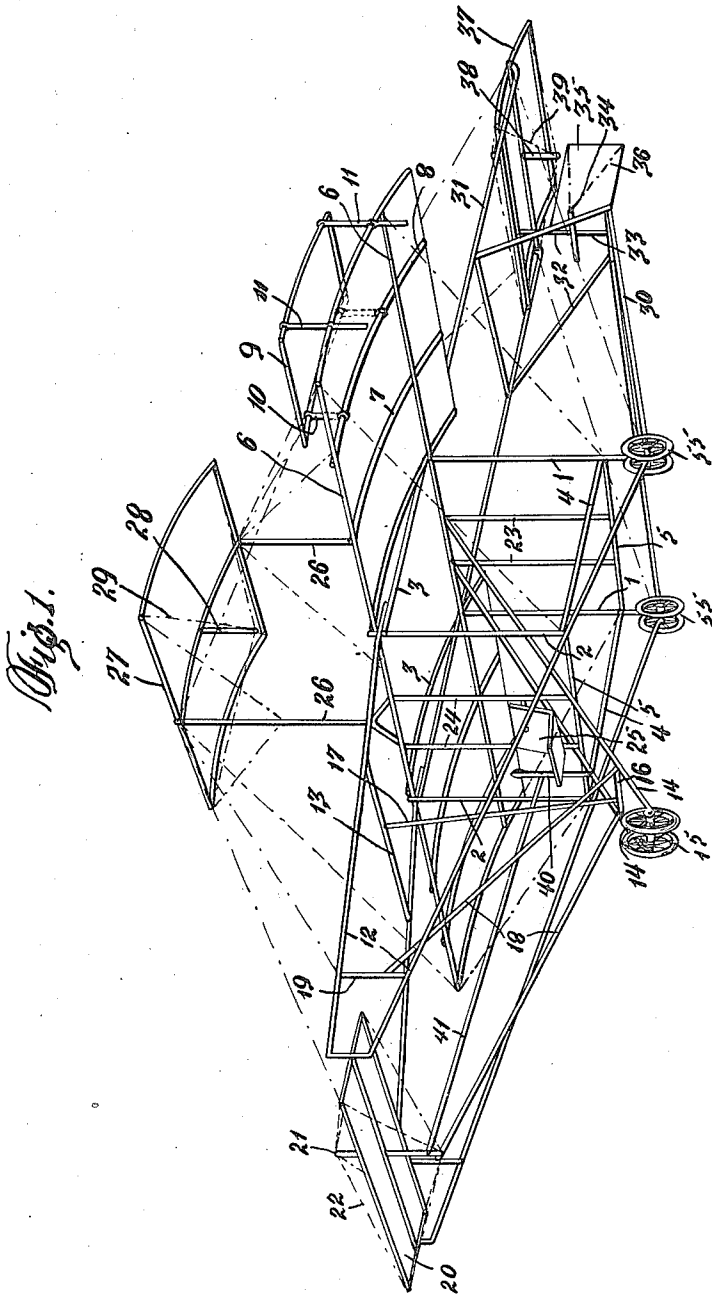


R. E. MILLER.
AEROPLANE.
APPLICATION FILED MAR. 3, 1911.

1,006,969.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 1.



WITNESSES

David Sumner

R. H. Butler

INVENTOR

R. E. Miller

By

H. C. Everett Co.

Attorneys

R. E. MILLER.

AEROPLANE.

