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17 GREAT HOLIDAY GIFT PROJECTS!

WOODWORKER'S JOURNAL

Vol. 21, No. 6 November/December 1997

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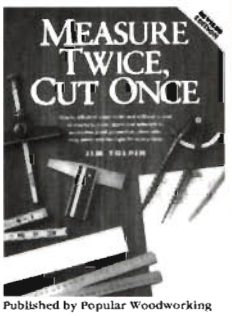

Published by Popular Woodworking

117 pages full color photos and illustrations. Simple effective ways to measure, scale, draw & calculate to guarantee good proportions, clean cuts, snug joints, & right fit everytime! PUT THIS GOLDMINE TO WORK IN YOUR SHOP!

OR 300 Great Shop Tips or Forrest Logo cap FREE with any saw blade or Dado listed & purchased from this ad. You must mention you saw this offer in *Woodworker's Journal* Magazine, when ordering.

Offer expires December 31, 1997. One book per order.

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With this one ALL PURPOSE blade you can RIP & CROSSCUT 1"–2" ROCKHARDS and SOFTWOODS resulting in a **SMOOTH AS SANDED** surface. PLY-VENEERS of OAK and BIRCH will crosscut with NO BOTTOM SPLINTER at moderate feed rates.

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- Ends blade changing
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- Ends cutting 1/16" oversize to allow for RESURFACING
- **BUY AND SHARPEN 1 BLADE INSTEAD OF 3**

5/8" holes; boring thru 1-1/4" add $7.50. Larger at Time Basis —Shipping $4.50

WOODWORKER II	LIST	SALE	10%	20%
14"X40TX1"	$215	$149	$134	$119
14"X30TX1	$195	$139	$125	$111
12"X40TX1"	$183	$129	$116	$103
12"X30TX1	$162	$119	$107	$ 95
10"X40TX1/8" or 3/32"	$156	$119	$107	$ 95
30T 1/8" or 3/32"	$135	$ 99	$ 89	$ 79
9"X40T	$146	$109	$ 98	$ 87
30T	$125	$ 99	$ 89	$ 79
*8-1/4"X40TX 3/32"	$136	$ 99	$ 89	$ 79
8"X40T 3/32"	$136	$ 99	$ 89	$ 79
30T	$115	$ 89	$ 80	$ 71
7-1/4"X30T 3/32	$112	$ 69	$ 62	$ 55
**6"x40T 3/32"	$136	$ 89	$ 80	$ 71

*NEW for Sears & Makita Table Saws **New For Saw Boss

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FREE 10" ORANGE PLASTIC BLADE RUNNER–CARRIER!

SHIPPED WITH 6", 8" & 10" DADO SETS. HOLDS UP TO 10 BLADES, 5 PER SIDE ON CENTER BOLT OR DADOS.

DELUXE DADO-KING!

AS LOW AS $184 NET AFTER USING SHARPENING COUPONS

WORLD'S NO. 1 DADO - NO CHIP ON PLYS & MELAMINE

C-4 Carbide Tips — 4 on each chipper with special negative face hooks. Shims & 3/32" Chipper. Cuts 1/8" to 29/32" wide!!

	LIST	SALE	10%	15%
6" D. 5/8" Bore NEW	$299	$269	$242	$229
8" D. 5/8" Bore	$321	$289	$260	$245
10" D. 5/8" & 1" Bore	$389	$349	$314	$297
12" D. 1" Bore	$499	$449	$404	$382

(Bore up to 1-1/4" Add $25 — Plus $5.50 S&H)

CHOPMASTER FOR SLIDING COMPOUNDS & MITER SAWS

New specs, 5° Neg. Pts. & flat, runs out less than .002 for perfect, tight, smooth, splinter-free miter joints.

TAKE EXTRA 10% – 20% OFF COMBO SALE!

NEW SIZES AVAILABLE	LIST	SALE
Delta Sidekick 6-1/2"x40Tx5/8"	$149	$ 89
Sears 8-1/4" & Delta 8-1/4"x60Tx5/8"	$170	$ 99
Hitachi 8-1/2"x60Tx5/8"	$179	$109
DeWalt 8-1/2" & Ryobi 8-1/2"x60Tx5/8"	$179	$109
Delta 9"x80Tx5/8"	$204	$119
Ryobi–Makita & all 10"x80Tx5/8"	$207	$129
DeWalt, Makita, B&D, Hitachi 12"x80Tx1"	$229	$139
Ryobi–Makita 14"x100Tx1"	$266	$179
Hitachi 15"x100Tx1"	$277	$189

For good general purpose cuts use Woodworker II 30T & 40T or Woodworker I. Use small stiffener where possible.

THE ONE BLADE THAT LEAVES A SMOOTH-AS-SANDED SURFACE!

SAVE ANOTHER **$45 to $90** AFTER USING SHARPENING COUPONS

WOODWORKER I – CROSSCUT — 7 1/4" – 14"

For TABLE and RADIAL SAW – 10% to 20%

NON-SPLINTERING PLYS	LIST	SALE
14"x60Tx1"	$224	$159
12"x60Tx1" or 5/8" 1/8"K	$198	$139
10"x60Tx5/8" 3/32"K	$162	$129
8-1/4"X60T	$150	$109
8"X60T	$150	$109
7-1/4"X60T	$150	$109

OTHER SIZES AVAILABLE – 7 1/4" – 14"

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OUR $79 - $89 30T & 40T OUTPERFORMED (E-EXCELLENT) 23 other 40T & 50T premium blades both foreign & domestic on Ply, Melamine, MDF and Oak/Rip!

Fine Woodworking Magazine test Oct. 96 page 43

After installing your blade and 5 in. stiffener the vibration in my saw went down another 20%. I ran several pieces of hardwood through the saw, both **crosscut** and **ripping**, and was amazed at the smoothness. It was like cutting butter, maybe smoother. I have never had a saw blade that **cut this smooth.**

Rick Price

DURALINE HI-A/T FOR TABLE & RADIAL SAWS

PORTABLE & PANEL SAWS

5/8" HOLES. Boring up to 1-1/4" $7.50 extra. Larger holes–time basis. Shipping $4.50.

TAKE 10% TO 20% MORE OFF THESE PRICES

Faster feed rates & absolute splinter control. Stops splintering on OAK/BIRCH PLY VENEERS & MELAMINE

SIZES AVAILABLE	LIST	SALE	SIZES AVAILABLE	LIST	SALE
7-1/4" x 60T x 3/32" K	$149	$129	300mm x 100T x 1/8" x 30mm	---	$189
8" x 80T x 1/8" & 3/32" K	$202	$169	12" x 100T x 1-1/8"K	$253	$215
220mm x 80T x 1/8" x 30mm	---	$159	14" x 80T x 1"	$232	$197
9" x 80T x 1/8" & 3/32" K	$207	$179	14" x 80T x 1"	$266	$226
10" x 80T x 1/8" & 3/32" K	$207	$159	16" x 100T x 1"	$262	$243
12" x 80T x 1-1/8"K	$212	$181	16" x 100T x 1"	$294	$243

Above 1" bore standard.

SPECIAL COMBO SALE EXTRA 10%-20% OFF

CARBIDE IS THE HARDEST OF THE C-4 GRADES AND 40% STRONGER, NOT WEAKER! FOR 50% TO 300% LONGER LIFE.

Standard C-2 Carbide (below, left) and FORREST **still sharp** Oxidation and Corrosion Resistant Sub-Micron C-4 Carbide (below, right). Each shown after cutting 3,500 feet of MDF. Similar results obtained cutting particle board, melamine, and plywood.

STILL SHARP AFTER 3,500 FEET OF CUTTING!

BLADE DAMPENERS-STIFFENERS

FOR BETTER CUTS on all brands of blades, use our large 1/8" DAMPENERS-STIFFENERS against one side.

4"	..... $21
5"	..... $24
6"	..... $25

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WE RECOMMEND OUR FACTORY SHARPENING as some local sharpening creates problems with **MICRO-CHIPPED EDGES** reducing blade life & cutting quality.
2-4 DAYS ON THESE AND ALL MAKES OF FLAT FACE & CONCAVE CARBIDE TIP SAWS. Ship via UPS. Typical 10x40T $17.00, 60T $19.00. Add return UPS $5.00, $1.00 each additional blade.

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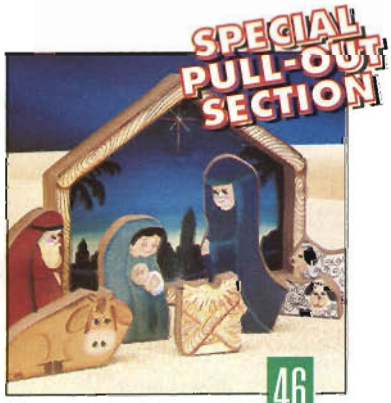
WOODWORKER'S JOURNAL

Vol. 21, No. 6 November/December 1997

JUST IN TIME FOR THE HOLIDAYS 1997

PROJECTS

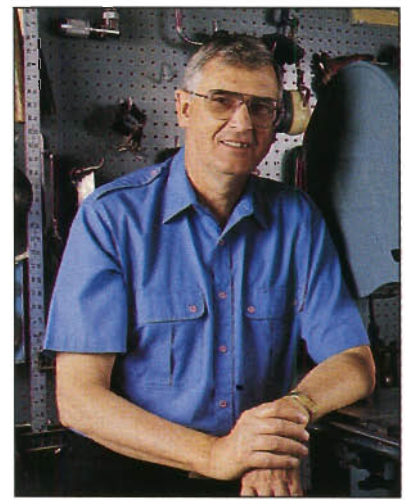


TOOLS AND TECHNIQUES

DEPARTMENTS

Cover photo: *StudioAlex*

SHOP TALK



Since I've been a granddad, the holidays have become special to me. This season, I've vowed to make them even more meaningful by crafting gifts for all my loved ones and close friends in the woodshop. Around midnight on Christmas Eve (if the work goes according to my usual schedule), I'll be wrapping a couple of scrollsawn boxes, some pen and pencil sets, several threaded-lid boxes, a few Santa's village scrollsaw puzzles, and maybe even a crow chaser or two.

When you get to thumbing through this issue, you'll notice that we've devoted the entire lineup to very gift-worthy projects. Our staff worked overtime to come up with a nice variety of gifts that I think you'll not only have time to make—before you hear those reindeer hooves on the roof—but also feel proud to present to the loved ones on your list.

If turning's your thing, warm up your lathe spinning your own variations of Dick Coer's small tops and bobbles. Next, try your hand at turning a few of Martha Dawson's miniature flower vases, or needle cases like Bob Colpetzer's. Then, if you're still in the mood, tackle a threaded-lid box or two.

Speaking of threaded-lid boxes, we proudly include an article from Bonnie Klein on pages 64-67. Bonnie didn't exactly invent the art of miniature turning, but she's pioneered some new techniques, designed special equipment, and now shares her knowledge of small-scale lathework with students around the world. We raise our gouges in salute to you, Bonnie.

By the way, mail-order suppliers tell us they've had a tough time over the past couple of months keeping the cigar humidor hardware and turned pen and pencil kits in stock. So, if you haven't yet undertaken either of these hot, coveted projects, 'tis the season to give them a try.

Gifty though this issue might be, don't think we've forgotten our fellow tool lovers. We know that many of you—like us—will be putting together your holiday wish lists. So starting on page 18, we present the first of several expanded tool previews in which we'll cover all the new tools we ferreted out at the August woodworking and hardware trade shows. In this installment for example, you can catch a glimpse of Bosch's unique mini-belt sander, Sears' new portable vertical-tank air compressor, and the wrenchless router chuck soon to be released by Jacobs. Those are just three of the 17 products we report on here—and we're only getting started. So stay tuned.

Charles Sommers

WOODWORKER'S JOURNAL

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Our professional production quality router bits make it quick and easy to produce attractive raised panel doors. Our reversible combination bit makes a matching rail and stile frame. The panel raising bit with ball bearing guide makes a perfect raised panel every time!

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Includes instructions and Professional Tips!

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SET #	BIT STYLE	LRG. DIA.	SET PRICE
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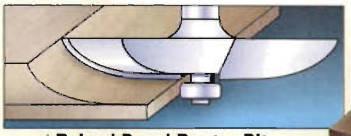
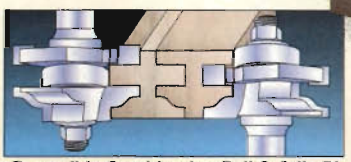
#1302	1/2" Shank Router	* 3-1/2"	$79.95
#1303	1/2" & 3/4" Shaper	4-5/8"	$99.95

*Ball bearing included



*Raised Panel Router Bit



*Reversible Combination Rail & Stile Bit
Works with stock from 11/16" to 7/8".

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1/4" Shank Carbide Tipped Router Bits

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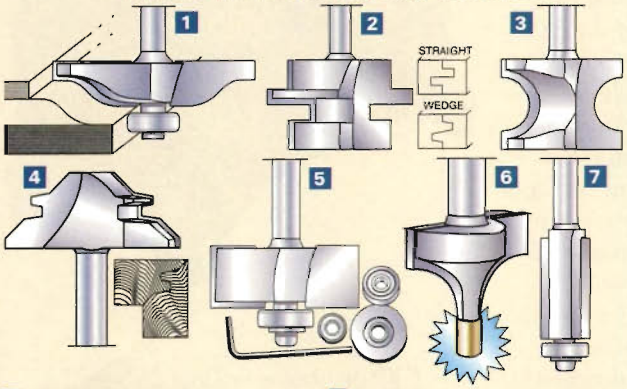

1 OGEE RAISED PANEL
#1423 2" Large Diameter **$29.95**

2 TONGUE AND GROOVE
#1333 Straight **$29.00**
#1335 Wedge **$29.00**

3 BULL NOSE
#1330 1/2" Dia. of Circle **$16.00**
#1331 3/4" Dia. of Circle **$21.00**

4 LOCK MITRE BIT
#1433
2" Dia.,Stock thickness: 1/2"-3/4" .. **$37.50**

5 RABBETING KIT
Ball bearing guides allow 4 depth of cuts: 3/8", 7/16", 5/16", 1/4". Set: 1/4" shank rabbeting bit, 4 bearings (3/8", 1/2", 5/8", 3/4") & hex key.
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QUANTITY DISCOUNT! ***When ordering 3 or more router bits deduct $1.00 from each!***

25 piece Brad Point Drill Bit Set

Drill accurate holes in wood, plastics & composites.

METAL CASE & BIT HOLDER INCLUDED!

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• Adjustable, uniform clamping pressure on all corners • Great for wide cabinet frames (for center or edges) • Forces a frame into perfect square • Almost NO capacity limitation, ships with 23 ft. reel of steel banding • Aluminum & Steel construction

ITEM #1420
REG. $39.95..... **SALE $24.95**

1/4" Shank Carbide Tipped Round Over/Beading Bit Set

Set includes: 4 Round Over Bits with 1/2" OD bearing: (1/8", 1/4", 3/8", 1/2"), plus 3/8"OD bearing & allen wrench.

ITEM #1434
$72 Individually.. **SALE $39.95**

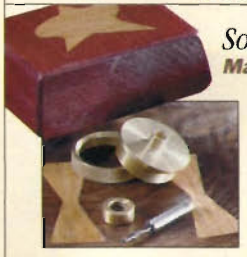
1/4" Shank Carbide Tipped Cove Bit Set

This production quality set includes 4 Cove Bits: (1/8" R, 1/4" R, 3/8" R, 1/2" R).

ITEM #1435
$65 Individually.. **SALE $37.95**

Solid Brass Router Inlay Set

Makes perfect fitting recesses and inlays!



Easy to use inlay kit follows a 1/4" thick pattern template of almost any shape to produce the recess. Fits Porter Cable®, Black & Decker® or any router with an adaptor for Porter Cable bushings. Kit includes 1/8" solid carbide downcut spiral bit, brass bushing, brass template guide, brass retainer nut & instructions.

ITEM #1426 REG. $35.95 ..... **SALE $21.95**

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TOOL-PRIZE DRAWING WINNER!

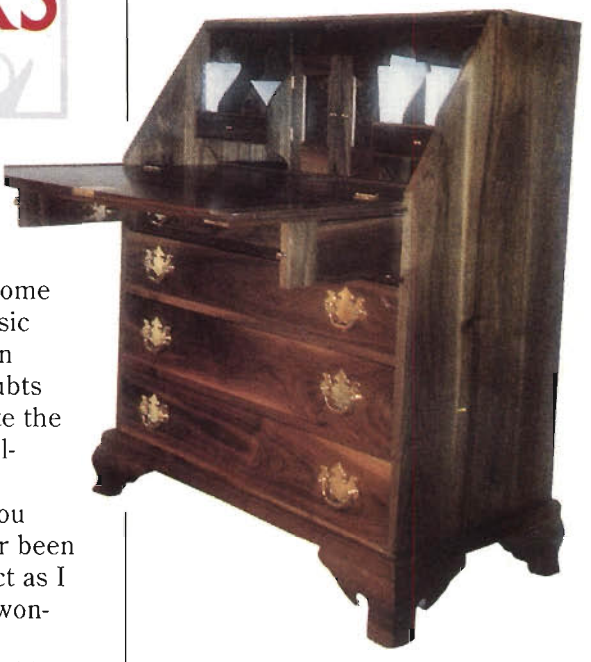
READER LETTERS

I built two of these half-round tables from a design originally published in *Woodworker's Journal*, Nov./Dec.'78. Both are made from clear pine and pegged together as shown in the plan. Also, when the two are put back to back, they make a very nice round table.

Daniel Smith
Tallahassee, Fla.

When I received my Nov./Dec.'92 issue of *Woodworker's Journal*, I immediately knew that some day I would build the classic slant-front desk featured in that issue. I had some doubts over my ability to complete the task, but I meticulously followed the excellent plans, advice, and suggestions you provided, and I have never been so pleased with any project as I have with this one. I had wondered if it would be good enough to put in our formal living room, but that's where it now sits, and it has become the topic of many discussions. Thank you for providing such a worthwhile, challenging, and wonderful experience.

Stephen Richey
Ogden, Utah



The photos enclosed show the Governor Winthrop cabinet I built after first completing the base. Our daughter opted for plain glass doors for a better display of her ornaments.

Harry Sands
Nassau, Bahamas

Tool Prize

For being selected as the winner of the tool-prize drawing, Daniel Smith will receive a Makita model 6233DWAE 14.4-volt cordless drill.

The names of readers whose project photos appear in Reader Letters are entered into a tool-prize drawing for each issue. To become eligible, send us a good photo and description of a project you've built from the pages of *Woodworker's Journal*. Send your submissions to: Reader Letters, *Woodworker's Journal*, P.O. Box 1790, Peoria, IL 61656.

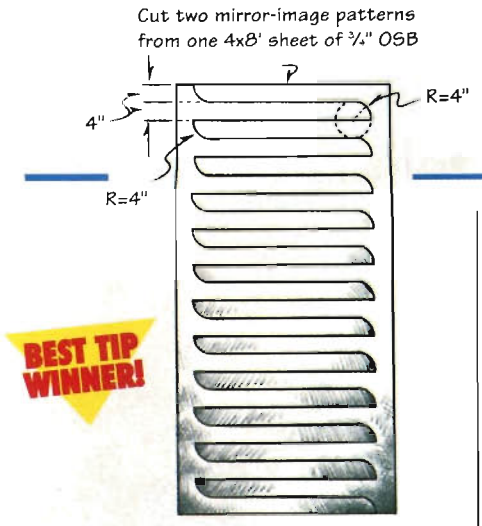
I liked your plan of the Chippendale Foot Stool in the May/June '96 issue. Here is a picture of the copy I made from cherry. I finished it, not with stain as you did, but with three coats of linseed oil followed by a coat of wax.

Alexander Fowler
Cumberland Foreside, Maine

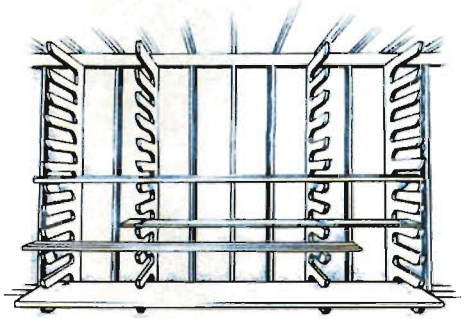
Ryobi Drum Sander Update

The photo we received for our review of the Ryobi Wide-Drum Sander (July/August 1997) showed a version of this machine that has since been modified and updated. The photo *below* shows the current model. Also, Ryobi has rewritten the manual for this sander. We passed a copy of the new manual to the tool reviewer, Charles Self, who reported back that the new manual is "approximately 275 percent better than the old manual."

SHOP TIPS



BEST TIP WINNER!



Low-Cost Drying Rack Made From Mirror-Image Cutouts

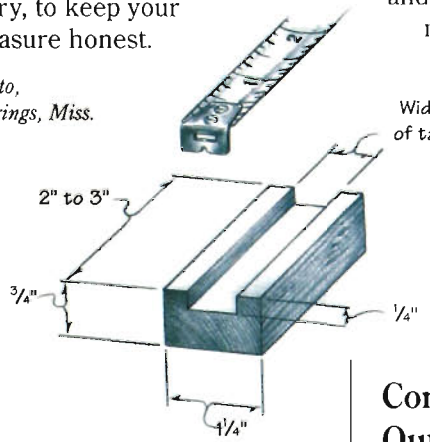
For an inexpensive and easy-to-build drying rack, cut the pattern shown here from a 4x8' sheet of ¾" oriented strand board (OSB). Each sheet of OSB will yield two mirror-image racks, which you can then screw to the studs or cleats on your shop wall. Two sheets of OSB cost about $25, and the rack will hold dozens of workpieces while the paint or finish on them dries.

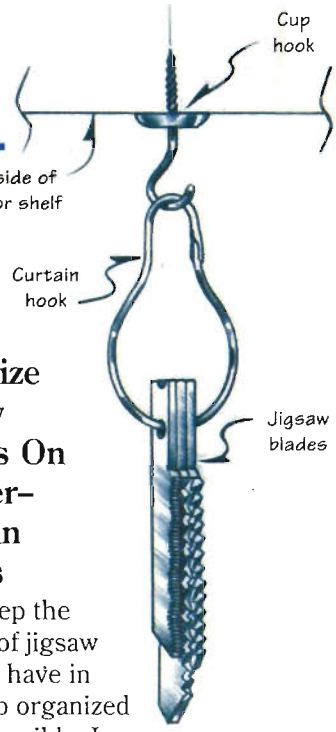
Joseph Donaldson
Columbus Grove, Ohio

Calibrate Your Tape With A Block Of Scrap

The hook on the end of a tape measure can cause all kinds of problems if it gets bent and you don't know it. A quick way to calibrate your tape measure is with an accurately sized block of scrap wood. Cut a groove down the center of the block a bit wider than the width of the tape. Then crosscut the block to 2" or 3". Check the length with calipers to make sure it's dead-on accurate. Then, periodically place your tape in the block and bend the hook, if necessary, to keep your tape measure honest.

Ronald Seto,
Ocean Springs, Miss.





Organize Jigsaw Blades On Shower-Curtain Hooks

To keep the dozens of jigsaw blades I have in the shop organized and accessible, I store them on metal shower-curtain hooks. I put the different types of blades—wood-cutting, metal-cutting, and so forth—on different hooks and hang them on cup hooks mounted under a shelf. This way, the blades are easier to find in the shop and convenient to carry to remote work sites.

Howard Moody
Upper Jay, N. Y.

Compressed Air Pops Out Stuck Glove Fingers

When I remove disposable latex finishing gloves, they usually turn inside out. To turn them right side out again, I fold the cuff back to the original position, then place an air-hose nozzle into the glove and seal the cuff around the nozzle. One light blast of air snaps the fingers back into place so you can put the gloves back on and return to work.

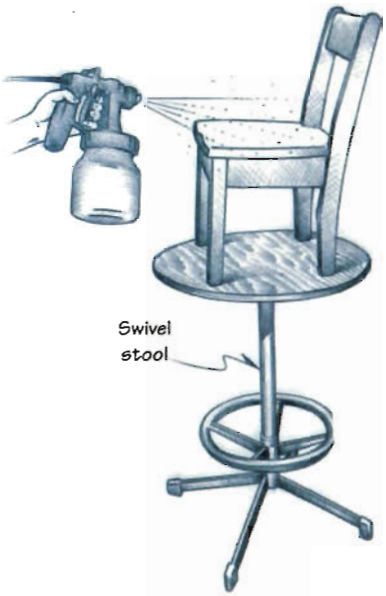
Dick Coers
WJ Designer/Craftsman

Get Paid For Your Advice

For submitting the best shop tip in this issue, Joseph Donaldson will receive a Bosch model 1614EVS electronic plunge router. Powered by a 1¼ hp/7.8-amp motor, the router features a six-position variable-speed switch with speeds from 12,000 to 23,000 rpm. Its electronic variable speed controls provide a soft start and maintain the selected speed under load.

If you have a good shop tip, let us publish it. We pay $50 for every tip published, and you'll also get a shot at winning the tool prize for best tip.

To be considered, your submission must be original, unpublished, and not under consideration by other magazines. Send a description and photos or drawings that help explain the idea to: Shop Tips, *Woodworker's Journal*, PJS Publications, Inc., 2 News Plaza, P.O. Box 1790, Peoria, IL 61656. If you want the material returned, include a self-addressed, stamped envelope. You can also e-mail us at: wwjmag@aol.com



Old Bar Stool Aids In Spray-Finishing

To make a Lazy-Susan-type turntable for spray-finishing projects, I took the seat off a swivel-seat bar stool and mounted a circular piece of plywood in its place. The stool's top sits at the right height for spraying. Now, I don't have to move my work light or walk around the workpiece to spray the different sides.

Tom Jackson
WJ Associate Editor

CLUB SPOTLIGHT

Woodworkers' Guild of Georgia

Learning About Woodworking Throughout the Year

If members of your club want to become better-educated about the many facets of woodworking, the Atlanta-based Woodworkers' Guild of Georgia offers a good model to emulate. The mission statement for this 330-member group speaks of "advancing the art and understanding of fine woodworking." To achieve this end, the club meets 12 times a year and offers a diverse schedule of programs that tap the expertise of local and national experts, other specialty clubs, schools, and area businesses.

The club's annual Woodturning Day typifies its enthusiastic approach to education. "A lot of our people belong to both the Guild and the Georgia Association of Woodturners, so we decided to get the two clubs together for a day of turning," says John McCormick, former president and current symposium chairman. "We invite one nationally known turner and one local turner to demonstrate," McCormick adds, "and we have six to eight lathes going for hands-on work." This year's event was held at Guild member Don Russell's shop, and the group invited turner Nick Cook to demonstrate his techniques for making small bowls, basic spindles, honey dippers, baby rattles, and tops.

Another big day of woodworking education comes in the fall, when members drive 45 minutes south from Atlanta to attend a seminar at "Woodworking In The Woods," a small school run by professional craftsmen Mark Barr and Ted McWilliams. Last year's topics included project layout, use of edge tools, tablesaw basics, pen turning, and edge- and end-grain joinery. The local Porter-Cable dealer provided lunch, and members got together afterwards for a garage sale/swap meet.

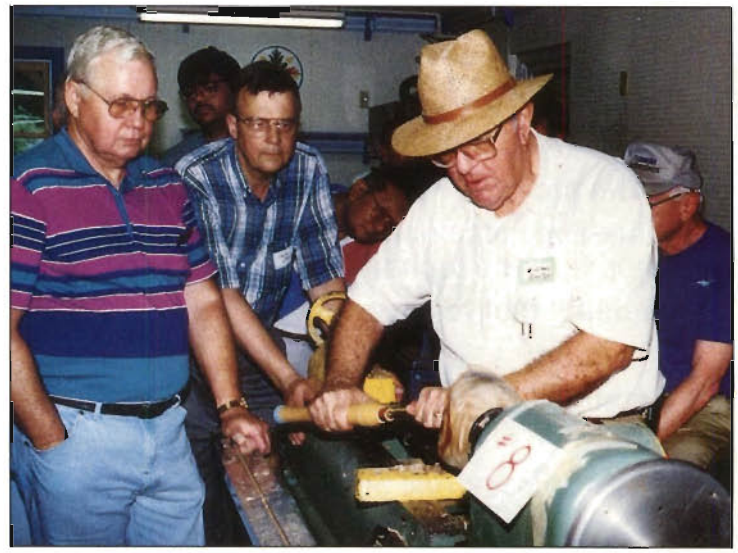
Symposium Draws National Talent

Many Guild members consider this annual two-day symposium the biggest event on the educational calendar. At this gathering, a slate of both nationally and locally known experts make presentations covering a range of subjects. The club has now held five of these symposia, and have featured such luminaries as Sam Maloof, Frank Klaus, and Kelly Mehler.

The Guild also schedules an annual open house. Festivities include a competition that awards cash prizes to different skill levels. In February, members man a booth and hold a juried contest at the Woodworking Show held at Atlanta's Gwinnett Civic Center. The best-of-show winners from both of these contests are often invited to demonstrate to club members how they designed, built, and finished their award-winning pieces.

The Guild has worked hard to keep a creative edge on all of their events. For example, members hold several show-and-tell nights, but rather than follow the same format each time, they'll sometimes put some novel twist on the requirements. On one occasion, participants were asked to bring their very first woodworking project. Another time, they were restricted to projects made from no more than a single board foot of wood.

Each regular monthly meeting includes at least one educational activ-



Guild members gather to watch Willard Baxter demonstrate bowl turning during the groups annual woodturning day.

ity. Tool-sharpening seems to be a favorite, says McCormick, so the Guild stages at least one sharpening demonstration every few years. The last one featured four presenters, each covering a different aspect of this critical skill.

Sponsors Make A Difference

The Guild has cultivated a healthy sponsorship program that provides both funding and expertise for many of their events. For its last symposium, the guild asked sponsors to contribute door prizes for a raffle and received 75 items worth some $2,600.

"With the money we raise from the raffles, we send a member off to an out-of-town woodworking seminar, activity, or museum," says McCormick. "Then, that person comes back and presents what he's learned to the Guild." Recent expeditions have sent members as far away as Pennsylvania, North Carolina, and Williamsburg, Virginia.

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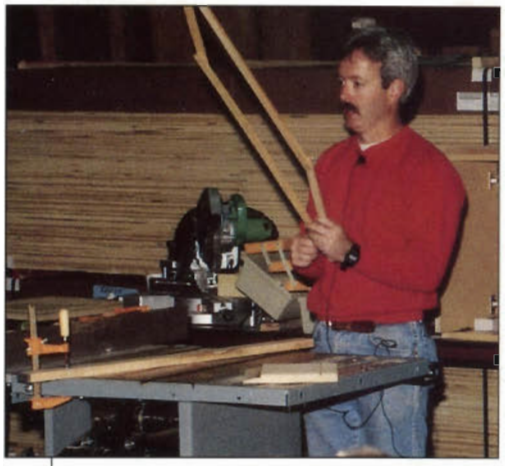


Guild member Mark Barr—a professional woodworker turned instructor—talks about tablesaws at a recent symposium.

JESADA TOOLS™

"The smoothest and sharpest we've ever seen"

. . . American Woodworker Magazine

Here's what author and router expert Patrick Spielman had to say about Jesada bits:

"Jesada has recently introduced some new bits I designed and I am especially pleased to inform you that I have never seen better quality router bits produced anywhere, ever! Made entirely and shipped directly from their Florida factory, the new Jesada bits have the sharpest, longest-lasting carbide with the highest polish finish in the industry. Producing these unmatched bits is largely due to Jesada's new 5-axis computerized grinding centers. This, and their company's commitment to excellence driven by CEO Carlo Venditto, guarantees the same superb customer service and the best bits in the world!

Look for Jesada's new white (PTFE) coated router bits . . . If you've never tried their bits, I strongly recommend that you do."

. . . *from Patrick Spielman's Home Workshop News, Vol. II, issue 9, © Spielman Publishing Co.*

Patrick is the author of more than 50 woodworking books and is the editor of Home Workshop News, a bi-monthly magazine

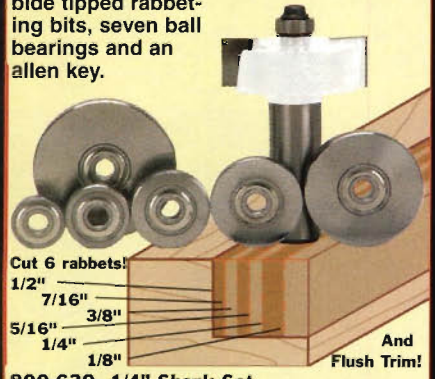
"Smooth Performers"

"Jesada Tools has introduced an improved line of router bits with a trademarked white, non-stick PTFE coating. The carbide tips on these bits are the smoothest and sharpest we've ever seen, thanks to Jesada's new state-of-the-art grinding equipment. Test cuts in our shop produced exceptionally smooth profiles."

. . . American Woodworker Magazine, October, 1997

Rabbet-Master Plus™ masters 7 different cuts

Jesada Tools' Rabbet-Master Plus cuts rabbets from 1/8" to 1/2" deep & flush trims as well! The set includes one of our 1-3/8"-diameter carbide tipped rabbeting bits, seven ball bearings and an allen key.



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List: $49.40.....SALE: $38.90

800-640 1/2" Shank Set,
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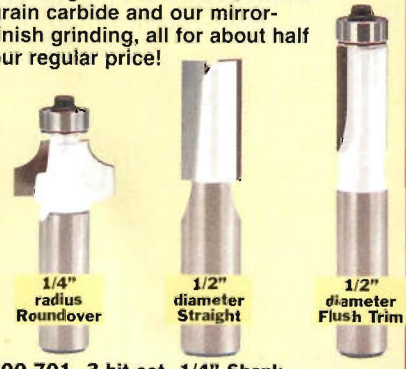
Try Jesada and Save with our 3-Bit Special

This special introductory offer lets you experience JESADA TOOLS' quality first hand! You'll get 3 bits from our state-of-the-art U.S. factory with features like Fatigue-Proof® steel, micrograin carbide and our mirror-finish grinding, all for about half our regular price!



800-701 3-bit set, 1/4" Shank,
Regular: $69.60.....SALE: $34.90

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CLUB SPOTLIGHT

Continued from page 11

Ken Johnson won a $25 prize for entering this inlaid table in the Guild's July scholarship contest.

Highland Hardware, the nationwide mail-order house, served as one of the group's founding sponsors. The firm has since built a solid relationship with the Guild and sometimes offers its retail facility in Atlanta for meetings. Another sponsor, Atlanta Wood Products, recently hosted a Guild meeting at its warehouse and brought in experts from Georgia-Pacific to discuss wood-grading, plywood, and glues.

Supporting Habitat For Humanity

According to newly elected president Ken Dickson, "we hope to do more for charities in the future." The club has already affirmed that intention by building and donating furniture to Habitat For Humanity, a non-profit

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Continued from page 13

organization that helps low-income families build their own homes.

To further support Habitat's efforts, the group is participating in an annual Atlanta-area birdhouse show. "Celebrities and local TV people make many of the houses, which are displayed for a week at a local mall and then auctioned off," says Dickson. As part of the show, Highland Hardware hosts a seminar in which Guild members and others can learn birdhouse-building basics. This year, organizers expected the auction to raise about $150,000 for the charity.

Fred Barker's Queen Anne desk and bench earned him $75 and a first place ribbon at the guild's July scholarship contest.

New Ideas For the Future

Recently, Guild members seated a new board of directors. "We're trying to get more participation and involvement from more members," Dickson reports. "For example, we've started a new program to select a member of the month—somebody who has done something outstanding for the club or community. We'll also select a member of the year."

