Feb. 22, 1927. 1,618,180

J. FORD

BOAT OPERATING MECHANISM

Original Filed April 19, 1924 3 Sheets-Sheet 1

Fig. 1.

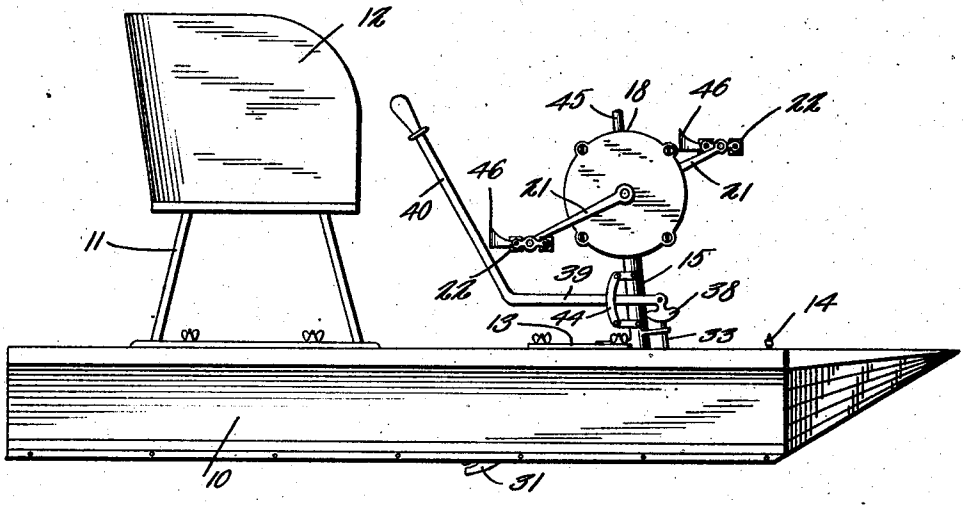
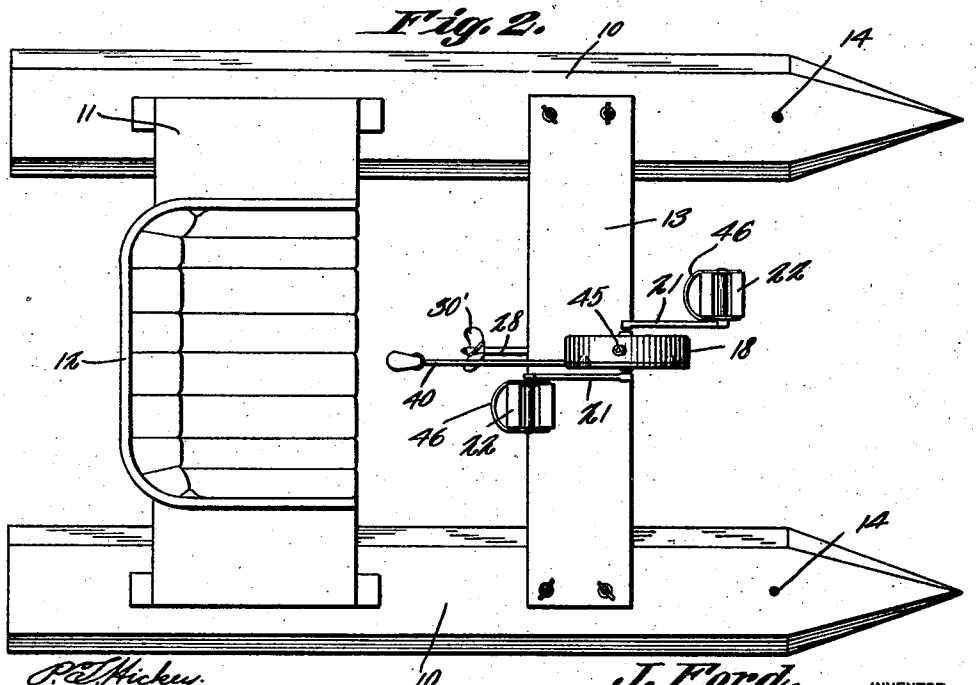


Fig. 2.



P. C. Hickey.
P. C. Harmon

WITNESS:

J. Ford, INVENTOR
BY Victor J. Evans
ATTORNEY

Feb. 22, 1927. 1,618,180

J. FORD

BOAT OPERATING MECHANISM

Original Filed April 19, 1924 3 Sheets-Sheet 2

Fig. 3.

