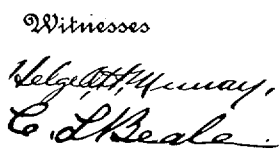


APPLICATION FILED JUNE 19, 1911.

Patented Feb. 20, 1912.

3 SHEETS—SHEET 1.



Inventor

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 $\mathfrak{B}_f$

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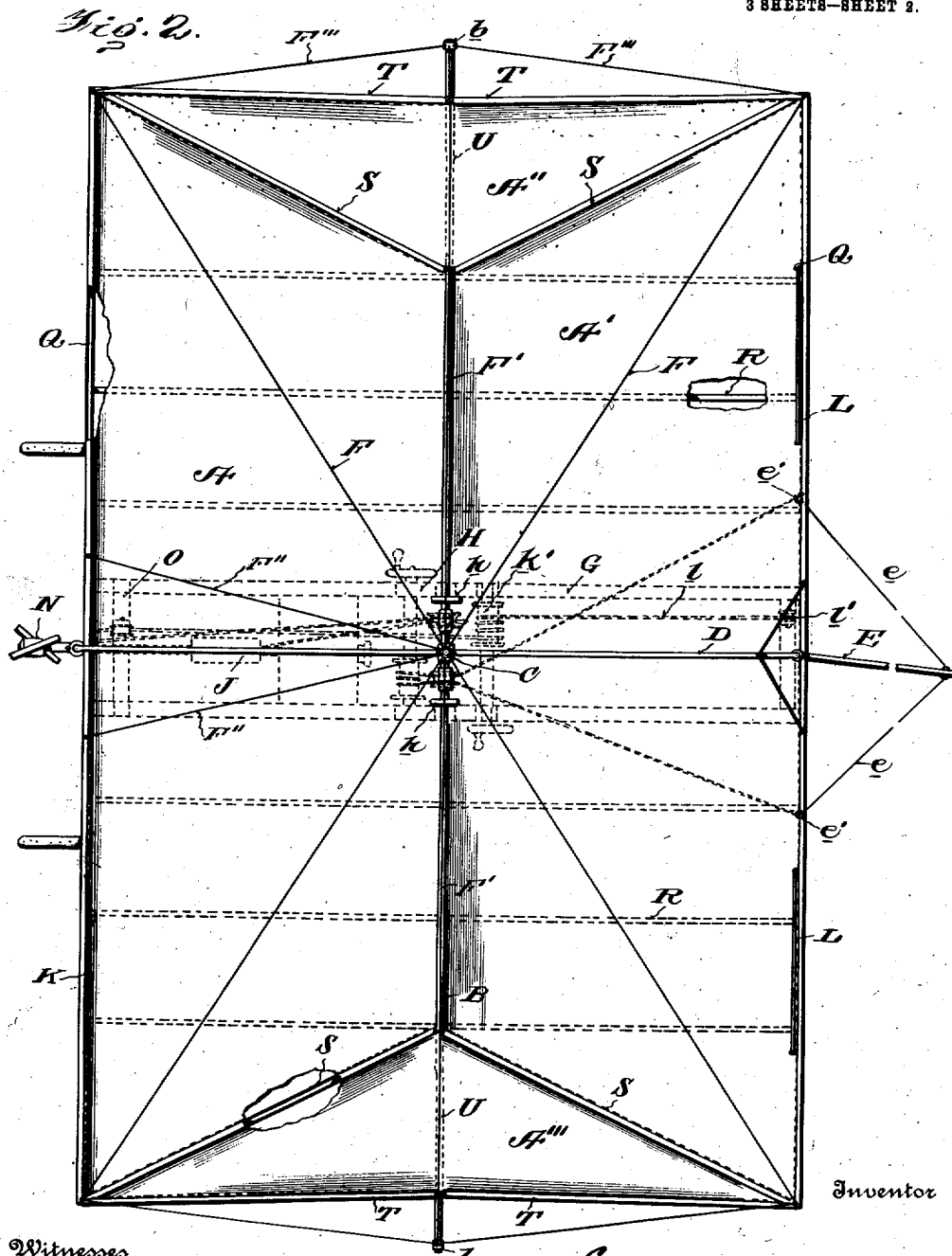
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3 SHEETS—SHEET 2.



