

THE AMAZING SCROLL SAW: WHAT YOU NEED TO KNOW

WOODWORKER'S JOURNAL

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Rocking a Modern Chair



Page 30

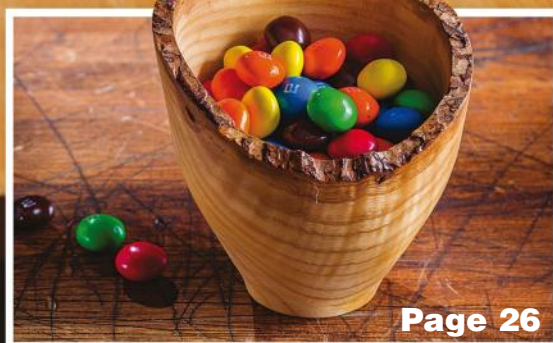
February 2018

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INSIDE!
Classic Coatrack
5-Drawer Tool Chest Till
Natural Edge Bowl



Page 26

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Woodworker's Journal

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February 2018



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Projects



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5-Drawer Tool Chest Till

By Ernie Conover

Interior drawer dividers create storage spaces for your tools, while partitions slid into dados in the carcass support the drawers themselves.



Page 64

Tripod Floor Lamp

By Kristena Smith

This trendy tripod lamp is easy to make using handheld tools, home center lumber and a gang sanding technique.



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Classic Coatrack

By Brad Becker

A technique made for tricksters: reverse inlay makes it appear that the thinner, light-colored strips are inlaid into a walnut column — but, in reality, it's the reverse.

Modern Rocking Chair

By Greg Wood

In this updated version of an American beauty, wooden dowels support and separate the seat from the side assemblies.

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optional Infeed/
Outfeed tables

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Departments



8 Letters

Additional options for safety glasses, plus a new emphasis on — and call for — reader projects.

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Wondering which woodworkers are wonderful on the web? Here's the inside insight on who brings you the best info.

14 Tricks of the Trade

Freeze rubber drums for easier sandpaper sleeve installation. Plus shop cleanup solutions.

16 Questions & Answers/Stumpers

How can you tell if old shellac's worth using? Outdoor finish options to get rid of the gray. And what is ash good for, anyway?

20 Shop Talk

A private visit to a Chinese master woodworker's museum; NFL committee plants trees in Super Bowl LII host community.

26 Woodturning

Highlight bark and other features when you turn a bowl with a natural edge.

52 Techniques

Resawing on a band saw: we'll show you how to do it simply.

56 Tool Tutorial

A new department tells you what you need to know about a tool, whether you're a buyer or a user. First up: Expert Carole Rothman introduces the scroll saw.

72 What's In Store

New worm drive saws, wireless headphones and speaker, portable workstation and more.

78 Finishing Thoughts

Michael Dresdner introduces two types of spray-on glaze — wet glaze and dry (aka "breakaway") — and explains how to use them.

82 Hey ... Did You Know?

Greek legend with a woodworking connection, Dutch uncle sawmill inventor, cypress knees.

woodworkersjournal.com



Woodworkers are an interesting bunch. On the one hand, they often like to be alone in the shop to focus on their work. On the other hand, they often love talking to other woodworkers and sharing each other's work.

The sharing part is exactly what's happening on the *Woodworker's Journal* social media channels right now.

Visit our channels, including Facebook, Instagram, YouTube, Twitter and Pinterest, and you'll find tons of great woodworking videos, tips, articles and projects every day. Thousands of your fellow woodworkers are already there participating in the conversation.

So, if you think social media isn't for you, we encourage you to give the *Woodworker's Journal* channels a try. We think you'll "Like" what you find. Who knows? You might even find yourself compelled to share pictures of your latest projects.

— Dan Cary



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Letters

A New Year and More



2018: THE MORE THINGS CHANGE ...

Happy New Year! With your first issue of 2018, you might notice a couple of new things. We've decided to add on to our Letters department with a gallery of projects that you've built. We've always featured our readers' work, but we've decided to highlight it just a bit more. So, please send us photos of all your woodworking projects — great or small! Send them to Gallery@woodworkersjournal.com to get them in the

magazine and in our newly redesigned *Woodworker's Journal Weekly*, our free online newsletter (formerly *Woodworker's Journal eZine*).

And speaking of changes, you may have noticed that we spruced up our cover a bit with a new logo treatment. I know it is a little crazy, but we thought after 20 years, we needed an upgrade. With the turning of the year, we learn again: the only constant is change. I hope that you like our upgrades. Let us know ... pro or con!

— Rob Johnstone

Installing Inserts

The reason Anthony Fisher has trouble installing threaded inserts [*Tricks of the Trade*, October 2017] is that he is putting them in upside down. The slots on the insert are not screwdriver slots but are there to help to guide them. Notice the interior of the slots are sharpened. If he would go to YouTube, he will find plenty of suggestions on simple jigs that will ensure the inserts go in straight and smoothly.

Jack Heron
Myrtle Beach, South Carolina



Additional Eye Safety Options

I just wanted to add to Chris Marshall's response in the October issue to the reader asking about preventing sawdust from

getting in his eyes [*Questions & Answers*]. For people who use "cheaters" for reading and fine work, they can investigate products like Optx 20/20® Hydrotac™ Stick-on Bifocal Reading Lenses. They simply adhere with water to other lenses. I've been using them for years on sunglasses and safety glasses, and they've allowed me to read and work in my garage shop without having to pay for more expensive alternatives.

Ray Cummings
Auburn Hills, Michigan

Instead of prescription safety glasses, you can get side shields that slide on to normal glasses. It's always better to have ANZI-standard glasses in the frames, but the clip-ons are not expensive and certainly better than a literal stick in the eye. They're available at www.safetyglassesusa.com.

Brenda Mattson
Medina, Minnesota

Continues on page 10 ...

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THE VOICE OF THE WOODWORKING COMMUNITY

FEBRUARY 2018

Volume 42, Number 1

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www.woodworkersjournal.com

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Harlan, IA 51593-1711

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Woodworker's Journal (ISSN: 0199-1892), is published in February, April, June, August, October and December by Rockler Press Inc., 4365 Willow Dr., Medina, MN 55340. Periodical postage paid at Medina, Minnesota and additional mailing offices. Postmaster: Send all address changes to Woodworker's Journal, P.O. Box 6211, Harlan, IA 51593-1711. Subscription Rates: One-year, \$19.95 (U.S.); \$28.95 U.S. funds (Canada and other countries). Single copy price, \$7.99. Reproduction without permission prohibited. Publications Mail Agreement Number 0861065. Canadian Publication Agreement #40009401.

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MORE ON THE WEB

Check online for more content covering the articles below:

Shop Talk (page 20):
Ming Dynasty chair designs (video)

Woodturning (page 26):
Natural edge bowl (video)

Tool Chest Till (page 38):
Making the 5-drawer till (video)

Classic Coatrack (page 44):
Full-size leg pattern (PDF)

Techniques (page 52): Resawing on a band saw (video)

Tool Tutorial (page 56): Troubleshooting tips (PDF); cutting angles on a scroll saw (video)

Weekend Projects (page 64):
Floor lamp construction (video)

What's in Store (page 72):
Featured tools in action



One reader imagined a use for a WJ Bar Cart project that went far beyond our recommendations.

Mortise Jig Adjustments

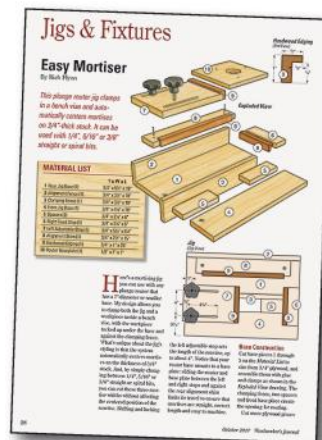
I want to share my comments, which I am sure many people will find obvious, for the "Easy Mortiser" article [Jigs & Fixtures, October 2017]:

To make it adjustable for four different workpiece thicknesses, just drill the hole in the router baseplate off-center, so that the distance from the hole center to each side is different from the other three. That way,

placing different baseplate sides against the alignment shim, you get different positions of the bit over the workpiece.

The same goal can be achieved by using differently sized multiple alignment shims, in which case I would use a different way of installing a shim — not just two screws.

The author should have clearly said in which direction to move the router —



left to right or right to left.

The article is missing one thing: a photo of the jig in action.

Yury Berezin
Redwood Shores, California

Reader Projects

Taking an Idea ...

I have been reading your magazine for over 10 years and enjoy the articles very much. Recently, the one showing how to make a bar cart took my eye ["Graceful Bar Cart," June 2017] and I used that, with modifications, to make a changing table/bar cart for my granddaughter. Everyone was pleased with the result, especially my granddaughter.

Marvin G. Regenauer
Franklin, Wisconsin

Special Slab Lumber

I've recently read a couple of articles ["Slab Top Dining Table," October 2017; "Slab Top Table," October 2015] about slab and/or live edge projects and thought I would share mine with you.

This did not start out to be a table or anything. I recently purchased a Granberg Alaskan Mill MK IV for one

of my chainsaws, in order to deal with some drought- and storm-damaged trees on our property. I decided to practice on a dead Monterey cypress because it was next to the driveway and close to the house.

After I made the first cut and three 1" boards, I decided to try 2" slabs, and got two off of it. In looking at them side by side, I realized that they made a sort of book-match.

To make a long story short, I made this table as a tribute to my "threefathers" (dad and two grandfathers), who were all accomplished woodworkers. Here's what makes this wood extra special: Dad dug the hole for that tree 25 years ago. My wife and I planted the tree, and we grew it until the drought killed it. I felled it and made the lumber.

Here's what makes the table special: There is no metal



in it: no screws, nails, angles, etc. Just glue. The slabs are joined with a spline and groove joint. The legs are wedged mortise and tenons. All of the wood is from the same two adjacent slabs from the same tree, including the spline, legs and wedges. (Sixty years ago, Dad spline and grooved thousands of board feet of 2" yellow pine for the house they were building in the Midwest. On a Craftsman table saw.)

In that vein, I made do with what I had. No planer, so I sanded the heck out of the top. The tenons were cut with a hole saw in a drill press.

I hope you enjoy this little story and this table.

Chris Arndt
San Luis Obispo, California

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Power	2.5A
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Sanding Disc Attachment	Hook & Loop
Variable Speed	Yes
Dust Extraction	Yes
Accessories	3 x mesh sanding discs (80, 120 & 220 grit), dust bag & dust port adaptor

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TSPS 370



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Power	2.6A
No Load Speed	1725 rpm
Table Size Diameter	15" dia.
Oscillations	30 opm
Product Height	19"
Product Weight	31lb
Sanding Sleeves	3/16", 1/8", 1-3/32", 1-1/16", 2"
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Dust Extractor Dimensions	Inner: 1-7/8" and Outer: 2"

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Product Weight	7.8lb
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Pendulum Mode	Yes - 3-Stage
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Cyber Makers Spotlight

April Wilkerson, Frank Howarth and Matt Cremona

These three online woodworkers are worth taking note of, and watching!

Online woodworking can take you from the divine to head-scratching in a heartbeat, but the Internet innovators featured here will not lead you astray in any way. These folks are great examples of the heart of good woodworking: practicality, quality and innovation. Check them out and let us know what you think. Our bet is that you learn something and have fun at the same time.

MattCremona.com

Matt Cremona is an active member of the online woodworking community. He not only makes videos about making fine furniture and woodworking tips, he also appears on different podcasts and attends many woodworking events. Besides his interest in fine furniture making, Matt is known for his love of milling logs and working with large slabs. He even built his own large band saw sawmill. He shares photos and descriptions of many of his projects on his site, *MattCremona.com*.



WilkerDos.com

April Wilkerson would much rather make the things she wants for her home in Texas than buy them. She also shares what she learns while building each project in videos and blog posts. Her projects range in scale from a large chicken coop she recently built to small decorative objects, such as a salt shaker or hair stick. Most of her projects serve a practical purpose in her home or workshop. And, if you see something you like, the plans are often available for free or purchase on her site, *WilkerDos.com*.



FrankMakes.com

Part woodworker, part engineer and part filmmaker, Frank Howarth makes some of the most interesting projects and videos you'll find. Many of his projects involve woodturning or CNC machining (sometimes both!). He recently turned a segmented sphere that looks like a large wood eyeball. You're bound to learn something new watching Frank build his projects. Frank's YouTube channel is the best place to see his latest work; you'll find a link to it on his site, *FrankMakes.com*.



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-Robert Ingham, Furniture & Cabinetmaking Magazine



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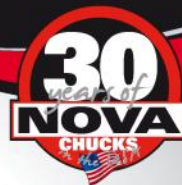
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Tricks of the Trade

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Clever Ideas for ... Routine Cleaning



Smoking-hot Glue Holder

I'm always looking for a good reusable container to hold a small amount of glue when I need to brush it onto joint parts, dowels and so forth. Here's the best solution I've found so far: old ashtrays. You can often find them at Goodwill or Salvation Army stores, at yard sales or even from ex-smokers. The notches around the rim for holding cigarettes or cigars works great for propping a glue brush in between uses, and they're easy to wipe clean for re-use. I've found that even dried glue is easy to peel off of glass ashtrays after it has dried.

Doug Thalacker
Mt. Pleasant, Wisconsin



Taping Before Scraping Prevents Damage

After applying some hardwood edge banding to a worktop covered with plastic laminate, I needed a way to shave the edging flush with the laminate. I worried that using a hand plane or a router and flush-trim bit would be too aggressive and might damage the laminate surface. Instead, I wrapped one corner of my card scraper with blue painter's tape. The card scraper removes material in a slow and predictable manner, and the blue tape prevented the corner of my scraper that was over the laminate from marring the surface.

Willie Sandry
Camas, Washington



Snow Shovel for Shop Cleanup

Not all of us have the room or the budget for a dedicated dust collector, so sawdust and shavings fall to the floor. If bending over to clean it up with a dust pan gets tiring or is difficult for you, do what I do: just sweep it into a snow shovel instead. The plastic variety is lightweight and holds a lot of debris. It makes routine shop cleanup much easier on your back and knees.

Father Chrysanthos
Etna, California

Bucket Lid Blade Cleaning Pan

Charles Mak's trick for cleaning saw blades in the December 2017 issue made me think of a related trick that readers might find helpful. Regardless of what



you use to clean your saw blades, you'll need a container of some sort to soak them in. I use a five-gallon bucket lid. It's large enough to fit 10" blades, and the raised rim creates a shallow pan for the cleaning solution. Also, depending on the lid style, the center area will either be recessed or have raised ridges on it that keep the blade from suctioning itself in place during cleaning.

Anthony Fisher
Sebastopol, California

PICK OF THE TRICKS

Freeze Rubber Drums First For Easier Sleeve Installation

Installing small diameter sandpaper sleeves on my spindle sander's rubber drums is usually pretty easy, but the job is more challenging with larger diameter drums. To make these sleeves easier to install, I

put the rubber drum in the freezer overnight, which shrinks the rubber. In the morning, even ordinarily snug-fitting sanding sleeves will slide on with ease. Give the drum an hour or so to warm up and swell to normal size, and the new sleeve will fit securely again.

Andrew Taylor
Bolton, Connecticut



Safety First

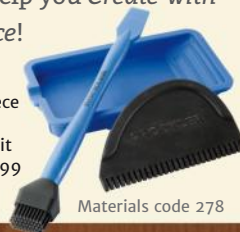
Learning how to operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary guards have been removed from equipment shown in our magazine. We in no way recommend using this equipment without safety guards and urge readers to strictly follow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

TRICKS OF THE TRADE SPONSORED BY ROCKLER

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Or send us an email:

tricks@woodworkersjournal.com



Questions & Answers

Is “Old” Shellac Still Good?

THIS ISSUE'S EXPERTS

Michael Dresdner is a nationally known finishing expert and author of *The New Wood Finishing Book*.

Tim Inman is owner of Historic Interiors (restoration and reproduction) and author of *The Art of Classical Furniture Finishing*.

Chris Marshall is senior editor of *Woodworker's Journal* and the author of several woodworking books.

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 emailing us at:

QandA@woodworkersjournal.com

Please include your home

address, phone number and

email address (if you have one)

with your question.



Q My neighbor has offered me some unopened cans of shellac that belonged to her late husband. I'm not sure when he purchased them or how long they've been stored — or in what conditions. I don't want to look a gift horse in the mouth, but just how long is shellac good for, and how do I know if it's OK to use?

Liam Moriarty
Harrisburg, Pennsylvania

A There is no absolute number that says how long shellac is good for, but several factors affect its aging. First is the cut. The thicker the shellac is, the slower esterification takes place. Esterification is the degradation process in which the shellac resins convert to shellac esters. The more esters are created, the slower the shellac dries, and the softer the final film is. This process begins as soon as shellac comes into contact with its solvent, alcohol, whether the can has been opened or not.

Therefore, a five pound cut of shellac will have a much longer shelf life than a two pound cut. How much longer? Depending on other conditions, about eight or nine times longer. In other words, adding alcohol to a can of shellac shortens its shelf life.

Heat, sunlight and moisture are enemies of shellac, even in flake form. Store shellac in a cool, dry place away from sunlight.

The easiest way to tell if your shellac is still good is to take a known fresh sample of shellac that is cut the same as your questionable sample. Put a drop onto a piece of glass. Check it frequently, tracking how much time it takes before it hardens completely, and ascertaining just how hard it gets by pressing a thumbnail into the cured drop. Do the same test with your material and compare both drying times and final hardness.

When employing it under other finishes as a sealer, you'll want to use only shellac that dries quickly and hard.

— Michael Dresdner

Q Last year, I built a grill table for my son. Material is riftsawn white oak. I brushed on Minwax® Helmsman® Spar Urethane. We live in northern Illinois, so we have cold winters (snow and ice) and hot summers. The table was not covered because it is used quite often. It sits in direct sunlight from midmorning until noon. Do you have suggestions to prevent this from happening again?

Bob Claeherout
Geneseo, Illinois

A Boat owners know the drill: Sand and re-varnish every spring. Your table will need the same regimen if you want it to look like a piece of clear finished furniture while treating it like an “outdoor” dog.

Sunlight, heat and cold: these are the things that destroy finishes best. As the weather factors take their toll, the finish becomes less elastic, more brittle. As the wood shrinks and swells due

Bob Claerhout doesn't like the gray look on the grill table he built for his son.

to moisture and heat changes, the finish develops micro cracks that let in air and water. The air and especially the water react with the tannins in your oak, and you get that gray stain you don't like.

To prevent this, bring it inside when not in use, or at least put a protective cover over it to keep it dry, dark and cool.

Alternatively, you can try the method favored by WJ senior editor Chris Marshall. For his outdoor projects, he applies a tinted deck preservative with UV inhibitors to the bare wood and skips the film finish. When the stain color fades, there's no stripping of the old finish or



excessive sanding. Just scrub the project with soap and water to remove the oxidation and grime, and brush on another coat of deck preservative.

—Tim Inman

Q The emerald ash borer has invaded my neighborhood. I had a tree company come in and cut down four 25' to 30' ash trees that are close to my house.

I asked the guys to keep the larger (8" to 18" diameter) logs at 8' lengths so I could cut them into planks.

It was a bit more work than I had anticipated. My chainsaw attachment worked pretty good, but those logs are heavy! After yielding five

Continues on page 18 ...



Winner!

For simply sending in his question about an outdoor grill table finish, Bob Claerhout of Geneseo, Illinois, wins a **Portamate PM-1100 Universal Mobile Base.**

Each issue we toss new questions into a hat and draw a winner.

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Stumpers

An Alarming Situation

Despite tantalizing leads, tool remains a mystery

What's This?



The father of Marty Mandelbaum of Mount Sinai, New York, used to use this tool in his work. Do you know what it is?

Send your answer to stumpers@woodworkersjournal.com or write to "Stumpers," Woodworker's Journal, 4365 Willow Drive, Medina, MN 55340 for a chance to win a prize!



Woodworker's Journal editor Joanna Werch Takes compiles each issue's Stumpers responses — and reads every one.

The mystery tool submitted by **Bill Nedelka** of Wilmington, New York, and featured in our October 2017 issue has proved a particular challenge to identify.

Most likely, it seems to be a vintage security box, or "watchclock" used by a night watchman to check in on his rounds. Detex was one of the companies that manufactured such items.

