

# Building A Flying Scale Rearwin Sportster

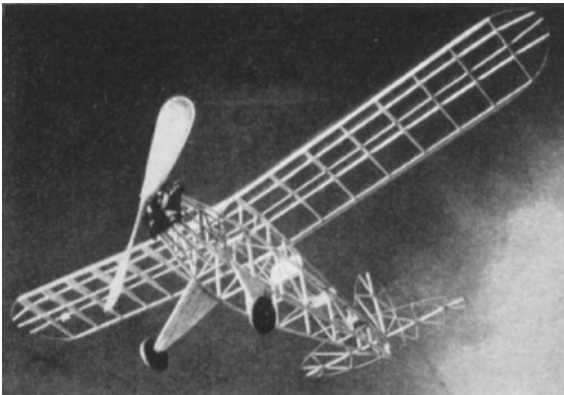
Here's a Good Looking Model of a Popular Sport Plane  
That Is a Fine Flier and Easy to Build

By **HERBERT K. WEISS**

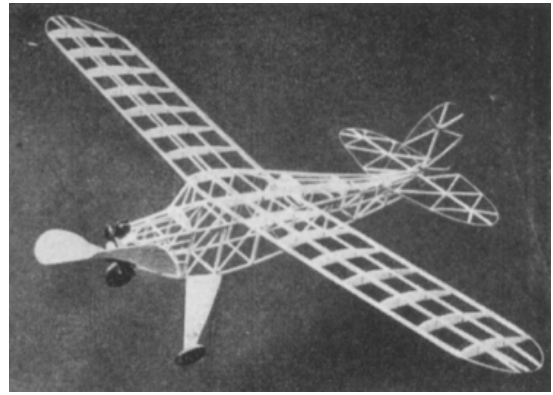
WITH the rapidly increasing number of planes employing monocoque construction, the model builder in his search for an easily built scale model with unusual flying characteristics is drawn inevitably to the light plane field. Replicas from this class invariably outnumber all other types at flying scale model contests. Such ships are the Taylor Cub and the well known Monocoupe. We present here a model destined to make a place for itself in the ranks of those scale models which do not sacrifice scale appearance for flying ability, nor duration for accuracy of reproduction.

The Rearwin Sportster, powered by a Warner Scarab engine, is one of the more luxurious of the light planes. Its 90 hp. engine pulls it along at a top speed of 120 m.p.h. It has a cruising range of 475 miles.

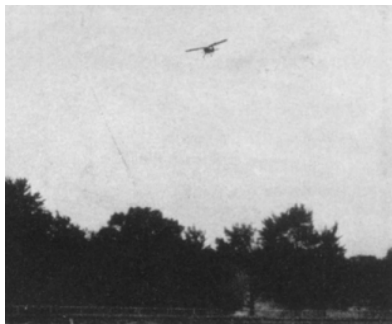
The model has been clocked officially at 1 minute, 12 sec. in contest flying, winning an easy first. Since then a free wheeling prop has been added and outdoor fights average two minutes and up, with indoor performance at about fifty seconds.



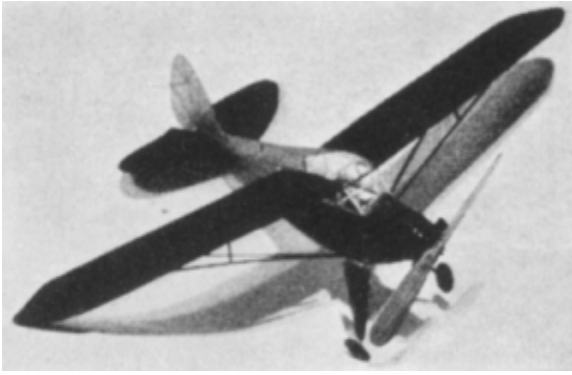
The filled-in landing gear struts increase stability.



The structure is well designed and very strong.



It is very stable and will climb to great heights.



The cabin and the dummy engine give the impression of a large ship in flight.



How the finished plane looks from the rear. A thrill always results from flying such a realistic plane as this one.

