

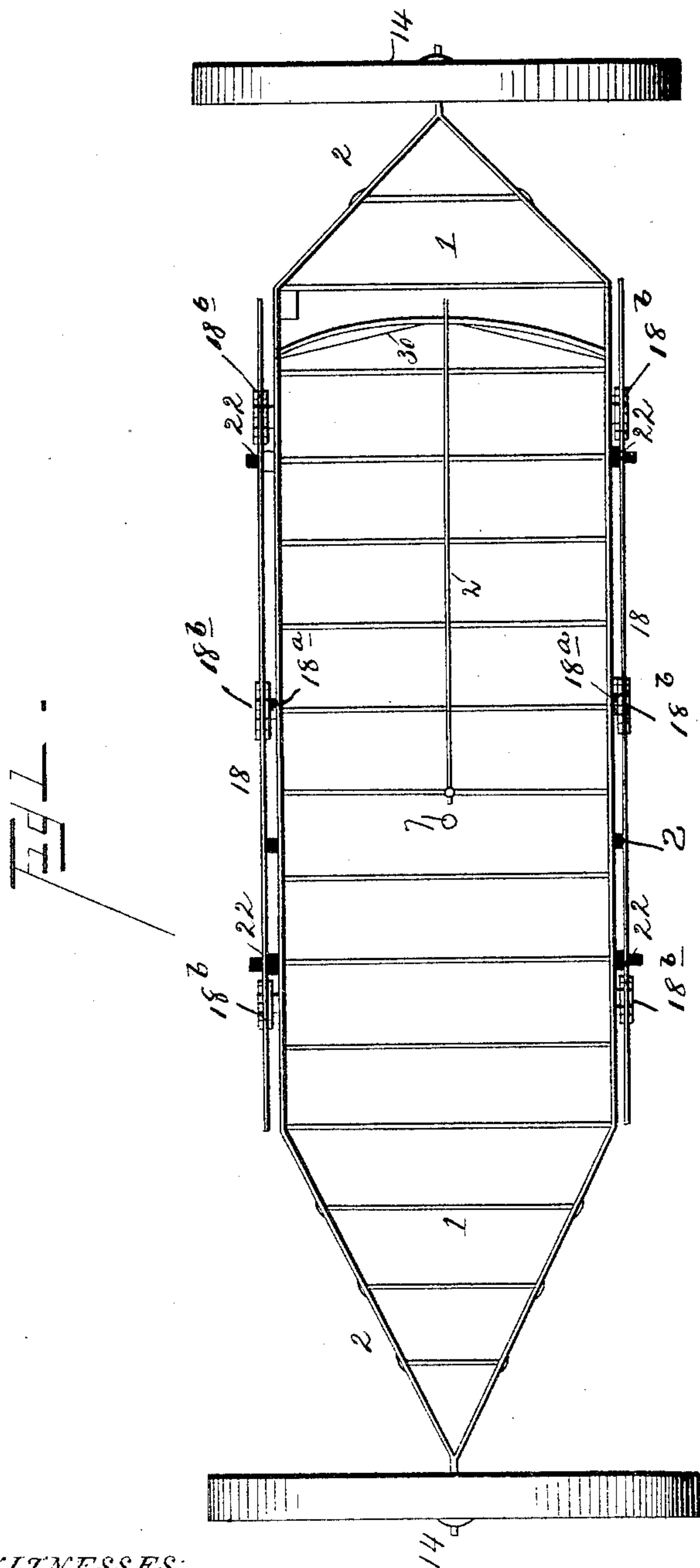
(No Model.)

4 Sheets—Sheet 1.

J. ARBTIN.  
AIR SHIP.

No. 462,612.

Patented Nov. 3, 1891.



WITNESSES:

*H. L. Curand.*  
*J. L. Coombs*

INVENTOR:

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*By Louis Daggert Co.*  
Attorneys

(No Model.)

