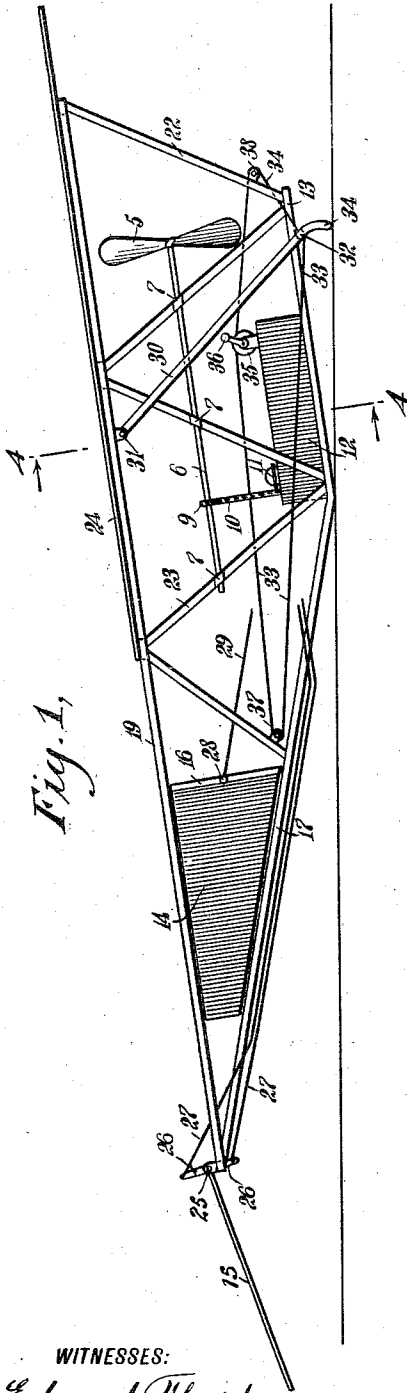


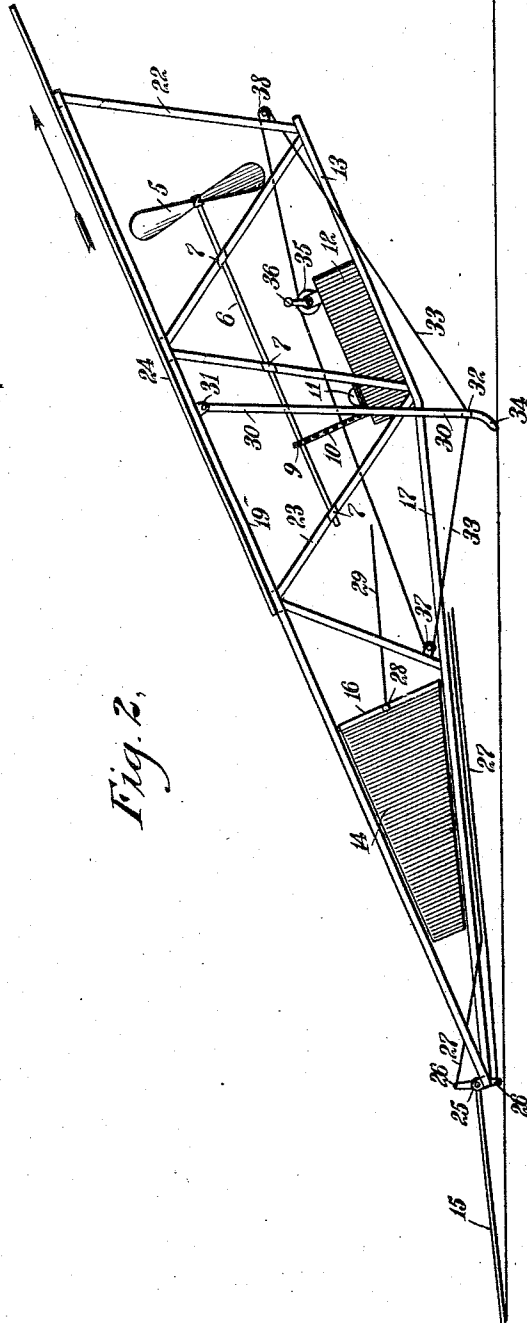
C. M. WANZER.
AEROPLANE.
APPLICATION FILED JAN. 8, 1910.

1,005,908.

Patented Oct. 17, 1911.
2 SHEETS—SHEET 1.



WITNESSES:
Edward Thorpe.
C. M. Wanzer.



