

B. W. BLEWETT.
AEROPLANE.

APPLICATION FILED FEB. 25, 1911.

1,021,299.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.

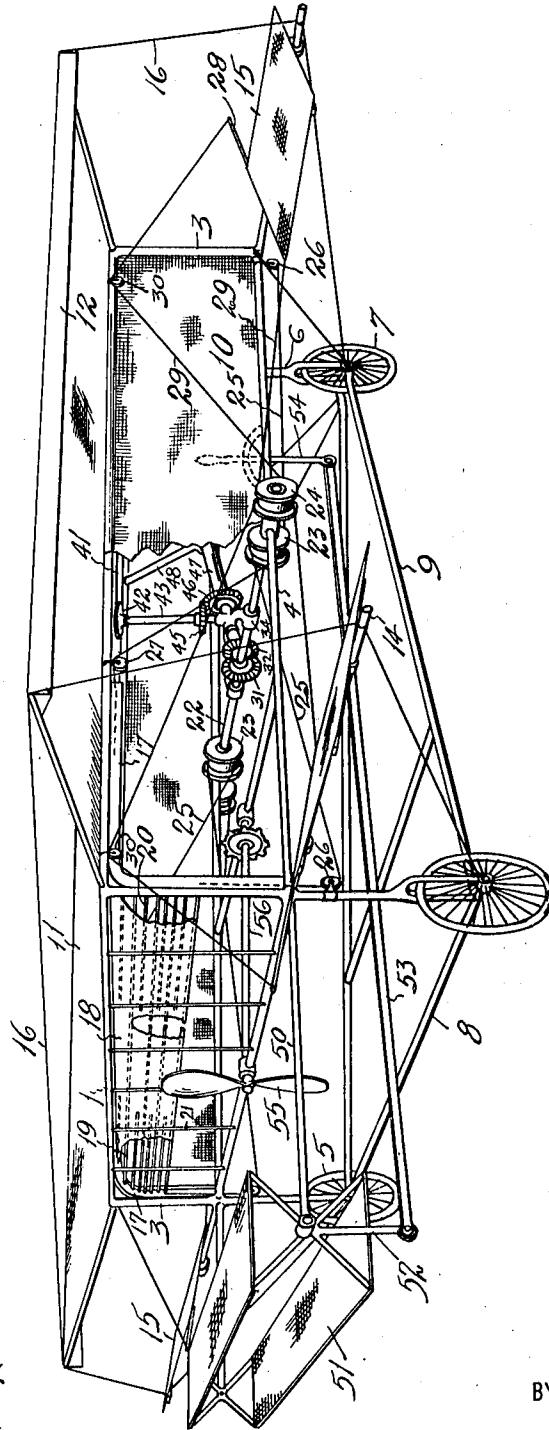


Fig. 1

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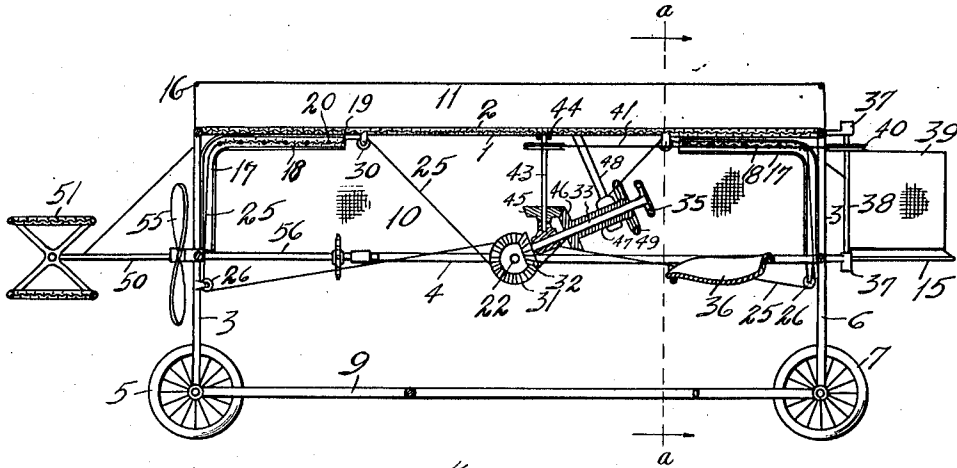


