

American  
Woodworker

GREAT BOOK OF  
Woodworking  
Tips

OVER 650 INGENUOUS WORKSHOP  
TIPS, TECHNIQUES, AND SECRETS  
*from the Experts at American Woodworker*





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**OVER 650 INGENUOUS WORKSHOP TIPS,  
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*from the Experts at American Woodworker*

Introduction by Randy Johnson  
Editor, *American Woodworker Magazine*

  
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# Introduction

## It's about the aha!

Everyone loves a clever workshop tip. An ingenious solution to a vexing problem brings an aha! to the lips, and with it the resolve to try the trick for oneself, or perhaps to go one better by creating an improvement. Or, if the shop tip is obvious, we salute with a slap to the forehead, wondering why we couldn't have thought of that for ourselves. But we didn't, and that's one reason why woodworkers treasure collections such as this book.

The other reason, of course, is wrapped up in today's workshop reality. It's not like it was in Grandpa's day, when skills and workshop practices were passed from master to apprentice and father to son. This is the era of the amateur craftsman, mostly self-taught, working alone in his or her home workshop, and most likely without much contact with other woodworkers. In lieu of Grandpa, we rely on woodworking magazines to provide this all-important sharing of information and shine a light on the conundrums that dog the path to prowess. Every magazine and journal in the field boasts a tips column, largely driven by the readers themselves and their urge to share hard-earned knowledge. Along with shop tips, readers frequently ask good questions, giving the editors the additional challenge and opportunity of finding and presenting equally good answers.

It's often said that skill has two components: know-what, plus know-how. You have to know what to do, as well as how to do it. It's not always easy to glean both components from the printed page, but a sharp photograph certainly does help. Photography is where this collection of workshop tips really shines. Since 1999, editors at *American Woodworker* magazine have invested heavily in creating clear photo illustrations for reader-submitted tips and questions. When it's only a drawing, you're never quite sure about the underlying reality. But the photo removes that uncertainty, making the answer clear on the page.

We've emphasized photo illustrations in this huge collection of workshop wisdom. I'm personally grateful to my predecessors and colleagues for their determination to grace each chunk of solid advice with photographic clarity. Our team certainly has enjoyed gathering, illustrating and organizing this priceless information. We hope you enjoy the succession of aha! moments that you're sure to receive as you turn these pages.

—Randy Johnson, editor-in-chief,  
*American Woodworker* magazine

# Bandsaw

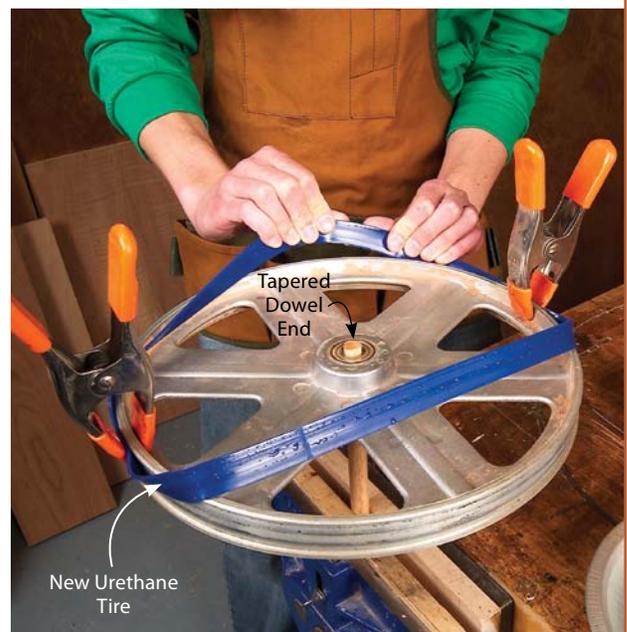
## New Bandsaw Tires

**My bandsaw has developed tracking problems to the point that the blade won't stay on the wheel. I checked everything and can't seem to clear up the problem. What's going on here?**

Because these problems developed over time, I suggest you check your tires. The tires on your bandsaw provide traction for the blade and, like the tires on your car, they wear out and the rubber degrades with time. A new set of tires will likely put your saw back on track.

“Obvious signs of worn tires are cracks and tears,” explains Peter Perez, president of Carter Products Inc., a bandsaw accessory manufacturer. “A good wear test is to sink a fingernail into the tire. A good tire will rebound with no visible mark on it. If your fingernail leaves an impression, it's time to replace the tire.”

