W. BUEHNER.

OUTBOARD MOTOR.

APPLICATION FILED FEB. 3, 1919.

1,317,480.

Patented Sept. 30, 1919.

2 SHEETS—SHEET 1.

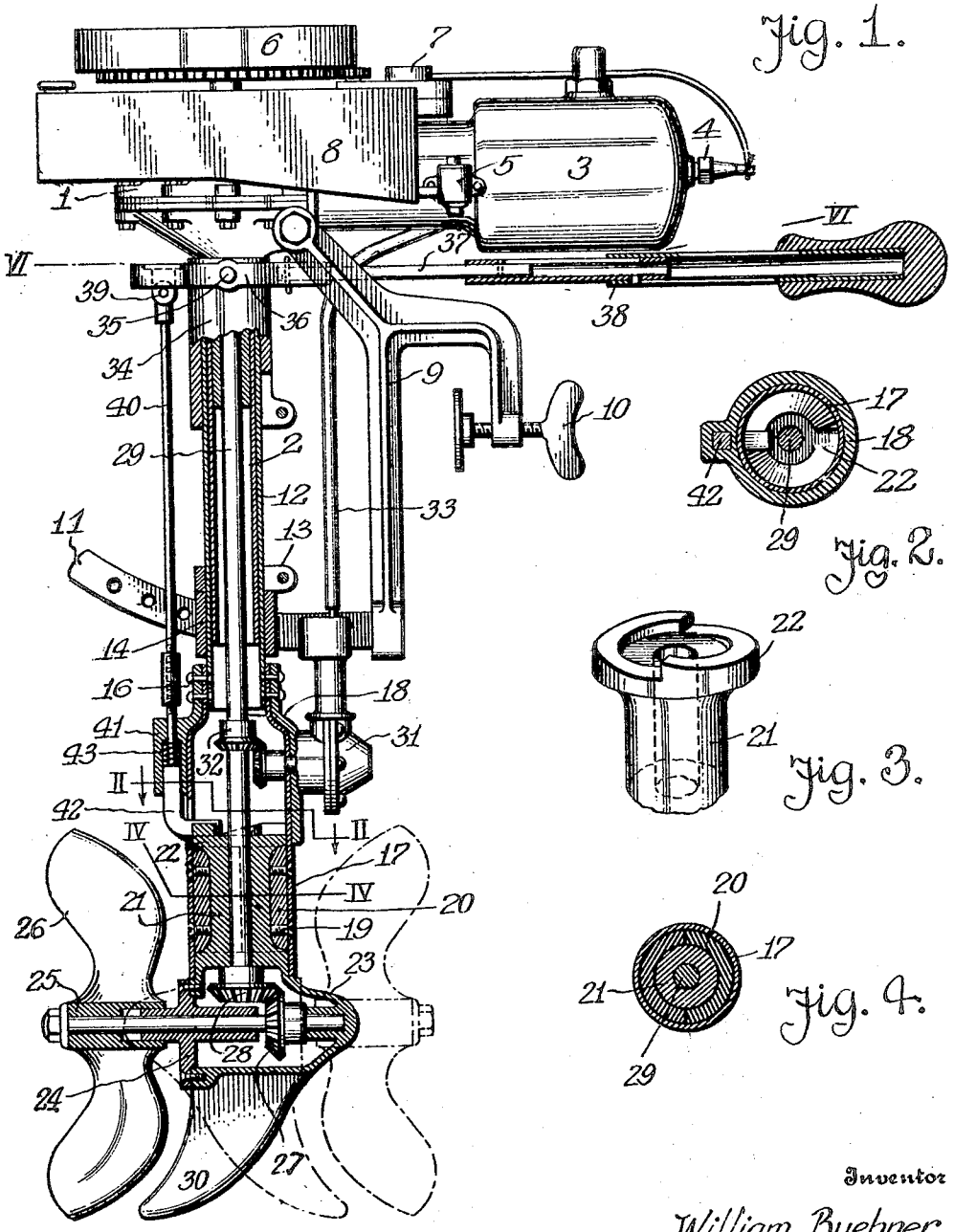


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Witness

