A. C. RUTZEN.

AIRSHIP.

APPLICATION FILED JULY 30, 1917.

1,268,494.

Patented June 4, 1918.

2 SHEETS—SHEET 1.

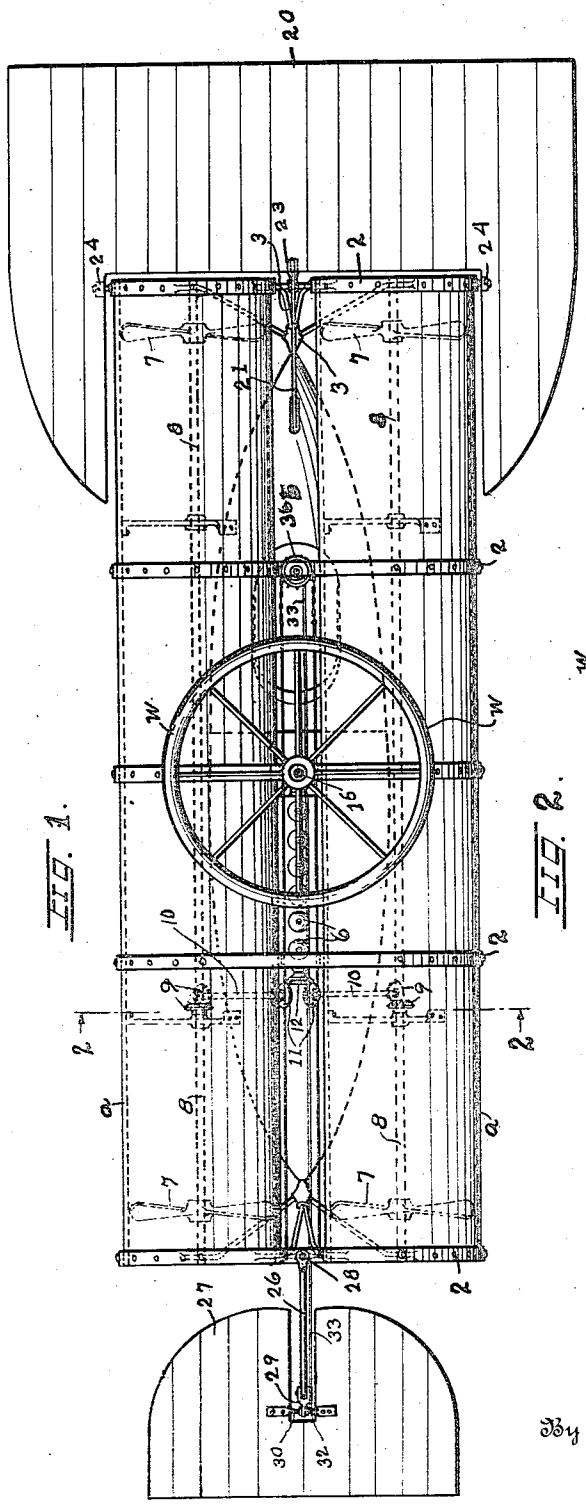


FIG. 1.

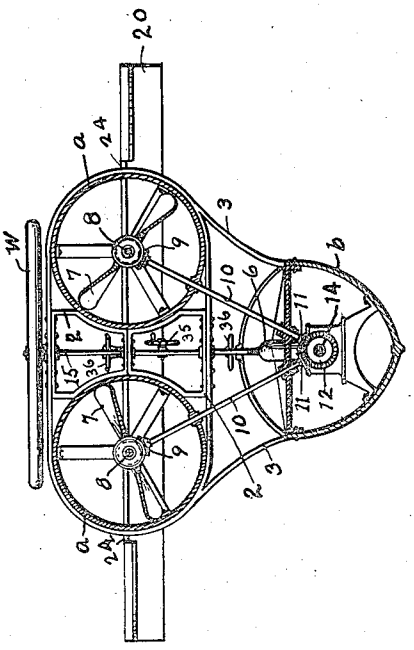


FIG. 2.

Inventor

A. C. RUTZEN.

By Fisher & Moser

Attorneys

A. C. RUTZEN.

AIRSHIP.

APPLICATION FILED JULY 30, 1917.

1,268,494.

Patented June 4, 1918.

2 SHEETS—SHEET 2.

FIG. 3.

