S. C. ANKER-HOLTH.

FLYING MACHINE.

APPLICATION FILED OCT. 30, 1909.

1,011,143.

Patented Dec. 12, 1911.

3 SHEETS—SHEET 1.

Fig. 1.

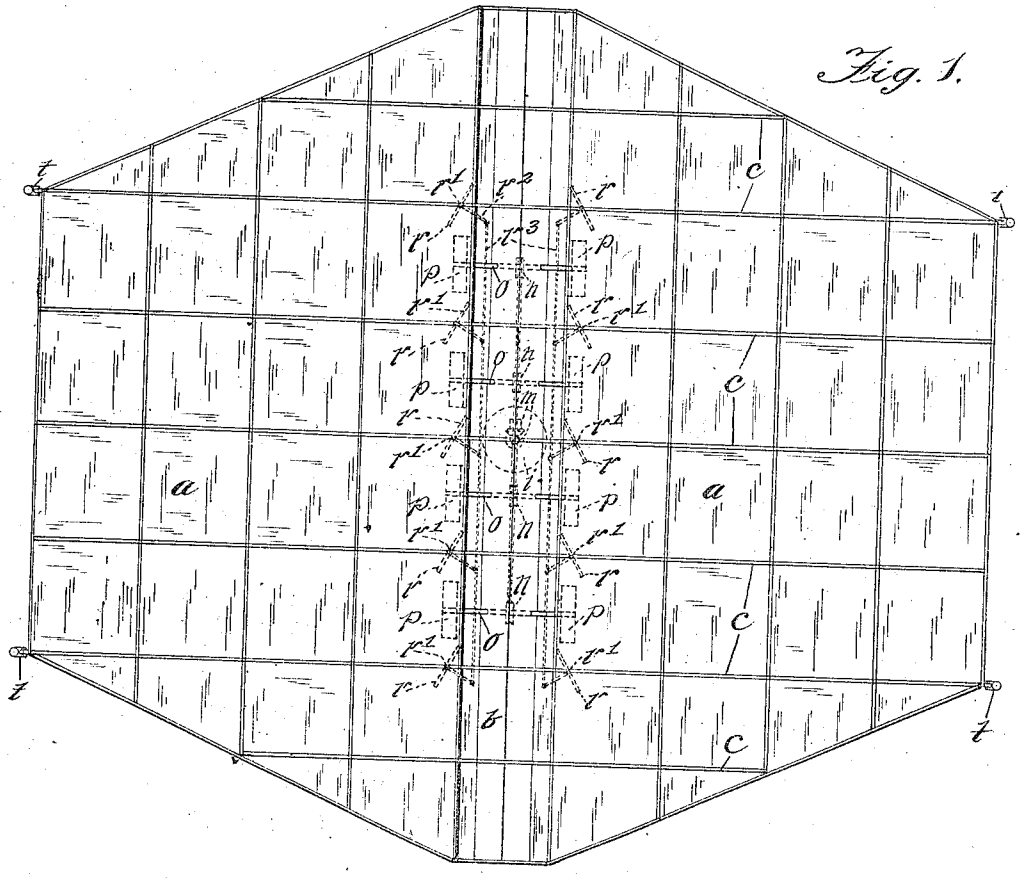
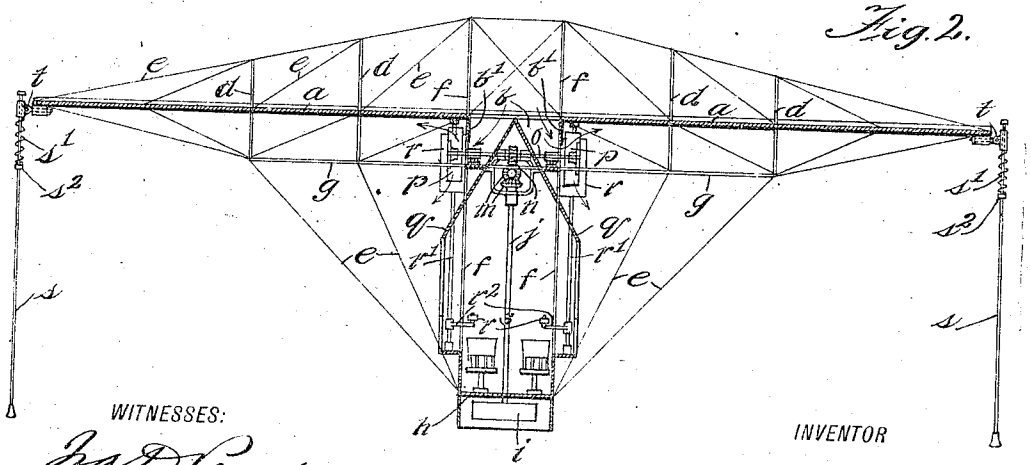


