

W. B. SEEKINS.
 MONOPLANE.
 APPLICATION FILED OCT. 30, 1911.

1,058,390.

Patented Apr. 8, 1913.
 2 SHEETS-SHEET 1.

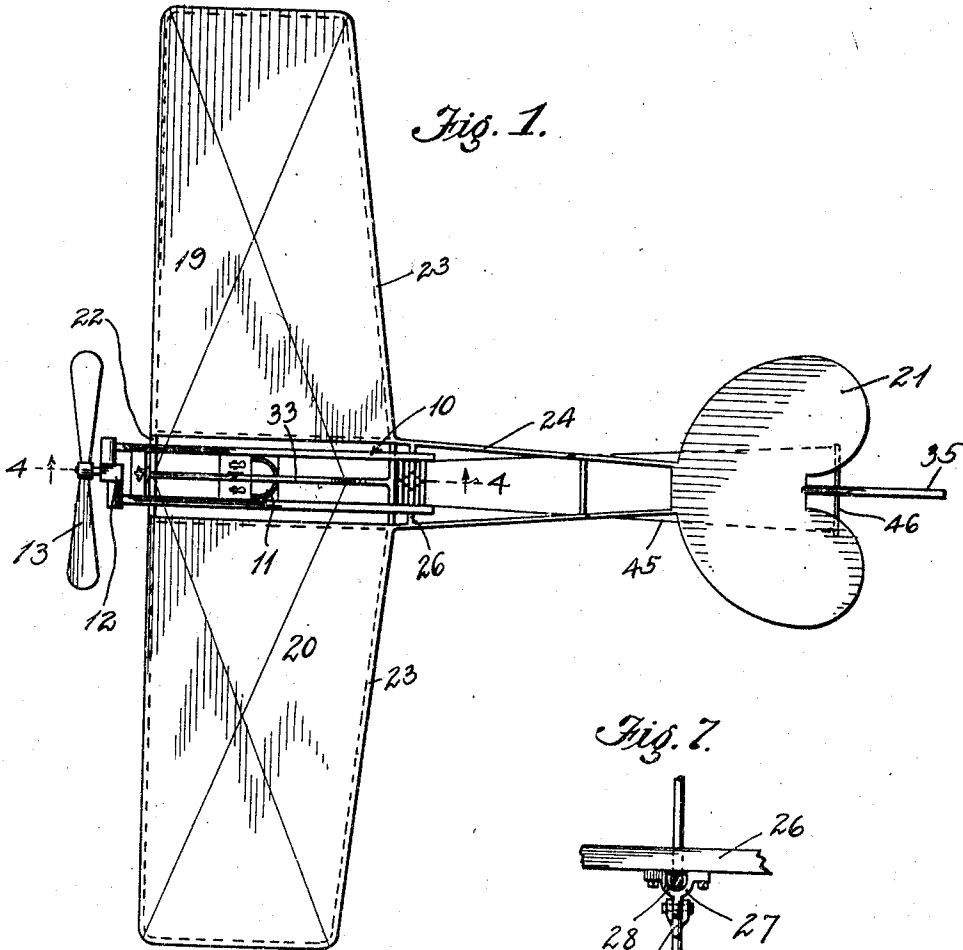


Fig. 7.