Following on that security theme, we also heard from **Jim Domke** of Buffalo Grove, Illinois, who suggested that it could be "a bell housing from an O.B. McClintock burglar alarm system. In addition to the bell, it also housed the system control electronics and nine 1.5-volt dry cell batteries to power the system."

As **John Wert** of Spring Mills, Pennsylvania, noted, these alarm boxes "were mounted outside of banks."

Some thought it was for raising a slightly different kind of alarm (although bank robberies could fall into this category, too): "My first thought," said **George Reid** of Taylorsville, Utah, "was an old police call box."

Stephen Harrell of Jennings, Louisiana, noted that,

Winner! Patrick Fahey of Palos Park, Illinois, wins a RIDGID Oscillating Edge/Belt Spindle Sander (EB4424). We toss all the Stumpers letters into a hat to select a winner.



Most likely? A night watchman's check-in.

in "a time before radios, a cop walking a beat could call for help or an ambulance if needed."

For **Benny Secor** of Seffner, Florida, it was likely "a police or fire call box from the days before cell phones." And **Vincent Johnson** of Salt Lake City, Utah, wondered whether it was "an emergency phone box like the ones used down in mines."

Austin Masters of Cross Fork, Pennsylvania, took some of the urgency out of things by submitting a potential identification of the cast-iron box as "an entrance call box. There was a phone handset used to call into the house/business place. Usually located at gated properties asking for entrance."

And, in an alarming turn of events, **Perry Guyton** of Missoula, Montana, tried to I.D. the tool as "a stand-up coffin. It's for really short people, since it's on a table."

Do you have proof of what it really is? Sound the alarm!



Questions & Answers continued

2" x 12" x 8' planks, I decided to quarter saw a few logs. That was a little easier, but still a challenge. I ended up cutting most of the wood for the fireplace.

Now my major question: is ash worth all this work? I am drying the wood in a crude kiln. I've already made a couple of spatulas out of the wet wood. But I read that ash is a porous wood. Is ash suitable for kitchenware or bowls?

Barney Heller

North Wales, Pennsylvania



The music stand in our December 2017 issue was made from ash.

Ash has been used as a furniture wood for centuries. It has excellent steam bending properties, cuts and routs cleanly and accepts glue and finishes nicely, too. It's also the traditional wood of choice for baseball bats!

Opinions may differ about using the open grain of ash for kitchenware — but the fact is, many people have used it for such purposes in the past.

Your ash might make wonderful keepsake items like picture frames, jewelry boxes, cutting boards and so forth, along with those bowls and spatulas. I'd definitely try to do that before sending it up in flames.

— Chris Marshall

The background of the advertisement is a rustic wooden surface. Various tools are scattered across it: a clear plastic case for screws at the top left; a blue and black bit holder filled with numerous small bits in the upper center; a clear case containing ten power bits with a white label at the top right; a large screwdriver with a gold-colored barrel and a black handle with the QuickScrews logo at the bottom right; a long silver screwdriver in the lower center; a black bit holder with a single bit at the bottom center; a metal nut washer on the right; and a single power bit with a cross-flute design in the center. The text 'MORE THAN JUST SCREWS' is overlaid on the left side in white, bold, sans-serif font, with each word on a separate blue rectangular background.

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Shop Talk

Editor Meets Living Legend



During a special guided tour by Yang, he explains the reductive process of shaping the legs of this Ming table, constructed entirely without glue or fasteners.

Yang's Collection Celebrates China's Hongmu Art Tradition

Nestled among foothills and within sight of a Buddhist monastery, the newly opened Mao Shan Arts Museum, located about 50 miles from Nanjing, China, contains more than 400 pieces of furniture and one-of-a-kind carvings from the personal collection of Yang Jin Rong, whose woodworking and teaching career has spanned more than 40 years. Over that tenure, Mr. Yang, 68, has been certified by the Chinese government



Both the artisanship and wood choice of this large birdcage, hand carved from African blackwood, qualify it for hongmu status.



On a recent trip to China, senior editor Chris Marshall visited the new Mao Shan Arts Museum, built by private donation and dedicated exclusively to Master Yang's collection of hongmu woodworking art.

to be a woodcrafts master and judge for both contests and matters of legal dispute involving woodworking.

The 90,000-square-foot museum was funded by a billionaire real estate developer as a tribute to Yang's life, legacy and dedication to the craft.

While Yang and his team of some 30 craftsman once built commodity furniture for export, his expertise now focuses exclusively on Ming Dynasty art furniture: case-work, chairs, beds, desks and more. Each Ming-inspired chair he designs and builds



To see a video of Master Yang discussing changes in his chair design with senior editor Chris Marshall, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.



These six chairs are a study in Yang's evolution and improvement upon Ming Dynasty design. Each, he says, are an effort toward perfection.



Exquisitely ornate bedroom sets are built from air-dried lumber of the same tree. A single species used throughout ensures that the harmony of the joinery will outlast centuries of wood movement, Yang says.

takes about three years to make, he says, and sells for around \$30,000 to clients in China and Southeast Asia.

A unifying theme to both Yang's work and the carvings he's acquired as gifts is hongmu (pronounced hoe-moo). It's a cultural attribute, originating during the Qing

Dynasty and ascribed to the highest level of Chinese woodworking artistry. It's also a practical consideration: only select wood species qualify for hongmu status, based on their density, structure and ring development. The wood must be naturally seasoned (never kiln-dried)

and exhibit both exceptional beauty and strength.

While Yang embraces Ming tradition, he also believes that wood-working's methods and tools should evolve, just as culture does. His ongoing teaching, and the range of objects in this most unique collection, testify to it. That's why Yang is adding an assortment of the latest stationary woodworking machines to the museum over the course of the next year. Yang hopes this display "shop" will show visitors that the complexity of Chinese woodworking can be made easier by adopting modern machining methods.



This baseball-sized carving depicting two crickets and a wicker cage (one cricket is inside) was carved from a single wood block.



Yang points out the attributes and details of this drop-down desk that he built for his personal study.



An extensive carving collection, all gifts from Yang's colleagues and admirers, includes a wide variety of human, animal and abstract subjects.



Many of the furniture exhibits offer close-up inspection. Most pieces were designed by Yang and built by his craftsmen under careful supervision.

Field Goal!

NFL Super Bowl Committee and Community Partners Team Up to Plant Trees

A grant from a Super Bowl LII program funded a tree planting in Afton, Minnesota — part of several urban forestry initiatives.



How many trees at the Afton event? 350.

As many of you may know, the *Woodworker's Journal* home offices are located in the Minneapolis, Minnesota, area. So some of us are understandably excited about the fact that our community is playing host to the 2018 Super Bowl, Super Bowl LII, on February 4. Even we hadn't known, however, that the NFL and the Minnesota Super Bowl LII Host Committee would team up with corporations Verizon and Anderson Corporation for projects of particular relevance to woodworkers: urban forestry initiatives that added thousands of trees and native plants to local parks and recreation areas.

Continues on page 24 ...



More than 60 volunteers participated in the Afton plantings.



Stillwater, MN, Mayor Ted Kozłowski and his family were at the Afton planting.



The Afton tree planting location was the Lucy Winton Bell Athletic Fields. Local partner was the Belwin Conservancy.

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Minnesota Vikings cheerleaders and mascot Viktor assisted with planting 31 trees at Western Sculpture Park in Saint Paul, in partnership with Tree Trust and the City of St. Paul.

The National Football League (NFL) has incorporated environmental projects into the management of the Super Bowl for 25 years, in addition to other community events and initiatives meant to leave a positive benefit in each Super Bowl host community. In the case of the Minnesota Super Bowl, there has been a particular focus on reducing the environmental impact of Super Bowl LII activities and leaving a “green” legacy. For instance, leftover construction materials from Super Bowl events will be donated to local organizations for reuse and repurposing.

This year’s urban forestry initiatives included planting trees to replace those damaged by the emerald ash borer as well as creating eight large pollinator gardens at the Minnesota Zoo in Apple Valley. Additionally, the NFL and Verizon are partnering with the Arbor Day Foundation to plant more than 12,000 trees in Chippewa National Forest in northern Minnesota. The red and white oaks will replace trees damaged by wind, insects and disease and will provide eagle nesting sites.



Verizon volunteers helped plant 75 trees at Heritage Village Park (Inver Grove Heights) in partnership with Friends of the Mississippi River.

Tree planting projects beyond those previously mentioned and featured in photos include: 15 trees at Currie Park, Minneapolis, with Tree Trust; 25 trees at East Park, Rochester, with RNeighbors; 65 trees at Norwood Park, Brooklyn Park, with Tree Trust; 90 trees near Randolph and Shepard Drive in St. Paul, with Mississippi Park Connection and the National Park Service; 51 trees at the east end of Lake Winona, with the City of Winona and Tree Trust; and 22 trees at the Frog Pond at the Marjorie McNeely Conservatory in St. Paul, with Como Park Zoo and Conservatory.

Plus, the urban forestry initiatives also included more than 2,000 native plantings at Westwood Hills Nature Center in St. Louis Park, with Great River Greening; 2,000 native plantings at Coldwater Spring in Minneapolis, with Mississippi Park Connection; and renovations to the greenhouse that supplies plants to the Minneapolis Youth Farm.



The Afton trees will create a windbreak along fields heavily used by the Saint Croix Valley Athletic Association.

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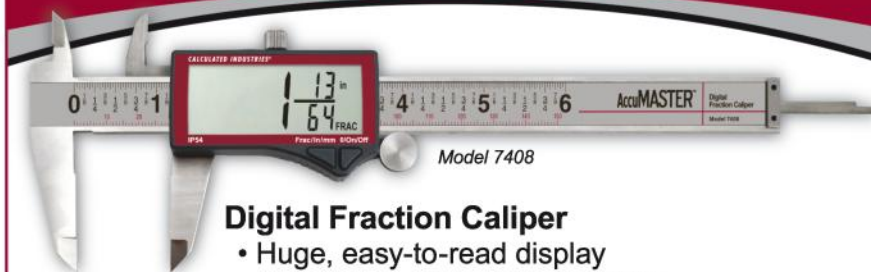


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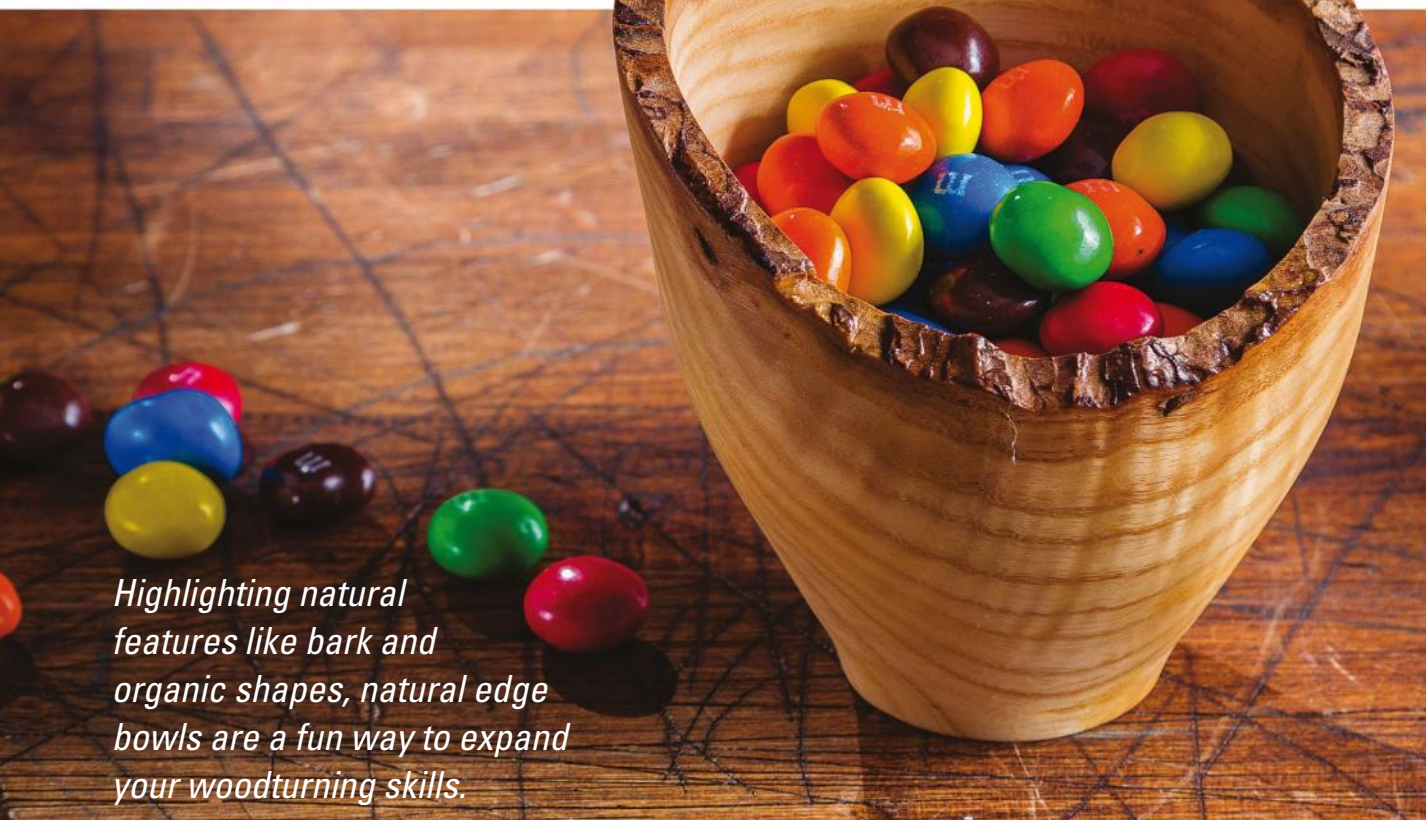


MADEiNUSA

Woodturning

Making a Natural Edge Bowl

By Ernie Conover



Highlighting natural features like bark and organic shapes, natural edge bowls are a fun way to expand your woodturning skills.

MORE ON THE WEB

For a video on the topic of turning a natural edge bowl, please visit our website at woodworkersjournal.com and click on “More on the Web” under the Magazine tab.

While a household circa 1800 expected a wooden bowl to be oval because it was turned from green wood, a similar denizen of the 20th century was put off by an oval shape. By the 1950s, Tupperware® was well-established and inexpensive glass and ceramic bowls abounded, helping to create such expectations.

In the mid-20th century, many well-known woodturners, including James Prestini, Bob Stocksdales and Rude Osolnik, created natural edge bowls when they started experimenting with the traditional bowl’s form to create art to sell in craft galleries.

I suspect that the above-mentioned turners latched onto various natural edge forms because they represented something new and different, but the natural edge also hid the out-of-roundness caused by the shrinkage of green wood. They could turn unique, artistic, but above all: saleable items fast. Additionally, finish did not have to be as good as a traditional bowl required.

Predominantly, natural edge bowls are small. Part of this is that smaller diameters negate the wood shrinkage problem. Also, smaller items sell better in craft galleries because they are priced more reasonably and fit into the

buyer’s décor more easily. This makes them perfect for mini and midi lathes.

The Greener, The Better!

Natural edge bowls are best turned from green wood — the greener, the better! A common motif is to leave the bark on the natural edge. This requires harvesting the tree, or the limb of the tree, in the cold months if the bark is not to fall off during drying. While this varies regionally, here in north-eastern Ohio, December to February are safe bets.

You can somewhat combat the “bark falling off” tendency by treating it with thin cyanoacrylate “super”

Art Over Utility: Natural Edge Bowls of Varying Size

This 1985 poplar burl piece by Rude Osolnik is an exceptionally large natural edge bowl. Rude first turned the outside between centers, then chucked the base in a four-jaw metalworking chuck. He then wrapped the piece with duct tape



and hollowed the inside, leaving a uniform 1/4" wall. Very fragile, it is art and not utilitarian in the least.

The author turned this average-sized natural edge bowl, with bark, from white oak. Well-meant but klutzy dusting resulted in the removal of the bark from a section: proof that natural edges are more art than utility.



Turned green, the shape has warped to oval, but the natural edge largely hides this.

glue as you turn to increase the bark's bond to the piece. The cyanoacrylate becomes indispensable for beginning and experienced turners alike if you attempt to turn a natural edge piece from wood harvested in the warmer months.

The concept of a natural edge bowl is simplicity itself; however, the execution, not so much. Cutting through the uneven edges requires precise tool control. Lack thereof results in an unnatural edge.

If you can use a bowl gouge handily, the process is straightforward. (If not, read on for a solution.)

Natural edge bowls benefit artistically from a straight wall design with good height-to-width ratios, which shows off the edge and lends a modern look.

Mount Your Workpiece

The best way to turn the outside of a natural edge is between centers, or on a screw chuck with a live center in the tailstock supporting the area that will be the base. Although we are chucked between centers, this is still faceplate turning because the grain of the wood is running across the lathe and not the

length of it. (It is the orientation of the grain that separates face from spindle work.)

The best drive center for this type of work has only two prongs. Because the outside of the tree is uneven, a four-prong model will often only drive on one prong. This makes the center drift until three prongs engage. You can buy two-prong centers, but an easy solution is to simply grind two prongs away.

The orientation of the wood for a natural edge bowl is generally the opposite of the orientation for a level rim bowl. Instead of being the base of the bowl, the outside of the tree is now the rim.

Turning Process

Create the form of your bowl by turning a relatively tall, slender form with a bowl gouge and creating a stout tenon for chucking. The tenon should be about 1/8" smaller than the base of the natural edge bowl and between 1/2" and 1" long. Sand the outside and now mount a 1 1/2"-thick glue block on a faceplate. In the glue block, scrape a straight-walled mortise that is a slide fit with the tenon. Scrape the area around the mortise flat so that the shoulder of the



A two-spur center is the best drive method for natural edge work because you can align both prongs to drive equally on the uneven surface.



Chuck your blank between centers to turn your natural edge bowl. Unlike level rim bowls, when you turn a natural edge bowl, the outside of the tree is the rim for your piece.



You can create a fairly smooth piece by using sharp tools. You may want to do some minimal sanding, but the idea behind natural edge bowls is to emphasize nature's work — no excessive sanding or finishing.



The author scraped a mortise in a block of hard maple, coated it with cyanoacrylate, and applied an accelerator to speed the glue set when he mounted the exact-fit tenon on the end of his workpiece.

Woodturning continued



If your gouge skills are tentative, scraping past the uneven rim and then picking up the cut with a bowl gouge is the answer.



The author uses his Thompson Tool Handle, wrapped in foam rubber with sandpaper taped to it, as a safer sanding option for the interior of his natural edge bowl.



To find the cutoff point, place the eraser of a pencil against the bottom and place your thumbnail even with the high point. Now, with the pencil outside, sight with your nail against this high point and cut below the eraser.



tenon on your bowl registers and brings the piece square.

Turn the sides of your piece to a thin wall, in the range of 1/4" thick. You can make this easier by shining a strong light on the left side, where you are cutting. As the wall becomes thinner, it will become translucent. You can make an accurate judgment of the wall thickness by the intensity of the translucence.

If your bowl gouge skills are tentative, scraping past the uneven rim with a scraper, then picking up the cut with a bowl gouge, is the solution. (I learned this technique from Rude Osolnik.) In addition, a bit of speed — in the 900 to 1,200 rpm range — is very helpful. Speeds above 1,200 rpm, however, do not improve faceplate work.

It's very difficult to get the shape of the bottom of a natural edge bowl to be perfect with a bowl gouge. A big round-nose scraper can be of help here.

Finishing, Naturally

When it comes to sanding and finishing a natural edge piece, it's best to keep in mind that the overall idea behind these types of turnings is to mimic Mother Nature.

Opting for minimal sanding and little to no finish is A-OK.

If you do choose to sand the interior of your bowl, please keep this safety note in mind: it is unsafe to put your hands inside a natural edge bowl while it is on the lathe and the lathe is running.

You can turn a 1½"-diameter dowel with a rounded tip, glue foam rubber around this, and then tape sandpaper to that to use a safer sanding option.

When you have finished turning your piece, part off at an angle so as to undercut the base. Hand sand the base — you can remove a nubbin with a carving gouge and some hand sanding — apply finish, and admire your newly minted art.

