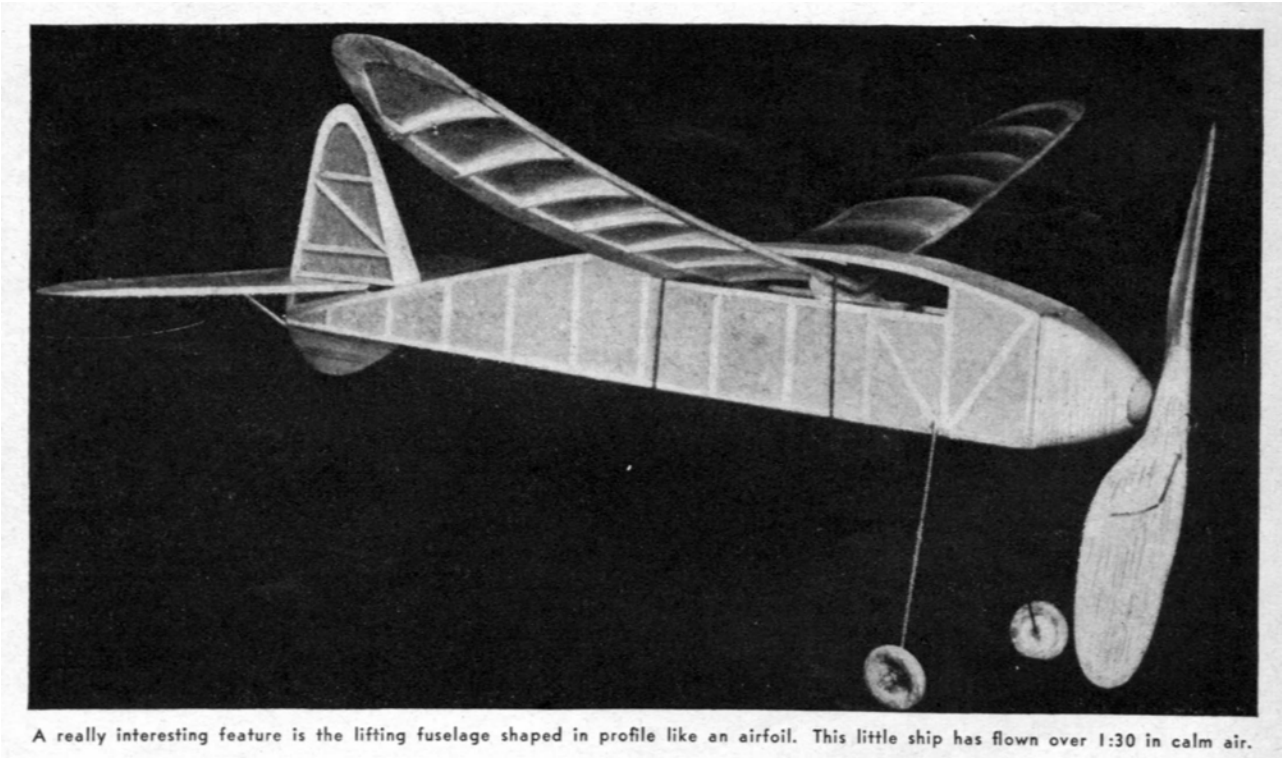
The American Zipper

Fun for the beginner or expert – a novelty in simple flying models.

By Walter Kahn



A really interesting feature is the lifting fuselage shaped in profile like an airfoil. This little ship has flown over 1:30 in calm air.

ALTHOUGH the American Zipper is comparatively small, it is unique in that it possesses the qualities of a contest ship. Its fast rate of climb and flat gliding angle are a combination always hoped for but seldom realized even from contest ships. On a calm day, without the aid of thermals, the model was clocked to the tune of one minute and thirty seconds. But let's dispense with the usual run of introduction and get right down to work. With the exception of one half of both the wing and stabilizer, the plans shown on the following pages are full-size and complete. Since both sides of the wing and the stabilizer are constructed in one unit, it is first necessary to trace the side of the part shown to serve as a layout for the other side. As the plan is to be used as a jig, it is suggested that it be covered with translucent paper, preferably wax. This will prevent the parts from adhering to the plan.

