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(54) **PROPELLER DRIVEN SURFING DEVICE**

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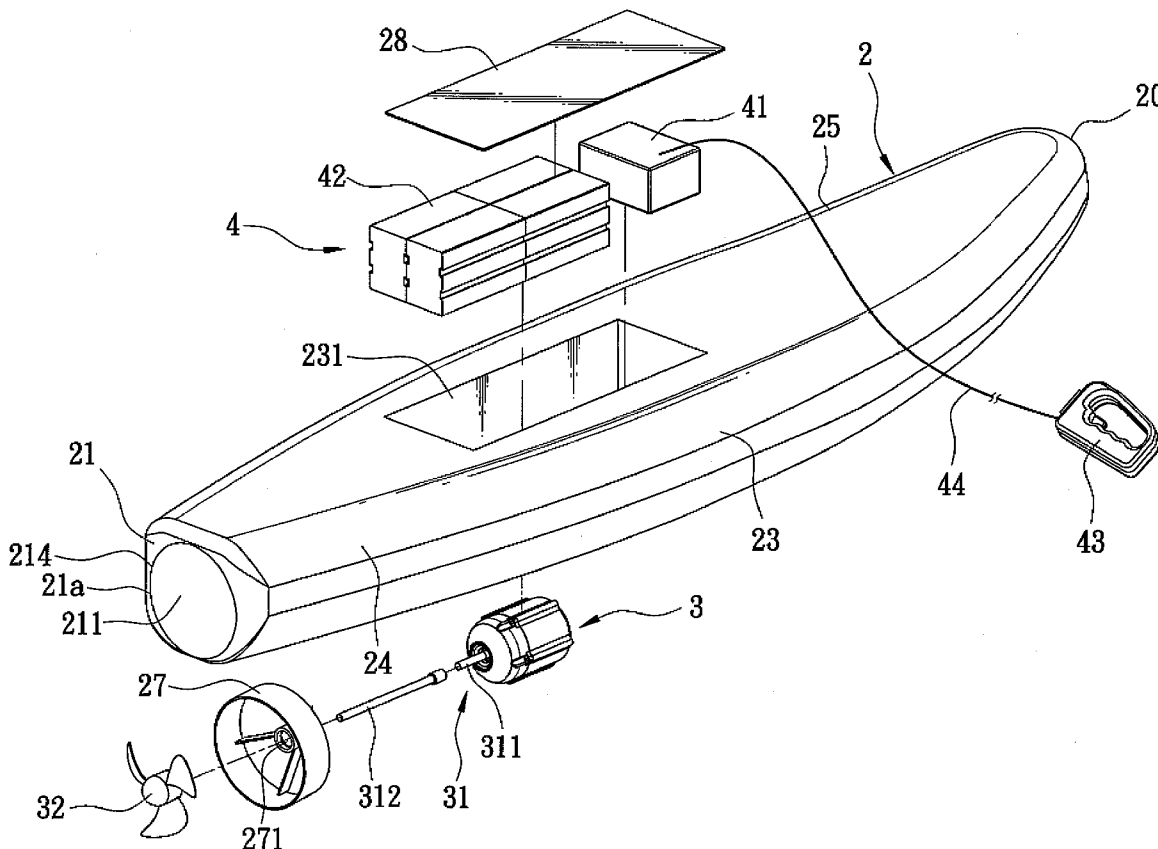
(57) **ABSTRACT**

A propeller driven surfing device includes a buoyant body having an outer contour divergent from a nose end to a front trunk segment, a rearmost surface which has a water outlet port that extends forwardly to form a water passage, and a water intake port that extends from a bottom surface to be communicated with the water passage. A drive motor is disposed in the buoyant body, and has an output shaft which extends into the passage to drive a propeller disposed in the passage. A power supply is disposed in the buoyant body and is operably coupled to the drive motor.

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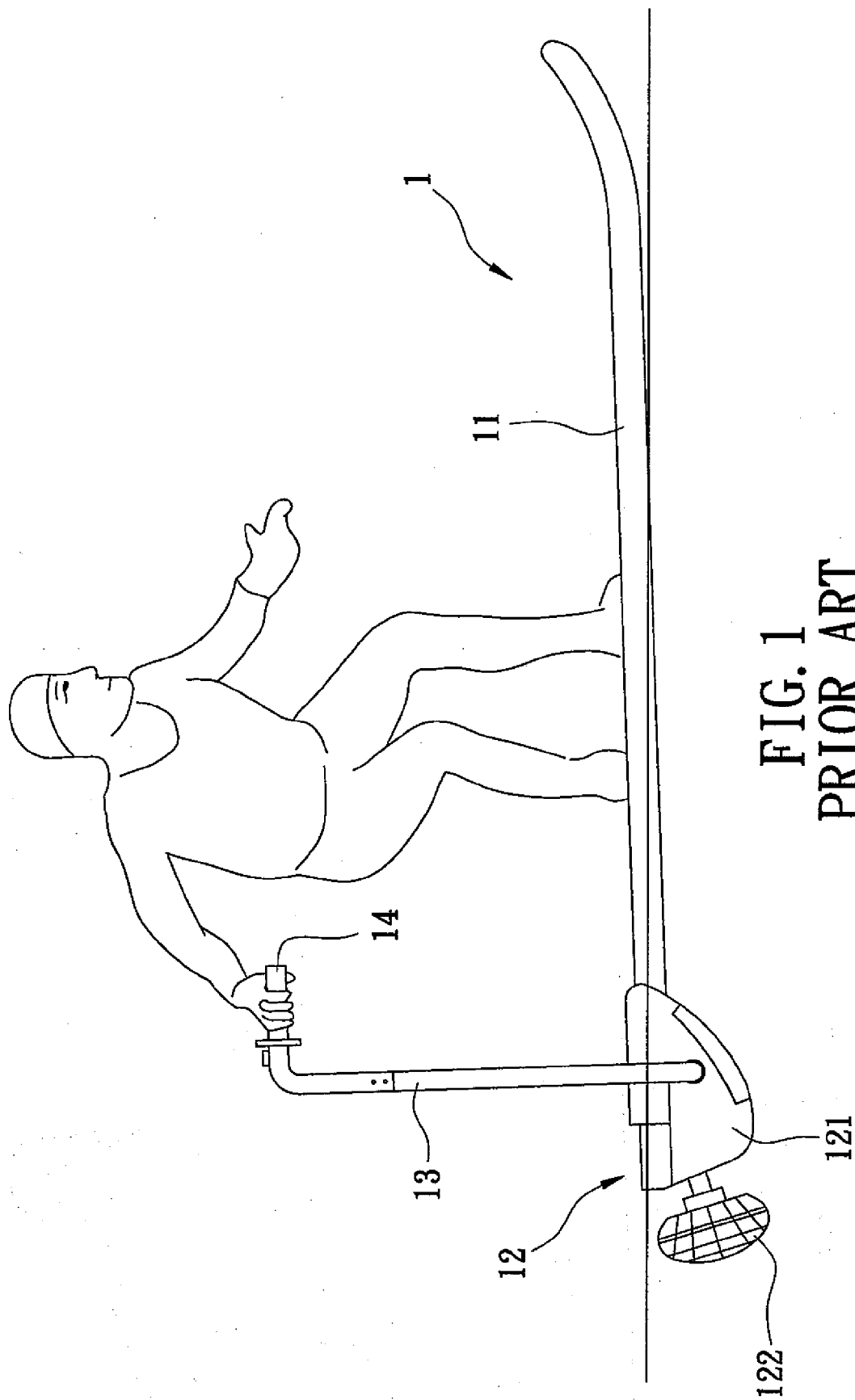