To help beef up the newsletter, says Dickson, the club now offers an official Woodworkers' Guild of Georgia T-shirt to anybody who submits an article. The group also plans to organize a series of bus trips to

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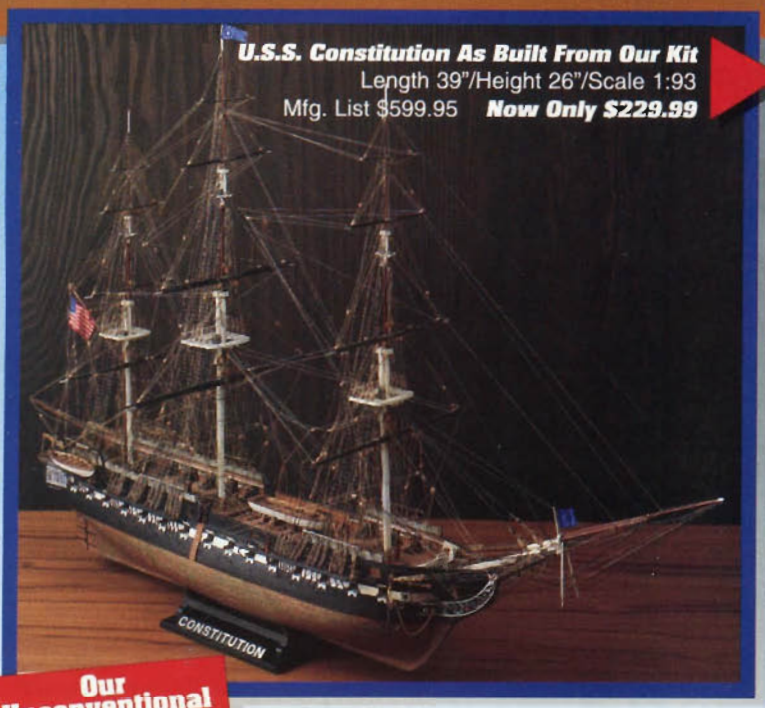

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CLUB SPOTLIGHT

Continued from page 14

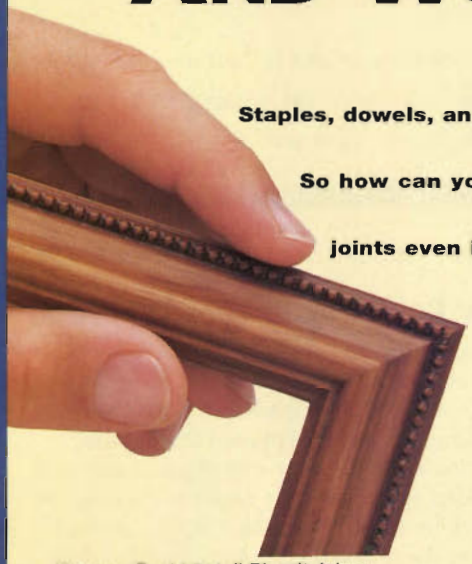
This turned and chip-carved vessel earned guild member Mickey Hudspeth second place in the scholarship contest.

regional points of interest and will soon open its own site on the World Wide Web.

If you'd like to find out more about the Woodworkers' Guild of Georgia, call the club's telephone message line at 404/299-3972, or write the Guild at P. O. Box 8006, Atlanta, GA 30306. WJ

THE NEW RYOBI DETAIL BISCUIT JOINER

THE DIFFERENCE BETWEEN WOODWORKING AND WOODNOTWORKING.

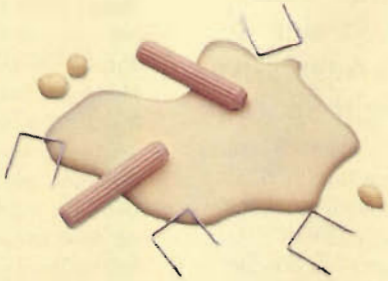


The new Ryobi Detail Biscuit Joiner uses miniature "Accu-biscuits" for neat, tight, professional joints.

Staples, dowels, and glue won't do. Standard-size biscuits won't fit.

So how can you make neat, tight, professional joints even in small stock? With Ryobi's new Detail Biscuit Joiner, that's how.

Standard biscuits stick out of small joints, and the mis-match shows, even after you trim the excess.



This compact powerhouse cuts smaller slots and uses miniature "Accu-biscuits™" to fit where standard biscuits don't. And its price is as small as its biscuits. But the Detail Biscuit Joiner is big on performance, from its beefy motor to its die-cast base and see-through fence. So see the new Ryobi Detail Biscuit Joiner at your local home center. It'll get your wood working like never before.

Ryobi "Accu-biscuits" (actual size).

The Ryobi Detail Biscuit Joiner does everything that a bigger tool does, and fits in small joints where a bigger tool won't.

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New Tool Preview

Every August, woodworking tool manufacturers and suppliers unveil their newest products at two big trade shows, the International Woodworking Machinery Fair and the National Hardware Show. Our staff walked miles of aisles at both shows looking for the best and most innovative of these products, and here they are.

So kick back, get out your wish list, and let your fingers do the walking through our armchair preview of what the woodworking industry will be offering. Some of these products should be available now or soon at local retail outlets or through woodworking catalogs. If you can't find a product you're interested in, call the company at the telephone number listed.

P.S. We found more good products than we could squeeze into this issue, so look for a second installment in the Jan./Feb. 1998 *Woodworker's Journal.*

Bosch 1278VSK Compact Belt Sander

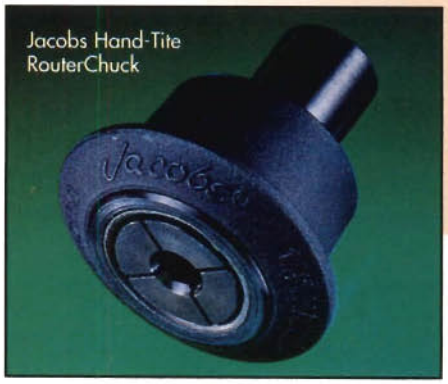
Unique Mini-Belt Sander Gets Aggressive In Tight Spaces

With its 1½ x 12" sanding belts and its ¼" radius front roller, the Bosch 1278VSK Compact Belt Sander gives fast, efficient sanding in tight corners and hard-to-reach places. The roller-and-platen assembly rotates 180° for sanding upside down or flush to a sidewall on either the right or left side. Pre-selected electronic speed control allows you to adjust material removal rates. An auxiliary side handle on this 4-lb. machine can be screwed in or detached as needed. Dust can be collected via a port which hooks up to a vacuum hose or dust collection bag. About $139.

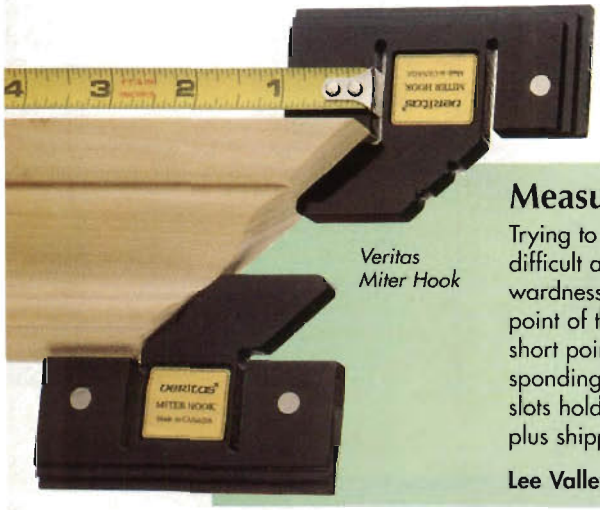
S-B Power Tool Company, 800/301-8255

Throw Away Router Wrenches For Good

Here's good news for anyone who's ever busted a knuckle trying to remove a router bit from a stubborn collet. The Jacobs Chuck Manufacturing Company has developed the Hand-Tite RouterChuck, a tool-free router-collet adapter. Installing a bit in the RouterChuck simply requires pulling up on the spring-loaded collar, inserting the bit in the opening, and then releasing the collar. When the collar snaps back, bearings inside the sleeve grip the shank of the bit tightly—no need to wrench-tighten. Both ¼"- and ½"-shank RouterChucks will become available late 1997 or early 1998 for most major brands of routers, and aftermarket units for retrofitting other routers will be available later.



The Jacobs Chuck Manufacturing Co. 864/654-5926



Veritas Miter Hook

Measuring Made Easier With Veritas Miter Hook

Trying to steady a tape measure on a long piece of mitered molding can be difficult and lead to measurement errors. Veritas' Miter Hook takes the awkwardness and inaccuracy out of this task. Just hang the Hook on the long point of the cut (or press the Hook's two small pins into the end grain on the short point of the cut) and drop the tab on your tape measure into the corresponding slot. The slots align with the ends of the miters, and magnets in the slots hold the tab firmly for a steady tape and accurate readings. Price: $6.95 plus shipping.

Lee Valley & Veritas, 800/871-8158

Continued on page 20

$50 REBATE
Deluxe Edition 14" Band Saw with enclosed stand, includes mobile base, 18" Rip Fence and Cool Blocks™ Model #28-280Z

$50 REBATE
Delta Sanding Center™ Belt/Disc Sander. Model #31-280

$50 REBATE
Deluxe Edition Contractor's Saw® with 30" Unifence®, includes table board and legs, cast iron wing and 50-tooth combination blade. Model #34-445Z

$50 REBATE
15" Planer with free stand and extension wings. Model #22-675Y

$50 REBATE
Delta Q-3 18" Variable Speed Scroll Saw. Model #40-650

$50 REBATE
Delta Contractor's® Saw with Jet-Lock® Fence Model #34-444
(10" Contractor's Saw® II is not part of rebate offer.)

The check's in the mail.

Every tool you see here comes with a $50 check in the mail from Delta. Opportunities like this don't come along every day. So if you've been wishing you had Delta Quality in your shop–you might want to get shopping, now. (August 1 through December 31, 1997.) You'll also find that we've snuck in a few extras on our 15" Planer and the Deluxe Editions of the Contractor's Saw and 14" Band Saw. Machines that will still be proving their worth for years to come. Call for the name of your nearest participating Delta dealer. Delta International Machinery Corp., 800-438-2486. www.deltawoodworking.com

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A Pentair Company

Continued from page 18

Laser Beam Extends Level's Reach Up To 100 Feet

Laying out a long line of cabinets with a 4' level can cause all kinds of problems that lead to errors. To help you avoid them, Stanley now incorporates a battery-powered laser into its new 24" IntelliLevel. Once a level surface has been established (by reading the bubble vial), one simply projects the IntelliLevel's eye-safe red dot to the end of the run and marks the spot. Optional beam spreader and beam splitter lenses can be added to convert the dot into either vertical or horizontal lines. A tripod and adapter will be offered as accessories.

Stanley Tools, 800/262-2161

Ryobi's ⅙-Sheet Sander Back By Popular Demand

Ryobi S551 ⅙-sheet palm-grip sander

In certain applications, even ¼-sheet palm-grip sanders can get heavy and difficult to wield. Ryobi addressed this problem by re-introducing its model S551 sander. This little workhorse weighs just 2.1 pounds and takes ⅙ of a sheet of sandpaper. The oval-shaped top provides a firm, comfortable grip that can reduce hand fatigue when sanding projects on the lathe, furniture legs, cabinet frames, or other vertical surfaces. The manufacturer claims the sander's 1/16" elliptical orbit is also less prone to ricocheting when the edge of the sander bumps up against an adjacent piece. Priced at under $50.

Ryobi America, 800/525-2579

New Rotary Tool Offers Ergonomic Handling

Black & Decker enters into the rotary-tool field with the introduction of its Wizard line. To provide better control and handling when using the tool as a stylus, the Wizard

Black & Decker Wizard RT550

(model RT550) has a textured grip and on/off switch up front. At the rear, the handle has been angled into a pistol grip shape. The Wizard offers variable speeds ranging from 8,000 to 24,000 rpm, a 6' cord, and a metal loop in back for hanging the tool. With a 135-piece woodworking accessory set and carrying case, the Wizard retails at around $75.

Black & Decker, 800/544-6986

Buy One Router, Get Two Bases: Plunge and Fixed-Base

Years ago, Porter-Cable pioneered the design of a router motor that could be interchanged with the firm's other bases. Now, the company offers its 690 series router in a kit with the second base included. The 693PK kit includes the model 690 router motor assembly, the model 1001 fixed base, and the model 6931 plunge base. The router has both ¼" and ½" collets. All of the components come in a plastic carrying case with two collet wrenches. The kit sells for around $220.

Porter-Cable 693PK Router Kit

Porter-Cable, 800/487-8665

Continued on page 22

Continued from page 21

Delta's Power Feeder Adapts To Machines All Around the Shop

For safety and control, nothing beats a power stock feeder, and Delta's new entry in this category, the Versa-Feeder, offers a number of convenient features. The Versa-Feeder may be mounted on either end of its control arm, and the mounting bracket swivels to offer a variety of positions which can then be fine-tuned with a micro-adjustment mechanism. The variable-speed, ⅛-hp reversible motor pulls stock through at rates of 10 to 46 feet per minute. The tool also has a dust chute for additional dust-collection capability on a tablesaw, shaper, or jointer. The firm also makes a Universal Mounting Accessory (not shown here) for mounting the Versa-Feeder without using clamps or drilling holes in the machine tops. Price: about $260.

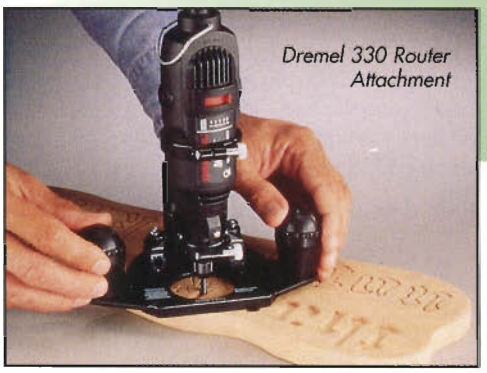
Delta Versa-Feeder

Delta International Machinery Corp., 800/438-2486

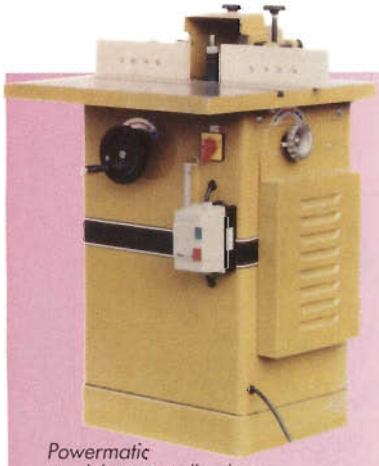
Dremel Upgrades the MultiPro Router Attachment

With its two handles and a edge guide, the new Dremel model 330 Router Attachment turns a standard Dremel MultiPro rotary tool into the equivalent of a mini-router. A large clamp knob at the rear of the fixture makes it easy to secure and remove the MultiPro from the attachment. Depth markings help you gauge the depth of cut, and the attachment's handles unscrew for bit storage. About $35.

Dremel, 800/437-3635



Dremel 330 Router Attachment



Versatile Shaper Also Takes Router Bits

With ½" and ¾" spindles as standard equipment and an optional 1" spindle and router collet adapter, Powermatic's new model 24 Spindle Shaper offers exceptional versatility for small professional and home woodworking shops. The combined cast-iron table and extension measure a generous 25 x 25". The cast-iron adjustable split fence incorporates a dust-collecting shroud and spring hold-downs. A reversible 2-hp/230 volt motor operates at two spindle speeds, 8,000 and 10,000 rpm. The spindles have 3" of travel and can be locked into the desired position. With all this cast iron, this new addition to Powermatic's Artisan line weighs a hefty 320 pounds. Price: About $1,100.

Powermatic Model 24 Spindle Shaper

Powermatic, 800/248-0144

Sears Puts Vertical Compressor On Wheels

The new Sears Craftsman 5hp/22-gallon air compressor features a vertical tank outfitted with wheels that make it easy to cart around the shop and tote up and down stairs. This no-maintenance oil-less motor/compressor provides 9.1 cfm at 40 psi and 7.1 cfm at 90 psi—plenty of pressure for the air-hungry sanders and spray guns woodworkers use. Although wired for 120-volt current, the compressor can be converted to 240-volt. The motor shroud protects the user from heat-producing parts. About $300.

Sears Craftsman, 800/377-7414

Craftsman Vertical Compressor

Makita 9911 Belt Sander

Flat-Sided Sander Works Tight To Sidewall Or Upside Down

The housing design on the new Makita model 9911 belt sander has two flat surfaces: one on the side for maneuvering flush against sidewalls or in tight spaces, the other on its top so the sander can be inverted and used on your benchtop. This 3x18" sander is powered with a 6-amp motor. A variable-speed control dial provides speeds from 250 to 900 feet per minute. Automatic belt-centering eliminates the need to adjust tracking of the belt on the rollers, and a side-mounted cloth bag collects sanding dust.

Makita U.S.A., Inc., 800/462-5482

Continued on page 24

Continued from page 22

New Sanders For Those Tight Spots

Milwaukee's new detail sanders boast 1.8-amp motors and a large orbiting path for quick, efficient stock removal. Additionally, they carry spiral-bevel gears for lots of torque and a smooth rotation. Model 6035-20 (shown here) offers variable speeds from 7,000 to 11,000 orbits per minute, and rotatable quick-change pads for efficient sandpaper use. A vacuum-hose adapter comes as standard equipment.

Milwaukee Electric Tool Corp., 800/729-3878

Digital Protractor Figures Compound Cuts For You

The brain-cramping calculations required to calculate compound angles on crown molding can be a problem of the past, thanks to the Bosch DWM 40L Digital Protractor/Anglefinder. To use it, simply enter the spring angle, then measure the corner angle, and the device will compute the miter and bevel angles. A leg extension piece enables measuring the angles on small objects. The 16"-long DWM 40L also features plumb vials for visual reference as a level. Price: About $100.

S-B Tool Company, 800/301-8255

Bosch Digital Protractor/Anglefinder

Key Cabinetmaking Router Bits In One Set

If you're thinking about building raised-panel cabinets for your home, you'll need a good set of appropriate router bits. The CMT Sommerfeld Cabinetmaking Set contains six carbide-tipped bits that will cut all the needed profiles. These include a matched pair of rail-and-stile cutters, a raised-panel bit with a back cutter, a ¾" flush-trim bit, an ogee-profile door-edge bit, and a drawer-front bit. The bits are packaged in a wooden storage box and include a free video and printed instructions for making raised-panel cabinets. About $360.

Sommerfeld's Tools For Wood, 888/228-9268

CMT Sommerfeld Cabinetmaking Set

Delta Adds Dust Collectors To Its Lineup

Over the Years, Delta has given us a lot of ways to make sawdust. Now, the company is offering three new machines to collect that sawdust and filter it out of our shop's air. The model 50-850 single stage 1.5 hp dust collector (shown here) features 6 cubic feet of bag filtration and two intake ports. The next step up, Model 50-851 has a 2-hp motor, three intake ports, and 6.5 cubic feet of bag area. For heavy-duty operations, Delta offers two similar 3-hp machines: Models 50-852 and 50-853. The former runs on three-phase current, the later on single-phase. Both offer bags with 12.5 cubic feet of filtration area and four intake ports.

Delta International Machinery, 800/438-2486

Delta 50-850 Dust Collector

Porter-Cable Offers Dust Collection Accessories For Its Line Of Routers

If your routing operations often leave you buried in sawdust and wood chips, you might be interested to know that you can now retrofit any of Porter-Cable's routers with a dust collection attachment. The attachment model #39690 fits on the company's ⅞-and 1½-hp routers, model #39700 adapts to the 2½- and 3¼-hp routers. The attachments screw to the base of the router and hook up to a vacuum via a 1½" port. A cup included with the attachment can also be attached to the sub-base to collect dust during edge routing. It can be swung in a 55° arc for convenient positioning. Model 39690 sells for about $39 and model 39700 costs about $46.

Porter-Cable, 800/487-8665

Porter-Cable Dust Collection Attachment

WOODWORKER'S JOURNAL

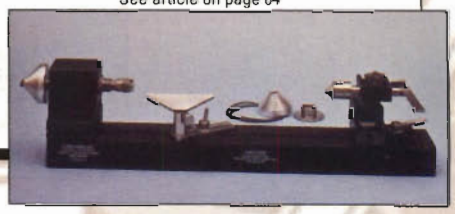
HOLIDAY GIFT GUIDE

Klein Design, Inc.

Made in the USA for the last ten years to be a high quality, portable lathe for small scale turnings. Capacity: 5" swing, 12" centers, 500-5200 RPM. Accessories: Threading jig, duplicator, indexing, turning tools, and instructional videos.

17910 SE 110TH Street
Renton, WA 98059
425/226-5937

See article on page 64



PL® Premium Wood Glue

ChemRex, North America's leading manufacturer of polyurethane adhesive and sealants, including PL400® Construction Adhesive, is pleased to introduce PL® Premium Wood Glue. This polyurethane wood glue is manufactured in the U.S., and joins the well-known line of PL® Adhesives & Sealants. For more information call customer service at 800/433-9517.

New Delta 12½" Portable Planer

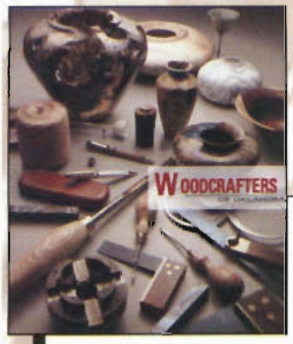
Your solution to planer snipe is here! Introducing the Delta 12½" Portable Planer, model 22-560. Built with an exclusive cutterhead lock that stabilizes the cutterhead during operation for superior snipe-control, the Delta 12½" Portable Planer also includes a quick-change knife system and a patented cutterhead adjustment system. For more information, call 800/438-2486.

Kreg Jig

Give two gifts in one –a Kreg pocket jig and more time–because Kreg pocket-joints make quality projects faster, stronger, and simpler than other popular joinery methods. *WOOD* magazine says, "The Kreg Jig® outperformed its competition by a wide margin." Also see Sept./Oct. '96 *Woodworker's Journal*, page 35. Guaranteed results or full refund. Tools from $20. Call 800/447-8638 for a FREE catalog.

Country Accents

Add a distinctive look to your woodworking projects with the time-honored craftsmanship of handmade pierced metal panels in over 200 traditional and modern designs. Reasonably priced. Many sizes and finishes. Do-it-yourself materials and kits, too. Large, new colorful catalog $5.00 or 12 pc. sample pack with catalog $19.95 ppd. Mastercard/Visa accepted. Call or write COUNTRY ACCENTS P.O. Box 437 Montoursville, PA 17754. 717/478-4127.



Free Catalog

WOODCRAFTERS of Oklahoma invites you to experience a mecca of project inspiration with the largest and most complete inventory of turning tools and related supplies anywhere. Special emphasis is placed on pen turning kits, blanks, and supplies. One look at our catalog will tell you why we are preferred by professionals and amateurs alike.

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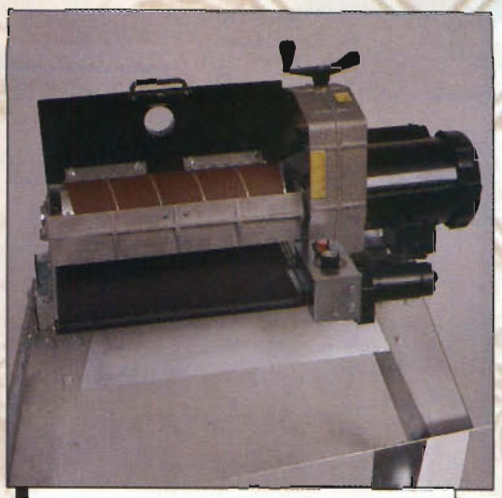
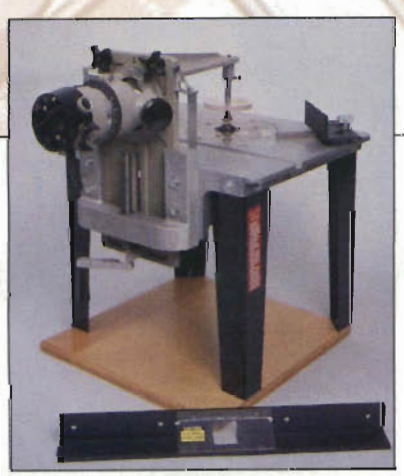
Incredible Tool Eliminates Hand Sanding

With the new, variable-speed FEIN "Triangle Sander", time-consuming, bloody-knuckle sanding is a thing of the past. You can sand right up to, into, and along edges and corners without damaging nearby surfaces. In fact, it won't be long before you find all sorts of jobs for your Triangle Sander, such as sanding intricate plunge cuts, scraping, and polishing. For more information, call 800/441-9878, or write FEIN Power Tools Inc., 1030 Alcon St., Pittsburgh, PA 15220.



Performax Products, Inc

A patented Performax design allows stock as wide as 32" to be sanded with a 16" drum in two passes. The 16-32 will sand a wide piece to within .010" uniform thickness across its full width. The 16-32 is one of three Performax models that offers this proven feature for maximum performance. The Performax 16-32 will eliminate tedious hand sanding and produce a high quality finish. 800/334-4910.



Porta-Nails, Inc. Universal Router Table

The most versatile router table system available. Turns your router into three tools:

- Conventional Router Table
- Add the Joint Maker assessory to make finger joints, dovetails, mortises and tenons, and much more
- Add the Overarm Pin Routing accessory for Pin Routing applications such as, template routing , lettering cutting, and shaping

"The PNI Universal Router Table is most versatile Router Table I've found, and its ability to do the work of three machines makes it a great value for the small shop". —*WOOD* magazine, Jan. 1996. For free catalog, call PNI toll free 800/634-9281.

Adjust-a-Clamp Pressure Spring Clamps

The unique design of this clamp allows pressure adjustment from 1 to 50 pounds of clamping force. Made of lightweight, durable glass-filled nylon, these clamps offer a heavy-duty, tempered-steel spring action for instant opening and closing. Featuring soft, pivoting jaw pads which hold irregular-shaped objects and protect work pieces, these clamps are ideal for gluing models, crafts, and other projects. Available in 1" and 2" opening capacities. Send $1 for catalog to Adjustable Clamp Co., 421 N. Ashland Ave., Chicago, IL 60640.

New Delta Sidekick® 12" Compound Miter Saw

Builders and contractors will appreciate the added work support provided by our new Sidekick 12" Compound-Miter Saw. Built with a powerful 15 amp motor, this compound-miter saw features an extra-tall sliding fence for cutting crown moulding on edge instead of flat on the table, or for handling large workpieces. Combine all this with a patented base design and work clamp, and you've got a great gift! Call 800/438-2486 for more information.

Little Red Rocker

A pint-sized chair for the two-year-old on your team

If the kids or grandkids in your family can't sit still, why not make them a chair all their own. Little ones, especially those who've just learned how to put one foot in front of the other, will find this 10" seat height perfectly scaled for them. When they outgrow the rocker, they can use it as a seat for a favorite teddy bear or doll.

Building this simple rocker will also provide you with a good introduction to basic chairmaking. If you've ever thought about taking on a Windsor-style chair, or any design that calls for boring compound-angled holes in the seat, this little rocker will help you work through the techniques before you tackle a more ambitious one.

Before You Start

Our rocker, like most other chairs, requires compound-angled holes—a real challenge unless you have a reliable method for drilling them. We used the single-axis tilting table on a Ryobi Wood Drilling System (model WDP1850), supporting the workpieces with precut angled blocks to get the required (second axis) compound angles.

If you own a conventional drill press, you can built a tilting table fixture such as the one we featured in *Woodworker's Journal*, volume 12, no. 1 (Jan./Feb. '88). You could also use a radial-drill press and tilt the table to get the secondary angles.

For the round parts, you can use maple or other ⅜", ½", and ¾" hard-

wood dowel stock. A word of caution: Examine the dowels carefully before you buy—you may run into some odd diameters and shapes out there. We suggest you bore test holes through a piece of scrap using the same Forstner bits you'll use for the project. Then, take this piece to the store and use it as a gauge to check the diameter and roundness of the dowels.

Prepare the Major Frame Parts

Step 1. Machine and edge-glue enough poplar to make a 12x13" seat blank (A). After the glue has dried, trim the blank to the dimensions listed in the Bill of Materials. Next, machine stock for the backrest (B). Note: You may defer profiling the edges of these parts until after you've marked and drilled the holes. Also, if you wish to carve the backrest as pictured, see "How to Carve the Backrest" on *page 32*.

Step 2. Rip and plane stock for two rear posts (C), then crosscut them to finished length plus ¾". Note: We cut all turned parts extra long initially so we could turn the tenons on the spur-drive end without placing the tool dangerously close to the drive.

Step 3. Cut the dowels for the arms (D) and the legs (E), making them ¾" longer than the finished length.

Step 4. Lay out the tenons on each post, leg, and arm blank. See *figures 1* and *2* and the Exploded View for the corresponding hole diameters and depths on which to base the tenon dimensions.

Bill of Materials

Rocker

Part	T	W	L	Mtl.	Qty.
A Seat*	¾"	11⅝"	12"	P	1
B Backrest*	¾"	2½"	13"	P	1
C Rear posts*	¾"	¾"	10¼"	P	2
D Arms*	¾"-dia.		7¼"	H	2
E Legs*	¾"-dia.		8½"	H	4
F Back spindles	⅜"-dia.		10"	H	2
G Arm posts*	½"-dia.		4⅞"	H	2
H Rockers*	1"	2¼"	18⅝"	M	2
I Front rung*	⅜"-dia.		9¼"	H	1
J Back rung*	⅜"-dia.		8⅜"	H	1

*Parts cut to dimension during construction. Please read all instructions before cutting.

Materials List

P–poplar
H–hardwood
M–maple

Supplies

⅜", ½", ¾" hardwood (maple) dowel; oil-base primer and enamel.

Step 5. Turn the tenons to size. For help in fitting the tenons, see the Pro Tip at *right*. While you still have each part mounted on the lathe, bevel the tenon shoulders on the arms to 30° and on the legs to 45° as shown on the Side View detail. (This keeps the shoulder from touching the mating part, which could prevent the tenon from seating properly.) On the rear posts, turn a transitional radius at the tenon shoulder as dimensioned on the Front View detail.

Step 6. Cut the arms, legs, and rear posts to length. Sand a 1/16" chamfer on the tenon ends to ease assembly as detailed on the Side View. Sand a slight radius to round the blunt ends of the arms as dimensioned on the Side View detail.

PRO TIP

To achieve an accurate fit between a round tenon and its hole, set your calipers to the outside diameter of the Forstner bit that you'll use to drill the hole. A sliding fit on the Forstner bit and a tight sliding fit on the tenon should yield a snug fit for assembly.

Drill the Seat Holes

Step 1. Lay out centerpoints for the six holes on the seat blank's top face and the four holes on its bottom face. See figures 1 and 2 for hole positions. To drill these seat holes at the proper angles, make four secondary-angle blocks. To do this, machine a piece of scrap hardwood to 1x1x12". Crosscut the four angle blocks from this strip as dimensioned in *figure 3*. Write the angle and length of each block on its side to avoid confusion later.

Step 2. Using the chart on *page 30* determine the correct combination of table tilt and angle block to

Figure 1 Bottom face hole locations

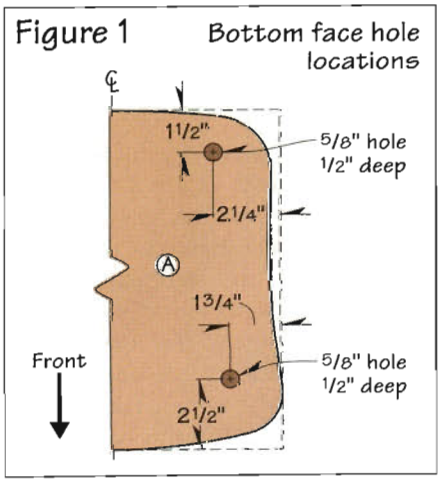
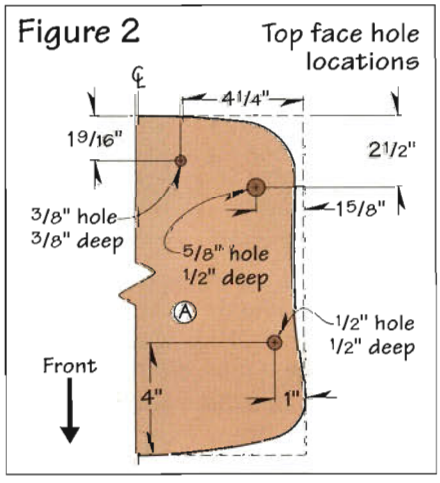


Figure 2 Top face hole locations



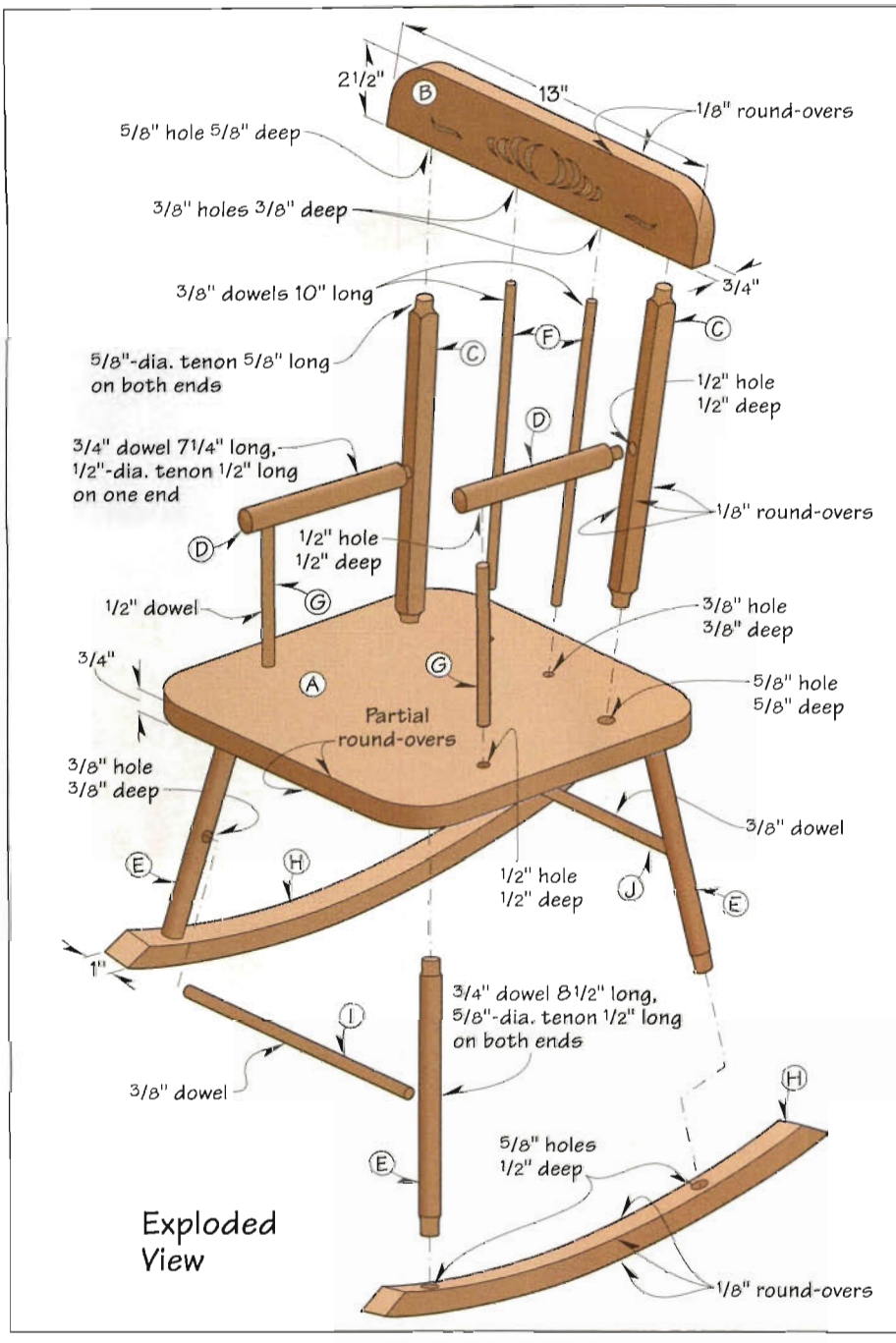


Photo A: To drill compound angles, tilt your drill-press table and tape an angle block to the underside of the workpiece.

SEAT DRILLING ANGLES

Part	Table tilt	Angle block
Front legs	15°	10° / 2"
Rear legs	5°	10° / 2"
Rear posts	7°	5° / 1"
Back spindles	0°	3° / 5/8"
Arm posts	0°	0°

BACK DRILLING ANGLES

Part	Table tilt	Angle block
Rear posts	0°	5° / 1"
Back spindles	7°	3° / 11/16"

Figure 4 — Seat profile

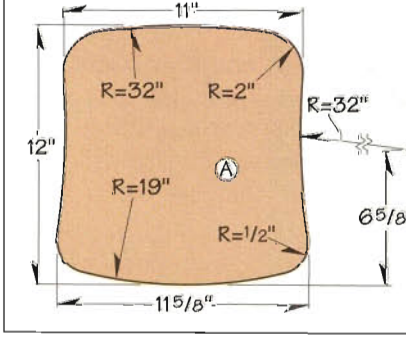
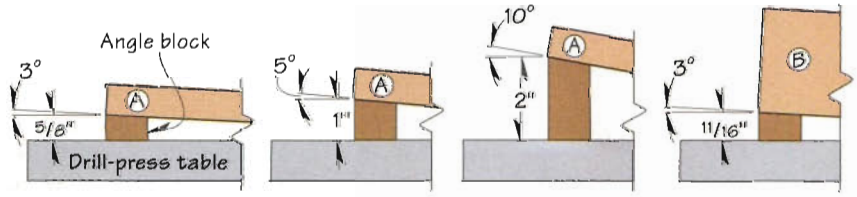


Figure 3 — Angle block dimensions



drill the holes in the seat blank. To set up the blocks, position the long edge of each angle block flush with the edge of the seat and in line with the hole location (so the seat doesn't tip when you drill into it). Tape the block to the seat to keep it from moving *(photo A)*. Square the drill-press table to the drill bit and the workpiece to the table. Before drilling, make sure that both angles of the hole tilt away from (not toward) the seat center. Now, drill all of the holes in the seat blank.

