

P. ANDERSEN & A. NIELSEN.
AEROPLANE,

APPLICATION FILED DEC. 3, 1910.

1,056,390.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 1.

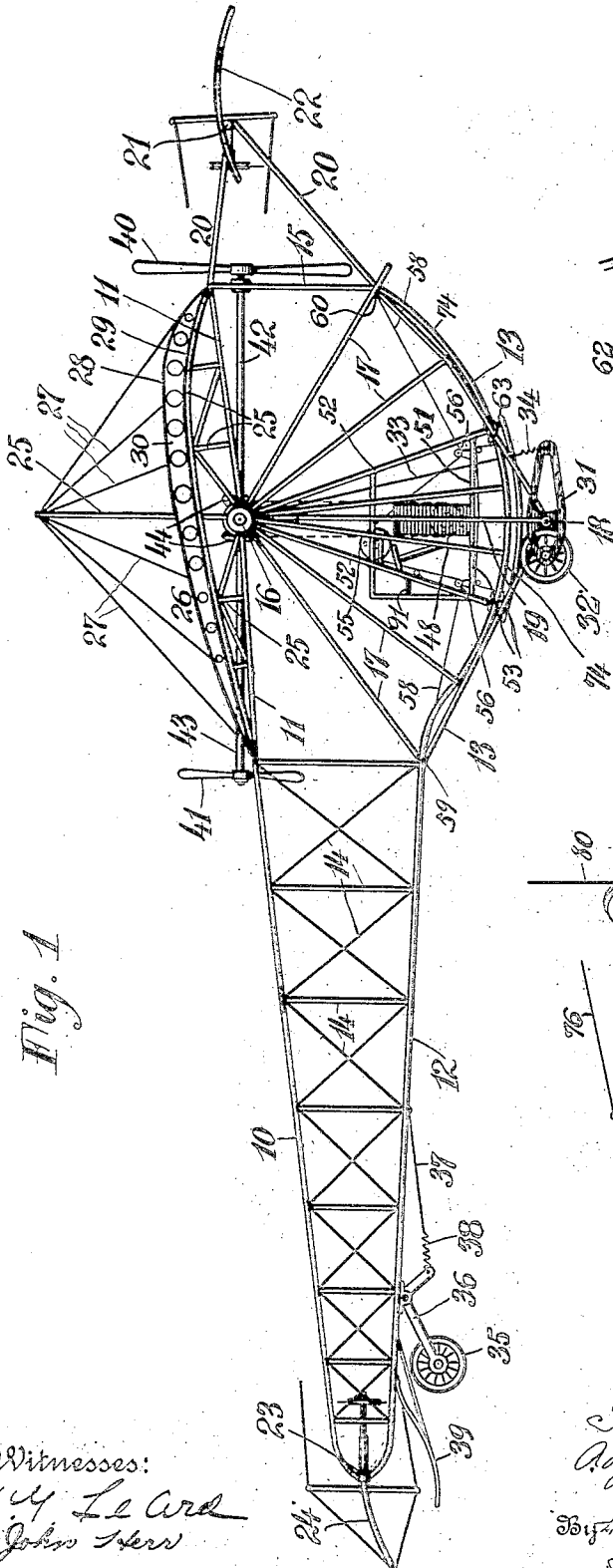


Fig. 1

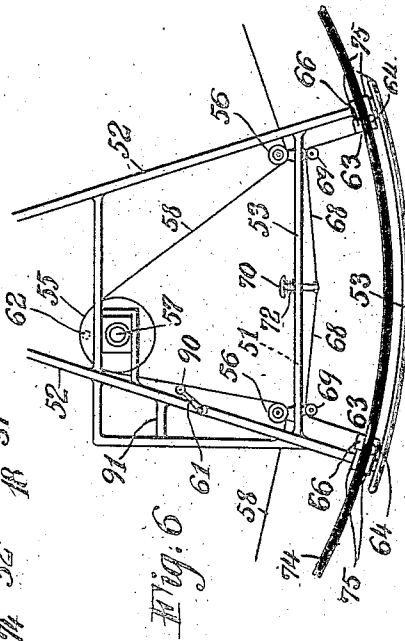


Fig. 6

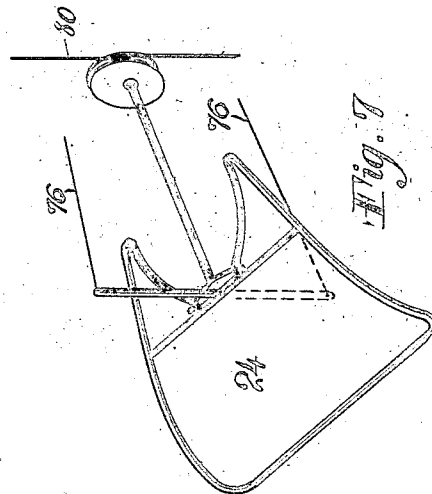


Fig. 7

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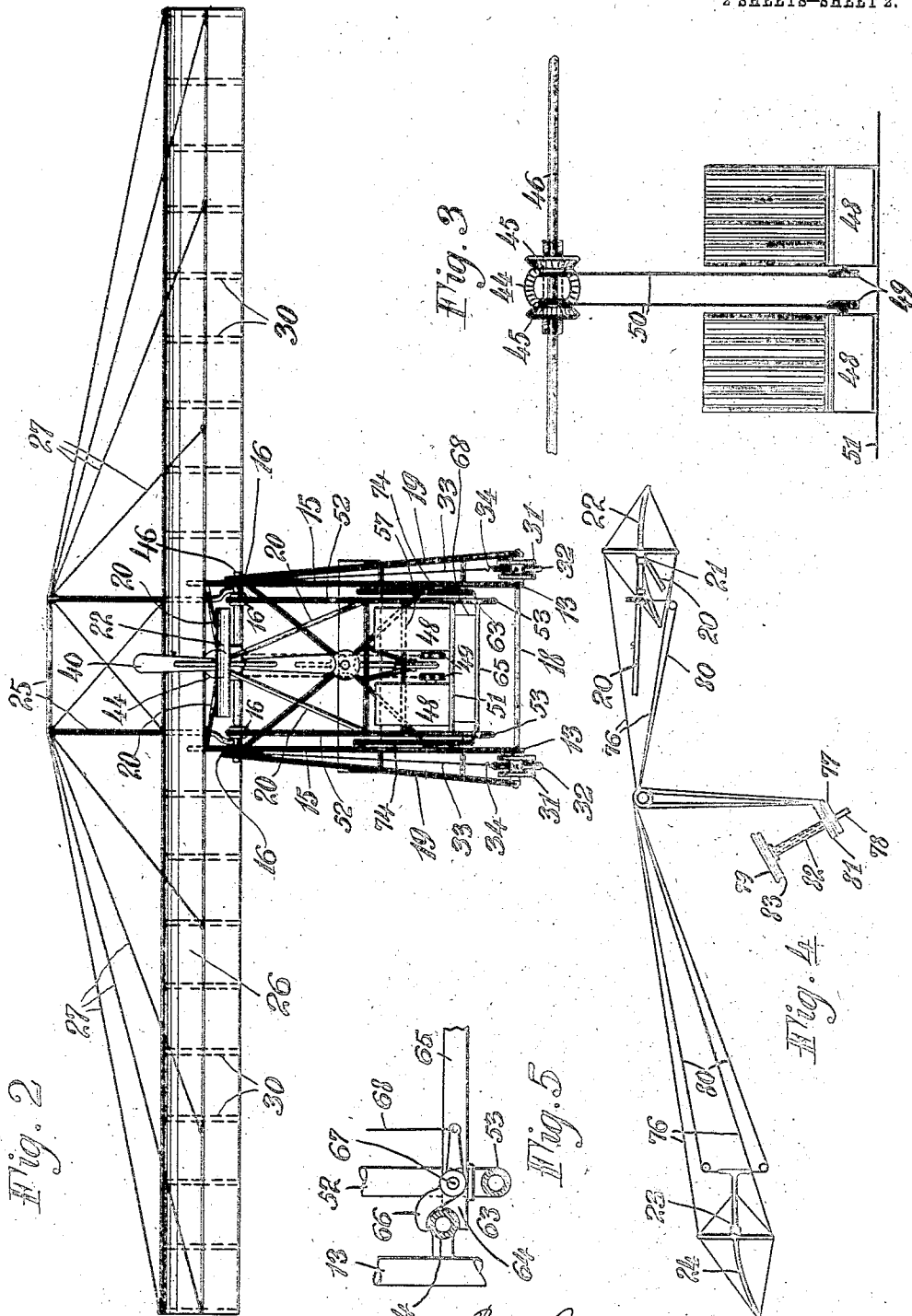
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2 SHEETS-SHEET 2.



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UNITED STATES PATENT OFFICE.

PAUL ANDERSEN, OF FREEPORT, AND AAGE NIELSEN, OF NEW YORK, N. Y., ASSIGNORS TO ANDERSEN-NIELSEN AIRSHIP COMPANY, A CORPORATION OF NEW YORK.

AEROPLANE.

1,053,390.

Specification of Letters Patent.

Patented Mar. 18, 1913.

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To all whom it may concern:

Be it known that we, PAUL ANDERSEN, a citizen of the United States, and residing at West Side avenue, in the village of Freeport, county of Nassau, and State of New York, and AAGE NIELSEN, a subject of the King of Denmark, and residing at 528 East Seventy-ninth street, in the city, county, and State of New York, have invented a new, useful, and Improved Aeroplane.

