The Woodworker's Journal
Vol. 12, No. 3 $3.00

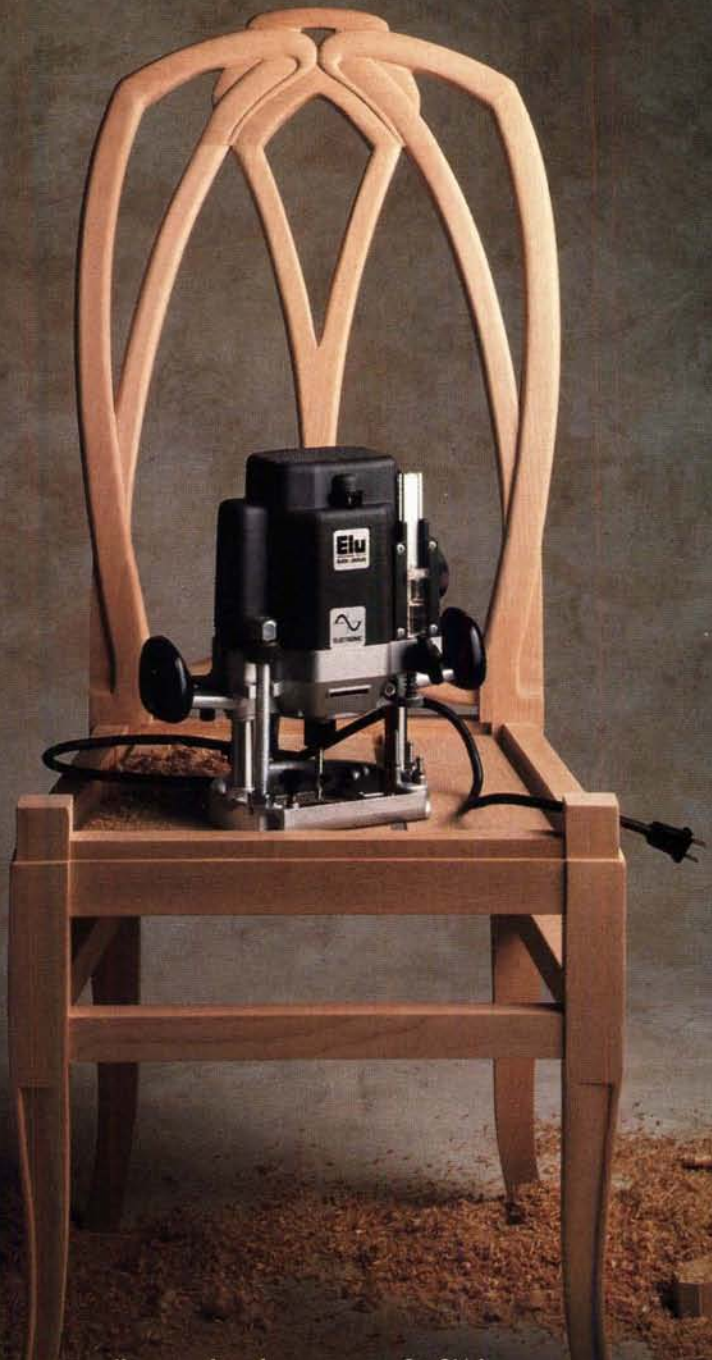
Early American Dry Sink

Included in this issue:

Loon Carving
Hunt Table • Bud Vase
Contemporary Dresser • Colonial Salt Box
Antique Knife & Fork Tray • Miter Gauge Stop • Old-Time Pipe Box

May/June 1988

FOR THOSE WHO STILL TAKE THE TIME TO HANDCRAFT WOODWORK, WE MAKE HANDCRAFTED TOOLS.



If you take the time to make quality woodwork it's time you learned about Elu woodworking tools. Because for the first time ever, Black & Decker is offering its line of Elu tools in the U.S. Sanders, routers, a power planer and a jointer/spliner—all with a wide range of accessories.

Take our newest plunge router, the 3338. Like all our tools, it's built for precision and accuracy.

Its case hardened, polished steel guide rods, set in bronze bushings, guarantee a perfect 90 degree entry and a consistently smooth plunge movement.

Its 2¼ horse- power motor lets you select RPMs from 8,000 to 20,000. So even when faced with a variety of materials, bit sizes, cutter profiles and feed rates, you're ensured constant speed under load and a fine finish.

Precision-machined collets are slotted on six sides to clamp the cutter evenly and minimize vibration and run-out. And like every Elu tool, our plunge router is hand assembled in Switzerland. So you can be sure it will run like clockwork.

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The Woodworker's Journal

MAY/JUNE 1988 VOLUME 12, NUMBER 3

CONTENTS

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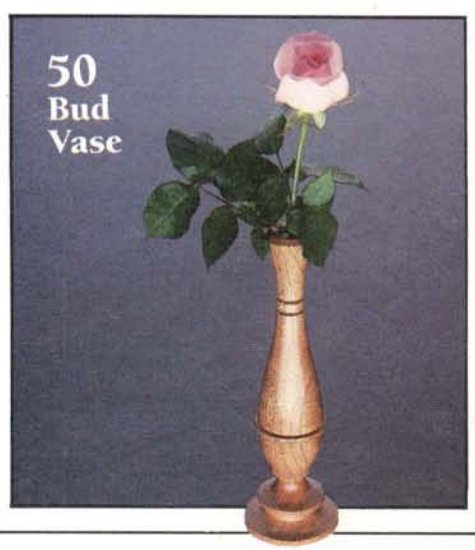
Contributions: We welcome contributions in the form of manuscripts, drawings and photographs and will be glad to consider such for possible publication. Contributors should include a stamped, self-addressed envelope of suitable size with each submission. While we cannot assume responsibility for loss or damage, all materials will be treated with care while in our possession. Payment for the use of unsolicited material will be made upon acceptance. Address all contributions to: *Editor,* **The Woodworker's Journal,** P.O. Box 1629, New Milford, CT 06776.

DEPARTMENTS

PROJECTS



Shoptalk

A Bird Carving

Way back in the September/October 1986 issue, I mentioned that we were about due for another bird carving project. It's been a long time in the works, but we've finally got one for you in this issue . . . and it's a beauty!

We worked this one out with well-known woodcarver Rick Butz (pronounced like boots), and his wife Ellen, also a professional woodcarver. The Butz's live and work in Blue Mountain Lake, New York, a small town in the Adirondack mountains. Some of you may have had the good fortune to see Rick's excellent series of woodcarving shows on public television. The shows cover a wide range of carving projects including the lovely loon that is featured in this issue.

In addition to his television work, Rick has authored the book *How To Carve Wood* (published by Taunton Press and available from Rick Butz, P.O. Box 160, Blue Mountain Lake, NY 12812, for $15.50 postpaid). Rick also put together an article for the September/October 1987 issue of ***The Woodworker's Journal*** on traditional chip carving.

There's a certain mystique associated with the loon, probably because so few of us have actually seen this shy bird in its northern wilderness setting. With the understated elegance of their black and white plumage and their distinctive red eyes, loons are truly beautiful subjects for a carving project. If you enjoy this one, let me know and we'll work up another real soon.

At The Masthead

In the previous issue, limited space prevented my mentioning the addition of Tom Clark to our editorial staff. Tom is a professional journalist and an enthusiastic woodworker, so he's able to carry a project through from milling the lumber in the shop to writing the finished copy.

Tom joined us a few months ago and the production of each issue has become noticably easier since his arrival. For the first time in 11 years we are actually nearing our long-dreamed-of goal of completing several issues in advance.

Are You Happy?

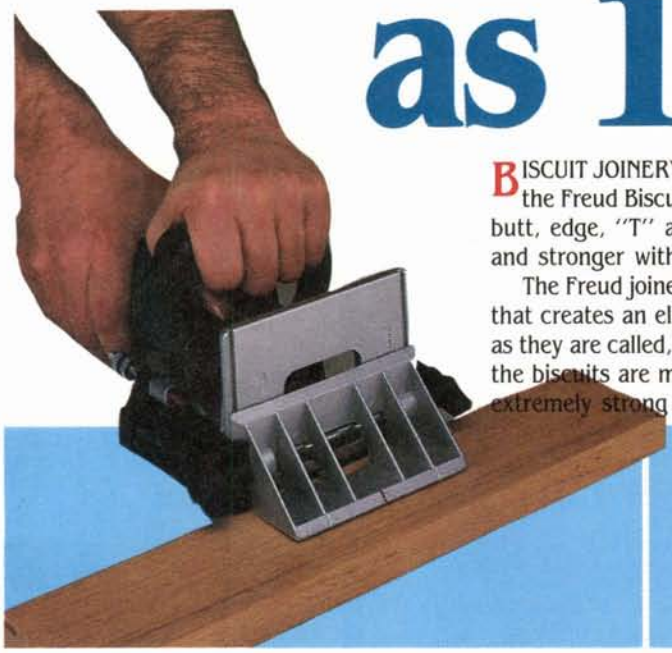
What I mean is . . . are you satisfied with ***The Woodworker's Journal?*** Are you getting the types of projects that you enjoy building, and the kinds of articles you need to keep improving your woodworking skills?

We have always taken pride in our responsiveness to our subscribers. You people are our valued customers and if you're not happy, neither are we . . . so let us know if there's anything you'd like to see us do . . . or not do. And if you've got good ideas you'd like to share with other readers, write and tell us about them so we can pass them on.

Jim McQuillan

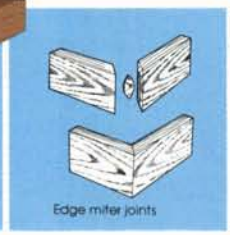
FREUD'S BISCUIT JOINER:

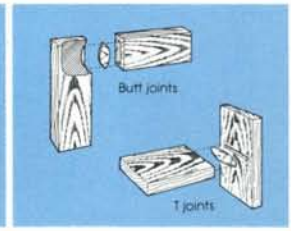
It Works as Easy as 1·2·3

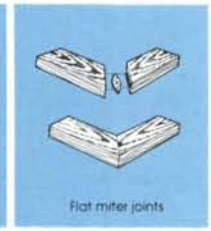


BISCUIT JOINERY is now easy and economical with the Freud Biscuit Joiner machine. Joints, such as butt, edge, "T" and others, can be made quicker and stronger with the use of the Freud joiner.

The Freud joinery machine is a plunge cutting tool. It has a rotating carbide cutter that creates an eliptical slot in the surfaces to be joined. The splines, or "biscuits" as they are called, are inserted into the slot along with any water based glue. Because the biscuits are made of wood, the water makes them swell in the joint making an extremely strong and firm bond.

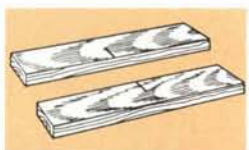






1 Lay Out

The boards that are to be joined should be placed together and the location of each joint marked on both pieces. The vertical fence is adjusted to the depth desired for the slots. Turning the wing nuts on the side of the fence allows it to move easily in the tracks. The fence is accurately calibrated to allow you to easily move it to center of the joint *(See Figure 1).*



At this point, you have determined the horizontal location of the joint by marking the wood and vertical location of the joint by setting the fence.

2 Cut

You are now ready to make the slots for your biscuit joint.

There is a red indicator line on the front of the fence and a corresponding red mark on the base plate *(See Figure 1).* You can use either of these marks for alignment with the lines drawn on the mating pieces of wood.

With the wood securely held in place, align the red mark with the line on the board. With one hand you can grasp the body of the machine. The other hand is placed on the handle. Turn the machine on and, with a steady forward motion, push the joiner body forward to make the biscuit slot. Repeat the process for each marked area on all of the wood pieces.

Simple and Easy!!! The wood particles are automatically ejected through the machine's exhaust port.

3 Assemble

Apply a water based glue to the slots and surfaces being joined. Insert the biscuits in the slots and push the boards together. For best results you will need to clamp the joint together for the glue manufacturer's recommended drying time.

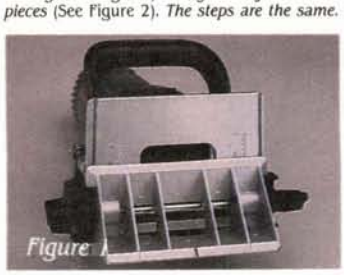
There you have it, 1-2-3!! An extremely strong joint produced quickly and easily by you and the Freud Joiner Machine.

You will find a complete instruction "How to" book with each machine. Illustrated with photographs and drawings, it is designed for those woodworkers not familiar with biscuit joinery. The Freud biscuit joiner will prove to be a highly valued tool for your woodworking projects.

At a List price of $285.55, the Freud JS100 Joiner Machine is now on sale through your local Freud distributor for $195.00.

MITER JOINTS? NO PROBLEM!

By reversing the fence, you can join mitered pieces (See Figure 2). *The steps are the same.*



Mark the location of your joint and set the fence to the vertical height needed. Line up the fence with the mark and make your cut. Apply glue — insert biscuits — clamp!

Booklet

freud®

218 Feld Ave., High Point, NC 27264
919-434-3171

1570 Corporate Drive, Suite G
Costa Mesa, CA 92626
714-751-8866

Letters

Editor's Note: In our January/February 1988 issue we featured plans for a Shaker Wall Clock, and we instructed readers that if they wanted an authentic dial face for the clock they could order a hand silk-screened copper dial from the Hancock Shaker Village in Hancock, Massachusetts. However, Hancock is now out of stock and will no longer carry them.

Recently, though, we learned of another option — a silk-screened dial face that's made from Baltic birch plywood (not copper like the original). Except for the difference in material, it looks just like the Hancock face. It can be ordered from Gerald Hunt, 52 Lakeview Street, Pittsfield, MA 01201. The price is $12 postpaid.

I'm planning to make the Shop Drum Sander project featured in your May/June 1987 issue. You listed The Fine Tool Shops as a source for the inflatable drum that mounts to the end of a motor shaft, but they have advised me that they are out of stock and no longer carry them.

John Harrington
Garden Valley, Idaho

We've been unable to find another supplier for an inflatable drum that will mount to the end of a motor shaft. As an alternate, you may want to consider a rubber-core drum sander. The mail-order company Woodworker's Supply of New Mexico, 5604 Alameda Place N.E., Albuquerque, NM 87113 sells one that measures 3 in. in diameter by 3 in. long and mounts to either a ½ in. or a ⅝ in. diameter motor shaft. Part number 202-018 fits a ½ in. shaft, part number 202-019 fits a ⅝ in. shaft. The current price is $20.25 plus $4.50 packing and shipping.

You had plans for an Oak and Glass Tier Table in your March/April 1988 issue. On page 29, in the last paragraph, I think the sentence "Using a tenoning jig makes the procedure easier and safer" should have said "Using a tenoning jig is the *only* safe way to cut a tenon with the workpiece on end." In a recent demonstration, I saw an experienced woodworker show how a hand-guided piece can bind between the table saw and the blade and snap one's hands into the blade.

If a jig is not available, cut the tenon shoulders on the table saw as described, then cut the cheeks with a band saw. Or cut the shoulders and complete the tenon by making repeated cuts through the cheek area without changing the blade height. Try the same technique using a dado blade to cut both shoulders and cheeks in just a few passes. Careful cleanup with a chisel will produce a snug fitting joint with minimal risk of injury.

Dee Anna Lane, Raytown, Mo.

I decided to build the Curio Cabinet project in your November/December

1987 issue. However, I learned that Allcraft Tool and Supply Company (your recommended source for the ¼ in. brass tubing and the 3/16 in. brass rod) requires a minimum order of $25 and charges $5 for a catalog, so I decided to explore locally for these items. I discovered that plumbing supply houses carry ¼ in. brass refill tubes for toilet tanks. The refill tubes cost 77¢ for a 10 in. length. At a local welding supply house I found 3/16 in. brass brazing rod. A three ft. length cost me $1.03.

Don Hansen, Norfolk, Nebr.

I know the Chinese built intricate wooden puzzles for many years, yet I have been unable to find a book that shows how to make them. Can you help?

Romeo Savaiano, Hayward, Wis.

We don't know of a book that specifically describes Chinese puzzle construction. However, you may find the book Puzzle Craft, *by Stewart T. Coffin, of interest. About 100 puzzles are described in the book, with some added information on how to make them. To order, write to Stewart T. Coffin, 79 Old Sudbury Road, Lincoln, MA 01773. Current price for the book is $12 postpaid.*

With all the emphasis one hears these days regarding workshop safety, I think there is one area that is being overlooked, and that is safety around machines such as jointers, table saws, band saws and the like when they are *turned off.*

When these machines are running I'm careful to observe every safety procedure so that I'll walk away with two good eyes and all fingers still intact. To minimize the chance of an accident, I don't turn on any machine until I make darn sure that all guards are in place, that push sticks are within easy reach, and that my safety glasses are on. In fact, I purposely leave a pair of safety glasses in the way on each machine so that I have to move them before the tool can be used.

Unfortunately, when the power is turned off, it's easier to become careless. I know. When I was waxing my jointer table, I took what I thought were all the proper precautions, including removing the plug from the wall. But I neglected to lower the jointer blade below the table, so when I passed my hand over the blade, I sliced my finger open. We must be on the ball constantly when we are in our shops as these machines have no conscience.

Alan C. Sandler, Garnerville, N.Y.

Could you tell me where to buy the canvas backing needed to make the tambour for a rolltop desk?

John A. Summy, Stuarts Draft, Va.

We use 10 ounce art canvas which is available at just about any art supply store.

Readers' Information Exchange

Looking for an owner's manual for an old band saw? Need a bearing for a hand-me-down table saw? Can't find a source of supply for an odd piece of hardware? Maybe our readers can help. Send along your request and we'll try to list it here — and one of our readers may have an answer for you. Due to space limitations, we will be unable to list all requests, but we will include as many as we can.

I need to know the proper diameter pulley to be on a Sears Roebuck jigsaw, model no. 103.0402, and the proper diameter pulley for the ¼ HP 1750 rpm motor.

Henry E. Rhein
RD 2, Box 325, Bradshaw Drive
Sewickley, PA 15143

I'm looking for an owner's manual for a Craftsman benchtop drill press, model no. 103.23640.

W.H. Dunham
3724 Mary Ann Court
Olympia, WA 98501

I need a motor-mount stand and an owner's manual and parts list for my Sears tilt-blade table saw, model no. 103.22161.

Leo Anderson
111 Sawyer Drive
Aliquippa, PA 15001

I'd like to have an owner's manual and parts list for a Craftsman table saw, model no. 103.22160.

Robert N. Daily
697 Clearwood Court
Aurora, IL 60504

I am in need of one motor brush holder for a Sears electric hand saw, model no. 315.27790.

Paul J. Malan
P.O. Box 03450
Cleveland, OH 44103

I need an owner's manual for a Boice Crane 12 in. thickness planer and a source for the knives, which measure approximately 12¼ in. by ⅛ in. by ⅞ in.

Bob Schultz
730 Tranquility Lane
Lansdale, PA 19446

I need an owner's manual, parts list and any information on excessive vibration for a Cummins Do-it jigsaw, serial no. 7286, made in U.S.A. by John Oster Mfg. Co., Milwaukee, Wisc.

Donald E. Branham
1064 Critzer Dr.
Lugoff, SC 29078

$5.00 CASH-BACK ON THE WIZARD THE FINEST BLADE EVER MANUFACTURED

If you want the finest cutting and finishing performance in a circular saw blade, your wish is granted with the new WIZARD blade from U.S. Saw.

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Limit one rebate check per person. Allow up to eight weeks for delivery. Void where prohibited, taxed or restricted. The coupon must accompany all rebate requests. Requests postmarked after the expiration date of 12/23/88 will not be honored.

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AMERICAN MADE

Events

We will be glad to list as many events of interest to woodworkers as space permits. Listings are free and may include shows, fairs, competitions, workshops and demonstrations. The issue closing date is the 1st of the 2nd month preceding the cover date (5/1 for July/August; 7/1 for September/October). Please address announcements to the Events Department.

New England:

ACC Craft Fair, "The Original Rhinebeck Fair," June 24-26, Eastern States Expo, West Springfield, Mass.

Woodworking World — The Boston Show, Apr. 29 - May 1, Bayside Expo Center, Boston, Mass.

Workshop in Craft Shows and Booth Construction, May 14. For info, contact Doreen at the Vermont State Craft Center at Frog Hollow, (802) 388-3177, by May 3.

Middle Atlantic:

The Upstate New York Woodworking Show, May 20-22, South Hall, Riverside Convention Center, Rochester, New York.

The NY/NJ Woodworking Show, June 17-19, Rothman Center, Fairleigh Dickenson Univ., Hackensack, New Jersey.

Application deadline for the Annual International Art & Craft Competition is May 26, 1988. Winners' work will be exhibited in two New York City galleries. For application, write to: I.A.C., Dept. PRR, P.O. Box 245, Eastchester, NY 10709; Tel. (914) 699-0969.

An exhibition, "American Craft at the Armory," sponsored by the American Craft Council, will be held at the 7th Regiment Armory, Park Ave. & 67th Streets, New York, N.Y., May 6-8, 1988.

The Sawmill Center for the Arts is offering classes in Realistic Bird Carving, June 20-24; Relief Woodcarving, July 4-8; Woodcarving in the Round, July 11-15. For information, contact the center at P.O. Box 6, Cooksburg, PA 16217.

East North Central:

The Chicagoland Woodworking Show, May 13-15, MegaCenter, Pheasant Run Exhibit Center, St. Charles, Ill.

Application deadline for the 47th Madison Chautauqua of the Arts is June 15, 1988. The juried show will be held Sept. 24-25 in Madison, Indiana. For info, write to Dixie McDonough, 1119 West Main St., Madison, IN 47250.

A six-day workshop in the maintenance and repair of woodworking machinery and portable electric tools will be held June 13-18 in Cleveland, Ohio. For information, contact the Department of Technology Systems, Bowling Green State University, Bowling Green, OH 43403; Tel. (419) 372-2439.

The Great Lakes Woodcarving Exhibit will be held at the Brooklyn Recreation Center, south of downtown Cleveland, May 14-15. For info, contact Ed Katzenmeyer, 116 Goodhue Dr., Akron, OH 44313; Tel. (216) 864-0784.

A 3-day course in the basics of hardwood drying, sponsored by the National Wood Drying Associates, will be held May 23-25. For info, contact Paul Bois, 5118 Buffalo Trail, Madison, WI 53705; Tel. (608) 238-7097.

Workshops in wood turning, canoe building, and wood-burning will be included in the 6th Annual Festival of Crafts, June 18-26. For info, contact Nancy Blake, 245 Tech Wing, Jarvis Hall, Univ. of Wisconsin-Stout, Menomonie, WI 54751; Tel. (715) 232-1102.

South Atlantic:

Country Workshops' summer classes include: Windsor Chairmaking, July 4-9; White Oak Basketry, July 18-22; Scandinavian Woodenware, Aug. 1-5; Ladderback Chairmaking, Aug. 15-20. For info, write to Country Workshops, 90 Mill Creek Rd., Marshall, NC 28753.

Summer classes at the Augusta Heritage Arts Workshop in Elkins, West Virginia include: Whittling, Guitar Construction, Treenware, and Dulcimer Construction. For details, contact the Augusta Arts Heritage Center, Box CN, Davis & Elkins College, Elkins, WV 26241-3996.

The Penland School's summer courses include: Wood — From Idea to Product; Furniture Design and Construction; Wood — Crazies & Wood; Boxes; Wood — Furniture & Technique; Marquetry. For info, contact The Penland School, Penland, NC 28765-0037; Tel. (704) 765-2359.

West South Central:

Five-day "Furniture Design & Construction" workshop, May 16-20. Contact Frank Ferraro, Gallery B, 11121 N. Rodney Parham Rd., Little Rock, AR 72212; Tel. (501) 221-0266.

15th Annual "FestForAll," May 28-29, North Blvd., downtown Baton Rouge, Louisiana.

Application deadline for the 13th Annual Fall Crafts Festival held in Baton Rouge is July 15th. For details, send SASE to River City Festivals Assoc., 427 Laurel St., Baton Rouge, LA 70801; Tel. (504) 344-3328.

The North Texas Woodworking Show, May 6-8, North Hall, Dallas Convention Center, Dallas, Texas.

Mountain:

Western Montana College Industrial Arts Department's Annual Festival of Arts and Industry, Apr. 29-30, Dillon, Mont.

Pacific:

The Oregon School of Arts and Crafts will hold a seminar in Bowl and Spindle Turning, May 15. The school's summer courses include: Wood Study; Beginning Woodworking, I, II, and III; Advanced/Intermediate Woodworking. For information, contact the school at 8245 S.W. Barnes Rd., Portland, OR 97225; Tel. (503) 297-5544.

Europe:

The Switzerland Woodworking Tour, sponsored by The Woodworking Association of North America, hosted by Gottlieb Brandli. Departs from Boston, New York, Chicago. $2600 per person. Call toll-free for info: (800) 521-7623.

Cabinetmakers' Supplies

Clock Parts

As a service to our readers, *The Woodworker's Journal* periodically lists sources for various woodworking products. In this issue we are listing companies that specialize in mail-order sales of clock parts. Most will carry such components as movements, dials, hands, numerals and miscellaneous clock hardware. Some also offer plans and kits.

Armor Products
Box 445, Dept. H1
East Northport, NY 11731
Catalog $1.00

Cas-Ker Company
P.O. Box 14069
Cincinnati, OH 45214
Catalog $1.00

Craft Products Company
228 W. Main St.
St. Charles, IL 60174
Catalog free

Emperor Clock Company
Emperor Industrial Park
Fairhope, AL 36532
Catalog $1.00

Otto Frei & Jules Borel
P.O. Box 796, Dept. WJ
Oakland, CA 94604

Klockit, Inc.
P.O. Box 629, Dept. WJ58
Lake Geneva, WI 53147
Catalog free

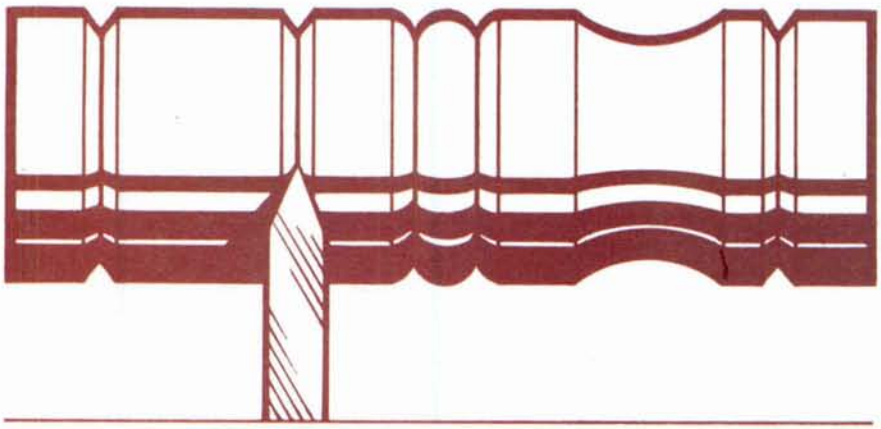
S. LaRose
234 Commerce Place
Greensboro, NC 27420
Catalog $2.50

Mason & Sullivan
586 Higgins Crowell Road
West Yarmouth, MA 02673
Catalog $2.00

Newport Enterprises
2313 West Burbank Boulevard
Burbank, CA 91506
Catalog free

Turncraft Clock Imports
7912 Olson Memorial Highway 55
P.O. Box 27288
Golden Valley, MN 55427
Catalog $3.50

Viking Clocks
P.O. Box 1139
Fairhope, AL 36533
Catalog free



Spindle Turning

To learn wood turning you need to teach your hands new moves. Like any new skill, the learning doesn't come easily, but only after long hours of work and plenty of frustration.

There are two wood-turning methods, scraping and cutting. The first uses an edge held nearly perpendicular to the workpiece to scrape away wood fragments. The second technique uses the edge at an acute angle to slice into the revolving workpiece and remove wood shavings. Scraping is easy, but it tears the wood and leaves a surface badly in need of sanding.

Cutting leaves a surface requiring little or no sanding. Moreover, cutting is faster than scraping. A good wood turner cuts glass-smooth beads in two sweeps of the chisel.

Generally, scraping is used for interior hollowing on faceplate turnings, where the grain tends to draw the cutting edge into the wood. Cutting is used for spindle turning, and the exterior of faceplate turnings.

Although we'll describe cutting techniques here, you can always use scraping in a pinch. Essentially, the idea is to wear away the cylinder. It's easy to do slowly and with precision. Many beginning turners resort to scraping for tight places because they're less likely to ruin the piece. There's nothing wrong with that.

To learn cutting you'll need a gouge, a skew and a parting tool. The gouge and skew should each be ½ in. or ¾ in. The parting tool can be any of the common sizes. Ours is 3/16 in. You'll also need several pieces of scrap hardwood about 2 in. thick. If using thicker stock, make sure the lathe is at its slowest speed for all operations.

Refer to the "Selecting and Sharpening Lathe Tools" feature on page 19 for more on the tools. We covered preparing and mounting the stock in our March/April 1988 issue.

There are two basic hand positions. We prefer to hold the chisel with our fingers grasping the blade and against the tool rest (Fig. 1A). Others prefer to put the hand directly on top, especially

when roughing out stock (Fig. 1B). The first method offers more precise control for small beads and coves, the second a firmer grasp for heavy cutting. Try both to get a feel for which

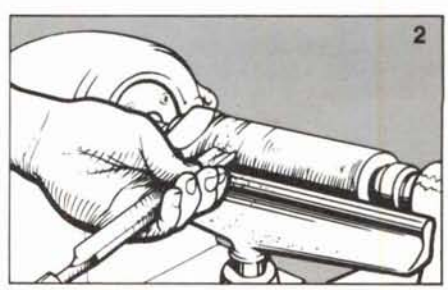
you prefer.

Keep in mind while cutting that you should start with the flat of the bevel riding against the revolving workpiece, then maneuver the handle so just a portion of the edge bites into the workpiece, maintaining the same degree of cut through the operation. Keeping the bevel riding against the wood will support the cutting edge and save you from numerous digs.

Roughing Out

Use the gouge to turn the rectangular workpiece to a rough cylindrical shape. Plant your feet well apart in a comfortable stance. Choose your largest gouge. Set the tool rest just above the center of the workpiece and about 1/8 in. away. Rotate the turning blank by hand to insure full clearance. Set the lathe speed at the slowest setting, usually about 750 rpm.

If cutting from left to right, angle the handle down and slightly to the left. As shown in Fig. 2, hold the chisel with your fingers against the tool rest. Start several inches from the left end of the workpiece so you don't accidentally slip off the turning into the spur center. Bring the chisel up to the workpiece until it starts to nick the revolving wood and cut lightly right across to the end. To keep the cut uniform, try holding the chisel firmly, locking your



arms and elbows and moving your whole body in the direction of cut. Watch the top edge of the workpiece rather than the tool while cutting.

Once you get the feel you'll be able to take successively deeper cuts. With a sharp gouge the work should go fairly fast. Stop the turning periodically to judge your progress. The gouge should cut evenly all around the cylinder. The small square section remaining near the headstock on the left is easily removed with a few passes of the gouge. Just be careful as you approach the spur center.