### Fuselage

The fuselage is of standard construction. Build two side panels to the heavy black lines in the plans. The longerons and cross braces are 1/16 sq. hard balsa, except for the two compression struts at the landing gear which are 1/16 x 1/8. When the two sides are dry, turn them upside down and pin them the proper distance apart on your work bench or some smooth level surface. Cement the cross pieces in place, being careful to keep the whole structure lined up evenly. Now make the nose block. This may either be carved from a solid block or built up of 1/8 thick sheet balsa cut in circular rings as indicated. The diameters of the rings may be obtained from the drawing. Sand the block smoothly and cement it to the end of the fuselage. Now cut out bulkheads, A, B, C, D, E and F from 1/32 sheet balsa and cement them in place. Do not add the stringers at this time.

### Wing

Trace the drawing of the wing with the aid of a piece of carbon paper, putting the carbon paper face up under *both* the plan and the sheet on which you desire the tracing. This will give you the layout of the left wing. You can now lay out the wing, making two halves, then join the two halves by building in the center section with the proper dihedral. Cover the wing leaving the underside of the center section uncovered.

### Tail Units

The rudder and stabilizer are very simply constructed. If difficulty is experienced in bending the bamboo outline over a flame, balsa may be substituted. Be sure to keep the tail as light as possible for unnecessary weight here will affect the performance of the ship adversely. The surfaces may now be covered. Do not pull the tissue too tight or they will warp after spraying.

### Landing Gear

The landing gear is installed before the fuselage is covered. Note that the balsa fairing is not cemented to the longerons, but is held only to the wire reinforcements by thread and cement. The wires are continuous, from one wheel up the strut, through the fuselage and down to the other wheel. Bind the wire to the cross braces with thin thread at the junction. This type of landing gear is practically unbreakable. The cross struts shown in the front view should not be installed on a flying model as they hinder the shock absorbing action of the gear.

### Assembly

Cement to the wing the short vertical members at the center section which join the wing to the fuselage. When the cement has set, attach the members to the fuselage. Now complete the fuselage by adding the stringers. Cover using small strips at the curved sections. Add the tail surfaces.

### Engine

The cylinders are built up of balsa and pins as indicated on the plan. They are wrapped with thread before assembly and doped black. They are then cemented to the nose block or crankcase. The drag ring is optional. It is a good way of adding weight to the nose in case your model turns out tail heavy. To make the ring, simply cut a strip of medium aluminum and pound it with a round headed hammer on a block of soft wood until the desired curvature is obtained.

### Finish

Since the real Rearwin is built for private consumption, you can choose your own color scheme. If you're after outdoor duration records, better use orange tissue and a coat of orange dope to improve the visibility. If you're a fiend for authenticity, the full size ship from which the plans were drawn, was all silver with a red stripe. After covering, the ship should be sprayed very lightly with water. As presented in the plans the model will stand two coats of thinned out

dope all over except for the tail which only takes one coat.

#### Flying

The model flies very nicely with the scale tail surfaces. For a very stable ship the tail may be enlarged according to the dotted lines. About six strands of 1/8 rubber are required and a very light ship will need only four. Have about an inch of slack. Make major balancing adjustments by adding weight to the nose and minor ones by warping the tail surfaces.

#### Duration

No attempt was made to turn the original model into a super-light duration ship. By using thinner stock throughout and cutting lightening holes in the ribs and bulkheads, the weight can be reduced about a third. Use of the Clark Y or the RAF 32 wing section instead of the authentic M-6 will also improve the duration characteristics. There is no reason why, with minor modifications, the Rearwin cannot be induced to fly 80 or 90 seconds indoors.

***Scanned From February 1938  
Model Airplane News***

AIRFOIL M-6  
16 RIBS REQ'D

Scale  $\frac{3}{4}'' = 1'$

SEE CYLINDER DETAIL

$\frac{1}{32}''$  SHEET Balsa

F

$\frac{1}{16}''$  SHEET Balsa

.025 WIRE

$\frac{1}{16}''$  SHEET GUSSETS

COLOR STRIPE

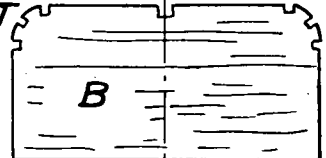
$\frac{3}{16}'' \times \frac{1}{16}''$  STRUTS

