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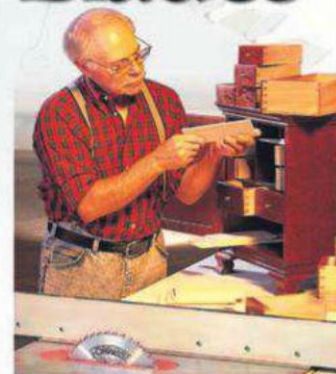
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Introduction



INDELIBLE CLASSICS WORTH REPEATING

We've amassed a wonderful inventory of table articles over the years, and it's no surprise. Tables are eminently practical — in dining rooms and at bedsides, next to a favorite reading chair or for displaying what we cherish. As you'll find here, tables come in a broad range of styles and complexity. They're among our most popular and enduring projects.

That's why we're dedicating an entire Special Issue to this collection of Heirloom Table Projects from our archives — I think you'll find them fresh and inspiring! If you're new to woodworking, flip to "Guidelines for Making a Table Top" on page 66, then give the Drop-leaf Table a go (see page 8). Its roots are in the Shaker tradition, but so are the elegant pair of End Tables made by our editor-in-chief, Rob Johnstone, on page 28. Rob also gives fresh zest — and a two-tone color scheme — to revitalize a country classic on page 22.

The Arts & Crafts tradition is alive and well here, too. Gather some showy quartersawn oak for the Side Table on page 36, or commit your mahogany stash to Sandor Nagyszalanczy's Green & Greene Bedside Table (see page 58).

We've also selected a couple of Chippendale interpretations. Kerry Pierce turns a classic Candlestand with cabriole legs on page 16, while Carl Spencer offers an ornate Sofa Table (see page 44). He's even included optional material lists for matching End and Coffee Tables in case you'd like to build a complete set. Speaking of cabriole legs, check out the cherry Side Table on page 52. It's an excellent reason to fire up the band saw and practice those hand plane skills.

These heirloom quality tables are yours for the making: have at them, and enjoy!

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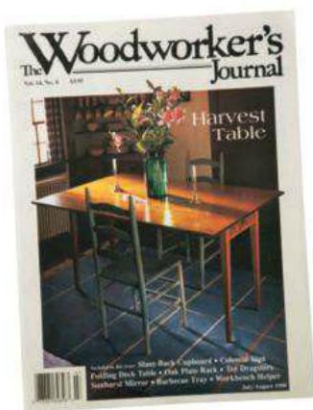
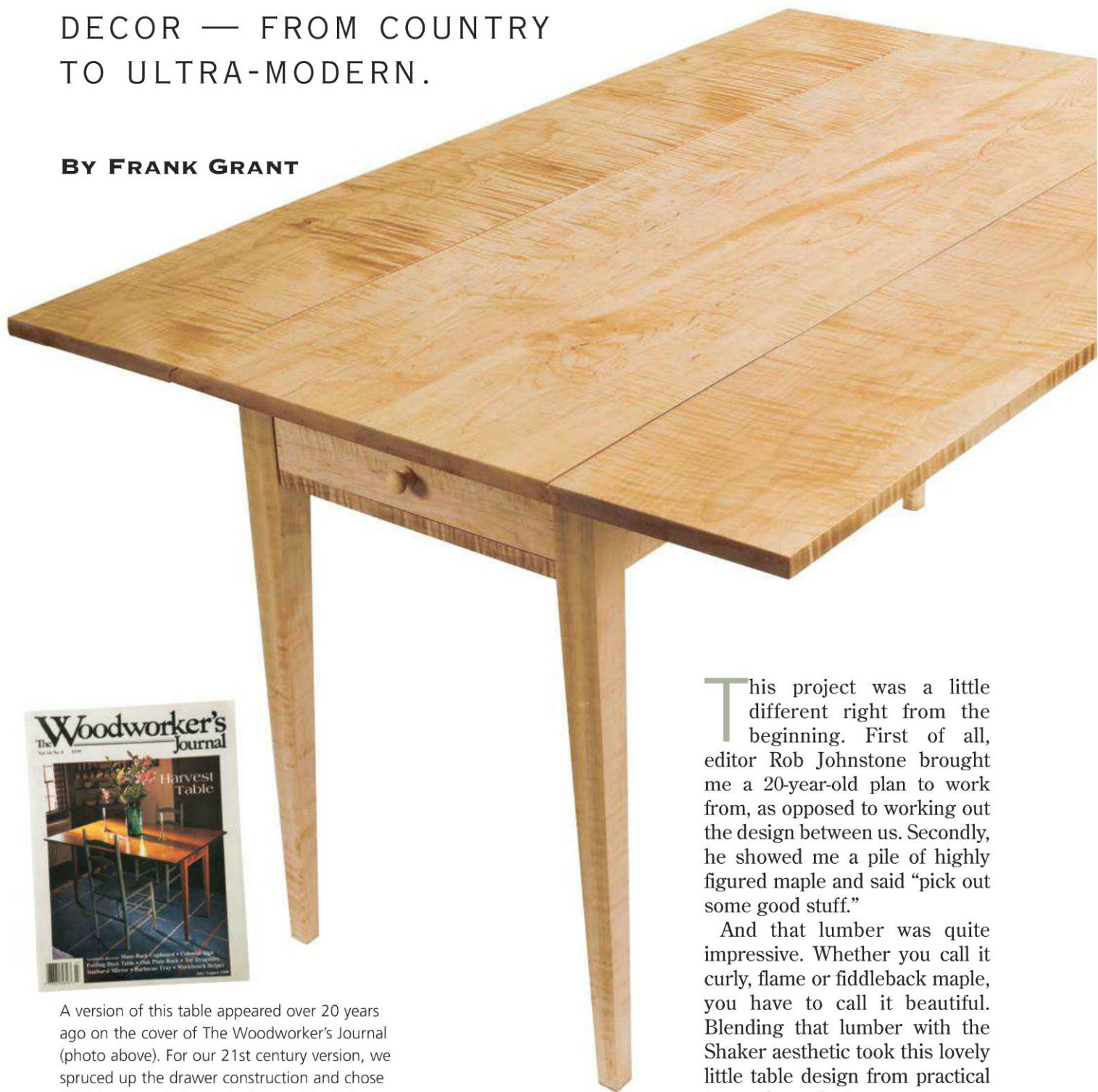


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Classic Drop-Leaf Table

USEFUL IN A VARIETY OF SETTINGS, THIS TABLE'S SHAKER HERITAGE ALLOWS IT TO BLEND INTO ANY DECOR — FROM COUNTRY TO ULTRA-MODERN.

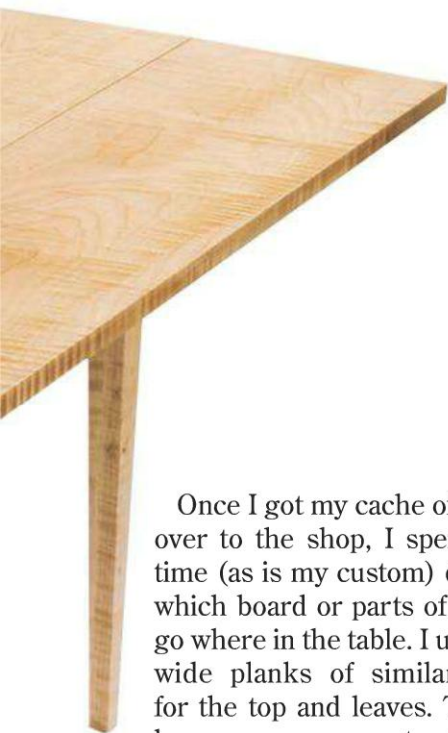
BY FRANK GRANT



A version of this table appeared over 20 years ago on the cover of *The Woodworker's Journal* (photo above). For our 21st century version, we spruced up the drawer construction and chose fiddleback maple instead of the original pine.

This project was a little different right from the beginning. First of all, editor Rob Johnstone brought me a 20-year-old plan to work from, as opposed to working out the design between us. Secondly, he showed me a pile of highly figured maple and said “pick out some good stuff.”

And that lumber was quite impressive. Whether you call it curly, flame or fiddleback maple, you have to call it beautiful. Blending that lumber with the Shaker aesthetic took this lovely little table design from practical to nearly perfect.



Once I got my cache of lumber over to the shop, I spent some time (as is my custom) deciding which board or parts of a board go where in the table. I used four wide planks of similar figure for the top and leaves. The rest became components for the glued-up legs and the remaining pieces. In the name of conservation and keeping with a Shaker tradition of simplicity, I chose some leftover plainsawn ash and cherry from a previous project for the drawer sides and back.

After coming up with a comprehensive cutting list, I started making my rough cuts before straightening, planing and gluing up all the necessary components. The luck I had in finding wide planks then presented a challenge: how would I keep those table leaves reasonably flat for the distant future? My solution was to try another old-school technique: dovetailed slot wedges (more on this modification later).

Prepping the Stock

After busting the clamps loose, I set the top aside and went to work on the legs, scraping glue before planing them straight and square. I then set up for mortising, using a 3hp plunge router with a 3/8" straight bit chucked in place. These are not deep mortises, so this method worked out nicely.

After routing the mortises, I chopped the tops and bottoms square with a sharp chisel. Some folks like to round the tenons to match the holes, but I find it to be much faster the other way around, as my 3/8" mortising chisel has a "take no prisoners" approach to this task. I then made a simple tapered leg template in 1/4" MDF, using it to transfer marks to the wood for cutting on the band saw. After I made the cuts on one face of each leg, I reattached the scrap with carpet tape before turning the stock over to make the second cut, similar to an approach used on cabriole legs.

I'd planned on forming the tenons on the table saw using a dado head, but the thought of making a blade insert and an ever-looming deadline helped dissuade me, sending me instead to the band saw. After cutting the tenon shoulders nice and square with the miter gauge on the table saw, I decided I could use my trusty little shoulder plane to clean things up during the final fit.



Tapered legs and fiddleback maple lumber impart a graceful elegance to this project.



Expanding its usefulness is the addition of a storage drawer. The author allows for several joinery options.



The rule-jointed drop-down leaves add a degree of functionality and practicality to this table, hearkening back to its Shaker influences.



The author used a cabriole leg-cutting technique to form the simple tapers on two faces of the glued-up maple legs.

Making the Underframe Joinery

The framework on the drawer end of the table requires two different joints. The bottom stretcher attaches to the legs using a simple stubby fork-tenon arrangement, executed in roughly the same manner as all the other mortise-and-tenons. The upper member is dovetailed into place. I cut the stretcher first and then chopped out the dovetail mortises to match.

Moving on to the aprons, I first plowed the grooves all around the inside of the aprons and then cut the openings that carry the leaf-bearing turnouts. These

turnouts pivot from under the top to support the leaves when they're extended.

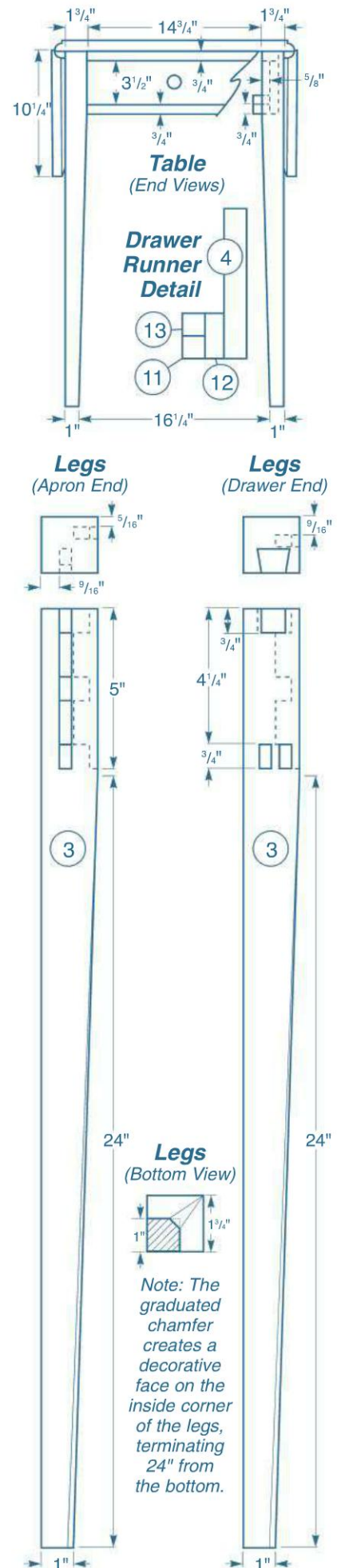
To form the turnout notches, I decided to do something I call "woodworking without a safety net." After making the 30 degree vertical cuts with my handsaw, I reached for my 7 $\frac{1}{4}$ " circular saw (the one I use on remodeling jobs), attached a fence to it and made horizontal plunge cuts, being real careful not to cut past the vertical lines. There are several ways you could machine these notches, but I was pleased with how well the circ saw worked.

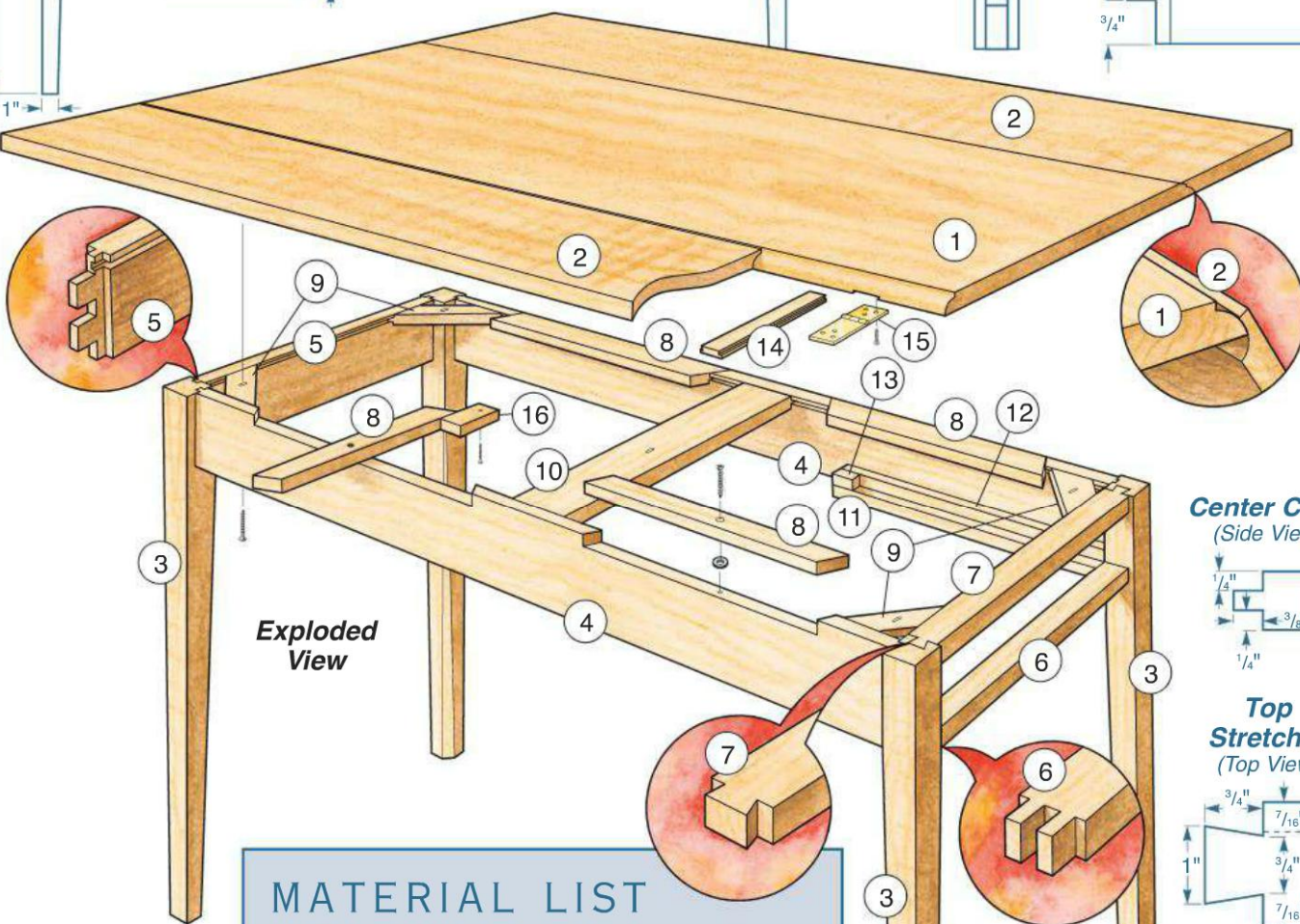
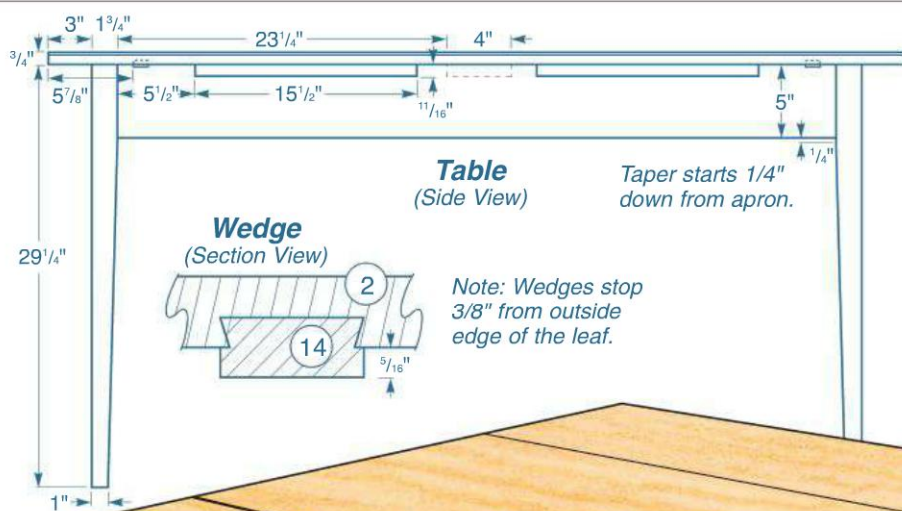
The corner blocks and center cleat were fashioned on the table saw, using an extension fence I quickly made by screwing some scrap plywood to the existing wood face of the miter gauge, then clamping a stop block for uniform sizing.

Once I got all of the various components machined up, I went to work at the bench with my planes, cleaning up all the surfaces prior to assembly. I found that the figured maple hand-planed surprisingly well. I set the plane for an ultra-fine shaving and used a freshly sharpened iron. During planing, I skewed my cuts a fair amount to further slice the curly wood and avoid tearout as much as possible.

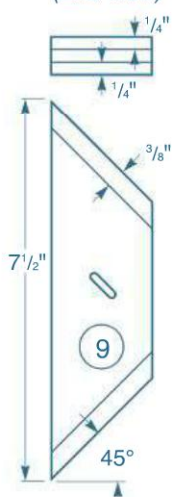
Completing the Underframe

Assembly was straightforward: I clamped up the long sides, went to dinner, came back, removed the clamps and then finished the carcass assembly before going to make the drawer runners



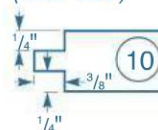


Corner Block
(End View)

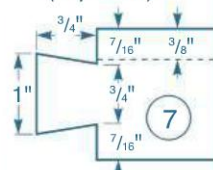


Corner Block
(Top View)

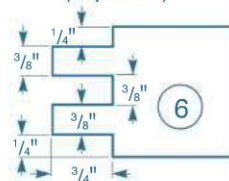
Center Cleat
(Side View)



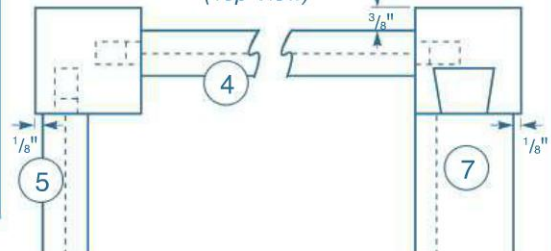
Top Stretcher
(Top View)



Bottom Stretcher
(Top View)



Apron Offsets
(Top View)



MATERIAL LIST

	T x W x L
1 Top (1)	3/4" x 19 7/8" x 60"
2 Leaves (2)	3/4" x 10 1/4" x 60"
3 Legs (4)	1 3/4" x 1 3/4" x 29 1/4"
4 Side Aprons (2)	3/4" x 5" x 52"
5 End Apron (1)	3/4" x 5" x 16 1/4"
6 Bottom Stretcher (1)	3/4" x 1 5/8" x 16 1/4"
7 Top Stretcher (1)	3/4" x 1 5/8" x 16 1/4"
8 Turnouts (4)	11/16" x 1 1/2" x 16 3/8"
9 Corner Blocks (4)	3/4" x 2" x 7 1/2"
10 Center Cleat (1)	3/4" x 4" x 16 3/4"
11 Drawer Runners (2)	3/4" x 3/4" x 18"
12 Drawer Guides (2)	5/8" x 1 1/2" x 18"
13 Drawer Stops (2)	3/4" x 3/4" x 1 5/8"
14 Wedges (4)	5/8" x 1 1/2" x 9 7/8"
15 Table Hinges (6)	1 1/2" x 2 7/8"
16 Turnout Stops (4)	11/16" x 2" x 4"



The author forms the shoulders of the apron's split tenons on the table saw. Rather than creating a jig to complete the process on the table saw, he chose to move on to the band saw next.



A band saw that is set up well can be a very accurate woodworking tool. Here, the author forms the cheeks of the split tenons, cutting them freehand from marked-out lines.



To complete the task, the author cuts out the breaks that will finally form the split tenon layout of the apron ends. He cuts them to match mortises he milled earlier.

from black ash — leftover local sawmill wood that Rob had lying around from a previous job. Nice stuff ... too bad it's now buried behind the drawer under all this fancy maple "bling."

Topping It Off

Once I had the carcass together and looking good, I began to focus on the top and leaves, knowing they would attract the lion's share of visual attention.

The success I had hand-planing the underframe pieces convinced me to do the same with the top. I started working at an angle across the surfaces before attacking straight on. Next, I put the top and leaves together, planing them to match in thickness. I moved on to routing the rule joint using my 3hp plunge router. (See sidebar, next page.) I dressed the cove-cut edges with a piece of sandpaper wrapped over a scrap of lumber with the reciprocal roundover cut routed onto it. It helps to make the joint fit properly. The next thing I did was make a huge mistake ...

I love setting hinges. It's one of my favorite things, and I take pride in this process. Folks that have seen me in action even compliment me on my level of prowess. My big problem is that sometimes I don't even look at the instructions — I should know better. That's why I aligned the barrels with the bottom outside edge of the top, when in fact you're supposed to align them on a line extending from the point where the flat top breaks into the shaped edge (see *Drawings*). When I realized my mistake, my



Using a plunge router with a fence affixed, the author plows short grooves that become mortises for the apron's split tenons. He squares the rounded ends with a mortising chisel and a few well-placed blows from a mallet.

heart sank. But, after much wailing and gnashing of teeth, I became determined to rectify my blunder. Being (as usual) luckier than I am smart, I removed the hinges and found, to my complete surprise and utter gratitude, that they dropped right into place when turned around ... even the screw holes lined up! It's situations like this that reaffirm my love for the craft.

Milling the Dovetailed Wedges

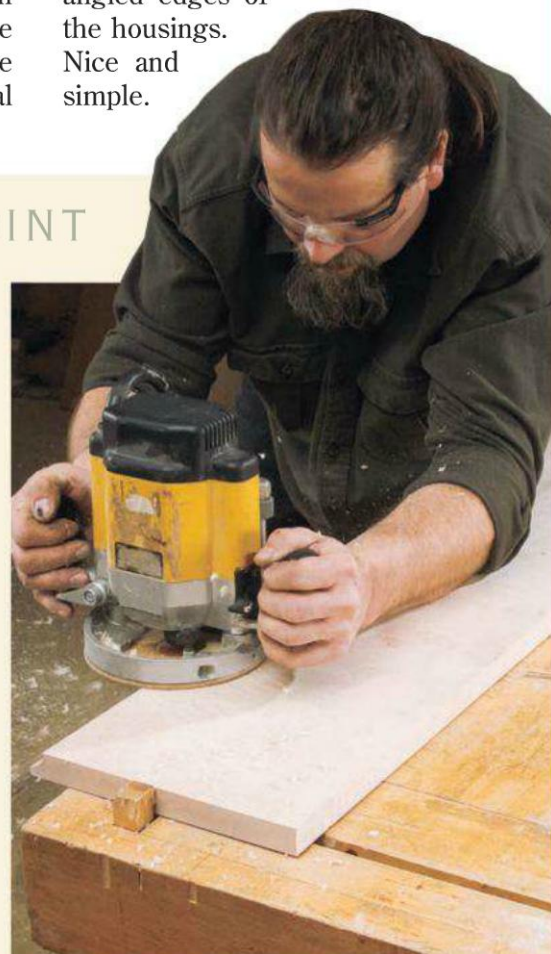
Now for the wedges that stabilize the table leaves. I used some

leftover cherry that I found in the shop, with the idea of contrasting elements. There are several ways to go about this: you can make them straight or tapered in their length, or you can dovetail one side or both, generally in the spirit of easier fitting. The problem with dovetail slots is that the mating surfaces of the dovetailed areas are generally not conducive to creating a solid glue joint, as they're often half end-grain. The only real positive glue surface in this particular assembly is on the flat underside of the wedge where it meets the flat horizontal

surface of the housing, or cut-out part of the table leaf. With all this in mind, I decided to make them straight, to maximize glue surface, and use enough self-control to make them fit perfectly, sliding into place with easy taps of my mallet and a beater block.

I first cut the housings using a small plunge router equipped with a 1/4" straight bit guided by a clamped-on straightedge. I made two straight cuts at the narrow points of the housings and removed most of the waste from the housing. I then chucked a 9/16" dovetail bit into my router and, leaving the fences in place, cut the angled edges of the housings.

Nice and simple.



