April 11, 1967 J. B. GUIN 3,313,265

POWERED WATER-SKI SURF-BOARDS

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FIG. 1

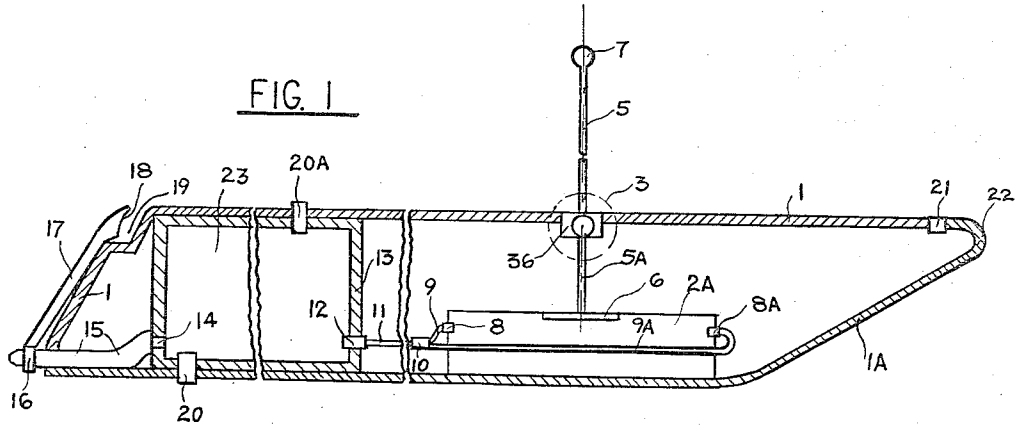


FIG. 2

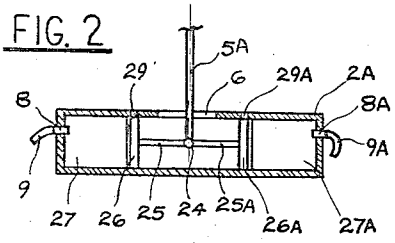


FIG. 3

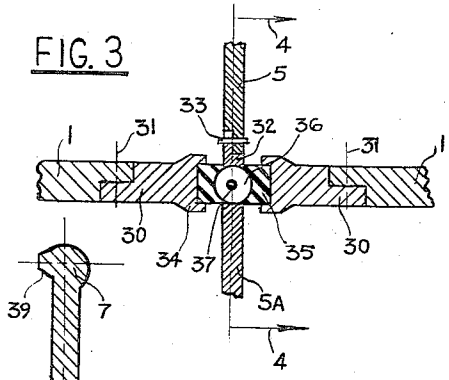


FIG. 12

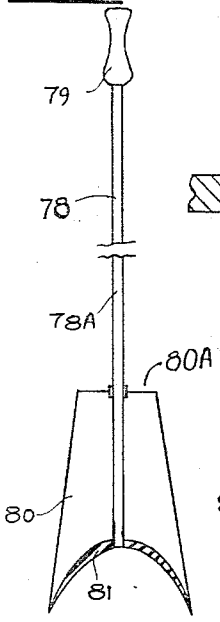


FIG. 4

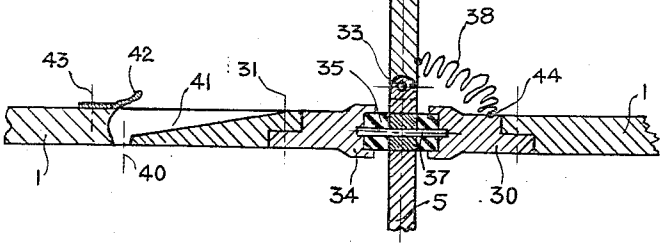
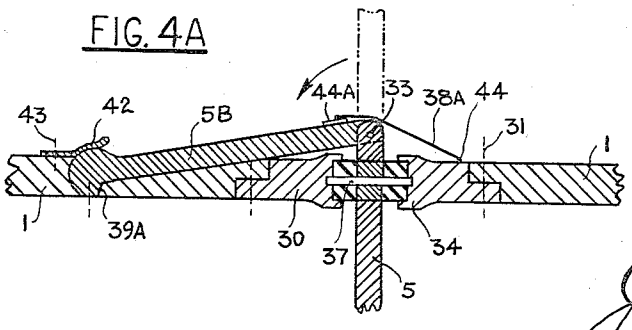


