

No. 848,055.

PATENTED MAR. 26, 1907.

G. G. SCHWABEK.  
AIR SHIP.

APPLICATION FILED JAN. 29, 1906.

3 SHEETS—SHEET 1.

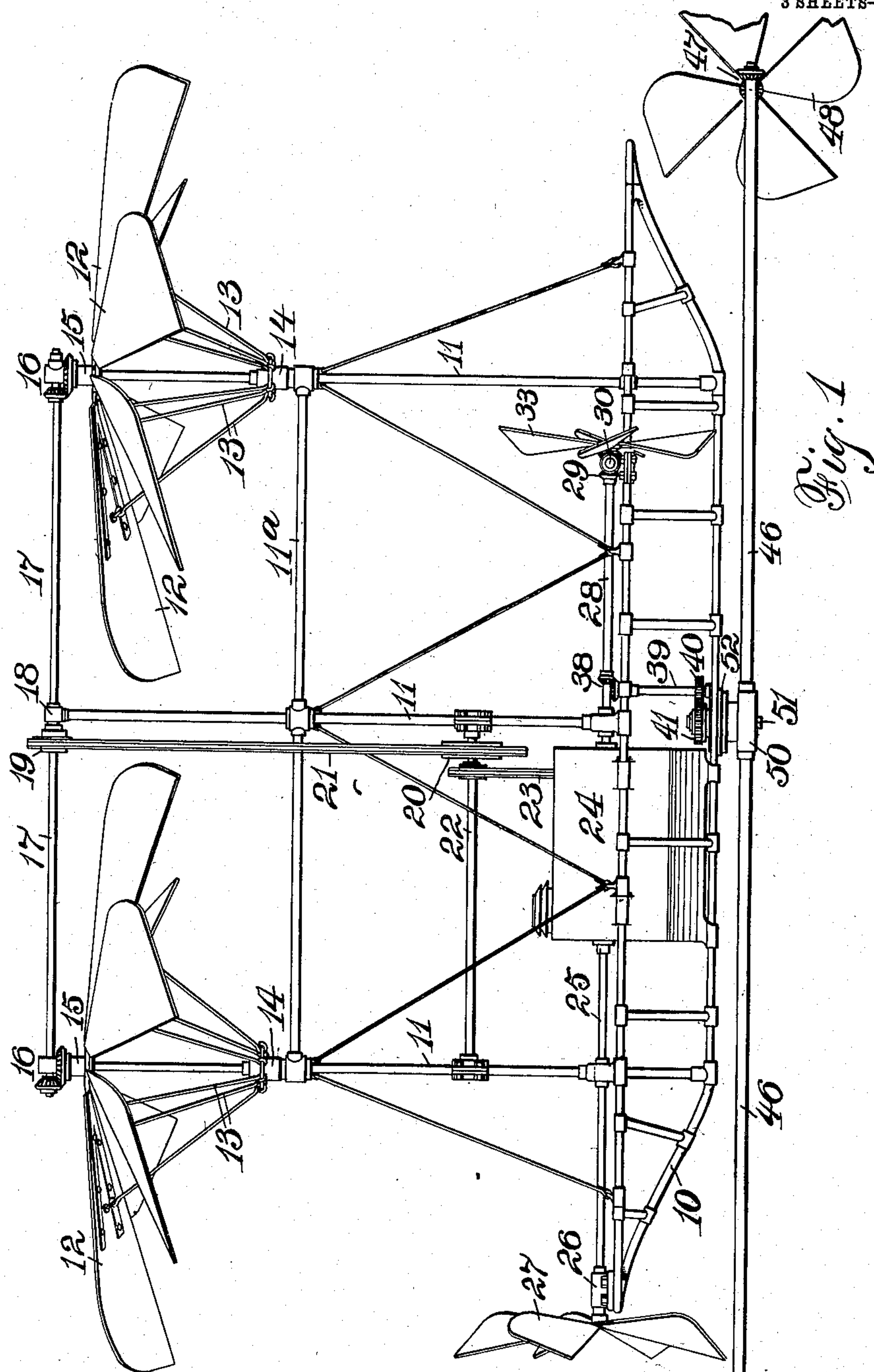


Fig. 1

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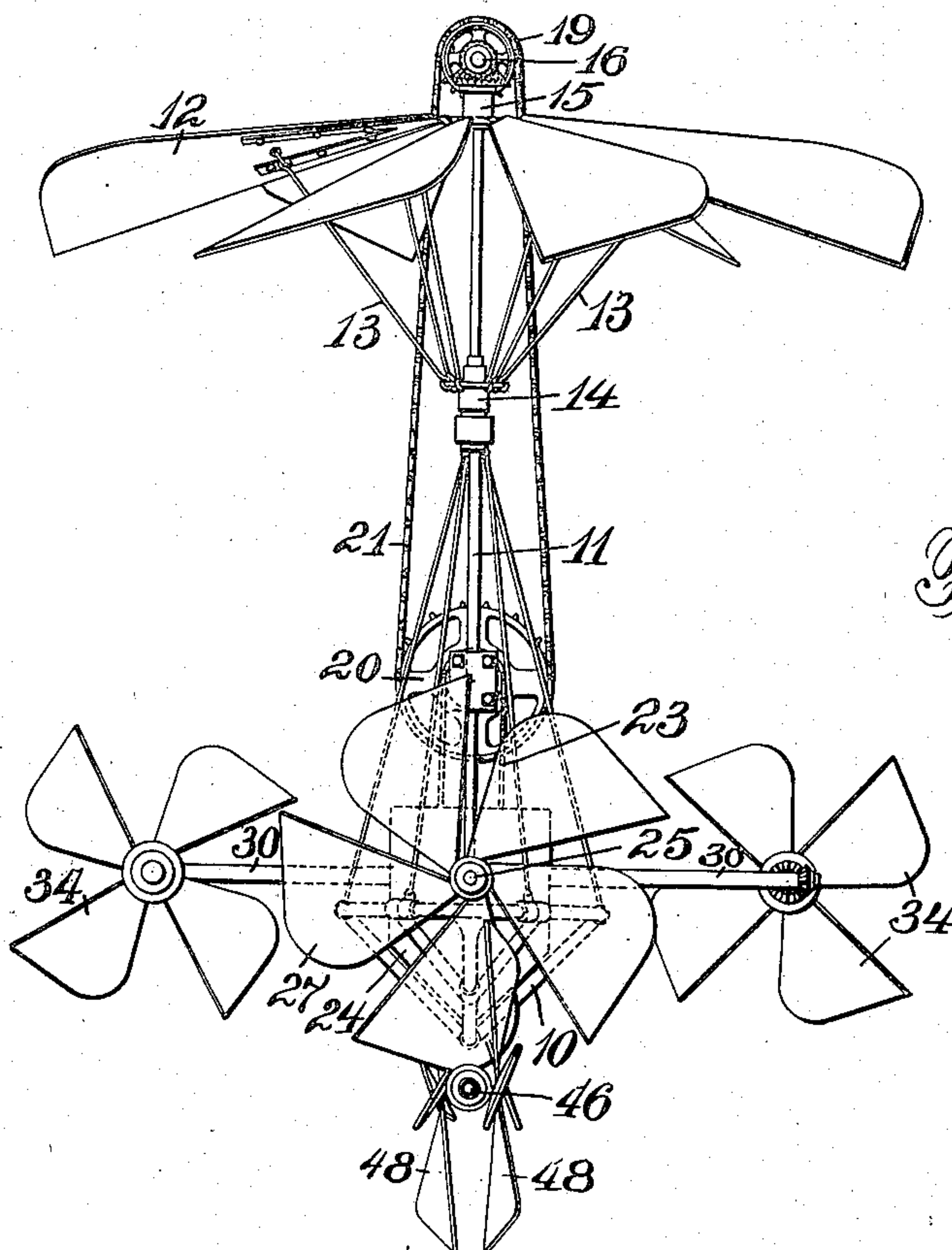


