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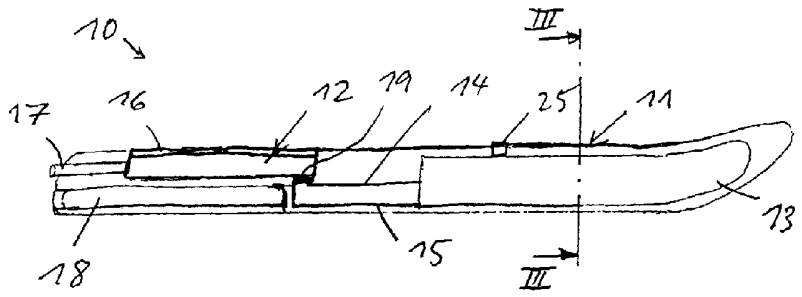
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[Fortsetzung auf der nächsten Seite]

(54) Title: GLIDING BOARD FOR SPORTS ACTIVITIES ON WATER, SNOW, SAND, LAWN AND THE LIKE

(54) Bezeichnung: GLEITBRETT FÜR SPORTLICHE AKTIVITÄTEN AUF WASSER, SCHNEE, SAND, RASEN UND DERGLEICHEN



(57) **Abstract:** The invention relates to a gliding board for sports activities on water, snow, sand, lawn and the like, comprising a body (11) resembling a board, which is equipped with a drive motor (12), wherein a self-supporting tank (13) for the drive motor (12) covering a large surface of the structure of the board body is integrated in the front part of said board body (11) and wherein the drive motor (12) is movably arranged in and integrated into the back part of the body (11) of the board to change the moving direction of the gliding board (10).

(57) **Zusammenfassung:** Ein Gleibrett für sportliche Aktivitäten auf Wasser, Schnee, Sand, Rasen und dergleichen, weist einen bordähnlichen Brettkörper (11) auf, der mit einem Antriebsmotor (12) versehen ist, wobei im vorderen Teil des Brettkörpers (11) ein dessen Aufbau breitflächig mittragender Tank (13) für den Antriebsmotor (12) integriert ist, und wobei der Antriebsmotor (12) im hinteren Teil des Brettkörpers (11) für die Änderung der Bewegungsrichtung des Gleitbrettes (10) bewegbar gelagert integriert ist.

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— *vor Ablauf der für Änderungen der Ansprüche geltenden Frist; Veröffentlichung wird wiederholt, falls Änderungen eintreffen*

Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

Gliding Board for Sports Activities on Water, Snow, Sand, Lawn and the Like

The present invention relates to a gliding board for sports activities on water, on snow, on natural lawn and artificial lawn, sand and the like.

Such gliding boards are known as sail-less surfboards for surf-riding, as snowboards on snow and as so-called wake boards and serve to cause a movement relative to the medium therebelow, with the sportsman standing on it utilizing the water waves or snow, grass and sand slopes. What must be regarded to be a disadvantage of these devices is the fact that such gliding movements are limited in terms of their duration, either because the water wave runs ashore and ends or because the slop or dune inclinations end in the bottom of a valley.

The present invention is now intended to provide a gliding board of a kind similar to a surfing or snowboard that permits also a longer motion even on flat media.

According to the present invention, hence a gliding board is expediently provided wherein a board-like board body is provided on which the athlete stands like on a surfboard or a snowboard, possibly using loops or straps. The propulsion is generated by means of a drive motor that produces either a driving jet or a driving rotating movement for a propeller or wheels or chains. This drive motor has a flat design and is disposed in the rear part of the board body; in accordance with the invention, it is supported for movement so that the direction of movement of the gliding board can be changed.

A rotating means, preferably in the form of a turntable with rotational stops is provided for the mobile support of the drive motor that is integrated into the board body. According to an alternative, the drive motor may also be adapted for being shifted into the board body, also via predetermined paths of movement, in particular along at least one control cam, while it may move on rollers or slides, respectively. This mobility of the drive motor is expediently supported or induced by a change of the direction of movement of the gliding board, which is caused by the person standing on the gliding board.