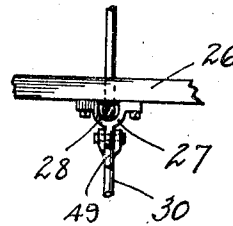
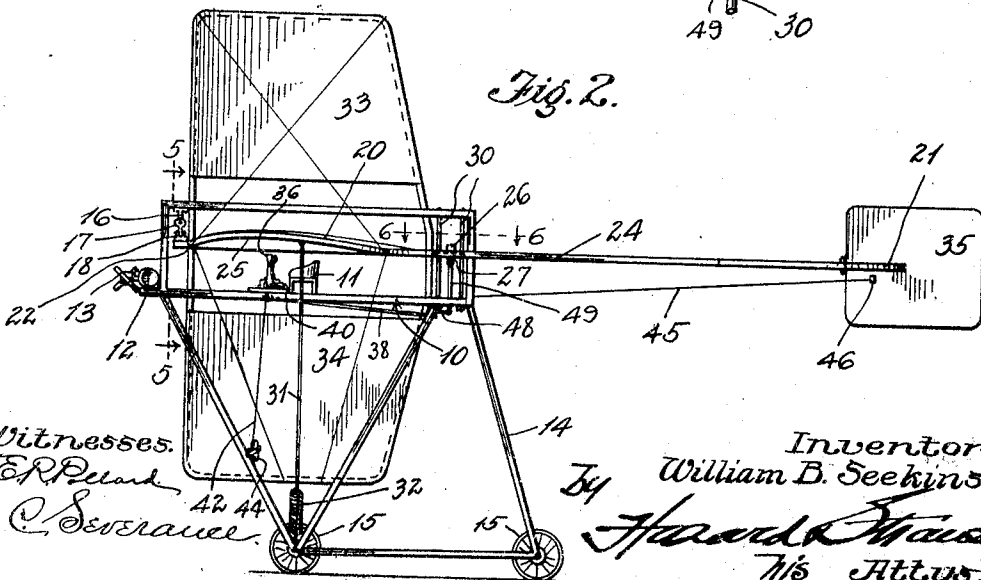


Fig. 2.



Witnesses.

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2 SHEETS—SHEET 2.

Fig. 3.

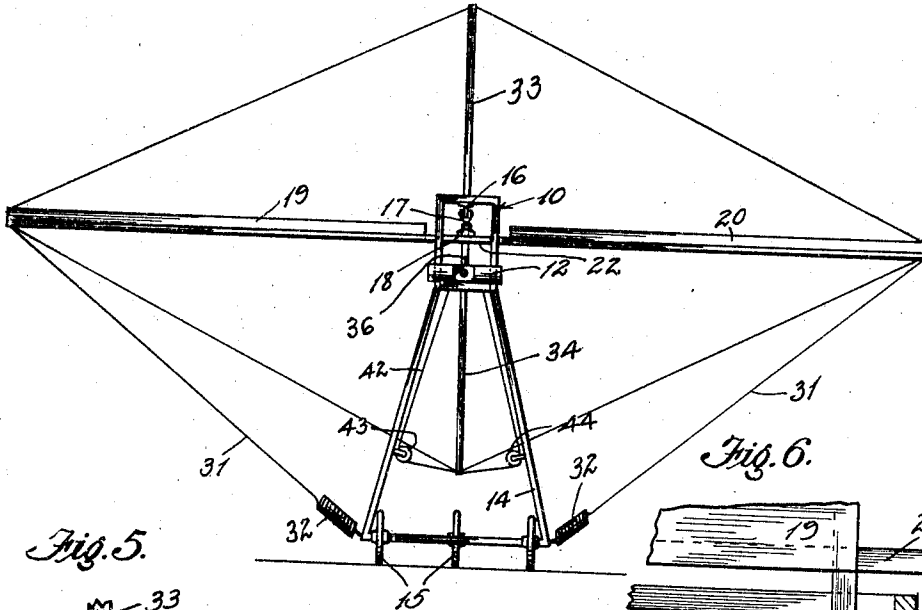


Fig. 6.

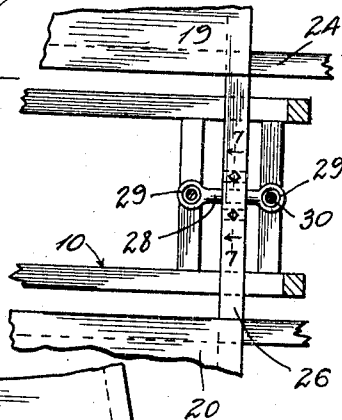


Fig. 5.

