

Nov. 28, 1961

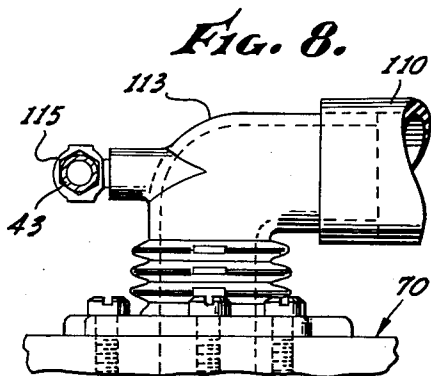
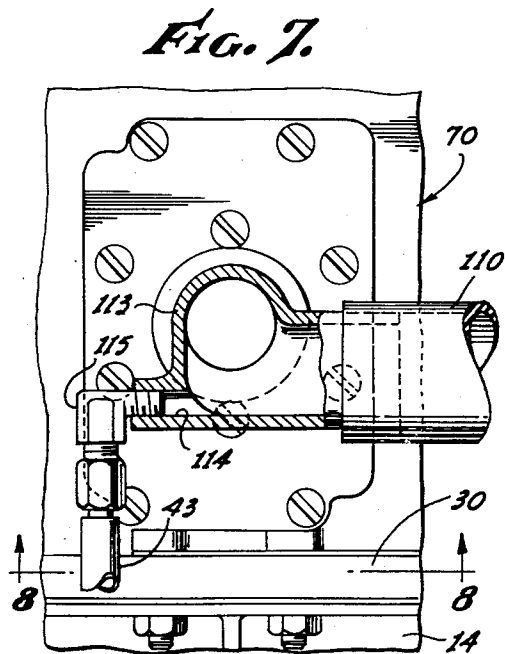
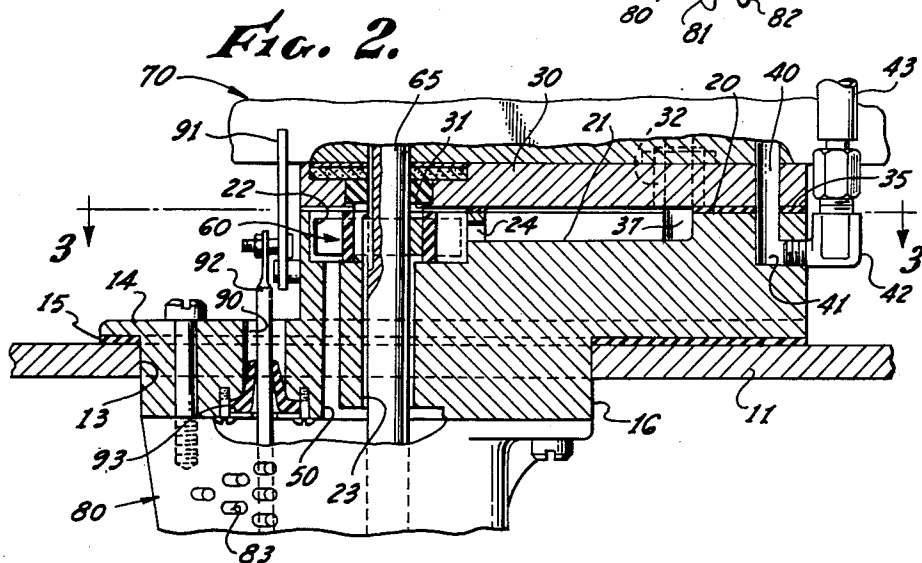
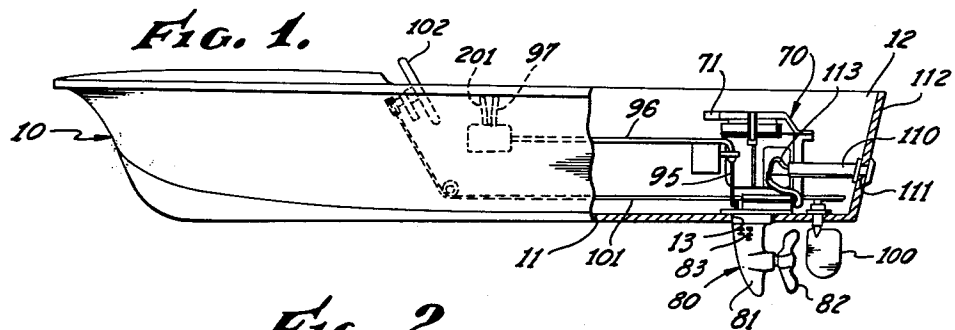
H. R. BRAKENSIEK