FIG. 4A



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FIG. 5

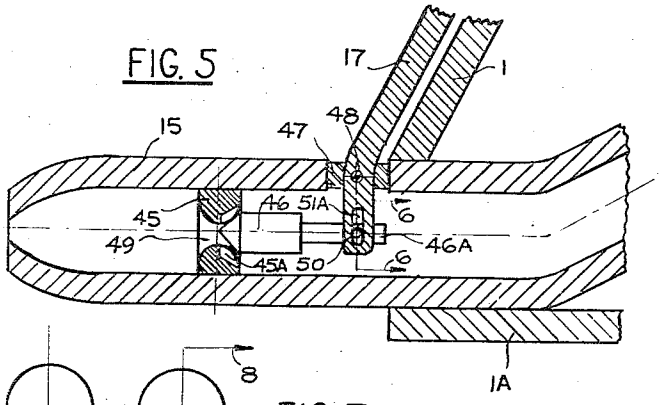


FIG. 6

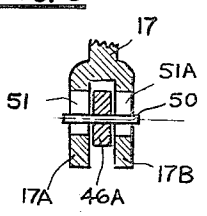


FIG. 7

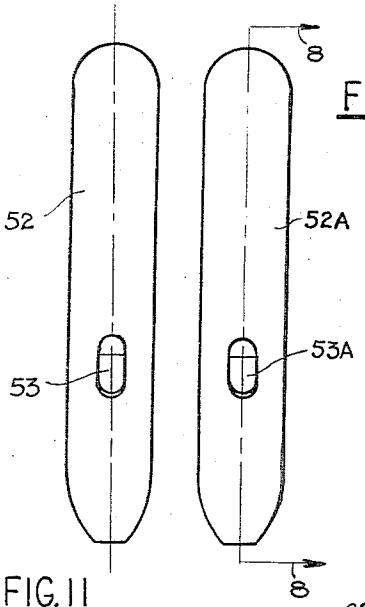


FIG. 8

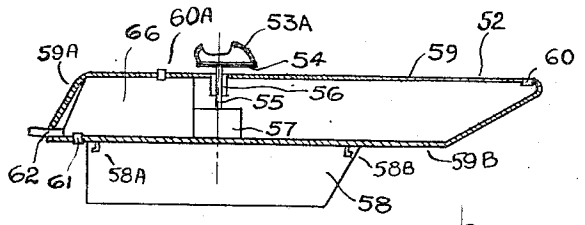


FIG. 9

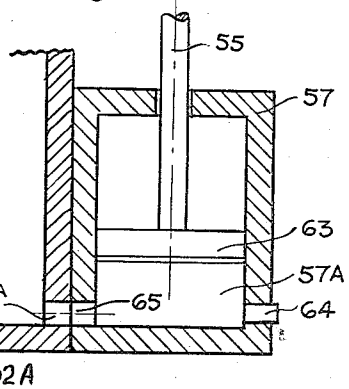
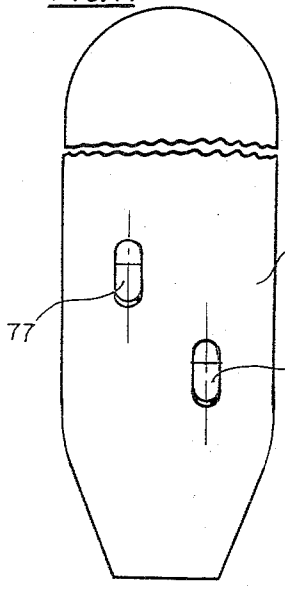


FIG. 11



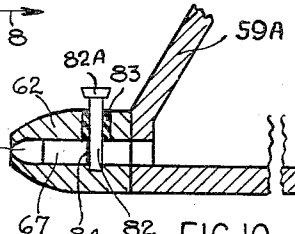
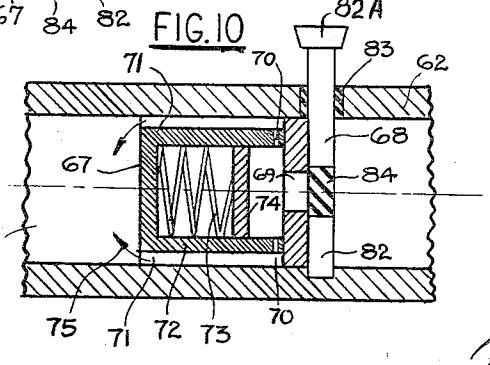


FIG. 10



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United States Patent Office 3,313,265 Patented Apr. 11, 1967

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POWERED WATER-SKI SURF-BOARDS

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Filed May 6, 1965, Ser. No. 453,597
2 Claims. (Cl. 115—70)

This invention relates to a Powered Water-Ski Surf-Board, the "Skurf-Board" using water-ski poles with inflatable plunger and container to provide lifting and balance, and including:

a lever on the surf-board for a pump operator to use;
a two-way air pump; a pressure tank to hold the air;
an inlet valve for filling the tank from an air compressor; and
a kick-lever for opening and closing the air nozzle.

