

No. 648,634.

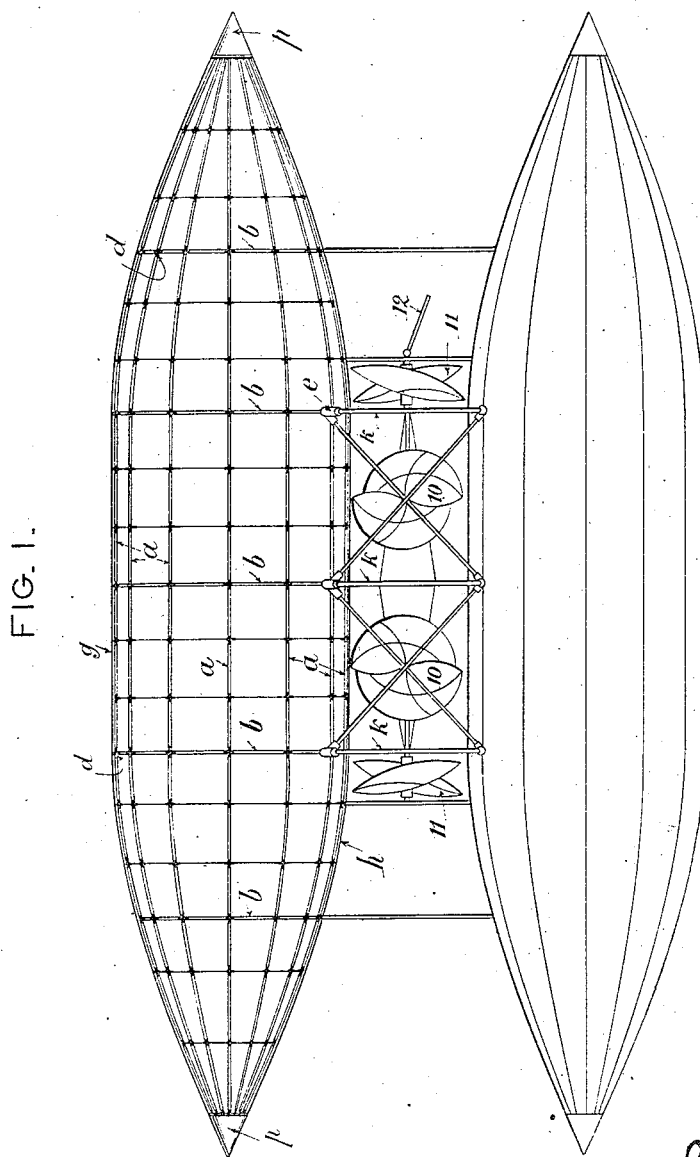
Patented May 1, 1900.

L. E. ROZE.
FLYING MACHINE.

Application filed May 31, 1899.

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
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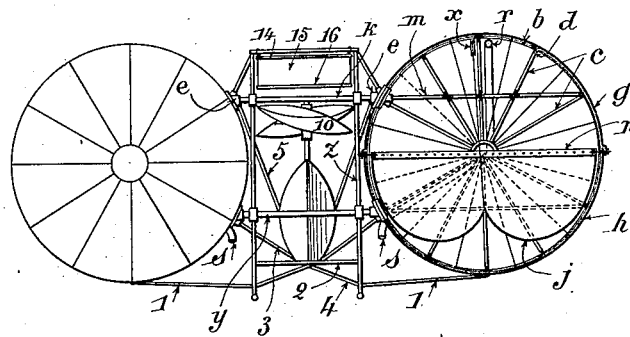
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3 Sheets—Sheet 2.

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FIG. 2.