Smoothing The Cylinder

After roughing out the cylinder, you'll need to smooth it, eliminating ridges and getting it to your prescribed diameter. You can raise the lathe speed to about 1,000 rpm if you wish, but lathe speed isn't as important as correct technique. The accepted practice is to use a skew chisel in a shearing cut across the top of the cylinder as shown in Fig. 3. Start as before, several inches from the left end, but with the tool rest near the top of the cylinder. The long corner or toe of the skew (see page 20, Fig. 1 for location of long corner) should point up, the handle should be far left and well down. The skew

should also be tilted on the tool rest, with the rest supporting the edge leading to the short corner.

Remember to position the tool so the bevel rubs, then maneuver the tool so the edge near the short corner does the cutting. If the cutting action moves toward the long corner, or toe, the force of the spinning cylinder will drag the skew down, because that portion of the edge isn't supported by the tool rest. So be sure to cut near the short corner, but not right on the corner or you'll pile up shavings in front of the edge.

To start, get the bevel rubbing and lift the handle slightly so the edge just begins to cut. Start at the left, hold your hands and arms steady and sway your body to the right. Just take light cuts at first, shearing off the high spots. When the blade cuts evenly, take off a continuous shaving; the cylinder should be smooth. Properly done, this technique will leave you with a smooth surface that needs little or no sanding. The smoothing technique is also used for tapers, and even for more gradual hollows.

In the hollows, however, the sharp shoulder of the short corner can dig into the wood, so you'll want to round it over on the grindstone.

Because smoothing with a skew takes considerable practice, at first you may want to use a roundnose chisel to scrape the cylinder smooth. That way you'll at least have a clean workpiece to practice other cuts while you're still learning. The technique is simple, just drag the roundnose across the workpiece using the tool rest as a guide, as shown in Fig. 4. Make sure the tool rest is perfectly parallel to the cylinder before starting, and lock your fingers

in place against the tool rest.

Again, move your whole body and keep an even pace. If the piece is longer than the tool rest, you'll have to reposition the support. Working with a roundnose will leave a surface that requires a lot more sanding than the same profile would when cut with a skew.

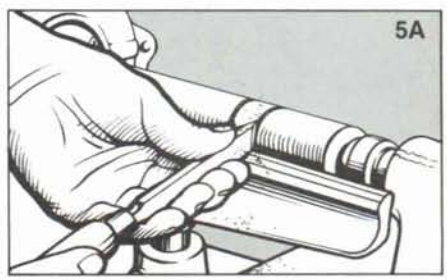
Cutting Beads

Cutting beads is also a difficult technique to learn. But beads are such an integral part of spindle turning that this one skill will allow you to make numerous designs. In fact, by mastering this technique you'll go a long way toward becoming an accomplished woodturner. The skew is commonly used for this operation, but the gouge and parting tool can also be used with slight modification of the technique.

Cutting beads requires four simultaneous movements of the skew: swinging and raising the handle, rotating the tool on the rest and feeding it into the wood. The movements must be evenly paced or the herky-jerky motions will be recorded in the surface of the bead.

First mark the two sides of the bead with a pencil and increase the lathe speed to about 2,000 rpm for a typical 2 in. diameter workpiece. Feed the short corner of the skew into the wood at the marks (Fig. 5A). You don't need to cut deeply. Beads are cut from the center out, doing first one side, then the other.

Start with the skew handle well down and away from the direction of cut, the tool tilted on the rest and the short corner over the center of the bead. Start the cut with the bevel riding against the workpiece. Tilt the skew slightly on the rest and raise the handle a hair to begin the cut. When the edge just penetrates, hold for a second to make sure the bevel is still rubbing the wood (Fig. 5B). If not, maneuver the tool so that the bevel rubs and just the very corner of the tool cuts.



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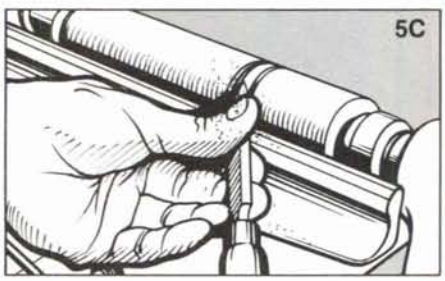
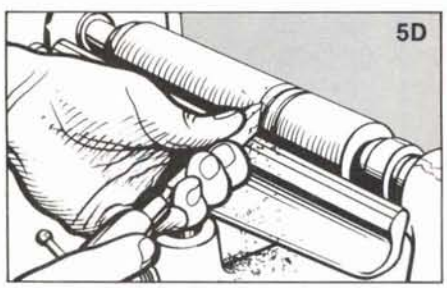
If cutting the left side of a bead, proceed by rolling the tool to the left, while swinging and lifting the handle gently in the same direction (Fig. 5C). Ease the skew into the cut.

The tool should end up with the short corner in your groove, and the edge perpendicular to the work as shown in Fig. 5D. Beginners often don't swing the handle all the way over, and wind up not cutting to the bottom of the bead. To remedy that, take another cut, remembering to swing the handle farther over. The bead doesn't have to be cut in one or two passes, so take light cuts first from one side and then the other.

You can also cut a bead by forming the shoulders first with a parting tool.





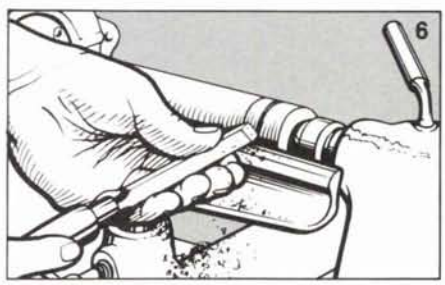
To do that, start by rounding over the corner, taking light shavings until you are cutting around the entire bead.

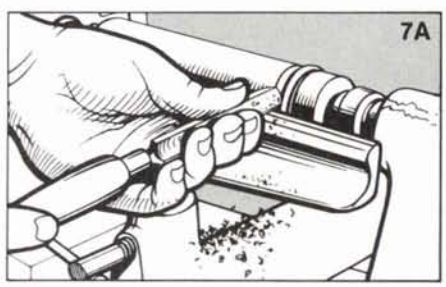
But why do beginners usually get little but digs and slices for their best efforts? The common mistakes are failing to let the bevel ride against the wood as the chisel cuts, and not using the portion of the blade supported by the tool rest. Without the support of the bevel and the tool rest, the edge will catch on the revolving wood. You'll get a dig or a runout. Remember to cut with the very edge of the short corner, maneuvering the chisel through the cut in such a way as to keep only that small portion of the edge cutting.

Cutting Coves

Coves, thankfully, are easier than beads. The tool used, a gouge, doesn't have sharp corners to catch on the revolving wood. The main danger is at the start, when the edge is cutting without the bevel supported by a shoulder of the wood. The tool can climb out and spoil the turning. So we suggest using the skew to score the workpiece at each side of the cove before you start (Fig. 6). That will leave small shoulders for the bevel to ride against.

Start the cut holding the gouge on its side as shown in Fig. 7A. The concave surface should face the direction of cut. The handle should angle down a little and slightly away from the direction of cut. To begin, gently lift the handle until the edge penetrates. Then





roll the gouge while lifting the handle (Fig. 7B). The gouge should wind up on its back, the concave surface pointed up, as shown in Fig. 7C. Work from one side and then the other, removing the wood in slices. You can hog out the wood at the very center of the cove by feeding the gouge on its back.

When you gain confidence, you'll be able to cut a cove with a couple of swoops of the gouge and leave a surface that needs little or no sanding.

But remember to work from both sides, always cutting downhill and rolling the gouge at an even pace.

Cutting Pommels

Many turning projects contain rectangular sections, frequently for mortise and tenon joints. Cutting the shoulders of the sections, called pommels, can be difficult because the wood tends to tear at the corners. Moreover, the square shoulder easily catches the corners of chisel, causing it to run and dig into the workpiece. Learning the technique takes plenty of practice and a good hoard of scrap.

To start, rough out a cylinder to a point near the shoulder. Using the skew chisel's short corner, gently round over the shoulder with the same motion used for cutting a bead, as shown in Fig. 8. Don't try to hog off a lot of wood or the chisel will dig in or run out of the cut. Use gentle shearing

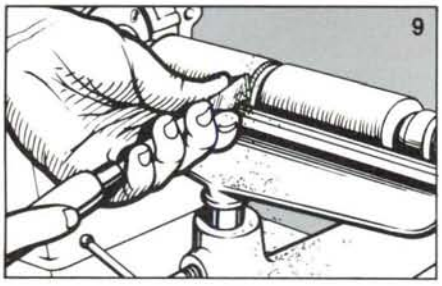
cuts, rounding the edge over slowly. The result should be a smooth shoulder that needs no sanding.

Cutting V-Grooves

Small V-grooves are often used on beads or tapers as decorative details. Larger grooves are sometimes an integral part of a design.

First, with the long corner of the skew, form small notches at the sides of the V-groove. The notches provide shoulders that will support the bevel of the skew during cutting.

The short corner of the skew does most of the cutting for V-grooves, as shown in Fig. 9. The handle should angle down and slightly away from the direction of cut. The skew should be tilted on the tool rest to a nearly vertical position. Cut with a shearing motion gently raising the handle. The skew should remove thin shavings.



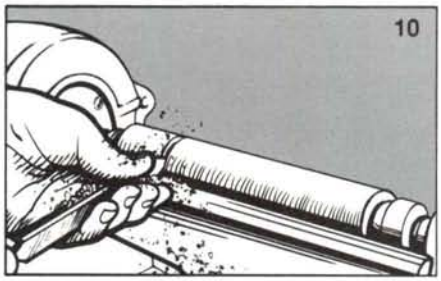
Take small slices from alternate sides of the V-groove until reaching the required depth and width.

The Parting Tool

The parting tool is just a wedge-shaped chisel used to quickly pare away slices of wood. It's often used to cut shoulders — on round sections rather than square — and to slice away sections of wood at the bottom and top of coves and beads. In general, turners use the tool anywhere they need to quickly remove sections of wood.

The tool is easy to use. Just present it perpendicular to the work and slowly feed the tool, as shown in Fig. 10. The parting tool cuts quickly at any angle, but lowering the handle (raising the cutting edge) increases the shearing action and the speed of the cut.

Because the parting tool leaves a rough surface, you'll often need to clean up the cut with a skew chisel. Use the short corner with the handle angled down. Before feeding the tool, adjust the skew so the bevel rubs against the surface to be cleaned. Then maneuver the handle so just the very point of the short corner starts to cut. Hold the position as you feed the skew, taking a light shaving, as shown in Fig. 11. The cut should need no sanding.



Sanding

A properly executed turning should have a crisp profile and surfaces that glisten. But if your turning needs sanding remember not to round and soften the clean shoulders. Sandpaper quickly flattens out the crispness in a turning. Use several grades of paper, finishing with 220-grit. Remember to remove the tool rest before sanding so your fingers don't get caught between the revolving cylinder and the rest.

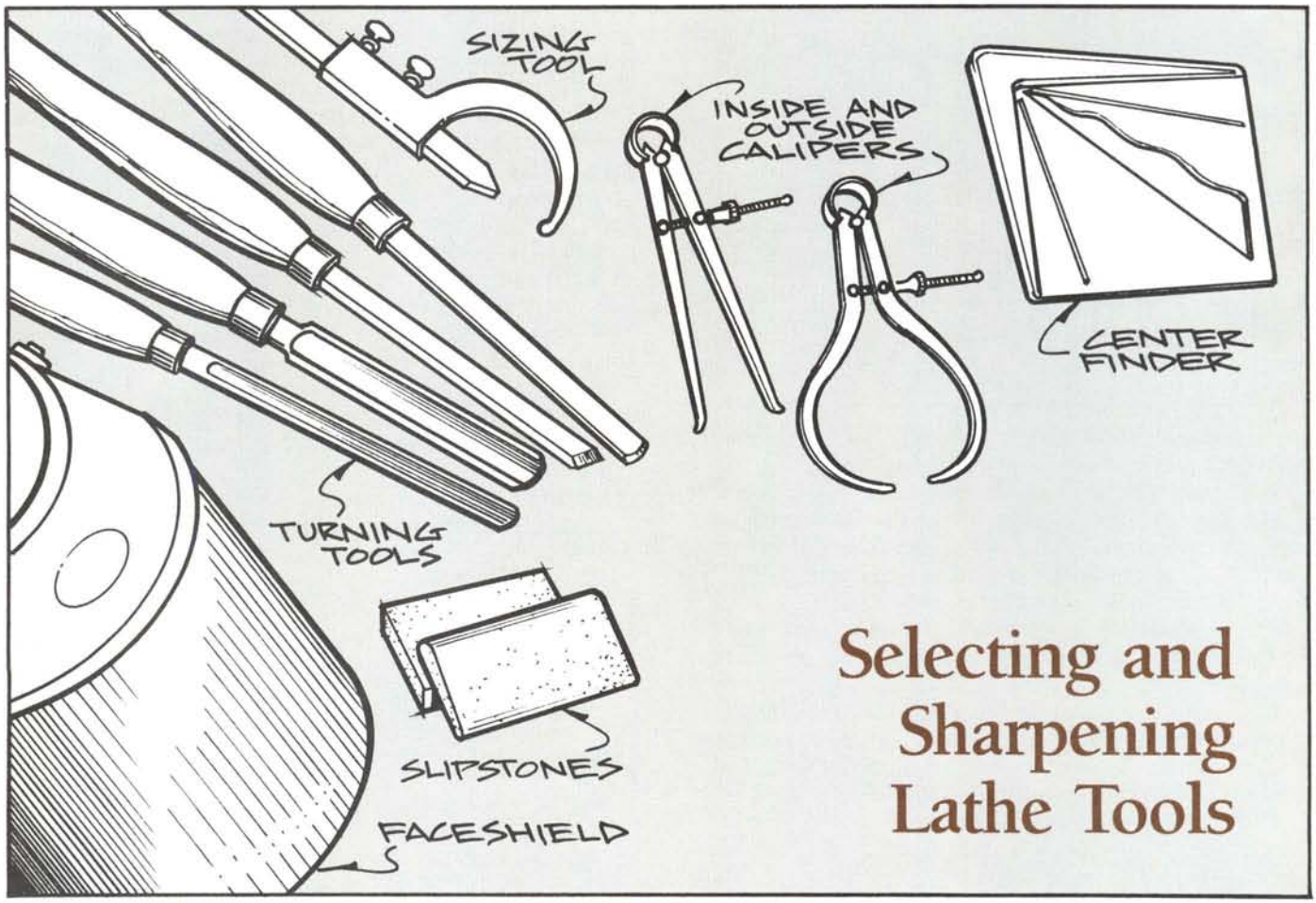
Making a Template

After practicing the various cuts, you'll want to make something. We suggest the Bud Vase project on page 50. But first you need to transfer the pattern onto some form of guide to follow while turning. We make a full-size template of the turning from plywood or hardboard, cutting the profile on the top edge and leaving the bottom edge flat. On the template draw a series of lines at critical dimensions. For example, the points of maximum and minimum diameter, and the edges of beads and coves. Draw those lines to the flat bottom edge of the template. You'll transfer those lines onto the stock after you turn it to a rough cylinder. Refer to the Bud Vase project for illustrations of a template.

After transferring the lines to the workpiece, use the parting tool to cut index slices at strategic spots. Cut to the bottom of coves, the top of beads, and at several spots along tapers or long curves. Measure frequently with calipers to insure you don't cut too deeply. You'll want to allow some wood for final smoothing or sanding, so cut the index slices $\frac{1}{16}$ in. larger than the finished size.

Keep In Mind

- When moving the chisel laterally along the workpiece — as in roughing out a cylinder or smoothing a long taper — keep hands and arms locked in position and move your whole body. The technique is sometimes called a "woodturner's sway" and makes it much easier to keep straight lines and fair curves.
- Look at the top edge of the workpiece, not the cutting tool. That way your eye takes in an uninterrupted view of the profile, making it easier to cut accurate dimensions.
- Remember that the tool rest should always be supporting the part of the tool doing the cutting. When an unsupported edge starts to bite into the workpiece, the chisel will most likely start to run or gouge the wood.
- In all cutting operations the bevel should ride on the wood, even as an edge does the cutting. Start the cuts with the bevel riding against the revolving workpiece, maneuver the handle so the edge bites into the workpiece, and maintain that degree of cut through the cutting arc.
- Cutting requires three or four simultaneous movements, carried out at a steady pace. Slow works as well as fast.
- Always cut downhill so the edge is working with the grain. Cutting up from the hollows is a sure way to ruin a piece.



Selecting and Sharpening Lathe Tools

Wood turning demands good, sharp tools. Without the right tool, ground to the correct bevel and sharpened to a keen edge, the lathe becomes a beast. An attempt to cut a bead without a sharp skew chisel usually ends in spiraling gashes. The most expensive lathe, the best tools, even the finest technique, will all produce little but digs and scrapes unless the cutting tools are carefully chosen for the job, and the edges properly prepared.

Choosing The Tools

A glance through a catalog of wood-turning tools can easily be confusing because of the multitude of chisels, gouges and scrapers. To start you'll really only need three types of tools: a gouge, a parting tool and a skew chisel. However, we recommend buying six tools for a well-rounded starter set. Two of the six are just different sizes of the skew and gouge, which make life a bit easier for operations like cutting a small cove or quickly hogging down lumber to a manageable cylinder. The last is a roundnose, used for turning bowls and other faceplate work.

The first tool you'll reach for is the large gouge, used to rough out a cylinder. You'll also use the smaller gouge to cut coves and hollows. Two good sizes to have on hand are the ½ in. and the 1 in. gouge. Eventually, you may want to get a ¼ in. gouge for very small coves and hard-to-reach places. The larger gouge is sometimes shaped differently, with the edge ground straight across instead of rounded like a finger. We prefer the rounded shape.

After the gouge you're likely to need the parting tool. It's used primarily to quickly size sections of a turning to a preliminary depth. The narrow blade easily pares a slice of the workpiece to a specific size. These cuts, small slices in the cylinder, serve as a guide when cutting long tapers, and as benchmarks when cutting beads and coves. As shown in Fig. 1, the parting tool comes to a spearpoint when viewed from one side, but a square edge when viewed from the other side. The bevel should be hollow ground to make honing easier. We recommend a $\frac{3}{16}$ in. parting tool.

The tool you may use the most is the skew chisel. It's named for the angle of the cutting edge, also shown in Fig. 1. Like the gouge, we recommend two sizes, ½ in. and 1 in. The smaller skew cuts beads and rounded shapes, the larger generally smoothes cylinders and long tapers. It's also used to clean up end grain, make V-grooves and cut the shoulders of square sections, called pommels. Some turners keep several skew chisels of each size so they can switch tools when one becomes dull.

Lathe tools are also available in a heavy-duty version, called "long and strong." The heavier chisels are handy for roughing down large pieces of lumber and for other rugged chores. The long and strong chisels have bigger handles and

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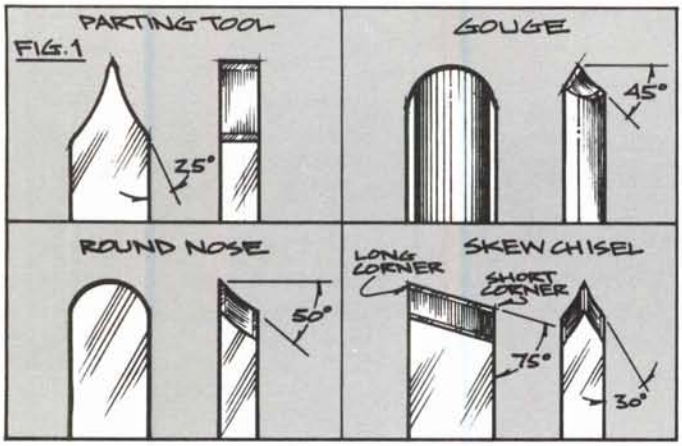


thicker and wider blades. Because they take more practice to handle, we don't advise buying them at first.

We do suggest you get a ½ in. roundnose chisel. This tool is generally used for faceplate work. Unlike the skew and gouge, the roundnose scrapes wood away rather than slicing into it. For that reason it's ground to a different angle, and held with the handle up rather than down.

Other miscellaneous tools you'll need to start wood turning are calipers, slipstones, goggles and a mallet (see illustration on preceding page). Get both inside and outside calipers. We also find a sizing tool very handy. The sizing tool clamps into a parting tool and serves as a stop so you can easily cut to a specified depth. You'll also need medium and fine slipstones for sharpening your tools. Some turners use man-made India stones, but soft and hard Arkansas are probably best. Another handy tool is a center finder. We usually draw diagonals from corner to corner, but the special centering tool easily locates centers even in irregular lumber, a weakness in the diagonal method.

Hardware stores don't generally carry turning tools, so you'll most likely have to buy them from one of the many mail-order woodworking supply companies.

Sharpening

Generally, lathe tools should have the correct bevel set by the factory. But that isn't always true, so we've provided recommended angles in the profiles of the basic chisels in Fig. 1. After you become more experienced, you may wish to modify the bevels to suit your taste and turning technique. The optimum angle can vary with factors such as the height of the operator. To keep the skew's handle at a comfortable height, for instance, a short operator would use a steeper skew with a more acute angle than a tall operator. The skew angle just allows the operator to hold the chisel waist high, instead of chest high, during common turning operations.

To sharpen lathe tools use the same basic techniques you use with a chisel, with allowances for the various shapes and types of bevel. We use a grinding wheel with a medium-grit stone, and hone with medium and fine oilstones.

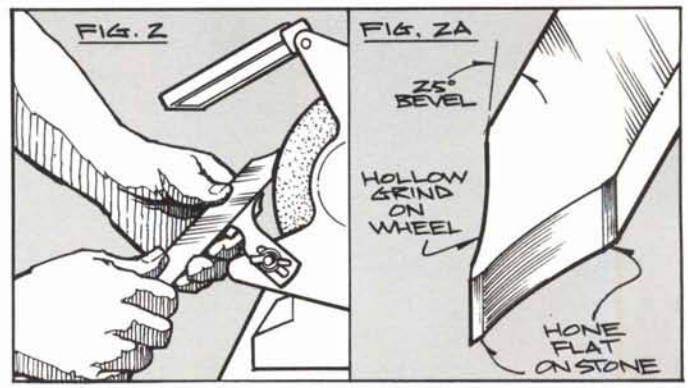
Parting Tool

The simplest to grind and hone is the parting tool. As shown in Figs. 2 and 2A, the grinding is done on the outside of a wheel to get the hollow-ground shape. Make even passes across the wheel, making sure you start from the heel and grind toward the edge. Take light passes — using just the weight of the tool for pressure — and stop when the wheel is cutting to the edge.

Some woodturners prefer to grind to a point just short of the edge, removing the last bit of metal with the stone. At any rate, hollow grinding the edge makes the honing go much faster. Instead of grinding away metal from the whole surface, you remove it at the heel and point.

The trick in the grinding process is to get the hollow-ground bevel right. To insure you're starting toward the heel, and not at the tip, try touching the tool to the wheel while noting your hand position. If the wheel cuts too far toward the edge, inch your fingers down on the blade and touch it again. Once you have the correct position, hold that firmly but lightly as you make the passes over the wheel. It helps to sway your body, rather than trying to move hands and arms during the pass.

For some grinding operations, you may find you'll need to cut so high on the wheel you can't rest the blade on the tool rest. Practice locking your elbows against your body, holding the tool firmly and moving your body as a whole from side to side.



When grinding, remember to use only light pressure so you don't overheat the tool and draw out the temper. Keep a jar of water handy to cool the steel. It's best to work slowly, often resting the tool between passes on the wheel. Best of all is a water-cooled grinding stone if you have one.

After grinding, hone with medium and fine stones, maintaining the same angle as the bevel. A small slipstone applied to a stationary edge works better than putting the tool to a bench stone. The tool itself is so large and awkward it's difficult to properly control on the bench stone. The slipstone is also easier to use on the curved surfaces of the gouges and roundnose, and essential for the concave surface of the gouge. Support the tool at a convenient height against something solid while honing. Clamping it in a vise also works well.

Remove the wire edge, or burr, raised by honing with a few light passes of the slipstone on the other side of the bevel. Keep in mind that you can easily ruin your careful work by rounding the edge over with the stone. A rounded edge is practically useless in turning because you have to angle the tool more to get it to cut, a procedure that usually results in a dig. To prevent rounding, keep the stone flat on the bevel

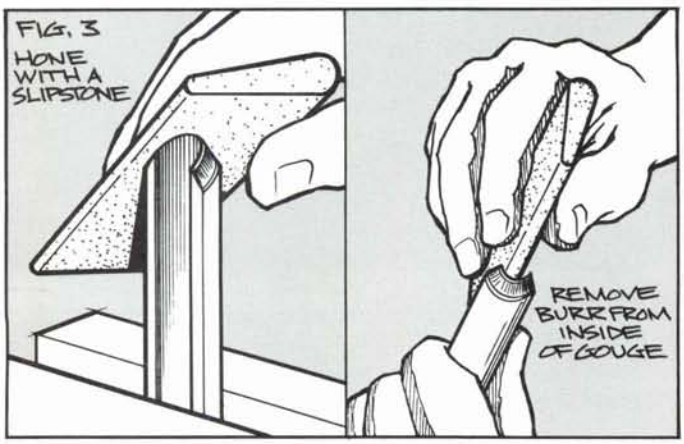
and favor the heel side when applying pressure.

The honing operations may sound difficult, but most people find they quickly gain confidence with a little practice. If you make a mistake, it can quickly be corrected with another trip to the grinding wheel.

After honing, some turners use a leather strop for an even finer edge. For most wood turning this final step isn't necessary, however.

Gouge

Grind and hone the gouges in much the same way as the parting tool. The main difference is, of course, the rounded profile. First position your hands to cut the correct bevel. Start the pass with one corner of the gouge at one side of the



wheel. Roll the chisel as you pass it lightly across the wheel, winding up with the other corner of the gouge against the wheel as you approach the other side of the wheel. At the same time, swing the handle and move the chisel in and out to maintain the round profile. It takes a little practice.

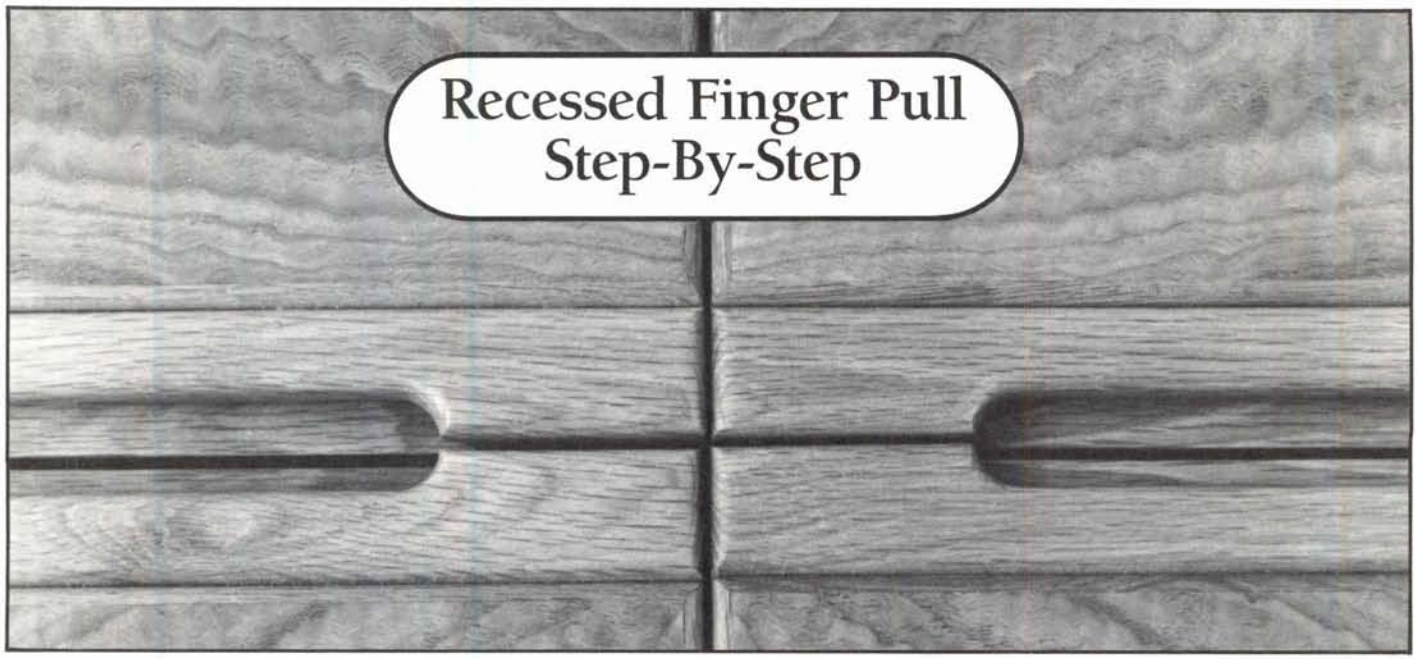
To hone the gouge, again use the slipstones on the supported tool as shown in Fig. 3. Move the stone in small circles, slowly working from one side of the bevel to the other. The rounded and hollow-ground bevel takes an edge rather easily, so a few minutes work with each stone should suffice. Remember to keep the stone flat on the bevel. After honing, remove the wire edge on the inside with the rounded part of the slipstone.

Skew

For the skew use the same procedure as for the parting tool. Just hold it at the appropriate angles. Here it's important to remember not to overheat the tool. The point of the skew is susceptible to overheating because there is little metal to carry away the heat. Keep in mind that the skew often cuts with the very tip, or heel, of the short corner so it must be accurately ground and properly honed. A few extra moments at the stone will prevent digs at the lathe.

Another recommended practice for new tools is to dull the edges of the tool where they contact the lathe tool rest. Otherwise, the sharp corner will cut into the tool rest and impede easy movement.

The final step in sharpening is checking to see if the cutting edge is indeed sharp. It should gleam when inspected closely. If you lightly touch your fingernail with the edge, it should catch slightly and not slide.

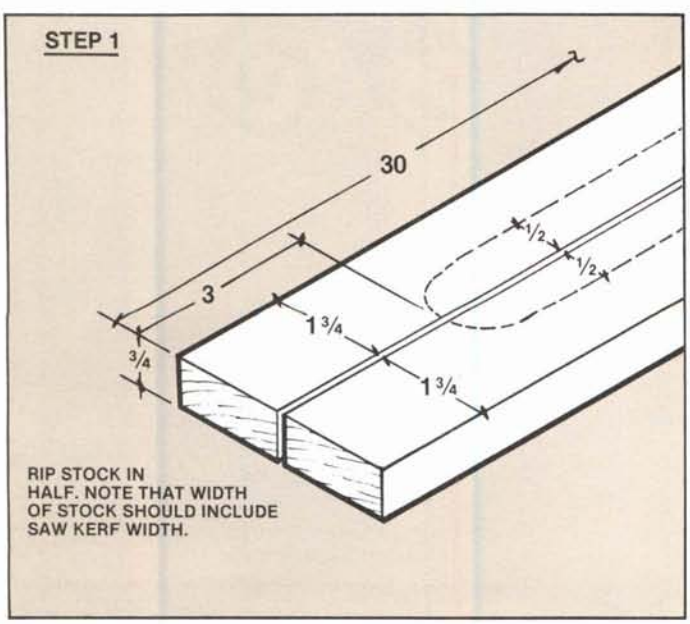


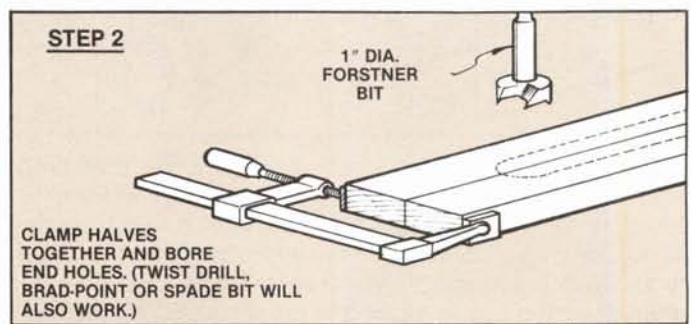
Recessed Finger Pull Step-By-Step

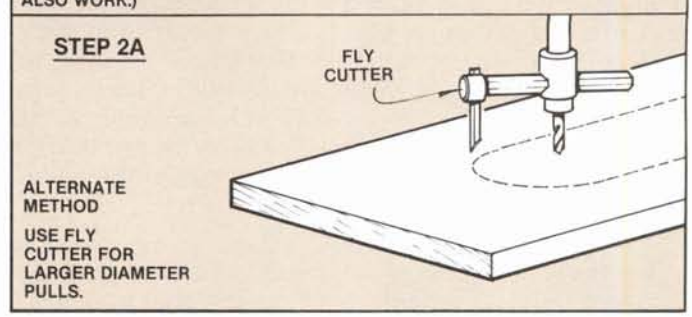
Recessed finger pulls are an element often associated with fine furniture. The inherent beauty and function of a pull that is built in, and not added on, is widely recognized by the best craftsmen as a most desirable and practical feature. Recessed finger pulls eliminate the need for expensive or hard-to-find hardware and, as a design element, contribute significantly to the overall impact of the piece. We think you'll be impressed with the distinctive look these hand-crafted pulls add to your work.