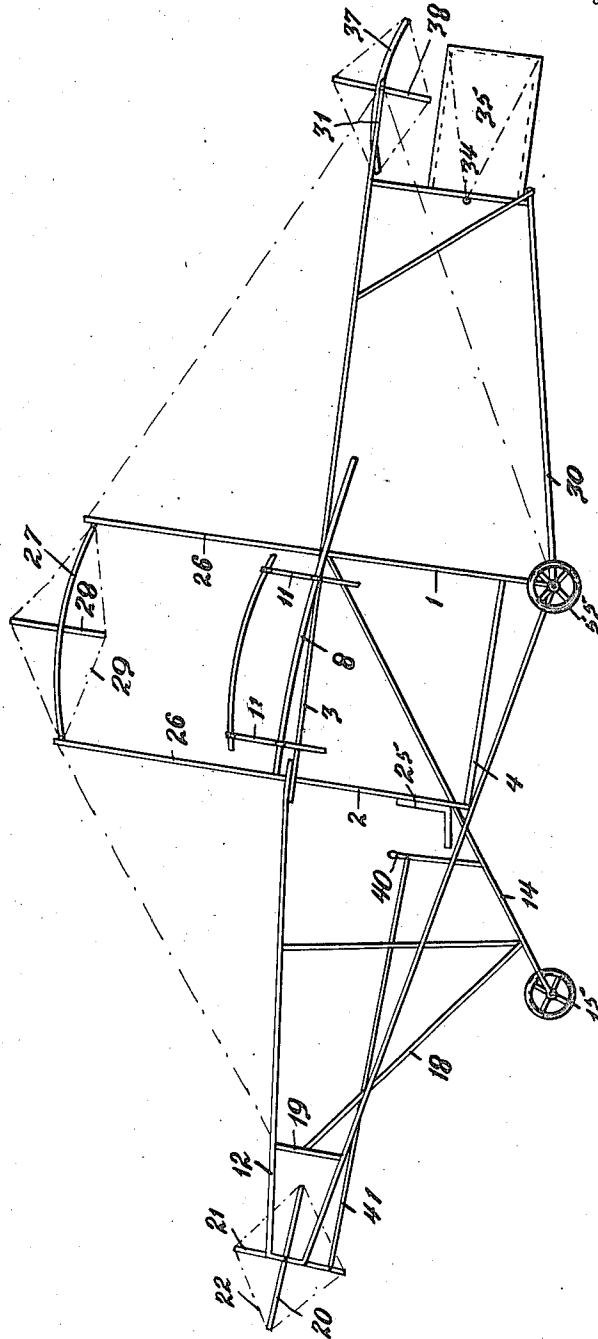
APPLICATION FILED MAR. 3, 1911.

1,006,969.

Patented Oct. 24, 1911.

3 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

Rand H. Miller
K. H. Butler

INVENTOR

R. E. Miller

By *W. C. Over*
Attorneys

R. E. MILLER.

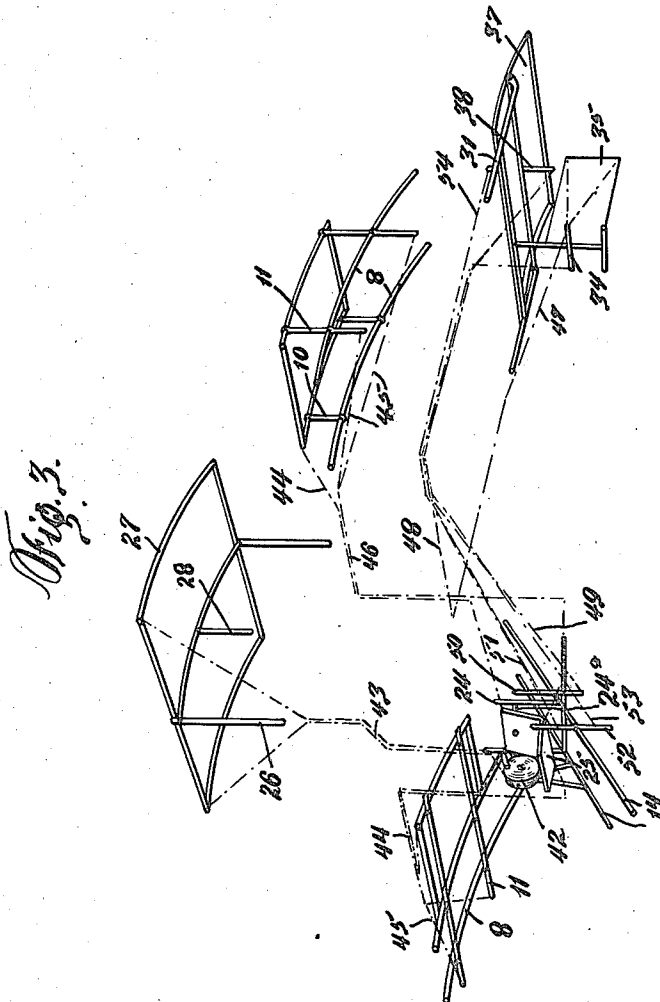
AEROPLANE.

APPLICATION FILED MAR. 3, 1911.

1,006,969.

Patented Oct. 24, 1911.

3 SHEETS-SHEET 3.



WITNESSES

David Turner
R. A. Butler

INVENTOR

R. E. Miller

By *H. C. Overton*
Attorneys

UNITED STATES PATENT OFFICE.

ROBERT E. MILLER, OF PITTSBURGH, PENNSYLVANIA.

AEROPLANE.