3,010,422

BOAT ENGINE

Filed April 15, 1959

2 Sheets-Sheet 1



INVENTOR.
HARRY R. BRAKENSIEK
 BY *Gene W. Arant*
 ATTORNEYS.

Nov. 28, 1961

H. R. BRAKENSIEK

3,010,422

BOAT ENGINE

Filed April 15, 1959

2 Sheets-Sheet 2

FIG. 3.

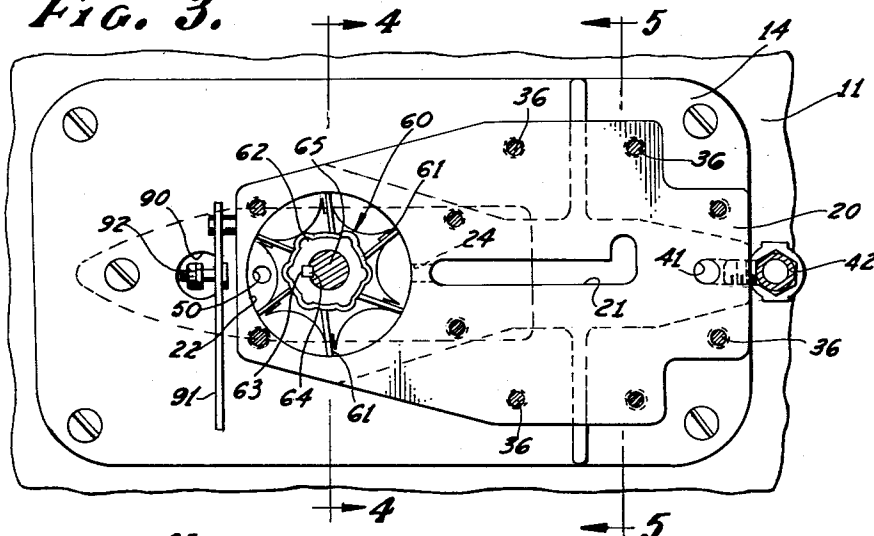


FIG. 4.

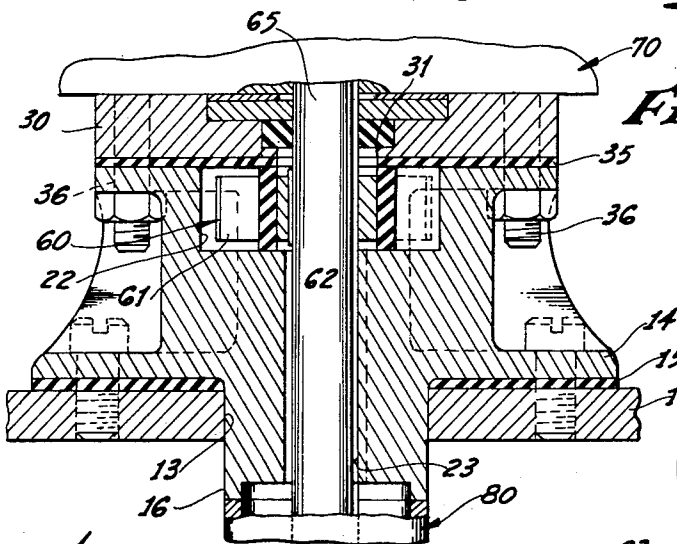


FIG. 5.