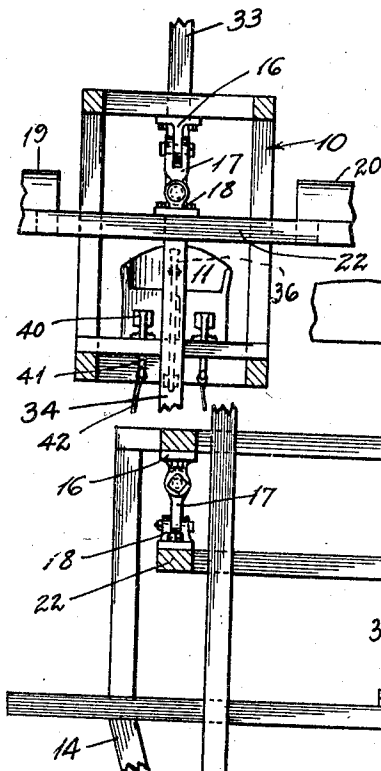
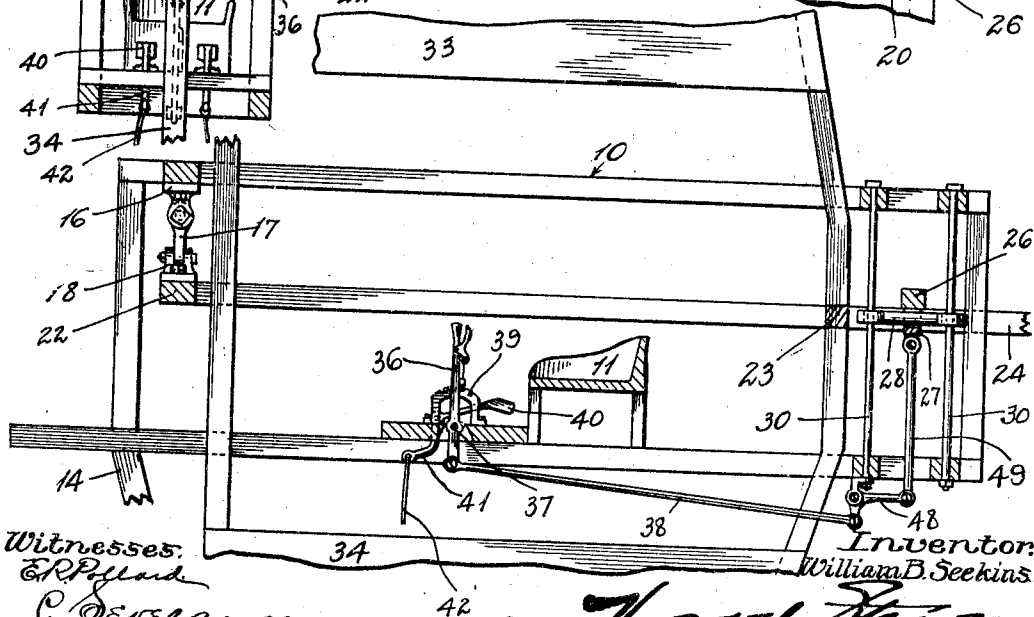


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM B. SEEKINS, OF LOS ANGELES, CALIFORNIA.

MONOPLANE.

1,058,390.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed October 30, 1911. Serial No. 657,401.

To all whom it may concern:

Be it known that I, WILLIAM B. SEEKINS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Monoplanes, of which the following is a specification.

This invention relates to improvements in aeroplanes and has particular reference to the production of an improved form of monoplane.

It is an object of the invention to construct a monoplane which can be so controlled that the relation of the planes with respect to the framing of the device may be altered from time to time, both with respect to the vertical axial plane of the mechanism, and the horizontal axial plane thereof.

It is also an object of the invention to provide a monoplane in which the principal wings or planes of the device may be tipped up or down with respect to the framing of the device or may be tipped laterally with respect to the said frame whereby the device will be caused to right itself readily, and to accommodate itself to the air conditions and currents which it may encounter.

It is also an important and basic object of this invention to provide means which will automatically maintain the aeroplane in a condition of perfect equilibrium at all times during its flight through the air.

In the accompanying drawing forming a part of this specification, Figure 1 is a top plan view of a monoplane constructed in accordance with the present invention. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation of the said aeroplane. Fig. 4 is an enlarged central sectional view taken upon the line 4-4 of Fig. 1. Fig. 5 is a detail sectional view taken upon the line 5-5 of Fig. 2. Fig. 6 is a fragmentary sectional view taken upon the line 6-6 of Fig. 2. Fig. 7 is a detail sectional view taken upon the line 7-7 of Fig. 6.

