May 2, 1944. C. J. OWENS 2,348,022

DUAL CONTROLS

Filed July 14, 1942 2 Sheets-Sheet 1

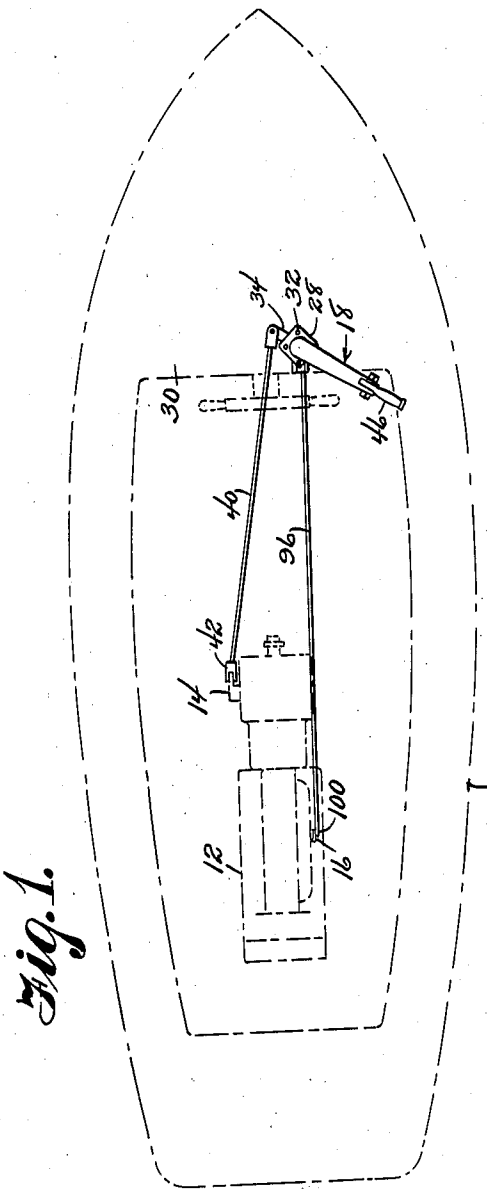

Fig. 1.

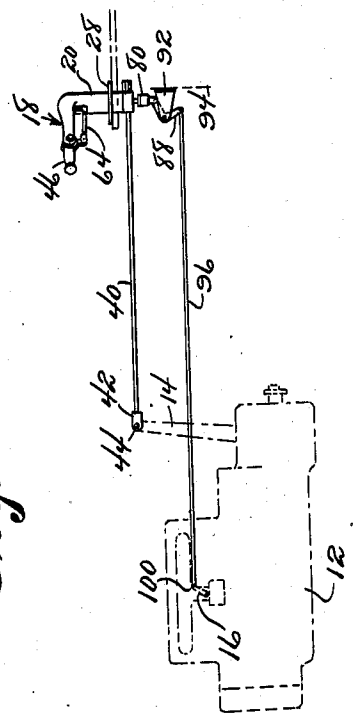

Fig. 2.

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Fig. 3.

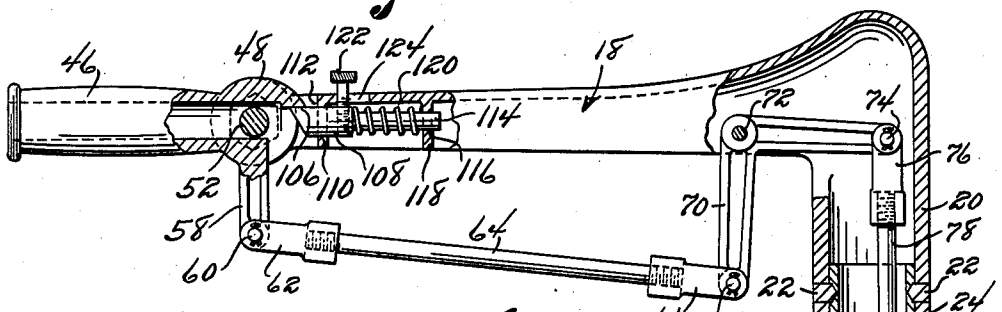


Fig. 4.