Although not terribly useful, natural edge bowls can be a lot of fun. Once you get past struggling with the techniques, you can concentrate on unleashing the hidden beauty in pieces of wood that would otherwise end up in the woodstove.

Ernie Conover is the author of The Lathe Book, Turn a Bowl with Ernie Conover and The Frugal Woodturner.

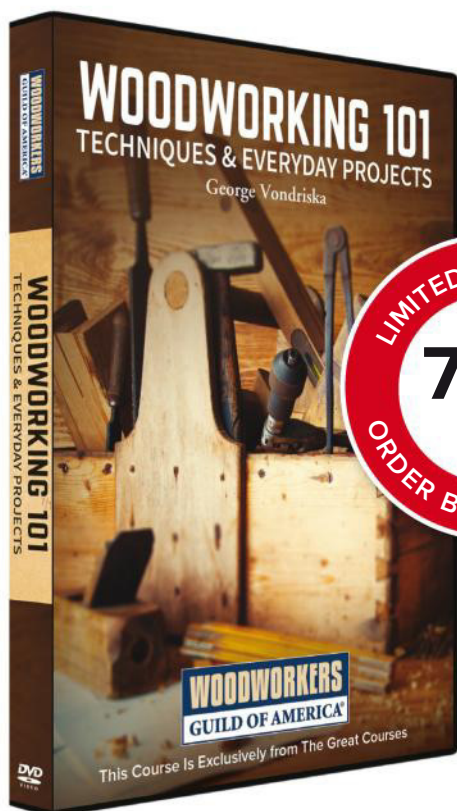


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Modern Rocking Chair

By Greg Wood



An ultramodern take on an American classic: the rocking chair. Beech, cherry and walnut combine in beauty and distinction.

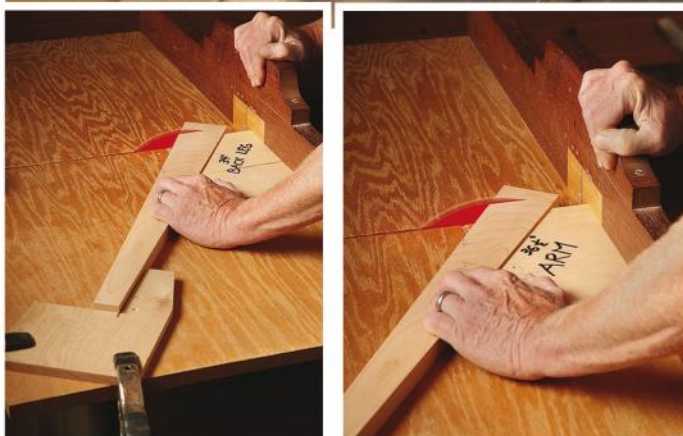
I have always wanted to design a rocking chair that I could claim as uniquely my own. My chair would have clean lines, broad planes and intriguing negative spaces. It'd definitely be modern. Here is what I've come up with.

I first considered the wood choices and decided to use slightly contrasting woods. Since walnut and cherry complement each other, and over time the contrast between the two lessens, I thought this would be a good choice for the seat. I felt the framework that supports the seat should have more contrast, because of the significant role it plays, so for these components I choose European beech. This beech is light colored, and its nondescript grain lines enhance the seat area while bolstering structural integrity to the side assemblies.

Next, I started thinking about the overall design concept. A few pencil sketches of a rocker with a seat that was supported and separated from the side assemblies by wooden dowels developed. The sketches were captivating enough to lead me to build a model. After studying the model for a while, I made a few refinements and was ready to begin.

Building the Side Assemblies

The rocker is broken down into two basic subsections: the seating components and the side assemblies. I chose to start with the beech and the side assemblies first. I selected beech with the straightest grain I could find to enhance these slender parts. I jointed and planed 4/4 beech boards to 7/8" thick. Each side assembly consists of four parts: an arm, two legs and a curved rocker. For easier processing, I drew a full-size side assembly on a piece of scrap plywood to determine the



The author used a shop-made tapering jig (top) to machine the arms and legs, and a fixture on his crosscut sled (bottom) to cut the leg and arm angles accurately. A movable stop accommodates the various pieces.

actual sizes of these parts. (If you choose to make this chair, I suggest you take the time to draw out the side assembly as I did. It is a valuable reference as you are cutting these parts.) The arms and legs all taper along their length at a 4° rate. I did this with a shop-made tapering jig on the table saw (top photo, above). Then it was on to the next cuts on the arms and legs, cutting them to length with their ends set to the



Pattern-routing the rockers is the best way to get identical pieces, once they are cut to final length. The rockers and legs connect with bridle joints, with an open mortise cut into the rockers. Our author used a shop-made variant on the classic table saw tenoning jig (right) to make the mortises.





Raising the tenons on the ends of the legs requires a few cuts that must be made accurately. The author used more shop-made jigs and fixtures to machine the tenons. He used scrap lumber to test each cut for accuracy.

proper angles (see the *Drawings*). Referencing my full-size drawing, I was able to use it to make a template out of MDF for laying out and shaping the curved rocker. After roughing out the rockers at the band saw, I attached the template to the rocker with double-sided tape and used a pattern bit to refine the rocker's shape (see photo, previous page). The rocker connects to the legs with bridle joints. I used a tenoning jig on my table saw to cut the open mortise of the bridle joints into the rockers. Next, I cut the full-width tenons on the end of the legs. Note: use a scrap piece of the leg stock to make sure you have the angle correct.

I glued the side assemblies up in three stages, allowing ample drying time for each stage. For the first stage, I glued the arms to the back legs at the angles shown in the *Drawing*. Then I carefully sliced a spline kerf into these joints on my table saw (photo, below). I machined spline stock to properly fit the openings and glued them in place with the grain running perpendicular to the joint line, as shown in the photo at right.

To get ready for the next joints, I dry-assembled the legs to



the rockers in order to lay out where the tenon and mortise will meet on the front leg and arm respectively (top photos, next page). As you can see, the angle at which the leg abuts the arm requires that you raise the tenon at an angle from the top of the leg. To do that, I first established the shoulders of the tenon joint by nibbling away material on the table saw. (top right photo, next page). Then I used a fine-toothed back saw to saw the tenon cheeks. I recommend taking your time through this process. Once you have all the joints fitting well in the side assemblies, you are ready for the final stage of glue-up, as shown in the bottom right photo, next page.

After the glue cured for 24 hours, I sanded the subassemblies smooth. Then

there were a couple of holes to bore that would later capture the stretchers. I used Forstner bits at the locations shown in the *Drawings*. When drilling for the seat support dowels on the



The walnut splines that join the arms and legs are both structural and aesthetic in nature. A jig (left) was specifically made to slice the spline openings into the arms and legs. The spline grain (top) must run across the joint to strengthen it. Once the glue cures, trim and plane the splines flush, as needed (bottom).





Using a crosscut jig on the table saw, establish the shoulders of the front leg tenon (top). Getting the angle of the shoulders cut accurately is critical to this joint.



Once the tenon is formed, recheck the mortise location and then remove the waste from the arm (right). A mortising machine is helpful for this task.



With a back leg dry-fit and clamped into the bridle joint in the rocker, lay out the mortise-and-tenon joint that attaches the front leg to the armrest. In most cases, tenons are formed after the mortise to more easily fit them tightly. In this case, the author recommends making the tenon first.

inside of the assemblies, a smaller diameter 5/8" bit is used as compared to the one used on the outside for the dowel covers. The final holes to bore are pilot holes for hanger bolts that join these subassemblies to the seat/back subassembly. With that task done, I was ready to move onto the seating components.

Making the Seat and Back

Building the seating subassembly is where some hand tool use and edge refinement is critical in order to achieve a fine-furniture look. The cherry boards that make up the back and seat should be heartwood on both faces because they will be viewed from all sides. In my opinion, any sapwood detracts from the overall design, so choose your boards carefully. Surface the cherry to a final thickness of 7/8". Leave the boards longer than final dimension by a few inches just in case you need to redo the box joints, but it is OK to rip them to their final width.

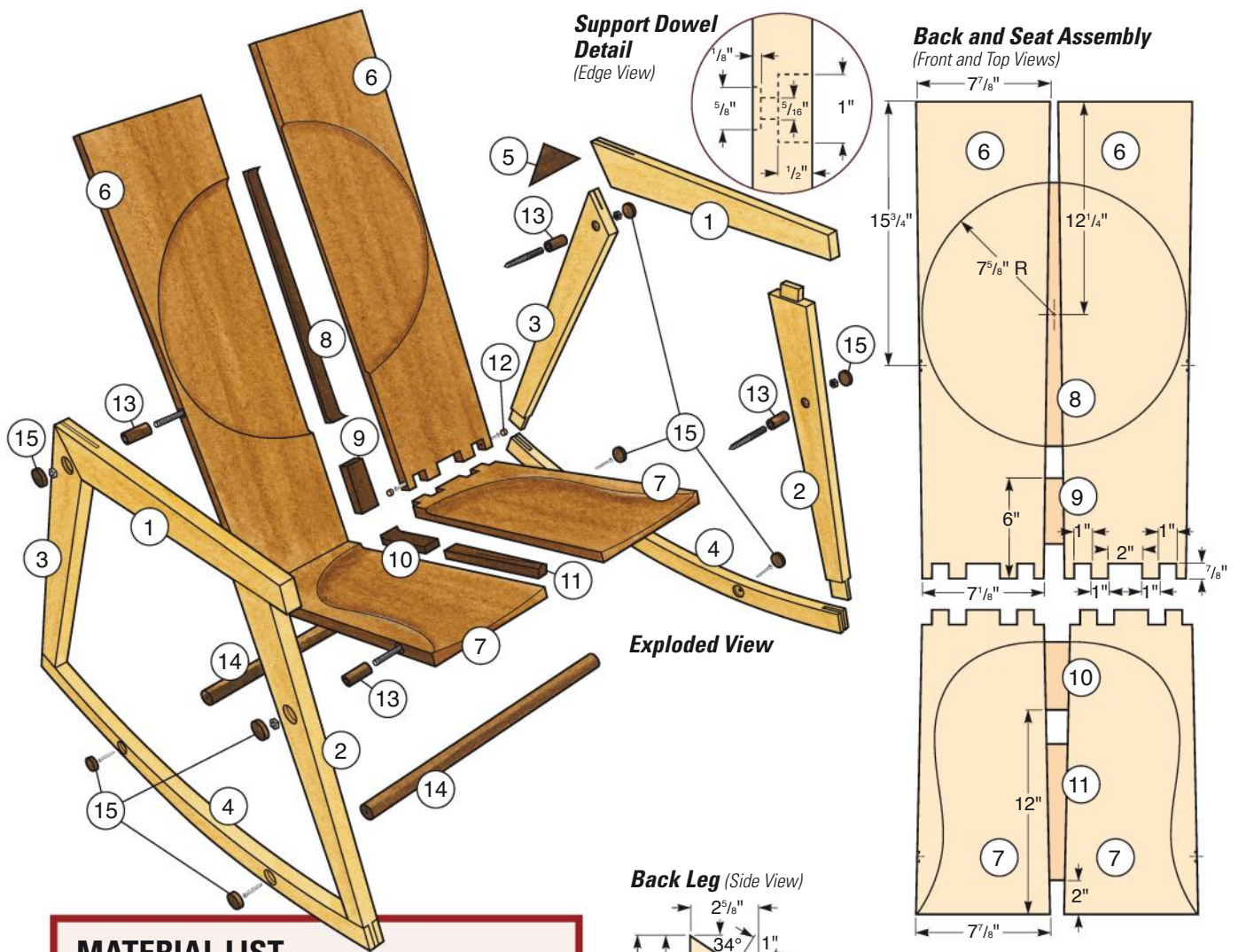
Because the box joints between the seat backs and seats are cut at an angle, I first crosscut the boards with the table saw blade tilted 5°. Before you start cutting the box joints, scribe a line with a marking knife on the outside of the cut to prevent chip-out (top middle photo, page 35). Now lay out the box joint pattern onto the seat pieces. I used my regular

crosscut jig to make the box joints, but if you look at the top right photo on page 35, by inserting a spacer behind the board, I could consistently hold the 5° angle during the cuts without a problem. With that ready to go, I carefully removed the waste in a series of side-by-side cuts.

Next, transfer box joint spacing to the cherry backs using seat boards laid against them in their final positions. Then follow the same cutting procedure as with the seats. Take note that the 5° angles on the terminal ends of the cherry boards are cut first, then position them onto the crosscut jig in the same way. If you take special care in setting your stops accurately, then you really only have to cut one board with great

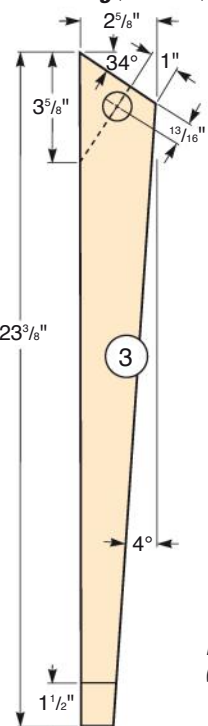


The final glue-up of the leg, rocker and arm subassembly is best done with a few purpose-made clamping cauls that allow you to apply proper clamping pressure.

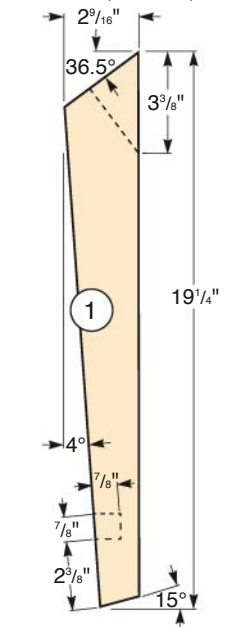


Exploded View

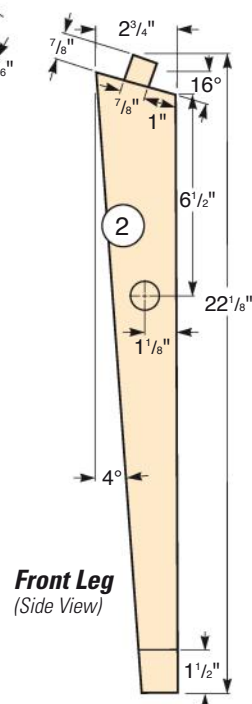
Back Leg (Side View)



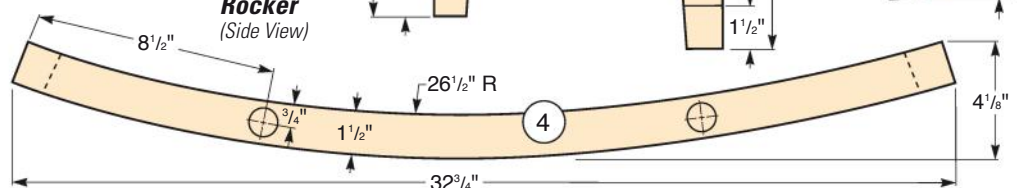
Armrest (Side View)



Front Leg (Side View)



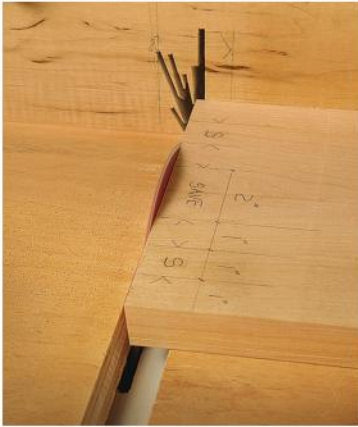
Rocker (Side View)



MATERIAL LIST

	T x W x L
1 Armrests (2)	7/8" x 2 9/16" x 19 1/4"
2 Front Legs (2)	7/8" x 2 3/4" x 22 1/8"
3 Back Legs (2)	7/8" x 2 5/8" x 23 3/8"
4 Rockers (2)	7/8" x 4 1/8" x 32 3/4"
5 Splines (2)	1/8" x 2" x 5 3/4"
6 Seat Backs (2)	7/8" x 7 7/8" x 28"
7 Seats (2)	7/8" x 7 7/8" x 17 7/8"
8 Upper Seat Back Center (1)	1 3/16" x 1 1/16" x 15 3/4"
9 Lower Seat Back Center (1)	7/8" x 1 3/16" x 3 3/8"
10 Rear Seat Center (1)	7/8" x 1 1/2" x 4"
11 Front Seat Center (1)	7/8" x 1 1/4" x 8"
12 Seat Screw Plugs (4)	3/8" Dia.
13 Seat Support Dowels (4)	5/8" x 1 5/8"
14 Stretchers (2)	1" Dia. x 19 1/8"
15 Side Frame Dowel Covers (8)	1" Dia.

The Material List presents the pieces at their finished sizes. For several pieces, it is best to start with oversized blanks in order to properly machine their final dimensions.



Before removing the waste from the box joints, a 5° angle is formed onto the end of the cherry pieces.



The author scribed a line with his cutting gauge to prevent tearout as he cut the box joints for the seat and back pieces.



With the box joints carefully marked out, remove the waste from the seat and back. Note the spacer behind the cherry stock: it helps keep the piece tipped back properly at the 5° angle during cutting.



care. Cut one joint and test its fit before moving on to the next one. This will reduce the chance of all the joints being off just a little. In other words, you may have to adjust your initial pencil marks as you proceed.

Although it is subtle, if you look at the *Drawings*, you will see that the seat and back pieces are slightly tapered on their inner edges. Once the box joints fit, you can rip your boards using an angle jig — this will remove about half of your outside box joint. Take note that your backs and seats are cut at different angles because the backs are longer than the seats. Now you can cut the seat and backs to length and sand all faces to 400 grit. Joint the inside edge using a jointer or hand plane to promote an optimal glue joint for the seat and back centers later on. Gluing up the seats to the backs, you need to apply pressure evenly so the angled box joints seat themselves properly. This will take some dry assembly and

clamping mock-ups before you are ready for glue-up. Then drill counterbored holes into the edges of the box joints and drive #8 x 1½" screws into them. Cut a 3/8"-dia. walnut dowel into plugs to cover these screw heads, and sand the plugs flush to the cherry.

Again, look to the *Drawings* and you will notice that there are walnut seat and back centers that join the two seat sub-assemblies together. These pieces are tapered to mirror the angles you just cut into the back and seat pieces. In addition to their tapers, I shaped their back faces with a spokeshave to provide more visual accents to the chair. (See detail photos, below.) The walnut should be ripped using the same jig you



Although small, the walnut seat and back center pieces are key to this chair's design. Tapered to keep the back and seat in a proper relationship, they also have edge detailing that provides shape and shadows. The "disappearing chevron" shape in the back center is shaped with a combination of grinders and spokeshaves. Note in the center photo here that the top edges of the cherry back pieces are shaped with details that complement the disappearing chevrons. In modern furniture, it's often these small details that make the difference.





Above and below, the author determines the locations for the seat and back centers — tapered pieces of walnut that will join the two sides together and provide modern aesthetic details.



used for cutting the cherry. Once you've tapered the center pieces, test their fit to prepare for glue-up. If you are satisfied with this positioning, cut them to length. Note that three of the crosscuts are made at a 5° angle. The walnut parts, prior to glue-up, need to be sanded on the end grain, and the 16"-long centers need additional shaping. I call this shaping a disappearing chevron because it transitions from one end to flush with the cherry backs (see photos, previous page). Since the angled parts will slide easily when glued, glue the walnut centers to one side assembly first (photo, bottom right).

Shaping and Bolting It All Together

The final shaping on the back and seat are recesses that provide comfort and visual interest. With colored pencil (white so it's easy to see), I drew the areas to be carved out on seat and back. Then I used a 4" grinder attachment from King Arthur Tools to sculpt and shape the two recessed areas, being careful not to go over my pencil marks. Sand these areas, staying inside the pencil marks to optimize the refined transition from the flat plane to the contoured areas. Then sand these recesses up through the grits to 400, working carefully.

The last stage is attaching the seat to the side assemblies. This is a critical step and requires some adjustment. First, mark the hanger bolt locations on the back of the chair subassembly. Drill a 5/8"-diameter hole 1/8" deep. Then center a deeper pilot hole inside this support dowel recess for threading a 1/4" hanger bolt.

