

W. H. BEERY.
FLYING MACHINE.
APPLICATION FILED MAY 25, 1911.

1,013,268.

Patented Jan. 2, 1912.

4 SHEETS-SHEET 1.

FIG. 1

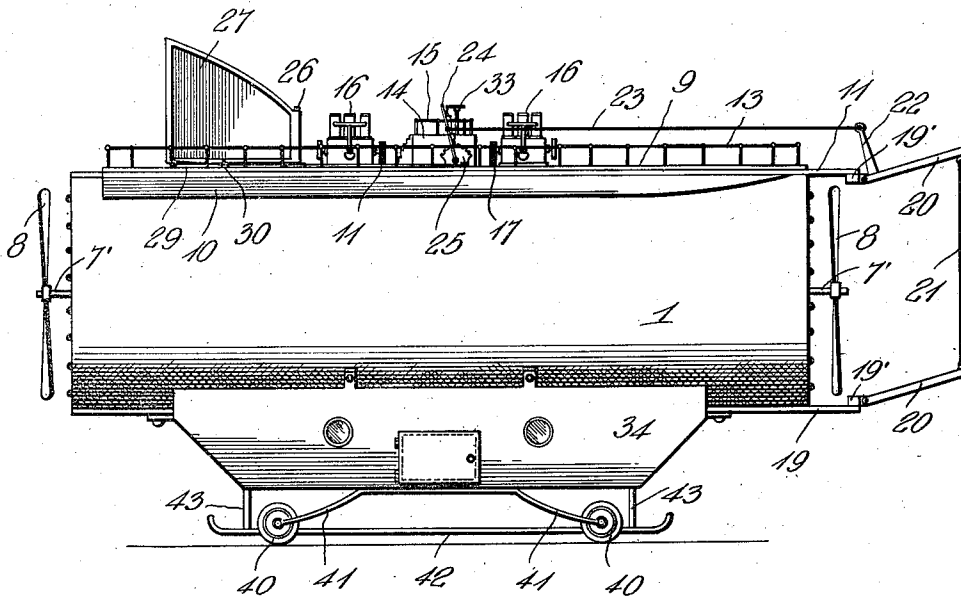
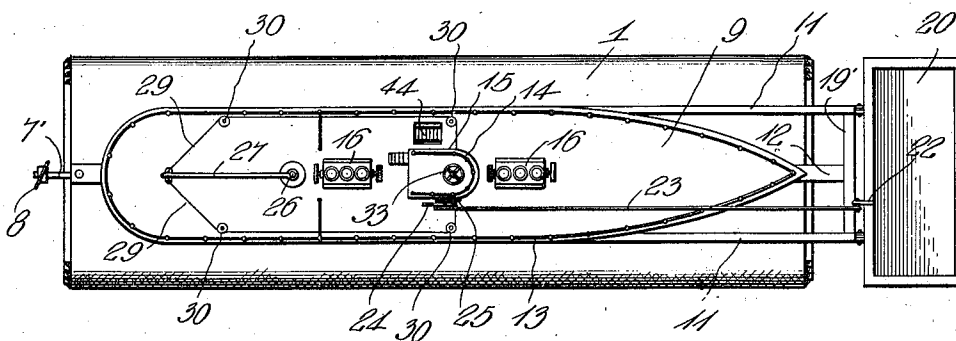


