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Carryall Picnic Basket

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INSIDE:

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Prairie Style Gift Box
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Woodworker's Journal

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Projects



Prairie-Style Box

By Marlen Kemmet

Bevel cuts create tapered legs and a stylish lift on a box small enough to highlight some stunning lumber.

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Picnic Basket

By Sandor Nagyszalanczy

Want to weave wood without steam bending? Learn how as you build this ready-to-go picnic basket on wheels.

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"Surfboard" Coffee Table

By Michael Crow

A Mid-century inspired table of mixed materials, featuring a wooden elliptical top and an aluminum base. Put on some Beach Boys music and take a surfing safari out to your woodshop.

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Odds and Ends Cabinet

By Woodworker's Journal Staff

Store small assortments in this handy-dandy shop helper. (Who doesn't need a bit more organization in the shop?) Building it with a specialty blade that cuts a hinged miter joint adds some extra fun to this simple weekend project.

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Seeing the projects you build is fun and inspiring for both our staff and your fellow readers. We love seeing your work so much that we're going to start rewarding your efforts.

Every month, starting in July, one reader who has shared a project with us will be randomly selected to **win a \$25 Rockler gift card**. We will also publish as many of these projects as we can in our eZine and on our social media channels. So don't wait! Start sharing photos and descriptions of your work today.

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— Dan Cary





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Letters

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AUGUST 2017

Volume 41, Number 4

Is it Time for Holiday Projects?



SUMMERTIME AND THE LIVING IS ... GIFT-Y

I know, it's July for crying out loud. And in an era where Christmas is in the air sometime around, say, Halloween, mentions of the gift-giving season can be more than a little cloying, if not downright annoying. But please, stay with me for just a moment.

Every year we get a lot of inquiries about gift ideas for the Christmas/holiday season. Which is great. The downside is we usually start getting those questions around the middle

of November. Because of the curious timing of magazines, by then we are actually working on the March/April spring edition of the magazine. So, I thought if we started the conversation a bit earlier (like now), it might be more useful to you all. (And to get your juices flowing, we even included a couple of projects in this issue — the jewelry box and the cool little turned measuring spoons — that would make fun gift items you can start working on right away.)

With all that as prologue, just what are you interested in building in the next holiday season? If you get back to us with your ideas and requests soon, we can likely get some into our November/December issue (mailed to you at the end of October ... like I told you, "magazine time" is curious), and that will be helpful to you and to us. So set aside your lawnmower and fishing rods for a few minutes and let us know what you want to be doing in December. You'll be glad you did.

— Rob Johnstone

Wood for Drinking

Enjoyed the April issue, in particular the question from Buzz DeHooghe about the best finish for a coffee mug [*Questions & Answers*]. Maybe it's not the finish, but the wood. In Argentina, they drink a tea-like drink called yerba. The "matte," or cup, can be made from various things. One is wood called Verawood, Argentine *lignum vitae*. Scientific name: *Bulnesia arborea*, *Bulnesia sarmientoi*. This wood is very dense, but it turns well. The matte is left unfinished, but seasoning is required.

I've enclosed a picture of a typical matte. Keep up the good work; I enjoy every issue.

Michael Guidi
Hathaway Pines, California



Bird Safety

In the April 2017 *Question and Answers* section (page 16) of your always anxiously anticipated magazine, Lavern Farmwald queried about the safety of using composite lumber for birdhouses. Dr. Randolph responded that the Massachusetts Audubon Society had expressed concern about the "breathability" of composite materials, fearing the "interference with natural air and water vapor movement could lead to a moist environment." Wood is practically impervious to the movement of air, as is composite. Water equilibrates across either only very slowly. Certainly, the amount of air and water vapor moving through



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Letters continued

"Each piece of wood has its own personality, it's my job to bring it out. That's why I trust Varathane."



When Nathan Wiens, artist and proprietor of Chapel Arts, takes on multiple projects, he needs to work

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the birdhouse portal dwarfs any such movement across the construction material itself, and small vents which should be designed into birdhouses at the eve of the roof will obviate any problems of equilibration. It seems to me that composite material would likely create a much drier, healthier internal environment free of mold, fungus and rot in a birdhouse just as it does on our decks. Microbes eschew plastic and adhesive polymer; they love wood. Dr. James Askew objects that chemicals could leach into the living area or birds could ingest the materials. The U.S. Environmental Protection Agency enforces strict safety standards for the manufacture of composite products required under the Formaldehyde Standards for Composite Wood Products Act, Title VI of the Toxic Substances Control Act (TSCA). These standards ensure safe material. The microparticulate plastic within composites is chemically inert and not toxic when ingested in small quantities, as are the adhesive polymers when completely cured. You evidently missed the irony of Michael Dresdner's recommendation of the use of epoxy in the making of new coffee cups in the adjacent Q&A. Composite materials are safe and, because they are made of recycled plastic, they are environmentally responsible. I would no more hesitate to build a birdhouse of composite material than I would hesitate to have my one-year-old play on my new composite deck.

Dr. David A. McGuinn, Jr., D.A.B.T.
Zionsville, Indiana

Getting Started

I just wanted to say thanks again for the great magazine! My name is Dale Miller and my "Trick of the Trade" was selected to be in your April 2017 issue. Thanks for the check for my trick, I really appreciate it. This is a huge help for me, because tools these days are \$\$\$

for a good quality tool. One reason why I really appreciate it is because I am only 14 years old. So far, I have a few necessary tools of the trade, but this will allow me to expand my outdoor shop from the level of cutting logs with a handsaw, to maybe using a band saw. I just wanted to say thanks for the opportunity to expand my shop, and also for your excellent magazine.



Dale Miller
Modesto, California

There's more online at
woodworkersjournal.com

MORE ON THE WEB

Check online for more content covering the articles below:

Woodturning (page 22): Turning a precise measuring spoon in faceplate and spindle turning axes (video)

Jigs & Fixtures (page 26): Building a Mini Tabletop Workbench (video)

Picnic Basket (page 30): Cutting and weaving traditional wooden picnic basket sides (video)

"Surfboard" Coffee Table (page 38): Finishing exposed edges of plywood (video)

Today's Shop (page 50): Overview of box joint jigs (video)

Weekend Projects (page 58): Making a zero-clearance throat plate insert; drawer divider options (videos)

What's in Store (page 66): Featured tools in action

Finishing Thoughts (page 70): Wet glazing technique (video)

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Getting a Grip (Or Not) in the Shop

Coffee Grounds Wood Filler

If you need a wood filler for darker woods like walnut, give your morning coffee grounds a try. First, dry them thoroughly. Then pack them into the crack, knothole or nail hole you want to fill. Soak the coffee with thin-formula cyanoacrylate glue, and spritz it with accelerator to lock it in place. Keep packing in more coffee and glue until the defect is overfilled, and sand it flush. The coffee blends in beautifully with the surrounding wood (as it did for the pinhole knot shown here).

Others will never know it isn't real wood.

Dale R. Miller
Modesto, California



Covering Plastic Laminate During Cutting

Plastic sheet laminate's tendency to curl can make it tricky to cut on the table saw. I find that if I cover the laminate with a piece of scrap plywood or MDF that's a little smaller than the laminate, it holds the thin sheet flat and securely so I can push it past the blade with greater control. I just slide the scrap right along with the laminate.

Dan Martin
Galena, Ohio

Easier Sanding Sleeve Changes

Sanding sleeves tend to stick to the rubber drum after they've been used for a while, making the sandpaper harder to remove when needed. To prevent this from happening, I dust the rubber drum with talcum powder first before installing the sleeve. It's a simple fix that works great.

David Gleason
Uniontown, Pennsylvania



Ganging Clamping Cauls on Stands

When building large casework like entertainment centers, I install both cauls and clamps across the carcass to distribute clamping pressure evenly along my dado joints. But, all those cauls and clamps can be difficult to juggle with two hands when you work alone. To remedy the problem on a recent project, I screwed three sets of cauls to a pair of plywood stands with feet on the bottom. I centered the cauls on each project joint. With one of these stands positioned on either end of the carcass, all I had to do was slip the clamps in place on the cauls and tighten them. Sure made the glue-up easier!

Willie Sandry
Camas, Washington

PICK OF THE TRICKS



Clamp Slots Take the Place of Bench Dogs

I don't have room in my small shop for a workbench with bench dogs. Instead, I routed a pair of straight slots in my shop countertop, wide enough to fit the bars of two "F" style clamps. I dismantled the clamps and slid their bars up through the slots, then reattached the adjustable clamp heads back on the bars with cotter pins. I can slide these clamps forward or backward where they're needed, for convenient clamping. When not in use, a large hole at the back of each slot enables me to turn the clamps sideways and out of the way (see inset). Or, I can pull the cotter pins out and remove the clamps entirely.

Joel Rakower
Dix Hills, New York

Safety First

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

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Questions & Answers

Building Bigger Plywood

THIS ISSUE'S EXPERTS

Rob Johnstone is the publisher of *Woodworker's Journal*.

Ernie Conover is the *Woodworker's Journal* woodturning columnist. He is the author of *The Lathe Book* and *The Frugal Woodturner*.

Eric Gee is Director of Lumber Products at the Southern Forest Products Association.

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with your question.



A reader wonders about the best method for rebuilding his homegrown teardrop trailer.



Q I am in the process of rebuilding my teardrop trailer. My original build was a 4x8 teardrop on a Harbor Freight trailer frame. Due to my inexperience and haste to get it done, I made some bad decisions in the construction.

These included applying spar varnish, by brush, in temperatures that were too cold. I also didn't apply a thick enough coat. My errors led to UV damage, delamination of the plywood and joints coming apart on the trailer's cabin. Now, after 10 years, it has evolved into needing a rebuild.

Because I now need even more room, I decided to extend the trailer two feet longer and raise the cabin with 2x12s to accommodate long dining fly poles. Two 1' extensions will be applied to each end of the trailer frame for support. Not having the

funds for 10'-long marine plywood, I would like to know if a 2" half-lap joint would be an adequate joint to use to add the additional two feet to an 8'-long sheet? They will be used for the floor and side walls. A 1x2 or 1x3 frame will be used inside for support and stiffening to compensate for any waving in the plywood. Would this joint be sufficient to add the additional two feet of plywood?

Jim Sholtis
St. Louis, Missouri

A It sounds like you may have a workable solution. But if it was me, I would recommend gluing up your own 10'-long piece of 3/4" plywood from 1/4" CDX plywood. Take an 8' section of the 1/4" plywood and butt it up to a 2' section. Then glue an 8' piece of the CDX over the 2' and 8' intersection using

a waterproof glue. Then complete that face with a 2' section. When that glue has cured, flop the whole thing over and repeat the process so the 2' and 8' joint is again covered by the big piece of plywood. Now you have a really strong piece of 10' long, 3/4"-thick plywood. I hope this helps.

— Rob Johnstone

Q I've noticed some of the wood blocks at my specialty woodworking retailer are encased in a waxy coating. The wood blocks often don't have excess wood to just cut or plane off and, given how expensive they typically are, I don't want to waste any. What is the waxy stuff? And, more importantly, how is it removed so as to cause the least potential damage to any future finishing efforts?

Jay Cooper
Altamonte Springs, Florida

A Wood of a freshly felled tree is at least 60% moisture content. To be useful for furniture making, this moisture content must

be brought down to between 5% and 10%, either by air drying or in a dry kiln: a lot of water has to migrate out of a wood plank for it to be usable.

The grain fibers of a piece of wood are analogous to a bundle of soda straws. The ends of the straws are end grain, and the sides are face grain. End grain loses water at a much faster rate than the plank grain areas, and this is why the ends of most board will be checked (cracked) for an inch or two — this area quickly shrunk before the plank grain areas could catch up. The thicker the section of wood, the longer



While perfectly fine for use in projects, typically this lumber is labeled as turning blanks.



Winner!

For simply sending in his question about waxy wood blocks, Jay Cooper of Altamonte Springs, Florida, wins a Bora 50" WTX Clamp Edge and Saw Guide Combo Kit.

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

free drying problematic, both where they are gathered and once they arrive here. Therefore, the producers wisely coat the wood entirely with wax.

The wax can be planed or sanded off without much loss of dimension. You can also remove any residual wax with mineral spirits before finishing.

—Ernie Conover

Continues on page 16 ...



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Stumpers

A High Point?

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What's This?



Andy Omdal of Mount Vernon, Washington, found this thingamajig in his great-uncle's toolbox. "We have no idea what it is," he says. Do you know what it is? Send your answer to stumpers@woodworkersjournal.com or write to "Stumpers,"

Woodworker's Journal, 4365 Willow Drive, Medina, MN 55340 for a chance to win a prize!



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

When it comes to the mystery tool belonging to **Wesley Swartout** of Spearfish, South Dakota, featured in our April issue, **David Jones** of Bristow, Virginia, informs us, "I believe that this device is a thickness gauge."

David's next guess, however, reveals a bit less-than-careful reading (Wesley lives in South Dakota, not Minnesota, for example): "Just a guess at the industry... The only industries I found in Minnesota for the timeframe that such a device would have been built would have been either railroad, iron mining/milling or sawmilling. The dimensions and graduations seem to indicate the measuring is too small for railroad and too large for ironworking, so by elimination I believe it has to be sawmilling."

There is, however, another possibility: a strong one, given what Wesley suspects about the tool — namely, that it was used in the printing industry.

Several other readers had the same suspicion.

"The device, used in the printing industry during letterpress days, is a type high gauge," said **Allen J. Olsen**

Winner! John Fisher of Bellflower, Missouri, wins a **RIDGID GEN5X 18-Volt Jobsite Radio with Bluetooth Wireless Technology (R84087)**. We toss all the Stumpers letters into a hat to select a winner.



This tool was most likely pressed into service in the letterpress printing industry.

of Ooltewah, Tennessee.

"It was used to measure the height of 'cuts' (used for printing photographs, drawings, logos, etc.)."

John Fisher of Bellflower, Missouri, continued, "It measures the height of a lead cast (or other) picture or type matter to make sure it is 'type high.' Too high, and it tears up the blanket on the press. Too low, and it won't print. The height is so critical that a piece of tape or the like applied to the back can raise it to the proper height."

This seems a likely explanation, although Minnesota Center for Book Arts gallery coordinator Tom Spence thought it could also potentially be for measuring the thickness of paper for printing.

Still, we do know that letterpress printing was a viable industry in South Dakota back in the 1800s. One semi-famous participant in that industry? Carrie Ingalls Swanzey (Laura's sister), who began her own career as a typesetter at the *De Smet* [South Dakota] *News*.



Questions & Answers

continued

Q How hazardous is the dust produced when working with pressure-treated lumber? What sort of precautions do I need to take when working with pressure-treated lumber? I use this stuff when creating/repairing outdoor projects.

Dave Barkdoll
Ellenwood, Georgia

A Working with pressure-treated wood products involves many of the same common sense practices used when building with other construction materials. When Southern pine lumber is pressure-treated, the waterborne preservative forms a permanent bond with the wood's fiber. Sawdust produced by cutting or machining pressure-treated wood is not hazardous to people, plants or pets.

When sawing or machining treated wood, wear eye protection, a dust mask and gloves. When you complete a project, clean up all sawdust and debris. Wash hands thoroughly with mild soap and water. Wash your work clothes separately from other household clothing before reuse.

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— Eric Gee

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Shop Talk

World Wood Day 2017



The Collaborative Project group at World Wood Day 2017 proudly poses with the finished sculpture, "Collaborative Roots."

Yamila Cartannilica and Tony Fortner rework sketched plans on the panels before carving begins.



WJ Author Represents U.S. in Build at International Wood Event

World Wood Day (WWD) is an annual event that appreciates, celebrates and embraces all things wood. I was lucky enough to be a participant in the Collaborative Project portion of

the 2017 event, held at the Long Beach [California] Convention Center. Other aspects of this year's World Wood Day included music, carving, turning, designing, building, a massive wooden instrument display, folk art demonstrations, theatrical displays, a lacrosse game, a tree planting ceremony and probably anything else you can imagine that has a correlation with wood. World Wood Day abounded with wonderful woodworkers and wood enthusiasts from over 85 countries!

Even though the actual World Wood Day event lasted only six days, my Collaborative Project group (20 artists from 16 different countries)

Dust was flying at the Long Beach Convention Center as the panels were completed.

started working at Cerritos College's woodshop 10 days before moving the sculpture to the convention center. Led by Cillian O'Suilleabhain and Michael Cullen, we had two days to meet each other (most of us for the first time) and come up with a design based on the 2017 WWD theme of "Roots." Then we had six days to build the sculpture and complete as much carving as possible!

Working in a group like this was a fun but sometimes challenging venture due to language barriers, strong aesthetic preferences and different styles of working. We wanted our sculpture to be visible from anywhere in the convention center, so we wanted it to be big and tall. Luckily the woodshop at Cerritos College is huge and stacked with the finest woodworking equipment. We finessed the pieces during the WWD public events so that passersby could see some of the progress.

Our sculpture, made from beautiful local cherry, took on a form of a Stonehenge-like forest. There





Author Kimberly McNeelan hand saws out negative space around one of the root panels that is part of the base that holds a leaf panel upright.

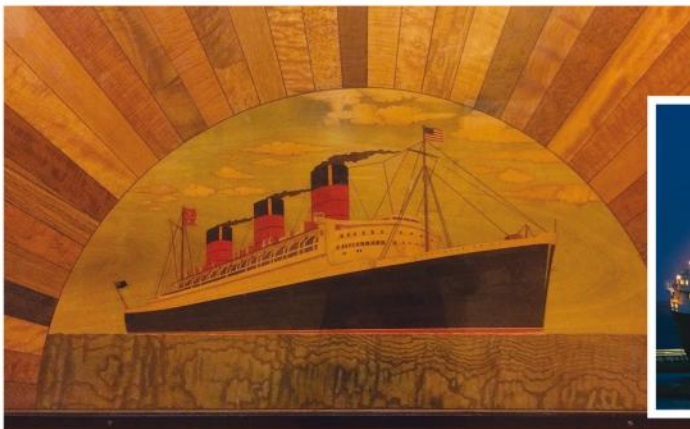
were five panels with carved, leaf-shaped cutouts. We had to engineer a way to securely keep the panels vertical. The solution was to make mitered and splined boxes with pieces of wood dadoed into the middle, and then bolt the panels to these boxes. Then we made lids for the boxes that had root-like forms growing out of them. To finish the boxes and to make them disappear a little, we torched them and coated them with oil. I love the burnt effect, and I plan to use that in future work!

"Ship of Woods"

The Collaborative Project group became very closely knit after staying in the same hotels, sharing almost all of our meals and working

together. This ties in to the World Wood Day goal of cultural exchange and building of international relationships, through a shared admiration and understanding of wood. One of the hotels we stayed in, the infamous *Queen Mary*, also has a strong connection to wood.

The *Queen Mary* was completed in 1936 as the "grandest ocean liner in the World." Now permanently docked in Long Beach, she is a hotel and tourist attraction. This ship has more wood veneer than I've ever imagined or seen in one place! If you are ever in the Long Beach area, I highly recommend you check it out. At least 56 types of veneer clothe the interior of the ship nicknamed, "Ship of Beautiful Woods."



A marquetry panel displays some of the many types of hardwood used in decorative ways on the Queen Mary oceanliner. Some of the more rare veneers included: Queensland butt maple (silkwood), avodire and amboyna.



Tongva educator Cindi Alvitre led a tree planting ceremony at California State University-Long Beach. The ceremony was aimed at reminding everyone to be mindful of our resources and use sustainable practices.

Wide-ranging Wood

The public World Wood Day events commenced with a tree planting ceremony led by the Tongva, local Native Americans. That was followed by a game of lacrosse, which was invented by Eastern Native Americans. The lacrosse stick was traditionally made of hickory — so the sport used to require wood!

The rest of the week was filled with performances by musicians from all over the world — from



Shop Talk continued



The musical part of World Wood Day included groups that traveled from all over the globe. Les As de Benin (The Aces of Benin) came from West Africa.



Once just a walnut slab, this carving was the author's favorite interpretation of the theme "Roots."



Exercise and fun times happened in the turning portion of the event, with several types of lathes on display.



Kazakhstan to Benin — as well as a variety of woodworking and wood-related events.

An amazing group of 134 carvers from over 65 countries were organized into three- to four-person teams that had to carve a slab into a root-themed design during a five-day time period. It was very cool to get to see the progress happening every-day. My favorite carving was by Hartmut Rademann and Martin Bill from Germany and Shanta Tuladhar from Nepal. (You can see the photo of their finished piece at left.)

The woodturning portion of WWD had representatives doing a range of demonstrations on several types of lathes, including a Moroccan bow, bike-powered, spring pole, treadle, electric and

traditional Chinese lathes. I really enjoyed seeing the ways the different lathes were powered.

A Design Group of professionals led by famed studio furniture designer/maker Professor Wendy Maruyama showcased projects ranging from traditional coffin making in Ghana to boat building in New Zealand and studio furniture from the U.S.

