H. W. ODLIN.

AEROPLANE.

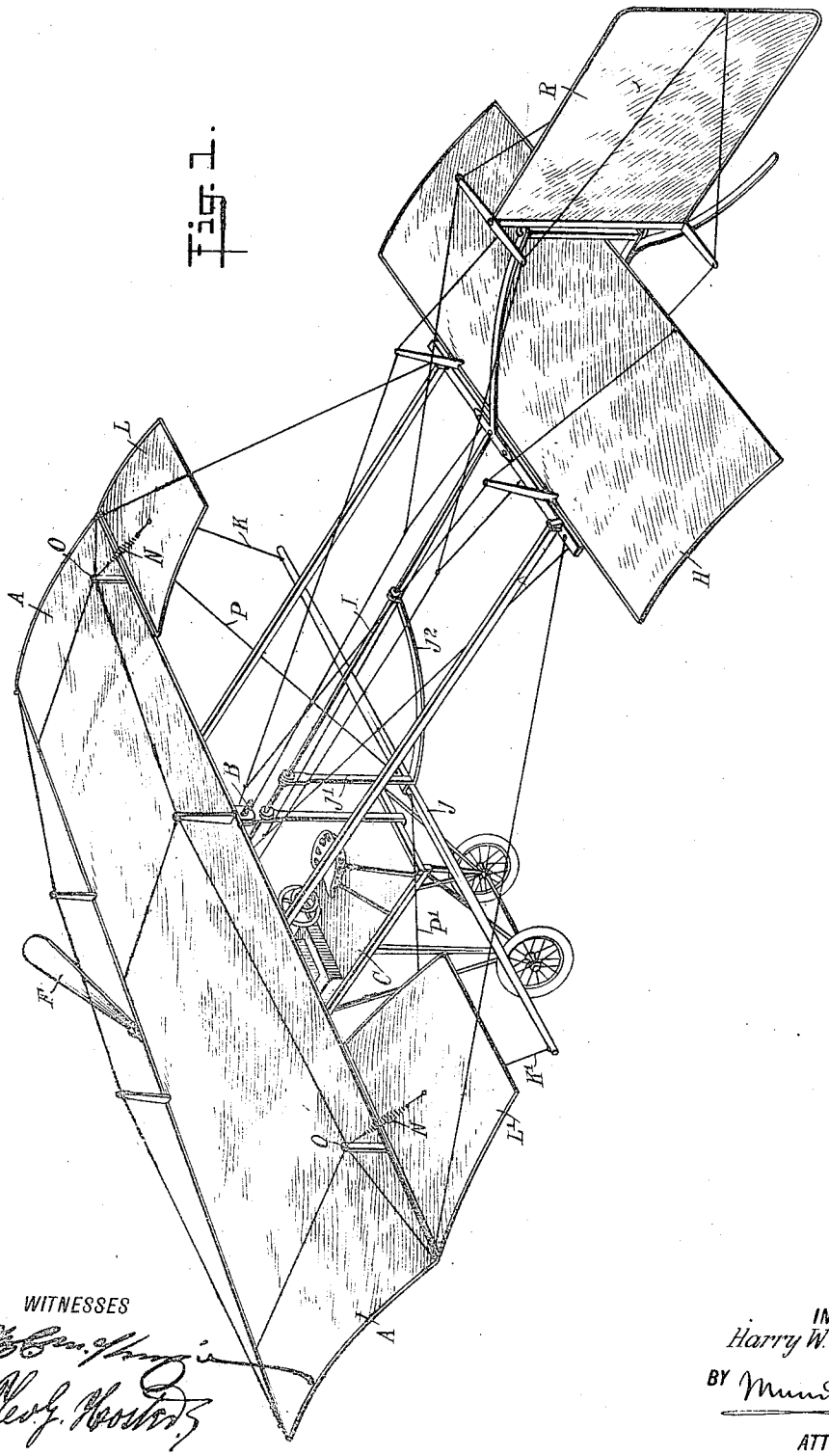
APPLICATION FILED OCT. 31, 1910.

1,052,943.

Patented Feb. 11, 1913.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

INVENTOR

Harry W. Odlin

BY Munn & Co

ATTORNEYS

H. W. ODLIN.

AEROPLANE.

