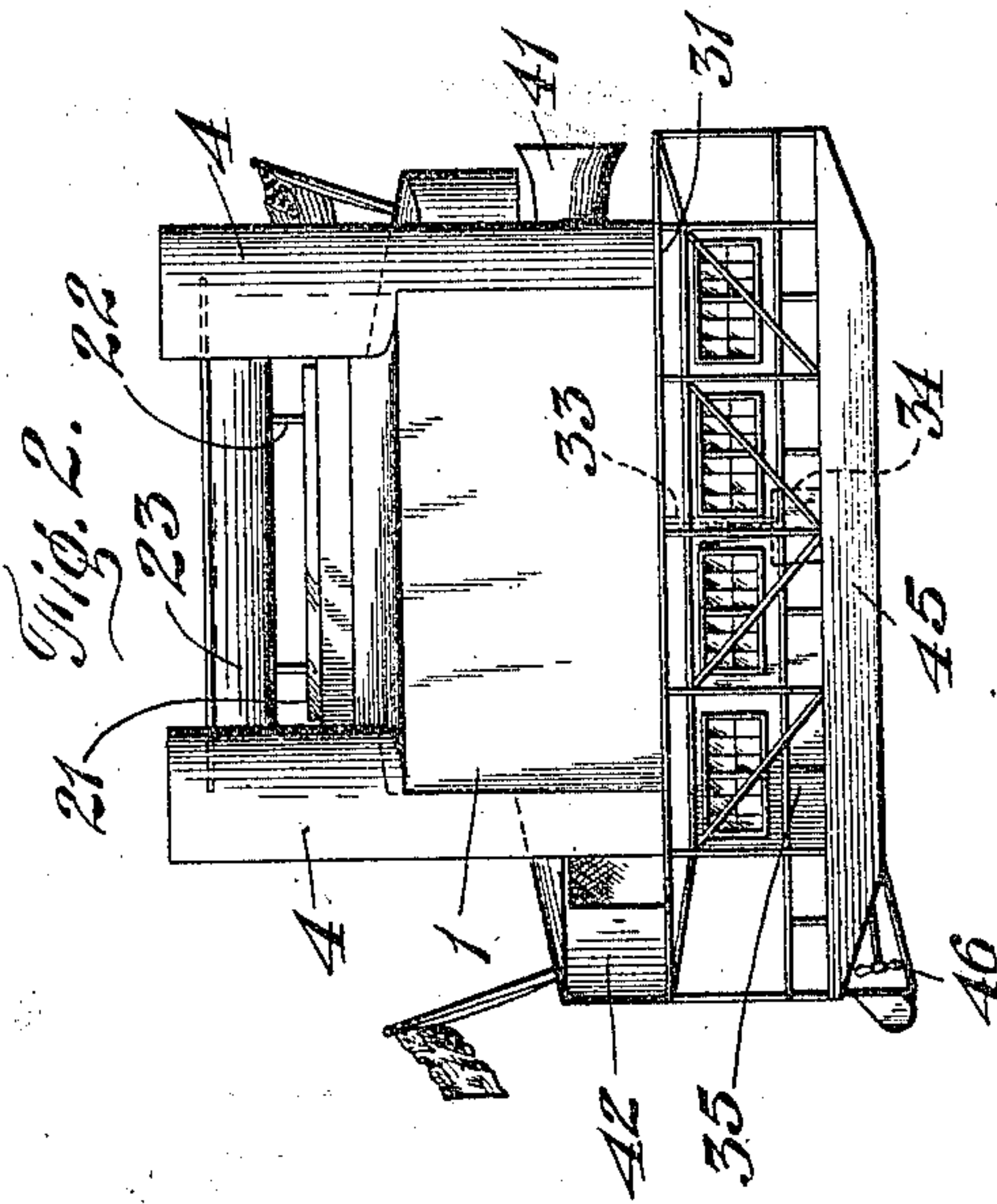