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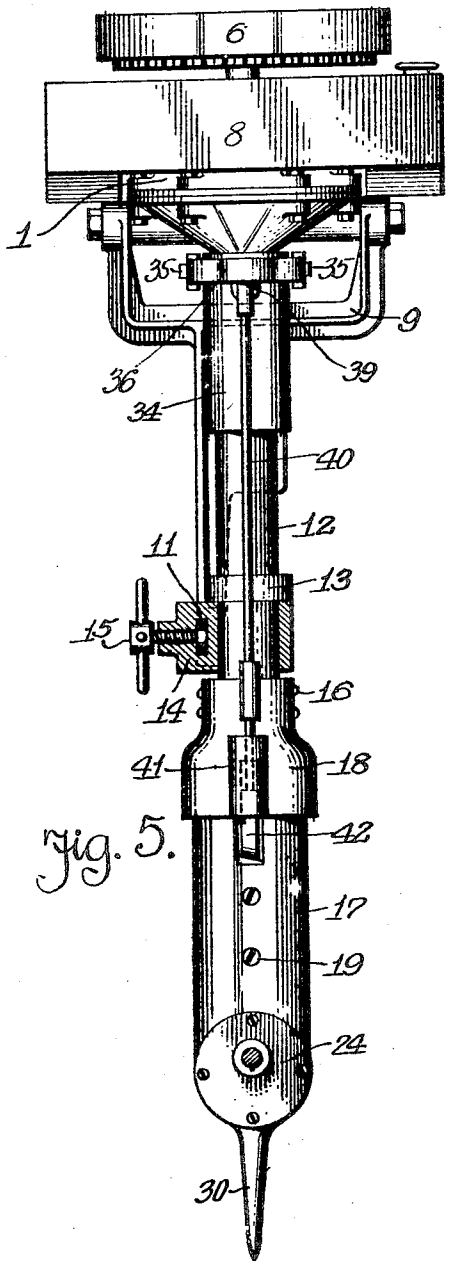


Fig. 5.

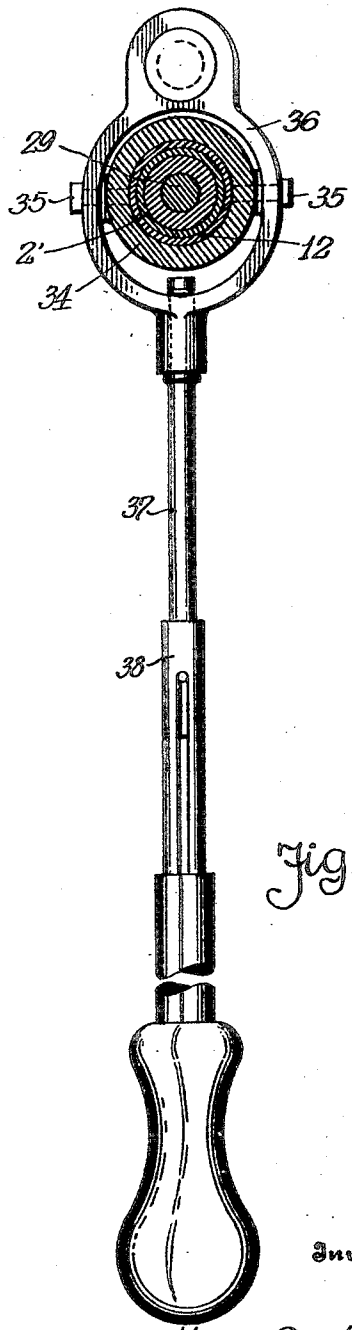


Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM BUEHNER, OF DETROIT, MICHIGAN.

OUTBOARD-MOTOR.