FUSELAGE

The fuselage frame is constructed entirely of 1/16" square stock. The sides are first made by laying out the fuselage on the plan and maintaining the members in position, until he cement sets, by small pins, placed at intervals along the fuselage outline. Care should be

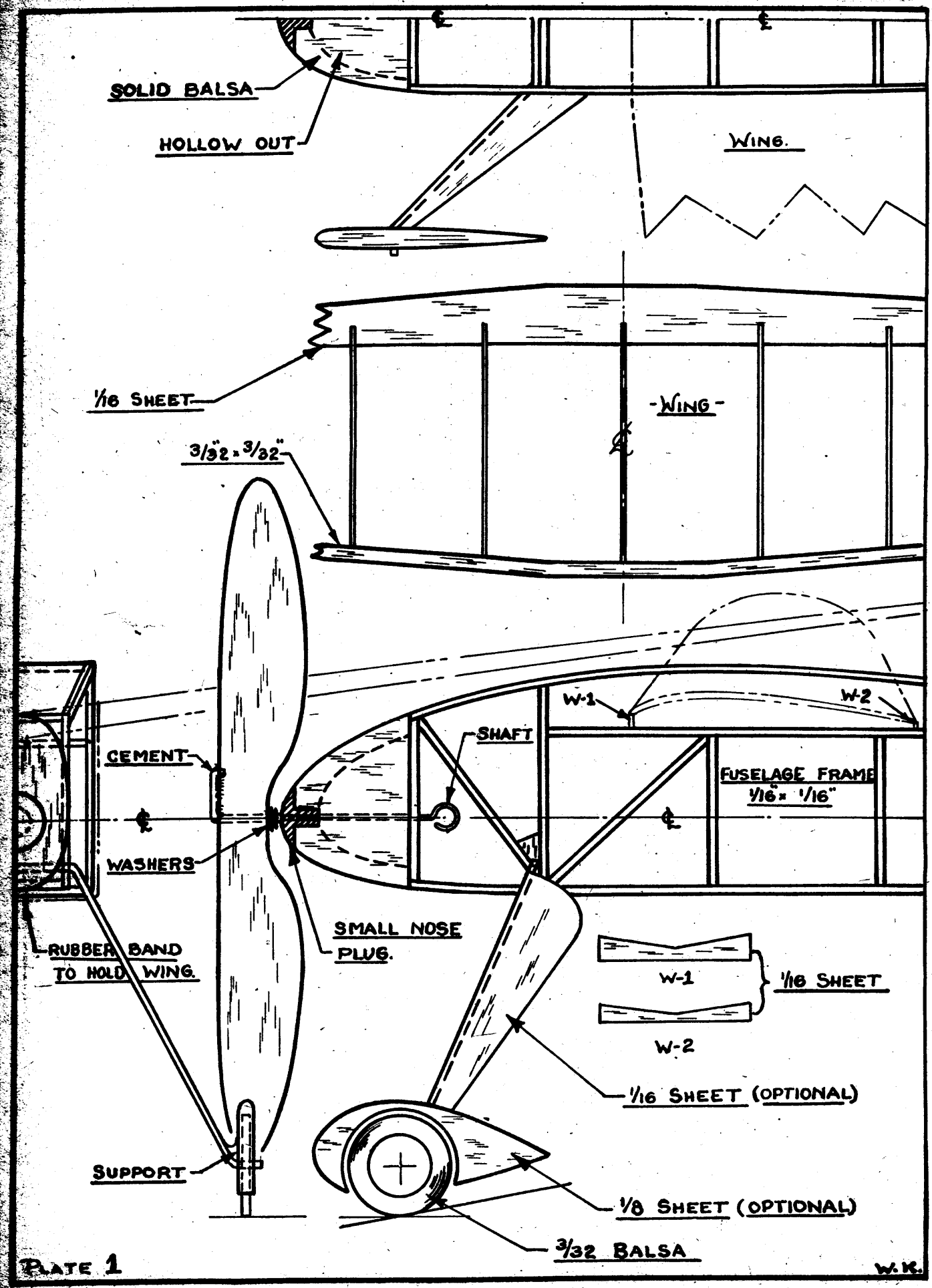
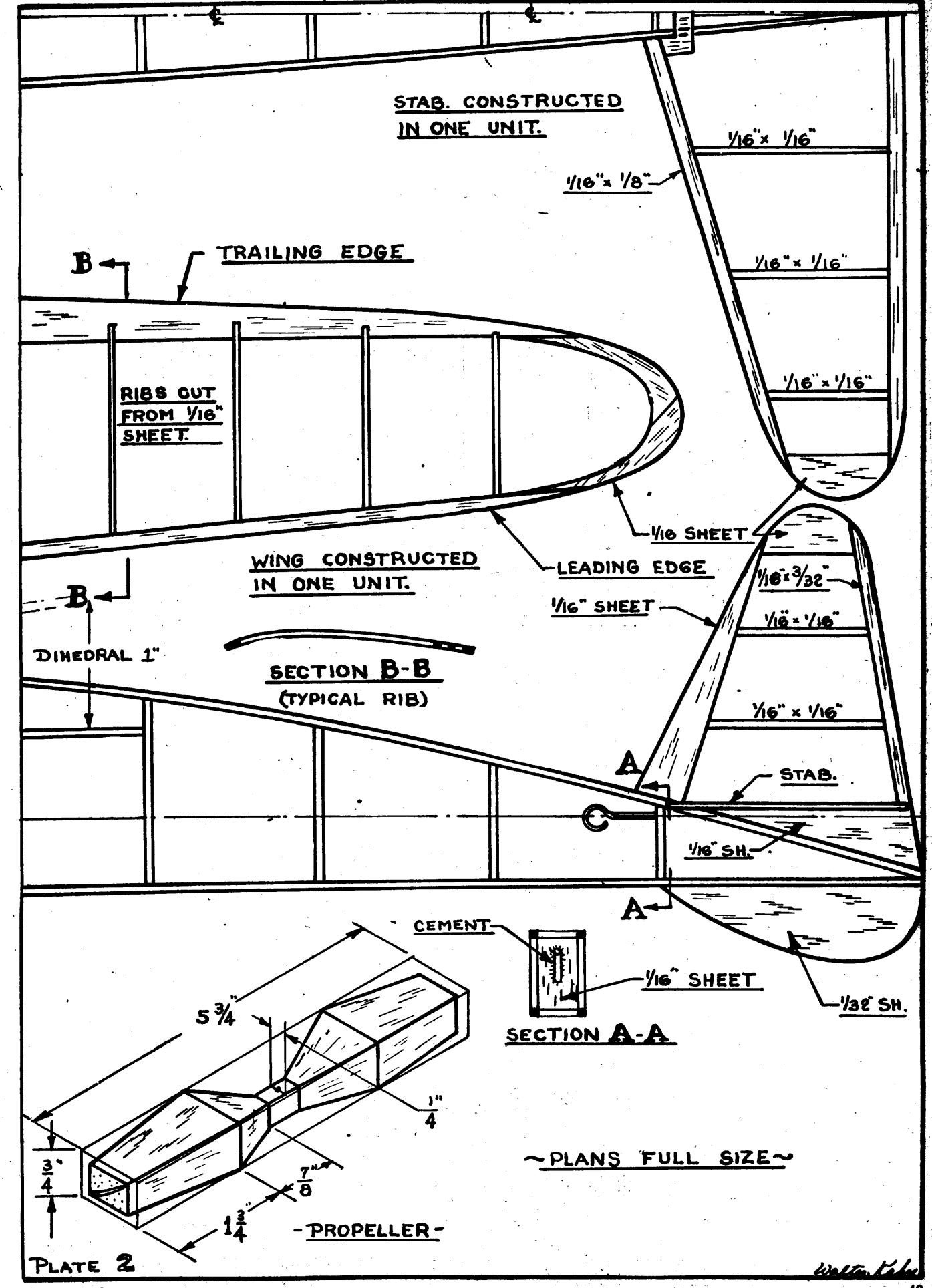

