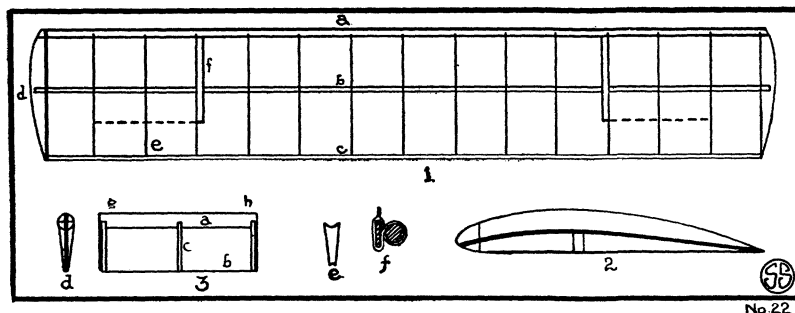


Building and Flying Model Airplanes



Wing of the Lindy Model

This is the seventeenth of a series of articles by Paul Edward Garber. Mr. Garber is in Charge of aeronautics at the Smithsonian Institution.

The wing requires the following material:

- 1 balsa entering edge $\frac{1}{4} \times \frac{3}{8} \times 32\frac{1}{2}$.
 - 1 pine spar $\frac{1}{4} \times \frac{1}{8} \times 32\frac{1}{2}$.
 - 1 balsa trailing edge $\frac{1}{8} \times \frac{1}{16} \times 32\frac{1}{2}$.
 - 17 ribs made as previously described.
 - 2 balsa strengtheners $\frac{1}{4} \times \frac{1}{2} \times 4$.
- If ailerons are desired, add the following:
- 2 pine insets $4\frac{1}{2} \times \frac{3}{8} \times \frac{3}{32}$.
 - 2 pieces balsa $\frac{1}{4}$ square $\times 4\frac{1}{4}$.
 - 1 extra rib slab (uncut).
- Bamboo, Ambroid, wire, fabric, dope.

Commence by shaping the balsa entering edge "a." It is to be made with the section indicated in the front shaded portion of Figure 2, which is accomplished by planing and finishing with scraper shown in Figure 3. The center is to be marked, and at that point and at each outward point $2\frac{1}{4}$ inches away shallow saw cuts are to be made $\frac{1}{16}$ inch wide and deep. The ribs are now assembled on the pine spar "b" $2\frac{1}{2}$ inches apart from the center, care being taken to see that all are in line and true when this job is finished. They are fastened thereon with Ambroid. Each rib is now to be inserted and Ambroided in its corresponding niche in the balsa entering edge. The trailing edge "c" is Ambroided to the rear of each rib as shown in the rear shaded portion of Figure 2.

Figure 2 and Fig. 1-d show how the ends are made. The two whole ribs are slightly curved by holding them in either the heat of a candle flame or a steam flow and shaping them. When they have cooled in this position, they will be permanently set and are to be fastened with Ambroid as shown. If desired this joint may be made stronger by using

a few ribbon pins pushed through from the upright rib into the end rib. Two holes are now drilled $1\frac{1}{4}$ inches from the center in the spar for attaching the wing to the fuselage. The strengtheners are cut in the bottom to admit the spar, and Ambroided in place inside the fourth rib from each end as shown at "f."

The wing frame is now complete and will impart good flying qualities to the model, but some constructors may wish to make ailerons for this wing. These are little flaps used for balancing purposes. On this type of airplane they are set in the trailing edge a little distance from the wing tip. To insert ailerons, cut the rib "e" and the corresponding one at the opposite end, at a point $1\frac{1}{2}$ inches from the rear. Where the dotted line indicates insert a pine spar, $4\frac{1}{2} \times \frac{3}{8} \times \frac{3}{32}$ inches. It is Ambroided in place. Next take the two short balsa pieces Fig. 3-a mentioned in the bill of materials and plane them round.

Make little nicks in the ends of each for the insertion of the outline piece, Fig. 3-b, which is to be made from $\frac{1}{16}$ square bamboo. After this outline is Ambroided and wired in place make six ribs, cutting them to the shape shown at Fig. 3 c and e, $1\frac{1}{8}$ inches long, using the scraps from Fig. 1-e and the extra rib slab as material. Ambroid these in place as shown in Fig. 3. These ailerons are now covered with silk, as described in Article 20. They are fastened to the large frame by passing a pair of wires around the balsa spar in each at g and h, crossing the ends and carrying them around the pine insert in the frame, joining the ends as shown in Fig. 3-f.

The wing can now be covered, using China silk for fabric and Ambroid for adhesive. Cut a piece of fabric 34×12 inches, coat the balsa entering edge with Ambroid and insert it in the longitudinal center of the cloth, rubbing over the edge to adhere the fabric. Next carry the cloth over the top to the rear edge and similarly fasten it along this.

Pull the cloth tight out to the ends and fasten it there, after which all excess fabric except the large flap at the front is to be cut off. Next cover the bottom in a similar manner, and then when all adhesive has dried, dope the wing, coating the bottom side first. The dope will make the fabric adhere to the ribs and other pieces. It is obvious that the space occupied by the ailerons was not covered. The completed wing should be put carefully away where it cannot become distorted.

Science News-Letter, December 10, 1927

INVENTIONS The Field For Invention

Quotation from INVENTIONS AND PATENTS—Milton Wright—McGraw-Hill.

Years ago, so the story runs, a clerk in the Patent Office resigned. When asked why, he replied:

"I want to be on the safe side. Nearly all the inventions that are possible have been invented. Soon there will be no more, and this office will have to close. I want to get into something else now while I have the opportunity."

Since that time inventors and inventions have gone ahead in ever-increasing numbers. Soon the first half-millionth patent was passed, then the the millionth, then the one and a half millionth. And the significant part about the increase is this: patent number 500000 was reached in 1893; patent No. 1000000 was reached in 1911; patent No. 1500000 was reached in 1924. In other words, it took fifty-seven years (from 1836 to 1893) to produce 500,000, eighteen years to produce the second, and only thirteen years to produce the third. Nearly every year has marked a substantial increase over the year preceding in patents for new inventions.

When will the limit be reached? With equal reason one might ask, "How high is up?" There is no limit. As long as men continue to work and add to their knowledge, just so long will they be producing inventions. The field for invention is without bounds.

Science News-Letter, December 10, 1927

Indians of New England ate some kinds of acorns.

A new kind of birch tree has been discovered in Oregon.

Egyptians of the sixteenth century B. C. used opium, peppermint, linseed, myrrh, castor oil, and turpentine in treating disease.