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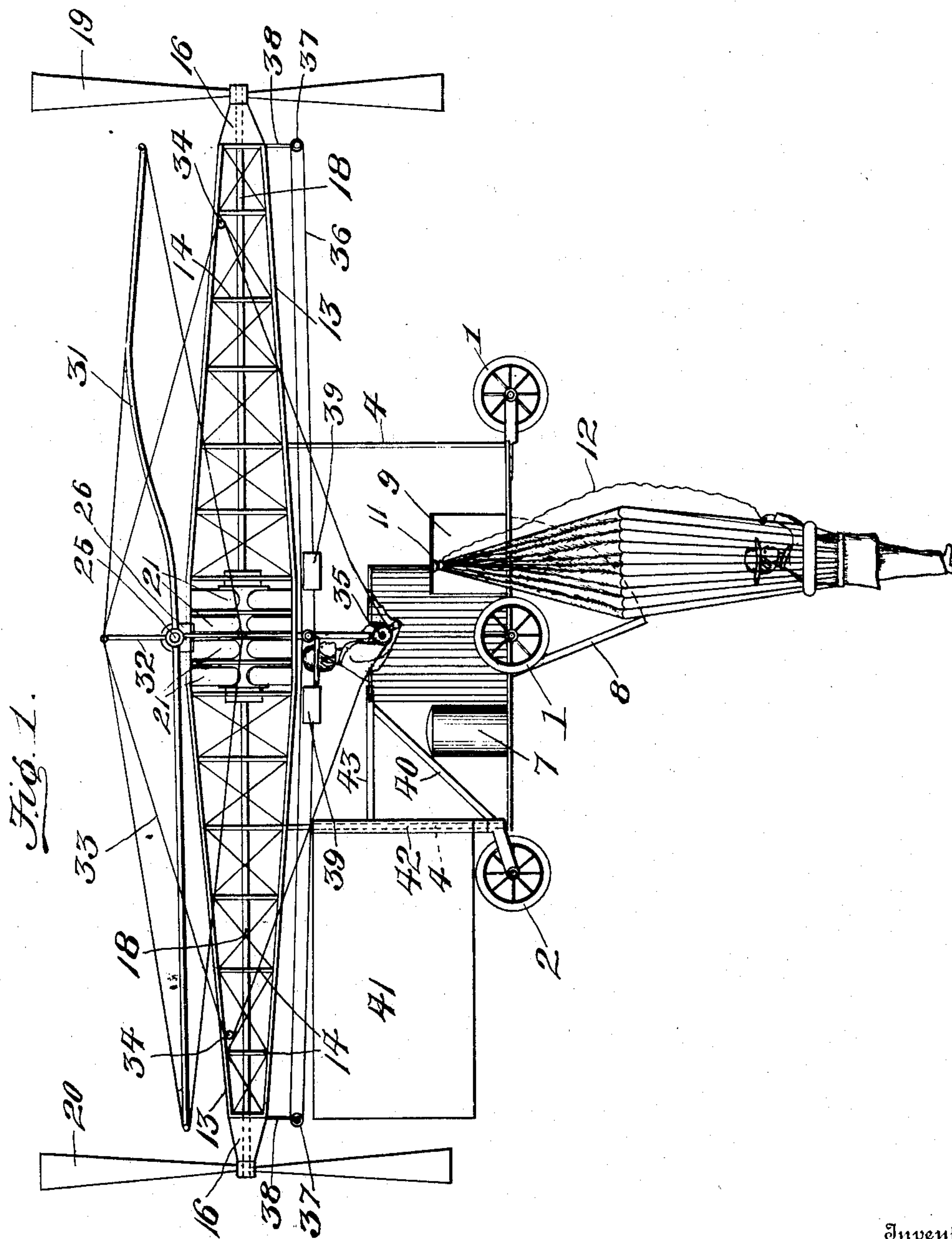
PATENTED OCT. 29, 1907.

A. W. H. GRIEPE.

AIR SHIP.

APPLICATION FILED MAR. 8, 1907.

