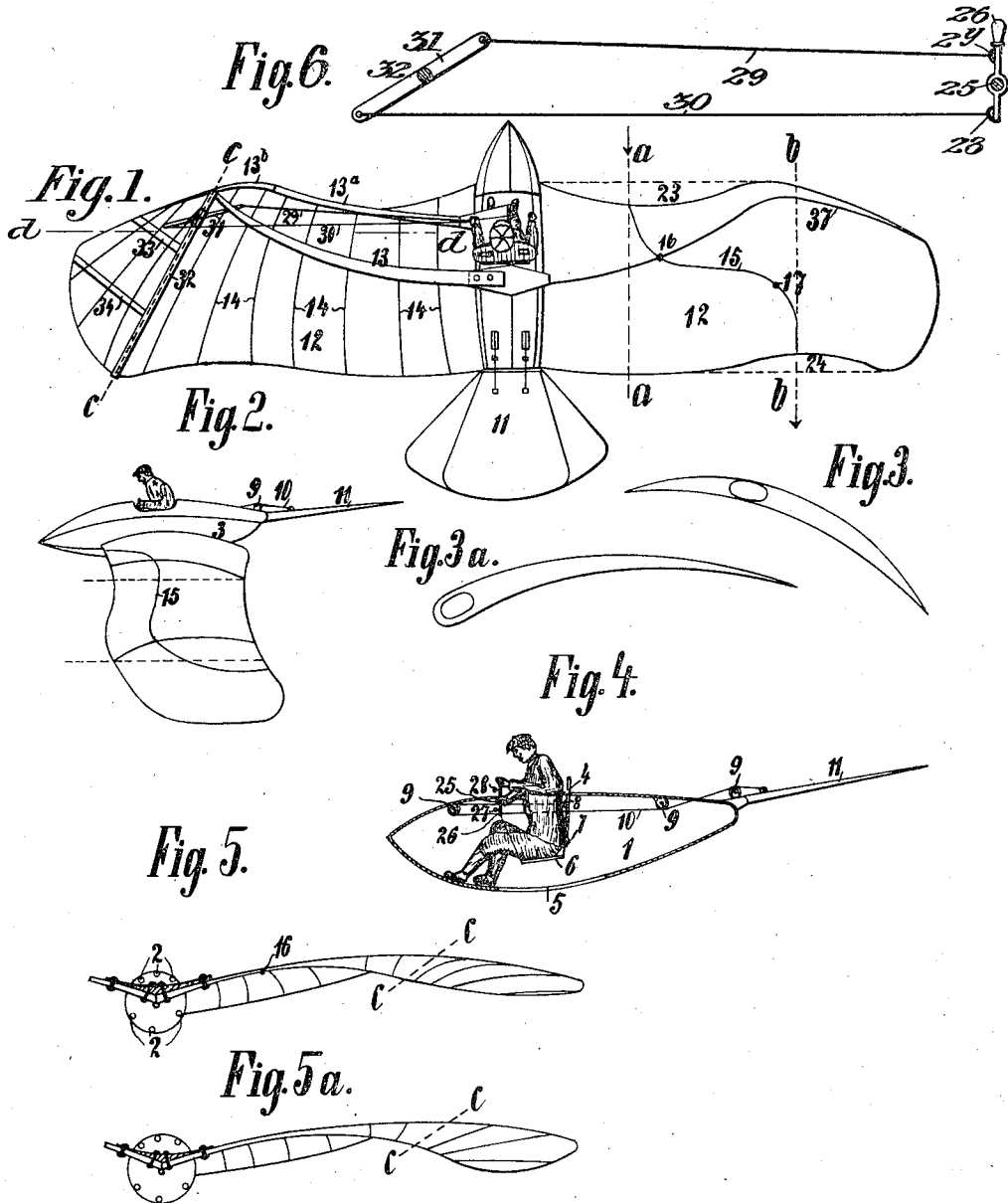


K. L. W. GEEST.
AIRSHIP.
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To all whom it may concern:

Be it known that I, KARL LUDWIG WALDEMAR GEEST, a subject of the King of Prussia, residing at 5 Schyrenstrasse, Munich, Germany, have invented certain new and useful Improvements in Airships, of which the following is a specification.

The subject matter of this invention is an air ship or flying machine of the heavier than air type, comprising a centrally arranged body adapted to receive an aeronaut and provided at the rear end with steering mechanism by which the ship may be vertically guided to varying heights, and two supporting surfaces or planes, placed at the sides of the body, which by their shape alone keep the apparatus always in the position of equilibrium without the assistance of special balancing planes, together with means for guiding the machine laterally.

In the accompanying drawings, a machine embodying my invention in one form is more or less diagrammatically illustrated, and in which,

Figure 1 is a plan of the machine, in the left plane of which one form of frame is disclosed; Fig. 2 is a side view of this machine; Figs. 3 and 3^a are diagrammatic sections on the lines *a-a* and *b-b*, Fig. 1 respectively showing the varying cross section of the plane along a predetermined line to minimize suctional and retarding influences; Fig. 4 is a longitudinal section through the body of the machine. Figs. 5 and 5^a are front elevations of the left hand supporting plane in normal and warped positions respectively. Fig. 6 is a section on the line *d-d*, Fig. 1 showing the operating connection to the wing ends.