Lay the chair/seat subassembly on its side and place the rocker assembly roughly in place on top of it. Insert a 1/4"-

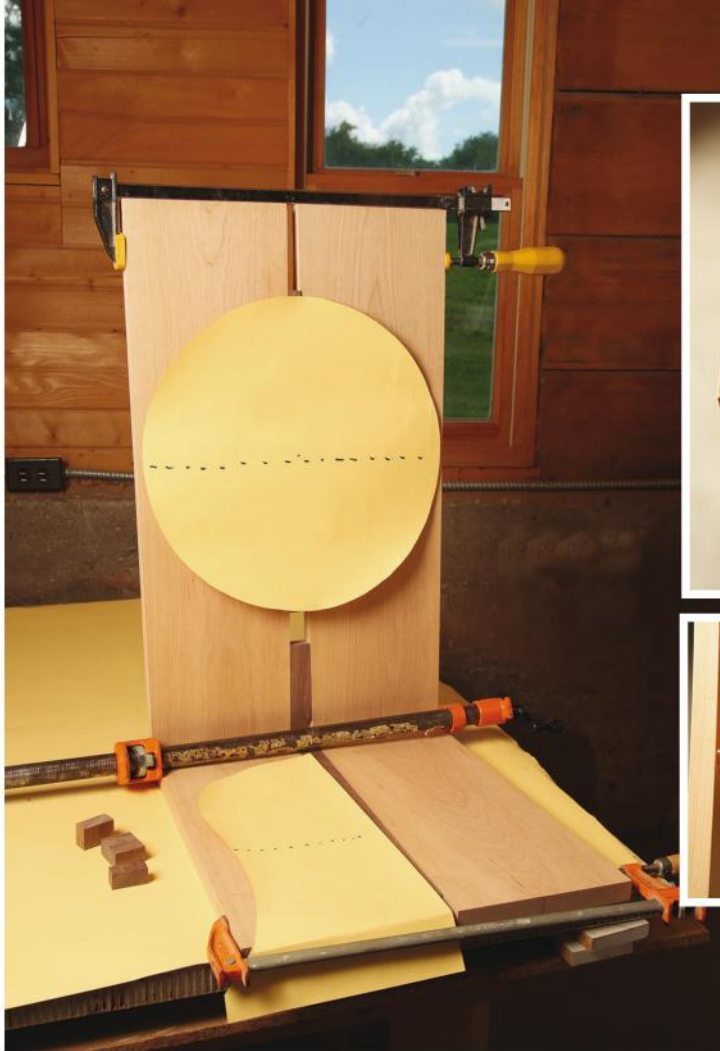
diameter dowel through the bolt location in the rocker assembly and into the hole you just bored.

Now rotate the rocker assembly until the bolt hole in the front leg is centered on the seat edge. Mark that location and drill it for the hanger bolt as you did earlier on the back section. You'll need to repeat this process on the opposite side of the seat/back subassembly.

Thread the hanger bolts into the seat/back subassembly. Take special care here so you do not split the cherry. Now make the seat support dowels by



Because the center pieces are tapered and glue can be "slippery," it is best to carefully glue the center pieces in place on one side of the subassembly. When that glue has cured, complete the assembly.



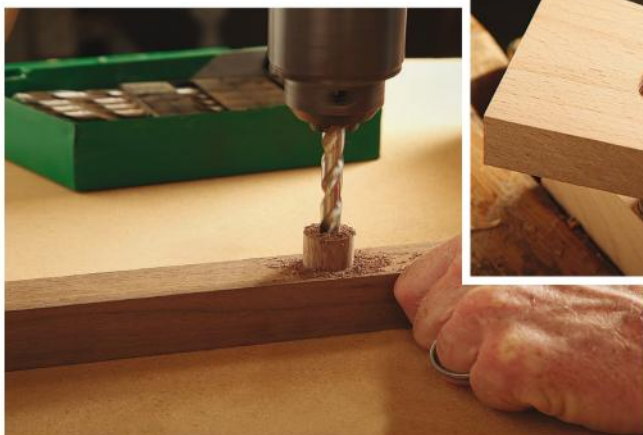
The chair has sculpted back and seat recesses that add both comfort and an elegant look to the forward-facing planes. The front and top edges of the seat and back are also carved and shaped to provide truly modern details to this classic project.

drilling 5/16"-dia. holes through 5/8" walnut dowels (center the holes on the dowels). Cut the dowels to length to slip over the hanger bolts. Check to see if your hanger bolts stick out the right length by slipping walnut dowels over the bolts and fitting the side assemblies in place. Make sure enough threads are exposed for threading on a washer and jam nut (bottom inset photo). It's important to use a jam nut instead of a regular nut because the jam nut is about half as thick. This makes it possible to have enough room to cover the hardware with walnut dowel plugs. When you are satisfied with the hanger bolts at all four

locations, remove the seat from the side assemblies and put a drop or two of super glue next to threads of each hanger bolt to ensure it cannot back itself out over time. This is probably overkill, but it would be difficult to remove the walnut dowel plugs and re-tighten after the chair is complete. Reassemble the chair again and tighten the jam nuts. To accurately take measurements for the two long 1" walnut dowel stretchers that are located between the front and back legs, it's a good idea to use some spacers here and light clamping pressure on the side assemblies to check for square.

Take measurements at the top and back of side assemblies to see if they are all the same. Then take measurements for the dowel stretchers, being certain to account for the shallow 1" counter bore depths. Finally, loosen the jam nuts enough so that you can easily position the stretchers, add a little epoxy glue to the stretchers' end grain, put them in place carefully, and tighten the jam nuts. Now drive wood screws through the rockers and into the ends of the stretchers to lock them in place. Cut

walnut dowel plugs for all eight counterbores. Glue them in place and sand them flush. The rocker is now ready for finish. I used Sam Maloof poly/oil to bring out the rich luster of the hardwood. Cheers!



Boring out the center of a 5/8" walnut dowel allows you to slide it over the 1/4" hanger bolts. The dowels hide the hanger bolts and act as spacers, properly aligning the rocker/leg/arm subassembly to the back and seat.

Greg Wood is a professional woodworker from Howard Lake, Minnesota. You can view his work at gregwoodfurniture.com.

5-Drawer Tool Chest Till

By Ernie Conover

Designed to protect and organize the author's carving tools, this small partitioned box could have many uses.



In 1996, my wife and I visited our son and his new bride in the Swiss town of Lachen, where he had his first job out of college. I had always coveted a set of Pfeil carving chisels, which are made in Langenthal, Switzerland. I bought my set from the local hardware: they got the set I wanted overnight from the factory, at about 40% less than the U.S. price. (The 40% clinched the deal.)

The chisels came in a nice tool roll, which was made from leather-looking plastic. Once home, however, I set about making their storage space a little nicer by constructing a fitting box for them: a “till” to fit into the 18th century style tool chest I had built some years before.

Eighteenth century tool chests were large, six-board boxes with three wells in the bottom to house planes, hammers, etc. A working craftsman of that era would have had about 40 planes. Above the wells were nested one or more smaller boxes, or tills, which housed smaller tools such as screwdrivers, marking tools, and so forth. A till was what we think of as a tool chest today. While the historic six-board chests were of decent workmanship, the exterior wasn’t too fancy: it was, at most, painted. However, the inside of the chest and the tills were a tour-de-force of the cabinetmaker’s art. The tills were fine casework!

Joinery Options

I built my chisel till over a period of five days, completely with hand tools, as part of an early American craft reenactment I presented for many years at our local county fair (the oldest in Ohio). I even resawed the wood to thickness and the boards to size with hand saws.

Take heart, though: I don’t expect everyone else to live up to my 18th century expectations! In fact, I didn’t — quite — make it to a complete hand tool



The author constructed his carving chisel till as an inset for his larger 18th century style tool chest, as seen in the background of this photo from a county fair reenactment of early American craft.

build myself: In the early hours of Day Five, I stopped in at the shop and used a table saw to rip 20 pieces needed for the 1/8"-thick dividers, which separate the chisels in the drawers. Coming from my modern shop and walking into the fair in my 18th century costume, I felt like someone from the U.S.S. Enterprise having just been beamed down to a less technologically advanced civilization.

While I did manage to uphold the prime directive by making my original

till entirely with hand dovetails, when it came to this article, both editor Joanna Werch Takes and I felt that readers should have as many construction options as possible. The carcass can be hand or machine dovetailed (the size is within the capacity of most jigs), or it could be finger (box) jointed. The drawers in this piece require very fine dovetails: not a good size for your first attempt at hand cutting. I’ll show you a different method.



The best way to get the dado spacing perfect is to adjust a small set of dividers to the dado width and then adjust a bigger pair to the spacing between them. In tandem, step off over the distance and adjust the larger set until spacing is perfect. This is much faster and more accurate than other methods.

Drawer and Case Dado Layout

An early step in this project is laying out the dados in the carcass to hold the drawer partitions and the dados in the drawer fronts and backs to hold the interior dividers. It's a challenge to lay

out these dados so that they hold the pieces snugly and have absolutely equal space between them.

The easiest way to lay out the spacing is with dividers. Set a small set of dividers to $1/8"$ or $1/4"$, depending on if you're measuring in the drawers or on the carcass. Calculate the remaining space, divide it by five, and set a larger pair to this figure. Now adjust this set of dividers until you can step everything off perfectly for the five drawers or five tool storage spaces. I generally do this layout on a strip of wood, which then becomes a story stick for the project.

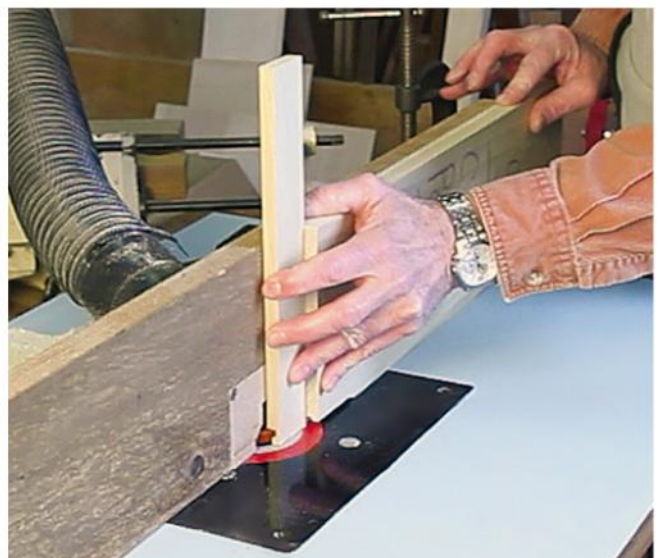
Drawer Construction

I chose to make the drawers for the example in this article with drawer joints, using a specialized bit in my router table that cuts both halves of the joint with the same setup. This joint is very fast and easy to cut and makes a strong drawer. It is especially suitable for small drawers. Setup takes some sample cuts to get everything perfect but, once achieved, milling is very fast.

Fronts and backs of the drawers are run horizontally on the router table along a miter fence (a square block of wood works fine for this purpose), with



Drawer joinery (seen in the inset above) for this till goes very fast. First, cut the joint in the drawer fronts and backs with inside faces on the table.

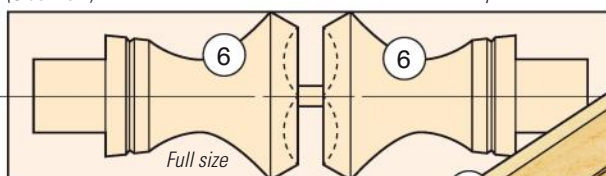


In the next step, cut the joint in the drawer sides by running the inside face along the fence of your router table.

Knobs

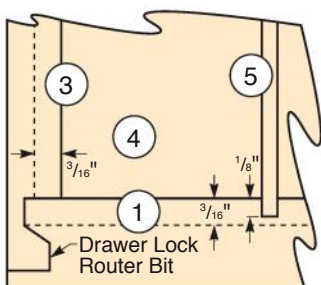
(Side View)

The author turned two knobs from each of three blanks. He used five for the drawers and had a spare left over.



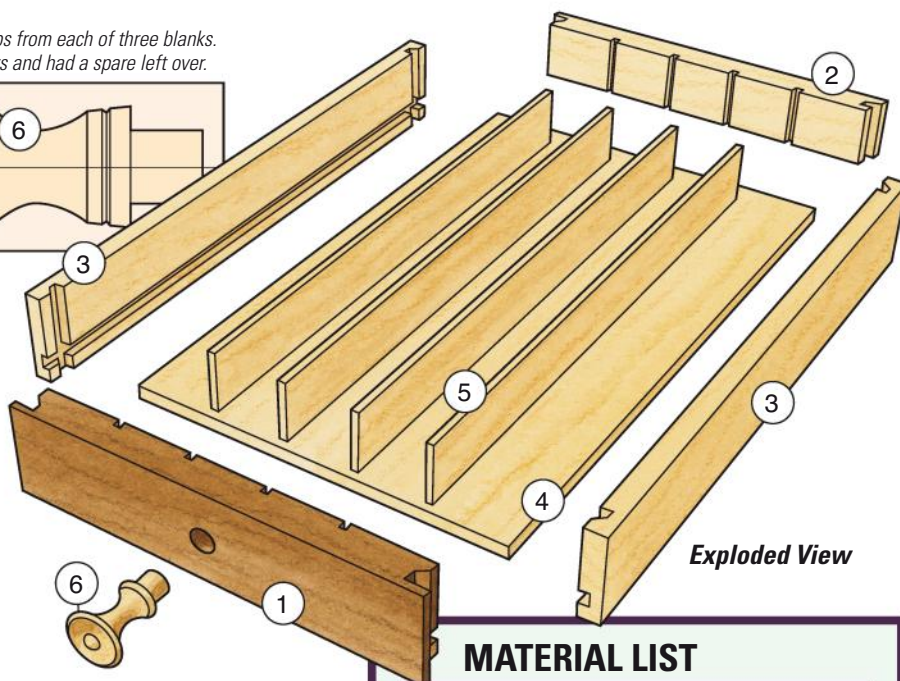
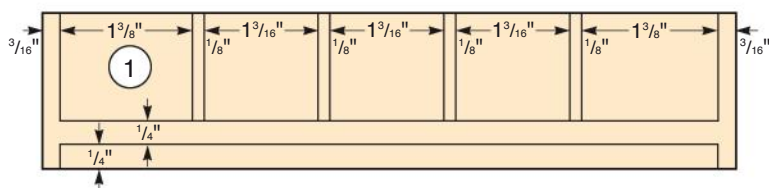
Drawer Joinery

(Top View)



Drawer Front

(Inside View)



Exploded View

MATERIAL LIST

	T x W x L
1 Drawer Fronts (5)	5/8" x 1 1/8" x 7 1/32"
2 Drawer Backs (5)	5/8" x 1 1/16" x 7 1/32"
3 Drawer Sides (10)	3/8" x 1 5/8" x 11"
4 Drawer Bottoms (5)	1/4" x 6 13/16" x 11 1/8"
5 Drawer Dividers (20)	1/8" x 1 1/8" x 10 15/32"
6 Knob Blanks (3)	7/8" x 7/8" x 3 1/8"

the sides being run vertically. The inside face of the drawer is always against the table/fence.

Dovetailed drawers with solid wood bottoms have a back that is 1/2" narrower than the front to allow a solid wood bottom to go under the back and allow for wood movement. If using plywood for the bottom, you can make the back the same size as the front and plow a groove in it as well. This is because plywood is dimensionally stable.

A starting point in setting up the Freud 99-240 cutter I used for this joint is to have it 25/64" above the table and protruding from the fence 9/32". Only raising or lowering the bit is necessary to get a perfect fit, but use fresh test pieces on both halves of the joint with every test! Once you have a good fit, keep the test pieces for speedy setup next time.

I cut the 1/8" dados for the drawer dividers with a back saw but removed the waste with a 1/8" chisel. Like the carcass, these dados have to be stopped at the groove for the bottom. This job can be done handily on a router table with a miter gauge, but a positive

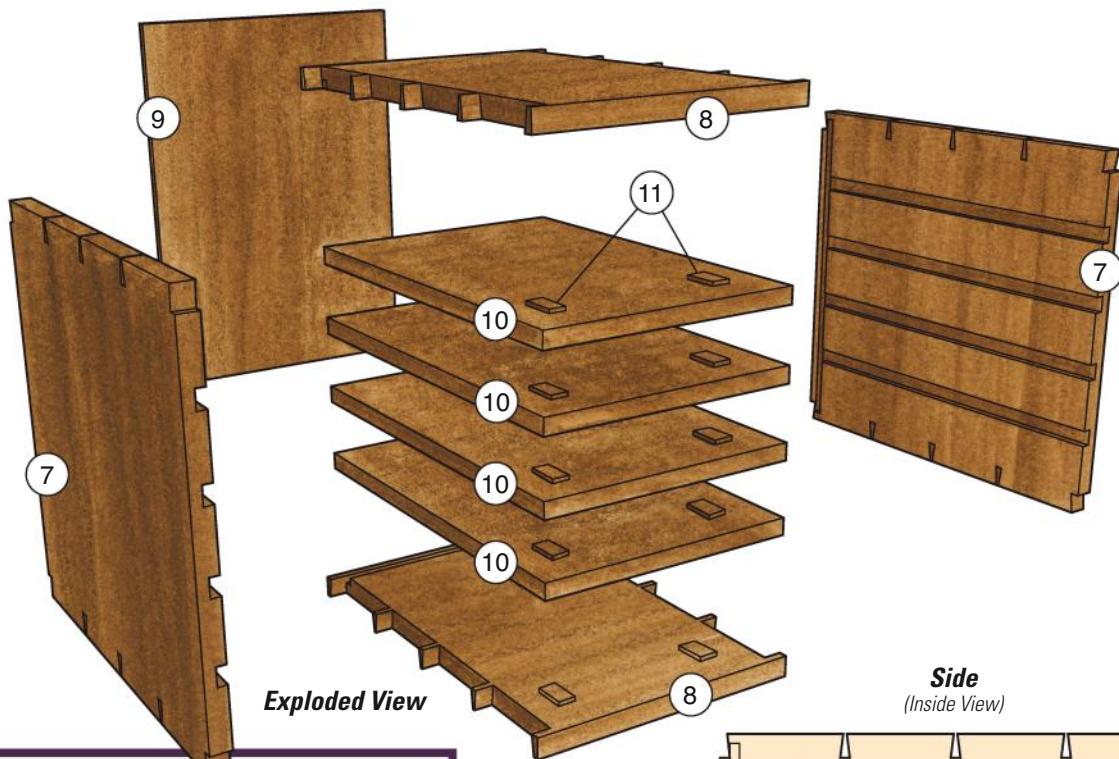
Tool Chest Till Hard-to-Find Hardware

Freud® 99-240 Drawer Lock Router Bit 1/2" Shank (1) #31202 \$40.47 ea.
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Or, call 800-610-0883 (code WJ1577).



You can see the completed joinery at the edge of the finished drawer, shown here receiving its partitions and a hand-turned knob.



Exploded View

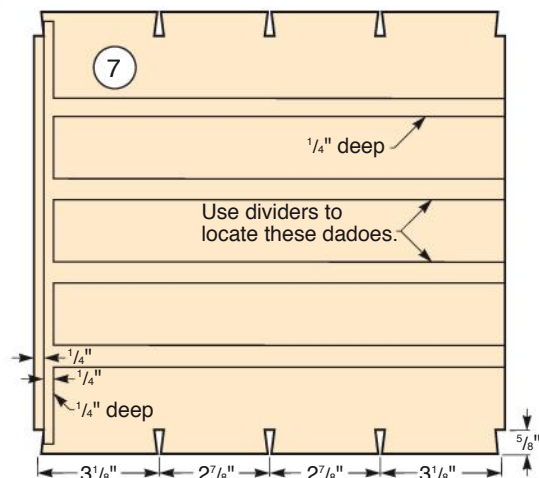
Side
(Inside View)

MATERIAL LIST

	T x W x L
7 Sides (2)	5/8" x 12 1/4" x 11 1/2"
8 Top and Bottom (2)	5/8" x 12 1/4" x 8 3/8"
9 Back (1)	1/4" x 7 3/4" x 10 3/4"
10 Partitions (4)	1/2" x 11 3/4" x 7 3/4"
11 Drawer Stops (10)	1/8" x 1/2" x 1"

MORE ON THE WEB

For a video on construction steps in making this tool till, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.



Because the groove for the carcass's back panel needs to be stopped to prevent it from showing through the back edge of the carcass side panels, the simplest method for cutting this groove is to use a router table.



