Oct. 10, 1961 J. E. ALEXANDER ET AL 3,003,455

FOOT OPERATED DEVICE FOR SPEED AND STEERING CONTROL OF HYDRAULIC PROPELLED BOATS

Filed Sept. 9, 1959 2 Sheets-Sheet 1

Fig. 1

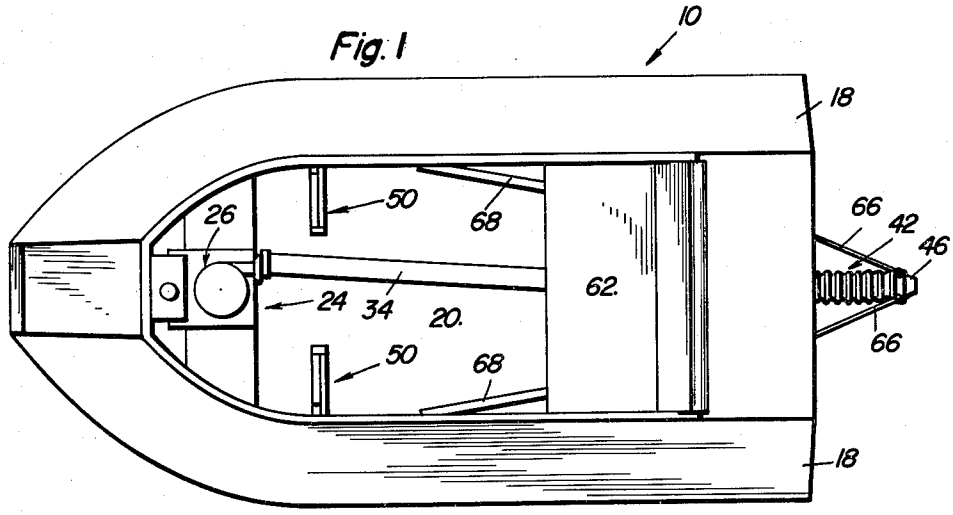


Fig. 2

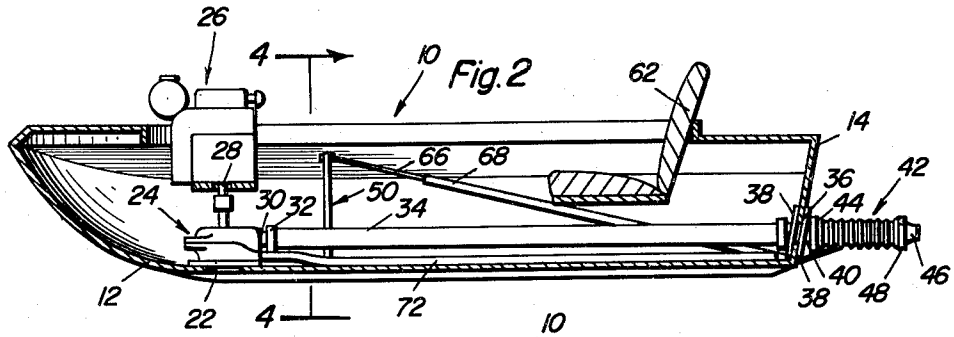


Fig. 3

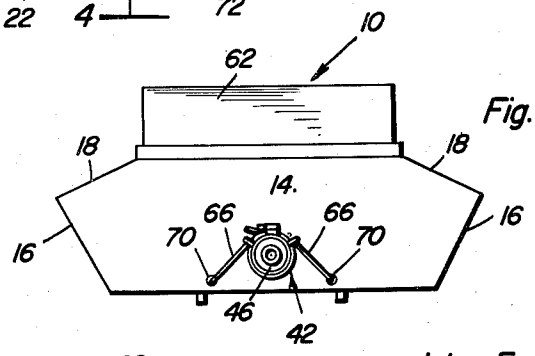
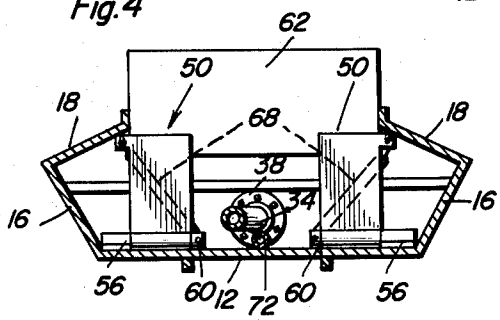


