

E. H. SASSIL.
MULTIPLANE AIRSHIP.
APPLICATION FILED NOV. 25, 1910.

Patented Apr. 23, 1912.

3 SHEETS—SHEET 1.

1,024,287.

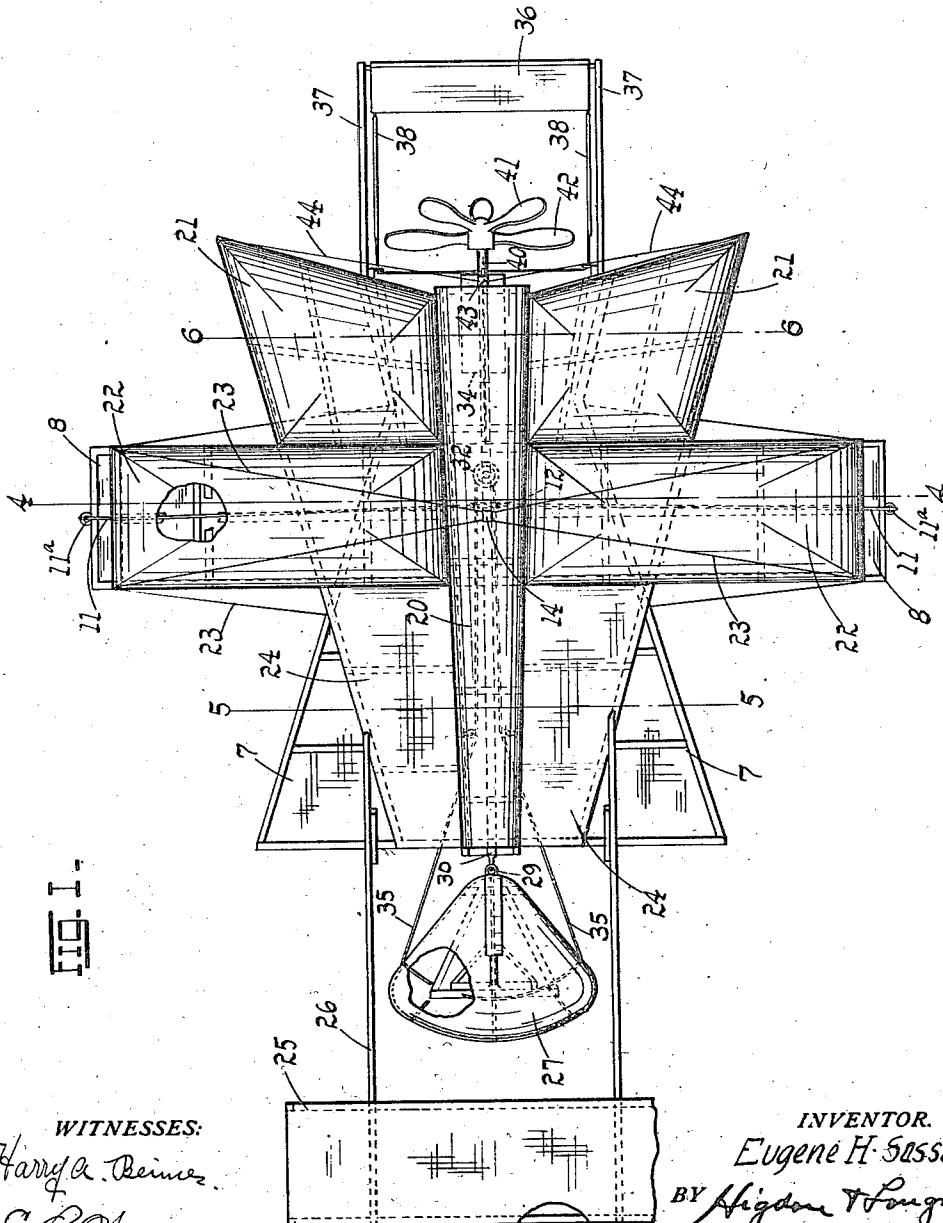


FIG. 1.

