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October 2021 VOLUME 45, NUMBER 5

PROJECTS

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DEPARTMENTS

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Saturday Morning at the Movies!

My father used to tell me about going to the movie theater as a young boy and paying 5 cents to watch the latest episode of the currently running serial. Whether it was *The Shadow* or *The Amazing Exploits of the Clutching Hand*, Saturday mornings had cartoons, newsreels and the main attraction. Those days are gone, but Rockler, with help from the gang here at *Woodworker's Journal,* has started up an even better Saturday morning event! Each Saturday, Rockler features an online demo video that teaches a woodworking technique, builds a small project or highlights a new product. These are fun and informative — but you'll need to bring your own popcorn.

—Rob Johnstone

New products make a regular appearance in our demos. These videos are often the very first look at new offerings from Rockler. Here, Dan Cary presents the entire scope of Rockler sign-making templates.

Rob Johnstone had some fun demonstrating the basics of wiring a lamp after turning a couple of tabletop variations from a wonderful piece of box elder reclaimed lumber.

In one of many technique-based videos, Chris Marshall explains how to get the most out of Rockler's enhanced doweling jig. Chris's videos are known for their educational value.

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FROM OUR READERS

In Praise of Proportion

WITH AGE COMES WISDOM

Over a lifetime I have owned some professional tools that were as heavy and as expensive as some automobiles. Others have been obscure tools that are hard to describe. For example, I own a cutting tool that shapes a perfectly tapered hole for a violin peg and a pencil sharpener-looking thing that tapers the pegs. Who wouldn't need that? For years if I saw a tool that struck my fancy, I was on a mission to get one ... Lord willing and the creeks don't rise. But those days are mostly past.

Recently I have been rethinking how to approach many tasks that I previously would have only completed by "going big or going home." Here's what I mean: since I have moved into a smaller shop, I have done 90 percent of my edge jointing for panel glue-ups using my #07 hand plane rather than an electric jointer. I needed to gain some experience at that task, but now I can crank out those joints very quickly and quietly while listening to the Vikings on the radio. And while I still own a large air compressor and a couple of spray guns, not to mention an HVLP spray system, one of my newest best friends is an aerosol can of shellac. There's no special setup for using it; the shellac builds up a film coat quickly and it doesn't smell bad. When the can is empty, I smash it flat and recycle it.

I am not saying that this new simplified approach of mine is for everyone. And I confess that I am lucky to have access to the pro-style stuff at work. But at the same time, these adjustments seem appropriate and they increase my pleasure in the shop. After all, if you can't have fun in your shop, it's time to make a change.

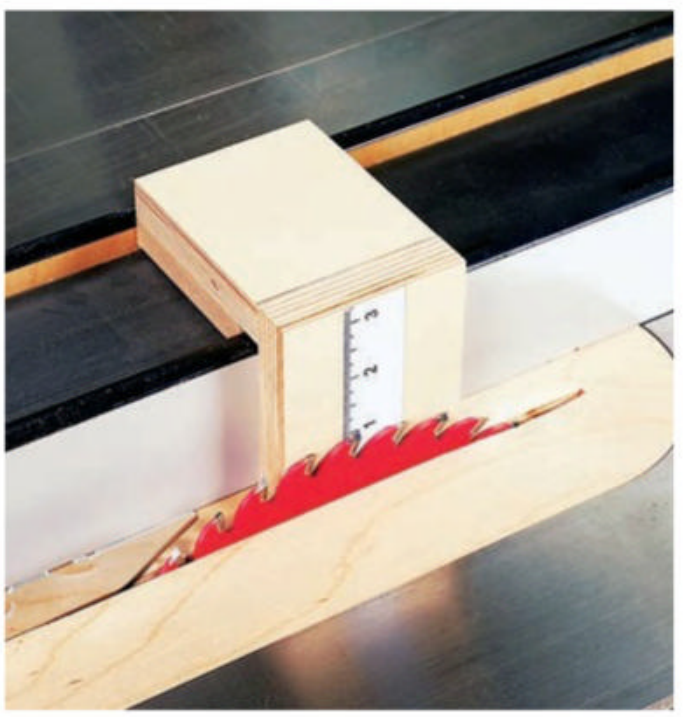
— Rob Johnstone

LETTERS

Ruler Reminder

I like the blade height gauge tip that Gerald Welf sent in [*Tricks*, April 2021]. But all should be aware that most printers don't make a true 1:1 copy of a ruler face. Instead, I would order self-adhesive tape from a woodworking supplier such as Rockler. It's a great trick idea though.

Gary Knotts
via the Internet



Continues on page 10 ...

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

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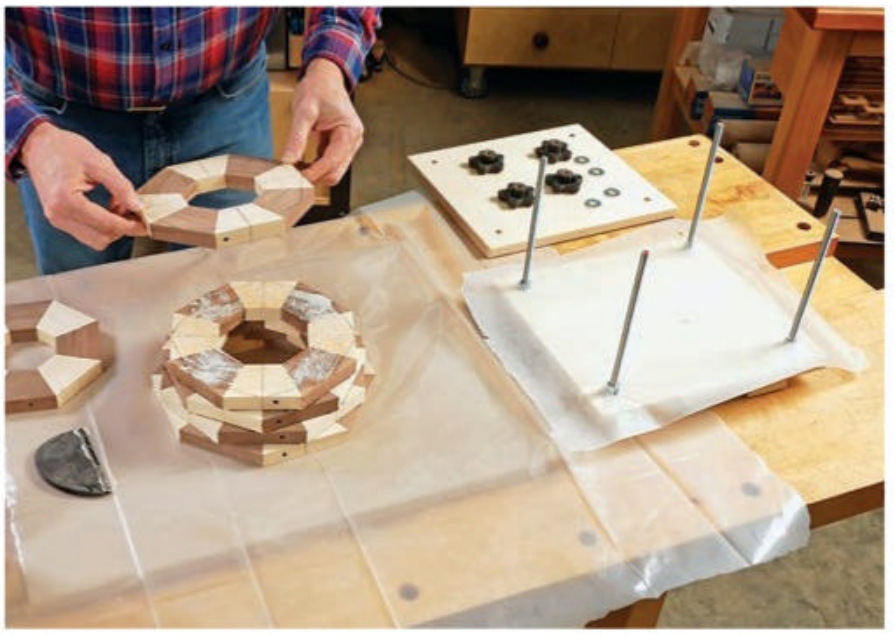
FROM OUR READERS CONTINUED

All-thread Source?

I like the segmented bowl cover project in the April 2021 issue. I tried to buy some 5/16" x 8"-long all-thread bolts to make the clamping press shown in the article. Of course, no luck whatsoever. Where can you buy fully threaded bolts of that length? Also, is 8" the right length for the clamp that Chris made for his bowl?

Larry Malohn
via the Internet



Chris Marshall Responds:
All-thread is sold in long steel rods, not as bolts. I believe mine was a 36" piece, and my local home center stocks it in the same area as the angle irons, metal tubing and other sheet metal sundries. I simply cut it into 8" sections with a hacksaw. There's nothing special about the 8" length of the all-thread — it just needs to be long enough to capture the press's upper and lower plywood pieces, the number of segmented rings you're sandwiching and the nut and bolt hardware you're using to fasten everything together. 8" is just right for the bowl we showed in that article.

New Yorkers Build Desks

As I flipped through the June 2021 issue, I stopped at the "Space to Learn" desks article by Colleen Carey. Efforts similar to those she described in St. Paul occurred here in central New York,

Continues on page 12 ...

READER PROJECTS

Raised-panel Storage Cabinet

Here's a storage cabinet I built for my son from birch and walnut. I used all mortise-and-tenon joints with supporting cleats. The raised-panel doors were made with a Rockler raised-panel bit set, which I love. I have used these bits on a number of projects.

Corey J Smith
Bristow, Virginia

Bench to Porch Swing Conversion

Here's my modification to the June 2020 English Garden Bench project. By shortening the legs, relocating the leg stretchers and adding eyebolts for the chains, your bench design has become a very sturdy covered porch swing in our yard. I built it from cedar rather than mahogany and painted it. It was a great isolation project during the pandemic, and I have had numerous requests to build more.

Dan Hendricks
Snohomish, Washington

FROM OUR READERS CONTINUED

spearheaded by at least three different groups. One group is the high school kids at Baker High School in Baldwinsville, New York, coordinated by their technology education teachers. Another group that built desks is a service organization called Operation Northern Comfort. The third group is our club, the Woodworkers of Central New York. While our members only completed 50 desks [by May], they've done so with a very small team due to COVID-19 restrictions and a limited budget. The desks built by [our] team fold, so they can be moved out of the way when the kids are not using them. Here's a photo (at left) of our desk design.

Barbara Raymond-LaPrease
via the Internet

Lignin, not Lignum

While the "Scandinavian Modern Steam Bent Coat Hooks" in the August issue is a neat project, the word "lignum" is used incorrectly in that article. Lignum is the scientific genus name of a tropical hardwood *Lignum vitae*. The correct word is lignin. Lignin is a complex polymer deposited in hardwood cells that's responsible for much of the hardness quality of woods. It's malleable under moist heat and certain chemicals, enabling wood to be bent.

Delmar Vander Zee
Sioux Center, Iowa

Continues on page 14 ...

There's more online at
woodworkersjournal.com

www.woodworkersjournal.com
MORE ON THE WEB

Check online for more content covering the articles below:

Woodturning (page 22): *Learn why and how to add mortise-and-tenon joints to spindles (video)*

Hexagon Tall Table (page 28): *Sarah Listi demonstrates Beadlock joinery (video)*

Compact Sewing Cabinet (page 34): *See how this project's sewing machine lift mechanism works, plus other features (video)*

Tool Battery Charging Cabinet (page 40): *Take a tour of this cabinet's unique storage benefits (video)*

What's in Store (page 62): *Featured tools in action (videos)*

SURVEY

WE ASKED OUR SURVEY GROUP ABOUT BUILDING KITCHEN CABINETS

Making custom-made kitchen cabinets is a goal of many woodworkers. We wanted to find out more.

Have you ever built kitchen cabinets?

Yes	50.13%
No	48.87%

Are you interested in building cabinets someday?

Yes	52.82%
No	47.18%

Do you think you know enough to design and build your own set of kitchen cabinets without plans?

Yes	56.88%
No	43.12%

Are you interested in upgrading your current kitchen with any of the following:

Updated drawer slides	11.47%
Updated door hinges	8.62%
Pullout drawers	8.99%
Pullout racking	9.96%
Lazy Susan (corner hardware)	4.31%
Updated cabinet pulls or handles	6.3%
Under-cabinet lighting	10.45%
Sink front tip-out shelves	3.18%
Refacing current cabinets	5.12%
Updated doors or drawer fronts	7%
Kitchen island	3.55%
Not interested	19.17%
Other	1.88%

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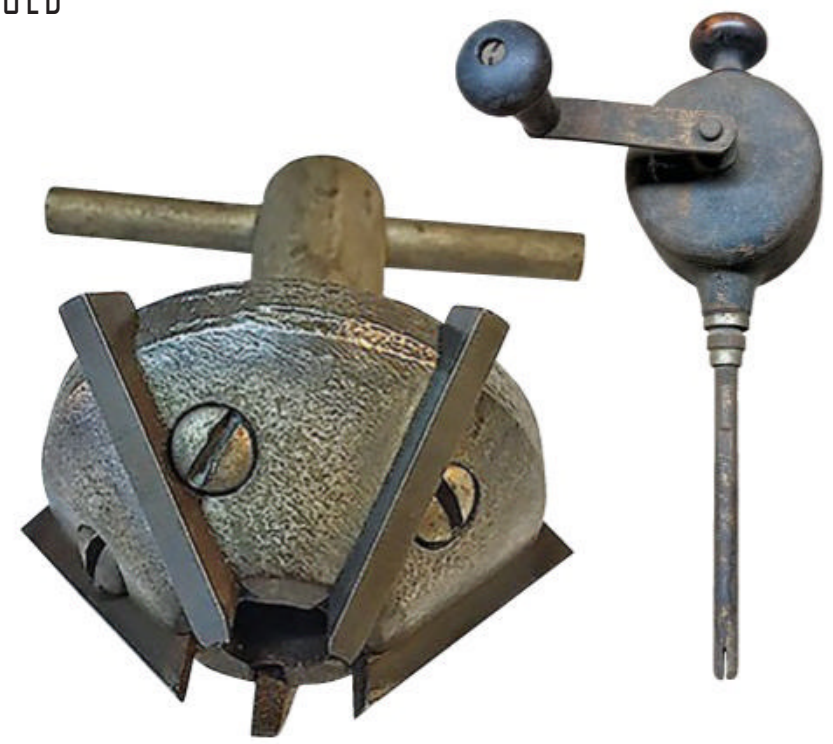
STUMPERS

April Tool Redux?

Readers Hone In



While Mike Walker's mystery tool (left) looks nothing like the reciprocating valve grinder we featured in our April issue (right), the two tools serve similar purposes in a mechanic's tool arsenal.

Mike Walker's T-handled tool with five adjustable cutters — our June mystery tool shown at right — prompted a variety of guesses from our devoted *Woodworker's Journal* "sleuthers" as to its possible purpose.

Several of you believe that it might have woodworking applications. "This item is a good candidate for a dowel threader," says **David Killingsworth**. **B. Estes** and **Scott Kapich** both suspect that perhaps it's a countersinking or counterboring tool of some sort. "This tool looks like it could be a plug cutter or it could possibly cut a round tenon on the end of a board," offers **John Soprano**, and **Randy Wolfe** believes it could be an adjustable hole cutter.

A good many of you, however, think this tool actually belongs in a plumber's or pipe-fitter's tool box. "It's a reamer for the inside of a steel pipe after the pipe has been cut to remove the burr on the inside. It's used in the plumbing and gas industry," says **Bill Dadey**, of East Aurora, New York. "The setscrews may be to adjust it to different sized pipe or a set opening to ream pipe to size to allow a good fit-up or alignment to reduce high-low ... It looks like the adjustable bars may be a cutter to shave the outside of piping to allow better fit in a socket or within another pipe, such as copper, to be brazed," adds **Rich Saxby**. **Michael Tarkany**, **William Irvin**, **Mike Jameson, Ron Gipson** of Amity, Oregon, **George Moulton** and **Hugh Sullivan** all nod their heads to this general notion of the tool's features and use.

But for others out there, this tool is a good instance of history repeating itself. You might recall that our April mystery tool was a reciprocating valve grinder for automotive engines. It looked completely different from our tool in question, but mechanics among us set the record straight with their input.

"I believe the tool is for honing valve seats in an engine, offers **Jim Jackson** of Broomfield, Colorado. The five blades, according to **Paul Retberg**, are carbide, and "they are set to the proper angle to match the angle on the valve seats," adds **Jim Wells** of Wake Forest, North Carolina.

Walter Scott and **Ron Bower** of Gettysburg, Pennsylvania, both speculate that this valve grinder might have been intended for Model A or Model T Fords, although **Stanley White** of Taft, California, claims "I was using these in an automotive machine shop in the 1980s."

Regardless of its vintage or which engines it might suit, both **Ed Lenheim** and **D. Duvall** point out that Walker's mystery tool is missing one important component: a centering pilot or mandrel shaft for the middle hole.

Larry Anderson of Beresford, South Dakota, who owned a small-engine repair shop in the 1980s and used this valve grinder extensively, explains that "missing link" here. "The hole in the center of the tool is fitted with a rod that is used to center the tool on the valve seat. A variety of rods are needed, as they need to be the diameter of the tool hole on one end and the diameter of the valve stem on the other. It is turned by hand because you do not want to remove any more of the valve seat than necessary ... the reason for the length and adjustability of the (carbide) cutters is to accommodate a variety of small-engine valve sizes."

What's This?

Paul Doman acquired this mystery tool at the estate sale of "a highly regarded model ship builder." It measures 2¾" long, and its two parallel jaws open and close by turning the thumbwheel. He says some call it a "watch crab," but he has been unsuccessful in determining its purpose. Can you shed some light on this little tool conundrum?

Email your answer to *stumpers@woodworkersjournal.com* or write to "Stumpers," Woodworker's Journal, 4365 Willow Drive, Medina, MN 55340.

Boring a Salt Cellar?

I am planning to make a salt cellar but want to drill out most of the interior first. I have the option of either mounting the workpiece in place and rotating the drill bit (on a drill press) or vise-versa, mounting it on my lathe's scroll chuck and doing the boring with a drill bit mounted in a Jacob's chuck in the tailstock. Is there any advantage to doing it one way or the other?

Richard Adler
via the Internet

Rob Johnstone responds: As long as you have a lathe to work with, that seems the best option to me. Using a Jacob's chuck and drill bit in your tailstock will allow you to center the boring in your wood very accurately. You can get that accuracy with a drill press too, but it will be a bit fussier in my opinion. Another advantage I would give to the lathe solution is that after you have the majority of the waste removed with a drill bit of some sort, the piece is already mounted on the lathe. You can easily refine the shape of the opening with a scraper.

Out with the Old Tools, but When?

I am looking at creating my own little woodworking area in our garage. I am planning on buying new woodworking equipment to replace my 20+

year old equipment. Here's my question: does one sell the old equipment (table saw, miter saw, etc.) and then purchase new equipment to create the woodworking area, or does one use the old equipment to create the area with spacing for future equipment? My present thought is to sell the old equipment, decide on new equipment and fit form and function to the area. This longer process seems to be the better idea.

John Warren
Forest Hill, California

Chris Marshall responds: What a sweet conundrum to have, John! Seems you have a sensible approach well in hand. Enjoy the process!

TRIVIA

Cat's Eye Shimmer in Wood

Chatoyance, from the French *chatoyer*, meaning "to shine like a cat's eyes," refers to the depth and shimmer that some woods exhibit under the right finish and lighting conditions. The word was borrowed from the jewelry trade. Think of the semiprecious stone we call "tiger's eye" and how its colors flip back and forth from light to dark bands as you view it from different angles. The same is true of some quartered woods, like "bear claw" spruce, "tiger" oak and figured maple. Some finishes tend to enhance this effect more than others: We refer to that as finishing to bring out the chatoyance in wood.

Michael Dresdner
The New Wood Finishing Book
The Taunton Press; ISBN: 1561582990

TRICKS OF THE TRADE

Fresh Twists on Clamping, Setting Blades

Surgical Glove Improves Grip Strength

I often find wooden clamp handles too smooth to grip tightly when applying clamping pressure to a glue-up. Here's a simple trick that gives me some extra purchase on the handle: I put on a disposable surgical glove. Its rubbery surface instantly improves my grip so I can give the handle the extra twist it needs.

Charles Mak
Calgary, Alberta

Same-height Work Surfaces Maximize Shop Space

My workshop is very small and packed with stuff, as you can see. Consequently, I have to be inventive to make the most of my limited space. One way I've been able to accomplish this is to build rolling cabinets that are the same height as my assembly table. That way, my drilling storage cabinet (shown above), for example, is also the stand for my planer. It serves as an extension to my assembly table, too, when I need more room to put a big project together.

Dusty Williams
Redlands, California

Twist Ties Double as Blade Holders

Sometimes even four hands don't seem to be enough to get a band saw blade mounted easily. To make the job less frustrating, I use long twist ties that either come with a new blade or I find in the kitchen. They hold the blade on the upper wheel while I thread it through the blade guides and fit it around the lower wheel. Sure makes the process easier! Don't forget to take the twist ties off before you close up the machine again.

John Antone
Springfield, Oregon

Low-tech Laser Accuracy for a Miter Saw

If you don't have a laser beam on your miter saw, you can cut angles just as accurately if you use this low-cost trick. Position your workpiece on the saw table with the angle you need to cut marked on it. Unplug the saw and secure a thin piece of plywood or hardboard to the blade with a spring clamp so it extends below the blade. Now lower the blade until the scrap rests on the workpiece. It will serve as a straightedge for adjusting the saw's angle setting to align with your layout line.

Serge Duclos
Delson, Quebec

Duct Tape Backing Extends Sander's Abrasive Life

Today's thin sandpaper often tears in my quarter-sheet sander. When that happens, here's how I get more life out of the abrasive. I apply a single layer of duct tape to the back of the torn sheet to fix the tear, and I wrap a bit of tape over the ends of the abrasive face where it's held by the sander's spring clamps. Adding the heavy tape allows me to continue to use the sheet of sandpaper after a tear. It also increases the thickness of the sandpaper under the sander's wire clamps so it stays in place while in use.

Jim Wilson
San Marcos, Texas

In addition to our standard payment (below), Jim Wilson of San Marcos, Texas, will also receive a Milwaukee M12™ 23 Gauge Pin Nailer for being selected as the "Pick of the Tricks" winner. We pay from $100 to $200 for all tricks used. To join in the fun, send us your original, unpublished trick. Please include a photo or drawing if necessary. For your chance to win, submit your Tricks to Woodworker's Journal, Dept. T/T, P.O. Box 261, Medina, MN 55340. Or send us an email: tricks@woodworkersjournal.com

SHOP TALK

Rockler Supports Hardwood Forestry Fund

By WJ Staff

Recent donation helps nonprofit plant sustainable forests across the country.

