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Cover photo: Ralph Lee Anderson

Contributors

This issue marks **Joe Hurst-Wajszczuk's** (Get a Grip!, page 32 and Router Table Basics, page 36) 12th-year at Woodcraft, and the 25-year mark writing and editing all aspects of DIY. After earning his first editorial stripes at *American Woodworker*, Joe headed to NYC where he worked with the gang at *This Old House*, and once enjoyed holiday margaritas with Martha Stewart. Prior to working at Woodcraft, he wrote *Furniture You can Build* for Taunton Press. Now living in Birmingham, AL with his wife, Kristine, Joe splits his free time between chasing rust in his workshop and baking the perfect boule. Follow his latest adventures on Instagram @sawdust_sandwich.

Spike Carlsen has written 5 books on woodworking. His latest, *Building Unique and Useful Kids' Furniture* features the inspiration for the Child's Rocker on page 49. Spike is the former Executive Editor of *The Family Handyman* magazine, and has written for many other woodworking and DIY magazines. He resides in Stillwater, Minnesota where he continues to produce books, sawdust, and memories with his 8 grandkids.

West Virginia woodworker **Bill Sands** retired from GE Research & Development in 1998 and expanded a latent interest in woodworking. He is a regular contributor to *Woodcraft Magazine*, having built several projects over the years. See page 42 for his latest creation. When not in the shop, Bill enjoys photographing his outdoor adventures, all facets of BBQ cooking, and sharing good ale with friends.

Motivated by the lack of quality instruction on YouTube a few years ago, woodturner **Carl Jacobson** began creating his own videos to fill the void. Today he has over 200,000 subscribers and travels the country with his wife, Robin, in their mobile shop. But before that, Carl grew up woodworking alongside his grandfather. "Some of my fondest memories are working with my grandfather in his wood shop," Carl says, "Being able to share our passion for woodworking, ties it all together." See Carl's turned hybrid box on p. 55.

Family field trips to museums and historical displays are favorite activities for **Willie Sandry**, his wife, and their twin sons. "This is especially true when our trips involve antique furniture, or the Arts and Crafts movement," Willie explains. "I really enjoy making Arts and Crafts style furniture, whether it's building a reproduction of an antique piece, or reinventing a design for improved function. Willie's serving tray (p. 26) is a good example. Willie lives and works in Camas, Washington. ■

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What do you love about woodworking?

Someone asked me recently what I love about woodworking. I admit that I had to stop and think about it. There's a lot. For one thing, this craft offers an escape from the hypnotism of my smartphone, which provides no real satisfaction in its shimmery glow. I love the focused, productive pursuit of a task that demands concentration in an era where multitasking is the demand of the day. For me, working wood is contemplative and meditative, and I savor the solitude.

Woodworking also sets before me worthy goals that I can reach. I like problem-solving and learning new skills. There's a gratifying sense of accomplishment in taking a project from start to finish, and it's really no small wonder to transform rough lumber into a piece of furniture. My hands love the work—even small things like the feel of a plane as it traverses an edge, leaving behind an aromatic wake of wispy shavings. Working wood gives me a sense of confidence and control. (And it sure is a lot more fun than responding to e-mails.)

Having said all that, I guess the one thing I treasure most about woodworking is making gifts for those I love. There's nothing quite like watching someone's eyes widen as you present them with something special, something unique, made just for them. I love to watch their fingers glide along the smooth finish, exploring subtle chamfers and other details that I strove to get just right. "I can't believe you *made* this!," they may say. "How cool! I know just where I'm going to put it."

Don't get me wrong. The value of a gift, for me, is not in the praise or attention it elicits. I think it's just that a gift is an embodiment of all that I love about woodworking and the gift's recipient. And so I make presents all year long for holidays, birthdays, and anniversaries. Every year, it seems there are more things to make for more people, but I don't mind at all.

If you're a gift-maker yourself, you're in luck. This issue has a number of projects that would make wonderful presents for friends and family. Consider brightening someone's morning with a lovely tray for serving breakfast in bed (p. 26). Have a tyke you like? Make 'em their own li'l rocker (p. 49). Or choose from one of the boxes in this issue (p. 42 and 55.) Whatever you build, make it with love. The project will be better for it. And so will you. ■

Chad McClung

Share your ideas.

We love hearing from readers! And there are all kinds of reasons to get in touch with the crew at *Woodcraft Magazine*. Check out the details below.

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Share a slick tip to win cash or a prize.
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Email us at *tips@woodcraftmagazine.com* and put "Tips & Tricks" in the subject line or visit *woodcraftmagazine.com*, and click on Contact.

Important: Please include your phone number, as an editor may need to call you if your trick is considered for publication.

Have a tough woodworking question?
We'll do our best to find the expert and provide the answer. Email us at *editor@woodcraftmagazine.com* and put "Expert Answers" in the subject line.

News & Views:
This catch-all column is where we do our best to correct mistakes, publish feedback from readers, and share other noteworthy news items. It's easy to participate in this discussion. Just email us at *editor@woodcraftmagazine.com* and put "N&V" in the subject line.

Submit an article idea:
Do you have a story idea? We'd love to hear about it. To find out how to submit an article, email us at *editor@woodcraftmagazine.com* and put "Submission" in the subject line.

Share photos of your projects:
We'd like to see what you're building. To show off your work send your photos to *editor@woodcraftmagazine.com*, or find us on social media.

WOODCRAFT magazine

Dec/Jan 2019 Vol. 15, Issue 86

Chief Editor: Chad McClung
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Circulation: NPS Media Group

Contributing Designer: Kelli Edman
Web Support: Jessica Loyer
Video Producers: Frank Byers, Kevin Reed

Subscriptions: (U.S. and Canada)
One year: $19.99
Single copy: $6.99
customer_service@woodcraftmagazine.com
(800) 542-9125

Woodcraft Magazine (ISSN: 1553.2461, USPS 024-953) is published bimonthly (Dec/Jan, Feb/Mar, April/May, June/July, Aug/Sept, Oct/Nov) and printed in the United States. Periodicals postage paid at Parkersburg, WV, and at additional mailing offices.

POSTMASTER: Send address changes to Woodcraft Magazine, P.O. Box 7020, Parkersburg, WV 26102-7020.

Canada Post: Publications Mail Agreement #40612608
Canada Returns to be sent to Pitney Bowes, P.O. Box 25542, London, ON N6C 6B2

Safety First! Working wood can be dangerous. Always make shop safety your first priority by reading and following the recommendations of your machine owner's manuals, using appropriate guards and safety devices, and maintaining all your tools properly. Use adequate sight and hearing protection. Please note that for purposes of illustrative clarity, guards and other safety devices may be removed from tools shown in photographs and illustrations in this publication.

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Eric Gorges

Working with your hands as therapy

Eric Gorges grew up in a woodworking family in Detroit, Michigan; his grandfather was a professional cabinetmaker and his dad was a serious hobbyist. But Eric's career path led him to a lucrative corporate job. In his twenties, he began suffering panic attacks, but the road to recovery was found by working with his hands. Eric took up metalwork, then started a custom motorcycle shop that became very successful. These days, he hosts *A Craftsmen's Legacy*, a TV show that shines a light on all kinds of craftspeople and the work they do. Read on for more of Eric's story.
—Chad McClung

WM: How did you start working with your hands?

EG: In my 20s, I was working in IT at the Xerox Corporation, and I loved it. But I got sick, and during that time, I refocused what was important in my life. A friend suggested that I work with my hands because that's what I love to do. So, I decided to work with my hands for a living. I was torn between wood and metal, but metal won out because, ya know, torches.

WM: What do you mean when you say you got sick?

EG: I developed an anxiety disorder that later became agoraphobia. I didn't eat, didn't drive, didn't leave my house. I needed to find something that brought peace to my mind because I was literally going crazy. But I rediscovered my love for making. It was a meditative pursuit in a way.

WM: You say a friend suggested that you work with your hands?

EG: When I say friend, I mean shrink. I can remember his question like it happened yesterday. He said, "Eric, if you could do anything in the world, and money didn't matter, what would you do? I didn't even miss a beat, I said, "I'd definitely work with my hands." I just knew it, I didn't even have to think about it.

I was an avid biker up to that point, and I worked on bikes as a hobby. I wanted to learn how to build motorcycles from scratch. Then over a couple weeks, I fleshed it out and started my bike shop, Voodoo Choppers.

WM: So, working with your hands is your therapy.

EG: Absolutely. Working with your hands allows you the opportunity to lose yourself in time and focus solely on creating one thing. And you're in control. You're able to take your work to the highest level of quality possible.

WM: Tell us about your TV show.

EG: Well, like everybody, I had an idea for a TV show. I was involved in a couple of other shows, so I had a bit of taste for television. But my idea was about craftsmanship. The creators of the show and I highlight individuals who work with their hands to create an object. They could work with wood, they could work metal, or ceramics, or glass, or textiles, or whatever. We talk to them about what they do, and then go into their workspace and learn how they do it. The show highlights the work they do and their personality.

I always like to ask potential guests of the show how they see themselves. Are they an artist or a craftsman? That's the biggest split in who we feature—the art/craft divide. I think you're a craftsman if what you're creating holds a utilitarian value.

WM: WM: Which one are you?

EG: I'm a craftsman.

WM: While learning about these various crafts, has anything stuck?

EG: I rekindled my passion for woodworking. I've been slowly adjusting my schedule so that I can fit in more woodworking. I recently got into turning and I'm really enjoying it. Wood carving too. And I've been incorporating metal into my designs.

WM: What advice would you offer somebody just starting out?

EG: Surround yourself with positive people. You gotta have folks in your life who inspire you. There are plenty of people in the world who'll tell you that you're gonna fail. Don't listen. Don't give up. Don't let other people tell you can't do something. And don't let anybody else hold your star.

Sometimes you have to learn lessons the hard way. But always be willing to learn. ■

onlineEXTRA
Go online for the full interview, a link to Eric's show, and the first few episodes of his new web series, "Woodcraft 101."

Photo: John Roe

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The Final Gift

Your wonderful article, "The Final Gift" in the Oct/Nov 2018 issue, revived old memories for me. Twenty years ago, I had just finished my first woodworking class and learned how to make a box with flush-corner dado and rabbet joints. It was an ugly small poplar box, but my first real joinery. Shortly after, my mother died. I held her paper-wrapped ashes in my hands and knew what I had to do. With my only tools: a radial arm saw, a circular saw, a hammer and a screwdriver, I proceeded with great effort to make a box from cherry, my first hardwood purchase. Tears of grief streamed down my face as I built mom's box.

I now have my own shop and have learned to design and build tables, chests of drawers, cabinets, and benches. I'm proud to say that I'm a woman, now in my 80's. I'm deeply indebted to Michael Wheeler, the skillful teacher who taught me to use a shop full of hand and power tools, and how to love the craft.

Furniture making is my passion. I wake up every day with new solutions for joinery problems, anxious to get to work.

I hope more women will try woodworking and wish Woodcraft Magazine could find more women to write about and to support and encourage our skill development.

—Ann Dinsmoor, via email

Senior Editor Paul Anthony replies:

As the editor of the Outfeed column, I'm delighted that you enjoyed Jody Garrett's story. And I'm sure your mother would have been honored by the box you made for her remains.

Hats off to you for hanging tough in a field dominated by men. If it's any consolation, I suspect that most women woodworkers have no idea how much respect many of their male counterparts have for them.

As for featuring women on our pages, we certainly take the opportunity to do that whenever we can. In the recent past, we've featured articles by Nancy Hiller and Larissa Huff, who are as passionate about their work as you are. And we featured a profile of Mira Nakashima in the Aug/Sept 2018 issue.

How to reach us

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Please include your full name, address, and phone number. Published letters are edited for length and clarity.

Beautiful music to our eyes

The Oct/Nov 2018 issue arrived in the mail, and off to the workshop I went. Doug Stowe's box guitar certainly struck a note with me (pun intended). It was a skill-builder for sure, but I had so much fun, I built two!

—Dennis Osgood, Canton, Michigan, via email

I enjoyed the cigar box guitar article and decided to make one, though I took some liberties with the design. I made a 5-string classical style guitar and used nylon strings.

—Russ Svendsen, via email

A big score with the football cutting board

I enjoyed making Jim Harrold's football cutting board shown in the Oct/Nov 2018 issue. The trick regarding bending the maple stripes with a heat gun to allow movement was unique.
—David Powell, via email

How to cut the stitches without getting stitches

I plan to make the football cutting board from the Oct/Nov 2018 issue. Do you have any techniques for safely and accurately cutting the "stitches" from the maple? Also, any recommendations for the finish?
—Alan Schultz, via email

Contributor Jim Harrold replies:
I crosscut the stitches using my table saw sled and a stop. I use the eraser end of a no. 2 pencil to hold the workpiece against the stop and sled fence during the cut, which keeps my fingers safely away from the blade. For a finish, I used Behlen Salad Bowl Finish.

Make a handcrafted chair with Jory

Woodcraft has teamed up with master furniture maker Jory Brigham to create an instructional video series. Watch as Jory discusses everything from planning to finishing a beautiful walnut bar-height chair. Learn tips and insights on myriad topics like design, templates, lumber selection, construction, assembly, and finishing. Visit *woodcraft.com/jory* to get started making your own beautiful chair. ■

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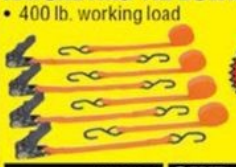

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COMPARE TO WEN $187.92 MODEL: 4212

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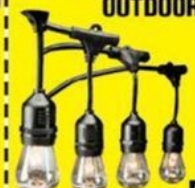
Customer Rating



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Customer Rating

4-1/2" ANGLE GRINDER

SAVE 65%

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Affordable, multi-function HVLP

HomeRight Super Max HVLP Sprayer

I started using HomeRight's Finish Max HVLP (high volume, low pressure) sprayer about a year ago and am happy to report that the little gun is still getting the job done. Thanks to my shop time with it, I got hooked on the speed and quality of HVLP. However, I found myself wanting a more powerful sprayer to deliver paint more quickly. HomeRight must be tapping my phone, because their new "Super" version is just what I was looking for, and for only $30 more than the smaller gun.

The two sprayers look similar, but there are some key differences. The Super sports a larger motor (450 watt vs. 400 watt), a larger cup (40 oz. vs. 27 oz.), plus six needle/tip sets to accommodate different types of finish. (The Finish Max is simply equipped with a 2.0mm needle/tip set.) The three needle/tip sets included with the gun covered the range of the materials that I use (3 additional sets can be purchased separately) without needing to thin the more viscous products.

I love that clean-up is a cinch. After rinsing out the cup, you simply spray solvent through the gun, and then unscrew the nozzle and brush it off. Although the plastic parts might not hold up under a tough production setting, the gun is well-suited for weekend woodworkers.

The Super hasn't totally replaced my smaller HomeRight gun, but it has become my first choice when using heavier-bodied latex paint, and when finishing larger projects.

—Tester, Joe Hurst-Wajszczuk

Overview

- An integral 450-watt motor eliminates need for a compressor or turbine.
- Volume control knob adjusts spray pattern from 1" to 12"-dia.
- Easy to clean
- Kit includes 1.5 mm, 2.0 mm, and 4.0 mm interchangeable tips, for $99.99.

Photo: Ralph Lee Anderson

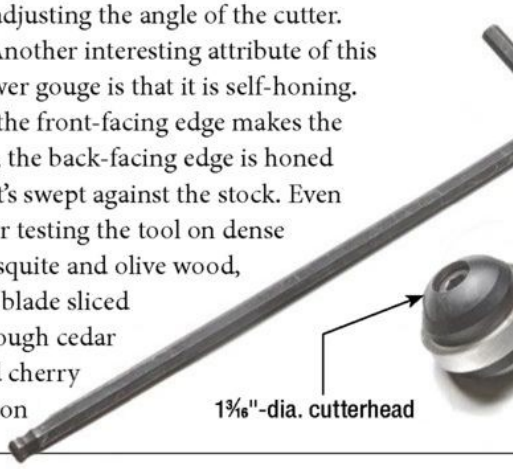
A fresh spin on power carving

Arbortech Ball Gouge

Angle grinders are great for quickly removing wood or metal, but the process typically involves a cloud of sawdust or sparks, and the results are often fairly rough. Arbortech's newest grinder accessory provides a new way to carve quickly and cleanly. The Ball Gouge makes fast work of hollowing out spoons, small bowls, and shaping medium-sized carvings. The cutter's peeling action leaves a scalloped surface reminiscent of a gouge, and the tool's unique geometry enables you to tackle undercuts and hollowing chores that typically require an arsenal of specialty gouges.

This ball gouge is surprisingly easy to control, partially because the ball-shaped head prevents the blade from digging in too deeply. (Arbortech calls this "Anti-Grab Technology.") If you apply too much pressure, the tool simply starts to bounce off the workpiece. The ringed blade's relation to the head also helps control the cut. The circular blade is positioned at an angle so that the bottom tip of the cutter head extends past the blade. (If you set the tip of the gouge against the workpiece, it won't cut.) As you lean the grinder, the blade starts to dig in. The manufacturer suggests holding the gouge at a 30-60° angle relative to the workpiece. I found the higher angle cutting easier to control, although it required more passes. Like a standard gouge, cutting against the grain resulted in some tearout, but the Anti-Grab Technology prevented the tool from diving into the wood. The damage can be erased by recutting from another direction or adjusting the angle of the cutter.

Another interesting attribute of this power gouge is that it is self-honing. As the front-facing edge makes the cut, the back-facing edge is honed as it's swept against the stock. Even after testing the tool on dense mesquite and olive wood, the blade sliced through cedar and cherry spoon



blanks without any indication of wear. When the blade does eventually dull, it can be rotated to present a fresh edge. Kudos to Arbortech for creating a low-tech torque wrench for the job. Twisting the hex-head wrench until its attached clear tubing touches the long arm ensures that the repositioned ringed blade is firmly locked in place. ■

—Tester, Joe Hurst-Wajszczuk

Overview

- Ball-shaped grinder accessory for freehand power carving.
- Compatible with most 4" and 4½" angle grinders.
- Anti-Grab Technology helps prevent dig-ins.
- Self-honing, repositionable ringed blade
- $109.00

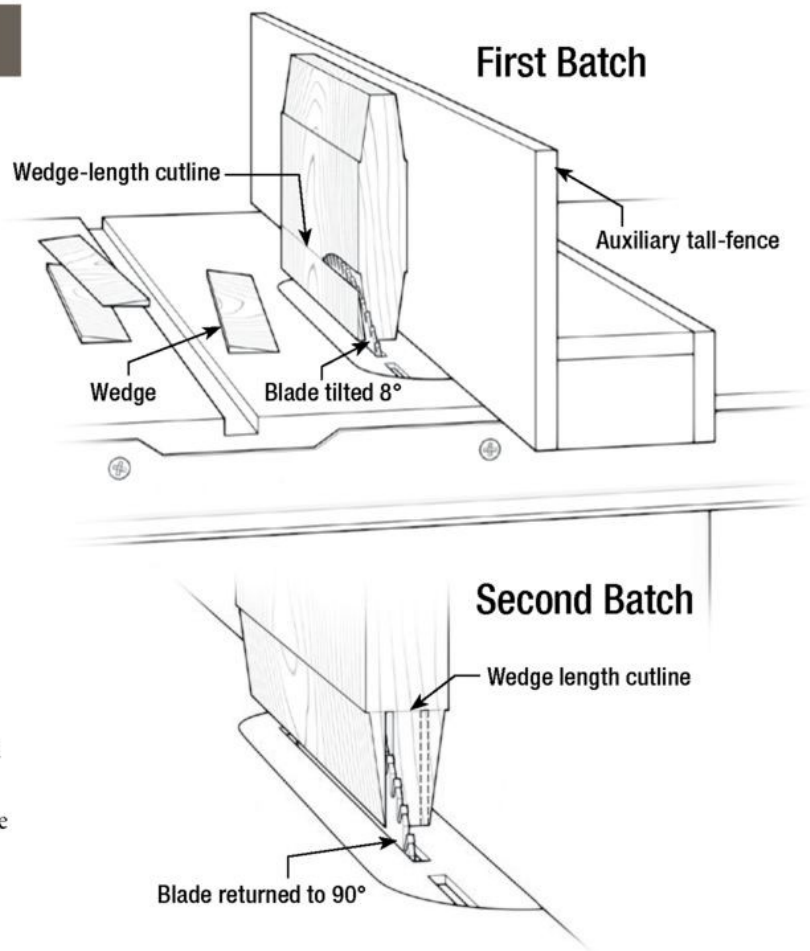
Photos: Ralph Lee Anderson

TOP TIP

Wedges for tenons

A while back, I made a desk that had 36 tenons, each slotted for two ¾ × 1"-long wedges. Here's how I managed to make so many efficiently and safely: Begin with a piece of squared stock that's 1¼" thick by at least 6" wide (for feed stability). Also for safe feeding, it should be at least 8" long. To set up the cut, first make a wedge-length cutline on the face 1¼" up from one end. Lean your blade over 8°, and then outfit your rip fence with an auxiliary tall fence. Locate the fence for a cut that will slice to your line, then saw a wedge from each opposing face. Invert the workpiece and perform the same 2 cuts at the other end. The 4 wide wedges you just cut can now be knifed or bandsawn to their desired width (trimmng them flush to final length after installation). If you need yet more wedges, tilt the blade back to vertical and adjust the fence to cut a new wedge adjacent to each of the first cuts, as shown. Then crosscut these wedges free of the stock.

