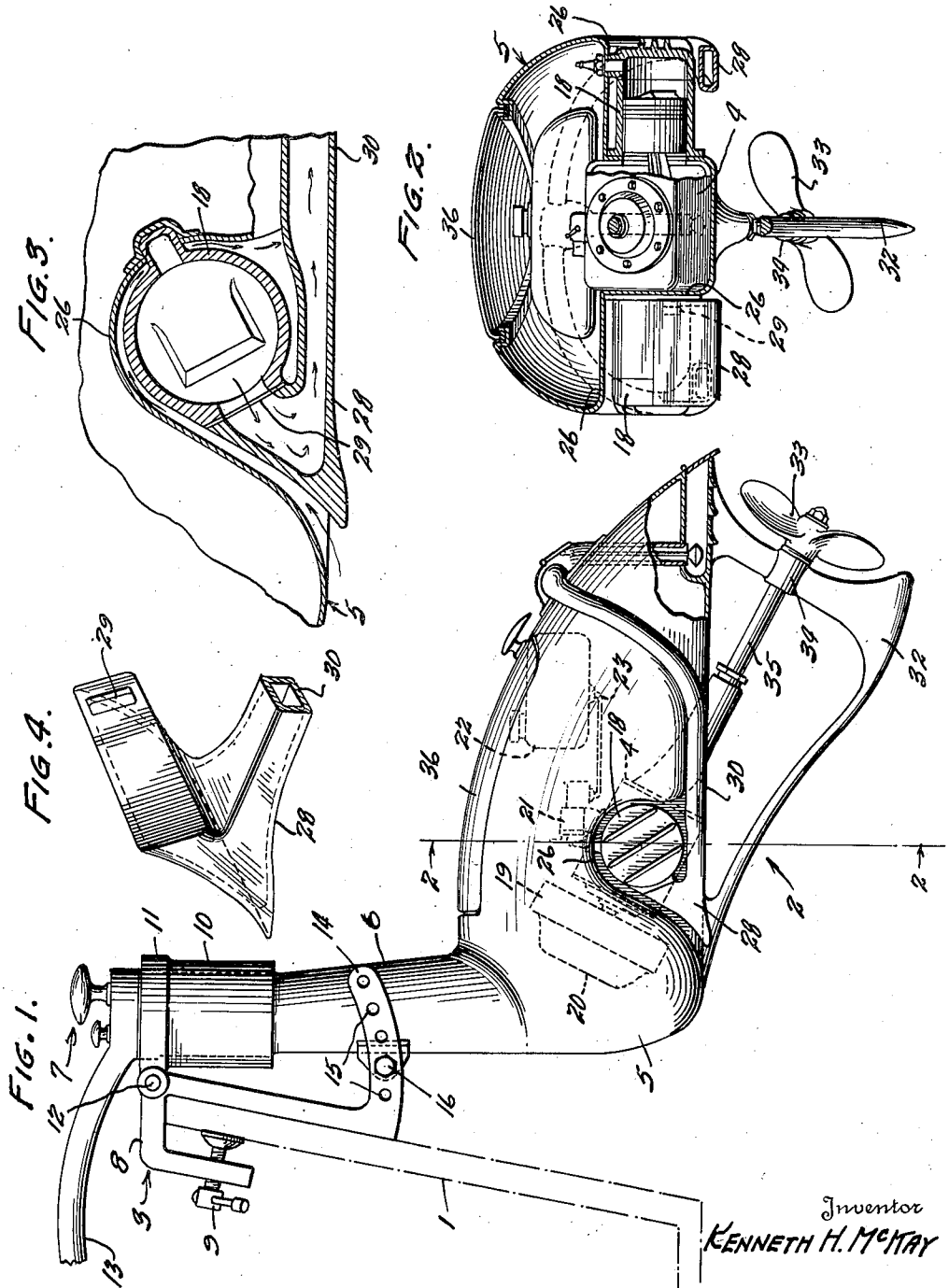
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OUTBOARD MOTOR ASSEMBLY

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Inventor
KENNETH H. McKAY

By Semmes Keegin & Semmes
Attorneys

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OUTBOARD MOTOR ASSEMBLY

Kenneth H. MacKay, Ocala, Fla.