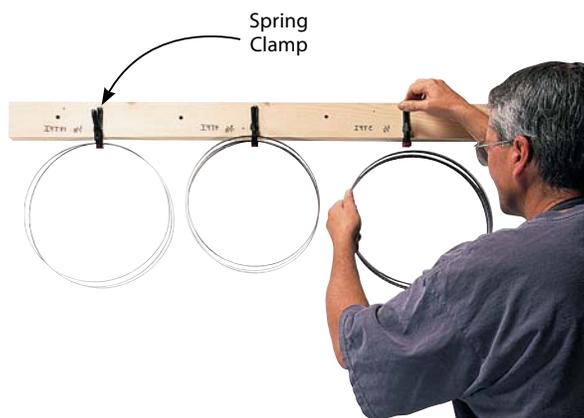
It's easier to replace the tires with the wheel removed from the saw. Taper the end of a dowel, clamp it in a vise, and set the wheel on it. We recommend replacing both rubber tires with urethane tires. Urethane offers two big advantages: It lasts longer and it doesn't require adhesive to install. Clamp the new tire on the wheel and stretch the tire over the rim. Urethane tires can be made more flexible by soaking them in hot water before you put them on the wheels.



# Spring Clamp Blade Storage

I like to keep my bandsaw blades on the wall next to my saw. To save space, I fold them into coils. The trouble comes when I hang the coiled blade on a peg or nail. I've had the blades suddenly come uncoiled and spring off the wall! That's unpleasant and potentially dangerous. I tried using twist ties, but they wore out quickly and it was a pain having to tie up and untie the blade every time I used it.

I came up with this handy hanger made with a 2x4 and some very small spring clamps. I notched the edge of the 2x4 with a dado blade and screwed a spring clamp into each notch. Now when I go to change blades, all I have to do is squeeze the spring clamp to release the blade.



# Can a 2x4 Dull a Blade?

**After resawing some pine 2x4s, my bandsaw blade smoked and seemed mighty dull. How can that be?**

Chances are your blade wasn't dull at all. It's teeth were probably coated with pine pitch, which you should remove with blade cleaner. Other woods, such as cherry, also deposit pitch on bandsaw blades.

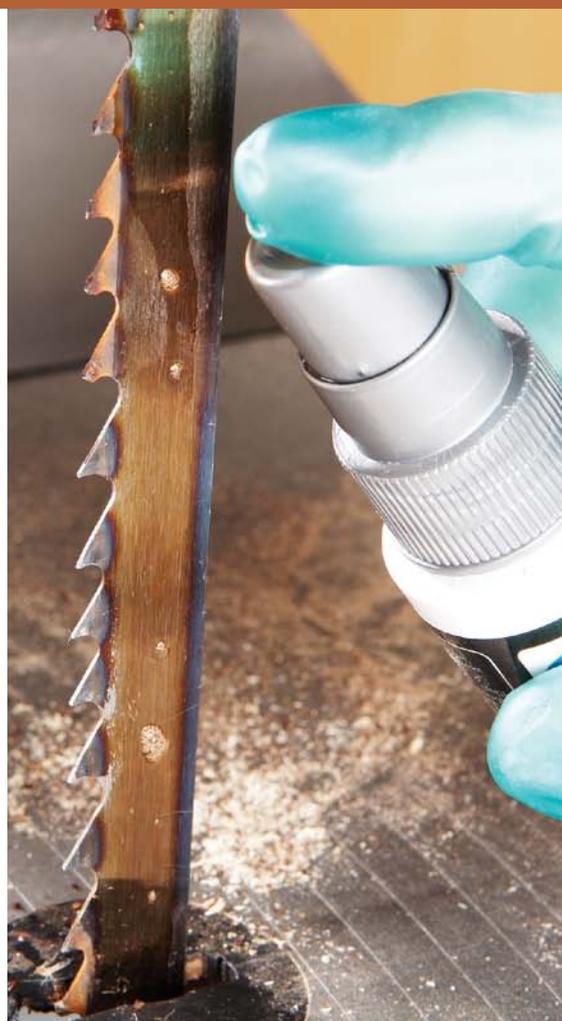
Like any sawblade, a bandsaw blade's teeth won't cut properly if they're caked with pitch. Pitch fills in the clearances necessary for the blade to cut with a minimum of friction. This makes the blade run hotter, which creates even more buildup. Blade cleaner removes all traces of pitch, making your blade feel much sharper. You should remove the blade for cleaning to avoid potentially damaging your wheel's tires.