On top of everything already mentioned, World Wood Day events included an International Young Adult Furniture Making Invitational where about 12 countries were represented. The participants, all aged 25 or younger, individually built a piece of furniture for audience use during the event, and worked in teams to build furniture during the event.

Folk art workshops and displays highlighted the categories of puppetry, masks, woodblock printing, automata and decoration. Speakers at a symposium talked about a number of topics, all addressing the interrelationship of wood and culture. Roboky, a robot-shaped wooden mascot designed to help educate children about the importance of wood, posed with and provided activities



The wooden Roboky toy was just one aspect of the children's events.

for children. And, during the closing ceremony, there was an original play performed entitled "Roots of Life."

WWD Past and Future

My time involved with WWD was absolutely spectacular. I have memories and new friends that I will cherish for many years to come. My Collaborative Project group messages each other regularly. It is really cool to know people from faraway places that share a similar passion for making things out of wood, and it is inspiring to see how and what they are creating. I hope to be a part of World Wood Days to come, and I hope you are, too!

Past World Wood Day events, beginning in 2013, have been held in Tanzania, China, Turkey and Nepal. Next year's location will be announced in fall 2017 by the organizers: the International Wood Culture Society and World Wood Day Foundation. So keep an eye on www.worldwoodday.org!

— Kimberly McNeelan

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Maple (Hard).....	4/4.....Select (N).....	3.00.....	Select (W).....	3.65	8/4.....	Select.....	4.50
Maple (Soft).....	4/4.....		Select.....	2.60	8/4.....	Select.....	3.00
Oak (Red).....	4/4.....1C.....	2.10.....	Select.....	2.80	8/4.....	Select.....	3.95
Oak (White).....	4/4.....1C.....	2.20.....	Select.....	2.80	8/4.....	Select.....	4.95
Poplar.....	4/4.....1C.....	1.30.....	Select.....	1.80	8/4.....	Select.....	2.00
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Woodturning

Two-Axis Turning

By Ernie Conover

A combination of spindle and faceplate turning creates the bowl — of a precise measuring spoon.



MORE ON THE WEB

 For a video of the author demonstrating turning a measuring spoon in two axes, using faceplate and spindle turning, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

Up until the early 20th century, woodturning shops made bowls, plates and storage containers; there was no Tupperware®. Other useful treenware was rolling pins, spatulas and spoons.

An interesting version of the last item was measuring spoons turned in two axes: the bowl was precisely sized to measure exact amounts in the traditional English measure system, which the Colonies also adhered to. What we call the *avoirdupois* pound today was divided into ounces (1/16th of a pound), drams (1/16th of an ounce) and grains (1/7,000th of a pound).

A few things are still measured in this system — shot

and powder for the loading of shotgun shells being one. Pharmacies also used the *avoirdupois* system until the 1950s, and pill containers are still sized in drams. History aside, a spoon that measured exact amounts was useful then and is still useful today. Too much or too little of a drug could be life-threatening. Too much powder in your shotgun shell could be hard on your shotgun — to speak nothing of the hunter. Any cook knows the importance of one teaspoon, and not one tablespoon, of salt.

I have turned these two-axis spoons to hold one dram, one teaspoon or one tablespoon, making them useful in cooking or in reloading black powder. Production turners

of the past often turned them from cow bone, whale-bone, ivory, olivewood and boxwood. I turn mine from boxwood, dogwood or persimmon, all very close-grain, dense woods. There are a good many tropical woods that would work well, too.

Size Your Blank

While the spoon itself is a straightforward spindle turning, the bowl requires a very simple improvised chuck to faceplate turn it in the first axis. This project is well within the capacity of a mini lathe but can be done in the biggest of lathes as well. On a cautionary note, the speed while faceplate turning the bowl, the first axis, has to be kept moderate, and no one

Securing the Blank



The author uses double-sided tape to mount the blank on the chuck. Do not use carpet tape; the type available at woodworking specialty stores, sometimes called double-sided turner's tape, is the correct option.

should be within the danger zone 90° to the chuck.

The chuck is nothing but a circle of veneer core plywood with a hole drilled in the center to fit the screw of your four-jaw chuck. I used a 10" disk for this article, but an 8" disk would have worked fine. Lacking a four-jaw chuck, you can simply attach the disk to a faceplate.

The blank should be sized to the volume you want your spoon to hold. I used a 7/8" square by 5 5/8" boxwood blank to make the 1/2-teaspoon measure for this article. A 1-teaspoon measuring spoon would take a 1 1/4" square blank.

You may also chuck a second time a bit farther from the end and make an elongated bowl in the same way woodworkers make overlapping drill holes. Since you are only cutting half the time, this takes a steady hand, good double-sided tape and light cuts.

Yes, I mount the blank on the chuck with double-sided tape. You should use the type purchased in a woodworking or metalworking store and not carpet tape. (For instance, you can find "double-sided turner's tape," which is item 25801 at www.rockler.com.)

Turn the Spoon's Bowl

Although this article isn't about bowl turning, we're still turning a bowl: that's the name for the portion of the spoon that holds its contents. In determining the size of the bowl of my spoons, I calculate the volume of the sphere the content of the bowl should occupy. This fits a teaspoon's volume inside a 3/4" diameter sphere and a tablespoon inside a 1 1/4" diameter sphere, giving us a starting place to grind a pair of round-nose scrapers for the making of the bowls.



Touch the centerline of the blank at the point where you want the center of the measuring spoon's bowl, and use the ram to firmly press the blank against the plywood disk.



Apply pressure to the other end of the blank for a few seconds with a C-clamp. Firm pressure is necessary to activate good adhesion.

Draw a centerline on the top of the blank. Then place your live center's point down on the line where you want the center of the bowl to be. Apply firm tailstock pressure for a few seconds to activate the tape. Use a C-clamp to apply pressure for a few seconds at the other end of the blank.

Optional Shape

The spoon with the elongated bowl was made by first scraping a round bowl like the other spoon, then repositioning the blank farther out on the centerline and scraping a second depression exactly the same diameter and shape as the first. The slight irregularity between the two cuts was cleaned up with a small carving gouge.



Woodturning continued



Use a round-nose scraper and scrape downhill. The rest should be a bit high, putting the tip of the tool just at the center line of the lathe. This ensures that the scraper's burr can drag, a fine shaving being the result. Always scrape with a light touch.

I undercut the bowls of my spoons, making them spherical inside. I test the size by pouring salt from a commercial measuring spoon into the cavity. I first remove the chuck from the lathe, then fill the cavity with salt, and pour this into a commercial spoon. (You could also use sugar or coffee grounds.)

Once your pour into the commercial spoon exceeds that measure, you are good to go. (You will lose a bit of volume when sanding or carving the sharp edge off your turning.) When you get the volume right, it is easy to duplicate the result with minimal testing on subsequent spoons.

Once the bowl is sized correctly, it is time to chuck the blank between centers and turn the profile. I try to make the outside of the bowl the same as the inside, leaving a spherical end. For elongated bowls, it is a bead shape. The handle can be anything you find pleasing, but simpler is usually better. This is straight spindle work and a sharp gouge with a long fingernail is my preferred instrument — the entire second axis may be turned with this one tool. A spindle roughing-out gouge can speed up things a bit and a skew can save some sanding.

I think a great finishing option is no finish at all. Walnut and olive oils are, in general, nontoxic (although you should keep nut allergies in mind), as is wax. The oils should be reapplied periodically. However, no finish at all has held up the best for me.

Now that I have spoon-fed you the process, turn some spoons — and no spoonerisms in the shop.

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



The area around the bowl is a sphere with the handle emanating from it.



Sand a flat spot at the rim. You can use a block of wood with sandpaper glued to it.



Part off by repeatedly rounding the handle end with a skew. A spindle gouge also works.

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By Laura Kampf

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MORE ON THE WEB



For a video of the author building her Mini Tabletop Workbench, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

The idea to build a Mini Tabletop Workbench came to me for several reasons.

First, while I do have a big workbench that is very strong, I also use it for cutting sheets to size and to paint and oil things. Naturally, the top is covered with dried paint, and when I work with more expensive woods, these paint stains rub off on the nice wood, which makes my finishing process a lot more difficult. The top of my

larger workbench is also not very even, because it serves as a sacrificial surface for my tracksaw.

Another reason is workbench height. I have found that, especially when doing very precise work, it is very helpful to have the workpiece raised up. That gets you closer to your work and takes a lot of stress off of your back. It also increases my strength when using the handplane.

Another good reason to make a Mini Workbench for

yourself might be the size of your shop. This little bench has all the key features of a big bench but is easy to move out of the way — or even to take with you on a job or just to work outside.

For my Mini Workbench, I chose to use maple, plum and mahogany lumber, mainly for aesthetic reasons. If you want a bench that is cheaper to build and can take a bit more stress, beech would be a good choice.



The author ripped a single slab of maple into three pieces and inverted the center piece before gluing and clamping them together — to add dimensional stability.

The dimensions of my bench are 35 $\frac{1}{8}$ " long by 12" wide with a height of 7 $\frac{1}{8}$ ".

Getting Started

I started by cutting the different woods into roughly the dimensions I needed (see *Material List*, page 28) and milled it all down to the same thickness of 2".

For the top of the bench, I cut a maple slab into three strips of 4" x 29 $\frac{1}{8}$ " and glued it back together with the middle strip flipped upside-down to minimize cupping as much as possible. For extra strength, you can also join

the three pieces with biscuits or dowels, but it is not necessary with this construction.

While the glue dried, I started working on the legs, which I made from mahogany. I cut the wood for my bench's legs into two pieces measuring 2" x 6" x 12", but in hindsight I would be a bit more generous with the height, because when the vise is built in later, it wouldn't hurt to have a bit more clearance.

I connected the legs to the benchtop using a long dovetail joint. The dovetail on the legs was cut on the table saw at a 22.5° degree angle.

After the table-top glue-up dried, I took my tracksaw and cut the same 22.5° angle into the underside of the top to make room for the dovetail to slide in. I took my time doing this and sneaked up on this cut because it is very easy to cut it too wide. It is a good idea to experiment with test pieces until it fits perfectly. A chisel and a router plane work great

to clean up traces of saw blade marks and to refine the inside corners of the tails on the legs.

Breadboards

Your next step is to machine the breadboard ends. I cut tenons on the ends of the benchtop, first. There are a lot of ways to cut nice tenons. I used a hand plane, but the tracksaw will do a great job as well. Before I made the first cut, I checked what Forstner bits I had available and sized the tenon thicknesses based on that bit. In this case, I used a 1"-diameter Forstner bit.

Since I would be cutting the mortises with the Forstner bit, I rounded over the edges of the tenons with some sandpaper to provide a snug fit.

The plum wood I chose to use for the breadboard



Dovetails on the legs can be cut on a table saw and cleaned up with a chisel (see inset). The author cut her benchtop sockets with a tracksaw.



Sneak up on the final width of the dovetail grooves in the benchtop, to ensure a snug fit. Make test cuts on scrap pieces first.



Raise tenons on the ends of the benchtop using a method you prefer — a saw, hand plane or router.



After drilling out mortises in the breadboard ends, smooth their walls with a sharp chisel.



Round over the ends of the tenons — or square up the mortises — so these breadboard joints fit together securely.

Jigs & Fixtures continued

Exploded View

MATERIAL LIST

	T x W x L
1 Top (3)	2" x 4" x 31½"
2 Breadboard Ends (2)	2" x 3" x 12"
3 Legs (2)	2" x 6" x 12"
4 Vise Spacer (1)	1/4" x 4¾" x 9"
5 Breadboard Dowels (6)	3/8" Dia x 1½"
6 Benchtop Dowels (4)	3/8" Dia x 3"
7 Bench Dog (1)	3/4" Dia x 1⅞"

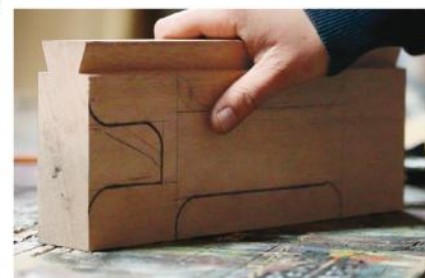
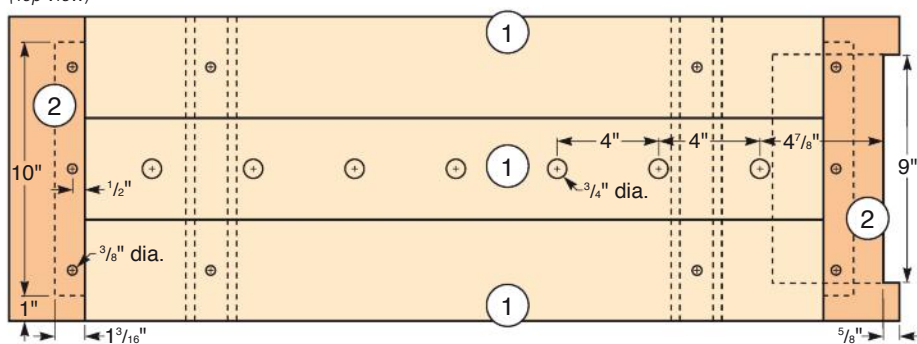
Use a free-floating hardwood spacer to accurately align the vise to the top of the bench.

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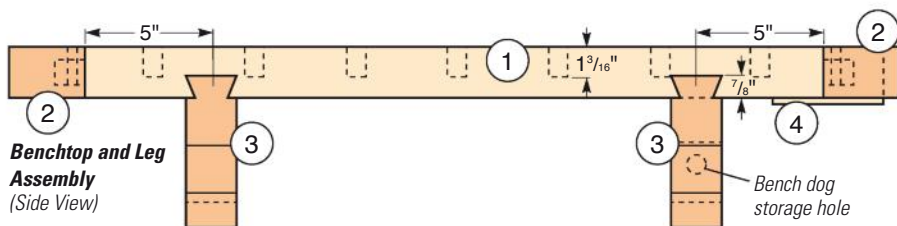
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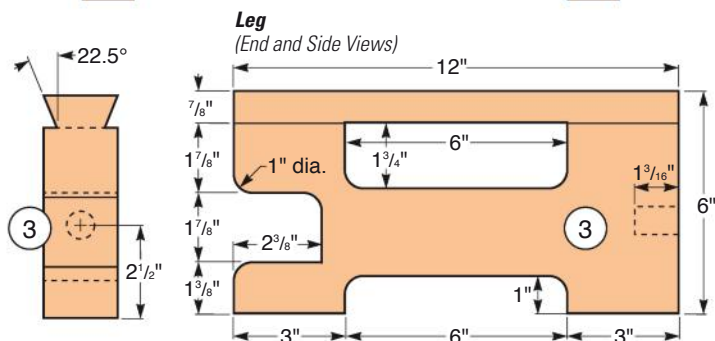
Benchtop Assembly (Top View)



Follow the drawings to lay out and draw the two leg shapes onto your dovetailed blanks. Their shape makes for easier clamping.



Carefully cut out the legs, using a narrow blade in a band saw. You may need to make some relief cuts to navigate the curved inside corners.



Sand the leg curves smooth. Back the sandpaper up with a short length of dowel, pipe or even a piece of round steel, as the author did here.



Position the vise on the end of your inverted benchtop where you want it and mark its location, plus any modifications that might be necessary.

ends was already milled to the right thickness, so I only had to cut them to size and drill out the rough mortises with the Forstner in my drill press. To make things easier, I set up some stop blocks that assured that both breadboards were identical. Set up a depth stop, as I did, to drill these repetitive holes.

Again, a nice sharp chisel was all it took to clean up both mortises.

Legs and Vise

I didn't secure the breadboards and legs right away because, now that all the joints are done, it is time to shape the legs and fit the vise.

I chose the leg shape you see in the *Drawings* because it looks great and also provides a good surface to clamp the workbench to a tabletop, later. It is a quick job to cut the legs to shape on the band saw. I used sandpaper backed by a round piece of steel to clean and smooth them, but a spindle sander would be a great help here.

After one leg is done, the other leg needs further work because it will have to make room to fit the vise. I chose a 9" quick-release vise with a built-in bench dog. I took measurements from the vise and cut out the corresponding recess from the right-hand side table leg to accommodate the hardware.

Once the vise had enough room to fit, I continued by working on the right breadboard. It is very helpful (and also looks nicer) to have the vise flush with the breadboard.

Again, I transcribed the measurements to the breadboard and used my table saw to cut a recess into the plum wood to fit the vise.

My vise attached with four screws driven up from the bottom and two more driven into the face, which was quick and easy to do.

The last step before putting it all together was to cut the holes in the benchtop for my bench dog. It is much easier to drill these holes on a drill press before the legs and the vise are attached. I bored a line of 3/4"-diameter holes down the middle of the benchtop, spaced every 4".

I had a piece of 3/4" solid brass to use as a bench dog, into which I filed a little notch for securing flat-edged workpieces. Then I drilled one hole into the left leg for storing the bench dog when I'm not using it.

Assembly

Now you're ready for final assembly. Although this is technically not the correct way to do it, I secured the dovetailed legs with two 3/8" wooden dowels. My opinion is that, for a tabletop this



You'll need to drill holes through the leg closest to the end vise in order for its posts and threaded rod to pass through. Mark and drill carefully.



The outer end of the breadboard holding the vise will need some retrofitting, too. The author cut a vise recess with her table saw.



narrow, there probably won't be enough wood movement to affect the leg dowels. I also secured the breadboards to the benchtop with three dowels each.

The Mini Tabletop Workbench is a great addition to my shop, and I am sure I will get a lot of use out of it. I bet yours will get a workout, too.



Bore a series of holes along the benchtop using a drill press (top photo), for holding a bench dog. The author used a piece of 3/4" solid brass for hers (bottom photo).

Laura Kampf is an artist/designer/maker and content creator based in Cologne, Germany.



Picnic Basket

By Sandor Nagyszalanczy

Woven wood sides make this picnic hauler light to carry, while its unique flip-down handle and wheels let you transport heavy loads with ease.

I've always admired traditional woven wood baskets made from hardwoods like oak, ash and hickory. Not only are they attractive, they're amazingly strong and light. But the technique of pounding thin wood splints from logs, then shaving and weaving the green strips, takes a lot of skill and know-how to accomplish.

So when I set out to make myself a woven wood picnic basket, I needed to devise a whole new way of building it. What I came up with combines the classic look of woven wood with more builder-friendly frame-and-panel style construction. Unlike traditional techniques, my woven wood panels don't require the use of green lumber, or even steam bending.

The overall size of the basket is 22" long by 13" wide by 10¾" high: big enough to hold all your typical picnic supplies

(dishes, glasses, silverware, blanket, etc.) as well as a small insulated bag for food and drinks. There's even enough room for a bottle of wine or champagne. Two hinged lids that open at either end of the basket lend easy access to the contents and create a large flat surface on which to set plates and glasses or to use as a cutting board for slicing cheese, fruit, etc. Despite its large size, my basket weighs about the same as a large wicker picnic basket, thanks to its thin ash frame, lid and woven side panels.

Although I gave my picnic basket a pair of conventional style fold-down carrying handles, its coolest feature is that you don't always have to carry it: the basket has small wheels at one end, and a long handle folds down and locks at the other end, allowing it to be pulled along flat ground, just like a rolling suitcase.

Even if you decide not to build my picnic basket, the technique of creating a woven lattice in a frame can be used for making other functional containers — laundry hamper, recycling bin, etc. Alternatively, you can use woven lattice as a decorative panel in a frame-and-panel door.

Cutting the Weaving Strips

Start by selecting ash boards with the straightest grain possible, as this assures that your weaving strips will have the least breakage when they're bent. For the horizontal strips, cut several 1 $\frac{1}{8}$ "-wide, 20"-long blanks, plus a few that are 1 $\frac{1}{8}$ " wide, 22 $\frac{1}{4}$ " long. For the 3 $\frac{1}{4}$ "-wide vertical strips, cut a 17 $\frac{3}{4}$ "-long blank and plane it down to 3 $\frac{1}{4}$ ". To save time, the latter two blanks are more than twice as long as needed for the 11" horizontal and 8 $\frac{3}{4}$ " vertical strips they produce; they are cut to final length after resawing and planing.

To prepare for resawing the blanks, set up your band saw with the widest blade it will handle, ideally a 1 $\frac{1}{2}$ "- to 3 $\frac{1}{4}$ "-wide, 3- or 4-tooth-per-inch, hook tooth blade of sharp, premium quality. Set the saw's rip fence to produce strips that are 1 $\frac{1}{8}$ " thick. Make sure that the saw's guide blocks and thrust bearings are properly set and that the blade tracks smoothly. Take a couple of test cuts; if the thickness of the resawn strips varies over their length, adjust the angle of the fence to account for blade drift.

After cutting a strip off of each blank, flatten and smooth the sawn surface of the blank using a jointer or thickness planer. Cut a couple of extra strips from each blank, just in case there are rejects.

