

T. H. KONRAD.

AIRSHIP.

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993,256.

Patented May 23, 1911.

2 SHEETS—SHEET 1.

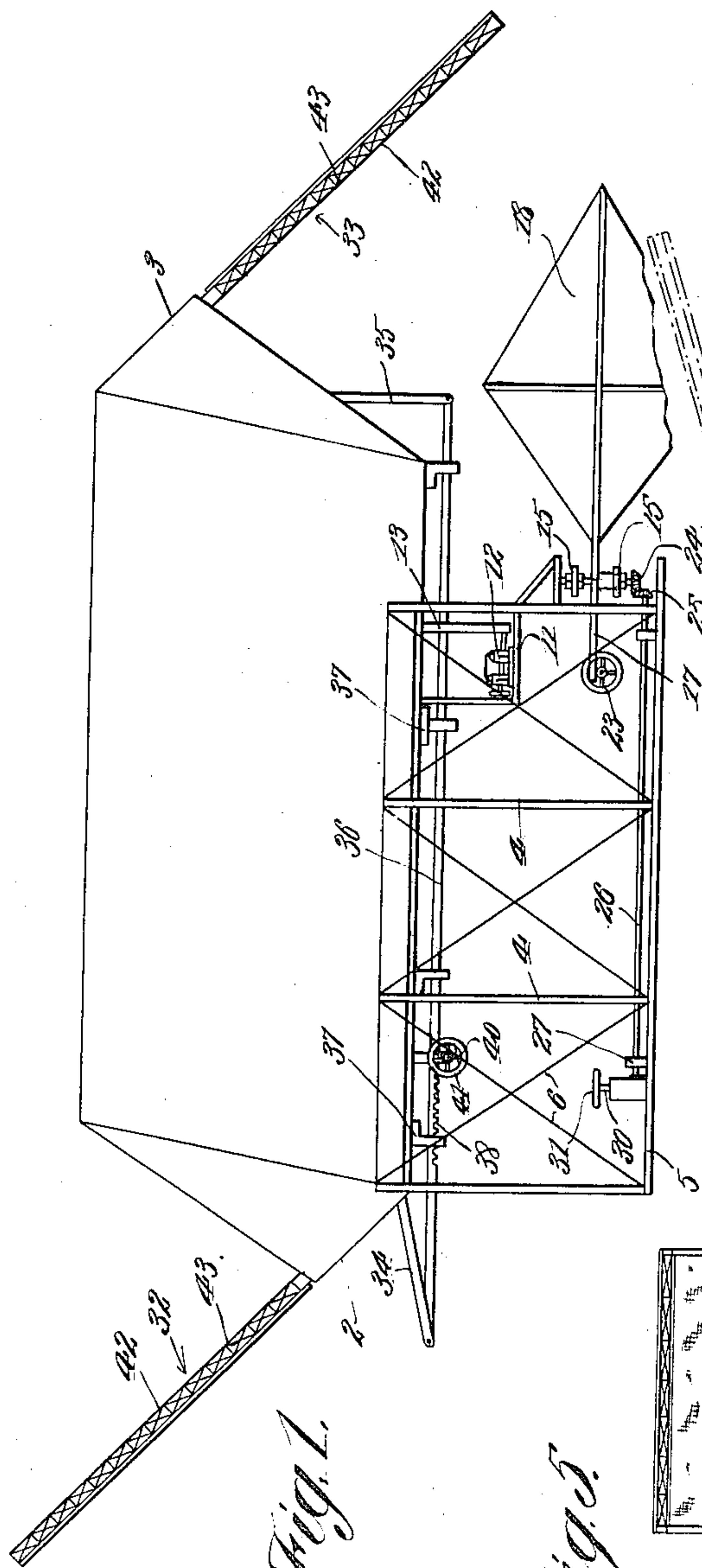


Fig. 1.

