Jan. 25, 1955 G. D. JOHNSON 2,700,358

STEERING ASSEMBLY FOR OUTBOARD MOTORBOATS

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Fig. 1

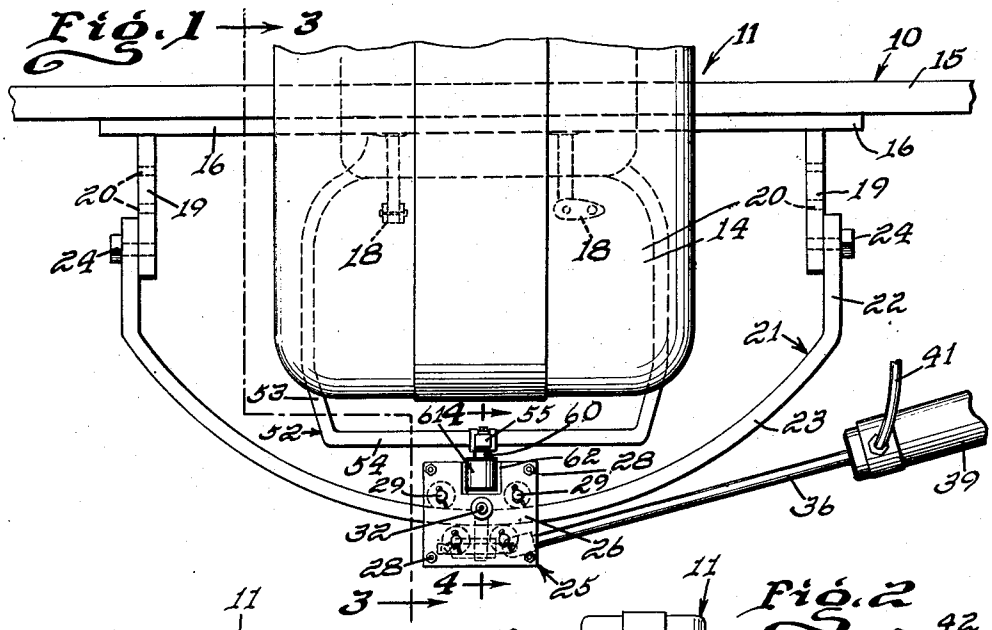


Fig. 2

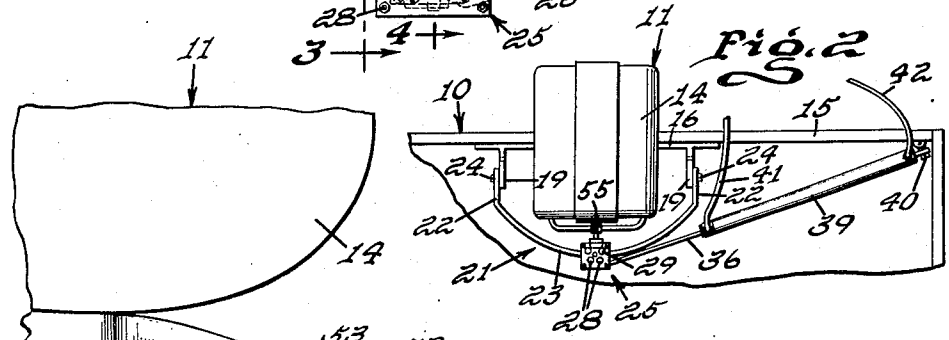
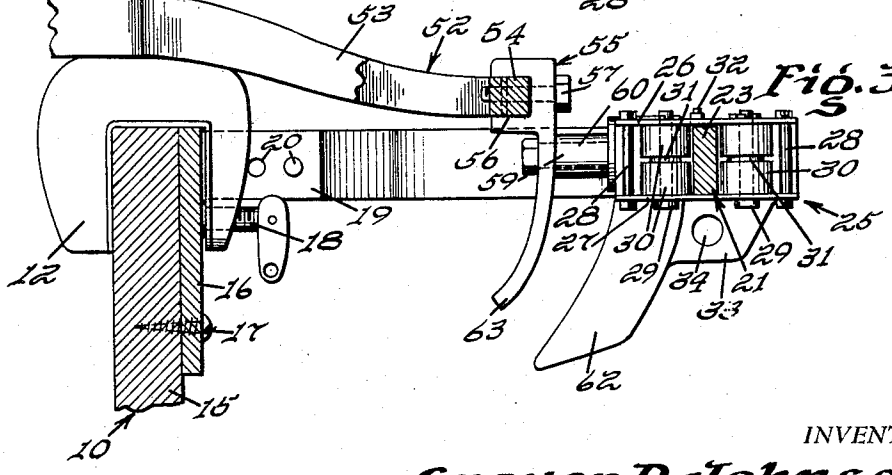