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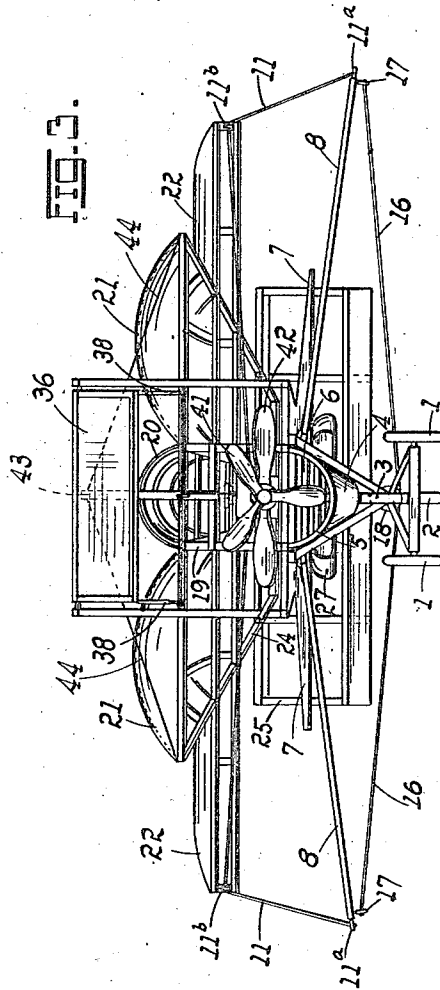
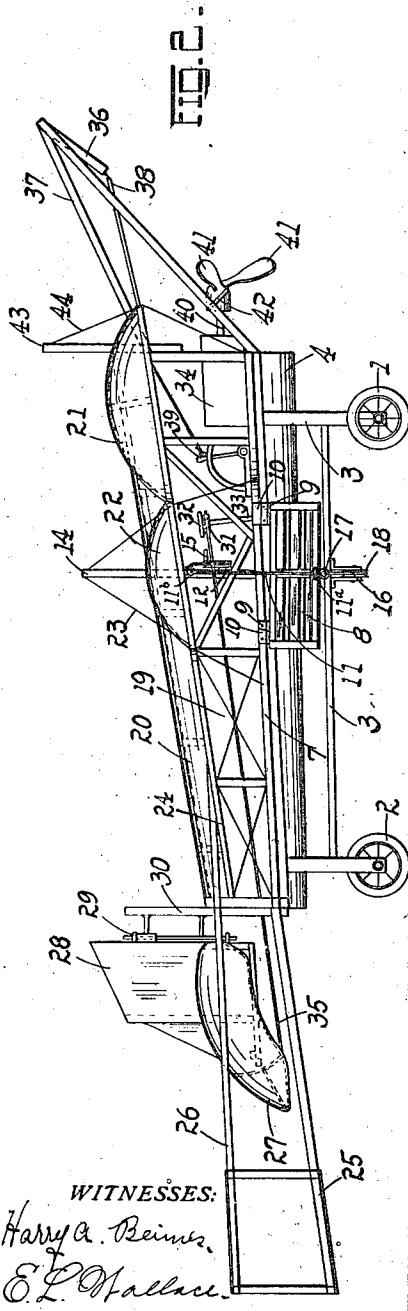
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3 SHEETS—SHEET 2.

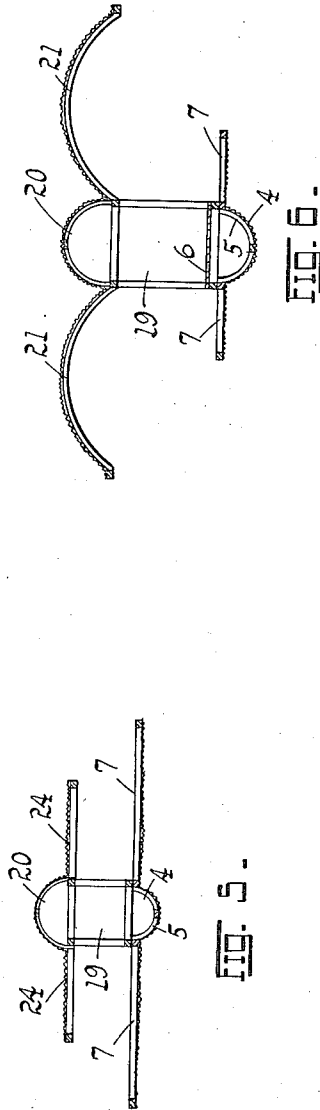
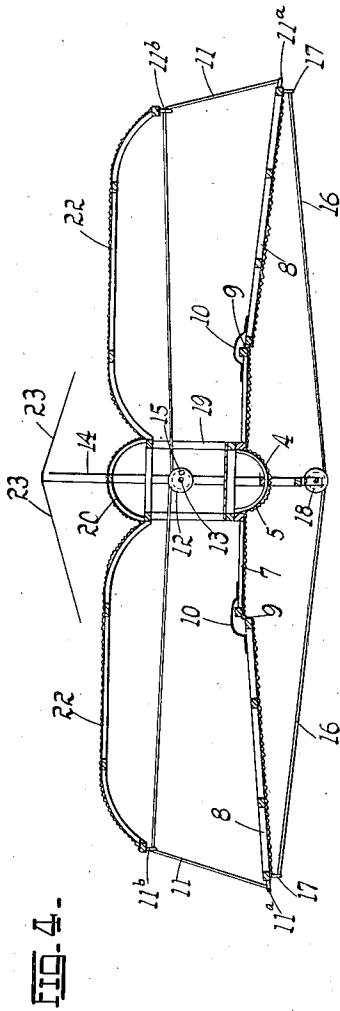


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MULTIPLANE AIRSHIP.

