G. GERALDSON.

AEROPLANE.

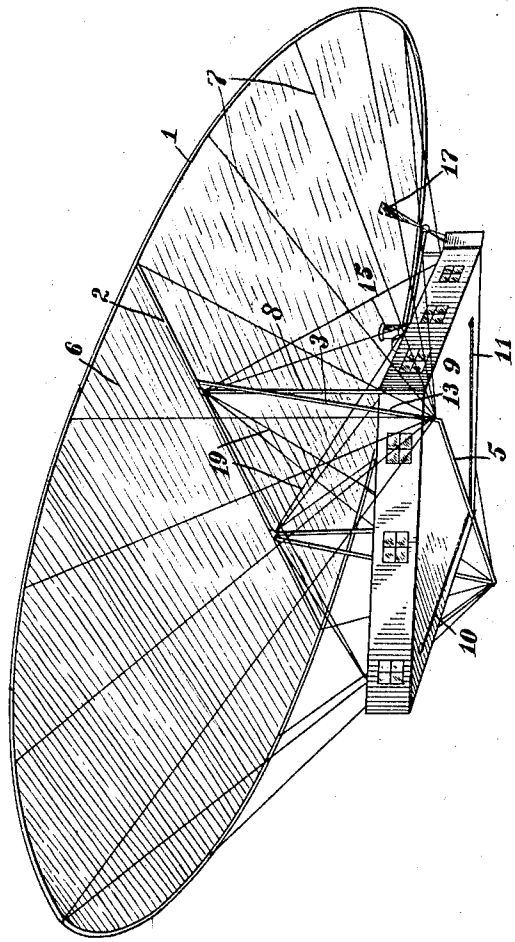
APPLICATION FILED MAY 14, 1909.

963,543.

Patented July 5, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

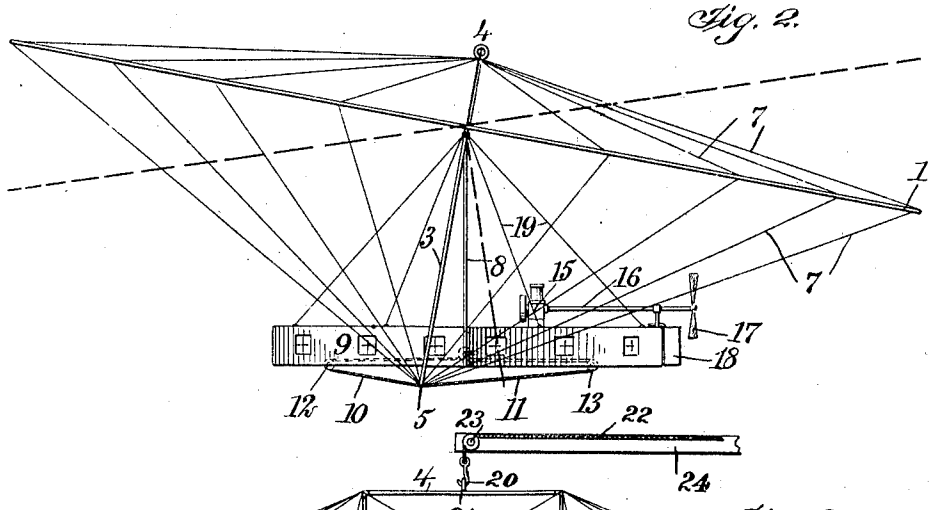


Fig. 3.

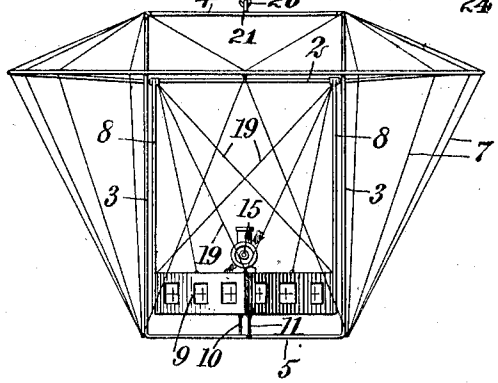
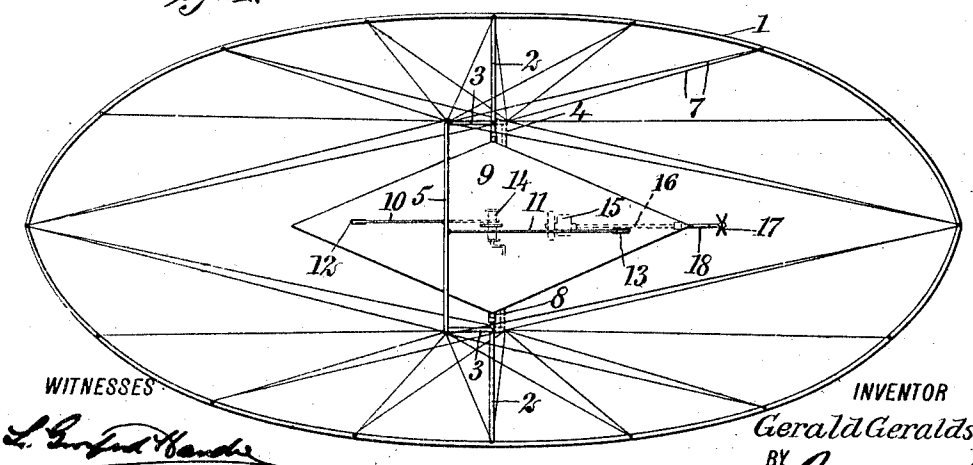