Fig. 4



John E. Alexander
Charles H. Comstock, Jr.
Royce P. Burnett
Lloyd B. McKinney
INVENTORS

BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

Oct. 10, 1961 J. E. ALEXANDER ET AL 3,003,455

FOOT OPERATED DEVICE FOR SPEED AND STEERING CONTROL OF HYDRAULIC PROPELLED BOATS

Filed Sept. 9, 1959 2 Sheets-Sheet 2

Fig.5

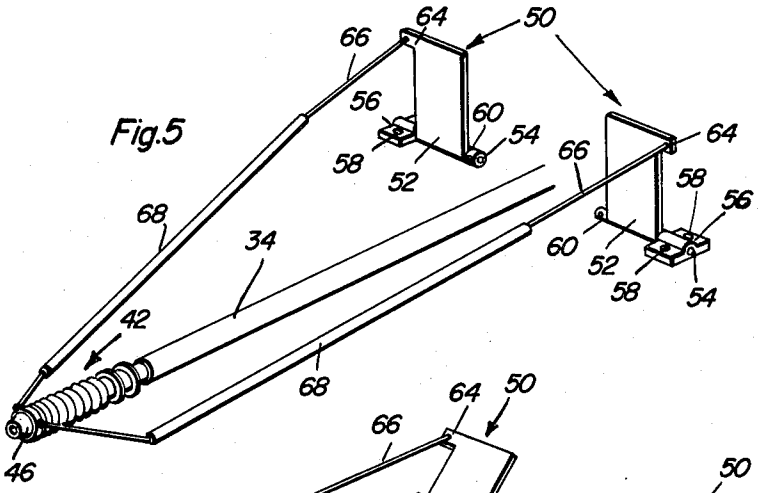


Fig.6

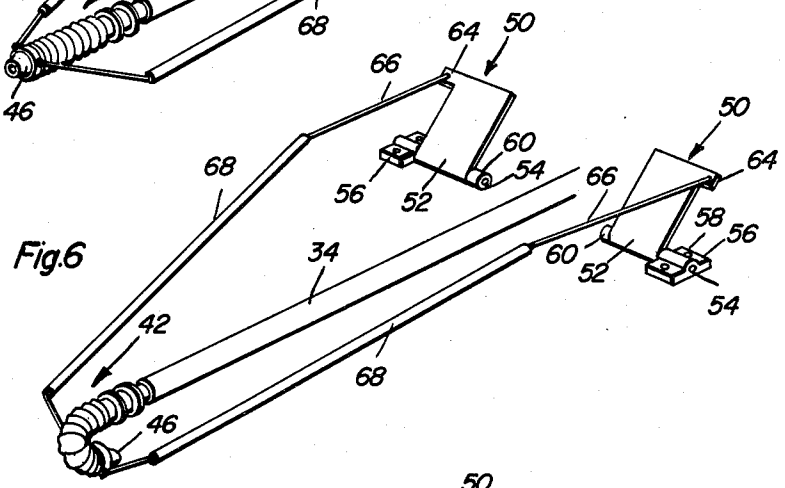
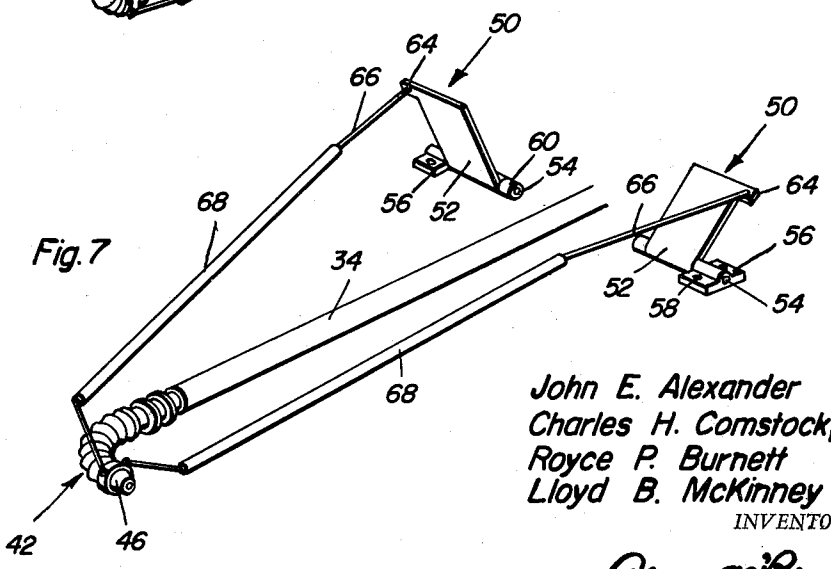


