

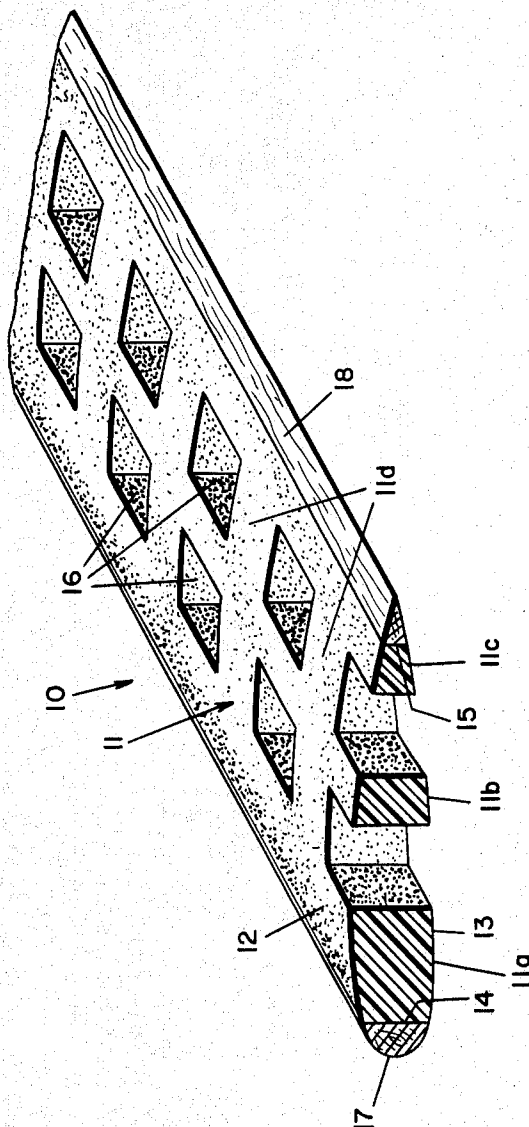
Feb. 1, 1966

L. V. HARRISON

3,232,002

MODEL AIRCRAFT WING CONSTRUCTION

Filed Nov. 26, 1963



INVENTOR:

LAWRENCE V. HARRISON

By: *Fetherstonhaugh & Kent*

Atty's.

1

3,232,002

MODEL AIRCRAFT WING CONSTRUCTION
Lawrence V. Harrison, Portage la Prairie, Manitoba,
Canada (P.O. Box 1291, Sackville, New Brunswick,
Canada)

Filed Nov. 26, 1963, Ser. No. 326,133

1 Claim. (Cl. 46—78)

My invention relates to new and useful improvements in model manufacture, particularly model aircraft.

Conventional model aircraft, particularly the wings thereof, include a front edge and a trailing edge with a plurality of wooden ribs secured therebetween together with a plurality of wooden spars extending lengthwise of the wing all of which are secured together by adhesive.

However, it will be appreciated that these first steps in construction are extremely tedious, time consuming, and require considerable skill in order to obtain a finished product which is without distortion and offers accurate airfoil characteristics.

While it is known also that some wings are preformed from solid wood such as balsa, nevertheless these are unsatisfactory due to the weight factor.

I have overcome these disadvantages by providing a main supporting structural element formed from a foamed plastic such as polystyrene or similar solidified foamed plastic, known under the trade name "Styrofoam," which possesses the necessary strength when braced with wood yet is relatively light in weight having a relatively low density per cubic inch. Furthermore such foamed solid plastics are readily worked so that components can be attached or recessed within the foamed plastic with the minimum of dexterity being required.

The principal object and essence of my invention is therefore to provide preformed main supporting structural elements for aircraft and the like which are readily adapted for further processing either as scale model or a flying model.

Yet another object of my invention is to provide a device of the character herewithin described which eliminates the first stages of model aircraft construction, therefore minimizing the possibility of basic constructional errors occurring.

A yet further object of my invention is to provide a device of the character herewithin described which enables one relatively unskilled in the art to produce and finish from preformed elements an accurate scale model or a model capable of efficient flight.

A still further object of my invention is to provide a device of the character herewithin described which is eminently suitable for use particularly with model aircraft designed to fly under motor driven power.

A still further object of the invention is to provide a device of the character herewithin described which is simple in construction, economical in manufacture, and otherwise well suited to the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawing in which:

The single drawing figure is a fragmentary isometric sectional view of a model aircraft wing constructed in accordance with the invention.

