

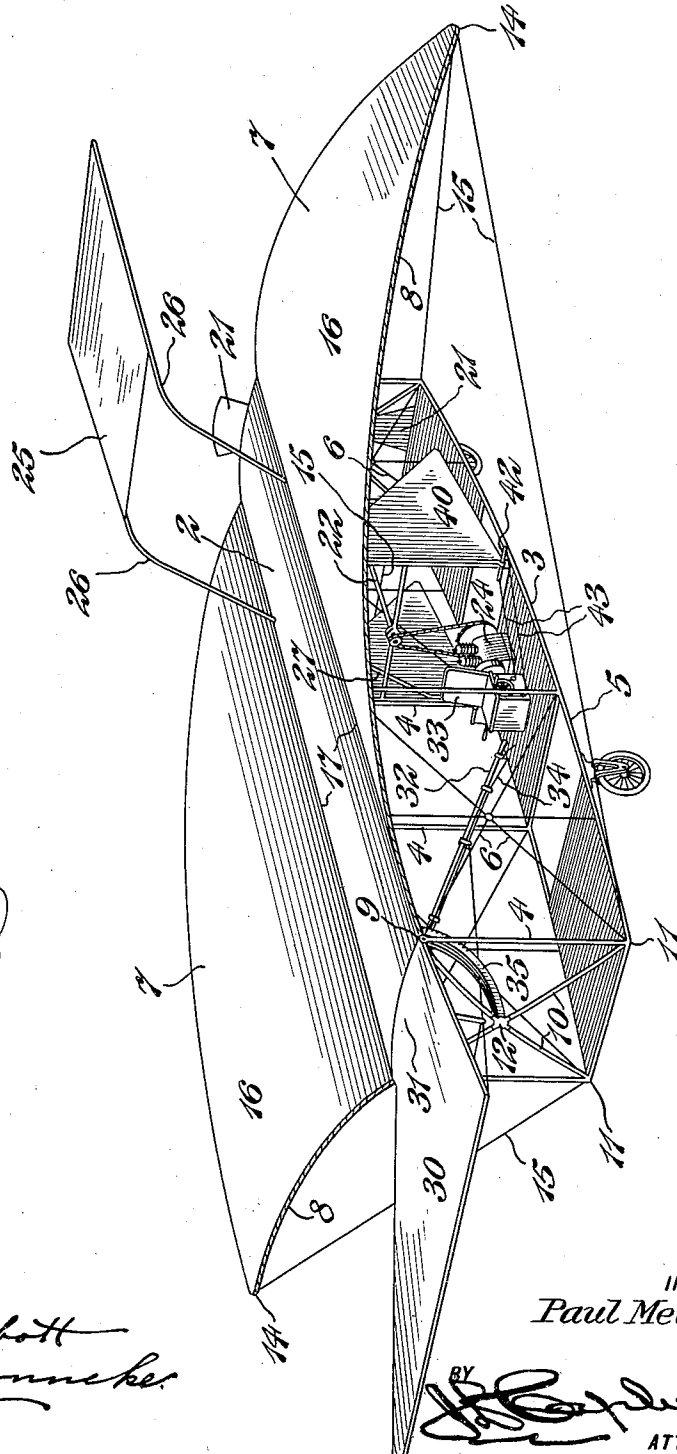
P. MEISSNER.  
 FLYING MACHINE.  
 APPLICATION FILED NOV. 10, 1909.

1,007,225.

Patented Oct. 31, 1911.

4 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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INVENTOR