The details and features of the invention will now be more particularly described, reference being had to the said drawing in which 10 indicates a main frame upon which the aviator is located, a suitable seat 11 being provided for him. The motive power for the monoplane is also usually mounted upon the forward portion of the frame 10, and may consist of any suitable or ordinary

engine 12, and a propeller 13 operated thereby. While the frame 10 may be of any desired shape, it is preferably of generally rectangular form, and is elongated from front to rear, the mechanism constituting the supporting plane portion and guiding rudder portions, being movably and adjustably mounted therein.

For resting upon the ground and starting or alighting, the frame is provided with a depending frame portion 14 which preferably flares outwardly at the bottom as shown in Fig. 3 and which is provided with ground engaging wheels 15 of any desired type. Mounted near the front end of the frame 10 and at the top thereof is a hanger 16 to which is pivotally connected a link 17, the said link being adapted to swing the hanger toward the front and rear. The lower end of said link 17 is flattened at right angles to its upper end and pivotally supports a hanger or bracket 18 which carries the framing of the air engaging planes of the device.

The planes for supporting the machine in the air preferably consist of laterally extending wings or main planes 19 and 20 and a rear or tail plane 21 and these planes are carried by a frame having a straight transversely arranged front bar 22 which has bolted or secured to it, the said hanger 18. The hanger is located midway of the length of said bar 22 so that the plane structure is centrally supported and approximately balanced with respect to the frame 10. The rear bars 23 of the planes 19 and 20 are inclined so as to make the said planes somewhat wider at their inner ends than at their tips and a rearwardly extending frame 24 is provided which extends from the framing of the planes 19 to the framing of the plane 21.

If desired the planes 19 may be slightly cupped upon their under surfaces as indicated at 25 in Fig. 2 of the drawing so as to cause the said planes to more properly support the aeroplane in the air as it is driven forward.

The portion of the framing opposite the bars 23, is connected with the main frame 10 by a movable and adjustable connection. For this purpose a transverse bar 26 is mounted upon the frame of the planes and is provided about centrally of its length with a guide loop or bracket 27 shown in detail

in Fig. 7. The said loop loosely engages a rod 28 arranged at right angles to the bar 26 and in alinement with the central axis of the frame carrying the planes. The ends of this rod 28 are preferably provided with bearings or eyes 29 which loosely engage upright rods 30 secured in the main frame 10 and extend from the upper to the lower parts thereof as clearly shown in Fig. 4. By this arrangement it will be seen that the frame carrying the planes can be raised and lowered with respect to the rear end of the frame 10 or can be tipped at an angle with respect to the same as found desirable.

The planes 19 and 20 normally stand at right angles to the vertical axis of the machine and are normally kept in that position by means of guys 31 which extend from the outer ends of each of the said planes 19 or 20 to springs 32 which are connected with the lower front ends of the frames 14. The springs 32 while being made sufficiently strong to tend to hold the parts in their normal position, are yet formed of a sufficiently yielding character to permit of the adjustment of the main planes with respect to the framing of the machine.

In addition to the horizontal planes above described the plane frame is provided with vertical planes 33 and 34, the plane 33 being arranged above the frame 10 while the plane 34 is arranged below it as clearly shown in Fig. 2. The front bars of these planes are in alinement with each other and are connected with the front bar 22 of the planes 19 and 20. The said vertical planes operate to automatically maintain stability of the monoplane during its flight through the air. A rudder 35 which is pivoted to the rear edge of the tail vane 21 can be manipulated by the operator to properly guide the monoplane in its flight.

The position of the vertical planes with respect to the horizontal main planes is such that the aeroplane will be automatically held against tipping. The tipping of an aeroplane frequently occurs through a gust of wind striking either upon the under surface or the upper surface of the supporting planes of the mechanism, and in the structure contemplated by this invention, the vertical planes will always catch the impact or force of such a gust of wind in a manner to operate for the righting of the aeroplane again in flight. This action is accomplished whether the unsteady air current comes from below a plane or from above it or whether it comes from either side.

