Dec. 8, 1925. 1,564,718

W. B. SEWELL

FLYING MACHINE

Filed May 6, 1924 3 Sheets-Sheet 1

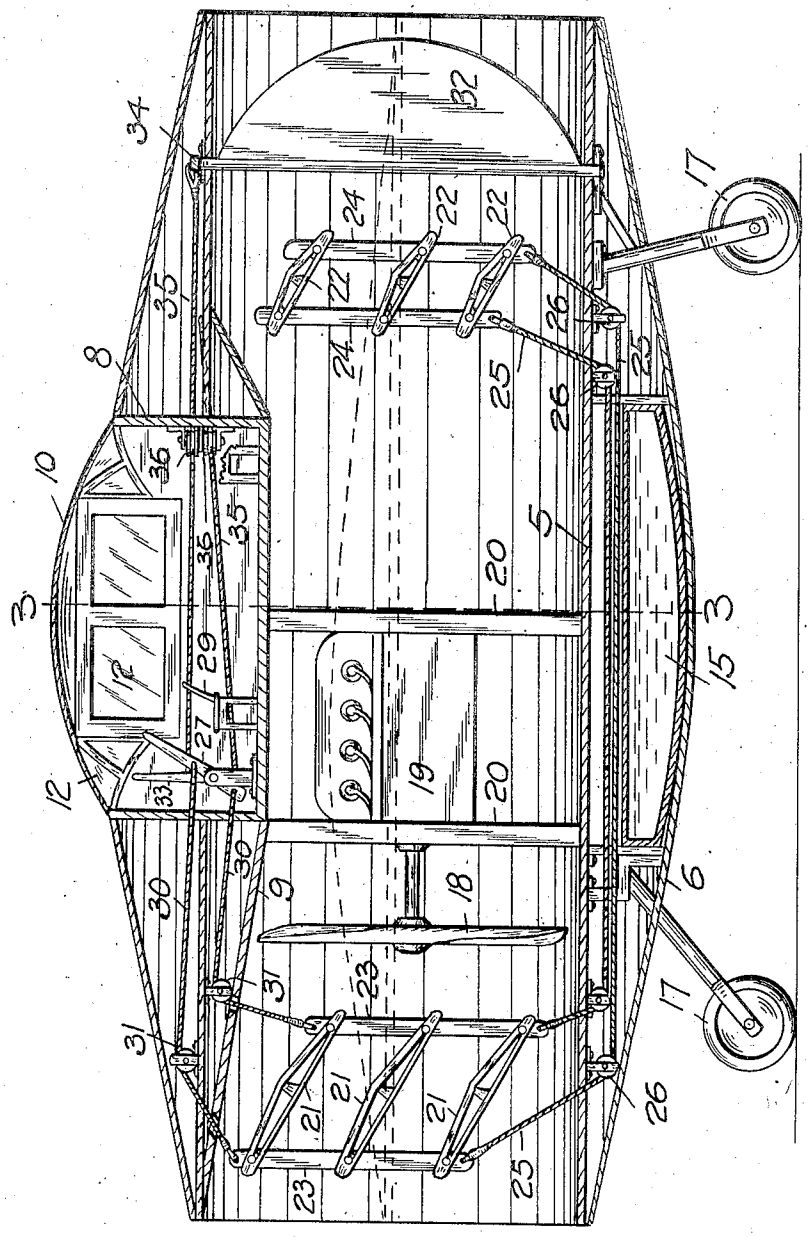


Fig. 1

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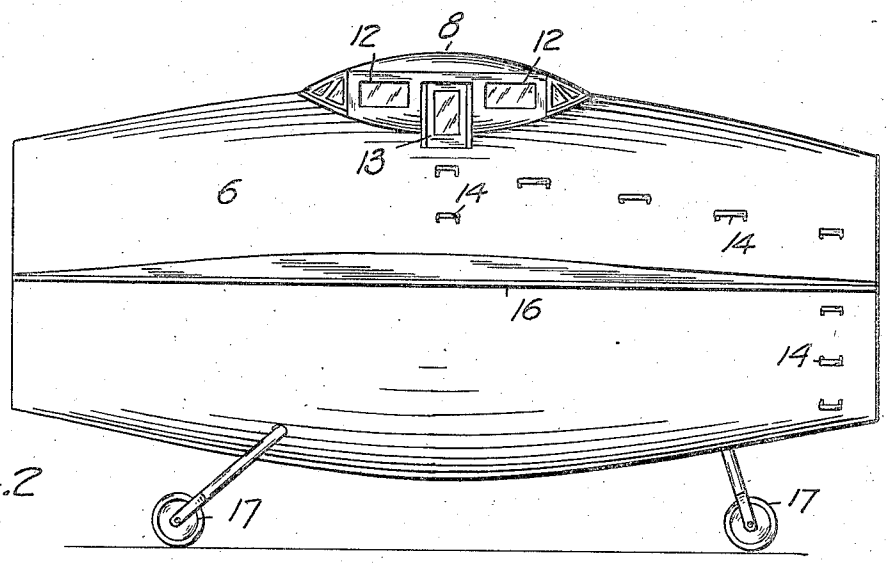