Minnesota's current reforestation efforts are just one of many grant initiatives by the Hardwood Forestry Fund. This nonprofit has planted and managed more than four million trees in 30 states and four foreign countries since 1990.

In an ongoing effort to give back to local communities and future woodworkers, last summer Rockler donated $50,000 to the Hardwood Forestry Fund (HFF) to support 2021 tree-planting projects across the country. Rockler has donated more than $100,000 to HFF over the last 13 years to fund tens of thousands of tree plantings nationwide. These donations have helped subsidize reforestation projects in Pennsylvania, Ohio, Texas, Wisconsin, Indiana, Illinois, Iowa, Minnesota and elsewhere.

"We're proud to be able to help grow beautiful, sustainable forests," says Ann Rockler Jackson, executive chairman of Rockler Companies. "The North Shore and surrounding forests are a treasure. We know this reforestation project will improve the forest stands and give us a healthy, renewable forest for the future."

Since 1990, HFF has planted and managed more than four million trees in 30 states and four foreign countries. Native tree species are selected for each unique site, but the more common species planted include black cherry, black walnut, red oak, hard maple, hickory and ash. Every sponsored project is required to have a management plan and a harvest and regeneration schedule.

Around 78,000 saplings will help to restore stands of maple trees that have been lost to dieback over the past 10 to 15 years in Minnesota's Finland State Forest, along the scenic North Shore of Lake Superior.

For more than a decade, Rockler has supported a wide variety of tree-planting initiatives by the Hardwood Forestry Fund in Pennsylvania, Ohio, Texas, Wisconsin, Indiana, Illinois, Iowa and Minnesota. These efforts will help to ensure high quality, renewable lumber sources and healthier forested lands for many years to come.

One of those initiatives, shown in the photos here, is being undertaken by Minnesota's Department of Natural Resources (DNR) in the Finland State Forest near Schroeder, Minnesota.

"This stand of maple has been experiencing some dieback in the crowns over the last 10 to 15 years," says Anna Heurth, a silviculturalist with the Minnesota DNR's Division of Forestry. "So we're planting a total of 78,000 seedlings on this site to create a greater diversity of species."

The area is being replanted with predominantly northern red oak as well as white pine and white spruce.

What the DNR hopes to see in the next decade as a result of these efforts is a mixed hardwood forest of oak, birch and aspen, as well as a conifer component. Heurth says the site is a perfect example of a hardwood forest that needs to be restored.

"The Hardwood Forestry Fund is timber-industry directed, and that is really interesting to me," Heurth says. "The DNR applied for a grant from HFF because (HFF) funds restoration projects like this, and they're a really good fit for what we do."

Rockler's commitment to reforestation is obviously important to the future of woodworking, but the company also recognizes the value of forests as a tremendous natural resource for wildlife, recreation and learning as well as to help counteract the effects of climate change.

"I think it's important that a Minnesota-based company like Rockler is supporting our forests in Minnesota and also the Hardwood Forestry Fund," Heurth adds.

To learn more about HFF or to make a donation, visit *hardwoodforestryfund.org*.

Among a variety of native species, the Minnesota DNR is planting northern red oak and several types of conifers to create greater biodiversity at this site.

Problem Solving Fuels Her Passion

By Sarah Listi

Building projects and reviewing tools is this influencer's preferred form of therapy.

If I had a soundtrack to my childhood, it would be Bob Villa on our television narrating *This Old House* projects and the sound of a hammer banging in that last nail or a saw echoing through the garage. I was always in awe of the things my dad, a lifelong DIYer, would do and create. From building an addition onto my childhood home to rebuilding engines, as well as the sweet memories I have of him woodworking, there was never a shortage of things to assist him with or to learn.

When my husband and I started our family, the joy of building and creating expanded further, and my appreciation for the craft grew in ways I couldn't imagine. After my son was diagnosed with autism, woodworking became more than just a practical or functional pastime for me. It became a form of therapy. I realized I had found a beautiful way to connect where words weren't needed, and in it I found a piece of myself I hadn't known was missing. Today, both of my kiddos will occasionally join me in the shop, and I love those moments the most.

No woodworking project is too big to tackle, and Listi enjoys the design challenges each one brings.

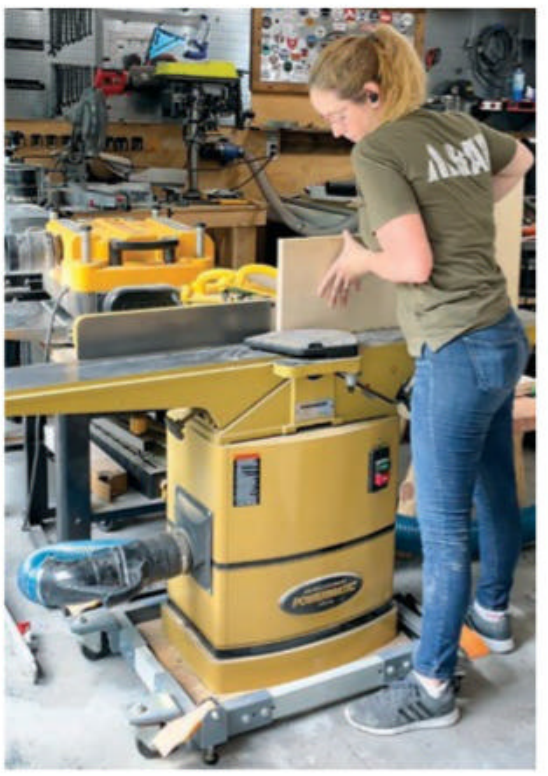
From Tools to Projects

My journey in social media started with sharing detailed tool reviews online at *toolgirlsgarage.com*. It quickly evolved into documenting what I was doing with my tools too — something I particularly enjoy! In addition to woodworking, I recently started documenting my home renovation projects as I turn our house into my family's dream home.

One of my favorite aspects of woodworking and construction is problem-solving — whether it's coming up with a solution to a functional shortcoming in a space or finding a way to incorporate a unique design element. I'm passionate about sharing how a design comes to life and how I resolve obstacles that I encounter. The marriage of creativity and analysis in my projects pushes me to constantly evolve my skill set and keep on learning.

Here's one thing I know for sure: I have found a community of online support from other makers who are just as passionate as I am about working with our hands!

Sarah Listi is founder of toolgirlsgarage.com. *Follow her on Instagram @toolgirlsgarage.*



Listi's emergence as a social media influencer came about when she was sharing detailed tool reviews on her website* toolgirlsgarage.com*. Now, she also builds and documents her woodworking projects, including the "Hexagon Tall Table" on page 28.

Mortise-and-Tenon Joinery in Spindles

By Ernie Conover

Adding one or more joints to longer spindles can solve a number of lathe and design challenges.

www.woodworkersjournal.com
MORE ON THE WEB

VIDEO Watch an overview of turning mortise-and-tenon joints in spindles by visiting woodworkersjournal.com and clicking "More on the Web" under the Magazine tab.

There are numerous reasons for adding a mortise-and-tenon joint to a spindle. The most obvious is that your lathe bed isn't long enough to handle the length of spindle you need to turn. Provided the spindle will not be structurally compromised by a joint, breaking it down into several shorter components with jointed ends solves the problem. Using a steel pin as a loose tenon and mortising both halves of the joint will sometimes even overcome strength problems.

Aside from compensating for short bed lengths, there are other practical reasons for adding joints to spindles. Let's look at three of them using several pieces of furniture I've built as examples.

1. Breaking Down Spindles Makes them Easier to Move

Sometimes it's much easier to move a piece of furniture, such as a tall poster bed, if the turned components are jointed. Posts that exceed about six feet in length make moving the bed to a different room, or a new house, difficult or even impossible.

When I built a Sheridan-style high post bed in 2006, I made the posts just over 8 ft. long, from floor to finial. Imagine the difficulty of moving this bed out of the room it's in! To make that easier, I incorporated a joint in the posts at 41" from the floor, where the curved column meets the turned details of the lower post. Turners have built poster beds this same way since antiquity.

2. Mortise-and-Tenon Joints Provide Adjustability

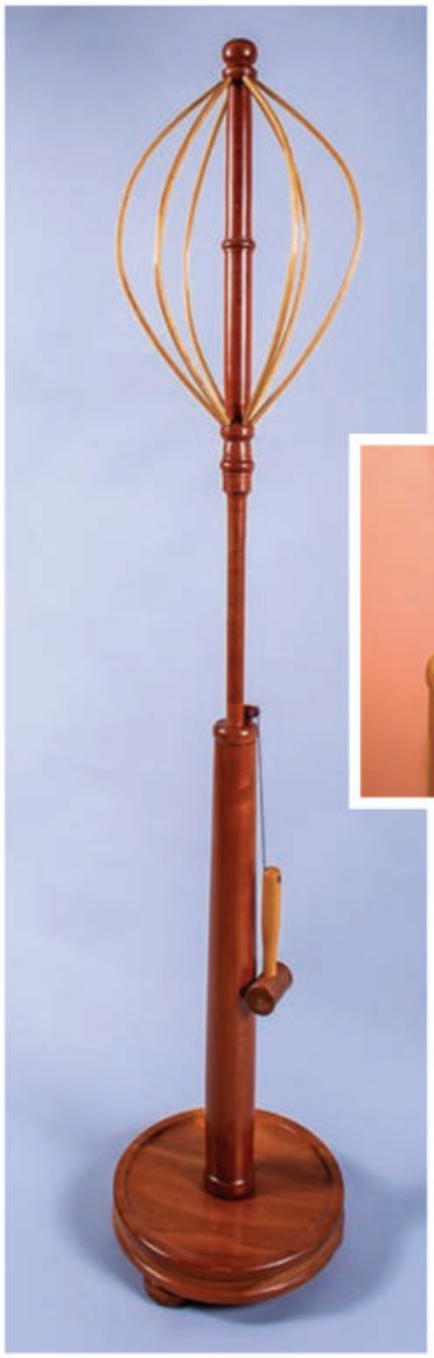
Sometimes the length of spindles needs to be made adjustable. These are usually vertical spindles in such items as tea tables, hall trees and flax distaffs. The lower half of the spindle is drilled and the upper half is turned to a long slide-fit tenon. The desired extension is locked by either a wood screw in the bottom half or a wedge in a keyway carved into the bore of the mortise.

The flax distaff shown on the next page, top left, has a 1"-dia. shaft that slides in a bore that's drilled in the bottom turning. Its height is locked by a wedge driven into a keyway chiseled in the bore. A whimsical hammer tethered to it sets the wedge.

3. Joints Can Mix Faceplate and Spindle Elements

Floor lamps often have both faceplate and spindle-turned elements and need a hole drilled through the middle for the electrical wire to pass through. Fabricating the lamp with joints makes it easier to assemble the parts and drill the center hole.

When I made this neo-classical floor lamp in 1995 (next page, top right), I made it in four pieces: a faceplate-turned base, a tapered main column, a 6"-dia. wax cup and an 8"-long simulated candle portion. All of the



This flax distaff's bottom turning features a deep mortise that enables the top shaft — a tenon of sorts — to adjust up and down in it. The shaft's height can be fixed in place with a wedge (inset).

parts except the main shaft were drilled in the lathe to accommodate the wire for the lamp. Drilling the long center shaft would have been problematic, so I glued it up by halves after running each billet over a 3/8" core box bit in a router table. Making this piece in parts used far less wood and helped me stay within the capacity of my lathe bed at the time.

Mechanical Considerations

The simplest approach to joining sections of a spindle together is to turn a tenon on one half and drill a mortise in the other half. The tenon's thickness should be about one half of the turning's diameter at the area of the joint, and its length should be at least twice its diameter.

When I use figured wood and want the grain to match above and below the joint, I'll often drill both halves and use a wooden loose tenon that I turn separately.

Loose tenons made of steel rod can also produce first-rate repairs or add buckling strength. Another reason to use a metal pin is for very large turnings such as bedposts. Wood with a diameter of 3" or more is seldom really dry at the center. If you drill a mortise and turn a matching tenon on the other half, the tenon will shrink undersize and the mortise will become larger. Both often dry a bit oval. In this case it is best to drill mortises in both halves undersize and let the pieces sit for a week or two. Then drill them to nominal size and use a steel pin.

These over 8-ft.-long corner posts on the author's Sheridan-style bed feature the knockdown convenience of mortises and metal tenons, in case the bed should need to be relocated.

Faceplate and spindle-turned elements must be combined to create a candlestand-style floor lamp like this. Mortise-and-tenon joints make assembling these dissimilar turnings possible while also economizing wood.

The shorter a lathe's bed length is, the more limited its capacity will be to turn longer spindles. But you can bolster the spindle-turning potential of a small midi lathe, for instance, by adding mortise-and-tenon joinery.

Once the outer profile of a jointed spindle is turned, decide which portion of the spindle will be mortised and which will receive the tenon. Here, the shorter portion will be mortised.

With a Jacobs chuck and drill bit installed in the headstock, the author uses a live center in the tailstock and the tailstock handwheel to drive smaller spindles into the spinning bit, which bores a centered mortise.

Use a beading and parting tool to cut the tenon, checking its diameter with an open-end wrench. When the wrench's jaws just drop over the tenon, you'll know the tenon is very close to fitting the mortise.

Making a Turned Mortise-and-Tenon Joint

Start by deciding where you will place the joint and mill the required number of billets for the overall spindle. Make each billet an inch or two longer than the lengths you need, and remember to add in the length of the tenon to the portion of the spindle that will require it, unless the tenon will be "loose" as a separate element.

Now turn the members of the spindle to their desired shapes. Consider adding a bead at the edge of the joint or joints to help hide them.

Once the outer turning is completed, the mortise comes next. For smaller, lightweight spindles, chuck a drill bit that matches the mortise diameter into a Jacobs chuck and install it in the headstock spindle. Position the end to be mortised against the drill point, and set the lathe at 300 to 800 rpm. Place the spindle's opposite center point against a live center in the tailstock. Now turn the tailstock handwheel to slowly push the spindle into the spinning drill bit. This will mill a mortise that follows the center line of the spindle.

When mortising heavy turnings, the author uses a V-block jig mounted in his lathe's banjo to properly align the turning with the drill bit and support it.

For heavy turnings, like bedposts, the weight of the turning will cause the mortise to go catawampus. So I devised a simple supporting wooden V-block mounted on a 1" steel shaft that fits into the banjo of my lathe. While a helper holds the foot or top of the post against the live center, I adjust the V-block so the drill bit in the headstock aligns with the center left by the turning process, and the "V" in the block is parallel to the lathe bed. The turning is now supported and slides along the V-block so I can drill the mortise on the center line.

With the mortise bored, you can mill a tenon to fit it. I mount the "tenon" side of the spindle between centers and use a beading and parting tool to cut it. Then, I typically grab an open-end wrench of a size that matches the drill bit I used for the mortise to gage the tenon's diameter. As I get close, I bring the wrench's jaws into play. When the wrench just drops over the tenon, an interference fit is produced. A light pass with a skew will yield a tight slide fit, which is the goal.

Turning spindles in segments, then joining them with mortises and tenons, can solve several design challenges and help you maximize a modestly sized lathe.

Ernie Conover is the author of The Lathe Book *and* Turn a Bowl with Ernie Conover.

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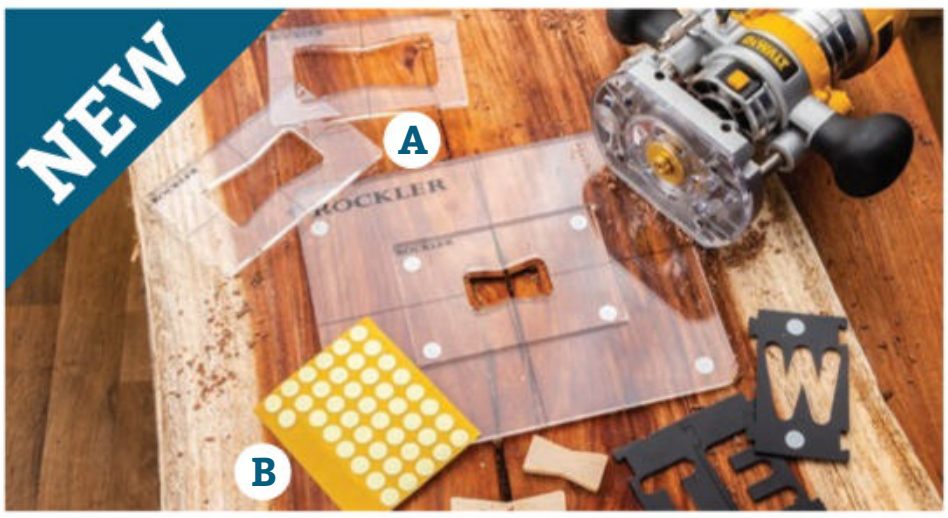

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Hexagon Tall Table

By Sarah Listi

This tall table with geometric accents could easily serve as a large standing desk or a minimalist kitchen island.

I like to spread things out when I work, whether that's drawings and notes when I'm planning a new project or the ingredients for a recipe in the kitchen. So I designed this tall table with easy workflow in mind. At 30" wide and 6½ ft. long, its top is spacious, wherever you decide to put it to work — in your home office, as an airy kitchen island or whatever you decide. It's just over 40" tall, so it could even serve as a roomier alternative to the desk project on page 46, if you like the idea of standing while you work but need even more space.

I wanted to incorporate some interesting geometry into my design, and hexagonal shapes appeal to me, but I also wanted to keep the project easy to build. Rockler's Beadlock® loose tenon joinery was just the solution I needed. The Beadlock drilling jig makes it possible to assemble the mitered corners of the captured hexagons, as well as most of the other butt joints in this table build.

Poplar was my budget-minded choice for the table's painted parts, and I used maple for the hexagons and tabletop.

The ends of the three cross braces also receive 1¼" centered mortises. Clamp the Beadlock jig to the cross braces, just as you did the long rails, to bore these mortises the same way.

Once you've marked the joints, bore 1¼"-deep mortises into the edges of the upper support frame's long rails to accommodate three cross braces. Rockler's Beadlock Pro Jig (sku 54318) makes this process easy (right).

Crosscut six 2½"-long tenons using Rockler's 1/2" preformed Beadlock tenon stock. Give the ends of the tenons a light sanding to knock off any sharp edges and make them easier to slip into the mortises. Then glue and clamp the long rails and cross braces together with their tenons in place to assemble the upper support frame.

Building the Upper Support Frame

If you flip over to the *Drawings* on page 31, you'll see that the upper support frame for this table consists of a pair of long rails and three shorter cross braces. Given how long this table's span is, I wanted the upper framework to be stiff and strong, so I fabricated the parts from 8/4 poplar I milled down to 1½" thick. Rip the long rails and cross braces to 3½" wide on your table saw, and crosscut them to length.

Set the parts into position on your work surface so the middle cross brace is centered on the length of the long rails and the other two cross braces are located 10½" in from the rail ends. Now draw a layout line across each joint with a combination square to mark it for one centered Beadlock tenon.

Get your Beadlock jig ready for drilling these joints by installing the 1/16"- and 1/4"-thick plastic Beadlock spacers behind the jig's hardened-steel drilling guide with 1/2" holes in it. Chuck a 1/2"-diameter twist bit in your drill/driver, and use the Beadlock jig's depth scale to set the drilling depth to 1¼" for these joints. Clamp the jig to the ends of the cross braces and along the edges of the long rails where you marked them so you can bore holes for each mortise. Be sure to set the jig to its "A" position, drill all of those holes, then reset to the "B" position and drill the remaining holes before unclamping the jig and moving on to the next mortise.

These six joints require 2½"-long tenons, so I crosscut those to length from Rockler's preformed Beadlock tenon stock at my miter saw. Give the ends of the tenons a bit of sanding to remove the rough edges — they'll slide into the mortises easier that way. Then go ahead and dry fit the tenons in their mortises to assemble the upper framework. If all the joints fit well and the part surfaces are flush, pull the framework apart again. Spread glue into each of the mortises, slip the tenons back in and clamp the framework together.

Making a Supplemental Jig

While those joints dry, let's move on to building decorative hexagons for the ends of the table. Fitting together the mitered ends of a hexagon will require

Cutting precise 30-degree angles on the ends of the hexagon segments is crucial for these shapes to fit together. To do it, the author used Rockler's Perfect Miter Setup Blocks (right) to dial in her crosscut sled fence setting.