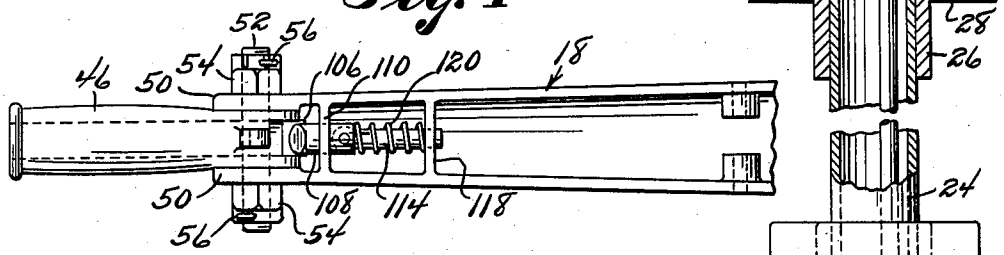


Fig. 5.

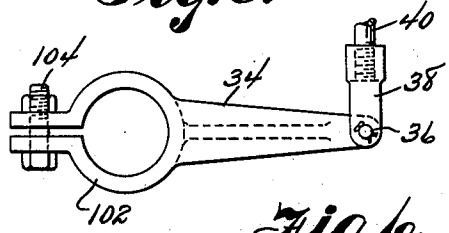
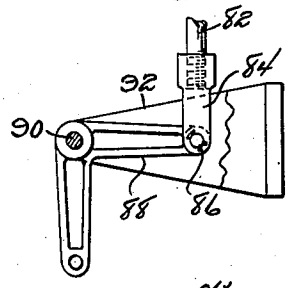


Fig. 6.



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Patented May 2, 1944 2,348,022

UNITED STATES PATENT OFFICE

2,348,022

DUAL CONTROL

Charles J. Owens, Baltimore, Md.

Application July 14, 1942, Serial No. 450,928

2 Claims. (Cl. 74—472)

My invention relates to engine propelled boats and other mechanical devices that require or can employ a combination of two movements or controls that are advantageously applied by one hand in one unit, and has among its objects and advantages the provision of an improved dual manual control which may be manipulated by one hand for controlling engine speed, reversing the boat or any other combination.

In the accompanying drawings:

Figure 1 is a diagrammatic view of a boat and an engine illustrating my invention applied thereto.

Figure 2 is a diagrammatic view of the engine in side elevation in association with the control.

Figure 3 is a sectional detail view of the control.

Figure 4 is a bottom view of a portion of a control lever.

Figure 5 is a detail view of an operating arm, and

Figure 6 is a detail view of a bell crank mount.

In the embodiment of the invention selected for illustration, Figure 1 illustrates a boat 10 having an engine 12 mounted therein and provided with a reversing lever 14. This engine also includes a valve operating lever 16.

In Figure 3, a lever 18 is provided with a right angular and tubular extension 20 keyed at 22 to a tube 24 rotatably mounted in a bearing 26 depending from a deck plate 28. This plate may be attached to the deck 30 of Figure 1, as by bolts 32.

To the lower end of the tube 24 is attached one end of an arm 34 having its other end pivotally connected at 36 with a clevis 38 threadedly connected with one end of a rod 40 having its other end connected with a clevis 42 pivotally connected at 44 with the end of the reversing lever 14. Thus the lever 14 may be actuated through rotation of the lever 18 about its vertical axis.

To the other end of the lever 18 is mounted a grip 46 for pivotal movement about a horizontal axis at right angles to the axis of rotation of the tube 24. This grip is provided with a head 48 fitting between wings 50 on the lever 18. A stud bolt 52 extends through aligned openings in the wings 50 and the head 48 for pivotally mounting the grip 46. Castle nuts 54 are threadedly connected with the stud bolt 52 and engage the wings 50. Cotter pins 56 restrain the nuts from accidental unloosening.

A right angular arm 58 is fixed to the grip 46 and is pivotally connected at 60 with a clevis 62 threadedly connected with one end of a rigid link 64. This link is threadedly connected at its opposite end with a clevis 66 pivotally connected at 68 with one arm of a bell crank 70. This bell crank is pivotally connected at 72 with the lever 18, the other arm of the bell crank being pivotally connected at 74 with a clevis 76 threadedly connected with one end of a rod 78 inside the tubular extension 20 and the tube 24.

Interposed in the rod 78 is a swivel joint 80 so that the upper section of the rod may be rotated independently of its lower section 82. The section 82 is threadedly connected with a clevis 84 pivotally connected at 86 with one arm of a bell crank 88. This bell crank is pivotally connected at 90 with a bracket 92 which may be supported on the structure 94 of Figure 2.

