

No. 695,580.

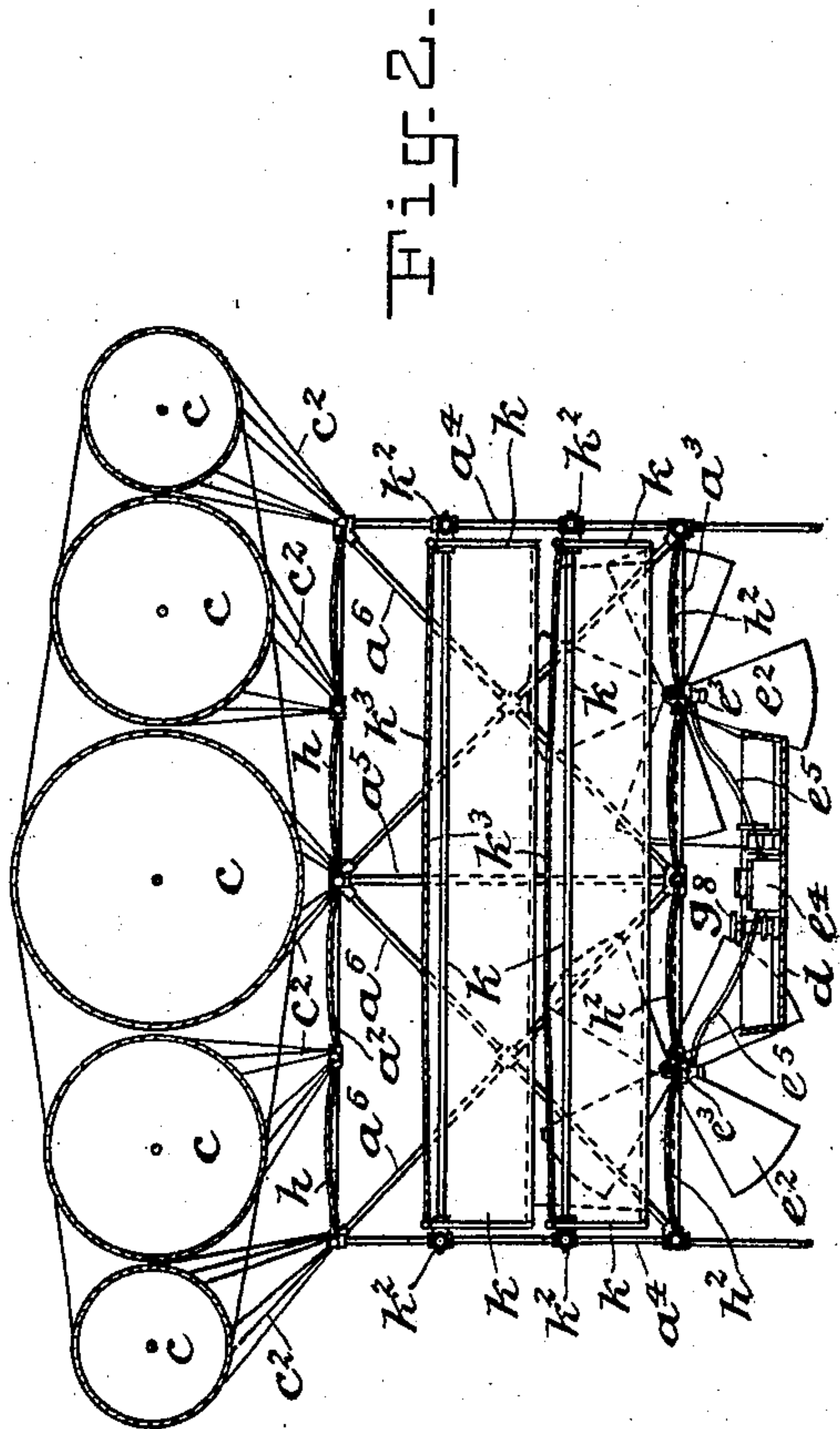
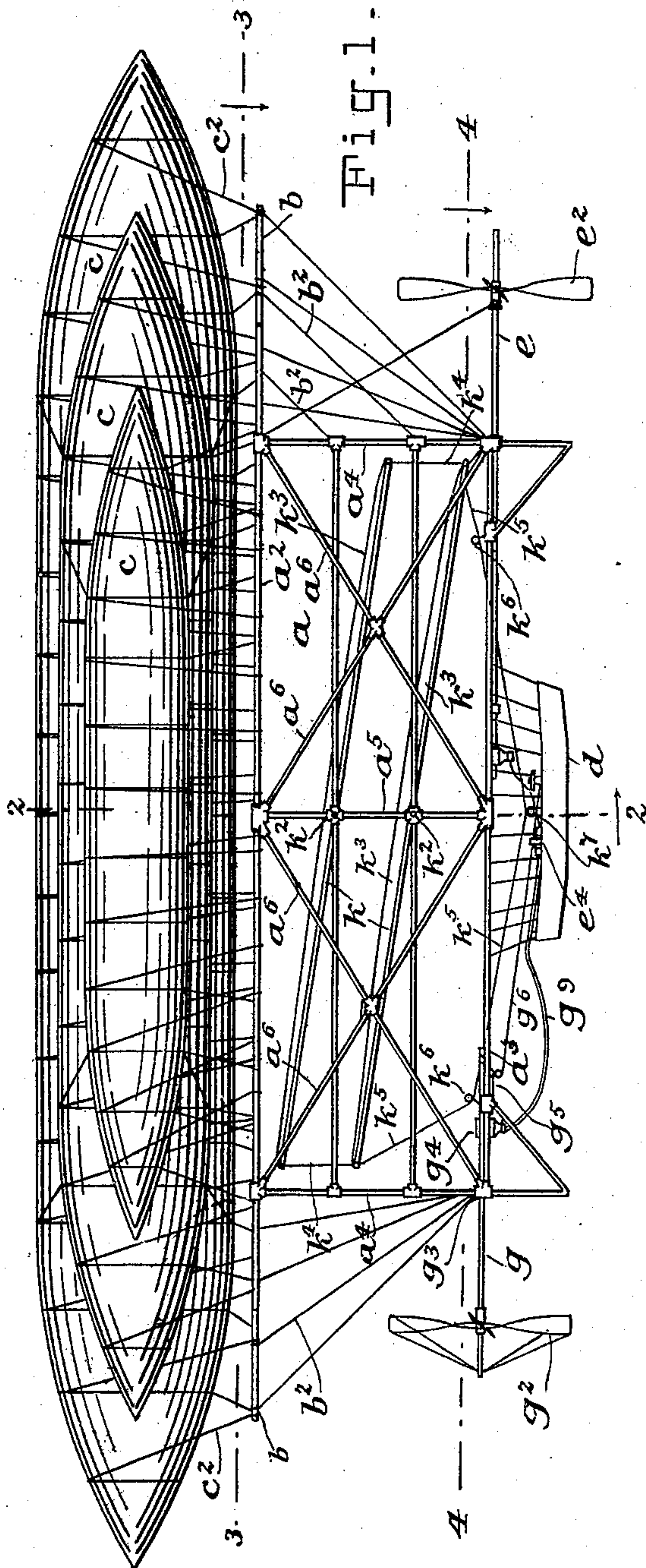
Patented Mar. 18, 1902.

