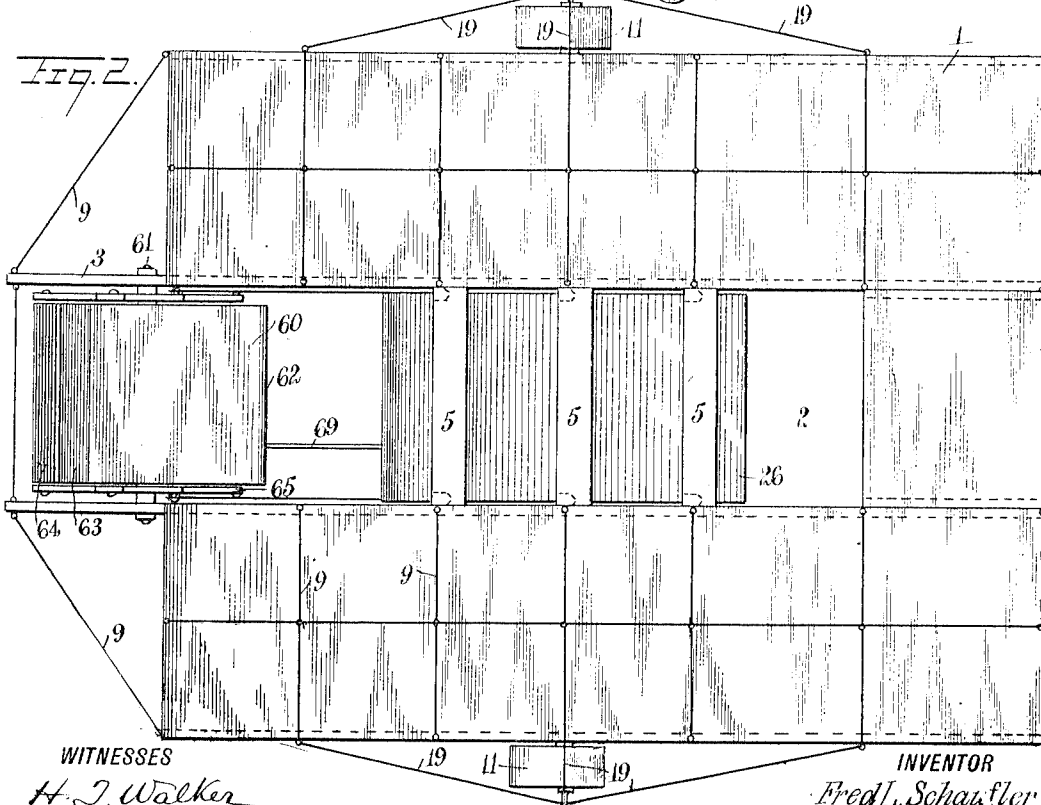
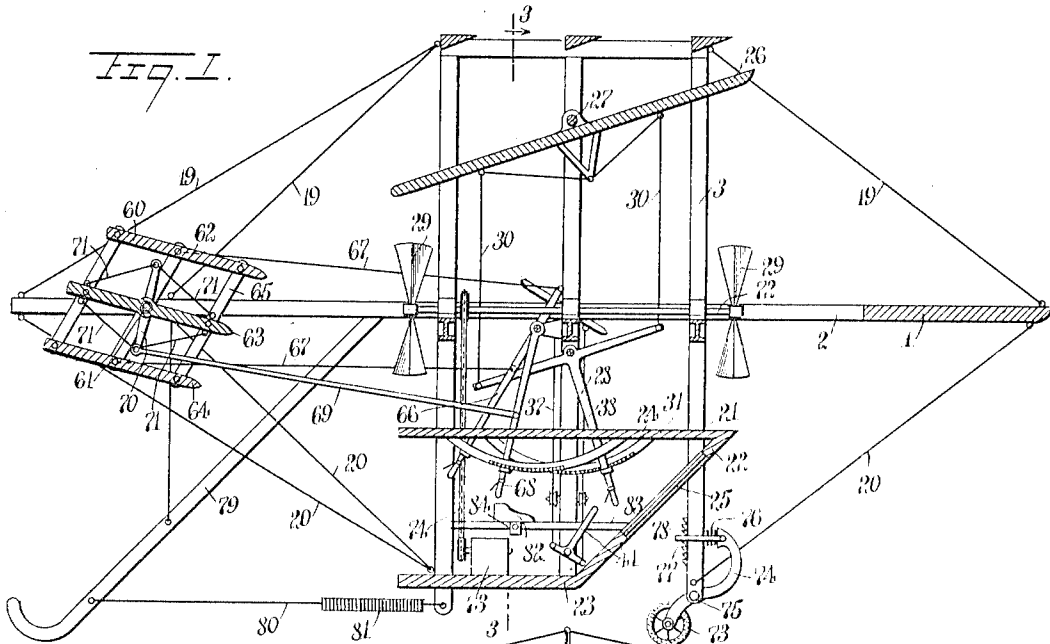


F. L. SCHAUFLEK.
FLYING MACHINE.
APPLICATION FILED NOV. 15, 1910.

1,064,015.