Fig. 3



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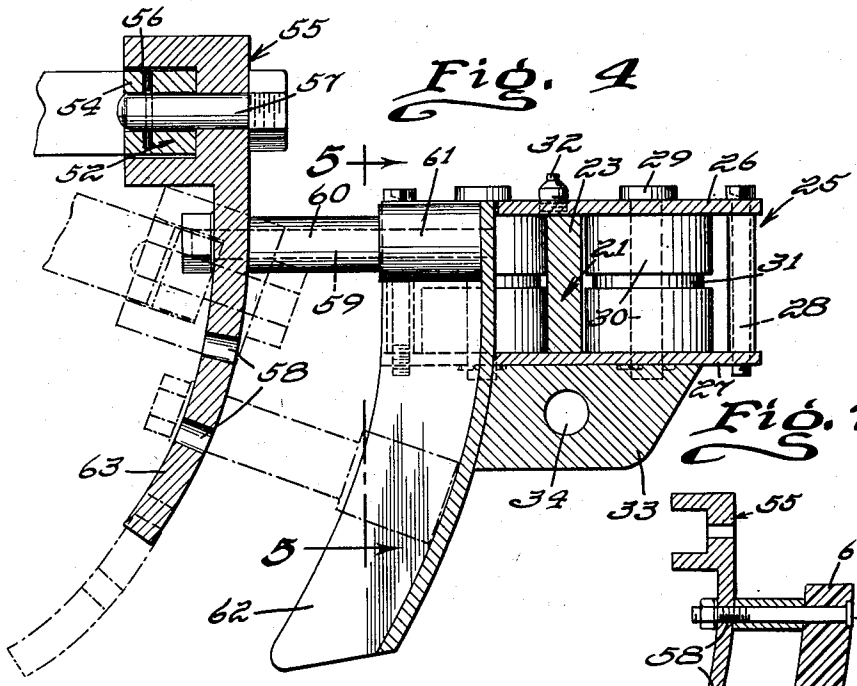


Fig. 4

Fig. 7

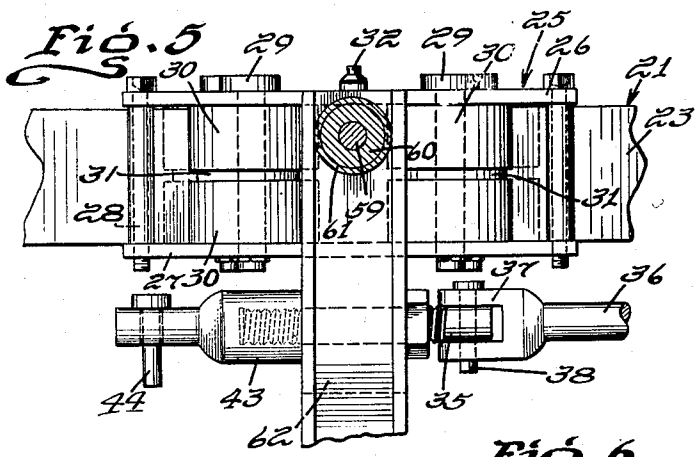
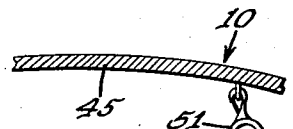