It is an important feature of the invention that the planes and the framing carrying the same may be set at an angle laterally or longitudinally with respect to the frame 10 in preserving the proper equilibrium of the aeroplane. The mounting of the framing which carries the planes upon the framing

10 as above described, will be seen to be of such a character that this action is possible. To bring this adjustment within the control of the aviator, a lever 36 is pivoted to the framing 10 at a point 37 located near the seat of the aviator. A pitman or link 38 pivotally connects the lower end of said lever with a bell crank lever 48, pivoted to the rear part of the frame 10 and connected with the bracket 27, by a link or pitman 49 and a rack or segment 39 for holding the lever 36 in its adjusted position is provided, so that the lever may be set and held in said adjusted position. By setting the lever 36 forwardly or rearwardly, the rear end of the frame carrying the planes may be raised or depressed with respect to the frame 10, thus causing the monoplane to tend to rise or fall in the air.

In order to tip the planes from horizontal position, foot levers 40 are pivotally mounted adjacent to the aviator's seat, their lower ends 41 projecting below the pivot points thereof and having cords 42 extending therefrom downwardly and about pulleys 43 and 44, from which they extend to the lower edge of the plane 34, to which they are secured as will be clearly understood by reference to Fig. 3 of the drawing. There are two foot levers 40, one being connected with one of the said cords while the other is connected with the other as disclosed in Fig. 5 of the drawing. By pressing the foot upon one of said levers the plane 19 may be depressed, all of the other planes moving correspondingly with the same, and by placing the foot upon the other lever the plane 20 will be depressed, the plane 19 of course being correspondingly raised. In this simple manner the planes may be altered in their lateral relation to the frame 10 and be made to properly act upon the air for righting and evenly balancing and supporting the aeroplane in flight. The rudder 35 may be controlled by cords 45 connected with projecting arms 46 carried by the said rudder.

The operation of the device is simple and within easy reach of the aviator and makes the aeroplane capable of thorough management under all conditions. The plane is of course propelled by the engine 12 operating the propeller 13. If there is a tendency for the machine to tip in one direction or the other, the aeroplanes 19, 20, 33, 34, and 21 are tipped in such a direction as to tend to right the machine again and to place it upon a level. The vertical planes 33 and 34 will prevent any skidding or side gliding movement of the machine such as is likely to produce a dangerous action of the monoplane. The elevation or depression of the aeroplane in flight is readily accomplished by the operation of the lever 36 which adjusts the two frames with respect to each other as already described.

What I claim is:—

1. An aeroplane comprising a main frame adapted to carry the operating mechanism of the device, a plane carrying frame having horizontal and vertical frame members secured to said main frame by a universal joint, supporting and guiding planes carried by said plane frame, an adjustable connection being mounted between the rear end of the plane carrying frame and the main frame, and means at the aviator station for altering the transverse angular relation of the plane carrying frame with respect to the main frame.
2. A monoplane comprising a main frame having a ground engaging frame depending therefrom, a horizontal frame pivoted to the forward end of the main frame with a universal movement, the said horizontal frame carrying lateral supporting planes, and a rear tail frame, vertical frame extensions extending from said horizontal frame and carrying vertical planes for preventing lateral skidding of the aeroplane, a loose bracket having a movable engagement with the horizontal frame, and provided with eyes in its ends, guide rods upon the main frame, and engaging said eyes, a lever

mounted upon the main frame, and loosely connected with the horizontal plane, where- 30
by the horizontal plane will be raised or lowered at its rear end in the main frame, cables extending to the lower end of the lower vertical plane and connecting the same with foot levers and foot levers for 35
operating said cables to tip the plane frames with respect to the main frame, and spring means normally tending to hold the plane frames in horizontal and vertical position with respect to the main frame of the device. 40

3. An aeroplane, comprising a main frame, a plane carrying frame universally pivoted thereto at the front of the main frame, planes rigidly secured to said plane carrying frame, said planes extending at angles 45
of ninety degrees from each other, a sliding connection with the end of the main frame, and a rudder plane mounted on a rear extension of the plane carrying frame.

In witness that I claim the foregoing I 50
have hereunto subscribed my name this 23rd day of Oct., 1911.

WILLIAM B. SEEKINS.

Witnesses:

E. STADLMAN,
EARLE R. POLLARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."