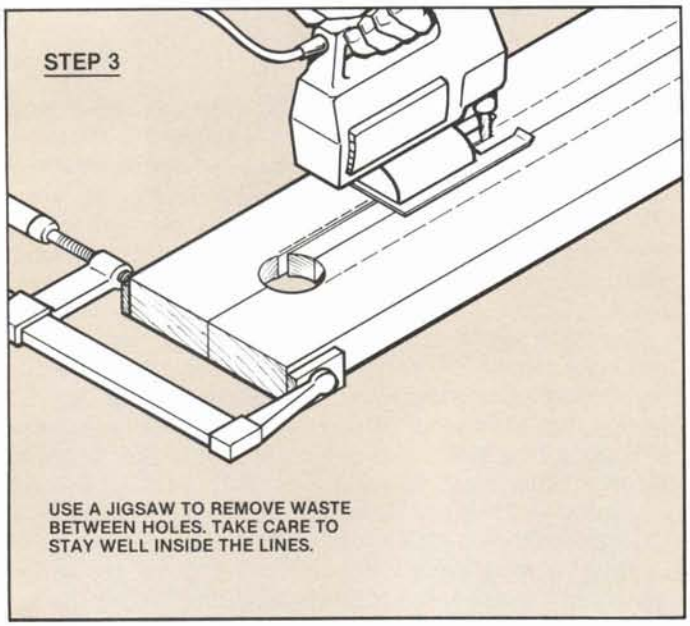
We've used recessed pulls on a number of projects, including a Contemporary Style Wall Cabinet in our May/June 1985 issue, and the Contemporary Dresser on page 38 of this issue. While the dimensions provided in this step-by-step technique apply to making the pulls for the dresser, the same basic technique can be applied to just about any contemporary project where you want to achieve clean lines and form-follows-function design. If you'd like the pulls to make a particularly strong statement, then use a contrasting wood (perhaps an exotic) for the stock into which the pull details are machined.

This method of making recessed pulls is adaptable to many different styles and sizes of pulls, with only minor modifications to the procedure. For example, large diameter pulls can be cut with a fly cutter as shown in Step 2A or with a hole saw. For the smaller diameter pulls, Forstner bits and brad-point bits provide an exceptionally clean cut, but







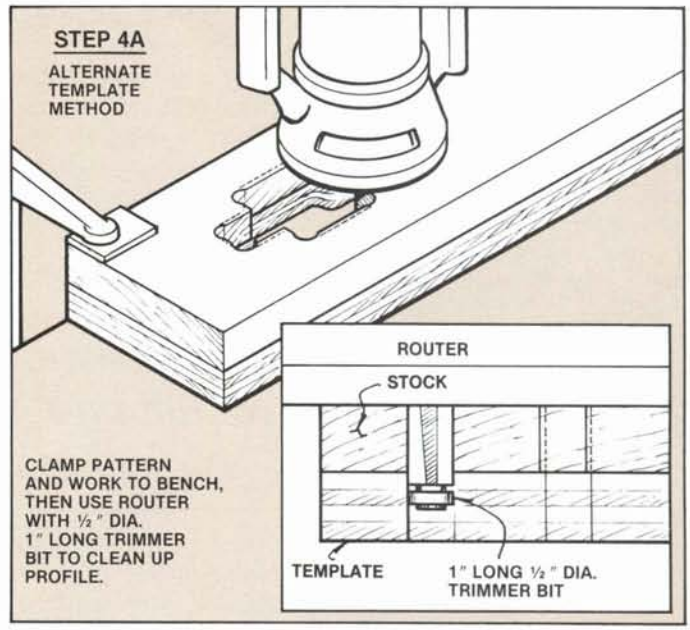


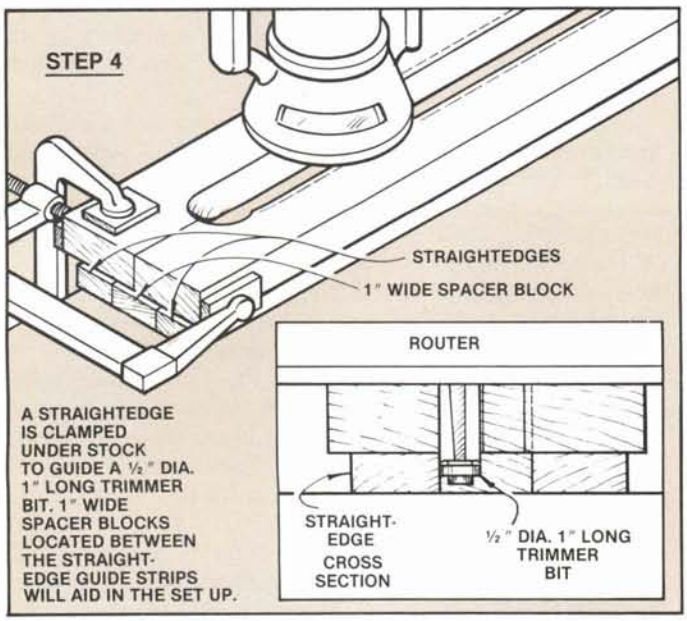
regular twist drill bits or even spade bits will get the job done. With an unusually shaped pull, such as that shown in Step 4A, you'll probably need to make a template to use as a guide. The template can be used not only as a guide for cleaning up the profile prior to Steps 5 and 6, but also as a guide for drilling the holes that establish the various radii back in Step 2. While we show straightedges used as guides in Step 4, we should also note that for repetitive operations, such as those required when a number of identical pulls are being machined, a template can substantially reduce setup and work time. Making a template for the dresser project drawer pulls is a good idea as all these pulls are identical.

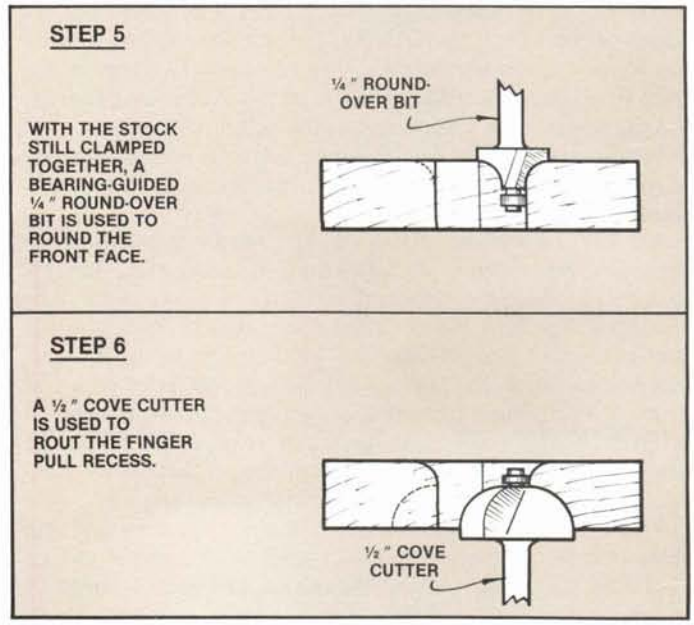
You will note that the dresser drawer pulls are machined into stock that has first been ripped in half. You could rip the stock after the pulls are machined, but you would lose the thickness of the saw kerf. For an extra-special detail, consider resawing and book-matching the stock for a mirror effect. Various types of pulls can also be machined into the centers of drawer and door faces, rather than into the edges.

When jigsawing the waste between the holes (Step 3), remember to stay well on the waste side of the lines so saw cuts don't show in the finished pull. In Step 6, although the ½ in. cove cutter bearing must ride on the previously rounded portion of the pulls, this does not really present a problem. If a small indentation is left around the perimeter where the bearing makes contact, it can easily be sanded out.

A final sanding to remove machining marks is recommended before a finish is applied.







Coloring Wood: An Overview

When most woodworkers think of coloring wood, they usually think of one of the major brands of pigmented stains, which are suspended in a solvent vehicle and mixed with the various binders and retarders needed to make the product easy to apply and provide a reasonable work time.

In fact, there are three primary methods of coloring wood: chemical action, dyeing, and with pigments. Many hobbyists are not aware of how chemical action can be used to alter wood tones and colors. Chemical fuming with ammonia or the direct application of various solutions including potassium, tannic acid, and ferrous sulfate have all been widely used to darken and enhance the color of woods such as oak. Indeed, from the 1890's through 1930, much of the better quality oak furniture was chemically fumed.

Modern wood dyes are a family of synthetics called anilines, that are usually derived from coal tar. Water-soluble aniline dyes are inexpensive and can be easily applied with modern commercial spray equipment, making them an ideal choice for industry. Alcohol-soluble anilines are not very lightfast (resistant to fading), however, and oil-soluble anilines are not as permanent as water-soluble anilines. The best choice for an aniline dye is a non-grain raising (NGR) premixed, which is dissolved in a special solution of solvents. NGR anilines are lightfast, have great clarity, and eliminate the greatest drawback of water-soluble anilines, which require that the surface be moistened and then sanded before the dye is applied.

While the stains that most woodworkers are familiar with are called pigmented, most of the major brands (such as Minwax) contain not only pigments but also binders, solvents, dyes, and other chemicals that together provide a broad range of advantages. Since most manufacturers are highly protective of their particular formulas, ingredients are usually not listed on the can. You can identify a pigmented stain by letting it stand for a while and then checking to see if the precipitate has settled out at the bottom.

Woods can be broken down into two broad categories: hardwoods and softwoods. The most commonly used softwood is pine, and it is pine that is most suited to pigmented stains. Woodworkers often divide hardwoods into two general types: common hardwoods (maple, oak, cherry, etc.), and exotics (rosewood, padauk, ebony, etc.). The beauty of the exotic woods is statement enough, and it hardly seems reasonable to obscure that beauty. On the other hand, staining common hardwoods is largely a matter of personal taste. Manufacturers often use dyes and stains to even out differences within the same species of wood, such as between heartwood and sapwood, but we prefer to leave these contrasts since they are part of the wood's character.

While *one might choose* a dye or stain to obtain a uniform color or achieve a specific look, such as of antique oak or Sheraton mahogany, dyes and stains can also be used to create one-of-a-kind colors for a special project. Dyes, chemical fuming and wipe-on applications can also be used, either singly or in combination, to provide the illusion of depth to figured woods such as bird's-eye maple, crotch or quilted mahogany, and burls. Unlike pigmented stains, which by virtue of the minute particles of pigment will obscure the wood to some extent, dyes and chemical action effect changes to the appearance of the wood without covering it.

Everyone seems to have their own philosophy when it comes to staining. We prefer to leave hardwoods natural, applying only a protective finish of penetrating oil or clear lacquer, which allows the true color and character of the wood to speak for itself. We stain only softwoods such as pine in an effort to achieve a recognizable Colonial, Early American or "country" look. Since pigmented stains tend to obscure the character of the wood, we usually opt for the lightest possible application to enhance the grain but not cover the natural quality of the wood. It is in this highlighting of the grain patterns that pigmented stains are most effective. Minute particles of the coloring agent tend to adhere in more concentrated numbers in richly grained areas of the wood, creating contrasts that enhance the dramatic effect of what might have otherwise remained a rather plain board. Striking an ideal balance between coloring the wood without overpowering it is one of the greatest challenges of the wood finisher.

". . . the most common trap we fall into as woodworkers is that of habit."

Perhaps the most common trap we fall into as woodworkers is that of habit. If we use something and it works, we're tempted to stay with it. Most of us develop a preference for one or two commercial stains and use these on most everything that requires a stain. We're reluctant to experiment with something new after investing time and materials to create a particular piece. Too frequently we settle for mediocrity and sameness, when the opportunity may have existed to produce something unique and special.

Coloring woods with chemicals, dyes, and stains is a complex subject, and much of the information is highly technical, referring to formulas, compatibility with various woods and other finishing materials, and methods of work. Three good books on the subject are *The Complete Manual of Wood Finishing* by Frederick Oughton, published by Stobart & Son Ltd., London, England; *Adventures in Wood Finishing* by George Frank, published by the Taunton Press, Newtown, Conn; and *Wood Finishing* by Noel Johnson Leach, published by Argus Books Ltd., London, England.

Most of the chemicals, dyes, and stains mentioned here won't be carried by your local hardware store. However, many of them can be ordered via mail-order. Three companies that specialize in mail-order sales of these products are: Industrial Finishing Products Co., 465 Logan St., Brooklyn, NY 11208; Wood Finishing Enterprises, 1729 North 68th St., Wauwatosa, WI 53213; and Wood Finishing Supply Co., 1267 Mary Dr., Macedon, NY 14502. WJ

HUNT TABLE

Tradition has it that the Hunt Table was a long table positioned near an entrance where hunters laid out their game upon returning home. Our modern version of this classic table is somewhat smaller than the early tables, and will function nicely as a sofa table or hall table. The 16 in. width fits well in hallways and other places where large tables create an obstacle.

Our table is crafted in cherry, an elegant hardwood that darkens to a deep rich color over time. Oak, walnut, or a figured maple would be other choices you might want to consider. If you opt for oak, however, be prepared for a little additional work, since oak is a difficult wood to turn.

Start by getting out stock for the top (A). Unless you have saved a very special wide board for just such a project, you'll have to edge-glue two 8 in. boards to get the 16 in. top width. While you're waiting for the top to dry, get out sufficient ¾ in. stock for parts B, C, D, E, G, and H. Also, rip and joint ⅝ stock to 1¾ in. square for the four leg (F) turning blanks.

Now lay out the apron and stretcher mortise locations on the leg blanks. Take note that the various mortises are cut before the legs are turned. We cut the leg blanks long enough to include at least 1 in. of waste on each end for mounting in the lathe. However, you could simply cut the legs to their final length before turning. Just be careful when turning the bottom end not to let the cutting tool slip off and into the lathe center.

We use a plunge router and a ½ in. diameter straight cutter to establish the mortises. Use the edge-guide and set up stopblocks to establish the mortise lengths. Cut the 1 1/16 in. mortise depth in eight or nine passes, each pass removing about ⅛ in. of stock.

Next, mount the legs in the lathe and turn to the profile shown. Refer to the "Woodworking Basics" feature on page 14 for a detailed explanation of how to cut the various beads, coves, and pommels. As you might note, vase shapes are essentially elongated combinations of beads and coves. Final sanding of the legs should also be done while mounted in the lathe.

After cutting the tenons on the ends

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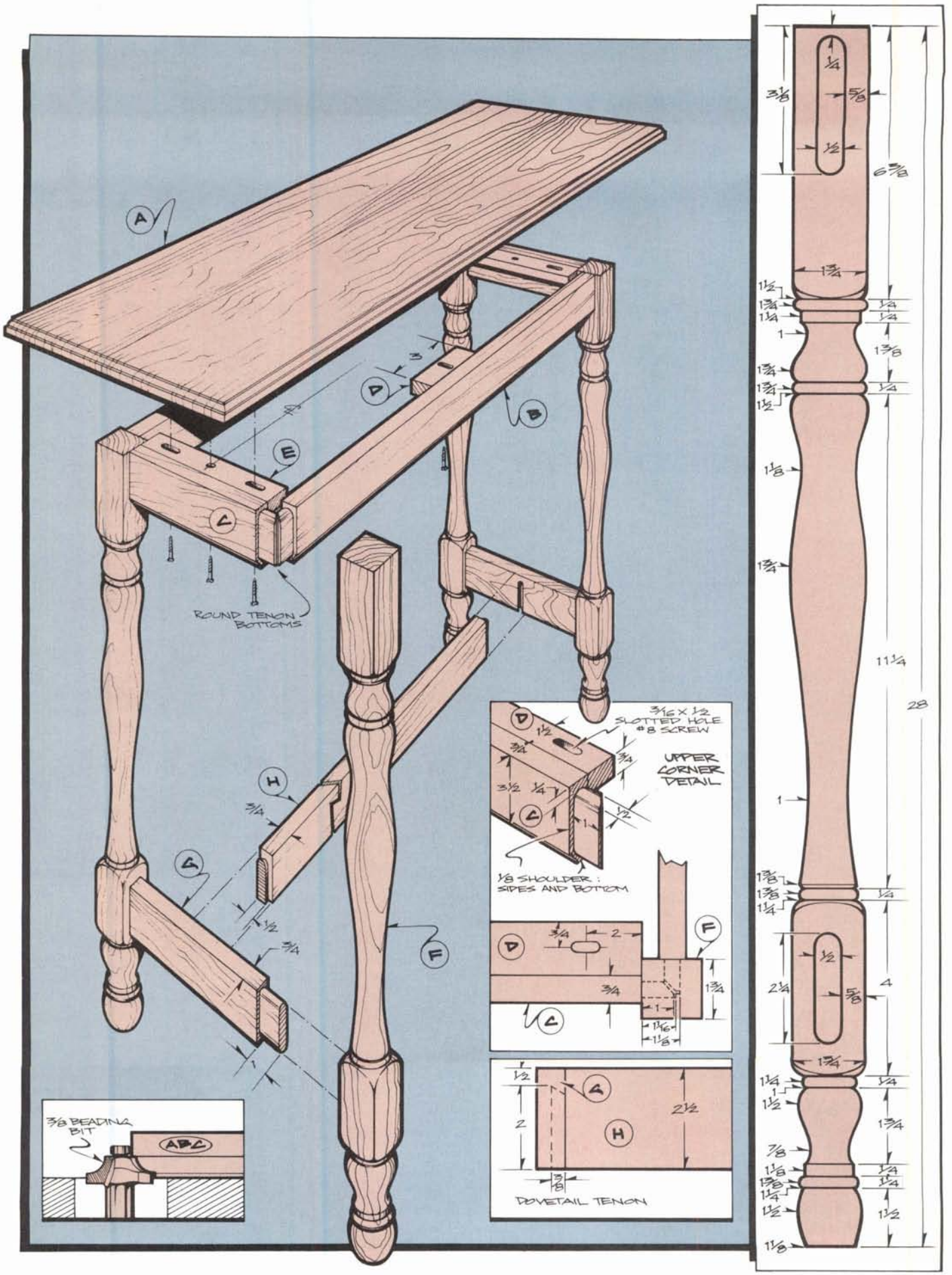
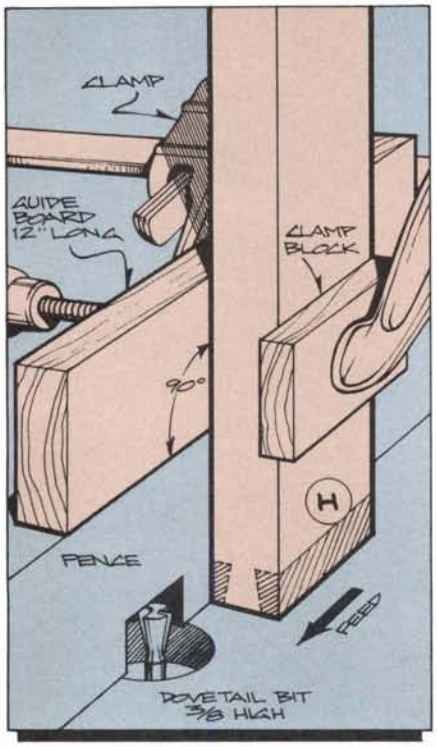

A
B
C
D
E
F
G
H
ROUND TENON BOTTOMS
3/8 BEADING BIT
ABC
3/16 X 1/2 SLOTTED HOLE #8 SCREW
UPPER CORNER DETAIL
1/8 SHOULDER : SIDES AND BOTTOM
DOVETAIL TENON
28
11 1/4
6 3/8
3 1/8
2 1/4
2 1/2

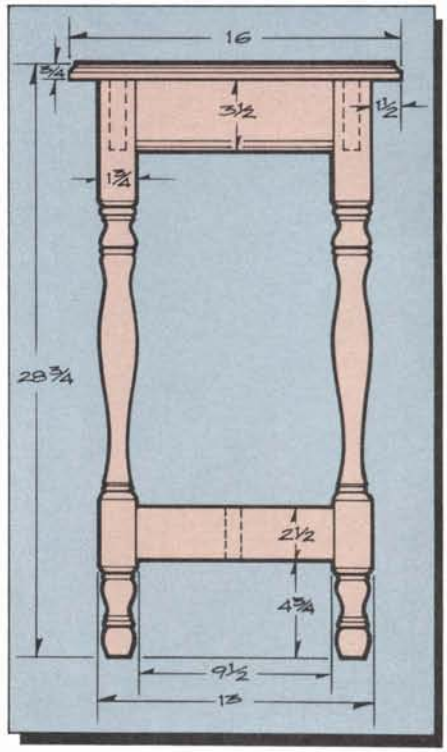
of the aprons and stretchers, use a ⅜ in. beading bit to establish the bead detail on the aprons and the top (see detail). Rout the slotted screw holes into the cleats that will allow the top to move freely in relation to the frame.

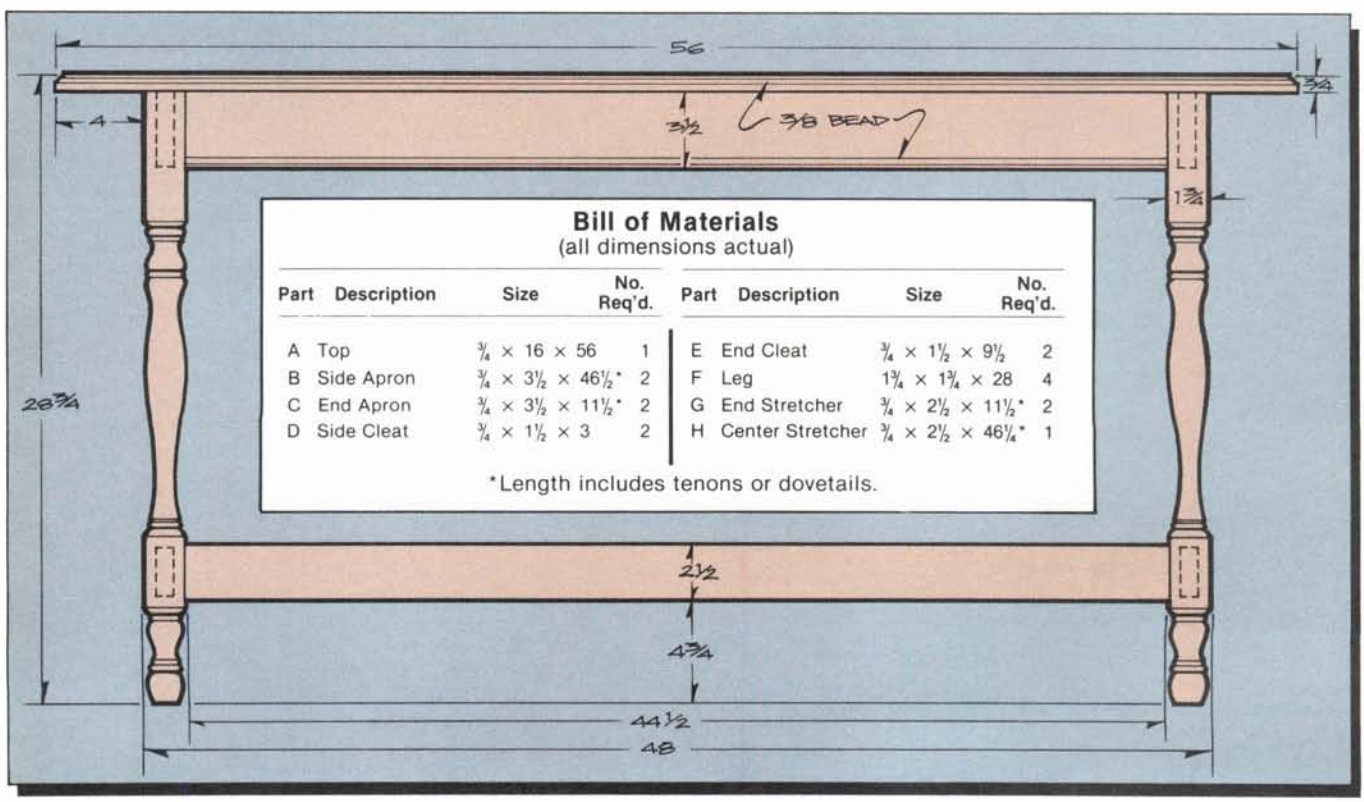
The dovetail groove in the end stretchers is cut with the router and a ½ in. dovetail bit, using a board fence clamped across the stretcher as a guide for the router. Stop the groove about ½ in. from the top edge. To cut the dovetail on the ends of the center stretcher, you'll need to use the router table. Stand the stretcher on end, and clamp a 12 in. long guide board to the stretcher to guide off the top of the router table fence, as illustrated in the detail. The guide board eliminates any tendency of the stretcher to rock or tip as you are passing it across the cutter. Use a chisel to trim back and undercut the dovetail tenon at the top, enabling it to fully seat into the dovetail end stretcher groove, so that when assembled both stretchers are flush.



To assemble the table frame, first complete the two leg, end stretcher, and end apron assemblies; then add the side aprons, turn that assembly upside down, and tap the center stretcher into place. Apply glue to the blind half of the dovetail groove and the bottom half of the dovetail to facilitate assembly. If you load glue the full length of the dovetail, it may lock up before you're able to properly seat it. Next, glue the end and side cleats in place. The top is now screwed on through the slotted holes in the cleats.

We used a tung oil finish, because it combines the high gloss of a lacquer finish with the in-the-wood look of a penetrating oil. Flood on a heavy first coat, let dry, apply a second coat, let dry, and then rub with 000 steel wool. Now lightly work in one last coat of tung oil, let dry, and polish with 0000 steel wool to the final desired luster.





Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Top	¾ × 16 × 56	1
B	Side Apron	¾ × 3½ × 46½*	2
C	End Apron	¾ × 3½ × 11½*	2
D	Side Cleat	¾ × 1½ × 3	2
E	End Cleat	¾ × 1½ × 9½	2
F	Leg	1¾ × 1¾ × 28	4
G	End Stretcher	¾ × 2½ × 11½*	2
H	Center Stretcher	¾ × 2½ × 46¼*	1

*Length includes tenons or dovetails.

LOON • CARVING

by Rick and Ellen Bütz

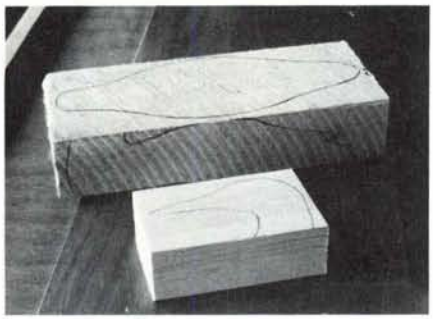


Photo 1: Transfer patterns to blocks.

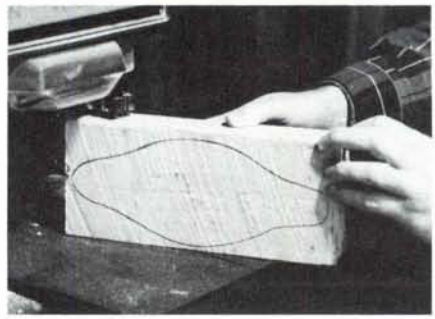


Photo 2: Use the band saw to cut the side profile of the body.

Photo 3: Use the band saw to cut the top profile of the body.

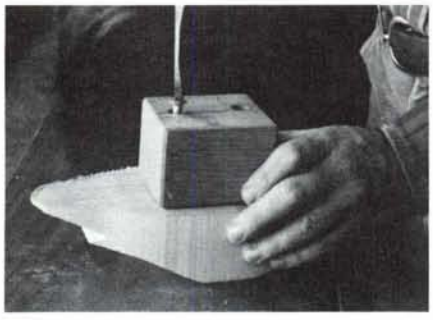


Photo 4: Screw holding-block onto base of carving.

Photo 5: Rough out with a large gouge and mallet.

Photo 6: Outline the wings with a V-gouge.

The first loon I ever saw came drifting eerily out of the morning mist on an Adirondack lake. It saw me only a few feet away, called sharply, and dove without a ripple. For the first time, I understood why this bird has become a symbol of the wilderness. There was something wild and utterly primitive in the experience.

Loons are primitive birds, virtually unchanged from their fossil ancestors. Their heavy bones help give them the weight necessary to dive deep in pursuit of fish. They have been recorded as far as 200 feet below the surface.

Loons are large, powerful birds with few natural enemies. In recent years, however, man's activities have threatened them. The noise of motorboats drives these shy birds off their lakes. And the waves motorboats create can wash loons' low-lying nests off the lake shore. Even more serious, their food supply is threatened by the acid rain that kills fish in the high mountain lakes that have become their last refuge. This problem is more difficult to regulate than boating because it's the result of industrial smoke emissions originating hundreds of miles away.

Since that first sighting, loons have become one of my favorite subjects for wood carving. The pattern for this carving is scaled down to 12 in., about one-half life size. I've listed the sizes of the different tools that I use, but these are only guidelines. Other sizes will work; use what you have on hand.

To save wood and make carving easier, I make the loon from two pieces of wood. For the body, start with a 2¼ in. thick block of basswood or air-dried white pine about 4½ in. wide by 10½ in. long. For the head, use 1¾ in. thick wood 3 in. wide by 5 in. long. Lay the head pattern out on the wood with the grain running the length of the beak for maximum strength. Using the full-size patterns provided, trace both the side profile and the top profile of the loon body on the larger block, and the head profiles on the smaller block. Be sure the profiles line up (Photo 1).

Next, cut the pieces out on the band saw. When you cut out the body, cut the side profile first (Photo 2). That way, when you cut out the top profile, you will have a flat base to rest the carving on for safe, efficient sawing (Photo 3). Note that you'll need to redraw the top profile after you've cut the side profile on the band saw, or else tape the scrap piece with the top profile in place to serve as a guide. Only cut out the side profile of the head. The wood is thin enough so the rest of it can be whittled out with a knife.