Step 3. Lay out the seat profile as shown in *figure 4*. Bandsaw the seat to shape, keeping the blade just wide of the line. Then, sand to the line.

Step 4. Locate the centerpoint (length and width) on one face of each post (for the arms). Tilt the drill-press table to 7° (front to back), then

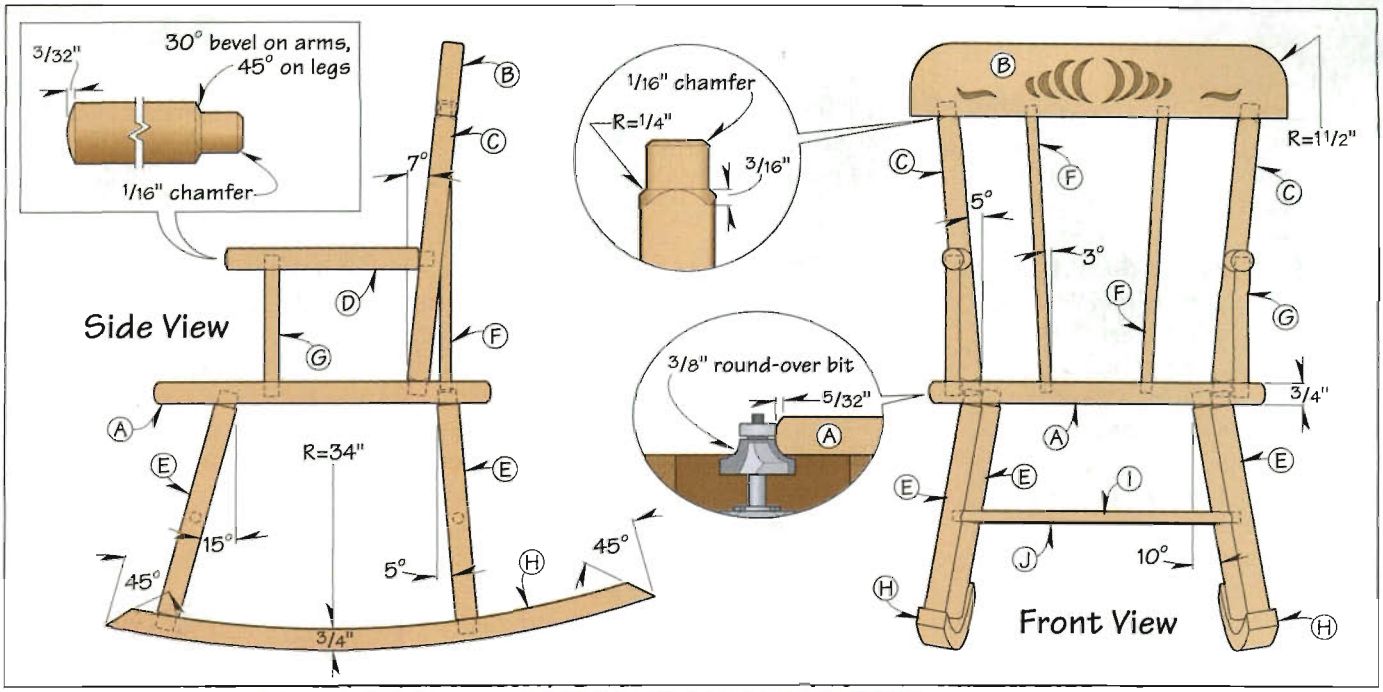


Photo B: Center the backrest between the rear posts, then mark the hole locations for the posts and back spindles.

Photo C: Use a scrap block to help locate the arm post holes in the arms.

position a post so that its long edge aligns parallel to the table's front edge. Now, drill the tenon hole on the marked centerpoint of each post.

Drill the Spindle Holes

Step 1. From a ⅜" hardwood dowel, cut the back spindles (F) to length and sand them smooth. Dry-assemble the rear posts and back spindles into their holes in the seat blank. Center the backrest on the spindles and post tenons. Mark the hole locations on the backrest for the posts and spindles *(photo B)*. On the chart, find the correct table tilt and block setup, then use them to drill the four holes in the bottom edge of the backrest.

Step 2. If you haven't already done so, now would be a good time to lay out and cut the radii on the ends of the backrest where dimensioned on the Front View.

Step 3. Dry-assemble the seat, posts, spindles, arms, and backrest. Cut a spacer block to fit under the arm, then slide it forward until its leading edge aligns with the arm post hole in the seat *(photo C)*. Mark the locations for the corresponding hole on the underside of both arms.

Step 4. Remove the arms from the posts and drill the holes you just marked. Note: Drill these holes without tilting the table or blocking the part, but lay the arm in a V-block to hold it steady during drilling.

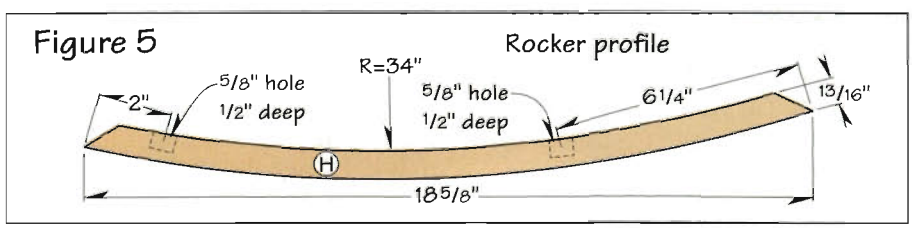
Step 5. Dry-assemble the arms to the rear posts. Place the spacer block under an arm and measure the distance between the bottoms of the corresponding holes in the arms and seat. Cut the arm posts (G) to this length from ½" dowel, then dry-assemble them to the arms.

Now, Machine the Rockers

Step 1. Prepare two 1x2¼x19" pieces of maple, then stack them using double-faced tape. Lay out the profile for the rockers (H) on the top piece as dimensioned in *figure 5*. Next, mark the hole centerpoints for the legs on the outside face of both pieces.

Step 2. Bandsaw and sand the rocker blanks to shape. Separate the pieces and transfer the hole centerpoint marks from the faces to the top edges of both rockers.

Step 3. Tilt your drill-press table 7° (front to back) and place one of the rockers on the table perpendicular to the front edge. Position the front leg



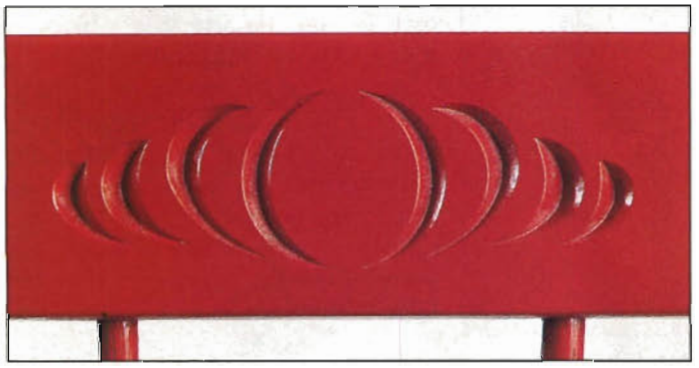
How To Carve The Backrest

We carved the rocker's backrest using our plunge router, a 3D router carver bit, and a set of templates sold by Jesada Tools (see Source). The templates were initially developed to carve designs into drawer fronts and doors but readily adapt to uses like this.

We elected to use the Folklore design (catalog no. 449-030). See the photo *below*. If you compare our carving and the catalog drawing however, you'll notice we omitted the four dots from the original design.

The manufacturer provides good instructions with the carving bit and templates. However, to avoid surprises, we practiced the operation on scrap before committing to the actual piece.

To set up, first lay out vertical and horizontal centerlines on the template holder and the backrest. Next, adhere double-face tape to the underside of the template holder, then place it on top of the backrest and align the centerlines. Clamp the parts to set the adhesive. Clamp the assembly to the bench using spacer blocks near the outside of the template holder.



Set the router bit depth as directed in the manufacturer's instructions. Altering the bit's setting changes the appearance of the cut so you may want to test several bit settings. Note: The interaction between the bit's guide and the template slot controls the depth and width of the cut.

This design requires using two different templates. You use both templates in one setting, then flip them over to make the second, symmetrical cut. Labels on each template help you determine when the piece is up or flipped. The templates were about 1/32" smaller than the holder opening so we inserted shims to wedge them tight.

To make the cuts, position the router bit over the widest part of a template slot, start the router, and then plunge down until the bit's cone-shaped guide contacts both edges of the slot. Using an even feed and steady downward pressure, move the router through the full cut. Just as the entering cut must taper in to form a fine, clean cut, the exiting part of the cut must be done the same way. Taper out of the cut smoothly so the fine point gets carved. Remove the bulk of the material on the first pass, then follow with a clean-up pass. Repeat for all slots. Remember, inspect all cuts before removing the template.

Sources

3D Router Carving Bit. Catalog no. 3DC-001. Price: $99.40

Folklore Drawer Design Template. Size: 1 9/16 x 9 7/8". Catalog no. 449-030. Price: $26.40

Order either or both from:

Jesada Tools
800/531-5559

hole centerpoint under the bit, then drill the hole to depth. Note: Because of its curved shape, the rocker may spin with the bit. To steady the rocker, clamp a fence alongside it. Repeat the procedure to drill the front hole in the second rocker.

Step 4. Reset the table tilt to 5°. Then, drill the holes for the rear legs in the rockers in the same fashion.

Step 5. Cut a 3 3/4 x 5 1/2" piece of 3/4"-thick scrap stock, then miter the ends at 10° from perpendicular. Insert the legs in the underside of the seat blank and use this scrap piece to mark the rung centerpoints *(photo D)*. Continue the lines at least halfway around the circumference of the legs so you don't get your angles confused while drilling.

Step 6. Tilt your drill-press table to 10°. Place each leg on the table perpendicular to the front edge, using a V-block to cradle it. Drill the rung holes.

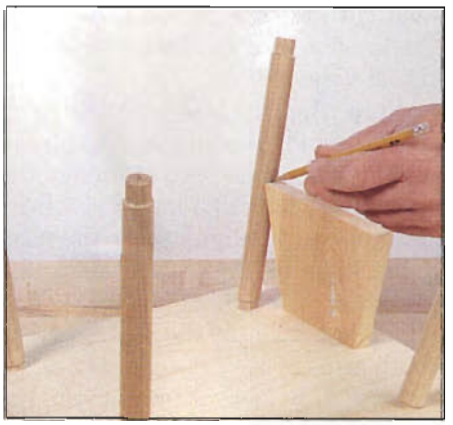


Photo D: To lay out the rung holes, use a scrap block with sides mitered at 10°.

Step 7. Dry-assemble the legs to the seat and rockers, then measure the distance between the bottoms of the rung holes. Cut the rungs (I, J) to these lengths from 3/4" hardwood dowel. Now, dry-assemble all the parts and check for fit.

Ease the Edges, Then Assemble and Finish

Step 1. Remove the rockers and rout the edges using a 1/8" round-over bit. Use sandpaper to soften the beveled rocker ends. Round over the edges of the backrest and rear posts.

Step 2. Install a 3/8" round-over bit in your router and set the depth to cut a partial radius. Then, rout the seat edges where shown on the Front View detail.

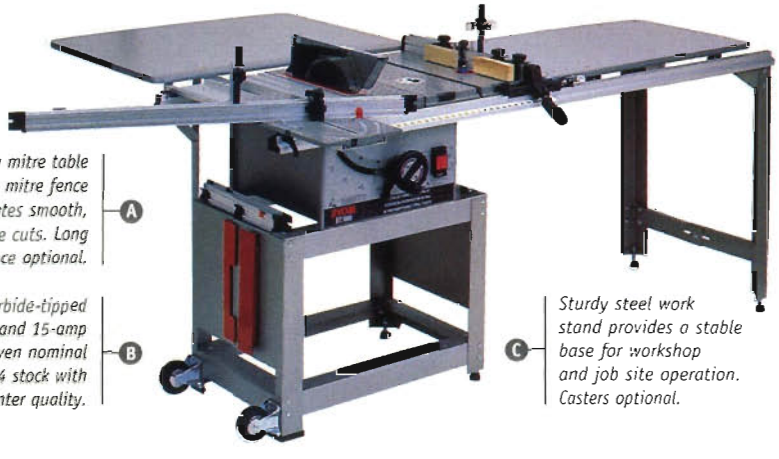
Step 3. Finish-sand all parts to 150-grit. Next, glue, assemble, and clamp all parts. To prevent squeeze-out and glue drips, brush the glue inside the holes but not on the tenons.

Step 4. After the glue dries, clean up any squeeze-out. Prime the rocker, let it dry, then paint it using a durable enamel. WJ

Photographs: *Randall Sutter*
Written by *Tom Jackson*

WE'RE NOT SAYING THE HEAVENS OPENED UP THE MOMENT THE BT3000 WAS CREATED. THEN AGAIN, IT WAS RATHER BRIGHT THAT DAY.

[Shown with optional accessories.]



The sliding mitre table with precise mitre fence promotes smooth, accurate cuts. Long mitre rip fence optional. — A

The 10" carbide-tipped blade and 15-amp motor rip even nominal 4x4 stock with near-jointer quality. — B

Sturdy steel work stand provides a stable base for workshop and job site operation. Casters optional. — C

Sliding rails and tables allow extra support for right-or left-of-blade operation. — D

When using the adapter kit, table accepts inverted jigsaw or router, providing jigsaw and shaper functions. — E

Self-aligning rip fence automatically locks parallel with blade for straight, precise cuts. — F

First, we gave the BT3000 capability no contractor table saw could touch. Then, to raise the BT3000 even further above mere, mortal table saws, we created many accessories. From oversized tables to a micro-positioning device. Thus creating something truly unique. A precision woodcutting system with unmatched versatility. At a price that's far more down to earth.

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Crow Chaser

A Surprisingly Effective Noise Maker

As near as we can determine, this simple ratcheting device was originally invented by farmers to drive marauding birds from their gardens. During World War I, resourceful doughboys took it overseas where they used it to warn each other of gas attacks. In these less trying times, we suggest using this handsome (and painfully effective) tool to enhance the mayhem of Halloween and New Year's parties. Or, take it with you to that hockey game and make your presence known—even from the cheap seats.

Before You Start

We used walnut for the chaser body and handle, but almost any hardwood you find in the scrap bin will work, provided it turns well. For the reed and ratchet wheel, we selected hard maple because of its durability.

This project calls for small parts. To machine stock safely on the tablesaw, jointer, and thickness planer, always start with a long blank—12" minimum. Surface and rip the oversized blank to final thickness and width, then crosscut your small parts from it.

Make the Chaser Body

Step 1. From 1½"-square walnut stock, cut a 2"-long block for the reed holder (A).

Step 2. Cut two sides (B) from ¼"-thick walnut to the dimensions listed in the Bill of Materials.

Step 3. Stack the sides using double-faced tape. Using a backing block to minimize tearout, bore a ½" hole through both sides where dimensioned on the Exploded View. Separate the parts, then finish-sand their inside faces to 220-grit.

Step 4. Glue and clamp the sides to the reed holder, aligning the ends and edges. (To align the holes, we inserted a length of ½" dowel through them during the glue-up.)

Step 5. After the glue has dried, remove any squeeze-out. Sand the sides flush with the block if necessary. Next, mount a ⅛"-wide, square-tooth rip blade on your tablesaw and elevate it to cut 2" deep. Using a tenoning jig or tall carrier board, stand the assembly on end and cut a centered kerf in the end of the reed holder where shown on the Exploded View. Note: Cut the kerf so it barely breaks through the opposite end of the 2"-long reed holder.

Prepare the Noisy Parts

Step 1. To make the reed (C) and filler strips (D), cut a 1⅜x12" blank from ¼" (or thicker) hard maple stock. Resaw or plane the blank to fit snugly in the ⅛" reed-holder kerf. To do this, first test your setup using scrap stock, checking the piece in the kerf as you work.

Step 2. Pencil two lines across the reed blank 2½" and 3½" from one end. With a scraper or spindle sander, reduce the thickness of the 2½"-long portion to 1/16", removing equal amounts of material from both faces. Use the additional 1"-long area to taper the transition from 1/16" to ⅛" thick.

Step 3. Sand the corners on the reed's thin end to a ¼" radius, then finish-sand the tapered portion of the reed. At the opposite end, crosscut the reed blank to 6" rough length. From the waste piece, cut the two filler strips to ⅜ x 2 1/16" initial dimensions.

Step 4. From 2"-square maple stock, cut a 1½"-long blank for the ratchet wheel (E). Locate the center on one end of this piece by drawing diagonals. Using your drill press, drill a centered 15/32" hole through the blank.

Bill of Materials

Chaser

Part	T	W	L	Mtl.	Qty.
A Reed Holder	1½"	1½"	2"	W	1
B Sides	¼"	1½"	7"	W	2
C Reed*	⅛"	1⅜"	5½"	M	1
D Filler Strips*	⅛"	5/16"	2"	M	2
E Ratchet wheel*	1¾"-dia.		1½"	M	1
F Handle*	1¼"-dia.		5¾"	W	1
G End cap*	1"-dia.		½"	W	1

*Parts cut to final size during construction. Please read all instructions before cutting.

Materials List

W–walnut
M–maple

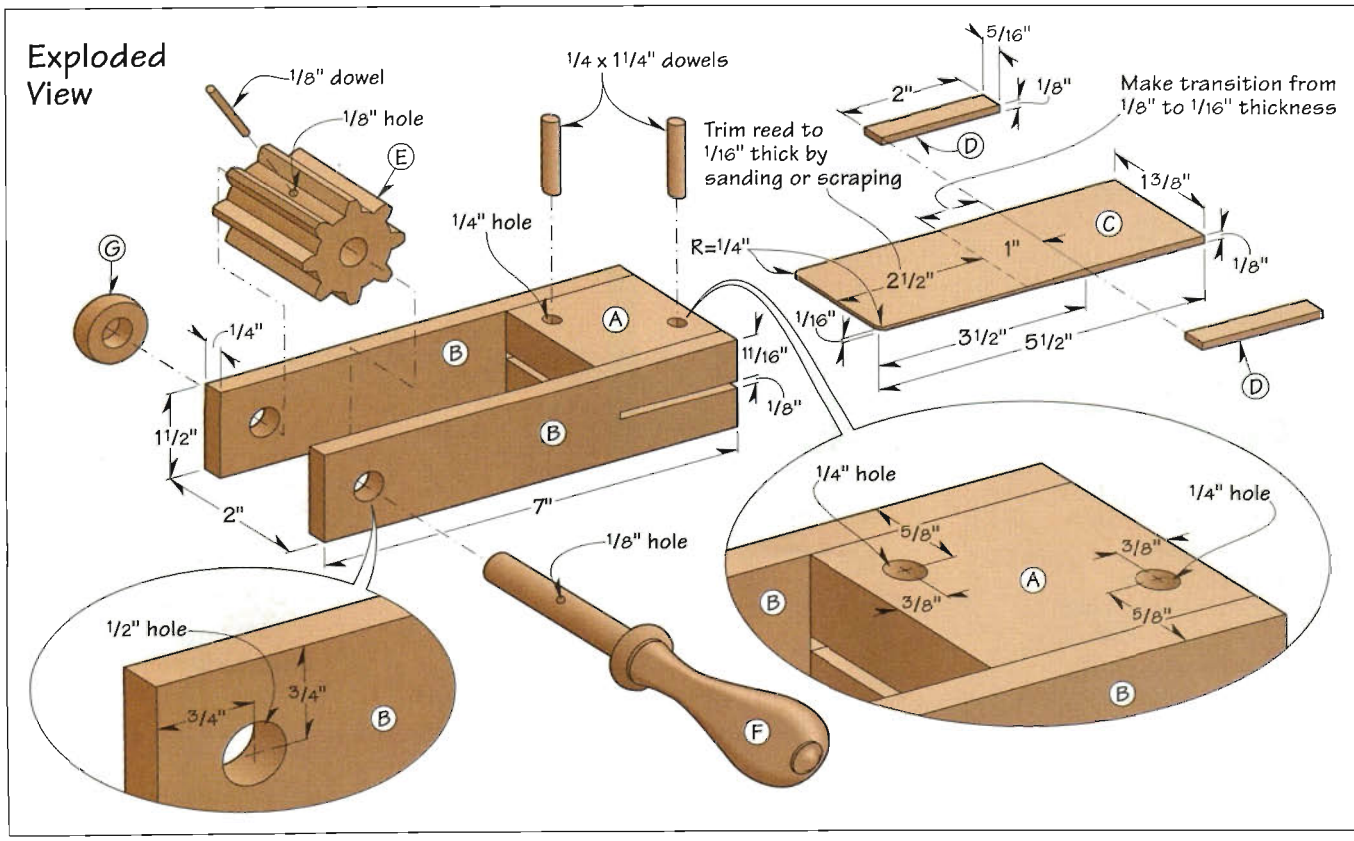
Supplies

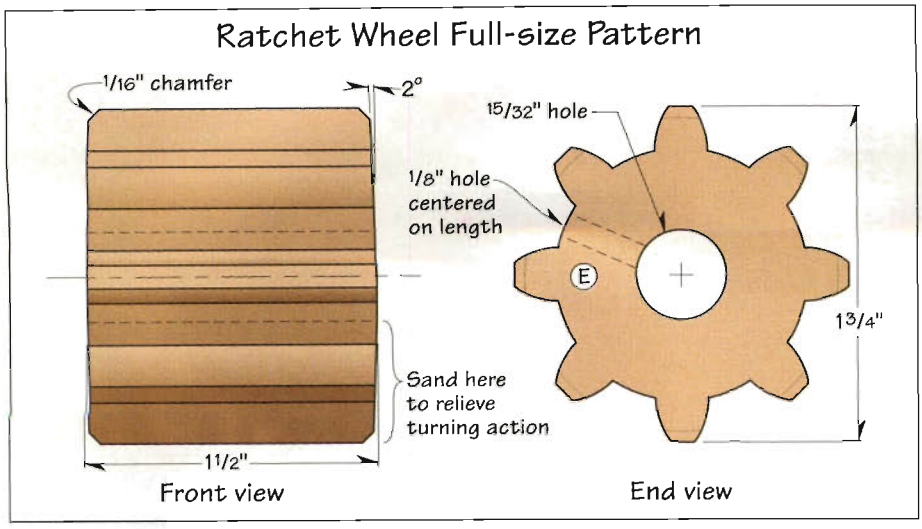
⅛", ¼" dowel stock (maple, birch, or other light-colored hardwood); finish.

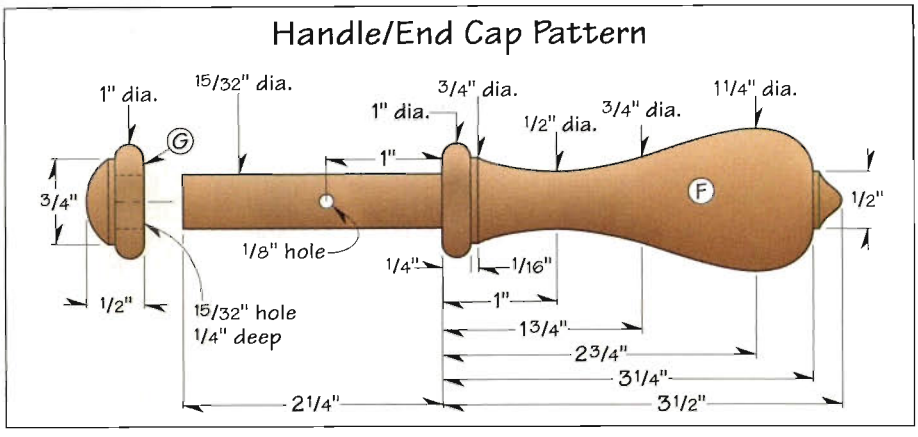
Step 5. From scrap stock, turn a mandrel that will press-fit in the 15/32" hole you drilled in the wheel blank. Mount the mandrel and blank on the lathe, then turn the blank to a 1¾" diameter. Remove the blank.

Step 6. Transfer the full-sized Ratchet Wheel pattern shown on *page 36* to one end of the cylindrical blank. Use the hole to help center the pattern on the blank. Then, bandsaw and sand the teeth to shape.

Step 7. Sand or file a slight (2°) angle on both ends of the wheel to relieve the friction between the wheel and sides. (See the Ratchet Wheel drawing.) To do this, sand between the edge of the hole and the ends of the teeth, working your way around the wheel. File a small chamfer on the







ends of each tooth, then finish-sand the ratchet wheel. (We used a flap sander.)

Turn the Handle, Then Assemble Your Chaser

Step 1. Mount an 8" length of 1⅜"-square walnut stock between centers on your lathe. Using the pattern shown *above*, turn the handle (F) and end cap (G) to profile. Note: Turn the handle's shaft to 3" long initially to allow some extra length for parting the end cap.

Step 2. Finish-sand the handle on the lathe. Then, using a parting tool, part the end cap from the shaft, forming a flat bottom on the cap. Mount a Jacobs chuck on the tailstock and drill a 15/32" hole ¼" deep in the end cap. Part the rounded top end of the cap, then finish-sand it.

Step 3. Insert the handle's shaft through one side of the chaser body, then drive the wheel onto the shaft (without glue). As you do this, insert a piece of card stock between the handle hilt and the outer face of the side to maintain a slight clearance. Do the same as you glue the cap to the shaft.

Step 4. Using a brad-point bit, drill a ⅛" hole through half of the wheel (centered between two teeth) and into the handle shaft. With a toothpick, insert a drop or two of glue into the hole, then tap in a short length of dowel. Trim the dowel flush with the wheel surface.

Step 5. Insert the thin end of the reed through the kerf in the holder, then tap the thick end about halfway into the kerf. Apply a dab of glue to both faces of the thick portion, then tap the reed until its tip measures 1/16" from the gullet between two of the teeth on the wheel. Check the ratcheting action by turning the wheel, and make sure the reed is centered between the sides.

Step 6. On one face of the reed holder, lay out two dowel holes where dimensioned on the Exploded View. Drill the two ¼" holes 1¼" deep in the holder. Apply glue in the holes, then drive in the two dowels.

Step 7. Glue the filler strips into the kerf alongside the reed. After the glue has dried, trim and sand the dowels, filler strips, and reed flush.

Step 8. Finish-sand the areas that still need it, then break all sharp edges on the chaser body. Apply two coats of Danish oil finish. After the finish has cured, apply a coat of paste wax and buff with a clean cotton cloth. WJ

Project design: Bob Colpetzer
Photograph: StudioAlex
Written by Doug Cantwell
Illustration: Scott Shepler

This Delta exclusive gives you a lock on snipe control. Patent-pending cutterhead snipe control lock stabilizes the cutterhead during operation, for complete rigidity.

Those who've had a sneak preview have nice things to say about it. Priced in the middle of the pack—we're betting it'll end up at the head of its class.

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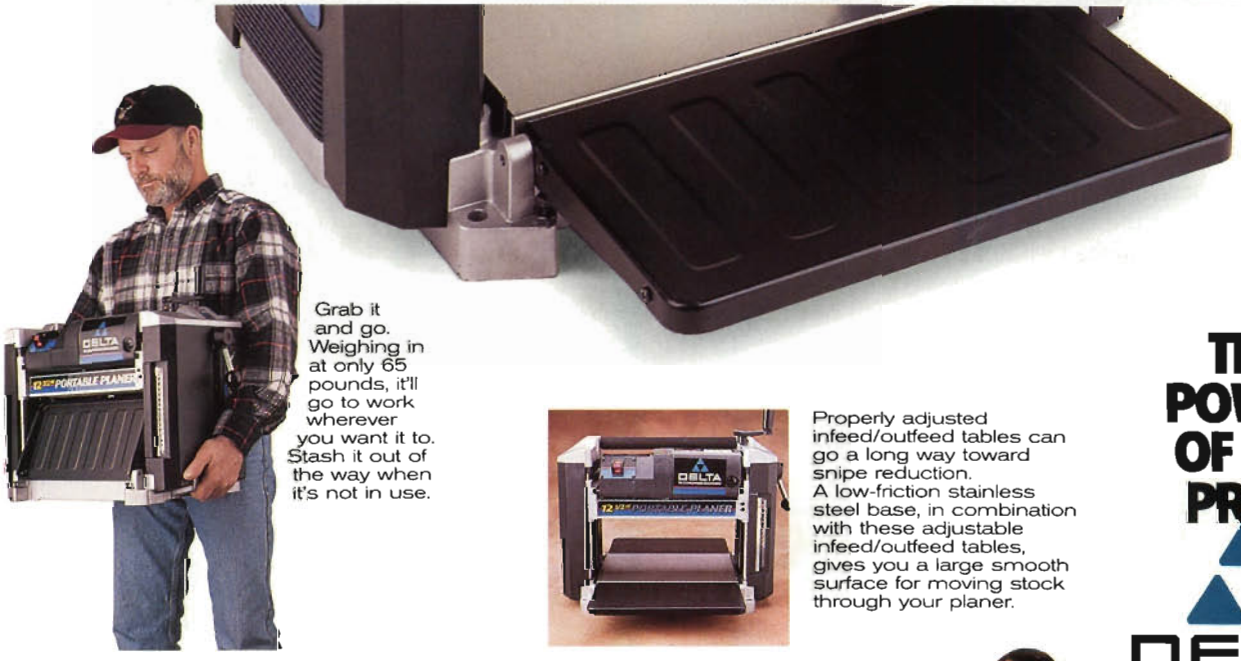

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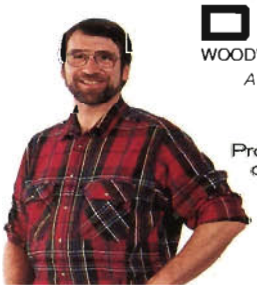

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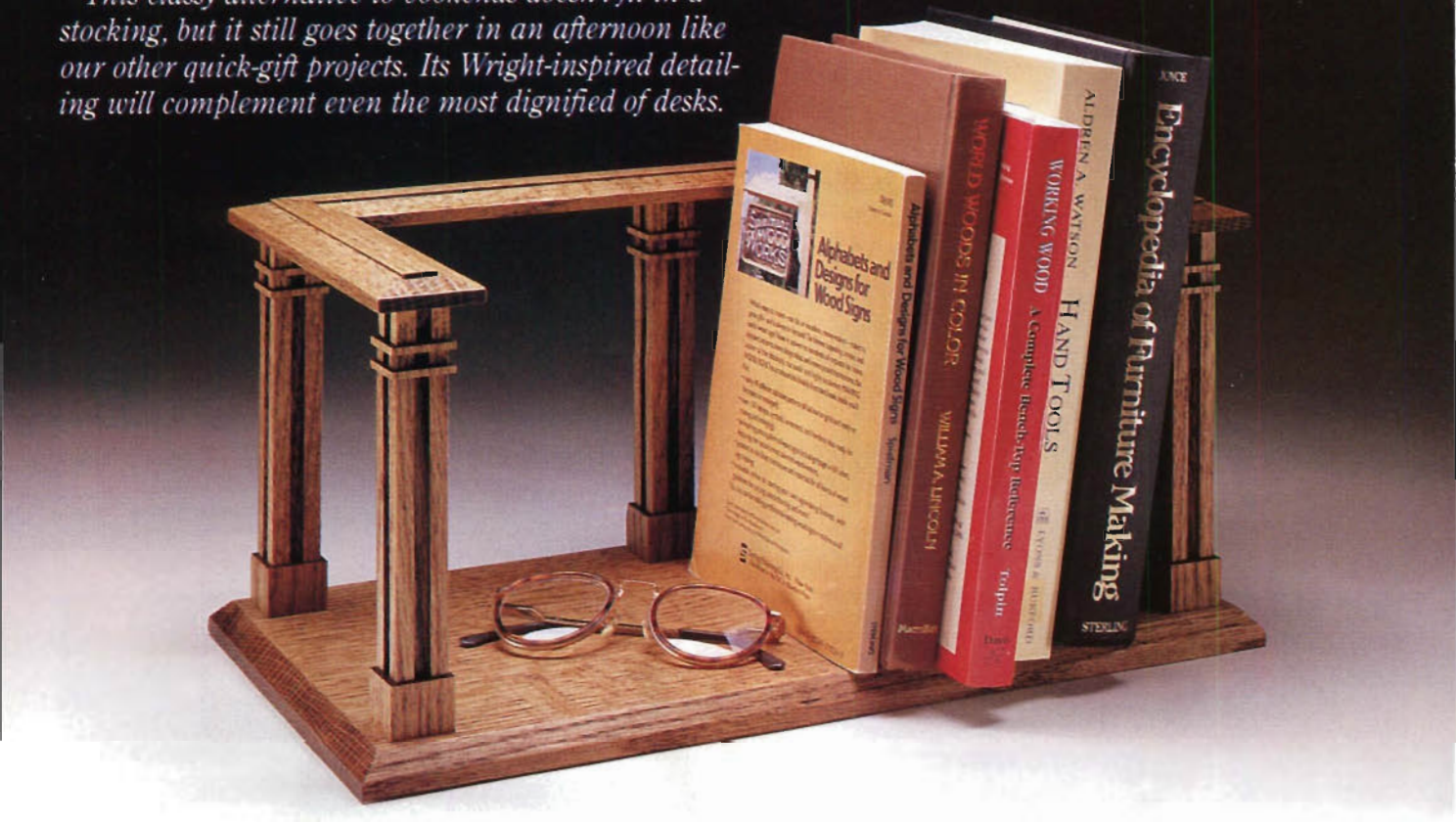
Prairie Style

Desktop Book Holder

This classy alternative to bookends doesn't fit in a stocking, but it still goes together in an afternoon like our other quick-gift projects. Its Wright-inspired detailing will complement even the most dignified of desks.



Make the Base And Cap Rail

Step 1. From quartersawn 4/4 red oak, cut two boards large enough to make up a blank for the base (A). Add at least ½" to the 9" finished width and enough to the 16½" length to allow for planer snipe. Joint the mating edges, then edge-glue and clamp. After the glue has dried, plane or sand the blank to thickness. Joint one edge, rip the blank to width, then square and cut it to length.

Step 2. Using a router and 45° chamfer bit, cut a ⅜" chamfer all around the top edge of the base. Note: Rout the ends first, then the edges.

Step 3. To make the cap rail (B, C), surface stock to ½" thick, then cut two 1⅜x20" pieces. Move your tablesaw's rip fence to the side opposite the blade tilt and set it ¼" from the blade. Tilt the blade to 15° from *perpendicular* and set it to cut 19/32" deep (measured vertically). Now, stand the stock on edge and bevel-rip both edges to form the profile shown in *figure 1*. Note: Using an alternate top bevel (ATB) blade produces an attractive undercut on the profile.

Step 4. Using the same setup, bevel both ends of one piece of the cap rail stock. To do this, use a tenoning jig, or stand the piece on end against the fence and back it with a tall, square board.

Step 5. Miter this end-beveled piece 8½" from both ends to form the two cap rail sides (B). Note: Make sure you cut complementary—not identical—miters on these two parts. Then, miter both ends of the other piece of stock to 16" long to form the cap rail back (C).

Step 6. Lay out and cut a #0 biscuit slot in all four mitered ends of the cap rail parts as shown on the Exploded View. Note: Use a bench-top biscuit joiner for this operation if you have one. Otherwise, use your portable joiner and a jig like the one shown in *photo A* to hold the parts securely.

Step 7. Sand the cap rail parts smooth without rounding the edges. Then, biscuit, glue, and clamp the parts to form a three-sided frame. Check for square and flatness.

