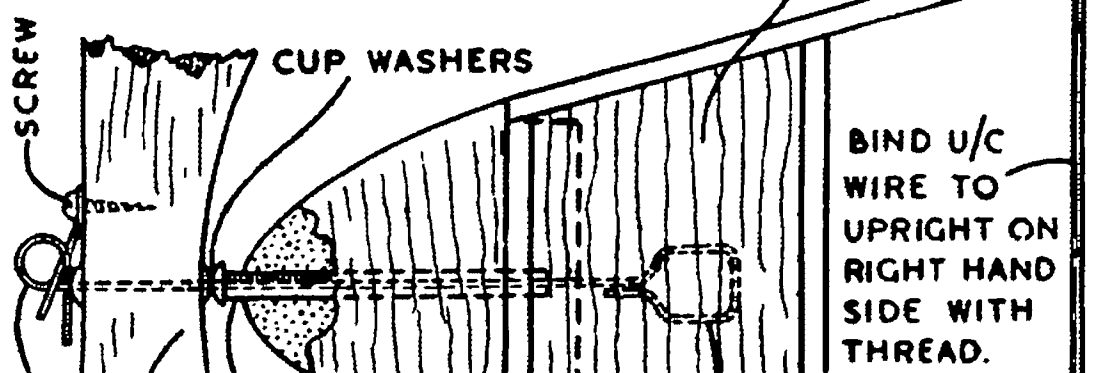
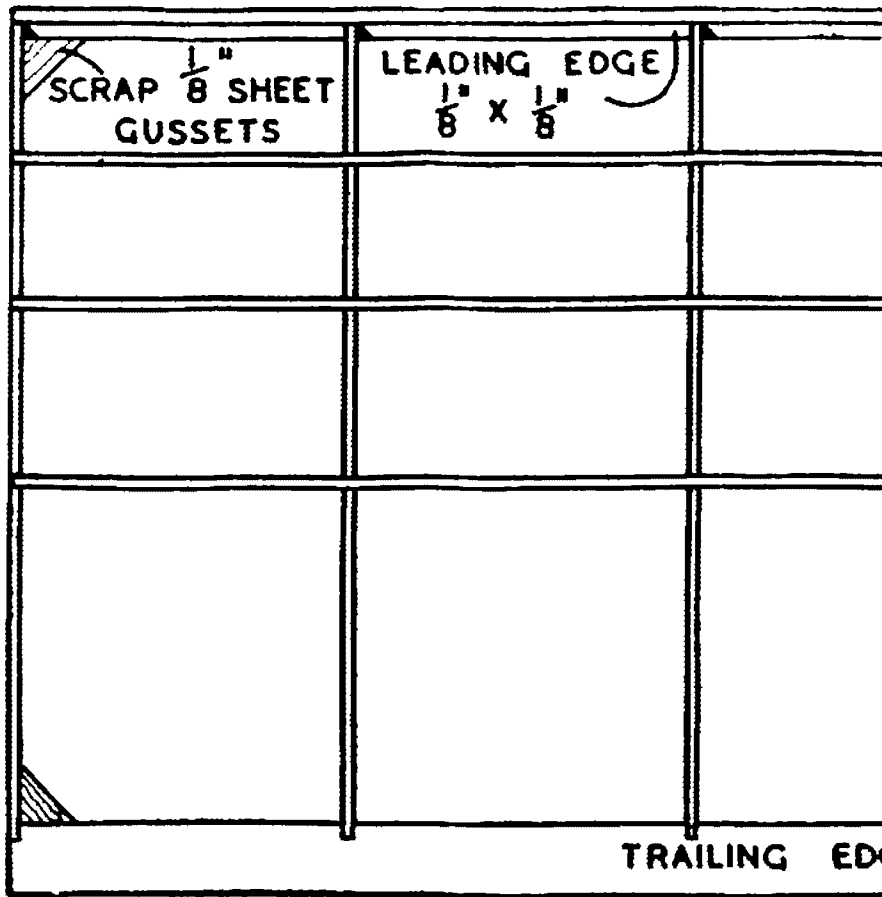
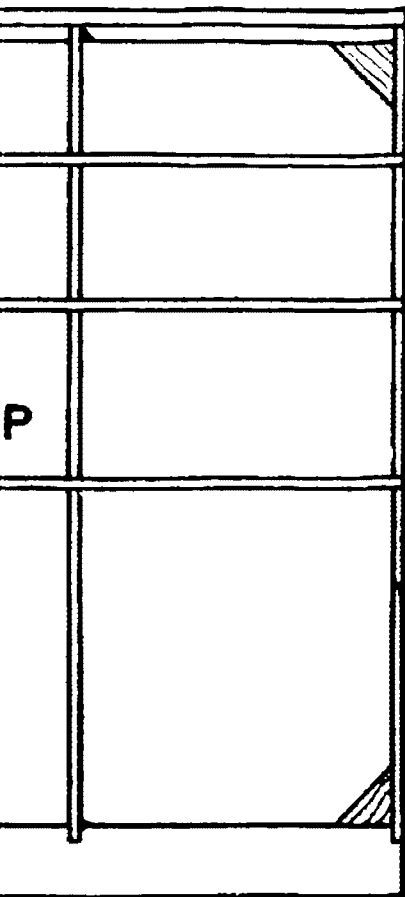


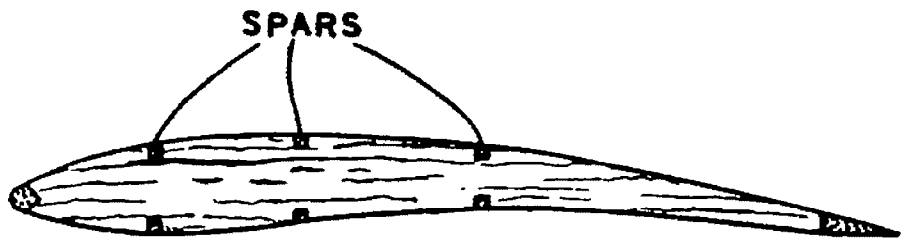
FREEWHEEL LATCH. BEND FROM WIRE AND SECURE TO AIRSCREW WITH SMALL WOOD SCREW AS SHOWN.

