Jan. 21, 1969 J. BECKER ETAL 3,422,780

PROPULSION SYSTEM FOR WATERCRAFT

Filed March 28, 1967 Sheet 1 of 5

Fig. 6

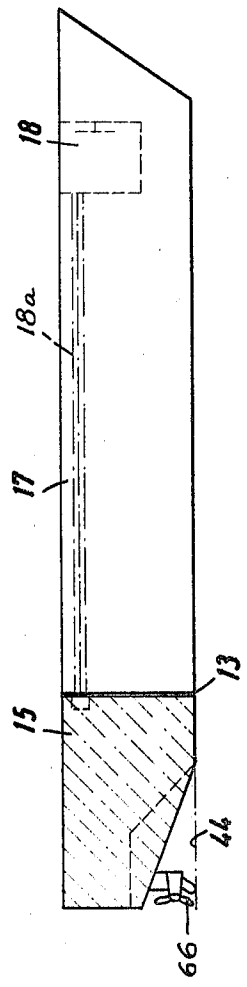
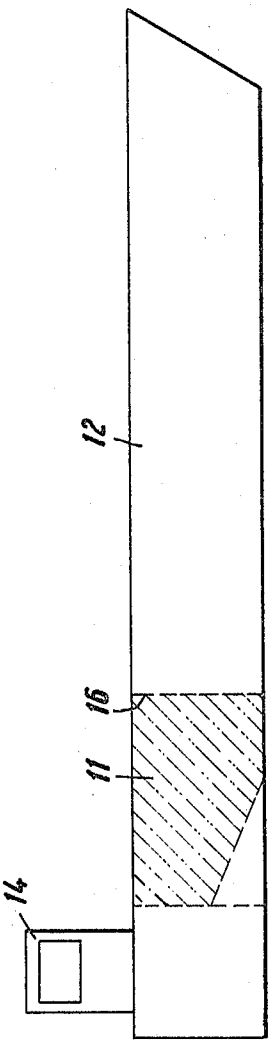


Fig. 1



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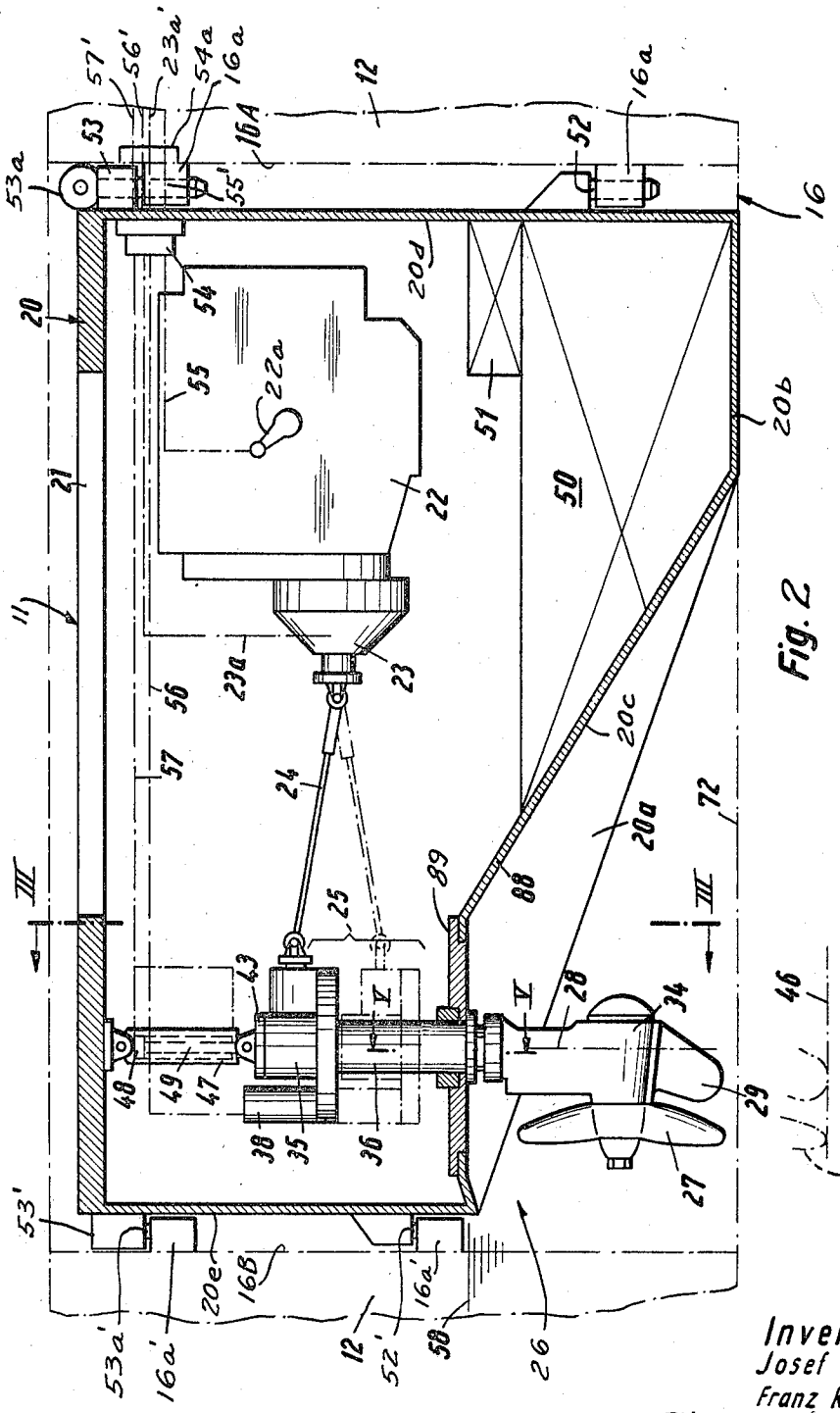


