A water ski towing device for use in towing a water skier, or other water vehicle, having a propeller driving engine enclosed in a water tight housing, and a steering handle on said housing with engine control members mounted in the steering handle, the housing having flotation wings and stabilizing fins suspended from the wings, and having air passageways through the housing and doors mounted on the housing for electronically closing said passageways, automatically, upon upset of the device, the automatic operable switch for closing the doors also breaking the flow of electricity to the engine and causing the engine to stop, and a propulsion mechanism integral with the housing and having a shield therearound, with stabilizing fins on the shield to counteract the tendency of the housing to rotate with the rotation of the propeller.

A modified form of the device is provided wherein a jet propulsion is employed, and the steering handle rotates in the housing to simultaneously move the jet discharge nozzle to steer the device.
WATER SKI TOWING DEVICE

BACKGROUND OF THE INVENTION

Skier towing units have been known prior to this invention, particularly in foreign countries, where efforts have been made to provide a skier with freedom of movement in the water not possible with the usual method of towing by motor-boat. The devices so designed have been difficult to steer or control, and have been dangerous to the user where upsets occur, the skier being in danger of being pulled under water and drowned, and the engine being in danger of being damaged by immersion. A safe, easily handled and easily transported power unit is necessary for safe, individually controlled, skier towing.

SUMMARY OF THE INVENTION

A ski towing device having a motor driven propeller and a water tight housing mounted thereon, means for directing a stream of air through said housing and for automatically sealing said housing upon upset of said device, and a steering handle on said housing, and control means, extending through said handle, for controlling the motor. The housing of said device being provided with flotation wings and stabilizing means to counteract the tendency of the device to rotate in the direction of rotation of the propeller and, where a jet engine is employed, means for rotating the discharge nozzle of the jet engine to steer the device.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of a skier being towed.
FIG. 2 is a side elevational view of the device.
FIG. 3 is a side elevational view, showing the housing broken away to illustrate the interior thereof.
FIG. 4 is an end elevational view, showing the housing broken away, illustrating the interior thereof.
FIG. 5 is a partial view of the housing, illustrating the means for automatically sealing the housing upon upset of the device.
FIG. 6 is an elevational view of the steering handle and engine control system, and
FIG. 7 is a side elevational, fragmentary view of the modified form of the invention, illustrating the steering means employed when jet power is used.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the drawings, the numeral 1 designates the engine, which may be of any desired horse power, and which rotates the propeller 2, which is housed in the cylindrical shield 3 and which is integral with the housing 13. A fuel tank 4 and filler cap 5 are suitably located in the housing and a pair of spring loaded doors 6, 7 are maintained in open position by the solenoid controlled latch members 8, 8, the springs 9, 9, urging the doors 6, 7 into closed position while the latch means 8, 8 resists said action. A mercury switch 10, having a breaker connection with the solenoids controlling the latch means 8, 8, and controlling ignition 11, is mounted in the housing to remain inactive during normal operation of the device, but upon upset will be activated, and will release the latch means 8, 8, permitting the doors to close, and breaking the connection to the ignition, to stop the engine 1.

A steering handle 12 is anchored to the housing 13 by means of the pivotal cap 14 and a set bolt as 15, and a slot as 16 is formed in the handle 12 to receive the set bolt 15, to assure the proper positioning of the handle in the cap 14 so that the control panel 17, inside of the housing 13, having an electrical conduit plug at its extended end adapted to be placed in alignment with the electrical conduit plug containing the terminals of the controls 18 that extend through the handle 12 and when the handle is mounted on the housing the said bolt 15 is tightened to releasably lock the handle in position on the housing and the electrical conduit plugs in connected relation. Five controls are shown extending through the handle 12, one for the throttle, one for the starter, one for the ignition, one for the clutch and one for the choke. The clutch control is operated by one of the spring loaded finger lever controls 18 that provides for a holding of the clutch in disengaged position when the lever is pulled off center, and the control for the throttle has a spring loaded finger lever 19, which is adjusted to cause the engine to stall and stop when the lever 19 is released while the clutch remains engaged, such as when the user falls, or loses his grip on the handle 12. The set bolt 15 extends through the handle 12 and anchors in the opposing wall, providing means for maintaining the handle connected to the cap 15 and a guide for the slot 16 to maintain the handle in alignment with the control panel 17.

A tow ring 12b may be anchored to the handle 12 to permit towing of other objects, if desired. An adjustable stabilizer 12c maintains the handle in rigid relation with the housing 13 at the desired angle.

The exhaust from the engine passes through the exhaust pipe 20 and out of the open doorway beneath the door 7, the exhaust pipe 20 being set at an angle to direct the exhaust laterally of the housing and away from the skier.

Stabilizer fins 21, 21 extend downwardly from the flotation wings 22, 22, which are preferably filled with flotation material 29, 29, such as polyurethane foam. A pair of fins 23, 23 extend laterally from the propeller shield 3, said fins 23, 23, being manually adjustable prior to using and being designed to resist the urge to rotate caused by the rotation of the propeller 2.

A skier is ready to start skiing when he has mounted his ski and is in the water, and has grasped the handle 12 and tilted the forward end of the housing upwardly. The clutch control lever 18 is drawn rearwardly, moving the spring past center, and locking the clutch in engaged position and advancing the throttle, which will cause a surge forward of the device, lifting the skier out of the water, into ski position on the surface of the water, and the engine will be in substantially parallel relation with the water surface and its direction of travel will be determined by the user's movement of the handle 12. In the event the skier falls, he will release the handle 12, and the finger levers 19, 19, and because the clutch lever will remain engaged, the motor will stall and the engine stop. In the event the unit turns over, the mercury switch 10 will break the connection to the ignition at a pre selected degree of tip, and will activate the solenoids, moving the latches 8, 8 out of connection with the doors 6, 7, and the springs on the doors 6, 7 will close the doors, making the housing water proof, and trapping the air in the housing, to aid in the flotation of the unit and to keep water out of the housing 13, so that the skier may quickly reach the unit and right it and start the engine and continue the sport, starting the engine by releasing the lever 18, and manipulating
the starter control, or the skier may, if he is injured, cling to the housing until help arrives.

In the modified form shown in FIG. 7, the jet engine is used, with the discharge conduit 24 extending out of the lower end of the housing 25 and the handle 26 rotating the gears 27 through the connecting link 28, to rotate the discharge conduit 24 to steer the unit. The housing opening through which the conduit 24 extends will provide a traverse area, and will be suitably sealed to prevent entry of water into the housing. As the motor drives a pump (not shown) water is driven out of conduit 24 under pressure to effect the propulsion of the vehicle and the direction in which the conduit is turned provides the steering of the vehicle.

The handle 12 is detachable so that, in transporting the device from place to place, the handle may be disconnected and loaded beside the body of the housing. However, it is contemplated that other methods of temporarily moving the handle out of extended position may be employed.

What I claim is:

1. In a towing device for use on water, an engine, a propulsion means driven by said engine, a housing in which said engine is mounted, means for directing a flow of air through said housing and electronically actuated means for sealing said housing against water entrance responsive to upset of the device, a pivotally mounted handle on said housing movable to a selected rigid position and engine control means mounted in said handle and operable at the extended end thereof, said housing being provided with laterally extended wings having a buoyant filler, and having downwardly extended, tapered stabilizing fins similarly filled with a buoyant filler.

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