APPLICATION FILED OCT. 31, 1910.

1,052,943.

Patented Feb. 11, 1913.

4 SHEETS—SHEET 2.

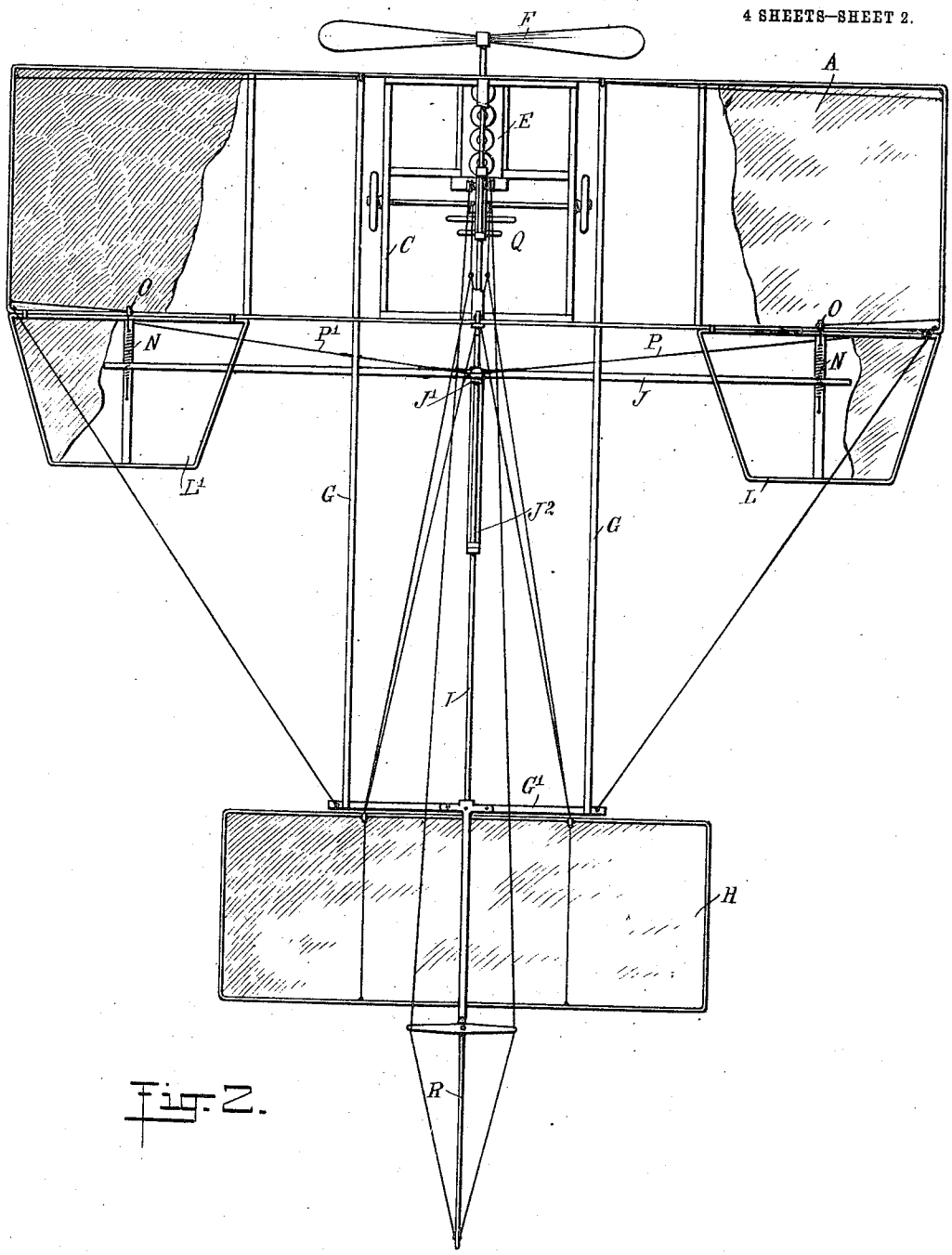


Fig. 2.

WITNESSES

INVENTOR

Harry W. Odlin

BY

ATTORNEYS

H. W. ODLIN.

AEROPLANE.