Fig. 2

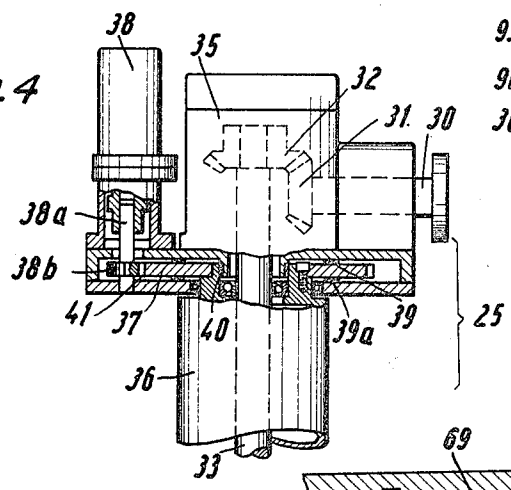
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PROPULSION SYSTEM FOR WATERCRAFT

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Fig. 4



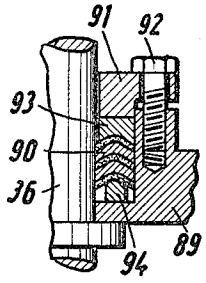
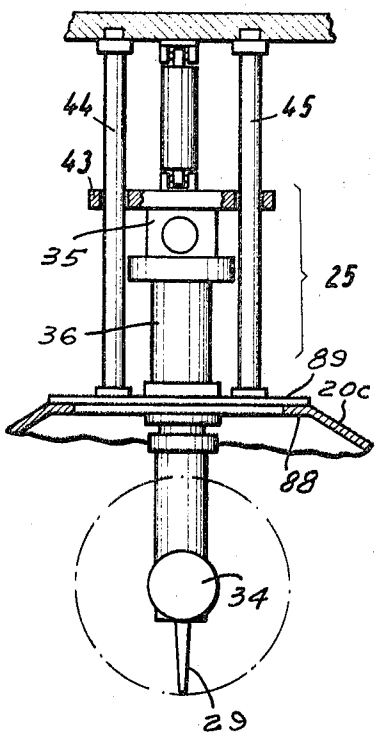