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

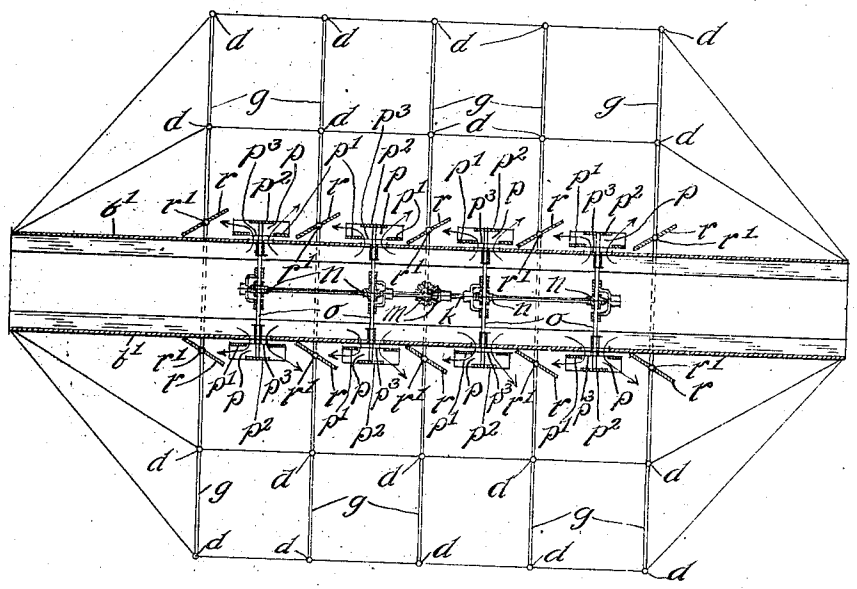
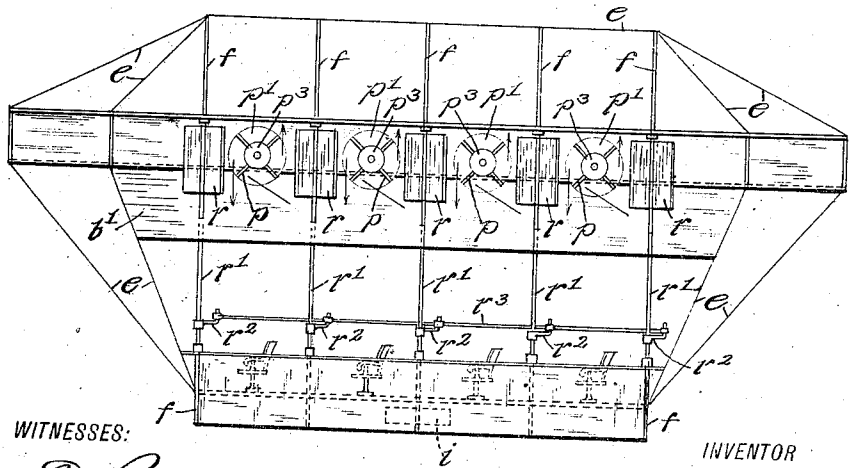


