United States Patent [19]

Cunningham

[11] **3,750,978**

[45] **Aug. 7, 1973**

[54] **SKYBOAT**

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[52] **U.S. Cl.** **244/2**

[51] **Int. Cl.** **B64c 37/00**

[58] **Field of Search** 244/2, 41, 45, 46, 244/89, 87, 101, 106

[56] **References Cited**

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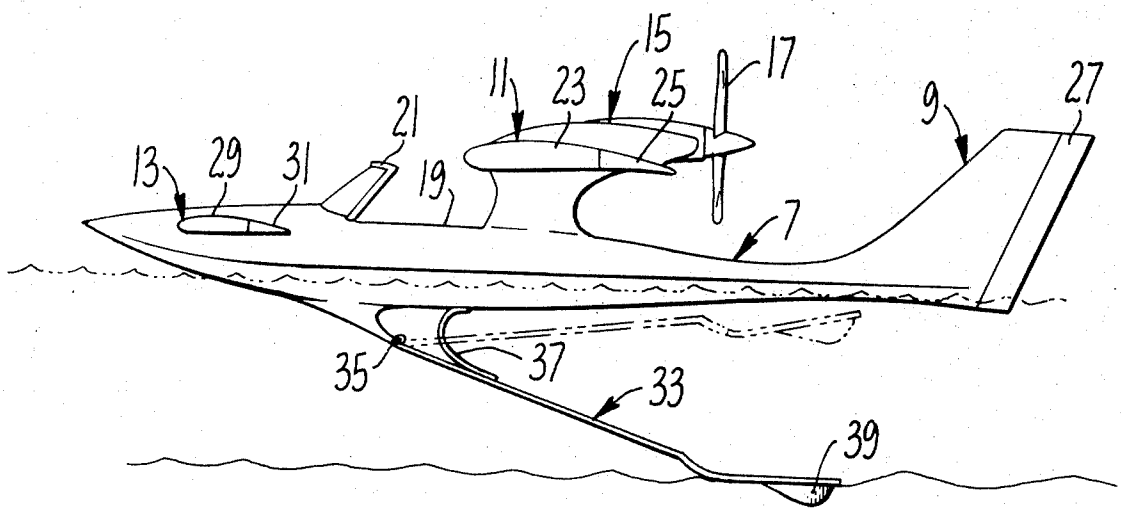
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Primary Examiner—Milton Buchler
Assistant Examiner—Carl A. Rutledge
Attorney—Carl Hoppe, Robert G. Slick et al.

[57] **ABSTRACT**

A skyboat is provided which consists of an airplane-like structure having limited lift wings and a trailing ski which is ordinarily in contact with water. A high speed, efficient, safe craft for the transportation of people and cargo is thus provided.