The envisaged tank is preferably made of a synthetic material and contains carbon fibres. As a result, it can be shaped extremely easily with a high strength in a form that acts as a structural element of the gliding board. The tank can be accommodated in an extraordinary flat form or with a wide area in the board body in such a way that the thickness of the board body can be kept as small as possible and that the tank cannot be recognised from the outside, with the exception of a tank inlet and an optical or acoustical liquid-level indicator.

According to a further embodiment of the invention, a remote controller is provided for the drive motor, preferably a wireless control system (Blue tooth element) that consists preferably of a hand-held part with a starter button, speed adjustment and a hand strap.

According to a further embodiment of the invention, a gliding board is provided for sports activities on water, snow, sand, lawn and the like, comprising a board-like board body provided with a drive motor. A tank for said board body is integrated into the board body for contributing to the support of the structure over a wide area. The drive motor is integrated into and moveably supported in the rear part of said board body for changing the direction of movement of the gliding board.

Another embodiment of the invention is provides gliding board for sports activities on water, snow, sand, lawn and the like, comprising a board-like board body provided with a drive motor and a tank. The drive motor is integrated into and moveably supported in the rear part of the board body for changing the direction of movement of the gliding board. The drive motor is disposed in said board body by a rotating means, possibly a turntable or being adapted to be shifted along at least one predetermined path of movement, in particular a control cam, into said board body.

Preferably the drive motor is designed as a compressed-air motor with the tank being a compressed air reservoir.

A further embodiment of the invention provides a gliding board for sports activities on water, snow, sand, lawn and the like, comprising a board-like board body with a compressed-air tank and a compressed-air motor.

Preferably the compressed-air tank is integrated into the structure of the board body so as to contribute to wide-area support. The compressed-air tank may be integrated into the front or rear part of the board body.

The drive motor is provided as an essential novelty, which is integrated, as far as this is possible, into the rear part of the board body. As previously stated, the drive motor is preferably designed as a compressed-air motor, with the tank being a compressed-air reservoir. This compressed-air motor presents the advantages that it has an extraordinarily low weight and an extremely small configuration and that its operation is extremely compatible in ecological terms. It comprises at least two pistons in opposition, like a boxer engine, and in operation of the drive motor, which may also be referred to as a compressed-air engine, a piston aspirates air and compresses it in a spherical chamber of a volume of 32 cm^3, for instance, to a pressure of roughly 20 bar at 400°C. When cold compressed air of 40 bar, for example, is now injected from the tank into this spherical chamber an abrupt expansion of the air takes place, which expands then in a second piston and presses the latter towards a crankshaft. The air is subsequently passed via an exhaust pipe to the outside while the first piston causes already compression in the first chamber again, thus repeating the cycle. The driving force is then transmitted from the simultaneously rotating crankshaft to an enclosed driving propeller provided either on the bottom side or in a recess in the underside of the board body. As an alternative, the rotational driving force may also act on driving wheels, rollers, chains, or similar elements.

In the following, one embodiment of the invention will be explained in more detail with reference to the attached drawings wherein:

Fig. 1 is a schematic longitudinal sectional view taken through a gliding board according to the invention;

Fig. 2 shows a schematic illustration of a remote controller for controlling the drive system; and

Fig. 3 illustrates a section view taken along the line III-III in Figure 1.

Fig. 1 is a schematic sectional view taken through an embodiment of a gliding board 10. The gliding board 10 comprises a board-like board body 11 that is provided with a drive motor 12. A tank 13 for the drive motor 12 is integrated into the front part of the board body 11, which contributes to the support of the body structure over a wide area which is connected via flexible movable pipes 14, 15 to the drive motor 12.

In this embodiment, the drive motor is configured as a compressed-air motor whilst the tank 13 is a compressed-air reservoir that is capable of supplying the drive motor 12 in a controlled manner with air, for example, at a pressure of 40 bar.