To hold the wood while you're carving, screw a hardwood block into the base of the loon body. This lets you hold the wood in the vise on your bench (Photo 4).

For roughing out the body, I use a 35 millimeter no. 5 gouge. Just knock off all the corners. You can use a mallet for roughing out to carve away large chips quickly (Photo 5). You don't need fine control at this point. Don't make the neck area too thin; it will be shaped more completely after the head is glued on.

After you have the body rounded out, the next step is to define the wings. Use a 6 millimeter no. 12 V-gouge to incise along the outlines of the wings, which include the scapular, secondary and primary feathers (Photo 6). Then pare away below the cut with a 16 millimeter no. 2 gouge (Photo 7). This makes the wing appear raised above the body.

At this point, you're ready to start working on the head. Because the head is small enough to hold comfortably in my hand, I shape it mostly with a knife, rather than fastening it to the bench and using gouges. The knife I use is a small German carving knife. The shaped wooden handle is more comfortable to hold than a jackknife.

There are two basic knife cuts to use for fine control and safety. The first is the paring cut (Photo 8). Place your thumb on the block of wood and slowly close your hand drawing the knife through the wood. Keep your thumb low enough on the piece of wood so that the knife doesn't come into con-

(continued on next page)

Photo 7: Pare away below the V-gouge cut.

Photo 8: Shape the head using paring cut with knife.

Photo 9: Shape the head using levering cut with knife.

Photo 10: Detail the beak with a V-gouge.

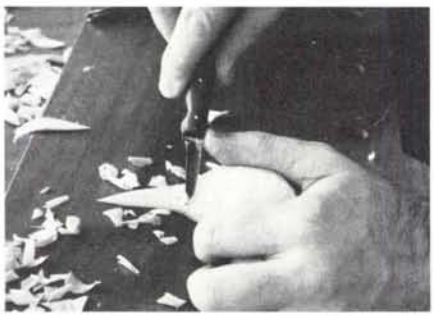


Photo 11: Trim the beak with knife.

Photo 12: Cut a vertical line around the outline of the eye.

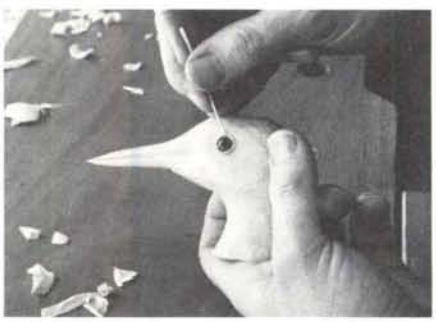


Photo 13: Shape the eyelid with a toothpick.

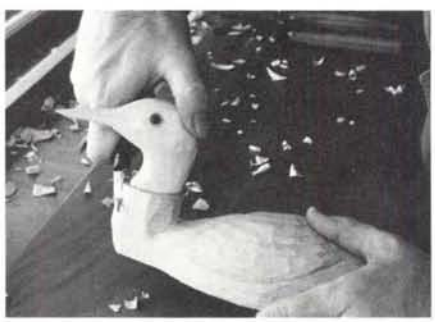


Photo 14: Blend body to head with the knife.

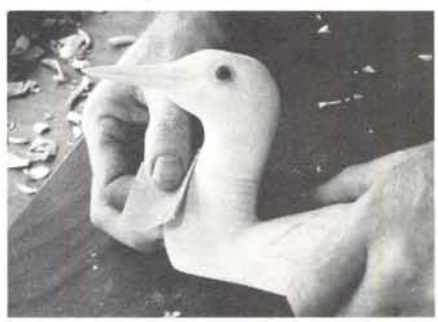


Photo 15: Sand the neck.

tact with it.

The levering cut is useful in places where it's awkward to position the knife for the paring cut (Photo 9). Place the back of the knife blade against your left thumb which serves as a fulcrum as you rotate the knife. This cut allows you to remove wood very precisely in tricky areas.

Remember, these are small controlled movements using only the muscles of your fingers and hand. Never pull or push the knife through the wood with a full arm movement.

After the head is shaped, incise a line with a V-gouge where the beak meets the face (Photo 10). Blend the V-gouge cuts smoothly into the face and beak with small knife cuts (Photo 11). Use the same techniques to incise a line separating the upper and lower portions of the beak.

Don't forget, a loon's beak is narrow and pointed like a spearpoint. It's not broad and rounded like a duck's spoon-shaped bill.

After you've finished shaping the head, the next step is to insert the eyes. Do this before you glue the head on the body, because it will be easier to position the eyes correctly. The bottom edge of the eye should not be any lower than the central line of the beak. Make sure the eyes are in the same position on each side of the head.

Use a small 4 millimeter no. 8 gouge to make a hole for the eyes — it gives a cleaner more precisely shaped hole than a drill. Start by cutting down vertically with the gouge all around the outline of the eye (Photo 12). Then, using the same gouge, scoop out the wood in the center. Keep the sides of the eyehole vertical.

The eyes I use for this size loon are 8 millimeter clear glass eyes (cost about $1 per pair) made in West Germany. Because a loon's eyes are bright red, paint the back of the eye with red acrylic paint before inserting.

To hold the eye in place, I use a two-part epoxy putty. It fastens the eye securely into the head, and can also be shaped around the eye to form a very realistic eyelid. Be sure to mix the putty well or it won't harden properly. Place a small ball of putty in the eyehole, then gently press the eye down into it. Shape the excess that squeezes out around the eye with a toothpick to form the eyelid (Photo 13).

Now it's time to fasten the head to the body. The gluing surfaces must be

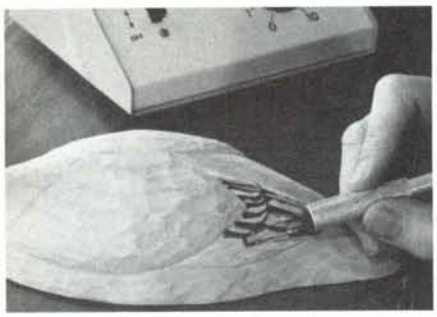


Photo 16: Use a chisel-tip burn-in pen to outline the feathers.

Photo 17: Burn in the feather barbs.

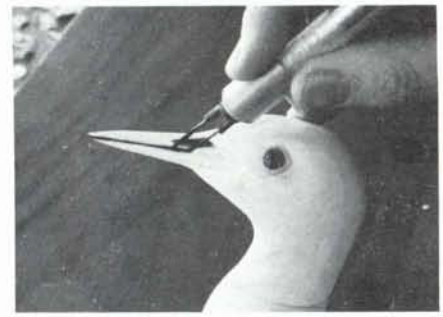


Photo 18: Burn in the beak details.

Photo 19: Loon — carved, detailed, lacquered.

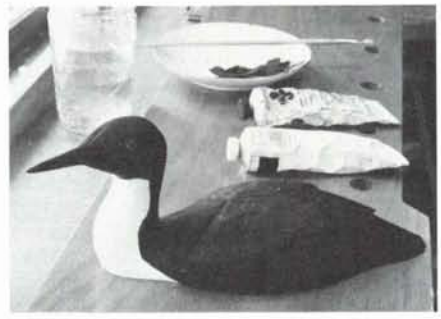


Photo 20: The loon with the large areas of black and white painted on.

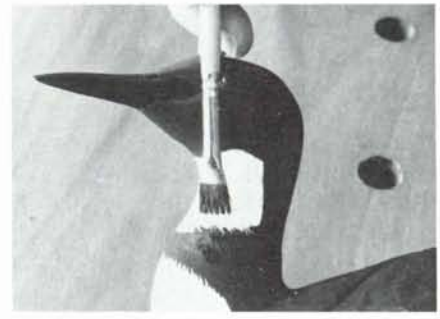


Photo 21: Dry-brush a feathered edge between the black and white areas.

Photo 22: Painting black stripes on the neck.

Photo 23: Painting on the white spots using dry-brush technique.

Photo 24: Finished loon.

smooth and flat to insure a solid invisible joint. Use a disc sander to get the most level surface. I use a quick-setting epoxy glue for this job. It doesn't require clamping; you can hold the two pieces in place for the five or so minutes it takes the glue to set. In fact, tests have shown that quick-setting epoxy glue bonds more strongly if not clamped. Also, the epoxy forms such a strong bond that you don't need to dowel the pieces together as you would with a water-base carpenter's glue. Turn the head a bit to one side or the other for a more lifelike look.

When the glue has hardened, shape the neck with a knife to blend the head and body pieces together (Photo 14). Then smooth the head and neck with sandpaper (Photo 15). Start with 150-grit garnet or aluminum oxide sandpaper and finish with 220-grit. This leaves a fine smooth surface. Pay special attention to the area where the head and body join. This joint must be sanded perfectly smooth or the glue line will show when the carving is painted. Usually, I prefer to leave the tool marks in the wood and seldom use sandpaper. However, the feathers of the head and neck are so fine on the loon that sanding works well.

Once the body is completed you may want to add some feather detail before painting. One way to do this is with a woodburning pen. I only burn in the larger feathers on the tail and the primaries and secondaries on the wings. On a loon, the rest of the feathers are so fine that heavy texturing is unnecessary.

Outline the feathers with a chisel-tip woodburning pen (Photo 16). This creates the step-down effect between overlapping feathers. Make sure your feathers overlap the right way. The higher ones go over the lower ones like the shingles on a roof. Use the same techniques to outline the tail feathers. If you don't have a woodburning pen, you can detail these feathers with a V-gouge. The technique is the same as the one used for defining the wing shape, but remember to make these cuts very shallow.

To make the barbs on the feathers, use a skew tip woodburning pen sharpened to make a very fine line (Photo 17). This is delicate work, so be patient and take your time.

Use the same tip to burn in the nostril and the line between the upper and lower portions of the beak (Photo 18).

(continued on next page)

After the carving is burned in, it should be sealed to protect the wood from changes in humidity and to provide a good surface for painting. I use Deft, either the aerosol spray or brushing lacquer (Photo 19).

The next step is painting. A loon's summer coloring is basically simple, just black and white. Look at some good photographs of loons to help you with correct placement of the colors. Acrylic paint is a good choice for this project as it dries quickly and covers well. On the loon, I use the paint thick, just as it comes out of the tube, for better covering power. If your paint is too thick to brush on smoothly, thin it very slightly with water.

I begin by painting in the large areas of black and white before adding the details. First, paint the front and sides of the neck and chest white. It may take two coats for complete coverage. Then paint the rest of the bird, including the beak, black (Photo 20). Use two coats if you need to. Don't worry about any paint that gets on the eyes. You can scrape it off easily with a knife point after the paint is dry.

Wait until the paint dries, then very lightly take some black paint on a small flat-bristle brush, like a Grumbacher no. 3 bristle, and gently dry-brush a little black paint into the areas of white in the direction of the feather growth (Photo 21). This creates a soft feathered edge between the two colors.

Dry-brushing is a painting technique where you have just enough paint on your brush to barely hold the bristles together. This way, when you paint a stroke with your brush, each individual bristle leaves a fine line rather than a glob of paint. Experiment on a piece of paper until you get a feel for just how much paint to leave on your brush.

The next step is painting the black stripes on the loon's neck. Use a no. 1 pointed sable or synthetic sable brush for the finest stripes, and a no. 4 for the broader stripes farther down the neck. Paint a very fine line, but don't make it perfectly straight; it will look more like feathers if it's broken up a bit (Photo 22). This necklace, as it's called, varies from loon to loon and is as distinctive as a fingerprint. It is a great aid to naturalists studying loons to be able to tell the individuals apart.

The final step is painting the white spots on the back and sides. The smaller spots on the side are done with a no. 3 pointed sable brush. The larger ones on the wings are done with the no. 3 flat-bristle brush used earlier. Use the dry-brush technique to make the spots soft and feathery (Photo 23).

After all the paint is completely dry, use a clean horsehair shoe brush to lightly buff the back, the burned-in areas of the wings and tail, and the beak. This adds just a little bit of shine to the black paint to make the tool marks more visible and duplicate the sheen of real feathers.

Making a carving of a bird or other wild animal is always exciting because it allows you to bring a bit of nature indoors. Remember, take your time and enjoy yourself. I think you'll find this a very rewarding project.

Rick and Ellen Butz live in Blue Mountain Lake, New York. Rick is a professional woodcarver and author of the book How To Carve Wood *(Taunton Press). Recently, he completed a 26-part PBS television series entitled* Woodcarving With Rick Butz. *An additional 13-part series is slated for filming later this year.*

Woodcarving Tools

Garrett Wade
161 Avenue of the Americas
New York, NY 10013

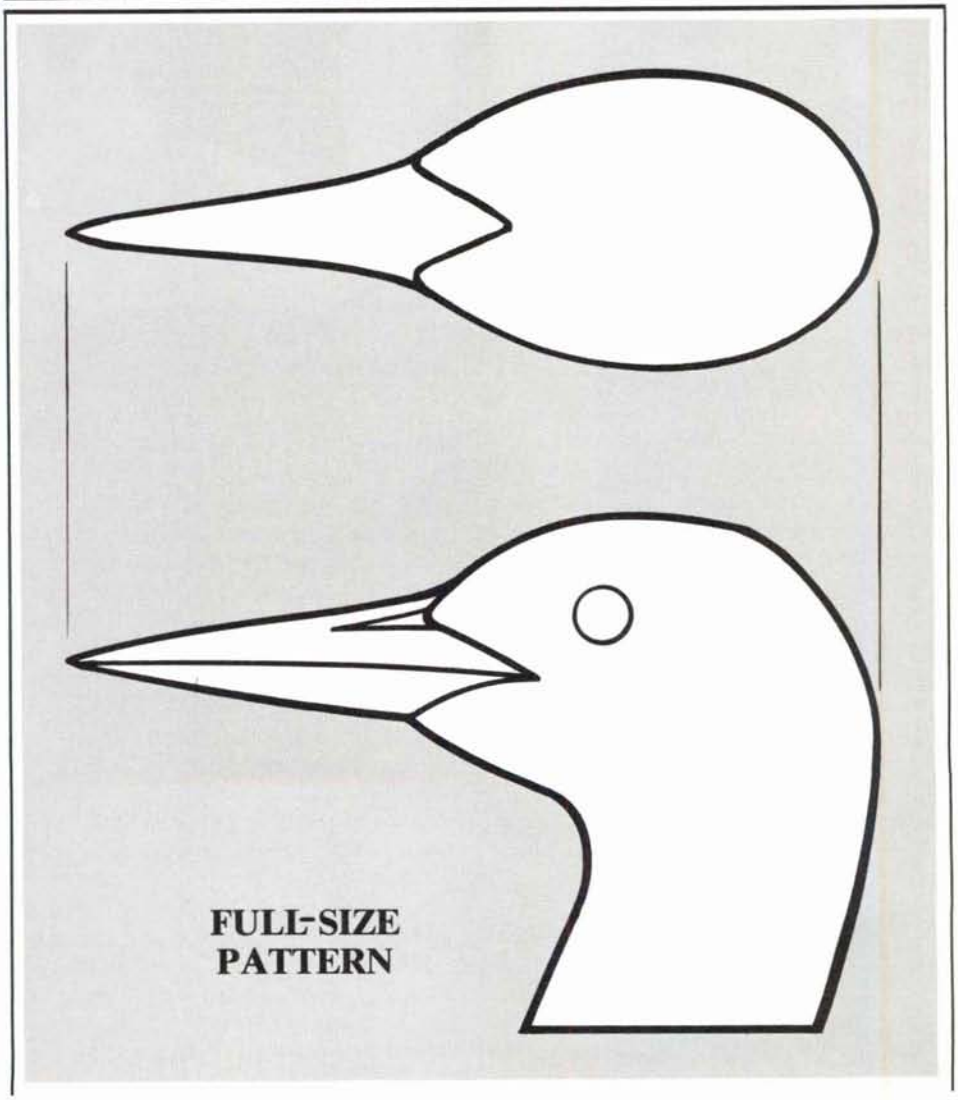
Wood Carvers Supply, Inc.
P.O. Box 8928
Norfolk, VA 23503

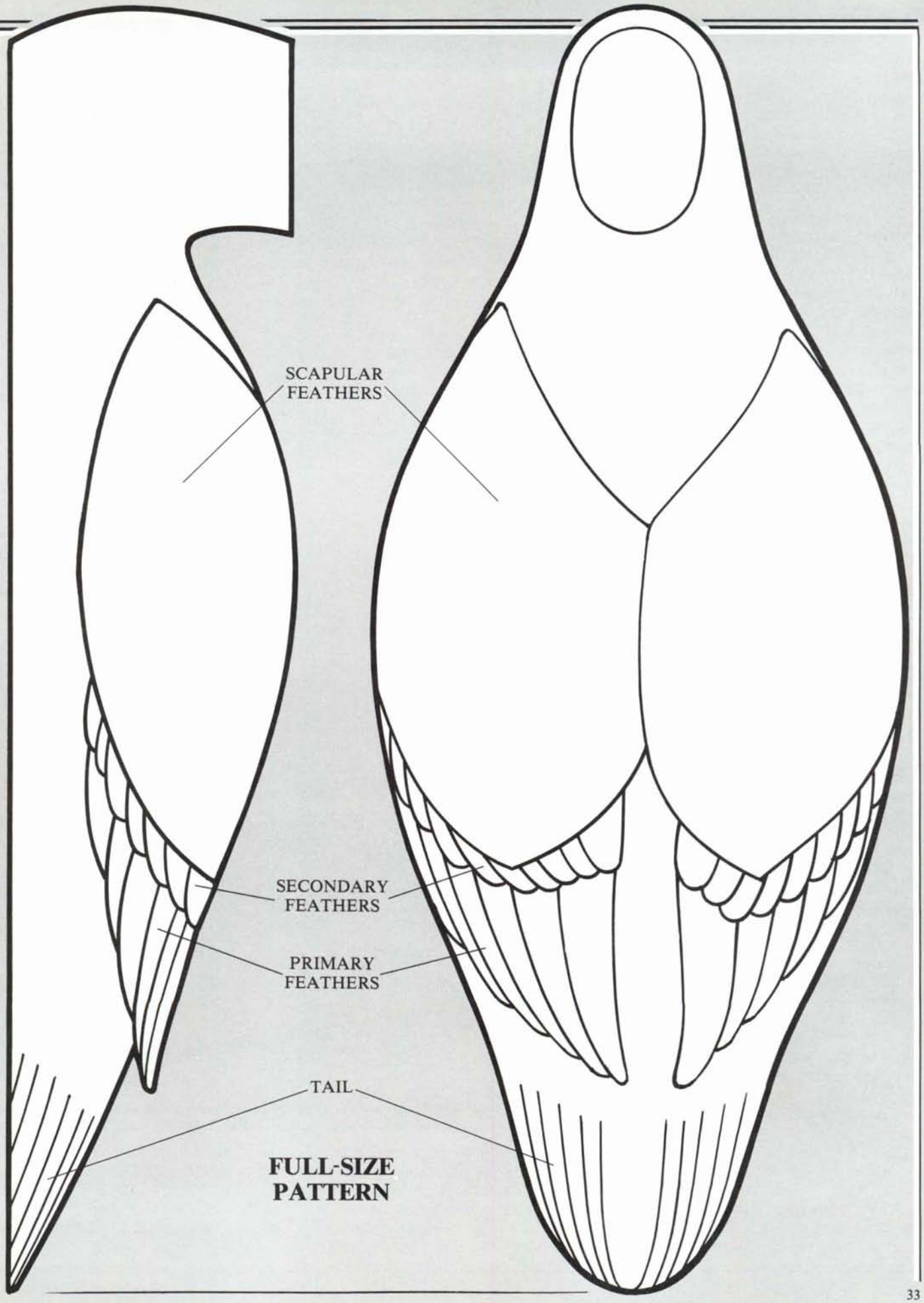
Woodcraft Supply
41 Atlantic Avenue
P.O. Box 4000
Woburn, MA 01888

Glass Eyes

P. C. English
P.O. Box 380, Dept. WJ
Thornburg, VA 22565

Christian Hummul Company
404 Brookletts Avenue
P.O. Box 1849, Dept. WJ
Easton, MD 21601





FULL-SIZE PATTERN

Early American Dry Sink

With its country flavor and simple charm, this dry sink can be a kitchen's friendly catchall, or a parlor's plant-filled island.

The design is simple. It's made in two sections, much the same as a hutch. Here, however, the stacking upper unit is replaced by three drawers and the open sink. The base is merely a box with facing boards screwed to the front, and a door that fits flush with the face.

When making the dry sink, it's a good idea to construct the base and upper sections first, then make the drawers and door to fit the actual openings. However, you'll use the same setup to cut mortise-and-tenon joints in the base and in the door frame, so plan your operations carefully to save time.

Start by edge-joining boards for the wide panels. Unless you have access to very wide stock, you'll need to join boards for the sides (A) and bottom (B) of the base, the adjustable shelf (F) and the raised panel of the door (K). You'll also need to join boards for the bottom (N), sides (O), and back (R) of the upper section.

The grain runs vertically for the base sides, but horizontally for the upper-section sides. When edge-gluing, remember to make the pieces a little bigger than needed, and cut them to exact size after the glue dries. We don't use dowels because they weaken a long grain-to-long grain joint.

Next, cut the rest of the parts to size. Leave a little extra wood on the upper-section parts that fit together for the 10-degree angle: the bottom (N), the side (O) and the front (S). That allows you some leeway in case the angles, which are cut later, aren't perfect.

Once the glued-up panels are dry and cut to size, plough the dadoes and rabbets in the base sides (A), upper-section sides (O), and the shelves (P). You can use a dado head in your table or radial-arm saw, or rabbeting bits in a router.

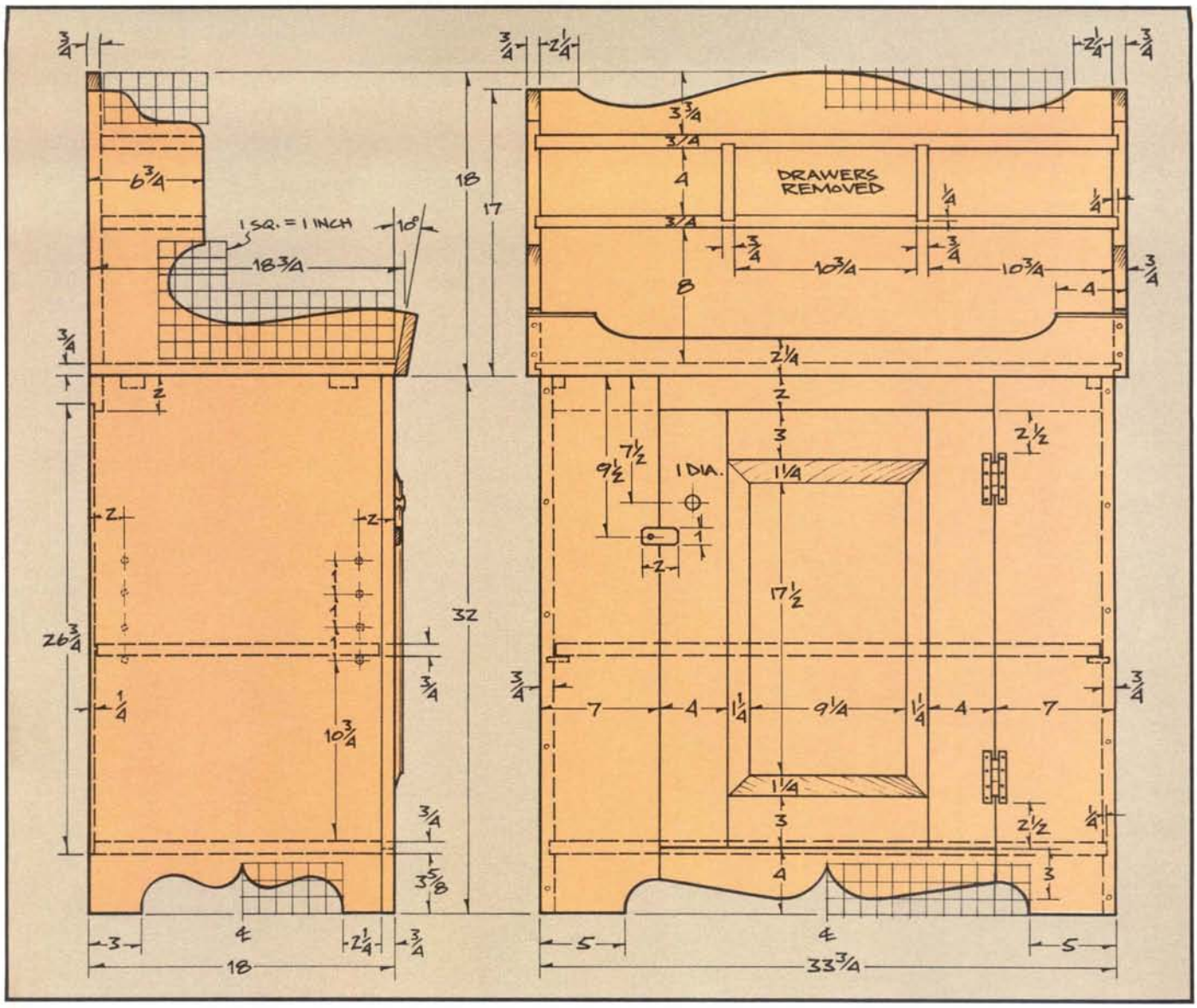
The sides (A) have a ⅜ in. deep by ¼ in. wide rabbet for the back (G), a ⅜ in. deep by ¾ in. wide by 2 in. long notch for the stretcher (H), and a ¼ in. deep by ¾ in. wide dado for the bottom (B).

The upper-section sides (O) have ⅜ in. deep by ⅜ in. wide grooves for the bottom (N), and ¼ in. deep by ¾ in. wide grooves for the shelves (P) and back (R).

The upper-section shelves (P) have ¼ in. deep by ¾ in. wide dadoes for the drawer dividers (Q). The bottom (N) has a ⅜ in. long by ⅜ in. thick tongue that fits into the sides (O).

Cutting the various grooves, dadoes and rabbets goes fairly fast if you first make all the ¼ in. wide cuts, then the ⅜ in. cuts, then the ¾ in. cuts. However, you'll need to cut the notches for the stretcher (H) with a chisel.

Next, lay out and drill the ⅜ in. diameter holes for the ¾ in. long adjustable-shelf pegs. Make the holes ⅜ in. deep. Then transfer the grid pat-



terns to the stock and cut the profiles with a scroll saw or jigsaw. Clean up the cuts with a drum sander or wood files. It's best to hold off cleaning the profiles in the stiles (C) and bottom rail (E) until after you put the fence frame subassembly together.

Now make the 10-degree slope on the front end of the upper-section sides (O) with a table saw. Also use the table saw to cut the 10-degree slopes on parts N and S. We suggest dry-fitting upper section parts N and S after cutting the slopes in the sides (O). That way, if your first angle is slightly off, you can cut the others to match. We also suggest planing the angle on the top edge of the front (S) after assembly, a procedure that insures it will match the curve of the side.

Next, cut the mortises in the base stiles (C) and the tenons in the rails (D and E).

Note that the mortises and tenons for the base and the door frame are pretty much the same, so you may want to cut the base joints, assemble the carcase, and use the same setup for the door joints. That way you'll make the door to the actual opening and not waste setup time.

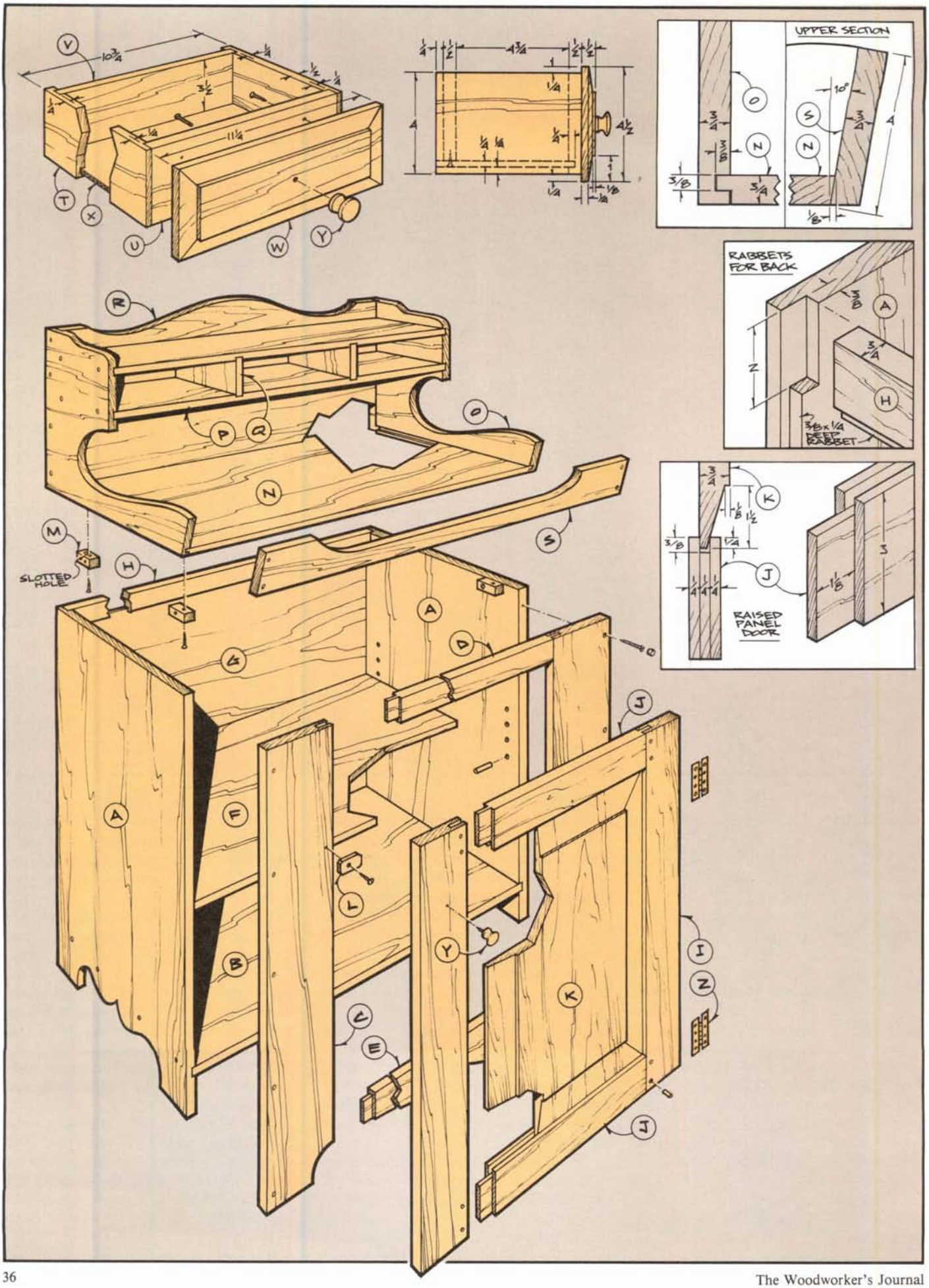
To cut the ¼ in. wide by ⅜ in. deep grooves in the door rails and stiles to accept the raised panel, use a ¼ in. straight cutter in the router table. Set the fence ¼ in. from the cutter. However, don't make the ⅜ in. deep cut in one pass. You'll get a smoother cut, with less strain on the motor, if it's done in three passes, with each pass removing ⅛ in. of material.