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VIDEO To watch Sarah Listi demonstrate how to build Beadlock joinery, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

precise joinery, otherwise there's no way the last joint will close properly. To help me zero in on those joints, I enlisted the help of Rockler's Perfect Miter Setup Blocks (sku 66595) and my Rockler Crosscut Sled (sku 33113). Using the Perfect Miter Setup Blocks is really simple, and they're ideal for this application. They allow you to easily set the sled's fence to precise angles without measuring. I chose the Setup Block for making a six-sided shape, which requires 30-degree angle cuts. With my fence angle dialed in, I used the sled's flip-stop to set the length of the 12 hexagon segments and carefully crosscut them to size from 2"-wide, 3/4"-thick maple stock.

The author constructed a simple three-part ramped jig from scraps (top left, center) in order to position and hold each hexagon segment against her Beadlock jig (bottom) for boring mortises in the part ends. Her jig enabled the beveled ends of each workpiece to sit flush against the Beadlock jig while hand-holding them. Once these mortises were bored, she assembled the parts for both hexagons with 3/4"-long Beadlock tenons. Band clamps pulled the joints together securely while the glue dried (top right).

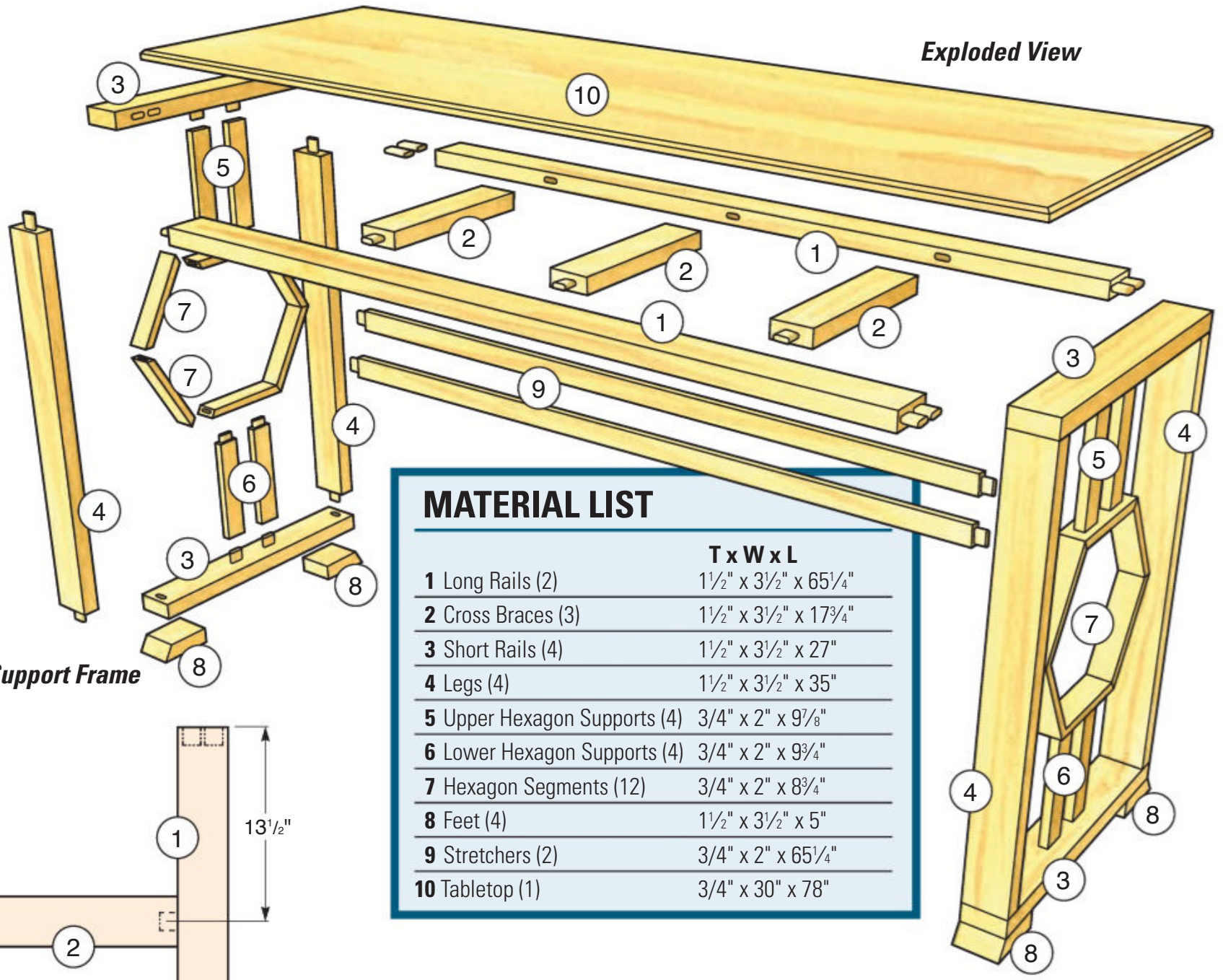
Using the Beadlock jig to mortise the angled ends of these pieces was tricky but very possible! To do it, I designed a ramped jig from three pieces of scrap (see photos below) that allowed me to set each hexagon segment into position inside the Beadlock jig for drilling. My ramped jig's 2"-thick center lamination formed a 60-degree angle, and the outer two laminations had 30-degree angles on both ends.

To prepare the Beadlock jig for this operation, I installed the 3/8" drilling guide with a 1/4" plastic spacer behind it. Then, with the Beadlock jig and my ramped jig clamped together and to my work surface, I could slide each hexagon segment down into place for drilling. I bored a single mortise 3/8" deep into all the angled ends.

Once the mortises were ready, I cut a dozen 3/4"-long tenons for these joints from 3/8" Beadlock stock and used a band clamp and glue to assemble both hexagons. Give these joints at least six hours to dry, then unclamp the hexagons so you can touch up the corners and edges with some light hand sanding.

Constructing the Leg Assemblies

Next, let's build the leg assemblies. To do that, mill up enough 1½"-thick poplar stock to cut four 27"-long short rails and four 35"-long legs to size. The short rails overlap the ends of the legs to form square corner joints. Set



MATERIAL LIST

		T x W x L
1	Long Rails (2)	1½" x 3½" x 65¼"
2	Cross Braces (3)	1½" x 3½" x 17¾"
3	Short Rails (4)	1½" x 3½" x 27"
4	Legs (4)	1½" x 3½" x 35"
5	Upper Hexagon Supports (4)	3/4" x 2" x 9⅞"
6	Lower Hexagon Supports (4)	3/4" x 2" x 9¾"
7	Hexagon Segments (12)	3/4" x 2" x 8¾"
8	Feet (4)	1½" x 3½" x 5"
9	Stretchers (2)	3/4" x 2" x 65¼"
10	Tabletop (1)	3/4" x 30" x 78"

Upper Support Frame
(Top View)

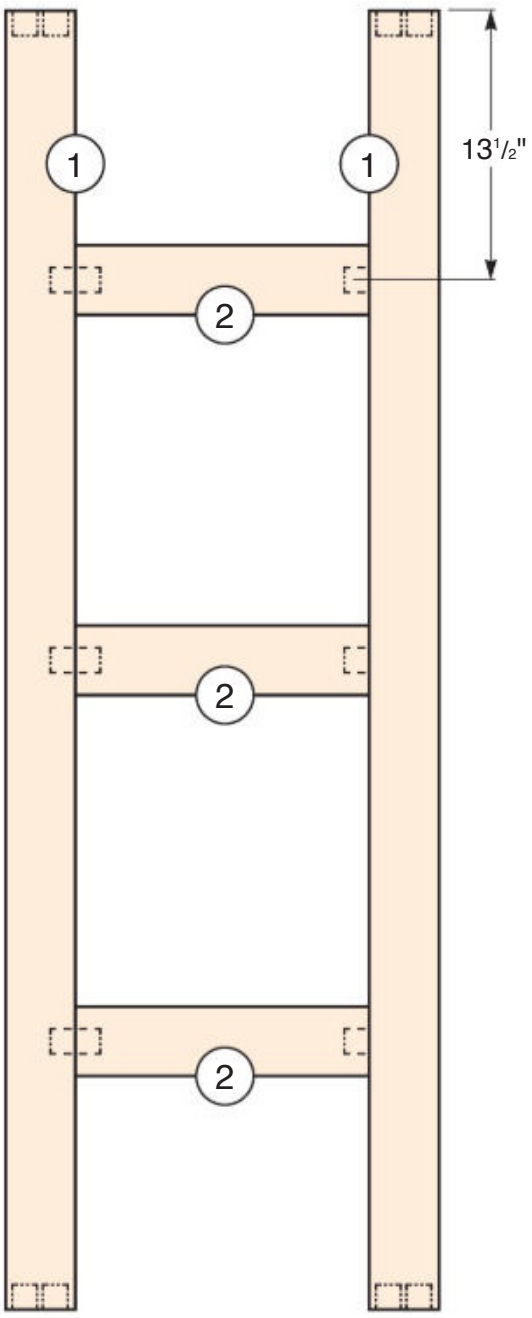
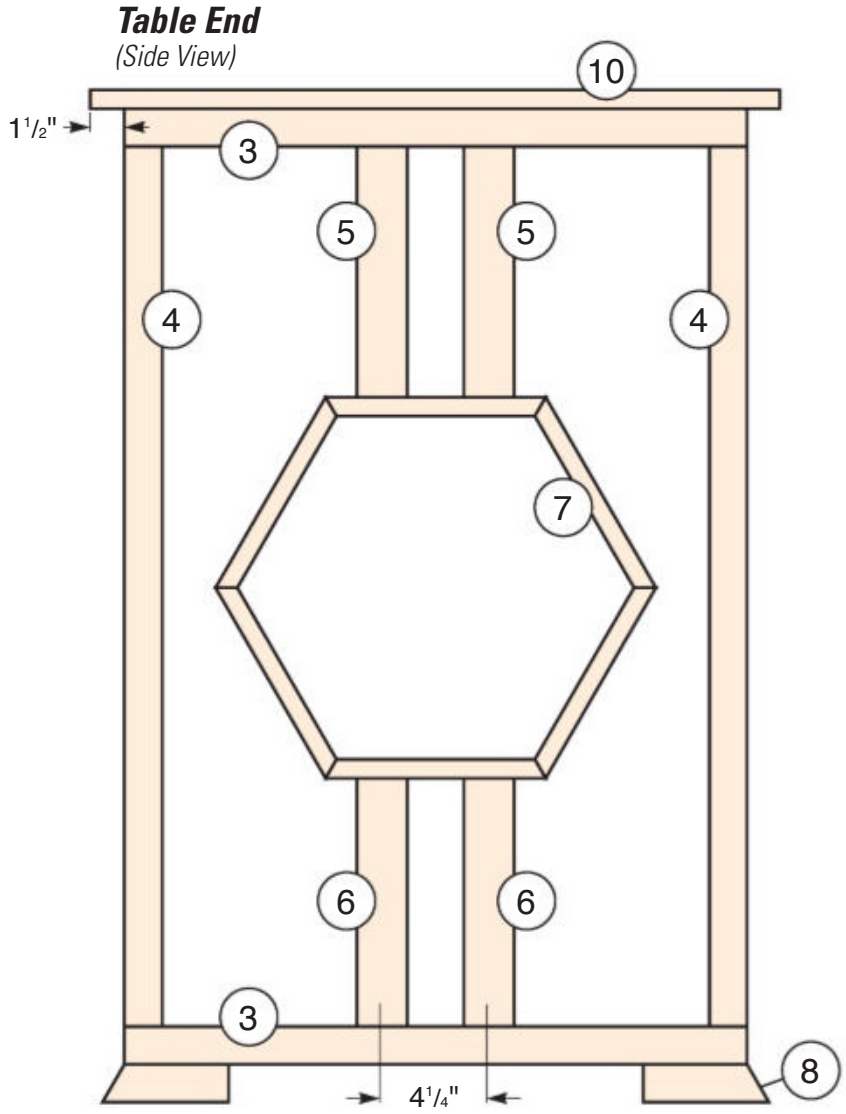
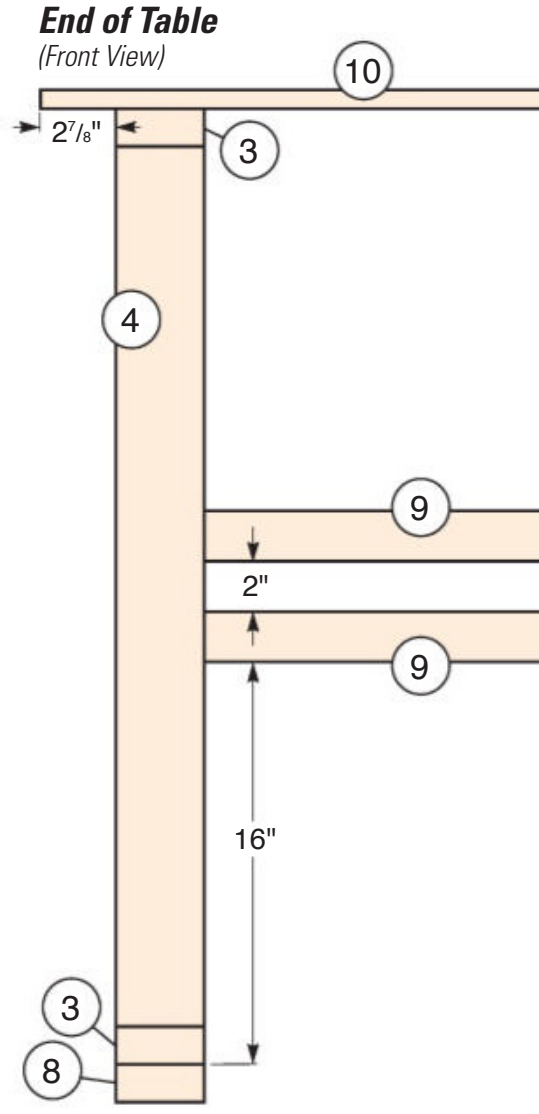


Table End
(Side View)



End of Table
(Front View)



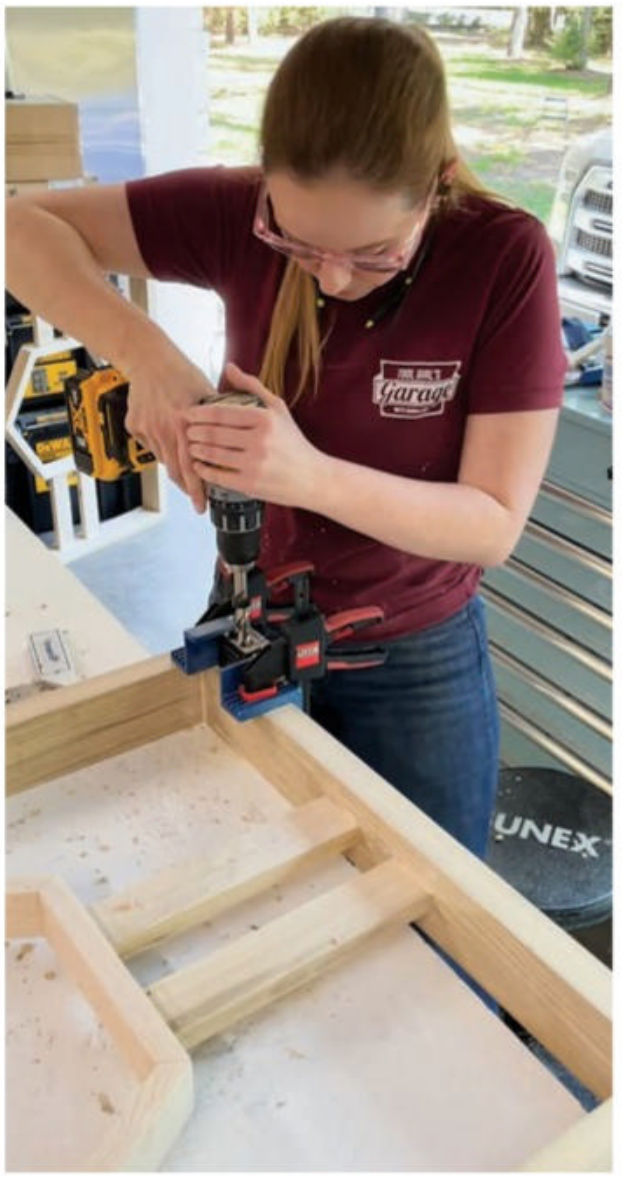
Switch the Beadlock jig to its 3/8" drilling guide for boring mortises into the top and bottom segments of both hexagons (above). Drill corresponding mortises into the upper and lower supports. You'll also need to drill mortises in the short rails of the leg assemblies before assembling all of these parts with tenons, glue and clamps (right).

the parts together and mark each joint for a single tenon. Since these are face-to-end joints, mark the parts carefully so you'll be sure to align the jig correctly for drilling. I settled on 1/2"-thick tenons for these large corner joints and set up my Beadlock jig with both 1/16" and 1/4" spacers installed. I drilled each mortise 1¼" deep and crosscut 2½"-long tenons to fit them.

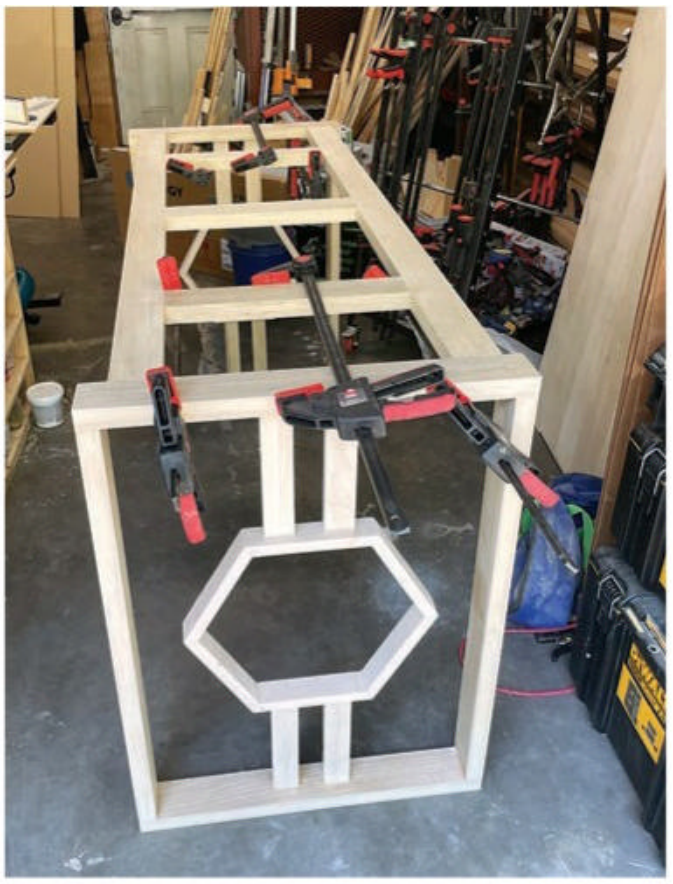
The hexagons will be "suspended" between the short rails on the leg assemblies with four 3/4"-thick, 2"-wide supports. Crosscut four top supports to 9¾" long and four bottom supports to 9⅞" long. Given the thinner stock for these supports, I decided to go down a size on my Beadlock mortises and switched to the 3/8" drilling guide in the jig.

To drill mortises for installing tenons between the short rails and the supports, first install both the 3/4" and the 1/2" spacers in the jig. Mark each short rail for two mortises, spaced 11¾" in from the ends. Drill these rail mortises 1" deep. Now remove the 1/2" spacer and mark the top and bottom segments of each hexagon 2½" in from their edges for drilling corresponding mortises here. Drill these mortises 3/8" deep. Finally, remove the 3/4" spacer so you can drill a centered mortise into each end of all eight support pieces. Set the depth of these mortises to 1" deep. Cut 3/8"-thick Beadlock tenons to fit all the mortises you've just created, and give the short rails, legs and supports a final sanding.

Gluing up the leg assemblies requires some patience, as there are a lot of joints coming together. Definitely start out by dry assembling all the parts



Clamp the upper support frame between the leg assemblies, and mark the four long/short-rail joints for pairs of Beadlock tenons (left). Bore mortises for these joints with both 1/16" and 1/4" Beadlock spacers installed in the jig and using the 1/2" guide block and drill bit (right).



Slip tenons into the frame joints without glue, and clamp the framework together so you can measure between the leg assemblies to verify the stretcher length.

with the tenons in place, just to make sure all the joints will close correctly. When gluing things up, first assemble the hexagons and supports, then add the legs and short rails. Break these glue-ups down into two sequences, if that makes things easier.

Assembling the Table Base

Now is a good time to assemble the major components you've built so far. Set and clamp the upper support frame between the two leg assemblies so their top edges are flush. The upper support frame will be about 3" narrower than the leg assemblies, leaving you about 1½" of inset at these joints. Mark the long rail/short rail joints for two Beadlock tenons per joint. I drilled 1/2"-wide mortises 2½" deep for these joints with 1/4" and 1/16" spacers installed in the jig. Cut eight Beadlock tenons for these mortises, and dry assemble the joints to verify that they fit together correctly.