Fig. 2

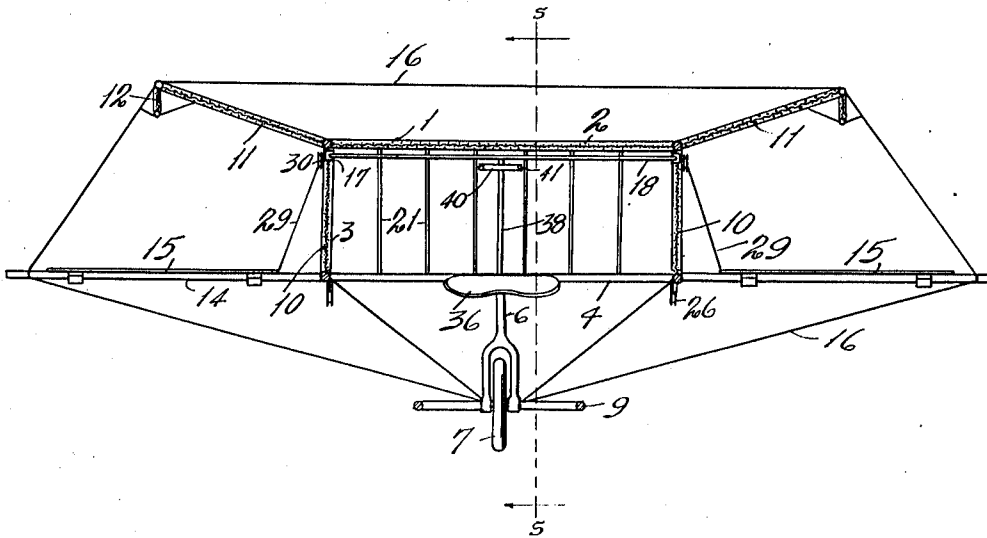


Fig. 3

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AEROPLANE.

1,021,299.

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To all whom it may concern:

Be it known that I, BAXTER W. BLEWETT, citizen of the United States, residing at Denton, in the county of Denton and State of Texas, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

This invention pertains to new and useful improvements in aeroplanes.

10 The objects of the invention are; the provision of a main horizontal plane from which vertical side planes depend together with vertical end planes or curtains whereby a parachute arrangement is had; wing
15 planes arranged on each side and at the forward and rear ends of the machine connected in coöperative relation with the end curtains which are movable vertically and horizontally under the main plane, the
20 wings at one end of the machine being arranged to incline upward at an angle opposite to the upward inclination of the other wings; the provision whereby the wings are swung simultaneously with the movement of
25 the curtains, the wings being horizontal, or parallel with the main plane when the curtains are raised and inclined when the curtains are lowered; rigid top planes inclining
30 at an angle upward from the main plane; and the provision of flange planes depending from the outer edges of the top planes.

A still further object of the invention is to provide a machine of the character described that will be efficient, comparatively
35 strong and durable, and involving a simple construction and controlling arrangement.

With the above and other objects in view the invention has relation to certain novel features of construction and operation, an
40 example of which is described in the following specification and illustrated in the accompanying drawings, wherein:

Figure 1 is a perspective view with parts broken away to illustrate underlying constructions, Fig. 2 is a longitudinal vertical
45 sectional view taken on the line *s-s* of Fig. 3, and Fig. 3 is a transverse vertical sectional view taken on the line *a-a* of Fig. 2.

In the drawings the numeral 1 designates
50 a horizontal rectangular top frame of a general frame construction. This frame is covered with a suitable fabric forming a main horizontal plane 2. From each corner of the top frame vertical posts 3 depend and
55 support a lower frame 4 similar to the frame 1. The forward corner posts extend below

the frame 4 and have their lower ends forked to receive suitable wheels 5. From the center of the rear end of the lower frame 4 a post 6 is suspended and forked to receive a wheel 7 like the wheels 5. The
60 wheels 5 are connected by a cross brace 8, while reach bars 9 extend rearwardly on each side and are attached to the post 6 on opposite sides of the wheel 7.