One end of a rod 96 is pivotally connected at 98 with the second arm of the bell crank 88, the other end of the rod being pivotally connected at 100 with the valve lever 16.

The lever 16 may be actuated through vertical movement of the rod 78, such movement being imparted to the rod through pivotal movement of the grip 46. Since the rod 78 is provided with a swivel joint, the tube 24 may be rotated for swinging the arm 34 without imparting longitudinal movement to the rod 78. Figure 5 illustrates the arm 34 as being provided with a clamp formation 102 for substantially embracing the tube 24. This formation may be clamped firmly to the tube 24 by tightening a bolt 104. This arm is also pinned at 105 to tube 24.

Figure 3 illustrates the grip 46 as being provided with an abutment 106 engageable by one end of a latch bolt 108. This bolt is slidably mounted in an opening 110 in a web 112 extending transversely of the concavity in the bottom fact of the lever 18. This bolt is provided with a pin 114 slidably guided in an opening 116 in a second web 118. Interposed between the web 118 and the bolt 108 is a compression spring 120 which yieldingly urges the bolt 108 to the position of Figure 3 and underneath the abutment 106. This bolt may be retracted by thumb action through the medium of a screw 122 threaded into the bolt and extending through a slot 124 in the lever 18. However, the grip 46 may be pivoted downwardly notwithstanding the projected position of the bolt 108, but the lever is restrained from upward pivotal movement beyond the position shown, unless the bolt is retracted.

In operation, the reversing lever 14 is manipulated through rotation of the lever 18. This may be accomplished by grasping the grip 46. At the same time, the valve may be actuated

through pivotal movement of the grip 46 regardless of the position of the lever 18.

Figure 3 illustrates the grip 46 in the idling position of the engine valve. The engine valve may be adjusted to its full speed position by pivoting the grip 46 downwardly. To shift the valve to an engine stopping position, as in the case of a Diesel engine, the bolt 108 is retracted and the grip 46 is pivoted upwardly. Thus the control device of Figure 3 performs a two fold function in that the grip 46 may be manipulated for rotating the lever 18 and actuating the reverse lever 14, in addition to manipulating the engine valve through pivotal movement of the grip independently of the lever 18, at least with respect to rotation about its vertical axis.

While Figures 1 and 2 illustrate the control in association with a motor facing forward for driving aft through a V-gear, the control is equally well adapted to a direct drive or reduction drive stern mounted motor.

Without further elaboration, the foregoing will so fully explain my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. In combination with an engine having a reversing lever and a control valve, a manually operated control comprising a rotative tube having a second lever attached to one end thereof, a grip pivotally mounted on said second lever for movement about an axis at right angles to the rotative axis of said tube, an arm fixed to said tube, an operating connection between said arm and said reversing lever to actuate the latter through swinging movement of the second lever, a rod inside said tube, a first bell crank connected with one end of said rod and having its other end operatively connected with said grip to impart longitudinal movement to the rod through pivotal movement of said grip relatively to said second lever, said rod having a swivel joint interposed therein, a second bell crank connected with the other end of said rod and having an operating connection with said valve to actuate the latter through longitudinal movement of said rod, said grip being movable to an engine stopping position, an engine idling position and a full speed position, and means acting on said second lever and said grip to restrain the latter from pivotal movement to its engine stopping position, said last mentioned means being provided with means accessible by the thumb of the hand grasping said grip to release the grip for pivotal movement to said engine stopping position.

2. In combination with an engine having a reversing lever and a control valve, a manually operated control comprising a rotative tube having a second lever attached to one end thereof, a grip mounted on said second lever for pivotal movement about an axis at right angles to the rotative axis of said tube, an operating connection between said tube and said reversing lever to actuate the latter through swinging movement of said second lever, a rod inside said tube, an operating connection between one end of said rod and said grip, an operating connection between the other end of said rod and said valve to actuate the latter through pivotal movement of said grip, said grip being movable to an engine stopping position, an engine idling position and a full speed position, and coacting means on said second lever and said grip to restrain the latter from pivotal movement to its engine stopping position, said last mentioned means being movable to a position for releasing the grip for pivotal movement to said engine stopping position.

CHARLES J. OWENS.