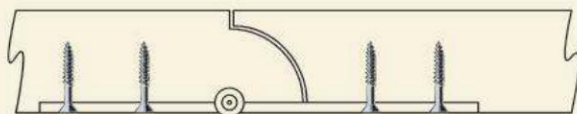
ROUTING THE BASIC RULE JOINT

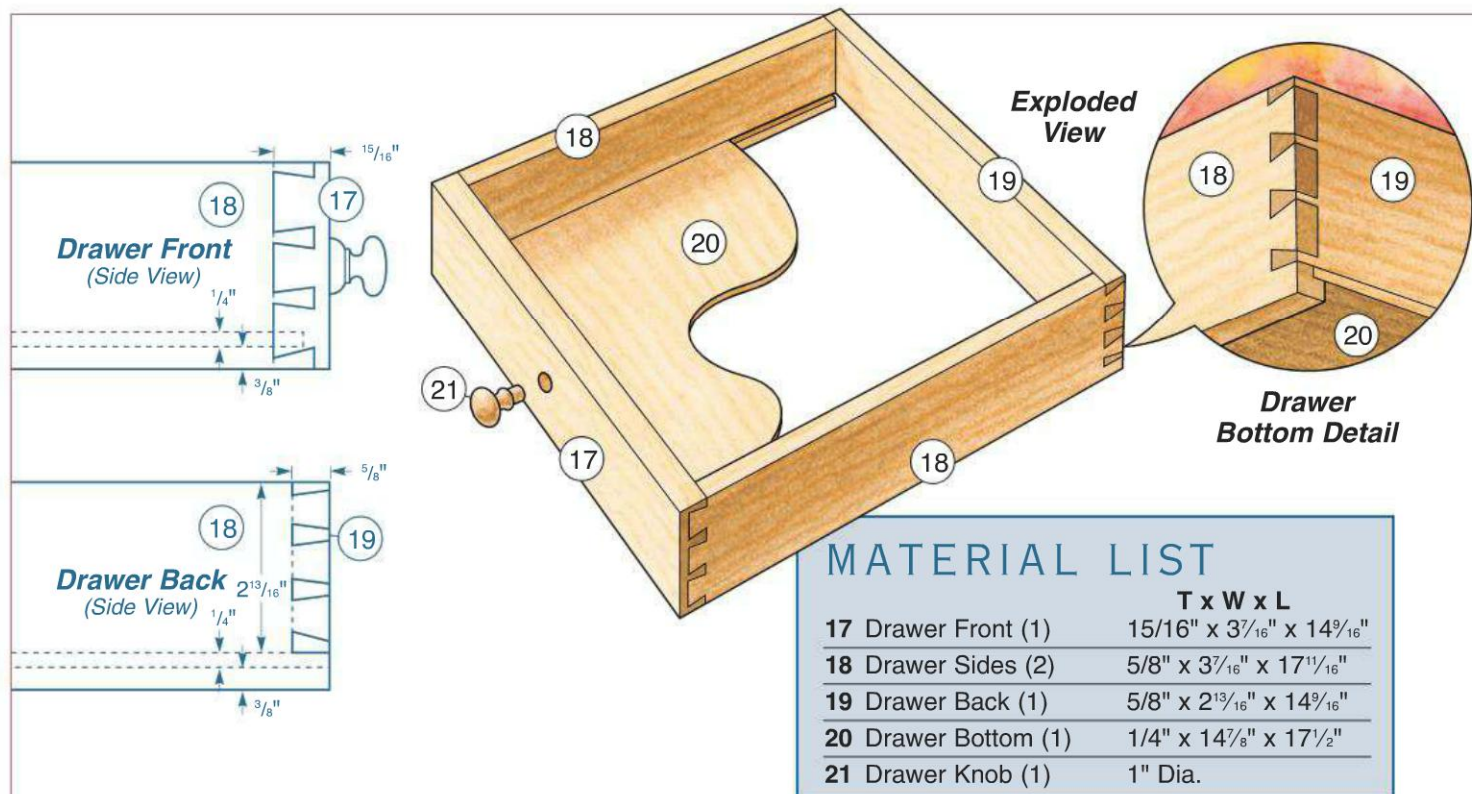


By matching a 1/2" cove-cutting bit to a bearing-guided 1/2" roundover bit, you have everything you need to form a classic rule joint. Test your setup on scrap stock of exactly the same thickness as your table top and leaves. Use multiple passes to achieve your desired cut — especially in hard maple. Locate and mortise in your rule joint hinges as shown in the drawing below, and you'll be well on your way.



Rockler's rule joint router bit set.





I then made a practice wedge using the same dovetail bit in a router table to attain my aforementioned precision fit. When I was satisfied, I made all the wedges at once. They all fit just the way I wanted them to, with no hand planes or shooting boards required.

Attaching the Top

Attaching the top is easy, using screws from underneath through elongated holes in the



With both leaves down, this classic design can be placed against a wall so it projects just over 20 inches into the room.

corner blocks and one through the middle of the center cleat (no need to elongate that one, as it's right in the middle of the top). But first there's a bunch of finishing to do. Rob and I seem to have similar tastes in regard to finish, so when he recommended an application of linseed oil followed by shellac, I heartily agreed. These are without a doubt my two favorite finishes, especially where visual appearance supersedes issues such as durability (it's fine furniture, not a bar top). I brushed and rubbed a coat of boiled linseed oil cut 20 to 25 percent with turpentine on everything. After a good 24 hours and a bit more rubbing to make sure there was no standing residue, I started brushing coats of wax-free shellac (cut 40 percent with denatured alcohol), using a top quality Badger-brand shellac brush. I scraped the flat surfaces between coats using a thin, flexible card-type scraper. It worked amazingly well. I find it hard to believe how few woodworkers use this very handy technique. For my money, it's faster, easier and better than sanding. I put about five thin

coats on the top and leaves, followed by a wax rub-out. The results have to be seen and felt to be believed. Install the turnout supports and mount the table top and leaves before moving onto the drawer.

Building Dovetailed Drawers

The table from 20 years ago did not have a dovetailed drawer — and that would be a fine option to choose again. But I love the look of a dovetailed drawer as it is pulled out, and I think it fits this design well.

For this project, I hand-cut the half-blind and through dovetail corners of the drawer, but jigs are a fine choice, too. Like other woodworking techniques, dovetails are better understood if you spend time to become competent through practice. Cut out the five pieces required to make your drawer and build it however makes the most sense to you — dovetails or otherwise. Fit it to the opening and apply your finish as described above, and you are done with the project. This table should serve you for years to come with grace and style.

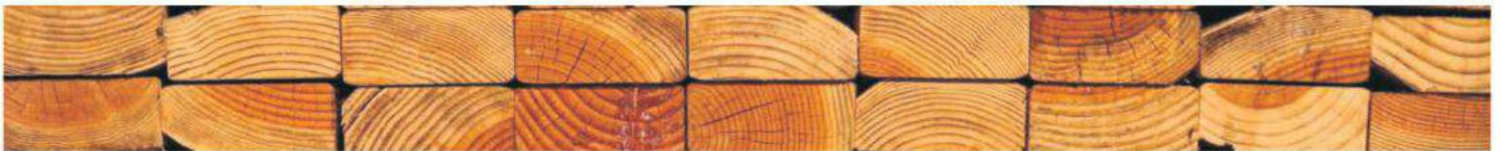


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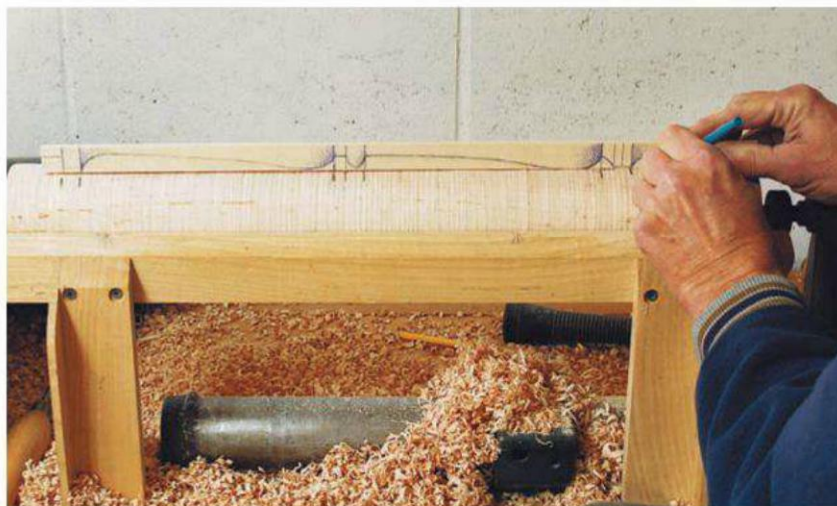
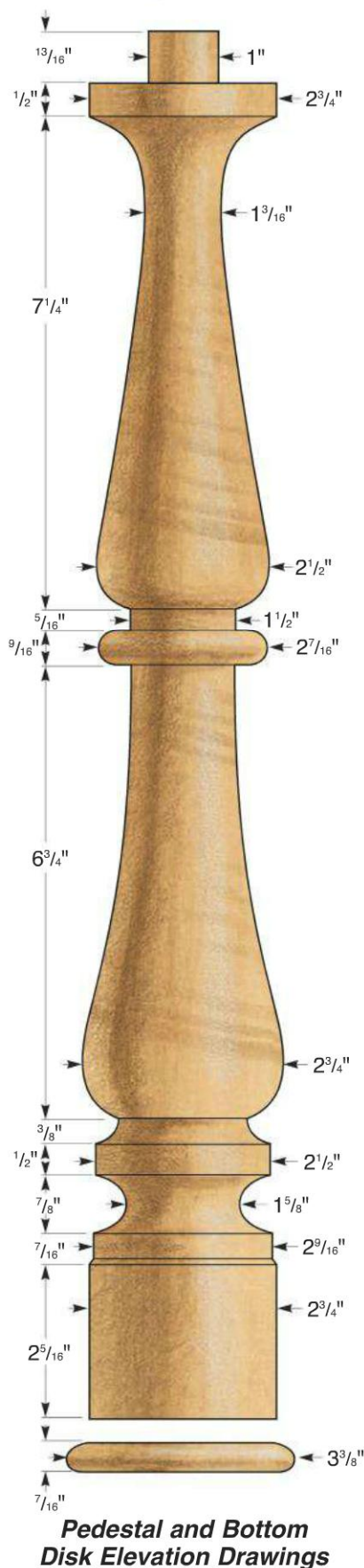
BY KERRY PIERCE

The term Shaker is sometimes seen as denoting a furniture period, like Queen Anne or Chippendale, but although Shaker furniture making is a genre built to a set of aesthetic principles identifiably different than those of other genres of furniture making, the Shaker genre is not based, even loosely, on a historical period.

Shaker furniture making existed outside American furniture periods, running sometimes concurrently with them, sometimes trailing well after the fact. Nevertheless, like the country furniture tradition in which it is most deeply rooted, Shaker furniture making drew deeply from the high-style period furniture made in the American urban centers, borrowing forms and design motifs, translating them in the light of the Shaker aesthetic.

Shaker tables, for example, often exhibit straight leg tapers much like Hepplewhite tables of the late 18th century, but unlike those high-style models, Shaker tables with tapered legs were nearly always simple and plain. Similarly, this little Shaker candlestand — a reproduction of one from the Union Village community near Lebanon, Ohio — borrows heavily from high-style Chippendale tables of the 18th century. Like those Chippendale predecessors, this stand features three graceful cabriole legs leading to a turned pedestal that supports a





Before beginning any new piece of furniture, the author makes a set of story sticks. This piece required two such sticks. One is a pattern for the cabriole leg profile, and the other is the stick shown above, on which the elements of the turned pedestal have been marked off.



This simple marking gauge allows the author to draw marks on a turned spindle that are perfectly parallel to its axis of rotation. To mark the locations of the leg mortises, he stops the lathe's rotation by engaging the locking pin on its indexing head. He then slides the jig (pencil point pressing lightly against the object) along the bed to scribe a straight line.

top surrounded by a shallow turned lip. But this somewhat stripped-down and "Shakerized" version offers only a smattering of the turned and carved detail characteristic of the American Chippendale examples from which it evolved.

Turning the Pedestal

The pedestal consists of a succession of turned beads, coves and vases. After roughing in the cylinder, I marked these elements by transferring them from a story stick (see top photo for

details), then created the beads with a skew chisel and the coves with a 3/8" fingernail gouge. I added a 1"-diameter, 13/16"-long tenon at the top of the pedestal, which you'll later fit into a mortise drilled into the bottom of the top support and the top itself.

The vertical centerline of each of the three legs is exactly 120 degrees apart from the other two. These distances are most easily located through the use of an indexing head. An indexing head is a disk centered on the lathe's axis of rotation with a number of



The cabriole legs on the original candlestand have slightly crowned bevels on either side of their top edges. The author created these bevels with a spokeshave and a rasp, as shown above, after first freehanding some guidelines with a pencil.



Square tenon shoulders won't mate tightly with a rounded pedestal. To create a tighter fit, the author bevels the areas underneath the shoulders. Here, he's marking these areas.



With a wide chisel, create the bevels that will lie under the leg shoulders. These bring the shoulder up tight against the pedestal base. Pare carefully to your layout lines, checking the fit periodically.

equally spaced stop holes drilled near its circumference. It is a helpful feature now found on most lathes. My lathe has 36 holes, so the distance between adjacent holes is exactly 10 degrees.

To mark the 120-degree segments on the base of the pedestal, I engaged the indexing head's spring-loaded locking pin, drew a line with the marking gauge shown in the bottom photo, previous page, and marked the centerline of one of the pedestal's legs. I then counted off 12 stops on my indexing head, engaged the locking pin, and marked the second centerline. I repeated this to locate the centerline of the third leg. I also added marks on the base of the pedestal halfway between each of these centerlines. These extra marks allowed me to later create lines on the bottom of the pedestal that form the centerlines of each mortise on the bottom of the pedestal.

You can achieve the same thing by connecting the bottom of the centerline of each leg

mortise and the mark left by the tailstock center. I added the extra marks because sometimes in cleaning up the bottom of the pedestal, I obliterate the tailstock's center mark.

Making and Installing the Legs

I clamped the pedestal to my bench top using a series of U-blocks and clamps, as shown in the photos at left. Then I completed the mortise marking process.

The joinery on this pedestal stand is unlike any I've seen on other Shaker pedestal stands. Many of these pieces have sliding dovetails, while others have simple tenons with a shoulder on each side. Each leg of this particular pedestal stand, however, has only one shoulder on the right side of a fat tenon.

I chopped out the mortises with a 1/2" mortise chisel and a wide paring chisel. I then turned my attention to the legs. In profile, these legs are much like the legs on many Chippendale-era pedestal stands. They don't, however, exhibit the carving

typical of the Chippendale examples. The only elaboration on the band saw leg form is a slightly crowned bevel on the top outside edges of each leg.

I began work on these bevels by free-handing penciled guidelines to indicate the limits of the bevels. I created the bevels with a spokeshave, a rasp and sandpaper. I roughed in the one-shouldered tenons with a backsaw, hand-planing each to final thickness one shaving at a time.

Many years ago, when I first began to build tripod tables, I undercut the shoulders on the leg tenons in order to get a tight fit of shoulder against the round base of the pedestal. Otherwise, there will be a wide gap between the shoulder and that round base — which curves away from the shoulder. However, several years ago, I began to cut a narrow bevel on the base underneath the shoulder instead. This bevel allows the shoulder to fit snugly against the base.

Tips for Preparing the Top

I turned the top while it was mounted on a faceplate. First, after mounting the faceplate to what would eventually be the upper side of the top, I cleaned up the bottom surface of the top, turned the fillet under the lip on the top's edge, and then shaped — by scraping — the bottom half of the lip itself. I then removed the top from the lathe, took off the faceplate, and remounted it on the bottom side of the top to complete the lip turning and to dish out the

excavation. This last process removed the material containing the screw holes made by the first mounting on the faceplate.

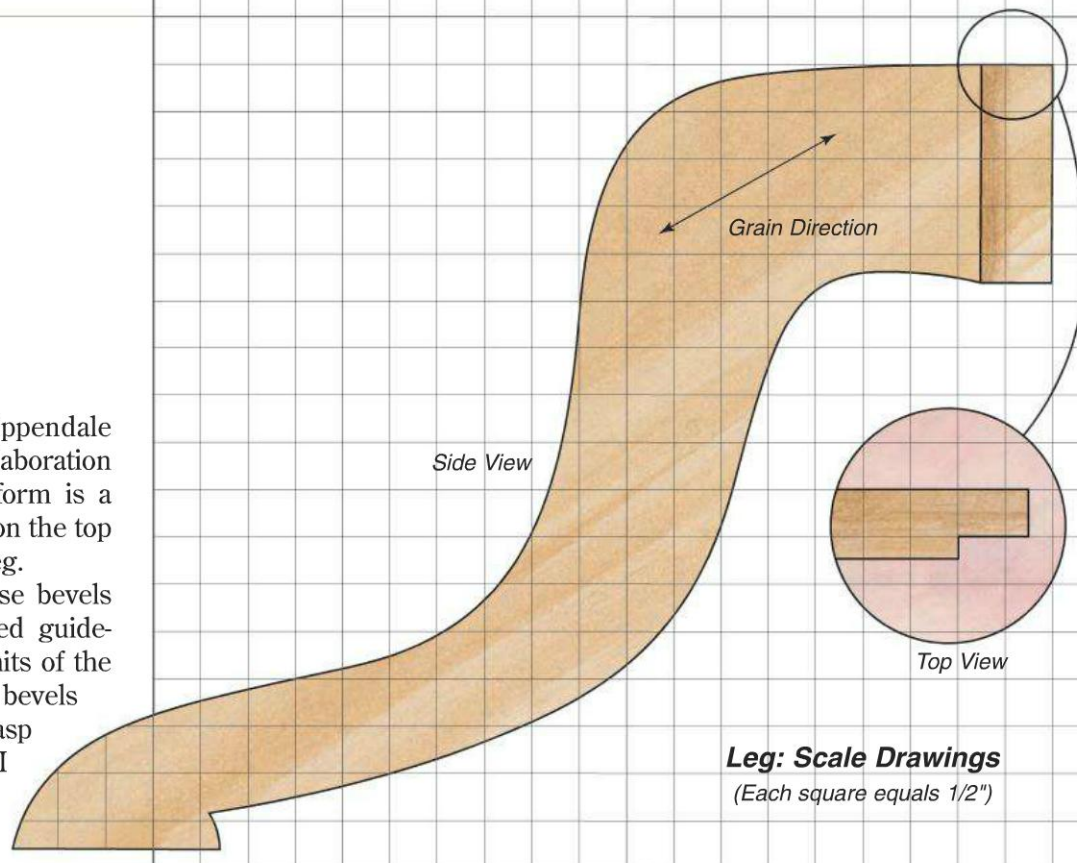
Note: After you've done your shaping on the bottom surface of the candlestand top, and before you remove the work from the lathe, use a pencil on your tool-rest to create a couple of concentric circles on the bottom of the candlestand top. These circles should be just a bit larger than the diameter of your faceplate. Then, after removing the faceplate from the upper side of the candlestand top, use these concentric circles to align the faceplate on the bottom of the candlestand top. When you're mounting the faceplate on the bottom side, it must center on the same axis of rotation you established with the faceplate on the upper side.

I actually made two tops for this candlestand. The first one, which I turned from a blank of kiln-dried 5/4 curly maple in one long session at the lathe, transformed itself into the buckled

shape of a potato chip after one day in our heated home.

I took a more cautious approach to making the second top. First, I planed the 5/4 blank flat, removing perhaps a 1/4" of thickness, and placed it under the couch in our heated living room for a week. Next, I mounted it on my lathe and removed another 1/4" of thickness and gave it a second week under the couch. Then I reduced it to its final thickness, leaving it fatter than the first top. The combination of approaches — reducing the thickness in stages so I could turn away any deformation that occurred, and leaving a greater final thickness — resulted in a more stable top. But I know that nothing can completely prevent an unsupported top like this one from curling a bit over time.

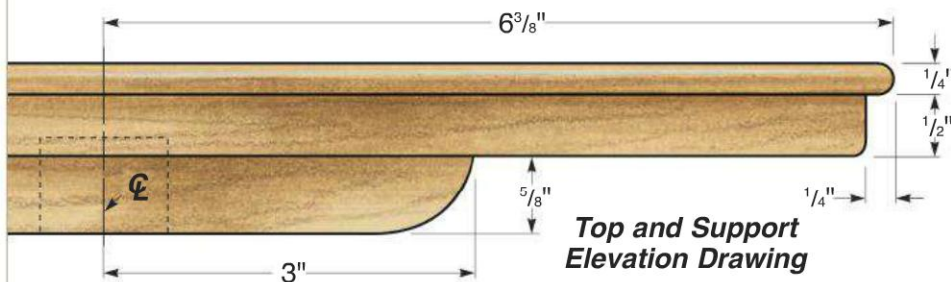
A slow lathe speed is very important when turning an object with a diameter as large as the top of this candlestand. That's because the rim speed — the speed at which the work passes the tool — is determined not only



Leg: Scale Drawings
(Each square equals 1/2")



The author uses a shop-made beam compass to draw the outside diameter of the candlestand top. Instead of bringing this blank to final thickness right away, he recommends planing and flattening the top in stages to help minimize warping.



by the lathe's rpm, but also by the diameter of the object mounted in the lathe. For example, an object two inches in diameter mounted in a lathe with a speed of 400 rpm will have a rim speed of 209.4 feet per minute. A 12-inch object spinning at 400 rpm will have a rim speed of an astonishing 1256.6 feet per minute, almost six times as fast. And that speed has real consequences at the work/tool interface. A careless move with a gouge that might be a minor event at 200 feet per minute could be disastrous at 1,200 feet per minute.

That's why I'm going to make two recommendations in regard to turning the top. First, turn that top at the slowest possible speed. A speed of 100 rpm would not be too slow. Second, unless you're a great technician at the lathe, use a timid approach to turning the outside edge where the speed is greatest.

I'm not a great technician on

the lathe, so I embrace the timid approach. Although I use tools that cut when I'm spindle turning, when I'm turning the outside diameter of something mounted on a faceplate, I simply scrape — very carefully — until I've rounded the entire outside diameter. Then I shape it by pushing little nibbles with the tip of my skew until I've created the shape I want. It's not an elegant technique, but it works, and I've never had an accident when turning on a faceplate.

The actual excavation of the top's interior I achieved with a spindle gouge I've reshaped so that most of its tip is ground to a bevel. I then feed the tool to the work, from the center out, so only one short section of the radius on the end of that ground tip is in contact with the work at any one time. As you see in the bottom photo (above), it gives me long shavings and solid control.



Use the point of your skew to push thin layers of material across the outside diameter of the candlestand top, working from right to left (top photo). This passive style of turning simplifies — and makes safer — the process of working a surface spinning past a tool at high rim speed. The author uses a spindle gouge reground with a long tip to hollow out the excavation inside the lip that surrounds the top (bottom photo).

Finishing Touches

There's a 6"-diameter support under the candlestand top that I turned on a faceplate. I then attached the top support to the underside of the top using four 1 1/4" #8 drywall screws. I aligned the grain on this support so that it was perpendicular to the grain direction in the top itself. That provides a small bit of resistance to the top's inclination to curl across the grain. I then bored the 1"-diameter hole that receives the tenon at the top of the pedestal.

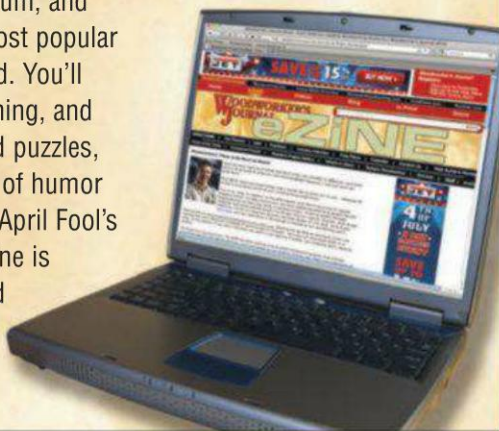
Finally, there is a small disk with a radiused edge on the bottom of the pedestal. I made the radius with a carving gouge and a rasp, although I could have turned it on the lathe like the other pedestal components.

Give the project a final sanding, add finish, and you'll have an elegant candlestand that wears its blended styling and traditions proudly.



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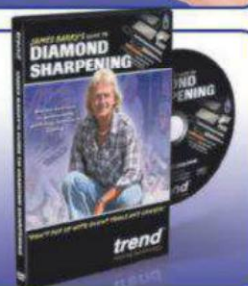
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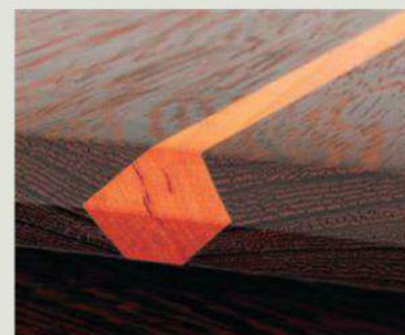
New Look for a Country Table

SOMETIMES, IT'S ALL IN THE DETAILS. IN THIS CASE, OUR AUTHOR TOOK A CLASSIC COUNTRY PROJECT THAT APPEARED IN THE JOURNAL OVER 20 YEARS AGO AND DID A MODERN MAKEOVER ON IT.

BY ROB JOHNSTONE



Where do project ideas come from? In the past, my wife often brought me catalogs filled with items more costly than we were willing to buy and asked, “Can you build one of these?” (Have you ever met a woodworker who would answer “no” to that question?) My kids have come to me over the years saying that they need a bookcase, cutting board, bracelet holder, rocket ship (I did not make that last one up!), you name it. But the table you see here was a different story. A while back, the staff



Wenge is a dark wood with subtle red highlights. To start the project, the author selected sections from a large and wide board to compose the table top.



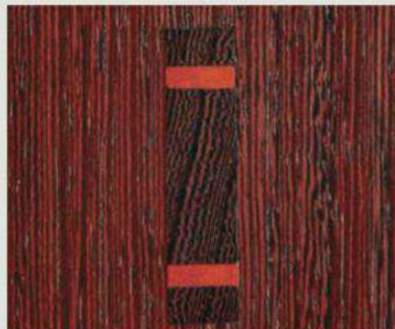
here at the Journal was working on converting some of our out-of-print archival projects to a downloadable format, and I caught a glimpse of a black-and-white photo of a table.

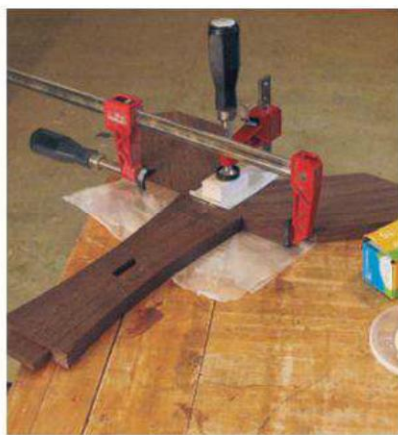
"Wow, that is a really stylish, modern-looking table design," I thought. "I need to take a closer look at it." To my surprise, it was not a modern design at all but a traditional pine country table. Still, there was something about it. I started to wonder what it would take to convert the humble country effort to a modern-looking end table. After a quick chat with art director Jeff Jacobson, the answer came back: "not much." I removed some little nubs on its feet, added a chamfer around the top, changed the species of wood, inserted a cherry accent strip and added a second wedge to each tenon — and the deal was done. The design had gone from down-home to uptown in just a few minutes. Now all I had to do was build it!

Starting with Species and Grain Selection

The original country table had been built from plainsawn pine — a reasonable and traditional choice. The modern version could have been made from a straight-grained, light-colored softwood like Douglas fir or longleaf pine, but I had been thinking of using quartersawn ash and dyeing it nearly black. As I was perusing my favorite lumber racks, looking for just the right ash lumber, I glanced over and saw a stash of some really large wenge boards. I did a sort of double take, because the wood had many of the visual characteristics that I had hoped to develop in dyed ash lumber — only here it was naturally occurring in the wood. So, I grabbed one of the long and wide wenge boards, measured it up and found I could get the whole table out of that one piece. (This entire table uses less than eight board feet of lumber.) The grain of the plank changed from riftsawn at

one edge to cathedral figure on the other edge. After noodling it over for a bit, I decided that all the legs and feet would be made with riftsawn figure. The only place the cathedral grain would be seen would be on the stretcher and the table top. Additionally, for the table top, the riftsawn grain would be oriented to the outside edge of the top with the cathedral figure divided by a cherry accent strip down the center. At first, I thought the cherry accent was just going to be a narrow strip to add a touch of color. I also planned to use two cherry wedges in the exposed through tenons on the legs as additional accents. But, after looking at Jeff's CAD drawings of the table, it occurred to me that a $3/4" \times 3/4"$ accent strip, turned 45° to the plane of the top, might bring some visual interest to the piece. I blame this kind of thinking on master woodworker Ian Kirby, who has influenced my design sensibilities over the years. A tweak of the CAD





The legs and feet are joined together using an "open" mortise joint. The author raised the tenon on the legs using a miter gauge on his table saw (far top left). After cutting out blanks for the feet, the mortise opening was formed on the table saw using a shop-made jig (inset at left). Testing the fit allowed for confidence in the glue-up (far lower left and middle top photos). A 1/8" plywood template was used to trace the leg shapes before cutting their profiles on the band saw (photos middle left & above).

drawing convinced me I was right, and my coworkers agreed. With those choices made, it was time to start making sawdust.

