N° 19,204 A.D. 1910

Date of Application, 16th Aug., 1910—Accepted, 23rd Feb., 1911

COMPLETE SPECIFICATION.

Flying Machines.

We, WILLIAM WALLACE GIBSON, Inventor, of 146, Clarence Street, James Bay, and DAVID WILLIAM HANBURY, Merchant, of 705, Fort Street, both of Victoria, Province of British Columbia, Dominion of Canada, do hereby declare the nature of our said invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to an aeroplane flying machine having certain novel features of form and construction designed to confer advantages of stability and strength without an excessive lateral spread of the sustaining vanes.

The machine is an amplification of that on which an Application for Letters Patent was filed on the 18th of May, 1910, under No. 12,208.

While the principle of design on which the previous application was made has proved to be generally sound, where occasion is experienced for increasing the vane area to get a greater lifting or sustaining machine I have found it desirable to provide that increase of area by lateral duplication of the original form on which the previous application was filed rather than by increasing the size of the individual vanes; and where this duplication is carried out the vertical steering of the machine is preferably effected by a triangular plane hinged to the forward ends of the units the angling of which plane effects the desired elevation or depression of the machine, as the original system of angling the V of the vanes is not readily applicable.

The essential principle of the original invention is however retained, namely that of providing a forward and after supporting area separated by a waist portion in which are located the propelling engine and the seat of the aviator.

This improved machine is particularly described in the following specification, reference being made to the drawings by which it is accompanied, in which;

Fig. 1 is a side elevation of the machine complete,

Fig. 2 is a plan of the same looking in the direction of the arrow A in Fig. 1, and

Fig. 3 is an end elevation looking in the direction of the arrow B in Fig. 1 and with the elevating or depressing vane removed,

Figs. 4 & 5 are enlarged details in elevation and cross section showing the manner of attaching the truss wires of the longitudinal frame, and

Fig. 6 is an enlarged detail showing the manner of staying one of the cross planes.

The general principle of the machine, as explained in the preamble, consists in the parallel lateral duplication of an elongated central frame each having at each end elongated diamond shaped vanes the sides of which are angled upward from the central frame.

In carrying out this principle of construction the framework of the machine consists of two longitudinal structures each composed of a central member 2, preferably of some light strong wood each central member being trussed both laterally and vertically by four steel wires 3 extending from end to end and spread apart toward the middle portion by being carried over the ends of cross shaped frames 4 spaced at intervals apart along the central member.

[*Price* 8*d*.]

These longitudinal structures which carry at each end the diamond shaped vanes are secured parallel to one another at the required distance apart by cross members 5, 6, 7, 8 and 9, which not only serve to brace the longitudinal frames together but form the supporting means thereto of some necessary part of the machine: Thus 5 and 8 carry the forward and after pair of wheels 12 and 13 the stems 10 of the forks of which are adjustably secured to the members 2 of the longitudinals and are crosswise braced by the diagonal wires 11 and lengthwise by the wires 30, a vertical member 24 being introduced extending from the middle of 5 to the middle of a cross frame 25, 26 to be described later, to which the outer ends of the main vanes are secured. The cross member 6 carries in the middle of the machine the chair 19 of the aviator and 7 carries the engine 14 which directly drives a forward and after propeller 15 and 16; and the cross member 9 across the after end of the machine carries at its middle the upright 17 to which the lateral steering rudder 18 is hinged.

These several cross members 5, 6, 7, 8 and 9 are formed of light wood, preferably of multiple ply veneer of some such wood as cedar and, as shown in the drawings, they are shaped in cross section that they will act as vanes to support the machine in flight.

The main supporting vanes 27 of the machine are diamond shaped in plan the longer diagonal of each being in alignment with the central member 2 of the longitudinals to which central member the fabric of the vanes is secured, the sides being angled upward, as shown in Fig. 3, and secured to wires stretched from the longitudinals and upward to the ends and middle of a cross member 26 which is supported from the longitudinals toward each end of them by struts 25.

These struts are curved concavely on the side of them which is toward the fabric of the vanes so as to be clear of the stretched curvatures of the vanes when they are sustaining the machine in the air.

Any of the cross members 5, 6, 7, 8 or 9 which may require it may be strengthened by truss wires 29, as shown in Figure 6.

Hinged to the extreme forward end of the central members 2 of the longitudinal frames is the elevating and depressing vane 20 by which the ascent and descent of the machine is controlled. This vane is preferably triangular in plan and formed of multiple ply wood veneer, the apex of the vane being projected forward beyond the ends of the machine.

This elevating and depressing vane is angularly moved, as shown in Figure 1, by a lever 21 fulcrumed at 22 and connected to the forward end of the vane by a link rod 23.