Figure 1 Setup for bevel-ripping cap rail stock (B) (C)

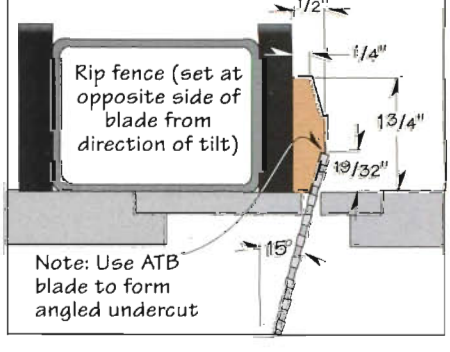


Photo A: Make a simple jig like this to hold the cap rails when cutting biscuit slots into their mitered ends.

Bill of Materials

Book Holder

Part	T	W	L	Mtl.	Qty.
A Base**	5/8"	9"	16½"	O	1
B Cap rail–sides*	½"	1¾"	8½"	O	2
C Cap rail–back*	½"	1¾"	16"	O	1
D Columns–bottom*	⅞"	⅞"	4¾"	O	5
E Columns–middle*	⅞"	⅞"	¼"	O	5
F Columns–top*	⅞"	⅞"	5/8"	O	5
G Feet*	1 1/16"	1 1/16"	⅞"	O	5
H Partitions*	1 1/16"	1 1/16"	⅛"	O	5

*Parts cut to final size during construction. Please read all instructions before cutting.

**Part edge-glued from narrower stock.

Material List

O–quartersawn red oak

Supplies

#8-32 threaded rod (48"), #8-32 threaded inserts (5), #8-32 hex nuts (12); stain; finish.

Prepare the Column Parts

Step 1. To make the three column parts (D, E, F), joint and plane a 32"-long piece of stock to ⅞" square. For the column feet (G) and partitions (H), prepare a 10" length of 1 1/16"-square stock. Final-sand this latter piece, taking care to keep the edges square.

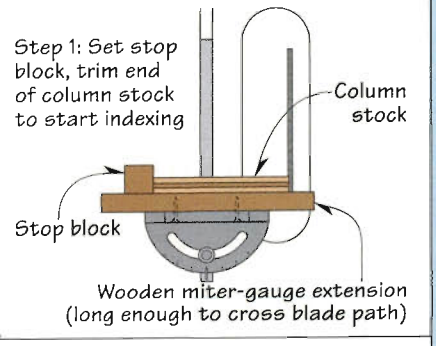
Step 2. Using a table-mounted router, a fence, and a ¼" straight bit, rout a centered slot 5/32" deep in all four faces of the ⅞"-square column stock. Final-sand the stock, again keeping the edges square.

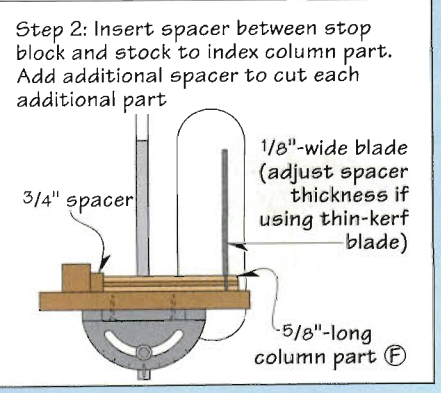
Step 3. Attach a wooden extension to your miter gauge that's long enough to cross the blade path. (This will back the stock during the cut to minimize splintering.) From the ⅞"-square stock, crosscut five bottom column sections (D) to a 4¾" finished length, using a stop block to ensure accuracy.

Step 4. Crosscut the remaining column parts (E, F, G, H) using a system of spacers as described in "Indexing the Column Parts" *below.*

Step 5. Clamp a wooden auxiliary table to your drill-press table. Locate

Using Spacers to Index Column Parts





Indexing the Column Parts

To cut the shorter column parts accurately and safely, prepare four sets of spacers and use them with your miter-gauge extension and stop block as shown below.

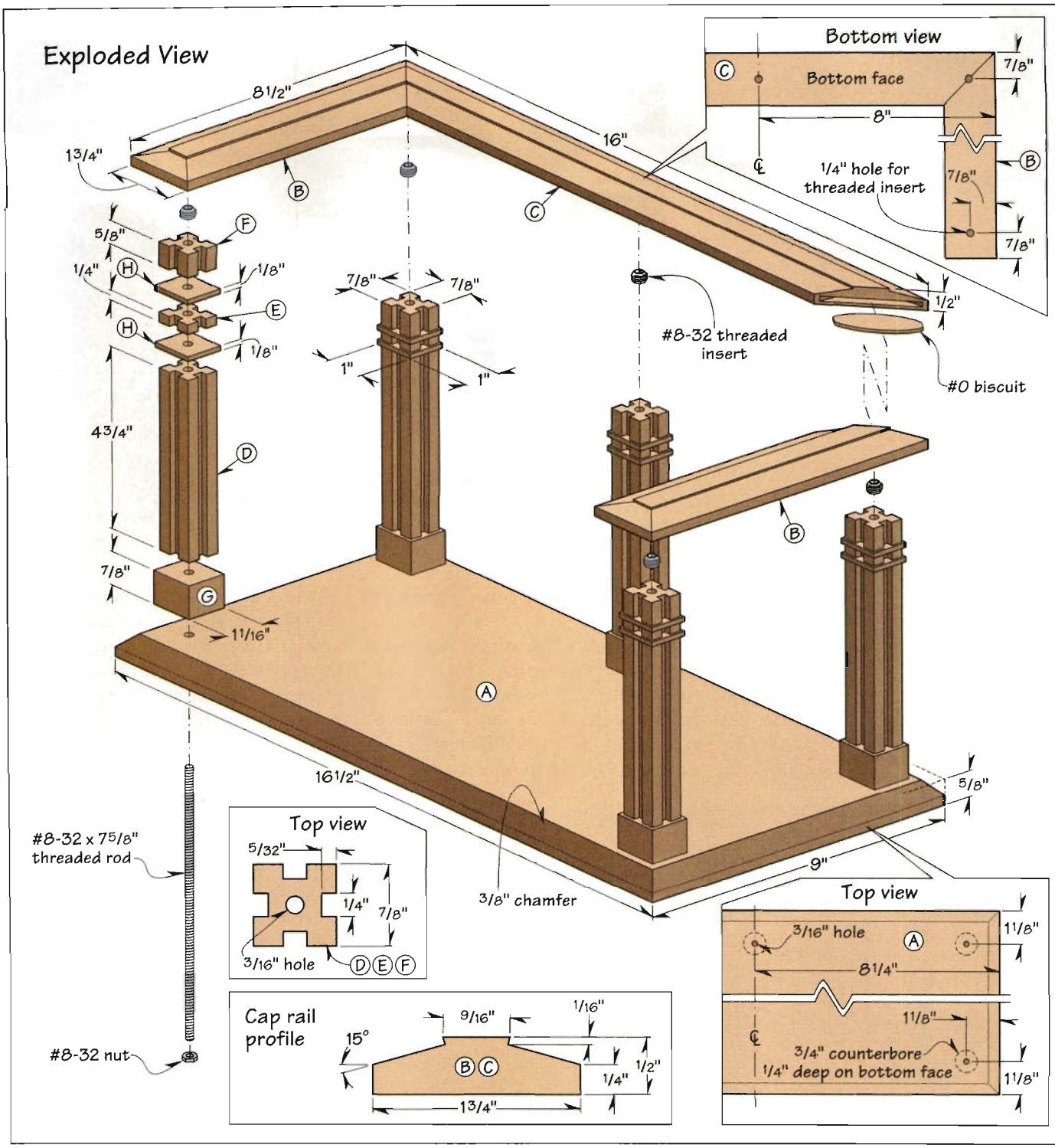
To determine the four spacer thicknesses, add the thickness of your crosscut blade to the length of each part. Table 1 lists the thicknesses you'd use with a ⅛"-thick blade. From ¾"-thick material, rip four lengths of spacer stock to these thicknesses. Then, crosscut enough ¾"-long spacers from each piece to equal the number of parts required. Note: The length and width of the spacers is not critical, but we suggest making them larger than the thickness of the column parts to avoid confusion.

Place your remaining piece of ⅞"-square column stock against the miter-gauge extension. Set the stop block just far enough from the blade to shave the end of the stock square to start the indexing. Next, insert a ¾"-thick spacer between the stop block and column stock. Crosscut the first F part, then add a second ¾" spacer and repeat. Continue until you have five F parts. Using the same procedure with your ⅜"-thick spacers, cut five E parts from the same stock.

Using the set of 1" spacers, follow the same steps to cut five G parts from your 1 1/16"-square stock. Then, cut 10 H parts using the ¼" spacers.

Table 1

⅞"-sq. parts	Column length	Spacer thickness	Spacer quantity
E	¼"	⅜"	5
F	5/8"	¾"	5
1 1/16"-sq. parts			
G	⅞"	1"	5
H	⅛"	¼"	10



the centerpoint on the end of one column foot (G) by drawing diagonals. Install a 3/16" brad-point bit in the drill press, then set a fence and stop to center the foot beneath the bit. Now, drill a centered hole through all 1 1/16"-square parts (G, H).

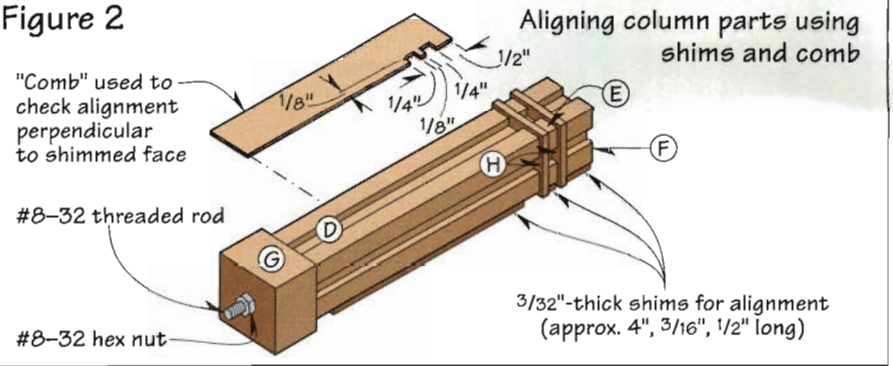
Step 6. Repeat this procedure to drill a centered 3/16" hole through all 7/8"-square column parts (D, E, F). Note: On the 4 3/4"-long parts (D), drill halfway through each piece from both ends to minimize misalignment.

Assemble the Columns, Then the Bookshelf

Step 1. Sort and arrange the column parts into five sets as shown in *figure 2*. Cut five 8" lengths of #8 threaded rod, and thread a hex nut onto one end of each. Next, dry-assemble the five columns on the rods. To align the 7/8" parts with the 1 1/16" parts in one direction, use 3/32"-thick shims. To check alignment in the other direction (perpendicular to the shimmed face), either eyeball the parts or use a slotted "comb" like the one shown in the *figure*.

Step 2. Apply glue sparingly to the column parts, then assemble them on the rods and align them as before. Tighten the nuts at both ends to clamp.

Figure 2



Step 3. Lay out and drill ¼" holes for #8 threaded inserts in the underside of the cap rail. (For dimensions, see the Top and Bottom views on the Exploded View.) Note: Tolerances are very close here. Make sure the bit doesn't break through the top of the cap rail. If you have to drill the holes too shallow for the inserts, that's okay—you can counterbore the column tops if necessary to create clearance for them.

Step 4. Drive the threaded inserts into their holes. (To do this, we used a cordless drill and a short section of the threaded rod with a jam nut.) Note: Take your time and make certain you don't drive the inserts too deep, which could crack the workpiece.

Step 5. Lay out and drill 3/16" holes through the base to accept the column rods. (See *figure 2* for dimensions.) Then, counterbore these holes (¾" x ¼" deep) on the underside.

Step 6. Temporarily assemble the bookshelf. To do this, thread the five rods into the cap rail inserts, slide a column onto each rod, and then insert the column ends through the base holes. Thread a nut onto each rod and tighten it. Check the rods for length, then disassemble and trim them to fit. (We trimmed ours to 7⅝" long.)

Step 7. Final-sand all parts that still need it to 220-grit. Apply your choice of finish. (We applied Watco dark walnut Danish oil finish as a stain, allowed it to penetrate for 15 minutes, then wiped it dry. Do not wipe the grooves in the column. The remaining, slightly darker stain adds visual depth to the columns. After this coat had cured, we applied Watco Natural, wet-scrubbing it with a fine abrasive pad to lightly remove the stain. We wiped the finish dry, then applied a second coat of Natural after 24 hours. This time, we wiped the parts clean, then allowed them to dry.)

Step 8. After the finish has cured, reassemble the parts. Apply four adhesive felt pads to the underside of cork or the base. WJ

Project design: *Dick Coers*
Photograph: *StudioAlex, Randall Sutter*
Written by *Doug Cantwell*

Cigar Humidor

Keep your Coronas from losing their cool

A cigar without moisture is a cigar without mellow. To avoid feeling (and tasting) the heat, store your gourmet smokes in a climate-controlled chest that keeps the relative humidity within the preferred 60-80% range. We've lined our box with Spanish cedar, traditionally favored for the aroma it imparts to the contents.

In case you're more of an aficionado than craftsman, we offer here a clean, functional design that will serve its purpose as well as any of the more ornamental humidors you've seen. Next issue, we'll present our "dress" version, made of fancier materials and detailed more elegantly. Of course, if you'd prefer to customize this no-frills box to suit your tastes, you have our blessings.

Before You Start

If your cigar inventory won't fit in our humidor as dimensioned, by all means enlarge it. If you do, remember to allow approximately ⅛" (depending on the blade you use) for the kerf width you'll lose when sawing off the lid. Also, figure on losing 1/16" in length and width when you sand the dovetails flush.

If you have trouble finding Spanish cedar locally, you can purchase it from one of several catalogs. See the Sources listed at the end of the article, where you'll also find information on ordering humidifiers and hygrometers.

Prepare the Basic Box Parts

Step 1. Surface stock for the lid front/back (A) and sides (B) to 5/8" thick. Rip and crosscut the parts to the dimensions listed in the Bill of Materials *opposite*.

Step 2. Select and mark an outside face on the four parts you just cut. Presand the inside faces to 120- or 150-grit. (Only a small area of these parts will show on the lid after you've lined the box interior, and their inside faces will remain unfinished.)

Step 3. Cut dovetails on the ends of the front and back and mating pins on the sides. (We used a Keller 1600 system for this.) Whether you use a jig or cut the joints by hand, make them deep enough so the pins and tails will protrude 1/32" beyond the face of the mating part. This gives you some extra to sand flush after assembly.

Step 4. Dry-assemble the front, sides, and back, and check the joints for fit. At the same time, measure and write down the interior dimensions for use in sizing the top and bottom. Disassemble the parts.

Step 5. Using a ⅛" straight bit and table-mounted router, groove the front, back and sides for the top and bottom. (See *figure 1* for dimensions.) To avoid cutting "mouse holes" that will be visible on the ends of the pins, stop the grooves in the front and back ½" from the ends. The side grooves won't show, so cut them all the way through.

Step 6. To make a book-matched top (C), joint the edges of a 5x13" piece of ¾"-thick stock. Resaw it into two equal thicknesses. Next, edge-join either pair of corresponding edges, depending on which joint gives you the most interesting match of figure and/or color. After the glue has dried, unclamp the panel and select its better side as the exterior face. Surface the panel to ¼" thick, removing as little

material as possible from this exterior face to retain a good figure match.

Step 7. Cut the top to fit the groove in the box parts. (See *figure 2.*) If you're working in the dry season, size the top to leave a 1/16" gap in the groove on all four sides. If you're building the box during the humid part of the year, allow 1/32".

Step 8. Using a table-mounted router, notched fence, and straight bit, rout a rabbet around the top edge of the top panel to form a tongue. To size the rabbet, follow the same rule of thumb given in the previous step. (Again, see figure 2.) Note: Take care when cutting this rabbet—it's critical that the visible gap between the panel and box frame be uniform on all sides. Seasonal changes may cause variations, but you want it to look perfect for now, especially if you plan to present or sell it.

Step 9. From 1/4" birch plywood, cut the bottom (D) to fit the groove, allowing at least a 1/32" gap on all sides. The plywood won't shrink or swell, but if it bottoms out in the groove, it will prevent the dovetails from closing completely during assembly.

Bill of Materials

Humidor

Part	T	W	L	Mtl.	Qty.
A Front/Back	5/8"	4 1/8"	13"	P	2
B Sides	5/8"	4 1/8"	10"	P	2
C Top*	1/4"	9 1/8"	12 1/8"	P	1
D Bottom*	1/4"	9 1/8"	12 1/8"	BP	1
E Pull	9/32"	3/8"	2 5/16"	P	1
F Hygrometer support	3/4"	3"	3"	P	1
G Liner–top/bottom	3/16"	8 5/8"	11 11/16"	SC	2
H Liner–front/back*	3/16"	2 3/4"	11 3/4"	SC	2
I Liner–sides*	3/16"	2 3/4"	8 3/4"	SC	2

*Parts cut to final size during construction. Please read all instructions before cutting.

**Adjust dimensions and hole diameter to fit hygrometer.

Materials List

P–poplar
BP–birch plywood
SC–Spanish cedar

Supplies

#6 brass bead chain with 2 connector ends (5" length approx.); #4x1/2" flathead wood screws; 2x1 1/8" brass butt hinges (2); adhesive felt dots (4). (For humidor hardware, see Sources at end of article.)

Assemble the Box, Then Cut the Lid

Step 1. Dry-assemble the box, including the top but not the bottom. Note: Put the good face on the plywood out—the Spanish cedar lines the cover on the inside. Check the gap around the top to make sure it's uniform on all sides. Disassemble, then reassemble the box with the bottom (but not the top) to see that the joints close satisfactorily. Note: Don't dry-assemble both the top and bottom at the same time, or you may have trouble disassembling the parts afterwards.

Step 2. Glue up the box, allowing the top to float in its groove without glue. Apply glue sparingly in areas where it's likely to squeeze out into the top groove. Check for square and make sure the pins and tails bottom out. Then, clamp the box and allow the glue to dry.

Step 3. Remove the clamps, then sand the pins and tails flush with the box faces. Sand the top of the box to make the edges flush with the panel. Then, sand all exterior surfaces to 150-grit.

Step 4. Using the tablesaw and a sharp rip blade, cut off the top of the box to form the lid. To do this, set the cutting height just a bit shy (1/32") of the 5/8" box thickness, and test the setting on scrap. This will leave enough stock to prevent the box and lid from separating completely and binding on the blade. Set the fence to center the cut in one of the tails. (We made our cut 7/8" from the top of the box.)

Step 5. After ripping all four sides of the box, separate the lid by cutting along the kerf with a sharp knife. Block-sand the lid and box edges to remove splinters and saw marks. Take care that you don't round the corners. Remove any glue squeeze-out from the interior surfaces with a chisel.

Install Hinges and Make the Pull

Step 1. Lay out hinge gains to fit your hinges where shown on the Exploded View. Check the leaf thick-

Figure 1 — Groove box parts for top and bottom

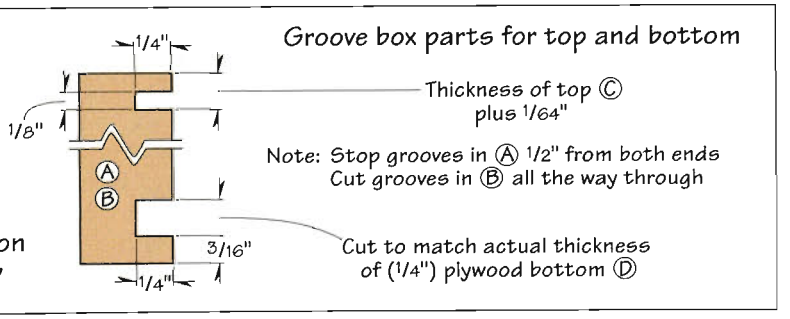
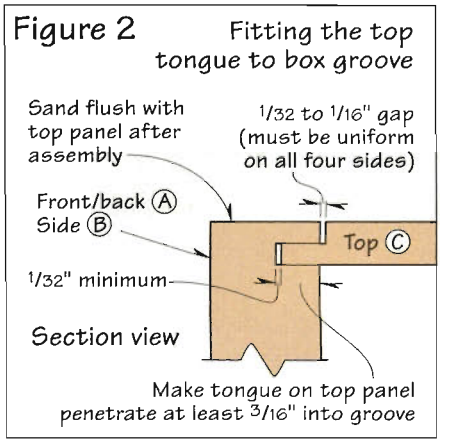


Figure 2 — Fitting the top tongue to box groove



ness, then cut the gains just shy of this depth, so the hinged back edges will remain slightly open (1/64" or less). We used a piloted 1/2"-dia. mortising bit and a template made from 1/2"-thick plywood to cut gains for 2x1 1/8" solid brass butt hinges. We then squared the corners with a chisel.

Step 2. Drill one pilot hole for each hinge leaf using a self-centering bit. Install the screws and check the hinge action and fit. Note: The lid must align flush with the box on all sides, or else it may bind on the box lining. If the alignment is off, loosen the screws, apply slight pressure in the direction needed for proper alignment, then drill a second hole for each leaf, and try again. Now, remove the hinges.

Step 3. To attach the pull, cut a #0 biscuit slot in the front of the lid, centering it side to side and top to bottom. (See the Front View for location.) To make the pull (E), surface a 1 1/2x12" piece of poplar or contrasting stock to 1/2" thick. Cut a centered #0 biscuit slot in one edge. Note: The final pull will be smaller, but this size will be safer to work.

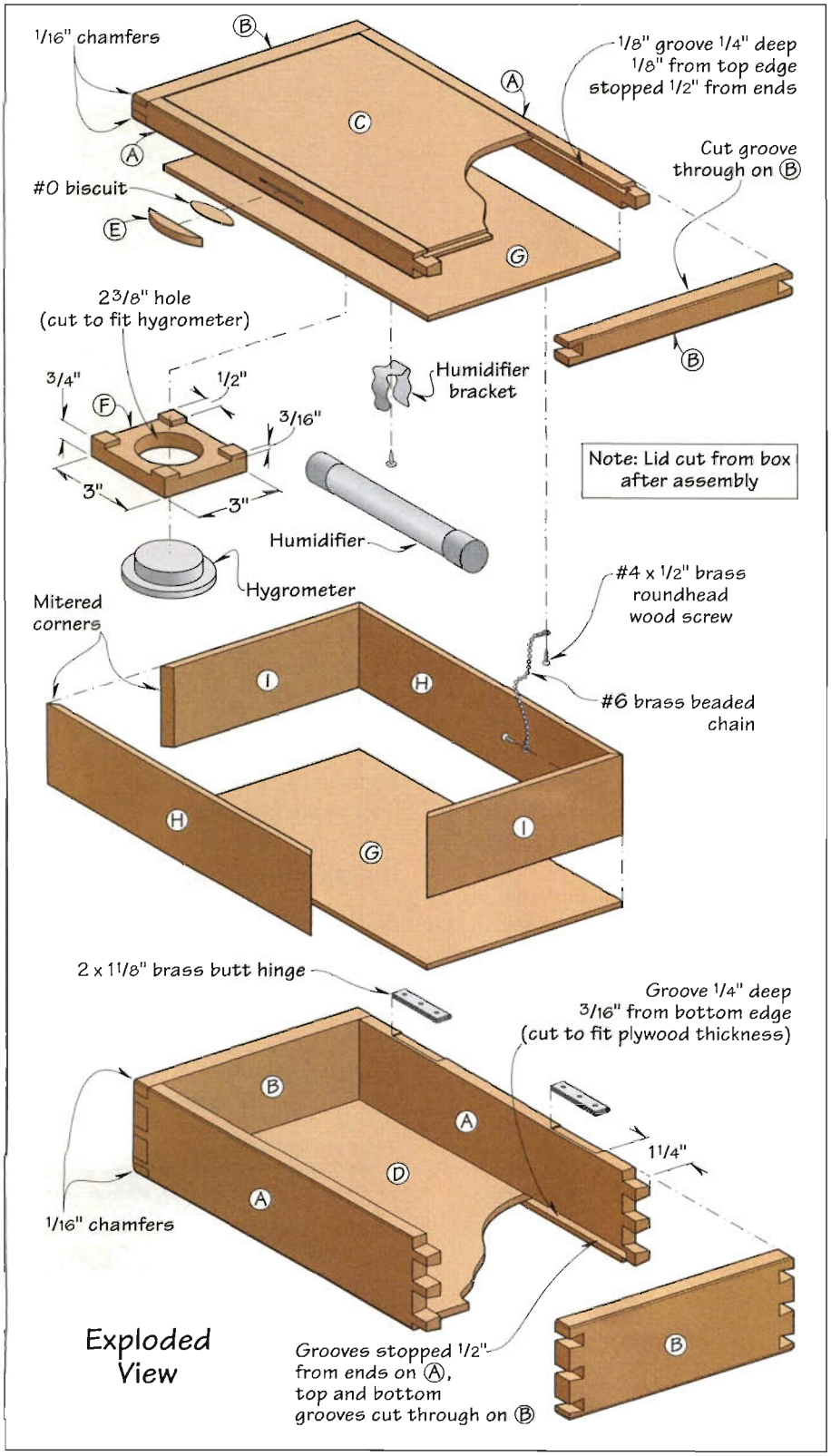
Step 4. Plane the pull blank to 9/32" thick, keeping the slot centered between the two faces. Transfer the slot centerline to one face, then intersect this line with a perpendicular line 3/8" from the slotted edge. Using a compass, draw a 2"-radius arc tangent to this 3/8" line and centered on the slot centerline. (See *figure 3.*) Bandsaw and sand to the arc line, then final-sand the pull.

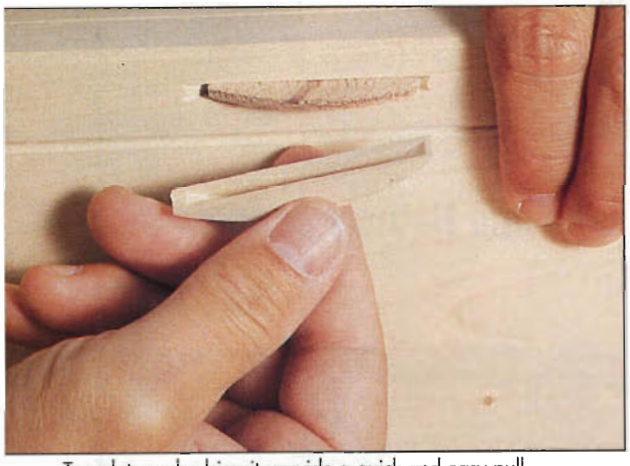
Step 5. Rout a 1/16" chamfer around the top and bottom edges of the box and lid.

Step 6. Final-sand the box exterior to 220-grit. Glue, biscuit, and gently clamp the handle to the lid. Note: Use light clamping pressure to avoid bowing the lid. Apply glue sparingly and remove any squeeze-out.

Step 7. Blow or vacuum all dust from the box and lid. Then, apply finish to all exterior surfaces. Note: Do not finish the box interior—the vapors will taint the flavor of your expensive cigars. (We sprayed on two coats of semi-gloss lacquer, allowed it to dry, then sanded lightly with 320-grit sandpaper. We removed the dust, then sprayed a final coat. After the lacquer had dried for two days, we buffed it with 0000 synthetic steel wool.

Step 8. To make the hygrometer support (F), cut a 3" square of 3/4"-thick poplar or contrasting stock. (See the Exploded View.) Cut a centered hole through the support to fit your hygrometer. (We actually started with a larger blank for safety, used a drill press and fly cutter to cut the 2 3/8"-diameter hole, then cut it to final size. Use a Forstner or spur bit if you have one that fits.)





Two slots and a biscuit provide a quick and easy pull.

top panel first from three 3x12" pieces; then ripped the stock for the front, back, and sides to 2¾" finished width; then pieced together the bottom, which will be mostly hidden, from the waste strips.)

Step 2. Plane and sand the liner pieces to 3/16" thick. Measure the lid interior, then subtract 1/16" from the length and 1/8" from the width. Cut the top and bottom (G) to these dimensions. Center and adhere the top panel to the lid with several dabs of hotmelt glue. (We applied the glue along the lengthwise centerline so as not to restrict any cross-grain movement in this humid environment.)

Step 3. Place the bottom panel in the box without glue. Next, miter-cut both ends of the front, back, and sides (H, I) to fit snugly enough inside the box that they don't require glue to hold them in. To do this, miter one end of each piece, then sneak up on the final miter cut at the opposite end, fitting the piece as you work. The snug fit will also hold the bottom in place.

Step 4. Before you install the front, back, and sides, sand a small radius (1/16") on the top edges of all four parts. This will remove any splinters and provide a lead-in for the lid as it closes in case there's any slight misalignment.

Step 5. Position the hygrometer support and humidifier bracket on the lid lining. Carefully drill a pilot hole for the bracket screw, then drive the screw to attach the bracket. Note: Keep in mind that the combined thickness of top panel and lining measures only 7/16". Insert the hygrometer in its support, then apply a dab of hotmelt glue to each foot of the support and hold it in position until the glue sets.

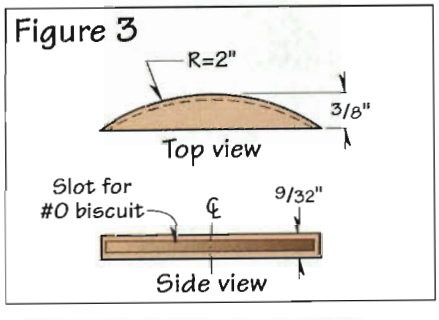
Step 6. Attach a length of #6 beaded brass chain to the box and lid to serve as a lid restraint. To do this, cut the chain to an appropriate length, then crimp the eyelets to both ends. Pilot-drill and drive a #4x½" brass roundhead screw through the lining and into the back of the box to attach one eyelet. (For location, see the Exploded View.) Tilt the lid back to about 15° past vertical, then mark a location for the other screw. Drill and drive it to secure the chain to the lid.

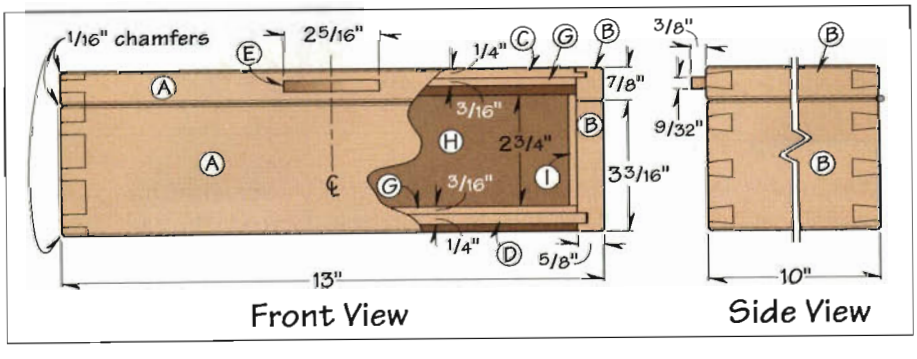
Step 7. Adhere a felt dot to each corner of the box bottom. Prepare the humidifier as instructed in the directions, set it for the desired humidity, and install it in the bracket.

Step 9. Mount a ¾" dado blade on your tablesaw, and elevate it to cut a deep enough recess in the back face of the support to allow ambient air to circulate around the hygrometer. (We cut ours 3/16" deep.) Using a miter gauge and extension, cut the 2"-wide recess in the back of the support, leaving a ½"-wide strip along both edges. Then, turn the support 90° and repeat. This will leave a ½"-square foot at each corner. Now, final-sand the support.

Add the Lining And Hardware

Step 1. Acquire enough Spanish cedar stock to line the box and lid, then resaw and/or edge-join it to rough dimensions. (We glued up the





Photographs: StudioAlex
Project design: Dick Coers
Written by Doug Cantwell
Cigars courtesy of Paul's Pipe Shoppe
Peoria, Ill.

SOURCES

Spanish Cedar. Available in 3/16 x 4 x 24" boards. Catalog no. 124872, price $3.50 each plus s/h.

Humidifier. Variable opening allows you to control humidity. Designed for 25-50 cigars. Catalog no. 125113, price $7.99.

Hygrometer. Measures relative humidity, showing a "safe" range for tobacco products. 72mm dia. fits in 2 3/8" hole. Catalog no. 125112, price $9.99. Order any or all of the above from:

Woodcraft
800/225-1153

Other humidor hardware available from the following:

The Woodworkers' Store
800/279-4441

Spanish cedar also available from:

Constantine
800/223-8087

Scrollsaw Christmas Puzzles

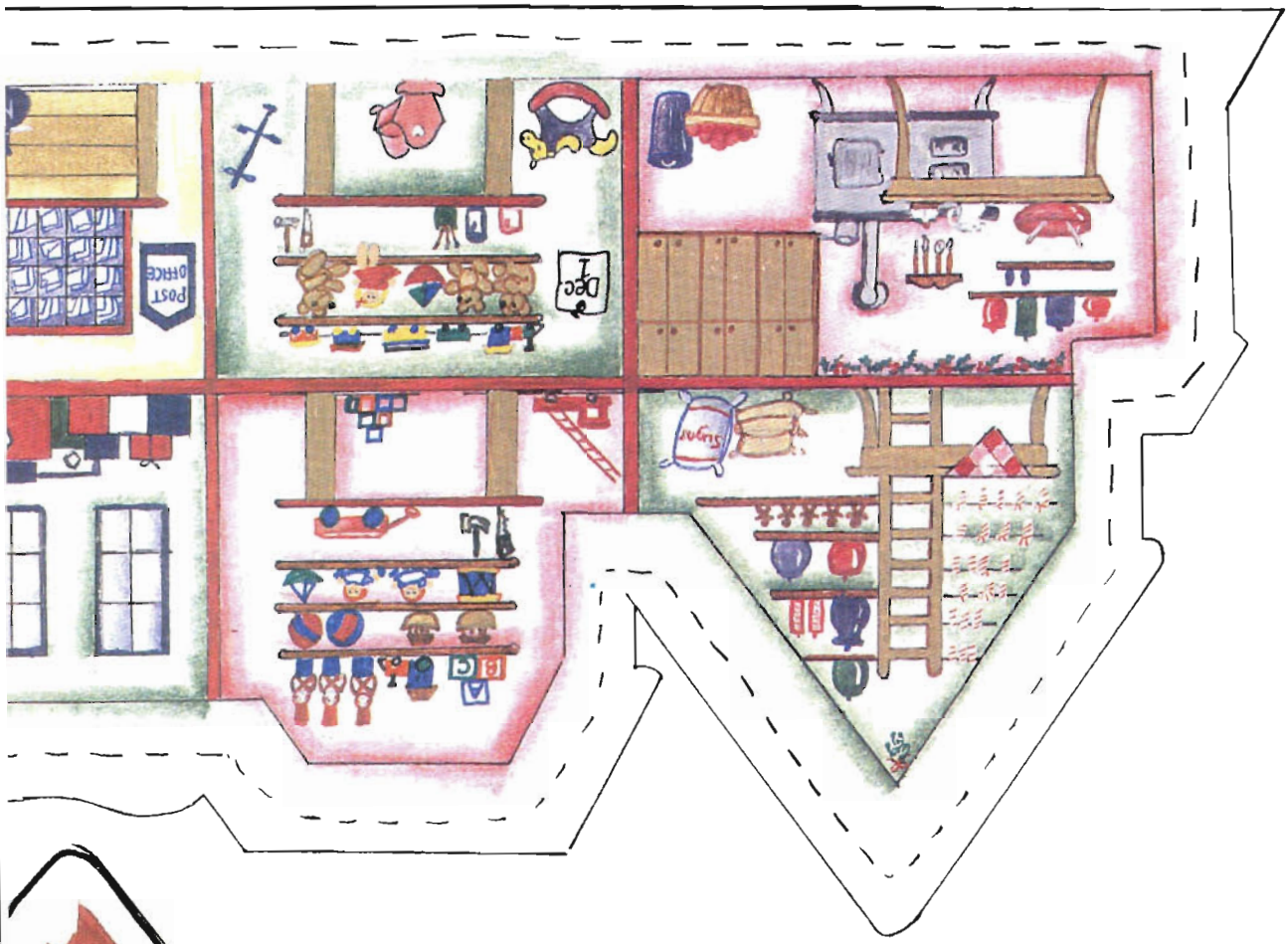
Santa's Village and Nativity Scene

SPECIAL PULL-OUT SECTION

These two clever little holiday scenes work both as puzzles, and decorations. For display, you pull the individual parts out and stand them upright in front of the frame. The frame serves as a backdrop for the individual pieces, and also as a storage container when you're ready to fit the pieces back together. *Kids will* love arranging and playing with the individual pieces. Rather than paint all these elaborate scenes and characters, you can simply adhere the colored patterns we provide to a piece of MDF and cut out along the lines. Here's how it works.