Fig. 5

Fig. 3



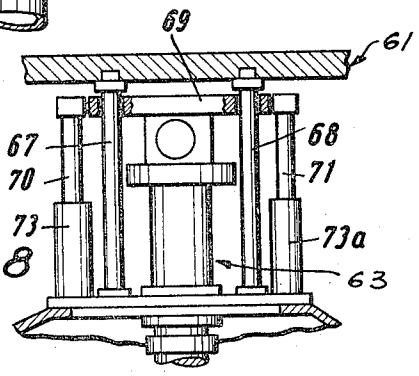


Fig. 8

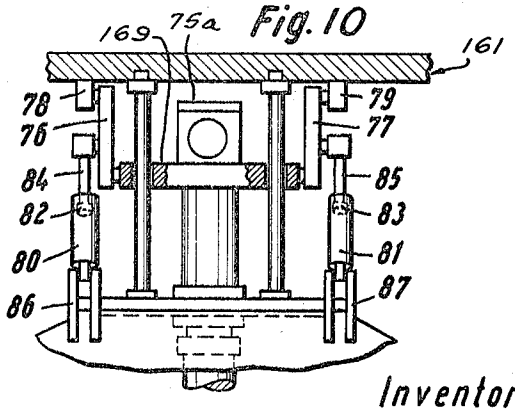


Fig. 10

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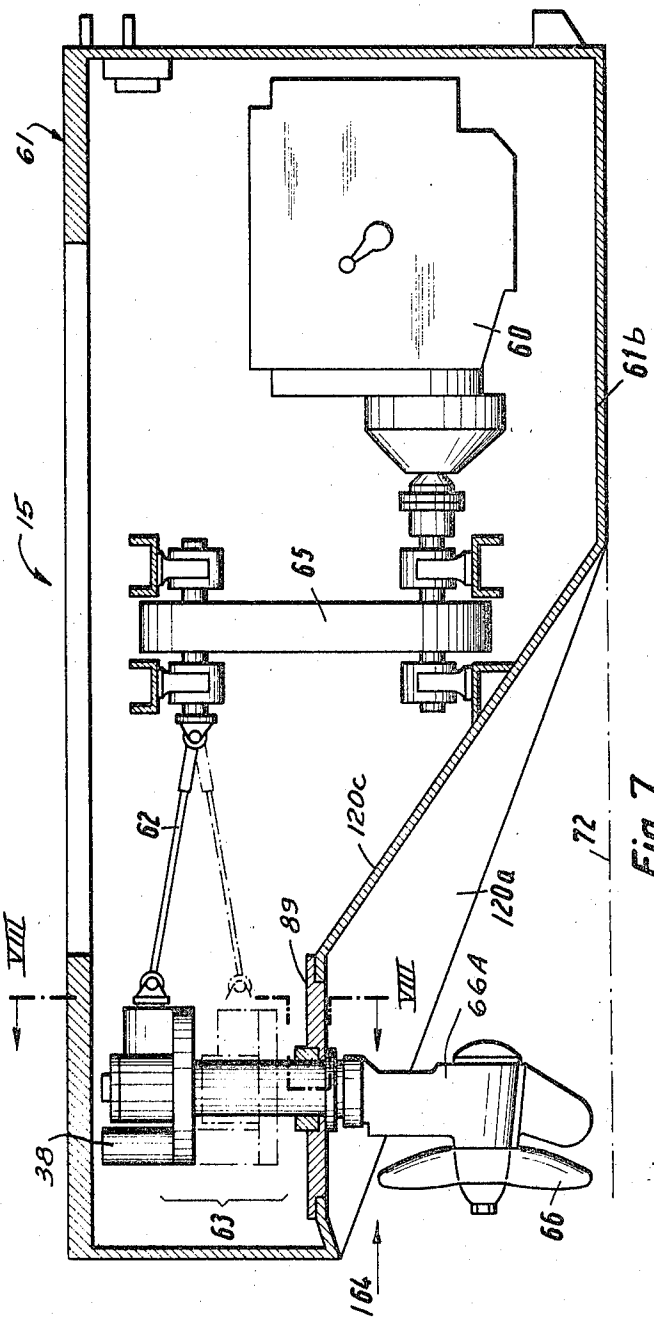


Fig. 7

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PROPULSION SYSTEM FOR WATERCRAFT

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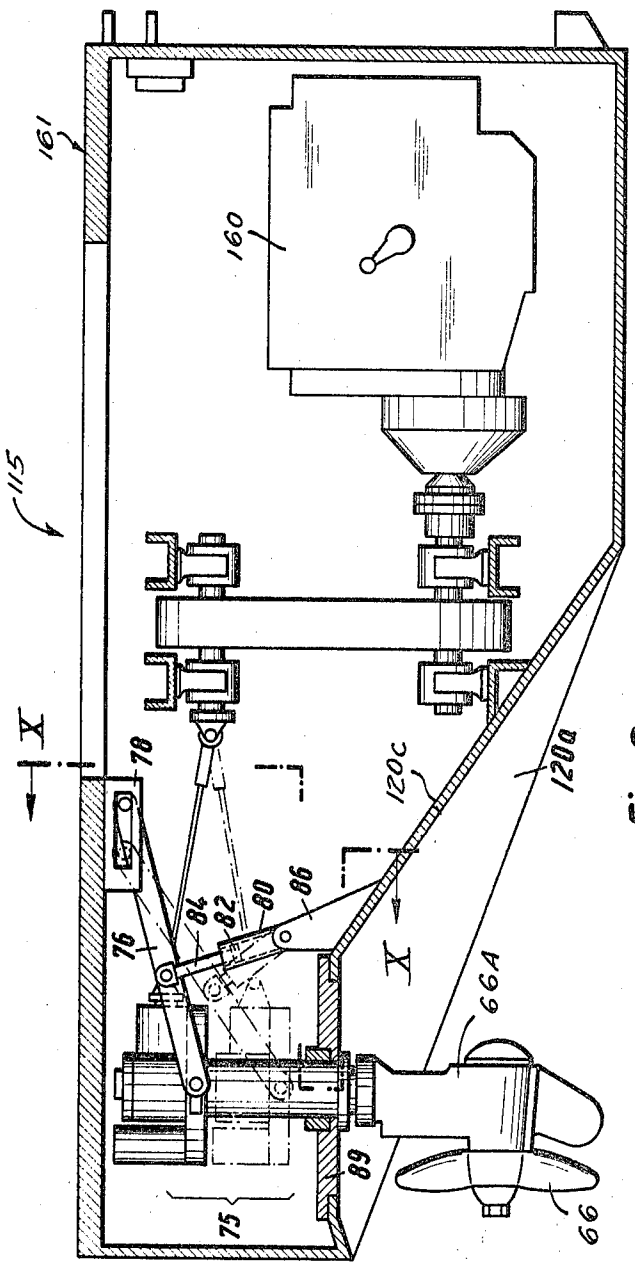


Fig. 9

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United States Patent Office 3,422,780
Patented Jan. 21, 1969

3,422,780

PROPULSION SYSTEM FOR WATERCRAFT

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Filed Mar. 28, 1967, Ser. No. 626,621
Claims priority, application Germany, Feb. 4, 1967, 41,941/65
U.S. Cl. 114—77 22 Claims
Int. Cl. B63b 3/02; B63h 5/12

ABSTRACT OF THE DISCLOSURE

A transferable propulsion system which can be attached to or which can constitute the stern portion of a watercraft. Comprises a housing or casing which accommodates an engine or a motor. A propeller mount is installed on the housing and is movable up and down to move its propeller or propellers to a series of vertically spaced positions. The mount is also turnable about a vertical axis to change the angular position of the propeller in order to change the direction of forward movement of the watercraft to which the housing is connected. A power train connects the output shaft of the engine or motor with the propeller shaft or shafts and a turning unit is provided to turn the mount about the vertical axis. A lifting unit serves to move the propeller mount up and down. When the watercraft is docked, the entire propulsion unit can be detached from its hull to be connected with the hull of another watercraft.