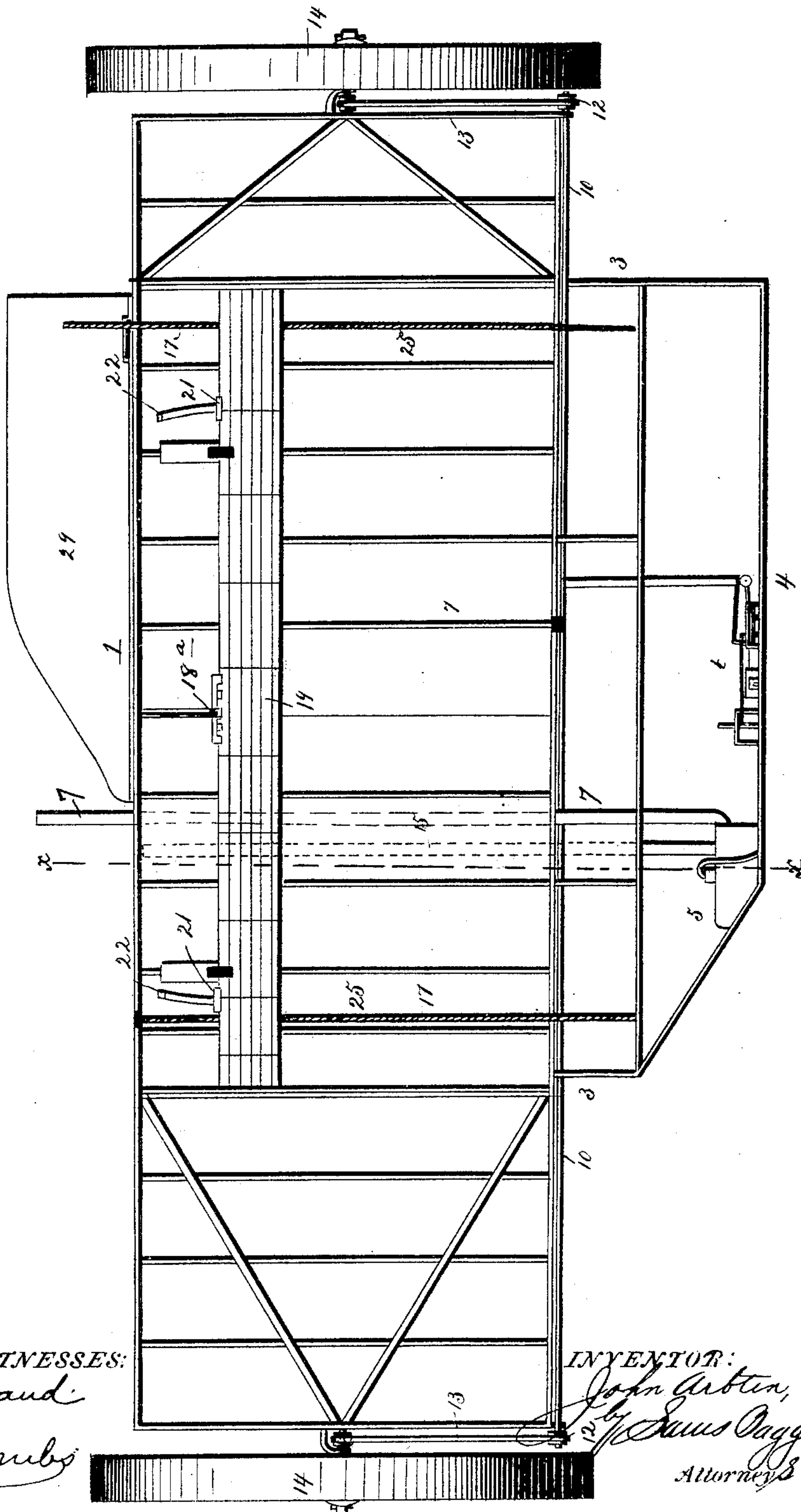
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Fig. 2.