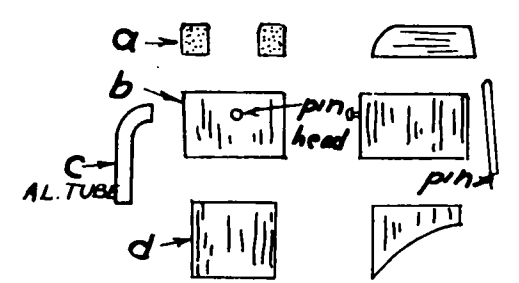
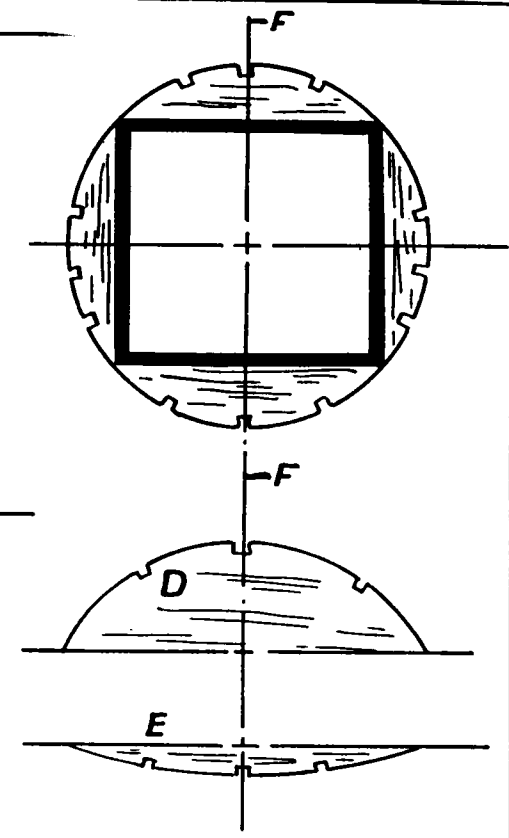
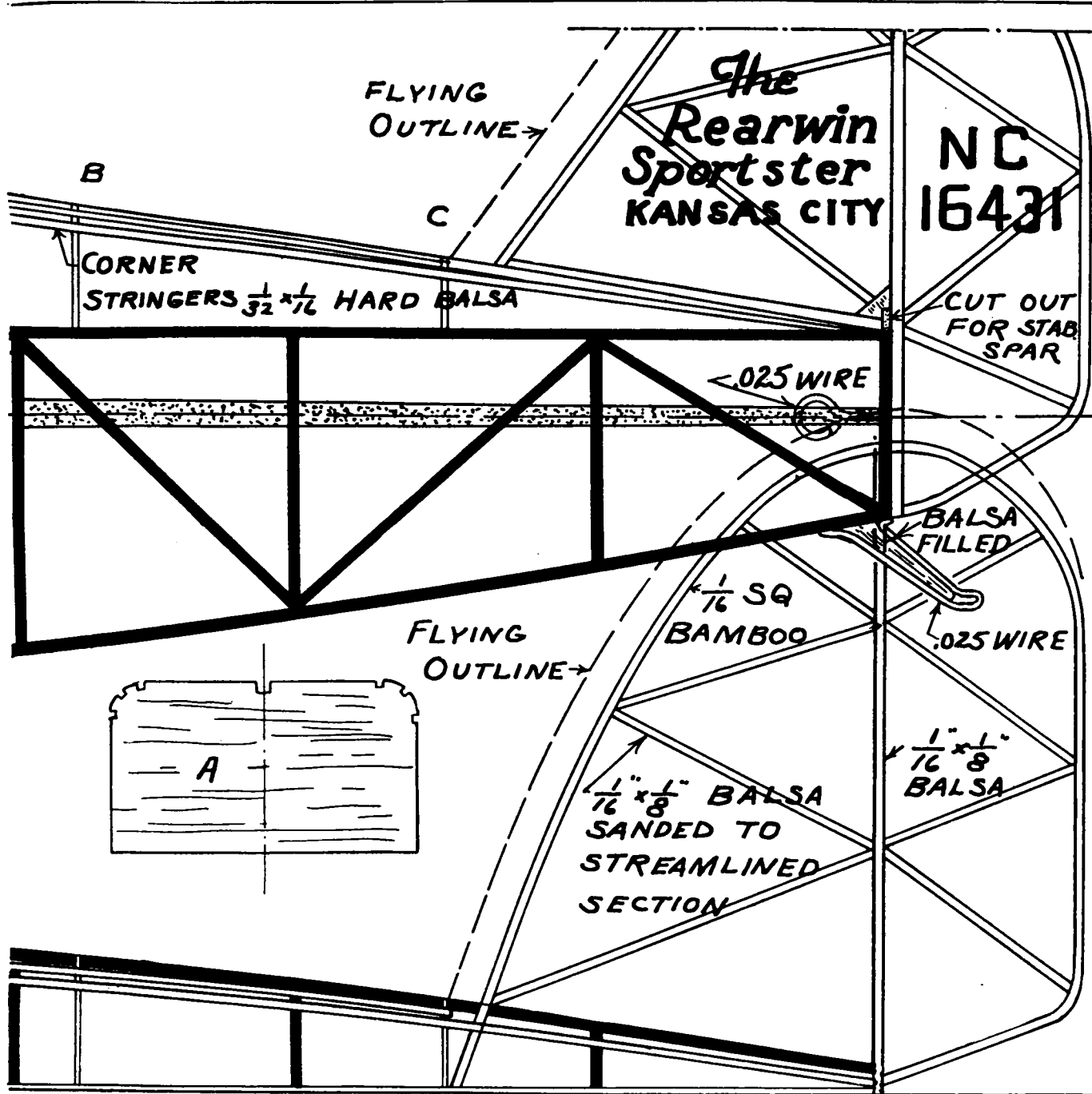
RING-HAMMERED TO SHAPE FROM #34 (MEDIUM) ALUMINUM



