

BONUS! BUILD A BAND SAW BOX IN 9 EASY STEPS! page 51

WOODWORKER'S JOURNAL

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**Learn
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Miter
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11 Select
Biscuit
Joiners
Buyer's Guide

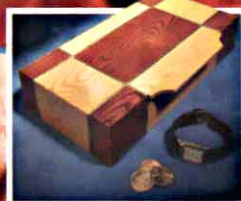
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NEW! The Skill
Builder Series

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**Drill Presses:
At Last ... Designed
for Woodworkers!**

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February
2008

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Woodworker's Journal

Features

January/February 2008

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35 Elegant Dresser Valet

By Bruce Kieffer

Made from solid ash lumber, this useful little valet will put your staining and finishing skills to the test.

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By Ian Kirby

Our master woodworker explains a time-tested process and finish that will bring your next project to a fitting end.

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By Ian Kirby

Laminated maple and painted poplar combine to form a sturdy, adaptable workstation to support your culinary pursuits.

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58 Shaker-inspired Woven Rocking Chair

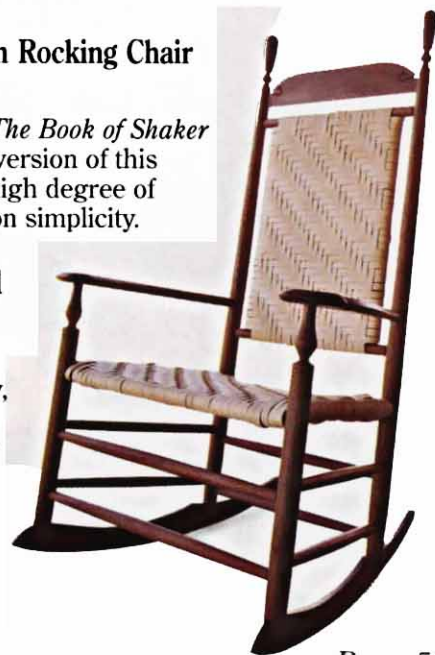
By Kerry Pierce

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What it lacks in beauty, yellow poplar reaps in utility. Meet an unsung hero in our brand new woods of the world series.



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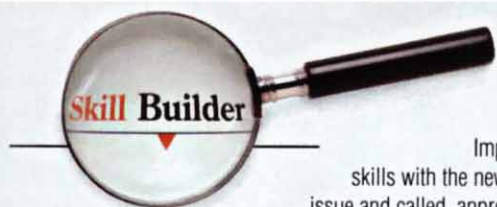
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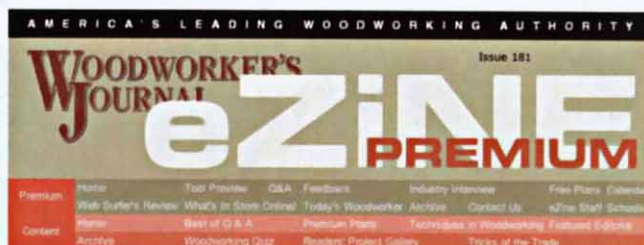
There's More on the Web ...

Improve your woodworking skills with the new series launched in this issue and called, appropriately enough, "Skill Builder." This time around, you'll find much "more on the web" for this department ... some serious advice for getting ready to finish your next project. And speaking of projects, click on the "More on the Web" icon at woodworkersjournal.com and you'll also discover complete step-by-step instructions for building Bruce Kieffer's Dresser Valet, featured on page 36. Want to sell it when you're done building it? You'll also find a spreadsheet there for helping you price all of your woodworking pieces!



Quik-Link ... Ready to do your research on biscuit joiners after reading George Vondriska's (page 74) Shop Test? Drilling into woodworking drill presses after you've read this issue's Today's Shop (page 86) by Chris Marshall? Searching out new tools in the stores after you've read about them (page 98) in What's In Store?

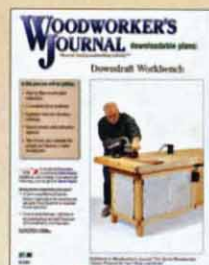
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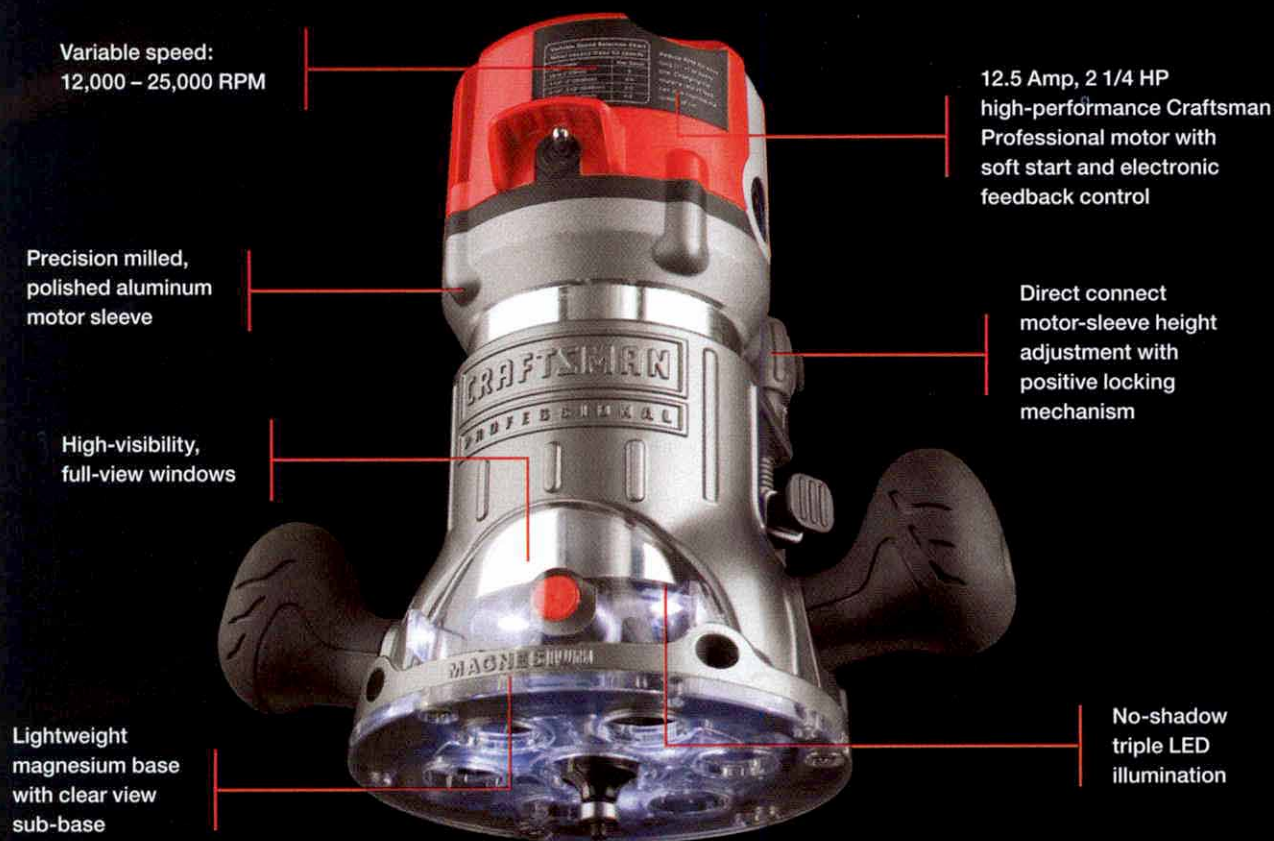


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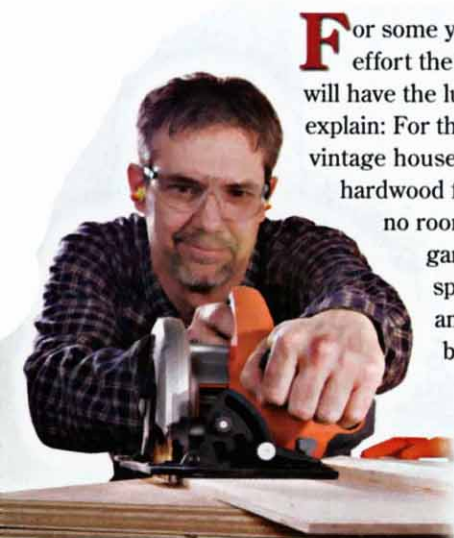
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Going Back to the Shop



Yours truly imagining the limitless possibilities of a brand-new shop.

For some years now, we have been calling our February effort the "Back to the Shop" issue. Well this year, I, too, will have the luxury of a shop to go back to. Please allow me to explain: For the past 13 years, I have lived in a very nice 1906 vintage house with many rooms, wonderful woodwork and hardwood floors, a perfect location and only one real flaw ... no room for a workshop. Oh, I used my small unheated garage as a makeshift shop, but I had to share the space with canoes, gardening equipment, bicycles and, occasionally, gear from my son's rock-and-roll band. The overflow of my tools and shop supplies generally migrated to the oft-leaky basement, and if I could have a nickel for every time my son and I carried a stationary tool up or down those steps — I think I could buy a cup of coffee. (Hey, coffee is expensive these days!) But now, with the children out on their own (at least for the moment), my wife and I have purchased a new house. It is a bit smaller and not nearly as old, but, joy of joys, it features an outbuilding set up as a woodshop. And not just a diminutive shed-like building — oh no, my woodworking brethren — it is a 30' x 40' insulated pole barn with a separate office, hot-water heating and electrical drops all ready to go. In my daydreams, I imagine it turning Norm's TV hangout into a Yankee-shmankee second-rate operation by comparison. But alas, I am well aware that pride goeth before a fall, and I am old and wise enough to know that woodworking isn't about shop size or who has the coolest tools, but about skill gained by practicing the craft. Still ... I can't help being pleased that I actually will have a heated shop to go "back" to this winter.

New "Skill Builder" Department

This issue launches a new department — which we have named "Skill Builder." We do a lot of research here at the *Journal*, and one thing we discovered is that a significant majority of woodworkers identify finishing as the area in which they need the most help. As you know, we have the top finishing expert in the country, Michael Dresdner, writing for us every issue. He and I put our heads together to develop a serious six-part finishing curriculum, which we will present both in the magazine and on the web. When you get to page 106 you'll find our first *Skill Builder* offering, which will be dedicated to finishing for all of 2008. The series will be based on the finishing flowchart you'll find there. I'm hoping that as a result of our efforts, *Journal* regulars will soon consider finishing an area of expertise.

Featured Author: Field Editor Chris Marshall (see page 86)

For being such a "fresh face" in the world of woodworking (at least when compared to Ian Kirby), Chris has been around the block. The author of several books on woodworking, Chris has been working with the *Journal* for six years, recently coming on full-time as our Field Editor. In addition to his professional duties, he is married and has two school-age daughters — who help to keep him very busy!

—Rob Johnstone



JANUARY/FEBRUARY 2008

Volume 32, Number 1

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Phone: (972) 392-1892

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EDITORIAL INQUIRIES

ROB JOHNSTONE
rjohnstone@woodworkersjournal.com
763-478-8255
JOANNA WERCH TAKES
jtakes@woodworkersjournal.com
763-478-8303
CHRIS MARSHALL
cmarshall@woodworkersjournal.com
614-746-2985

SUBSCRIPTION INQUIRIES

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Great Writing or Waste of Space?



to me without charge. Of course, I was delighted, and my system is back to work just as accurate as before. Not only is it a great product, but they are also a great company!

*John App
San Diego, California*

Thanks for the good article reviewing miter gauges. Very helpful. Some years back, I bought the Incra gauge before they had numbers. It is very similar to the 2000. Heavy, accurate, does good things. However, it has a big flaw, and that is the stop. I notice that they don't make that stop anymore. It is not a flip stop, it is overly complicated, hard to use and adjust. Incra would serve its customers well by making an aftermarket replacement flip stop for that gauge. Or at least their designers could work up a plan for a shop-made flip stop that is easy to use and adjust. (Their new flip stop does not fit that older fence. I called and asked.) I keep the Incra, but I use my Kreg.

*Tom Russell
St. Joseph, Missouri*

Mail Call! Contact us by writing to "Letters", Woodworker's Journal, 4365 Willow Drive, Medina, Minnesota 55340, by fax at (763) 478-8396 or by e-mail: letters@woodworkersjournal.com

We ask that all letters, including e-mails, include a mailing address and phone number. We reserve the right to edit for length and clarity.

Sinful Woodworking?

Sandor Nagyszalanczy's "Seven Dastardly Sins." As the famous cartoonist Jimmy Hatle would say, he deserves a tip of the Hatle hat. It is great. Think he shot down us all at some point with his arrows. It is a great piece of writing.

*Monroe J. Mechling
Steubenville, Ohio*

I can't believe you wasted so much valuable editorial space on "Woodworking's Seven Dastardly Sins" (October 2007). It wasn't helpful, informative or educational (which is what I expect in a woodworking magazine). It wasn't even funny.

*David A. Tarbell
Port Orchard, Washington*

Thanks to Sandor Nagyszalanczy for his entertaining article. On one point, however, he bends the truth until it cracks. "...I recently perused a copy of ... Thomas Aquinas's groundbreaking *Summa*

Theologica, a book about the nature of sin, evil and redemption." Like Hell you did! Aquinas's *Summa* isn't a "book"; it's a multi-volume encyclopedia that details the structure of the physical and metaphysical universe, at least according to Aquinas's logic. It occupies about four feet of shelf space in the local college library. Good luck on "perusing" it, even 24/7, in less than a month or so.

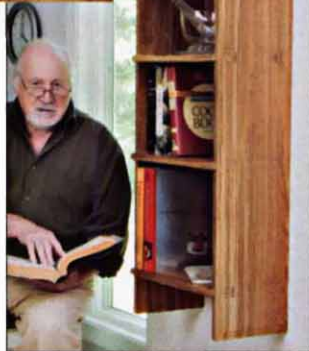
*Bob Manning
Davidson, North Carolina*

How About It, Incra?

I was pleased to see the review of the Incra Miter 3000SE ["Aftermarket Miter Gauges," October 2007]. I have the Incra system and have been very pleased with its ease of use and quality. I keep it stored on the wall with bungees and inadvertently bumped it recently. It fell four feet to the cement floor, and several components were bent in the process. I called Incra to purchase new components; however, they sent the parts



Dolled-up stool joinery and "Golden" dimensions — Ian's over-the-top bookcase from last issue has people talking.



An Eye on the Golden Ratio

Aw, come on, Ian! Although I can't measure accurately from the pictures, doesn't your design ["Wall-Hung Bookcase," *October 2007*] approximate the Golden Ratio — rather than simply being a "shape" to accommodate cookbooks between two windows? If we approximate the top two areas as 4.5 units and the bottom area as 2.75 units — for a total of 7.25 units — the Golden Ratio would suggest 7.25, yielding 4.5

units and 4.5 units yielding 2.8 units. Aren't we really dealing here with the eye of a master woodworker not allowing himself to build to "bad" proportions, regardless of the space between the windows or the size of cookbooks?

*Rich Donahue
Huachuca City, Arizona*

Isn't Ian Kirby's twin wedged mortise and tenon really a dolled-up, citified version of the split and wedged round tenon used on stool legs or

to hold a handle in a tool head? The principle is the same: one for practical purposes, the other more for decoration.

*Ralph E. Shartle
Cedar Hill, Texas*

Letters continues on page 16 ...

Safety First: Learning how to operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary guards have been removed from equipment shown in our magazine. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.

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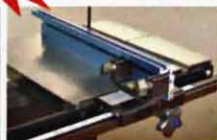
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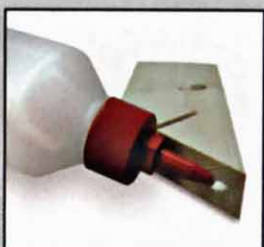
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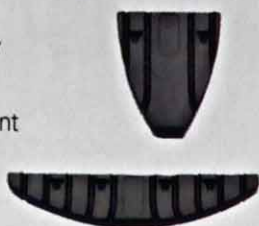
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WJ Responds: Ralph, you are correct in noting the similarities between Ian's twin wedged mortise and tenon joinery and the wedge technique employed to hold, say, an ax head to its handle. But to infer that they are the same thing goes a bit too far. Just as my son's '91 Chevy pickup (complete with rust spots and dents) is indeed a truck, to say it is the same as a 2008 Mack super diesel is not exactly accurate.

—Rob Johnstone



"B" cells ...
fading away.

Batteries I Have Known

In the October issue *[Questions & Answers]*, Chris Marshall answered a question on why there are no "B" batteries, and I would guess that Chris is not old enough to remember. Because I had my own radio and TV service shop, I remember them well.

Back in the late 1930s and early 1940s, commercial broadcast band radios became portable. They operated on small vacuum tubes and were powered by batteries. The "A" battery inside the radio was for the purpose of powering the filaments of all the tubes, which required a 1.5-volt battery, and it was known as the "A" battery. The tubes required a higher voltage on the plate element to enable the amplification to take place, and that battery was known as the "B" battery. It was usually at least 45 volts, more frequently 67.5 volts, and occasionally there were two "B" batteries in series to provide 90 volts. This was more common in shortwave radios.

The comment Chris made that consumer goods that used these batteries went out of existence is true. In this case, it was the transistor that made that happen about the mid-1950s.

Donald Bilicki
Marietta, Georgia

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Ratcheting Up the Shop Tricks



Roller for Padding Poly

I'm an avid fan of wipe-on polyurethane, but I had trouble applying it with a rag. The folds in the material would often leave



A foam roller, covered with plastic wrap and soft cloth, is a great poly applicator.

overlapping lines and other imperfections in the finish. Then, I figured out a better way. All you need is a 4"-wide foam paint roller and some plastic wrap. I cover the roller with wrap and use a baggie tie to seal it in. The plastic keeps the roller from absorbing the finish. Next, I wrap the roller in a piece of lint-free cloth — an old T-shirt works great. I stretch the overlapping ends around the tube to form a handle, and the pad is ready. Using light pressure, the pad will lay the poly down flawlessly with no lap lines. When you're finished, just toss the outer rag and wipe the plastic wrap down with mineral spirits to clean off the wet varnish.

*Bob Gentile
East Otis, Massachusetts*

Quick Fix for Tight-Quarter Sanding

When I'm finishing small projects on the lathe, especially captive rings, it's tough to sand into small crevices with the right amount of pressure if you can't get your fingers in close. Here's an easy sanding "tool" that works well for me: I take a piece of sandpaper and fold it over the end of my parting tool, then secure it with blue painter's tape. It helps me sneak into even the tightest spots.

*Tyler Tompkins
Lonsdale, Arkansas*

Super-cleaning New Blades and Bits

I've got an easy way to keep new blades or bits cleaner, for longer. First, wipe them down with lacquer thinner to remove any oily residue from the factory. This will also strip off the clear protective coating that comes on some blades. Then spray on one of those dry-lubricant aerosols like TopCote® which are made for metal tabletops and blades. (Just be sure to keep the lubricant away from the bit shanks.) This two-step treatment will help minimize pitch buildup. It also keeps contact cement from gumming up router bits when trimming plastic laminate.

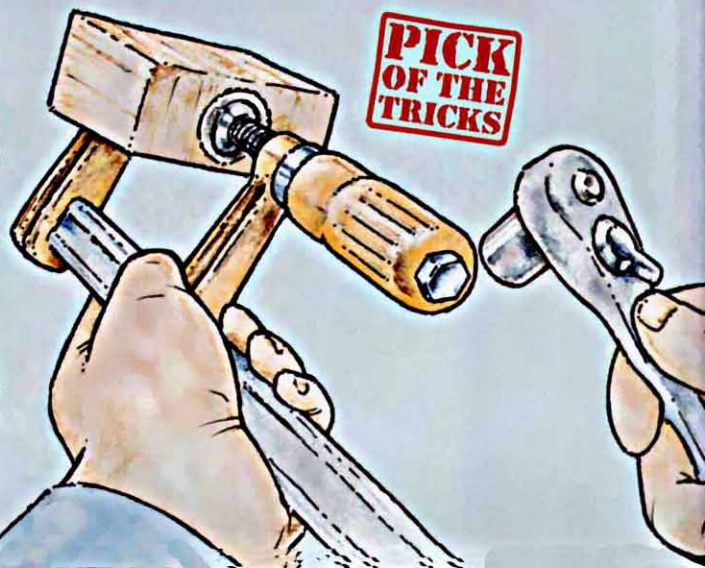
*Barbara Jaquillard
Leesburg, Florida*

continues on page 20 ...