C. M. RICHMOND.  
AIR SHIP.

(Application filed Oct. 26, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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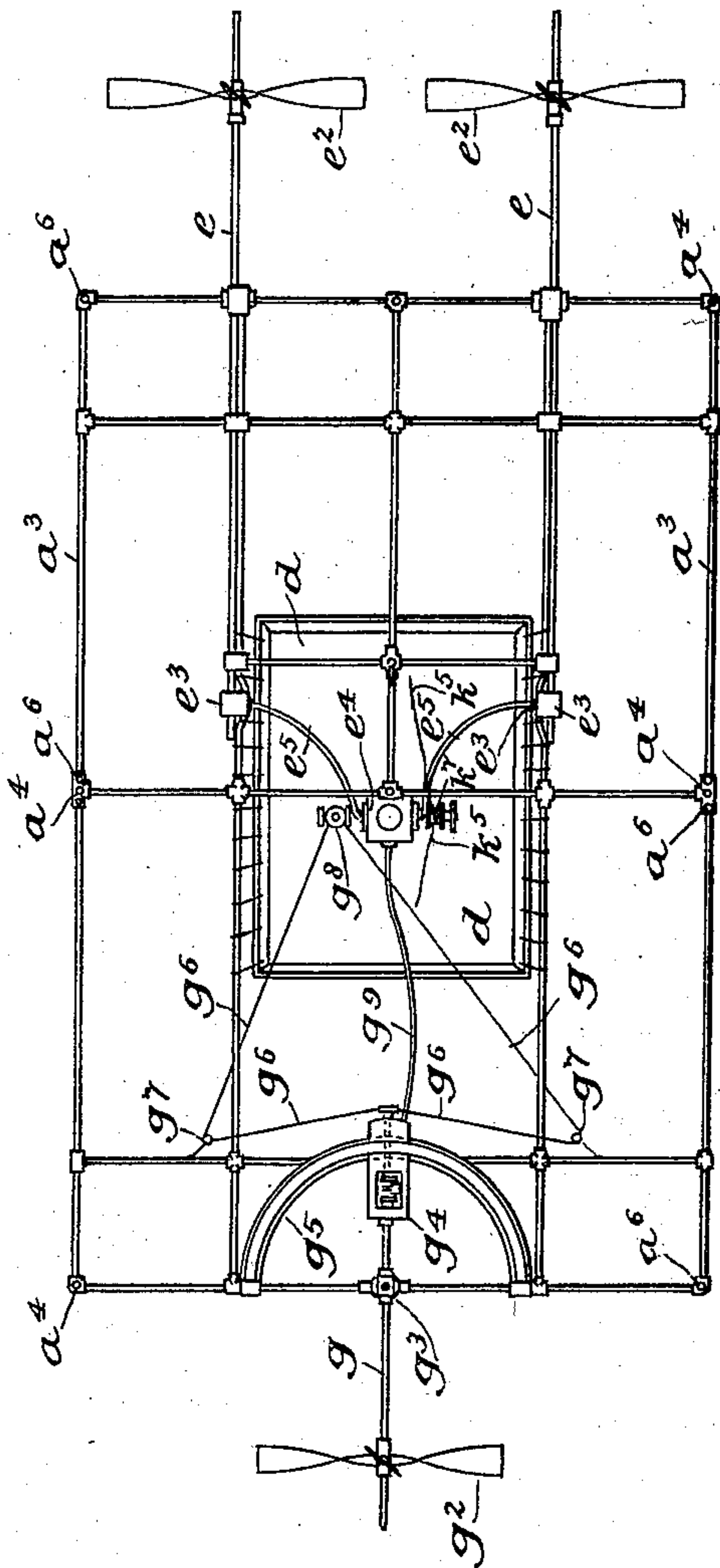
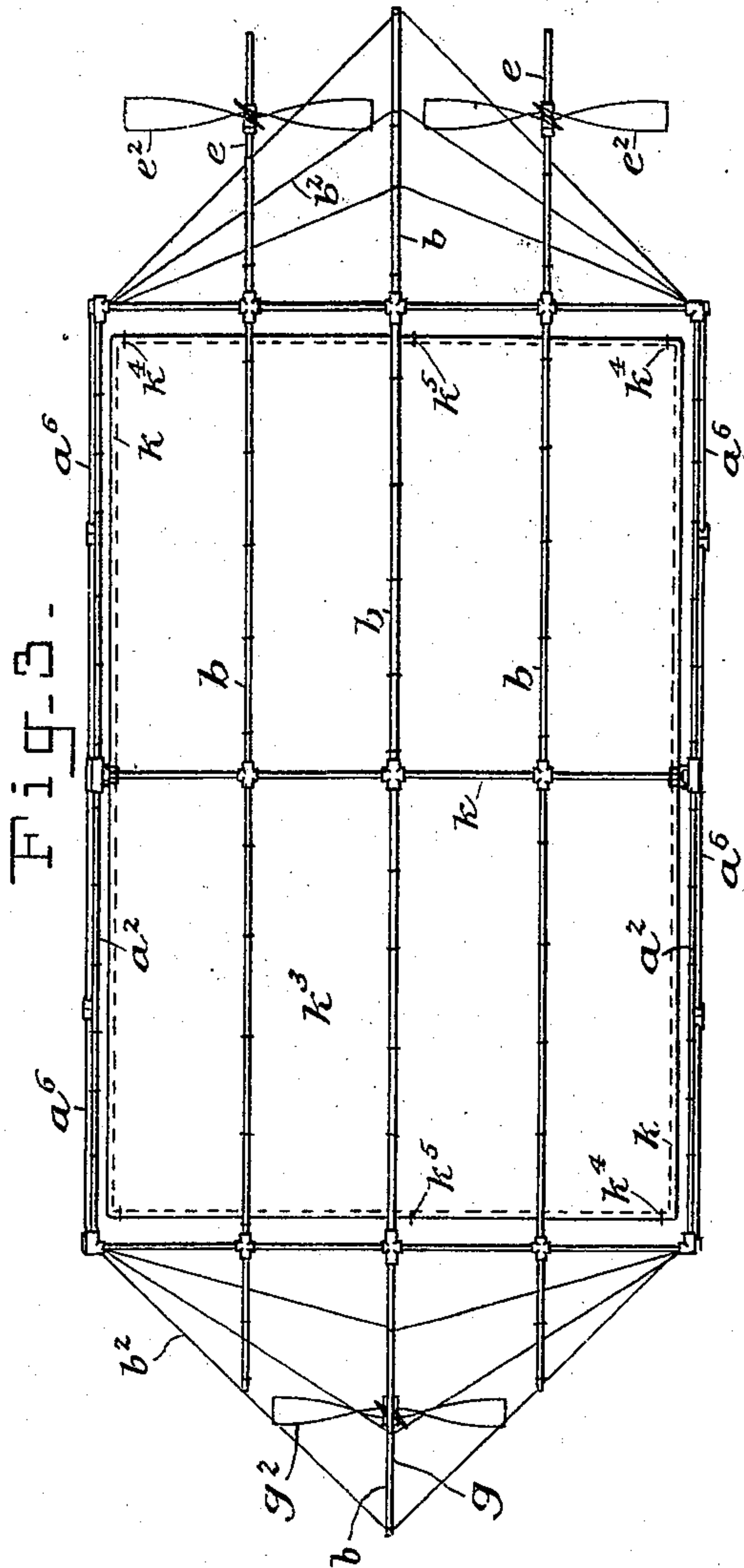
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(Application filed Oct. 26, 1900.)