The gasoline tank which is shown in end elevation in Figure 1 at 28 is shaped as shown that it may offer a minimum of resistance in the direction of flight or even to a limited extent to sustain the flight.

A machine is thus provided that has the desirable feature for stability in the endwise disposition of the main sustaining vane in which disposition it is my opinion that greater stability can be obtained than with the lateral spread of narrow vanes which is the accepted practice and by providing a waist portion to which the seat of the aviator and the engine are supported.

In the location of the propellers in this waist portion the draft of air to and from them will act directly on the vanes and it is anticipitated will add to their ability to sustain the machine.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is:—

1. A flying machine comprising two longitudinal frames each having a diamond shaped vane at each end, each vane being secured to the longitudinals along one diagonal and the ends of the other diagonal of each vane being secured to a cross frame extending across the longitudinals at a higher level and securely braced thereto, means secured to the longitudinals between the end

vanes for driving the machine, and devices for steering the machine vertically and laterally.

2. A flying machine as set forth in Claim 1, wherein the said vanes are angled upward laterally from the longitudinals, and means for securing the longitudinals together by flight sustaining cross vanes.

3. A flying machine as set forth in Claim 1, wherein the longitudinals comprise a central member stayed by wires extending lengthwise and carried toward the machine on spider frames secured to the central member, cross planes carrying the engine and propellers, the seat for the aviator and the lateral steering rudder.

4. In a flying machine, the combination with two longitudinal frames, of a diamond shaped vane secured along one diagonal of each to each end of each frame, means for securing the longitudinals together and for supporting the ends of the other diagonal of each vane said means comprising a cross member extending across the longitudinals at each end at a distance above them and curved struts extending from the central member of each longitudinal to the ends and middle of each said cross member, a triangular elevating and depressing vane hinged to the forward end of each longitudinal and projecting forward therefrom, a flight sustaining cross plane secured to and extending between the after ends of the longitudinals an upright member projecting from the middle of said cross vane, a steering rudder hinged to said upright, a flight sustaining cross vane secured to and extending between the longitudinals intermediate of their end vanes and an engine and propellers carried in the middle of said cross plane.

Dated this 15th day of August, 1910.

JOHN LIDDLE,
154, St. Vincent Street, Glasgow,
Chartered Patent Agent.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1911.

A.D. 1910. Aug. 16. N° 19,204.
GIBSON & *another's* Complete Specification.

[1 sheet]

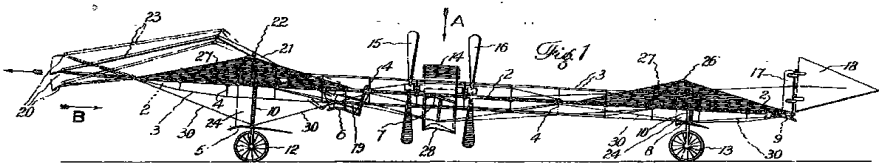


Fig. 1

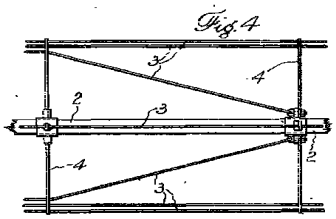


Fig. 4

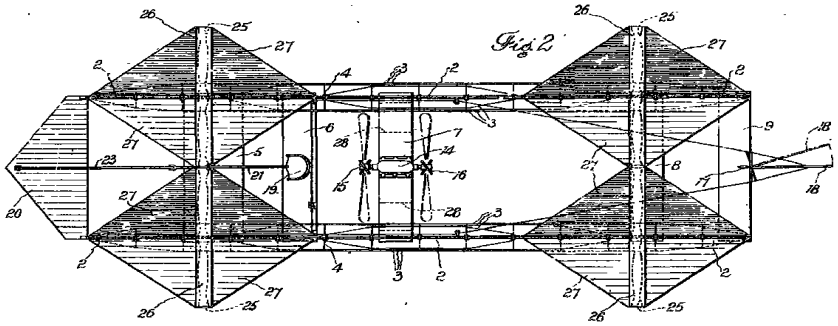


Fig. 2

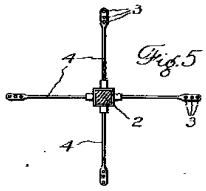


Fig. 5

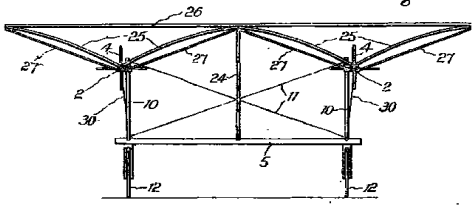


Fig. 3

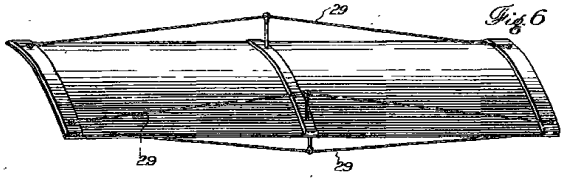


Fig. 6

[This Drawing is a reproduction of the Original on a reduced scale]

Malby & Sons, Photo-Litho.