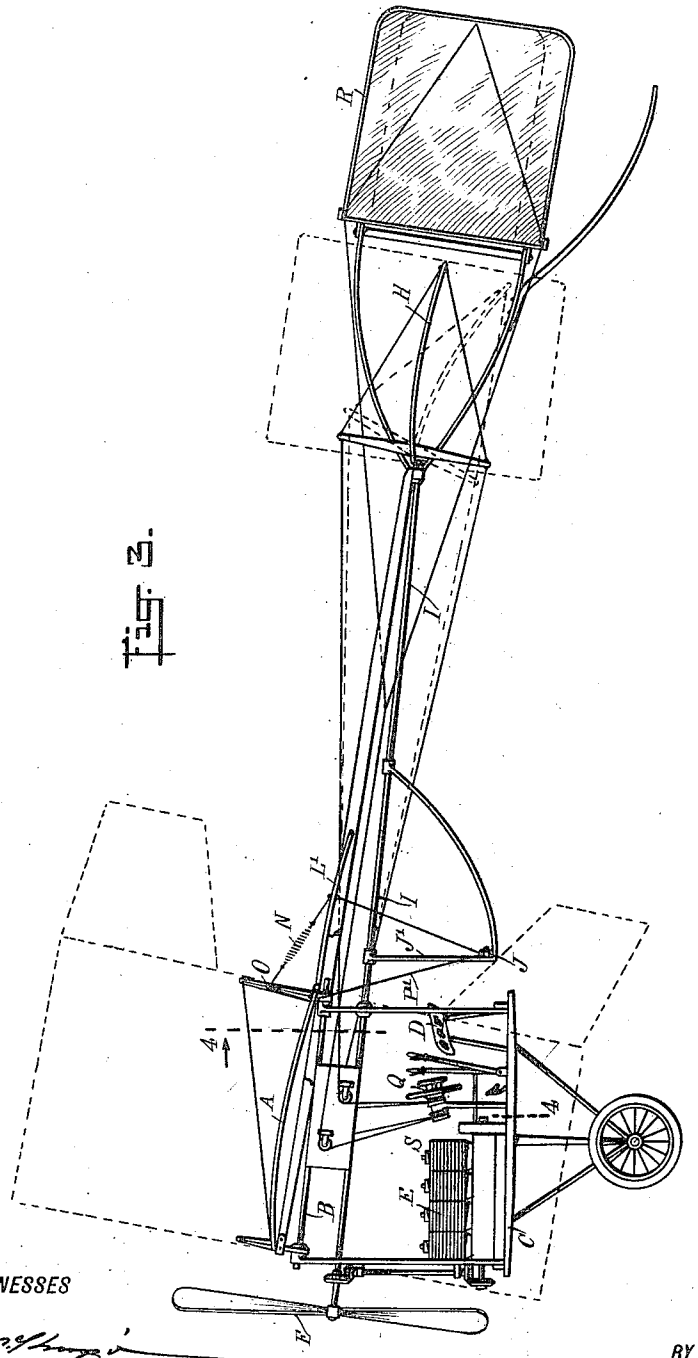
APPLICATION FILED OCT. 31, 1910.

1,052,943.

Patented Feb. 11, 1913.

4 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

INVENTOR

Harry W. Odlin

BY Munn & Co

ATTORNEYS

H. W. ODLIN.

AEROPLANE.

APPLICATION FILED OCT. 31, 1910.

1,052,943.

Patented Feb. 11, 1913.