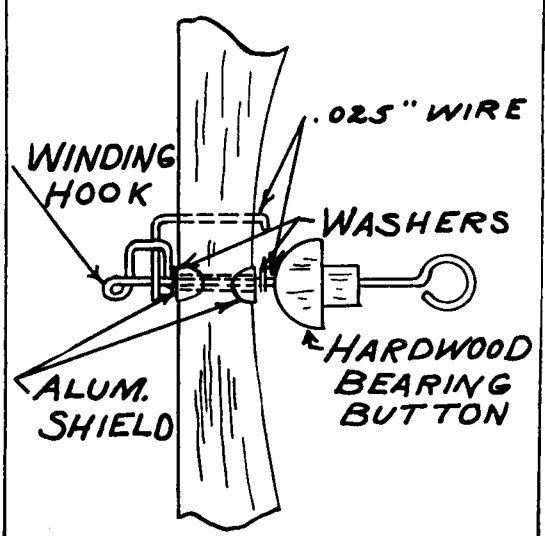
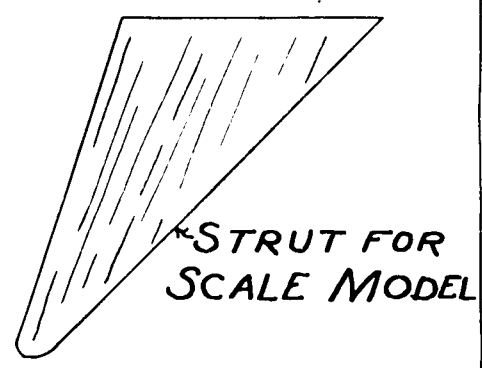