Witnesses
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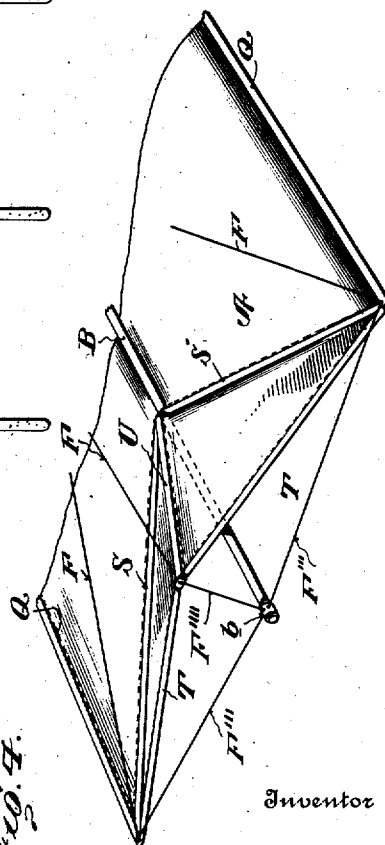
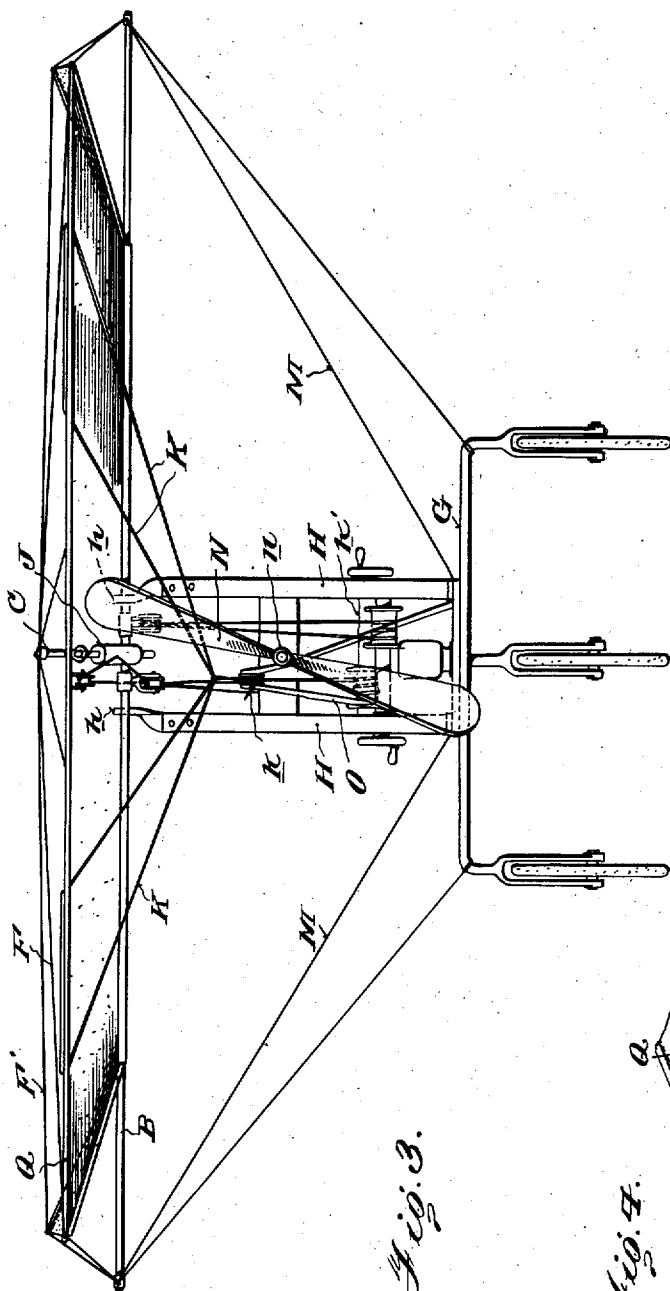
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3 SHEETS—SHEET 3.



