

June 16, 1925.

1,541,976

A. K. LONGREN

FUSELAGE

Filed April 10, 1922

Fig. 1.

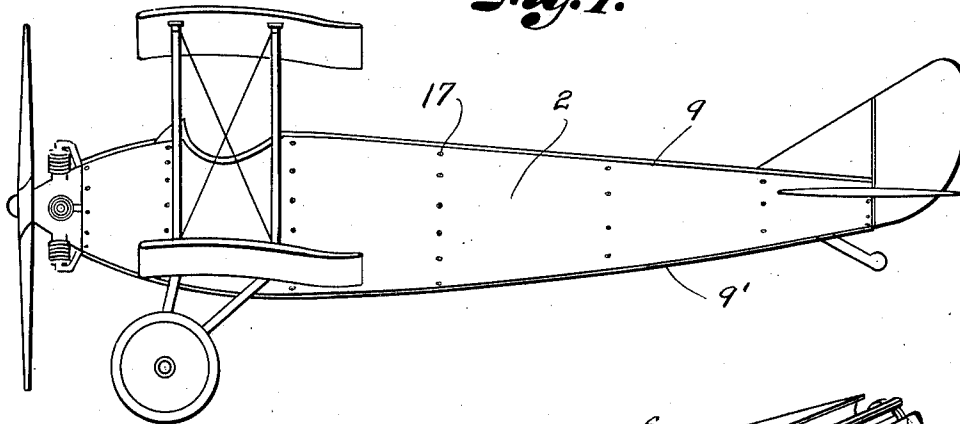


Fig. 2.

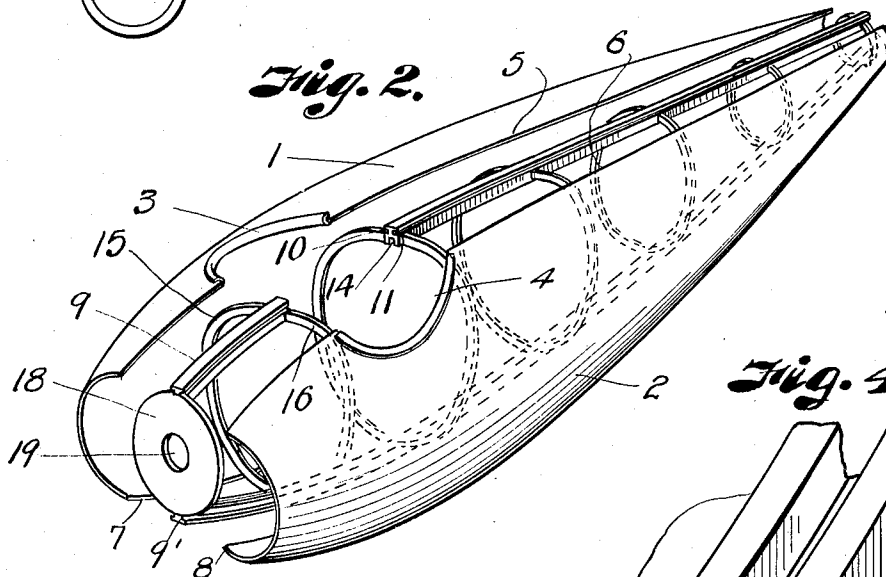


Fig. 4.

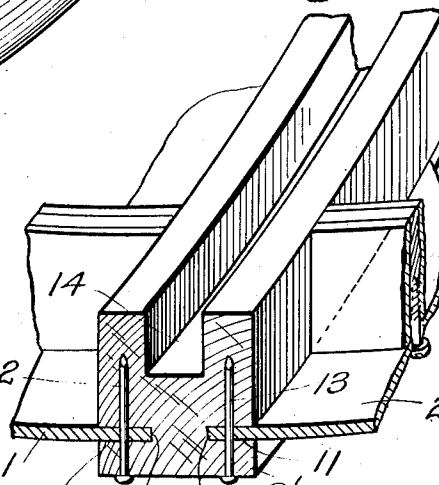
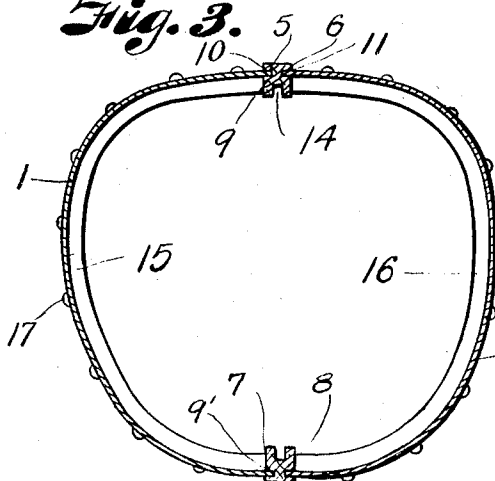


Fig. 3.



INVENTOR
Albin K. Longren
BY *Wm. C. O'Connor*
ATTORNEY

UNITED STATES PATENT OFFICE.

ALBIN K. LONGREN, OF TOPEKA, KANSAS.

FUSELAGE.

Application filed April 10, 1922. Serial No. 551,054.

