

L. BLÉRIOT.

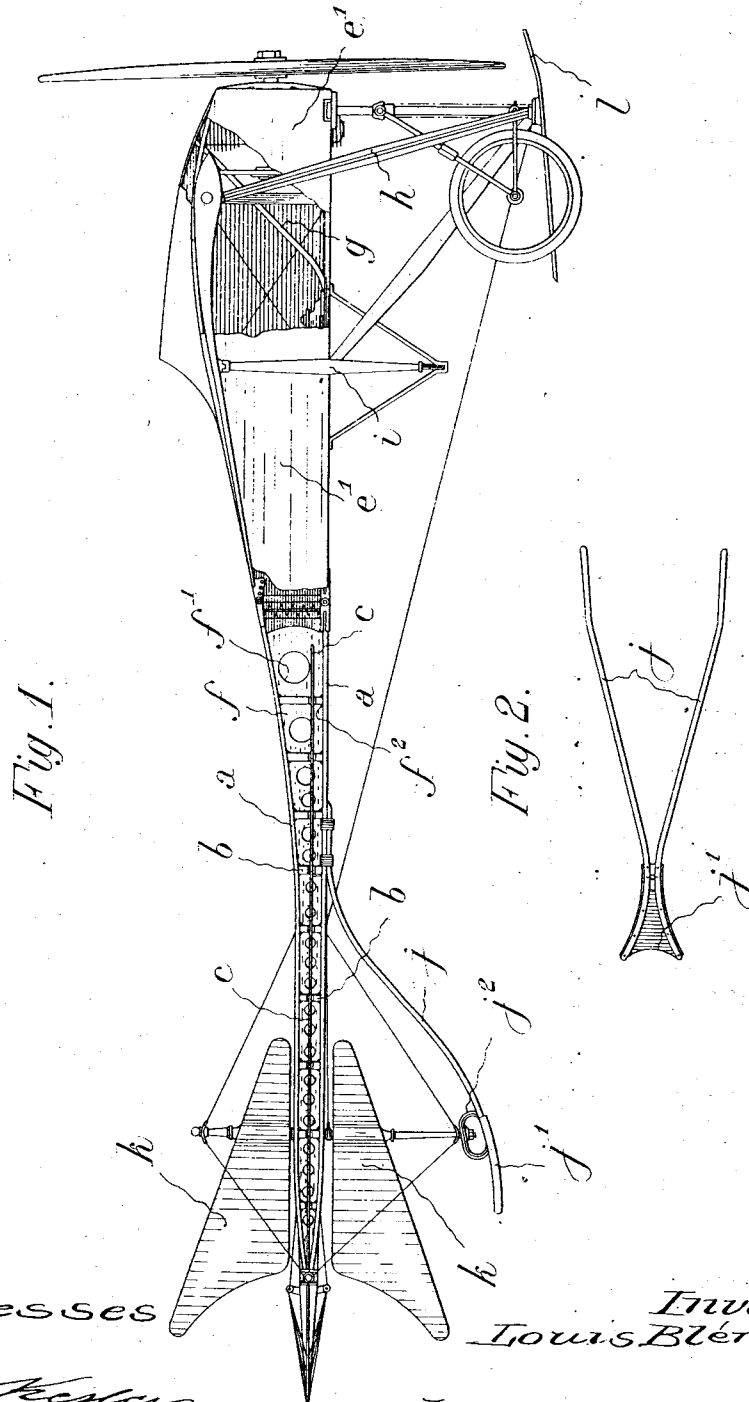
AEROPLANE.

APPLICATION FILED JAN. 7, 1911.

1,045,666.

Patented Nov. 26, 1912.