When resawing is complete, it's time to plane the weaving strips to final thickness. As most thickness planers aren't capable of planing parts thinner than 1 $\frac{1}{8}$ ", it's necessary to create a carrier board for planing the strips down to 3 $\frac{1}{32}$ ". Making the carrier is really easy: Start with a board that's about 28" long, 4" wide and 3 $\frac{1}{4}$ " to 1" thick. Using a dado set, plow a groove lengthwise down the center of the board that's 1 $\frac{1}{8}$ " deep and a skosh wider than 1 $\frac{1}{8}$ ". Now run the board, groove side up, through the thickness planer until the depth of the groove is exactly 3 $\frac{1}{32}$ ". Lock this planer setting and don't change it.

To use the carrier board, apply a strip of double-sided tape or adhesive transfer tape to the groove. Set one of the weaving strips into the

A carrier board — basically a thick piece of wood with a shallow groove down the middle — allows the thin ash wood weaving strips to be planed down to only 3 $\frac{1}{32}$ " thick and keeps them from buckling or being chewed up by the cutterhead.

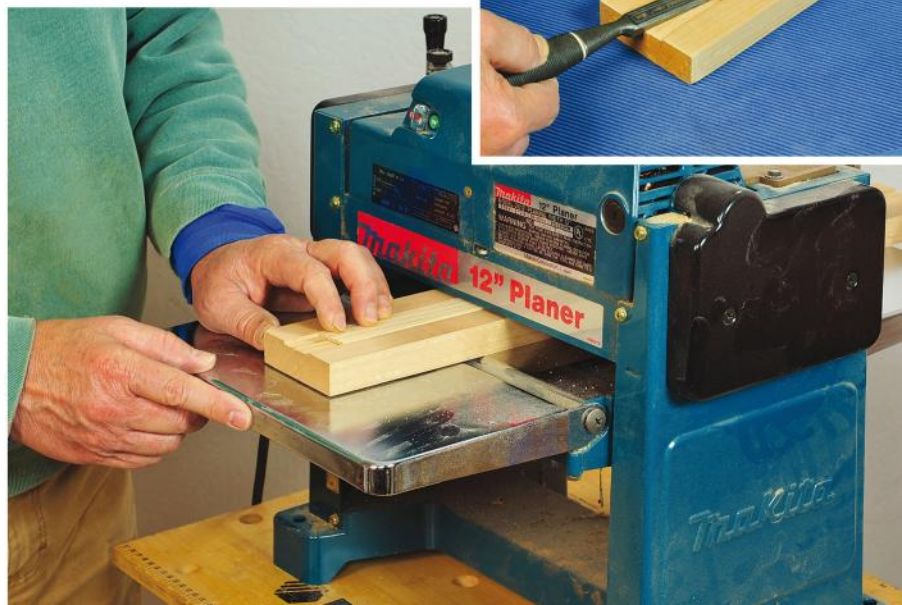


A thick, straight board clamped to the band saw table creates a stable fence used to guide workpieces past a wide resaw blade. The thin strips that are sawn with this setup are used to weave the picnic basket's lightweight side panels.

groove sawn-side-up, centered lengthwise on the board, and press it onto the tape. Now run the carrier through the planer, then use a chisel to pry the strip out of the groove. Once the tape loses its stickiness, peel it off and apply a new piece. Repeat this with all the weaving strips (including the narrower vertical strips, which work fine with the wider groove), then cut the vertical and shorter horizontal strips to final length.



Apply adhesive transfer tape or carpet tape to the carrier board to keep the thin wood weaving strips flat during thickness planing. After planing, pry the strip up with a chisel.





Glue up the picnic basket's four frame stiles using two pieces of stock to form a corner that's "L" shaped in cross-section. After the frame is assembled, round these corners over.



The author used Domino joinery for the members that join the basket's frame. He used a guide with the Domino machine to plunge-cut mortises for loose tenons in the ends of the frame rails.



All the corner stiles have mortises plunge-cut near the ends. Here, the author properly spaced the mortises from the ends of the stiles with a stop block clamped to the Domino machine's flip-down fence.



Plow a groove in the edges of the picnic basket's frame members with a slot-cutting bit in the router table. The ends of the weaving strips slip into these narrow grooves when the basket's sides are woven.

Making the Basket Frame

The basket's basic frame is made of 1/2"-thick, 1 1/4"-wide rails that join corner stiles which are "L" shaped in cross-section. Cut all the frame parts to size as per the *Material List* on page 33 and mark the outside surface of each rail; you'll keep this surface facing down during joint cutting. Each of the picnic basket's corner stiles is made from two pieces, glued together at a right angle. Start by drilling a pair of 5/16"-dia., 7/16"-deep holes in the two 1 1/4" x 10 3/4" corner stile pieces, located as shown in the *Drawing* on page 37 (the holes are for mounting the basket's wheels later). Assemble the corners by butting and gluing the 3/4"-wide piece to the 1 1/4"-wide piece. Note that one pair of corners is longer than the other pair — keep them matched up.

Next, create the mortises for the loose tenons that join the frame members (I used 6 mm x 40 mm tenons from Festool's Domino system for this; you could rout the mortises with a router instead or substitute other joinery if you wish). Starting with the horizontal rails, chop the mortises so they are centered on the ends, both width- and thickness-wise. Chop matching mortises on all the corner stiles, the only exception being the mortises at the bottom of the longer stiles. Position these mortises so that the stiles extend 1/2" past the bottom edge of the lower rails.

To prepare the rails and stiles for the weaving strips, rout a 1/4"-deep groove using a slot cutter bit in the router table. Ideally, the groove should be just a hair wider than the 3/32" thickness of the strips, so the grooves need to be routed in two passes using a 1/16"-wide cutter. For the first pass, set the bit's height so that the cutter's bottom edge is 13/64" above the table. Rout one edge of each rail first, cutting the groove so that it runs the full length of the rail. Make sure and keep the marked face of the rail down against the table during routing. Next, rout a stopped groove into each edge of the corner stiles; each groove should start and stop at the mortises.

Once all frame members have been routed once, raise the height of the slot cutter enough to make the resulting groove just a hair more than 3/32" wide. Take a second pass on all the frame members, once again taking care to keep the marked faces of the members facing down.

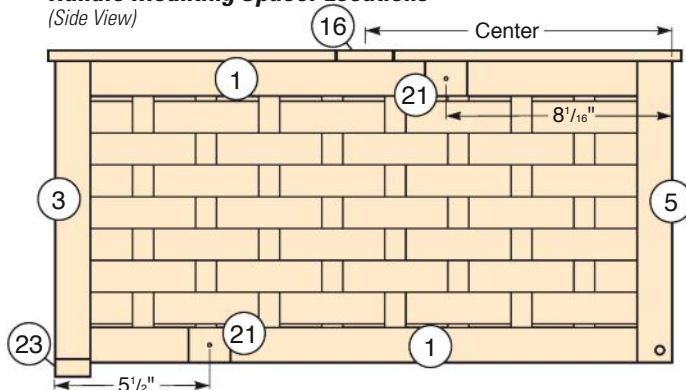
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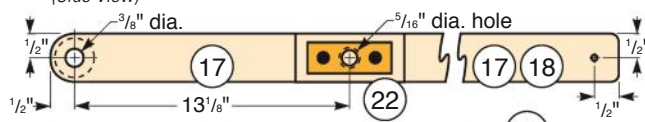
Handle Mounting Spacer Locations

(Side View)



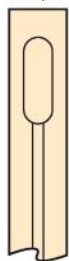
Handle Strip Hole Locations

(Side View)



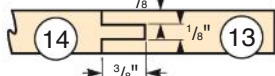
Corner Stiles

(Side View)



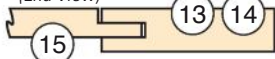
Lid Rails, Stiles

(End View)



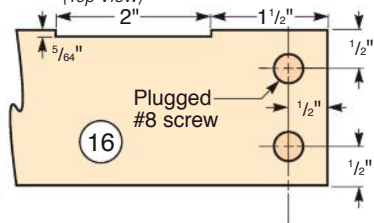
Lid Panel

(End View)



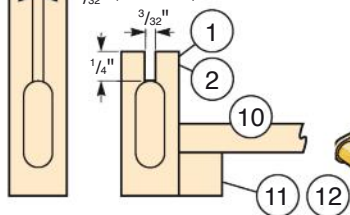
Lid Support Rail

(Top View)

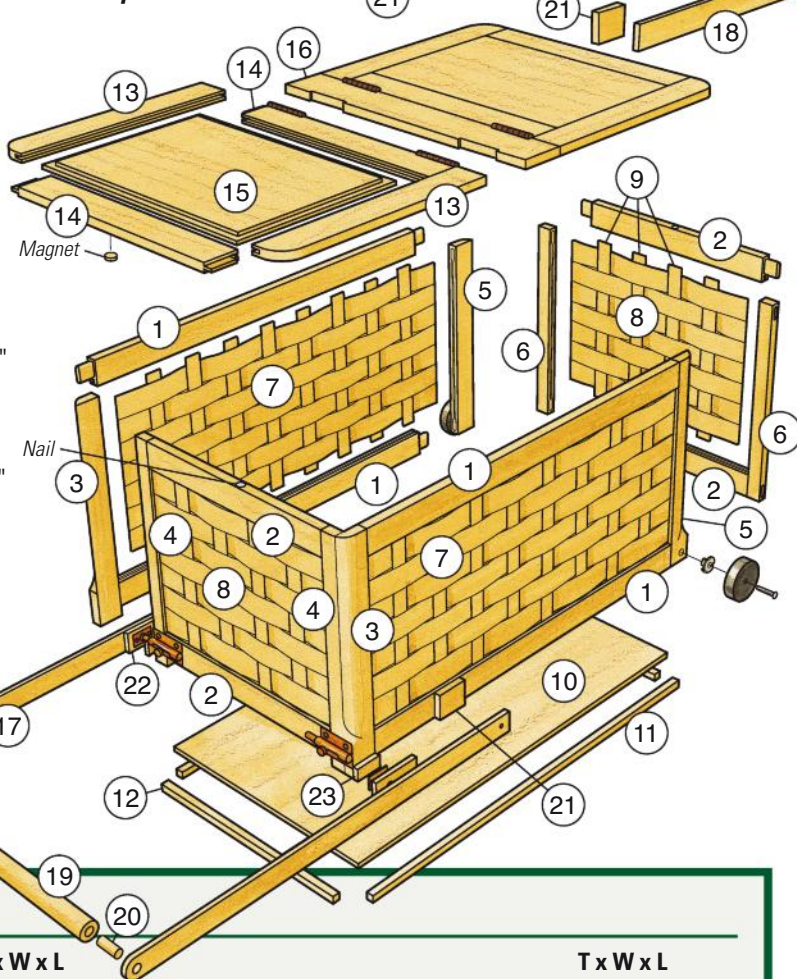


Basket Bottom Detail

(End View)



Exploded View

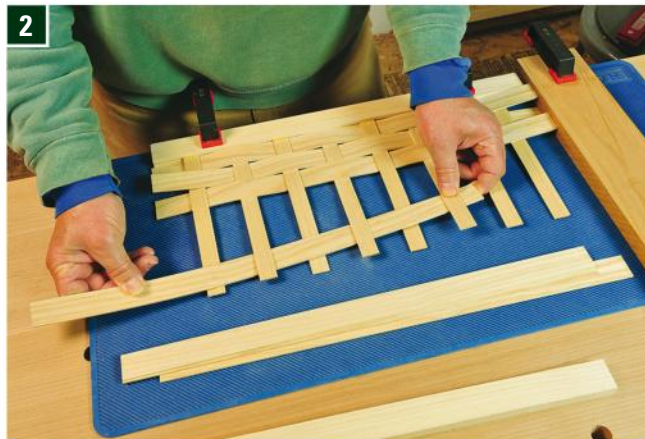


MATERIAL LIST

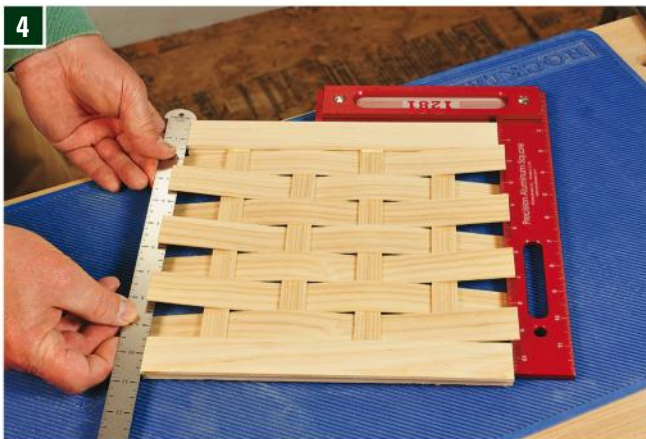
	T x W x L		T x W x L
1 Long Frame Rails (4)	1/2" x 1 1/4" x 19 1/2"	13 Lid Frame Stiles (4)	3/8" x 1 1/2" x 10 1/4"
2 Short Frame Rails (4)	1/2" x 1 1/4" x 10 1/2"	14 Lid Frame Rails (4)	3/8" x 1 1/2" x 11 1/4"
3 Long Wide Corner Stiles (2)	1/2" x 1 1/4" x 11 1/4"	15 Lid Panels (2)	1/4" x 7 13/16" x 11 3/16"
4 Long Narrow Corner Stiles (2)	1/2" x 3/4" x 11 1/4"	16 Lid Support Rail (1)	3/8" x 2" x 13 1/2"
5 Short Wide Corner Stiles (2)	1/2" x 1 1/4" x 10 3/4"	17 Long Handle Strips (2)	5/16" x 1" x 19 5/8"
6 Short Narrow Corner Stiles (2)	1/2" x 3/4" x 10 3/4"	18 Short Handle Strips (2)	5/16" x 1" x 10 5/8"
7 Long Horizontal Weaving Strips (14)	3/32" x 1 1/8" x 20"	19 Handle Grip Dowels (2)	13/16" dia. x 13 5/8"
8 Short Horizontal Weaving Strips (14)	3/32" x 1 1/8" x 11"	20 Handle Dowels (4)	3/8" dia. x 1"
9 Vertical Weaving Strips (24)	3/32" x 3/4" x 8 3/4"	21 Handle Mounting Spacers (4)	5/16" x 1 1/4" x 1 1/2"
10 Bottom (1)	1/4" x 12" x 21"	22 Long Handle Strike Strips (2)	1/4" x 1" x 2 1/4"
11 Long Bottom Support Strips (2)	3/8" x 3/8" x 21"	23 Long Handle Stops (2)	1/4" x 1 1/4" x 5/8"
12 Short Bottom Support Strips (2)	3/8" x 3/8" x 11 1/4"		



1 Blocks cut from scrap plywood keep the narrower vertical weaving strips properly spaced as they are glued into the bottom rails. Glue the top rails on after weaving the sides.



2 Slip the wider horizontal weaving strips into place, alternately running over and under the vertical strips. Clamp a fence board to the workbench to help keep the ends of the horizontal strips even.



4 Glue the top frame rail onto the ends of the vertical strips after the side has been woven. A square assures that the rail ends are parallel. You also need to check the outside distance between rails with a rule.



5 Chamfer the ends of the wide horizontal weaving strips with a sanding block. This makes them easier to slip into the narrow stile grooves in the next step.

Weaving and Assembling the Sides

The process of weaving the picnic basket's sides starts with gluing the vertical weaving strips into the groove in the bottom frame rail. (You can see the entire wood weaving process in my online video.) To keep the strips evenly spaced and square to the rail, cut 18 blocks that are 1½"-wide from scrap plywood to set between the strips as they're glued in place. Use a large square to confirm that all the strips are square to the rail before setting it aside to dry for an hour or so.

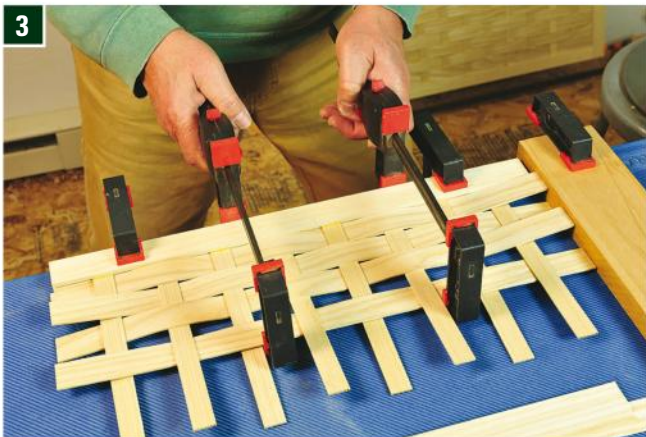
Once all four lower rails are done, you're ready to create the wood weave. First, clamp one of the rails to the edge of the workbench, and a straight fence board a little less than 1/4" away from the left end of the rail and perpendicular to it. Feed the first horizontal weaving strip into the vertical strips, passing it alternately over and under them. Press the strip all the way to the left so that its end is flush to the fence board, then push it down against the bottom frame rail, using a pair of quick-action clamps to gently move the strip. Insert the remaining six strips, alternating the over-and-under weave pattern. Once all the horizontal strips are in place, adjust them so that the small spaces between them are even along their length. About 1/4" of each vertical strip should still protrude beyond the edge of the top horizontal strip. Also check the squareness of the vertical strips, in case they've gone a bit catawampus due to the weaving process.

Now you're ready to glue on the top frame rail. After brushing a light coat of glue on the ends of the vertical strips, angle the rail slightly and press the left-most strip into the frame groove. As you work your way down, you'll need to flex the strips side-to-side a bit, to get them to go into the groove. Once all are in, press or pound the top rail down to seat all the strips evenly. Check the alignment of the ends of the top and bottom rails, to make sure they're parallel, and measure the distance between the rails, which should be 10¾". Adjust the position of the top rail as necessary. Repeat this process until all four basket sides are done.

Joining the woven basket sides to the corner stiles is done in a series of steps: First, corner stiles are glued to the ends of each of the long sides, then the short sides are glued on one at a time. Then, finally, the other long side is glued in place.

Before starting the assembly, use a hand sanding block and some 80- or 100-grit paper to chamfer the free ends of all the wide weaving strips. Also sand the edges of all the stile grooves, to chamfer them a bit.

Before you can glue stiles and rails together, you must clamp the ends of the horizontal weaving strips flat, so that you can insert them into their stile grooves. First, cut a couple of 8"-long clamping strips from 3/4" x 3/4" hardwood scrap. Set these above and below the strip ends, then use a pair of deep-throated clamps to press them together, thus flattening



Use a pair of quick-action clamps to gently press the horizontal strips down until they are almost touching the previously woven strip (the first strip is pressed firmly against the bottom rail).



A pair of deep-throated clamps press against wood caul strips, thus flattening the ends of the wide weaving strips so they can be inserted into their frame grooves as the corner stiles' tenons are glued into the rails.

the strips and bringing their ends into line. After applying glue to the mortises and loose tenons, insert the tenons into the corner stile, then press them partway into the rail mortises. It takes a bit of wiggling to get the weaving strip ends to go into the stile groove: angle the stile slightly, until the strips at that end engage the groove, then work your way down. When all the strips are in the groove, clamp the stile down onto the rails and check the assembly for square before setting it aside to dry.

Next, glue the other short side to the same long side, working just as before. In the last step, glue the other long side onto the ends of the short sides. With the basket set across the workbench, glue and clamp one end first, then do the other one, clamping the entire assembly down on the workbench (see bottom right photo). Before leaving it to dry, measure the picnic basket's frame diagonally, to assure that it's square.

To create the basket's rounded corner edges, use a 3/4"-radius roundover bit chucked in a variable-speed router with

The last step in assembling the basket's frame and sides is to glue the long and short sides together and check the frame to assure that it is square.

the speed set at about 2/3 maximum rpm (this is to keep the large-diameter bit from spinning too quickly). With the frame securely clamped to the workbench, carefully rout each corner stile along most of its length, stopping the cut so that it's flush with the top edge of each bottom rail.

A piece of 1/4" plywood provides a nice, smooth, flat-bottom surface on the inside of the basket. The bottom is supported by a rim of 3/8" x 3/8" strips, glued and nailed around the bottom inside edge of the basket frame. It's best to trim and fit the bottom into the opening before attaching the strips, then set the bottom in through the open top of the basket and glue and nail it in place.

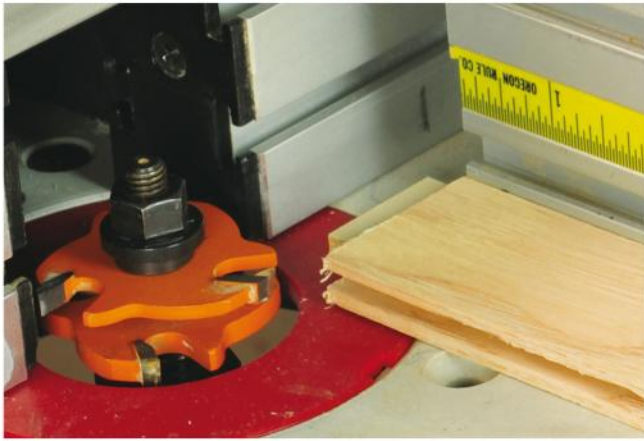
Constructing the Hinged Lid

Each of the picnic basket's lids is built with solid wood frame-and-panel construction.