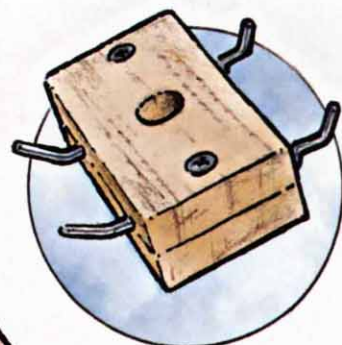
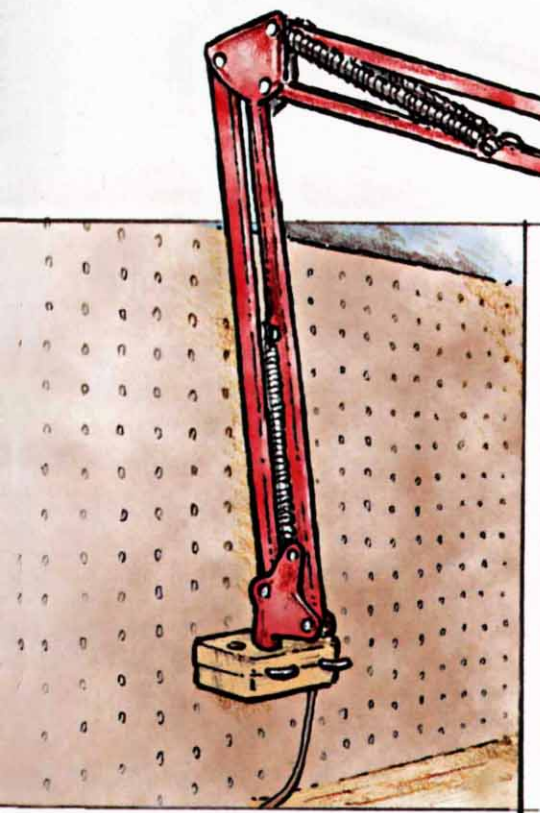
Arthritis Won't Stop This Woodworker!

I've been a custom woodworker on and off for 40 years and recently, arthritis in my hands has made it more difficult to get some shop tasks done. Tightening clamps is particularly painful, especially if I'm doing a big glue-up with 30 or more clamps. Even so, arthritis is not going to stop me from woodworking, and I've got a great clamp modification to share. Just drill a pilot hole in the end of the clamp handle and drive in a lag screw. I use epoxy to make sure the screw won't ever back out. With a hex head on the clamp handle, you can use a wrench, ratchet or even an air ratchet to tighten and loosen it without pain.

*Ray Johnson
Blue Ridge, Georgia*



(Circle No. 32 on PRODUCT INFORMATION form)



Long pegboard hooks and scrap wood create a base for mounting task lights where you need them.

Illuminating Improvement for Task Lighting

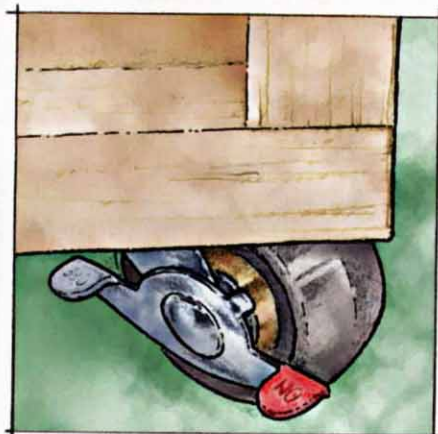
When working at the bench, I found that I couldn't always stretch my task light far enough to get the light where I needed it. Here's the solution I came up with: I captured a couple of long pegboard hooks between two pieces of scrap wood to form a base, screwed them together and drilled a hole for the task light post. Now I can mount my light wherever I want to on the pegboard behind my bench.

*Tony Impellizzeri
Alto, Michigan*

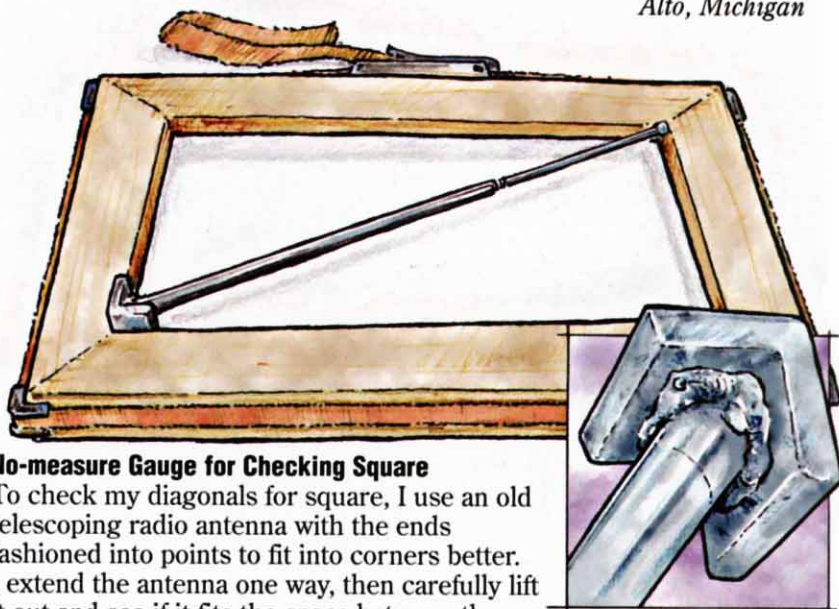
Paint Your Parking Brakes

Most of my larger shop machines are mounted on swivel casters with brakes, but sometimes it's hard to see which end of the brake lever to step on without bending over to look closely. Here's an easy fix: just spray-paint the "locked" end of the lever red. You'll never need to stoop over again. Just step on the red ends to set the brakes.

*Ted Weythe
Albany, New York*



Red means stop on this reader's casters.

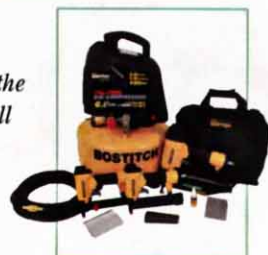


No-measure Gauge for Checking Square

To check my diagonals for square, I use an old telescoping radio antenna with the ends fashioned into points to fit into corners better. I extend the antenna one way, then carefully lift it out and see if it fits the space between the other pair of diagonals. No need to measure.

*Mark Thiel
Coral Springs, Florida*

WINNER! In addition to our standard payment (below) Ray Johnson of Blue Ridge, Georgia, will also receive a **Stanley/Bostitch CPACK3 Combo Kit** for being selected as the "Pick of the Tricks" winner. We pay from \$100 to \$200 for all tricks used. To join in the fun, send us your original, unpublished trick. Please include a photo or drawing if necessary. Submit your Tricks of the Trade to Woodworker's Journal, Dept. T/T, P.O. Box 261, Medina, MN 55340. Or send us an e-mail: tricks@woodworkersjournal.com



The Many Faces of Wood

THIS ISSUE'S EXPERTS

Ian Kirby is the author of *The Accurate Table Saw* from Cambium Press and a regular contributor to the *Woodworker's Journal*.

Chris Marshall is the author of several books on woodworking, table saws and router use. He is *Woodworker's Journal's* field editor.

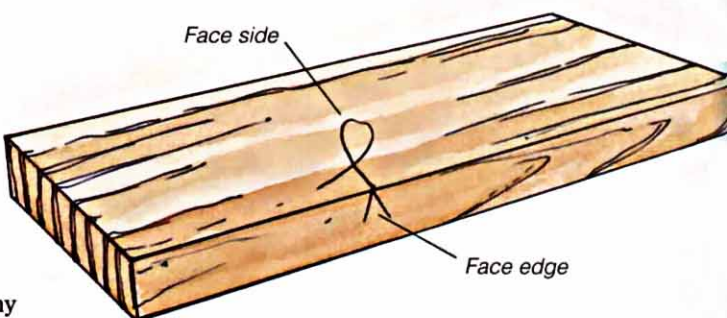
Contact us by writing to "Q&A", *Woodworker's Journal*, 4365 Willow Drive, Medina, MN 55340, by faxing us at (763) 478-8396 or by e-mailing us at: QandA@woodworkersjournal.com. Please include your home address, phone number and e-mail address (if you have one) with your question.

Q Is there a difference between Baltic birch plywood and birch plywood?

*Jim Price
St. Louis, Missouri*

A Actually, there are many differences between off-the-shelf birch plywood and true Baltic birch. The first one's easy to see: Baltic birch plywood has about twice the number of plies as birch plywood, and usually the plies are made entirely of birch. All those plies and glue layers create a high density, extremely strong and generally flat product. Baltic birch is manufactured in several thicknesses and normally in 5-ft. x 5-ft. sheets.

The birch veneer plywood you find at home centers or lumberyards is really only birch on the surface. The substrate plies are made of poplar or other hardwood. The veneer strata are thicker, and with fewer ply layers there are fewer glue layers. It's not as stiff as Baltic birch, but it's also not as heavy.



If you're building precision jigs or templates, Baltic birch is definitely the way to go, but it costs more. For cabinet construction or shop use, birch veneer plywood will work fine. I sometimes find Baltic birch or a close equivalent at my local home center, but a specialty dealer or woodworking store is often the only place to get it.

— *Chris Marshall*

Q I have read a number of articles on using a jointer or jointing a piece for a project. Some say joint an edge first, others say joint a face first. Which is the right way, or does it matter?

*Daniel Mitchell
Columbia, South Carolina*

A It matters. You joint the face first. The fence plays no part in this

operation; it need not even be on the machine. When the face has been correctly jointed or planed, it has three geometric properties measured with a straightedge and winding sticks. It is flat in length, flat in width and out of winding.

You mark it, and it's now called a face side. This face side can now be put against the fence. Assuming the fence is square to the bed, the edge you joint will be square to it. This edge has four geometric properties measured with a straightedge, winding sticks and a try square. It is flat in length, flat in width, out of winding and at right angles to the face side. You mark it, and it's now called a face edge. All subsequent measurements and machining are done from the face side and/or the face edge.

— *Ian Kirby*

Baltic birch plywood

Looking for Baltic birch? Count the ply layers — Baltic birch has at least twice as many plies as birch veneer plywood.

Birch veneer plywood

Q I'm having a lot of trouble with moisture accumulating in my Craftsman 25-gallon two-stage air compressor. The problem is that I'll shut it down and empty the tank after closing up shop, but first thing in the morning when I turn it on, I have to drain it again. I have

Continued on page 24 ...

QUESTIONS & ANSWERS



WINNER! For simply sending in his question on draining a compressor, James Swisher of Biloxi, Mississippi wins a **Steel City 65115 Mini Dust Collector**. Each issue we toss new questions into a hat and draw a winner.

a filter and air dryer (that I have to replace every other week) all connected and seemingly working properly. Is this moisture problem due to high humidity (thanks to living on the Mississippi coast), or is there something else going on? Any help would be greatly appreciated.

*James Swisher
Biloxi, Mississippi*

A Yes, the water accumulation is due to high humidity, and short of dropping the humidity in the room the compressor occupies, the unit will continue to condense the moisture in the air into water. The fact that you must drain it first thing in the morning after draining it at night indicates that there

is a lot of moisture collecting in the lines as well as what collects in the tank. I would have a dryer or moisture filter right at the tank output to stop water from filling the lines. You will still have to drain the tank regularly, but that should get you back to once a day and help keep the lines dry. There are highly

effective, self-draining air dryers available that produce almost dry air, but they typically cost far more to buy and operate than the compressor you described. Unless you plan to move to Arizona, the cheapest course of action is to continue draining regularly.

— *Michael Dresdner*

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Woodworking to Make Money

Making a little cash from woodworking is a dream of many hobbyist woodworkers. Here are two stories that will help you on that path.

Co-Operation

Partners in a Gallery

Ever think of setting up a wood-working shop in the sense of, well, someplace people can shop? Several woodworkers in Minnesota did, and the result was the creation of Xylos Gallery. Nearly a decade old now, Xylos is a co-op with a current membership of eight woodworkers.

One of those woodworkers is Mark Laub, who says one of the advantages to him is having as many sales channels as possible to reach the upscale clientele who buy his work. Richard Helgeson, another Xylos member, appreciates the freedom and control being a member gives him over what work he can show on the sales floor. Other galleries, he says, have to give approval to a piece before they'll show it. "In this place, you can build a speculative piece and show it."



With the co-op, all Xylos members, like Patrick Baillargeon (whose clock is above), have "skin in the game," said Mark Laub.



Mark Laub sells items like "After the Goldrush" at Xylos in Minneapolis, Minnesota — a cooperative woodworking gallery.

On the other hand, "it's a lot of work, and you need to be ready for a very long haul," Richard said. For a co-op like this to work, "You also have to have a member who's familiar with business," said Mark. "It's not easy to sell something made out of wood." That person will, hopefully, help other co-op members with sales and marketing. "If you don't have a person like that," Mark added, "you'll have a hard time."

All members of the co-op do put in working time. "We take turns minding the store," Mark said, and they pay equally on rent and utilities.

While that split currently goes eight ways, membership can go as high as 14 and has been as low as seven, Richard said. "It kind of ebbs and flows." New members — many of whom make connections with Xylos through the local Minnesota Woodworkers Guild — join after submitting an application and being interviewed by the current members.

In that, and in other areas, decision-making can be a lengthy process, because everyone becomes involved, Mark said.

"Whether it's what kind of wine we should serve at an opening, or what kind of rug to put on the floor, everybody weighs in, and then we vote."

All of that participation does have an advantage, Mark said: "People feel vested in the work." He compared the co-op model to craftsmen's guilds of yore. "Everybody has a particular expertise, and it's a great way to collaborate and exchange ideas," he said.

Visit www.xylogallery.com to see more from these woodworkers.

—Joanna Werch Takes



By joining the Xylos co-op, woodworkers like Peter Wright get another outlet to sell their work.



All decisions affecting Xylos Gallery are voted on by members like Greg Wood, who made the two pieces at right.



The bedside table (above) and bookcase (below) were built by Greg Wood.



How Much to Charge

Tips on Pricing Your Work

Have you ever wondered what to charge for something you made? In a gallery? Selling to a neighbor? Virtually every handmade product has a "right price." Charge more and it won't sell; charge less and you're losing money.

Finding the right price requires five separate calculations to determine costs for materials, labor, overhead, profit and selling expenses. You can calculate these by hand, or use your computer and a spreadsheet. For instance, let's price the round-top table featured in the October 2005 *Woodworker's Journal*. For starters, it took two and one-half hours to make. The materials consist of the actual parts used to make the product: the cost of the wood, plus any mechanical parts, such as hinges, mechanisms, etc. The table has 12 board feet of oak, at \$3.25 a board foot, so the material comes in at about \$39.00.

Labor is calculated by the hour. Suppose you want to make \$75,000 a year. If you take four weeks vacation a year and work 40 hours a week, then you will work 1,920 hours a year. Divide 75,000 by 1,920, and you

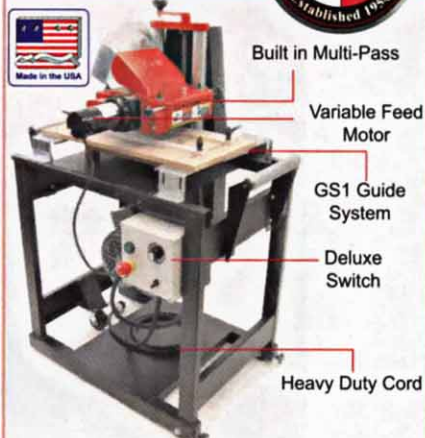
get \$39.00 an hour. The table took 2.5 hours to make, so multiply \$39.00 by 2.5. The labor cost for the table is \$97.50. Add this to the materials cost for a total of \$136.50.

Overhead consists of the rental and utilities of your shop, tools, glue, nails, sandpaper and finishing materials. An industry average is 15 percent. Multiply your total (of materials and labor) by 15 percent. For the table, multiply \$136.50 by 0.15. Add this amount, \$20.50, to \$136.50. The total cost (materials, labor, and overhead) for the table is now \$157.00.

Profit is the amount added to cover business expansion. Add 10 percent of \$157.00 (\$15.70, but round up to \$16.00), and you have a price for the table of \$173.00. This is the value of the finished table sitting on your workbench (the "workbench price"). If someone comes to your shop and picks up the table, you could charge them \$173.00, because you haven't incurred any selling costs. At your workbench price, all of your shop costs are covered. However, if they bought the same table in a store, it would cost them \$400.00 because of selling expenses.

Continued on page 28 ...

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SHOP TALK



Wondering how much to charge for the table you just completed? It depends: workbench, wholesale and retail prices vary.

Selling expenses consist of two calculations. The first, the cost to put the table in a store, amounts to 15 percent of the workbench price. This could be used to pay a sales rep, have a booth in a trade show or to advertise the table in a magazine or newspaper. Add 15 percent of \$173.00 (\$26.00) to \$173.00, and you get the wholesale price of the table: \$199.00.

A store or gallery will mark up your wholesale price to cover their expenses. This is called the retail markup, usually 100 percent. To calculate the (suggested) retail price for the table, simply double your wholesale cost, \$199.00, and you have a final price for the table, displayed in a store or gallery, of \$398.00.

If you create a spreadsheet with your computer, you can calculate the price of many products quickly. You will only have to enter the number of hours to make a product, the salary you want to make in a year, and the cost of materials. The spreadsheet will calculate the workbench price, wholesale price and retail price instantly. Once you know the right price for your work, stick with it. Don't settle for less.

— A.B. Petrow

A.B. Petrow is the author of *Marketing Your Woodcraft*, published by Craftmasters Books

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Chuck It!

By Betty Scarpino

Investing in a good quality chuck will increase your options for making bowls, especially with all that free wood available from friends and family. Have fun, and remember ... keep your tools sharp!



Chucks for holding wood on a lathe have been around for many years, and the designs of the new models are much improved. While chucks are certainly not “must-have” accessories, they are handy for a variety of holding options, including bowl turning.

Years ago, I was the lucky winner of an Axminster chuck, complete with a variety of jaws. After it had served far too long as a heavy paperweight, I dusted it off and put it to its intended use. I now primarily use it for holding cylinders for spindle turning, but occasionally use it to attach a bowl to the lathe.

Chucks Are Useful for Bowl Turning

Bowls can be attached to the lathe in two primary ways: glue block method and chucks. One method is not necessarily better than the other; however, when you understand the usefulness of both, you can choose the one best suited for what you want to turn.

Chucks are great to use for roughing out a bowl

from green wood. Once the bowl is roughed out, it can be set aside to dry, then re-chucked later for finish turning. This process takes very little time, so you can process a large amount of wood before losing it to decay.

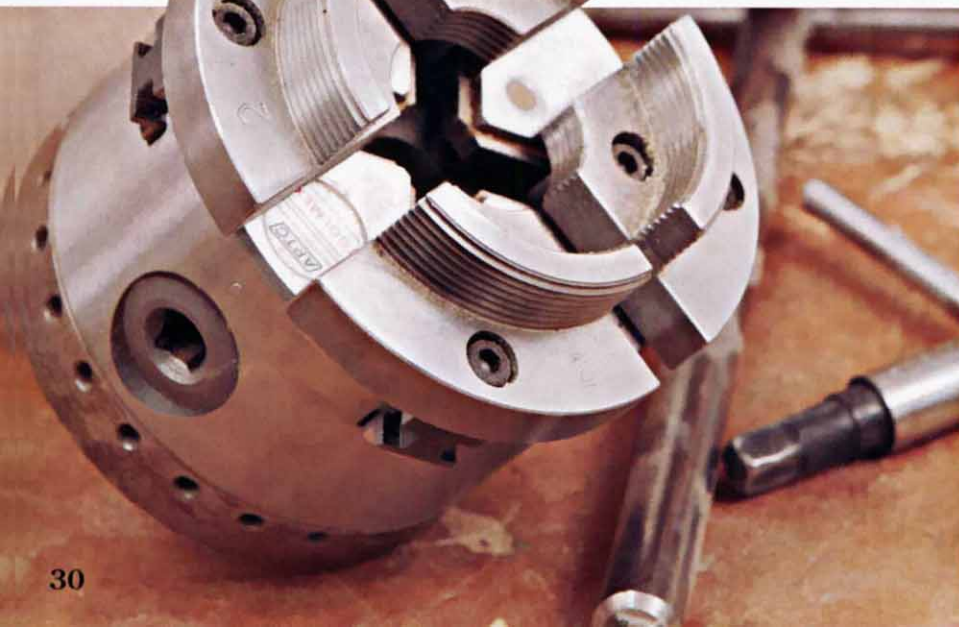
What Chuck to Buy

Some chucks come with jaws as part of the package, while others require the purchase of jaws separately. If you will be turning large-diameter bowls, buy a larger capacity, heavy-duty chuck. Smaller capacity chucks are, of course, for smaller turnings. For bowls, you will need either jaws that compress onto a tenon or ones that expand into a recess. I've used the compression method for the photos in this article.