*Paul Meissner*

BY

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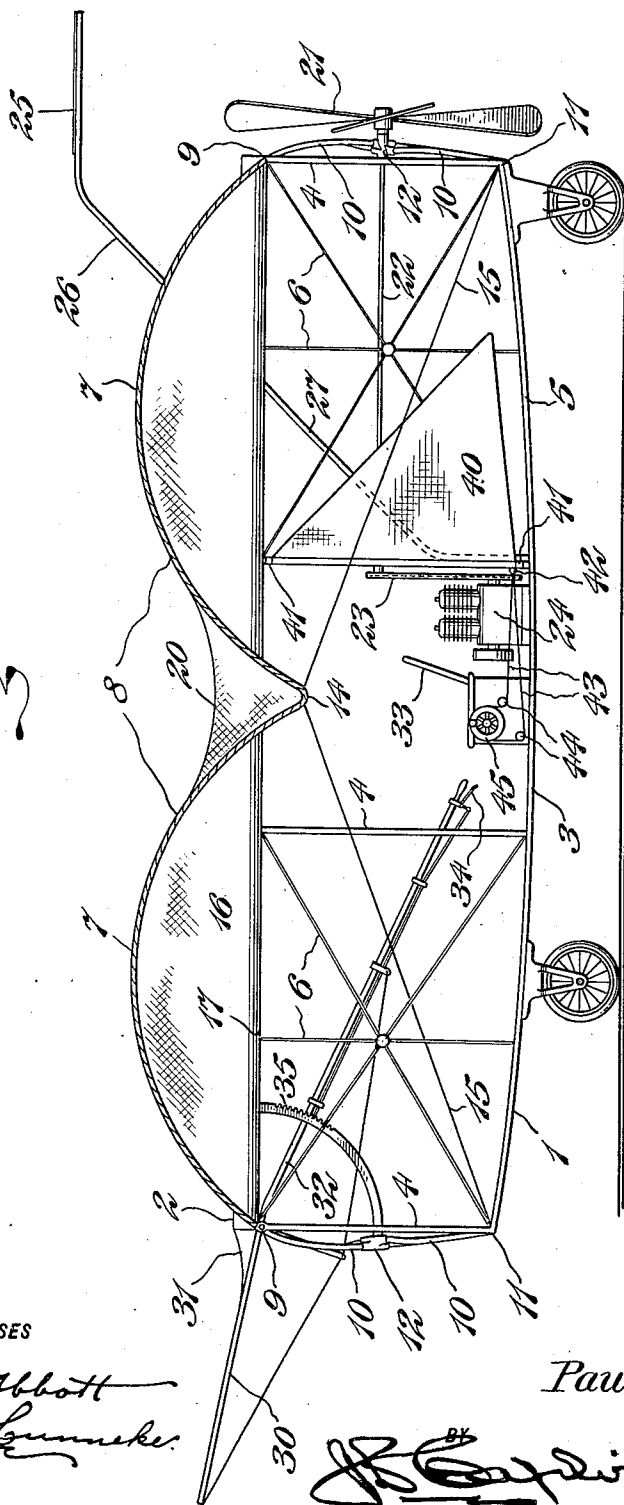
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4 SHEETS-SHEET 2.

Fig. 2.



WITNESSES

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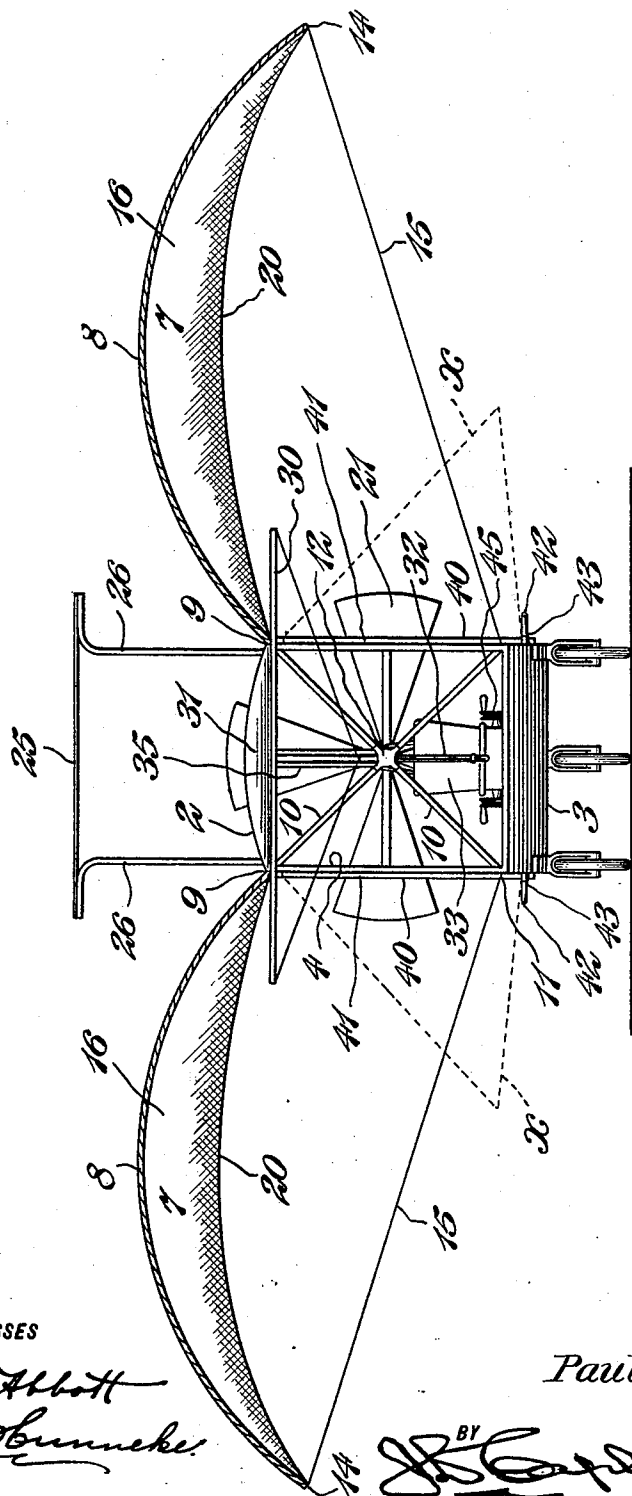
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4 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