1,317,480. Specification of Letters Patent. Patented Sept. 30, 1919.

Application filed February 3, 1919. Serial No. 274,717.

To all whom it may concern:

Be it known that I, WILLIAM BUEHNER, a citizen of Germany, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Outboard-Motors, of which the following is a specification, reference being had therein to the accompanying drawings.

The primary object of my invention is to furnish an outboard or detachable row boat motor with positive and reliable means, in a manner as hereinafter set forth, whereby the propeller of the motor may be automatically reversed and thus at will reverse the direction of travel of a boat equipped with the motor.

Another object of my invention is to furnish a motor of the above type with an extensible telescopic steering and reversing control lever which permits of a boat being conveniently steered and its direction of travel reversed by an operator in proximity to the motor.

A further object of my invention is to furnish a motor of the above type with a reversible propeller and novel means for holding the propeller in an adjusted position. This construction necessitates a re-arrangement of parts of the motor, particularly the pump for circulating a cooling agent in connection with the cylinders of the motor, and such re-arrangements are made without sacrificing strength, durability, and without adding material weight to the motor.

The above and other objects are attained by a mechanical construction to be hereinafter specifically described and then claimed, and reference will now be had to the drawings, wherein

Figure 1 is a side elevation of the out board motor, partly broken away and partly in section, illustrating by dot and dash lines a reverse position of the propeller;

Fig. 2 is a horizontal sectional view taken on the line II—II of Fig. 1;

Fig. 3 is a perspective view of a detached adjustable bearing adapted to form part of the motor;

Fig. 4 is a horizontal sectional view taken on the line IV—IV of Fig. 1;

Fig. 5 is a rear elevation of the motor, partly broken away and partly in section;

Fig. 6 is a horizontal sectional view taken on the line VI—VI of Fig. 1, showing the extensible telescopic steering and reversing lever.

In describing my invention by aid of the views above referred to, I desire to point out that the same are intended as merely illustrative of the motor as now constructed, and I do not care to confine my invention to the precise construction and arrangement of parts other than as defined by the appended claims.

As indicating the principal parts of a conventional form of out board or detachable row boat motor, the reference numeral 1 denotes a crank case having an elongated depending bearing 2 and connected to the crank case 1 is one or more engine cylinders 3 with which are associated a spark plug 4 and a mixing valve or carbureter 5. Associated with the crank case 1 are a fly wheel 6, a magneto 7 and a fuel tank 8.

As showing means for adjustably supporting the motor relative to the stern of a boat, the reference numeral 9 denotes a bracket that may be pivotally connected to the crank case 1 and suitably connected to the cylinder 3 should occasion so require. The bracket 9 has a conventional form of clamping screw or device 10 and on the lower end of the bracket 9 is a segment member 11, the purpose of which will presently appear.

Rotatable of the elongated bearing 2 is a sleeve 12 and fixed on said sleeve is a supporting collar 13 resting on the top of a guide block 14 through which extends the segment member 11, said segment member being held relative to the block 14 by a screw 15 or other fastening means carried by said block. With the segment member 11 on an arc having for its center the pivot

between the motor and the bracket 9, said segment member and the block 14 constitute means for adjustably holding the lower part of the motor relative to the bracket 9 on a boat or other support to which the motor is attached.

Suitably connected to the lower end of the sleeve 12, as at 16, is a tubular casing 17 reinforced at its upper reduced end by a shell 18. Detachably mounted in the lower end of the casing 17 by screws 19 or other fastening means are bearing retaining members 20 that fit around an adjustable bearing 21 located in the casing 17, said bearing having its upper end terminating in a locking head 22, and its lower end in a transmission housing 23 provided with a detachable bearing plate 24. The detachable bearing plate 24 coöperates with the transmission housing 23 in supporting a propeller shaft 25 having a conventional form of propeller 26 on its outer end and a beveled gear wheel 27 on its inner end. Meshing with the beveled gear wheel 27 is a beveled gear wheel 28 carried by the lower end of an engine shaft 29, journaled in the adjustable bearing 21 and extending through the elongated bearing 2 into the crank case 1 of the motor, said engine shaft having a rotary movement imparted thereto in the usual manner.