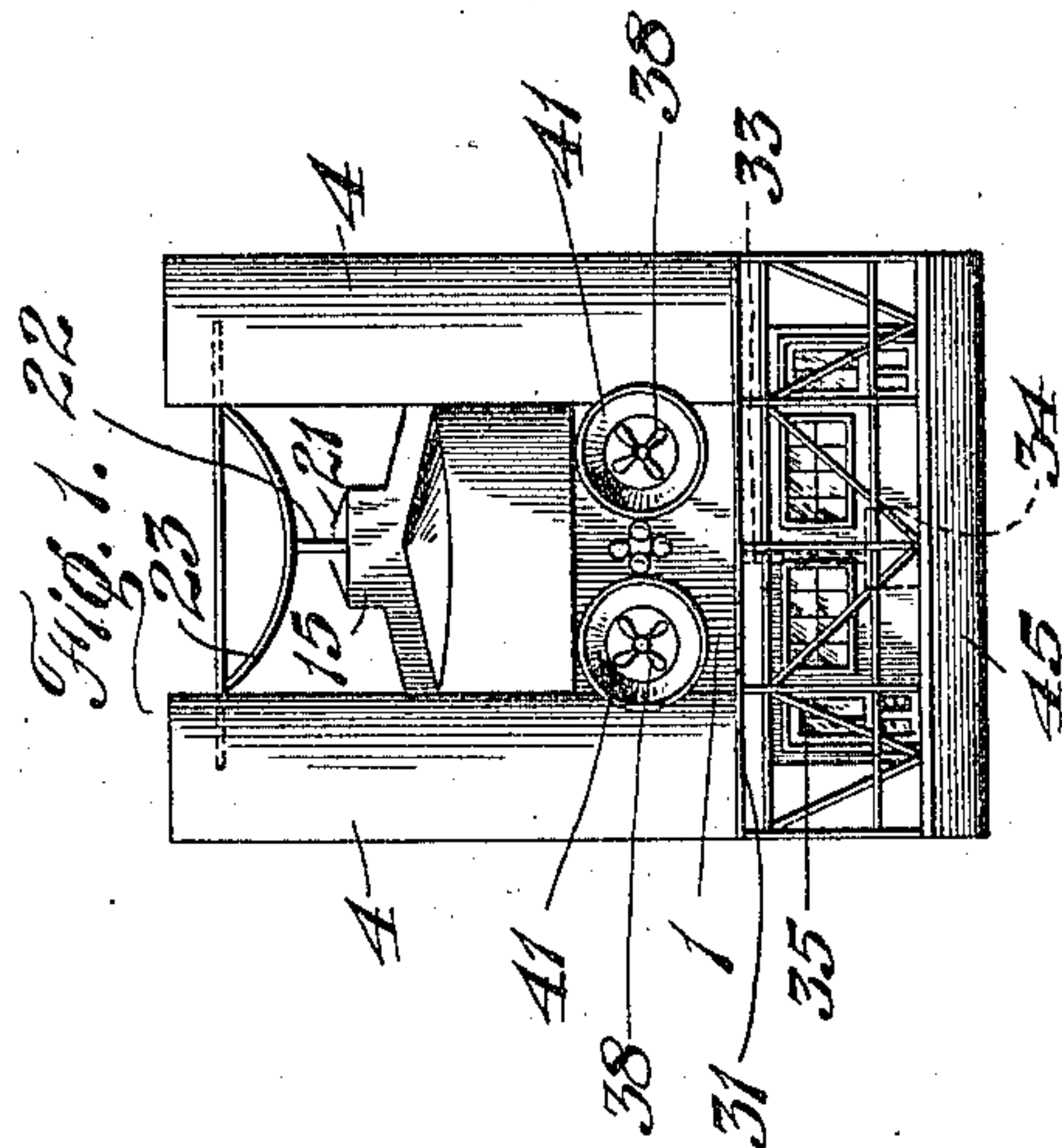