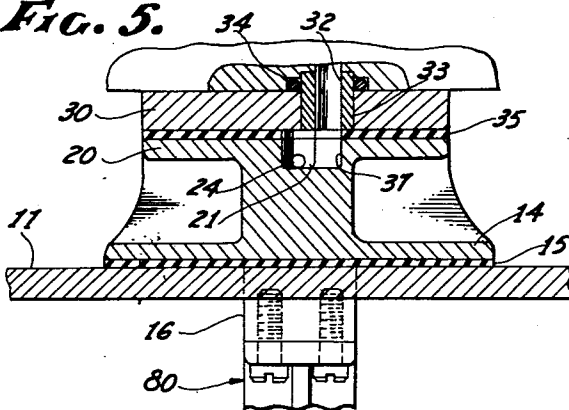
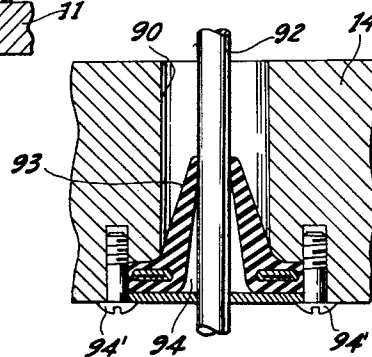


FIG. 6.



INVENTOR.
HARRY R. BRAKENSIEK
BY *Gene W. Arant*
ATTORNEYS.

1

3,010,422

BOAT ENGINE

Harry R. Brakensiek, 6132 Lorelei Ave., Lakewood, Calif.

Filed Apr. 15, 1959, Ser. No. 806,583

6 Claims. (Cl. 115—34)

This invention relates to an engine for boats.

Boating has become extremely popular during recent years, due principally to advances made in outboard motors which are relatively inexpensive and now highly efficient. The combined low cost and adaptability of a boat hull without inboard power propulsion and an outboard motor has made boating available to many who could not otherwise afford it.

However, propulsion of a boat by an inboard engine has many advantages over propulsion by an outboard motor, the principal advantage being that location of the engine inboard, nearer to the center of gravity of the boat, gives the boat much greater stability. Another advantage is that inboard propulsion, with the weight of the engine placed nearer the center of gravity of the boat, permits a much more level ride than is possible when the weight of an outboard engine is disposed far astern on the transom of the boat.

Some disadvantages of a standard inboard installation are that an elaborate bed for the inboard engine must be provided, a long shaft is required, difficult and impermanent watertight packing is necessary at the point where the shaft pierces the hull, and propeller and shaft repairs are frequently difficult and expensive to accomplish.

An object of the present invention is to provide an inboard boat engine modified from a standard outboard motor.

A further object of the invention is to provide an inboard engine which may be quickly and easily installed in a boat with a minimum of alterations to the boat hull and without shaft packing.

Another object of the invention is to provide an inboard boat engine which is efficient but relatively inexpensive and which requires a minimum of repair and maintenance.

These and other objects and advantages of the invention will become apparent from the detailed description which follows taken in conjunction with the drawings.

In the drawings:

FIGURE 1 is a side elevational view, partially cut away, of a boat with the engine installed therein.

FIGURE 2 is an enlarged cross-sectional view of an adaptor plate used to mount the engine on the hull.

FIGURE 3 is a view of the adaptor plate taken on the line 3—3 of FIGURE 2.

FIGURE 4 is an enlarged view taken on the line 4—4 of FIGURE 3.

FIGURE 5 is an enlarged view taken on the line 5—5 of FIGURE 3.

FIGURE 6 is an enlarged cross-sectional view of the watertight seal of the gear shift mechanism shown in FIGURE 2.

FIGURE 7 is a side elevational view, partially in section, of the exhaust outlet assembly of the engine.

FIGURE 8 is a view taken on the line 8—8 of FIGURE 7.

A boat 10 has a hull bottom 11 and an engine compartment 12 at the stern of said boat 10. An opening 13 is cut in the hull bottom 11, and adaptor plate 14 is mounted on said hull bottom in compartment 12 directly above said opening 13, with gasket 15 disposed between said hull bottom 11 and adaptor plate 14. A plate extension 16, preferably an integral part of said adaptor

2

plate 14, is tightly disposed in said opening 13 to form a watertight joint therewith.

Adaptor plate 14 has a raised platform 20 formed as an integral part thereof. A channel 21 is formed in said platform 20, and adjacent to said channel 21 is a circular chamber 22. Drilled in said chamber 22 and extending through said entire platform 20, adaptor plate 14 and plate extension 16 is a first open-end bore 23. Open-end passage 24 gives access from circular chamber 22 to channel 21.