4 SHEETS—SHEET 1.



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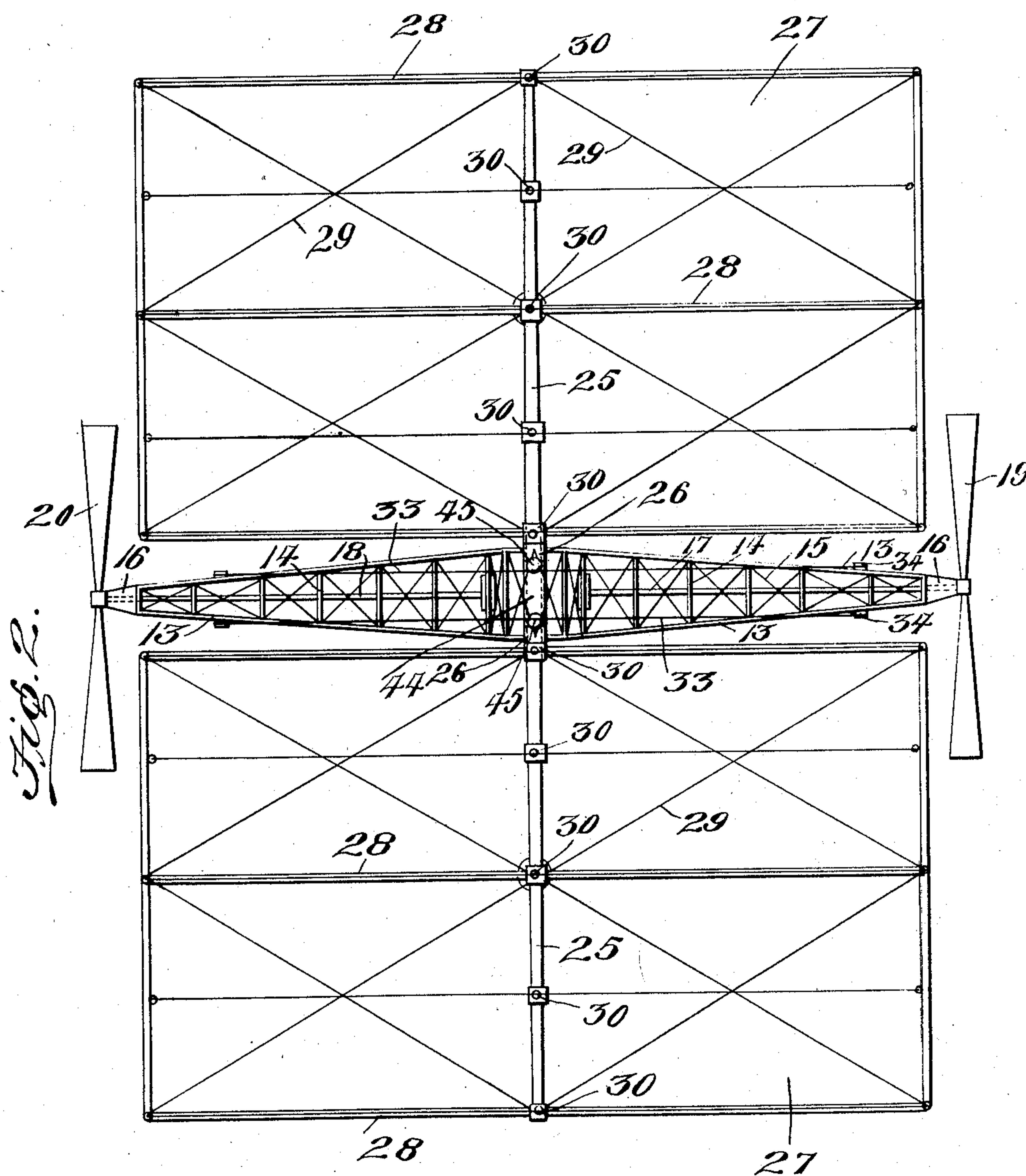
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4 SHEETS—SHEET 2.



