E. G. BAHL.

AEROPLANE FUSELAGE AND PROCESS OF BUILDING SAME.

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**1,424,066.** **Patented July 25, 1922.**

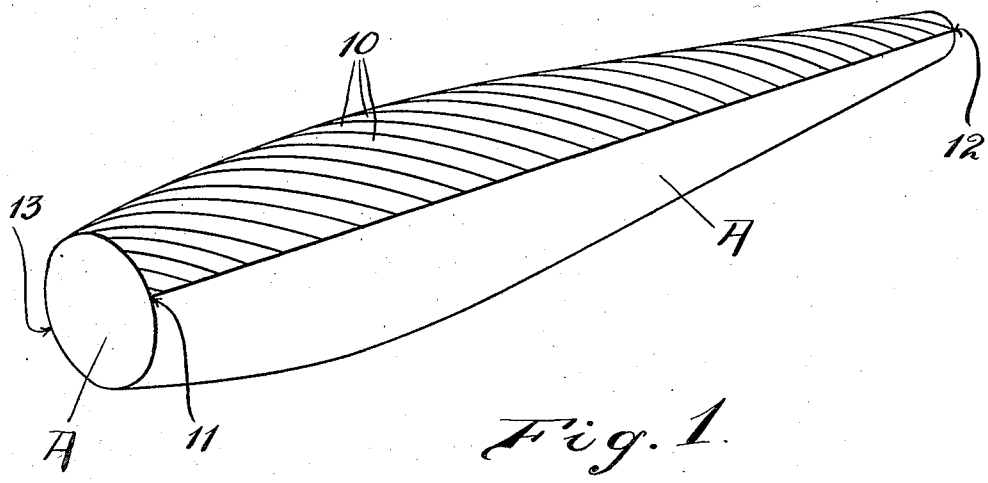



Fig. 1.

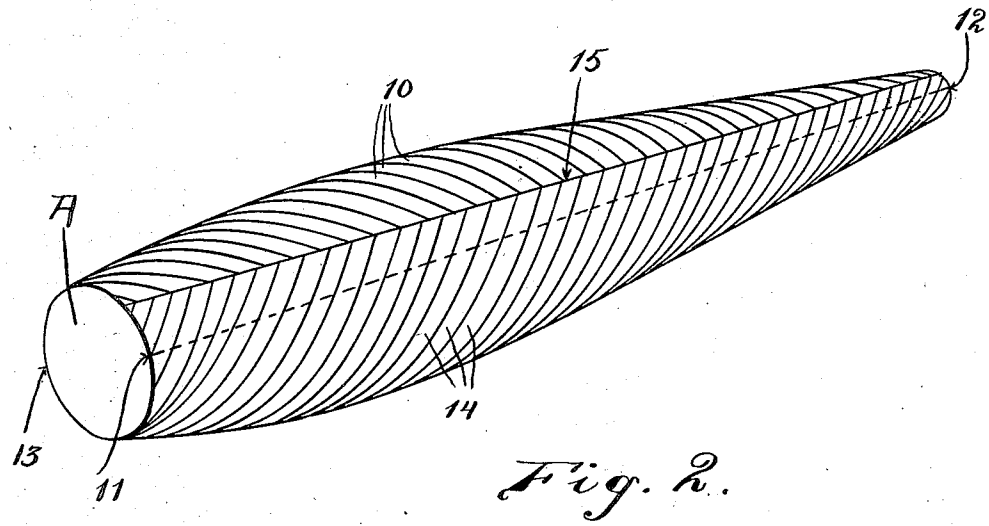



Fig. 2.

Inventor

Errold G. Bahl

Witness:

J. Milton Jester

By D. A. Gourick

Attorney

# UNITED STATES PATENT OFFICE.

ERROLD G. BAHL, OF LINCOLN, NEBRASKA.

## AEROPLANE FUSELAGE AND PROCESS OF BUILDING SAME.

1,424,066. Specification of Letters Patent. Patented July 25, 1922.

Application filed June 24, 1921. Serial No. 480,215.

*To all whom it may concern:*

Be it known that I, ERROLD G. BAHL, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented new and useful Improvements in Aeroplane Fuselages and Processes of Building Same, of which the following is a specification.

This invention relates to aeroplanes, particularly to fuselage constructions, and has for its object the provision of a novel form of fuselage of the laminated type constructed of a plurality of thin strips of flexible wood arranged in edge to edge relation and secured temporarily upon a collapsible form designed to be subsequently removed, each layer of the fuselage being formed in sections and a plurality of sections being used with the joints arranged in staggered relation, the successive layers being glued together.

