R. A. MOORE.

FLYING MACHINE.

APPLICATION FILED JAN. 5, 1910.

982,290.

Patented Jan. 24, 1911.

2 SHEETS—SHEET 1.

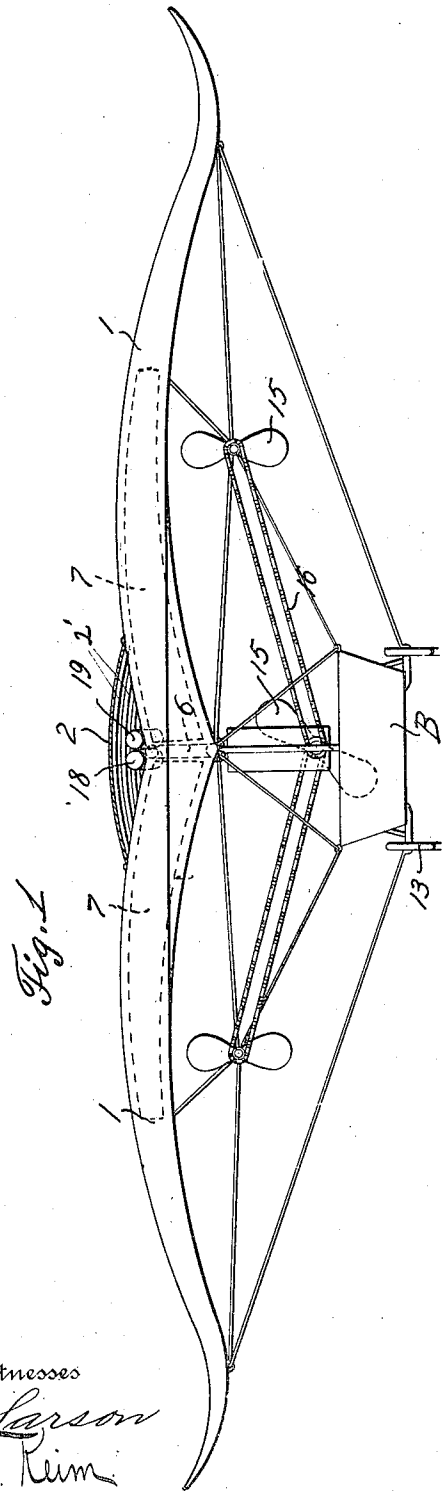


Fig. 1

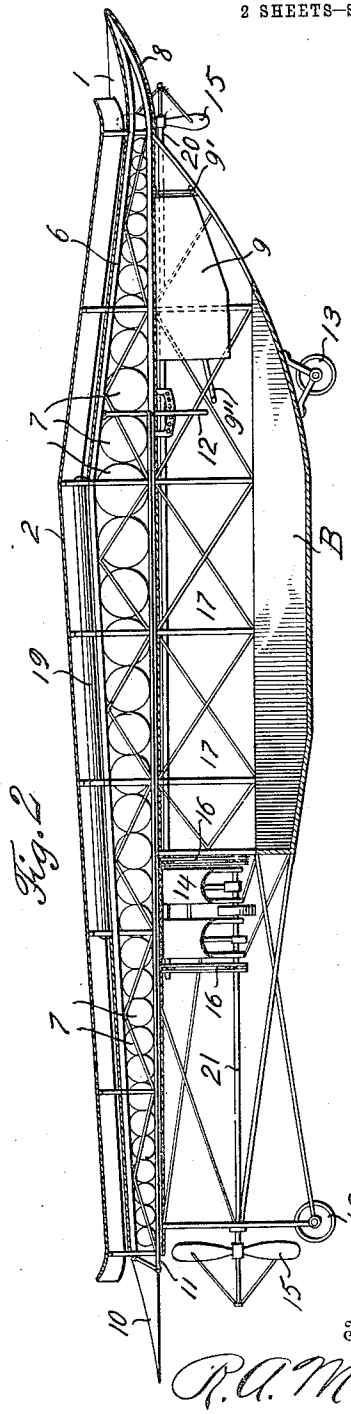


Fig. 2

Witnesses

