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October 2017 ■ #234

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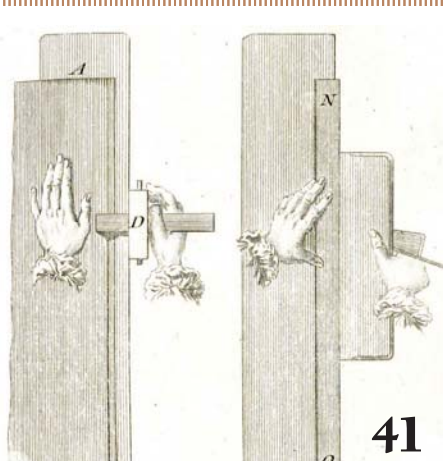

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COVER & THIS PAGE'S BOOKS PHOTOS BY AL PARRISH;
MEGASLED PHOTO BY JAMES HAMILTON; ROUBO ILLUSTRATION COURTESY OF LOST ART PRESS; TEA TABLE PHOTO BY MICHAEL CROW

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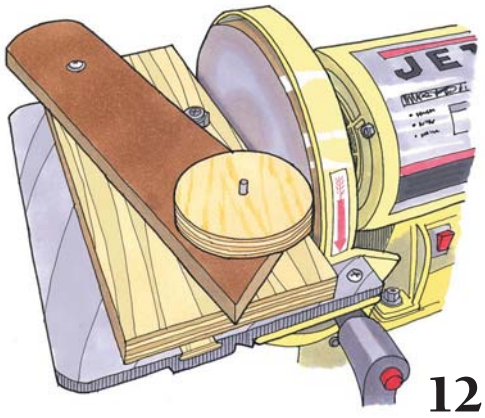

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POPULAR WOODWORKING MAGAZINE

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ILLUSTRATION BY MARTHA GARSTANG HILL; CHAIR PHOTO BY GEORGE R. WALKER; SPOON CARVING PHOTO BY PETER FOLLANSBEE; TOOL CHEST PHOTO BY AL PARRISH

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Farewell, Old Friend

Would that there were an SUV made specifically for woodworkers – something just better than 4' wide on the interior and 10' (or longer) from the windshield to the back hatch (with a roll-down rear window to fit long stuff). I'd also like tool storage built into the sidewalls, a Thule roof rack designed to hold lumber and a sticker price that is less than $30,000.

You're thinking, "pickup truck." Nice in theory, but not in my reality. I'd love to have one for the rare times I need to haul stock longer than 10', but I don't want to drive a truck every day.

First, there's the less-than-stellar gas mileage. Second, I'd have to help people move stuff. Third, I'm too short to easily climb in and out of a truck. Fourth, I'd have to help people move stuff. Fifth, I keep too much crap in my car – I need a second row of seats (and covered hatch) in which to store said crap. And sixth, I'd have to help people move stuff.

I just never know when I might need a holdfast, three handsaws, two moving blankets, 13 notepads, a change of boots, a block plane, a change of sandals, six pairs of sunglasses (all with outdated prescriptions), three tape measures, a furniture dolly, four F-style clamps, 17 issues of various woodworking magazines, dog-eared copies of "The Merchant of Venice" and "Moll Flanders," an angle grinder, a choice of sunscreens and sun hats, a clean (sort of) shirt, a roll of paper towels, four pairs of socks, running shoes, a box of Band-Aids, a plastic tarp, 10 empty Altoids tins, matches, three USB charging cords, a tent, approximately 25 red pens (and 10 in various other colors), three chisels, a tangle of tie-downs, packing tape, blue tape, sports tape, a 6-pack of bottled water, a roll of garbage bags, three quarts of oil and a gallon of radiator coolant.

I think that covers almost everything I pulled out of my ailing '05 Subaru Outback on a sunny Saturday morning. (Yes, I know I'm a slob; I prefer to think of it as being prepared.)

The last two items were in the car because it's been burning oil and losing coolant. I was told a year ago that the poor old thing needed a new head gasket. I don't know what a head gasket does, but if the price of replacing it is any indication, it's important.

So once a week, I've been checking and topping off the coolant and oil as needed. In June as the temperature rose, "as needed" became weekly on the coolant…and it was getting worse. Faced with a $2,000 repair bill on a 12-year-old car with 140,000 miles on it, I decided to buy a new vehicle.

I desperately wanted a Toyota 4Runner, in large part because of its nifty roll-down rear window, but also because it looks wicked cool. But I am a) in publishing b) a single-income household (useless cats) c) have an old house that needs a lot of work d) too darn practical. I decided $12,000 more than my second choice was too much to pay for a window.

So I bought another Outback. It's slightly larger than my old one, and a heck of a lot cleaner (but that won't last).

And if I run into a situation where I need to transport what won't fit, well, I have a friend with a new full-sized truck whom I'll ask to help me move stuff. **PWM**

PHOTO BY THE AUTHOR

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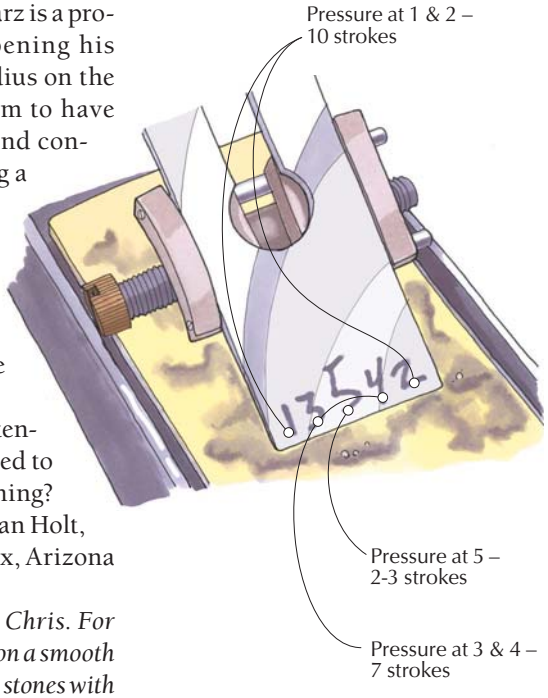
Cambering a Plane Iron on Flat Stones

Christopher Schwarz is a proponent of sharpening his planes with a radius on the blade. But I always seem to have an issue getting a fair and consistent curve when using a flat stone.

Has anyone ever tried to make a stone with a concave surface, which might mean a diamond stone in a radius to true the stone?

Or is this just anal-retentive on my part, and I need to refine my radius sharpening?

Morgan Holt,
Phoenix, Arizona



Morgan,
I use the same method as Chris. For the desired gentle camber on a smooth plane, I achieve that on flat stones with just finger pressure.

I secure the blade in a side-clamp honing jig, then start on a #1,000-grit stone, then move up to #4,000 and finish on #8,000 grit, following the same process on each.

That is, I put my fingers firmly at the 1 position in the drawing above and take 10 strokes, move my fingers to the 2 position and take 10 strokes. With my fingers at positions 3 then 4, I take seven strokes. At position 5, the center of the blade, I take only a few strokes.

Note: Sometimes on the #1,000 grit, if I've just, for example, ground the blade, I'll take more strokes to reestablish the curve – my guess is something more like 20/20, 15/15, 5. Then for the #4,000 and #8,000 stones, I follow my usual pattern.

And while this approach should work with any flat sharpening media, in case you're curious, I use Shapton Pro waterstones. And for years, I used a cheap Eclipse-style side-clamping guide, but I've recently switched to the Lie-Nielsen honing guide – unlike the cheap versions, you don't have to remove any paint from these, or file the ways.

But if you're already trying the approach above and not getting the results you want, there's two options I can think of. 1) Keep practicing – you'll get there! Or 2) You can get an Odate Crowning Plate (or set), which sounds a lot like the diamond stone you describe. These plates can be used for direct honing of a blade, or you can use one to dress waterstones with a concavity.

I called Dave Powell, who developed the crowning plates with Toshio Odate, and he has them available. You can call him at 781-400-1950 or 781-237-4876, or contact him at planeperfect.com.

Megan Fitzpatrick, editor

Custom Plywood Possibilities

I read Jameel Abraham's article "Make Your Own Plywood" in the April 2017 issue (#231). It's quite interesting, but I had several questions.

First, is there anything wrong with simply gluing you own veneer on top of cheap store-bought plywood? This could be so much easier and still have the same look, right?

Also, I wondered where you get the water activated veneer tape you mentioned in the article.

Daniel J. Lantz,
Newburg, Pennsylvania

Daniel
You can glue veneer onto pretty much any mass-manufactured sheet good. But the point of making your own plywood is to have control over the process, construction and materials. You can glue Carpathian elm burl onto a slab of particleboard. It will stick. But I'm not sure you'd want to use it in a serious project. You can also French polish a 2x4. Gluing nice veneer onto cheap substrates is akin to putting lipstick on a pig. You might be sad about the results down the road.

You can get the veneer tape from any good woodworking supply house such as Highland Woodworking or Lee Valley. But it's simple to just order a roll or two when you get your veneer, because the veneer suppliers almost always offer it.

Jameel Abraham, contributor

Weather Protection for Doors

Our home faces west and the front door (below) daily catches at least five hours of southern South Carolina sun. The finish has begun to show crazing, and that has revealed there have been many coats of paint over the years.

CONTINUED ON PAGE 10

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I would like to refinish these doors, but I wonder what the proper procedure should be. Should they be stripped (and if so, using what)? Or sanded down to bare wood, filled (and again, if so, with what) then repainted? And what would be the best type of paint?

Roland Weisser,
Columbia, South Carolina

Roland,

Thank you for sending pictures. They tell a different story; the problem is water, not sun.

UV light causes painted surfaces to fade and chalk. It doesn't look like this has happened much. In your case water has gotten in the gaps where the cross-grain joints come together, and the water has worked its way down the end grain, getting under the paint and causing it to separate from the wood.

Water has also entered the stiles from the bottom and caused some separation.

This is relatively easy to deal with. Sand or scrape level the raised areas and any parts of the mouldings where the paint is peeling, dig the paint and crud out of the gaps in the cross-grain joints, fill them with wood putty, sand the putty level, put a coat of paint over all the areas where you have removed paint or added putty, then repaint the doors in their entirety.

This will extend the life of the doors for a number of years, especially if you keep the gaps in the cross-grain joints filled to prevent water penetration. I'm sure you know that cross-grain joints shrink and expand in opposite directions, so humidity changes are always going to cause problems in these joints. There's no way to prevent this. You just have to try to always keep them plugged up so water can't penetrate.

The only potential problem I see is that there are lots of coats of paint.

Eventually, they will have to be removed, either for appearance or because they are beginning to peel – but I don't see either problem happening now.

Keeping the problems repaired is a whole lot easier than stripping and repainting.

I'm assuming that the paint used was oil-based, not water-based, but there's no way to tell from appearance. You should stick with the same type. You could dab on a little acetone, lacquer thinner, xylene or toluene to test for the type. Each of these solvents will cause water-based paint to smudge and get sticky within seconds. They won't cause this on oil-based paint. (But don't leave the solvent on for long or it will cause oil-based paint to blister.)

I've written about strippers and stripping many times, including in articles in Popular Woodworking Magazine, *and in my books, "Understanding Wood Finishing" and "Flexner on Finishing" – so I recommend consulting those if you choose to go that path. In my opinion, a methylene-chloride stripper would be best.*

Bob Flexner, contributing editor

Dangerous Finish Storage

I have been in the finishing and restoration business for more than 30 years, and am writing regarding a "Trick" in the August 2017 issue (#233), "Cold-weather Finish Storage."

It suggested that by placing a 40-watt light bulb in a refrigerator that your finish would stay warm in cold climates. This is a dangerous idea because you could potentially have fumes that could accumulate inside the refrigerator. If for any reason the light bulb would break or short out and cause a spark, the refrigerator could become a bomb. **PWM**

Scott Wenzel,
Rogers, Minnesota

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— Megan Fitzpatrick

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Safety is your responsibility. Manufacturers place safety devices on their equipment for a reason. In many photos you see in *Popular Woodworking Magazine*, these have been removed to provide clarity. In some cases we'll use an awkward body position so you can better see what's being demonstrated. Don't copy us. Think about each procedure you're going to perform beforehand.

PHOTO BY THE AUTHOR

THE WINNER:

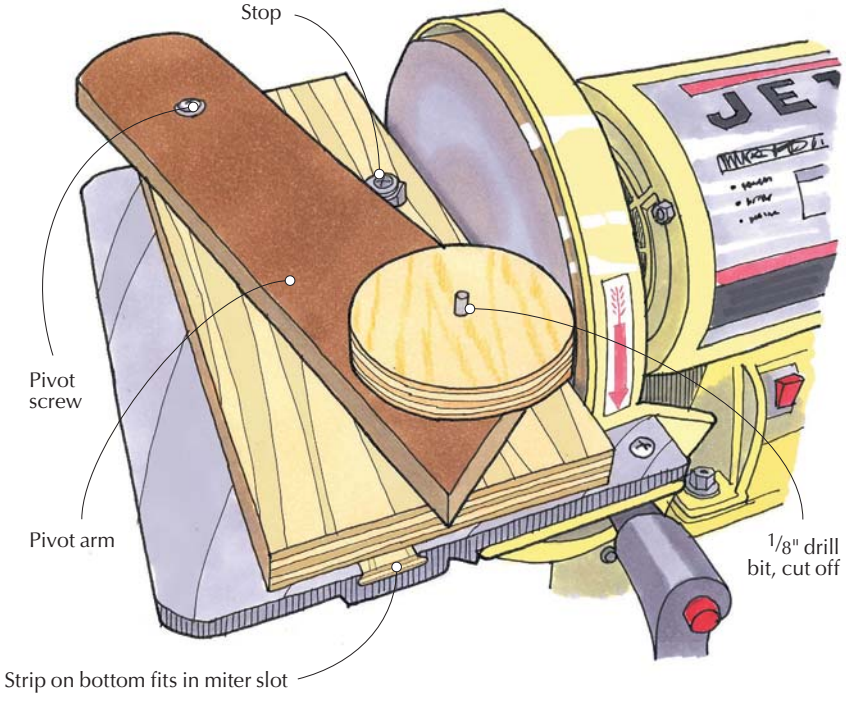
Sander Circle Jig

I find myself needing a lot of small circles for use on wooden toys. When I cut those disks out with a circle-cutting jig on the band saw, the edge is a little too rough, so I've made a fixture for the disk sander that makes quick work of sanding the wheels perfectly round and smooth.

A ledger strip on the bottom plate of the fixture fits into the sander's miter slot to hold it in place. Atop that is a moveable arm, secured in place loosely enough so that it can freely pivot. At the working end, I cut off an 1/8" drill bit that fits through the holes in the center of the rough disks; it's epoxied in place to the swing arm. In front of the arm is a stop that controls the diameter to which the disks are sanded (it's simply screwed in place, and can be easily moved as needed).

I slip a rough disk onto the cut-off drill bit, then swing the arm into the rotating sander until the disk contacts it. The motion of the sander rotates the disk at high speed and sands it round in seconds, while the stop keeps it from getting too small.

Dan Martin,
Galena, Ohio



Add Screening Fabric to Save Your Pleated Vacuum Filters

Like most hobby woodworkers, I use my shop vacuum for many woodworking chores, including dust pickup from all my shop tools. Now that I have started woodturning, I give the shop vacuum even more work.

I stopped using filter bags because they quickly fill with the large volume of chips and other wood debris, and instead I use a pleated filter. But the filter can plug with fine dust, reducing efficiency of the vacuum.

I solved this problem by placing a large sheet of window screen fabric between the tank and the top part, which includes the filter. With the top clamped in place, the screen is securely held. Now, dust and chips enter below the screen, which acts as a pre-filter. The screen does not plug up; debris just falls back into the tank.

Replacement window screen fabric is available at all home and hardware stores.

Bill Wells,
Olympia, Washington

Use Stock as Straightedge

My son and I recently built a sliding door from scratch and for it, we needed to rip some plywood lengthwise, straight and true. I had only a circular saw and a few clamps with me, and no edge guide of any sort.

It occurred to me that we could use one piece of plywood as the cutting guide for the other. So, we put the sheets on top of one another, measured the standoff for my circular saw's shoe, clamped them and proceeded to cut the first sheet.

I was about to unclamp the sheets when my son realized that all we had to do was flip the sheets and we could make the second cut without any changes. We did that, and sure enough, both sheets were the exact same width.

David Harrah,
Bel Air, Maryland

ILLUSTRATIONS BY MARTHA GARSTANG HILL

Improvise the Perfect 'Rasp'

I'm sharing a clever idea I learned from a real master: Drew Langsner at Country Workshops. In his spoon course, he taught us to improvise "rasps" of varying shapes and grits by adhering sandpaper to a piece of wood with spray adhesive or double-sided tape. The possibilities are limited only by your imagination and available scraps.

One of the most useful of these "rasps" is a short length of broomstick with sandpaper stuck to it. This shape is great for working on concave surfaces. The rigidity of the wooden "rasp" allows you to keep your workpiece's arrises nice and crisp, minimizing the rounded-over effect of hand-sanding.

As a woodworking instructor myself, I have a hard time letting students use my good rasps and files without hovering over them, but a scrap of wood with sandpaper glued to it? No problem!

Jim Dillon,
Decatur, Georgia

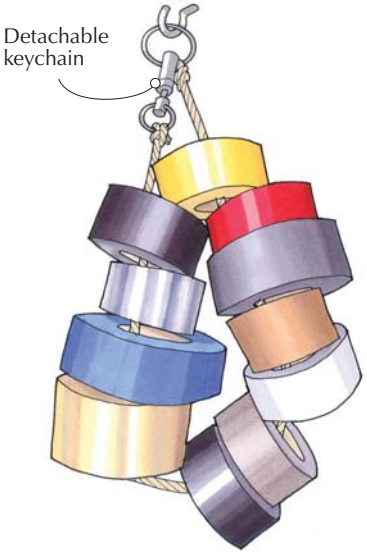
Simple Roll-storage Solutions

Woodworkers accumulate all kinds of tape rolls in a shop; storing them can be problematic. Here are two solutions.

For larger rolls, attach nylon rope to the two halves of a detachable keychain.

For smaller rolls, screw threaded hooks into a board and slide in a section of PVC pipe.

John Hoerner,
Birmingham, Alabama



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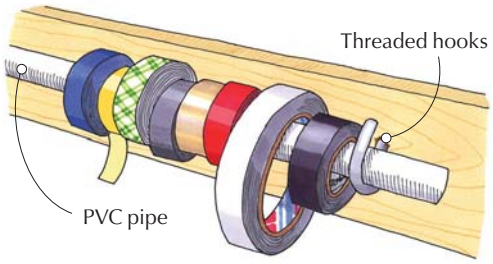


SMALLER ROLLS

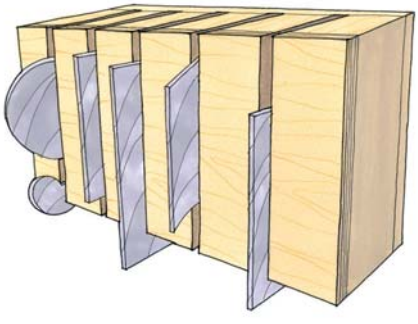
Scraper Holder from Scraps

Instead of storing your freshly sharpened scrapers loose in a drawer (or tight in a wallet), this easy-to-make storage unit, shared with me by my friend Bob Lee, holds them at the ready over the bench.

A thin piece of stock front and back captures a C-shaped piece with a wedge in its bottom arm. The wedge holds a dowel in place.

Slip the scraper in from the bottom to lift the dowel slightly, then pull the scraper down, and it will be wedged in place. To remove the scraper, lift slightly up and out. **PWM**

Charles Mak,
Calgary, Alberta



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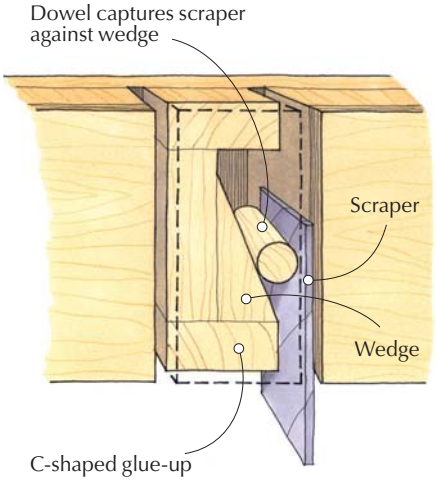

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Runners-up each receive a check for $50 to $100. When submitting a trick, include your mailing address and phone number. All accepted entries become the property of *Popular Woodworking Magazine*. Send your trick by email to popwoodtricks@fwmedia.com, or mail it to Tricks of the Trade, *Popular Woodworking Magazine*, 8469 Blue Ash Road, Suite 100, Cincinnati, OH 45236.

Oneida Dust-Free Router Hood

This respiration-protection attachment lives up to the claim of its name.

While I appreciate the versatility and power of a handheld router, I often turn to other tools for its typical tasks, in large part because of the dust and noise a router creates. While it doesn't mitigate the noise issue (of course), the new Oneida "Universal Dust-Free Router Hood" does indeed effectively divert virtually all router dust and chips to the vacuum. I was, in short, astounded by how well it works – and it costs only $30.

I tested the Router Hood on our trusty Bosch 2.3-horsepower MRC23EVSK router kit, using both the plunge and fixed bases, hooked up to a Bosch 14-gallon dust extractor.

The 7"-diameter two-part clear polycarbonate base plate has multiple mounting holes and patterns, allowing it to mate with the sub-base of most mid-size modern plunge and fixed-base routers – there's a list of compatible routers at routerhood.com under "FAQs," as well as a downloadable PDF of the screw-hole positions so you can print it out and figure out which holes will match your base, without simultaneously fussing around with the slippery parts. The Router Hood is not compatible with most trim routers, nor does it work in a router table.

In between the two plates, slip the "dust dome," then screw the plates in place to your router's sub-base. The dome swivels in the center (so as not to limit the router's motion), and snaps into a quick-release connector (which also swivels freely) that fits 1½"-diameter hoses for dust collection. (A hose extension with a 2½"-diameter coupling is available for $19.99.)

Impressive. *To get the detail shot at right, we used a fast speed on the camera and took the photo while making a cut – no dust was captured in the image; it was all captured by the router hood. This thing really works.*

I had some concern about the dome – which sticks up about ¼" into the collet area – making it difficult to get wrenches in there to change bits (because yes, sometimes I am lazy and prefer to not remove the base for that operation). My fear was unfounded; they fit.

Below the bit, snap either the provided deep or shallow chip cover in place on the base-plate assembly, depending on the length of bit (the deep cover is shown above), and dust is captured both above and below the cut. (As with the hood and hose connector, the chip covers rotate out of the way of the cut.) Both of the chip covers are easily removed without tools for through-cuts and plunge cuts on a workpiece interior. Without the covers, the dust and chip collection is slightly less effective (but still impressive).

The maximum edge-bit diameter is 2⅛"; for plunge operations, it's 1¼".

My only hesitation in wholeheartedly recommending the Router Hood is that some of the components feel a little flimsy – particularly the chip covers. But they have to be flexible enough to squeeze them slightly to fit them in place. So I'd be careful to squeeze just enough, and no more – they feel as if they could break under too much pressure. But that's an awfully minor and perhaps unfair concern; time will tell. This router attachment does a better job of dust collection than any I've used. I'm buying one for home.

— Megan Fitzpatrick

CONTINUED ON PAGE 16

Dust-Free Router Hood

Oneida Air Systems ▪ routerhood.com or 800-732-4065

Street price ▪ from $29.99

▪ BLOG *Our shop's central dust collection is from Oneida; read a bit about it on our site.*

Price correct at time of publication.

