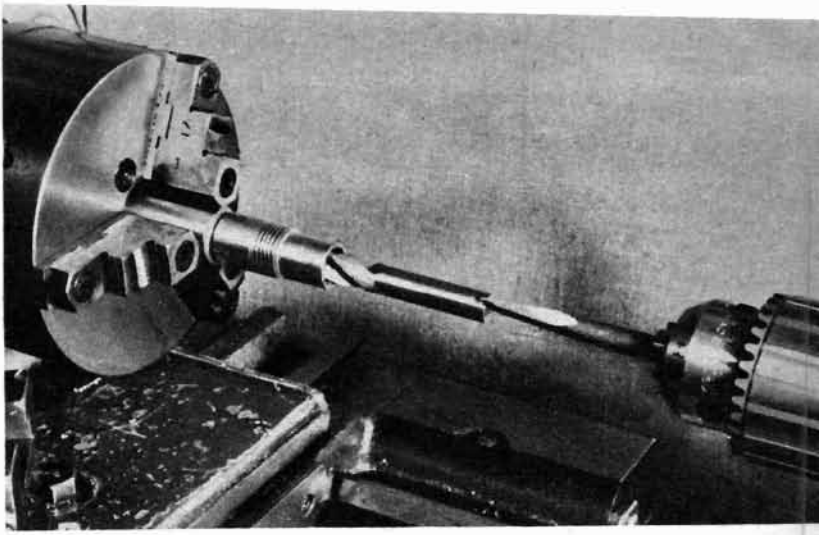
GYRO SKIPPER

By Paul Del Gatto

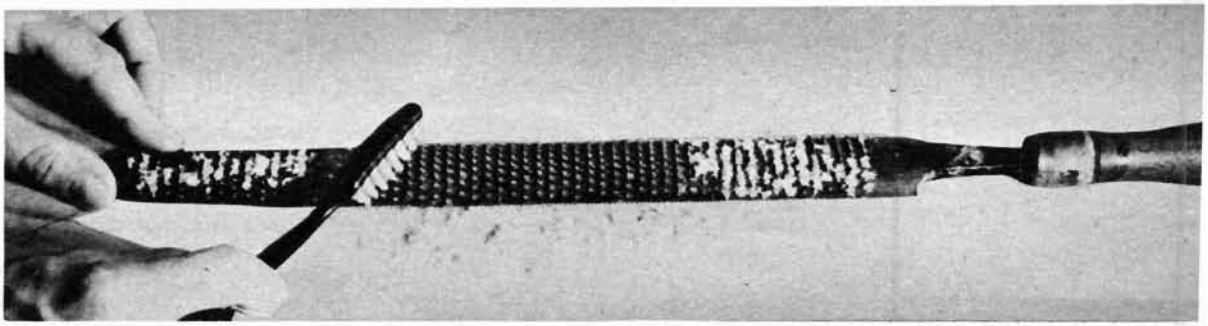
THE autogyro, which differs from the helicopter in that the rotor blades spin freely and the power of the engine is translated through a conventional propeller, has always fascinated us. We've had considerable success with many models and this latest is our most successful. The performance is nothing short of spectacular and the ease with

Tired of building ordinary models? Then try your hand at making this whirlybird.

DECALS ARE REMOVED without trouble by simply covering them with several coats of vinegar. Allow ten minutes to soak in.