1,024,287.

Specification of Letters Patent.

Patented Apr. 23, 1912.

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To all whom it may concern:

Be it known that I, EUGENE H. SASSIL, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Multiplane Airships, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved multiplane air ship, and consists in the novel construction and arrangement of parts hereinafter described and pointed out in the claims.

The object of my invention is to provide an improved multiplane air ship which shall embody the characteristics of safety and steadiness in flying to a greater degree than that possessed by aeroplanes heretofore constructed; and a further object of my invention is to provide a multiplane air ship capable of carrying from six to twelve passengers, and which can be used for commercial purposes.

A further object of my invention is to provide an improved multiplane air ship which shall be capable of landing and floating on water.

A further object of my invention is to provide an improved multiplane air ship with suitable air brake mechanism, which shall be capable of stopping the machine within a comparatively short distance.

A further object of my invention is to provide an improved multiplane air ship with a combined parachute and rudder; with a combined fixed upper plane and parachute wings; with a combined lower plane and movable balancing wings, there being a passenger and goods space between the upper and lower planes protected by the upper planes, which form a roof therefor, the lower planes also acting as an ocular shield, preventing passengers from looking down on the ground and thereby preventing possible dizziness.

A further object of my invention is to provide for air ships an improved five-bladed combination propeller, the edges of which shall be bound with metal.

In the drawings: Figure 1 is a top plan view of my improved multiplane air ship; Fig. 2 is a side elevation of the same; Fig. 3 is a front elevation of the same; Fig. 4 is a transverse sectional elevation taken on the

line 4—4 of Fig. 1; Fig. 5 is a transverse section taken on the line 5—5 of Fig. 1; and Fig. 6 is a transverse section taken on the line 6—6 of Fig. 1.

Referring by numerals to the accompanying drawings: 1 indicates a pair of front wheels and 2 a single rear wheel which carry the machine in starting and landing in the usual manner, 3 indicates a frame which is supported by the said wheels, and above which is a canvas boat or canoe 4, which extends from end to end of the body of the machine and forms the back-bone of the lower planes, and also acts to support the machine in landing and floating on the water. Said boat or canoe 4 is tapered gradually from front to rear, and is preferably semi-circular in cross section and composed of semi-circular ribs 5, provided with a suitable covering of canvas or other fabric, or it may be composed entirely of aluminum. The said boat may be used as a receptacle for the goods and baggage carried by the air ship, and during operation the passengers' feet rest within said boat, the passengers sitting upon suitable transverse seats 6, which extend across the said boat and are spaced apart a proper distance.

7 indicates the lower fixed plane, which extends along either side of the boat 4, and is preferably fan-shaped in plan view, with its wider end at the rear of the machine. 8—8 indicate the opposite movable balancing wings, the inner ends of which are hinged by means of suitable hinges 9, to the outer edges of the said fixed lower plane 7. Suitable springs, 10, are arranged to normally assist in supporting the weight of the free ends of said balancing wings. The said balancing wings 8 are connected by means of ropes or cables 11, so that when the outer free end of one wing is depressed the outer free end of the opposite wing will be correspondingly elevated. Said cables 11 have their outer ends fixed at and upon the free ends of said wings 8 by means of suitable fastening devices 11^a, and from thence said cables extend upward to suitable rings or common pulleys 11^b, and from thence said cables extend inwardly and are wound about a suitable drum 12 which is mounted to rotate upon the journal 13 projecting from the standard 14, which latter projects upwardly from the keel of the boat 4 at a point about midway of the length of the said boat. Said drum or reel 12 is provided with a

handle 15 by means of which it may be rotated. 16 indicates another cable which has its outer ends secured to the free outer ends of the said wings 8 by means of suitable fastening devices 17, and said cable engages a roller or pulley 18 mounted below the frame 3.

Directly above the boat 4 is a rectangular elongated frame which I term the "backbone" 19 and it is composed of suitable longitudinal and vertical bars properly braced and secured together. Directly above said backbone is the backbone parachute 20 which is semicircular in cross section and extends the full length of said backbone. Projecting from each side of said backbone parachute, near the front end thereof is a canvas parachute 21, and just to the rear of said parachute 21 is a fixed upper plane 22, the inner end of which is united to the adjacent edge of the said backbone parachute 20. The plane similar to the plane 22 is located directly opposite the latter upon the opposite side of the said backbone parachute. The standard 14 extends a suitable distance above the upper surface of the said backbone parachute to receive suitable braces 23 which extend outwardly to the free outer ends of the said upper fixed planes 22. Directly in the rear of the said fixed upper planes 22 and on either side of the said backbone parachute 20 are the rear fixed upper planes 24.