FIG. 1  
PRIOR ART

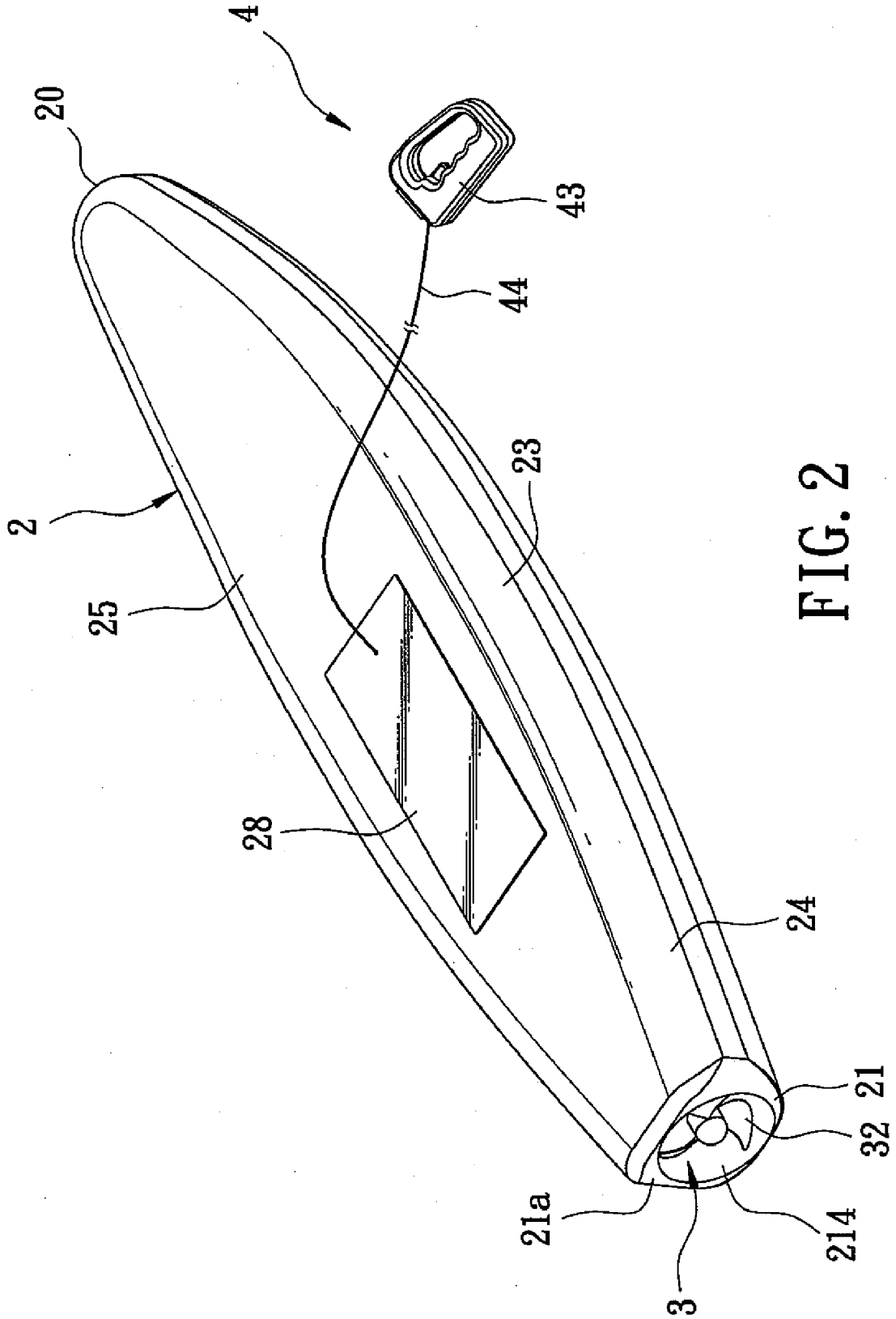


FIG. 2

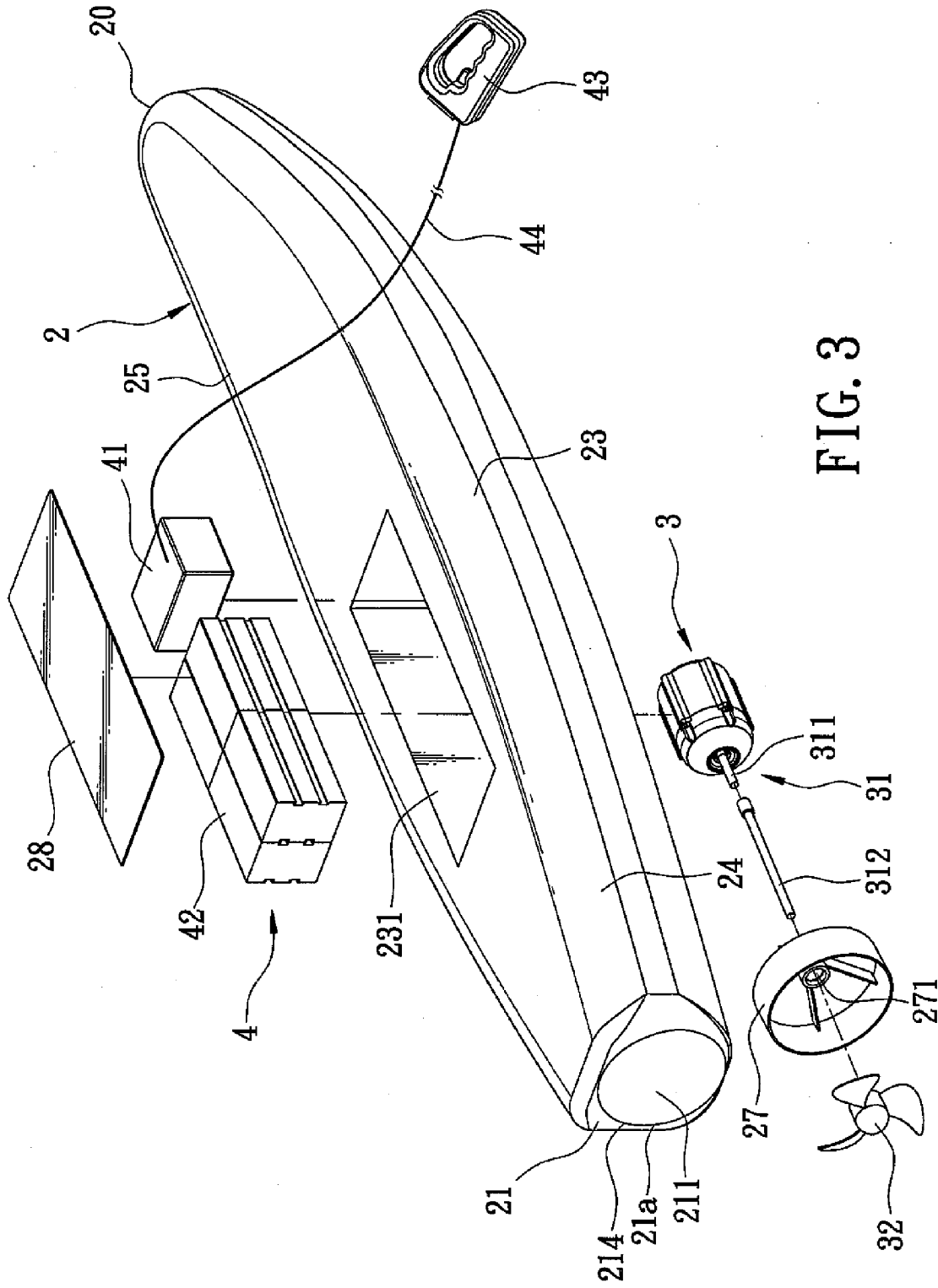


FIG. 3

