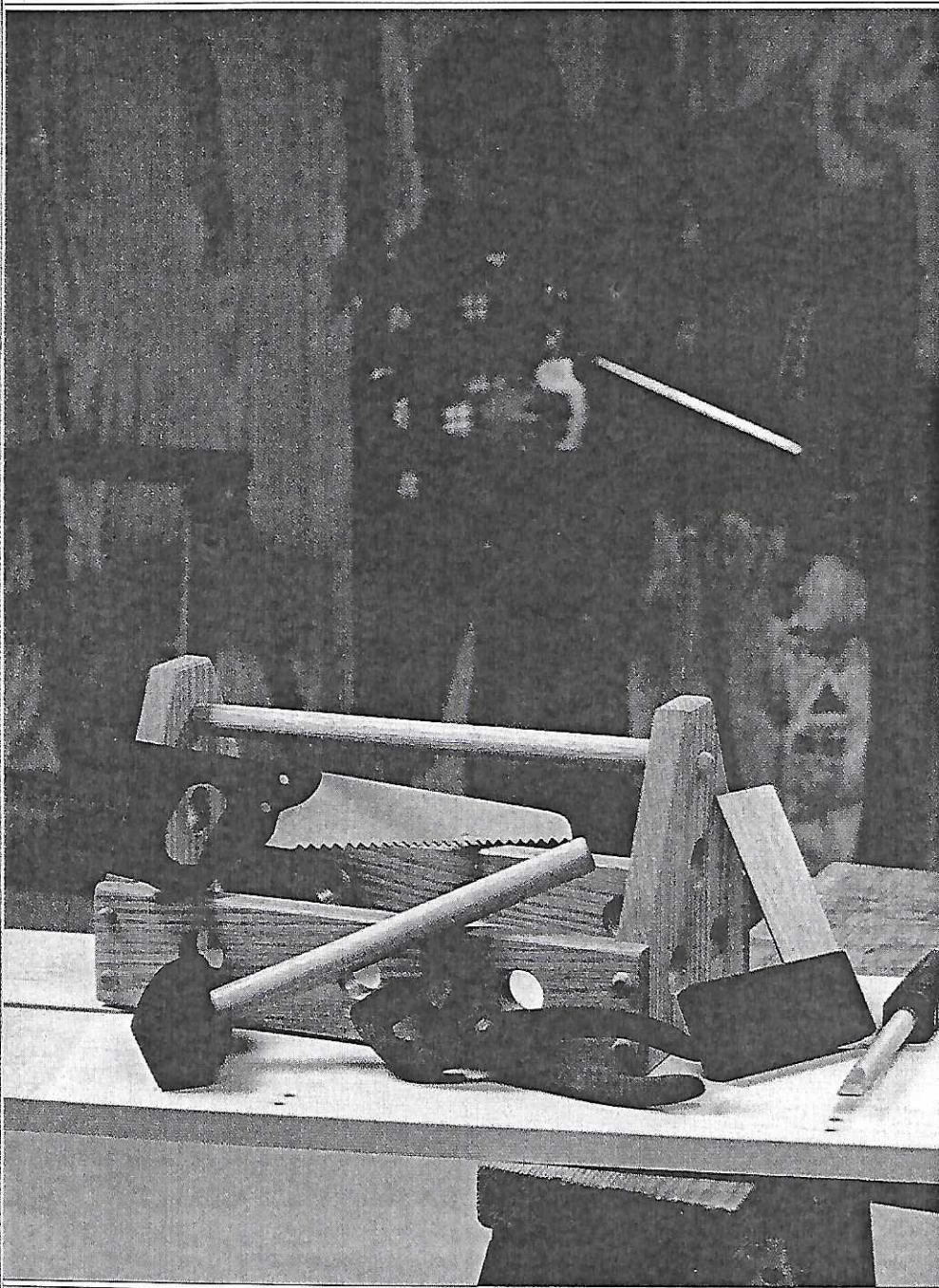


TINY-TYKE TOOLBOX 'N'

Most kids can't resist the urge to give Mom and Dad a helping hand. But, too often, children lack the tools to turn an imaginary screw or pound a block of wood. Not any longer! Now you can turn your budding builders loose with our wooden tools and toolbox designed and built just for them.