2 Claims, 6 Drawing Figures



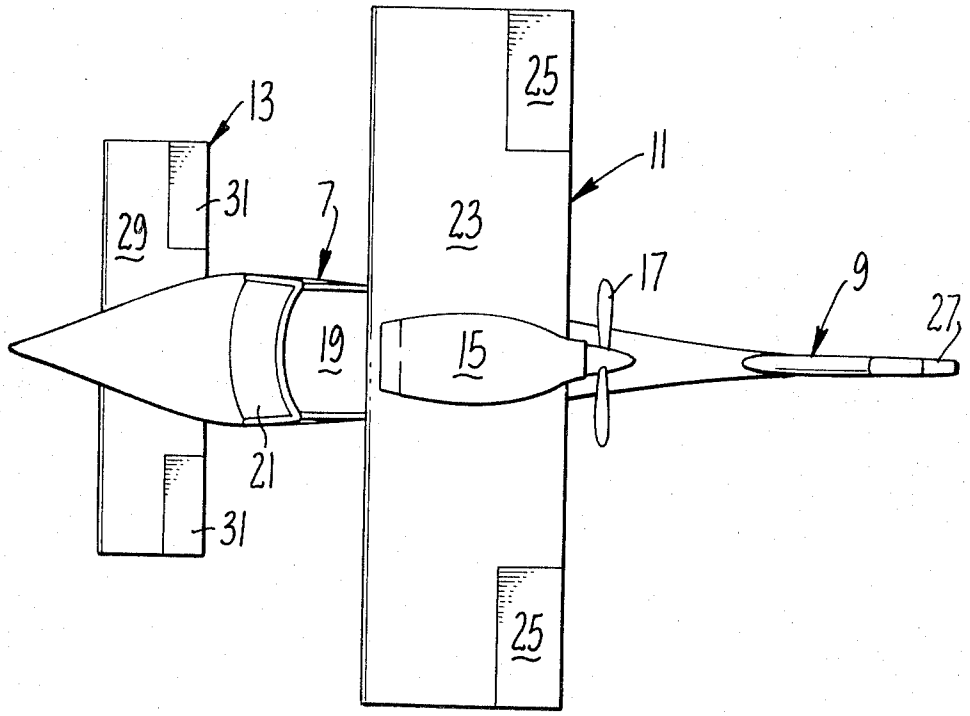


FIG. 1.

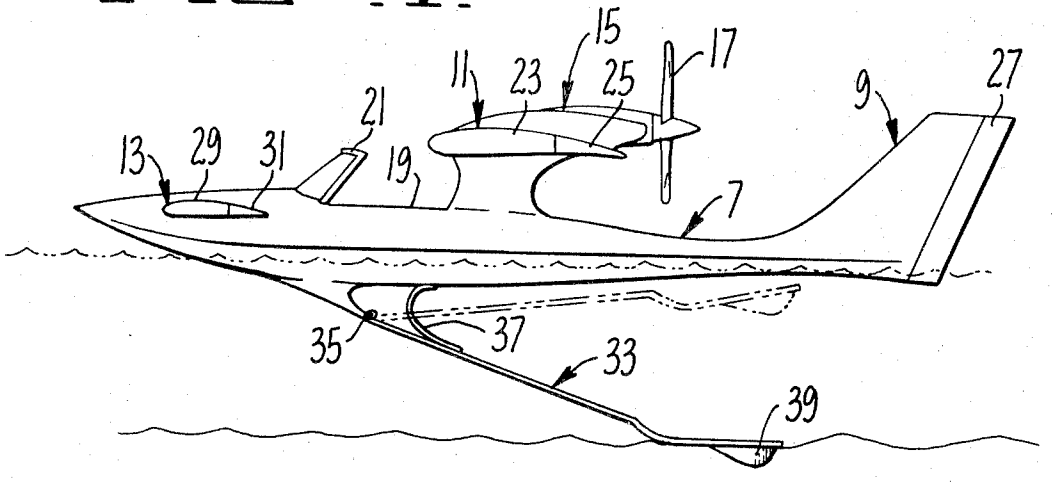


FIG. 2.

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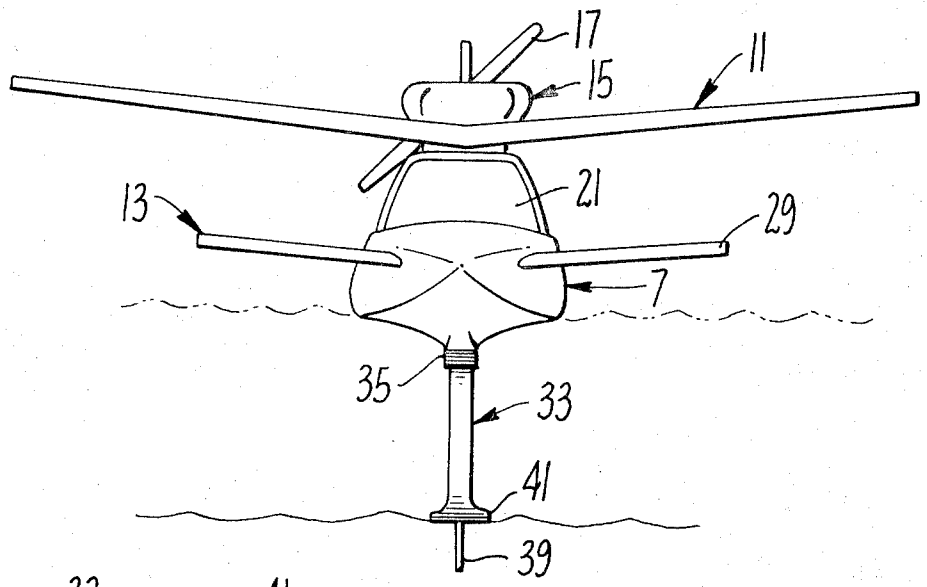


FIG. 3.

