

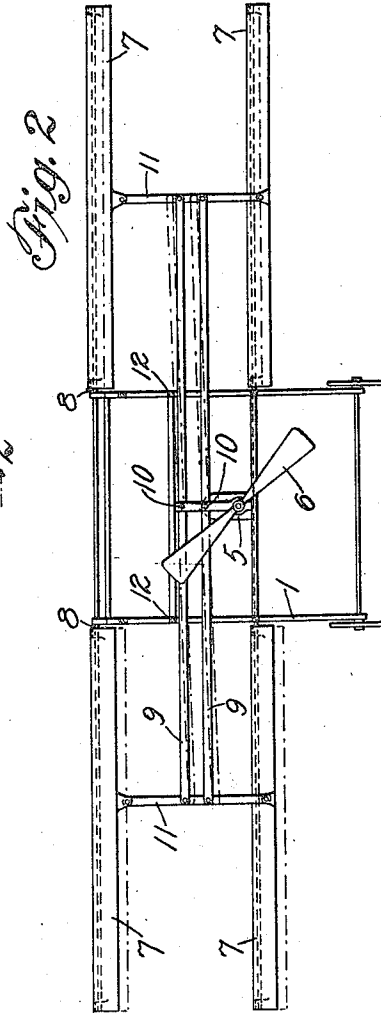
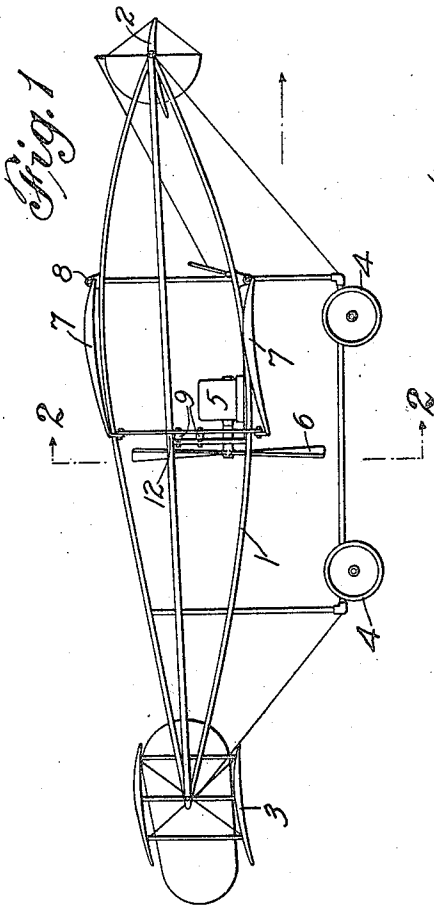
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AEROPLANE.

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AEROPLANE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY P. RHETT, a citizen of the United States, residing at Hempstead, county of Nassau, and State of New York, have invented a new and useful Improvement in Aeroplanes, of which the following is a specification.

This invention relates to an improvement in airships, particularly those of the biplane type.

Heretofore, in machines of this general character, means have been employed for restoring lateral equilibrium after the machine has been tilted as for instance by a side gust of wind. In certain machines, this result is effected by means of a pair or set of auxiliary planes, the angles of which are varied by the aviator. In other machines, a portion of the supporting planes are bent by the aviator. The necessity for the strictest attention and a very considerable effort upon the part of the aviator to guard against tilting of the aeroplane, is one of the most serious defects of present machines. It is highly desirable that the lateral equilibrium of aeroplanes be maintained without any effort upon the part of the aviator.

It is one of the objects of the present invention, therefore, to provide means whereby the equilibrium of an aeroplane is automatically maintained and stability assured.

Another object is to provide a device having supporting planes and connections whereby the lateral equilibrium is maintained, without auxiliary planes or similar devices.

Still another object is to provide a device in which inflexible supporting planes are employed, with connections whereby excessive force acting upon one plane will cause the other plane to counteract the action.