Sawing dados: the author chose to cut the dados in the side panel of the carcass by hand, first back sawing the edges with a carcass saw.



He then removed the waste with a router plane. You could also do this job using a chisel instead.

stop has to be clamped to the table to stop the dado shy of the groove. The last bit of waste may have to be cut out with a small chisel or a knife.

The drawer bottom fits into a groove plowed in the drawer front and sides.

Case Construction

This till has no face frame. You will need to cut dados and a groove into the carcass for the drawer compartments and the back panel.

The back panel is housed in a 1/4" groove located 1/4" from the back edge of the till. This groove has to be stopped to hide it from showing through on the back edge of the sides of the carcass. Because of this, it's a good idea to make the half pins at either edge of the pin board a bit less than 1/4" to negate having to stop the groove in the top and bottom as well. These grooves are easiest to do in a router table (stopping a groove of this short length is tough sledding with plow and router planes!). Compartments for the drawers are created by wood support partitions that are housed in dados cut into the carcass.

The dados in the carcass for the partitions must be stopped at the back panel groove. You can achieve this on a router table, but you'll need a positive stop, and you'll need to cut the final portion where it meets the groove for the

back panel by hand with a chisel. In my case, I chose to do my dados for the example project in this article the same way I did for the original till. I first cut the edges of the dados with a carcass (filed crosscut) saw, then removed the waste with a router plane.

I glued up the carcass, making sure the joints fit tightly, then used hand planes to bring all the dovetails down flush. The drawer partitions do not touch the back panel: this is to allow space for expansion and contraction of the wood. They are slightly tapered so that they fit more tightly into the dados the farther back in the carcass they go. You will have to push hard to insert the partitions! Use a mallet to bring them flush with the front of the carcass. Only use a drop or two of glue at the front edges of the partitions; you want them to float within the dados.

Your drawers should slide too far into the carcass at this point. You need to install drawer stops by gluing 1/8" x 1/2" x 1" rectangles to the top of each partition 5/8" (the thickness of the drawer front) from the edge to stop the drawers flush with the face.

Handle Options

As you can see in the photos of my different versions of this till, you have several options for creating the handle

on top of the box. You could purchase a brass hardware handle or sash pull, as I did for the original, or you could turn a wood handle as seen in the lead photo on the first page of this article. My brass handle is visible in the photo on page 42.

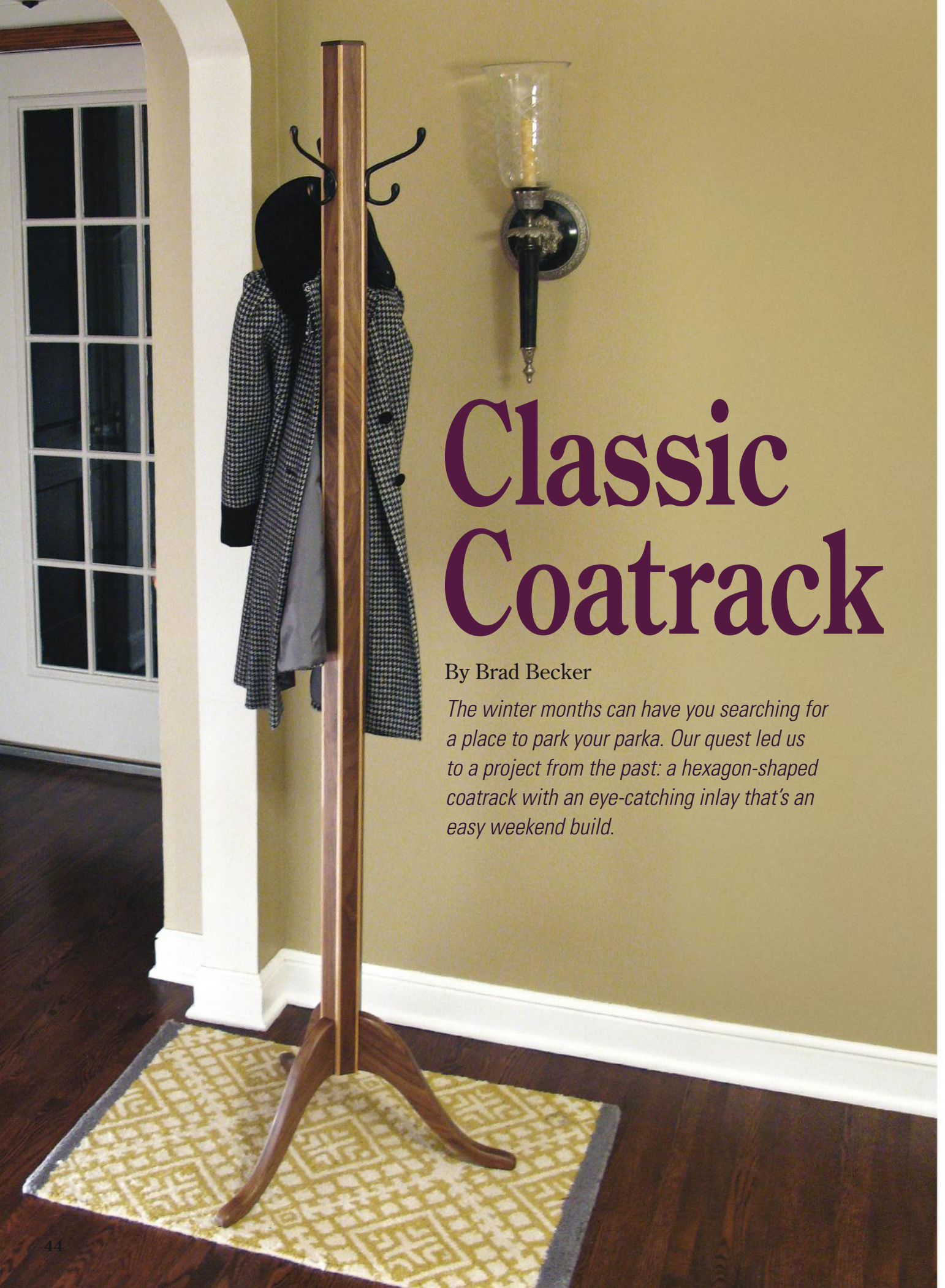
Since I wanted my turned wooden handle to be able to support the weight of the tools contained in my till, I chose to construct it with square tenons on the bottom of the support ends, which fit into mortises I chopped into the top piece of the carcass.

Finishing Strategy

I applied four coats of finish to the completed chest. I used Waterlox, but any oil finish would be fine. I sanded to 180-grit before the first coat and sanded successive coats in wet with 220-grit paper. I did not finish the inside of the drawers, or the carcass beyond about 1", as this is the way our forefathers would have done it.

Although this till/chest is designed for carving chisels, it could just as easily house jewelry or other items. In fact, I am going to add cross partitions to this one and give it to a dear friend of mine to keep his fishing flies in.

Ernie Conover is the author of The Lathe Book, Turn a Bowl with Ernie Conover and The Frugal Woodturner.



Classic Coatrack

By Brad Becker

The winter months can have you searching for a place to park your parka. Our quest led us to a project from the past: a hexagon-shaped coatrack with an eye-catching inlay that's an easy weekend build.

Whether you're a party animal who needs a better place for your guests to pile their wraps than on top of the nearest bed, or an outdoors aficionado who owns outerwear galore, a coatrack can be a handy addition to your household.

This hall tree style option is a bit of a blast from the past: it originally appeared in the April 2005 edition of *Woodworker's Journal*. Ten-plus years on, as we shiver our way through yet another Minnesota winter, we decided to reprise the warm memories of the "Hexagon Hall Tree" (and, that additional coat storage is always a bonus!).

Despite the "impress your guests" vibe of elegance and quality this coatrack gives off, in actuality it's a pretty simple project to build. You should be able to get it built in the timespan of a long weekend, plus another day or two of drying time to allow your finish to completely cure.

Reverse Inlay

Much of the visual interest on this coatrack comes from its "reverse inlay." It's a bit of fancy trickery in which it looks like the lighter-colored wood (we used maple) is inlaid into the darker wood — in this case, walnut. In truth, though, we achieved this effect by gluing thin and comparatively wide strips of walnut into the center of each facet of the hexagon-shaped column — which, in reality, has a maple core.

The legs are glued up with two 1/2" laminations of walnut. I added this simple lamination approach to help offset the weakness in the "short grain" area of the narrow ankles. (You'll find a pattern for the leg shape in the following pages.)

Start with the Column

You'll want to start your construction of this coatrack with the column (piece 1). Our choice for light-colored lumber was hard maple, and back when I built the original coatrack, I had a sizable piece on hand that I could mill to the 3" x 3" x 66" dimensions found in the *Material List* on page 47. This time out, I needed to laminate some thinner pieces of maple together. That meant that I needed to take an extra minute or two during the next step to keep the glue joints from bisecting one of the hexagon's corners. (That just wouldn't look classy at all.)

After you've milled your column to size, you'll need to mark the ends of the column with pencil lines set at 30° from each face to form a hexagon. Take your time with this step. Each facet has to be of equal width for the reverse inlay technique to work properly. I recommend adding a few inches of extra column material so you can trim off the end of your stock, mark the cutoff and use it to get a perfectly setup saw. In fact, you might even make a short test blank if you don't have some drop-stock to work with.

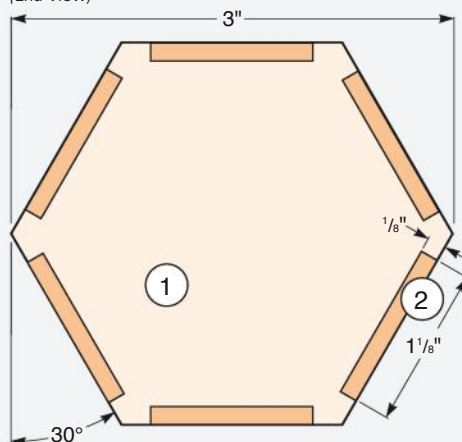
Once you have the end marked, step to your table saw, tilt the blade to exactly 30°, and set the height. If your table saw is a traditional right-tilt version, you will need to move your fence to the left of the saw blade, as shown in the photo

Column with Walnut Inlays



Column Subassembly

(End View)



The coatrack looks as if it is made from solid walnut, but the core is hard maple, exposed only at the corners to create the illusion that the maple is inlaid.

on the bottom of page 46. Carefully align the saw blade to the layout line on your test blank (or your actual column, if you are either brave or a confident gambler) by adjusting the fence.

Make the first slice along the length of the piece, then flip the piece end-for-end and position your stock so you are cutting the adjoining facet of the hexagon (you will create a point or corner, as shown in the photo on the bottom of page 46). Measure the two facets to see if they are equal. Adjust the fence if they are not, and try the operation again. Once the setup is correct, bevel-rip all six facets. I highly recommend a featherboard (placed exactly in the center of the width of the column) to add an element of control and safety.

Plowing the Facet Grooves

With your hexagon in hand, move to your router table to plow the grooves in each facet. I'd grab that test blank you made as well, to once again assist in setting up a proper cut.

I used a two-step plowing technique to center the grooves in the column's facets. I set a 5/8" straight bit to a depth of 1/8". The *Drawings* on page 49 give you the grooves' exact dimensions. Verify your setup by using the test blank, then go ahead and plow the facet grooves.

Moving back to the table saw, I ripped 1/8"-thick walnut strips (pieces 2) to fill the voids you've just created in the facets. Select the best-looking stock: it will add to your coatrack's appearance.



The two-step plowing technique for the grooves in the hexagon (make one pass, flip the workpiece end-for-end and make a second, widening pass without moving the router table fence) is a sure way to keep the opening in the exact center of each facet.

Fit the walnut strips to the grooves and get ready for glue-up. I glued and clamped two facets per session and had the walnut in place in short order. You can start on the legs in your downtime.

Because there are six sides to the coatrack, it is incredibly simple to attach three legs to the column. As you know, three-legged stools, tables or even coatracks have the advantage of never needing to be leveled.

Although there are only three legs, I used six pieces of wood to make them: it makes them much stronger. Cut the leg laminations (pieces 3) from 1/2" walnut stock. For appearance's sake, try to make each leg from stock that matches well. (I cut each pair of leg laminations

from the same board.) Glue the blanks together, making 1"-thick leg stock. Use the gridded *Drawing* on the next page to make a pattern of the leg shape.

If you are not familiar with using gridded drawings, you have a few options. The first is to create a grid of 1/2" squares on sturdy paper. Draw matching lines on your grid to the ones in the gridded drawing. This will provide a very close representation of the leg shape. Don't be afraid to refine the shape as you see fit. The second option is to use a copier to enlarge the gridded drawing by 400%. Or, in one of those wonders of modern technology, you can go online to our website and print out a full-size copy of the leg pattern grid.

Once you have your pattern, transfer the shape to each leg blank and use a band saw to cut them out. (Keep these cutoffs: you'll use them to set up your router table later.) I used a spindle sander to complete the shaping of the legs and smooth out any saw marks left behind.

Although it's removed for clarity here, when cutting the hexagon to shape, the author highly recommends using a properly placed featherboard to keep the column from wandering away from the fence during cutting. Install it in front of the blade on the infeed side so the offcuts can fall away freely.

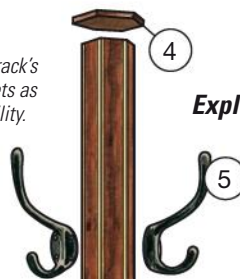




For a full-size gridded leg pattern, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

NOTE: Mount the coatrack's hooks on the same facets as the legs to ensure stability.

Exploded View

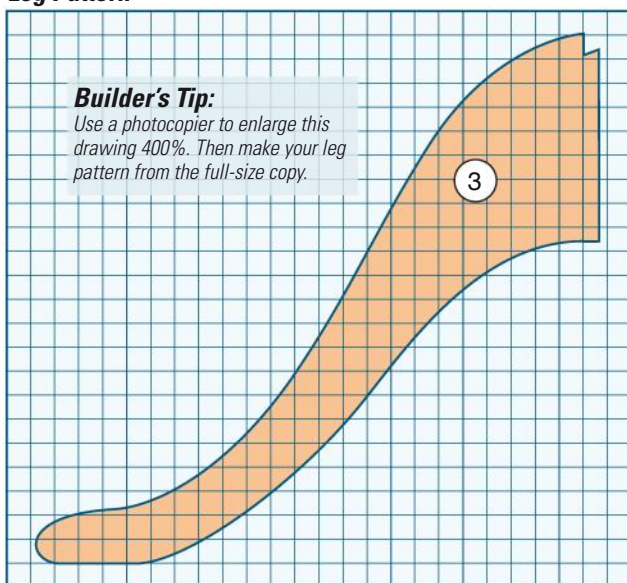


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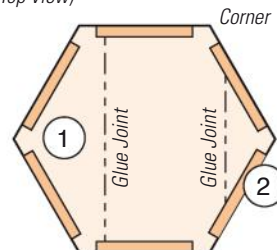
Leg Pattern



Each square equals 1/2"

Woodworker's Journal grants permission for making copies of this drawing for personal use.

Column Construction Glue-up Detail (Top View)



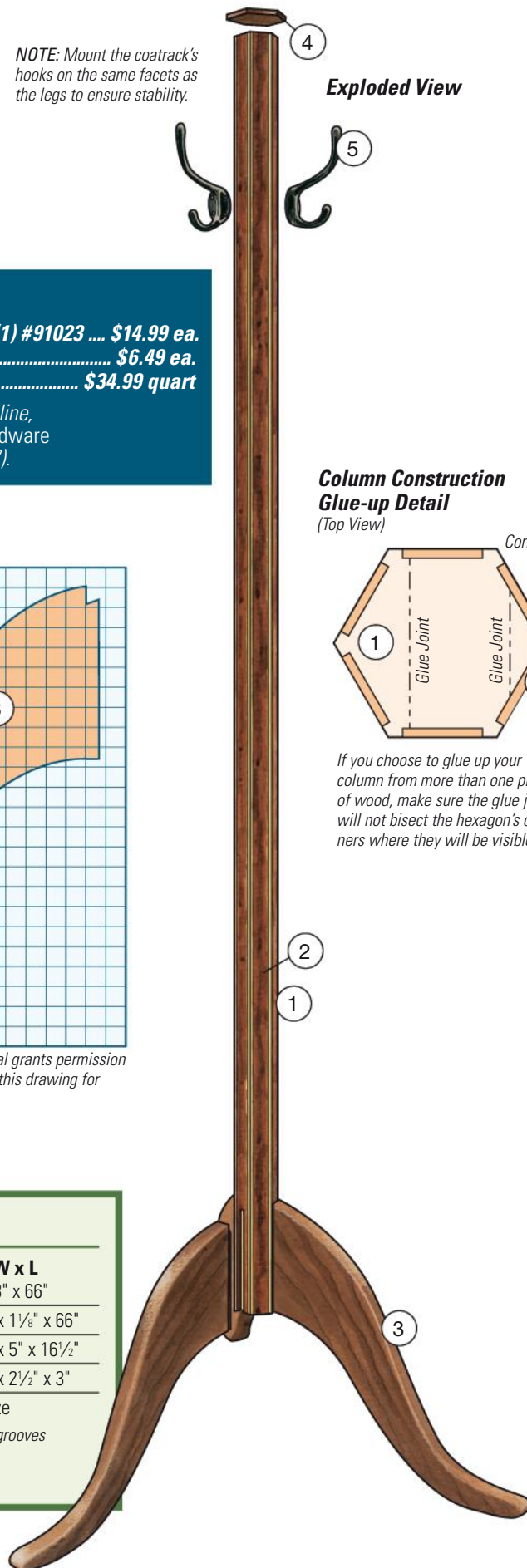
If you choose to glue up your column from more than one piece of wood, make sure the glue joints will not bisect the hexagon's corners where they will be visible.

MATERIAL LIST

	T x W x L
1 Column (1)	3" x 3" x 66"
2 Walnut Strips* (6)	1/8" x 1 1/8" x 66"
3 Leg Blanks** (6)	1/2" x 5" x 16 1/2"
4 Cap (1)	1/4" x 2 1/2" x 3"
5 Hooks (3)	Bronze

*Trim to final width after you make the facet grooves

**Glued together in pairs to create three legs



Go back to the column that you've completed gluing the walnut strips into. Scrape off any glue squeeze-out and then use a belt- or random orbit sander to clean up the facets and sand them smooth. Be careful not to round over the flat aspect of each facet. Now you're ready to do some dovetailing.

Sliding Home

The legs are attached to the column with sliding dovetails, which are easier to make than you may think. (You could, of course, use a more basic mortise-and-tenon joint, which would hold up fine, but where's the fun in that?)

Chuck a 1/2"-wide, 14° dovetail bit into your router table and set its depth to 5/16" deep. You are going to plow



The author used a spindle sander to complete the shaping of the legs and to remove any saw marks from the leg's edges.

the column dovetail grooves 3 5/8" long, exactly in the center of the facets. Look to the *Elevation Drawings* on the next page for location details. Set up a stop on your fence to register each cut perfectly. Plow all three grooves and then grab the coatrack legs you've previously cut out.

This is where the cutoffs that you saved when band sawing the legs come in handy. You need to set the fence of your router table to cut the matching dovetails on the legs, and you can use the drop-stock to test the cut.

The first cut on each face of your legs should be a very light initial pass, with the bit barely protruding from the fence. This will precut the fibers (the same as scoring them with a knife) and help prevent tearout. Then, creep up on the cut by moving your fence back in about 1/16" increments, as you first run one face of each leg through, then flip it around to do the other side. Do this until you reach the correct width of the dovetail, making sure to run both sides of each leg through a setting before moving the fence again. You'll know you've got the width right when the joint slides into the groove in the leg with just a hint of resistance.

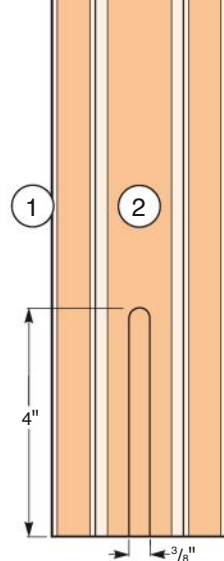
After forming the dovetails on the back of each leg, trim the dovetails (down from the top edge of the leg) to match the grooves you plowed in the column (see *Drawings*, page 49). I used my band saw and some chisels for this task, but you could just use a backsaw or similar handsaw. When they fit correctly, put some glue in the grooves and slide the legs home. Stand the column on its top end while the glue cures.

