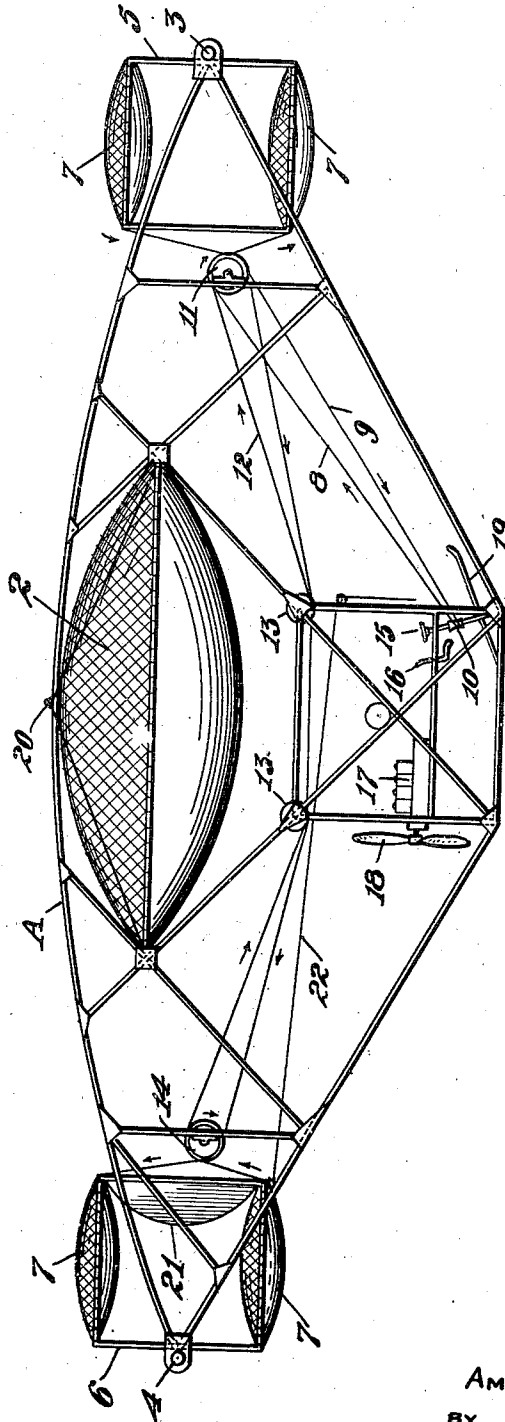


1,006,171.

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AERIAL MACHINE.
APPLICATION FILED OCT. 31, 1910.

Patented Oct. 17, 1911
2 SHEETS—SHEET 1.

Fig. 1.