LEAD PHOTO BY AL PARRISH; DETAIL PHOTO BY THE AUTHOR

CONTINUED FROM PAGE 14

Kreg Accu-Cut Turns any Circ Saw into a Track Saw

In my shop, the track saw doubles as a second table saw – and if you'd like a low-priced alternative to a track saw, consider Kreg's newest offering: the Accu-Cut Circular Saw Guide System. This jig uses set screws to attach a sled to the top of just about any non-worm-drive circular saw shoe (left- or right-hand blade) to allow it to perform like a track saw.

The kit includes two 24" tracks that provide a 48" rip capability when coupled. A "starting block" provides a steady platform for your saw before the cut begins. There is, however, no option to extend the track length to 96" – for that, Kreg's Rip-Cut jig, is a convenient option because they share the same sled.

The Accu-Cut's "guide strip" forms a zero-clearance fit with the blade after your first pass along the track. When equipped with the recommended 40-tooth blade, I had virtually no tear-out on ¾"-thick veneered plywood. But I did experience some slight flex between the saw, sled and track that resulted in a slight bevel. The Accu-Cut is suited for breaking down sheet goods, not for making finish cuts (arguably true for any track saw in most fine furniture applications).

Kreg states that the track will stay in place during use without clamping, but I felt more comfortable with the optional "track clamps" (#KMS7520, $14.99) cinched down.

Dust collection, a keystone feature of track saw systems, is not integrated here (because there's no dust port on circular saws). So keep that in mind and don proper protection. Still, for less than $100, you get an almost-track saw, for a lot less cash. *— David Lyell*

Kreg Accu-Cut

Kreg ■ kregtool.com or 800-447-8638

Street price ■ from $79.99

■ REVIEW *Read about Grizzly's low-priced track saw.*

Price correct at time of publication.

Corradi Rasps Leave a Surprisingly Fine Surface

Conventional wisdom says that hand-stitched rasps leave a cleaner, more refined surface than machine-made rasps, but the "Model Maker's Rasps" and the "Gold Precision Rasps" from Corradi are anything but conventional.

Corradi manufactures a dizzying array of rasps and files. I chose to test two that I think are a good entry point for most woodworkers: a 10" model maker's cabinet rasp (5 cut) for stock removal and a 10" precision cabinet rasp (8 cut) for finer work. I was impressed by both. The coarse rasp removed material efficiently and left cleaner surfaces than I anticipated given the size of the teeth. Corradi credits this smooth ride to the uniform density and innovative "random" pattern of the teeth, which are designed to present a continuous working surface (think sandpaper) to the wood. It's hard to argue with the results.

Most furniture work also requires a finer touch, and the Gold series cabinet rasps are well-suited in this regard. In side-by-side tests with a quality hand-stitched rasp (of equivalent size and grain) the 10" Corradi left surfaces that were just as smooth, with none of the teeth marks or chatter common to machine-made rasps. I was floored. If you can afford to buy only one rasp, buy this one. It might be the only one you need.

All Corradi rasps come un-handled, so you'll need to also buy handles or make your own, but at less than half the price of equivalent hand-stitched rasps these tools are a remarkable value. The exchange rate affects prices, but at time of publication, the model maker's rasp is approximately $30; the Gold rasp is approximately $50. **PWM**

— James McConnell

Corradi Rasps

Corradi ■ corradishop.com

Street price ■ from $30 and $50

■ BLOG *Find out how the author makes rasp handles in his post at thedailyskep.com.*

Prices correct at time of publication.

PHOTOS BY THE AUTHORS

Fine-tuning Furniture Designs

Minor adjustments typically beat a hatchet job.

I knew a guy who didn't shave or cut his hair for 12 months at a time. On day 365 he looked like the wild man from Borneo. On day 366 (or day 1 of the next cycle), he would show up at work shaven and shiny like Mr. Clean. It always gave me a jolt, even though I'd seen the routine year after year.

Most barbers will tell you that a haircut works best when it doesn't shout; a small adjustment usually beats a hatchet job. The idea of small adjustments spills over into design. Often the difference between something that's just OK and a design that sparkles is found in the way all the parts seem to knit together.

The fine-tuning that goes on as we refine an idea can be some of the most challenging (as well as the most rewarding) part of design. It's easy to second-guess and feel as if you're stumbling about, trying to breath life into something that won't budge. The problem is, making those tweaks can be baffling even for an experienced builder. Here are a few tips to help you approach this with more confidence and better results.

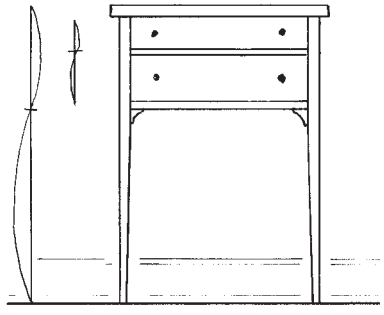
Mixed species. *The parts on a typical Windsor chair come from different species of trees (in this case, pine for the seat, ash for the spindles and maple for the legs). Yet the parts can harmonize and look as if they grew that way.*

Does This Finger Look Fat?

The process of fine-tuning goes in circles. Depending on the design it can move through multiple stages, each calling for a round of adjustments.

My own process goes something like this. After initial rough thumbnail sketches, I begin working up small-scale proportional drawings of the elevation and side view. These drawings capture the overall form and work out how the major parts relate to one another. As those parts are defined, the first round of fine-tuning begins.

The simplest way to understand fine-tuning is to look at your hand. Your fingers and thumb all relate to each other like, well, they grew that way. If any one of your digits were longer or fatter or skinnier than the others, it would stand out. This brings me to another important part of fine-tuning a design. When you think something needs a nudge, how do you know what to compare it to? That stretcher connecting those legs seems awkward, but how do you gauge whether you're going in the right direction? Just remember that if your thumb is "off," you don't compare it with your kneecap or your ear. It's the parts close by that help determine what's amiss. Think of a design as something that grew organically.



Major interactions. *Small-scale proportional drawings let us begin to see how the major parts play together – or not.*

The same goes for any small part on a furniture design. Try to focus on how each part relates to the components next to it. This will help a lot, especially when you get close to the sweet spot or accidentally shoot past and need to back off.

This doesn't mean that I don't step back and make an overall judgment (part of that pattern of circling in on a design), just that fine adjustments need to agree with the neighborhood.

This process is circular because once you adjust one part, you might need to revisit the neighboring parts and re-tweak them.

The process repeats with each step as you move up to a small-scale isometric drawing to get a better vision of the design. Each drawing step means another round of adjustments. Smaller drawings give way to larger-scale or even life-sized drawings – and possibly mock-ups.

These drawings lead up to the actual build where fine-tuning plays an im-

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PHOTO & ILLUSTRATIONS BY THE AUTHOR

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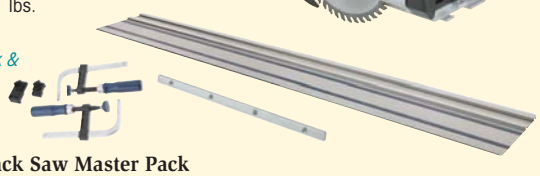

W1832 Track Saw Master Pack

7" 2 HP PLANER MOULDER W/ STAND

- Motor: 2HP, 240V, single-phase, 10.8A
- Cutterhead speed: 7000 RPM • CPM: 14,000 • CPI: 64-300
- Feed rate: 0-18 FPM • Max. profile: 6 3/4"W x 3/4"D
- Planing width: 7" • Min. stock length: 9"
- Min. stock thickness: 1/4" • Max. stock thickness: 7 1/2"
- Overall dimensions: 36 1/4"L x 22"W x 34 1/2"H
- Approx. shipping weight: 324 lbs.

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W1812 7" 2 HP Planer Moulder w/ Stand
D3393 Elliptical Jig for W1812

10" 2 HP OPEN-STAND HYBRID TABLE SAW

- 2 HP, 120V/240V, single-phase (prewired for 120V)
- Motor Amps: 15A at 120V, 7.5A at 240V
- Enclosed cabinet bottom w/ 4" dust port
- Precision-ground cast-iron table w/ steel wings measures 40 1/4" x 27"
- Rip capacity: 30" to right, 15" to left
- Quick removal/replacement system for blade guard and riving knife
- Weight: 243 lbs.

Includes a 10" x 40-tooth carbide-tipped blade, standard and dado table inserts, miter gauge, push stick, and arbor wrenches

W1837 10" 2 HP Open-Stand Hybrid Table Saw

13" 3/4 HP, BENCH-TOP OSCILLATING DRILL PRESS

- Motor: 3/4 HP, 110V, 1725 RPM
- Overall height: 38"
- Spindle travel: 3 1/4"
- Swing: 13 1/4"
- Drill chuck: 5/8"
- Speeds: 12, 250–3050 RPM
- Table: 12 3/8" dia.
- Table swing: 360°
- Table tilt: 45° left & 45° right
- Approx. shipping weight: 123 lbs.

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W1668
13" 3/4 HP, Bench-Top Drill Press

12" X 15" VARIABLE SPEED BENCH-TOP WOOD LATHE

- Motor: 3/4 HP, 110V, single-phase, universal motor
- 12" swing over bed • 15" between centers
- Two spindle speed ranges: 500-1800 RPM & 1000-3800 RPM
- 1" x 8 TPI RH thread spindle size
- Spindle indexing in 15° increments
- Heavy-duty cast-iron construction
- Approx. shipping weight: 87 lbs.

New

W1836
Bench-Top Wood Lathe

POCKET HOLE MACHINE

- Motor: 1/2 HP, 120V, single-phase, 3A, 17,500 RPM
- Two flip stops for drilling consistency
- Auto start/stop motor actuation w/ pull of handle
- Auto adjust clamping foot mechanism for workpiece thicknesses between 1/2" to 1 1/2"
- Cuts both dia. holes for pocket screws at the same time
- Ideal for face framing

Fast & super easy pocket holes!

PATENTED!

W1833 Pocket Hole Machine

6" PARALLELOGRAM JOINTER W/ SPIRAL CUTTERHEAD

- Motor: 1½ HP, 110V/ 220V, pre-wired 110V, single-phase, TEFC, 3450 RPM, 15A/7.5A
- Precision-ground cast-iron table size: 55½"L x 6"W
- Floor to table height: 32½"
- Max. cut (per pass): 6"W x 1/8"D
- Rabbeting capacity: ½" Spiral cutterhead dia.: 3"
- Cutterhead speed: 4,850 RPM
- CPM (effective): 19,400
- Fence system: positive stops @ ±45° & 90°
- Approx. shipping weight: 429 lbs.

Built-in mobile base!

W1755S
6" Parallelogram Jointer w/ Spiral Cutterhead

WALL DUST COLLECTOR

- Motor: 1 HP, 120V/240V, single-phase, prewired 110V, 7A/3.5A
- Air suction capacity: 537 CFM
- Static pressure: 7.2"
- Intake hole size: 4"
- Impeller: 10" balanced cast-aluminum
- Bag size (dia. x depth): 13 1/2" x 24"
- Bag filtration: 2.5 micron
- Dust level viewing window
- Height with bag inflated: 44"
- Approx. shipping weight: 55 lbs.

W1826 Wall Dust Collector

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CONTINUED FROM PAGE 18

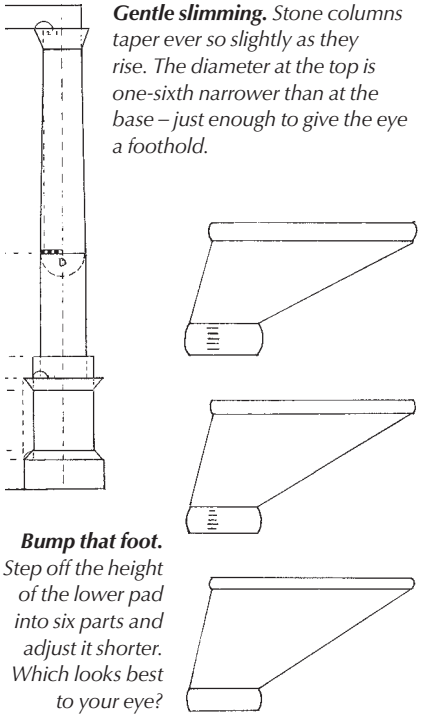
portant role (see "Insight from the Bone Pile" below). These steps should help you get a clearer vision of how an idea is coming together, and each may beg for multiple rounds of small adjustments. Each round zeros in on that sweet spot.

Just a Skosh

I used to marvel at how talented designers talked about this fine-tuning process. They'd say things like, "I just bumped the width of these door stiles by 3/16" and it finally came together," or, "I shaved down this chair spindle by just a tad and that brought it to life," or "I bumped this curve ever so slightly until it started to sing."

This sort of sounds like magic. How do you know how much to bump something? Small increments on a ruler seem like arbitrary guesses. Is there a better way that takes out some of the stabbing in the dark?

Thankfully, our ancestors had a practical approach to fine-tuning. They understood that the ideal adjustment is big enough to let us see a visual change, yet not too drastic. This isn't an arbitrary dimension from a ruler, but rather a proportion. Instead of bumping something by a dimension, it's helpful to look at what you want to adjust and push it in proportion to itself or something nearby.



Gentle slimming. *Stone columns taper ever so slightly as they rise. The diameter at the top is one-sixth narrower than at the base – just enough to give the eye a foothold.*

Bump that foot. *Step off the height of the lower pad into six parts and adjust it shorter. Which looks best to your eye?*

Traditional artisans used a "go-to" proportion that's handy for sneaking up on a sweet spot – gently bumping something higher, shorter, fatter, slimmer. It turns out one-sixth was often used because it's not drastic but also not so small that it's difficult to judge.

For example, the top and bottom pads on a bracket foot might seem too large in relation to the whole foot, making it look heavy. Simply use dividers to step off the height of the lower pad into six equal parts and reduce the height by one-sixth. If it's not enough, step it off again and reduce by one-sixth again. You'll quickly reach a point where it's too much and you can back up. Note in the example at left that I also adjusted the height of the upper pad. It's half the height of the lower pad. Using this approach also forces you to pay attention to the internal proportions in a design and how they relate to other parts close by.

Coming Into Your Own

Admittedly, there are no recipes or formulas to ensure that you will always be able to hone in on perfection. But by adjusting with proportions you'll begin to train your eye to see how each part knits together with others. When you reach that place, you know you've made real progress as a designer. There's nothing quite like that moment when you hit the right note and the design begins to sing. **PWM**

George is the co-author of two design books and writer of the By Hand & Eye blog (with Jim Tolpin): byhandandeye.com.

INSIGHT FROM THE BONE PILE

Some of the most exciting archeological discoveries in the last several decades have come from the scrap heaps in ancient stone quarries. It turns out builders of temples in antiquity did a large amount of cutting and carving at the quarry to reduce the weight of the material in transport. Frequently, these nearly finished parts were discarded because of internal flaws in the stone. Those scrap parts contain gold for the archeologist, chock-full of layout lines and markings designating where the part was to be used. In some cases they've been able to match up rejects to the finished building still in existence.

The eyes have it. *Making adjustments on site or at the workbench is important. Let your eye be the final judge.*

Here's where it gets really interesting: Often the final part on the actual building is slightly modified compared to the one pulled from the bone pile. This leads to speculation that ancient builders did a lot of fine-tuning right on site as the buildings went up.

Sound familiar? Regardless of how sweet our drawings appear, there's no substitute for making adjustments on the fly as we build. —GW

ONLINE EXTRAS

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BLOG: *Read more from George R. Walker on his By Hand & Eye blog with Jim Tolpin.*

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About This Column

Design Matters

Design Matters dives into the basics of proportions, forms, contrast and composition to give you the skill to tackle furniture design challenges with confidence.

Why Spoons, Why Now?

Carving out a connection with tradition and with each other.

In August 2016, I attended the 5th annual Spoonfest, the largest international gathering of spoon carvers, in Edale, Derbyshire, England. More than 200 people came from far and wide to spend anywhere from three to six days totally engrossed in spoon carving. One question I had for them, and for all the spoon carvers I meet, is "why spoons, why now?"

Well, one of the first answers you get leads to what I call the First Universal Lie of Spoon Carving.

"You only need three tools," they say. (I've said it too.) A hatchet, a slöyd knife and a hook knife for hollowing the bowl. Well, first off, you also need a saw for cutting the limbs, branches and other bits of raw material. So it's four tools. But we always say three. And, the part that makes it even more of a lie: Every spoon carver I meet has more tools than he or she can keep track of. Long and short, deeply curved and shallow curves. Heavy hatchets and lighter ones. I am not immune. I find new toolmakers and I think, I'd like to try this knife or that hatchet. It goes on. So you end up with multiples of the basic tools, then add the more specialized ones – maybe some hollowing adzes, if you can find a small one. How about the largest hook knives, the "twca cam" of Welsh spoon carving? What? It comes in two sizes?

Spooning up inspiration. *Many spoon carvers, myself included, become spoon collectors, too. These serve as connections to other carvers, as well as inspiration for myself and my students*

You can't forget decoration. Detail knives, chipcarving knives and more. So it's easy to end up with a few dozen spoon carving tools. So let's set aside the "you only need a few tools" bit.

One feature of spoon carving that is appealing is it's just one piece of wood. No joinery, no fastenings (except for Jane Mickelborough's folding spoons, but those are another story). Once you get going, you can make good progress in short time. You can pick it up and put it down in short bursts and not really lose your place. Other than the hatchet work, you can do a lot of the work almost anywhere (well, not an airport, probably not a train) so you don't need a dedicated workshop. I often carve spoons in the kitchen at night. I used to carve them in the playground while watching my children play. None of the moms would come near me, a grubby, weird old man with lots of knives…I wonder why.

Hatchet job. *Any one of these could hew a lifetime of spoons. But who can resist a new hatchet, each with its own balance, cutting angle and personality?*

Many Spoons, Little Time

I've been a furniture maker for a long time. One nice thing about spoon carving is that you can make another one right away. Try that with a chest of drawers, dining table or what-have-you. Come close to the shape in your mind, but not quite there? Get the next billet of wood out and off you go. In fact, it's pretty hard to stop spoon carving.

You can carve a surprising number of spoons in your spare time – and in doing so, you can do what my friend Jarrod Dahl calls "chase" the design – carve it again, and change one little

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PHOTOS BY THE AUTHOR

CONTINUED FROM PAGE 22

thing, then again, then again. Small changes each time, improving on the idea. Spoons represent a design challenge that is at once simple and complex – the best spoons are lightweight, strong and sleek. You learn about wood selection, grain direction and structural, functional design. It doesn't get old. I know of spoon carvers who have carved thousands of spoons. Think about potters – they often make many multiples of an item. This is akin to that.

Keep Your Eyes Off the Road

If you get the spoon-carving itch, you won't look at trees the same way ever again. This can make driving dangerous, because lots of good spoon shapes grow on the edges, near the sides of clearings like roads. I keep a short pruning saw under my seat in case I see something good by the side of the road. I don't take stuff without permission, though. The biggest challenge is to get there before the spoon carver's nemesis – the wood chipper. For me, the best shapes are in the upper branches, and these often never really hit the ground when tree crews are working. But if you pull over, you might be able to talk them out of some of the good "crooks," the bent connections between one limb and another. That's where spoons grow.

Connections

To me, maybe one of the best explanations for "why now?" in spoon carving is the separation in modern society between people and natural materials and handwork. We surely don't need these handmade wooden spoons – well, maybe we think we don't need them. But maybe they are filling a void that our cultures have created.

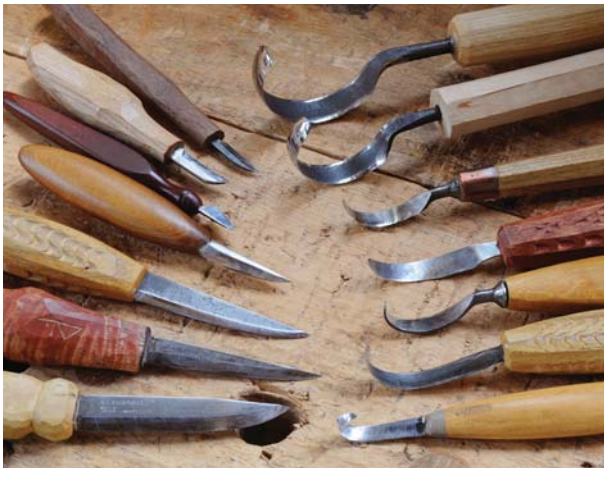
I live in an old house, have a handmade shop out back and am surrounded by handmade wooden items, woolens, ceramics and other items besides. When I visit a home that's devoid of any human-made stuff, it feels funny to me.

Now there's lots of people who don't see the world that way, who never miss the connection to nature and creativity…but there seems to be a growing number who are looking for just that.

I think one explanation for "why now?" with all this spoon carving is that people are finding a level of dissatisfaction in modern society, a disconnect between ourselves and nature. Spoon carving is an easy way to re-establish some of this connection. You can't buy spoon wood at the store. It comes from trees. So before you know it, you're learning about the trees around your area. What trees grow there? Are they native or introduced? Which trees succeed in which environments?

One more thing about spoon carving, and it's a surprising discovery: It can be a social occasion. Many woodworkers, whether professional or amateur, work in isolation. But you can carve spoons (or any other small, knife-based carvings) in groups, and have a conversation while you do it. I'm a hand-tool furniture maker, but even so, I can rarely have visits in the shop while I'm working. My work can get loud: relief carving, planing, mortising – but spoon carving is (after the hewing) pretty quiet. I think of the knitters I know, and other textile crafts like hand-sewing – in fact my mother-in-law, seeing me get out spoon knives one evening, said: "Oh, you're getting out your knitting." **PWM**

Carving camaraderie. *Spoon carving lends itself to conversation. Here, JoJo Wood and Jarrod Dahl chat while carving spoons together at Plymouth CRAFT's Greenwood Fest in June 2017.*



Knives galore. *The hook knives, or spoon knives, on the right come in many sizes and different curves; the largest at the top are based on the Welsh "twca cam." The four straight knives (lower left) are the workhorses of spoon carving, each with a different emphasis. The three smallest (top left) are for detailed decorative carving.*

Peter has been involved in traditional craft since 1980. Read more from him on spoon carving, period tools and more at pfollansbee.wordpress.com.

ONLINE EXTRAS

For links to all online extras, go to:

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BLOG: *Read Peter Follansbee's blog.*

ARTICLE: *"The Best Oak Money Can't Buy."*

About this Column

ARTS & Mysteries

"Arts & Mysteries" refers to the contract between an apprentice and master – the 18th-century master was contractually obligated to teach apprentices trade secrets of a given craft (and the apprentice was expected to preserve those "mysteries").

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‘Modern’ Gateleg Table

BY CHRISTOPHER SCHWARZ

A contemporary-looking design that’s really from the 18th century.

PHOTOS BY THE AUTHOR; ILLUSTRATIONS BY DAN PESSELL FROM THE AUTHOR’S MODEL

If you've ever been dragged to Ikea by your spouse (few woodworkers go willingly – except to eat meatballs), you've probably seen a table similar to this gateleg one. It's been a staple of the contemporary furniture company's line-up for many years. One Saturday five years ago, my family dragged me there to buy lamps and rugs. While they shopped, I fiddled with the table mechanism and wondered: Where did this clever idea come from?

After some research I was surprised to find this table in the furniture record all the way back to the 1700s. While some of the old gateleg tables I found featured carving and highly shaped components, the vernacular forms of the table looked just like the ones you see in Ikea.

I became charmed by the Swedish versions, many of which were painted bright colors. My version is based on several examples (culled from auction catalogs) that were dated to the late 18th or early 19th century.

Construction of the table is simple: The only joinery is mortise-and-tenon and screws. But getting all the components to nest together and move smoothly requires careful measuring and marking, so I'll point out the tricky bits in the text.

It's safe. *Because there is no wood trapped between the sawblades and the rip fence, it's OK to use your miter gauge with this operation. Consistent downward pressure creates consistent tenons.*

Edge shoulders & cheeks. *Here I'm cutting the 3/8"-wide edge shoulders on one of the 3"-wide end stretchers.*

Tiny shoulders. *Here are all the 2"-wide components for the gates and the long stretchers that run between the end assemblies. Note the narrow edge shoulders; these improve the strength of each tenon.*

How a Gateleg Table Works

The central base is essentially a mortise-and-tenon box. The base has two end assemblies that are joined together with four long stretchers. This particular table has two "gates," which are mortise-and-tenon frames. The gates nest inside the long stretchers. The gates are hinged to the legs so they can swing out and support the dropleafs when in use.