After cutting the 3/8"-thick frame members to final width and length, set up your router table with a 1/8"-wide slotting cutter. Use this bit to plow a 3/8"-deep centered groove down the full length of one edge of each frame member (mark one face of each member and keep it down during routing).

Next, cut a stub tenon on both ends of the lid frame rails. This requires a slotting cutter set with an arbor that can accommodate multiple cutters. Stack the arbor with two winged cutters, each at least 3/16" wide. Between the two cutters, set enough washers and shims so that the distance between the cutter's tips is 1/8". With the bit chucked in the router table, set its height to cut a 1/8" tenon that's centered on the thick-





A pair of slot cutters in the router table cut stub tenons on the ends of the frame members that form the ends of the picnic basket's hinged lids. Separate the slot cutters with spacers and shims to get the spacing right.



Cut a rabbet all the way around the top edge of the lid panels to slip into grooves cut in the lid frame members. This positions the top surface of the 1/4"-thick panel flush with the top of the frame.



Pairs of butt hinges mortised into the lid frame members attach them to a center lid support screwed atop the basket's frame. Strong magnets mortised into the undersides of the lids help keep them closed.

ness of the 3/8" stock. Use a miter gauge in the router table's miter slot to guide the cut, and set a stop to make the length of each tenon 3/8" long.

To rout the 1/8"-thick tongue on the lid panels, reset the slot cutter's height so that the upper edges of the lower winged cutter teeth are flush with the table. Set the router table fence to produce a cut that's 3/8" deep. Rout all four edges of each 1/4"-thick lid panel, bottom-side-down. This way, each panel's top surface will end up flush with the top of the frame.

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For a video on the weaving process used for the basket sides, please visit

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Before gluing the panels up, mortise the back (non-grooved) edge of each lid's rear rail, as well as the lid support rail, for two 2"L x 1"W butt hinges. You can cut these 2"-wide, 5/64"-deep mortises (positioned as shown on the *Lid Support Rail Drawing*) by hand or using a router and jig. Drill holes for the hinge screws with a small self-centering drill bit, using the hinge leaf holes as a guide.

Assemble the lids by gluing the rail's stub tenons into the grooves on one of the stiles, then sliding the panel in face-up (don't glue the panel, so it can expand and contract). After centering the panel between the rails, glue the other stile in place and clamp the assembly. When the glue dries, round the two outer-facing corners of each lid off at a 1" radius, using a band saw or jigsaw. Then, with a 1/8" radius roundover bit chucked in a router, round over the upper edges of both lids (don't rout the rear rails), as well as the top ends of the lid support rail. Finally, drill a 1/2"-dia., 1/8"-deep hole in the underside of each outer-facing lid rail, located as shown in the *Exploded View* on page 33. These are for a pair of rare-earth magnets that are glued into the holes and serve to help keep the lid closed. Drill a small hole into the edge of the upper frame rails directly below the magnets and drive large-head roofing nails (clip the shanks off about 1/2" long) into the holes. File the galvanized finish off the heads of the nails, so the magnets stick better.

To mount the lid support rail, bore the four countersunk holes at the locations shown in the *Lid Support Rail Drawing*, page 33, then screw the rail to the top edge of the basket frame using #8 x 1" flathead screws. Plug the holes with plugs cut from ash. After the glue dries, trim the plugs flush. To attach the lids, screw the four hinges into their mortises on the support rail first, then fit the lids and screw them in place.

Making the Handles

After cutting the pairs of long and short handle strips to size, drill a 3/8"-dia. hole centered exactly 1/2" from one end of each strip. Next, mark out a 1/2"-radius half circle at the same end of each strip and cut or sand the end to round it. At the router table, use a 1/8"-radius roundover bit and round the outer-facing edge of each strip all the way around.

On the inside surface of the two long handles, glue on the two strike strips, locating them as shown on the *Drawing*. Bore a 5/16" hole, 1/2" deep into each of these strips (positioned as shown), then mount the metal strike plate (that comes with the sliding barrel bolt; see top left photo, next page) atop the strip, centering it on the hole.



Screw a pair of sliding barrel bolts to the lower rails on the narrow ends of the frame to lock to the longer handle in place, allowing the picnic basket to be pulled along the ground, like a rolling suitcase.

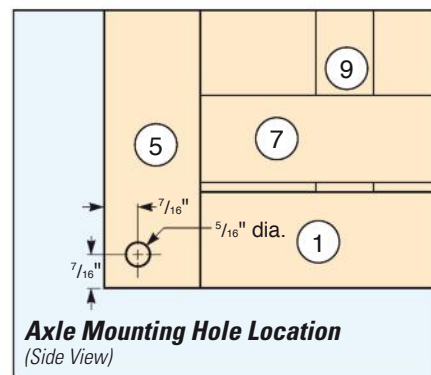
If you're a woodturner, you could turn the basket's two handle grips on a wood lathe. However, you can craft a pretty good dowel starting with a couple of lengths of $13/16$ "-thick x $13/16$ "-wide ash stock. With a $3/4$ " roundover bit in the router table, carefully round all four edges of each strip. A little hand sanding with coarse paper will round each grip nearly round. (If you don't want to bother with any of this, you can use a ready-made $13/16$ "-dia. dowel.) Drill a centered $3/8$ " hole in both ends of each grip and join them to the handle strips by gluing $3/8$ " dowels into the holes.

Four $5/16$ "-thick spacer blocks provide mounts for the handles that allow them to clear the edges of the overhanging basket lid. After drilling a $1/8$ " pilot hole in the center of each block, chamfer its four edges on one side. Glue the blocks to the upper and lower long frame rails, positioning them as shown in the *Handle Mounting Spacer Drawing*. Also glue the small stops for the long handle to the bottom of the long frame stiles on the long side of the basket. Mount the handles to their spacer blocks using four #8 x $1\frac{1}{4}$ " washerhead screws.

Next, attach the two sliding barrel bolts that lock the long handle in the lower, "rolling" position. With the basket on end atop the workbench, set the long handle so that it's vertical and seated against the stops. Set the two sliding bolts onto the lower short frame rail, and extend the bolts so that they pass through the strike plates and into the long handle. Mark the position of each sliding bolt, bore pilot holes for its mounting screws, then screw it in place.



Tee nuts create threaded sockets for $1/4$ " bolt axles that attach a pair of plastic wheels to the basket's lower frame. Spread epoxy into the holes to help secure the tee nuts, and then gently press them in with a clamp.



Adding the Wheels and Finish

The basket's twin plastic wheels are 50 mm-dia. replacement wheels for a rolling suitcase (I bought them online from *Amazon.com*). The bearings that come with the wheels are for a 6 mm shaft, and they require a little reaming out in order to fit the $1/4$ " x $1\frac{1}{2}$ " bolt that serves as their axles. The bolts mount to a pair of $1/4$ " tee nuts which are driven into the two $5/16$ " holes you drilled into the corner stiles earlier. Before driving them in place, set the tee nut atop the hole and give it a light tap with a mallet. The tee nut's three prongs will leave small indentations; drill a $1/16$ " pilot hole for each prong, to help prevent them from splitting the wood when the tee nut is driven. To help keep the nut from coming loose, mix a small batch of epoxy and apply it to the holes and the area around the nut. Instead of hammering the nut in, use a bar clamp to gently press it home. Once the glue has dried, bolt the wheels in place, and you're almost ready to roll. Sand whichever parts haven't already been sanded to final smoothness and apply a coat of finish; I used spray lacquer, which provided an easy way to finish the convoluted surface of the woven strips.

Sandor Nagyszalanczy is a furniture designer/craftsman, writer/photographer, videographer and contributing editor to Woodworker's Journal. His books are available at Amazon.com.

"Surfboard" Coffee Table

A metal frame supports this modern take on a Mid-Century Modern classic: an elliptical coffee table whose shape just happens to resemble a surfboard. Surf's up, dude.

By Michael Crow



I have a deep admiration for the long, low elliptical table designed by Ray and Charles Eames back in 1951. With its minimalist design and mixed materials (metal, plywood, laminate), the husband and wife team's iconic piece captures the spirit of its age. The elliptical top appears to float over the double pedestal wire base, the top's beveled edge drawing attention to the contrast between laminate and substrate. Its popularity is perennial — Herman Miller still makes it over 60 years after its original release. Unfortunately, at only 10" high, the table is a little impractical for use as a coffee table; 18" or so is a more useful height.

In building a variation on the design, my challenge was to preserve the appeal of the original while producing a practically sized table I could build in a modestly equipped shop. Welding a steel rod base is beyond both my tooling and my ability, but I knew from previous experience that you can cut aluminum with carbide blades and bits and then glue it with epoxy. After visualizing several alterna-

"Like many Mid-Century Modern designers, the Eameses experimented with new materials. Their elliptical top featured a laminate layer over a plywood substrate."

tives in SketchUp, I settled on the design presented here: a 22" x 72" elliptical plywood top over a metal trestle base composed of two rectangular frames bridged by two stretchers with beveled ends. To foster the illusion of a floating top, the stretchers are set back from the side of the frames and joined to the frames with shallow half laps.

The spare design doesn't require much in the way of materials and goes together quickly. Building the table provides a useful introduction to cutting an elliptical top and using tools you probably already have to incorporate metal into your woodworking, expanding your arsenal of techniques.

Begin With a Solid Foundation

Each table leg consists of a rectangular frame of 1" square aluminum tubing joined by miter joints, with the miters reinforced with short lengths of wood. Begin by cutting the four short and four long sides of the frame on the miter saw. A carbide blade will make quick work of the aluminum tubing, but working with metal instead of wood requires extra care: clamp the workpiece down, take cuts slowly, and let the blade come to a complete stop before unclamping the pieces. A stop block on the miter fence makes for easily repeatable cuts.

Before gluing the frames together, you'll want to drill pilot holes in the two top frame rails. Mark the location of the holes 1½" from each end (measured from the long edge of the miter) and centered on the width of the aluminum tubing, then drill through the top and bottom of the tubing with a bit sized to clear the threads on the screws you'll use to anchor the whole to the top (I used a 3/16"-dia. bit). Now drill clearance holes through the bottom walls of the top rail tubing, sized to accommodate your screw heads. Deburr any rough edges with a file or sandpaper and prepare the frame for assembly.

The thin walls of aluminum tubing don't offer a lot of surface area for glue, so I used a short length of wood to reinforce the joints, ripping scrap stock so it just slides inside the tubing. This stock is cut into 1½" lengths and scuff-sanded with 80-grit to give it some tooth. The faces of the miter joints and inside surfaces of the frame parts are sanded as well just before assembly. I glued up the frames in stages, first joining one rail and one stile to form an L-shaped subassembly using a corner clamp. These subassemblies are then joined to form the rectangular frame.

Gluing aluminum is much like gluing wood, with epoxy standing in for PVA or hide glue. Dry-assemble the parts to verify their fit and rehearse how things go together, then apply glue, clamp things up, and let the glue dry.



Stop blocks on the miter saw fence ensure that you'll cut the rails and stiles of the leg assemblies to the same length.



Drill a pilot hole wider than the threads of your screws in the upper rail of each leg assembly. The author used a 3/16"-dia. drill bit here.



Drill a hole large enough to fit your screw heads through the bottom wall of the top rail tubing in each leg assembly.

Immediately before gluing up the base, sand the faces of the miters and the inside edges of the tubing to improve epoxy adhesion.



Spread epoxy along the inside 1/2" of one mitered end and insert the wooden plug. Now spread epoxy into the other mitered end and slide the tubing together over the wooden block to complete the corner joint.

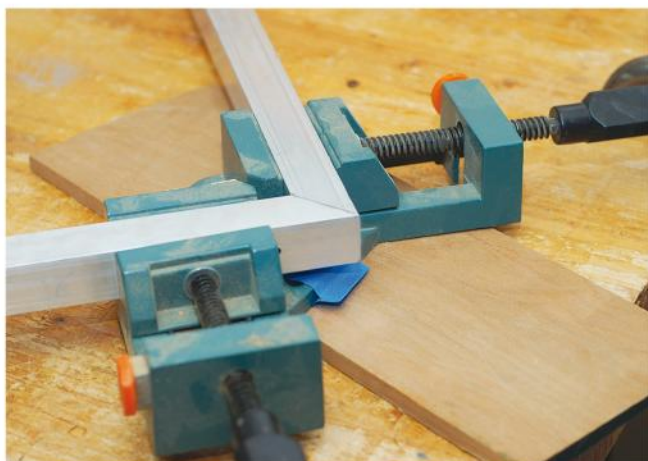
I mixed J-B Weld™ epoxy per the manufacturer's instructions and applied it to the end of one miter and a thin layer to the first half-inch or so of the inside of the tube. I then inserted a wood block in the tube end and applied epoxy to the inside of the other half of the joint. After bringing the two frame parts together, clamp the subassembly firmly. I scraped off the squeeze-out with a putty knife and let the joint cure overnight.

Two of these L-shaped subassemblies form a single frame. The frames are glued up in the same way as the subassemblies, although you're working with two corners, not just one. If you've pre-drilled screw holes in your frame tops, take care not to glue up two tops in the same frame. After the epoxy has cured, use a razor blade to remove any remaining squeeze-out, and set the frames aside for sanding, later.

Making the Stretchers

Two long stretchers form the rest of the base. Cut them to length, beveling each end to 30°, then mark the locations of half-lap joints, beginning 1 7/16" from each end. Each notch is 1" wide x 1/4" deep. I used a 3/4" straight bit in a router guided by a simple dado jig to make these cuts (see photo, below). It's tempting to clamp the stretchers together and gang-cut the joint, but I've had better luck cutting them individually. Because the cut isn't removing much material, I made it in a single, slow pass with the router set to a low speed after clamping the jig and stretcher firmly to my benchtop.

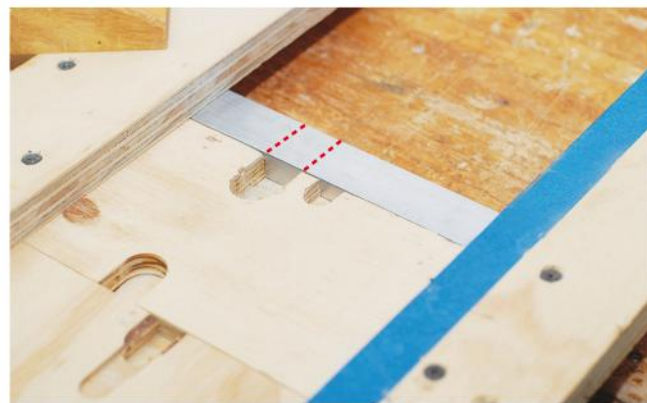
Once the joints are cut, you can drill clearance holes and pilot holes for the screws used to secure the stretchers to the top. I drilled one hole at the center of each stretcher, then two more spaced evenly between the center hole and half-laps (approximately 12" on center). I first drilled pilot holes all the way through the bar at each location with a small-diameter bit



Corner clamps hold the miter joints together while the epoxy cures.



To ensure your stretchers are the same length, clamp them together and cut them at the same time. When cutting aluminum with a carbide saw blade, cut slowly and then allow the blade to stop completely.

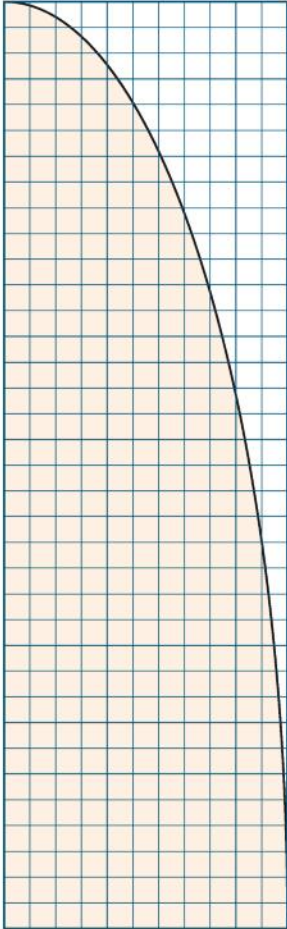


The author's dadoing jig captures his router base for cutting shallow dados in the stretchers. A short cut into the jig's sacrificial fence with a straight bit made it easy to line up the stretchers accurately for routing.

MATERIAL LIST

	T x W x L
1 Base End Rails (4)	1" x 1" x 12"
2 Base End Stiles (4)	1" x 1" x 16½"
3 Wooden Tubing Plugs (8)	29/32" x 29/32" x 1½"
4 Base Stretchers (2)	1" x 1" x 54"
5 Stretcher End Caps (4)	3/64" x 1" x 1⅜"
6 Top (1)	3/4" x 22" x 72"
7 Plastic Leveler Glides (4)	Rockler #24257

Tabletop Pattern



Each square = 1"

Make the router template from this pattern.

(3/16"), sized just larger than threads of my screws (note that, if you use solid stock for the top, you'll want larger holes to allow for movement of the top), then a clearance hole at each location in just the bottom face of the stretcher. This hole needs to be large enough to accommodate the screw head size.

The last holes you need to drill are for the screws joining the frames to the top through the stretcher. Sized to accommodate your screw threads, these holes are centered on the notches in the stretcher.

To give the stretchers a more refined appearance, I epoxied thin caps to the ends of the stretchers to cover

them. I made these caps using a side wall ripped from a scrap length of tubing. Because the stretcher ends don't bear weight, I didn't reinforce these joints with a wood plug. Instead, I simply scuff-sanded the beveled edges and caps, then applied epoxy to the bevels and pressed the caps into place.

After the epoxy cured, I scraped away glue squeeze-out and trimmed excess metal off with a hacksaw. Then I filed the edges of the caps flush with the sides of the stretchers. Once the stretchers are capped, they can be put aside until you're ready to finish the base.

After the epoxy has dried on your stretcher ends, trim off any excess metal with a hacksaw if necessary, and file the cap edges flush.

Exploded View

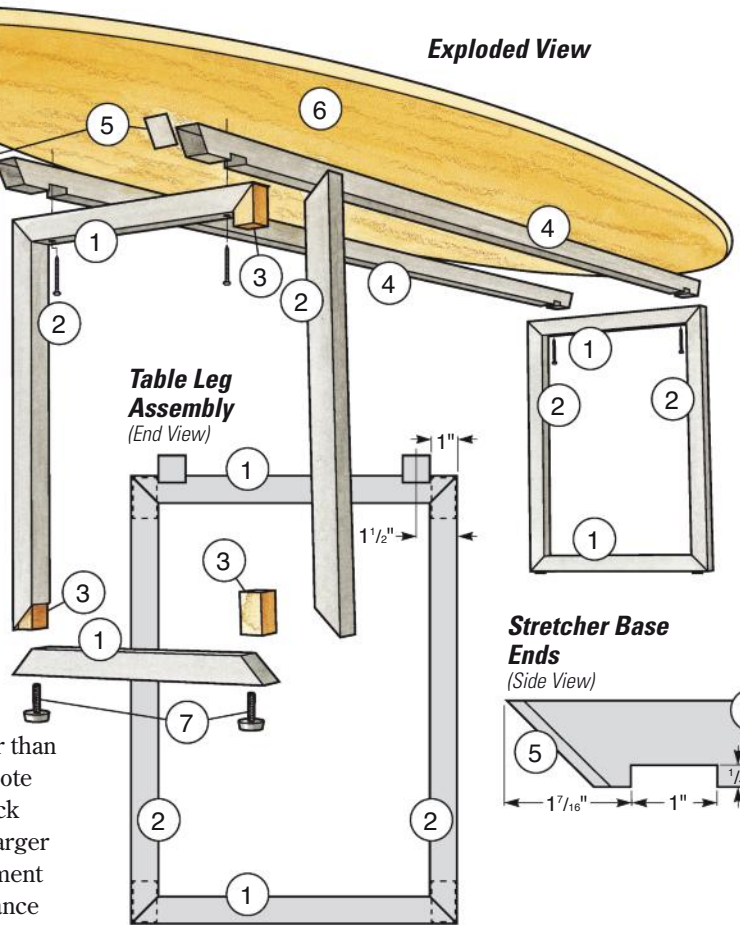


Table Leg Assembly (End View)

Stretcher Base Ends (Side View)



Marking and Forming the Oval Tabletop



1 Mark vertical and horizontal lines on the bottom face of the top. You'll use these lines to position the routing template for shaping the top and to position the top on the base during assembly.



2 Line up the template (it is sized to overlap each center line by an inch) with the center lines on the top and trace the arc of the ellipse. Flip the quarter template three more times to draw the full tabletop shape.



3 Trim the surfboard-shaped top to rough size with a jigsaw, removing most of the waste material. Stop short of your layout line.



4 Because the bottom of the table won't be visible, the author screwed the template to the top instead of affixing it with double-sided tape.