4 SHEETS-SHEET 1.



Witnesses

Ed. Kester

John D. Brown

Inventor
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by

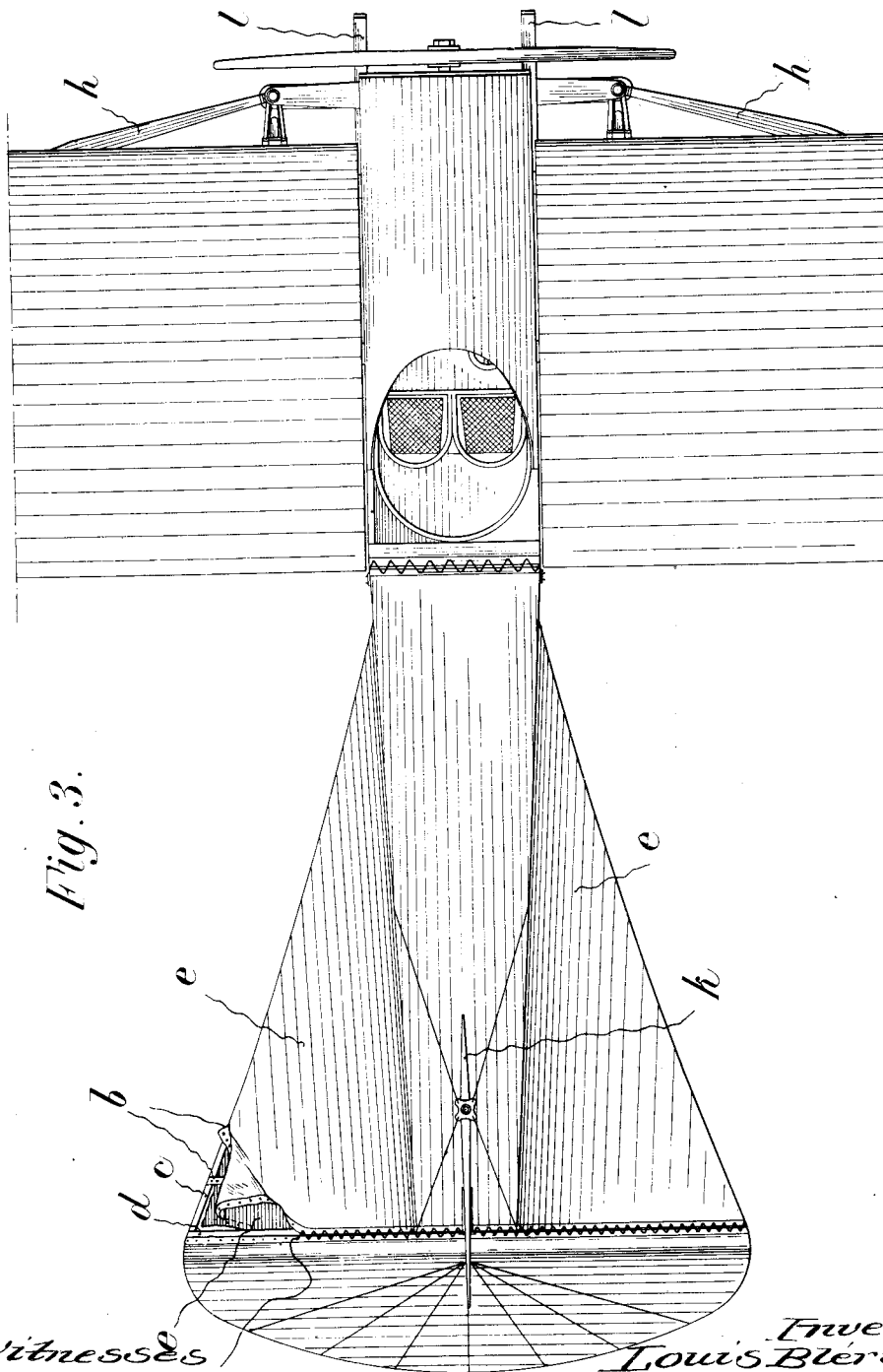
James L. Morris, Jr.
Att'y.

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4 SHEETS—SHEET 2.



Witnesses
Ed. Kessler
John Powers.