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AEROPLANE.

1,017,733.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNST C. F. W. BLIESATH, citizen of Germany, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

My invention relates to aeroplanes, and more particularly to the supporting planes therefor; and also to means for controlling said planes relative to the angle of incidence.

It is my object to provide a type of supporting plane having great strength with a minimum of weight, and especially adapted to retain its equilibrium should the motive power fail.

It is also my object to provide an aeroplane having its supporting plane rectangular and nearly square in plan outline with straight front and rear edges and upwardly inclined side edges forming inclined planes at each side to insure greater stability in turning by giving more buoyancy to the dipping side.

It is also my object to provide an aeroplane, the carriage or body of which is pivotally suspended to the supporting plane at the intersection of its transverse and longitudinal axes, whereby the center of gravity is lowered and maintained as nearly as possible in line with the center of the supporting surface.

It is also my object to govern the altitude flight of the aeroplane by a supporting plane adapted to be tilted or partly turned on its transverse axis.

In the accompanying drawings forming a part of this specification, I have shown my invention applied to a monoplane, but I do not confine myself to one supporting plane, as my invention is equally well adapted to a multiplane.

Figure 1 is a side elevation of my aeroplane; Fig. 2 is a two plan view; Fig. 3 is a front elevation; and Fig. 4 is a detail perspective view of one of the triangular side planes.

Referring more particularly to the drawings I have shown the supporting plane composed of four planes, viz: trapezoidal planes A, A', and triangular side planes A'', A'''. The front and rear planes A, A' may

present flat surfaces or curved. Meeting the converging sides of the trapezoids and inclined upwardly and outwardly therefrom are arranged the triangular side planes A'', A''' which are hipped on their transverse axes as shown in Fig. 4.

B, denotes a spar projected upon the transverse axis of the supporting plane, bears upon the dividing line between the two trapezoids and passes under and projects beyond the side edges of the side planes.

b, b, denote eyes formed at each end of said spar.

C, denotes a short mast having an eye at its upper end; its lower end being fastened to said spar midway of its length.

D denotes a brace secured to the mast-head and extends horizontally and rearwardly therefrom parallel to the longitudinal axes of the aeroplane to a point above the rear edge of the supporting plane where it is bent at right angles and passed down through the supporting plane and fastened to its frame; the vertical portion of this brace serves as a stationary rudder post. E denotes the rudder journaled to said rudder post above and below the rear edge of the supporting plane.

e, e, denote steering cords fastened to free end of rudder and pass through guides e', e', to steering wheel.

F denotes a series of stays extending diagonally from the mast-head to the four corners of the supporting plane. F' denotes like stays extending from the mast-head transversely and fastened at the sides of supporting plane midway between the corners.

F'' denote two stays extending from the mast-head diagonally to the rear edge of the supporting plane. Said stays all pass above the supporting plane and are made fast to its frame, and form together with the mast and brace D a superimposed truss for bracing the frame-work of the supporting plane and holding the several planes rigidly in fixed relation at the prescribed angles. In addition to said stays I provide at each triangular side, stays F''' connecting the ends of the spar B to the under side of the four corners of the supporting plane, and short stays F'''' connecting the said spar ends to

the under side of the triangular sides midway between the corners.