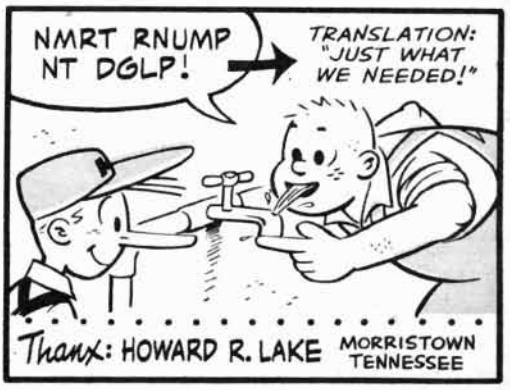


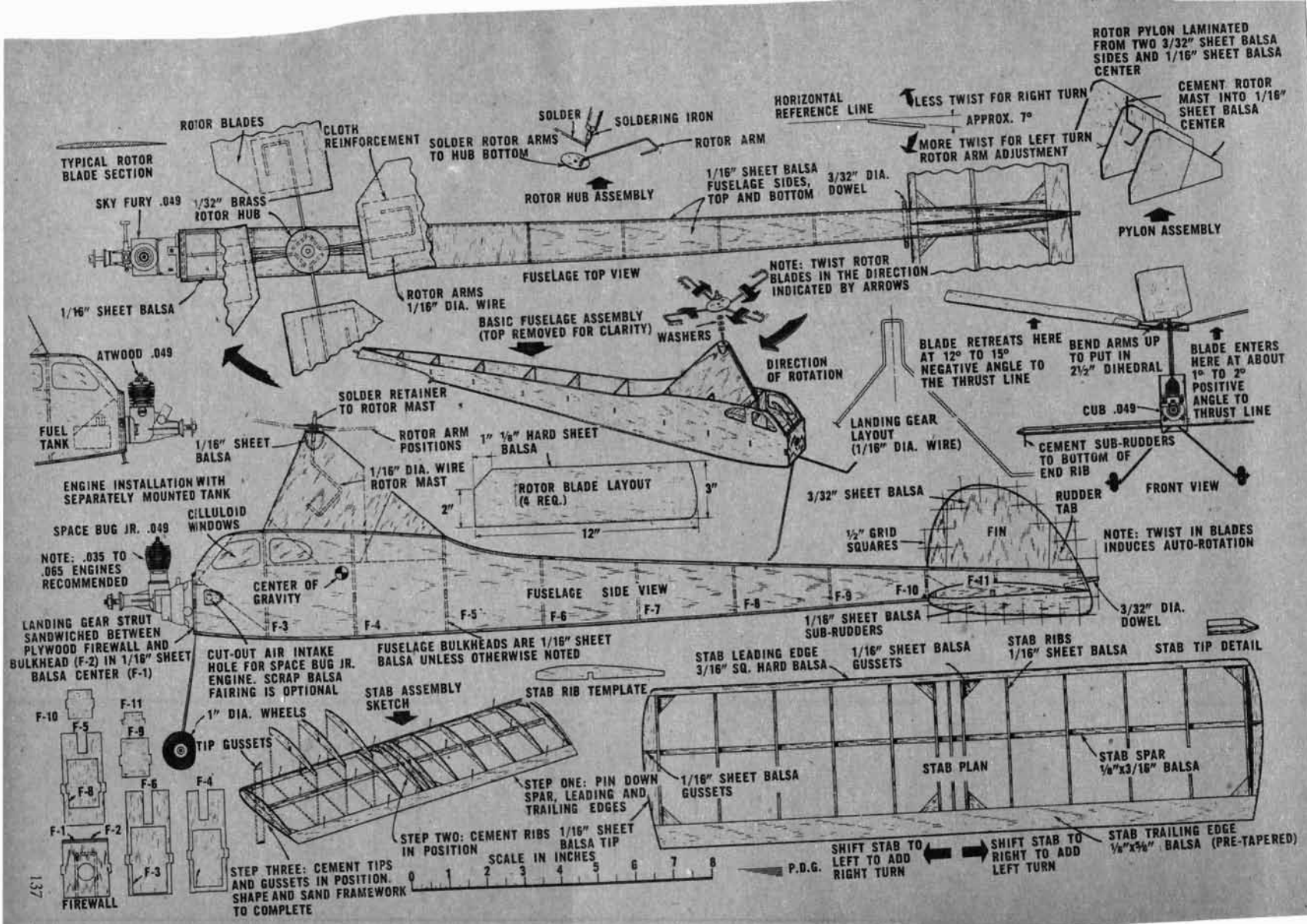
DEEP HOLES may be drilled even with a short drill. Cut a slot in the drill shank and insert a screwdriver in your lathe chuck.

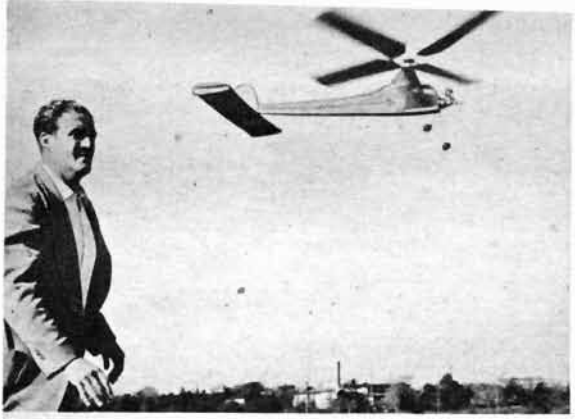


CLOGGED RASP used on soft materials such as wallboard or pine can be cleaned with an old toothbrush. Brush at an angle across rasp as shown in photo above.

