

March 9, 1926.

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W. WALL

AEROPLANE

Filed May 21, 1925

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Fig. 1.

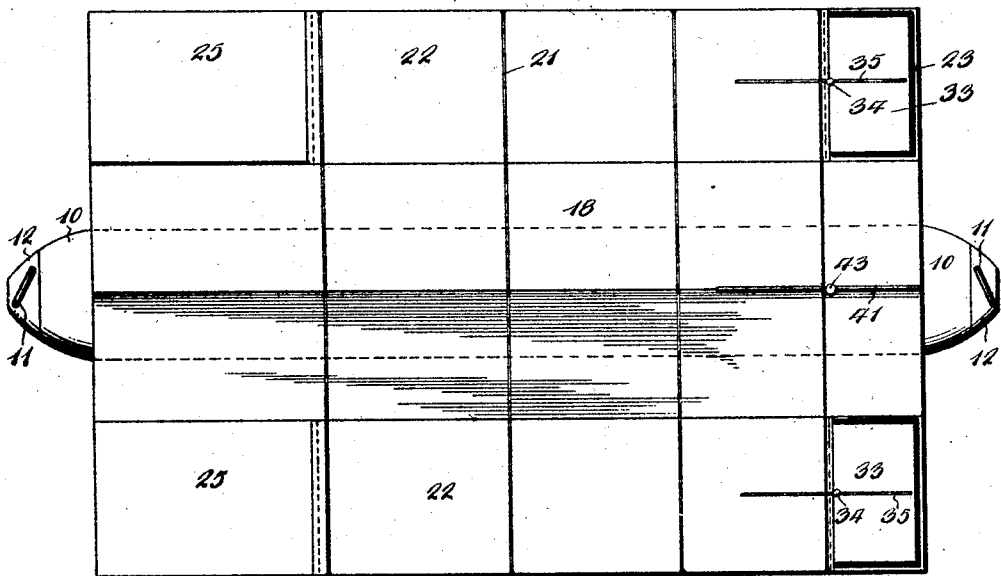
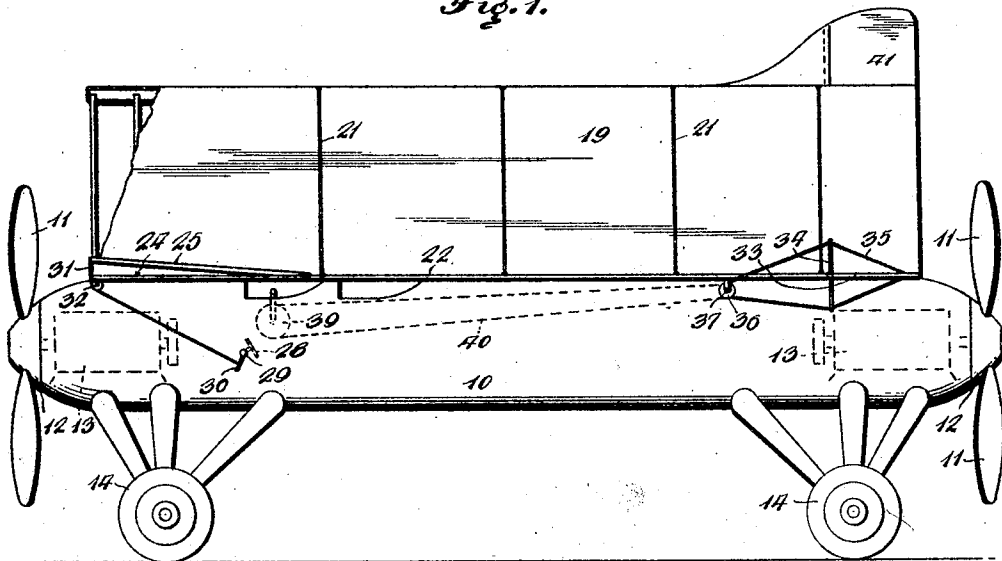


Fig. 2.

