

V. P. FLEISS.  
AEROPLANE.

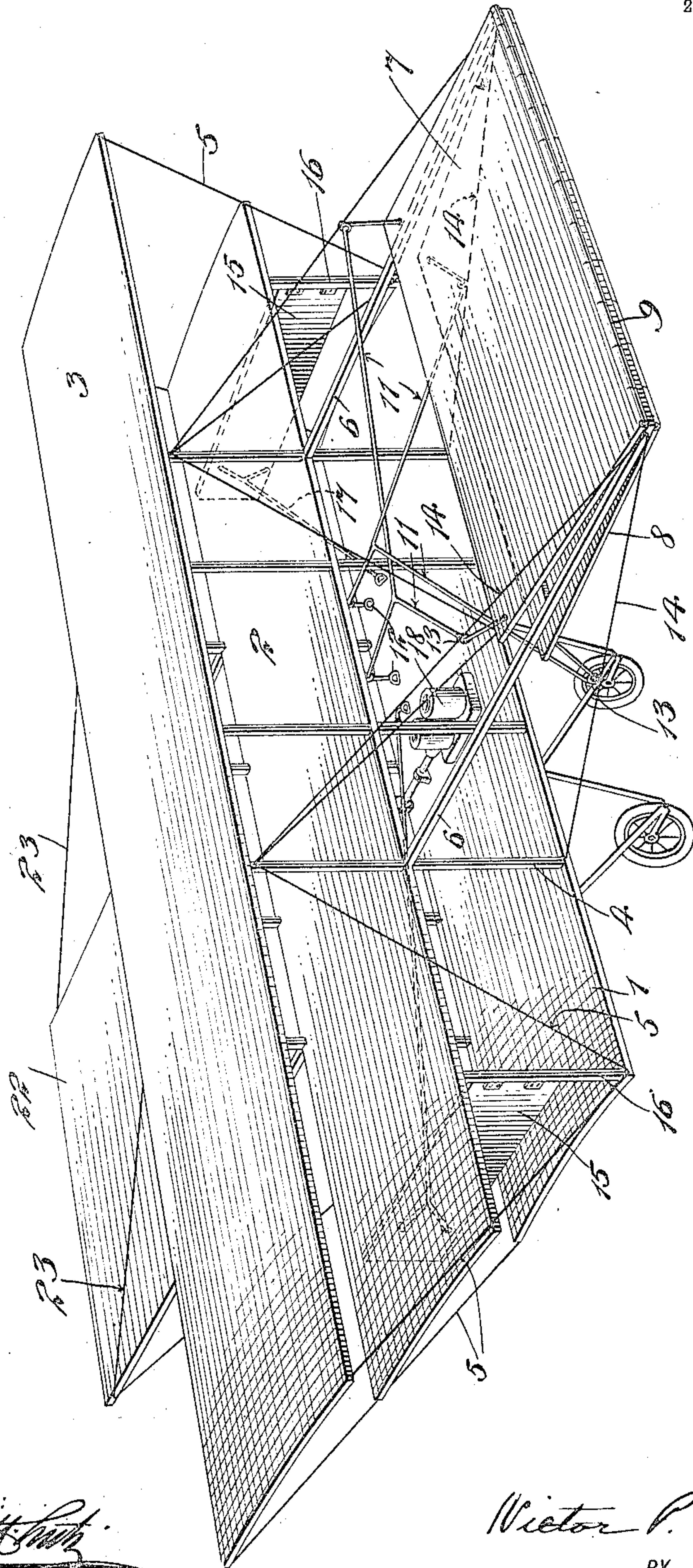
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994,072.

Patented May 30, 1911.

2 SHEETS—SHEET 1.

Fig. 1.