Let's start with the toolbox

1 To make the toolbox ends (A), cut two pieces of $\frac{3}{4}$ " stock to $6 \times 7\frac{1}{4}$ ". Cut the sides (B) to the size listed in the Bill of Materials. With double-faced tape, stick the ends together face-to-face with the edges and ends flush. Then, stick the sides together.

2 Using the dimensions on the Toolbox drawing, mark the hole centerpoints on the top face of the taped-together ends and sides.

3 Drill 1" holes in the ends and sides where marked. Switch bits and drill the $\frac{7}{16}$ " hole through the ends. Now, with a $\frac{1}{4}$ " bit, drill the holes through the sides.

4 Mark the cutlines on the end pieces. Bandsaw the angled lines.

5 With a wood wedge, pry the pieces apart, and remove the tape.

6 Cut or rout a $\frac{1}{8}$ " groove $\frac{1}{4}$ " deep $\frac{1}{4}$ " from the bottom inside edge in the side and end pieces. Then, form a $\frac{3}{4}$ " rabbet $\frac{1}{4}$ " deep across the ends of the side pieces.

7 Rout a $\frac{1}{8}$ " round-over along the end and side pieces where shown on the Toolbox drawing. (We used our table-mounted router to rout the round-overs.)

8 Cut the bottom (C) to size (we used $\frac{1}{8}$ " birch plywood).

9 Dry-clamp the parts (A, B, C) to check the fit. Glue and clamp the box, checking for square. Later, use the previously drilled $\frac{1}{4}$ " holes in the box sides as guides to drill $\frac{1}{4}$ " holes $\frac{9}{16}$ " deep into the edges of the ends. Put a drop of glue in each hole and plug the holes with $\frac{1}{4}$ " axle pins.

10 Cut the handle (D) to length from a $\frac{3}{4}$ " dowel. (We left a $\frac{1}{16}$ " gap between the axle pin head and end pieces so the handle will rotate.) Drill a $\frac{3}{8}$ " hole $\frac{3}{4}$ " deep centered in each end of the handle. Put a drop of glue in the holes, and pin the handle to the box with $\frac{3}{8}$ " axle pins. Finish-sand the box and add the finish.

TOOLS

The screwdriver adds to the set

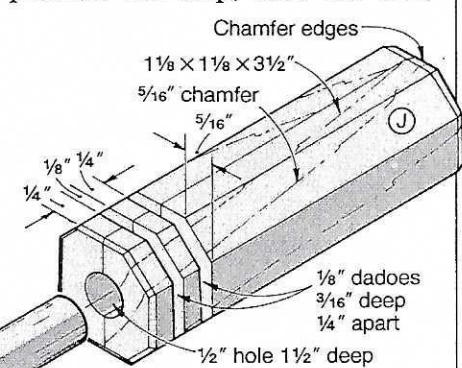
1 To form the handle (J), plane a 1 1/8"-wide by 12"-long piece of 3/4"-thick walnut stock to 5/16" thick. Crosscut the piece in half. Glue the two pieces face-to-face with the edges and ends flush.

2 Crosscut one end for a flat surface. Draw diagonals on the cut end to find center, and drill a 1/2" hole 1 1/2" deep into the handle.

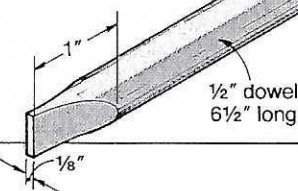
3 Cut 5/16" chamfers along all four corners of the handle. Crosscut the end opposite the 1/2" hole.