Patented June 10, 1913.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

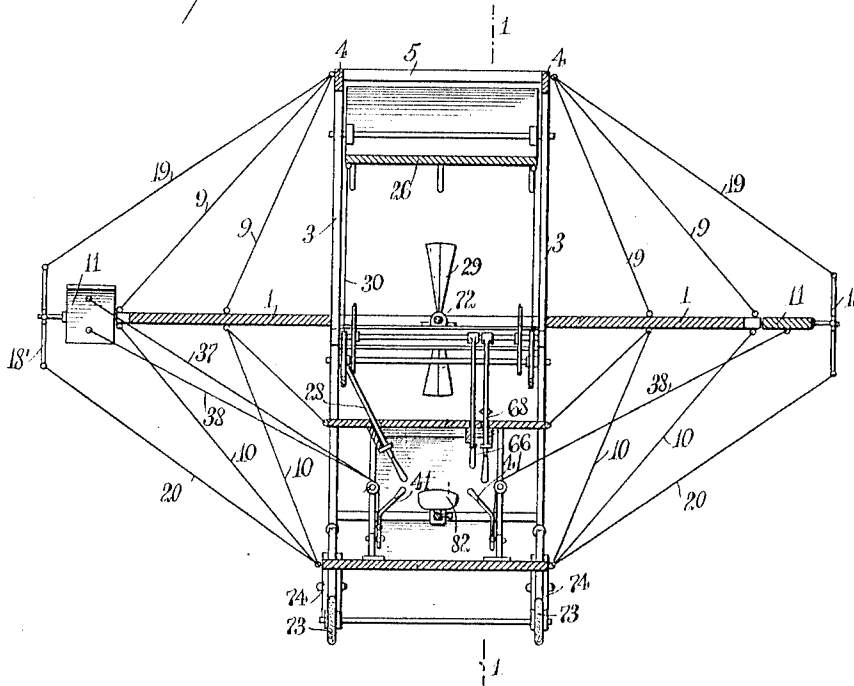


Fig. 4.

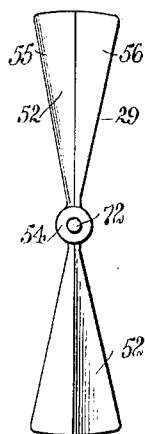


Fig. 5.

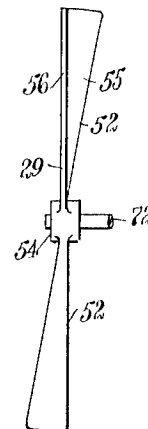
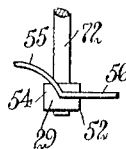


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FLYING-MACHINE.

1,064,015.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed November 15, 1910. Serial No. 592,425.

To all whom it may concern:

Be it known that I, FRED L. SCHAUFLE, a citizen of the United States, and a resident of Mattoon, in the county of Coles and State of Illinois, have invented a new and Improved Flying-Machine, of which the following is a full, clear, and exact description.

This invention relates to a new and improved flying machine of the heavier-than-air or aeroplane type.

An object of this invention is to provide a flying machine which will be simple in construction, inexpensive to manufacture, strong, durable, light in weight, easily controlled and properly balanced.

A further object of this invention is to provide a flying machine supported by wheels which are resiliently and adjustably connected to the frame thereof, so as to lessen the shock, in riding over the ground and descending from the air onto the ground.

A further object of this invention is to provide a flying machine with a plurality of planes so disposed with relation to each other as to form an inclosed cabin, in which the operating machinery may be located, and wherein the aviator may be protected from the sharp air through which the machine is rushing.

A further object of this invention is to provide a flying machine with a main supporting plane having a central opening, whereby it is formed somewhat U-shaped, with elevating planes within said opening, and with a rudder, also located to the rear of said main supporting plane, within said opening.