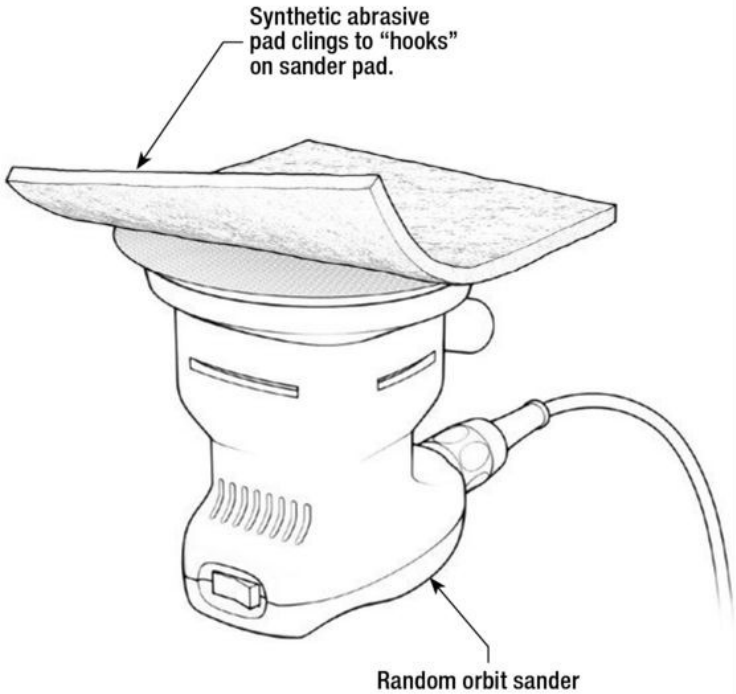
—Richard Libera, Newark, Delaware



Illustrations: Christopher Mills

Random orbit rubout

Sometimes I like to use synthetic abrasive pads to rub out finishes. When working large panels, which can demand a lot of time and elbow grease, I pull my random orbit sander into service. Its Velcro-faced disk grabs a synthetic pad firmly without slippage as long as the weight of the sander is on the pad. It sure makes easy work of an otherwise tedious chore.
—James Capstick, St. Louis, Missouri



A personal blade buyer's guide

In order to gauge the trial performance and longevity of a new bandsaw blade, I cut the relevant info (type, make, etc.) from the product box, and affix it to the column of my bandsaw with a strong rare-earth magnet. That way, when I notice that a blade cuts exceptionally well, gives me problems, or seems to dull prematurely, I can quickly note the manufacturer, as well as blade characteristics. (When switching out blades, it's easy enough to switch out the product label at the same time.) It's a great way to inform future blade purchases.
—Steven Baxter, Indianapolis, Indiana

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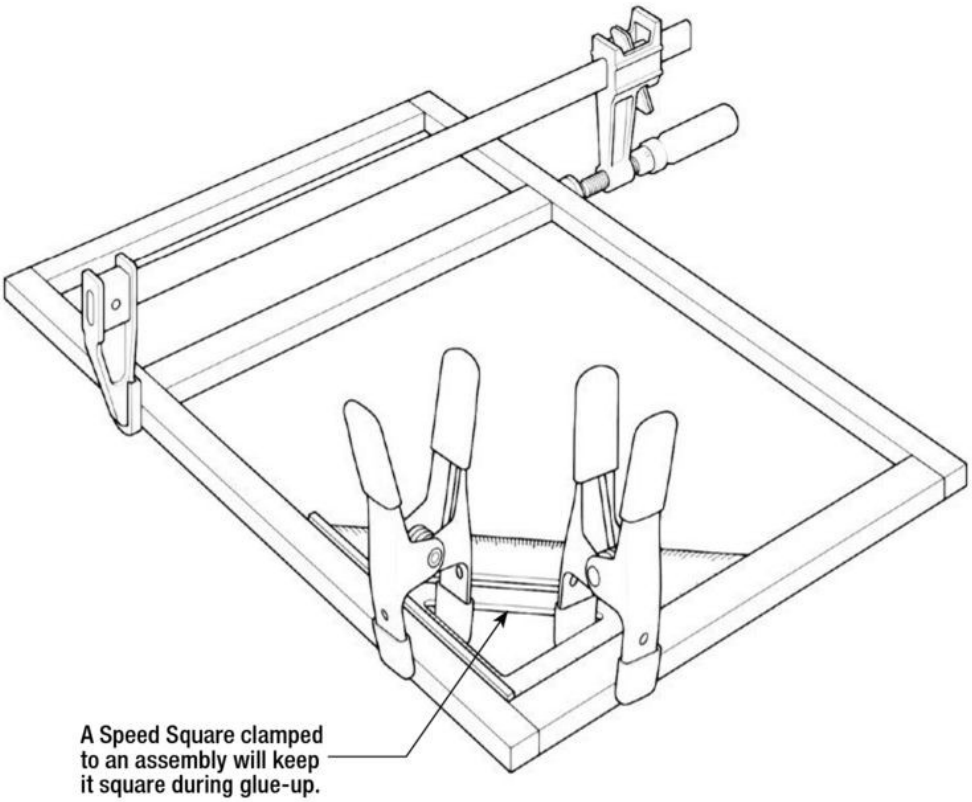
Square deal

Indestructible and inexpensive, my aluminum square has earned its keep by doing basic layout work and guiding the edge of my circular saw when making square cuts in framing lumber. But I recently discovered a new use that has been keeping this tool a lot busier. Thanks to the open interior and the flange along one edge, it's easy to use the square as a clamp when I need a right-angled assembly. Plastic versions of this square don't have the same open configuration, so look for an aluminum model if you want this added functionality.
—Tim Snyder, senior editor



A Speed Square clamped to an assembly will keep it square during glue-up.

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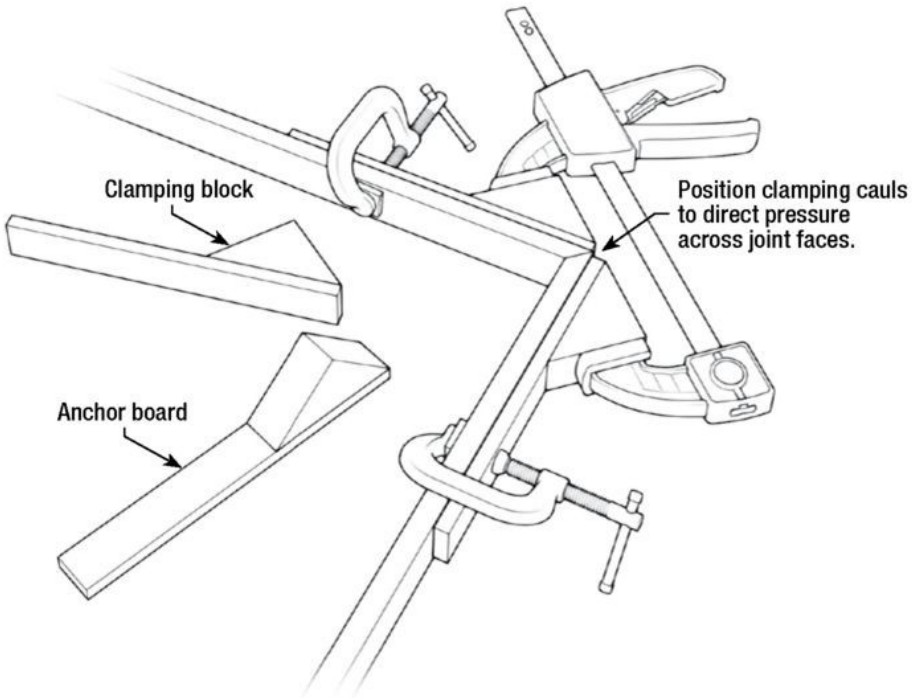
Miter clamping cauls

Need to glue up a mitered frame but don't have a strap clamp? Raid your scrap bin to make some miter clamping cauls. To make each caul, glue a triangular clamping block to the end of an "anchor" board that's about as wide as your frame pieces. When gluing a frame corner, locate a pair of cauls so that the outermost faces of the triangular blocks will direct clamping pressure across the joint faces as shown. (This will vary depending on the size of the blocks and thickness of your frame.) Secure the anchor boards to the frame, and then clamp across the blocks to produce full force on the joint faces. ■

—Leonie Ward,
Jackson, Mississippi



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Build a Super SERVING TRAY

Folding legs and fine joinery make this server special.

By Willie Sandry

Sometimes a small project is just the thing to fill up a little bit of shop time. It's even better when you get the opportunity to transform some scrap stock into a nice gift or an addition to your home. This serving tray scores well on both counts. Folding legs enable the tray to sit flat on a table or have an elevated stance, as shown above. The tray's laminate-covered bottom can easily endure spills and hot plates. And despite the small size of this project, it contains some nice joinery challenges: corners made with finger joints, and template-routed handles and curves.

The details ahead show you how to make a single serving tray, but this project lends itself well to making multiples. Once you've set up your box joint jig and made the templates, a limited production run is easy to accomplish.

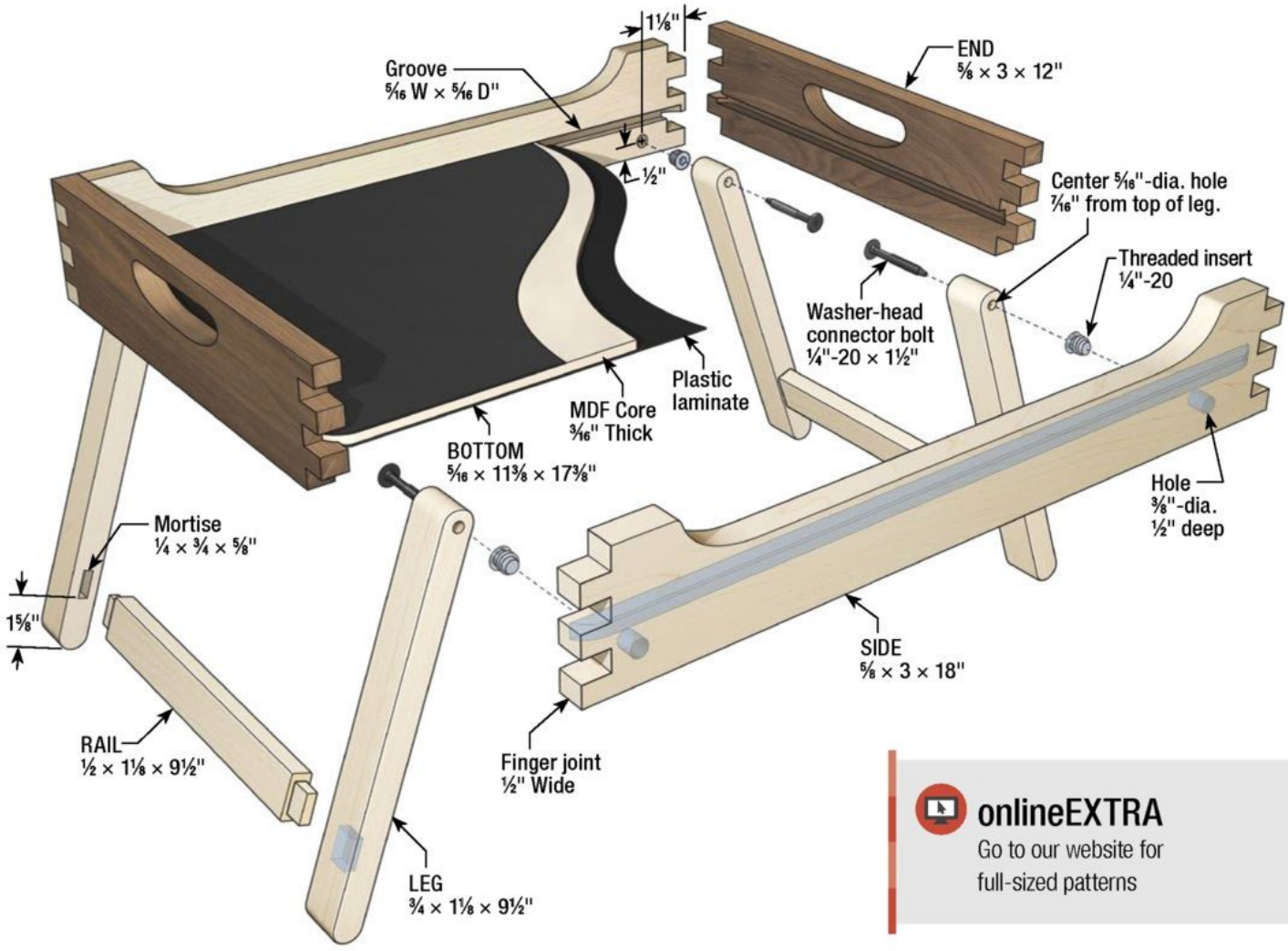
Opening photo: Larry Hamel-Lambert

Well-crafted corners, graceful curves, and legs that swing

The tray is sized to fit a common dinner plate, but dimensions can be easily adjusted if you prefer a more spacious tray. Combining maple sides with walnut ends adds some visual drama, but I've also built a number of trays with just one wood species.

Order of Work

- Make templates for tray sides and handle.
- Cut finger joints in sides and ends.
- Rout curves in tray sides, then rout handle openings.
- Rout grooves for tray bottom, and make bottom panel.
- Install threaded inserts, then assemble the tray.
- Make and install the leg assemblies.



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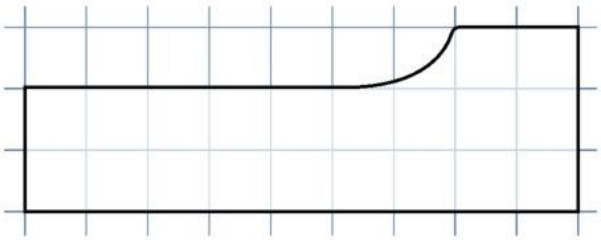
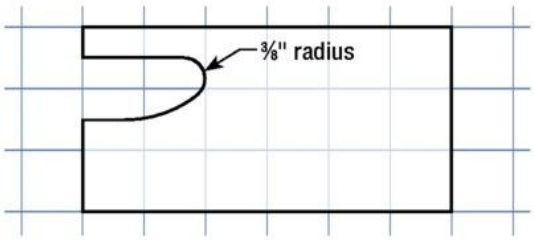
Tray Side Half-Pattern



Handle Half-Pattern



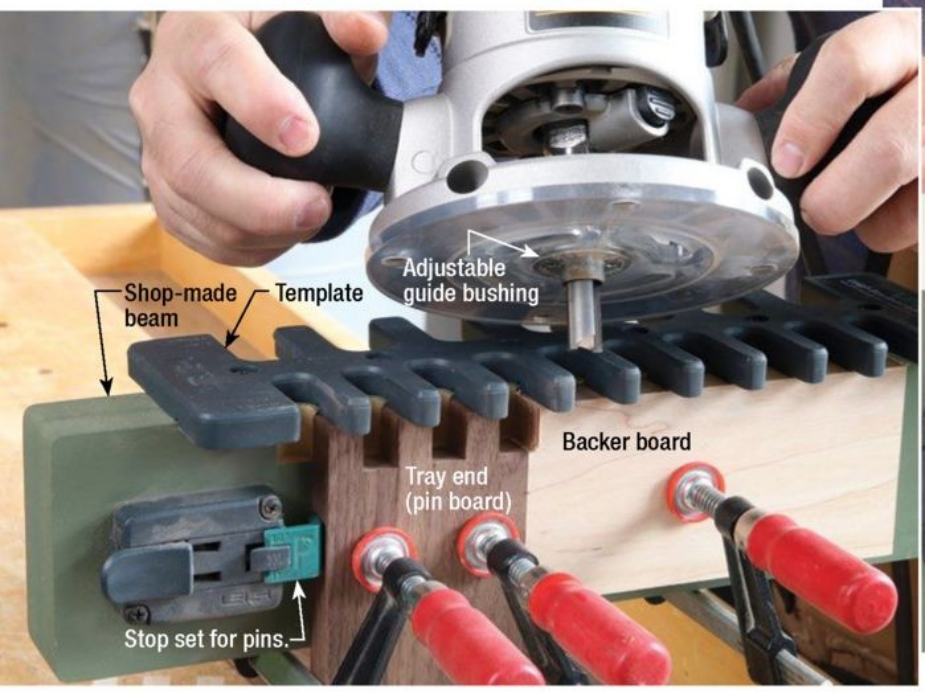
1 square = 1"

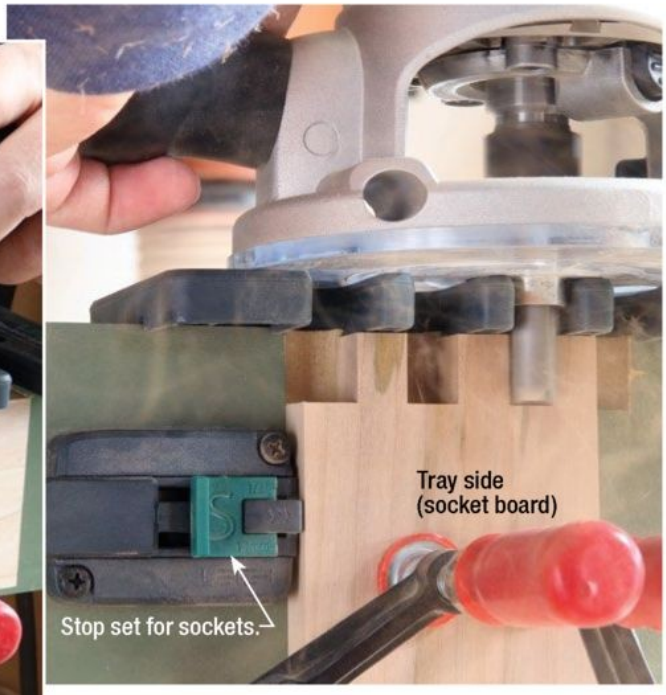
Illustration: Trevor Johnston

Begin your joinery work with the tray's corners.