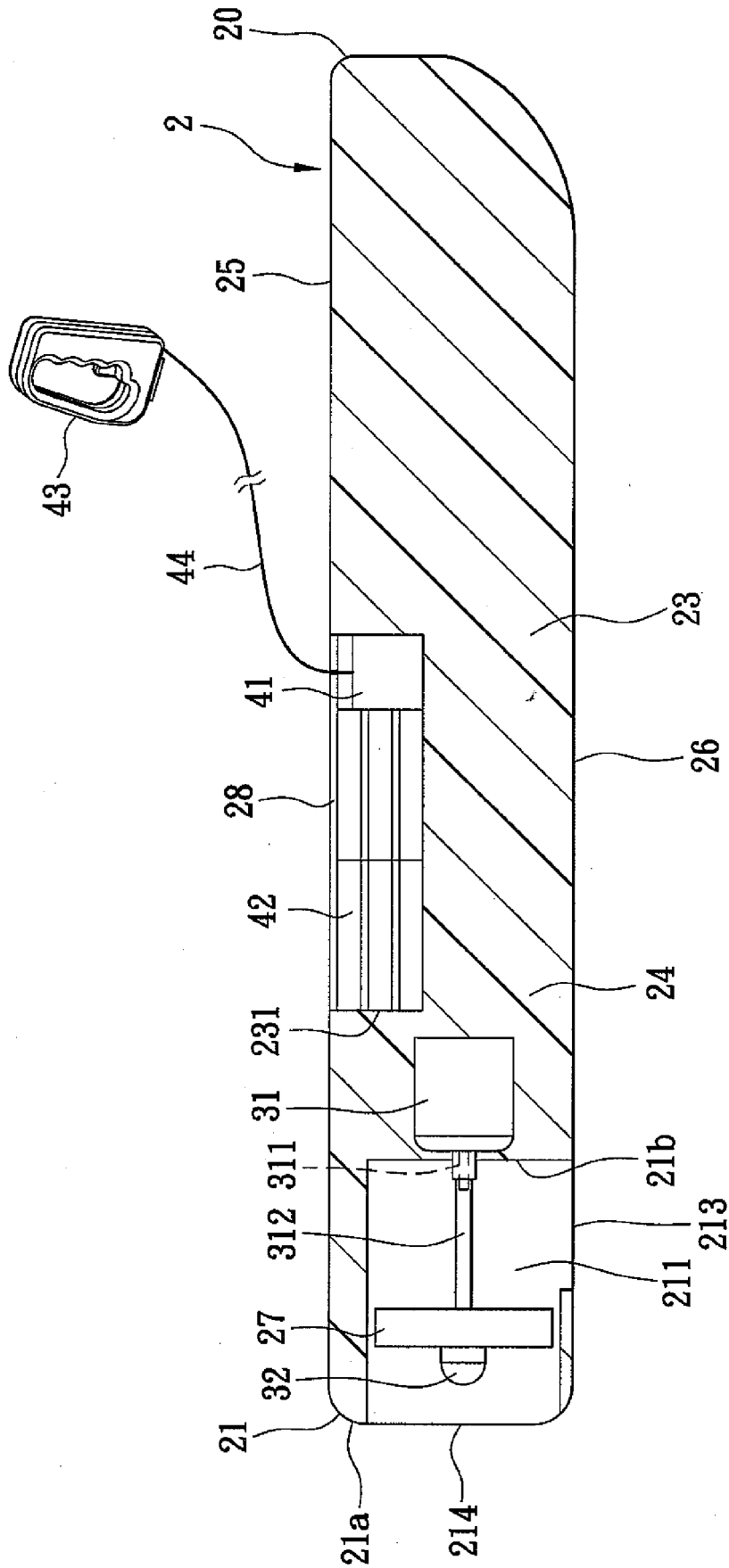


FIG. 4

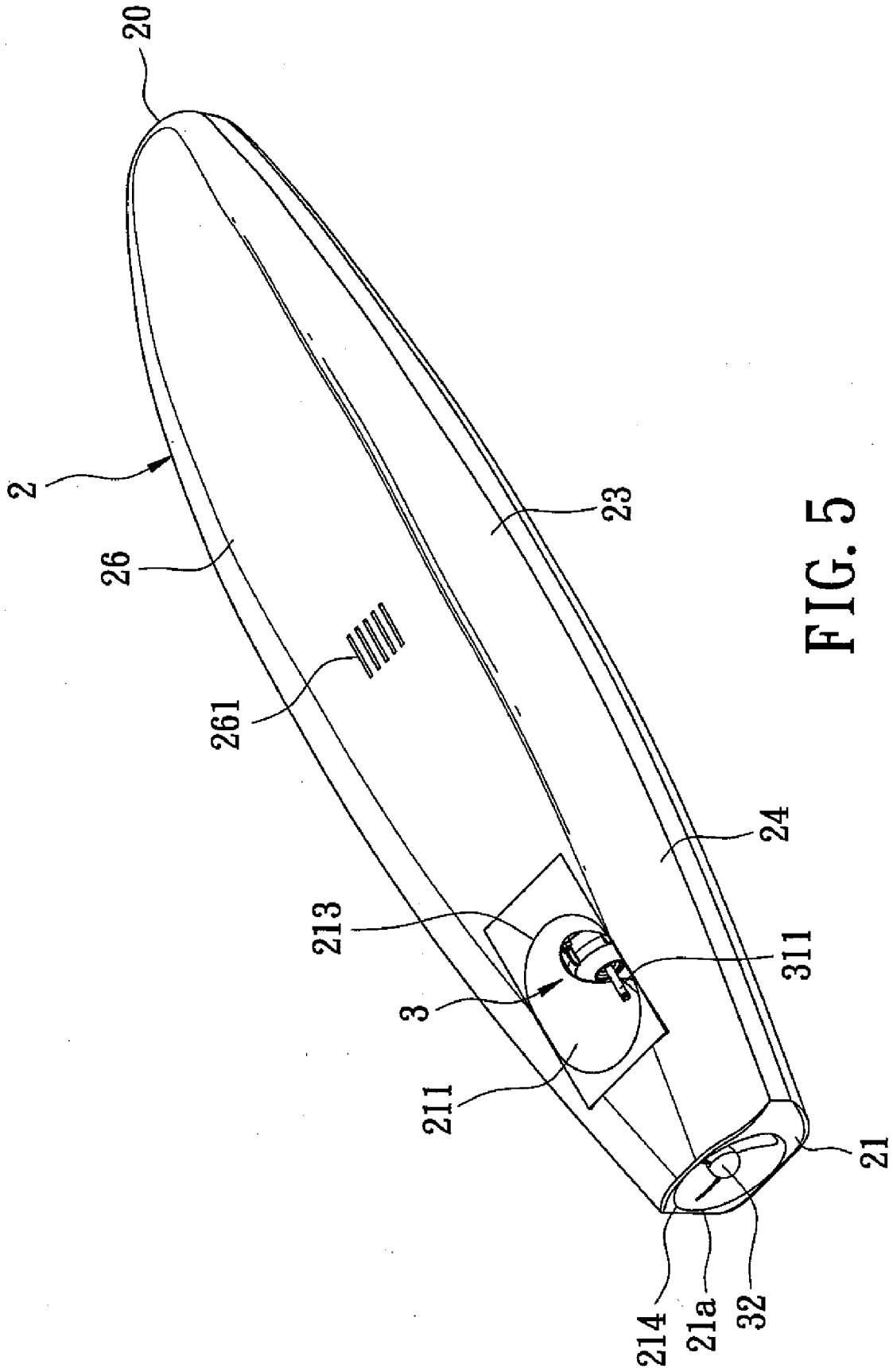


FIG. 5

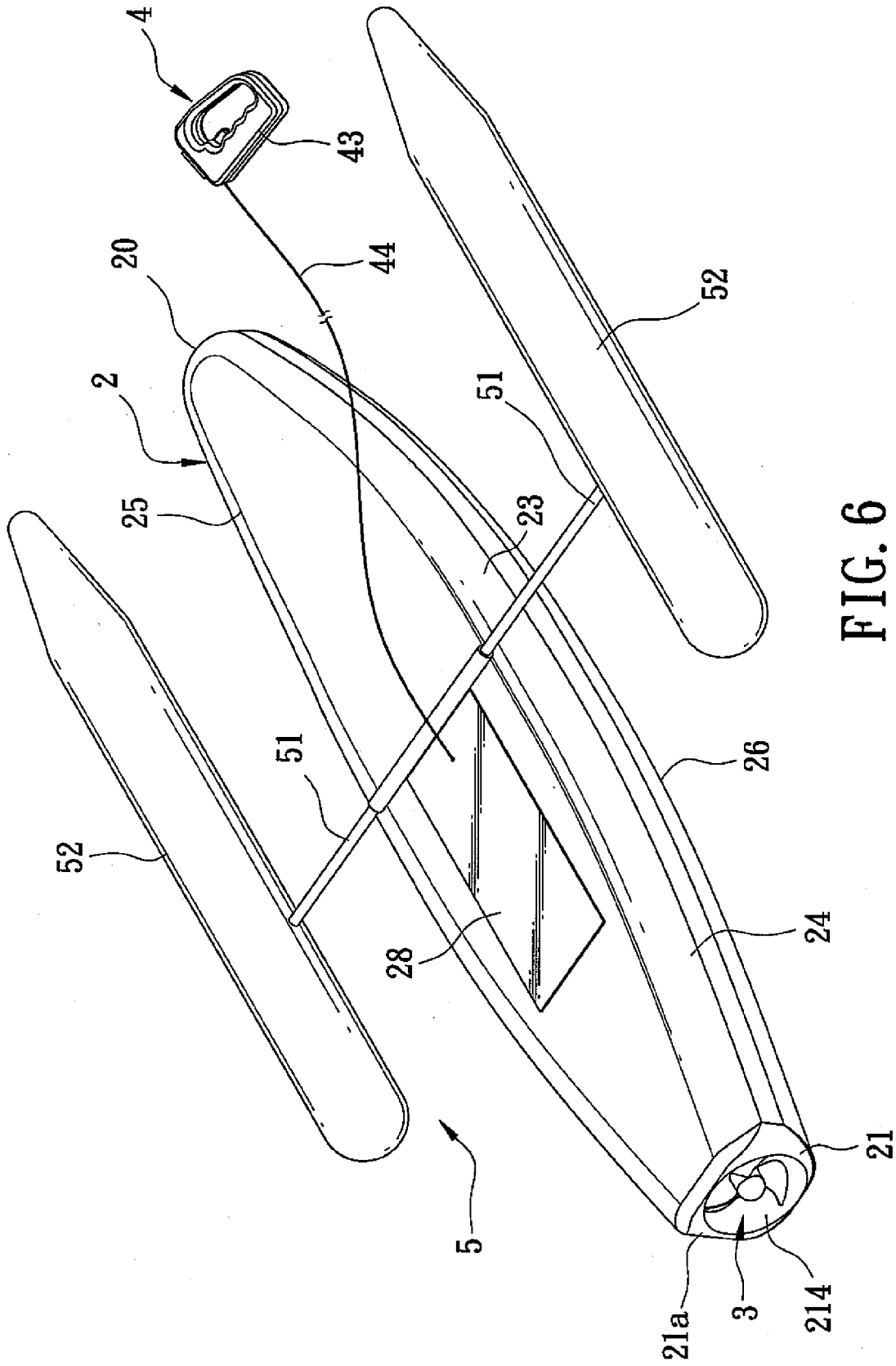