The two dropleafs are hinged to the top of the base with strap hinges. Battens screwed to the underside of each dropleaf keep the dropleafs flat and rigid.

You'll be surprised how little wood is required to make the base and the gates – my lumber bill was about $65 for the 30 board feet of poplar required. Because there is so little wood in the base, the joinery has to be quite good. That's why I opted for drawbored mortise-and-tenon joints, which are difficult to beat.

Layout & Tenons

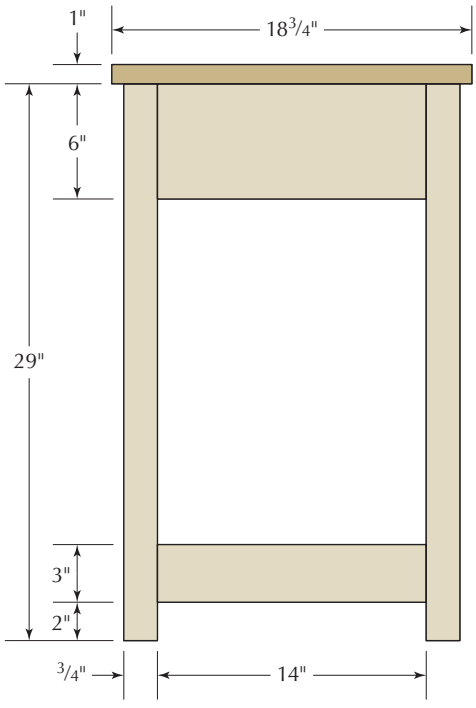
Prepare the stock for the base and the two gates. Because there were so many joints, I decided to cut the mortises with a hollow-chisel mortiser and the tenons with a dado stack in my table saw.

When I do this, I cut the tenons first and use them to mark out the locations of the mortises. This reduces both measuring and errors. While I know that my mortise machine makes a mortise that is exactly 3/8" wide, I always make a sample mortise in scrap to test each tenon as it comes off the saw. This saves fussing and fitting later.

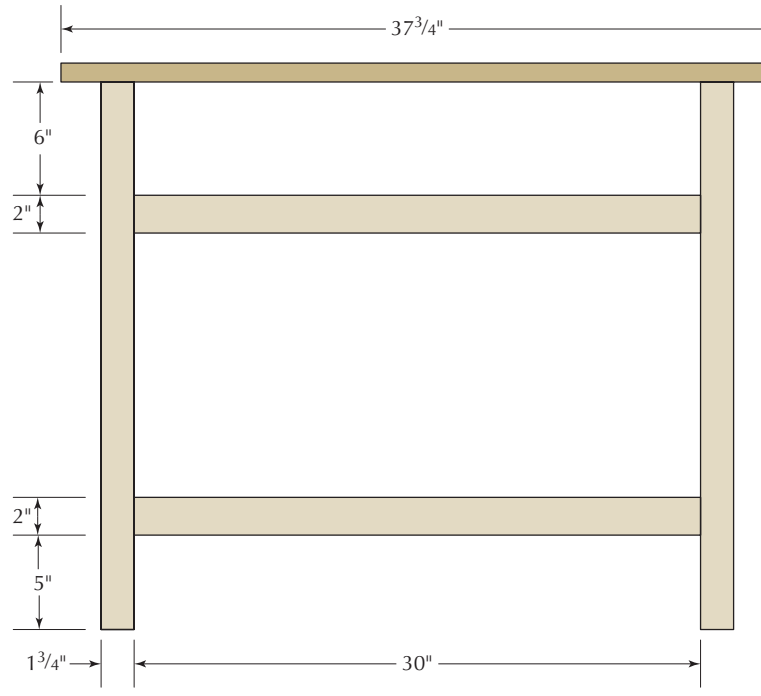
To make the 3/8"-thick x 1 1/4"-long tenons, put your dado stack in your saw and raise the teeth so they are 1/4" above the saw's table. Set the fence so there is 1 1/4" between the left side of the sawplate and the saw's rip fence. Make a sample tenon and test its fit.

Once you have the proper blade and fence settings dialed in, cut all the face cheeks for all the tenons in the base and the gates. But don't cut the edge cheeks and shoulders yet because their dimensions vary based on the part. Narrow parts need small edge shoulders to maximize the size of the tenon, whereas bigger parts can have bigger edge shoulders.

With the face cheeks cut, reset the dado stack so it's 3/8" above the saw's table. Cut the edge cheeks for the 6"-wide aprons and 3"-wide end stretchers for the end assemblies. Then lower the dado stack so it's 1/16" above the saw's table and cut the edge cheeks for all the remaining components.



ELEVATION (GATES & LEAVES REMOVED)



PROFILE (GATES & LEAVES REMOVED)

Marking & Mortising

With all the tenons cut you can lay out the mortises on the legs of the base and gate components. Use the construction drawings to identify where each stretcher, apron and rail should go. Then show each tenon to the area where it should go and use the tenon like a ruler to mark out the exact location of each mortise. This technique reduces measuring and mistakes.

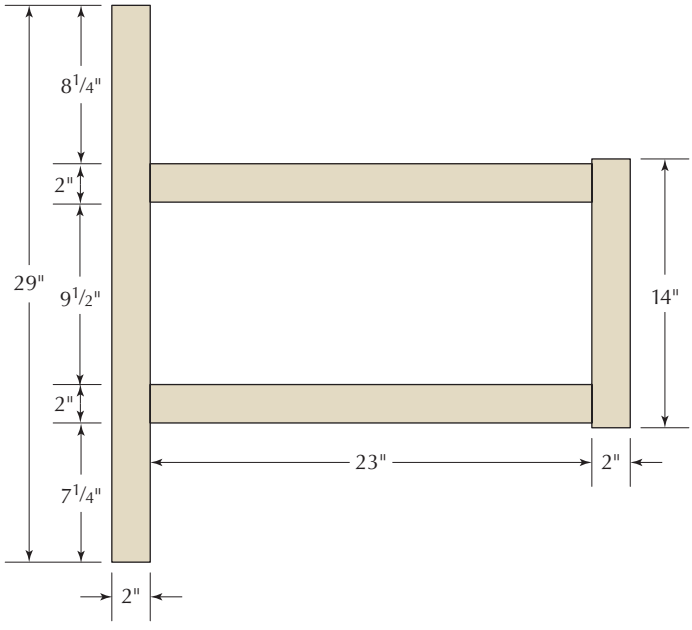
With all the mortises marked, set up your hollow-chisel mortiser to cut a 3/8"-wide mortise that is 1/4" from the machine's rear fence. Make some test mortises to confirm the setting of your machine and tooling. Then set the machine's depth stop to make a mortise that is about 1 3/8" deep. The extra depth allows any surplus glue or connected debris to dwell there instead of fouling the joint's fit.

Cut all the mortises, clean out the debris and check each joint's fit in case the mortise needs to be lengthened (or deepened).

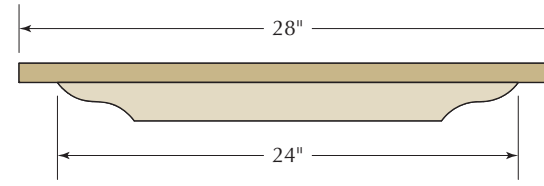
Before you jump into assembling things, plow the groove in the top aprons that will accept "buttons" (more on those to come) that hold the top to the base. The groove should be 3/8" wide x 3/8" deep and start 1/2" from the top edge of the apron.

Tenon, meet your new home. *Use the tenons to lay out where their mortises stop and start. This method prevents math errors and cancels out any small irregularities in the widths of your tenons.*

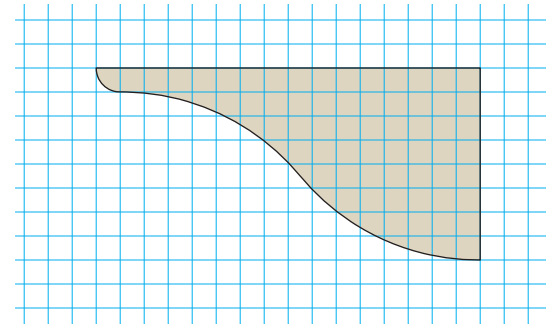
Mortises all around. *Careful marking will ensure you don't poke a hole where it shouldn't be. Because there are so many mortises, it pays to double-check your layout before committing to it.*



GATE ELEVATION



LEAF & BATTEN ELEVATION



BATTEN DETAIL
One square = 1/4"

Clean-up & Drawboring

Because all the joints are drawbored, it's smart to first drill the holes through each mortise before cleaning up your parts (a drill bit can make a mess of things). I used 3/8"-diameter oak pegs to drawbore the joints, so I drilled holes through the mortises using a bit that was 1/64" undersized of 3/8" to ensure smaller gaps around the pegs.

The center points of these holes are located 1/2" from the edge of the component. Except for the top apron, the holes are centered on the length of the mortise. The top apron gets two holes through each mortise.

Now remove all the machine marks from the parts for the base and the gates using handplanes or sandpaper.

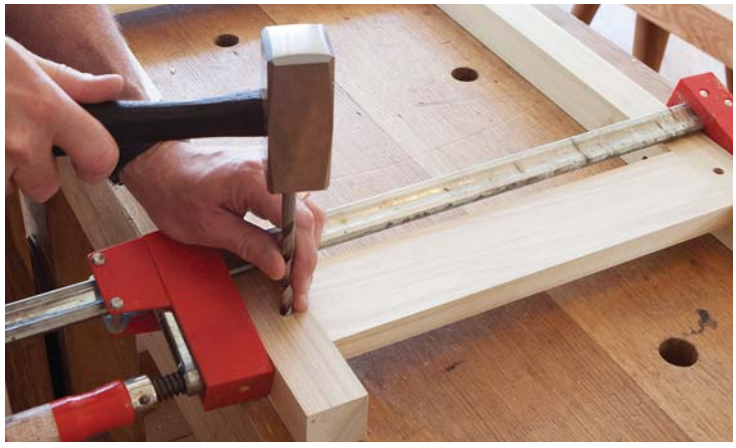
If you've never drawbored a joint, here's a primer. You drill a hole through the mortise. Then you insert its tenon and mark the center point of the bore through the mortise on the tenon cheek. Take the joint apart and move that center point toward the tenon shoulder by about 1/16". This dimension is called the "offset." Small offsets (such as 1/16") are for casework. Larger offsets are for building benches or timber frames.

Bore the hole though the tenon in the new location. Reassemble the joint

A groove for later. *The groove in the top of the apron will hold the "buttons" that you'll screw to the underside of the base's top.*

'Modern' Gateleg Table

NO.	ITEM	DIMENSIONS (INCHES) T	W	L	MATERIAL	COMMENTS
BASE						
❑ 4	Legs	1 3/4	1 3/4	29	Poplar	
❑ 2	Aprons	7/8	6	16 1/2	Poplar	1 1/4" Tenon both ends
❑ 2	End stretchers	7/8	3	16 1/2	Poplar	1 1/4" Tenon both ends
❑ 4	Long stretchers	7/8	2	32 1/2	Poplar	1 1/4" Tenon both ends
❑ 2	Gate stiles	7/8	2	14	Poplar	
❑ 2	Gate legs	7/8	2	29	Poplar	
❑ 4	Gate rails	7/8	2	25 1/2	Poplar	1 1/4" Tenon both ends
TOP & LEAVES						
❑ 1	Fixed top	1	18 3/4	37 3/4	Walnut	
❑ 2	Dropleafs	1	28	37 3/4	Walnut	
❑ 4	Battens	7/8	2	24	Poplar	
❑ 6	Buttons	7/8	2	3	Poplar	



Mark the bore. *Use the drill bit as a punch to transfer the position of the bore onto the cheek of the tenon. The clamps keep everything tight during this operation.*

Here, not here. *I moved the center point of the bore 1/16" toward the tenon shoulder and marked it with an awl.*

Before the banging begins. *This is what the assembled joint should look like before driving the peg in. If the crescent moon is on the other side of the hole, you did it wrong.*

Like a door stile. *If the stile is too long it won't fit in the table base. Cut it to a perfect fit before assembling the gate.*

and you'll see a crescent moon when you look through the two bores. When you drive a peg through those two "bores" it will "draw" them together. This creates a mechanical lock that doesn't rely on glue or clamps.

Because I have clamps and reliable hide glue, here is how I assemble the joint: I paint glue in each mortise, insert the tenons and clamp up the assembly. Then I take my 3/8"-diameter peg and sharpen it with a pencil sharpener. I wax each peg with paraffin (a timber framer's trick) to help slide the peg in place without it seizing.

Drive each peg in. After all the pegs are in, remove the clamps and move to the next assembly.

First drawbore the two end assemblies. Then join the end assemblies with the four long stretchers to complete the base.

Make the Gates

Before assembling the gates, make sure the gates' stiles fit between the long stretchers of the base. Shoot the ends of the stiles until you have a 1/32" gap at the top and bottom. Any rubbing needs to be remedied.

Just like with the base, bore the holes for the pegs in the mortises and clean up all the machine marks. Then drawbore all the joints together with oak pegs, just like with the base.

With all the joinery complete for the base and the gates, trim all the oak pegs flush and clean up any denting or glue drips.

The next step is installing the hinges between the base and the gates. This is when things get tricky.

Here's the best way to proceed: First install the hinges on the stile of each gate, then clamp the gate in place on the base and carefully knife where the hinges should go on each leg.

To install the hinges on the gate, it's just like installing hinges on a door. Cut the hinge mortises with a chisel and router plane. Screw the hinges in place.

Clamp a gate in place against the leg. Make sure the gate is centered in its opening and the hinges press evenly against the leg. Take your marking knife and score the leg where each hinge mortise should go.

The mortises on the leg are a bit unusual. They are ramped. This means that they are full depth at one edge of the leaf and ramp to nothing at the barrel of the hinge. Why are they ramped? You don't want to have to bury the hinge barrel in a mortise in the leg. That would be unnecessary work and would likely be unsightly.

So why not simply surface-mount the hinges on the leg – dispensing with the mortise altogether? There are many little reasons, but the best reason is that a hinge in a mortise is a stronger hinge.

Once you get the gates hinged to the base, test how they swing and make sure you don't have anything binding. If you do, investigate whether your hinges are installed properly.

Install the Top for the Base

When making the tops, begin with the top for the base. It needs to be centered on the base and installed with table buttons – shop-made bits of wood that join the base and top but allow wood movement.

I make buttons using the same tooling setup for making tenons – a dado stack in a table saw with a miter gauge. The tongue of the buttons should slide into the groove in the aprons.

I made six table buttons and screwed them to the underside of the top with No. 8 x 1¼" steel screws. To attach the fixed top and dropleafs, first put a blanket on your benchtop and flip the base upside down on your benchtop.

SUPPLIES

Lee Valley Tools
leevalley.com or 800-871-8158

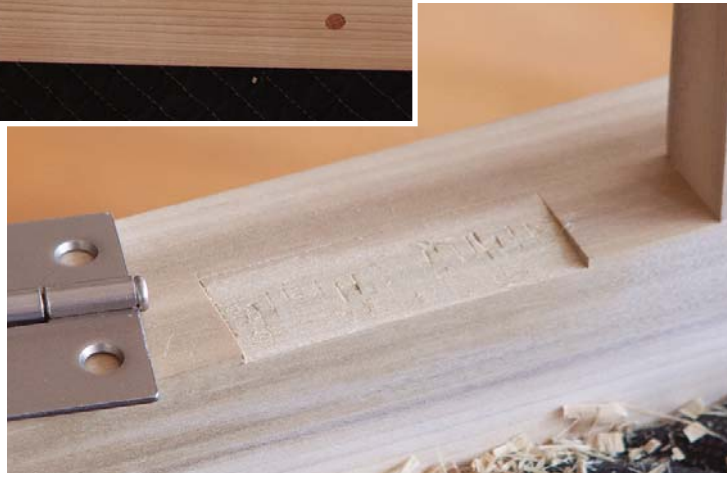
6 ▪ Unequal strap hinges
#01.H20.12, $8.40 each

Rockler
rockler.com or 800-279-4441

4 ▪ Flat-tip butt hinges w/removable pin
#47190, $4.99 per pair

Prices correct at time of publication.

Clamp & knife. *Put the gate in place and knife the location of the hinges on the leg.*



Ramped mortise. *You can see how the mortise goes from full depth to nothing at the barrel of the hinge. This mortise isn't difficult to cut. Just mark the lines and chisel to the lines.*

Add the Dropleafs & Battens

After you glue up your dropleafs, cut them to final size then show them to the upside-down base on your bench. It's best to clamp the seams between the tops to hold things in place during the next steps.

You want to install the strap hinges that join the tops so that the swinging gates don't run into the hinge leaves. Position the strap hinges, check your work then screw the strap hinges down. Note that you will find it easier to do this if you temporarily remove the base.

Table buttons. *This traditional method of joining a base and a top allows the top to move but allows the top to be removed easily for finishing (or refinishing).*

"You know you're in Sweden when you come across something too damn practical for comment."

—Anthony Bourdain (1956-), from "No Reservations"

With the hinges screwed down, reinstall the base and make the battens for the dropleafs. The battens serve two purposes: They keep the dropleafs from cupping and make each dropleaf rigid. Think about it: Each dropleaf is supported from below by no more than a single stick. The battens make a big difference.

I cut an ogee shape on the end of each batten. It's really the only ornament on this otherwise Spartan project. So go nuts. Attach the battens with #10 x 2" steel screws. After drilling each clearance hole for a screw, ream it out a little to let the top move through the seasons.

Finishing

The base and gates are painted using General Finishes Milk Paint (buttermilk color). Note that this paint seems to be an acrylic, not an actual casein-based paint. But it looks great. Apply it with a brush and sand between coats with the finest-grit sanding sponge available.

The tops are finished first with shellac. I used Tiger Flakes Garnet Shellac (from toolsforworkingwood.com). I hate to sound like a tool, but I have yet to find better shellac flakes. They dissolve rapidly and have no bug parts to filter out. I used a 2 lb. cut and applied four thin coats, sanding between coats with my sanding sponge.

After the shellac, I applied a blend of linseed oil and beeswax using a 3M Scotch-Brite grey pad. You can easily make your own oil/wax blend (see the links at the end of the story) or buy the concoction from Swede Paint (swedepaint.ca). This process effectively rubs out the finish. The 3M pad smooths the nibs and roughness. The oil and wax reduce the aggressiveness of the pad. The resulting slurry fills the wood's pores and leaves a smooth surface behind.

After rubbing on the oil and wax, let it set up for 30 minutes. Then buff the surface with a rag. Let the surface set up overnight and use a clean cloth to buff off any uncured oil and wax.

Play nice. *Here I've positioned the hinges so the gateleg will swing freely. Note that these hinges are simply surface-mounted. Mortising them would be a monumental task (and not get you much joy in this case).*

When you are finished, take a minute to fiddle with the mechanism. It's remarkable. When folded up, this table is only 21" x 38" – it's but a sofa table, really. Unfolded, it offers a tabletop that is 38" x almost 75" long.

You can keep one leaf up for you and your spouse to eat breakfast, then open the other leaf when you make some friends. Or build two of these tables and have enough room for the entire Vienna Boy's Choir to stop by for Swedish meatballs. **PWM**

Christopher is the editor of Lost Art Press and is exactly 0 percent Swedish.

Stay flat. *The battens keep your dropleafs stiff and flat. Be sure to ream out the screws' clearance holes to allow the top to move.*

ONLINE EXTRAS

For links to all online extras, go to:

- **popularwoodworking.com/oct17**

BLOG: *Make your own oil/wax finish.*

BLOG: *Tips on smoothing milk paint.*

WEBSITE: *Learn more about drawboring.*

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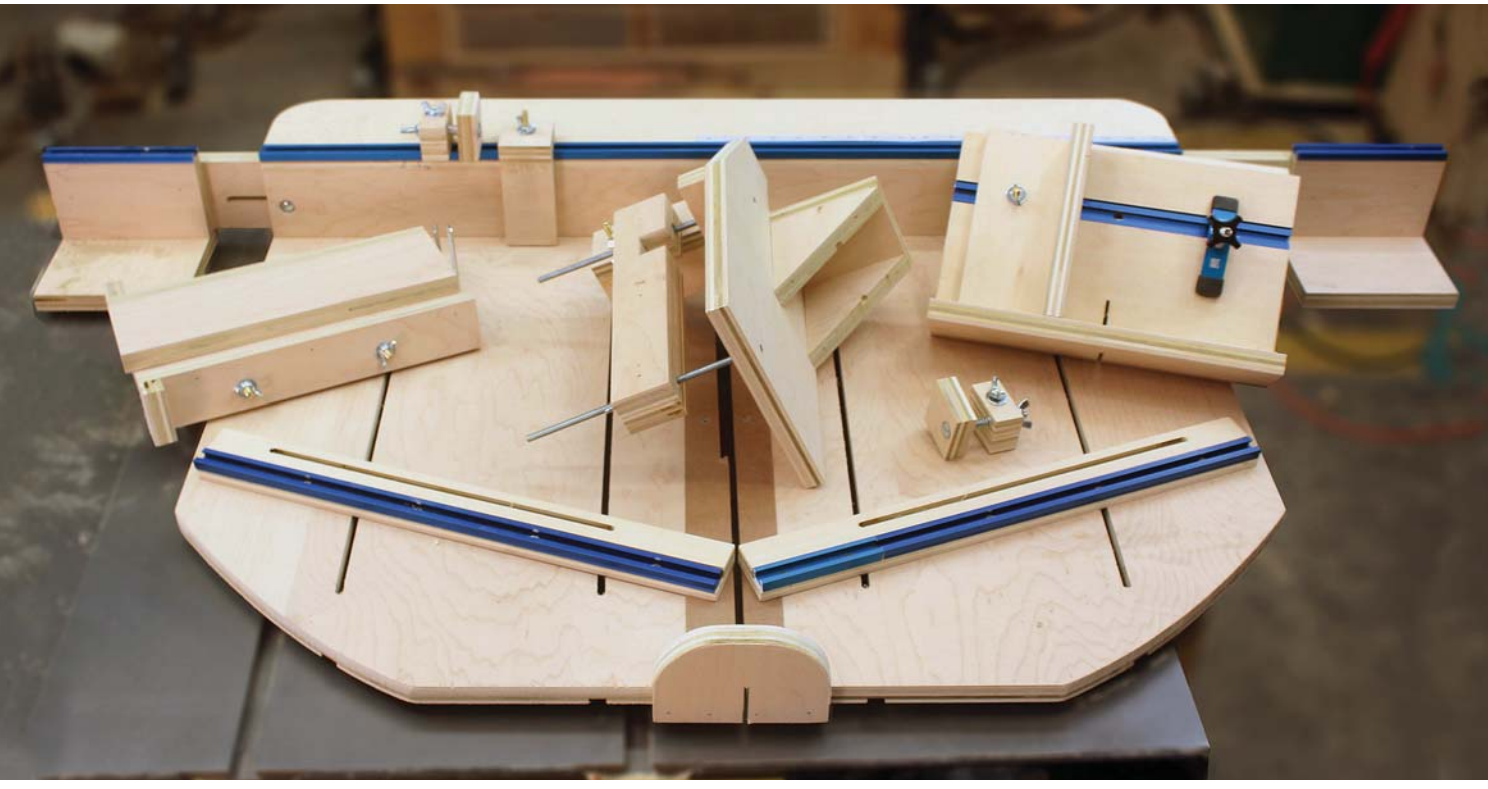


Table Saw MegaSled

BY JAMES HAMILTON

Make accurate and safe crosscuts with ease – and set the stage for clever accessories.