FIG. 2



Witnesses

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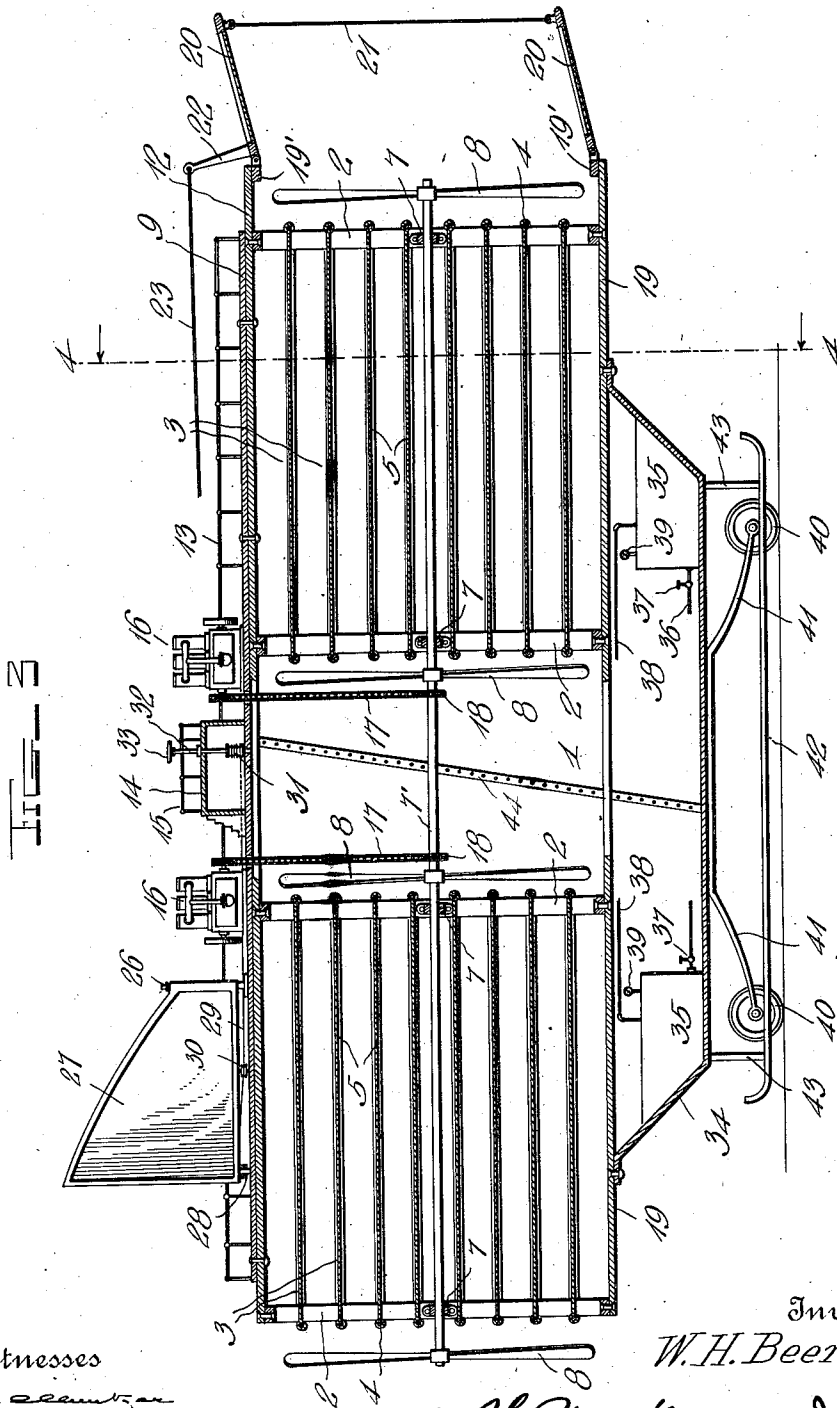
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4 SHEETS—SHEET 2.

