

CLUB CONSTRUCTED MACHINES:

By "SEGELFLIEGER."

VIII.—THE MANUEL METHOD OF CONSTRUCTING RIBS.

(This is the last of the series by "Segelflieger." Previous articles appeared in Vol. II, Nos. 11 and 12, and Vol. III, Nos. 1-5.)

The making of ribs for sailplanes and gliders is always an irksome job. And, as generally forty ribs at the most are required per machine, it does not always seem worth while making a complicated jig for them, especially when only one machine is going to be built.

But if the machine has tapered wings, and the amateur has to be certain that each rib is exact in its measurements, the job of rib-making presents some difficulties.

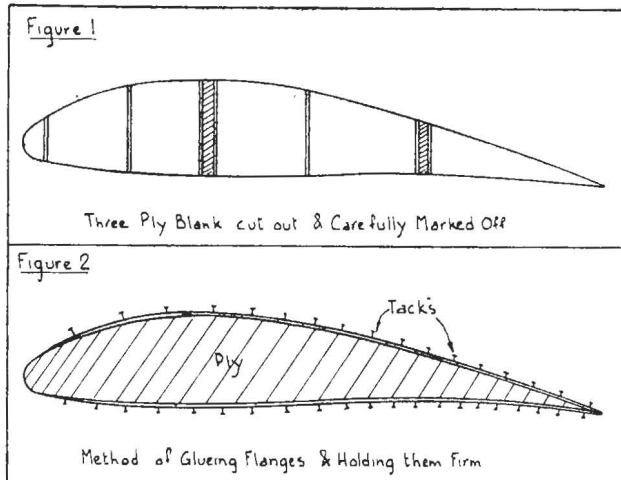
A simple jig has already been described in this series of articles, but Mr. Manuel has devised a new method which may be useful to others who are building machines.

The main idea is that each rib is built up on a web of three-ply, which is shaped to allow for the addition of the flanges and, in the end, gives a satisfactory rib.

Mr. Manuel describes his method as follows:—

"The great advantage is that no jigs are necessary at all.

"The main ribs, which have all the same profile, are dealt with in one batch. Suppose we have two dozen main ribs to make, split up into two lots. Take twelve pieces of three-ply (1-16-in. ply was used on the "Crested Wren") and tack them together. Then, with the template, pencil round the outline and cut out with a saw, leaving the pencil line in. Then finish off with a plane. Twelve blanks of three-ply are about the maximum that can be done at once, as they form a solid nearly one inch thick.



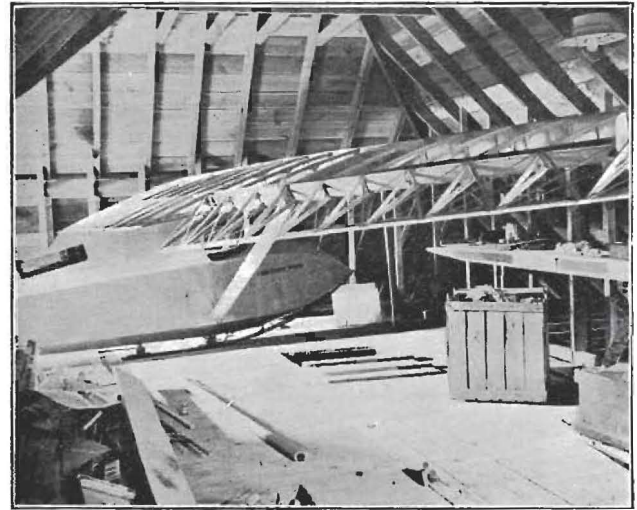
"Care should be taken that the edges are squared, otherwise some of the blanks will not be true.

"Now mark off the spar members and other cross-members. To do this, carefully lay your template on the sections, which are still tacked together, and square down the edges, both top and bottom. Take the sections apart and mark across the face of each one.

"The flanges are now made of spruce 1/4-in. square, and grooved by a circular saw one-eighth of an inch deep. Care should be taken to see that the sixteenth ply makes a nice fit; the set of the saw will decide this.

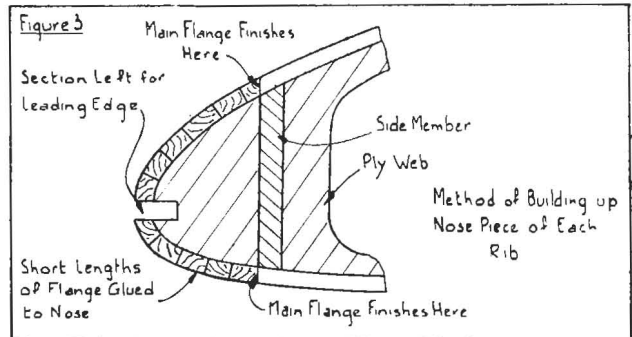
"Glue and tap on the flanges, and then lay the rib on a stout board (failing that the workshop floor will do) and tack nails in around the flanges to hold the latter firmly on to the three-ply web.

"Care should be taken to see that the flanges do not tend to spring out away from the three-ply web.



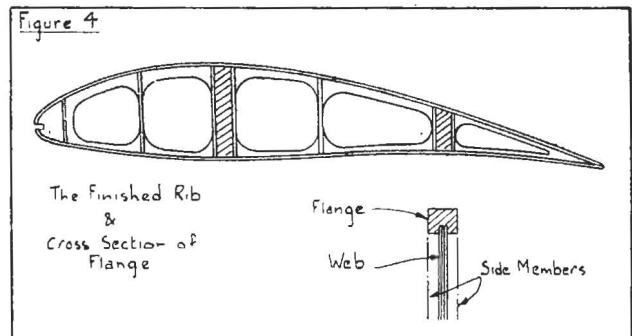
The "Crested Wren" during construction.

"The next step is the fixing of the upright members. These are 3-32 in. by 1/4 in., glued on either side and clamped or temporarily tacked into position with fine cabinet-maker's pins, which must be removed when the glue is dry.



"The nose of the rib is finished with short lengths of the flange glued round, as shown in sketch.

"Cut out the lightening holes with a key saw."



Taper ribs are built in exactly the same way, except that they are shaped in pairs. The outline can be plotted straight on to the blanks, or on to paper and then pricked through.

This method is obviously an excellent one to use, if only one machine is going to be built, particularly if the construction is to be carried out by amateurs or a Club which cannot afford the time and expense of jigs.

The dimensions of sections for the ribs which Mr. Manuel used on his "Crested Wren" have been given as a guide to others who may wish to use his method.

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