I've used through dovetails as well as finger joints to join tray sides and ends. In both cases, I rely on commercial jigs to guide my router. The Leigh Box Joint & Beehive Router Jig featured here is sturdy, accurate, and easy to use. The jig has a routing template that contains two guiding "combs"—one for making ¾"-wide fingers, the other for ½"-wide fingers. The smaller size fingers definitely look better in this project, and the 3" width of side and end pieces eliminate unsightly partial fingers.

Follow the manufacturer's instructions to set up your jig. Then set yourself up for success by preparing your stock carefully, including a few extra pieces so you can rout test joints and make any necessary adjustments.





Pins in the ends, sockets in the sides. Routing the tray's finger joints goes quickly, once you've set up the Leigh jig as shown here. The jig's adjustable guide bushing enables you to get joints just right (fitting snugly but not forced) after a couple of test joints. A stop attached to the shop-made beam automatically aligns the correct offset when switching from routing pins to routing sockets. Prevent tearout when routing pins by clamping a side backer board in place, as shown here.

onlineEXTRA

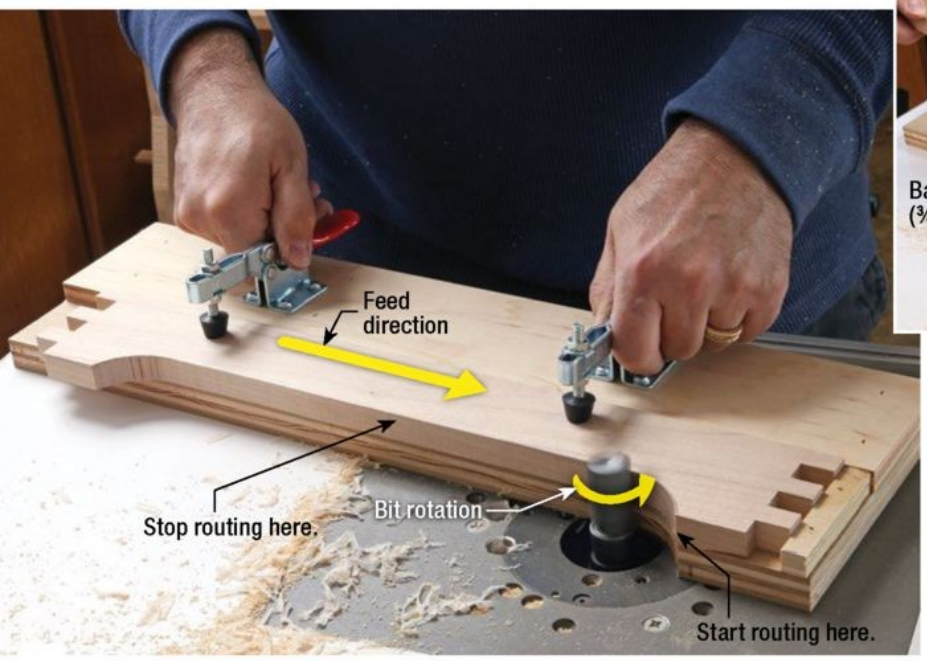
For an in-depth review of the Leigh "beehive" jig, click the onlineEXTRAs tab on our website.

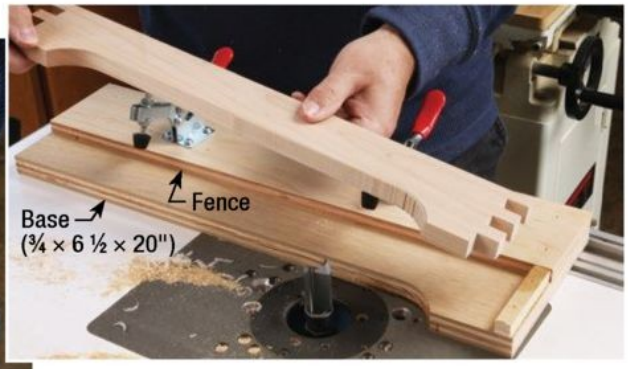
Fine-fitting fingers. Aim for a fit that's snug but not forced.

Project photos: Asa Christiana

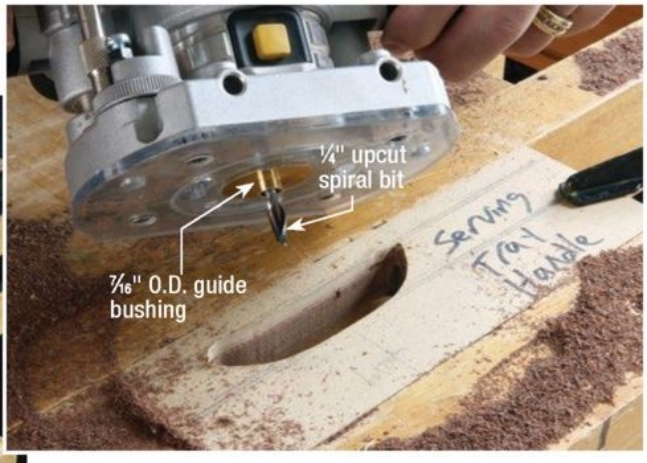
Use jigs to rout curves and handles.

It's important for the tray's curved sides and handle cutouts to come out smooth and symmetrical (See patterns, p. 27). To get the results I'm after, I rely on a side routing jig and a handle template that are designed to be used with pattern-routing bits and guide bushings. The key to this approach is make both guides carefully. I cut the tray side pattern on my band saw, then smoothed the pattern with a rasp and sandpaper. To make the template for the handle cutout, I jigsawed just inside the lines, then smoothed the cutout with sandpaper. Wrap your sandpaper around a ½" dowel to smooth the curved corners.





Flush-trim with a half-pattern. The jig I use to rout the side cutouts consists of a base that guides the pattern-routing bit, fence pieces that register the side's bottom edge and ends, and a pair of hold-downs. To prepare each side for this pattern-routing step, rough out the side's shape by cutting about ⅛" outside the line. Then clamp the side in the jig, and let the bearing follow the pattern to cut a little more than half the finished shape. Flip the side and repeat to complete the cutout.



Rout handles with a bushing, then a bearing. The ¼"-thick handle template is the same size as the tray ends. To prepare for routing a handle opening, I clamp the template and end together in the face vise on my workbench (photo at left). Then I rough out the opening with a guide bushing and upcut bit, making successively deeper passes (photo above). Finish the opening using a ½"-dia. pattern-routing bit.

Prepare the frame for the legs and bottom, then put the tray together.

For durability as well as appearance, I used a tray bottom made by gluing (with contact cement) two sheets of plastic laminate to a 3/16"-thick MDF core. I like to make up a large laminated panel—big enough to yield 3-4 tray bottoms—and then cut these parts to final size.

Instead of routing bottom grooves separately, I prefer the speed and accuracy of clamping the frame together and routing all four frame members at once. Before gluing the tray together, give the interior faces of the sides and ends a final sanding.

Grooves, then inserts. Clamp sides and ends together to mill the groove for the tray bottom. My slot-cutting bit cuts 1/8" wide and 3/8" deep. Several passes are required to complete the groove for my 5/16"-thick, laminate-faced panel. After grooving, disassemble the tray and install threaded inserts for the leg screws.

Curve the corners, then assemble. It's not necessary to chisel the ends of the bottom grooves square if you round the corners of the bottom panel to match the radius of your slot-cutting bit. I did this rounding with a stationary belt sander. Go through a complete dry-fit assembly to make sure all five parts go together. Then glue only the corner joints, letting the panel float in its grooves. Use 2 pairs of clamps as shown to hold corners tight as the glue dries.

Add leg assemblies that swing out of sight.

All the tray needs now are two leg assemblies that can hide underneath the bottom or swing open when the tray needs an elevated stance. To make the leg assemblies, start by cutting mortises 1⅝" up from the leg bottoms, and snug-fitting tenons in the rails. Drill a hole in each leg for a mounting screw; center the hole 7/16" from the top of the leg. Before glue-up, round all leg ends. I did this on a stationary belt sander, but you could also rout leg ends with a roundover bit. Although I skipped this step in the photos shown here, it's smart to sand and finish your leg assemblies before installing them. My finish treatment was three coats of clear shellac. ■

Basic joinery. After mortising the legs at the drill press and cutting the tenons on my table saw, I clean up each mortise with a chisel, and pare the tenons for a snug fit.

Pivot points. A flexible bit extension comes in handy when installing leg assemblies, but an Allen wrench will also work fine. Drive screws so that legs can pivot.

Shop Tip

To help hold the mounting screws in place, you can use a pair of locking pliers to slightly mar the threads near the tip of each screw. This makes the screw a little harder to drive, but it will stay locked in place.

Nice job! These trays make gifts that keep on giving. As shown here, through-dovetails also look good as corner joints.

Get a Grip!

Need a shop helper? These quick-action clamps are ready to lend a hand.

By Joe Hurst-Wajszczuk

Bar, pipe and K-body clamps are your best bet for most glue-ups, but what about all those clamping jobs that simply require a third hand? There are plenty of times when speed and easy operation are more important than clamping pressure–like affixing a workpiece to a jig or workbench, holding parts together while you drive a screw, or keeping an assembly from falling apart as you position additional clamps. For these assignments, fast-acting bar clamps are worth their weight in gold.

These days, trigger, or pistol-grip clamps are commonplace in most workshops, but surprisingly, "quick-grips" are a relatively recent invention. American Tool introduced the first clamp with a moveable jaw and one-way drive mechanism in 1988. In the decades that followed, manufacturers continued to innovate with new features and improved functionality. The result is an impressive array of capabilities that go beyond basic clamping in many cases. To help make sense of the new generation, we're offering this side-by-side comparison with key specs plus a few details you may have missed.

As you select your next set of shop assistants, it's smart to consider all the variables: bar length, throat depth, clamping pressure, and clamping action (how the clamping mechanism works). Although the mechanisms differ, a trigger-clamp's maximum clamping pressure is largely determined by your hand strength. But design variations like threaded arms and cam-action levers enable you to increase the pressure without employing a killer grip.

WoodRiver
Max. Force: 180 lbs.
Throat Depth: 3¼"
Sizes Available: 6, 12, 24, 36"

DeWalt
Max. Force: 300 lbs.
Throat Depth: 2⁷⁄₁₆"
Sizes Available: 6, 12, 36, 50"

Irwin SL300
Max. Force: 300 lbs.
Throat Depth: 3¾"
Sizes Available:
6, 12, 18, 24, 36, 50"

Bessey DuoKlamp

Max. Force: 260 lbs.
Throat Depth: 3¼" and 1⅜"
Sizes Available: 6, 12, 18, 24"

Bessey PowerGrip

Max. Force: 200-1000 lbs.
Throat Depth: 4"
Sizes Available: 12, 24"

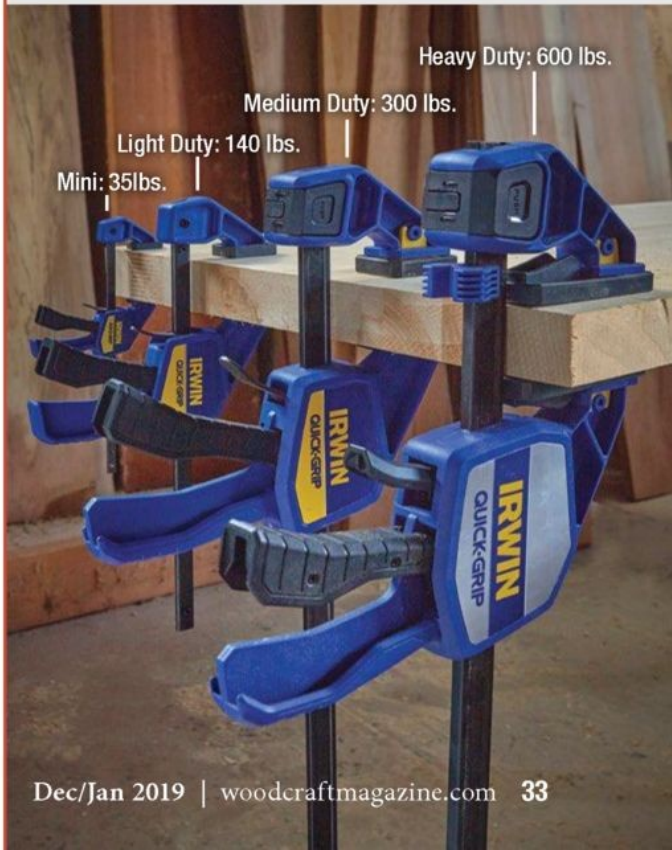
Bessey EZS

Max. Force: 445 lbs.
Throat Depth: 3½"
Sizes Available: 6, 12, 18, 24, 36"

Photos: Ralph Lee Anderson

One size doesn't fit all

Several manufacturers offer trigger clamps in a range of sizes. What mini and light-duty clamps lack in brute strength, they make up in convenience, fitting where bigger clamps can't. Obviously, larger clamps are designed to deliver more pressure, but their size also offers a mechanical advantage. If you lack the hand strength needed to achieve full clamping pressure, a larger clamp (with a longer handle) can provide the grip you can't get from a smaller clamp.



Lever-Action Bar Clamps

Unlike pistol-grips, lever-action bar clamps aren't new (Klemmsia, a German tool manufacturer, has been making wooden-jaw cam clamps for over 100 years.) However, the old and new versions can hold their own in any workshop.

A lever clamp may not offer the same one-handed convenience as a trigger-clamp, or the force of an F-style clamp, but the simple cam mechanism possesses several winning attributes. The lever action makes it easy for users to quickly and easily apply full pressure, or dial back the clamping force. Unlike other types of clamp heads that twist or slide as pressure is applied, the cam mechanism exerts pressure directly in-line with the pad. This means that parts are less likely to shift during assembly. Finally in terms of weight, lever clamps are featherweights compared to heavier trigger-activated and threaded-jawed F-clamps.

Although traditional wooden-jawed clamps are still widely used by woodworkers and luthiers for chores that don't require tremendous clamping pressure, manufacturers have created new versions that are suitable for a wider range of applications. Unlike the simple rotating mechanism used on the original design, newer metal and plastic jawed clamps possess ratcheting mechanisms that can't slip and come loose, even under vibration. ■

Pinnacle Cam

Max. Force: 260 lbs.
Throat Depth: 4½", 8½"
Sizes Available: 4, 8, 12, 16"

WoodRiver Quick Gear

Max. Force: 270 lbs.
Throat Depth: 3"
Sizes Available: 8, 12"

Bessey KliKlamp

Max. Force: 260 lbs.
Throat Depth: 3"
Sizes Available: 4, 8, 12, 16

Bora

Max. Force: 330 lbs.
Throat Depth: 4"
Sizes Available: 4, 8, 12, 16"

Kreg Auto-Adjust

Max. Force: 300 lbs.
Throat Depth: 1½"
Sizes Available: 8, 16, 24"

WoodRiver Q-Lever

Max. Force: 400 lbs.
Throat Depth: 4¼"
Sizes Available: 6, 8, 12, 18"

Jewelry CHEST

A bureau-top beauty made with layout-free mortising jigs

By Geoffrey Noden

While studying woodworking in the early 1980's at the John Makepiece School in England, I was taken by an open-sided chest of drawers at Makepiece's home. Basically constructed of sticks connecting the four legs, with the drawers exposed, the piece's delightfully honest architecture exposed its every component. Furthermore, pulling out a drawer augmented the aesthetics of the piece, drawing attention to the framework and the see-through negative space behind the drawer. The construction inspired me to build a floor-standing "see-through lingerie chest" a few years later. And recently, I decided to revisit the idea by making this cherry jewelry chest that sits comfortably on a bureau, and doesn't require much wood.

Don't be intimidated by the joinery here. If you have a hollow chisel mortiser, simply make the indexing jigs shown on page 38. They'll ensure accurately located mortises with no layout involved. Use a tenoning jig (See onlineEXTRAS) to saw the tenons, following the step-by-step instructions shown. If you like, cutting the tenons is a great opportunity to use my twin-blade joinery technique (See onlineEXTRAS). As for the drawer boxes, to avoid the complexity of half-blind dovetails, I used through dovetails, covering them with front overlays. However, feel free to use different joinery if you like.

onlineEXTRAS
- Tenoning Jig
- Twin-blade Joinery
- Resawing on the Tablesaw
- Fitting Inset Drawers

4 legs, 12 rails, and a top make the case

The front and back rails join to the legs, while the side rails join to the front and back rails. Although all the mortises are ⅜ × ½", they are oriented vertically on the legs, and horizontally on the rails. The rabbets on the side rails serve as drawer guides. The rabbets on the back rails serve as drawer stops.

Rail lengths include ⅜ × ⅜ × ½"-long tenons. See page 43 for drawer details.

Order of Work
1. Make mortising jigs
2. Mortise the legs
3. Mortise the front and back rails
4. Saw the rail tenons
5. Rabbet lower rails. Groove top rails for buttons.
6. Glue up the case
7. Make and attach the top
8. Build and fit the drawers

Opening photo: Larry Hamel-Lambert; Illustrations: John Hartman

ROUTER-TABLE BASICS

Want more from your router? Turn it on its head.

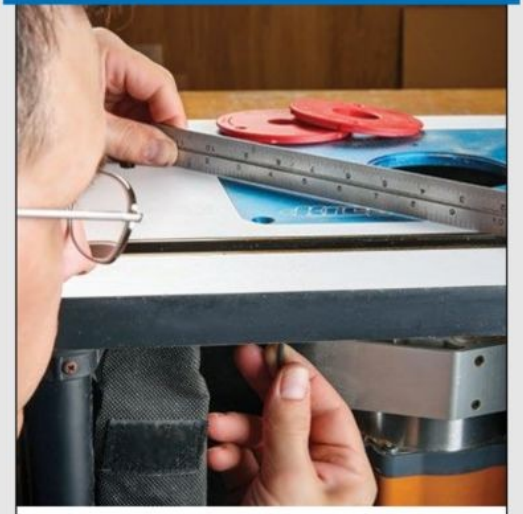
By Joe Hurst-Wajszczuk

In terms of woodworking machinery, hand-held routers earn the workshop MVP award. Considering how easy they are to use freehand or paired with a jig, it's not surprising to discover that many woodworkers haven't considered pointing the bit up.

Mounting a router in a table tranforms this handy tool into a small shaper. This arrangement leaves your hands free to manipulate the work, and enables you to use stops, fences, and hold-downs to control the cut. This orientation also offers a fresh vantage, allowing you to see what the bit is doing to the work.

Using a table-mounted router isn't difficult, but it isn't fool-proof. This primer will help you begin to unlock the powerful potential of your most prized tool in the shop. To start, follow the set-up sequence below, and then review the advice about proper feed and guidance. Next, check out the techniques for profiling edges and joinery. You'll soon wonder how you managed without it.

Step 1: Level the insert



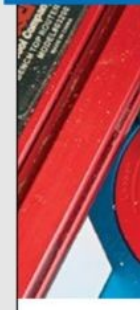
Level the playing field. An insert that sits below or above the surrounding table can lead to an inaccurate cut, or stop a workpiece in mid-pass. Commercial router tables like this one are equipped with set screws to level the insert with the table. For a shop-made table, masking tape or metal shims can suffice.

Step 2: Set the bit height (3 ways)

Standing square. A combination square is convenient because it can stand on its own next to the bit as you adjust the depth of cut. Although some rules are graduated in 64ths, those fine lines are tough on old eyes. Plan on making a few test cuts.

Try building blocks. Key blocks enable you to set a bit's height by sight and feel. Stack the blocks to obtain the desired setting, add a top block, and then raise the bit until it starts to touch.