Fig. 5



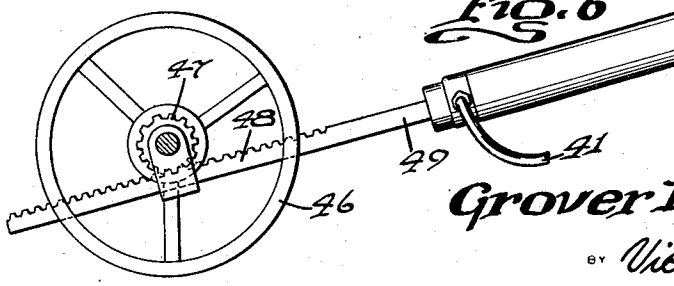


Fig. 6

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STEERING ASSEMBLY FOR OUTBOARD MOTORBOATS

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2 Claims. (Cl. 115—18)

This invention relates to an outboard motor boat, and more particularly to a remote control steering assembly for an outboard motor.

The object of the invention is to provide a remote control steering assembly which will permit a conventional outboard motor to be tilted and steered while the boat is moving.

Another object of the invention is to provide a remote control steering assembly for outboard motors which does not utilize drums, cables and pulleys and wherein the outboard motor being controlled can be tilted and steered while the boat is moving and wherein the motor will not accidentally move from its adjusted position nor will weeds or other obstacles change the course of the boat.

A further object of the invention is to provide a steering assembly for an outboard motor which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same:

Figure 1 is a top plan view showing a portion of the steering assembly of the present invention.

Figure 2 is a top plan view showing one of the cylinders and the motor.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Figure 6 is an elevational view, with parts broken away and in section, showing the steering wheel and another cylinder which are arranged adjacent the front of the boat.

Figure 7 is a fragmentary view showing a strengthening bar mounted as when dual motors are being used.

Referring in detail to the drawings, the numeral 10 designates a portion of a conventional boat which can be made of any suitable material, and the boat 10 may have a conventional outboard motor 11 mounted thereon. The motor 11 includes the usual support portion 12 and a pivotally mounted body member 14. The motor 11 is mounted on the rear 15 of the boat 11, and the present invention is directed to a remote control mechanism for steering the boat.

The remote control mechanism includes a plate 16 which can be made of any suitable material such as metal, and the plate 16 is arranged adjacent the back 15 of the boat, Figure 3. The plate 16 can be secured in place by suitable securing elements 17. The usual clamping elements 18 project through the support portion 12 and engage the plate 16.

Projecting forwardly from the plate 16 and secured thereto is a pair of spaced parallel ears 19. Each of the ears 19 is provided with a plurality of apertures or openings 20, and detachably connected to the ears 19 is a guide bar 21. The guide bar 21 includes a pair of straight end portions 22 and an intermediate curved section or portion 23. A suitable securing element such as a bolt or screw 24 extends through each of the end portions 22 and through one of the openings 20 for detachably connecting the bar 21 to the ears 19. Thus, by means of the plurality of openings 20, the guide bar

21 can be moved so as to accommodate motors 11 of different sizes or shapes.

Movably mounted on the bar 21 is a housing 25 which includes a pair of spaced parallel plates 26 and 27. Suitable securing elements 28 serve to connect the plates 26 and 27 together, and journaled between the upper and lower plates is a plurality of rollers 30. A pair of rollers 30 are mounted on each of the pins 29, and a spacer 31 separates each of the rollers of each pair. The rollers 30 engage the curved portion 23 of the bar 21 so as to ensure that the housing 25 will travel smoothly along the bar 21. The rollers 30 are spaced so that the housing will follow the contour of the curvature of the bar 21 as the housing moves along the bar. A suitable lubrication fitting 32 projects upwardly from the top plate 26 whereby oil or the like can be inserted to the interior of the housing 25.