Fig. 2

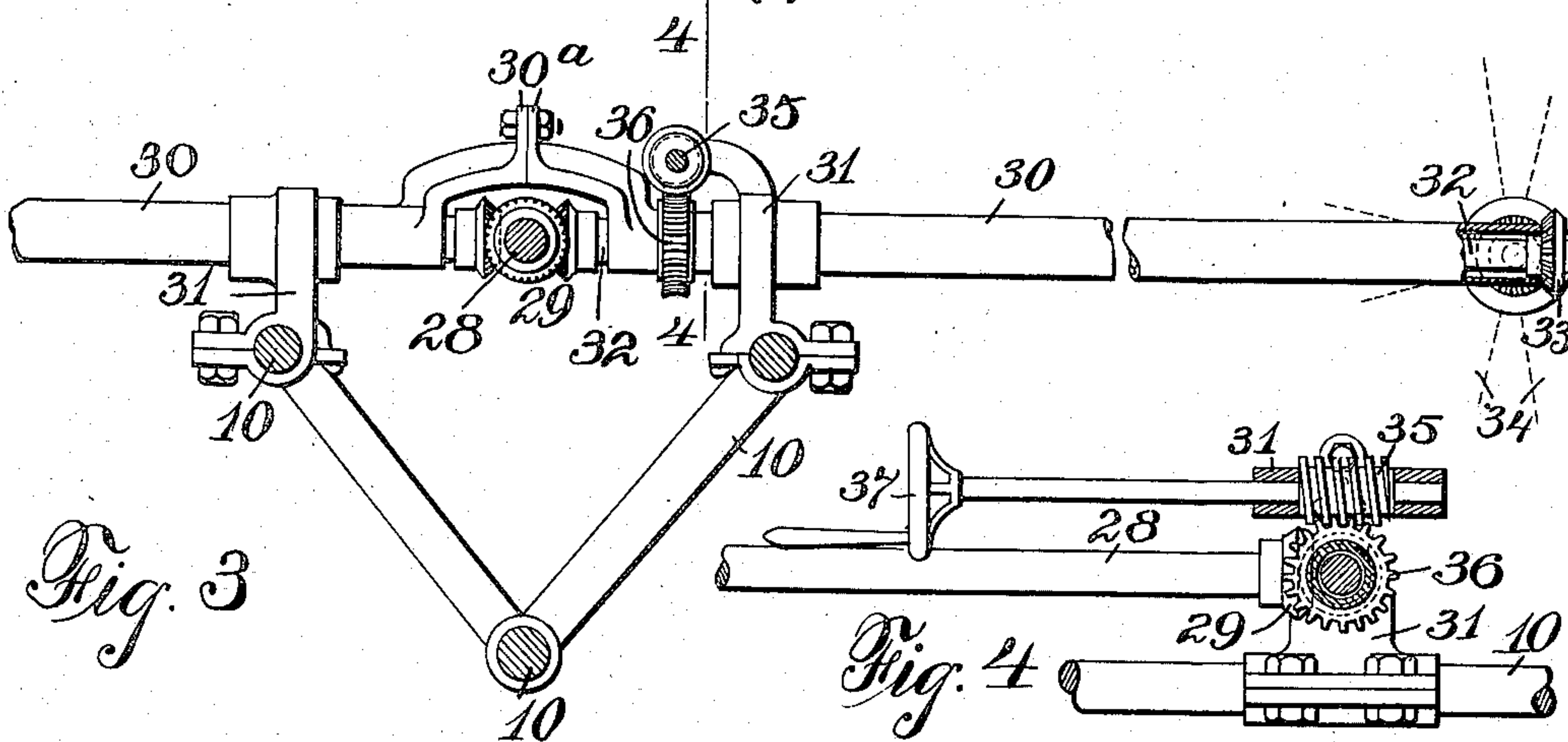


Fig. 3

Fig. 4

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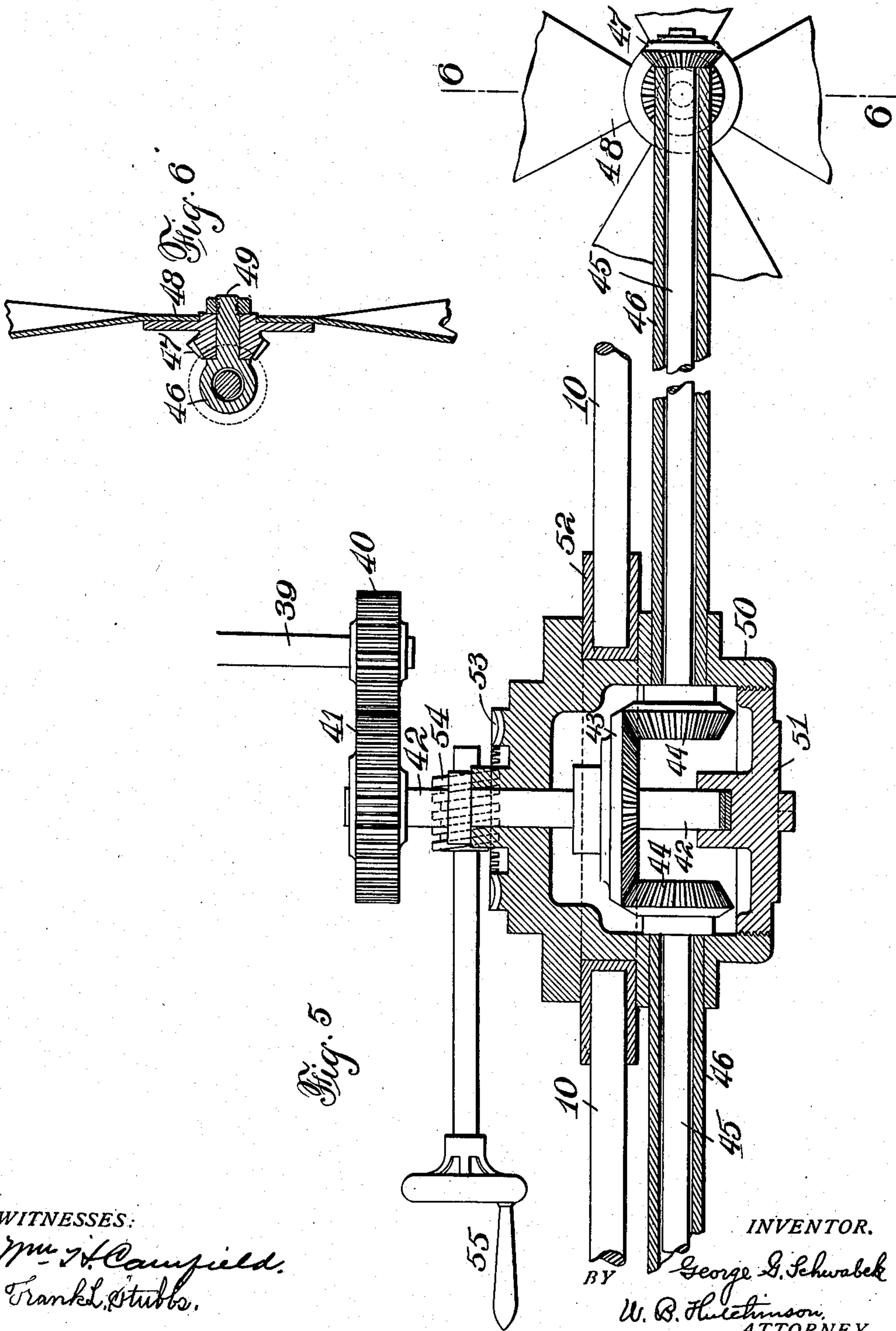
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3 SHEETS—SHEET 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## AIR-SHIP.

No. 848,055.

Specification of Letters Patent.

Patented March 26, 1907.

application filed January 29, 1906. Serial No. 298,550.

*To all whom it may concern:*

Be it known that I, GEORGE G. SCHWABEK, a subject of the Emperor of Austria-Hungary, at present residing in the city, county, and State of New York, have invented a new and Improved Air-Ship, of which the following is a full, clear, and exact description.

This invention is designed to produce an air-ship that has means for elevation, means for propelling the ship to the front and backward, and is also provided with means for throwing some of the propulsion mechanism so that it will assist in the elevation of the air-ship.

The invention is also designed to provide a pivoted mechanism for turning the apparatus, this steering apparatus being also designed to be thrown in a position to assist in the propulsion.

A further object of the invention is to provide a compact, reliable, and easily-operated means for regulating the steering and also a simple device for throwing some of the propulsion mechanism into an elevating position, and vice versa.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters and figures of reference indicate corresponding parts in all the views.