Between the frames 1 and 4 and the posts 3 at each side of the machine vertical side planes 10 of suitable fabric are disposed. From each side of the frame 1 or at the intersections of the planes 2 and 10, rigid top
70 planes 11 extend outwardly and incline upwardly as is best shown in Fig. 3. These top planes are employed to prevent tilting of the machine to either side. It is apparent that the plane 10 and the plane 11 at each side
75 of the machine offer so much resistance that should the machine tilt downward it would be checked and restored to its equilibrium. Along the outer edge of each top
80 plane 11 a depending flange plane 12 is provided. It is obvious that when the machine is descending in a manner similar to the descent of a parachute, these flange planes 12
85 will form in connection with the top planes pockets which will retard the descent of the machine. This arrangement will also obviate any tendency the machine might have to slide laterally during its descent although the planes 10 will perform the same function.
90

At each end of the frame 4 the cross bars are extended to form shafts 14 on which wing planes 15 are pivoted so as to project from each side of said shafts. It is to be understood that there are four of these wing
95 planes one disposed at each corner of the machine and they normally lie horizontal and parallel with the main plane 2 so as to offer substantially no resistance to the forward movement of the machine. For
100 bracing the machine and planes at each end a wire or other connection 16 is extended continuously from the lower end of the posts to the shafts 14 and top planes 11 as is well shown in Figs. 1 and 3.
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At each end of the main plane channel members 17 are disposed on opposite sides with their open portions directed inward. These channel members are bent so as to have vertical portions adjacent the corner
110 posts 3 and horizontal portions extending inwardly under the frame 1, the intersect-

ing portions of each member being curved. These members being arranged in pairs form guideways in which end curtains or planes 18 travel.

5 One of the particular features is the construction of the curtains and the retaining rods. As the construction of both curtains and adjacent parts is substantially the same, a description of one will suffice for
10 both.

The curtain is formed of a suitable fabric and transverse rods 19 are secured transversely of the curtain with their ends projecting on each side and extending into
15 the channel members 17. At each side of the curtain short rods 20 are secured to the curtain in alternate relation to the rods 19 and have their ends extending into the channel members. These short rods do not extend
20 entirely across the curtain. Between the cross bars of the frames 1 and 4 a plurality of vertical retaining rods 21 are disposed. The curtain is inside of these rods so that when subjected to an outward pressure
25 will contact with said rods.

It is apparent that the cross rods 19 and 20 will be held in place by the retaining rods and thus cannot be forced out of engagement with the channel members. When
30 the curtains are down they will in connection with the planes 2 and 10 form a parachute so that the machine may descend in a steady and easy manner and without the necessity of executing a "spiral glide."

35 As hereinbefore stated the curtains and wing planes must be operated at the same time, the curtains being moved down as the wing planes are tilted upward. For carrying out this operation a drum shaft 22 is
40 supported on the frame 4 and has fixed thereon four drums 23 and 24 respectively. The drums 23 are arranged inside of the frame 4 while the drums 24 are disposed outside of said frame. At each lower
45 corner of each curtain a flexible connection 25 is attached and passed downward about a pulley 26 mounted on the adjacent corner post 3 from which point it extends to one of the drums 23. The connections 25 on the
50 same side of the machine are wound about the drum in the same direction but are started on the drum at diametrically opposite points so that when the drum is revolved both connections will be either wound thereon
55 or unwound therefrom.

Each connection after being coiled one or more times about a drum is extended upward and passed over a pulley 27 adjacent the inner end of one of the channel
60 members from which pulley it extends to the corner of the curtain opposite to that from which it started but on the same side of the machine. By including a curtain an endless connection is had on each side and
65 a curtain is pulled either upward or down-

ward in the channel members when the drum shaft is revolved.

From the inner side of each wing plane an arm 28 extends parallel with the side
70 of the frame 4 but outward therefrom. From the free end of each arm a connection 29 is passed inward over a pulley mounted on the outer side of the frame 1, about one
75 of the drums 24 and then outward to the adjacent corner of said wing plane as shown in Fig. 1. The connections on the same side are coiled about the drum 24 thereof in the same manner as the connections 25 are
80 wound about the drum 23; however the connections 29 are wound on the drums 24 in opposed relation to the winding of the connections 25.

By this arrangement when the drum shaft 22 is revolved to lower the curtains which are normally held horizontally under the main
85 plane 1, the wing planes which are normally horizontal are tilted upward and vice versa when the curtains are raised the planes are returned to their normal position. In Fig. 1 the curtain is shown partially lowered and the planes 15 near the end of their upward
90 movement. If the machine was traveling rapidly and the curtains were lowered an air current striking against the rear curtain would have a tendency to pitch the forward
95 end of the machine downward if the wing planes were not provided and tilted upward as described. It is apparent that when the wing planes are tilted those at the forward
100 end will have a tendency to lift that end while those at the rear will tend to pull that end slightly downward.