5 Rout away the excess waste around the ellipse with a flush-trim bit. The bit's tip-mounted bearing rides along the edge of the template to cut a matching curve on the tabletop edge.

Topping Things Off

Like many Mid-Century Modern designers, the Eameses experimented with new materials. Their elliptical top featured a laminate layer over a plywood substrate. You could use a melamine-faced plywood if you wanted to follow suit, but making the top offers some opportunity for your own experiments. Consider an exotic veneer, solid wood or even solid surface. To coordinate with the light, silver tone of my brushed aluminum base, I chose a plywood with a birch veneer. My own experiment was limited to using prefinished plywood.

There are several ways to cut an ellipse. You can use a string and screws to define the loci and radii of the shape, then trace the edge of the ellipse with a pencil. Cut the ellipse out and sand it to shape. You can also rout one using a two-axis jig.

These jigs can be made in the shop or are available commercially. I found it easiest to make a rigid template and rout the ellipse that way. Because an ellipse is symmetrical on two axes, you only need a quarter template instead of the full elliptical shape (see page 41). I created a pattern in SketchUp and printed it out, then traced it onto some 3/4" plywood, sawed close to my lines on the band saw and sanded the template to final shape.



For a video on finishing the exposed edges of plywood, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

With the template ready to go, cut a slightly oversized piece of plywood and mark center lines on its long and short axes on the bottom of the blank. Use these center lines to position the template and trace the ellipse. After marking the full shape, cut close to the perimeter using a band saw or jigsaw. Then, with a flush-cutting bit in the router, use the template to rout the top to final shape. You could stick the template to the top panel with double-sided tape for routing, but I simply screwed through the template into the bottom face of the top — those holes won't show from the top.

Rout the first quarter arc of the ellipse, then reposition the template and repeat three more times. If your cuts don't meet perfectly, you can fair them with a sander. Once you're satisfied with your elliptical top, decide on an edge treatment. The Eames table features a single bevel running the thickness of the top; I eased the top and bottom edges with a 1/4" roundover bit instead and sanded this profiled edge up to 220-grit.

Finishing Up

Although they are made from very different materials, finishing both the top and the base begins with sanding. Because I used pre-finished plywood, only the exposed edges of the plywood needed finishing. After filling a couple of voids in plys of the exposed edge and giving things a quick sand, I applied a couple of coats of a satin water-based polyurethane, lightly sanding between coats. Your finish schedule may vary depending on your choice of materials.

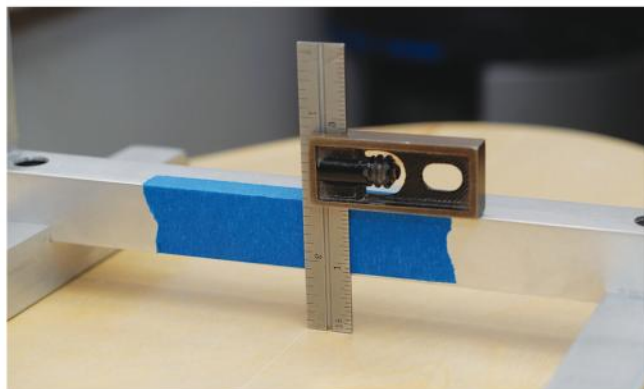
Aluminum lends itself to a number of finishes, though some, like anodizing or powder coating, might be better left to the professionals. But a sanded or painted base is easily achievable in the home shop. You can create a surprising number of effects simply by sanding — varying grit or direction can dramatically alter aluminum's appearance from brushed finishes to a mirror-like polish. Experiment on scrap tubing to find an effect you like. For a brushed appearance, I sanded the base with 220-grit paper in a random-orbit sander, changing the paper relatively often and wiping the base clean with a damp rag after sanding.

Whatever finish you choose, you may want to install leveling feet at each corner of the bottom rails in the frames. These feet prevent the sharp edges of the base from scratching the floor.

To wrap things up, invert the top, and fit the base frames into the notches in the stretchers. The frames overhang the stretchers by 1". Mark the center points of the top rails and



Grit size and sanding direction both can create a variety of surface finishes on the aluminum base. The author settled on 220-grit abrasive in a random-orbit sander to create a finely brushed finish.



To center the base on the table, align the center marks on the stretchers and base top rails with the center lines on the bottom face of the tabletop.

stretchers, and line these center marks up with the center lines on the table. Attach the base with panhead screws driven through the clearance and pilot holes. Once you've joined the base to the top, the table is ready for its new home. Put up your feet and hang 10 on your new Mid-Century Modern coffee table.

Michael Crow is a woodworker based in Washington, where he is building period-sensitive furniture for his 1910 Craftsman bungalow. His website is www.1910craftsman.com.



PRAIRIE-STYLE BOX

By Marlen Kemmet

Beveled edges on the lid, lift and legs give the box a sleek architectural appearance. This distinguished project works equally well for jewelry and small collectibles.

The box shown is the fifth generation of this design. After each production run of about 20 boxes, I make slight design changes to enhance the look and simplify the machining. Any hardwoods would work, but since the box uses so little lumber, I prefer to incorporate highly figured woods. For safety, ease of construction and consistent cuts, I use a jig for bevel-cutting the legs and another jig for beveling the top surface of the lid.

Starting with the Box Body

To form the gracefully tapered legs, cut a piece of 1"-thick maple to 1¼" wide by 14½" long. Then, crosscut four legs to 3½" long from the long blank. For consistency and safety, I use a simple sled on my band saw table for angle cutting one edge of each leg at 7°. See the *Exploded View Drawing* for the leg elevations. To make the jig, cut a piece of 1/2" or 3/4" plywood to 8" x 12" for the base. Cut a runner to slide snugly



1 For identical taper cuts on each box leg, a band saw sled fitted with two angled cleats works perfectly for consistent taper cuts.



2 With the bevel edges facing up, glue and clamp an end assembly between a pair of legs, keeping the top edges and bottom surfaces flush.



3 Using a miter gauge with a sacrificial fence and stop, cut a pair of grooves through the end assembly to house the box sides.

inside the miter gauge groove on your band saw, and glue it to the bottom of the base so the band saw cut will be roughly centered in the base. Band saw about halfway into the base. Brad-nail a pair of cleats to the top surface of the plywood base to position a leg to trim one edge at 7°. With the wide face of each leg facing down, taper-cut each leg. Sand each miter-cut leg smooth.

Cut the two ends to size from 1/2"-thick stock; I used quilted walnut. Finish-sand the surface that will be the outside face of the end assembly. It's easier to sand it now, rather than later when it is sandwiched between the two legs. With the inside edges and top ends flush, glue and clamp an end between two legs. Repeat for the other end assembly. Remove the clamp and sand the inside face of each end assembly.

Cut the two sides to size. I resawed a 3/4"-thick piece of quilted maple for these pieces. Cut a 1/4" rabbet 1/8" deep along the bottom inside edge of each side piece. Then, sand both sides through 220-grit.

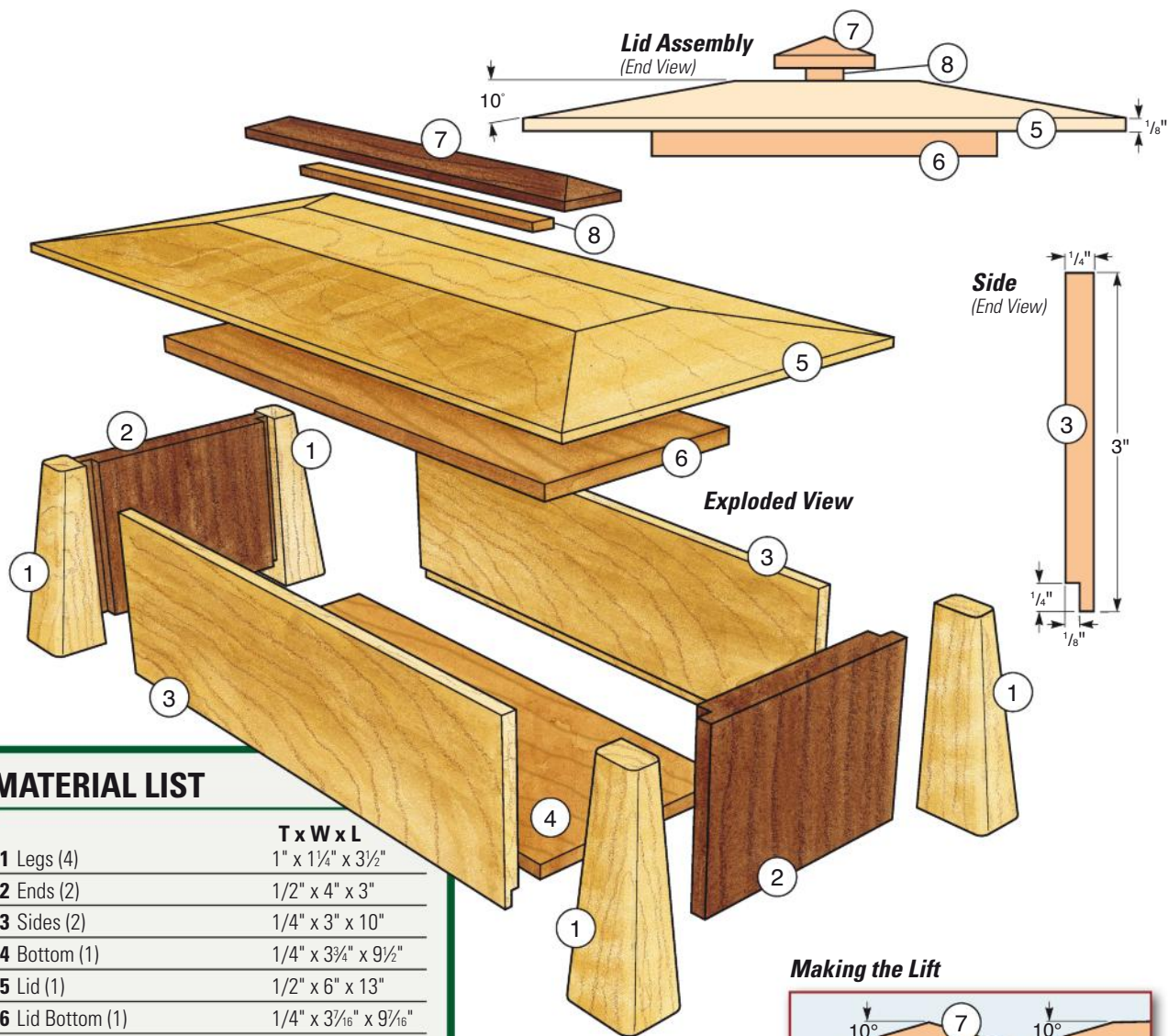
Using a miter gauge with a sacrificial fence and stop, cut a pair of 1/4" grooves 1/4" deep on the inside face of the end piece sandwiched between two legs. The groove width needs to be the same width as the thickness of the sides. Be careful not to cut into the legs when cutting the grooves. The stop on the fence allows you to make consistently placed grooves, as seen in photo 3, above.



4 Angle the blade, set up a stop on the miter saw fence, and miter-cut the outside edge of each leg on each end assembly.

Set a stop on your miter saw fence, and miter-cut a 7° angle on the outside edge of each leg on the end assemblies. Miter-cut one leg of each end assembly, angle the blade to cut the opposite direction, reset the stop, and miter-cut the opposite leg of each end assembly.

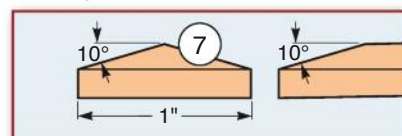
Finish-sand the two end assemblies, sanding a slight roundover along the edges of each leg. Using rubber bands for clamps, glue and clamp a pair of sides between the end assemblies, checking for square. I used shop-made 90° corner braces to keep the assembly square. Double-check that the



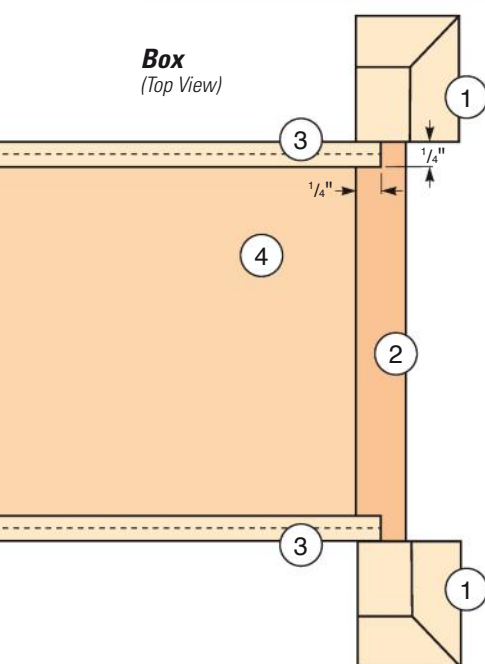
MATERIAL LIST

	T x W x L
1 Legs (4)	1" x 1 1/4" x 3 1/2"
2 Ends (2)	1/2" x 4" x 3"
3 Sides (2)	1/4" x 3" x 10"
4 Bottom (1)	1/4" x 3 3/4" x 9 1/2"
5 Lid (1)	1/2" x 6" x 13"
6 Lid Bottom (1)	1/4" x 3 1/16" x 9 7/16"
7 Lift (1)	5/16" x 1" x 7 1/2"
8 Lift Spacer (1)	1/8" x 3/8" x 5 1/2"

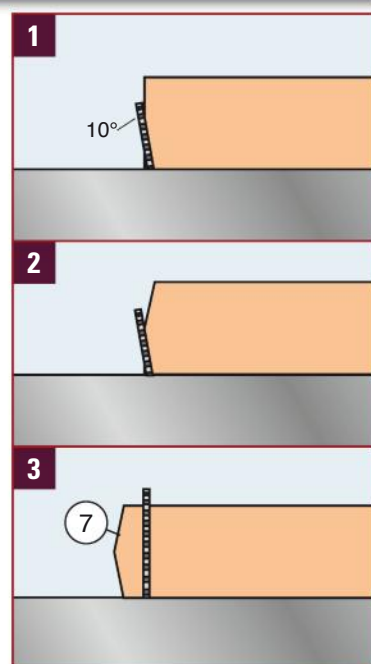
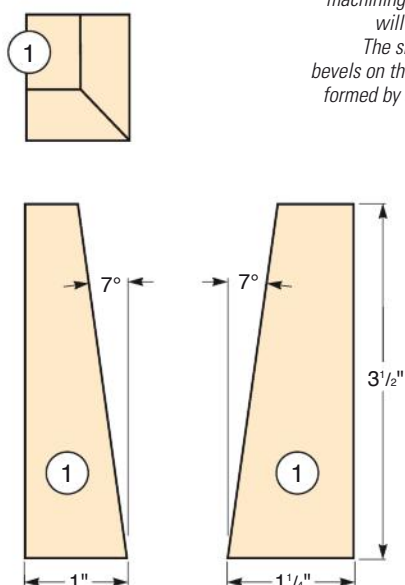
Making the Lift



When making the lift, use a wide board so the machining process will be safe. The small end bevels on the lift are formed by sanding.



Legs (Top, Front and Side Views)





Rubber bands make excellent clamps for assembling a pair of sides between the end assemblies. Corner braces and small clamps help ensure a square finished assembly.

top edges of the end assemblies are flush with the top edges of the side pieces. Rubber bands make excellent clamps on the tapered legs where regular clamps have a tendency to slide up the beveled surfaces when they're tightened. Wipe off any excess glue with a damp cloth.

Measure the rabbeted opening in the bottom of the box and cut the box bottom to size. Glue the bottom in place, wiping off any excess glue. After the glue dries, sand the bottom of the box body smooth.

Adding the Lid Next

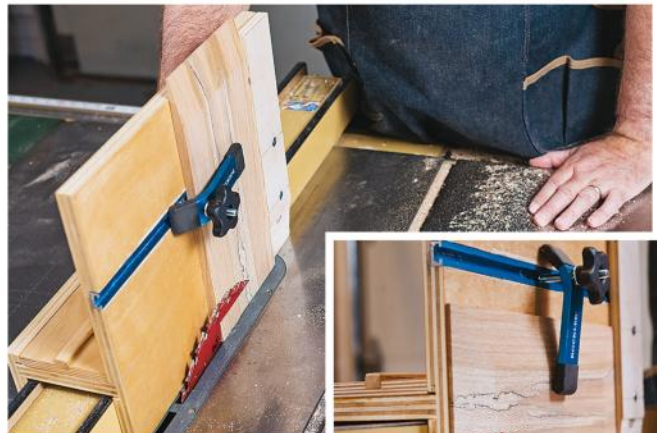
Cut the lid to size from 1/2"-thick stock. If you don't have figured stock this width, edge-join two pieces of 3"-wide stock for the lid. I often book-match figured stock for the lids to obtain the necessary width. To safely cut the tapers along the top edges of the lids, I use the table saw fence saddle shown here. Tilt the table saw blade to 10° from vertical and bevel-cut the ends of the lid first, leaving a 1/8" flat along the edges of the ends. Then, bevel-cut the edges. The hold-down on the jig keeps the lid firmly in place when making the bevel cuts.

Sand the top and bottom surfaces of the lid smooth. It is easier to sand the lid now as compared to later when the lift has been attached. Measure the opening of your box, and cut the lid bottom to this dimension less 1/16" in length and width. Center, glue, and clamp the bottom to the underside of the lid.

Following the three-step cut sequence in the *Drawings*, bevel-cut a lift to shape along the edge of a 1"-thick board. Starting with a wider board makes this a safer table saw cut. Sand 10° tapers on the top ends of the lift, and then sand the lift smooth. Cut the lift spacer to size and glue and clamp it centered on the bottom side of the lift. Now, center the lid/lift assembly on the lid top and glue it in place. I use masking tape to mark the lift's location on the lid.



Cut the box bottom to fit snugly inside the rabbet bottom edge of each side piece. Check the fit, and glue and clamp it in place.



Bevel-cut the ends of the box lid first, then the sides, using a table saw saddle jig for support.



A combination square works nicely to center the lift/spacer onto the lid. Mark the location with painter's tape and use rubber bands for clamps.

Finish Sanding and Adding the Finish

Finish-sand the box and lid. To bring out the grain of the figured stock, I use MINWAX® Antique Oil Finish, following the directions on the can. After letting each coat dry, I rub down the finish with Scotch-Brite™ gray Ultra Fine Pads. Three or four coats of the oil creates a lasting finish.

Marlen Kemmet is a woodworking editor specializing in print and digital communications. He resides in central Iowa and is an avid woodworker with a fondness for Greene and Greene style furniture.

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Customer Rating **★★★★★**

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Customer Rating **★★★★★**

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Customer Rating **★★★★★**

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Customer Rating **★★★★★**

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Today's Shop

Box Joint Jig Roundup

By Chris Marshall

These five ready-made jigs will have you cutting box joints quickly and easily.