"FILL IN" NOSE WITH  $\frac{1}{8}$ " SHEET

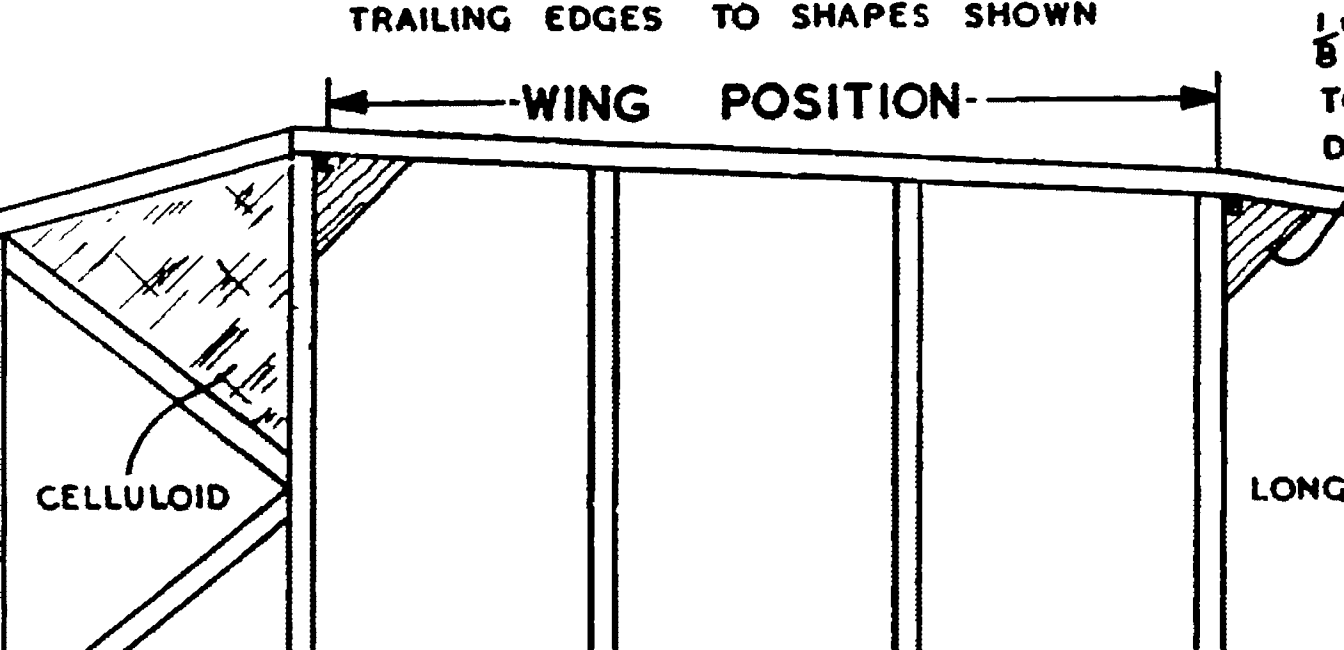


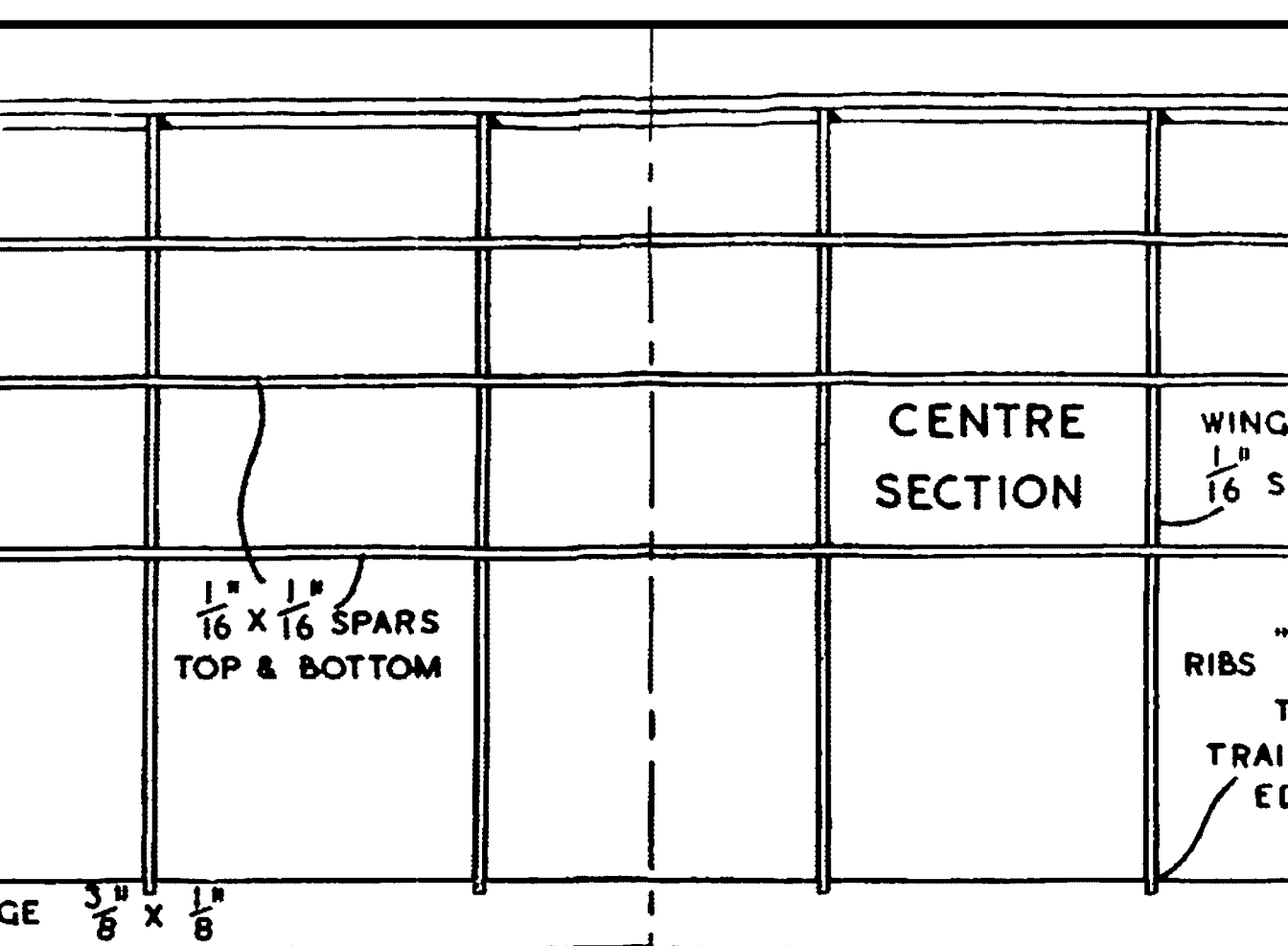


TOM  
R



TYPICAL WING SECTION. SAND LEADING AND TRAILING EDGES TO SHAPES SHOWN





$\frac{1}{16}$ " X  $\frac{1}{16}$ " SPARS  
TOP & BOTTOM

CENTRE  
SECTION

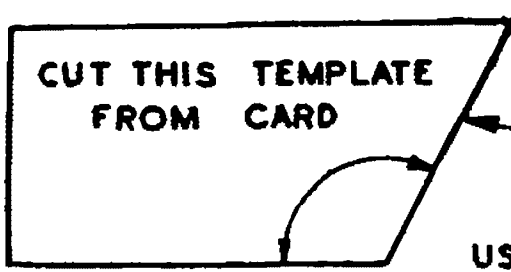
WING  
 $\frac{1}{16}$ " S

RIBS  
T  
TRAI  
ED

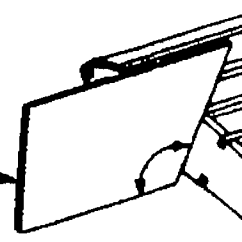
GE  $\frac{3}{8}$ " X  $\frac{1}{8}$ "