This invention relates to aeroplanes and the object of the invention is to provide an aeroplane of simple and practical construction embodying certain novel features with reference to the steering of the machine and also with reference to the supporting means for the power plant and operating mechanisms.

Other objects will appear as this specification proceeds.

To this end the invention comprises such constructions and combinations of parts as are hereinafter set forth and the novel features of which will be pointed out in the claims.

In the drawings accompanying this specification Figure 1 is a side elevation of an aeroplane embodying the invention with details omitted. Fig. 2 is a front elevation of the aeroplane. Fig. 3 is a detail view of the motors and the driving mechanism. Fig. 4 is a view of the rudders and their operating mechanism. Fig. 5 is a detail view of the brakes for locking the swinging platform to the main framework. Fig. 6 is a detail view of the swinging platform for the support of the motors and the operating mechanisms. Fig. 7 is a perspective view of the rear rudder.

Referring to Figs. 1 and 2 it will be seen that the framework of the machine comprises two general side frames each of which is composed of the upper members 10, 11 and the lower members 12 and 13 which at the rear are joined by the lattice members 14 and at the front by the uprights 15, one on each side. The upper members 11 support on each side a bearing 16 and the latter is also supported on each side by radial rods 17 secured thereto and to the frame members 13. All of the aforesaid members are substantially in the same plane. At the bottom the side frames are joined by a transverse rod 18 and between the ends of the latter and the bearings 16 there is on each

side secured a brace rod 19. In front of the uprights 15 there are four rods 20 which converge to a common point 21 for the support of the front rudder 22, while the rear members 10 and 12 converge to a common point 23 for the support of the rear rudder 24. On top of the frame members 11 there are provided plane supporting members 25 to which is secured the sustaining plane 26. Guy wires 27 are also provided for the support of the plane 26 from the members 25. The sustaining plane 26 is composed of an upper and a lower layer 28 and 29 of stout canvas or other similar material and stiffened by wooden ribs 30 perforated as shown for the sake of lightness. In this manner the plane 26 is made very rigid and securely fastened to the frame work. On the aforesaid lower rod 18 there are pivoted two arms 31, 31 each carrying on each side a wheel 32 which is held downward by the guy wire 33 and the spring 34 which latter acts as a shock absorber. Farther back, on the rear members 12, another wheel 35 is mounted on a pivoted arm 36 which is similarly provided with a guy wire 37 and a spring 38. For the sake of protecting the rear rudder there is provided beneath the same a skirt 39 suitably secured to the frame.

The machine is propelled by means of a front and a rear propeller 40 and 41 secured to the propeller shafts 42 and 43 suitably supported in the framework aforesaid. Each of the propeller shafts carries at its inner end a bevel gear 44, Fig. 1, which said two bevel gears 44 mesh with two other bevel gears 45 carried by the transverse shaft 46, Fig. 3, which is journaled in the bearings 16 aforesaid. The gears 45 are carried by the shaft 46 in a manner to permit of either of said gears being moved into or out of mesh with the gears 44 as for instance by means of clutches or other well known means not shown. In Fig. 3 only that gear 44 appears which is mounted on shaft 43. The other gear 44 on the shaft 42 is not shown in this figure but appears in Figs. 1 and 2. The shaft 46 is driven from the motors 48 by means of pulleys 49 and belts 50 or sprocket wheels and chains.

The steering apparatus, the motors for driving the propellers and the seat for the aviator and other operating mechanism are located on a platform 51, Fig. 2, which is carried by two triangular frames one on

each side and which comprises each the members 52, 53 and 53. These frames are suspended from the shaft 46 so as to swing freely. By reason of this construction the seat for the aviator will always be horizontal and the center of gravity of the machine very low, thus insuring against the machine capsizing and for the purpose of obtaining a steady flight. Thus while the rudders are operated to cause the machine to ascend or descend the latter will oscillate around the shaft 46 as a fulcrum and the swinging platform will remain in its position as shown in the drawings. Means are provided, however, whereby the aviator is enabled to shift the platform with relation to the aeroplane so as to assist in changing the altitude of the machine by changing the center of gravity. To this end there is provided in the aforesaid triangular framework pulleys 55 and two smaller pulleys 55' on each side of the platform. A shaft 57 connects the two pulleys 55 as will be understood. A cable 58 is secured to the main framework at 59 and 60 and is passed under the said pulleys 55 and over the said pulleys, 55', being wound around the latter a few turns. Normally there is no strain on the cable 58 and it slides over the pulleys aforesaid as the machine moves with relation to the triangular framework and around the shaft 46. When, however, the aviator wishes to change the center of gravity, he may do so by first lowering a roller 90 pivoted on an arm 61 in order to put tension on the cable 58, and thereafter turn the pulleys 55 by means of a handle 62, which will cause the platform and the triangular frames to swing around the shaft 46 and thus creep so to speak with relation to the machine to change the center of gravity rearwardly or forwardly to assist in ascending or descending respectively and as will be clearly understood from the drawings.