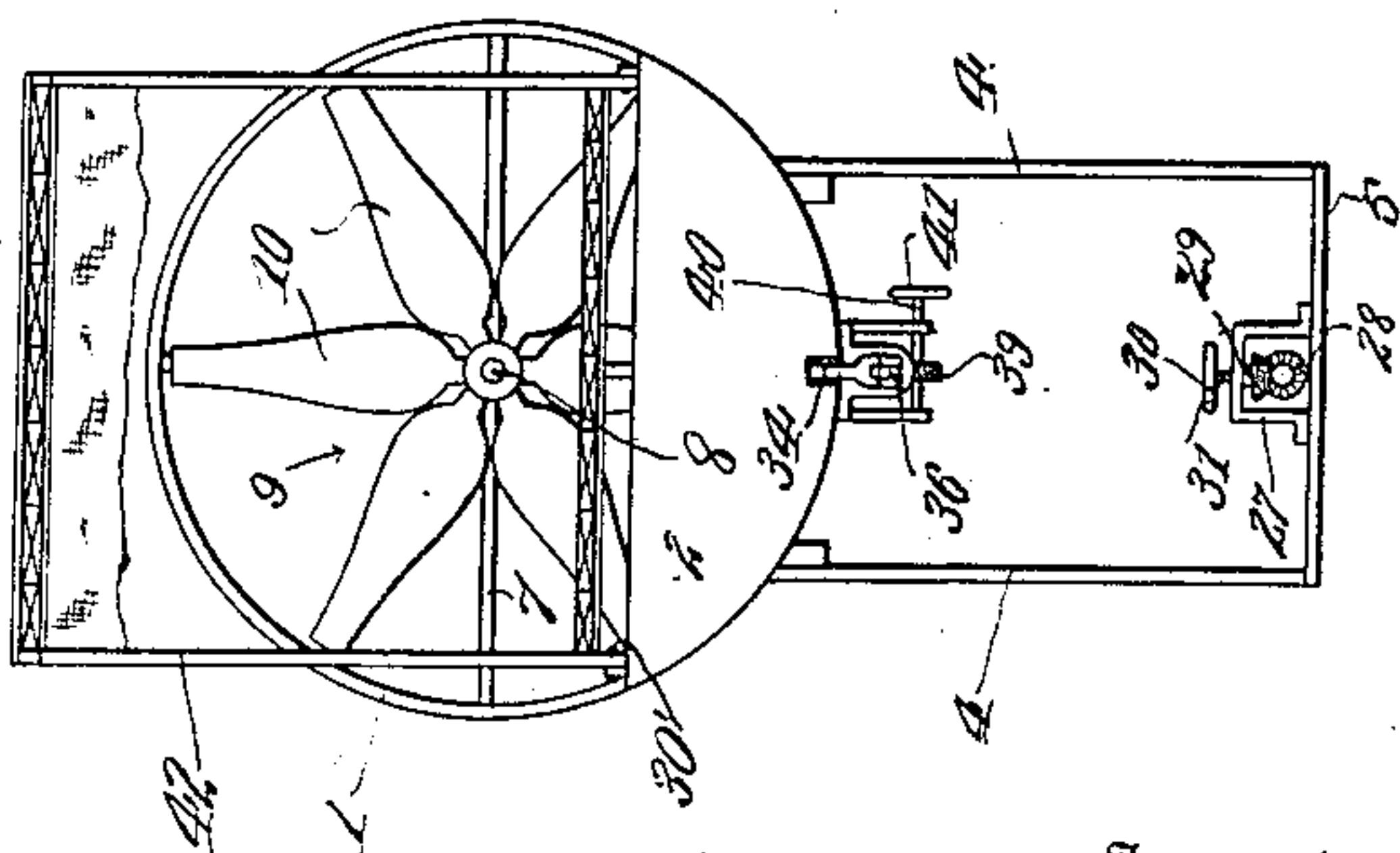


Fig. 5.