Background of the invention

The present invention relates to watercraft in general, and more particularly to a propulsion system for watercraft. Still more particularly, the invention relates to a transferable propulsion system for barges, lighters, other types of cargo vessels and analogous watercraft.

Self-propelled watercraft, particularly seagoing vessels, are invariably provided with power plants which are permanently installed in the hull. Such mounting of power plants brings about certain advantages as well as a number of drawbacks, especially if the hull consists of synthetic plastic material which is often desirable in mass production of ships. Installation of a power plant or propulsion system in a plastic hull presents numerous problems. Furthermore, it is customary to produce the hull in a first factory and the power plant in a second factory so that the hulls must be transported to the factory for power plants or vice versa in order to permanently install the power plant in the hull. Furthermore, ships with permanently installed power plants are often uneconomical because they must remain idle for extended periods of time, for example, during loading or unloading of barges, lighters and other types of cargo vessels. In such vessels, the power plant remains idle because the hull must stay in harbor even though the power plant could be put to use in another vessel.

It is also known to propel or push unpowered vessels by resorting to tugs which are capable of towing one or more vessels at a time and of maneuvering such vessels in the harbor. However, a tug invariably constitutes a self-sustaining watercraft and cannot be shipped overland.

Accordingly, it is an important object of the present invention to provide a propulsion system or power plant which can be connected with or detached from the hull of a riverboat, lake boat, seagoing boat or another watercraft so that it can be used to propel one of a series of watercraft.

Another object of the invention is to provide a propulsion system of the just outlined character which can be

readily transported, either overland or on water, so that it can be used to propel a second watercraft when the first watercraft is idle, or vice versa.

A further object of the invention is to provide a propulsion system which can be used to propel and maneuver loaded or empty watercraft in shallow or deep water, whose water displacing member or members can be used to propel as well as to steer the craft, and wherein such water displacing member or members can be shielded and protected from damage during transport between watercraft or during transfer to or from storage.

An additional object of the invention is to provide a propulsion system which occupies little room, which can be manipulated by conventional cranes or like lifting apparatus, which can be rapidly detached from or connected with the hull of a craft, and whose movable parts can be operated by remote control, either from a control stand on the hull of a watercraft or from a control stand of the propulsion system proper.

Still another object of the invention is to provide a propulsion system which can be used for propelling two or more watercraft, which can be used in connection with different types of hulls, whose housing may but need not consist of the same material as the hull, and which occupies little room when put to storage or during transport from one vessel to another.

A concomitant object of the invention is to provide a propulsion system which can be produced and assembled independently of the hull of a watercraft and wherein such independent production does not bring about any drawbacks since the propulsion system is intended to be separated from hulls whenever the craft which has been connected therewith is to remain idle for periods of such length that it is economical to use the propulsion system for powering of another watercraft.

An ancillary object of the invention is to provide a propulsion system of the above outlined characteristics which can be produced and assembled at a cost which is but a fraction of the cost of a harbor tug or seagoing tug, which can be stacked with similar propulsion systems to occupy little room in storage or transit from vessel to vessel, and wherein the water displacing member or members also serve as a means for steering the watercraft.

Summary of the invention

One feature of our invention resides in the provision of a transferable propulsion system for barges, lighters, tankers and similar watercraft. The propulsion system comprises a support which is preferably constituted by a hollow housing provided with means for facilitating its connection to or separation from the stern portion of a hull, a prime mover which can comprise one or more electric or hydraulic motors or internal combustion engines preferably installed in the interior of the housing, a propeller mount carried by the housing, at least one propeller rotatably installed in the mount below the bottom wall of the housing, and a power train connecting the prime mover with the propeller. The propeller mount is preferably turnable about a vertical axis so that the propeller can be used to steer the watercraft, and the mount is preferably movable up and down so as to move the propeller to a plurality of vertically spaced positions. The propulsion system then comprises a turning or steering unit which is operatively connected with the propeller mount and is adapted to turn the latter about the vertical axis, and a lifting unit which serves to move the propeller mount up or down. Such vertical movements of the propeller mount are desirable in order to lift the propeller during travel in shallow water and to reduce the overall dimensions of the propulsion system during transport from vessel to vessel or in storage.

The housing of the propulsion system may be installed

in a shaft provided in the stern portion of a hull or it may actually resemble the stern of a watercraft and is then connectable with the rearmost portion of the hull, for example, by means of eyes, hooks, pintles, bolts and/or analogous fastening devices.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved propulsion system itself, however, both as to its construction and its mode of operation, together with additional features and advantages thereof, will be best understood upon perusal of the following detailed description of certain specific embodiments with reference to the accompanying drawing.