While these parts are clamped up, measure for the two lower stretchers. While the table is actually plenty strong without them, I erred on the side of caution and added them in. If you do likewise, rip and crosscut poplar workpieces for them. I used 3/8" x 2½"-long tenons to attach these two stretchers to the legs. I positioned them 16 and 20 inches up from the floor. When locating their mortises, I didn't use spacers in the jig, but I did mount the stretchers flush to the inside faces of the legs to leave a small reveal on the outside.

Bevel-cut one end of each of the table's four feet to 30 degrees, and mount the feet to the bottoms of the leg assemblies with glue and screws.

The author masked off the maple hexagons before top-coating all of the table's poplar parts with antique white milk paint. She finished the hexagons and tabletop with wipe-on varnish.

Forming the Tabletop

The last component to build is the tabletop! I used 1/4" Beadlock joints between the boards to help align their faces during glue-up. You might even consider gluing up the top in several narrower subassemblies, then gluing those together to form the larger top, if you have a limited number of clamps. Trim the ends of the tabletop flush to bring it to its final overall length of 78". I chamfered the top edges of the tabletop panel all the way around to make it more skin-friendly.

Assemble a blank for this tabletop from solid maple. The author used 1/4" Beadlock tenons to help keep the joints aligned during gluing and clamping.

Finishing Up

After finish-sanding the entire project, I top-coated all but the hexagons and tabletop with General Finishes Antique White Milk Paint. I opted for wiping varnish to seal the maple parts. Once everything dried, I used a biscuit jointer to cut slots along the support frame's long rails so I could attach the tabletop with eight steel Z-clips and screws.

Sarah Listi reviews tools and builds projects on toolgirlsgarage.com.

This table's solid maple top will expand and contract across its width. To allow for that wood movement, the author attached the top to the lower framework with screws and metal Z-clips fitted into biscuit slots.

Compact Sewing Cabinet

By Rob Johnstone

Sewing is becoming more popular than ever. This compact cabinet with foldout leaves is a great way to enhance enjoyment of the craft.

Much like woodworking, crafts such as knitting, gardening and sewing gained popularity as the pandemic caused people to spend more time at home. The satisfaction and fun of these home-based hobbies was enhanced by the utility of their results. Crafters have found joy in the practical projects they have completed. In that regard, it's been a true silver lining in an otherwise troubling time.

Here at the *Journal*, we've been watching the sewing trend, and some have asked us to create a practical sewing cabinet to meet the need. Here it is!

This sewing cabinet's compact size is perfect for a small sewing room or apartment, but the top folds open to a generous work surface. Locking casters enable it to be moved around easily, perhaps to take advantage of natural light

Break down the cherry veneered plywood, ripping and cutting it into the seven panels that compose the cabinet's carcass. Processing 4' x 8' sheets of plywood can easily be done with a shop partner, or precut the sheets into smaller pieces with a handheld circular saw instead.

coming through a window. It features a retractable sewing machine lift from Rockler that is fully adjustable. Even so, we designed the project so its construction is bread-and-butter woodworking — nothing too fancy or overly complicated. But you can certainly soup it up with all the upgrades that come to mind!

Cutting the Plywood

The cabinet is made mostly of 3/4" plywood (you'll need two 4' x 8' sheets) laid up in a cherry veneer, although the choice of veneer species is entirely up to you. The many solid lumber accents on our cabinet are made of maple, which evokes a Scandinavian design motif.

Take a close look at the *Material List* on page 37 for the length and width of the various plywood panels. One important detail to note is that the top (Piece 1) is eventually cut into three panels. After you cut it to size and wrap it with maple edging, you will then crosscut it on the table saw to form the folding top leaves. One benefit to this approach is that it allows for the figure of the hardwood plywood to flow all across the work surface when the leaves are extended.

Rip and crosscut all seven of the project's primary plywood panels. (I broke them down in advance using a handheld circular saw so that I could manage them more safely on the table saw.) For best results, use a sharp blade designed for cutting plywood. When you've completed that task, surface enough maple stock to prepare all the 3/4" x 3/4" edging you'll need.

Starting with the back and side panels, cut strips of this trim extra long. The back panel receives two pieces of edging (photo, right) and the side panels get one piece each on their front edges. (See the *Drawings* for details.) Glue and clamp the edging in place. When the glue joints cured, I trimmed their ends flush with a fine-toothed saw.

Install edging all around the top panel, then crosscut it into the large center panel and two leaves.

For both the top and door panels, I miter-cut the trim at 45 degrees to create a tidy and professional look. Take your time with this task. I cut and dry-fitted the four pieces of mitered trim for each panel one at a time to check the fit of the corner joints before gluing them in place.

Secure the edging to the plywood panels by gluing and clamping it in place. Miter-cut this trim to detail the top and doors. The back- and side-panel trim is just cut flush to the plywood (inset).

Now lay out the foot recess in the bottom panel, using the *Drawing* on page 37, and cut out this contour with a jigsaw. Sand the cut edge smooth. Apply peel-and-stick cherry veneer edging to cover this curved edge and the other exposed plywood edges that remain. Then it's time to sand the edging flush to the plywood, being careful not to sand through the hardwood veneer.

The bottom (Piece 2) has a large foot recess to cut away. Lay out this shape using the* Drawing *on page 37. Common shop supply containers like cans or glue bottles can provide the curves you need to draw the shape easily. Cut the recess with a jigsaw (inset).

Kreg's new 720 Pocket Hole Jig made short work of boring the pocket holes used to assemble the cabinet panels. Pocket-hole joinery is strong, fast and easy.

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VIDEO To watch a video of the author demonstrating the sewing machine lift and other cabinet features, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

Carcass Assembly

I decided to assemble the cabinet parts using pocket holes and screws. It is a fast, easy and strong joinery method that works particularly well for casework construction like this.

Bore the pocket holes and then, with a thin coat of glue on both faces of the joints, screw the back and side panels together. If you are working by yourself as I do, wrangling these three large panels into proper alignment could be a bit frustrating, especially with glue spread on the joints. To prevent that problem, I used a pair of Rockler's Clamp-It® Corner Clamping Jigs to align the panels and act as a "third hand" during the process. I also used my table saw's perfectly flat top to align the top of the plywood panels (the panels are upside down in the left center photo). Work smart, not hard!

I debated about whether to attach the casters at this point. Chasing the cabinet around the shop on its wheels as I continued to work on it would have been comical and frustrating. But the casters all lock, and the fact that I wanted them mounted before I hung the doors convinced me that now was the time.

Speaking of timing, with the cabinet carcass assembled, now was also the time to make the lift supports. I used plywood for these parts, but you could use solid cherry lumber instead if you have some around your shop. Either way, these supports need to fit perfectly between the sides of the cabinet. Rip the supports to width and then measure their lengths off of the cabinet itself before cutting them to length.

If the supports fit well, bore two pocket holes into each of their ends. Then grab your pressure-sensitive edging and apply it to one long edge of one of the supports. Set them both aside for now.

Hanging the Doors

You've come a long way on this project, and next up we'll hang the doors. Before doing that, lay out locations for the brass inset door pulls (see the *Pull Location Drawing,* next page). Bore stopped holes for this hardware using a 1¾"-diameter Forstner bit, as shown in the top left photo on page 38.

The author used his table saw's top to align the top edges of the plywood panels. Rockler Clamp-It Corner Clamping Jigs held the assembly in position while he drove in the attachment screws.

Mount the locking casters with screws. Note that the side panels set back from the front edge of the bottom. This offset accommodates the piano hinges you'll mount later.

Sewing Cabinet Hard-to-Find Hardware

Standard Twin Pin Sewing Machine Hinges (2) #26765 ..... $14.99 pr.
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Brusso® Solid Brass Recessed Pulls (2) #24618 ..... $34.99 ea.
Heavy-Duty Rockler Sewing Machine Lift Mechanism (1) #69191 ... $259.99 ea.
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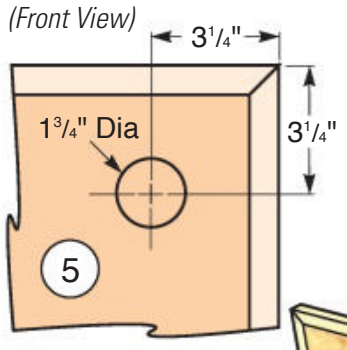
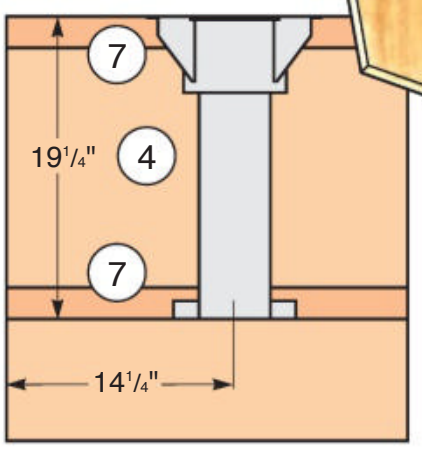
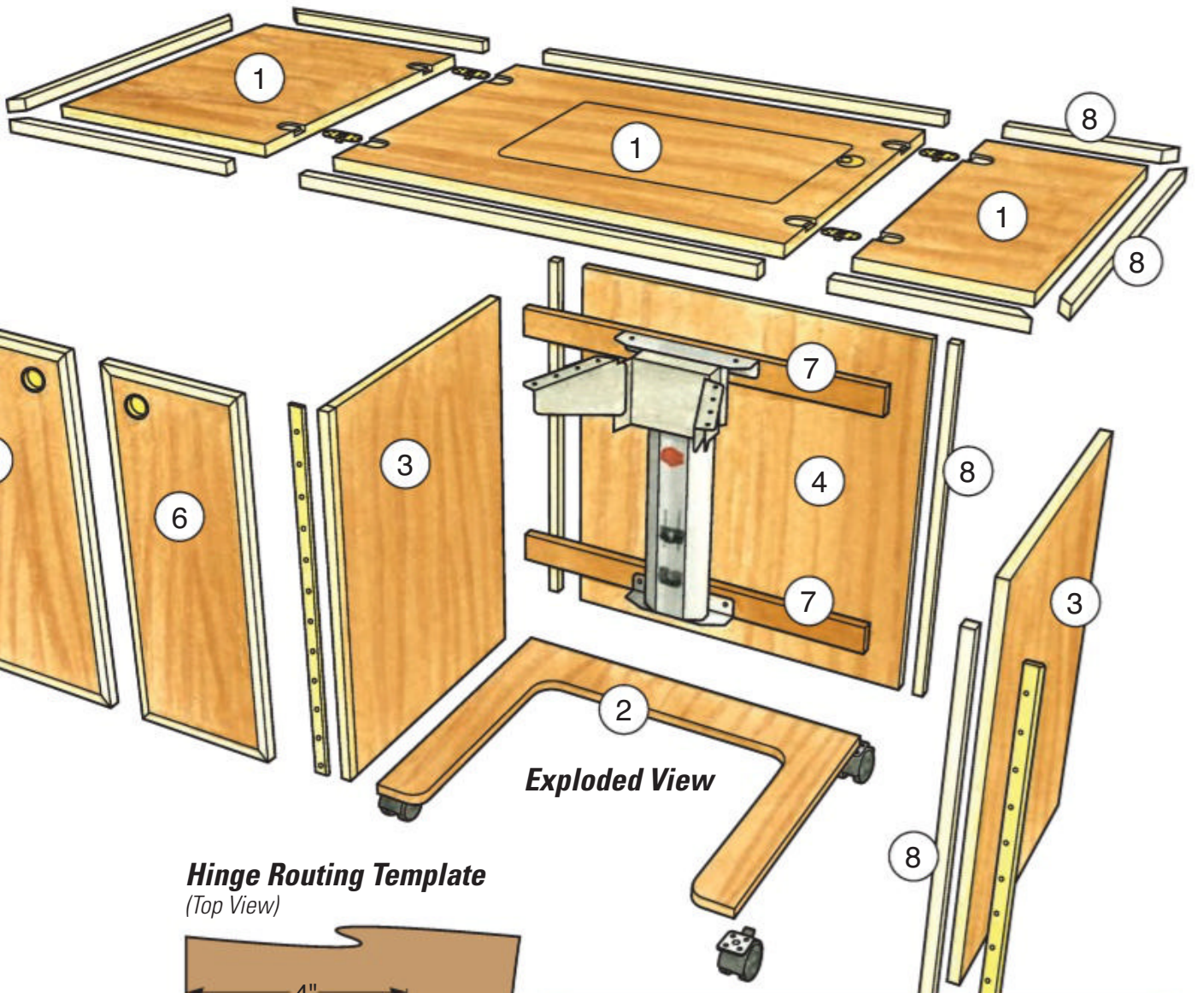
Pull Location
(Front View)



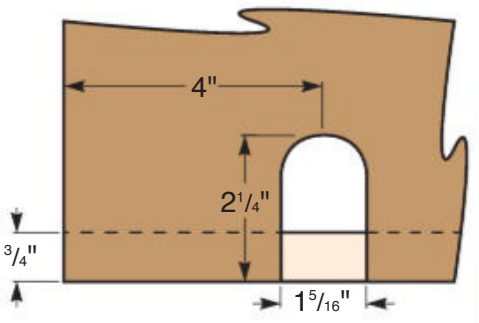
Lift Support Locations
(Front View)



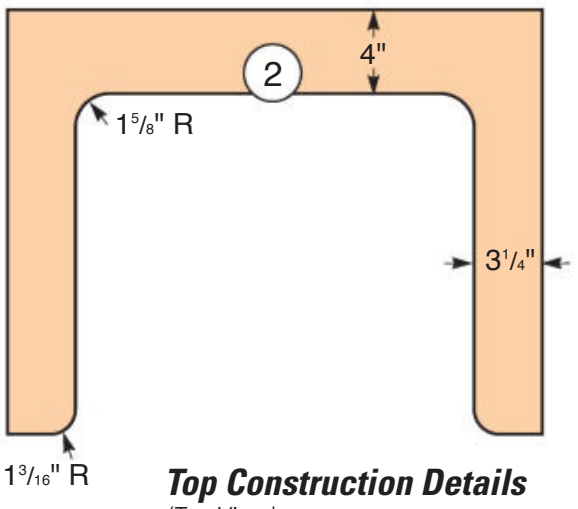


Exploded View

Hinge Routing Template
(Top View)



Bottom
(Top View)



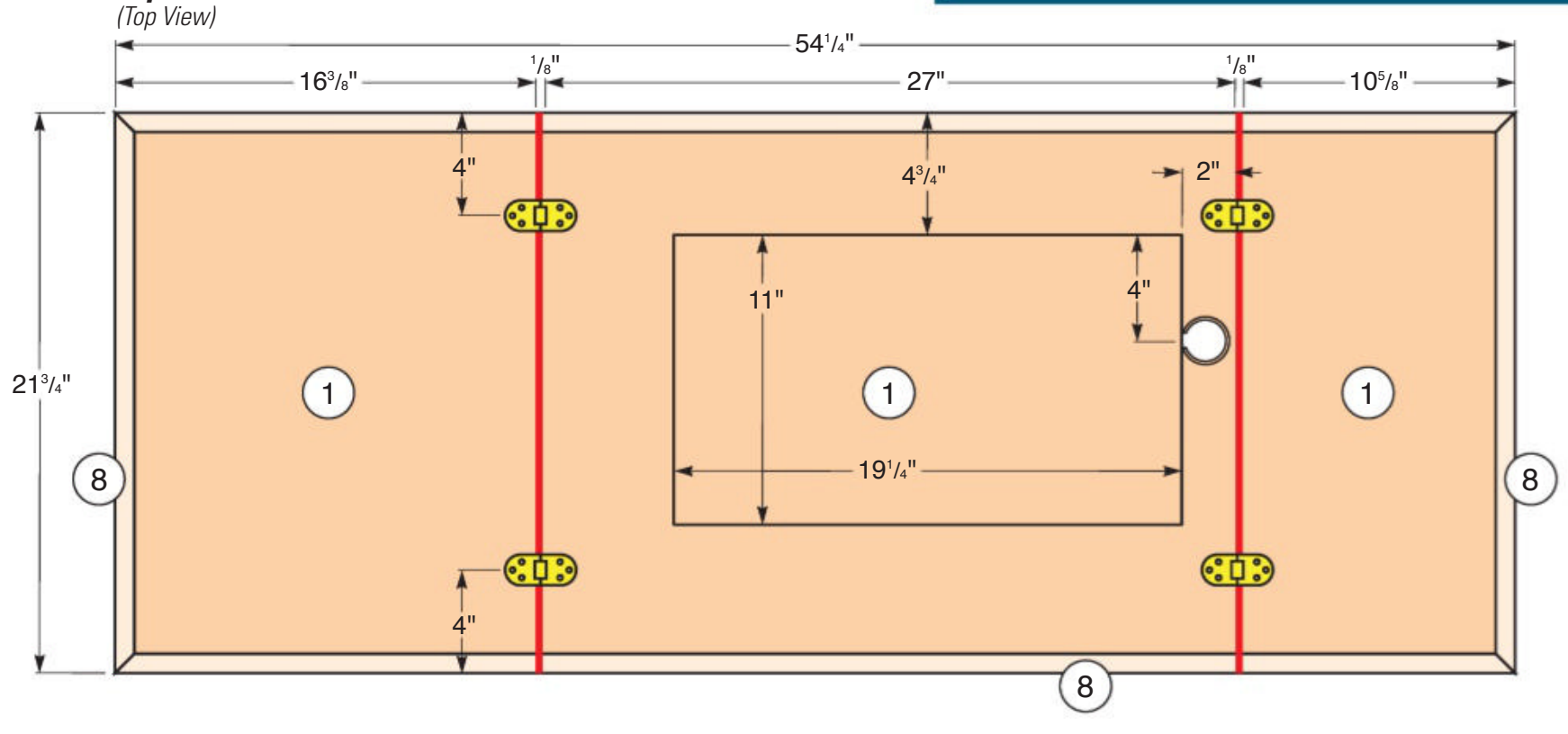
The sewing machine platform is cut from the Top (Piece 1). The location and size of the Platform shown below will accommodate most sewing machines. If your machine is extra large, you may need to enlarge the platform. Check your machine dimensions in advance.

MATERIAL LIST

	T x W x L
1 Top Panel (1)	3/4" x 20¼" x 52¾"*
2 Bottom (1)	3/4" x 25½" x 20¼"
3 Side Panels (2)	3/4" x 19¼" x 27"
4 Back Panel (1)	3/4" x 25½" x 27"
5 Left Door Panel (1)	3/4" x 14⅞" x 25½"
6 Right Door Panel (1)	3/4" x 9⅛" x 25½"
7 Lift Supports (2)	3/4" x 2" x 25½"
8 Edging (1)	3/4" x 3/4" x 454"

** This panel will be cut down to size to form the leaves*

Top Construction Details
(Top View)



Boring the holes for the inset door pulls is best done on a drill press, so the Forstner bit can drill straight down, evenly into the plywood.

Mounting and aligning doors on piano hinges is a fussy but achievable task. A self-centering drill bit (inset) makes installing the hinges' many screws easier.

The doors are mounted to the cabinet on piano hinges. That's because the top's fold-up leaves are supported by the doors when the sewing cabinet is in use. And piano hinges, with their many, many screws are just the sturdy ticket for this task. But there is one inescapable fact about piano hinges: once fully mounted, they allow zero adjustment for door alignment. Zero.

The way I made certain the doors hung properly was by following these steps. First, I mounted the hinges to the doors with the hinge knuckle just past the front face of the door. I could then measure the exposed margin of the edge that remained uncovered by the hinge. Using that measurement, I marked a line down the edging on the cabinet sides.

Now, using that mark to locate the hinge on the cabinet (and this is a place where a shop helper can be very helpful), I drilled one screw hole at the top of the hinge and one at the bottom. I then mounted the door with only two screws. I followed the same procedure on the other door.