The transmission housing 23, which may be automatically rotated, has a depending propeller guard or rudder 30, and instead of mounting a pump on the transmission housing 23 as is the usual practice, I provide the shell 18 with a pump 31 that is operatively connected to the engine shaft 29 by beveled gear wheels 32 or other power transmission means.

A flexible pipe 33 connects the pump 31 to the engine cylinder 3 so that water may be circulated in the jackets of the cylinder 3 to cool the cylinder; it being understood that the pump 31 is immersed in water during the operation of the motor in connection with a boat.

Suitably fixed or clamped on the upper end of the sleeve 12 is a tubular bearing 34 and pivotally connected to said bearing, as at 35, is a yoke 36 surrounding said bearing and having its forward end provided with a lever 37. Slidable on the lever 37 is an extensible telescopic handle 38 and this handle may be of any desired length so that the steering and reversing of the boat to which the motor is attached may be conveniently controlled by an operator in proximity to the motor. It is only necessary to swing the lever 37 to the right or left in order to steer a boat by imparting movement, in a lateral plane, to the propeller 26. This is accomplished through the medium of the tubular bearing 34, sleeve 12, casing 17 and transmission housing 23, without affecting the driving relation between the engine shaft 29 and the propeller.

The rear end of the pivoted yoke 36, is pivotally connected, as at 39, to a latch rod 40 capable of being lengthened or shortened, said latch rod extending through a guide 41 forming part of the shell 18. Slidable in the guide 41 is a latch 42 which is connected to the rod 40, and said rod encircled by a coiled compression spring 43 within the guide 41, so that said latch will be held normally depressed. The latch 42 extends into the casing 17 and normally engages the locking head 22 of the adjustable bearing 21, so as to hold said bearing and the transmission housing 23 against a turning movement due to the rotation of the propeller 26.

When the lever 37 has its handle 38 depressed, the latch 42 is elevated against the action of the spring 43, releasing the locking head 22 so that the revolving propeller 26 may automatically swing in a lateral plane and assume a reverse position, as shown by dot and dash lines in Fig. 1. The latch 42 in assuming normal position will stop the locking head 22 so that the propeller 26 will be properly held in one of two positions for propelling a boat in a desired direction.

From the foregoing, it will be observed that the internal combustion engine constitutes a power plant with a steering post depending therefrom, and the supporting means for said power plant is capable of supporting the steering post at a desired angle relative thereto. This is essential on account of the sterns of boats being of various designs. With the propeller swiveled at the lower end of the boat it may be locked for movement in a lateral plane for steering purposes or released to turn about and reverse direction of travel.

What I claim is:—

1. In an outboard motor, the combination of a driven shaft, a tubular rotatable casing about said driven shaft, a transmission housing having a bearing rotatable in said casing and supporting a propeller operated from said driven shaft, retaining members fixed in said casing about the bearing of said transmission housing and means extending into said casing and engaging said bearing to hold said transmission housing against rotation relative to said casing.

2. The combination set forth in claim 1, and wherein the bearing of said transmission housing has a locking head resting on said retaining members, and said means is in the form of a latch engaging the locking head.

3. The combination set forth in claim 1, and wherein a shell on said casing serves as a guide for said means and as a support for a pump operated from said driven shaft.

4. The combination with the imm[illegible]rsed end

of an outboard motor, including a casing and a transmission housing supporting a rudder and propeller, of a bearing forming part of said housing and extending into said casing, retaining members fixed in said casing about said bearing and supporting said housing relative to said casing, and means engaging the upper end of said bearing adapted to hold said housing in an adjusted position relative to said casing.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM BUEHNER.

Witnesses:
KARL H. BUTLER,
ANNA M. DORR.