A plate 30 has an open-end bore 31 therein aligned with said open-end bore 23 in chamber 22. A tube 32 is tightly disposed in a second open-end bore 33 in plate 30 by means of watertight gasket or collar 34. Plate 30 is mounted on platform 20, preferably with a gasket 35 therebetween. Mounting may be by any suitable means, such as by bolts 36. The open end of tube 32 communicates through an opening in gasket 35 with portion 37 of channel 21 so as to form a water passageway therewith when plate 30 is mounted on platform 20.

Plate 30 also has a third open-end bore 40 which is aligned with right angled bore 41 in platform 20. Mounted externally of said platform 20 and having access to said bore 41 is elbow 42, to which hose line 43 is attached by any suitable means.

A fourth open-end bore 50 is drilled in chamber 22 and extends parallel to first open-end bore 23 through platform 20, adaptor plate 14 and plate extension 16, and provides access to the intake ports hereinafter mentioned.

Disposed in said circular chamber 22 is an impeller 60 having flexible arms 61 and an open-end collar 62 aligned with said first open-end bore 23. Said collar bore has a key slot 63 therein, adapted to receive a spur 64 on a main motor shaft 65.

Mounted on the plate 30 is an engine assembly 70, preferably a standard outboard internal combustion engine assembly consisting of a cylinder head, cylinders, piston combination, adapted to drive the shaft 65, and having starter means 71.

Shaft 65 is loosely disposed in open-end bores 23 and 31, so as to provide ample clearance room for insertion of the shaft therein.

Standard outboard motor lower propeller assembly 80, consisting of a skeg 81, pivotally mounted propeller 82, and a transmission (not shown), and including water intake ports 83, is mounted on plate extension 16, and main shaft 65 is connected to propeller 82 by the said transmission means.

It will be recognized that because the center clamping and steering means of a standard outboard motor have been eliminated in the assembly of the present invention, the shaft 65 may be a standard outboard motor main shaft, foreshortened to extend from the engine assembly 70, through the plate 30, gasket 35, platform 20, keel plate 14, gasket 15, and plate extension 16, into the transmission in the lower propeller assembly 80.

An open-end passage 90 is provided in adaptor plate 14 and plate extension 16, and is spaced from platform 20. Pivotally mounted on platform 20 adjacent to said passage 90 is lever arm 91, on which gear shift shaft 92 is pivotally mounted intermediate the ends of said lever arm 91 and in alignment with passage 90. Said shaft 92 is slideably disposed in said passage 90.

Frustro-conical gasket 93, having open-end chamber 94, is disposed in passage 90 at the lower surface of plate extension 16, and is held in position by any suitable means such as bolts 94' shown in FIGURES 2 and 6. Shaft 92 is disposed in chamber 94 in such manner as to be slideable therein, but so that said gasket 93 forms a substantially watertight joint around said shaft 92.

Gear shift shaft 92 is connected internally of the lower propeller assembly 80 with a transmission (not shown).

The free end 95 of lever arm 91 is connected by standard remote connection means 96 to standard gear shift lever means 97 mounted forward in the boat 10, as best shown in FIGURE 1.

A rudder 100 is pivotally mounted on hull bottom 11 aft of propeller 82, and is connected by standard rope or cable means 101 to a steering apparatus 102 in recognized manner, all as shown in FIGURE 1.

Exhaust pipe 110 is mounted in opening 111 of transom 112, above the waterline of boat 10 and is connected to exhaust manifold unit 113, which in turn is mounted on engine assembly 70. Exhaust manifold unit 113 has an open-end passage 114 therein, and mounted at the external end of said passage 114 is elbow 115, to which hose line 43 is connected.

Standard remote acceleration means, shown at 201 in FIGURE 1, are also provided.

When the motor, mounted inboard as hereinabove described, is started, water for cooling, impelled by impeller 60, enters through ports 83 and follows bore 50 into chamber 22. It next flows through passage 24 and channel 21, up tube 32 and into the standard circulating system of engine assembly 70. It then returns through bores 40 and 41 to elbow 42, hose line 43 and manifold 113 to exhaust pipe 110, whence it is exhausted into the air, along with the exhaust gases from the engine.