Go digital. Electronic measuring devices, like Wixey's Mini Height Gauge, allow you to obtain line-splitting accuracy without squinting. If the battery's dead, you can resort to the rule.



Shaping synergy. A bit guard, featherboard hold-down, and push block work in concert with a table-mounted router to help control the workpiece for a smooth cut, while keeping you safe.

Step 3: Set the fence

Start with the front. Set the rule on top of the bit and measure across the bit's centerline. With your free hand, rotate the bit to verify the fence-to-cutting tip distance.

Fine-tune from the back. Stop blocks and shims let you sneak up on a perfect cut. The distance you move one end of the fence will be halved at the bit.

Photos: Ralph Lee Anderson

Step 4: Choke up on the bit

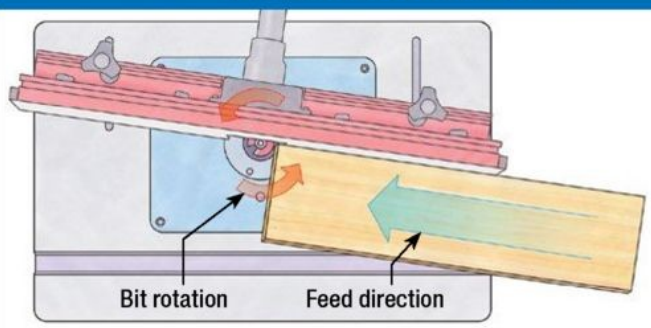
Mind the gap. The opening behind or below the bit can snag an edge of your workpiece. If you're using a commercial table, insert a close-fitting ring and slide the fence faces until they almost touch the bit.

Shop-made solutions. This clamp-on auxiliary fence and hardboard table overlay offer a cure for router tables that don't allow zero-clearance adjustment. Rest the fence on the hardboard before raising the spinning bit.

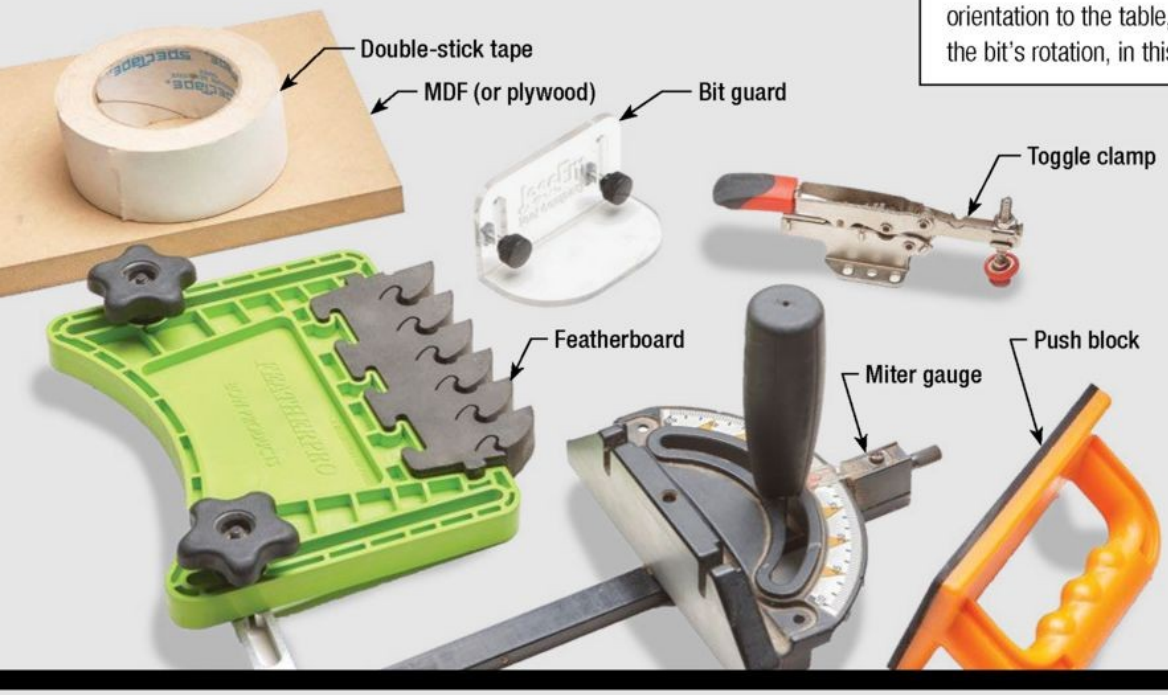
Proper feed and guidance

Unlike a table saw blade, a router bit's performance is not affected by the angle of the fence. The key is feed direction. Whether you're using a fence or a guide pin, always push the work *against* the cutter's rotation. The force generated by the bit's rotation helps drive the work against the guide. Feeding the work *with* the cutter's rotation (*climb cutting*) pushes the piece away from your guide, resulting in loss of control and a scalloped edge. In the worst case scenario, the bit can grab the piece from your hands and toss it across your shop.

Correct Feed Direction



Use a fence. Regardless of the fence's orientation to the table, feed the work against the bit's rotation, in this case from right to left.



Safety First

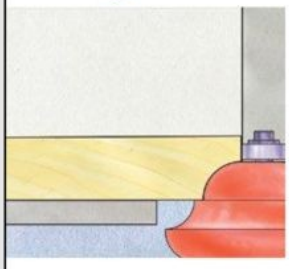
Keep an assortment of accessories close to your router table for safe stock feeding. Scrap wood, double-stick tape, and hardware can be handy for cobbling together shop-made safety solutions.

Small strips and big bits

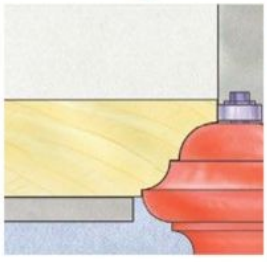
By offering a large table and fence, a table-mounted router is better equipped for managing long strips and big bits than a freehand router. Unlike a bearing guide, a fence offers the flexibility to adjust the cutter's height, or to shape an edge without the bearing's guidance in order to create a variety of different profiles from a single bit.

Repositioning the workpiece, as shown at right, offers even more profile possibilities. To better handle large panels, consider adding a tall auxiliary fence and anti-tip rail.

Get More Bang from your Bits

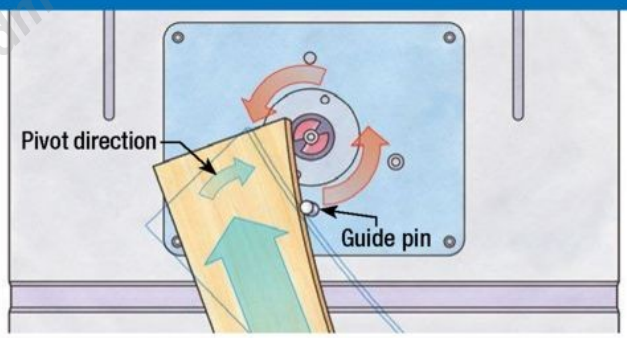


Rout a little... Burying the bulk of this big bit below the table enables it to create a small cove.



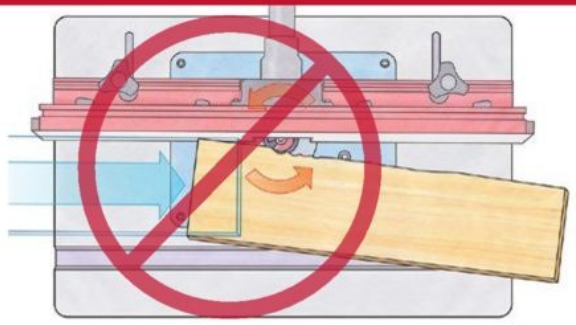
...or a lot. To ensure a crisp, clean profile, take incremental cuts, gradually raising the bit or shifting the fence.

Go wide. Making molding from wide stock helps keep hands away from the bit and prevent chatter. After routing the profile, rip the strip from the stock.



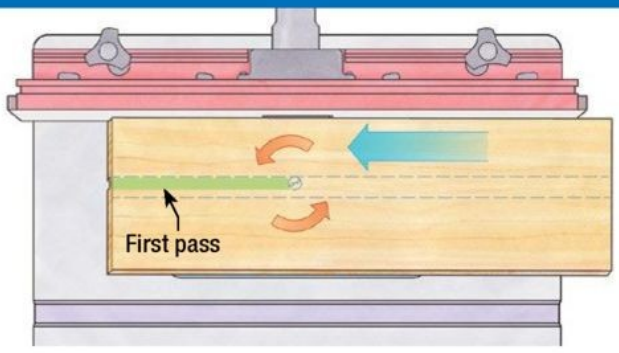
Or lever it against a guide pin. Brace the work against the pin, then pivot it into the bit. As the cutters bite into the wood, they will draw it against the bearing.

Incorrect Feed Direction

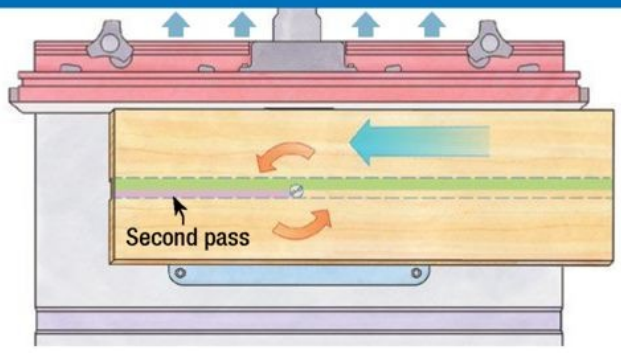


Don't climb-cut. If you feed the work in the direction of the bit's rotation, it will push the stock away from the fence, pulling it from your grasp.

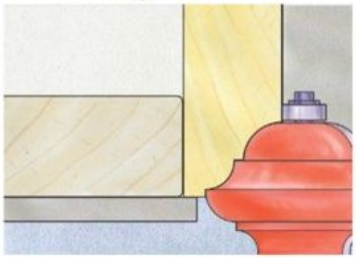
The Right Way to Rout a Wide Groove



Start with the inside edge. To avoid a climb cut, consider the second cut when positioning the fence for the first.



Push the fence back, then rout the rest. By routing the outer side, the bit continues to push the work against the fence.



Try standing. Routing a workpiece with its face against the fence creates a different profile.

No tipping, please. Outfitting your router table with a tall fence and guide rail can help support raised panels and other large workpieces.

onlineEXTRA

For safety and optimimum cutting performance, a router's speed needs to match the size of the bit. For a handy speed chart, go to *woodcraftmagazine.com*.

Illustrations: Dan Thornton

Precise joinery with basic bits

A router table can become a capable tool for joinery with just a modest assortment of bits. Compared to a table saw-mounted dado set, a router bit may not remove material as quickly, but for standard-sized cuts, installing a bit is faster than assembling, testing, and restacking a dado set. In terms of cut quality, a bit can produce clean, flat-bottomed cuts that rival the best dado set. And for stopped and plunge cuts, a bit is your best bet. Unlike a stopped tablesawn dado, which terminates in a ramp, the routed version ends with a straight wall.

Rabbets, tenons, dadoes and grooves differ only by configuration and amount of material removed. By using the techniques shown, you'll achieve precise results, and free up your saw for other tasks. ■

Rabbets

Face the fence. Light passes are the key to clean cuts, but shifting the fence can lead to error. Adding an auxiliary face exposes less bit without affecting the set-up. (Note: When rabbeting on a router table, you don't need a bearing-guided rabbet bit; a straight bit will work.)

Tenons

Tenon tamer. When using a miter gauge to cut tenons, you can employ the fence as a depth stop. Just make sure it's parallel with the miter slot. Although any straight bit would suffice, a large-diameter planing bit reduces the number of passes and produces smooth cheeks.

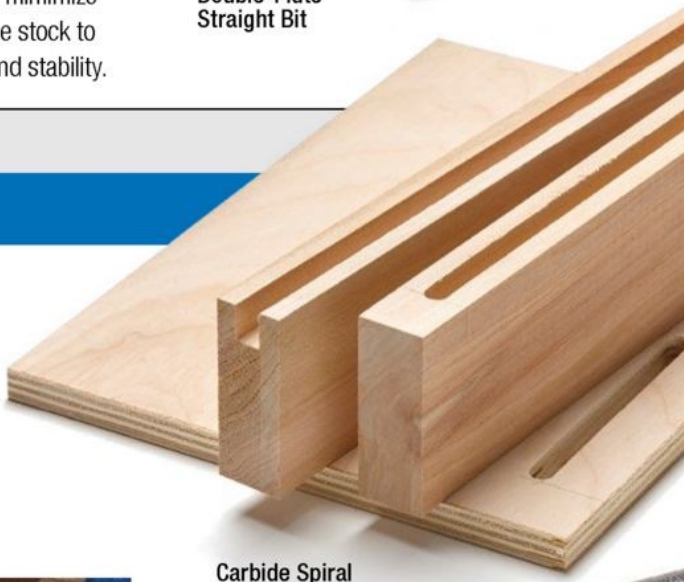
Dadoes

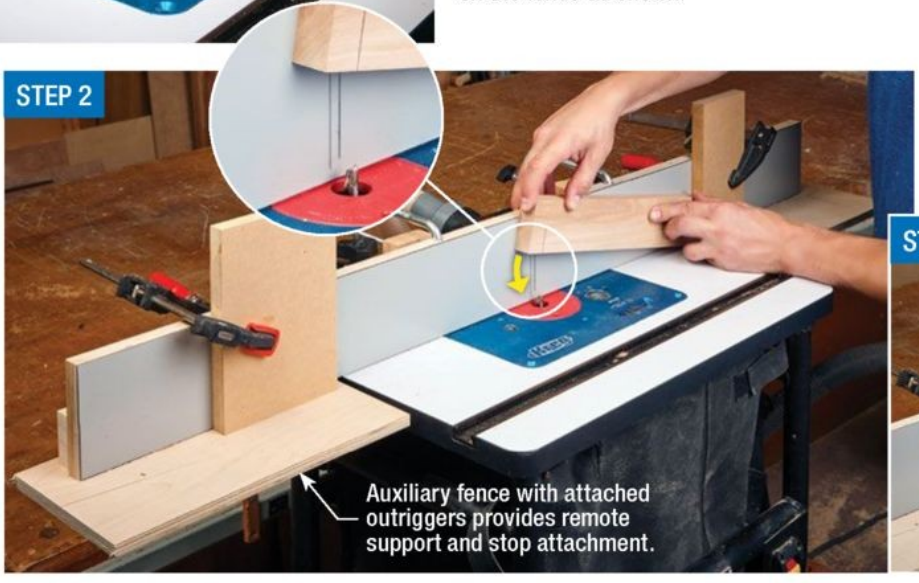
Two jigs for smooth safe cuts. An auxiliary fence eliminates any mid-fence gap that might snag the workpiece. An MDF backer keeps the piece square to the fence and controls exit tear-out.

Dadoes done right. For dadoes that exceed the range of your router table's fence, use a miter gauge with an auxiliary fence to better support the work and mimimize exit tearout. Clamp the stock to the fence for safety and stability.

Grooves

Three steps for stopped cuts. Stopped grooves require a few extra set-up steps. To start, set the bit and fence, and then mark the bit's perimeter on the fence as shown.





Stop and take the plunge. After aligning the joint-extent marks on your workpiece with the lines on your fence, clamp stops in place. Then, with the work against the right-hand stop, lower the leading end onto the spinning bit.

Slide to a stop. When the piece reaches the left-hand stop, hold it against the fence and turn off the router. Wait for the bit to stop completely before removing the piece.

JAPANESE GIFT BOX

Build this stylish box with a sliding lock.

By Bill Sands

It's a tradition among Japanese woodworkers to build a box for their prized hand tools to keep them secure and close at hand. Although these utilitarian boxes tend toward very basic joinery, many feature a simple, but ingenious wedge-locking mechanism to secure the lid. Intrigued by this austere yet functional design, I set out to construct a scaled-down, modified version of these traditional boxes to house any small collection of keepsakes.

For my gift box, I added tapered legs and a pagoda-style handle on the lid to lend visual interest. I also chose to forgo the traditional nailed butt-joint construction in favor of mitered corner joints. The box battens and bottom serve to strengthen the otherwise unreinforced miters.

Traditional Japanese toolboxes typically feature lightweight wood to ensure they are manageable when loaded with tools. Without weight restrictions, my design criteria were different. I elected to use sapele for its subtle grain pattern and excellent joinery attributes. The contrasting maple used for the legs and handle lends another level of eye appeal.

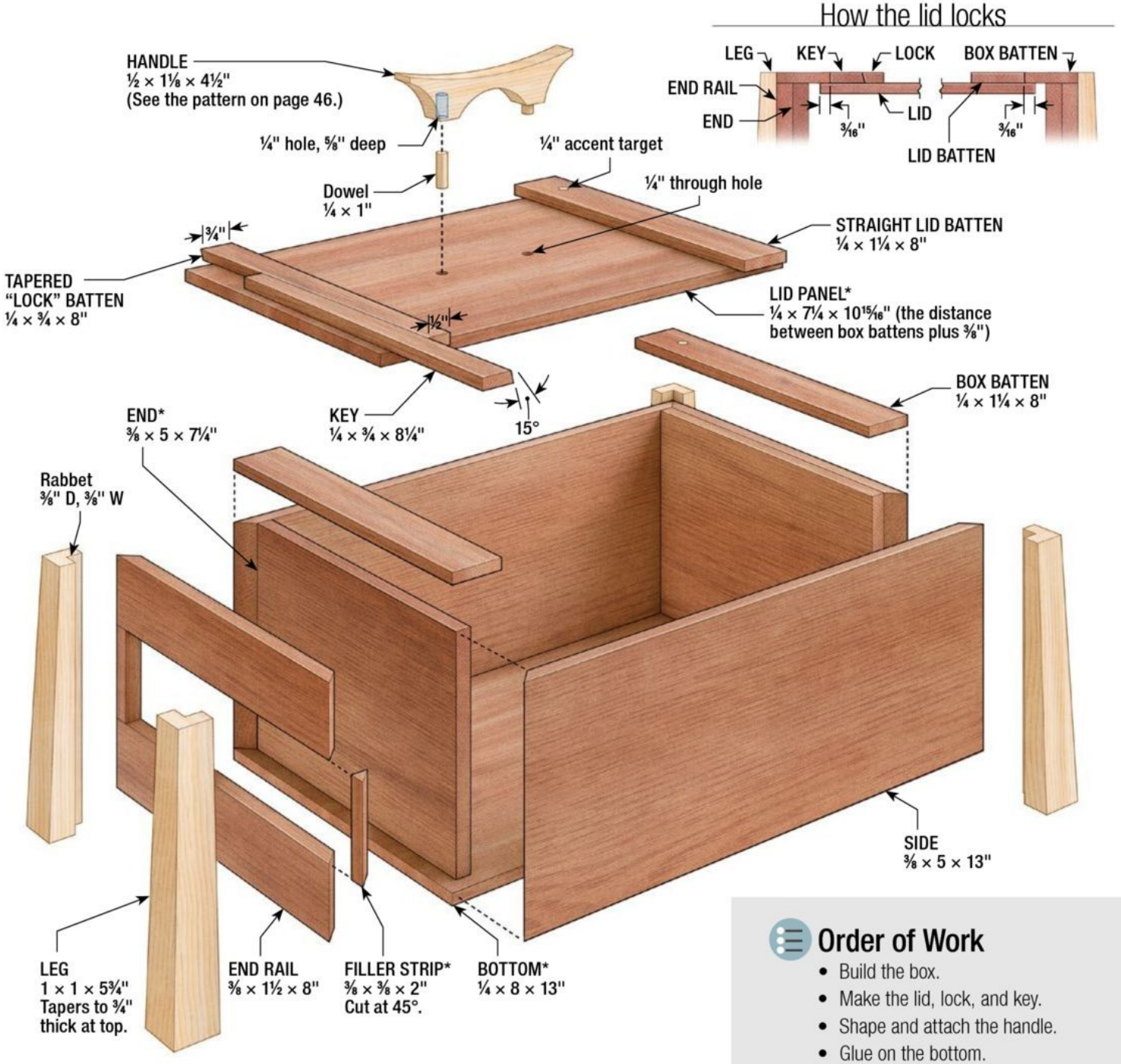
This Japanese toolbox takeoff is a rewarding weekend project for woodworkers who enjoy creating appealing and functional pieces in their shop.