4 To cut the handle kerfs, raise the table saw blade 1/8" above the table. Attach an auxiliary fence and stop to your miter gauge. Mark the kerf loca-

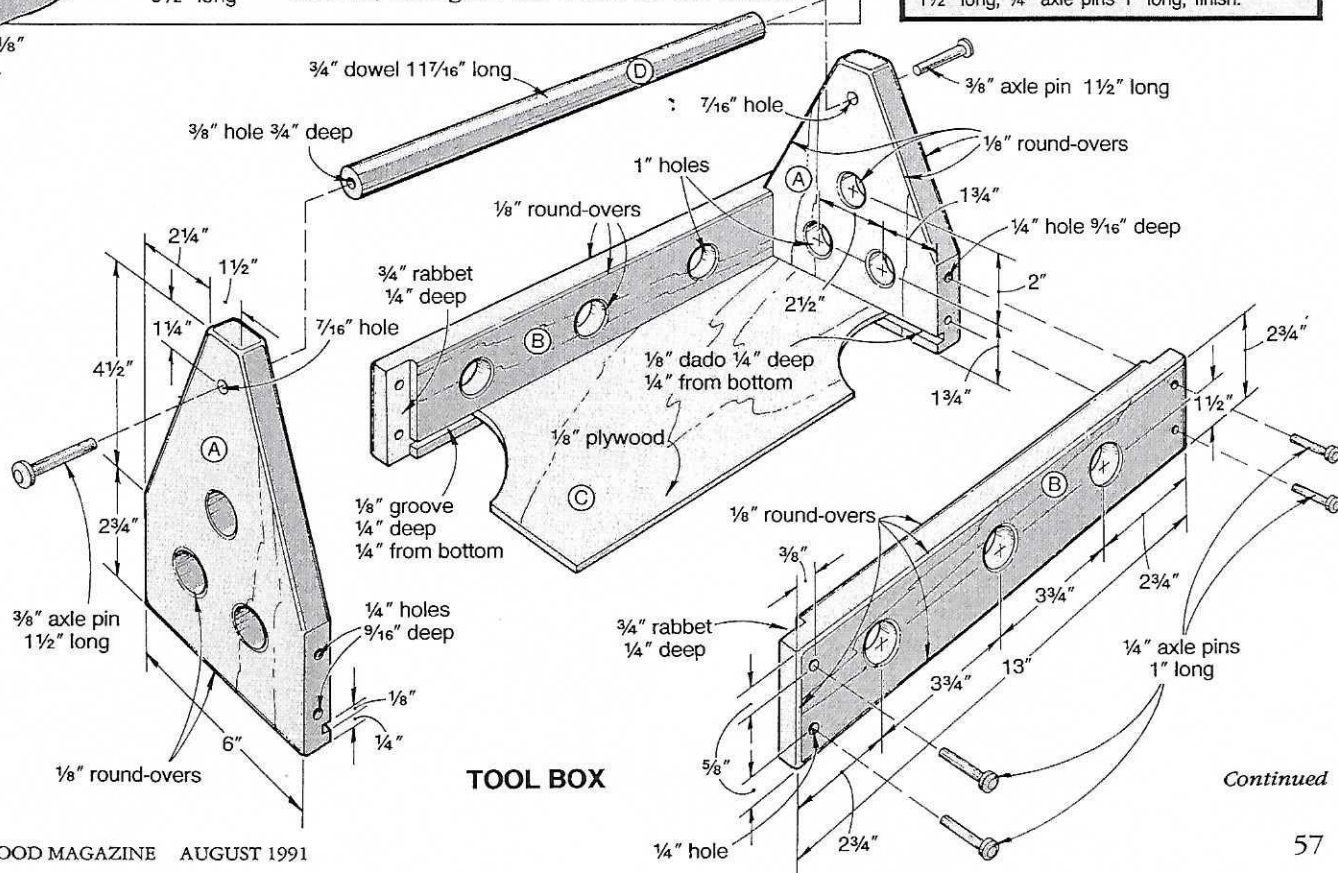
tions on the handle. Place the handle against the auxiliary fence, align the marks with the blade, position the stop, start the saw,



and rotate the handle to cut the kerf. Reset the stop, and cut the second kerf.
5 Sand a slight chamfer on the handle ends.
6 To form the blade (K), cut a 6 1/2" length of 1/2" dowel. Belt-sand one end to the shape shown, and glue the other in the handle.