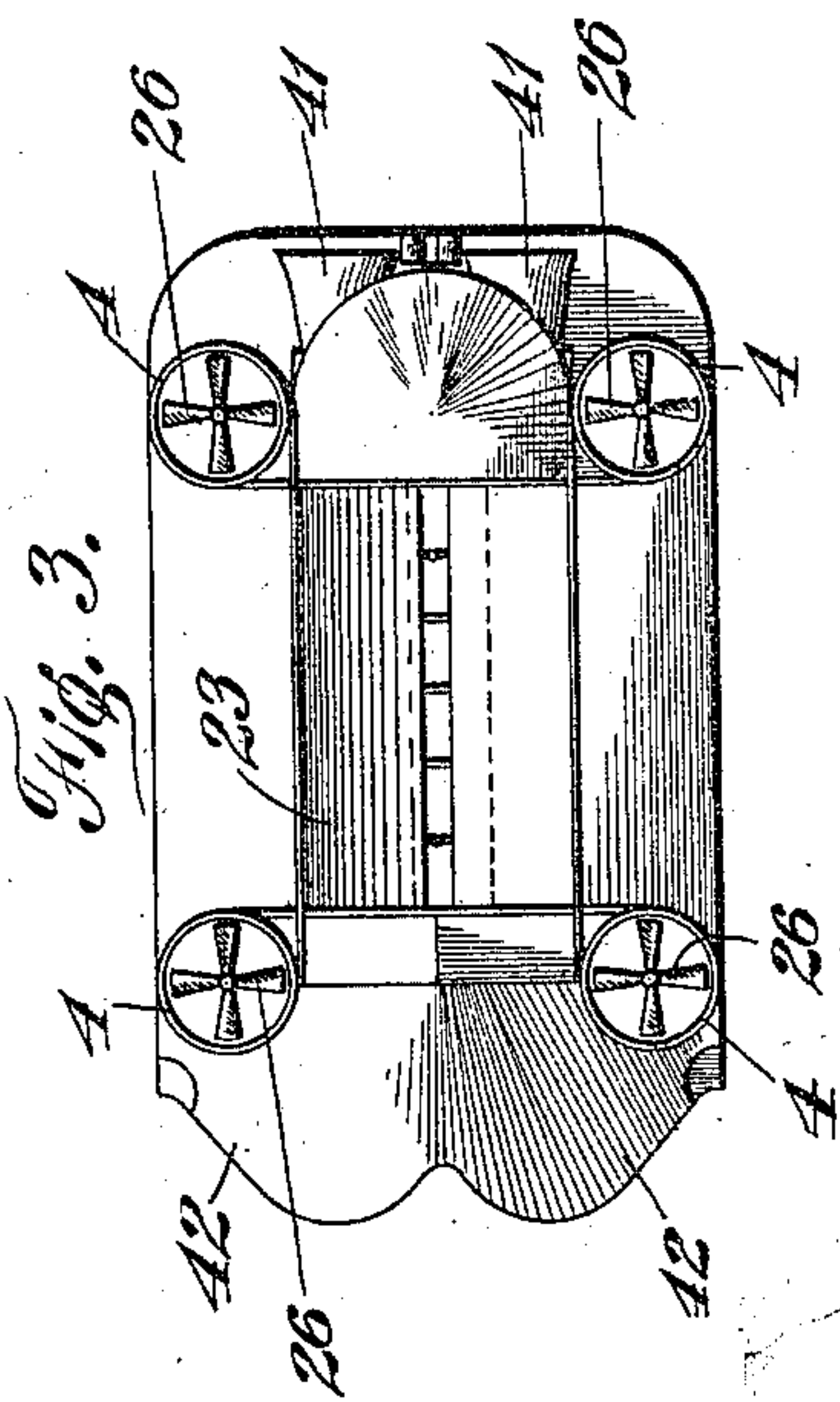