Capping it Off

When I made the first version of this coatrack more than 10 years ago, I chose a two-piece cap style that created

Use a band saw to cut out the coatrack legs.





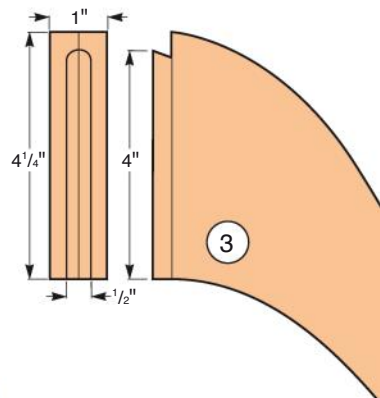
Sliding Dovetail Groove Detail
(Front View)



Leg Assembly Detail

Sliding dovetail joinery between the column and legs ensures a strong mechanical joint.

Leg Dovetail Detail
(End and Side Views)



a type of “crown.” This time out, I just capped it off with a flat piece that follows the hexagon form of the column. Simple and stylish.

I cut the cap (piece 4) from 1/4" walnut into a hexagon shape. Mount the cap to the top of the column with a screw and a dab of glue.

You're now at the point where you can go ahead and mount your hooks (pieces 5) — even though you'll take them off again immediately for finishing.

I mounted the hooks 8" down from the top of the column. And, even though I've now built this coat-rack twice, I had another thought to improve it even more. (Woodworkers are always tweaking.) What you could do — and I just may go back and add this element — is to mount a second row of hooks further down from the first. This would make it easier for your shorter friends to hang up their coats and could even help you get more storage out of the piece, since a group of bulky coats wouldn't be bunched up on the same level. You could even jazz things up a bit by using a different style of hook for your lower layer. Some smaller ones, like 1 3/4" robe hooks from Rockler (item 31710) could even, literally, provide you with a place

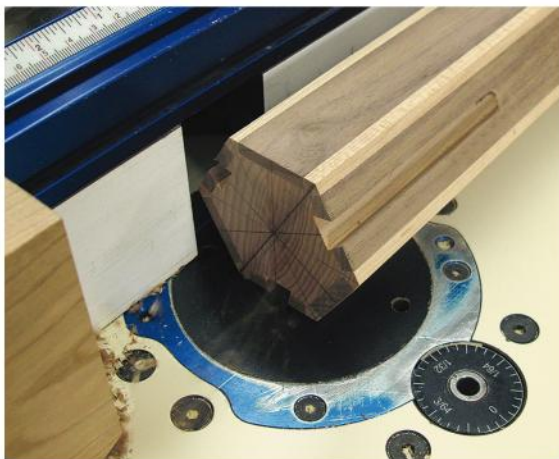
to hang your hat.

You'll still want to make sure you mount any additional hooks on the same facets of the hexagon where the legs are installed, to ensure the coatrack's stability.

As for finishing the piece, I recommend taking a good bit of time to do a thorough sanding job, right up through the grits. (I went all the way to 220 grit.) The smoother the wood to which you apply an oil finish, the better that finish will look. It's as simple as that.

I do have another secret for making walnut look its very best. To combat areas where your walnut's color may be shifting from brown to something else, I'll suggest applying a coat of cherry-colored oil stain. It creates highlights and blends color shifts while enhancing the grain. After that coat dries, apply three coats of Sam Maloof® Poly/Oil Finish. Re-mount the hooks, and the coatrack's ready for the many coats of a Minnesota winter — which tells you why we needed to build more than one.

Brad Becker works as a woodworker in the Woodworker's Journal and Rockler shops, as well as making picture frames for his wife's art.



The dovetail grooves in the center of the column facets are a stopped cut. You must make this cut in one pass.



As for the dovetails on the legs, creeping upon on their final width — cutting in multiple passes and making slight adjustments to the fence — helps to prevent tearout of the grain.



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Techniques

Resawing: Basic Hows and Whys

By Linda Haus

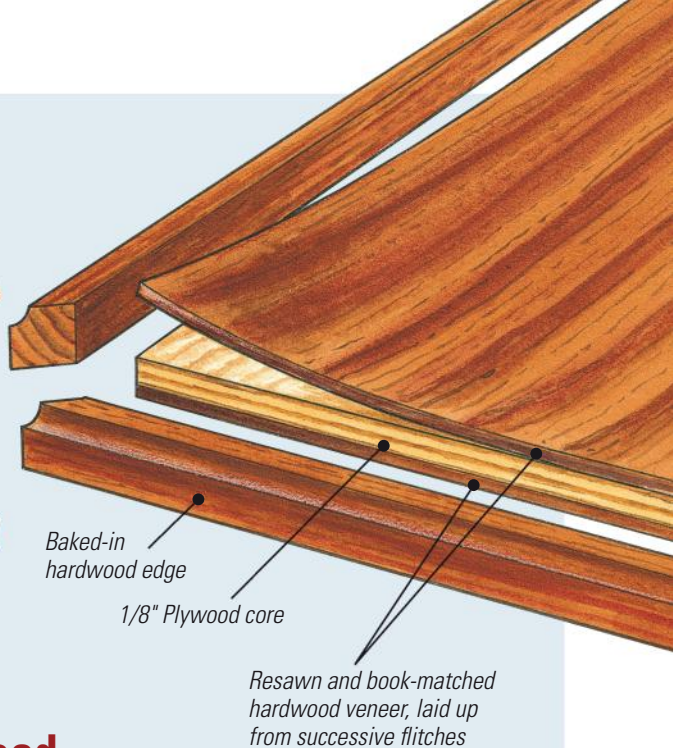
Resawing is a simple process when you have the right equipment — but why, some ask, go through all the bother?

So you can use a band saw to slice thin pieces of wood from bigger pieces of wood ... what's the benefit? Why not buy your wood sliced thin to begin with, or just plane or sand it to thickness? Here are five good reasons right off the top of my head: First, you'll get the best use out of expensive or beautifully figured wood. Second, you'll be able to create book-matched, slip-matched or swing-matched panels.





By resawing hardwood to create her own handmade plywood, Nina Childs Johnson was able to perfectly match the solid hardwood sides of her dovetailed box.



Handmade Plywood

Creating your own plywood gives you total control of a project's appearance and wood species. *Woodworker's Journal* author Nina Childs Johnson used resawn narra to construct a lid for a large box. By baking in the edges with solid narra (an uncommon Southeast Asian hardwood) and using a 1/8" plywood core, she was able to create a book-matched figured lid that looked like it was made of a solid piece of hardwood — but it had the strength and stability of plywood. She used successive book-matched flitches, top and bottom, to support the “solid wood” illusion even when the lid was open. Resawing is the key to this creative joinery.

Third, you'll have a method to efficiently use salvaged or reclaimed lumber of large dimension. Fourth, you'll be able to create your own lumber from a tree (or even from firewood)! And fifth, when you get good at it, you can begin to make your own handmade plywood (you'll find more on this in the *side-bar*, above).

Equipment Makes a Difference

To get started with resawing, I recommend a band saw of sufficient power and with a large depth of cut. Any motor smaller than 1hp and depth of cut less than 10" will limit your effectiveness. (Some 14" band saws have about a 6" maximum cut ... so you'd be limited to a 12" wide book-

matched panel or less.)

I also recommend using a point fence of some sort. By having a single point to register the cut (placed adjacent to the cutting edge of the saw blade), you will be able to swing your stock left or right to correct for blade drift. You might be able to get away with using a standard fence once in a while, but if you're trying to slice off a 1/4" piece of expensive hardwood, and your blade drifts toward the fence, you are powerless to correct it.

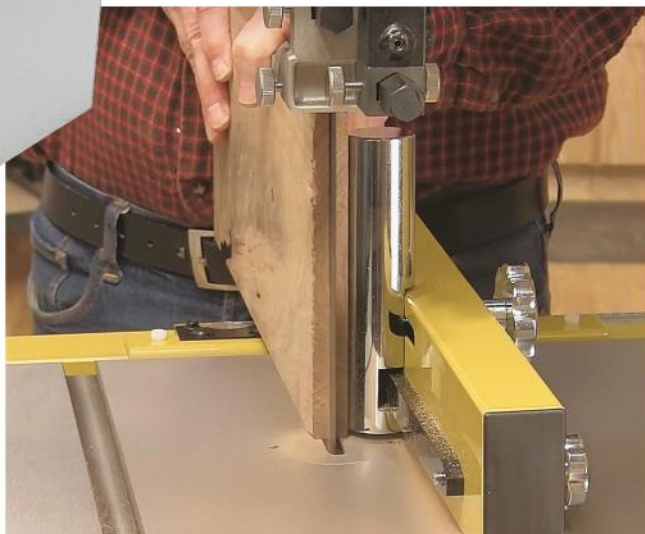
And, speaking of saw blades: the rule of thumb for resawing is “the wider the better.” Wider blades, 1/2" and larger, cut straighter, which is the goal. Also, fewer and larger teeth per inch make for better resawing.



When choosing resawing blades, think wide and dentally challenged, as with the “Resaw King” (right). At a minimum, stick with a wide, open-toothed blade (middle). Narrow blades (left) are just a bad idea.



A point fence, like the adjustable shop-made version above, is the key to being able to adjust for blade drift as you resaw.



Larger band saws, like this 15" Powermatic, come with substantial resawing "point fences." They also have larger resawing capacity ... often exceeding 12".

The question that I often hear is, "Can you resaw using a narrow band saw blade?" "I always answer, "Sure. And you can hunt buffalo with a BB gun, too." In both cases, you're asking for trouble!

When it comes to resawing blades, think wide and dentally challenged. Fewer teeth per inch allow the blade to remove sawdust more effectively. And if you are slicing through a 10" or 12" board, you can imagine how much waste that makes. Three teeth per inch is often identified as the sweet spot for resawing. And wider blades just track better and cut straighter — exactly what you want when resawing.

Laguna Tools' Torben Helshoj has created his own resaw blade design, dubbed the Resaw King. It has carbide teeth, excellent steel and is a real performer. But even if you don't opt for a "specialty" resaw blade, stick with a wide and open-toothed blade to enhance your resawing activity.

Resawing By the Numbers

Here's a step-by-step primer on resawing:

1. Square up and surface two faces of your lumber. While it's possible to resaw rough-cut lumber, your work will be more accurate and easier to control if you first prepare the stock.
2. Use a point fence. You can easily make or buy one. Many of the larger band saws come with a screw-on fence attachment for this purpose.
3. Set the fence to the thickness of the stock you require. Be sure to accommodate the saw kerf in your planning. For example, it's impossible to get three 1/4"-thick pieces of stock from a 3/4" piece of wood. The two saw kerfs eat up close to 1/8" of wood.
4. Adjust the upper blade guide to the width of the

board you are resawing.

5. It is a good idea to scribe a line the width of the slice you are removing on the top, visible edge of the board. This will help you keep the saw blade exactly where you want it during the cut.
6. Use a push stick to finish the cut, when you slice off the slab of wood.
7. If you are making multiple resaw cuts in a piece of lumber, decide whether you need to run the face of the stock over your jointer or not.
8. Use a planer with a slave board to remove the saw cuts from the faces of the thin resawn slabs. A surfacing drum sander also works well for this task.

Linda Haus is a woodworker, part of the Rockler Woodworking and Hardware technical support team, and a contributor to Woodworker's Journal.

MORE ON THE WEB

VIDEO For a video on resawing, please visit our website at woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

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Tool Tutorial

Scroll Saw 101

By Carole Rothman



Expert scroller Carole Rothman introduces a new series with a spotlight on the scroll saw: Here's what you need to know about buying, using and being safe with this tool.



www.woodworkersjournal.com MORE ON THE WEB



For a video on angle cutting with a scroll saw, plus the author's troubleshooting solutions for the cutting process, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

Using the scroll saw has been part of my daily routine for quite a while, yet my introduction to the tool occurred quite by accident. When the board of a community woodshop asked me to teach how to make collapsible baskets, I found that the shop's band saw was in such poor repair that its use would have posed a danger. Needing a safer alternative, and aware that these baskets could also be made with a

scroll saw, I prevailed upon the board to buy a mid-priced saw of reasonable quality as a substitute.

I bought an instructional book and an assortment of blades, and started teaching myself how to cut. As I worked my way through the exercises, I was impressed by the range and beauty of the projects that could be made with this versatile little tool. From that point on, I never looked back.

What Can a Scroll Saw Do?

Smaller than most shop tools and deceptively simple in appearance, the scroll saw is the hands-down winner for "most underestimated and unappreciated tool in the workshop." Because of its association with simple, pattern-based projects (think sewing machine!), woodworkers often fail to appreciate its capabilities and therefore don't utilize it fully in their shops.

You may already be familiar with some of the better-known uses of the scroll saw. They include:

- Puzzles of various types
- Fretwork, in which a blade is inserted into the workpiece through small entry holes to permit the removal of pieces of varying sizes and shapes

- Intarsia and segmentation, which use many small pieces of wood glued together to form mosaics

- Wooden toys of all types, from simple pull toys to realistic, detailed models

You're less likely to know that with the scroll saw you can also:

- Make bowls and vases that appear at first glance to be lathe-turned

- Create unique boxes of many kinds, free from the constraints and demands of conventional joinery

- Make projects usually associated with the band saw, such as "band saw boxes" and collapsible baskets

- Use a technique called compound cutting to create three-dimensional objects

- Decorate projects with inlay and marquetry without using a router or chisel

- Cut a variety of materials: softwood, hardwood, particleboard, Corian®, acrylic, melamine, aluminum, copper, silver, brass, gold, horn, antler, bone, glass, ceramic tile and stone

- In conjunction with other tools, cut dovetails and tenons, and make templates to use with bearing-guided router bits

A pretty impressive list for an unassuming little tool!



Bowls made with the scroll saw can resemble those that are carved or lathe turned.



Compound cutting is a versatile and popular scroll saw technique.



The tiered cake box, above, is decorated with ribbons and loops cut from laminated multicolored blanks.

Through use of a specially glued-up blank, a stacked ring bowl can simulate the look of open segmentation.

Tool Tutorial continued



This scroll saw features a lever that clamps and tensions the blade in a single operation.

Choosing a Scroll Saw

To get the most from a scroll saw, you'll need to find the features that make a particular saw, or model, most appropriate for you. Some things to look for, overall, include: minimal vibration; vertical or near-vertical up and down movement of the blade; conveniently located speed controls and tension adjustments; and easy-to-use blade clamps.

Some scroll saws have matching stands. Some are adjustable; others are available in different heights and configurations, including wheelchair accessibility. A foot pedal, which serves as an On/Off switch, may be included. I strongly recommend one, since it frees up your hands to control the workpiece. I've found low-profile foot pedals the most comfortable to use.

The throat size of the saw table — the distance between the blade and the rear of the saw table — determines the size of the wood you can cut. It typically ranges from 16" to 30". The saw table itself can vary in size, shape and distance from the blade to the front of the table. As with table saws, those with more saw table surface area provide more stability for larger workpieces.

Some saws require a tool to secure the blade into its clamp; others use knobs that are hand tightened. Sometimes several options are offered, or a combination of methods is used. Regardless of specifics, a well-designed system of any type will be easy to use and provide a secure, reliable attachment.

Blade clamps — upper, lower or both — can be either attached to the saw or removable. This feature is relevant for those who do fretwork, which involves feeding the blade through small holes drilled in the workpiece. Those who prefer to insert the blade from the top down, or "top feeders," need a saw whose lower clamp can remain in place when the bottom of the blade is detached. To "top feed," the scroller detaches the bottom of the blade from its holder, leaving the top end attached, and feeds the blade through the drilled hole in the workpiece and the opening in the saw table. The blade is then reattached to the bottom holder. "Bottom feeding," done in the opposite direction, can be done with all saws, since the upper end of the blade is always detachable with its clamp in place.

All scroll saws can make

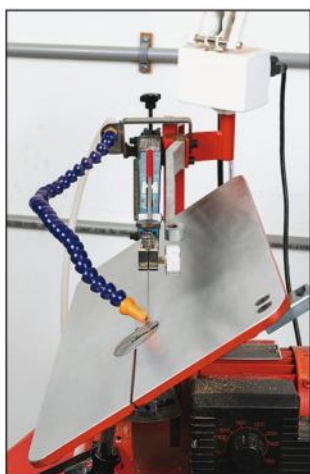


"Bottom feeding" (inserting the blade from under the workpiece) is possible on all scroll saws.

beveled cuts, typically up to 45°. Making cuts of this type usually requires tilting the saw table. However, some saws are designed so that the arm tilts and the table remains level. While this might seem a major advantage, even the steepest cuts can, with practice, be cut successfully with the table tilted. Some tables tilt fully in only one direction. This poses no problem, since cutting clockwise with the saw table tilted one way gives the same results as cutting counterclockwise with the table tilted the other way.

Ease of maintenance: although all scroll saws are easily maintained, some may have fuses and brushes that need periodic replacement, while others require only the oiling of a few moving parts after a specified number of hours of use.

Continues on page 60 ...



This saw makes beveled cuts by tilting the saw table. The blade remains vertical.



This saw makes bevel cuts by tilting the arm and blade. The saw table remains level.



You can easily tighten the lower blade clamp of this saw by hand, but placing it into a built-in holder is required before insertion or removal.



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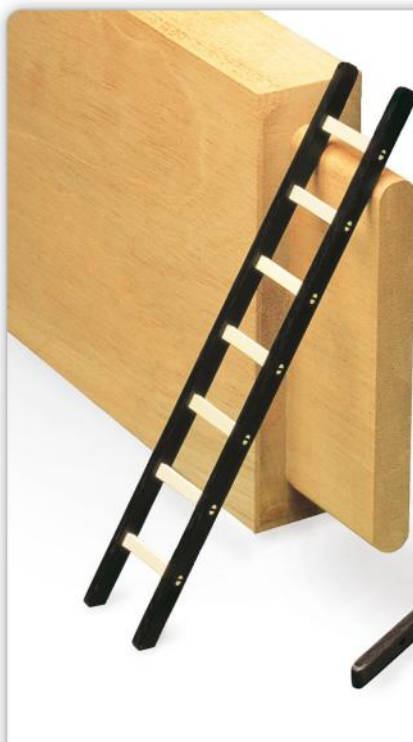
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Cypress	4/4.....1C.....3.00	Select	3.00	8/4.....Select	4.00	4/4.....\$ 99.00	8/4.....\$109.00
Hickory-Pecan	4/4.....1C.....2.00	Select	3.00	8/4.....Select	3.50	4/4.....\$110.00	8/4.....\$137.00
Mahogany (African)	4/4.....1C.....3.25	Select	5.25	8/4.....Select	5.55	4/4.....\$124.00	8/4.....\$127.00
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Maple (Soft)	4/4.....1C.....2.10	Select	2.80	8/4.....Select	3.95	4/4.....\$107.00	8/4.....\$129.00
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Oak (White)	4/4.....1C.....1.30	Select	1.80	8/4.....Select	2.00	4/4.....\$ 87.00	8/4.....\$ 91.00
Poplar	4/4.....1C.....3.25	Select	6.25	8/4.....Select	7.00	4/4.....\$129.00	8/4.....\$149.00
Walnut	4/4.....1C.....1.40	FG.....1.80	8/4.....FG.....1.80	4/4.....\$ 80.00	8/4.....\$ 86.00	4/4.....\$ 92.00	8/4.....\$ 99.00
White Pine (Soft)	4/4.....Clear.....2.20	2C+Btr.....2.50	8/4.....2C+Btr.....2.50	4/4.....\$101.00	8/4.....\$107.00		

Above prices are for approximately 20 bd. ft. bundle of clear 1" Face (except for cedar and white pine or lumber listed as 1C+Btr. which have tight knots) 4" - 10" wide • 3' - 5' long. Lengths and widths are random. Add 15% to price of bundle if you specify particular lengths and widths. Lumber is surfaced two sides (13/16" on 1" stock • 1 3/4" on 2" stock) or rough. Some of the heavy woods are skinned to meet the 70 lb. limit even though rough lumber is specified. Prices include delivery prepaid in the Continental U.S. Sap wood in walnut and cherry is no defect. Please Specify Rough or Surfaced Stock. *Add \$5 if Rough. (Shipped in 2 bundles) Add \$5 if over 5' Long.

