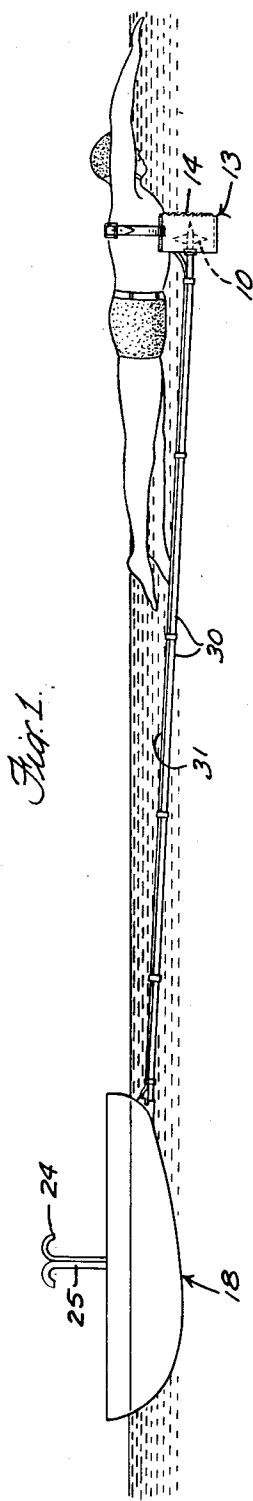
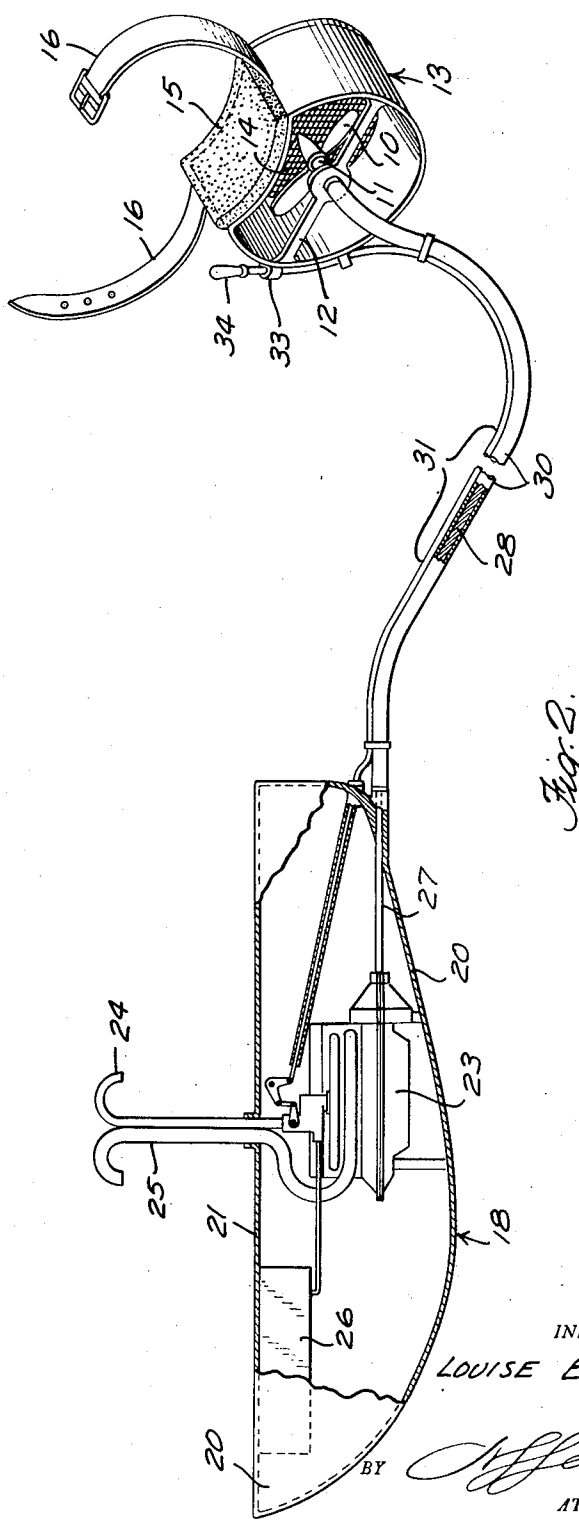


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AQUATIC DEVICE
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AQUATIC DEVICE

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1 Claim. (Cl. 9—21)

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The present invention relates to an aquatic device for mechanically propelling a swimmer in a direction and at a speed controlled by him. The device can be employed for sportive, life-saving or military purposes.

Among the objects of the present invention are to provide an aquatic device of the general type referred to, which is driven from a motor easily and conveniently controlled by the swimmer and operable to impel him through the water with the controllable speed of a motor boat, which can be easily attached to a swimmer and worn by him with comfort in operation, which does not obstruct the view in front of him while he is being propelled thereby, which in operation allows him to assume a position offering a minimum of resistance to movement through the water and which leaves his arms and legs free to steer and maneuver with minimum of effort.

In accordance with certain features of the invention, a small water craft carries a small motor, preferably an internal combustion engine adapted to drive a remote propeller through a flexible shaft. This propeller is carried by a harness designed to be attached to the swimmer with said propeller strapped to his chest. A control cable for the motor is manipulable by the swimmer to control his speed. In the case where the motor is an internal combustion engine, this control cable is operable to regulate the fuel supply to the engine.

In operation, the swimmer assumes a floating position in the water, with his chest turned downward to submerge the propeller at a substantial depth for effective drive, his legs extended rearward and his arms extended forward substantially to their full extent. In one hand, he can carry the control cable by which he can regulate the operation of the motor, or at least he can easily reach the control manipulable end of the cable.