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FLYING MACHINE.
APPLICATION FILED MAR. 22, 1911.

996,627.

Patented July 4, 1911.

3 SHEETS—SHEET 1.



Witnesses
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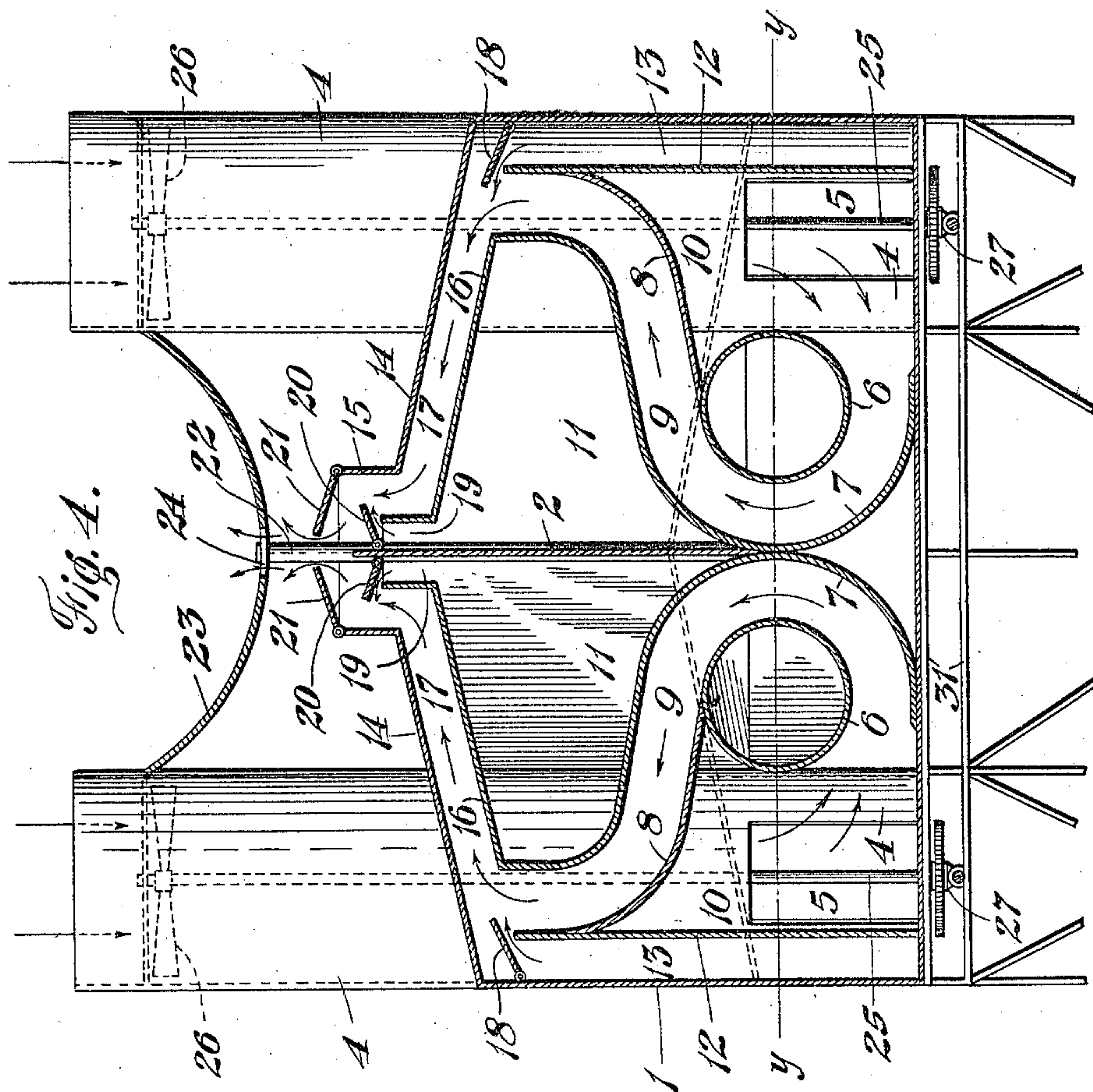
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3 SHEETS—SHEET 2.