Bill of Materials					
Part	Finished Size			Matl.	Qty.
	T	W	L		
TOOLBOX					
A ends	3/4"	6"	7 1/4"	O	2
B sides	3/4"	2 3/4"	13"	O	2
C bottom	1/8"	6"	12"	BP	1
D handle	3/4" dia.	11 7/16"		D	1
SAW					
E handle	3/4"	3 1/2"	6"	W	1
F blade	1/8"	2"	8 1/2"	BP	1
SQUARE					
G handle	3/4"	1 7/8"	4 1/8"	W	1
H blade	1/8"	1 1/2"	6"	BP	1
PLIERS					
I handle blank	3/4"	3"	7 3/4"	W	1
SCREWDRIVER					
J handle	1 1/8"	1 1/8"	3 1/2"	LW	1
K blade	1/2" dia.		6 1/2"	D	1
MALLET					
L head	1 1/2"	1 1/2"	4"	LW	1
M handle	3/4" dia.		9 1/4"	D	1
Material Key: O-oak, BP-birch plywood, D-dowel stock, W-walnut, LW-laminated walnut.					
Supplies: double-faced tape, 3/8" axle pins 1 1/2" long, 1/4" axle pins 1" long, finish.					



TOOL BOX

Continued

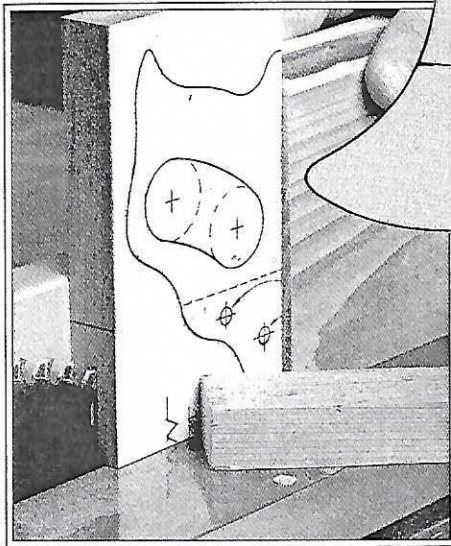
TOOLBOX 'N' TOOLS

Now, saw the saw

1 Cut a piece of $\frac{3}{4}$ " walnut to $3\frac{1}{2}$ " wide by 6" long for the handsaw handle (E).

2 Using carbon paper or a photocopy and spray adhesive, transfer the full-sized handsaw handle pattern to the walnut, including the hole centerpoints.

3 As shown in the photo below, cut a $\frac{1}{8}$ " kerf 2" deep in the blade end of the handle.



Use a push block to safely feed the handle blank over the tablesaw blade.