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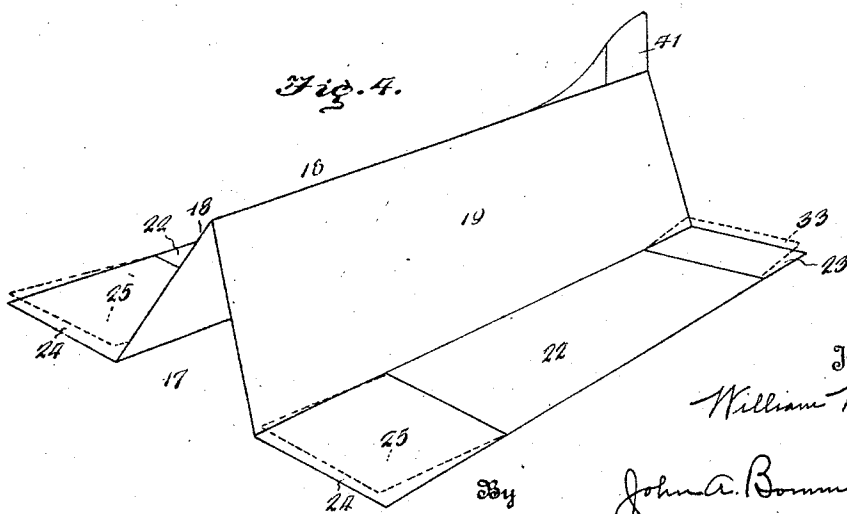
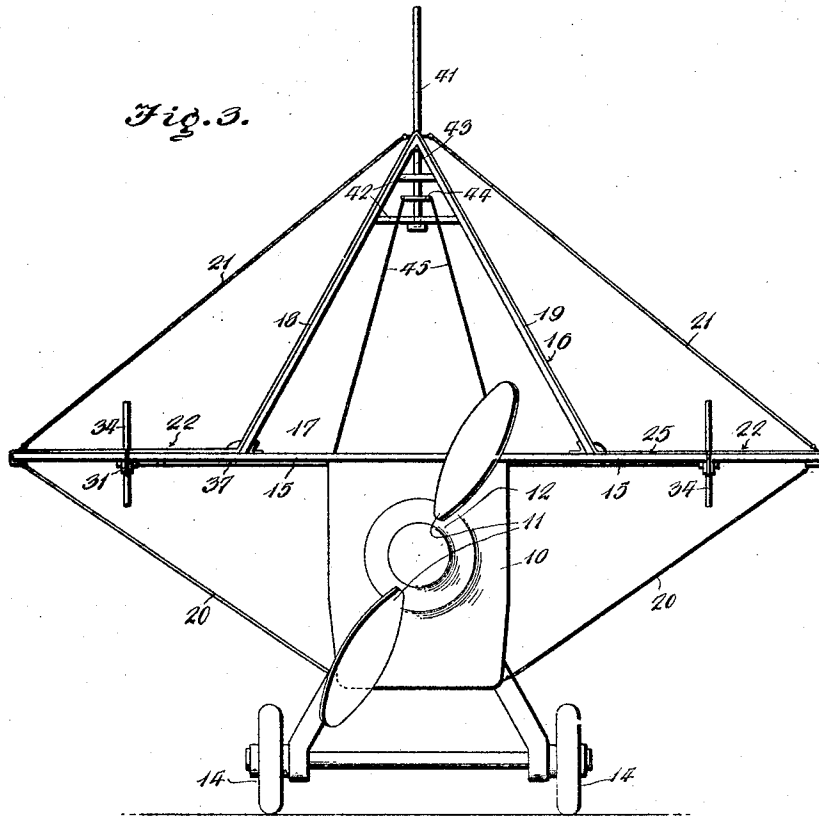
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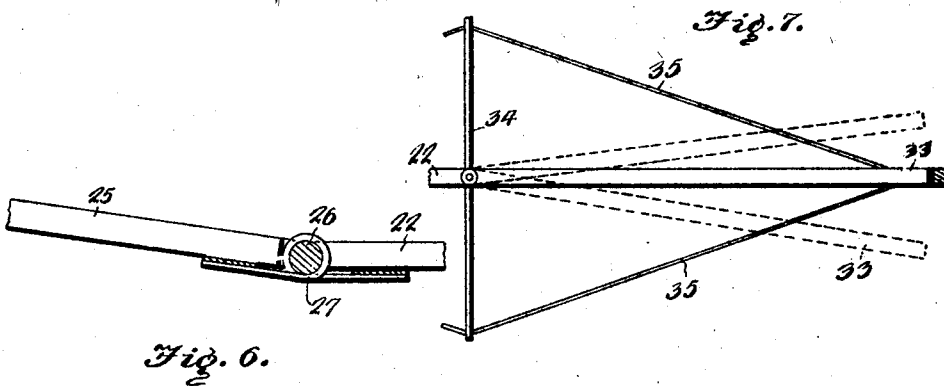
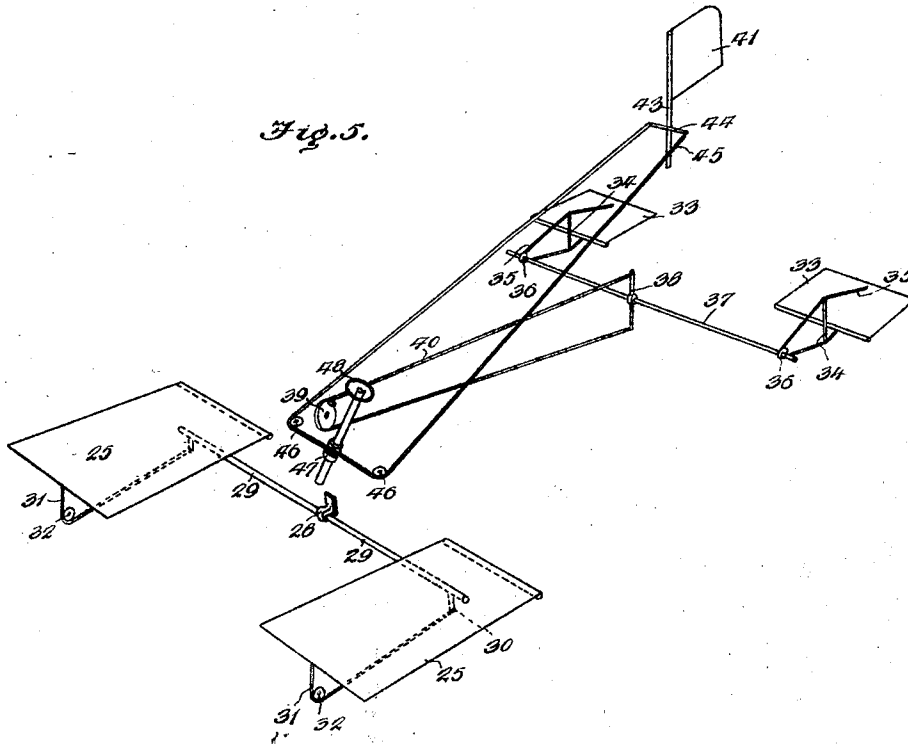
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AEROPLANE