4 SHEETS—SHEET 4.

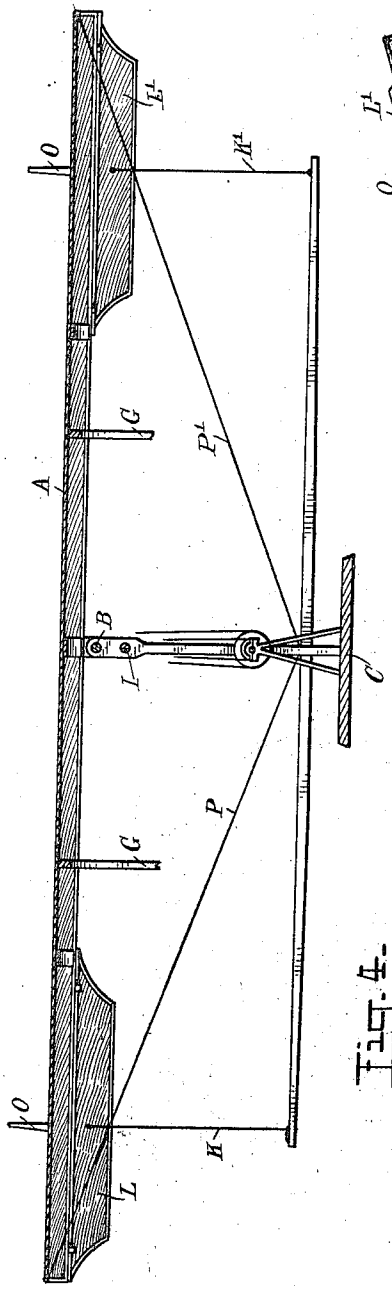


Fig. 4.

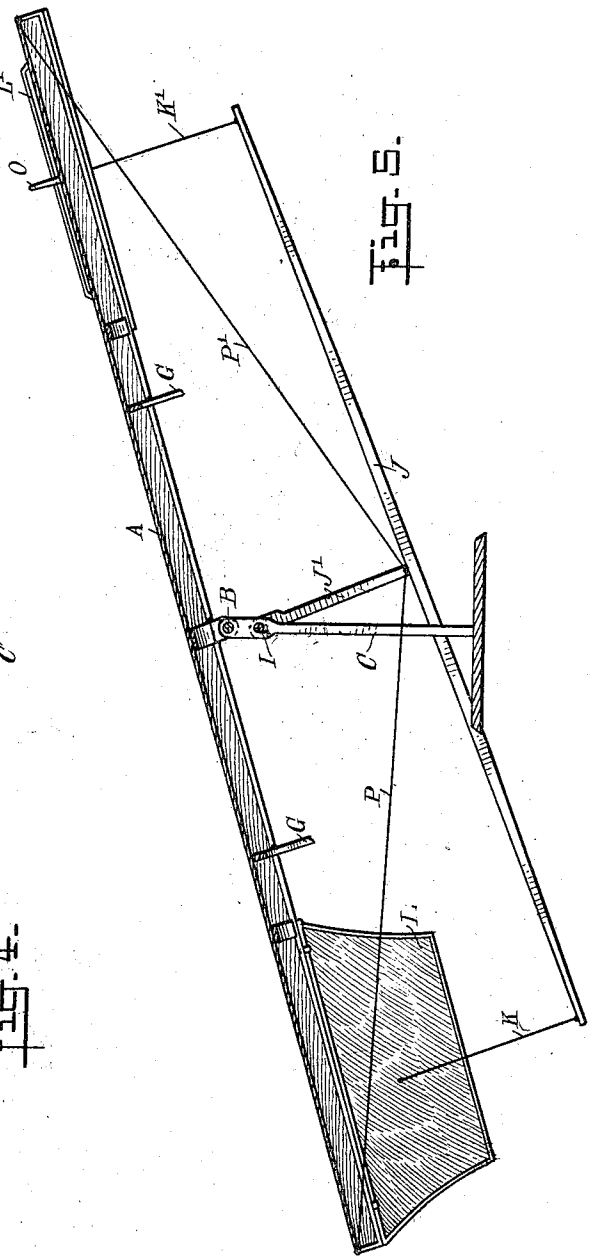


Fig. 5.

WITNESSES

INVENTOR

Harry W. Odlin

BY Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

HARRY W. ODLIN, OF EDGARTOWN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO FRANK G. BURKE, JR., OF NEW YORK, N. Y.

AEROPLANE.

1,052,943. Specification of Letters Patent. Patented Feb. 11, 1913.

Application filed October 31, 1910. Serial No. 589,862.

To all whom it may concern:

Be it known that I, HARRY W. ODLIN, a citizen of the United States, and a resident of Edgartown, in the county of Dukes and State of Massachusetts, have invented a new and Improved Aeroplane, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved aeroplane, arranged to automatically maintain its equilibrium and thus prevent capsizing in heavy winds or when struck by sudden gusts of wind, and hence to insure easy riding and full utilization of the power employed for propelling the aeroplane.

