

K. A. GEORGE.
FLYING MACHINE.

APPLICATION FILED FEB. 23, 1911.

1,012,540.

Patented Dec. 19, 1911.

4 SHEETS—SHEET 1.

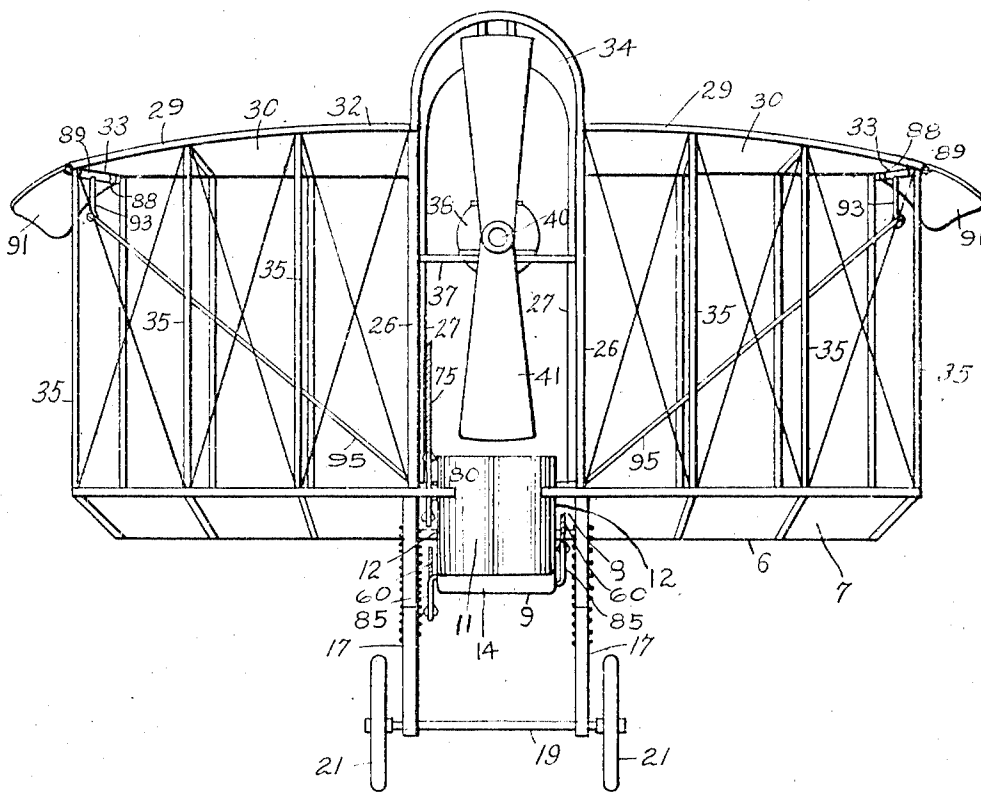


Fig. 1

Witnesses