Send Freddie Fumbles your idea of a good short-cut, time-saver or safety device in your work, whether it be in the home, shop, office or farm. Each tip accepted will be paid for at the rate of $10. Naturally we cannot acknowledge or return the ones we cannot use. However, all will be carefully read and evaluated. (Those which we can use in other departments of MI will be paid for at our regular rates.) Please send in your ideas on a post card. Address to: Freddie Fumbles, *Mechanix Illustrated* Magazine, 67 W. 44th St., New York 36, N. Y.




ROTOR PYLON LAMINATED FROM TWO 3/32" SHEET BALSA SIDES AND 1/16" SHEET BALSA CENTER
CEMENT ROTOR MAST INTO 1/16" SHEET BALSA CENTER
HORIZONTAL REFERENCE LINE
LESS TWIST FOR RIGHT TURN
APPROX. 7°
MORE TWIST FOR LEFT TURN ROTOR ARM ADJUSTMENT
ROTOR BLADES
CLOTH REINFORCEMENT
SOLDER
SOLDERING IRON
SOLDER ROTOR ARMS TO HUB BOTTOM
ROTOR ARM
TYPICAL ROTOR BLADE SECTION
ROTOR HUB ASSEMBLY
1/16" SHEET BALSA FUSELAGE SIDES, TOP AND BOTTOM
3/32" DIA. DOWEL
SKY FURY .049
1/32" BRASS ROTOR HUB
PYLON ASSEMBLY
FUSELAGE TOP VIEW
NOTE: TWIST ROTOR BLADES IN THE DIRECTION INDICATED BY ARROWS
1/16" SHEET BALSA
ROTOR ARMS 1/16" DIA. WIRE
BASIC FUSELAGE ASSEMBLY (TOP REMOVED FOR CLARITY)
WASHERS
DIRECTION OF ROTATION
BLADE RETREATS HERE AT 12° TO 15° NEGATIVE ANGLE TO THE THRUST LINE
BEND ARMS UP TO PUT IN 2½" DIHEDRAL
BLADE ENTERS HERE AT ABOUT 1° TO 2° POSITIVE ANGLE TO THRUST LINE
ATWOOD .049
SOLDER RETAINER TO ROTOR MAST
CUB .049
FUEL TANK
1/16" SHEET BALSA
ROTOR ARM POSITIONS
1" 1/8" HARD SHEET BALSA
LANDING GEAR LAYOUT (1/16" DIA. WIRE)
CEMENT SUB-RUDDERS TO BOTTOM OF END RIB
FRONT VIEW
ENGINE INSTALLATION WITH SEPARATELY MOUNTED TANK
1/16" DIA. WIRE ROTOR MAST
ROTOR BLADE LAYOUT (4 REQ.)
2"
3"
12"
3/32" SHEET BALSA
RUDDER
TAB
CELLULOID WINDOWS
SPACE BUG JR. .049
½" GRID SQUARES
FIN
NOTE: TWIST IN BLADES INDUCES AUTO-ROTATION
NOTE: .035 TO .065 ENGINES RECOMMENDED
CENTER OF GRAVITY
FUSELAGE SIDE VIEW
F-11
F-3
F-4
F-5
F-6
F-7
F-8
F-9
F-10
1/16" SHEET BALSA SUB-RUDDERS
3/32" DIA. DOWEL
LANDING GEAR STRUT SANDWICHED BETWEEN PLYWOOD FIREWALL AND BULKHEAD (F-2) IN 1/16" SHEET BALSA CENTER (F-1)
CUT-OUT AIR INTAKE HOLE FOR SPACE BUG JR. ENGINE. SCRAP BALSA FAIRING IS OPTIONAL
FUSELAGE BULKHEADS ARE 1/16" SHEET BALSA UNLESS OTHERWISE NOTED
STAB LEADING EDGE 3/16" SQ. HARD BALSA
1/16" SHEET BALSA GUSSETS
STAB RIBS 1/16" SHEET BALSA
STAB TIP DETAIL
STAB ASSEMBLY SKETCH
STAB RIB TEMPLATE
F-10
F-11
F-5
F-9
F-8
F-6
F-4
F-1
F-2
F-3
1" DIA. WHEELS
TIP GUSSETS
STEP ONE: PIN DOWN SPAR, LEADING AND TRAILING EDGES
STEP TWO: CEMENT RIBS IN POSITION
1/16" SHEET BALSA TIP
STEP THREE: CEMENT TIPS AND GUSSETS IN POSITION. SHAPE AND SAND FRAMEWORK TO COMPLETE
FIREWALL
SCALE IN INCHES
0 1 2 3 4 5 6 7 8
P.D.G.
1/16" SHEET BALSA GUSSETS
STAB PLAN
STAB SPAR 1/8"x3/16" BALSA
SHIFT STAB TO LEFT TO ADD RIGHT TURN
SHIFT STAB TO RIGHT TO ADD LEFT TURN
STAB TRAILING EDGE 1/8"x5/8" BALSA (PRE-TAPERED)