1,006,969.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed March 3, 1911. Serial No. 611,986.

To all whom it may concern:

Be it known that I, ROBERT E. MILLER, a citizen of the United States of America, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to aeroplanes and other aerial crafts wherein planes and rudders are utilized for maintaining the equilibrium of the machine and guiding the same when in flight.

15 The primary object of the invention is to provide an aeroplane with a durable and substantial framework that will withstand high wind pressures and prevent accidental collapse of the planes carried thereby.

20 Another object of the invention is to furnish an aeroplane with a superimposed plane adapted to prevent the aeroplane from capsizing or "turning turtle."

A further object of this invention is to 25 provide novel means whereby the various planes or rudders of the air craft can be easily and quickly controlled by the aviator.

With these and other objects in view, the invention resides in the novel construction, 30 combination and arrangement of parts to be hereinafter specifically described and then particularly claimed.

Reference will now be had to the drawings, wherein like numerals of reference 35 designate corresponding parts throughout the several views, in which:—

Figure 1 is a perspective view of the aeroplane, Fig. 2 is a side elevation of the same, and Fig. 3 is a perspective view of the 40 planes and rudders of the aerial craft showing the controlling mechanism.

A machine in accordance with this invention comprises four equally spaced uprights 1 and 2, the uprights 1 being of a greater 45 length than the uprights 2, and the upper ends of the uprights 1 and 2 are connected by longitudinal rails 3 and the lower ends thereof by rails 4 arranged in parallelism with the rails 3. The uprights have the 50 lower ends thereof connected by transverse rails 5 and connecting the upper ends of the uprights are transverse plane frames 6, these frames being arranged in parallelism and connected by curved equally spaced ribs 55 7. The ribs 7 project over the rear frame

6, as at 8 and these frames and ribs support the main plane of the machine, it being preferable to use a strong and durable fabric as at present used in connection with aeroplanes. The two outermost ribs 7 support 60 auxiliary shiftable planes, each plane comprising a rectangular frame 9 covered with a suitable fabric. The inner edge of the frame 9 is connected by links 10 to the inner rib 7 and the outer edge of the frame is 65 connected by levers 11 to the outer rib 7, said levers being fulcrumed upon the outermost rib and depending below the main plane of the machine.

Extending forwardly from the uprights 1 70 and 2 are V-shaped frames 12 arranged in parallelism, and these frames are connected by a transverse brace 13.

Extending downwardly at an angle centrally of the forward end of the machine 75 are two wheel supports 14, these supports having the upper ends thereof connected to the rear frame 6, said supports passing over the bottom transverse rail 5 and having wheels 15 revolvably mounted between the 80 lower ends of said supports. The supports 14 adjacent to the wheels are connected by a transverse brace 16 and this brace is connected by a vertical leg 17 to the brace 13 and by angularly disposed legs 18 to vertical 85 braces 19, carried by the forward ends of the V-shaped frames 12.

Pivottally mounted between the forward ends of the frames 12 is a plane 20, and this plane has a central post 21 having the 90 ends thereof connected by cables 22 to the outer edges of the plane.

The bottom transverse rails 5 are connected to the frames 6 by vertical braces 23 and 24, the braces 24 having a transverse 95 support 24^a to which is pivottally connected a rocking aviator's seat 25.

Extending upwardly from the frames 6 intermediate the ends thereof are standards 26 and pivottally mounted between the up- 100 per ends of these standards is a superimposed plane 27 having a central post 28 with the ends thereof connected by cables 29 to the edges of the superimposed plane 27.

Extending rearwardly from the lower 105 ends of the uprights 1 is a lower V-shaped frame 30 and extending rearwardly from the upper ends of the uprights 1 is a rectangular frame 31, said frame being of a greater length than the lower V-shaped 110

frame and connected to the frame 30 by angularly disposed braces 32 and by a rudder shaft 33. The rudder shaft is provided with a transverse arm 34 and with a rudder 5 35, and said arm has the ends thereof connected to the outer end of the rudder 35 by cables 36. Directly above the rudder 35 and pivotally supported by the frame 31 is a rear plane 37 having a central post 38 and 10 the ends of this post are connected by cables 39 to the edges of the plane 37.

The post of the planes and the cables connected thereto are adapted to thoroughly brace the planes when they are shifted, and 15 the mechanism for shifting said planes is as follows:—Pivotally connected to one of the supports 14 adjacent to the seat 25 is a lever 40 and this lever is connected by a reach-rod 41 to the post 21 of the front 20 plane 20. The same support is provided with a revoluble drum 42 and wound in opposite directions upon said drum are cables 43 having the upper ends thereof connected to opposite edges of the superimposed plane 25 27, whereby when the drum 42 is rotated, the superimposed plane can be tilted by one cable winding upon the drum and the other cable unwinding.