Tooth with pitch buildup



Tooth after cleaning

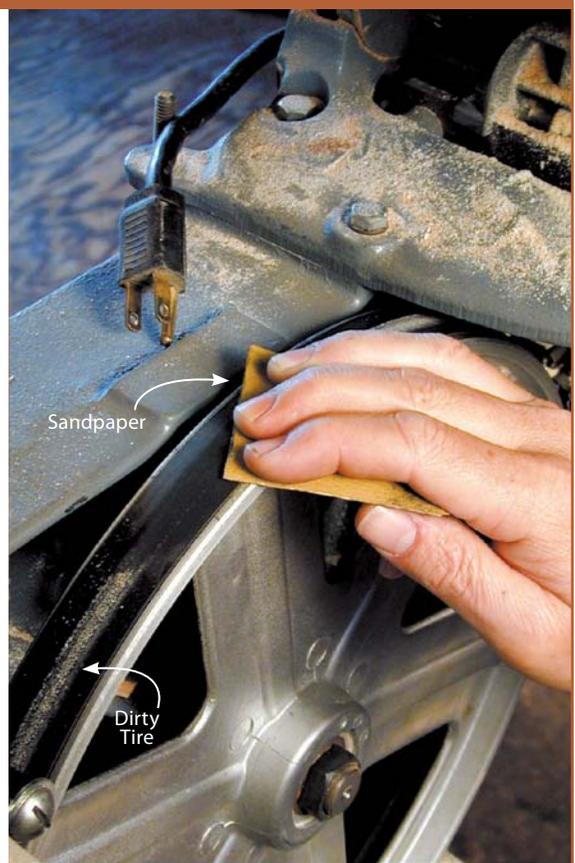


## Clean Bandsaw Tires

**My bandsaw tires have a buildup of pitch and sawdust that seems to be embedded right into the rubber. What's the best way to clean my tires?**

An excessive buildup of sawdust and pitch on your tires can lead to tracking problems, so it's a good idea to clean them periodically.

Start by unplugging your machine. Then remove the blade and tilt the table out of the way. You'll find the buildup to be much worse on your lower tire where sawdust tends to get trapped under the blade as it travels around the wheel. Use some 120-grit sandpaper or synthetic steel wool and a light touch to clean the wheel as you turn it by hand.

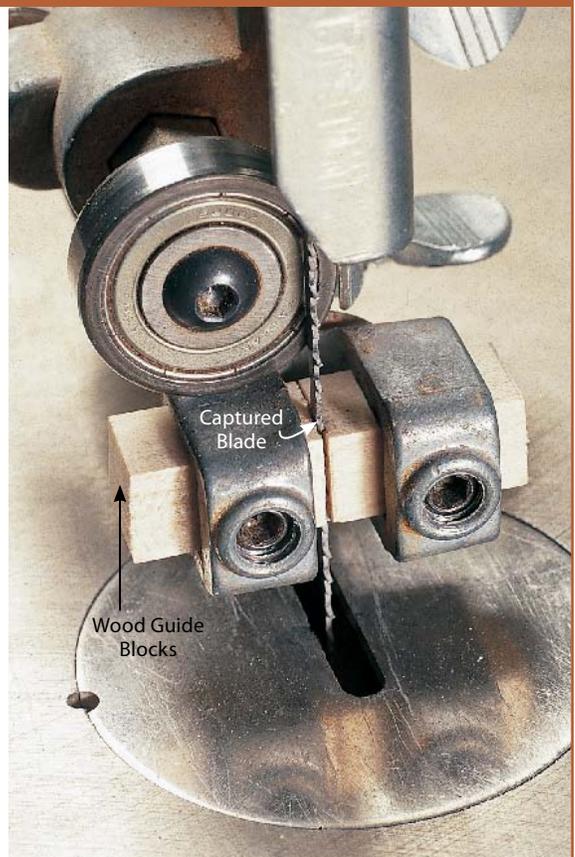


## Disposable Guide Blocks

I've bandsawed hundreds of puzzle pieces using very small blades. I gave up on the steel guide blocks that came with my saw because when those little blades came in contact with the blocks, they'd dull right away. And, when I wanted to back out of a cut, the blade would pop out of the blocks.

Now I make my own guide blocks from scraps of hardwood. My blades last longer and don't pop out or wander because they're trapped between the wooden blocks. The blocks wear, but it's so easy to just re-cut their ends or make new ones altogether.

With the bandsaw unplugged, I install the new blocks by pushing them toward the blade until they're lightly touching it. Then I lock the blocks in place and spin the upper blade wheel to make sure they don't drag on the blade.



