July 18, 1939. W. M. CONOVER 2,166,234

ENCLOSED OUTBOARD MOTOR DRIVE

Filed Oct. 7, 1935

Fig. 1

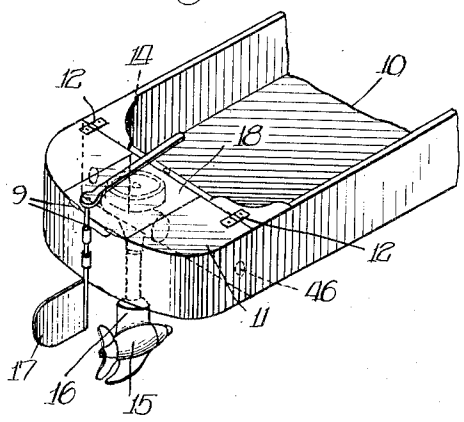


Fig. 2

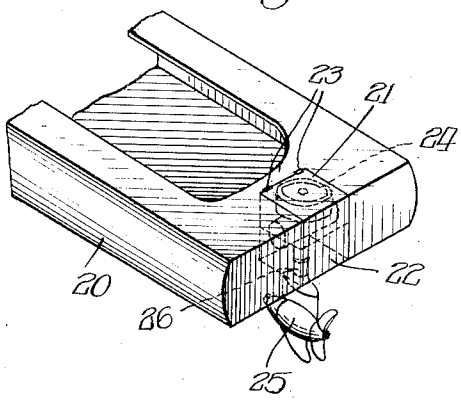


Fig. 3

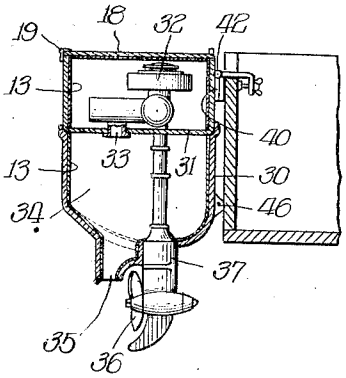


Fig. 4

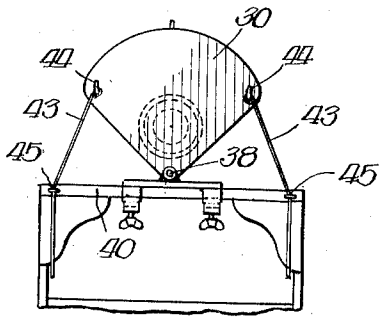
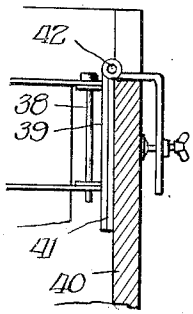


Fig. 5



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UNITED STATES PATENT OFFICE

2,166,234

ENCLOSED OUTBOARD MOTOR DRIVE

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Application October 7, 1935, Serial No. 43,822

9 Claims. (Cl. 115—18)

This invention relates in general to an enclosed motor for a boat and has more particular reference to an enclosed motor of the outboard motor type and to an enclosure which fits a recess or conforms to the outline of a boat to which it is applied.

An important object of the invention is in the provision of a motor enclosure which is pivoted to or hinged upon a boat structure so that it will yield upwardly or tilt when the lower projecting portion of the motor drive engages the bottom of the lake or stream in which the boat is used or engages an obstruction below the boat.

Other objects of the invention are; to mount the driving motor completely outside the boat hull; to eliminate and reduce noise; to eliminate grease and oil inside the boat; to obviate holes, recesses or other motor openings through the stern or sides of the boat; to eliminate weight on the bottom of the boat so that the boat itself may be made lighter in construction; to provide means for insulating the enclosure from the boat; to eliminate fumes of gas, gasoline or oil, in the boat; to do away with engine heat in the boat which is objectionable to passengers in the stern; to eliminate fire hazard from the boat and to confine it to the motor enclosure which can be made fireproof; to provide a complete power plant which can be bodily removed from the boat and carried by separate handles; to provide for better boat performance with less weight, elimination of gears, separate muffler, and many other parts which are necessary for an inboard motor drive; and in general to provide the construction herein shown and described.