Opening photo: Doug Loyer

A mitered box with a few embellishments

Although a bit non-traditional in its construction, this "hardware-free" sapele and maple box is easy to build. Miters connect the sides and end rails, with the box ends glued to the rails with filler strips inserted between them. The box bottom and battens are glued in place to complete the basic core, and tapered legs overlay the corners to complete the structure.

The lid, with its graceful handle, incorporates a straight batten and a tapered batten that I call the "lock." Both battens cantilever out to catch the top edges of the box sides. To insert the lid, first tuck the lock end under a box batten, letting the opposite end of the lid drop into place. Pull the lid toward the opposite box batten and insert the mating wedge-shaped "key" to lock the box.



*Cut to Fit

Order of Work

- Build the box.
- Make the lid, lock, and key.
- Shape and attach the handle.
- Glue on the bottom.
- Make and attach the legs.

Illustrations: John Hartman

Cut the sides and rails to size; the rest is cut to fit.

Mill the stock for the sides and end rails, leaving the parts oversized in length initially. Then saw them to final length as you cut the miters. Assemble the parts as shown, and let the glue cure thoroughly.

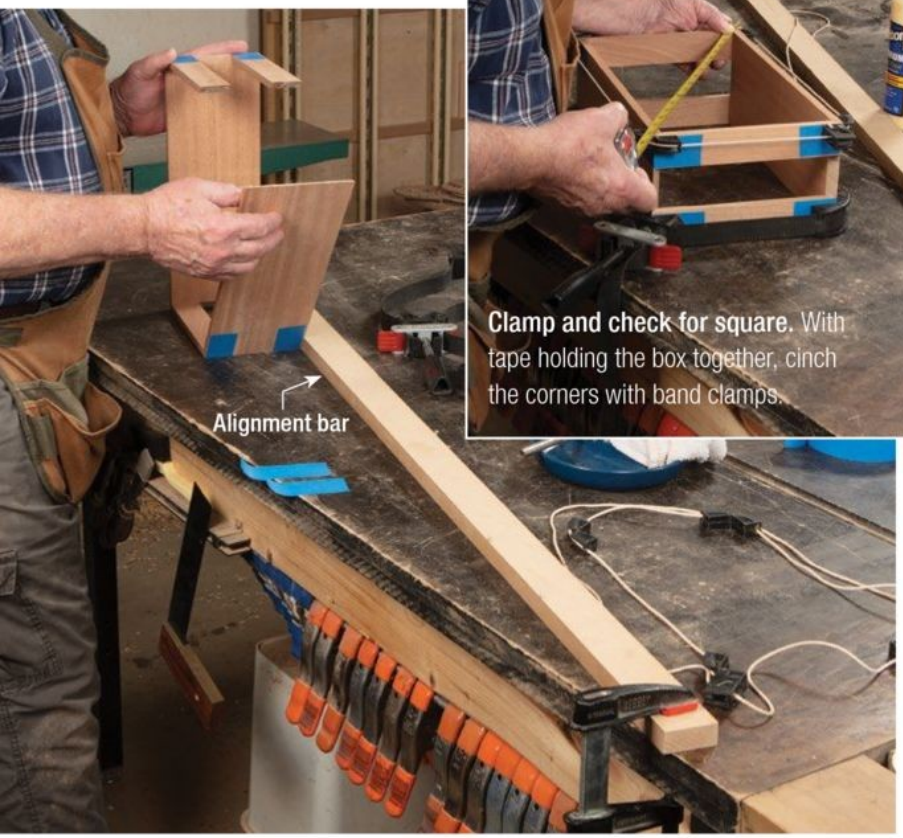
Cut the ends for a snug fit, sand them, and glue them to the end rails. Allow that assembly to dry before attaching the box battens as shown.

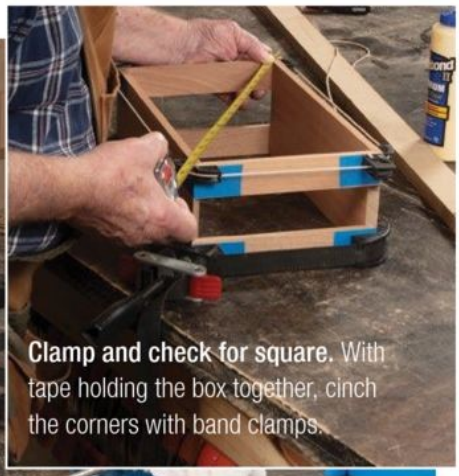
The filler strips span the gaps between the end rails to fill the space behind the legs. For safe handling, rip the strips from long stock about 2" wide. Tilt your table saw blade to 45° and set your fence to take off a ⅜"-wide strip that falls off away from the blade. Finally, fit and glue them where shown in the drawing, using tape as clamps.

Your basic box is together now, but don't attach the bottom yet. You'll need access through the inside of the box to fit the lid later.

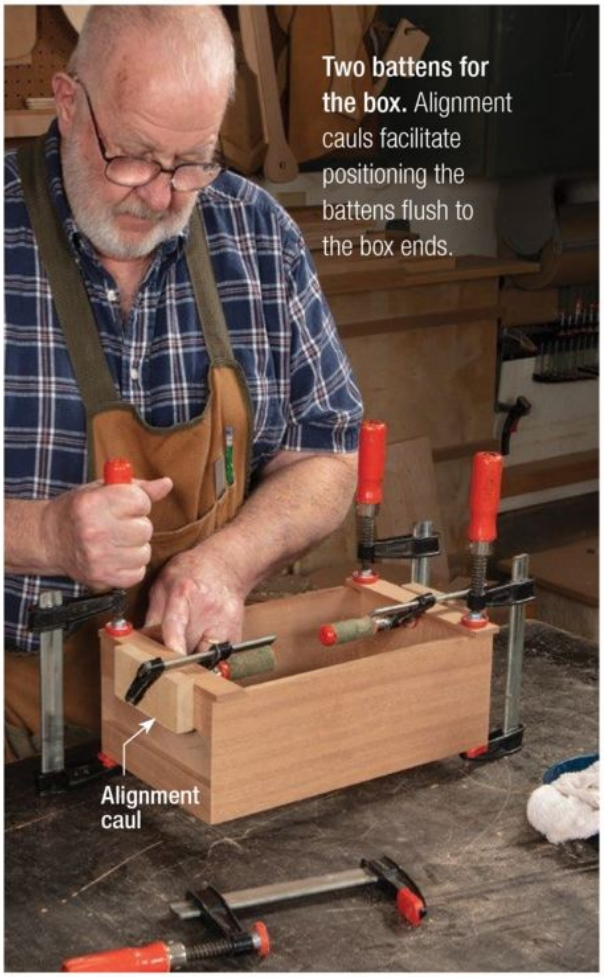
Perfect miters. Since these case miters are not reinforced with splines, it's critical to the integrity of the box that they are cut accurately. I use a table saw sled with a stop that ensures identical parts are cut to the exact same length.

onlineEXTRA
Check out *woodcraftmagazine.com* for drawings of Bill's sled.





Clamp and check for square. With tape holding the box together, cinch the corners with band clamps.



Two battens for the box. Alignment cauls facilitate positioning the battens flush to the box ends.

Assembly roll-up. Align the sides and end rails against a straightedge, with painter's tape spanning three of the box corners. Apply glue to the miter faces, roll up the pieces as shown, and then tape the remaining corner.

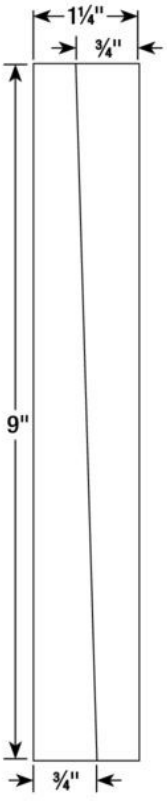
Project photos: Jim Osborn

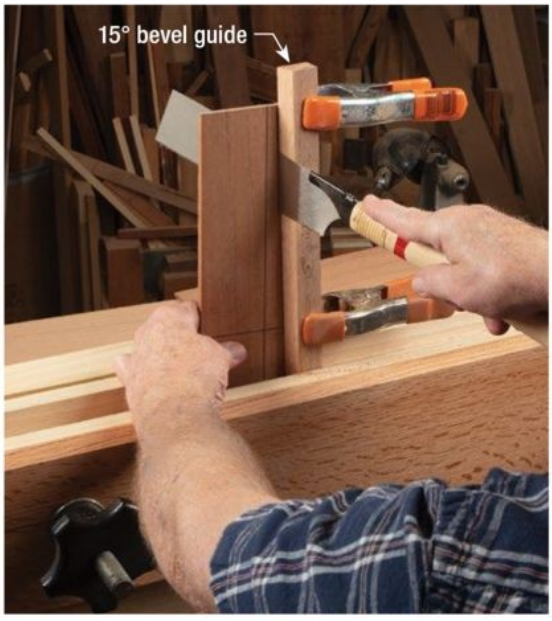
Make the lid and add the lock and key.

Size the lid panel to the width of the box opening, and make it ⅜" longer than the distance between the box battens. Make and attach the straight lid batten, insetting it 3/16" from one end, and ensuring it's square to the panel.

Now lay out the beveled taper required to create the lock and key, referring to the drawing below. I started with a ¼ × 4 × 15" piece, which leaves enough temporary extra material for safe, secure handling when shaping the tapers. I used a handsaw to make the cut, guiding the tool with a straightedge that I beveled to 15° at the table saw. The sawing and planing approach shown here ensures perfectly complementary taper angles.

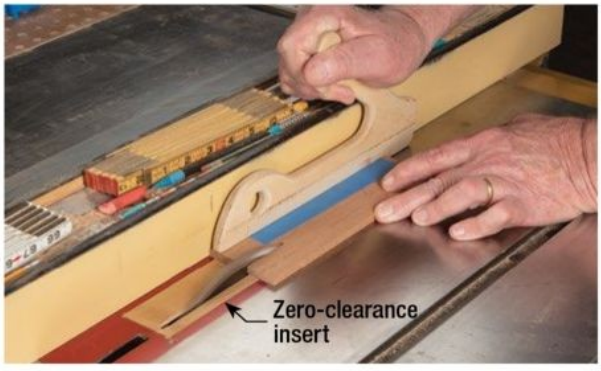
Taper Layout



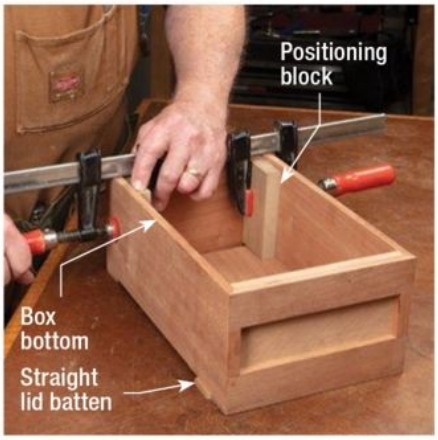


Bevel a taper. Create the lock and key parts from a single oversized workpiece. I guide a fine-cutting rip-tooth handsaw with a shop-made beveled straightedge clamped against my taper cutline. Lastly, crosscut the workpiece to length (removing the portion shown held in the vise above.)

Level the bevels. After double-face-taping the lock and key together with their tapered edges aligned, use a hand plane to smooth and straighten the bevels in unison.



Rip to final width. With the lock and key rejoined with tape on both faces, cut to one layout line. Then rotate the piece and rip the remainder to 1¼" wide, as shown.



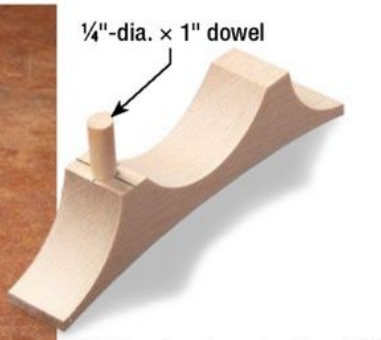
Lid alignment. With the straight lid batten attached and the lid in place, upend the assembly. Clamp positioning blocks to the "lock" end of the box to flush the lid to the box top.

Attach the lock batten. Clamp the straight lid batten to a box batten. Smoothly wrap the key with packing tape, as well as the top edge of the box side at the key location. Align the narrow end of the key with the box side. Then glue the lock batten in place, weighting it down and loosely clamping it against the key and adjacent box batten. (With the tape removed, the key will insert further.) After the glue dries, trim the battens flush to the box sides.

An ornamental handle adds flair to a simple box.

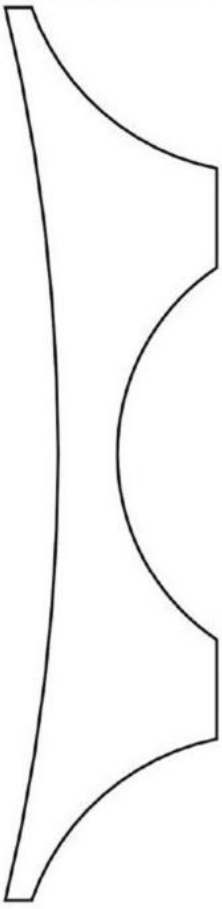
The handle, which gets centered between the lid battens, could just be glued and screwed in place. However, in the spirit of a hardware-free box, I attached it with dowels instead. Rather than trying to locate and drill two pairs of perfectly offset mating dowel holes, I took a more foolproof approach. The trick is to shape the handle, fix a dowel to one of its "feet," and then drill the mating dowel hole in the lid. This creates an anchor to register the handle placement while you drill through the lid and into the other foot for the remaining dowel hole.

Scrollsaw the handle. With the pattern affixed to long stock for safe control, shape the handle, and then sand it.



Drilling for dowels. Use a ¼" bit to drill a ⅝"-deep hole at the center of one handle foot. Then glue in a 1"-long dowel.

Full-Sized Handle Pattern



Handling the lid. After laying out the feet locations on the underside of the lid, drill the "anchor" hole, and temporarily attach the handle with its single installed dowel. Hold the handle parallel to the lid edges by pinching it between two blocks raised off the bench to allow spring clamp access. Drill through the lid and into the remaining foot as shown to create the remaining dowel hole. Then install the handle, applying glue to the dowels and underside of the feet. Saw the protrusions flush.

Finish with a bottom and legs.

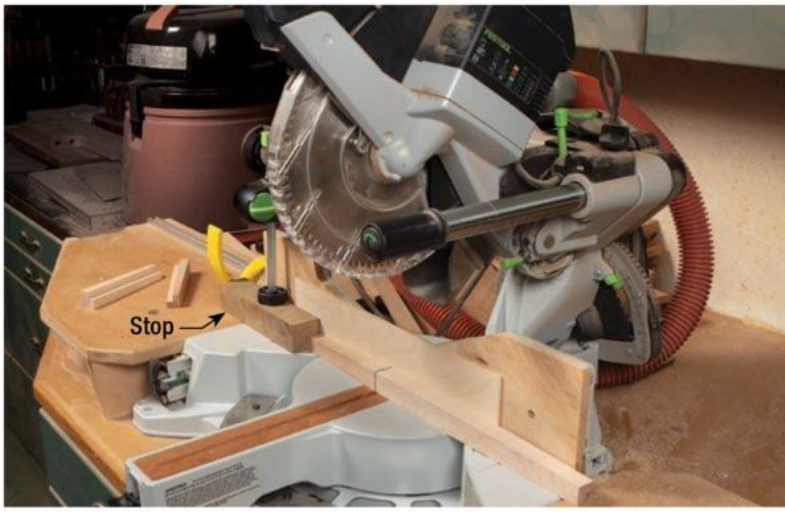
Make the bottom a bit oversized in width and length, and glue it to the box walls. Trim the excess after the glue sets.

Begin the legs by cutting a ⅜" × ⅜" rabbet in two strips of 1 × 1 × 16" stock. Referring to the drawing on page 43, lay out the tapers for a leg at each end of each strip. After shaping the tapers with a hand plane, crosscut each leg to its 5¾" final length, and glue it to its box corner. When the glue is dry, use a chisel to trim any projecting sections of the filler strips flush with the leg faces.

Due to small discrepancies, the lid will usually fit better one way than the other. To indicate the proper orientation, I inlaid a maple plug at one end of the straight lid batten, and installed a matching plug in the adjacent box batten.

Sand everything through 220-grit and apply your finish of choice. I wiped on a few coats of Danish oil, scuff-sanding with 400-grit paper between applications. A little wax applied to the contact surfaces of the sliding parts ensures smooth operation. ■

Taper the legs. To plane a taper, start at its narrow end, taking short outward strokes near the end of the stock. Keeping an eye on your taper cutline, work backward, taking longer strokes until you reach the opposite end of the taper. Reverse your planing direction if necessary to avoid cutting against the grain.



A stop at the chop saw. Use a stop at your miter saw to cut each leg to final length. A zero-clearance insert and fence minimize tearout. For stability, register the non-tapered edges against the saw table and fence.

Attach the legs. Mask the faces of the legs to protect them against excess glue, and work with the box inverted on a flat surface to ensure the legs are flush with the box top. Spread glue liberally along the leg rabbets, and clamp them in place. Double check to make sure the legs don't slip as you tighten your clamps.