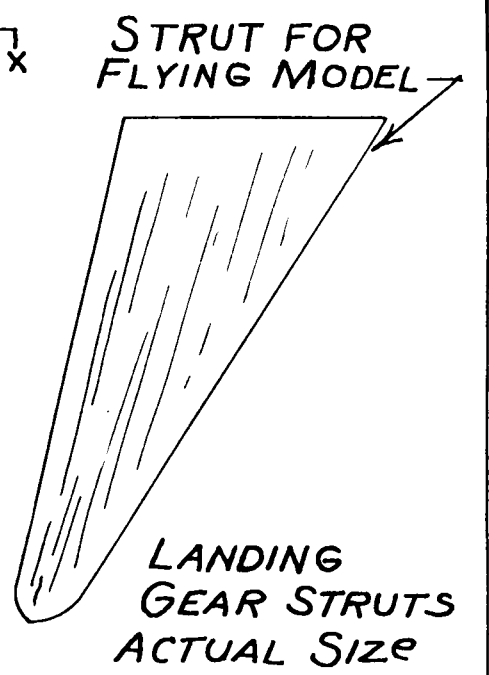
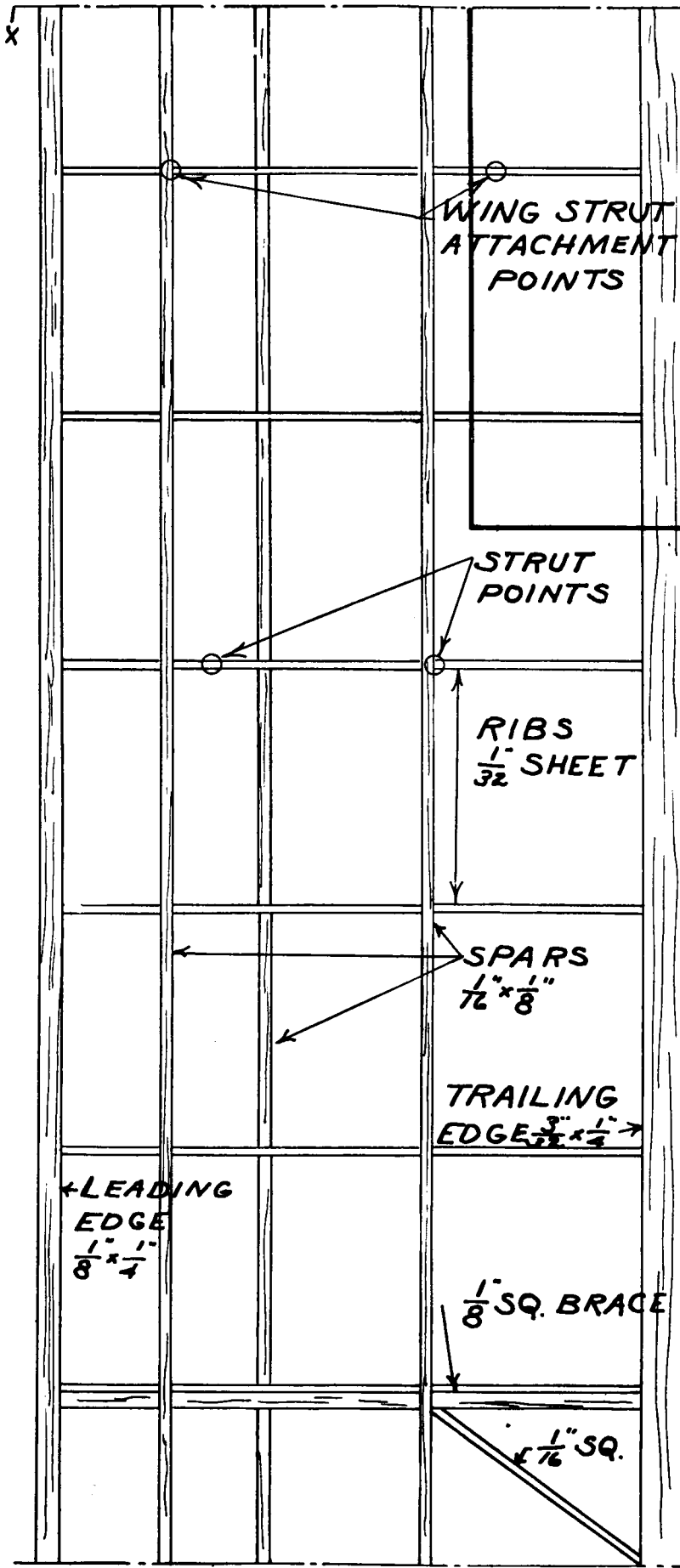
THREAD WRAPPED & CEMENTED