Chuck manufacturers make chucks to fit almost any lathe's spindle size and thread count, so buy the chuck that fits the spindle of your lathe. If you have an unusual spindle size and/or thread, you can have an adapter made.

Chucks range in price from about \$170 for the basic body and one set of jaws to about \$300 for a chuck body and several sets of jaws. Teknatool makes several models of chucks, including the SuperNova2. I mentioned the Axminster. Oneway Manufacturing makes the Stronghold and Talon chucks, and Vicmark has a basic body. All these brands are excellent, and all have a variety of jaws available.

The author's Axminster chuck now serves her well for holding wood in spindle, bowl or re-turning applications.



Preparing the Turning Blank

Cut down a tree ... actually, there's so much free wood around, you'll be inundated with logs if ever you make the mistake of letting friends and family know that you want wood! I know this firsthand.

Select a log, cut it to a bowl-diameter length, then cut it apart along the pith. You can do this with a chainsaw or on your band saw. Next, cut the half-log section round. The band saw is the best machine to use.

Check your bowl blank for major cracks. I personally avoid all cracks in green wood, as they often end up expanding over time. I remove the bark before I put the wood onto the lathe as it tends to fly off in huge sections during the turning process.

Keep the center marked, and also mark the center on the opposite side. I have round cardboard forms in a variety of sizes with a hole in the center for this purpose.



If you are going to leave the bark on, you must remove bark where the drive center will be positioned.

Turning the Tenon

You will need to turn either a recess or a tenon on your bowl blank so the chuck will have something to grab into or onto. The method of mounting the blank onto your lathe is the same for both.

For this article, I am rough-turning a bowl blank from green wood, and the bottom of the bowl is next to the bark-edge of the bowl blank. That's where I will turn a tenon to accept the chuck.

You can mount the bowl blank between centers as shown in the *photos* on the next page, or you can use a screw chuck. If you use a screw chuck, you will need to drill a pilot hole to accept the screw. Screw chucks are an accessory for chucks, and they are also available as dedicated screw-center chucks or screw-center faceplates.

I mount the wood between centers so the bottom of the bowl is at the tailstock of my lathe, making it easier to turn the tenon. Make sure the wood is securely fastened between centers, as some lathe's tailstocks tend to creep backwards instead of tightening. As you progress with turning the tenon, check to make sure the tailstock is still tight.

To begin with, set your lathe's speed at a slow RPM, somewhere less than 800 RPM, just to make

Woodturning continues on page 32 ...



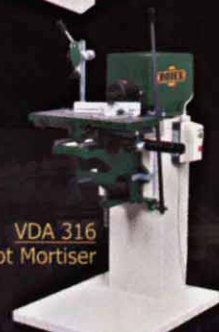
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Measure the opening of your chuck's jaws (inset). This diameter will be the maximum diameter for your tenon. Do not open the jaws of your chuck beyond its maximum capacity; otherwise, one of the jaws won't be seated. Form the bowl blank's tenon with the blank between spindles.

sure the bowl blank is mounted safely and balanced properly. Increase the speed gradually.

Begin by cutting from the bottom of the bowl to the rim. To start with, your tool will hit wood, then air, then wood. If the bowl blank is balanced, increasing the RPM will make the cutting process smoother — you will spend less time “cutting” air.

Turn a tenon. The tenon should be as large a diameter as possible yet still fit into the jaws of your chuck: the larger the tenon, the more holding power. The shoulder of the tenon (the outside bottom of

the bowl) should rest on the top part of the jaws. This will provide leverage for side-cutting pressure.

Please note: if the tenon bottoms out on the inside area of the jaws, this leaves a gap between the top of the jaws and the bottom of the bowl. Your bowl blank will be much more likely to fly out of the chuck when roughing out the inside.

The jaws of your chuck should not stick out too much from the body of the chuck (somewhat common with older model chucks). If they do, that becomes a potential hazard if you should accidentally brush up against them. It hurts!

Mounting into the Chuck

Remove the bowl blank, attach your chuck to the lathe, then mount the bowl blank onto the chuck. Tighten the jaws. You can use the tailstock to help hold the wood while you tighten the jaws. You can also keep the tailstock in place to help hold the bowl for initial turning.

Start the lathe at a slow speed, just to make sure the bowl blank is centered properly in your chuck.

You can further shape the outside of your bowl or begin directly with the inside. I like to refine the outside of the bowl a bit, but I always leave sufficient wood on the shoulder next to the tenon.

Now comes the fun part. Remove the wood from the inside of the bowl using a bowl gouge. (Remember, roughing gouges are only for spindle turning.) Most green wood cuts like butter, and you'll only be removing the bulk of the wood. Make the shavings fly!

Bowl Thickness and Drying Time

The wall thickness of your bowl will depend on the size of the bowl and the type of wood. Green bowls warp as they dry, so leave enough thickness for re-turning. If you leave the walls too thick, that will increase drying time and perhaps cause cracks. Experiment for a while to get it right.

Drying times vary with the season, the type of wood, and how wet or dry the wood was to begin with. Some will dry within a few weeks; others take half a year or more. If there are no cracks or voids to begin with, I find that bowl blanks don't crack when drying, so I tend to leave mine just sitting around my shop. Some turners, however, routinely cover bowl blanks with end-coat sealant and date them. Others like to put bowl blanks in shavings or in paper bags for the drying process.

It's also possible to completely turn the bowl and be done with it. You can leave whatever wall thickness you want, but you might enjoy trying to make a paper-thin bowl from very wet wood. Wet wood holds up well and cuts smoothly, with no sanding.

Re-turning Dry Bowl Blanks

Remount dry bowl blanks in your chuck for finish turning and sanding. The bowl can have a foot (the tenon) or that section can be turned off, leaving a flat bottom.

There are specialty jaws for chucks to hold bowls for turning the bottoms. You can also make your own, or invest in a vacuum chuck system. The point is, you can (and should) turn the bottom of your lovely creations!

Betty Scarpino is a professional turner. She finally removed the last of the termite-infested logs littering her side yard. Please don't send her any free wood!

The author ended up leaving a nub on the tenon as a result of removing some of the sapwood she didn't want included in the bowl. Remove the nub if you've done the same. Put the bowl blank into your chuck and tighten the jaws.



Spelling It All Out

What's This?

Richard Smith from Rock Hill, South Carolina, sent in the tool below. He paid \$9 at an antique shop for the 13"-long thingamajig. Know what it is? Send in your answer for a chance to win a prize!



If you have your own woodworking mystery tool (or the answer to this issue's entry), send it to Stumpers, c/o Woodworker's Journal, P.O. Box 261, Medina, Minnesota 55340. Or send us an e-mail: stumpers@woodworkersjournal.com

Letters from the Past

I recognized [the October 2007] issue's *Stumper* as soon as I saw its picture in the table of contents. When my cousin, a designer by trade, died, my brother (a draftsman) inherited a number of his drafting tools [including] the size 3 version of this tool.

My brother didn't know what it was, either, and he had asked various coworkers about it over the years without any luck. I found it in the drafting cabinet (where all the other obsolete tools reside), then searched the patent office's records for June 24, 1919 (clearly stamped on the item). It took a while to find the patent (there were 692 issued that day), but I did.

Thinking about this old tool brought back memories of my cousin, Bobby Lee.

*Randall Fisher
Grand Haven, Michigan*

Signs of Character

We're glad **Floyd Hershberger** of Ocala, Florida, and his mystery tool brought good memories to Randall — and to others.

Paul Burrell of Cragford, Alabama, also "had to dig through the U.S. Patent records for it. It was patent number 01307736." **Joel R. Havens** of Orchard Park, New York, knew it was "a

Our mystery tools "aided in making letters and numbers," said **William J. Haas** of Fishers, Indiana.

Letter Drafting Instrument. [The patent] was issued to William Hepfinger of Birmingham, Michigan."

Tom Thompson of Breckinridge County, Kentucky, told us that "Hepfinger invented it in an effort to help the average person create lettering quickly and accurately."

Randall Fisher explained further: "The number in the center of the 'head' indicates the height of the characters the particular guide helps you make. The head is marked to show where the curved arcs of characters should begin and end. The straight 'blade' is used to draw the straight parts. The equidistant 'cross branches' are used to lay out E's and F's. (Note that if you hold the guide up by the blade, you can clearly make out a capital B.)"

Bill Banch of Sharpsville, Pennsylvania, noted that the "1-2-3" on the tools "indicate the size of the letters."

Dearl Gaskill of Utopia, Texas, meanwhile, had a childhood memory of "an old sign painter. He had these things up to three feet, I'd guess. He used them to lay out the

These "letter aids" came in a handy leather carrying case.



letters on the signs, after which he hand-painted them."

And **Ernie Sluss** of Orleans, Indiana, who sent us a copy of the brochure and instructions for his set of Master Lettering keys, summed up the philosophy of *Stumpers* in his letter: "I will sometimes buy an old tool without knowing what it is or what it was used for, which is a large part of the enjoyment. Sometimes I am lucky enough to find someone that has used a specialized tool and tells me its use. It often makes the person as happy to share their knowledge as I am to receive it."

— *Joanna Werch Takes*



WINNER! **Paul Burrell** of Cragford, Alabama, wins a **Delta DP300L Drill Press**. We toss all the *Stumpers* letters into a hat to select a winner.

Clean Up & Polish

By Ian Kirby

An explanation of the many virtues of a simple finishing system that requires only a handplane, occasional sandpaper, shellac and beeswax.

Ground Rules

Among the expressions we use for the different phases of furniture making, such as "Prepare the stock" or "Mark the joints," "Clean up and polish" is the endgame expression I've always known and taught.

The words are entirely apt when you understand that *clean up* means making the surface ready to receive the finish, and *polish* means applying the finish on the prepared surface. If you intend to paint rather than polish the wood, clean up need not be as rigorous. (See the *How Smooth is Smooth* sidebar on page 45).

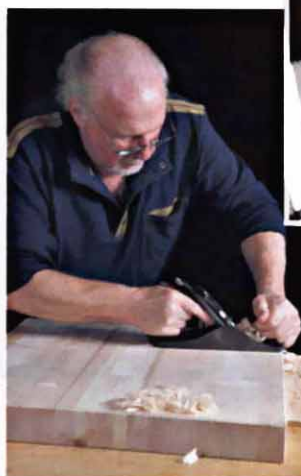
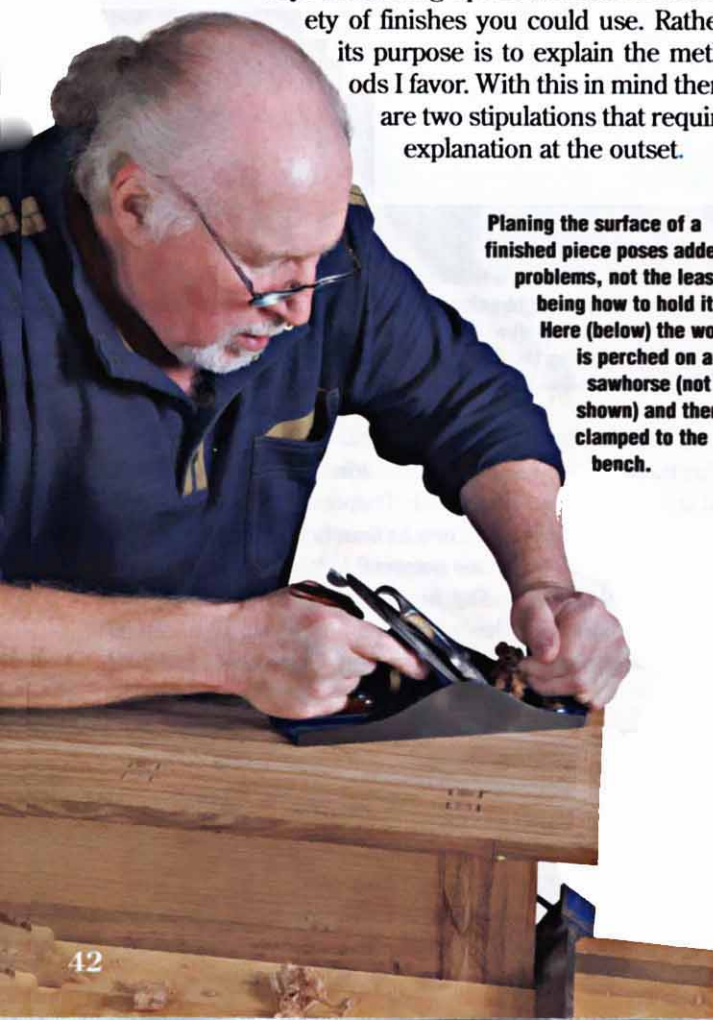
This article is not intended to describe a variety of ways of cleaning up the surface nor a variety of finishes you could use. Rather, its purpose is to explain the methods I favor. With this in mind there are two stipulations that require explanation at the outset.

Planing the surface of a finished piece poses added problems, not the least being how to hold it. Here (below) the work is perched on a sawhorse (not shown) and then clamped to the bench.

The first is that, with a clear finish, my aim is always to keep the natural color of the wood. Therefore, a great deal of time is spent at the beginning of any job selecting each part so that it matches for color and grain pattern with the whole. I consider this a part of the finishing process.

The second is that before gluing up any subassembly, all the surfaces that cannot be planed after the glue-up are cleaned and polished beforehand.

It follows that the finishing process isn't completed as a one-time, compact job like "Prepare the stock" or "Cut the joints" but rather is distributed over the various stages of gluing and clamping.



A typical cross grain shaving (above), showing the slightly curved blade.

Planing across the grain (left) will flatten the work, remove tearout, and overcome difficult grain.



Three types of shaving are made as you refine the surface by planing across the grain: first shavings (left), feathers (middle) and finally, down (right).

Check the surface first and keep checking as you plane to track where the highs and hollows are. There is little room for error.



These methods are derived from the English Arts & Crafts movement whose members devoted considerable time and thought to the most effective use of hand tools. What was adopted and adapted from this movement on this side of the Atlantic were very different techniques — but that's another story.

In a world without machines, we would begin making a piece of furniture by preparing the sawn stock to dimensional and geometric accuracy using a handplane, very likely an 07 trying plane. However, handplanes have been rendered obsolete for this kind of work by jointers and planers, which do a good job of sizing the stock to the required squareness. The downside of stock prepared by machines is the scalloped surface left by their revolving knives. Tearout may also be a problem, the result of reversed grain direction or feeding the stock the wrong way over the cutterhead. Neither scalloped surface nor tearout affects the marking and cutting of joints, nor does it affect shaping, gluing or clamping operations. However, the milled surface and any other imperfections have major implications at the finishing stage. Just as polish highlights the color and grain pattern of the wood, it also emphasizes all its defects. The challenge is to remove those defects so that the piece presents an absolutely flat surface reflection.



The area between the fingers is a "snipe." You can see in the right foreground where mill marks have been removed by the handplane.

Clean Up

To bring the machined surface to a polish-ready state, we have three tools to choose from: scrapers, handplanes and abrasives. The Arts & Crafts practitioners deemed scrapers inadequate for the task. They didn't use them — nor do I.

If there is any process in a small shop, of one to five workers, where a hand tool is best suited to a task, it's cleaning up with a smoothing plane.

Handplanes: In most cases, faces and edges can be planed using an 04 or 04½ smoothing plane, provided the grain is oriented to advantage. If the grain is difficult and prone to tearout, use a blade that has been back sharpened. In extreme cases, even on relatively narrow faces, you may have to resort to planing across the grain.

Assuming that the workpiece is narrower than the plane width, that it's sharp and correctly set, it usually takes four passes to make a machined surface smooth and ready to polish.

The first pass removes the tops of the scallops, which collect as fine slivers. The second pass removes larger slivers. The third pass removes a near-complete



When using a sanding block (the author prefers cork), hold the block flat with constant pressure. Don't let more than half of it overhang an edge.

“The Arts & Crafts practitioners deemed scrapers inadequate for the task [cleanup]. They didn’t use them — nor do I.”
—Ian Kirby

shaving with some gaps across it. The fourth pass removes a complete end-to-end shaving. The result is a smooth surface.

This surface has several desirable characteristics besides smoothness. First, the fibers are cleanly severed, not torn or abraded. Second, the surface retains its geometry: it’s flat in length, flat in width, and square to its faces. Third, the very small amount of material removed has not altered the critical dimensions of the workpiece. A smoothing plane is the only tool capable of delivering all these characteristics.

Abrasives: There are situations where a surface is improved by sanding. For example, a small tearout caused by abnormal growth many years earlier in the life of the tree or an area, usually around a pin knot, where the grain goes the opposite way to the rest of the board.

I sand by muscle power using a cork block. Divide the sheet of abrasive paper into six pieces and size the block to permit thumb and finger grip. Other than the cardiac



Years ago, you had no choice but to make your own shellac. Today, the ready-made product does the job, but keep an eye on shelf life. It’s widely available in clear, white and orange varieties.



Rag the shellac quickly. Cover the whole surface, then “lay it off” altogether. Don’t do bits at a time. Because you are following with beeswax, a second coat is neither necessary nor desirable.

workout, the major benefits of this method are speed and control to prevent the softening of surface edges.

Because my polish is beeswax, I usually start with 320-grit sandpaper and go to 400. See the “How Smooth is Smooth?” sidebar on the next page.

Polish

Clear shellac serves as a barrier to prevent the beeswax from soaking into the wood. Without shellac, you would need four or five coats of wax to get the desired body and luster.

Shellac is best applied with a clean, lint-free cloth, preferably old cotton. The procedure is called “ragging on.” With the rag formed into a pad, spread the shellac in circles quickly and thinly to wet the entire surface at once, then lay it off by wiping in the direction of the grain. Don’t apply a second coat: it will dissolve the first coat and make a sticky mess. You could also brush it on.

Because application by brush leaves a heavy deposit and shellac dries too quickly for continuous brushing, a particular technique is required. Start with a loaded brush and cover the surface quickly, then wipe it off with a dry rag. The result is about the same as ragging on.

The shellac will be touch-dry in about five minutes, but the surface will have been roughed by swollen fibers called “nibs.” When the shellac has dried to the



To get inside shaped parts, which is a critical step to a proper finish, fold the paper to make a sharp, supported corner.



The surface will feel rough after the shellac dries because of swollen fibers called “nibs.” Remove them with very fine worn paper held in your fingers to prevent spot buildup. This is called “denibbing.”

How smooth is smooth?

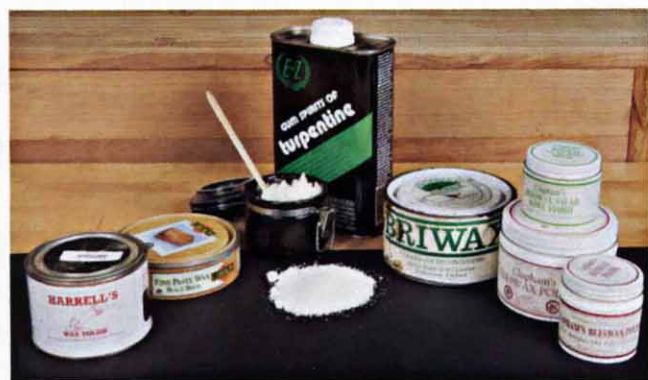
For the purpose of understanding the required surface smoothness of bare wood before a finish is applied, we can divide finishes into two groups: waxes and lacquers. The wax group also includes, with some reservation, oils. (Modern oils dry hard and quickly and are capable of a high buildup compared to earlier boiled linseed oil products. Multiple layers can build to a point where they become comparable to lacquered coats. However, one or two oil coats let you feel the wood surface, like wax.) The lacquer group includes lacquers, conversion varnish, waterbased finishes and the like. The main difference between the two is the amount of buildup left on the surface.

The buildup on a waxed surface is negligible, so the tactile quality of the surface should match the smoothness standard you want, from either handplane or sandpaper, before you apply the finish. When you touch the work, your fingers are on a waxed surface, but that surface will be as rough or smooth as the wood beneath it. Hence the requirement that it be handplaned or sanded to 400-grit.

When using a film-building lacquer, it's unnecessary to sand finer than 180-grit. That's because the surface of the wood is entombed below the lacquer thickness. What you feel when you touch the workpiece is the hardened surface of a chemical above the surface of the wood.

point where it won't immediately gum up the sandpaper, usually 30 minutes, de-nib the surface using worn 320- or 400-grit paper.

Unlike normal sanding, don't wrap the paper around a sanding block. Its flat face will develop a shellac buildup on one or two spots on the paper, causing tracks on the workpiece surface. Instead, weave the paper into your fingers (see *photo* on the opposite page).