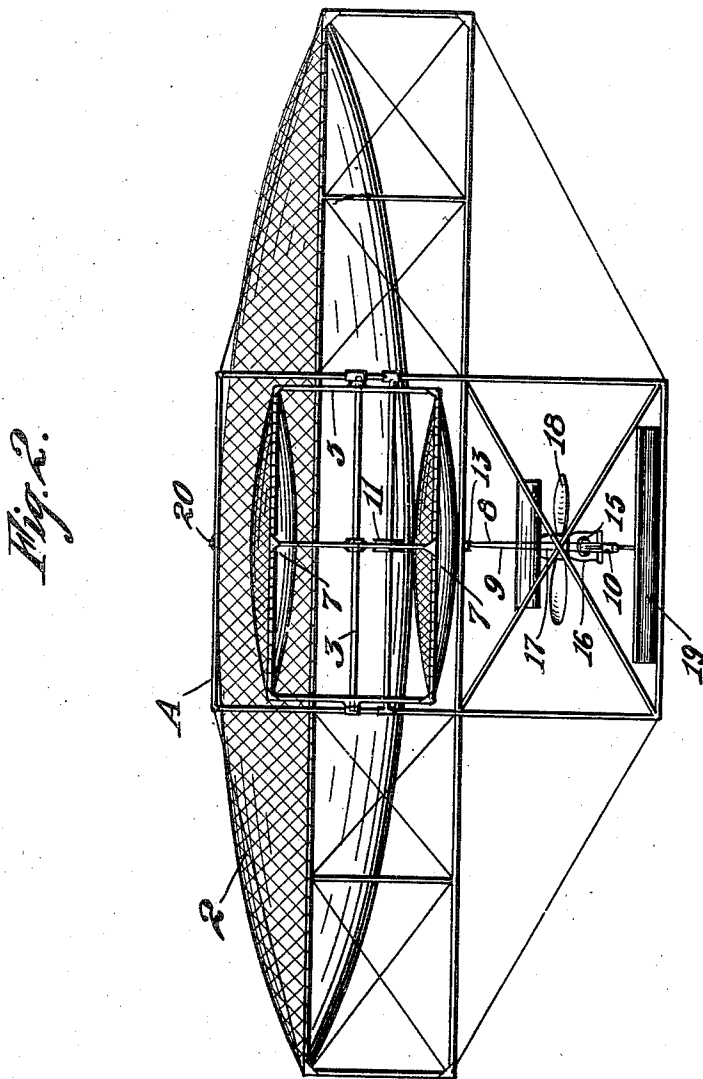


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AERIAL MACHINE.

1,006,171.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed October 31, 1910. Serial No. 589,867.

To all whom it may concern:

Be it known that I, AMOS A. WYCKOFF, citizen of the United States, residing at Santa Cruz, in the county of Santa Cruz and State of California, have invented new and useful Improvements in Aerial Machines, of which the following is a specification.

This invention relates to an air-ship, and particularly pertains to an air-ship which combines the buoyant features of a balloon and the navigable features of an aeroplane.

It is the object of this invention to provide an air-ship in which gas is employed to counterbalance the weight of the ship and for buoyant purposes, and which is combined with planes for raising or descending, and for steering in any direction.

A further object is to provide an air-ship of the character described which is simple in construction and operation, which is adapted to be propelled by motive power and which is so constructed as to insure safe landing in event either the motive power stops or the gas escapes.

The invention consists of the parts and construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the invention. Fig. 2 is a front elevation.

In the drawings A represents the framework of the air-ship, which may be constructed of bamboo or any other light material. A gas bag 2, which is rectangular in plan, is mounted within the frame-work A, the edges of the bag A being secured at frequent intervals to horizontally disposed frame members and is situated centrally of the machine. When inflated with gas this bag will present a comparatively flat appearance and will lie wholly within the frame-work A. The frame A extends some distance in front and to the rear of the gas bag 2 as shown in Fig. 1. At the extreme forward and rear ends of the frame are mounted transversely extending shafts 3—4, respectively, which are each rockable in their bearings and carry vertically disposed rectangular frames 5—6, extending inwardly toward the center of the machine. Mounted on the top and bottom members of the frames

5—6 are inflatable rectangular bags 7 which are horizontally disposed, and when inflated present a flat plane-like appearance. These planes are adapted to be operated in unison by the following means: Cables 8—9, wound at one end in opposite directions on a revoluble drum 10, after passing over a direction pulley 11 are secured to the upper and lower edges of the plane frame 5; the cable 8 being attached to the lower edge of the frame and the cable 9 to the upper edge. A cable 12 also passes around the direction pulley 11 and passes thence to the rear of the frame A under guide sheaves 13 and around a direction pulley 14, and has its ends attached to the upper and lower edges of the plane-carrying frame 6. The drum 10 is mounted on a shaft which is adapted to be rotated manually through a hand-wheel 15 located near the aviator's seat 16, suspended from a depending portion of the frame A. A motor or engine 17, of any suitable description, is located rearward of the seat 16, and is designed to rotate propeller blades 18 in either direction by means of which the vessel may be caused to travel forward or backward.

A fabric plane 19 is mounted on the lowermost portion of the frame A beneath the seat 16 and engine 17 and extends transversely across the machine. The forward edge of this plane 19 is inclined upwardly so as to give it a tendency to lift on the air during flight. This plane 19 also serves as a shield or screen beneath the aviator's and passengers' seats, and as such lessens the effects of height on the occupants of the car, as they are prevented from looking directly downward beneath the machine while in flight.

A valve 20 of any suitable description is provided in the gas bag 2 at any convenient point through which the bag may be inflated or the gas released.

The combined capacity of the gas bag 2 and the inflated planes 7 are intended to be sufficient to lift and buoy the vessel so that the engine 17 and propeller 18 will not have to be depended upon for lifting purposes. At the same time, the lifting power of the engine 17 and propeller 18 is to be great enough that in event the gas should escape from the bag 2, which would cause it to col-

lapse and form a plane or parachute within the frame A, the machine would still be capable of making a flight. If it should occur that the engine be stopped and the gas released at the same time, a safe landing would still be insured by reason of the parachute action of the deflated bag 2.