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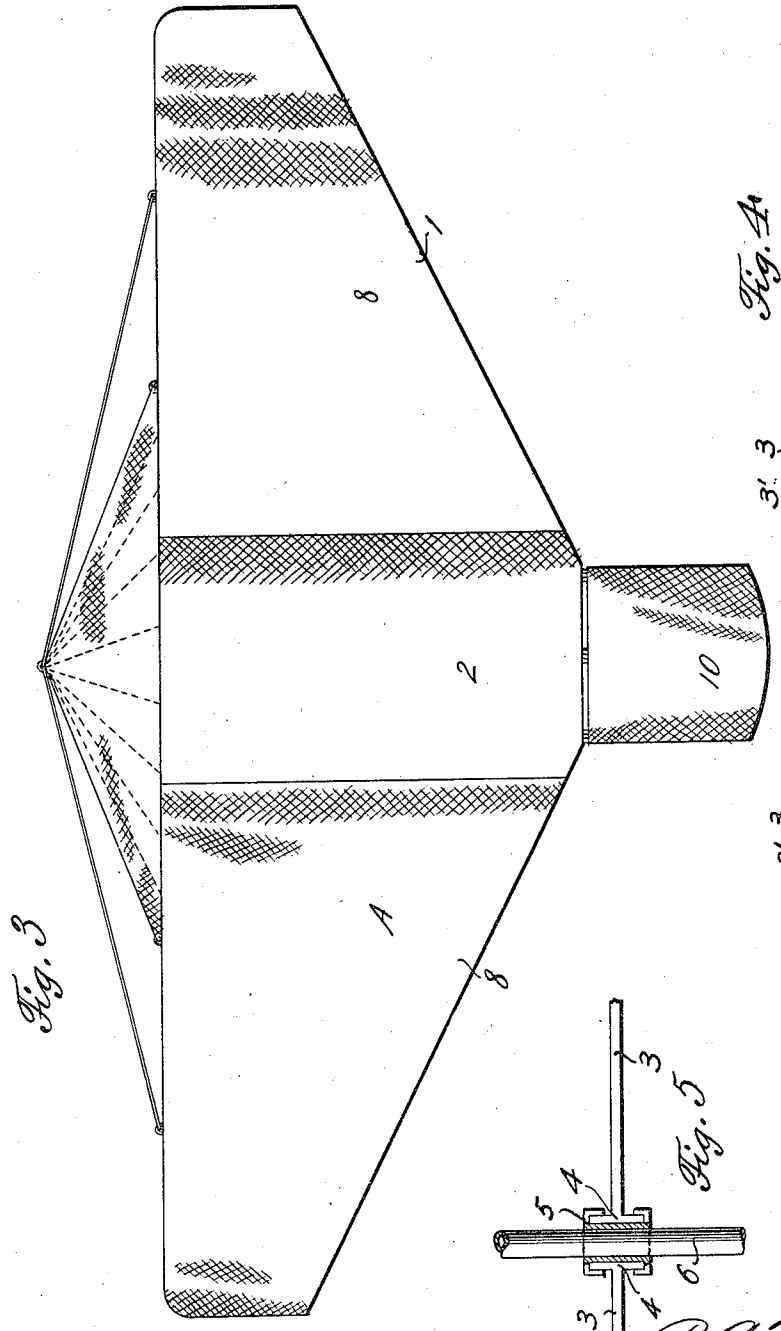


Fig. 3

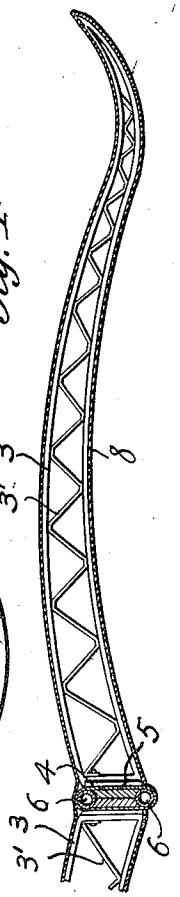


Fig. 4

Fig. 5

Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT A. MOORE, OF CHICAGO, ILLINOIS.