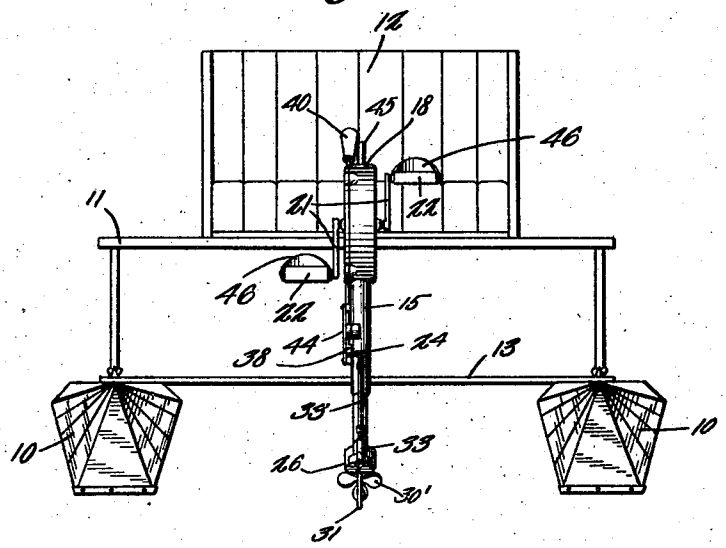
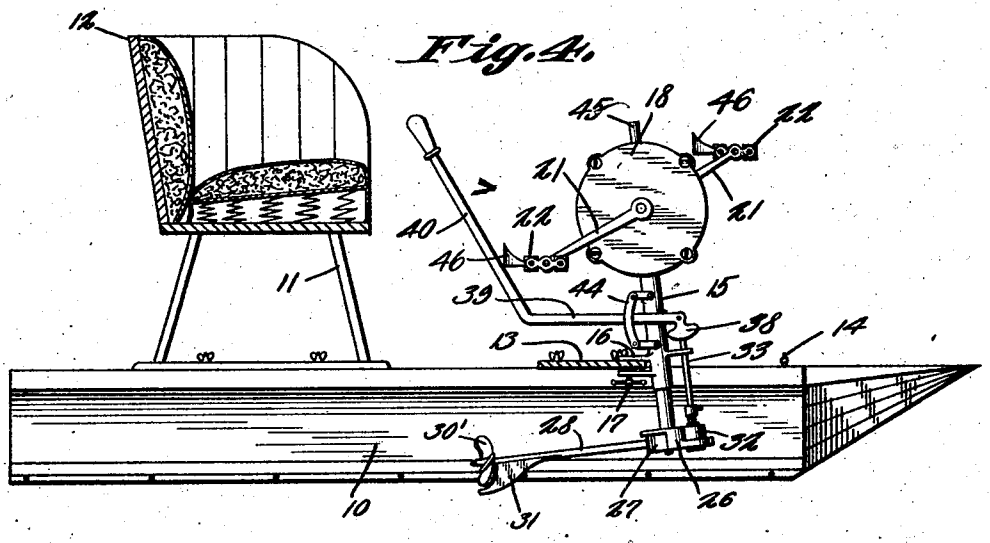


Fig. 4.



J. Ford,
INVENTOR

BY Victor J. Evans
ATTORNEY

P. T. Hickey.
P. C. Gannon
WITNESS:

Feb. 22, 1927. 1,618,180

J. FORD

BOAT OPERATING MECHANISM

Original Filed April 19, 1924 3 Sheets-Sheet 3

Fig. 5.

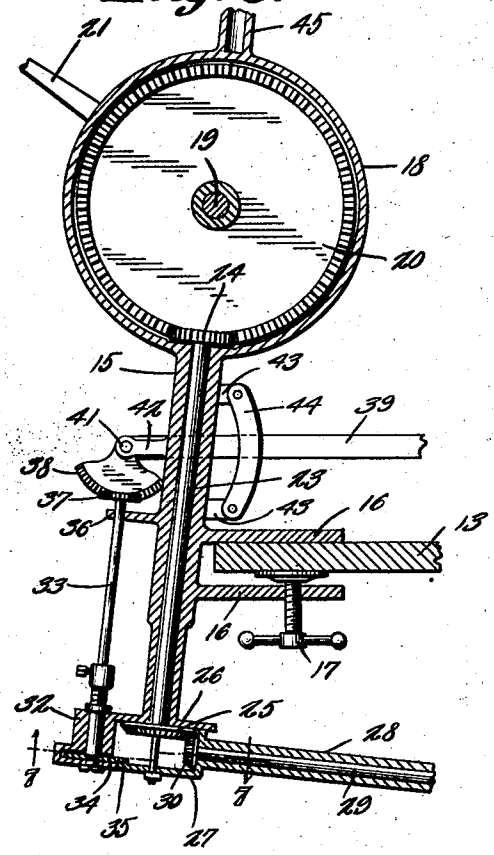


Fig. 6.