Filed May 21, 1925

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE.

WILLIAM WALL, OF CLEVELAND, OHIO.

AEROPLANE.

Application filed May 21, 1925. Serial No. 31,835.

To all whom it may concern:

Be it known that I, WILLIAM WALL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

This invention relates to improvements in aeroplanes, the primary object being to construct an aeroplane or flying machine which will maintain its equilibrium at all times through a novel wing or plane arrangement.

Another object is to construct an aeroplane having forward and rear power plants and propellers uniformly spaced from the center of gravity so that the sustaining wings or planes will maintain a substantially horizontal position except when changed by the operator.

A further object is to provide an aeroplane having its supporting wings or planes so formed as to resist any tendency to vary its course due to adverse condition of fair currents, etc.

A still further object is to provide an aeroplane having its several elements compactly associated and controllable with minimum effort on the part of the operator.

It is likewise an object to provide an aeroplane having supporting wings of great area and at the same time so construct and arrange them as to require a minimum amount of space.

Other objects will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be readily understood by those skilled in the art, I have in the accompanying illustrative drawings and detailed description pointed out the preferred embodiment of the same.

Figure 1 is a side elevation of my improved aeroplane;

Figure 2 is a top plan view thereof;

Figure 3 is a front end elevation;

Figure 4 is a perspective view diagrammatically showing the supporting wing arrangement;

Figure 5 is a diagrammatic illustration of the plane control means;

Figure 6 is a detail view of the front end showing the connection between the elevating planes and the main portion of the wings; and

Figure 7 is a detail view illustrating the

manner in which the rear control planes may be adjusted.

Similar characters of reference designate similar parts throughout this application.

The fuselage 10 is elongated and tapers toward its opposite ends at which propellers 11 are arranged. These propellers 11 are carried by air deflecting caps 12 and both are rotated together by means of internal combustion engines or the like power plants 13. Supporting wheels or landing gear 14 of any preferred type is carried by the fuselage 10.