The poles and the compressed air contribute power, speed, distance, safety, maneuverability and greater versatility than are available in similar equipment at present. Also, it places a new tool in the hands of the life-guard, and provides a reasonable substitute for the surf-board to the "weak-sister" or the would-be "expert" who places his life in jeopardy by getting beyond his strength or resources while emulating stronger men. The speed and power may also help the "regular" to avoid sharks, barracudas, boats, other surfers, floating objects, etc. The "Skurf-Poles" add versatility to water sports and provide help for the learner, new thrills for the expert, and a new safety factor at the beaches.

Two other water-sport devices, similar in purpose and in several details are:

The "Skurf-Pedal" having two pedals for pumping air; and

"Skurf-Shoes," a pair of small Skurf-Boards with pedals instead of a lever for operating the air pump. Both these enable less-skilled persons to get the feel of water-surfing in shallow water, before venturing into deep water.

Other objects and advantages of the invention will become apparent when the accompanying drawings are studied in connection with the detailed description given below. In the drawings

FIG. 1 shows a vertical section through the Skurf-Board;

FIG. 2 is a vertical section through section 2 of FIG. 1;

FIG. 3 is an enlargement of section 3 in FIG. 1;

FIG. 4 is a vertical section along line 4—4 in FIG. 3;

FIG. 4A is the same as FIG. 4 except that the upper pumping arm is bent over and the cover is drawn over its base;

FIG. 5 is a vertical section through the Skurf-Board nozzle;

FIG. 6 is a vertical section along line 6—6 in FIG. 5;

FIG. 7 shows a pair of Skurf-Shoes;

FIG. 8 is a vertical section along line 8—8 in FIG. 7;

FIG. 9 is an enlarged vertical section through the pumping unit and the nozzle unit areas of FIG. 8;

FIG. 10 is an enlarged vertical section through the nozzle;

FIG. 11 shows a Skurf-Pedal, a Skurf-Board with two pedals;

FIG. 12 shows one "Skurf-Pole" of a pair needed by most users of the Skurf-Shoes, the Skurf-Pedal and the Skurf-Board.

Turning now to the drawings, FIG. 1 is a cross-sectional view through Skurf-Board 1 showing the essential parts of the compressed air system:

Upper pumping lever 5 having knob 7 as a handle, extends through section 3 of the hull into two-way pump 2A (see FIG. 2) from which one-way valves 8 and 8A lead the air through tubes 9 and 9A respectively, which join at connecting valve 10, whence it flows through connecting tube 11 into inlet valve 12 in compressed air chamber 23;

As handle 5 is pushed and pulled by the user it pivots on hinge 36 and causes pump 2A to force air into chamber 23, from whence it issues through outlet 14 into nozzle 15;

From nozzle 15 the air is vented to the outside through a valve operated by kick-lever 17 on the end of which is a toe-extension 18 by which it may be kicked or pulled by hand or foot respectively to open or close; the toe-extension rests within indentation 19 in the hull.

Another source of high-pressure air is provided by valve 20 through which compressed air may be piped from an air compressor (filling station of industrial). A visible pressure gauge 20A is provided with an automatic safety valve to prevent pressure damage.

FIG. 2 shows an enlargement of the two-way pump 2A in FIG. 1. Lower lever 5A slides back and forth within slit 6. Compression chambers 27 and 27A are filled by the back and forth motion of left and right pumping arms 25 and 25A respectively, which are attached to pistons 26 and 26A respectively; the air thus compressed is forced through left and right one-way valves 8 and 8A respectively into left and right tubes 9 and 9A respectively.

FIG. 3 is an enlargement of section 3 in FIG. 1 showing upper lever 5 joined by pin 33 to intermediate piece 32 which runs into closure 35. Lever 5 turns on hinge 36 connected to hinge-shaft 37, both contained in closure 35 made of material impervious to water, and both held firmly by extensions 34 of hinge structure 30, which in turn is held to hull 1 by screws 31.

FIG. 5 is an enlarged vertical section through nozzle 15 extending from chamber 23 of FIG. 1 through the junction of upper hull 1 and lower hull 1A. Air from the chamber can be vented to the outside by the action of valve lever 17 pivoting on pin 48, pulling cone extension 46A and nozzle cone 46 connected thereto from their position in nozzle opening 49 which is surrounded by annular ring 45 made of a hard strong material, on the inside of which is a ring 45A made of rubber or other resilient material. Valve lever 17 has an opening 51A through which extends a pin 50 on which cone extension 46 is attached.

