

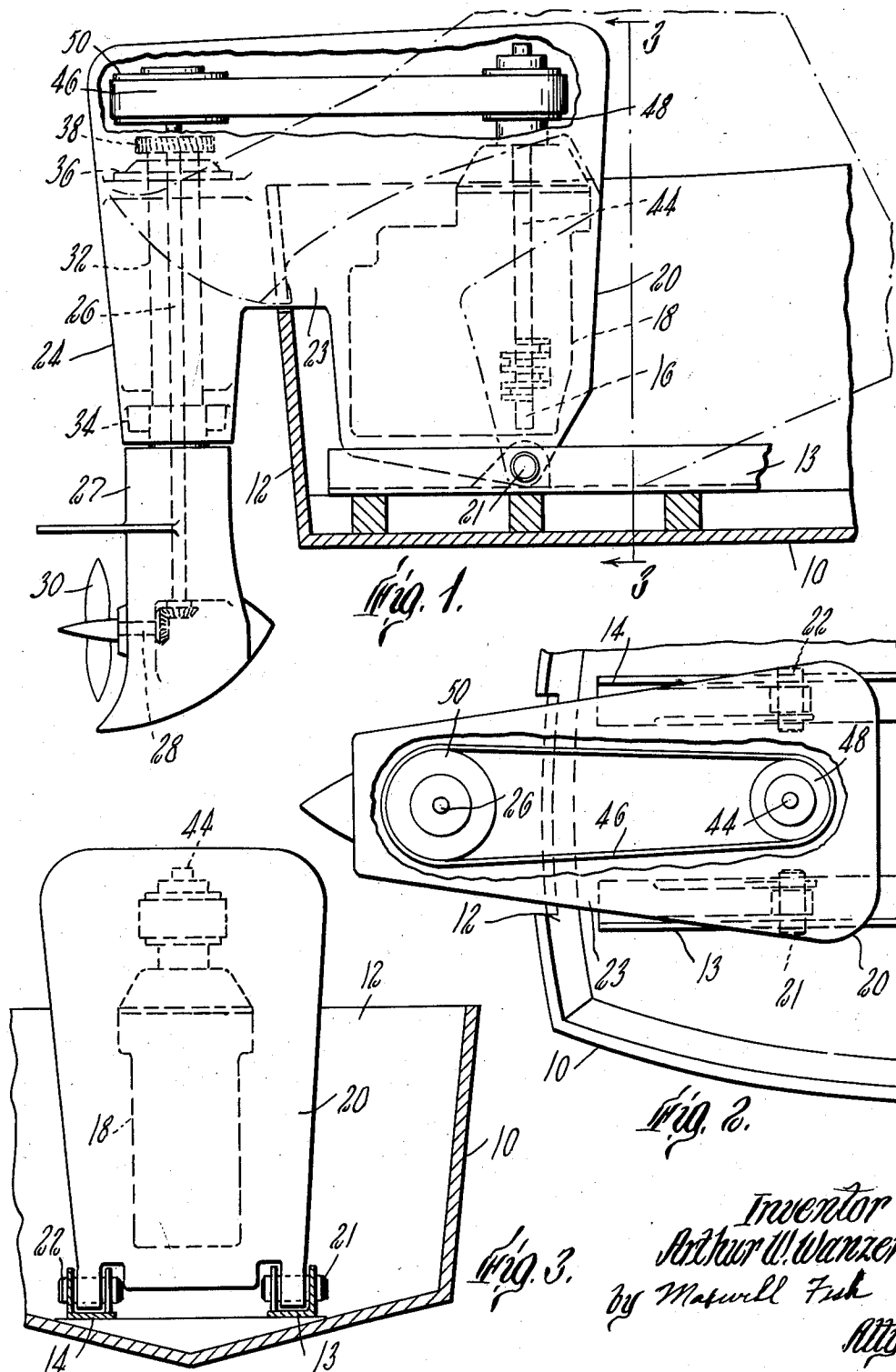
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OUTBOARD PROPELLER MECHANISM

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2,930,342

OUTBOARD PROPELLER MECHANISM

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3 Claims. (Cl. 115—41)

The present invention relates to outboard propeller mechanism for outboard motor boats, barges, scows and the like.

It is a principal object of the invention to provide an outboard propeller mechanism including a motor housing and motor of substantial horsepower rating which is pivotally mounted from a base within the boat closely adjacent to the keel level to provide a low center of gravity of said motor with a correspondingly greater degree of stability of boat, and an outboard propeller housing secured to the motor housing for movement with the motor about said pivot between a normal operating position and an inoperative substantially inboard position.