Most power-tool woodworkers have at least one table saw sled. And while a sled can make your work safer and more accurate, a well-thought-out sled can also do much more.

Sometimes I call this one the "MegaSled," other times the "Super Sled," because its large size makes it so versatile. In fact, it's the perfect platform for any number of joinery jig attachments. Since designing the sled I've added jigs for cutting miters, splines, tenons, finger joints and dovetails, and I have plans for more jig attachments in the future. It's all possible because of the sled's fence design. In fact, you will see several unique and useful features as you build this table saw fixture. In this article, I'll focus on the sled itself; in the next issue, I'll cover the jigs. Let's get started!

Cut the Parts

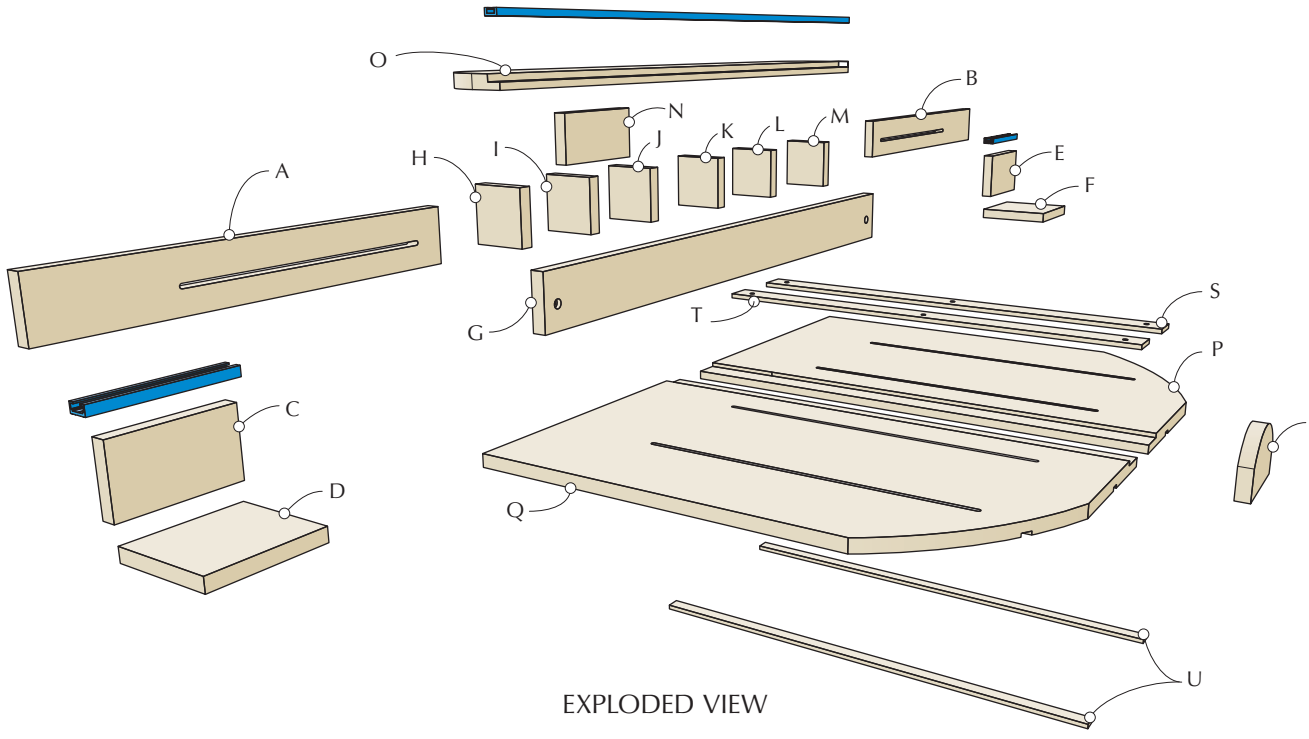
I don't typically recommend beginning a project by cutting out all the parts. It's usually best to cut each part as needed (and make sure it fits before committing) as the project moves along. But in this case, it is simpler to prepare the entire cutlist at the outset.

As you do, use a pencil to label each piece with its assigned letter from the exploded diagram provided. I'll refer to these letters as I go along.

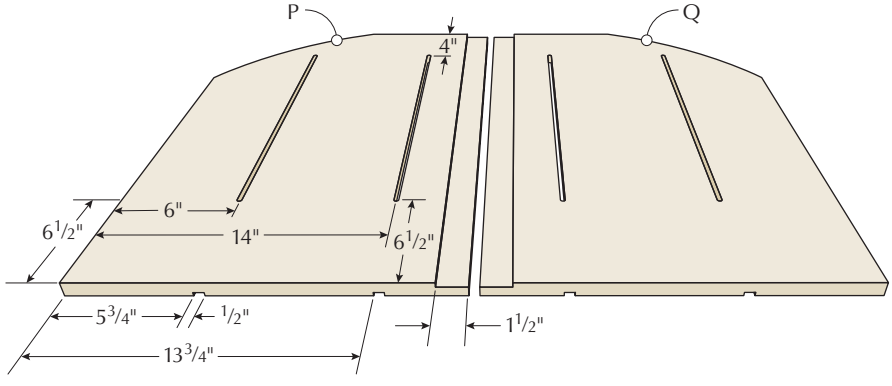
Take care to cut each piece carefully. Check that your table saw's blade is perpendicular to the table. Square parts should be square, both in their corners and on their edges. As you assemble the project, use a combination square to keep everything true – extra care now will pay off in the end with an accurate sled.

Also, choose quality plywood. While Baltic birch is always an excellent choice for jig making, I've had good success with off-the-shelf, hardwood-veneered plywood from the

PHOTOS BY THE AUTHOR; ILLUSTRATIONS BY DAN PESSELL FROM THE AUTHOR'S MODEL



EXPLODED VIEW



BASE PANEL LAYOUT DIAGRAM

Table Saw MegaSled

NO.	ITEM	DIMENSIONS (INCHES) T	W	L	MATERIAL	COMMENTS
❑ 2	Fence extensions	3/4	3 1/8	22 3/4	Plywood	A&B
❑ 2	Extension spacers	3/4	3 1/2	6	Plywood	C&E
❑ 2	Extension supports	3/4	5 1/2	6	Plywood	D&F
❑ 6	Fence support blocks	3/4	3 1/8	3	Plywood	H-M
❑ 1	Fence face panel	3/4	3 1/8	36	Plywood	G
❑ 1	Fence guard	3/4	3 1/8	6 1/2	Plywood	N
❑ 1	Upper fence panel	3/4	4 1/2	36	Plywood	O
❑ 2	Base panels	3/4	18	28 1/2	Plywood	P&Q
❑ 1	End piece	3/4	3 1/4	5	Plywood	R
❑ 10	Replaceable inserts	1/4	1 1/2	24	MDF	S&T
❑ 2	Runners	1/4	1 1/2	24	MDF or HDPE	U

home center – but I don't recommend construction-grade plywood.

The Base

Most table saw sleds are made from a single plywood panel, which is cut in half the first time you use the sled. But I made this sled's extra-large base from two panels (P and Q on the drawings). As you work on the two panels, keep in mind that they are mirror images of each other. As you lay out the dados, rabbets and slots, reference from the right edge of the right panel and the left edge of the left panel.

Begin by cutting a pair of 1/2"-wide x about 3/16"-deep dados in the bottom surface of each panel, using the locations provided in the accompanying diagram. Then flip the panels over and cut 1 1/2"-wide rabbets along what will become the two inner edges once the sled is assembled. These rabbets should be deep enough that your 1/4"-MDF inserts will lay in them flush with the panel's surface. It's a good idea to cut them with several incremental passes, checking the depth with one of the inserts as you go.

Place the two panels on your bench-

Dados & rabbets. *Plow the dados in the bottoms of base panels, then the rabbets on the top interior sides.*

top with the rabbets facing upward and touching each other. Mark the edges nearest you as "front" and the opposite edges as "back." Now use a 5/16" router bit to cut a slot down the center of each of the four dados, beginning 6 1/2" from the front edge and 4" from the back edge of each panel. The slots are for the T-bolts.

While you have your 5/16" router bit handy, cut the slots in the fence extensions (A and B), centered 1 3/8" from the bottom edge; they start 6" from the outside end and terminate 1 1/2" from the inside end of each part. Now set those aside and locate the upper fence panel (O). Along one of its edges, cut a rabbet to fit a piece of T-track. Most T-track is 3/4" wide x 3/8" deep, but take care to size the rabbet to your particular brand.

It's time to begin putting all the parts together, so if your two base panels have wandered off, return them to their former position on the benchtop, facing upward with the rabbets together. The fence support blocks (H-M) must be positioned along the front edge of the base panels.

Referencing from the left edge of the base panel assembly, place one block 2 3/4" away from that edge, another 8 3/8" away and a third 14" away. Place three more of the blocks the same distances from the right edge of your right base panel assembly. This should leave just enough space between the two inner blocks to fit the fence guard (N).

Slots. *Rout slots down the center of the dados, creating a track for the shaft of your T-bolts to run in. You might also wish to round off the front corners of the panels, though it's not strictly necessary.*

Fence extensions. *Keep the slotted fence extensions close by; you'll soon use them as spacers.*

T-track rabbet. *Size the rabbet in the upper fence panel carefully so that your T-track will be flush with both the top surface and the edge.*

Get it square. *Ensure your table saw sled will be accurate in the end by taking care to square the parts up during assembly.*

Careful now. *As you move things around during assembly, keep in mind that the seam is supported only by small blocks on each end at this point, so take care!*

SUPPLIES

Any woodworking store

- 1 ■ Aluminum T-track, 48"
- 2 ■ 1/4" x 2 1/2"-long carriage bolts
- 2 ■ 1/4" washers
- 2 ■ 1/4" wing nuts
- 6 ■ #8 x 3/4""-long pan-head screws
- 6 ■ #6 x 1/2"-long flathead wood screws

Secure all the blocks to the base panels with glue, taking care that they are perpendicular to the front edge. Brad nails driven from the underside of the base panels will hold the blocks in place as the glue dries, but take care that the two halves remained aligned as you move them around your benchtop. At this point, only the fence guard (N) holds the panels together. You can add more support by attaching the end piece (R) to the far side, centering it over the seam on the back edge between the two base panels.

The Fence

Next you will attach the fence face panel (G) to the rabbeted edge of the upper fence panel (O), rabbet-side up, as shown in the photograph below, left. Before nailing the joint, be sure the seam is flush, and wipe away any glue squeeze-out. This will be a critical surface of your sled's fence.

The fence face panel (G) and upper fence panel (O) together make up what I'll call from here on out the fence panel assembly.

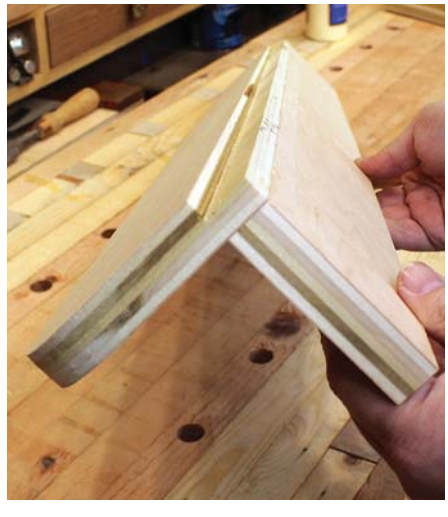
Retrieve the slotted fence extensions (A and B). Place them on edge across the sled's base against the row of fence blocks, where they will serve as temporary spacers. Now run a bead of glue on the top edge of each of the seven fence support blocks (H-M), and along the lower edge of the fence face panel (G). Carefully set the fence panel assembly on top of the blocks, with the rabbeted panel facing upward. The glued edge of the fence panel will contact the sled's base just in front of the slotted "spacers."

Those two slotted parts should be able to slide smoothly in and out of the gap created. You don't want them pinched in there too tightly – but you also don't want any extra space.

From beneath the sled, shoot a few brads through the base panels up into the edge of the fence face panel to secure it in place.

Returning to the top of the sled,

Fence panel assembly. *Here's how the fence face panel and upper fence panel look when combined to make the fence panel assembly.*



Space out. *Use your fence extensions as temporary spacers before attaching the fence panel assembly.*

Secure fence. *Here's how the fence panel assembly appears once it's been secured in place (note that I've already installed the T-track here).*

Look at the mirror. *The fence slide-outs must be mirror images of each other.*

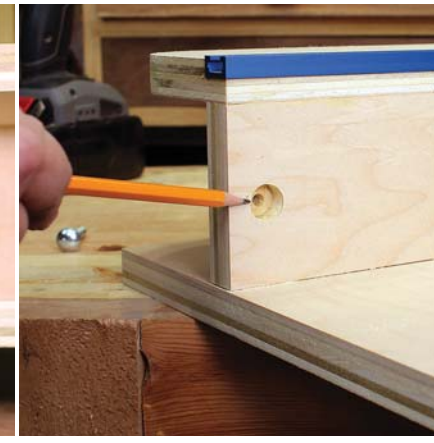
> "Let machinery be honest – and make its own machine buildings and its own machine furniture; let it make its chairs and tables of stamped aluminum if it likes: Why not?"
>
> *—Ernest Gimson (1864-1919), English furniture designer & architect*

On track. *After boring pilot holes, attach T-track to the fence and slide-outs.*

check the fence panel assembly for square before the glue sets up. If the face panel isn't perpendicular to the base of the sled, nudge the rabbeted top panel forward or backward a tiny bit as needed to correct it. Finally, remove the two fence extensions you've been using as spacers…before the glue dries and they stay in there forever.

Now grab the extension supports (D and F). Fasten these to the bottom edges of your fence extensions, as shown in the photograph at top right. Note their location near the ends farthest from the slots, and that the two resulting assemblies are mirror images. Also, note that open space on the slotted parts above the pieces you just connected. There, glue the extension spacers (C and E) on edge, on top of the extension supports. I think it's a good idea to shoot some brads through those support blocks from beneath to reinforce the joints. This completes what have now become your fence slide-outs. Slip them back into their slots on either side of the sled when the glue is dry.

Begin the hardware installation by securing T-track in the rabbet on the fence panel assembly, and to the top edges of the extension supports on your fence slide-outs. Don't try to drive the screws without first boring pilot holes! You risk spreading the plies in the edge of the fence face panel beneath, compromising its smooth and accurate surface.



Bore & counterbore. *Bore a 1/4" hole in the center of the slot, then counterbore from the opposite side to create an inset for the carriage bolt head.*

Secure. *The slide-outs are secured with wing nuts and washers.*

MDF throat inserts. *Make a bunch of inserts now; that makes it easier to ensure all the screw holes are in the same location – and you won't be caught without an insert when you need one. The inserts are secured with three flathead wood screws on each.*

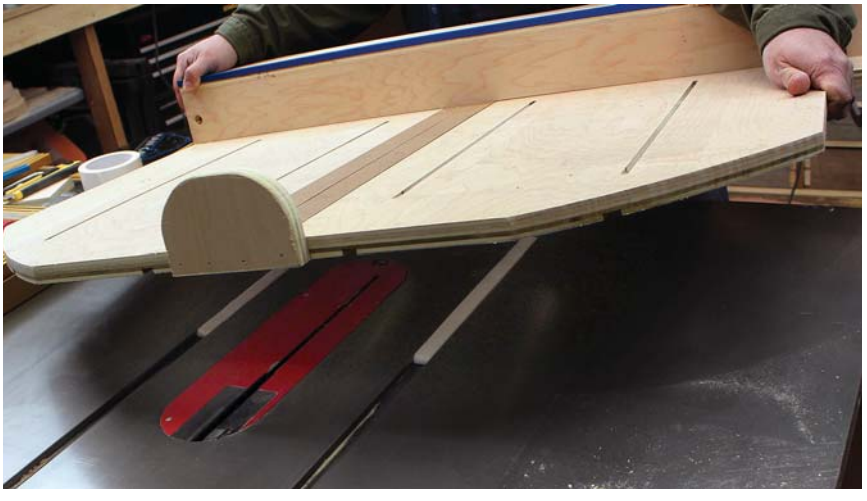
Chuck a 1/4" bit into a drill. Withdraw one of the slide-outs a few inches and place the bit in the center of the slot, about 1" from the end of the fence. Bore a hole through, then counterbore the hole from the other side so you can slip a carriage bolt through the hole, locating its head below the surface of the fence face. Repeat these steps on the other end of the fence, then secure both slide-outs with washers and wing nuts.

Finishing Touches

Cut several extra replaceable inserts to fit in the throat of your sled, one on each side of the kerf. You can countersink three flathead woodscrews to hold each strip in place, keeping the screws as far from the seam between the two strips as you can so that a sawblade will not cut into them. By making the a number of inserts ahead of time, you can ensure that the screw holes are in the same location on each strip.

Because you took your time to build the sled nice and square, mounting the runners is easy. Set your table saw's fence 18" from the blade. Place a strip of runner material (MDF or high-density polyethylene) in each of your miter slots, shimming as needed to bring the runners flush with the surface of your saw. Place a strip of double-sided tape on each runner. Now lift your sled over the saw and slowly lower it onto the runners, keeping the side of the sled against your table saw's fence (you must remove the slide-out on that side of the sled).

Carefully flip the sled over then secure the runners more permanently to the bottom with screws. I recommend using #8 screws with large pan heads.



Fenced in. *Use your table saw fence to keep the sled square to the saw blade while you place the sled onto its runners.*

If you bore enlarged holes (counterbored for the screw heads) through the runners, you will be able to square the sled by shifting the runners – however, because you were careful as you built, no adjustments should be needed.

As a crosscut sled, the operation is self-explanatory. But we're just getting started! In the next issue, I'll show you how to accessorize and turn your crosscut sled into a MegaSled! **PWM**

James is a full-time woodworking author and instructor, and publisher of "Stumpy Nubs Woodworking Journal" and stumpynubs.com.

ONLINE EXTRAS

For links to all online extras, go to:

- **popularwoodworking.com/oct17**

VIDEO: *See how to make runners and use them to adjust your sled.*

VIDEOS: *Watch an overview of the sled's features and jigs, as well as a scaled-down version.*

WEBSITE: *Visit James Hamilton's website: stumpynubs.com.*

IN OUR STORE: *"The Homemade Workshop," by James Hamilton, available in paperback and as an eBook.*

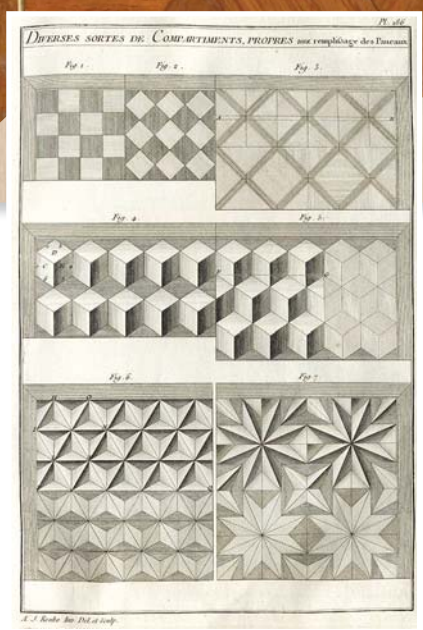
Our products are available online at:

- **ShopWoodworking.com**

Roubo's Parquetry Jigs

BY DONALD C. WILLIAMS

The 18th-century jigs of this French master belong in the contemporary shop.



Roubo Plate 286. *This is one of my favorite plates in "l'Art du Menuisier," because in a fairly simple (for him) engraved print, Roubo provides an immense quantity of information for several compositional motifs. In this article, I focus on Figures 5 and 6.*

I've often heard that confession is good for the soul, so let me begin with one here. Especially in my early years of "serious" woodworking, as I attended scores of woodworking club meetings, the "show and tell" segments were invariably dominated by impassioned presentations of sometimes intricate, usually elegant, often overkill jigs to allow their creators to go to almost incredible lengths to enable machines to do some task and avoid actually working wood with their hands, or rather the un-powered tools they were holding. During these rhapsodies I would inevitably roll my eyes almost audibly as I silently consigned these jigs, and probably their makers, to that portion of the cosmos labeled "Not Real Woodworking."

I was in large part wrong to do so, and I apologize for being both a snob and an ignoramus.

I discovered the absolute necessity of esoteric sawing and planing jigs once I began moving into the world of marquetry and parquetry as recounted by André-Jacob Roubo in his monumental 1760s treatise "l'Art du Menuisier."

While the breadth of his visual and verbal descriptions is well beyond the scope of this article, if you stick with me to the end you will be well along your way to creating a vast array of parquetry

PHOTOS BY THE AUTHOR; ILLUSTRATIONS COURTESY OF LOST ART PRESS

compositions almost effortlessly.

As Roubo tells the tale, the intricate designs he illustrated were the result of trained eyes and hands. But more importantly, precisely fabricated jigs were designed to render exotically skillful handwork almost irrelevant for the craftsman actually fabricating the parquetry pattern.

Roubo shares jigs for cutting veneer strips, for 60° parallelograms, for squares, for 60° triangles, for 30° triangles, for 22½° triangles and for the multitude of units composing the fancy serpentine borders inlaid into veneered panels. In short, jigs are not just for part-time woodworking warriors, they are integral to reaching the pinnacle of decorative wood surfaces.

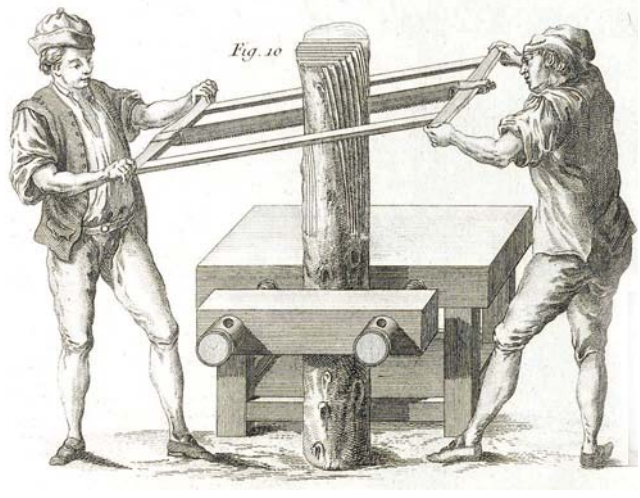
Uniform Veneer Strips

In the olden days, the starting point for parquetry or any other application of veneering was a re-sawn log, cut by two skilled sawyers. A well-tuned saw, coupled with the right pair of craftsmen, could yield as many as a dozen veneer leaves per inch of solid lumber. You needn't saw your own veneer, but you should try to get the heaviest weight veneers you can – but in this age of literally paper-thin wood veneers, you might give some thought to making your own, or at least looking for older, heavier veneer stock. I find that 1/16" is about the lightest I can work with.

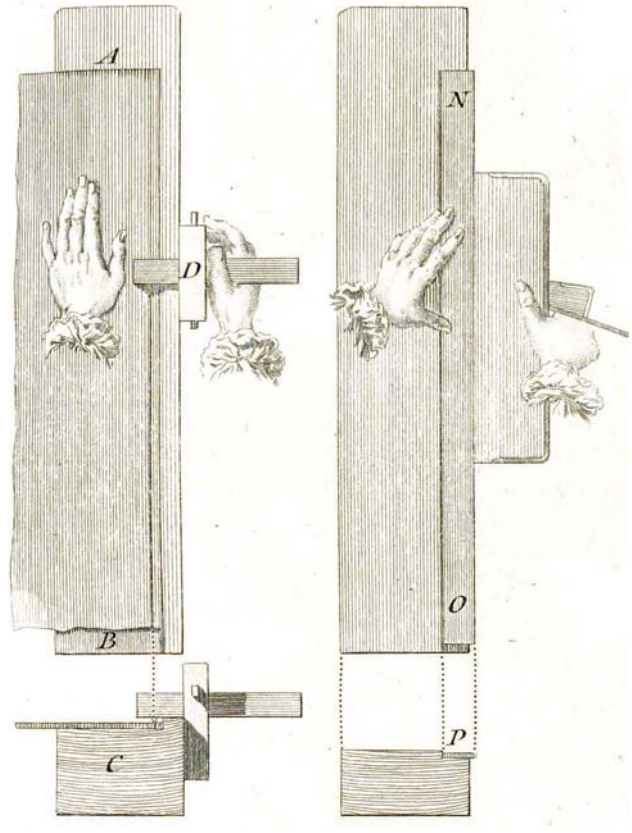
Parquetry depends on beginning with a large stock of veneer strips, precisely fashioned to be exactly the same uniform width over their entire length. They can vary a little in thickness, but without uniformity in width, parquetry becomes a frustrating exercise in futility. With uniform width it becomes an amazing gateway for creativity of almost unlimited vistas.