Three Basic Parts

Each puzzle consists of three parts: a backer board, a ½"-wide perimeter frame, and the individual puzzle parts that fit inside the frame. Note that on Santa's village, the back and the front sides of the backer board have patterns adhered to them. On the nativity scene, only the front side of the backer board receives a pattern. The frame and individual puzzle parts are cut from ¾"-



WOODWORKER'S JOURNAL

SPECIAL SCROLLSAW PATTERNS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WOODWORKER'S JOURNAL

SPECIAL SCROLLSAW PATTERNS

About the Designer

Debi McGary started designing and building these puzzles to give her six children toys with a personal touch and special meaning. Her first puzzle, "Noah's Ark," was designed for Sunday play. The "Grandpa's Farm" puzzle commemorated her first five years of marriage spent on the family farm. And in similar fashion her "Ocean Friends" and "Forest Friends" puzzles have reflected the family's appreciation of the different places they have lived. If you are interested in these or some of the other puzzles Debi has created, you may want to get a copy of her book *Wonderful Wood Puzzles*, published by Plaid Enterprises, Inc., Norcross, Georgia; or contact McGary Enterprises, 915 Hill View, Rexburg, ID 83440.

thick MDF, the backer board can be ½" or ¾" MDF.

To start, remove the patterns from the magazine by bending out the staples and removing the insert. Take it to a place that makes color copies and have the patterns copied. (Kinko's and Wal-Mart provide this service.) If you want the painted images on the backside of the Santa's Village puzzle, you'll need to make two copies, one of the front side of the sheet and a separate copy of the backside. Note that color copiers vary in quality of reproduction. Browns are particularly hard to reproduce accurately. Check your copies carefully and ask the copy service to adjust the color if you don't get the shade you want.

Cut From MDF

Adhere the pattern for the individual puzzle pieces to a piece of ¾" MDF using a spray adhesive or Modgepodge. (You can find Modgepodge at most crafts stores.) Scrollsaw the perimeter of the pattern, but don't cut out the individual pieces just yet. Lay your perimeter cutout on another piece of MDF and trace two lines around it—one line on the perimeter and another line ½" wide and parallel to the perimeter line. (This will form the frame that holds the pieces together in the storage configuration.) Scrollsaw along the outer line on the frame, then trace it onto another piece of MDF (½" or ¾"). Now, cut out this piece to form the backer board.

Assemble the Parts

Cut out the interior section of the frame piece, then glue the frame to the face of the backer board, align their outside edges flush. After the glue cures, clean up any squeeze-out and sand the outside edges smooth. Paint the edges of the frame and backer board a color that matches the painted pattern. Then, cut out your background patterns and adhere them to the backer board, making sure they fit neatly inside the frames.

Now, cut out the individual pieces of the puzzle using a fine-tooth scrollsaw blade to avoid tearing the paper edges. Sand or file off any fuzziness, then paint the edges to match the edges of the backerboard and frame. Test the fit of the pieces in the frame, then remove them. Spray-finish the frame/backer board assembly and the puzzle pieces with a clear polyurethane or varnish. Avoid lacquer or acrylic spray formulations as these may cause the adhesive under the paper to wrinkle or bubble. WJ

Project designs: Debi McGary
Photograph: StudioAlex

JUST IN TIME FOR THE HOLIDAYS! 1997

5 Turned Projects

Stocking Stuffers From the Lathe

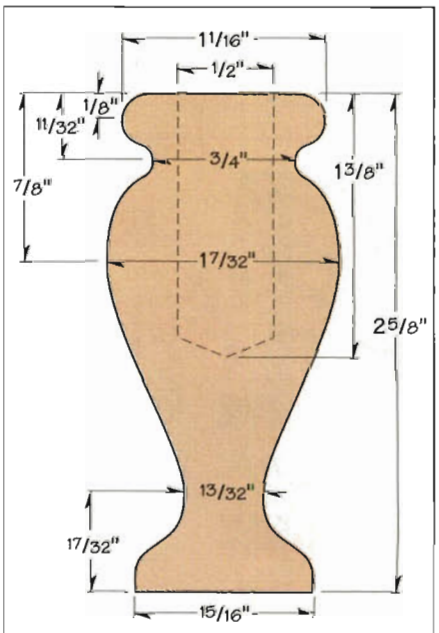
Miniature Flower Vases

Tiny Turnings That Take Almost No Time At All

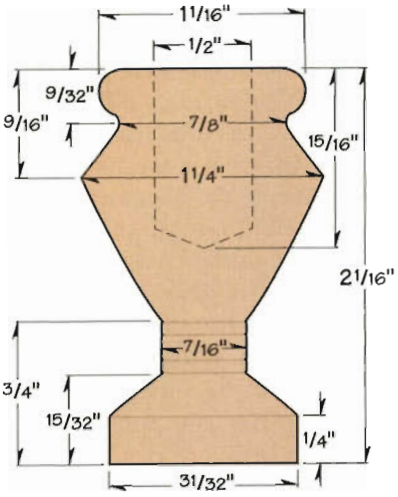
For a friend or loved one who's fond of flowers, our diminutive vases provide a great introduction to the art of miniature arrangements. And, with the holidays fast approaching, they make excellent stocking stuffers or perfect gifts for wrapping and placing under the tree.

You'll find the turning technique for making these vases fairly straightforward. Any close-grained hardwood will suffice. Anchor the base of the stock to a scroll chuck or spur-type drive center. The top can be secured with either a live or dead center.

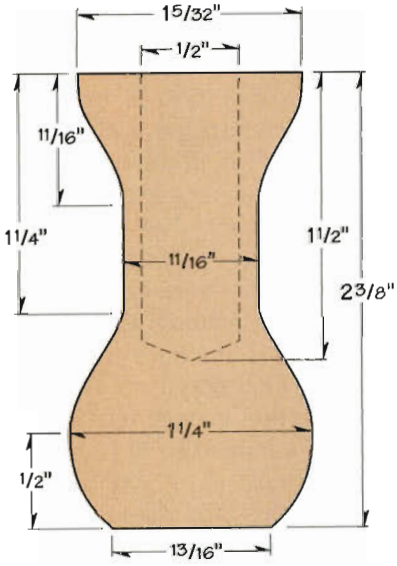
The full-sized patterns at *right* and *opposite* give dimensions for setting your calipers. Use a small gouge to rough out the shape, then finish up with a skew chisel and beading tool. After you've turned the vases, mount a chuck on the tailstock of your lathe and drill the center hole using a ⅜"



Full-Sized Pattern



Full-Sized Pattern



Full-Sized Pattern

Forstner bit. If you don't own a chuck, use your drill press to drill the center hole.

Before removing each vase from the lathe, finish-sand it and then apply a coat of beeswax. To add the dark-colored stain you see on the center vase, we used a black crayon.

If you intend to use these vases for dried flower arrangements, you're done. To make them compatible with fresh flowers, either insert a plastic vial (florists are good sources) or waterproof the hole by swabbing the inside with several thin coats of fast-setting epoxy.

Project design: *Martha Dawson*
Photograph: *Randall Sutter*

Turned Needle Case

Designer Bob Colpetzer recommends this project to beginning turners and to those veterans who never went out and bought all the accessories. You can complete this smart-looking little case quite handily using only a couple of simple shopmade chucks.

Before You Start

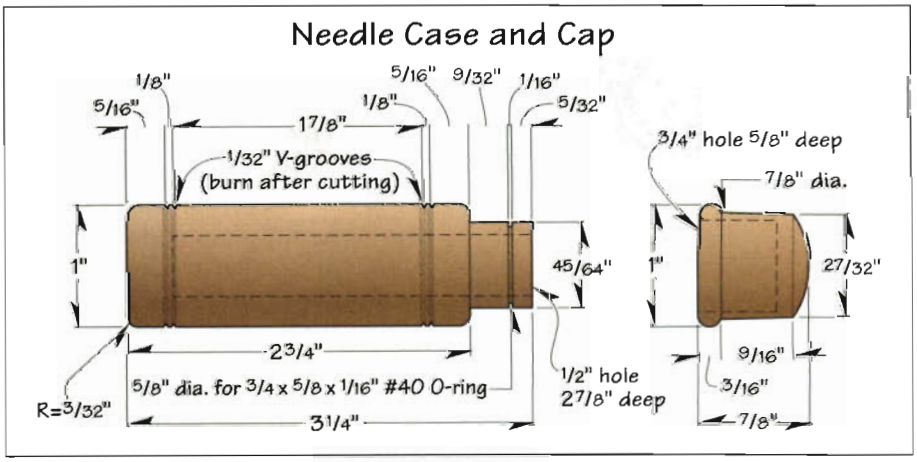
If you do have lathe accessories such as a Jacobs chuck, scroll chuck, pin chuck, and/or a ball-bearing cone center, by all means use them. Just make sure whichever tool and technique you use will produce an outside diameter that's concentric with the holes in the case and cap.

Bob usually uses walnut for his cases, but any fairly fine-grained hardwood will work. If you don't know your way around a lathe that well or need a brief refresher course, have a look at Bob's turned candle holder project in our Nov./Dec. '96 issue, *pages 44-51*. Note especially the "Keys To Safe and Successful Spindle Turning" on *page 48*.

Prepare the Blanks And Chucks

Step 1. From 1¼"-square stock, crosscut a 5"-long piece. Cut a 1¼" length from one end of it to make a case blank and a cap blank. Locate the centerpoint on the ends of each blank.

Step 2. Using your drill press and a brad-point bit, bore a centered ½" hole 2⅞" deep in the cut end of the case



blank. (We used an upright drilling fixture and clamp to ensure true, vertical holes.) Switch to a ¾" Forstner bit and drill a ⅝"-deep hole centered on the cut end of the cap blank.

Step 3. To turn the case and cap concentrically, make two faceplate chucks like those shown in *figure 1*. (We made ours by bandsawing two 3½"-diameter discs from 1"-thick stock.) Using Forstner bits, drill centered ¾" and 1" holes ⅞" deep. Glue in lengths of dowel as dimensioned. Secure each assembly to a 3" faceplate, then turn a relief bevel on the disc where shown on the figure. Now, turn the dowel to a diameter that will press-fit into the hole in the corresponding blank.

Turn the Case

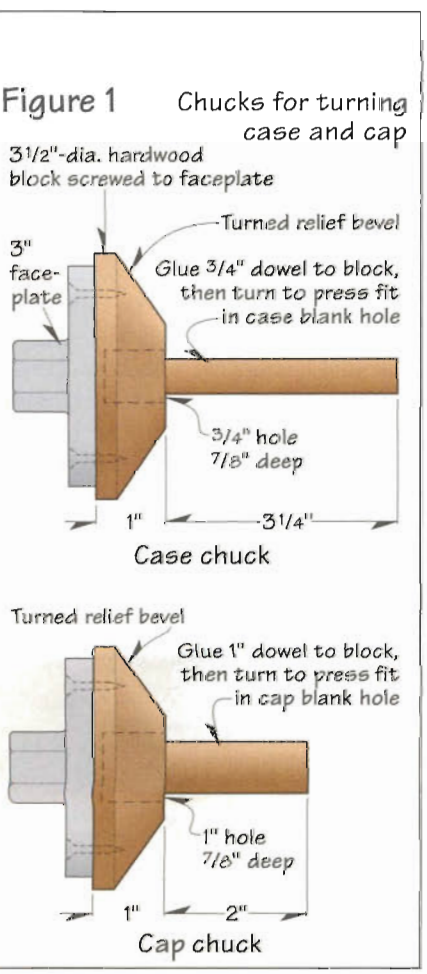
Step 1. Press-fit the case body onto its chuck. Support the end of the blank with the tailstock center.

Step 2. Using a ¾" gouge, turn the blank round to a 1 1/16" diameter. Using a 1" skew, reduce the blank to a 1" finished diameter. Note: Make a skew cut with the bevel rubbing, and be sure you cut rather than scrape to final dimension.

Step 3. Using a parting tool and a caliper set to ¾", part to form the shoulder and initial diameter of the cap tenon. Then, turn the length of the tenon to ¾" using a ⅜" spindle gouge.

Step 4. Using a ½" skew, make a fine cut to clean up the tenon. Reduce its diameter to 45/64", or slightly less than ¾".

Figure 1 Chucks for turning case and cap



Cut the Decorative and O-Ring Grooves

Step 1. With a pencil, lay out the O-ring groove where dimensioned on the Side View drawing. Part the groove to a ⅝" diameter.

Step 2. Lay out the four V-grooves where dimensioned on the drawing. Cut these grooves 1/32" deep with the point of a ½" skew.

Step 3. Darken the V-grooves by burning them. To do this, cut a 12" length of 22-gauge steel or copper wire. Secure a 3"-long piece of scrap ½" or larger dowel to each end. Then using the dowels as handles, apply the wire to each groove on the revolving case until it generates enough heat to burn the wood.

Step 4. Part the case to length using a parting tool. Reduce the waste to ⅜" diameter, but do not part it off completely at this time.

Step 5. Using a ¼" spindle gouge, form a 3/32" radius on the end and tenon shoulder of the case where shown on the drawing. Now, finish-sand the case on the lathe to 320-grit.

Step 6. Part the waste completely from the case end, then clean up and sand this end before removing the case from the chuck.

Next, Turn the Cap

Step 1. Mount the chuck you prepared for the cap on the faceplate, then press-fit the cap blank onto the dowel. Again, support the end of the blank with the tailstock center.

Step 2. As you did with the case, turn the cap blank round to a 1 1/16" diameter using a ¾" gouge. Then, turn the blank to a 1" finished diameter by cutting—not scraping—with a 1" skew.

Step 3. With a pencil, lay out the length, the 3/16" bead, and base of the cap's ⅛" crown as dimensioned on the drawing. Using a parting tool and calipers, part to the diameters shown.

Step 4. With a ¼" or ⅜" skew, shape the slight taper of the cap and cut the 3/16" bead at its base.

Step 5. Part the cap to length and form the crown. With the cap still on the lathe, finish-sand to 320-grit. Remove the cap from the chuck.

Finish the Parts, Then Buff and Wax

Step 1. Apply two coats of Danish oil finish to the exterior of the case and cap. Note: Leave the interior unfinished.

Step 2. After the oil has cured, buff the parts using a buffing wheel charged with tripoli. (See the Source at the end of the article to mail-order a wood-buffing kit.) Use a clean cloth to remove any buffing compound from the case. Then, load a second wheel with carnauba wax and polish all of the parts to a high sheen.

Step 3. Fit a #40 black rubber O-ring into the groove on the cap tenon. (We found our O-rings at the local hardware store.) With the O-ring in place, the cap should now slide onto the tenon with a firm friction fit.

Project design: Bob Colpetzer
Photograph: StudioAlex
Written by Doug Cantwell

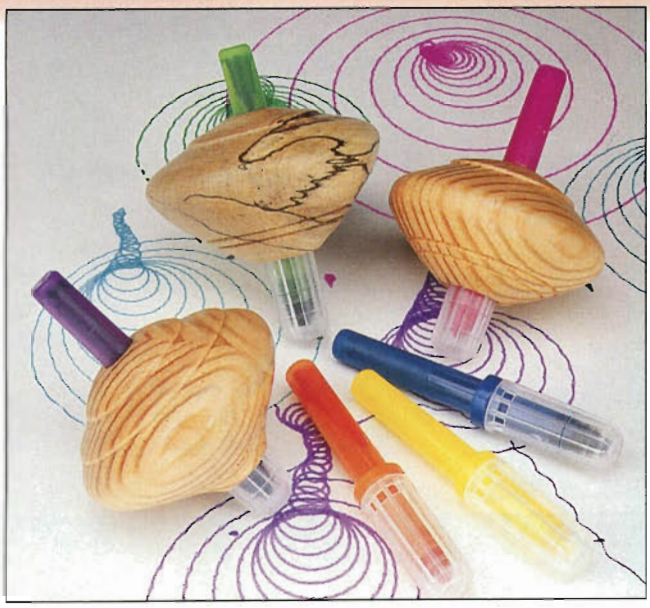
Source

Wood Buffing Kit. Includes three buffing wheels, one bar each of tripoli and white diamond compound, one bar of carnauba wax, and a bushing that adapts to either a ½" or ⅝" shaft. Price: $69.95 plus $4.50 s/h. Order from:

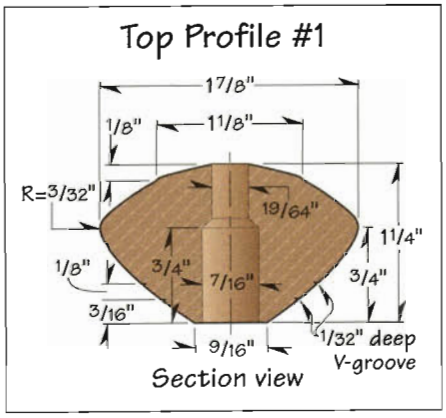
Beall Tool Co.
800/331-4718

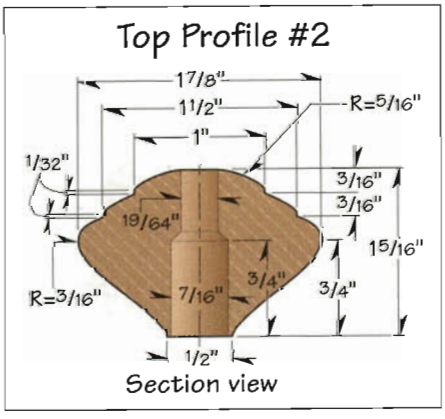
Tops That Draw

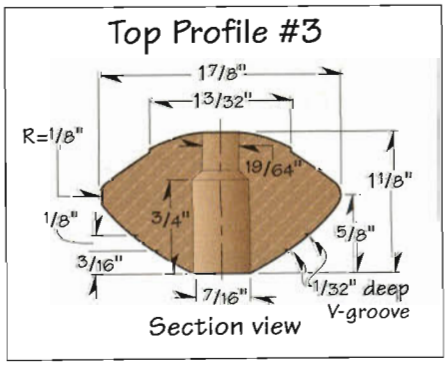
Give one of these turned tops a spin, and its marker tip squiggles out a spiraling drawing



Here's a novel twist on the basic design of a wooden toy top. Outfit the top with a pen insert and stand back! Kids will have loads of fun flipping one of these drawing tops onto a large sheet of paper and watching the pen tip create unique, colorful designs. The tops require a minimal amount of stock, the turning takes just minutes, and the pen tips cost little. So, crank up the lathe and turn out a top for every kid (or kid at heart) on your holiday list. Make one or all three suggested profiles, or let loose and develop several of your own design.







Prepare and Attach The Blank

Step 1. Face-glue two thicknesses of 4/4 stock. From this lamination, cut one or more turning blanks to 2x2x4½". Each blank will yield two tops.

Step 2. Screw a ¾"-thick scrap block to your lathe's faceplate. Mount the faceplate on the headstock, then true up the face of the block. (You could also use a screw chuck or scroll chuck.) Mount a drill chuck on the tailstock and drill a 3/16" shank hole through the block. Next, drill a centered 9/64" pilot hole ¾" deep in one end of your turning blank. Note: If your mounting screw differs from the one we use in the following step, adjust your shank and pilot-hole diameters.

Step 3. Unscrew the faceplate from the headstock. Secure the turning blank to the scrap block by inserting a #12x1½" sheet-metal screw through the center opening in the faceplate and then driving it through the scrap block and into the turning blank. You may also want to use double-faced tape or apply a drop or two of cyanoacrylate (CA) glue to better secure the turning blank to the block.

Shape the Top

Step 1. Remount the faceplate, scrap block, and turning blank on the lathe. Secure the free end of the stock using a live center in the tailstock, then turn the blank to a 1⅞"-diameter cylinder.

Step 2. Remove the live center from the tailstock and replace it with your drill chuck. Next, drill a 19/64" and a 7/16" hole in the blank as dimensioned on one of the three top profiles shown at *left*, but first make sure these dimensions agree with those given in the instructions that come with the pens. (To order the pen inserts, see Sources at the end of the article.) Note: Take care not to drill into the screw.

Step 3. On the end of the cylinder, turn your chosen top profile. Then, lay out and cut the 1/32" V-grooves. The outboard end of the turning blank should be stable enough to work without support from the tailstock. However, make sure you leave enough material on the top's headstock end so that you don't break through to the 19/64" hole.

Sand and Apply Finish

Step 1. Sand the top to 220-grit on the lathe, then separate it from the cylinder with a fine-tooth saw, cutting through to the 19/64" hole. Note: If you wish to turn a second top from the blank, do so at this time. To clean up the saw and parting marks on each top, turn a slightly tapered stub tenon on the faceplate's scrap block that will fit snugly into the 7/16" hole.

Mount this end of the top on the tenon and sand the opposite end with the lathe running at low speed. (See *photo A.*)

Step 2. Apply a finish. (We used Behlen Woodturner's Finish. For mail-order information, see Sources at *right.*) After the finish has dried, insert the pen in the hole.

Photograph: StudioAlex

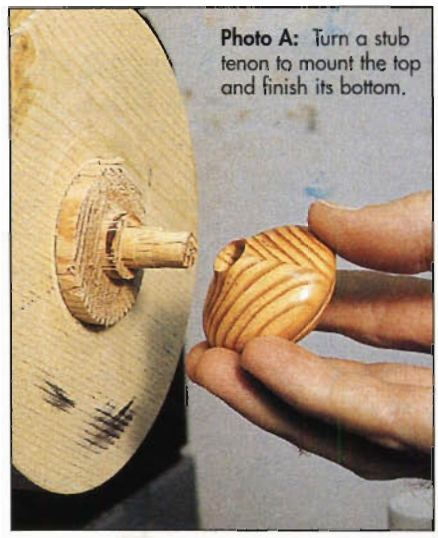


Photo A: Turn a stub tenon to mount the top and finish its bottom.

SOURCE

Drawing Tops. Set of six pens, catalog no. DTP300. Price: $2.50 plus s/h. Order from:

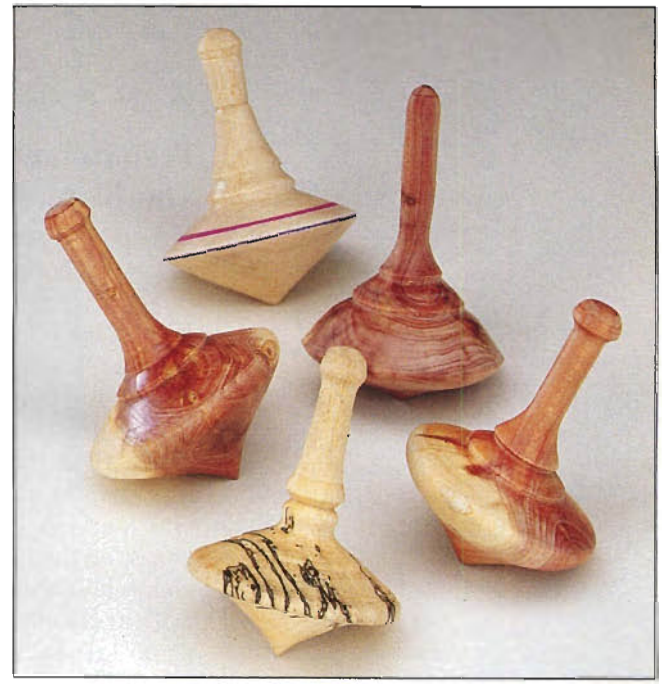
Craft Supplies USA
800/551-8876

Behlen Woodturner's Finish. 16 oz. bottle., catalog no. 09S53. Price: $12.99 plus s/h. Order from:

Woodcraft
800/225-1153

Wooden Mini-Tops

There's a guaranteed smile in every one



If you're looking for a simple project that will polish your turning skills, empty the scrap box, and bring delight to others, look no further. These mini-tops will get you off and running. We offer five variations to get you started. By the time you've become familiar with them, you'll probably want to start coming up with own designs. With top turning, you really can't fail, and if one should happen to break, you've only lost a few minutes of turning time and a tiny piece of wood.

Our five designs pictured here and on *page 48* were created by designer/craftsman Dick Coers. Dick enjoys turning tops at woodworking shows and tool demonstrations, and he's probably made and given away more than 250 tops over the past five years. So, he knows first-hand the joy they bring to the recipients—and how easy they are to create.

Dick recommends a four-jaw scroll chuck to hold the stock in a conventional lathe. For stock, just about any wood species goes. For example, at his last turning demonstration, he turned tops from Arborvitae bushes he'd trimmed out of the landscaping around his home. If you're just getting started, work some of the softer woods—they're less demanding. Coarse-grained woods will require more skill and care to get a clean surface finish. Dense, closed grain woods yield crisper details.

To start, prepare a 1⅛"-square by 2"-long blank. Mount the blank so the top's spinning point faces the tailstock. If you don't have a scroll chuck, glue the blank to a scrap block on the faceplate with cyanoacrylate glue.

You could also mount the blank between centers and turn a tenon on one end. Then, bore a mortise of the same size in a scrap block on a face plate and glue the tenon in the block with yellow glue.

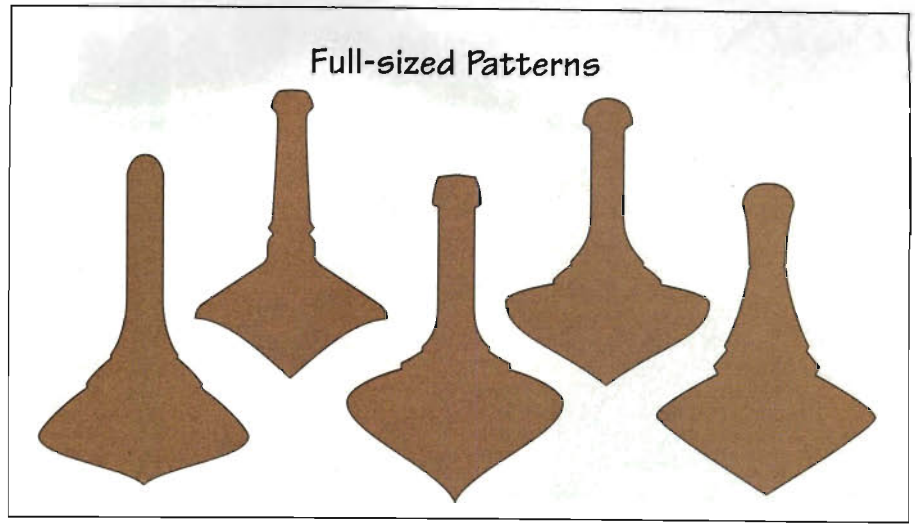
If you intend to turn more than one or two tops, you can save time and effort by preturning a longer length of stock between centers. Then, cut individual blanks to final length from this cylinder using a chop saw. This will also give you blanks with square-cut ends for easy lathe mounting.

For tools, Dick suggests using a standard ⅜" spindle gouge sharpened to a "fingernail" profile. First, turn the

blank round and true at the large end. Then, turn the desired profile. When nearly finished, slow down your hand movement at the point to make a clean cut and a fine tip.

Next, reverse your direction, turning the upper half of the top body and then the stem. Work in stages to create the design you want. If you need to sand the base, Dick recommends that you work the stem down to no smaller than ⅜" diameter before sanding. Thinning the stem near the mounting too early increases the chances of chatter. Light finger pressure on the back of the top will reduce chatter, but that requires holding the tool with one hand.

For tops of this size, turn the stem to 3/16" diameter. Anything larger makes them top-heavy and they won't spin very well. Be creative and add your own details to the top and stem.



When satisfied with the profile, finish-sand and apply a finish. Thin shellac works well and is safe for children. Next, using the gouge, part off the stem. Dick recommends placing your left hand around the top to catch it as it separates. Then, polish the top of the stem with fine sandpaper, and apply a dab of finish to it.

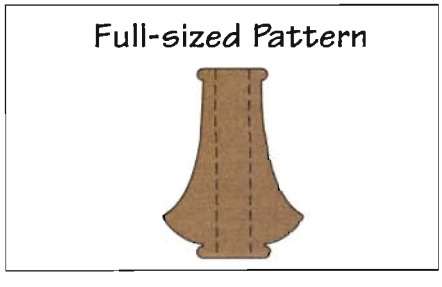
Photograph: *StudioAlex*

Plumb Bobbles

A turning that makes an attractive necklace or tree ornament

Want to keep the people on your gift list standing straight and tall? Then make them one of these "plumb bobbles," hang it on a necklace, and put it under the tree this Christmas.

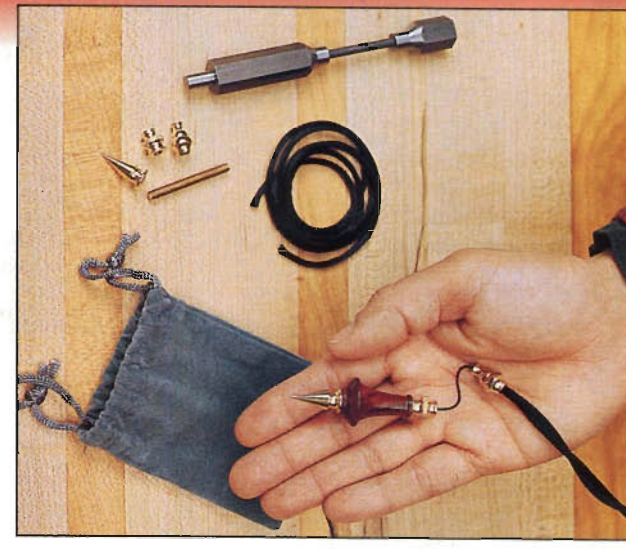
In case you're wondering, a plumb bobble is a cross between an old-fashioned plumb bob and a decorative necklace. The wooden part can be turned to any shape you like. Then, you cap it with the gold-plated tip and cord coupler and hang it on a necklace cord. You can also suspend your plumb bobble on a nylon plumb line to make a decorative tree ornament.



To turn the wooden section, you'll need a plumb bob mandrel kit (see Source below), an 11/64 twist drill bit, a live center for your lathe, cyanoacrylate (CA) glue, and a plumb bobble parts kit. Your wooden blank should measure approximately 1" square by 1" to 1¾" long.

Start by drilling an 11/64" hole through the center of the blank. Secure the blank onto the threaded section of the mandrel, tighten the assembly, and turn the blank. You can use the profile we've provided in the drawing at *left*, or create a design of your own. The possibilities are almost unlimited, and much of the enjoyment in this project comes from creating a new and unique designs for every turning.

After turning and finishing the bobble, remove it from the mandrel. Install the threaded brass rod that comes with the kit in the hole, then attach the point and the cord coupler to the brass rod. WJ



Photograph: *StudioAlex*

Source

Plumb Bobble Kits. Includes necklace cord and plumb line, brass top, tip, and cord coupler: $4.95. Plumb Bob Mandrel Kit: $5.95. Order from:

Beall Tool Co.
800/331-4718

Turning Pens & Pencils

A Gift Anyone Can Use

Looking for an elegant gift that you can produce in multiples? If you know how to drill a hole and turn a small cylinder, you can make a pen or pencil. The hardware kits are readily available, and the process lends itself to production-line efficiency, even in a home shop. Once you've finished them, present your gift pens in the handsome box shown in the following article. *Instructions for building the box start on page 58.*

Select Your Material

Any hardwood will suffice for a pen blank, although pen makers tend to seek out quilted, curly, spalted, or burled figures for a more dramatic look. Figured stock, however, must be turned with caution to avoid tearout. Straight-grained stock that shows little contrast between early and late wood may look ho-hum when it's shaped into a pen, but it turns more easily than figured stock and may make a good choice for your first pen.

Pen-turning also gives you a chance to use backyard finds, offcuts, and more costly exotics that you wouldn't want to use in large quantities. Blanks generally measure 5" long and ½" to ¾" square.

Don't let your imagination stop with just wood, though. Some of the man-made products such as Corian™, Dymondwood™ (laminations of dyed, resin-impregnated veneers), and Wild Wood™ (maple burl that's been dyed and impregnated) also make attractive pens and pencils.

Tools You'll Need

You want a smooth-running, well-balanced lathe for turning pens. There are a number of suitable systems that one can use. We selected a Carba-Tec miniature lathe, which offers high speeds and a headstock spindle with a #1 Morse taper. We also used a set of miniature turning tools, but, regular-sized tools will work if you use a deft touch.

You will also need a few specialized tools and supplies that are unique to pen-turning *(photo A)*. First, a mandrel to hold the two sections of the pen blank between centers while turning. The mandrel requires a set of three bushings, which differ in diameter depending on the type of pen you're turning.

Second, we suggest you acquire a pen mill for cleaning excess glue out of the tubes and squaring the ends of the blank. You'll also need a brad-point bit to drill the holes for the brass tubes that form the interior of the pen barrel. Pen-kit manufacturers specify the diameter of bit needed for their brass tubes, and many sell specialized bits for drilling into end grain.

Finally, there's the pen hardware, including the brass tubes, the cap, clip, and working mechanism. (Several mail-order companies sell these supplies. We ordered ours from the Woodcraft catalog. See Sources at the end of the article for information.)

Photo A: Tools and supplies for turning pens include: 1) wooden pen blanks, 2) brass tubes, 3) brad-point bit, 4) pen mill, 5) a lathe mandrel, 6) a bushing set, 7) a small roughing gouge and skew chisel, and 8) a pen hardware kit.

Drill the Blank Center

Square both ends of the blank using a stationary disc sander or tablesaw. Next, cut the blank in two, making the pieces a little longer than the brass tubes that come with the hardware kit. Note: If grain orientation is important, pencil a lengthwise line down one face before cutting the blank. This will enable you to realign the faces later.

Mark a centerpoint on the freshly cut end of each blank half. Clamp a block with a vertical V-groove to your drill-press table, then clamp each blank half to the block. Using a brad-point bit of the size specified by the kit manufacturer, drill a lengthwise hole through each blank half *(photo B)*. Use a high speed (about 2,200 rpm) and a slow feed rate to help prevent the bit from deflecting in the end grain. For the best fit, start drilling at the mating ends of the two pieces. Then, keep the two halves oriented this way as you turn and assemble the blanks.

Glue the Brass Tubes Into the Blanks

To get a good glue bond, degrease the brass tubes by washing them with lacquer thinner. Then, scuff-sand them with 320-grit silicon carbide sandpaper.

As for glue choice, we've found medium-viscosity cyanoacrylate (CA) glue to be the most convenient. It cures in a minute or so and fills gaps. You can also use two-part epoxy or polyurethane glue. Wear protective gloves when handling any of these adhesives.

Working quickly, drizzle the glue into the hole at both ends of the blank. Next, coat the brass tube with glue and insert it about three-quarters of the way into the hole. Rotate the tube to spread the glue, and then push the tube into the blank so that its ends are recessed inside the ends of the blank *(photo C)*.

If you're using polyurethane glue, clamp the ends of the blank with a C-clamp to prevent the tube from sliding out during the long cure time. Also, cover the clamp pads with waxed paper to prevent the glue from bonding them together.

Turn the Pen Blanks

After the glue has dried, square and clean up the ends of each pen blank half using a stationary disc sander. Stop sanding each end just before the disc contacts the brass tube *(photo D)*. Then, chuck a pen mill into a portable drill and use it to trim the ends of the brass tubes flush with the wood and to clean out the excess glue *(photo E)*.

Mount the two blank halves on the mandrel using the set of bushings specified for the pen you're turning *(photo F)*. These three bushings space the blank halves on the mandrel and also establish the diameters

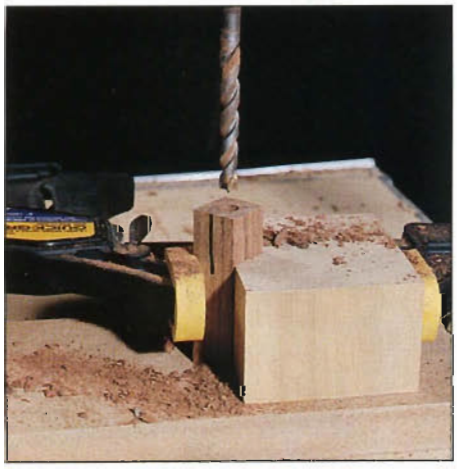


Photo B: Drill the hole through the center of both blanks using a drill press and a V-block. Note the alignment mark on one face.

Photo C: Coat the brass tube with glue and rotate it in the hole before full insertion. We used polyurethane glue and allowed it to cure for 24 hours.