It is more specifically an object of the invention to provide an outboard propeller mechanism secured rigidly to the motor housing for movement with the motor housing about said pivot comprising a rearwardly extending section of said propeller housing projecting upwardly over, and rearwardly of the gunwale of the boat, and a downwardly extending water-entering outboard section of said propeller housing, together with a propeller driving mechanism carried within said propeller housing including a propeller shaft horizontally disposed in the lower end of said outboard propeller housing section.

A feature of the invention consists in the provision of a pivotal support for the motor housing within the vessel closely adjacent the keel level, and in the arrangement of the associated propeller housing which extends upwardly and over the boat gunwale or transom so that the propeller shaft is disposed at a substantially lower level externally of the boat. The arrangement is such that the center of gravity of the propeller driving assembly is inboard at a low close-to-the-keel level within the vessel, and is combined with an outboard drive extending over the boat's transom, which permits the entire assembly to be tilted readily to a substantially inboard inoperative position.

The propeller drive is taken from the motor which is supported from the bottom of the boat and is preferably of a type having a vertically disposed cam shaft, through an extension of the motor crank shaft which extends vertically upwardly above the gunwale level and thence by any suitable transmission mechanism to the upper end of a vertically disposed propeller drive shaft mounted in the outboard water-entering section of the propeller housing.

In the preferred form of the outboard propeller mechanism shown, the lower portion of the outboard section of the propeller housing is swiveled to turn about a vertical axis and is suitably controlled by steering connections to provide a steering control effective through changes in the direction of thrust thus imparted to the propeller shaft and propeller mounted thereon.

With these and other objects in view as may hereinafter appear, the several features of the invention consist also in the devices, combinations, and arrangement of parts hereinafter described and claimed, which together

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with the advantages to be obtained thereby will be readily understood by one skilled in the art from the following description taken in connection with the accompanying drawing in which:

Fig. 1 is a view in right side elevation of an outboard propeller mechanism including an outboard motor mounted within the boat, and an outboard propeller casing with a portion of the casing broken away to illustrate the driving connections between the motor and the vertical propeller drive shaft;

Fig. 2 is a plan view of substantially the mechanism shown in Fig. 1 with a portion of the propeller casing broken away to illustrate the belt driving connection between the motor and the propeller vertical drive shaft; and

Fig. 3 is a sectional view taken on a line 3—3 of Fig. 1 illustrating particularly the inboard pivotal mounting for the outboard propeller mechanism.

Referring to the drawing, the outboard propeller mechanism which forms the subject matter of the invention is shown as mounted within a boat 10 having a stern transom 12. The propeller mechanism including the motor is supported within the boat on a base consisting of two rails 13, 14, which is mounted directly from the keel of the boat. The outboard propeller mechanism shown comprises a power plant having a vertical crank shaft 16 with four off-set crank bearings connected respectively with the pistons of a four cylinder motor generally designated at 18. The power plant 18 is supported within a motor casing 20 which is pivotally supported from the base rails 13, 14 on two trunnions 21, 22. The motor housing 20 has formed integrally therewith a rearwardly extending propeller drive housing 23 which extends upwardly and rearwardly of the boat over the transom 12 and is further provided with a downwardly extending water entering outboard portion 24 which provides support for a vertically disposed drive shaft generally indicated at 26. The downwardly extending outboard portion 24 of the propeller housing includes a swiveled lower outboard housing section 27, which provides support for a horizontally disposed propeller drive shaft 28 and a propeller 30, and is rotatably supported from the propeller housing 24 to rotate about a vertical axis. As indicated in dotted lines in Fig. 1, the lower outboard propeller section 27 is provided with a tubular section 32 which extends upwardly within the housing 24 and is supported for rotation on a bearing 34 and on a bearing 36 disposed toward the upper end of the tubular member 32. Steering of the boat is readily effected by mechanism including a worm gear 38 secured to the upper end of the tubular extension 32, and connections therefrom including a worm gear and a steering wheel not here shown which may be of any suitable type such as that shown, for example, in my prior patent, No. 2,579,221, dated Dec. 18, 1951. As will be evident from Figs. 1 and 2 of the drawings, the drive for the propeller is taken from the motor 18 and vertical crank shaft 16 and an extension shaft 44 which projects upwardly from the motor 18 substantially above the level of the transom 12. The extension shaft 44 is connected to drive the vertically disposed propeller drive shaft 26 by means of a belt 46 which passes around a pulley 48 on the shaft 44 and around a pulley 50 on the propeller drive shaft 26.