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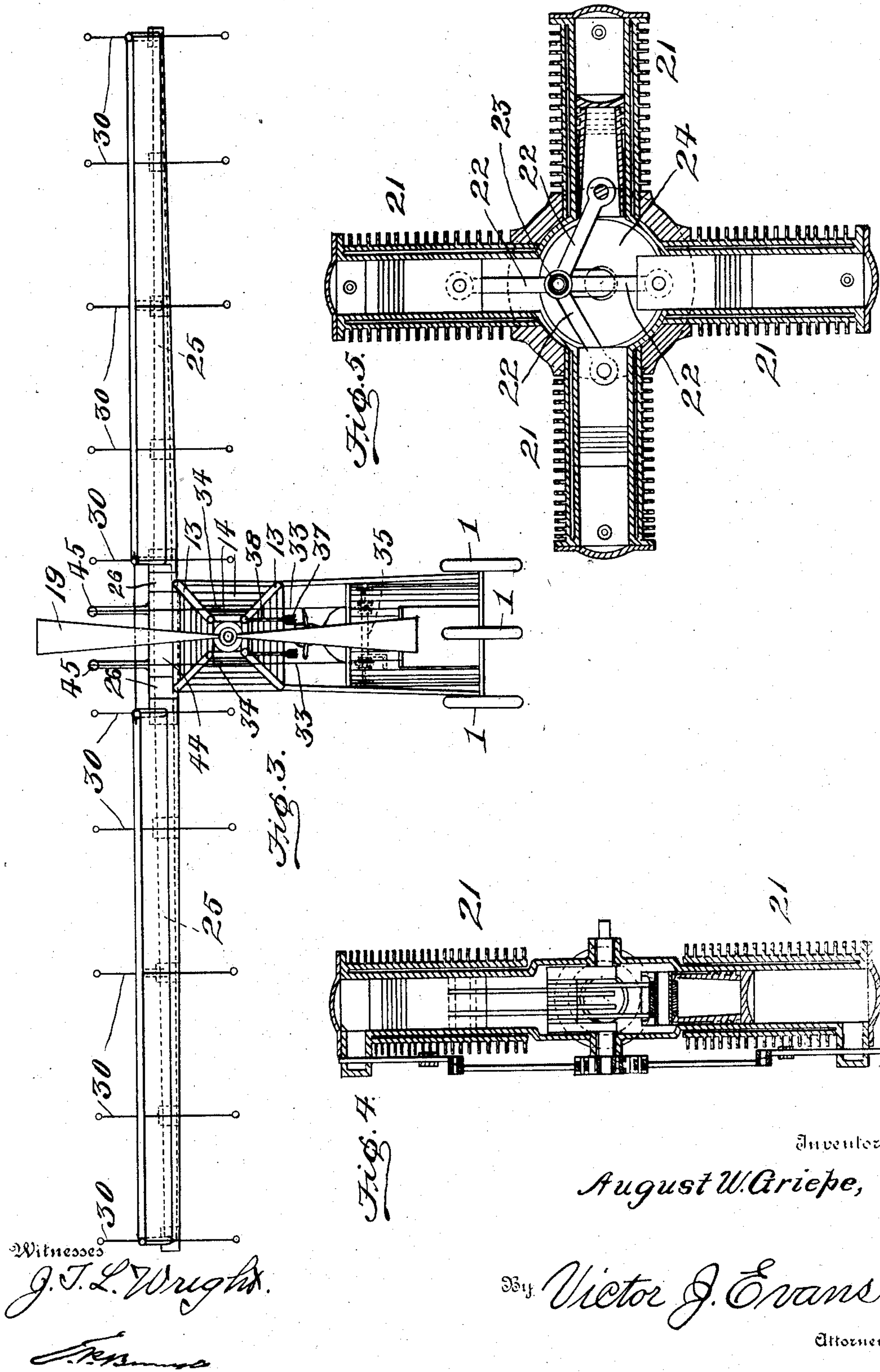
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4 SHEETS—SHEET 3.



