Jan. 21, 1969 M. A. STRUMOR 3,422,785

MARINE PROPULSION DEVICE

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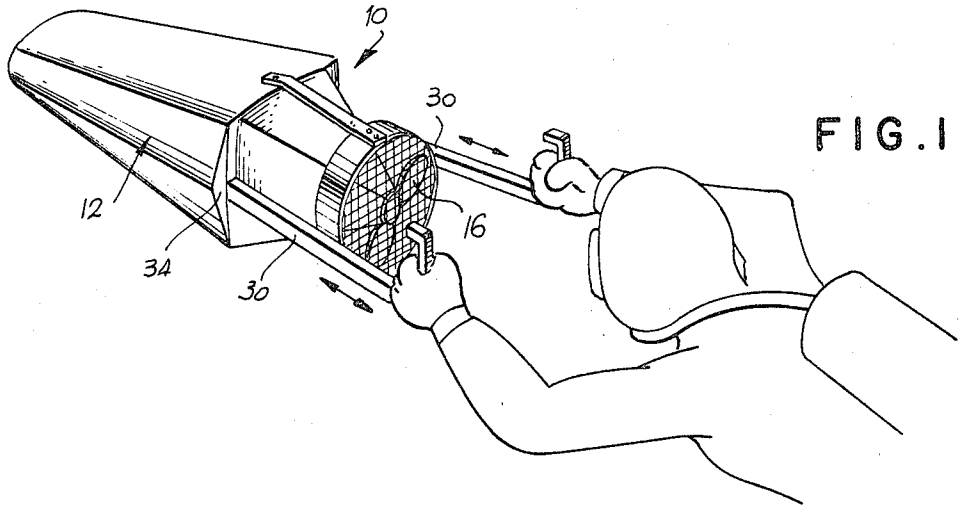
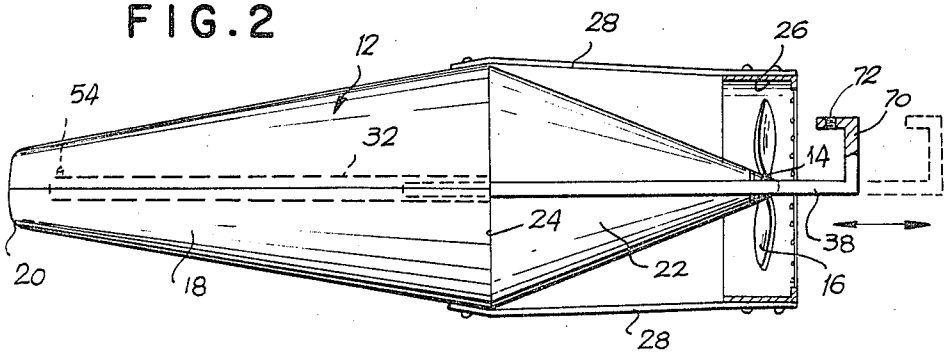