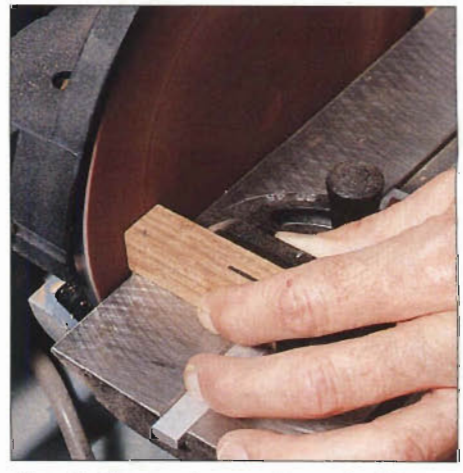


Photo D: Crosscut, then sand the ends of the blanks until the wood is just slightly proud of the ends of the brass tubes.

Photo E: Use the pen mill chucked into a portable hand drill to square and dress the ends of the blanks.

Photo F: The bushings space the blanks on the mandrel and also establish the diameters to which you turn the ends of the pen.

Photo G: A gouge brings the blank down to its rough shape. Work from the middle of the blanks towards their ends to avoid a concave barrel.

to which you turn the two sections. Note that the center bushings for Mont Blanc and Parker-style pens have a step in them. This indicates that you turn one half of the pen to a larger diameter than the other. For straight-barreled pens, the bushings all measure the same diameter.

Gently tighten the nut that holds the bushings and blanks on the mandrel, using minimal force so as not to bend the mandrel or crack the blanks. If you marked the blanks for grain orientation earlier, align the marks. Insert the Morse taper into the headstock and fit the live center on the tailstock into the mandrel's cupped end.

Switch on the lathe and start shaping the blanks with a small roughing gouge *(photo G)*. To determine the best speed, see the Pro Tip at *right*.

PRO TIP

In turning, the rpm speed of the lathe is not as important as the resulting surface speed of the workpiece. The larger the object, the faster its surface spins per rpm. Small objects such as pen blanks require higher lathe speeds than large turnings to achieve a smooth cut. We got our best results with the lathe set at about 2,600 rpm. Before committing a prized piece of wood, we suggest you turn a few scrap pieces of this size to find out what speed works best for you and your tools.

Rough-out the pen barrels to within 1/16" or 3/64" of their final diameter *(photo H)*. Then, switch to a skew chisel to close in on the final diameter. It's also a good idea to turn from the center of each barrel towards the bushings to avoid accidently shaping the barrels to a concave profile.

Sand the Turned Barrels

Sanding is perhaps the trickiest part of the pen-turning process. The diameter of the pen should match the diameter of the bushing exactly, but you must avoid sanding into the bushing and thus reducing its diameter. Take your time, and use a dial caliper or micrometer to check diameters *(photo I)*.

You should put down the skew chisel and start sanding when you

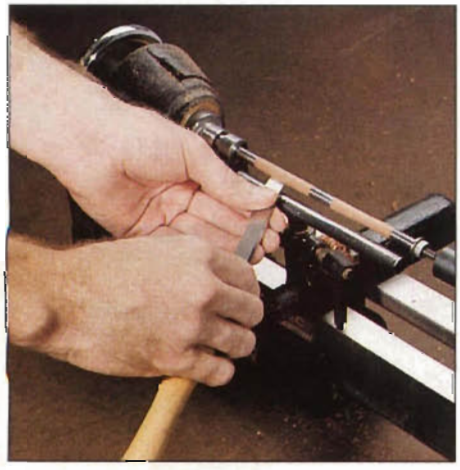


Photo H: Use a skew chisel to bring the barrel to within a few thousands of an inch of its final diameter.

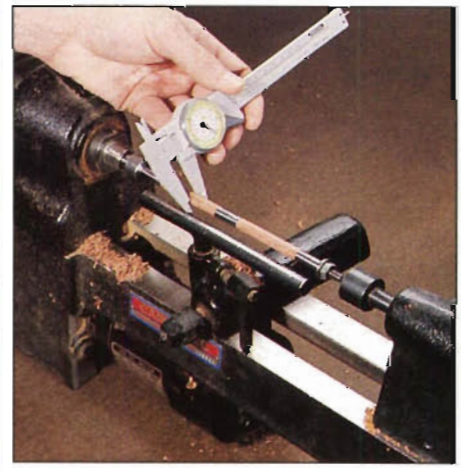


Photo I: Dial calipers will help you size the blank in relation to the bushings more accurately than an unaided visual check.

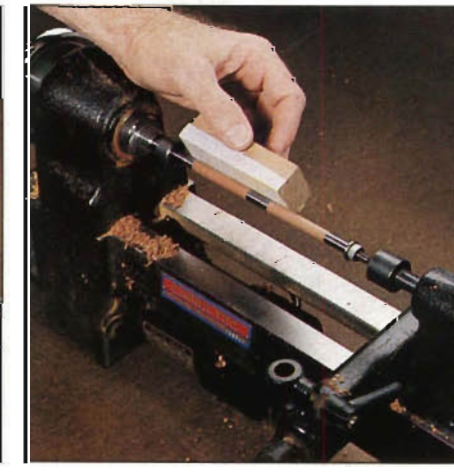


Photo J: Sand the barrels to final diameter taking care not to sand into the bushings.

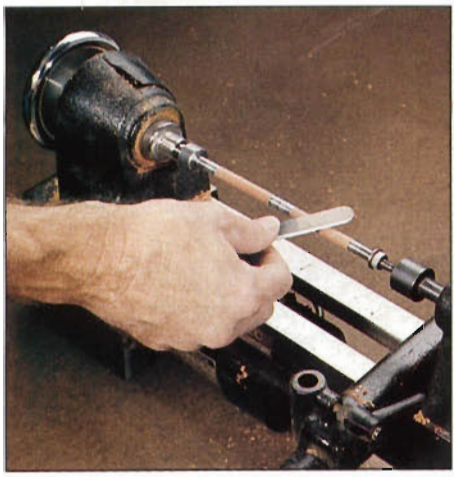


Photo K: We used Micro-Mesh sanding sticks to smooth the barrels and eliminate sanding marks.

Photo L: Apply the finish with a soft cloth while the lathe is spinning slowly.

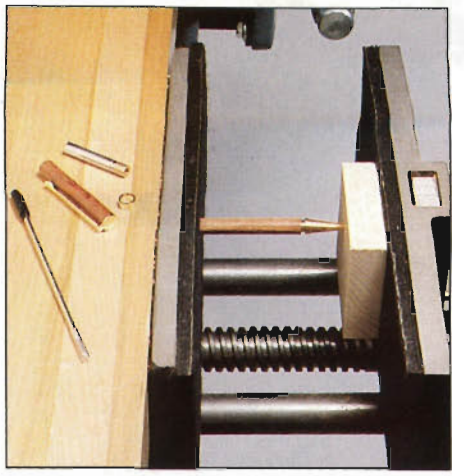


Photo M: Press-fit the hardware into the barrels using a bench vise with padded jaws.

have just enough excess wood left that you can still catch a fingernail on the lip between the bushing and the tube. Start your sanding with 150- or 180-grit sandpaper. For straight-barreled pens, use sandpaper adhered to a flat wooden block and sand the full length of both barrels to keep their diameters uniform. To shape curved barrels like those on a Mont Blanc-style pen, use strips of cloth-backed sandpaper. Continue the check the diameter of the barrel with your dial calipers.

Once you've achieved the desired shape and diameter, finish-sand the pen barrel with 220- and then 320-grit sandpaper followed by #0000 synthetic steel wool *(photo J)*. Be careful that you don't over-sand and reduce the diameter of the tube. At high speeds, it takes only seconds to erase the previous grit's scratch marks. For a polished finish on the raw wood, we continued sanding with Micro-Mesh sanding sticks, which have three different abrasives (2400-, 4000-, and 12000-grit) bonded to a flexible, foam-backed stick *(photo K)*.

Apply Finish, Then Attach the Hardware

The finish goes on best with the barrels spinning on the lathe *(photo L)*. We used Behlen's Woodturner's Finish. You could also use French polish, padding lacquer, wipe-on polyurethane, or HUT Perfect Pen Polish.

If you made the grain alignment marks on the pen blank earlier, they have now been turned away. To keep your grain orientation, simply make a light pencil mark on the insides of the brass tubes as you remove them from the mandrel. Then, align these new marks when you assemble the brass hardware to the turned pen barrels.

Give the finish time to dry, then attach the hardware according to the manufacturer's instructions. Most of the brass parts press-fit into the brass tubes. To do this, use a bench vise and pad the jaws with leather, felt, or a piece of softwood *(photo M)*. Make sure the assemblies are properly aligned, then press them together slowly and gently. WJ

Photographs: *StudioAlex. Randall Sutter*
Written by *Tom Jackson*

Sources

To order pen-turning kits, parts, and supplies, contact any of the following:

Woodcraft
800/225-1153

Craft Supplies USA
800/551-8876

The Woodworkers' Store
800/279-4441

Woodworker's Supply
800/645-9292

Pen And Pencil Case

Present your turned gifts in a handsome wooden box

In Japan, the wrapping and presentation of a gift are considered almost as important as the gift itself. If you're turning pen and pencil sets as gifts this season, you'll make a great impression when you present them in our dovetail-lid case. Like the pens, this box is easy to make, and you can craft it out of small offcuts from your scrap bin.

To start, prepare a 13/16x1¾x6" piece of stock. These dimensions provide room for a pair of grooves that will accept the Cross-style pen and pencil we turned in the previous article. Alter the dimensions if necessary to accommodate the pens and pencils you make.

Rout Out the Box

Install a ½" straight bit in your table-mounted router to cut the groove for the lid. Set a fence 5/16" from the bit, and elevate the bit to cut ⅛" deep. Place your box stock top face down on the table, and rout a full-length groove along one edge. Rotate the stock 180° and rout the other edge. Then, reset the fence and rout out the waste between the two grooves.

To cut the two deep grooves for the pen and pencil, install a ⅜" core box bit in your router and set the fence ⅝" from the center of the bit. Clamp stops along the length of the fence equidistant from the bit's center to limit the travel of the workpiece to 5⅜". Raise the bit about ¼" above the table. Note: Before you proceed, see the Pro Tip regarding safety *opposite*.

With one end of the workpiece braced against the rear stop, lower the stock carefully onto the bit. Slide the workpiece forward until it contacts the front stop, then lift it off the bit. Rotate the stock 180° and repeat this operation to rout the second groove. Then, rerout both grooves, raising the bit's cutting height in increments of ⅛" until the grooves are ½" deep. Note: For the final pass, the bit will be ⅝" above the table given the ⅛"-thick lip on the workpiece edges.

Make and Fit the Lid

From a piece of contrasting stock (or matching if you prefer), resaw or plane a ¼"-thick blank for the lid that's at least ⅛" wider and 1" longer than its finished dimensions. To dovetail the box, install a 14° dovetail bit in your table-mounted router, and set it to cut just a whisker deeper than the flat-bottomed lid recess you cut earlier. Set the fence 7/32" from the cutting edge of the bit, then rout one edge of the box. Rotate the box and rout the opposite edge, then move the fence and continue routing to clean up the waste between the two cuts.

Elevate the bit another 1/64" and bury nearly all of it in the fence. Then, make a cut on both edges of the lid and check it against the lid recess on the box. At this point, the lid should still be too wide and should have an overhang on the top as shown in *figure 1*. (Because the overhang rides on the fence, you don't need an independently adjustable split fence to guide the workpiece.)

Continue to rout the lid edges, making very small fence adjustments on each pass, until the lid fits snugly in the groove. After your first test cuts, you'll probably have a fully angled dovetail profile on the edges, so you'll no longer need to rout both edges before testing. Also, as you get close to the final width,

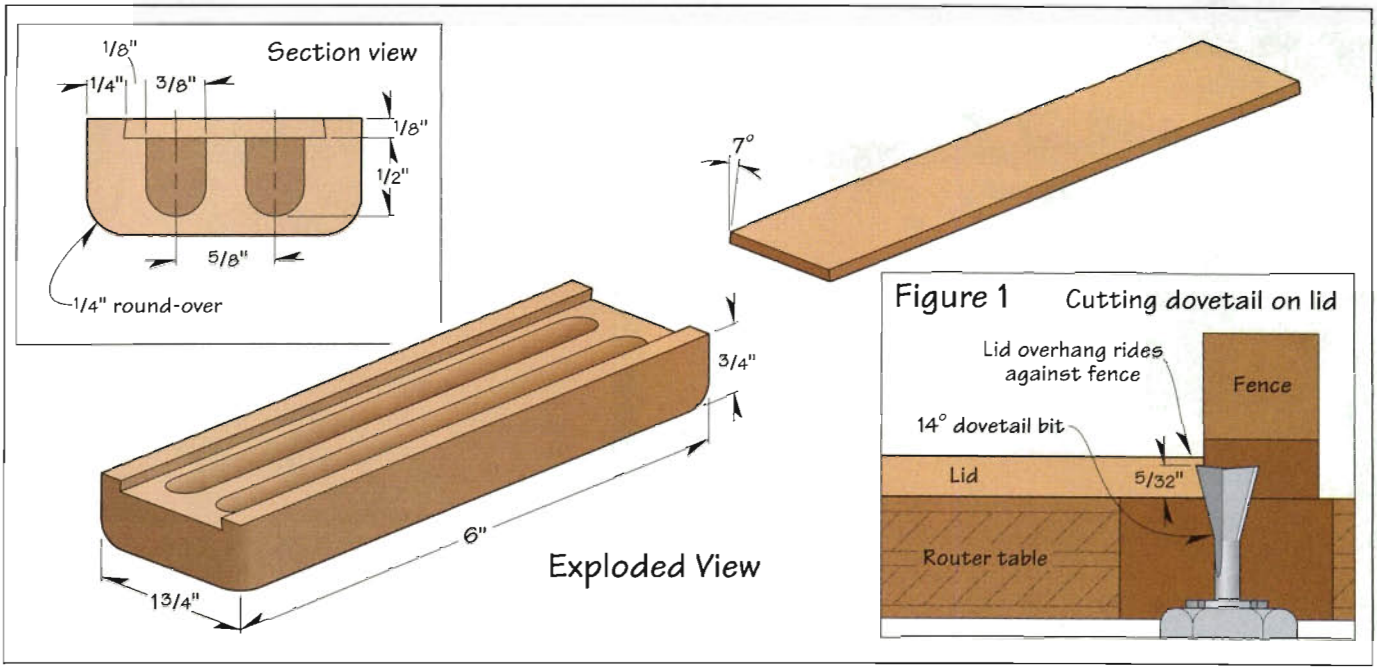


Figure 1 Cutting dovetail on lid

PRO TIP

A Note On Router Safety

Routing stopped cuts on a router table can be dangerous unless you follow a few precautions. First, never attempt to rout away too much material in one pass. This only invites kickback. For each pass, raise the bit no more than ⅛"—make it less if you feel the bit fighting against the stock. Second, never place your hand or fingers directly above the bit. Even if you have a lot of wood between the bit and your fingers, a kickback could snap the workpiece out from under your hand, exposing your fingers to the cutter. Use push blocks, paddles, or other devices to control and move the workpiece.

your test cuts should nibble away at just the end of the lid, not its full length. Since you sized the lid 1" over length, you can always trim away a mistake and try again.

A few thousandths of an inch will make or break the fit at this point. The lid must slide without binding, but a little friction is necessary to hold it in place; a too-loose lid will fall out of the box. Stop routing when the fit is still too snug to slide easily, then sand the angled edges of the lid to create a sliding fit. Note: Keep in mind that the finish will tighten the fit somewhat.

Slide the lid onto the box. Then, feed it through the tablesaw to remove the overhang, using a backing block behind the box to prevent the lid from being forced rearward. Now, trim the ends of the lid flush with the box ends and sand off the saw marks on the lid and box top.

Round the Corners, Then Apply Finish

Install a ¼" round-over bit in your router, and rout around the ends and bottom edges of the box. Take extra care at the ends of the box, where the bit's bearing makes the transition from the box to the lid ends. If the lid is not perfectly flush with the ends of the box it may jostle the bearing and cause the bit to gouge the workpiece.

Break the edges and corners on the box's top face, then final-sand the entire box to 220-grit. Note: Do not sand the top corners of the lid or the inside of the box groove. Next, apply your choice of finish. We used Watco Natural Danish Oil. Note: Avoid thick film finishes, which can interfere with the fit of the lid. WJ

Project design: Dick Coers
Photograph: StudioAlex
Written by Tom Jackson

DeWALT MACHINERY

$679.95
DW708K 12" Sliding Compound Miter Saw

Flip The Saw. Not The Work.

Now you don't have to pick up your material and flip it around to make the bevel cut you need. The new DW708 Sliding Compound Miter Saw bevels both left and right. And, to end frustration with out-of-square corners, the DW708 bevels beyond 45° to 48° in both directions. With unmatched vertical and horizontal capacity, the DW708 makes cuts other miter saws can't. The tall fence allows you to cut molding up to 5-1/4" standing vertically against the fence. And, the saw glides smoothly on dual vertical rails utilizing a linear ball bearing and bronze guides to easily cut stock up to 12" wide. The easy-to-see stainless steel miter scale has 11 positive stops and an unprecedented cam-action miter locking system. It's not just a miter saw. It's a DeWALT.

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DW7080	Extensions	$29.95	DW7053	Dust Bag	14.95
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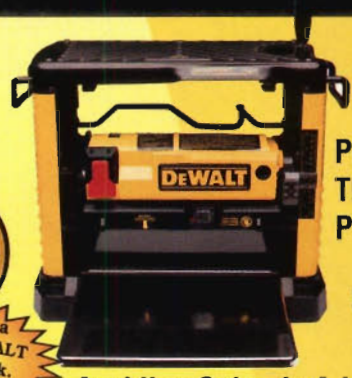
DW7084	Crown Stops	24.95			

DW733K 12-1/2" Portable Thickness Planer

$449.95



Receive a FREE DeWALT Shop Clock. $19.95 Value

Avoiding Snipe Is A Lock

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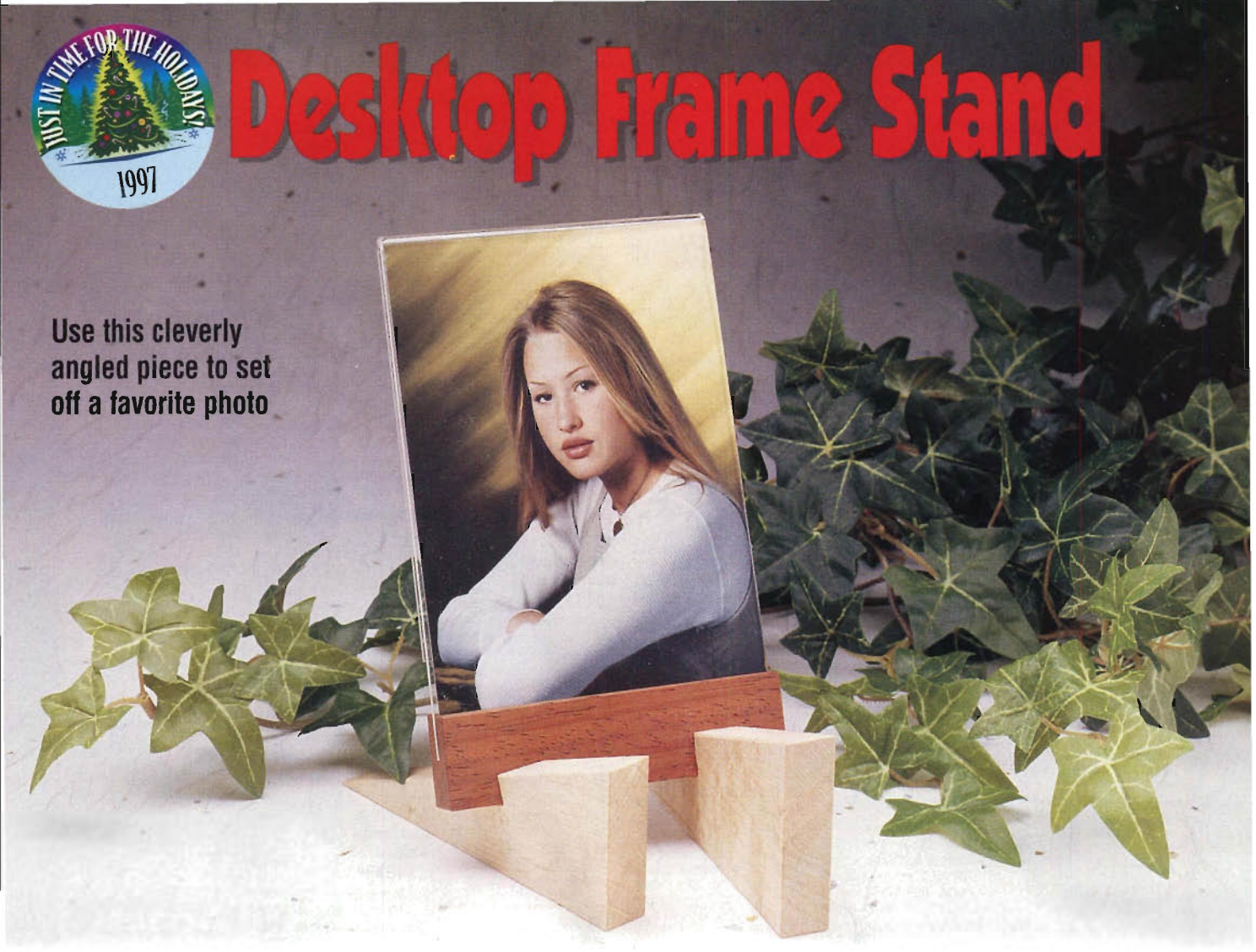
Desktop Frame Stand

Use this cleverly angled piece to set off a favorite photo



If you can't bear to throw away a single stick of wood, here's a project for you. Any reasonably well-fed scrap bin will yield enough material for dozens of these stands. Combine one with an acrylic-framed photo, and you'll have a gift that will delight anyone on your list. The compound-angled dadoes that tie these pieces together also provide an interesting brain teaser to spring on your woodworking friends.

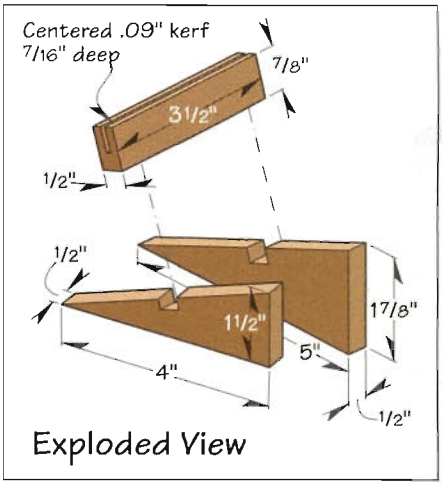
We suggest you select highly figured woods for the parts—like the bird's-eye maple and padauk we used for the stand shown *above*. You'll need one ½x2x5" piece, which you'll cut in half diagonally to make the two triangular feet, and a second piece that measures 1½x⅞x3½" for the frame holder. Note: For safety, start with pieces at least 12" long. Cut them to final length after you've surfaced them to thickness and ripped them to width.

Rough Out the Parts

Step 1. Mount a ½" dado head on the tablesaw and elevate it approximately ¼". Stand a piece of scrap stock on edge against the miter gauge and cut a slot through it. Use this as a gauge for thicknessing your stock with the planer.

Step 2. Plane the blanks for the feet and frame holder to a thickness that will just barely insert into the gauge slot you cut in the previous step. (You'll sand the stock for a smoother fit later.) Then, rip and crosscut a ½x5" blank for the feet.

Step 3. Rip the ½"-thick stock for the holder to ⅞" wide, but leave it overlength for now. Mount a thin-kerf blade (.09" wide) on your tablesaw, and rip a centered 7/16"-deep groove in one edge of the holder blank. Crosscut the 3½"-long holder. Now, carefully sand the holder and feet to 150-grit to remove any machine marks.



Exploded View

Build the Fixtures

Step 1. From a piece of ½" (or thicker) plywood and a few scraps of ¼"-thick solid stock, construct the feet-ripping fixture shown in *figure 1*.

Step 2. Set your tablesaw rip fence 5" from the blade. Using the

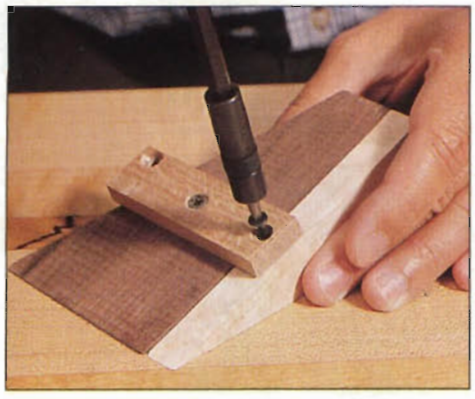


Photo A: To cut the dadoes, position the larger foot flush against one side of the fixture with its edge resting flat on the table.

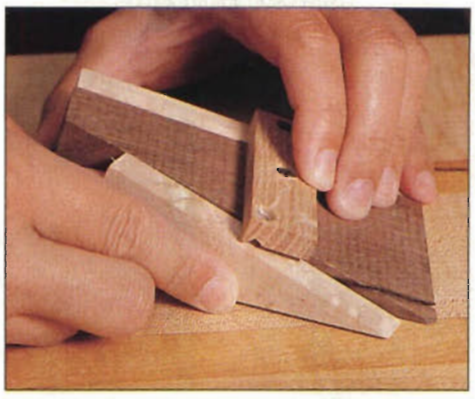


Photo B: Tilt the smaller foot up flush with the opposite side of the fixture, then slide the foot forward until its 90° corner sits tangent with the top face of the fixture.

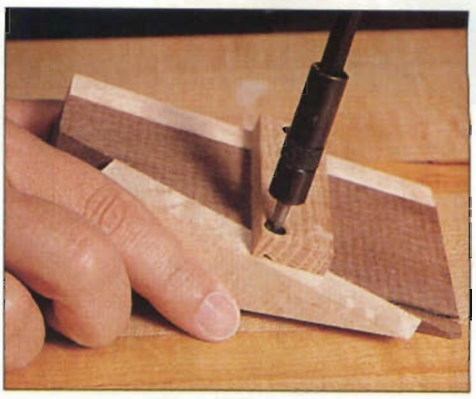


Photo C: Next, raise the top edge of the foot until it touches the cleat. Then, mark and drill a pilot hole and screw the smaller foot to the fixture.

fixture, rip the stock for the feet into two triangular sections. Then, cut the square end of the off-cut foot to 4" long to finish the second foot.

Figure 1 Feet ripping fixture

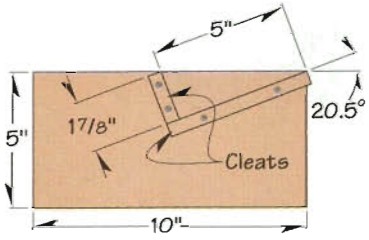
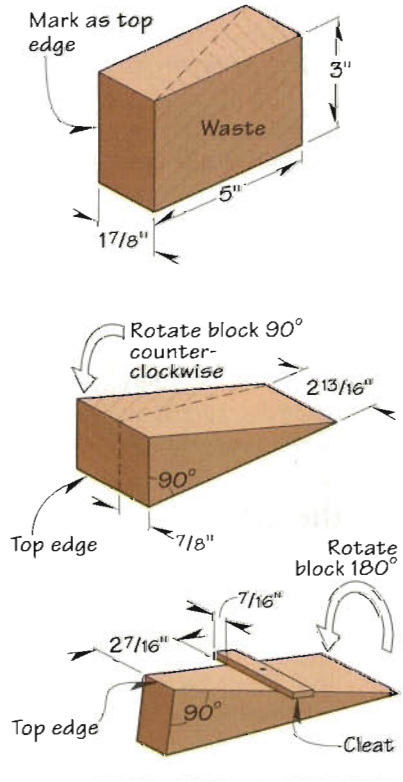


Figure 2 Dado fixture



Cut the Dadoes

Step 1. Position the larger (5"-long) frame foot on the square side of the dado fixture *(photo A)*. Then, attach this foot to the cleat with a #6x¾" screw.

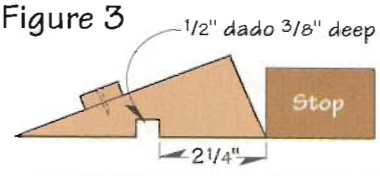
Step 2. Push the shorter (4"-long) foot up flush alongside the opposite edge of the fixture and slide it forward until the 90° top corner becomes tangent with the fixture's top face *(photo B)*. Now, keeping the corner of the foot tangent with the top of the fixture, lift the pointed end of the foot up until the top edge touches the cleat. Lay out and drill a pilot hole in the foot and screw it to the cleat using a #6x¾" screw *(photo C)*.

Step 3. Install a ½" dado head and elevate it to ⅜". Screw a wooden extension to your miter gauge that extends about 6" beyond the blade path. Set a stop on this extension 2¼" to the right of the blade. Hold the thick end of the dado fixture against the stop and slowly feed the fixture and attached feet across the dado head. (See *figure 3*).

Step 3. To build the dado fixture, start with a 1⅞x3x5" block of scrap wood. Shape the block by bandsawing two angled cuts as dimensioned in *figure 2*.

Step 4. Machine a 5/16x7/8x2⅞" cleat for the fixture. Next, drill and countersink shank holes through the cleat where shown in the photos (about ¼" in from the ends). Using a #6x¾" screw, attach the cleat to the wedge-shaped fixture block so that the cleat overhangs the square side by 7/16".

Figure 3



Sand, Assemble, and Finish

Step 1. Finish-sand the three parts to 220-grit using a sanding block to keep the surfaces flat. Also, break the edges lightly, making sure you keep them uniform. To sand the dado corners on the feet, we wrapped adhesive-backed sandpaper onto a small, thin piece of stock.

Step 2. Place a dab of glue in each dado and insert the frame holder in the feet, positioning them so that the holder overhangs the outside edges of the feet by about ½".

Step 3. Apply your choice of finish. (We used a clear penetrating oil for its ease of application.)

Step 4. Buy a 3½x5" clear acrylic photo frame. (Ours cost about $1.20 at a local crafts supply store.) Place masking tape over the front of the frame to keep it from getting scratched. Then, using your tablesaw, cut off the frame's bent bottom support piece.

Step 5. Insert the photo in the frame, then install the frame in the holder. If the fit is loose, put a small felt or fabric shim between the back of the groove and the frame. WJ

Project design: *Dick Coers*
Photographs: *StudioAlex, Randall Sutter*
Written by *Tom Jackson*

Threaded Lid Boxes

Turning a box with a threaded lid

by Bonnie Klein

Turned boxes have always fascinated me, but when I saw a box with a threaded lid in an antique store, I knew I had to learn how to make one. For several years now, this has made for an exciting research adventure. Since part of the joy of learning new things comes from sharing those discoveries with others, I'd like to show you the techniques I've developed for turning a threaded lid.

Before You Start

For this article, I'll stick with a fairly simple box. Once you get a little practice with the threading technique, however, you can run a number of variations on the design. For example, try a lid that threads into instead of over the box. Or, turn only the lid while making the box itself square or octagonal. As another alternative, try a non-wood material or one of the new resin-impregnated wood products. Use these ideas to spark your own creativity!

You'll need a threading jig, which you can either purchase or build. I'll explain the steps in general terms that apply to any of these devices. (Editor's note: For a faxed set of instructions on building your own jig, or to find out more about ordering Bonnie's jig, see Source at the end of the article.)

To add the perspective of a skilled woodworker who's trying threaded boxes for the first time, I've asked *Woodworker's Journal* craftsman Dick Coers to contribute his notes, which you'll find *opposite*. Dick also shows you how he customized the basic box with a spalted-maple inlay.

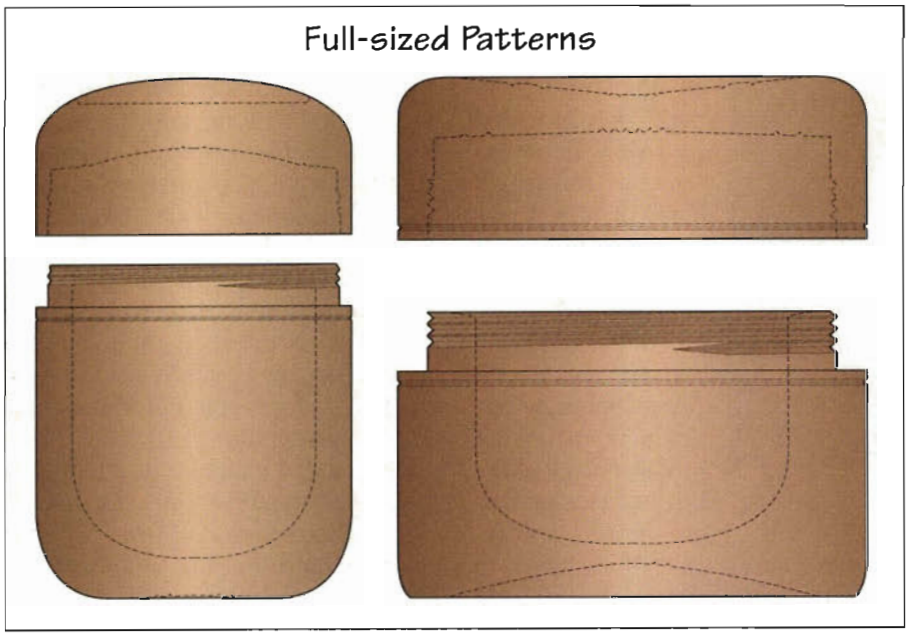
Prepare the Workpiece

To make a small box, first prepare a turning blank at least 2" square and approximately 2½" long. For minimal distortion after turning, cut and mount the piece so the grain runs parallel to the longitudinal axis of the lathe. Mark a "lid" end and mount that end on a faceplate. I adhere a ¾"-thick pine block to the faceplate using double-faced tape, then bond the workpiece to the block using cyanoacrylate (CA) glue. With this setup, you never have to worry about running into the screws with your tools, and you can use the block over and over again until you've cut all the way down to the tape.

Turn the blank to a 2"-diameter cylinder, then true up the end and sides. The bottom must be perfectly flat for mounting later on a faceplate. Determine the proportions you want to use for the lid and box (2/5 or 3/5 looks nice), allowing some for the width of the parting cut. You should also plan your design so that the lid is no less than ¾" long. Then, part the box from the lid. I make a habit of labeling the box's bottom end to ensure that I don't accidentally reverse the box when remounting it later.

Turn the Lid

Clean up the parting cut on the lid, but don't remove any more material than you have to. The less wood you cut away, the better the grain match you'll have between the two parts. To shape the inside of the lid, form a recess equal in depth to five or six rows of threads (5/16" to ⅜"). Make



sure the sides are straight and that they run parallel to the lathe axis. Check the sides with a small straightedge to see that the wall thickness is even *(photo A)*, and measure the wall to be sure that it's at least ¼" thick. Anything thinner will cause problems later on.

To create enough clearance for the lid to screw on completely, turn a step at the start of the female threads (usually in the lid) or at the end of the male threads (usually on the box). I prefer to cut the step on the lid because it's less work and also makes it easier to center the lid on the box. Make this step equal in width and depth (1/16 x 1/16") to one thread. (See *figure 1.*)

At the top edge of the step, cut a 45° bevel where the first thread will begin. Otherwise, you'll end up with a very thin thread at the start. Before cutting the threads, I sometimes like to flow some low-viscosity CA glue over the area to be threaded. On coarse-grained woods that don't take a crisp edge, the CA soaks into the fibers and adds strength to the thread tips. Now, final-sand and finish the inside of the lid (before threading).

Cut Threads In the Lid

Remove the faceplate and workpiece from the headstock, and screw it onto the threading-jig spindle until it's snug against the flange. Set up the threading jig and cutter so the teeth just brush the area to be threaded. Then, back the workpiece out of the way and adjust the setup to leave very tiny flats on the thread tips. You can determine this by mak-

Notes From a First-Time Threaded Box Maker

I found Bonnie's instructions easy to follow and can't think of any way to improve on them. But since I've been invited, I won't pass up the opportunity to tell you about my first experience with turning threaded boxes.