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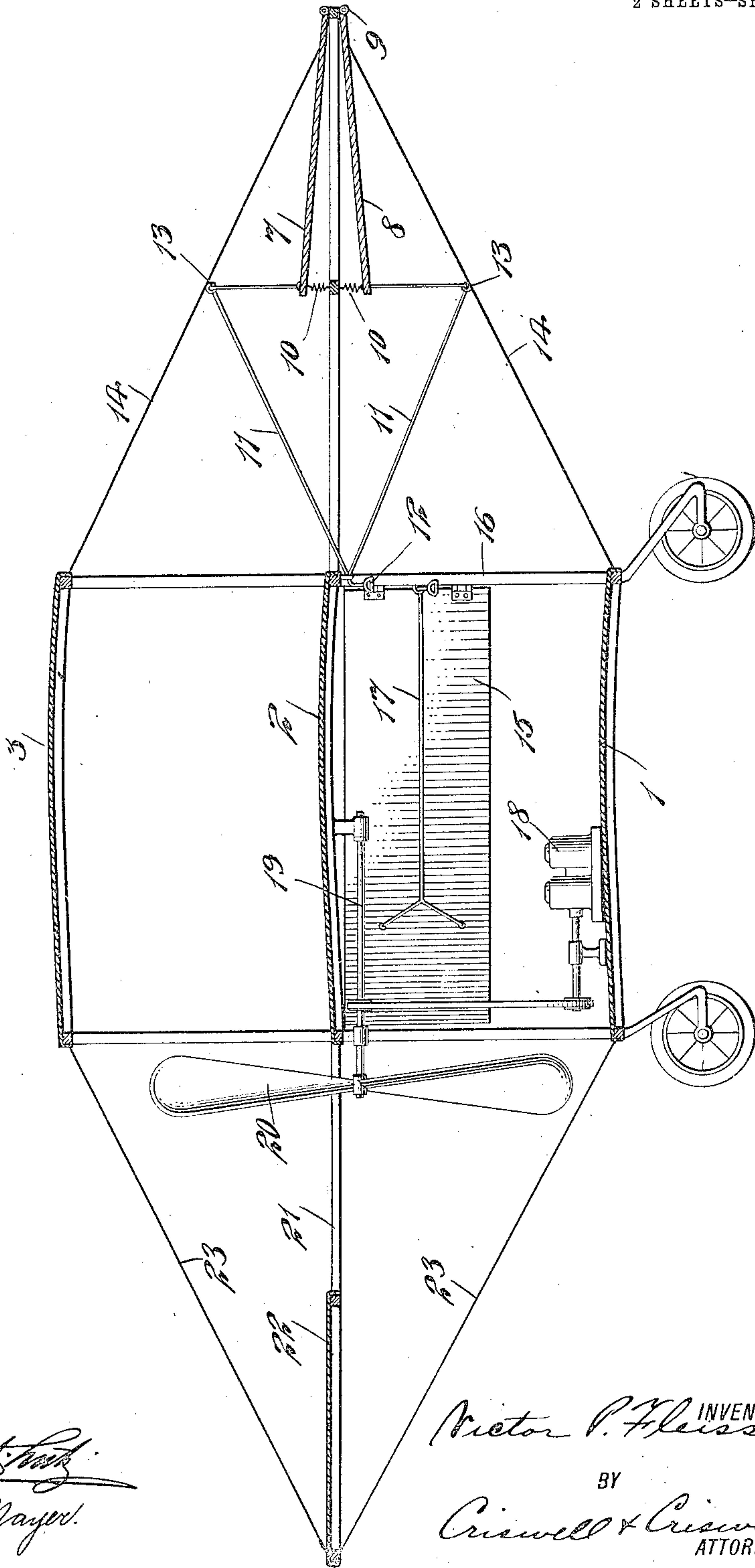
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2 SHEETS-SHEET 2.

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Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## AEROPLANE.

994,072.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed April 27, 1910. Serial No. 557,998.

*To all whom it may concern:*

Be it known that I, VICTOR P. FLEISS, a subject of the Emperor of Austria-Hungary, and a resident of Lakewood, county of Ocean, and State of New Jersey, have invented certain new and useful Improvements in Aeroplanes, of which the following is a full, clear, and exact description.