Figure 1 is a side view of the air-ship, showing the general arrangement of the different propellers and the parts of the ship. Fig. 2 is a stern view of the air-ship with the steering apparatus arranged to send the ship straight ahead. Fig. 3 is a detail of the apparatus for changing part of the propelling mechanism into an adjunct of the elevation device. Fig. 4 is a section on line 4 4 in Fig. 3. Fig. 5 is a section, partly broken away, of the steering apparatus and the mechanism for transmitting motion to it; and Fig. 6 is a section on line 6 6 in Fig. 5.

The body 10 of the air-ship is composed of any suitable material, such as bamboo or aluminium, and serves to support the vertical posts or standards 11, these in turn being braced by suitable stays and by the brace 11<sup>a</sup>. The outside standards 11 are provided on the top with the wings or propellers 12, that are held and braced in suitable position by the supports 13, this whole apparatus being supported on the revoluble collars or sleeves 14 and 15, the latter being provided

with one of a train of gears 16, that are secured on the shaft 17, this shaft being supported in boxes on the top of the standards 11 and also in the box 18 on the top of the central standard. The shaft 17 is set in motion by means of the sprocket 19, which is driven from the sprocket 20, which is fast on the shaft 22, by the chain 21 and is driven in turn by means of the sprocket-chain 23 from any suitable source of power 24.