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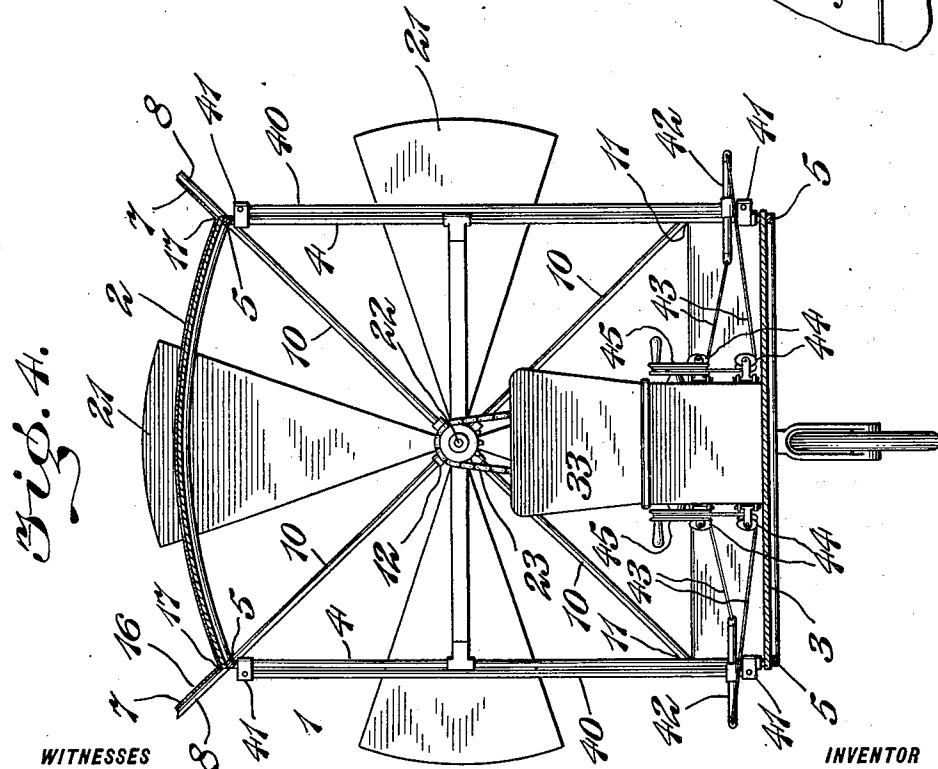
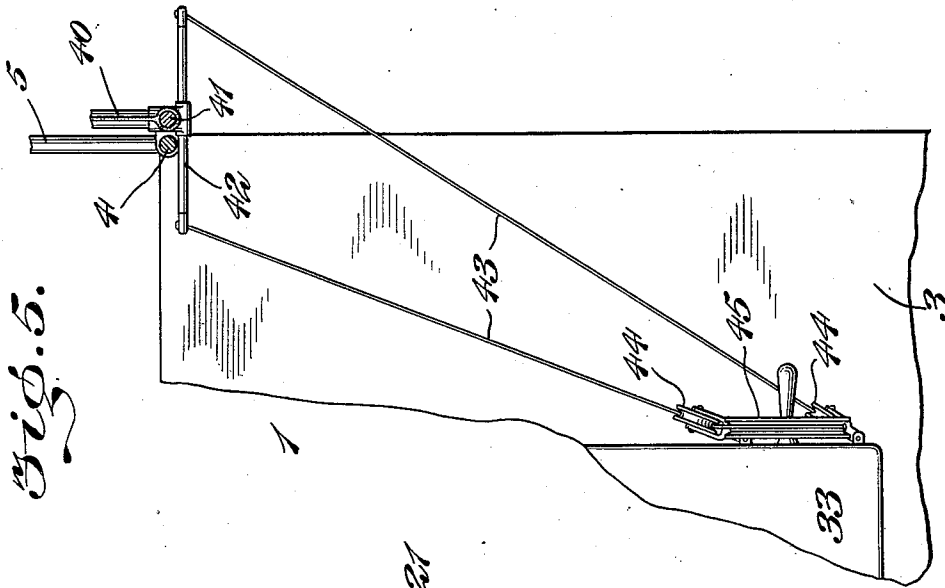
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4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

