



p.26

Turn an
INSIDE-OUT CAKE STAND

WOODCRAFT[®]

Projects, Techniques, & Products

magazine

Heirloom **DRESSER**

p.31

Build this
contemporary
classic.

Gravitational Illusion
BALL RAMP

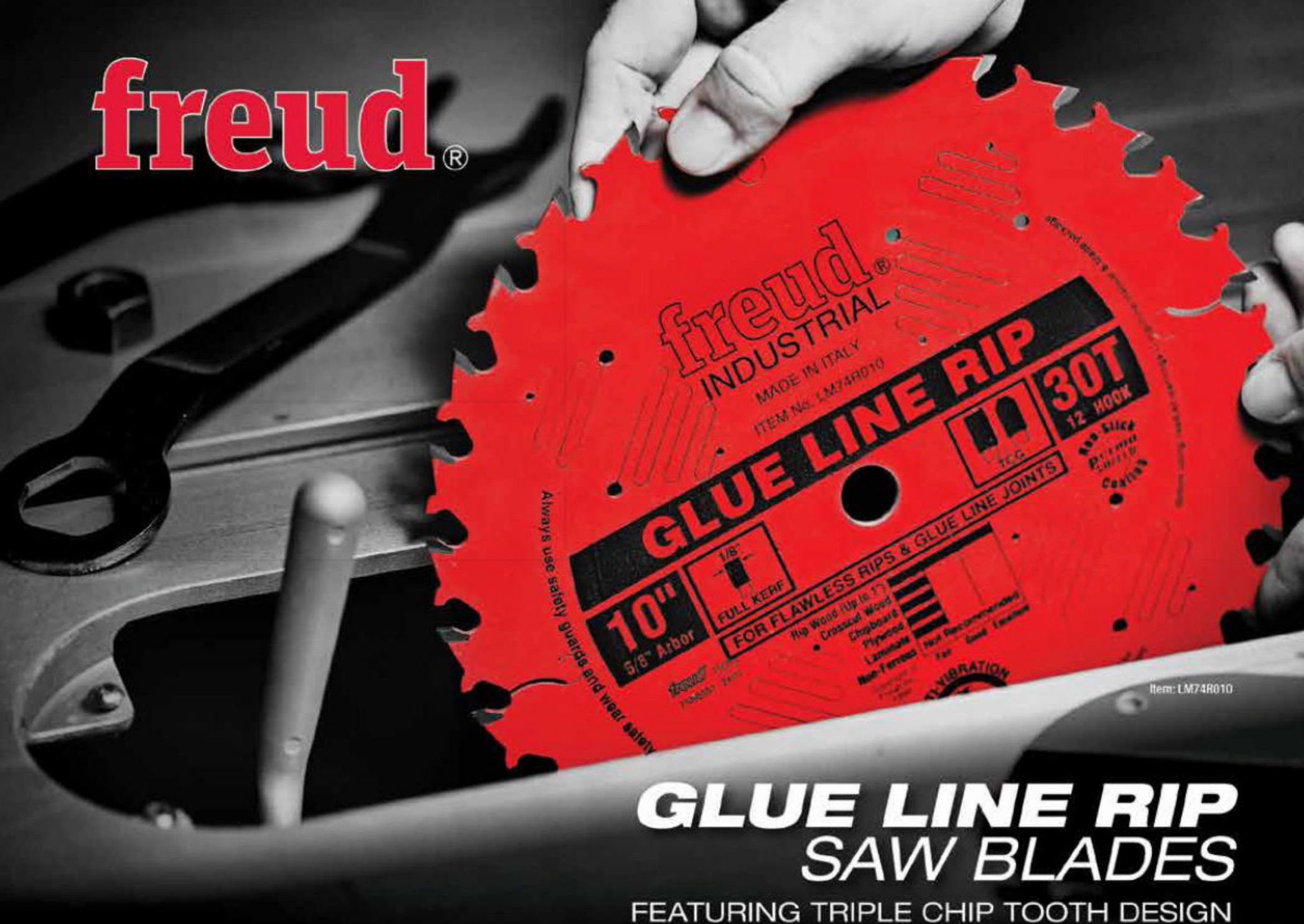
Dovetailed
DRAWERS

Modern
**HAYRAKE
TABLE**

p.44



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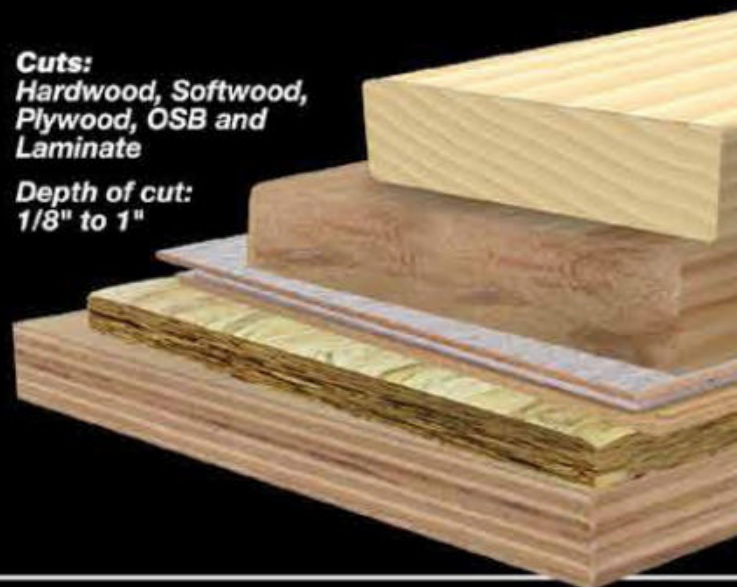
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Table of Contents

WOODCRAFT[®] magazine

Oct/Nov 2023 | Issue 115



31



If you're up for a challenge, look no further than Ken Burton's double dresser with dovetailed drawers.



40



24



26

Features

24 Gravitational Illusion Ball Ramp

Ramp up the physics fun with this easy-to-make curiosity.

26 Inside-Out Cake Stand

Elevate your turning skills and your sweet treats.

31 Heirloom Dresser

A contemporary take on a classic design.

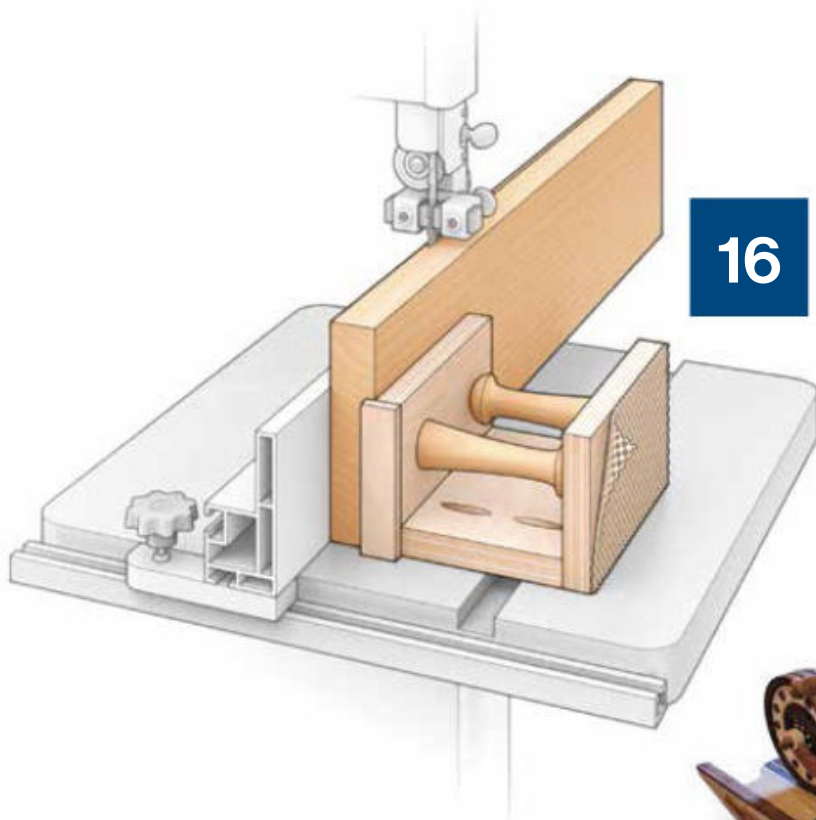
40 Dovetailed Drawers

Ageless joinery made with new-age tools.

44 Modern Hayrake Table

This sturdy farmhouse fixture gets a makeover.

Cover photo: Ken Burton



Departments

- 4** Getting Sharp
■ A few differences to be found

- 6** News & Views
■ Slatted table source
■ Slick new option
■ A new dust jacket
■ Illuminating ebonizing
■ K4 making a comeback

- 10** Reader Showcase

- 12** Tool Reviews
■ Rikon 10-3061 Bandsaw

- 16** Tips & Tricks
■ Ergonomic bandsaw push block
■ Cord stress relief
■ Perfect routed dados
■ Cleaning up inside corners

- 52** Woodsense
■ Black Cherry

- 56** Great Gear
■ Trend Air-Shield Pro
■ LaserPecker 2
■ Accu-Burr Jr

- 62** Buyer's Guide/Ad Index

- 64** Expert Answers
■ A question of voltage: 120 vs. 240V

Contributors



T. ROSS KELLY retired from Boston College in 2019 after 50 years teaching organic chemistry. Woodworking has been one of his hobbies for many years. He also collects and shares science gadgets that intrigue and inspire on a website called "A Scientist's Curiosity Cabinet."

See his latest project on page 24.



SARAH BURTON is an entrepreneur/maker based in Allentown, PA. She works in a wide variety of media including wood, leather, and polymer-based resins. Her latest work includes sculpting whimsical carousel horses. You can find her online as Embyr Rose.

Read Sarah's Great Gear entry on page 56.



BOB BERNER, an Allentown, PA-based woodworker, is a lifelong tinkerer, and has loved to take things apart, modify, and improve them—even if they didn't need fixing. He recently added a CNC router to his garage shop and has been making high-end speaker kits for the audiophile community.

See Bob's Tool Review on page 12.



DAVID KING is the owner of Shop Specialties Inc. in Nazareth, PA. He services equipment in high school and middle school shops in over 80 school districts throughout Pennsylvania, New Jersey and New York.

Read Dave's Expert Answer on page 64.

A few differences to be found

In woodworking as in life, about the only thing you can count on is that nothing stays the same. Whether it involves swapping out a tool in your shop for a more capable one, or modifying your techniques because you learned something new, change is inevitable. And now change is coming to your favorite woodworking magazine. After 16 years, Chad McClung has moved on to other challenges, leaving me at the top of the masthead. Along with that comes some additions to our pages that I hope you'll enjoy.

This time around, you'll find a new department: Woodworking Finds (p. 6) where we'll point out things we stumbled across that deserve recognition. In this issue, we're highlighting two books we think you'll like, one brand new, and the other a little older. In the coming months, look for more books as well as other media, destinations, and events relating to the craft we all love.

Also, in an effort to expand beyond what fits on our pages, we've started offering enhanced reviews of some of the tools we highlight in our features and in Great Gear. After reading through these pages, take a moment to check out Derek Richmond's review of his Easy Wood turning tools, and Sarah Burton's in-depth test drive of the LaserPecker 2 engraver on our website.



Ken Burton, Coordinating Editor
ken_burton@woodcraftmagazine.com

What hasn't changed is our commitment to helping you become a better woodworker. To that end, we're still bringing you exceptional plans for thoughtfully designed projects and proven techniques from highly-skilled craftspeople. Check out Sarah Marriage's marvelous Hayrake Table on page 44. If you start now, you may have it ready for your Thanksgiving feast. Or try your hand at the Heirloom Dresser (p. 31) along with its Dovetailed Drawers (p. 40). On a smaller scale, the Cake Stand on page 26 makes good use of an inside-out turning trick. Or build the Ball Ramp (p. 24) to have a curiosity to share over the holidays.

As always, thank you for reading. I'm looking forward to my new role in continuing to make this your go-to resource for woodworking advice. I hope you enjoy this issue, both the new parts as well as those you've come to expect from us. If you have any suggestions as to what else you'd like to see, or how we can improve, please hit me up. I'd love to hear from you. ■



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*. Find submission instructions in each of our departments or at woodcraftmagazine.com.

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

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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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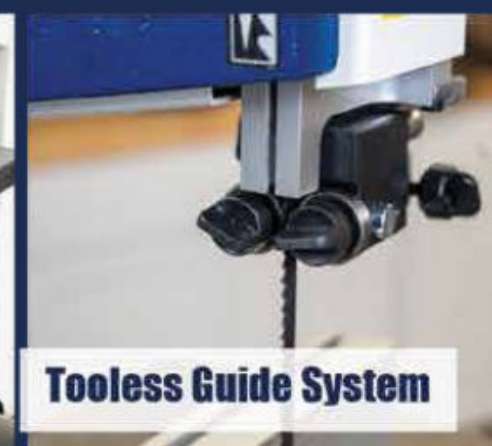
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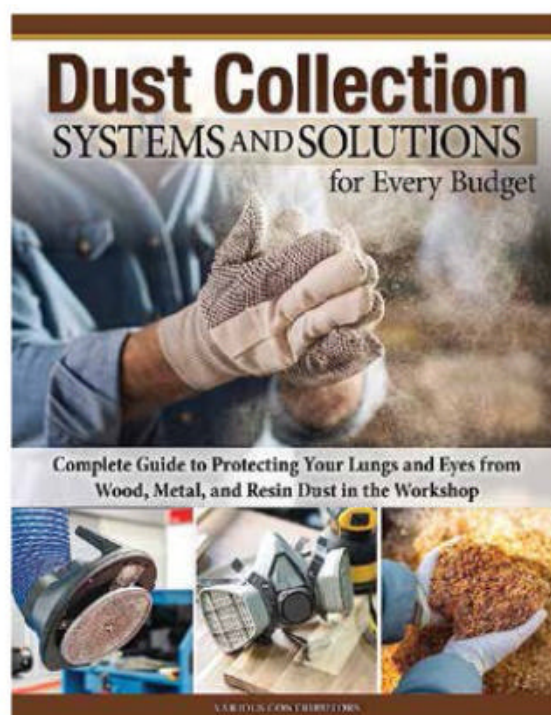
The Slatted Outdoor Table article (Apr/May 2023) says the project uses thermally-modified lumber. I can't find more information in the article or the Buyer's Guide about how to source that material. Can you help?
—Mike Bliziotis, by email

Coordinating Editor Ken Burton replies:
That little table was made from thermally-modified ash, natural wood that's undergone a process akin to roasting. See Woodsense, June/July 2021, for more on this process. My local hardwood supplier carries the product, and yours might too. An internet search turns up a number of producers, and they might be able to help you source thermally modified wood in your area.



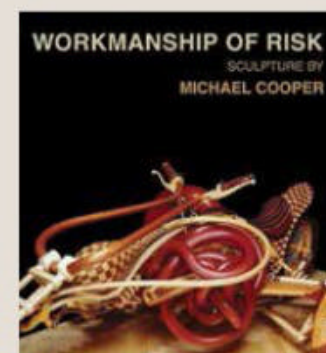
Slick new option

JPW Industries has added Armorglide surface coating to many of its Powermatic bandsaws, table saws, and jointers. A patented, industrial, non-stick coating, Armorglide both protects and reduces friction on the tools' tables. The Armorglide coating is a factory-applied option for an additional cost, and the same machines will be available without the Armorglide coating.



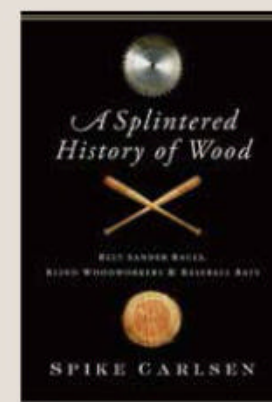
A new dust jacket

Dust Collection Systems and Solutions for Every Budget, a new reference book from Fox Chapel Publishing, will be available in October. Designed as a guide to corralling dust, the 128-page volume covers the design and setup of systems for all shop sizes, from PPE and shop vacuums to shop-wide dust collection and air filtration systems, including photos, illustrations, and graphics of shop layouts.



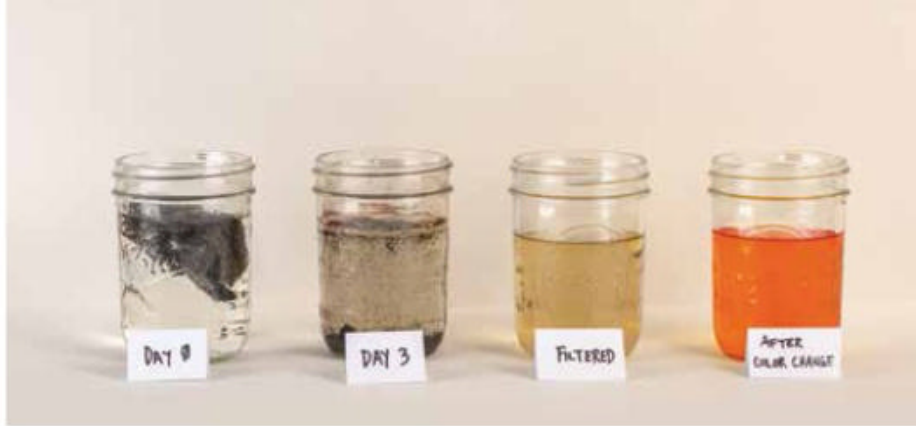
Workmanship of Risk: Sculpture by Michael Cooper

From his earliest work in the 1960s through the present day, *Workmanship* chronicles the mind-blowing wood and metal wizardry of California sculptor Michael Cooper through the artist's personal history anchored by local and global context. Featuring hundreds of photographs, Cooper's original technical drawings, and essays by Paul J. Karlstrom and John Lavine, *Workmanship* is both a feast for the eyes and an illuminating contemplation on the life of an artist and the people and events that influenced, challenged, and inspired him.
\$74.95 - Design Studio Press 2023
Available September 2023



A Splintered History of Wood by Spike Carlsen

Spike Carlsen celebrates the impact of wood on humanity and vice versa, winding from the roots of wood as we know it to modern belt-sander races, visiting chainsaw artists and blind woodworkers along the way. A unique and interesting tour that is equal parts well-researched history and humorous personal anecdotes. One critique: I often found myself seeking a deeper dive into the tidbits and trivia this wide-ranging tome touched on as the author meandered through time and space. But this book will surely give woodworkers and non-woodworkers a new perspective on our ubiquitous friend wood.
\$11.99 - Harper Perennial 2009



Illuminating ebonizing

Thank you for the excellent article on preparing an ebonizing solution – and by an actual chemist! As a former analytical chemist myself, I've long been frustrated by poor write-ups and logic around subjects such as this, and your article is a delightfully professional, scientific look at ebonizing, down to the inclusion of a link to the Journal of Wood Science article.

—Bob Jackson, by email



K4 making a comeback

After pulling the popular K4 pocket hole jig from the market in 2021 to make room for its new 520 and 720 pocket hole jigs, Kreg has plans to reintroduce the classic. Less automatic than the 520 or 720 systems, the K4 was an industry leader for more than a decade, and demand for the tool remained strong enough that Kreg decided to turn the machines back on, using the same tooling and injection molding as on the previous iteration of the K4. ■



Got a noteworthy news item?

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Robert Sorby

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Reader Showcase

STEVE LEVINE

DAYTON, NJ

Every trick in the book.

One of a series of book-themed jewelry boxes designed and crafted by wood artist Levine, this set of classics features ash, leopardwood, cherry, bubinga, spalted maple, wenge, walnut, and other species—more than 20 in total. The tomes measure 18" wide, 12" deep, and 16" high. After spending weeks laminating the various woods, Levine finished his library set using Danish oil. Closed, the objet d'art appears as a collection of stacked books, but opens to reveal a series of drawers and storage compartments—some with unique and tricky locking mechanisms. Goes to show you shouldn't judge a book by its cover!



JAMES SMOLLER

PITTSBURGH, PA

Nicely aged. Frequent contributor Smoller, who recently celebrated his 91st birthday, shared this vintage ukulele he built back in 1956, during his service in the U.S. Navy. Still in great condition, the instrument's body is mahogany veneer and it features a walnut fretboard. The uke measures 3 × 10 × 29". Maybe the secret to a long life is not to fret the small stuff—unless it's a ukelele.



JIM KRILLENBERGER

BELLVILLE, OH

A buffet of oak. A hobbyist woodworker and self-proclaimed tinkerer, Krillenberg built this beautiful dining room set consisting of a sideboard and small credenza. Both are made of quartersawn oak and finished with Jacobean stain and lacquer. Krillenberg tried his hand at leaded glass for the sideboard's center door insert, while the side doors' panels are resawn and bookmatched. He had the curved and beveled mirror cut at a local Amish glass shop. The sideboard is 57" tall, 54" wide, and 19" deep, while its companion measures 36" tall, 25" wide, and 13" deep.



BILL FEARNES

CHESAPEAKE, VA

Rocking horsepower. This Virginia woodworker decided his newborn grandson could skip the tricycle and go straight to the chopper. So he spent more than four months crafting this 22 × 34 × 68" rocking cycle from his own design. The hickory and black walnut body features accents of chechen, leopardwood, olivewood, ash, and other species. Fearn says he's been woodworking for more than 50 years and his sons have begun to pick up the hobby; perhaps this piece will one day inspire his grandson to follow suit. One thing is for sure, this chopper rocks. ■



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I wanted to get a small bandsaw for my basement turning studio. I was looking for a machine that would fit well on a benchtop and would serve to help prep materials including knife scales, pen, and bowl blanks. After looking over several comparable models, I decided to buy Rikon's 10" unit because it seemed to offer the best combination of build quality, power, and performance.

When I got the machine home, I was impressed with how well the saw was packaged. Not the box so much, but with how little assembly needed to be done, and how all the parts and tools provided were attached to a clearly labeled card rather than loose in multiple bags. The assembly instructions were well-written and clearly illustrated. Assembly consisted of mounting the cast iron table, installing the fence, and attaching the fence storage bracket. Kudos to Rikon for including this bracket so the fence has a place to live when not in use.