In action, with the swimmer in the floating position described, the motor drives the propeller through the flexible shaft and thereby impels him forward. The forward movement of the swimmer causes the craft carrying the motor to be towed behind the swimmer almost unobtrusively by the same flexible shaft which serves to drive the propeller. With his arms and legs, the swimmer is able to control his depth and to steer and maneuver as he wishes with minimum of effort.

Various other objects, features and advantages of the invention are apparent from the following particular description and from an inspection of the accompanying drawing, in which:

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Fig. 1 is a view showing a swimmer in water equipped with an aquatic propelling device embodying the present invention; and

Fig. 2 shows in perspective and in side view the aquatic propelling device, part of the hull of the float craft for carrying the motor being broken away to show the motor and associated parts therein diagrammatically.

Referring to the drawing, the aquatic propelling device of the present invention comprises a propeller 10 secured to a shaft 11 journaled in a bracket 12 affixed to a cylindrical case or support frame 13 encompassing the propeller. An open guard 14 for the propeller to protect the swimmer against possible contact with the propeller may be secured to the outlet end of the propeller support frame 13.

The propeller support frame 13 is secured to a harness comprising a chest pad 15 and a belt 16 by which the propeller 10 may be strapped to the chest of the swimmer.

The power plant for the propeller 10 is carried in a small float or water craft 18 having a hull 20 designed for stability and streamlined in a well-known manner to afford an unbroken flow of water about said hull as said craft is towed through the water. A deck 21 protects the interior apparatus of the craft 18 against the wash of the sea.

The power plant for the propeller 10 is housed in the craft 18 and comprises a small motor 23 which is preferably an internal combustion engine of standard type and more specifically a 2 or 4 cycle gasoline engine, although as far as certain aspects of the invention are concerned, it may be a small diesel engine, or an electric motor driven from a storage battery. An air inlet line 24 and an exhaust line 25 for the motor 23 have adjoining terminal sections projecting upward through the deck 21 above the wash of the sea and goosenecked at their ends to assure against ingress of sea water. A fuel tank 26 delivers fuel to the motor 23 at a rate controlled by the swimmer, as will be described. Where a gasoline motor is employed, the gasoline is delivered to the usual carburetor from the fuel tank 26 and mixed with the intake air delivered through the inlet line 24.

The motor 23 drives a rigid shaft 27 supported in the craft 18 by bearings in any suitable manner. Between this shaft 27 and the propeller shaft 11 on the outside of the craft 18 and secured to said shafts is a flexible shaft 28 of the well-known type, enclosed in a suitable flexible sheathing 30.

For controlling the motor 23 through the selective action of the swimmer, there is provided a

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flexible cable or wire 31, such as the so-called Bowden line, which comprises a pull wire enclosed in a spiral wire flexible tube. This line 31 in the case of a gasoline engine controls the gas supply to the carburetor of the motor 23 and thereby controls the speed of said motor, and is desirably attached to the sheathing 30 of the flexible shaft 28 at intervals. If desired, an ordinary spring-pressed cord or wire may be employed for the purpose.

One end of the control line 31 is located in accessible position for convenient manipulation by the swimmer. For that purpose, the end of the control line 31 is attached to the propeller support frame 13 by a suitable bracket 33, so that its control end 34 is located within convenient reach of the swimmer's hand. If desired, the control line 31 may be long enough to permit the control end 34 of said line to reach the hand of a fully extended arm of the swimmer for manipulation by said hand, while said line is distended along the taut flexible shaft 29 towing the craft 18. The swimmer can thereby manipulate said control line, while in fully extended position to offer minimum of resistance to movement through the water.

If desired, the outer spiral wire flexible tube enclosing the control wire 31 may be hermetically sealed and so constructed that the line unit floats in water, and the sheathing 31 for the flexible shaft 28 may be similarly sealed and constructed to allow the unit 28, 31 to float.

In operation, the swimmer with the propeller strapped to his chest, floats in water with his chest downward to submerge the propeller 10. He then controls his motor 23 by appropriate manipulation of the control line 31. The swimmer assumes a position in water in which his arms and legs are fully extended as shown in Fig. 1, and the operation of the propeller 10 drives the swimmer through the water while in this relaxed position. As the swimmer is propelled through the water by this action, the craft 18 carrying the motor 23 is towed behind him by means of the flexible shaft 27. The length of the flexible shaft

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27 is such as to tow the craft 18 from two to ten yards behind the swimmer. The swimmer by moving his legs and/or arms sideways or up and down can control his depth and can turn in either direction and by manipulating the control line 31 can stop, start, slow up, speed up, or move at any steady selected speed such as is permitted by a motor boat. Because the motor carrying craft 18 is towed behind the swimmer, he has an unobstructed view ahead of him.

What is claimed is:

An aquatic device for propelling a swimmer through the water substantially in swimming position, said device comprising a propeller casing having straps to be secured around the torso of the swimmer to suspend the casing beneath the swimmer, a tractive propeller mounted in said casing, a float carrying a motor, a flexible towing tube connecting said float to said casing for towing the float behind the casing and of sufficient length to provide clearance for the body of the swimmer in advance of the float, a flexible propeller shaft extending through said tube and connecting said motor to drive said propeller in a direction to pull the swimmer and the float through the water, and a flexible motor control line extending from the float along said tube and having a control handle at its forward end attached to said casing in a position easily accessible to the swimmer for controlling the operation of the motor.

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