G, denotes the carriage consisting of two parallel members connected midway of their length and at each end by intermediate crosspieces. The carriage is swung directly under the longitudinal axis of the supporting plane as follows: H, H' denote two A-shaped supports securely fastened to the carriage midway of its length and provided at their upper ends with suitable hangers *h, h*, having journals through which pass the spar B. Thus the carriage is hung pendulous to the center of the supporting planes and adapted to be swung longitudinally when the aeroplane is in flight. J denotes a sliding weight mounted on a traveler J' secured on the longitudinal axis of the supporting plane frame and serves to differentiate the center of gravity. Said weight is operated by a cord *j*. The carriage being pendulous on the transverse axis of the supporting plane, any suitable means may be employed to tilt the plane relative to the angle of incidence. I have shown, though I do not confine myself to this means, two yokes K, K, fastened to the front edge of the supporting plane on opposite sides of its center, and connecting said yokes to an operating cord passing under a guide pulley *k*, and thence to a shaft or drum of an operating wheel *k'*. L, L, denote similar yokes fastened to the front edge of said plane opposite and operated in similar manner by a cord *l* passing under a guide pulley *l'* and thence to the said wheel *k'*. M, M, denote two stays passing through eyes *b, b*, at the ends of spar B and secured to the front and rear ends of the carriage on opposite sides. N, denotes a propeller, and *n* its shaft. O denotes an A-shaped support secured to the carriage on which the propeller shaft is mounted.

My supporting plane is formed by fitting cloth or other suitable fabric over a frame composed of two parallel transverse spars Q, Q, extending from side to side of the plane which form the front and rear edge supports respectively. The spar B passes transversely across the upper surface of the fabric midway between spars Q, Q, in a lower horizontal plane and forms a central transverse brace for the frame, a purchase for the mast and stays, binds the fabric down in place on the transverse axis of the plane, and receives the upward thrust of the ribs R of the frame. The sides of the frame are formed by four diagonally placed spars S fastened to spar B and the ends of spars Q, Q; four booms T, two on each side, connected to the four corners of the frame and meet above the transverse axis of the supporting plane; and two short spreader spars U rigged at the intersection of booms T and secured to the spar B.

In starting the aeroplane the pilot at first should tilt or turn the supporting plane on its transverse axis until the front or leading edge is inclined upward at a slight angle to the horizontal. When sufficient momentum is gained to start the flight, this angle is increased to about fifteen degrees approximately; depending upon the direction and strength of the air currents. As the altitude desired is reached the angle of inclination is reduced sufficiently to lay a horizontal course. In descending the supporting plane is tilted slightly downward until a landing is about to be made; then as the motor is stopped the supporting plane may be tilted up at an angle of about thirty-five degrees, thus causing it to act as a drag and serve to check the coasting movement of the aeroplane as the wheels strike the ground.

It is evident that should the motive power fail, the pilot can instantly bring the supporting plane to a horizontal position, when it will act as a parachute in governing the descent of the aeroplane.

Having described my invention what I claim and desire to secure by Letters Patent is:

1. A supporting plane for aeroplanes rectangular in plan having its front and rear edges normally in the same horizontal plane and in a higher horizontal plane than the transverse axis of the supporting plane, the sides of said plane being hipped on said axis and inclined upwardly from the body of the plane and from the four corners or angles thereof.

2. A supporting plane for aeroplanes composed of four planes rigidly fixed to a frame in common the front and rear planes forming trapezoids while the planes at each side are triangular and inclined upwardly and outwardly from the converging sides of said trapezoids.

3. A supporting plane composed of the front and rear planes and the side planes hipped on their transverse axes, the spar projected on the transverse axis of the supporting plane, the parallel spars in front and rear, and the ribs connecting said spars, the diagonally placed spars, and means for bracing and holding said spars in position.

4. In an aeroplane the combination of the parallel transverse spars, the intermediate transverse spar placed midway between said parallel spars having projecting ends, the ribs connecting the two parallel transverse spars and bearing upon the under side of said intermediate spar, the diagonally placed spars, the spreader spars, a centrally located mast secured to said intermediate spar, braces connecting said mast, spars, and the extended ends of said transverse spar, a carriage mounted pendulous of said trans-

verse spar, stays extending from the ends of said transverse spar to opposite ends of said carriage, a weight adjustably mounted on the longitudinal axis of the carriage, means for tilting the supporting plane on its transverse axis and means for steering the aeroplane.

In testimony whereof I affix my signature in presence of two witnesses.

ERNST C. F. W. BLIESATH.

Witnesses:

RICHARD D. BAKER,
AUGUST MEHLHORN, Jr.