The drive motor is movably supported in and integrated into the rear part of the board body 11 for a change of the direction of movement of the gliding board 10. In the illustrated embodiment, a schematically roughly indicated turntable 16 is provided as means for shifting the drive motor 12, which turntable is connected to the drive motor 12, with the pipes 14 and 15 being elastic tubes of a sufficient length so as to be able to follow the rotational movements of the turntable up to a predetermined stop. The turntable 16 may also be designed without connection to the drive motor 12. It is inserted into the surface of the board or gliding board 10, respectively, to be flush with the surface, and presents a smooth surface. It enables the user to change the direction (from the windward side to the lee side = 180°), with the user standing in the width-wise direction with and without foot straps.

The reference numeral 17 roughly indicates an exhaust pipe whereas the region 18 is provided for driving means not illustrated here, driven by the drive motor 12 and serving to propel the gliding board on the respective medium.

As is shown in Fig. 3, the tank is integrated as large-area structural element into the front part of the board body 11, which contributes to the support of the structure. Due to the light charge weight, it is designed as additional support, relative to the lifting force, and en-

sures the tilting stability of the gliding board 10 over its extension in the width direction. The wall of the tank is formed integrally with the wall of the board body 11. The tank 13 may additionally comprise perforated transverse and longitudinal braces, in a manner not illustrated here, for further enhancement of the stability, with the perforation in the stabilisers serving to make the charge in the tank fully available. The tank 13 may also be designed to have different wall thicknesses, for example on the left and the right edge of the gliding board 10. The tank 13 consists preferably of synthetic material or aluminium.

Fig. 2 shows an embodiment of a wireless control system 20 (Bluetooth component) in which a hand strap 21 is connected to a hand-held piece 22. The hand-held piece 22 is provided with a starter button 23 on the upper side and with a speed control means 24 that respond to compression of the hand-held piece 22. The control commands are communicated via the Bluetooth component - or, in an alternative embodiment with cable-bound remote controller, via a cable - to the drive motor 12. To this end, the connection with the hand strap 21 may be provided as antenna or Bluetooth component, respectively, or an additional antenna may be provided whilst a receiver is provided in the region of the motor 12 for receiving the radio signals of the hand-held piece 22, which converts the control signals into appropriate motor control information by means of actuators not illustrated here.

The novel gliding board is extraordinarily flexible in terms of the shape in which it may be formed, is of an extremely light weight due to the tank containing nothing but air and on account of the envisaged compressed-air drive system, and can be designed and handled in a reliable and safe manner, with provisions being made for simple checking of the liquid-level in the tank 13 by means of a liquid-level indicator roughly indicated by the reference numeral 25.

The hand-held piece 22 can moreover be designed in such a way that the speed control means 24 automatically switches the drive motor off when the compressed hand-held

piece is released, so that not only an extraordinarily high safety and reliability in operation but also economy in consumption of the tank charge can be achieved.

Claims

1. A gliding board for sports activities on water, snow, sand, lawn, and the like, comprising a board-like board body provided with a drive motor , wherein a tank for said board body is integrated into the board body for contributing to the support of the structure over a wide area, and wherein said drive motor is integrated into and moveably supported in the rear part of said board body for changing the direction of movement of the gliding board.

2. A gliding board for sports activities on water, snow, sand, lawn and the like, comprising a board-like board body provided with a drive motor and a tank, wherein said drive motor is integrated into and moveably supported in the rear part of said board body for changing the direction of movement of the gliding board , said drive motor being disposed in said board body via a rotating means, preferably a turntable or being adapted to be shifted along at least one predetermined path of movement, in particular a control cam, into said board body.

3. A gliding board according to Claim 1, characterised in that said drive motor is disposed in said board body via a rotating means, preferably a turntable.

4. A gliding board according to Claim 1, characterised in that said drive motor is adapted to be shifted along at least one predetermined path of movement, in particular a control cam, into said board body.