One quick word about wenge. I had never used this species of wood before this project. I found it to be a very dense hardwood that cuts, glues and finishes well. One detail that I learned about wenge the hard way is that it splinters, very easily, on the edges. While I didn't find this to be a problem in general, when I got to chopping the through mortises on the legs, it gave me fits. I needed to resize the openings and carefully insert the tenons to avoid breaking out the edges of the openings.

Making the Legs and Feet

The feet, cleats and legs (pieces 1 through 3) of the table form a shapely support for the table top. In addition, they are made with a couple of nice pieces of joinery

that are attractive, fun and practical. I recommend beginning by making the legs. I cut them to width and length, marked out the mortise location and then stepped over to the table saw to raise the tenons on the ends of each leg. (Note: if you choose to use wenge as I did, I found it important to use a white pencil to do my markup; the wood was too dark for a regular pencil line to be seen.) Because the tenon on the foot end of the leg was so long (4 $\frac{1}{4}$ "), I couldn't slice it with a traditional tenoning jig, so I nibbled away the waste as shown in the top left photo. (I would have used a dado head in my saw, but I discovered that my old dado cutters! Even wood-working editors are forced into workarounds...) With the tenons formed, I then chopped out the through mortises with my mortising machine. You can also

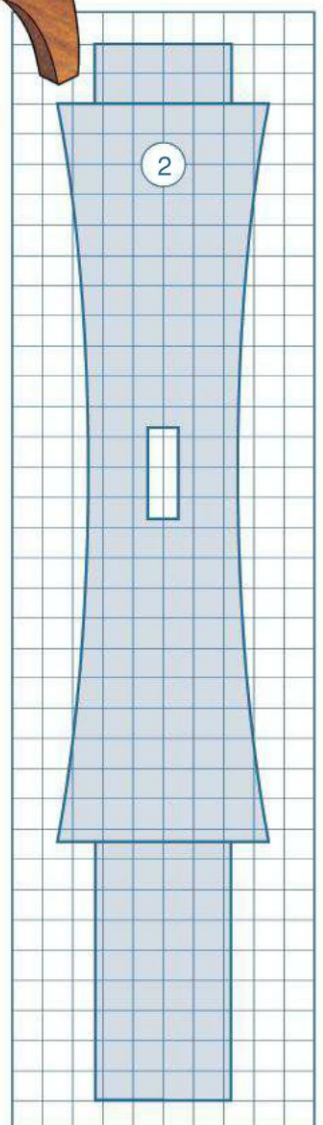
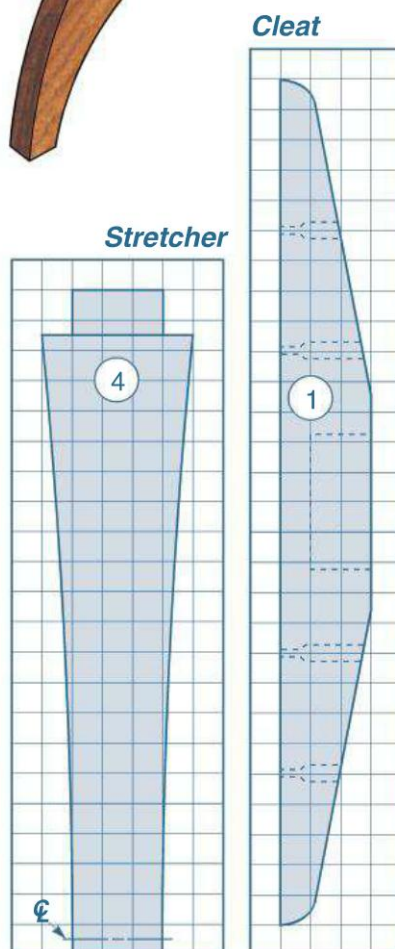
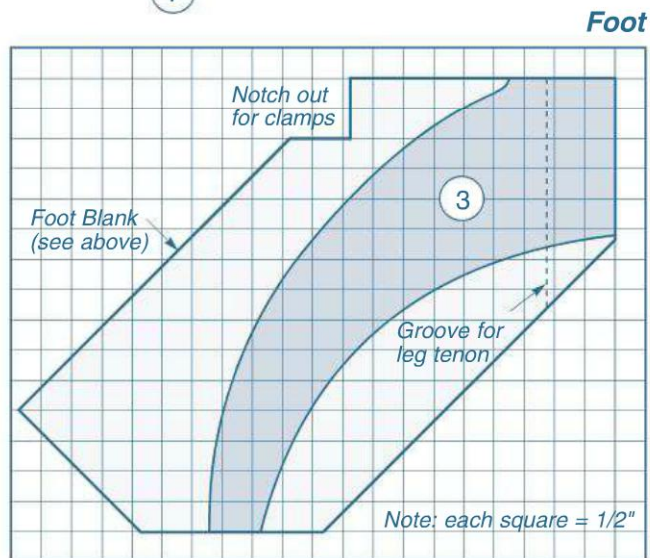
cut the cleats to length and width and use the mortising machine to form those mortises as long as you have the mortising machine set up. If you don't have a dedicated mortiser, use a Forstner bit and a chisel to chop them. With those tasks behind me, I moved on to the feet.

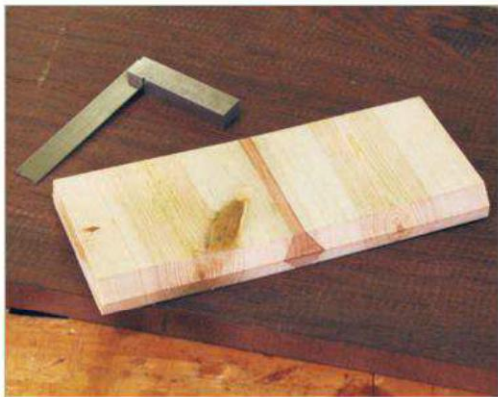
Start that process by cutting blanks for the feet that are 5" wide and 10 $\frac{1}{8}$ " long. Next, cut the blanks to match the geometric pattern shown in the *Drawings* at right. You will machine these pieces while they are in this shape, forming open mortises that capture the long tenon on the end of the legs. This happens when all three pieces are glued together. I used a modified tenoning jig on the table saw to cut those open mortises. The jig's fence leaned back at 45° so I could plow the opening in each foot (inset photo above left). I tested the fit of the open mortise



MATERIAL LIST

	T x W x L
1 Cleats (2)	$\frac{3}{4}" \times 1\frac{1}{2}" \times 14"$
2 Legs (2)	$\frac{3}{4}" \times 3\frac{1}{2}" \times 17\frac{1}{2}"$
3 Feet (4)	$\frac{3}{4}" \times 5" \times 10\frac{7}{8}"$
4 Stretcher (1)	$\frac{3}{4}" \times 2\frac{1}{2}" \times 21\frac{1}{2}"$
5 Wedges (4)	$\frac{1}{8}" \times \frac{1}{2}" \times 7\frac{7}{8}"$
6 Tops (2)	$\frac{3}{4}" \times 7" \times 26"$
7 Top Inlay (1)	$\frac{3}{4}" \times \frac{3}{4}" \times 28"$





Fitting the center inlay strip started out with a test in scrap wood (photo above). It is important to make use of a zero-clearance insert and an unobstructed sacrificial fence when making the V-groove (photos center and bottom).



on the tenons as I went. Then I stepped to the band saw and cut a couple of square notches on the foot pieces that would help me clamp them together more easily. Staying at the band saw, I cut the curves onto the edges of the legs, the last step before gluing the feet and legs together. As you can see in the photos on the previous pages, glue-up not only required clamping across the face of the legs, but I squeezed the open mortise walls together, using wax paper to keep the glue block and the bench from getting stuck to the glue-up. After the glue had cured, it was time to mark out the final leg shape on the sub-assemblies and cut them out on the band saw. As you can see in the bottom middle photo on page 24, I took the time to make accurately shaped templates from scrap 1/8" plywood of the foot shape. I did this for all of the shaped parts. It takes just a few minutes, but it provides an added level of control and makes the rest of the process go much more smoothly.

While the cleats are still in a rectangular shape, take a few moments to bore the holes for the screws that will secure the table top to the cleats. These are two-step holes as shown in the *Drawings*. Following that, I cut the profiles onto the lower edges of the cleats as shown in the *Drawings*.

Once the legs, feet and cleats were cut to shape, I took them over to my spindle sander and sanded the edges up to the marked-out lines. With that done,

I glued and clamped the cleats to the top of the legs and allowed the glue to cure. At that point, I set them aside and moved on to the last couple of components.

Building the Table Top and Stretcher

The table top is composed of three pieces of wood, and the stretcher is secured with cherry accent wedges (pieces 4 through 7). As I mentioned before, the stretcher was formed out of the cathedral grain section of the stock. I cut it to length and raised the tenons on its ends as I did with the legs. (See the *Drawings* for construction details.) The original country table used only one wedge per tenon, which did not make sense to me if it was intended to be something other than eye candy, so I placed two wedges per tenon (see photo, opposite page), as shown in the *Drawings*.

The table top is simple in concept, but a little tricky in execution — only because it is a long, exacting joint. Go ahead and cut your two tops just slightly oversized, so you will have a bit of stock to trim if necessary. Making the V-groove cut on the table saw requires some preparation. You will need to secure a sacrificial face to the saw's fence in such a manner that you can slide the tops without obstruction. You will also need a zero-clearance insert in place that you sliced the blade opening through at 45° ... see the close-up photo at left. This is because you need to form the V-groove, but leave a very small amount of



wood in place on both sides of the V — less than 1/16". That tiny bit of stock needs the zero-clearance insert to ride on. I also used a featherboard to help control the cut. I heartily suggest that you test your setup with some scrap lumber and even go all the way to glue-up as I did. It is an odd little joint, and practice never hurt anyone!

When I had the tops machined, I formed the insert strip by cutting an over-long piece of 1" cherry and then machining it perfectly square in my planer.

Glue-up of the table top was not tricky at all (photo at right), but I did check to make sure that the two tops were aligned with each other (flat across their width). Once the glue had cured, I used a hand plane to remove the triangle of cherry that protrudes over the flat surfaces of the table top. Then I cut it to final size. There are a few ways that you might create the rather large chamfer on the edge of the table top, but seeing as I had the 45° zero-clearance insert already made, I just did it on my table saw. It worked really well.

Projects From Our Past

Rob used a plan from the December 1990

Woodworker's Journal as the starting point for this table. The original plan, and more than 200 other classic plans from the Journal's archives, are now available in downloadable format for \$1.00 each. For more details, visit www.woodworkersjournal.com/classics.



Wrapping Up the Last Details

All of the components were now complete, which left just a couple things to do. First off — you guessed it — sanding. One nice thing about this little table is that there are a lot of flat surfaces, which are easy to sand. One not-so-nice thing about this table is that there are a lot of curved edges to sand — which are a lot trickier to do well. I used a combination of spindle sanders and hand sanding on the edges. For the flat surfaces, I used my trusty 4 x 24 belt sander and a random-orbit sander. But I always do my final — in this case 320-grit — sanding by hand. I "broke," or gently rounded over, the edges of the pieces during this step.

Once the sanding was done, it was time to glue the stretcher in place. This was done with extreme care to avoid breaking off an edge of the through mortise. I cut a temporary brace for the clamp-up that was exactly the distance from shoulder to the shoulder of the stretcher. This allowed me to clamp top and bottom on the leg subassemblies and keep the assembly exactly square. I glued the wedges and tapped them in place, wiped all the excess glue clean with water and a soft rag, then waited for the glue to cure. When the glue was dry, I trimmed the excess off the wedges and sanded the tenons and wedges flush to the legs. Now it was ready for the finish.

I finished the table top and the legset separately. My first application was amber shellac mixed three to one with denatured alcohol (right from the can). I wanted



When gluing up the table top and the cherry inlay strip, it is important to keep the panels in alignment. After a test fitting, the author found that square-head clamps helped to achieve this goal.



The author used the fence as a guide on the band saw when slicing the slots to accept the cherry tenon wedges. To work properly, the saw kerf must be slightly smaller in width than the wedges are thick.

the amber color to highlight the lighter grained flecks in the wenge. I paid special attention to the end grain, making sure to seal it well. Then I used three coats of sprayed-on shellac from an aerosol can, de-nibbing between coats with #0000 steel wool. I applied a final coat of lacquer from a spray can, because I think the lacquer is a little tougher than the shellac. It also has a nice leveling quality to it.

Once the finish had cured, I attached the top to the legset with screws, and the table was completed. And I must say that I think it turned out well. The dark wenge accented by the cherry lumber looked very sophisticated; equally as attractive, but quite a bit different from, its country pine table origins.



Shaker End Tables



BY ROB JOHNSTONE

COMBINING THE ELEGANCE AND SIMPLICITY OF A HISTORIC SHAKER DESIGN WITH HIGHLY FIGURED MAPLE, THESE TABLES ARE BOTH PRACTICAL AND BEAUTIFUL.

The Shakers were part of a larger 19th-century cultural cycle that became known as the Utopian Movement. By separating themselves from the world and basing their behavior on societal norms of their own determination, the Shakers and other groups attempted to create a better world — one small group at a time. Other groups, like the Millerites and the Amana Society, were similar in their separation, but the Shakers

were unique in the degree to which their beliefs permeated nearly every aspect of their lives. Their spiritual beliefs affected everything from the way they preserved food to the clothing they wore, behavior regarding procreation and even the furniture they built. And that's where this project finds its origins. The table that these replicas are based on was built in the 1850s. I found an image of the table, along with some measured draw-

ings, in an old book. Never having attempted a historic reproduction before, I approached the project with an increased level of curiosity and a degree of caution. The Shakers designed their furniture to be ultra-functional and soundly built but with an eye to being efficient with the wood (a concept common to woodworking today). They regularly used solid material that was resawn to 1/2" to 5/8" thickness, rather than our default 3/4" thickness.

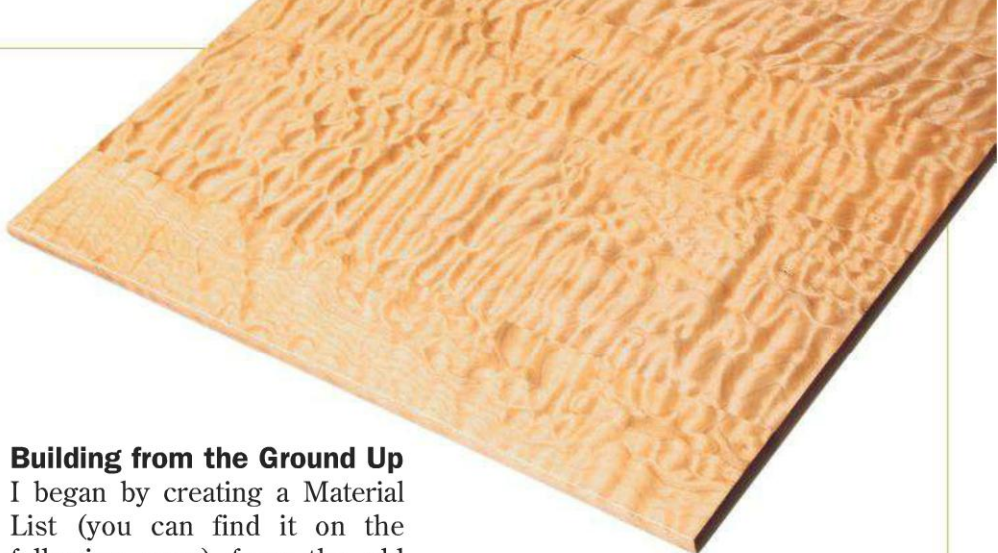


Simplicity was a key element of beauty in their philosophy. Although lightly built, the fact that many of their pieces remain functional over a hundred years from their construction speaks to the strength of the joinery. And all of this was intentional. Once, while talking to woodworker Norm Abram about finding inspiration from projects of the past, he observed how folks who build Shaker projects these days often substitute thicker stock for the original dimensions and how negatively that change affects the look of the pieces.

As I was getting started, I remembered that conversation and decided to be as true to the original piece as I could regarding the various component sizes. But when it came to the material I used, I decided to veer about as far from the original as I could and still remain on the planet.

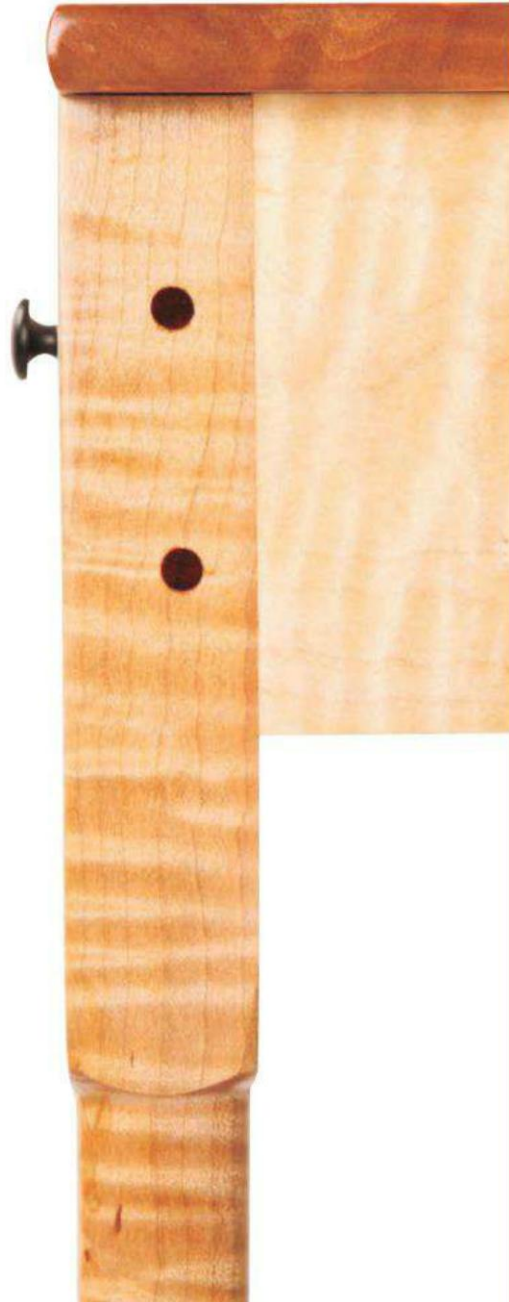
It was impossible to determine from the black and white photo what species or combination of woods the original was built from. No doubt it was locally harvested and cured (another concept that is coming back into vogue). What I could see was that it was painted, and so for that reason the type of wood was not aesthetically important. For my tables, I decided to find some exceptionally beautiful wood and incorporate it into the simple Shaker design. I used highly figured flame maple for the legs, aprons and drawer fronts and, after a good deal of calling around, found some stunning maple in a clouded (or “bubble”) pattern for the tops.

Building from the Ground Up

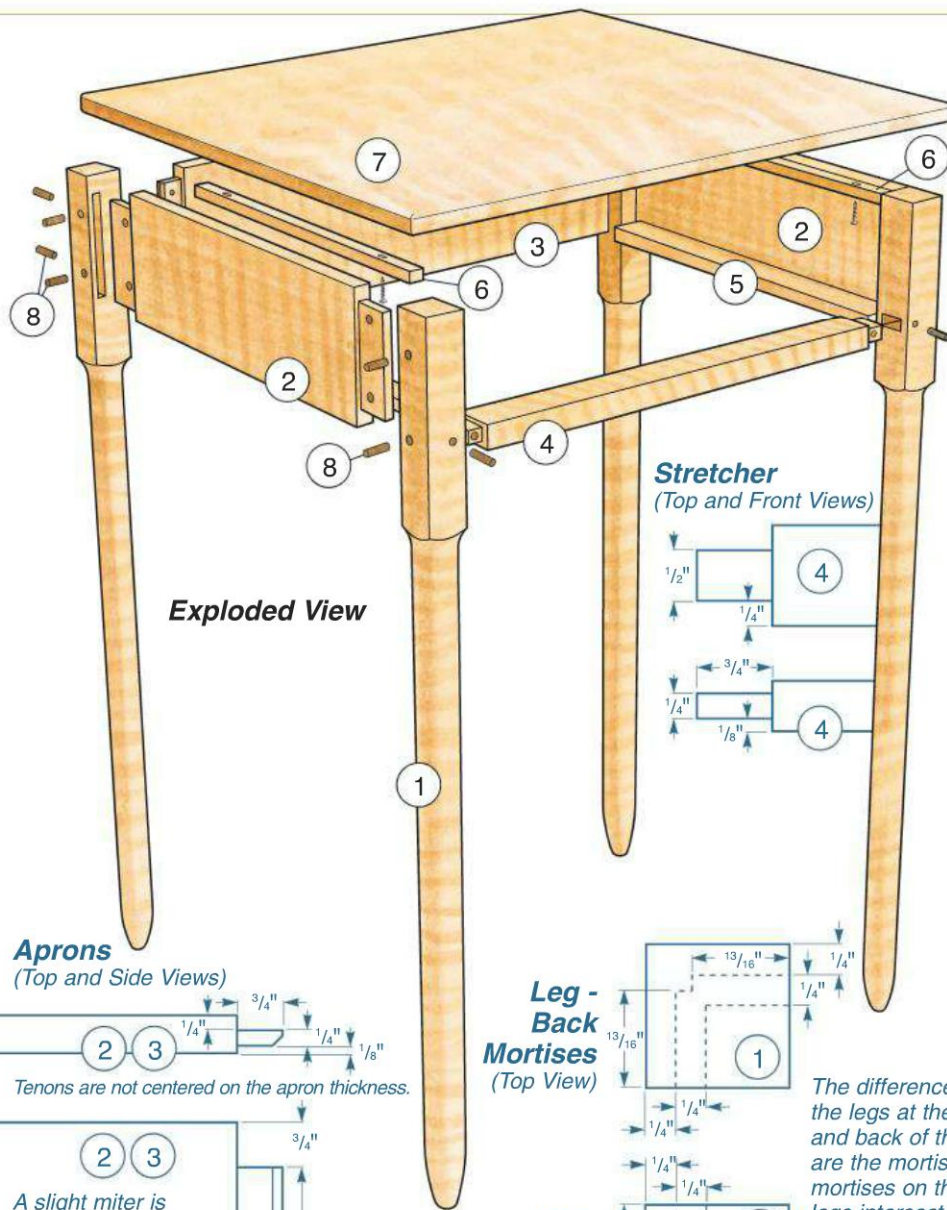


I began by creating a Material List (you can find it on the following page) from the old measured drawings. Even though these drawings were exceedingly helpful, they left a couple of details out. First, how was the top attached to the underframe, and second, how was the drawer supported and guided? These two details ended up being interconnected, but I was unaware of that until later.

To begin, I brought the maple stock into my shop and let it adjust to the environment for several days. I had decided in advance that I would use the tables on either side of my bed, so I selected sufficient wood to make two of them.



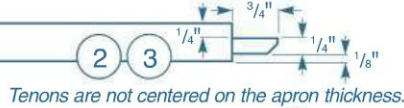
I started by making the legs (pieces 1) from flame maple stock. Although the final squared-up dimension of each leg is $1\frac{3}{16}$ ", the heavy lumber I located was almost $1\frac{3}{4}$ " thick as I began. After carefully inspecting the material to get the best looking grain from the stock at hand, I rough-cut pieces to about 30" long and about 3" wide. To create turning blanks for the legs, I started out on the jointer. I face-jointed the stock to get a perfectly flat plane on the wide face, then I jointed an adjacent edge so that it was straight and a perfect 90° to the first face. (Be sure you mark each piece so that you don't confuse which two faces are trued up to one another.) With the table saw blade set accurately to 90° to the table, I adjusted the fence to a distance of $1\frac{3}{16}$ " plus a bit — less than a



Exploded View

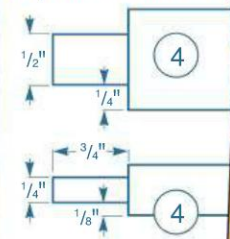
Aprons

(Top and Side Views)

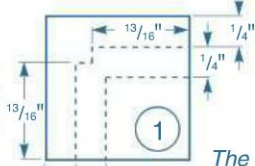


A slight miter is formed on the tenons that go into the back legs so they won't run into each other.

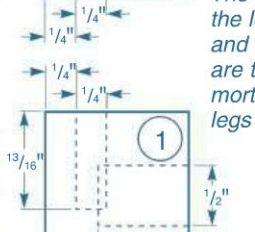
Stretcher
(Top and Front Views)



Leg - Back Mortises
(Top View)

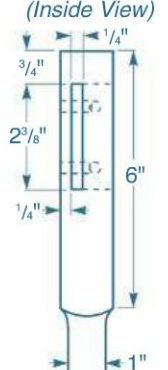


Leg - Front Mortises
(Top View)

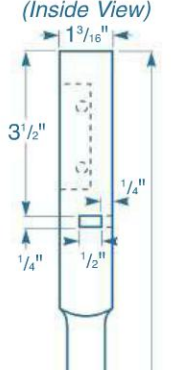


The difference between the legs at the front and back of the table are the mortises. The mortises on the back legs intersect slightly.

Right Back Leg
(Inside View)



Right Front Leg
(Inside View)

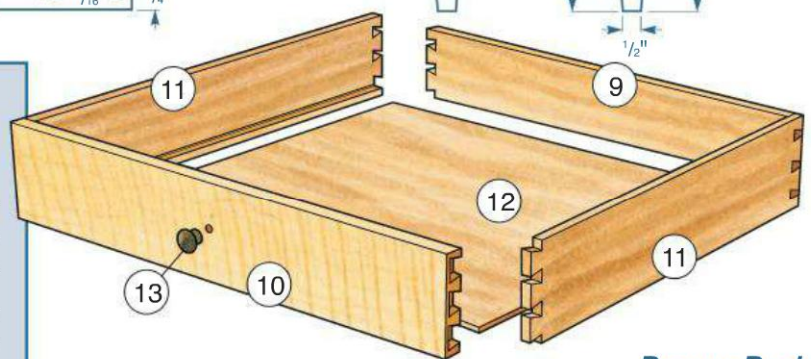


Make mirrored left and right versions of the mortises for the legs.

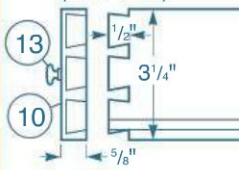


MATERIAL LIST

	T x W x L
1 Legs (4)	1 3/16" x 1 3/16" x 26 1/2"
2 Side Aprons (2)	5/8" x 3 7/8" x 15 1/2"
3 Back Aprons (1)	5/8" x 3 7/8" x 17 1/8"
4 Stretcher (1)	1/2" x 1" x 17 1/8"
5 Drawer Supports (2)	1/2" x 1" x 13 7/8"
6 Tabletop Cleats (2)	9/16" x 9/16" x 13 7/8"
7 Tabletop (1)	1/2" x 16 5/16" x 19 3/16"
8 Tenon Pins (14)	1/4" Dia. x 5/8"
9 Drawer Back (1)	5/8" x 2 7/8" x 15 1/2"
10 Drawer Front (1)	5/8" x 3 1/4" x 13 3/8"
11 Drawer Sides (2)	3/8" x 3 1/4" x 15"
12 Drawer Bottom (1)	1/4" x 15 1/4" x 14 3/4"
13 Drawer Pull (1)	5/8" Dia.



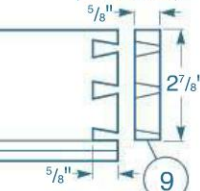
Drawer Front
(End View)



Drawer Side
(Inside View)



Drawer Back
(End View)



The dovetail pattern shown is a suggested layout. Yours may vary with your method.