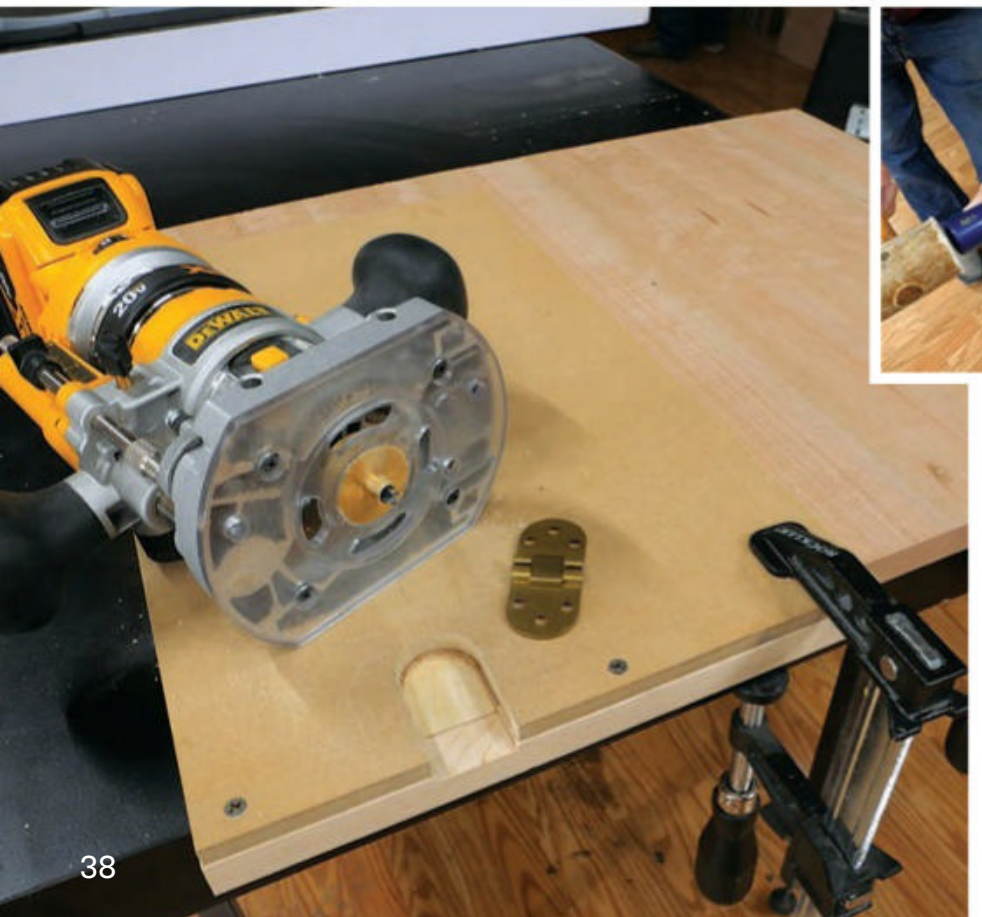
If the doors are properly aligned, you should go out and buy a lottery ticket. If not, you can remove one of the screws holding the door in place, adjust the alignment and drill another screw hole. Do the same on the other door. Repeat until the doors align properly and then, using a self-centering drill bit, bore all the remaining screw holes. I finished up mounting the door by driving home all of the attachment screws. But if you prefer to apply finish first, you can remove the doors now and rehang them later.

Work Surface Details

There are a few machining tasks to be done to the top/work surface next. First, install the sewing machine hinges. To do that, make a jig that helps you rout out the hinge mortises accurately. Using the *Hinge Routing Template Drawing* on page 37, lay out and cut the mortise shape into the edge of a piece of 3/8" MDF. Then mount a 3/4" x 3/4" guide to the edge of the MDF with screws. Install a 5/16" O.D. guide collar and a 1/4" straight bit in your router. Test the jig's accuracy on some scrap. If the hinge fits, you are good. If not, adjust the jig's opening as needed.

When the jig works correctly, rout the mortises in the top face of the center panel and leaves. Then chisel out the recesses for the hinge knuckles. Take your time with this, as the knuckle recesses will be visible when the top is folded up. I chose to mount the top to the cabinet at this point.

Remember those lift supports you made a while ago? Now is the time to mount them in the cabinet. Using the locations shown in the *Drawings*, first glue and screw the top support (without the edge tape) in place. Then, with the covered edge oriented to the top of the



The author created a jig (left) to mortise for the sewing machine hinges. These hinges must be flush to the top of the work surface. After the hinge mortises are routed out, use a sharp chisel to create a deeper recess for the hinge knuckles (inset).

Install a pair of plywood lift supports inside the cabinet (left). Then attach the sewing machine lift hardware to the supports (right). The lift is adjustable to accommodate almost all sewing machines. Here the cabinet's top work surface is removed for clarity.

cabinet, secure the second support with glue and screws. Attach the sewing machine lift hardware to the supports. The lift is adjustable; see the directions that come with it to fine-tune it.

Next, you need to cut the sewing machine platform out of the center section of the top/work surface by routing a large opening in the center panel. Lay out this opening using the *Top Construction Details Drawing* on page 37. Grab another piece of 3/8" MDF and cut an 11⅛" x 19⅜" rectangle out of it, as shown in the photo at right, to create a cutting guide for the router. Then with the same router setup you just used on the hinges, rout down through the plywood to create the platform piece. I did this in several deepening passes.

Finishing Up

You are in the home stretch of the building process now! There is a need for the power cord and foot control cord to have access to the inside of the cabinet when the sewing machine is in use. To do that, I chose to drill a hole and cover it with a brass grommet. It's a two-step process, as you need to sink the grommet's top flush with the work surface. Use a 1¾"-diameter Forstner bit to bore a shallow recess for the grommet top, then switch to a 1⅝"-diameter bit to drill the grommet's through hole.

With that done, mount the magnetic catch that holds the doors closed. Leave off installing the inset door pulls until after you apply finish to the project. Sand the edges of the sewing machine platform and its opening smooth and break their edges with sandpaper.

Go ahead and mount the sewing machine platform to the lift, and you have completed this project's construction steps. Give the entire cabinet a good sanding, working up to at least 180-grit.

I chose Watco® Natural oil finish for this cabinet, and here's why: few finishes pop the figure of cherry lumber or veneer like an oil finish. Four coats of Watco will create a beautiful finish. And if it should get scratched or distressed — this is a workstation, after all — it can easily be touched up.

Rob Johnstone is publisher of Woodworker's Journal.

Rout out the sewing machine platform from the top/work surface using a 1/4" straight bit. An MDF cutting guide provides a reference edge for the router's 5/16" guide collar to follow.

The cabinet's brass grommet must sit flush to the work surface, which requires a two-step machining process and two Forstner bit sizes.

Tool Battery Charging Cabinet

By Chris Marshall

This easy-to-build shop project will store six chargers and keep more than a dozen tool batteries ready for use.

Twenty-five years ago, about the only handheld power tools that could run on a battery were drill/drivers. Now, virtually every power tool has a cordless option. If you've been bitten by the "cordless" bug like me, you've got a bunch of chargers and batteries to organize! I used to store my chargers in a jumbled mess on a shelf, untangling and plugging them in one at a time when duty called. But this little charging cabinet is going to change all of that for me — and I hope it will help you, too! Its upper two back panels are removable from in front, so you can hang those chargers that have T-slots vertically instead of piling them all on a shelf. But there's also a shelf inside for other chargers that just can't be hung. All the cords feed through small holes in the top two back panels and into a hidden back cavity, where they plug into a power strip. That way, they're always energized but without a "spaghetti junction" of cords to see or fiddle with.

The cabinet will hold at least six chargers and more than a dozen batteries. Clear acrylic panels in the doors also make it easy to see which charger lights are blinking, so you can keep tabs on their charging status at a glance. Here's a helpful shop project you can build in a long weekend to get your cordless charging challenges under control, once and for all.

Building the Cabinet Carcass

This cabinet's side panels will join to the carcass top and bottom panels with rabbets, and its upper and lower shelves

Mill a pair of 1/4"-deep dadoes across the inside face of the carcass side panel workpiece for the shelves. The author used a shop-made, slotted routing jig, 1" O.D. guide collar and 3/4" straight bit for this operation.

will fit into dadoes in the side panels. To ensure that this side panel joinery matches and that the other components will fit into the rabbets and dadoes squarely, it helps to make both side panels from a single piece of plywood to begin with. So rip and crosscut a 24"-wide x 29¾"-long panel to size.

Load a wide dado blade in your table saw to cut the top and bottom rabbets into this combined side panel. Raise the blade to 1/2" above the saw table, and install a sacrificial fence facing on your rip fence so you can bury the dado blade partially into it. Adjust the rip fence so the blade projects the same distance out from the fence facing as the thickness of the plywood you're using for the project. (These days, it typically will measure about 23/32" thick, but to my surprise, the Baltic birch I used happened to be a full 3/4" thick.)

Make a test cut on a piece of scrap to ensure that the dado blade is set correctly, then carefully mill a rabbet across the inside face of the plywood panel on both ends.

Next, plow a pair of 1/4"-deep dadoes across the same face of the plywood. Locate these dadoes 5⅝" and 11¼" up from one end of the plywood panel. These will house the upper and lower shelves, so their width should match the plywood thickness you're using. To mill these dadoes, I used a 3/4"-dia. straight bit and a shop-made jig with a slot that fits a 1" O.D. guide bushing for a handheld router. When clamped in place, the jig ensures that the dadoes will be perfectly straight. But, you could also adjust the width of your table saw dado blade and cut them that way instead, if you prefer.

With the joinery now milled, switch to a regular saw blade in the table saw so you can rip each carcass side panel to 11¾" wide. Rip and crosscut two 11¾"-wide x 24¾"-long plywood panels to size for the carcass top and bottom panels, too.

Finish-sand the inside faces of the sides, top and bottom to 180-grit. Then spread glue along the rabbets of the side panels, insert the top and bottom panels into them and carefully clamp up the cabinet carcass. Be careful not to overtighten the clamps. Check the assembly for square by measuring from corner to corner diagonally. The measurements should match, confirming that the assembly is square. I reinforced these rabbet joints with a few 1¼"-long, 18-gauge brad nails

Spread glue along the rabbets of the side panels, fit the top and bottom panels into place and clamp the assembly together. Tighten the clamps enough to close the joints, but be sure the assembly remains square.

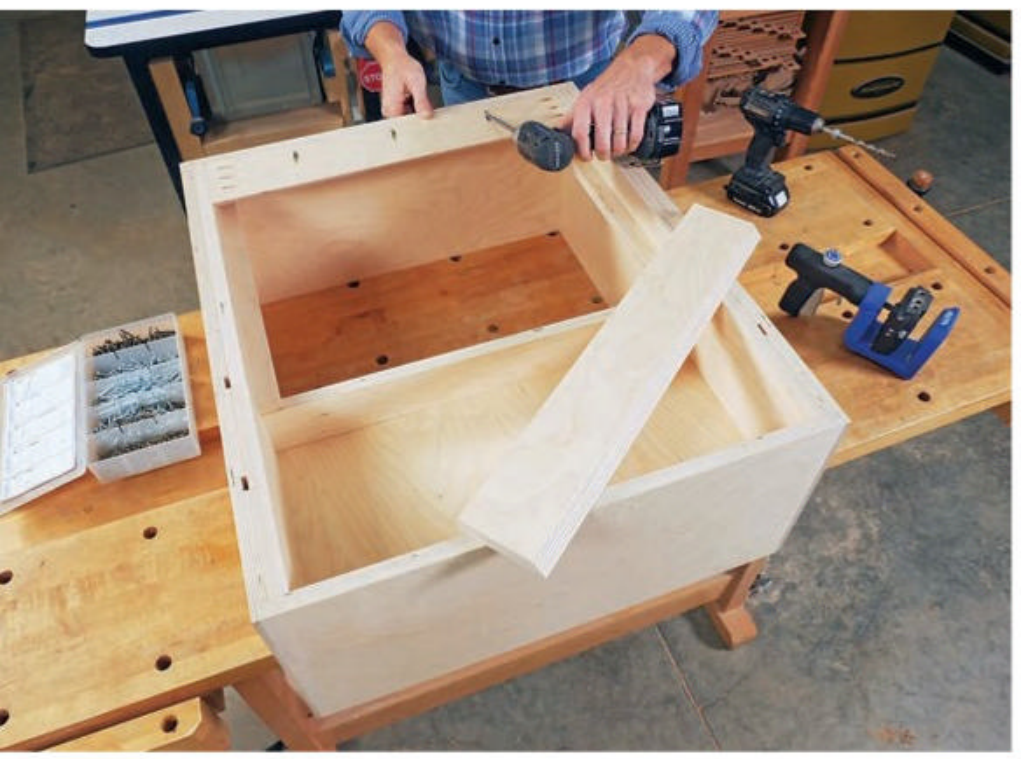
driven through the carcass sides and into the ends of the top and bottom panels.

Follow the *Material List* on page 43, and measure off of your actual cabinet, to cut accurately sized workpieces for the upper and lower shelves, upper and lower blocking, a pair of narrow cleats and the lower back panel.

Spread glue over one face of each lower blocking piece, and install each to opposite inside back corners of the cabinet at the bottom. Make sure the top ends of the blocking are flush with the bottoms of the dadoes for the upper shelf and do not obstruct them. Reinforce these connections with a few brad nails to hold the blocking in place while the glue dries.

Glue and brad-nail the lower blocking pieces to the lower inside back corners of the cabinet. Then sand the front face of the lower back panel, fit it into place and nail it to the front edges of the blocking.

Fasten the upper blocking pieces to the cleats with glue and screws to form a pair of L-shaped subassemblies. Install these inside the cabinet above the lower blocking and so the cleats face forward.



Install two French cleats with their bevels facing inward and down. One fits inside the upper back of the cabinet (being installed here). Position the second cleat so its non-beveled edge is 9" up from the cabinet bottom.

Drill a series of pass-through holes for the charger power cords in the upper back panels with a 3/8" brad-point bit. Clamp the panels together before drilling the holes along their adjacent edges to minimize tearout.

Now finish-sand the front "show" face of the lower back panel and slide it into position in the cabinet, flush against the front edges of the lower blocking. Secure it near its ends by driving 1¼" brad nails through its face and into the front edges of the lower blocking pieces.

Slide the upper shelf into its dadoes until its front edge is flush with the front edges of the cabinet. If it fits well, remove it so you can sand its faces smooth, then install it with some glue spread into the dadoes. I drove 1¼" brads through the cabinet sides and into the ends of the shelf. I also pinned the shelf to the lower back panel by brad-nailing down through it into the back panel's top edge.

The upper blocking pieces and cleats form two L-shaped assemblies with the face of a cleat butting against one long edge of each blocking piece. Glue and screw these parts together with their ends aligned. Then install them inside the cabinet above the lower blocking with glue and brads. Be sure the cleats face forward toward the upper shelf and the back edges of the blocking are flush with the cabinet back.

Check the fit of the lower shelf in its dadoes, and finish-sand its faces. Glue and nail it into place, driving brads through the lower back panel into its back edge as well as through the cabinet sides and into the shelf ends.

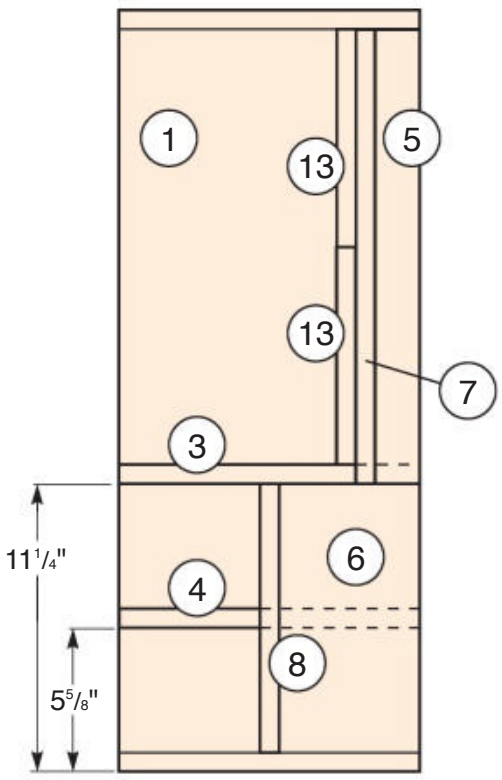
Adding French Cleats and Edging

A pair of French cleats will mount this cabinet to the wall. Rip and crosscut 4" x 22¼" plywood blanks for them, then tilt your table saw blade to 45 degrees so you can bevel-rip one edge of each cleat to shape. When installed, the bevels on these cleats should be oriented toward the cabinet's interior and down toward the cabinet bottom. I attached my French cleats to the cabinet with pocket-screw joints. Install one cleat flush against the top inside back of the cabinet. I located the top flat edge of the other cleat 9" up from the cabinet bottom. Its back face should also be flush with the cabinet back.

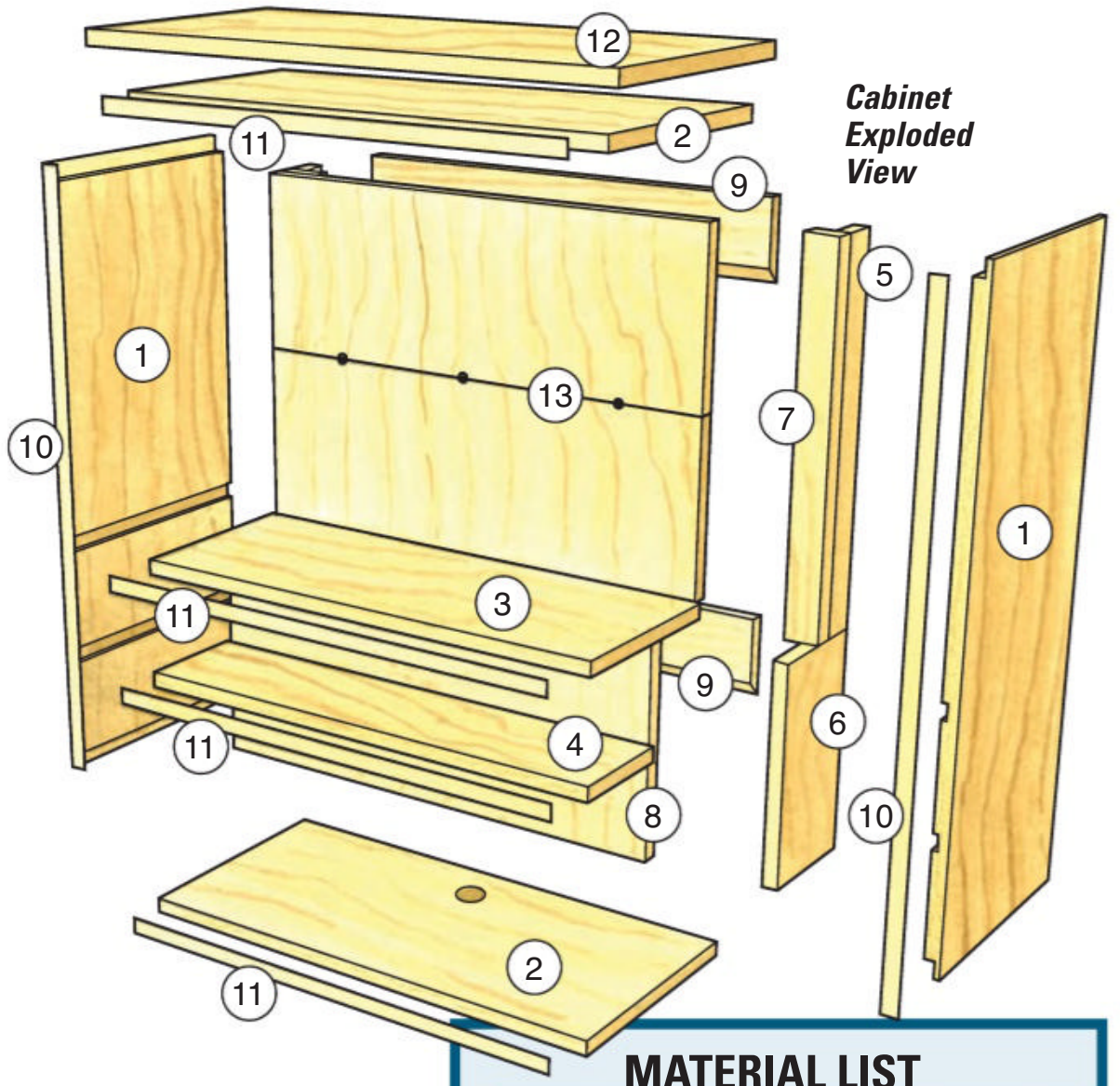
Solid wood edging will hide the front edges of the cabinet carcass to give it a more finished look. I prepared six strips of long and short edging from solid maple. When gluing each one in place, you can hold the edging securely with several strips of wide painter's tape pulled over the joints instead of using clamps. Install the long edging strips first, keeping their edges and ends carefully aligned with the cabinet carcass. Then attach four short pieces to the front edges of the carcass top and bottom and to the shelves. Carefully measure and cut these to length so their ends form tight butt joints with the long edging. When the glue dries, sand or plane any overhanging areas of this edging flush with the cabinet edges, then finish-sand the cabinet's side and bottom exterior.