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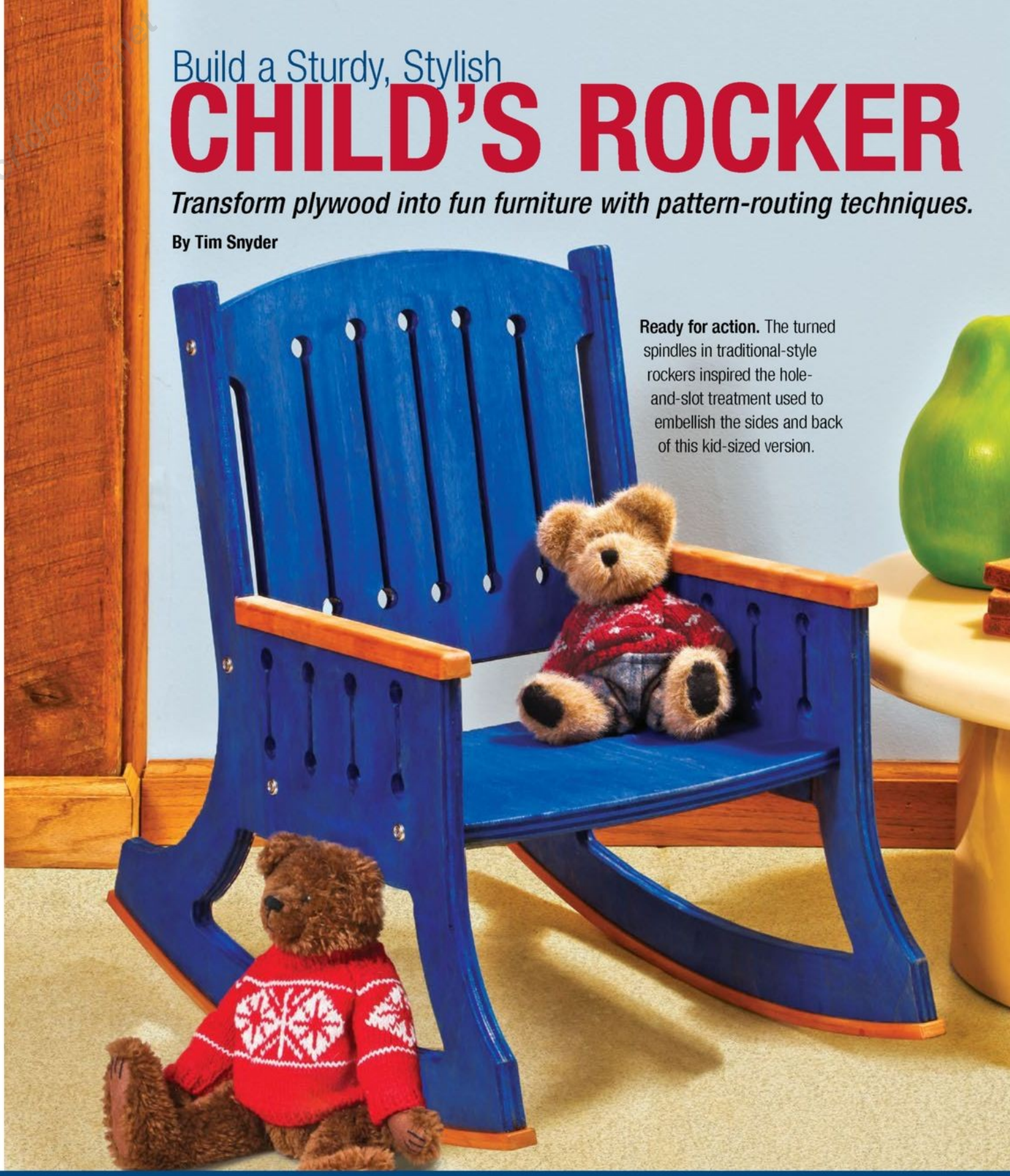
Build a Sturdy, Stylish

CHILD'S ROCKER

Transform plywood into fun furniture with pattern-routing techniques.

By Tim Snyder



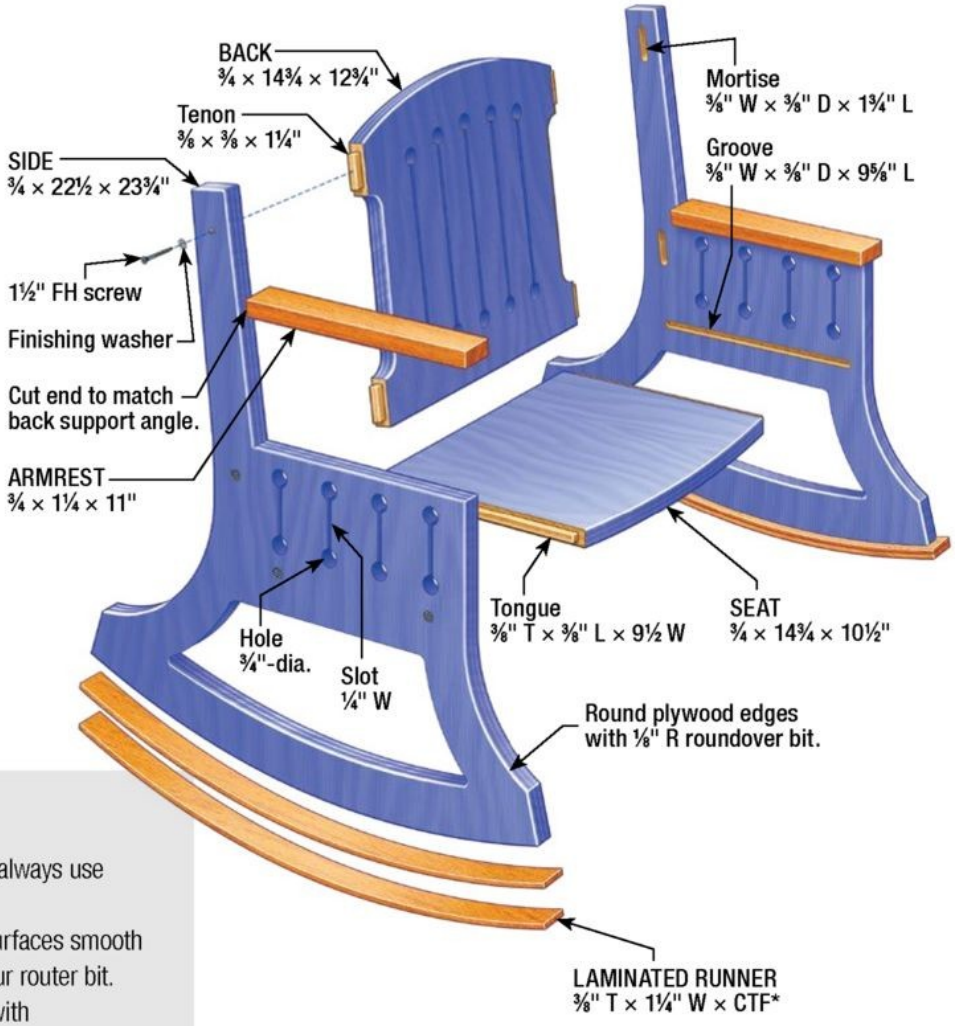
Ready for action. The turned spindles in traditional-style rockers inspired the hole-and-slot treatment used to embellish the sides and back of this kid-sized version.

I can't take credit for the design of this kid-size rocking chair; that belongs to fellow woodworker and writer Spike Carlsen. But not long after Spike provided me with the plans, I learned that my daughter was expecting twins. So the challenge became how to make a pair of matching chairs. Pattern routing is the solution. The investment you make in creating pattern-routing templates has a great payoff: Chair parts that can be created quickly, easily, and precisely. Plywood never looked so good. Once your buddies check out this project, they'll be lining up to borrow your templates and create chairs of their own.

Photos: Randy O'Rourke

Just four pieces of plywood…

A 4 × 4' sheet of ¾" plywood will yield all four parts. Matching sides contain shallow grooves that match up with tongues on seat edges. Each side also contains two mortises that hold short tenons made in the back panel. All joints are assembled with glue and flathead screws, installed with finishing washers.



*Cut to fit

Order of work

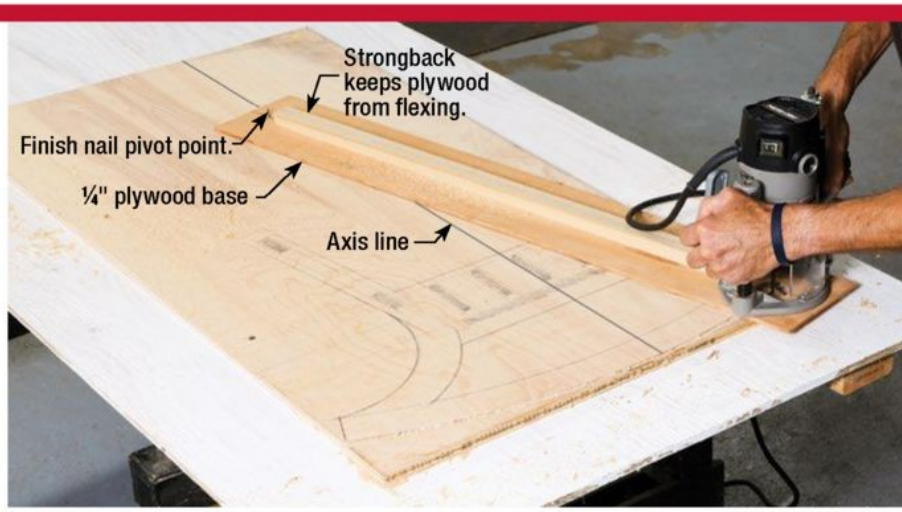
- Make the templates.
- Use the templates to make the chair parts.
- Sand and finish the plywood.
- Add runners and armrests.
- Assemble the chair.

Keys to Success

- When boring through-holes or routing slots, always use a backer board to minimize tearout.
- Take extra care to sand or file all template surfaces smooth and even, since these surfaces will guide your router bit.
- Fill voids in template edges and chair parts with wood putty, then sand these surfaces flush.

Start with a trio of templates.

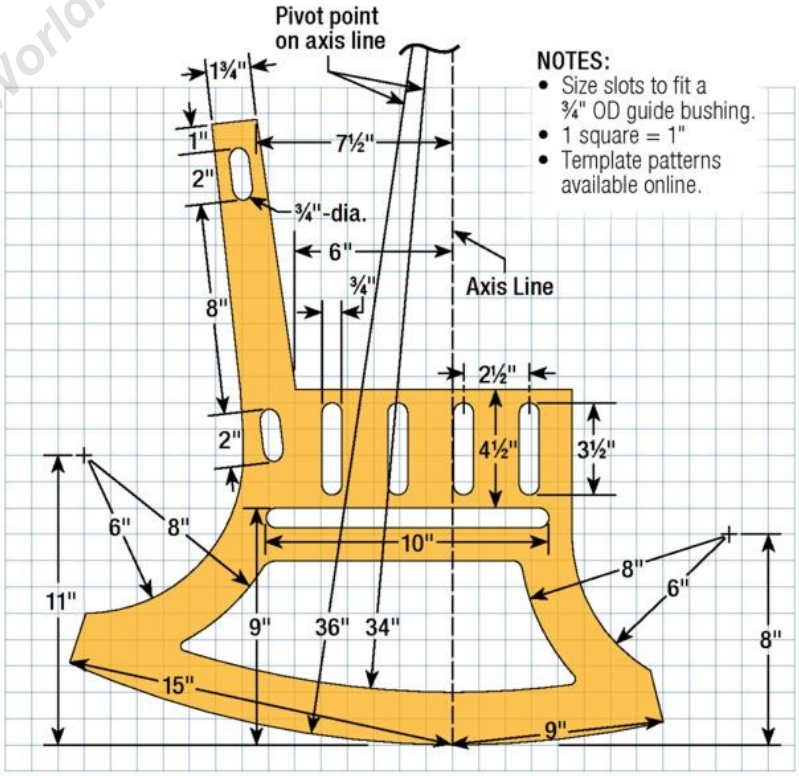
Strange but true: It takes longer to make the templates for this project than the actual parts. I used ½" hardwood plywood to make my templates, painting them when they were complete for improved durability. You'll notice that the side and back templates have rectangular, ¾"-wide cutouts, or slots. Take time to make these carefully, since you'll use the slots to position a Forstner bit, and also guide a ¾" OD guide bushing to rout slots, mortises, and grooves.



Trammel technique. Rout the big curves in all three templates using a trammel-mounted router and a ¼" upcut bit. The router's plastic baseplate can serve as a template for drilling mounting holes in your trammel board. Complete each curve by making successive passes, cutting no more than ¼" deep each time.

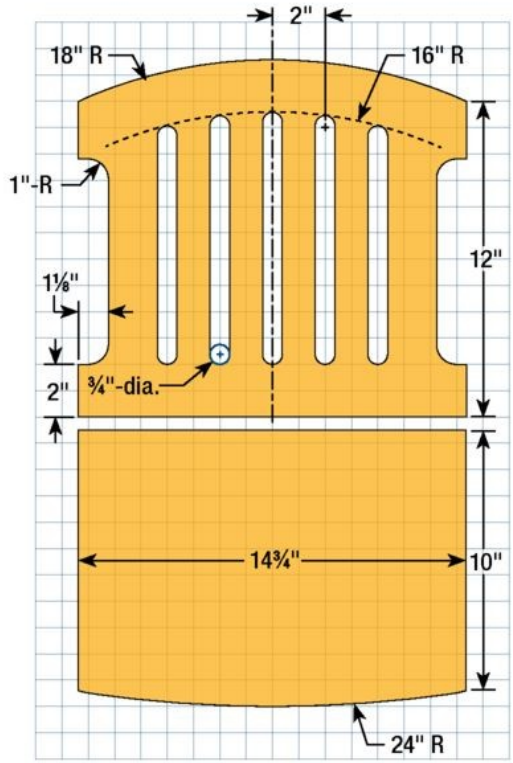
Illustrations: Frank Rohrbach III

Side Template



- Lay out the side's shape, and the slots for the back mortises, seat groove, and spindle details.
- Use a trammel-mounted router and a ¼" upcut bit to rout the bottom curve in the template.
- Cut out the rest of the template with a jigsaw, beginning by drilling ¾"-dia. holes at the ends of each slot.

Back & Seat Templates



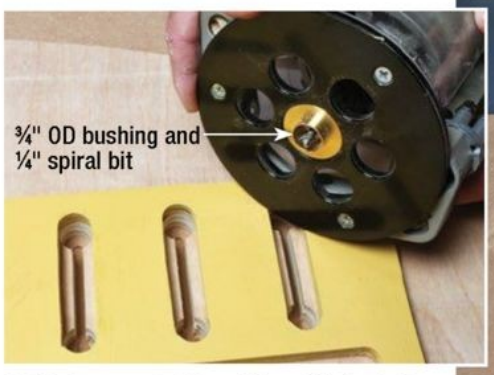
- Rip a single sheet of ½" plywood to a finished width of 14¾".
- Lay out the seat and back shapes on the plywood, including the slots in the back.
- Rout the big curves in the seat and back, using a trammel-mounted router and a ¼" spiral upcut bit.
- Bore the ends of the slots in the back with a ¾" Forstner bit. Then complete the openings with a jigsaw.

Give openings a boring beginning. After laying out the rectangular slots in the side template, use a ¾" Forstner bit to create holes at the ends of each slot. Also bore a hole at each corner of the leg cutout.

Saw, then smooth. Complete template openings with a jigsaw. After all interior cutouts have been made, cut the template free from the workpiece, then smooth all edges with rasps and sandpaper. Make sure that a ¾" OD guide bushing can slide smoothly in all rectangular slots.

Perfect parts are the reward for well-made templates.

The hard work is done, and I haven't even begun to make chair parts yet. But trustworthy templates make this part of the build easy. You'll need some double-stick tape to temporarily adhere templates to workpieces, several router bits, and a ¾" OD guide bushing. The chair sides and back require the most pattern-routing work; the seat requires very little. Get set to make a seat side by attaching the side template to an oversize workpiece on top of a large backer board. After completing the chair sides, use the same techniques to make the back and seat. Once the back's shape is complete, the four tenons will require some trimming in order to fit their mortises. Dry-assemble your parts to make sure they fit together well, and make any necessary adjustments.



Drill, then rout. After drilling ¾"-dia. holes at the ends of spindle openings, use a ¼" upcut bit inside a ¾" OD guide bushing to plunge-rout connecting slots, as shown above. Then replace your ¼" bit with a ⅜" upcut bit to plunge-rout two back mortises and a seat groove (right photo).

Pattern-rout the final shape. After cutting about ⅛" outside the template edges with my jigsaw, I use my router and a ⅝"-dia. pattern-routing bit to remove the last bit of waste and complete the side. Repeat this process to produce a matching side, making sure your mortises and grooves will face each other when you assemble the chair.

Rout tongues for the back and seat. Complete this joinery work in a single plywood workpiece (¾ × 14¾ × 24") you'll use to make the seat and back. Adjust bit height and fence position so the tongues fit snugly in the mortises and grooves made earlier in the chair sides.

Time for a rockin' finish!

Once your dry-assembly checks out, it's time to give all four parts a final sanding. I routed a ⅛"-radius roundover on all exposed edges, but this edge-easing work can also be done with sandpaper.

It's best to finish chair parts separately. The bright blue stain I chose for this rocker goes well with the solid cherry runners and armrests. Hold off on attaching the armrests and solid wood runners until the plywood has been stained. The armrests can simply be glued in place.

The cold-molding technique for installing the runners is easy to accomplish if you use clear, straight-grained hardwood like oak, cherry, or maple, with strips that are sized 3/16" thick and 1" wide. Allow each two-layer runner assembly to run long when you install it, then trim runner ends to extend about ¼" beyond the plywood after the glue sets. Give your runners and armrests a thorough sanding to ease edges, then give all four parts two coats of wipe-on poly varnish. Final assembly is the easiest part of the job: glued joints, reinforced with screws that are installed with finishing washers. ■

Two strips to make each runner. Cut each strip to about 27" long. Spread glue along the curved plywood edge, center the strip over the plywood, and secure a strip to one end with a 1¼" finish nail. Bend the strip the full length of the curve, nailing every 6"-8". Repeat to install the second strip, then clamp both ends to the seat structure until the glue sets.

Assembly! Tongue-and-groove joints, secured with glue and 1½" FH screws, ensure that this little rocker can endure rambunctious use. I used finishing washers beneath screw heads for appearance and extra holding power.

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Go to our website to download a plywood cutting diagram and template patterns.


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Wood & Resin TURNED BOX

Use these simple turning techniques to create a unique lidded box.

By Carl Jacobson

The unusual thing about this particular box is that it's turned from a hybrid blank. Resin casting, a means of molding acrylic material into blanks for turning, has become very popular in recent years and hybrid blanks are a big part of the trend. "Hybrid" is a term coined for combining wood and resin together to create beautiful and unique designs. You can buy hybrid blanks (p. 62) or make them yourself, see onlineEXTRAS on p. 59.

When turning a hybrid blank, you're working with two different materials at the same time, each with its own unique properties. Due to its hard, dense nature, resin is prone to chipping while turning with gouges or typical scrapers. But the new Easy Wood Tools Negative Rake Carbide Cutters are a game-changer for turning tough material. The angle of the negative rake virtually eliminates chipping, leaving behind a smooth surface. For more information on negative rake cutters, see the box at right.

Turned lidded boxes are quick and easy to make. The shape of your box is limited only by your creativity. But I'll show you the basic process that you can apply to your own box. You'll be churning out these boxes in no time and handing them out as gifts.

Photos: Asa Christiana

New negative rake cutters

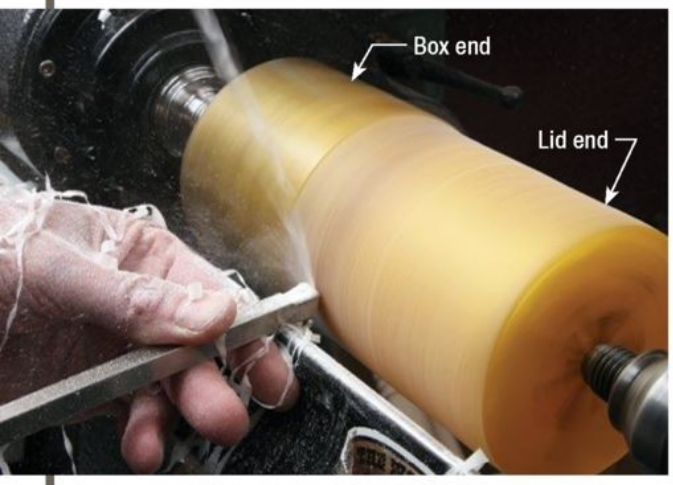
Easy Wood Tools introduces new carbide cutters designed to reduce catching and chipping on man-made materials like resin and acrylics. They also work well with very dense hardwoods. But best of all, you don't need to buy a whole new tool. The new cutters are designed to replace similarly shaped standard cutters on existing EWT tools. Check out *EasyWoodTools.com* for more information.

Turn tenons and part away the body.

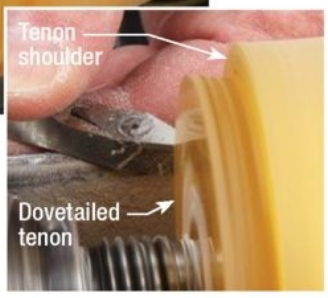
True your blank and turn a dovetailed tenon on the lid end as shown. Remove the blank from centers and mount it in your 4-jaw chuck using the tenon you made.