While the instant invention has been shown and described herein in what is conceived to be the most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is therefore not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent structures.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An inboard boat engine which comprises: an adaptor plate including an impeller compartment; an outboard motor lower propeller assembly mounted on one surface of said adaptor plate; an engine assembly mounted on the other surface of said adaptor plate; a motor shaft between said engine assembly and said lower propeller assembly, rotationally disposed in said adaptor plate and passing through said impeller compartment thereof; and circulatory water cooling means adapted for intake of water at the lower propeller assembly, circulation of said water through said adaptor plate and about said engine assembly, and exhaust of said water, said means including an impeller disposed within said impeller compartment and rotatably carried on said shaft.

2. A boat engine as claimed in claim 1 in which said adaptor plate has a straight passageway which receives said motor shaft, said straight passageway having an enlarged portion providing said impeller compartment; and separate passageway means formed on opposing sides of said impeller compartment for carrying water therethrough in a direction perpendicular to said shaft.

3. An inboard boat engine which comprises; an adaptor plate; an outboard motor lower propeller assembly mounted on one surface of said adaptor plate; remote control gear shift means connected to said lower propeller assembly; an engine assembly mounted on the other surface of said adaptor plate; remote control acceleration and deceleration means connected to said engine assembly; a motor shaft between said engine assembly and said lower

propeller assembly, rotationally disposed in said adaptor plate, and adapted to be driven by said engine assembly and to drive said propeller assembly; and circulatory water cooling means adapted for intake of water at the lower propeller assembly, circulation of said water through said adaptor plate and about said engine assembly, and exhaust of said water into the atmosphere.

4. An inboard boat engine which comprises: an adaptor plate having an open end passage therein; an outboard motor lower propeller assembly mounted on one surface of said adaptor plate; remote control gear shift means freely, slideably disposed in said open end passage and connected to said lower propeller assembly; a frusto-conical gasket disposed in said passage and about said gear shift means, and adapted to form a water-tight joint; an engine assembly mounted on the other surface of said adaptor plate; remote control acceleration and deceleration means connected to said engine assembly; a motor shaft between said engine assembly and said lower propeller assembly, rotationally disposed in said adaptor plate and adapted to be driven by said engine assembly and to drive said propeller assembly; and circulatory water cooling means adapted for intake of water at the lower propeller assembly, circulation of said water through said adaptor plate and about said engine assembly, and exhaust of said water into the atmosphere.

5. A boat engine as claimed in claim 4 in which said adaptor plate has an impeller compartment formed therein, separate passageway means on opposing sides of said impeller compartment for carrying water therethrough, and an impeller carried by said motor shaft and disposed within said impeller compartment.

6. An adaptor plate capable of being used in conjunction with a boat having an opening in a flat under-portion of its hull, for supporting an engine assembly within the boat and an outboard motor lower propeller assembly underneath the boat in a cooperably operable relationship, said adaptor plate comprising: a horizontally extending main body portion of approximately uniform thickness throughout and an integrally formed extension depending downwardly from said main body portion and adapted to be tightly disposed in said boat hull opening to form a water-tight joinder therewith; a first perpendicular bore extending vertically through both said main body portion and said extension for receiving a motor shaft intercoupling said engine and propeller assemblies, said first bore having an enlarged portion at its upper end providing an impeller compartment; a passageway communicating with one side of said impeller compartment and extending downwardly through said main body portion and said extension for carrying cooling water from said propeller assembly upwardly to said impeller compartment; and a horizontal channel formed in the upper surface of said main body portion communicating with said impeller compartment for carrying water from said impeller compartment to said engine assembly.

References Cited in the file of this patent

UNITED STATES PATENTS

1,567,127	Evinrude	Dec. 29, 1925
1,807,622	Colstad	June 2, 1931
1,874,213	Wallace	Aug. 30, 1932
2,656,812	Kiekhaefer	Oct. 27, 1953
2,718,792	Kiekhaefer	Sept. 27, 1955
2,796,737	Harger	June 25, 1957