Fig.7



John E. Alexander
Charles H. Comstock, Jr.
Royce P. Burnett
Lloyd B. McKinney
INVENTORS

BY Clarence A. O'Brien and Harvey B. Jacobson
Attorneys

United States Patent Office

3,003,455
Patented Oct. 10, 1961

3,003,455

FOOT OPERATED DEVICE FOR SPEED AND STEERING CONTROL OF HYDRAULIC PROPELLED BOATS

John E. Alexander, Charles H. Comstock, Jr., Royce P. Burnett, and Lloyd B. McKinney, all of Box 1266, McCamey, Tex.

Filed Sept. 9, 1959, Ser. No. 838,877
6 Claims. (Cl. 115—12)

This invention relates to a novel and useful foot operated speed and steering control for hydraulically propelled boats and more particularly to a control which may be operated to control the direction and speed of the boat.

The present invention provides a novel means for steering and controlling the speed of a boat which, in addition to be highly effective in deep water, is also most effective when operating a shallow draft boat in shallow water. Further, incorporated in the invention is a means for providing extreme maneuverability and positive control over a boat while in either shallow or deep water without necessitating a change in power or the stopping of the power supply for the boat.

Many sportsmen and other persons who have occasion to use a boat in very shallow and possibly moss laden water desire to have precise control over the direction of the boat without having to either reduce or increase the amount of power being delivered by the power supply of the boat. Further, in many instances it is highly desirable for a single occupant of a boat to be able to have exact control over the direction of the same and at the same time have their hands free for the purpose of carrying out other tasks.

It is the main object of this invention to provide a means for directing the discharge of a hydraulically propelled boat in any direction within a horizontal plane as well as directly downward to enable the boat to turn within its own length or remain motionless without operating a clutch or transmission mechanism thereby enabling the boat to be started or stopped solely by the use of the steering controls.

Still another object, in accordance with the preceding objects, is to provide a speed and steering control which may be operated solely by the feet of a person within the boat.

An important object of this invention is to provide a hydraulically propelled boat having a fluid pump with an inlet opening communicating with the bottom of the boat and an outlet discharge line extending rearwardly from the fluid pump and terminating a spaced distance rearwardly of the transom of the boat with a means connected to the inlet side of the pump for injecting thereinto quantities of material for treating the water discharged from the discharge line of the pump.

A still further object, in accordance with the immediately preceding object is to provide a pick-up line having one end connected to the injecting means and the other end disposed in the bottom of the boat whereby the bilge of the same may be pumped dry.

Yet another object is to provide a steering control which may be operated to change the direction of the boat from a forward direction to a rearward direction without effecting lateral thrusts and without the use of a clutch or transmission mechanism.

