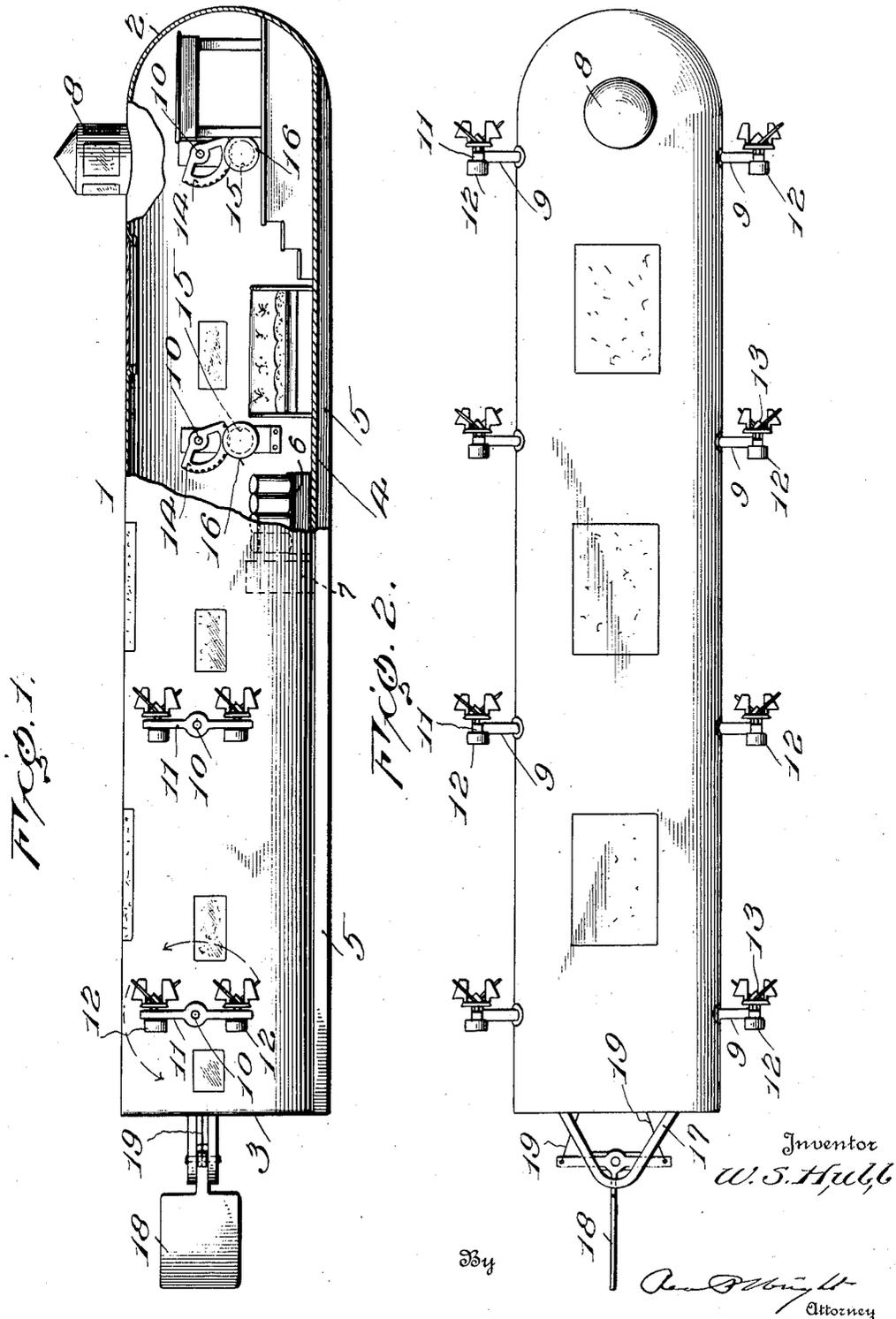


W. S. HULL.
FLYING MACHINE.
APPLICATION FILED APR. 4, 1921.

1,435,236.

Patented Nov. 14, 1922.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. 3.