FLYING-MACHINE.

982,290. Specification of Letters Patent. Patented Jan. 24, 1911.

Application filed January 5, 1910. Serial No. 536,523.

To all whom it may concern:

Be it known that I, ROBERT A. MOORE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Flying-Machines, of which the following is a specification.

This invention relates to aerial navigation and consists of a flying machine of that type embodying a suitable aeroplane or body, a load support connected therewith, and motive means for propelling the machine through the air.

The present invention resides primarily in the specific construction of the body of the machine which is composed of a number of sections connected together in a peculiar manner and facilitating collapsing or "knocking down" of the frame work of the device for the purposes of shipment or economy of space generally.

A further object of the invention is the provision of a machine of this type designed especially with a view to obtaining the greatest amount of buoyant effect when the machine is in the air, and constructed on lines adapted to increase the speed of the aeroplane when propelled by a suitable motor.

For a full understanding of the invention, reference is to be had to the following detail description and to the accompanying drawings, in which—

Figure 1 is a rear view of a machine embodying the special features of the invention; Fig. 2 is a vertical longitudinal sectional view; Fig. 3 is a top plan view; Fig. 4 is a transverse section, partly broken away, showing one of the sections of the side members or wings, the connecting means between said section and the longitudinal connecting member, and the envelop or covering applied to the frame work, and Fig. 5 is a detail view partly in section and broken away showing the connection between the frame sections of the wings and the central longitudinal connecting member.

Throughout the following detail description and on the several figures of the drawings similar parts are referred to by like reference characters.

In carrying out the invention it is contemplated to employ an aeroplane or body A consisting of side members 1 and a central longitudinal member 2. The members 1 virtually comprise wings and they are curved from their inner portions toward their outer extremities to promote the gliding action or movement of the machine through the air. Supported in any suitable manner from the aeroplane or body A is a load support B which in this instance is in the form preferably of a boat adapted to receive the operator, person or persons carried by the machine in its flight. The aeroplane A comprises the main members 1 and 2 as above mentioned, and the wings 1 are of similar form each comprising side frame members of a composite structure including a number of transversely arranged frame sections 3. The frame sections 3 are of hollow form and may be braced internally in any suitable manner as shown at 3′ in Fig. 4, to afford the necessary rigidity. The number of the frame sections 3 for each of the side members 1 will depend upon the size of the machine and the special purposes for which it may be designed. All of the frame sections 3 of each member 1 are arranged in close contact side by side preferably, and held in such positions by the provision on each section of an interlocking head 4, of T-form, which engages a channel iron 5 secured to a longitudinal central frame member 6. The member 6 comprises upper and lower bars, hollow tubing preferably, and the channel irons 5 afford connections between said bars holding them rigidly in proper relative positions.

The frame sections 3 practically constitute hollow receptacles and mounted in the adjacent end portions of the sections of the two members or wings 1 are arranged a plurality of air-tight compartments 7 containing gas or other buoyant fluid. The bouyant compartments 7 are designed to prevent the machine from sinking should it alight upon the surface of water. Above and overlapping the adjacent end portions of the side members 1 of the aeroplane A is the central longitudinal member 2 consisting of a suitable body resting upon the wings 1 at their adjacent end portions. The part 2 is secured to the adjacent frame portion of the machine by any suitable means and assists in maintaining the rigidity of the connection of the wings 1 with the central longitudinal frame member 6. The frame sections 3 of the wings 1 when arranged in operative positions and connected with the central frame member 6 are covered by an envelop or covering 8 made of canvas or

similar material and providing the desired surface or plane affording resistance to the air in a downward direction.

At the front end of the machine is provided a steering point or rudder 9, and a similar rudder 10 is located at the rear end of the machine, the latter being operable by a rod 11 which runs through the lower tubular bar of the central frame member 6, and is connected with a suitable operating lever 12 pivoted to the frame-work of the machine at the front end portion and convenient for control by the operator. At the lower portion of the machine will be provided suitable ground wheels 13 to support the same preparatory to flight. A special type of motor 14 will be employed to propel the machine in flight and is connected with suitable propellers 15 by drive chains or connections 16. The motor 14 not forming a part of this invention will not be described in detail.