INVENTOR
Charles Michael Wanzer
BY *Mum & Co.*
ATTORNEYS

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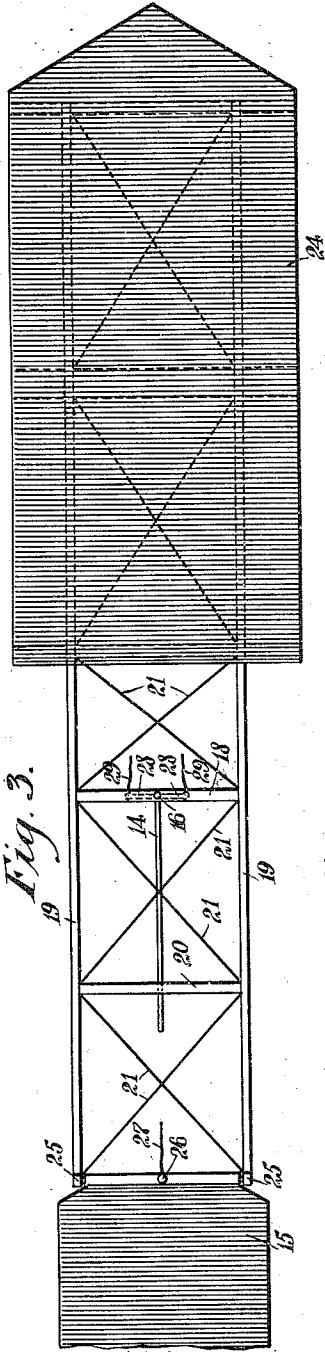


Fig. 3.

WITNESSES:

Edward Thorpe
C. M. Wanzer

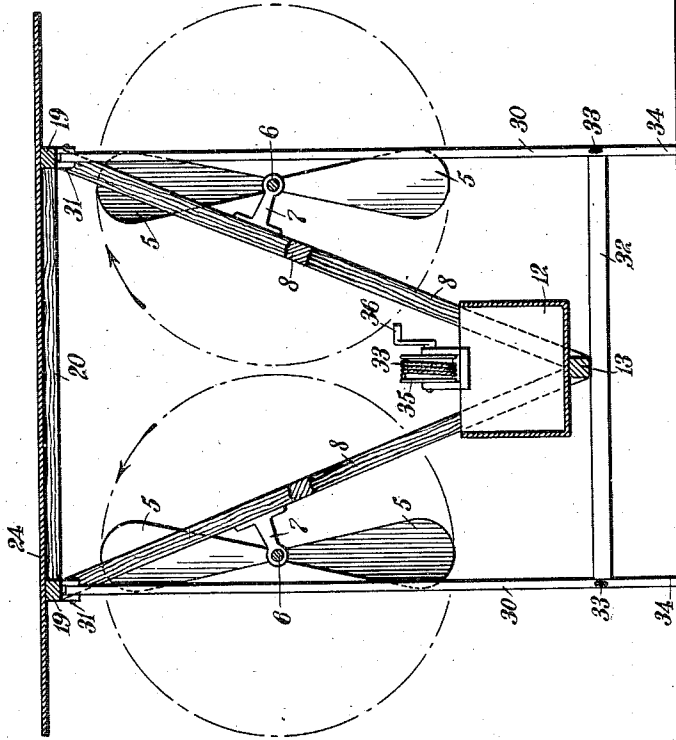


Fig. 4.

INVENTOR
Charles Michael Wanzer
BY *Mumford*
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHARLES MICHAEL WANZER, OF URBANA, OHIO.

AEROPLANE.

1,005,908.

Specification of Letters Patent.

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Application filed January 8, 1910. Serial No. 536,974.

To all whom it may concern:

Be it known that I, CHARLES M. WANZER, a citizen of the United States, and a resident of Urbana, in the county of Champaign and State of Ohio, have invented a new and Improved Aeroplane, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a construction for aeroplanes whereby the same are enabled to start their flight from a resting position; to provide means for mechanically lifting the aeroplane to an inclined position while in contact with the ground or starting station; and to provide manually operated mechanical means for initiating the flight of an aeroplane.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side elevation of an aeroplane constructed in accordance with the present invention, showing the same in its first position when initiating the flight; Fig. 2 is a like view illustrating the second position at the moment of flight; Fig. 3 is a top plan view of the aeroplane; and Fig. 4 is a detail view on enlarged scale, in section taken on the line 4—4 in Fig. 1.