FIG. 6

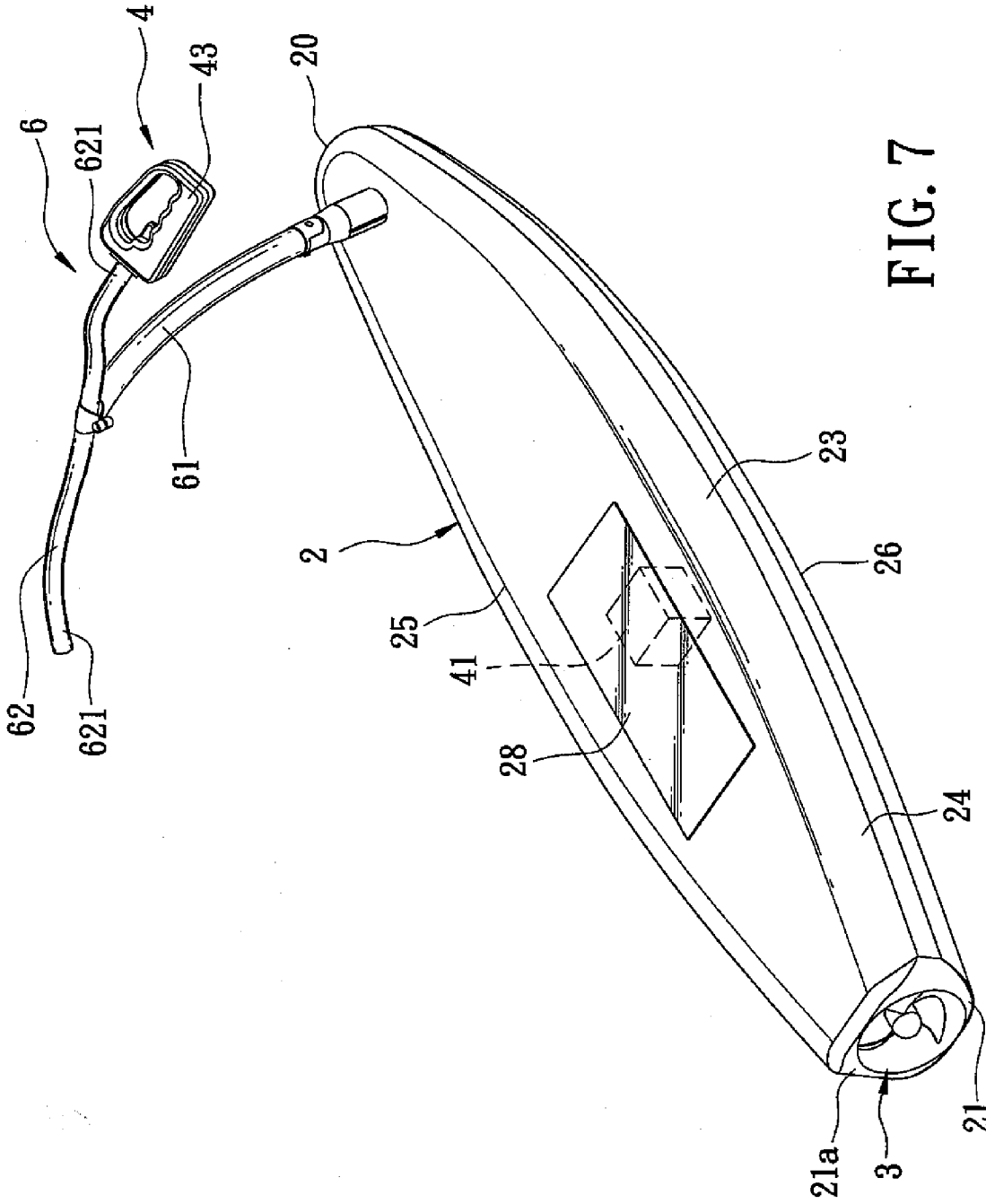


FIG. 7

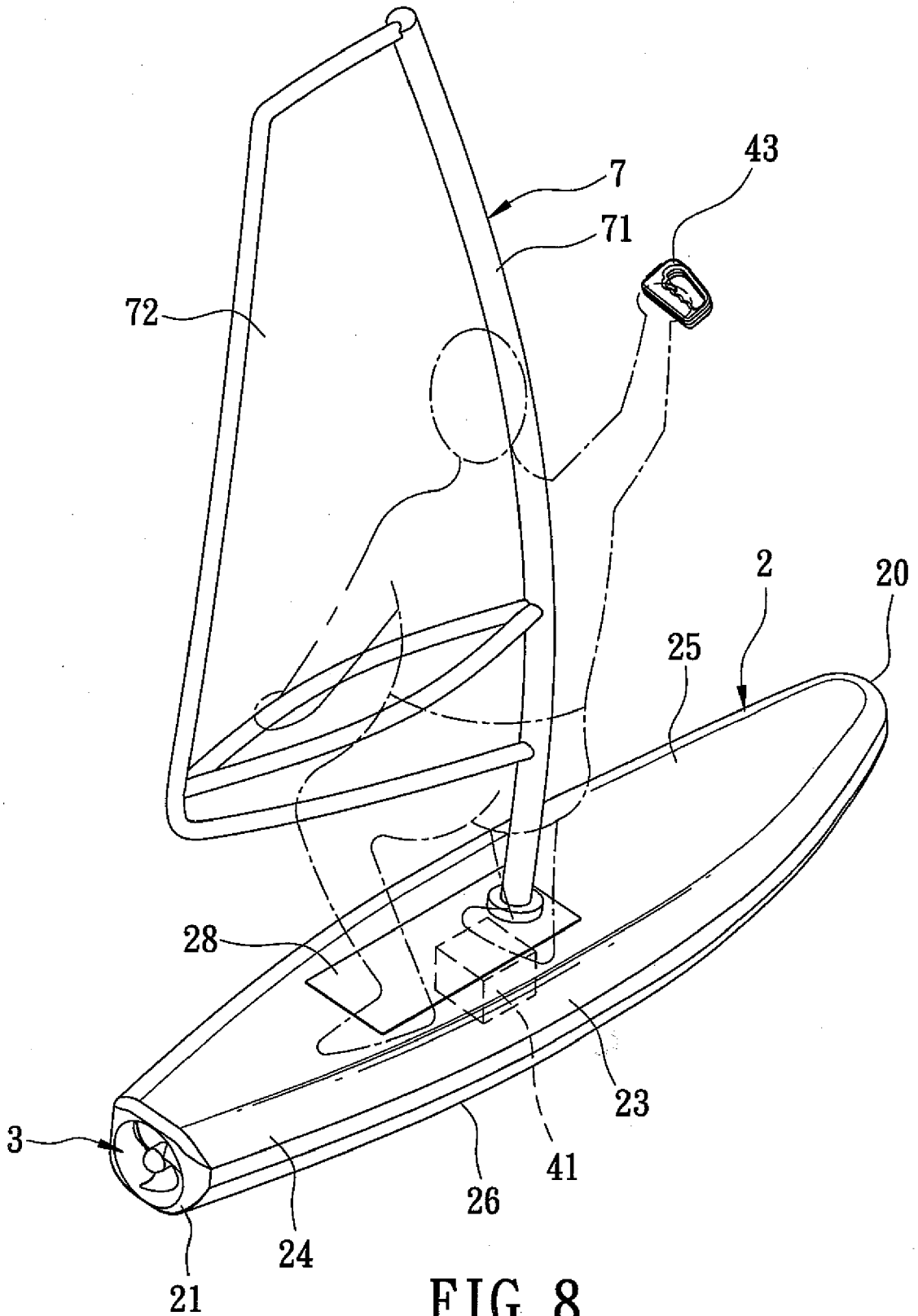


FIG. 8

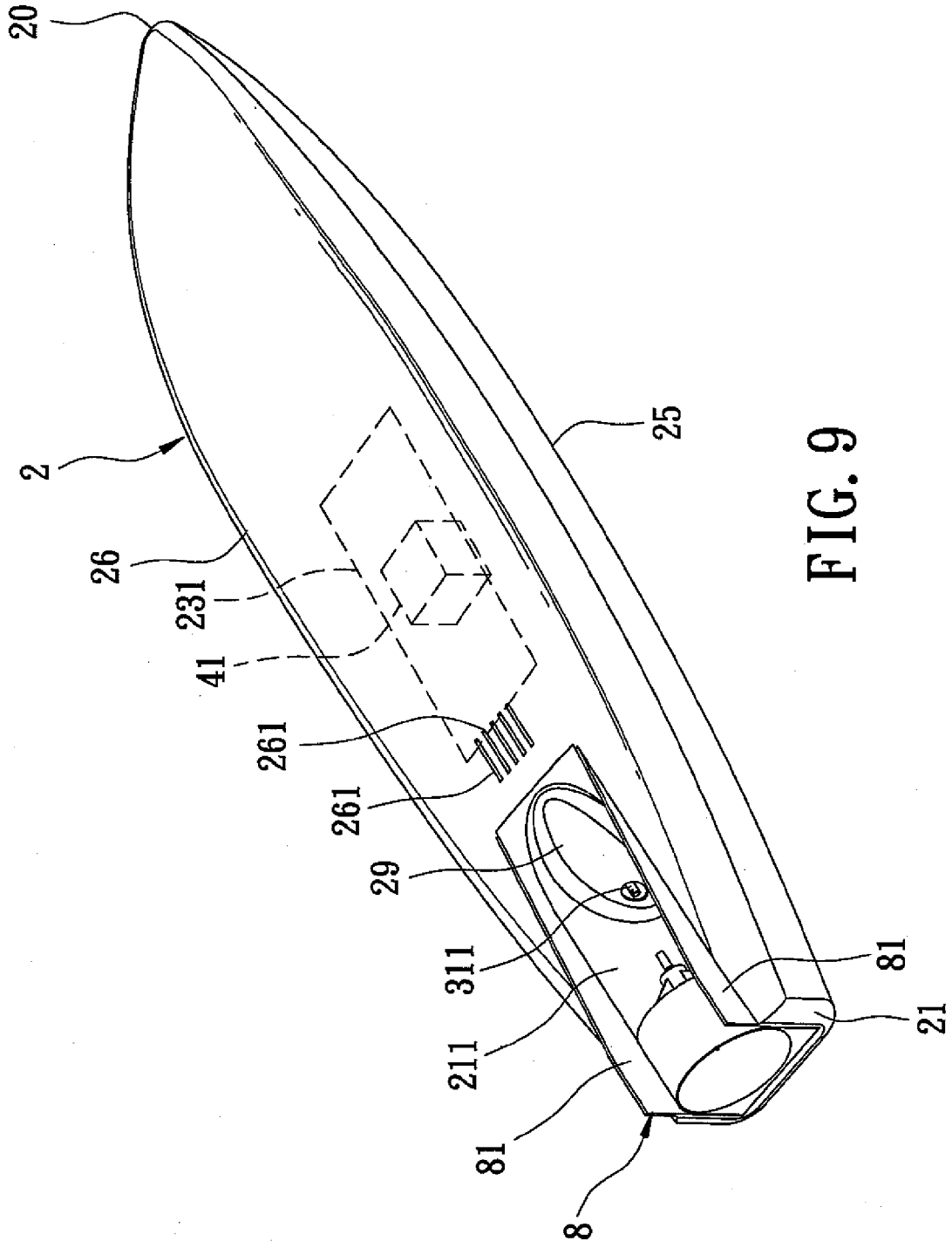