The fit and finish of all pieces was very good. The only difficult part of the assembly was getting the screws started on the underside of the table; it was very hard to locate the mounting holes. I found adding a spot of white paint around the holes on the table made them easier to see. The saw came with a ¼" wide × 77½" long × 14 TPI blade; I was



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boschtools.com, \$249.00



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Festool's line of track saws gets a new addition with a unique feature – an independent scoring blade that runs inline but ahead of the main blade. The single diamond tooth on the 47mm-dia. scoring blade prevents splinters on either side of the main cut, even when sawing veneered or coated panels. The scoring blade is independently adjustable for depth and track, and can be deactivated when not needed. The plunge saw also incorporates KickbackStop tech and functions with Festool's track saw guide rails.

festool.com, \$999.99



impressed that it arrived centered on the wheels and tracking correctly. Depending on your needs, you can also equip the saw with blades from $\frac{1}{8}$ " to $\frac{1}{2}$ " wide.

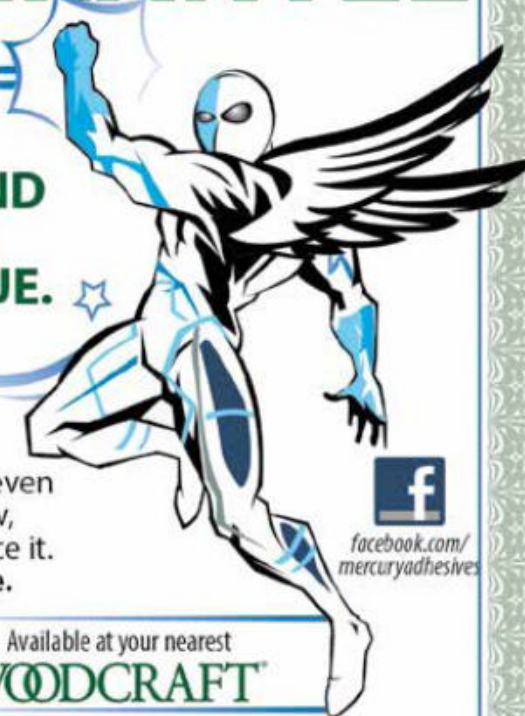
Blade changes are straightforward and simple: pop out the throat plate, release the blade tensioning lever, and slide the blade out through the slot in the front of the table. Blade tensioning and tracking are easily adjusted with large comfortable knobs. The blade guides are spring-loaded and very easy to adjust; loosen the knob and press the guide in towards the blade then tighten the knob. That's it! No fiddly Allen wrenches or set screws.

Some other nice features include a two-position (horizontal or vertical) rip fence and a step pulley for setting the speed at 3280 fpm for wood or 1515 fpm for cutting non-ferrous metals. And, while you don't need them for day-to-day adjustments, Rikon also supplies the necessary tools for assembly along with a handy rack to store them in. Also of note, the bolt that keeps the two sides of the table casting in alignment is a huge improvement over the older saw in my garage shop. The Rikon's is flush with the front edge of the table and doesn't protrude from the side as the old one does.

So far I've roughed out some handle parts and pen blanks as well as crosscut some 3" thick hardwoods for lidded boxes. The saw has done a great job, cutting cleanly with very little vibration. What's more, all the guide adjustments you should tweak are so easy to make, you'll never not make them, even for a quick cut. While I don't anticipate needing to resaw with my saw, its $\frac{1}{2}$ horsepower motor should be plenty powerful enough for anything that will fit within the saw's 5" height capacity. A couple little complaints; for the price they could have added a work light and included a miter gauge to fit in the table's $\frac{5}{8}$ " $\times$ $\frac{1}{4}$ " slot. But overall, I'm pleased with my purchase and am looking forward to getting a lot of use out of this fine piece of equipment. ■

—Tester, Bob Berner

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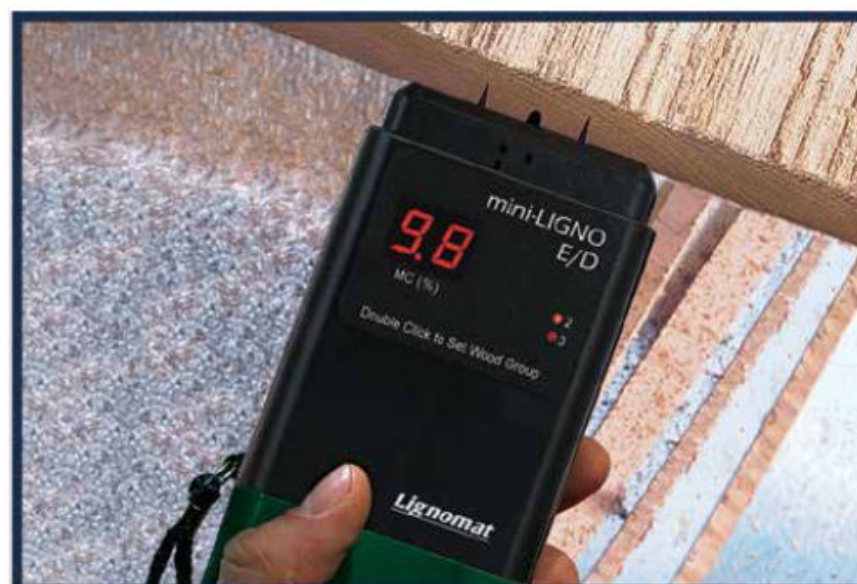
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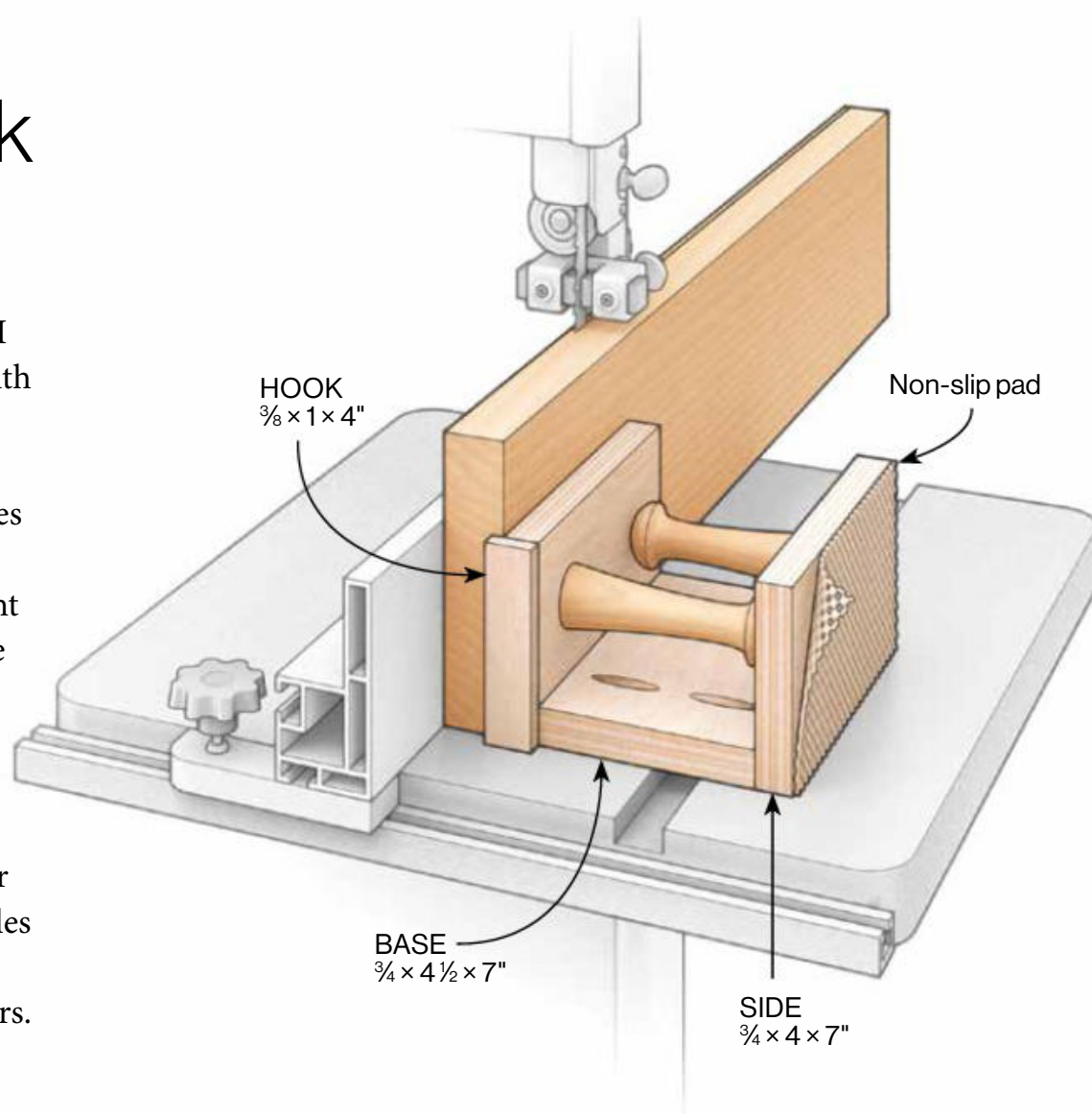
Ergonomic bandsaw push block



TOP TIP

I do a lot of resawing to save on lumber costs when I need thinner stock. To make this process safer, I devised a U-shaped push block with a nonslip pad on one side, a hook on the other, and integral handles in the center. In use, the block rides flat on the table with the nonslip side against the workpiece, as I grip the nearest handle in my right hand. Having my hand in this position allows me to twist my wrist subtly to apply pressure as needed. Near the end of the cut, I turn the block around to engage the hooked side to safely push the piece past the blade. I made my block from $\frac{3}{4}$ " plywood, pocket-screwed together with two jumbo Shaker pegs serving as the handles because that's what I had on hand. You could use dowels or even square sticks with rounded corners.

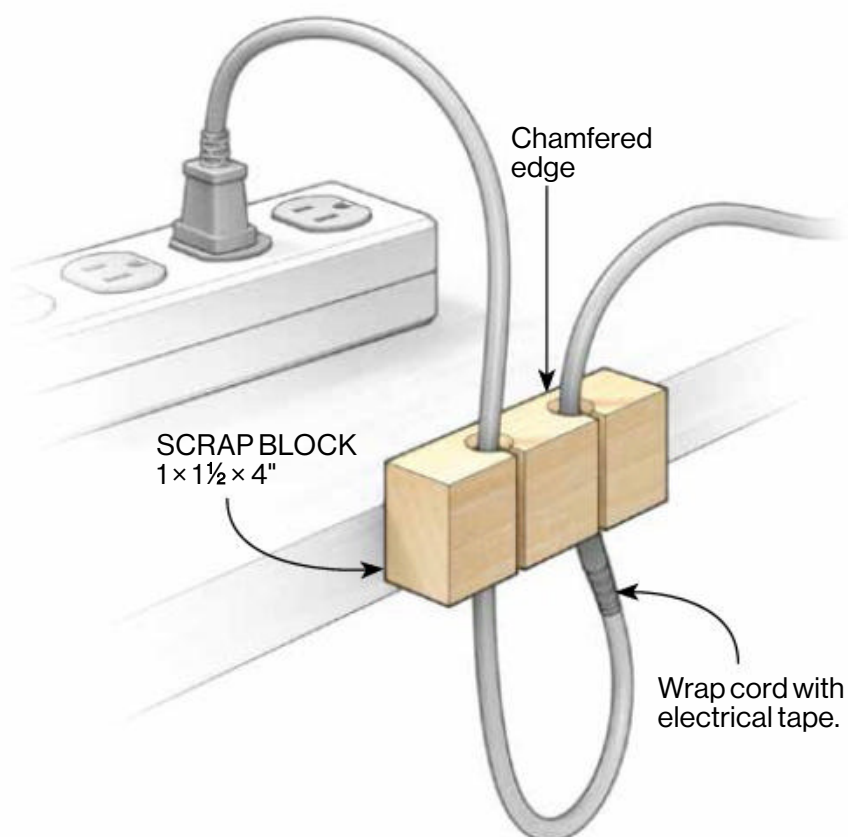
—Dwayne Smythe,
West Springfield, Massachusetts



Cord stress relief

A while ago, I noticed the cord on my miter saw was starting to show signs of wear near where it is plugged into the wall. In thinking about it, it's not that surprising; the power cord is pulled with each cut and with each swing from square to 45 degrees and back. To help mitigate the stress on the plug, I made a cord holder from a block of scrap which I then attached to the back of the saw's cabinet. The process is simple: drill two $\frac{3}{8}$ " holes through the scrap and lightly chamfer the edges with a countersink bit. Then bandsaw slots to open up the holes. To install the cord, loop it down through one hole and up through the other. Wrap electric tape around the cord to adjust the fit. For a tight hold, pull the wrapped part of the cord into the slot; for a looser grip just wrap the cord above (or below) the block.

—David DePauw,
Cincinnati, Ohio



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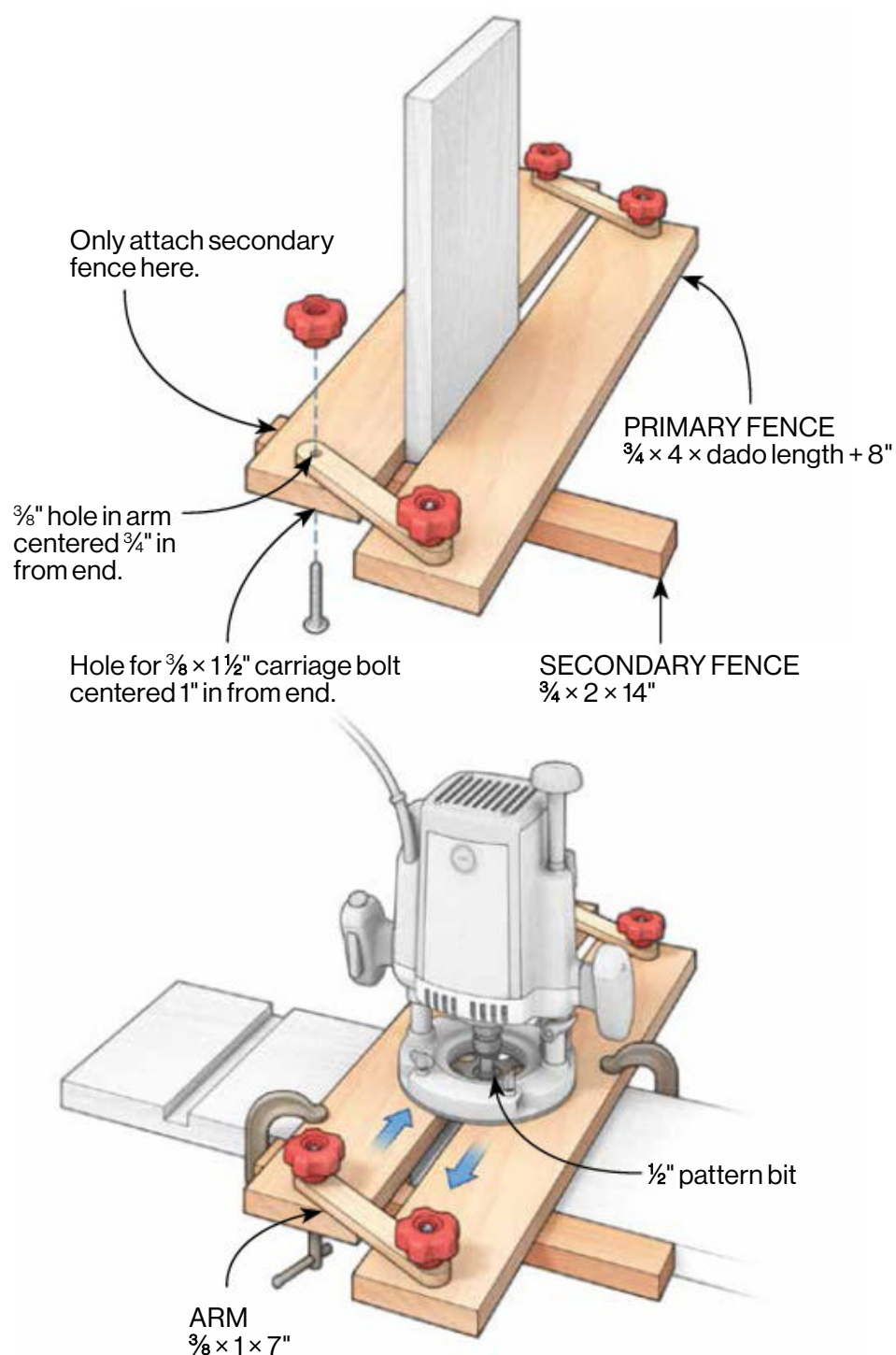
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Tips & Tricks

Perfect routed dados

In theory, routing a dado for a piece of stock to fit into should be a straightforward operation. But in reality, it can be pretty tricky as the stock thickness rarely matches the exact diameter of the bit at hand. So rather than relying on this dubious wood-to-tool relationship, I made a parallelogram fence system that accommodates any thickness of stock from $\frac{1}{2}$ " on up. To make the rig, saw $\frac{3}{4}$ "-thick plywood 4" wide and 8" longer than your dados. Make the arms and fasten them to the two primary fences with carriage bolts and star knobs as shown. For alignment, attach a secondary fence perpendicular to one of the primary fences. In use, sandwich the piece you want to fit in the dado on end between the two primary fences and tighten the knobs. Ease the captured piece loose then clamp both fences to the piece you intend to dado, positioning the fences on either side of the dado's location. Chuck a $\frac{1}{2}$ " pattern bit in your router and cut the dado to depth guiding the bearing up one fence and back along the other.

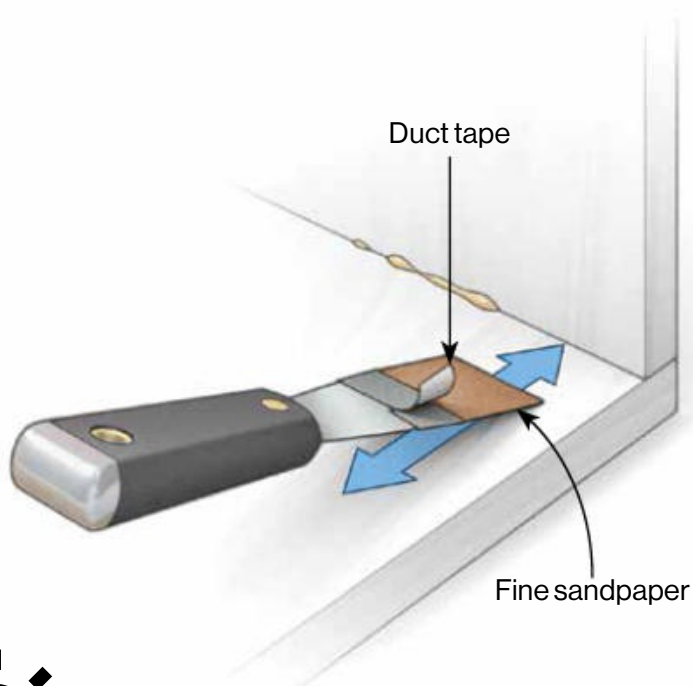
—**Juanita Domingo**,
Bakersfield, California



Cleaning up inside corners

When gluing up drawers and cabinets there is inevitably a little glue squeeze out in the inside corners that can be a nuisance to clean up. I find the best way to tackle this is with a putty knife. I wait for the glue to become rubbery and remove the worst of it with the knife. Then I wrap some fine sandpaper around the end of the knife and secure it with duct tape. Now I can sand away any residual glue by working the knife right into the corner. ■

—**Dan Martin**,
Galena, Ohio



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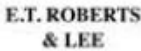


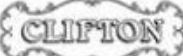
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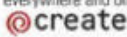
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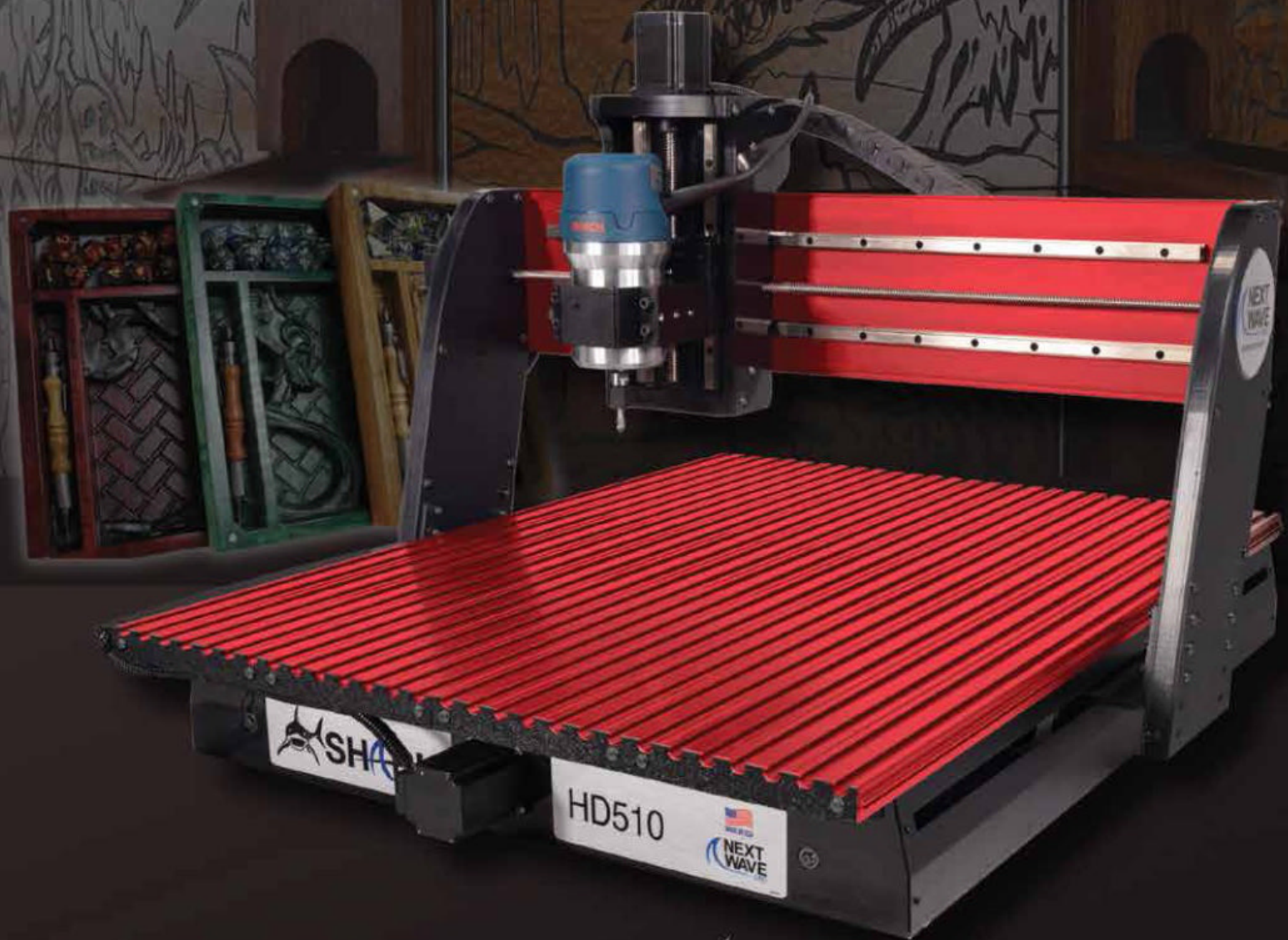