# Align Bandsaw Wheels

**I've tried everything to get good resaw results on my bandsaw, but the blade still wanders. What gives?**

If you use a sharp blade designed for resawing, compensate for drift angle, and set the proper tension and still get bad results resawing, there's only one other possibility: Your wheels need alignment. Pop the hood (well, the wheel covers) on your saw and put a straightedge across the rim of both wheels (Photo 1). If there's a gap, your wheels are not operating in the same plane.

Misaligned wheels are a problem for bandsaws with crowned wheels. If your saw is 16 in. or smaller, chances are it has crowned wheels. A crowned wheel has a slight hump where the blade rides. The crown is designed to force the blade toward the center of the wheel and aid in tracking the blade. If the two crowned surfaces are not in the same plane, they pull against each other, robbing the saw of power and accuracy.

Fortunately, the problem is easy to fix on most saws. First, measure the misalignment (Photo 2). Next, remove the blade and the wheel and apply the appropriate shim(s) (Photo 3). Most saws have thin washers behind each wheel. You may find removing the stock washer and replacing it with a thicker one is just the ticket.

Reattach the wheel and give your saw a spin.

**Note:** Some saws have an adjustable bottom wheel. Just loosen the setscrew and slide the bottom wheel in or out the appropriate amount.



Check the wheel alignment with your resaw blade mounted and tensioned. It may be necessary to adjust the tracking of the upper wheel to make the faces of both rims parallel.



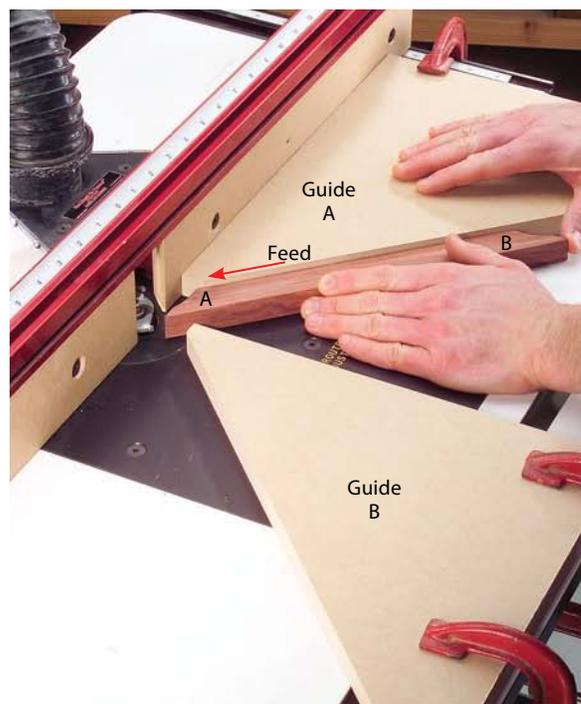
Measure the gap with a ruler calibrated to at least  $\frac{1}{32}$  in. or with a dial caliper.



Add or replace washers behind the wheel to achieve alignment. For small adjustments, use metal shim stock or metal dado blade shims behind the washer.

## Reinforce Short Miters

To strengthen miter joints in narrow stock, use face frame biscuits. They're like standard biscuits but smaller (about  $1\frac{3}{16}$  in. long), so you can use them in stock as narrow as 1 inch. To cut the slots, use a  $\frac{5}{32}$ -in.-thick slot cutter in your router table. Set the router fence so the bit cuts a  $\frac{5}{16}$ -in.-deep slot. Then clamp 45-degree guides to your router table. The guides make it easy to feed the workpiece into the slot cutter. Use one guide (A) for one end (A) and the other guide (B) for the other end (B). Test your setup before cutting actual parts of your project.



## Simplify Drawer Making

Why bother with fancy joinery when biscuits will hold together a drawer box just fine? Save the dovetails for show pieces, or for when a large drawer rides on wooden supports and must be super-strong. If you're using metal slides and a false front, biscuits are perfect. The joint doesn't show, and has enough strength for many years of use.

Half-inch Baltic birch plywood and #0 biscuits are a good combination for making drawers. This plywood has very few voids, so its edges generally look good. The slot for a #0 biscuit goes into  $\frac{1}{2}$ -in.-thick stock without coming through the other side.

To make the drawers, draw layout lines down the center of each piece. Cut slots in the ends of the front and back pieces. Cut slots in the faces of the side pieces. It's tricky to balance a plate joiner on the end of  $\frac{1}{2}$ -in. stock, though. To make it easier, simply clamp two pieces together. You can cut slots in two pieces with one setup.