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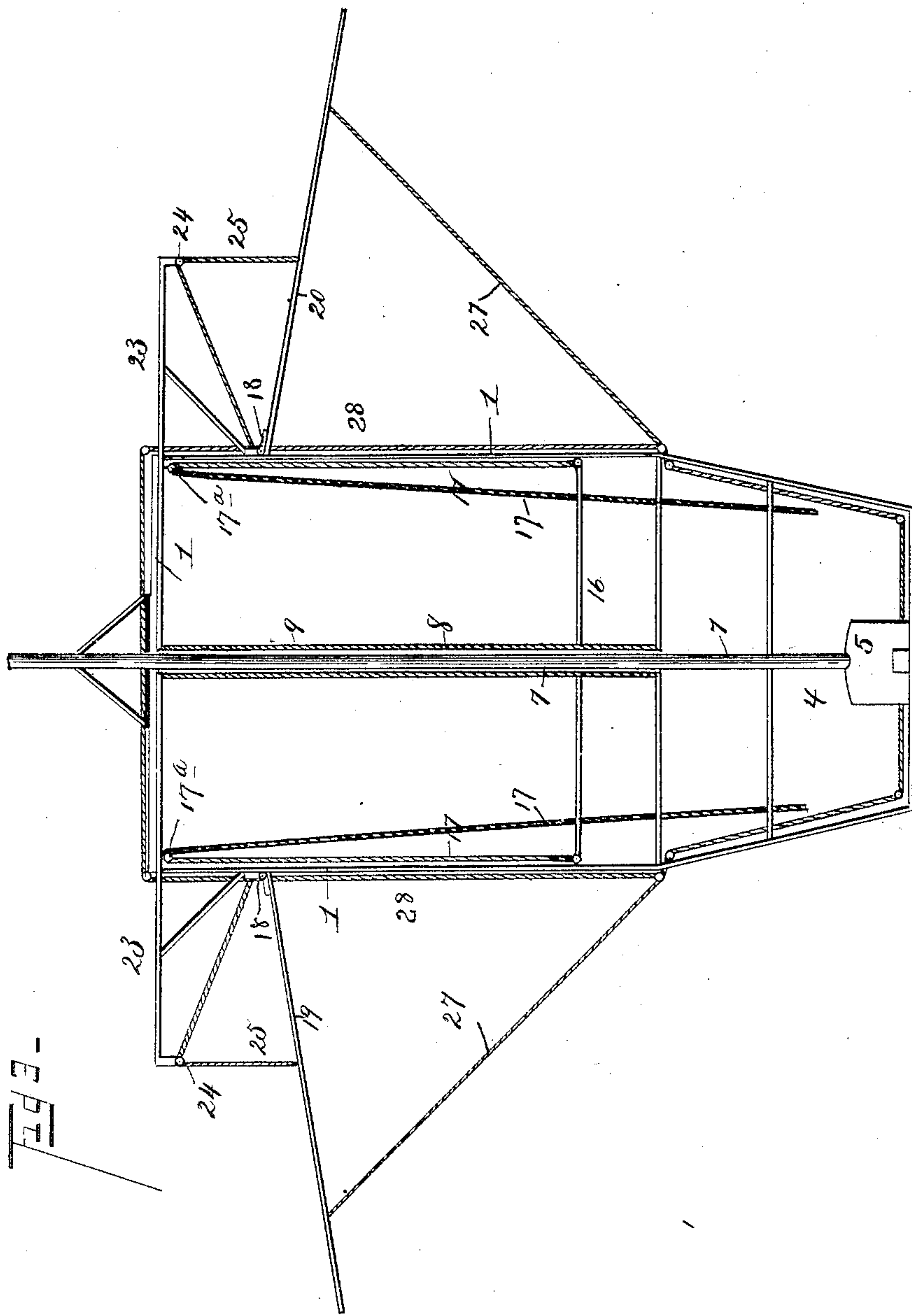
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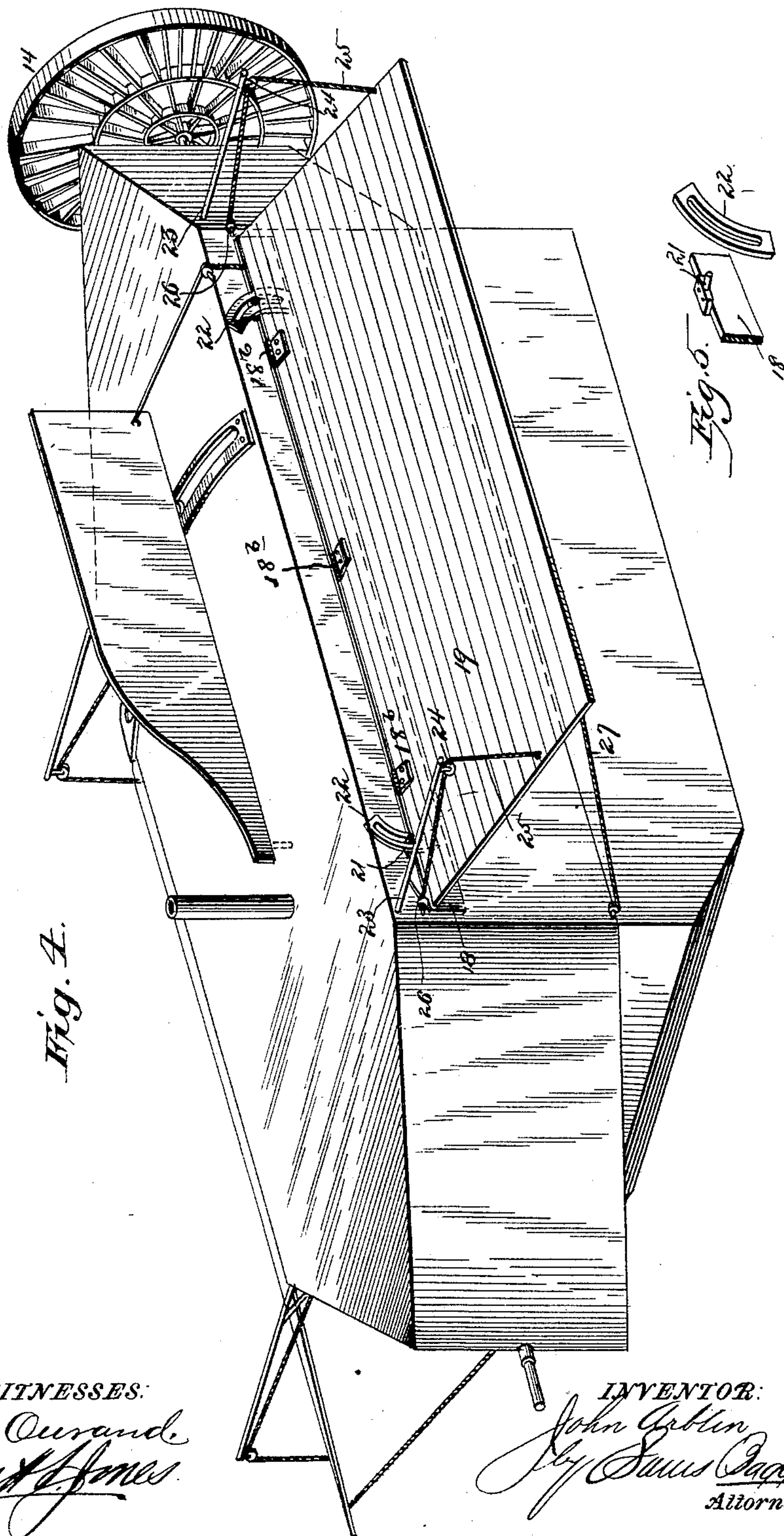
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# UNITED STATES PATENT OFFICE.