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Tool Tutorial continued



Scroll saw blades are typically 5" long and vary in width. Even the largest, however, are tiny when compared with blades used on other tools.



It requires considerable practice to use spiral blades like these, but they are invaluable when working on projects with limited access.

Selecting Blades

Choosing scroll saw blades can be confusing, even for experienced scrollers, since several companies manufacture quality blades that vary in type, tooth configuration, teeth per inch (tpi) and other characteristics.

The most commonly used blade is the skip tooth, a blade with widely spaced teeth that cut on the down stroke. Reverse tooth blades are skip tooth blades that have a small number of teeth, usually at the bottom of the blade, which cut on the upstroke. This gives a smoother cut on the underside of the wood. However, this type doesn't clear away sawdust as effectively as the skip tooth and may cause the wood to bounce slightly.



The three basic types of scroll saw blades are, from left to right: spiral, skip tooth and reverse tooth.

Spiral blades have teeth that spiral all around the blade so you can cut in any direction. Controlling this type of blade takes practice, but the ability to cut in any direction without moving the workpiece is especially important for those doing large, intricate fretwork projects, involving many tiny cutout areas.

Even blades of similar types differ in how aggressively or smoothly they cut. As you gain experience, you'll be able to select the blades that work best for your cutting and project preferences. For starters, however, make your best guess and buy a few dozen blades of types and sizes that seem appropriate. As you try them out, keep notes on their

performance, and before long you'll know just which blades are best for you.

Scroll Saw Safety

The scroll saw, with its tiny blades, is a relatively safe power-cutting tool. To prevent cutting yourself, keep your fingers to the side or back of the blade, especially when working with small pieces of wood. Eye protection is a must, since small fragments of wood can occasionally go flying. Sawdust is produced both above and below the table, which means a dust mask or respirator is essential, even if you're using a vacuum or dust extraction system. Hearing protection is always recommended.

Continues on page 62 ...

Beyond the Basics: Cutting at an Angle



Once you're comfortable making beveled cuts, new types of scroll saw projects become possible.

You can easily and economically make bowls and vases of different shapes and sizes from angled concentric rings that are glued together, then sanded. Online design tools such as PolyDraw (www.scrollmania.com/polydraw.html) offer myriad shapes and profiles.



Collapsible baskets, formed from a long, angled spiral, are often done with a band saw, but it's far safer to use a scroll saw. The scroll saw can start the blade at the center by inserting

it through a small, drilled entry hole. The cut then moves outward, away from the spiral area, to the stable perimeter of the workpiece. Once the pieces are cut, the assembly and finishing are simple and straightforward.

Double-bevel inlay refers to a scroll saw technique in which two equally thick (usually between 1/4" and 3/8") pieces of wood are attached temporarily. When the piece to be inlaid, with pattern attached, is placed on top, you drill a blade entry hole on the pattern line and cut out the pattern in a clockwise direction. Downward pressure on the upper piece forces the matching lower piece to drop out. The upper piece takes its place, creating the inlay. Multiple pieces can be inlaid sequentially, enabling the scroll saw user to create attractive designs with relative ease.

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Tool Tutorial continued



Tensioning a blade correctly is more of an art than a science. The author finds degree of deflection an adequate indicator.



An aftermarket digital readout can provide more accuracy than a scroll saw's angle gauge.



There's no substitute for practice, whether with a prepared practice sheet or one you've drawn, when learning to control the scroll saw blade.

Prepare a Successful Cut

For accurate cutting, the blade must be properly tensioned. Too much tension and the blade will snap; too little and it will wander. I tension mine so that there is a slight deflection, no more than 1/8", when the blade is pushed sideways, being especially careful not to over-tighten fragile, wire-thin blades. Blades are routinely de-tensioned when not in use, and the better saws have a quick-release mechanism at the front of the saw that lets you de-tension the blade without losing the setting.

Vertical cuts require that the saw blade and table be perpendicular to each other. I check this by tensioning the blade and placing a small square next to it to see if the

blade and the vertical edge of the square are parallel. If not, depending on the type of saw I am using, I adjust either the arm or table until the blade and vertical edge of the square are aligned, then tighten the knob fully to keep the adjustment.

It's a good idea to check your saw's angle gauge at this time, to be sure that it reads zero, and to adjust it if it doesn't. This lets you use the gauge when adjusting the table or arm for angled cutting.

However, when precision is critical, a small digital readout with magnetic base may be preferable. It can be used with either a tilting arm or table; it's easy to read; and it avoids the problem of parallax when viewing the scale.

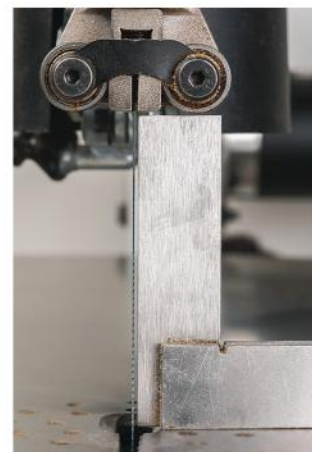
Making the Cut

There is no "shortcut" to learning how to cut: you learn by cutting until you get the feel of guiding the wood smoothly into the blade. Practice the major types of cuts: straight, curved and pivots, which are used to make sharp corners or to reverse direction. Although your first tries may look ragged, you'll soon find it easy to follow a line accurately. Use a soft wood like pine or poplar, 3/4" thick, and a #5 skip tooth blade, which is wide enough for stability but narrow enough to make most types of cuts.



You can use a digital readout on any scroll saw by mounting it on the tilting arm, table or saw blade.

Just don't make the common mistake of continuing to use a dull blade for "those last few inches." You'll recognize dulling most easily by the need to increase



An engineer's square is a quick, easy way to check that the blade and table are perpendicular.

pressure on the wood as you cut. If you continue to use the blade, burning may occur and the blade may deflect sideways. Eventually, the blade will break. Change the blade as soon as you notice a change in your cutting.

Look online for more of my troubleshooting tips for situations you might encounter during cutting as you move through the variety of projects you can make with a scroll saw.

Carole Rothman is the author of Creative Wooden Boxes from the Scroll Saw (Fox Chapel). She blogs at scrollsawbowls.blogspot.com.

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Weekend Projects

Tripod Floor Lamp

By Kristena Smith



You know what I love? Trendy furniture that makes my house look great and me feel wonderful. But you know what I hate? Paying hundreds of dollars for it. So what's a person to do?

The obvious answer is make it myself, which is exactly how I created this awesome tripod lamp that looks perfect in my living room. The best part is that by doing it myself — with a bit of help from *Woodworker's Journal* publisher Rob Johnstone — I brought the project in at less than a hundred bucks.

The finished lamp in the photo at left may look a bit complicated with its tapered legs and angled three-part joint at the top, but rest assured it's an easy project. In fact, the whole thing uses only four pieces of wood and goes together with just three common hand-held power tools and a few pieces of hardware from your local big box store.



Our author wanted a trendy lamp — without spending the big bucks to buy one. So, she made it herself.

Basic Materials, Basic Tools

The materials used here couldn't be more basic or easier to find.

You'll need three 6' pieces of clear 1x3 pine. Dimensional lumber like this is a staple at any big box store or lumberyard. If you can, dig around in the stacks to get the straightest pieces you can find. The other piece of wood you'll need is a length of 1 1/4"-diameter hardwood dowel (a closet rod works fine).

For hardware, you need what's called a lamp "harp" — the wire-like frame that holds the lampshade — as well as a light socket and threaded mounting rod about 2" long. These components are frequently sold together as a kit for around \$10, and most home centers and hardware stores carry them. If lamp wire isn't included in the kit (it probably is), pick up a lamp cord with an attached plug in a length of your choice.

You'll also want a lampshade, of course, but you may want to wait till the lamp itself is done and placed where you plan to use it. That way, you can exactly match the lampshade size, shape and color to the room.

The three tools we used were a handheld jigsaw, drill/driver and a small belt sander. A sanding block with some 100- to 150-grit paper will also come in handy, as will a straightedge and ruler.

Finally, have some wood glue and a handful of 1 1/4" screws ready for when it's time to begin the assembly.

Get Cutting

Begin by cutting the legs to length per the Material List on page 67.

Outline the shape of the top of the leg onto one of the pieces by marking a line at 1" in from one edge, and at 4" down. Now, just connect the dots (photo right).



Ready to go are three lengths of clear pine 1x3, a 1 1/4" closet rod or dowel and a basic lamp kit with a harp, mounting hardware and wiring. The arsenal of tools for building include a drill/driver, jigsaw and a small belt sander.



Mark one end of a cut-to-length lamp leg 1" from the edge (photo, above). Now, make another mark 4" down the opposite side (photo at right). These two points mark the correct angle for cutting the upper mounting surfaces of the lamp legs.



Hold a straightedge across your two marks, then "connect the dots" to create the cut line for trimming the upper end of the leg to shape.

Weekend Projects continued



Make a mark 1" from the edge at the bottom of the leg, as shown at left. Align a straightedge from this mark to the one you made earlier, and draw the long cut line between these two points, as shown in the photo above.



Use a jigsaw to cut along your marked lines. Start with the short cut on the upper leg, and save this triangular cutoff for later. Next, make the long cut to finish the leg.

To mark the leg taper, go to the other end of the workpiece and mark 1" in from the edge. Now, just use one of the other pieces of lumber as a straight-edge to draw the long, tapering line.

Clamp the marked workpiece to your bench or work table, placing clamps so they won't block your jigsaw as you cut.

Install a fresh wood-cutting blade into your jigsaw, and cut just outside the marked lines at the top of the leg. (Save this small triangular cutoff for later.) Continue by making the longer tapered cut exactly like the shorter one. Unlike the shorter cut, this one may require you to reposition the leg and clamps to keep the cut line clear.

You could repeat this process for the two remaining legs, but it's easier to use the first leg as a pattern for the next two. It saves time and is a little quicker.

Gang's All Here ONLINE VIDEO!

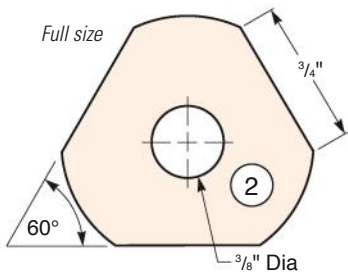


As you sand, be careful to keep the belt sander perpendicular to all three legs. Check your progress often and continue until the three pieces match.

Gang sanding is a fast and easy way to churn out multiple components with a single setup. Arrange the three legs on a workbench with their back edges aligned and flat to the bench, and clamp them together. If one workpiece rests higher than the others, place it in the middle of the group and sand it down until it meets the edges on either side. This will help keep the sander level as you work.

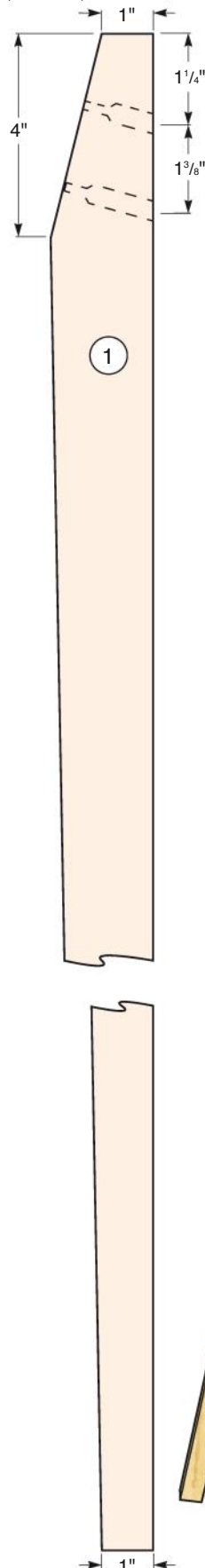
Connector

(Top View)

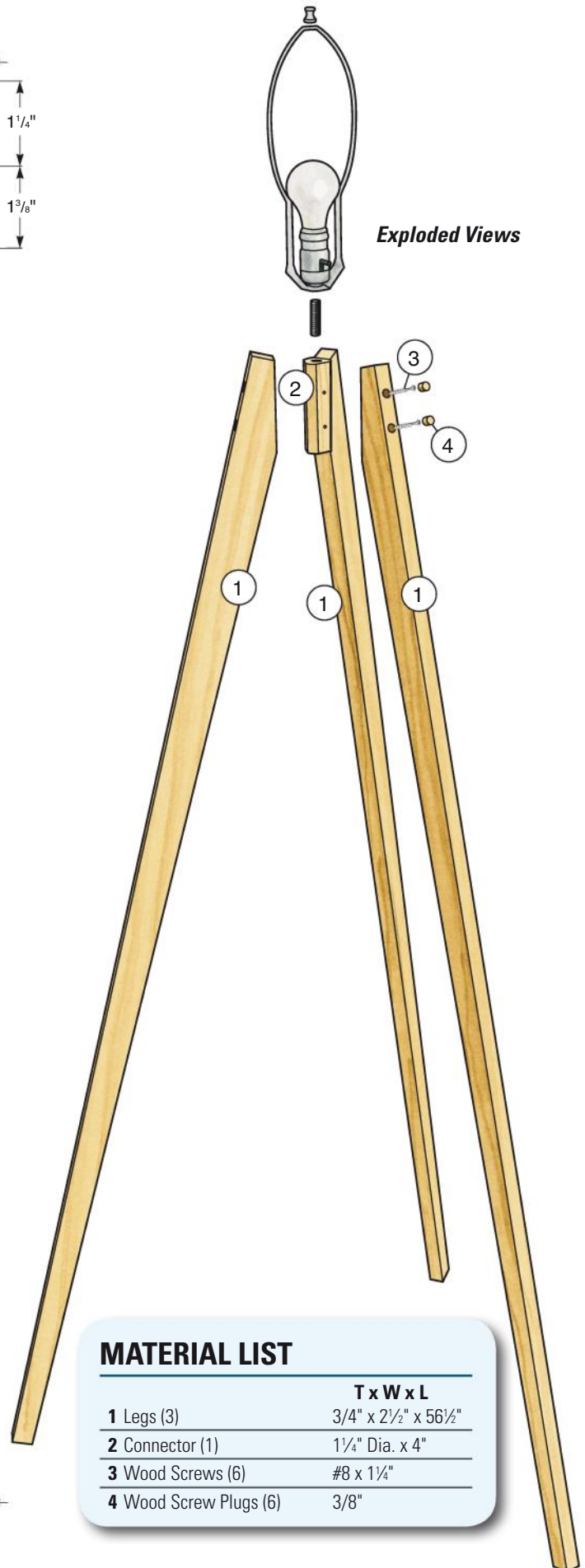


Leg

(Side View)



Exploded Views



MORE ON THE WEB



For a video showing the construction of this lamp, including making the leg connector and using the gang sanding technique, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

Sanding and Shaping

At this point, the legs are rough-cut, plus they likely vary a bit, so we're going to do what's called "gang sanding" to smooth and refine the shape of all three legs at the same time.

Clamp them together as a set, then clamp the set to your workbench.

With a coarse belt installed (60- to 80-grit), sand your cut edges until they all match. Take care, however; belt sanders can remove material very quickly.

As you sand, move the sander smoothly back and forth on the cut face of the legs. Stop and check how you're doing as often as you think it's necessary.

Keep in mind that belt sanders create copious amounts of dust, so hooking your sander up to a shop vacuum or dust collector is a good idea.

With the legs uniformly shaped, use a sanding block with finer grit paper to smooth out any belt-sanding marks.

It's easy to see that a belt sander is the tool of choice here. However, you could do it with a random orbit sander (although it would take longer) or with a hand plane if you're familiar with one.

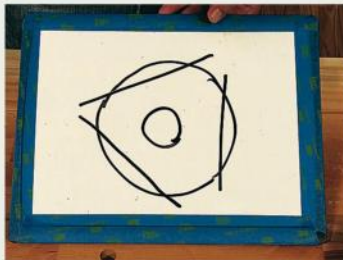
With the legs completed, move on to the connector that ties everything together. This is just a dowel with flat facets sanded into the sides. Arranged in a triangle, these facets are 60° apart and 3/4" wide.

The flat ends of the legs are glued and screwed to the connector facets, while a 3/8" hole drilled through the connector

MATERIAL LIST

	T x W x L
1 Legs (3)	3/4" x 2 1/2" x 56 1/2"
2 Connector (1)	1 1/4" Dia. x 4"
3 Wood Screws (6)	#8 x 1 1/4"
4 Wood Screw Plugs (6)	3/8"

Make the Connection



In order to safely and easily sand the triangular facets onto the leg connector, you need to be able to clamp it securely. That's a piece of cake if you have a bench with a vise—but here's a workaround if you don't. The connector is only 4" long, but don't cut it to length just yet. Instead, allow at least an extra foot of waste

at one end, then attach some scrap to the sides of the dowel on the waste end with short screws to create a simple subassembly. Now, just clamp the whole thing to the top of the bench. Once you've created the three facets of the connector with your belt sander, cut the connector to its final length and drill it for the lamp hardware.



When clamping the dowel, screw scrap onto the waste end of the rod to create a subassembly that clamps securely to your bench.



Sand the facets to your marked lines, which should make the flats 3/4" wide. Check for flatness frequently using a triangle cutoff from one of the legs.



With the facets formed and perfectly flat, trim the connector to its final 4" length.



Hold the connector vertically with clamps or vise, and drill a hole for the lamp hardware.



Once halfway through the connector, flip it over and finish drilling from the other end.

accepts the lamp hardware.

Transfer the triangle shown on page 67 to the end of the dowel and secure it to your workbench for sanding as described in the above *sidebar*, "Make the Connection."

The idea is to create a flat area about 3/4" wide to match the thickness of the legs. Remember that triangular cutoff

I told you to save earlier? Use that as a gauge when sanding to check for facet flatness and width.

With the facets done, cut the connector to its 4" length and drill a 3/8" hole through it. Your bit probably isn't long enough to do this all at once, so drill halfway, then flip it and drill the other way till the two holes meet in the center.

Putting It All Together

Begin assembly by drilling pilot holes for 1 1/4" screws that will secure the legs to the triangular leg connector. The trick is not to drill too deep, or the screws will extend into the hole drilled through the leg connector, which

Continues on page 70 ...

Let's roll!



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Weekend Projects continued



Drill pilot holes at an angle through the tops of each of the legs. Start with a 3/8" bit to create a counterbore, then finish the pilot hole with a smaller bit.



Slip screws into the pilot holes, then apply glue to both mating surfaces before driving the screws securely home to attach each of the legs to the faceted connector.

would interfere with mounting the lamp hardware.

I used the old trick of putting some tape on the drill bit to indicate the stopping point for the holes. Because of the angle of the leg end, keep in mind



Glue wooden plugs into the counterbores to hide the screws, and sand flush when dry.



that you need to go slightly shallower on the upper holes.

Start the holes with a 3/8" bit to create a shallow counterbore. Then use a smaller bit to complete the pilot holes.

To attach the legs to the connector, put a thin coat of glue on both the facets and leg ends, then rub them together. When they tack, drive the 1/4" screws into the connector through the pilot holes.

Wipe off excess glue from the joint, then glue wooden plugs (from *rockler.com*; item 23499) into the counterbored holes to hide the screws. When dry, sand the plugs flush.

It's a good idea to add your finish now. The lamp base may be stained, varnished or painted in any way that best goes with your décor.

Now, Let's Light It Up

Electrical hardware and wiring can be intimidating, but a

lamp is a perfect introduction that you'll certainly use for future projects.

Start by putting the threaded rod in the connector using a bit of Super Glue to secure it (photo above right). Then thread the socket onto the top of the rod.

Pull the socket out of its mounting and slip the cord up through the connector. Split the end of the cord if it didn't come that way and tie a knot in it to keep the wire from pulling back through the hole. Strip the sheathing to expose the wire and then attach it to the screws on the



Slip the threaded rod into the hole in the leg connector, leaving enough of it exposed to attach the socket base, then glue it into place.

lamp socket. There is a smooth wire and one with a ridge or rib on the sheathing. The ridged wire (neutral) attaches to the silver-colored screw, and the smooth one to the other screw, usually copper or brass-colored — super easy!

Reassemble the socket and slip the harp into the holders on the sides of the socket. Then remove the top finial, set the lampshade of your choice atop the harp, and replace the finial to secure the shade to the socket.