The author purchased the flame maple lumber for the underframe from rockler.com. After much searching, he found the clouded or "bubble" maple (photo at right) at woodworkerssource.com.



32nd of an inch strong — this extra dimension would be removed while I was sanding the legs later. I made the first cut on my roughed-out blank with the flat face down and the squared edge on the fence and then made the next cut in the remaining blank in the same fashion. Then I lowered the blade a bit and, with the squared faces once again on the table and against the fence, finished cutting out my leg turning blanks. While you could choose to mark out your mortises and chop them out now, I proceeded to the lathe

first. My thought was if I messed something up while turning, or the leg decided it wanted to distort in some way after I removed material, I could discard it without having invested the time and effort of chopping the mortises.

I must confess to being more of an enthusiastic turner than an expert one. And what skill I have is as a result of the bowls that I turn. So, with a bit of research and some practice, I certainly learned a few things about spindle turning while making these tables! As you can see from the *Drawings*, the legs have a 6"-long

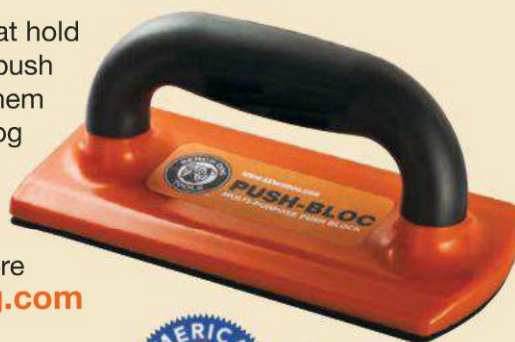
rectilinear section at their top but are cylindrical for most of their length with a gentle taper that starts 4" from the bottom. They are not at all tricky to make, but if you are not experienced in spindle turning, I recommend turning a test leg from scrap stock to get things started. As I completed each leg, I sanded the turned section right up through 400-grit sandpaper. It was my plan from the get-go to put a silky smooth finish on the table, and surface preparation is key to that aim.

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When I was done with the turned portion of the legs, I grabbed the lot of them and moved to my mortising machine. I laid out the mortise locations (you can find them on the *Drawings* on page 30) and set up the machine to chop out the material. The tenons will be 3/4" long, so the mortises must be that, plus 1/16". Don't be surprised that the apron mortises intersect a bit on the back legs, it is just fine.

Once the mortises were done, it was time to sand the rectilinear sections of the leg up through the grits (once again I concluded with 400-grit, but I only machine sanded through 220-grit and finish sanded by hand later, after the underframe subassembly was put together). To keep the parts square while doing all the machine sanding, I clamped them together in quadruples, as shown on the next page. Once I completed the machine sanding, I cut them to length and set them aside. I was ready to move on to the aprons and stretcher.



Once the roughed-out blanks were trued up, the author cut out the actual turning blanks on the table saw, as shown above.

The legs on these tables needed to be true and straight. To achieve that end, the author face-jointed the roughed-out turning blanks and then squared up one edge (photo at right).

Machining the Aprons and Stretcher

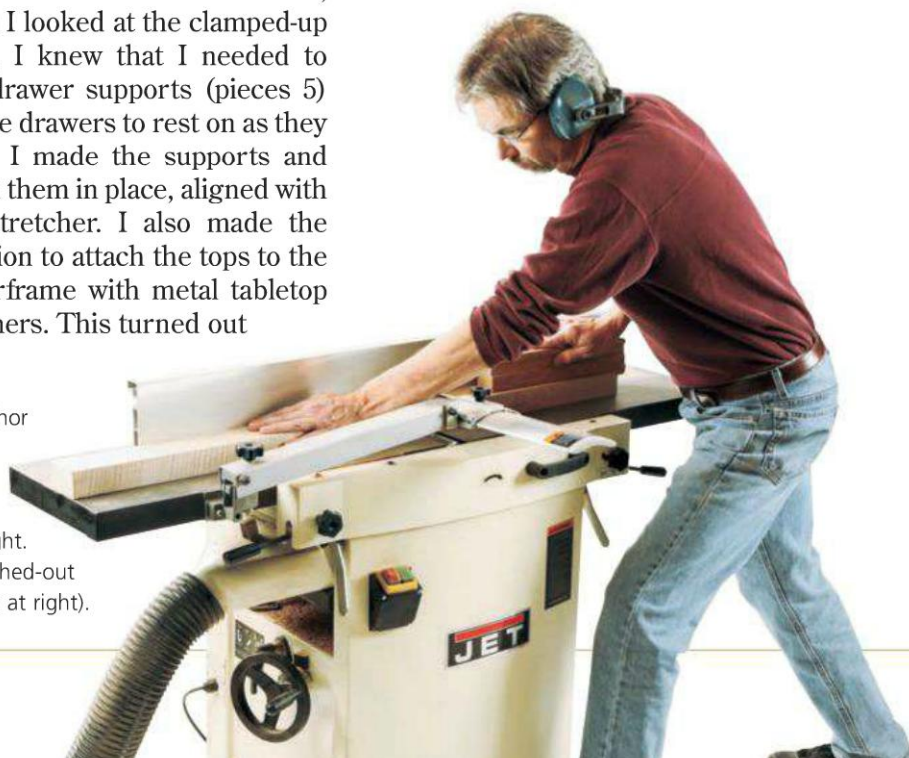
Once again, it's important to harvest parts with grain pattern and color as the primary goal. The aprons and the stretcher (pieces 2, 3 and 4) all have tenons raised on their ends. One face of each of these pieces is flush to the outside faces of the legs. I used a shop-made tenoning jig on the table saw to form all of these tenons (although you can use the method of your choice). I took my time here, marking them out carefully, noting which face would be the "show" face. The construction details are shown in the *Drawings*. Note that on the tenons inserted into the back legs, the ends are mitered (because of those intersecting mortises).

A Mid-course Correction

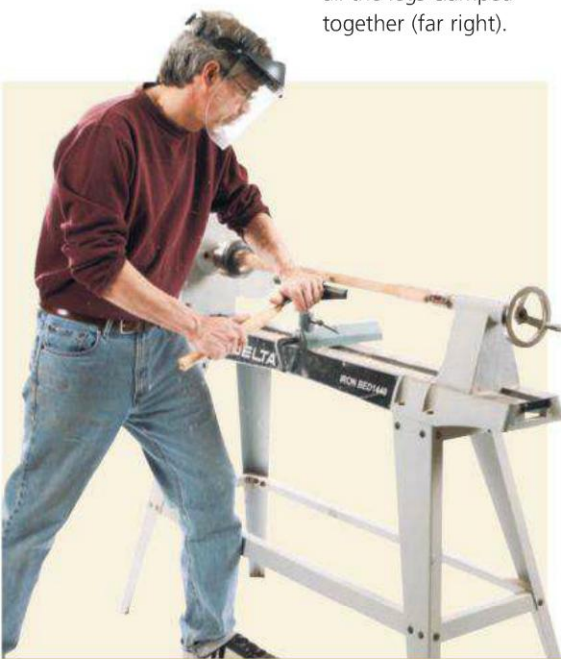
Once the tenons were formed, it was time to dry-assemble the underframes. There was a bit of adjustment to be made and, when I looked at the clamped-up units, I knew that I needed to add drawer supports (pieces 5) for the drawers to rest on as they slide. I made the supports and glued them in place, aligned with the stretcher. I also made the decision to attach the tops to the underframe with metal tabletop fasteners. This turned out

to be a big mistake: unfortunately, when I looked closely at the dry-fit subassembly, I could see that the fasteners would be in the way of the drawers. The solution? Tabletop cleats (pieces 6) that run the length of each side apron. I drilled elongated holes in the cleats (see the *Drawings*) and glued them 1/16" below the top edge of the aprons. They also had the added benefit of guiding the drawers accurately within the drawer cavity. I wish I could say that I had reasoned this out from the beginning, but that is not the case. Although I can't be certain, the simplicity and elegance of these solutions cause me to think that they were likely a part of the original table's construction.

With the dry-fitting and additional details completed, it was time to glue up the underframe. I used a brace in the drawer opening to help keep the parts square and true during this process.



After turning the legs (below), the next machining step was to chop their mortises (at right). Once all the mortising was done, the author machine sanded all the legs clamped together (far right).



Once they were in clamps, I set them aside and moved on to the tabletops (piece 7).

The remarkable figure in the lumber was both beautiful and challenging to work with. I would need to laminate the tops using butt joints, so selecting and arranging the various pieces to look their best was fairly involved. The tops have a finished thickness of 1/2", but my material was 3/4" thick. I had intended to resaw the pieces to save some thin slices of the wood, but after face-jointing

them, I felt there was simply not enough material remaining — so I ended up just planing them to thickness. It was frustrating to turn such lovely wood into chips!

After I glued up each top (slightly oversized in length and width), I used my old 4 x 24 belt sander to flatten each piece by sanding on diagonals until all of the glue joints were level with the face of the top. At that point, I cut the tops down to their exact size and then routed the soft bullnose on their edges. Because the grain was so wild, I shaped

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Each of the aprons and the stretcher have tenons raised on their ends. The author used a shop-built tenoning jig for this task, but the means of how these tenons are formed is up to the builder.



If all the parts are properly prepared, the table's assembly is very straightforward. As glue-up is a step that is nearly impossible to reverse, always check to see that your subassembly is square and true.



Once the slightly oversized tabletop blanks were removed from their clamps, the author used a 4 x 24 belt sander, working on the diagonal, to flatten and smooth the tops. When flat, the tops were cut to size.



In order to moderate the color variations of the legs, aprons and the top, the author used a few different finishing products. The small size of these tables allowed him to use spray cans of finish, with great results.

the end grain first, using a climb cut to avoid tearout. After routing, I hand-sanded the edges from 80-grit all the way through to 400-grit. Then I resumed sanding the tops up through 400-grit paper. When they were done, I took the underframes out of their clamps and, after taking a few minutes to lay out, drill and insert the tenon pins (pieces 8), I got busy sanding on the aprons.

Dovetailed Drawers and the Finish

The drawers, in true Shaker fashion, are both simple and sophisticated, with half-lap dovetails at the front and through dovetails at the back. There is nothing out of the ordinary about these drawers other than, once again, I used some really lovely wood for the fronts. I chose to make the dovetails by hand, but jig-cut dovetails would look just fine. After I had cut out and machined the drawer parts (pieces 9 through 13), I dry-fit them and then moved on to assembly. Once the glue cured, the drawers needed little fitting and, with the exception of the tabletop hardware false start, everything went really well.

As indicated earlier, I had the finish well conceived before I started the project. But a challenge arose when it became clear that, even though all the various parts of the table were made from soft maple, there were distinct color differences in the legs, aprons and the tops. By putting a finish on scrap wood pieces from the various parts, I found that the tops, with a clear finish applied, presented a rich

honey color. The legs, on the other hand, had a slight grey cast to them. The aprons, drawer fronts and stretchers had a pure, paper-white hue. It is my personal preference in most cases to simply let the natural colors of the wood come through, and if there is a range of colors, so be it. But in this case, I found the difference to be too extreme, so I worked to at least reduce the range of variation. I tried an oil stain alone on the underframe stock, but the result looked blotchy. I tried it again with a wash coat of shellac thinned 50 percent ... better, but I was still unhappy with the results. In the end, I applied a coat of Natural Watco® Oil to the underframe and allowed it to cure. Then I applied a coat of amber shellac, thinned 25 percent with denatured alcohol. I followed with three spray coats of lacquer, de-nibbing with 0000 steel wool between coats. On the tops, I applied three coats of sprayed-on shellac (again de-nibbing between coats) and then a final coat of lacquer. These tables were small enough that I had no problem achieving really good results using aerosol spray cans to apply the finish. And, while there is still a visible difference in the color of the various parts, I think they look fine together.

These tables were my first effort at historic reproductions and I have to say that I truly enjoyed the experience. And, while the tables may not be 100 percent as the Shakers would have built them, I think they evoke their spirit very well indeed.



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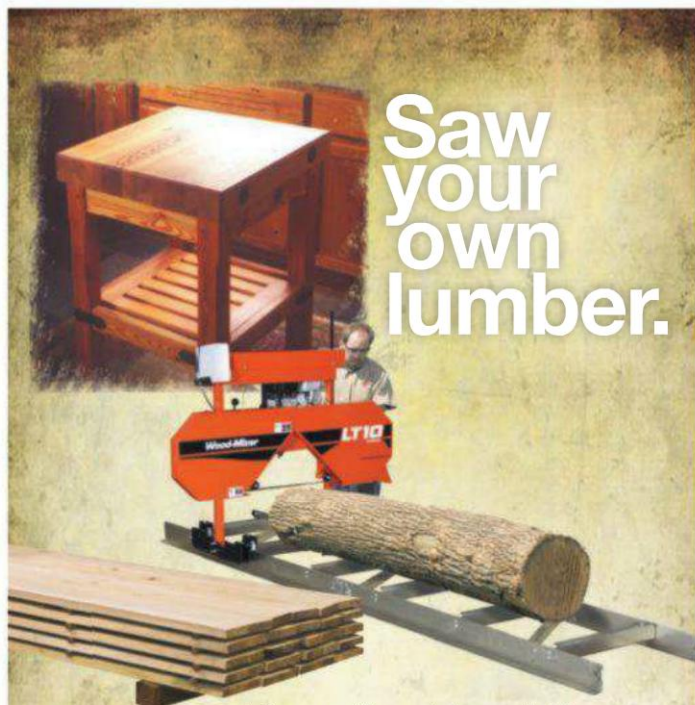
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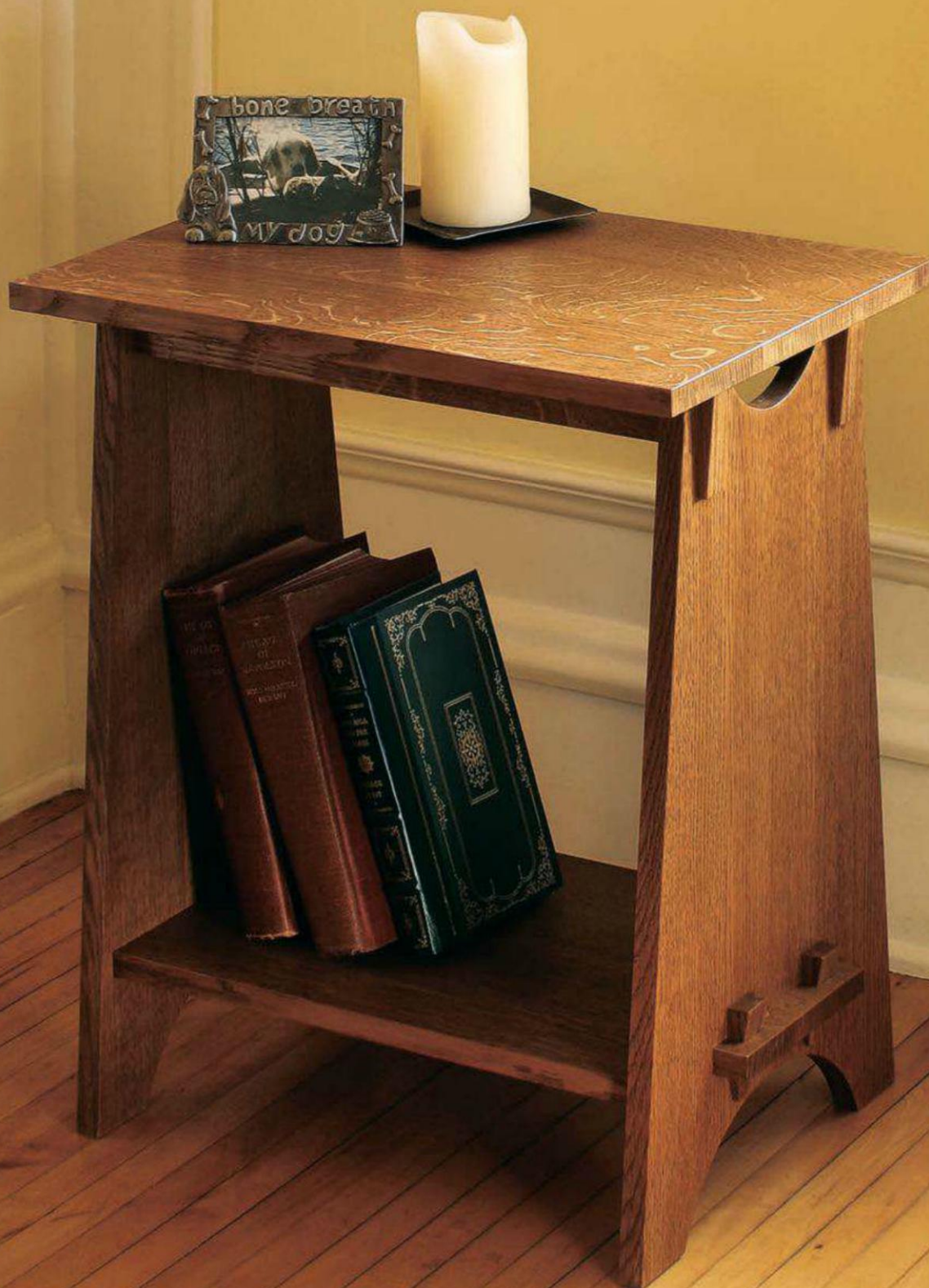
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Arts & Crafts Style Side Table



OPEN AND STURDY, SIMPLE AND STYLISH... OUR AUTHOR'S ARTS & CRAFTS-INSPIRED DESIGN MAKES FOR A GREAT PROJECT.

BY MIKE MCGLYNN

It seems finding a Christmas present for my parents gets harder and harder every year. There are only so many times you can get away with giving them a new photo or subscription to *Southern Living*. One year, I decided I would try something that I should have thought of a long time ago — I would build them a piece of furniture. Actually, I did think of it a long time ago — I gave them the coffee table I made in high school shop as a Christmas present.

This time around I designed a small Arts and Crafts style side table that they could use next to a chair in their living room. I decided to make the table out of the traditional quartered white oak with a medium-dark stain. This piece is an understated design that makes itself at home in many different decors.

Because it uses a relatively small amount of wood (completely made from three 9-foot boards), it was a pleasure to select the stock for this table. I started my selection process by pulling out a number of straight boards that were of complementary color. I first selected the wood for the top, deciding on a board with a nice flake pattern that could be cut in three pieces and glued together to compose a pleasing surface. For the ends and the shelf, I chose a couple of boards with a straight grained appearance but a more subtle

flake pattern than the top. As I chose these boards I envisioned how the panels were going to be glued up and how much width I would need for each one. It's a sorry day when, after milling the boards in preparation for glue-up, the panel ends up 1/2" too small after jointing the edges.

As is my usual process, I let these boards adjust for a few days to the relative humidity of my shop before milling them.

Begin Milling the Lumber

My first milling step was to cut the boards into pieces that were an inch or two oversized in length, making sure I had the best orientation before I rough-cut them. Next, I face jointed each to create one perfectly flat face. I then planed all of the pieces to their proper thicknesses. At this point, I compared the widths of my pieces to the widths of my finished panels. To achieve a balanced look, it is often necessary to adjust the board so that the grain pattern is centered. I don't just joint one edge and cut it to width. I cut and joint my pieces so that my glued-up panels are 1/4" wider than finished. This allows me to clamp them up without using any kind of pads.

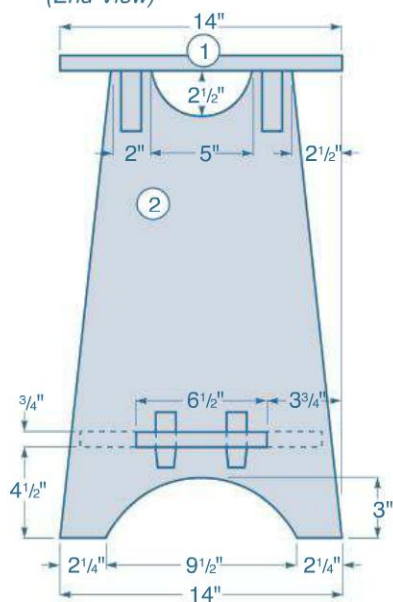
Selecting dramatic looking wood is one of the keys to success in an elegantly simple design like this side table. Quartersawn white oak, with its uniform grain and dramatic "flake patterns," is an Arts & Crafts workhorse.

Marking Out the Joints

When I was finished milling the boards, I selected pieces for the top, sides and the shelf (pieces 1 through 3), laid them out and marked them for biscuit joints. I made sure while placing the biscuit joints that the biscuits would not be exposed when the panels were cut to length, or when the cutouts on the ends were revealed. I then cut all of the biscuit joints. Because I was planning on using a water-based stain, I was already thinking about my glue choice. It makes a difference. If a panel is glued up with regular white or yellow glue and then stained with a water-based stain, the glue line often picks up the stain and sticks out like a sore thumb. Believe me, I speak from hard-earned, and expensive, experience.

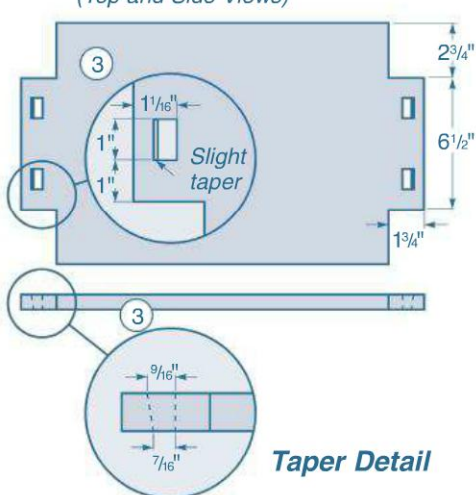


Arts & Crafts Side Table
(End View)



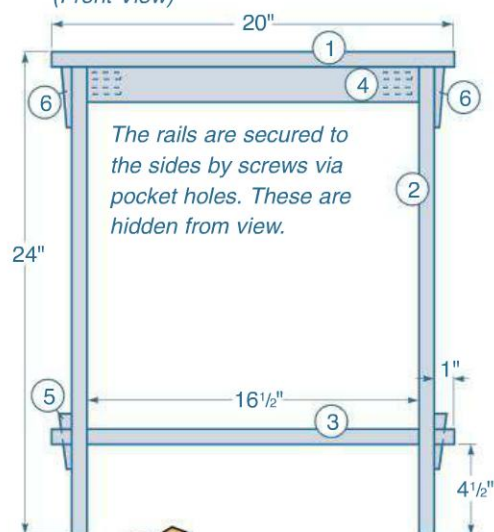
The elliptical segments at the top and bottom of the sides can be cut and sanded with the two sides clamped together.

Shelf
(Top and Side Views)



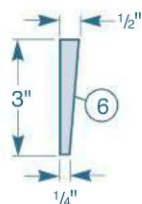
Taper Detail

Arts & Crafts Side Table
(Front View)

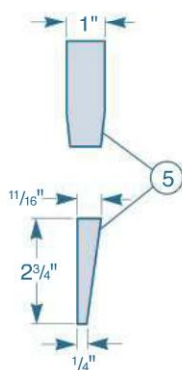


The rails are secured to the sides by screws via pocket holes. These are hidden from view.

Corbel
(Side View)



Wedge
(Front and Side Views)



Exploded View



MATERIAL LIST

	T x W x L
1 Top (1)	3/4" x 14" x 20"
2 Ends (2)	3/4" x 14" x 23 3/4"
3 Shelf (1)	3/4" x 12" x 20"
4 Rails (2)	3/4" x 1 3/4" x 16 1/2"
5 Wedges (4)	3/4" x 1" x 2 3/4"
6 Corbels (4)	1/2" x 1" x 3"

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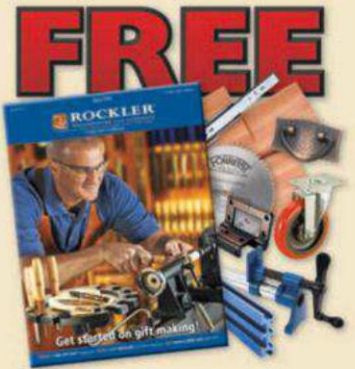
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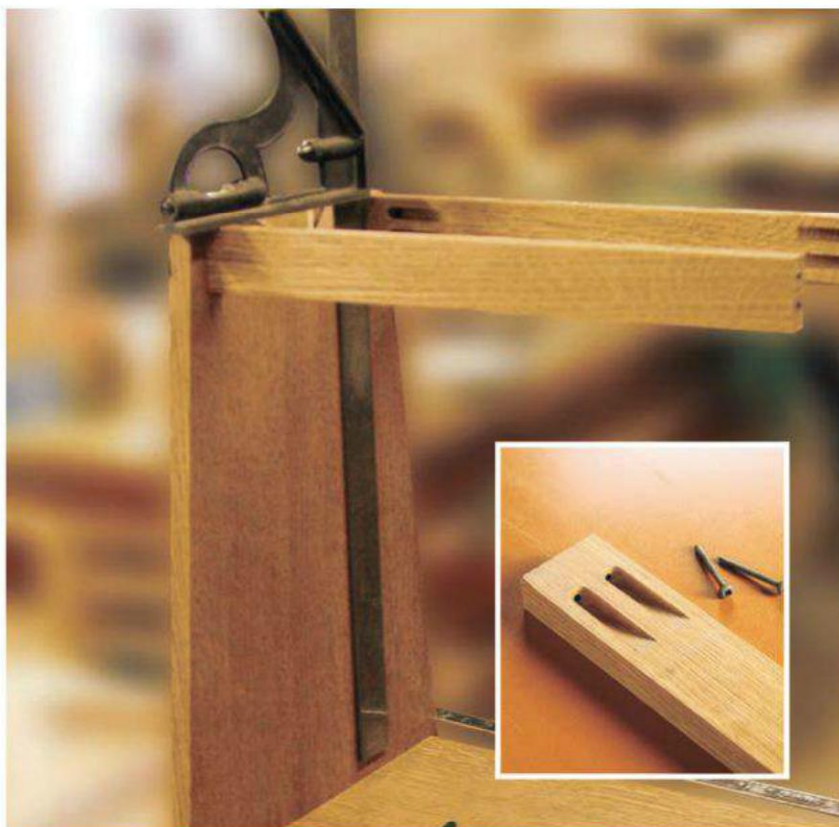
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Pocket-hole joinery (right) secures the rails and is hidden by the top. Since no mortises or machined means align the rails, extra care must be taken that all the parts are in their proper relationships before the screws are driven home.

To this end, I always use Titebond® II when I know I'll be using a water-based stain.

I glued up the four panels using three bar clamps on each, while making sure that they were as flat as possible — even the best biscuit joints have a bit of slop that can usually be flattened out with some judicious mallet taps — before I cranked the clamps down. I always make it a point to scrape off all of the squeeze-out when it is at a nice rubbery stage. This prevents the inevitable tearout that happens if the glue is left to harden and then scraped off.

The following day, I took the panels out of the clamps and prepared to cut them to size. But first, I used a sharp scraper to carefully remove any bit of glue that was left and feathered out any small irregularities. I have found that this is the perfect time to give panels their initial sand-

ing: the panels are still oversize so I don't have to worry about accidentally rounding over any edges. I always raise the grain before I sand as it makes the sanding go much faster. At this point I sanded to 120-grit.

Once I had sanded all of the panels, I cut them to size. When cutting panels to size, it is important to cut the ends first and then the sides. This helps prevent chipout on the corners. I cut the end panels to length and then width. While they were still in a rectangular shape, I laid out the top and bottom cutouts, the side tapers and the through mortises. Using the shelf as a guide, I very carefully marked the through mortises on both sides of the panels. It is VERY important that these layout lines are in exact alignment with each other, or the mortise will end up slanted one way or the other. After doing this entire layout, I cut the side

tapers on the band saw and finished them up with a sharp plane. I cut the top and bottom cutouts on the band saw and finished them off with a curved sanding block.