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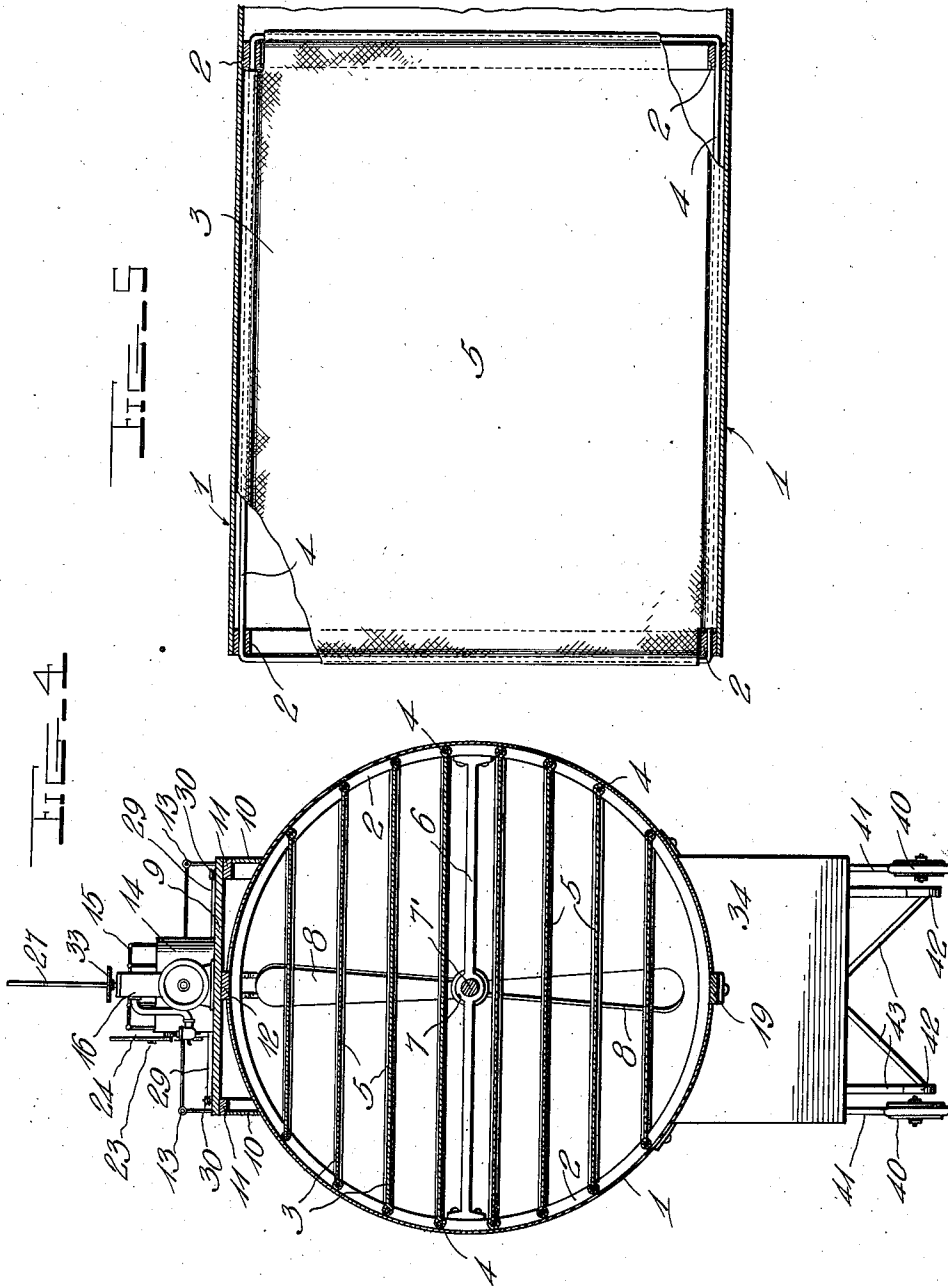
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4 SHEETS—SHEET 3.