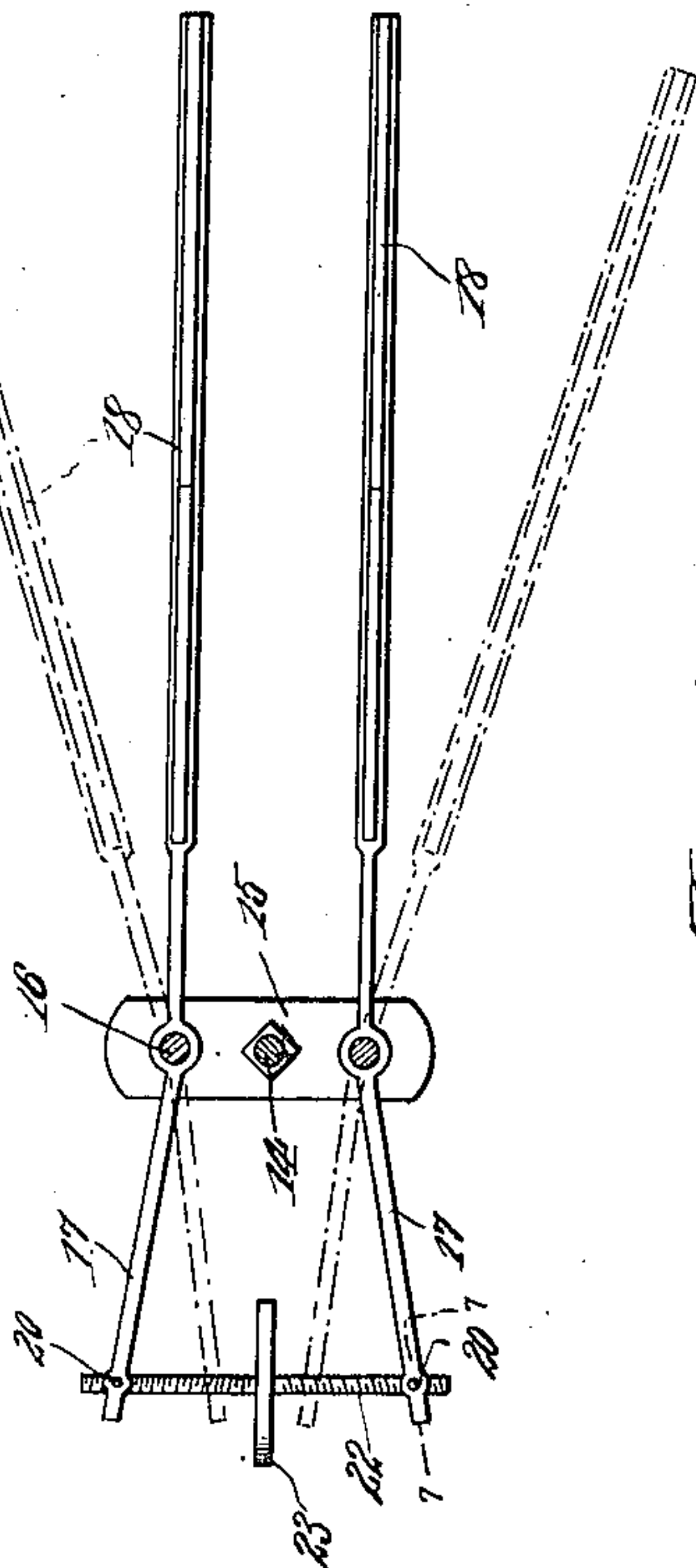


Fig. 4.

