

Nov. 10, 1959

E. C. KIEKHAEFER

2,911,937

ENGINE COWL STRUCTURE FOR OUTBOARD MOTORS

Filed July 29, 1955

2 Sheets-Sheet 1

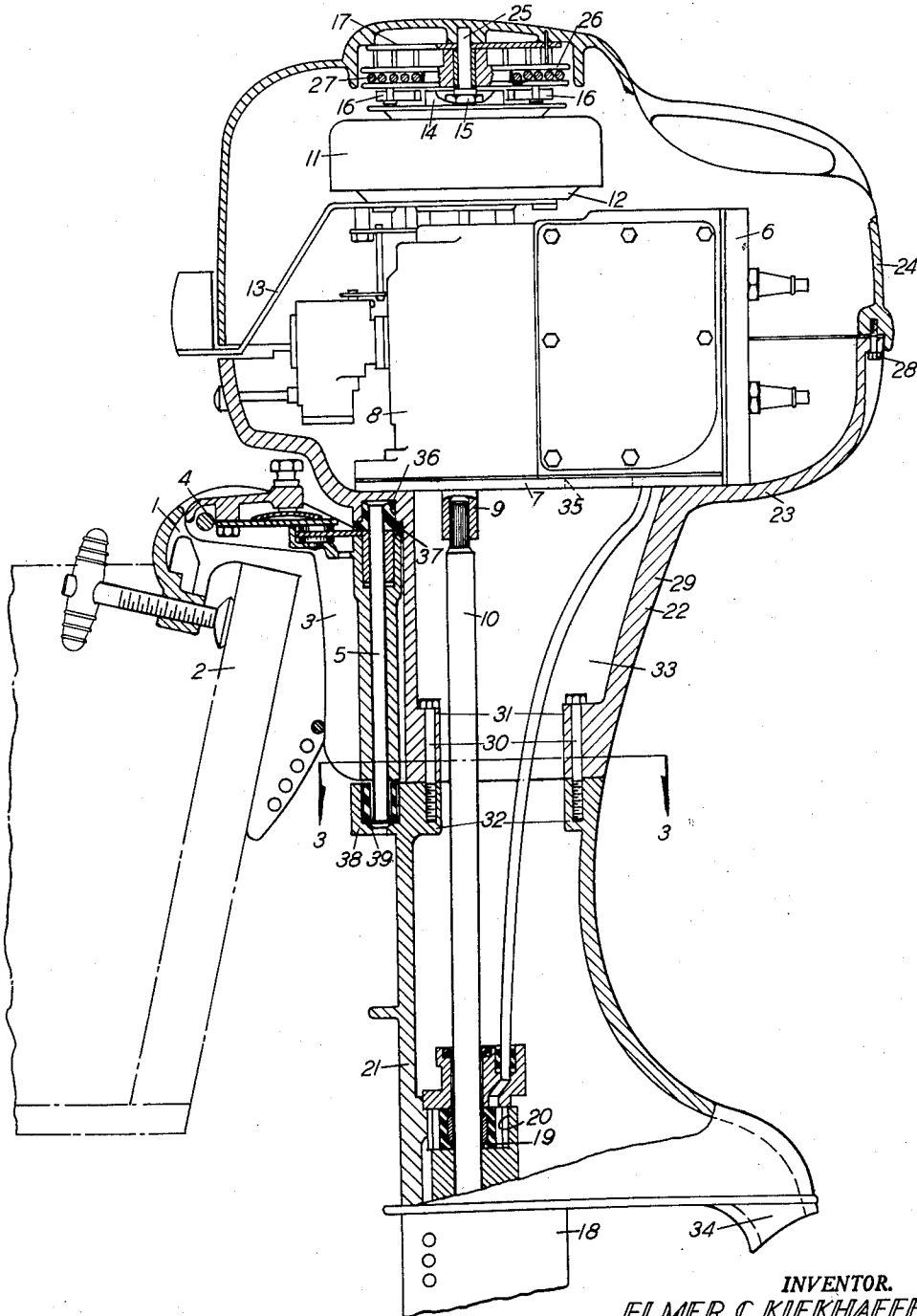


FIG. 1.