(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

CASSIUS MONTEZUMA RICHMOND, OF NEW YORK, N. Y.

## AIR-SHIP.

SPECIFICATION forming part of Letters Patent No. 695,580, dated March 18, 1902.

Application filed October 26, 1900. Serial No. 34,453. (No model.)

*To all whom it may concern:*

Be it known that I, CASSIUS MONTEZUMA RICHMOND, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Air-Ships, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

My invention relates to aerial vessels; and the object thereof is to provide an improved air ship, vessel, or machine which is able to navigate the air and ascend and descend and to alter its direction at will; and with these and other objects in view the invention consists in an air ship or vessel constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by similar reference characters in each of the views, and in which—

Figure 1 is a side elevation of my improved air-ship; Fig. 2, a vertical section on the line 2 2 of Fig. 1; Fig. 3, a plan view of the main frame of my improved air-ship on the line 3 3 of Fig. 1, and Fig. 4 a bottom plan view of said main frame on the line 4 4 of Fig. 1.

In the practice of my invention I provide a main frame which contains propelling apparatus, a steering device or devices, and other necessary appurtenances of an aerial vessel and suspend said frame from a buoyant gas body or envelop or a plurality of gas bodies or envelops secured together, so as to form a buoyant body of a horizontal, flat, and otherwise peculiar form, which, like the aeroplane, can be easily driven and turned with the least possible resistance to the air or wind and which would tend to maintain its motion in any given direction, whether horizontal or at an inclination upward or downward, and I also suspend from the said main frame a car of the usual or any preferred construction and which in addition to carrying passengers may also carry a part of the propelling and steering apparatus, and within the said main frame I pivot one or more aeroplanes, which facilitate the operation of the air ship or vessel.