Add a light bulb, and that's it. I now have a fabulous "designer" lamp that might have cost more than \$400 in a store, but I made it for a fraction of that. And you can, too! Enjoy the project.

Kristena Smith is currently a stay-at-home handy-mom in Minnesota.



Thread the lamp cord up through the leg connector and socket base from underneath. Separate the ends of the cord, knot it, and secure the wires to the socket screws. Then reassemble the socket.



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- Maximum board dimensions: 12" W x 3 1/2" H
- Minimum board length: 8"
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- Sanding belt size: 3" hook and loop
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10" HYBRID TABLE SAW WITH RIVING KNIFE

- Motor: 2 HP, 110V/220V* (prewired 220V), single-phase
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- Precision-ground cast-iron table with wings measures 40" W x 27" D
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- Arbor: 5/8" • Arbor speed: 3850 RPM
- Capacity @ 90°: 3 1/4"
- Capacity @ 45°: 2 1/8"
- Cutting capacity: 30" right, 12" left
- Overall size: 62" W x 39" D x 48" H
- Footprint: 20 1/2" L x 19 1/2" W
- Approx. shipping weight: 416 lbs.



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- Knife size: 13" x 1/2" x 1/8"
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- Precision-ground cast-iron table size: 14" x 14"
- Table tilt: 10° left, 45° right
- Floor-to-table height: 43"
- Cutting capacity/throat: 13 1/2"
- Max. cutting height: 6"
- Blade size: 93 1/2" (1/8" to 3/4" wide)
- Blade speeds: 1800 and 3100 FPM
- Overall size: 27" W x 67 1/2" H x 30" D
- Footprint: 23 1/2" L x 16 1/2" W
- Approx. shipping weight: 247 lbs.

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- Precision-ground cast-iron table size: 17" x 17" x 1 1/2"
- Table tilt: 10° left, 45° right • Floor-to-table height: 37 1/2"
- Cutting capacity/throat: 16 1/4" L of blade
- Max. cutting height: 12 1/4" • Blade size: 131 1/2" long
- Blade sizes available: 1/4"-1" wide
- Blade speeds: 1700 and 3500 FPM
- Fully-balanced cast aluminum wheels
- Overall size: 32" W x 73" H x 32" D
- Footprint: 27" W x 17 1/4" D
- Approx. shipping weight: 342 lbs.

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- Max rip: 8" left, 26" right of blade
- Max. depth of cut @ 90°: 3"
- Max. depth of cut @ 45°: 2 1/8"
- Assembled table size: 48" W x 27" D
- Footprint: 20 1/2" x 20 1/2"
- Approx. shipping weight: 550 lbs.



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MORE ON THE WEB

 For videos demonstrating featured tools, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

*Bosch GKF125 CE Colt
1.25hp (Max) Palm Router*



Rockler's Wireless Speaker Kit (item 57081) includes all of the necessary electronic components to create a mini wireless speaker: you build the speaker cabinet in the shape and material of your choice, either freestanding or incorporated into furniture, cabinetry or other items. The speaker connects wirelessly to any Bluetooth®-enabled device; its integral battery offers about six hours of runtime per charge. The kit includes a single full-range 2.5-watt speaker, a control pod with On/Off button and USB port, and a 6"-long USB cable used to charge the internal battery. The speaker and control pod can be friction fitted into a housing: just use a 1 $\frac{7}{8}$ " hole saw or Forstner bit to drill the holes. No soldering is required to make the wiring connections. The Wireless Speaker Kit sells for \$29.99.

The **Bosch GKF125CE Colt 1.25hp (Max) Variable-Speed Palm Router** offers speeds ranging from 16,000 to 35,000 rpm. Soft-start circuitry reduces start-up torque, while the Constant Response circuitry helps maintain speed under load for consistent



Rockler Wireless Speaker Kit



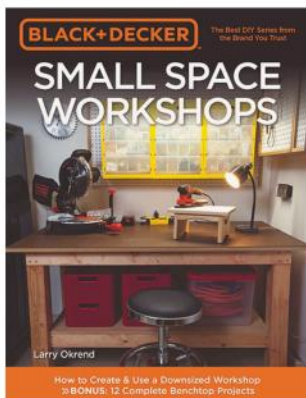
performance. A depth-adjustment system with both standard and metric scales allows for precision. The GKF125CE operates on a 7-amp motor, which removes with a push button release to allow use with an optional plunge base (to be released in early 2018). The router comes with a 360° aluminum fixed-base housing that accepts bits up to 1 $\frac{5}{16}$ " in diameter and has a round, translucent polycarbonate sub-base that can be centered for guidance along templates and jigs. Finger support pockets in the base add to the router's stability. The router includes a ball-joint cord swivel for easy

positioning and comes with a self-releasing collet chuck and collet chuck wrench. It's priced at \$129, or \$139 as a kit, which adds a straightedge guide and carrying case.

DeWALT's FLEXVOLT® 60V MAX* 7 $\frac{1}{4}$ " Worm Drive Style Saw (DCS577) is a framing saw with the blade oriented to the left of the motor and the handle positioned at the rear of the saw, in order to optimize the line of sight. An electronic brake helps stop the blade after the trigger is released. The DCS577 saw has a bevel capacity of 53° with stops at 45° and 22.5° and can achieve a 2 $\frac{7}{16}$ " depth of cut at 90°. The saw has a

durable, high-grade magnesium shoe and a brushless motor for efficiency and long runtime. It includes a rafter hook for hanging. The DCS577 has a suggested price of \$259 as a bare tool (\$369 with a six amp-hour battery and charger and \$399 with a nine amp-hour battery and charger).

A new book, *BLACK+DECKER Small Space Workshops* by Larry Okrend [ISBN 9781591866893; Cool Springs Press], offers information on creating a functional, satisfying workspace in spaces as small as a closet. The book covers issues such as storage, ventilation, lighting, electrical service, dust and sound control and shop layout. It includes a dozen space-efficient layout plans, plus discussions on choosing space-saving tools, multi-use furnishings, storage strategies and more. Larry Okrend is a lifelong woodworker, former editor of *HANDY* magazine and contributor to *Woodworker's Journal*. The book is priced at \$21.99.



BLACK+DECKER Small Space Workshops by Larry Okrend



DeWALT FLEXVOLT 60V MAX 7 1/4" Worm Drive Style Saw



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a noise reduction rating of 24 dB, with 40 mm high-fidelity speakers. A built-in microphone lets you make and take calls without removing the ear protection. The soft-cushion earmuffs have a hat-compatible headband. The WorkTunes is cord- and antenna-free. Use the single button or audio interface to make adjustments without removing the earmuffs. The built-in battery can be charged with an included micro USB cord. After two hours of runtime, an auto shut-off feature preserves battery life. There is also a low-battery indicator. WorkTunes sells for \$59.99.

SKILSAW has added a 10" *Heavy Duty Worm Drive Table Saw*, the SPT99-11, to its tool lineup. In addition to the worm drive power train, the saw also features a patented Dual-Field™ motor that runs cool, enabling it work harder for a longer time. The depth of cut is 3 5/8" with the blade set at 90° or about 2 5/16" when tilted left to 45°. A rack-and-pinion fence will extend out 30 1/2" from the blade while a flip support extends beyond the table surface for outfeed support. A dust elbow can be connected to a vacuum or direct sawdust into a container. SKILSAW also includes a rolling stand with 16" wheels that can travel easily over uneven surfaces. The stand features a left-side support for larger materials, round-edge handles and solid rubber feet. The SPT99-11 is priced at \$579.

SKILSAW 10" Heavy Duty Worm Drive Table Saw



What's In Store continued



Rockler Dust Right 4" Dust Hose Bracket

The *Dust Right*® 4" Dust Hose Bracket from **Rockler** (item 51387) provides a way to easily mount dust collection to your tools. The reinforced gusseted steel bracket attaches quickly to a variety of work surfaces, including roller stands, sawhorses and workbenches, allowing you

WORX Sidekick



to mount your dust collection hose where you want it. A quick-release rubber strap allows you to secure the hose quickly and easily, with less likelihood of damage to the hose than with metal hose clamps. The bracket has a 3" capacity and attaches with an ergonomic five-star knob with non-marring swivel pad. The Dust Right 4" Dust Hose Bracket is priced at \$19.99.

The *Sidekick*™ workstation from **WORX**® sets up in less than a minute to provide a 23.6" x 23.6" work surface, and folds up just as quickly for transport or storage: the tubular steel leg set stores within the folded tabletop. The Sidekick can support workloads of up to 300 pounds and has a working height of 32". Its resin tabletop has a honeycomb construction on the underside and inch and millimeter scales molded into the top. Four provided clamp dogs fit into strategically positioned holes for holding lumber and other materials. Multiple



RYOBI P318 23-Gauge Cordless Pin Nailer

Sidekick tables can be linked together to create a larger work surface. The Sidekick weighs 13 pounds and is priced at \$59.99.

RYOBI's new *P318 23-Gauge Cordless Pin Nailer* works with AirStrike Technology: no compressor, gas cartridge or hoses needed for this cordless 18-volt nailer. The P318 accepts 1/2" to 1 3/8" pin nails and has the capacity to drive up to 3,500 nails per charge. A double-action trigger design allows for sequential firing. An edge guide is included for precise nail placement, while an LED light illuminates your workpiece and two non-marring pads keep the work surface free of tool marks. Its GRIPZONE overmold is designed for comfort, and a dry-fire lockout extends the tool life. The 3.85-lb. P318 is priced at \$129.

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Woodworking Tools & Supplies Index



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Finishing Thoughts

Glazing with Aerosols

By Michael Dresdner

A highlighting technique that's fast, easy and almost foolproof



The same molding, from left to right: unglazed, colored with a subtle wet glaze and with a more stark "breakaway" glaze.



Michael Dresdner

is a nationally known finishing expert. He shares his expertise on the DVD *The Way to Woodwork: Step-by-Step to a Perfect Finish*, available through the store at woodworkersjournal.com.

In the December 2017 issue, I mentioned briefly that you can now buy ready-to-spray glazing stain in aerosol cans, and that it is available in two formulations: one for wet glazing and one for "breakaway" or dry glazing. Let's look at what those are, how to use them, and how they can add character to our finishes.

What is Glazing?

Most woodworkers have seen glazing, even if they don't know it by that name. That's because so much commercially finished furniture is glazed. Glazing is a technique to add color to wood, add depth and contrast, and make physical features stand out.

Glaze is essentially a pigmented stain, but instead of going onto raw wood, it goes in between coats of finish. Traditionally, glaze is made from Japan colors or

oil colors mixed with boiled linseed oil and mineral spirits or, for water-based glazes, from acrylic colors or paint.

Getting the glaze just right is not easy. It must stay wet long enough for you to manipulate it but still dry fast enough to recoat in a reasonable amount of time. The mixture must be thin enough to work with, thick

enough so it doesn't drip off, yet still have the right intensity of color for the job. It must also contain enough binder to prevent it from causing delamination between the coat below it and the top coat that will be applied above it.

You can see why very few hobby woodworkers bother with glazing. It's a messy job that requires a long learning curve, excellent mixing skills and the ability to work the color very quickly. Luckily, glazing has recently become very much easier, thanks in large part to Mohawk Finishing Products.

What's Changed

When Mohawk came out with pre-mixed glaze in aerosol cans, it was a game changer. These aerosol glazes come in a range of typical wood finishing colors, are ready to use, perfectly formulated for manipulating and, because they spray on, are easy to apply evenly.



First, make samples like these for comparison. Left to right: Van Dyke brown wet glaze, Van Dyke brown breakaway glaze and white breakaway glaze.

Mohawk offers two major types of aerosol glazes: glaze you manipulate wet and breakaway glaze, which is worked after it dries. Let's take a look at both types to see how to use them, what they look like on wood and which is best suited to each glazing task.

Seal First

Glazes do not go on raw wood, but over sealed wood, so apply at least one coat of finish before you glaze. You can glaze over shellac, lacquer, varnish, polyurethane or



To see the difference the background makes, prepare glaze samples by sealing half of each with shellac and half with white paint.

paint. Glaze will wipe right off most clear finishes, allowing you to remove it all and start over if you mess up. However, glaze may stain some latex wall paints or chalky paints, making it hard to remove the glaze completely.

Choose a glaze that complements and contrasts your background color. For instance, you might use raw

umber or burnt sienna over white paint to create antique white; Van Dyke brown or burnt umber to bring out character on any light wood; and white glaze to create a limed or pickled finish on oak or ash. If the background is a solid color of paint, anything goes; be creative.

Continues on page 80 ...

Contact us

with your finishing questions by writing to Woodworker's Journal, 4365 Willow Drive, Medina, MN 55340, or by emailing us at: finishing@woodworkersjournal.com.

Please include your address, phone number and email address (if you have one) with your thoughts or questions.

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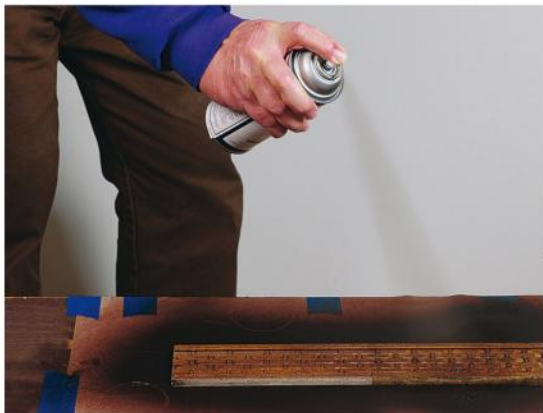
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LEIGH

Finishing Thoughts continued



To apply wet glaze, spray the piece as evenly as possible, then blend the glaze with a bristle brush. Have a shop towel on hand to wipe excess off the bristles if they get too wet. Finally, use a balled-up towel to wipe off excess glaze and intensify highlights



Wet Glazing

All aerosol glazes contain a lot of pigment, so make sure you shake the can vigorously a full 60 seconds after you hear the ball start rattling inside. That will help

disperse the color and give you consistency.

Spray the wet glaze on evenly, as lightly or heavily as you like. If you put on too much, wipe some off with a paper shop towel. Blend the wet glaze using a clean, soft bristle brush. You can blend so the glaze density is the same all over, or use the brush to blend patterns, like a dark corona, or highlighted patches. The brush will both pick up and move the wet glaze. When the bristles get too wet, wipe them off with a paper shop towel and keep working.

Once you have the background even, intensify the highlights by wiping them with a pad to remove even more glaze from the high spots. Use a shop towel balled up like a French polish brush so you have a smooth, rounded surface that lets you control where you remove glaze. Obviously, do all of this before the glaze dries.

Breakaway Glazing

Again, agitate the can thoroughly. With breakaway glaze, it's important to spray lightly and evenly, as if you

are applying a very thin coat of a solid color of paint. Let the glaze dry; it will turn chalky when completely dry. Rubbing with either a nylon abrasive pad, steel wool or fine sandpaper, remove the glaze from the high spots, or wherever you want the wood to show through.

The advantage to breakaway glaze is that you have an almost unlimited time to work the color since you don't start manipulating it until after it is dry. This can be very handy if you are trying to glaze a very large piece, like a breakfront, or a complex piece, like a rocking chair or a spindled crib.

Whether you used wet or breakaway glaze, you must topcoat the piece after glazing. With wet glaze, wait until the glaze dries completely, usually overnight, and seal it with whatever clear finish you prefer. When using breakaway glaze, it is dry as soon as you are done abrading it, so all you need do is brush or blow off any dry dust (the removed glaze) before spraying a top coat.

As easy as aerosols make this job, it still has a small learning curve, so do what I did: make up practice pieces first on scrap. Chances are, you'll be glazing like a pro before you know it.



Above, you see breakaway glaze in white and Van Dyke brown, dry and ready to abrade. Once it's reached that state, you can use a nylon abrasive pad to remove as much or as little of the breakaway glaze as you like to let the wood show through. In the photo at bottom left you see the results of dark and white breakaway glazes on a raised panel door. Dark glaze offers a traditional look, while white looks like a classic pickled or limed oak finish.



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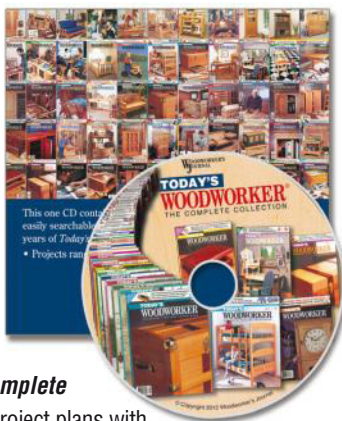
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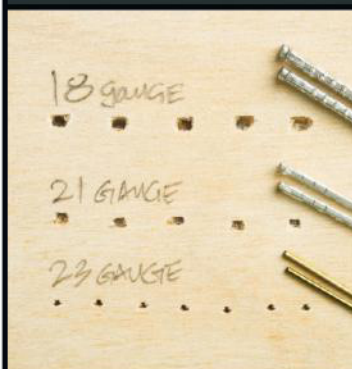
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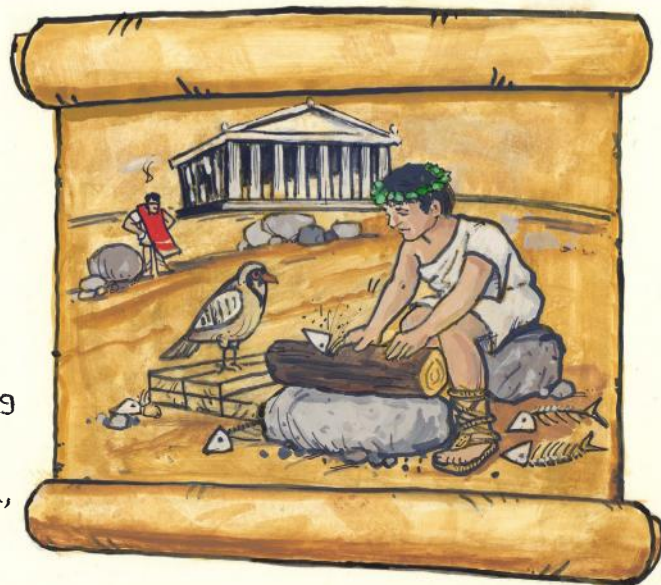
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HEY Did You Know?

Woodworking trivia: it's all Greek to me

According to Greek mythology, the **inventor of the saw was Talos**, nephew of the great craftsman Daedalus. Talos may have been inspired by the spine of a fish or the jaw-bone of a snake. (His uncle then got jealous and tried to kill him – some say by throwing him from the Acropolis. In some stories, he succeeded; in others, he was saved by Athena, who turned him into a partridge.)



What Does It All Mean?

A quick guide to terms from the world of woodworking.

Combination blade: A circular saw blade with a tooth configuration designed to perform both crosscutting and ripping operations; sometimes called an all-purpose blade

Dado: A rectangular groove cut across the grain

Fiddleback: An attractive rippled grain pattern in wood often seen on the backs of violins; also referred to as curly or tiger

Dutchman Cornelis Corneliszoon van Uitgeest **invented the wind-powered sawmill**. He received a patent in 1593 for his innovation of adding a “pitman arm” crankshaft to a windmill, which converted the circular motion into a back-and-forth motion for sawing logs.



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North Holland Archives, NL-HlmNHA_162_2617_088

“Cypress knees” are knobby outgrowths of wood that rise from the roots of the Taxodioidae species. You usually see them around trees growing in swamps, where the knees rise above the water line. What purpose do they serve for the tree? No one really knows ...

Submit your own trivia ...

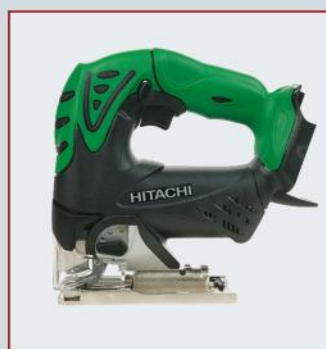
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Your Trivia Test:

Q What other woodworking tool is Greek legend Talos credited with inventing?

Answer According to some versions of the legend, Talos also invented the lathe and the compass.



Michael Brindle of Rock Hill, South Carolina, will receive a **Hitachi 18V Lithium-Ion Cordless Jigsaw (CJ18DSL)** for having a contribution selected for the Trivia page.

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