The outboard propeller mechanism of the present invention has many of the advantages of an inboard mounting for a heavy motor which may be rated at 100 horsepower or more, including a secure mounting for the motor from the bottom of the boat, a low center of gravity which adds substantially to the stability and seaworthiness of the craft, and a measure of protection from spray or weather for the power unit not obtain-

able for a motor mounted in an exposed position on the deck or on the transom or coaming of the boat.

The present construction combines with the advantages of an inboard mounting, certain additional advantages arising from the improved outboard propeller organization employed which permits the entire driving assembly for the boat to be contained within a single compact unit having the low center of gravity referred to, which includes a propeller driving mechanism arranged to reach upwardly and over the transom or gunwale of the boat, and which is readily shifted from the full line operative boat propelling position of Fig. 1 to the inoperative position shown in dot and dash lines in Fig. 1 in which the entire outboard propeller mechanism is withdrawn to the low position inside the hull while the center of gravity of the outboard propeller mechanism continues to be maintained in a low, hull stabilizing position.

The invention having been described what is claimed is:

1. An outboard propeller mechanism for power boats, barges, scows and the like vessels having a gunwale substantially above the water edge, a base support including a horizontally disposed pivot carried within the said vessel adjacent the keel level, a motor casing and motor carried therein mounted on said base to turn on said pivot, and having a low center of gravity within said vessel, an outboard propeller housing secured to the motor housing for movement with the motor housing about said pivot comprising a section of said propeller housing projecting over and rearwardly of said adjacent portion of the gunwale and a downwardly extending water-entering outboard section of said propeller housing, and a propeller driving mechanism mounted within said outboard propeller housing including a horizontally disposed propeller shaft in the lower end of said outboard propeller housing section.

2. An outboard propeller mechanism for power boats, barges, scows and the like vessels having a transom with the gunwale edge thereof substantially above the water edge, a base support including a horizontally disposed pivot having its axis parallel to said transom located within the vessel adjacent the keel level of said vessel, a motor casing and a motor carried therein mounted on said base to turn on said pivot and having a low center of gravity within said vessel, a propeller housing secured rigidly to the motor housing for movement with the motor housing about said pivot between operating and inoperative positions comprising a rearwardly extending section of said propeller housing projecting over and rearwardly of the gunwale of said transom, and a downwardly extending water-entering outboard section of said propeller housing, a propeller driving mechanism mounted within said outboard propeller housing including a

horizontally disposed propeller shaft in the lower end of said outboard propeller housing, driving connections from the motor to said propeller shaft comprising a vertically disposed power take-off drive shaft operatively connected with said motor within said vessel, a vertically disposed outboard propeller drive shaft supported within the outboard vertical section of said propeller housing, a driving connection housed within said rearwardly extending section of the propeller housing connecting said take-off shaft to drive said vertical propeller drive shaft, and steering mechanism comprising means for supporting said outboard section of said propeller housing to turn about a vertical axis with relation to said rearwardly extending section of said propeller housing for changing the direction of thrust imparted to the propeller shaft and propeller mounted thereon.

3. An outboard propeller mechanism for power boats, barges, scows and like vessels having a transom with the gunwale edge thereof substantially above water level, which comprises with a base support including a horizontally disposed pivot having its axis parallel to said transom and located within the vessel adjacent the keel level of said vessel, a motor casing and a motor carried therein mounted on said base to turn on said pivot and having a low center of gravity within said vessel, said motor having a crank shaft with its rotational axis disposed vertically for the operating position of said motor, a propeller housing secured rigidly to the motor housing for movement with the motor housing about said pivot between operating and inoperative positions comprising a rearwardly extending section of said propeller housing projecting over and rearwardly of the gunwale of said transom, and a downwardly extending water-entering outboard section of said propeller housing, a horizontally disposed propeller shaft carried in the lower portion of said propeller housing, driving connections from the motor to said propeller shaft comprising a vertically disposed power extension drive shaft operatively connected with said crank shaft within said vessel and of a length to project above the gunwale of said transom, a vertically disposed outboard propeller drive shaft supported within the outboard vertical section of said propeller housing projecting above said gunwale and at its lower end connected with said propeller shaft, and a belt and pulley drive connection between said take-off shaft and said vertical propeller drive shaft housed within said rearwardly extending section of said propeller housing.

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UNITED STATES PATENT OFFICE
CERTIFICATION OF CORRECTION

Patent No. 2,930,342

March 29, 1960

Arthur W. Wanzer

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 24, after "of", second occurrence, insert -- the --; column 3, lines 21 and 39, after "edge,", each occurrence, insert -- comprising --.

Signed and sealed this 13th day of June 1961.

(SEAL)

Attest:

ERNEST W. SWIDER

Attesting Officer

DAVID L. LADD

Commissioner of Patents