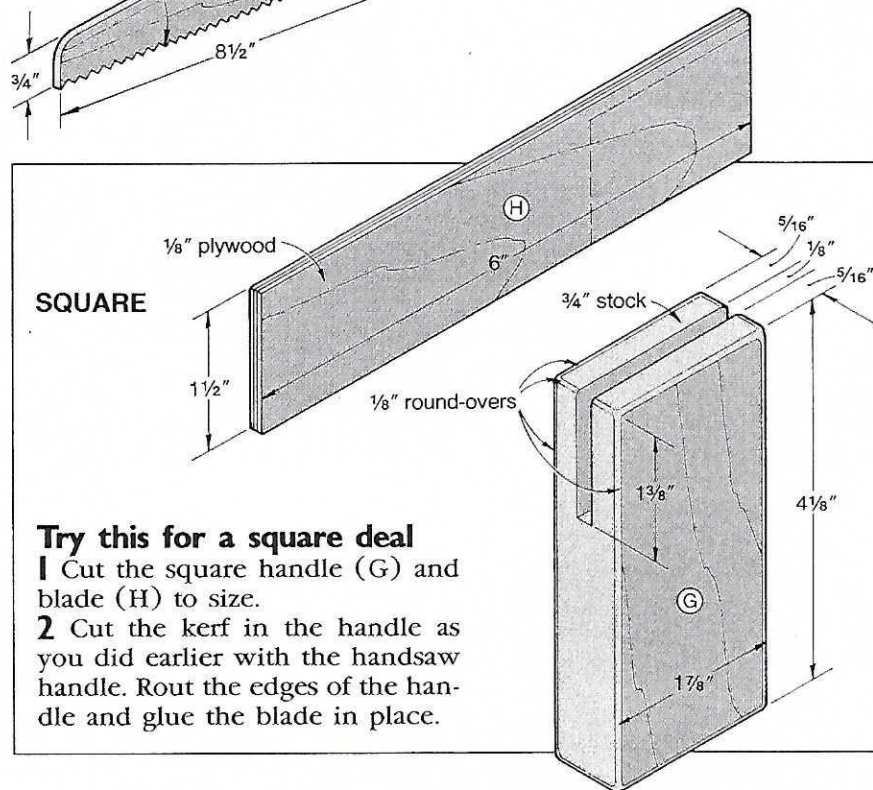
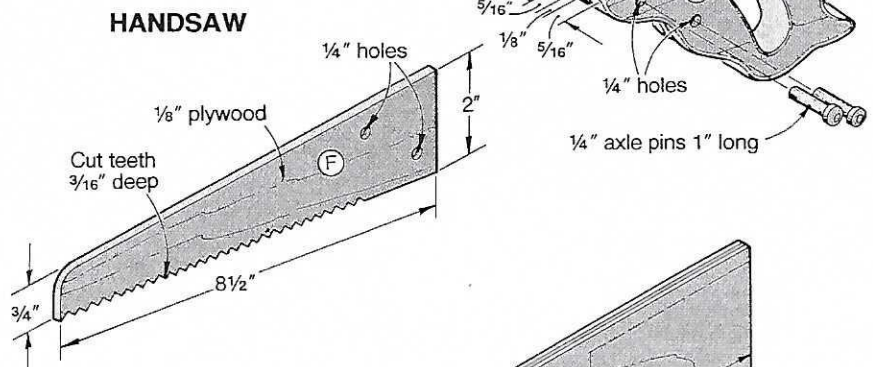
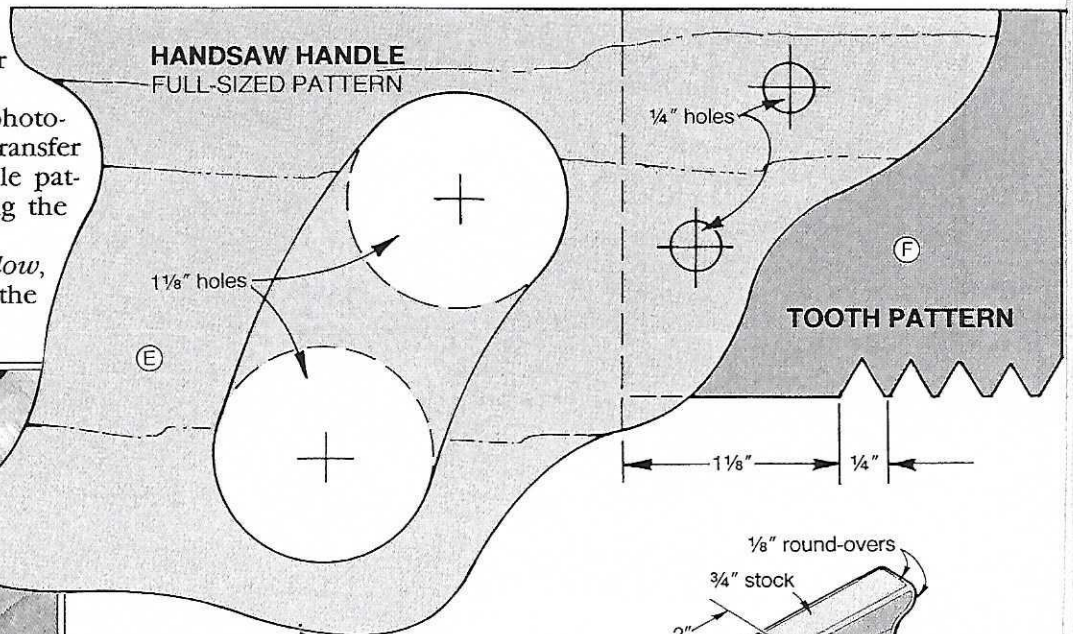
4 Drill the $\frac{1}{4}$ " holes for the pins and $1\frac{1}{8}$ " holes for the opening.