FIG. 9

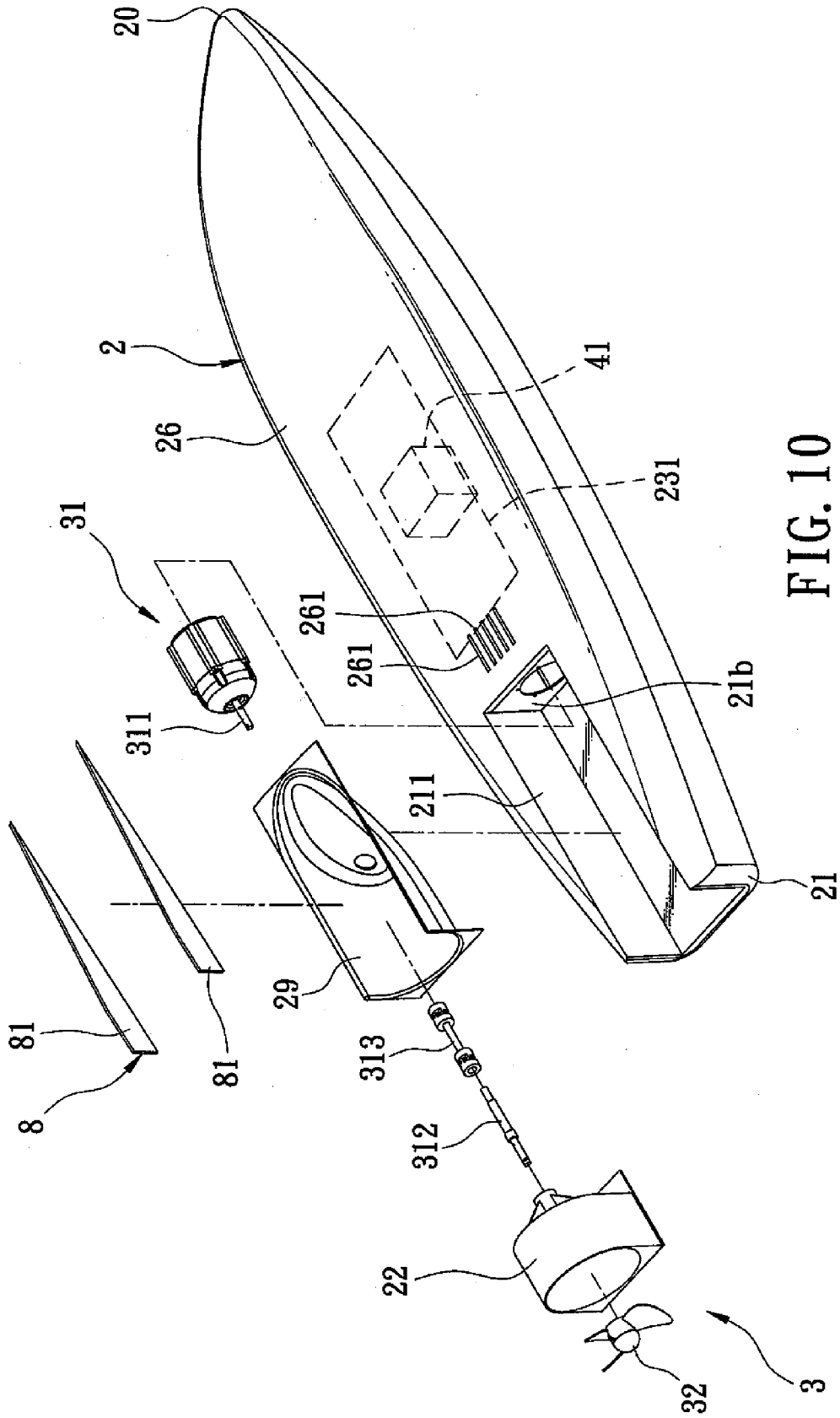


FIG. 10

**PROPELLER DRIVEN SURFING DEVICE**

**CROSS-REFERENCE TO RELATED APPLICATION**

[0001] This application claims priority of Taiwanese Application No. 096101600, filed on Jan. 16, 2007.