An important object is the provision of a fuselage construction and process in which all the strips of each section are cut off along a straight line running from the forward to the rear end of the fuselage in contra-distinction to the well known fuselage building process in which the strips of any length are individually wrapped about and secured to the form without regard to where one strip leaves off and the next strip starts, the disadvantage of this well known process being that the number of workmen is limited and the work consequently slow as the form must be turned continually. In the present process it is designed that several workmen may be engaged in the building operation at the same time as it is not necessary to turn the form until a section is completed.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which—

Figure 1 is a perspective view showing one section of one layer of a fuselage constructed in accordance with my invention, and

Figure 2 is a perspective view showing the first layer completed and showing one section of the second layer applied thereto.

Referring more particularly to the drawings, the letter A designates a suitable form or core having the same shape as the fuselage desired. This form is in actual practice collapsible and it is apparent that the form structure might be one of several possible arrangements though the form is not disclosed in detail as forming no part of the present invention. In my co-pending application filed December 20, 1921, Serial Number 523,737, I have shown and described the specific type of collapsible mold which is well adapted for use in the building of a fuselage in accordance with the present process. In carrying out my invention I construct the fuselage entirely of thin comparatively narrow strips 10 of flexible wood. The strips may initially be of different lengths and they are arranged against one another spirally or diagonally upon the form and secured thereto by any suitable temporary fastenings. The strips 10 are comparatively short in actual practice, that is they will not or need not, when placed upon the form, extend more than half way around the same. After this section, which may cover half of the form in case of small fuselages or which may cover only one-third of the form in case of larger fuselages, has been temporarily secured, I cut off all the ends of the strips along the line extending from the point 11 to the point 12 and along a corresponding line at the opposite side of the form beginning with the point 13. After this section is applied the form A is turned over and a similar section secured in the same manner upon the opposite side of the form. All these strips are glued together.

The first layer having been thus formed, the second layer is applied in the same manner except that the strips 14 thereof extend in the opposite direction to the strips 10. This second layer is formed in sections in the same manner as the first section and care must be taken that the line 15 at each side of the form at which the strips 14 are cut off be in staggered relation to the lines along which the sections of the first layer are cut. As the strips of the second layer are applied they are glued not only together but to the first layer. It is preferable to apply a third layer upon the second layer with the strips running in the same direction as the strips of the first layer and having the joints of the sections staggered with respect to the joints of both the first and second layers. Ordinarily three layers are deemed sufficient, though naturally if found advisable any

number of layers may be used and applied in exactly the same manner. It is to be understood that after the fuselage is completed and the glue dry the collapsible form is removed.

While I have shown and described the preferred embodiment of my invention, it is to be understood that I reserve the right to make such changes in the form, construction, arrangement of parts and the carrying out of the process as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. An aeroplane fuselage comprising a plurality of superposed layers secured together permanently, each layer being formed of a plurality of sections with the joints of the sections of the successive layers arranged in staggered relation, each section being formed of a plurality of strips.

2. An aeroplane fuselage comprising a plurality of superposed layers secured together permanently, each layer being formed of a plurality of sections with the joints of the sections of the successive layers arranged in staggered relation, each section being formed of a plurality of diagonally extending strips.

3. An aeroplane fuselage comprising a plurality of superposed layers secured together permanently, each layer being formed of a plurality of sections with the joints of the sections of the successive layers arranged in staggered relation, each section being formed of a plurality of diagonally extending strips, the strips of the successive layers extending in opposite directions.

4. An aeroplane fuselage comprising a plurality of superposed layers secured together permanently, each layer being formed of a plurality of sections with the joints of the sections of the successive layers arranged in staggered relation, each section being formed of a plurality of diagonally extending strips, the strips of all the sections of each layer extending in the same direction and the strips of the successive layers extending in opposite directions.

5. An aeroplane fuselage constructing process consisting in securing a plurality of flexible wooden strips diagonally upon a collapsible form, cutting the ends of all the strips along lines extending longitudinally of the form whereby to define a layer section extending throughout the length of the form and partially around the form, inverting the form, securing upon the form a second section similar and complementary to the first section, and securing upon the thus completed layer successive similar layers with the strips of the successive layers arranged in the opposite direction to the strips of the preceding layer.

6. An aeroplane fuselage construction process consisting in securing a plurality of flexible strips diagonally upon a collapsible form, cutting the ends of all the strips along lines extending longitudinally of the form whereby to define a layer section co-extensive in length with the form, securing upon the form a second section similar and complementary to the first section, and securing upon the thus completed layer successive similar layers arranged with the joints of the sections in staggered relation to the joints of the sections of the preceding layers.

In testimony whereof I hereto affix my signature.

ERROLD G. BAHL.