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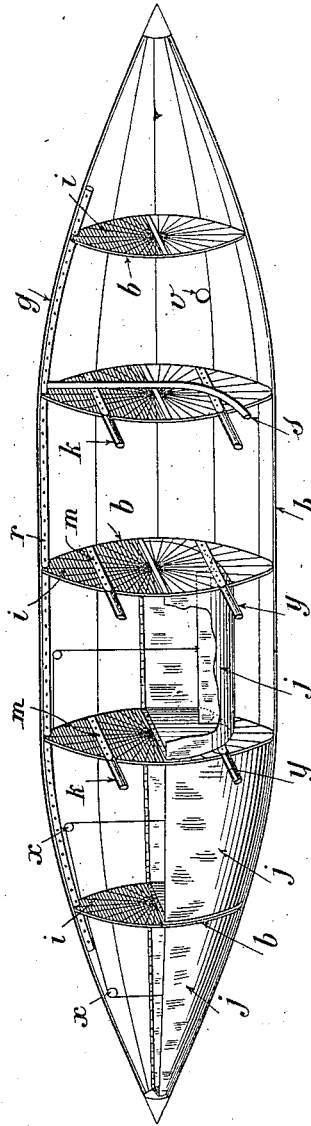
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3 Sheets—Sheet 3.

FIG. 3.



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UNITED STATES PATENT OFFICE.

LOUIS ETIENNE ROZE, OF COLOMBES, FRANCE.

FLYING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,634, dated May 1, 1900.

Application filed May 31, 1899. Serial No. 719,795. (No model.)

To all whom it may concern:

Be it known that I, LOUIS ETIENNE ROZE, of No. 8 Villa Reine Henriette, Colombes, department of the Seine, in the Republic of France, have invented certain new and useful Improvements in Aviators or Flying-Machines, of which the following is a specification.

The present invention has for its object to furnish a practically-useful aviator, flying-machine, or manageable balloon provided with two balloons inflated with gas lighter than air and also with screw-propellers controlling the ascension and which will permit of regulating the difference between the respective weights of the machine and the air displaced by the same. I have endeavored to render the system of aviation absolutely practicable, and more especially so by means of a very rigid construction of the covers of the balloons, of the particular arrangement of the supple diaphragms in the inside of the balloons to allow of the gas being made and expanded within the balloon without any loss of the said gas, of the particular method of suspending the car, of the application of rudders which will permit of keeping the balloons in the same horizontal plane or of bringing them back to the said plane should they move away from it for any reason whatever, and of the different details of construction, as hereinafter described with reference to the accompanying drawings, in which—

Figure 1 is a plan view, one of the balloons appearing with its upper portion exposed. Fig. 2 is a front view, one of the balloons appearing in section. Fig. 3 is a perspective view of one of the balloons, the exterior covering being removed from its greater portion.

The aviator is formed of two balloons in the shape of pointed spindles, which support between them the car, parachute, rudders, and machines, which latter operate several screws for moving the aviator upward and two screws for moving the same forward, the former screws having a vertical axis and the latter screws a horizontal axis. The spindles are formed of a very rigid framework surrounded by an outer silk cover. The framework comprises two systems of rigid curved pieces, the former, *a*, of which runs lengthwise of the spindle and the latter, *b*, of which runs around

the same in the form of hoops. The said framework also comprises the radial tubes *c*, arranged in the same planes as the hoops. Brackets or cross-joints *e*, Fig. 1, serve to connect the different pieces of the framework with the tubular cross-bars which connect the two balloons together, the gas in one balloon communicating, through the said tubular cross-bars, with the gas in the other balloon. *g* is a silk covering placed between inner and outer layers of suitable material. The interior of each balloon is divided into compartments by means of partitions *i*, supported by the said tubes *c*, and in each compartment is a supple waterproof diaphragm *j*, the edges of which are fixed, on the one hand, to the outer cover along a longitudinal line and, on the other hand, to the two adjacent partitions *i* along a transversal line coincident with the horizontal diameters of the said partitions. The said diaphragms *j* are of sufficient area to be able to come against the outer cover of the balloon, either the half *g* of the said cover, situated above the equatorial plane of the pointed spindle-shaped balloon, or the half *h*, situated below the said plane.