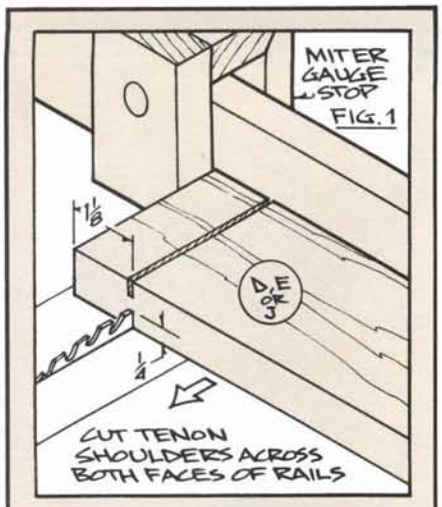
The ¼ in. wide mortises in the door and base stiles are cut a shade over 1⅛ in. deep. You can use the router setup to establish the dimensions, and then deepen them with a chisel. Or you can cut them entirely with a mallet and chisel. Use a marking gauge when laying them out to insure uniformity.

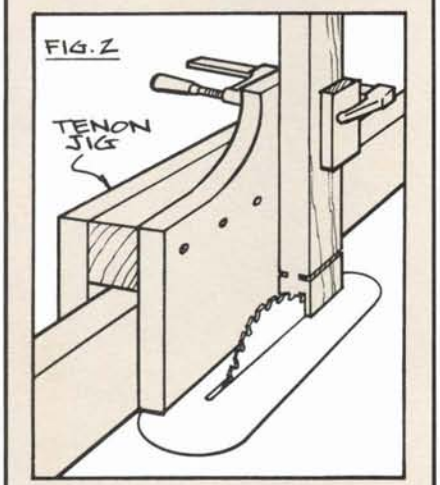
When laying out and cutting the mortises and tenons, remember to decide beforehand which sides are faces and mark them as such. Then keep the same side out for all the marking and cutting. If you flip the pieces face-for-face, any small variations in wood thickness will be doubled and show up as sloppy joints. Here the mortise and both shoulders are ¼ in. Don't let the seeming symmetry trick you into turning the pieces over and ruining a joint.

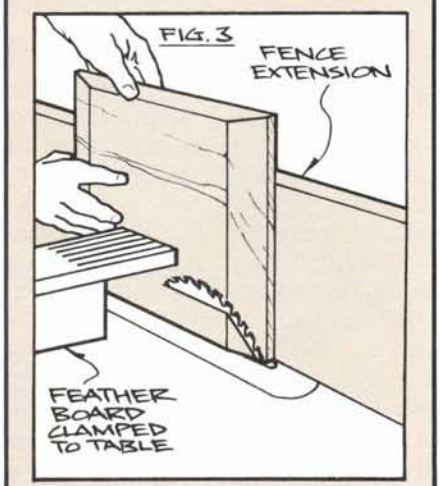
For the tenons use the table saw with a tenoning jig. First establish the shoulders, cutting carefully with a stopblock on the miter gauge as shown in Fig. 1. (Refer to page 52 for details on constructing our shop-built Miter

(continued on next page)


UPPER SECTION
RABBETS FOR BACK
3/8 x 1/4 DEEP RABBET
RAISED PANEL DOOR
SLOTTED HOLE







Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
	Base		
A	Side	¾ × 17¼ × 32	2
B	Bottom	¾ × 17 × 32¾	1
C	Stile	¾ × 7 × 32	2
D	Top Rail	¾ × 2 × 22*	1
E	Bottom Rail	¾ × 3 × 22*	1
F	Adjustable Shelf	¾ × 16¾ × 32	1
G	Back	¼ × 26¾ × 33	1
H	Stretcher	¾ × 2 × 33	1
I	Door Stile	¾ × 4 × 26	2
J	Door Rail	¾ × 3 × 14*	2
K	Door Panel	¾ × 12¼ × 20½	1
L	Door Latch	¼ × 1 × 2	1
M	Cleat	¾ × 1 × 2	4
	Upper Section		
N	Bottom	¾ × 18⅛ × 34½	1
O	Side	¾ × 17 × 18¾	2
P	Shelf	¾ × 6 × 34¼	2
Q	Divider	¾ × 6 × 4½	2
R	Back	¾ × 17¼ × 34¼	1
S	Front	¾ × 4 × 35¼	1
	Drawers		
T	Side	½ × 4 × 6	6
U	Front	½ × 4 × 10¼	3
V	Back	½ × 3½ × 10¼	3
W	Face	½ × 4½ × 11¼	3
X	Bottom	¼ × 5¾ × 10¼	3
	Hardware		
Y	Ceramic Knob	1 in. dia.	4
Z	Hinge	1½ × 3	2

*Length includes tenons.

Gauge Stop.) Remove the rest of the shoulder with a tenoning jig, as shown in Fig. 2. Remember to keep the same face against the fence for all cuts, and to make a trial tenon and try it in the actual mortises.

Next, lay out the locations for the ⅜ in. pegs in the door joints. Make the holes in stiles (I) 1/32 in. farther from the shoulder than the holes in the tenon of the rails (J). That will help snug up the joint when you put it together.

Then cut the door panel (K) using an extension on your fence, as shown in Fig. 3. Set the table saw blade to 1½ in. high and tilt it 16 degrees. The fence should be 3/16 in. from the blade and the blade must angle away from the fence. Make some test cuts in scrap to get the panel just right. Because of variations in wood thickness, as well as table saw accuracy, the degree of tilt should only be used as a guide. It's best to lay the panel dimensions out on a piece of scrap and set the saw to match.

When cutting the workpiece, clamp a feather board to the table so it hits the panel above the cut, as shown in Fig. 3. Cut across the grain first and then with the grain. That should minimize chip-out.

Cut the raised panel in the drawer faces (W) with the blade 1 in. high and inclined 19 degrees. Set the fence ¼ in. from the cut. Again, make a test cut on scrap before risking your workpiece.

The raised panels stand ⅛ in. proud on both the door and drawers. The saw leaves an angled cut at the shoulder, so you'll have to square the cuts with a sanding block. Remember that the raised panel of the door floats in the frame so it is free to expand and contract with changes in humidity.

Next, dry-fit the door assembly, parts I, J and K. The panel shouldn't fit too snugly, and shouldn't extend to the bottom of the grooves because it needs room to expand. Add a dab of glue in the center at the top and bottom of the panel to equalize wood movement.

After gluing, let the pins protrude slightly and sand them flush later. Also, if you haven't done it before making the door, assemble the face parts of the base (C, D and E). Fair and sand the curved profile.

When gluing the parts, apply a little paste wax to the wood surface near the joints. Any glue squeeze-out won't penetrate the wood and you can clean off the wax with acetone or lacquer thinner.

The drawer faces are glued and screwed to simple drawer boxes as shown. Make the boxes to the actual openings. They are glued and nailed.

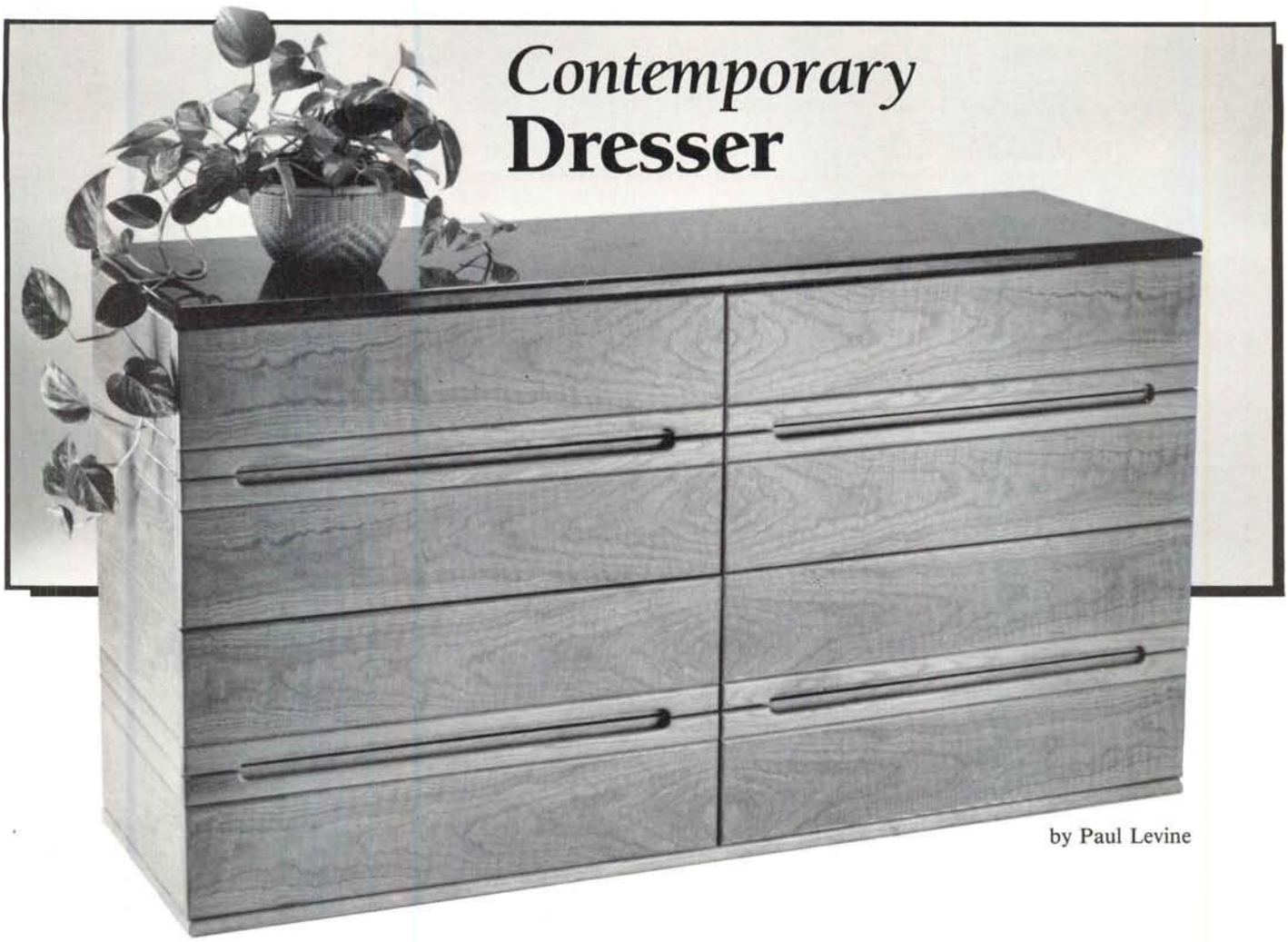
When assembling the dry sink, first glue up the base, then the upper section. Use screws to join all the pieces, even the drawer dividers. Countersink the screws and fill with ⅜ in. diameter birch dowels or pine plugs. Let them stand proud, and trim them flush after the glue dries. Glue and screw the facing stile (C) and rail (D) assembly after setting the back (G) into its rabbet. The back helps square the piece.

Note that you must insert the adjustable shelf (F) before closing in the front and back. The shelf won't fit through the finished opening. If, however, you want to retain the option of removing the adjustable shelf (F), then screw — but don't glue — the back (G) in place.

When gluing the upper section, only apply glue to the front 2 in. of the bottom (N). Join the base and upper section with the four cleats screwed and glued to the sides (A). Use slotted holes with ovalhead screws in the two rear cleats (M) so the bottom (N) can expand and contract. This assembly allows for wood movement, but directs any expansion toward the rear.

Sand and stain with Minwax Colonial Maple, and finish with two coats of penetrating oil. Finally, hang the door, mount the wooden door latch (L) with a ¾ in. by no. 6 screw and add the ceramic knobs (Y) to the drawers and door.

Contemporary **Dresser**



by Paul Levine

The beauty of this project lies in the fact that simple construction and careful stock selection are combined for a striking effect. There is no exposed hardware. Cleverly machined recessed pulls integrate with matched hardwoods and veneer for a classic contemporary style.

I have crafted the dresser in oak, although walnut, figured maple, and cherry are other alternatives you may wish to consider. A colored laminate could be substituted for the veneered surfaces, if you prefer. Although the dresser in the photo has a genuine marble top, the illustrations show black laminate, which has a similar appearance at a far lower cost.

The general construction of the dresser may seem involved at first glance. However, when broken down into its separate elements it becomes evident that following a logical sequence vastly simplifies the project. The dresser is essentially two plywood boxes that are joined together and edged at the front, with a plywood back, sides, drawers, and top.

Start by making the plywood boxes, which are composed of the sides (A) and top and bottom (B). Cut the ⅜ in. wide by ½ in. deep rabbet in the ends of the top and bottom, and the ¼ in. wide by ⅜ in. deep corresponding groove in the sides. Glue and assemble the two boxes, using ¼ in. tee-nuts to join the boxes together. Next, cut the ¼ in. thick plywood back (C) to length and width, making certain that it is square. The back is now glued and screwed to the boxes. If the back has been cut accurately, it will serve to square up the boxes. Remember, it's important that the boxes be square for the rest of the project to fit together right.

Now mill the ¼ in. thick by ¾ in. wide edging (D) that will be applied around the front edges of the case. You might note that the same size edging is also needed for parts J and N. If you wish to save setup time later, mill sufficient edging for all these parts now. Make about 110 ft. total, which will allow for some waste. After fitting, mitering, and gluing up the case edging, use a laminate trimmer or a sharp hand plane to make it flush with the plywood sides. I always rip edgings such as these slightly wider than the final required dimension, in this case ⅞ in. instead of ¾ in. The additional width is vital for the edgings (parts J and N) as they will have to cover the ¾ in. plywood core (parts I and M) plus the face and reverse veneers (parts K and O) which measure about 1/32 in. thick each.

Cut and miter the base sides (E) and front and back (F). Assemble the base with glue, and use a ¼ in. radius bearing-guided round-over bit to apply the ¼ in. radius to the perimeter edges. When gluing up the miters, remember that sizing the joint with a light coat of glue prior to the final application of adhesive will result in a much stronger joint. Now drill through, counterbore, and screw the base assembly to the case bottom. Note that the case must be centered on the base which, at this point in the construction, will extend ¾ in. proud of the case at both the sides and the front.

The top assembly can also be made at this time. If you opt for the marble, it can be ordered through monument dealers. The black plastic solid color laminate (H) I specify is simply a laminate with the color extending through the entire thickness of the material. Wilson Art's "Solicor" and Formica's "Colorcore" are two of the more popular brand names. The solid color laminate is applied over the plywood

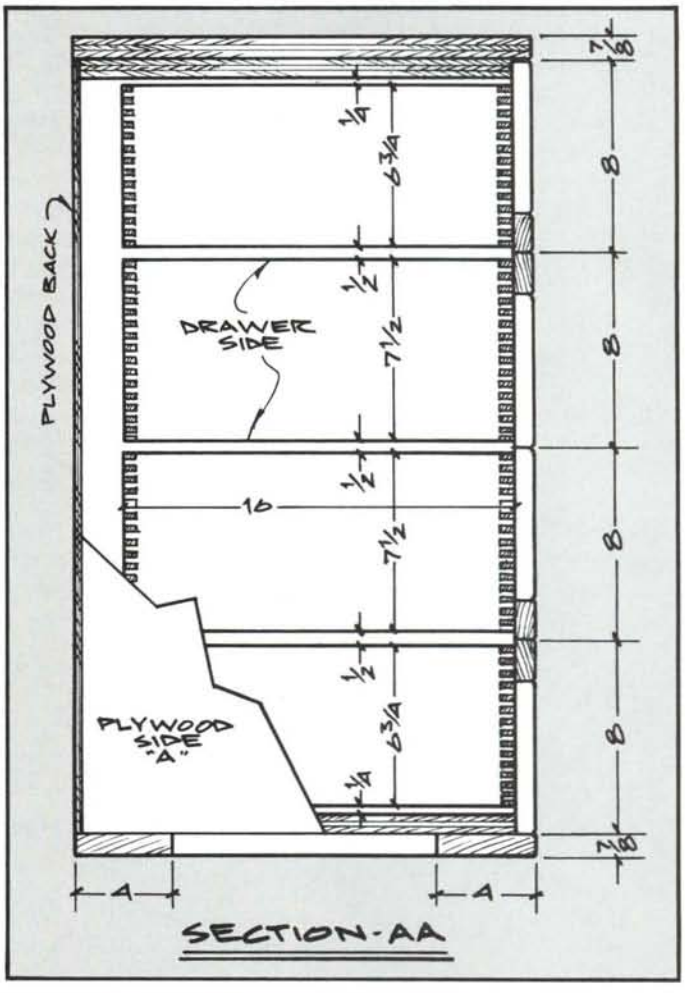
or particleboard core (G). The recommended procedure here is to apply the lower or reverse side laminate first, gluing it in place with contact cement. Start with the laminate about ¼ in. oversize all around and use a laminate trimmer to flush the edge. Next, following the same technique, apply the laminate edging and finally the top laminate.

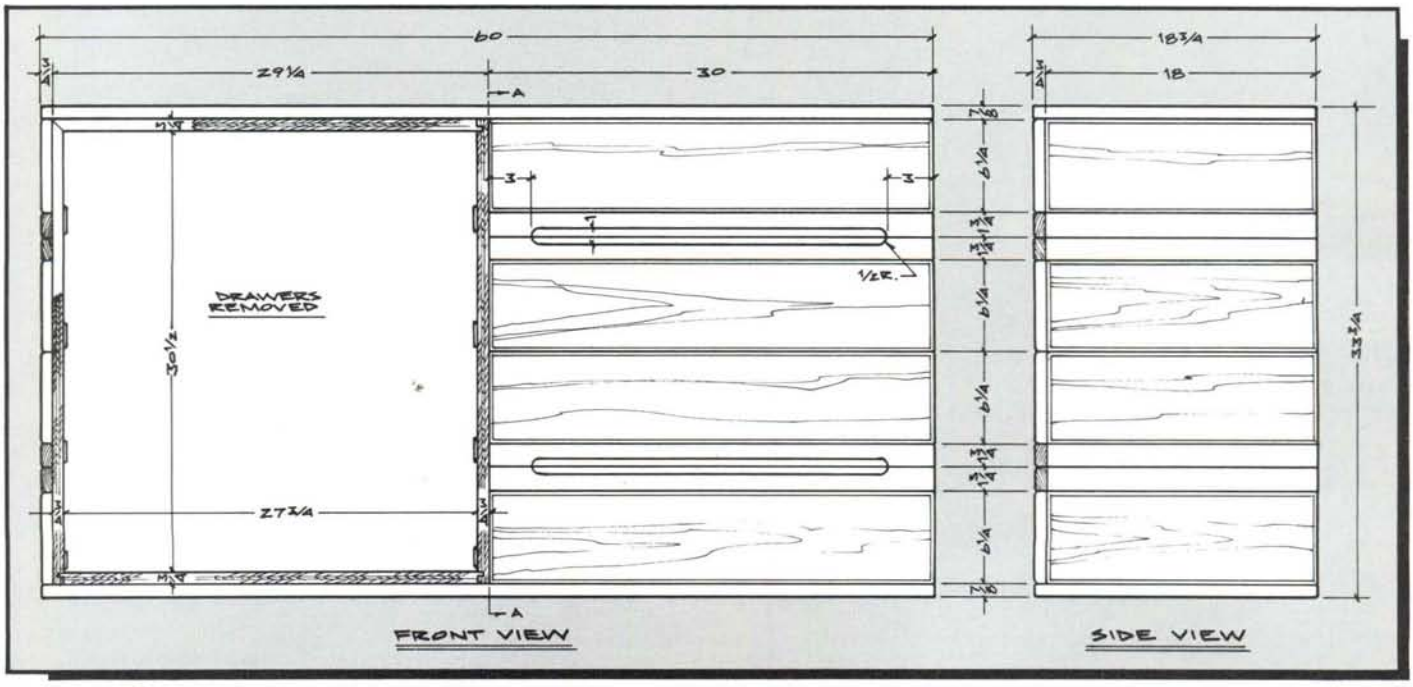
A laminate bevel cutter bit can be used to bevel the laminate edge, or you can achieve the same result by hand using a fine flat file. Drill and counterbore up through the case to accept the top mounting flathead wood screws. As with the base assembly, the top will extend ¾ in. proud of the case on both the sides and at the front.

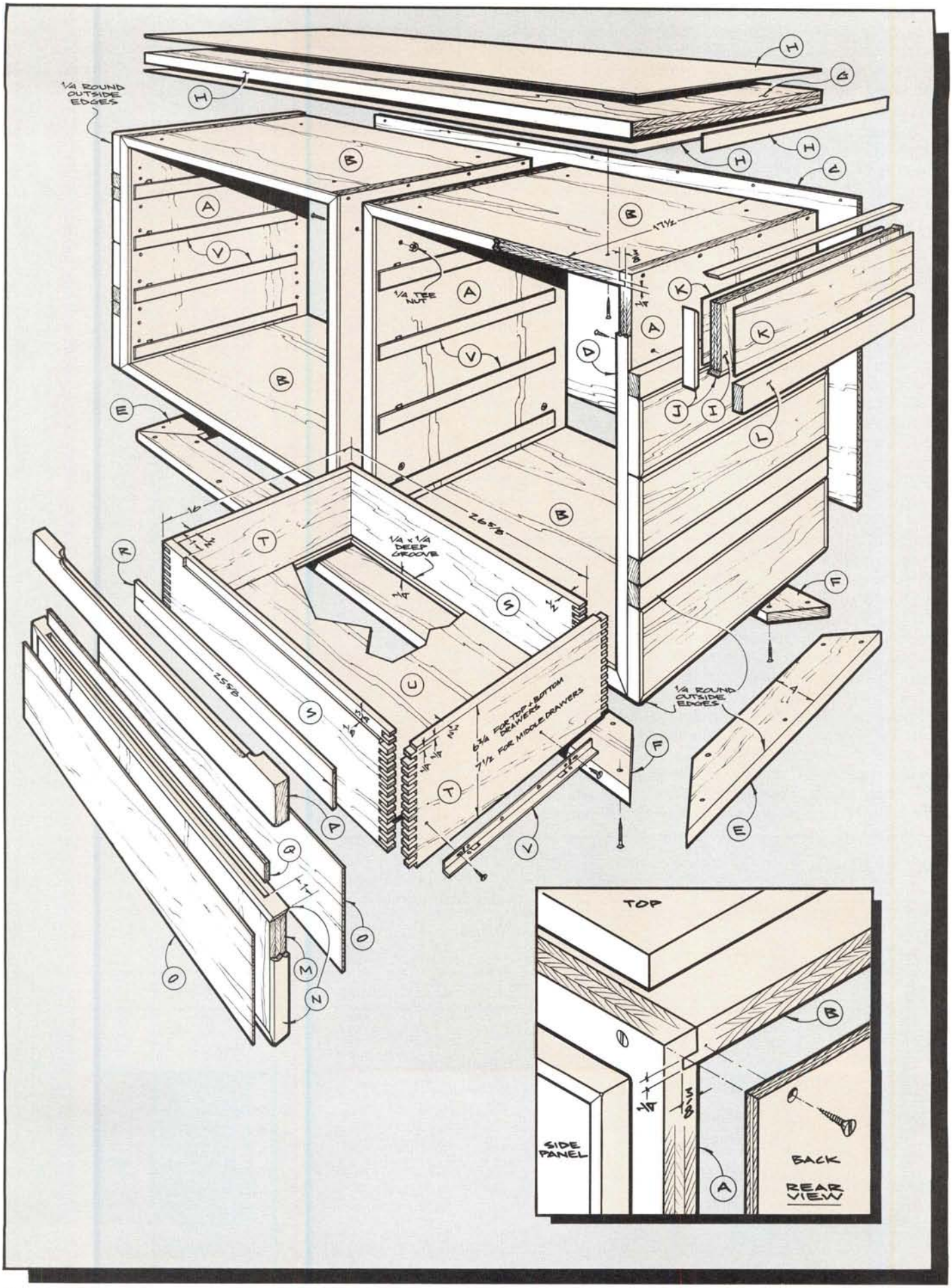
Now set about constructing the side and drawer face panels. As you can see from the exploded view, these panels are simply plywood sections laminated both sides with veneer and edged in solid stock. Select the veneers for these panels and the matching solid stock parts of the project with great care. If you take the time to use matching consecutive veneers, the effect can be quite dramatic, as the photo illustrates. Should you wish to save time, however, an acceptable alternative is to use pre-veneered hardwood plywood. Again, select the plywood sheets carefully in order to obtain the matched veneer faces. Another alternative to the painstaking process of veneering is the use of plastic laminates or veneered faces. The veneered faces are usually available in exotic burl, crotch, and other precious woods. The advantage here is that although these veneered faces must still be laminated onto the plywood substrate, they are pre-flattened to simplify the procedure. Remember that with all veneers, as with any other laminations, you must veneer both sides of the substrate to equalize stresses. There is no need to waste valuable and expensive veneer faces on the reverse side which will not be visible.

Apply the veneer (K) over the side panel core (I). For convenience, you might want to lay up four panels at a time, and use a shop-built press to clamp them in a single operation. Again, as a construction tip, I find that it's best to start with both the plywood panels and the veneer about ½ in. to 1 in. oversize all around. This enables you to simply cut the veneered panels to final size on the table saw. Now add the side panel edging, mitering the corners as shown. Then use the ¼ in. bearing-guided round-over bit to apply the ¼ in. radius around the outside face. Cut the side rails (L) to length and width, and apply the same ¼ in. radius round-over as shown. Note that the solid stock for parts L should be selected to complement your choice of veneer. The side panel assemblies, consisting of parts I, J, and K, and the side rails are now mounted to the carcase. Drill and counterbore through the case to accept the flathead mounting screws. Use

(continued on next page)






1/4 ROUND OUTSIDE EDGES
H
G
B
A
V
1/4 TEE NUT
17 1/2
K
D
J
I
L
E
16
26 5/8
T
1/4 x 1/4 DEEP GROOVE
S
F
25 5/8
U
6 3/4 FOR TOP + BOTTOM DRAWERS
7 1/2 FOR MIDDLE DRAWERS
R
Q
O
M
N
P
TOP
SIDE PANEL
BACK
REAR VIEW

screws no longer than 1¼ in. so there will be no danger of the screw tip penetrating the face veneer.

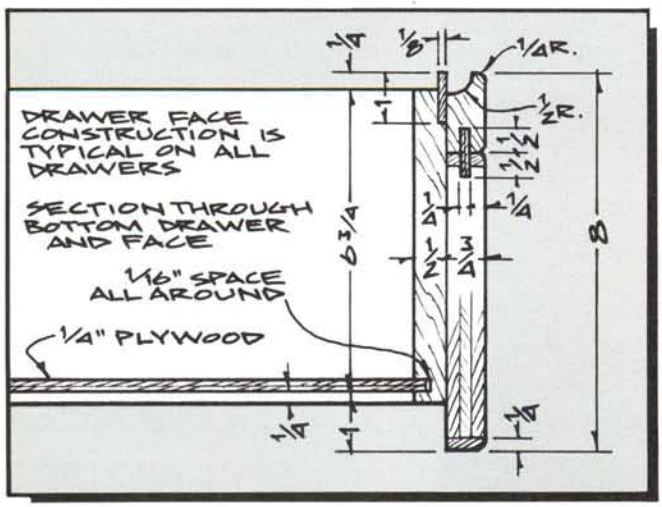
Now make the drawer face assemblies, consisting of parts M, N, and O, following the same process you used for the side panel assemblies. The drawer rail pulls are machined into the drawer rails (P) using the recessed pull technique described in the Special Techniques article on pages 22 and 23. Note that the routed pull detail is centered 3 in. from either end of the drawer rails. Apply the ¼ in. radius around the drawer face assemblies and drawer rails, again using the ¼ in. bearing-guided round-over bit.

You must now join the drawer face assemblies and the drawer rails. Use the router and a ¼ in. wing cutter to rout the ½ in. deep by 28 in. long spline grooves in each member. Make the splines (Q) from ¼ in. thick plywood. Glue and assemble the drawer face assemblies and drawer rails.

Next, make all the drawers. As noted in the Bill of Materials, the drawer face assemblies are all identical, but there are two drawer box heights. The drawer front and back (S) and sides (T) of the top and bottom drawers are 6¾ in. high, requiring that you machine twenty-seven ¼ in. wide finger joint pins and slots in each member. The four middle drawers are 7½ in. high and require thirty ¼ in. wide pins and slots in each member.

Cut the ¼ in. by ¼ in. groove in parts S and T to accept the ¼ in. thick plywood drawer bottoms (U). Note that these bottom panels are sized 1/16 in. smaller all around than the actual groove-to-groove dimensions so they will not interfere with the drawer assembly. Glue up the drawer front, back and sides around the plywood bottom, making certain that the boxes are square. Now use the router and a straight cutter to machine the ⅛ in. deep recess in the drawer fronts to accept the pull backing strips (R). Note that these recesses are off-center. On the right side drawer front (illustrated), the recess starts 1 in. from the left side of the drawer box. For the left side drawers, these recesses must start 1 in. from the right side of the drawer box. Glue the pull backing strips in place and then mount all the drawers, using black, full-extension Accuride® slides (V). As shown in the drawer location detail, the top and bottom drawers are spaced ¼ in. from both the top and the bottom, and the drawers are all spaced ½ in. apart.

The drawer face and rail assemblies are now mounted to the drawers. Although the illustrations and Bill of Materials all show the drawer face and rail members sized full width, you should actually have a little clearance between the drawers. The best way to accomplish this is to size the drawer face assemblies slightly under (3/32 in.) the indicated width.



Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	¾ × 17½ × 32	4
B	Top/Bottom	¾ × 17½ × 28½	4
C	Back	¼ × 32 × 58½	1
D	Case Edging	¼ × ¾	as needed
E	Base Side	⅞ × 4 × 18¾	2
F	Base Front/Back	⅞ × 4 × 60	2
G	Top Core	¾ × 18⅝ × 59⅞	1
H	Top Laminate	black plastic solid color	as needed
I	Side Panel Core	¾ × 5¾ × 17½	8
J	Side Panel Edging	¼ × ¾	as needed
K	Side Panel Veneer	as required	
L	Side Rail	¾ × 1¾ × 18	8
M	Drawer Face Core	¾ × 5¾ × 29½	8
N	Drawer Face Edging	¼ × ¾	as needed
O	Drawer Face Veneer	as required	
P	Drawer Rail	¾ × 1¾ × 30	8
Q	Spline	¼ × 1 × 28	8
R	Pull Backing	⅛ × 1 × 25⅝	8
S	Drawer Front/Back	½ × (see below*) × 26⅝	16
T	Drawer Sides	½ × (see below*) × 16	16
U	Drawer Bottom	¼ × 15⅜ × 26	8
V	Drawer Slides	16 in. black Accuride® full extension**	8 pair

* Note that the top and bottom drawers are 6¾ in. high, while the middle drawers are 7½ in. high.

** Accuride® drawer slides are available from: The Woodworkers' Store, 21801 Industrial Blvd., Rogers, MN 55374.

The faces can also be final adjusted by taking several passes with the hand plane along the drawer face edging. Removing between 1/16 in. and 1/32 in. should provide the necessary clearance. I recommend using a section of plastic laminate as a spacer when mounting the completed drawer front assemblies. Place the strip on the base, butt the bottom drawer front assembly onto it, and mount the assembly to the drawer. Drill and countersink for the 1 in. long mounting screws. Next, place the laminate strip atop the bottom drawer front assembly as a location aid for positioning the next drawer front assembly, and so on until all the drawer front assemblies are mounted. Note that a shorter plastic laminate spacer strip should also be used to provide similar clearance between the left side and right side drawer front assemblies.

