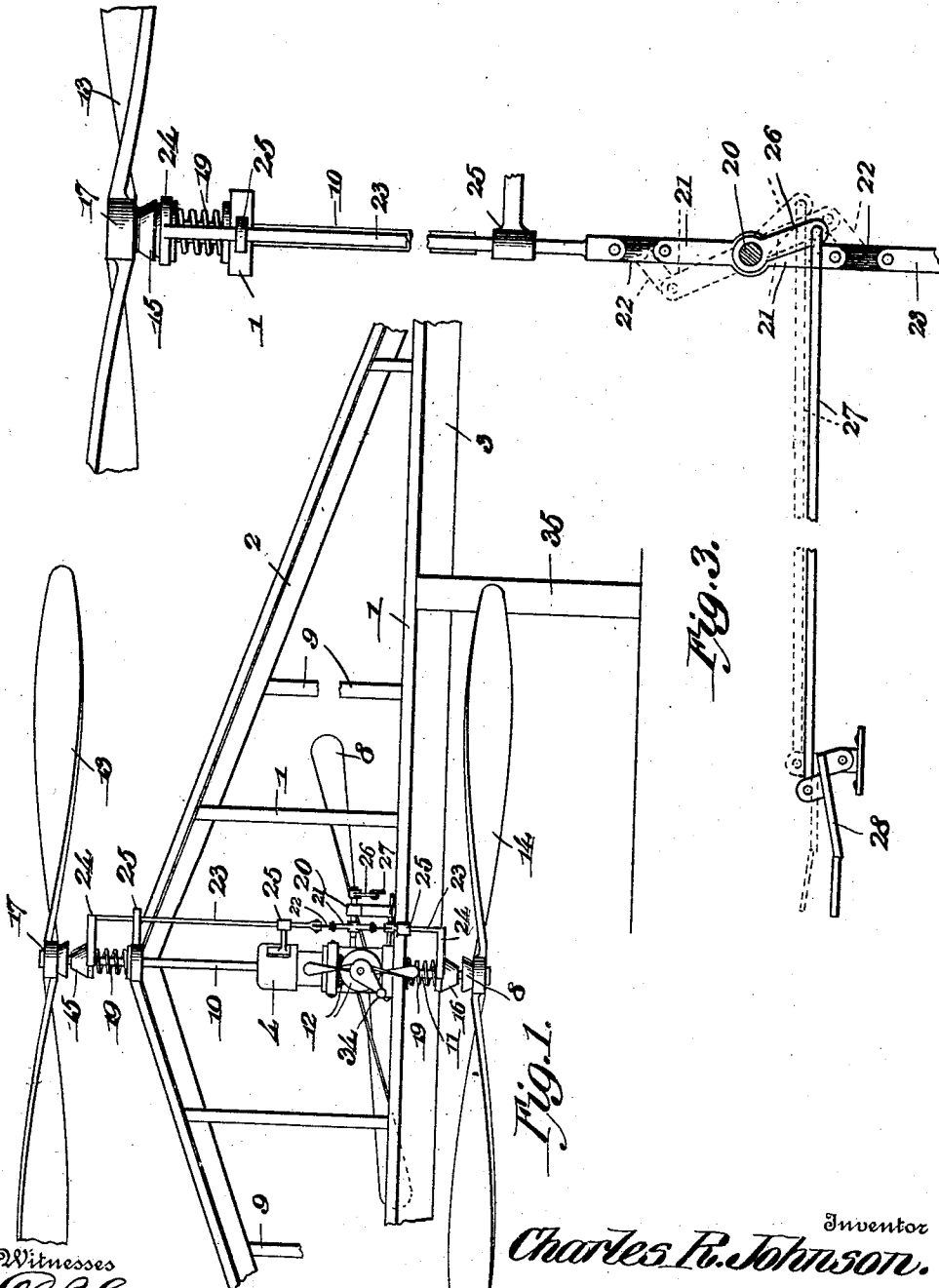


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AEROPLANE.
APPLICATION FILED JULY 10, 1912.

1,055,468.

Patented Mar. 11, 1913.

2 SHEETS-SHEET 1.



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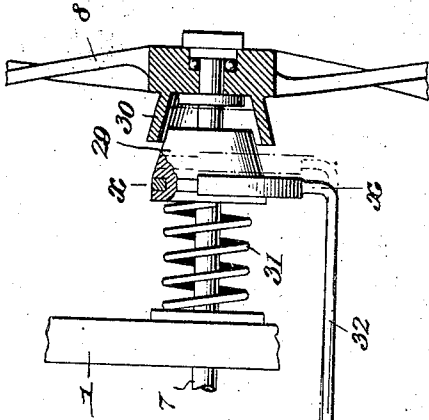


Fig. 4.