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4 Claims. (Cl. 115—18)

The present invention relates in general to marine power plants and more particularly has reference to a power plant of the so-called outboard type.

An important object of my invention is to provide a housing for an outboard motor which is adapted to ride at the surface of the water, the housing being so formed that the cylinders and exhaust are partially exposed to the water whereby cooling of the motor may be effected, without overcooling.

Another object of my invention is to provide a housing for an outboard motor having integrally formed therewith a member which will enable the entire power plant to be turned at the will of the operator to steer the boat.

Yet another object of my invention is to provide a housing for an outboard motor which is flexibly attached to the boat by means of a hinged connection whereby the motor may ride over obstructions.

A still further object of my invention is to provide an outboard motor which will ride over the surface of the water at a point adjacent the rear of the boat in the wake of the boat with little or no water resistance.

Another object is to provide an assembly with power plant of low center of gravity which, because of its low position, may be fed by gravity from a tank within the boat.

Yet a still further object of my invention is to provide an outboard motor in which the ignition and carburization members are shielded from the water and in which the cylinders and exhaust may be at least partially submerged in the water, the exhaust serving to heat the water partially before the water reaches the cylinders, thus giving an efficient temperature for operation.

To accomplish the above and other important objects which will hereinafter become more readily apparent, the present invention generally embraces the employment of a housing for the marine power plant which has integrally formed therewith a vertically extending member for enabling the motor in its entirety to be turned at the will of the operator to steer the boat. In addition, the housing is so formed that the ignition, carburetor and kindred members are shielded against contact with the surface of the water while permitting the cylinder and the exhaust member to be at least partially submerged in the water.

To make my inventive concept more clearly and easily comprehended there is depicted in the accompanying drawing one embodiment for carrying the same into practical effect without limiting the improvements in their useful applications to the particular construction which, for the purpose of explanation, have been made the subject of illustration.

In the drawing in which like numerals designate similar parts:

Figure 1 is a view in side elevation partly broken away showing my invention.

Figure 2 is a view taken along line 2—2 of Figure 1.

Figure 3 is an enlarged fragmental view of the cylinder and exhaust assembly shown in Figure 1.

Figure 4 is a fragmental perspective view of my exhaust disposing assembly.

Referring to the drawing and more particularly to Figure 1, there is depicted a transom 1 of a boat of any suitable design. An outboard motor construction designated generally 2 is adapted to be attached to the transom 1 by the bracket assembly indicated 3.

A power plant 4 (to be later described more fully) is enclosed in a housing 5 having rigidly attached at its forward end a substantially vertically extending tubular member 6. While I have shown the tubular member 6 being integrally formed with the housing 5, it is of course to be understood that these members can be made separately and secured together by any convenient means. Motor control members depicted 7 extend through the tube 6 and are suitably attached to their respective parts of the power plant.

As clearly shown in Figure 1, the bracket 3 comprises a substantially U-shaped member 8 which is positioned over the upper edge of the transom 1. The bracket 8 is provided with a clamp member 9 which secures said bracket to the transom. The tube member 6 is journaled in a sleeve 10 which is provided with a collar 11 at its upper end, and the collar 11 is hinged to the bracket 8 as indicated at 12. A steering handle or tiller 13 is affixed to the upper end of the tubular member 6 in any desired manner. Manifestly, the outboard construction 2 can be turned by the operator of the boat by manipulation of the tiller 13.

It should be further noted that the U-shaped bracket 8 carries a pair of arcuate-shaped members 14. A plurality of aligned apertures 15 are formed in each member 14 and a pin 16 is adapted to be positioned in said apertures. The foregoing arrangement will enable the operator to

vary the set of the outboard motor from the vertical. Provision may be made for raising or lowering the assembly 2 with relation to the bracket member 8 but this is not shown.

It is believed clear that the outboard motor assembly 2 can be swung upwardly about the pivot point 12.