Brief description of the drawing

FIG. 1 is a schematic side elevational view of an unpowered watercraft whose hull is connected with a propulsion system embodying one form of our invention;

FIG. 2 is an enlarged longitudinal vertical sectional view of the propulsion system of FIG. 1;

FIG. 3 is a fragmentary sectional view as seen in the direction of arrows from the line III—III of FIG. 2 and illustrates certain details of the lifting unit for the propeller mount;

FIG. 4 is an enlarged fragmentary view of a detail of the structure shown in FIG. 2, with certain parts broken away to illustrate the transmission of the turning unit;

FIG. 5 is a greatly enlarged fragmentary sectional view as seen in the direction of arrows from the line V—V of FIG. 2 and illustrates the manner of sealingly mounting a portion of the power train in the bottom wall of the housing;

FIG. 6 is a schematic side elevational view of an unpowered watercraft whose hull is connected with a modified propulsion system whose housing resembles the stern portion of a vessel;

FIG. 7 is an enlarged longitudinal vertical sectional view of the housing forming part of the propulsion system shown in FIG. 6;

FIG. 8 is a transverse vertical sectional view as seen in the direction of arrows from the line VIII—VIII of FIG. 7 and illustrates parts of the lifting unit for the propeller mount of the system shown in FIGS. 6 and 7;

FIG. 9 is a longitudinal vertical sectional view through the housing of a third propulsion system; and

FIG. 10 is a transverse vertical sectional view as seen in the direction of arrows from the line X—X of FIG. 9 and illustrates certain parts of the lifting unit.

Description of the preferred embodiments

Referring first to FIG. 1, there is shown a watercraft whose hull is denoted by the numerial **12**. The stern portion of the hull **12** is provided with a vertical opening or shaft **16** which accommodates a transferable propulsion system **11**. The hull **12** does not carry a permanently installed propulsion system, i. e., the watercraft can be powered solely by the propulsion system **11** which can be lifted out of the shaft **16** and is then ready to be attached to the hull of another watercraft. The control stand **14** is provided on the rearmost portion of the hull **12**, i.e., rearwardly of the shaft **16**, and includes the customary steering wheel as well as other devices which can operate the components of the propulsion system **11** by remote control. The hull **12** may consist of synthetic plastic material and the housing of the propulsion system **11** preferably consists of metal. This housing resembles a trunk or box and, therefore, occupies relatively little room in transit or in storage. It can be shipped by train, boat, truck, trailer or helicopter. Under certain circumstances, the hull will consist of metal and the housing of the propulsion system will consist of plastic, or the material of the housing will be the same as that of the hull.

FIG. 2 illustrates the housing **20** of the propulsion system **11** in longitudinal vertical section. This housing **20** constitutes a support for a propeller **27**, a prime mover which includes an electric or hydraulic motor or an internal combustion engine **22** installed in the upper portion of the internal space of the housing **20**, and a power train which connects the output shaft of the engine **22** with the shaft of the propeller **27**. The propeller **27** is located outside of the housing **20** and can be driven to rotate about a substantially horizontal axis. In addition, the propeller **27** and its mount **34** are turnable about a vertical axis **28** in order to change the direction of travel of the watercraft in which the propulsion system **11** is being put to use. The top wall of the housing **20** is provided with a hole **21** which is normally sealed by a suitable cover or lid (not shown) but can be exposed so that the personnel in charge can gain access to the parts which are installed in the housing. The lower portion of the internal space in the housing **20** can accommodate certain auxiliary equipment, such as a fuel tank **50**, a battery **51** or another suitable source of electrical energy used to power the starter and ignition systems of the engine **22**, and others.

The abovementioned power train between the output shaft of the engine **22** and the horizontal shaft of the propeller **27** includes a first portion which is constituted by a clutch **23**, a second portion or transmission which is installed in a transmission casing **25**, and a third portion which transmits torque from the first portion to the second portion and is shown in the form of a cardanic shaft **24**. The ends of this shaft **24** are articulately coupled to the first and second portions of the power train by universal joints in a manner well known from the art.

The propeller mount **34** is provided with a skeg **29** which facilitates steering of the watercraft.

As shown in FIG. 4, the transmission which constitutes the second portion of the power train includes a horizontal shaft **30** carrying a bevel gear **31** meshing with a bevel gear **32** at the upper end of a vertical shaft **33**. The lower end of the shaft **33** carries a further bevel gear (not shown) meshing with a bevel gear on the horizontal shaft of the propeller **27**. Thus, the flow of power is from the output shaft of the engine **22**, through the shafts **24**, **30**, bevel gears **31**, **32**, shaft **33**, bevel gears at the lower end of the shaft **33**, and the shaft of the propeller **27**. The shaft **24** comprises two sections which are telescoped into each other so that this shaft will continue to transmit torque to the shaft **30** even if the casing **25** is moved vertically in order to locate the mount **34** and propeller **27** in one of a series of vertically spaced positions. The lowermost position of the propeller **27** is shown in FIG. 2 at **27***a* by phantom lines. In such lowermost position, the propeller **27** extends to a level **46** beyond the lower portion **20***b* of the bottom wall of the housing **20**. A second portion **20***c* of the bottom wall is inclined upwardly and rearwardly and is flanked by two downwardly extending side walls **20***a* (only one shown in FIG. 2) to define therewith a space **26** for the mount **34** and propeller **27**. FIG. 2 shows the propeller **27** (by solid lines) in an upper end position in which the propeller is located between the level **72** of the wall portion **20***b* and the level of the uppermost part **88** of the bottom wall portion **20***c*. The propeller **27** will assume such upper end position when the watercraft is used in shallow water or when the propulsion system **11** has been detached from the hull **12** for storage or for transit to another locale of use. The wall portion **20***c* and the side walls **20***a* then shield the propeller **27** from several sides and allow for placing of the bottom wall portion **20***b* on top of another housing **20** so that several propulsion systems **11** can be stacked above and adjacent to each other.