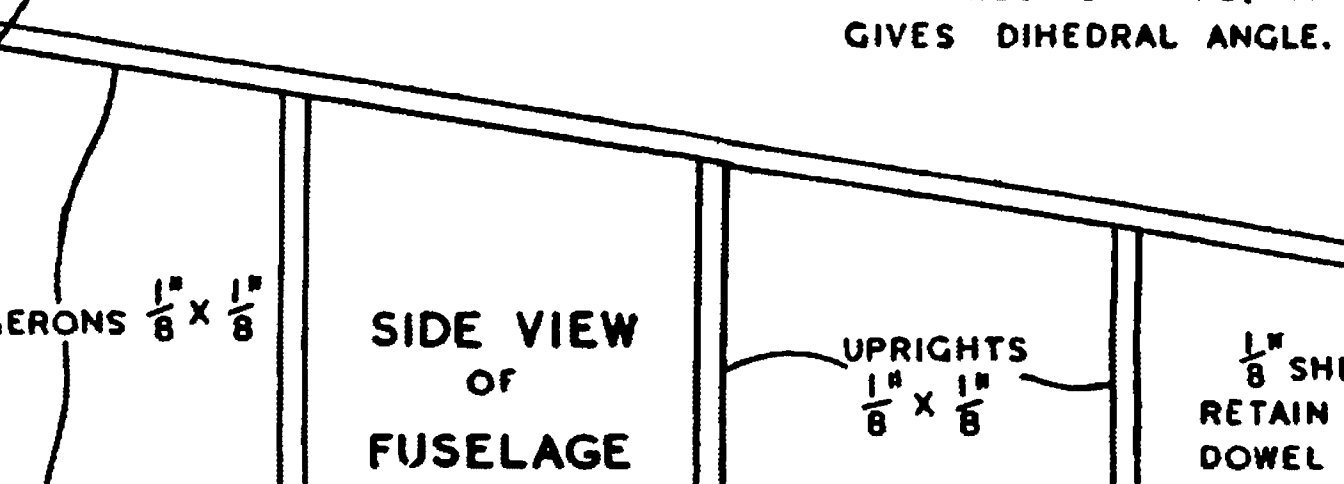
SHEET GUSSETS  
TO RETAIN WING  
DOWELS



CUT THIS TEMPLATE  
FROM CARD



USE TEMPLATE TO  
OBTAIN CORRECT TILT IN  
END RIBS OF TIPS. THIS  
GIVES DIHEDRAL ANGLE.

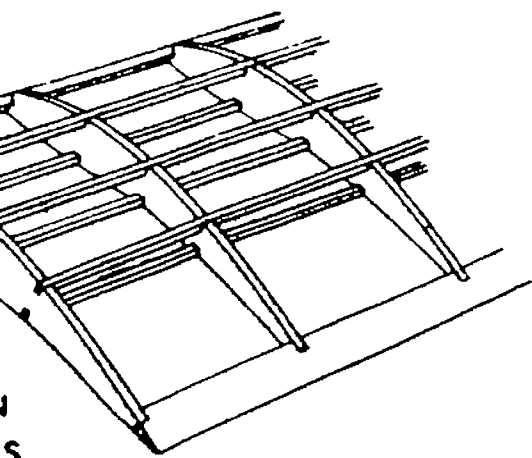
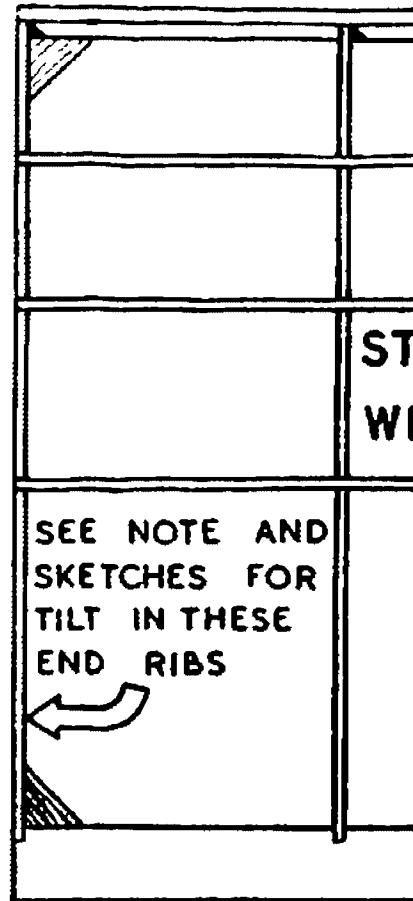
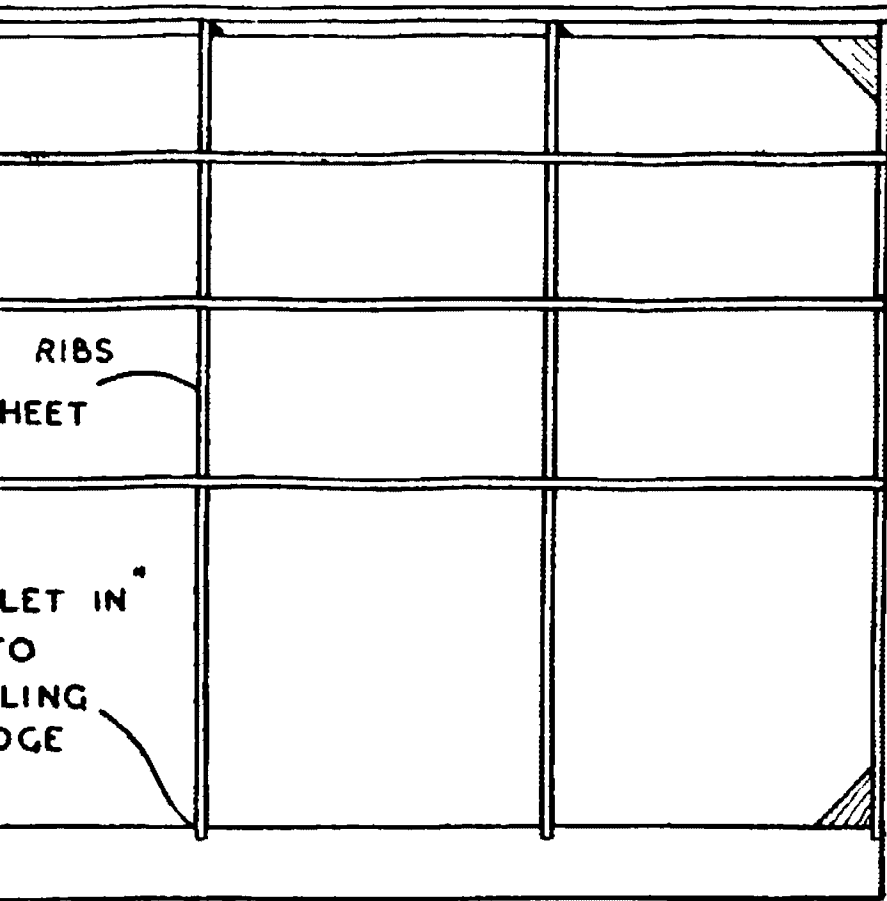