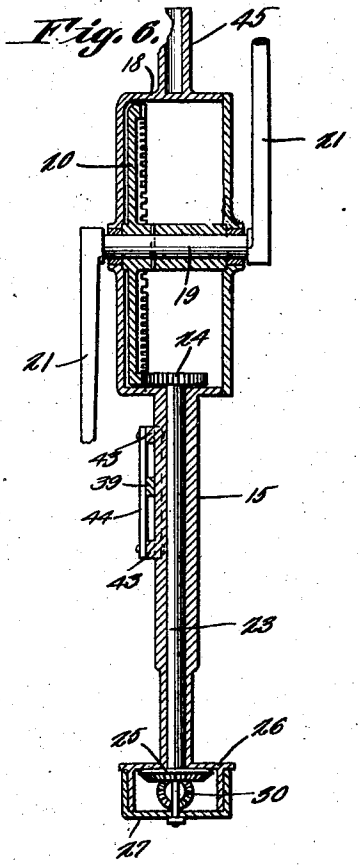
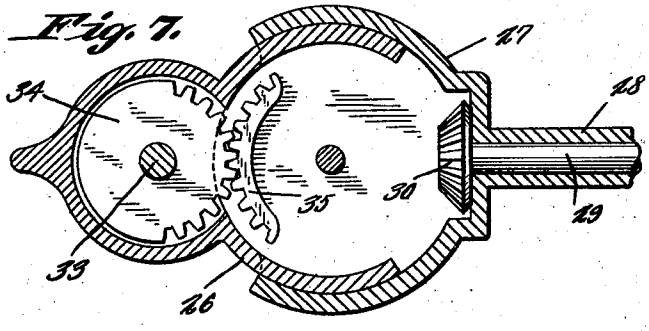


Fig. 7.



P. J. Hickey.
P. C. Gannon

WITNESS:

J. Ford, INVENTOR

BY Victor J. Evans

ATTORNEY

Patented Feb. 22, 1927. 1,618,180

UNITED STATES PATENT OFFICE.

JOSEPH FORD, OF POCATELLO, IDAHO.

BOAT-OPERATING MECHANISM.

Application filed April 19, 1924, Serial No. 707,784. Renewed July 10, 1926.

This invention relates to operating mechanisms for boats and is especially designed for use upon boats of the catamaran type.

An object of the present invention is to provide an operating mechanism which includes a driving mechanism and a steering mechanism constructed as a unit and capable of being removably secured in position for use.

Another object of the invention is the provision of novel means for mounting and supporting the driving means and for mounting and supporting the steering mechanism upon the driving mechanism, means being provided for securing the first mentioned mechanism to the boat while the steering mechanism will be operatively supported upon the driving mechanism.

Another object of the invention is the provision of a boat operating mechanism as above set forth which is simple in construction, easily operated so as to drive the boat at a comparatively good speed and by means of which the direction of travel of the boat may be easily regulated.

With the above and other objects in view, the invention further includes the following novel features and details of construction, to be hereinafter more fully described, illustrated in the accompanying drawings and pointed out in the appended claims.

In the drawings:—

Figure 1 is a side elevation of a boat of the catamaran type with the invention applied.

Figure 2 is a top plan view.

Figure 3 is a front elevation.

Figure 4 is a vertical central longitudinal section with the attachment in elevation.

Figure 5 is an enlarged section through the driving mechanism, the steering mechanism being shown in elevation.

Figure 6 is a section at right angles to Figure 5.

Figure 7 is a detail sectional view on the line 7—7 of Figure 5.

Referring to the drawings in detail wherein like characters of reference denote corresponding parts, the boat to which the invention is applied is shown as including spaced floats 10 which are connected by a frame 11 upon which is mounted a seat 12 and by a platform 13 which is secured to and connects the floats in front of the seat. The floats 10 may be filled with a suitable fluid or gas to increase their buoyancy and for this purpose are provided with escape or safety valves 14.

The invention which is designed for driving and controlling the direction of travel of the boat comprises a bearing sleeve 15 which is arranged substantially vertical and which is provided with laterally disposed spaced clamping arms 16, one of which carries an adjustable clamping member 17, whereby the bearing sleeve 15 may be removably secured in place.

The upper end of the sleeve 15 supports a gear housing 18 which provides bearings for a shaft 19. A gear 20 is secured upon this shaft within the housing, while mounted upon the opposite ends of the shaft 19 upon opposite sides of the housing are crank arms 21, the outer ends of which carry foot pedals 22. This portion of the mechanism is so positioned with respect to the seat 12 that the pedals 22 may be conveniently reached by the foot of the occupant of said seat for driving the wheel 20.