For the purpose mentioned use is made of ailerons or balancing wings, mounted to automatically assume different positions on the tilting of the supporting plane, thus offering a strong resistance to the tilting action, with a view to maintain the aeroplane in balance.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a perspective view of an aeroplane; Fig. 2 is a plan view of the same, parts being broken out; Fig. 3 is a side elevation of the same; Fig. 4 is a cross section of the same on the line 4—4 of Fig. 3; and Fig. 5 is a like view of the same showing the parts in position at the time the aeroplane is tilted sidewise.

The aeroplane illustrated in the drawings is of the monoplane type, but I do not limit myself to this particular type as the improvements, presently to be described in detail, may be used on other types of aeroplanes. The supporting plane A is pivotally connected at the under side at the middle thereof with a rod B carried by the upper end of the main frame C, having a seat D for the aviator and supporting the motor E for driving the propeller F. The supporting plane A is provided with a rearwardly-extending framework G, on which is pivoted to swing up and down the tail H, and the rear cross bar of the frame G is pivoted on a longitudinally-extending rod I carried by the main frame C. The rod I is connected with the frame C a distance below the pivot rod B, as plainly indicated in Figs. 4 and 5, and on the said rod I is pivoted the upper end of an arm J′ rising from a transversely-extending beam J, connected at its free ends by ropes or other flexible connections K and K′ with ailerons or balancing wings L, L′, hinged at the rear edge of the supporting plane A near the outer ends thereof, as plainly indicated in the drawings. The ailerons or balancing wings L and L′ are normally held in the plane of the supporting plane A (see Fig. 3), and the said ailerons or balancing wings are connected at the top by springs N with uprights O rising from the top of the supporting plane A at the rear edge thereof. Ropes or cables P, P′ extend from the outer end of the supporting plane A to the middle of the beam J so that when the supporting plane A is tilted as shown in Fig. 5 then the connections P and P′ swing the beam J into a tilted position, but as the said beam J is pivoted at I at a point below the pivot B of the supporting plane A, it is evident that the beam J is moved into a position at an angle to the supporting plane A instead of extending parallel with the same, as shown in Fig. 4, that is, when the supporting plane A is in a normally horizontal position. Now when the beam J is moved into this angular position relative to the plane A, then the aileron or balancing wing L at the lower side of the supporting plane A is swung downward, while the aileron or balancing wing at the raised side of the supporting plane A is allowed to swing upward owing to the action of its spring N. By this movement of the ailerons or balancing wings L and L′ in opposite directions, the aeroplane is balanced, that is, the supporting plane A is immediately returned to normal horizontal position. It is understood that when the supporting plane A is tilted the main frame C remains perpendicular owing to the pivotal connection between the frame C and the supporting plane A, and consequently the beam J readily assumes the angular position relative to the supporting plane A whenever the latter is tilted, as indicated in Fig. 5. From the foregoing it will be seen that the ailerons or balancing wings L and L′ are automatically controlled from the supporting plane A.

The tail H is adapted to be swung up or down by the aviator seated on the seat D and controlling the usual mechanism Q employed for manipulating the tail H, so that further description of the same is not deemed necessary, it being also understood that a rudder R is provided controlled by a mechanism S under the control of the aviator seated on the seat D. The aeroplane may also be provided with other features such as are used in aeroplanes, but as the same do not form part of my invention, I do not deem it necessary to describe the same in detail.

It is understood that the device employed for imparting movement automatically to the wings L, L′ can be used for warping the corners of the supporting plane, or for actuating the tail, rudder or any other part of the aeroplane employed for controlling purposes.

Although the term "balancing wings" is herein used for the device actuated automatically for controlling purposes, it is evident that such term applies to all parts of an aeroplane used for controlling purposes. Thus the tail may be swung up and down or the rudder may be moved sidewise by the use of the transverse beam mounted and rocked as described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An aeroplane provided with a supporting plane, a frame pivotally connected with the said supporting plane, a controlling device, a transverse beam pivoted on the frame below the pivotal connection of the supporting plane and frame, a connection between the supporting plane and the beam, and a connection between the controlling device and the said beam.