Fig. 2

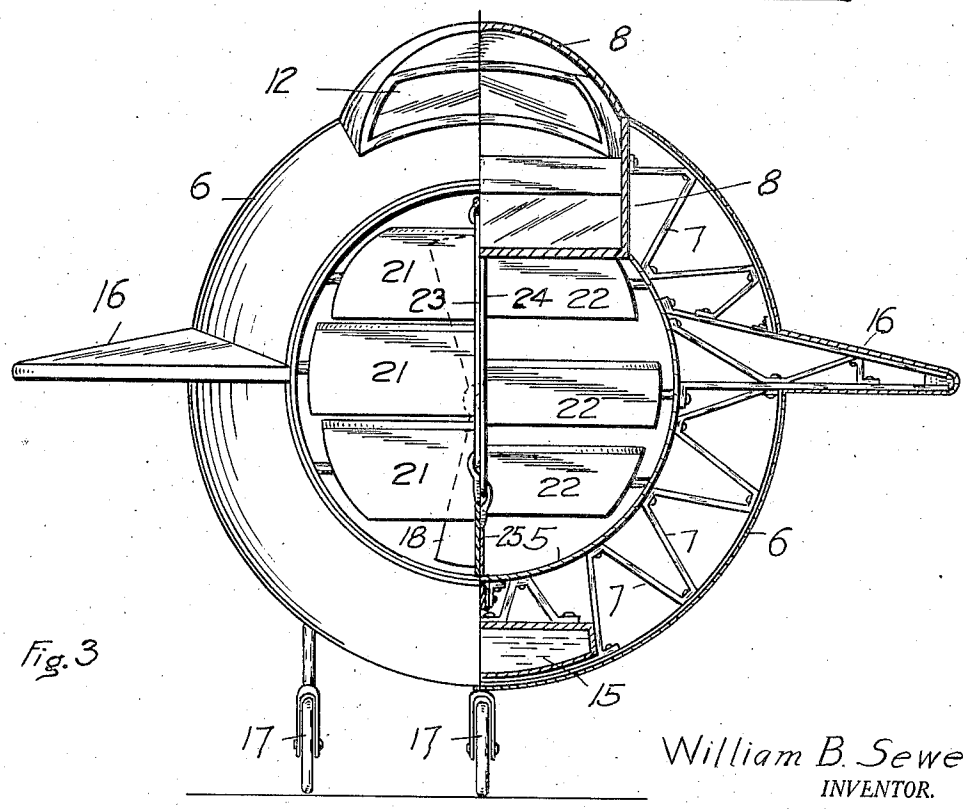


Fig. 3

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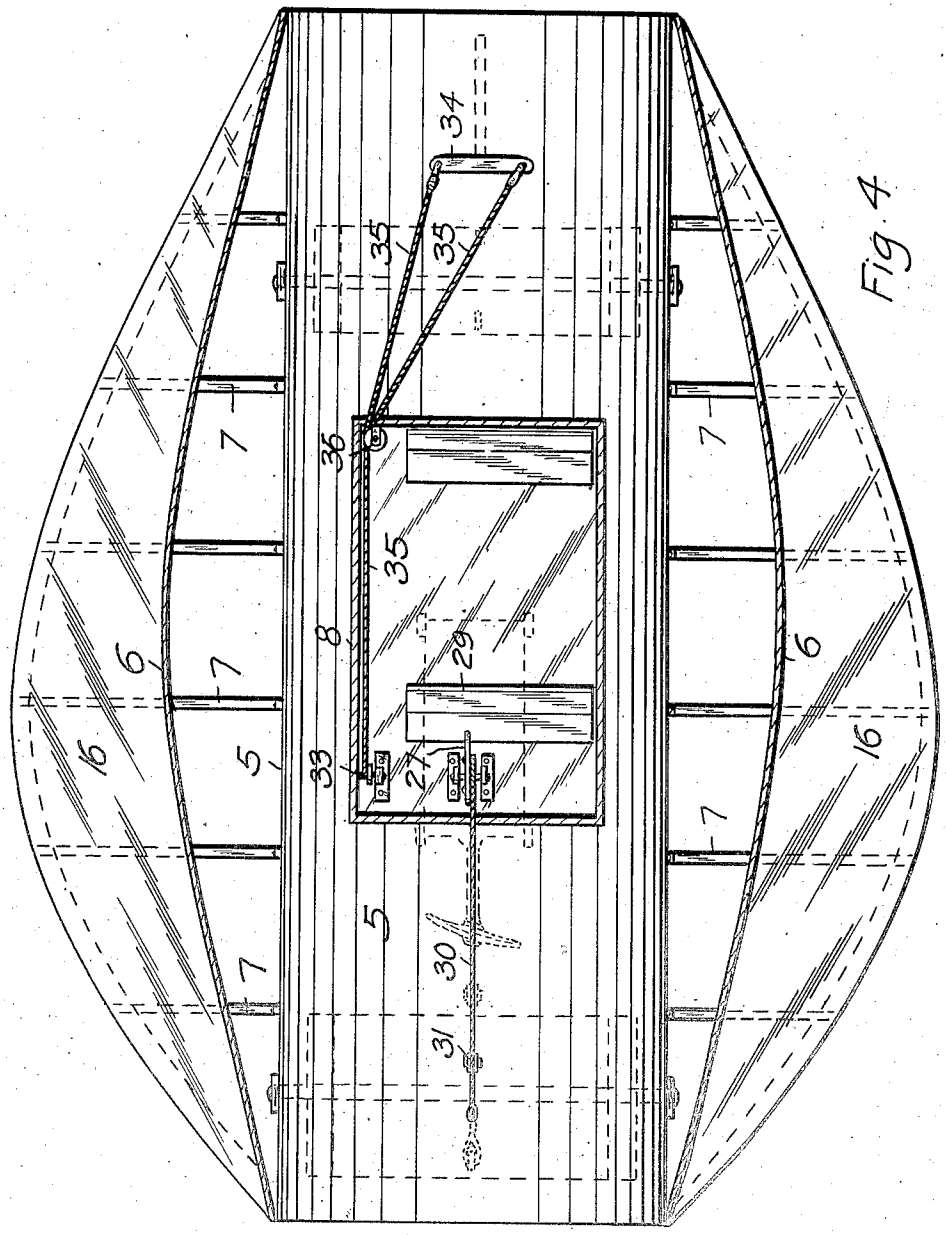


Fig. 4

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Patented Dec. 8, 1925. 1,564,718

UNITED STATES PATENT OFFICE.