Two slots are easier to cut than one. Clamp thin boards together to make a wider bearing surface for your plate joiner.

# Slot Cutter vs. Plate Joiner

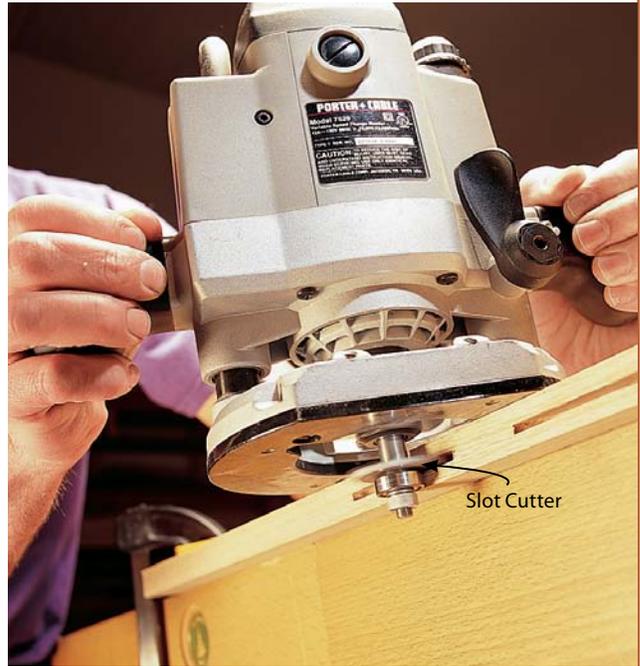
**I saw an ad for a slot-cutting router bit. I have a router and buying the bit instead of a plate joiner would save me a lot of money. Is there a downside to this cheaper option?**

It depends on what kind of joints you plan to make.

A slot cutter does a good job with flat edge-to-edge or end-to-end joints (Photos 1, 2 and 3). Other joints can present some problems:

- A butt-corner joint (Photo 4) can be made, but requires the extra step of clamping a support board to the piece with the face slot. This gives your router a broader surface to rest on.
- On a tee-butt joint (Photo 5) you can rout the end slot but it is impossible to cut the face slot in the other board.
- A corner miter (Photo 6) is best handled using the slot cutter in the router table with an angled jig to hold the work. If your pieces are very big this can get quite cumbersome.

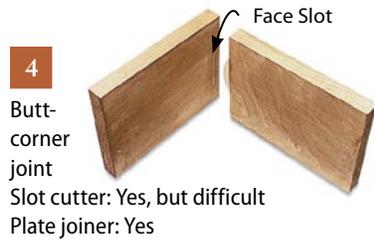
A plate joiner (photo at right), on the other hand, will make all of these joints with ease. It also has built-in dust collection.



Cutting biscuit slots with a slot cutter is easy on flat work.



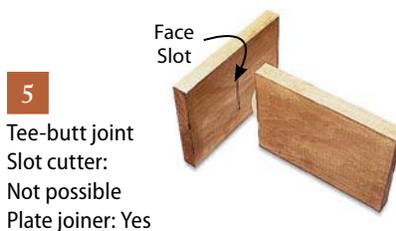
**1**  
Edge-to-edge joint  
Slot cutter: Yes  
Plate joiner: Yes



**4**  
Butt-corner joint  
Slot cutter: Yes, but difficult  
Plate joiner: Yes



**2**  
Flat-tee joint.  
Slot cutter: Yes  
Plate joiner: Yes



**5**  
Tee-butt joint  
Slot cutter:  
Not possible  
Plate joiner: Yes



**3**  
Flat-end miter  
Slot cutter: Yes  
Plate joiner: Yes



**6**  
Corner miter  
Slot cutter: Yes, but difficult  
Plate joiner: Yes



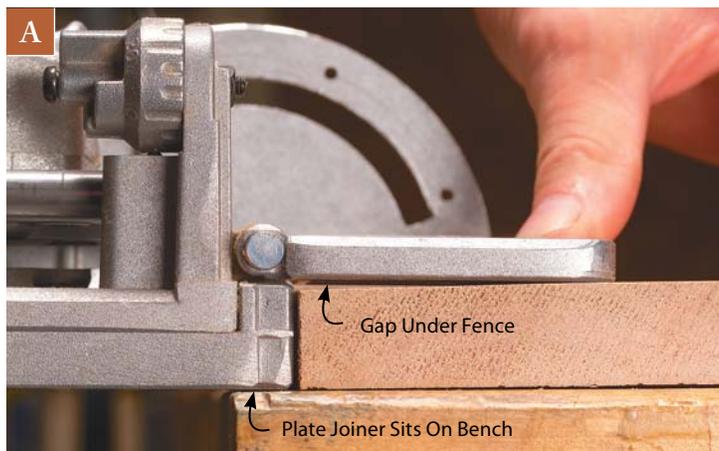
Cutting angle joints with a plate joiner is quick and easy. It's possible, but awkward, to do this with a router.