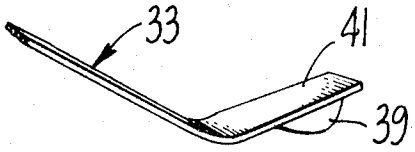


FIG. 4.

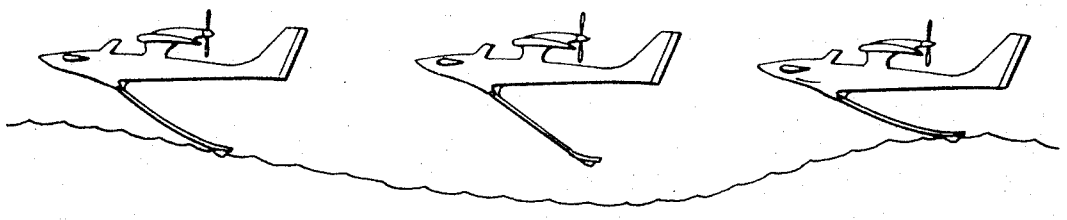


FIG. 5.

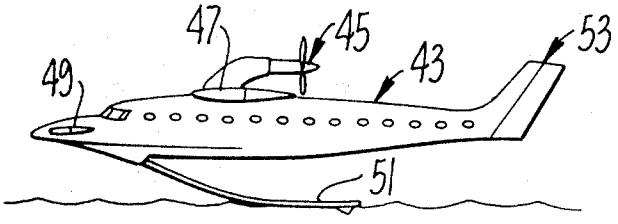


FIG. 6.

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SKYBOAT

SUMMARY OF THE INVENTION

The present invention relates to a skyboat which combines some of the best features of the airplane and the boat. It is much more efficient than either a hydrofoil, which requires a substantial amount of energy to overcome water friction, or air cushion vehicles which require a large amount of energy to keep them supported. The craft of the present invention is much faster than conventional boats since it moves almost entirely through the air. On the other hand, it is much safer than the conventional airplane since it almost always maintains contact with water. Naturally it can be operated under conditions of low ceiling and poor visibility which would preclude the use of an airplane. Since it operates close to the water, it can be piloted by a much less skilled pilot than would be necessary for an airplane.

In general the objects of the invention are obtained by providing an airplane-like structure with limited lift wings which has a ski which trails in the water on a small keel. In a preferred embodiment of the invention the elevator is located at the front of the plane rather than the rear as is the case in conventional airplanes.

Other features of the invention will be brought out in the detailed specification which follows.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a plan view of a skyboat embodying the present invention.

FIG. **2** is a side elevation of the skyboat shown in FIG. **1**.

FIG. **3** is a front elevation of the skyboat of FIG. **1**.

FIG. **4** is an enlarged perspective view of the end of the ski which is employed with the skyboat.

FIG. **5** is a diagrammatic view showing how the skyboat stays level in the presence of high wave action.

FIG. **6** is a side view of a large skyboat suitable for long range commercial service.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings by reference characters and particularly FIGS. **1** through **5**, the skyboat includes a hull or fuselage generally designated **7** to which is attached a tail section **9**, a wing section **11** and an elevator section **13**. A propulsion section **15** is attached at the center of the wing and includes a conventional propeller **17**. Although the device could be jet propelled, the operating speed is such that it would be normal to employ propeller propulsion and particularly turbo-propeller propulsion. The fuselage **7** is provided with a passenger compartment **19** and a windshield **21** for the accommodation of a pilot and/or one or more passengers. The wing **11** includes a main wing portion **23** which is provided with the conventional ailerons **25** at the trailing edge. The wing sections **23** are relatively small compared with those of a usual airplane and might be described as limited lift wings which will barely support the skyboat at maximum speed.

The tail section **9** is conventional except that it includes only the rudder **27** and does not include the elevator which is common with airplane tails. The elevator **13** is mounted near the front of the craft and includes the main elevator section **29** which in turn is supplied with small ailerons or elevators **31**. It will be understood that in a conventional airplane the elevators are at the rear and tend to push the plane down as the power pulls the plane up. However, in the present invention, by providing elevators at the front of the structure the nose is pulled up by the elevator action to maintain the craft on an even keel.