The shelf took a bit of thinking and layout to get right. After cutting the shelf to length and width, I laid out the wedge mortises and the notches to make the through tenons. I used my table saw to cut most of the notches and finished them off with a hand saw and chisel. The top and rails (pieces 4) are the easy pieces to size, as they are simple rectilinear parts.

Two last sets of parts needed to be built before the part set would be complete: the wedges and the corbels (pieces 5 and 6). I made a cardboard template for both parts and laid them out on the wood I had selected earlier. These pieces are so small that I found it easiest to cut them out on the band saw and then hand plane and sand them to size. I left the wedges a little bit thick so that I would be able to size them as I did the assembly.

Chopping the Mortises

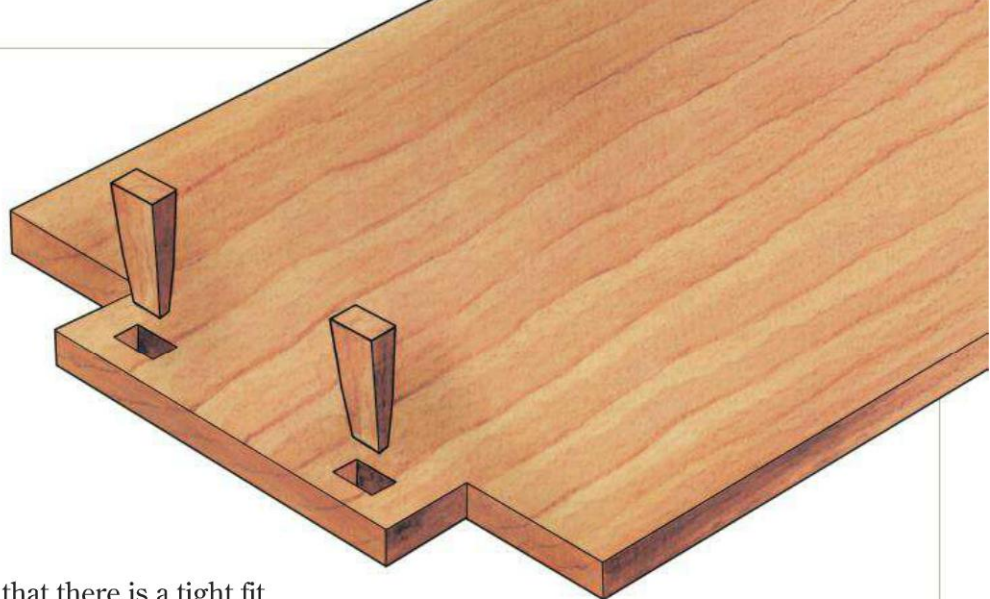
Cutting the six through mortises was the most time-consuming part of this project. Through mortise-and-tenons are an exercise in subtle touch — if the mortise is over-tight, the tenon will drive very hard and chip out the outside face; if the mortise is too large, there will be a loose fit that will substantially weaken the overall structure of the piece. My process is the same for all through mortises: I chisel from

Fitting the wedges into their mortises is essentially a trial-and-error process. While the wedges are functional, they also add a lot of aesthetic value.

both sides and take great care to establish the outer borders of the mortise. I usually undercut the mortise slightly so that I have a tight fit on both faces. I find that it is very important to not make my first cut right on the layout line. Instead, I first chisel away some waste about 1/16" inside the line, then cut on the line. This prevents the taper of the chisel from forcing the chisel outside the line or crumpling the edge of the mortise. When I'm approaching the final size, I constantly check the fit with the shelf and the wedges. I look for a fit that takes a light tap with a rubber mallet to drive home. I am very careful to not chip the outside face of the parts as I drive the parts together. To facilitate this I put a very subtle break on the outside corners — not anything more than 220-grit paper. As can be seen from the *Drawings*, the mortises for the wedges are undercut 1/16" so



The author chops the wedge mortises from both sides of the shelf. It is a meticulous and time-consuming process that pays dividends in spades. Each mortise is slightly undercut to help tighten the joint.



that there is a tight fit no matter how much the wood shrinks or swells.

I used pocket-hole joints to attach the rails to the ends, but tenons or biscuit joints could also be used. After putting two pocket holes per end, I drilled the two holes to attach the tabletop through the rails (see the *Drawings*).

At this point, I dry-assembled the table and fitted the wedges. It is almost inevitable that there will be some tiny differences in the wedge mortises. I fit the wedges so that, when driven home, their tops line up with each other (and look the same on both ends of the table). I did most of this fitting with a very sharp hand plane clamped upside down in the vise, taking very fine shavings off until the fit was just right. When I was satisfied with the fit of everything, I took the table apart and prepared for staining.

Staining Process

If I had to pick one thing that I dislike the most in woodworking, it would be staining an already assembled piece of furniture. There is practically no way to get an even coat of stain on an assembled piece unless you apply a sprayed toner coat, and

even that doesn't look so great. I much prefer to stain all of the parts separately and then assemble them into the final product. This requires careful handling, and sometimes it just can't be done — but I take this approach whenever possible.

My first staining step was to take a damp sponge and raise the grain on all pieces. When the parts had dried, I sanded them all to 220-grit. I paid special attention to putting a slight break on all edges that needed it.

I used General Finishes' EF wood stain in the Early American color on this table. Prior to stain-



JUST A FEW PIECES OF WOOD, PROPERLY ASSEMBLED, CREATE A LOVELY PIECE OF FURNITURE.

ing, I pounded three small finishing nails for each piece into the top of my bench in a triangular pattern. This provided me with a place to set each piece to dry after I had stained it (so that I could stain both sides at the same time). I very carefully stained each piece separately and wiped it down with a lint-free cloth before moving on to the next piece. This stain is really great, but you do not want to let it dry before it is wiped down or you will end up with a streaky appearance. (And water-based stains dry fast!) So, just do one piece at a time, unless you are going for an “antique” look.

Assembling the Table

To start the assembly of this table I first put on a pair of rubber gloves. One of the drawbacks of water-based stains is that any water will dissolve them; thus, sweat on your hands or drops from your brow can

damage your stain job. I then secured the shelf to the ends by putting a small amount of glue on the “cut back” ends of the shelf and clamping the whole thing together. This glue is just a little extra insurance, but I made sure that it wasn’t enough to result in squeeze-out. (Water-based stain won’t interfere with glue the way that an oil-based stain will.) With this assembly clamped up, I clamped the rails in place and attached them with pocket screws. I then attached the corbels with some glue and spring clamps.

I finished this table with three coats of sprayed catalyzed lacquer, although polyurethane or some type of varnish would work about as well. It is my preference to use a finish that has a medium rubbed or satin look to it. I don’t think that a glossy finish looks appropriate on Arts and Crafts style furniture.

The final assembly of this table was pretty simple. I first laid the top upside down on a furniture blanket, centered the base on it, and marked the attachment holes through the holes in the rails. After pre-drilling the attachment holes, I attached the top with four 1½" screws. The last step was to tap the wedges home. Even though I had fitted the wedges

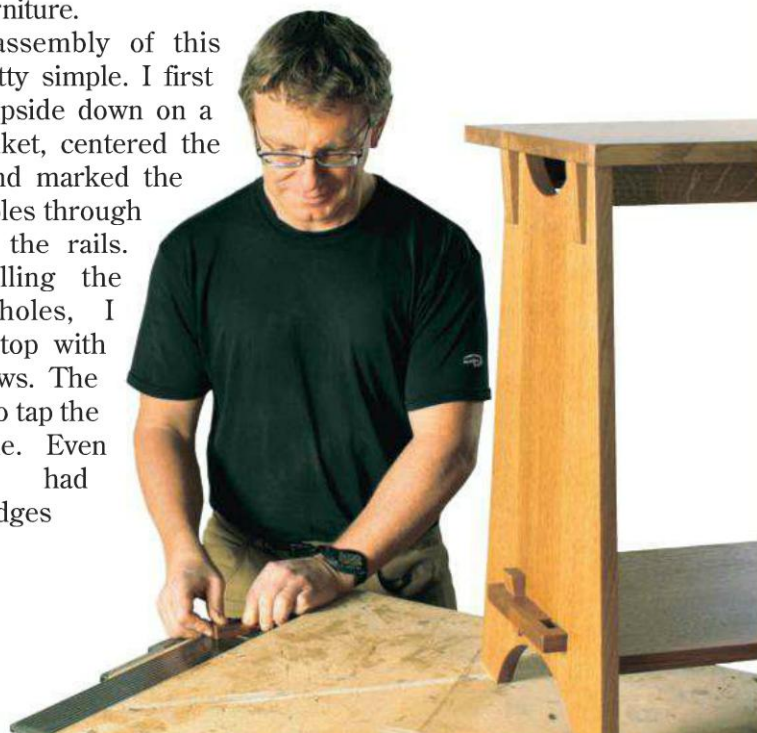
before, I found that I needed to do a tiny bit more shaving on the back of a couple of them so they would line up exactly.

This table is a great project for somebody who is fond of the Arts and Crafts style. It requires a small amount of wood, and it incorporates some of the hallmarks of Arts and Crafts styling. In addition, it is not such a huge project that a person will become overwhelmed by it; three or four nights of work should pretty much take care of it.

I stopped at my parents’ right after Christmas to give them their present, and my mother had me immediately carry the side table they had used for the last 25 years to the basement. I anticipate that this new one will last at least that many years to come ... and hopefully more.



Using a plane inverted in a bench vise (photo at right), the author carefully fits the wedges in their mortises. During final assembly (above), the wedges are coaxed home with a few gentle taps from a rubber mallet.



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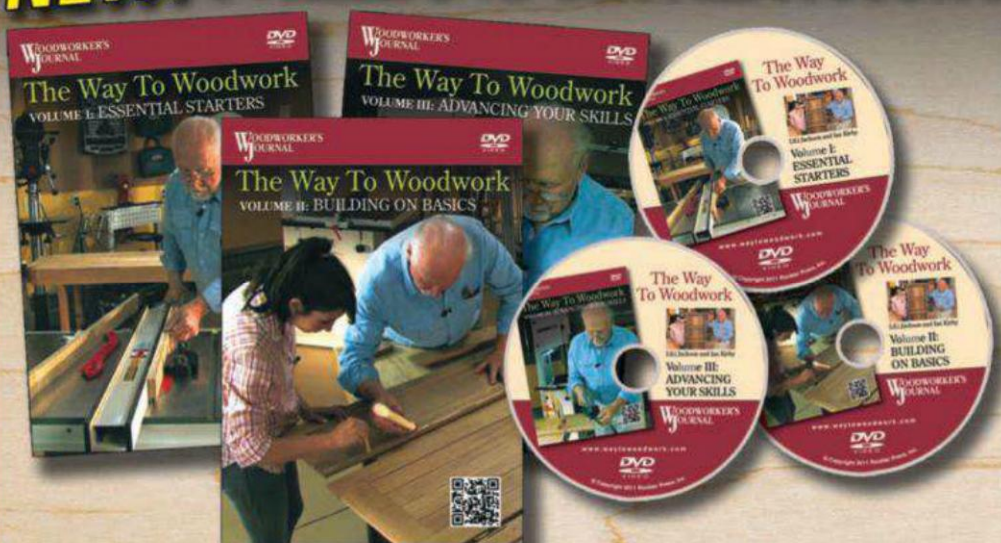


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Chippendale Sofa Table

GOOD DESIGN NEVER REALLY GOES OUT OF STYLE. THIS REPRODUCTION ACCENT TABLE TESTIFIES TO IT.

BY CARL SPENCER



Even posthumously, Thomas Chippendale continues to make sales. When our author's wife wanted a new sofa table for their family room, the couple settled on a design from Chippendale's 1762 catalog. This sideboard table certainly proves its timeless appeal. The fanciful leg brackets — which are typical of Chippendale's later work — are still attractive today.

Chippendale worked almost exclusively in mahogany throughout his long and

illustrious woodworking career, but we built our reproduction out of red oak to blend with today's more common furniture woods.

Making the Legs and Aprons

The first step in building this table is to cut all the parts to size according to the dimensions given in the Material List on page 48. With that done, milling can begin with the four legs (pieces 1), which are fashioned from solid stock that is ripped and jointed square to 2 $\frac{3}{4}$ ". Use your

table saw to cut a 45° chamfer on the inside corner of each leg (see the *Drawing* on page 49 for dimensions), then lightly joint the chamfered face to remove any saw kerf marks. Set the legs aside for a few minutes and move on to the aprons (pieces 2 and 3). Machine tenons on both ends of each apron, using a sharp dado set and your table saw's miter gauge to guide the cuts.

The mortises that house these tenons will also accommodate the scroll-sawn corner brackets, so this is a good time to make those brackets. Refer to the sidebar on page 46 for complete instructions. When your brackets are completed, turn your attention back to the mortises.

Begin by installing a 1/4" straight bit (spiral fluted works best) in your table-mounted router, and set the fence using the dimensions shown in the *Drawings*. To stop the mortises at the correct length, scribe pencil lines on both the router fence and the legs where each cut starts and finishes (see the *Drawings* for this dimension). Remove the stock (see Figure 1, right) in three passes until the mortise is 5/8" deep. When all four legs are mortised, use the same fence setting and bit to make mortises in the bottom edges of the aprons: These will house the tenons on the tops of the brackets. Their dimensions can be found on the *Drawings*.

CHIPPENDALE DESIGNS



In his earlier work, London furniture builder Thomas Chippendale (1718-1779) made extensive use of cabriole legs and ornate carving. As his craft matured, he turned increasingly toward straight legs and scrollwork. Chippendale gained lasting fame in 1754 with the publication of his book of furniture designs, "The Gentleman and Cabinet-Maker's Director."

Adding Decorative Milling

In the Chippendale tradition, the legs on this table are fluted. The flutes are stopped before they reach the top or bottom of each leg (see the *Leg Detail Drawing* on page 49). To make them, install a 1/8" veining bit in the router table and use the same technique employed to stop the mortises for the brackets: Use pairs of matching pencil marks on the router table fence and the workpiece.

Stay at the router table to ease the bottom edges of the legs with a 1/8" roundover bit (see Figure 2, page 47), then move to the table saw and create 3/32" grooves for the tabletop fasten-



Figure 1: Mortises in the legs (they house tenons on the brackets and aprons) are cut on a router table using a 1/4" spiral-fluted straight bit.

MAKING THE BRACKETS



Use your table saw to create tongues on the short sides of the triangular bracket blanks, as shown in the two photos at left. Begin by making a pass to define the tenon (using a sharp blade to combat tearout), then remove the rest of the waste in subsequent passes.



After changing the blade height, use your miter gauge to complete the tenons. The waste between them will be replaced by fillers (pieces 8) during assembly.



Round over the scroll-sawn edges of the brackets with a piloted 1/4"-radius roundover bit in a table-mounted router.

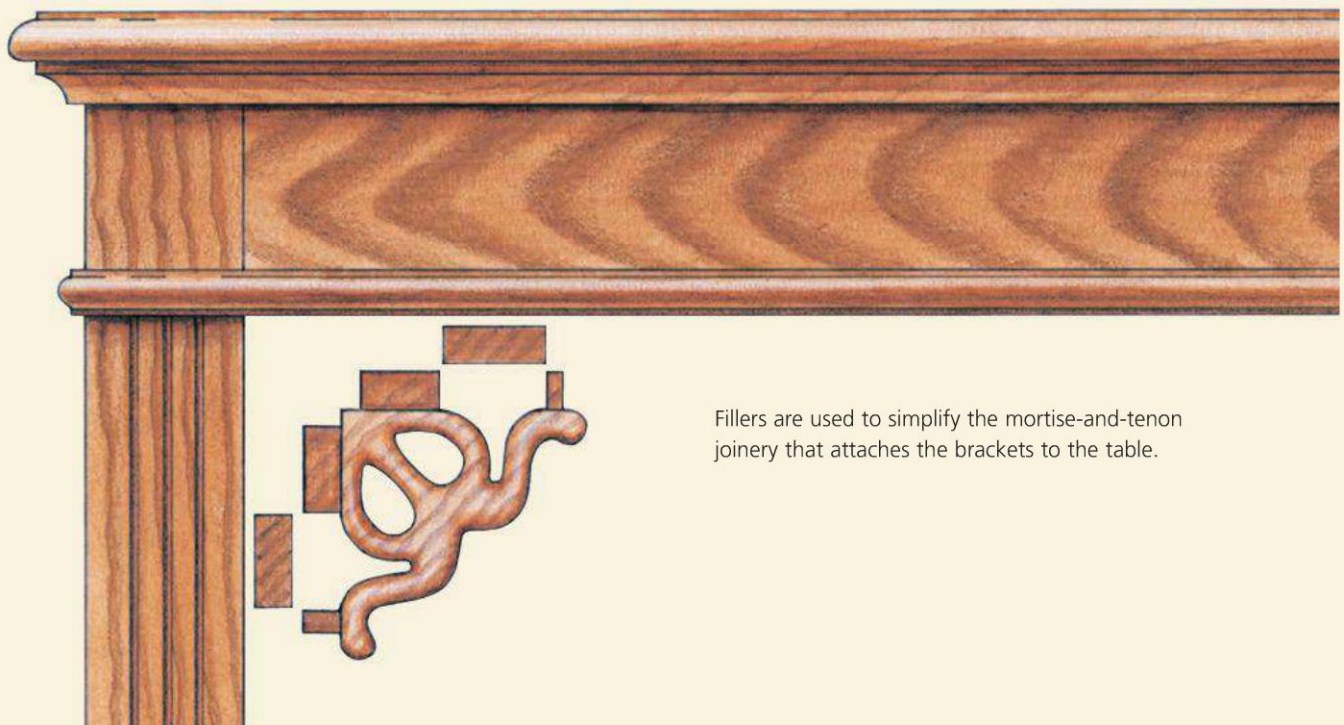


Start making the brackets (pieces 4) by ripping enough straight-grained 5/8"-thick lumber (see Material List on page 48) into 3 1/2"-wide strips to make eight bracket blanks. Cut the strips into triangles on your table saw using the miter gauge, and make sure the two short sides of each triangle are exactly at 90° to each other or you'll have problems during assembly. The completed brackets will be attached to the rest of the table

with mortise-and-tenon joinery, so stay at your table saw to make tenon shoulders on the two short edges of each triangular blank. Begin by setting your dado blade's height to 3/16" and remove enough material from each side of the blank to leave 1/4"-thick tongues, as shown in the photos, above left.

Transform these tongues into tenons (top middle) by adjusting the dado blade height to 5/8" and removing enough waste to

define the tenons. Make photocopies of the design (see the full-size pattern on page 50) and glue them onto the blanks with a low-tack spray. Then drill holes through the interior cutout areas and complete the fretwork using a scroll saw. Cutting out the area between the tenons makes final shaping a lot easier. Do that shaping (see the two photos top right) on your router table with a 1/4" roundover bit.



Fillers are used to simplify the mortise-and-tenon joinery that attaches the brackets to the table.



Figure 2: Ease the bottom edges of the legs with a 1/8" round-over bit. At 31 1/4" long, these legs are short enough to perform this operation while holding each leg vertically on the table.

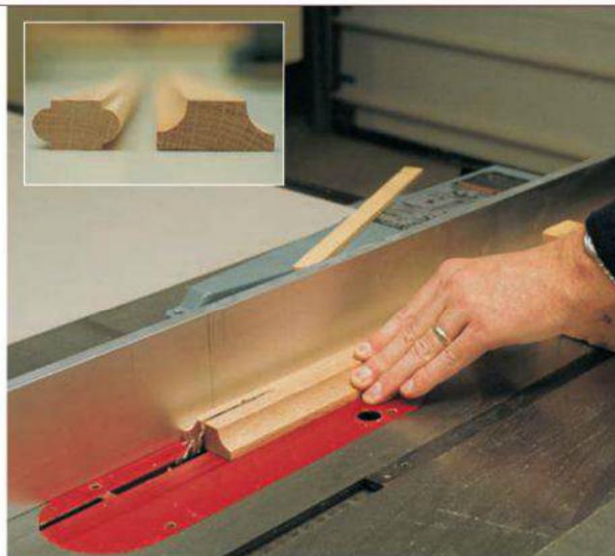


Figure 3: The safest way to make the narrow moldings that adorn the aprons is to shape both outside edges of wider boards (inset), then rip two lengths of molding from each.

ers (pieces 5) on the inside faces of the aprons. These are cut with a thin-kerf saw blade, and their locations and depths can be found on a *Drawing* on page 49.

Fashioning the Moldings

True to Chippendale's original 1762 design, decorative moldings are used to dress up the apron. A cove molding (piece 6) runs around the top of each apron, while a wide bead molding (piece 7) adorns the bottom edge. The safest way to make these narrow moldings is to shape both edges of a board (see Figure 3, inset), and then

cut off the shaped piece. While routing, make several passes, ending up with a last light pass that both eliminates chatter and minimizes sanding.

Building the Frame Assembly

The legs, aprons, brackets, fillers (pieces 8) and moldings can be glued up now. Start by gluing the brackets and fillers to the aprons, lining up the brackets with a combination square while the glue is still wet (see Figure 4, below). When aligned, clamp them in place.

After the glue has dried, fasten

the front and back aprons to the legs. To do so, apply glue to their tenons, insert the tenons into the leg mortises and clamp them in place with pipe clamps (see Figure 5). To ensure that the legs remain parallel during clamping, insert a spacer between them, down at the bottom. Then, before the glue sets, check the entire assembly for squareness by measuring diagonally.

The two side subassemblies are joined to the shorter apron rail in the same manner, using scrap spacers to ensure parallel joinery. Since the final frame assembly must be checked for



Figure 4: When gluing the brackets to the aprons, a combination square helps line up everything while the glue is still wet.

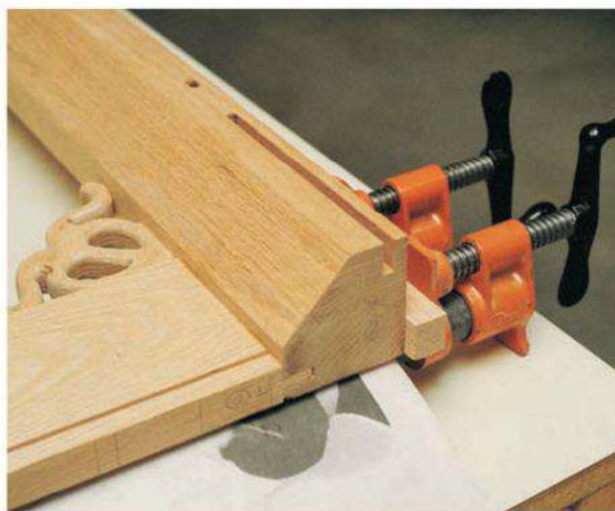
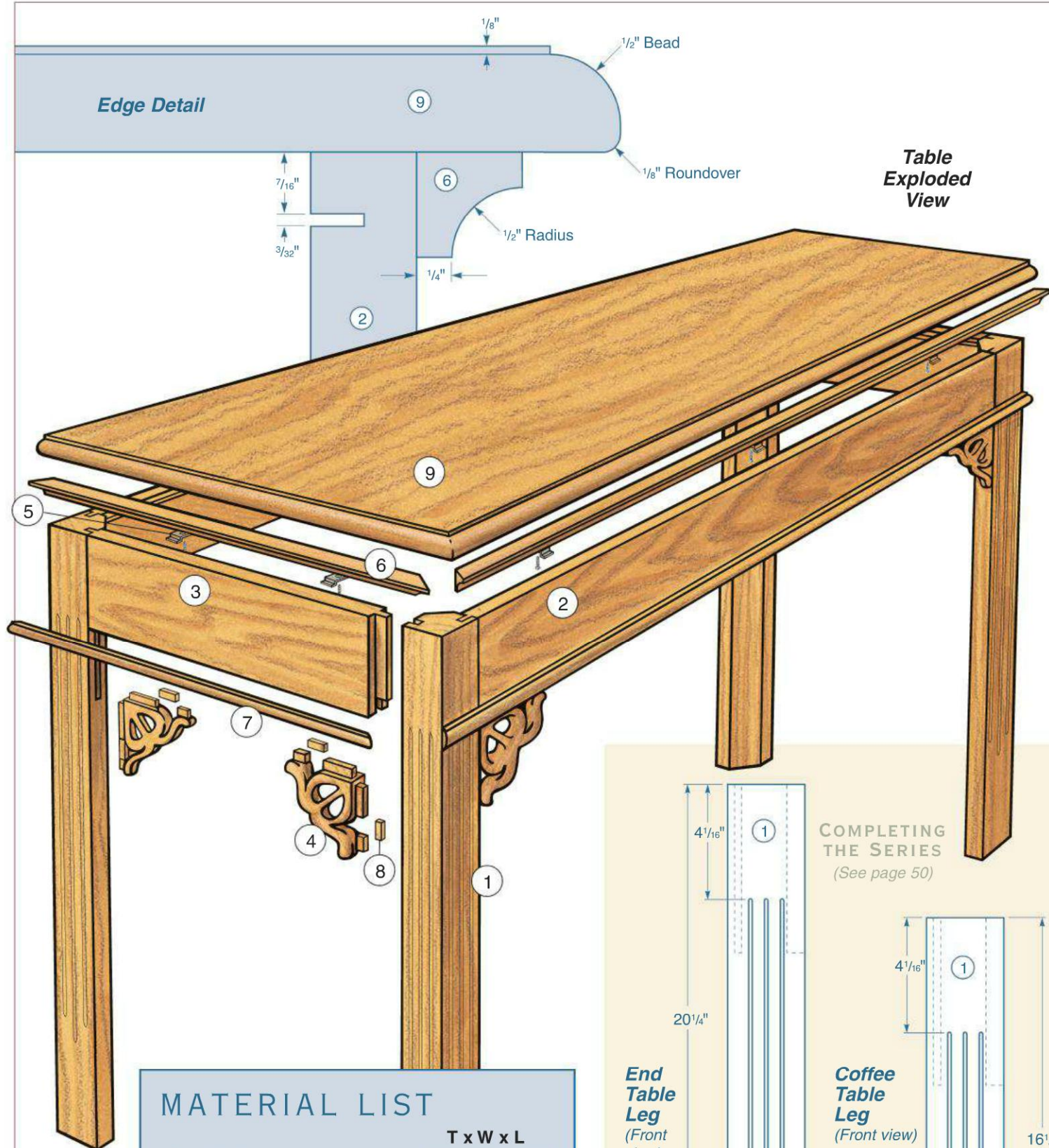


Figure 5: When attaching the legs to the aprons, two pipe clamps will yield a better joint than one. During this process, a few scraps of paper under the wood will keep glue off the clamps.