**BACKGROUND OF THE INVENTION**

[0002] 1. Field of the Invention

[0003] This invention relates to a surfing device, more particularly to a propeller driven surfing device that is driven by a motor to move through water.

[0004] 2. Description of the Related Art

[0005] Referring to FIG. 1, a conventional propeller driven surfing device 1 is shown to include a surfboard 11, a propeller unit 12 disposed on the surfboard 11, a stabilizing handle 13 coupled to the propeller unit 12, and a handlebar 14 connected to the stabilizing handle 13. The propeller unit 12 includes a drive motor 121 which is mounted on a rear edge of the surfboard 11, and a propeller 122 which is disposed rearwardly of the surfboard 11 and which is coupled to the drive motor 121 to be driven to propel the surfboard 11. The propeller driven surfing device 1 can be driven to move through relatively calm water. However, as the propeller unit 12 is disposed outwardly of the surfboard 11, increased resistance will result to weaken the propelling force.

**SUMMARY OF THE INVENTION**

[0006] The object of the present invention is to provide a propeller driven surfing device which has reduced resistance in water so as to achieve an enhanced driving force for forward propulsion.

[0007] According to this invention, the propeller driven surfing device includes a buoyant body having nose and tail ends opposite to each other in a longitudinal direction, and front and rear trunk segments which are interposed between the nose and tail ends. The buoyant body has deck and bottom surfaces which are opposite to each other in an upright direction, and which extend from the nose end to the tail end. The nose end and the front trunk segment are integrally formed and are configured to have an outer contour that is divergent from the nose end to the front trunk segment, and that is streamlined towards the front trunk segment to have an uninterrupted surface. The tail end has a rearmost surface which extends in the upright direction, and which has a water outlet port that extends between the deck and bottom surfaces and forwardly to terminate at a partition wall surface so as to form a water passage. The bottom surface at the tail end defines a water intake port which is disposed rearwardly of the partition wall surface, and which extends towards the deck surface to be communicated with the water passage.

[0008] A drive motor is disposed in the rear trunk segment between the deck and bottom surfaces, and includes an output shaft that extends outwardly of the partition wall surface and into the water passage so as to be disposed downstream of the water intake port.

[0009] A power supply is disposed in the front trunk segment proximate to the deck surface, and is operably coupled to the drive motor.

[0010] A propeller is driven by the drive motor, and is disposed in the water passage.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0011] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments of the invention, with reference to the accompanying drawings, in which:

[0012] FIG. 1 is a schematic side view of a conventional propeller driven surfing device;

[0013] FIG. 2 is a perspective view of the first preferred embodiment of a propeller driven surfing device according to this invention;

[0014] FIG. 3 is an exploded perspective view of the first preferred embodiment;

[0015] FIG. 4 is a sectional view of the first preferred embodiment;

[0016] FIG. 5 is a perspective view of the first preferred embodiment, taken from a bottom side thereof;

[0017] FIG. 6 is a perspective view of the second preferred embodiment of a propeller driven surfing device according to this invention;

[0018] FIG. 7 is a perspective view of the third preferred embodiment of a propeller driven surfing device according to this invention;

[0019] FIG. 8 is a perspective view of the fourth preferred embodiment of a propeller driven surfing device according to this invention;

[0020] FIG. 9 is a perspective view of the fifth preferred embodiment of a propeller driven surfing device according to this invention, taken from a bottom side thereof; and

[0021] FIG. 10 is an exploded perspective view of the fifth preferred embodiment.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

[0022] Before the present invention is described in greater detail, it should be noted that same reference numerals have been used to denote like elements throughout the specification.

[0023] Referring to FIGS. 2 to 5, the first preferred embodiment of a propeller driven surfing device according to the present invention is shown to comprise a buoyant body 2, a drive unit 3, and a control unit 4.

[0024] The buoyant body 2 has nose and tail ends 20,21 opposite to each other in a longitudinal direction, and front and rear trunk segments 23,24 which are interposed between the nose and tail ends 20,21, and which are respectively proximate to the nose and tail ends 20,21. The buoyant body 2 has deck and bottom surfaces 25,26 opposite to each other in an upright direction, and which extend respectively from the nose end 20 to the tail end 21. The nose end 20 and the front trunk segment 23 are integrally formed, and are configured to have an outer contour that is divergent from the nose end 20 to the front trunk segment 23, and that is streamlined towards the front trunk segment 23 to have an uninterrupted surface. The tail end 21 has a rearmost surface (21a) which extends in the upright direction, and which has a water outlet port 214 that extends between the deck and bottom surfaces 25,26 and forwardly to terminate at a partition wall surface (21b) so as to form a water passage 211. The bottom surface 26 at the tail end 21 defines a water intake port 213 which is disposed rearwardly of the partition wall surface (21b), and

which extends towards the deck surface 25 to be communicated with the water passage 211. The front trunk segment 23 has a cavity 231 which extends from the deck surface 25 towards the bottom surface 26. A cover plate 28 is disposed to cover the cavity 231 and is flush with the deck surface 25. The buoyant body 2 further has a supporting seat 27 which is secured in the water passage 211 and which has an axial hole 271 extending therethrough.

[0025] The drive unit 3 includes a drive motor 31 and a propeller 32. The drive motor 31 is disposed in the rear trunk segment 24 between the deck and bottom surfaces 25, 26, and includes an output shaft 311 which extends outwardly of the partition wall surface (21b) and into the water passage 211 so as to be disposed downstream of the water intake port 213. The output shaft 311 is coupled to a coupler 312 which extends through the axial hole 271 in the supporting seat 27 to be rotatably supported by the supporting seat 27. The propeller 32 is coupled to the coupler 312, and is disposed in the water passage 211 between the rearmost surface (21a) and the partition wall surface (21b).

[0026] The control unit 4 includes a power supply 42, a control member 41, and an operating member 43. The power supply 42, such as a battery, is received in the cavity 231, and is operably coupled to the drive motor 31 so as to drive the propeller 32. The control member 41 is disposed in the cavity 231 and is electrically coupled to the drive motor 31 and the power supply 42 so as to control operation of the drive motor 31. The operating member 43 is electrically coupled to the control member 41 by means of a cable 44 to be movable relative to the buoyant body 2 so as to be operable to control operation of the control member 41, thereby shifting the drive of the drive motor 31, such as the rotational speed of the output shaft 311.