FIG. 1

FIG. 2



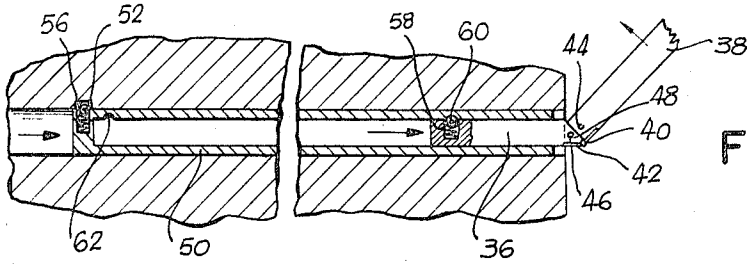


FIG. 3

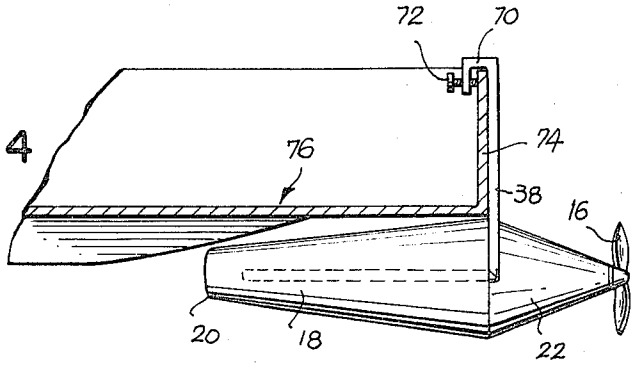


FIG. 4

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FIG. 5

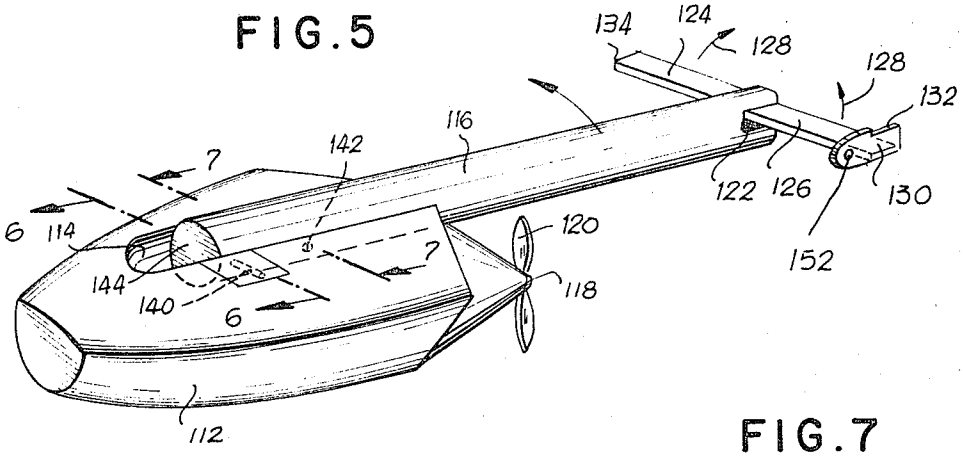


FIG. 7

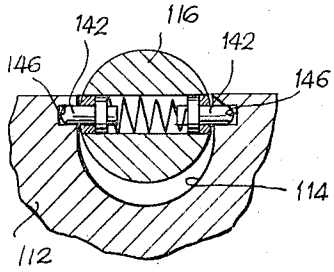
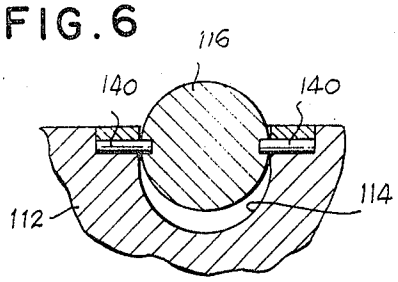


FIG. 6



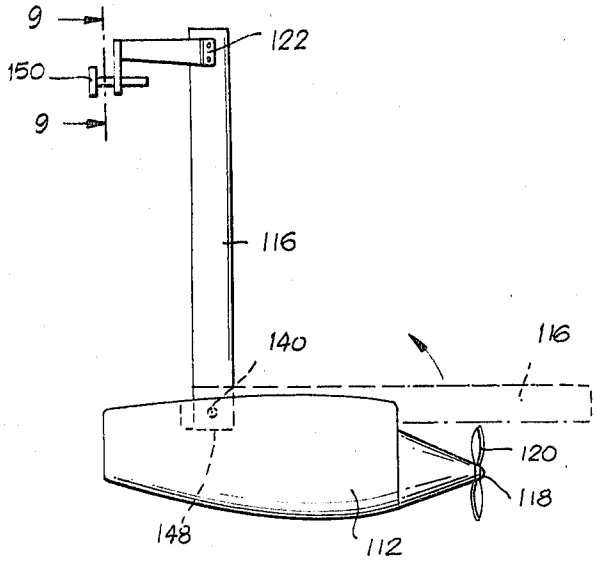


FIG. 8

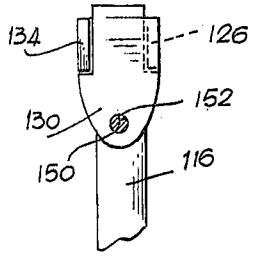


FIG. 9

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MARINE PROPULSION DEVICE

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U.S. Cl. 114—235 6 Claims
Int. Cl. B63h 21/26

ABSTRACT OF THE DISCLOSURE

A marine propulsion device for use both as a propulsion unit for a diver and as an auxiliary outboard motor for a boat comprising a housing having a motor therein driving a propeller. A rod is connected to the housing to serve as gripping means for a diver and is swingable to an upright position for suspending the device from the transom of a boat.

This invention relates to a marine propulsion device adapted to be used both as a propulsion unit for a diver and as an auxiliary outboard motor.

One of the popular outdoor sports is underwater swimming or scuba diving. The diver not only has the unusual experience of being able to stay for an extended period of time under water, but also can perform useful functions in exploration, rescue operations, repair of equipment, and fishing. To this end, it is often desirable to provide the diver with some means of accelerating progress through the water.