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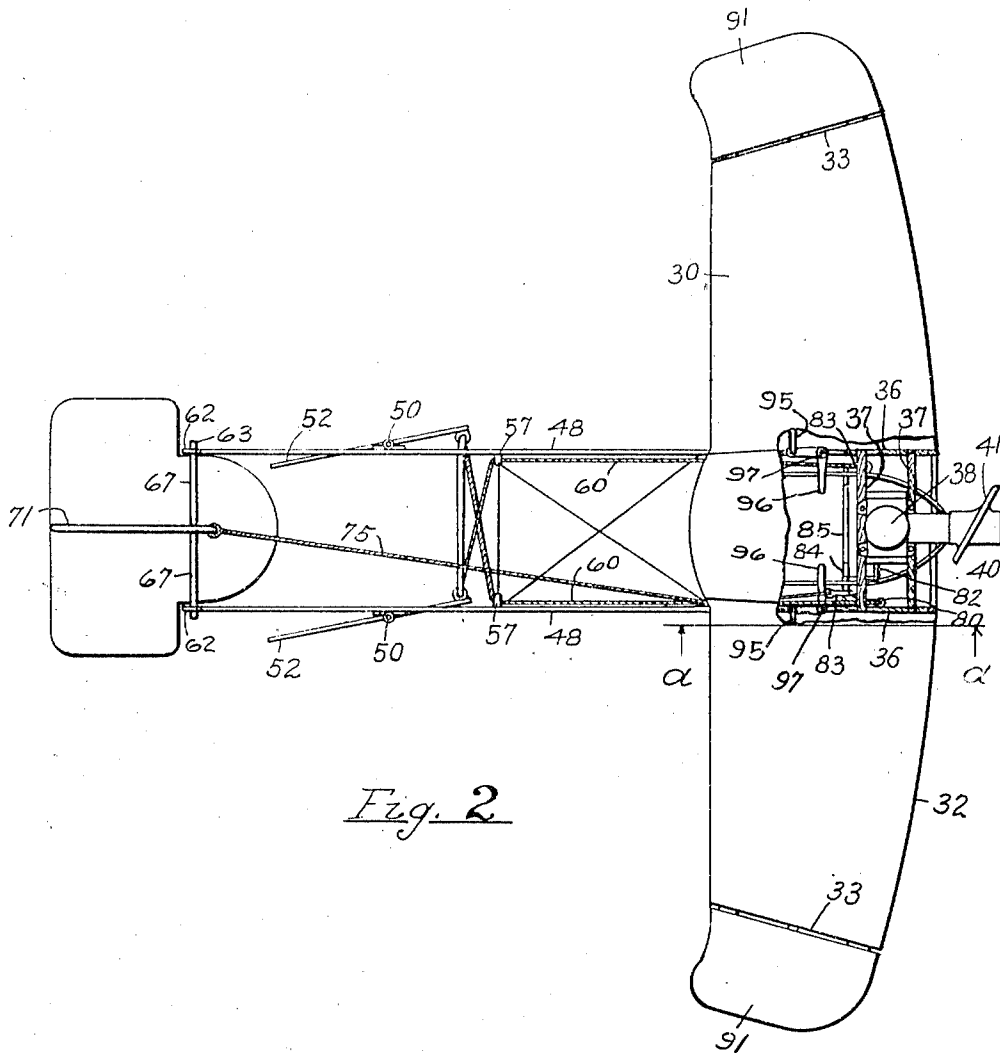


Fig. 2

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4 SHEETS—SHEET 3.