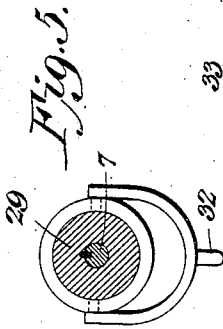


Fig. 5.

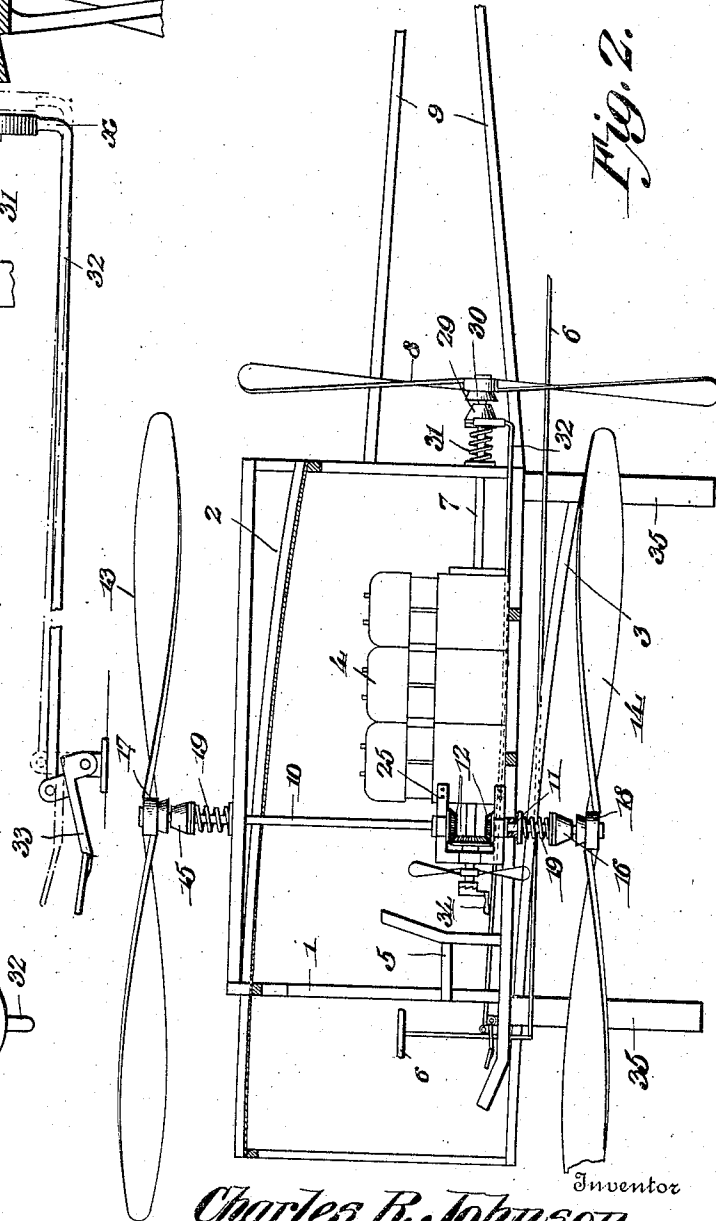


Fig. 2.

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AEROPLANE.

1,055,468.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed July 10, 1912. Serial No. 708,554.

To all whom it may concern:

Be it known that I, CHARLES R. JOHNSON, a citizen of the United States, residing at Topeka, county of Shawnee, and State of Kansas, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

My invention relates to aeroplanes or heavier than air flying machines.

10 The object of my invention is to provide a flying machine of the class mentioned which may rise directly from the ground without necessitating the initial forward movement heretofore considered essential.

15 A further object of my invention is to provide in a flying machine of the character mentioned an arrangement of the plane, or the upper plane if more than one is employed, whereby the means provided for
20 lifting the device shall not interfere with nor disturb the equilibrium of the machine.

A further object of my invention is to provide a novel arrangement of the plane, or upper plane, as the case may be, where-
25 by greater equilibrium is secured in normal forward flight than with the usual arrangement of such plane.

A further object of my invention is to provide a device as above stated equipped
30 with means whereby the lifting and propelling mechanisms shall be directly under the control of the operator so that either may be instantly stopped or started, and driven independently or simultaneously.

35 Other objects will appear hereinafter.

With these objects in view my invention consists generally in a suitable frame arranged with a plane, a motor and propelling mechanism, and equipped with one or more
40 propellers provided with means for coupling the same to the motor whereby the device may be lifted directly from the ground.

In carrying out my invention I am not
45 limiting myself to the number of superimposed planes provided, but with any construction employed I arrange one of the lifting propellers above the uppermost plane, and if a second propeller is provided
50 I arrange the same in axial alinement with the upper propeller and beneath the lowermost plane.