For operating the drum shaft 22 a miter gear 31 is fixed on the shaft and meshes with a similar gear 32 fixed on the end of
105 an upwardly and rearwardly inclined shaft 33 supported near its forward end in a yoke 34. This yoke straddles the gears and is loosely supported on the shaft 22. On the rear end of the shaft 33 a hand wheel
110 35 is mounted and is adjacent an operator's seat 36 suitably supported in the frame 4 as shown in Fig. 2. By revolving the hand wheel motion is imparted to the drum shaft.

From the central rear portions of the
115 frames 1 and 4 brackets 37 project. Between these brackets a vertical rudder shaft 38 is mounted. This shaft carries a suitable vertical rudder plane 39. On the shaft 38 above the plane 39 a pulley 40 is secured.
120 An endless belt 41 passes about this pulley and also about a similar pulley 42 fixed on a vertical shaft 43 which is supported at its lower end in the yoke 34 while its upper
125 end is held in a bearing 44 suitably supported in the frame 1. Just above the yoke a bevel gear 45 is fixed on the shaft 43 and meshes with a similar gear 46 fixed on the forward end of a sleeve 47. The sleeve surrounds the shaft 33 and is supported in the
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lower end of a hanger 48 depending from the frame 1. At the rear end of the sleeve a steering wheel 49 is mounted adjacent the wheel 35. It is apparent that by rotating the steering wheel rotation is imparted to the rudder shaft and the rudder plane 39 swung as desired.

Supports 50 are extended forward from the front end of the frame 4 and between these supports a suitable elevator 51 is pivoted. This elevator has at one side a depending arm 52 which has connection by a link 53 with a controlling lever 54 as shown in Fig. 1. A suitable propeller 55 is mounted on the end of a shaft 56 and operates between the elevator and the frame 4. A suitable engine (not shown) may be mounted on the machine to drive this propeller.

What I claim, is:

1. In an aeroplane, a main plane, side planes depending from the main plane, wing planes at each end of the side planes movably mounted, movable curtain planes at each end of the main and side planes, and cooperative connections attached to the wing planes and the curtain planes.

2. In an aeroplane, the combination with rigidly mounted planes, of movable curtain planes, swinging wing planes, operating connections extending between the curtain planes, and operating connections extending between the wing planes in cooperative relation to the first named connections.

3. In an aeroplane, a frame, a main plane mounted on the frame, rigid top planes inclining upward and outward from the main frame, rigid side planes depending from the line of intersection of the main planes and the top planes and secured on the sides of the frame, movable curtain planes at each end of the frame, and swinging wing planes at each corner of the frame.

4. In an aeroplane, a frame, a main plane mounted on the frame, rigid top planes inclining upward and outward from the main frame, flange planes depending from the outer edges of the top planes, rigid side planes depending from the line of intersec-

tion of the main planes and the top planes and secured on the sides of the frame, movable curtain planes at each end of the frame, and swinging wing planes at each corner of the frame.

5. In an aeroplane, a frame having uprights at each end supporting a top plane, opposed guide members extending vertically adjacent the uprights of the frame and provided with inwardly extending horizontal portions located adjacent the underside of the top plane of the frame, and flexible curtain planes arranged between the guide members at each end of the frame and provided with projections engaging in said guide members.

6. In an aeroplane, a main plane, rigid planes associated with the main plane, vertically movable end curtains under the main plane, a pair of wing planes adjacent each curtain, each curtain being disposed intermediate its pair of wing planes, flexible connections extending from the curtains under the main plane, flexible connections extending from the wing planes, and a common operating device to which all of the connections are connected.

7. In an aeroplane, the combination with a frame, having upper and lower end members and planes, of retaining rods fixed at each end of the frame, movable curtain planes provided with transverse rods, the retaining rods extending vertically at lateral intervals between the upper and lower end members of the frame, outside of and adjacent the vertical portions of the curtain planes when the latter are in extended position, an operating device mounted on the frame, and connections between the curtain planes and the operating device.

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

BAXTER W. BLEWETT.

Witnesses:

D. MAYS,

E. K. BLEWETT.