The main object of this invention is to provide an aeroplane with a plurality of supporting planes arranged one above the other and gradually increasing in length from the lower plane to the topmost one.

Another object of the invention is to provide forwardly-extending elevating and depressing planes, these planes being adjustable to vary their elevating or depressing influence.

Another object of the invention is to provide means for steering the machine laterally, said means being supported between one pair of planes and so mounted that they tend to automatically swing into position to offer the least resistance of air when the machine is moving forward, means being provided to swing them from this position for lateral steering.

Other equally important objects and advantages of the invention will appear hereinafter.

In the drawings, Figure 1 is a perspective view of the machine; and Fig. 2 a longitudinal vertical section thereof taken approximately through the center of the machine.

Referring to the various parts by numerals, 1, 2 and 3 designate the horizontal supporting planes. These planes are all of the same width and are arranged one above the other and gradually increase in length from the lower plane to the uppermost one. These planes are rigidly connected together by vertical posts 4 and suitable guy-wires 5. The planes may be made of any suitable light material and are so connected together and braced as to form a very light but rigid supporting frame. The object of providing a series of horizontal supporting planes gradually increasing in length, as described, is to increase the supporting capacity of the planes, and to have the plane of largest supporting capacity at the top, thereby avoiding the tendency of machines of this type to dive or descend end-first when the motor is stopped.

Extending forwardly from the front edge of the middle plane 2, are horizontal supports 6 which carry at their forward ends the elevating and depressing planes 7 and 8. These planes are hinged to the forward ends of the supports 6, or to a cross-bar 9, connecting the forward ends of said supports, and extend rearwardly, the plane 7 being above the supports, and the plane 8 being below them. Connected to these supporting planes are springs 10 which normally hold said planes in a horizontal position close to the support. To swing said planes, either upwardly or downwardly, the operating cords 11 are connected to the ends of said planes, the ends of said operating cords being provided with handles 12 in a suitable position to be grasped by the operator. These cords pass through eyelets 13 carried by guy-wires 14 which are connected to the forward ends of the supports 6 and to the upper and lower planes 1 and 3. It will, of course, be understood that any suitable form of pulley or other guy may be substituted for the eyelets 13, said eyelets being used merely by way of illustration. By pulling on the proper operating cord, the plane 7 may be raised for the purpose of depressing the machine, or the plane 8 may be depressed for the purpose of elevating the machine.

In order to steer the machine laterally, vertically arranged rudders 15 are provided, said rudders being pivoted at their forward ends to the posts 16 which connect the lower plane with the middle plane. Said rudders extend rearwardly from their hinged edges, said rear ends being free so that they may readily swing and adjust themselves parallel with the line of travel of the machine to thereby offer the least resistance to the forward movement of the machine. When it is desired to steer the machine laterally, the steering cords 17 are operated, said cords extending to a point within convenient reach of the operator. By drawing one of said planes inwardly by means of its steering cord 17, it is manifest that the machine will be turned and will tend to a position in which the deflected rudder will offer the least resistance to the air. When the machine is turned and is moving in the desired direction, the steering cord is released and the deflected rudder will then assume a position at right angles to the forward edges of



the planes and will remain in that position until they are again deflected through the steering cords.

A suitable motor 18 is preferably mounted on the lower plane at about the center thereof, said motor being connected by any suitable driving means to a shaft 19 of the propeller 20. This shaft is preferably supported from the under side of the middle plane at the center of the machine, the propeller being arranged slightly in the rear of the planes as shown clearly in Fig. 2.

Extending rearwardly from the edge of the middle plane is a supporting frame 21 which carries at its rear end a rigid balancing plane 22, said balancing plane being substantially equal in area to the elevating and depressing planes. The support for the balancing plane is braced from the upper and lower planes by means of the guy-wires 23. This plane 22 serves as a means for balancing the effect of the elevating and depressing planes, and to prevent a too sudden tilting of the forward end of the machine, either upward or downward according to whichever plane is operated.