To date the use of foamed plastic or similar foamed solids in the field of model aircraft production has been simply with an aim to present a totally prefabricated craft either completely assembled or in parts such that these various foamed plastic parts are "joined" by wood. It

2

will be evident that the use of wood is not as a superstructure but simply as joining elements which enables manufactures to kit otherwise cumbersome models. Also noteworthy is that the foamed plastic is pre-finished. Hence the use of plastic has been limited to rather small craft which prove either weighty or weak in characteristics. The present methods therefore prove not versatile enough to encompass the diversified fields in model craft building and flying.

In improving upon the above method, my arrangement enables one to construct a rigid, lightweight model of both large span and area which can withstand both the vibrations of the larger engines and the rigors and stress involved in competition flying in the various events, as in control line flying.

Furthermore, the combination of wood and foamed plastic is not an arbitrary combination (as is the case with the present mode which simply uses wood as a joiner), but is rather one in which each material substantiates the other, thereby making the best possible use of the characteristics of each.

The foam plastic, since it is presented in a workable state, permits the finishing to be left to the discretion of the builder with a view to the multiplicity of characteristics which might be desired.

Referring now to the accompanying drawing in detail, the model aircraft wing constructed in accordance with the invention is designated generally by the reference numeral 10. The same comprises a wing body 11 of low density, homogeneous solidified foam plastic material, the body having an airfoil cross-section with an upper airfoil surface 12 and a lower airfoil surface 13 terminating at a flat vertical front edge 14 and a flat vertical rear edge 15.

The wing body 11 is provided with a plurality of aligned rectangular apertures 16 open at the upper and lower surfaces 12, 13 of the wing body, these apertures defining within the wing body mutually intersecting sets of longitudinal and transverse wing body members, as exemplified by the longitudinal body members 11a, 11b, 11c and the transverse body members 11d.

A wooden leading edge member 17 of a substantially semi-circular cross-section is secured by its flat vertical rear edge to the flat vertical front edge 14 of the wing body 11, the rear edge of the member 17 being contiguous with the body edge 14 so that the leading edge member 17 smoothly matches the airfoil contour of the wing. Similarly, a wooden trailing edge member 18 of a substantially triangular cross-section has a flat vertical front edge which is contiguous with and secured to the flat vertical rear edge 15 of the wing body. Securing of the members 17 and 18 to the wing body 11 may be effected in any suitable manner, as by adhesive.

Formation of the apertures 16 in the wing body lends a character of exceptional lightness thereto, yet adequate reinforcement is afforded, particularly for the leading longitudinal wing body member 11a and the trailing longitudinal member 11c by the wooden leading and trailing edge members 17 and 18, respectively.

The members 17 and 18 are preferably made of balsa wood, although other woods such as pine or cedar, for example, may be employed.

It will be understood that while reference has been made only to a wing, the same construction is also applicable to ailerons, elevators, rudders, and the like.

While in the foregoing there has been described and shown the preferred embodiment of the invention, various modifications may become apparent to those skilled in the art to which the invention relates. Accordingly, it is not desired to limit the invention to this disclosure and various modifications and equivalents may be resorted to, falling within the spirit and scope of the invention as claimed.

What I claim as my invention is:

In a model aircraft wing, the combination of a wing body of low density homogeneous solidified plastic foam material, said wing body having an airfoil cross-section with upper and lower airfoil surfaces terminating at a flat vertical front edge and a flat vertical rear edge, said wing body being provided with a plurality of aligned rectangular apertures open at the upper and lower surfaces of the body and defining within the wing body mutually intersecting sets of longitudinal and transverse wing body members, a wooden leading edge member of a substantially semi-circular cross-section having a flat vertical rear edge contiguous with and secured to said flat vertical front edge of said wing body, and a wooden trailing edge member of a substantially triangular cross-section having a flat vertical front edge contiguous with and secured to said flat vertical rear edge of said wing body, said longitudinal and transverse wing body members including a

leading longitudinal member reinforced by said wooden leading edge member, and a trailing longitudinal member reinforced by said wooden trailing edge member.

References Cited by the Examiner

UNITED STATES PATENTS

2,230,393	2/1941	Thomson.	
2,767,436	10/1956	Noland et al.	
3,063,191	11/1962	Main	46—79

OTHER REFERENCES

"Pelaspan Expandable Polystyrene," Catalog 170-90, Dow Chemical Co., February 1958, page 31.

"Sketchbook," American Modeler, vol. 57, No. 6, March 1962, page 40 relied on.

RICHARD C. PINKHAM, *Primary Examiner.*