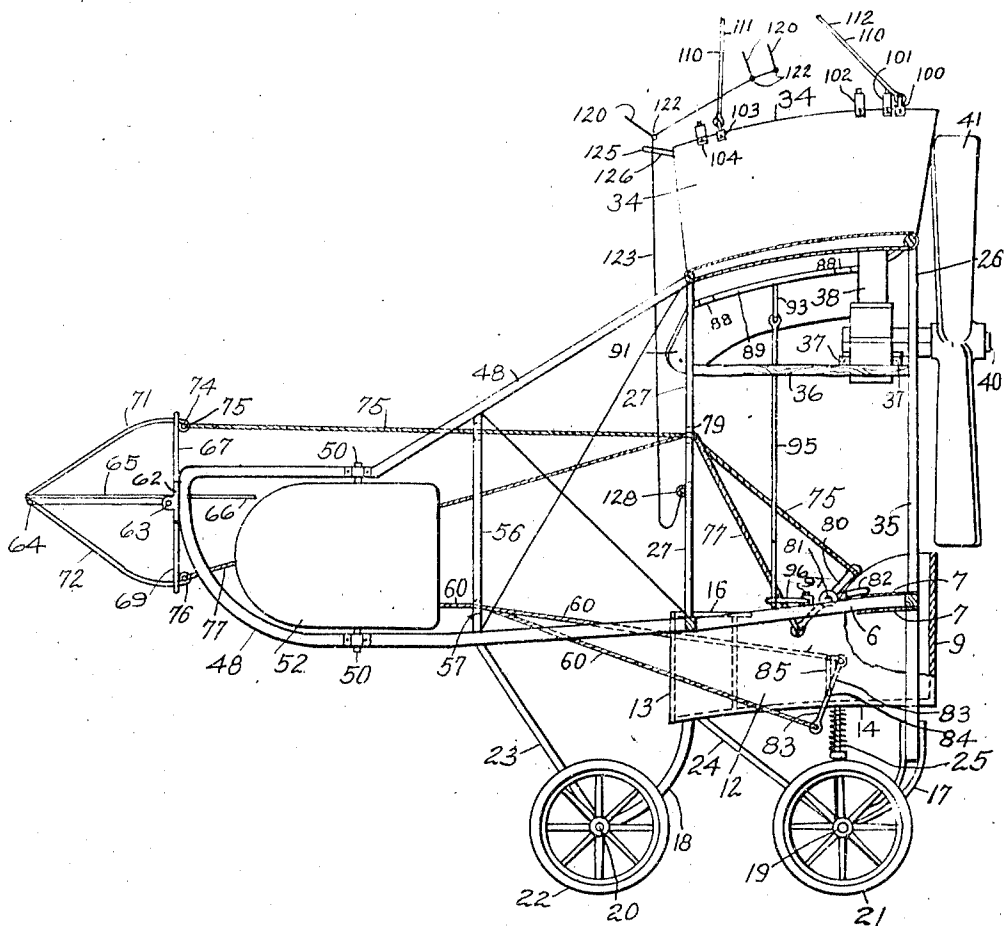


Fig. 3

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4 SHEETS-SHEET 4.