LAUNCH MODEL with the rotor blades spinning rapidly; use gentle forward motion.

which it can be adjusted leaves us beaming.

Gyro Skipper can be trimmed in several ways, but the arrangement we favor most is a tight right spiral climb and a vertical descent in the glide. In this manner we can fly the model out of small areas. On a full tank of gas, we've had it climb to great heights and descend only a few hundred yards from the launching point. However, if there is plenty of room, it can be trimmed much in the same manner as a conventional free-flight model.

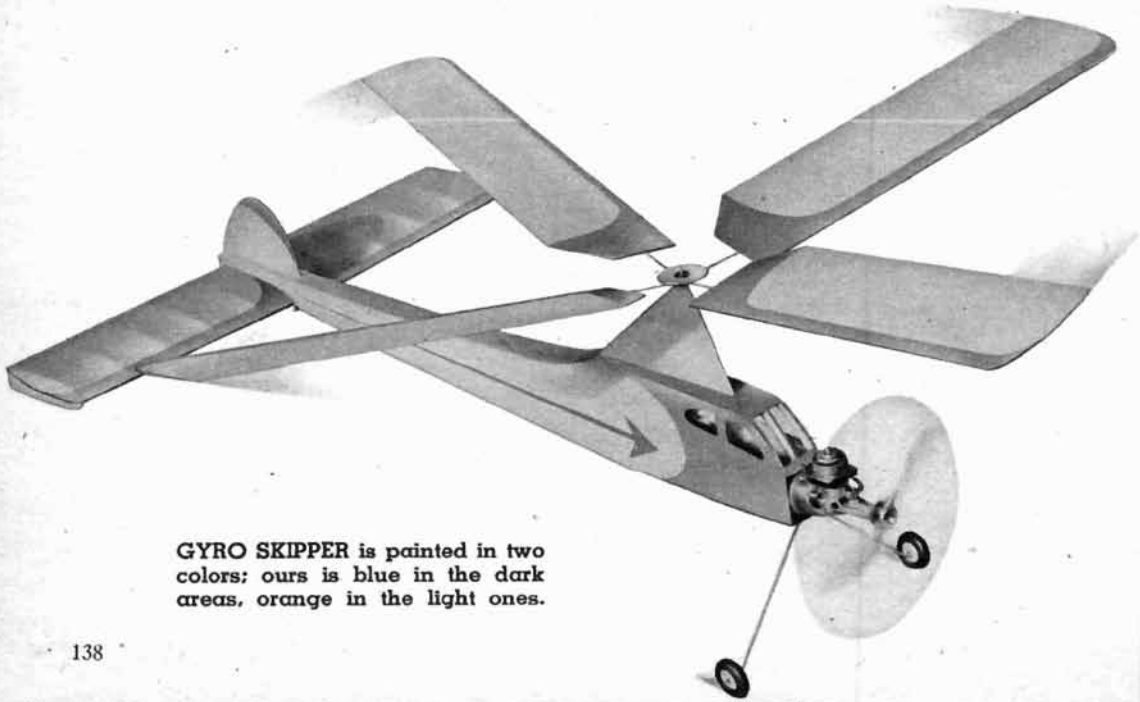
Start construction with the fuselage. Cut out all the bulkheads and then bend the landing gear strut to shape and cement it in place. Next cut the sides and cement the $\frac{1}{16}$-in. sheet balsa nose doublers to the inside of each. The sides are then assembled with bulkheads F-3, F-4 and F-5. When the cement has dried, add the remaining bulkheads and the firewall-landing gear assembly.