The propeller mount **34** is rigid with the tubular or cylindrical lower portion **36** of the transmission casing **25**. This lower portion **36** is turnable with reference to the upper portion **35** about the vertical axis **28** in order to change the angular position of the propeller **27**. The turning unit for the lower portion **36**, mount **34** and

propeller 27 comprises a reversible motor 38 which is installed on a flange of the upper portion 35 and a special transmission which is shown in FIG. 4. This transmission includes a large disk-shaped spur gear 37 whose teeth 41 mesh with the teeth of a pinion 38*b* provided at the lower end of a shaft 38*a* which is the output shaft of the motor 38. When the motor 38 is started, it rotates the pinion 38*b* in a clockwise or in a counterclockwise direction and the pinion 38*b* rotates the gear 37 together with the tubular lower portion 36 and propeller mount 34. The motor 38 may be a hydraulic motor, an electric motor or any other suitable prime mover which can rotate the gear 37 in two directions.

The exact construction of the turning unit which includes the motor 38 and the transmission 37–38*b* is disclosed and claimed in the copending application Ser. No. 626,231 of Becker, filed Mar. 27, 1967. It suffices to say here that the gear 37 is preferably mounted in one or more radial bearing 40 and two thrust bearings 39, 39*a*.

The lifting unit for the transmission casing 25 is shown in FIGS. 2 and 3. This lifting unit comprises one or more vertical guides in the form of columns or posts 44, 45 whose ends are affixed to the top wall and to the bottom wall portion 20*c* of the housing 20. The upper portion 35 of the casing 25 is connected with a carriage or crosshead 43 which is slidable along the columns 44, 45 and is connected with the lower end of a piston rod 49 whose piston 48 is reciprocable in a double-acting cylinder 47 affixed to the top wall of the housing 20. The position of the piston rod 49 and cylinder 47 can be reversed, and it is equally possible to utilize two or more double-acting cylinders or other motor means for moving the carriage 43 up and down. For example, the carriage 43 may be provided with a rack meshing with a pinion driven by an electric motor, hydraulic or pneumatic motor, or an internal combustion engine.

The water surface is shown in FIG. 2 at 58. When the watercraft is loaded with cargo and extends deeper into water, the propeller 27 can remain in the position which is shown by solid lines. Furthermore, the propeller 27 will remain in such solid-line position when the watercraft is used in shallow waters as well as when the propulsion system 11 is being shipped or is in storage. The propeller 27 will be lowered by piston rod 49 to assume or to approach the phantom-line position 27*a* when the watercraft is used in deep water or when the hull 12 is empty so that it extends further above the water surface 58. This will insure that the propeller 27 is sufficiently immersed to displace water and to properly steer the watercraft.

The connecting device for securing the propulsion system 11 to a transversely extending rear wall 16A of the hull 12 is shown in FIG. 2. This device comprises eyes 16*a* on the wall 16A, a pintle 52 on the front end wall 20*d* of the housing 20 and a bolt 53*a* which extends through the upper eye 16*a* of the wall 16A and the adjoining eye 53 on the front wall 20*d*. Other types of connecting devices can be used if desired. FIG. 2 further shows that a second composite connecting device (including parts 16*a*′ 52′, 53′, 53*a*′) is provided on the rear wall 20*e* of the housing 20 and on the adjoining wall 16B of the hull 12. These connecting devices allow for rapid detachment of the propulsion system 11 so that the housing 20 can be lifted out of the shaft 16 by means of a crane or the like. The walls 16A, 16B bound the front and rear ends of the shaft 16.

FIG. 2 also shows a series of remote-control operating means 55, 23*a*, 56, 57 which are respectively used to regulate the operation of the engine 22, clutch 23, reversible motor 38 and double-acting cylinder 47. A socket or plug 54 on the front wall 20*d* accommodates the terminals of operating means 55, 23*a*, 56, 57 and can be coupled with a plug or socket 54*a* containing the terminals of complementary operating means 55′, 23*a*′, 56′, 57′ leading to the control stand 14 of FIG. 1 and/or to another point in or on the hull 12 so that all movable parts of the propulsion system 11 can be regulated by remote control. The engine 22 can be operated at several speeds and such speeds will be selected by the operating means 55 which can also serve as a means for starting and/or arresting the engine. It is further clear that the control stand 14 can be provided in or on the housing 20 so that the operating means 55′, 23*a*′, 56′, 57′ may be dispensed with. The operating means 55 includes a speed changer lever 22*a* on the block of the engine 22.

FIG. 5 illustrates a stuffing box which serves as a seal between the tubular lower portion 36 of the transmission casing 25 and a ring 89 sealingly affixed to the annular uppermost part 88 of the bottom wall portion 20*c* shown in FIG. 2. The stuffing box comprises a stack of deformable sealing elements or gaskets 90 which are disposed between upper and lower compressing rings 93, 94. The gland 91 is affixed to the ring 89 by bolts 92 and bears against the ring 93 with such force that the gaskets 90 undergo deformation and prevent penetration of water about the external surface of the tubular portion 36. As stated before, the tubular portion 36 is movable up and down to move the mount 34 and propeller 27 between a plurality of vertically spaced positions in response to admission of oil or another pressure medium to the upper or lower chamber of the double-acting cylinder 47. The valves which regulate the flow of such pressure medium form part of the remote-control operating means 57 and are not specifically shown in the drawings.