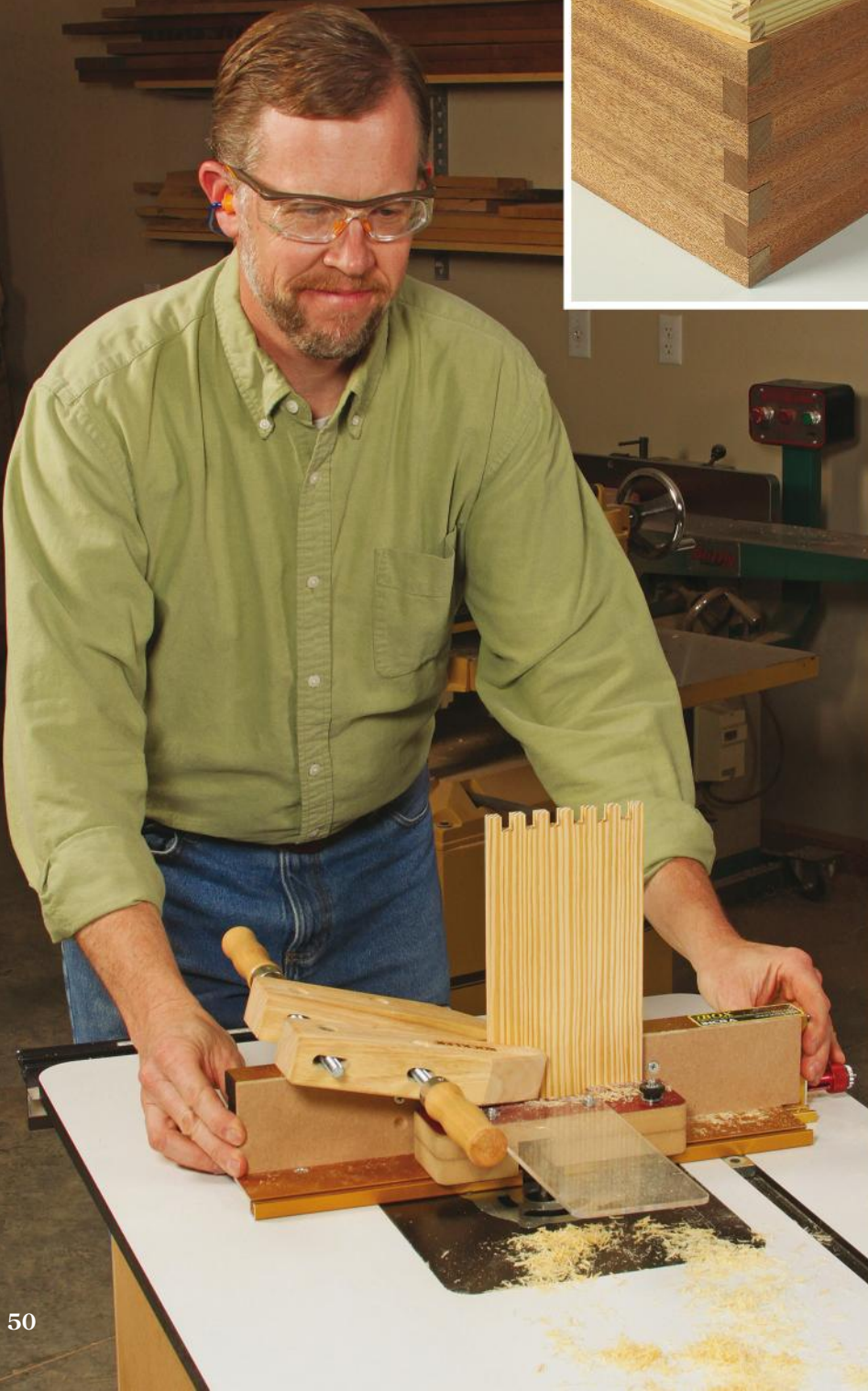


While they may not have the panache or instant recognition of dovetails, there's no denying that box joints exhibit their own curb appeal on furniture, drawers and boxes. Their interlocking pattern of straight pins and slots provides a geometry that will make non-woodworking

observers wonder how you did it, and the light-to-dark interplay of face and end grain catches the eye every time. But aside from eye candy, these joints are as much substance as show. All of those contact surfaces between pins and slots offer a huge amount of glue surface area. Once a well-made box joint is glued up, you'll be hard-pressed to break it.

Now, I can already hear the critics say, "There are umpteen box joint jig plans on the Internet and YouTube. You can build them from scratch, with all sorts of whiz-bang adjusters, and pay next to nothing!" Yep, you folks are right. But keep in mind that not every woodworker enjoys designing or building jigs. If you'd rather spend your shop time making projects, gifts and furniture, this roundup of prefabricated box joint jigs is for you.

The following five options offer quite a range of function, versatility and pricing. But rest assured — they all work well for the job. Have a little patience, follow the directions carefully, and start with flat, square and uniform workpieces. You'll be making air-tight box joints in no time, thanks to these well-engineered products.



Woodhaven 4555 Box Joint Jig

Street Price: \$69.99

Joint Sizes: 1/8" to 13/16"

Compatible With: Table saw, router table

Web/Phone: www.woodhaven.com / 800-344-6657

Woodhaven 4555

Woodhaven's 4555 Box Joint Jig most closely resembles those pin-and-scrap-fence versions you may have made before, and it functions similarly. It features a 24" extruded aluminum fence with T-track openings that mounts to a table saw or router table miter gauge (not included). A pair of 3/4"-thick MDF sub-fences in front serve as a sacrificial facing to help minimize tearout as a blade or bit exits each slot cut.

What makes the 4555 a big improvement over typical shop-made box joint jigs with fixed pins is that this jig's double indexing pins are adjustable. Made of angled aluminum and piggybacking one another, one pin registers one edge of a slot cut, and the other pin can be moved and set to index the other edge of the same slot cut — whatever width it happens to be. When aligned up and down, the two pins can accommodate 1/8"-wide slot cuts. Or, spread to their maximum distance, you can cut up to 13/16"-wide box joint patterns. Great versatility!

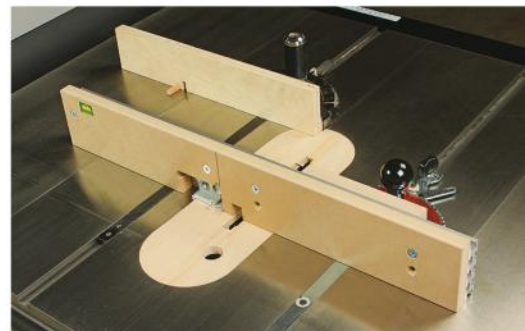
It's also easy to space the slot cuts accurately, by loosening two T-knobs that mount the fence unit to the miter gauge, then sliding the whole assembly left or right

as needed. It's a simple way to refine a too-loose or too-tight joint.

The jig will mount to any miter gauge with fence holes in it by screwing a scrap facing to the gauge for retrofitting to the 4555's connecting bolts. Or, Woodhaven brand miter gauges will accept the 4555 jig directly. Regardless, it's very important that the miter gauge's bar slides in your table saw or router table's miter slot without side-to-side play. Any "slop" here can lead to cumulative error in the joint's pattern, which will impede its fit.

The simplicity of this design and its ability to cut a wide range of slot sizes makes this jig attractive. It doesn't cost an arm and a leg, either. But, I wish its metal indexing pins were longer. They only protrude about 3/8" beyond the MDF sub-fences.

When its metal pins are aligned up and down, the 4555 can cut box joint slots as narrow as 1/8" wide with a standard-kerf saw blade, creating an intricate pattern. However, their short length can hide the pins from view during cutting.



Bearing likeness to its scrap-built cousin (rear), Woodhaven's 4555 (front) is much more versatile because it's fully adjustable.



A pair of metal pins fit inside slot cuts to register the joint during machining. A screw on each pin sets their spacing.



Today's Shop continued



INCRA I-Box

Street Price: \$179.95

Joint Sizes: 1/8" to 3/4"

Compatible With: Table saw, router table

Web/Phone: www.incra.com / 888-804-6272



I-Box's twin pins are long enough to handle a pair of workpieces at a time, up to a combined thickness of 1". This speeds up the box-making process.

INCRA I-Box

INCRA's I-Box uses a unique dual-pitch lead screw "positioning engine" that reduces the variables that impact a box joint fitting together too tightly or loosely. Here's how it works: a red knurled knob on the end of the jig's aluminum fence does two

operations: it opens or closes a pair of steel pins that fit inside slots of the joint as they are cut, PLUS it simultaneously moves this pin assembly the correct distance away from the cutter. What amount to two

separate factors for some other box joint jigs are simplified into a single adjustment here. The chrome dial on the end of the red knob tweaks joint fit further, in .001" increments.

I-Box comes with its own miter gauge that mounts to the fence and slides in a standard 3/8" x 3/4" miter slot. It has INCRA's GlideLOCK™ plastic adjusters on the bar to snug up any loose fit in the miter slot, for silky smooth operation. The fence adjusts laterally on the miter bar to suit different cutter-to-miter slot distances, as these vary by router table and table saw.

This jig also offers excellent guarding, with thick MDF blocks on the infeed and outfeed sides, plus a long clear guard plate shielding the user from flying debris or contact with the cutter. And to help keep cuts tidy, there's a replaceable 1/4" MDF facing that also can be flipped for reuse.

The I-Box works equally well on a table saw or router table, and its variable split-pin design will enable it to cut any pin-and-slot pattern you

choose, from 1/8" up to 3/4". That flexibility can help you produce a balanced joint pattern on a wide variety of workpiece widths. You can also cut more decorative splined and "center keyed" box joint styles.

INCRA's 12-page manual is thorough and well illustrated with color photographs. You also get a DVD that covers the manual's information in video. Be sure to keep these guides handy unless you cut box joints frequently — there



An included miter gauge guides the jig across a router table or table saw. A pair of round plastic GlideLOCK adjusters snug its bar up for a perfect fit in the miter slot.

is a learning curve to setting up the I-Box. But if you follow along step-by-step, you'll be up and running quickly. While \$179 may seem spendy for a jig that cuts essentially one type of joint, it does the job wonderfully.



INCRA's dual-pitch lead screw positioning engine — the key to I-Box's versatility and ease of setup — adjusts with a knob and dial at the end of the jig.



Leigh RTJ400

Street Price: \$359

Joint Sizes: 3/8", 3/4" (standard); 3/32", 3/16" (optional)

Compatible With: Router table

Web/Phone: www.leighjigs.com / 800-663-8932

Leigh RTJ400

The versatile RTJ400 will cut about a dozen sizes and styles of through and half-blind dovetails, plus four sizes of box joints. Here's the gist of how it works. It consists of a thick aircraft-grade aluminum template with a pattern for cutting dovetail pins or box joints along one edge and dovetail tails along the other edge. This style of joint-making template isn't new, and many dovetail jigs use it. While the RTJ400 will cut a few sizes of box joints, most other template-style dovetail jigs can, too.

What makes this jig truly unique is its handle and fence system. Leigh has engineered a series of holes and slots in the template that position the fence automatically for cutting its full range of box and dovetail joints. Much of the trial-and-error process involved with setting up other similar templated jigs is eliminated with this design, and that's a huge help!

Another brilliant Leigh innovation is the "eBush" guide collar, required for use with the jig. It installs in 1³/₁₆"-diameter router plate openings. The bushing portion is elliptical, not round, like typical guide bushings. Its collar has numeric index

marks that enable you to adjust the tolerances of your joints by simply twisting the eBush left or right to increase the collar-to-router bit offset. This way, eBush allows joints to be fine-tuned in .001" increments.

The RTJ400's base will accept workpieces up to 16" wide, so while this jig doesn't accommodate unlimited workpiece width, it will tackle anything from small boxes and drawers up to moderately sized carcasses. The template's 6" x 27" footprint, combined with sturdy handles on both ends of the fence, also inspires confidence when machining even long or heavy workpieces. But, you'll need a router table to use this jig. It also only works "template down" and not with a freehand router.

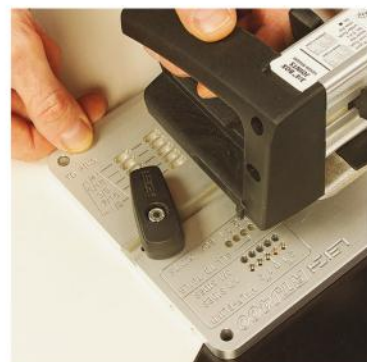
Leigh includes a 3/8" straight bit with the standard kit, so you can cut either 3/8" or 3/4" box joint patterns, plus many sizes of through and half-blind dovetails with other included bits. You'll need to buy accessory bits for routing 3/32" or 3/16" box joints. It won't cut other common box joint sizes like 1/4" or 1/2".

A clearly illustrated spiral-bound manual, and an instructional DVD, provide ex-



eBush's elliptical shape around the bit allows you to improve the fit of joints in thousandths of an inch by turning the collar left or right.

cellent help. I was able to cut glue-ready 3/4" box joints on my first try. But, keep these reference materials close at hand when using the jig — setting it up isn't intuitive. Who would pay \$359 to only cut box joints? Not many. But remember, box joints are only the tip of the iceberg of joint-making options here.

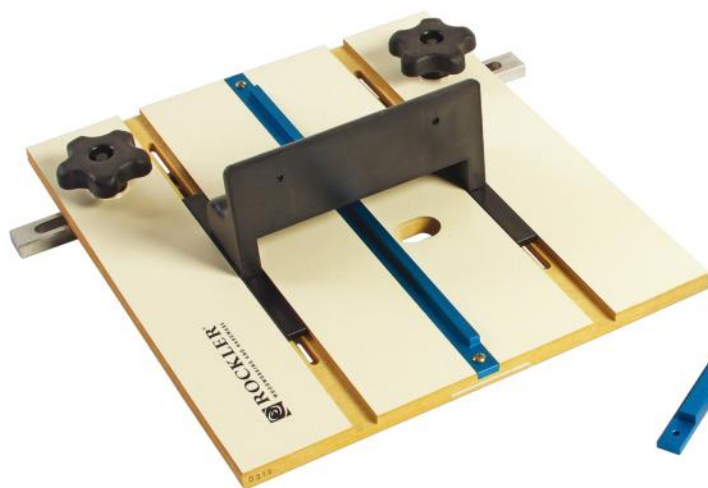


A series of holes in the jig's template set the fence's position quickly and correctly for cutting either dovetails or box joints.



Sturdy handles on the ends of the fence assembly make the jig easy to control. Cam-style clamps hold workpieces and backup boards securely.

Today's Shop continued



Rockler Router Table Box Joint Jig

Street Price: \$84.99

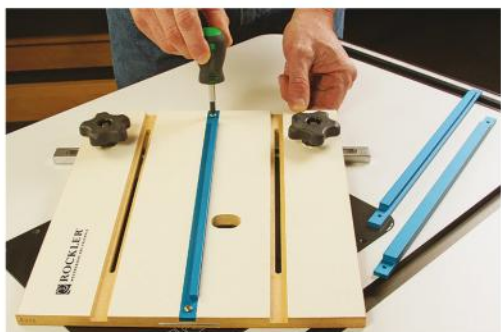
Joint Sizes: 1/4", 3/8", 1/2"

Compatible With: Router table

Web/Phone: www.rockler.com / 800-279-4441

Rockler Box Joint Jig

Rockler's Box Joint Jig has a 1/2"-thick MDF base that's positioned over the router bit on a router table, then locked in place using two 3/8" x



Three interchangeable blue aluminum indexing keys make it easy to switch between the jig's three sizes of box joint cutting patterns — 1/4", 3/8" and 1/2".

3/4" metal miter slot bars and star knobs. Make sure the miter slot on your router table is within 4 1/2" to 6 3/8" from the center of the router bit; more

or less span will exceed the base's range of adjustability.

A plastic 3"-tall backer sled rides in a pair of grooves cut across the jig's base. It functions like a double-bar miter gauge: the sled supports your workpiece while cutting pins and slots so you can slide it over the bit accurately. Three blue anodized aluminum indexing keys, sized 1/4", 3/8" and 1/2" wide on top, mount to the

jig base with a pair of tiny Phillips screws. These keys, when used with router bits of matching diameters, enable the jig to cut three sizes of box joints with minimal changeover. To switch to another joint size, just swap the index bar and bit to the size you want to cut, then loosen and shift the jig base over accordingly to match the bit and key size. It's simple to do.

Given the 3" x 6" size of the backer sled's vertical fence, this jig is best suited for making small boxes or drawers with sides not much wider than around 8". Fasten a sacrificial fence facing to the sled to improve support further and to provide wider handholds.

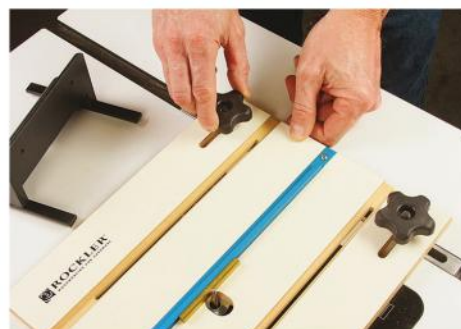
The MDF base works well, but I do wonder how long the backer sled will slide in its grooves before it starts to gradually widen them. Accuracy depends, in part, on this sled moving smoothly with minimal side-to-side play. An

www.woodworkersjournal.com
MORE ON THE WEB



For a quick video overview of these box joint jigs,

please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.



Two short metal bars and star knobs lock the jig's base in a standard 3/8" x 3/4" miter slot.



Built-in stops in the bottom of the backer sled slots keep the sled from sliding too far; they prevent the bit from cutting through the sled's back plastic face.

aluminum or phenolic base would extend the life of this jig further.

The strength of Rockler's design here is simplicity: if you've never cut box joints before, its four-page manual won't intimidate. Thanks also to quick setup, you'll be making box joints in less than an hour. I was able to cut a snug-fitting 1/4" box joint on the first try, using a 1/4" spiral upcut bit (bits aren't included). And, if you should happen to misplace the manual, the jig's design is intuitive enough that you probably won't need the instructions anyway.

Continues on page 56 ...



Tools for Good Measure

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Today's Shop continued

Woodhaven 4556 Portable Box Joint Jig

Street Price: \$119.99

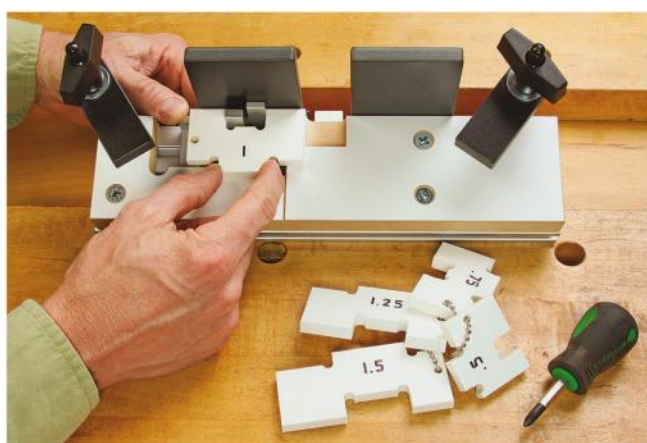
Joint Sizes: 1/2" to 1 9/16"

Compatible With: Handheld router

Web/Phone: www.woodhaven.com / 800-344-6657



The 4556's clamps hold it securely on the edge of a panel for handheld routing. It also cuts the widest joint pattern of any jig here, at 1 9/16".



Five plastic blocks, included with the jig, help set the correct spacing for cutting 1/2" to 1 1/2" joint patterns (block numbers darkened here for clarity).

Woodhaven 4556

Woodhaven's second jig option for cutting box joints clamps over the end of a workpiece. So, rather than passing the jig and workpiece over a router table or table saw to make the slot cuts, you use a handheld router equipped with a 3/4" O.D.

guide collar and 1/2"-dia. bit (not included) to make the cuts, moving the router over the jig's top surface.

Two black phenolic plates serve as a router base, but their spacing also

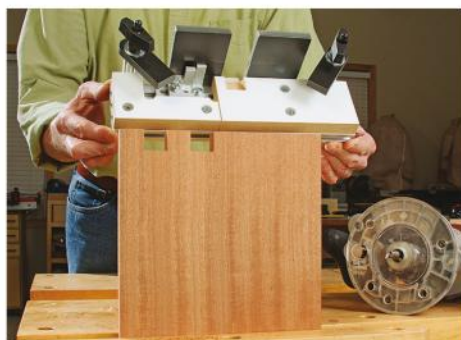
sets the cutting width for the guide collar and bit. A pair of adjustable aluminum "stop arms" underneath the top supports provide the index to start the box joint cuts, then they fit inside the joint slots when working across the end of the board. Each subsequent slot cut involves unclamping the jig, fitting the stops into the previous slot, and re-clamping the jig before cutting.

The jig's construction is stout: a 12" aluminum slotted track serves as its spine and the connection point for a pair of included workpiece clamps, melamine-coated sacrificial boards, top supports and the adjustable stops.

Woodhaven provides five helpful plastic joint setup blocks for cutting 1/2"- to 1 1/2" box joint patterns, in quarter-inch increments. Dialing in the jig for use involves loosening and adjusting the aluminum stop arms and one of the top black supports, inserting the appropriate setup block, spreading the stop arms to fit the setup block and retightening some screws. Easy.

After making one round of test cuts, then following Woodhaven's recommendation for refining a loose joint fit, I was able to cut a nicely interlocking joint on the second try. The clamps worked well to hold the jig securely, and the 4 1/4"-long top support platforms provided ample stability for guiding my mid-size router through the slot cuts.

This jig's clamp-on design makes it ideally suited for cutting box joints on large chest panels, because there's no limit to how wide a panel can be. If you want to build sizeable projects, like hope chests or decorative carcasses, here's a good pick. Plus, the 4556 will cut the largest box joint patterns of any jig here, up to 1 9/16". On the flipside, it isn't well suited for use on narrow or small drawer parts, where clamping width for the jig is compromised. And, look elsewhere if you want to cut tiny box joint patterns: the smallest pin-and-slot pattern possible with this jig is 1/2".



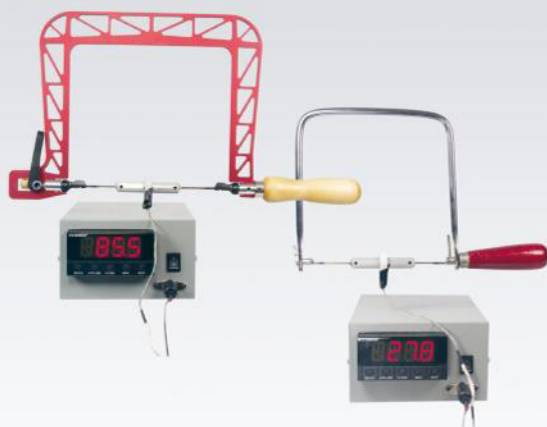
A pair of aluminum stop bars under the black router platform index this jig's cutting pattern. The 4556 must be repositioned and clamped for every slot cut.