The main frame of my improved air ship or vessel, which is designated in Figs. 1 and 2 by the reference character *a*, consists of a top horizontal portion *a*<sup>2</sup> and a bottom portion *a*<sup>3</sup>, connected by corner-posts *a*<sup>4</sup> and other vertically-arranged posts *a*<sup>5</sup>, and the said frame is strengthened and stiffened both at the ends and sides by diagonally-arranged rods or bars *a*<sup>6</sup>, any desired number of which may be employed, and all the parts of this frame may consist of metal tubes or bamboo rods connected in any desired manner, or said frame may be composed of any desired material.

Connected with the top horizontal portion *a*<sup>2</sup> of the main frame, as clearly shown in Fig. 3, are horizontal parallel rods *b*, which project beyond the ends of the main frame and which are secured to said main frame in any desired manner, and the central rod *b* is preferably longer than the two adjoining rods on each side thereof, and the said adjoining rods are longer than the main frame.

The buoyant body which I employ consists of a plurality of hollow cylindrical gas-envelops *c*, which are preferably tapered or pointed at the ends and which are preferably five in number and which also preferably decrease in size and length from the center outwardly or toward the sides, as is shown in Figs. 1 and 2, and these gas-envelops *c* may be composed of oil-silk, canvas, or any preferred material, and said envelops, which are cylindrical in cross-section, are securely bound together and make up the buoyant body of my improved air-ship, hereinbefore referred to.

The separate members *c* of the buoyant body of the machine in addition to being securely bound together are also firmly connected with the horizontal rods or bars *b* by means of strong cords or other flexible devices *c*<sup>2</sup>, which also serve to bind the separate gas-envelops *c* together, so as to form said buoyant body.

Suspended from the bottom of the main frame *a* is an ordinary car *d*, which may be connected with the main frame in any desired manner, and mounted in one end of the main frame and in the bottom portion thereof are two propeller-shafts *e*, each of which is provided with a propeller *e*<sup>2</sup>, and the propeller-



shafts  $e$  may be operated by motors  $e^3$  or in any desired manner, and the motors  $e^3$  may be operated by steam or by electricity and in either event will be connected with a steam-  
 5 generator or generator of electricity located within the car  $d$ , as shown at  $e^4$ , the connection of the motors  $e^3$  being indicated at  $e^5$ . My invention, however, is not limited to the means employed for operating the propeller-  
 10 shafts  $e$ , and any suitable device or devices may be employed for this purpose.

Mounted in the end of the main frame opposite that from which the propeller-shafts project is a steering-shaft  $g$ , also provided  
 15 with a propeller  $g^2$ , and that end of the ship or vessel in which the steering-shaft  $g$  is mounted is the bow thereof, the propeller-shafts  $e$  being mounted in the stern. The propeller-shaft  $g$  passes through a swiveled  
 20 support  $g^3$ , and the inner end thereof is provided with a motor  $g^4$ , and said inner end is free to swing horizontally in segmental guides  $g^5$ , and connected with the inner end of said shaft are cords  $g^6$ , which extend in opposite  
 25 directions and pass around pulleys  $g^7$ , from which point they lead to a drum  $g^8$  in the car  $d$ , and by means of this arrangement the steering-shaft  $g$  may be turned horizontally without interfering with the operation of the  
 30 propeller  $g^2$ , said shaft being free to turn at all times. The motor  $g^4$  of the steering-shaft may be either a steam or electric motor and is connected with a suitable source of power, either steam or electric, at  $e^4$  by means of a  
 35 tube  $g^9$ .