To all whom it may concern:

Be it known that I, ALBIN K. LONGREN, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Fuselages; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to the fuselage or body structure of an aeroplane and the primary object thereof is to construct a fuselage which will be exceedingly light and yet possess considerable strength to not only protect the occupants but to resist the tendency to collapse in case of accident.

Extremely light bodies have been provided heretofore by arranging truss frames and covering the same with fabric but the strength of such bodies has been sacrificed for lightness and in the case of accident, the longerons are liable to injure the occupant of the aeroplane.

According to my invention extreme lightness is provided by constructing the body of fibrous material, which may be molded into shape and which may be conveniently braced at intervals from the front to the rear. The body is preferably constructed of sections which may consist of fibroid or similar material, molded into shape and connected at their meeting edges by longérons or longitudinals which constitute longitudinal braces for the body structure and which also serve as rails to which the transverse braces (preferably circular) are secured.

The novel form of my invention is illustrated in the accompanying drawings, in which

Fig. 1 is a side elevational view of an aeroplane constructed in accordance with my invention.

Fig. 2 is a disassociated perspective view of the meeting members and connecting longérons and transverse ribs of the fuselage.

Fig. 3 is a transverse sectional view through the assembled members of the fuselage, and

Fig. 4 is a sectional perspective view of

the meeting edges of the mating sections and one connecting longéron.

Referring now to the drawings by numerals of reference:

1 and 2 designate concave convex body members, which comprise symmetrical sides of the fuselage and are provided with aligning recessed portions 3 and 4 which, together, form the cock-pit opening for the fuselage.

The side members 1 and 2 are provided with upper complementary edges 5 and 6 and lower complementary edges 7 and 8 and these edges are connected together by the longérons 9 and 9'.

Each longéron may consist of a rib or bar having oppositely located slots 10 and 11 into which the edges 5 and 6 or 7 and 8, as the case may be, may be received, it being generally desirable to apply an adhesive either to the edges of the members 1 and 2 or in the slots 10 and 11, after which the edges may be introduced into the slots as shown in detail in Fig. 4, and the edges may be additionally secured thereto by fastening devices 12 and 13, which may be driven into the bars or braces constituting the longérons and through the material so that a tight union will be made between the complementary edges of the members 1 and 2. The fastening devices may consist of brads or nails, as shown, and the inner edge of each longéron or brace is preferably provided with a longitudinal groove 14 for the sake of lightness because the material removed from the groove can be dispensed with without materially reducing the strength of the longérons.

The upper longéron will have a portion equal to the length of the cock-pit cut away as shown in Fig. 2 but the bottom longéron may extend from end to end of the fuselage.

The longérons are connected by the semi-circular transverse braces 15 and 16, which may be fastened thereto in any appropriate manner; the two members 15 and 16, when secured to the longérons, constituting substantially circular brace members, the outer edges of which bear against the inner walls of the members 1 and 2 to which they may be secured by suitable fastening devices, for example, screws 17. Any appropriate number of transverse brace members may be secured from end to end and at the front I

prefer to connect the longérons and the front edges of the members 1 and 2 by a bulkhead 18, which may close in the front end of the fuselage. Said bulkhead is provided with a concentric opening 19, through which the magneto oil pump or other projection of the motor may project.

The construction illustrated affords an efficient durable and light form of fuselage, the sides, being preferably constructed of fibrous material, will have great resisting qualities and be reinforced by the longérons and transverse braces so that even in case of accident, the fuselage will, to a large measure, protect the occupant or occupants against injury.

The form of body is shown as conforming to the stream line construction now generally considered to be the most appropriate form of body structure although obviously it may partake of other forms without departing from the essential features of my invention.

What I claim and desire to secure by Letters-Patent is:

1. A fuselage comprising complementary concavo-convex side members, longérons at the top and bottom of the fuselage, and interposed between the edges of said side members, each longéron having oppositely disposed grooves in its sides to receive the opposite edges of the respective side members to stiffen same and maintain the said edges in coincident planes, each longéron having a longitudinal groove therein to

lighten same, and means whereby to secure the edges of the side members in said grooves in the opposite sides of the longérons.

2. A fuselage comprising complementary concavo-convex side members, longérons at the top and bottom of the fuselage, and interposed between the edges of said side members, each longéron having oppositely disposed grooves in its sides to receive the opposite edges of the respective side members to stiffen same and maintain the said edges in coincident planes, each longéron having a longitudinal groove therein to lighten same, and fastenings piercing the longérons and the edges of the side members in planes on opposite sides of the said longitudinal grooves of the longérons.

3. A fuselage comprising complementary concavo-convex side members, longérons at the top and bottom of the fuselage, and interposed between the edges of said side members, each longéron having oppositely disposed grooves in its sides to receive the opposite edges of the respective side members to stiffen same and maintain the said edges in coincident planes, each longéron having a relatively deep longitudinal groove in its inner face to lighten the same, means whereby to secure the edges of the side members in said grooves in the opposite sides of the longérons, and substantially circular transverse braces connected to the longérons and to the side members.

In testimony whereof I affix my signature.

ALBIN K. LONGREN.