Given the right jigs and tools, creating these perfect strips is a straightforward process. Fortunately, neither the jigs nor tools are complex or expensive. Good quality scrap plywood and some hardwood strips are about all you need for the former, and a cutting gauge and finely tuned block plane are the only tools you need for the latter. A piece of scrap aluminum bar stock or angle stock is a nice addition as you will see in a bit.

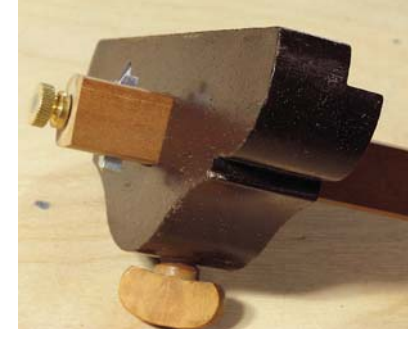
Start with two pieces of 1/2" Baltic birch plywood; the length and width are not necessarily important, as long as they are similar and trued. My strip-cutting jig is approximately 24" long x



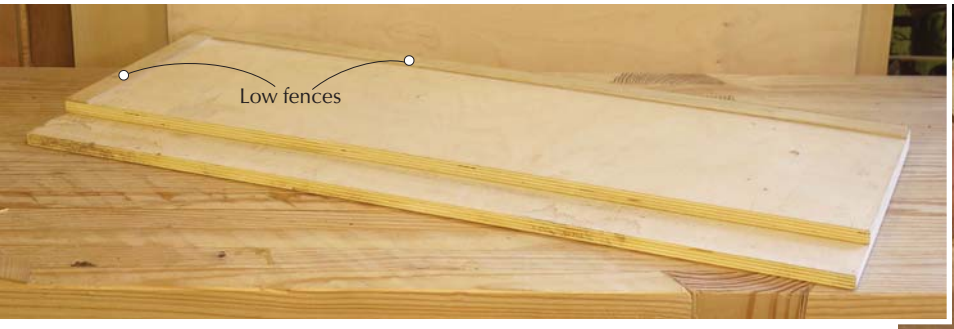
Roubo Plate 278, Figure 10. *I am sure that practice makes perfect, but the thought of two men sawing veneers like this and getting leaf after leaf roughly 1/12" is mighty impressive. I own three saws just like this one; using them is a humbling experience.*



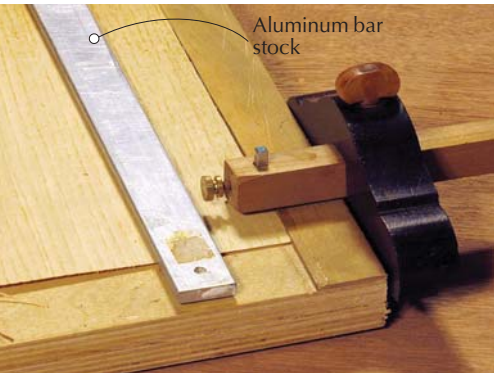
Roubo Plate 289, Figures 1 & 2. *These planing and slicing jigs would have been in every parquetry shop 250 years ago. They are conceptually brilliant, and belong in the contemporary shop, too.*



Cutting gauge. *A standard marking gauge is not ideal for slicing veneer. Better is a gauge with a fairly beefy knife-edge cutter to reduce chatter and the risk to the veneer. This one is shop-made, but a good commercial one is fine.*



Strip jig. *This jig is a double layer of 1/2" plywood, with the two layers flush on one side, and offset on the other to form a shelf equal to the width of the strips you're using it to make. The low fences are used when working with the veneer sheets.*



Cut to width. *Place the trued edge against the low fence on the other side of the jig. Use a cutting gauge registered off the side of the jig to cut as many strips as you need; simply re-true the edge of the veneer sheet after each cut to make sure you have a perfect edge for the next one. The low fence helps ensure the gauge moves not on the edge of the veneer (which would likely damage it) but on the edge of the jig. To keep the veneer from puckering during the cutting so that you get a perfect piece, hold it in place with aluminum bar stock or a restraining board.*

A bit oversized. *Cut each strip a smidge wider than its final dimension, then place it on the shooting edge of the jig and shoot all the strips to an identical dimension. The shelf can be the exact width of the final strip, or you can make it wider and use an auxiliary fence like I'm doing here.*

True edge. *The first step in preparing parquetry stock from veneer sheets or leaves is to true one edge of the veneer using the jig's shooting board function. Because the veneer is thin, it has a tendency to pucker when the edge is planed; a restraining strip resting on top of the veneer suppresses that distortion. The strip can be a clean wooden board, a piece of aluminum bar stock or anything else that fits the bill.*

12" wide, and of two thicknesses of 1/2" plywood glued together. The beauty of this jig is that you get to engage in several complementary processes with the same appliance. On one side of the jig you can shoot the edge of the veneer leaf; on the other you can cut the strip with a cutting gauge, then return to the first side and use the shelf runner to trim a freshly split strip to its perfect width, together all yielding an unlimited number of identical pieces for further work.

Parallel and perpendicular to the top piece, glue two strips of 1/8" hardboard. These low fences hold the sheet of veneer in place as you slice it with a cutting gauge.

Beware the siren's song of the table saw as an easier and quicker way to cut veneer strips from larger sheets; the results will likely be unsatisfying. It can be done, provided you have a saw blade that leaves a perfect edge, and you have created a whole other set of spacing and backing jigs that I am not going to discuss here.

But if you must plug in, I recommend using a well-tuned band saw with a good adjustable fence or single-point resawing jig (yes, even this workaround requires a good jig). For most of my parquetry work, if I'm cutting strips at the band saw I generally select a clear, straight-grained piece of lumber primarily on the tangential orientation and rip off the strips from the edges. That yields radial grain patterns on the face of the strips amenable to the work I am composing.

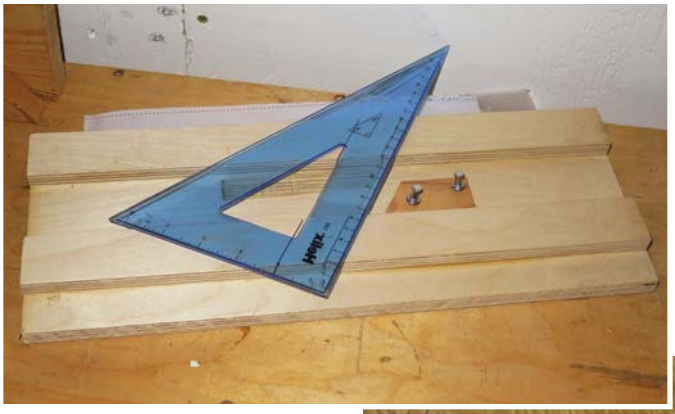
Band-sawn strips. *A thin-kerf, sharp blade that tracks true is far more important than the size of the machine. I've had great success using a 9" band saw equipped with a 1/4" blade, and a fence set to accommodate any inherent blade drift. Because I use wood about 1" thick, all I must do is work slow and steady, and all will be well. (Shown here is Joshua Parker, a student at one of my workshops.)*

Jig for 60° Sawing

Because much of the parquetry I practice involves triangular or hexagonal compositions, the first critical cutting process requires a 60° sawing jig. To make it, all you need is a scrap of plywood for the base, two straight pieces of plywood or hardwood to serve as fences and mitering guides, and a parallel spacer followed by a plastic 30-60-90 drafting triangle (or something similar).

Using either the triangle by itself or as a guide to set a bevel gauge, saw a single 60° kerf in both fences. Following the process described in the photos below and at the top of page 45 will yield a limitless number of parallelogram lozenges needed for the simplest trompe l'oeil parquetry technique.

You now have the jig for creating the foundation of acres of parquetry.



Jig for 60° saw cuts. *The starting point for basic parquetry patterns, which can lead to an amazingly rich world of creativity, is simple, easy to make and cheap.*

Attach the fences. *Glue one of your wooden fence pieces to the base even with an outside edge. Once the glue sets, place a 2"-wide spacer against it and glue down the second fence firmly against the spacer. (Having made dozens of these jigs for students over the years, I have a piece of 2"-wide aluminum flat stock in my tool chest, mostly for this purpose).*

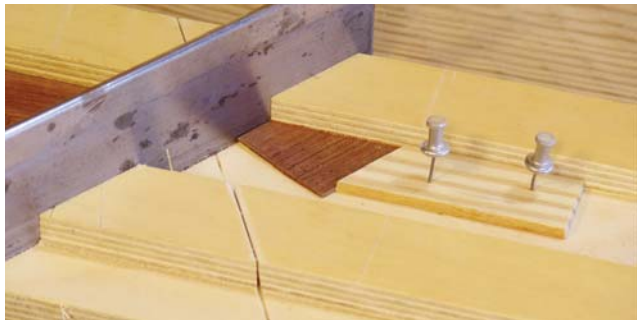
Push saw miter kerf. *If you use a push saw (Western saw), the mitering kerf must be toward the right.*

Pull saw miter kerf. *If you use a pull saw (Japanese saw), the mitering kerf must be toward the left.*

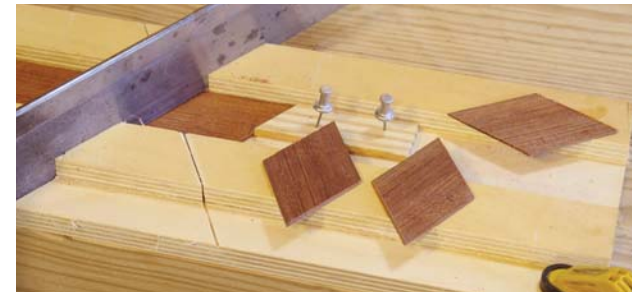
Scrap stop. *Once the jig is complete, cut a scrap block for the jig to be used as a spacer that enables you to cut unlimited identical parallelograms.*

Length equals width. *Then take one of the identical veneer strips and cut one end off, roughly equal to the width of the strip.*

Stop locator. *Take the piece of scrap you just cut off the end of the strip, flip it over then rotate it 90° and place it against the sawblade with the saw in its guide grooves. That provides the spacer location.*



Tack in place. *Use push pins or brads to tack down the spacer stop so that the scrap veneer strip is slightly loose in the space between the saw and the block.*



Saw & compare. *Saw a few pieces of veneer strips into equilateral parallelograms and compare the edges. If the length of the sawn piece is too long or short, use a small hammer to tap the block one way or the other until you get identical dimensions on all four sides of your cuts.*

Jig for 60° Planing

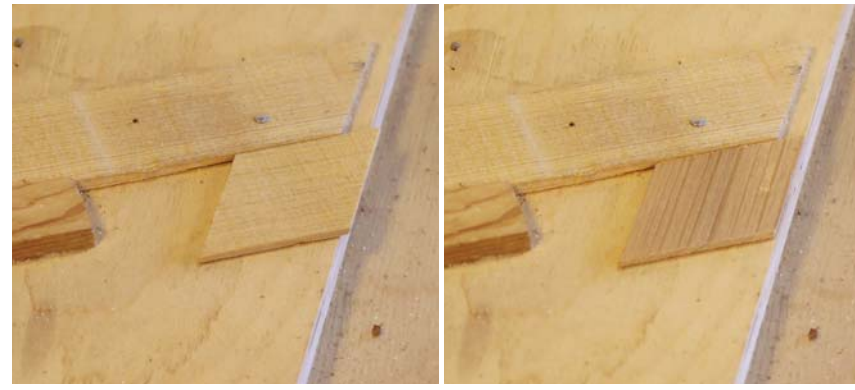
Partner to the 60° sawing jig is a companion setup to refine the lozenges just a bit more. I used to skip this step, but have found while working on recent projects that it improves the outcome of my work such that it is now routine. Much like the first jig in this article, this accessory allows you to complete two complementary actions with the same unit.

It is basically the 60° sawing jig, turned 60° to the edge of the base. This jig allows me to make unlimited identical lozenges, which makes assembling parquetry a breeze.

Saw & Plane at 30°

One of the most exuberant parquetry compositions is to take 60° lozenges and essentially split them into half, yielding equilateral triangles of three elements rather than a hexagon with three equilateral parallelograms. This requires a pair of sawing and planing

Jig for planing at 60°. *Planing jigs need not be complex nor even dedicated, they just have to be accurate. This planing function is simply added to another jig where I had some space to spare.*



Plane, rotate, plane. *Using the backside of the 60° fence, take a single pass with the plane to clean up the edges on two consecutive oblique edges. To accomplish this, rotate the lozenge end-to-end after the pass on the first edge.*

Put this lozenge into the chute between the first and second fence, with one of the newly planed edges against the tail fence, then place an angled spacer block such that the lozenge protrudes over the edge just enough so that a complete cleanup is possible.

Shoot again. *Then, with the two previously planed edges tucked into the angle between the fence and the spacer block, shoot the edge of the two previously unplaned oblique-angled sides.*

Perfect. *The result is the first of thousands of perfect 60°-120°-60°-120° parallelograms with identical edge dimensions.*

Jig for 30° cuts. *This jig for sawing "split triangles" is perhaps the simplest ever. Take a scrap with parallel sides, mount it to a base, mark a 30° angle across it with a bevel gauge, then follow the line as you saw the kerf.*

Shooting triangle edges. *Place the long edge of the 30°-120°-30° triangle against the fence, shoot one then the other of the oblique sides. Then tuck the oblique sides against the two fences and shoot the long edge.*

jigs conceptually similar to those above, with the noteworthy difference of employing a 30° rather than 60° angle.

There is, however, one minor difference in the planing jig. Because there are three sides of the new element, the approach is simpler.

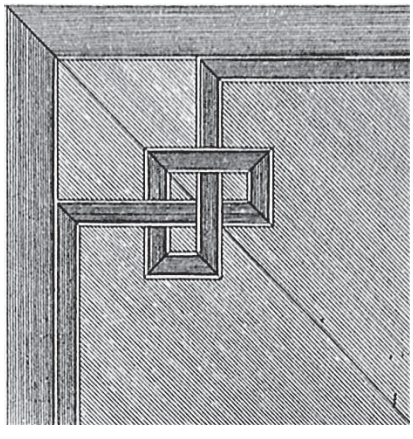
After establishing the 30° planing fence, which is used to shoot both oblique sides, all that is necessary for perfecting the elements is a second spacer fence located at a distance from the first to allow both functions to occur on the same platform.

Results. *With these two jigs, you can easily cut as many identical triangular elements as needed to repeat this pattern.*

Jigs for Banded Inlay

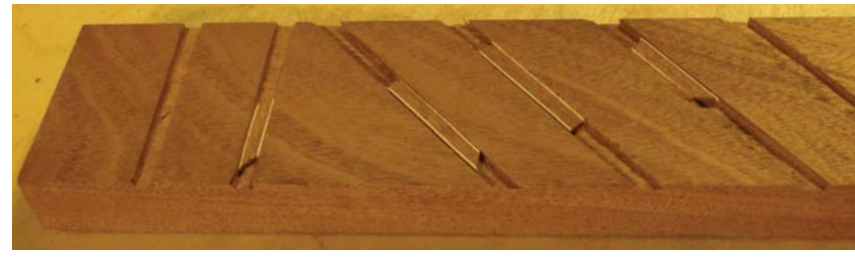
The world of parquetry jigs goes into hyperdrive when engaging in the task of creating some of the intertwined banding around the edges of compositions. After many years of playing with the concept, there are still some of the more complex banding patterns whose jig set-up still escapes me.

The simplest jig is one probably familiar to you: a simple 45° mitering jig to make perfect corners for the simplest



Roubo Plate 287, Figure 2. *One of the great benefits of "l'Art du Menuisier" is that Roubo's draftsmanship is detailed and precise. Viewing and understanding an illustration like this one is integral to replicating it.*

Knotwork jig. *Once I started to make knotwork compositions for corner banding, the need for and efficacy of this jig became clear.*



Mark from the work. *Using the banding itself as a guide, cut a series of 90° and 45° channels into a block of wood, traversing its full width. Almost any close-grained solid block of wood will suffice. Start with a single 45° cut with a utility knife, then use the banding stock itself to establish the width of the channel. The dimension of the block should be such that the longest element in the design can be accommodated.*

Rabbet it. *On one edge of the block cut a rabbet and screw a metal guide strip on top of it, flush with the edge of the rabbet.*

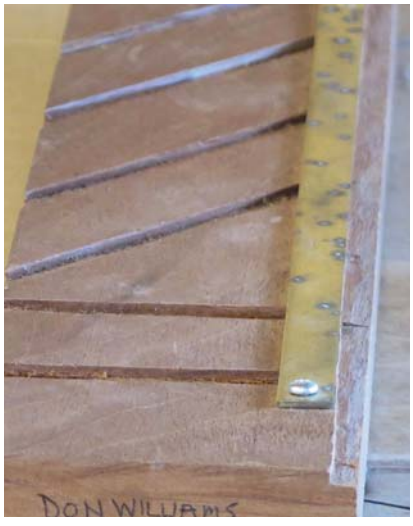
bandings. But once you get past that, it gets tricky.

Consider the fairly typical pattern for banding in a corner (page 46, bottom, left). To make it well requires a jig – rather, a set of jigs – to create perfectly every piece within the composition. This is the simplest of the knotwork banding corners, so several of the pieces are identical to one another. Still, each element requires its own planing set-up (see above).

A completed cutting and planing block jig for the knotwork pattern in question makes the exercise quick and assured. Yes, an 18th-century shop would have made and possessed one of these blocks for every single intricate banding pattern they had.

Congratulations! You have now mastered all the intricacies necessary for a limitless number of parquetry expressions based on a simple vocabulary. Now, go dance a jig. **PWM**

Don retired as Senior Furniture Conservator from the Smithsonian Institution in 2012, and now writes, teaches, conserves and re-creates historic furniture at his mountain retreat in rural Virginia. You can follow his adventures at donsbarn.com.



Chisel fence. *Slide the banding under the brass bar and into the rabbet, then you can use a chisel to cut it to rough length – that's much faster than sawing.*

Rough-cut. *Use a chisel registered against the brass bar to rough-cut to length each piece of the knotwork moulding; cut them slightly oversized.*

Miter it. *True one end of each like-size banding piece, then glue a stop into the rabbet for repeatabilty. Slide a trued end againt the stop, then shoot the other end to perfection,*

Knot difficult. *Repeat until you have all the pieces of one configuration as are needed for the project. Once you have done this for each element of the design and established the excavated channels to hold it, you can assemble it and it will go perfectly.*

ONLINE EXTRAS

For links to all online extras, go to:

- **popularwoodworking.com/oct17**

WEBSITE: *Read the author's blog at donsbarn.com.*

VIDEO: *"Simple Parquetry Techniques," from which this article was adapted.*

TO BUY: *"To Make as Perfectly as Possible: Roubo on Marquetry."*

IN OUR STORE: *"Creating Historic Furniture Finishes," by Don Williams, available on DVD and as a video download.*

Our products are available online at:

- **ShopWoodworking.com**

Young Makers' Bookshelves

BY RODNEY WILSON

Some newer names in woodworking share the books that inspire them.

I'm bookish. I've always been bookish. As a child I begged for stories until I could work through books on my own. I spent much of my childhood with Judy Blume titles, then grew to major in English, build a writing career and find work as an editor because, well…I'm bookish.

Electronic books don't hold much sway with me – I understand their place, but for me books need heft, a certain touch and (of course) that smell.

I still have shelves weighted with farming books from when I adopted an agrarian life. The Internet is awesome (and sometimes awful), but I comprehend information better when my eyes pull it off a page.

Despite the constant clanging of print's death knell, I can't see a future where books lack cultural position. Many woodworkers were born between shelves at the local public library.

One reason I believe books will persist? Young people (i.e., those who will carry culture forward in the coming years) still read – and young woodworkers are among this demographic subset. Folks under 40 still search the

LEAD PHOTO BY AL PARRISH

piles to learn about dovetails and tenons, chisels and chainsaws. They have the words of George Nakashima and James Krenov to feed their burgeoning interests. And how do I know? I asked them.

I scoured Instagram and the web for fresh faces and sawdusty hair, collected emails and asked for books that inspired. And they replied, sending titles that informed their love of making things from wood.

In "The Unabridged Journals of Sylvia Plath," the poet wrote, "I can never read all the books I want; I can never be all the people I want and live all the lives I want. I can never train myself in all the skills I want." If the sentiment sounds familiar, consider how, in the same collection, Plath writes, "I hope to take woodworking this next fall."

Books and building just go hand in hand. And Plath's sad realization she'll never read, become and master all the things she wants is at the heart of what keeps folks reaching into the stacks.

So we can't hope to read every book, but maybe you'll find in the following pages a handful of titles, from some of the newer names in woodworking, to add to your inspiration pile. And while a few titles enjoyed repeated mention ("A Cabinetmaker's Notebook" and "Soul of a Tree" each showed up a few times), I picked and chose to offer unique reading options from each maker.

LAURA ZAHN

Perhaps you're familiar with Laura Zahn – she has a famous friend and ally in woodworking – funnyman Nick Offerman, and she's profiled in his most recent book, "Good Clean Fun" (Dutton). But Zahn is more than a few pages in Offerman's bestselling work. The Los Angeles-based furniture maker and graduate of the College of the Redwoods (now The Krenov School) founded and manages Allied Woodshop (alliedwoodshop.com), a Los Angeles collective founded to build woodworking community through offering bench space, workshops, maker talks and apprenticeships.

"**A Natural History of Western Trees**," by Donald Culross Peattie, illustrated by Paul Landacre (Houghton Mifflin Harcourt).

"This is a book that I purchased for the wood-block art of Paul Landacre. He is a master of line and the use of positive and negative space. Beyond the illustrations, the author takes the reader on a journey through more than 200 native species of the Pacific Coast."

"**The Encyclopedia of Shaker Furniture**" by Timothy Rieman and Jean Burks (Schiffer).

"For inspiration, this is one of the most complete and beautifully photographed collections of Shaker furniture. I had a hard time spending the $125 cover price, but I haven't regretted it for a moment. I frequently lose myself in this book over a good cup of coffee."

"**The Fine Art of Cabinetmaking**," by James Krenov (Van Nostrand Reinhold).

"I wouldn't be a good graduate of The Krenov School without mentioning the philosophical work of James Krenov. I tend to favor technical books, but when I need to wax poetic about woodworking, this is the book that I pull from the shelves."

"**The Perfect Edge**," by Ron Hock (Popular Woodworking).

"Sharpening is incredibly important, and it can be equally elusive. Ron Hock takes the mystery out of the process with detailed explanations and photos for sharpening everything from plane irons to card scrapers. This is easily one of my most referred-to books."

JOSHUA KLEIN

Raised in a family of craftspeople and entrepreneurs, Joshua Klein discovered a love for working with his hands at an early age. After a formal education in luthiery, Klein attended The National Institute of Wood Finishing in Rosemount, Minn., where he learned antique furniture repair and conservation. Klein works in Maine as a maker and restorer at Klein Furniture Restoration (kleinrestoration.com), and he's the founder and editor of *Mortise & Tenon Magazine*.

"**Country Furniture**," by Aldren A. Watson (Crowell).