PAUL MEISSNER, OF WEST HOBOKEN, NEW JERSEY.

## FLYING-MACHINE.

1,007,225.

Specification of Letters Patent.

Patented Oct. 31, 1911.

Application filed November 10, 1909. Serial No. 527,146.

*To all whom it may concern:*

Be it known that I, PAUL MEISSNER, a citizen of the United States, and a resident of West Hoboken, in the county of Hudson and State of New Jersey, have invented certain Improvements in Flying-Machines, of which the following is a specification.

This invention relates to certain improvements in flying machines, and more particularly in that class of such devices, of the aeroplane type which are adapted to be self-sustaining during flight, and the object of the invention is to provide a machine or apparatus of this general character of a simple and comparatively inexpensive nature and of a light, compact and strong construction having means of a novel and improved construction for sustaining it and for controlling its movement during flight.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved flying machine or apparatus, whereby certain important advantages are attained, and said machine or apparatus is rendered simpler, less expensive, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In order that my improvements may be the better understood I have illustrated in the accompanying drawings one embodiment of my invention, in which drawings—

Figure 1 is a perspective view showing the improved flying machine or apparatus upon a much reduced scale; Fig. 2 is a fragmentary side elevation of the machine or apparatus illustrated in Fig. 1, and drawn to a somewhat enlarged scale; Fig. 3 is a front end elevation of the machine or apparatus constructed as shown in Figs. 1 and 2; Fig. 4 is a transverse section taken vertically through the central portion of the machine or apparatus, showing certain features of construction to be hereinafter referred to; and Fig. 5 is a fragmentary sectional detail view taken horizontally through one side of the machine at its central part and illustrating certain features of the controlling mechanism which will be hereinafter described.

As shown in these views, the improved flying machine or apparatus is provided with a main frame or body portion 1 elongated

in the direction of movement of the apparatus during flight, or fore and aft of the device, and of dimensions and strength to afford suitable support for the aviator, motors, etc., and as herein shown said frame or body portion comprises an upper plane portion 2 adapted to be horizontally extended during flight, and a lower frame portion 3 spaced at a suitable distance below said plane 2, and connected therewith by vertically directed braces or stays 4, 4 which are herein shown as of general rectangular formation.

The upper and lower portions 2 and 3 of the main frame 1 are provided with lateral rails 5, 5 extended along their opposite sides and affording connections between the several rectangular braces or stays 4, 4 which are positioned at appropriate points along the length of said body portion. A reinforced canvas or other covering is extended between the rails 5 5 of the upper portion 2 to form the supporting surface of the plane, and suitable platforms are extended between the rails 5, 5 of the lower portion 3 of the main frame.

The main frame or body portion 1 is securely braced at opposite sides of its forward and rear ends, as indicated at 6 upon the drawings, and is provided with supporting wheels adapted for engagement with a supporting surface in a well known way during starting of the machine or apparatus from the earth.