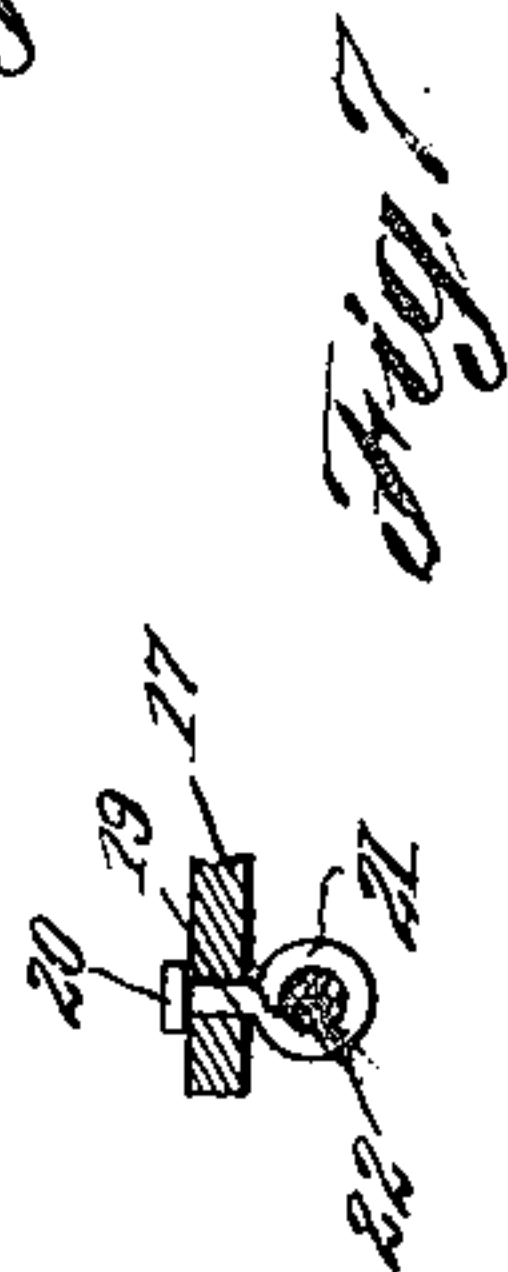


Fig. 7.

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2 SHEETS—SHEET 2.

Fig. 2.

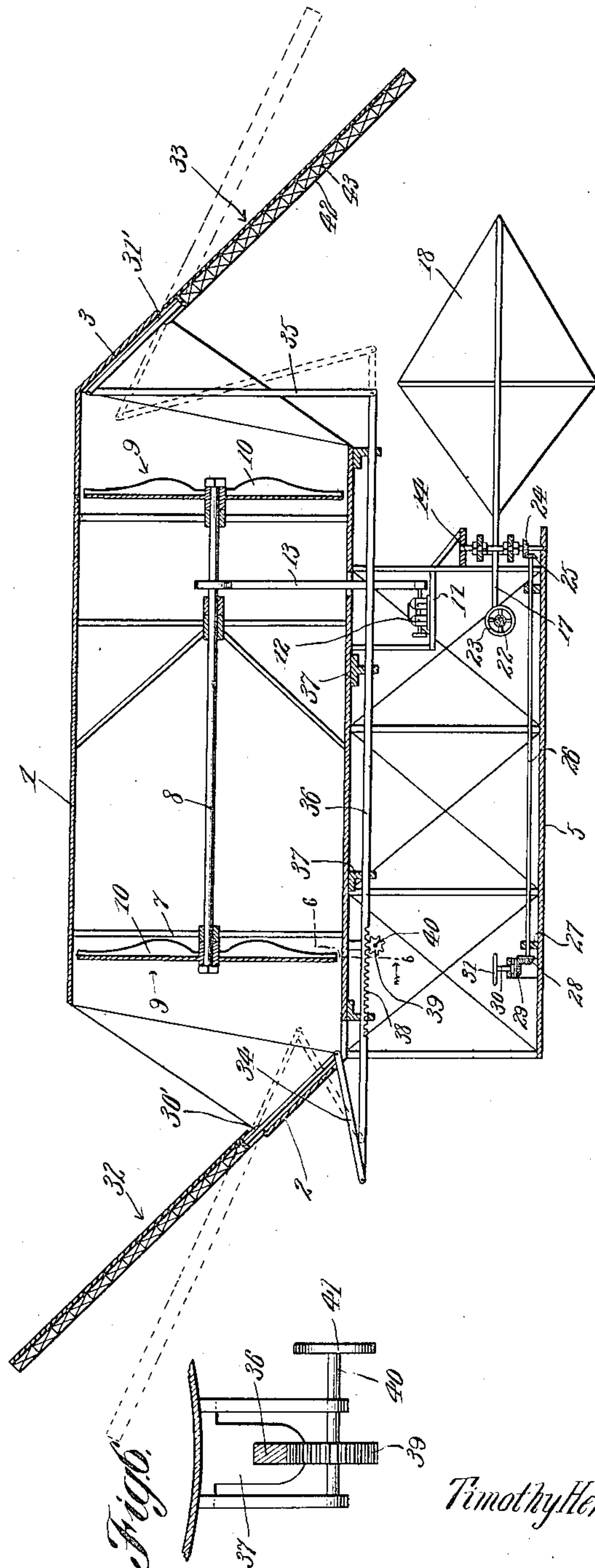
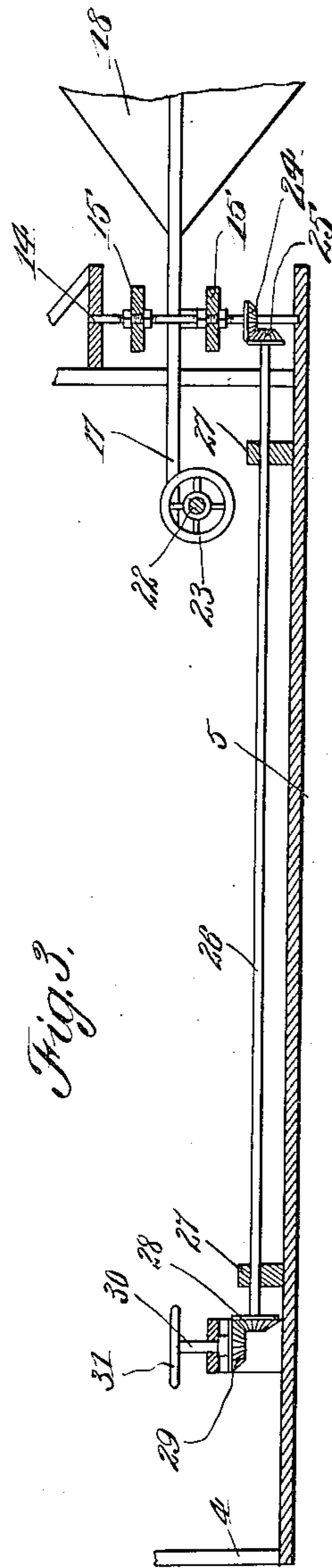