A variety of waxes are widely available. My preferred, and homemade, version is made from a pure bleached granulated beeswax dissolved in pure turpentine and made as soft as summer butter.



Apply a thin film of wax in a circular motion. Polish it off with the grain. This finish has many advantages, not the least of which is the "smooth as silk" feel. It is also quite easy to touch up and repair.

Be thorough by sanding to the point where it seems you are removing the shellac coat altogether — you won't. The cleanest way to remove the dust is by vacuum. Brushing or blowing puts dust into the air, and a tack cloth loads up too fast to be practical.

Beeswax: Making your own beeswax polish is a simple procedure. By volume it takes about five measures of pure turpentine to one measure of the pure granulated bleached beeswax dissolved overnight in a container. Its consistency should be like a block of butter just before it loses its shape to melting. The homemade advantage? You know you have pure beeswax, one not extended with a pastewax mix.

To apply, form a soft, lint-free cloth into a pad and lightly load it by scraping across the wax surface in its container. Rub the pad in circles on the workpiece until you have "rubbed it out" — there's no more free or visible wax. Less wax is better than more. The result should be a surface slightly sticky to the touch. Finish by polishing with the grain, then leave for at least four hours. You will need a second coat, but since individuals will apply at different levels of speed and pressure, a definite prescription is impossible. To heighten the luster, polish without adding more wax. This is called "buffing."

Advantages Summarized: A shellac/beeswax finish is applied quickly. Equally important, you can get the finish off the shelf and polish the inside faces of work before gluing up without a lot of fuss. This means that corners are clean rather than sanded and softened as is the case when they are assembled first and finished later. Finally, glue squeeze-out that is left to dry lifts off cleanly from the waxed faces with a sharp chisel.

Ian Kirby is a master woodworker and designer and a frequent contributor to Woodworker's Journal.

A Kitchen Workstation

By Ian Kirby

Regular readers of Woodworker's Journal are well aware of my interest in food preparation and cooking. I should explain that this project was designed and built for what, on the drawing board, I labeled "Butler's Pantry."



"Butler" is a figment of my imagination, and "Pantry," in the strict sense, is an equal stretch. Nevertheless, a workstation of this sort, if space allows, is most useful. Therefore, in the spirit of its indeterminate location, you can be equally indeterminate in following my design and dimensions.

This little kitchen workstation is easy to build, but rich in details that make it easy to look at as well. Start off by making the glued-up table top, frequently and incorrectly called a butcher block, laminated from native hardwoods of any thickness. (Butcher blocks are made with the end grain as the work surface.) In this case, because the edges of flatsawn material show as quartersawn when they are glued up this way, it is a nice opportunity to put to use all that material that you kept because it was too good to burn or throw away. Even short pieces can be bonded in, like bricks in a wall.

Glue the five center pieces first. Once cured, add two pieces to each side. I used Titebond® III rolled lightly onto each surface. Continue to build outward in this fashion to create the top blank. Machine and/or hand plane the top to its dimension. Finish with salad bowl oil.

Building the Legs

The next process to undertake is constructing the legs. To get started, here's the order of march: First plane the stock to thickness but saw it wider than its finished dimension. Follow up by planing one edge square on the narrow pieces. Now you will glue and clamp the two pieces, the narrow and the wide, together to form one piece for each leg. Go ahead and plane the outer faces square to one another. With that done, step to your table saw and cut the two arms of the "L" to the exact same width.

Simple joints fastened with screws and lag screws make a solid structure.



When making the legs, clamp the two glued pieces together to form an "L" shape. My preference is clamping to the bench. If necessary, leave a small overhang in the glue-up to avoid mill-made shortcomings.



After the glue has cured, plane the two outer faces square one to the other. This operation not only cleans up any mill marks and possible excess glue, but it ensures that the assembly will be square.

Before you shape the rail sockets, all that is left is to square one end of each leg and then cut it to length.

On the top of the legs, you'll need to form a socket (see the *photos* below) to accept the top rail. I used a Forstner bit in my drill press to remove most of the waste, and completed the shape with a variety of chisels.

Making the Leg and Rail Joints

The ends of the top rails are machined to fit the sockets you chopped into the legs. The distance between shoulders of the simple joint are cut to the length of the

bottom rail. Each top rail is held in place with 2" #8 screws. Before you move on, set up fences on a drill press to position the 5/16"-diameter clearance holes in the legs for the lag screws that will hold the bottom rails.

Continue Shaping the Parts

The legs are shaped with a chamfer all around except for the top edge, which links visually with the collar.

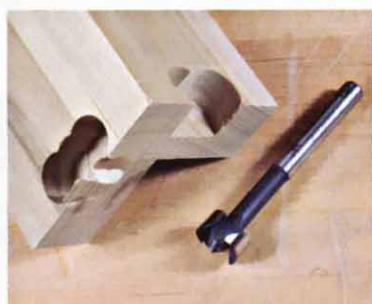
The bottom rails have the same raised detail, formed on the table saw, on both sides. The "panels" will be emphasized with color by painting them.

Assembling the Work Station

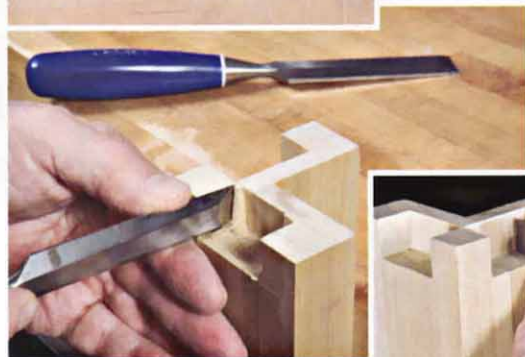
Assemble a pair of legs with the top rail screwed in place. Next, lag-screw the bottom rail in place. Once you have two subassemblies of this kind, join them with the top rails screwed in place, then add the bottom rails.

When attaching the top rails, there is no dovetail effect on the top joint that would pull the shoulders tight, so take the trouble to clamp across the rail. Place a bottom rail between the legs to help align the top joint.

You'll have to devise a way of holding the bottom rails so they can be correctly positioned and clamped while the pilot holes for the lag screws are drilled and the screws inserted. The solution is a pair of "saddles" (photos, page 49): you'll need a left and a right version. When making these jigs,



Drill out the majority of the socket waste using a 3/4" Forstner bit (left) in a drill press.

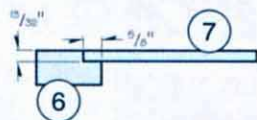


Finish forming the sockets by cleaning up the shoulder with various widths of chisel. Check your accuracy (inset).



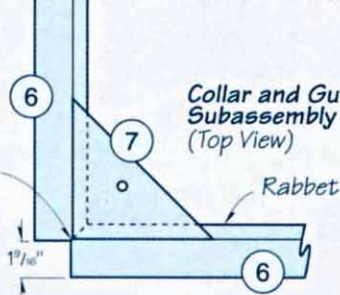
The shoulders of the top rails (above) must match the length of the bottom rails. Test the fit.

Collar and Gusset (Section View)

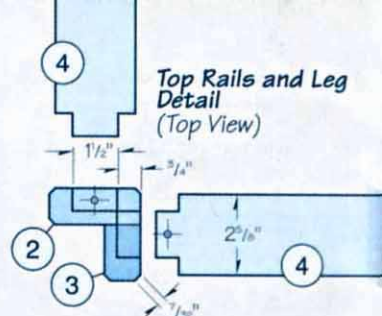


The rabbeted aspect of the collars are mitered back at 45°.

Collar and Gusset Subassembly (Top View)

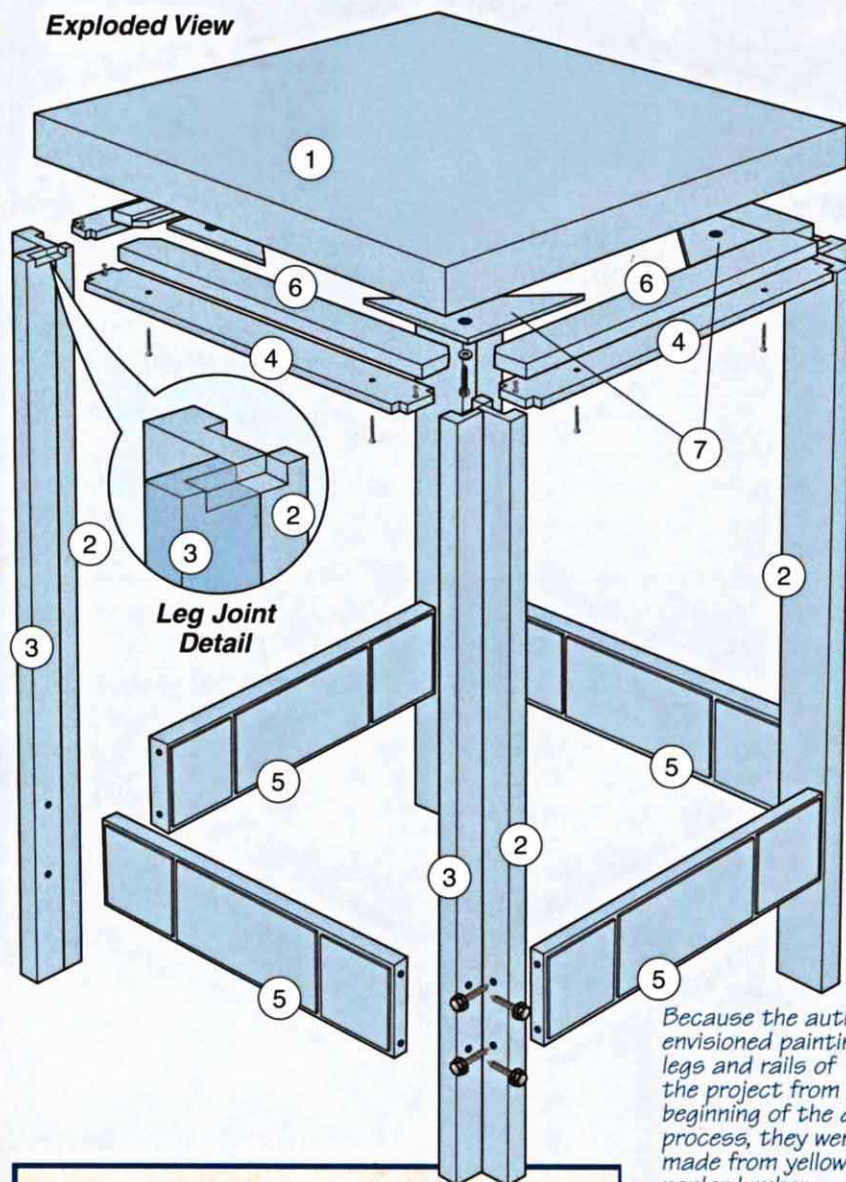


Top Rails and Leg Detail (Top View)

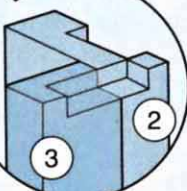


Pieces 2 and 3 are assembled prior to forming the sockets.

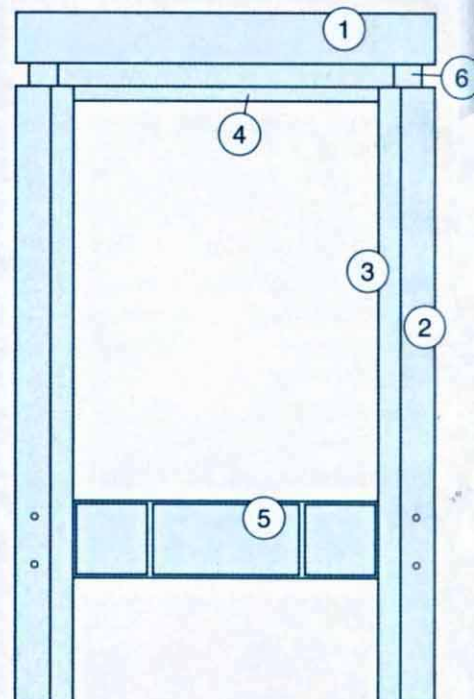
Exploded View



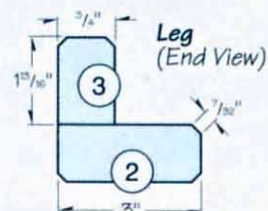
Leg Joint Detail



Workstation Elevation (Front View)



Because the author envisioned painting the legs and rails of the project from the beginning of the design process, they were made from yellow poplar lumber.

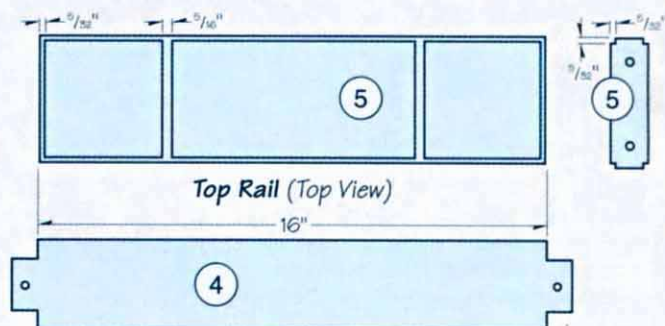


MATERIAL LIST Workstation

	T x W x L
1 Table Top* (1)	2 5/8" x 22" x 22"
2 Wide Leg Blanks (4)	1 5/8" x 3" x 32"
3 Narrow Leg Blanks (4)	1 3/8" x 1 13/16" x 32"
4 Top Rails (4)	3/4" x 2 5/8" x 17 1/2"
5 Bottom Rails (4)	1 3/8" x 4" x 16"
6 Collars (4)	1 3/8" x 2 1/4" x 17 5/8"
7 Corner Gussets (4)	3/8" x 6" x 6"

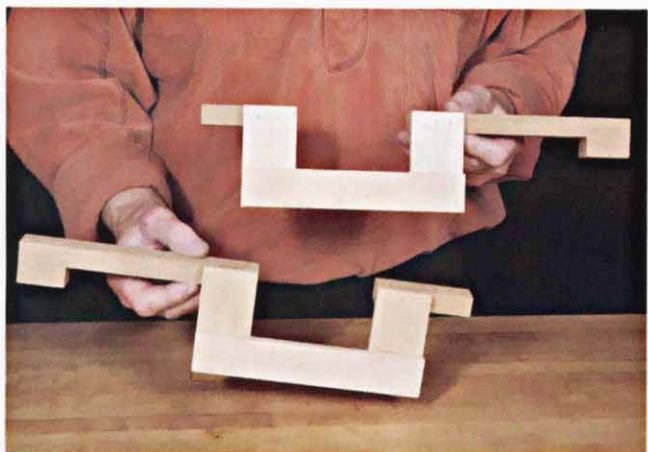
*Laminated of any thickness and any hardwood species to make up desired dimension.

Bottom Rail (Front and End Views)

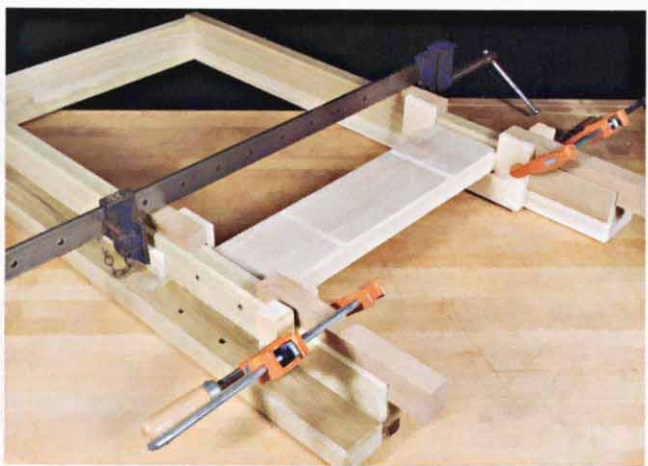




When attaching the top rails, close the shoulders tight with a clamp across the rail. Put a bottom rail between the legs for a square assembly.



Cut the parts accurately to length, then assemble with glue and a nail gun. Make the saddle about 1/16" wider than the rail for easy removal.



Clamp the saddles to the leg. Hold the shoulders tight with a bar clamp. Make sure the bottom edge of the rail contacts the saddle on each side.

the top bar of the saddle remains across the gap until the three plywood pieces that form the U-shape are secured in place. Then you can simply cut the top bar scrap away, as shown in the middle photo above.

Making the Collar

There is just one component left to build. The collar holds the table top above the terminus of the legs while presenting interesting shapes and shadows under the



Drill pilot holes for the lag screws. Holding the drill upside down makes it easier to align the bit with the clearance hole in the leg.



Tighten the lag screws until you see the washer beginning to compress the wood. This ultra-simple joint is incredibly strong.



To join together the collar pieces, glue and nail the plywood gussets into the rabbets. The collar subassembly is key to holding the table top to the leg assembly.

natural wood top. Cut parts to length, miter the inside corners, and cut the rebates (rabbets to you Yanks) for the plywood gussets.

The collar is held in place by 2" #8 screws run up through the top rails. The top is held in place by 5/16" x 2" lag screws in oversize clearance holes fastened up through the gusset.

Finishing Up with Paint

You could oil, wax or paint the finished frame. I used a waterbased gloss — the same colors used in the "Butler's Pantry." To paint the panels on the bottom rail, brush from the middle out to get a clean corner. All the parts were painted separately prior to assembly.

Ian Kirby is a master woodworker and designer and a frequent contributor to Woodworker's Journal.



Build a Shaker-inspired Woven Rocker

A handful of story sticks, two shop-made jigs and a tweaked lathe are the secrets behind our author's handsome rocker.

By Kerry Pierce

Twenty years ago, I built my first reproduction of a Shaker chair. It was based on a drawing by John Kassay (in *The Book of Shaker Furniture*) of a fairly early New Lebanon rocker. Over the next dozen years or so, I tinkered with the form, giving the arms a more sculpted shape, changing the backrest from slats to a woven panel and introducing new finials and vases. The chair you see here is the current incarnation of that form — one that has remained unchanged for several years because it's exceptionally comfortable and reasonable to build.

I don't use a measured drawing to produce copies of this chair. Instead, this chair (and all others I build) are represented only by sets of story sticks. In the case of this rocker, one stick represents the back posts with back-rung mortise locations marked on one side of the stick and side-rung mortise locations on the other. Another stick represents the front posts with side-rung mortise locations on one side and front-rung mortise locations on the other. The post sticks also include graphic representations of vase and finial shapes. I create the chair's bandsawn elements — the arms,

rockers and crest rail — from traceable scrap-wood patterns. In addition, each of the rungs is represented by a stick cut to the length of the part, with tenon lengths marked on the ends.

Story sticks are common cabinetry and carpentry tools that help reduce the need for measuring everything ... and that alone prevents lots of building errors.

Extra-long Lathe Bed is a Must

Begin the project by ripping blanks for turning stock on your band saw (see *Material List*, page 61).

Although I have jigs that help me band saw square turning blanks into octagons, I have abandoned this practice over the years. It's so much easier to simply turn the square blanks round on the lathe.

In order to build full-size post-and-rung chairs, you must have a lathe that can accommodate at least 44"

between centers. While it is possible to buy lathes that can be opened up that far, those models are usually quite expensive. My lathe is an inexpensive Craftsman model equipped to handle only 36" between centers. I pulled the lathe-bed tube from the headstock and had a second mounting foot welded to the headstock end of the tube so I can mount the lathe bed anywhere I



This set of story sticks constitutes the templates our author uses for this rocker. The three cherry parts are traceable patterns for arms, rockers and crest rail. The four sticks near the top are rung sticks on which the tenon lengths are indicated. The other two sticks represent the front and back posts. Those sticks index rung locations, finial and vase shapes and post diameters at various points along their lengths.

Prepare your lathe for oversized spindles



The author's modest Craftsman lathe is modified with a bed extension and wooden length-of-part toolrests. He also added gravel to each of the shop-made columns supporting the lathe.

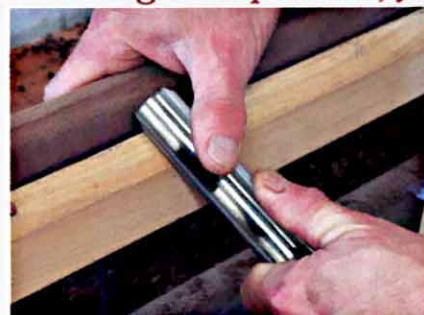
want on the lathe table, giving me, at least in theory, a lathe with an infinite distance between centers. While it might not be possible to modify your lathe in this way, all lathe beds can be lengthened, although some modifications are easier than others.