Bring up the tail stock for support and turn a tenon on the box end. Then part off the lid. If you are turning resin for the first time, beware. Resin is very hard and doesn't create dust or small chips like wood. The waste shoots out like a confetti canon as you turn. As always when turning, wear a face shield.

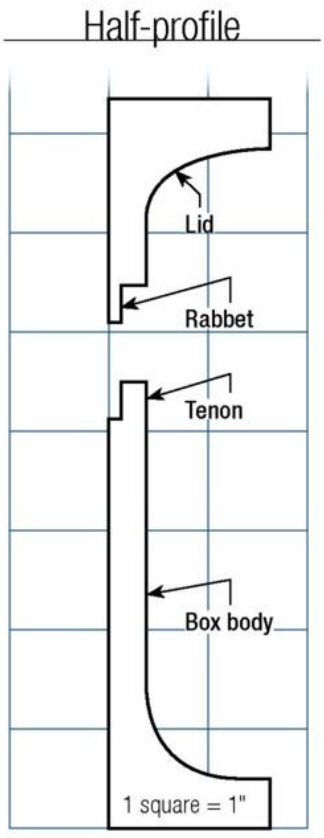
Due to its dense nature, resin is more brittle than wood, so leave extra material for handsawing here. Set aside the box body, leaving the lid in the chuck to turn the interior.

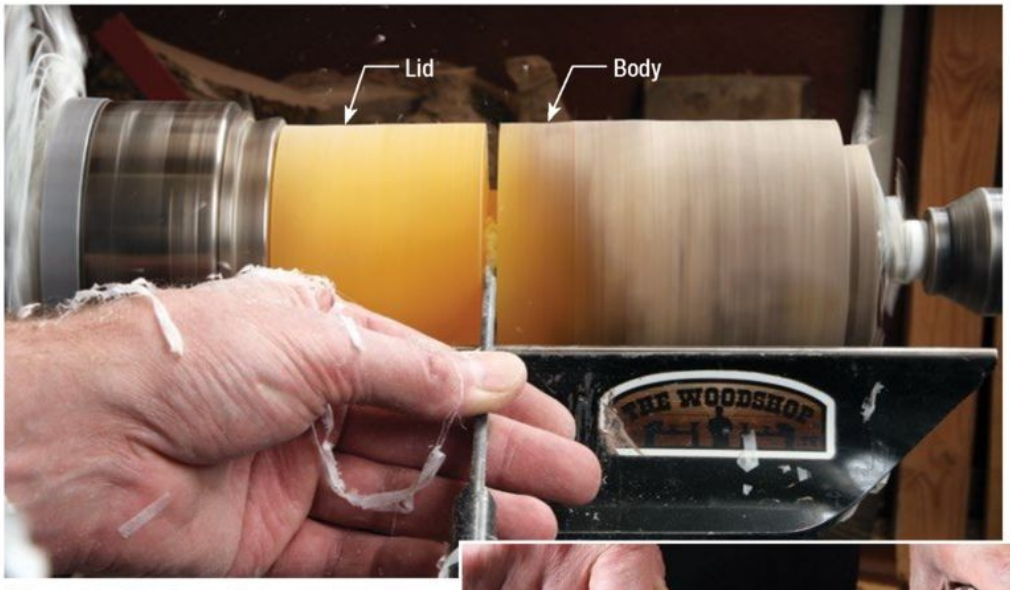


Turn a cylinder. To start, place a 3½"-dia × 7"-long blank so what will be the box's lid is on the tail stock end, and turn it to a smooth cylinder. Set your lathe at 2000 RPM and true the blank using the mid-size ½" Easy Rougher equipped with a Negative Rake Cutter.



Create a dovetailed tenon. Using the Easy Rougher, turn a tenon at the lid end. With the Easy Detailer, add a taper to the tenon creating a dovetail that will fit securely in your 4-jaw chuck. Square up the shoulder.





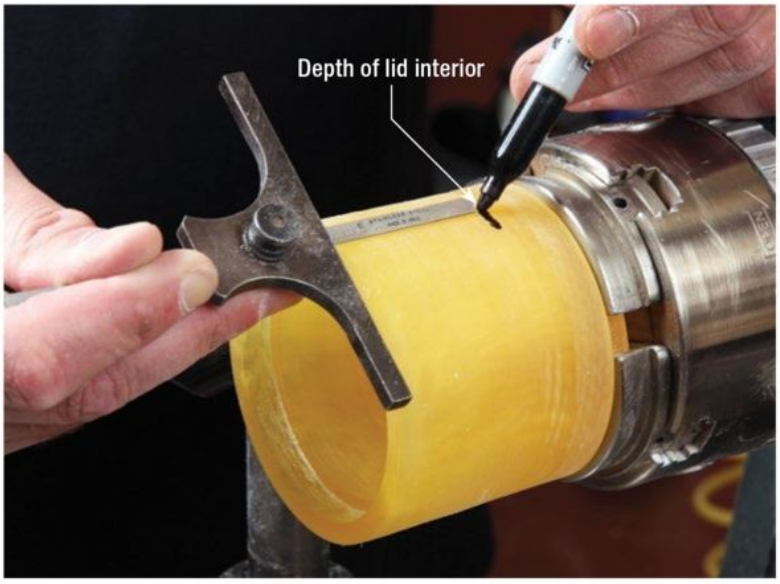
Off with its lid. Part off about a third of the blank for the lid, using a ¼" parting tool. Again, take precautions with the resin. Its brittle structure could break if you part away too much. Turn off the lathe, and then use a handsaw to finish the cut. Remove the box body.

Turn the lid interior and make a rabbet.

True the end of the lid, shape its interior using the Hollower, and then make a rabbet as shown. Measure the depth of the interior, and make a parting cut to establish the top end of the lid. Then sand and finish the lid interior. Wet-sanding through the grits greatly reduces dust. Take care not to over-sand the rabbet shoulder, as you'll want a nice square lip that fits tightly over the tenon you'll cut on the box body. Now saw the lid free at the parting cut you made earlier.

Hollow the lid. With the body set aside, readjust your tool rest to the end of the lid blank. Hollow out the lid interior using the #1 Easy Hollower, leaving plenty of material at the lid's top. This tool will cut during both insertion and extraction.

Rabbet the lid. Use a ¼" parting tool to make a rabbet that will fit over a tenon on the box body. Aim for a rabbet about ⅜" deep into the lid, and ⅛" wide.



Measure and mark the lid depth. Turn off your lathe and measure the depth of your lid hollow using a depth gauge. My box lid was 1¾"-deep. Mark your depth on the blank exterior, and then part off the lid about halfway between the mark and the end in the chuck.

Finish the lid interior. Set your lathe speed at 150 RPM and wet sand the interior only, working your way through the grits. I start with 180-grit Abranet sandpaper, and then finish with 12,000-grit Micro Mesh. Now buff using fine scratch remover paste with your lathe speed at 1500 RPM.

Fit the lid to the body, and then finish the lid.

A well-made box has a snug-fitting lid. Start by mounting the box body in the 4-jaw chuck using the second tenon you made. The third tenon you'll turn will fit the rabbet in the lid. I spin the body at 2000 RPM, and do most of the shaping with my square cutter. A parting tool will help you get into the tenon corner. This tenon serves as a sort of jam chuck to hold the lid in place for its final shaping, so aim for a snug fit. Mount the lid on the body and turn both to the same diameter.

Use the same sequence of sanding and polishing to finish the outside of the lid.

Test your tenon. When turning the box tenon, take care to creep up on a snug fit by stopping the lathe frequently, testing the fit, and then turning a little more. Keep turning and testing until the lid fits snugly. A tight fit is key for the next steps.

Turn the lid and body together. Mount the lid on the freshly cut tenon, bring up the tail stock for support, and turn the lid and body to the same diameter.

Finish shaping the lid. Turn the top of the lid as far as you can. Then remove the tail stock and bring the tool rest around to the top of the lid to finish shaping it with the #1 Hollower.

Sand and polish. Use the same sanding and polishing sequence you used for the lid interior to finish its exterior.

Hollow and finish the box.

With the lid set aside, start hollowing the box interior using a Forstner bit. Remove the rest of the interior of the box and then sand and finish the inside as before.

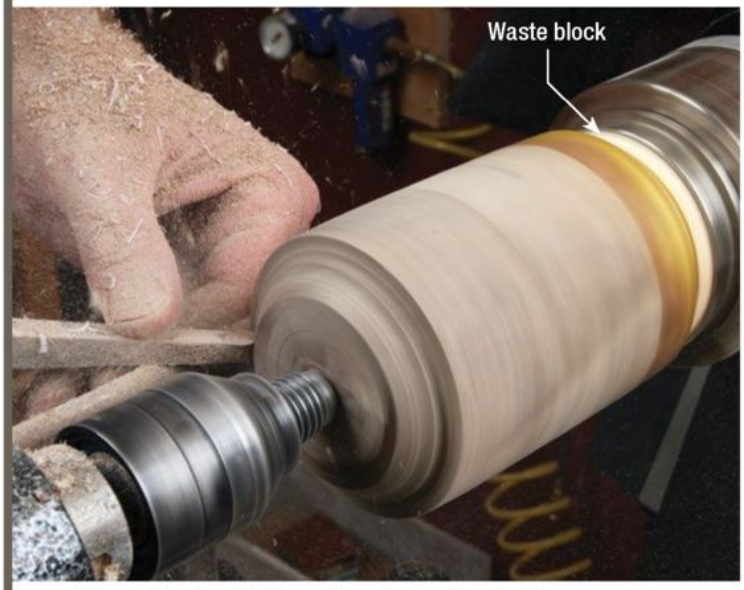
Flip the body around and mount it to a waste block. Complete the shape of the box body and sand and finish the exterior. I used Howard Feed-N-Wax. ■

onlineEXTRA

Stop by our website to see Carl in action as he turns a box just like the one here. While you're at, learn to make your own hybrid blanks with a free bonus article.

A boring way to save time. To quickly hollow out the box, drill it out using a 2⅛" Forstner bit. Chuck the bit in your Jacob's chuck and turn your lathe speed to 200 RPM. Advance and retract the tail stock as needed until you reach the full depth, about a ½" from the bottom.

Smooth the interior. Turn the rest of the material from the inside of the box body using a #1 Hollower. Aim for a final wall thickness of about ⅜".



Shape the box bottom. Mount the lid end of the box body onto a snug-fitting tenon turned on a waste block, and bring up the tail stock to support it. Shape the bottom of the box body using a #1 Hollower.

Remove the nub. Without removing the tail stock, use the Detailer to turn away as much material as possible. Finally, remove the tail stock and slice off the remaining nub with a knife. A little bit of hand sanding and then you're done.

KRENOV'S CABINET ON STAND

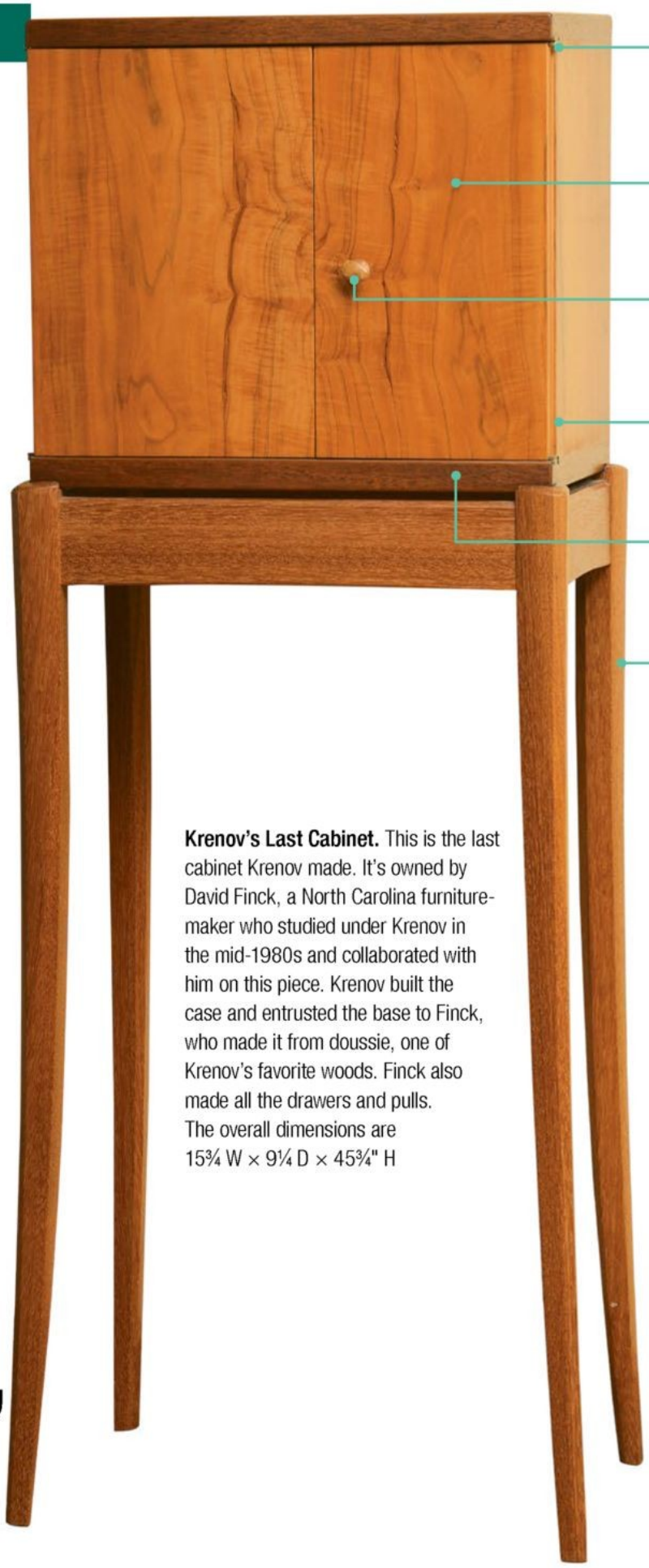
By David Heim

In a career that spanned more than 60 years, the famed cabinetmaker James Krenov fashioned hundreds of cabinets on stands. He didn't invent the form, but he did perfect it. And, through his years of teaching at the Rochester Institute of Technology and the College of the Redwoods (now known as The Krenov School), he trained hundreds of students who went on to give the cabinet-on-stand a wider audience.

Krenov cabinets have a style all their own, although some resemble Scandinavian designs from the mid-twentieth century. That may not be a coincidence, since Krenov studied and taught at the school run by Carl Malmsten, often called the father of Scandinavian furniture design.

When you stand before one of Krenov's cabinets, the experience can be breathtaking. I learned that in 2007, when I saw an exhibition of work by Krenov and some of his students to mark the 25th anniversary of the College of the Redwoods woodworking program. One of Krenov's cabinets had pride of place in the center of the gallery. Every part of the cabinet was in perfect harmony with the whole. The colors of the woods complemented each other nicely. Door frames, stretchers, and legs were cut so that the grain followed the shape to accentuate it. Edges and corners had been carefully softened

> "Within the little details there is a search for meaning, too, that I hope enriches the finished piece"



Krenov's Last Cabinet. This is the last cabinet Krenov made. It's owned by David Finck, a North Carolina furnituremaker who studied under Krenov in the mid-1980s and collaborated with him on this piece. Krenov built the case and entrusted the base to Finck, who made it from doussie, one of Krenov's favorite woods. Finck also made all the drawers and pulls. The overall dimensions are 15¾ W × 9¼ D × 45¾" H

Photos except where noted: David Finck (*DavidFinck.com*); Krenov photo: David Welter, courtesy of The Krenov Foundation

Doors swing on unobtrusive knife hinges.

Many coats of thin shellac enhance the natural beauty of carefully selected boards.

Hand-carved pull

Doors are inset slightly from cabinet side to create small shadow line.

Contrasting wood (Honduras mahogany) is used to frame doors veneered in Appalachian cherry.

Curves are designed to follow the grain.

Asymmetry. The drawers, shelves, and dividers follow an asymmetrical layout. Each drawer front is made from a different species of wood.

Transitional Elements. Transitions like this corner were planned carefully to feature graceful curves and subtle shoulders between joining parts.

fastFACTS

- Krenov typically joined case parts with dowels. This made it easier to dismantle and reassemble the case for numerous dry fits. He often assembled door frames with bridle joints.
- Krenov also made his own wooden handplanes. Near the end of his life, with his eyesight failing, Krenov continued to make planes largely by feel.
- Following Krenov's death in 2009, the Krenov Foundation was established. It supports the art and craft of fine woodworking through scholarships, exhibitions, and an online archive of Krenov's work (*www.thekrenovfoundation.org*).

> "Most of my work comes not from drawings but from an idea I have"

and rounded, making the piece more inviting to touch. None of those qualities happened by chance.

Passages in Krenov's 1976 book, *A Cabinetmaker's Notebook,* explain his approach to creating these cabinets:

"Details, even the smallest ones, are an integral part of my work," he wrote. "Within the little details there is a search for meaning, too, that I hope enriches the finished piece." For example, he used hand-carved, spring-loaded door latches, paired with a small wood button protruding ever so slightly from the cabinet base, to keep the door from sagging over time.

"Most of my work comes not from drawings but from an idea I have," he wrote. "There may be a rough sketch, yes, but I am not bound from the beginning. I am groping toward something, composing as I go along. I have an idea, more often than not a function. And always the wood is there to guide me."

Krenov typically knocked together mockups in scrap wood, a practice that allowed him to quickly alter proportions or change entire elements. Once satisfied with the mockup, he duplicated the piece in hardwoods. Krenov often combined different species to create pleasing compositions of grain and color.

> "I don't want perfect symmetry. I have a built-in resistance to the all-too-symmetrical and stiff"

Many cabinetmakers build the case and face frame first, then turn to the doors. Krenov often worked in the opposite direction. "I often make the doors of my cabinets first because it's much more difficult to find the wood and the inspiration for making one door or a pair of doors than it is to make the case of a cabinet. The doors are often decisive for me."

Krenov didn't believe that good proportions depend on symmetrical forms. "I don't want perfect symmetry. I have a built-in resistance to the all-too-symmetrical and stiff," he wrote.