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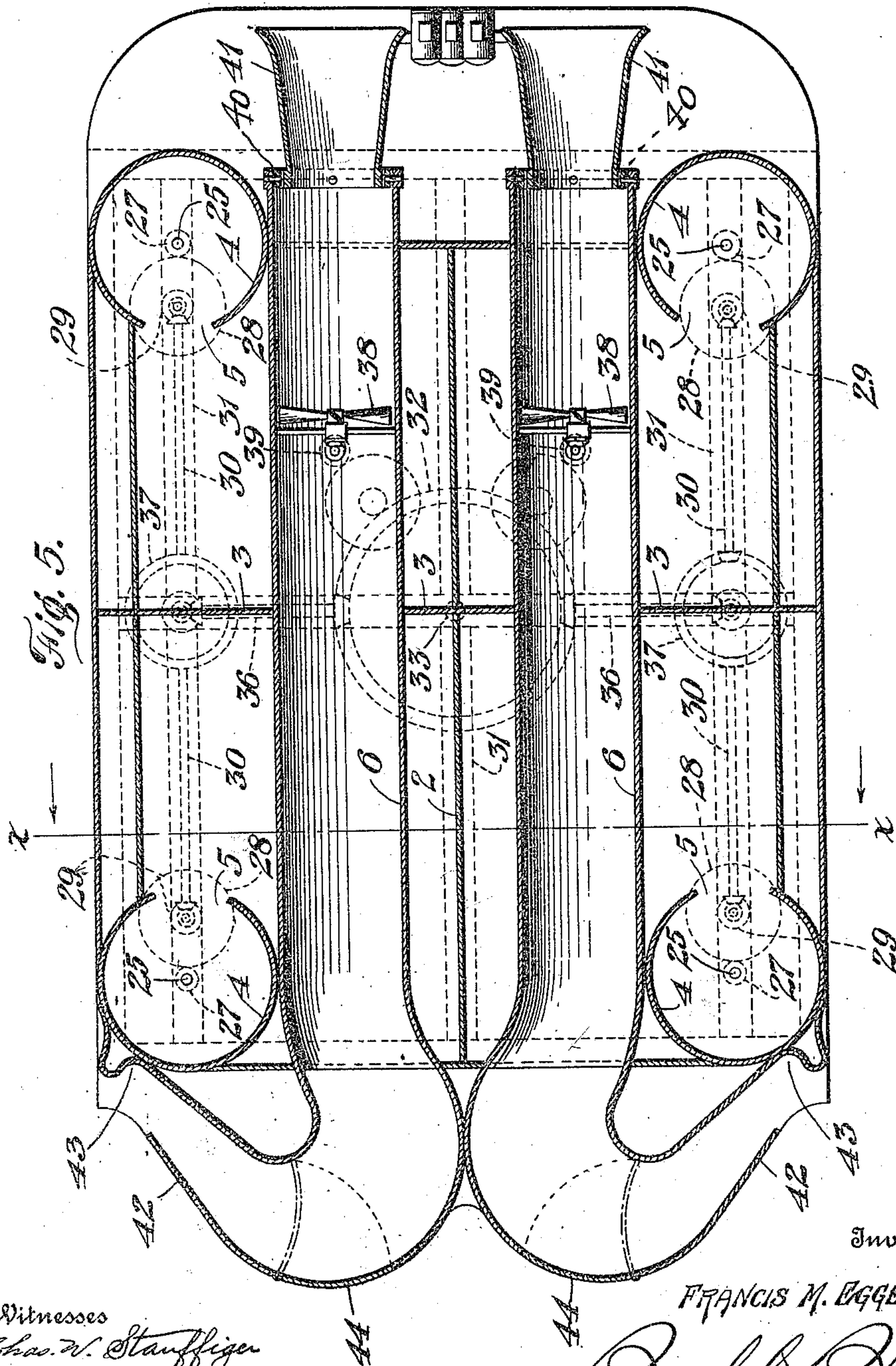
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

FRANCIS M. EGGERT, OF LANSING, MICHIGAN.

FLYING-MACHINE.

996,627.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed March 31, 1911. Serial No. 618,070.

To all whom it may concern:

Be it known that I, FRANCIS M. EGGERT, a citizen of the United States of America, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to flying machines and its object is to provide certain new and useful features in the construction of lifting and propelling mechanism and in the construction and arrangement of parts, the invention consisting in the matters herein-
15 after set forth and more particularly pointed out in the claims reference being had to the accompanying drawings in which—

Figure 1 is a front end elevation of a device embodying the invention; Fig. 2 a side elevation of the same; Fig. 3, a plan view; Fig. 4 is an enlarged transverse vertical section through the air body on the line $x-x$ of Fig. 5; and Fig. 5 is a horizontal section
25 on the line $y-y$ of Fig. 4.