# The Mysterious Misfit

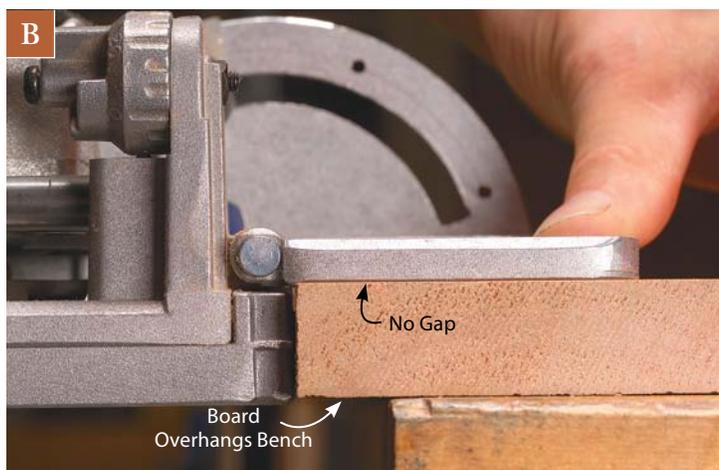
I was cutting slots for a long edge joint the other day, and everything was humming right along. But, when I put the boards together, they didn't line up worth a darn!

Turns out I made a very simple mistake. All along I thought my plate joiner's fence was sitting on top of the board (Photo A). Nope. On some cuts, the bottom of the plate joiner must have been sitting on the bench instead. The board was a bit bowed, so I ended up making slots at different heights. That's why the boards weren't flush.

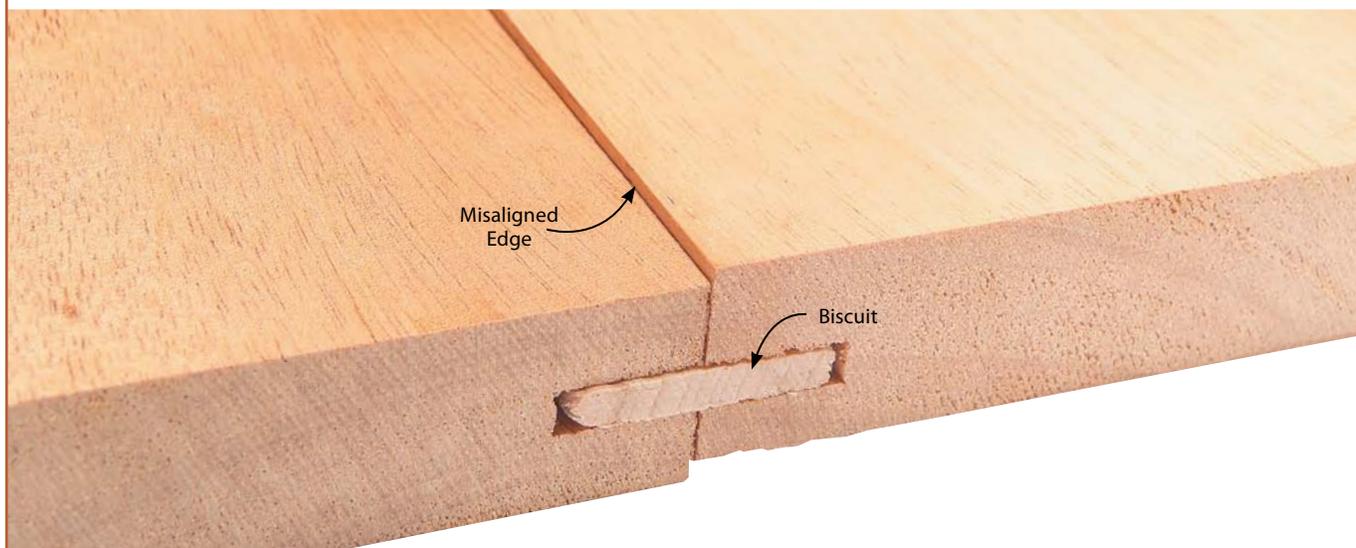
To fix this, I glued biscuits in the bad slots, cut off the excess and started over. This time I made sure the board hung over the edge of the bench when I cut each and every slot (Photo B).