A still further object of this invention is to provide a plurality of equilibrium and steering planes, whereby the direction of the flying machine may be controlled, and its equilibrium maintained.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the 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, and in which—

Figure 1 is a vertical section on the line 1—1 of Fig. 3; Fig. 2 is a top plan view;

Fig. 3 is a vertical section on the line 3—3 of Fig. 1; Fig. 4 is a rear end view of the peculiar type of propeller used on my machine; Fig. 5 is a side view of the propeller shown in Fig. 4; and Fig. 6 is a top or end view of the propeller shown in Figs. 4 and 5.

Referring more particularly to the separate parts of the device, 1 indicates a main supporting plane, which may be either curved or flat, and which, as will be seen by reference to Fig. 2, is preferably provided with a considerable opening, so that the plane has a U-shaped form. This main supporting plane is supported on any suitable type of frame 3, which is shown as formed of a plurality of vertical bars connected by longitudinal bars 4 and transverse beams 5. As will be seen by reference to Fig. 1, these transverse beams have a triangular cross section, with the hypotenuse of the triangle disposed at the lower front and sloping from the front downwardly toward the rear, so as to form these transverse beams 5 in a wedge form, which will readily cut the wind, and at the same time add to the supporting surface of the flying machine as a whole. The main plane 1 may be braced to the frame in any suitable manner, as by means of guy wires 9 and 10.

For the purpose of maintaining the equilibrium of the flying machine, and also to enable the aviator to steer the machine to the right or to the left, there are provided on each side of the machine what may be termed equilibrium planes 11. These planes are mounted so as to swing about horizontal pivots, and are supported at their outer sides by means of bars 18 and 18', which are braced to the frame in any suitable manner, as by means of guy wires 19 and 20.

Besides the main supporting plane 1, there are provided additional planes 21, 22 and 23. The planes 21 and 23 may be disposed parallel to each other, and the plane 22 may be disposed at an inclination to both of the planes 21 and 23, so as to form a surface which will aid in enabling the machine to rise from the ground, and which will also form a front for a cabin 24, formed by the planes 21, 22 and 23. This cabin is not only adapted to an aeroplane, but also to any other type of flying machine. The plane 23 is preferably provided with a transparent portion 25, through which the operator may look and observe the course over

which he is traveling. This cabin may also be of any other suitable form.

For the purpose of providing a positive variable means for varying the level of the flying machine as a whole, when traveling through the air, there is provided an elevating plane 26, which is preferably beveled at its forward end, so as to readily cut the wind, and is pivotally mounted on the framework, as at 27. This plane may be operated by the aviator from within the cabin 24, by means of a lever 28, which is operatively connected to the plane 26 in any suitable manner, as by means of flexible connections 30. This lever 28 may be secured in any adjusted position, as by having a snap catch, which engages a sector rack 31.

The operating means for the equilibrium planes 31 may be also located within the cabin 24, and in this case is shown in the form of a pair of levers 41 pivotally mounted in any suitable manner on the frame. These levers are in the form of double bell crank levers, and have their two short arms extending from opposite sides of the pivot points of the levers connected by suitable flexible connections 37 and 38, to the equilibrium planes 11, on opposite sides of their pivot point. It will thus be seen that by swinging either of the levers 41, one of the planes 11 will have its front end swung up or down, according to the direction of motion of the lever 41. The up and down motion of the flying machine as a whole, and its longitudinal equilibrium may be controlled by a rudder 60, which is pivotally mounted by means of a shaft 61 on the frame at the rear of the opening 2. This rudder is of peculiar form, and consists of a plurality of parallel planes 62, 63 and 64, pivotally connected together by a plurality of parallel links 65.

When it is desired to vary the horizontal projection of the supporting surface of this rudder, a lever 66, which extends into the cabin 24, is manipulated so as to swing the planes 62 and 64 by means of flexible connections 67, so that they will project a greater or less extent beyond the intermediate plane 63; that is to say, if the lower end of the lever 66 is swung to the left in Fig. 1, the plane 62 will be swung to the right, and the plane 64 will be swung to the left with respect to the plane 63, so that the horizontal projection of the supporting surface of this rudder will be extended longitudinally an extent corresponding to the extent to which the lever 66 is moved. If it is desired to manipulate the rudder 60 so as to direct the flying machine as a whole up or down to aid or vary the action of the elevating plane 26, the rudder may be swung, as a whole, about the pivot 61 without changing the relative position of the

planes 62, 63 and 64, by manipulating a lever 68, which also projects into the cabin 24 and is connected to the rudder 60 by means of a link 69 and an arm 70. This arm 70 may be connected to the rest of the rudder by means of a suitable flexible connection 71.