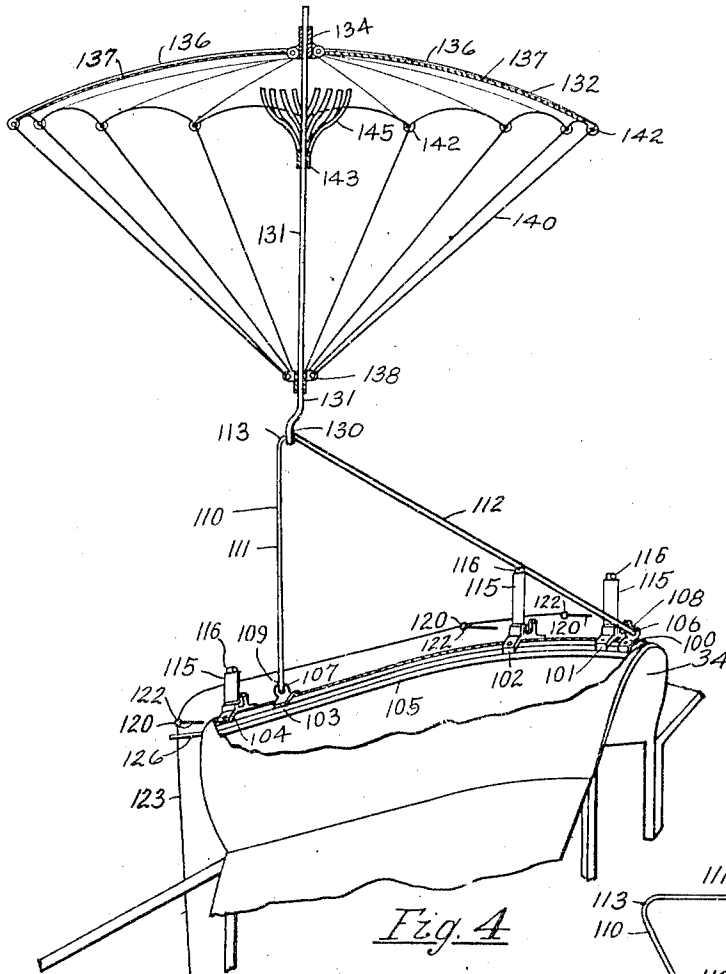


Fig. 4

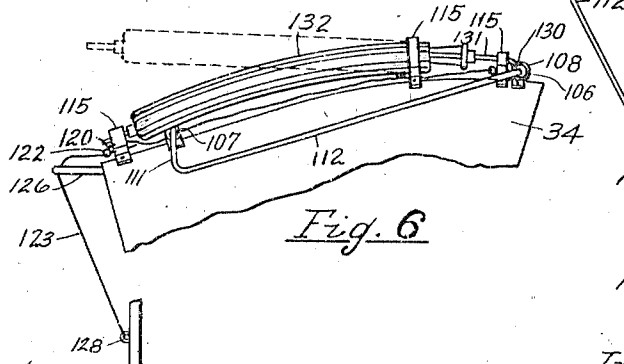


Fig. 6

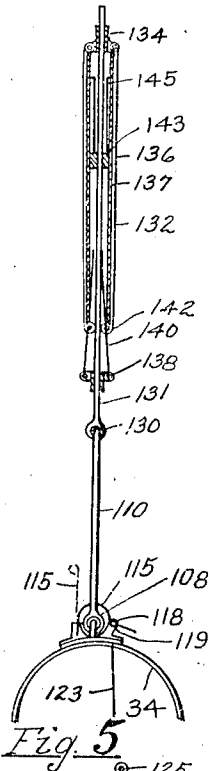


Fig. 5

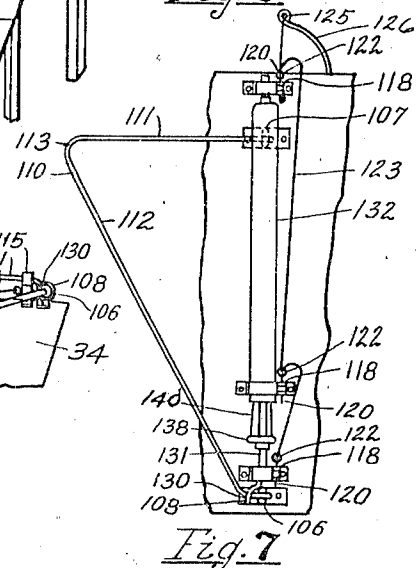


Fig. 7

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UNITED STATES PATENT OFFICE.

KIMBER A. GEORGE, OF NEW HAVEN, CONNECTICUT.

FLYING-MACHINE.

1,012,540.

Specification of Letters Patent.

Patented Dec. 19, 1911.

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To all whom it may concern:

Be it known that I, KIMBER A. GEORGE, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification.

My invention relates to that type of flying machines wherein the structure is supported by two planes, and provided with a mechanical propulsive means, and is controlled by the angle of incidence of certain of the planes.

The principal objects of my machine are to facilitate the suspension of the device; to improve the angle of incidence of the main planes; to utilize the atmosphere displaced by the propeller in sustaining the machine; to afford certain and easily operated balancing means; to provide an effective and easily controlled means for steering and elevating the device; and to provide automatic means for sustaining the disabled machine.

Other novel features will be hereinafter pointed out in the description of the device.

To the above ends essentially my invention consists in such novel parts, and combinations, and arrangement of parts as are set forth in and fall within the scope of the appended claims.

In the accompanying drawings wherein like reference characters indicate like parts throughout the views, Figures 1 and 2 are front and plan elevations respectively of my novel machine, a portion of the latter being shown broken away, Fig. 3, a side elevation of the same, partially in section on line *a a* of Fig. 2 Figs 4 and 5 a side view and a vertical central section respectively of my novel parachute mechanism in open and closed positions respectively. Fig. 6, a side elevation of the same in inoperative or normal position, and Fig. 7, a top plan view of the same.

In the drawings like reference characters indicate like parts throughout the views.