A final object of this invention is to provide a steering control for hydraulic propelled boats which is of simple construction, will conform to conventional forms of manufacture and will be economically feasible.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter

described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a top plan view of the speed and steering control shown mounted in a boat hull;

FIGURE 2 is a longitudinal vertical sectional view taken substantially upon a plane passing through the longitudinal center line of the boat shown in FIGURE 1;

FIGURE 3 is an end elevational view of the right side of the boat shown in FIGURE 2;

FIGURE 4 is a transverse vertical sectional view taken substantially upon the plane indicated by the section line 4—4 of FIGURE 2; and

FIGURES 5, 6 and 7 are perspective views of the speed and steering control shown in position for propelling a boat forward in a straight line, rearwardly and to the right respectively, the boat and power supply being removed.

Referring now more specifically to the drawings the numeral 10 generally designates a conventional form of boat hull having a bottom 12 and a transom 14. Of course, the usual sides 16 and top decking 18 defining a cockpit 20 are provided. Secured to the bottom 12 in any convenient manner in alignment with inlet opening 22 is a centrifugal type of fluid pump generally designated by the reference numeral 24. A power supply generally designated by the reference numeral 26 is operatively connected to the pump 24 by means of output shaft 28.

The fluid pump 24 has a conventional outlet opening 30 to which is secured in any convenient manner such as by collar 32 an outlet conduit 34. The outlet conduit 34 extends longitudinally of the boat 10 and extends through an aperture 36 formed in the transom 14. It is to be noted, with attention directed more particularly to FIGURE 2 of the drawings, that any convenient means such as mounting plates 38 may be utilized for providing a means for restricting the entrance of water into the boat 10 between the outlet conduit 34 and the transom 14.

It will be noted from FIGURE 2 of the drawings that the outlet conduit 34 projects slightly beyond the transom 14 as at 40 and that there is secured to the outlet end thereof one end of a flexible steering hose generally referred to by the reference numeral 42 by any convenient means such as collar 44. It is to be understood that the flexible steering hose 42 is constructed in such a manner so that the outlet end of the hose 42 may be deflected laterally as shown in FIGURES 6 and 7. It is further to be understood that if it is desired the flexible hose 42 may be spring loaded in such a manner whereby the outlet end thereof will be resiliently urged into a position in alignment with the inlet end thereof.

Secured to the outlet end of the flexible steering hose 42 is an outlet nozzle 46 of conventional design for ensuring a smooth discharge of fluid from the flexible hose 42. Conveniently, a collar 48 may be provided for securing the outlet nozzle 46 to the outlet end of the hose 42 and for other purposes hereinafter to be set forth.

Secured to the hull of the boat 10 are a pair of control means each generally designated by the reference numeral 50 and each including a treadle 52 pivotally secured to shaft 54 carried by mounting plate 56 which is adapted to be secured to the bottom 12 by means of any suitable fasteners secured through apertures 58. The treadles 52 are retained on each shaft 54 by means of suitable collars 60. Each of the treadles is generally rectangular in outline and is adapted for engagement by the foot of a person seated upon seat 62 secured within the cockpit 20. The treadles 52 are each provided with laterally projecting ears 64 which are apertured and have secured thereto by any convenient means one end of a flexible cable 66. Suitable tubular guides 68 are pro-

vided for each of the cables 66 and are secured within the boat 10 by any convenient means. The guides 68 extend rearwardly and pass through suitable apertures 70 formed in the transom 14 of the boat 10. Each aperture 70 is positioned on one side of the outlet end of the outlet conduit 34 at a spaced distance therebelow.

In the event the boat 10 is to be used in swamps or other similar bodies of water to treat the water with insecticide or other materials, there is provided on the pump 24 an auxiliary inlet (not shown) to which is secured a pick-up line 72 which may be used to inject into the water entering the pump 24 any chemicals or the like with which the water is being treated. Further, the pick-up line 72 can also have a portion thereof terminating in the bilge of the boat 10 for the purpose of bailing the same.