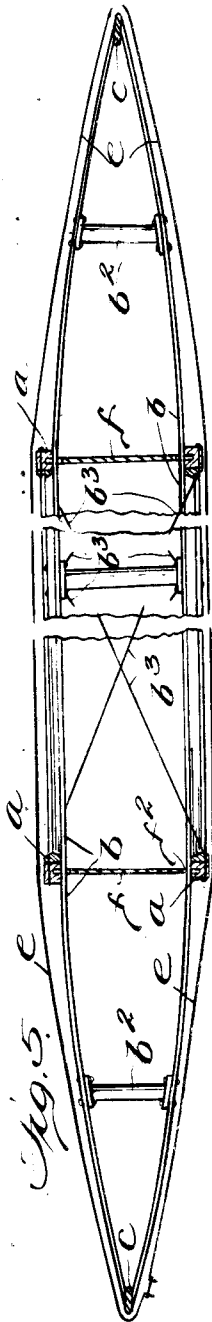
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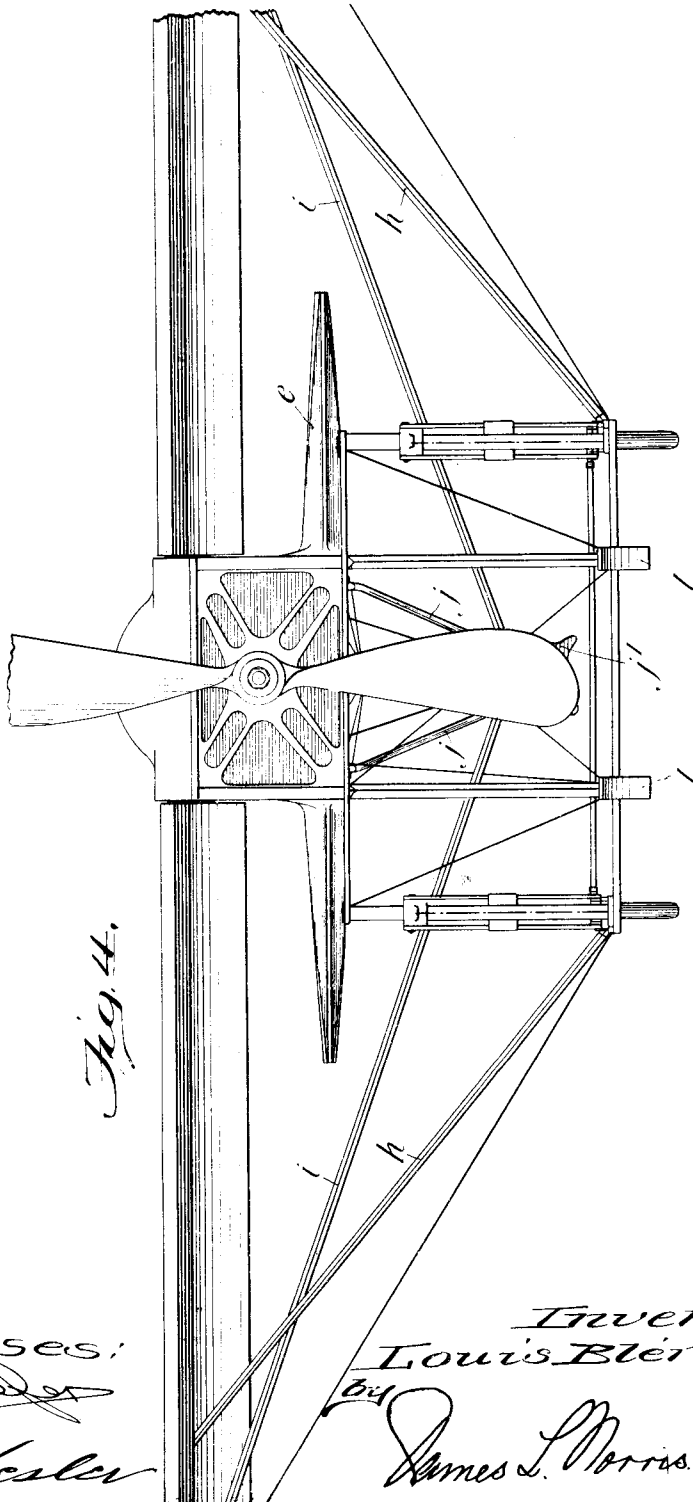
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4 SHEETS—SHEET 3.