ERONS  $\frac{1}{8}$ " X  $\frac{1}{8}$ "

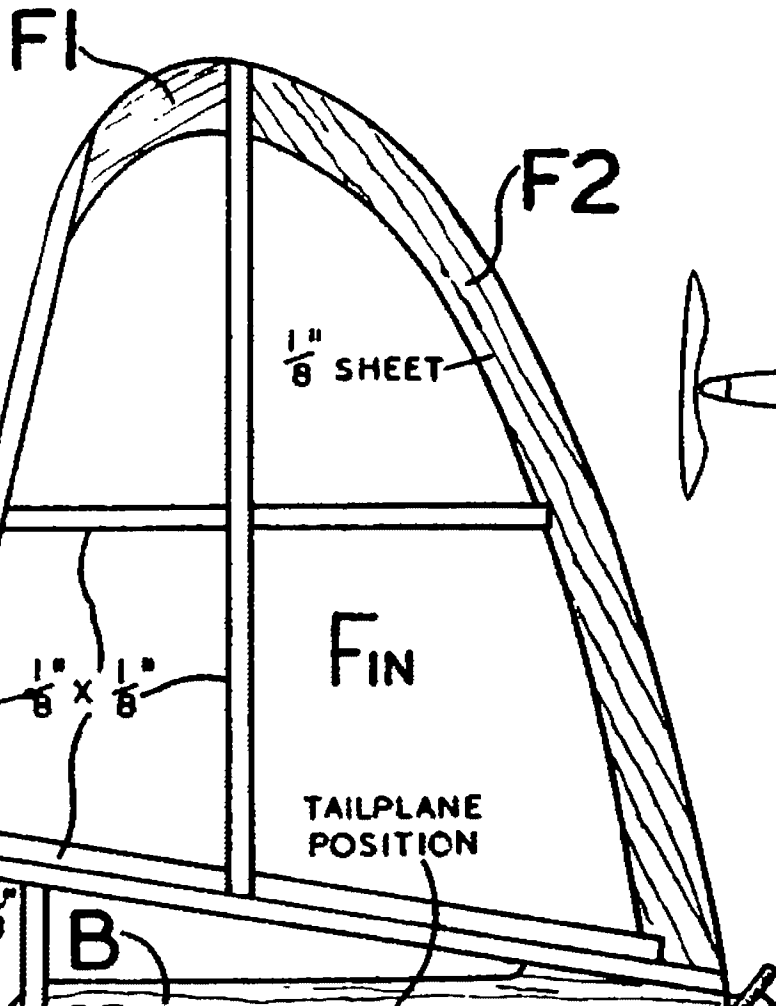
SIDE VIEW  
OF  
FUSELAGE

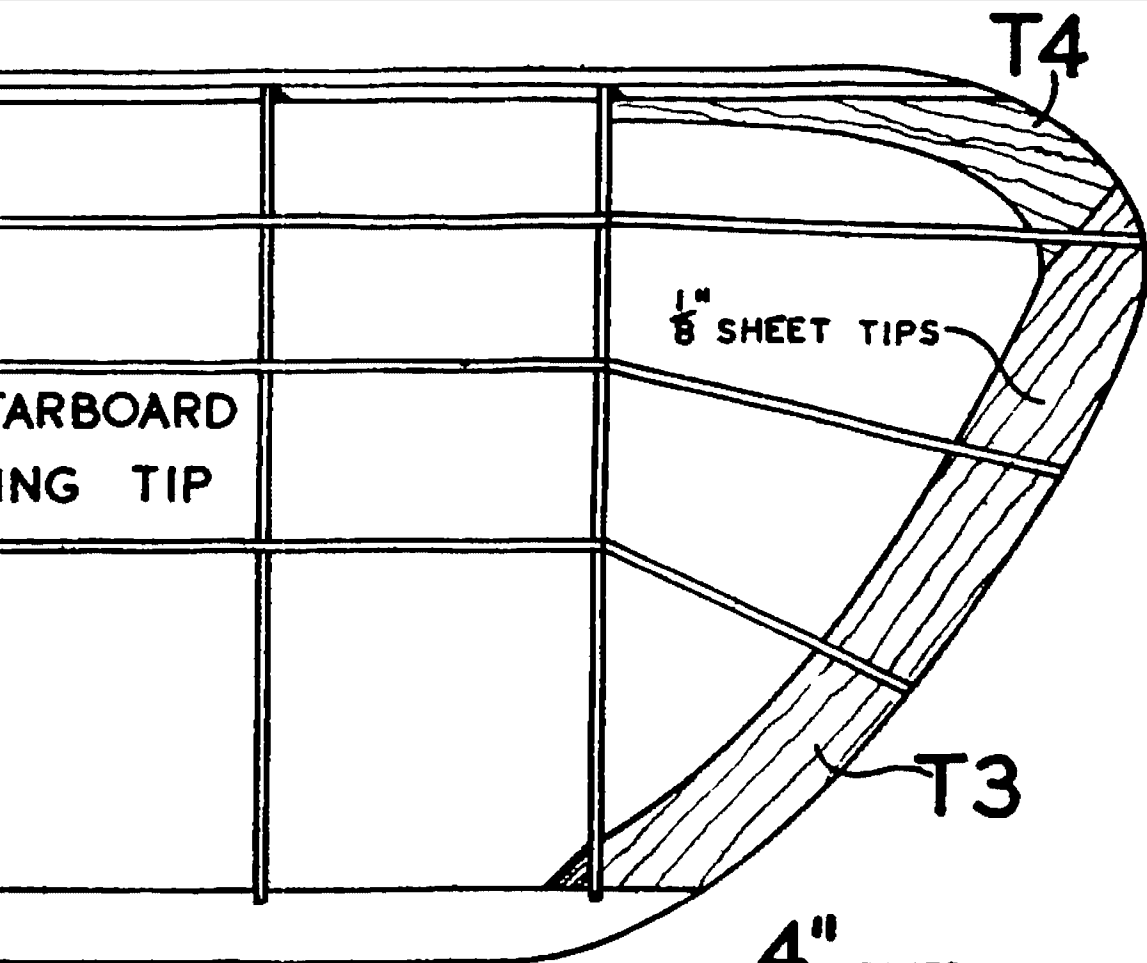
UPRIGHTS  
 $\frac{1}{8}$ " X  $\frac{1}{8}$ "