5 With a scrollsaw or coping saw, cut between the two $1\frac{1}{8}$ " holes to finish forming the opening. Cut the handle to shape. Sand the opening smooth with a 1" sanding drum.

6 Rout $\frac{1}{8}$ " round-overs on the handle where shown at right.

7 Lay out the saw-blade outline on a piece of $\frac{1}{8} \times 2 \times 8\frac{1}{2}$ " birch plywood for part F. Use the full-sized tooth pattern to mark the teeth outline along one edge. Cut the blade and teeth to shape (we used a bandsaw). Sand the teeth smooth to dull the sharp points.

8 Glue the blade into the kerf in the handle. Using the two previously drilled $\frac{1}{4}$ " holes in the handle as guides, drill $\frac{1}{4}$ " holes through the blade. Glue and plug the holes with $\frac{1}{4}$ " axle pins.



Try this for a square deal

1 Cut the square handle (G) and blade (H) to size.

2 Cut the kerf in the handle as you did earlier with the handsaw handle. Rout the edges of the handle and glue the blade in place.

Pliers for play

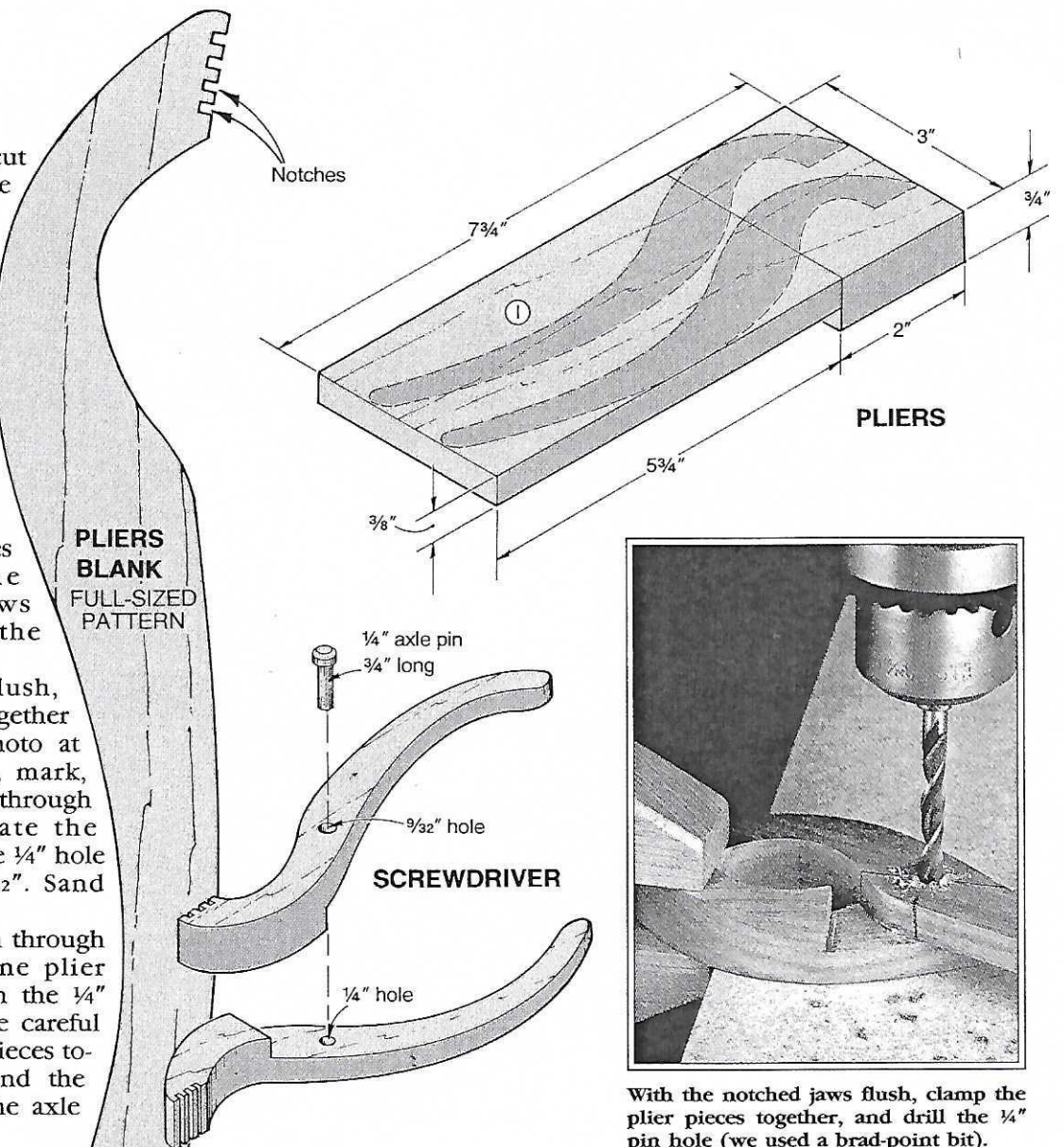
1 From $\frac{3}{4}$ " walnut, cut a piece $3 \times 7\frac{3}{4}$ " for the pliers blank (I).

2 Using a radial-arm saw or wide-bladed bandsaw, cut a $\frac{3}{8}$ " rabbet $5\frac{3}{4}$ " long where shown on the Pliers Blank drawing at right. Transfer the full-sized pliers patterns to the walnut stock where shown.