Witnesses

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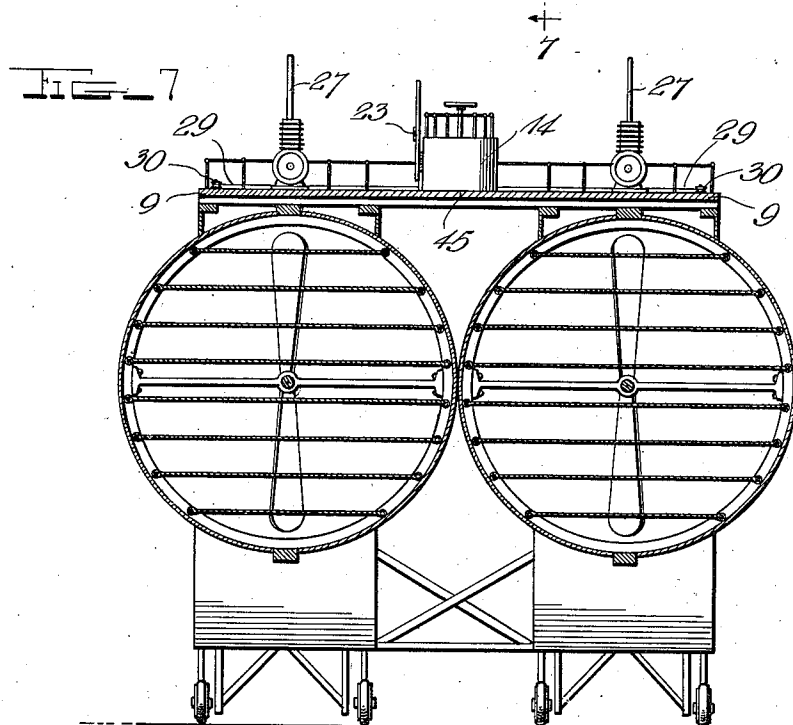
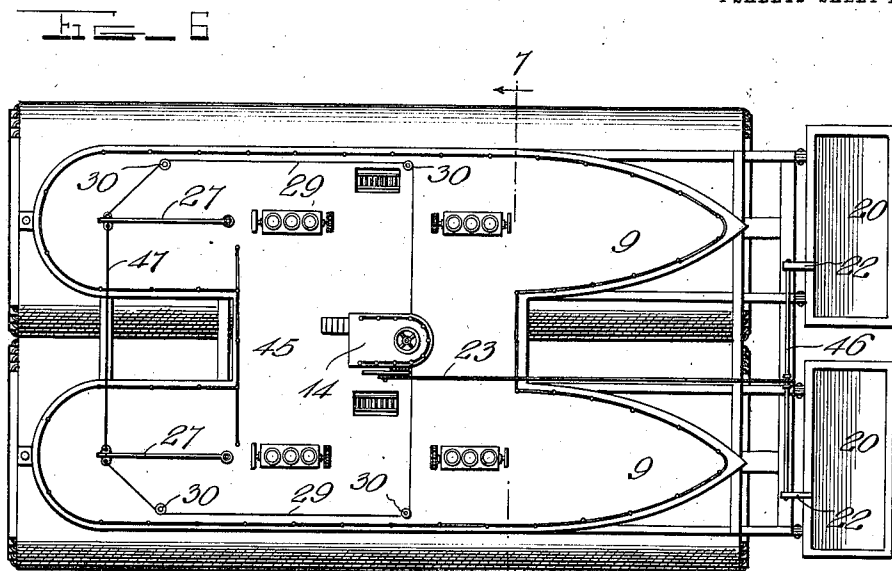
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W. H. BEERY.
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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FLYING-MACHINE.

1,013,268.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. BEERY, a citizen of the United States, residing at Celina, in the county of Mercer and State of Ohio, have invented certain new and useful Improvements in Flying-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in flying machines.

One object of the invention is to provide a flying machine having an improved construction and arrangement of supporting frames whereby the machine is maintained in a level position while being propelled through the air.