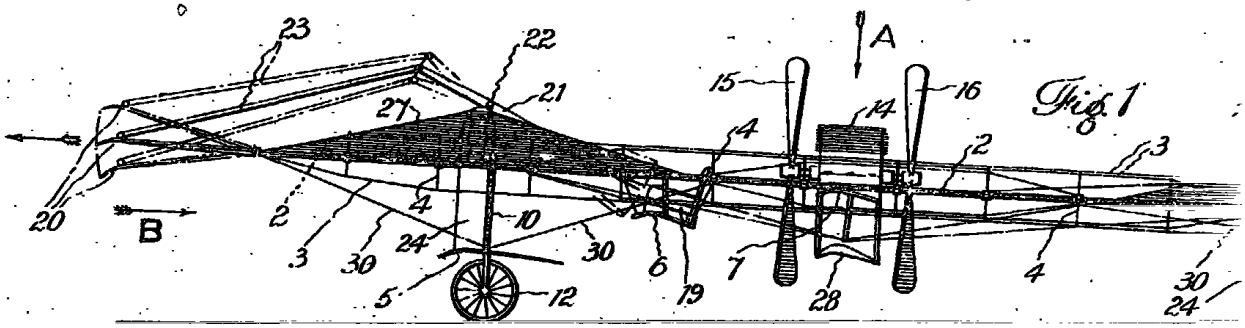


Fig. 1

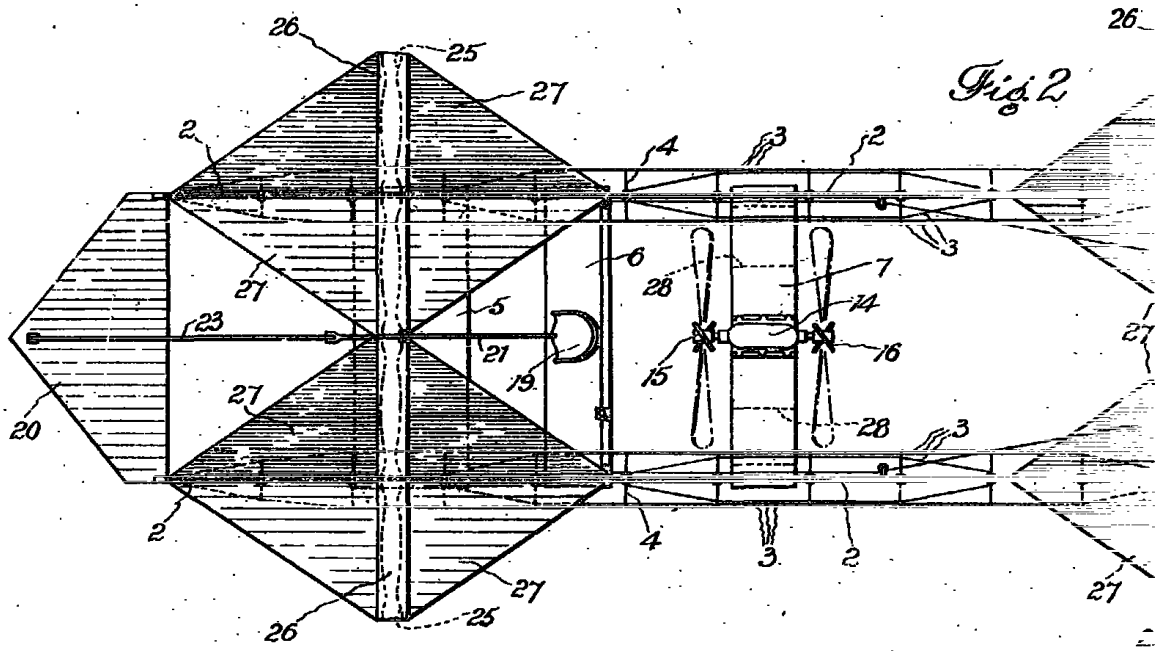


Fig. 2

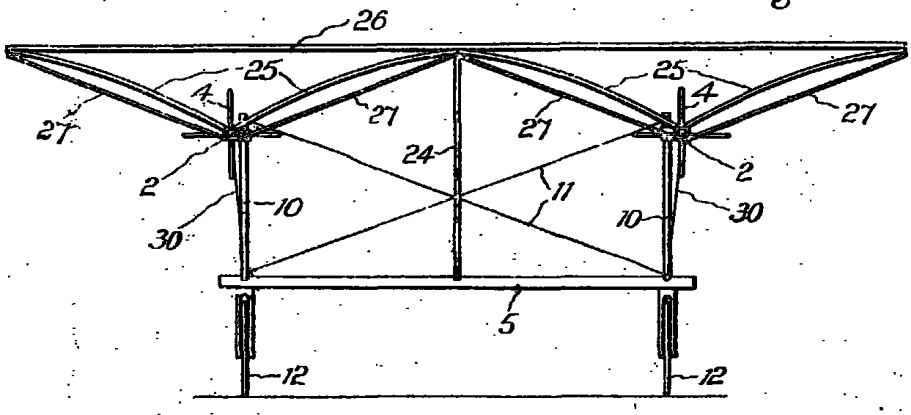


Fig. 3

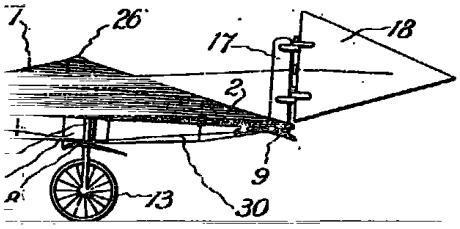