WILLIAM B. SEWELL, OF DENVER, COLORADO.

FLYING MACHINE.

Application filed May 6, 1924. Serial No. 711,468.

To all whom it may concern:

Be it known that I, WILLIAM B. SEWELL, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Flying Machines, of which the following is a specification.

My invention relates to flying machines and its primary object is to provide a heavier-than-air flying machine of simple construction which is sustained in flight without the essential use of supporting planes.

With this object in view my invention consists in providing an elongated body of light but rigid construction which has a horizontal air-passage open at the ends thereof.

A propeller is mounted to rotate in a transverse plane inside the passage, in connection with a conveniently located engine and horizontal and vertical rudders are provided to direct the course of the machine.

A cabin containing the controlling devices of the engine and the rudders, and a tank for the supply of fuel to the engine are arranged to maintain the machine on an even keel in a straight-away flight under normal conditions and small supporting planes may be provided in the form of laterally projecting longitudinal fins or wings to increase the stability of the vessel.

An embodiment of my invention has been illustrated in the accompanying drawings in the several views of which like parts are similarly designated and in which—

Figure 1 represents a longitudinal axial section of a flying machine built in accordance with the invention;

Figure 2, a side elevation of the machine drawn to a reduced scale;

Figure 3, a composite front end view and transverse section of the machine, the plane of the section having been indicated in Figure 1 by the line 3—3; and

Figure 4, a sectional top view of the machine, in which the cabin and the outer shell have been drawn in section while the inner cylinder which forms the horizontal air-passage hereinbefore referred to, is shown in plan.

Referring more specifically to the drawings, the body of the air-ship is composed of an open-ended cylinder 5 and a surrounding hull 6 of truncated torpedo form, the hull and the cylinder being rigidly connected by interposed stays or braces 7 as best shown in Figures 3 and 4.

A cabin 8 is built in openings in the upper portions of the cylinder and th hull intermediate of the ends thereof anc an inclined plane 9 connects the forward ends of the body and the cabin inside the cylinder to cover the movement-resisting surface presented by the front of the cabin.

The roof 10 of the cabin is curved in continuity with the curvature of the outer surface of the hull, windows 12 are placed in the walls of the cabin to give an unobstructed view to the occupants of the vessel and a door 13 reached by steps 14 on the outside of the hull closes an entrance to the cabin.

In the space between the cylinder and the hull immediately beneath the cabin, is a tank 15 containing the liquid fuel for the engine and it will be evident that the cabin and the tank thus centrally disposed are an important factor in maintaining the equilibrium of the vessel in flight.

Longitudinal fins 16 projecting laterally from the hull in the horizontal plane of its longitudinal axis aid in stabilizing the machine but it should be understood that they are not an essential feature of the construction and may be eliminated if so desired.

The fins are braced as shown in Figure 3, for their immovable connection with the hull and their outer edges are curved to lessen their resistance of the wings to the forward movement of the vessel

The cylinder may be built of any light, strong and rigid material and the hull and its fins are preferably composed of a frame of light wood or metal covered with similar material in sheet form, or with canvas, silk or other suitable fabric.

The air-ship is as usual provided with wheels 17 for its movable support on the ground when not in flight.

The propeller 18 which in the operation of the machine acts upon the air inside the horizontal passage provided by the cylinder 5, is mounted at an end of the shaft of an engine 19, preferably of the internal combustion type, which is supported by a structure represented in Figure 1 of the drawings by the uprights 20. It will be evident, however, that the engine may be placed in a different position on the vessel and connected with the propeller by gearing or other motion-transmitting means if by doing

so the stability of the vessel or the power of the propeller are increased, it being desirable that the propeller rotating in a vertical transverse plane inside the cylinder, be capable of acting to its full capacity upon the air current moving through the cylinder during flight.

Mounted at opposite ends of the vessel inside its horizontal air-passage are two series of horizontal planes or rudders 21 and 22 connected for simultaneous pivotal adjustment by upright bars 23 and 24.