In the accompanying drawing illustrating several forms of the invention:

Fig. 1 is a perspective of an enclosed motor forming an extension and conforming to the outer outlines of a boat;

Fig. 2 is a perspective of the stern of a boat in which there is a recess with a motor enclosure mounted in the recess;

Fig. 3 is a sectional view of a motor enclosure as applied to the transom of a boat;

Fig. 4 is a plan view of a sector shaped enclosure for a motor which has a limited arc of movement for steering; and

Fig. 5 illustrates a tilting and steering bracket for a motor of the type shown in Fig. 4.

By entirely enclosing a marine motor and detachably mounting it at the stern of a boat many objections are overcome both to the outboard type of boats and to the inboard drive type of boats, and many advantages are obtained which are not found in either one.

Referring now more particularly to the drawing, the rear end of a boat 10 is shown in Fig. 1 having a square stern to which an enclosure 11 is attached by hinges 12 flush with the top of the boat, the enclosure being rounded at the rear and conforming at the sides to the sides of the boat and forming a substantial continuation thereof. This enclosure may be made of wood, light metal, or any other suitable material; it is preferably fireproof, either because of the material itself or by means of an interior lining 13 of fire resisting material. Mounted within the enclosure 11 is an outboard motor 14 of any suitable construction, preferably having an under water driving unit 15 projecting through the bottom of the casing or enclosure 11 with a propeller 16 mounted thereon, the entire motor or the lower driving unit thereof being rotatable in the casing for steering or the casing or enclosure having a rudder 17 separately mounted at the rear thereof and turnable in any desired manner for steering.

The controls for the outboard motor 14 may extend through the hinges 12 to the interior of the boat or may be accessible from the stern of the boat through a lid 18 for the enclosure which is mounted on hinges 19 at the rear thereof.

In the form of the invention shown by Fig. 2, a boat 20 has a rectangular recess 21 opening from the rear thereof which is closed to make the boat watertight and in this recess is a receptacle or casing 22 mounted upon hinges 23 at the front of the recess and containing an outboard motor 24 which may be either rotated for steering in accordance with outboard motor practice or a lower driving unit 25 thereof may be separately rotated for steering upon its drive shaft 26.

In the structure shown by Fig. 3, an outer casing or receptacle 30 has an intermediate partition 31 above which is a power head 32 of an outboard motor with an exhaust 33 extending through the partition 31 into an exhaust chamber 34 which has an opening 35 behind a propeller 36 of the outboard motor driving unit 37 which extends through the lower end of the casing. The lower driving unit 37 may be rotatable for steering or the casing may be of segmental form as shown in Fig. 4, with a central forward bearing pin 38 mounted in a bracket 39 which is attached to a boat transom 40 by means of a plate 41 having a hinge 42 at the top thereof so that the receptacle 30 is free to swing about the vertical axis of the pin 38 for steering and the receptacle will swing about the horizontal hinge 42 for tilting the motor and its receptacle upwardly if an obstruction at the bottom of the waterway is encountered by the motor driving unit 37.

Any suitable means may be employed for moving the casing for steering, such as flexible cables 43 attached at their rear ends to projections 44 at the top of the casing and extending through rings 45 at the stern of the boat to any suitable location within the boat for operating them.

In order to silence the motor and prevent the transmission of vibration to the boat, the hinges

may be mounted in rubber and a buffer 46 may be attached either to the boat or to the receptacle and interposed between them.

To bodily disconnect the receptacle from the boat the horizontal pins of the hinges 12, 23 and 42 may be removable or the vertical pin 38 upon which the motor of Fig. 4 is mounted may be withdrawn, thereby disconnecting each receptacle so that it may be carried away or placed within the boat, or otherwise disposed of.

I claim:

1. The combination with a boat having sides and a transom, of a casing having sides conforming to those of the boat at its rearward extensions thereof and a top registering with the top of the transom, means pivoting the top of the casing to the top of the transom for upward swinging movement of the casing as a whole, and an outboard motor wholly mounted upon and supported by the casing to participate in the upward swinging movement thereof and, through said casing, to drive said boat.