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Gravitational Illusion BALL RAMP

Scientific curiosity come to life

By T. Ross Kelly



As every schoolchild and budding physicist knows, the shortest distance between two points is a straight line—or is it? This wooden desktop demonstration is one of a series I call Gravitational Illusions (see Online-EXTRAS for other fun woodworking projects from my “Scientist’s Curiosity Cabinet”). It’s a simple build comprising two ramps, one straight and one wavy,

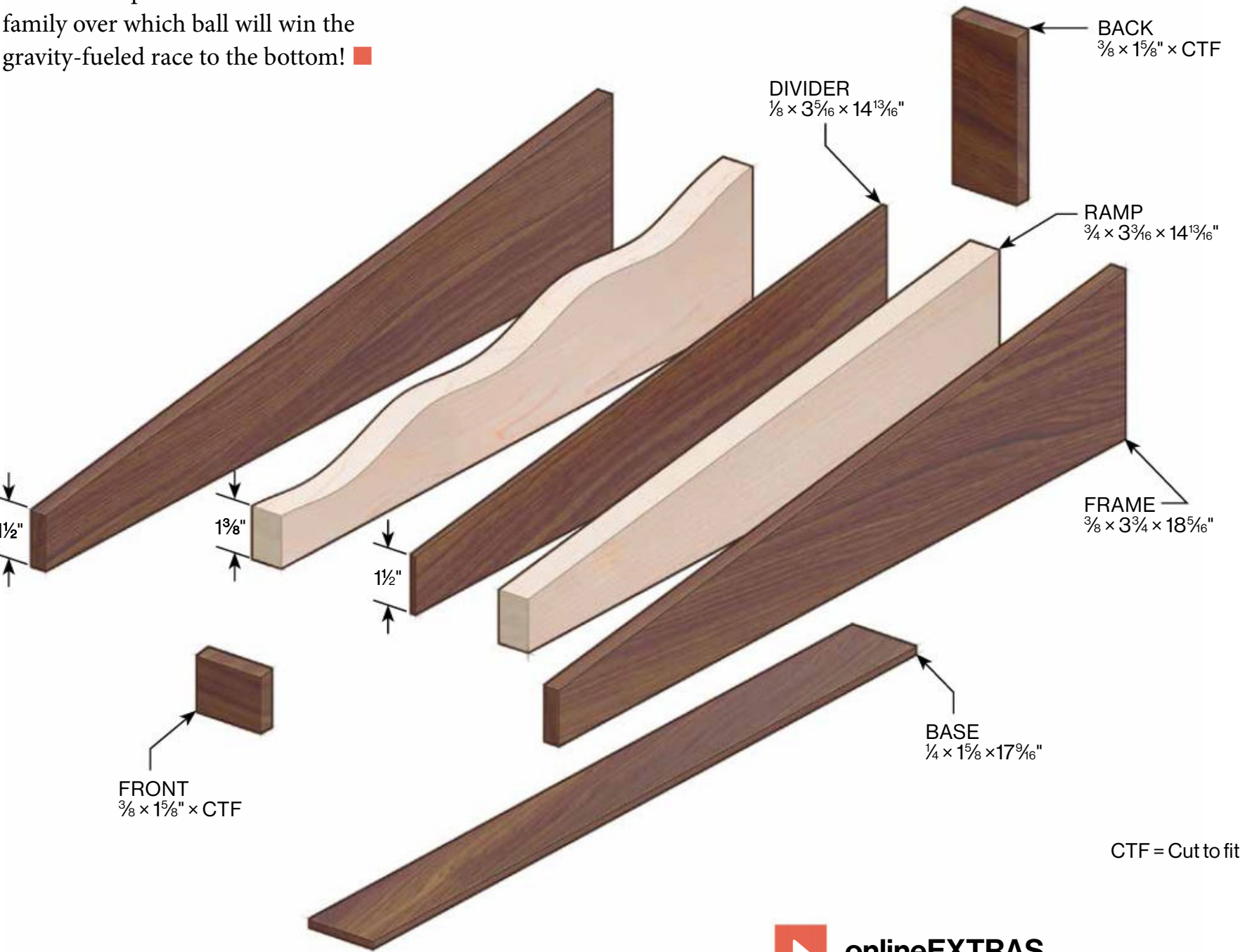
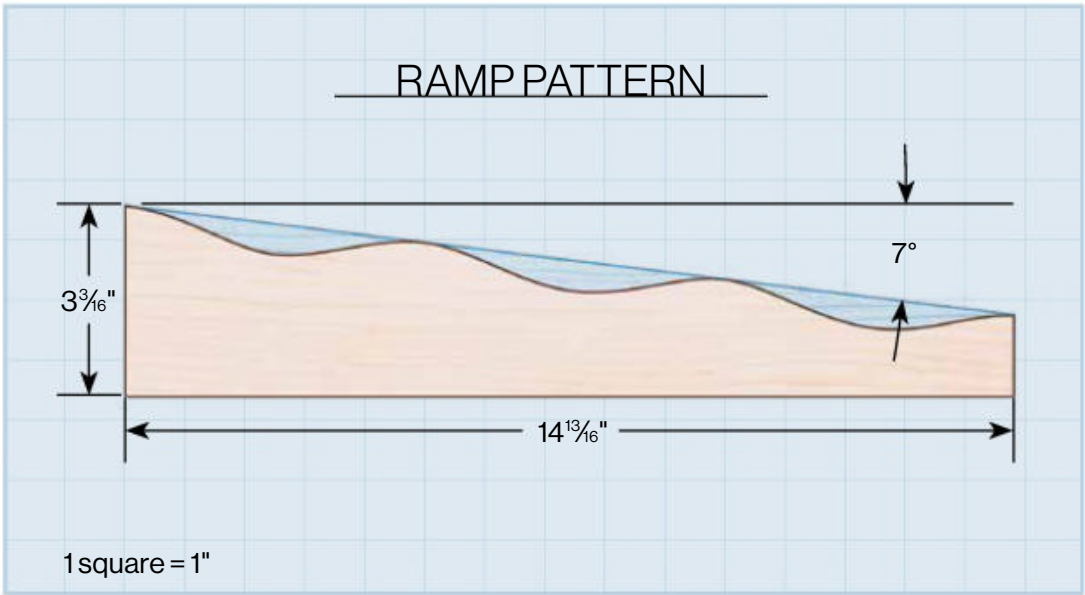
surrounded and separated by thin hardwood walls. At the end is a box to catch the $\frac{5}{8}$ " diameter steel ball bearings. But the simplicity of the build belies the complexity of the question: when released at the same time, which ball will reach the ramps’ end first?

There are three possible answers. The ball on the right has the shorter, straighter path, so maybe it gets there

first. The ball on the left has a longer path but a steeper start, so maybe it gets there first. Or, since both balls start and end at the same height, maybe they get there at the same time. Throw together this little curiosity and test your own theory – or inspire a young budding physicist.

Construction notes

Copy the pattern on this page (or download it from our website and print it out). Adhere it to a length of $\frac{3}{4}$ " thick stock using spray adhesive. Bandsaw the ramp to shape and sand the wavy edge smooth at the spindle sander. Lay out a 7° ramp on a second piece of milled stock and cut to shape. Mill the base and frame pieces, then glue the assembly together as shown below. Then puzzle friends and family over which ball will win the gravity-fueled race to the bottom! ■



CTF = Cut to fit



Order of Work

- ✓ Cut and sand ramps
- ✓ Mill base and frame
- ✓ Glue up assembly
- ✓ Finish and race!



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Visit our website for other fun woodworking projects from Kelly's "Scientist's Curiosity Cabinet" and a full-size ramp pattern.



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Inside-Out CAKE STAND

Let your dessert stand up and stand out

By Derek Richmond

I love cake. Whether angel's food, devil's food, coffee, carrot, or cheese, cut me a slice. And no matter the occasion, if cake is involved, it usually means something special is going on. So whether your cake is store-bought, homemade, or from a box, it ought to be the center of attention. I designed this stand to elevate any cake to its rightful place.

The thick, turned base makes a stable platform for the 11" diameter cake plate up top. Connecting the two is an inside-out turned spindle. The hollow form's openings lighten the feel of the piece while the unusual, two-step turning technique creates four curved interior surfaces whose centers are mysteriously outside the vessel. A groove turned into the cake plate's surface secures the glass cloche. Any straight-grained hardwood will work for the piece. I chose padauk for its bright color and strength. After carefully turning and sanding the pieces, I applied a food-safe finish (see Buyers Guide, p. 62) to keep the stand looking good for many occasions to come.



Layered and decorated

The plate and base are turned from straight-grained hardwood. Blind holes bored into their centers receive tenons turned on the ends of the spindle, while a recess cut into the cake plate's top face helps locate the protective glass cloche (see Buyers Guide, p. 62).

The spindle is turned in two steps. First, four squared blanks are taped together and turned to create what becomes the spindle's inside. Then, those spindle segments get reversed and glued back together before turning the outside to shape. Turning the spindle round refines the tear-drop shape of the windows and gives the four pillars a lens-shaped cross-section.

Order of Work

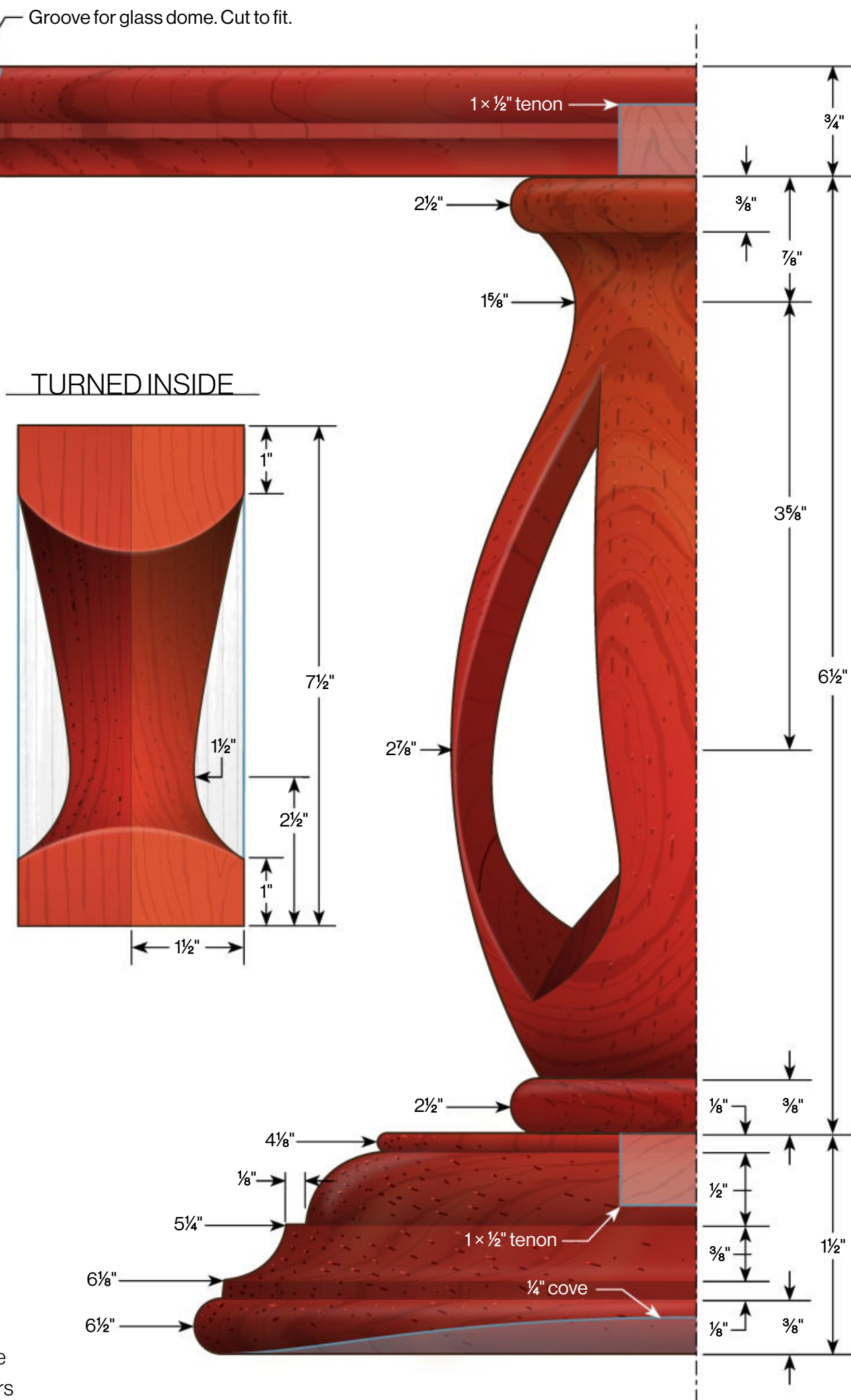
- ✓ Tape blank and turn spindle interior
- ✓ Reverse, glue and turn spindle exterior
- ✓ Drill and shape base and plate
- ✓ Assemble and top with cake

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Scan here to read a review of the Easy Wood Tools carbide cutters and beading tools used in this story.



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Turn the spindle

Prepare four pieces, $1\frac{1}{2} \times 1\frac{1}{2} \times 7\frac{1}{2}$ ". Arrange them with their nicest grain facing out, and mark one end as shown. Rotate each block 180 degrees, and adhere the four blanks together with full-length strips of double-faced tape. Start by taping two pairs of blanks together, working on a flat surface to help keep their faces aligned. Then tape the pairs together, pressing each tape joint in a bench vise

for a few seconds before proceeding.

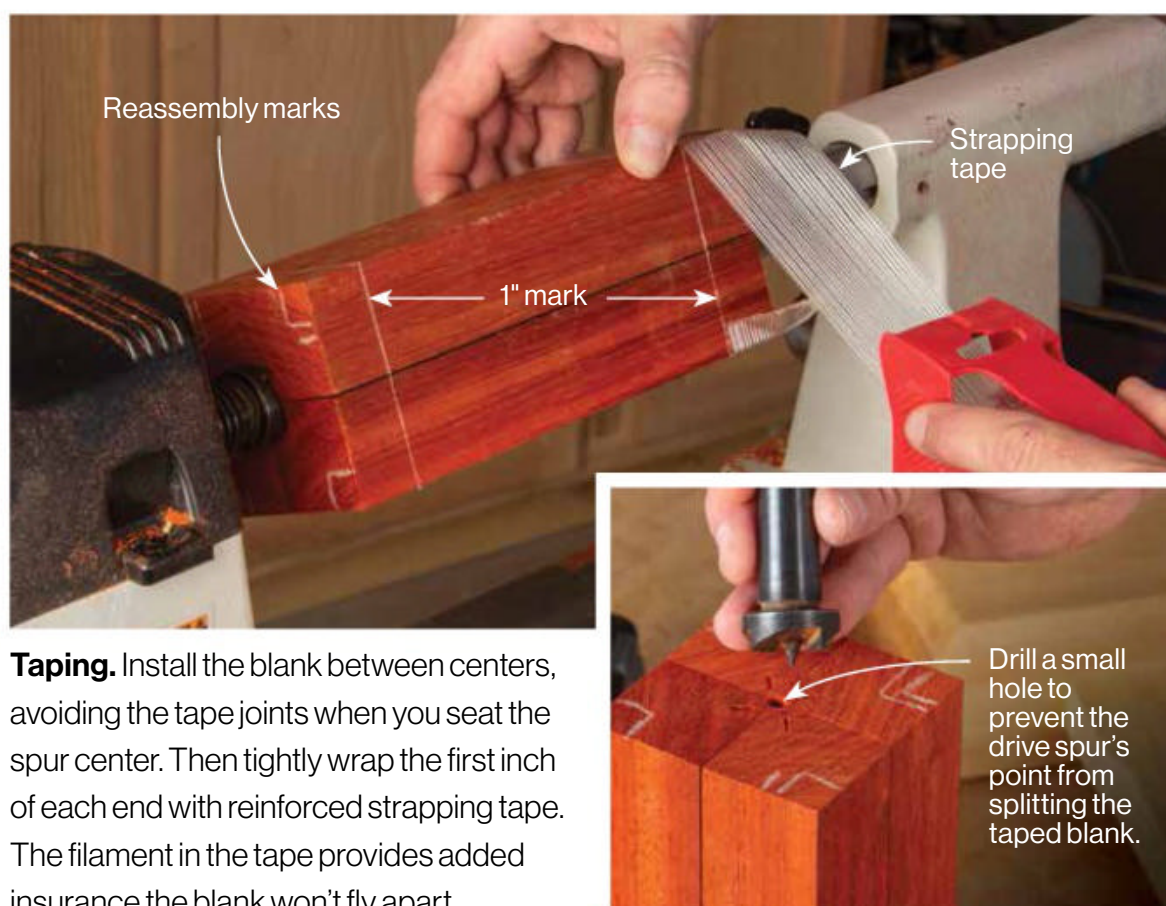
Mount the blank between centers and wrap the first inch of each end with strapping tape (See Buyers Guide, p. 62). Then turn the inside profile shown on p. 27, leaving the first inch of each end square. Sand and apply finish to the turned section only, leaving the still-square areas unfinished.

With the interior turned, pry apart the tape joints and re-orient

the blanks. Glue them back together, keeping their ends flush and applying glue only to the flat faces of each joint. After the glue dries, remount the blank between centers and turn a $\frac{1}{2}$ " long, 1"-diameter tenon on each end. Profile the rest of the spindle before sanding and finishing. Be sure to leave the tenons unfinished for good glue adhesion.



Mark for reassembly. Draw a square across the joints with an L around one corner – this shape can only be reassembled one way. Use a white pencil to clearly mark dark woods.



Taping. Install the blank between centers, avoiding the tape joints when you seat the spur center. Then tightly wrap the first inch of each end with reinforced strapping tape. The filament in the tape provides added insurance the blank won't fly apart.



Turning the inside. Turn the interior of the spindle, making light cuts with sharp tools. I like carbide scrapers for this task as they're less likely to catch, which could cause the blank to come apart.



Full face protection is important when turning, especially with a multi-part assembly. This face shield also keeps out fine and irritating paduk dust and provides hearing protection. (see Great Gear, p. 56)

The author has a healthy obsession with cake.

Use light cuts when turning the hollow form, and check the shape often so the pillars don't get too thin.



Re-assemble. After turning the inside, re-assemble and glue the blank. Recreate the shape you initially drew on the ends and you'll know you've got your pieces oriented correctly.

Turn the base and plate

Mill stock for both the plate and base. Mark the centers then cut them to a rough circle at the bandsaw, leaving them slightly oversized. Using double-faced tape, attach the base to a mounting block screwed to a faceplate. With the tailstock providing additional support, turn the piece to

shape as shown. After drilling a hole in the base's top surface to receive the spindle's tenon, pop the base off the mounting block. Repeat the process to shape and drill the plate, this time boring the hole into its underside. With both pieces shaped and drilled, bore a 1"-dia. hole $\frac{1}{2}$ " deep into the

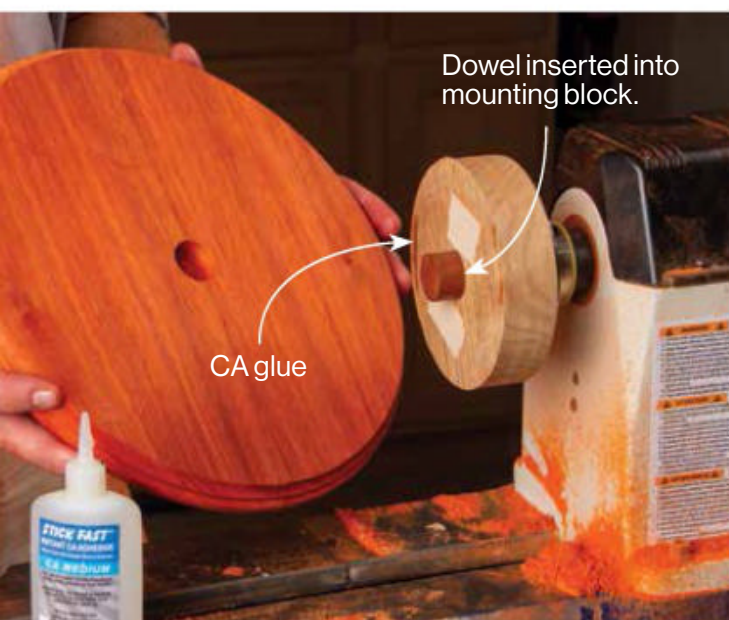
mounting block and add a length of 1"-dia. dowel that protrudes $\frac{1}{2}$ ". Remount the plate, centering it on the dowel and cut a groove for the cloche. After sanding, remove the plate and reverse-mount the base the same way so you can turn a recess across the underside of the base to help it sit flat.