Slots may not line up if your plate joiner sits on the benchtop. There may be a small gap under the fence.



Hang your boards over the edge of the bench to make consistent slots every time.



# Router

## Cut Dados with a Router

Here's the scene: You're building an entertainment center and the sides are 7-ft. high and almost 3-ft. deep (big enough for that big-screen TV you've always wanted). But the sides have to be dadoed for shelves. Forget trying to use a dado head on the tablesaw, unless you happen to have 8-ft. rails on your saw! Instead, use a router and this easily made jig:

Make the jig from a straight board and a piece of  $\frac{1}{8}$ - or  $\frac{1}{4}$ -in. plywood or hardboard wide enough to extend 4 in. on either side of the board. Glue and screw together, then trim the bottom board using your router and a straight bit. The diameter of the bit should be whatever size you plan to use for the dado. I trim one side with a  $\frac{1}{2}$ -in. bit and the other side with a  $\frac{3}{4}$ -in. bit.

To cut the dado, simply line up the edge of the jig with wherever you want the dado.

Glue and screw together, then trim the bottom board using your router and a straight bit. The diameter of the bit should be whatever size you plan to use for the dado. I trim one side with



a  $\frac{1}{2}$ -in. bit and the other side with a  $\frac{3}{4}$ -in. bit.

To cut the dado, simply line up the edge of the jig with wherever you want the dado.

## Benchtop Router Table Cabinet

My first router table was a simple benchtop model. It was convenient to park on a shelf, but not convenient to use on an actual bench—that put the router table's surface too high. To place the table at the right height, I built a small cabinet to go underneath it, and added a mobile base sized for a drill press. I stored my wrenches, extra collet, starting pin, featherboards and coping sled in the cabinet, away from all the dust.



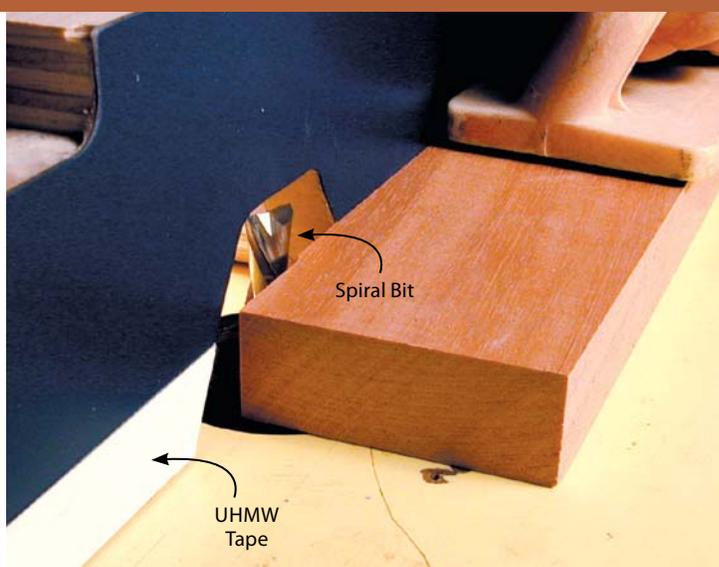
## Better Joints

**I like the clean look of thin, solid-wood edge banding on plywood. But, without a jointer to remove the saw marks, I'm unable to get an invisible joint. Any suggestions for a guy without a jointer?**

Instead of a jointer, you can use a router table. An up-cut spiral bit does the best job, but a straight cutter will do.

For the board to have continuous support before and after the cut, you'll need to create an offset on the outfeed side of the fence that's equal to the amount of wood removed. A strip of self-stick ultra-high molecular weight (UHMW) tape on an auxiliary fence does the trick. UHMW is a special plastic that wears forever and provides a slick surface for the wood to glide on. Using a straightedge, set the fence so the cutter is exactly flush with the taped side.

To make the narrow strips for your invisible joint, start with a wide board and clean up one edge on the router table. Then rip the 1/4-in. strip from the clean edge of the board. Repeat for as many strips as you need.



## Cutting Dovetail Slots

Some tables, such as the classic Shaker style, have a turned center column with three dovetail slots to hold the legs. I make these slots with the spindle still in the lathe. That way I can use the lathe's indexing pin to accurately space the slots.