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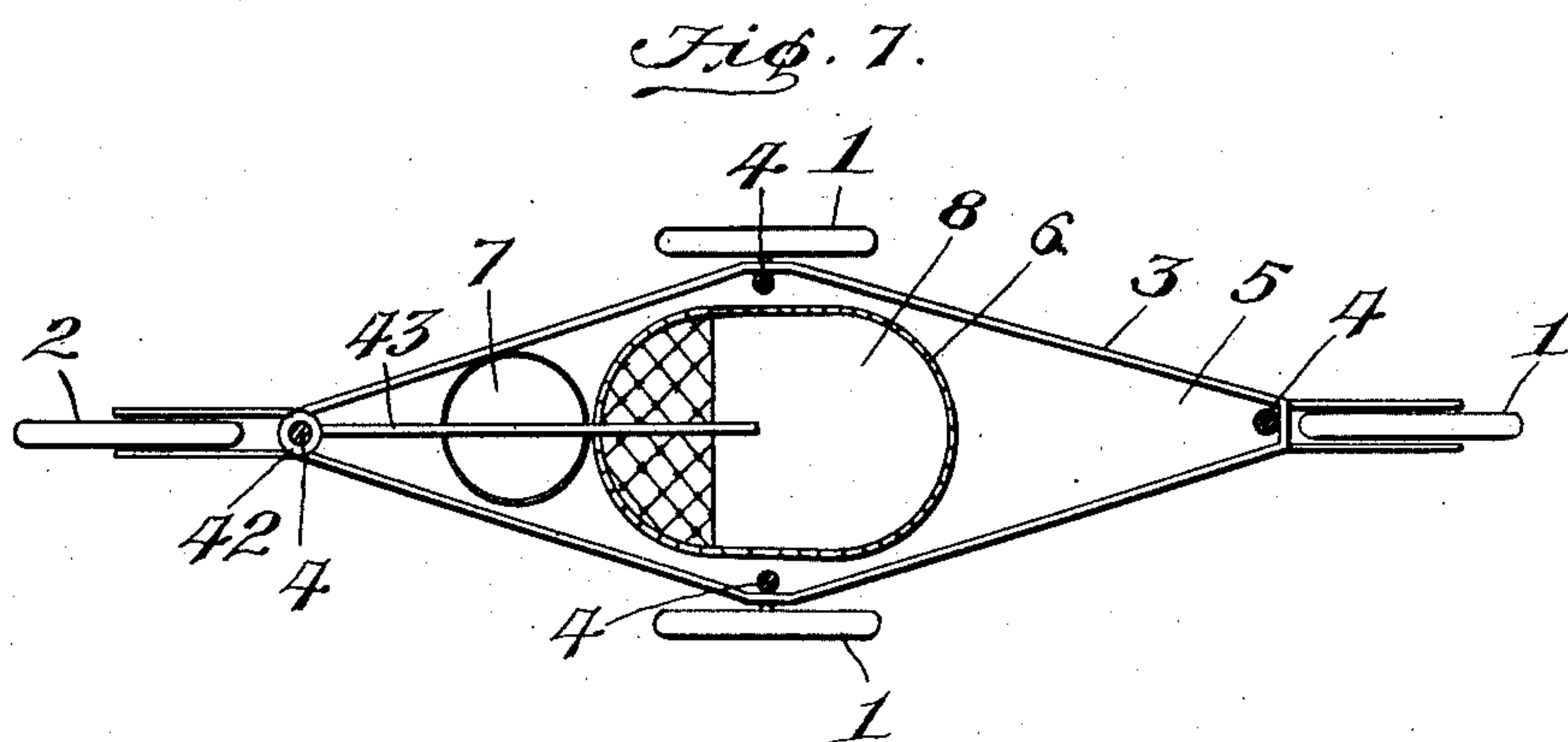
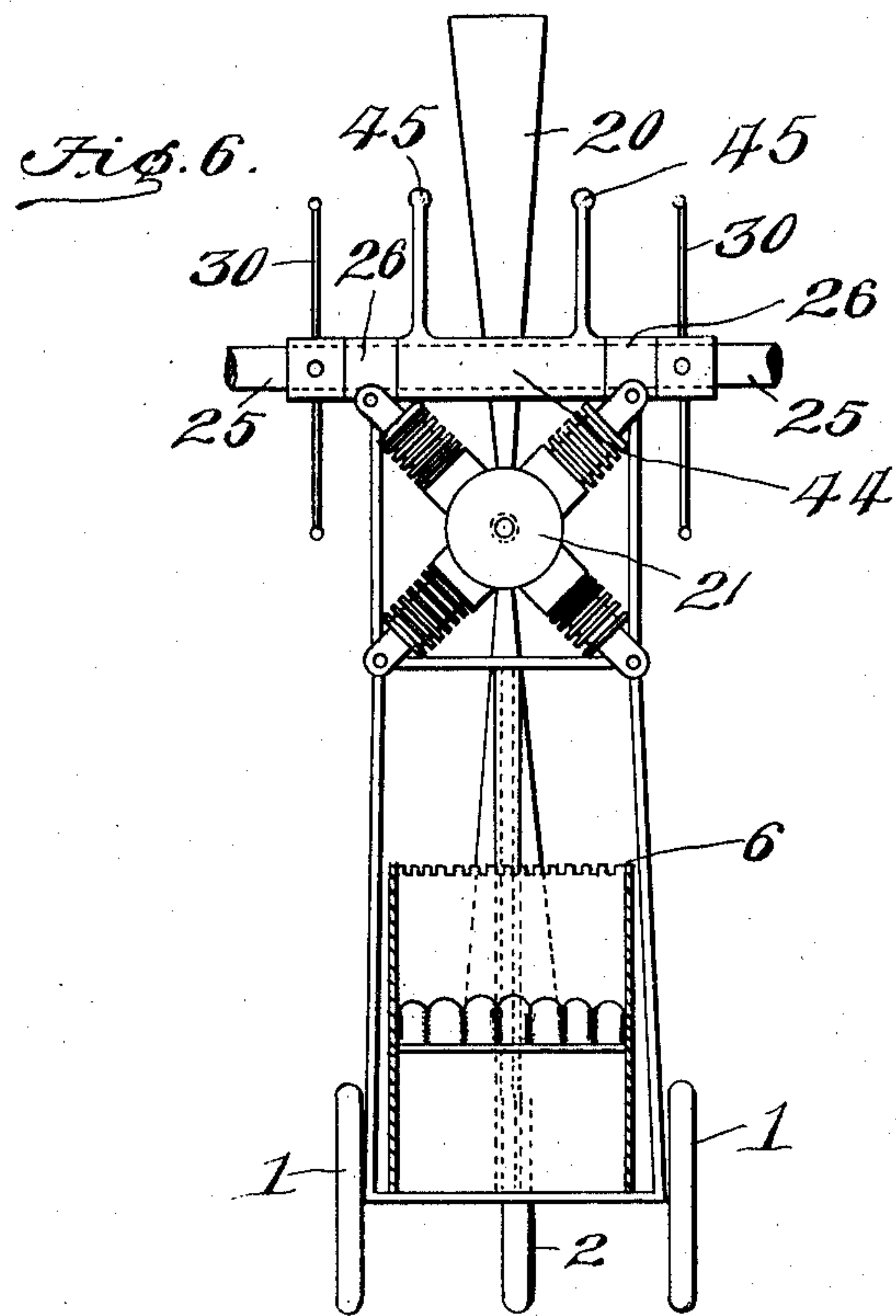
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SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