$\frac{1}{8}$ " SHEET  
RETAIN  
DOWEL



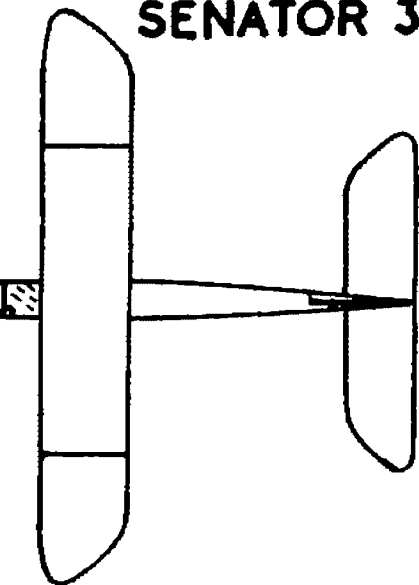
GLUE FIN ON TOP OF FUSELAGE WHERE SHOWN IN PLAN VIEW.



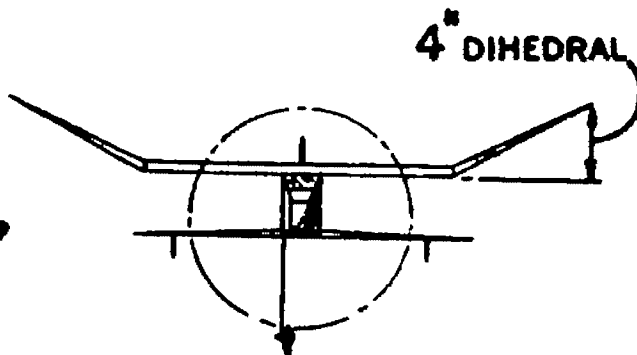


4" DIHEDRAL  
AT EACH TIP

SENATOR 3-VIEW



THE ORIGINAL MODEL  
WEIGHED 3.7 ozs.



4" DIHEDRAL

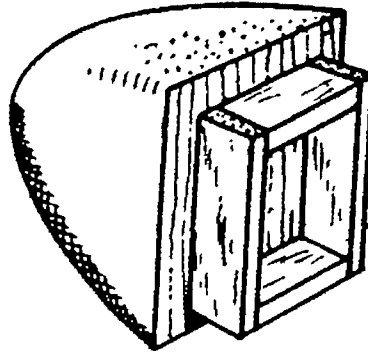
*The*

**"Senator"**

FREEWHEEL

BRASS BUSH,  
CELLULOID TUBE, OR  
PLASTIC NOSE PLUG.

MOTOR  
HOOK  
18 S.W.G. WIRE



$\frac{3}{8}$ " X  $\frac{1}{8}$ " PLUG

BUILD UP A PLUG  
ON THE BACK OF NOSE  
BLOCK TO FIT "CORK LIKE"  
IN THE NOSE.