INVENTOR.
ELMER C. KIEKHAEFER
BY *Andrew & Seale*
ATTORNEYS

Nov. 10, 1959

E. C. KIEKHAEFER

2,911,937

ENGINE COWL STRUCTURE FOR OUTBOARD MOTORS

Filed July 29, 1955

2 Sheets-Sheet 2

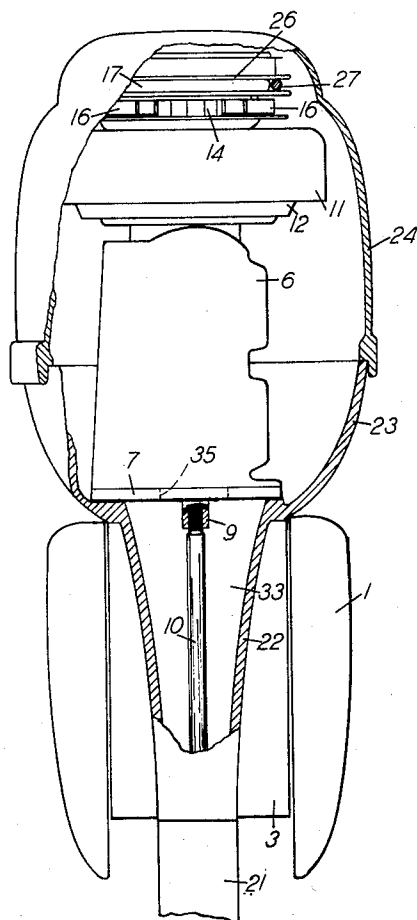


FIG. 2.

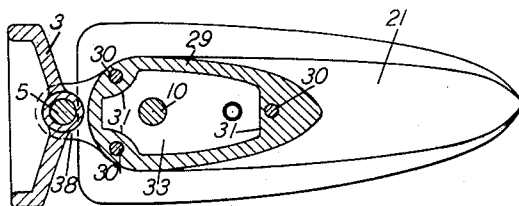


FIG. 3.

INVENTOR.
ELMER C. KIEKHAEFER

BY *Andrew & Seales*

ATTORNEYS

1

2,911,937

ENGINE COWL STRUCTURE FOR OUTBOARD MOTORS

Elmer Carl Kiekhaefer, Cedarburg, Wis.

Application July 29, 1955, Serial No. 525,317

1 Claim. (Cl. 115—17)

This invention relates to outboard motors and more particularly to the structure supporting and enclosing the engine.

The invention is directed to the outer structure of an outboard motor and provides an improved mounting of the motor within the cowl.

According to the invention, the outboard motor including an engine having a crankshaft and an exhaust chamber opening downwardly thereof is provided with an upper and a lower cowl member to enclose the engine. A shelf structure is formed interiorly of the lower cowl member for receiving and seating the base of the engine and is provided with a downwardly extending portion having an upper opening for receiving the crankshaft and the exhaust of the engine. The downwardly extending portion of the lower cowl member is further provided with bearings for supporting the engine for pivotal movement on a vertical axis and is connected to the lower exhaust discharge housing which extends into the water and carries the underwater propeller unit.

The drawings furnished herewith illustrate the best mode of carrying out the invention as presently contemplated and set forth hereinafter.

In the drawings:

Figure 1 is a side elevation of an outboard motor as secured to the transom of a boat and with parts thereof broken away and sectioned to show the engine cowl structure of the invention;

Fig. 2 is a rear elevation of the outboard motor shown in Figure 1 with parts of the cowl broken away and sectioned to show the engine and drive shaft; and

Fig. 3 is a view taken on line 3—3 of Figure 1.

The outboard motor shown in the drawings includes the clamp bracket 1 adapted to be secured to the boat transom 2. The swivel bracket 3 is carried by bracket 1 for tilting adjustment on the horizontal transverse pin 4 and is provided rearwardly with the vertical pin 5.

The engine 6 provided with a flat base 7 includes the crankcase 8 carrying a vertical crankshaft connected at its lower end 9 with the upper end of the drive shaft 10.