MATERIAL LIST

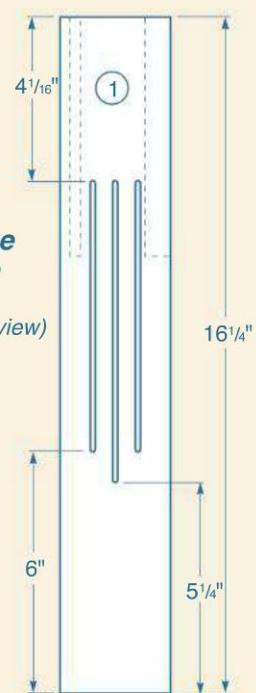
	T x W x L
1 Legs (4)	2 3/4" x 2 3/4" x 31 1/4"
2 Front and Back Aprons (2)	3/4" x 4 1/4" x 47 1/4"
3 Side Aprons (2)	3/4" x 4 1/4" x 10 1/4"
4 Brackets (8)	5/8" x 3 1/2" x 8 3/32"
5 Tabletop Fasteners (10)	Steel
6 Cove Molding (1)	3/4" x 3/4" x 150"
7 Bead Molding (1)	3/8" x 3/4" x 150"
8 Bracket Fillers (16)	1/4" x 5/8" x 1 1/16"
9 Tabletop (1)	1" x 17" x 54"

COMPLETING
THE SERIES
(See page 50)

**End
Table
Leg**
(Front
view)



**Coffee
Table
Leg**
(Front view)



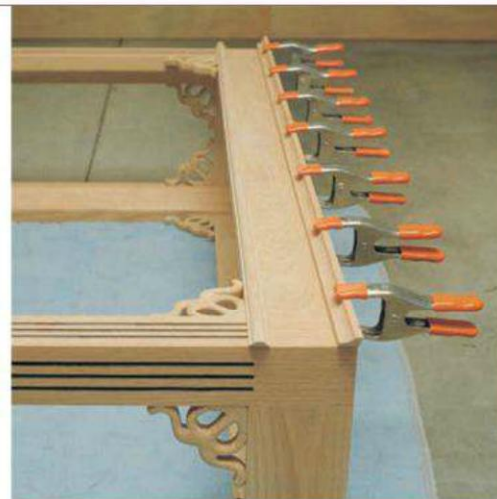
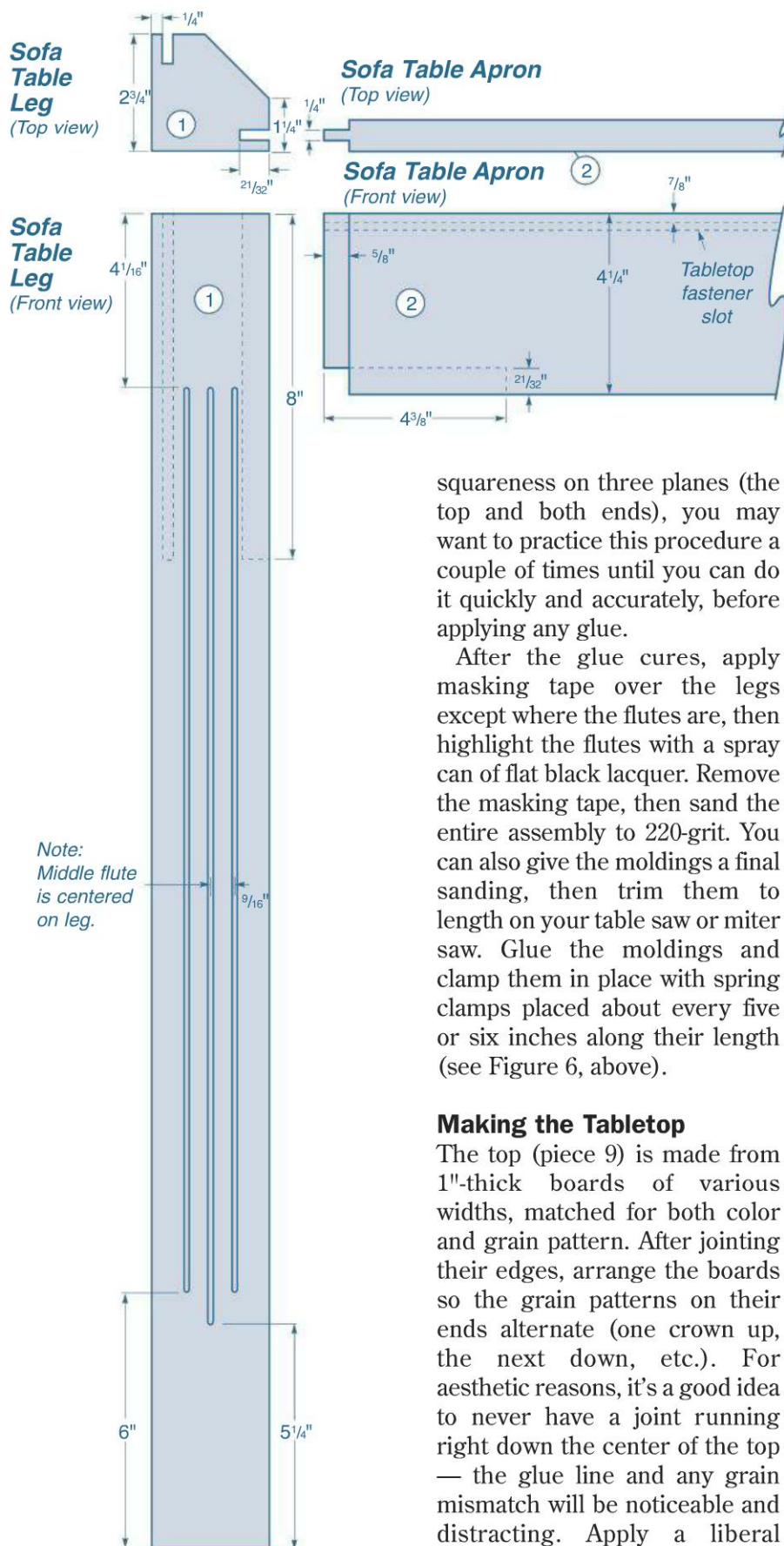


Figure 6: A series of spring clamps is a sure-fire way of providing equal pressure along the length of the molding when attaching it to the apron.

squareness on three planes (the top and both ends), you may want to practice this procedure a couple of times until you can do it quickly and accurately, before applying any glue.

After the glue cures, apply masking tape over the legs except where the flutes are, then highlight the flutes with a spray can of flat black lacquer. Remove the masking tape, then sand the entire assembly to 220-grit. You can also give the moldings a final sanding, then trim them to length on your table saw or miter saw. Glue the moldings and clamp them in place with spring clamps placed about every five or six inches along their length (see Figure 6, above).

Making the Tabletop

The top (piece 9) is made from 1"-thick boards of various widths, matched for both color and grain pattern. After jointing their edges, arrange the boards so the grain patterns on their ends alternate (one crown up, the next down, etc.). For aesthetic reasons, it's a good idea to never have a joint running right down the center of the top — the glue line and any grain mismatch will be noticeable and distracting. Apply a liberal amount of glue to both edges of

each joint, and alternate your clamps (one above the top, the next below) to avoid cupping. Tighten the clamps until the joint is snug, but don't over-tighten them or you'll squeeze out too much glue.

When the glue has cured, ask a local cabinet shop owner to run your top through their wide belt sander, taking it down to 3/4". Back at the shop, cut the tabletop to final size on your table saw, then sand a 1/2" radius on the corners with a belt sander. Form the top edges using a 1/2" beading bit in your router, and create the bottom profile with a 1/8" roundover bit. Then sand all the surfaces to 220-grit.

Finishing and Final Assembly

Stain the leg assembly and top with an oil-based stain. Allow it to dry thoroughly, then apply one coat of sealer. Follow up with three topcoats of brushable semi-gloss lacquer or varnish. The bottom surface of the tabletop should receive the same treatment to minimize any tendency to cup during humidity changes. Each coat of finish must dry completely before you can scuff-sand between coats with 400-grit sandpaper.

After the third coat of finish is dry, place the top upside down

Chippendale Bracket

COMPLETING THE SERIES

The author was so taken with Chippendale's design that he completed the series with an end table and coffee table. Each can be built using the sofa table instructions, with a few dimensional changes. You'll also need 128" of each molding for the end table, and 164" of each for the coffee table.



End Table

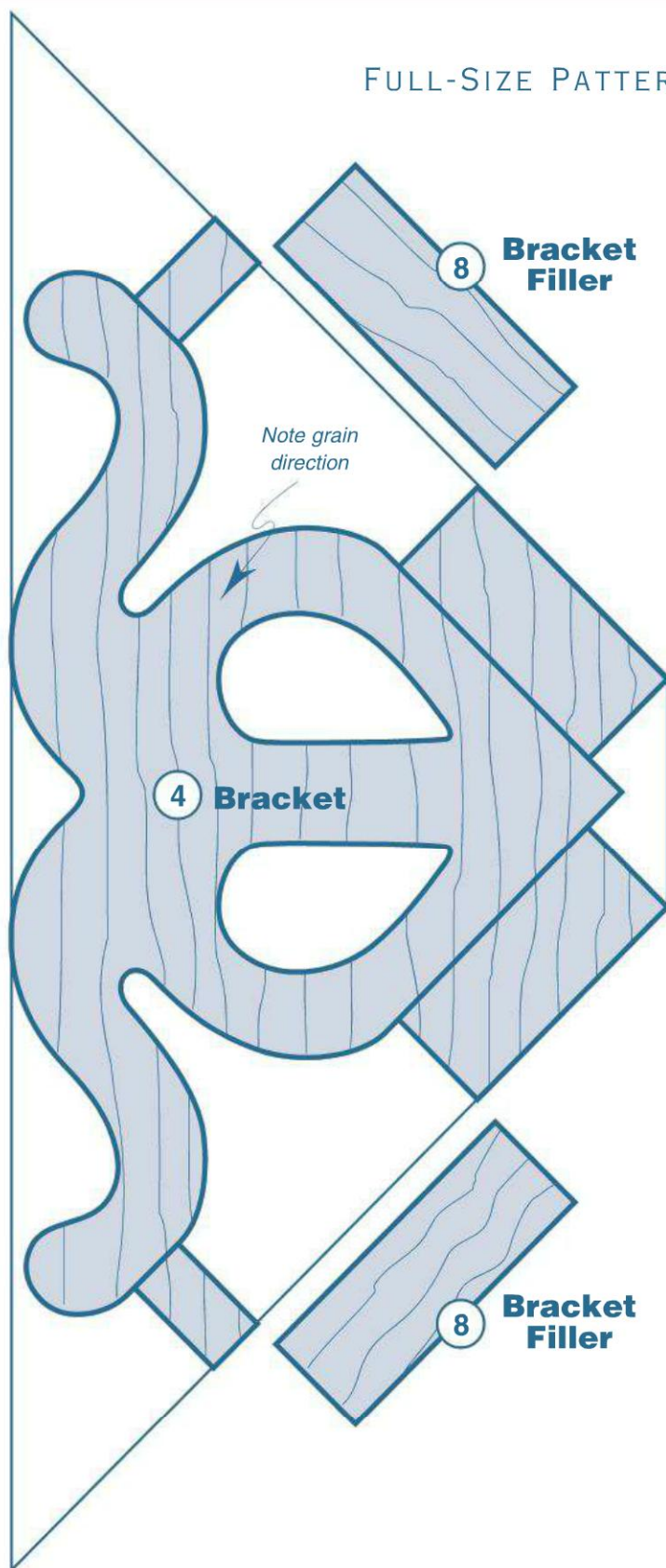
Legs	2¾" x 2¾" x 20¼"
Tabletop	¾" x 30" x 30"
Aprons	¾" x 4¼" x 23¼"



Coffee Table

Legs	2¾" x 2¾" x 16¼"
Tabletop	¾" x 30" x 48"
Front & Back	
Aprons	¾" x 4¼" x 41¼"
Side Aprons	¾" x 4¼" x 23¼"

FULL-SIZE PATTERNS



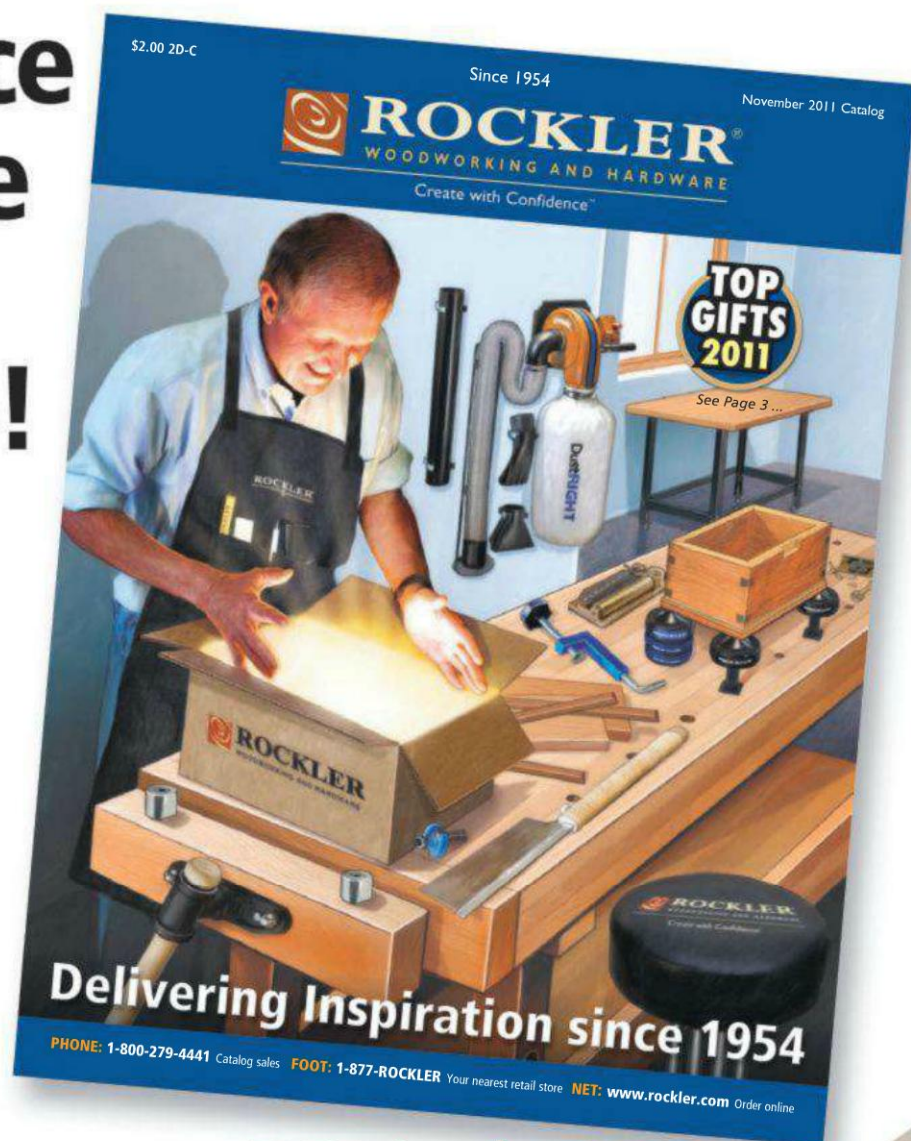
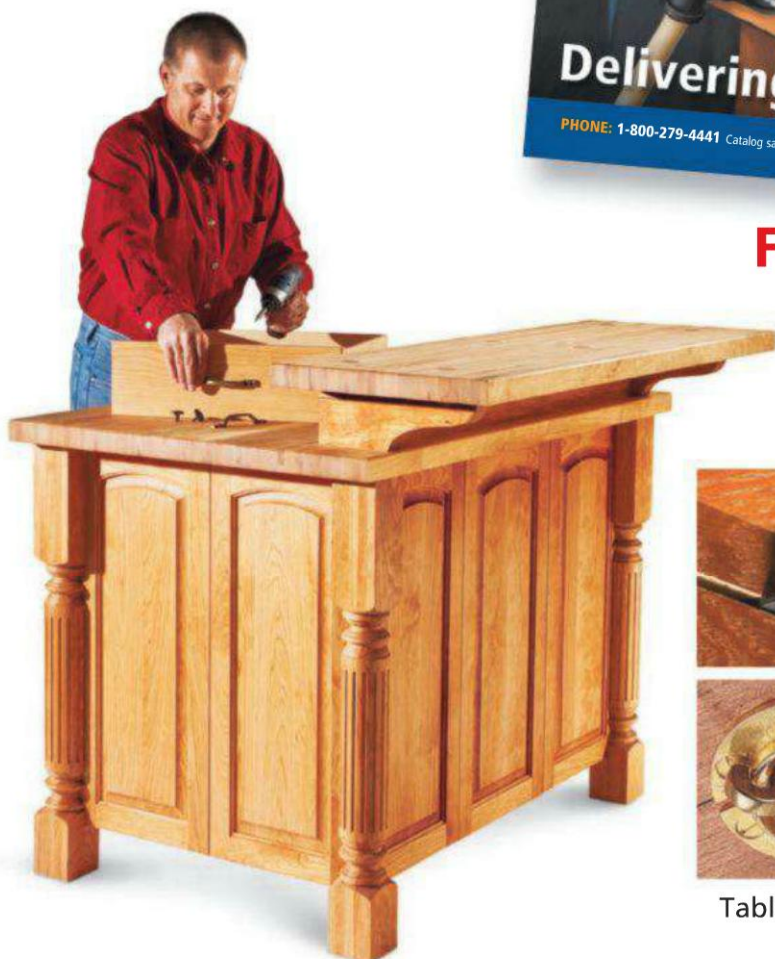
on a padded workbench. Center the leg assembly on it and mark the locations of the tabletop fasteners. Then remove the leg assembly and drill pilot holes for the fasteners. With that done, reposition the legs and install the fasteners.

Finally, place your table behind a sofa and top it off with a copy of "Gentleman and Cabinet-Maker's Director." After all, you never know when you may need to go "shopping" for a good project design.



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Cabriole Leg Side Table

TEMPLATE ROUTING AND HAND TOOL SHAPING RENDER LOVELY LEGS ON THIS “NOUVEAU CABRIOLE” TABLE.

BY PAUL ANTHONY

When it comes to furniture projects, side tables are a perennial favorite. They dress up any room and offer a great opportunity to showcase your woodworking skills to family and friends.

One of the primary features of any table is its leg design. With this cherry table, I wanted to step away from typical tapered or turned legs to something more elegant. I designed these legs to be sort of “nouveau cabriole” — conveying the grace of a traditional cabriole leg without the visual weight. They are surprisingly easy to make. I devised a system of template routing that ensures the profiles match very closely. After routing, a bit of planing, shaving and filing refines the legs to their final form. I found the task quite enjoyable and rewarding.

Cutting the Pieces to Rough Size

Begin by cutting all the pieces roughly to size. I prefer rough-sawn lumber because it allows more stock control.

After a light pass through the planer revealed the general grain and figure of my roughsawn lumber, I selected the most attractive boards for the top (piece 1). Lay out your pieces several inches oversized in length and at least 1/4" oversized in width. After ripping and crosscutting to these

The best approach to forming the mortises in the legs is to plunge to full depth at the beginning and end of each mortise. Then remove the waste in between by making successive shallow cuts.



rough sizes, sticker the pieces and let them sit for a day or so in the shop. This allows the gross wood movement to occur before the final machining.

Making Templates and Leg Blanks

While waiting for the top and apron stock to relax (pieces 2 and 3), I worked on the legs (pieces 4). As mentioned, I used templates to rout the front and side profiles before doing the final shaping.

Start by making the front and side templates using 1/2" hardwood plywood, cutting them to the shapes shown in the *Elevation Drawings* on the next page. (Note the horn at the top and bottom of each leg. This material is used for clamping and will be cut off after the leg is shaped.) Cut close to the lines using a jigsaw, then hand plane and sand the edges to ensure straight lines and fair curves. Mark the centerlines and horn lines on the template and extend the centerlines down the ends of the templates. In order to stiffen the side template, I glued on a piece of 3/4"-thick plywood that I sawed to rough size then trimmed to match the template using a flush-trim router bit. Mark the front profile template to identify its front and back.

Use straight-grained stock for the leg blanks, laying out a centerline on each end. Mark the

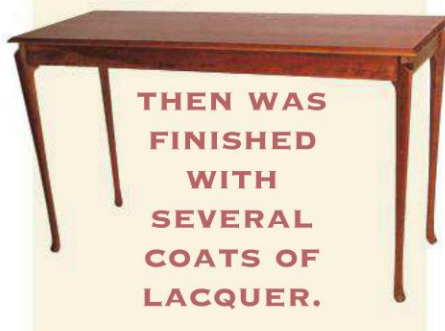
horn lines onto the blanks and lay out the front and side profiles, aligning the side template centerlines with those on your blank. Lay out the front profile on the back edge of each leg, too.

It's best to rout the mortises in the legs before shaping them because the square blanks provide a longer surface for your router edge guide. Fully lay out one 1/4" x 2 1/2" mortise, as shown in the *Elevation Drawings*. You'll use this to set up your router edge guide. The rest of the mortises need only start and stop lines, which you should lay out now, too. Then cut the mortises to 5/8" deep, as shown in the photo above.

Cutting the Profiles

Next, cut the side profile on each leg. Begin by band sawing to within 1/16" of your cutline.

**MY TABLE FIRST
RECEIVED A DARK
STAIN TO SIMULATE
AGED CHERRY,**



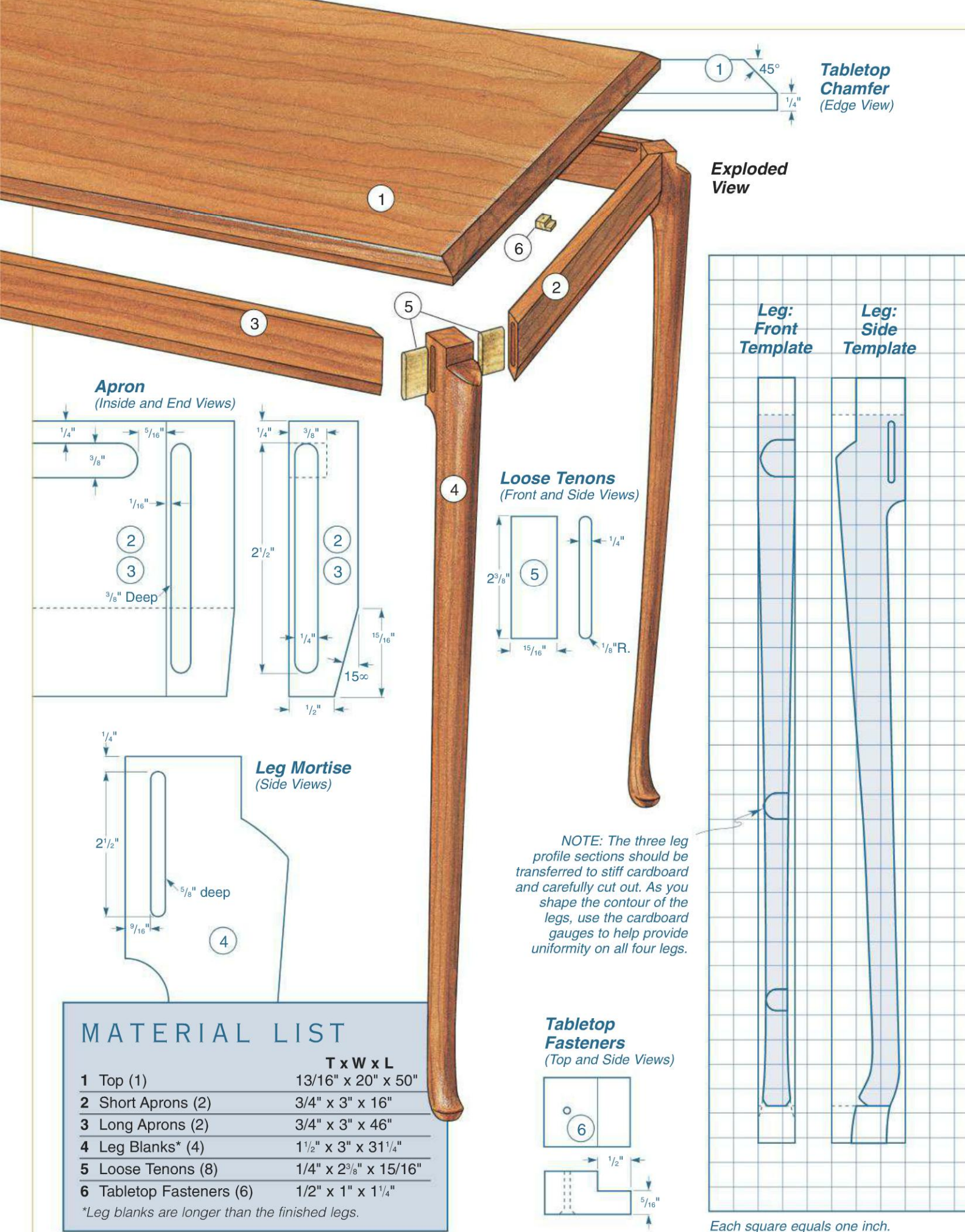
**THEN WAS
FINISHED
WITH
SEVERAL
COATS OF
LACQUER.**

You'll need to attach full-length offcuts later for template routing, so make each cut in one continuous pass. For the front of the legs, begin at the top, cut along the horn line, swoop up around the tip of the knee, then down to the toe. Then, finish up the cuts above the knee and make the V-cut where the foot meets its horn.

Screw the side profile template to the leg horns, aligning the centerlines on each. Mount the template to the right side of the leg to prevent routing against the grain at the knee and toe. Use hot-melt glue or double-sided tape halfway down the leg to prevent template flex. Then rout to the profile using a flush-trim bit on a router table, as shown in the top photo on page 55.

Use hot-melt glue to reattach the offcuts to the leg, carefully aligning the edges. To prevent workpiece tearout when removing the offcuts, I first apply thick cellophane tape to the leg at the hot-melt glue locations. Now band saw the front profile. Feed the workpiece knee-down (see middle photo, page 55) to present an uninterrupted bearing surface to the saw table.

The 3" width of the leg is too wide to template rout with most bits, so I rout it in two steps. Begin by attaching the front profile template to the front of the leg blank using enough hot-melt glue or double-sided tape to prevent flexing. Outfit your table



router with a flush-trim bit that has a bearing at the shank end and a cutting flute at least 1¼" long. Then rout flush to the template as shown in the photo at the bottom of this page. Finish up by switching over to a flush-trim router bit with a 2" cutting flute and a tip-mounted bearing for riding along the previously routed surface, as shown in the inset photo below.

Shaping the Legs

Smooth all of the faces and fair the profile curves using a block plane, spokeshaves, and a scraper. A block plane held sharply skewed will plane the surfaces most of the way down from the knee, as shown in the photos on page 56. If you're not handy with a plane and spokeshaves, use rasps and files instead.

After smoothing the curves, draw a centerline down the front of the leg. I measure across the width at several points, making tick marks, then I use a flexible strip of wood or plastic to connect the marks and establish the line.

Use some stiff cardboard to make cross section templates (see the *Drawing* at left). Then set a block plane for a heavy cut and begin planing the curves at the front of the leg, working from the knee downward. Work as symmetrically as possible, removing the same amount of material from each side of the centerline. Use the templates to gauge your progress as you go, working the curves to within about 2" from the foot. When you're close to the desired profile, set your block plane and

spokeshaves for a fine cut, then go over the surfaces again. After taking each pass, roll the tool over on the curve just a bit to take each subsequent pass. This way, you'll end up with a surface made up of a series of close, small facets that can be sanded smooth. When you are done shaping the front, round over the rear of the legs to a radius of about 1/8".

Now you're ready to begin carving the foot. First undercut the area below the toe, carving away the top section of the horn at the same time. Then use your spokeshaves, chisels or files to generally round the shin. Next, smooth the entire leg with 100-grit sandpaper, then 150-grit.

With the sanding completed, start on the final shaping of the foot and knee. Brush the workpiece to rid it of sanding grit, then carve two opposing facets, about 2" long on either side of the foot, as shown in the bottom photo on page 56. Each facet is about 1/2" wide at its low end. The upper end blends into the curve at the front of the leg.

Use a wide chisel to create a sharp junction where the top of the knee meets the top of the leg. Then pare the tapered facets on each side of the knee, as shown in the inset photo on the next page. Cut each taper about 1/4" at its widest point. Don't fret if the cuts aren't perfect; you can fair them afterward using a fine-grit emery board like those used for nail manicures. Round the edges above the knee to match the width of the facet at its top end.