The part of the device just described is the elevating mechanism and when set in motion the wings 12 are adapted to lift the whole structure free from the ground.

The shaft 25 extends back along the frame and through the bearing 26 and is provided with the propeller 27, as shown in Figs. 1 and 2, which propeller is arranged to send the structure either forward or backward, according to its direction of rotation. Extending toward the front of the machine is a shaft 28, which is provided with one of a set of three gears 29, which are shown more particularly in Fig. 3, the two other gears being arranged on two shafts 32, that rotate inside of a pair of supporting-sleeves 30, these sleeves extending the desired distance on either side of the body 10 and being secured in the standards 31, which in turn are fastened onto the framework 10.

On the ends of the shafts 30 is the set of miter-gears 33, which revolve the propellers 34. The sleeves 30 are fastened at the center by means of a suitable bolt or bolts through the flanges 30<sup>a</sup> and are maintained in their same relative positions. As shown in Figs. 1, 2, and 3, the sleeve is in a position to hold the propellers 34 to assist in driving the machine forward or backward; but a worm-gear 35 is journaled so as to be in engagement with the gear 36 on one of the sleeves 30, and when this worm-gear is operated by means of the handle 37 the sleeves 30 are tilted and can be arranged at a right angle to their shown position, so that the propellers 34 will operate in the same manner as the propellers 12, thereby assisting when not needed for propulsion in the elevation of the device.

At a suitable place on the shaft 28 is arranged the miter-gear 38, in turn driving a shaft 39, and thereby the gears 40 and 41. The gear 41, as shown in Fig. 5, rotates the shaft 42, on which is arranged the miter-gear 43, this gear 43 being in mesh with a pair of



gears 44. Each of the gears 44 drives a shaft 45, which rotates in a sleeve 46. These two sleeves extend in line, as shown in Fig. 1. Each shaft 45 has a miter-gear of a pair of  
 5 gears 47 secured on the end, these gears 47 rotating the propellers 48. As shown in Fig. 6, the outer end of the sleeve 46 is provided with a pin 49, on which the other gear of the pair of gears 47, with its propeller 48, is  
 10 adapted to rotate. On their inner ends the sleeves 46 are secured in the box 50, this box being closed on its lower end by means of the flange 51, which also serves to support the lower end of the shaft 42. This box 50 is ro-  
 15 tatably arranged in the cylindrical casting 52, this casting being secured to the framework 10 and held in a fixed position. On the top of the box 50 is a circular set of teeth 53, which are in mesh with a worm-gear 54, this  
 20 gear in turn being operated by means of the handle 55.

It will be seen from this description that this structure allows the rotation of the propellers 48, no matter what the position of the  
 25 sleeves 46 in relation to the keel of the body portion 10 of the air-ship. By means of this device if the propellers designed for propulsion are at rest the machine can be moved sidewise if the sleeves 46 are in line with the  
 30 keel, and even if the air-ship is being propelled through the air its direction can be changed by changing the direction of the sleeves 46 with their propellers on the end. If necessary, the sleeves 46 can be placed abeam of  
 35 the ship, and the propellers 48 will then assist in the propelling in a fore or aft direction of the structure.

It will be seen that I have thus described a ship that is adapted to navigate the air and

by means of the arrangement and disposition 40 of the propellers can be moved in any desired direction, and some of the mechanisms, if not desired or needed in their normal position, can be shifted to assume the functions of some of  
 45 the others—such as, for instance, some of the propulsion-propellers being shifted to elevate and the steering device, if need be, being changed to assist in propelling.

It will be noticed, too, that the elevating-propellers having the wings 12 are dishing or 50 umbrella-like in their general contour, and in practice it is found that propellers of this shape are much more efficient than if they are horizontal.

It will be noticed, too, that various mech- 55 anisms can be substituted for that shown to drive the elevating-propellers and that instead of two main elevating-propellers any number may be used.

Having thus fully described my invention, 60 I claim as new and desire to secure by Letters Patent—

In combination with a body, uprights projecting from the body, braces for the up- 65 rights extending longitudinally of the body and engaging the uprights intermediate the ends, spaced collars on the uprights, blades carried by the upper collars, braces for the blades engaging the blades and the lower col- 70 lars, shafts engaging the upper collars mounted on the free ends of the uprights, means for rotating the shafts, means for propelling the body and means for deflecting the course thereof during its propulsion.

GEORGE G. SCHWABEK.

Witnesses:

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