Turning the Posts and Rungs

Long, thin spindles tend to flex away from the tool as you turn. I'd like to suggest three techniques to counter this tendency. First, choose a mid-range lathe speed. I use 1,350 RPM. Too fast, and the spindle will vibrate in a very unsettling manner. Too slow, and the spindle's tendency to flex away from your tool is enhanced. Second, use your off hand as a steady rest. (I sometimes wrap several turns of masking tape around the palm of my right hand — I'm left-handed — and, with that protected palm, I support the back side of the turning directly opposite the lathe tool.) Be sure you keep your fingers dangling down so they can't be drawn up into the gap between the work and the rest. Third, be very careful about the way you move your tool into the work. Don't push it forward. Instead, with the handle well down, lay the heel of the bevel against the rotating work. Then gradually raise the tool's handle until the cutting edge engages the work.

The finials atop the back posts and the vases below the arms are very simple shapes. I begin the finials by forming the flats above and below the full bead with a parting tool. I then roll the full bead with my $1\frac{1}{8}$ " skew and use the same tool and technique on the half beads below

Turning the spindles, finials and vase details



The author uses his free hand to support the back of thin spindles when he turns them to shape. It reduces flexing and excess vibration.



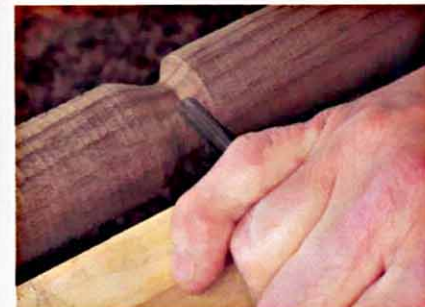
Use a parting tool to create the two filets on either side of the bead at the base of the finial. Steady the post with your hand.

the bottom flat and above the top flat, as well as the half bead at the very top of the finial. I form the bottom of the front post vase with a $\frac{3}{8}$ " fingernail gouge working from above and below into the hollow. I cut the taper at the top of the vase with my roughing gouge.

When you're finished shaping the four posts, turn the 14 rungs to shape. Start with blanks at about 4" longer than necessary to allow room for forming the tenons.



Roll half beads with the bottom half of your skew chisel. Engage the work you're rounding with the skew at a 45° angle, then roll it over the section so that the stroke is completed with the skew standing on-edge on the rest.



Form the cove at the base of the front-post vase with a $\frac{3}{8}$ " fingernail gouge. Begin with the gouge standing on its side facing the cove. Then roll it 90 degrees into the cove until it lies on the rest with the flute up.

Shaping the Tenons

The tenon at the top of the front post and the tenons on the ends of each rung must be carefully formed, because the resulting joints made from fitting these tenons into 5/8" mortises are what principally hold the whole chair together.

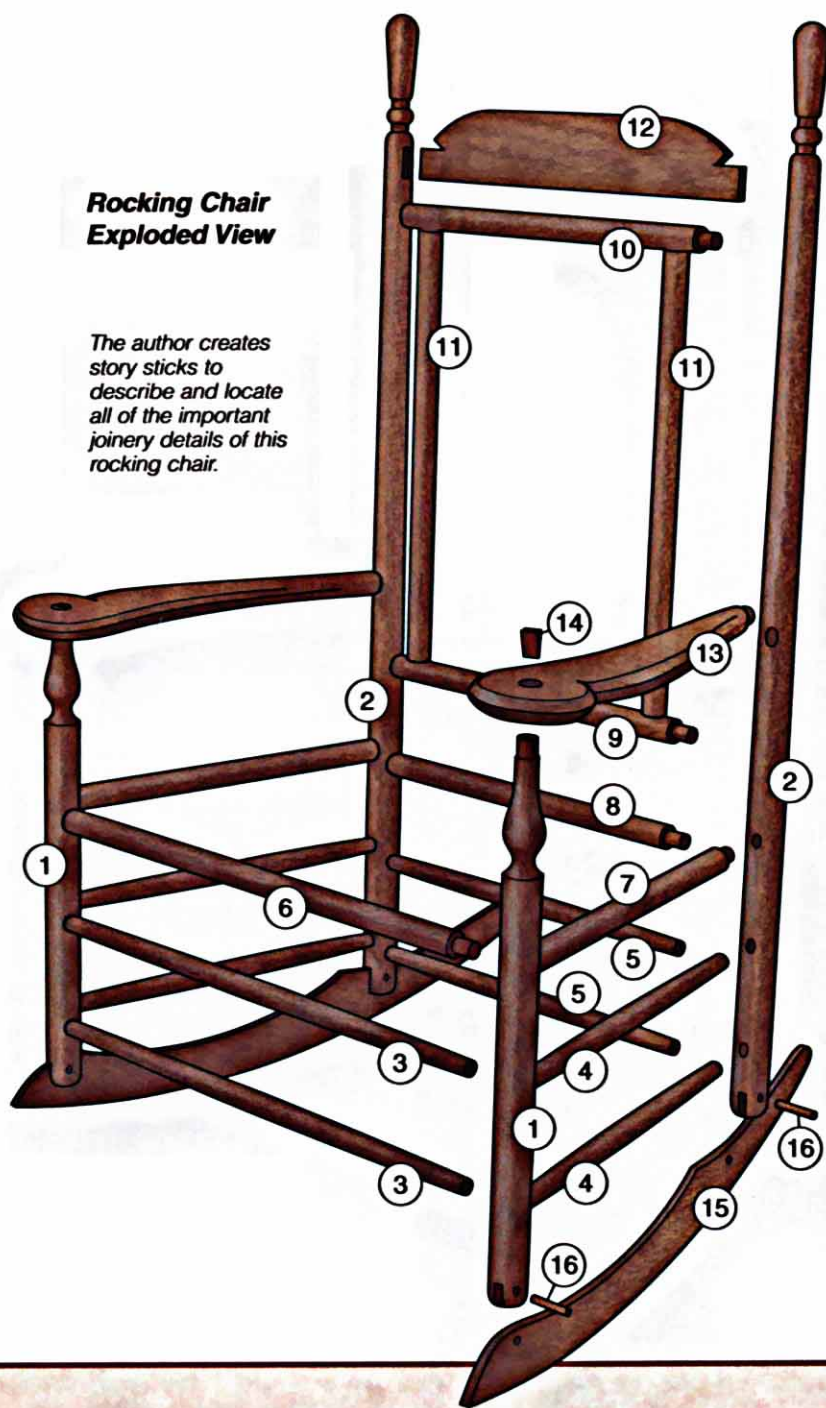
I form the tenons by first working a hollow in the tenon area with a fingernail gouge. When the thinnest diameter of that hollow is 5/8" (measured with a caliper), I lay a very sharp 1" butt chisel bevel-side-down on my tool-rest and carefully feed it into the tenon until its entire 7/8" length is reduced to 5/8".

Tenon fit is critical, and — perhaps oddly — tenons a tiny bit loose are better than tenons a tiny bit snug. Snug tenons can cause major headaches at assembly when you're trying to simultaneously bring a dozen tenons into a dozen mortises.

Once all the parts have been turned, lathe-sand each up to 220-grit. Then remove the parts from the lathe and cut the surplus length off your turning blanks. Because the back posts are relatively thin near the top of the chair, the 5/8"-diameter tenons on the backrest upper rung (the top element in the

Rocking Chair Exploded View

The author creates story sticks to describe and locate all of the important joinery details of this rocking chair.



MATERIAL LIST

	T x W x L		T x W x L
1 Front Posts (2)	1 1/2" Dia. x 20 3/4"	9 Backrest Lower Rung (1)	1" Dia. x 17 1/4"
2 Back Posts (2)	1 1/2" Dia. x 43 1/8"	10 Backrest Upper Rung (1)	1" Dia. x 17"
3 Front Spindle Rungs (2)	1" Dia. x 23"	11 Backrest Side Posts (2)	1" Dia. x 19 1/8"
4 Side Spindle Rungs (4)	1" Dia. x 16 1/2"	12 Crest Rail (1)	5/16" x 3" x 17"
5 Back Spindle Rungs (2)	1" Dia. x 17 1/4"	13 Arms (2)	3/4" x 4 1/4" x 18 1/4"
6 Seat Front Rung (1)	1" Dia. x 23"	14 Wedges (2)	1/16" x 5/8" x 3/4"
7 Seat Side Rungs (2)	1" Dia. x 16 1/2"	15 Rockers (2)	3/8" x 4" x 28"
8 Seat Back Rung (1)	1" Dia. x 17 1/4"	16 Rocker Dowels (4)	1/4" Dia. x 1 1/2"

NOTE: All measurements given are finished dimensions. Additional length and girth will be required for all blanks used to form the turned parts.

Turning tenons, setting mortises



The author transfers the lengths of the rungs from the story sticks directly onto his wooden tool-rests, then to the work with a skew chisel.



Reduce the tenon nearly to final size with a fingernail-ground spindle gouge, checking its diameter periodically with calipers.



Finish the tenon with a bevel-side-down paring chisel. Aim for consistent tenon thickness and a slightly loose fit. Cut off the end waste.

back panel frame) should be only 9/16" long. Using this same tenon-forming technique, create the 7/16"-diameter x 1/2"-long tenons on the ends of the backrest side posts that will make up the sides of the back panel. Turn all the rung tenons.

Finally, turn the tenons at the tops



This marking jig allows the author to draw mortise lines along the posts that are parallel to the axis of rotation. He first locks the lathe's indexing head, then slides the jig along the lathe table while keeping the pencil point engaged with the work.

of the front posts. Make them long enough to accommodate the thickness of the arms, plus some extra that you'll cut flush with the top of the arms.

Locating and Marking Mortises

I use my lathe's indexing head to lay out penciled reference lines to locate the rung mortises.

An indexing head is a disk centered on the lathe's axis of rotation. The disk on my lathe has 36 equally spaced holes drilled near its circumference. A spring-loaded indexing pin allows me to lock the head at any of these 36 stops. I can, therefore, lock the head and draw a line along the length of the outside diameter of the post with my marking jig (see *photo*, left). That line will be exactly parallel to the lathe's axis of rotation (the post's centerline). In the case of the back posts, after drawing the first line, I release the locking pin, count 10 stops, reset the locking pin and, with my marking jig, draw a second line. These lines are then 100 degrees apart on the post's outside diameter. This 100-degree separation is the angular distance between the center-

lines of the back rungs and the centerlines of the side rungs. I repeat the process on the front posts, with one exception: Because the angular distance between the centerlines of the side rungs and the front rungs is only 80 degrees, I count off only eight stops on the indexing head.

If your lathe lacks an indexing head, here's an alternative method. First, rip a flat carpenter's pencil along its length so the lead is exposed from end to end. Then, on your bench top, clamp a pair of posts together. Lay one ripped half of the carpenter's pencil — exposed lead down — across the pair of posts. Slide the pencil along the lengths of the posts. This will leave behind a line along each post that is parallel to its centerline. Then rotate the posts (approximately 100 degrees for back posts and approximately 80 degrees for front posts), re-clamp them, and create a second line by drawing the ripped pencil along the lengths of the posts.

Estimating 100- and 80-degree increments may sound foreboding, but it's not. Remember that the 100-degree distance is just a bit more

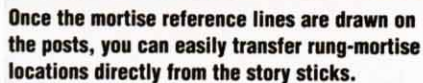
Pattern for the crest rail is shown on page 67.

Dimensions and parts shown in the drawing:

- Top crest rail: 17" wide, 1 1/2" high.
- Back posts: 19 3/8" high, 3 7/8" wide at the base.
- Seat rail: 17 1/4" wide, 1 1/2" high.
- Seat slats: 15 1/2" wide, 1 1/2" high.
- Back slats: 17 1/4" wide, 1 1/2" high.
- Back post taper: 1 1/2" at the seat rung to 1 1/8" at the final.

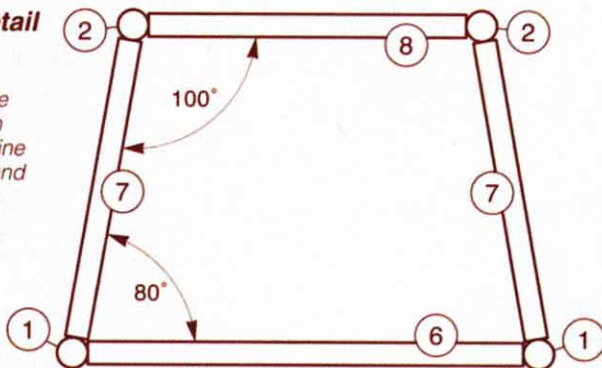
Numbered parts (circles):

- 1: Crest rail
- 2: Back post
- 3: Seat rail
- 4: Seat slat
- 5: Back slat
- 6: Back post
- 7: Back post
- 8: Back post
- 9: Back post
- 10: Back post
- 11: Back post
- 12: Back post



After you've drawn reference lines along all the posts using whichever method for establishing these lines, lay a story stick along one line on one post. Mark the mortise locations along the length of the post by transferring the information from the stick to the post (see *photo*, above). Be very accurate with these placements along the lengths. Then rotate the post to the other line, flip the story stick over, and transfer the other set of mortise locations. (*Editor's Note: You must have one left front post and one right front post. Two matching posts won't work. Same rule applies to the back posts.*)

The author uses the indexing feature on his lathe to determine and mark the 80° and 100° angles.



Bringing it all together

Drilling the Side-Rung Mortises

When the ladders are fully dry, it's time to drill the side-rung mortises. I'll save you the geometry lesson and just say that you can use the same side-run mortising jig (SRMJ) to drill the side-rung mortises in both ladder assemblies.

Take a couple of moments to study the *photo*, below right. Here the jig is set up to drill side-rung mortises in the front ladder. I simply clamped the jig to my drill press table so that when I brought the bit into the front post, it drilled a mortise along the centerline of that post, exactly 15/16" deep. It may take a bit of experimentation to get this set up correctly, so experiment using a section of scrap turned to the correct diameter. Once everything is dialed in, slide the front ladder along the jig, drilling the three side-rung mortises on that post. Then turn the ladder around and drill the three mortises in the other post.

To drill the side-rung mortises in the back ladder, rotate the jig 180 degrees on the drill press table and clamp it in place to bore mortises along the centerlines of the posts. Again, make these exactly 15/16" deep. Work out the setup on scrap first. (*Editor's note: Be sure to drill the mortises for the tenons at the back of each arm now, while the back ladder is on the SRMJ.*)

Assemble the Chair Frame

Once all the side-rung mortises are drilled, dry-fit the chair frame together by placing all of the side-rung tenons into their mortises. If you've got a good fit, pull the assembly apart, brush glue onto the parts and squeeze the front and back ladders together with a clamp. Allow the glue to dry thoroughly.



The author details the crest rail with decorative carvings using a sharp knife and paring chisel, followed by careful sanding.



Chop out the crest rail mortises in the back posts with a 1/4" mortising chisel. Make the mortises 9/16" deep and 1 1/2" long. Use a curved support to brace the post from below and to keep it from twisting.

Making the Arms and Rockers

Make patterns for the arms and rockers (see gridded *Drawings*, right), and trace them onto your project stock. Saw the rockers and arms to shape. I fair the arms by hand, using a series of pencil marks to set the transi-

tion areas for shaping. I rough-in the long-grain bevels with a drawknife. The arms are then finished with chisels, rasps and sandpaper. Now whittle the 7/8"-long, 5/8"-diameter tenons on the ends of the arms, and drill the front post tenon mortises.



After you've glued your front ladder together, set up the side-rung-mortise jig (SRMJ) as shown so that it will bore a 15/16"-deep mortise in the center of the posts. Then drill the three side-rung mortises in one post, turn the ladder around, and drill the three side-rung mortises in the other post. Next, rotate the jig 180 degrees on your drill press table and drill the side-rung mortises in the back ladder.



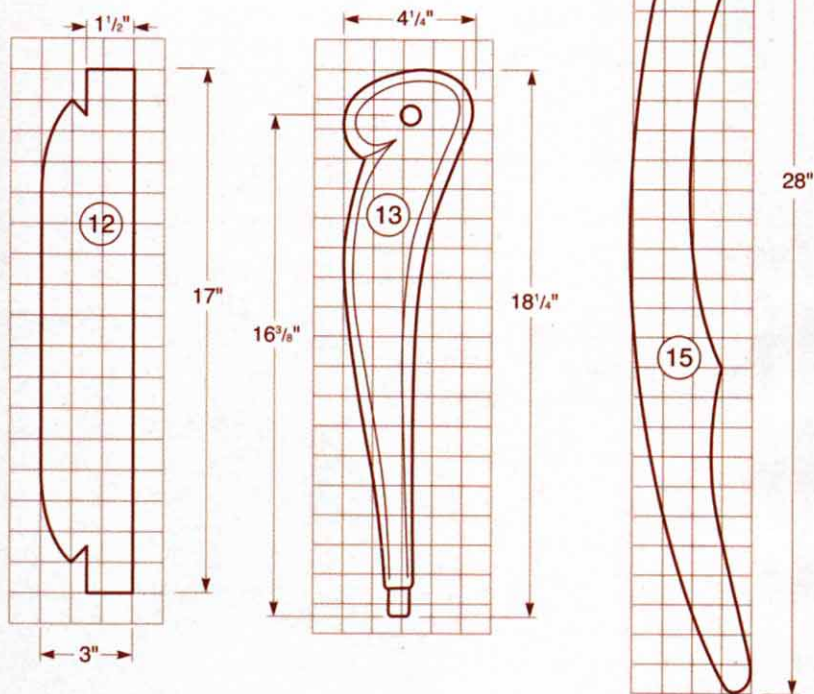
The author turns to a drawknife, rasps and sanding to shape the edges of the arms. Pencil lines establish the transition areas.

The through tenon at the top of the front post is held in place with a wedge that tapers from about $1/16''$ at the very top of the front post to nothing at the base of the tenon. I also drill a $1/8''$ through relief hole at the base of this notch to reduce the likelihood of splitting when the locking wedge is tapped into place.

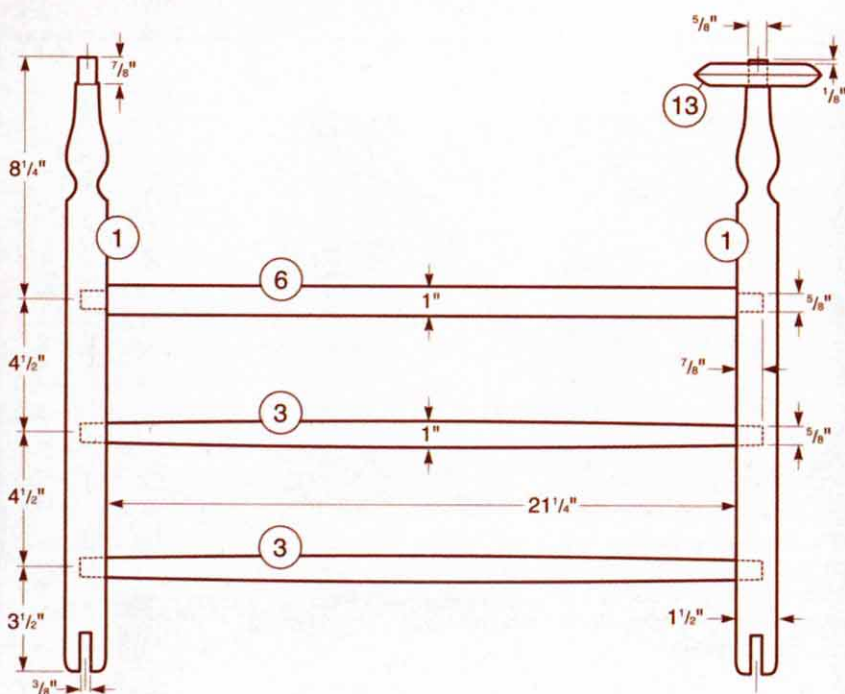


Cutting the rocker notches requires a combination of cleats and clamps to hold the chair secure as the notches are formed.

Back Rest, Arm, And Rocker Patterns (Front, Top and Side Views)



Front Post, Rung and Arm Elevation (Front View)



Weaving a Traditional Seat with Rattan Splint



The seat and back panel of this rocker are woven with rattan splint (flat reed), available from Connecticut Cane and Reed

(www.caneandreed.com). Three hanks should be enough to weave one chair.

Soak a hank of splint in a tub of warm water for about an hour before you use it. Then open it up, bend a strand, and examine it. You'll notice that one side has loose fibers lifting from it, and the other side

is smoother with fewer lifting fibers. Arrange every strand you weave so the smoother surface faces upward.

A chair seat weave consists of two elements. The "warp" is the pattern of strands that runs between the front and back rungs. The "weave" is the pattern of strands woven perpendicular to the warp.