To finish the dresser, I rubbed in two coats of Watco Danish Oil. The first coat acts as a kind of a sealer and should be applied generously as the unfinished wood will be thirsty. The second coat is applied after the first has dried and, after buffing, will provide the wood surface with a low luster satin sheen. Thorough sanding before finish is applied is always the key to a quality, professional appearance. I start with 100-grit, and progress through 150- to 180- and finally 220-grit. The laminated and edged panels and drawer faces, and all the other component parts, should be final sanded *before* assembly. When sanding the veneered surfaces, keep in mind that veneers will usually be 1/32 in. or less in thickness. Care should be exercised to avoid sanding through or in any way damaging the face veneers.

Editor's Note: This project is from the book Contemporary Woodworking Projects *by Paul Levine. See the back cover of this issue for more information about the book.*

Old-time Pipe Box

This pipe box offers plenty of practice with dovetail joints. The pine original, an antique, has dovetails at all four corners of the small drawer. You may choose to cut just two at the drawer front, a common arrangement, or to cut all four just for fun.

First cut the base (A) and box parts to size, and transfer the profiles shown in the grid patterns to the back (B), front (C), and sides (E). Cut with a coping saw or a jigsaw, being careful to stay on the waste side of the line. Then round over the base board with a ⅜ in. round-over router bit or a block plane.

Because you'll want to make the drawer to the size of the actual opening, next sand and assemble the box with finishing nails as shown.

Then cut the drawer parts to size, and establish the ¼ in. deep rabbets on the inside of the drawer front (F). They are ¼ in. wide on the bottom, but 3/16 in. wide on the sides and top. Orient the parts and label them.

Next, scribe the depth of cut for both tails and pins with a marking gauge. (The tails are the portion that resemble a dove's tail. The pins are the matching beveled shoulders.) Set the gauge a hair over ¼ in., the thickness of the drawer sides (G). Scribe lines on the inside of the drawer front (from the edge of the rabbet), on both ends of the drawer back (H), and on both ends of each side. When marking the sides and back run the lines on all four surfaces.

After scribing the depth cuts, mark the tails on the sides using a bevel gauge or a template. Run the lines down to the depth marks and also across the end grain. Use a scratch awl or sharp knife. Mark the waste sections with an "X".

Use a dovetail saw to cut the tails to depth. Stay on the waste side of the line. After cutting the profile, make several relief cuts in the waste material.

With a coping saw or chisel, cut along the depth line and remove the waste. Clean the cuts with the chisel. Next, trace the tail profiles onto the end grain of the drawer front and the back. Hold the piece you're marking in a vise. Use a try square to run lines from the end grain to the depth marks.

Also use the dovetail saw and chisel to cut out the pins. For the half-blind dovetail you won't be able to cut all the way through with a saw. However, you can make a triangular cut from the inside. Hollow out the remainder of the cut with a chisel, cutting first across the grain and then gently lifting out the chips while cutting into the end grain.

After cutting the dovetails, make the ⅛ in. deep by ¼ in. wide rabbet in the drawer sides to accept the bottom (I). Also cut the 3/16 in. bead on the face of the drawer.

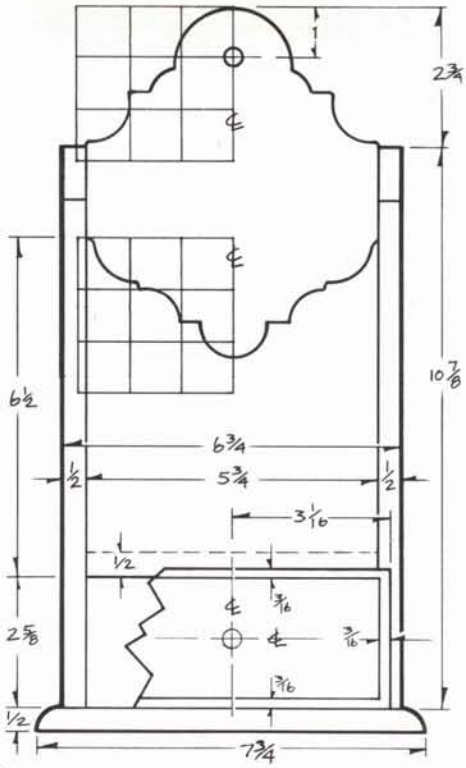
Before final assembly, dry fit the drawer, knocking the parts together lightly. You may need some chisel work to get the dovetails to fit correctly. They should go together snugly. If you have to bang on them, they'll split after gluing.

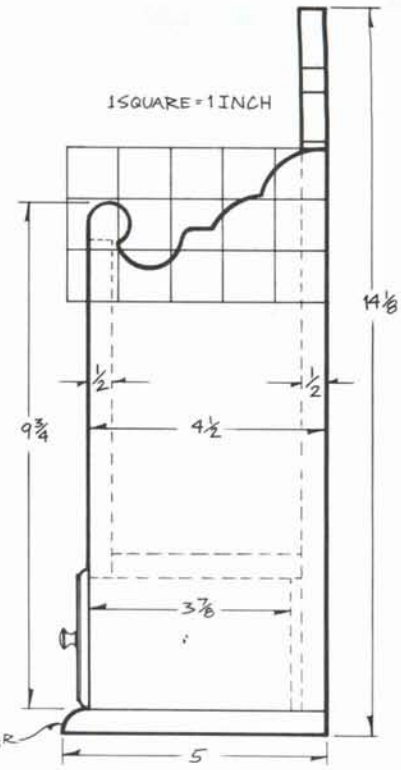
Next, cut a ⅜ in. diameter hole in the back as shown and drill a shank hole in the drawer front for knob (J).

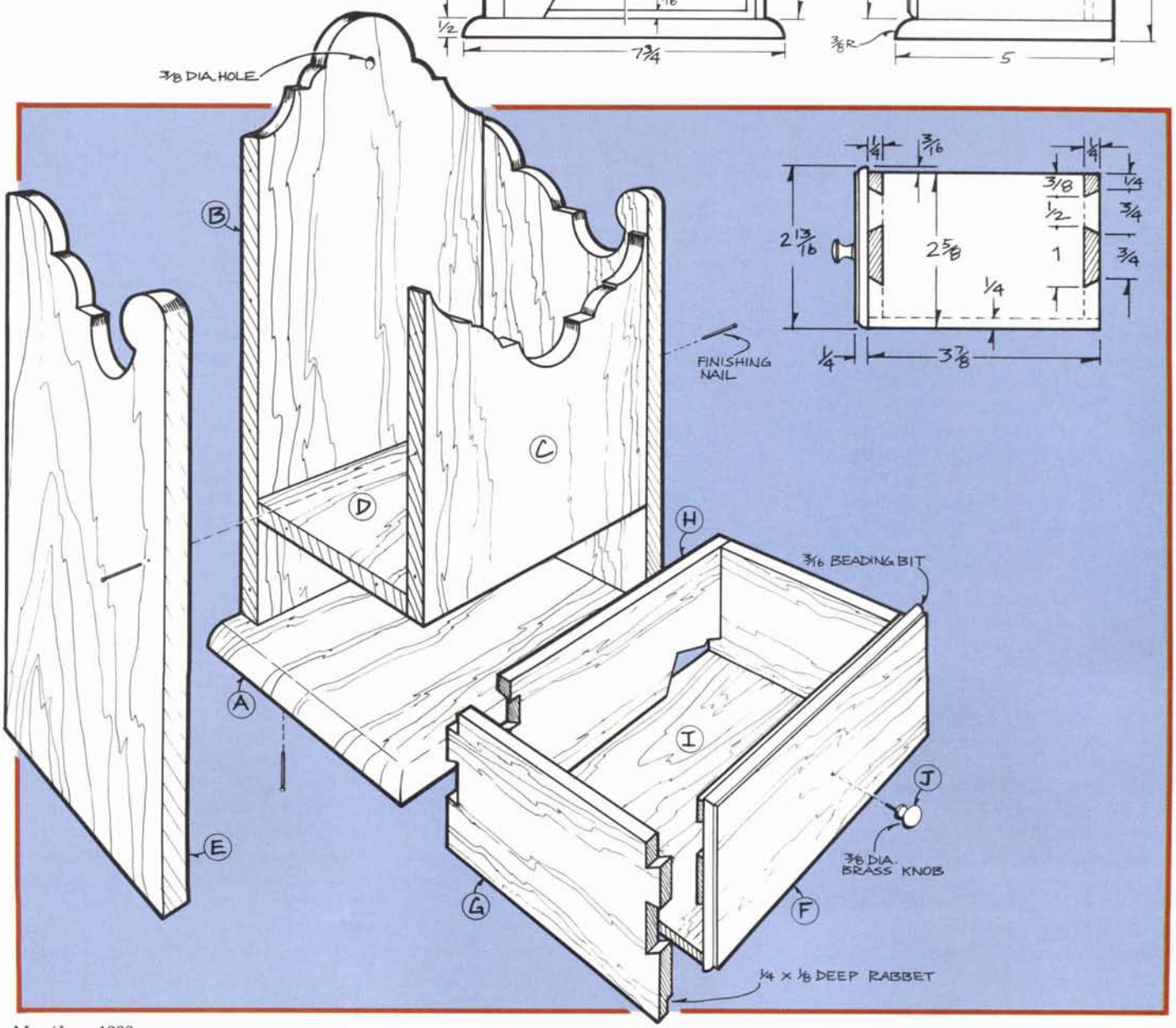
Sand well and stain with two coats of Minwax Cherry Wood Finish. If desired, nick the box with the corner of a chisel for a distressed look. Finish with shellac.

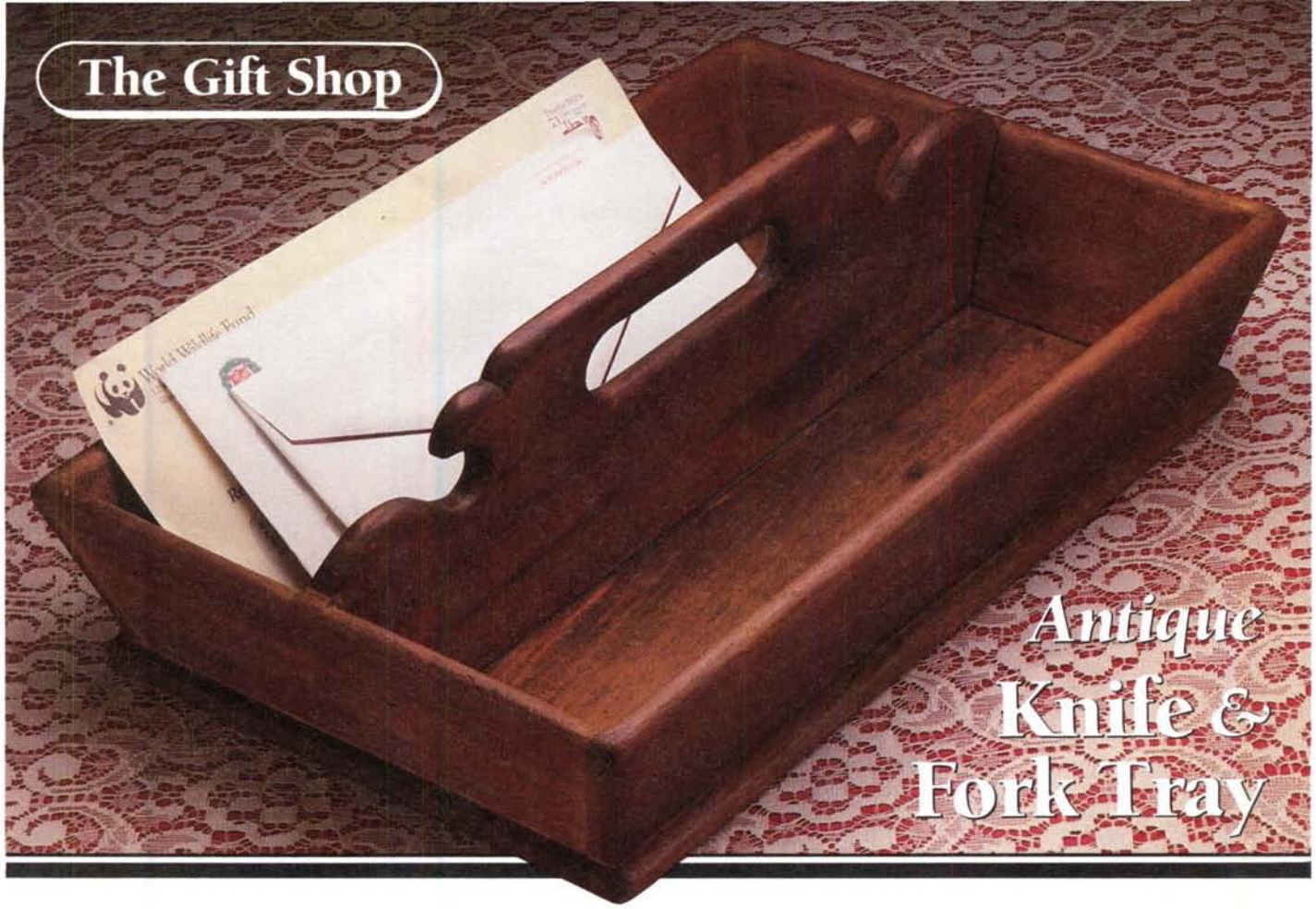
Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Base	½ × 5 × 7¾	1
B	Back	½ × 5¾ × 13⅝	1
C	Front	½ × 5¾ × 6½	1
D	Shelf	½ × 3½ × 5¾	1
E	Side	½ × 4½ × 10⅞	2
F	Drawer Front	½ × 2 13/16 × 6⅛	1
G	Drawer Side	¼ × 2⅝ × 3⅞	2
H	Drawer Back	¼ × 2⅜ × 5¾	1
I	Drawer Bottom	¼ × 3⅞ × 5½	1
J	Brass Knob	⅜ dia.	1









Antique Knife & Fork Tray

The needs of America's first settlers were few compared to ours today. Where a present-day kitchen would be considered naked without walls of cabinets, a Colonial kitchen might have contained only a water bench, table, and sideboard. Common flatware of copper, pewter, or latten (a tin covered iron; silver was found only in the homes of the wealthy) was typically held in a knife and fork tray.

Our tray is an excellent example of an antique knife and fork tray. Like many early pieces, it was crafted from native New England pine and held together with brads.

This is an ideal one-day project, since it can be completed in several hours. You'll need ⅜ in. thick stock which you can either purchase presurfaced or resaw and plane yourself.

If you need to resaw, we recommend using the band saw for this operation. Band saw blades cut narrow kerfs, wasting less stock than table saw rip blades. Use as wide a blade as your band saw will accommodate. The workpiece should be flat, and the edge that rides on the band saw table should be jointed square.

It might seem logical to use a long, high fence as a guide for resawing, but most band saws do not cut absolutely true. Such a fence prevents you from making the small lateral adjustments to the board that are necessary to keep the blade cutting on the line as you feed the stock through. We recommend a simple pivot guide, as shown in Fig. 1, which is clamped in place at the proper distance from the blade to produce the desired thickness. The chamfered contact point of the guide enables you to shift the board slightly and thereby counteract any tendency of the blade to wander. A 1 in. by 8 in. by 28 in. long board, when resawed, will provide all the stock needed to make one tray, and light hand-planing will reduce the resawed material to the final ⅜ in. thickness.

Once the various parts have been roughly laid out on the ⅜ in. stock, cut the bottom (A) to length. Then rip and crosscut the stock for the two sides (B) and the two ends (C), allowing at least ½ in. extra in both length and width for these parts.

The next step is to cut parts B and C to final length. Be careful, though, as some potentially confusing angles are involved. Because both the tray sides and ends tilt out at an 18-degree angle (shown in the elevation views), the butt joints at the corners where these parts meet will form a compound angle. The ends of both the side and end parts must be cut at this compound angle for the butt joint to be neat and clean. As illustrated in Fig. 2, by angling the table saw blade at 5¼ degrees, and setting the miter gauge at 17 degrees, you'll get the perfect compound angle cut required for the 18-degree tilt of the sides and ends. You must reverse the miter gauge setting to cut the opposite ends of all parts B and C.

Next, the side and end parts must be ripped to final width. Here, too, angles are involved. The top and bottom edges of parts B and C must be ripped at an 18-degree angle, equal to the desired tilt of these parts. Incline the table saw ripping blade at 18 degrees and make the ripping cuts as illustrated in Fig. 3. Note that Fig. 3 shows a saw blade that tilts to the left. If your saw tilts to the right make sure that the fence is on the right side of the blade. Be sure the edge bevel cuts are oriented properly in relation to the compound miter cuts made earlier.

To lay out the handle profile, position the handle stock under the full-size half-pattern with a sheet of carbon between the page and your stock. Then flip the page over and use the carbon to trace the other half of the pattern. You shouldn't have any trouble reading the

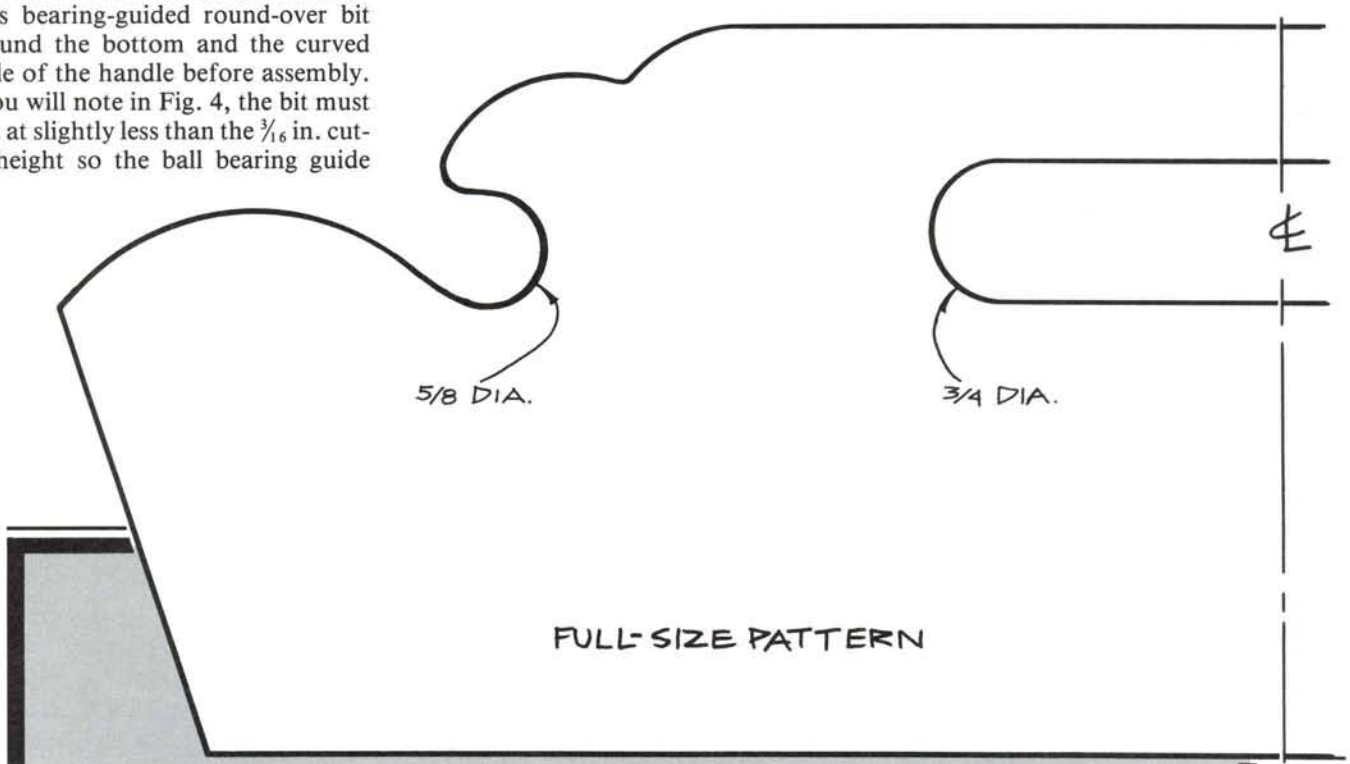
profile through the page, but if you didn't press hard enough, use the carbon to first outline the profile on the page back.

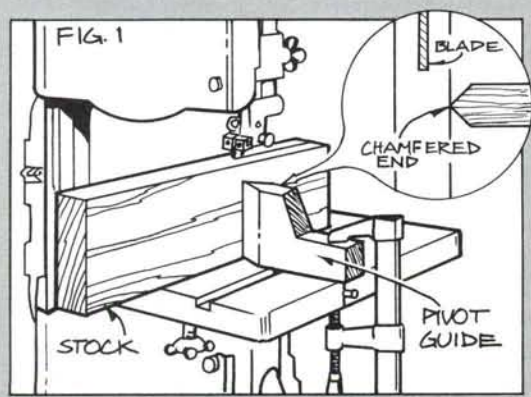
Drill $\frac{5}{8}$ in. and $\frac{3}{4}$ in. diameter holes as indicated on the full-size pattern to establish the inner radii, then cut out the handle's outer profile using a band saw, jigsaw, or by hand with a coping saw. The coping saw is also handy for completing the inner profile.

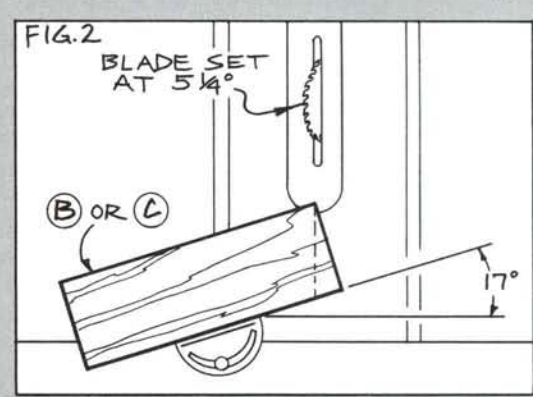
We used a router table with a $\frac{3}{16}$ in. radius bearing-guided round-over bit to round the bottom and the curved profile of the handle before assembly. As you will note in Fig. 4, the bit must be set at slightly less than the $\frac{3}{16}$ in. cutting height so the ball bearing guide will have a slight flat to bear off. Use a rasp and sandpaper to round the tops of the sides and ends after assembly.

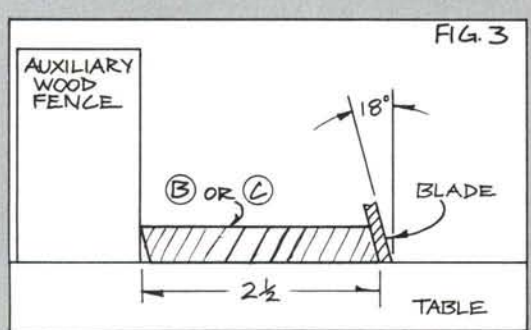
To assemble the tray, first join the sides and ends with brads or finishing nails. Genuine cut nails or brads are available from The Tremont Nail Company, P.O. Box 111, Wareham, MA 02571. Next, add the bottom, and lastly the handle, using brads to secure these pieces also. Distress the tray with small nicks from a chisel, simulating years of wear.

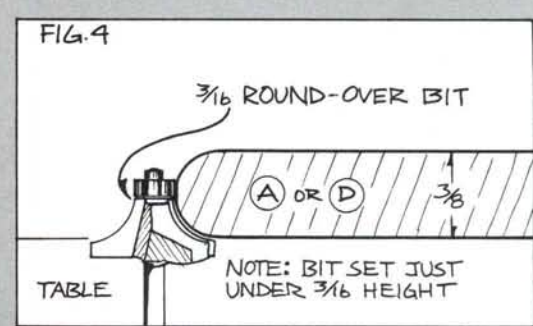
Since our tray was an antique, we could only guess as to the finish and stain used, if any. For an authentic antique look, we recommend Minwax Early American or Special Walnut stain, followed by two applications of Minwax Antique Oil Finish. Rub out the finish with 0000 steel wool to the desired level of gloss.











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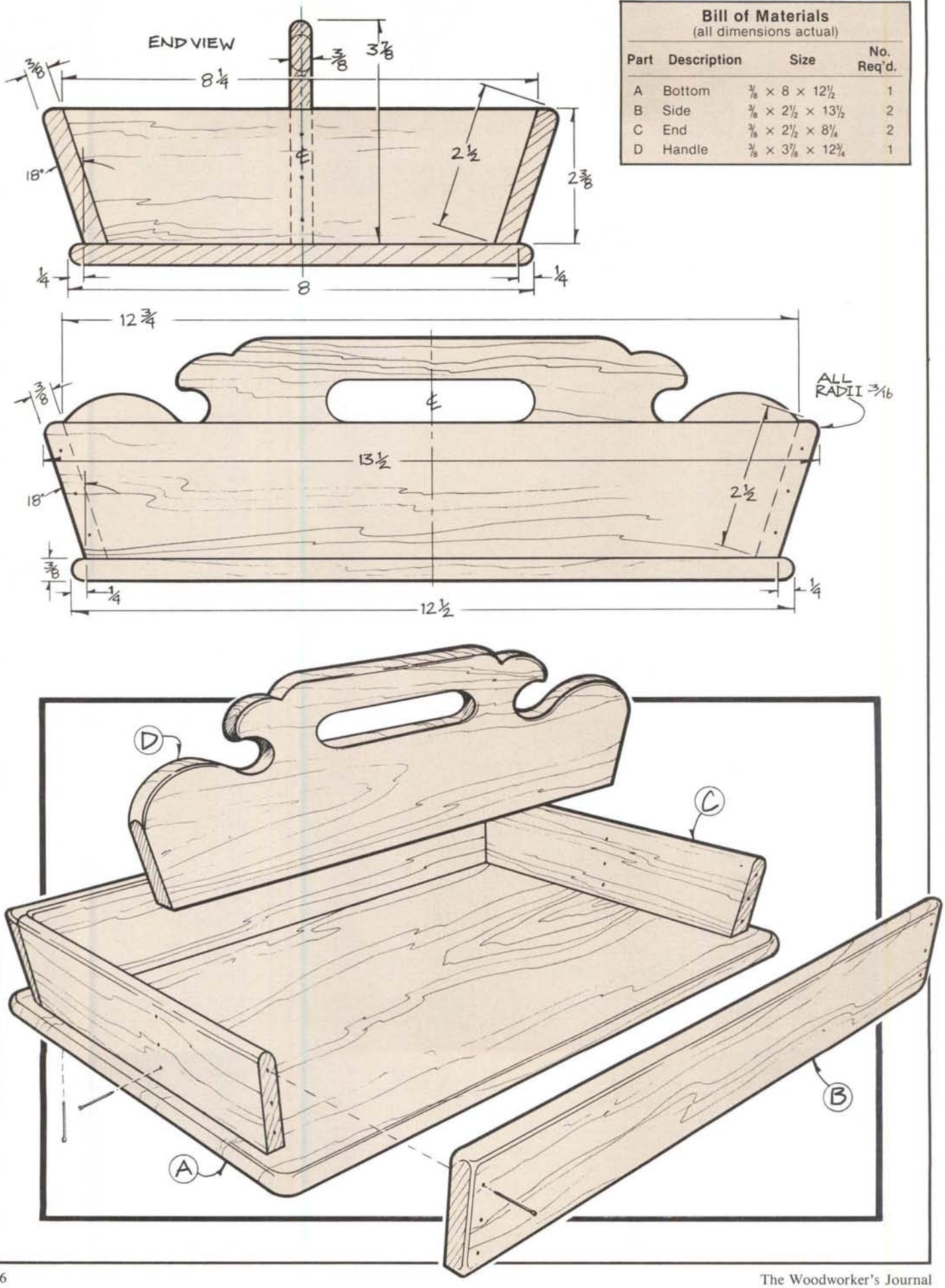
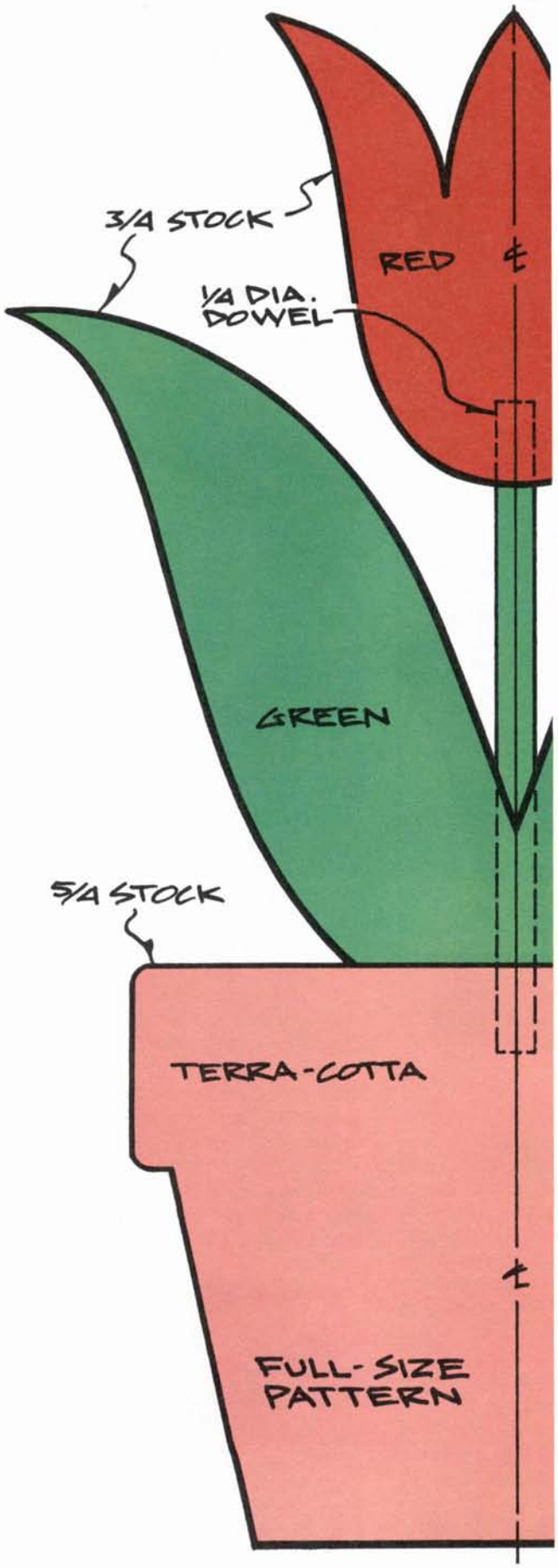


Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Bottom	3/8 × 8 × 12 1/2	1
B	Side	3/8 × 2 1/2 × 13 1/2	2
C	End	3/8 × 2 1/2 × 8 1/4	2
D	Handle	3/8 × 3 7/8 × 12 3/4	1

Dutch Tulip
Folk-Art Silhouette



This cheery silhouette will add a touch of charm to your kitchen window or sun porch. It's easy to make and could even be a family project. Mom or Dad can cut the pieces and lay the newspaper on the kitchen table. Everybody else can pitch in with the sandpaper and paint.

The flowerpot base is made from 5/4 pine. The leaf and flower are 3/4 in. pine. A 1/4 in. diameter by 4 in. long dowel connects the three parts and serves as a stem.

Use our full-size pattern to transfer the profile onto the three wood blocks. Then drill the 1/4 in. hole through the leaf section and 1/2 in. deep into the flower and base.