The two balloons are put in communication by means of rigid tubes, which open into the interior of the cover at the upper part of each balloon. Three of the said tubes are shown at *k* in the drawings in Figs. 1 and 2.

The silk cover is divided into two parts *g* and *h*, cut evenly at both ends and surrounding the framework of each balloon. The edges of the said parts *g* and *h*, as well as the edges of the supple inner diaphragms *j*, are connected together by means of narrow strips of aluminium *n*, Fig. 2. The corresponding edges at the ends of the balloons are fixed on aluminium cones *p*, by means of which an airtight joint is easily obtained. The diaphragms are poised by weights movable along the partitions *i*. The cord of each weight passes over a pulley *x* and is fixed to a rod attached to the middle of the diaphragm *j*, Figs. 2 and 3.

The compartments of each balloon are put in communication with each other by means of a perforated pipe *r*, placed at the upper part, and which is connected by a tube *s* with a suction-pump, which permits of making a vacuum above the diaphragms before filling the balloon with light gas.

The frame which supports the car comprises the vertical bars z , fixed to the transverse bars k and y , and of which the lower ends are connected by stays l and at suitable points with the tube a , occupying the lower meridian line of the corresponding balloon, so as to absolutely prevent the balloons from moving away from each other and to put the weight of the car on both balloons in such a manner as to be borne by the whole of the parts of the same. I will here observe that with this construction, combined with the manner in which the silk cover is fastened, I can dispense with the disadvantageous nets used for supporting the car. The floor of the car rests on cross-rods 2, fixed to the vertical bars z and also connected with the framework of the balloons by stays 3 and with the lower parts of the said vertical bars z by brackets 4. This framework is completed by diagonal stays 5, connecting the cross-bars k with the cross-rods 2.

The motors are fitted above the car in order to raise the center of gravity of the dead-weight of the machines and to prevent the latter from being submerged in case a descent should be made at sea or broken by a too-rapid descent to the ground. The said machines operate the upward-propelling screws 10 and the forward-propelling screws 11. All the propellers are double-armed and of the same shape as shown in the drawings. The dimensions of the propellers vary according to the size of the aviator.

12 is a rudder at the stern of the balloon. Other rudders may be used.

Above the frame which supports the car is suspended a movable frame 14, supporting webs of fabric 15, fixed to the said frame by means of cross-rods and also in the same manner to a second movable frame 16, parallel to the first-named frame and having the same dimensions. The said frames, webs, and cross-rods form an automatic parachute which permits of the aviator gliding in the air as does a bird. When the aviator is mounting, the webs of the said parachute remain verti-

cal. When the aviator is moving forward, the webs take a less or more oblique position, which depends on the pressure exercised on them by the wind. When the aviator is descending, the webs are forced up by the air and come one against another, so as to form a great plane surface which prevents any rapid or vertical descent.

I claim—

1. In an aviator, the combination with a metallic rigid frame and an outer covering mounted upon said frame, of transverse partitions dividing the interior of the aviator into compartments, a perforated tube r through which circulation of the gases between the compartments is effected, a pliable inclosure j in the lower half of each compartment, such inclosure being secured in the central horizontal plane of the aviator to the exterior inclosure and to the two partitions of the compartment and being capable of sufficient expansion to come to rest against the upper or the lower half of the exterior inclosure; means for balancing the weights of the pliable inclosures j , and an opening o in the exterior inclosure underneath said pliable inclosures.

2. In an aviator, the combination with a rigid metallic frame and an exterior inclosure secured to said frame of transverse partitions, a perforated tube r extending from one end of the aviator to the other, a pliable inclosure j in the lower half of each compartment and secured in the central horizontal plane of the aviator to the exterior inclosure and to two partitions of the compartment, movable counterweights mounted upon pulleys x for the purpose of balancing the weights of each pliable inclosure j and an opening v in the exterior inclosure underneath said pliable inclosures.

Signed at Paris, France, this 18th day of May, 1899.

LOUIS ETIENNE ROZE.

Witnesses:

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GEORGES BORDEAU.