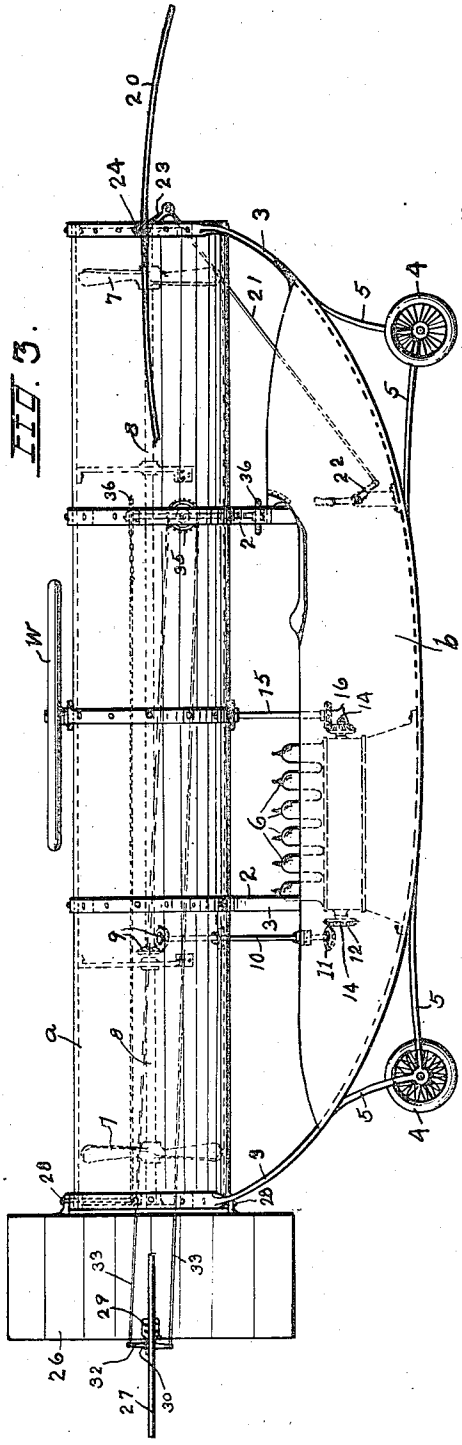


FIG. 5.

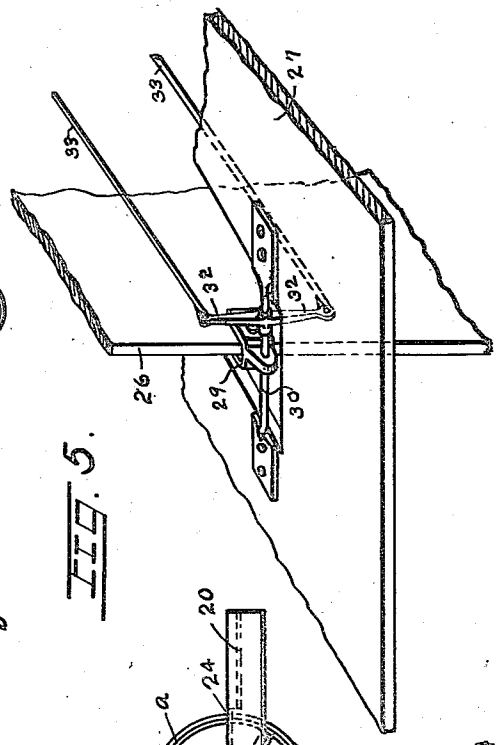
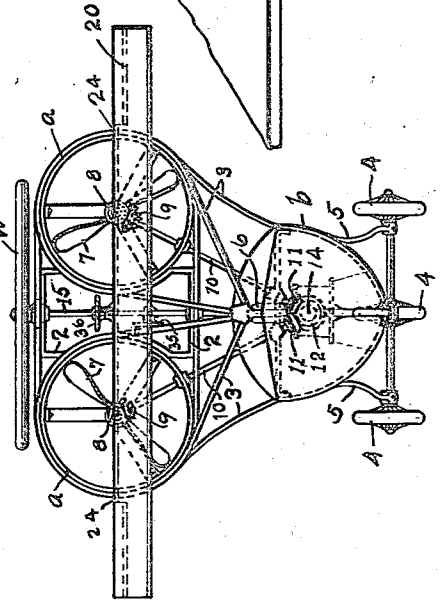


FIG. 4.



Inventor

A. C. RUTZEN.

By Fisher & Brown

Attorneys

UNITED STATES PATENT OFFICE.

AUGUST C. RUTZEN, OF CLEVELAND, OHIO.

AIRSHIP.

1,268,494. Specification of Letters Patent. Patented June 4, 1918.

Application filed July 30, 1917. Serial No. 183,413.

To all whom it may concern:

Be it known that I, AUGUST C. RUTZEN, citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Airships, of which the following is a specification.

This invention relates to air ships, constructed and adapted to operate substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of the ship or vessel, and Fig. 2 is a cross-section on line 2,2, Fig. 1. Fig. 3 is a side elevation. Fig. 4 is a front elevation and Fig. 5 is a perspective view of the rudder planes or blades and the immediate means for operating the same, the said planes being partially broken off and enlarged as compared with Fig. 3.