The framework of my device comprises, a lower horizontal frame 6 covered with a fabric 7 to form a lower plane, and having an open central portion 8 to admit a car 9 which is fixed in any convenient manner to the frame 6. The car 9 is open and of generally rectangular shape except that its forward wall 11 is of rounded or pointed contour and is higher than the side walls 12 and

the rear wall 13. The bottom 14 of the car is downwardly inclined toward its rear. In the rear end of this car is located a seat 16. Fixed to the front and rear of the frame 6 are respectively the usual hangers 17 and 18, carrying the axles 19 and 20 of the wheels 21 and 22 respectively, and supported by braces 23, and by the thrust rods 25. The framework also includes arched supports 26 and 27 located centrally upon the front and rear ends of the frame 6, whose upper ends form a portion of a second frame 29 covered with a fabric 30 to form an upper plane. This upper plane has an outwardly curved or arcuate forward edge 32, and rearwardly and inwardly directed side edges 33. This plane is inclined downwardly from its front to its rear margins and includes a longitudinally disposed arched portion or dome 34. The upper and lower frames are supported by posts 35. Tie rods 36 connect the upper portions of the arch supports 26 with the supports 27, and have fixed thereto transverse bars 37 which carry the motor or engine 38 to whose shaft 40 is fixed a propeller 41.

The framework is rearwardly extended in alinement with the supports 26, 27 and comprises side frames or arms 48, rigidly attached preferably to the supports 27. Upon vertical pintles 50 in the arms 48 are rotatably mounted, intermediate their lengths, forward of their centers, rudders 52 connected at their forward ends by a rod 55. Vertical rods 56 in front of the rudders and forming parts of the frames 48 are provided with eyes 57 through which pass the two operating cords 60 each attached to the forward portions of a rudder and extending thence to the eye upon the opposite side of the frame 48 whereby the operating cords are crossed and the control of the rudders is facilitated.

In bearings 62 in the rear ends of the arms 48 is rotatably mounted a rod 63 forming the front part of a frame 64 covered with a fabric 65 to constitute a pivoted elevating plane. The intermediate forward portion of this plane is forwardly extended as at 66. Upon the forward margin of the frame 64 are interspaced upwardly converging arms 67, and downwardly converging arms 69. From the rear of the frame 64 extends a brace or arm 71, meeting at the apex of the arms 67; while a similar brace or arm 72 connects the rear of the frame 64 with the

intersecting portion of the arms 69. In an eye 74 located at the intersection of the arms 67 and 71 is fixed the end of a cord or wire 75. A similar eye 76 fixed to the intersecting portions of the arms 69 and 73 has affixed thereto the end of a wire 77. The cords 75 and 77 pass through a guide eye 79 in the support 27 and are attached to the opposite ends of an arm 80 pivotally mounted upon a stud 81 in the wall of the car, which arm is rotated by a crank handle 82 fixed to an intermediate portion of the arm 80.

The rudder cords 60 have their ends attached to oppositely disposed arms 83 upon the ends of a shaft 84 pivotally mounted in the side walls of the car. A foot plate 85 is fixed upon an intermediate portion of the shaft 84 within reach of the foot of the operator.

Pivotally mounted by hinges 88 upon rods 89 constituting the ends of the upper plane 29 are balancing or gliding wings 91. Upon each hinge or sleeve 88 is an arm 93 to whose end is fixed a wire or rod 95 attached to a handle 96 pivotally mounted upon a post 97 in the car. The wings 91 are of greater breadth at their rear than in front, and curve downwardly toward their back edges.