12"-13"  
AIRSCREW



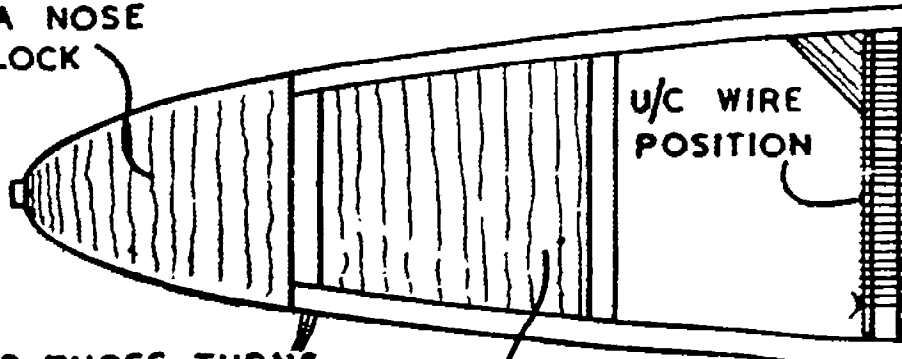
$\frac{1}{2}$ "  
BOBBIN

A BOBBIN USED  
ON THE MOTOR  
HOOK PREVENTS  
WIRE CUTTING  
RUBBER MOTOR



$1\frac{1}{2}$ " DIA.  
WHEEL

HARDWOOD OR —  
HEAVY Balsa NOSE  
BLOCK



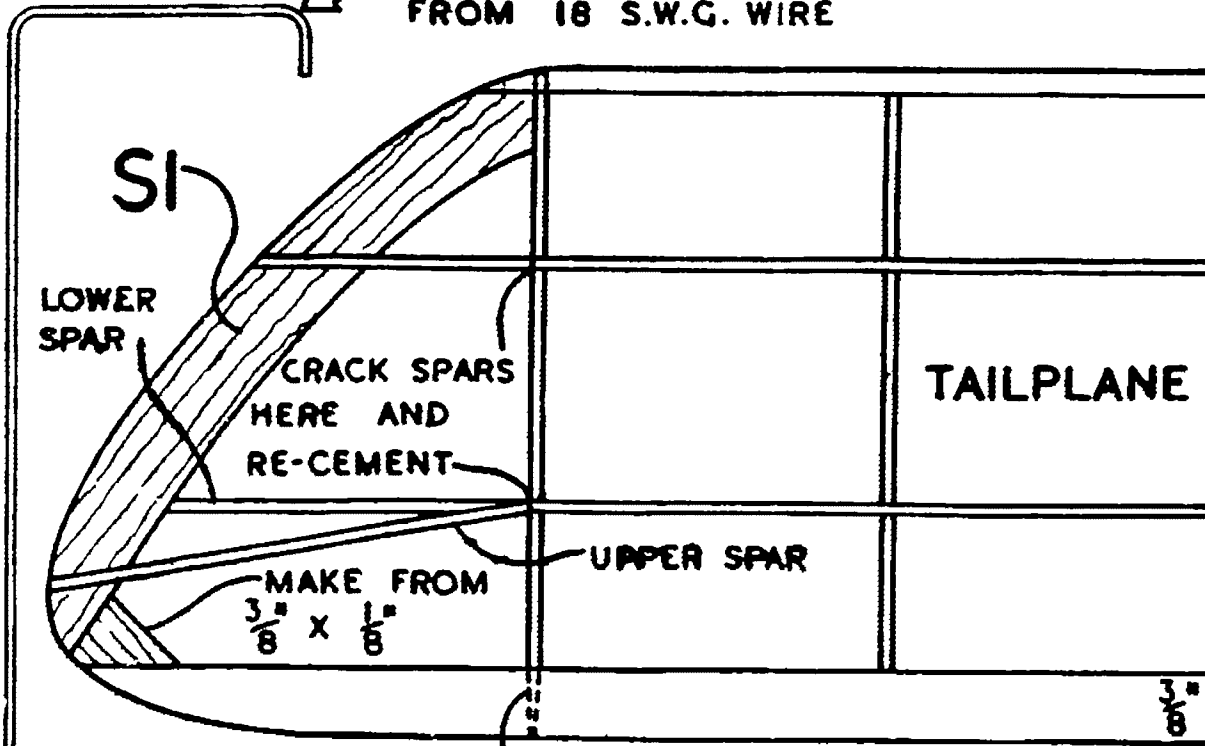
U/C WIRE  
POSITION

BIND THREE TURNS  
OF THREAD ROUND  
THE NOSE WHEN  
BODY IS ASSEMBLED.  
GLUE WELL.

$\frac{1}{8}$ " SHEET  
LET IN FLUSH

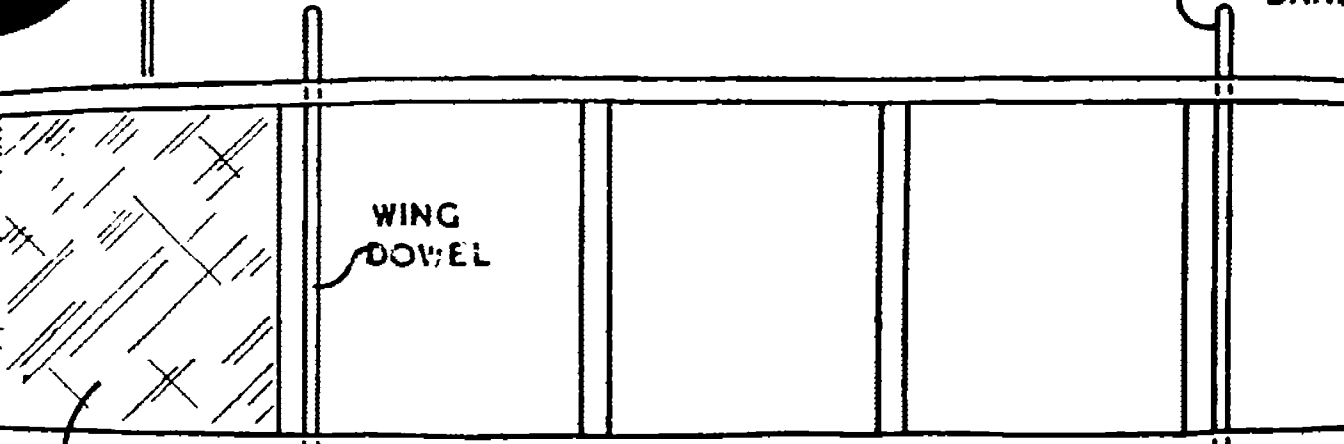
CEL

FULL SIZE LAYOUT OF  
UNDERCARRIAGE WIRE  
BEND TO THIS PATTERN  
FROM 18 S.W.G. WIRE



POSITION OF SUB-FIN  
GLUE IN PLACE AFTER  
COVERING.

$\frac{1}{8}$ " DIA. DOWEL  
BAND



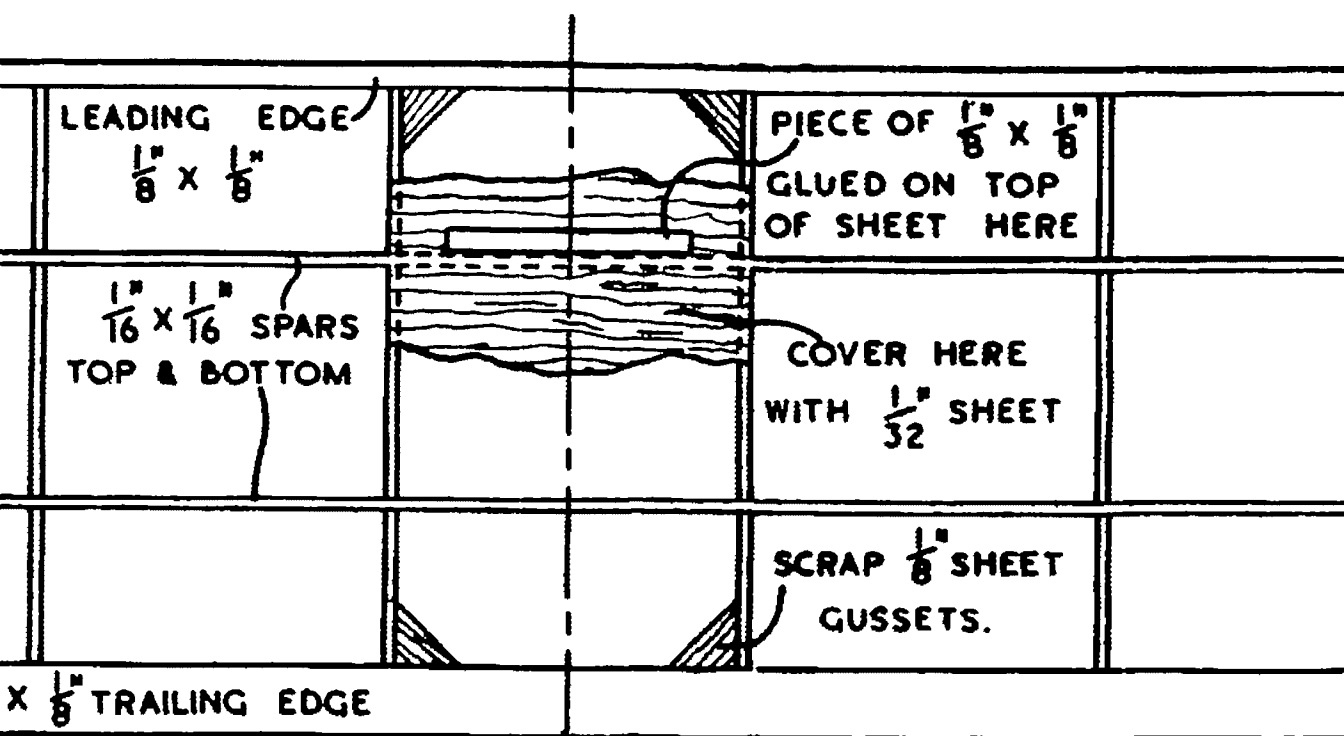
LULOID

BEND UP END  
OF AXLE TO  
RETAIN WHEEL.