The inner edges of the auxiliary shiftable 30 planes are connected by cables 44 to the back of the aviator's seat 25 at the top thereof, and the lower ends of the levers 11 are connected by cables 45 and 46 to the seat 25 at the lower edges thereof, whereby when 35 the seat 25 is rocked, the auxiliary shiftable planes will be moved and serve functionally as a balance.

The transverse arm 34 of the rudder 35 has one end thereof connected to a cable 47 40 that extends forwardly, then outwardly, as at 48 and then downwardly, as at 49 to the lower end of a lever 50 pivotally supported adjacent to the seat 25. The upper end of the lever 50 is connected to a cable 51 that 45 extends rearwardly and then downwardly to the opposite end of the transverse arm 24. Another lever 52 is pivotally arranged adjacent to the seat 25 and the lower end of this lever is connected to a cable 53 that 50 extends rearwardly and is connected to the lower end of the central post 38 of the rear plane 37. The upper end of the post is connected to a cable 54 that extends forwardly and downwardly to the upper end of the 55 lever 52.

The various shiftable cables used throughout the construction are arranged as not to interfere with the adjustments that are necessary, and revoluble sheaves or anti-friction devices can be provided to insure 60 an easy movement of the shiftable cables.

The entire framework of the aeroplane can be made of light and durable material and the various parts thereof suitably connected 65 together to provide a safe and rigid

structure that will withstand the stresses and strains to which it is subjected when in flight.

To facilitate the starting of the aeroplane, additional sets of wheels 55 are employed, 70 these wheels being located at the lower ends of the uprights 1.

Any type of engine or propeller can be used in connection with the aeroplane.

What I claim is:—

1. An aeroplane comprising a frame 75 work, a transverse plane carried thereby, auxiliary shiftable planes arranged above the ends of said transverse plane, means including a tiltable seat and cables for shifting 80 said auxiliary planes, a superimposed plane arranged over the central portion of said transverse plane and at a point above the planes of the auxiliary planes, means including a drum for adjusting said superimposed 85 plane, an adjustable rudder supported by the rear end of said frame work, a rear plane supported from said frame work and arranged over said rudder, means including a lever and cables for adjusting said 90 rudder and rear frame, a front plane supported forwardly of said frame work, and means including a lever for adjusting said front plane.

2. An aeroplane comprising a frame 95 work, forwardly projecting frames supported by the frame work, a front plane carried by said forward frames, adjusting means for said front plane, a transverse plane carried 100 by the frame work, auxiliary shiftable planes arranged over the ends of said transverse plane, means for shifting said auxiliary planes, a superimposed plane arranged 105 above the central portion of said transverse plane and above said auxiliary planes, means for adjusting said superimposed plane, an adjustable rudder supported rearwardly of said frame work, a rear plane arranged over said rudder, and means for adjusting said rudder and rear plane. 110

3. An aeroplane including a frame work provided at its top with a pair of standards, a transverse plane carried by the frame 115 work, auxiliary shiftable planes arranged above the ends of the transverse plane, means for shifting said auxiliary planes, a superimposed plane carried by said standards and positioned above said auxiliary planes, means for shifting said superimposed plane, frames projecting forwardly 120 from the frame work, an adjustable front plane carried by said frames, means for adjusting said front plane, an adjustable rudder supported rearwardly of said frame work, a rear plane arranged over said rudder, and means for adjusting said rudder 125 and said rear plane.

4. An aeroplane including a frame work provided at its top with a pair of standards, a transverse plane carried by the frame 130

work, auxiliary shiftable planes arranged
above the ends of the transverse plane,
means for shifting said auxiliary planes, a
superimposed plane carried by said stand-
ards and positioned above said auxiliary
planes, means for shifting said superim-
posed plane, frames projecting forwardly
from the frame work, an adjustable front
plane carried by said frames, means for ad-
justing said front plane, an adjusting rudder
supported rearwardly of said frame

work, a rear plane arranged over said rudder, and means for adjusting said rudder and said rear plane, said rear plane arranged below said transverse plane.

In testimony whereof I affix my signature
in the presence of two witnesses.

15

ROBERT E. MILLER.

Witnesses:

MAX H. SROLOVITZ,
CHRISTINA T. HOOD.