Secured to the horizontal top portion  $a^2$  of the main frame is a sheet  $h$  of canvas or other suitable material, and a corresponding sheet  $h^2$  is secured to the bottom horizontal portion  
 40 of the main frame, and said sheets may be secured to said top and bottom portions of said frames in any desired manner and serve in the operation of said air ship or vessel as aeroplanes and aid in maintaining the ship or  
 45 vessel in proper position and also facilitate the management thereof. I also pivot within the main frame  $a$  two aeroplanes  $k$ , which are substantially of the same form as said frame and are free to swing vertically there-  
 50 in, the said aeroplanes being pivoted at  $k^2$  centrally of the main frame, and these aeroplanes  $k$  consist of frames of any suitable construction, provided each with a sheet or covering  $k^3$  of canvas or any preferred or suitable  
 55 material, and the ends of the aeroplanes  $k$  are connected, as shown at  $k^4$ , and said aeroplanes are thus compelled to swing together in a vertical plane, and connected with the opposite ends of the bottom aeroplane are cords  
 60  $k^5$ , which are passed around pulleys  $k^6$ , connected with the bottom of the main frame, and from which they are passed to a drum or windlass  $k^7$  in the car  $d$ , on which they are wound in opposite directions, and by turning the  
 65 drum or windlass  $k^7$  in either direction one end of the aeroplanes  $k$  will be drawn down and the other raised, the reverse movement of

said aeroplanes being secured by reversing the movement of said drum or windlass.

The aeroplanes  $k$ , mounted within the main frame and free to swing vertically therein and in a line with the body portion of the ship or vessel, facilitate the movement of the latter, as will be readily understood, and act to control the movement thereof, the adjustment of  
 75 said aeroplanes serving to change the course of the vessel vertically or cause it to rise or descend, as may be desired.

It will be understood that the buoyant body, consisting of the separate members  $c$ , may be  
 80 made of any desired length and dimensions, as may also the main frame  $a$ , and the remaining parts of the ship or vessel will be correspondingly constructed, and various changes in and modifications of the construction here-  
 85 in described may be made without departing from the spirit of my invention or sacrificing its advantages. It will also be apparent that the pivotally-supported aeroplanes  $k$  constitute the chief feature of the construction and  
 90 operative mechanism in changing the direction of the vessel in a vertical line, while the stationary aeroplanes at the top and bottom of the main frame facilitate the movement of the vessel in any particular direction and  
 95 aid to keep it steady and in proper line. I also preferably connect the ends of the rods  $b$ , which form a part of the horizontal top portion of the main frame, as shown at  $b^2$ , so as to strengthen the ends of said rods or  
 100 bars, and any suitable supports or sustaining devices may be provided for the propeller-shafts  $e$ . It will also be understood that the separate members  $c$  of the buoyant body, which support the main frame, may be in-  
 105 flated with gas in any desired manner, and the form of this body or the separate members thereof also facilitates the operation of the ship or vessel, and by reason of the form of such body or bodies the least possible re-  
 110 sistance to the air or wind is presented.

Although I have described the wheel  $g^2$ , connected with the steering-shaft  $g$ , as a propeller, it will be understood that the said wheel operates as a rudder or steering device, and  
 115 by means of the fact that the shaft  $g$  may be turned horizontally and the propellers  $e^2$  revolve in opposite directions it will be apparent that the course of the air ship or vessel may be thus easily controlled.

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

1. A flying-machine comprising a buoyant body, a main oblong and rectangular frame  
 125 suspended from said body and the top and bottom portions of which are parallel and formed into aeroplanes, pivoted aeroplanes mounted centrally in said main frame, propelling devices mounted in one end of the  
 130 main frame, a steering-shaft pivoted in the opposite end of the main frame and adapted to swing in a horizontal plane, and a car suspended from the main frame, said pivoted



aeroplanes, said propelling devices and said steering-shaft being adapted to be operated by a party or parties within the car.

2. A flying-machine comprising a main  
5 buoyant body composed of a plurality of buoyant bodies bound together side by side each of which is cylindrical in cross-section and pointed at both ends, the diameter and length of the separate buoyant bodies at each side  
10 and the central buoyant body decreasing from the central buoyant body outwardly, a main oblong rectangular frame suspended from the main buoyant body, propelling and steering

devices mounted in the opposite ends of said main frame, pivoted aeroplanes mounted in  
15 said main frame longitudinally thereof and adapted to swing vertically therein, and means for operating the propelling and steering devices and the pivoted aeroplanes, substantially as shown and described. 20

In witness whereof I have hereunto set my hand in presence of two witnesses.

CASSIUS MONTEZUMA RICHMOND.

Witnesses:

HUGO LEWIS BEIL,  
ANNA SOPHIE BÜSING.