In operation, a person using the boat 10 may set the throttle or similar control (not shown) of the power supply 26 as desired and then control the movement of the boat 10 through the water while seated upon seat 62 by placing his feet in engagement with the control means 50. By depressing or pushing forward the upper face of one treadle 52, the operator of the boat 10 may deflect the discharge end of the flexible steering hose to that side of the boat in order to steer the boat in a direction turning toward that one side. Of course, if it is desired to turn the boat in the opposite direction the other treadle 52 may be pushed forward in a similar manner. If it is desired to maintain the boat 10 motionless while the power supply 26 is operating the pump 24 both treadles 52 may be pushed forward until the nozzle 46 is directed directly downwardly.

With attention now directed more particularly to FIGURES 3, 5 and 7 it will be noted that the rearwardmost ends of the flexible cables 66 are secured to the collar 48 adjacent the upper surface of the collar wherein the downward inclination of the cables 66 by this particular manner in which the cables are secured to the collar 48 will cause the flexible steering hose 42 to bend back upon itself upon further movement of each of the treadles 52 forwardly until the nozzle 46 is directed directly forwardly of the boat 10 so as to discharge therefrom water from the pump 24 directly forwardly in a line substantially parallel to the longitudinal center line of the boat 10. Thus, when further depressing the pedals 52 forwardly the nozzle 46 will be so directed to propel the boat 10 in a reverse direction. Further, inasmuch as those portions of the cables 66 adjacent the nozzle 46 are directed forwardly and downwardly, the deflection of the nozzle 46 to one side of the longitudinal center line of the boat 10 to turn the boat will also effect a slight upward thrust of the stern of the boat in the direction in which it is turning which will tend to minimize any possibility of the side 16 on the outside of the turn tripping as the result of an unfavorable wave, which tripping could cause a conventional hull to capsize while executing a sharp turn at high speeds.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous

modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A steering control for a boat of the type having a hull and a water jet outlet conduit projecting rearwardly through a portion of said hull, said steering control comprising a flexible steering hose having one end adapted to be secured to the discharge end of said conduit, a pair of control cables secured at one end to opposite sides of the outlet end of said hose and diverging outwardly toward the inlet end of said hose, a pair of control means adapted to be secured in said boat, and means securing the other end of each of said cables to one of said control means whereby the outlet end of said hose may be laterally deflected to either side upon operation of the corresponding control means, means adapted to be supported from said hull for guiding said cables forwardly and downwardly as well as outwardly.

2. The combination of claim 1 wherein each of said cables is secured to the outlet end of said hose adjacent the upper surface thereof.

3. The combination of claim 1 wherein said control means are adapted to be operated solely by the feet of a person in said boat.

4. In combination with a water jet propelled boat of the type having a hull and a power supply operatively connected to a fluid pump including an inlet opening and an outlet opening, a speed and steering control comprising an outlet conduit connected to the outlet opening of said pump and extending through a portion of the boat hull, a flexible hose having one end connected to the discharge end of said conduit and the other end extending rearwardly of said hull, a pair of control cables secured at one end to opposite sides of the outlet end of said hose, a pair of control means, a pair of guide means supported from said hull on opposite sides of said conduit and spaced therefrom, said control cables being operatively engaged with said control means and extending forwardly in said boat, means securing the other end of each of said cables to one of said control means whereby the outlet end of said hose may be laterally deflected to either side upon operation of the corresponding control means, said guide means being spaced lower than said conduit.

5. The combination of claim 4 wherein each of said cables is secured to the outlet end of said hose adjacent the upper surface thereof.

6. The combination of claim 4 wherein said control means are adapted to be operated solely by the feet of a person in said boat.

References Cited in the file of this patent

UNITED STATES PATENTS

2,534,817	Hedden	Dec. 19, 1950
2,537,487	Stone	Jan. 9, 1951