In navigating the invention, the operator raises or lowers the machine by tipping the inflated planes 7 through the operation of the hand-wheel 15, as before described, the rear side of the frame 5 being moved down and the front side of the frame 6 tipped up in order to direct the ship in an upward direction, this action being reversed when it is desired to move in a downward direction.

A rudder 21 is vertically disposed on the frame 6 the turning of which from side to side by any suitable means through a cable 22, enables the operator to steer the ship from right to left, as desired.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. An aerial machine consisting of a main frame, a flattened buoyant gas holder fixed in the main frame, supplemental frames at opposite end of the main frame having outer portions pivotally connected to the ends of the main frame, and thence extending inwardly between the sides of said main frame, buoyant gas holders spaced from each other and fixed to the upper and lower members of said supplemental frames, and means by which said supplemental frames may be tilted up or down with relation to the main frame.

2. The combination in an aerial machine of a main frame with a flattened buoyant gas holder, said frame having horizontal turnable shafts at the ends, supplemental frames having the horizontal central portions of their outer ends pivoted and turnable upon said shafts, flattened buoyant gas holders in the upper and lower parts of the supplemental frames and movable in unison with the latter, a car with revoluble drum supported beneath the main frame, cords connecting the supplemental frames with the drum, and guide pulleys over which the cords pass.

3. The combination in an aerial machine of a main frame having a flattened buoyant gas holder fixed thereon, horizontal shafts in the ends of said frame, supplemental frames having the horizontal central portions of their outer ends pivoted and tiltable upon the shafts, said frames extending inwardly over the ends of the main frame and having flattened buoyant gas holders in the upper and lower parts, a car and winding drum beneath the main frame, cords connected with the upper and lower portions of the supplemental frames and pass-

ing thence around guide pulleys, one portion of said cords passing around the drum by which the movements of the planes are controlled.

4. The combination in an aerial machine of a main frame having a flattened buoyant gas holder fixed thereon, horizontal shafts in the ends of said frame, supplemental frames having the horizontal central portions of their outer ends pivoted and tiltable upon the shafts, said frames extending inwardly over the ends of the main frame and having flattened buoyant gas holders in the upper and lower parts, a car and winding drum beneath the main frame, cords connected with the upper and lower portions of the supplemental frames and passing thence around guide pulleys, one portion of said cords passing around the drum by which the movements of the planes are controlled, and a motor and propeller mounted upon the car.

5. The combination in an aerial machine of a main frame convergent toward the ends and having horizontal shafts at said ends, supplemental frames vertically disposed having their horizontal central portions turnable upon said shafts, and projecting inwardly within the ends of the main frame, flattened, buoyant, gas holders located above and below the ends of the main frame, cords connecting the inner top and bottom members of the supplemental frames, guide pulleys on the main frame for said cords, a car beneath the main frame, and means carried by said car whereby the cords are moved to tilt the supplemental frames in unison.

6. The combination in an aerial machine of a main frame convergent toward the ends and having horizontal shafts at said ends, supplemental frames turnable at their outer ends upon said shafts and thence projecting inwardly over the ends of the main frame, flattened, buoyant, gas holders located above and below the ends of the main frame, cords connecting the inner top and bottom members of the supplemental frames, guide pulleys on the main frame for said cords, a car beneath the main frame, means carried by said car whereby the cords are moved to tilt the supplemental frames in unison, and a vertical turnable rudder carried upon the rear supplemental frame.

7. The combination in an aerial machine of a main frame convergent toward the ends and having horizontal shafts at said ends, supplemental frames turnable at their outer ends upon said shafts and thence projecting inwardly over the ends of the main frame, flattened, buoyant, gas holders located above and below the ends of the main frame, cords connecting the inner top and bottom members of the supplemental frames, guide pulleys on the main frame for said cords, a car beneath the main frame,

means carried by said car whereby the cords
are moved to tilt the supplemental frames
in unison, a vertical turnable rudder carried
upon the rear supplemental frame, and a
5 horizontally inclined plane located beneath
the car.

In testimony whereof, I have hereunto set

my hand in the presence of two subscribing
witnesses.

AMOS A. WYCKOFF.

Witnesses:

HENRY F. KRON,
G. H. STRONG.