Another object is to provide an improved construction and arrangement of steering planes whereby the machine may be readily raised or lowered or guided in the desired direction.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a side elevation of my improved airship; Fig. 2 is a top plan view thereof; Fig. 3 is an enlarged central vertical longitudinal section; Fig. 4 is a vertical cross section on the line 4-4 of Fig. 3; Fig. 5 is a horizontal section through a portion of the front end of the cylinder showing a plan view of one of the horizontal sustaining planes of the machine, parts being broken away and in section to more clearly illustrate the structure and arrangement of the plane. Fig. 6 is a plan view of a double form of the machine; Fig. 7 is a vertical cross sectional view on the line 7-7 of Fig. 6.

My improved airship comprises a hollow cylinder 1 of suitable size and constructed of any suitable material. The cylinder 1 is open at its opposite ends and has arranged therein front and rear pairs of annular plane supporting frames or rings 2 to which the cylinder is secured in any suitable manner. Arranged in the front and rear ends of the cylinder between the annular frames or rings 2 are front and rear series of horizon-

tally disposed parallel sustaining planes 3, said planes being preferably each constructed of a wire frame 4. The side members of the frames 4 project through or are otherwise suitably secured to the supporting rings 2 as clearly shown in Fig. 5 of the drawing. Stretched across and secured to the frame 4 is a covering 5 of canvas or other suitable fabric which forms the body of the plane. The planes 3 are spaced a suitable distance apart in their supporting frames 2 and form the means for sustaining the machine in the air.

Arranged across and secured at their ends to the plane supporting frames 2 are horizontal centrally disposed shaft supporting bars 6 in the center of each of which is formed a bearing 7. Revolvably mounted in the bearings 7 of the bar 6 and extending through the cylinder 1 is a propeller operating shaft 7' on which adjacent to the inner and outer front and rear sets of planes are propeller blades 8 by means of which the machine is driven.

Arranged on the upper side of the cylinder is a central horizontally disposed deck 9 the outer edges of which are supported by longitudinally disposed side plates 10, the lower edges of which rest on and are engaged with the plane supporting frames and the outer side of the cylinder 1 as shown. The upper edges of the side plates 10 are engaged with flat supporting strips 11 which extend throughout the length of the cylinder and project a suitable distance beyond the front end thereof for a purpose hereinafter described. The central portion of the platform 9 rests upon a central longitudinal supporting strip 12 which also extends throughout the length of the machine and projects a suitable distance beyond the front end of the cylinder 1 as shown. The platform 9 is preferably provided around its outer edge with a guard rail 13 and in the center of the platform is preferably arranged an elevated pilot stand or box 14 which is also preferably provided with a guard rail 15. In the platform 9 adjacent to the pilot stand 14 are arranged suitable motors 16 which are here shown and are preferably in the form of gasolene engines. The motors 16 are connected by sprocket chains 17 to sprocket gears 18 on the propeller shaft 7 whereby said shaft is driven to propel the machine in the desired direction.

Secured to the lower sides of the plane

supporting frames 2 is a lower central longitudinally disposed supporting bar 19 the front end of which projects beyond the front end of the cylinder said projecting end of the bar 19 and the projecting ends of the bars 11 and 12 on the upper side of the cylinder having secured thereto upper and lower cross bars 19' which form supports for a pair of raising and lowering planes 20 which are connected together near their outer edges by a connecting rod 21 whereby said planes are caused to move in unison. The planes 20 each comprise an open frame preferably of rectangular form, said frames being filled in by a covering of canvas or other suitable fabric. Secured to the inner edge of the upper plane 20 is a right angular upwardly projecting operating arm 22 the upper end of which is connected by an operating rod 23 to an operating lever 24 pivotally mounted adjacent to one side of the pilot stand 14 whereby the same may be conveniently reached by the pilot or operator of the machine. The lever 24 is provided with a locking pawl adapted to be engaged with a suitable rack 25 whereby the planes 20 are held in position after being adjusted to the desired angle by the lever 24. By thus arranging the planes 20 the machine may be directed upwardly or downwardly and caused to travel at the desired elevation.