Tape the starting end of the first warp strand to the side rung as shown in Photo 1. Feed the warp up under the front rung, over it, then back around the back rung in a loop. Repeat these loops until you've filled the central rectangle of the seat. The final warp strand should pass over the front rung, then under, to the back of the side rung where you can tape it off.

Note: If you have to splice in a new length of warp, simply lap the

first eight or so inches of the new warp over the last eight inches of the old warp and staple the two together (see Photo 2).

Now you can thread the first weaver into place between the warp strands (see Photo 3). Before you dive into the other weavers, study Photo 4 for a few minutes. Notice that each new strand of weaver enters into the warp one warp strand forward from the point of entrance of the previous weaver strand. Add gusset strips to fill the triangular sections of the seat (see Photo 5).

If you make a mistake with your weavers (and you probably will), nothing is lost. Simply pull out weavers until you reach the mistake. Then reweave. Also, an occasional weaving mistake is a cosmetic issue only. If, after you've finished the seat, you find a weaving mistake in the first few rows of weavers, it isn't structurally necessary to unweave the whole seat and start the process over again.

Although I splice weavers on both the top and bottom surfaces of chairs, most chairmakers splice on the bottom

only. There's no need to staple the weavers; the tightness of the weave will hold the splice together.

Weave the back panel in the same way you wove the seat. I recommend that you remove the warp-splice staples on the back of the chair when you're done because the tightness of the weave will hold the splices tight. You can go ahead and remove the staples on the bottom of the seat as well, but I never bother to do this.

— Kerry Pierce



The tools you'll need for weaving include a desk stapler, scissors, needle-nose pliers, spring clamp, measuring tape or folding rule, sharp knife, butter knife and masking tape.



To form the rocker notches, first define the sides of each notch with a thin backsaw. Then drill through the posts with a 3/8"-diameter bit at a position that will become the bottom of the notch. Finish by splitting out the waste with a chisel and paring the walls as needed.

(Editor's note: These wedges must run approximately perpendicular to the grain direction of the arms.)

When laying them out, rest a straightedge across the tops of the front posts parallel with the front rungs and draw centerlines for these wedge slots. Using a fine backsaw, carefully slice the wedge slots.

Once the arms have been dry-fit, apply glue

to the tenons and into the mortises and work the arms into position. Apply glue to the wedges and tap them home. Trim the tenons and wedges flush.

To cut the rocker notches in the bottoms of the posts, clamp the inverted rocker to your bench (see the photo on page 67). Draw a line connecting the centers of the front and back posts to accurately mark the centers of the rocker notches you'll cut next.

The notches in the front post should be cut 1 3/8" deep on the front and back faces of the post.

The notches for the back posts



1 First establish a rectangle in the center of the chair's seat with warp strands. That rectangle should be as wide as the distance between the back posts and approximately square at each corner. You'll fill the empty triangular corner areas with gusset strands later.



4 Start the first long weaver on the bottom of the seat using the "over three and under three" pattern. Bring it up around the side rung and work it back into the warp using the "over three and under three pattern" again, starting this second weaver one warp strand forward from the warp strand at which the fill weaver entered.



2 To splice on a new warp strand, invert the chair, lap eight inches of the lead end of a new strand over the final eight inches of the old strand, and fasten them together with three staples.



5 Insert gusset strips to fill the triangular sections of the seat on both sides of the seat's central rectangle. Work these gusset strips into the weave using the same "over three and under three pattern," staggering their entry points one strand from the adjacent warp strand. Wrap them over the front rung. Then weave them into the weave on the bottom side of the seat. Tuck the ends under. A butter knife will help you feed these strips into the weave.



3 The first weaver fills the space between the posts on the top of the seat. The strand should go over three and under three warps, as shown here. Tuck both ends under.



6 Tightness of the woven panel will increase as you progress toward the front of the seat. For that reason, you may want to use a butter knife to guide the lead end of the weaver and a pair of needle-nose pliers to pull it through tight places.

are a little different. To accommodate the curved rocker, the back post notches are $\frac{3}{4}$ " deep on the front side of the post and $\frac{7}{8}$ " deep on the back side. Slice the sides of the notches with a backsaw.

Then, drill a $\frac{3}{8}$ "-diameter hole — from the front to back — right through the post at the bottom of the notch. Break out the waste very carefully with a sharp mortising chisel, and pare the notches to slowly refine the fit of the rockers. Fix the rockers in their notches with a $\frac{1}{4}$ "-diameter dowel driven through each post.

Finishing and Weaving

Sand the entire chair up through the grits to 320, and apply the first coat of finish. It's time to weave the seat (see extended *sidebar*, above). Save additional coats of finish until after the seat and back have been woven. This way, you can clean up any scuff marks the weaving process might create, then follow with final finish.

You're done! Ease into that new rocker and relish its woven comfort. It's been an ambitious project, but you've just proven your mettle as a budding Shaker chairmaker.

Kerry Pierce is a master craftsman and woodworking author from Ohio.





CABLE

How to Choose a Biscuit Joiner

In a recent survey, woodworkers identified biscuit joiners as the tool they were most interested in adding to their collection.

By George Vondriska

The popularity of biscuit joiners seems to grow on a daily basis. It's no surprise, since biscuits are an easy, fast and strong joinery technique. Thinking of adding a biscuit joiner to your shop? There's quite a price swing in the field. You can spend from under \$100 to \$800. Whether it's price or features, each machine has something to offer. If you're ready to "take the plunge," so to speak, and buy a biscuit joiner, here's some helpful buying advice.

Why Use a Biscuit Joiner?

If you've used dowels to reinforce a joint, raise your hand. If, after struggling to assemble the parts you doweled together you swore you'd never use dowels again, raise your hand. Hmm, same hands go up. Dowels are plenty strong, but they're fussy to get aligned properly. Biscuits, on the other hand, are much easier to install. They can also be used in many of the same places as dowels. Think of a biscuit as a simple way to add a spline to a joint. Even if you miss your mark when cutting the biscuit slot, (photo next page) the parts will

still go together because biscuits are very forgiving when it comes to side-to-side alignment. They also provide dead-on registration of part surfaces. That aspect is where biscuit joiners really shine. The tool's fence registers both joint surfaces accurately every time, and the biscuit strengthens the joint — just like a dowel would.

Applications

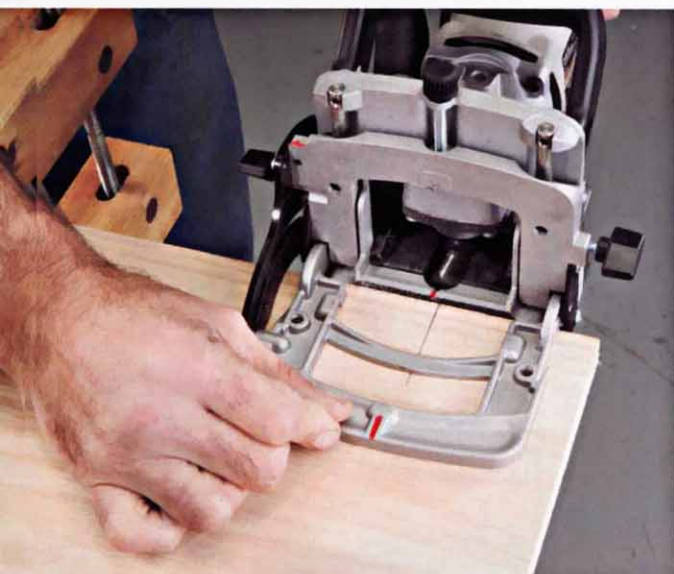
One of my primary uses for a biscuit joiner is fastening solid wood edging to plywood (photo next page). As the veneer on plywood gets thinner, getting perfect alignment between the solid wood and the plywood becomes more critical. If the solid ends up below the veneer, you've really got



Freud's JS102



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One reason that interest in biscuit joinery is increasing is because it is a very practical system. Miss your mark? Not a problem with biscuit joiners. Side-to-side alignment is very forgiving.



A biscuit joiner is the perfect tool for aligning solid wood edging with plywood. The biscuit provides excellent registration between the part surfaces, reducing the risk of sanding through the veneer later.



Use a biscuit joiner in a mitered joint to spline the two joint halves together. It will align the parts during clamping and strengthen the joint considerably.

The Essence of Practical Joinery

problems. If the solid ends up higher than the veneer, you've got lots of sanding to do. A biscuit joiner can virtually guarantee perfect alignment.

Miter joints are another ideal place for biscuits. By themselves, there isn't any mechanical connection between the two halves of the joint. There also isn't much surface area for glue. And, in solid wood, you're gluing end grain to end grain, which doesn't provide the best bond. Using a biscuit joiner on mitered parts is a great way to solve all three problems. The biscuits add strength to the joint and prevent the two halves from slipping past each other as you apply clamp pressure.

I've got a toolbox I use when teaching away from my own school that's full of nooks, crannies and cubbies. When I built it 15 years ago, I butt joined all the pieces and used biscuits to hold them together. Today, with lots of miles on the toolbox, every joint is still rock-solid, thanks to the 75 biscuits that hold the box together. Butt joints (see *photo* on page 78), where you can't or don't want to cut dados, are a great application for biscuits. Keep in mind, though, that a biscuit joint isn't quite as strong as a dado or rabbet joint.

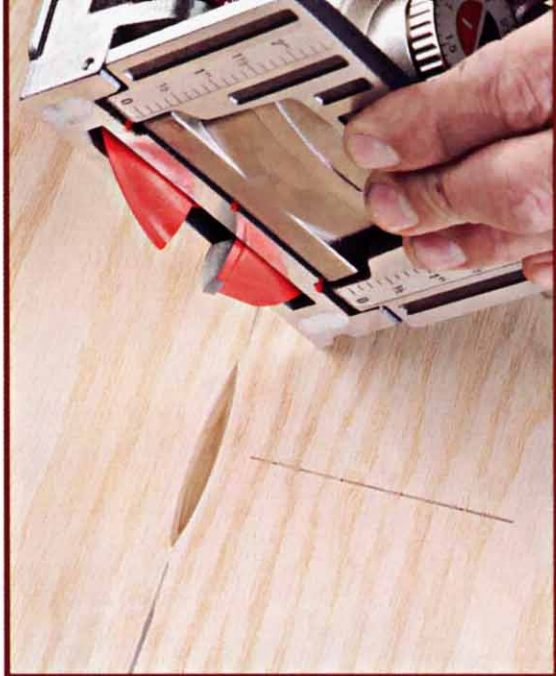
How about cutting in a patch using your biscuit joiner? Although the special blade required for this only works on Lamello joiners, it's so cool I had to show it to you in a photo (see page 78). Say you get a sand-through on veneered material. Simply place centering marks over the bad spot, install the blade in the machine, and plunge the cut. Patch material that perfectly fits into the cut is available in a variety of wood species. Since we're talking about

Shop Test continues on page 78 ...



While a traditional dado has some advantages, using biscuits instead of a plowed dado is more than acceptable in many circumstances.

A patching blade is exclusive to the Lamello machine. It allows you to easily cut out and patch a bad spot in your material. Patches are available in a variety of species.



the Lamello, here's another feature that's only offered on the Top 20 model. A micro-adjust allows you to dial the cutter position up or down without changing the fence. If you need to join offset pieces, this feature is worth its weight in gold.

What's Cooking with Biscuits?

Most of us are familiar with the usual suspects in the biscuit world: #0, #10 and #20 biscuits. But biscuits have come a long way, baby. In today's biscuit slots, you can: install a hinge, use knockdown fasteners, use a biscuit that acts like a clamp, reinforce a miter and assemble composite materials.

Shopping for a Joiner

You can't beat a test drive when it comes to buying tools. I recommend you handle as many biscuit joiners as you can before deciding which one is best for you. The exhaustive chart on page 82 lists most of the important features

Shop Test continues on page 80 ...

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Choose a barrel grip (shown here) or D-handle style. I find the barrel grip keeps my hand in line with the cut and makes the joiner less prone to rocking.



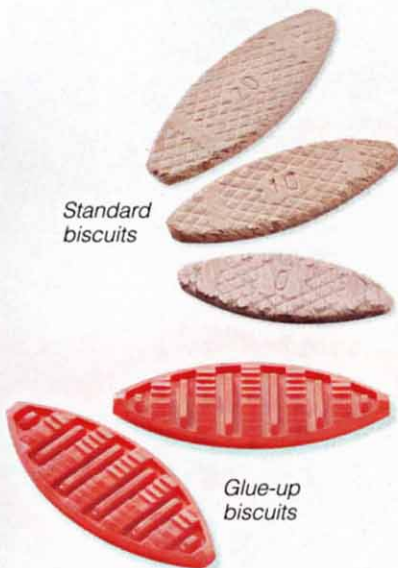
D-handles are preferred by some woodworkers. Features like handle preference are best determined "hands-on" as they tend to be highly subjective.



You'll get the most versatility from a biscuit joiner with a fence that can be set at 45° and 135°. This lets you register from either side of the miter cut.



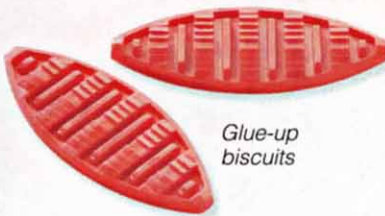
Standard biscuits



Hinge biscuits



Glue-up biscuits



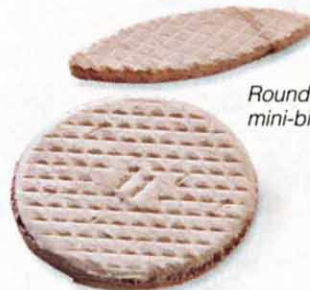
Knockdown biscuits



Miter reinforcements



Round and oval mini-biscuits



to look for in a joiner and helps you compare the various models currently available.

Handle Styles

You can choose between a barrel grip, where you're actually grabbing the body of the machine, and the D-handle style (photos left). You'll want to buy a machine that fits comfortably in your hand, so it's best to grab ahold of a few tools to see what you like best. I prefer the barrel grip style.

Fence Features

Look for a fence that can be set at both 45 and 135 degrees; this allows you to register the machine on either the inside face or outside face of a mitered joint, which maximizes your options when assembling the pieces.

It's best if the fence pivots, making it adjustable to any angle you want.

Additionally, the fence should track up and down very easily while remaining parallel to the blade. Look for a rack-and-pinion mechanism for adjusting the fence, a large angle scale and comfortable adjustment and lock knobs.

Smaller Blades for Tiny Joints

The 4"-diameter blade that's standard on most biscuit joiners is great for the typical #0, #10 and #20 biscuits. But if you want to use your biscuit joiner for smaller work, such as narrow face frames and picture frames, you need to use a smaller

Shop Test continues on page 82 ...

Biscuit Joiners for Every Woodworker

Manufacturer	Model	Price	Motor Amps	RPM	Handle	Small blade?	Fence pivot?	Fence at 45° and 135°?
Craftsman 	17550	\$70	3.5	19,000	D/Barrel cross	Yes, exclusively. Not interchangeable.	No	Yes
Ryobi 	JM82K	\$100	6	10,000	D	No	Yes	Yes
Freud 	JS100A	\$100	5	10,000	Barrel	No	No	Yes
Freud 	JS102	\$140	6.5	10,000	Barrel	No	Yes	Yes
DeWalt 	DW682K	\$175	6.5	10,000	Barrel	No	Yes	No
Makita 	3901	\$187	5.6	10,000	Barrel	No	Yes	No
Craftsman 	277300	\$190	6.5	10,000	Barrel	No	Yes	No
Porter-Cable 	557	\$200	7.5	10,000	Barrel	Yes, interchangeable	Yes	Yes
Virutex 	AB11N	\$295	5.9	10,000	Barrel	No	Yes	No
Lamello 	Classic C3	\$479	5	10,000	Barrel	No	Yes	No
Lamello 	Top 20	\$800	5	10,000	Barrel	No	Yes	No

Three representative machines:

Biscuit joiners are available in a wide range of models and prices. Here are three that run the gamut of what you'll find on today's market.

1. Lamello Top 20: \$800

Lamello invented the plate, or biscuit, joiner. Their exceptionally high quality models are made in Switzerland for professional and advanced hobbyists.



2. Ryobi JM82K: \$100

Ryobi tools are not aimed at professionals. Their pricing and manufacturing choices are more in line with the "DIY" market.

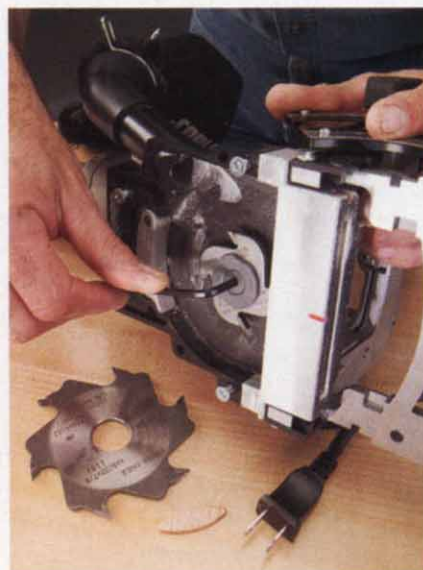


3. Porter-Cable 557: \$200

Used in professional and hobbyist shops across the country, the Porter-Cable 557 is representative of the heart of the biscuit joiner market.



To be truly useful, the fence should be easy to adjust up and down, and it should track parallel to the blade.



Switching from a large to a small blade allows you to use undersized biscuits for smaller work, like face frames and picture frames.

blade and smaller biscuits. You can't just put the small blade on any biscuit joiner. The plunge mechanism on the machine has to be able to work with the smaller blade. If you want the flexibility of using smaller biscuits, make sure your joiner can be retrofitted as needed for this purpose.

A biscuit joiner will add speed, accuracy and strength to your joint-building jobs. If you're like most woodworkers I've talked with over the years, once you own one, you'll wonder how you ever got along without it.

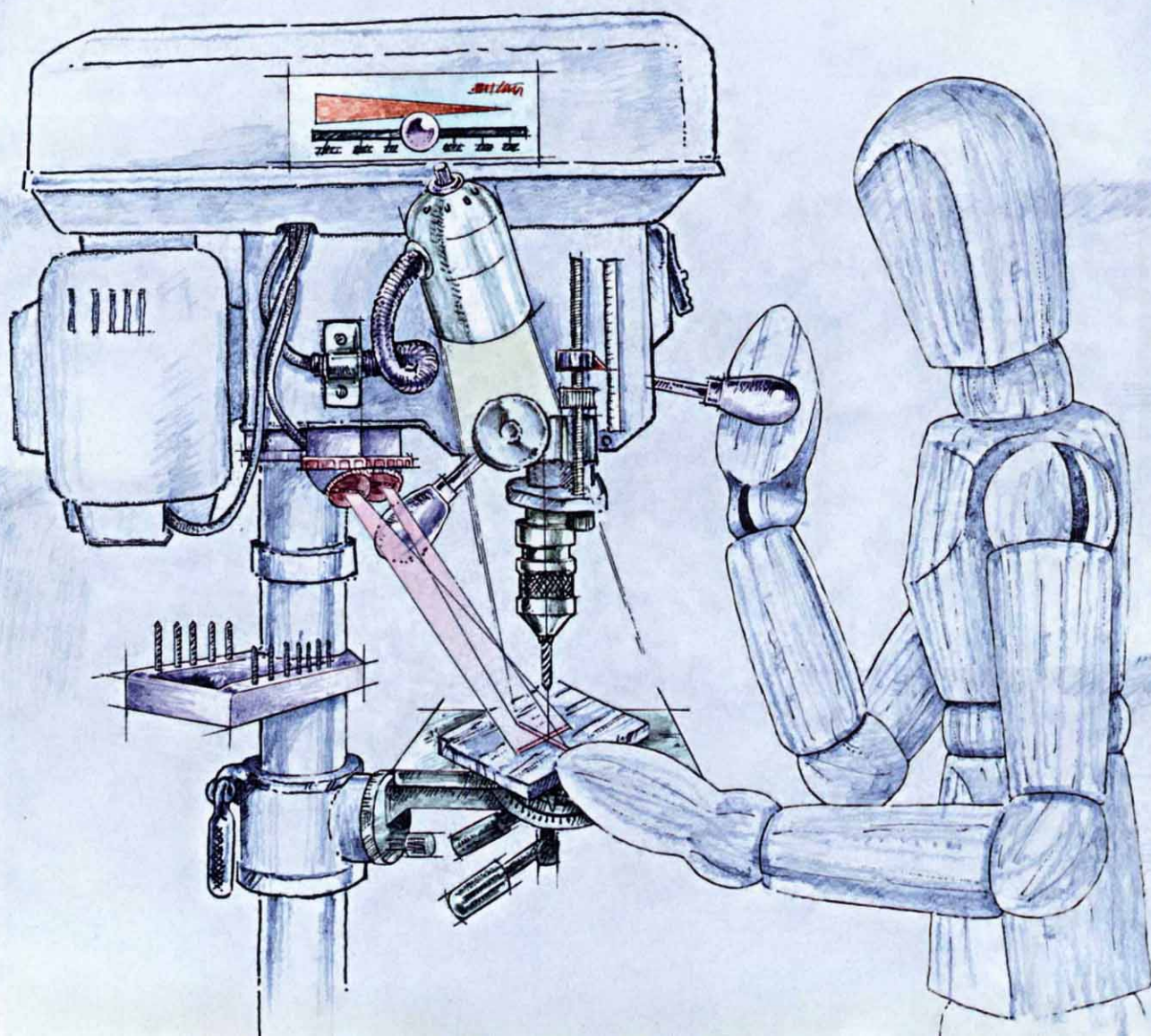
Contributing editor George Vondriska is the proprietor of the Wild Earth School, where he teaches woodworking.