Still another object is to provide a device having biplanes connected together and connections whereby a movement of one biplane produces a reverse movement of the other to counteract the effect of uneven pressure.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings which form a part of this specification and in which like characters of reference indicate

the same or similar parts, Figure 1 is a side elevation of a device constructed in accordance with the invention, and Fig. 2 is a rear view taken on the line 2—2 in Fig. 1.

In carrying the invention into effect, there is provided a frame for supporting the various parts of the structure, and this frame may vary within wide limits. In the best constructions, however, and as shown, a skeleton frame 1 is employed. This frame carries at its forward end a steering plane 2 and at its rear end a rudder and tail plane 3 of well known construction. The frame is also provided with a set of landing wheels 4 and a motor 5 which drives a propeller 6. That part of the structure just described differs in no material way from other structures well known in the art, and since a more detailed description thereof is unnecessary to a full understanding of the present invention, such description is omitted in the interest of brevity and clearness.

A pair of supporting planes are provided and carried by the frame, and these planes may vary within wide limits. As shown, however, a pair of inflexible biplanes 7, 7, are employed, one on either side of the frame, and these biplanes are pivoted at 8 to the frame. The point 8 is the only place where the biplanes are connected directly with the frame. It will be noted, therefore, that although these biplanes are inflexible they are capable of swinging about the center at 8.

By an inspection of Fig. 1, it will be seen that the rear part of the biplanes is lower than the forward part; that is to say, the biplanes are inclined from the horizontal to afford the necessary lifting surface, and that under normal conditions, full lines in Fig. 2, the angles of incidence of the two biplanes are equal. When, however, a sudden gust of wind strikes the under side of only one of the biplanes, the machine must tilt unless this action is prevented. Assuming for instance that a gust of wind strikes the plane on the right in Fig. 2, swinging it upward to the position indicated by the broken line, it will be seen that its angle of incidence is changed while a tilting action of the whole structure is begun. To overcome this action, it is necessary to increase the angle of incidence of the other biplane a corresponding amount in order to increase its lifting power to counterbalance the increased force acting upon the right biplane. Mechanism is there-

fore provided connecting the biplanes whereby a movement of one biplane will produce a reverse movement of the other, and this mechanism may vary within wide limits. 5 As shown, however, a parallel motion mechanism is provided for this purpose, and this mechanism includes a pair of parallel bars 9, 9, pivoted at 10, 10, to the frame 1. To the free ends of these bars are pivotally secured a pair of links 11, 11, which are also 10 secured to the rear ends of the biplanes 7, 7. The movement of the bars is limited by stops 12, 12, stationarily secured to the frame and overlying the upper bar 9.

15 In the operation of the device, the attention of the aviator is unnecessary, for when a gust of wind strikes one plane, reducing its angle of incidence, the angle of incidence of the other plane is automatically increased 20 in direct proportion by means of the parallel motion mechanism, and lateral equilibrium is restored.

Changes and variations may be made in the structure by means of which the invention is carried into effect. The invention, 25 therefore, is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. In an aeroplane, the combination with 30 a frame, of a pair of rectangular inflexible supporting biplanes the forward ends of which are pivoted to the frame, a pair of parallel bars pivoted to the frame, and a pair of links connecting the free ends of the 35 bars with the rear ends of the biplanes.

2. In an aeroplane, the combination with a frame, of a pair of rectangular supporting biplanes pivotally carried by the frame, a pair of parallel bars pivoted to the frame, 40 and a pair of links connecting the free ends of the bars with the biplanes.

3. In an aeroplane, the combination with a frame, of a pair of rectangular supporting biplanes pivotally carried by the forward 45 part of the frame, a pair of parallel bars pivoted to the rear end of the frame, and a pair of links connecting the free ends of the bars with the rear ends of the biplanes.

In testimony whereof, I have signed my 50 name to this specification in the presence of two subscribing witnesses.

HENRY P. RHETT.

Witnesses:

FRANCES S. BON DURANT,
W. R. PERKINS.