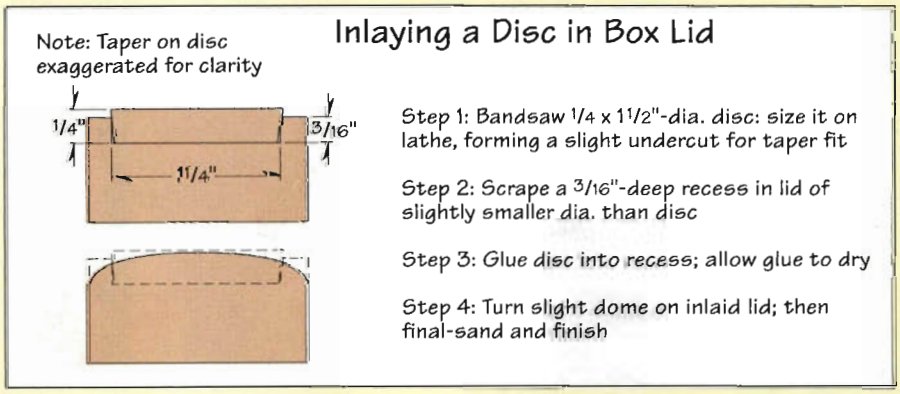
Using a 16 tpi jig, I found that five to six rows of threads measure 5/16" to 3/8", or 1/16" per full thread as you'd expect. Keep these numbers in mind when you size the area to be threaded inside the lid. (Note: 10- and 20-tpi jigs are also available.)

As for tools, I used a four-jaw chuck to hold the parts. I sized the outside diameters with a 3/8" spindle gouge and roughed out the interiors using a ¼" bowl gouge. To true the interior sides and radius into the bottom, I used a ½" roundhead scraper. Bonnie recommends removing minimal stock when separating the box from the lid, so I used a 1/16" parting tool for this.

I took up Bonnie's challenge to get creative and added an inlay to the box lid. (See the drawing *above.*) If you'd like to try it, find a piece of highly figured wood that complements the box material. (For my cherry box, I chose spalted maple.) Surface the stock to ¼" thick, then cut a slightly oversized disc: about 1½" for a 1¼" finished diameter.

Adhere the disc to a flat piece of scrap using double-faced tape, then mount the scrap on a faceplate. Size the disc with a square scraper or skew, adding a very slight undercut (2° or 3° at most) for a taper fit. Then, with the box and lid mounted on the lathe, scrape out a recess in the lid that's slightly smaller than the disc's widest diameter. Note: In this scale, the fit must be perfect—no gaps allowed!

Glue in the disc and allow the glue to dry. Turn a slight dome on the inlaid lid as shown, then final-sand and finish it.



Dick Coers

Dick Coers
WJ designer/craftsman

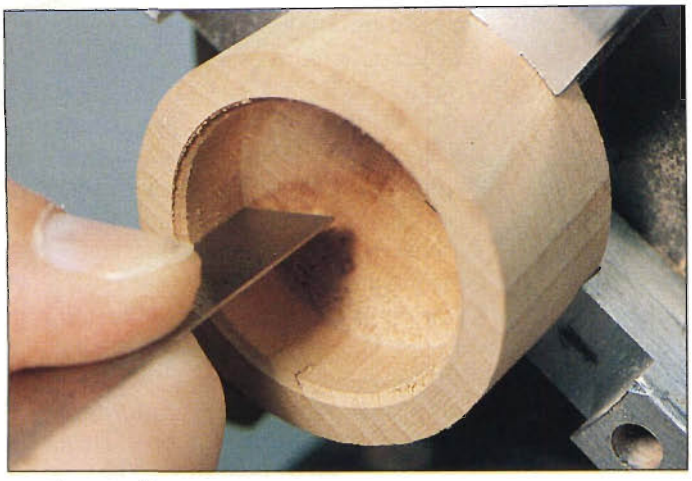


Photo A: Check the inside wall of the lid to make sure it is perfectly flat.

ing a few trial-and-error passes; if you're cutting 16 tpi, aim for a depth of .037". See *photo B*.

Depending on your type of cutter and lathe speed, you may be able to cut the threads in one pass. However, you'll occasionally have to go back and cut them just a bit deeper. Cut at least five or six rows of threads in the lid. I get the best results by cutting only in one direction—either while advancing the lead screw or while backing it off. Note: If you "climb cut" on the male thread, it will tend to unscrew the faceplate from the spindle, so for this operation make sure the faceplate is tight and wrap your hand around it just in case.

Your cutter type, cutter rpm, and the hardness of the stock will determine how fast to feed the workpiece. With some woods, too slow a feed will result in burn marks.

Remount the faceplate and workpiece on the headstock. Sand the threaded area very lightly to remove any small burrs or fuzz. I prefer to leave the threads unfinished, because any moisture in the finish will expand the fibers. Also, some finishing products make the threads sticky. A little wax works well on certain woods, but avoid applying anything that will interfere with the fit.

Set the lid aside for now, but leave it attached to the faceplate until you've turned and fitted both parts.

Turn the Box, Then Thread It

Mount the box on a second faceplate with the bottom end facing toward the headstock. Accurate re-centering on this new faceplate is critical here to avoid reshaping or thinning the box. True the sides and top end, again removing only the bare minimum from this end to ensure grain continuity with the lid. To determine the box tenon's outside diameter, measure the threaded interior of the lid, and add enough to this dimension to ensure that the threads will mesh properly. For 16 tpi, add approximately 3/64" or .045".

Cut a preliminary tenon on the box about 1/16" long and just a hair larger than the required diameter. This will give you an idea of how thick to make the walls. Note: The shape of the box will occasionally change as a result of sanding heat and moisture absorbed from finishes. To allow for this, turn out the interior of the box, then sand and finish it before you cut the actual tenon and threads.

Using a dial caliper, cut a tenon to the actual diameter you determined earlier. (See *figure 2.*) I prefer the lid to screw onto the box in about one-and-a-half revolutions, so I make the tenon long enough for only three or four rows of threads (about 3/16" to 1/4"). As on the lid, turn a 45° bevel where the threads are to begin, and apply low-viscosity CA for strength.

With the faceplate mounted on the threading-jig spindle, adjust the setup to produce the desired thread depth (.032" for the first pass)—see *photo C*. Proceed carefully—it usually takes only two or three revolutions of the workpiece. Cut any farther and you risk cutting into the shoulder. I always check the fit of the lid before removing the workpiece or moving the jig longitudinally. This would change the orientation of the threads to the cutter, making it tricky (though not impossible) to realign them in case you should need to make another pass.

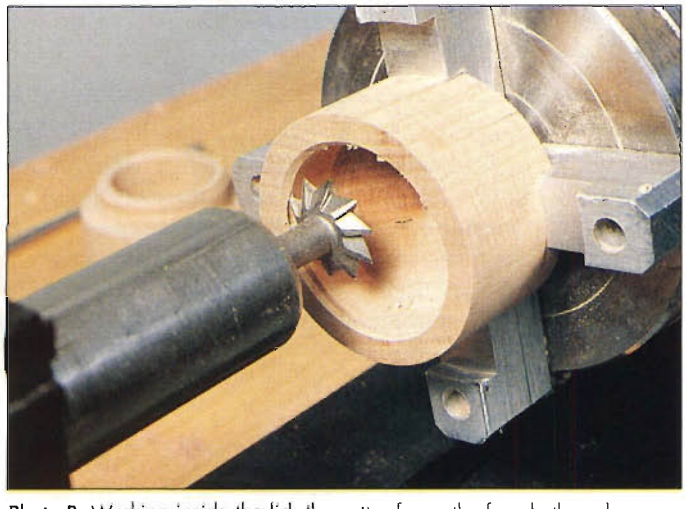


Photo B: Working inside the lid, the cutter forms the female threads.

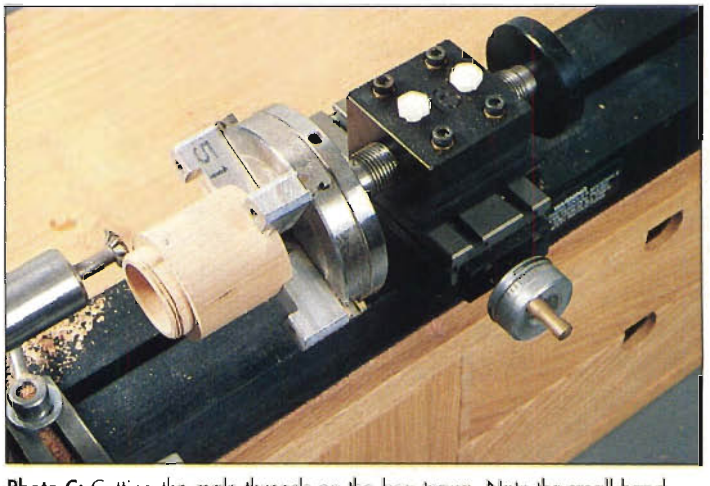


Photo C: Cutting the male threads on the box tenon. Note the small hand wheels on the jig which advance and rotate the work piece.

Figure 1 Sectional profile of lid before/after threading

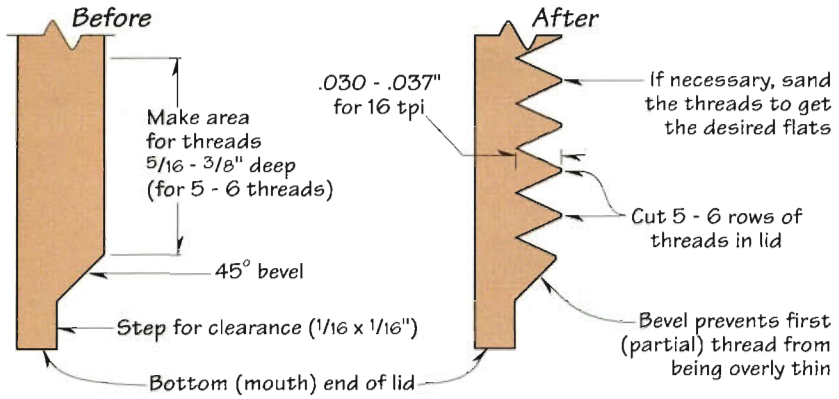
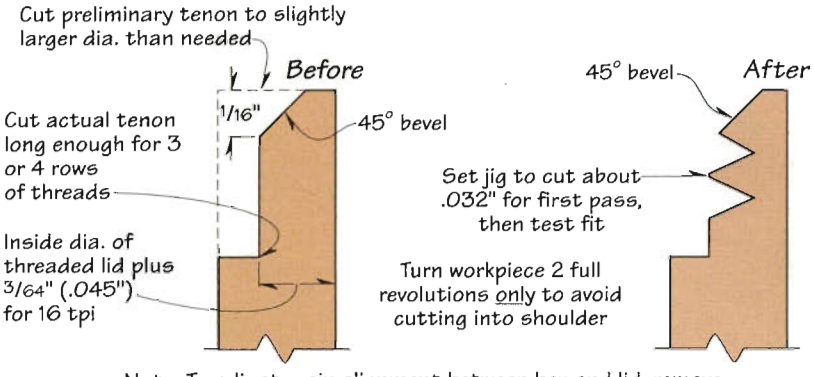


Figure 2 Sectional profile of box tenon before/after threading



Note: To adjust grain alignment between box and lid, remove slight bit of stock from shoulder after threading

Align the Grain, Then Finish

When you've achieved a satisfactory fit, remount the faceplate and box on the headstock. Lightly sand the threads, then screw on the lid to check the meshing action.

To ensure grain continuity on the completed box, unscrew the lid from the box just enough to bring the grain into alignment on the two parts. Make a small pencil mark across both. Then, adjust the fit so that the lid will screw down tight just at the point of alignment. To do this, remove the lid and turn on the lathe. Carefully cut away a minute amount of stock from the shoulder on the box, checking the fit of the lid as you work.

Note: It's best to stop a little short of perfect alignment—approximately ¼". As you remove and replace the lid the first several times, the threads will wear slightly, which usually brings the two parts close to perfect alignment. If after a few days the fit still needs fine-tuning, remove a small amount of material from the end of the lid by rubbing it on a piece of fine-grit sandpaper adhered to a flat surface.

Replace the lid on the box, then final-shape, sand, and finish the box exterior (except for the bottom). If you like, you can finish the interior, but take care not to get any finish on the threads—this could gum up the fit. Next, part the box from the pine block. Turn a ¼"-long friction-fit tenon on the block to form a jam chuck for the bottom of the box, trial-fitting the box as you work. Now, fit the mouth of the box securely onto the tenon. Final-shape and detail the box bottom, then sand it and apply finish.

For a finish, I like shellac followed by paste wax. Both go on while the box is spinning on the lathe. You may also want to consider signing and dating the bottom of your box. WJ

Photograph: Randall Sutter

Meet the Author

Bonnie Klein started a small revolution about eight years ago when she introduced Klein Design mini-lathes. Since then, she has traveled all over the world demonstrating and teaching the art of small-scale woodturning. According to Bonnie, the mini-lathes have become quite popular with woodworkers who demonstrate at craft fairs, or who like to take their lathes with them on vacation or when going south for the winter.

Sources

For more information on Bonnie Klein's mini-lathe, threading jig, and accessories; or for a free plan for making your own threading jig, or for information on her classes contact:

Klein Design Inc.
17910 SE 110th St.,
Renton, WA 98059
Telephone: 425/226-2756
Fax: 425/226-2756

Carved Bandsaw Box

The snowflake design adds a distinctive touch to this useful desk or dresser-top accessory

Before You Start

You can build this box from almost any 8/4 hardwood or softwood. Basswood, butternut, jelutong, white pine, and poplar carve the easiest. If you're fairly experienced at carving in different woods, you may want to tackle walnut or cherry.

The lid can be made of the same species or from a wood with a contrasting color such as the basswood we show here in combination with walnut. If you use the same species, cut the lid from the same block as you use for the box sides and bottom. Doing this gives you an attractive grain pattern that runs the full height of the box.

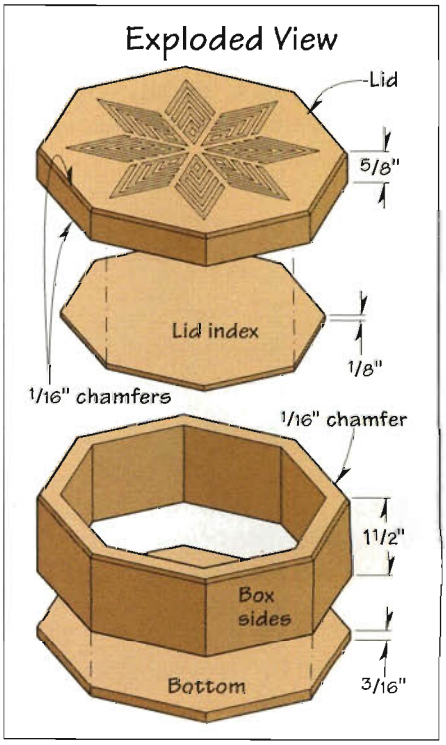
To do a good job of carving, you'll need a chip-carving knife, but (as tools go) they're relatively inexpensive. See Sources at the end of the article for more information about supplies for carving the lid.

Shape the Basic Box

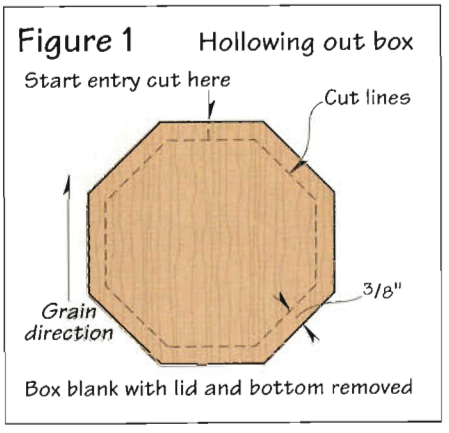
Step 1. Rip and crosscut a piece of 8/4 stock into a square 4" to 5" wide. At the same time, machine some ⅝"-thick stock to the same dimensions for the lid. Adhere the lid stock to the box stock with double-faced tape, carefully aligning the edges of the two pieces as you join them. Now, lay out an octagon on the lid by following the instructions on the page *opposite*.

Step 2. Cut the taped-together box and lid into an octagon using a tablesaw or a miter saw. Be careful when cutting a multi-sided object like this as it may want to twist under pressure from the blade. You could also cut just outside the lines with your bandsaw.

Step 3. Sand the edges of the box and lid assembly to clean up the saw marks. Take care to keep the sides even in length. Then remove the lid and clean up any adhesive residue with mineral spirits.



Sandpaper taped to a flat surface enables you to flatten parts and remove saw marks without rounding over the edges of the workpieces.



Step 4. Lightly mark a line across the full width of one of your eight sides for later alignment of the box with its bottom. Now, cut a ¼"-thick slab off the bottom of the box using a resaw blade on your bandsaw. This slab will become the bottom of the box. Sand the faces of both the offcut and the box blank to flatten the surfaces and remove saw marks. If you don't have a stationary sanding machine, use sandpaper taped to your benchtop to keep the sanded surfaces flat. (See the photo *above*.)

Hollow Out the Box

Step 1. To define the interior walls of the box, draw lines on the top of the box blank (not the lid) parallel to and ⅜" in from the eight sides.

Step 2. Mount an ⅛"-wide blade on your bandsaw and cut out the inside of the box by following the lines marked in the previous step. To make your entry cut, follow the grain direction, as shown in *figure 1*. Keep the blade tight to the lines and avoid gouging the center waste section with the bandsaw blade. You'll need it in the next step.

Step 3. Remove the center waste section and lightly sand its edges to remove the saw marks. Next, turn this piece on edge and saw an ⅛"-thick slab from one face using a bandsaw rigged with a resaw blade. This offcut will become the lid index as shown on the Exploded View.

Step 4. Apply glue to the entry-cut kerf on the octagonal ring. Then, squeeze the joint together by gently tightening a clamp across the center of the ring perpendicular to the kerf.

Step 5. After the glue cures, flatten the top and bottom edges of the ring (if necessary) by sanding with sandpaper taped to a flat surface. If you don't intend to flock the inside of the box, finish-sand the inside walls of the center section, and the inside faces of the bottom and top.

Assemble the Parts

Step 1. Lay the lid upside down on your bench and place the inverted box on top of it with the edges aligned flush. Now, drop the lid index through the opening in the box, center the index, and remove the box.

Step 2. Clamp the lid index in place. Drill two small holes about 2" apart through the index and about ⅛" into the lid. Size the holes to match the diameter of the smallest brass brad that you have. (The brads position the index on the lid and prevent it from slipping under the pressure of the clamps.)

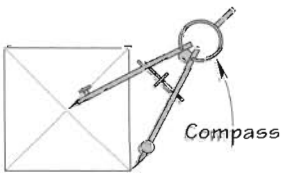
Step 3. Apply glue to one face of the lid index, lay it on the lid, and insert the brads through the index and into the holes in the lid. Clamp the index to the lid. Use clamping cauls if necessary to evenly distribute the clamping pressure. Remove the brads after the glue has developed enough tack to prevent slippage but before it has fully cured.

Step 4. Glue the bottom piece that you cut earlier to the box, making sure that the alignment marks meet on the marked edge.

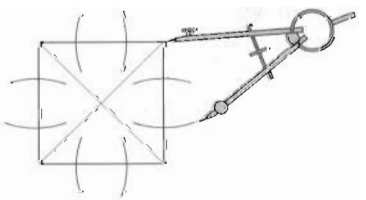
Step 5. After the glue cures on both the bottom and lid-index assemblies, use double-faced tape to adhere the lid to the box and sand all of the edges flush again. Take care not to deform the shape of the box.

How To Layout An Octagon

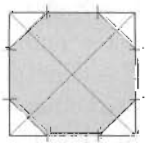
Step 1 – Draw a square the same size as intended octagon



Step 2 – Find the center using diagonal lines and set compass to distance between the center and a corner



Step 3 – Place compass point in each corner and draw arcs that intersect the sides of the square



Step 4 – Connect the diagonal lines between marks to complete the octagon

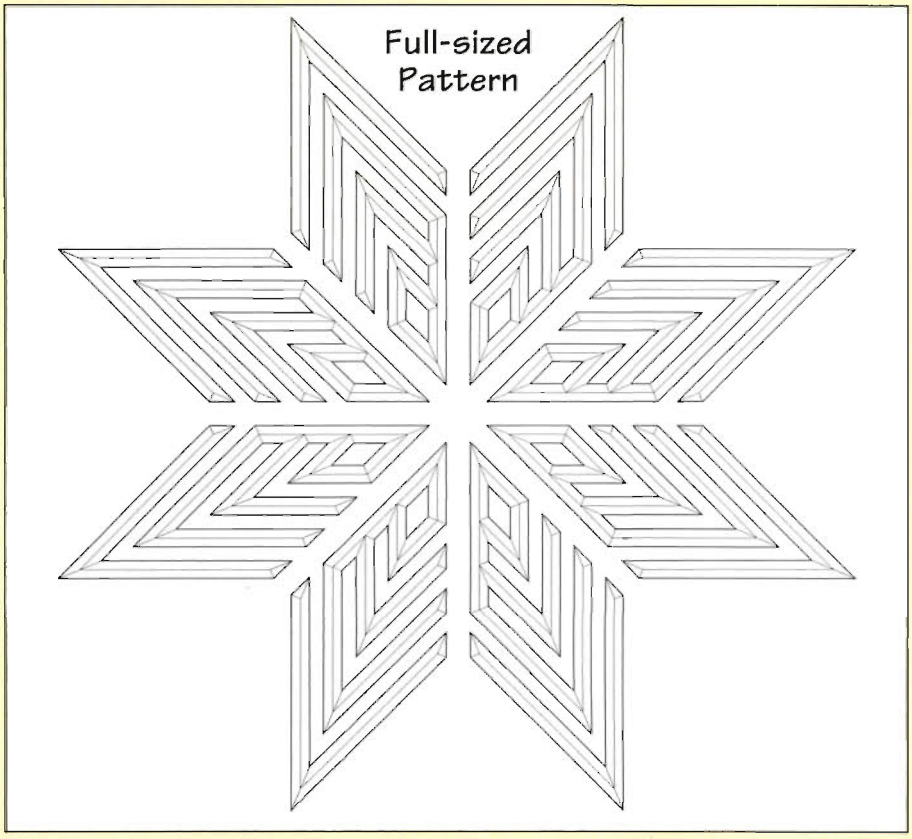
Carving a Snowflake With a Special Meaning

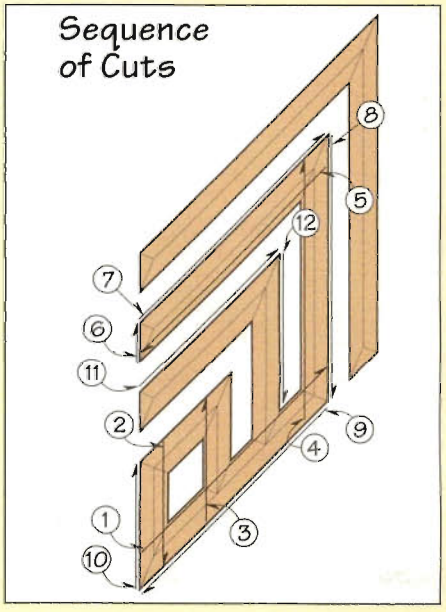
The snowflake pattern on our octagonal box lid is an example of Near Eastern calligraphy that designer Craig Moro encountered while studying the Arabic language. Each of the eight segments consists of stylized letters that spell out *The God* or *Allah*, a phrase usually associated with Muslims, but also understood by Arabic-speaking Christians and Jews referring to the same divine reality. The individual letter segments that spell out Allah are shown in the drawing below the full sized pattern.

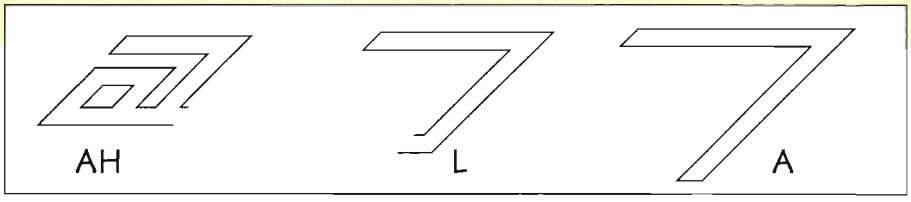
Craig used straightforward chip-carving techniques to make the pattern. This particular design requires only one tool, generally refered to as a "cutting knife."

Craig carves the sidewalls of these incisions at about a 65° angle, forming a V-shaped trough. For a more extensive discussion of chip-carving techniques, see the March/April 1996 issue of *Woodworker's Journal*, page 41. Also, see Sources *below* for information on carving tools.

You can adhere the pattern to the box lid several different ways. We prefer to photocopy the pattern, draw right-angle centerlines (for alignment) along the main axes, then adhere the pattern to the lid with spray adhesive or a glue stick. Make your knife cuts directly through the paper. For best results, carve the three linked letters in the sequence shown on the drawing *below*.







Finishing Details And Carving

Step 1. Mount a 45° chamfer bit in a table-mounted router and adjust the fence flush with the edge of the bearing. Then, rout a 3/32" chamfer on both the top and bottom edges of the lid and the top edge of the box.

Step 2. Carve the pattern shown *above* (or pattern of your choice) using the techniques described.

Step 3. After carving, sand all of the parts to 220-grit, then apply the finish of your choice. (We sprayed on three coats of semi-gloss lacquer, rubbing it out between coats with steel wool. To finish the box interior, we applied DonJer spray flocking. See Sources *right*, for materials.) WJ

Project design: *Craig Moro*
Photographs: *StudioAlex, Randall Sutter*
Written by *Tom Jackson*

Sources

These sources offer a good selection of chip-carving knives, books, and carving accessories:

Lee Valley Tools
800/871-8158

Woodcraft
800/225-1153

Woodworker's Supply
800/645-9292

For spray-flocking supplies and tools, contact:

DonJer Products Corp.
800/336-6537

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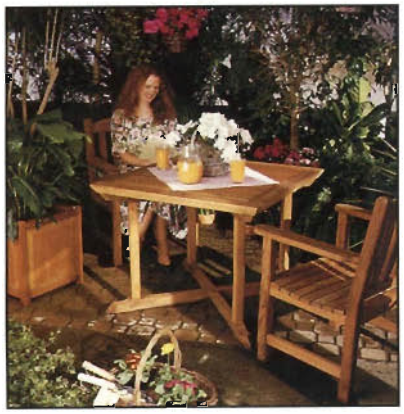
English Garden Set May/June '90



Weaver's Chest Jan/Feb '90

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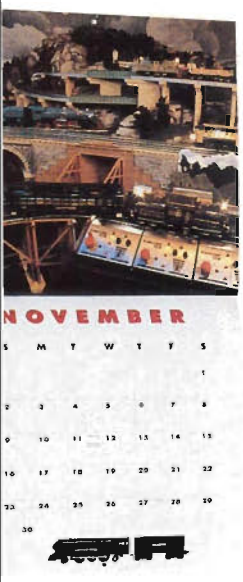
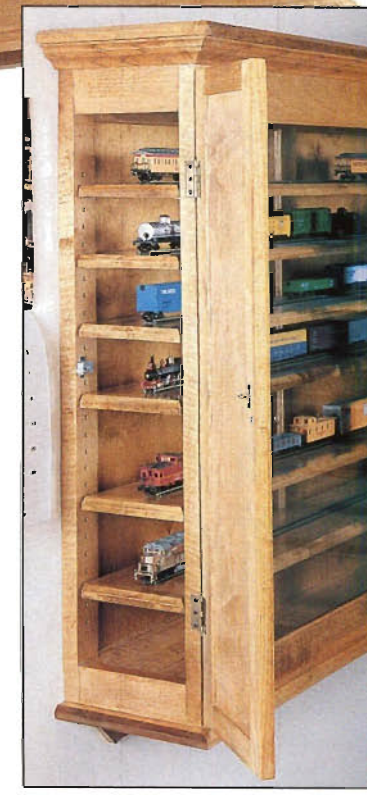
Collector's Cabinet

A showcase that adapts to almost any hobby





Our associate art director, Keith Griepentrog, built this piece for a father who had taken up model railroading. Keith noticed that his dad's HO-scale trains were looking more prized than organized, so he designed this cabinet as a combined storage and display case for rolling stock that's not currently in use. The end-mounted doors and large glass panes provide easy reach-in access and high visibility, which makes it ideal for trains, and small collectibles of any kind.

Prepare Frame Parts, Then Assemble the Frames

Step 1. Face-joint and plane rough sawn 5/4 stock for the frame parts to 1" thick. (Keith used curly maple.) From this material, rip and crosscut four stiles (A), two middle stiles (B), four top rails (C), four bottom rails (D), two top end rails (E), and two bottom end rails (F) to the dimensions listed in the Bill of Materials.

Step 2. Group the stiles and rails (A, B, C, D) into a front and a back frame, arranging the parts for best grain and color match. (See the Front/Side View drawing on *page 75.*) Identify each piece to avoid errors.

Step 3. Set up your table-mounted router with a stile-and-rail bit to cut the cope-and-stick joints on the main frame parts (A, B, C, D) See *figure 1.* Note: For this joint to work on 1" stock, you also have to trim the back of the rail after routing as shown. Remove the excess material with your tablesaw. Test your setups on scrap. Then, cut the cope on the rail ends (C, D) using a backing block to minimize tearout. Finish by cutting the sticking profile on the inside edges of all frame parts.

Step 4. Dry-assemble the front and back frames. Check the fit and adjust if necessary.

Step 5. Glue, assemble, and clamp the front and back frames. Check for square and flatness. (We assembled half of each frame first, then, after the glue had dried, added the remaining half. To avoid damaging the routed edges of the middle stiles with the clamps, we used pieces of our cope-test material as clamp pads.)

Step 6. If possible, choose the wall location for the cabinet now. Then, locate the wall studs and mark corresponding centerpoints on the back frame's top rail for mounting screws. Drill and countersink 3/16" shank holes through these points to align with the studs. Now, place the back frame on the wall, level it at the desired height, and then drill pilot holes into the studs, using the shank holes as guides.

Bill of Materials

Cabinet

Part	T	W	L	Mtl.	Qty.
A Stiles–outer	1"	2⅝"	37¾"	M	4
B Stiles–middle	1"	2¾"	37¾"	M	2
C Rails–top	1"	3¾"	24⅛"	M	4
D Rails–bottom	1"	2⅝"	24⅛"	M	4
E End rails–top	1"	3¾"	7"	M	2
F End rails–bottom	1"	2⅝"	7"	M	2
G Base*	¾"	10"	58"	MP	1
H Top panel*	¼"	9"	54½"	MP	1
I Crown rail–front*	¾"	3"	58½"	M	1
J Crown rail–ends*	¾"	3"	11"	M	2
K Crown molding–front*	15/16"	2⅛"	57½"	M	1
L Crown molding–ends*	15/16"	2⅛"	10½"	M	2
M Door stiles	¾"	1½"	36"	M	4
N Door rails	¾"	1½"	6Ⅼ⅜"	M	4
O Door panels	¾"	6Ⅼ⅛"	33Ⅼ⅛"	M	2
P Glass/panel stops	5/16"	⅜"	32⅛"	M	16
Q Back panels	¼"	24"	32⅛"	MP	2
R Shelves+	¾"	6¾"	54"	MP	6
S Support cleat	¾"	2"	52"	M	1

* Parts cut to final size during construction. Please read all instructions before cutting.

^Multiple lengths required. Length listed is for longest part needed.

+Includes 1"-wide maple edging on ends, front edge

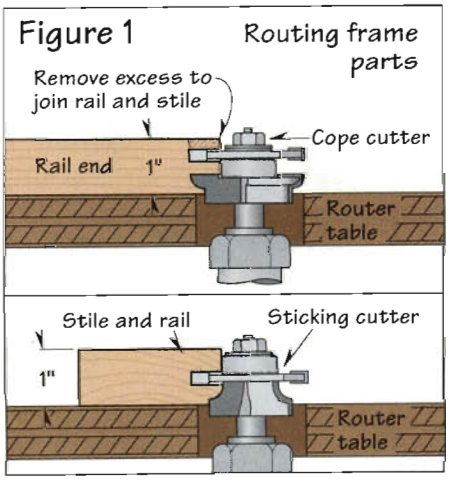
Materials List

M–maple
MP–maple (or birch) plywood

Supplies

#20 biscuits; crown molding (2–2¼" wide); #6x¾", #8x1¼", #10x2½" flathead wood screws; #4x½" brass flathead wood screws; 1¼" brads; 2x1¾" brass butt hinges (4); ⅝"-dia. brass knobs (2); ¼"-dia. brass-finish shelf supports (36); magnetic door catches (2); stain; finish; double-strength glass (2 panes cut to fit).

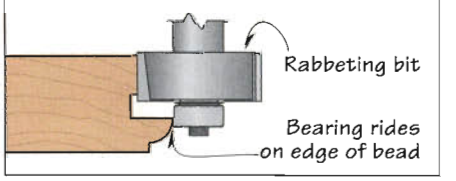
Figure 1 Routing frame parts

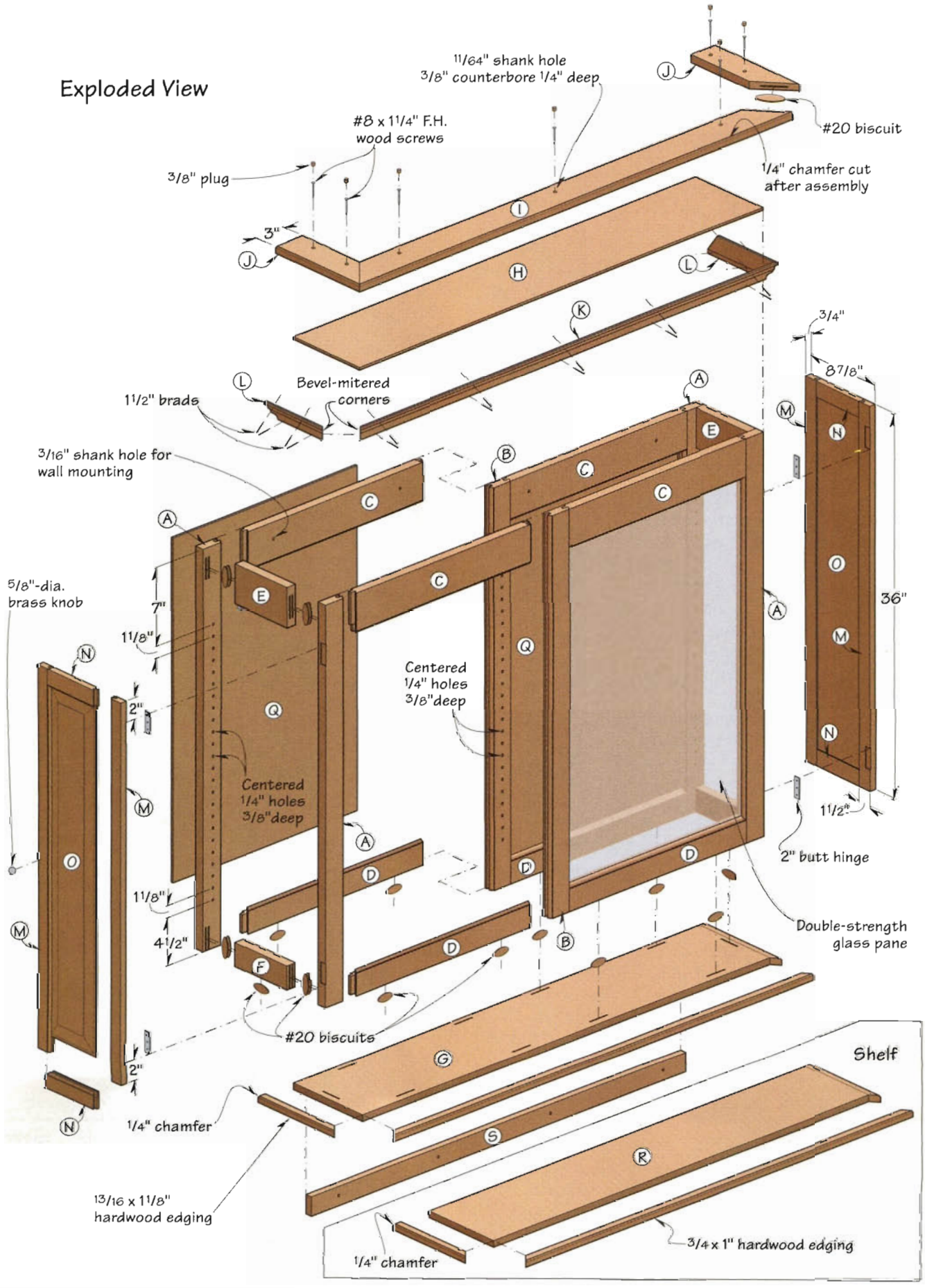


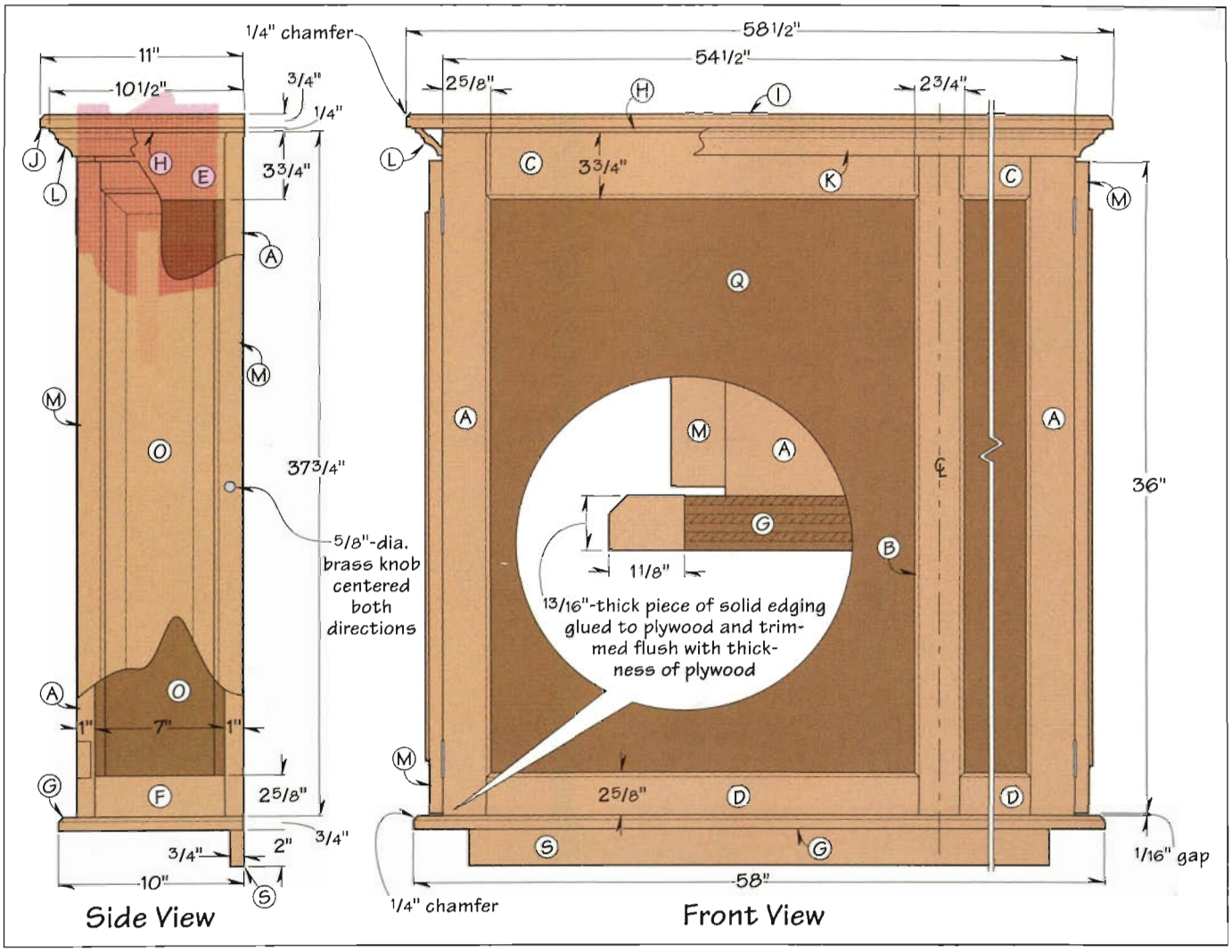
Join the Two Frames

Step 1. Using a rabbeting bit, rout around the back edge of both openings in each frame. (See *figure 2.*) These rabbets accept the glass panes (front frame) and plywood panels (back frame).