25 indicates a box tail which is connected to the rear of the machine by suitable longitudinal bars 26, said box tail being fixed and immovable with relation to the machine. Located in the space between the said box tail 25 and the rear end of the machine is a combined parachute and rudder 27, which is composed of a vertical rudder 28 and a parachute which is carried by and swings with said rudder. The said combined parachute and rudder is provided at its front end with suitable hinges 29 which are arranged to pivotally support the device from the rudder-post 30 which is fixed at the rear end of the backbone 19. The said combined parachute and rudder is controlled by a suitable drum 31 and its hand-wheel 32 which are mounted upon a steering-post 33 located at a point in the rear of the motor 34, and cables 35 engage said drum and pass rearwardly and have their rear ends secured to the rudder parachute 27 at points opposite each other.

A horizontal rudder 36 is hinged or pivotally mounted at a distance in front of the machine upon suitable forwardly projecting arms 37, for the purpose of guiding the machine upwardly and downwardly during operation. A rod 38 connects the said horizontal rudder to a suitable operating lever 39 arranged conveniently at the rear of the motor 34.

The motor 34 may be of any suitable construction, and upon the front end of its main shaft 40 is mounted the propeller 41. The propeller 41 is preferably provided with wood blades the edges of which are bound with metal in any known manner, as indicated by the number 42, for the purpose of protecting the said edges. The propeller 41 is composed of a combination of a common two-blade propeller of the usual pitch and diameter, and a three-blade propeller of smaller diameter in front of the said two-blade propeller, so that both operate as a combination propeller. I have found that a combination propeller of this construction operates with greater efficiency than a single propeller having either two or three blades, or even four blades, for the reason that the forward propeller having an increased number of blades feeds the air rapidly to the larger propeller near the axis thereof where it is most needed; and so greatly increases the efficiency of the motor.

Suitable truss posts and braces, such as 43, 44, for the purpose of supporting and bracing the various planes and parachutes, may be provided wherever necessary, as the skilled workman may decide when constructing the machine.

The operation is as follows: The machine is first loaded with supplies, passengers or goods, the motor 34 is then started in the usual manner and the machine permitted to run along on the ground until its speed is accelerated sufficiently for it to rise in the air. The operator manipulates the horizontal front rudder 36, in the usual manner for the purpose of causing the machine to rise from the ground; and said front rudder is also manipulated in altering the elevation of the machine while flying. The rear rudder 28 is manipulated by means of the hand-wheel 32 in guiding the machine to the right or left. The box tail 25 performs its usual well known function, which need not be further described. Steadiness of the machine in side gusts is acquired by manipulating the hinged balancing wings 8 which is accomplished by rotating their controlling drum 12 first in one direction and then in the opposite direction by means of the handle 15, movement of said drum in one direction elevating the balancing wing on one side of the machine and correspondingly depressing the opposite balancing wing, and vice versa, as the judgment of the operator may determine. In landing and floating on the water the canvas boat 4, together with the buoyant other parts, will keep the machine afloat. When it is desired to make quick stop I bring into play what I term my aeroplane "air-brake" by suddenly depressing the horizontal front rudder 36 which will suddenly elevate the front end of the machine,

and thereby cause the air to be suddenly caught and compressed within the various parachutes and the machine will be brought to a stop within a very short distance. The front and rear parachutes will enable the machine to descend in safety in case of accident to the motor or any part of the mechanism.

The combined parachute and rudder has a peculiar effect upon the movements of the machine in flying, and I have found that the parachute portion of the rudder operates to assist in balancing the machine very much as do the balancing wings 8.

What I claim is as follows:

1. An air-ship constructed with a braking fixed concave parachute at its forward end, a horizontally swinging combined parachute and vertical rudder connected to the rear of the machine, suitable planes at the rear of said braking parachute, planes located below said first mentioned planes, opposite

balancing planes movably connected to the said lower planes, and a suitable rudder at the front of the machine.

2. An air-ship constructed with two front concave parachutes, a separate plane in the rear of each parachute, a concave backbone separating said parachutes and said planes, suitable rudders, two planes below said first mentioned planes, opposite balancing wings hinged to the said lower planes, and a boat extending longitudinally of the machine centrally of and beneath said lower planes forming a backbone therefor and arranged as a receptacle for passengers and goods.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

EUGENE H. SASSIL.

Witnesses:

FLORENCE HARLIN SASSIL,
JOHN C. HIGDON.