Beading made easy. The shape of both the base and plate feature several sizes of beads. Easy Wood Tools' beading cutters make forming perfect beads as simple as turning a tenon.



Drill for tenons. After shaping the pieces, mount a Jacob's chuck in the tail stock and bore a $\frac{1}{2}$ "-deep blind hole with 1"-dia. Forstner bit into the top of the base (shown) and the bottom of the plate.



Reverse turn. Add a short length of dowel to help keep the pieces centered when you reverse them to turn the opposite side. Small pieces of double-faced tape should hold the pieces, but a drop or two of CA glue near the edge of the mounting block provides additional security.



Groove for cloche. Create a shallow groove in the plate's surface to receive the domed cloche cutting with a round or detail scraper. Tape a waste block to the top surface of the plate so you can employ a live center in the tailstock without marring the plate's surface. ■

Heirloom DRESSER

A contemporary take on a classic design

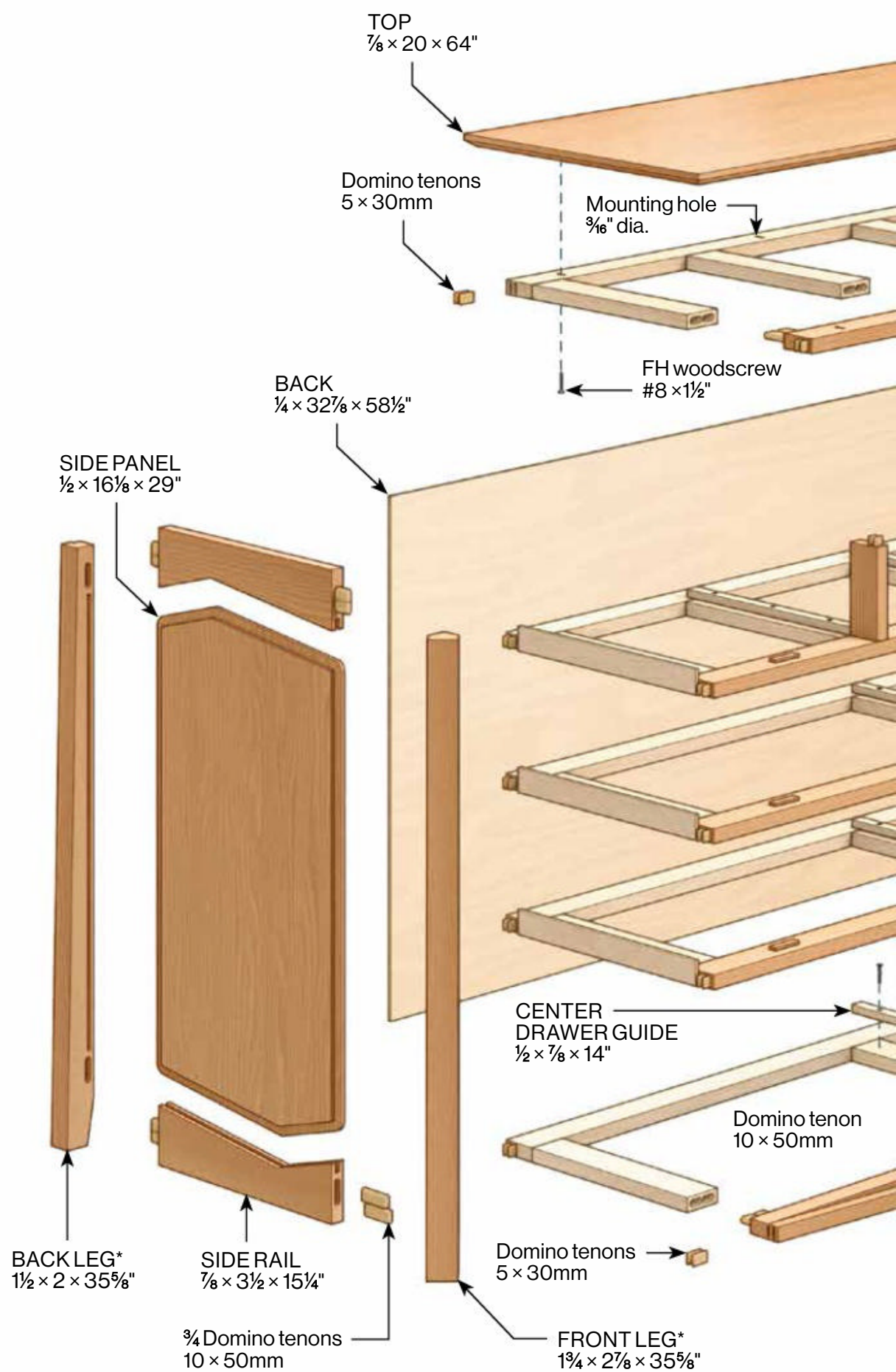
By Ken Burton

Some years ago, I had the good fortune of having a tall dresser I designed and built appear in Bill Hylton's *Chests of Drawers* (Taunton Press 2002). Ever since, I've wanted to build a companion piece to complement it. Recently, after my wife hinted that her aging, hand-me-down dresser had seen better days, it seemed a good time to revisit that desire. The result is the piece you see here: a contemporary take on a classic design featuring two banks of drawers riding on internal web frames that also serve to hold the piece together. The front legs are tapered and set at an angle to give the piece some visual lift and depth. Solid joinery—mortise and tenon for the case, dovetails for the drawers—makes for a rugged build that should last for generations to come. But while the joinery has its roots in time-tested methods, the techniques I employed make good use of modern technology in the form of Festo's Domino loose tenons, and variably-spaced dovetails courtesy of Leigh's D4R Pro. I used cherry for the case sides, top and front drawer rails, quartersawn sycamore for the drawer fronts, soft maple for the drawer sides and interior frame components and a bit of dark mystery wood from my stash for the drawer pulls but feel free to use any suitable hardwoods.

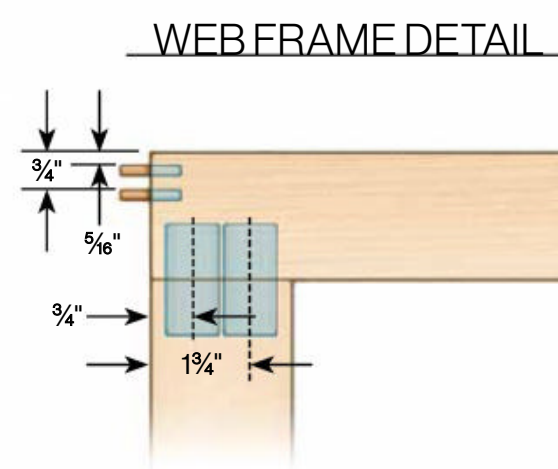
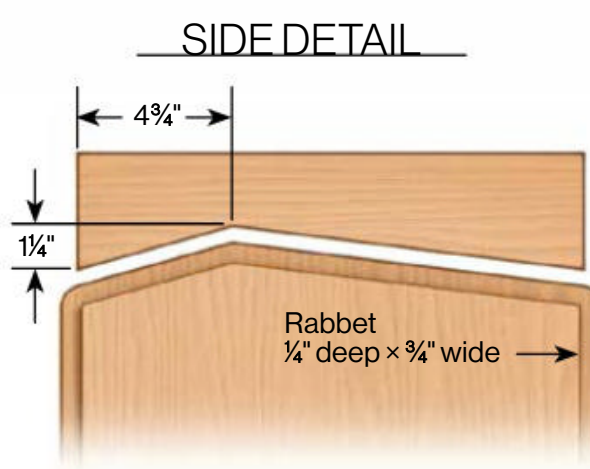


Frame and panel sides support web frames and dovetailed drawers

The case consists of two side frame assemblies, each with a front and back leg, two side rails, and a side panel. These assemblies are connected via a series of web frames. The web frames, in turn, are connected by vertical dividers positioned to separate the drawers. The joinery throughout is made with loose tenons. I used a Domino machine for the mortises, but could also have used a plunge router. Guides are fastened to the web frames inside the case to keep the drawers tracking straight. The front rail of the bottom web frame is made from 8/4 stock, shaped to echo the dip along the bottom edge of the bottom drawer faces. This web frame also includes a foot in the center for added support. The top, with its beveled edges, is fastened in place with slotted screw holes to allow for seasonal movement. Each drawer is dovetailed together—half-blind at the front, through at the rear—and features slips to carry its bottom. For a detailed look at how the drawers are made, see p. 40. The pulls are shop-made and screwed in place.

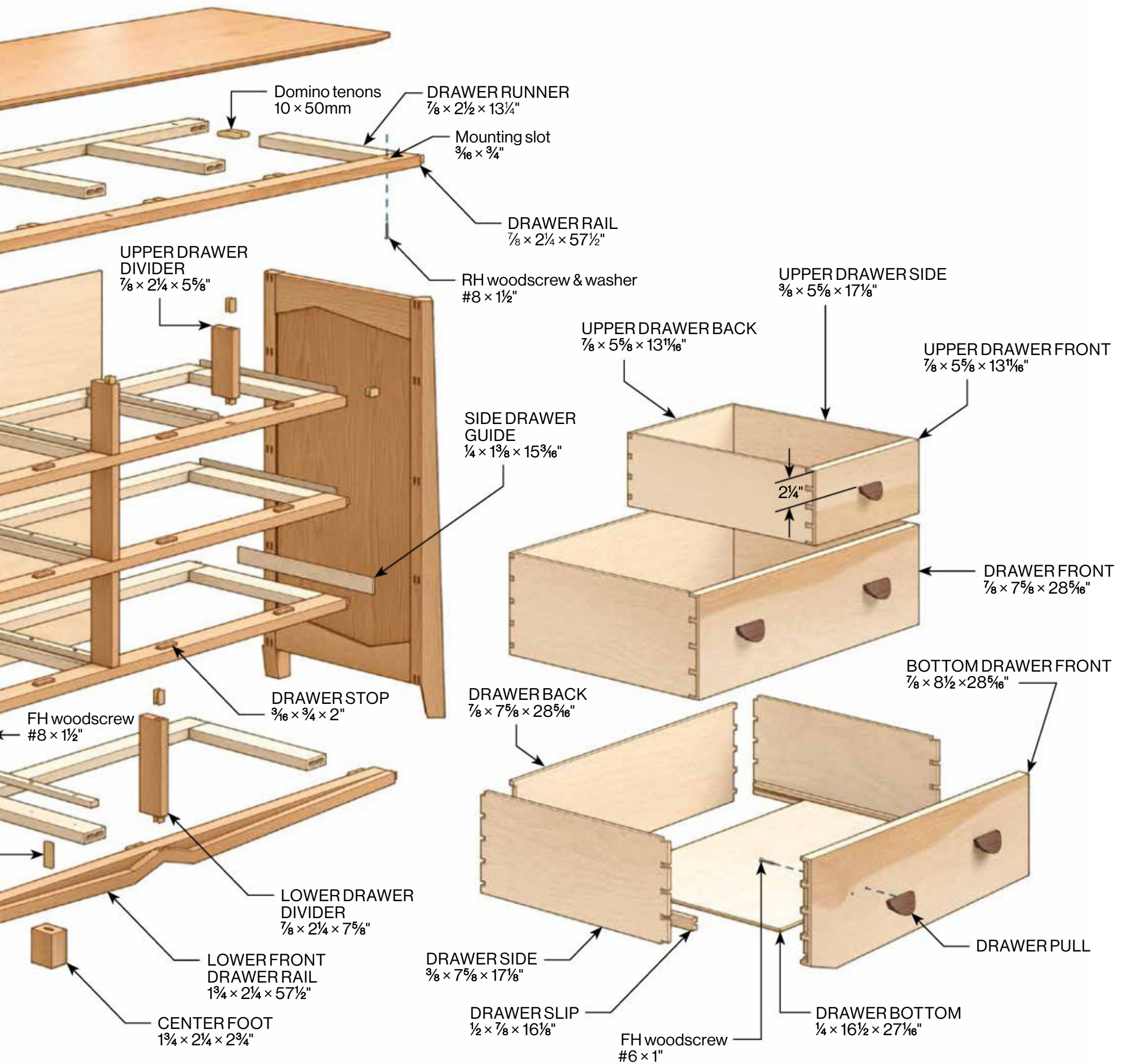


*Cut 1" longer to start

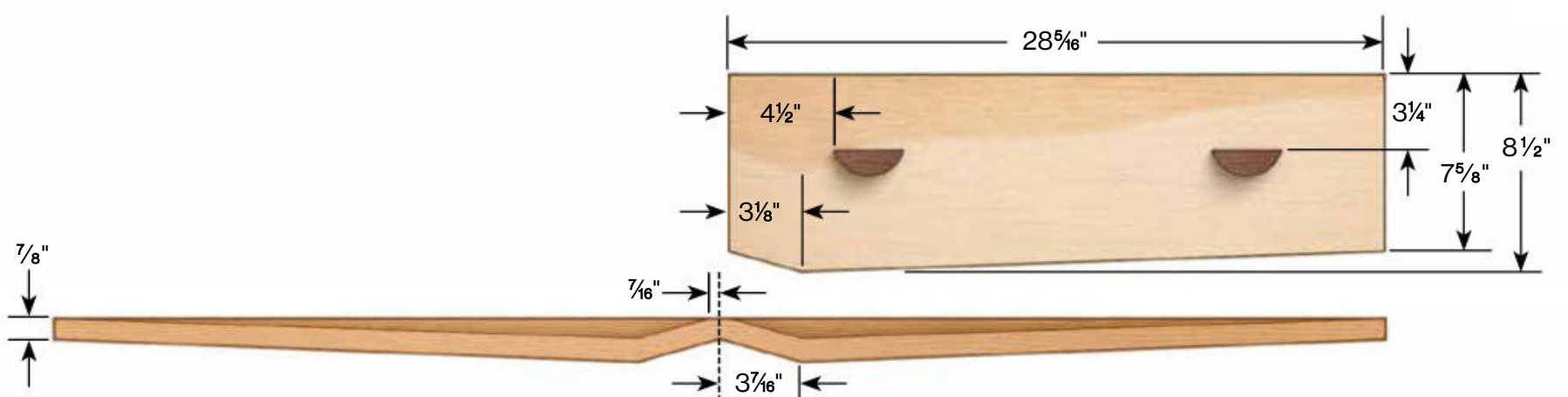


Order of Work

- ✓ Make the side frames
- ✓ Make the web frames
- ✓ Assemble the case
- ✓ Make the drawers
- ✓ Shape and attach the drawer pulls
- ✓ Sand and finish



LOWER DRAWER AND RAIL DETAIL

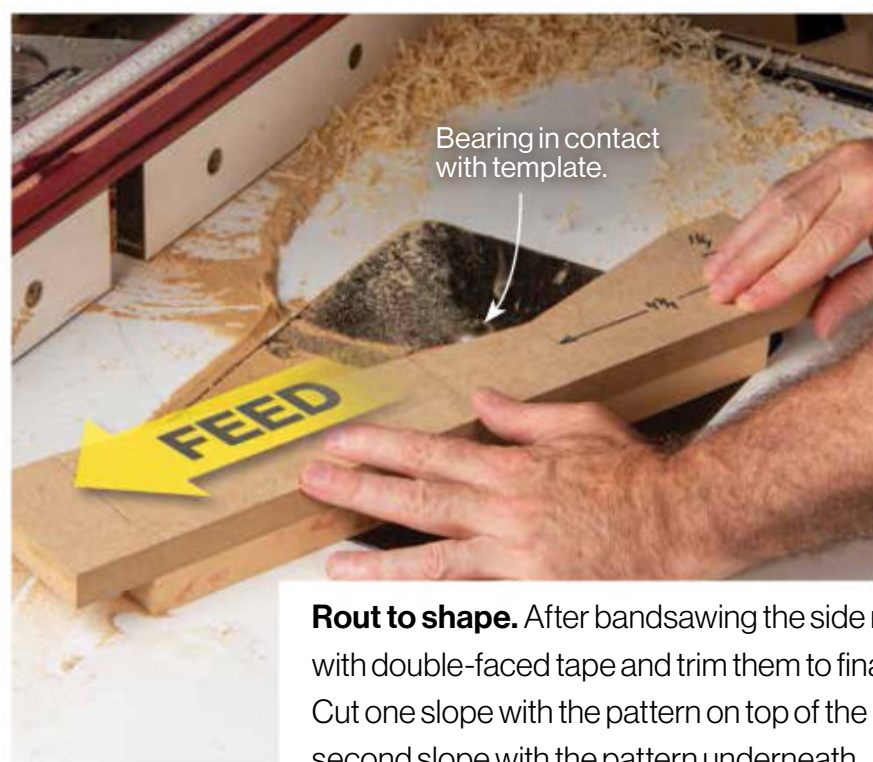


Make the side frames and top

Mill the stock for the legs, the side rails, the side panels, and the top to size. Cut the legs 1" overlong. If you have a wide enough planer to accommodate the full width of the side panels, leave this stock a little thick, and then plane the panels to final thickness after you've edge-glued them. Edge glue the pieces to make up the side panels and the top. Mortise the legs and the ends of the rails for the loose tenons that

will join them together. I did this with a Domino machine, making two overlapping mortises with their center lines $\frac{1}{2}$ " apart. Then I cut the Domino tenons to fit. Make a pattern from MDF and pattern rout the side rails to shape. Cut the bevels on the front legs, then cut grooves in the legs and rails to hold the panels. Also rabbet the back legs for the back with the same bit. Dry assemble one side frame and trace its inside shape

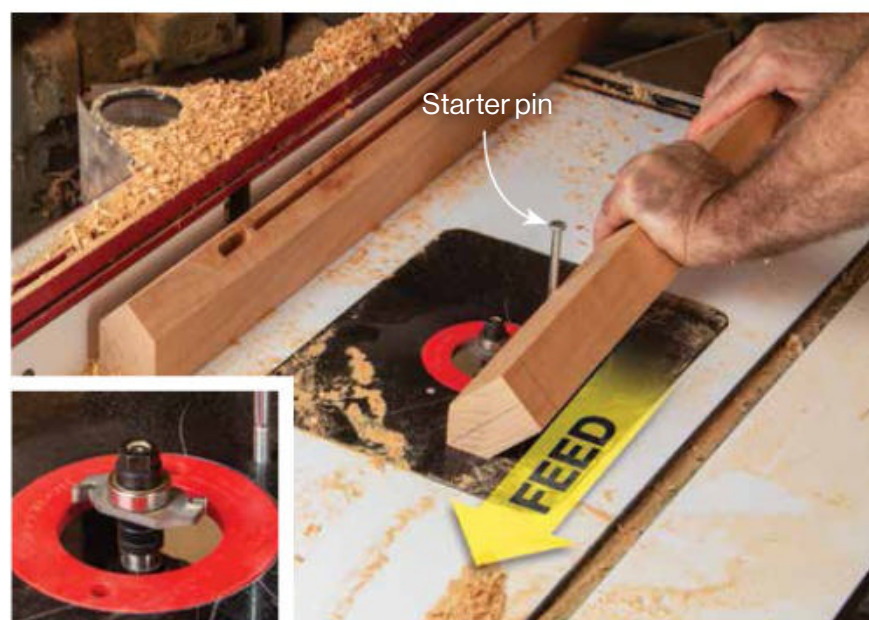
on one side panel. Lay out a line $\frac{1}{2}$ " outside the traced line and cut along it to cut the panel to shape. Repeat with the other side. Then cut $\frac{3}{4}$ " wide rabbets around the panels, leaving a $\frac{1}{4}$ " thick tongue to fit in the grooves. Round the corners to fit in the groove and trim about $\frac{3}{32}$ " off each side to allow room for seasonal expansion. Taper the legs and cut the feet. Sand everything, prefinish the side panels and glue the side frames together.



Rout to shape. After bandsawing the side rails to rough shape, adhere them to a pattern with double-faced tape and trim them to final shape with an over-and-under pattern bit. Cut one slope with the pattern on top of the piece, then adjust the bit height and cut the second slope with the pattern underneath.



Bevel the front legs. Tilt the blade on your table saw to 45° and rip two bevels along one side of each front leg. Start with the fence a little too far to the right, and make test cuts until the bevels meet in a point and the flats on the sides of the leg measure 2" wide.



Panel grooves. Cut the grooves for the panel with a $\frac{1}{4}$ " wing cutter. On the legs, start and stop the grooves about $\frac{1}{4}$ " from the mortises. On the rails, the grooves can run all the way through. To help control the pieces as you begin the cuts, install a starting pin on your router table to pivot against.



Taper the legs. Set up a sled and taper the front legs from 2" wide at the top to full width at the bottom. Repeat to taper the rear legs from 1 1/8" wide at the top to full width at the bottom.



Cut the feet. Make a cross cut across the bevel on the front legs 2 5/8" from the bottom. Make the rest of the foot cut on the bandsaw, leaving the leg 1 1/4" wide at the bottom. Make similar bandsaw cuts on the rear legs, they don't need the table saw cross cut.



Glue up the sides. Make two notched clamping cauls to cradle the front leg as you glue up. Check across the inside surface with a straightedge to make sure the clamps aren't twisting the legs out of plane.

