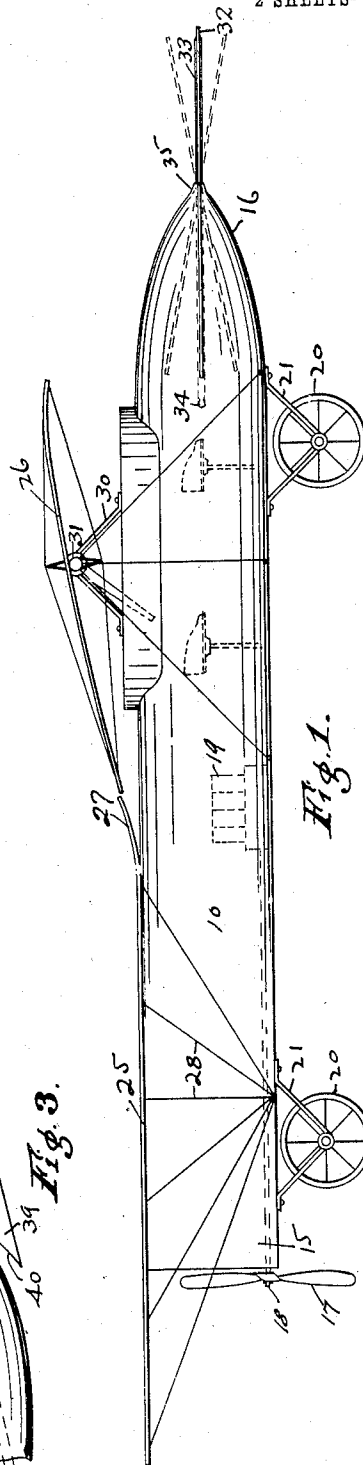
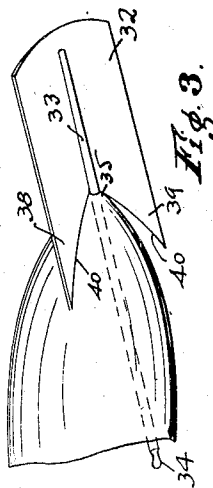
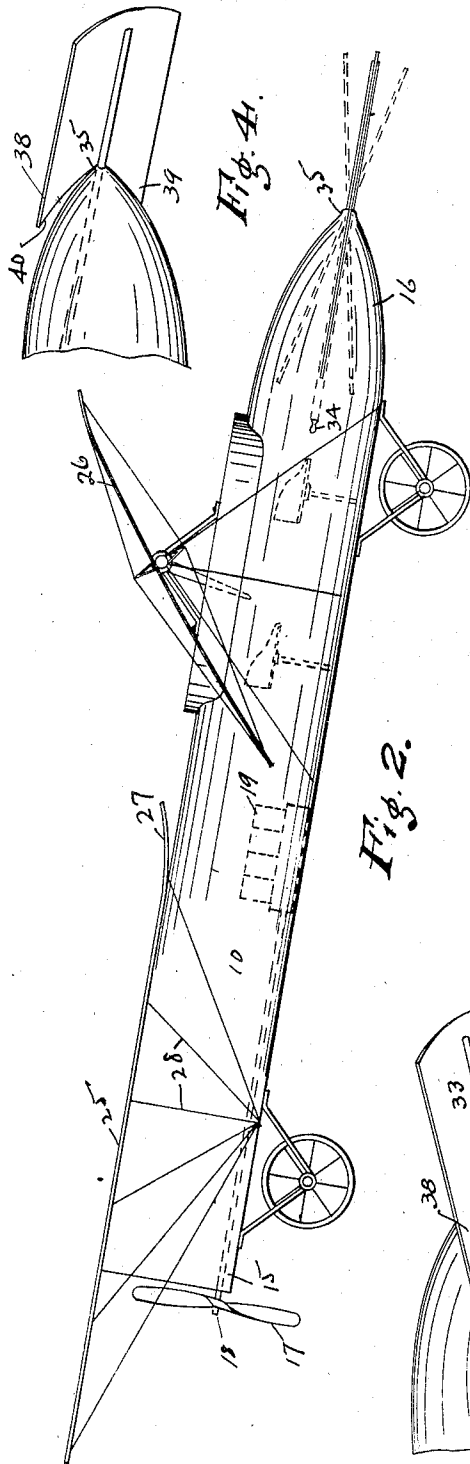


Z. TISHER.  
AEROPLANE.  
APPLICATION FILED JUNE 8, 1911.

1,025,033.

Patented Apr. 30, 1912.