You can use a band saw or jigsaw to cut out the parts. Clean up the cuts with a file, and sand well with 150- and 220-grit sandpaper before finishing.

Apply a base coat of primer or flat white paint before the colors. The primer sanded with 220-grit paper provides an excellent surface for the enamel colors.

We used gloss enamel paint for all colors: red for the flower and green for the leaves. To give the pot its terra-cotta shade we mixed four parts each of red and yellow, with three parts of white, and one part of blue. If you need two coats of color, sand the first coat well.

After the paint dries, apply glue to the ends and middle of the dowel and assemble the sections.

Salt Box

If there were a "top ten" listing of all-time favorite Early American projects, this small salt box would certainly have to be included. We've seen many different salt box designs, but this particular style seems to have just the right proportions, highlighted by the classic decorative back profile.

Perhaps best of all, this project doesn't require a shop full of fancy equipment or years of woodworking experience. Just about anyone who takes the time to carefully measure and cut, and follow the grid for the back profile, will end up with an attractive finished product.

As you'll note from the elevation views, all parts are made from ½ in. thick stock. You may have to hand-plane ¾ in. thick stock to reduce it to the ½ in. dimension, which entails some work, but we don't recommend that you substitute ¾ in. material for the ½ in. designated thickness. If you build the piece from ¾ in. stock, you'll find that the box looks "clunky."

After you've planed enough material for all parts, cut the bottom (A) to size, and rough-cut stock for the back (B). Then transfer a 1 in. grid pattern to the upper half of the back, draw in the curved profile, and cut out. You could use the jigsaw or band saw to cut this profile, although a much better choice would be a scroll saw or a coping saw. With a little practice, most woodworkers discover that the coping saw is an extremely effective tool for this type of work.

Next, cut the sides (C). Once again, the coping saw will come in handy for cutting the upper end of the sides to the designated profile. Drill a ¼ in. diameter hole as shown for the pivot dowels that will be used to mount the lid.

After cutting the front (D) to its 7 in. length and about 5 in. width, assemble the box using finishing nails or brads, and glue where the back and sides meet. Hand-plane the top edge of the front to match the slope of the sides.

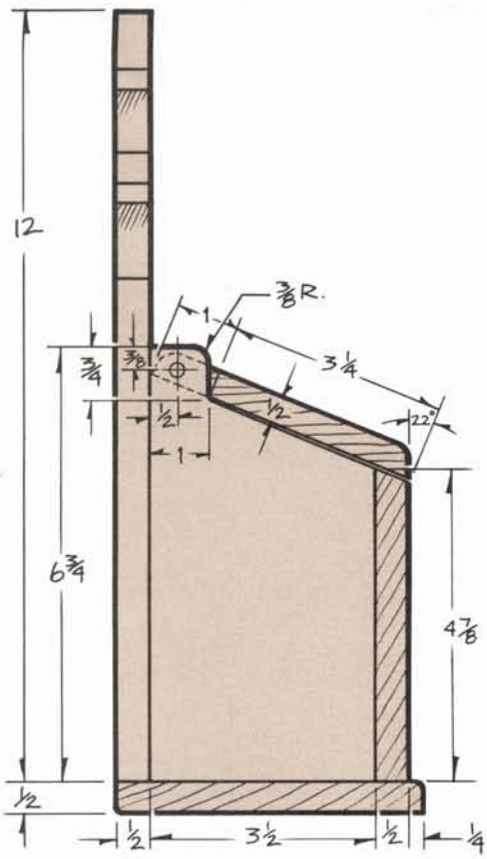
The lid (E) is cut to length and width and then notched to fit between the sides. While you could use the table saw to establish the 22-degree angle on the bottom edge of the lid, a few passes with the hand plane will get the job done just as quickly without having to spend time setting up the table saw. As an exercise in using hand tools, this project could be a good way to rediscover the joy of doing things entirely by hand, without the ear-splitting whine of the table saw or router.

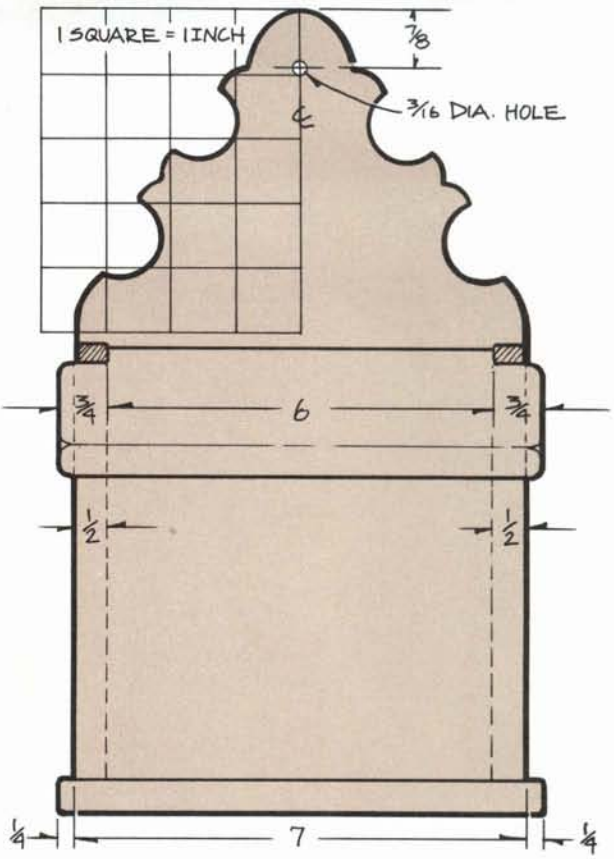
Lastly, you'll need to drill the holes in the lid to accept the pivot dowels. Position the lid and, using the previously drilled holes in the sides as a guide, drill the ½ in. deep holes to accept the dowels. If you've got a brace and a set of auger bits, you might use them to keep this project an entirely handmade piece. To assemble, place a little glue on one-half of each dowel, then insert the ends without any glue through the sides and into the lid. Take care not to get any glue on the dowel ends that fit into the lid. Also, note that those ends may have to be filed or sanded slightly; if they bind tightly, the lid won't pivot freely.

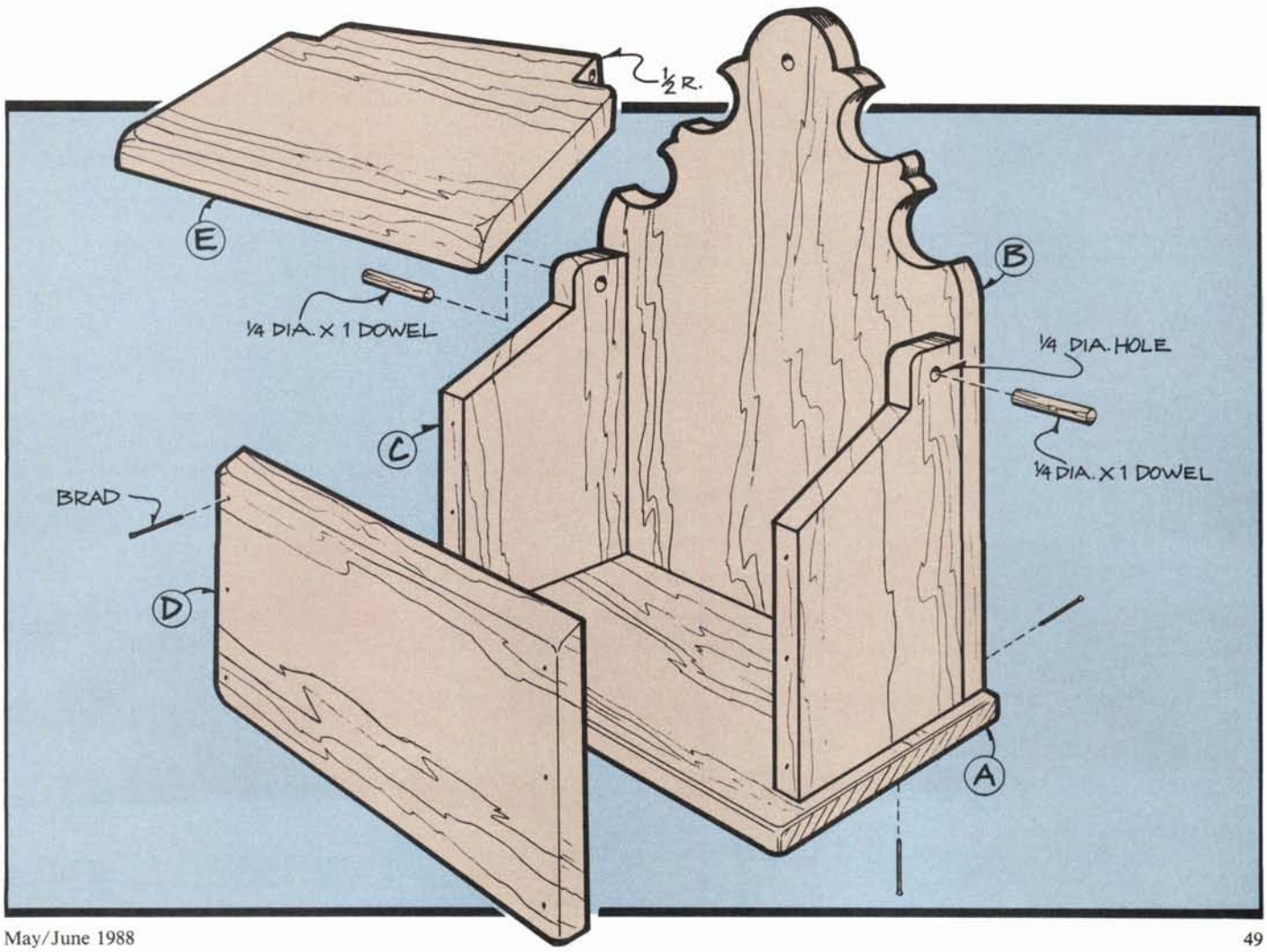
Minwax Special Walnut stain gives pine a nice aged look. One coat of Minwax Antique Oil finish completes the project.

Bill of Materials
(all dimensions actual)

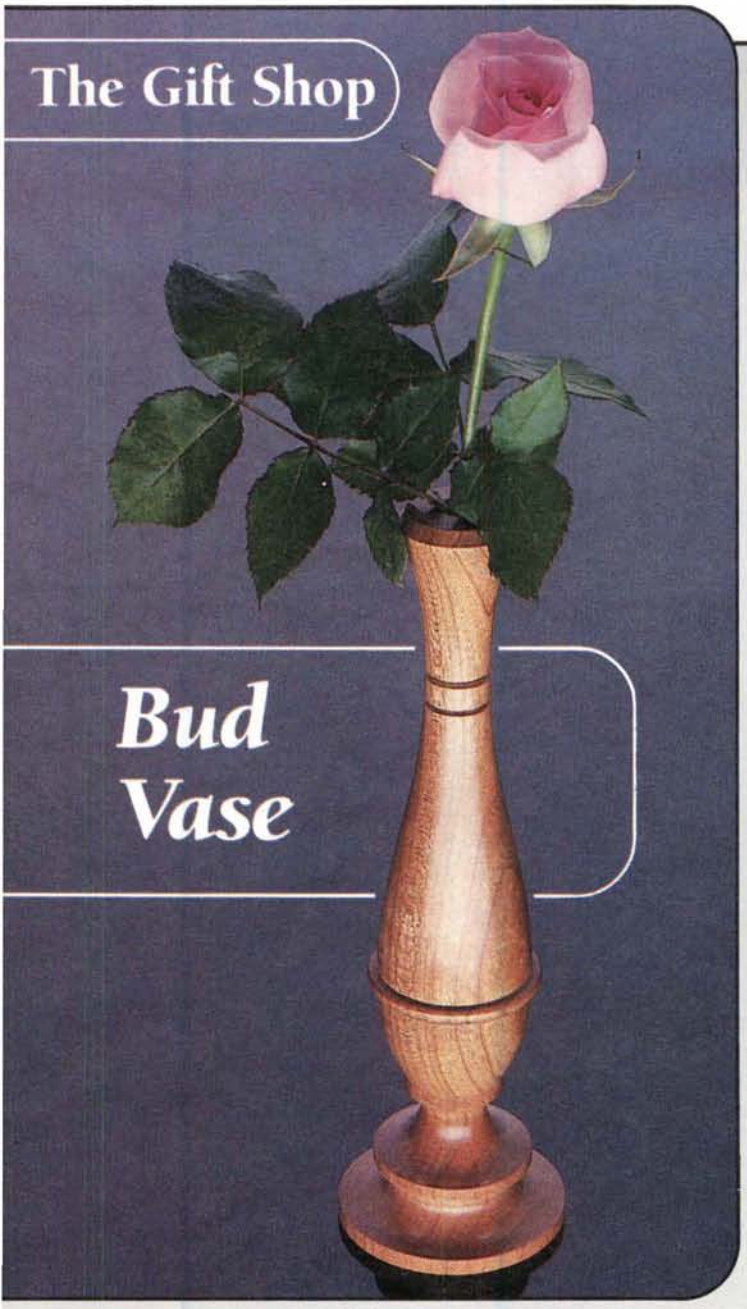
Part	Description	Size	No. Req'd.
A	Bottom	½ × 4¾ × 7½	1
B	Back	½ × 7 × 12	1
C	Side	½ × 3½ × 6¾	2
D	Front	½ × 4⅞ × 7	1
E	Lid	½ × 4¼ × 7½	1


12
3/8 R.
1
3 1/4
3/4
3/8
1/2
1/2
22°
1
6 3/4
4 7/8
1/2
1/2
3 1/2
1/2
1/4


1 SQUARE = 1 INCH
7/8
3/16 DIA. HOLE
3/4
6
3/4
1/2
1/2
1/4
7
1/4


1/2 R.
E
1/4 DIA. X 1 DOWEL
B
1/4 DIA. HOLE
C
1/4 DIA. X 1 DOWEL
BRAD
D
A

Bud Vase



We like this bud vase for its elegant profile and for the simple details that make it a good practice piece for novice woodturners.

We made it from cherry, a wood with a rich color and interesting grain. Walnut, rosewood, or a figured birch would also work well.

Before starting, transfer the profile of the full-size pattern onto something stiff to use as a template: ¼ in. plywood or hardboard. You only need one edge to use as a guide, so cut the profile in the top but leave the bottom edge straight. Mark the dimensions of beads, coves and V-grooves, as well as the maximum and minimum diameters (Fig. 1).

Next, secure a turning block, find the centers, and mount it in the lathe as described in the "Basic Lathe Setup" article in our March/April 1988 issue. The blank should be at least 1 in. longer than the finished piece.

We've arranged the subsequent operations in a step-by-step format to help beginners through the cutting steps.

For more detailed descriptions of the individual operations, refer to the "Spindle Turning" article on page 14.

Fig. 1: Rough out the cylinder leaving a 2 in. diameter at the headstock as shown, but turning it down to just over 1½ in. diameter starting at a point about an inch in. Make the transition from 2 in. to 1½ in. a gradual one. With the workpiece stopped, use calipers to check the diameters.

On the roughed-out cylinder mark the locations shown: the shoulders of the coves, the sides of the bead, the bottom of the long hollow, and the top of the vase. Hold the full-size template over the revolving turning and transfer the lines with a pencil.

After transferring the lines, place the template directly behind the turning in such a way that you can refer to the top profile as you work.

Fig. 2: Use a parting tool to cut to depth at the marks, following the diameters shown on the template. Cut on each side of the bead lines, leaving the raised area. For the cove shoulders, cut the higher one first, then the lower one. Note that your parting tool may be wider than the shoulder. On the higher shoulder it won't matter because you'll cut down on both sides. But on the other shoulder be careful to cut on the left side so the tool doesn't eat into the vase-shaped taper. When cutting with the parting tool, remember it doesn't make a finish cut, so you'll need extra wood for cleaning up later. Also cut the nub on the right to about ½ in. diameter with the parting tool.

Fig. 3: Round over the bead with the skew chisel. For this operation you should increase the lathe speed to about 2,000 rpm. Cut slowly, working first at the very corner and taking light shearing cuts until you're cutting all around the bead. Remember to use the short corner of the skew and to position the tool so the bevel rubs before you begin the cut.

Fig. 4: Working with the medium or large gouge, rough out the vase shape on both sides of the bead. Use a shearing cut and always cut downhill, from larger to smaller diameter. After roughing out the vase shape, smooth it with light shearing cuts of the skew chisel, again always cutting downhill. Then use the skew to slice away the wood for the bevel at the top of the vase. Use the calipers often to check dimensions.

Fig. 5: Use the small gouge to cut the coves. First hog out the waste material and then use a shearing cut to form the profile. Remember to start the cut with the gouge on its side and roll it into the cut, ending with the gouge on its back. Work from both sides of each cove. Set the calipers for the final depth of each cove, and work until you reach that depth.

Cut the V-grooves with the short corner of the skew chisel, again working from both sides.

Next, remove the tool rest and, if needed, sand the turning with 150- and 220-grit paper.

Finally, cut the finished vase out of the turning block with the parting tool. Cut straight in at both ends, leaving only about ¼ in. of wood. Remove the workpiece from the lathe and carefully cut off the remaining nubs with a handsaw. Then sand the base and top smooth. Use a brad-point drill bit for the ¼ in. diameter opening in the top. Countersink the hole and finish the bud vase with lacquer or penetrating oil.

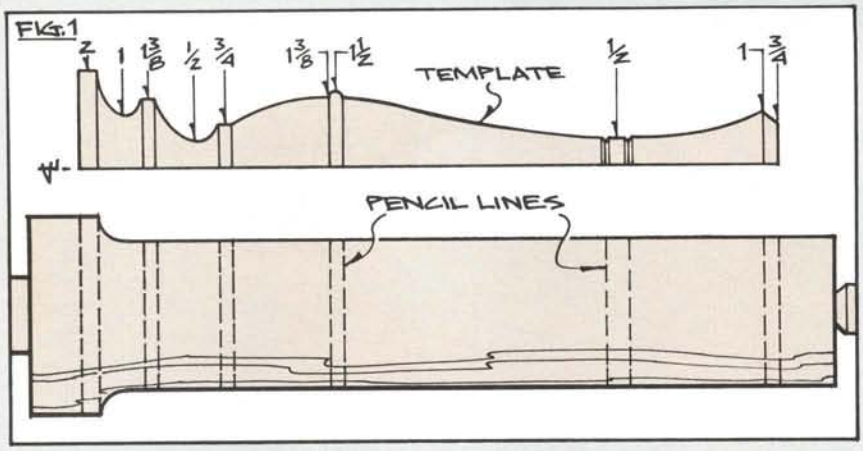


FIG. 1
2
1
1 3/8
1/2
3/4
1 3/8
1 1/2
TEMPLATE
1/2
1
3/4
PENCIL LINES

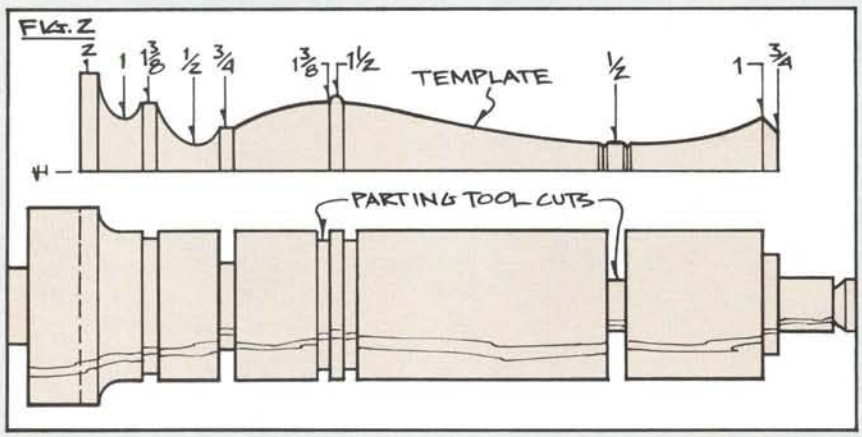


FIG. 2
2
1
1 3/8
1/2
3/4
1 3/8
1 1/2
TEMPLATE
1/2
1
3/4
PARTING TOOL CUTS

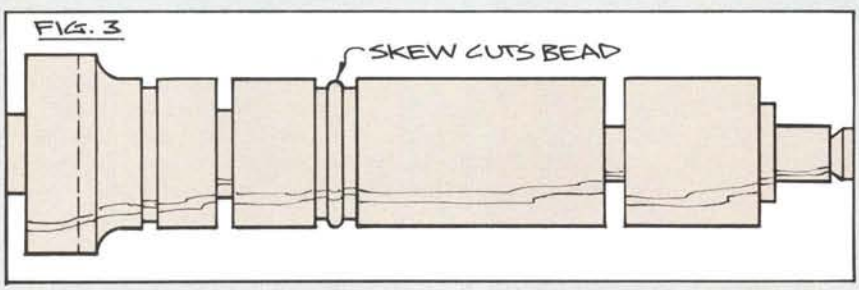


FIG. 3
SKEW CUTS BEAD

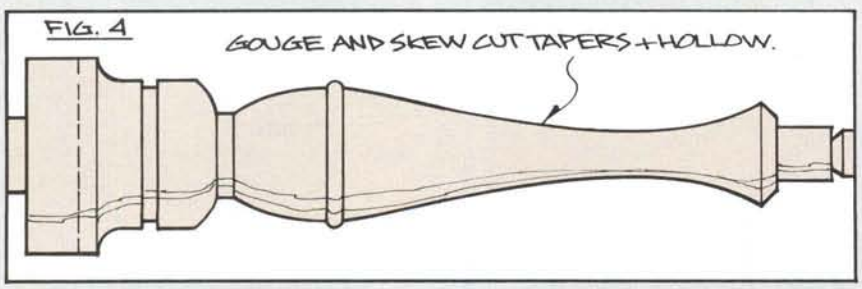


FIG. 4
GOUGE AND SKEW CUT TAPERS + HOLLOW.

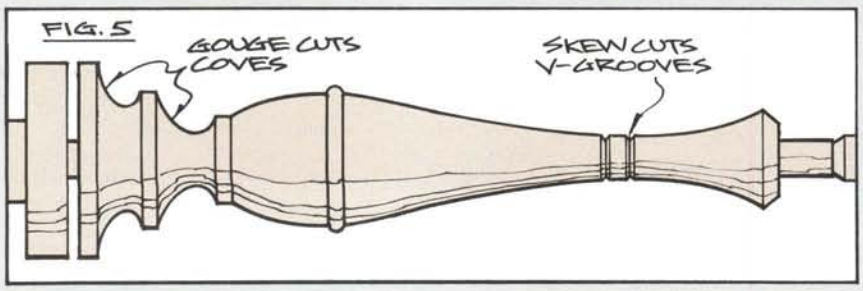
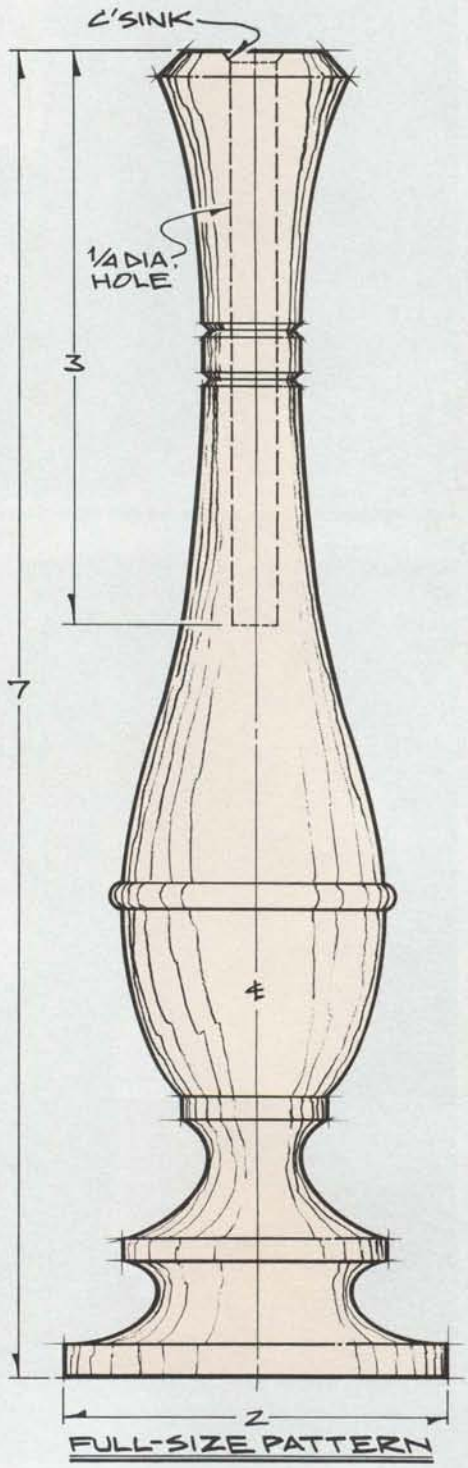
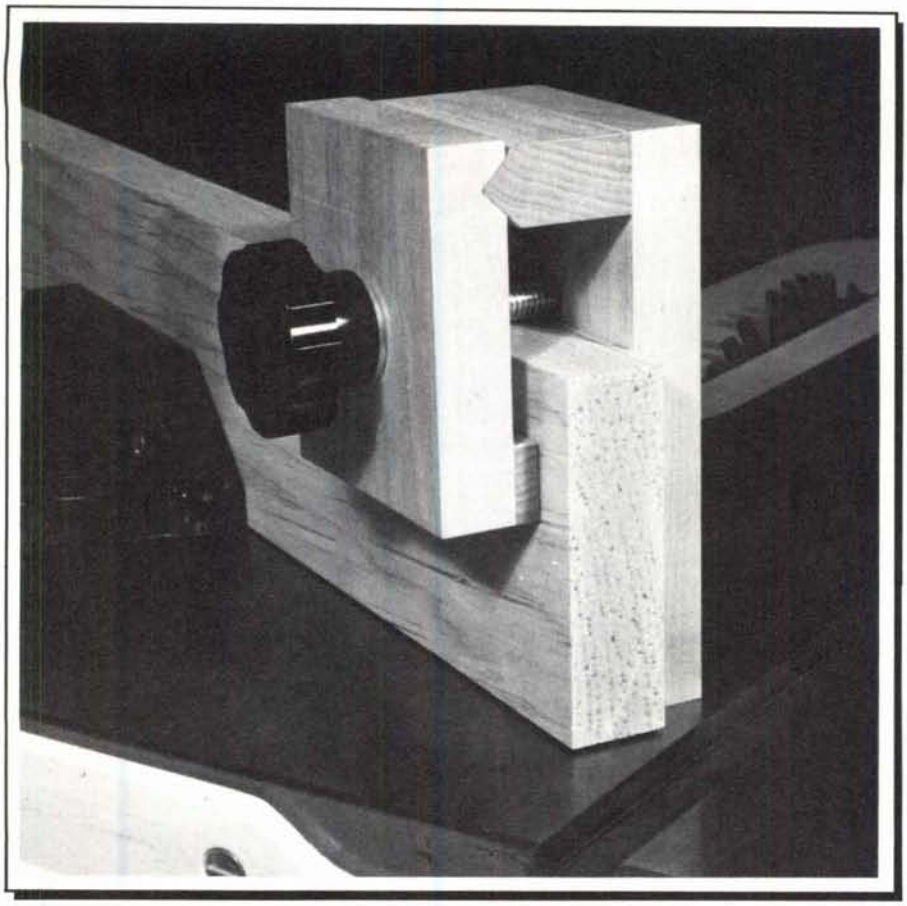
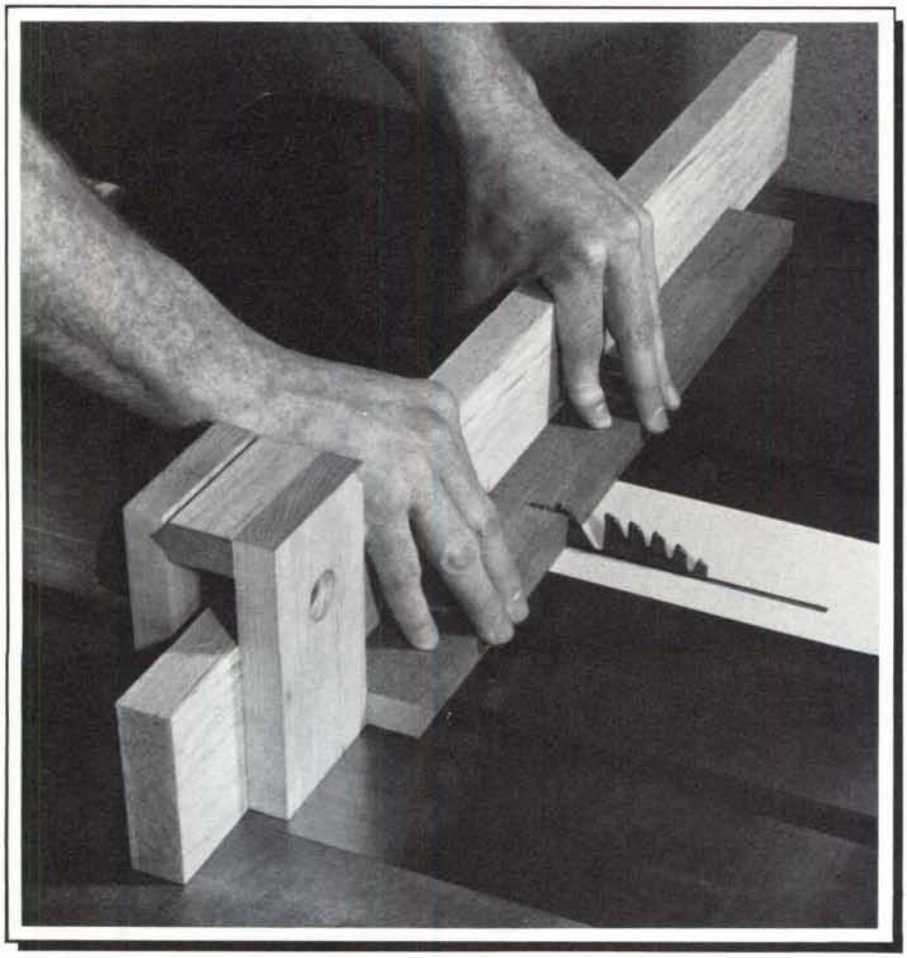


FIG. 5
GOUGE CUTS COVES
SKEW CUTS V-GROOVES


C'SINK
1/4 DIA. HOLE
3
7
2
FULL-SIZE PATTERN





Miter Gauge Stop

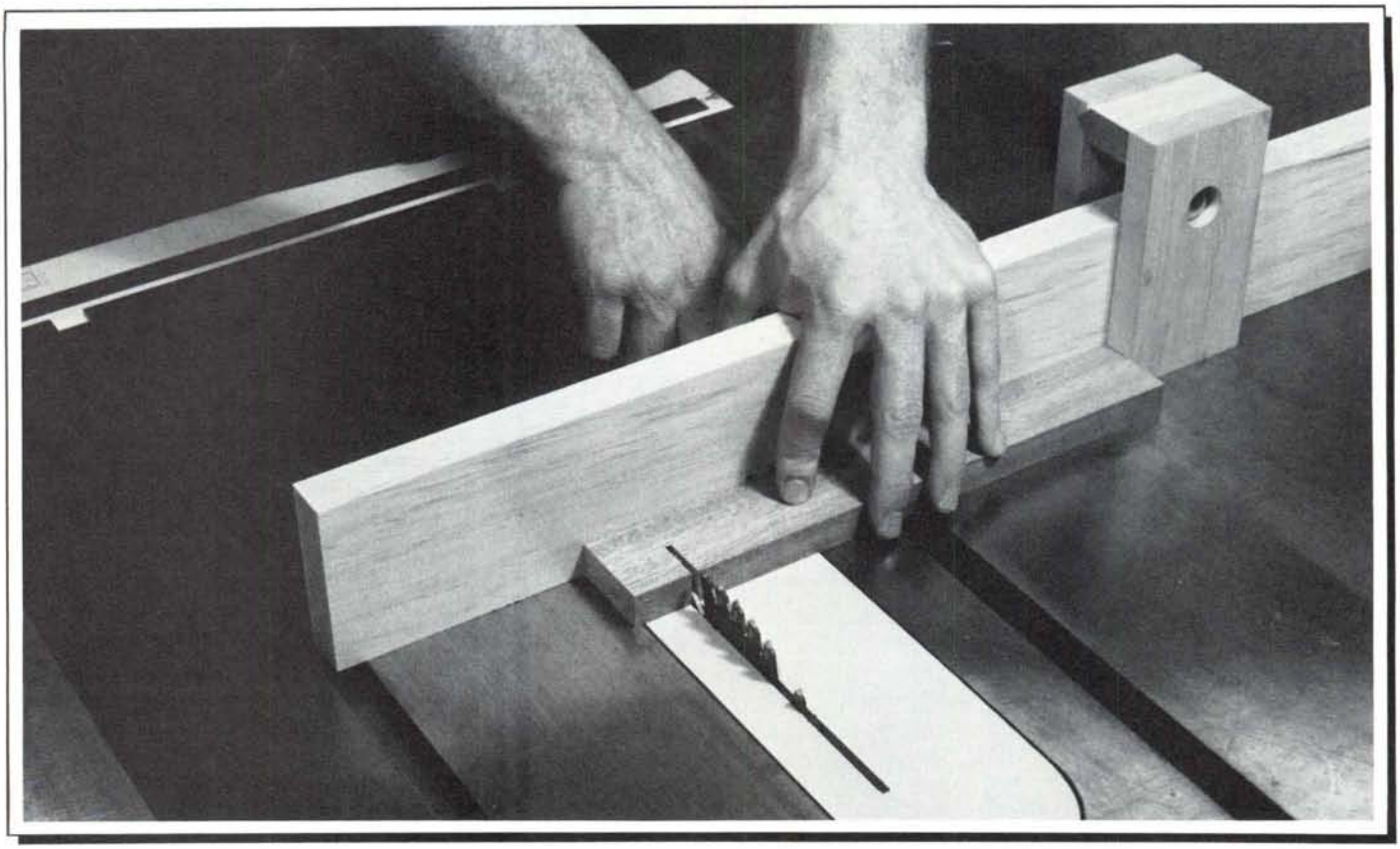
A miter gauge stop is without question one of the most useful shop accessories. When mounted to an auxiliary fence on the miter gauge, the stop enables the user to quickly readjust for various crosscutting operations, eliminating the need for cumbersome clamped-in-place stopblocks. While we use the miter gauge stop primarily on the table saw for mitering, tenoning, and cut-off work, it can be used on any tool where a miter gauge is used, such as the band saw, router table, or stationary belt/disc sander.