The planes are supported upon the wall of the cylinder to move about central horizontal axes and the two series are connected for simultaneous and corresponding movement by means of ropes 25 connected to the respective bars and roven over sheaves 26 in the space between the cylinder and the hull at the bottom of the vessel.

The adjustment of the connected series of planes is effected through the medium of a lever 27 fulcrumed in the cabin within easy reach of an operator occupying a seat 29, and connected with the bars 23 of the planes at the front of the machine by ropes 30 rove over sheaves 31.

By changing the angle of incidence of the planes, the vessel is directed to either rise from the ground at the beginning of a flight, to change its elevation during flight or to return to the earth, and the planes furthermore aid in sustaining and stabilizing the vessel, when they extend in a horizontal position during straightaway flight.

The course of the vessel in a horizontal direction is governed by means of a vertical rudder 32 mounted to move about a vertical axis at the rear end of the vessel inside its horizontal air-passage, the position of the rudder being controlled by a lever 33 mounted to move about a fulcrum alined with that of the lever 27 and connected with a tiller 34 at the upper end of the rudder by ropes 35 rove over sheaves 36.

In the operation of the flying machine, the propeller forces the vessel forward by its reaction upon the air inside the cylinder, the air current drawn through the cylinder sustains the machine in flight aided by the reaction of the air upon the fins and the planes 21 and 22 in a horizontal position or at a small angle of incidence, the planes, the vertical rudder and the fins 16, aided by the proper distribution of the weight of the engine, cabin, fuel tank and other appliances, coordinate in maintaining the lateral stability or equilibrium of the vessel, and the planes and the vertical rudder controlled by the operator of the vessel as hereinbefore described, direct the course of the vessel by increasing or diminishing the wind resistance or air pressure in both a horizontal and a vertical direction.

Having thus described my improved flying machine, I desire it understood that variations in the form of the hull, the relative arrangement of the engine, cabin and fuel tank, the nature of the rudders and their adjusting mechanisms and other details of construction, may be resorted to within the spirit and scope of my invention as defined in the hereunto appended claims.

What I claim and desire to secure by Letters Patent is:

1. A flying machine comprising a body having a horizontal air-passage open at opposite ends thereof, a propeller acting on air in the passage, and longitudinal fins tapering to the ends of the body.

2. A flying machine comprising a body having a horizontal air-passage open at opposite ends thereof, a propeller acting on air in the passage, and a cabin and a fuel tank centrally disposed on the body above and below the passage.

3. A flying machine comprising a cylinder open at opposite ends thereof, a propeller acting on air passing through the cylinder, a cabin in an opening of the hull above the cylinder, and a fuel tank in the space of the hull, below the cylinder.

4. A flying machine comprising a body having a horizontal air passage, a propeller acting upon air in the passage, series of horizontal planes in the passage at opposite ends thereof, a vertical rudder in the passage, and means outside the passage to regulate the positions of the planes and the rudder and to control the operation of the propeller.

5. A flying machine comprising a body having a horizontal air passage, a propeller, a motor for the propeller, rudders to direct the course of the vessel, and fixed horizontal fins extending lengthwise of the body and tapering to the ends thereof.

6. A flying machine comprising a body having a horizontal air passage, a cabin above and partially within the passage, a fuel tank beneath the passage, a propeller in the passage, a motor for the propeller, rudders to direct the course of the machine, and means in the cabin to control the position of the rudders and the operation of the propeller.

7. A flying machine comprising a body having a horizontal air passage, a cabin above and partially within the passage, a fuel tank beneath the passage, a propeller in the passage, a motor for the propeller, rudders to direct the course of the machine, means in the cabin to control the position of the rudders and the operation of the propeller, and a surface slanting to the portion of the cabin inside the passage to direct air-currents to the propeller.

In testimony whereof I have affixed my signature.

WILLIAM B. SEWELL.