Witnesses:
[Signature]
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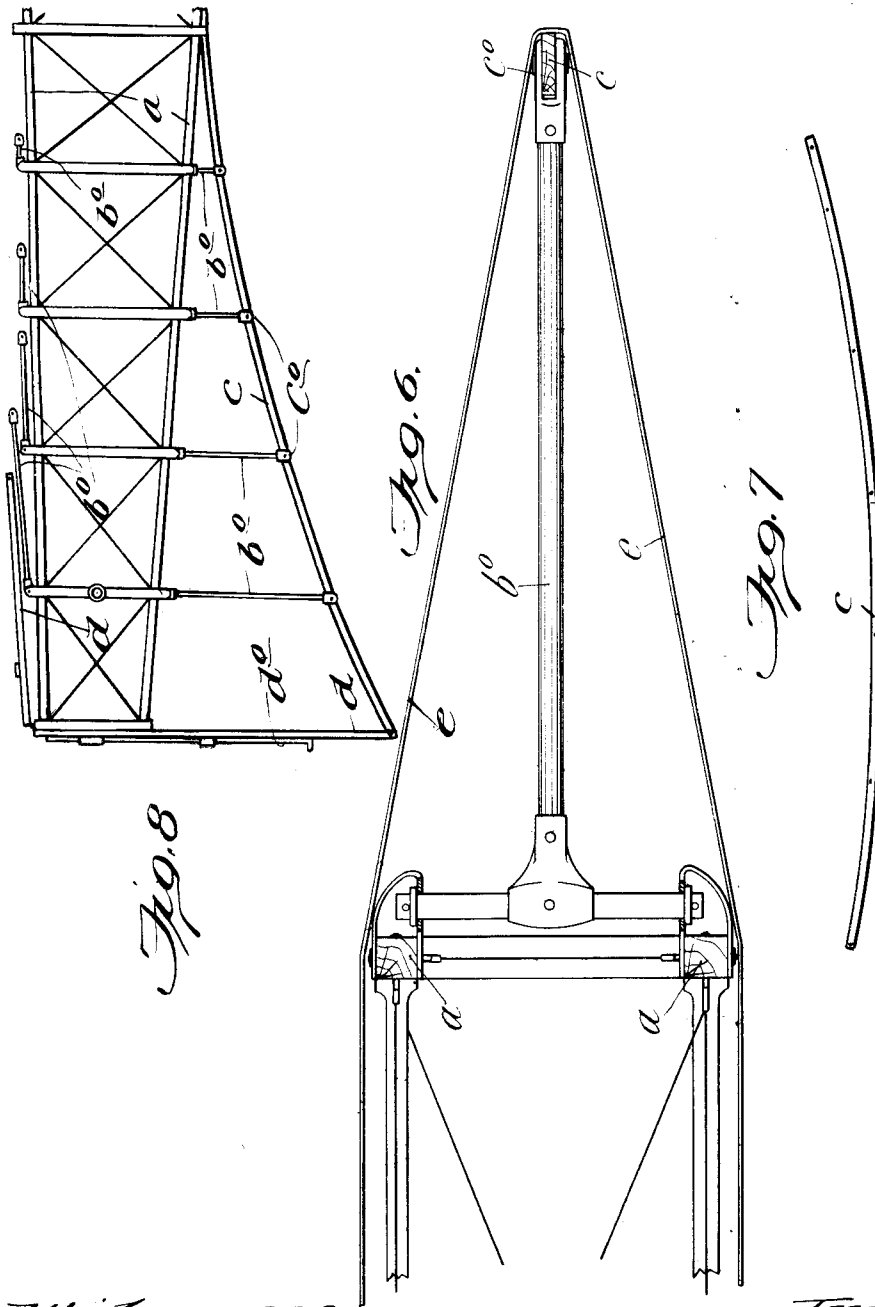
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4 SHEETS—SHEET 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

LOUIS BLÉRIOT, OF NEUILLY-SUR-SEINE, FRANCE.

AEROPLANE.

1,045,666.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed January 7, 1911. Serial No. 601,323.

To all whom it may concern:

Be it known that I, LOUIS BLÉRIOT, engineer, citizen of the French Republic, residing at 56 Boulevard Maillot, Neuilly-sur-Seine, France, have invented certain new and useful Improvements in Aeroplanes, of which the following is a specification.

This invention relates to aeroplanes and has for its object to improve both the general arrangement and the detail construction of these apparatus.

The invention will be readily understood from the following description of an aeroplane to which the said invention has been applied in its entirety, with the assistance of the accompanying drawings which are given merely by way of example, and the various figures of which will be referred to as required.