Referring now to FIG. 6, there is shown a second watercraft, e.g., a barge or a lighter, whose hull is denoted by the numeral 17. The propulsion system 15 resembles the stern of a barge or lighter and is detachably connected to a transversely extending rear wall 13 of the hull 17. FIG. 7 illustrates certain elements of the connecting device which can be used to establish a readily separable connection between the housing 61 of the propulsion system 15 and the hull 17. The control room or stand is shown in FIG. 6 at 18, and the remote-control operating means 18*a* correspond to the operating means 55′, 23*a*′, 56′, 57′ of FIG. 2. The manner in which the housing 61 of the propulsion system 15 can be stacked, transported and/or stored is the same as described in connection with FIGS. 1 to 5.

The construction of the propulsion system 15 is illustrated in FIG. 7. The prime mover 60 (e.g., an electric or hydraulic motor) is accommodated in the lower portion of the housing 61 and the power train of this propulsion system 15 again includes a cardanic shaft 62 which receives torque from a transmission here shown as a belt drive 65. The latter can be replaced by a gear train or the like. The belt drive 65 is necessary because the output shaft of the motor 60 is located at a level below the casing 63 of a transmission which receives torque from the left-hand end of the shaft 62. The propeller is shown at 66 and, when lifted to its upper end position, this propeller enters a space 164 in which its mount 66A extends to a level between the side walls 120*a* (only one shown in FIG. 7). The level of the lower portion 61*b* of the bottom wall is shown at 72 and the lower end position of the propeller 66 is indicated by phantom lines, as at 66*a*. The construction of the turning unit (including the reversible motor 38) is the same as described in connection with FIG. 4. The lifting unit is different from that of the propulsion system 11 and is illustrated in FIG. 8. The upper portion of the transmission casing 63 is connected with a carriage or crosshead 69 which is reciprocable along vertical guide rods or columns 67, 68. The lifting unit includes two double acting cylinders 73, 73*a* which are affixed to the upper portion of the casing 63 and receive pistons whose piston rods 70, 71 are affixed to the top wall of the housing 61.

If the motor 60 of FIG. 7 is replaced by an internal combustion engine, the fuel tank, battery and/or other auxiliary equipment may be installed in the upper portion

of the housing **61** or adjacent to the belt drive **65**. The position of the prime mover with reference to the housing **20** or **61** will depend on the size of the prime mover and housing, on the desired location of the center of gravity, on safety regulations in various countries, and on certain other factors.

The exact configuration of the space below the ring **89** in the bottom wall portion **20***c* (FIG. 2) or **120***c* (FIG. 7) is of secondary importance. All that counts is assemble or to provide the bottom wall of the housing **20** or **61** with two or more portions which are disposed at or extend to different levels in order to provide a space above the lowermost bottom wall portion into which the propeller mount can be lifted, either completely or sufficiently to effect a considerable reduction in the dimensions of the propulsion system during shipment or in storage.

FIG. 9 illustrates a third propulsion system **115** which comprises a housing **161** similar to the one shown in FIG. 7 and accommodating a similar prime mover **60**. The main difference between the systems **15** and **115** is that the latter comprises a modified lifting unit for the propeller mount **66**A. Certain details of this modified lifting unit are also shown in FIG. 10. It comprises a system of links **76**, **77** having lower ends articulately and slidably coupled to a carriage **169** connected with the upper portion **75***a* of the transmission casing **75**. The upper ends of the links **76**, **77** are provided with pins extending into channels provided in ways **78**, **79** affixed to the top wall of the housing **161**. The double-acting hydraulic or pneumatic cylinders **80**, **81** are pivotally secured to brackets **86**, **87** affixed to the bottom wall of the housing **161**, and the pistons **82**, **83** in the cylinders **80**, **81** have piston rods **84**, **85** pivotally affixed to the links **76**, **77**. The manner in which the links **76**, **77** change their positions in response to withdrawal of piston rods **84**, **85** into the respective cylinders **80**, **81** is indicated in FIG. 9 by phantom lines. Retraction of piston rods **84**, **85** will cause the links **76**, **77** to move the transmission casing **75** downwardly so that the propeller **66** will be moved to the lower end position **66***a*. The valves which regulate the flow of pressure fluid to and from the cylinders **80**, **81** are of commercially available type and, therefore, are not shown in the drawings.

An important advantage of the lifting unit shown in FIGS. 9 and 10 that it occupies less space (as seen in the vertical direction of the housing **161**) than a lifting unit which utilizes fluid-operated cylinder and piston assemblies above the crosshead **43** or **69**.

The showing of the housings **20**, **61** and **161** is more or less schematic, i.e., the exact form of the housing for the propulsion system **11**, **15** or **115** need not be the same as shown in the drawings. Furthermore, such housings may be provided with additional inlet or outlet openings or holes. Each of these housings may be made of two or more sections which can be welded, bolted or otherwise assembled with each other. All that counts is to construct and assemble the improved propulsion system in such a way that it can form a self-sustaining unit which can be connected with the hull of an unpowered vessel and is readily separable therefrom to be of use for propelling another vessel or to be put to storage if the vessel is to be docked for extended periods of time and if there is no need to propel other vessels.