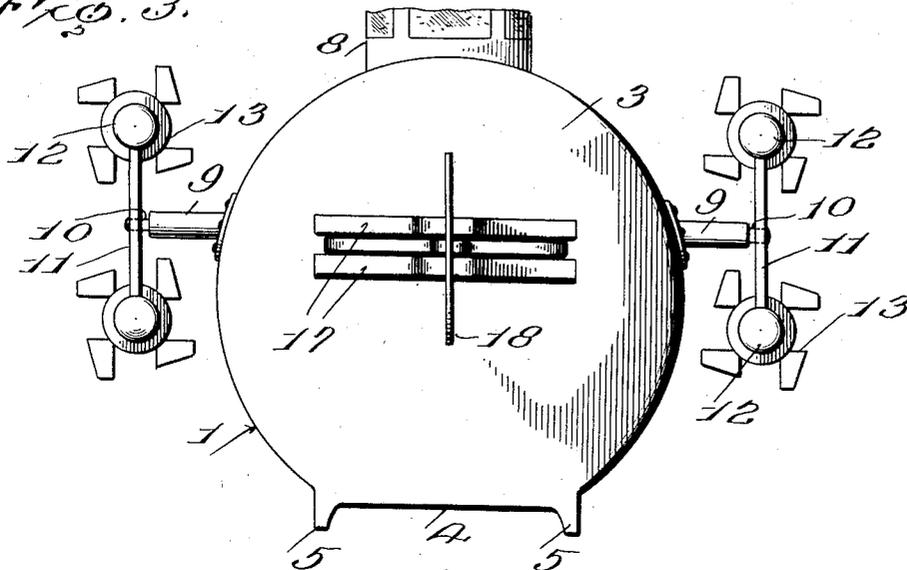
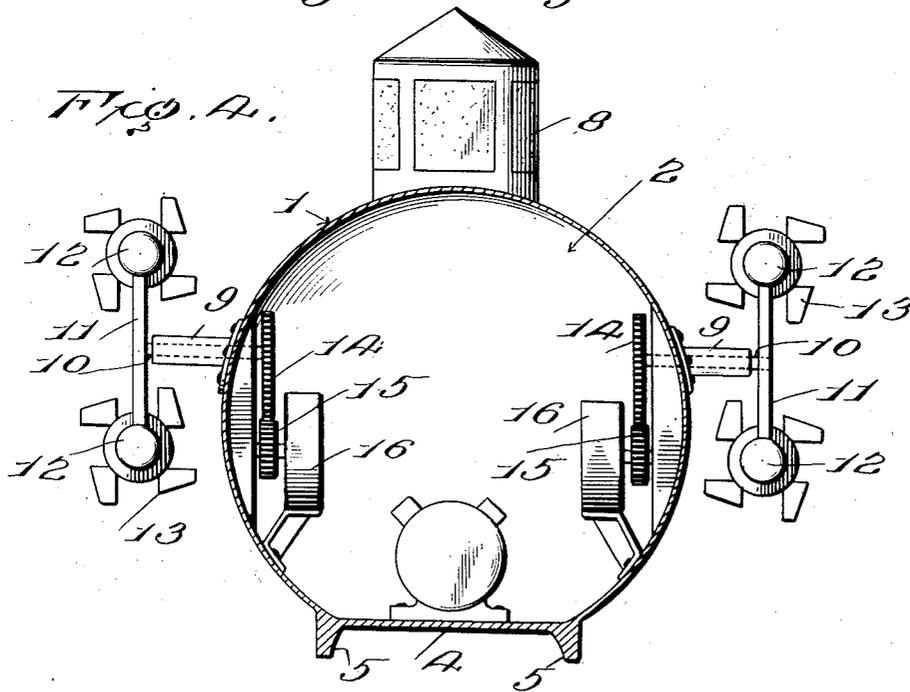


FIG. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM S. HULL, OF JACKSON, MISSISSIPPI.

FLYING MACHINE.

Application filed April 4, 1921. Serial No. 458,219.

To all whom it may concern:

Be it known that I, WILLIAM S. HULL, a citizen of the United States, residing at Jackson, in the county of Hinds and State of Mississippi, have invented certain new and useful Improvements in Flying Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to certain new and useful improvements in flying machines and is a companion application of my application filed April 4, 1921, Serial No. 458,218, the object being to provide a flying machine
15 of a tubular form having rocking bolsters provided with screws for creating a partial vacuum so as to allow the car to be forced forwardly by the atmospheric pressure.

20 Another object of the invention is to provide novel means for rocking the bolsters for shifting the position of the screws for causing the car to move vertically, horizontally or at an angle.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings,

Figure 1 is a side elevation, partly in section, of a flying machine constructed in accordance with my invention;

Figure 2 is a top plan view of the same;

Figure 3 is a rear view; and

Figure 4 is a transverse section.

30 In the drawings 1 indicates the body of the car which is tubular in shape or substantially the shape of a cigar having a rounded front end 2 and a squared rear end 3 and a flat bottom 4 and is provided at each longitudinal edge with a keel 5 for
35 maintaining the body in its proper position.

The body is preferably made of metal with metal angled stiffening or connecting bars and it is understood that the same can
40 be formed of wood or any other suitable material without departing from the spirit of my invention as I am aware that the body can be constructed in various ways as a frame
45 might be employed over which the covering material could be placed and the particular construction of body is immaterial so long

as there is uniform resistance to the rush of air on all its exterior surfaces.

The car is provided with a motor 6 and a dynamo 7 and storage batteries and the
55 like for operating the screws and the particular construction of power for operating these screws is immaterial but I have found that good results can be obtained by driving
60 the same by electric motors as will be hereinafter fully described.

The body is provided with a pilot house 8 and with reinforced glass openings as clearly shown so that the passengers of the car can look out through the sides, the position of the windows being such that the
65 screws can be inspected from the inside by the operators of the car and while I have shown the screws, as will be later described, placed in a certain position I do not wish to
70 limit myself to the exact position of the screws in respect to the body as my invention consists broadly in providing a tubular body with a flat rear end and a flat bottom
75 having a plurality of adjustably mounted screws arranged along its sides for creating a partial vacuum to reduce the resistance in order to allow the atmospheric pressure to act on the bottom and rear end for propelling the car through the air. While I
80 am aware that it is impossible to create a vacuum in this manner, I am able by the particular construction of screws, as described in my companion application and an application executed even date herewith
85 covering the screw proper, to clear the air for the car in such a manner that the atmospheric pressure acts on the car to propel the same.