FIG. 6 is a vertical section along line 6—6 of FIG. 5. Valve lever 17 forks into two sections 17A and 17B in which are two slits 51 and 51A respectively, holding pin 50 which may move freely as it pulls cone extension 45A.

FIG. 7 shows two skurf-shoes 52 and 52A with sandals 53 and 53A respectively, attached to pedals which are not shown here.

FIG. 8 is a vertical section along line 8—8 of FIG. 7, showing Skurf-Shoe 52 with upper hull 59 in which is valve 60 for draining off accumulated water. Balancing fin 58, attached to lower hull 59A, may be detached by releasing snap-catches 58A and 58B, when the user is being pulled by a boat or is using Skurf-Poles (see FIG. 12). A combination safety valve and filling valve 60A is provided for securing "instant" compressed air from an air compressor. A visible gauge may be included with the valves.

An alternate method of filling is provided by pedals 54 (and 54A not shown) to which may be attached shoes 53 (and 53A not shown), or straps with snap-releases, for holding the feet firmly somewhat as the skater or skier stablizes his skates or skis. Pedal 54 is attached to pump plunger 55 which extends into pump 57. Plunger 56 may have a safety-break by which it can be separated from lower plunger arm 55 when pedal 54 is turned. (This safety-break is not essential, is not shown here, and will not be claimed. It will be described and claimed in a later application.)

FIG. 9 shows an enlarged vertical section through pump **57** and nozzle **62** of FIG. 8 lower plunger arm **55** is attached to piston **63** which draws air into chamber **57A** on each up-stroke through one-way valve **64**, then forces air out through opening **65** and one-way valve **66A** leading into the compressed air chamber (**66**, FIG. 8). From there the air enters nozzle **62** when finger-catch **82A** is lifted, raising valve closure **82** the upper part of which is inclosed by impermeable sealing material **83**, thus drawing rubber seal **84** from in front of valve chamber **67**.

FIG. 10 is an enlarged cross-section through valve structure **67** of FIG. 9. When finger-catch **82A** is lifted valve closure **82** raises seal **84** (of rubber or other resilient material) from in front of opening **69** in front plate **68**, forcing piston **74** back within structure **72** against the tension of spring **73**. This uncloses openings **70** above and below so that air from passage **69** is free to flow through openings **70** and passages **71** above and below into chamber **85** whence it is jetted astern, giving forward thrust.

FIG. 11 shows Skurf-Pedal **76** a modification combining the shape of the Skurf-Board in FIG. 1 and the air-pumping equipment of the Skurf-Shoes in FIG. 7–10. When the user presses down alternately, as on the pedals of a bicycle, on sandals **77** and **77A** which are attached to pedals not shown, air is pumped into pressure tanks such as those described for FIGS. 7–10.

Obviously this is a sport for experts, as it stands: the learner will need another tool for balancing, which will now be described.

FIG. **12** shows Skurf-Pole **78**, with handle **79**, cup-plunger **81** and closed plastic container **80**. Cup-plunger **81** is a half-sphere made of sturdy but elastic material, and functions somewhat like a toilet-plunger by catching a large bubble of air above the water as the lower edges enter the water, thus giving the user buoyancy and forward thrust through his arms. The Skurf-Pole is designed to be used with the Skurf-Board (FIG. 1), Skurf-Shoes (FIG. 7) or the Skurf-Pedal (FIG. 11), and the length of the shaft and diameter of the cup-plunger will be adjusted accordingly.

I claim:

1. A water sport device combining features of water skis, land skis and a surf board, comprising in combination:

a hollow floating unit shaped like a surf board;

a pressurizing means comprising:

a collapsible lever extending from above to the under side of the upper hull of the floating unit;

a water-tight bearing within the hull surrounding the lever but permitting free back and forth movement of the lever;

a two-way pump attached to the lower end of the collapsible lever and actuated thereby and contained within the hull;

valves and tubes attached to and running between said pump and the air tank described below;

a containing means comprising a pressure tank within said hull communicating with the pump by means of said valves and tubes; and

a controllable nozzle by which high-pressure gas is vented astern, the nozzle being controlled by a kick-lever protruding upward along the stern of the floating unit and having a toe extension by which the user can kick it open to release gas and kick it shut to stop the gas, as desired, without bending over.

2. In combination, a water sport device according to claim **1** and components for obtaining an auxiliary supply of gas from a high-pressure source such as a filling station air compressor, including:

an inlet valve on the underside of the hull of said floating unit with a channel leading into said pressure tank through which the tank can be filled with gas to any desired pressure; and

a visible gauge connected to a safety valve for preventing over-pressure in order to facilitate safe filling from said high-pressure source, said gauge and valve being on the upper side of the hull of the floating unit.

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T. M. BLIX, *Assistant Examiner.*