In conjunction with my machine is an automatically operative safety device shown in detail in Figs. 4 to 7 inclusive. The device may be attached to the framework in any convenient manner. In the form thereof herein shown curved bases 100, 101, 102, 103 and 104 are fixed by rivets or otherwise to two of the longitudinally disposed rods 105 constituting a part of the framework of the machine located in the portion 34 of the upper plane. The bases 100 and 103 are provided respectively with eyes 106 and 107 engaging eyes 108 and 109 in the opposite ends of an angular rod 110 bent in the form of an acute angle comprising a short portion 111 a long portion 112 and an acute bent portion 113. Riveted or otherwise fixed at their lower ends to each of the bases 101, 102, and 104 is a metallic or resilient strap 115 provided upon its outer end with a loop 116. Each of the three last mentioned bases has near one end parallel upright ears 118 provided with perforations 119 adapted to receive slidable pins 120 which pass loosely through the strap loops 116 located between the ears. Upon the outer end of each pin is an eye 122 fixed to a continuous cord 123 which is slack between each of the three pins and passes through an eye 125 upon a rearwardly directed rod 126 fixed to the rear edge of the frame, and hence downwardly and is fastened to an eye 128 upon one of the rods 27 within reach of the operator.

Loose on the angular member is the eye 130 upon the end of a flexible rod or strip 131 of a parachute 132. The parachute may

be of any usual preferred construction. In the form thereof herein shown it comprises the usual collar 134 fixed near the outer end of the rod to which collar are pivotally connected the radial ribs 136 to which is fixed the flexible cover 137. Mounted upon the stick 131 is the collar 138 to which are attached the cords 140 which engage the ends 142 of the ribs. Fixed to the stick 131 in any convenient manner is a ring 143 having integral therewith or attached thereto a series of radially arranged outwardly inclined curved leaf springs 145 adapted, when the parachute is closed, to be compressed by the ribs 136. In normal or closed position the parachute and its connected parts are positioned as shown in full lines in Figs. 6 and 7. That is to say, the angle arm 110 rests substantially horizontally upon the dome portion of the upper plane, and the eye 130 is positioned upon the forward portion of the angle arm adjacent the eye 106. The collapsed or folded body and the stick of the parachute rest upon the bases 101, 102, and 104 and are embraced by the resilient clasps 115. In the present instance the dome portion being curved and inclined the somewhat resilient character of the parachute stick is advantageous as it permits the parachute when in lashed position to conform to the location of the bases. But it will be understood that neither an inclination nor a curvature of the upper plane is essential to the operation of my device.

In case of emergency the safety device is operated as follows. The operator pulls the cord 123 thus withdrawing the three pins 120 and releasing the bands 115. Because of the slack of the cord between the pins it will be observed that the pins 120 are withdrawn in succession from rear to front of the plane. Thus the outer end of the parachute is first released and assumes the position shown in broken lines in Fig. 6, and immediately afterward the remaining bands 115 are released, and thereupon the action of the springs 145 upon the ribs 136 distends the cover or housing 137 somewhat subjecting the latter to the impact of the air due to the advance of the machine whereby the parachute is fully distended, and the ring or eye 130 is forced up along the inclined portion 112 of the angular arm 110 into the bend 113. The last described movement serves to elevate the member 110, and as the machine descends the parachute and the auxiliary parts assume the positions shown in Fig. 4, thus preventing dangerous speed in the descent of the disabled machine.

The general operation of the machine is as follows. The rearward and downward inclination of the upper plane relatively to the lower plane insures an increased support from the air as the machine advances. By virtue of the dome or chute portion 34

of the upper plane the air set in motion by the propeller blades 41 is forced or directed through the former and this movement of the air affords an auxiliary power for sustaining the machine, and this centrally directed air current also assists in balancing the machine. The machine is balanced further by elevating or lowering the wings 91 through the rods 95.

10 The rudders 52 are controlled by the operator's feet acting upon the pivoted plate 85. These rudders by virtue of the rod 55 operate in unison; and, because their pivotal points are somewhat in front of their centers, they are balanced to be most effectively controlled and operated.

20 The elevating plane 65 is operated through the cords 75 and 77 by means of the crank handle 82 fixed to the arm 80. By virtue of the extended portion 66 of the elevating plane a more perfect control of the last mentioned plane is assured.