Pivotally mounted on a suitable supporting standard 26 arranged on the rear portion of the platform 9 is a vertically disposed steering plane 27, the forward end of which has engaged with its lower edge a supporting roller 28 adapted to travel on the deck 9 and to adjustably support the outer end of the plane. The plane 27 is preferably constructed in the form of an open frame covered with canvas or other suitable fabric. The steering frame 27 is swung laterally in one direction or the other on the standard 26 by means of operating cables 29 which are engaged with guide pulleys 30 arranged on the platform 9 and have their outer ends connected with the outer end of the plane as clearly shown in Fig. 2 of the drawings. The inner ends of the cables 29 are connected with a winding drum 31 and adapted to be wound on or off the same in opposite directions whereby the forward end of the plane is swung in the desired direction for steering the machine. The drum 31 is fixedly mounted on the lower end of an operating shaft 32 journaled in the platform 9 and projecting upwardly through the pilot stand. On the upper end of the shaft 32 is fixedly mounted a steering wheel 33 whereby the shaft and drum are turned in the desired direction for winding and unwinding the cables 29.

Arranged below the cylinder 1 and secured to the inner frames 2 of the planes 3 and to the lower supporting bar 19 is a car

34 which may be employed for various purposes and is herein shown as having arranged in its opposite ends fuel tanks 35 to the inner ends of which are connected fuel conducting pipes 36 leading to the engine 16 and having arranged therein suitable cut off valves 37. Connected to the upper sides are compressed air conducting pipes 38 by means of which compressed air may be conducted to the tanks and employed for forcing the fuel therefrom to the engines. The tanks 35 are here shown as being provided with pressure gages 39, whereby the pressure of the air therein is indicated.

The car 34 is preferably provided with supporting wheels 40 arranged in the outer end of the spring attaching members 41 secured to the bottom of the car as clearly shown in the drawings. The car is also provided with a pair of skids or runners 42 which are connected to the bottom of the car by supporting standards 43. The skids or runners 42 have their ends curved or turned upwardly as shown. Access is preferably had to the car 34 from the deck by means of a ladder 44 arranged through the central portion of the cylinder between the front and rear sets of supporting planes as shown. The car if desired may also be provided with suitable windows and a door arranged therein as shown in Fig. 1 of the drawing.

While the machine is shown in the first figures of the drawing and has been described as being of single form, it is obvious that the same may be constructed in multiple form or of a plurality of sections each of which is constructed substantially as shown and described in the single form of the machine or in other words two or more of the single forms of the machine may be connected together as shown in Figs. 6 and 7 of the drawings or in any other suitable manner.

In Figs. 6 and 7 of the drawings wherein the machine is shown as being constructed of double form, the cylinders, planes, propelling and steering mechanism are the same as shown and described in connection with the single form of the machine and a further description of these parts is not thought to be necessary. In the double form of the invention the decks 9 are connected by a bridge 45 in the center of which is arranged the pilot stand 14. The operating arms 22 of the raising and lowering planes 20 are connected together by a connecting bar 46 to which the operating rod 23 is connected thus providing for the simultaneous operation of the planes 20 of both of the cylinders. The vertical steering planes 27 of the two sections of the machine are operatively connected together by a connecting rod or cable 47 whereby said planes are moved in unison by the operating cables 29 which are connected to the outer sides of the planes 27 and

pass around guide pulleys 30 and are connected to the operating mechanism in the pilot stand in the same manner as shown and described in the single form of the invention.

5 By connecting the raising and lowering planes together and connecting to said planes the operating devices as herein shown and described, said planes will be actuated in unison to direct the multiple form of the machine in the desired course. In the multiple form of the machine each section is preferably provided with independent motors for operating their respective propelling mechanism.

15 From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

20 Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as defined in the appended claims.