One of the most serious objections and limitations of the present form of aeroplane is, that it relies upon the initial speed imparted while in contact with the earth to produce sufficient force to lift the plane from the ground.

The present invention is calculated to overcome the difficulty thus experienced in the usual construction, by providing means whereby the plane is given, at the moment of flight, the proper inclined angle at which it will readily leave the ground, and to provide manually operated means for launching the machine, so that it is supported by the air when the mechanical supports are removed.

That the drawings may not be confused, there have been eliminated the elements of the propelling machinery, they being indicated by the essential parts thereof. Thus, the propellers 5, 5 are shown as fixedly mounted upon shafts 6, 6, which are mounted in suitable bearings in brackets 7, 7 set out from the sides of a triangular depended

frame 8, 8. The shafts 6, 6 are provided with some suitable form of driving gear, preferably a sprocket wheel 9 secured thereto, which is operatively connected by means of a sprocket chain 10 to a suitable internal combustion engine 11.

The engine 11 is illustrated in Fig. 1 as mounted within the car body 12. The car body 12 is supported by a longitudinal brace 13. Within the car body 12 is provided means for operating the engine 11, the clutches for the shafts 6 and the operating mechanism for a rudder 14 and a deflector 15. The rudder 14 is pivotally mounted on a substantially vertical shaft 16 which is pivotally secured in frame braces 17 and 18. The braces 13 and 17 are joined at an angle, as illustrated in Figs. 1 and 2 of the drawings. The brace 17 connects the brace 13 and a top frame 19. The frame 19 is constructed of parallel side bars which are properly cross braced by bars 20 and tie rods 21, 21. At the forward end of the frame 19 it is connected by triangularly inclined and depended braces 22, 23. The braces 22, 22 and braces 23, 23 converge at their lower extremities, and are joined by the brace 13. A triangular form is thus given to the forward section of the aeroplane and that over which is extended the main carrying plane. A triangular shape is also given to the rear extension of the frame by the brace 17, frame 19 and median braces 23, 23.

The main levitation plane 24 is formed from any suitable material, and laterally extend from and secured upon the frame 19, as shown particularly in Figs. 3 and 4 of the drawings. The extension of the plane 24 is varied to suit conditions and desires. The plane 24 is relatively immovable on the frame 19, 19 and the depended braces 22, 23 and the brace 13 therewith connected. The deflector 15 is pivotally mounted at 25, 25 between the frame 19, 19 at the extreme rear end of the frame. It is provided with vertically extended arms 26, 26, which, by means of guy lines 27, 27 are employed to change the horizontal angle of the deflector 15 with relation to the plane 24, much in the manner usual to all aeroplanes. The rudder 14 is provided with laterally extended arms 28, 28 which are connected by means of guy lines 29, 29 to suitable mechanism for changing the vertical angle of the said rudder to

cause the same to direct the aeroplane horizontally in its flight.

As thus far described the essential difference between the present and aeroplanes of former construction, consists in the triangular formation of the rear end of the extension of the framework, thus producing what may be termed a double keel upon which the machine may rest prior to and at the moment of launching upon its flight. To maintain the frame in its upright position, and, as will hereinafter be explained, to initiate it upon its flight, I have provided a jack consisting of elongated vertically extended legs 30, 30. The legs 30, 30 of the jack are pivotally connected at 31, 31 to the frame 19, 19, and are joined near their lower ends by a cross brace 32. The elongation of the legs 30, 30 is such that when perpendicularly extended from the frame 19 they protrude some distance beyond the bottom of the brace 13. The office of the jack herein shown is two-fold; to wit, first, to incline the machine at the proper angle for flight while mechanically initiating the flight, and, second, to ease the shock of alighting when the machine is brought to the ground.