At opposite lateral sides of the upper plane portion 2 of the main frame are extended triangular wings or sails 7, 7, each of which includes a frame portion of suitable strength over which is extended a flexible covering 16 of canvas or other preferred material, which, as herein shown, is provided with gromets at intervals along its edges for the reception of a lacing cord woven around the frame members as clearly shown in the drawings, for holding the covering in relation to said frame. By this means, the covering may be placed under such tension as may be desired to prevent excessive upward bellying thereof. The frames for the wings or sails 7, 7 are herein shown comprising stout rods or strips 8, 8 extended along the forward and rear edge portions of said sails or wings, and connected as indicated at 9, 9 with the forward and rear extremities of the elongated upper plane portion 2 of the main frame in such

a way as to extend upwardly and outwardly beyond the opposite longer lateral sides of said plane portion 2 in converging directions. By this structure, the wings or sails 7, 7 are caused to curve upwardly at some elevation above the elongated plane portion 2 of the main frame, and their opposite extremities are also curved downwardly somewhat below said plane portion 2. This novel construction and arrangement of the parts materially assists in the balancing of the device during flight, while affording an ample sustaining surface whereby the apparatus is rendered capable of carrying a comparatively great load while the triangular formation of the wings or sails with their smaller extremities farthest removed from the main frame renders the device resilient and particularly well adapted for rapid evolutions during flight.

The angular or convergent frame members 8, 8 of the respective wings or sails 7, 7 meet at the outer extremities thereof, as clearly shown at 14 in the drawings, and the said outer extremities of said wings or sails are braced or stayed by means of cables or connections 15, 15 extended from the meeting ends of the frame members 8, 8 of each wing or sail in inclined directions toward the forward and rear extremities of the lower member 3 of the main frame. As shown herein the inner longer adjacent and parallel edges of the coverings 16, 16 for the respective wings or sails 7, 7 meet the opposite lateral longer edges of the covering for the central plane member 2, as indicated at 17 upon the drawings, so that said wings or sails form substantial extensions of the said central elongated plane member 2.

In the apparatus herein illustrated I have utilized those ends of the frame members 8, 8 which afford connection of the sails or wings with the main frame as braces or stays for said main frame, in order to afford added strength thereto and to said wings or sails without materially increasing the weight of the structure, said frame members 8, 8 being herein shown extended from their points of attachment at 9, 9 to the opposite sides of the forward and rear ends of the central plane portion 2 in downwardly curved or inclined directions, as seen at 10, 10 and being crossed over each other at approximately the axis of said main frame 1 and having their lower ends securely attached as shown at 11 at opposite sides of the forward and rear ends of the lower member 3 of said main frame. Clamps 12, 12 serve to secure the crossed angular portions 10, 10 of the members 8, 8 in relation. The rearmost of these clamps 12 is utilized in the construction herein shown as a bearing for a propeller shaft 22, which carries the propeller 21 positioned at the rear end of the main frame 1 and adapted to exert

its propelling influence in line with the axis thereof. The forward part of the shaft 22 is supported in a bearing adjacent to the middle of the main frame and is driven by suitable gearing 23 from a motor 24 of any appropriate type.

25 represents an auxiliary balancing plane supported upon spaced braces 26, 26 above the propeller 21 and at some small elevation above the plane member 2 and beyond the rear extremity thereof, so as to be adapted to assist in balancing and sustaining the apparatus from the upward thrust of the propeller 21. The braces 26, 26 being extended in inclined directions at opposite sides of the main frame, afford braces therefor as shown at 27 upon the drawings.

30 represents a forward controlling or directing plane comprising a stout frame pivotally secured at its smaller rear end upon the forward extremity of the plane member 2 and having its forward end laterally enlarged and widened and covered over with a canvas or other sheathing, the rear end of which joins the forward end of the canvas covering of said plane member 2 as clearly indicated at 31 upon the drawings. This controlling or directing plane is capable of adjustment by means of a lever or actuating handle 32 rearwardly extended within the main frame with its free end positioned adjacent to the aviator's seat 33 so as to permit of being conveniently manipulated to elevate or depress said plane 30. 34 is a detent engageable with a segment rack for locking the actuating member or lever 32 securely in position when adjusted. The employment of this construction permits the plane 30 to be set from time to time in such adjusted inclined or horizontal position as may be desirable for directing or guiding the machine or apparatus upwardly or downwardly or in a horizontal direction during flight, while the forwardly widened formation of the plane 30, and its location at a lower level than the central upwardly curved portions of the wings or sails 7, 7, assures the direction of the air beneath said upwardly curved parts of said wings or sails in such a manner as to materially assist in the sustentation of the apparatus.