"This book is full of hand-drawn illustrations of tools and appliances found in a pre-Industrial shop. Even if the descriptions of rural craft work are a bit romanticized, they are nevertheless inspiring. There is a lot of interesting, practical information in the illustrations that I haven't seen elsewhere. This is a great introduction to handcraft woodworking."

"**The Nature and Art of Workmanship**," by David Pye (Cambridge UP).

"No other work deals so authoritatively on the philosophy of craft. Famous for the 'workmanship of risk' and 'workmanship of certainty' distinction, this book is essential reading for all woodworkers who spend time thinking about why they do what they do. Pye ably discusses the many facets of workmanship with scholarly precision. This book is neither a defense of hand tools or machinery, but simply sets forth the clearest definitions of various aspects of workmanship."

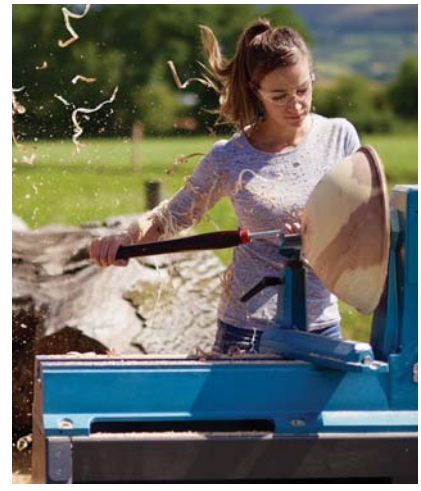
"**Tools: Working Wood in Eighteenth-Century America**," by James M. Gaynor & Nancy L. Hagedorn (UP of Virginia).

"Anyone looking for a historian's insight into pre-Industrial woodworking tools should read this book. Because tools reflect the historic context they were created in, studying them firsthand reveals important insights about our woodworking predecessors. Full of photographs and illustrations of pre-Industrial woodworking tools, this book will help you understand the development of tools over time and how they influenced the craftsman's work."

"**American Furniture of the 18th Century**," by Jeffrey P. Greene (Taunton).

"If you are looking for exploded views of 18th-century furniture that include joinery, look no further. After an interesting historical introduction, Greene discusses 18th-century furniture construction in a depth rarely explored in woodworking books. The last section in his book – the catalog of exploded drawings – is one of the most important assets this book offers today's woodworkers. This work is, hands down, the absolute best for understanding pre-Industrial construction methods."

ASHLEY HARWOOD



With a Bachelor of Fine Arts in sculpture and installation art from Carnegie Mellon University (not to mention time spent studying in Paris and Montepulciano, Italy), Ashley Harwood (ashleyharwood.net) brings a unique perspective to woodturning. Originally intending to work as a glass blower, a visit to the John C. Campbell Folk School in North Carolina. turned Harwood's attention to woodturning. Now based in Charleston, S.C., she creates and teaches at her studio and business, Turning Native, as well as instructs throughout the US and abroad.

"**500 Wooden Bowls**," (Lark Books).

"This book was a gift from my dad, and a bit of a nudge in the direction of the medium of wood (at the time, I thought I was going to be a glassblower). I was blown away by the variety of forms – from the simple elegance of Liam Flynn's work to elaborately carved, textured and gilded pieces like Jacques Vesery's and Michael Lee's."

"**Beneath the Bark: Twenty-five years of Woodturning**," by Kip W. Christensen and Dale L. Nish (Utah Woodturning Symposium).

"This represents a selection of the woodturners who presented at the Utah Woodturning Symposium for the first 25 years. So many of the artists featured in this book have since become friends and colleagues, such as Cindy Drozda, Gorst Duplessis, Dale Larson and Stuart Batty (whom I apprenticed with). The Utah Woodturning Symposium epitomizes the feeling of family among woodturners, even though we may only see each other once every year or two."

"**By Hand: The Use of Craft in Contemporary Art**," by Shu Hung and Joseph Magliaro (Princeton Architectural Press).

"This book reaffirmed the intuition that art and craft were not mutually exclusive. While my fine art education was a pursuit of concept over utility, woodturning became a way to embrace utility while maintaining a strong sense of aesthetics. The authors describe this transition, saying, 'Art is engaged as a process rather than as a means to an end, and there is a palpable sense of attachment to the materials and methods that are employed.'"

"**In the Company of Women**," by Grace Bonney (Artisan).

"While this book was only recently published, it seemed a necessity for this list. It showcases over 100 female creative entrepreneurs and offers their advice, lessons learned and inspirational stories. When I started my business, it was easy for everyone else to offer their own (often unsolicited) opinions about what I should make, how I should be making it and how I should sell it. This advice is so much more poignant when it comes from someone who has been there – and, for me, when it comes from other women."

BRENDAN GAFFNEY

Brendan Gaffney's no stranger to the pages of *Popular Woodworking Magazine*

HARWOOD PHOTO BY GLENN LUCAS; GAFFNEY PHOTO BY CATHRINE O. FRANK

– we featured him and his work in the November 2016 issue (#228), and by the time you read this, he'll be on staff as managing editor (you can reach him at brendan.gaffney@fwmedia.com). The (soon to be formerly) Maine-based maker, musician and electronics wunderkind (he attended the College of the Redwoods Fine Woodworking program and holds a Master of Arts in Music from University of California, San Diego) recently turned heads with his "Rulers of the Ancient World" line of rules from various ancient empires and his "Cabinetmaker's Sectors," not to mention his naughty (by old-world standards anyway) "Dancing Master" calipers.

"**Understanding Wood: A Craftsman's Guide to Wood Technology**," by R. Bruce Hoadley (Taunton).

"Hoadley's treatise on wood technology is a key part of my basic woodworking practice. From a technical standpoint, it is simply necessary to know how wood moves and reacts, where it comes from and how it can be worked. Creatively speaking, I've found a technical understanding of wood is a solid foundation for design and functionality – I try not to fight wood and find that some of my favorite craftspeople work in accordance, not defiance, of their medium."

"**A Cabinetmaker's Notebook**," by James Krenov (Van Nostrand Reinhold).

"As a student of The Krenov School (formerly College of the Redwoods), it's no surprise that I find this book at the center of my creative practice. I like Krenov's first book in particular for its mix of personal experience, technique and philosophy. This is the book that launched a thousand woodworkers – likely many more. I'm still amazed to hear about the range of people who were motivated by Krenov to launch a practice in woodworking – I've met lumber merchants, period furniture restorers and post-modern furniture makers who attribute their initial motivations to these books."

"**The Rule Book: Measuring for the Trades**," Jane and Mark Rees (Astragal).

"Maybe a bit predictable for someone who makes rules and measurement tools, but this book (aimed at collectors) is also loaded with information and examples of how various rulers were developed and manufactured, by whom and why. It's also a gorgeous book, full of beautiful photography and amazing toolmaking. When I worked at Tools for Working Wood, this was a book I constantly looked through while in the stacks."

"**The Woodwright's Eclectic Workshop**," by Roy Underhill (UP North Carolina).

"This book is one of the woodworking books I grew up with. My father was a cabinetmaker, and while I was familiar with how to make boxes and rectilinear work, this was the first book I remember seeing with a green woodworking and a 'hand-tools only' approach to building with wood. While all of his books are wonderful, I love this one for its breadth of traditional topics – log cabins, timber framing, shop-made machinery, furniture, toys, musical instruments and a lot more can be found in this book."

RH LEE

RH Lee (leebuild.com) is a furniture maker and a woodworking teacher at the School of Art at California State University Long Beach. She's also the shop manager at Offerman Woodshop, a small collective of woodworkers and makers working out of Nick Offerman's (yes, him again) East Los Angeles woodshop. She got her start in woodworking while studying art and philosophy at Brown University, when she became involved with set building for theater productions. The experience led to scenic carpentry work and, eventually, a role building interactive science exhibits for the Exploratorium Museum in San Francisco.

Lee wrote an "End Grain" for us in the December 2016 issue (#229), "Custom Design, Creative Process."

"**Wabi-Sabi for Artists, Designers, Poets & Philosophers**," by Leonard Koren (Imperfect).

"This small book explores the somewhat elusive (to Westerners) aesthetic principle of 'Wabi-Sabi.' Perfection and precision are easily overemphasized in fine furniture making and this book reminds me to celebrate imperfections of my material, the abuses of time and weather, the mark of the tool and the simplicity of form. If I'm struggling to line up the seams in my tabletop veneers, I take an afternoon off and carve a small spoon."

"**Nomadic Furniture**," by Victor Papanek and James Hennessey (Pantheon Books).

"This is the hippies' Ikea catalogue. I'm not sure I've ever made anything straight out of this book, but I pull it down from my shelf and read it cover to cover quite regularly and always walk away with a fun design idea or the answer to a simple mechanical problem."

"**Good Clean Fun: Misadventures in Sawdust at Offerman Woodshop**," by Nick Offerman (Dutton).

"I'm clearly biased on this one. Even if this book didn't feature my closest friends, my studio of nearly a decade and my beloved shop dog, Gus, I would still endorse it completely. By adding color and humor to the potentially dry subjects of wood technology, tooling and joinery, Nick's writing succeeds in luring even the soft-handed and screen-addled into the wondrous world of wood."

"**Allen Wexler: Absurd Thinking: Between Art and Design**," edited by Ashley Simone (Lars Müller).

"While I've only had this book for a couple of weeks, it's already risen to the top of my must-read list. Wexler's featured body of work skillfully straddles architecture, design, woodworking

LEE PHOTO BY JORDAN HAGGARD;

and fine art. As a design reference, it inspires playfulness, abstraction and collaboration while embarking on a thorough exploration of the everyday materials, forms and spaces which we often take for granted."

MARTIN GOEBEL

Martin Goebel's ascent to president of his own furniture design company isn't exactly a fluke. After studying at age 19 with James Krenov at the College of the Redwoods (now The Krenov School), Goebel went on to earn fine art and design degrees from the University of Missouri, St. Louis, and the Rhode Island School of Design.

After returning to St. Louis, he founded Goebel & Co. Furniture (goebelfurniture.com) in 2011 to create heirloom-quality furniture using a studied mixture of digital design, automated manufacturing and traditional handcraft. Goebel teaches digital design and automated manufacturing at Washington University in St. Louis and lectures nationally.

"**Logging and Lumbering: Or, Forest Utilization, A Textbook for Forest Schools**," by Carl Aldwin Schenck (Forgotten Books).

"Schenck ran the forestry program at the Vanderbilt estate outside of Asheville, N.C., and opened a school to help America learn to manage its forests – something that has occurred in Europe since the Roman Era. American forests are some of the most squandered natural resources in the history of our county. This book is a little less of a page-turner but explains how natural resources can be logically sourced in a renewable manor."

"**Understanding Wood Finishing**," by Bob Flexner (Fox Chapel).

"Most woodworkers negate finishing. 'Throw a little Danish oil and wax on it. We will stay natural.' Maybe some use a little Minwax wipe-on Poly. Finishing is as, if not more, complex a method than furniture construction. This is a very good basic overview that will ensure logical results."

"**American Canopy**," by Eric Rutko (Scribner).

"Wood was the titanium, oil and aluminum rolled into one of the pre-industrial era. Wars were fought to control it, exploration occurred in search of it and control of it meant power. Rutko explains the motivations of those who founded our country based on the virgin forest not seen in Europe for many centuries. It is a very engaging book that ties the history of wood to modern woodworking knowledge."

"**The Book of Five Rings**," by Miyamoto Musashi (Bottom of the Hill).

"I've found that craft/handskill mastery is only learning the alphabet – but learning the alphabet doesn't teach you to compose your own story. Musashi is a master swordsmith, but as a craft theorist his philosophy can be applied to everything from business to making methods. It's a philosophical look at preparing yourself for success."

TOR ERICKSON

To say that Tor Erickson was born into furniture making is no overstatement: The son of respected woodworker (and co-builder of neighbor and beat poet Gary Snyder's California home) Robert Erickson, he was raised in the woodshop – literally. After learning all his father had to teach him about the craft, Erickson made his way to the Pacific Northwest, then ventured to Africa. But the family woodshop always pulled him back home and, in 2014, he joined his father and mother as a full partner in Erickson Woodworking (ericksonwoodworking.com), which hand builds approximately 75 pieces a year and has pieces featured in such collections as the Smithsonian's Renwick Gallery and Yale University's Art Gallery.

"**Make a Chair From a Tree: Introduction to Greenwood Working**," by John (now Jennie) Alexander (Taunton).

"This is true and pure woodcraft. I loved this book because of the way the green wood furniture-making process informs the final product. So often in woodworking, we try to make something perfect, smooth, shiny and as far from the original tree as possible. But Alexander shows us how to work with, rather than against, the wood to 'bust a chair out of a tree.'"

"**Dansk Møbelkunst gennem 40 aar/40 Years of Danish Furniture Design**," (Teknologisk Institut Forlag).

"This multi-volume set is an incredible record of the Copenhagen Cabinetmakers Guild Exhibition from 1927-1966, the time and place where modern furniture design was born. Things to look out for: jaw-droppingly beautiful and ahead-of-their time pieces by designers like Kaare Klint, and the fact that the Copenhagen paper had a furniture reviewer on staff."

"**Japanese Woodworking Tools: Their Tradition, Spirit and Use**," by Toshio Odate (Linden).

"We always had a lot of Japanese tools in our shop, in large part due to the influence of our close neighbor Len Brackett and his Japanese temple carpentry shop – but this book had a big effect too. A combination of reverent writing about the use and care of

GOEBEL PHOTO BY DAVID THIEL

tools (and their organization: I still shake my head in jealousy over a picture of Odate sitting cross-legged in his spotless hand-tool temple, every chisel and saw perfectly arranged on the walls) and anecdotes from Odate's early life as an apprentice in Japan, this book did a better job than anything I've ever read or seen since of conveying the old-school Japanese approach to craftsmanship."

"**A Museum of Early American Tools**," by Eric Sloane (Dover).

"Not as personal as Odate's book, but just as good at evoking a sense of wonder. I'm not sure I even read all the text in this book – this is more of a testament to the incredible drawings than it is to the quality of the writing. Whether it's an adze, broadax or workbench, Sloane manages to imbue each item with pure elegy: There once was a time when men worked wood with hand tools in a way that can only be described as magic, but that time is gone forever…well, until you dust off your grandpa's joining plane and his bit and brace and get to work yourself, that is."

JARED RUSTEN

California furniture maker Jared Rusten (jrusten.com) is candid about what first attracted him to woodcraft: girls. "I always relied on creative projects to get the attention of girls," he says. To impress a teenage girlfriend, Rusten decided to build a handmade box as a Christmas gift and began watching PBS's weekend woodworking shows and scouring local libraries for related texts. And when he finally delivered the dovetailed box, he found it difficult to leave at the end of the night – he didn't want to part with that box. He finally did (of course), but Rusten chased that loved of woodworking all the way to a furniture-making career, building modern, solid-wood furniture, sculpture and artwork from his Stockton-based J. Rusten Furniture Studio.

"**The Furniture of Sam Maloof**," by Jeremy Adamson (W. W. Norton & Company).

"When this biography first came out, I was so excited to learn more about Sam, but I couldn't justify the $50 price tag. Thankfully, I was able to visit him on a tour of his home/studio with the Woodworkers Guild of Southern California. At the end, everyone formed a line to purchase and have Sam inscribe a copy, but I sheepishly presented my dog-eared sketchbook to receive his signature. He took it and asked if I had a copy of the new biography. Embarrassed, I told him that I didn't, and with a knowing look he excused himself and returned with a new copy that he signed and gifted to me. I treasure that act of thoughtfulness and study the book for lessons and inspiration."

"**Soul of a Tree**," by George Nakashima (Kodansha USA).

"In years of my apprenticeship, I adopted this book and James Krenov's 'A Cabinetmaker's Notebook' as my holy scripture…both to absorb the philosophies espoused, but also to see if I could glean insight into how they made it as respected and solvent craftsmen – and try to understand what steps they followed."

"**1000 Chairs**" (Taschen Books).

"If I judge my books by the wear of their spine or how many times I've flipped through them, I have to include '1000 Chairs.' It is mostly just a chronological pictorial of important and compelling chair designs from the last hundred years or so – there's very little technical information. Whenever I have a creative block or just need to take a break from my sketchbook, I flip through it and look for design details I've missed."

"**Boss Life**," by Paul Downs (Blue Rider).

"This book should be required reading for anyone considering a woodworking career. Many young woodworkers don't appreciate that as romantic as this pursuit seems, it is a business. Crafting beautiful things is the easy part – finding clients who will pay enough to cover your bills is the challenge and will determine if you go back to your day job. Downs chronicles a year trying to keep his custom woodworking shop afloat, and he brings into focus some realities of running a craft-based business."

"**Woodworking, The New Wave**," by Dona Meilach (Crown).

"Meilach authored dozens of books throughout the 1960s, '70s and '80s on subjects ranging from leather-working to homemade liqueurs. She captured the exuberance of the 1970s DIY/artisan resurgence, and her books on craft showcase scores of lesser-known makers who never crossed over into the digital realm. These books highlight hundreds of courageous, boundary-pushing designs that I think many young makers may not otherwise be exposed to."

YOAV LIBERMAN

Yoav Liberman (yoavliberman.com) is no stranger around here – he's a blogger on our website, and is working on a book for us on working with reclaimed wood. The studio furniture artist, architect

RUSTEN PHOTO BY RITA HILL

and educator's many accomplishments include an architecture degree from the Israel Institute of Technology, heading the woodworking program at Harvard's Eliot House and exhibitions in both the U.S.A. and abroad. Liberman lives in Chestnut Ridge, N.Y., and teaches woodworking at the Rudolf Steiner School in Manhattan.

"**Woodworking: The Right Technique**," by Bob Moran (Rodale).

"This book, contrary to what the name may imply, actually includes a few options to achieve the same result. So for example, in the case of dovetail making, the author demonstrates that this can be achieved using the router, the table saw or hand tools. The book is hand illustrated, and it's both well-written and -edited."

"**Working in Wood**," by Ernest Scott (G.P. Putnam's Sons).

"This title is a lexicon or an encyclopedia of woodworking. The book is beautifully illustrated, comprehensive and clear."

"**A Reverence for Wood**," by Eric Sloane (Dover).

"Sloane was an incredibly prolific writer and illustrator of how-to and Americana books – as well as a philosopher and early environmentalist. In this book he shows a number of old and forgotten ways that trees and their parts have been put to use over the centuries. 'A Reverence for Wood' encapsulates a treasure trove of knowledge."

"**Gord Peteran: Furniture Meets Its Maker**," by Glen Adamson (Milwaukee Art Museum).

"Peteran, an artist living in Toronto and faculty member at the Ontario College of Art & Design, is a modern virtuoso of sculptural furniture. As a maker, he creates site-specific works of art and furniture, and he has an amazing command of forms, techniques and materials. His work is spectacular and his illustrations are fantastic."

"Books are the treasured wealth of the world and the fit inheritance of generations and nations."

— Henry David Thoreau (1817-1862), American writer & transcendentalist

KEITH MITCHELL

When Keith Mitchell (shipwrightskills.com) was a young boy, he was given a pocket knife, a stick and a bag of marshmallows – a trio of gifts he credits with the birth of his woodworking passion. The results prove his case: After apprenticing with a celebrated woodworker, Mitchell attended the Northwest School of Boat Building to add traditional wooden boatbuilding to his list of abilities. Now working as a professional woodworker and boatbuilder in northern Vermont, Mitchell is an avid reader who considers himself a lifelong learner.

"**Complete Foxfire Series**," by Eliot Wigginton and George P. Reynolds (Anchor).

"The Foxfire series sat on the shelf like an Appalachian folk reference library, ready to inspire my wilderness wanderings and teach me to craft meaningful things from natural resources. I was always impressed by these rugged people creating functional art with the simplest of means. As a record of the way things were handmade in early America, I believe the Foxfire series goes unrivaled."

"**The Woodwright's Guide: Working With Wedge and Edge**," by Roy Underhill (UP North Carolina).

"This is another text I feel gets at the heart of woodworking. Underhill is a modern master in the art of teaching and learning as you go. Not filled with measured drawings, Roy encourages you to pick up a sharp tool and craft just about anything you can think of. His look into the past is undoubtedly shaping the future of woodworking."

"**Handtools: Their Ways and Workings**," by Aldren A. Watson (W. W. Norton & Company).

"This is an expertly illustrated trip into the tool cabinet of the author (who was a master woodworker among other things). In it he describes tools in a way that gives real understanding to their form and function. Over 400 pages later, we understand, 'the sharp distinction between working with your tools and merely working them on wood.'"

"**By Hand & Eye**," by Jim Tolpin and George Walker (Lost Art Press).

In this clearly written, well-illustrated and beautifully made textbook, the authors trawl through antiquity and show us how the old masters made beautiful designs without using measured drawings, but instead by using their finely tuned sense of proportion, symmetry and scale. The authors of this unique book welcome you into a world of dividers and design that hasn't been visited in this way by any authors before them." **PWM**

Rodney is a former managing editor of Popular Woodworking Magazine*, an organic pig farmer, novelist and freelance journalist.*

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Mackintosh Tea Table

BY MICHAEL CROW

Art Nouveau meets Arts & Crafts in this oval-topped piece.

Although he died in poverty, the Scottish architect Charles Rennie Mackintosh's furniture now sells for tens of thousands of dollars at auction. Part of the appeal of his work comes from the sheer variety of his designs, which range in style from Art Nouveau to Arts & Crafts to Modern. Mackintosh first designed this tea table as part of a renovation commissioned by the ship owner Robert James Rowat in about 1901. Another copy of the table featured in exhibitions in Turin and Moscow in 1902. In the pre-television era, the tea table provided a place for conversation over drinks and food. Typically lower than a dining table, it fosters an intimate atmosphere.

This design is one of several variations on an elliptical table Mackintosh designed in the early 1900s and marks a transition from the stylized organic forms featured in his Art Nouveau-inspired work to the minimalist geometric forms of his later designs. The table features an elliptical top over a base formed by a shelf and four slab legs,

PHOTOS BY THE AUTHOR

with the legs turned so that they appear to follow the shape of the top. Echoing the top's oval shape, the ovoid cutouts in the legs capture stylized leaves. The legs are dadoed to capture the shelf, and half-blind dovetails join the stretchers to the legs.

Like much of the furniture Mackintosh designed at the time, the original was painted white, but with its contrasting forms and eye-catching cutouts, the table would look good in a variety of woods and finishes. To play up the table's roots, I chose quartersawn white oak and used a fumed finish for my reproduction.

Patterns Make Perfect

If you have access to wide stock, you may be able to cut the top and shelf from single boards. I had to glue up both, slip-matching a single board for each part, then turning my attention to pattern making.

There are three patterns used to shape the parts of the table: one for the top, one for the shelf and one for the leg cutout. I used 3/4" plywood for the patterns, but thinner stock will work as long as it is thick enough for the bearing of a flush-cut router bit to follow.

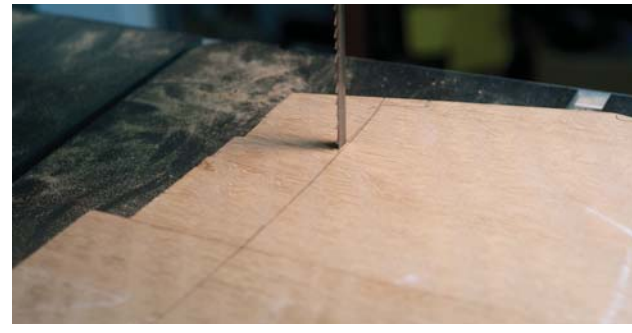
To make the cutout pattern (download the pattern PDFs from Online Extras), rip your stock to 6" wide and trim it to final length, then trace the cutout. Drill a clearance hole at the base of the cutout and cut close to your lines with a jigsaw. With the bulk of the waste removed, sand the curves fair. A spindle sander can handle much of this work, but the tapered point of the cutout will require handwork. Once you're satisfied with the cutout, turn your attention to the pattern for the shelf.