Chris Marshall is senior editor of Woodworker's Journal.

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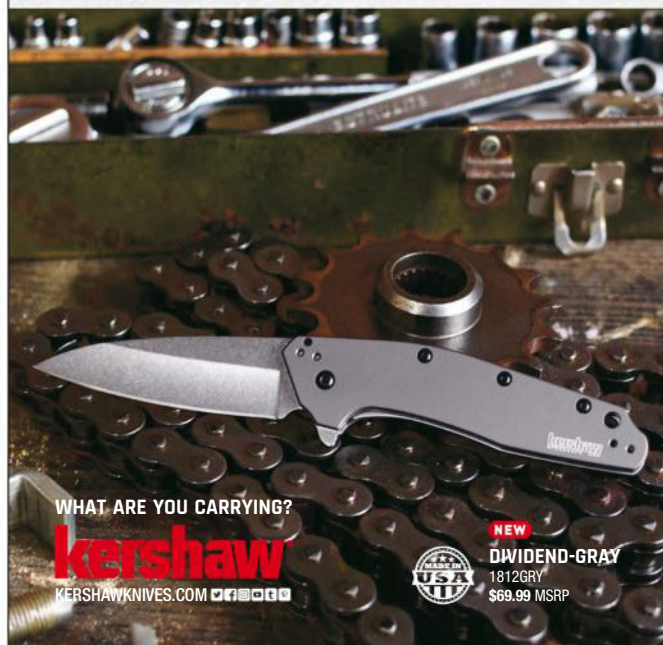


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Weekend Projects

Odds and Ends Cabinet

By Woodworker's Journal Staff



One of the byproducts of wood-working is, well, “byproducts.” We end up with an extra hinge here, a couple of coat hooks, T-bolts or jig knobs there. Maybe it’s the remainder of a 100-pack of pocket screws when you only used a dozen. Those bits and pieces have to go somewhere retrievable until needed, and this little storage cabinet can help. It has three sturdy tote drawers for keeping small quantities of “this or that” accessible. We used 1/2" Baltic birch plywood and Rockler’s new Miter Fold Dado Set to build it. It’s a stacked dado with a “specialty” blade that cuts a unique hinged miter joint in solid wood or plywood that won’t slip out of position when you glue and clamp it together. But, by modifying the part sizes in the *Material List* (see page 60) you could use lock miters, box joints, rabbets or even butt joints for the corner joints instead — whatever works best for you.

Preparing the Cabinet Blank

To get started, cut a 26" x 26" blank for the cabinet carcass from 1/2"-thick cabinet-grade plywood or solid wood. Make sure the corners are square and the diagonal measurements match. Sand one face of the panel to 180-grit; this will become the cabinet’s inside face.

Next, cut a pair of dados that will house the two dividers between the drawers. Stack a dado blade to match the actual thickness of your project stock, and raise it 1/4" above the saw table. Set your table saw’s rip fence 10³/₁₆" away from the closest face of the dado blade. Now cut one dado across the

panel’s inside (sanded) face, then turn it 180° and cut a second dado parallel to the first along the panel’s opposite edge. Make sure the depth of these two dados is uniform along the cuts.

Since we’re using the Miter Fold Dado Set, flip the panel to its back face, and draw four layout lines across it, 5" in from each edge. These mark the “fold” lines of the cabinet. Extend the layout lines



Cut a pair of 1/2" dados 1/4" deep and spaced 4⁵/₁₆" apart, across the cabinet carcass panel. Center these dados on the panel. They will house the drawer dividers, later.



Cover four penciled layout lines on the back of the cabinet panel with painter's tape to support the fragile veneer along these fold lines.

around to the edges of the panel, too. Apply a strip of wide painter's tape, centered over each fold line, to cover them up. The tape will reinforce the Miter Fold joints where the veneer "hinge" is thinnest, to help keep the cabinet carcass from folding up prematurely while the joints are being cut.

Cutting the Carcass Joints

Make a fresh throat plate for your table saw to use with the Miter Fold Blade (see the sidebar, below). Then cut a test piece about 3" wide and 14" to 18" long from the same material you're using for the carcass panel, and set it aside.

Grab your Miter Fold Blade manual and follow the included chart to stack the blade for the correct width of cut. Once it's installed, and with the rip fence clamped partially over your new throat plate, raise the Miter Fold Blade slowly through it until the tips of the specialty blade are slightly higher than the thickness of the carcass panel stock. Lower the blade a few cranks, then carefully raise it again until the tips of the specialty blade are just 1/32" below the top of the test piece you set aside earlier. Make



The Miter Fold Blade's specialty blade, in tandem with the kit's stacked dado blade, cuts an interlocking, hinged miter joint. Load the parts to the correct cutting width required.

sure that you're measuring from the top of the blade's arc so that there's no chance it will cut all the way through the carcass panel when you are machining the folding joints to come.

Making a Zero-clearance Throat Plate



Rockler's Miter Fold Dado Set instructions recommend a dedicated zero-clearance throat plate for use with the blade in your table saw. Make it by tracing your saw's original throat plate onto a blank piece of MDF, other sheet goods or stable hardwood (bottom left photo). Cut out the throat plate shape slightly larger than your traced outline. Then, mount the blank to your metal or plastic throat plate with double-sided tape, and template-rout the blank to match the "master" using a flush-trim bit with an end-mounted bearing (top right photo). Separate the two, and see if the new throat plate fits the saw table's opening. If it doesn't, sand its edges as needed, and drill a finger hole through the new throat plate to make it easier to



remove. If you've made your throat plate from thicker material than the master, you'll need to recess the bottom edges so the throat plate will sit on its tabs in the opening and be flush with the tabletop surface (bottom right photo). The size and location of those tabs will determine how much material you'll need to remove.

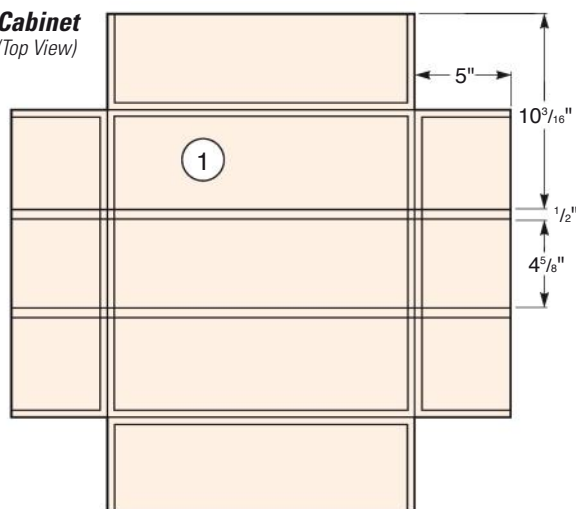


Weekend Projects continued

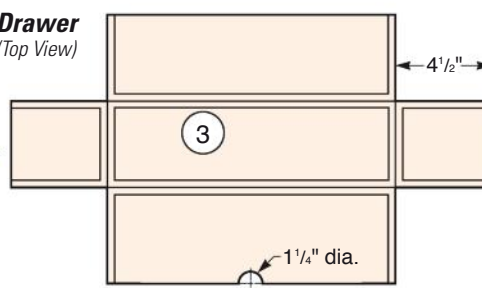
Exploded View



Cabinet
(Top View)



Drawer
(Top View)



MATERIAL LIST

	T x W x L
1 Cabinet (1)	1/2" x 26" x 26"
2 Dividers (2)	1/2" x 4 3/4" x 15 1/2"
3 Drawers (3)	1/2" x 13 3/8" x 23 7/8"

Odds and Ends Cabinet Hard-to-Find Hardware

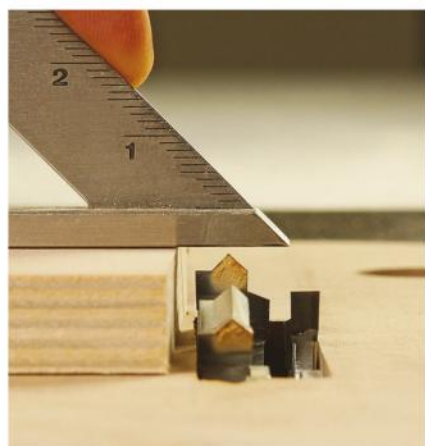
Rockler Miter Fold Dado Set (1) #54799 \$349.99 ea.
Drawer Divider Holder (2) #14754 \$17.99 ea.

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 visit www.woodworkersjournal.com/hardware
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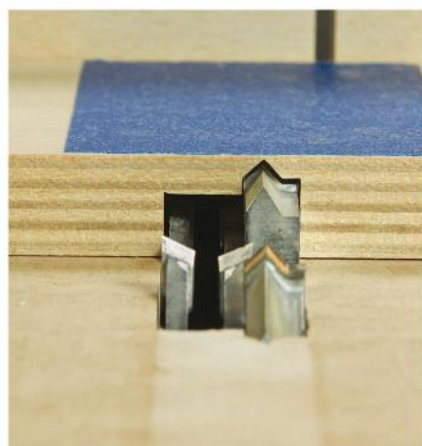
It's time to check the blade height before making the actual cuts. Apply a strip of painter's tape across the width of the test piece, a few inches in from one end. Using your miter gauge with a long

scrap fence installed, and a push pad to keep your hand out of harm's way, cut across the test piece with the taped face up. Make this cut directly under the tape, midway across its width. Fold up

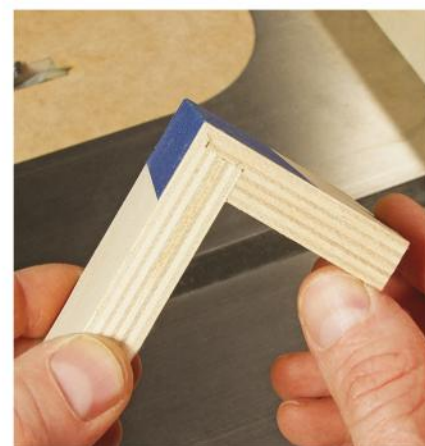
the test joint, to see if the intersecting faces of the Miter Fold profile meet correctly (see photo, bottom right). If they don't, add or subtract shims, according to the manual, to improve the fit.



Raise the Miter Fold Blade until the extended tips of the specialty blade are 1/32" below the thickness of your test piece, as shown here.



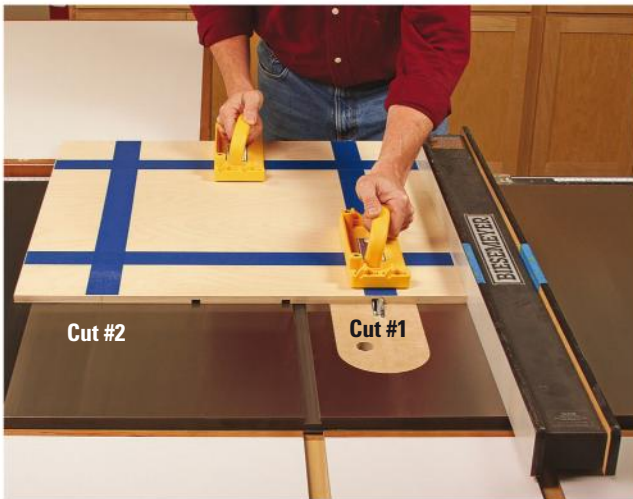
Apply painter's tape across the width of the test piece, and make a cut to be sure the specialty blade doesn't sever the test piece in two.



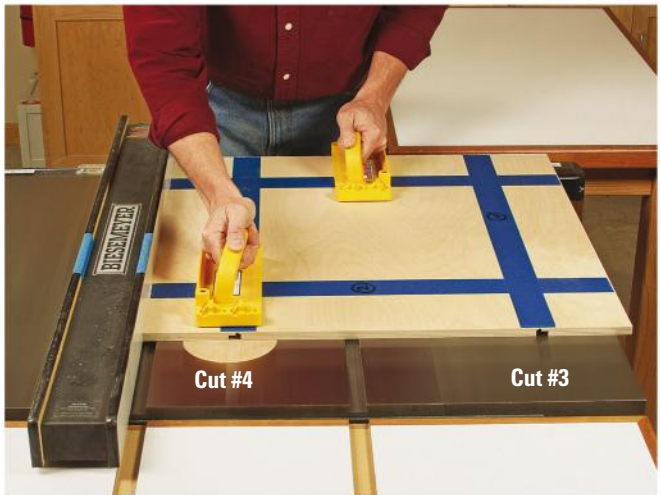
Carefully fold the joint closed along the veneer "hinge." The intersecting faces of the Miter Fold profile should meet fully and with no gaps.



For videos on making a zero-clearance throat plate and options for drawer dividers, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.



The first round of Miter Fold cuts happen with the saw's rip fence set to the operator's left of the blade. Make the first cut (shown here), then rotate the panel 180° to make a second folding cut along the opposite edge.



Miter Fold cuts three and four happen with the rip fence set to the other side of the blade and the panel turned 90° to the first two cuts. Notice how both infeed and outfeed supports are required when using this blade.

With the blade dialed in, set the rip fence to the left and then right of the blade to make the four Miter Fold joint cuts that will form the cabinet's top, bottom and sides. These cuts should be lined up so the tips of the specialty blade are intersecting your 5" layout marks on the edges of the panel. Make a cut along two opposite edges of the panel with the rip fence to the left side of the blade. Then, repeat with the rip fence on the right side of the blade and the panel turned 90° from the first set of cuts.

Once the four fold cuts are made, carefully trim off the four corner waste pieces of the carcass with a sharp utility knife so the short ends of the top, bottom and sides can engage correctly.

Adding Dividers

Go ahead and fold up the four joints to relax the "hinge" veneer along the seams. If everything meets up evenly at the corners, spread glue on the joints and clamp up the cabinet carcass. While the glue dries, measure the front-to-back and side-to-side dimensions within the carcass for the drawer dividers. Remove the Miter Fold Blade, switching back to your standard saw blade, and cut two dividers to size. Sand them to



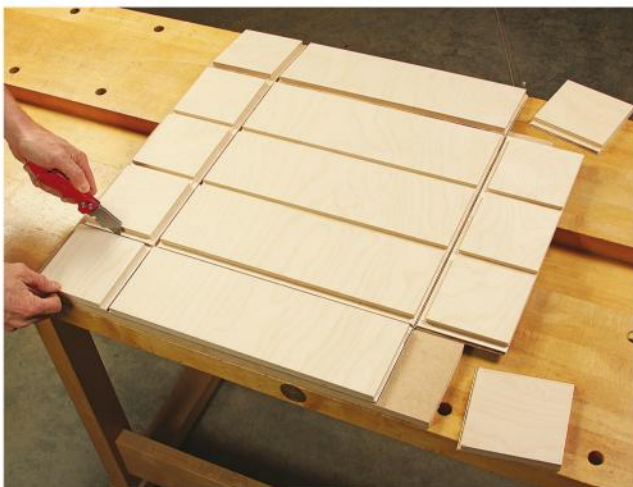
Glue and clamp the cabinet carcass's folded joints. Here, a pair of strap clamps provide even clamping pressure at all four corners. While the glue sets, measure from the bottoms of the dados to determine the final divider sizes, and cut those to size.

Building the Drawers

The process for machining the three drawers with the Miter Fold Blade is the same as for making the cabinet carcass — only this time, there are no internal divider dados to cut. Start by cutting three 1/2"-thick plywood or solid wood panels to 13 3/8" x 23 7/8", and sand one face smooth for the "inside" face.

Along one long edge of each drawer panel, mark a centerline for drilling a 1 1/4"-dia. semicircle with a Forstner bit to serve as a finger pull. Bore these three finger pulls, one for each drawer, at a drill press and against a clamped fence.

Next, mark the back faces of the drawer panels with four long layout lines, this



The corner pieces of a Miter Folded panel must be removed in order for the top, bottom and sides of the box or cabinet to come together. Use a sharp utility knife to trim along the veneer seams to cut these waste pieces free.

Weekend Projects continued



Bore a half circle into one edge of each drawer blank with a 1/4"-dia. Forstner bit to form a finger pull. Clamp the workpiece against a scrap of the same thickness first, to act as backup fence.

time at 4 1/2" in from the edges and ends. Cover them with tape. Reinstall the Miter Fold Blade, adjust it to the correct

height again and cut the hinged drawer joints on all three panel workpieces. Glue and clamp the drawer boxes.

Finishing Up

The Miter Fold Blade leaves sharp outer corners on the folded joints and, depending on the grain direction of the outer veneer "hinge," even tiny splits in the veneer. So, ease these folded edges on the cabinet and drawer boxes with a sanding block. Smooth the remaining unsanded surfaces to 180-grit, then apply a couple of coats of your favorite durable finish.

Add drawer dividers inside the drawers if you wish (see the *sidebar*, below, for options). Then hang the project by driving a pair of 2" flathead deck or wood screws through countersunk pilot holes in the cabinet back, centered on its width. Locate these mounting screws on a wall stud to hang the cabinet. Now, round up those "must keep" odds and ends, and fill up those drawers!



With the exception of there being no divider dados, building the drawers involves the same cutting, gluing and clamping strategy as the cabinet carcass — only with smaller panels.



Ease the sharp corners created by the folding joints with a sanding block. Then sand the rest of the bare wood before topcoating the project surfaces with your favorite finish.

Divider Options



ONLINE
VIDEO!

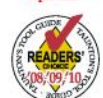
While you could leave these three drawer interiors open, dividing up their spaces can make it easier to store and organize smaller quantities or even several types of contents. Rockler offers 2 3/4"-wide, clear plastic drawer divider holders with 1/4" slots (item 14754) that can simplify the process. Just cut the holders to length from a 60" piece with scissors, and affix them inside the drawers with their pre-applied adhesive strips. Then, make drawer dividers from scraps of 1/4" plywood, hardboard or solid wood. Or, if you don't plan to change the divider configuration, another option would be to install fixed dividers instead, without holders (bottom photo). Make them from thicker material, and drive a couple of 18-gauge brad nails through the drawer sides and bottom to attach them.



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The **Rockler Material Mate** allows one person to move sheet goods up to 4'x8' in size from vehicle to shop. Designed to pass through 30" service doors, the Material Mate has a rigid steel frame with a 22" x 36" top that extends to 30¼" x 36" to hold 4x8 sheet material when tilted. Once your material is in your shop, you can adjust the height of the Material Mate to position it for cutting sheet goods on the table saw. Adding a table top (not included) converts the Material Mate into a workbench or outfeed table. The Material Mate (item 56889) will be available in June at a price of \$249.99.

Hitachi's C10RJ Jobsite Table Saw with Fold & Roll Stand has a working table size that measures 28¾" x 22" with an outfeed support of 28¾" x 2". With the saw's telescoping



Hitachi C10RJ Jobsite Table Saw with Fold & Roll Stand



Rockler Material Mate



table extension set up on the right, it can support a max of 35" rip capacity; 22" when set up on the left. The C10RJ has a 15-amp motor with soft start and electric brake that produces 4,500 rpm. The 10" blade can bevel between 0° and 45° for cuts ranging from 3⅛" (at 0°) to 2¼" (at 45°). The C10RJ can take an 8" dado stack up to 13/16" wide. Safety features include a riving knife, overload protection that automatically shuts off the motor in a possible current overload situation, and an oversized power

switch with emergency off at knee level. The C10RJ has a suggested price of \$479.

Imaginlay's new options in inlay materials are ready-to-use, all-natural, crushed *Mother of Pearl* and *Crystal Calcite*. They can be used as is, dyed to emulate a variety of gemstones, or mixed into other inlay materials to create a shimmering effect, either to fill a natural blemish in wood or as a deliberate design element. The all-natural Mother of Pearl is made from the inner layer



Imaginlay Mother of Pearl

of abalone or oyster shells; the flakes are baked, making them softer. They can be recrushed and screened to finer sizes, which creates reflective material that goes with the grain, maximizing iridescence. Both Mother of Pearl and Crystal Calcite have a hardness of 3.5 on the Mohs Hardness Scale and are easily sanded. The new inlay products available from Imaginlay are: fine or flake Mother of Pearl, both available in one-ounce containers; three-ounce containers of fine or coarse Crystal Calcite; or combo packs. Prices range from \$12.95 to \$34.95.

EZ Connect Rack Shelving, a new line of heavy-duty, easy-to-assemble storage



Gladiator GarageWorks
EZ Connect Rack Shelving



racks from **Whirlpool's Gladiator GarageWorks**, is designed to hold 1,000 pounds per shelf. The shelves are laminate, with a steel frame, for easy cleanup. A patented click-and-lock system is designed for one person to assemble the free-standing rack quickly and without tools. The shelves come in configurations that include a 48" wide rack with 24" deep shelves (pictured), as well as 48" wide x 18" deep and 36" wide x 18" deep configurations. Prices range from \$79 to \$99.