As shown in the drawings 1 is a rectangular shaped body having vertical side and end walls and a closed bottom. This body is divided into four compartments by a longitudinal wall 2 and a transverse wall 3 and
35 located within each corner of the rectangular body is a vertically extending tube 4 provided with an opening 5 near its lower end through which it communicates with
40 the interior of the chamber formed in that corner of the body by the division walls. Extending horizontally through the body from front to rear are two air tubes 6 which are spaced a short distance apart and located a short distance above the bottom of
45 the body. The interior of the four chambers formed by the division walls 2 and 3 is again divided into separate compartments and air passages by means of curved
50 walls 7 extending from the bottom of the body around the tubes 6 and upward to near the top of the body. Parallel walls 8 extending from the top of the tubes 6 near the top of the body form curved air passages
55 9 leading from the air chambers 10 into which the tubes 4 open. The walls 7 separate the chamber 10 from chambers 11 located at the center of the body and above the air tubes 6, there being two of these chambers 11 one at each side of the dividing wall. A wall 12 spaced a short distance

from the side walls of the body meeting the walls of the tubes at their ends, forms chambers 13 along each side of the body between the tubes 4. The roof or top 14 of the body is slightly inclined outwardly from a central longitudinally extending cupola 15 and extending parallel with the top 14 and at a short distance below the same are walls 16 forming air flues 17 communicating
60 at one end with the air flues 9 and opening at their upper ends into the cupola. The upper end of each chamber 13 is closed by a flap valve 18 and the walls 16 are extended upward and spaced from the wall 2 to form outlet passages 19 leading from the
65 chambers 11, which passages 19 are closed at their upper ends within the cupola by means of flap valves 20. Similar flaps 21 are pivoted along their outer edges to the sides of the cupola with a space between
70 their adjacent inner edges and form a closure for the upper end of the cupola.

Supported upon the wall 2 by means of rods 22 extending upwardly therefrom is a curved deflector 23 which is also supported
75 by being secured at four points to the tubes 4. This deflector has a narrow central longitudinal slot 24 directly above the space between the two flaps 21.

Within the vertical axis of each of the tubes 4 is a shaft 25 upon which is secured near the upper end of the tube, a suction fan wheel 26. These shafts are driven by means of small gears 27 upon their lower
80 ends engaging large gears 28 each driven by means of a pair of beveled gears 29 and a horizontal shaft 30 mounted in suitable bearings in a frame work 31 secured to the bottom of the body 1. A large central gear
85 32 mounted upon a vertical shaft 33 indicated in dotted lines in Figs. 1 and 5 is driven directly by a suitable motor 34 supported in a suitable car 35 rigidly attached to the body 1 and located directly below the same. From the large gear 32 motion is
90 transmitted through suitable shafts 36 and gearing 37 to the shafts 30. By means of this train of gearing a very high speed is given to the fans 26.

Supported within suitable bearings in the axes of the tubes 6 are two propeller wheels 38 which propellers are driven at a high speed by means of gearing 39 indicated in
95 dotted lines in Fig. 5 from the large gear 32. Supported within the forward end of each tube by means of a gimbal ring 40 and

extending outwardly and forwardly therefrom, is a bell shaped inlet funnel 41. By reason of the universal support of these funnels they may be turned in any direction 5 by suitable controlling mechanism (not shown) which may be operated from the car 35 below. The rear ends of the tubes 6 are contracted and extended laterally at 42 in opposite directions toward opposite 10 sides of the body and these contracted open ends are directed toward suitable pockets 43 formed in the adjacent end wall of the body. Each tube 6 is provided with an opening in its rear end closed by a door 44 which 15 may be opened or closed by any suitable mechanism (not shown) under the control of the operator.

The passenger car or body 35 is preferably provided with a boat shaped water 20 tight bottom 45 and this boat is preferably provided with screw propellers 46 driven in any suitable manner by the engine 34.