JOHN ARBTIN, OF DES MOINES, IOWA.

## AIR-SHIP.

SPECIFICATION forming part of Letters Patent No. 462,612, dated November 3, 1891.

Application filed October 21, 1890. Serial No. 368,778. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ARBTIN, a citizen of the United States, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Air-Ships; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it ap-  
10 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in air-ships or flying-machines, the object being  
15 to provide such a construction that the apparatus may be propelled or caused to travel in any direction desired irrespective of the direction of the air-currents.

It is also the object to simplify and improve  
20 the construction generally of such class of apparatus, whereby superior advantages are attained with respect to efficiency and reliability of operation.

The invention consists in the novel construction and combination of parts herein-  
25 after fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan of an air-ship constructed in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a cross-section on the line *x x*, Fig. 2. Fig. 4 is a perspective view. Fig. 5 is a detail view of a portion of the board to which the wings are hinged,  
35 showing the lug thereon.

In the said drawings, the reference-numeral 1 designates a number of vertical, horizontal, and longitudinal bars of aluminum, iron, steel, or other material constituting a rectangular  
40 frame, with the sides at each end inclined, as shown at 2. This frame-work when covered with suitable material forms the gas-receptacle for the apparatus. Depending from brackets or rods 3, secured to the under side of the  
45 frame, is a chamber or boat 4, which contains a steam-boiler 5 and engine 6 or other suitable motor. From the boiler the smoke-stack 7 extends upwardly through the frame, being provided with an inclosing sleeve 8, so as to  
50 create an intervening air-space 9.