Having thus described my invention, what I claim is:

1. An air ship comprising a cylinder open at its front and rear ends, plane supporting frames arranged in the front and rear ends of the cylinder, series of parallel horizontally disposed sustaining planes arranged in said frames, a propeller shaft revolubly mounted in and extending through the center of said cylinder, a series of propelling blades fixedly mounted on said shaft, means whereby the latter is driven to operate said propellers in the desired direction, raising and lowering planes hingedly supported at the front end of the machine, means to adjust said planes whereby the machine is raised and lowered, a platform arranged on the upper side of the cylinder, a steering plane pivotally mounted on said platform, and means whereby said plane is operated to guide the machine in the desired direction.

2. A flying machine comprising a cylinder open at its ends, annular plane supporting frames arranged in said cylinder, a plurality of parallel horizontally disposed sustaining planes arranged in said frames, transversely disposed bearing bars secured at their outer ends to said plane supporting frames, a propeller shaft revolubly mounted in said bearing bars, propeller blades fixedly mounted on said shaft, platform supporting bars secured to the upper portion of said supporting frame, said bars projecting forwardly beyond the front end of the machine, a platform arranged on said bars, a lower supporting bar secured to the lower side of said plane supporting frames and projecting forwardly beyond the front end of the machine, upper and lower

raising and lowering planes hingedly connected to the forwardly extending ends of said upper and lower bars, a rod connecting said planes whereby the latter are moved in unison, an operating arm arranged on the upper raising and lowering plane, a plane operating lever, an operating rod to connect said lever with said arm, whereby said planes are adjusted, a steering plane pivotally mounted on the rear end of said platform, a plane operating shaft, a cable winding drum fixed thereon, plane adjusting cables connected at one end to said plane and adapted to be wound on and off said drum in opposite directions whereby said plane is adjusted to guide the machine, and means whereby the propellers are driven.

3. A flying machine comprising a cylinder, horizontally disposed supporting planes arranged in the opposite ends of said cylinder, a revolubly mounted propeller operating shaft arranged through the cylinder, propellers fixed on said shaft, a platform arranged on the upper side of said cylinder, motors arranged on said platform, means to connect said motors with said propeller shaft whereby the latter is driven to propel the machine in the desired direction, a car arranged on the lower side of the cylinder, fuel supply tanks arranged in said car, spring wheel supporting members connected to the bottom of the car, supporting wheels revolubly mounted in said members, skids secured to the bottom of the car, means whereby the machine is raised and lowered, and means whereby the same is guided.

4. An air ship comprising a cylinder, annular plane supporting frames arranged in said cylinder, a plurality of parallel horizontally disposed sustaining planes arranged in said frames, said planes comprising open rectangular frames having their side members engaged with said annular supporting frames, a fabric covering arranged over said plane frames, bearing bars arranged across and connected with the opposite sides of said annular supporting frames, a propeller shaft revolubly mounted in said bearing bars, a plurality of propellers fixedly mounted on said shaft, means whereby said shaft and propellers are driven, means to raise and lower the machine, and means whereby the same is guided.

5. An air ship comprising a plurality of cylinders open at their front and rear ends, plane supporting frames arranged in the front and rear ends of the cylinders, series of parallel horizontally disposed sustaining planes arranged in said frames, propeller shafts revolubly mounted in and extending through the center of each of said cylinders, a series of propelling blades fixedly mounted on said shafts, means whereby the latter are driven to operate said propellers in the desired direction, raising and lowering

planes hingedly connected to the front ends
of the cylinders, means to connect the planes
of said cylinders together whereby the same
are operated in unison, means to operate said
5 planes, platforms arranged on the upper
sides of the cylinders, a bridge to connect
said platforms between the cylinders, steer-
ing planes pivotally mounted on said plat-
forms, means to operatively connect said
10 planes together whereby the same are ad-

justed in unison and means to operate said
planes.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

WILLIAM H. BEERY.

Witnesses:

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HELEN K. SCHUNCK.