2. An aeroplane provided with a supporting plane, balancing wings pivoted on opposite sides of the said supporting plane, a frame for carrying the motors and aviator, and having on the said supporting frame a transverse beam, having an upright at its middle pivotally suspended from the said frame at a point below the pivot connecting the supporting plane with the said frame, connections between the outer ends of the supporting plane and the middle of the said beam, and connections between the ends of the beam of the said balancing wings.

3. An aeroplane, comprising a supporting plane, a frame pivotally connected with the said supporting plane at the middle thereof, balancing wings pivoted on the said supporting plane at the opposite sides thereof, an operating transverse beam pivoted on the said frame below the pivotal connection of the supporting plane and frame, connections between the free ends of the said beam and the said balancing wings, and means for normally holding the balancing wings in the plane of the supporting plane.

4. An aeroplane, comprising a supporting plane, a frame pivotally connected with the said supporting plane at the middle thereof, balancing wings pivoted on the said supporting plane at the opposite sides thereof, an operating transverse beam pivoted on the said frame below the pivotal connection of the supporting plane and frame, connections between the free ends of the said beam and the said balancing wings, means for normally holding the balancing wings in the plane of the supporting plane, and diagonal stays connecting the outer ends of the supporting plane with the said beam at the middle thereof.

5. An aeroplane, comprising a supporting plane, a frame pivotally connected with the said supporting plane at the middle thereof, a rod carried by the said frame at a point below the pivotal connection between the said supporting plane and frame, a tail-supporting frame attached to the said supporting plane and pivoted on the said rod, a tail pivoted on the said tail-supporting frame, a transverse beam having an angular arm at its middle, the arm being pivoted on the said rod, balancing wings pivoted on the rear outer edges of the said supporting plane, links connecting the said balancing wings with the said beam, and links connecting the supporting plane with the beam at the middle thereof.

6. An aeroplane, comprising a supporting plane, a frame pivotally connected with the said supporting plane at the middle thereof, a rod carried by the said frame at a point below the pivotal connection between the said supporting plane and frame, a tail-supporting frame attached to the said supporting plane and pivoted on the said rod, a tail pivoted on the said tail-supporting frame, a transverse beam having an angular arm at its middle the arm being pivoted on the said rod, balancing wings pivoted on the rear outer edges of the said supporting plane, links connecting the said balancing wings with the said beam, links connecting the supporting plane with the beam at the middle thereof, uprights rising from the supporting plane, and springs connecting the balancing wings with the uprights.

7. An aeroplane having a supporting plane, a frame pivotally connected with the said supporting plane at the middle thereof, balancing wings pivoted to the rear edges of the supporting plane at the outer ends thereof, a transverse beam having an angular arm at its middle, the upper end of the arm being pivoted on the frame a distance below the pivotal connection of the supporting plane and frame, links connecting the ends of the beam with the said balancing

wings at the underside thereof, and springs pressing the said balancing wings to hold the same normally extended in the plane of the supporting plane.

8. In an aeroplane, a supporting plane, a frame pivotally secured to said supporting plane at the approximate center, ailerons pivotally secured to said supporting plane, a controlling mechanism pivotally connected to said frame below said main sustaining plane, and flexible connections from said controlling mechanism to the under side of each of said ailerons for operating the latter.

9. In an aeroplane, a supporting plane, a frame pivotally secured to said supporting plane at the approximate center, ailerons pivotally secured to said supporting plane, a controlling mechanism pivotally connected to said frame below said main sustaining plane, flexible connections from said controlling mechanism to the under side of each of said ailerons for operating the latter, and means for opposing the tension in said flexible connections.

10. In an aeroplane, a supporting plane, a frame pivotally secured to said supporting plane at the proximate center, ailerons pivotally secured to said supporting plane, a controlling mechanism pivotally connected to said frame below said main sustaining plane, flexible connections from said controlling mechanism to the under side of each of said ailerons, and springs connected with the upper side of each of said ailerons for opposing the tension in said flexible connections.

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

HARRY W. ODLIN.

Witnesses:
THEO. G. HOSTER,
PHILIP D. ROLLHAUS.