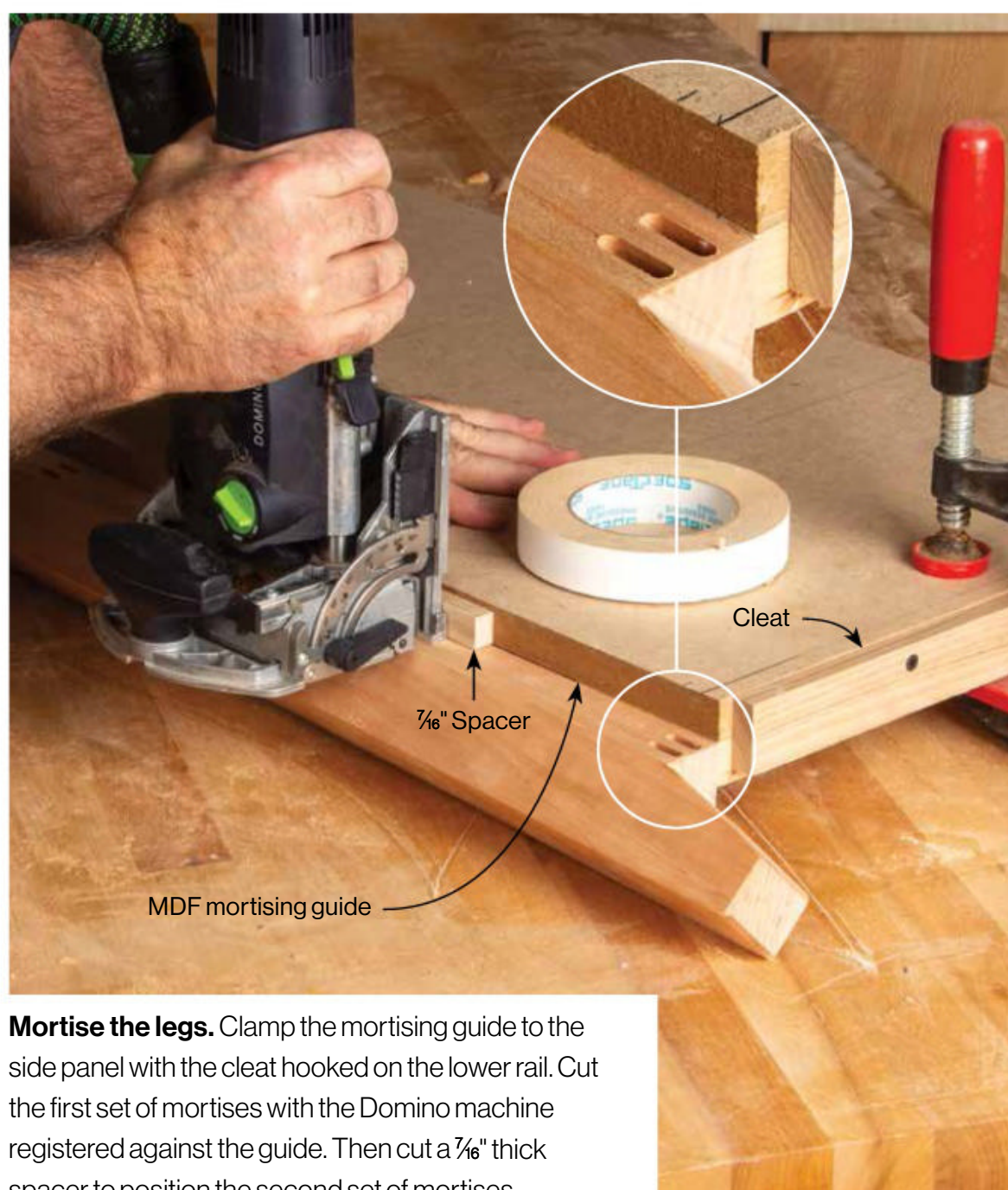


Make the web frames and drawer dividers

Mill the pieces for the web frames and drawer dividers to size, leaving the dividers overlong for now. Note that the lower front drawer rail is made from 8/4 stock. Mortise the drawer rails and the ends of the drawer runners for the loose tenons that will join the frames. Shape the lower rail with a pattern bit in a router as shown, then glue the frames together. After the glue dries, stack the frames to make sure they match. Trim if necessary and sand to make sure both surfaces are flat. Cut a $15\frac{1}{4} \times 33$ " piece of MDF to become the guide for cutting the frame-to-leg mortises. Attach a cleat at one end to establish the bottom and lay out the frame locations measuring from the bottom up. Align the guide with the inside of the back leg and clamp it in place. Cut the mortises in the legs. Cut 6" off the upper end of the guide to use as a new guide for cutting the matching mortises in the frames. It is critical to use the same piece of material for both guides so the spacing works. Align one web frame with the back rabbet on one of the side frames and make a witness mark on the back rail even with the inside of the leg. Use this mark to set up the guide. Mortise the ends of the frames as shown. Fit the frames in one side and measure between them to establish the lengths of the drawer dividers. Cut the dividers to length and mortise them and the frames, referencing from your bench top. Rout mounting slots through the upper front drawer rail, countersinking them on the underside. Finally, glue the side drawer guides to the three middle frames and screw the center drawer guides in place.



Shape the bottom rail. Rather than make a template, I just used a straight length of MDF as a guide, aligning it with my cut lines and screwing it into the waste areas toward the underside of the rail. You'll need to finish the points of the V-cuts with a chisel. Then cut away the underside at the bandsaw.



Mortise the legs. Clamp the mortising guide to the side panel with the cleat hooked on the lower rail. Cut the first set of mortises with the Domino machine registered against the guide. Then cut a $\frac{7}{16}$ " thick spacer to position the second set of mortises.



Mortise the frames. Dado a $2\frac{1}{2} \times 18$ " fence into the 6" guide, $\frac{7}{16}$ " offset from center. Clamp the guide to the frame aligned with the witness mark and screw a stop block to the fence. Make the two mortise cuts, using the $\frac{7}{16}$ " spacer in between. Then flip the piece and mortise the front rail. Repeat on both ends of all webframes.



Mortise the drawer dividers. I clamped a few pieces of MDF to my bench to make a quick positioning fixture to hold the drawer dividers for mortising. I cut the first mortise with the Domino machine flat on the bench and then placed it atop a piece of $\frac{1}{2}$ " MDF to cut the second.



Install the center drawer guides. After gluing the side drawer guides in place, make a spacer to help keep the center drawer guides parallel and spaced properly. Screw the four center guides in place, then cut down the spacer for the two additional guides for the top drawers.

Glue up

After all that prep work, there is a lot at stake with this glue up. If possible, enlist some help. There are a lot of mortises to spread glue in, and long clamps to handle. If you have to do this solo, consider doing it in two stages. First glue the web frames to one side frame along with the drawer dividers. Just use single tenons in the other side

without glue to help with the spacing. Once the glue dries, pop the second side off and add the remainder of the tenons before clamping it in place. I found it easiest to start with one side flat on my bench. I added the web frames and dividers vertically before turning the entire assembly to stand on its feet then installed the second

side. I don't have a lot of long clamps but I found I could make do with just four. I clamped the top and bottom frames with four shorter F-clamps each, then used three of my longer clamps to secure the front and the fourth to draw together the rear. After checking for vertical alignment I added F-clamps to seat the drawer dividers.

Notched cauls to the rescue. Double-face tape some notched cauls to the legs to avoid having to fumble with them as you tighten the clamps. Over cut the corners to avoid denting the legs.

Overcut

Hollow core door bench extender



Fit the bottom drawers. Trace the shape of the openings onto the lower drawer fronts from inside the case. Bandsaw the pieces to shape and fine tune the fit with a hand plane.



Shape the pulls. After beveling the pull stock at the table saw, rout a $\frac{1}{2}$ " radius cove in the back side to create a finger grip. Make the cuts in several shallow passes for safety.



Drill for screws. Rip a scrap to match the pull's 62° bevel angle. Position it against a fence on your drill press table to hold the pulls at the proper angle as you drill $\frac{7}{64}$ " pilot holes in them for mounting. Position stops to space the holes $\frac{7}{8}$ " on either side of center.



Watch Ken make these pulls.

Sand to shape. Cut two MDF disks ($3\frac{1}{8}$ " dia. and $2\frac{5}{8}$ " dia.) that pivot on a $\frac{1}{2}$ " dowel. Drill holes through the disks that correspond to the pulls' pilot holes. Screw the pulls to the disks and sand them to a consistent shape and size.

Make the drawers and pulls to finish up

Mill the parts for the drawers to size. Make and fit the drawers as described in Dovetailed Drawers on p. 40. Before assembling the bottom drawers, be sure to shape their fronts to fit the V-cuts in the lower drawer rail. Mill one length of $\frac{3}{4} \times 1 \times 20$ " and two lengths of $1\frac{3}{16} \times 1\frac{1}{8} \times 20$ " stock for the pulls. Bevel these pieces at 62° on the table saw. Then cove their back sides at the router table. Cut the individual pulls to length before drilling the mounting holes. Bandsaw the pulls roughly to shape, finishing them at the sander. After finishing, drill mounting holes through the drawer fronts and screw the pulls in place. To finish the case, cut tops of the legs even with the rails and glue the center leg in place. Drill mounting holes for the top in the upper rear drawer rail. Glue the drawer stops to the front rails, positioning them to stop the drawers about $\frac{1}{16}$ " inside the case's front plane. Cut the top to size and bevel the underside of its ends and front edge. At the tablesaw, cut the back panel to fit from $\frac{1}{4}$ " plywood. Sand and finish everything before screwing the top and back panel in place. ■



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Visit our site for a materials list and to learn how to cut twin tenons with your hollow chisel mortiser.

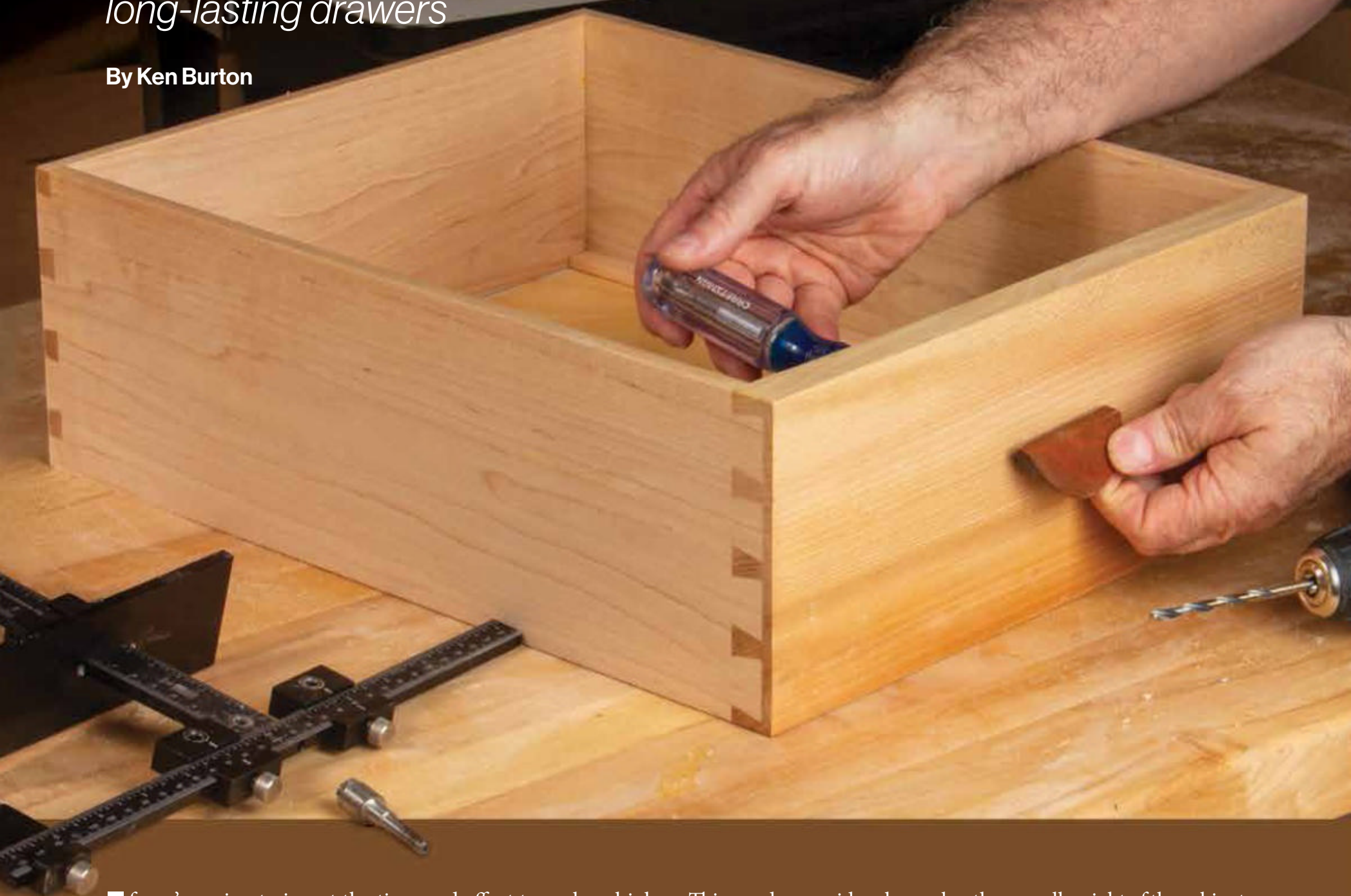


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Dovetailed DRAWERS

Classic joinery makes for durable, long-lasting drawers

By Ken Burton



If you're going to invest the time and effort to make a high-quality piece of furniture such as the heirloom dresser on p. 31, you're going to want to put the same kind of care into making the drawers as you do into making the rest of the piece. To me, this means dovetail joinery: half blinds at the front, and through at the rear. I also like to include drawer slips, small pieces of wood glued to the inside of the sides that hold the bottom and widen the surface that slides on the web frame inside the cabinet. Not only do these make the drawers slide better, they also allow me to make thinner drawer sides which are less expensive because I can make them from resawn stock.

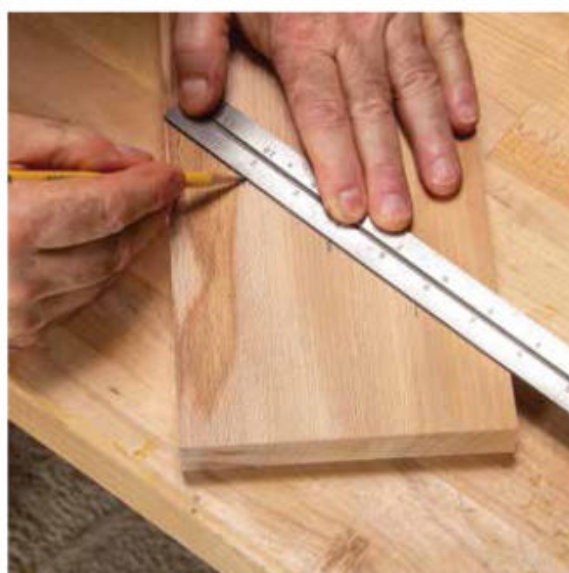
Thinner drawer sides also makes the overall weight of the cabinet lighter. While you could certainly handcut the dovetails, when I have a significant number of drawers to make, I take the time to set up a dovetail jig such as the Leigh DR4Pro with variable spacing. With this jig, I can design the depth of the drawers to fit my aesthetic, rather than being locked into whatever arbitrary spacing a fixed-spacing dovetail jig relies on (or having to make my joints asymmetric). Note, this article isn't intended to show you exactly how to use the Leigh Jig, their manual is excellent. Instead it is meant to provide an overview of drawer-making no matter how you cut the joints.

Stock preparation and layout

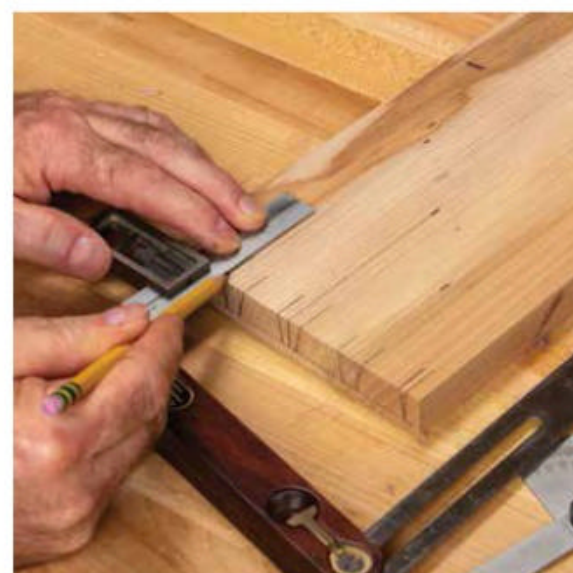
Most woodworkers use a less expensive wood for drawer sides and backs, saving their premium stock for drawer faces. For drawers such as the one shown that slide on the wooden structure of the case rather than relying on mechanical hardware, I prefer a harder species. Here, I'm using soft maple for the sides, back, and slips with showier quartersawn sycamore for the faces and $\frac{1}{4}$ " plywood for the bottoms. I purchased $5\frac{1}{4}$ " maple and resawed it to make the thin stock I needed. Do your resawing as early in the build as you can and place the pieces on stickers as shown to allow it the maximum amount of time to adjust to its new environment before milling to final size. After milling, sticker your stock again until you are ready to glue up. Build the case first, then cut the drawer fronts and sides to fit in the drawer cavities, with the drawer backs $\frac{5}{8}$ " narrower in width. Be sure to cut an extra piece or two for spares and to serve as setup stock. Sand all the inside faces before laying out the joints on your setup stock as shown. I find it easier to lay out the pins first. When I'm happy with the spacing, I lay out the mating tails on a second piece of setup stock. Note that most dovetail jigs rely on a 14° bit. However, if you're using the Leigh Jig, you have a choice of what angle bit to use. This, in turn, dictates the length of the overlapping tails in the half blind joint between the drawer and front.



Sticker for stability. After resawing, stack your stock with lengths of scrap in between and weight on the top. This will give the pieces a chance to acclimate. After several days, joint and plane all the pieces to final thickness. I went with $\frac{7}{16}$ " sides and back for a $\frac{7}{8}$ "-thick front.



Divide evenly. I usually space my dovetails evenly. To divide a piece with an uneven width into equal spaces, measure across it diagonally, pivoting the ruler until you come to a number easy to divide. Here I measured to 8" which divides evenly by 2.



Pin layout. Dividing the width into four spaces gave me five pins. Two half pins at the outside and three full pins in between. For a $\frac{5}{8}$ " overlap as shown, the dovetail angle is 10° . Don't worry about being too precise, just get an idea of what the joint will look like.



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For tips on handcutting dovetails, check out this story about building a narrow display cabinet from Issue 99.



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Rout the joints

Both sides of the joint are cut with the same bit. With some jigs, the entire joint is cut at the same time with both pieces clamped down at once. With the Leigh Jig, the pins and tails are cut separately. Adjust the moveable fingers to match your tail layout on the drawer side as shown. Set the bit's cutting depth. If you're using a 10° bit, the depth is $\frac{5}{8}$ ". Rout the tails, guiding the router along the appropriate

side of the template. Clamp the pin board (drawer front) to the top of the jig, flip the template and rout the pins. Test the fit and adjust the bit's cutting depth if necessary, raising the bit to tighten the joint and lowering it to make it looser. Repeat the process with the appropriate bits to cut the through dovetails at the back of the drawer.

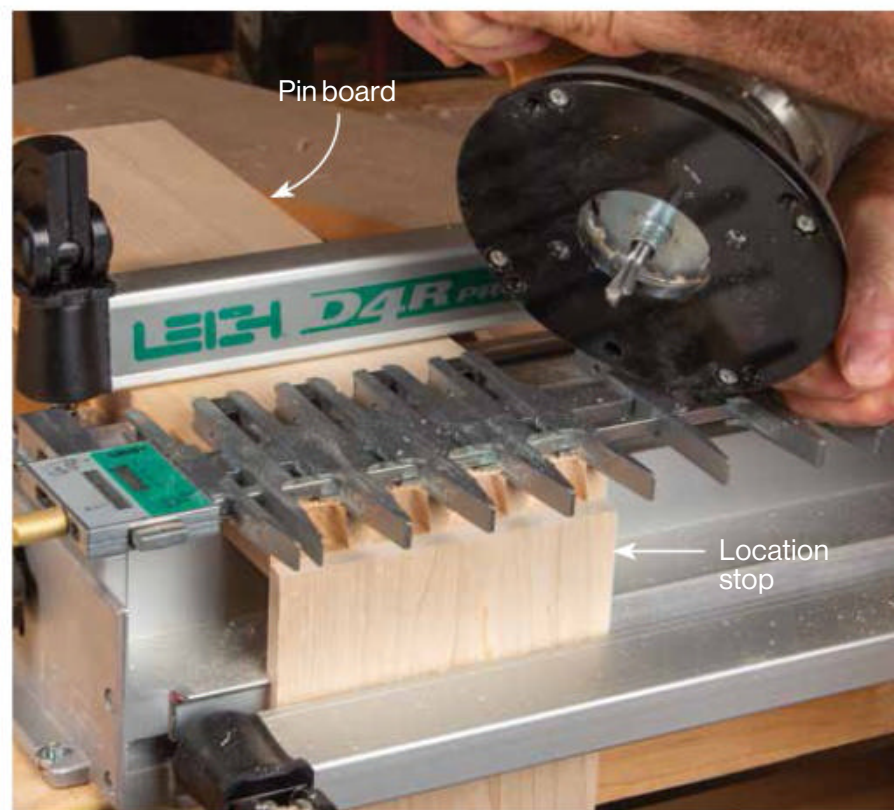


Set the template spacing.