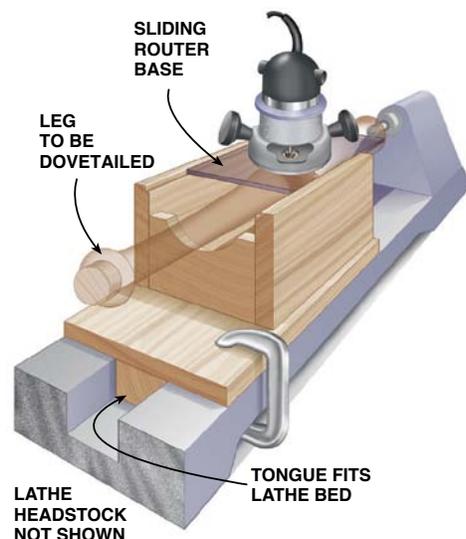
First I make an open box, with a tongue below, that engages the lathe bed. The top of the box is open and the router slides in rabbets cut in the sides, as shown.

After turning and finishing the spindle, I lock the index pin at zero. Then I clamp the box to the lathe

bed, position the router and adjust the depth of cut.

After making the first cut I mark the position of the router plate on the carriage with a pencil. Then I rotate the spindle 120 degrees (for a three-legged table), reset the index pin and make the next cut.

I advise making a trial cut in a piece of scrap first. To reduce the chances of breaking your dovetail bit, remove most of the waste with a straight bit before cutting the dovetail slot.



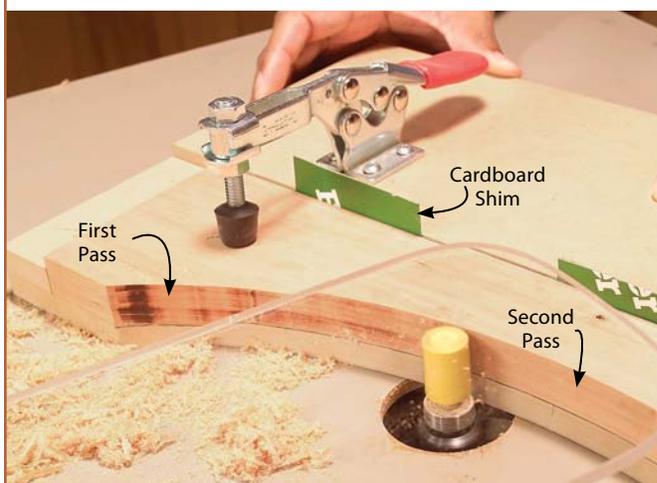
## No-Fuss Flush Trimming

My flush-trimming setup allows trimming veneer and solid wood edging up to  $\frac{7}{8}$ -in. thick. It consists of a router with a  $\frac{1}{2}$ -in. straight bit, a table and a perpendicular fence. A 1-in.-thick spacer separates the fence and table. The router mounts to the fence so the bit is flush with the tabletop. I attach my shop vacuum's hose to a hole drilled through the cleat, under the bit. I size the edging so it overhangs by  $\frac{1}{16}$ -in. or less.



## Get the Burn Out

Arrgh, another burned cut! Don't you hate it when this happens? Here's a fix. Shim out the workpiece with thin cardboard and take a second light cut. Burning most commonly occurs on end grain or when you use a dull bit. Feeding the workpiece too slowly also can cause burning.



# Shop-Tested Woodworking Wisdom

Keep the *Great Book of Woodworking Tips* close by your workbench for a ready source of inspired, shop-tested advice for woodworking success on any project. It's the essential DIY reference, packed with reader-written woodworking tips and techniques from *American Woodworker* magazine, the premier publication for woodworkers. This comprehensive guide offers more than 650 ingenious solutions to common woodworking problems. Supplemented with clear workshop photography, each insightful pointer has been workplace-tested by the editors.

Whether you are an accomplished woodworker or just beginning to set up your workshop, you'll find quick answers to all of your most challenging questions. Sharpen your woodworking skills for drilling, sawing, routing, clamping, gluing, joinery, finishing, and much more. Avoid common pitfalls and solve everyday problems with materials, tools, techniques, shop organization, and maintenance. Benefit from the experience of others, and share their secrets for making woodworking easier and more efficient. Even the most experienced woodworker doesn't have all the answers, but this big, well-organized book is the place to find them.



## This ultimate collection of tips includes:

- How to rout perfectly fitting edge joints, every time.
- How to sharpen every kind of blade and bit, including carbide router bits.
- How to move, store and saw 4x8 sheets all by yourself.
- How to make drawer slides that really glide and never wear out.
- How to joint and plane to thickness without maddening snipe.
- How to clamp and glue awkward miters and curved parts.
- How to flatten warped wood (it's easier than you think!).