It is the concept of the invention to not only provide a device for propelling the diver at a relatively high rate, but which may be used as an auxiliary outboard motor or as an emergency propulsion unit should there be failure of a boat's power drive.

An object of the invention resides in the provision of a safe and convenient marine propulsion device capable of being used both by a diver and as an auxiliary motor for a boat. One of the particular features of the invention is a means used for enabling a diver to grasp the marine propulsion device, the same means being movable from a substantially horizontal position to an upright position for suspending the device from a boat.

Still further objects and features of this invention reside in the provision of a marine propulsion device that is simple in construction, capable of using various existing parts, which is attractive in appearance, and efficient in operation.

These, together with the various ancillary objects and features of this invention, which will become apparent as the following description proceeds, are attained by this marine propulsion device, preferred embodiments of which are shown in the accompanying drawings, by way of example only, wherein:

FIG. 1 is a perspective view of an embodiment of the invention shown in use by a scuba diver;

FIG. 2 is a side elevational view with parts being shown in section for greater detail, and showing the device in an extended position in phantom lines;

FIG. 2 is a side elevational view with parts being shown in section for greater detail, and showing the device in an extended position in phantom lines;

FIG. 3 is an enlarged partial longitudinal sectional view of portions of the invention;

FIG. 4 is an elevational view of the device as suspended from the transom of a boat, portions of the boat being shown in section;

FIG. 5 is a perspective view of a modified form of the invention;

FIG. 6 is an enlarged sectional detail view taken along the plane of line 6—6 in FIG. 5;

FIG. 7 is an enlarged sectional detail view taken along the plane of line 7—7 in FIG. 5;

FIG. 8 is an elevational view showing the device in position for attachment to a boat; and

FIG. 9 is a sectional detail view taken along the plane of line 9—9 in FIG. 8, illustrating the relative arrangement of the clamp means utilized in the invention.

With continuing reference to the accompanying drawings, wherein like reference numerals designate similar parts throughout the various views, and with initial attention to the embodiment of the invention shown in FIGS. 1 through 4, reference numeral **10** is used to generally designate a marine propulsion device illustrated in accordance with the concepts of the present invention. The marine propulsion device **10** includes a housing **12**. Disposed in the housing is an electric motor and suitable rechargeable batteries for driving the motor. The motor drives a shaft **14** having an end extending outwardly of the housing on which a propeller **16** is mounted. The shaft **14** is journalled in the housing by suitable bearings, the motor and the mounting means for the shaft not being shown.

The housing **12** has a tapered front portion **18** narrowing into a streamlined prow **20**. The housing further has a tapered reared portion **22** so arranged that the center of gravity of the marine propulsion device is arranged substantially along the median line **24** along the front part **18**, and rear part **22**. Of course, the location of the battery and motor may easily be selected to insure desirable center of balance.

A propeller guard in the form of a ring **26** is secured to the housing **12** by means of straps **28** and may be removed when it is desired to utilize the device as auxiliary propulsion means for a boat. A pair of rods **30** are mounted in elongated recesses **32** opening at the rearmost face **34** of the front section **18**. Each of the rods includes a front section **36** and a rear section **38** hingedly secured at **40** to each other. The hinge means **40** may be spring pressed to normally urge the section **38** into an upright position as shown in FIGS. 3 and 4 wherein a pin extending through aligned apertures **42** and **44** formed in the front section **36** and rear section **38** respectively may be used to lock their parts in the rear portion **38** in the upright position. The end **46** of the front section **36** is channel shaped and bifurcated to receive the front of the rear portion **38** which when the rear portion **38** is in its upright position engages the bottom **48** connecting the bifurcations **46**. The rod further includes a telescopic extension **50** which is movable from a forward position as shown in FIG. 3 to a rearmost position where the spring pressed detent **52** thereof becomes engaged with a detent **54** in the recess **56** when in the foremost position. The front part **36** carries a spring pressed ball detent **58** which is engageable within a socket **60** formed in the slidable extension **50** and is alternatively engaged in a socket **62** when the rear part **38** is in its non-extended position as shown in FIG. 2.

The rearmost portions **38** terminate in U-shaped handles **70** within which clamping elements **72** are threadedly detachably engaged so that when the device is used as an aid to a scuba diver, the clamping members **72** may be entirely removed, but when the device is used as an auxiliary outboard motor, the clamping elements may be used to secure the motor to the transom of a boat **76**.