My invention further consists in a peculiar arrangement of the plane beneath the
55 upper propeller, the same being of inverted V-shape in cross section and rearwardly

warped, whereby the downwardly directed current of air from said propeller shall not affect the equilibrium of the device nor interfere with the rising of the same and
60 whereby greater equilibrium is secured when traveling forwardly than with the ordinary arrangement, the motor and driver's seat being arranged in a plane below said V-shaped plane.

My invention further consists in various details of construction and arrangements of parts all as will be fully described hereinafter and particularly pointed out in the claim.

70 My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1 is a partial front elevation of the device, Fig. 2 is a vertical longitudinal section of the same, Fig. 3 is a detail view upon an enlarged scale illustrating the clutch for the lifting device and the means for operating the same, Fig. 4 is a similar
75 view of the propelling device, and Fig. 5 is a section on the line $x-x$ of Fig. 4.

Referring now to the drawings 1 indicates the frame of the aeroplane, 2 the upper plane and 3 a lower plane.

85 4 indicates the motor, 5 the operator's seat and 6 the steering mechanism leading to the rudder or rudders not shown, but which may be of any preferred construction. The motor or power shaft 7 extends longitudinally of the device and mounted upon the rear end thereof is a propeller 8. The propeller 8 is loosely mounted upon the shaft 7 in order that the same may lie idle when desired while the motor is running.

95 9 indicates frame members leading to and supporting the tail and rudders.

Arranged at the center of equilibrium of the device is a pair of vertically disposed alined shafts 10 and 11 which are connected to the motor shaft 7 by beveled gearing 12. Loosely mounted upon the upper and lower ends of the shafts 10 and 11 respectively are lifting propellers 13 and 14, the former of which is arranged above the upper plane 2 and the latter below the lower plane 3.
100 Keyed to the shafts 10 and 11 are clutch members 15 and 16 which are adapted to engage corresponding clutch members 17 and 18 on the hubs of the propellers 13 and 14 respectively to couple the same to the shafts 10 and 11. Springs 19 interposed be-
105 110

tween the clutch members 15 and 16 and the frame 1 normally hold the clutch members in engagement. It is obvious that when the motor is in operation and the clutch members above described are in engagement, the propellers 13 and 14 will lift the device, said propellers being of sufficient size for this purpose.

Suitable means are provided for retracting the clutch members 15 and 16 to uncouple the propellers 13 and 14 from their respective shafts. The horizontally disposed rock shaft 20 is arranged transversely of the frame adjacent the gearing 12 and a two armed lever 21 is fixed to said shaft. The ends of the arms of the lever 21 are connected by links 22 to rods 23 extending to yokes 24 which in turn are operatively connected to the respective clutch members 15 and 16.

The numerals 25 indicate bearings for the rod 23.

It is obvious, by reference to Fig. 3 that by rocking the shaft 20 the propellers 13 and 14 may be controlled.

26 indicates an arm fixed to the shaft 20 and 27 a rod connected to said arm and leading to a foot lever 28 arranged adjacent the operator's seat 5 and by means of which the clutches may be operated by the foot.

As before stated the driving propeller 8 is loosely mounted on the shaft 7 and a clutch member 29 is keyed to the shaft and arranged to cooperate with a clutch member 30 on the hub of the propeller.

31 indicates a spring interposed between the clutch member 29 and the frame 1 for normally holding the clutch members in engagement.

32 indicates a rod leading from the clutch member 30 to a foot lever 33 arranged adjacent the operator's seat, and the operation of which is obvious.

A special feature of my invention is the

construction and arrangement of the plane 2. This plane is inclined downwardly toward each side from a medial longitudinal line, or substantially inverted V-shape in cross section, and warped rearwardly as indicated in Figs. 1 and 2. By this construction the current of air directed downwardly from the propeller 13 does not interfere with the rising of the device and furthermore it increases the equilibrium of the device due to a central condensation under the upper plane, particularly as the motor and operator's seat are arranged considerably below the crest of the plane 2.

34 indicates a crank by means of which the operator may start the motor.

The device is provided with supports which are preferably cushioned to absorb all jar or shock when the device alights on the ground.

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

In a heavier than air flying machine, a lower plane, an upper plane, a motor arranged between said planes, a motor shaft, a pair of vertically disposed alined shafts geared to said motor shaft, a lifting propeller arranged on one of the last said shafts above said upper plane, a second lifting propeller arranged on the other of said vertically disposed shafts and beneath said lower plane, a driving propeller on said motor shaft and means for coupling said propellers to their respective shafts, substantially as described.

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

CHARLES R. JOHNSON.

Witnesses:

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VIOLA WILLIAMS.