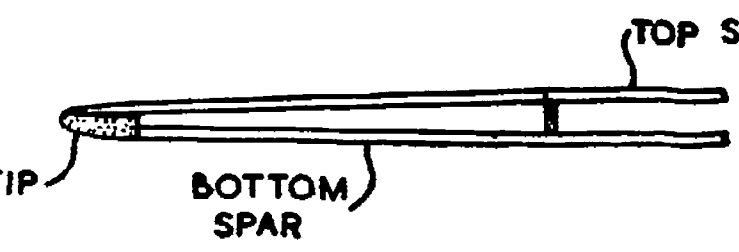
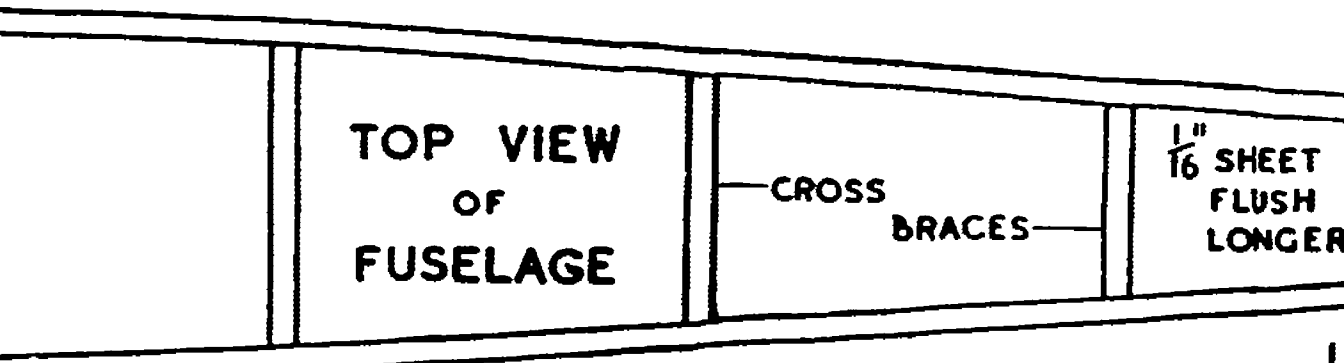


**POWER** YOUR MODEL WITH  
 6 STRANDS OF  $\frac{1}{4}$ " X  $\frac{1}{50}$ " RUBBER 24" LONG

LEAVE  
 FOR



...LS FOR RUBBER  
 ...DS RETAINING WING



SECTION THRO' TIP OF  
 TAIL SHOWING SPAR  
 JOINS TO TIP PIECE

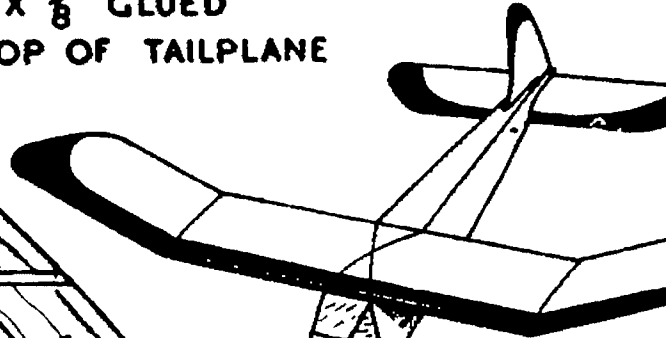
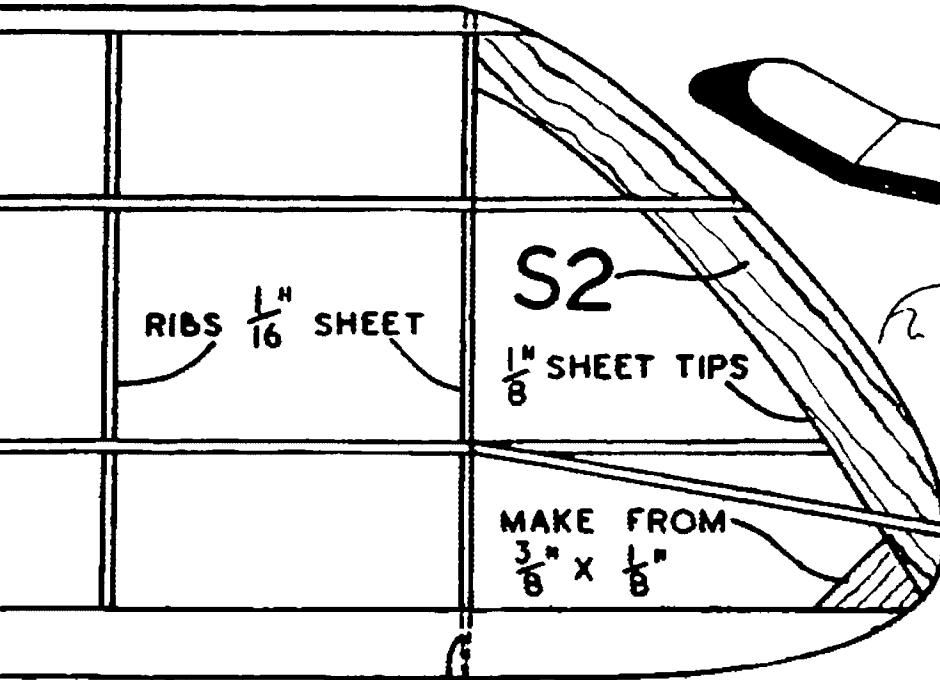




BE UNCOVERED HERE  
ACCESS TO MOTOR

THESE NOTCHES  
RECEIVE PIECE  
OF  $\frac{1}{8}$ " X  $\frac{1}{8}$ " GLUED  
ON TOP OF TAILPLANE

SMALL PEG FOR  
RUBBER BANDS  
SECURING TAIL

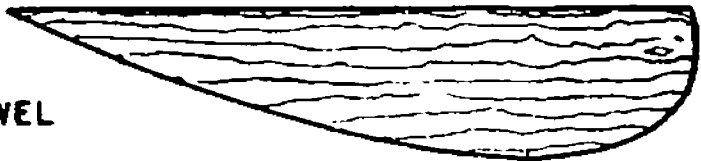


SKETCH OF  
THE COMPLETED  
MODEL...