When the suction fans 26 are set in rapid motion by the engine 34 air will be drawn 25 into the upper open ends of the tubes 4 lifting the machine from the ground and the air will be forced through the chambers 10 and air passages 8 and 17 out past the flaps 21 which will be opened thereby and the air 30 will strike the deflector 23. This volume of air rushing past the upper ends of the chambers 13 and passages 19 leading from the chambers 11 will open the valves 18 and 20 and draw out the air contained in these 35 chambers.

The machine will be propelled forwardly through the air by means of the propeller wheels 38 which will draw the air into the forward ends of the tubes 6 through the funnels 41 and discharge it with great force 40 through the rear ends of the tubes. The machine is directed in its course by turning the funnels 41 in the direction in which it is desired that the machine shall be propelled 45 and if it is desired to make a quick turn, as for instance to the right, the left hand door 44 will be closed and the right hand door opened. The air passing through the tube 6 at the left hand side of the machine will then 50 be discharged with great force through its contracted end 42 into the pocket 43 and thus tend to swing the rear end of the machine around.

What I claim as my invention is:

55 1. In a flying machine the combination of a body, a pair of tubes extending through the body from front to rear thereof and having oppositely and laterally curved rear ends, and openings in the walls of the tubes 60 in alinement with the main axes of the tubes, doors to close the openings, propellers within the tubes and a motor carried by the body for driving the propellers.

65 2. In a flying machine, the combination of a body, a pair of parallel tubes extending

through the body from front to rear thereof and having openings in their rear ends and laterally extending oppositely disposed contracted portions having ends opening toward the rear wall of the body, doors to 70 close the openings in the tubes, propellers in the tubes and a motor carried by the body for driving the propellers.

3. In a flying machine the combination of a rectangular body, vertically disposed tubes 75 carried by the body having open upper ends and opening into the body at their lower ends, a tube extending horizontally through the body from front to rear thereof, a propeller wheel in said tube, suction fan wheels 80 in the vertical tubes, a motor carried by the body for driving the propeller and fan wheels, chambers within the body having open upper ends, and air passages within the body leading from the lower ends of the 85 vertical tubes upward past the open ends of said chambers.

4. In a flying machine, the combination of a rectangular body, vertical tubes adjacent to each corner of the body open at their 90 upper ends and communicating with the interior of the body at their lower ends, parallel tubes extending horizontally through the body from front to rear thereof, fan wheels within the vertical tubes, propeller 95 wheels within the horizontal tubes, a motor carried by the body for driving said wheels and propellers, chambers within the body, valves for closing the chambers, and air passages leading from the lower ends of the 100 vertical tubes upward past said valves to the top of the body.

5. In a flying machine, the combination of a rectangular body, a vertically disposed tube at each corner of the body open at its 105 upper end and communicating with the interior of the body at its lower end, parallel tubes extending horizontally through the body from front to rear thereof, a propeller in each horizontal tube, a fan wheel in each 110 vertical tube, a motor carried by the body for driving the propellers and fan wheels, a chamber at each side of the body, a valve to close the upper end of the chamber, central chambers in the body opening at the top of 115 the body near the center thereof, valves to close the central chambers, air passages within the body leading from the lower ends of the vertical tubes upwardly past the valves of the side chambers and inwardly at 120 the top of the body and out at the center thereof past the valves of the center chambers, and a deflector supported above the open discharge ends of said passages.

6. In a flying machine the combination of 125 a body, vertically extending tubes carried by the body having open upper ends and communicating at their lower ends with the interior of the body, passages within the body extending from the lower ends of the 130

tubes and opening through the top of the
body at the center thereof, pivoted members
for closing the open discharge upper ends of
the passages, a deflector supported above
5 said open discharge ends of the passages,
horizontally disposed tubes extending
through the body from front to rear thereof,
propellers within said horizontal tubes, fan
wheels within the vertical tubes, and a motor

carried by the body for driving said propel- 10
lers and fan wheels.

In testimony whereof I affix my signature
in presence of two witnesses.

FRANCIS M. EGGERT.

Witnesses:

LEWIS E. FLANDERS,
OTTO F. BARTHEL.