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

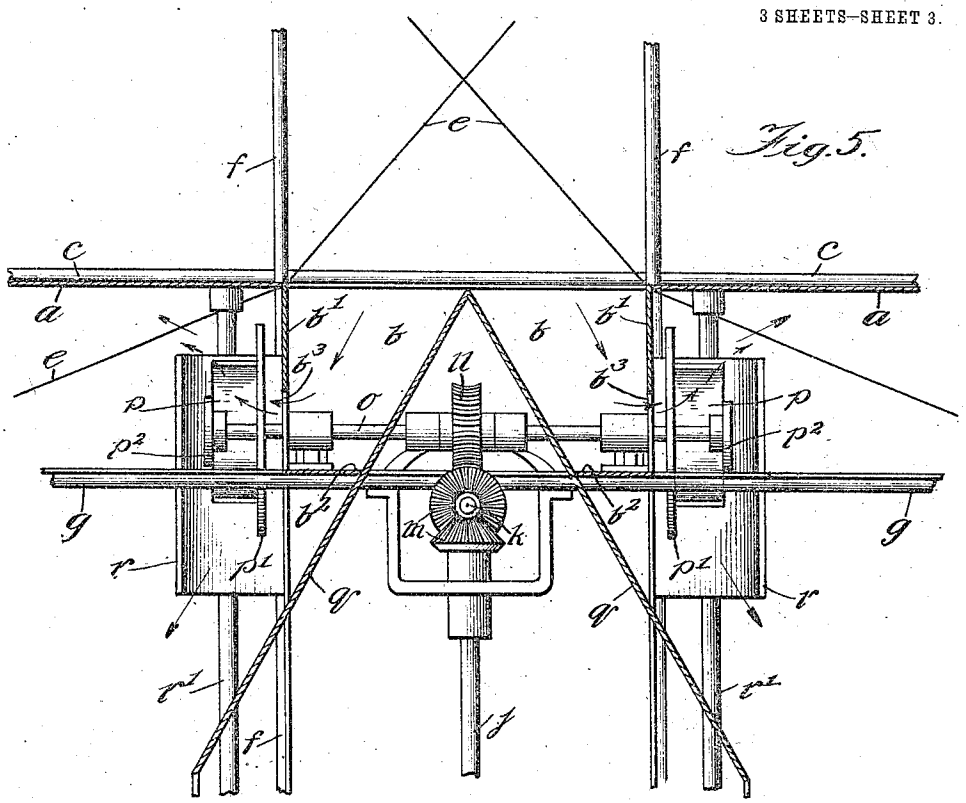
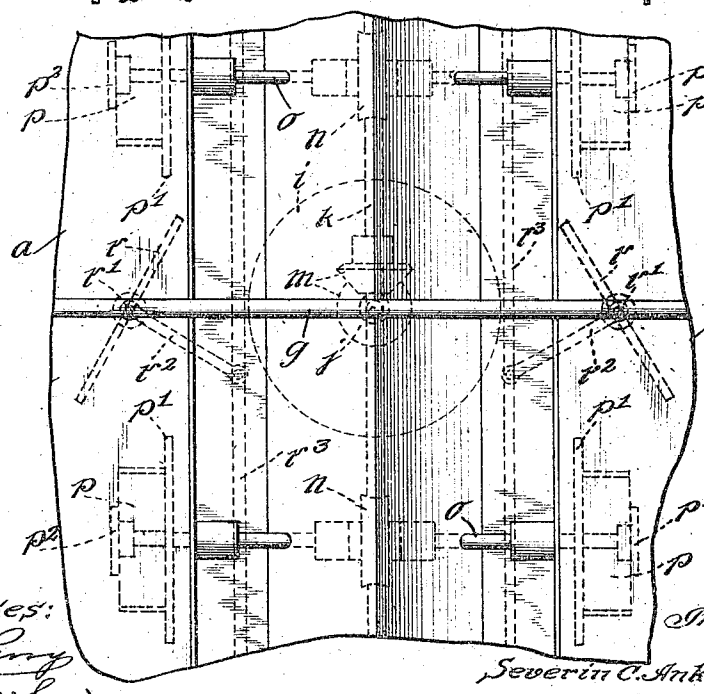


Fig. 6.



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UNITED STATES PATENT OFFICE.

SEVERIN C. ANKER-HOLTH, OF RIVERSIDE, ILLINOIS.

FLYING-MACHINE.

1,011,143. Specification of Letters Patent. Patented Dec. 12, 1911.

Application filed October 30, 1909. Serial No. 525,493.

To all whom it may concern:

Be it known that I, SEVERIN C. ANKER-HOLTH, a citizen of the United States, residing at Riverside, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Flying-Machines, of which the following is a specification.