Mounted under the fuselage **7** is a ski generally designated **33** which is provided with a locking hinge **35** and a spring structure **37** which tends to push the ski downwardly and maintain it in the position generally shown in solid lines of FIG. **2**. Hinge **35** is locked in the down position when the skyboat is in a moving position which will help raise boat to an operating position and maintain that position in flight. When landing the boat on the water surface, the hinge is unlocked, permitting the spring and keel to conform to the hull of the boat in the closed position. The bottom end of the ski is provided with a small keel section **39** and may include also a small horizontal section **41** which helps support the plane although the ski is not primarily for support purposes.

The action of the skyboat can be seen in FIG. **5** wherein a skyboat is shown in various positions at the trough and crests of a wave. It will be seen that the center view shows the craft entirely unsupported by water but the two end views show the craft supported on the crests of the wave. Thus, although the skyboat will not normally fly with its ski out of contact with the water, wave action may be such that temporarily it is completely airborne.

In FIG. **5** a much larger craft of the commercial type is shown but it will be seen that essentially it has the same parts as were previously described. Thus, it has a large cabin portion **43**, propulsion section **45**, wing **47**, a forward elevator **49** and ski **51**. Again the rudder **53** does not include the elevator of the conventional airplane.

It is believed apparent from the foregoing that I have provided a skyboat which combines certain of the advantages of conventional boat with those of an airplane without involving the disadvantages of the hydrofoil or the air cushion vehicle. The device is capable of traveling at high speed in inclement weather and with a relatively unskilled pilot.

The elevators normally found in the tail of an airplane are provided up forward to give more lift to the front end of the skyboat. However, it is possible to employ elevators at the rear although this is a less preferred method.

In the drawings the propeller has been shown as a pusher and it is obvious that this is merely for convenience and it might be of the more conventional forward configuration. Also it has been assumed that a jet prop engine would be used but a reciprocating engine might be used with the propeller or a pure jet propulsion system might be employed. In some instances it might be desirable to provide a guard around the propeller for the protection of personnel.

The limited lift wings are relatively short which will prevent the craft from lifting completely out of the water under normal conditions. Thus the skyboat normally travels under a semi-stall position and it might be compared with an airplane in its landing position. Nevertheless, there are some conditions, such as shown in FIG. **5**, wherein the craft could be airborne for short periods of time so that wave action is effectively damped out.

When the craft lands, the ski folds up under the action of the spring to the position shown in dot dash lines in FIG. **2** and is waterborne in the same manner as a conventional hydroplane. Although a specific configuration of spring is shown, this is not necessary and the shaft itself of the ski could provide the necessary springing. The keel-like section **39** is very helpful in preventing the plane from skidding sideways, particularly in turns. The ski is provided for both lift and guiding and it also provides support for the plane in motion. The springiness of the ski **33** is sufficient so that it will absorb shocks, especially when traveling under high speed conditions over choppy water and in landing.

Although the skyboat described in FIGS. **1** through **5** is obviously a very small vehicle, it can be made enlarged configuration for commercial purposes as is shown in FIG. **6.**

It is obvious that many departures can be made from the exact structure shown without departing from the spirit of this invention.

I claim:

1. An airplane-like craft or skyboat adapted for over water flights having in combination:

a. a fuselage adapted to float on water and fly through the air,

b. means for propelling said fuselage through the air,

c. wings mounted on said skyboat, said wings being adapted to support said craft as it moves forward through the air, said wings being of relatively small size and having a to lift 4o prevent the skyboat from becoming completely airborne under normal conditions,

d. a ski hingedly mounted on a stiff arm near the front of said fuselage and extending to the rear, said hinge permitting said ski to extend downwardly and rearwardly of the hinge point into contact with the water when said skyboat is airborne and to fold along the bottom of said fuselage when said craft is waterborne,

e. locking means whereby said hinge can be locked in the down position, and

f. spring means normally urging said ski downwardly whereby the ski tends to support the skyboat.

2. The structure of claim **1** wherein the skyboat has an elevator mounted ahead of the wing.

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