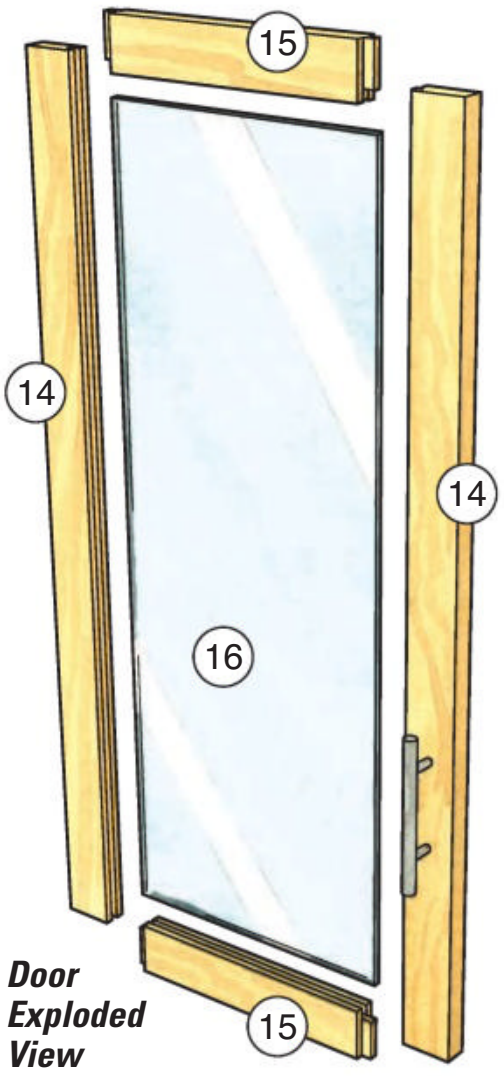
You could make the top panel of the cabinet either from plywood banded with solid wood or from a piece of solid wood. I chose the latter and glued up a blank of 3/4"-thick maple that

Carcass Side
(Inside View)



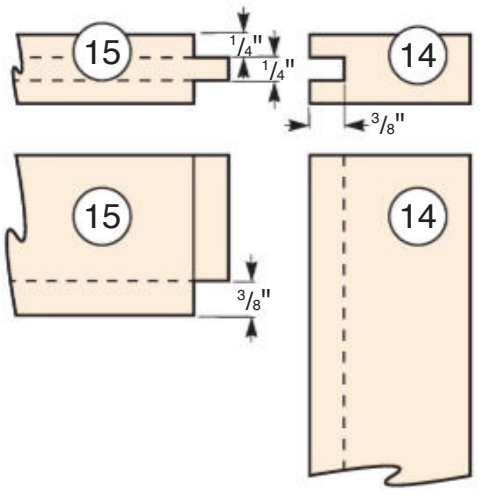
Cabinet Exploded View





Door Exploded View

Door Frame
(Top, Front View)



MATERIAL LIST

	T x W x L
1 Carcass Sides (2)	3/4" x 11¾" x 29¾"
2 Carcass Top, Bottom (2)	3/4" x 11¾" x 24¾"
3 Upper Shelf (1)	3/4" x 9¼" x 24¼"
4 Lower Shelf (1)	3/4" x 5½" x 24¼"
5 Upper Blocking (2)	3/4" x 1¾" x 17¾"
6 Lower Blocking (2)	3/4" x 5½" x 10½"
7 Cleats (2)	3/4" x 1¾" x 17¾"
8 Lower Back Panel (1)	3/4" x 23¾" x 10½"
9 French Cleats (2)	3/4" x 4" x 22¼"
10 Long Edging (2)	1/8" x 3/4" x 29¾"
11 Short Edging (4)	1/8" x 3/4" x 23¾"
12 Top (1)	3/4" x 12¾" x 27¼"
13 Upper Back Panels (2)	3/4" x 23¾" x 8½"
14 Door Stiles (4)	3/4" x 1¾" x 29¹¹⁄₁₆"
15 Door Rails (4)	3/4" x 1¾" x 9⅞"
16 Acrylic Door Panels (2)	.22" x 9⅞" x 26⅞"

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MORE ON THE WEB

VIDEO To take a video tour of this Tool Battery Charging Cabinet's features, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

Battery Charging Cabinet Hard-to-Find Hardware

3/4" Baltic Birch Plywood, 24"W x 30"L (4) #63453 ..... $22.99 ea.
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JIG IT® Hinge Cup Drilling Jig, 5mm Tab (1) #58488 ..... $12.99 ea.
JIG IT® Hinge Plate Template A (1) #50375 ..... $9.99 ea.
#6 Self-Centering Bit (1) #68991 ..... $14.99 ea.
Stainless Steel Metropolitan Bar Pull, 5¼" (2) #24418 ..... $7.99 ea.
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Plow 3/8"-deep, centered grooves along the edges of the door rails and stiles. Make the groove width match the thickness of the acrylic you'll use for the door panels. The author's grooves were just shy of 1/4" wide at 0.22".

After you've cut clear panels for the doors and checked their fit in a dry assembly of the door frames, spread glue on the rail tenons and assemble each door with its clear panel in place. Clamp the frame joints together.

Rockler's JIG IT Hinge Cup Drilling Jig (white in photo) makes it easy to position a drill press fence accurately for drilling hinge cup holes in the door stiles. Bore these holes 12.7 mm deep with a 35 mm Forstner bit.

measured 12¾" x 27¼". After sanding its top face, edges and ends smooth, I installed it with six #8 x 1¼" screws near the front and back corners of the cabinet's top interior and in the middle. The back three screws were driven into round pilot holes, as usual. I installed the front three screws into slotted pilot holes instead, with the slots oriented front-to-back on the cabinet's interior top panel. This way, the maple top can expand and contract forward or backward as needed with changes in humidity, but its rear edge (against the wall) will remain fixed in place.

Making Removable Panels and Doors

There are still two more plywood upper back panels to make. You'll want these to be about 1/16" shorter and narrower than necessary so they'll slip into place easily above the upper shelf and be just as painless to remove someday, should you ever decide to add or change battery chargers. Cut the panels to size, and sand their "show" faces smooth.

The key to running cords through these upper panels is to drill a series of 3/8"-dia. holes along the panel edges. I bored three along the center seam between the panels using a sharp brad-point bit and clamping the panels edge-to-edge to minimize tearout around the holes. Then I rearranged the panels to drill three more holes along their top and bottom edges, creating six semicircles along the top and bottom of this panel assembly. You can drill as many holes as you like and wherever they are most convenient, based on the number of chargers you plan to use in your cabinet and where their cords will need to be located for easiest installation. Once the holes are drilled, set these panels aside.

The cabinet doors for this project are about as simple to build as any door can be. Mill stock for the four stiles and four rails to 3/4" thick, then cut the door parts to final size.

I purchased a 24" x 36" sheet of clear acrylic for my doors from a local home center. It measured 0.22" thick. Carefully cut a 3/8"-deep, centered groove along one edge of each rail and stile to fit the acrylic you choose. I did this with a flatop-toothed ripping blade at the table saw in two cuts, flipping the workpieces end-for-end between cuts to ensure that the grooves would be centered on the part thicknesses.

Once the grooves are cut, install a wide dado blade in your table saw again to raise a stub tenon on each end of the rails. Experiment on a test piece when setting the blade height, in order to create tenons that are just thick enough to form a good friction fit in the grooves of the stiles. With that dialed in, mill the tenons on rail ends to 3/8" long.

Dry fit the two door frames together so you can measure the width and length of the panel openings from the bottoms of their grooves. Cut an acrylic panel to fit each door at your band saw or with a triple-chip blade in your table saw. Then glue and clamp the door frames together with the acrylic in place. When the joints dry, sand the door faces smooth.

Set each hinge cup in its hole in the door, and carefully adjust the hinge arm so it's square to the door stile. Use a self-centering drill bit to bore pilot holes for the attachment screws. Drive these screws into place.

Installing the "cabinet side" hinge hardware is simple, using Rockler's JIG IT Hinge Plate Template (inset) to locate the screw pilot holes. Drill them, drive in the attachment screws and snap the hinge components together to hang the doors. Adjust them for an even reveal and door swing.

The power strip's cord will need to pass through the bottom of the cabinet. I bored a 2½"-dia. hole through my cabinet to accommodate Rockler's #51100 plastic grommet, which will give this pass-through hole a tidier appearance for the cord.

Before hanging the doors, now is a good time to go ahead and apply a protective topcoat to the entire project. I brushed on several coats of a satin, water-based polyurethane.

Hanging the Doors and Finishing Up

Full overlay 120-degree "Euro" hinges are a simple option for hanging these cabinet doors. I marked locations for the hinges 3" in from the top and bottom ends of the cabinet, then transferred those layout lines to the backs of the doors. Rockler's JIG IT plastic Hinge Cup Drilling Jig made it simple to set my drill press fence accurately to bore a pair of 35 mm holes into the back of each door for the hinges' cups. Mount the cupped side of the hinges to the doors with their supplied screws, making sure the hinge arms are perpendicular to the door stiles. A second JIG IT jig enabled me to locate the "cabinet side" holes for the hinge hardware easily in order to drill pilot holes for the hinge screws. Fasten the hinges to the cabinet to hang the doors. Adjust the hinges with their set screws so the doors swing easily and have even reveals between one another and the cabinet top. Once you're satisfied, install a pair of pulls on the inner door stiles to complete them.

There's not much left to do on our project! Snap the plastic grommet into place and install a power strip inside the lower concealed compartment behind the lower back panel. Choose the chargers you'll want to hang on the upper back panels so you can install the necessary screws to mount them on their T-slots. Set the chargers into place in the cabinet, and thread their cords through the back-panel holes. I used 1¼" washerhead pocket screws to fasten the upper back panels to the cabinet cleats. Their large, exposed screwheads hint that these panels can be removed when necessary, down the road.

You'll need to make up two more French cleats to mount your cabinet to the wall. Then choose a location in your shop where these cleats can be attached to two wall studs and where there's an outlet close by. Set the upper French cleat — bevel facing the wall and upward — so the cabinet will be a comfortable height for you. Attach it with four 3" screws driven into the wall studs. Mount the top beveled edge of the second cleat 20" below the beveled edge of the first cleat.

Mount a power strip inside the lower back cavity of the cabinet with screws. Feed the power strip's cord down through the grommet in the cabinet bottom. Then install your battery chargers on the upper back panels.

Set the cabinet into position on the wall, and push it down to engage the interlocking cleats. Then plug in the power strip and load this handy project up with batteries. Now enjoy the fact that your tool batteries will always be charged up and at the ready when you need them!

Chris Marshall is senior editor of Woodworker's Journal.

Sit/Stand Desk

By Nick Brady

Here's a trendy, versatile way to vary how you spend time at a desk.

Standing desks have become quite popular lately. But if you're like me, I want to sit down at them sometimes, too. That's why this wall-mounted design will give you both options. Its upper removable desk panel slides into four dadoes so you can choose the standing height that suits you best — at 44" or three optional positions down from there. A lower desk panel, situated at the more typical 30" seated height, folds up for use or down where it's out of the way. Once installed, this desk only projects about 20" out from the wall, so it doesn't take up a huge amount of floor space, either.

Forming the Uprights and Supports

Get this project underway by face gluing 1½"-thick stock together to make up two blanks for the uprights that measure 2¾" wide by 75½" long. Laminate a third 1½" -thick blank for the supports, and size it to 2¾" x 36" long.

Miter cut the 36"-long blank for the two supports in half with the saw swiveled to 15 degrees. This cut forms the supports' angled front ends. Crosscut the opposite end of each support square to bring these workpieces to their final length.

When these blanks come out of the clamps, step over to your miter saw and swivel it to 15 degrees. Miter cut the support blank in half to form an angled end on each of the two support workpieces. Then trim both ends of the long upright blanks to 15 degrees as well, orienting these angled ends parallel to one another. Swivel your miter saw back to 0 degrees again so you can crosscut the supports to their final 16¾" length.

With that done, it's time to mark and trim the top ends of the uprights to another 15-degree angle so they'll rest against the wall correctly. To lay that cut out, make a mark 67⅝" up from the bottom inside corner of each upright (see the *Upright Layout Drawing* on page 48). Then refer to the center inset photo, above, to lay out the cutting line on each upright using the angled end of one of the supports and a combination square. Mark these steep angle cuts, and cut off the waste pieces at the band saw or with a jigsaw. Set one of the wedged offcuts aside, and sand the cut edges of the uprights smooth.

While any stout, loose-tenon joinery will work to attach the angled ends of the supports to the back edges of the uprights, I opted for 10 x 55 mm Festool Dominoes and cut a single joint for connecting each upright to a support.

Laying Out and Milling Dadoes

Dry fit the supports and uprights together to form two subassemblies, then flip over to page 49 to see how I measured off the supports with a combination square and a tape measure to locate the positions of the 30" and 44" dadoes on the uprights.

Here's where the wedge-shaped scrap you set aside will come in handy. In the top center inset photo on page 49, I first used the scrap's angle-cut edge as a reference for positioning my ruler so I could step off each of the four 3/4"-wide dado locations, spacing them 1" apart. Then I attached a straight scrap to the short end of the offcut to form a guide for drawing the dadoes across the uprights at their correct angle (see middle inset photo, page 49).

Now load a 3/4"-wide dado blade in your table saw and raise it to 1/2". With your miter gauge swiveled to 15 degrees left or right as needed, carefully plow the four dadoes in each upright.

Make a mark at 67⅝" on the inside edge of each upright (top). Then use the 15-degree end of a support and a combination square to lay out the upright's top back angled edge (bottom left). Cut these edges to shape (bottom right).

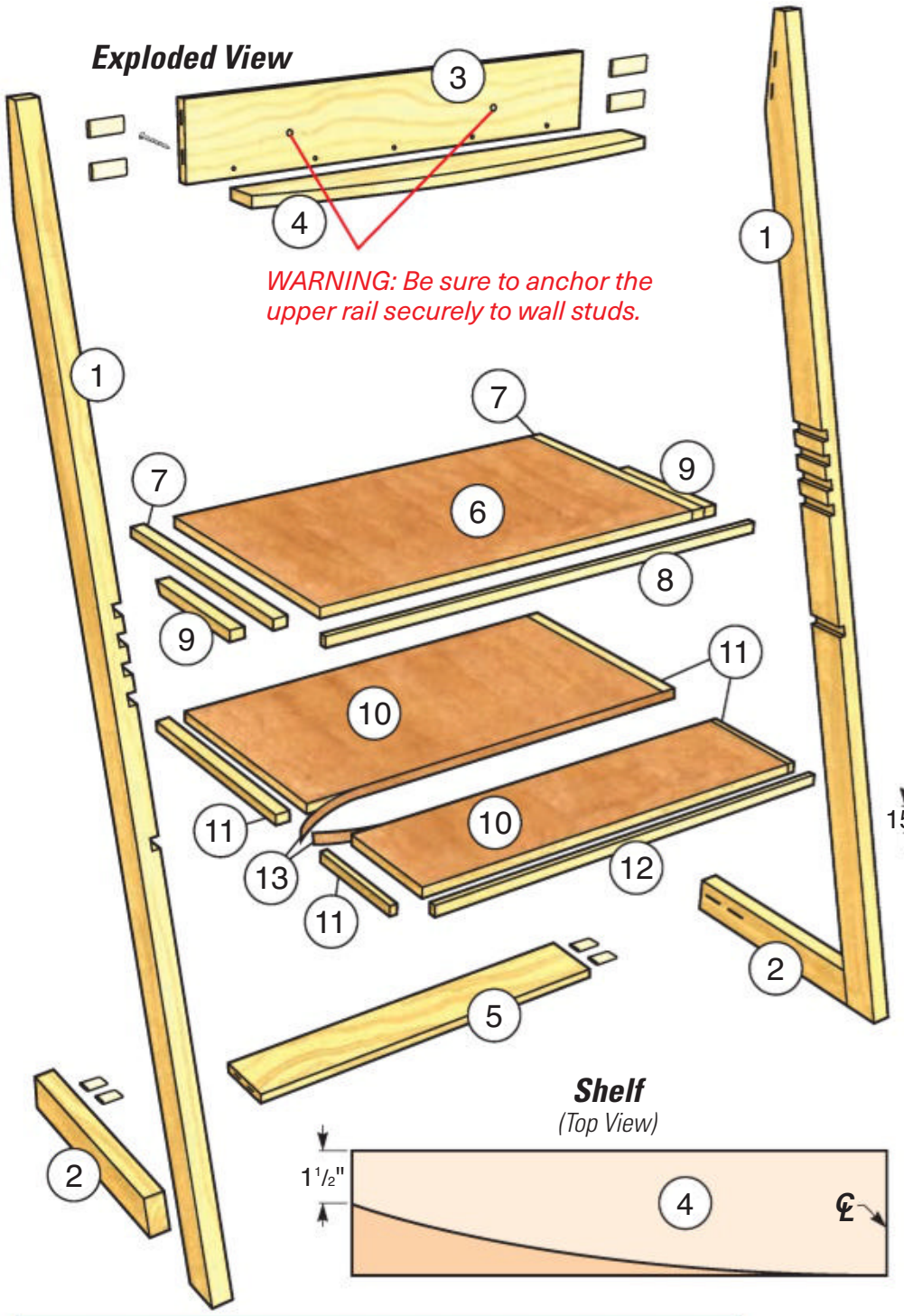
Assembling the Desk Frame

Follow the *Material List* on page 48 to cut the upper rail, shelf and footrest to size. I used a flexible batten to draw the front curve on the shelf. Cut that to shape, too. Sand these parts smooth.

Go ahead and glue the uprights to the supports with their loose tenons in place. When those joints cure, sand the two subassemblies smooth.

Now mark the ends of the upper rail and footrest for a pair of loose-tenon joints. Lay out the corresponding locations for these joints on the uprights and supports. Position these parts so the top edge of the upper back rail is 7/8" down from the top ends of the uprights and the footrest is flush with the back ends of the supports and 1/2" down from their top edges. Mill the eight mortises for these joints — I decided to use the

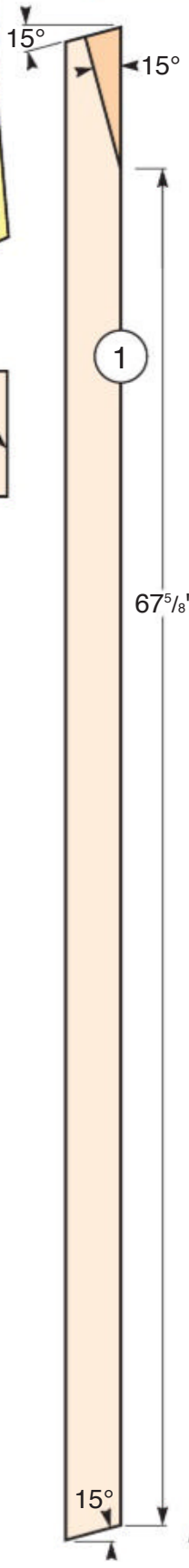
Mill mortises for loose-tenon joints that will attach the front angled ends of the supports to the back edges of the uprights. Festool Dominoes are a sturdy choice, but other options like Rockler's Beadlock tenons could also work.



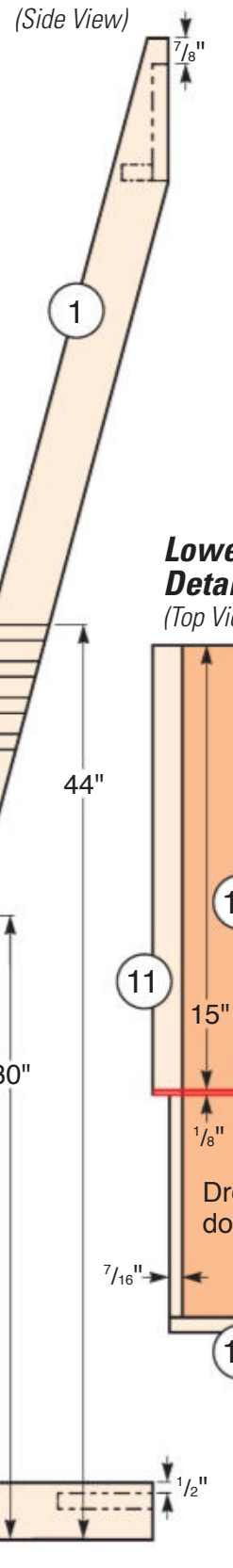
MATERIAL LIST

	T x W x L
1 Uprights (2)	1½" x 2¾" x 75½"*
2 Supports (2)	1½" x 2¾" x 16¾"
3 Upper Rail (1)	3/4" x 6" x 30"
4 Shelf (1)	3/4" x 3½" x 30"
5 Footrest (1)	3/4" x 4½" x 30"
6 Upper Desk Panel (1)	3/4" x 17½" x 29"
7 Upper Side Edging (2)	3/4" x 1" x 17½"
8 Upper Front Edging (1)	1/2" x 3/4" x 33"
9 Upper Desk Panel Stops (2)	3/4" x 1" x 8¾"*
10 Lower Desk Panel (1)	3/4" x 22⅝" x 29"
11 Lower Desk Side Edging (2)	3/4" x 1" x 22⅝"
12 Lower Desk Front Edging (1)	3/4" x 1/2" x 31"
13 Peel-and-Stick Edge Banding*	

** Trim to fit*



The 3/4"-wide shelf dadoes are plowed 1/2" deep.



Desk Hard-to-Find Hardware

Brass-Plated Drop Leaf Hinges (1) #29256 ... $11.99 pr.
Metal Drop Leaf Support (1) #30006 ..... $13.49 pr.
Peel-and-Stick Edge Banding (1) #46502 .... $14.99 ea.
3" #10 Powerhead Screws (1) #53094 ..... $8.99 pk.