[0027] Accordingly, the surfing device of this invention allows a person with little surfboard riding skill to operate in relatively calm water. Moreover, as the driving unit 3 is disposed inwardly of the buoyant body 2, resistance in water is generated only by the buoyant body 2. Therefore, the resistance is relatively low and a great driving force for forward propulsion can be achieved.

[0028] Preferably, a plurality of cooling slits 261 are formed and extend through the bottom surface 26 and are communicated with the cavity 231 so as to dissipate the heat of the control member 41.

[0029] Referring to FIG. 6, the second preferred embodiment of a propeller driven surfing device according to this invention is shown to be similar to that of the aforesaid embodiment in construction. This embodiment further includes a stabilizing unit 5 which includes a pair of connecting shafts 51 that extend from the decking surface 25 laterally to terminate at left and right ends, respectively, and a pair of buoyant barrels 52 that are connected to the left and right ends, respectively, so as to float on water. Due to the provision of the stabilizing unit 5, the floating area of the surfing device is increased to prevent overturning.

[0030] Referring to FIG. 7, the third preferred embodiment of a propeller driven surfing device according to this invention is shown to be similar to that of the first preferred embodiment in construction. This embodiment further includes a stabilizing unit 6 which includes a head post 61 that is disposed adjacent to the nose end 20, that extends from the decking surface 25 in the upright direction, and that inclines rearwardly to terminate at an upper end, and a handlebar 62 that has a middle portion connected to the upper end, and two

handgrip portions 621 extending laterally from the middle portion. In addition, instead of using the cable 44, the operating member 43 controls the control member 41 over a wireless network using the Bluetooth protocol, and is detachably mounted on one of the handgrip portions 621. Thus, control of the surfing device is easier and the movement of the surfing device is steadier.

[0031] Referring to FIG. 8, the fourth preferred embodiment of a propeller driven surfing device according to this invention is shown to be similar to that of the first preferred embodiment in construction. This embodiment further includes a sail unit 7 which includes a sail 72 and a sail mast 71 that extends from the decking surface 25 in the upright direction to brace the sail 72. Similar to the third embodiment, the operating member 43 in the fourth embodiment controls the control member 41 over a wireless network using the Bluetooth protocol.

[0032] Referring to FIGS. 9 and 10, the fifth preferred embodiment of a propeller driven surfing device according to this invention is shown to be similar to that of the first preferred embodiment in construction. This embodiment further includes a stabilizing unit 8 which includes a pair of tail fins 81 that extend from the bottom surface 26 and which are disposed laterally of the water intake port 213. In addition, the buoyant body 2 further has a guiding member 29 which is disposed in the water passage 211 to shield the drive motor 31, and a plurality of cooling slits 261 which are formed and extend through the bottom surface 26 adjacent to the drive motor 31 so as to dissipate the heat of the drive motor 31. The output shaft 311 of the drive motor 31 extends through the guiding member 29, and is coupled to the coupler 312 by means of a universal joint 313 such that the coupler 312 and the universal joint 313 are rotated with the output shaft 311.

[0033] While the present invention has been described in connection with what are considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretations and equivalent arrangements.

I claim:

1. A propeller driven surfing device comprising:
  - a buoyant body having nose and tail ends opposite to each other in a longitudinal direction, and front and rear trunk segments which are interposed between said nose and tail ends, and which are respectively proximate to said nose and tail ends said buoyant body having deck and bottom surfaces which are opposite to each other in an upright direction, and which extend respectively from said nose end to said tail end, said nose end and said front trunk segment being integrally formed and being configured to have an outer contour that is divergent from said nose end to said front trunk segment, and that is streamlined towards said front trunk segment to have an uninterrupted surface, said tail end having a rearmost surface which extends in the upright direction, and which has a water outlet port that extends between said deck and bottom surfaces and forwardly to terminate at a partition wall surface so as to form a water passage, said bottom surface at said tail end defining a water intake port which is disposed rearwardly of said partition wall surface, and which extends towards said deck surface to be communicated with said water passage;

- a drive motor which is disposed in said rear trunk segment between said deck and bottom surfaces, and which includes an output shaft that extends outwardly of said partition wall surface and into said water passage so as to be disposed downstream of said water intake port;
  - a power supply which is disposed in said front trunk segment proximate to said deck surface, and which is operably coupled to said drive motor; and
  - a propeller which is driven by said drive motor, and which is disposed in said water passage between said rearmost surface and said partition wall surface.
2. The propeller driven surfing device according to claim 1, wherein said front trunk segment has a cavity which extends from said deck surface towards said bottom surface for receiving said power supply.
  3. The propeller driven surfing device according to claim 2, wherein said buoyant body further has a cover plate which is disposed to cover said cavity and which is flush with said deck surface.
  4. The propeller driven surfing device according to claim 2, further comprising a control member which is disposed in said cavity and which is electrically coupled to said drive motor and said power supply so as to control operation of said drive motor.
  5. The propeller driven surfing device according to claim 4, further comprising an operating member which is electrically coupled to said control member, and which is disposed to be movable relative to said buoyant body so as to be operable to control operation of said control member.
  6. The propeller driven surfing device according to claim 5, further comprising a cable which is electrically connected to said operating member and said control member.
  7. The propeller driven surfing device according to claim 5, wherein said operating member controls said control member over a wireless network using the Bluetooth protocol.

8. The propeller driven surfing device according to claim 1, wherein said drive motor has a coupler which is disposed to interconnect said output shaft and said propeller, said buoyant body further having a supporting seat which is secured in said water passage and which has an axial hole for passage of said coupler so as to support said coupler.
9. The propeller driven surfing device according to claim 1, further comprising a stabilizing unit which includes a pair of connecting shafts that extend from said decking surface laterally to terminate at left and right ends, respectively, and a pair of buoyant barrels that are connected to said left and right ends, respectively, so as to float on water.
10. The propeller driven surfing device according to claim 7, further comprising a stabilizing unit which includes a head post that is disposed adjacent to said nose end and that extends from said decking surface in the upright direction to terminate at an upper end, and a handlebar that has a middle portion connected to said upper end, and two handgrip portions extending laterally from said middle portion, said operating member being disposed on one of said handgrip portions.
11. The propeller driven surfing device according to claim 7, further comprising a sail unit which includes a sail and a sail mast that extends from said decking surface in the upright direction to brace said sail.
12. The propeller driven surfing device according to claim 1, further comprising a stabilizing unit which includes a pair of tail fins that extend from said bottom surface and that are disposed laterally of said water intake port.
13. The propeller driven surfing device according to claim 4, wherein said buoyant body further has a plurality of cooling slits which extend through said bottom surface so as to dissipate heat of said drive motor and said control member.

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