I prefer to employ for my power plant assembly 4 an internal combustion engine having diametrically opposed cylinders 18, a flywheel 19 to which is attached a simplex type starter designated 20, a carburetor 21 and the additional necessary elements not illustrated. A gasoline tank 22 is suitably affixed within the housing 5 and a fuel line 23 is provided between the tank 22 and the carburetor 21.

As previously pointed out, a salient feature of the present invention is that the power plant housing is so formed that the cylinder block is at least partially submerged in the water. By reference to Figures 1 and 2 it can be seen that the lower wall of the housing 5 is formed in such a manner as at 26 that the cylinders 18 will be exposed to the water. However, the ignition system and the carburetor assembly are within the housing 4 and there can be no danger of injury to these parts by the water.

An exhaust disposing construction indicated 28 may be bolted to the cylinder block 18 in any suitable manner. An elongated aperture 29 is formed in the exhaust member 28 and the exhaust gases from the motor may pass therethrough into an exhaust pipe 30. In view of the fact that my exhaust disposing construction is generally similar to that shown in my co-pending application Serial No. 222,028, filed July 29, 1938, I do not believe it necessary to go into a detailed description of this assembly.

It should be observed in Figures 1 and 4 that the forward portion of the exhaust 28 acts as a scoop in picking up water and forcing it between the cylinder wall and the lower part of the housing. As this water must first pass over part of the exhaust line it heats up sufficiently to allow an efficient temperature of the cylinder walls.

Referring to Figure 1, a skeg 32 is suitably affixed to the lower wall of the casing 5. A propeller 33 is journaled in the skeg as shown at 34. The propeller 33 is directly connected to the power plant by a shaft 35. By connecting the propeller with the power plant the use of gearing will be eliminated and the motor can be more easily and cheaply manufactured. It should be further noted that the propeller shaft is positioned at an angle of approximately 25° to the horizontal. However, the shaft can be positioned within a range of from 20° to 35°. I have found that if the propeller shaft is disposed at an angle less than 20°, it is necessary to materially elongate the casing which of course is highly undesirable. On the other hand if the propeller shaft is mounted at an angle greater than 35°, the motor will tend to push the boat upward.

The skeg will moreover prevent any injury to the propeller blades when the motor strikes obstructions or the like in the water.

A cover 36 having an operating member is pivotally mounted in the top of the casing 5 to enable the operator to communicate with the power plant for the purpose of repair, replacement, etc.

It is believed obvious from the foregoing description that I have provided a housing for an outboard motor power plant which is so formed that the cylinder block and exhaust may be at least partially submerged in the water. Also, the vertically extending tube portion of the housing will enable the operator of the boat to turn the motor to effect steering thereof.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claims.

I claim:

1. In a power plant construction for impelling boats, a housing that is adapted to be partially submerged in the water, an internal combustion engine mounted within the housing, the housing being so formed that the exhaust and cylinders are exposed to the water, and means to heat the water before it contacts the cylinders.

2. In a power plant construction for impelling boats, a housing that is adapted to be partially submerged in the water, an internal combustion engine mounted within the housing, the housing being so formed that the cylinders are exposed to the water, and an exhaust disposing member attached to each cylinder whereby the water is heated before it contacts the cylinders.

3. In a power plant construction for impelling boats, a housing that is adapted to be partially submerged in the water, an internal combustion engine mounted within the housing, the lower wall of the housing being so formed that the cylinders are exposed to the water, and an exhaust disposing member attached to each cylinder whereby the water is heated before it contacts the cylinders.

4. In a power plant construction for impelling boats, a housing that is adapted to be partially submerged in the water, an internal combustion engine mounted within the housing, means to attach swingably the housing to the boat, the lower wall of the housing being so formed that the cylinders are exposed to the water, an exhaust disposing member attached to each cylinder whereby the water is heated before it contacts the cylinder, and a propeller shaft mounted at the rear of the housing at an angle of approximately 30° from the horizontal motion of the boat.

KENNETH H. MacKAY.