Makita's Model XSR01Z, the *Makita 18V X2 LXT Lithium Ion (36V) Brushless*

Cordless Rear Handle 7 1/4" Circular Saw, is the world's first cordless rear handle 7 1/4" circular saw powered by two 18V lithium-ion batteries. It has a full 2 9/16" maximum cutting depth, which means it can cut 3x lumber in a single pass. According to Andrew Camp, Makita USA product manager, "In early testing, this cordless saw put up big numbers in run time tests with up to 558 crosscuts of 2x4 SPF and up to 291 crosscuts of 2x10 SPF with two fully charged 5

Makita XSR01Z 18V X2 LXT Lithium Ion
Brushless Cordless Rear Handle 7 1/4"
Circular Saw



amp-hour batteries." The saw has a 0° to 53° bevel capacity with positive stops at 22.5° and 45°, a magnesium base and blade guard, and electric brake. It is available as a bare tool, selling for about \$199, or in a kit with batteries and charger, for about \$359.

Festool's SYSROCK Jobsite Radio measures less than 6" high and weighs less than two pounds. Sound comes from a 10-watt 8 Ohm Neodymium speaker. A Radio Data System provides song information, artist and time of day from FM broadcasting stations. The SYSROCK pairs with smartphones wirelessly for hands-free usage, or you can plug in a non-Bluetooth device through the Aux-in jack. A built-in microphone lets you take calls from your phone, hands-free. The radio can be powered either through the supplied AC power cord or with a Festool flat pack battery (sold separately). The SYSROCK can stand on its feet or suspend from an included swiveling hanging hook. The SYSROCK is also designed with splash protection. It sells for \$119.



MORE ON THE WEB

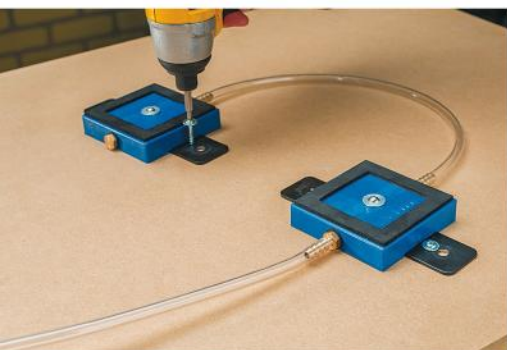
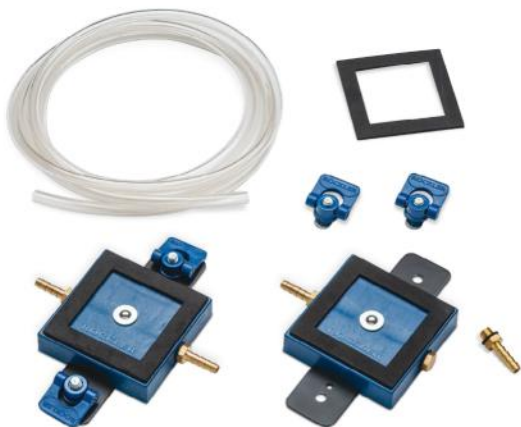


For videos demonstrating featured tools, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

Festool SYSROCK Jobsite Radio



What's In Store continued



The **Rockler Vacuum Clamp Pod Kit** (item 53418) allows you to securely hold down your workpieces on all sides, without anything getting in the way, so you can machine all the way to the edge on all sides. The suction hold-down holds



Rockler Vacuum Clamp Pod Kit

workpieces in place with no clamps, with a continuous vacuum gasket creating a seal for a strong hold. The product works with pumps that generate at least 25" Hg of suction: a ball valve that opens when the workpiece is pressed down engages the suction. The kit includes two vacuum pods (one with two brass barb fittings and one with one brass barb fitting and one brass plug); two T-bolts; four Rockler hold-down knobs; an 8' length of 1/4" polyurethane vacuum

MICROJIG MATCHFIT Dado Stop



Milwaukee WORKSKIN Light Weight Performance Shirts



hose; and an extra 1/4" brass barb fitting and extra gasket. You can mount the vacuum pods in a variety of ways, including in T-track, in the decks of CNC routers or screwed to either a fixed or portable work surface. The Rockler Vacuum Clamp Pod Kit is priced at \$59.99.

The **MATCHFIT™ Dado Stop™** from **MICROJIG, Inc.** lets woodworkers cut precise cross dados for half-laps, inlays and other joinery without measuring, marking or test cuts: the actual stock that is going to go into the groove is used to gauge the cut width. The Dado Stop accounts for the thickness of the material plus the blade kerf. To use it, you secure the MATCHFIT Dado Stop to a table saw rip fence with a dovetail clamp (sold separately), then follow a three-step process: 1) set the kerf; 2) set the dado; 3) cut the dado. You can also use the MATCHFIT Dado Stop to calibrate the rip fence scale. The Dado Stop's fixed center leg is exactly 3" long, meaning that the rip fence can be set so this leg just touches the teeth of the blade, then the rip fence scale calibrated to exactly 3" for accurate crosscutting. Using the Dado Stop as a crosscut stop when cutting with a miter gauge of-

fers kickback protection: off-cut parts will not get caught between the rip fence and saw blade. The MATCHFIT Dado Stop sells for \$19.95.

Milwaukee Tool has expanded its clothing line to include **WORKSKIN™ Light Weight Performance Shirts**, which utilize Coolcore® Fabric Technology to regulate sweat evaporation, moving moisture away from the body and providing a cooling effect on the wearer's body temperature. Extended Fast Dry Sweat Zones accelerate wicking in key areas (under the arms and across the back) to help prevent the shirt from becoming saturated and uncomfortable. The shirts also include UV protection and are made with fabrics that resist pilling, snagging and common abrasion. Drop-tail extended backs provide extra coverage when working overhead, while seamless shoulders reduce discomfort from straps and harnesses. The WORKSKIN Light Weight Performance Shirts come in both gray and "high visibility" colors, and in both short- and long-sleeve options, with sizes from small to 3XL. Shirt prices range from \$50 to \$64.



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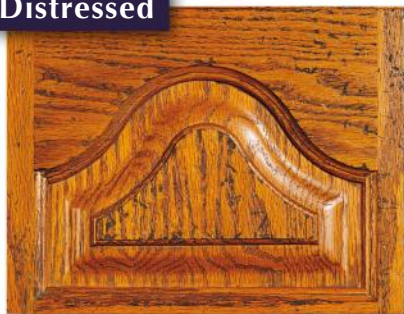
Finishing Thoughts

Intentional Texture

By Michael Dresdner

"Old" and other looks for new wood

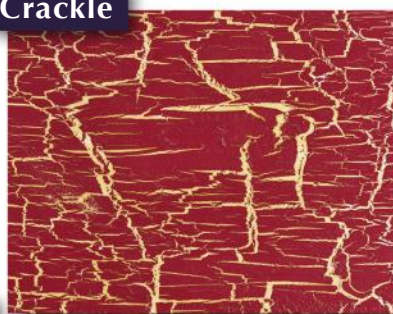
Distressed



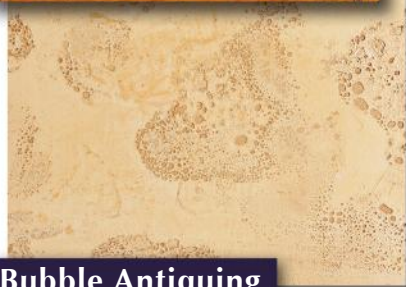
Weathered



Crackle



Bubble Antiquing



Linen Finish



Engine Turned Surface



Michael Dresdner

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

Although we typically strive to make both our wood and finish surfaces smooth, adding texture intentionally can be quite interesting. When we do add texture, it's often to make wood or finish look old or worn, which is the case in four of the six examples discussed in this article.

Distressed Finish

By far the most common added texture is what finishers call "distressing," which means adding dings, dents, scratches and scrapes. These

color-enhanced wear marks are a quick and easy way to create "instant antiques."

Craft a homemade distressing tool by adding a variety of nails and screws to the face of a round block or mallet. Hit, roll and scrape the business end against the wood to add dents, scratches and gouges where natural wear might occur. Add the "damage" either to raw or finished wood. Enhance the marks by dry brushing, which works on raw wood or painted surfaces, or use a wet glaze on sealed wood by brushing on

a liquid or gel pigment stain, then wiping it off the surface, leaving color only in the distressing divots. Both coloring approaches highlight the "damage" marks, but look slightly different.

Weathered or Barn Wood

Reclaimed barn wood is a hot commodity these days. As wood weathers, it not only turns silver gray, but also tends to erode, leaving ridges and grooves in the surface. On softwoods, common for barns and fences, this washboard effect follows the softer early and harder late wood growth rings. While the technique shown here works on all wood, softwoods erode deeper and faster.

I use two different wire brushes — a stiffer one and a finer one — to create the ridge lines. Start by soaking the board liberally with water;



A homemade distressing tool adds dents and scratches. Dry brushing (above) or, on already sealed wood, a wet glaze (left) brings out the marks.



Wire brushes, plus black and white paint, create dark and light areas that mimic real weathered wood.



the wire brush cuts more quickly on wet wood. Scrub along the grain using the stiff brush until you erode away as much of the early wood as you like. Once the wood dries, you will notice that the scrubbed surface is very fuzzy. Use a finer wire brush on the dry wood to remove the fuzz.

Now it's time to add color. Put some white paint into a

cup and thin it about 20% or so with water to mimic the consistency of wiping stain. Now add a much smaller amount of black paint to the pan, but don't stir it. Simply drag a stir stick once or twice through it to marbleize it a bit.

Brush on the black/white wiping stain and wipe off the excess. You'll notice that because the stain was not stirred well, you end up with some grooves blacker and some lighter gray, though overall it will be a uniform silver gray when viewed from a distance. Look closely at

real weathered wood and you'll see similar variation. You don't need to seal it, but if you choose to, go with a topcoat of dead flat clear finish after the paint is dry.

The first two examples had us texturing the wood itself. In the next two, we'll texture the paint instead.

Crackle

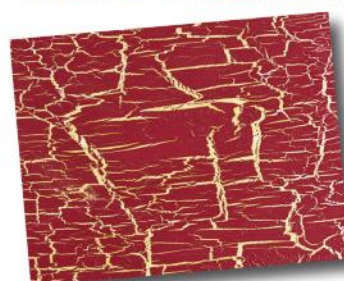
As a board with multiple layers of paint ages, the paint may crack badly enough that older coats of paint show through the cracks. To copy that, I'll use two dramatically different colors for the background and cracked topcoat.

Put on your first color of paint, the one that will show

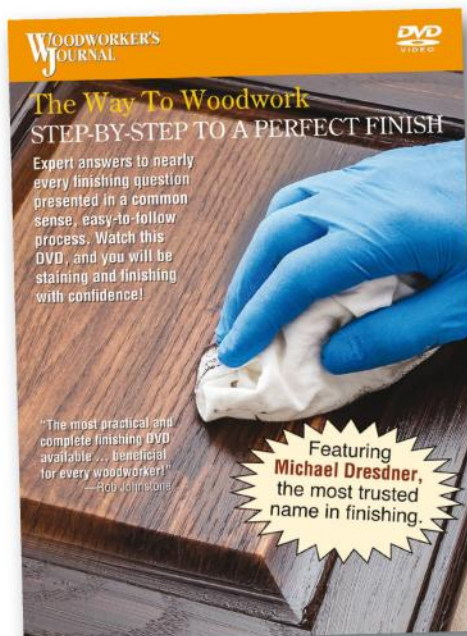
Continues on page 72 ...



Apply liquid hide glue to a painted or unpainted board. The next coat will crackle over the dried glue.



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Finishing Thoughts continued

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

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



A heat gun will let you create controlled bubbling on B-I-N or latex paint.



through, and let it dry. Apply a liberal, even coat of liquid hide glue over the painted surface. Let the glue dry, then paint over it with a different color of water-based latex or acrylic paint.

This top coat of paint will crackle as it dries, right before your eyes, letting the color below the glue show through. You can control the size of the crackle, at least somewhat, by how thick or thin the glue and top paint coats are. Thicker coats yield larger cracks; thinner coats result in smaller ones.

Bubble Antiquing

Bubbling mimics old finish that's been damaged by heat, and we'll use fairly high heat to recreate it, so please use caution. Apply Zinsser® B-I-N® or latex paint to the wood surface. Before the paint dries completely, heat the area you want to bubble with a heat gun, which will both bubble the finish and dry it more quickly, though the technique will work on already dried B-I-N as well.

Once the paint is cool and dry, sand the surface lightly to turn at least some of the bubbles into craters. A weak, burnt sienna wet glaze, wiped on and wiped off, brings out the texture and leaves the surface looking like an old parchment treasure map.

Linen Finish

Though it works with all sorts of textured cloth, in the old days we called this a linen finish, perhaps because we were actually using linen. I've used drapery cloth, lace, burlap and even drywall



Any textured cloth, including linen (middle) can be used for this technique. After painting with B-I-N, wet glaze (top) creates a white texture on a dark background; dry brushing (bottom) highlights the cloth's warp and weft.



repair tape to get a variety of surface patterns.

Glue a highly textured cloth onto wood, then coat it completely with Zinsser B-I-N, either plain or tinted. After the B-I-N dries, dry brush or wet glaze the surface. Dry brushing brings out the cloth pattern with darker lines on a white background, while wet glaze creates light patterns against a darker background. Try different colors and different cloths and come up with your own creative alternatives. When you like the result, seal it with dead flat clear finish to maintain a cloth-like appearance.

Engine Turned Surface

For this look, we're going to sand a pattern of scratches into the wood to create visual interest. Using a sanding disk mounted in a drill or drill press, create repeating circular scratch patterns in either even or staggered rows.

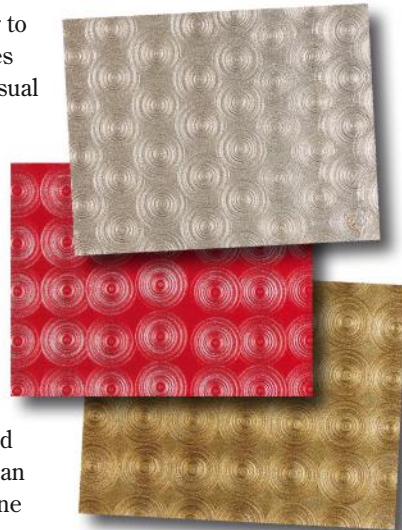
You can leave the wood natural, dry brush to bring out the rings, or wet glaze after sealing the wood. I painted my samples silver, added an asphaltum wet glaze on one

to create a bronze look, and sprayed one with translucent red lacquer.

There they are: a few new methods to expand your creativity. Choose the ones you like, or try them all. Either way, you now have another handful of finishing techniques to add to your bag of tricks.



A sanding disk creates a pattern of scratches. From there, you have several options for different looks.

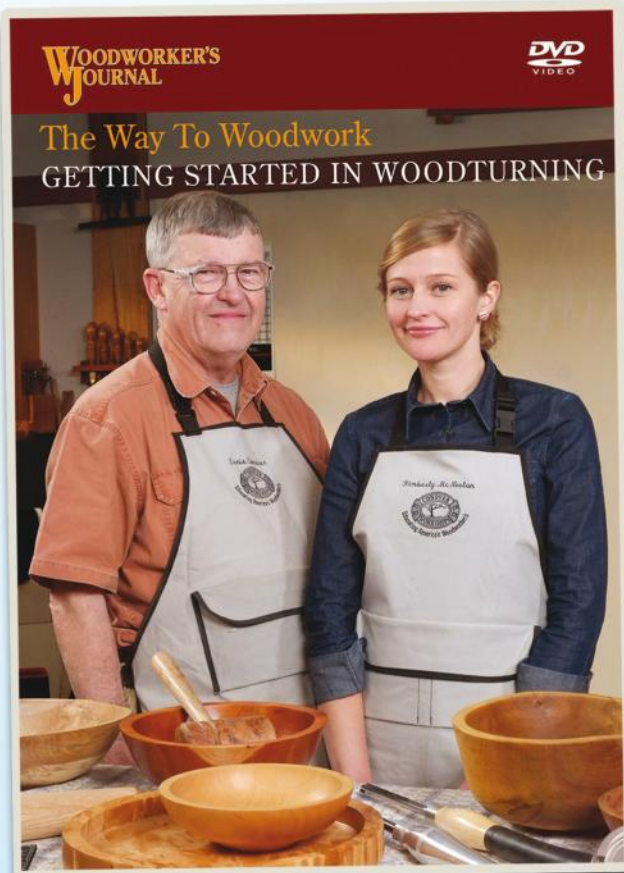


MORE ON THE WEB

For a video on the technique for wet glazing, please visit woodworkersjournal.com and click on "More on the Web" under the Magazine tab.

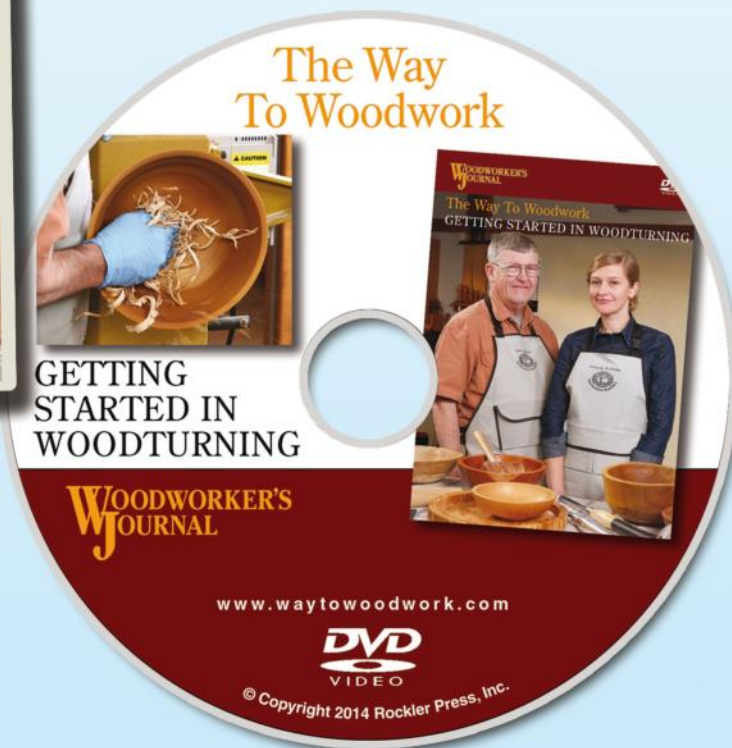
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HEY Did You Know?

Woodworking trivia: on the green



The gharly **persimmon tree** (*Diospyros Virginiana*) is the only member of the ebony family in North America. There are some golfers who prize this very hard, dense wood for its high shock resistance for golf club heads, and possums enjoy its plum-like fruit.



© Victoria and Albert Museum, London

What Does It All Mean?

A quick guide to terms from the world of woodworking.

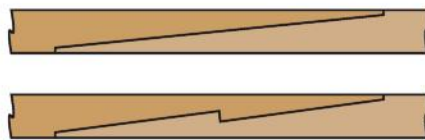
Treenware: Wooden functional household items, such as eating or cooking utensils

Sliding bevel: An adjustable marking tool used to measure or mark angles; sometimes called a bevel gauge

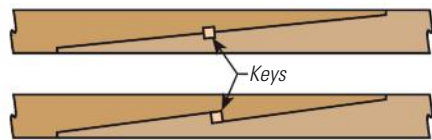
Close-grained: Any wood with narrow, inconspicuous growth rings, small pores and a smooth surface texture (such as maple, cherry or poplar)

Famed **woodcarver** Grinling Gibbons (April 4, 1648 – August 3, 1721) has his work in such esteemed British locales as Windsor Castle, Hampton Court Palace, St. Paul's Cathedral, Trinity College Oxford and Trinity College Cambridge.

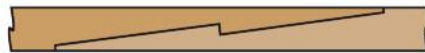
Plain scarf



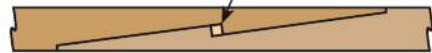
Key-locked scarf



Hooked scarf



Key-locked hooked scarf



Measure once, cut twice: **Scarf joints** are used to attach wood **end to end**, thus making one long board of two shorter ones. They consist of a diagonal cut across the width of a board either with or without other cuts and facets to interlock the two. The angled headstock of a guitar is sometimes made with an angled scarf joint.

Submit your own trivia ...

Send in a curious fact about your favorite topic and ours: **woodworking**. If it is selected for use, you will win an awesome prize!

Submit your Trivia to Woodworker's Journal, Dept. Trivia, 4365 Willow Drive, Medina, MN 55340. Or send us an email: trivia@woodworkersjournal.com

Your Trivia Test:

QWhat is the supposed significance of peapods in Grinling Gibbons' woodcarvings?

Answer Allegedly, a closed peapod meant he had not been paid for the work: he supposedly only carved the peapods open after receiving payment.



Father Chrysanthos of Etna, California, will receive a **BESSEY K BODY REVO Parallel Clamp Kit** for having a contribution selected for the Trivia page.

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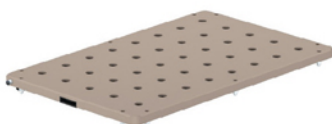
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