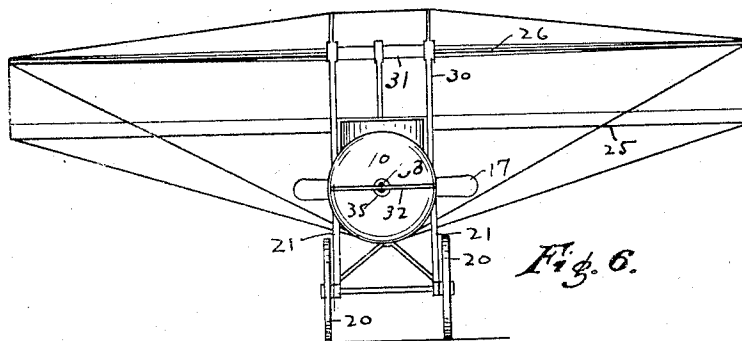
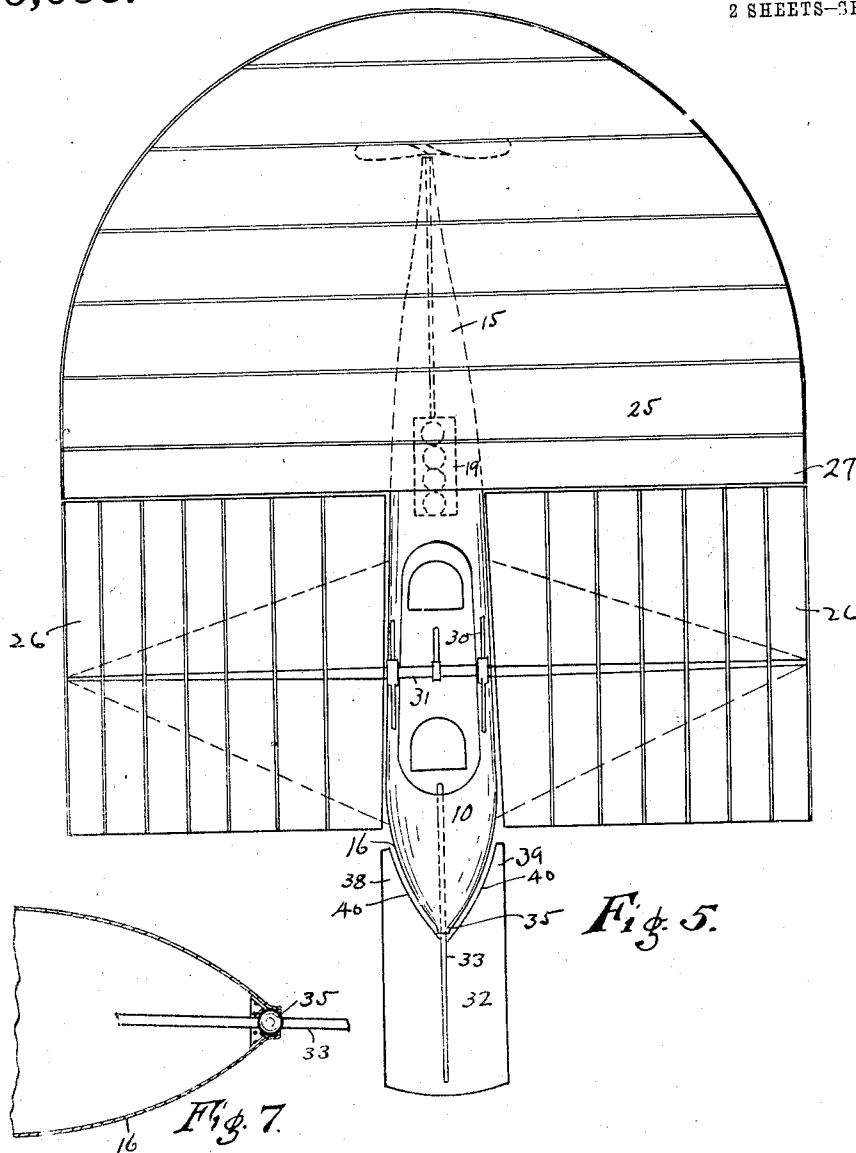
2 SHEETS-SHEET 1.



WITNESSES  
N. L. Weem.  
H. M. Kaufman

INVENTOR  
Zack Tisher,  
Mason, Finner & Lawrence,  
ATTORNEYS.

1,025,033.



WITNESSES  
H. L. Meem  
H. M. Kaufman

INVENTOR  
Zack Tisher  
Walter Fenwick & Co. Inc.  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

ZACHARIAH TISHER, OF SPOKANE, WASHINGTON.

## AEROPLANE.

1,025,033.

Specification of Letters Patent.

Patented Apr. 30, 1912.

Application filed June 8, 1911. Serial No. 631,981.

*To all whom it may concern:*

Be it known that I, ZACHARIAH TISHER, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Aeroplanes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to aeroplanes.

The object is to provide an improved form of car body, an improved steering mechanism, and a special arrangement of planes as hereinafter described.