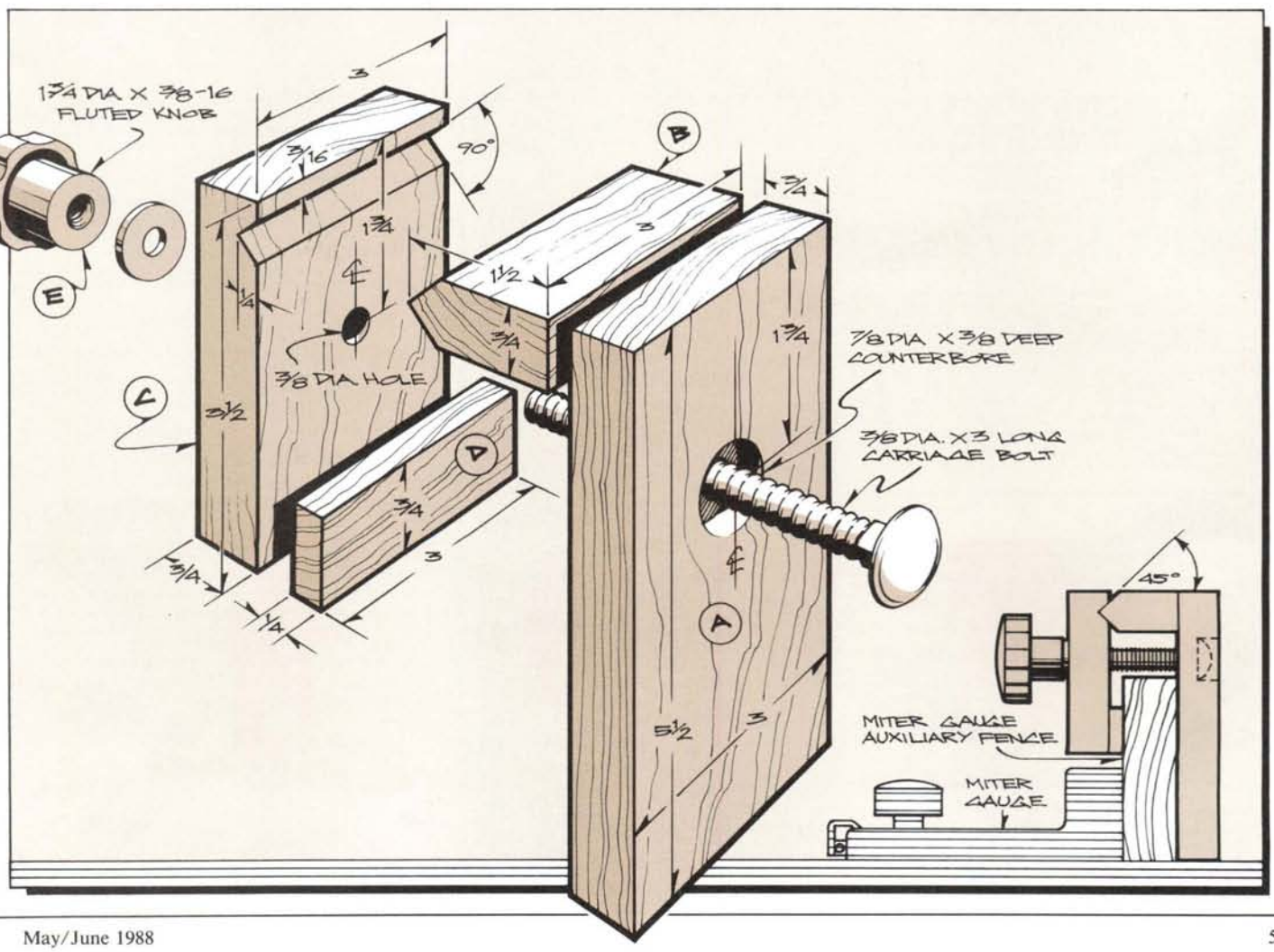
This stop is an improved version of the popular miter gauge stop presented in the March/April 1985 issue of *The Woodworker's Journal.* Where our earlier stop utilized two carriage bolts and wing nuts for its clamping action, a single carriage bolt and a large plastic fluted knob make this stop quicker and easier to operate.

As shown in the photos, the stop slips over an auxiliary fence screwed to the miter gauge. The mating V-cuts in parts B and C serve to automatically align the stop as the knob is tightened. Our stop is dimensioned to fit over a 1 in. thick by 3½ in. high auxiliary fence.

Select good, clear, straight-grained hardwood (we used maple) for the stop parts, jointing and squaring all stock to close tolerance. While we cut the V-groove on the table saw, a V-groove router bit will also work well. Use a Forstner bit to counterbore the recess for the carriage bolt head, then bore the ⅜ in. hole for the shank, and glue the bolt in place with epoxy glue. Glue part B to part A, and part D to part C.

The ⅜ in. carriage bolt and washer needed for this project can be purchased at most hardware stores. The 1¾ in. diameter fluted plastic knob can be ordered from United States Plastic Corp., 1390 Neubrecht Rd., Lima, OH 45801; (Tel. 800-537-9724). Order their part no. 83-85212. Cost is $1.74 per knob plus shipping and handling.



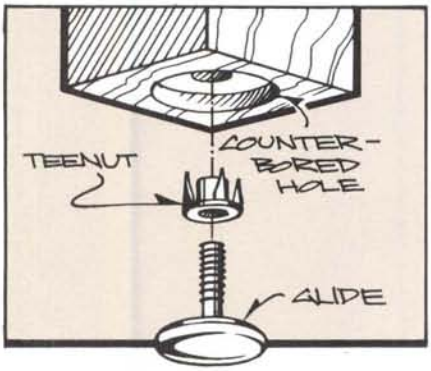

1¾ DIA. X ⅜-16 FLUTED KNOB
3
3/16
90°
B
¾
1¾
3
1½
¼
¾
1¾
⅞ DIA. X ⅜ DEEP COUNTERBORE
⅜ DIA. HOLE
C
3½
⅜ DIA. X 3 LONG CARRIAGE BOLT
D
¾
3
¾
¼
E
A
5½
3
45°
MITER GAUGE AUXILIARY FENCE
MITER GAUGE

Shop Tips

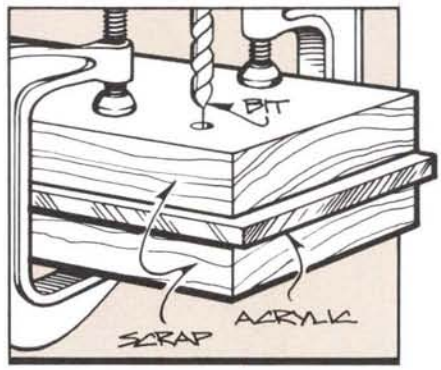
When hand sanding an irregular edge or surface, I've found that a large, flat, pink eraser works nicely as a sanding block.

Lynn R. Taylor, Tecumeh, Mo.

A wobbly table can be more than a little annoying, and since few floors are perfectly flat, we often add leveler glides to the leg bottoms. To make the glides as unobtrusive as possible, we counterbore a shallow hole for each one as shown, allowing them to be recessed in the bottom of the legs.



Boring a hole in acrylic sheet (Plexiglas) can be difficult because the drill bit tends to wander before beginning to cut. Also, as the bit cuts it often chips the acrylic at the edge of the hole. Next time, for a cleaner cut, sandwich the acrylic between two pieces of ¾ in. thick scrap stock. The scrap stock will keep the bit from wandering and minimize the chance of chipping.



When using the drill press to bore a lot of holes, the bit will often become packed with wood chips. Rather than stop the machine and knock out the chips, I use an extra firm toothbrush to clean the bit while it is still running.

Dave Standrich, Wichita, Kans.

Don't throw away those fat round mustard squeeze bottles after they're empty. They make great glue dispensers, and the nozzle cleans itself as it closes.

Brian O'Connor, Wolverine, Mich.

The Woodworker's Journal pays $25 for reader-submitted shop tips that are published. Send your ideas (including sketch if necessary) to: The Woodworker's Journal, P.O. Box 1629, New Milford, CT 06776, Attention: Shop Tip Editor. We redraw all sketches so they need only be clear and complete. If you would like the material returned, please include a self-addressed stamped envelope.

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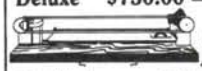

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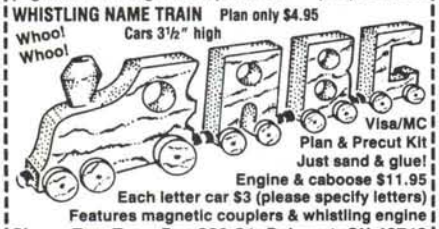

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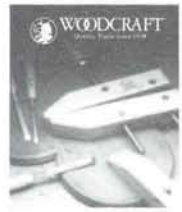

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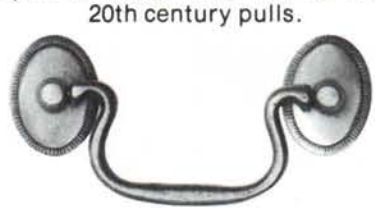

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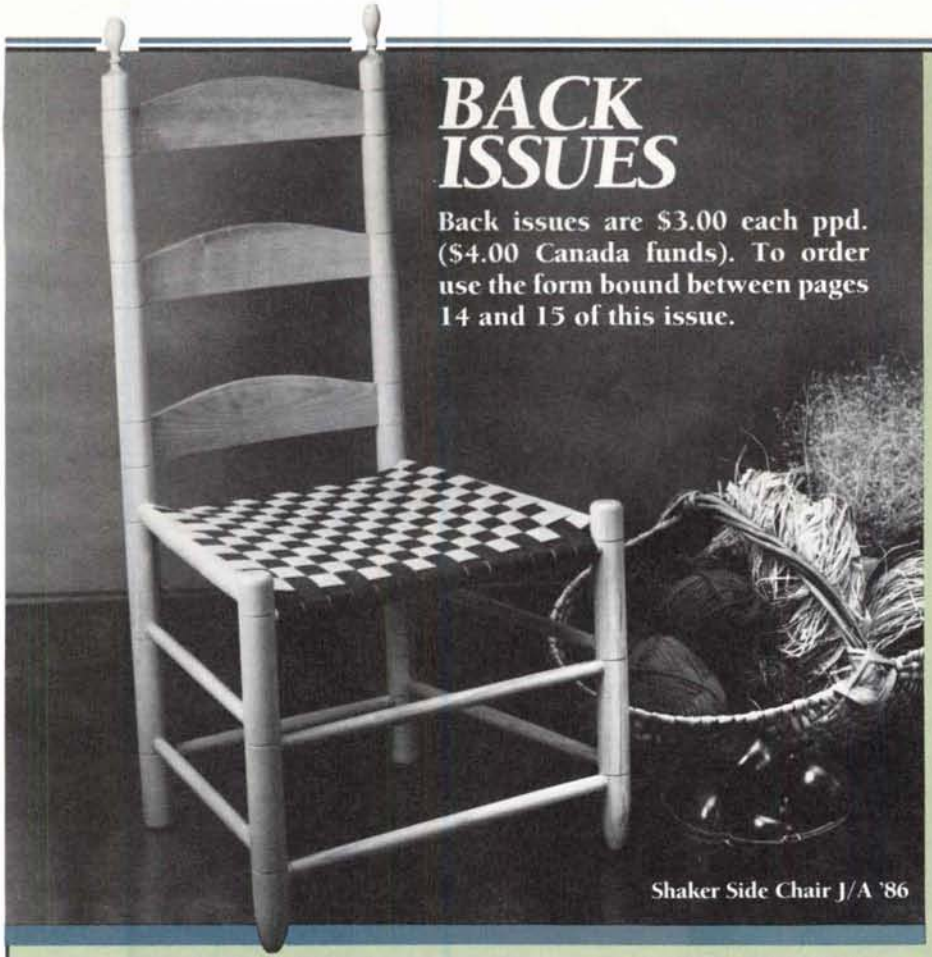

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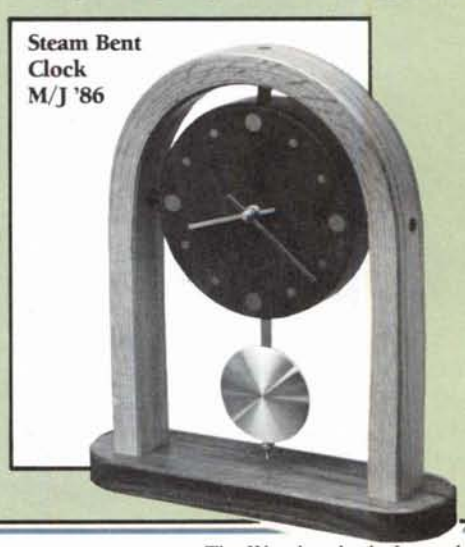
Contemporary Stereo Cabinet, Shaker Woodbox, Bongo Box, Nesting Tables, Shop Trammel, Jackknife Letter Opener, Salt Shaker and Pepper Mill, Toy River Ferry and Car, Toy Top, Cookbook Holder, Hall Table, Grandfather Clock: Part I, *Articles:* Starting a Business: Part I; Applying Filler; Building a Basic Workbench; Making Specialty Moldings with the Table Saw and Scratch Beader.

Vol. 8 No. 6 Nov-Dec '84

Stickley Chair, Tool Cabinet, Shaker Sewing Stand, Lighted Display Pedestal, Teardrop Clock, Pierced Tin Cabinet, Toy Hook and Ladder Fire Truck, Busy Bee Toy, Colonial Doll House, Kitchen Organizer, Wine Server, Grandfather Clock: Part II, *Articles:* Starting a Business: Part II; Applying the Final Finish; The Fundamentals of Wood; Inlays and Inserts; Gustav Stickley and American Mission Furniture.

Vol. 9 No. 1 Jan-Feb '85

Early American Step Table, Oak Barrister's Bookcase, Parquet Table, Shaker Trestle Table, Bandsawn Wooden Scoops, Toy Biplane, Book Ends, Contemporary Candle Holders, Necktie and Belt Holder, Keyed Miter Jig, Modular Coffee Table and Bar, Magazine and Book Rack, Contemporary Chest of Drawers, *Articles:* Toys and Children's Articles: An Outline of The Consumer Product Safety Commission Standards; Shellac; Truing and Squaring Lumber; The Fingerjoint



Steam Bent Clock M/J '86

Spline; Suppliers of Furniture Kits; The Shakers; Special Section: Back Issue Index.

Vol. 9 No. 2 Mar-Apr '85

Queen Anne Lowboy, Television/VCR Stand, Early American Pine Corner Cupboard, Toy Tool Set, Windspinner, Woodchopper Whirligig, Chinese Puzzle, Cut-off Jig, Blanket Chest, Shaker Harvest Table, Blacksmith's Tool Tray, *Articles:* A Guide to Photographing Your Work; Applying Shellac and Lacquer; Sharpening Plane Blades and Chisels; Installing Machine Woven Cane; American Queen Anne, 1715-1755; General Woodworking Suppliers.

Vol. 9 No. 3 May-June '85

Jacobean Joint Stool, Wall Cabinet with Recessed Finger Pulls, Shaker Desk, Kitchen Cart, Contemporary Wall Clock, Colonial Wall Sconce, Card Box, Towel Bar with Glass Shelf, Marble Race Toy, Cradle, Vanity Mirror, Miter Clamping Jig, *Articles:* Product Liability: Part I; Restoring an Antique Mirror Frame; Coping with Wood Movement; Making Recessed Finger Pulls; The Jacobean Period.

Vol. 9 No. 4 July-Aug '85

Gate-Leg Table, Computer Desk, Shaving Horse, Stamp Dispenser, Crumb Collecting Breadboard, Toy Trucks, Early American Wall Shelf, Pivot-Top Game/Coffee Table, Settle Bench, Shaker Single-Drawer Cupboard, Fold-up Workbench, *Articles:* Product Liability: Part II; Caning and Wood Finishing Supplies; Spray Finishing; Table Saw Basics; Making the Rule Joint; The William and Mary Period.

Vol. 9 No. 5 Sept-Oct '85

Colonial Schoolmaster's Desk, Contemporary Sideboard, Mahogany End Table, Victorian Hall Tree, Cutlery Wall Cabinet, Swing-out Plant Hanger, Prancing Horse Silhouette, Block Puzzle, Iron Caddy, Toy Ironing Board, Early American Water Bench, Wooden Smooth Plane, Shaker Sewing Box, *Articles:* A Craft Fair Visit; How to Use Stick Shellac; A Guide to Circular Saw Blades; Making Bent Laminations; Country Colonial Furniture.

Vol. 9 No. 6 Nov-Dec '85

Moravian Chair, Dulcimer, Oak Dining Table, Shaker Washstand, Marking Gauge, Veneered Wall Clock, 4 x 4 Off-Roader, Teddy Bear Puzzle, Duck Pull-toy, Landscape Cutting Boards, Early American Tall Clock, Pine Desk Organizer, *Articles:* Secrets of Success; Weaving a Fiber Rush Seat, Part I; Table Saw Ripping Problems and Their Solutions; 4-Piece Book Match Veneering; Pennsylvania Dutch Furniture.

Vol. 10 No. 1 Jan-Feb '86

Freestanding Shelf System, Chippendale Bachelor's Chest, Oriental Serving Tray, Country Bench, Antique Knife Tray, Tape Dispenser, Valentine Box, Toy Tow Truck & Car, Shaker Drop-leaf Table, Shop-made Bow Saw, Child's Settle Bench, Plate Shelves, *Articles:* On Getting Paid for Your Work; Weaving a Fiber Rush Seat, Part II; Table Saw Crosscutting: Techniques & Tips; Router-Lathe Fluting: A Shop-made Approach; Chippendale Furniture; Special Section: Back Issue Index.

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Victorian Whatnot Shelf, Contemporary Lamp, Early American Bench, Steam-bent Clock, Pine Hutch/Cupboard, Canada Goose Basket, Toy Crane, Condiment Holder, Shop Workstation, Parsons Table, Shaker Lap Desk, *Articles:* An Interview with Toymaker Clare Maginley; How to Flatten a Warped Board; A Guide for Choosing

Wall Cabinet
J/F '83

Your First Router; Supported Steam Bending; Victorian Period.

Vol. 10 No. 4 July-Aug '86

Shaker Slat-Back Side Chair, Wall-Hung Display Cabinet, Latticework Planter, Country Bucket Bench, Adirondack Chair, Coffee Mill, Clamdigger's Basket, Box of Shapes Toy, Disk Clock, Tenon Jig, Dictionary Stand, *Articles:* Selecting the Right Project for Production; More About Warped Boards; All About Router Bits; The Sliding Dovetail Joint; Furniture Kits Suppliers.

Vol. 10 No. 5 Sept-Oct '86

Desk with Tambour Top, Vanity Case, Stool, Coffee Table, Blanket Chest, Mortar and Pestle, Whale Folk Art Silhouette, Toy Wagon, Cranberry Rake, Router Bit Box, Shaker Drop-leaf Table, *Articles:* Are Your Prices Competitive?; Restoring a Rosewood Chair; Basic Router Operations; Making Tambour Doors; General Woodworking Suppliers.

Vol. 10 No. 6 Nov-Dec '86

Early American Hamper, Cube Table, Rabbit Pull Toy, Old-Time Sled Wall Shelf, Cassette Tape Holder, Dog/Cat Bed, Vanity Mirror, Early American Washstand, Router Table, Victorian Sleigh, *Articles:* Wholesale and Discount Sources of Supply; Sandpaper Abrasives; Using the Router Table; The Mitered Bead Frame and Panel; Clock Parts Suppliers.

Vol. 11 No. 1 Jan-Feb '87

Shaker Blanket Chest, Glass-Top Dining Table, Dovetailed Stool, Jewelry Box, Door Harp, Toy Firetruck, Canada Goose Mobile, Balancing Sawyer Folk Toy, Early American Style End Table, Jointer Push Board, *Articles:* Direct Mail Promotions — Defining the Market for Your Work; Old Wood; The Mortise and Tenon, Part I; Combination Hand/Router Dovetailing; Special Section: Back Issue Index.

Vol. 11 No. 2 Mar-Apr '87

Shaker Sewing Desk, Garden Bench and Table, Mirrored Wall Shelf, Rhombohedron Puzzle, Wood Sawyer Whirligig, Folk Art Door Stop, Kangaroo Pull Toy, Colonial Pine Wall Shelf, Contemporary Hall Table, *Articles:* How to Create a Direct Mail Promotion; Types of Finish — An Overview; The Mortise and Tenon, Part II; Making Bevel-Edged Drawer Bottoms.

Vol. 11 No. 3 May-June '87

Display Pedestal, Kitchen Canister Set, Riding Biplane, Contemporary Serving Cart, Napkin Holder, Decorative Planter, Country Vegetable Bin, Pine Medicine Cabinet, Shop Drum Sander, Vienna Regulator Clock, *Articles:* Penetrating Oils and How to Use Them; The Jointer; Veneer, Part I; Decorative Joinery: Dovetail Key Butt-Miter; Caning and Wood Finishing Suppliers.

Vol. 11 No. 4 July-Aug '87

TV/VCR Cabinet, Early American Style Bookcase, Pine Trash Container, Sturdy Low-cost Workbench, Country Basket, Desk Calendar with Pen & Pencil, Butterfly Pull Toy, Vanity Mirror with Drawer, Apothecary Chest, *Articles:* Shellac; The Hand Plane; Veneer, Part II; Incised Carving; Hardwoods Suppliers.

Vol. 11 No. 5 Sept-Oct '87

Pine Woodbox, Contemporary Love Seat, Two-Drawer Oak Platform Bed, Snail Pull Toy, Routed Trivets, Spice Rack with Chip Carving, Joiner's Tool Chest, Shaker-style Step Stool, Turned Shop Mallets, *Articles:* French Polishing Made Easy; Plane Iron Sharpening; Making a Splayed Leg Drill Guideblock; Traditional Chip Carving; Shop-Tested: 12 Jigsaws.

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Curio Cabinet, Rocking Horse, Three-drawer Jewelry Chest, Tapering Jig, Rolling Toy, Folk Art Silhouette, Two Towel Racks, Early American Style Wall Shelf, Corner Cupboard, Stacking Wine Racks, *Articles:* On Glues and Gluing; Band Saw Setup; Making the Continuous Bracket Foot; Step-By-Step To A Flawless Finish On Pine (Or Any Other Wood); Hardware Suppliers.

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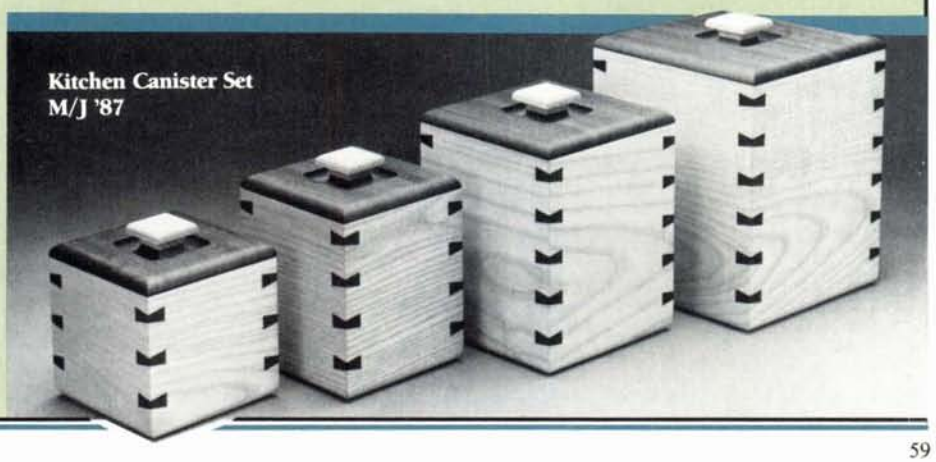
Early American Pierced Tin Cabinet, Contemporary Coffee Table, Puss 'n Books Bookends, Cookbook Holder, Wooden Jewelry, Child's Duck Puzzle, Shaker Wall Clock, Stereo Cabinet and Speakers, Country Occasional Table, Drill Press Jig, *Articles:* Edge-gluing; The Drill Press; Pierced Tin; Four Shopmade Finishes; General Woodworking Suppliers.

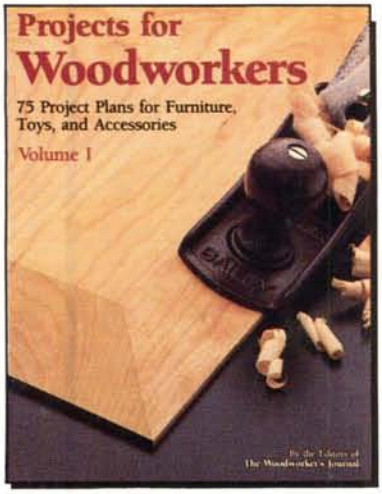
Vol. 12 No. 2 Mar-Apr '88

Folk Harp, Oak & Glass Tier Table, Crystal Regulator Clock, Early American Candlesticks, Arrow Wall Decoration, Three-Drawer Country Wall Box, Key Cabinet, Contemporary Box, Shaker Carrier, *Articles:* Use and Sharpening of the Hand Scraper; The Lathe: Basic Setup; Quartered Turnings; Lacquer; Stationary Tool Suppliers.



Kitchen Canister Set
M/J '87

BOOKS *from* The Woodworker's Journal



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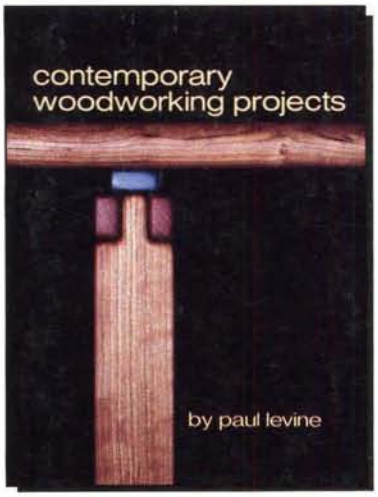
Beginning and advanced woodworkers alike will appreciate the full range of styles in furniture, accessories, lamps, clocks, toys, and gifts. Projects range from those that can be completed in an evening to some that challenge even experienced woodworkers.



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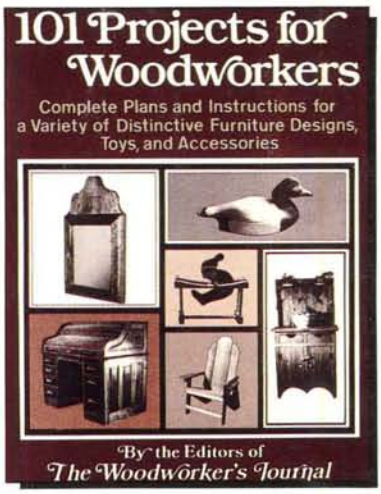
Forty projects featuring the graceful lines of contemporary design. Original designs include furniture and accessories for each room in the home. Clearly written and thoroughly illustrated plans make construction easy for all woodworkers.



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An unparalleled variety of classic projects from the earliest issues of *The Woodworker's Journal*. For the eager amateur just starting out or the craftsman with a shop full of tools, **101 Projects For Woodworkers** has plans for everyone.

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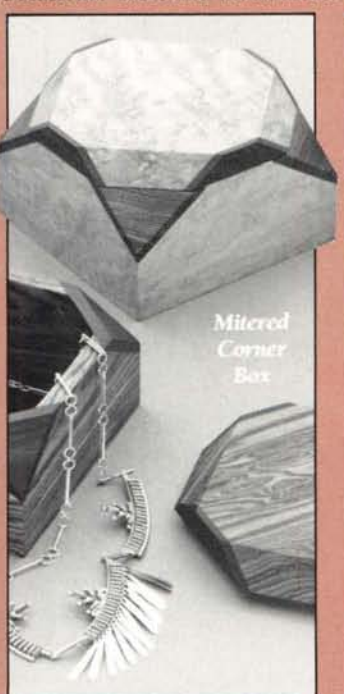
In our next issue . . .

. . . you'll find complete plans for building these projects: a Country Cupboard, Mitered Corner Box, Occasional Table and much more!


Country Cupboard


Mitered Corner Box


Occasional Table