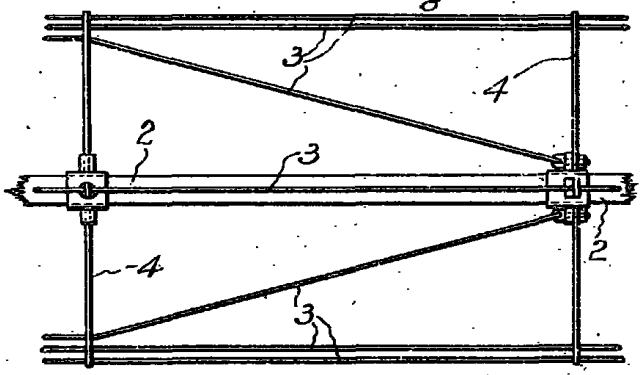
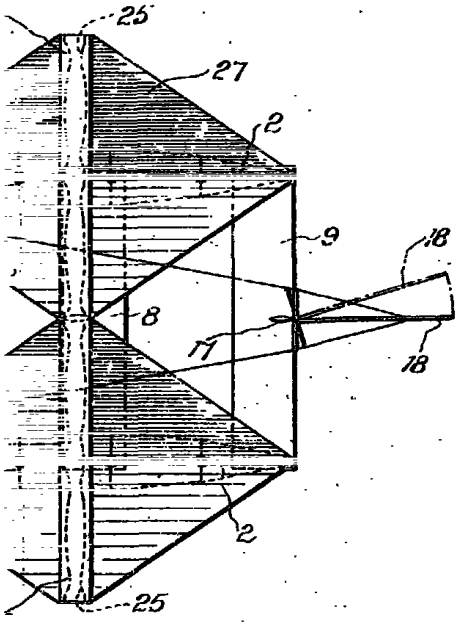


Fig. 4





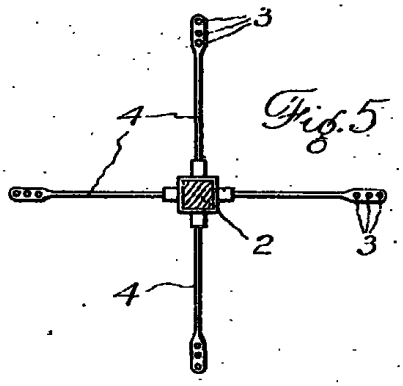
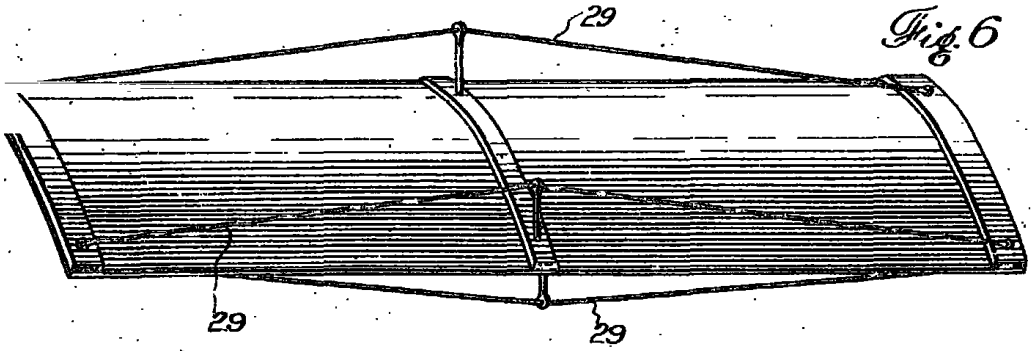


Fig. 5

Fig. 6



Malby & Sons, Photo-Litho.