In the drawings:—Figure 1 is a side elevation, with parts broken away, illustrating an aeroplane of the monoplane type in which the features of the present invention are incorporated; Fig. 2 is a detail plan view of a landing skid structure which is provided at the rear end of the aeroplane; Fig. 3 is a plan view of the aeroplane as an entirety; Fig. 4 is a front elevation thereof; Fig. 5 is a transverse section through the tail of the aeroplane; Fig. 6 is a similar view illustrating a modification; Fig. 7 is a detail view showing one of the laths *c*, to be hereafter described, in detached relation; Fig. 8 is a diagrammatic plan view of the construction shown in Fig. 6 and discloses the brackets *b*⁰ at one side of the tail as extended and in operative relation to the corresponding lath *c*, and at the other side of the tail as folded and disconnected from the corresponding lath *c*.

Similar characters of reference designate corresponding parts throughout the several views.

As will be seen from Figs. 1 and 5, the body is formed of four longitudinal members *a*, those two which are intended to form the bottom of the said body being rectilinear in elevation and the two others, which are intended to form the upper face of the said body, are arranged respectively exactly above the lower ones, and bent and connect-

ed to the latter in such manner that the depth of said body considered from front to rear thereof first increases slightly then decreases quickly so as to become fairly small, and finally remains practically constant, or more accurately, decreases very slowly until it is reduced practically to nothing. In that way, it is possible to reduce to a considerable extent the head resistance. As also shown in Fig. 1 the body is divided into two elements one of which the rear element, carries the tail and the horizontal and vertical rudders, and the other, the front element carries the other parts of the aeroplane. These two elements are connected as shown in Fig. 1 by such means as to enable them to take up different inclinations relatively to each other. The connecting means may conveniently comprise simple hinge fastenings between the parts of the lower members *a* and adjustable hinge fastenings between the upper members *a*, said adjustable hinge fastenings including in each instance a removable hinge pin and a sector-like part having a row of openings through any selected one of which the hinge pin may be passed.

The tail is so constructed as to have a double convex transverse shape and its surfaces are merged into the surface of the body. The tail construction in its preferred form comprises a series of pairs of laths *b* arranged transversely, and preferably in such manner that the said laths have their respective outer faces arranged on the inner sides of the longitudinal members *a*; a pair of longitudinal laths *c* by means of which the ends of the transverse laths *b* are connected together, a cross-bar *d* which forms the rear end of the said frame-work and is connected at its ends to the said longitudinal laths *c*, and also bracing uprights such as those shown at *b*¹ and *b*² as well as strengthening wires such as those shown at *b*³.

In the modified tail construction shown in Figs. 6 and 7 two series of brackets *b*⁰ are hinged to the longitudinal members *a*, in such manner that they may during transport be folded along the faces of the body. Longitudinal laths *c* and a cross bar *d* similar to the preceding ones are used. The means for holding the said brackets in their

normal position may consist of pins c^0 for temporarily securing the said brackets to the said longitudinal laths c , and also, assuming that the cross-bar d is in its turn, made folding, of bolts d^0 connected to it and adapted to grip the body.

Fig. 7 shows the brackets b^0 at the side of the tail disconnected from their corresponding lath c and in folded relation, and at the other side of the tail in extended relation and operatively connected to the corresponding lath c .

In the construction of the covering a pair of pieces of canvas e may be used, being cut out to the desired shape and secured, for instance by sewing, with those of their respective edges which, when the erecting is finished, must be brought in correspondence with one of the laths c , and which are provided on their other edges with hooks or other means for lacing, this being done in such manner that the whole of the said parts e should form a cover or case, owing, for instance, to the provision of corresponding lacing means at the desired points of the body, namely at its front portion which, in its turn, is preferably covered, as shown at e' in Fig. 1, so that it can be mounted in the simplest manner on the body and removed from the top of the same. This construction is shown in Figs. 1, 3, 5 and 6. The portions of the body comprised between the longitudinal members a and over which the parts e have to be arranged, are preferably at the same time lowered in such manner that the said parts form a bridge over the said longitudinal members. As appears from the said Figs. 1 and 5, for bracing the longitudinal members of the body in the vertical direction or more exactly, for bracing the rear portions of the body where the depth is small (which is just what makes it possible to carry out in practice the desired construction) continuous plates f are used which plates are preferably made of veneering wood, the longitudinal members a being constructed in a corresponding manner, and preferably provided, more particularly in the portions intended to be covered by the tail with holes f' for reducing the weight, and more particularly at the points of strengthening with recesses f'' which are adapted to facilitate the general working.

