

PATENT SPECIFICATION

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Country: A U S T R A L I A

Application No.:

Date of Application:

Title: "IMPROVED GLIDING APPARATUS."

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PATENT AND TRADE MARK ATTORNEYS

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The invention relates to an improved gliding
apparatus for supporting one or more persons and its
operation is described with reference to the use of a
person who is being lifted by a motor pump and
the flow from the bottom of the water.

With reference to the present invention, the
object is to provide a means of a fine line of
the head and a small standing in the water level.

The object of the present invention is to provide
an improved gliding apparatus which is to be
used in operation and which is to be used
and which is to be used in the water.

A further object is to provide the means of
the present invention which is to be used in
operation, as with the present invention.

The present invention is described in accordance with
the present invention which is to be used in
operation and which is to be used in the water.

COMMONWEALTH OF AUSTRALIA

PATENTS ACT, 1952

PROVISIONAL SPECIFICATION FOR THE INVENTION ENTITLED:

"IMPROVED GLIDING APPARATUS."

This invention is described in the following statement:-

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This invention relates to an improved gliding apparatus for supporting one or more persons and is particularly concerned with such apparatus for use by water skiers who are being towed by a motor boat and desire to rise from the surface of the water.

With apparatus for this purpose hitherto employed a skier has held on to a cross-bar of a flat kite to which has been secured a cable leading to the motor boat.

The object of the present invention is to provide an improved gliding apparatus of this general type which shall be safer in operation and more readily controlled and moreover shall permit free gliding by the user.

A further object is to diminish the strain upon the muscles through hanging suspended by the arms from a cross-bar, as with the earlier constructions.

An improved gliding apparatus in accordance with the present invention comprises a kite having side members and a central member coming together at an apex at the forward end of the kite and with upwardly convex air engaging wings extending between the side and central members, together with a cross-bar or equivalent to be held by the operator, means for suspending the operator from the kite and releasable coupling means for connecting the kite to a motor boat or other towing vehicle.

In a preferred construction in accordance with our invention the apparatus takes the form of a kite formed from duralium tubes in the shape of a "V" and travels apex forward. There is a central tubular spar extending rearward from the apex and bisecting the "V" and there is a cross-bar about one-third of the distance back from the

apex, which is secured to all three of the spars.

At the apex there is a cap over the open ends of the tubes and there is a steel plate ^{bolted} ~~welded~~ to the tubes. Mounted beneath this steel plate is a releasable coupling similar to that in a car safety harness. The coupling may be released by a cord leading into proximity with the operator's hand and it engages an eye on the tow rope but can be quickly disengaged therefrom to permit the rope to fall clear and permit the glider to enter free flight.

Mounted about half-way rearwards along the central spar is a suspension member which incorporates another quick release coupling and another cord leads therefrom into proximity with the operator's hand.

The operator dons a harness similar to a parachute harness which by a chain or rope extends to the releasable coupling on the central spar. He can release himself from such spar at will.

Desirably the tension in the quick release couplings is adjustable as to the pull required to release them.

The operator holds on to a cross-bar rigidly suspended from the cross-bar previously mentioned. This second cross-bar is in the form of a rigid trapeze with a triangular portion projecting forward. From the ends of the trapeze cross-bar cords extend to the ends of all the spars and to the ends of the main cross-bar. Through an eye on the apex of the triangular portion on the trapeze cross-bar the tow rope extends, going thence to the apex of the kite.

This arrangement enables the operator by suitable body movement to tilt the kite to one side or the other or to raise or lower its apex.

5 The wings of the kite are formed from light weight but strong flexible, water-proof material. Each is at all points wider than the space between the side spar and the central spar to which it is secured along its margins and hence ballows upwards under strain, giving the wing a convexly curved supporting surface of triangular form in plan.

10 This arrangement achieves greater lift than the flat surfaces of previously known kites and substantially greater stability in the horizontal, vertical and transverse planes, while also giving a greater directional control.

15 The suspension of the operator by the harness from a single central point enables the skier to pivot the whole supporting surface about that point and he can thus cause the kite to climb, descend, turn and execute climbing or diving turns in a manner not previously possible.

20 In one convenient form the wing area is 160 sq. feet; the length is 15 feet, the span is 19 feet, the wing loading is 1.6 lbs per square foot. The weight is 60 lbs. approximately; depending on materials of construction. Take-off speed, 22 miles per hour in still air, Landing speed - 20 miles per hour in still air. Angle of attack - 15° in level flight. Angle formed at apex - 80° .
25 Load safety factor - 2.
30

Four main poles $1\frac{1}{2}$ " diameter x .062" wall thickness. Aluminium tube sealed for flotation. Tow bar - aluminium tube - $1\frac{1}{2}$ " x .062" wall thickness. Fabric .004" polythene plastic sheeting or water-proofed equivalent, reinforced by plastic tape in direction of load.
5
Harness - 2000 lb. breaking strain webbing, attached to a canvas seat in the manner of a parachute.

The operator mounted on water skis is towed behind a motor boat until he rises from the water, then the skis may be dropped off and when a suitable height and speed have been attained he may, if he so desires, drop the tow rope and continue in free flight until he is again in proximity to the water, when he can release himself off from the kite and drop thereinto.
10

The gliding device of the present invention can be adopted to land take-offs by mounting the apparatus and the operator upon a vehicle from which a rope is paid out as the speed increases and the operator rises clear.
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DATED This 4th day of October, 1963.

JOHN WALLACE DICKENSON and AMY BARBARA DICKENSON
By their Patent Attorney:

OF GRIFFITH, HASSEL & FRAZER.