5. A gliding board according to any one of the preceding Claims, characterised in that said drive motor is adapted to be moved via rollers or one or more slides, respectively.

6. A gliding board according to any one of the preceding Claims, characterised in that said tank is made of synthetic resin and contains carbon fibres.

7. A gliding board according to any one of the preceding Claims, characterised in that said tank comprises a liquid-level indicator.

8. Gliding board according to Claim 7, characterised in that said liquid-level indicator operates in an optical or acoustical mode.

9. A gliding board according to any one of the preceding Claims, characterised in that a remote controller, preferably a wireless controller (Bluetooth element) is provided for said drive motor.

10. A gliding board according to Claim 9, characterised in that a hand-held piece with a starter button, speed control means and hand strap is provided for wireless remote control.

11. A gliding board according to any one of the preceding Claims, characterised in that said drive motor is designed as a compressed-air motor, with said tank being a compressed-air reservoir.

12. A gliding board for sports activities on water, snow, sand, lawn and the like, comprising a board-like board body comprising a compressed-air tank and a compressed-air motor.

13. A gliding board according to Claim 12, characterised in that compressed-air tank is integrated into the structure of said board body so as to contribute to wide-area support.

14. A gliding board according to Claim 12 or 13, characterised in that compressed-air tank is integrated into the front part of said board body.

15. A gliding board according to any one of Claims 12 to 14, characterised in that said compressed-air motor is integrated into the rear part of said board body.

16. A gliding board substantially as described herein with reference to any one of the figures.

Dated this 9th day of December 2003

Ulrich Kurze

by its attorneys

Freehills Carter Smith Beadle

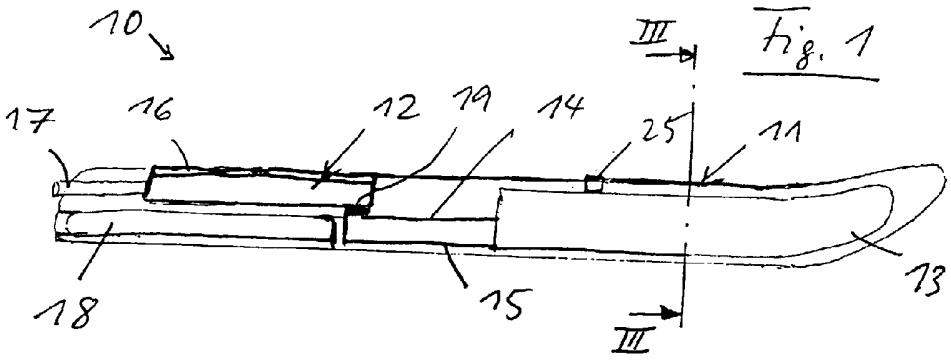


Fig. 1

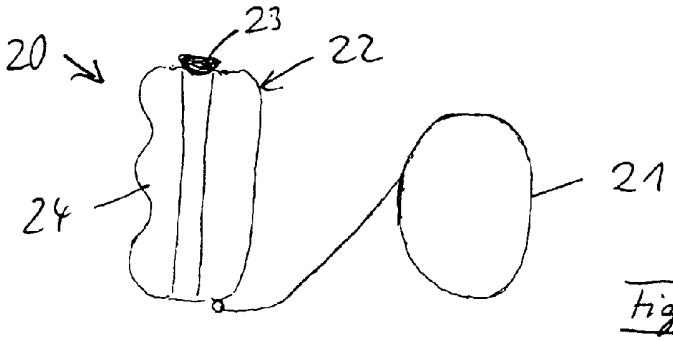


Fig. 2

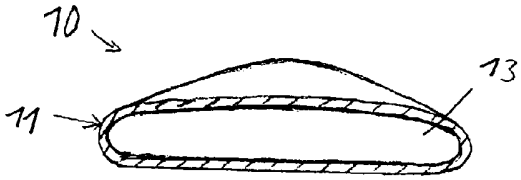


Fig. 3