3 Cut the two pieces to shape. Cut the notches in the jaws where shown on the full-sized pattern.

4 With the jaws flush, clamp the pieces together as shown in the photo at right. Now, center, mark, and drill a $\frac{1}{4}$ " hole through the pieces. Separate the pieces, and redrill the $\frac{1}{4}$ " hole in one piece to $\frac{9}{32}$ ". Sand both pieces.

5 Slide a $\frac{1}{4}$ " axle pin through the $\frac{9}{32}$ " hole in one plier piece, and glue it in the $\frac{1}{4}$ " hole in the other. Be careful not to glue the two pieces together. Trim and sand the protruding end of the axle pin flush.



Project Design: Bill Kaiser, Huntingburg, Ind.
Photographs: Hopkins Associates; John Hetherington
Illustrations: Jamie Downing; Bill Zaun

A mallet with muscle

1 Cut and laminate face-to-face two pieces of $\frac{3}{4} \times 2 \times 4\frac{1}{2}$ " walnut for the mallet head (L). Later, band-saw the lamination to the shape shown on the Mallet drawing at right.

2 Mark the centerpoint location, and drill a $\frac{3}{4}$ " hole 1" deep into the mallet head. Cut a $\frac{3}{4}$ "-diameter piece of dowel stock to $9\frac{1}{4}$ " long for the handle (M). Glue the handle into the mallet head.