The flywheel 11 mounted on the upper end of the crankshaft and above the engine encloses the magneto, not shown, which includes the stator plate 12 which is rotatable for adjustment by means of the lever 13 extending forwardly of the engine for controlling the speed of the motor. The starter ratchet drive wheel 14 is fixed with respect to flywheel 11 on the upper end of the crankshaft by the nut 15 and is engageable by the pawls 16 of the rewind-rope starter unit 17 supported above the engine.

The lower end of drive shaft 10 is journally supported

2

in the upper portion of the underwater propulsion unit 18 which is partially shown and the pump impeller 19 mounted above on shaft 10 operates within the eccentric pump housing 20 disposed in the lower end of the drive shaft housing 21.

The single, cast member 22 has an upper bowl-shaped portion which comprises the lower cowl 23 of engine 6. The upper dimension of cowl 23 is horizontal and flat to support the upper cowl member 24 mounted directly thereon. Cowl member 24 encloses the upper portion of engine 6 and carries the short, fixed shaft 25 above and in alignment with the engine crankshaft and starter ratchet drive wheel 14. The rewind-rope starter sheave 26 mounted on shaft 25 carries the pawls 16 adapted to engage wheel 14 for starting the engine upon pulling of the free end, not shown, of the rope 27 wound on sheave 26. Cowl 24 is removably secured to cowl 23 by the rear bolt 28 shown and corresponding other bolts, not shown, spaced around the matching peripheries of the cowls.

The lower portion 29 of member 22 houses shaft 10 immediately beneath engine 6. The corresponding adjacent ends of housings 29 and 21 are joined by the bolts 30 set in the inwardly formed, aligned bosses 31 and 32 of the respective housings which together define the chamber 33. The enlarged upper end of housing 29 is entirely open and unobstructed to receive the exhaust of the engine which is passed through the chamber 33 to the nozzle 34 of housing 21 disposed underwater and directed rearwardly for discharge of the exhaust gases into the propeller slip-stream.

According to the invention, cowl 23 forms a flanged rim reinforcing the upper end of the drive shaft housing 21 and supporting the base 7 of engine 6 which is seated thereon over the upper open end of the drive shaft housing 21 so that the exhaust opening 35 shown in dotted lines in the base 7 of engine 6 communicates directly with chamber 33.

The socket 36 formed in cowl 23 and opening downwardly in front of housing 29 is adapted to receive the rubber cushion element 37 mounted on the upper end of pin 5 and vertically supporting the motor on bracket 3. The lug 38 formed integrally with housing 21 and forwardly thereof carries the rubber sleeve 39 fitting the lower end of pin 5 and is in axial alignment with socket 36 whereby the motor is turnable on the axis of pin 5 and relative to the boat for steering.

The rim formed by lower cowl 23 provides circumferential reinforcement of the upper end of the drive shaft housing and a flat base to which the engine may be firmly secured. The reinforcement is located immediate to the main support of the motor by the clamp bracket assembly and provides the rigidity required for the structure.

Various modes of carrying out the invention are contemplated as within the scope of the following claim particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

In an outboard motor, a power unit comprising an engine and underwater propeller unit connected by a vertical drive shaft, a housing for said power unit comprising as one member thereof a unitary tubular cast metal member flared upwardly to house at least a portion of the engine at its upper end and at least a portion of the drive shaft at its lower end, said member having a flat upwardly facing horizontal shelf spaced longitudinally from its

3

ends and adapted to support the engine, a bracket for supporting said power unit upon the transom of a boat and comprising a vertical steering pin, a downwardly facing socket formed integral with the underside of the shelf in said housing member and providing a bearing support for the power unit upon the upper end of said pin, whereby the engine support shelf and bearing socket are reinforced by portions of said tubular housing member extending above and below the same, a lower housing member removably secured to the lower end of said first named housing member, and an upwardly facing socket formed integral with the lower housing member and providing a bearing receiving the lower end of said pin, said

4

sockets being in alignment and assembled upon opposite ends of said pin when said housing members are assembled together and secured.

References Cited in the file of this patent

UNITED STATES PATENTS

2,351,050	Karey -----	June 13, 1944
2,549,479	Kiekhaefer -----	Apr. 17, 1951
2,676,559	Davies -----	Apr. 27, 1954

FOREIGN PATENTS

7,267	Great Britain -----	of 1897
-------	---------------------	---------