The machine is mounted on suitable light transporting wheels 24 to permit it to move over the ground when starting.

The supporting planes are preferably convex on their upper surfaces and concave on their under surfaces, from their front edges to their rear edges, as shown clearly in Fig. 2. The object of this is to increase the effective steering power of the planes, particularly when descending when the motor is stopped, said planes then serving to a certain extent as parachutes.

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

1. An aeroplane comprising a series of parallel superposed supporting planes arranged directly one above the other and gradually increasing in length from the lowest to the highest plane, horizontally arranged pivoted planes supported forward of the supporting planes said pivoted planes being movable toward and away from each other at their rear ends, a common pivoting means for the forward ends of said pivoted planes, a balancing plane carried in the rear of the supporting planes, a propeller, and means for driving said propeller.

2. An aeroplane comprising a plurality of supporting planes, a pair of elevating and depressing planes carried forward of the supporting planes, means for normally holding said elevating and depressing planes in a horizontal position, a common pivoting means for the forward edges of said elevating and depressing planes, means for elevating and depressing the rear edges of said planes, a balancing plane carried in the rear of the supporting planes, a propeller in the

rear of the supporting planes, and means for driving the propeller.

3. An aeroplane comprising a series of horizontal supporting planes, elevating and depressing planes forward of the supporting planes, a common pivoting means for the forward edges of said elevating and depressing planes, a balancing plane rigid with a frame in the rear of the supporting planes, laterally swinging supporting means carried between the steering planes, means for swinging said steering means, a propeller, and means for driving said propeller.

4. An aeroplane comprising a series of parallel horizontally arranged supporting planes, said planes increasing in length from the lowest to the highest plane, a pair of elevating and depressing planes carried forward of the supporting planes, a common means for hinging said planes at their forward edges, means for raising and lowering the rear edges of said planes respectively, means for normally holding said planes horizontally, a balancing plane rigid with a frame in the rear of the supporting planes, vertically arranged rudders between the supporting planes, means for hinging said rudders at their forward edges, means for laterally swinging said rudders, a propeller, a motor supported on the lower plane, and means connecting the motor to the propeller.

5. An aeroplane comprising a series of horizontal supporting planes, concaved upon their lower surfaces, said planes being superposed with relation to each other and increasing in length upwardly, horizontally arranged pivoted planes supported forward of said supporting planes, said pivoted planes being movable toward and away from each other at their rear ends, a forwardly extending frame secured to the supporting means of the first referred to planes, said pivoted planes having pivotal connection at their forward ends with the forward cross-bar of said frame, means for vertically adjusting the rear ends of said pivoted planes away from and toward each other, a rearwardly extending frame secured to the intermediate supporting plane, a balancing plane rigid with said rearwardly extending frame, means for the propulsion of said aeroplane.

6. An aeroplane comprising supporting planes, propelling means, a forwardly extending frame, a pair of planes pivoted on a horizontal transverse axis on said frame and projecting rearward, and means for independently changing the angle of the said forward planes relative to the supporting planes.

7. An aeroplane comprising supporting planes, propelling means, a forwardly extending frame, a pair of planes pivoted on a horizontal transverse axis on said frame and projecting rearward, means for inde-



pendently changing the angle of the said forward planes relative to the supporting planes, and means for normally retaining the forward planes in proximity.

- 5 8. An aeroplane comprising supporting planes, propelling means, a forwardly extending frame, a pair of planes pivoted on a common horizontal transverse axis on said frame and projecting rearward, and means

for independently changing the angle of the 10 said forward planes relative to the supporting planes.

This specification signed and witnessed this 26th day of April A. D. 1910.

VICTOR P. FLEISS.

Witnesses:

WM. R. DAVIS,

L. I. MAYER.