If desired, a heavily laden barge can be propelled by resorting to two propulsion systems which are mounted at the opposite sides of the hull. Furthermore, a single propulsion system can be attached to other than stern portions of barges or like vessels.

Since all or nearly all sensitive components of the propulsion system are accommodated in the housing, the latter can be readily manipulated by cranes or like lifting and stacking devices. If desired, the lifting unit of the propulsion system can be arranged to withdraw the propeller and its mount into the interior of the housing **20**, **61** or **161** so that the system will take the form of a compact box wherever it is put to storage or during transfer from vessel to vessel. Furthermore, and though the drawings show propulsion systems with built-in prime movers, it is also possible to provide each hull with one or more prime movers and power take-off devices which are coupled to the power train of the propulsion system when the latter is properly connected to the hull.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features which fairly constitute essential characteristics of the generic and specific aspects of our contribution to the art.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A transferable propulsion system for watercraft comprising, in combination, a floatable housing having a pair of upright side walls, a pair of upright end walls connected to and extending between said side walls and a bottom wall fixed to bottom edges of said upright walls, said bottom wall having a front portion at a lower level than a rear portion thereof and said side walls extending downwardly beyond said rear portion of said bottom wall to define therewith a rearwardly and downwardly open space; means on at least one of said upright walls for releasably connecting said housing to the hull of a watercraft; a prime mover mounted in said housing; a propeller mount in the region below said rear portion of said bottom wall; propeller means rotatably carried by said mount; turning means in said housing for turning said mount with said propeller means about a substantially vertical axis; lifting means in said housing for moving said mount with said propeller means between a plurality of vertically spaced positions in one of which said propeller means is at least in part withdrawn into said space; connecting means extending fluid-tightly sealed through said rear portion of said bottom wall, and connecting said propeller mount with said lifting and said turning means; and a power train connecting said prime mover with said propeller means.

2. A propulsion system as defined in claim **1**, wherein said front portion of said bottom wall extends substantially in a plane substantially normal to said upright end walls, and wherein said prime mover means in said housing is located in the region above said front portion of said bottom wall to maintain said housing in substantially stable position when the housing is supported during transportation overland on said front portion of said bottom wall.

3. A propulsion system as defined in claim **2**, wherein said propeller means, when lifted by said lifting means, is located above said plane.

4. A propulsion system as defined in claim **1**, wherein said housing resembles the stern portion of a watercraft.

5. A propulsion system as denfined in claim **1**, and further comprising remote-control operating means for said prime mover, said turning means and said lifting means, said operating means comprising terminal portions provided on one of said walls and connectable with complementary terminal portions provided on the hull of the watercraft to which said housing is connected.

6. A propulsion system as defined in claim **5**, wherein said prime mover is of the variable-speed type and the respective remote-control operating means comprises a speed changer for said prime mover.

7. A propulsion system as defined in claim **1**, wherein said power train includes clutch means and further comprising remote-control operating means for said clutch means.

8. A propulsion system as defined in claim **1**, wherein said power train comprises a first portion which is driven by said prime mover, a second portion which drives said propeller means, one of said portions being adjustable with reference to said housing, and a third portion for transmitting torque from said first portion to said second portion.

9. A propulsion system as defined in claim 8, wherein said third portion comprises a shaft having end portions articulately connected with said first and second positions.

10. A propulsion system as defined in claim 1, wherein said housing accommodates also auxiliary equipment for said prime mover.

11. A propulsion system as defined in claim 10, wherein said auxiliary equipment includes a source of fuel and a source of electrical energy.

12. A propulsion system as defined in claim 1, wherein said turning means comprises a motor and said connecting means being driven by said motor and arranged to turn said mount.

13. A propulsion system as defined in claim 12, wherein said motor is a reversible electric motor and further comprising remote-control operating means for said motor.

14. A propulsion system as defined in claim 12, wherein said motor is a reversible fluid-operated motor and further comprising remote-control operating means for said motor.

15. A propulsion system as defined in claim 1, wherein said power train includes a transmission located in said housing and movable with said mount between said positions, said lifting means comprising motor means arranged to move said transmission between said positions.

16. A propulsion system as defined in claim 15, wherein said motor is a fluid-operated motor.

17. A propulsion system as defined in claim 15 wherein said motor is an electric motor.

18. A propulsion system as defined in claim 1, wherein said power train includes a transmission movable with said mount between said positions thereof, and said connecting means forming guiding means for guiding said transmission during movement between said positions.

19. A propulsion system as defined in claim 18, wherein said guide means comprises at least one substantially vertical column mounted on said support.

20. A propulsion system as defined in claim 1, said lifting means comprising a system of pivotable links operatively connected with said housing and said mount and means for pivoting said links.

21. A propulsion system as defined in claim 1, wherein said lifting means comprises at least one cylinder member and a piston member received in said cylinder member, one of said members being coupled with said housing and the other member being coupled with said mount.

22. A propulsion system as defined in claim 1 wherein said propeller means is movable with said mount to at least one position below said lower level.

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U.S. Cl. X.R.

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