My invention relates to flying machines or aeroplanes and the objects of the invention are; first, to provide a simple, economical and efficient machine capable of being steered in any direction and capable of having its direction of flight reversed so that it may move either forward or backward, as desired by the operator; second, to provide a machine capable of rising substantially vertically in the air from a condition of rest; third, to provide a construction such that in case the motor should for any reason stop working, the descent will be gradual and not exceed the limit of safety; and, fourth, to provide suitable means for holding the machine upright when at rest. I obtain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the complete machine. Fig. 2 is a sectional elevation thereof taken transversely of the machine. Fig. 3 is a plan section taken just beneath the horizontal wings or planes. Fig. 4 is a side elevation of the machine. Fig. 5 is a sectional elevation showing, upon an increased scale, the parts shown at the central portion of Fig. 2, and Fig. 6 is a plan of the parts shown in Fig. 5.

Similar letters refer to similar parts throughout the several views.

In the preferred form, here shown, my machine comprises two fixed, horizontal wings a, a having a longitudinal depression or channel b arranged between them and extending from front to rear of the machine. This channel is formed by the parallel vertical walls b' connected at the bottom by the floor b^2, as best shown in Fig. 5. The walls b' have lateral openings b^3 through which air is forced outward in the manner hereinafter described. The wings, a, walls b' and floor b^2 are formed preferably of canvas or other fabric and are held rigidly in position by a suitable frame-work. This frame-work may be varied but an appropriate form is here shown, and consists of transverse and longitudinal ribs c which overlie the fabric of the wings, and vertical struts d connected to them and appropriate braces e. These together with the masts f which extend above and below the wings and the horizontal braces g constitute a frame-work or truss which hold the parts rigidly in position.

The masts f extend downward a considerable distance from the wings a and support at their lower extremities a car body h of any suitable design for carrying passengers and freight and supporting the motor i. The axis of revolution of the motor is preferably vertical, as a result of which it has a gyroscopic action and assists in maintaining the equilibrium of the machine. Said motor is connected to the drive-shaft j which extends upward to a horizontal counter-shaft k to which it is connected by appropriate gearing m. Shaft k extends longitudinally and is connected by means of gearing n to the propeller shafts o which extend transversely through the channel b at suitable distances apart and drive the fan blades or propellers p. Said propellers are located at the lateral openings b^3 in the channel b and are provided with disks p', p^2. Said disks are concentric with the shafts o, the inner disk p' being located at the inner edge of the propeller blades and having a central aperture p^3, as best shown in Figs. 3 and 4. The outer disks p^2 are of smaller diameter than the propellers and hence when the propellers are rotated air will be drawn in through the aperture p^3 in the inner disks p' and will be forced diametrically toward and around the outer edge of the disks p^2. This causes the passage of a current of air downward from the top of the channel and then outward through the opening b^3, thence through the propellers p, from which point the air will be forced in a current moving radially outward from the shafts o and simultaneously toward the edges of the machine.

An inverted V shaped partition q is arranged longitudinally in the machine, the apex projecting upward through the floor b^2 and overlying and protecting the shaft k and gearing m, n. By preference the partition q extends downward to a point beneath the propellers p incidentally forming a roof to protect the contents of the car body.

Between the propellers p are blades r secured to vertical controlling shafts r' pro-

vided with levers r^2 connected by rods r^3, the parts being so constructed and arranged that all the blades on one side of the machine can be controlled by a single controlling rod. The blades r are located in such position with reference to the propellers p and vertical walls b' as to not only steer the machine but also to form pockets between themselves and the walls b' and thus confine the air coming from the propellers and cause the machine to move in a horizontal direction, as hereinafter described. Props or legs s are pivotally supported at the outer corners of the wings, said lugs being upwardly yieldable against springs s'. Said springs are interposed between collars s^2 on said legs and sleeves t which are pivoted to the wings. These legs serve to support the machine in upright position when at rest upon the ground.

In operation, when the motor is set in motion the rotation of the propellers causes the air to be sucked downward through the channel b and outward through the opening b^3 and thence both laterally through and radially from the propellers. The suction decreases the atmospheric pressure above the wings and increases it beneath the wings, the result being to cause the machine to rise in a vertical direction. Equilibrium is assured by reason of the fact that the center of gravity of the machine is considerably lower than the plane of the wings.