Fig. 4.



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AEROPLANE.

963,543. Specification of Letters Patent. Patented July 5, 1910.

Application filed May 14, 1909. Serial No. 496,017.

To all whom it may concern:

Be it known that I, GERALD GERALDSON, a citizen of the United States, and a resident of Newcastle, in the county of Placer and State of California, have invented a new and Improved Aeroplane, of which the following is a full, clear, and exact description.

My invention relates to aeroplanes, and has for its object to provide means by which the aeroplane may be directed upwardly or downwardly at the desired inclination, without altering the position of the center of gravity of the car relative to the supporting aeroplane.

Another object is to provide means which while permitting the fore and aft deflection of the aeroplane, will prevent any lateral deflection.

Still other objects of the invention will appear in the following complete description.

In this specification I will describe the preferred form of my invention, it being understood that the scope of the invention is defined in the appended claims.

Reference is to be had to 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 perpsective view, showing the aeroplane with the car supported thereby; Fig. 2 is a side elevation of the aeroplane and the car; Fig. 3 is an end view of the aeroplane and car; and Fig. 4 is an inverted plan view of the same.

By referring to the drawings it will be seen that the aeroplane has a continuous rim 1, which is connected transversely by a rod 2, which passes substantially through the center of the ellipse formed by the continuous rim 1 of the aeroplane. Standards 3 are provided, these standards being preferably two in number and being spaced apart, each of the standards 3 being disposed a distance from the rim 1, and both of the standards being secured to the transverse rod 2. The upper terminals of these standards 3 are continued a distance above the plane of the rim 1, and the lower terminals of the standards 3 are continued a relatively greater distance below the plane of the rim 1.

The upper terminals of the standards 3 are connected by a rod 4, and the lower terminals of the standards 3 are connected by a rod 5. Over the rod 2 is spread a cloth or other material 6, which is drawn taut and fastened to the rim 1, all around. The cloth 6 lies in the plane of the rim.

Guy lines 7 are secured to the rod 4, passing to the rim 1 to which they are secured, and then downwardly to the ends of the rod 5 to which they are also secured. Supporting rods 8 are pivoted to the transverse rod 2 to permit a longitudinal movement of the car 9, relatively to the standards 3, but which prevent any lateral movement of the car 9, relatively to the standards, so that there is no danger of the car contacting with the standards 3 as it moves to and fro longitudinally. Guy lines 19 are secured to the upper terminals of the rods 8 at the points where they are pivoted to the transverse rod 2, these guy lines, three in number, at each side being disposed downwardly toward the other side respectively, and they are secured to the car 9 at a plurality of points to prevent the car from becoming deflected laterally and as the rods 8 are secured to the car 9 to support it, the said rods 8 are also held in place laterally.

To the rod 5 are secured cables 10 and 11, these cables extending fore and aft respectively, the cables being disposed over sheaves 12 and 13 respectively, and then running to a windlass 14 around which they are wound in opposite directions, the terminals being secured to the drum of the windlass. A suitable motor 15 is provided, which is connected with a shaft 16 so that it is adapted to drive a propeller 17. A rudder 18 is provided to direct the aeroplane laterally.