"The relationship between the object I have made and how it is going to be used is important to me. I want the case and the contents to be composed in a whole, and to be pleasing to the person who has it." ■

Buyer's Guide

Hot New Tools (p. 14)

1. HomeRight SuperMax HVLP Sprayer ..... #164229, **$99.99**
2. ArborTech Ball Gouge ..... #164581, **$109.99**

Build a Super Serving Tray (p. 26)

1. WoodRiver 7/16" OD Guide Bushing ..... #144690, **$9.50**
2. Whiteside Carbide Upcut Router Bit, ¼" SH, ¼" D, 1" CL ..... #03K33, **$19.54**
3. Highpoint Threaded Insert, Low Profile ¼"-20, 8-Piece (4 req.) ..... #159285, **$6.99**
4. ¼"-20 × 1½" Connector Bolts, 10-Piece (4 req.) ..... *amazon.com*, **$12.24**
5. Leigh Box Joint & Beehive Router Jig ..... #163441, **$99.00**
6. CMT Slot-cutting Bit, ½" SH, 3/16" H, 1 7/8" D ..... #822297, **$24.99**
7. ZINSSER Bulls Eye Clear Shellac, Quart ..... #140700, **$16.99**

Get a Grip! (p. 32)

1. WoodRiver Quick Bar Clamp, 12" ..... #162842, **$18.99**
2. Bessey Duoklamp, 12" ..... #147305, **$24.99**
3. Dewalt Large Trigger Clamp, 12" ..... *homedepot.com*, **$19.97**
4. Irwin Quick-Grip, SL300, 12" ..... *lowes.com*, **$19.98**
5. Bessey PowerGrip Clamp, 12" ..... #413246, **$50.99**
6. Bessey EZS Quick-Action Bar Clamp, 12" ..... #845104, **$28.75**
7. Pinnacle Cam Clamp, 8" ..... #123262, **$20.79**
8. WoodRiver Quick Gear Clamp, 8" ..... #162859, **$18.50**
9. Bessey Kliklamp, 12" ..... *homedepot.com*, **$23.68**
10. Bora Lever Clamp, 12" ..... *boratool.com*, **$25.00**
11. WoodRiver Q-Lever Clamp, 12" ..... #162862, **$20.99**
12. Kreg Automaxx Bar Clamp, 8" ..... #162024, **$29.99**

Router Table Basics (p. 36)

1. Whiteside 5-piece Brass Set-up Gauges, 2½" ..... #144932, **$14.99**
2. Wixey Mini Digital Height Gauge ..... #153811, **$24.99**
3. Armor Auto-Pro Medium Horizontal Toggle Clamp ..... #160646, **$24.99**
4. WoodRiver Push Blocks (2) ..... #111170, **$10.99**
5. BOW Products FeatherPRO, Single Featherboard ..... #162500, **$29.99**
6. Freud Rabbeting Router Bit Set with Bearings, ½" SH ..... #828851, **$42.47**
7. CMT Dado and Planer Router Bit, ½" SH, 1¼" D, 5/8" CL ..... #822348, **$30.99**
8. Freud Straight Bit ½" SH, ½" D, 1½" CL ..... #828671, **$21.97**
9. Freud Upcut Sprial Router Bit, ½" SH, ½ D, 1¼" CL ..... #828780, **$67.47**

Japanese Gift Box (p. 42)

1. WoodRiver ¼" Forstner Bit ..... #125923, **$5.99**
2. WoodRiver Corner Band Clamp ..... #141115, **$24.50**

Build a Sturdy, Stylish Child's Rocker (p. 49)

1. WoodRiver ¾" Forstner Bit ..... #125931, **$9.50**
2. WoodRiver ¾" OD Guide bushing ..... #144693, **$9.50**
3. Freud Pattern Router Bit ¼" SH, 5/8" D, 1" CL ..... #828739, **$26.97**
4. Whiteside Carbide Upcut Router Bit ¼" SH, D, 1" CL ..... #RU2100, **$19.54**
5. Hillman #8 Stainless Steel Finishing Washers, 16-Count ..... *lowes.com*, **$1.98**
6. General Finishes Water-based Dye, Blue, Pint ..... #149541, **$13.50**
7. General Finishes Arm R Seal Top Coat, Satin, Quart ..... #85F08, **$17.99**

Wood & Resin Turned Box (p. 55)

1. Easy Wood Tools Negative Rake Cutter Ci2-r2 Square, 2" Radius ..... #164541, **$16.99**
2. EWT Negative Rake Cutter Ci6-r1, Square 1" Radius ..... #164561, **$17.99**
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Ad Index

GONÇALO ALVES

Enduring South American beauty

By Ken Burton

Unless you're deep into the PGA, if you bring up the name tigerwood, you're probably talking about gonçalo alves, a tropical hardwood known for its durability and striped appearance. Also known as jobillo (or hobillo), this exotic comes from one of two tree species: *Astronium fraxinifolium* or *A. graveolens*. The trees are closely related and are part of the same family that includes mango, cashew, and pistachio trees.

The reddish-brown wood is heavy and dense and often has irregular dark brown and black stripes. Its sapwood is a grayish-white. It is classified as a diffuse-porous hardwood and has indistinct growth rings. The figure can vary greatly—from straight-grained to wavy—though even plain-looking pieces have a nice luster due to the wood's high density.

The trees grow in the high forests of Central and South America. Much of the wood that makes it to the U.S. is exported from Brazil. Both species grow quite large—from 100' to 130' tall, and 3' to 5' in diameter. Despite the size of the trees, the lumber available here tends to be on the small to medium size: 3" to 12" wide and 6' to 12' long. Though some 8/4 stock can be found, 4/4 material is commonly available. In areas where it grows, the wood is often used for construction rather than fine woodwork due to its strength and natural durability.

As of this writing, gonçalo alves is not listed on the CITES (Convention on International Trade in Endangered Species) Appendices or on the IUCN (International Union for Conservation of Nature) Red List of Threatened Species.

History in woodworking

Unlike rot-resistant species such as walnut or mahogany, gonçalo alves doesn't have a long pedigree in the annals of furniture making. We can surmise that it has been called on over the years to take advantage of its decay-resistant qualities, but history doesn't show its use in furniture. Because the wood is so hard, and difficult to dry without excessive warping and checking, gonçalo alves isn't a first choice for most furnituremakers. Commercially, the wood is typically used these days for flooring and accent wood in the manufacture of specialty products like billiard cues and high-end archery bows. On a smaller scale, turners appreciate that gonçalo alves easily polishes to a high sheen.

Selecting the best stock

Unless you're lucky enough to live near a yard that stocks exotics, your best bet for finding gonçalo alves may be an online lumber dealer. Some have photos on their websites of their inventory to help you choose. But it may be worth a phone call so you can describe exactly what you're looking for. Several merchants cater to turners, so if you're after smaller pieces, you may be able to find blanks already cut to the size you need. As for the price, $9 to $10 per board foot is the current average, though highly figured stock can easily cost twice as much.

Gonçalo Alves Quick Take	
DENSITY	57 lbs./cu. ft.
HARDNESS	Very hard
STABILITY	Good
ROT/INSECT RESISTANCE	Excellent
TEXTURE	Medium to fine
TOXICITY	Moderate, although the wood can be a sensitizer
USES	Flooring, veneer, furniture and cabinetry, turning, specialty wood products including pool cues and archery bows

Wood photos: Ralph Lee Anderson; Spoon photo: Ken Burton

The many faces of gonçalo alves. Dark brown stripes are good identifiers, but the figure varies from wavy to straight-grained.

Working gonçalo alves

As with making things using any hard, dense wood, working gonçalo alves presents certain challenges. While you can work the wood with hand tools, all but the hardiest of us will turn to tools that plug into the wall. In general, use very sharp cutters and blades, make light passes, and use slow to moderate feed rates. When ripping at the table saw, you'll get better results from a true rip blade with 28 or fewer teeth—toothier blades may cause burning. Because of the wood's density, brad point bits are a must when drilling holes in gonçalo alves. When boring deep holes, "peck" at them, withdrawing the bit frequently to clear the chips. Drill pilot holes for screws, and lubricate the screws with wax before driving them.

Sanding gonçalo alves is a challenge in its own right. The oily sawdust tends to clog abrasives quickly, so stock up on sandpaper. Don't try to save time by skipping grits, or you'll leave scratches. The dense grain structure requires sanding with finer grits (400 or higher) to reach a nice sheen.

Gluing gonçalo alves calls for special consideration. Wipe the glue surfaces with denatured alcohol just before applying the adhesive to clear the natural resins the wood exudes. This is especially important if your freshly cut surfaces sit for a few days before you get to your glue-up. And choose a glue with a long open time. Because the wood is so dense, it will resist absorbing the added liquid; a longer open time gives the glue a better chance to penetrate mating surfaces.

Finishing

If you do a good job sanding and polishing your surfaces, you'll find gonçalo alves takes on a high, plastic-like sheen even without a finish. It will look so nice, you may even question the need for a finish at all. But it is worth applying a clear finish if only to protect that natural luster from dust and dirt. The wood accepts oils and waxes readily, but some oil-based finishes such as polyurethene may not completely dry because the wood's chemistry prevents the finish from polymerizing the way the manufacturers intend. The solution is to use an evaporative finish such as lacquer or shellac. These adhere to the surface and dry through evaporation rather than polymerization. If you need more protection than either of these provide, apply a coat or two of shellac as an intermediate finish before applying polyurethane or another more durable varnish. As with other species, test your chosen finish on a scrap piece to make sure you like the way it looks. Polish the scrap to the same degree you plan to polish your project, so you get a good idea of how the finish will really look. ■

Gonçalo Alves: First Hand

When the samples arrived for this article, the boards had a pleasing heft to them. Their coloring certainly lived up to the tigerwood nickname, and they had a slightly waxy feel that I have come to associate with tropical wood.

As I had never worked with gonçalo alves, I was anxious to see firsthand what it was like to use. I chose to make a couple of spoons as that would grant me the chance to perform several woodworking operations. I made sure to wear a mask to avoid breathing the dust—gonçalo alves is related to poison ivy. The wood was easily cut on the band saw and turned beautifully. I made sure my chisels were good and sharp. Carving the inside of the bowl was not nearly as difficult as I had anticipated. I used a bent gouge (sharp, of course) and was able to scoop out the bowls with no more than moderate hand pressure. The carved surfaces were gratifyingly smooth and burnished. Sanding went well but took some time as I had to sand to 400-grit before I was pleased with the surface. I used mineral oil as a finish—no need to worry about it drying as it simply soaks in. Now I'm wondering what to make with the rest of the sample material.

United States Postal Service Statement of Ownership, Management, and Circulation

1. Publication Title: Woodcraft Magazine **2.** Publication Number: 024-953 **3.** Filing Date: 10/1/2018 **4.** Bi-Monthly: Dec/Jan, Feb/March, April/May, June/July, Aug/Sept, Oct/Nov **5.** Number of Issues Published Annually: 6 **6.** Annual Subscription Price: $19.97 **7.** Complete Mailing Address of Known Office of Publication: Woodcraft Magazine, 4420 Emerson Ave., Suite A, Parkersburg, WV 26104 **8.** Complete Mailing Address of Headquarters or General Business Office of Publisher: Woodcraft Supply LLC, P.O Box 1686, Parkersburg, WV 26102 **9.** Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher: Gary Lombard, 4420 Emerson Ave., Suite A, Parkersburg, WV 26104; Editor-in-Chief: Chad McClung, 4420 Emerson Ave, Suite A, Parkersburg, WV 26104 **10.** Owner: Woodcraft Supply LLC; Complete Mailing Address: P.O. Box 1686; Parkersburg, WV 26102 **11.** Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities: None **12.** Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rate) The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: Has Not Changed During Preceding 12 Months **13.** Publication Title: Woodcraft **14.** Issue Date for Circulation Data Below: A/S 18

15. Extent and Nature of Circulation

Average No. Copies Each Issue During Preceding 12 Months

a. Total Number of Copies (Net press run): 73,609
b. Paid Circulation (By Mail and Outside the Mail):
(1) Mailed Outside-County Paid Subscriptions Stated on PS Form 3541. (Include paid distribution above nominal rate, advertiser's proof copies, and exhange copies): 59,599
(2) Mailed In-County Paid Subscriptions Stated on PS Form 3541(Include paid distribution above nominal rate, advertiser's proof copies, and exhange copies): 0
(3) Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS: 3,969
(4) Paid Circulation by Other Classes Mailed Through the USPS (e.g. First-Class Mail): 0
c. Total Paid Distribution: 63,568
d. Free or Nominal Rate Distribution (By Mail and Outside the Mail)
(1) Free or Nominal Rate Outside County Copies included on PS Form 3541: 0
(2) Free or Nominal Rate In-County Copies Included on PS Form 3541: 0
(3) Free or Nominal Rate Copies Mailed at Other Classes Through the USPS (e.g. First-Class Mail): 0
(4) Free or Nominal Rate Distribution Outside the Mail (Carriers of other means): 1,340
e. Total Free or Nominal Rate Distribution (Sum of 15 (1), (2), (3), and (4)): 1,340
f. Total Distribution (Sum of 15c. And 15e.): 64,908
g. Copies not Distributed: 8,700
h. Total (Sum of 15f. And 15g.): 73,609
i. Percent Paid (15c. Divided by 15f. times 100): 97.9%

No. Copies of Single Issue Published Nearest to Filing Date

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b. Paid Circulation (By Mail and Outside the Mail):
(1) Mailed Outside-County Paid Subscriptions Stated on PS Form 3541. (Include paid distribution above nominal rate, advertiser's proof copies, and exhange copies): 59,497
(2) Mailed In-County Paid Subscriptions Stated on PS Form 3541(Include paid distribution above nominal rate, advertiser's proof copies, and exhange copies): 0
(3) Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS: 3,680
(4) Paid Circulation by Other Classes Mailed Through the USPS (e.g. First-Class Mail): 0
c. Total Paid Distribution: 63,177
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(4) Free or Nominal Rate Distribution Outside the Mail (Carriers of other means): 1,340
e. Total Free or Nominal Rate Distribution (Sum of 15 (1), (2), (3), and (4)): 1,340
f. Total Distribution (Sum of 15c. And 15e.): 64,517
g. Copies not Distributed: 8,078
h. Total (Sum of 15f. And 15g.): 72,595
i. Percent Paid (15c. Divided by 15f. times 100): 97.9%

16. Electronic Copy Circulation

Average No. Copies Each Issue During Preceding 12 Months

a. Paid Electronic Copies: 0
b. Total Paid Print Copies (Line 15c) + Paid Electronic Copies (line 16a): 63,568
c. Total Print Distribution (Line 15f) + Paid Electronic Copies (line 16a): 64,908
d. Percent Paid (Both Print & Electronic Copies) (16b divided by 16c X 100): 97.9%

No. Copies of Single Issue Published Nearest to Filing Date

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b. Total Paid Print Copies (Line 15c) + Paid Electronic Copies (line 16a): 63,177
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d. Percent Paid (Both Print & Electronic Copies) (16b divided by 16c X 100): 97.9%

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17. Publication of Statement of Ownership: Will be printed in the Dec/Jan 2019 issue of this publication.

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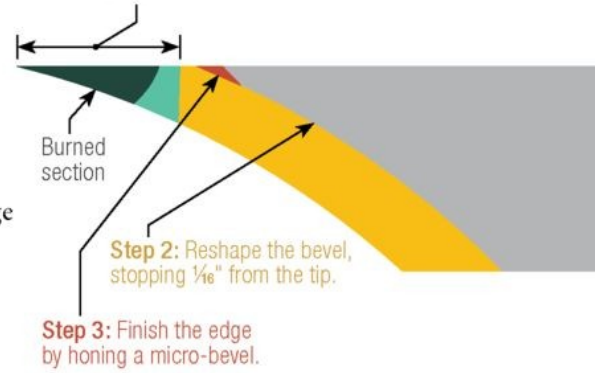
Rescuing a burned chisel

Q *I recently blued the edge of a chisel, mainly because I was in a hurry when trying to grind past a small chip. How bad is the damage shown in the photo? What are my options for getting the chisel back in top condition?*
—Roger Angelof, via email

Black and blue. To repair the chisel shown above, it's necessary to grind beyond the burned area, and reshape the bevel prior to honing, as shown in the drawing.



A **Senior editor Tim Snyder replies:** It's a good bet that most woodworkers learn the hard way that grinding can easily damage tool steel if you're not careful. This is especially true when you're grinding close to the tip of the chisel, where thin steel can overheat quickly.

To repair your chisel, you'll first have to grind past the discoloration. Push the chisel's tip straight into the wheel, creating a flat surface that resembles the tip of a screwdriver. Make sure this new surface is square with the chisel's sides. Then get to work on reshaping the bevel, taking care to cool the tip in a bowl of water when you feel the steel get warm. Aim to create a hollow grind as shown in the drawing. This approach leaves room for a narrow (1/16" or less) microbevel, which won't take long to hone.

Pay attention to how your new edge holds its sharpness. If it dulls easily, this means that the damaged steel extends beyond the discoloration. You guessed it: more grinding.

Photo: Larry Hamel-Lambert; Illustration: Bobby Schehl

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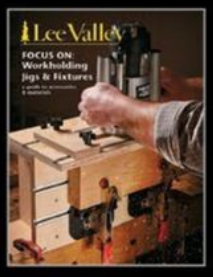

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Can one table saw blade do it all?

Q *I have been relying on a combination blade to handle all the cutting I do on my table saw—crosscuts and rips in solid wood, plus sawing plywood. Is this a smart strategy, or will I get better results by investing in specialized blades for ripping and cutting plywood and other panel materials?*
—Art Baumback, via email

A **Paul Anthony, author of *Taunton's Complete Illustrated Guide to Tablesaws* replies:**
Yes, a good "combination" or "all-purpose" blade should serve most of your typical table saw chores. However, such blades are inherently designed for compromise. For example, while a top-shelf 40- or 50-tooth combo blade will do a very nice job at crosscutting, it may not cut as cleanly as a 80- or 100-tooth blade specifically designed for the purpose. Likewise, it'll rip fairly cleanly, but may struggle through thick hardwood, often scorching it in the process. A "ripping" blade with fewer teeth won't.

As for plywood and composition sheet goods, you can expect a bit of tear-out and chipping from a combo blade, whereas a high-ATB blade with steeper cutting angles and perhaps more teeth will cause you less clean-up work.

I'm not implying that a combo blade falls short at fine woodworking, because it doesn't, but "good quality" is the key here. Expect to pay $70 to $110 for a blade that deserves to be the main resident on your table saw. As for supplementing your collection with other appropriate blades, see the onlineEXTRA *Choosing the Right Table Saw Blades* at *woodcraftmagazine.com*. ■

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The People in My LIQUOR CABINET

A project's connections can go way beyond its joinery.

By Paul Anthony

I was sitting in my dining room, Scotch in hand, gazing at the liquor cabinet I had recently completed. I designed it to replace a spindly kitchen side table that shuddered under the weight of whisky and wine bottles. I sized it for nice proportions that would suit the space, and divvied the storage into three sections. The center included a drawer and an open compartment for glasses and wine racks. That was flanked by two sections sized to accommodate wine and liquor. (Yep, that was me wandering around the liquor store with a tape rule, measuring booze bottles and raising eyebrows.)

As I sat there studying the cabinet, I realized that I was starting to see faces, and I wasn't even lit yet. There was Andy and Candy, and Jean and Joe. I spied Pimo. And Ric. I realized that they were all intermingled with the figured cherry of this fine piece that was, in various ways, the progeny of all.

My pal Andy, a consummate furniture maker, was the first to join the legacy. I had shared the initial drawings with him to get his take. He said, "Perfect, except the 3"-high splash would look better at about ⅝". And damned if he wasn't right. A short while later, Jean and Candy—artists and oenophiles both—convinced me that the center section should really be closed against dust. Okay, good point. Solid door in the center, flanked by glass doors.

Finally ready to build, I drove to Pimo's cabinet shop to get plywood for the interior case pieces. When I described the project, he said, "Man, I have some figured cherry you should see!" And sitting there just waiting for me was a flitch of amazing slabs—and just enough for the project. Sold!

A few weeks later, Ric dropped by as I was about to start work on the doors. An artist and woodworker who's always churning up aesthetic solutions, he said, "You know, it might make more sense to put the glass in the center door to display the wine racks and nice glasses. And you could hide the booze bottles behind bookmatched doors." I didn't have to consider that thunderclap of a good idea very long. Done.

Finally finished with the cabinet, I was itching to put it to use, but needed help carrying it from the shop to the kitchen. My colleague Joe, passing through town, did the honors. As we temporarily rested it just inside the kitchen door, he said, "Wait a second, this piece is just too nice for in here. How about that spot over there in the dining room?" Sure enough, as we lowered it into place just around the corner, it was home. And so here it sits, full of memories and spirits. It seems only right to raise another glass to everyone involved. Cheers! A round on the house! ■

With a little help from my friends. What began as a drawing of a pretty nice cabinet evolved into a truly lovely and sensible piece thanks to some well-timed, astute input.

Photo and drawing: Paul Anthony

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