40, 40 represent small triangular planes positioned at opposite sides of the main frame 1 adjacent to its central part said planes being pivotally supported to turn upon vertical axes in bearings at 41, 41, so as to be adapted to be independently thrown outward from the opposite sides of the main frame at will into position for imposing a resistance at one side or the other of the center of the apparatus, so as to impart a lateral turning or wheeling movement to the apparatus during flight. For the convenient independent manipulation of these controlling or steering planes 40, 40, I have shown

them each provided at its lower part with a cross bar 42, the opposite ends of which are independently coupled by flexible connections or cables 43, 43 passed about guide sheaves 44, 44, with pilot wheels 45, 45 mounted to turn at opposite sides of the aviator's seat 33, and provided with handles whereby either of said pilot wheels may be conveniently turned at will to throw one or the other of said planes outwardly from the main frame into position to catch the air as indicated in dotted lines at *x* in Fig. 3.

From the above description of my invention it will be seen that the apparatus is of an extremely simple and comparatively inexpensive nature, and is particularly well adapted for use by reason of the material advantages attained by it in the balancing, control and sustaining capacity of the device, and it will also be seen from the above description that the device is susceptible of considerable modification without material departure from the principles and spirit of the invention and for this reason I do not desire to be understood as limiting myself to the precise formation and arrangement of the several parts of the apparatus herein set forth in carrying out my invention in practice.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. An apparatus of the character described having a central elongated body portion comprising upper and lower portions, the lower portion being arranged on an upward fore and aft concave curve relative to the upper portion, and means for holding said upper and lower portions in relative position; means for propelling said body portion in the direction of its longer axis, and wings extended beyond the opposite sides of said elongated body portion and including frame members affording connection of said wings with said body portion and having bracing connection with said body portion.

2. An apparatus of the character described having a body portion, means for propelling said body portion, sustaining planes carried by the body portion and an auxiliary plane extended above and at the rear end of the body portion and separated therefrom and positioned above the propelling means.

3. An apparatus of the character described having a body portion, means for propelling said body portion, sustaining planes carried by the body portion, spaced arms extending upwardly and rearwardly from the body portion and an auxiliary plane carried by the free end portions of such arms positioned above the propelling means.

4. An apparatus of the character de-

scribed consisting of a body comprising upper and lower portions, means for holding said upper and lower portions in relative position, means for propelling said body portion, supporting wings, and frames for said supporting wings carried by the body portion, said frame being extended and connected to both the upper and lower portions of the body to serve as additional means for holding said upper and lower portions in relative position, said extended portions of the frame being extended diagonally across the ends of said body.

5. An apparatus of the character described having a body portion, means for propelling said body portion, sustaining planes carried by the body portion, spaced arms extending upwardly and rearwardly from the body portion and an auxiliary plane carried by the free end portions of such arms positioned above the propelling means, said arms extending from the upper portion to the lower portion of such body and secured thereto to serve as braces to maintain said upper and lower portions in relative position.

6. An apparatus of the character described having a central elongated body portion comprising upper and lower portions, the lower portion being arranged in an upward fore and aft concave curve relative to the upper portion, means for propelling said body portion, a vertically adjustable directing plane supported at the forward end of said body portion, an auxiliary balancing plane supported above and projecting beyond the rear end of the body portion and adapted to receive the upward thrust of the propelling means.

7. An apparatus of the character described having an elongated body portion comprising upper and lower portions, the lower portion being arranged in an upward fore and aft concave curve relative to the upper portion, intersecting braces connecting such upper and lower portions, clamps engaging the stays at their points of intersection, one of such clamps affording a bearing for a shaft, a second bearing supported by the body, a propeller shaft mounted in the bearings, means for operating such shaft and supporting planes carried by the body.

8. An apparatus of the character described comprising a central elongated body, comprising upper and lower portions the lower portion being arranged in an upward fore and aft concave curve relative to the upper portion, means for holding said upper and lower portions in relative position, means for propelling said body portion and supporting wings carried by the body.

9. An apparatus of the character described comprising a central elongated body comprising upper and lower portions, the lower portion being arranged in an upward

fore and aft curve relative to the upper portion, means for holding said upper and lower portions in relative position, means for propelling said body portion and supporting wings carried by the upper portion  
5 of the body.

In witness whereof I have hereunto

signed my name, in the presence of two subscribing witnesses.

PAUL MEISSNER.

Witnesses:

J. B. CAPLINGER,  
W. C. ABBOTT.

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