To purchase these and other products online, visit www.woodworkersjournal.com/hardware
Or, call 800-610-0883 (code WJ1577).

Glue strips of 1"-wide wood edging to sides of the upper and lower desk panels before gluing their 1/2" front edging into place.

Make two marks on each upright that are perpendicular to the bottom support — one at 30" and one at 44" (left). Use a wedged offcut left over from cutting the top ends of the supports as a reference for stepping off the dadoes with a ruler (top). The author then attached a straight scrap to this offcut and used it again to trace dado cutting lines across each upright (bottom).

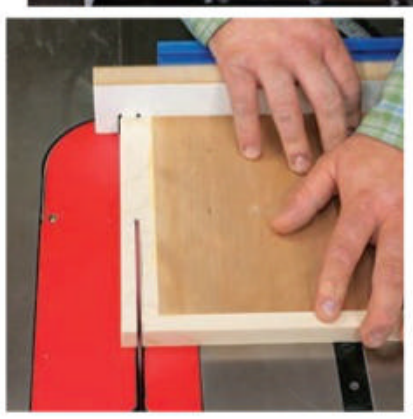
same 10 x 55 mm domino sizes here, too. Next, fasten the upper rail to the back edge of the shelf with screws so the shelf aligns with the rail's bottom edge. Then glue and install loose tenons in all the mortises to bring the upright/supports, upper rail/shelf and footrest together to complete the desk frame.

Making the Two Desk Panels

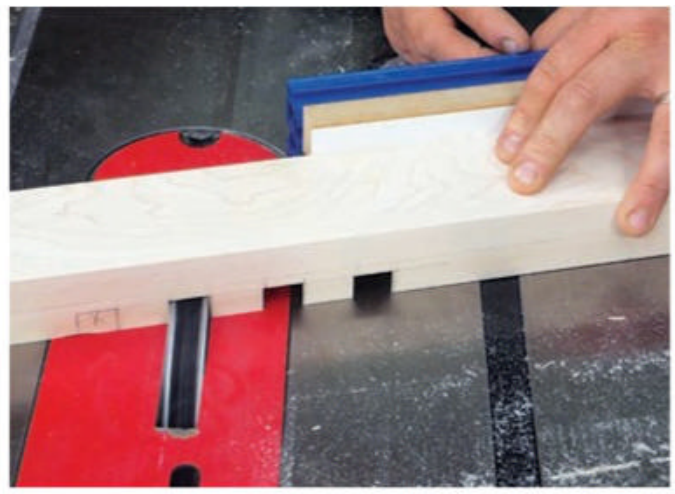
Each of the desk's two panels consist of 3/4" plywood banded with 1"-wide solid-wood edging on the sides and 1/2"-wide edging on the front. Make up these panel blanks, and glue the edging to them so the front edging overlaps the side edging. Sand the panels smooth.

The drop-down front end of the lower desk panel is 7½" wide, so take that panel to your table saw and crosscut the front piece free. Then trim this front panel's side edging from 1" down to 7/16" wide so it will fit between the uprights when it's lowered. I applied peel-and-stick veneer edge banding to hide the panel's exposed plywood edges.

Next, set the desk frame into place against a wall so you can complete the upper desk panel. Notice in the *Exploded View Drawing* (facing page) that a couple of stops still need to be added to the side edging of the upper desk panel. Slide the panel into the highest dadoes, and make up an 18"-long strip of 1"-wide stock for the stops. Bevel cut its ends to 15 degrees. Hold the angled ends in place against the supports to mark where to crosscut each stop to length. Glue these stops to the upper panel's side edging.



Cut the lower desk panel into a 15"-wide back piece and a 7½"-wide drop-down front piece. Then trim the 1"-wide side edging on the front piece to 7/16" (inset) so this panel will clear the desk's uprights.



Mill four 1/2"-deep dadoes into each upright for the upper desk panel. Set these dado widths slightly wider than your plywood thickness for an easy slip fit.

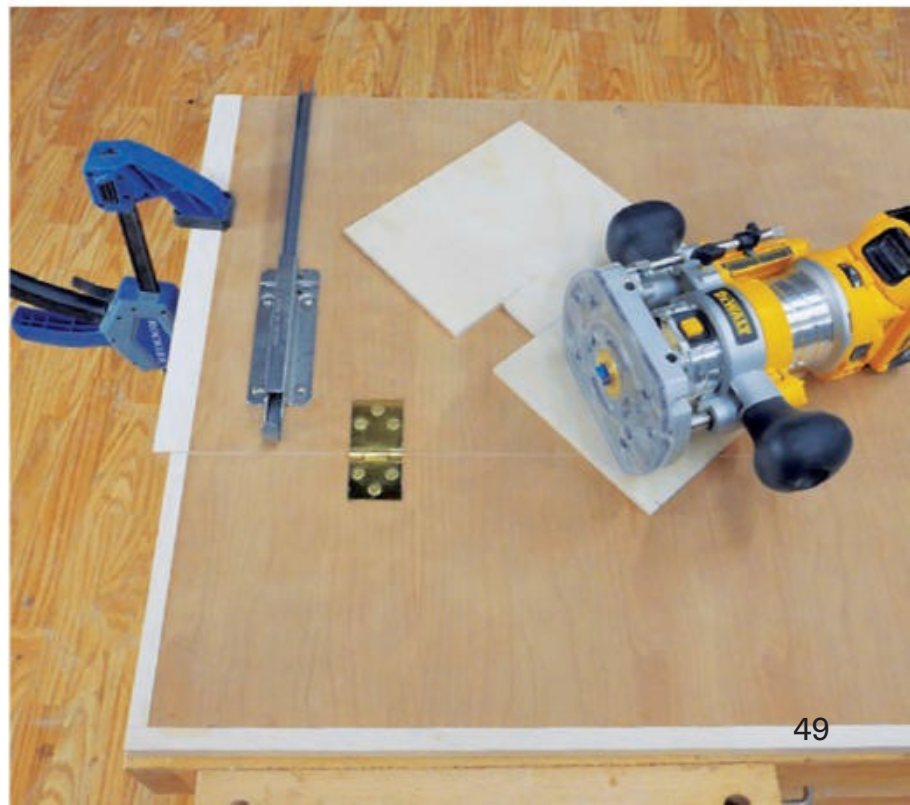
Final Hardware and Installation

There's still some hardware to install on the lower desk panel. I connected its front and back sections with two drop-leaf hinges. A pair of metal drop-leaf supports went on next to hold the front lower panel upright during use.

Mark and cut a pair of bevel-ended stops to length for the upper desk panel's outer edges.

Glue the lower desk panel into its dadoes, then topcoat the desk parts with a durable finish before fastening the upper rail to two wall studs using heavy-duty screws. Slide the upper desk panel into place, and you're all done!

Nick Brady is a Rockler project builder.



To mortise for the lower desk panel's drop-leaf hinges, the author used a plywood template to guide his router, equipped with a straight bit and guide collar. He installed the hinges with their knuckles facing outward, then a pair of metal drop-leaf supports.

New

GETTING STARTED

Green Lumber: What Can I Do With It?

By WJ Staff

Lumber that has just been harvested and is still saturated with water in its cells is called "green."

This newly harvested chunk of red elm, above, was processed and then immediately turned into a bowl (inset). The bowl has since become oval-shaped as it has cured and distorted naturally.

Wood is a tremendously versatile material. For thousands of years, people have made shoes, tools and buckets from wood, dinnerware, weapons, ships, furniture and jewelry ... and the list goes on. The scope of its usefulness is really amazing.

This wide variety of applications cannot only require different wood species but also even wood at various stages of seasoning. "Seasoning" simply means the movement of water out of a piece of harvested lumber. Freshly harvested wood that has a high moisture content is called "green." This term has nothing to do with the wood's color. Fully seasoned wood is said to be at a state of equilibrium, but even dried wood with a finish applied to it remains hygroscopic, which means it can absorb moisture from the air.

Over time, woodworkers have developed techniques to both minimize the effect of wood movement and take advantage of seasoning or a lack of it. Frame-and-panel construction, for example, was specifically created to accommodate wood's seasonal cross-grain expansion and contraction.

Green Can Be Good

Once wood is fully seasoned or cured, it looses flexibility and tends to hold its shape stubbornly. We depend on this in woodworking. The last thing we want is a desktop or table that sways or easily bends under a load. Unseasoned green wood will almost always lead to disaster when it's used for building fine furniture. As it dries, the wood shrinks, which can cause joints to open. The stock can also distort in a number of ways ... none of them good.

But green wood has its advantages in some cases. Wood with a high moisture

Green wood is much easier to carve into spoons like these with muscle power than making them from harder, well-seasoned stock.

This thick bowl blank was rough-turned from a green sycamore log, packed in a bag with wet shavings and set aside for a year. That enabled it to dry slowly and avoid checking. When it's turned to its final shape, the bowl will remain round (mostly).

Riving spindle blanks from green wood (above) prevents distortion as the spindles dry. Lumber with 20 to 30 percent moisture content steam bends well for making curved projects such as these coat hooks (below).

content is much easier to cut and shape than very dry wood. This is a big benefit when you are working with hand tools, as the softer tissue structure requires less muscle power to manipulate. So old-fashioned tasks like making wooden shoes or utensils were always done with green wood.

Uses for Green Wood

Green wood turns very easily, speeding the turning process up considerably. Woodturners take advantage of that fact when turning bowls and even spindles, if the blanks were riven from a log segment.

While the turner is working with green wood, they must decide whether they will be okay with the changes in a bowl's appearance as it dries and becomes more oval-shaped. If not, turners will "rough out" the bowl, set it aside to allow it to come to equilibrium and then complete the turning process.

Stool and chair builders will sometimes take advantage of green wood by mounting legs that are fully seasoned into sockets on chair or stool seat blanks made of green wood. As the wood of the seat shrinks, the leg sockets become tighter and more secure. (This technique, of course, can go considerably wrong if the green seat board happens to split as it dries.)

Ancient ship builders (and even some modern ones) used green lumber to make their boats, because it could be bent to form hulls and was more easily shaped by muscle power. Wood carvers and craftspeople who make treenware (wooden vessels or products used for food preparation or serving) also rely on green wood. So did bodgers (traditional forest-based woodturners) who turned table and chair legs from unseasoned wood.

Timber framers often choose green lumber, too. Since no kiln drying is involved, large planks and timbers are less expensive. Rustic furniture is another area where green lumber often makes good sense. The thick stock often used in this type of furniture does not distort easily as it seasons, and the joinery is usually not exacting. And just as green lumber is great for hand carving, it's also a fine choice for power carving — a specialty that's becoming more popular these days.

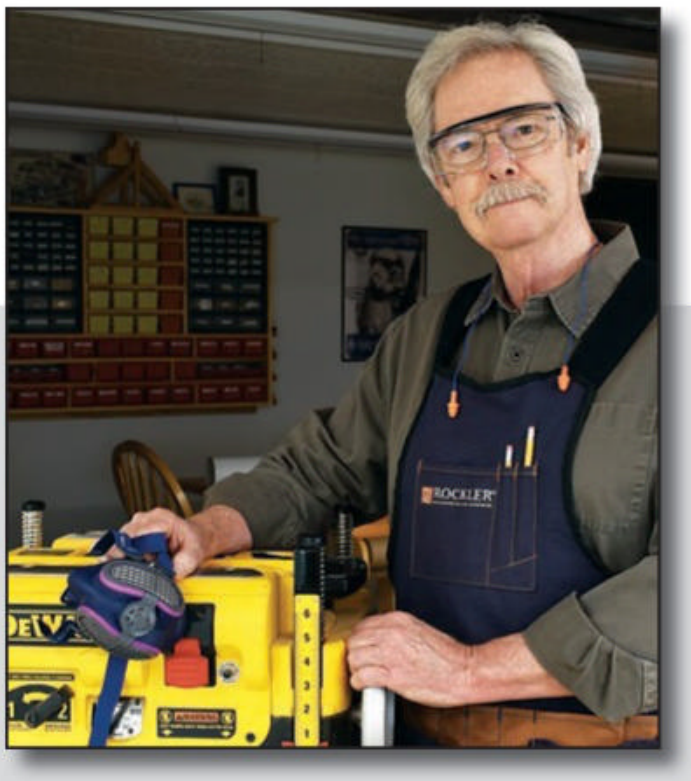
Throwing a Curve

Steam bending wood has been around a long time, thanks to the flexibility of green wood. It's an ideal technique for making skis, sled runners, rockers, coat hooks and much more. To bend wood with steam or heat, your stock should never be kiln dried. Unseasoned wood will bend most reliably if its moisture content is 20 percent or even more!

These days, most woodworking is done with kiln-dried lumber, and with good reason. It is the product that best suits our "flat-and-straight" woodworking tasks. But there are times when green lumber is actually still the better choice.

PPE: Your First Line of Defense

By A.J. Hamler



Knowing what gear to wear and when to put it on can make your shop time safer and more pleasant.

No matter how safely you work in your shop, and no matter what precautions you use with tools and machines, working with wood presents potential dangers to your body. Flying chips and splinters can blind you. Loud tool noise can damage hearing. Even dust so fine that it's invisible can seriously compromise your lungs.

At worst, injuries incurred due to the lack of personal protection can last the rest of your lifetime. Even if you avoid serious injury, the constant bombardment of chips, noise, and dust makes woodworking more difficult, reduces efficiency and can generally take the joy out of the process.

But simply by adding basic personal protective equipment (PPE) to your shop routine every time you work, you can minimize and even prevent bodily harm from occurring.

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Due to COVID-19, we were all faced with the need for personal protective equipment in 2020, so much so that you now might even know its industry acronym: PPE.

It's only a short jump to extend that level of protection awareness to our workshops to include our eyes, ears and the rest of our bodies. We already use safety devices and practices for our tools, but think of PPE as the first line of defense when it comes to woodworking safety.

Eye Protection

Eye injury can mean permanent vision loss, but even lesser things getting into our eyes at the wrong time can lead to accidents and injuries of other kinds.

Unfortunately, regular prescription glasses fall into the better-than-nothing category. Nearly all lenses are high-strength plastic these days. They can deflect small bits of debris but not high-impact heavier debris. Plus, eyeglasses typically have smaller lenses with no barrier on the sides, top or bottom.

True safety eyewear has all of these and meets criteria set by the American National Standards Institute. Eyewear meeting these standards is identified as such: look for "ANSI" or "Z87" (the specific standard number) engraved or molded into the plastic.

For vision correction, you can get safety glasses made to your prescription at most opticians. If your vision correction is for reading only, some safety glasses include bifocal-style magnifiers in various strengths. Perhaps the easiest solution is safety glasses designed to be worn right over personal glasses.

Well-made safety glasses fit closer to your face than regular eyewear, with the frames typically touching the brow at the top and your face around the lenses. Along with a clear side panel, this helps keep debris from going inside the frames. Goggles go one better and form a full seal around the edges.

From there, eye protection gets bigger. Face shields cover and protect your entire face and range from a simple tilt-up curved shield that's attached to a headband to full-face masks that hug your face all the way around.

The type you choose depends on the task and personal preferences. For general shop work, safety glasses or goggles are usually fine. For tasks that send lots of chips flying, like routing, and pretty much all lathe work, consider full-face protection.

When buying safety eyewear suitable for woodworking, look for the "Z87" rating notice right on the glasses, indicating that they meet ANSI impact rating standards.

Regular eyeglasses offer poor protection, but if you still need vision correction, keep your glasses on and look for approved safety glasses or goggles made to fit over your own.

Face shields, like this one from 3M, are ANSI-rated and provide protection for your entire face. They tilt up and out of the way as needed.

Offering the best of both worlds, these ReadyMax SoundShield safety glasses with integral earplugs protect your vision and hearing at the same time.

Hearing Protection

The Occupational Safety and Health Administration (OSHA) recommends that hearing be subjected to no more than a maximum of 90 decibels over an eight-hour work shift. While you're not likely to spend that long under constant 90 dB noise, let's use that as our baseline.

Quality hearing protection is designed to lower ambient noise levels to a safe range. These earplugs have a noise-reduction rating of 28 dB.

Most woodworking machines are louder than that. My planer is just over 100 dB, for example (plus more when actually cutting). According to OSHA, the louder the noise, the less exposure time it takes to be damaging. My planer's extra 10 dB cuts exposure time to only two hours.

Sound frequency also factors in, with higher frequencies being more damaging. Shop tools with induction motors, such as jointers, are lower frequency. Tools with universal motors, like routers, almost literally scream with high frequency.

The key is to get the effective decibels down to that OSHA target of 90 dB or lower using earmuffs or plugs. My 100 dB planer is way over the limit. But hearing protection with a noise-reduction rating of 25 dB brings it down to 75 dB. Most hearing protection falls in the noise reduction range of 25 to 30 dB.

Earmuffs are easy to wear and adjustable. Some models have electronic features for playing music or hearing conversation in noisy areas. On the other hand, they're heavy, uncomfortable over long periods and may not work well with safety glasses or other eye protection.

Earplugs take a few moments to insert properly, but once in place they're light and unobtrusive. They tend to offer better sound blocking since they literally close the ear canal, not just cover it like earmuffs do. They don't interfere with eye protection, either. However, plugs must be correctly fitted or they're ineffective. They come as separate plugs or are connected by a yoke or cord.

Breathing Protection

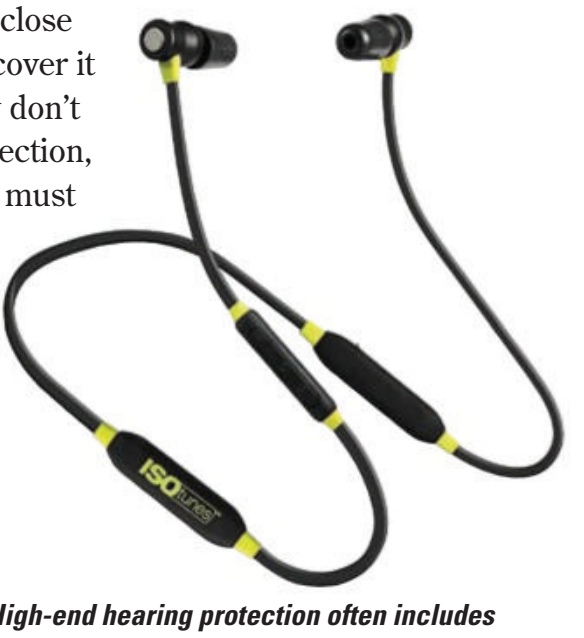
The first step in protecting your lungs is adequate dust collection at the dust source. A shop vacuum connected directly to a tool, or using a whole shop system, grabs dust before it hits the air to make a big difference.

However, those systems don't capture all the extremely fine dust permeating the air. So you need a second level of wearable protection provided by a mask/respirator that filters small particles but also seals against your face to prevent dust from entering around the edges.

Those cheap disposable paper masks with one elastic band are nearly worthless, though. They're ridiculously thin, and the two-point attachment of the single elastic band doesn't ensure a good seal. Instead, get a mask with four attachment points and two straps. These pull firmly

Earmuffs, like these from Vibe 29, are among the easiest style to use. Just slip them on, adjust as needed and you're ready to go.

These soft memory foam 3M earplugs are disposable but offer few frills. Still, they're rated to reduce noise by a solid 29 dB, and one size fits all.



High-end hearing protection often includes electronic perks. These ISOtunes Xtra noise-isolating Bluetooth earbuds can stream your favorite music, while a built-in noise-canceling microphone makes conversation easier to hear.

Even with a dust collection bag or vacuum hose attached to a sander, plenty of fine airborne dust can still reach your lungs unless you wear well-fitting breathing protection like this RZ M2 Mesh Mask.

against your face around their entire circumference.

Look for a mask that blocks the maximum amount of particles, as rated by the National Institute for Occupational Safety and Health (NIOSH). You'll typically find NIOSH ratings of 95 and 100, which block 95 and 99.97 percent of dust particles down to 0.3 microns. Either works well for wood dust. There's also a 99 rating — 99 percent effective — that's less common.

These masks are so effective because the filter medium is electrostatically charged, drawing dust like a magnet. However, that charge is compromised if there's oil content in the air, either from machinery or solvents in finishing products. That's why NIOSH ratings also include a letter designation: "N" for non oil-resistant, "R" for oil-resistant, and "P" for oilproof.

So an "N95" mask blocks 95 percent of the dust but isn't oil-resistant, while a "P100" stops nearly all particles and isn't affected by airborne oil mist. Any of these ratings are good for dust, but oilproof are best for all-around workshop use.

Up to now we've been talking about disposable paper masks, but the same descriptions cover masks with replaceable filter media. These are made of fabric, silicone or neoprene — or a combination — and seal well against your face. There are also higher-end masks that have exhaust valves for easier breathing and help prevent eyewear from fogging. And although expensive, there are even respirators that fit over your entire head, with electrically powered fans that draw air through a filter medium for the highest

Continues on page 56 ...