The portion of the body where the engine has to be placed is arranged in such manner that, as shown in the same Fig. 1, as well as in Fig. 4, which is a front view corresponding to the said Fig. 1, the said engine is completely isolated from the rest of the body, namely from the seat for the aviator or aviators. To that end, there is preferably formed at the said portion a chamber which receives in its front portion

the said engine, the top of the chamber being constituted by a metal plate g inclined so that it has a positive incidence and is consequently able to play, in addition to its chief part of a deflector, the part of a bearing or supporting plane and the floor is at the same time provided with as many perforations as possible. For constructing the elements of the shroud or stay rope gear, and for controlling the warping rigid elements are used, advantageously constituted, as shown in the said Figs. 1 and 4, by parts, for instance of wood, such as those shown at h and i . This makes it possible to do away with bracing above the planes and therefore to do away with the usual upper "tower" as well as with its accessories. For building the landing chassis as shown in the said Figs. 1, 3 and 4, a system of adjustable deformable triangles and also skids l are used, these skids being mounted on the inner elements of the said landing chassis.

For suspending the rear part, a pair of bamboo rods j (Figs. 1 and 2) are used, which are bent and curved in a suitable manner, and lashed, for instance, to the bottom longitudinal members a of the body so that they each form a kind of crescent at their rear ends and are connected to each other, so that the whole of the said parts, seen from the end, have the shape of an X. This connection is made preferably by a metal plate j' which connects together the respective ends of the said bamboo rods; also means are used for modifying the natural elasticity of the whole device, the said means being preferably constituted by a rod such as for instance that for mounting the horizontal rudder k , and a spring j'' having the shape of a horizontal C inserted between the said rod and the said metal plate j .

Having fully described my invention, I claim—

1. A body for an aeroplane comprising a girder subdivided into two elements so connected that their angle of inclination may be modified in accordance with the load, the lower face of which girder is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the body.

2. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane, and the surfaces of the said tail being connected at

the sides and merged into the upper and lower faces of the body.

3. An aeroplane comprising a body, a covering for a portion thereof, and a tail attached to said body, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane, and the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body, said covering being provided for that portion of the body which is not affected by the tail.

4. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane, and said tail comprising a covering, longitudinal laths supporting said covering and extending along the periphery of the tail, and means for supporting said laths from the body, the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body.

5. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane, and said tail comprising a covering, longitudinal laths supporting said covering and extending along the periphery of the tail, and rigid means for supporting said laths from the body, the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body.

6. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane, and said tail comprising a covering, longitudinal laths supporting said covering and extending along the periphery of the tail, and a series of cross laths arranged laterally in pairs supporting said longitudinal laths from the body, the surfaces of the said tail being connected at

the sides and merged into the upper and lower faces of the body.

7. An aeroplane, comprising a body and a tail attached thereto, said body comprising a girder composed of longitudinal members, the lower face of which girder is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane and said tail comprising a covering, longitudinal laths supporting said covering and extending along the periphery of the tail, and a series of cross-laths, arranged laterally in pairs supporting said longitudinal laths from the body, said cross laths being placed between the longitudinal members of the body, and the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body.

8. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane and said tail comprising a covering, longitudinal laths supporting said covering and extending along the periphery of the tail, and a series of struts supporting said longitudinal laths from the body, the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body.

9. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear end of the aeroplane, and said tail comprising a covering, longitudinal laths supporting said covering and extending along the periphery of the tail, and a series of hinged struts supporting said longitudinal laths from the body, said struts being adapted to be folded along the body and the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body.

10. An aeroplane comprising a body and a tail attached thereto, said body comprising a girder the lower face of which is substantially flat and the depth of which is greatest at a point somewhat rearward of the front end of the body and then quickly decreases to a comparatively small figure which is maintained substantially constant to the rear

end of the aeroplane and said tail comprising a readily removable cover, longitudinal laths supporting said cover and extending along the periphery of the tail, and means
5 for supporting said laths from the body, the surfaces of the said tail being connected at the sides and merged into the upper and lower faces of the body.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 10

LOUIS BLÉRIOT.

Witnesses:

CHARLES WEISMANN,
H. C. COXE.