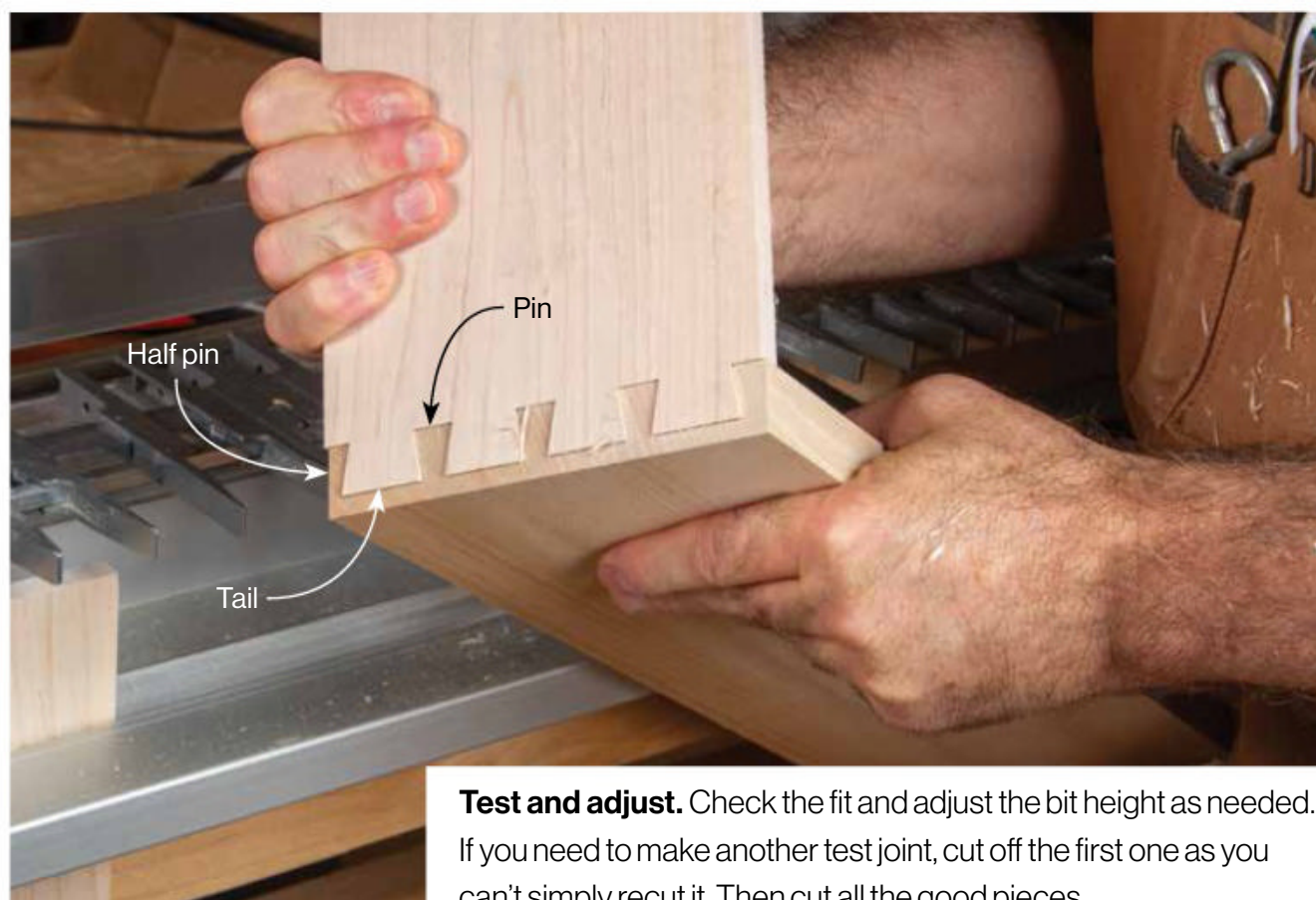
With the tail board (drawer sides) clamped to the front of the jig, adjust the template spacing to match the layout you drew earlier.



Rout the tails. Make a light pass across the piece from right to left, climb cutting to establish the shoulder line. Then follow the template from left to right to cut the tails.



Rout the pins. Clamp the pin board (drawer front) to the top of the jig. Flip the template and rout the pins. The board you see clamped to the front of the jig serves as a stop for helping to locate the pin board.



Test and adjust. Check the fit and adjust the bit height as needed. If you need to make another test joint, cut off the first one as you can't simply recut it. Then cut all the good pieces.

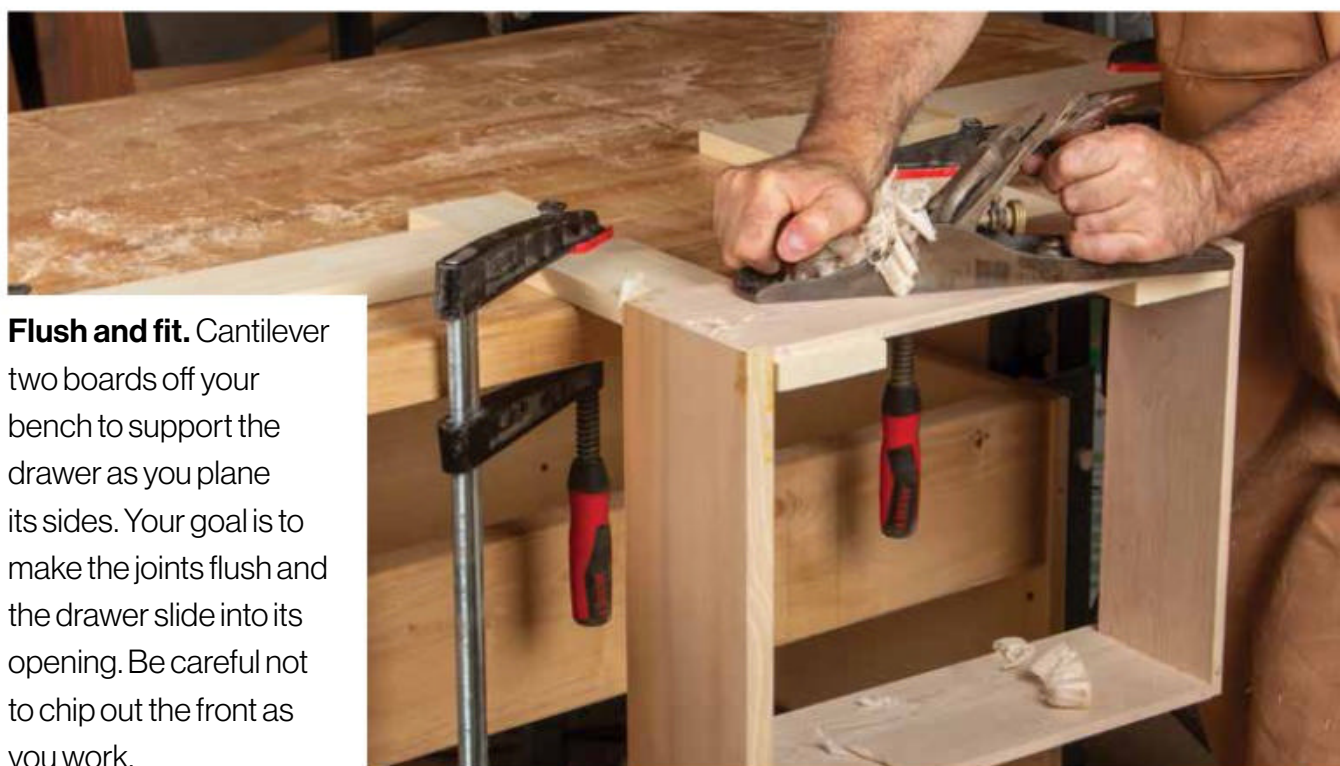
Glue and finish up

Mill stock to $\frac{1}{2} \times \frac{7}{8}$ " for the slips and make their length equal to the drawer depth less the thickness of the front. Rout a $\frac{1}{4} \times \frac{1}{4}$ " groove for the bottom on the inside face of the drawer front, $\frac{3}{8}$ " in from its lower edge. Also rout the slips with the same setup. Spread glue on the mating surfaces of the dovetails, assemble and clamp. I position the side-to-side clamps just to one side of the joints so as not to interfere with how the joint pulls together. After the glue dries, handplane to make the joints flush and to fit the drawer in place.

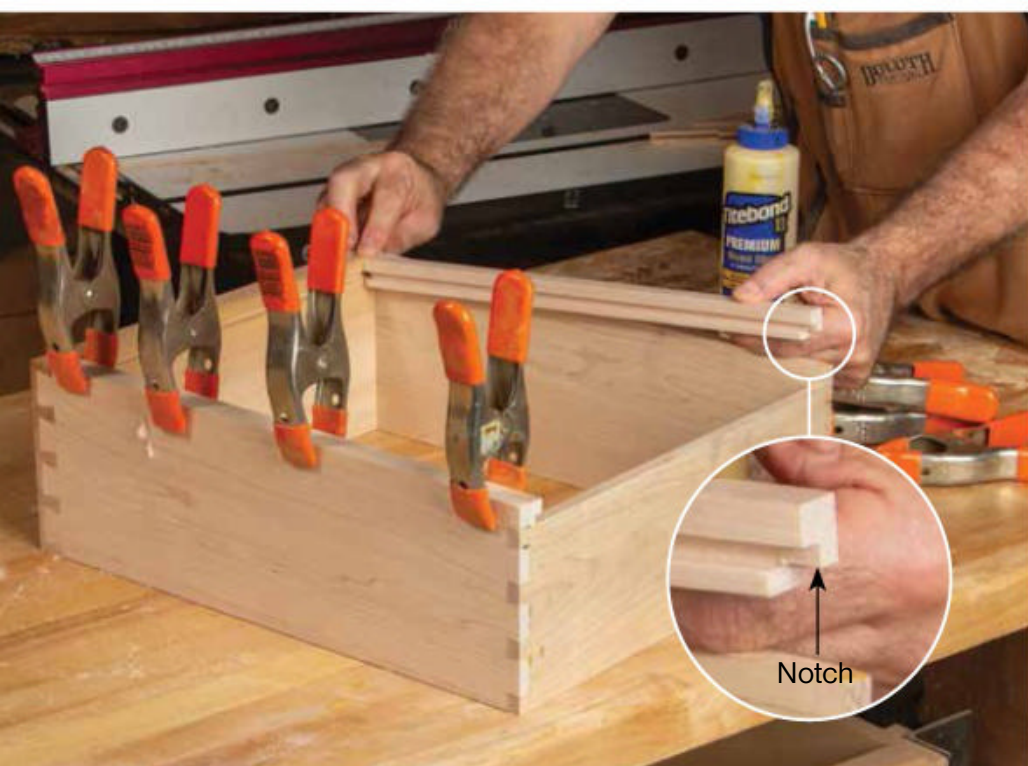
Notch the rear end of the slips to accommodate the drawer back. Glue them in place along the sides. Sand everything before sliding the bottom in place. Screw the bottom to the drawer back to lock it in place. That way you can remove it easily if you ever have to replace it. Drill the front for the pull(s). Finish, then screw the pulls in place.



Clamp and check. Clamp the drawer together in both directions. Check for square by measuring the diagonals. I prefer a folding rule for this task as the ends fit right in the corners. Take your reading from how far the brass slider extends.



Flush and fit. Cantilever two boards off your bench to support the drawer as you plane its sides. Your goal is to make the joints flush and the drawer slide into its opening. Be careful not to chip out the front as you work.



Add the slips. After notching their rear ends, glue and clamp the slips in place. Double check to make sure the grooves in the slips align with the one in the front.



Slide in the bottom. Cut the bottom to size and slide the bottom in from the rear. Even though I used plywood, I still prefer to run the grain from side to side as you would with solid wood. ■



Modern Hayrake TABLE

A contemporary dining table draws on English Arts & Crafts roots

By Sarah Marriage

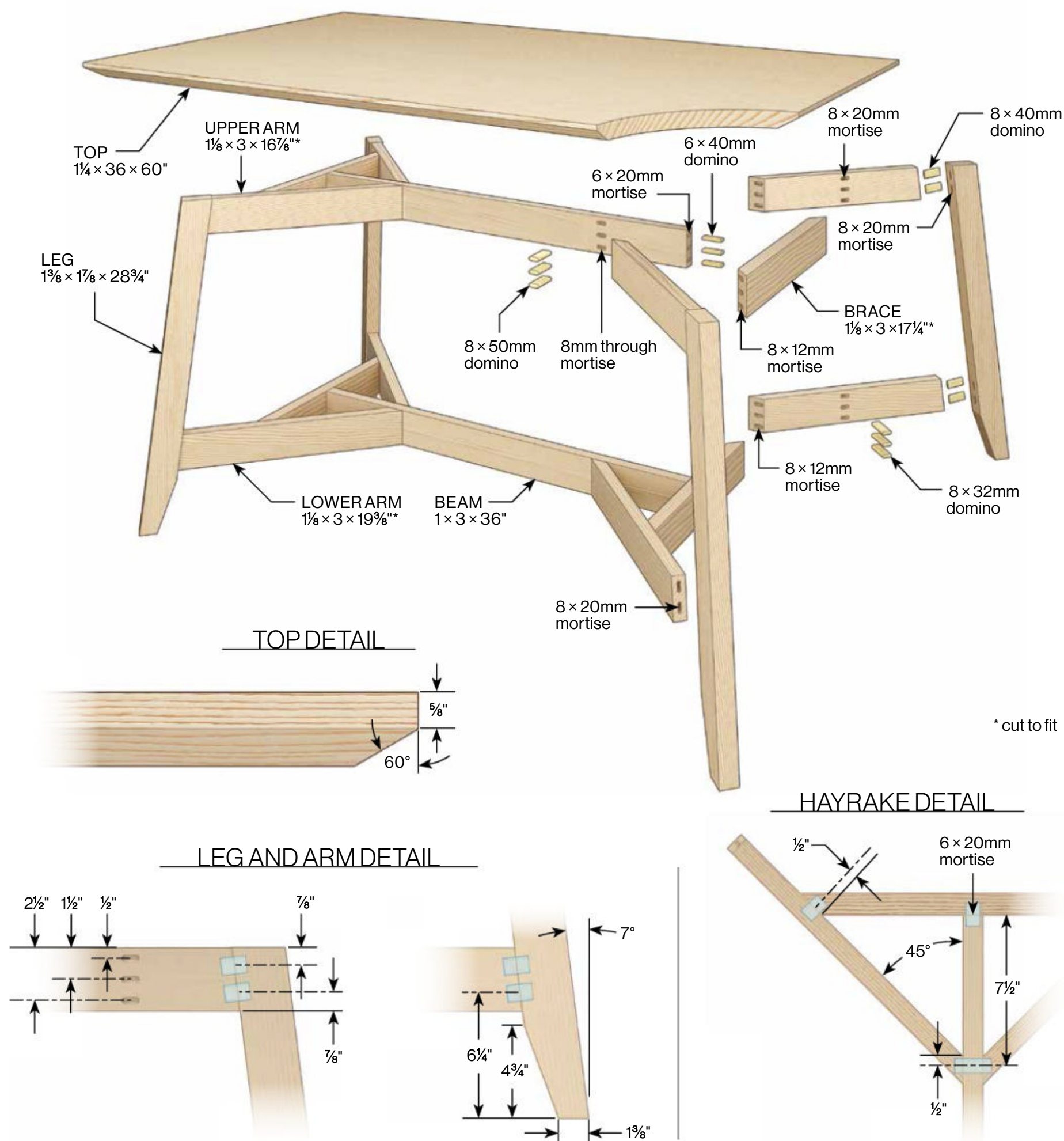
The classic hayrake table is a large, sturdy, dining table born of the English Arts & Crafts movement. Typically featuring beefy legs and heavy components, the central “hayrake” structure ties the table legs together, while leaving room for chairs and human legs to fit comfortably under the table. The “hayrake” name comes from the way each end of that central structure mimics the appearance of a farmer’s tool used for gathering hay.

I’ve always admired the engineering of these hayrake structures, and I wanted to employ their elegant design inside a lighter-weight table for a modern household. My version features splayed legs and thinner components than its predecessors, while still enjoying the strength provided by the triangulated structure. The 3 × 5’ tabletop will seat four comfortably, or six cozily, but the base could easily support a larger tabletop if you’re planning a bigger Thanksgiving feast.

A petite table with two key angles

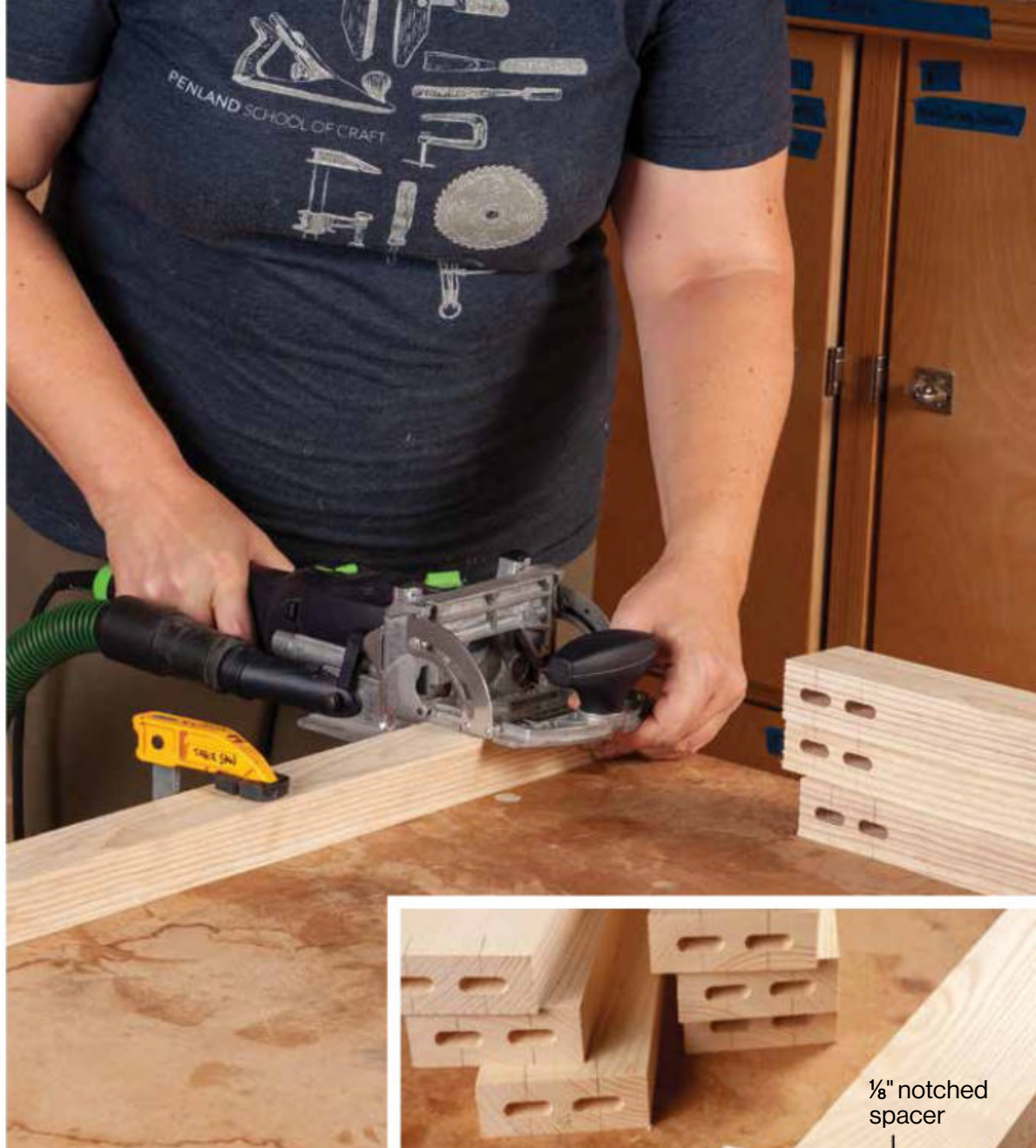
This ash table breaks down into a few simple, repeating components. Two beams stretch down the center of the understructure, at typical apron and stretcher heights. Toward the end of each beam, arms attach at 45° via floating tenons that mortise into their ends, passing through the beam in between. The upper arms sit directly

above the lower arms and each upper/lower pair connects to a single, 7° splayed leg with more floating tenon joints. Each arm-to-beam joint is reinforced by a brace that connects both arms and the end of the beam, completing the hayrake structure. I attached the tabletop with figure-8 fasteners for their simplicity and low profile.

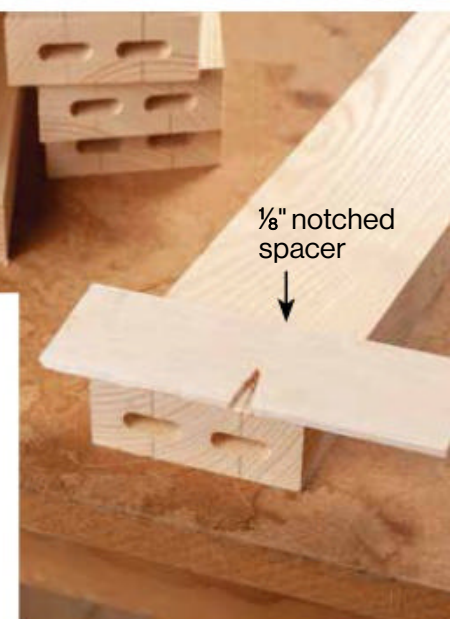


Begin with the arms and legs

Mill stock for the legs and all the hayrake parts. Rip all parts of equal width at the same time. Cut the beams to final length but leave all other parts 3" overlong. Set your miter saw table angle to 7° and saw legs to length. Without changing the angle setting, saw one end of each hayrake arm. Lay out and cut mortises in the legs and angled ends of the arms as shown. Dry fit each arm to its respective leg and place one assembly onto the hayrake crosscut jig (see drawing below), registering the inside corner of the top arm-leg joint with the *upper* corner of the forward crosscut support. Tilt your table saw blade to 45° and slide the crosscut jig to saw both arms to length in one pass. Repeat with a second arm-leg assembly. To make the other two assemblies mirror the first two, flip them end-for-end, and register the inside corner of the top arm-leg joint to the *lower* corner of the rear crosscut support as shown before sawing arms to length. Disassemble and taper the end of each leg with a tapering jig at the table saw.