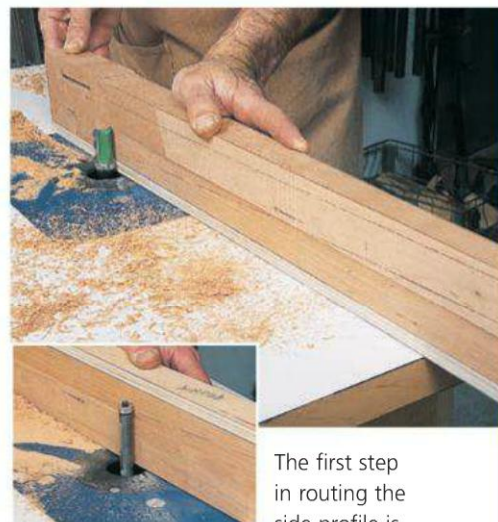
Finish up by cutting the leg to



After band sawing the front and back profiles to within 1/16" of the cutline, attach the side template and rout to the cutline using a flush-trim bit.



Reattach the offcuts to the front and back of the leg with hot-melt glue, then band saw the side profiles to within 1/16" of the cutlines.

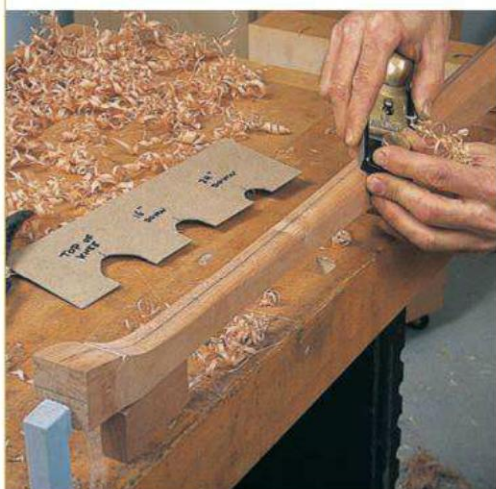


The first step in routing the side profile is

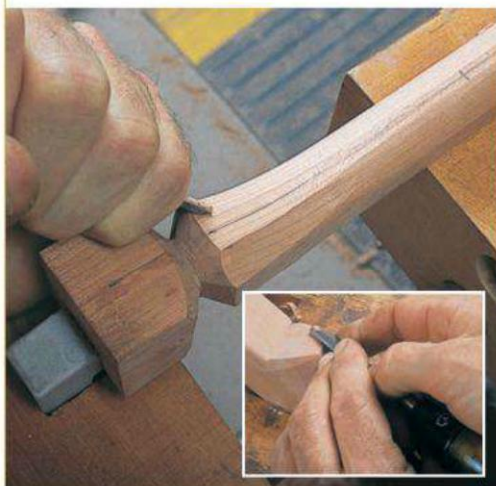
to use a flush-trim bit with a bearing at the shank. The bit translates the shape of the front template to the stock. Then switch to a bit with a tip-mounted bearing (inset), to finish the profile. This bearing rides along the routed surface you just created.



A block plane held sharply skewed will smooth away most of the router marks. Use spokeshaves, scrapers or files on tighter curves near the foot.



Use cardboard cross-section templates (see *Drawings*) to gauge your progress when shaping the curves on the front of the leg.



Turn to your chisels to complete the shaping of the legs. After undercutting the toe, carve from the foot toward the ankle to shape what your block plane couldn't reach. Then (inset) move up to the knee and use a straight chisel to pare opposing facets, starting 3/16" from its centerline.

final length. First, cut the top horn off each leg. Then cut all the legs to 28 1/4" using a stop block on your saw to ensure consistent length. Shim at the rear of the leg to prevent it from collapsing against your miter saw fence or table saw sled fence as you trim off the lower horn. Finish up by doing any necessary shaping and sanding near the sole of the foot after removing the horn.

Blind Spline-miter Joinery

Joint, plane, rip and crosscut the aprons to size and mark them for orientation, placing the nicest grain facing outward. Then saw a miter on each end.

The apron-to-leg joints on this table are a bit unusual. What I did here was basically sandwich a leg in between a splined-miter, or loose tenon, joint. A typical splined-miter joint is often used to connect the corners of a case or deep frame, with a spline or loose tenon spanning two mating slots or mortises to provide increased joint strength. The trickiest part of making a blind spline-miter joint (where the edges of the spline don't reach the edge) is cutting the mortises. Here's how I approach it.

First, I lay out a 1/4" x 2 1/2" mortise on the face of one miter, locating it 1/16" in from the inside edge. Then I clamp all four workpieces back-to-back to form a peak, as shown in the photo below, right. This creates a square edge for registering a router edge guide and at the same time provides more surface for the router base to

ride on. Align the workpiece ends and locate a clamp as close as possible to the end without obstructing router travel. Mount the whole assembly in a bench vise or clamp it against the edge of a thick benchtop with a couple of pipe or bar clamps. Before cutting, extend the mortise end lines across all of the faces.

Set up your router with an edge guide and adjust the fence so the cut favors the inside edge of the miter. You can make your fence out of a short, straight length of wood clamped to the router base. Now rout the 3/8"-deep mortises as shown in the photo. Make sure the rotation of your bit is pulling the fence tight to the stock as you cut to prevent climb-cutting. Rout the mortises in the two center pieces first, then unclamp the assembly and slide the outer pieces to the other end, aligning everything for routing the opposite ends of the inner pieces. Afterward, reverse the sandwich and rout the remaining mortises in the same manner.

Forming the Bevels and Grooves

Set your table saw blade to a 15° angle and saw the bevels on the aprons as indicated in the *Elevation Drawings*. Clean up the saw marks with a hand plane afterward. Saw or rout a groove near the top inside edge of each apron to accept the tabletop fasteners, as shown in the *Drawings*. Stop the grooves short of the apron ends so you do not compromise joint strength. Alternatively, you could cut a series of short

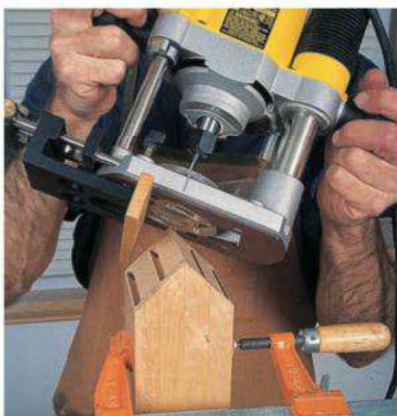
Clamp the aprons to the legs using plywood scraps with beveled end blocks that orient clamping pressure perpendicular to the joint lines.

grooves at the fastener locations using a biscuit joiner.

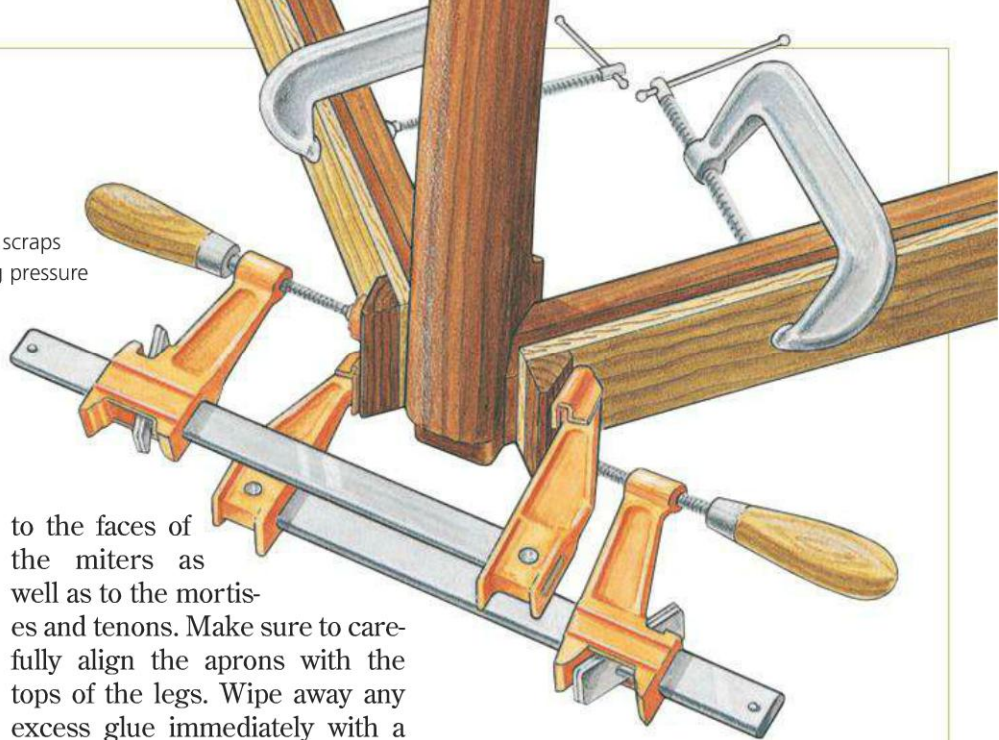
In preparation for assembly, sand the aprons and legs through 220-grit, and make the loose tenons for the joints. To make the tenons (pieces 5), first mill a strip of 1/4" x 2 3/8" stock about a foot long. Plane the stock for a snug fit into your mortises. Rout, plane, or sand a bullnose profile on the edges of the strip, then crosscut eight 15/16"-long sections to create the individual tenons.

Dry-assemble the base to make sure everything fits well and to rehearse your clamping procedures. The best way to clamp these joints is to make up some plywood clamping straps that include beveled blocks on the ends for applying clamping pressure directly across the joint, as shown in the illustration above. To make the clamping straps, glue the blocks in square form to the ends, then saw the bevels after the glue dries.

When gluing up, I apply glue



When it's time to rout the mortises in the mitered aprons, clamp them back-to-back. The resulting peak creates a shoulder for the edge guide and provides bearing for the router base.



to the faces of the miters as well as to the mortises and tenons. Make sure to carefully align the aprons with the tops of the legs. Wipe away any excess glue immediately with a damp rag. Alternatively, you can wait until the glue turns rubbery, then cut it away with a sharp chisel.

Making the Tabletop

To make the top from several boards, I joint one face of each board, then plane it to 13/16" thick. I try to plane equal amounts off both faces to equalize any inherent stresses in the lumber. Then comes the fun part — laying out the individual boards for position. I consider any tabletop a canvas of sorts, and I try to compose the grain for nice flow and a good color match along the joint lines.

As with any edge-joined panel, it's usually more attractive to arrange the boards so that their widths are approximately symmetrical. It also helps to match straight grain to straight grain at the edges of boards, or at least aim for grain that continues the same slope on an adjacent board. In any case, try to avoid crashing wild grain into straight grain along a joint line. When you are happy with the arrangement, draw a large triangle that spans all of the board for reference when you do your glue-up.

Glue up the top, carefully aligning the edges to be as flush as possible. If you've dressed your stock flat, you won't need

biscuits or splines to help alignment. I use a rubber mallet to smack any proud boards into line. After glue-up, wait several days before planing or sanding the top. Glue introduces moisture into the wood, swelling it at the joints. If you flatten the top before the moisture has had a chance to thoroughly evaporate, you invite depressions at the joint lines later.

After the glue cures, rip and crosscut the top to final size. Flatten it using a belt sander or hand plane, then sand the top through 220-grit. I routed a chamfer on the edge, but you could leave the edges square if you like, slightly easing them with sandpaper.

Fasten the top to the base using tabletop fasteners (pieces 6). I made my own from wood, but commercial metal clips work fine. When screwing the clips to the top, set the shoulders of the clips back a bit from the side aprons to allow expansion of the top during the humid season.

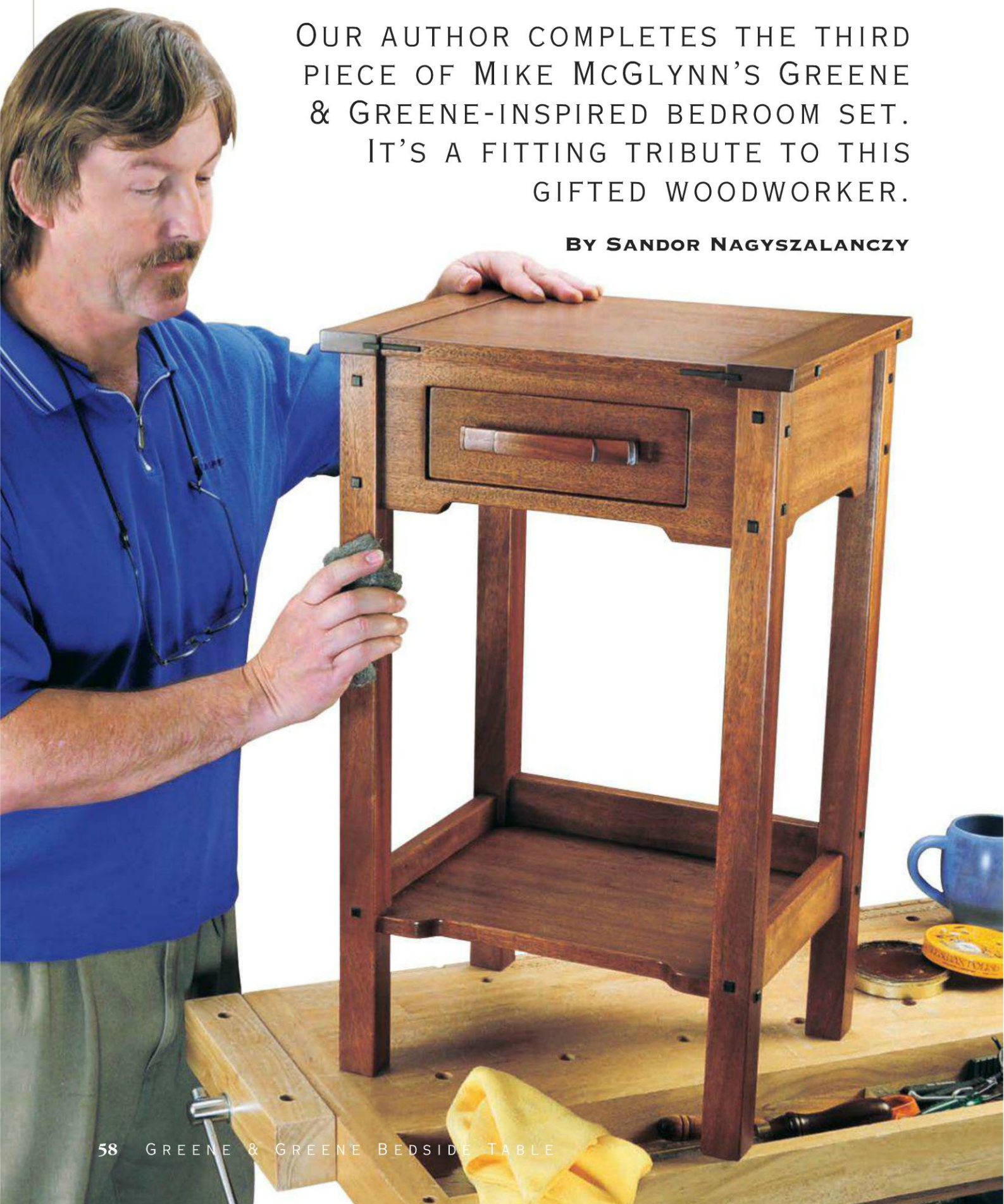
After an industrious and careful final sanding, I applied the finish. Now, with such a lovely table on hand, the only problem is to decide which room it will best suit!



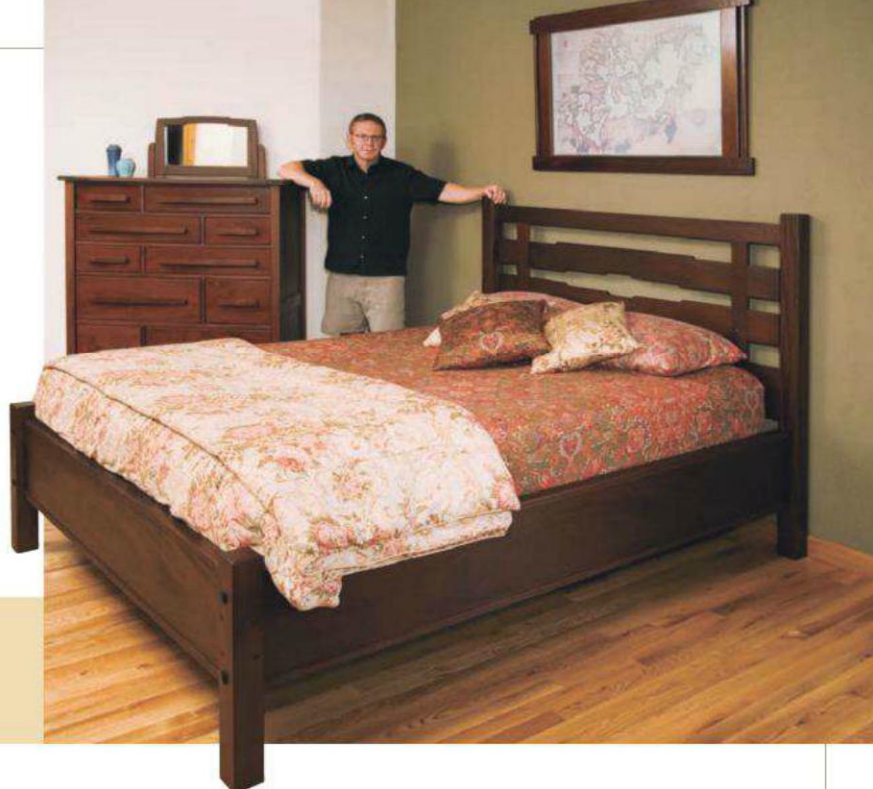
Greene & Greene Bedside Table

OUR AUTHOR COMPLETES THE THIRD
PIECE OF MIKE MCGLYNN'S GREENE
& GREENE-INSPIRED BEDROOM SET.
IT'S A FITTING TRIBUTE TO THIS
GIFTED WOODWORKER.

BY SANDOR NAGYSZALANCZY



Visit woodworkersjournal.com to order compilation CDs of our 2006 and 2007 print issues so you can learn more about and build Mike McGlynn's Greene & Greene bedstead and chest of drawers projects.



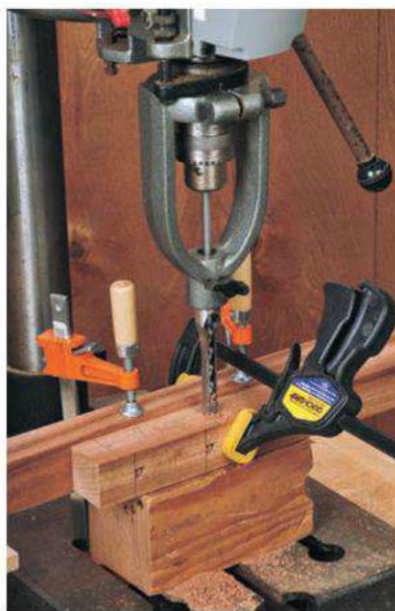
In the February 2006 and April 2007 issues of *Woodworker's Journal*, former contributing editor Mike McGlynn showed us how to build the first two pieces of a stunning Greene & Greene style bedroom set he designed: a chest of drawers and a bedstead. Sadly, Mike passed away shortly thereafter, leaving me the task of completing the set with the bedside table presented in this article.

With its square legs, bread-boarded top, cloud-lift-cut aprons and shelf and classic Craftsman-style details like square ebony plugs and splines, the table is harmonious with the proportions, details and overall flavor of the other bedroom pieces Mike created. It's also a practical and attractive stand-alone piece. I built the table from straight-grained African mahogany, using both 8/4 and 4/4 stock, but Honduras mahogany would be a fine choice too (that's what Mike used for the other bedroom pieces).

Built either as part of the bedroom set or as a stand-alone piece, the bedside table, left, is an attractive project. Square holes for the stylish ebony plugs that decorate the table are easily made with a square-chisel mortising setup in a drill press (as shown at right).

Starting with the Legs

The table's simple square-section legs are all cut from a straight-grained piece of 8/4 stock, planed down to 1½" thick. After jointing one edge of the stock, rip each leg to a little less than 1½", then thickness-plane it exactly 1½" wide. Re-joint the stock before ripping each of the other three legs. Now match the grain of each pair of front and back legs, and mark the ends and sides of all four legs to show their orientation relative to the assembled table — up, down, front, back and side.



The markings will help prevent mistakes during the subsequent machining operations.

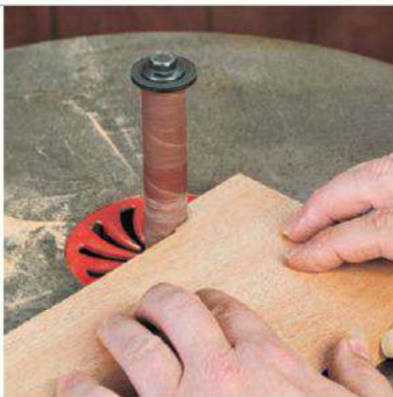
Next, chop the square holes for the table's decorative plugs. The layout of plugs is shown in the *Drawings* on page 60. You can chop these out with a sharp chisel, but it's far easier to make them using a hollow mortising chisel setup in a drill press (see photo, below). Clamp a fence to the drill press table to keep the sides of the holes square to the edges of the legs, and bore each square hole a little more than 1/8" deep. Finally, round over the edges of the legs with a 1/8"-radius roundover bit in a handheld router or on the router table.

Making the Aprons

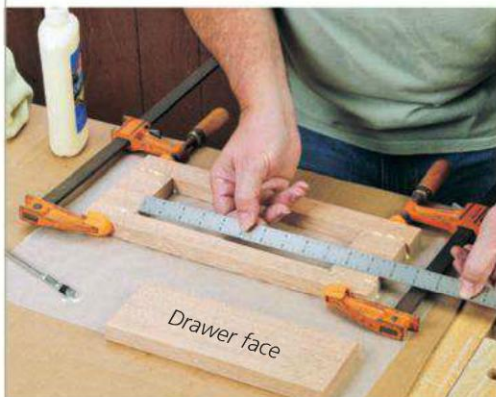
As shown in the *Drawings*, the legs are joined by a wide apron that also holds a single drawer. Start by planing enough 4/4 stock down to 3/4" thick for the table's aprons. Cut three of the four aprons 5½" wide: two that are 10" long for the sides and one 13"-long apron for the back. For the front apron, start with a workpiece that's 6¼" wide x 13¾" long. Mark a cabinetmaker's triangle across the entire face, then rip the board into three strips,



For a perfect grain pattern, the front apron and drawer face are cut from the same board: Rip strips from the top and bottom edges first, then cut off the ends of the remaining piece and trim the drawer face to final size.



An oscillating spindle sander quickly refines and smooths the concave portions of the "cloud-lift" profiles cut on the lower edges of the apron members and front edges of the shelf.



The four pieces that surround the drawer are glued back together to form the table's front apron. The author uses a rule to make sure the final distance between the end pieces is a bit greater than the width of the drawer face.



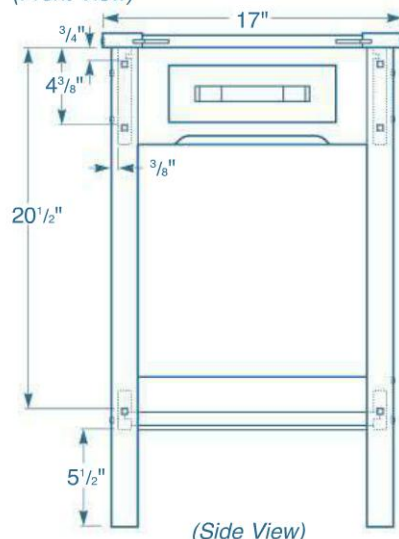
Using a dado blade stack in the table saw, the author cuts a rabbet on three edges of the table's lower shelf, as well as the grooves in the stretcher members that will support the shelf.

as shown in the *Drawings*. Take the wider center section and crosscut it into three pieces, as shown in the top left photo, to create a blank for the drawer face and the short sections of apron on either end of the drawer. Now trim the drawer face blank down to $9\frac{5}{16}$ " long and $3\frac{3}{16}$ " wide.

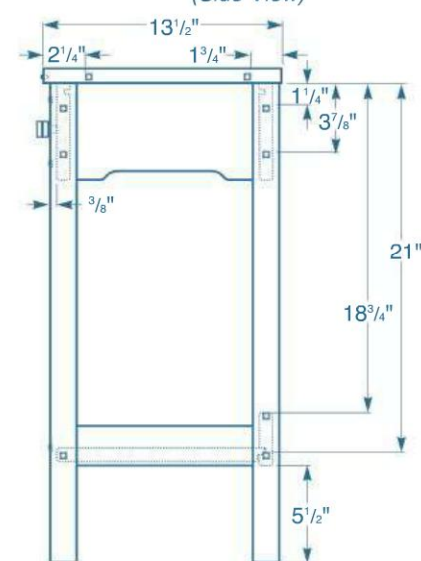
Glue the remaining four pieces together to form an apron that will surround the drawer face and provide a perfect grain match (see bottom left photo). After this assembly dries, scrape off the excess glue and trim the front apron to its final $5\frac{1}{2}$ "-wide, 13"-long size. Make sure to leave the strip above the drawer opening 1" wide and center the drawer opening side-to-side.

Next, plow a $1\frac{1}{4}$ "-wide, $5/16$ "-deep groove on the inside face of each apron member, spaced $3/8$ " from the top edge. This groove will secure the cabinetmaker's buttons that attach the table top. Now mark the lower edge of the front and both side aprons with the "cloud-lift" shape shown in the *Drawing* on the next page. Cut the profile out, using either a band saw or jigsaw, and sand the cut edges smooth. Use an oscillating spindle sander or drum sander to smooth the cloud-lift's concave areas. Then, round over the outside face of the cloud-lift edges using the $1/8$ " roundover bit. Also run the bit around the front of the drawer face and drawer opening in the front apron.