The direction in which the machine will travel depends upon the position of the blades r. When said blades are set in the position shown in Fig. 3 the machine will move toward the left, for the air coming from the propellers will be confined between said blades and the walls b'. The direction of travel may be reversed by reversing the blades so that the pockets will be formed at the right of the propellers instead of at the left of them, the latter position being shown in Fig. 3. By placing the blades parallel with the walls b' the machine will have no progressive movement but will rise vertically upward. By reversing only one set of the blades r, the machine may be made to turn to the right or to the left. It will thus be seen that the machine is under complete control by means of the motor h and blades r without the use of movable wings, rudders or the like, and the direction of travel may be changed without touching the motor or any of its connections. As the center of gravity is far below the plane of the wings the machine will at all times remain upright, and by properly proportioning the area of the wings to the weight of the machine the motor may be stopped in mid air and the machine permitted to descend without exceeding a rate of speed well within the limits of safety.

While I prefer to construct the propellers with flat blades, and disks as shown, other constructions may be substituted so long as the air currents are caused to flow substantially in the direction indicated.

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

1. In a flying machine the combination of fixed horizontal wings arranged in the same plane and located a slight distance apart, an inverted V shaped partition having its apex arranged substantially mid way between the proximate edges of said wings and propellers located beneath said wings and above said partition, said propellers being adapted to draw the air downwardly from the space between the wings and the partition and adapted to force the air thence radially and laterally outward toward the lateral edges of the wings.

2. In a flying machine the combination of wings arranged substantially in the same horizontal plane, a pair of blades located on opposite sides of the longitudinal median line of the machine, said blades being rotatable upon vertical axes and a propeller arranged adjacent to each of said blades and adapted to force air in a horizontal direction toward them.

3. In combination an aeroplane, vertical walls extending longitudinally of the machine, air propellers on the opposite sides of said walls adapted to force air in a direction parallel to said walls, and blades located adjacent to said walls and adjacent to said propellers, said blades being rotatable about vertical axes for the purpose described.

4. In combination an aeroplane having parallel vertical walls extending longitudinally of the machine, air propellers located on the outer sides of said walls and adapted to rotate about horizontal axes transverse to said walls and adapted to force air in a direction parallel to said walls and blades adjacent to each of said propellers, one ahead and one behind, said blades being adjacent to said walls and adapted to rotate about vertical axes for the purpose described.

5. In combination an aeroplane having parallel vertical walls extending longitudinally of the machine, air propellers located on the outer sides of said walls and adapted to rotate about horizontal axes transverse to said walls and adapted to force air in a direction parallel to said walls, and blades adjacent to each of said propellers one ahead and one behind, said blades being adjacent to said walls and adapted to rotate about vertical axes, and means for simultaneously controlling all of the blades on the same side of said walls, for the purpose described.

6. In combination fixed horizontal wings having a longitudinal channel arranged between and beneath them, said channel having a floor and side walls with lateral open-

ings in them, an inverted V shaped longitudinal partition whose apex enters said channel, rotatable air-propelling blades located adjacent to said openings and beneath said wings, transverse horizontal shafts for rotating said blades, a motor beneath said shafts and connections between said shafts and said motor.

7. In combination, fixed horizontal wings having a longitudinal channel arranged between and beneath them, said channel having a floor and side walls with lateral openings in them, an inverted V shaped longitudinal partition whose apex enters said channel, rotatable air-propelling blades located adjacent to said openings and beneath said wings, transverse horizontal shafts for rotating said blades, vertical disks at the edges of said propeller blades, concentric therewith, the inner disk being centrally apertured and the outer disk being of smaller diameter than the inner disk and means located chiefly beneath said shafts for driving them.

8. In a flying machine, the combination with the car and motor, of a longitudinal channel above said car, said channel having openings in the side walls thereof, wings extending laterally outward from the upper edges of said channel, propellers driven by said motor, and located under said wings adjacent to the openings in the side walls of said channel, rotatable vertical rods, blades mounted upon said rods between the propellers, and levers adapted to rotate said rods for steering the machine.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

SEVERIN C. ANKER-HOLTH.

Witnesses:
HOWARD M. COX,
MARGARET D. ROBB.