Drill Presses Designed for Woodworking... Finally!

By Chris Marshall

Project Goal: Create a Woodworking Drill Press

- | | |
|--|--|
| 1) Variable speed | 6) Easier-to-use depth stops & quill handles |
| 2) Table that tilts in more directions | 7) Super-long quill travel |
| 3) Sturdy fence with dust collection | 8) Digital readout |
| 4) A tray to store bits | 9) Directional task lighting |
| 5) Keyless chuck | 10) Laser accuracy |



SOURCES

Craftsman: 800-897-7709

Delta: 800-800-223-7278

Powermatic: 800-274-6848

Ryobi: 800-525-2579

Shop Fox: 800-840-8420

Steel City: 877-724-8665

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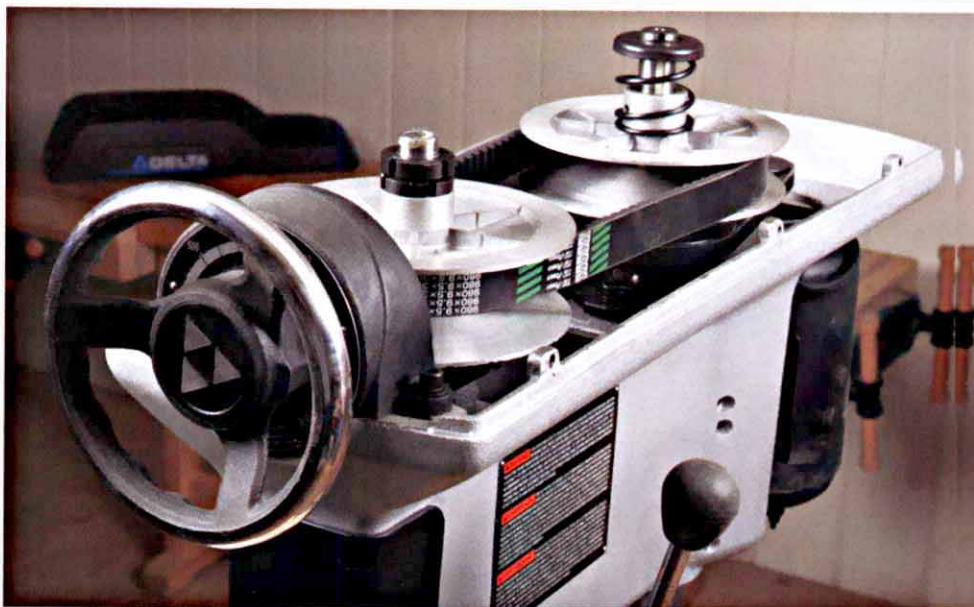


A select bunch of newer drill presses have finally taken that last big step out of the machine shop, with features designed specifically for woodworkers!

Drill presses drill holes ... seems simple enough. How much room for improvement could there be? But once you log some hours with the average drill press, little annoyances start to crop up. Take speed changes, for instance. We all know that one speed does not suit all bits. Yet prying those belts on and off the pulley clusters takes time, and it's a dirty job. I'm always left with black belt grime on my fingers. Have you ever misplaced your chuck key or grumbled as you tried to clamp things to the edges of your table? Have you ever wished for a bigger tabletop, a better option for tilting it or a more precise way to line up your holes?

Well, if you're nodding yes to any of these, a better day has finally come! Manufacturers are now building a few drill presses with woodworkers in mind. I recently gave six of these tools a closer look, and their updated features are quite snazzy. The machines I saw included Powermatic's 18" PM2800 (\$899.99), a Delta 20" Model 20-950 (\$749), Steel City's 17" Model 20520 (\$470), the Craftsman Professional 17" Model 22901 (\$530), Ryobi's 12" Model DP121L (\$169) and a Shop Fox 13 1/4" Model W1668 (\$250).

I'm excited to share some of their cool features with you here. If you're in the market for a new drill press right now, these are the machines I recommend you check out first. Be sure to visit "Quik-Link" at woodworkersjournal.com to see these tools and your local tool dealers to try them out and learn more.



Delta's mechanical variable speed functions by way of a centrifugal clutch and a single drive belt. Just crank the hand wheel in front to change drilling speed: no more fiddling with dirty belts and pulleys. It's a big convenience when you're making frequent bit size changes.

Fuss-free Variable Speed

Variable speed just might be drill press nirvana. Powermatic, Delta and Ryobi have this wonderful improvement. Basically, instead of switching belts manually, you move a hand wheel or lever to dial the machine's RPM up or down. A centrifugal clutch, similar to those you'd find on a go-cart or a snowmobile, handles the speed change. Two adjustable pulleys inside the case open or close around a single wide belt. You never need to open the cover or touch anything. Now, switching speeds from a tiny twist bit to your biggest Forstner is both quick and simple. What a sweet deal! Powermatic and Ryobi even provide a digital readout to show the exact bit speed. I'm told Delta will soon add digital readout, too.

Today's Shop continues on page 88 ...



Digital readout makes variable speed even better. Now you'll know the exact chuck speed so you can adjust it as needed.

New features redefine a shop standard



Long workpieces are easier to manage on the table of Powermatic's PM2800: it has two extension wings that pull out and lock, expanding the table width to 26".

Better Table Manners

Drill press tables have three draw-backs for me: they're too small, hard to clamp to and don't tilt easily or in all the right ways. Some of these new drill presses address all my gripes. Delta's table is superb: at 14" x 24", it's huge. It's also cast without that meddlesome lip around the bottom edge that makes clamping more difficult. Ryobi, Craftsman and Steel City also have "lipless" edges on their tables — so kudos to

them all. Another breakthrough on the Delta table is that it pivots left and right AND front to back. Yep, you read that right: *two* pivot planes instead of one. Need to set up compound drilling angles or bore spindle holes in chair seats? If so, this Delta will delight you.

Powermatic and Craftsman offer pull-out workpiece supports on their tables, which should make those monstrous workpieces much easier to manage during drilling. Powermatic also includes a top-notch fence with T-slots and built-in dust collection — very handy.

Keyless Chucks

Keyless chucks have taken the drill/driver market by storm in recent years. Now, tool-free chucks are a reality for drill presses, too. Craftsman and Powermatic are the only machines in this group to have them, but they're mighty nice. Just slip a bit in and give two knurled collars a twist. That's it ... the bit is tight. I tried these out with some large bits and heavy-handed hogging cuts, but they didn't lose their grip. Best of all, I never misplaced that infernal chuck key. With these new chucks, who needs it?!

New Light Shows

Worklights on drill presses aren't new, but I like the gooseneck lamps that come on the Steel City, Craftsman and Delta presses. It's



You'll never miss — or misplace — a chuck key with these keyless chucks. A twist locks bits securely and releases them in a jiffy.



Pinpoint drilling accuracy is assured, thanks to the adjustable laser crosshairs found on the Craftsman 22901, Powermatic PM2800 and Ryobi DP121L drill presses.



Compound drilling angles are easy to set accurately with Delta's dual-tilt table. It tips left and right as well as front to back. Two scales mark the angle settings, and locking levers hold them fast.

helpful to be able to direct light right where you need it. Powermatic has done away with the bulb completely; the PM2800 has two LED lights, which should never burn out or break. They provide shadow-free illumination.

A bigger change in lighting is the addition of laser crosshairs. Ryobi, Powermatic and Craftsman have them. At first I was a bit skeptical about this convenience, but on closer inspection, the lasers are quite

Today's Shop continues on page 90 ...



Improved operator controls may not be dealmakers in themselves, but they sure are worthwhile conveniences. Craftsman's single-pull quill lever (left) has an adjustable throw so you can set it right where you need it. Steel City's button-release depth stop (center) indexes stopped-hole depths quickly. Southpaws will love the option of mounting quill handles on either side of Powermatic's PM2800 (right).

nice. When the beams are dialed in precisely (and all of them adjust easily), you know exactly where the centerpoint of your bit will hit the mark. For drilling those really critical holes, here's a way to split hairs.



The Shop Fox W1668 is tailor-made for drum sanding, with oscillating action, a table pass-through hole for the drum and a vac hose port.

Stepped-up Sanding

Drill presses make decent drum sanders, but an oscillating spindle sander does the job in less time because of that second, up-and-down motion. Wouldn't it be slick if a drill press did that, too? Well, one does: Shop Fox's W1668 benchtop model, and it deserves a tip of the hat for that sensible feature. All it takes to engage the oscillating motion is slipping a separate belt onto a dedicated pulley. This engages a gear that moves the quill up and down almost an inch. It's just enough motion to give your sanding efforts that added advantage. Shop Fox also makes drum sanding more convenient by providing a set of sanding drums as well as a modified table with an over-

sized pass-through hole, dust collection port and drum reducer rings. For small shops or tight budgets, this machine's dual capacity should make it a great value.

Improved Operator Controls

In my experience, the tools that seem safest can actually be the most dangerous if you aren't diligent all the time. Spinning bits can be hazardous. That's why I'm happy to see several of these models equipped with oversize kill switches and safety lock-offs ... just in case.

Quill handles have taken a few steps forward in design as well. Powermatic allows you to install the handles on either the left- or right-hand side, with no special modifications. Lefties should love this. I'm also impressed with Craftsman's single-lever pull: it has a number of detents inside the handle mount so

you can position the lever wherever it lends the best advantage to what you're doing. For a long throw, set it farther back; move it forward for shallow or repetitive work.

Here's another dandy doodad: tool-free depth stops. Most drill presses employ a pair of nuts on the depth stop rod to set drilling depth, which works OK. On the Steel City, Craftsman and Delta drill presses, however, all you do is push a button on the stop collar to make the coarse adjustment, then turn it for fine-tuning.

Deep(er) Throws

One last goodie worth noting is overall quill travel. You never know when you'll need to drill a really deep hole, and most drill presses bottom out at about 4" of drilling depth. If you could use a few inches more from time to time, consider Delta and Steel City's drill presses; both provide 6" of quill travel.



Steel City's 20520 and Delta's 20-950 bore deeper holes than others: both have 6" of quill travel — about 2" more than comparable tools.

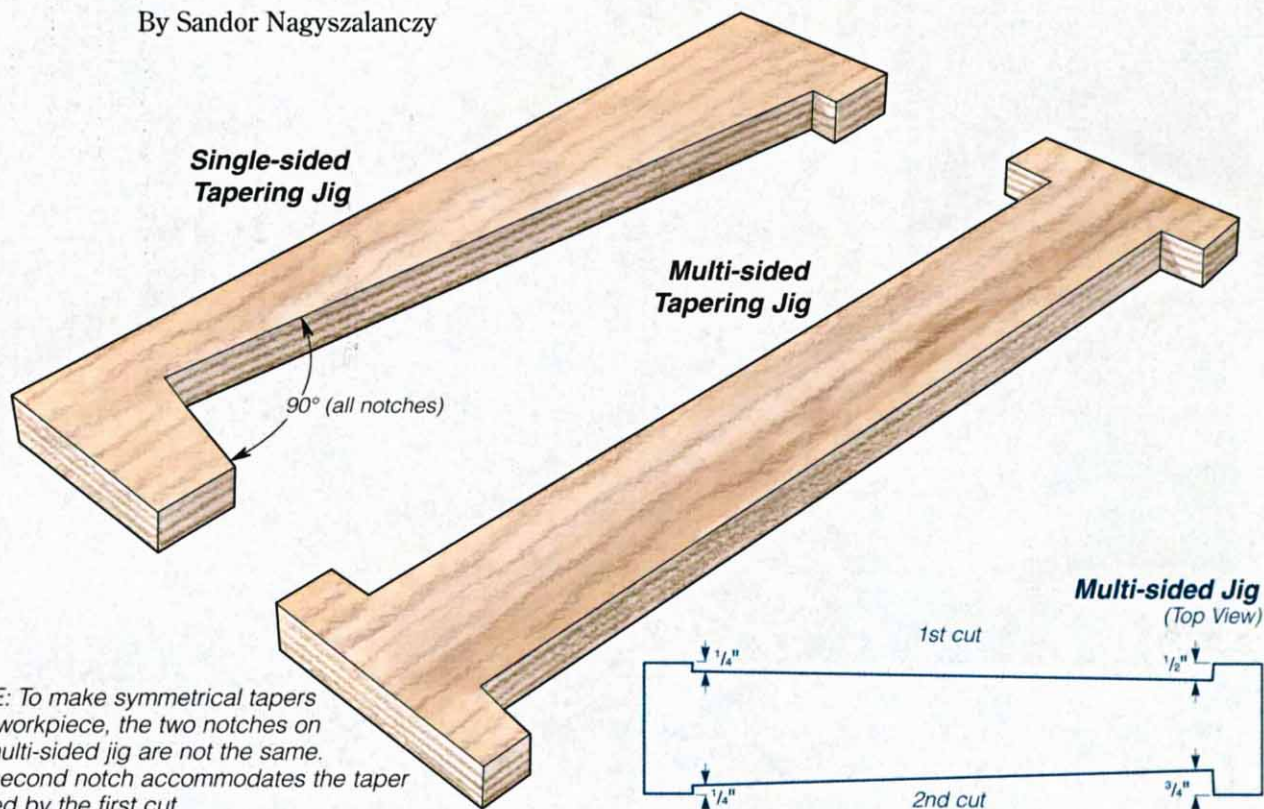
Drilling has Never Been Better

Drilling holes may be among the more mundane aspects of our fine craft, but these new drill presses will make the job more enjoyable and precise. Given the bounty of good woodworking features emerging here, I'm hoping other manufacturers will follow suit. After all, drill presses may have got their start in metal shops, but they're certainly in our woodshops to stay.

Chris Marshall reviews tools and builds projects as field editor for Woodworker's Journal.

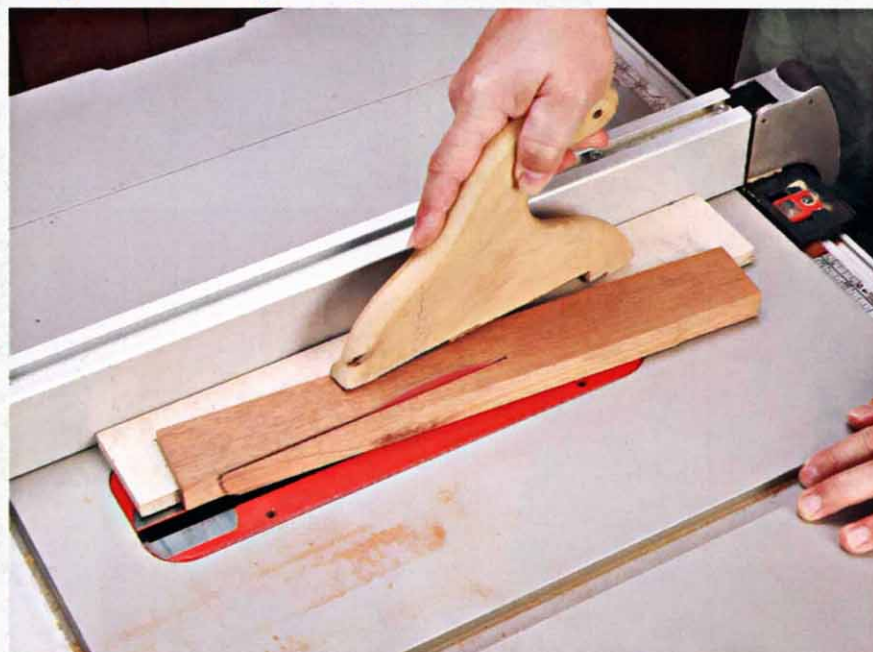
Easy-to-Make Tapering Jigs

By Sandor Nagyszalanczy



NOTE: To make symmetrical tapers on a workpiece, the two notches on the multi-sided jig are not the same. The second notch accommodates the taper formed by the first cut.

Single-sided Tapering Jig



Here the author demonstrates a single-sided tapering jig. It has just one notched edge to hold workpieces at the correct taper angle. The other side remains flat and rides against the fence.

There's no sense spending a lot of time making a fancy tapering jig. All you really need is a piece of scrap with one or two notches.

Taper cuts are necessary for creating a variety of parts, from simple wedges to elegant legs for a demi-lune table. The table saw and a tapering jig are ideal partners for making these parts safely and accurately. A basic tapering jig need be little more than a rectangular piece of scrap with an angled notch cut in it (see *photo*, left). The notch holds the workpiece at an angle, while the jig's straight edge bears against the rip fence as one edge of the work is cut to a taper. A single-sided jig is great for cutting a wedge or a right triangle, but it

Multi-sided Tapering Jig

won't work for parts like guitar fret boards or table legs that are tapered on two or four sides. The same notch that positions the work when cutting the taper on one edge won't produce the proper taper when the work is flipped over for cutting the opposite edge. Two- and four-sided tapers require a jig with two different notches: one notch fits the work's uncut edge, and the second positions an already tapered edge so that the opposite edge may be tapered.

Making the Multi-sided Tapering Jig

To make a multi-sided tapering jig, start by cutting out a rectangular piece of 1/2" or 3/4" plywood that's about four to five inches wide and three to four inches longer than the piece you wish to taper. Next, cut the first angled notch using a band saw or jigsaw (see top photo). For example, say we want to taper a 16" coffee table leg from 1 1/2" square at the top end down to 1" square at the bottom. This equals a taper of 1/4" over the 16" length of the leg on each edge. On the band saw, cut out a 16"-long recess that starts at least 1/4" deep and angles to 1/2" deep at the other end. For the notch used to taper the other edge/side of the work, cut another angled recess in the other long jig edge. This time, make it taper from 1/4" deep at one end to 3/4" deep at the other end.

Using the Multi-sided Jig

To taper a four-sided leg, use the shallow notch to cut two adjacent sides of the part (see middle photo). To keep the cuts square, put the uncut side of the leg face-down for the second cut. Now, flip the jig over to its other face and use the deeper notch to taper the remaining two sides of the leg. You will need to reset the rip fence for these next cuts. Also, this time, go ahead and tape the scrap pieces from the first cuts back on the already tapered sides before cutting the remaining two, which will keep the cuts square (see bottom photo).

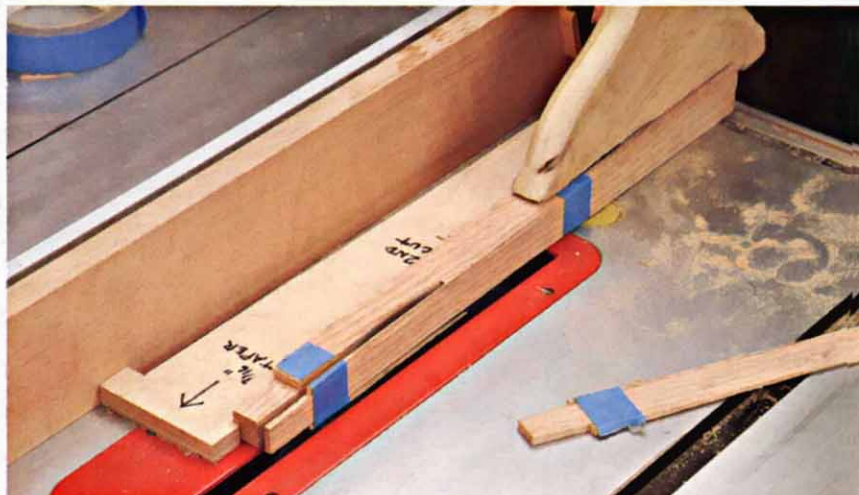
Sandor Nagyszalanczy is a writer, photographer and furniture designer/craftsman. His Complete Illustrated Guide to Jigs & Fixtures is available at: www.sandorsworkshop.com or from Rockler Woodworking and Hardware at 800-279-4441.