Because the shelf is symmetrical along both its axes, you need to make only a quarter pattern. Outline the shelf using the downloadable pattern (see Online Extras) or by using the measured drawings on the next page as a guide, then trim close to your lines on the band saw or with a jigsaw.

Sand the pattern to its final shape, taking care to hit your layout lines – any mistakes will be repeated four times when you rout the shelf shape.

Lined up. *Mark horizontal and vertical centerlines on the bottom of the shelf blank.*

Pattern position. *Position the shelf pattern on the blank so that it overlaps the centerlines by one inch and trace the outside edge.*



Cut it close. *After tracing the shelf pattern, cut close to your layout lines.*

After shaping the pattern, strike a line 1" back from each inside edge. The setback provides a margin of overlap for smoother routing.

Like the shelf, the top requires only a quarter-pattern. Pattern routing the top eliminates the need to fuss with string and nails to trace an ellipse on the workpiece itself – instead, fuss over making a perfect quarter-pattern. Cut it out and smooth the arc to a fair curve, then strike lines 1" back from the straight edges of the pattern.

All About that Base

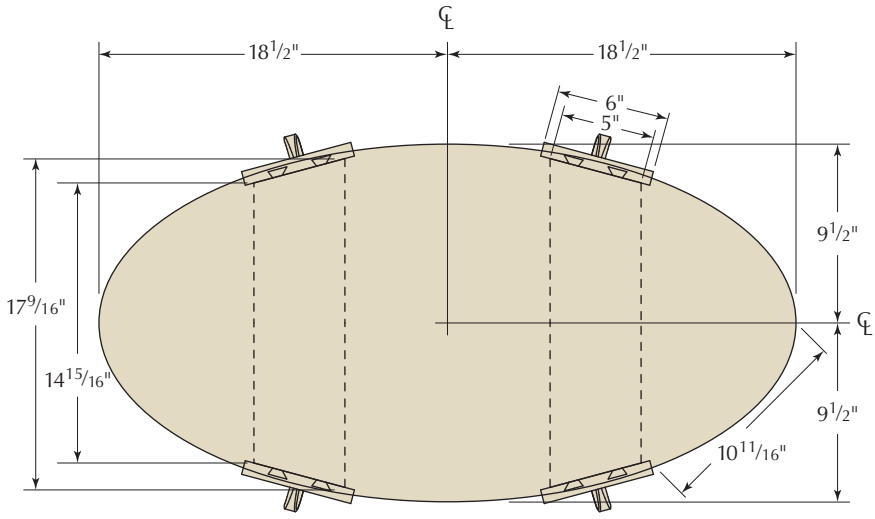
The four slab legs surround the shelf and are joined at the top by two dovetailed stretchers. Begin building the base by preparing the shelf. On its bottom face, mark centerlines along the short and long axes.

These centerlines are used to align the pattern with the blank for layout and routing to final shape. Position the pattern so that its inside edges overlap the centerlines of the workpiece by 1", clamp the pattern in place (spring clamps are convenient here) and trace the outside edge of the pattern. Reposition the pattern and continue tracing.

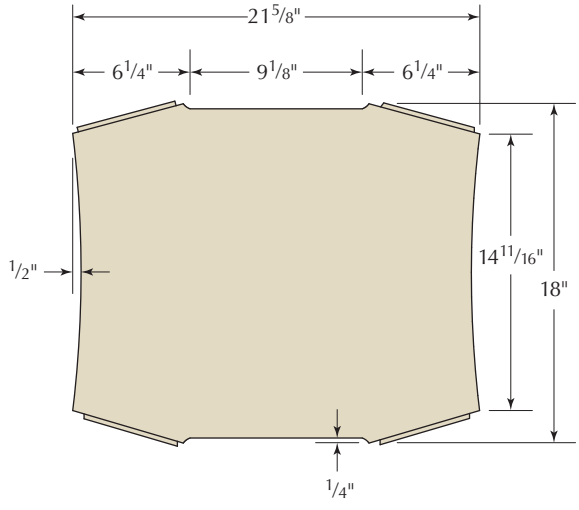
You'll need to flip the pattern over to finish two quadrants of the shelf.

After marking the shelf, rough it out on the band saw or with a jigsaw, cutting within 1/8" to 1/16" of your layout lines.

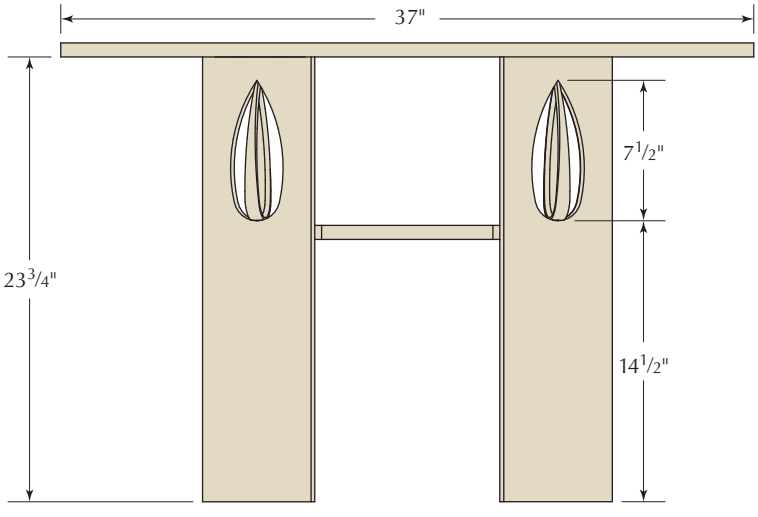
Once you've roughed out the shelf, trim it to final size using a flush-cut bit in your router. Routing the shelf feels a lot like tracing it – position the pattern and rout, then re-position and rout some more. Because the bottom of the shelf won't show, you can screw through the pattern into the shelf to



TOP PLAN



SHELF PLAN



ELEVATION

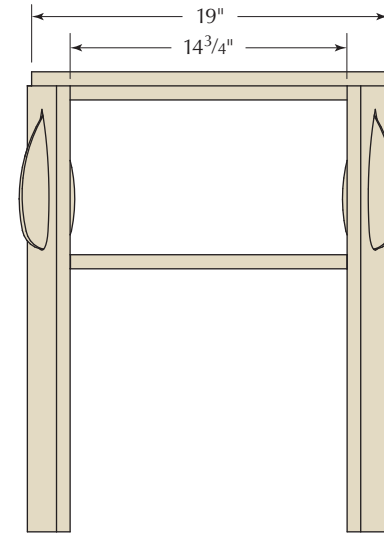
keep it in position (or use double-sided tape if screw holes offend you).

Cut the opposite corners of the shelf, then flip the pattern to cut the remaining corners, positioning the pattern so that the already cut edges will blend smoothly with the final cuts. If you end up with alignment problems after routing, fair the edges.

To cut the tongues on each diagonal, rabbet the top and bottom faces with a 1/4" rabbeting bit set to a 1/4" depth. Then notch the resulting tongue on both sides to form shoulders.

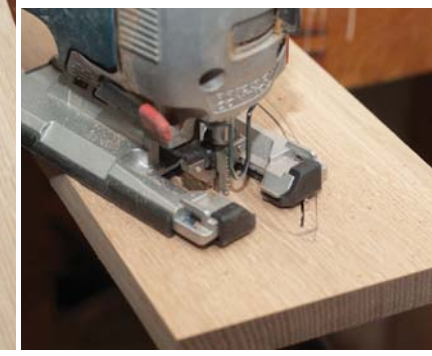
Final shape. *Rout the shelf to final shape.*

Tongued. *Rabbet both sides of the shelf at each corner to form tongues.*



PROFILE

Mark the spots. *The leg pattern serves a double purpose: it shapes the cutout and provides a template to trace the cutout for the carved leaves.*



Wasted. *Begin the leg cutout by drilling a clearance hole, then remove the remaining waste with a jigsaw.*

Flush it up. *The flush-cut bit follows the curve of the pattern, trimming the cutout to shape, but leaves a curve at the top of the cutout. Saw, pare or file the sharp point.*

Now rip the legs to width and length. Using the leg cutout pattern, trace the cutout on the top of each leg, then drill a clearance hole and saw out the waste with a jigsaw, cutting close to your layout lines.

To rout the cutouts, clamp a leg on top of the pattern and finish the cut with a flush-trim bit. The bit won't be able to finish the pointed end of the cutout, so finish up with a saw or chisel.

To complete the legs, mark the location of the stopped dados and cut them with a 1/4" bit in a plunge router. A simple jig captures the base of the router between two fences to ensure the dados are perfectly straight.

Rip and crosscut the stretchers to size with the ends cuts at a 16° angle. To ensure consistent length, stack the stretchers and cut both at the same time. Trim one end to 16°, then flip the stock over so that stretchers will taper to one edge, and cut the stretchers to final length.

Cut a 3/8"-wide x 1/4"-deep rabbet along each end on the bottom face of each stretcher, then cut a couple of dovetails in the ends.

Layout isn't critical here – I made my dovetails about an inch wide and 3/4" in from the edges. Finally, drill elongated screw holes through the stretchers to attach the top to the base.

To lay out the dovetail sockets, dry-fit the base (and mark the corresponding parts of each joint for easy reassembly) and set the stretchers on top of the legs. Then scribe the shape of the dovetails onto the top of the legs with a marking knife.

Dado layout. *Mark the position of the stopped dados on the legs and align the jig with the marks.*

Mackintosh Tea Table

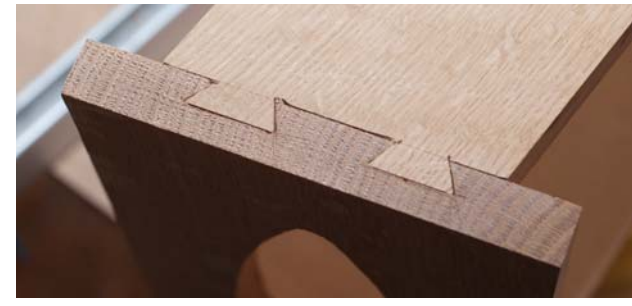
NO.	ITEM	DIMENSIONS (INCHES) T	W	L	MATERIAL
❑ 4	Legs	3/4	6	23 3/4	White oak
❑ 4	Leaf inserts	3/4	2 15/16	7 3/4	White oak
❑ 1	Shelf	3/4	18	21 5/8	White oak
❑ 2	Stretchers	3/4	5	18	White oak
❑ 1	Top	3/4	19	37	White oak

Cut 'em. *Plunge cut the stopped dados. A simple jig captures the router between two fences, ensuring a straight dado.*

Shoulder it. *Rabbet the undersides of the stretcher ends to form a shoulder.*

Tails. *Cut the tails using your preferred method. (Mine is by hand, with a pull saw.)*

Socket locations. *Position the stretcher between a pair of legs and mark the position of the dovetails.*



That'll last. *The finished half-blind dovetails provide a strong joint between stretcher and legs.*

SHAPE THE LEAVES

Echoing the spear-shaped cutouts, the carved leaves provide a finishing touch for the base. Although the table is attractive without the leaves, they elevate the design while showing its roots in the organic forms of Art Nouveau. The leaves might look difficult, but shaping them with a band saw and sander is straightforward.

Begin by tracing the cutout onto your stock (it's a good use for scraps) and cut to your layout lines, then rip the spear shape in half to produce two leaf blanks from each.

Leaves. *Cut out the shape on the band saw (twice).*

Blanks. *Rip each leaf shape in half to prepare two blanks.*

Rough curve. *Rough out the curve of the leaf on the band saw.*

To shape the curve, waste out material on the band saw (cut with the flat edge of the leaf on the table) and sand or plane to final shape, then prepare the parts for finishing using a sander or smoothing plane.

Cut two complementary pairs so they curve toward each other when installed. To cut the 1/8" stub tenons used to attach the leaves to the legs, notch the curved edge of each leaf about 1/8" from the ends.

Position the leaf within its cutout and trace the tenon to mark the mortise on the backside of the leg. Chop the mortise with a chisel, cutting deep enough that you're satisfied with how far the leaves protrude from the outside face of each leg. A quick-set epoxy eliminates the need for clamping. Simply mix a small amount of epoxy and spread on the inside of the mortise and press the leaf home. —MC

Mastic. *Quick-set epoxy and 1/8" tenons join the leaves to the legs.*

Trace & cut. *Trace the arc of the pattern, then re-position and trace again to create an ellipse. Cut just wide of the top's perimeter.*

Oval top. *Align the jig with the centerlines on the underside, then screw it in place. A sharp router bit will leave a clean edge.*

Use a marking gauge to strike lines about 1/2" to 3/8" in from the end of the top of each leg. With the sockets marked, saw out the waste and pare to your layout lines with chisels.

Top it Off

Like the shelf, the top is pattern routed to final shape by positioning and flipping the pattern. Mark horizontal and vertical centerlines on the bottom face of the top, then trace the ellipse.

Cut close to your layout lines with a band saw or jigsaw, then attach the pattern to the top for routing.

Rout to the final shape and fair the edges if needed. After chamfering or rounding over the edges, the table is ready for finishing.

> "Art is the Flower – Life is the Green Leaf."
>
> —*Charles Rennie Mackintosh (1868-1928), Scottish designer & artist*

Fumed Finish

Depending on your material choice and tooling, your finishing schedule may differ from mine. For Arts & Crafts and related projects in white oak, I typically choose a fumed finish. I also finish my parts before assembly. Here, I sanded through #220 grit, then dry-fit the table.

To fume, I built a tent using sawhorses and plastic sheeting, then exposed the table to 26-percent ammonia for 48 hours. After taping off the joinery, I applied three coats of boiled linseed oil, wet sanding with #300-grit paper after the first coat.

Fume it. *The table is fumed for 48 hours in a tent made from sawhorses and plastic sheeting.*

When the last coat of oil was dry, I assembled the base.

The angle of the legs makes for awkward assembly, so cut I some cauls to 16° and glued one pair of legs to their stretcher and to the base at a time, waiting for the glue to dry before tackling the other side.

After the base was together, I centered it on the bottom face of the top and marked the location of my screws, then drilled pilot holes in the top and screwed the base to the top.

With everything together, I applied a last coat of oil and two coats of dark paste wax. When the wax had dried, I was ready for tea. PWM

Michael is the author of several books on woodworking, including a forthcoming one on Mackintosh (due out in November 2017).

Cauls help. *Clamp the legs to the shelf with angled cauls.*

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10 Finishing Tips & Tricks

Solutions for common situations, from softening edges to stripping.

Here are 10 tips and tricks you might use to both speed your finishing and get better results. I've arranged them in the rough order of typical finishing steps.

Soften Sharp Edges

Machining wood leaves edges sharp. Always soften them with several light passes of medium-grit sandpaper before applying a finish. Film-building finishes can peel away from sharp edges if they aren't rounded over a little, and sharp edges get damaged more easily than softened edges.

Soften edges. *Film-building finishes can peel away from sharp edges as shown here. These edges also get damaged easily – so soften them with a couple passes of medium-grit sandpaper before applying the finish.*

Apply Stain

The most efficient methods of applying stain are by wiping or spraying. Brushing is very slow, often too slow with lacquer- and water-based stains that dry rapidly.

When you have thoroughly wetted a surface with the stain, quickly wipe off the excess. With fast-drying stains, try dividing large projects into smaller sections to give you enough time, or get someone else to apply or wipe off.

Applying stain. *The fastest ways to apply a stain are to wipe or spray. Brushing a stain is very slow, usually too slow with fast-drying stains. Still, many people brush, probably because they haven't considered the speed factor.*

Avoid Runs & Sags

You should never have runs or sags in your dried finish. The way to achieve this level of perfection is to watch the surface you're brushing or spraying in a reflected light. You might need to arrange some lights or move your body and your head often to see what's happening.

Runs & sags. *Notice in this picture how easy it is to see the developing runs in a reflected light and how difficult it is to see them elsewhere. Always check the finish in a reflected light while applying it, and brush out any runs as they develop.*

With a reflection you can see easily when a finish begins to sag or run. Then it's a simple matter of using a brush (even if you're spraying) to remove the problem. Lift the excess finish off the surface with the brush and spread it to another part, drag it over the lip of a jar or can or wipe it on a clean cloth.

Best Bar-top Finish

The best finish to use for bar tops, restaurant tables or kitchen tables depends largely on how you intend to apply it.

For a pour-on finish epoxy resin is best. Just like epoxy adhesive, it comes in two parts, which you mix before pouring it onto the surface and spreading it evenly using a plastic spreader.

If you're using a spray gun, the best finish is catalyzed ("conversion") varnish, which also comes in two parts for you to mix before spraying. Close behind in durability are one- and two-part catalyzed lacquers.

CONTINUED ON PAGE 68

PHOTOS BY THE AUTHOR

CONTINUED FROM PAGE 66

If you're brushing the finish, oil-based polyurethane is best. It is significantly more durable than water-based polyurethane because alcohol spills and cleaning chemicals will soften water-based polyurethane over time.

Avoid Rough Surfaces In Confined Spaces

When spraying in enclosed areas, such as the insides of cabinets or drawers, with a fast-drying finish, it's common to get a rough-feeling finish. The bounce back and turbulence created by the force of the spray, even HVLP spray, keeps the finish particles in the air long enough to dry. Then they settle and stick to the surface.

To prevent this from happening, slow the drying of the finish with a retarder. In some situations you can remove the back of the cabinet or the drawer bottom so the bounce back can be exhausted.

Lacquer Over Stain or Glaze

As long as you are using a spray gun for application and solvent lacquer for your finish, you don't have to let an oil-based stain or glaze dry overnight before applying the finish.

The trick is to mist (or "dust") some lacquer onto the stain or glaze after the thinner has evaporated (the stain or glaze dulls) but before the oil binder begins oxidizing and becomes tacky. Unless the stain or glaze is thick, in which case this trick might not work, the lacquer incorporates the uncured stain or glaze and bonds to the wood or finish coat underneath.

After the mist coat dries, continue with your finish coats. It would be a good idea to practice on scrap wood first to be sure you have the timing right. If the timing is wrong, the finish might wrinkle or turn white.

Match Colors

Matching colors is one of the most difficult tasks in wood finishing. It's rare that a stain alone accomplishes a match. The best procedure is to get the color close but a little on the light side with a stain. Then tweak the color by applying a glaze or spraying a toner.

To get a preview of what the glaze or toner will do, apply some to a clean glass plate and place it on the stained wood to which you have applied a coat of finish. You'll know right away if you have a match, or what you need to do to get closer.

Remove Dust Nibs

There's almost always a little dust that settles onto the last coat of finish before it dries, even with fast-drying lacquer. As long as the dust isn't excessive or large, you can make the surface feel smooth by rubbing it with a folded brown paper bag after the finish has fully dried.

Smoothness is important because people like to touch the finish. Smoothness says quality.

Use a Plastic Spreader When Rubbing a Finish

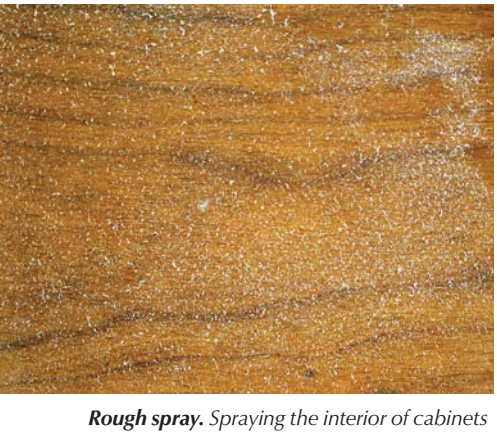
When leveling a finish with sandpaper and a lubricant, you can get a quick view of where you are in the process by using a plastic spreader to remove the sludge from an area. As long as the finish you applied has a gloss sheen, dips and pores where you haven't sanded enough show up well.

The plastic-spreader trick is a lot quicker than washing off all the sludge with a rag and solvent, or a rag and water, and you don't have to let the solvent or water dry to see what's happening. The shiny areas in the pores show up immediately.

Rough Up the Surface Before Applying Stripper

High-performance coatings are often difficult to strip because they are designed to resist damage from solvents. To give your solvent stripper a better chance of working, rough up the surface with coarse sandpaper first. This radically increases the surface area for the stripping solvent to attack.

Then give the stripper a longer time to work, if necessary, by keeping it wet on the surface. PWM



Rough spray. *Spraying the interior of cabinets and drawers with a fast-drying finish such as lacquer or shellac might leave a rough surface like this close-up shows. To avoid it, slow the drying of the finish with a retarder.*

Brown paper bag. *There are always some dust nibs stuck in your finish. As long as they aren't excessive or large, you can level them so the finish feels smooth by rubbing with a folded brown paper bag. This won't scratch the finish as long as it's fully dry.*

Bob is author of "Flexner on Finishing," "Wood Finishing 101" and "Understanding Wood Finishing."

ONLINE EXTRAS

For links to all online extras, go to:

- **popularwoodworking.com/oct17**

ARTICLES: *You'll find many free finishing articles on our website.*

IN OUR STORE: *"Flexner on Finishing" – 12 years of columns illustrated with beautiful full-color images and updated, and "Wood Finishing 101."*

Our products are available online at:

- **ShopWoodworking.com**

New Male Potency Formula Makes "The Little Blue Pill" Obsolete

Soaring demand expected for new scientific advance made just for older men. Works on both men's physical ability and their desire in bed.

By Harlan S. Waxman
Health News Syndicate

New York – If you're like the rest of us guys over 50; you probably already know the truth… Prescription ED pills don't work! "Simply getting an erection doesn't fix the problem," says Dr. Bassam Damaj, chief scientific officer at the world famous Innovus Pharma Laboratories.

As we get older, we need more help in bed. Not only does our desire fade; but erections can be soft or feeble, one of the main complaints with prescription pills. Besides, they're expensive… costing as much as $50.00 each

Plus, it does nothing to stimulate your brain to want sex. "I don't care what you take, if you aren't interested in sex, you can't get or keep an erection. It's physiologically impossible," said Dr. Damaj.

MADE JUST FOR MEN OVER 50

But now, for the first time ever, there's a pill made just for older men. It's called Vesele®. A new pill that helps you get an erection by stimulating your body and your brainwaves. So Vesele® can work even when nothing else worked before.

The new men's pill is not a drug. It's something completely different

Because you don't need a prescription for Vesele®, sales are exploding. The maker just can't produce enough of it to keep up with demand. Even doctors are having a tough time getting their hands on it. So what's all the fuss about?

WORKS ON YOUR HEAD AND YOUR BODY

The new formula takes on erectile problems with a whole new twist. It doesn't just address the physical problems of getting older; it works on the mental part of sex too. Unlike the expensive prescriptions, the new pill stimulates your sexual brain chemistry as well. Actually helping you regain the passion and burning desire you had for your partner again. So you will want sex with the hunger and stamina of a 25-year-old.

THE BRAIN/ERECTION CONNECTION

Vesele® takes off where Viagra® only begins. Thanks to a discovery made by 3 Nobel-Prize winning scientists; Vesele® has become the first ever patented supplement to harden you and your libido. So you regain your desire as well as the ability to act on it.

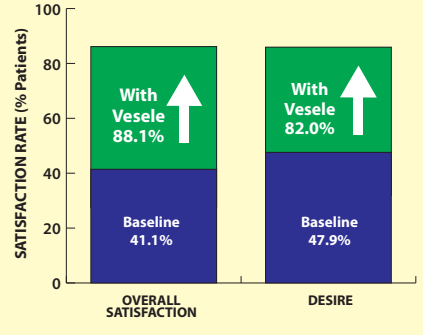
In a 16-week clinical study; scientists from the U.S.A. joined forces to prove Nitric Oxide's effects on the cardio vascular system. They showed that Nitric Oxide could not only increase your ability to get an erection, it would also work on your brainwaves to stimulate your desire for sex. The results were remarkable and published in the world's most respected medical journals.