The numeral 10 designates a horizontal

shaft connected with the engine 6 and provided at each end with a pulley 12, connected by means of belts 13 with pulleys on the shafts of the propellers 14. These propellers  
55 are journaled in the ends of the frame, so that they can be rotated or revolved through the medium of the engine.

The numeral 15 designates a gas-pipe to be connected with any source of supply. This  
60 pipe discharges into the gas-receptacle near the top thereof, and in said receptacle is a vertically-movable diaphragm or partition 16, suspended therein by means of ropes 17, which are secured to each end of the dia-  
65 phragm and pass upward and around pulleys or sheaves 17<sup>a</sup>, attached to the upper part of the frame. These ropes then pass downwardly to the cage or boat. By means of these ropes the diaphragm may be raised and lowered to  
70 vary the size and capacity of the gas-chamber. The sides of this partition should be suitably packed to prevent leakage.

Pivoted at its center to each side of the gas-receptacle by means of pivots 18<sup>a</sup>, projecting  
75 transversely therefrom, is a bar 18, provided with a hinged wing 19 20, the inner faces of the bars being provided with studs 21, which work in guides 22, secured to the frame. The hinges of wings 19 20 are designated by the  
80 numeral 18<sup>b</sup>. Extending outwardly from the top of the gas-receptacle are a number of arms 23, provided with pulleys 24, over which run the ropes 25, connected with the wings, so as to raise and lower the same. These ropes  
85 also extend over similar pulleys 26, secured to said frame. Ropes 27 are also secured to said wings for the purpose of limiting their upward movement. To each end of the pivoted bars 18 are secured ropes 28, by which  
90 said bars may be oscillated, for a purpose hereinafter described. All of these ropes lead to the cage or boat, so as to be under control of the occupant thereof.

The numeral 29 denotes a rudder pivoted  
95 on the upper side or top of the frame near its rear end and provided with ropes 30, by which it may be actuated to change the course of the ship.

The operation is as follows: The gas-receptacle should be of such size that it will only  
100 be necessary to about three-quarters fill the



same in order to have it rise. The gas is admitted through the pipe, the movable diaphragm controlled by the ropes determining the capacity of the gas-chamber by the position it occupies. As the ship rises, the wings are spread out by means of their ropes until they occupy the proper position or the angle desired. The propellers are then revolved by means of the engine, which will cause the ship to travel forwardly in a straight line. By moving the rudder on its pivot to the right or left the apparatus may be turned accordingly, as will be obvious. By means of the wings secured to the pivot-bar the ship can be independently made to ascend or descend by simply varying the angles of said bars—that is to say, if it is desired to cause the ship to ascend the forward end of said bar, carrying the wings 19 and 20, will be elevated by means of the ropes and the rear end correspondingly depressed. This will cause the air to be forced under said wings and the ship to ascend on an inclined line. A reverse movement will cause the apparatus to descend.

Many modifications may be made in the details of construction without departing from the spirit of my invention. For instance, the front or forward propeller may be dispensed with, if desired. Again, the arrangement of the ropes and pulleys by which the wings and rudder are operated may be varied or other devices for accomplishing the same objects may be substituted therefor. The advantages of my invention will be obvious, as by the construction described and

illustrated the operator has full control of the apparatus and can cause it to take any direction desired, irrespective of the course of the wind.

Having thus described my invention, what I claim is—

1. The combination, with the gas-receptacle having pivots projecting transversely therefrom and the cage or boat, of the bars pivoted to said gas-receptacle, so as to be adjustable up or down in line with the length, and provided with hinged wings adjustable up or down at right angles to the adjustment of the bars, substantially as described.

2. The combination, with the gas-receptacle and the cage or boat, of the pivoted bars adjustable up or down in line with the length, the wings hinged thereto and adjustable up or down at right angles to the adjustment of the bars, the guides on said receptacle, and the lugs or studs on the bars working in said guides, substantially as described.

3. In an air-ship, the combination, with the rectangular gas-receptacle, the cage, and the gas-pipe leading to the gas-receptacle, of the vertically-movable diaphragm located in said gas-receptacle, and ropes connected therewith and leading to the cage, by which it may be raised and lowered, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN ARBTIN.

Witnesses:

A. M. MILLER,  
H. J. LANGEFITT.