In the construction of a ship or vessel as thus shown and adapted to make aerial flights, the primary and essential novelty resides in the flight tube or tubes *a*, a set or pair of tubes being shown herein, rather than one or more than two, and the said tubes serve the dual purpose of buoyancy and as mediums for the effectual application of the propelling power of the machine. Both tubes are alike in construction and service, and are set side by side horizontally into a rigid skeleton frame 2, so that said tubes with the frame constitute a basic unit by which all the other parts are carried. The basket or boat *b* is suspended from the aforesaid frame by suitable stays or supports 3, as may be needed, and the main stays or supports are bent to a curvature as seen in Fig. 3, to conform to the correspondingly rounded ends of the basket or boat and the shafts of the wheels 4 are supported by brackets 5 formed of rods to give the desired bracing effects and carry the wheels on a suitable level below the bottom of the basket for running and lighting purposes as usual. The basket or boat is built with closed bottom and sides to ride on the water and is adapted to carry the engines or other source of power indicated by 6, as well as the crew and for other purposes.

Suitable propellers 7 are shown as mounted in the respective ends of the tubes *a* on a shaft 8 running lengthwise in each tube and suitably braced therein, and power is communicated to said shafts from the engines or motive power by bevel gear connections 9 and shafts 10, and said shafts have like gears 11 at their other or inner ends meshing with master gear 12 on engine driven shaft 14. The fly wheel *w* is driven from the opposite end of shaft 14 by shaft 15 carrying the said wheel and gears 16. Of course it is to be understood that suitable engine control will be provided though not shown herein, and while internal combustion engines of the gasolene type are preferred I do not mean to exclude other power mediums that may be found available.

In the matter of planes, it will be seen that the present equipment comprises simply a front steering plane 20 with a hand control from the boat by the operator through suitable means, such as rod 21 and crank connections 22 and 23 respectively, at its ends, or the equivalent thereof, and through which the position of the plane for ascent or descent is controlled. Otherwise the said plane is pivotally supported at 24 outside on the respective tubes *a*.

At the rear of the machine, I show two rudder planes 26 and 27, the plane 26 being held vertically in fixed pivots 28 on the main frame of the machine midway between the ends of the two tubes *a*, while the horizontal plane 27 is supported on the rear edge of plane 26 by a shackle 29 fixed on plane 26 and a cross rod 30 fixed at its ends on plane 27 oppositely at the end of the slot therein astride plane 26 and rotatably pivoted in said shackle, so that the plane 27 can be manipulated to coöperate with front plane 20 in all the movements thereof and for which suitable hand controlled means are provided through crank arms 32 fixed on shaft 30, and operating rods 33 connected with the ends of said arms and which form a part of the manipulating mechanism comprising sprocket chain or other connections over wheel 35 and hand wheel 36 or equivalent means. No novelty is claimed for these parts and the details are immaterial and not of the invention.

Of course it is to be understood that the terms front and rear are relative and that the machine can be propelled either end forward.

It is to be especially noticed that the propellers in this machine are limited to two blades each, and, without thought of disparaging other machines that employ a greater number of blades, I have to say that

in all my experiments with this class of machines I have found that more than two blades would not work satisfactorily to me. Whether there is too much displacement for the size of the tube or some other cause I do not pretend to say, but by persistent effort I made the discovery that the secret in such a machine seems to lie in the use of two blades on each wheel, and no more. With two blades the work of the machine is eminently satisfactory and successful.

What I claim is:

1. An aerial machine as described having a rigid frame and a pair of flight tubes side by side in the upper portion of said frame and propeller wheels therein and a basket suspended beneath the middle of said frame and relatively beneath said tubes, in combination with an engine in said basket, power connections from said engine to said propellers, a vertically disposed shaft operatively engaged with the engine and extending upward between said tubes, and a horizontally positioned balance wheel on the end of said shaft above said tubes.

2. A machine as described, having a rigid frame and a pair of flight tubes side by side lengthwise in said frame, shafts in said tubes and propeller blades on said shafts within said tubes, an engine and driving connections therefrom to said shafts, in combination with a balance wheel disposed relatively above and midway between said tubes and operatively connected with said engine.

3. A machine as described, having a skeleton frame and a pair of flight tubes lengthwise side by side in spaced relation in the upper portion of said frame, shafts in said tubes and propeller blades thereon, in combination with an engine in said frame beneath said tubes and drive connections therefrom to said shafts through said tubes, and a balance wheel horizontally disposed over the middle of said tubes and operatively connected with said engine.

4. A machine as described, comprising a rigid frame, a set of flight tubes and propeller blades therein and an engine in driving connection with said blades, in combination with a horizontally positioned balance wheel centrally over said tubes and planes at the ends of said tubes.

Signed at Cleveland, in the county of Cuyahoga and State of Ohio, this 28th day of July, A. D. 1917.

AUGUST C. RUTZEN.