In using the aeroplane, it is suspended by means of a hook 20 which engages an eye 21 on the rod 4. This hook 20 is preferably secured to a cable 22 which is disposed over a sheave 23 on an arm 24, so that when the motor is started and the propeller 17 is driven, the aeroplane may fly within a limited area partially supported until it moves rapidly enough to enable it to travel unassisted, when the hook 20 is freed from the eye 21. The rudder 18 is used to steer the aeroplane laterally, the aeroplane being steered vertically by the angle of the plane of the rim 1 relatively to the car 9. For instance, when it is desired to drive the aeroplane to a higher altitude, the cable 10 is hauled over the windlass 14, the cable 11 at the same time being unwound by the

windlass, which moves the rod 5 forwardly, and as this rod 5 is secured to the standards 3, which are in turn secured to the transverse rod 2, the aeroplane is tilted to the angle which is shown in the full lines in Fig. 2 of the drawings; while when it is desired to direct the aeroplane downwardly the plane of the rim 1 and the standards 3 are moved to the position shown in dotted lines in Fig. 2 of the drawings, which drives the aeroplane downwardly as desired. It will be noted that whether the aeroplane is ascending or descending, the center of the supporting area of the aeroplane is disposed immediately above the center of gravity of the car 9, so that the difficulty experienced in the use of horizontal rudders is obviated. When these horizontal rudders are used and one is moved upwardly to cause the aeroplane to ascend, the center of the area of the aeroplane is changed forwardly one-half the longitudinal length of the rudder if it be in the rear of the aeroplane. When these horizontal rudders are used it is impossible to adjust the balance of the car relatively to the aeroplane, for as soon as they are operated the center of the area of the aeroplane is altered relatively to the center of gravity of the car.

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

1. In an aeroplane, a continuous rim, standards spaced apart, a rod connecting the standards, means to secure the standards relatively to the rim, and a material which is secured to the continuous rim all around.

2. In an aeroplane, a rim substantially elliptical in shape, standards spaced apart, a transverse rod passing substantially through the center of the ellipse formed by the rim, the transverse rod being secured to the rim and to the standards, a material disposed in the plane of the rim and which is secured thereto, a car pivotally supported on the transverse rod, and means to move the standards relatively to the car.

3. In an aeroplane, a rim, a transverse rod secured to the sides of the rim, a car pivotally mounted on the transverse rod, a material disposed in the plane of the rim and which is secured thereto, means to move the plane relatively to the car, a shaft journaled in the car, and a propeller mounted on the shaft.

4. In an aeroplane, a plane, a frame therefor, supporting rods pivoted to swing longitudinally of the planes substantially from a transverse line passing through the center of the plane, the supporting rods being spaced from the sides of the frame of the plane, a car secured to the supporting rods, guy lines obliquely disposed connecting each of the supporting rods with the car and with the opposite supporting rods respectively, standards which are secured to the frame of the plane, the standards being normally disposed one at the outer side of each of the supporting rods, guy lines connecting the standards with the frame of the plane, and means connected to the lower terminals of the standards adapted for securing the plane at predetermined angles relatively to the car.

5. In an aeroplane, a rim, a material disposed in the plane of the rim, and which is secured thereto, supporting rods pivoted to swing longitudinally of the aeroplane substantially from a transverse line passing through the center of the aeroplane, a car secured to the supporting rods, depending standards, which are secured to the rim, and which are disposed one at each side of the car, and means connecting the standards at their lower terminals with the car by which the car is adapted to be moved relatively to the rim.

6. In an aeroplane, a rim substantially elliptical, standards spaced apart disposed within the rim away therefrom, the standards extending above the plane of the rim, a rod connecting the upper terminals of the standards, a transverse rod passing substantially through the center of the ellipse formed by the rim, the transverse rod being secured to the rim and to the standards, a material disposed in the plane of the rim and which is secured thereto, a car pivoted to the aeroplane to swing substantially from a transverse line passing substantially through the center of the aeroplane, and means to secure the aeroplane at predetermined angles relatively to the car.

7. In an aeroplane, a rim substantially elliptical in shape, standards spaced apart disposed within the rim away therefrom and extending above the plane of the rim, a rod connecting the upper terminals of the standards respectively, a transverse rod passing substantially through the center of the ellipse formed by the rim, the transverse rod being secured to the rim and to the standards, a material disposed in the plane of the rim and which is secured thereto all around, supporting rods pivoted to the transverse rod, a car secured to the supporting rods, and means to secure the aeroplane at predetermined angles relatively to the car.

8. In an aeroplane, a continuous rim, standards spaced apart disposed within the rim and extending above and below the plane of the rim, rods connecting the upper and lower terminals of the standards respectively, a transverse rod passing substantially through the center of the ellipse formed by the rim, the transverse rod being secured to the rim and to the standards, a material disposed in the plane of the rim and which is secured thereto all around,

supporting rods pivoted to the transverse rod, a car secured to the supporting rods, cables secured to the rod connecting the lower terminals of the standards, sheaves journaled in the car, the cables passing over the sheaves, and means in the car for simultaneously drawing on one cable and paying out the other.

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

GERALD GERALDSON.

Witnesses:
H. L. CULVER,
S. L. DRAPER.