After the platform has been moved it may be locked to the main frame until the aeroplane has changed altitude. To this end there are provided four brakes 63 which lock the platform to the members 13 of the main framework. Each of the said four brakes comprises a fixed jaw 64 which is connected to a fixed jaw 64 on the opposite side of the platform by a transverse rod 65. A movable jaw 66 is pivoted to the fixed jaw at 67. A cable 68 is attached to each of the movable jaws and is passed over idlers 69 and to a pedal 70 in the platform 51. The pedal is normally kept in its upward position by a spring 72. When the pedal is depressed by the foot of the aviator a pull is exerted on the cables 68 which causes the fixed jaws to be pulled upward against a track 74 and the movable jaws to be pressed down on the said track to clamp it from above to lock the platform to the track 74,

which latter is secured to the frame members 13. It will be understood that the fixed jaws are only fixed in relation to the movable jaws and they may be pulled upward as described. 75 represents guide jaws carried by the arms 52 of the triangular frames and which guide the platform on the track 74 without clamping the latter.

As shown in Fig. 4, the rudders are operated horizontally by means of cables 76 which pass around a pulley 77 fast on a shaft 78 having a steering wheel 79. Similarly the rudders are operated vertically by cables 80 which pass around another pulley 81 fast on a tubular shaft 82 having a steering wheel 83 and which surrounds the shaft 78. Thus by turning the one or the other of the steering wheels the rudders are operated either for changing the altitude of the machine or for the purpose of steering it sidewise. And of course both steering wheels may be operated simultaneously to guide the machine in a slanting direction.

It will be seen that the operating mechanisms are all within easy reach of the aviator and they are all mounted in a simple manner on the movable platform which also carries the aviator's seat 81. Also that by providing two motors to drive the propellers complete break-downs of the power plant are made less frequent.

The foregoing is thought to clearly set forth the construction and the operation of our aeroplane, and in as much as changes may be made without materially varying the construction illustrated and described we claim all such changes as come within the scope of the invention and the appended claims.

What is claimed is:—

1. In an aeroplane the combination of a main framework, propellers carried by the same, a transverse shaft for driving the said propellers, a platform, motors supported thereon, means for driving the said transverse shaft from the said motors, means for suspending the said platform from the said transverse shaft, means for moving the platform with relation to the said main framework, a track supported on the latter, jaws supported on said platform and means for operating said jaws to engage the said track to lock the platform in a given position to the said framework.

2. In an aeroplane the combination of a main framework, a front and a rear propeller carried by the same, a transverse shaft interposed between the said propellers for driving the same, a platform suspended from the said transverse shaft and adapted to swing under the same, motors supported on the said platform, means for driving the said transverse shaft from the said motors, means for moving the platform with rela-

tion to the said main framework, jaws carried by the said platform and normally disengaged from said framework and means for operating the said jaws from the said platform to lock the latter in a given position to the said main framework.

8. In an aeroplane the combination of a main frame work, a front and a rear propeller carried by the same, a sustaining plane supported by the said framework between the said propellers, a transverse driving shaft journaled in the said framework and between the said two propellers, means for driving the latter from the said transverse shaft, a platform, means for suspending the same from the said shaft, motors on the said platform for driving the said transverse shaft, means for positively moving the said platform with relation to the said framework, a curved track carried by the latter, jaws carried by the said platform, means for normally keeping said jaws disengaged from the framework and a pedal for operating said jaws to engage said curved track to lock the said platform to the framework.

4. In an aeroplane the combination of a main frame work, propellers carried by the same, a transverse shaft journaled in the said framework, a front and a rear rudder supported by the said framework, a platform, means for suspending the same from the said transverse shaft, motors supported on the said platform, a steering mechanism supported on the latter, operating connec-

tions between the said steering mechanism and the said rudders for operating the latter, operating means between the said motors and the said transverse shaft for driving the latter and means carried by the said platform for moving the same with relation to the said framework, a curved track carried by the latter, jaws carried by the said platform, means for normally keeping said jaws disengaged from the framework and a pedal for operating said jaws to engage said curved track to lock the said platform to the framework.

5. In an aeroplane the combination of two side frames, a transverse shaft journaled in the same, two triangularly shaped frames suspended from the said side frames, a platform supported by the said triangular frames, two motors supported on the said platform for driving the said transverse shaft, a front and a rear propeller supported by the said two side frames, means for driving the said propellers from the said transverse shaft, curved tracks carried by the said side frames, guide jaws secured to the said triangular frames and engaging the said tracks and means operated from the said platform for locking the latter in a given position to the said two side frames.

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