Mounted for rotation within the bearing sleeve 15 is a shaft 23, whose upper end has mounted thereon a pinion 24 which is engaged and driven by the gear 20. Secured upon the lower end of the shaft 23 is a gear 25 which is positioned within a sectional gear housing at the lower end of the sleeve 15. One section 26 of the gear housing just mentioned is carried by the sleeve 15, while the other section 27 is relatively movable and is mounted for rotation within the section 26. The section 27 has extending therefrom a bearing sleeve 28 within which is rotatably mounted a propeller shaft 29, the inner end of the latter having secured thereon a gear 30 which is engaged and driven by the gear 25. The outer end of the shaft 29 has secured thereon a propeller 30, while secured to the sleeve 28 adjacent the propeller is a rotor 31.

The sleeve carried section 26 of the gear housing carries a bearing 32 for the lower end of a steering post 33 and secured upon the lower end of this post within the section 27 of the gear housing is a gear 34. This gear engages a toothed segment 35 which is secured to the movable section 27 of the gear housing, so that when the steering post 33 is rotated, rotary motion will be imparted to the section 27 of the gear housing and the propeller shaft and its bearing

sleeve will be moved horizontally, the rotary motion of the said section 27 being concentric with the shaft 23.

The upper end of the shaft 33 is mounted in a bearing 36 which extends from the bearing sleeve 15 and secured upon the upper end of the steering post is a pinion 37. This pinion is engaged and driven by a toothed segment 38 which is mounted upon the outer end of an arm 39, the said arm being rigid with one end of an operating handle or lever 40. This handle or lever 40 is pivotally mounted as shown at 41 upon a bearing arm 42 which extends from the bearing sleeve 15, so that when the lever 40 is moved pivotally the steering post 33 will be rotated through the connection of the toothed segment 38 with the pinion 37. This movement of the steering post 33 will rotate the gear 35 and impart rotary movement to the section 27 of the gear housing through the toothed segment 35, as previously mentioned.

Supported upon the bearing sleeve 15 by bracket arms 43 is a notched segment 44 and the lever 40 is adapted to be engaged in any one of the notches of this segment to hold said lever against accidental movement.

The gear housing 18 has extending therefrom a socketed member 45 for receiving the handle of an umbrella or the like for the protection of the occupant or occupants of the boat, while the pedals 22 have extending therefrom yokes 46 for the reception of the heels of the operator.

The invention is susceptible of various changes in its form, proportions and minor details of construction and the right is herein reserved to make such changes as properly fall within the scope of the appended claims.

Having described the invention what is claimed is:—

1. An operating mechanism for boats comprising a bearing sleeve, a drive shaft mounted therein, a driving gear supported by said sleeve and operatively connected to the drive shaft, means whereby the driving gear may be rotated, a sectional gear housing at one end of the drive shaft, said housing including a sleeve carried section and a relatively movable section, a propeller shaft, means supported by the movable section of the gear housing for rotatably supporting the propeller shaft, gearing connecting the shafts and a propeller carried by the propeller shaft supporting means and manually controlled means supported in the sleeve carried section of the gear housing and operatively engaging the relatively movable section of said housing, whereby the direction of travel of the boat may be controlled.

2. An operating mechanism for boats comprising a bearing sleeve, a drive shaft mounted therein, a driving gear supported by said sleeve and operatively connected to the drive shaft, means whereby the driving gear may be rotated, a sectional gear housing at one end of the drive shaft, said housing including a sleeve carried section and a relatively movable section, a propeller shaft, means supported by the movable section of the gear housing for rotatably supporting the propeller shaft, gearing connecting the shafts and a propeller carried by the propeller shaft supporting means, a steering post mounted in bearings supported by the bearing sleeve and the sleeve carried section of the gear housing, gearing connecting said post and the relatively movable section of the housing, whereby the latter may be rotated to control the direction of travel of the boat and means operatively connected to the post for rotating the latter.

3. An operating mechanism for boats comprising a bearing sleeve, a drive shaft mounted therein, a driving gear supported by said sleeve and operatively connected to the drive shaft, means whereby the driving gear may be rotated, a sectional gear housing at one end of the drive shaft, said housing including a sleeve carried section and a relatively movable section, a propeller shaft, means supported by the movable section of the gear housing for rotatably supporting the propeller shaft, gearing connecting the shafts and a propeller carried by the propeller shaft supporting means, a steering post mounted in bearings supported by the bearing sleeve and the sleeve carried section of the gear housing, gearing connecting said post and the relatively movable section of the housing, whereby the latter may be rotated to control the direction of travel of the boat, an operating lever pivotally supported upon the bearing sleeve, an arm rigid with said lever and gearing connecting the arm and steering post, whereby the latter may be rotated.

In testimony whereof I affix my signature.

JOSEPH FORD.