AUGUST W. H. GRIEPE, OF NEW YORK, N. Y.

## AIR-SHIP.

No. 869,238.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed March 8, 1907. Serial No. 361,323.

*To all whom it may concern:*

Be it known that I, AUGUST W. H. GRIEPE, a subject of the Emperor of Germany, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Air-Ships, of which the following is a specification.

This invention relates to air ships of the aeroplane type, and one of the principal objects of the same is to provide pivotally mounted aeroplanes and improved means for adjusting the aeroplanes at various inclinations to catch the wind in ascending and descending.

Another object of the invention is to provide an aeroplane air ship with motors for operating the propelling wheels, said motors being disposed in four directions with a view to equalizing the vibration so as not to interfere with the poise of the ship.

Another object of the invention is to provide a wheeled frame upon which the air ship is mounted, and an operator's cab mounted upon said frame and provided with a trap door for letting down a parachute whenever emergency requires.

Still another object is to provide improved means for steering the ship, both in its movements on land, and when floating in the air.

Another object of the invention is the arrangement of the heavier parts of the machine below the acting center of the aeroplane so that to disturb the equilibrium of the machine, the aggregate disturbing pressure on the aeroplane must be greater than the momentum of the weight of the lower parts of the machine multiplied by the distance of the common center of gravity from the acting center of the wings.

These and other objects may be attained by means of the construction illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of an air ship made in accordance with my invention, and showing the parachute extended below and ready to be cut loose from the machine. Fig. 2 is a top plan view of the same. Fig. 3 is a front end view of the same. Fig. 4 is a transverse section through two of the motor elements. Fig. 5 is a horizontal section through the same. Fig. 6 is a front elevation of the machine with the transverse shaft broken away. Fig. 7 is a plan view of the wheeled frame with the vertical supporting rod shown in section.

Referring to the drawings for a more particular description of my invention, the numeral 1 designates the traction wheels, and 2 is the steering wheel, said traction wheels being mounted one in front and two at the sides of the frame, the steering wheel 2 being mounted in the rear and in line with the front wheel, as shown more particularly in Fig. 7. The wheels 1 are mounted in a diamond shaped frame 3 composed of light tubing, and said frame being suspended by four upright rods or tubes 4. A platform 5, having a surrounding railing 6, is properly mounted upon the frame 3 to provide a

cab for the operator, and resting upon the platform is a fuel tank 7. Hinged to the platform 5 is a trap door 8, and within a suitable compartment 9 a parachute 10 is placed, said parachute being connected at 11 to the top of the compartment and provided with a cord or wire 12 by means of which the operator may detach the parachute in case of emergency and abandon the air ship. Room is provided within the frame 3 for the articles necessary for aerial navigation.

The supporting frame for the operative mechanism is composed of longitudinal tubes 13, cross tubes 14, and bracing wires 15, said frame being pointed at the ends and provided with bearings 16 for the longitudinal shaft sections 17, 18, said shaft sections having propeller wheels 19, 20 secured thereto, said propeller wheels being of any suitable type. Mounted centrally within the frame are four motor elements 21, said elements, as shown, being of the gasolene or alcohol type and arranged in four diametrically disposed directions, as shown in Fig. 5, the piston rods 22 of said motors being connected to a wrist pin 23 on a crank wheel 24 connected to the longitudinal shaft sections 17, 18 on which the propeller wheels 19, 20 are mounted. By this arrangement of motor elements, the vibration is equalized in all directions, and the poise of the ship is not interfered with. Three of these motor elements are used during the flight, one being kept in readiness for use in case of breakage or injury to one of the others.

The upright rods 4 are connected to the longitudinal rods 13, thus suspending the wheeled frame below the supporting frame for the operating mechanism. A transversely extending tubular shaft 25 is journaled in two bearings 26 supported upon the framework, and connected to the shaft 25 are the rectangular aeroplanes 27, said aeroplanes being formed of bamboo sections, or light tubular metal frames 28, properly braced by wires 29 extending diagonally across the framework and connected at suitable points, as shown more particularly in Fig. 2, an upright support 30 serving to sustain the aeroplanes against vertical displacement, any suitable number of uprights being employed.