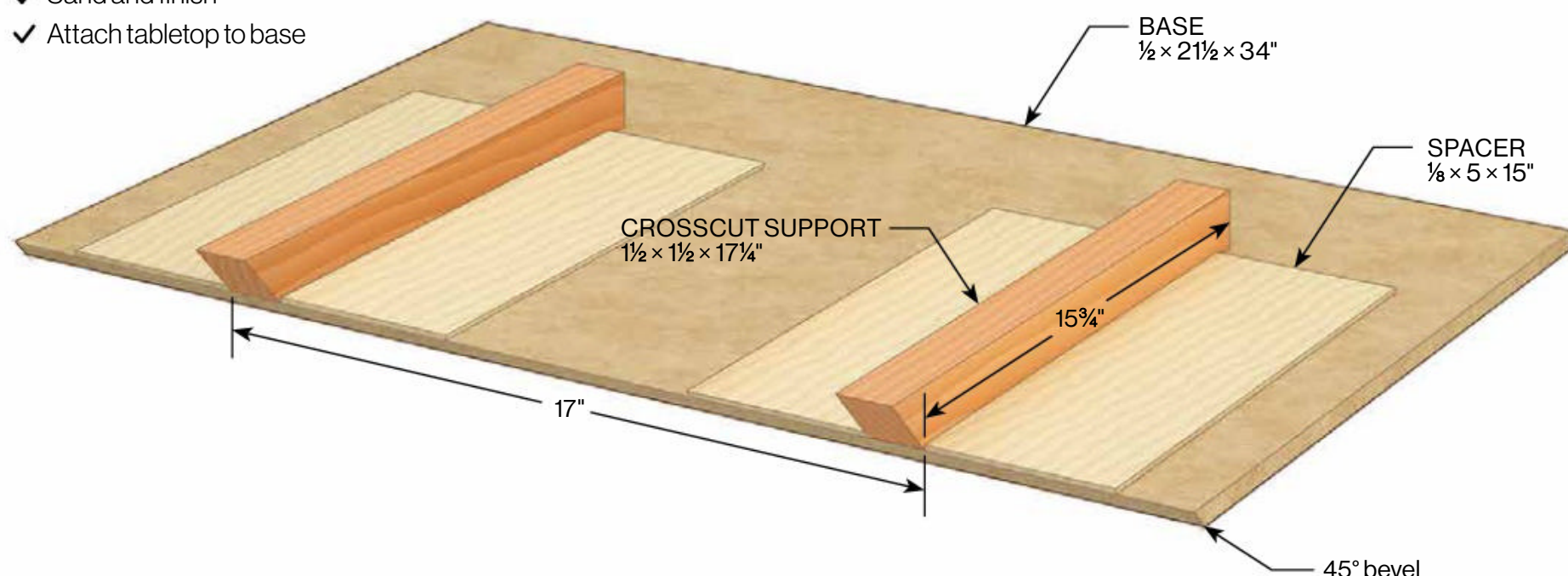
Domino the legs. Adjust the height of the Domino's fence such that it centers the bit on the thickness of the legs. With an 8mm bit, plunge 20mm deep at each mortise location. Without changing any Domino settings, bandsaw a notch into a 1/8" spacer and place it on top of each arm before cutting the matching mortises.

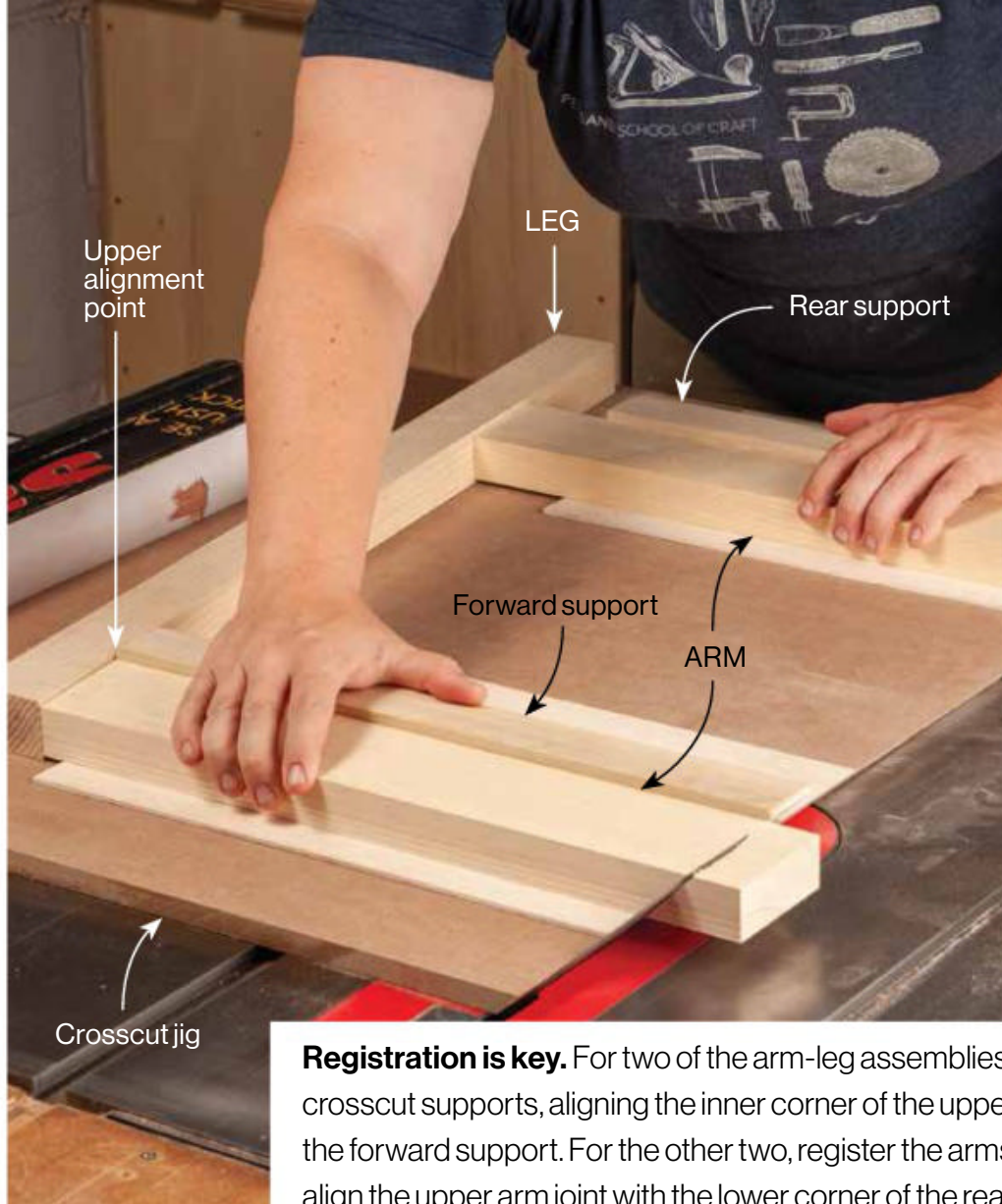


Order of Work

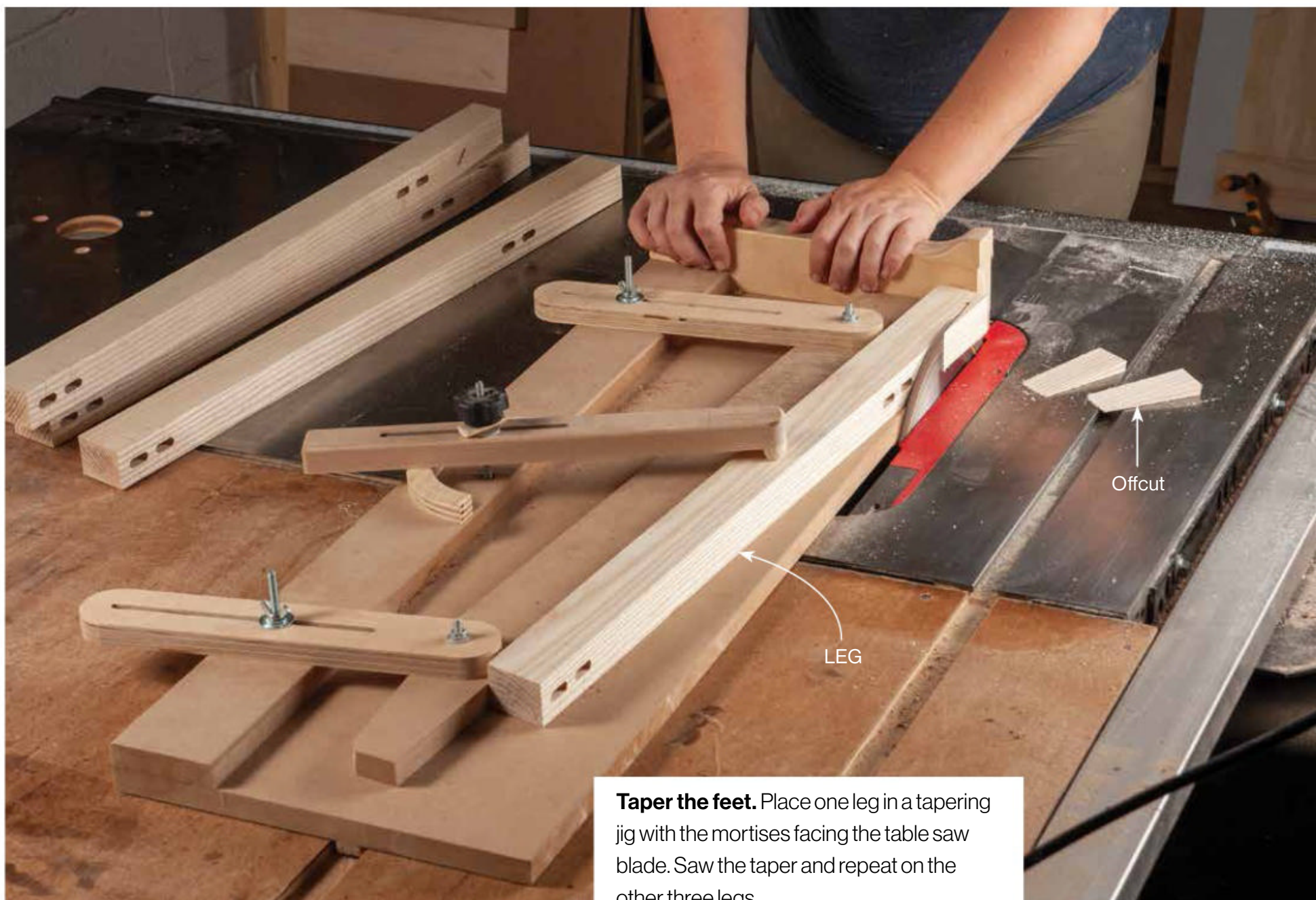
- ✓ Make legs and hayrake arms
- ✓ Make and glue up hayrakes
- ✓ Glue legs to hayrakes
- ✓ Make tabletop
- ✓ Sand and finish
- ✓ Attach tabletop to base

CROSSCUT JIG





Registration is key. For two of the arm-leg assemblies, register the arms *in front of* the crosscut supports, aligning the inner corner of the upper arm joint with the upper corner of the forward support. For the other two, register the arms *behind* the crosscut supports and align the upper arm joint with the lower corner of the rear support.



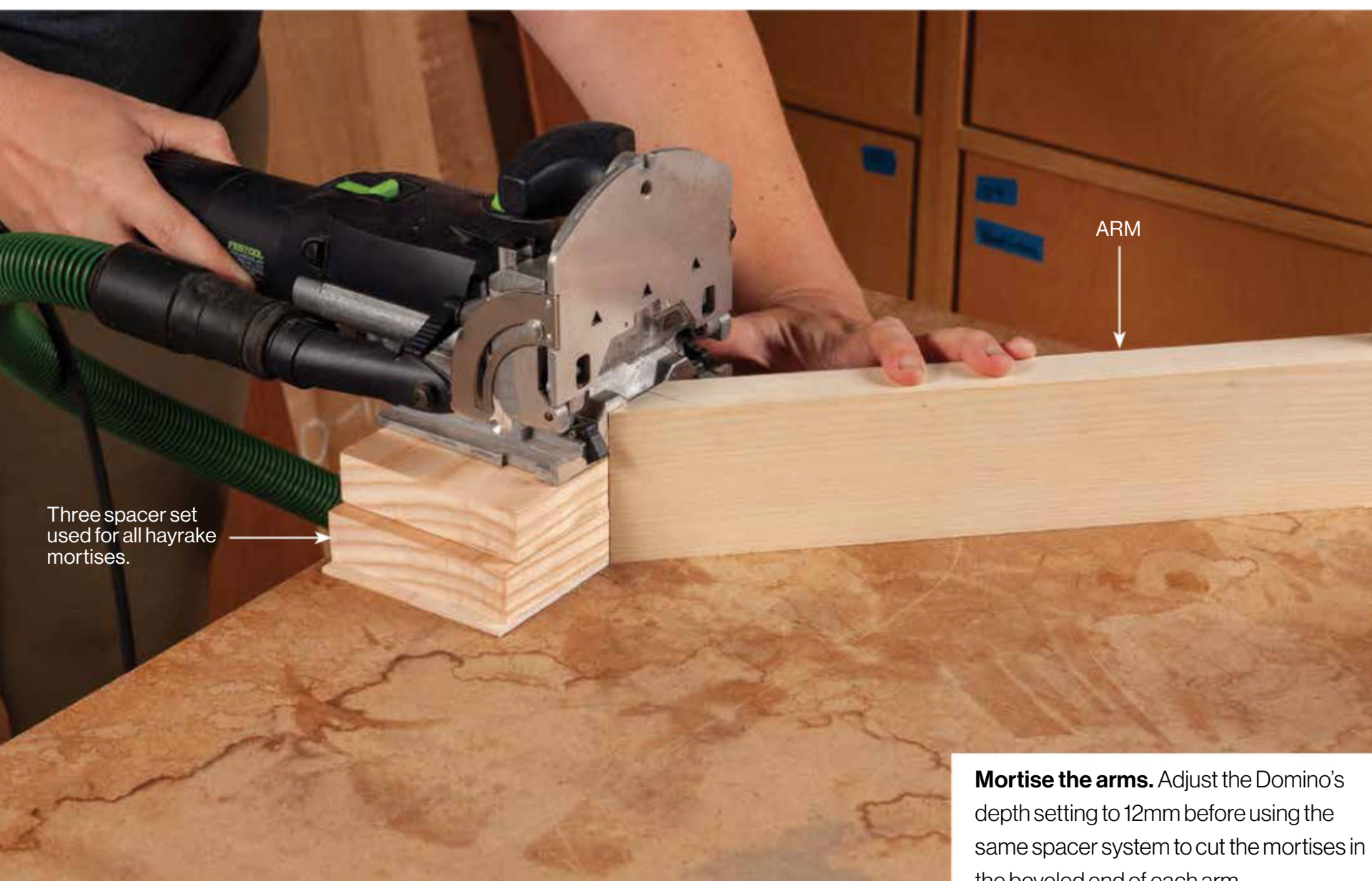
Taper the feet. Place one leg in a tapering jig with the mortises facing the table saw blade. Saw the taper and repeat on the other three legs.

Build the hayrakes

Lay out the mortise locations on the beams and the freshly sawn ends of the arms, marking the centerline on the top edge of each and down the face into which the mortises will be cut. For speed and consistency, add spacers under the Domino machine as you cut the three mortises at each joint, with an 8mm bit. Dry fit the arms to the beams, and cut the braces to fit as shown. Lay out the mortise locations for the brace joinery on the brace, arms, and the end of the beam. Employing the same spacer system that was used to cut the arm-to-beam joints, cut the arm-to-beam mortises with an 8mm bit, and the brace-to-beam mortises with a 6mm bit.



Mortise through the beam. Attach a sacrificial board to the beam face opposite your layout lines. Adjust the Domino's depth setting to 28mm before placing the tool onto a $\frac{1}{8}$ "-thick spacer and cutting a mortise all the way through the beam. Add a 1"-thick spacer and plunge the second mortise. Add another 1"-inch-thick spacer before cutting the final mortise.



Mortise the arms. Adjust the Domino's depth setting to 12mm before using the same spacer system to cut the mortises in the beveled end of each arm.



Fit the brace. Cut the brace slightly overlong at the tablesaw, with the blade tilted to 45°. Slowly adjust the fence and standoff block to trim a little bit of length from the brace at a time, until the piece fits flush to the dry-fit arms and end of the beam.

Glue up the hayrakes.

Before gluing up, trim the brace-to-arm joint dominos to 32mm long. Dry fit the assemblies to double-check that everything goes home.

Glue up one beam-end assembly at a time, squeezing the three 45° joints of the assembly home simultaneously.

Tape sandpaper to your cauls to help keep them in place.

Temporary clamp to hold caul in place while applying clamps at the joints.

To pull the brace tight to the beam end, apply a clamp from one brace across to the opposite end of the beam.

Once the joints at one end are tight, remove the long brace clamp and glue up the assembly at the opposite end of the beam, before replacing this clamp to bring both braces home.

Cut cauls from scrap wood and bandsaw them to create notches as shown (left). The notches align the clamp's pressure through the joint, parallel to the direction the tenon is sliding in the joint.

Topping the table

After the hayrakes have had time to cure, proceed with the final table base glue-up. Build the base upside down, so the top hayrake can sit flat on the bench top. Grab a friend, then apply glue and fit two legs, catty-corner from each other as shown, before attaching the final two legs and applying clamp pressure to the joints. Rout shallow mortises in the top edges of the base for the tabletop fasteners. Mill planks for the tabletop and glue up the panel before crosscutting to length with a track saw. Sand the tabletop before routing the edge profile on the underside of the panel. Sand everything and apply a durable finish. I used Osmo Polyx-Oil “Natural Effect” which has a slight white tint to counteract yellowing on light woods. Let the finish cure before buffing and laying out your Thanksgiving spread! ■



Alicia Dietz, fine woodworker and good sport. →

Good friends make quick glue-ups. While it's possible to complete this glue-up on your own, an extra set of hands makes it a lot easier. Attach notched cauls to the beams to give purchase to the clamps that will apply pressure to the leg joints.



Rout for fasteners. Chuck a $\frac{3}{4}$ "-dia. straight router bit into a plunge router and adjust the plunge depth to match the thickness of the figure-8 tabletop fasteners. I located one fastener on each brace, one toward the leg end of each arm, and a couple along the beam.

Safety in numbers (of router passes). Install a 60° chamfer bit (see Buyer's Guide p. 62) in your plunge router. Then make and attach an auxiliary extension base with a 2½" dia. clearance hole centered under the bit. Take several incremental passes to remove all of the material, using the extra length of the auxiliary base as a stabilizing arm to prevent the router from tipping.



½" MDF auxiliary base

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Black Cherry

Your sweet lumber choice

By Robert J. Settich

Let me clarify one thing right at the beginning: six-year-old George Washington did not use his new axe to chop down his father's black cherry tree (*Prunus serotina*) nor any other kind of tree. The entire episode was pure fantasy from the imagination of Parson Weems in his 1800 biography of Washington, published the year after the first president's death. But that fable, as well as Washington's prayer at Valley Forge—another Weems invention—morphed into one of the most-believed stories of United States presidential history. Now that we've dispensed with the fiction, let's get down to facts.

The popularity of black cherry lumber in North America goes back to the earliest Colonial times, when it was often called “the poor man's mahogany.” It was also eagerly adopted for the clean furniture designs of the Shaker sect,

which began organizing while General Washington was commanding the Continental Army. In an unbroken line since then, woodworkers still prize black cherry as a premier wood for cabinetry, furniture, and a host of items ranging from boxes and bowls to smoking pipes and even smaller projects. One key to its popularity is its distinctive color: a light pinkish-brown when freshly milled but darkening over time and with exposure to air and sunlight into a reddish-brown patina. The sapwood offers a distinct contrast with a pale yellow hue that doesn't significantly darken over time. Sapwood is no longer considered a defect and can often be abundant within a batch of lumber so you'll pay the same price for it per board foot. To get the best heartwood yield, cherry-pick individual boards when possible.

Putting black cherry to work

Cherry typically has very good dimensional stability, even texture, and relatively straight, but wavy grain. This slight wave gives the wood a lot of character and depth, but can also cause finishes to blotch and boards to tearout partway through a cut. Figured grain isn't common but can be very attractive. Quartersawn cherry is far more subdued than the prominent fleck typical in quartersawn white oak but still

looks great in small boxes or especially as the raised panel of a cabinet door.

Depending on the individual tree, the endgrain can be semi-ring-porous to diffuse-porous. I don't consider the structure tight enough for hard-working cutting or charcuterie boards, but I understand the color appeal of using cherry strips in serving platters.

The wood usually doesn't require grain filling under low-luster finishes, but achieving a high gloss surface is much easier after packing the pores.

With sharp blades and cutters, cherry cuts, planes, surfaces, and routs cleanly. But when tools are not at optimal sharpness or with a too-slow feed rate, surfaces rapidly show scorch marks. So whenever I work with cherry, I check tool alignment and touch up edges or even change blades. The few minutes that takes is much quicker than dealing with the problem. Burnt ends are great in Kansas City BBQ, but not on cherry boards. And while we're on that topic, cherry offcuts too small for projects add great flavor at your backyard grill or smoker.

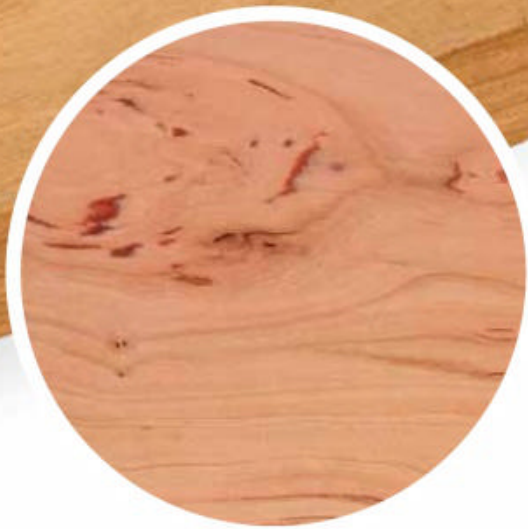
Cherry turns without any particular issues, but be sure to use effective dust protection measures, particularly when sanding. Otherwise, the fine dust can be a respiratory irritant.



Aging with time. In the 14 years since I made this clock for *Woodcraft Magazine* Issue 30, it has mellowed to a warm, rich hue.

WORKABILITY	
TOXICITY	
ROT/INSECT RESISTANCE	
HARDNESS	





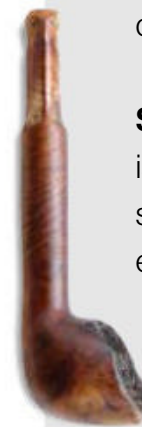
“Pitch” pockets.