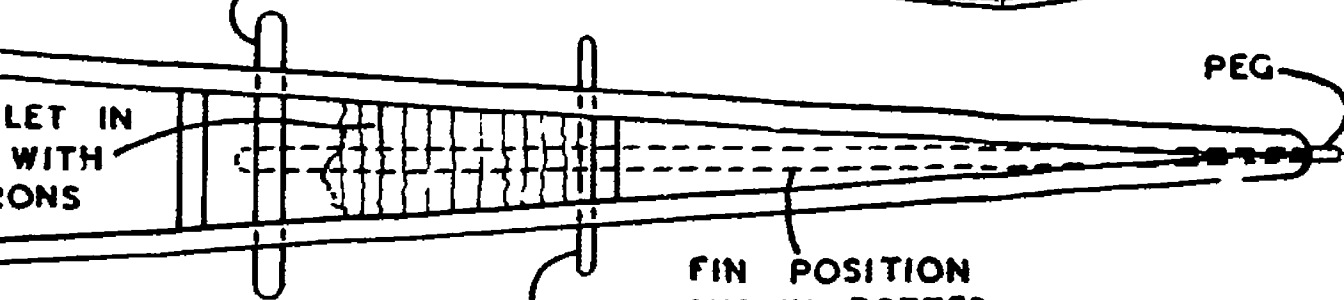


SECTION  
POSITION OF  
SUB-FIN

GLUE SUB-FINS WHERE SHOWN  
ON UNDERSIDE OF TAILPLANE.



$\frac{1}{8}$ " DIA. MOTOR DOWEL



" DIA. DOWEL FOR RUBBER  
BANDS HOLDING TAIL.

FIN POSITION  
SHOWN DOTTED,  
GLUE FIN HERE  
SQUARELY & FIRMLY.

DESIGNED & DRAWN  
• by •  
ALBERT E. HATFULL

# 30" SPAN CABIN DURATION MODEL

— MANUFACTURED BY —

# KEILKRAFT KITS

## BUILDING INSTRUCTIONS

### • FUSELAGE

Pin down the longerons for one fuselage side by placing pins on either side of the strip wood. Cut the uprights to correct lengths and glue these accurately in place over the positions indicated. Glue piece 'B' in place at the rear end, also piece 'Y' and piece of 1/8" sheeting at the nose. When this first side is dry build a second side directly over it. Remove both sides from plan when they have set and separate them very carefully with a thin knife. Hold the extreme rear ends together with a bulldog paper clip and insert top and bottom cross braces at the wing position, check for squareness and leave fuselage resting on the tower longerons until dry. Insert the cross braces at the extreme nose holding the sides in with a rubber band until set, then bind nose with thread and cement well, (see Top View) add the remaining cross braces top and bottom checking for squareness as you proceed. Glue 1/8" sheet flush in top and bottom of nose, glue 1/16" flush in the top at fin position. Bend U/C wire to shape, place wheel on axle and bend up the end of the wire to retain the wheel. Bind wire in place where shown in Side View. Apply cement over thread for extra strength. Cut the sheet celluloid to shape and glue in place for the cabin. Add wing and tail fixing dowels and the gussets to strengthen them. Roughly carve nose block to shape, build plug on back face as noted, plug into nose and sandpaper to a smooth finish while on fuselage, remove and drill hole in position shown to receive propeller shaft bearing bush. Glue this bush firmly in place. Bend motor hook, thread nose block, cup washers and airscrew on the shaft and with pointed nose pliers bend the freewheel loop. Bend the freewheel latch to shape and attach to airscrew. Pin the outline of the fin to the plan, add pieces of 1/8" square, when dry sandpaper the rear edge to a taper and round off the leading edge. Glue the fin in place squarely on top of the fuselage where indicated, glue the fairing 'X' in place. Sandpaper the whole fuselage with fine sandpaper to obviate rough edges, etc.

### • WING

Commencing with the Centre Section, pin down the three bottom spars by placing pins on either side of the 1/16" strip wood. Position the

trailing edge in similar manner, glue the ribs in their correct positions and pull the spars up into the notches. Cement leading edge into front notches provided in ribs, then add top three spars and the gussets where shown. The Tips are constructed by locating the three bottom spars in between pins as for the Centre Section, pin down the Trailing edge, position the ribs with pins apply glue to the lower rib notches and pull the spars up into these notches. SEE NOTE REGARDING TILT IN END RIBS as this governs the amount of dihedral at the extreme tips. Add the leading edge and tip pieces, join the spars to the tips as shown. The bottom spars terminate inside the tip pieces, the top spars are carried over the tip as can be seen in the sectional view through tip when the three wing sections have set, glue the tips to the centre section and leave to dry with the tips *propped up 4"*. Finally sand paper the leading and trailing edges to shapes shown and finish smooth all over.

### • TAILPLANE

Build the tailplane in similar fashion to the wing, cover the centre portion with 1/32" sheet, and glue a piece of 1/8" square exactly where indicated on the top surface. The sub-fins are added after covering with tissue. Round off the leading edge and tips, taper the trailing edge down and fine sandpaper all over.

### • COVERING

When covering the model, use tissue paste or tissue cement for an adhesive. Cover the fuselage sides then top and bottom applying paste to the actual outline only. The wing is covered in six pieces, three above and three below. It is *important* that the tissue should be made to adhere to the lower span of the wing also to the under side curve of the ribs which is known as the "under camber." Use two pieces of tissue for the top of the tailplane and one for the underside. While covering any part of the model endeavor to eliminate as many *wrinkles* as possible. When all the parts are covered spray lightly with water and allow to dry, this tightens the covering prior to the application of dope. Apply two coats of dope to the fuselage, two thin coats to the wing and one coat to the fin and tailplant.

## FLYING INSTRUCTIONS

Assemble the model and insert the specified rubber motor in to the fuselage. Choose a comparatively calm day for test flights and select a field with fairly long grass. Your particular mode may need balancing and this is executed by adding ordinary plasticine to the inside of the nose block or inside the extreme rear end of the fuselage i.e. directly over the tail position. The model should be made to balance level when held on the fingertips at the third spar back from the leading edge. Now glide the model into the wind, launch it firmly and parallel to the ground. If it dives or noses down place a thin 1/32" to 1/16" strip of balsa under the

leading edge of the tail, if it stalls, i.e. nose up and wavers unsteadily, add a small amount of plasticine inside the nose block (or remove any previously placed in the tail). Continue test *gliding until a long floating glide is obtained*. Give the motor 100 to 200 turns preferably "stretch" wound, place a strip of 1/16" down the left hand side of the nose block, then launch. The strip of 1/16" packing is to induce side thrust and should impart a right handed circling climb to the model. A small celluloid "trim tab" 1-1/2" x 1/2" glued down the trailing edge of the fin may be used to obtain a tighter turn under power followed by a larger gliding circle.