What I claim is,—

25 1. In a flying machine, the combination with a frame, of two planes mounted in the frame one above the other, the upper plane formed with an outwardly curved forward edge and rearwardly and inwardly directed side edges, said plane being inclined downwardly from its front to its rear, and gliding wings on the upper plane curved downwardly toward their back edges.

30 2. In a flying machine, the combination with a frame, of two planes mounted in the frame one above the other, the upper plane formed with an outwardly curved forward edge and rearwardly and inwardly directed side edges, said plane being inclined downwardly from its front to its rear and having a longitudinally disposed arched portion inclined downwardly toward the rear, and gliding wings on the upper plane curved downwardly toward their back edges.

45 3. In a flying machine, the combination with a frame, of two planes mounted in the frame one above the other, the upper plane formed with an outwardly curved forward edge and rearwardly and inwardly directed side edges, said plane being inclined downwardly from its front to its rear and having a longitudinally disposed arched portion inclined downwardly toward the rear, gliding wings on the upper plane curved downwardly toward their back edges, and a propeller mounted in the frame forwardly of said arched portion and in proximity thereto.

60 4. In a flying machine, the combination with a frame, of two planes mounted in the frame one above the other, the upper plane formed with an outwardly curved forward edge and rearwardly and inwardly directed side edges, said plane being inclined downwardly from its front to its rear and having a longitudinally disposed arched portion in-

clined downwardly toward the rear, a propeller mounted in the frame forwardly of said arched portion and in proximity thereto, and gliding wings pivotally mounted at the ends of the upper plane and curved downwardly toward their back edges. 70

5. In a flying machine, the combination with a frame, of two planes mounted in the frame one above the other, the upper plane formed with an outwardly curved forward 75 edge and rearwardly and inwardly directed side edges, said plane being inclined downwardly from its front to its rear and having a longitudinally disposed arched portion inclined downwardly toward the rear, a propeller mounted in the frame forwardly of said arched portion and in proximity thereto, and gliding wings pivotally mounted at the ends of the upper plane, said wings being of greater breadth at their rear ends, 80 said wings being curved downwardly toward their back edges. 85

6. In a flying machine, the combination with the frame, of two transversely disposed main planes mounted one above the other in the forward portion of the frame, the upper plane having an arch portion longitudinally disposed and inclined downwardly toward the rear to receive the air currents to assist in balancing the machine, 90 two vertical rudders pivotally mounted side by side in the rear portion of the frame, a rod connecting the rudders, means for operating the rudders, a horizontally disposed elevating plane pivotally mounted in the frames in the rear of the rudders, upwardly and downwardly extending arms upon the horizontal plane, and operating cords attached to the ends of the arms. 95 100

7. In a flying machine, the combination 105 with the frame, of two transversely disposed main planes mounted one above the other in the forward portion of the frame, the upper plane having an arch portion longitudinally disposed and inclined downwardly toward 110 the rear to receive the air currents to assist in balancing the machine, two vertical rudders pivotally mounted side by side in the rear portion of the frame, a rod connecting the rudders, means for operating the rudders, a horizontally disposed elevating plane pivotally mounted in the frame in the rear of the rudders and extending between the rudders, upwardly and downwardly extending arms upon the horizontal plane, a car 115 mounted in the forward portion of the frame, a stud in the car, an arm pivotally mounted upon the stud, and cords connecting the ends of the last mentioned arm with the ends of the arms upon the horizontal 120 plane. 125

8. In a flying machine, the combination with a frame and a plane having a downwardly and rearwardly inclined arch portion and an angle arm extending in the di- 130

resection of the length of said arch portion for connecting said plane to a parachute.

9. In a flying machine, a frame, an upper plane having a downwardly inclined arch portion and means on said arch portion for the connection of a parachute, said means being of angular form disposed lengthwise of said arch portion and constructed to allow the parachute to automatically adjust its position relative to the angle assumed by said plane.

10. In a flying machine, the combination with the frame and a plane carried thereby, of an arm carried by said plane bent in the form of an acute angle and foldably mounted on said plane.

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

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Witnesses:

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