.025 WIRE REINFORCEMENT



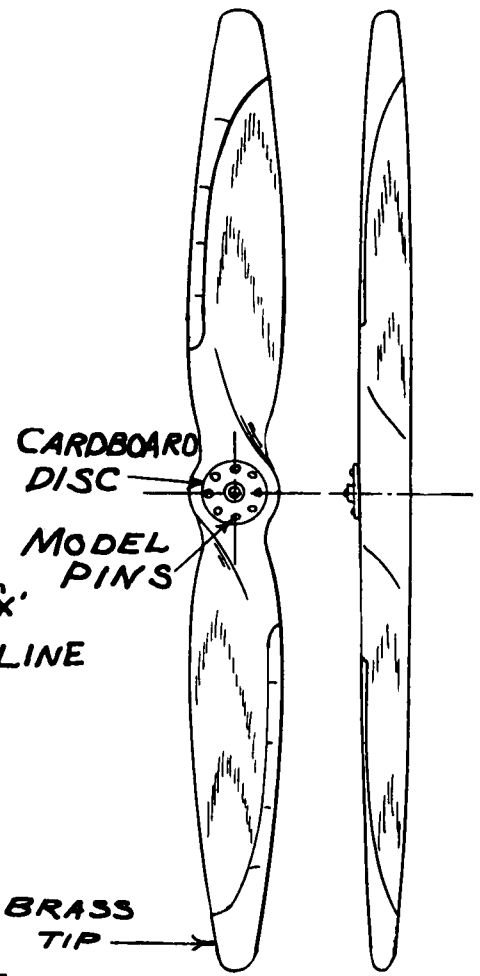
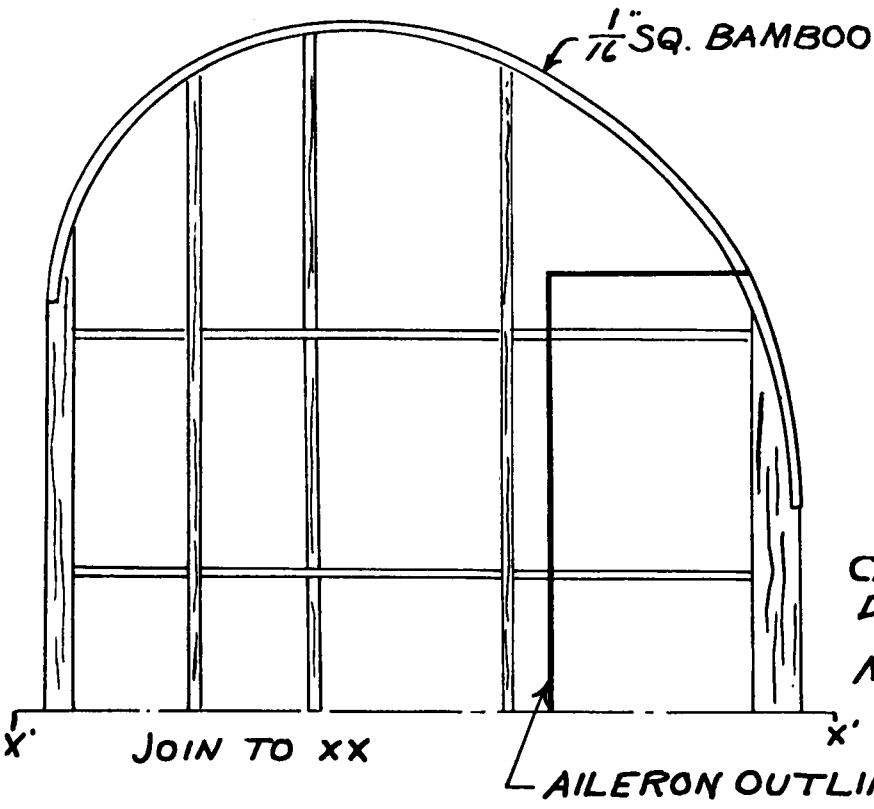


FRONT SIDE  
CYLINDER DETAIL

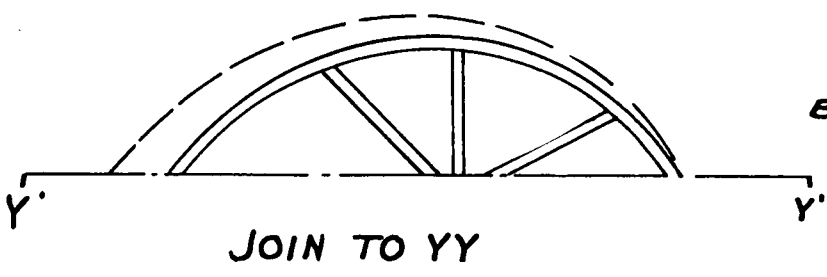


**FREE WHEELING PROPELLER**

£



SCALE PROP  
CARVE FROM PINE



FLYING PROPELLER  
CARVE FROM HARD  
BALSA BLOCK  $8 \times 1\frac{1}{2} \times \frac{3}{4}$ "