The rotor pylon is laminated as shown in the drawing, with the rotor mast cemented in a groove in the center piece. The complete unit is then cemented into the notches provided in the bulkheads. Be certain that the angle of the rotor mast, when the pylon is installed, is very close to that indicated on the plan. When the installation is complete, add the top and bottom sheets to the fuselage.

The fin and the stabilizer are made and installed next. Cover the stabilizer with Silkspan or [*Continued on page* 158]

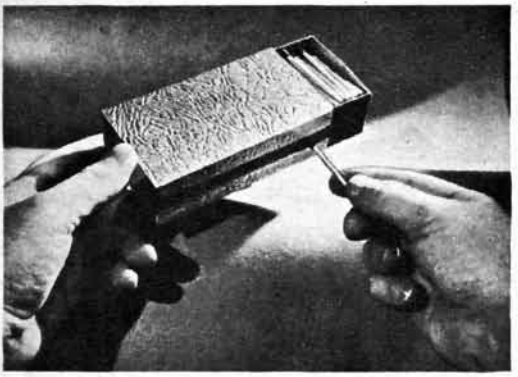
KIT OR PLAN AVAILABLE

A kit, complete except for engine and propeller, is available. Send $2 to MI Kit Service, Box 419, Huntington, N. Y. For full-scale plans, send 50 cents to MI Plans Service, Fawcett Place, Greenwich, Conn. Specify Plan No. 244, Gyro Skipper.



GYRO SKIPPER is painted in two colors; ours is blue in the dark areas, orange in the light ones.

EVENING PROJECT



Match Box Cover

ANY lowly, old-fashioned box of kitchen matches can be glamorized with the help of this attractive home-made aluminum cover. The pattern of the do-it-yourself aluminum is known as "leather grain"; it may be purchased from most hobby stores.

A piece of 4¾x7¾ in. is used for the standard large-size match box. Without metal forming tools, the material can be accurately bent between two wooden yardsticks, held together with two clamps. Note that the striking surface of the box is left uncovered.

The aluminum is attractive enough as it is. If you wish some color you can paint it with clear spar or plastic varnish lightly tinted with an oil color. This will allow the metal to show through, giving a real professional effect. •

The aluminum is easily bent, without metal forming tools, between two wooden yardsticks.

Gyro Skipper

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tissue paper. Silkspan can be dampened before it is applied but tissue paper must be applied dry and then sprinkled with water to remove the wrinkles.

The rotor assembly, while not difficult, requires care because the model's performance will depend on how well it is done.

To fly the model it may be necessary to start the rotors spinning in unusually calm weather; in any event, they should be spinning rapidly when the model is launched. Do not launch it with a great deal of speed; instead, ease it out of your hand with a slight forward motion. If there are exaggerated turning tendencies, the angles of the rotor arms probably need adjustment. Suppose, for instance, that the model were to turn sharply to the right. This would mean that there was too much lift on the blades as they entered the air stream on the left as viewed from the rear. You can correct this by increasing the angle of twist in the rotor arms. •

Driveway Busted?

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larger areas ordinary concrete can be used. To mix your own concrete, use one part of cement to 2½ parts of sand.

Shovel the mixture into the rut and fill it level with the driveway. Use another scrap piece of lumber as a strike board to level off the mixture. Make sure that every part of the area is filled solid. Let it stand for about an hour. Coarse gravel aggregates in the mixture will settle below the surface; water will tend to rise to the top. When the surface presents a watery sheen, then it's time for troweling.

Use a steel trowel for a smooth finish or a wood float if you prefer a rough, sidewalk finish. Trowel until you have the surface you want. There's no need to edge the area unless you plan to remove the wooden forms. Don't edge between your new work and the old driveway. You want a solid surface joining the old and the new.

Use your garden hose to keep the concrete wet for several days. This helps cure the concrete and results in a strong surface. Your new '57 car will now have all the room it needs. •