It is to be noted that the wings 1 curve downwardly at their adjacent portions to the point of connection by the longitudinal member 6, the outer ends of the wings curving upwardly. Furthermore, the sections of each wing are of such construction that the body of the aeroplane A when covered by the envelop 8, slopes upwardly from the front end toward the central portion and thence downwardly. In like manner the auxiliary aeroplane 2 slopes upwardly and downwardly in spaced relation to the aeroplane A, and hence as the machine is propelled in flying, air enters the space between the parts A and 2 at the front end of the machine and is deflected upwardly and thence downwardly, thus having a tendency to raise the machine in flight. Furthermore, the arrangement of the central auxiliary aeroplane 2 just above the adjacent ends of the wings 1 at the adjacent portions of the latter is advantageous in promoting buoyancy of the apparatus and rendering the same more stable and steady in making turns in the air.

The general structure of the machine will be braced by guy ropes or rods 17 located at proper intervals and connecting the less rigid parts with the more rigid parts in such a way as to render the entire construction substantial and capable of standing the wear and tear incidental to operation of machines of this class.

The part 2 before referred to and which is located above the inner ends of the wings 1 comprises an auxiliary aeroplane, the same being made of a plurality of ribs or bows 2′ over which is fastened a covering of fabric such as canvas, or the like. The space beneath the auxiliary aeroplane 2 is open at the front and rear ends of the machine and situated approximately midway of such ends are the gasolene and air tanks 18 and 19 respectively. The propellers 15 are preferably three in number though more or less of these propellers may be employed. Two of the propellers 15 are located at the rear end of the machine being driven by spaced driving shafts 20 connected by the chains 16 with the engine 14. The front propeller 15 is driven from the main shaft 21 of the engine. While the rear rudder 10 is movable about a horizontal axis to control the direction of flight upwardly and downwardly, the front rudder 9 is movable about a vertical axis 9′ by means of a suitable handle 9″, by which the rudder 9 may be moved laterally to steer the machine to the right or left as may be desired.

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

1. In a flying machine, the combination of a central longitudinal frame member, and side wing frame members detachably connected therewith and on opposite sides thereof, each of the latter frame members comprising a plurality of detachably related sections whereby the various parts aforesaid may be disassembled.

2. In a flying machine, the combination of a central longitudinal frame member, a main aeroplane comprising side wing frame members of like curvature detachably connected with a central member at opposite sides of the latter, and each of the side frame members comprising a plurality of detachably related sections whereby said parts may be disassembled, and a covering extending over said frame members for the purpose described.

3. In a flying machine, the combination of a main aeroplane composed of side wings curving downwardly toward their adjacent ends forming a space, the central portion of said aeroplane at the adjacent ends of the wings sloping upwardly from the front end of the machine, and an auxiliary aeroplane of comparatively narrow form located above the adjacent downwardly curved ends of the wings, and over the space at said point, said auxiliary aeroplane being in spaced relation to the main aeroplane and extending upwardly from the front end of the machine, and thence downwardly toward the rear end of the machine in spaced relation to the main aeroplane.

4. In a flying machine, the combination of a main aeroplane comprising a central longitudinal frame member, wings comprising side wing frame members on opposite sides of said frame member, and separably connected with the latter, each of the latter frame members comprising a plurality of sections and each section having detachable interlocking connection with the central frame member whereby to permit separation of the side and longitudinal frame members, an envelop extending over the

frame members, a central auxiliary aeroplane spaced from the covering and located above the adjacent connected portions of said frame members, said central aeroplane slanting upwardly from the front end of the machine to a point intermediate the front and rear ends of the machine and thence sloping downwardly toward the rear end, load supporting means suspended from the central frame member beneath the wings, and propulsion mechanism carried beneath the wings.

5. An aeroplane comprising a central longitudinal frame member, a plurality of channel irons on said frame member, and side wing frame members each consisting of a plurality of frame sections having T-heads engaging and interlocking with the channel irons of the longitudinal frame member.

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

ROBERT A. MOORE.

Witnesses:

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