As shown in Fig. 1 the framework of the aeroplane at the front is bent up or curved at 31 to increase the ability of the machine to ascend. On the tube 25 between the bearings 26 is attached a sleeve 44 provided with two arms or levers 45, and connected to these arms 45 are two cables 33 which pass around pulleys 34 located at opposite ends of the motor supporting frame, and extend thence to the operator's cab, the ends of said cables passing around a drum 35 provided with a handle and a ratchet wheel to hold said drum in adjusted position. By this means the inclination of the aeroplane may be quickly adjusted, dependent upon the velocity and direction of the wind. A cable 36, passing around rollers or pulleys 37 mounted in depending tubes 38, is provided with sliding weights 39, which



may be shifted to trim the ship, and give the required poise thereto.

The steering wheel 2 is mounted upon one of the up-  
rights 4, and connected to said wheel is a lever 40 ex-  
tending within reach of the operator, while the rudder  
41, of suitable construction, is provided with a sleeve  
42 mounted to turn upon said uprights 4, and a lever  
43 connected to the lever 40 extends to the operator's  
cab. It will be understood that the aeroplanes are  
covered with oiled silk, or other light impervious ma-  
terial and that the rudder 41 may be composed of  
similar material.

The operation of my invention may be briefly de-  
scribed as follows: The operator, taking his place in  
the cab, starts the motors to rotate the propeller wheels  
19, 20, the machine being propelled over the ground and  
resting upon the wheels 1 and 2. The aeroplanes are  
adjusted at the required inclination to receive the  
wind underneath them, and the bend 31 in the front  
portions of said aeroplanes serving to assist in this  
operation. When sufficient velocity has been at-  
tained, the ship will rise, and when a sufficient alti-  
tude has been attained, the aeroplanes are adjusted to  
a substantially horizontal position, the force of the  
propeller wheels being sufficient to carry the machine  
forward in a substantially horizontal direction. When  
it is desired to descend, the aeroplanes are adjusted  
with the forward ends slightly downward for a suffi-  
cient time to gain an inclined downward direction,  
when they may be again righted or adjusted to suit  
varying conditions. In case any of the operative parts  
should become unmanageable the operator may con-  
nect the parachute 10 and open the door 8, when by  
pulling upon the wire or cord 12, it may be discon-  
nected from the air ship, and he may descend to the  
ground.

From the foregoing it will be obvious that an air

ship made in accordance with my invention is com-  
paratively simple in construction, can be readily man-  
aged by a single person, and is provided with quick  
adjustments of the aeroplanes, while direction may  
be given to the ship by means of the rudder.

Having thus described the invention, what I claim  
is:

1. In an air ship of the aeroplane type, a frame, ground  
wheels carried by said frame, propeller wheels, means for  
rotating said propeller wheels, aeroplanes pivotally mount-  
ed upon a cross bar extending centrally across said frame,  
said aeroplanes being provided with metal frames having  
upwardly bent front ends, and means for adjusting the lon-  
gitudinal inclination of said aeroplanes.

2. In an air ship of the aeroplane type, a frame, ground  
wheels mounted on said frame, propeller wheels mounted  
on said frame, motors for operating said propeller wheels,  
said motors being disposed in four cardinal directions to  
overcome unequal vibration and to assist in the poise of the  
ship, aeroplanes mounted upon a transversely arranged cen-  
trally disposed cross bar, said aeroplanes having metal  
frames bent upwardly at their front ends, and means for  
adjusting the longitudinal inclination of said aeroplanes.

3. In an air ship of the aeroplane type, a frame, ground  
wheels mounted on said frame, propeller wheels, motors for  
operating said propeller wheels, aeroplanes mounted upon a  
centrally disposed transversely arranged cross bar, said  
aeroplanes being provided with metal frames bent upward  
at their front ends, means for adjusting the longitudinal  
inclination of said aeroplanes, comprising a cable and a  
winding drum, a cable mounted upon pulleys on the frame  
and provided with sliding weights for trimming the ship.

4. In an air ship, the combination of a frame, ground  
wheels mounted on said frame, propeller wheels, means for  
rotating said propeller wheels, steering devices, aeroplanes  
pivotally mounted upon a centrally disposed transverse  
cross bar, said aeroplanes comprising metal frames having  
upwardly bent front ends.

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

AUGUST W. IL. GRIEPE.

Witnesses:

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W. S. MORRISON.