34 has a pair of bolts 35 mounted therein. Associated with each of said legs 34 is an adjustable clamping member 36 which has a slot formed therein adjacent its ends. The shank portions 37 of said bolts 35 are adapted to extend through the slots in said clamping member 36 and to engage the gunwale of the boat. The clamping member 36 may be elevated or lowered as the depth of the boat requires. Through the medium of wing nut 38, the clamping member 36 secures the extension 29 and the cross rod 28 firmly in the desired position in the boat.

By means of the following described pulley and cable, wire, or rope system, the movement of the foot pedals 23 and wheels 17 is transmitted to the tiller of the boat for effective steering control. Pulleys 38 and 40 are hung respectively from the two projections 41 and 42. The projection 41 extends outwardly at a right angle in one direction from the cross rod 28 to which it is secured, and the projection 42 extends outwardly at a right angle in the opposite direction from the cross rod 28 to which it is secured. Each projection is so positioned relative to the wheels 23 that the pulleys 39 and 40 secured to and hanging therefrom are directly above the respective wheels 23 and in the same tangential plane.

A second set of two pulleys 43 and 44 is secured one each to the adjustable extension 29 adjacent the point where the extension flares upwardly and outwardly.

A third set of two pulleys 45 and 46 is positioned in the rear of the boat, one being secured to the gunwale adjacent the right rear corner and the other adjacent the left rear corner of the boat.

One end of each of two cables, ropes, or wires 47 and 48 is passed through an aperture 49 bored in the circumference of each wheel 23 and is knotted or secured thereto in any satisfactory manner. The other end of the cable, rope, or wire is preferably of a size that will snugly nest in the groove 19 formed in the periphery of each wheel. The cables, wires, or ropes 47 and 48 are trained around the wheels 23 in opposite directions in their respective grooves 19. The cables, wires, or ropes are then led through their respective pulleys 39 and 40, and 43 and 44. From thence, the cable, rope, or wire is passed through eye the segments 50 which are secured to the inner sides of the gunwales of the boat and which serve as guide members to keep the cables, wires, or ropes from being entangled or from interfering with the movement of the occupants of the boat. From thence, the cables, wires, or ropes are led through pulleys 45 and 46 at the rear of the boat. From thence they are led and trained around grooves in a quadrant or sector shaped attachment 51.

These grooves are an upper and a lower groove 52 and 53, respectively, which are formed in the face of the curved or radial portion of the quadrant. One end of each of the cables, wires, or ropes 47 and 48 is trained entirely around the grooves in opposite directions and passes through its respective bore 54 formed in the quadrant 51. The ends of the cables, wires, or ropes are then knotted at 55 or secured to the quadrant in any other suitable manner.

Secured to the upper portion of the quadrant by screws 56 is a clamping member 57. This member is preferably secured adjacent one side or the other of the quadrant as shown. In order to provide a greater degree of swing to the tiller 12 and to provide for a more positive, free action of the quadrant. The tiller is passed through the clamping arms 57 of the clamping member 56 and is secured thereto through the operation of the screws 58.

It is thus apparent when one of the foot pedals 23 is pushed inwardly by the operator of the boat, the other foot pedal will move outwardly by reason of the location of one ratchet 24 above and the other below the pinions 20. The wheels 17 in turn are moved in opposite directions by the pinions and this movement is transmitted to the cables, wires, or ropes 41 and 48. One of the cables, wires, or ropes will then be shortened or wound up about its respective wheel while the other will be unwound or slackened. A movement of the quadrant 51 in one direction or the other is thereby effected as desired and this movement is transmitted to the tiller secured to the quadrant by the clamping member 56. The direction of the boat can thus be changed at will through the foot action of the operator.

While the invention has been illustrated and described in great detail, the following and preceding description, the same is to be considered as illustrative and not restrictive in character.

The several modifications described herein, as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:
1. A pedal steering control apparatus for a boat having an outboard motor steering member, comprising a pair of differentially foot operated members; a pair of wheels, a drive connection between said members and said wheels, a support for said members and said wheels, means upon the support for adjustably securing said support support within the boat, and a pair of tension elements connecting said wheels with said motor steering member for boat steering purposes.
2. A portable pedal steering control apparatus for a boat having an outboard motor steering member, comprising a pair of differentially foot
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Operable members, each having a ratchet element integral therewith, a pair of pinions mounted upon a shaft so positioned as to mesh one with each of said pinions, a pair of wheels mounted upon said shaft adjacent said pinions, means for supporting said pedals, shaft, wheels and pinions within a boat, pulley means, and a tension connection led through said pulley means connecting said wheels with the steering member for boat steering purposes.

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