THE SCIENCE OF SEX

The study asked men, 45 to 65 years old to take the main ingredient in Vesele® once a day. Then they were instructed not to change the way they eat or exercise but to take Vesele® twice a day. What happened next was remarkable. Virtually every man in the study who took Vesele® twice a day reported a huge difference in their desire for sex. In layman's terms, they were horny again. They also experienced harder erections that lasted for almost 20 minutes. The placebo controlled group (who received sugar pills) mostly saw no difference.

AN UNEXPECTED BONUS: The study results even showed an impressive increase in the energy, brain-power and memory of the participants.

JAW-DROPPING CLINICAL PROOF



	Vesele	Baseline
Overall Satisfaction	88.1%	41.4%
Frequency of sex	79.5%	44.9%
Desire for sex	82%	47.9%
Hardness during sex	85.7%	36.2%
Duration of erection	79.5%	35%
Ability to satisfy	83.3%	44.1%

SUPPLY LIMITED BY OVERWHELMING DEMAND

"Once we saw the results we knew we had a game-changer," said Dr. Damaj. "We get hundreds of calls a day from people begging us for a bottle. It's been crazy. We try to meet the crushing demand for Vesele®."

VESELE® PASSED THE TEST

"As an expert in the development of sexual dysfunction, I've studied the effectiveness of Nitric Oxide on the body and the brain. I'm impressed by the way it increases cerebral and penile blood flow. The result is evident in the creation of Vesele®. It's sure-fire proof that the mind/body connection is unbeatable when achieving and maintaining an erection and the results are remarkable" said Dr. Damaj. *(His findings are illustrated in the chart at left.)*

New men's pill overwhelms your senses with sexual desire as well as firmer, long-lasting erections. There's never been anything like it before.

HERE'S WHAT MEN ARE SAYING

- **I'm ready to go sexually and mentally.**
- **More frequent erections at night and in the morning.**
- **I have seen a change in sexual desire.**
- **Typically take 1 each morning and 1 each night. Great Stamina, Great Results!**
- **An increased intensity in orgasms.**
- **My focus (mental) has really improved… Huge improvement.**
- **Amazing orgasms!**
- **I feel more confident in bed**

HOW TO GET VESELE®

This is the first official public release of Vesele® since its news release. In order to get the word out about Vesele®, Innovus Pharma is offering special introductory discounts to all who call.

A special phone hotline has been set up for readers in your area; to take advantage of special discounts during this ordering opportunity. Special discounts will be available starting today at 6:00am. The discounts will automatically be applied to all callers. The Special TOLL-FREE Hotline number is 1-800-322-7503 and will be open 24-hours a day.

Only 300 bottles of Vesele® are currently available in your region. Consumers who miss out on our current product inventory will have to wait until more become available. But this could take weeks. The maker advises your best chance is to call 1-800-322-7503 early.

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CENTRAL MACHINERY — SUPER COUPON

2 HP INDUSTRIAL 5 MICRON DUST COLLECTOR

SAVE $215

Customer Rating ★★★★½

• 70 gallon capacity

$169.99 ~~$199.99~~

Compare $384.99

ITEM 61790/97869 shown

35366740

LIMIT 5 - Coupon valid through 12/1/17*

CENTRAL MACHINERY — SUPER COUPON — SAVE 57%

UNIVERSAL TOOL STAND

• 500 lb. capacity

Customer Rating ★★★★½

$29.99

Compare $69.99 ~~$39.99~~

ITEM 69805

35375296

LIMIT 3 - Coupon valid through 12/1/17*

SUPER COUPON

FREE

WITH ANY PURCHASE

PITTSBURGH

1" x 25 FT. TAPE MEASURE

$6.99 VALUE

ITEM 69030

69031 shown

35357852

LIMIT 1 - Cannot be used with other discount, coupon or prior purchase. Coupon good at our stores, HarborFreight.com or by calling 800-423-2567. Offer good while supplies last. Shipping & Handling charges may apply if not picked up in-store. Non-transferable. Original coupon must be presented. Valid through 12/1/17. Limit one FREE GIFT coupon per customer per day.

SUPER COUPON

20% OFF

ANY SINGLE ITEM

35354374

Limit 1 - Coupon per customer per day. Save 20% on any 1 item purchased. *Cannot be used with other discount, coupon or any of the following items or brands: Inside Track Club membership, Extended Service Plan, gift card, open box item, 3 day Parking Lot Sale item - compressors, floor jacks, saw mills, storage cabinets, chests or carts, trailers, trenchers, welders, Admiral, Bauer, Cobra, CoverPro, Daytona, Earthquake, Hercules, Jupiter, Lynx, Poulan, Predator, StormCat, Tailgator, Viking, Vulcan, Zurich. Not valid on prior purchases. Non-transferable. Original coupon must be presented. Valid through 12/1/17.

Lifetime CARBIDE — SUPER COUPON

ALUMINUM OXIDE SANDING SPONGES - PACK OF 10

Customer Rating ★★★★★

COARSE ITEM 46751 63918

MEDIUM ITEM 46752 63915

FINE ITEM 46753 63912

YOUR CHOICE $3.99

~~$4.99~~

35379457

LIMIT 9 - Coupon valid through 12/1/17*

CENTRAL MACHINERY — SUPER COUPON

2.5 HP 12" THICKNESS PLANER

Customer Rating ★★★★½

SAVE $129

$239.99

ITEM 95082 Compare $369 ~~$299.99~~

35379586

LIMIT 4 - Coupon valid through 12/1/17*

SUPER COUPON

Customer Rating 4 PIECE ANTI-FATIGUE FOAM MAT SET

★★★★★

SAVE 65%

$6.99 ~~$8.99~~

• Each pad measures 25" x 25"

ITEM 61607/62389/94635 shown Compare $19.98

35391326

LIMIT 8 - Coupon valid through 12/1/17*

CENTRAL MACHINERY — SUPER COUPON

12" x 33-3/8" WOOD LATHE WITH REVERSIBLE HEAD

SAVE $68

Customer Rating ★★★★½

$279.99 ~~$319.99~~

ITEM 34706 Compare $347.99

35404963

LIMIT 3 - Coupon valid through 12/1/17*

CENTRAL MACHINERY — SUPER COUPON

4" x 36" BELT/ 6" DISC SANDER

Customer Rating ★★★★½

SAVE 35%

$59.99 ~~$79.99~~

Compare $92.59

ITEM 62502/97181 shown

35411927

LIMIT 4 - Coupon valid through 12/1/17*

PITTSBURGH — SUPER COUPON

24" CLAMP AND CUT EDGE GUIDE

Customer Rating ★★★★½

SAVE 83%

$7.99 ~~$12.99~~

ITEM 66126 Compare $49.23

35420065

LIMIT 7 - Coupon valid through 12/1/17*

WINDSOR DESIGN — SUPER COUPON

NO. 33 BENCH PLANE

Customer Rating ★★★★½

SAVE 82%

$7.99 ~~$9.49~~

ITEM 97544 Compare $45.78

35424826

LIMIT 9 - Coupon valid through 12/1/17*

PORTLAND — SUPER COUPON

14" ELECTRIC CHAIN SAW

Customer Rating ★★★★½

SAVE 38%

$39.99 ~~$49.99~~

Compare $64.99

ITEM 61592/67255 shown

35429871

LIMIT 4 - Coupon valid through 12/1/17*

PITTSBURGH AUTOMOTIVE — SUPER COUPON

PNEUMATIC ADJUSTABLE ROLLER SEAT

SAVE 42%

Customer Rating ★★★★½

• 300 lb. capacity

$19.99 ~~$25.99~~

Compare $34.99

ITEM 61160/61896/63456/46319 shown

35430920

LIMIT 7 - Coupon valid through 12/1/17*

BADLAND Battle Tested — SUPER COUPON

12,000 LB. ELECTRIC WINCH WITH REMOTE CONTROL AND AUTOMATIC BRAKE

Voted Best Winches

Customer Rating ★★★★½

SAVE $410

$289.99 ~~$389.99~~

Compare $699.99

ITEM 61256/61889/60813 shown

35432850

LIMIT 3 - Coupon valid through 12/1/17*

PREDATOR — SUPER COUPON

6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINE

SAVE $230

Customer Rating ★★★★★

$99.99

ITEM 60363/69730

ITEM 69727 shown CALIFORNIA ONLY

$110.99 ~~$119.99~~

Compare $329.99

35436734

LIMIT 5 - Coupon valid through 12/1/17*

WINDSOR DESIGN — SUPER COUPON

11 PIECE WOOD CARVING SET

SAVE 71%

$5.99

Compare $21 ~~$5.99~~

ITEM 60655/62673 shown

35440175

LIMIT 8 - Coupon valid through 12/1/17*

HaulMaster — SUPER COUPON

72" x 80" MOVING BLANKET

SAVE 66%

Customer Rating ★★★★★

$5.99 ~~$8.99~~

Compare $17.97

ITEM 69505/62418/66537 shown

35444005

LIMIT 9 - Coupon valid through 12/1/17*

CENTRAL MACHINERY — SUPER COUPON

10", 12 SPEED BENCHTOP DRILL PRESS

Customer Rating ★★★½☆

SAVE $67

$109.99 ~~$139.99~~

Compare $177.59

ITEM 63471/60237 shown

35445446

LIMIT 3 - Coupon valid through 12/1/17*

HaulMaster — SUPER COUPON

MOVER'S DOLLY

• 1000 lb. capacity

Customer Rating ★★★★★

$7.99 ~~$19.99~~

SAVE 59%

Compare $19.97

ITEM 93888 shown 61899/62399/63095 63096/63098/63097

35445840

LIMIT 7 - Coupon valid through 12/1/17*

FRANKLIN — SUPER COUPON

HEAVY DUTY PORTABLE SCAFFOLD

Customer Rating ★★★★★

NEW

SAVE $70

$179.99 ~~$199.99~~

Compare $250

ITEM 63051/69055/63050 shown

35457188

LIMIT 4 - Coupon valid through 12/1/17*

CENTRAL PNEUMATIC — SUPER COUPON

3/8" x 50 FT. RETRACTABLE AIR HOSE REEL

Customer Rating ★★★★★

SAVE $170

$59.99

~~$89.99~~ Compare $229.99

ITEM 69265/62344/93897 shown

35459031

LIMIT 3 - Coupon valid through 12/1/17*

PREDATOR — SUPER COUPON

8750 PEAK/7000 RUNNING WATTS 13 HP (420 CC) GAS GENERATOR

Wheel kit and battery sold separately.

- Includes GFCI outlets

Customer Rating ★★★★½

SAVE $2170

$529.99

~~$699.99~~ Compare $2700

ITEM 68530/63086/69671/63085 shown

ITEM 68525/63087/63088, CALIFORNIA ONLY

35461227

LIMIT 4 - Coupon valid through 12/1/17*

HaulMaster — SUPER COUPON

STEP STOOL/ WORKING PLATFORM

Customer Rating ★★★★½

SAVE 65%

- 350 lb. capacity

$19.99

~~$29.99~~ Compare $57.55

ITEM 62515/66911 shown

35462367

LIMIT 7 - Coupon valid through 12/1/17*

U.S. GENERAL — SUPER COUPON

44", 13 DRAWER INDUSTRIAL QUALITY ROLLER CABINET

Customer Rating ★★★★★

- 14,200 cu. in. of storage
- 2633 lb. capacity
- Weighs 245 lbs.

$349.99

ITEM 69387 62744/63271 68784 shown

SAVE $2200

~~$399.99~~ Compare $2550

35453049

LIMIT 5 - Coupon valid through 12/1/17*

Bauer — SUPER COUPON

10 AMP DEEP CUT VARIABLE SPEED BAND SAW KIT

SAVE $199

NEW

Customer Rating ★★★★★ ~~$139.99~~ Compare $299

$99.99

ITEM 63763/63444 shown

35467088

LIMIT 5 - Coupon valid through 12/1/17*

KRAUSE & BECKER — SUPER COUPON

AIRLESS PAINT SPRAYER KIT

SAVE $124

Customer Rating ★★★★½

$174.99

~~$219.99~~ Compare $299

ITEM 62915 60600 shown

616339625

LIMIT 3 - Coupon valid through 12/1/17*

CENTRAL MACHINERY — SUPER COUPON

14" OSCILLATING SPINDLE SANDER

SAVE $53

Customer Rating ★★★★½

$99.99

~~$139.99~~ Compare $152.99

ITEM 95088/62146/69257 shown

35477290

LIMIT 4 - Coupon valid through 12/1/17*

SUPER COUPON

SOLAR ROPE LIGHT

Customer Rating ★★★★☆

SAVE 66%

$9.99

~~$13.99~~ Compare $29.97

- Great outdoor accent lighting
- Super bright light

ITEM 62533 63941/68353 shown

35479209

LIMIT 5 - Coupon valid through 12/1/17*

HARDY™ — SUPER COUPON

POWDER-FREE NITRILE GLOVES PACK OF 100

- 5 mil thickness

SIZE	ITEM
MED	68496/61363
LG	68497/61360
X-LG	68498/61359

Item 68498 shown

Customer Rating ★★★★★

SAVE 53%

YOUR CHOICE $5.99

~~$7.99~~ Compare $12.99

35487032

LIMIT 8 - Coupon valid through 12/1/17*

CENTRAL PNEUMATIC — SUPER COUPON

21 GALLON, 2.5 HP, 125 PSI VERTICAL OIL-LUBE AIR COMPRESSOR

Customer Rating ★★★½☆

SAVE $49

$149.99

~~$179.99~~ Compare $199

ITEM 69091/61454 61693/62803/63635/67847 shown

35494836

LIMIT 3 - Coupon valid through 12/1/17*

PORTLAND — SUPER COUPON

9.5", 7 AMP ELECTRIC POLE SAW

Customer Rating ★★★★½

SAVE $34

$64.99

~~$84.99~~ Compare $99.98

ITEM 68862/63190/62896 shown

35496972

LIMIT 4 - Coupon valid through 12/1/17*

PORTLAND — SUPER COUPON

1750 PSI PRESSURE WASHER

- 1.3 GPM
- Adjustable spray nozzle

Customer Rating ★★★★☆

NEW

SAVE $99

$79.99

Compare $179.33 ~~$99.99~~

ITEM 63255/63254 shown

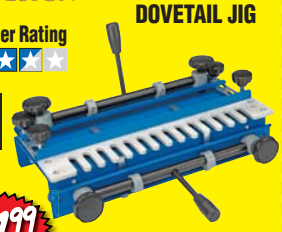
35504076

LIMIT 5 - Coupon valid through 12/1/17*

WINDSOR DESIGN — SUPER COUPON

DOVETAIL JIG

Customer Rating ★★★½☆



SAVE 45%

$27.99

~~$34.99~~ Compare $51.72

ITEM 34102

35533877

LIMIT 5 - Coupon valid through 12/1/17*

PITTSBURGH — SUPER COUPON

WOOD CHISEL SET WITH CLEAR PVC HANDLE - 4 PC

SAVE 83%

Customer Rating ★★★★★

$4.99

~~$7.99~~ Compare $29.97

ITEM 42429/ 69471 shown

35514296

LIMIT 9 - Coupon valid through 12/1/17*

CENTRAL PNEUMATIC — SUPER COUPON

23 GAUGE PIN AIR NAILER

Customer Rating ★★★★½

SAVE 66%

WE CARRY A FULL LINE OF NAILS

$19.99

~~$24.99~~ Compare $59

ITEM 60241/60664/68022 shown

35515701

LIMIT 7 - Coupon valid through 12/1/17*

CHICAGO ELECTRIC POWER TOOLS — SUPER COUPON

4" BISCUIT PLATE JOINER

Customer Rating ★★★★☆

SAVE $134

$44.99

Compare $179 ~~$64.99~~

ITEM 68987

35533288

LIMIT 4 - Coupon valid through 12/1/17*

CHICAGO ELECTRIC WELDING — SUPER COUPON

ADJUSTABLE STEEL WELDING TABLE

Customer Rating ★★★★½

SAVE $80

$59.99

~~$74.99~~ Compare $139.99

ITEM 63069/61369 shown

35522797

LIMIT 5 - Coupon valid through 12/1/17*

PITTSBURGH AUTOMOTIVE — #1 SELLING JACKS IN AMERICA — SUPER COUPON

RAPID PUMP® 3 TON LOW PROFILE HEAVY DUTY STEEL FLOOR JACK

- Weighs 73 lbs.

Customer Rating ★★★★★

SAVE $69

$79.99

~~$95.99~~ Compare $149.98

ITEM 61253/62326/61282 shown

35528513

LIMIT 4 - Coupon valid through 12/1/17*

CHICAGO ELECTRIC POWER TOOLS — SUPER COUPON

HEAVY DUTY MOBILE MITER SAW STAND

Customer Rating ★★★★★

SUPPORTS 16 ft.

- 400 lb. capacity

NEW

SAVE $29

$99.99

~~$119.99~~ Compare $129

ITEM 63409/62750 shown

35532417

LIMIT 3 - Coupon valid through 12/1/17*

ADMIRAL — SUPER COUPON

12", 80T FINISHING SAW BLADE

Customer Rating ★★★★½

SAVE 54%

$24.99

~~$29.99~~ Compare $54.97

ITEM 62725

35532537

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I Am a Couch Builder

The best measure of success comes in the doing.

I don't know if I am alone in this matter, but I have to admit that quite often I consider myself a couch builder.

Maybe you know the drill yourself. You sit on a couch and read a woodworking magazine not just to get inspired – that would be fine. But somehow you imagine that it is you doing the build. And boy I know that I am efficient in those projects! A tool chest: 20 minutes maximum. A workbench: maybe 25 minutes (but that includes a cup of tea).

In my mind I can build as fast as I can read the magazine. Actually, after reading the articles a couple of times I don't even have to read the fine print anymore. I just look at the pictures and maybe read the text accompanying them.

One of the really nice things about building this way is that there are never any surprises such as reversing grain, knots, running out of stock, wood movement, bad finishing, overcutting lines, tear-out, bad glue-ups, twisted stock or dull tools.

Actually, these builds are probably my best ones. They never go wrong – but if they by some stroke of bad luck should, fixing them would be a piece of cake.

I can't quite remember the imaginary number of times that I have built a Roy Underhill "Joiner's Tool Chest." But I have built it for real once, and it was definitely not as fast as the couch builds.

The same thing goes with a chimney cupboard. Bob Rozaieski built a really nice version for *Popular Woodworking Magazine* some years back, and I have built it at least 10 times. It is such a pleasant project. It is guaranteed to turn out perfect every single time. Even the finish can't go wrong. A nice homemade ochre-colored paint based on boiled linseed oil covers the perfectly handplaned boards in a jiffy. Drying is instantaneous. The dark paste wax is applied and buffed off, and after mounting the hardware without the screwdriver ever slipping, the project is once again complete.

In a way, it is very satisfying to build like this. There isn't a project that you can't handle, and the result is perfect every single time.

But in another way, building projects this way isn't satisfying at all. Once you look up from the magazine, they vanish into thin air. There isn't even the nice smell of freshly planed wood on your shirt. Those projects also tend to be difficult to show to friends and family.

The problem is that if you leave the success zone of the couch and head into the real shop, maybe you will encounter difficulties. Perhaps even setbacks. You might find that you are not quite as skilled as you thought you were. And if the project was described as something to be done in "a weekend's time in the shop," you had better be quicker than that because if not, it must mean that you are not as skilled as you were on the couch.

The harsh reality of my own limitations and mediocre skills always strike me full force when returning home from the ship on which I work.

For five weeks on board, I have thrived as a successful couch builder, then suddenly I am just regular me in a workshop filled with all kinds of annoying problems that the professionals never seem to have: the aforementioned reversing grain, knots, running out of stock, wood movement, bad finishing, overcutting lines, tear-out, bad glue-ups, twisted stock or dull tools.

The strange thing is, most people seem to like the stuff that I build in the real world better than what I build on the couch. So perhaps I should focus more on getting into the actual shop and stop couch building. **PWM**

Jonas is a marine engineer who spends much of his time on a platform supply vessel. But when at home in Denmark, he's in his shop as often as possible, where he works mostly with hand tools.

ONLINE EXTRAS

For links to all online extras, go to:

- popularwoodworking.com/oct17

BLOG: *Read the author's blog (where this was first published) at mulesaw.blogspot.com).*

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The Evolution of Carbide Insert Woodturning

Love Turning but Hate Sharpening?

If you love turning but don't have the time or equipment it takes to effectively sharpen your tools, you have to check out Woodpeckers new *Ultra-Shear* line. Just like other carbide insert tools, *Ultra-Shear* tools have a short learning curve, simply keep the tool flat and level on the centerline of the workpiece and cut the shape you want.

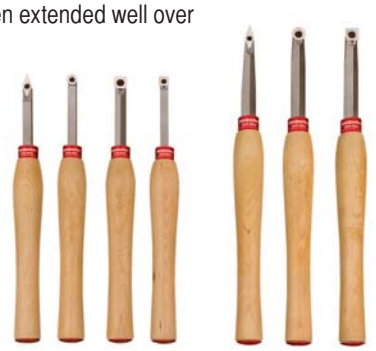
But *Ultra-Shear* goes even further, delivering a spectacular surface finish with a technique called ***shear scraping***. Roll the tool right or left on your tool rest and you will feel it land solidly on a secondary bearing surface. This sets your cutting edge at 45° to the stock. Coming into the work at this angle, the wood fibers slice cleanly, virtually eliminating sanding. The exclusive shape of the *Ultra-Shear* shaft allows you to switch from aggressive stock removal to super-fine finishing in the blink of an eye.

The Sharpest, Longest Lasting Inserts

On the "business end", Woodpeckers development team worked hand in hand with the best carbide manufacturer in the country to give you the best inserts on the market. It starts with a ***nano-grain*** carbide material. This extremely fine-grained carbide can be polished to a mirror finish, yielding a cleaner, sharper edge. Yet it is tough enough to hold that edge longer than virtually every other insert on the market.

Solid Support for the Insert Means Chatter-Free Cuts

The alloy steel shaft undergoes a two-step hardening process giving you a tool that floats smoothly across your tool rest and resists vibration, even when extended well over the tool rest. The tool pocket machined into the shaft supports the insert with three-point contact, not just the clamping force of the screw. You get a tool that feels and responds even better than most conventional tools.



Keep the tool flat on the tool rest and level to the ground for fast stock removal and basic shaping cuts.

For ultra-fine finishing cuts, roll the tool right or left until it lands on the 45° bearing surface. Now, take a light pass with the tool still level. You'll be amazed at the clean cut and smooth finish.

Detail tool has two styles of tips, full sharp (supplied as standard) for creating precise vee lines and radius point for making small beads and coves (optional).

Whether you're a beginner or an experienced turner, turn large bowls, pens or tiny miniatures, you'll find ***Ultra-Shear*** tools will eliminate the drudgery of sharpening and dramatically increase your confidence and success at the lathe. For more details and to see the tools in action, visit our website: **www.woodpeck.com/ultra-shear**

Woodpeckers, Inc.®

See our full line of American-made precision woodworking tools at **woodpeck.com**

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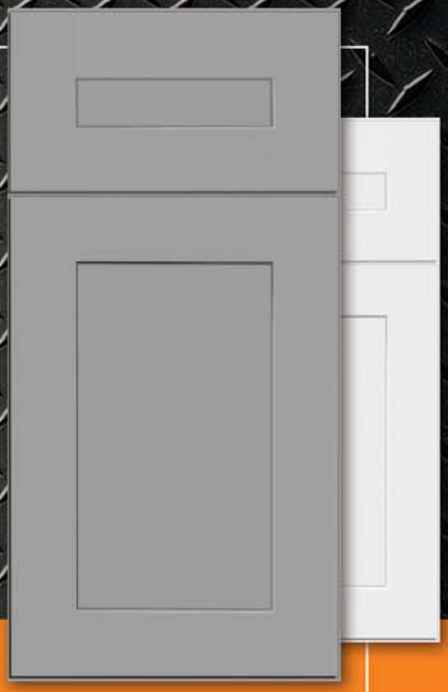

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