Figure 2 Routing glass rabbet




Exploded View
11/64" shank hole
3/8" counterbore 1/4" deep
#8 x 1 1/4" F.H.
wood screws
3/8" plug
#20 biscuit
1/4" chamfer cut
after assembly
3"
J
I
H
L
K
3/4"
87/8"
L
Bevel-mitered
corners
1 1/2" brads
3/16" shank hole for
wall mounting
A
B
C
E
M
N
O
36"
5/8"-dia.
brass knob
7"
1 1/8"
2"
Q
Centered
1/4" holes
3/8"deep
Centered
1/4" holes
3/8"deep
D
F
1 1/8"
4 1/2"
#20 biscuits
1 1/2"
2" butt hinge
Double-strength
glass pane
Shelf
G
S
R
1/4" chamfer
13/16 x 1 1/8"
hardwood edging
3/4 x 1" hardwood edging
1/4" chamfer



Step 2. Lay out and drill ¼" holes ½" deep and about 1" on center for the shelf support pins in all three stiles of both frames where dimensioned on the Exploded View drawings. To do this, use a twist bit, a depth stop, and a strip of perforated-hardboard as a template. Note: Drill the back face of the front frame and front face of the back frame. Always index the template from the bottom so all holes will align.

Step 3. Lay out and cut double #20 biscuit slots to join the end rails (E, F) to the front and back frames. (For locations, see the Side View drawing.) Note: Let the cutter break out through the bottom edges of the bottom rails (F).

Step 4. Finish-sand the inside faces of the frames. Next, dry-assemble the two frames to the end rails and check their fit. Then, glue, biscuit, and clamp the frames and end rails to join form the cabinet frame. Check for square and twist.

Step 5. To make the base (G), first measure the actual width and length of the assembled cabinet frame. Subtract ⅛" from the width and add 1¼" to the length. (This will place the seam lines between the panel and its edging—underneath the frame parts and out of sight.) Cut the panel to these dimensions from ¾"-thick maple plywood.

Step 6. From 13/16"-thick maple, rip and miter-cut enough 1⅛"-wide stock to edge the front and ends of the base. Glue and clamp the edging to the plywood base panel as shown in the Front View detail. After the glue has dried, trim the edging flush with both panel surfaces using a router and flush-trim bit. Then, rout a ¼" chamfer along the the top front and ends of the base. Finish-sand the base.

Step 7. Center the cabinet frame end to end on the base, aligning the back edges. Lay out and cut slots for #20 biscuits in the base and frame where shown on the Exploded View drawing. Next, finish-sand the parts to 220-grit. Now, glue, biscuit, and clamp the frame to the base.

Step 8. For the top (H), cut a piece of ¼" plywood matching the width and length of the cabinet frame. Finish-sand the panel, then glue and clamp it (better face down) to the top of the frame. Use a pair of long cauls to apply uniform clamping pressure along the edges. Be careful not to apply so much clamp pressure that you stress the frame joints.

Add the Crown Rail And Molding

Step 1. From a ¾ x 3 x 84" piece of stock, miter cut the crown rail parts (I, J) to the dimensions given. (See the Exploded View and Front View drawings.) Biscuit, glue, and clamp the joints together. After the glue has dried, sand the joints flush and rout a ¼" chamfer

along the top outside edge of the crown rail assembly. Then secure the assembly to the top of the cabinet.

Step 2. Drill the counterbore, shank, and pilot holes through the crown-rail assembly where shown on the Exploded View. Next, center the rail assembly on top of the cabinet, then drill pilot holes through the crown rails (and top panel) into the cabinet. Glue the rail assembly to the cabinet top, drive #8x1¼" flathead wood screws, plug the holes, and sand the plugs flush.

Note: For the crown molding (K, L), Keith used commercially milled stock that measured 7/16x2⅝". If manufactured crown is not available in the wood species of your choice, you'll need to substitute or shape your own molding. We recommend that you make it between 2" and 2¼" wide.

Step 3. From your crown molding, cut 12"-, 60"-, and 12"-long pieces in sequence. Bevel-miter the long piece to fit the front of the cabinet, and bevel-miter the short pieces on their front ends, leaving their back ends square and about 1" over-length. Check the fit of your beveled miters, then mark and trim the ends of the side pieces flush with the back of the cabinet. (Note: The bevel angle on the crown molding may vary depending on the profile of your molding. We suggest you cut a few test scraps and mockup an outside corner before cutting your good stock.)

Step 4. Pilot-drill 1/16" holes in the front molding along both edges, spacing them every 14" or so. Apply a thin bead of glue along the molding's edges (where it will contact the vertical and horizontal faces of the cabinet) and its mitered ends. Then nail the moldings to the cabinet with 1¼" brads.

Make and Hang the Doors

Step 1. To make the two doors, surface stock to ¾" thick. From this, cut the four stiles (M) and four rails (N) to dimension. (See the Exploded and Side View drawings.)

Step 2. Using your stile-and-rail bit set, rout the cope and stick on the door stiles and rails as you did on the cabinet frame parts.

Step 3. Dry-assemble the two door frames. Measure the opening in both doors including the grooves, and subtract ⅛" from both width and length. Then, rip and crosscut the two panels (O) to these dimensions from ⅝"-thick stock.

Step 4. Using a panel-raising bit, rout around the front edge of both panels, working to full cutting height in several passes. Note: Leave a ¼"-thick tongue to fit the groove you routed in the door frames.

Step 5. Dry-assemble the door frames around the panels to check for fit. When you're satisfied, finish-sand the door parts. If you intend to stain your cabinet, stain the door panels at this time.

Step 6. Glue, assemble, and clamp the doors, leaving the panels to float in their grooves without glue. Check for square and flatness.

Step 7. Lay out and cut hinge gains in the doors and frames for 2x1⅜" brass butt hinges (see the Exploded View for locations). To cut the gains, use the template system described on pages 52–53 of the Sept./Oct. '97 *Woodworker's Journal*. Hang the doors. Check for fit and action, and adjust as necessary.

Step 8. Drill a hole and mount a ⅝"-diameter pull on each door where shown on the Door drawing. Next, mount a low-profile magnetic catch on the front face of each rear cabinet stile. Mount the corresponding strike plate on the door. Now, remove the doors and all hardware.

Install the Panes and Panels

Step 1. To make the glass and panel stops (P), surface two 6x33" pieces of maple to ⅜" thick, then joint their edges. Tilt your tablesaw blade to 10° from perpendicular, and bevel-rip a 5/16"-wide strip from both edges. (See *figure 3.*) Set the blade back to perpendicular, reset the fence, and flip your remaining stock over (so the beveled corner won't wedge itself under the fence). Repeat this procedure, alternately ripping and bevel-ripping, until you have 16 strips.

Step 2. Measure the two rabbeted recesses on the back face of the cabinet front. Miter-cut both ends of the eight glass stops to fit.

Step 3. Subtract ⅛" from both the width and length of the rabbeted recesses you just measured. Have a glass dealer cut two double-strength glass panes to these dimensions.

Step 4. Temporarily assemble the glass panes and stops in their recesses. Lay out and carefully drill countersunk shank and pilot holes for #4x½" brass flathead wood screws through the stops and into the frame, keeping the bit perpendicular to the beveled edge of the stop. (We used a combination countersink and pilot bit to drill these holes in one step.)

Step 5. Measure the rabbeted recesses in the back frame. Cut two back panels (Q) to fit from ¼" maple or birch plywood. Fit them into the recess-

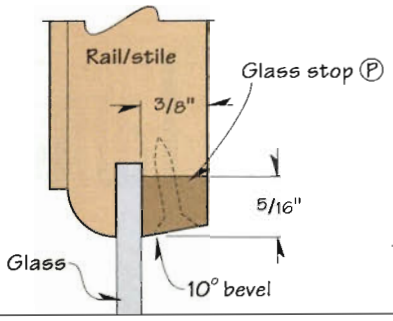
About The Designer

Keith and his dad, Dave.

Like many home woodworkers, Keith Griepentrog, the designer and builder of our Collector's Cabinet, started small and taught himself the skills he needed along the way. A graduate of Illinois State University, Keith has worked as a graphic designer for *PJS Publications* (this magazine's parent company) for 11 years. Keith was first tapped about seven years ago to produce a wooden rocking horse for one of his wife's coworkers. Working primarily with benchtop and portable tools, Keith cranks out toys including his ever-popular Lego Desk.

After he joined the staff of *Woodworker's Journal*, Keith got serious about his hobby and added a second story to his garage, creating a 24 x 24' shop—a structure that required a steel I-beam to hold the weight of the machines he rolled into his new workspace. Set up with this new shop, Keith now produces a variety of projects including turnings and furniture. His current to-do list includes a sewing cabinet for his wife, a dresser, cabinets for his living room, and an entertainment center.

Figure 3 Glass stop sectional view



es with their better faces toward the cabinet interior. Temporarily attach the stops as described in the previous step. Mark each stop's location for easy reassembly, then remove and finish-sand the panels.

Make The Shelves, Then Apply Finish

Step 1. Determine how many shelves you'll need for the items you intend to display. Cut the shelves to 6x52" initial size from ¾"-thick maple or birch plywood. Next, prepare enough ¾x1" maple stock to edge the ends and front edge of each shelf.

Step 2. For each shelf, miter one end of a 55"-long edge strip, then hold the strip against the front edge and mark the opposite end for length. Miter that end to fit. Next, miter the front end of both end strips, then rough-cut the back ends to fit the shelf. Glue and clamp the mitered pieces to the shelves.

Step 3. After the glue has dried, trim the edging flush with the shelf faces using a router and flush-trim bit. Then, rip the back edge of each shelf to 6¾" finished width. Finish-sand the shelves and lightly break the edges.

Step 4. From ¾"-thick maple stock, rip and crosscut the bottom support cleat (S) to dimension. Locate and drill counterbores and shank holes through it, based on the location of the studs in the wall. Finish-sand the cleat and any cabinet parts that still need it. From a scrap of identical stock, cut four ⅜"-diameter plugs.

Step 5. Remove all sanding dust, then apply stain and finish to the glass stops, doors, back panels, cabinet, shelves, support cleat, and plugs. (We used golden oak gel stain followed by three coats of a satin polyurethane.)

Step 6. Install the glass panes and stops working through the back of the cabinet. Then, install the back panels. Reattach the hinges to the doors, then mount the doors, knobs, and magnetic catches.

Step 7. Mount the cabinet on the wall using #10x2½" flathead wood screws in the holes you drilled in the top rails. Next, center the support cleat under the cabinet base, then drill pilot holes through the shank holes and into the studs. Hold the cleat in position and drive #10x2½" screws to attach it. Glue wooden plugs in the holes to hide the screw heads. Clean the glass, then insert the shelf supports and install the shelves. WJ

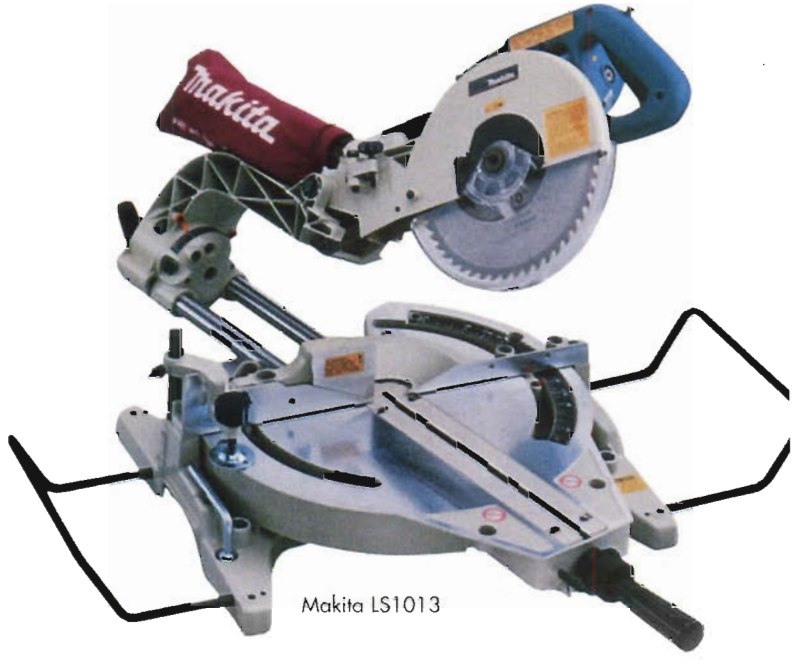
Project design: Keith Griepentrog
Photographs: StudioAlex
Written by Doug Cantwell

Two New Miter Saws Join The Slider Family

A Closer Look At DeWalt's DW708 and Makita's LS1013

by Leon A. Frechette

DeWalt DW 708



Makita LS1013

While I was finishing my review of sliding compound miter saws for the May/June '97 issue, both DeWalt and Makita released new dual-bevel models. (A dual-bevel saw tilts both right and left, which proves especially useful for bevel-cutting long pieces of trim or molding.) Although I included DeWalt's saw in the review, I didn't have a chance to test it as thoroughly as the others.

The DeWalt DW708 represents this firm's first entry into the "slider" market. The LS1013 is Makita's third sliding saw but its first with twin rails.

Both saws are manufactured in the U. S. They're powered by 13-amp motors fitted with electric brakes. DeWalt outfits the DW708 with a 12"/60-tooth blade; the Makita comes with a 10"/64-tooth blade. Both are carbide-tipped blades and of good-quality. (See the chart *below* for a side-by-side comparison of other specifics.)

DeWalt DW708

Thanks to a belt-drive mechanism, the DeWalt starts up smoothly with very little kick. Neither the loudest or quietest saw, it had ample power to crosscut a 9"-wide plank of 6/4 ash without complaint. Slots in the face of the guard enable you to see your cut line even with the blade in operation.

A tall split fence offers extra support for crown molding and vertically held

Continued on Page 80

Make and Model	Miter Angle Range	Bevel Angle Range	90° Crosscut Max. Height Resulting Width	45° Bevel Max. Height Resulting Width	45° Miter Max. Height Resulting Width	Compound Miter Max. Height Resulting Width	Estimated Street Price
DeWalt DW708	50°L/60R	48° L&R	4½" x 12.0"	3⅛" (L) x 12.0" 1¾" (R) x 12.0"	4½" x 8½"	3⅛" (L) x 8½" 1¾" (R) x 8½"	$650
Makita LS1013	47°L/52°R	45° L&R	3⅝" x 12.0"	2.0" (L) x 12.0" 1¼" (R) x 12"	3⅝" x 8½"	2.0" (L) x 8½" 1¼" (R) x 8½"	$699

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Continued from Page 78

workpieces. To lock and unlock these upper fences you simply turn a knob on the backside of the fence assembly. This system gives the DW708 a maximum cutting height of 4½", more than any other unit on the market.

With the horizontal D-shaped handle, I felt that I had positive, safe control of the saw head throughout the entire cut. I also found it easy to operate the long trigger switch using my index and middle fingers.

I really liked the easily accessible rail-lock knob and the bevel-lock lever. This lever permits fast and easy operation by either hand and can be loosened or tightened from either direction. Releasing stop pins allows overriding the stops, increasing bevel capacity to 48°.

Unfortunately, I couldn't get a good, positive lock with the lever on my test saw, even after adjusting the lever's retaining nut. For saws that have this problem, DeWalt will provide a new handle or the DW705 handle kit free of charge. Note: A different unit currently in use in the *Woodworker's Journal* shop doesn't have this problem.

On DeWalt's twin-rail carriage, the bottom rail rides in a sealed linear bearing, and bronze bushings support the top rail. Both rails have a combination of nylon bushings and wipers to keep dust and dirt out. You'll also find a knob for locking the saw head on the rail and an adjustable lever for controlled groove cutting.

The turntable glides smoothly, and I found the two-stage miter-lock lever and detent trigger comfortable and convenient to use. A squeeze of the trigger sets the miter angle, and a downward push on the miter-lock lever locks the turntable in place. The stainless-steel scales for both the miter and bevel settings are easy to read, although the width of the miter pointer made it a bit difficult for me to see the scale precisely.

DeWalt offers a dust bag, a vertical workpiece clamp, a horizontal material clamp, length stops, extension kit, and crown stops as accessories for this unit. If you're making a lot of repetitive cuts of the same length, the length stop would be useful, although you must have the extension kit installed in order to mount it. Mounting the extension kit was a bit troublesome—the screw holes in the base are not tapped which made driving the screws difficult. The vertical clamp incorporates a convenient quick-release. I probably wouldn't buy the dust bag—it collected only a small portion of the sawdust created by the saw. In a permanent installation, I'd rig some form of vacuum dust collection.

Makita LS1013

The twin-tube rails on the Makita LS1013 represent a new design for the firm—previous offerings have been single-rail saws. The horizontal rails project from the underside of the saw's base, somewhat like those on the Delta Sidekick #36-250. Both rails travel on linear bearings (rather than one on a bearing and one on a bushing). As a result, the motor carriage glides at the touch of a finger.

If you must carry or move your miter saw around very much, you'll appreciate this saw's innovative multi-function carrying handle. This handle locks the rails, secures the turntable, and disengages the positive stops. When you press down and squeeze the handle grip at the same time, a lock pin releases so you can swing the turntable to the desired location. Both right- and left-handed operators should find the handle comfortable to use. The vertical saw handle also operates conveniently with either hand. It has a full-length trigger and removable lock-out switch built into it.

With this unit, Makita has virtually mastered dust collection. The dust bag, which comes as standard equipment, collected about 90 percent of the sawdust created during my tests.

Most miter saws are loud but this unit runs out noticeably less noisey. I found the bevel scale difficult to see under the flat arm, but the bevel lever was easy to reach and turn. By design, the bevel-cutting action is a bit stiff, and you have to pull a little harder to make these cuts.

The generously sized, one-piece turntable operates smoothly and provides adequate support even for larger workpieces. The miter scale is built into the right side of the turntable and was easy to read. However, this unusual location did take some getting used to. It also has a unique pivoting fence to support taller stock and a vise to secure workpieces safely.

My Conclusions

Both saws are heavy hitters, with the size and power to handle a wide range of stock and cutting jobs. However, there's a tradeoff—neither saw offers what I consider easy portability. The DeWalt weighs in at 57 pounds without accessories, the Makita at 49 pounds. The Makita is better balanced, however, and this helps make it less of a struggle to carry.

Both machines impressed me as well-designed and built for hard, professional use. Both would be right at home in any woodshop or construction site. If you're looking for reasons to buy one or the other, I'd go with the DeWalt if I needed the extra cutting capacity it offers, whereas I'd probably favor the Makita if convenience, efficient dust collection, and ergonomics were more important to me. WJ

Sources

For more information on these tools, contact the manufacturers:

DeWalt 800/433-9258

Makita 800/462-5482

Finger Joint Bit

by Bob Colpetzer

A recent addition to its already extensive line of router bits, Jesada's (formerly known as CMT Tools) Professional Finger-Joint Bit mills joints that used to require a shaper and expensive cutters to make. This bit makes a very strong edge joint and increases glue surface. When set up properly, it aligns the board faces perfectly flush for easy panel assembly with minimal flattening after glue-up.

No lightweight, the bit measures 1⅞" in diameter and offers a maximum cutting height of 1⅜". It's available only with a ½"-diameter shank and must be used in a table-mounted router.

Look closely and you'll notice that this unusual bit has five finger-slot cutters, five spacers, one abutting-edge cutter, two washers, and a ball bearing. A nut holds the assembly together. (See *figure 1* and *photo A*.)

By removing the nut and repositioning the abutting-edge cutter, you can cut joints in stock as thin as 7/16" or as thick as 1⅜". (See *figures 2* through *4*.)

Unlike other Jesada products, this bit has a black oxide finish instead of their usual colored coating. The bit's designers left off the coating because they felt that its minute thickness might create an uneven surface and possibly affect the cutter's critical spacing.

Setting Up the Bit For Edge Joints

Before you rout the joints, the stock must be milled flat and planed to uniform thickness. The edges of the stock should be straight and square to their faces. To ensure that you get accurately aligned joints, I recommend planing a couple of scrap pieces at the same time and then using them for test cuts as you set up. When dimensioning the width of your stock, *add* ¼" to each piece to compensate for the stock that will be removed by the finger-joint bit.

Figure 1

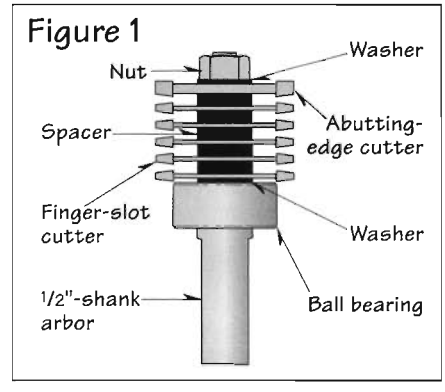
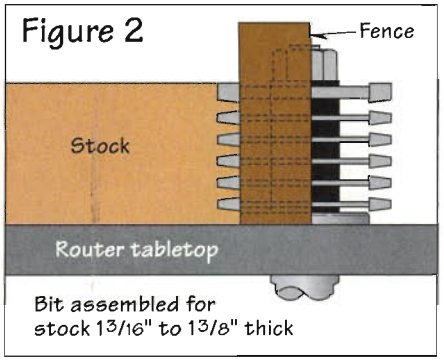


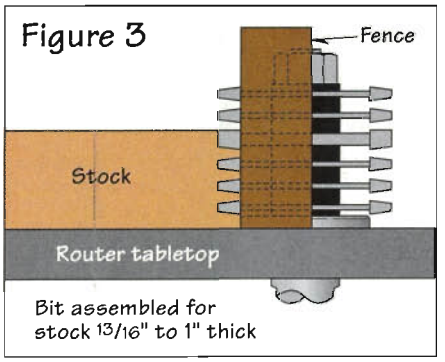
Photo A: To match your stock thickness, arrange the bit's individual cutters and spacers in different configurations on the ½"-diameter arbor.

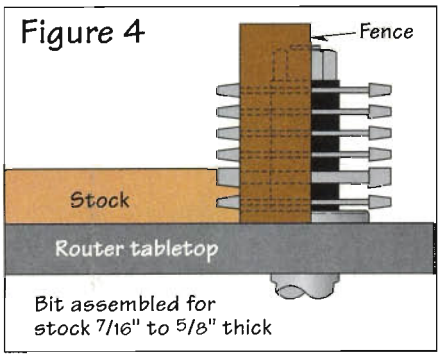
Assemble the bit with the abutting-edge cutter in the proper position for the stock thickness you're using. All cutters must match the spindle rotation when assembled. Next, mount the bit in your table-mounted router. Adjust the cutter height so that the bit centers exactly on the edge to be cut. You want the shoulder formed by the abutting-edge cutter to equal the height of the tongue left when the fingers have been formed. (See *figure 5*.)

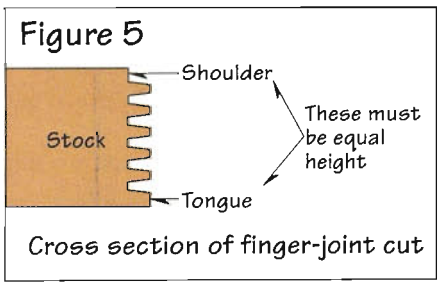
Next, install a notched fence on the router table and align its face with the bit's bearing. Set the router's speed at 16,000 to 18,000 rpm. If you don't have a variable-speed router, use an auxiliary speed control to reduce its speed to this range. Do not operate this bit at full router rpm. The excessive heat generated would shorten cutter life, burn the wood, and possibly damage the carbide tips.

Using two prepared scrap pieces, rout one edge on each piece. Flip one of the pieces over and dry-assemble them to check finger alignment. If you've set the cutter height properly, the tongue on the first piece will fit the shoulder on the second, and the faces will align perfectly. If they don't, raise or lower the cutter to









adjust the alignment. Continue making trial cuts and adjustments until you get a satisfactory joint.

Once you have the bit set up, rout finger joints on both edges of each piece to be joined. To match the profiles, flip the adjacent pieces. I plan the cuts so that the annual rings, grain direction, and grain pattern will be oriented properly when I assemble the finished pieces. To do this, I'll arrange all of the pieces in order and then mark the face of each that should lie flat on

Continued on page 84

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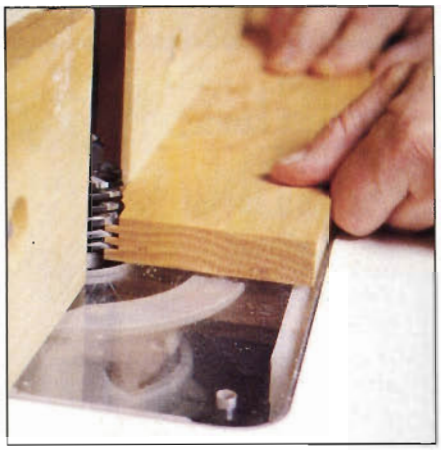

Photo B: The bit must be used in a table-mounted router equipped with a fence. On long stock use feather boards or other hold-downs.

Photo C: Set up properly, the bit cuts perfectly matched finger joints in all species of wood.

the table during the cut. This way, once the pieces have been routed and repositioned in the same order, I know that the grain will be correct and the joints will align.

During the routing, the stock must remain perfectly flat on the table throughout the cut *(photo B)*. To make sure this happens with longer pieces, I use a feather board and with certain setups, a pair of hold downs. Also, remove any chips and dust from the table surface before routing each edge. One small chip beneath the stock can cause the finished joint to misalign.

How the Bit Worked

The Jesada finger-joint bit ran smoothly and proved to be well-balanced. The cutting tips were properly sharpened, securely brazed, and made of high-quality carbide. The fact that I was able to use the bit in a 1½-hp router proved the bit's good design and geometry. My bit produced cuts of excellent quality in various types of hardwood, and the joints matched flawlessly in all the thicknesses of stock I routed *(photo C)*.

Bit setup does take a little effort, especially the first couple of times. But in all fairness, my written explanation makes the procedure sound more complex and time-consuming than it actually was. I had no trouble setting up, and it usually took just one test cut to get proper alignment.

You may wonder about using this cutter to make end-grain joints. While I wouldn't call it impossible, I don't feel that this bit would be the best choice for that application. The rather short, ¼"-long fingers probably wouldn't provide the structural integrity necessary for good end-grain joints. For this kind of joinery, I prefer the shaper cutter with fingers at least ⅝" long.

My Conclusions

I found the finger-joint bit effective for edge joinery, even when making large panels from multiple pieces. The resulting joints were strong and flush, and made flat, sturdy panels. I had to do very little surfacing work after the glue-up. This should be especially good news if you have limited capability for flattening larger panels.

The bit lists at $149.40 but usually sells for $99.40 through the firm's catalog. This may sound a bit pricey, but if you edge-glue a lot of panels, the bit will soon pay for itself by significantly reducing the amount of time and material lost to surfacing after the glue-up. WJ

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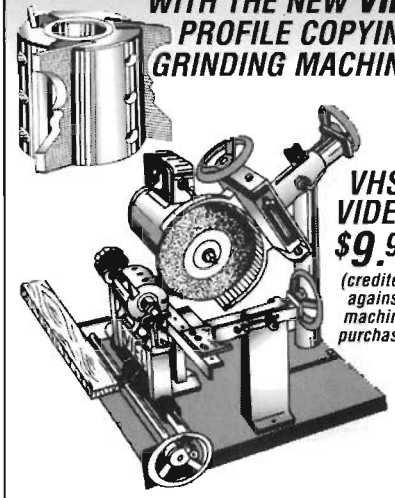

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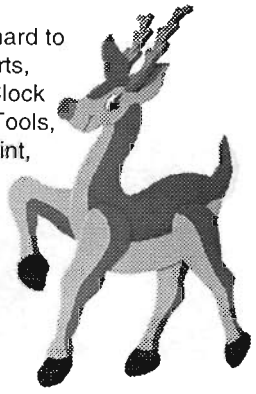

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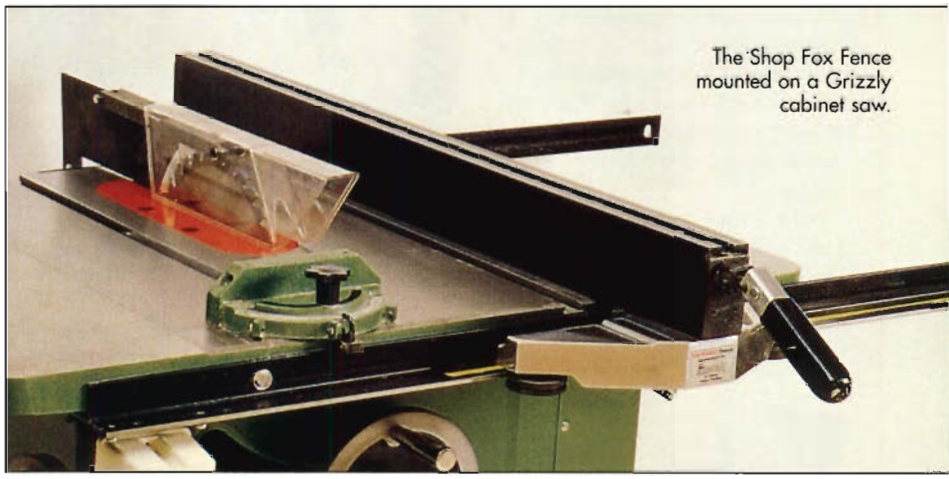
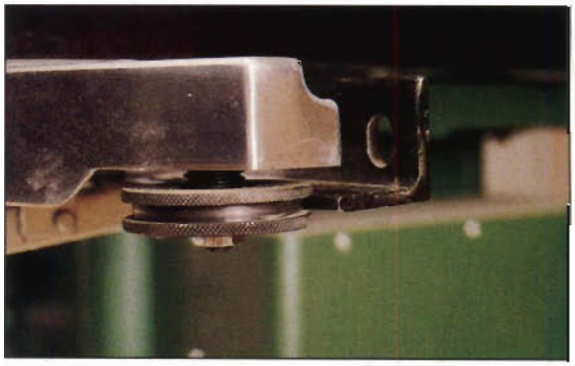


The Shop Fox Fence mounted on a Grizzly cabinet saw.

Last year, the engineers at Woodstock International went to the drawing board and designed a new fence called the Shop Fox. Grizzly Imports now equips its Z-series tablesaws with the Shop Fox. You can also buy it as an aftermarket fence.

The Shop Fox fence adapts to any contractor's– or cabinetmaker's-style saw that has a 27"-wide table. I had an opportunity to work with this fence recently, and here's what I found.



The Shop Fox's grooved wheels glide smoothly along the angle-iron rails.

Easy Assembly and Mounting

Unpacking, assembling, and installing the Shop Fox on a Grizzly cabinetmaker's saw took me about an hour. The instruction manual covers the procedures, especially adjustments and troubleshooting, thoroughly. Happily, the fence required little of either.

Woodstock offers the Shop Fox rails in two lengths for either 25" or 49" rip capacity. The rail mounting holes on my fence were predrilled to match Grizzly's mounting arrangement. You may have to drill additional holes, depending on the make and model of your saw.

How It Worked

The fence travels and locks on the rails by means of three grooved wheels, two in the fence's head and one at the opposite end. The wheel grooves ride along the leading edge of the rails, and a spring-tensioning mechanism keeps them snug. By adjusting the tension on the wheels, you can change the amount of effort required to slide the fence along the rails. Pushing down on the locking handle forces a lever underneath the head

Continued on page 88

Hands On Report

Continued from page 86

against the horizontal section of the front rail, locking the fence for ripping in position.

This design keeps the face of the fence parallel to the blade at all times, even when the fence is unlocked or being moved. If you've ever pushed down on a locking handle and watched a fence align itself—and botch your setting—you'll appreciate the Shop Fox's ability to stay put (and parallel) when you lock it.

The fence glides up and down the rails with a smooth, positive feel. You can move and lock the Shop Fox fence repeatedly with one hand, leaving your other hand free to hold a rule or workpiece. And, there's no need to bump this fence with the heal of your hand to move it over a few fractions of an inch. The fence travels so smoothly that you can set it to microfine tolerances without ever taking your hand off the locking handle.

One thing I didn't particularly like was how the locking handle sticks out horizontally. In this position, it's easy to bump into—until you get used to its protruding presence. Also, the inboard face of the fence showed a slight bow (about .020") from end to end when measured with a straightedge. Otherwise, this is a rugged, dependable fence and particularly well suited to users who prefer to work fast and with a minimum of fuss. WJ

***Tested by** Tom Jackson*
***Photographs:** Randall Sutter*

Shop Fox Fence (without rails), $225; standard rails (25" rip capacity), $39.95; long rails (49" capacity), $59.95.

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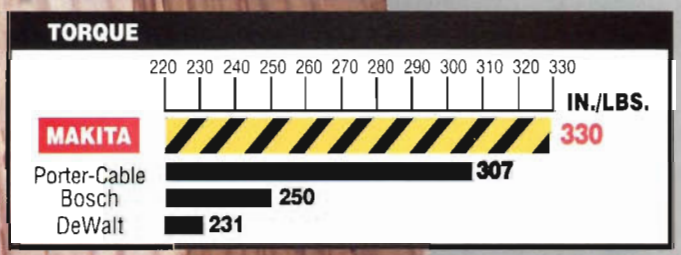

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