Fig. 3.



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UNITED STATES PATENT OFFICE.

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AIRSHIP.

993,256.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed April 20, 1910. Serial No. 556,471.

To all whom it may concern:

Be it known that I, TIMOTHY H. KONRAD, a citizen of the United States of America, residing at San Mateo, in the county of San Mateo and State of California, have invented new and useful Improvements in Airships, of which the following is a specification.

This invention relates to air ships of the heavier than air type, and it has among its objects to produce a device of this class which shall possess superior advantages in point of simplicity, durability and general efficiency.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise details of construction therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings,—Figure 1 is a view in side elevation of an air ship constructed in accordance with the invention. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a longitudinal vertical sectional view on a larger scale of the steering gear. Fig. 4 is a top plan view partly in section of a portion of the steering gear including the rudders. Fig. 5 is an end elevation with parts broken away. Fig. 6 is a sectional detail view, enlarged, taken on the line 6—6 in Fig. 2. Fig. 7 is a sectional detail view on the line 7—7 in Fig. 4.

Corresponding parts in the several figures are denoted by like characters of reference.

The body of the improved air ship consists of a cylindrical tube 1 provided at its front end with an upwardly extending hood or cap member 2 and at its rear end with a similar downwardly extending hood or cap member 3. The cylindrical tube 1 affords a supporting base for the frame which includes vertical struts 4, a base or floor member 5 and a plurality of braces 6, which latter may be arranged in any suitable and convenient manner. The cylindrical tubular body 1 is provided with diametrical braces

7 affording bearings for an axially disposed shaft 8 carrying a plurality of propellers 9, which latter may be constructed and arranged in any suitable and well known manner. I prefer, however, that the wings 10 of the propellers should be of the shape and general curvature indicated in Figs. 2 and 5 of the drawings.

The depending framework of the machine supports a platform 11 upon which is mounted a motor 12, the driven shaft of which is connected by a belt 13 with the propeller-carrying shaft 8 to which rotary motion may thus be transmitted. Bearings are provided in the framework of the machine for a vertically disposed shaft 14 carrying plates or brackets 15 affording bearings for shafts 16 upon which arms 17 are mounted, said arms carrying the rudders 18. The rudder-carrying arms 17 are provided adjacent to their forward ends with sockets 19 for the accommodation of pivoted stems 20 having heads 21 which are threaded to accommodate a right and left threaded screw 22 having a hand wheel 23, whereby it may be manipulated to swing the rudder-carrying arms toward or apart from each other, as may be desired. The rudder-carrying shaft 14 is provided with a bevel pinion 24 meshing with a bevel pinion 25 upon a shaft 26 which is supported in bearings 27 upon the floor or platform 5 of the machine. The shaft 26 is provided at its front end with a bevel pinion 28 meshing with a similar pinion 29 upon a steering post 30 having a hand wheel 31, whereby it may be manipulated.