SOLID BALSA
HOLLOW OUT
WING.
1/16 SHEET
-WING-
3/32" x 3/32"
W-1
W-2
SHAFT
CEMENT
FUSELAGE FRAME
1/16" x 1/16"
WASHERS
SMALL NOSE PLUG.
RUBBER BAND TO HOLD WING.
W-1
1/16 SHEET
W-2
1/16 SHEET (OPTIONAL)
SUPPORT
1/8 SHEET (OPTIONAL)
3/32 BALSA

PLATE 1

W.K.


STAB. CONSTRUCTED IN ONE UNIT.
1/16" x 1/16"
1/16" x 1/8"
B
TRAILING EDGE
1/16" x 1/16"
RIBS CUT FROM 1/16" SHEET.
1/16" x 1/16"
1/16 SHEET
WING CONSTRUCTED IN ONE UNIT.
LEADING EDGE
1/16" x 3/32"
B
1/16" SHEET
1/16" x 1/16"
DIHEDRAL 1"
SECTION B-B
(TYPICAL RIB)
1/16" x 1/16"
A
STAB.
1/16" SH.
A
CEMENT
1/16" SHEET
1/32" SH.
SECTION A-A
5 3/4"
1"/4
3"/4
7"/8
1 3/4"
-PROPELLER-
~PLANS FULL SIZE~
PLATE 2
Walter Kahn

taken not to stick the pins through the members themselves. This, as is obvious, will weaken the entire structure. The amount of cement to use at each joint should be minimum. Too much cement will not only result in a sloppy job but will add unnecessary weight and weakness in the joints. The two side frames of the fuselage may be made together, one on top the other and then cut apart; or else they may be made separately. In both cases it is imperative that they be exact.

After the side frames have been formed they are connected by the top and bottom cross members. The sizes of these members are shown on the top half view. The nose block is next. It is carved from a very soft piece of balsa. The block is temporarily attached to the fuselage and thus carved to shape. It is then removed and the inside hollowed out. The nose of the block is cut to allow for a small nose plug as shown.

The landing gear is formed from #8 wire. It is attached to the fuselage by cement, and if desired further, secured in place by thread. After the landing gear has set, the nose block is next cemented permanently in place. The rear hook is attached to the fuselage as shown in Section A-A. It is held to the sheet by cement. The wheels are cut from 3/32” sheet stock as indicated on the plan. Both the pants and the landing-gear fairing are optional.

WINGS

The wing is simple in construction. It is constructed in one unit. The ribs are cut from 1/16” sheet stock to the form illustrated in Section B-B. The trailing edge is notched, to allow for the ribs as shown. The leading edge is 3/32 " square stock shaped to the contour of the rib. The wing is constructed as a straight panel. It is then bent upward from the center to form a dihedral angle with a one-inch rise at the tips. W-1 and W-2 are glued in place. These members give the proper angle of incidence.

TAIL UNIT

The tail-unit construction follows along the same lines as the wing. The ribs, however, are of 1/16 " square stock. Both the leading and trailing edges of each unit, horizontal and vertical, are sanded to shape after the surface has been removed from its jig. Both the rudder and the stabilizer are attached to the fuselage in one unit. The stabilizer is maintained at zero-degree setting.

PROPELLER

The propeller is carved from a medium-hard balsa block. Its shape is out-lined with a hard pencil as shown on Plate2. The propeller is first blanked to shape. It is then carved. Actually, there is little that can be said as to the manner of carving a propeller. Experience seems to be the best teacher. In finishing the propeller it is of utmost importance that it balance. By inserting a pin at the hub the balance can easily be cheeked. Care should be exercised to maintain the shape of the blades alike. After the propeller has been finally completed, it is suggested that it be given a few coats of banana oil and resanded to a smooth surface.

COVERING

The complete model is covered with superfine tissue. The wing is covered on one

side only, as are the stabilizer and rudder. The paper is doped to bring it taut. If water is used to shrink the paper, extreme caution should be taken not to apply too much water. Otherwise the wings and tail surfaces might be completely warped out of shape.

FLYING THE MODEL

The propeller is attached to the front shaft, which passes through the nose plug. The hook on the shaft should be made small enough to pass through the hole of the nose block. The propeller rotates against several washers, as illustrated. The model is powered with four strands of 3/32" flat rubber. The wing is held in place by a rubber band, as indicated on Plate 1. The wing is located approximately one half inch back of the second vertical member. The model is first glided. It should assume a very flat glide. If it tends to dive, the wing should be moved slightly ahead; if it tends to stall it should be moved to the rear. After the proper location is found the propeller should be given about fifty turns and the model launched. Readjusting may be necessary in the same manner as in gliding. Experimenting with different settings of the wing will result in the best flights. With the model adjusted, the propeller should be wound to its full capacity and launched into the wind.

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