Secured to the bottom plate 27 in any suitable manner, as for example by welding, is a lug 33, Figure 4, and the lug 33 is provided with an opening 34. A securing element or bolt 35 extends through the opening 34, and a piston rod 36 has a bifurcated end 37 straddling the end of the bolt 35. A suitable clevis pin 38 serves to pivotally connect the bifurcated end 37 of the rod 36 to the bolt 35 as shown in Figure 5. The other end of the piston rod 36 projects into a cylinder 39 which is pivotally connected to the rear of the boat by means of a pivot means 40. Suitable conduits 41 and 42 extend from the ends of the cylinder 39 for conveying hydraulic fluid to and from the cylinder.

When more than one motor is mounted on the boat, a means is provided for steering all of the motors. Thus, there is provided an arm 43 which is connected to the bolt 35, Figure 5, and a clevis pin 44 projects through the arm 43. The clevis pin 44 can be used for attaching a portion of a second motor to the arm 43 so that both motors can be turned in unison.

Referring to Figure 6 of the drawings, the numeral 45 designates a portion of the front of the boat, and the numeral 46 designates a manually operable steering wheel. Carried by the steering wheel 46 or actuated thereby is a gear member 47 which has its teeth meshing with the teeth 48 on a piston rod 49. The rod 49 projects into a second cylinder 50 which is pivotally connected to the front of the boat by means of a pivot assembly 51, and again the conduits 41 and 42 are provided for the passage therethrough of hydraulic fluid. These conduits can lead to the other cylinder 39.

The motor 11 further includes a substantially U-shaped bracket 52 which includes side members 53 and a connecting member 54, Figure 1, and connected to the bracket 52 is a clamp 55. The clamp 55 is provided with a cut-out or socket 56 which receives the portion 54 of the bracket 52, and a suitable securing element such as a bolt or screw 57 serves to connect the bracket 52 to the clamp 55. Depending from the clamp 55 and formed integral therewith or secured thereto is a curved stem 63 which is provided with a plurality of spaced openings 58. A suitable securing element such as a pin or bolt 59 extends through one of the openings 58, and a spacer sleeve 60 is circumposed on the pin 59. A roller 61 is mounted on an end of the pin 59, and the roller 61 is adapted to travel in a curved channel member 62 which is secured to the housing 25. Due to the provision of the roller 61 in the curved channel 62, the motor 11 can tilt about a horizontal axis since the roller 61 is free to travel up and down in the channel member 62. When the cylinders are actuated by turning movement of the steering wheel 46, the rod 36 will be extended or retracted in its piston 39 so that the housing 25 will be moved along the curved section 23 of the bar 21 and this in turn will cause sideway shifting of the bracket 52 and motor 11 so that the entire boat can be steered by simply turning the wheel 46.

From the foregoing it is apparent that there has been provided a remote control steering assembly for use with outboard motors such as the motor 11. In use, the plate 16 can be secured to the back 15 of the boat and then the motor 11 can be mounted on the boat. Then, with the parts assembled as shown in the drawings upon manual rotation of the wheel 46, the gear member 47

will rotate and this in turn will cause reciprocation of the rod **49** so that the pressure of the hydraulic fluid in the cylinder **50** will be varied. This hydraulic fluid pressure will be transmitted through the lines **41** or **42** to the cylinder **39** whereby reciprocation of the piston rod **36** will be effected. The rod **36** is pivotally connected to the housing **25** through the medium of the clevis pin **38**, so that as the rod **36** moves the housing **25** will move along the curved portion **23** of the bar **21**. This movement of the housing **25** will cause similar swinging movement of the bracket **52** since the roller **61** is received in the channel member **62**. Thus, the roller **61** will move with the housing **25** and so will the clamp **55** and bracket **52**. The bracket **52** is connected to the movable portion of the motor **11** so that the motor will be swung whereby the propeller and rudder of the motor will move to guide or steer the boat in the desired direction. It is to be noted that the roller **61** is freely mounted in the channel member **62** so that the roller **61** can move from the solid line position of Figure 4 to the broken line position of Figure 4 whereby pivotal or tilting movement of the motor **11** can be effected as when the motor is to be raised up out of the water. Thus, the boat can be steered by a person sitting in the front of the boat.