Some cherry boards contain dark streaks caused by mineral deposits within the grain.

Prepare for impact. Cherry has a rating of 950 on the Janka Hardness Scale, slightly less than black walnut’s 1010. That translates to fairly easy workability for furniture projects but probably not enough dent resistance for flooring or other high-impact uses.

Not part of the family tree. Lumber marketers, especially those in the flooring trade, often dream up product names that include “cherry” when the wood has a reddish tint—even when the botanical genus is completely unrelated to genuine cherry. Two imposters: “Brazilian cherry” (jatoba) and “Patagonian cherry” (tiete rosewood, sirari).

Smoke ‘em if you got ‘em. Cherry is a relatively popular material for smoking pipes, with some designs even featuring bark attached to the bowl and stem. Cutting branches during an active growth period increases the chance that the bark will stay in place.



Smokin’ good lathe blanks. When you want cherry for bottle stoppers and other lathe projects, buy a bag of split logs sold for BBQ smokers. You’ll usually get blanks at a bargain price plus a delicious rack of baby back ribs.

Health benefits of black cherry. Companies that sell black cherry juice emphasize that it contains melatonin, reported to help regulate sleep. The juice is also said to contain antioxidants and may be beneficial in controlling inflammation.

Achieving a cherry finish

The look of cherry is so appealing that manufacturers of wood stains can’t resist concocting reddish tones that can be slathered on poplar, pine, or other woods to produce a vague resemblance to the genuine article. This is compounded by the countless number of commercial cabinets sprayed with colored toners to produce a uniform, dark cherry-esque finish. But neither stain nor spray toner can compete with the warm hue of natural cherry under a well-applied clear finish left to mellow with age.

That said, some of you will still prefer the uniformity that stains bring to the table, whether to disguise a little bit of sap wood, or to even out the color difference between parts made of cherry plywood and those made

of solid stock. (Plywood is typically darker than solid wood because veneer logs are often conditioned before slicing with a heated water bath or by steam. Both of these processes usually darken the resulting veneer.) Because of cherry’s slightly wavy grain, it tends to blotch: unpredictably and unevenly absorbing a finish, even an untinted one. It can be maddening because by the time it happens, you’ve already driven down that one-way street. A couple suggestions to help deal with this. First, wipe down the surface with naphtha. This fast-drying solvent will reveal the areas likely to blotch before you commit. Then apply a thin coat of shellac to seal the surface before applying a stain or clear finish. ■

Left on its own. Black cherry trees can reach heights of 50 to 100 feet, with a diameter of 3 to 5 feet. In orchards, however, both black and sweet cherry trees (*Prunus avium*) are often pruned to limit size and encourage fruit production.

Don’t be duped: it’s a drupe.

A cherry is technically a drupe, a fleshy fruit usually containing a single seed. Other drupes are plums and olives.





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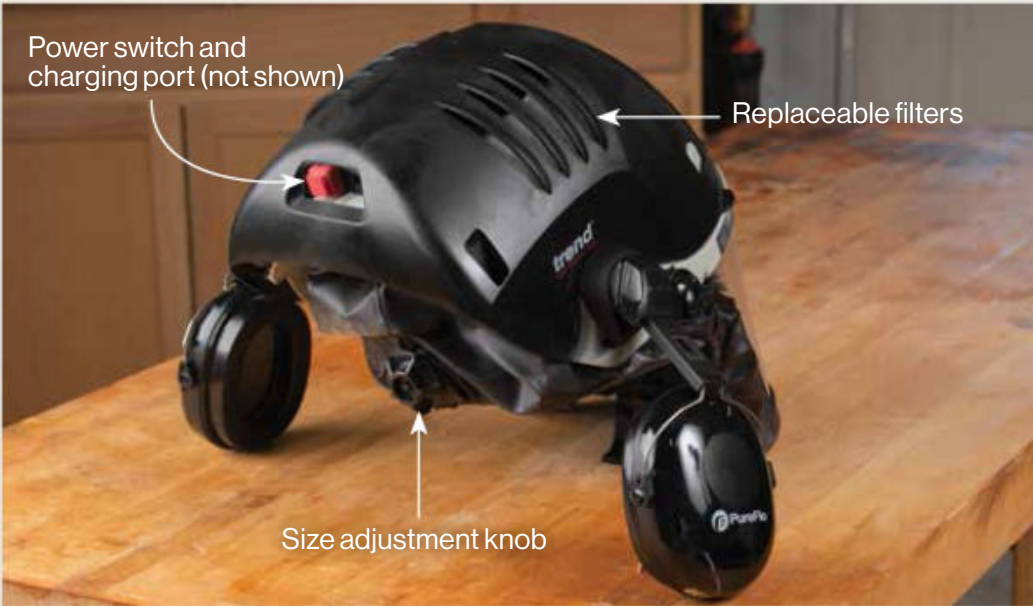


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All-in protection

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PRICE	\$529.99, #169538; Ear Defenders available at trend-usa.com
FEATURES	
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out my shop. Admittedly, it isn't cheap, but your health and safety are well worth it. And when all your safety gear is in one place, there's no excuse not to wear it.
—Derek Richmond

Photos: Derek Richmond

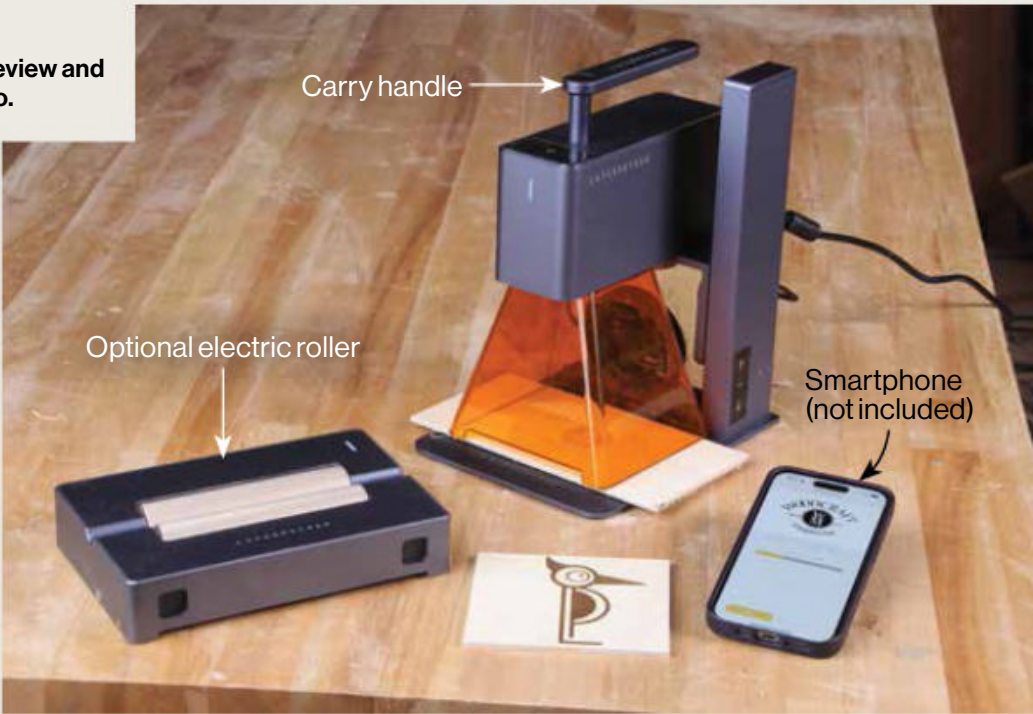
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-Sarah Burton



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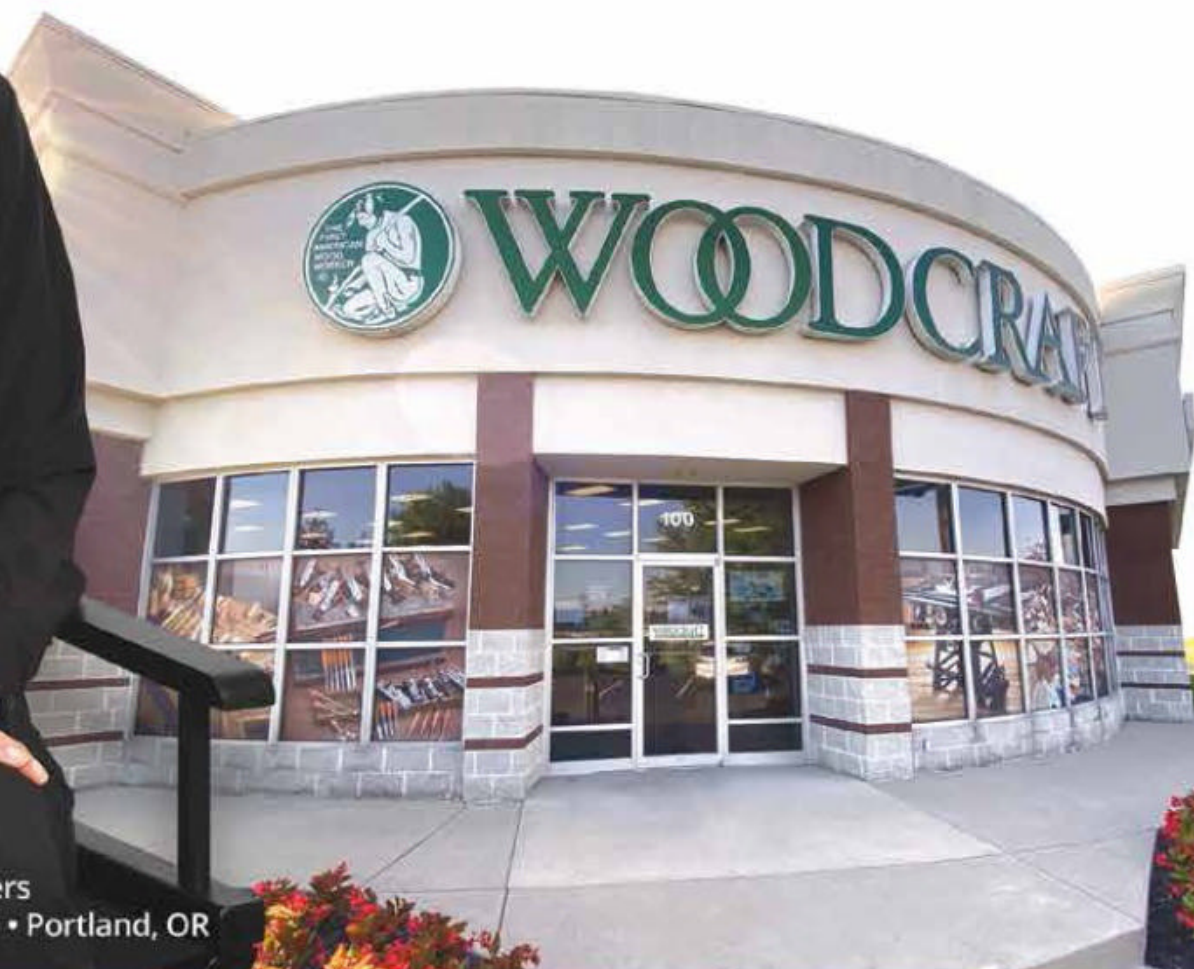
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Forming a uniform burr on the edge of a card scraper can be a bit challenging. My preferred burr-making tool had always been a chromed hardened-steel rod and it served me well over the years. However, I recently acquired an Accu-Burr Jr from Blackburn Tools and Union Manufacturing Company, which is a solid carbide burnisher with three angled grooves to make fine, medium, or coarse burrs (5, 10, and 15 degrees, respectively). If you've done a good job of prepping the scraper edge: filing, honing, and so forth, the Accu-Burr Jr creates will be perfect along the entire edge. It also works on any scraper shape or hardness and requires less pressure than a steel rod, a real plus if you use gooseneck scrapers. This tool gets high marks for its ergonomics, aesthetics, and results. Its solid brass handles are comfortable and attractive, and their hexagonal



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shape prevents the tool from rolling off your bench. (Carbide is notoriously brittle, so a hard fall could be an expensive accident.) The only reservation I have is that the Accu-Burr Jr is priced for very serious users. ■

—Larry Okrend



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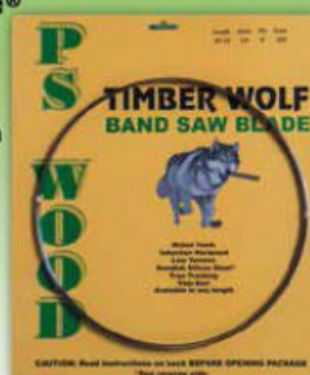
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Tool Reviews (p. 12)

1. Rikon 10-3601 10" Deluxe Bandsaw, ½ HP#168278, **\$599.99**

Gravitational Illusion Ball Ramp (p. 24)

1. Steel Ball Bearing, ⅝"-dia. (2 needed).....*homedepot.com*, #948527, **\$2.75**

Inside-Out Cake Stand (p. 26)

1. Spectape Double Sided Tape, 1" × 36 yds.....#15D28, **\$27.99**
2. WoodRiver Stainless Steel Pie Server Turning Kit.....#162896, **\$20.99**
3. Acopa 9 ½ × 7" Clear Glass
Round Cake Cover*webstaurantstore.com*, #553CDOME10, **\$15.99**
4. SEE One All-Natural Oil Furniture Finish.....*seefinishes.com*, **\$22.00**
5. Scotch Strapping Tape, 1.88" × 10 yds.....*staples.com*, #824250, **\$6.59**
6. Easy Wood Tools Mid-size Easy Rougher#149928, **\$128.99**
7. Easy Wood Tools Mid-size Easy Finisher#151018, **\$128.99**
8. Easy Wood Tools Mid-size Easy Detailer#151019, **\$128.99**
9. Easy Wood Tools Ci2 ⅛"-dia.
Negative Rake Beading Cutter.....#187837, **\$30.99**
10. Easy Wood Tools Ci2 ⅜"-dia.
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11. Easy Wood Tools Ci2 ¼"-dia.
Negative Rake Beading Cutter.....#187839, **\$31.99**
12. Easy Wood Tools Ci2 ⅜"-dia.
Negative Rake Beading Cutter.....#187840, **\$31.99**

Heirloom Dresser (p. 31)

1. Whiteside 2715 Over-Under Flush Trim Bit,
⅞" D, 1 ½" CL, ½" SH#149528, **\$40.99**

Dovetailed Drawers (p. 40)

1. Leigh D4R PRO 24" Dovetail Jig.....#151003, **\$769.00**
2. Whiteside D10-50 10 deg Dovetail Bit#03K58, **\$23.99**

Modern Hayrake Table (p. 44)

1. Whiteside 60-deg. Chamfer Router Bit, 1" CL, ½" SH.....#158805, **\$85.99**
2. Festool Domino Tenons, 8 × 22 × 40mm#494940, **\$31.00**
3. Festool Domino Tenons, 8 × 22 × 50mm.....#494941, **\$31.00**
4. Festool Domino Tenons, 6 × 20 × 40mm.....#494939, **\$31.00**
5. Osmo Polyx Oil 3501 Neutral, Matte, .75 L.....#183250, **\$54.99**
6. Highpoint Figure 8 Desktop Fasteners, 10 pc.....#159303, **\$4.49**

Great Gear (p. 56)

1. Trend Air Shield Pro.....#169538, **\$529.99**
2. Trend Ear Defenders.....*trend-usa.com*, **\$88.11**
3. Accu-Burr Jr.....*heartwoodtools.com*, **\$70.00**
4. LaserPecker 2*laserpecker.net*, **\$999.99**

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Ad Index

ADVERTISER	PAGE
Amana - <i>amanatool.com</i>	59
The American Woodshop - <i>wbgu.org/americanwoodshop</i>	19
Bosch - <i>boschtools.com</i>	11
Bow Products - <i>bow-products.com</i>	17
Carter - <i>carterproducts.com</i>	61
Connecticut Valley School of WW - <i>schoolofwoodworking.com</i>	60
EZ-LOK - <i>www.ezlok.co</i>	19
Festool - <i>festoolusa.com</i>	20
Freud - <i>woodcraft.com/Freud</i>	IFC
Howard - <i>howardproducts.com</i>	60
JessEm - <i>jessem.com</i>	8
JPW - <i>jpwindustries.com</i>	1
Kutzall - <i>kutzall.com</i>	23
Laguna - <i>lagunatools.com</i>	9
Lignomat - <i>lignomat.com</i>	13
Mercury Adhesives - <i>mercuryadhesives.com</i>	13
Milescraft - <i>milescraft.com</i>	15
Next Wave - <i>nextwaveautomation.com</i>	21
Oneida - <i>oneida-air.com</i>	15, 58
PS Wood - <i>pswood.com</i>	60
Rikon - <i>rikontools.com</i>	5
Robert Sorby - <i>robert-sorby.co.uk</i>	7
Rogue Industries - <i>rogue-industries.com</i>	55
Rust-Oleum - <i>rustoleum.com</i>	55
Satellite City - <i>caglue.com</i>	60
System Three - <i>systemthree.com</i>	14
Titebond - <i>titebond.com</i>	OBC
Thomas Flinn & Co. - <i>flinn-garlick-saws.co.uk</i>	19
Whiteside Machine - <i>whitesiderouterbits.com</i>	IBC
Woodcraft Franchise - <i>woodcraftfranchise.com</i>	57
Woodcraft Magazine - <i>woodcraftmagazine.com</i>	22, 55, 60
Woodcraft Supply - <i>woodcraft.com</i>	52, 63



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A question of voltage

I have several woodworking machines that can run on 120 or 240V. What should I consider when deciding what voltage to run them at?

—**Kris Morton**
Houston, TX

Most benchtop tools are strictly 120V, but jointers 6" or wider, 14" bandsaws, belt/disc sanders, and maybe even your table saw may offer dual voltage options. If your machines offer dual voltage motors (120 or 240V) and your shop has the capability to run those machines at 240V, that would be my preference.

Typically, a drill press or 14" bandsaw has less than a 1.5 HP motor and won't draw a lot of current (amperage) at start up, so 120 or 240V would both work fine. The real advantage comes with tools like stationary belt sanders, larger bandsaws, and table saws. These units' motors require a lot of amps at start up, and at 120V you will notice the machine will labor to start and get up to speed. I had a Rockwell 10" Unisaw that was wired for 120V. When I brought it home and tried to use it in my garage it would always pop a breaker before it could get up to speed.

Additionally, choosing 240V will actually save you a bit of money because the motor will not generate as much heat allowing it to run cooler and more efficiently. And you may be able to run two or more machines on the same circuit as well as a dust collector without constant fear of tripping the breaker. ■

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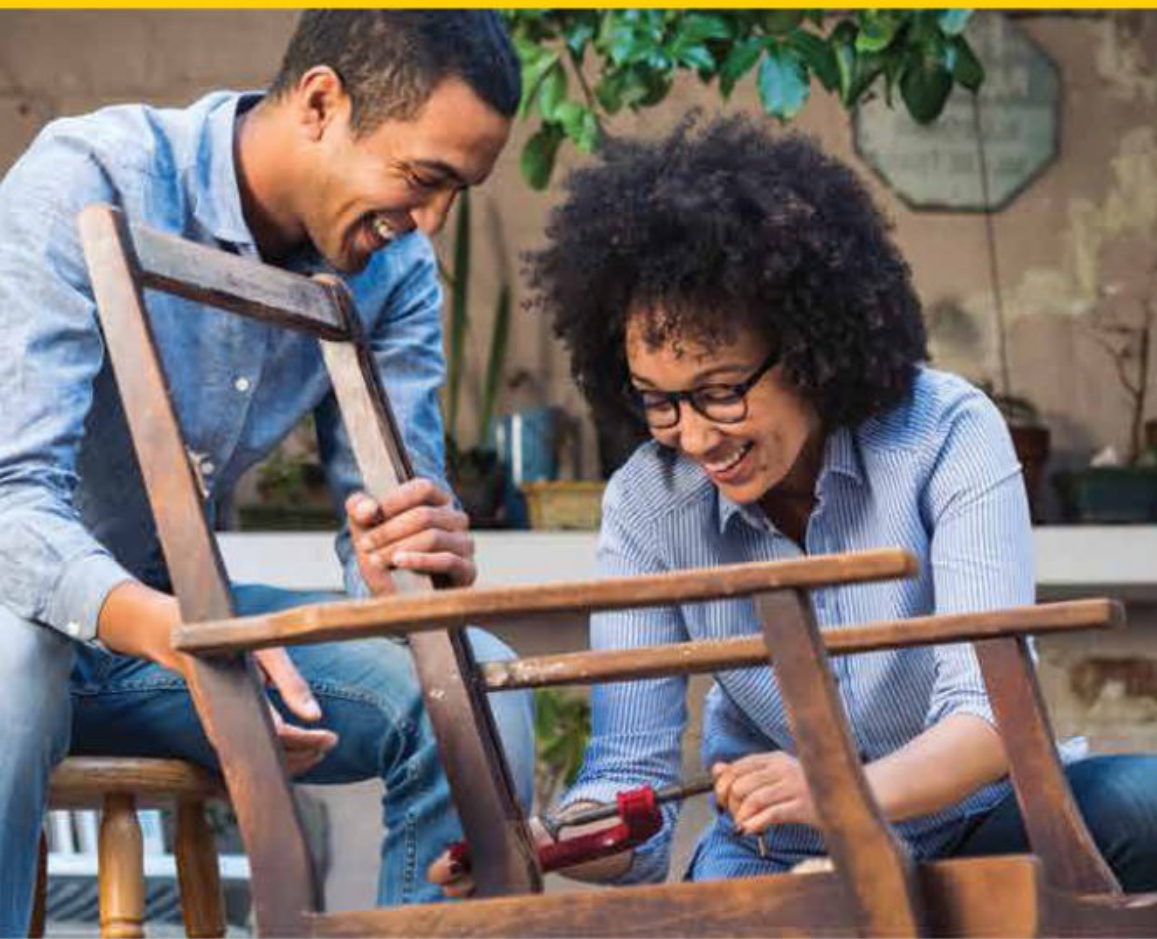


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