It will be noticed that by the construction herein described, by manipulating the hand wheel 31, the shaft 14 may be rocked or oscillated in its bearings, thus presenting the rudder planes 18 to either side of the longitudinal plane or axis of the machine, as may be desired. At the same time the rudder planes are independently adjustable toward or from each other by the mechanism including the right and left threaded screw 20 and the parts associated therewith, thus permitting said rudder planes to present more or less obstruction to the atmosphere, as may be considered desirable and advisable.

The hoods or caps 2 and 3 adjacent to the front and rear ends of the cylindrical body of the machine are provided with bearings for shafts 30' and 31' carrying wings or planes 32 and 33 which are connected by links 34, 35 with a longitudinally movable

rod 36 which is slidably supported in bearings 37 upon the frame of the machine. The rod or slide 36 is equipped with a rack 38 meshing with a pinion 39 upon a shaft 40 having a hand wheel 41, whereby it may be rotated to effect longitudinal adjustment of the rod or member 36, thereby causing the wings or vanes 32 and 33 to be tilted to various degrees of inclination with respect to the cylindrical tubular body of the machine. The wings or vanes 32 and 33 may be of any suitable and convenient construction, but I prefer to employ a framework including tubular frame bars 42 and truss bars or struts 43. A similar construction is preferably, but not necessarily, applied to the rudder wings or planes 18 hereinbefore described.

From the foregoing description taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood.

It will be seen that by adjusting the angle of inclination of the planes 32 and 33 with reference to the tubular cylindrical body, the vertical movement of the machine may be controlled and regulated, propulsion in a forward direction being effected by the propellers 9, and the degree of upward movement being capable of regulation by proper adjustment of the planes. In like manner, the lateral movement of the vessel is capable of regulation by means of the rudder which, being composed of two independent planes, as hereinbefore described, is capable of being adjusted so as to present more or less resistance to the atmosphere.

Having thus described the invention, what is claimed as new, is:—

1. In an air ship, a steering device including a shaft, a plate secured upon the shaft, auxiliary shafts supported for oscillation with reference to the plate, rudder-carrying arms upon the auxiliary shafts, and means for effecting oscillatory adjustment of the rudder-carrying shafts independently of the main supporting shaft.

2. In an air ship, a steering device including a shaft, means for rocking said shaft upon its axis, supporting members extending radially from the main shaft, auxiliary shafts supported for oscillation upon said radial members, rudder-carrying arms upon the auxiliary shafts, and means for effecting adjustment of the rudder-carrying arms independently of the movement of the main supporting shaft.

3. In an air ship, a steering device including a shaft supported for oscillation, means for rocking said shaft in its bearings, supporting members upon said shaft, auxiliary shafts supported for oscillation upon the supporting members, rudder-carrying arms upon the auxiliary shafts, pivotal members engaging the rudder-carrying arms and having heads provided with threaded apertures, and a right and left threaded screw engaging said apertures and having a hand wheel whereby it may be rotated to effect adjustment of the rudder-carrying arms independently of the main supporting shaft.

4. In an air ship, a tubular cylindrical body, inclined planes supported adjustably adjacent to the front and rear ends of said tubular body, propellers within the tubular cylindrical body, a framework connected with said body and including a platform and a floor, a motor supported upon the platform, means for transmitting motion from the motor to the propellers, a vertically disposed rock shaft, a plate mounted horizontally upon said shaft, auxiliary shafts supported for oscillation with reference to the plate, rudder carrying arms upon the auxiliary shafts, and means for effecting oscillatory adjustment of the rudder carrying shafts independently of the plate carrying rock shaft.

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

TIMOTHY HENRY KONRAD.

Witnesses:

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CLAUDE A. COOK.