

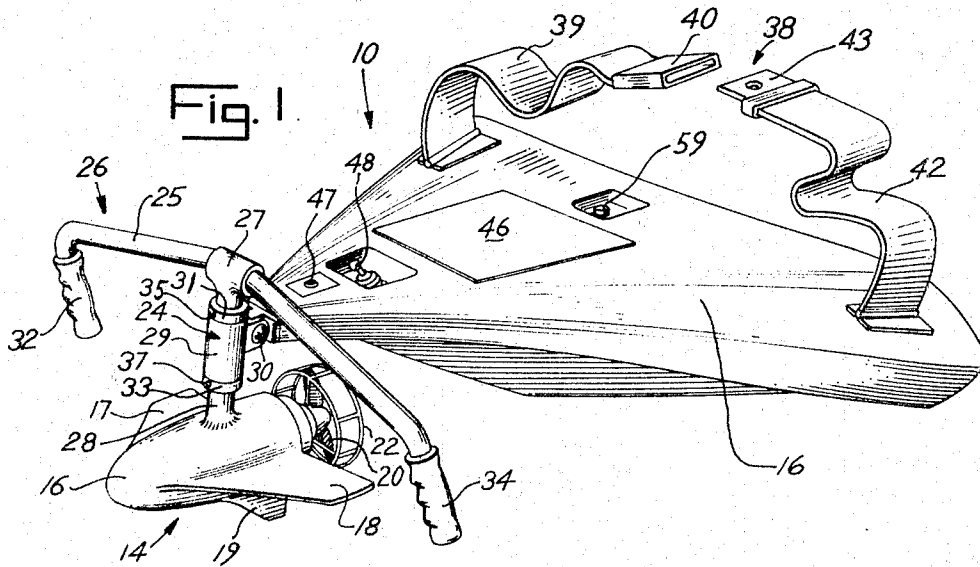
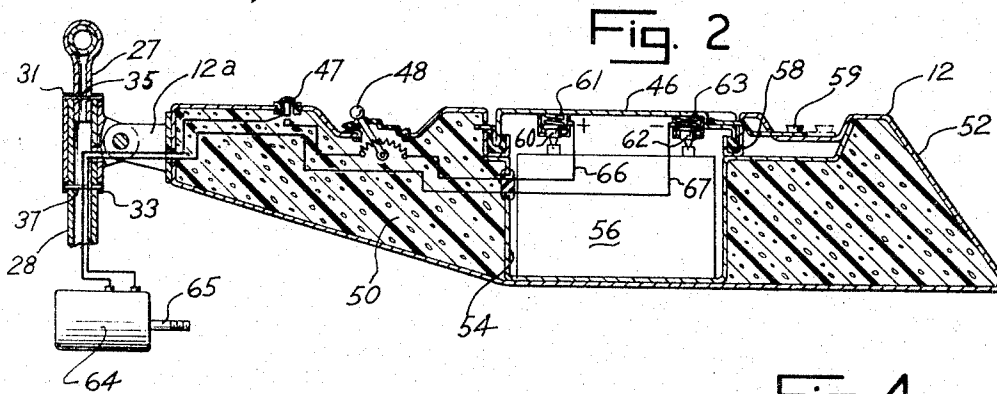
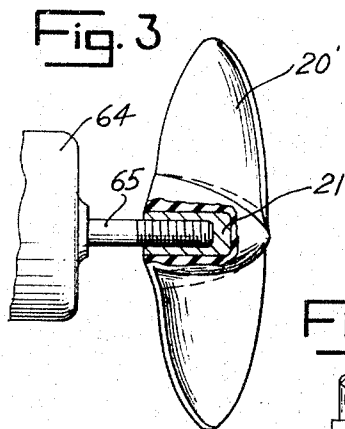
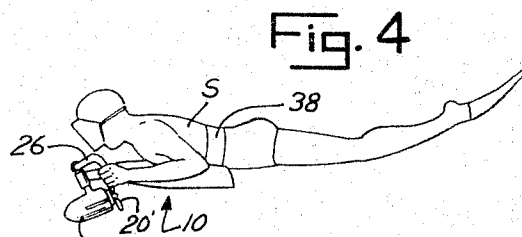
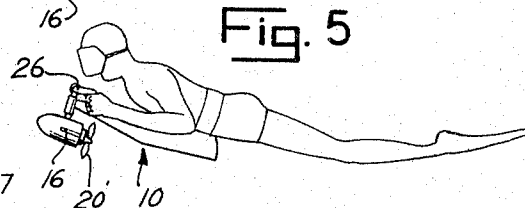
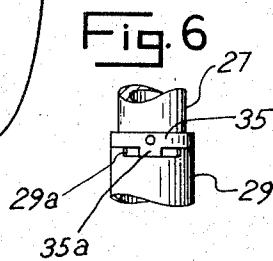
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3,442,240

POWER SWIMMING AID

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POWER SWIMMING AID

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7 Claims

ABSTRACT OF THE DISCLOSURE

A power swimming aid including a floatable housing for supporting a swimmer and power means for propelling said housing including a motor-driven propeller. The power means is universally mounted on the housing and includes handle means for moving the motor-driven propeller to selectively guide the housing and a swimmer supported thereon in the water.