The body 1 of the machine may be of any suitable form, here being shown as of elongated polygonal shape, tapering sharply at the front and less sharply at the rear. The framework of the body may comprise separate rods 2 as shown, and a covering 3 of any suitable material. In this form of body, top and bottom openings 4 and 5 respectively may be provided to permit the protrusion of the head and feet respectively of the aeronaut therethrough. A seat 6 is secured within the body 1, and adjacent the same is pivoted at 7 an upright 8, connected to the horizontal rudder 11, by a rope 10 passing over rollers 9.

The upright 8 forms a swinging back for

the seat by means of which the aeronaut may control the vertical flight of the machine through the mere inclination of his body.

The planes 12 comprise main stiffening rods 13, 13^a, 13^b secured to the body of the machine in any suitable way. Cross ribs 14 of lighter material extend between the main rods and are given a predetermined definite shape in order to parabolically vault the planes from front to rear, the curve of the vault extending from a point adjacent the body in front to a point distant from the body at the rear, the curve of the vault following a substantially S-shaped line which represents the path of the crown of the vault. This vaulting of the plane is of fundamental importance. The currents of air passing along this vault exert a double effect upon the plane, viz., first, a supporting action and second, a tractive action. The supporting forces are centered at 16 (Fig. 1) and the tractive forces at 17. The air current passing rearwardly and outwardly through the outwardly curved vaulted channel, exerts a rearward thrust which serves to propel the machine forward.

In order to increase the effectiveness of the action of the air current the planes are cut away at the points of entrance and emergence of the S-shaped vault, the parts 23 and 24 being removed. Consequently even when the planes are not twisted, the current of air passing beneath the same is not only deflected downwardly (thus giving a lifting action) but is deflected outwardly and to the rear. The distance which the current of air travels beneath the plane is thus greater than if it traveled directly from front to rear beneath the plane and its effective action is thus increased.

The body of the machine in the form illustrated is shaped not only to afford the least resistance to the air, but the latter is deflected to the side toward the planes and the vaulted passage 16.

In order to avoid eddying currents and consequent suctional and retarding action, it has been found advisable to make the planes of varying vertical cross section, the line of greatest thickness following the course 37 (Fig. 1) from a point about half way back at the inner end of the plane slanting forward as indicated and reaching the forward edge of the plane near its outer

extremity. This is diagrammatically illustrated in Figs. 3 and 3^a on the sections *a-a* *b-b*, Fig. 1 respectively.

The machine is steered laterally by altering the twist of the planes, preferably the outer extremities alone. In Fig. 5 the left hand plane is shown in front elevation in its normal position and in Fig. 5^a in the position after the outer end has been twisted forward and down about the line *c-c*. The result of such an adjustment is, assuming that the right hand plane remains unchanged, that the machine is deflected toward the left. This is explained by the fact that the outer end of the left plane now presents a greater resistance to the air than the right, so that the left plane lags behind the right. The machine consequently takes a course oblique to the former direction of flight. To effect this twisting of the extremities of the planes a handle 26, mounted on the axis 25 (Fig. 4) is connected by means of wires 29—30 secured to the handle by eyes 27—28, to a cross bar 31 fast with the shaft 32. Auxiliary cross bars 33—34 fast with the shaft 32 aid in twisting the end of the plane.

Various modifications of my invention as pointed out in the appended claims, will readily suggest themselves.

I claim as my invention:—

1. In an air ship, the combination of a body adapted to receive an aeronaut, a vertically steering device placed at the rear end, appliances situated in the body for adjusting the vertically steering device, supporting planes fast with said body and parabolically vaulted from front to rear, the arch of said vault following a substantially S-shaped course from a point adjacent the body in the front to a point remote from the body in the rear of each of said planes, substantially as described.

2. In an air ship, the combination of a body adapted to receive an aeronaut, a vertically steering device placed at the rear end, appliances situated in the body for adjusting the vertically steering device, supporting planes fast with said body and parabolically vaulted from front to rear, the arch of said vault following a substantially S-shaped course from a point adjacent the body in the front to a point remote from

the body in the rear of each of said planes, said planes being of varying vertical cross section, the line of greatest thickness following a forwardly inclined course substantially as described from a point approximately midway back at the inner end of the plane to a point at the forward edge near its outer extremity, whereby eddying currents are minimized.

3. In an air ship, the combination of a body adapted to receive an aeronaut, a vertically steering device placed at the rear end, appliances situated in the body for adjusting the vertically steering device, supporting planes fast with said body and parabolically vaulted from front to rear, the arch of said vault following a substantially S-shaped course from a point adjacent the body in the front to a point remote from the body in the rear of each of said planes, in combination with means for altering the twist of the outer extremities of said planes during flight, substantially as and for the purpose specified.

4. In an air ship, the combination of a body adapted to receive an aeronaut, a vertically steering device placed at the rear end, appliances situated in the body for adjusting the vertically steering device, supporting planes fast with said body and parabolically vaulted from front to rear, the arch of said vault following a substantially S-shaped course from a point adjacent the body in the front to a point remote from the body in the rear of each of said planes, said planes being cut out at the points of entry and emergence of said S-shaped course.

5. In an air ship, a pair of supporting planes parabolically vaulted from front to rear, the arch of said vault following in each plane, a substantially S-shaped course from a point adjacent the inner juxtaposed ends of said planes in front to a point spaced outwardly therefrom in the rear.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

KARL LUDWIG WALDEMAR GEEST.

Witnesses:

ALOIS WOLFMÜLLER,
EMIL EHRLICHER.