For the purpose of driving the machine, and thus affording propelling means, there are provided a plurality of propellers 29, one located at the front of the machine, and the other adjacent the rear. These propellers are mounted on a shaft 72, which is driven from a suitable motor 73 by any suitable means, such as a chain-and-sprocket connection 74. While the propellers 29 may be of any suitable structure, it is preferable that they be formed in the manner shown in Figs. 4 to 6. It will be seen by reference to these figures that these propellers consist of a pair of diametrically-opposed blades 52, secured to a hub 54. Each of these blades is formed of an active portion 55 and an inactive portion 56; that is to say, the portion 55 is somewhat curved and disposed at an angle to the shaft 72, so that it will exert a kick or thrust on the air, and thus propel the machine through the air. The portion 56, however is disposed in a plane perpendicular to the shaft 72 and the hub 54, so that it will tend to rotate in the same plane, and will not increase the resistance of the propeller, but will add to the stability of the machine.

The flying machine is supported on a plurality of wheels 73, which are rotatably mounted on brackets 74. The latter are pivotally connected to the frame of the flying machine, as at 75, so as to allow for shocks in passing over rough ground or in alighting from the air to the ground. In order to absorb the shock more thoroughly, this bracket 74 is resiliently connected at its upper end to the frame, as by means of a spring 77. The tension on this spring 77 and the position of the wheel 73 relative to the frame may be adjusted by changing its position relative to a ratchet bar 78 on the frame of the flying machine. A spring 76 absorbs the return shock.

For the purpose of further absorbing the shock incident to landing from a flight in the air, there are provided skids 79, which are pivotally connected to the frame, and are curved at their lower ends so as to form a smooth abutment for engagement with the ground. These skids are normally held yieldingly in their lowermost position by means of a connection 80, which has a spring 81 provided therein, and is connected at its opposite ends to the skid and the frame.

A seat 82 may be provided for the operator, and is preferably adjustably mounted on a bar 83, whereby the operator may place

it in a position most convenient to himself, and is provided with a locking device 84, whereby it may be secured in any adjusted position.

5 The operation of the device will be readily understood when taken in connection with the above description.

The flying machine is driven by the propellers 29 until it has received sufficient momentum to warrant the aviator in rising from the ground. The machine can be caused to ascend, either by the elevating plane 26 solely, or in conjunction with the rudder 60. The longitudinal equilibrium and direction of the flying machine can be controlled by the combined use of the elevating plane 26 and the rudder 60, both by varying the projection of the horizontal supporting surface of the rudder and by varying the angle of the planes to a horizontal line.

The direction of the flying machine to the right and the left can be controlled by means of the levers 41, which operate the planes 11. The transverse equilibrium of the flying machine can also be controlled by these equilibrium planes. During the flight, the operator will be thoroughly protected from the cold wind by the cabin formed by the planes 21, 22 and 23, which also add to the elevating and supporting surface of the flying machine.

In alighting from a flight, the shock incident to coming in contact with the ground will be absorbed, both by the wheels 73 and the skids 79. The resilience of the connection of the wheels 73 to the frame can be adjusted by adjusting the spring or rubber band 77.

40 While I have shown one embodiment of my invention, I do not wish to be limited to the specific details thereof, but desire to be protected in various changes, alterations and modifications which may come within the scope of the appended claims.

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

1. In a flying machine, the combination

with a frame, of a supporting plane on said 50 frame, having an opening therein, an elevating plane pivotally mounted in vertical alinement with said opening, propelling means mounted on said frame, means for manipulating said elevating plane, a rudder 55 movably mounted in said opening, and planes pivotally mounted on said frame on each side of said supporting plane.

2. In a flying machine, the combination of a main supporting plane having an opening therein, a rudder operable in said opening, an elevational plane mounted above the main plane and in alinement with its said opening, and equilibrium planes mounted at the sides of the main plane and on a level 65 therewith.

3. The combination of a main supporting plane having an opening therein, a rudder operable in said opening, an elevational plane mounted above the main plane and in alinement with its said opening, equilibrium planes mounted at the sides of the main plane and on a level therewith, a cabin supported by the machine below said main supporting plane, and connections for operating said rudder, said elevational plane and said equilibrium planes from the said cabin.

4. In a flying machine, the combination of a main horizontal supporting plane which is substantially U-shaped and which has a central uncovered portion open at its rear end, a rudder mounted within the rear end of said opening, an elevational plane mounted above the main plane at a substantially central point and alined above its said uncovered portion or opening, and propellers mounted in the said uncovered portion or opening of the said main plane below the elevational plane and forwardly of the rudder.

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

FRED LOUIS SCHAUFLEK.

Witnesses:

VERN F. ROBERTS,
JACOB STUMP, Jr.