Background of the invention

This invention relates to a swimming aid, and more particularly, to a power swimming aid for supporting a swimmer in the water and for propelling him both up and down and sideways in the water.

An object of the present invention is to provide an improved swimming aid comprising means for buoying a swimmer and for propelling and guiding him in the water.

Another object of the present invention is to provide a power swimming aid including a floatable housing and power drive means universally supported on the housing for propelling the housing and a swimmer supported thereon through the water. Other objects and advantages of the present invention will be made more apparent hereinafter.

Brief description of the drawing

Referring to the drawing, there is illustrated presently preferred embodiments of the present invention wherein:

FIG. 1 is a perspective view illustrating a power swimming aid embodying the present invention;

FIG. 2 is a cross-sectional view of the power swimming aid;

FIG. 3 is a detail view illustrating a modified form of propeller;

FIG. 4 is a view illustrating the position of the power swimming aid in the water to carry the swimmer downwardly;

FIG. 5 is a view similar to FIG. 4 illustrating the position of the power swimming aid to raise the swimmer to the surface of the water; and

FIG. 6 is a detail view illustrating stop means for limiting rotational movement of the handle grip means about a vertical axis.

Description of the preferred embodiment

Referring now to the drawing, there is illustrated in FIGS. 1, 2 and 6 a preferred embodiment of the present invention. The power swimming aid 10 of the present invention is comprised basically of floatable housing means 12 and power drive means 14 for propelling and guiding the housing means 12 and the swimmer carried thereon in the water.

The power drives means 14 includes an electric motor housed within a housing or casing 16 having a plurality of guide fins 17, 18 and 19 extending outwardly therefrom. The housing 16 and the guide fins may be conveniently molded from plastic or a thin metallic or hard resin shell filled with a suitable plastic to provide for ease of manufacture and for maximum floatability. Secured to the shaft of the electric motor are propeller means 20 for

driving the housing 12 through the water. As shown in FIG. 1 an open rigid grid-like guard 22 may be provided about the propeller and secured to housing 16 in order to prevent inadvertent or accidental contact of the swimmer with the propeller.

The power drive means 14 is connected to housing 12 by a universal connection 24 which permits movement of the housing or casing 16 so as to move the housing 12 through the water both up and down and sideways. Such movement (1) up and down or (2) sideways may be performed simultaneously or selectively. Handle grip means 26 are secured to the upper end of a tubular shaft or rod portion 28 by a tubular bracket 27 having an opening therethrough for receiving the handle bar 25, and the housing 16 is fixedly secured to the lower end of shaft portion 28. The power drive means 14 are mounted for pivotal motion about a first axis or horizontal axis defined through the pivot pin 30, which connects the fork portion of collar 29 with the clevis 12a extending forwardly from housing 12. Pointing the nose or forward portion of the casing 16 downwardly causes the housing 12 to move downwardly in the water and pivoting the casing 16 upwardly about the axis of pivot pin 30 causes movement of the housing 12 upwardly in the water. The bracket 27 and shaft portion 28 are secured to one another and are rotatably supported within the collar 29 that is pivotally connected by the pivot pin 30 to the housing 12. Rotation of the handle bars 26 and the bracket 27 and shaft portion 28 carried therewith about a second axis or vertical axis defined through the collar 29 will cause sideways movement of the housing 12 in the water.

Collars 31 and 33 are disposed about the shaft 28 for retaining the shaft in position in collar 29. Pins 35 and 37 extend through the collars 31 and 33 respectively and the shaft 28. In addition, pin 35 extends through bracket 27 so as to operatively connect the bracket 27 and shaft 28 to one another for rotation in collar 29 about the longitudinal axis thereof.

The rotation of shaft 28 within the tubular housing or collar 29 is limited by stop means which, as shown in FIG. 6, are comprised of a cut out or recessed portion 29a in the collar 29 which cooperates with a depending lug 35a on the collar 35. The recess 29a and lug 35a are proportioned to permit limited rotation of the handle bar means 26.

In the illustrated form of the invention, the handle grip means includes an extended bar member 25 having hand grips 32 and 34 secured at each end thereof, much in the manner of a bicycle handle. Ordinarily, the swimmer will have one hand on each of the hand grips 32 and 34 with his chest lying over the housing 12 and his legs trailing behind, as indicated for example, in FIGS. 4 and 5. When carried in this manner, there is little likelihood of any contact between the swimmer and the propeller blade 20 which is disposed beneath the housing 12.

Provided on the housing are belt means 38 for securing the body of the swimmer in place on the power swimming aid 10. The belt means 38 includes a first flexible portion 39 secured at one end to the housing 12 and having a female buckle portion 40 on the other end thereof. The other part of the belt means 38 includes a flexible portion 42 secured at one end to the housing and having a male coupling part 43 at the other end thereof. The parts 43 and 40 are adapted to be detachably secured to one another.