To perform the first of the above stated functions the jack legs 30, 30 are carried forward of the brace 13, which rests parallel upon the ground, the plane 24 being in this position parallel with the ground. The aviator now enters the car 12, after having started the motor 11. By manipulating a guy line 33 he retracts the jack legs 30, 30 toward pulleys 37, 37 over which the said guy line is reeved, bringing the feet 34, 34 in contact with the ground, and in such position that further pull upon the guy line 33 advances the frame of the machine, tilting upwardly the forward end thereof, as shown in Fig. 1 of the drawings. The clutches engaging the shafts 6, 6 are now thrown in, whirling the propellers 5, 5 and exerting through them a further pull upon the frame of the aeroplane. It may prove that the pressure of the propellers is alone sufficient to now carry the aeroplane in a forward direction over the jack legs 30, 30. In doing so, and until the moment when the jack legs 30, 30 are in the vertical position shown in Fig. 2 of the drawings, it will be seen that the plane 24 is inclined at a sharp upwardly turned angle, and that the further propulsion of the propellers 5, 5 lifts the machine from the ground. Where it is not desired that the drag of the propellers should be depended upon to lift the aeroplane, the machine is provided with a windlass 35 having a crank handle 36, or other suitable, and if desired, mechanically operated means, about which the guy line 33 and both extensions thereof are wound. When such arrangement is provided, it is obvious that

by merely turning the windlass 35 to retract the legs 30, 30 the effect is to suddenly advance the body of the machine in a forward direction by reason of the grip of the feet 34, 34 upon the ground. This action, in a limited degree, simulates the forward throw of the legs of a bird when starting on its flight. This mechanical action eases the shock upon the propellers sufficiently and aids the same to the needed extent to overcome the inertia of the mass of the aeroplane.

When performing the second of the above mentioned functions, the jack legs 30, 30 are advanced to the position approximately that shown in Fig. 1 of the drawings, by drawing the guy line 33 forward over pulleys 38, 38 about which the said line is reeved. The windlass 35 is permitted to run under a drag of any suitable form and character. When now the plane is directed to the ground it approaches the same in a nearly parallel position. In this position the feet 34, 34 of the plane strike upon the ground and are, by the impact, retracted toward the rear end thereof. In thus retracting, the guy line 33 is allowed to run by the windlass 35, and under the retarded action due to the drag or brake as above stated. The immediate result of the retardation of the legs 30, 30 is to produce an upward inclination of the plane 24 and the machine carried thereby, while the legs 30, 30 pass under the center of gravitation of the machine and are extended backward toward the rear end of the brace 13. By thus imparting, at the moment of alighting, the inclination shown in Fig. 1 of the drawings, the motive force, in being impelled through the propellers, produces a fluttering and gentle settling of the machine to the ground, where it rests upon the brace 13 and feet 34, 34 of the jack legs 30, 30, the said legs 30, 30 now being extended rearwardly.

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

1. In an aeroplane, a body frame having a double keel, the sections of said keel being set at an angle each to the other, the forward section being substantially parallel with the top of said frame and the rearward section being inclined from the end of the first said section to the level of the top of said frame to permit the downward swing of the rear of said frame preliminary to flight; a plurality of jack legs pivotally connected to said frame at near the top thereof, said legs being of sufficient length to lift the said frame off the ground when said legs are vertically disposed; and a prime mover carried in said frame for rotating the said legs on their pivots to move the free ends of said legs rearwardly past the center of gravity of the aeroplane.

2. In an aeroplane, a body frame having a double keel, the sections of said keel being set at an angle each to the other, the forward section being substantially parallel with the top of said frame and the rearward section being inclined from the end of the first said section to the level of the top of said frame to permit the downward swing of the rear of said frame preliminary to flight; a plurality of jack legs pivotally connected to said frame at near the top thereof, said legs being of sufficient length to lift the said frame off the ground when said legs are vertically disposed; a prime mover carried in said frame for rotating the said legs on their pivots to move the free ends of said legs rearwardly past the center of gravity of the aeroplane; a carrying plane mounted upon said body frame; and air propelling means carried in said body frame to propel the aeroplane with the operation of said jack legs.

3. In an aeroplane, a body frame having a double keel, the sections of said keel being set at an angle each to the other, the forward section being substantially parallel with the top of said frame and the rearward section being inclined from the

end of the first said section to the level of the top of said frame to permit the downward swing of the rear of said frame preliminary to flight; a plurality of jack legs pivotally connected to said frame at near the top thereof, said legs being of sufficient length to lift the said frame off the ground when said legs are vertically disposed; a prime mover carried in said frame for rotating the said legs on their pivots to move the free ends of said legs rearwardly past the center of gravity of the aeroplane; a carrying plane mounted upon said body frame; air propelling means carried in said body frame to propel the aeroplane with the operation of said jack legs; a levitating plane pivotally mounted at the rear of said frame and at the end of said keel; and means for setting said levitating plane to balance said aeroplane succeeding the initiation of the flight.

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

CHARLES MICHAEL WANZER.

Witnesses:

LOUISE MAURER,
C. B. HEISERMAN.