Making the multi-sided tapering jig requires two differently sized notches; the second notch is deeper than the first to ensure that the taper cut on the opposite edge is cut correctly. Always test your jig on scrap lumber to be certain of its accuracy.



To make a tapered leg, make the first taper cuts using the shallow notch of the jig to taper adjacent sides. The clamped-on auxiliary fence shown here extends the length of this table saw's short rip fence to support the entire length of the cut.



To taper the remaining uncut sides of the leg, tape the offcuts back onto the leg blank as shown above. Flip the jig over and reposition the rip fence to create the same degree of taper for the remaining cuts.

WHAT'S IN STORE

contact info

Black & Decker:
800-544-6986

DeWalt:
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Makita:
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Pock-Its:
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Rockler:
800-279-4441

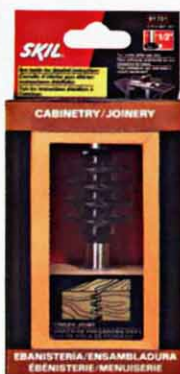
Ryobi:
800-525-2579

SKIL:
877-754-5999

Stanley:
800-262-2161

Steel City:
877-728-6651

Veritas:
800-267-8735



Introductory Router Bit Sets

SKIL's new 1/2"-shank router bit sets are intended to provide new woodworkers with affordable joinery bits made to the size of wood stock they're normally using (3/4", although most can accommodate up to 1" stock). Models 91701, 91702, 91703 and 91704 are priced from \$34.99 to \$59.99.



Small Screwdriver Rotates

Black & Decker's Rota-Driver rotates into four positions for easy access to more locations. It accepts 1/4" hex screwing and drilling accessories and is priced at \$29.99.



Four Tools in One

Makita's BTP140 Cordless Hybrid is an 18-volt impact driver, hammer drill, driver and two-speed drill, all in one. It uses Lithium-Ion battery technology and a four-pole motor design that generates energy on the magnetic field every 90°. Suggested retail price is \$469.

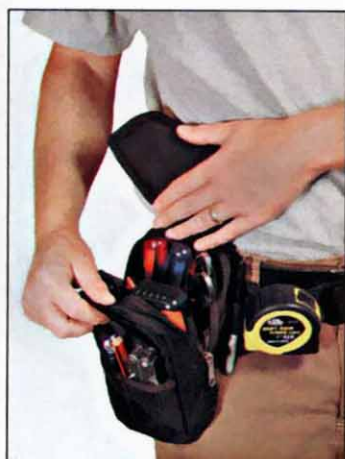
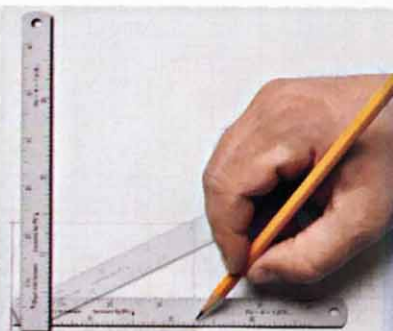


One-Button Close

Stanley's FatMax Xtreme Auto Trigger Clamp closes quickly when you push one button. It also converts to a spreader, exerting 450 pounds of force. The 12" jaw capacity model has a suggested price of \$24.99.

Easy Phi Calculations

Phi Rules from Lee Valley/Veritas make it easy to calculate the "Golden Ratio" of 1.618. A dual scale has normal graduations on top and Phi-scale graduations on the bottom. They come in different lengths; prices start at \$1.95 for the 6" rule.



Pock-It Tool Holders

Pock-Its® utility holsters from Nite-Ize come in a variety of different sizes to hold your tools while you're on the move. Prices range from \$7.99 for a mini size to \$17.99 for Hip Pock-Its.



New Batteries, New Color — Works with Good Ol' Tools

Ryobi's Lithium tools are a new, green color for the company — but compatible with previous One+ tools. The 18-volt Lithium line has two- and four-piece tool kits and a battery upgrade kit that provides the longer run-time, lighter weight Lithium battery for existing One+ tools. Lithium kit prices range from \$99 to \$259.

continues on page 100 ...



Quik-Link takes you directly to the web page on which these products appear! No navigation necessary ... just go to www.woodworkersjournal.com and click on the Quik-Link icon shown at left.

WHAT'S IN STORE



Splinter-Free Crosscuts

Rockler's Table Saw Crosscut Sled slides across your table saw to help you make splinter-free cuts. The 23 3/4" x 23 3/4" table has a 3" H x 24" L aluminum fence with adjustable MDF fence and easy-to-read 1/2-degree graduations. The price is \$119.99.



Rock-Solid Table Tops
Steel City's new 10" Riving Knife Cabinet Saws come with a riving knife as a standard feature — and granite tabletops, which absorb vibration and won't rust. The saws come in 1.75 or 3 HP motor models; prices range from \$1,174.99 to \$1,374.99.

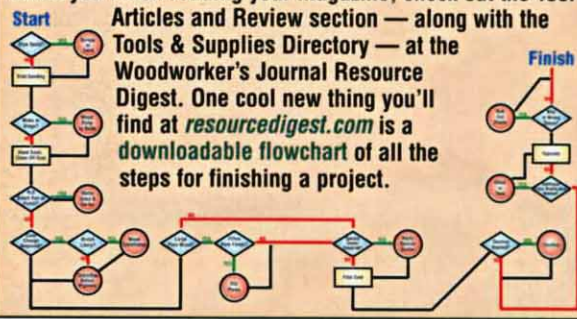


New Nano Battery Technology

DeWalt recently launched both a 28-volt and an 18-volt tool line using their exclusive **Nano-Phosphate Lithium Ion** battery technology, claiming longer run times and lighter weight. The 18-volt Nano-Phosphate batteries are compatible with existing 18-volt DeWalt tools. Prices for the tools vary, starting at \$50 for a Nano flashlight.

More Knowledge on the Web

Still hungry for more articles on tools and woodworking? When you finish reading your magazine, check out the **Tools & Supplies Directory** — along with the **Articles and Review** section — at the **Woodworker's Journal Resource Digest**. One cool new thing you'll find at resourcedigest.com is a downloadable flowchart of all the steps for finishing a project.



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Blue-collar Hardwood

By Rob Johnstone

Yellow poplar (not really a poplar) will never win any hardwood beauty contests, but with its reasonable price, easy-to-work nature and durable characteristics, it has long been a hardworking shop favorite.

"Hey, what are you making with that green wood?" asked one of my customers standing in my small cabinet shop many years ago. His question caused me to look at him askance — because I knew well that all of my stock was kiln dried. Then a lightbulb flickered on.

"Oh ... that's yellow poplar, I use a lot of it."

"Huh — looks green to me," he replied.

Chris Evans, River to River CWMA, www.forestryimages.org

And he was right. Green and even bluish hues are not uncommon on patches of yellow poplar lumber. Its generally creamy-tan color varies a good deal, and no one will ever choose poplar for its figure or grain, which are — well, boring. But yellow poplar may be the most popular hardwood never seen. Used in untold numbers of upholstered furniture pieces and as the carcass components of cabinets, its strength and easy-to-work nature are the keys to yellow poplar's versatility.

I've talked to many woodworkers who have told me they have stained yellow poplar and applied a top coat, and to their eyes it "... looked exactly like walnut" (or cherry,

One look at the yellow poplar's blossoms explains one of its common names, the tuliptree.

A giant of the Eastern hardwood forests, yellow or tulip poplars prefer moist soft soil to grow their best.

Not a true poplar, the tree was misnamed because its leaves were similar to other actual poplars ... such as the cottonwood.



The Dow Gardens Archive, Dow Gardens, www.forestryimages.org



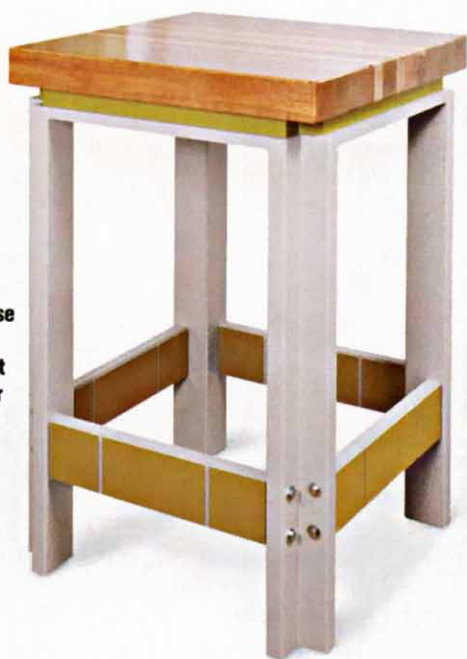
Brian Lockhart, USDA Forest Service, www.forestryimages.org



Paul Wray, Iowa State University, www.forestryimages.org

"Yellow poplar may be the most popular hardwood never seen."

The leg and rail components of Ian Kirby's Kitchen Workstation (page 46) are constructed of yellow poplar. Yellow poplar's close grain and uniform consistency make it a natural choice for painted furniture.



rosewood — whatever more desirable species they had in mind). Now, far be it for me to second-guess what another woodworker has accomplished, but statements like that do make me wonder whether these folks have actually ever seen what a nicely finished piece of walnut looks like. Personally, I would never select yellow poplar for a project I planned to stain and apply a clear finish to. But when my goal is to paint or cover a piece of furniture — then poplar is the perfect choice.

While not a real "looker" after milling, the yellow poplar tree, also known as the tuliptree, is a beautiful ornamental plant, much valued for its blossoms and luxurious foliage.

The versatility of yellow poplar does not stop at cabinetry or its components. When I asked my friend, silviculturist Tim Knight, to write a short piece about yellow poplar (sidebar at right), he was enthusiastic, identifying it as one of his favorite wood species. In fact, he has a cabin built out of it. He told me that for a while during the 1960s and '70s yellow poplar was substituted for softwood framing and construction lumber. (There was a shortage of softwood lumber during that period.)

Every woodworker has a species of wood that evokes memories and claims a place in their pantheon of favorite woods. Yellow poplar is one of mine. It is a humble, hardworking all-American hardwood — not flashy, but very dependable. And that's the reason I chose it to kick off a series of articles on special wood species. Next time out, we'll have a look at an extremely unique exotic.

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Liriodendron tulipifera

Yellow poplar (*Liriodendron tulipifera*), also called tuliptree and tulip-poplar due to its tulip-like bloom, is a member of the magnolia family but is in a different genus than the common magnolias. Curiously, it is not a true poplar. The poplars include the cottonwood species, balsam poplar and aspen, but not yellow poplar. It was commonly called a poplar because the leaves are dark green on top and silvery green on bottom, much like the poplars. That is where the resemblance ends.

It is one of the faster growing and tallest hardwoods of the eastern United States. It can grow to a height of 190 feet with a diameter of eight to 14 feet at the ripe old age of 300 years; however, it normally grows to 150-200 years before dying of old age and is commonly found to be 100 to 150 feet tall and two to four feet in diameter. The largest trees found today are in the Great Smoky Mountains National Park.

Yellow poplar naturally occurs from New England west through Michigan and south to Louisiana and central Florida. It prefers deep, moist but well-drained soils and is most plentiful in the Appalachians and Piedmont areas from Pennsylvania to North Carolina. It does well in the eastern lower Mississippi Valley but occurs west of the Mississippi in only narrow bands in Illinois, Missouri, Arkansas and Louisiana, along the hills adjacent to the Mississippi River basin.

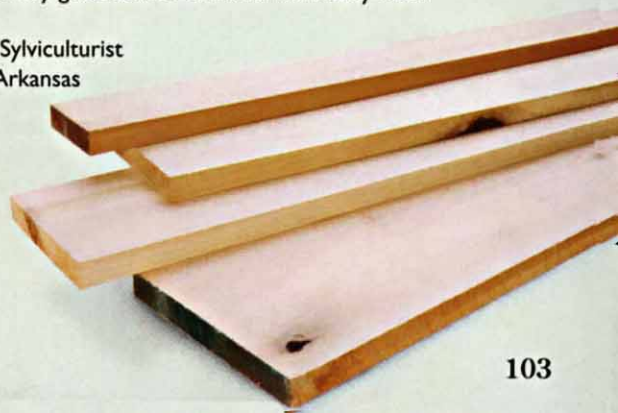
Characteristics

Since yellow poplar is strong, with large logs which are relatively light, dense and easy to work, it was used extensively by the Native Americans of Virginia and the Carolinas to build dugout canoes. The same characteristics made it useful for framing lumber for homes and cabins; however, few of these historic structures remain since the wood is not as resistant to rot as chestnut or old-growth pine.

During the early 20th century, much of the heartwood of old-growth yellow poplar was marketed as "blue poplar" due to the bluish colored heartwood of a freshly cut old-growth tree. As it dries, the heartwood turns greenish-yellow to light brown in color. Many logs were so large that it was necessary to split them at the sawmill (using explosives) in order to make the piece small enough to fit on the saw carriage.

Due to yellow poplar's rapid growth, beautiful form, attractive green summer foliage, greenish-yellow tulip-like flowers and its brilliant yellow autumn color, it is valued in many places as a shade tree. It is also a very good source of nectar for honey bees.

—T.C. Knight, Silviculturist
Jessieville, Arkansas



A 50-Year Finish — No Waiting!

By Michael Dresdner

ABOUT MICHAEL DRESDNER

Michael Dresdner is a nationally known finishing expert and the author of *The New Wood Finishing Book* from Taunton Press. When not writing about woodworking, he is an active community theater participant.



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Please include your home

address, phone number and

e-mail address (if you have one)

with your question.

Q Last year, a flash flood took out the lower level of our house. I'm redoing the den with knotty pine tongue-and-groove boards. I've seen old fishing cabins where the interior pine paneling has turned a beautiful orange-yellow. Can you give me a tip how I can get a warm look like this without waiting 50 years?

*Bob Goozen
Whitehall, Montana*

Michael Responds: When pine ages, it both changes color and gets more translucent. You can't fake the latter, but it is easy enough to mimic the former. Staining the pine, as I suspect you know, is not a good idea as it will make the early wood bands darker than the late wood. Instead, start by sealing the wood with one coat of clear finish, then switch to clear coats that have been tinted with a bit of dye. As long as the tinted finish is applied evenly, you will get subtle but uniform color alteration. Done adroitly, it can look very convincingly like aged pine.

Want to get a rich amber pine finish without waiting 50 years for it to develop? Start with sealing, not with stain.

Q I have been using a wipe-on polyurethane finishing technique by mixing oil-based satin polyurethane with mineral spirits. It has worked well, especially while turning projects on a lathe. Am I missing something by not using the already prepared product such as Wipe-On Poly? Is there some additive missing from my procedure that will ease the application or enhance the finish?

*Salvatore F. Pontecorvo
Fort Wayne, Indiana*

Michael Responds: Yes and no. Yes, wipe-on polyurethanes often have extra oil or some other ingredient that adds lubricity to the mix, making it easier to wipe and slower to dry. No, the addition of such ingredients does not enhance the final finish. In other words, if you are happy with how your

homemade mixture of diluted polyurethane applies, there is absolutely no reason to switch to anything else.

Q We had a beautiful cedar wood ceiling in our 14-year-old home. About two years ago, we rented it, and the renters decided to have the house spray painted, subsequently leaving a splash line of paint along the vaulted cedar ceiling. The painter did not bother to clean up his mess. Now we find it most difficult to remove since we have maintained a chemical-free environment. Is it worth saving? Can we restore its beauty by sanding the entire ceiling? Can cedar be refinished, stained or varnished? We really do not know what to do. We are willing to work hard to restore it.

*Daniel and Jacqueline Bik
Sarasota, Florida*



Regular sanding (about twice a year) is the key to activating and keeping the aroma of aromatic cedar.

Michael Responds:

Whether or not it is worth saving is something only you can answer, but it certainly can be done. Once you are down to raw wood, it can also be refinished. It is usually easier to remove paint chemically with paint remover, but if you want to sand that is your prerogative. Be aware that wood changes color with exposure to light and oxygen, and sanding one area can remove that color. In other words, unless you do the same thing to the entire ceiling, you may have lighter areas where you

sanded. Before you sand, start by cleaning the wood with some sort of degreaser or dewaxer, such as TSP (trisodium phosphate) or naphtha. All ceilings accumulate airborne grease and oils, and you do not want to be sanding that deeper into the wood.

Q I relined our closet with aromatic cedar last year using a cedar kit from a home center. The

material is about 1/4" thick. It went up well and looks good. Unfortunately, we no longer smell the cedar aroma. Is there a way to renew the odor?

Bob Berdine
Fairfield Bay, Arkansas

Michael Responds: Yep, sand it lightly. Sanding the cedar, even with 220-grit sandpaper, will remove the oxidation layer and restore the aroma. Plan on doing this once or twice a year if you want to keep the smell going strong.



WINNER! For simply sending in his question on cedar's aroma, Bob Berdine of Fairfield Bay, Arkansas wins UGL's ZAR Wood Finishing Kit. Each issue we toss new questions into a hat and draw a winner.

THE ALL NEW WOODWORKERS' RESOURCE DIGEST...

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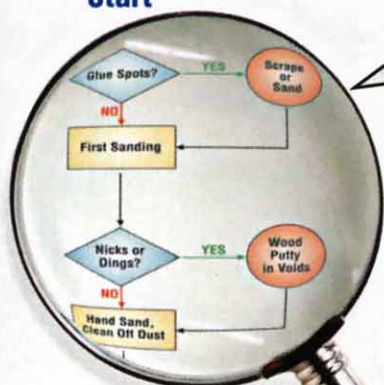
Woodworkers' Resource Digest



Starting Steps to a Quality Finish

A SWELL SOLUTION

Start



Surface Prep

Surface preparation is literally the foundation of a good finish. Start by removing glue spots, move onto the initial sanding, and then address any nicks, dings or voids in the surface.

A flow chart is a handy map that prompts you to ask the right questions, then directs you, depending on the answer, to the next step in a process, all while guaranteeing you don't miss any steps. Because they

are so concise, flow charts tend to be a bit cryptic. In the next six issues, I'll expand on the finishing flow chart we first published in the August 2005 issue of *Woodworker's Journal* by adding full descriptions of each step in the process. The end result, if you keep them all, will be a complete finishing primer.

Steaming Dents

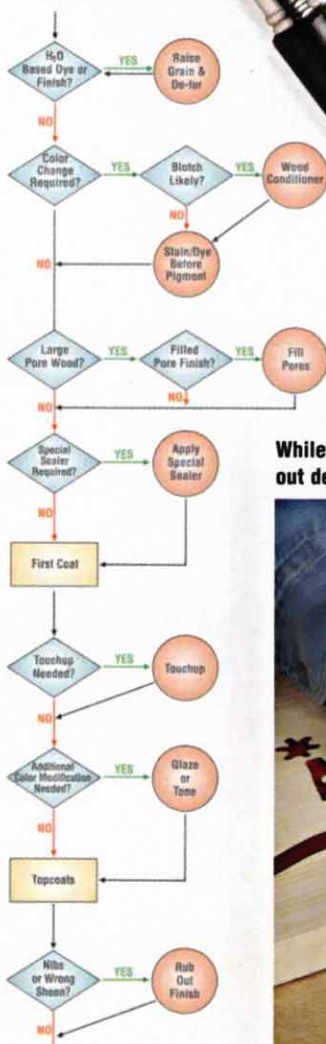
By the time your piece of furniture is ready for finishing, odds are good that it will have picked

up some dents and gouges along the way. A dent is a depression in which the wood fibers were crushed, but not torn or cut, while a gouge has fibers cut or wood missing. We will deal with gouges later. You can usually steam dents out, and now is the time to remove them.

Start with a wet cotton cloth and a hot iron, preferably one no longer being used for clothing. Using an eyedropper, a small artist's brush or even a toothpick, fill the dent with a drop or two of water. Add more water if it soaks in immediately to ensure that the depression is filled with water. Place the wet rag over the water-filled dent, and press the iron onto it. The wet cloth will prevent the iron from scorching the surrounding wood. Leave the iron on only a few seconds until the cloth is dry beneath it. You may have to repeat the whole process, but usually one or two pressings with the iron should bring the dent up to level.

—Michael Dresdner

While not applicable in every surface void situation, steaming out dents and dings is a slick trick to use in surface preparation.



Finish

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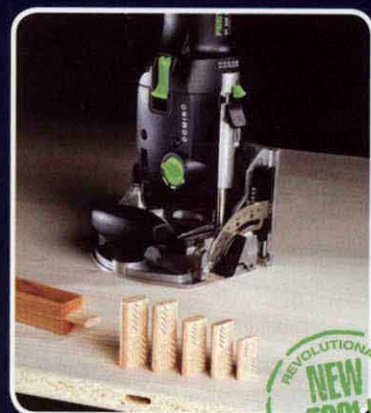
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