For heavy-duty lung protection from dust, mist or vapor, consider a respirator that accepts different replaceable canisters or filter media rated for specific tasks.

Check your respirator's filter media from time to time, and clean it as necessary. When it's finally too contaminated, dispose of the old media and replace with new filters.

level of protection.

All reusable masks have replaceable filters, but some — especially heavy-duty canister-style respirators — offer filters suited for specific uses. A standard filter or cartridge rated at P100 is perfect for general woodworking, but filters are also available for various types of vapors, gases and mists. If you do extensive spray finishing or work with chemicals, a respirator with activated carbon filters offers excellent protection.

Woodworkers with facial hair, take note: a good mask seal will be compromised to some degree by beards. It's difficult to quantify just how much, considering the myriad shapes, styles and thicknesses of beards, but there will likely be some amount of air movement where the seal meets facial hair.

Minimize this by smoothing your beard down before donning a mask of any type for a closer fit. Likewise, adjusting the mask a bit tighter also helps. If budget allows, consider a whole-head respirator mentioned above.

Still, with a filter efficiency approaching 100 percent on a P100 mask, unless you're ZZ Top, the likelihood of a mask being seriously compromised is fairly minimal.

Glove Options

Work gloves are great for protecting against splinters or abrasions when organizing lumber racks or moving heavy machinery, but wearing them all the time is actually a bad idea. Gloves can easily catch in anything spinning, drawing your hand forcibly into the moving work or tooling. This is especially likely on the lathe, but gloves can also be pulled into a disc sander or wrapped around a sanding spindle or drill bit. Glove tips can also snag on saw blade teeth and be drawn into the table, your fingers along with them. So when using power tools, take off your gloves.

For finishing, thin latex gloves are perfect to keep stains and varnishes off your hands. They're thin and skin-tight, so tactility is mostly unaffected. Inexpensive and impervious to most liquids, just discard them after use.

Cut-resistant gloves are great for handwork, especially carving and chiseling. They're not bulletproof but will stop most errant cuts from sharp blades. They're

For a basic barrier against stains and finishes, it's hard to beat latex or nitrile gloves. They're cheap, easy to wear, come dozens to a box and are disposable.

While you'd never hold a knife or chisel like this in actual use, these cut-resistant gloves show just how tough they are. They're perfect for chiseling and carving tasks.

Petite Protection is also Available

Few things are more enjoyable and rewarding than woodworking with a child or grandchild in the shop. Their little eyes and ears are just as susceptible to damage as yours are, but the safety glasses or earplugs you wear are probably too big. Fortunately, smaller sizes of PPE are readily available online and in some larger home centers. Geared toward smaller heads and ear canals, they fit children easily and guarantee the same protections as the larger counterparts you wear. Best of all, these kid-sized protectors help you teach young woodworkers from an early age the importance of shop safety.

thick, however, so you may prefer wearing just one glove on the hand most likely to be cut — it's the one holding your workpiece.

Protective Clothing

Woodworking is messy, so most of us wear "shop clothes" of some sort. But the extra layer offered by an apron provides multiple benefits. Obviously, an apron keeps wood chips, stains and finishes off our clothes, but a good apron will also have enough pockets to keep small tools, pencils or fasteners close at hand.

A specialized woodturner's apron goes a step farther, sporting a high, wide bib front that wraps around your neck to prevent what seems like pounds of wood chips from going down inside.

Cloth or disposable coveralls give full-body coverage. Consider them for extensive spray finishing or milling tasks, transporting furniture or even offering extra warmth in a cold shop.

Although not typically needed for most woodworking, steel-toed boots offer protection from falling items. Pull on a pair when you're working with heavy slabs, loading and unloading large amounts of lumber or moving heavy machinery.

Finally, when it comes to clothing, no part of your clothes should be so loose as to dangle, especially near moving machinery. Loose shirt cuffs and even shirttails are particularly prone to getting caught and wrapping around anything spinning or oscillating — lathe work, spindle or disc sanding, cutting with a jigsaw and so forth. Be sure to button up and tuck in for safety.

Cascades of flying chips seem to inevitably end up down your shirt when working at the lathe. If you hate this nuisance, consider wearing a specialized woodturner's apron, like this one from Rockler.

A.J. Hamler writes frequently for Woodworker's Journal.

New

BUYING LUMBER GREEN LUMBER

Going "Green" and Where to Find It

By Rob Johnstone

Likely sources for unseasoned lumber.

As "The Rime of the Ancient Mariner" bemoaned, "Water, water everywhere and not a drop to drink." In the same manner, if a woodworker needs some green lumber for a specific job, we can see it all around us ... it literally grows on trees. But getting a piece that suits our needs can be frustrating. That said, finding sources isn't as hard as it might seem; it just takes a bit of imagination.

Bowl Blanks

Turning green lumber is perhaps the number one use for unseasoned, wet wood. Depending on where you live, there are trees all around you. When a neighbor drops a tree, often they will be more than willing to let you grab a chunk or two, especially if you bring your own chainsaw. You'll need to further refine the wood with a froe, band saw or chainsaw to get a workable blank out of the piece, but that's another story.

Many bowl blanks you purchase from woodworking suppliers like Rockler are green lumber, but not all of them. If the blanks are coated with wax, the chances are high that they are green wood.

Local Mills or Online

I did a quick Internet search of "sawmills near me" and found three of them within 50 miles. One

is a favorite of mine, and I know of two others that did not even come up in the search. My point here is that you can probably find a local sawmill reasonably close to you. They will be happy to sell you green lumber, and they probably have dried lumber for sale as well.

The selection will probably be limited, compared to a traditional lumberyard. But that can lead to some serendipitous choices. My first (and at this time only) use of Tennessee coffee tree lumber occurred because it was basically my only option. It turned out to be a great wood to use — beautiful, strong and finished well.

When buying from a small local mill, the operator may be happy to help you, or you may be a bit annoying to him. You may need to be diplomatic and open-minded. After all, this ain't a big box store.

Another way to get green lumber is through online marketplaces like Craigslist. That poses a bit more risk than a sawmill, as you will really not be able to truly know what you're getting. A moisture meter would be a great tool to have when you buy lumber with a sketchy origin. So will a handheld metal detector or nail finder.

Milling Methods

I own a 16" band saw and a chainsaw. When I get access to newly downed trees in my yard or around the neighborhood, I will often make my own blanks or boards. I secure a section of trunk in a jig that keeps it from rotating as I slice a couple of boards from it. I can then take it off of the jig and, with the flat face of the wood on the saw table, use the fence to make more cuts. It is slow and dusty work, but I find it enjoyable, and I can make my own choices regarding grain and figure orientation.

There are more ways to find green lumber, but I hope these tactics can at least help get your search started.

Rob Johnstone is publisher of Woodworker's Journal.

Laguna PX|12 Benchtop Planer

By WJ Staff

Laguna's new benchtop planer is feature rich, sporting a QuadTech I indexed cutterhead.

Benchtop planers have proven to be effective and versatile machines in professional and home woodworking shops for decades. When comparing the world of benchtop power tools to their more substantial stationary cousins, these portable planers have perhaps the least drop-off in performance among the group, and they're affordably priced. Now, with the introduction of this all-new model from Laguna, that performance gap has narrowed once again.

What's New Here

The most significant advancement in the PX|12 is its QuadTec I cutterhead technology. It uses the same four-sided carbide insert cutters as other helical-style cutterheads but in a completely different and very clever manner.

Rather than being configured in a spiral pattern, its

Laguna's QuadTec I cutterhead technology is a game-changer in insert tooling for the home shop. The new cutterhead offers quiet, smooth cutting performance, similar to helical-style cutterheads but at a lower cost.

26 cutters are strategically spaced around the 1⅞"-diameter cutterhead in four straight channels that extend the length of the cylinder.

Carbide-insert cutterheads deliver smoother, quieter cuts than conventional straight-knife cutterheads. Laguna's innovative straight-channel QuadTech I design also makes the cutterheads easier to manufacture, when compared to the more complex geometry of helical options. This translates to reduced cost without compromising cutting performance.

Another advantage to cutterheads like this is that each carbide insert has four razor-sharp edges. When an edge dulls or chips, it's quick and easy to loosen and rotate the insert to a fresh edge. The cutterhead channels index these inserts automatically, so no special jig is required to set them to the proper height. And carbide inserts can be replaced economically when all four edges eventually dull.

More Must-have Features

The PXl12 is powered by a 2hp (15 amp) universal motor that spins the cutterhead at 10,000 rpm. The machine's feed speed is 26 feet per minute (FPM). To help eliminate snipe, Laguna has located the planer's infeed and outfeed rollers close to the cutterhead, and it has both a carriage lock and two steel infeed and outfeed extension tables that fold up.

The PXl12's maximum depth of cut is a hefty 3/32", which you control using a top crank and a thin red hairline cursor mounted over a bright depth scale. There's also a turret depth stop for planing material up to 12½" wide to accurate preset thicknesses of 5/32", 1/4", 1/2" and 3/4".

Dust and chip collection is a must for all planers, and Laguna outfits the PXl12 with a 4"-diameter dust port that steps down to 2½".

Laguna's 65 lb PXl12 Benchtop Planer sells for $699 at *rockler.com*.

Laguna PXl12 Planer by the Numbers:

Street Price:	$699 (*rockler.com*)
Motor:	110-volt, 2hp Universal
Circuit Requirement:	20 Amp
Min./Max. Stock Thickness:	5/32" to 6"
Max. Stock Width:	12½"
Bed Size:	12½" x 10¼"
Feed Speed:	26 FPM
Dust Port:	4" to 2½" Dia.
Cutterhead Dia., Speed:	1⅞", 10,000 rpm
Cutterhead Inserts:	26 Four-sided Carbide
Weight:	65 lbs

The PX|12 has a manual depth-of-cut adjustment crank. Thickness changes are measured on a bright readout scale using a thin red hairline cursor.

WHAT'S IN STORE

Quartered Bench Cookie, Handier Tape Option

Contact Information

Bosch
877-267-2499
boschtools.com

Laguna Tools
800-234-1976
lagunatools.com

Rockler
800-279-4441
rockler.com

www.woodworkersjournal.com
MORE ON THE WEB

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

Expanding on the popularity of its Bench Cookie® product line, **Rockler** now offers a jumbo 7⅛"-diameter *Bench Cookie Connect*. It's so named because this oversized Cookie unsnaps into matching quadrants that can be assembled in a variety of configurations to better support differently shaped workpieces. The quadrants have soft, high-friction rubber pads on both faces that help them remain stationary during sanding, routing, sawing and other tasks. Their 1" overall thickness matches the whole Bench Cookie family including the Bench Cookie Plus Work Gripper, so they can be used together. Each quadrant also has a threaded insert for mounting optional accessories, like Risers and Sawhorse Clips. Rockler's four-piece Bench Cookie Connect (item 59365) sells for $17.99.

Rockler Bench Cookie Connect

Bosch's new *GST18V-47N Barrel-Grip Jig Saw* includes many features found on other pro quality saws but at a more affordable price. This 4 lb cordless tool is equipped with a variable-speed motor for cutting materials at between 550 and 2,700 strokes per minute. Its smaller barrel circumference and extended soft-grip areas bring hands closer to the work to improve control and enhance user comfort. The trigger locks on for continuous sawing, but an auto-braking mechanism stops the blade instantly when the trigger is slid to Off. Four orbital settings adjust the saw's 1" stroke length for cleaner cuts or faster cutting. Its tool-free blade-change system accepts T-shank blades, and a rear roller guide, plus anti-splinter insert, improve cutting accuracy while minimizing tearout. Bosch provides an LED light and built-in blower to help optimize viewing the cutting line. This saw requires a Bosch CORE 18-volt lithium-ion battery and charger for operation, which are not included. Bosch's GST18V-47N Barrel-Grip Jig Saw is priced at $149.

Bosch GST18V-47N Barrel-Grip Jig Saw

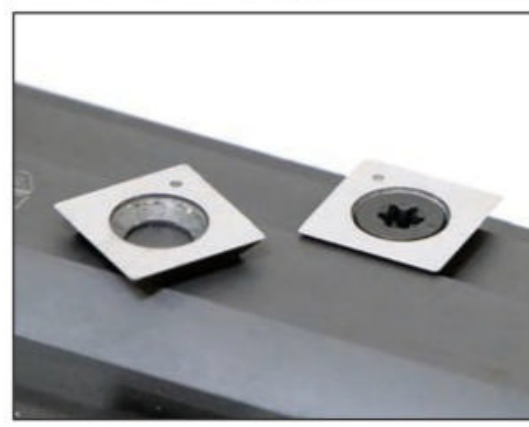
Rockler 2-Sided Stick-It Dots

If you attach router templates with double-sided carpet tape but would prefer an easier-to-use alternative, **Rockler's** *2-Sided Stick-It Dots* (item 61868; $7.99) offer a helpful solution. These double-sided, 1/2"-diameter adhesive wafers will adhere rigid templates to workpieces without the need for a scissors; just peel the dots off the sheet using their easy-to-grab flaps and stick them down. Pressure-sensitive adhesive provides a strong hold, yet it comes off easily when necessary. Each package of Stick-It Dots includes 288 discs.

Protect your sinuses and lungs from common woodworking dusts and other airborne contaminants with a *Complete Air Stealth Respirator Kit* from **Trend**. It includes a half-mask respirator with a downward-facing exhalation valve to eliminate fogging. Included Stealth N100 and P100 filters protect the user against airborne particles, oil aerosols, mists, welds and fumes down to 0.3 microns with better than 99-percent efficiency. An N99 multi-shift disposable mask also comes standard. Both masks and filters fit in a plastic carry case. The Trend Complete Air Stealth Respirator Kit (item 67387) is priced at $79.99.

Recently, **Laguna Tools** launched a new line of jointers that include this *JX|6 QuadTech I*, 1½hp (110-volt) machine. The tables of its 6" x 60" bed adjust up and down on a parallelogram system so they remain the same distance from the cutterhead throughout their travel. Four straight channels in the QuadTech I cutterhead accept 12 four-sided carbide inserts that can be rotated easily to fresh edges when they chip or dull. Other standard features include a 29" cast-iron fence, pull-out infeed roller and an oversized scale for setting cutting depth. Built-in casters make the machine movable, and its base has a convenient toe-kick so the operator can stand closer to the front of the jointer. An elongated knee-height stop bar improves safety in the event of an emergency. Laguna's JX|6 QuadTech I Jointer (item 67547) sells for $1,799.

Laguna JX|6 QuadTec I Jointer



Trend Complete Air Stealth Respirator Kit

FINISHING CORNER

How to Stop a New Finish From Smelling?

By Tim Inman and WJ Staff

Patience is a virtue when waiting out the unpleasant odor of curing polyurethane.

Tim Inman is a professional woodworker and finishing expert and the author of *The Art of Classical Furniture Finishing.*

Q I recently built a breadbox for my wife and finished it with polyurethane. The inside smells like solvents. Obviously, we can't put bread in it until this varnish smell goes away. I have tried baking soda as well as letting it stand open for days. Alas, it still has a strong odor that permeates the box's interior. Is there anything I can do to save my project? Help!

A Time is your friend. Open the box so it can get as much fresh air circulation as possible, and let nature take its course. If you can, I'd put it outside in the shade and let the wind blow through it. If outdoors isn't an option, put a blowing fan on it. I would think that in a couple of weeks with lots of fresh air circulation, you'll be back in the happy place. Next time, you might consider leaving the interior unfinished. Many old cabinets I restore have bread drawers or boxes. They are almost never finished on the interior surfaces.

— Tim Inman

Sometimes the only way to fix surface flaws in a turned project is to stop the lathe, switch to a coarser grit of sandpaper than you're using and apply some elbow grease while the lathe is turned off.

Another solution you could try, if time just isn't on your side, is to re-coat the interior of your breadbox with shellac. One of shellac's virtues is that it makes an excellent odor sealer. It also dries about as fast as you can brush or spray it on.

— Chris Marshall

Q I can't seem to remove the sanding scratches and tooling flaws on the lathe as I switch to progressively finer-grit paper. How I can create a glass-smooth surface?

A Sand on the lathe as you are doing until you get to the finest grit size you prefer. Then, stop the lathe and go backwards to one grit size coarser than you finished with to hand-sand those pesky spots. Be sure to sand in the direction of the grain and with the lathe stopped. If that doesn't work to remove the flaw, go a grit coarser still. Work at it until the flaw is gone, then step back up through finer grits again. Why? Well, a flaw that won't sand out at 120-grit won't go away at 180-grit either.

— Tim Inman

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October 2021

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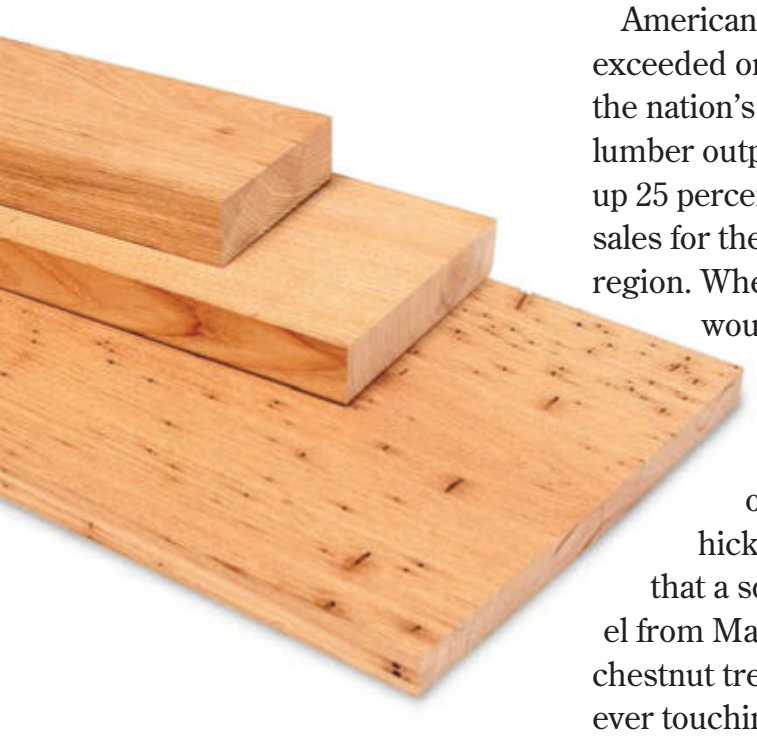
HARDWORKING WOODS

American Chestnut: *Castanea dentata*

By WJ Staff

A devastating blight more than a century ago might not doom this once majestic species to oblivion after all.



Good quality clear and wormy chestnut lumber (left) is still occasionally available, as well as much larger slabs such as the one shown above.

When Europeans arrived in North America, 25 percent of all trees in the Eastern forests were American chestnut. They commonly stood over 100 feet tall and as much as seven feet in diameter. Chestnut was truly the "Eastern Giant."

American chestnut never exceeded one percent of the nation's total hardwood lumber output, but it made up 25 percent of lumber sales for the Appalachian region. When cut, the stump would sprout new stems that grew so fast they would quickly overtop oak and hickory. It was said that a squirrel could travel from Maine to Georgia on chestnut tree limbs without ever touching the ground.

Then tragedy struck in 1904: a blight was noticed around the area of the Bronx Zoo, introduced by ornamental Chinese chestnut trees planted at the zoo. American chestnut had no resistance to the blight, and it spread steadily. By 1950, 3.5 billion chestnut trees stood dead in the eastern United States.

The durability of American chestnut allowed for the continued harvest of the dead trees 20 years after their demise. Scattered living American chestnut trees remain on the Pacific coast and other areas where the blight has not yet invaded, but it is gone from its native range.

Hope for the Future

There is still hope. This blight has only killed the aboveground growth of American chestnut. Stumps and root stocks of trees infected over 100 years ago still sprout, grow to 6" to 14" in diameter, and die back.

The persistence of this rootstock is allowing scientists to intensively study ways to breed blight resistance into the tree. Thanks to the dedicated work of The American Chestnut Foundation (*www.acf.org*), 50 years or so from now we may again have some mature stands of American chestnut trees growing in the once-blighted regions of the East. For nearly 40 years, they have overseen a breeding program to develop a blight-resistant strain and now harvest nuts they believe will produce blight-resistant tree stock.

Shop Scorecard

Uses: Durability and high resistance to rot and decay make chestnut ideal for split-rail fencing, posts and poles, siding and shingles. It also is entirely suitable for use in fine furniture.

Hardness: Similar density and hardness to red oak

Area of Origin: Formerly stretching from Maine to central Mississippi and as far west as Indiana

Workability: Splits, saws and routs without issue and works easily with hand tools

Finishing: Readily accepts common topcoats without special finishing considerations

Cost: Expensive, given limited availability relative to other abundant and healthy native hardwoods

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