Provided on housing 12 are control means for selectively communicating electrical power from a storage battery housed within the housing beneath the cover 46 to the electric motor within the casing 16. The storage battery may provide a 12 volt source of power for motor

64. The control means include an off-on switch 47 and a rheostat switch 48.

Referring to FIG. 2, there is shown a cross section of the embodiment of FIG. 1, with the parts being shown somewhat schematically and with parts broken away for clarity. The housing 12 is made from a floatable material, as for example, molded polyurethane foam or styrene foam 50 disposed within a suitable thin skin or covering of formed sheet metal or a hard resin 52. Provided within the housing 12 is a storage compartment 54 containing a storage battery 56. Disposed between the cover 46 and the housing is a seal member 58 which maintains the storage compartment 54 watertight. The latch 59 is provided to secure the cover in tight sealing engagement with the seal of 58. Preferably, the contacts 60 and 62 are spring loaded as indicated at 61 and 63 to assure firm engagement with the battery posts. The leads 66, 67 from the contacts 60 and 62 are operatively connected to the motor 64 housed within the casing or housing 16. In circuit with the lead 66 is the off-on switch 47. The rheostat control 48 is in series in line 66 with the off-on switch 47. The rheostat 48 is operative to control the speed of rotation of the motor 64 and the propeller 20 secured to the threaded end of the shaft 65 and thereby to control the speed of movement of the power swimming aid 10 in the water. Rubber or like synthetic flexible materials are provided in the housing over the openings for the switches in order to seal the interior of the housing 12 from the water environment within which the power swimming 8, 10 is normally employed.

In FIG. 3, there is shown a modification of the propeller used on the power drive means. As shown in FIG. 3, the propeller 20' includes a hub and blades formed thereon, all made from a rubber-like or resilient material having an insert portion 21 centrally thereof bonded to the propeller for permitting affixation of the resilient propeller 20' to the shaft 65 secured to the electric motor 64. The insert 21 is threaded to the threaded end of shaft 65 opposite to the direction of rotation of the shaft. Being made of rubber or like flexible material, there would be no danger of injury in the event that the operator contacted the blades of the fan or propeller 20' during rotation thereof.

Referring now to FIGS. 4 and 5, there is illustrated the positions of the power drive means and the power swimming aid 10 as utilized to aid a swimmer in moving deeper into the water or in moving closer to the surface of the water. As shown in FIG. 4, the power drive means 14 are pivoted about the axis 30 so as to incline the dive fins 17 and 18 with respect to the horizontal. Actuation of the control 47 to initiate operation of the motor 64 will cause the propeller 20 to move the housing 12 downwardly into the water. The swimmer S on the housing 12 will thus be able to move downwardly in the water. Should the swimmer desire to rise in the water, he has only to actuate the handle bar means 26 to pivot casing 16 and incline the dive fins 17 and 18 upwardly. The power drive means 14 at this time is pivoted about the axis defined through the pivot pin 30. The swimmer will thus be brought back to the surface as indicated in FIG. 5. In order to increase the rate of speed or decrease the rate of speed of the power swimming device 10 in the water, the rheostat control 48 may be suitably actuated by the swimmer. Rotation of the handle bar means about the longitudinal axis through collar 29 will cause movement of the housing 16 and positioning of rudder 19 thereon to move the device 10 sideways in the water.

There has been provided by the present invention a power swimming aid comprising a floatable housing having power drive means universally connected thereto for propelling the housing in the water and for guiding the housing in the water both up and down and sideways. The power source for the power driven means is contained within a water-sealed compartment of the housing and is connected to the electric motor of the power drive means through electric conduit suitably protected from the water. The device is compact and can be readily utilized to increase the enjoyment of a swimmer and provides a practical tool for underwater exploration.

What is claimed is:

1. A power swimming aid comprising a floatable housing for supporting a swimmer in water and power means on said housing for propelling and guiding said housing and said swimmer supported thereon in the water, said power means including drive motor means universally supported on said housing by universal connection means and handle means for moving the drive motor means to guide the housing and swimmer supported thereon selectively up or down or left or right in the water, said universal connection means including a tubular part pivotally connected to said housing for rotation about a first axis and a shaft portion journaled in said tubular part for rotation therein about a second axis, the drive motor means being affixed to said shaft portion at the lower end thereof and said handle means being secured to the upper end of the shaft portion.

2. A power swimming aid as in claim 1 wherein said drive motor means includes a casing having a drive motor therein, said casing having guide fins extending outwardly therefrom, and propeller means driven by said drive motor.

3. A power swimming aid as in claim 2 wherein said propeller means includes blades made from a resilient material.

4. A power swimming aid as in claim 2 wherein a propeller guard is mounted on said casing and disposed about said propeller for preventing accidental contact by the swimmer with the propeller.

5. A power swimming aid as in claim 1 including battery means carried in said housing, electrical connector means between said battery means and said drive motor means for connecting the battery means to the drive motor of the drive motor means, and control means for selectively starting and stopping the drive motor.

6. A power swimming aid as in claim 2 wherein said guide fins include a rudder extending downwardly from said casing and depth guide vanes extending from the sides of the casing.

7. A power swimming aid as in claim 1 including belt means for securing the swimmer to the housing.

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U.S. Cl. X.R.

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