In use, it is merely necessary to actuate a switch, not shown, turning on the motor so as to drive the propeller **16** so that the scuba diver may grasp the handle **70** and aiming the device **10** can be carried in that direction. When it is desired to use the device as an auxiliary outboard motor, the propeller guard **26** may be removed and

the telescoping rods may then be extended so that spring hinge means **40** will urge the portions **38** to an upright position whereby the clamping means **72** may be used to hold the device to a boat, a pin being inserted in aligned bores **42** and **44**.

Referring to the embodiment of the invention as shown in FIGS. 5 through 9 herein the housing **112** is of a suitable shape for balance and water-friction reduction and has therein formed in the upper surface a recess **114** in which a rod **116** extends. Within the housing **112** there is a motor driving a shaft **118** which extends outwardly of the housing to the rear thereof and has a propeller **120** fixed thereon. Pivoted to the rod by suitable hinges **122**, are a pair of hand grips **124** and **126**. These hand grips may be moved from their outwardly diverging position as shown in FIG. 5 to a position where they extend parallel to each other, the pivotal movement being indicated by arrows **128**. Fixed to the hand grip **126** is a clamp holder **130** which is recessed at **132** to receive the free end **134** of the hand grip **126** when in the position as shown in FIGS. 8 and 9.

The groove **114** is suitably shaped adjacent the pivot pin **140** which attaches the rod **116** to the housing **112**. Spring pressed locking detents **142** are mounted on the rod for engagement within sockets **144** provided in the housing **112**. The bottom edge **144** is adapted to engage the bottom of the recess **114** at the location indicated at **148** when the rod **116** is pivoted to its upright position. Separate means such as a pin may be provided for locking the rod **116** in the upright position. In the upright position a clamping element **150** is threadedly engaged and the clamping means **130** within a threaded bore **152** provided therein for adapting the device to the transom of a boat. The clamping member **150** functioning in conjunction with the rod **116** to clampingly suspend the motor **112** at its center of balance from a boat is used as an auxiliary propulsion unit.

In use, a scuba diver merely grasps the hand grips **126** and **128** and pressing a starter switch, which may be located on one of the hand grips or at any other convenient location, can aim the device and be speeded to the destination to which the device is headed. Alternatively the device may be used as an auxiliary motor for a boat. A propeller guard may be provided for the propeller **120**.

I claim:

1. A marine propulsion device comprising a housing, a shaft journalled in said housing and having a free end extending beyond said housing, a motor in said housing driving said shaft, a propeller fixed on said free end, a recess in said housing, a rod disposed in said recess and having a portion extending outwardly of said recess, handle means on the rearwardmost part of said portion of said rod, means pivotally mounting said portion of said rod for movement from a substantially horizontal position with said handle means disposed rearwardly of said propeller to a substantially vertical position wherein said housing is suspended directly below said handle means, and means for locking said handle in said vertical position so that said device can function as offset drive means for a body disposed above said propulsion device.

2. A marine propulsion device comprising a housing, a shaft journalled in said housing and having a free end extending beyond said housing, a motor in said housing driving said shaft, a propeller fixed on said free end, a recess in said housing, a rod disposed in said recess and having a portion extending outwardly of said recess, handle means on the rearwardmost part of said portion of said rod, means pivotally mounting said portion of said rod for movement from a substantially horizontal position with said handle means disposed rearwardly of said propeller to a substantially vertical position wherein said housing is suspended directly below said handle means, and clamp means for securing said device to a boat transom, said clamp means being connected to said handle means.

3. A marine propulsion device comprising a housing, a shaft journalled in said housing and having a free end extending beyond said housing, a motor in said housing driving said shaft, a propeller fixed on said free end, a recess in said housing, a rod disposed in said recess and having a portion extending outwardly of said recess, handle means on the rearwardmost part of said portion of said rod, means pivotally mounting said portion of said rod for movement from a substantially horizontal position with said handle means disposed rearwardly of said propeller to a substantially vertical position wherein said housing is suspended directly below said handle means, said handle means including a pair of complementary hand grips hingedly secured to said portion of said rod, said hand grips being movable from a divergent position to a position where said hand grips are parallel to each other.

4. A device according to claim **3**, including clamp means on one of said hand grips for securing said device to a boat transom.

5. A device according to claim **1**, including locking means for holding said rod in said substantially horizontal position.

6. A device according to claim **1**, said rod being longitudinally slidable in said recess.

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TRYGVE M. BLIX, *Primary Examiner.*

U.S. Cl. X.R.

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