In the accompanying drawing forming part of this application:—Figure 1 is a view of the device in side elevation. Fig. 2 is a similar view showing one of the planes in an elevated position. Fig. 3 is a detailed view of the steering mechanism. Fig. 4 is a further detail of the same construction. Fig. 5 is a top plan view of the device as a whole. Fig. 6 is a front elevation thereof. Fig. 7 shows the manner of mounting the rudder staff.

In carrying out my invention, I provide a car body of improved form consisting of a fish shaped principal body portion 10 having a tapered rear portion 15 and a pointed front portion or nose 16. The body of the car as a whole tapers from a point near the front end, constituting the base of the nose portion, to the extreme rear, where the propeller 17 is located. This propeller may be of any desired type and is mounted on a shaft 18 which is driven by an engine 19 mounted within the body. Wheels 20 are carried upon suitable frames 21 affixed to the lower portion of the car body, and afford means for supporting the structure when the latter is resting on the ground.

Two main planes are provided, the rear plane being stationary and indicated by 25, and the forward plane being tiltable for the purpose of varying the inclination and is indicated by the numeral 26. Plane 25 may be upwardly deflected at its front end, as shown at 27, and is suitably secured by means of tie wires 28. The forward plane is mounted in bearings carried at the upper ends of the frame 30, and trunnions 31 projecting laterally from the sides of the plane rest in the aforesaid bearings.

The steering mechanism constitutes an

important feature of the invention, and includes a rudder 32 carried upon a staff 33 having an inner end 34, which may be grasped by the hand of the aviator for the purpose of directing the position of the rudder and consequently controlling the movement of the ship in all directions. Rudder staff 33 has connection with the body portion of the device and especially the nose thereof by means of a ball and socket joint 35. This rudder not only serves the ordinary function of steering, but may be manipulated for the purpose of balancing the machine and bringing it to any desired level. The rear portion of the rudder is formed as shown clearly in Fig. 5, and is intended to fit accurately the nose portion of the body, being provided with rearwardly extending members or arms 38 and 39 which have curved portions 40 on their inner edges adjacent to the surface of the body. If it is desired that the machine shall travel in an upward spiral direction the rudder is turned to the position shown in Fig. 3, while Fig. 4 illustrates the position of the rudder for a downward spiral movement. A continual movement of the rudder in directing the machine and balancing it gives approximately perfect control of the device.

Fig. 1 of the drawings shows the forward plane in the normal position for flight, or when the machine is resting on the ground. This forward plane is intended to be used in connection with the steering apparatus in gaining any desired elevation or in reaching the ground safely when landing. In the landing operation, the plane, being swung to the position shown in Fig. 2, acts as a brake, retarding the motion of the car and insuring a safe descent. This feature is especially important, as it enables the operator to drive his car downward somewhat suddenly, upon finding a suitable landing place, without the necessity of making a gradual descent and necessarily covering considerable territory in such a descent.

What I claim is:—

1. In a device of the class described, a car body, planes carried thereby, propelling means and a steering device comprising a rudder mounted on the forward end of the car and movable in all directions, said rudder having one end recessed and conforming to the surface of the car body.

2. In a device of the class described, a car body, planes carried thereby, propelling means and a steering device carried by the forward end of the body portion, such steering device comprising a rudder, a staff therefor and a ball and socket joint for supporting the staff, said rudder having one end recessed and conforming to the surface of the car body.
3. In a device of the class described, a car body, planes carried thereby, propelling means and a steering device carried by the forward end of the car and comprising a rudder including blade portions projecting longitudinally of the forward portion of the body and perpendicularly thereof, said rudder having one end recessed and conforming to the surface of the car body.
4. In a device of the class described, a car body, propelling means therefor, steering mechanism, a plane mounted upon the forward portion of the car body and arranged to be inclined at various angles with reference thereto and to cooperate with the steering mechanism in controlling the elevation and direction of travel of the car, said steering mechanism including a rudder capable of movement in all directions and such rudder having a V-shaped portion with the flaring sides disposed adjacent to the body of the car and arranged to lie per-

pendicular to the adjacent portion of the surface of the car body when the rudder is in position with its axis coincident with the axis of the car.

5. In a device of the class described, a car body having an approximately conical nose portion, propelling means, a plane mounted above the body and immediately to the rear of the nose portion, means for deflecting the plane at various angles with reference to the body of the car, and a steering device comprising a rudder, a staff therefor, and means for mounting the staff at the point of the nose portion, permitting said staff to have a movement causing the rudder to assume a position at any angle with reference to the body of the car and such rudder having a V-shaped portion with the flaring sides disposed adjacent to the body of the car and arranged to lie perpendicular to the adjacent portion of the surface of the car body when the rudder is in position with its axis coincident with the axis of the car.

In testimony whereof I affix my signature in presence of two witnesses.

ZACK. TISHER.

Witnesses:

H. E. SMITH,  
NETTIE KING.