The supporting means includes a set of transverse ribs 15 which extend across the upper side of the fuselage 10 and have their end portions uniformly spaced therefrom. An elongated substantially inverted V-shaped frame 16 is fixed centrally upon the set of transverse ribs 15 and rigidly connected thereto as clearly shown in Figure 3. The lower side 17 of this V-shaped central portion is open while the other two sides 18 and 19 and the portions of the ribs beyond the point of connection to the V-shaped section are covered with fabric of any preferred type. This results in the formation of a supporting or sustaining member such as is shown in Figure 4. These transverse ribs 15 have their outer ends braced by means of wires 20 and 21 which extend to the fuselage and the apex of the V-shaped portion 10 and 16 respectively.

The horizontal wing portions 22 have substantially rectangular openings 23 and 24 at their rear and forward ends respectively. Combined elevating and sustaining planes 25 are arranged over the forward openings 24 of the horizontal wing portions 22 and have their rear edges hinged or pivoted to the wings as shown at 26 in Figure 6. As shown in this figure, coil springs 27 are arranged to normally elevate the front edges of these elevating planes 25.

These forward elevating planes 25 are adjusted to different positions by means of a foot pedal 28 arranged on a rock-shaft 29 whose outer ends carry arms 30 as shown in Figure 5; these arms 30 having cords or cables 31 attached thereto and passing over pulleys or the like 32 and then fastened to the front edges of the planes as shown.

The rear elevating planes 33 are of less area than the openings 23 so they may be moved through the openings to effect an

upward or downward movement of the aeroplane. As shown in Figures 5 and 7 the forward edge of each rear plane 33 is hinged to the frame work of the wing portion 22 and at this hinged point I arrange a normally vertically disposed cross-bar 34 to whose extremities I fix control wires 35 in the manner clearly illustrated in Figure 5. These control wires have their forward ends connected to a relatively small pulley 36 carried by a transverse shaft 37 at whose medial point is fixed a cross-bar 38. Conveniently located for operation by the pilot is a control member 39 in the form of a sheave which may be locked at any point. About this sheave I train a cable or cord 40 which is carried rearwardly and has its ends fastened in any preferred manner to the extremities of the last named cross-bar 38.

In mounting a rudder 41 upon the aeroplane I arrange within the inverted V-portion 16 near its apex, a pair of vertically spaced supporting bars 42 which mount a vertical shaft 43 to which the rudder 41 is rigidly secured. A cross-bar 44 is fixed to the vertical shaft 43 and has its extremities connected to a cable 45 which extends forwardly over transversely spaced sheaves or pulleys 46 and then around a steering post 47 which mounts a hand wheel 48.

An aeroplane embodying the structure set forth possesses an unusually large wing area which will materially assist in supporting the machine in the air, and further, through arrangement the inverted V-shaped central portion 16 extending longitudinally of the machine there will be a material reduction in the tendency to swerve from the desired course due to adverse air currents etc. The particular arrangement of the driving engines in combination with the wing or plane construction will materially assist in balancing or stabilizing a machine so constructed.

In operating this aeroplane, the motors are started to set the propellers in motion. When a certain speed has been attained the front elevating planes 25 are adjusted as shown in Figure 1, and the rear elevating planes 33 will temporarily maintain a nor-

mal central position. After the machine has taken off, the front elevating plane 25 may be returned to a position in alinement with the remaining portion of the wing 22 and if a higher altitude is desired the rear planes 33 may be adjusted to raise the rear edges. The result of such manipulation is obvious. Downward movement is effected through lowering the rear edges of the planes 33 as shown in Figure 7.

Manifestly, certain changes in the minor details of construction may be resorted to, and such of these changes as may fall within the scope of the appended claims, I consider within the spirit of my invention.

I claim:—

1. A wing structure for aeroplanes comprising, an inverted substantially V-shaped portion having an open lower side, a set of ribs extending transversely of the open lower side and beyond said portion, and substantially horizontally disposed wings formed on the extended portions of said ribs.

2. An aeroplane comprising, an elongated fuselage, an inverted V-shaped member extending over the major portion of the fuselage, transverse ribs arranged on the upper side of the fuselage and interconnecting the same with said member, substantially horizontally disposed wings extending transversely from the base of said member and coextensive in length therewith, and propelling and control means.

3. An aeroplane comprising, an elongated fuselage, an inverted V-shaped member extending over the main portion of the fuselage, transverse ribs arranged on the upper side of the fuselage and inter-connecting the same with said member, substantially horizontally disposed wings extending transversely from the base of said member and coextensive in length therewith, control planes arranged at each end of the horizontal wings, means for varying the angle of said planes, a rudder, and means for propelling the aeroplane.

In testimony whereof, I affix my signature.

WILLIAM WALL.