Extending outwardly from the sides of
90 the car are tubular members 9 which are provided with flanges securely riveted to the shell of the car or attached in any suitable manner so as to provide rigid supports for shafts 10, to the outer ends of which are
95 secured bolsters 11 and on each end of which are mounted motors 12 carrying screws 13 constructed substantially in the same manner as disclosed in my companion application above referred to. The shafts 10 and
100 bolsters 11 are preferably formed hollow forming conduits for electric wires for sup-

plying energy to the electric motors 12 and it is of course understood that these motors are under the control of the pilot by switches so as to cause the motors to rotate and by this means each motor is driven independently so that anyone of the same can be stopped and started at the will of the operator.

Each alternate screw may, rotate in the opposite direction or preferably, all on one side of the car will rotate to the right and all on the other side of the car will rotate to the left and while I have only shown each bolster provided with two screws, it is of course understood that the number of screws can be increased.

The bolsters are mounted to move in a quarter of a circle up and down for adjusting the position of the screws and when in a horizontal plane, the machine will rise vertically and when in a vertical plane the machine will be moved horizontally and when all of the bolsters are arranged at an angle, the machine will travel upwardly or downwardly at an angle.

The inner end of each shaft 10 carries a segmental gear 14 which is adapted to mesh with a pinion 15 arranged on the drive shaft of a motor 16, which is likewise controlled through the medium of switches by the pilot and these motors can be arranged in series so that the bolsters will be rocked in unison and while I have shown this particular manner of rocking the bolsters, it is, of course, understood that I am aware that other means can be used without departing from the spirit of my invention but by this particular construction I am able to control the position of each bolster.

While I have described the use of electric motors for operating the bolsters and driving the screws, I do not wish to limit myself to the use of any particular construction of motor as I am aware that various other motors can be used without departing from the spirit of my invention.

Extending outwardly from the rear end of the car is a rudder support 17 in which is mounted a rudder 18 operated by a cable 19 which extends to a control located in the pilot house and by means of which the direction of the machine can be controlled.

From the foregoing description it will be seen that I have provided a flying machine of a tubular form having a flat bottom with a squared rear end on the sides of which are arranged a plurality of adjustably mounted screws constructed to cut the air in such a manner that the resistance of the body along its front and sides will be removed by creating a partial vacuum which enables the atmospheric pressure to act with full force upon the bottom and rear of the car to sustain the car and propel the same forwardly.

What I claim is:—

1. A flying machine having a substantially tubular body with a squared rear end and a flat bottom and a series of screws having blades pitched at an angle forwardly and outwardly from the hub and disposed along each side of said body for cutting the air from above and front of the body to allow the atmospheric pressure to exert power for sustaining and moving the body.

2. A flying machine comprising a substantially tubular body having a flat bottom and a squared stern, a series of rocking bolsters disposed along each side of said body, a series of screws carried by said bolsters and means for rocking said bolsters for adjusting the position of said screws in respect to said body.

3. A flying machine comprising a substantially tubular body having a rounded bow and a squared stern, said body being provided with a flat bottom and its base keeled, a series of independently driven screws disposed along each side of said body for creating a partial vacuum to allow the atmospheric pressure to exert power for sustaining and moving the body in the vacuum created.

4. A flying machine comprising a substantially tubular body having a flat bottom and a squared rear end and a plurality of adjustably mounted screws disposed around said body arranged to cut the air from over and front of the body for creating a partial vacuum around the body to allow the atmospheric pressure to sustain and move the body in the vacuum created.

5. A flying machine comprising a substantially tubular body having a rounded bow and a squared stern, said body being provided with a flat bottom, a series of rocking bolsters disposed along each side of said body, a series of independently driven screws carried by each of said bolsters, means for adjusting the position of said bolsters for directing the course of flight of said body, said screws being arranged to cut the air from over and front of the body to allow the atmospheric pressure to exert a sustaining and a propelling movement to said body.

6. A flying machine comprising a substantially tubular body having a rounded bow and a squared stern, a series of rocking bolsters disposed to each side of said body, a series of motors carried by said bolsters, a screw carried by the drive shaft of each of said motors provided with blades pitched at an angle forwardly and outwardly from the hub for cutting the air from over and from the front of the body to allow the atmospheric pressure to exert a sustaining and a propelling movement to the body and means for rocking said bolsters.

7. A flying machine comprising a substantially tubular body having a rounded bow

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and a squared stern and provided with a flat bottom having spaced keels, a series of rocking bolsters arranged to each side of said body, independently operated screws carried by each of said bolsters, said screws having blades pitched at an angle forwardly and outwardly from the hub for cutting the air from over and from the front of said body to allow the atmospheric pressure to exert a sustaining and a propelling action upon said body. 10

In testimony whereof I hereunto affix my signature.

WILLIAM S. HULL.