The remote control steering assembly of the present invention can be used for outboard motors from 10 horsepower up, and does not use any drums, cables and pulleys. Suitable pads may be provided on the plate **16** to serve as guides for the members **18**. Outboard motors being controlled with the present invention can be tilted and steered while driving and the motor will remain immobile in its adjusted position and will not have its course changed by weeds or other obstacles. If the motor is to be operated manually, then the clevis pin **38** can be removed and then the motor can be operated with a conventional motor steering arm. The assembly can be used with a dual motor by connecting the arm **43** with the second motor through the medium of a pin such as the pin **44**. The motor can be removed from the boat by loosening the clamp screws **18**. The motor is free to tilt at any time while in operation. In Figure 7 there is shown a modification wherein a bar **64** is secured to the stem **63** in any suitable manner, as for example by means of bolt and nut assemblies **65** which may extend through the openings **58**. The bar **64** can be made of any suitable material such as fiber or nylon, and this bar provides increased strength as for example when dual motors are being mounted or used.

I claim:

1. In combination, a boat, an outboard motor mounted on the rear end of said boat and including a base mounted on the rear of the boat, a body member arranged above said base and pivotally connected thereto, a plate secured to the rear of the boat, a pair of spaced parallel apertured ears extended forwardly from said base, a guide bar including an intermediate curved portion and straight end portions detachably connected to said ears, a housing including a pair of spaced parallel plates arranged on

opposite sides of said bar, securing elements interconnecting said plates together, a plurality of rollers journaled between said plates and engaging said bar, a curved channel member depending from said housing and secured thereto, a lug secured to the lowermost plate and provided with an opening therein, a first cylinder having one end pivotally connected to the rear of the boat, a rod extending from said cylinder, a securing element extending through the opening in said lug and pivotally connected to said rod, a second cylinder pivotally connected to the front of the boat, a rod extending from said second cylinder and provided with a plurality of gear teeth thereon, a steering wheel arranged in the front of the boat, a gear member operated by said steering wheel and meshing with the gear teeth on said last named rod, conduits connecting said first and second cylinders together, a bracket extending forwardly from said motor, a clamp secured to said bracket and including a lower curved stem provided with a plurality of apertures, a pin extending through one of said apertures, and a roller carried by said pin and slidably mounted in said channel member.

2. In combination, a boat, an outboard motor mounted on the rear end of said boat and including a base mounted on the rear of the boat, a body member arranged above said base and pivotally connected thereto, a plate secured to the boat, a pair of ears extending upwardly from said base, a guide bar including a curved portion and end portions detachably connected to said ears, a housing including a pair of plates arranged on opposite sides of said bar, securing elements interconnecting said plates together, a plurality of rollers journaled between said plates and engaging said bar, a channel member depending from said housing and secured thereto, a lug secured to the lowermost plate and provided with an opening therein, a first cylinder having one end pivotally connected to the boat, a rod extending from said cylinder, a securing element extending through the opening in said lug and pivotally connected to said rod, a second cylinder pivotally connected to the front of the boat, a rod extending from said second cylinder and provided with gear teeth thereon, a steering wheel arranged in the boat, a gear member operated by said steering wheel and meshing with the gear teeth on said last named rod, conduit means connecting said first and second cylinders together, a bracket extending from said motor, a clamp secured to said bracket and including a lower stem provided with a plurality of apertures, a pin extending through one of said apertures, and a roller carried by said pin and slidably mounted in said channel member.

References Cited in the file of this patent

UNITED STATES PATENTS

1,898,150	Stover	Feb. 21, 1933

FOREIGN PATENTS

420,059	Germany	Oct. 15, 1925
863,173	France	Dec. 23, 1940