2. The combination with a boat having sides and a transom, of a casing having side wall portions complementary to those of the boat and comprising rearward extensions thereof, and a top substantially at the level of said transom, an engine mounted in said casing below the level of the top thereof and provided with a drive shaft extending downwardly through the bottom of said casing and provided with a lower propelling unit and a hinge connection between the top of the casing and the transom of the boat upon which said casing and motor are unitarily tiltable upwardly to an extent sufficient to enable the lower unit to clear submerged obstacles.

3. The combination with a transom bracket arranged to hang over the transom of a boat and provided with a transverse pintle, of a bracket element pivoted on said pintle to swing in a vertical plane, an upright pintle carried by said bracket element, a sector-shaped casing having its apex opened on said upright pintle for dirigible movement thereon and to partake bodily of the upward swinging of said bracket element about said transverse pintle, and an outboard motor for said boat including an engine housed within said sector-shaped casing and to partake bodily of the dirigible and tilting movement thereof upon the respective pintles.

4. A boat propelling unit comprising the combination of a casing having an intermediate partition dividing said casing into two compartments, an engine disposed in the uppermost of said compartments and mounted on said partition and provided with exhaust means discharging through said partition into the lower of said compartments, driving means extending from said engine through said partition to a point below said casing and provided with a lower unit and a propeller driven by said driving means, the lower compartment of said casing having an under-water discharge outlet adjacent said propeller for the discharge of exhaust gas.

5. A boat propelling unit comprising the combination of a casing having an intermediate partition dividing said casing into two compartments, an engine disposed in the uppermost of said compartments and mounted on said partition and provided with exhaust means discharging through said partition into the lower of said compartments, driving means extending from said engine through said partition to a point below said casing and provided with a lower unit and a propeller driven by said driving means, the lower compartment of said casing having an under-water discharge outlet adjacent said propeller for the discharge of exhaust gas, and means upon which said casing is pivotally mounted for connection with a boat transom.

6. A boat propelling unit comprising the combination of a casing having an intermediate partition dividing said casing into two compartments, an engine disposed in the uppermost of said compartments and mounted on said partition and provided with exhaust means discharging through said partition into the lower of said compartments, driving means extending from said engine through said partition to a point below said casing and provided with a lower unit and a propeller driven by said driving means, the lower compartment of said casing having an under-water discharge outlet adjacent said propeller for the discharge of exhaust gas, and means upon which said casing is pivotally mounted for connection with a boat transom, said means providing for pivotal movement in two planes, one of which accommodates a dirigible adjustment of the entire casing and the other of which accommodates a tilting movement of the entire casing, the engine and propeller partaking of both movements.

7. A marine motor plant having a power head including an internal combustion engine having an engine case, an elongated drive shaft housing secured to said head, a drive means within said housing operatively connected with said power head, a propeller operatively connected with said drive means, and supporting means for swingingly mounting said motor plant for steering functions about an axis forwardly of said power head and approximately parallel with said drive means, said supporting means including means for tiltably mounting said motor plant about an axis disposed crosswise with respect to said drive means in a plane above the horizontal plane through the center of said engine case.

8. In a marine power plant, in combination, a power head including a motor and a casing for said motor, a drive shaft housing having substantially water-tight connection with said casing and extending downwardly from said head, a propeller located at the lower end of said housing and connected to said motor, said casing being disposed in position to protect said motor from water splash, and means for swingingly supporting said power plant about an axis forwardly of said power head, said casing converging toward said axis whereby to permit a maximum of swing of said power plant.

9. The combination with a transom bracket arranged to hang over the transom of a boat and provided with a transverse pintle, of a bracket element pivoted on said pintle to swing in a vertical plane, an upright pintle carried by said bracket element, a casing converging in horizontal contour toward said upright pintle, said casing being swung for movement about the axis of said upright pintle for dirigible movement thereon and to partake bodily of the upward swinging of said bracket element about said transverse pintle, and an engine housed within said casing to partake bodily of the dirigible and tilting movements thereof upon the respective pintles.

WARREN M. CONOVER.