Bedside Table Elevation (Front View)

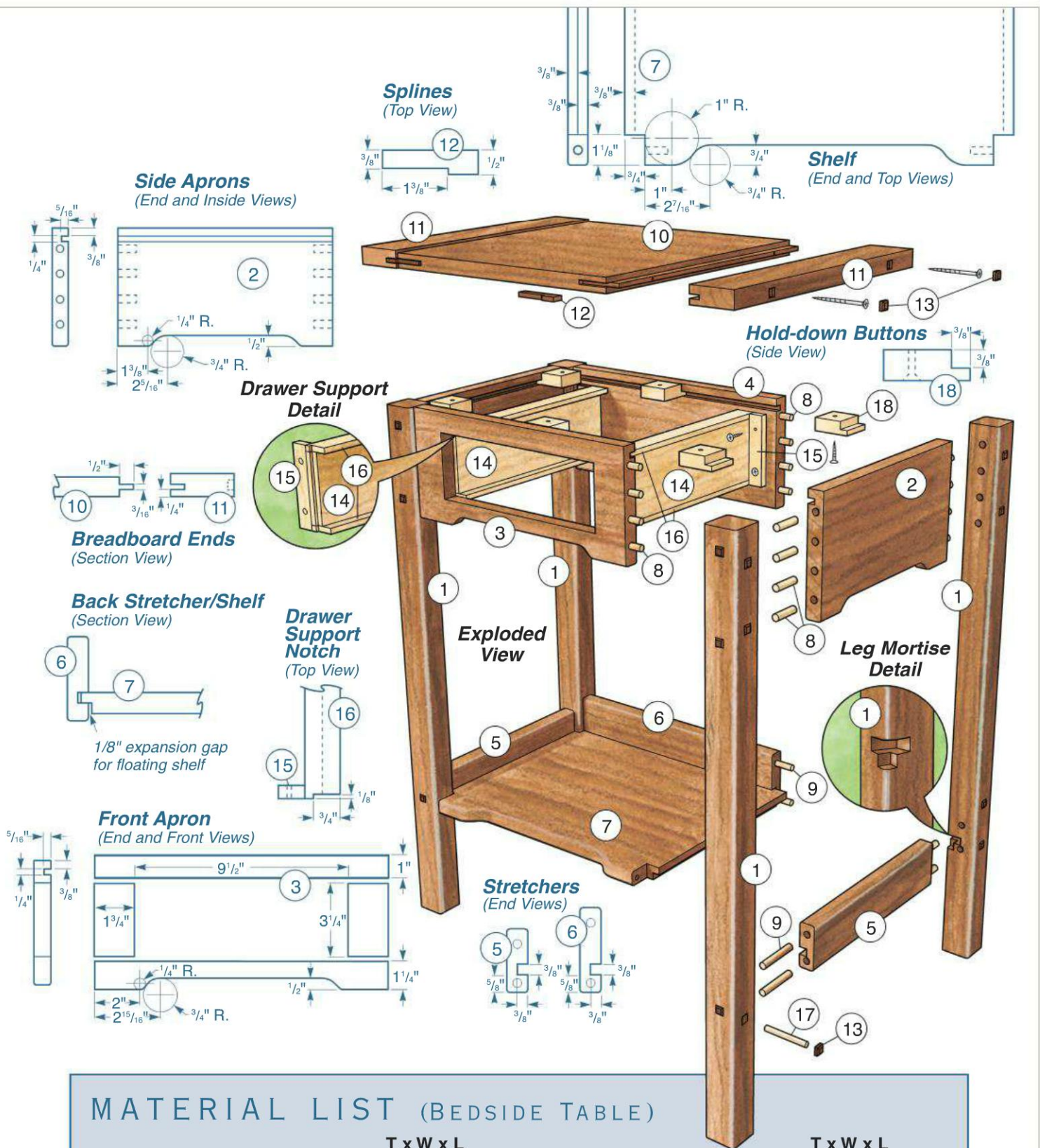


(Side View)



Milling the Stretchers and Shelf

The bedside table features a handy low shelf, great for holding books, magazines, tissues and so forth. (I adapted the design from the shelf on a writing desk the Greene brothers created for the William T. Bolton house in Pasadena, California.) Stretcher rails support the shelf at the sides and back edge via a tongue-and-groove joint. The joint provides a solid connection in the $3/4$ "-thick stock. Plow a $3/8$ "-wide, $3/8$ "-deep groove on the inside face of each rail, $5/8$ " up from the bottom edge (see bottom right photo, preceding page). Make the groove just a hair wider and deeper than $3/8$ " x $3/8$ " to allow the shelf's tongue



MATERIAL LIST (BEDSIDE TABLE)

	T x W x L		T x W x L
1 Legs (4)	1 1/2" x 1 1/2" x 27 1/4"	10 Top Center Panel (1)	11 1/16" x 13 3/8" x 13 1/2"
2 Side Aprons (2)	3/4" x 5 1/2" x 10"	11 Breadboard Ends (2)	13 1/16" x 2 1/4" x 13 1/2"
3 Front Apron/Drawer Face (1)	3/4" x 6 1/4" x 13 3/4"	12 Splines (2)	3/16" x 1 1/2" x 2"
4 Back Apron (1)	3/4" x 5 1/2" x 13"	13 Plugs (24)	3/16" x 3/8" x 3/8"
5 Side Stretchers (2)	3/4" x 2 1/4" x 10"	14 Drawer Side Supports (2)	1/2" x 3 1/16" x 10 3/4"
6 Back Stretcher (1)	3/4" x 3" x 13"	15 Drawer Support Ends (4)	3/8" x 3/4" x 3 9/16"
7 Shelf (1)	3/4" x 11 3/4" x 14 1/2"	16 Drawer Runners (4)	1/4" x 1" x 10 3/4"
8 Apron/Leg Dowels (32)	5/16" Dia. x 1 1/4"	17 Leg/Shelf Dowels (2)	1/4" Dia. x 2"
9 Leg/Stretcher Dowels (12)	5/16" Dia. x 2"	18 Hold-down Buttons (6)	19/32" x 1 3/4" x 1 1/2"



It's necessary to chisel out a notch in the table's two rear legs to provide clearance for the back corners of the shelf.

to slide into it easily. Round over all long edges of these rails with the 1/8" roundover bit.

Now glue up 4/4 stock wide enough to cut out the shelf, noting that the shelf's grain runs side-to-side on the table. Plane the shelf down to 3/4" thickness, then trim it to its 11 3/4" wide x 14 1/2" final dimension. Use a rabbeting bit in a router (or a dado blade in the table saw) to cut a 3/8"-wide, 3/8"-deep rabbet on the underside of the shelf, creating a tongue on three edges of the shelf (all but the front edge).

The next task is to cut a notch on both front corners of the shelf, which will capture the shelf's front edge between the front legs when the table is assembled. With a band saw or jigsaw, cut the 1 1/8" x 3/4" notches as shown in the *Drawings*. Keep your cuts clean and square, as the notches will show.

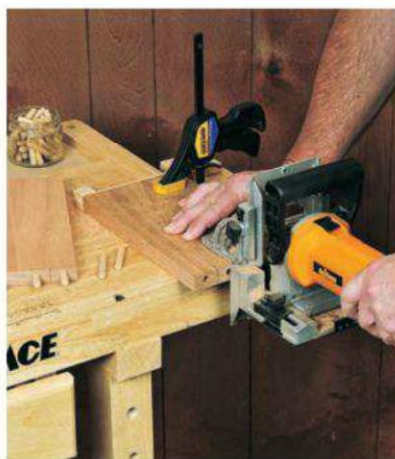
The shelf's front edge is cut with a variation of the cloud-lift shape so that it harmonizes with the aprons and lends the table more visual interest. Mark the shelf with the lift design, and cut it out using a band saw or jigsaw. Smooth and round over this edge, as you did on the lower edges of the aprons.

One more chore needs to be done that allows the shelf to fit properly into the assembled legs and stretcher rails: Using a razor saw and a chisel, cut and chop out the stepped notch located in

the front-inside-facing edges of both rear legs (see photo, above).

Doweling the Joints

Now it's time to drill holes for the 5/16"-diameter dowels that join the legs to the aprons and stretcher rails. I was fortunate enough to have Triton's Double Doweller machine on hand (see photo, below), so I used it to bore all the joinery holes. The machine resembles a biscuit joiner and simultaneously bores two holes 1 1/4" apart. However, a standard doweling jig will work just fine, or you can use biscuits or loose splines to join the parts. (If you decide to use mortise-and-tenon joinery, make sure to add the necessary length to the apron and stretcher members before cutting them out.)



To bore the holes for the dowels that join the apron, stretchers and legs together, the author used Triton's Double Doweller machine.

Start the doweling process by marking each apron with its position (left, right, front, back) relative to the legs. Now mark the dowel hole locations on both the aprons and corresponding legs. Space the holes evenly for four 5/16"-diameter, 1 1/4"-long dowels that make up each apron-to-leg joint. Set up the Double Doweller or doweling jig to center the holes on the thickness of the stock, then drill all holes just a hair deeper than 5/8". Reset the Doweller or jig to center the holes in the legs and drill these holes now, too.

Use 2"-long, 5/16"-diameter dowels to join the stretcher rails to the legs: Drill two 1 1/8"-deep holes into the end of each rail and corresponding holes in the legs. Center the holes relative to the thickness of both the rails and legs, and locate them so the bottom edge of each rail ends up 5 1/2" from the bottom end of the legs.

Fabricating the Top

The bedside table's top is designed to match the top on Mike's dresser. It's a classic Greene and Greene design, featuring a solid-wood center panel terminated by bread-board ends. Start by gluing up the top's center panel, then planing it down to its final 1 1/8" thickness. Trim the panel to its 13 3/4"-wide, 13 1/2"-long final size, then use a dado blade in the table saw to form a 1/2"-wide, 3/16"-thick tongue on each end. Set up your saw blade so you can take a cut from the top face, then the bottom, to leave a tongue that's centered relative to the panel's thickness.

Drawer Sides

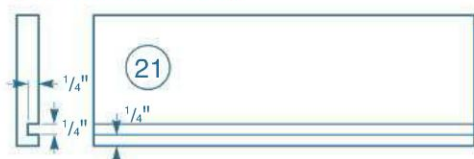
(Top View)



(Section and Side Views)

Drawer Front & Back

(Front and Side Views)



Make the two breadboard ends next, cutting each from stock planed to 13/16" thick. Plow a 3/16"-wide, 1/2"-plus deep groove down the length of one edge of each end piece, locating the groove so the bottom of the center panel and breadboard are flush. Next, cut a pair of square plug holes on the un-grooved edge of each end piece, located as shown on the *Drawings*.

Now, drill a pair of close-spaced 5/32"-diameter holes down through the plug holes at both ends of each breadboard. Use a small file to turn each pair of holes into a short slot. The slots are for screws that secure the ends to the center panel, yet allow the cross-grain-joined parts to expand and contract.

To complete the top, use a chisel to chop out a small slot for the decorative spline at the front edge of the top where the panel and breadboards meet, as shown in the *Drawings*. Ease the top's sharp edges with sandpaper, but don't round them over.

Building the Drawer

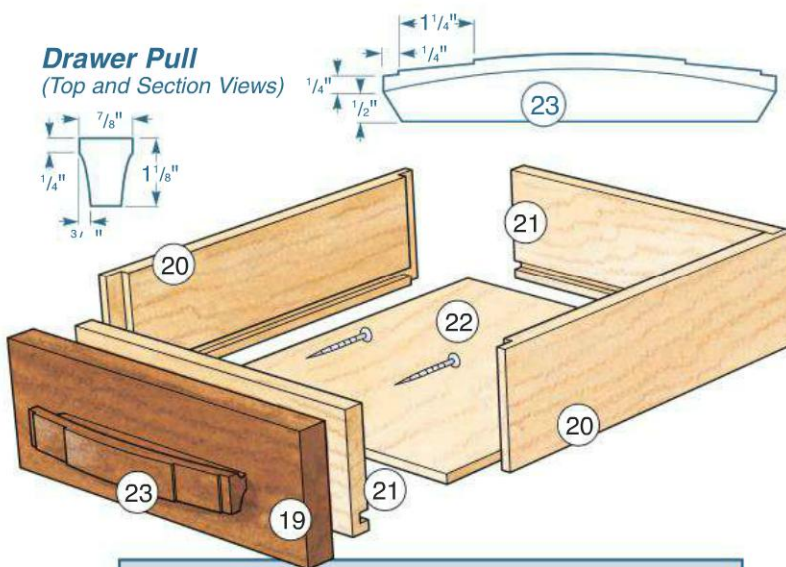
The small drawer for this project is basically a five-sided box, with 1/2"-thick sides cut from Baltic birch plywood and a 1/4" plywood bottom. The corner joints are simple overlapping rabbets. After cutting out the

3"-wide drawer sides, front and back according to the Material List dimensions, cut a 1/2"-wide, 1/4"-deep rabbet on the ends of the two 10 1/2"-long drawer sides. Now plow a 1/4"-deep groove on the inside face of all four parts, spaced 1/4" up from the bottom edge, to accommodate the drawer bottom panel. Size the width of the groove so it fits the 1/4" ply you're using (1/4" ply can range from 3/16" to just slightly under 1/4" in thickness). Cut the drawer bottom to size, then sand all the parts and assemble the drawer. Capture the bottom in its grooves first, without glue, then glue and nail the rabbet joints that secure the front and back to the sides.

Next, make the drawer support assemblies that house and guide the slide-out drawer. Each support requires two runners and two ends, cut from hardwood, and a side support cut from 1/2" plywood. Glue and nail the parts together, as shown in the *Drawings*. Drill a pair of holes in each end piece for screws that secure the supports to the aprons. Cut an 1/8"-wide, 3/4"-deep rabbet on the forward-facing end of each support, as

Drawer Pull

(Top and Section Views)



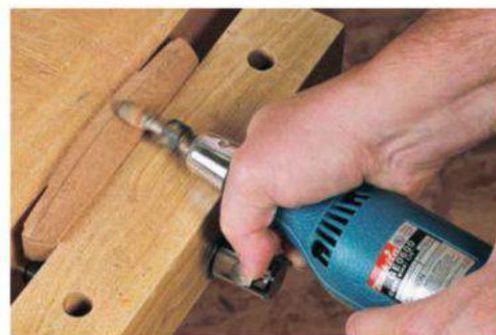
MATERIAL LIST (DRAWER)

	T x W x L
19 Face (1)	3/4" x 3 3/16" x 9 7/16"
20 Sides (2)	1/2" x 3" x 10 1/2"
21 Front, Back (2)	1/2" x 3" x 8 3/4"
22 Bottom	1/4" x 8 3/4" x 10"
23 Pull (1)	1 1/4" x 7/8" x 6 1/2"

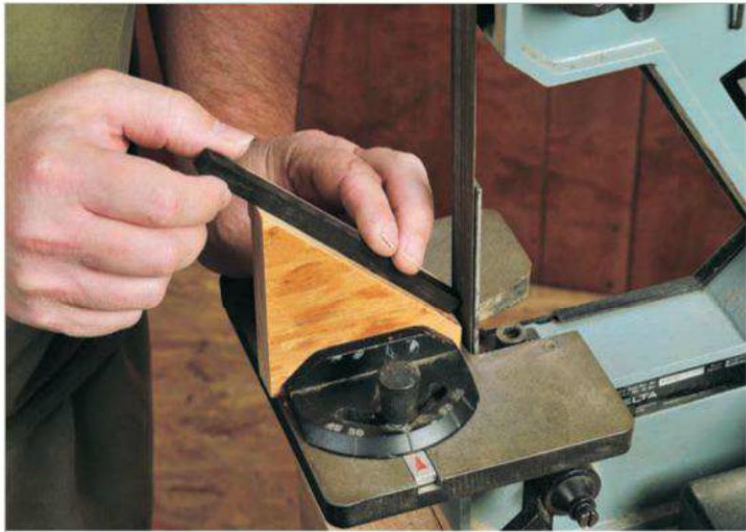
shown in the *Drawings*. This allows the drawer face to slide in beyond the face of the apron, for a recessed look, and it also acts as a stop for the drawer.

Shaping the Drawer Pull

The table's complex-shaped drawer pull matches the pulls on Mike's dresser. Cut out a blank from 8/4 stock planed down to 1 1/4" thick, then transfer the curved shape and angled ends of the pull onto the blank and cut it out with a band saw. The pull's profile is shown in the *Drawing* above. A strip sander is helpful for smoothing the stepped



A rotary rasp burr chucked in a die grinder makes quick work of sculpting the curved sides of the table's drawer pull.



Using a plywood jig screwed to a miter gauge, the author uses a strip sander to chamfer both ends of a square "log" before cutting off short square plugs from each end.

sections of the top, but you can use files and sanding strips just as well. With a sharp chisel and/or a knife, create a slight curve on the ends of the stepped face of the pull. Next, shape the concave curved sides of the pull, either with a carving gouge, or if you've got a steady hand, with a die grinder fitted with an oval-shaped burr (see bottom photo, page 63). After roughing out both sides of the pull, use a sharp curved cabinet scraper to refine the shape, then finish with sandpaper, working from coarse to finer grits.

Forming Plugs and Splines

There are a total of 24 plugs that decorate the table: 20 on the legs and four on the top's bread-

board ends. To make the plugs, start by cutting a 3/8" x 3/8" "log" from African blackwood or ebony (to match those on Mike's bedroom set), then shape and slice off the individual plugs. Trim both ends of the log square using a smooth-cutting, fine-toothed crosscutting blade, then put a small 45° chamfer all around the edges of each end of the log. An easy way to do this is to make a 45° angle jig out of plywood and use it with a bench-top strip or disc sander (see left photo, above). Give the ends a quick polish using a flap sander chucked in the drill press, then cut off a 3/16"-long plug from each end of the log. This yields two plugs per cycle. Repeat the chamfering, polishing and cutoff process to make about a

half dozen more plugs than you need and pick the best-looking ones for the table.

The two L-shaped splines, which adorn the front corners of the top, are cut from a 3/16"-thick, 1/2" x 2" piece of blackwood or ebony using the band saw or scrollsaw. Use a strip sander or sanding block to put a small chamfer on the outside-facing edges of the splines, and flap-sand the splines smooth.

Sanding and Finishing

Before proceeding with finishing, it's important to dry-assemble the entire table to see that it fits together properly. Use clamp pads and don't over-tighten the clamps, to prevent denting the wood. Then, use a rubber or dead-blow mallet to gently take it apart.

To get a clean, even finish, it's best to sand and finish all the mahogany parts before gluing the table together. Start sanding with 120-grit paper, then 180-grit and finally 220-grit. Wipe the wood down with distilled water applied with a sponge or damp cloth to raise the grain. When the wood dries, re-sand lightly with 240- or 300-grit paper.

If you want the table to match the rest of Mike's bedroom set, stain the mahogany using a blend of Lockwood red and brown water-based mahogany aniline dyes. Wear rubber gloves to keep moisture from your fingers from smudging the dye. Then, apply two coats of satin wipe-on polyurethane finish for a low-luster final sheen.



As with the original two pieces of this set, all the table parts are stained and finished first, prior to assembly. Glue-up is done in two stages: First, each pair of side aprons and stretchers is glued up with a pair of front and rear legs into a subassembly, as shown here. The subassemblies are then glued together.

Accent plugs and decorative splines are characteristic of Greene & Greene designs. After carefully applying glue into each square hole, the ebony decorative plugs are tapped into place with a plastic-faced mallet.



Assembling the Lower Frame

Putting the bedside table together is done in several steps. Assemble the legs, aprons and stretchers/shelf in two steps: First, glue up the side aprons and side rails with the corresponding front and back legs. Apply a thin coat of glue to the dowels as well as into the dowel holes.

Next, glue the subassemblies together with the front and back aprons and rear stretcher rail: Lay one subassembly on an old towel on the workbench (so the wood doesn't get dented or scratched) and glue the aprons and rail in place. Slide the shelf into its groove in the side and rear rails (no glue), then glue the other subassembly in place. Apply clamps to draw the framework together. Then carefully drive the 1/4" dowels through the holes in the front legs and into the front corners of the shelf.

After removing the clamps, you're ready to install the drawer assembly. First, screw the drawer box, drawer face and pull together. Set the face flush with the bottom of the drawer box with it centered side to side. Center the pull, side to side, and locate it slightly above the center of the drawer face. Drive a pair of 2"-long, #8 washerhead screws through pilot holes from the inside front of the box through the drawer face and into the pull.

Now slip the drawer support assemblies in between the front and rear aprons, on either side of the drawer opening and temporarily clamp them in place. Slide the drawer into its opening,

then unclamp and slide each support inward until its runners engage the drawer box loosely. Adjust the supports so the drawer is centered in the opening and slides in and out smoothly. Secure the supports by driving a pair of 1"-long #6 screws through each end of its ends (see photo below).

Installing the Top and Plugs

Assemble the top next by applying glue to only 3" to 4" of the tongue-and-groove joint closest to the rear edge of the center panel and breadboard ends. Clamp the parts together, making sure that the back edges of the panel and breadboards are flush. Drive a 2½"-long, #8 pan (or washer) head screw into the slotted holes in each breadboard, driving them just enough

to pull the tongue-and-groove joint tight. Check the assembly for flatness, then drive the two splines into the slots at the front of the top with a rubber mallet. Apply glue only to the part of the spline that seats into the center panel slot, so the spline won't split out when the center panel expands or contracts.

Install all the decorative plugs on the legs and top next. Apply a few drops of glue into each square plug hole, then carefully tap a plug in (chamfered side up), leaving each plug a little more than 1/16" proud of the surface (see top photo).

Cut the six hold-down buttons to size and shape from scrap stock, and bore a pilot hole through the center of each one. To mount the top, set it upside down on your workbench, then place the inverted table on top of it. Center the table side to side and adjust the front of the top so it overhangs the front legs by 3/8". Lightly clamp the table and top together, then set the six hold-down buttons into the apron slots: one each into the front and back aprons; two into each side apron. Screw all six buttons down using 1"-long, #6 screws. Now give the whole table a fresh coat of paste wax applied with #0000 steel wool. As you stand back and admire your table, don't forget to say a quick "thanks" to Mike.



Mount the drawer support assemblies by first clamping them to the aprons so they keep the drawer centered and sliding smoothly, then screwing them in place.

Guidelines for Making a Table Top

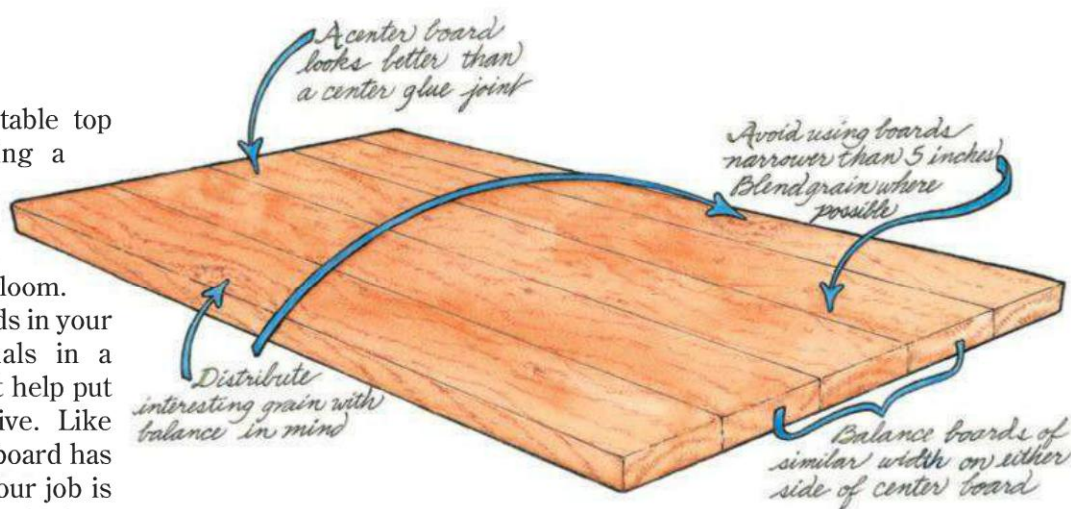
CREATING AN ATTRACTIVE, DURABLE TABLE TOP MAY SEEM SIMPLE, BUT THERE ARE PITFALLS. THESE GUIDELINES WILL HELP IMPROVE YOUR ODDS FOR SUCCESS.

BY TOM CASPAR AND TIM JOHNSON

Putting together a table top is a lot like taking a family picture at a reunion. In both cases you start with chaos and end up with an heirloom. If you think of the boards in your table top as individuals in a family portrait, it might help put a project in perspective. Like family members, each board has a unique personality. Your job is to organize them to look their best. Then, just like clicking the camera shutter, you freeze the boards for eternity in a glue-up — you don't want to live with a hasty arrangement.

A successful table top has two qualities: it must be pleasing to look at and it must remain stable. Accomplishing this requires an artistic eye and good craftsmanship. Here are some guidelines for selecting and arranging boards in a table top. These rules aren't written in stone, but at the very least you'll become familiar with all the aspects of the challenge.

It's also important to mention that not all boards belong in a table top. In a stack of lumber, each board has characteristics that make it suitable for different uses in a project. Woodworkers must learn to be harsh board critics for successful table top work.



1. Select Good Lumber

This is the one rule you shouldn't bend. Choose boards that are likely to remain flat and straight. Look at the ring pattern at the end of a board. The more the grain lines curve, the greater the likelihood the board will cup. Wide boards are often tempting to use, but be careful; rip them in half or thirds if they come from too near the center of the tree, and separate them in the panel arrangement. Predicting wood movement is fundamental to making a successful table top.

2. Use Boards with Interesting Grain

Perfectly symmetrical or straight grain can be monotonous. Small knots, color streaks, squirrely grain, and other defects can be

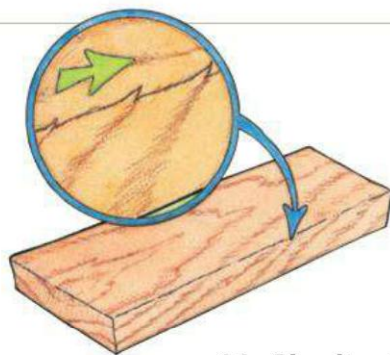
pleasing to look at if distributed throughout a top. The top should not look like bookmatched plywood. Avoid using widely spreading grain patterns at the end of a board. Don't cut or join boards too near a knot or crotch.

3. Plan Ahead

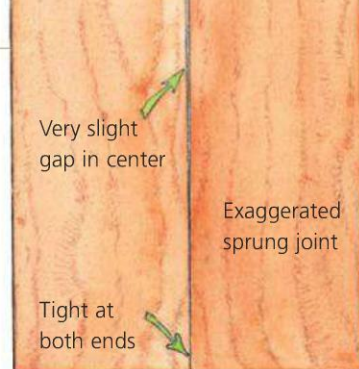
Unless you're working on a pretty small table, don't use boards narrower than 5". These tend to make a top look like it's been chopped into little pieces.

4. Plane Carefully

Plane each surface of a board the same amount. Stop planing when your boards are 1/8" too thick, then stack the boards with stickers so all sides are equally exposed to the air. After three days see if they remain true.



A board's edge will show grain direction



5. Rip for Effect

Choose boards with similar widths, keeping the differences under two inches. A top is less interesting when all the boards are exactly the same size, but widely varying board sizes are distracting. Balance similarly wide boards on either side of the center board to build up a symmetrical pattern.

6. Odd is Better than Even

Always use an odd number of boards. The eye is usually drawn to the center of a panel, and a center board looks better than seeing a glue joint here instead.

7. Create a Composition

Arrange interesting areas in a balanced, random pattern. Don't cluster knots or swirly grain at one end of the table top or in the middle. Consider disguising transitions from board to board by placing similar grain patterns together.

8. Arrange for Effect

Frame a top with straight-grained boards along both outside edges. Run-out grain at an edge carries the eye with it.

9. Color can be a Surprise

Check for color differences — neighboring boards shouldn't be dramatically different in color. Wet boards with water, alcohol or mineral spirits to get an idea of their finished appearance. Think twice before using sapwood or other distinctly different features.

10. Make Planing Easier

Try to line up all the boards so the edge grain runs the same way. If you're successful, you'll avoid tearing out the wood when planing the top by hand.

11. Give it a Rest

This is important. Walk away from your best arrangement for a day or two, then come back later to have a fresh look. See if it's still pleasing to the eye.

12. Keep Joints Simple

For a table top, butt joints are fine. Biscuits, dowels or splines will help align a top, but they will not make a well-fitted joint much stronger.

13. Joint with a Purpose

Long joints should be sprung. This means that the edge will be planed or jointed in a slightly hollow manner. Two sprung boards will touch at their ends but have a minute gap in the middle. Since boards lose moisture from their ends faster than out their sides, unsprung joints can separate at the ends over time. Check for tight joints before you glue.

14. Know Your Limits

Don't try to glue up too much at once. Thick, unsightly glue lines result when there is too much open time. Consider gluing the top in halves. Be sure to apply glue completely to all edges about to be joined.



15. The Last Rule

Draw a zig-zag line down the length of each joint, then plane the panel by hand. When all the lines are removed the joints should be flush. Holding a light at a low angle will reveal any defects.

END GRAIN DEBATE

Like so many other things in life, woodworking is not always cut and dried. One controversy that divides many woodworkers has to do with orienting the end grain patterns in a panel made up of several boards, such as in a table top.

All of us know that wood moves with changes in seasonal moisture. Along with the expansion and contraction of the wood often comes some warping, which usually shows as a slight cupping of a board. The challenge for woodworkers is planning for this tendency of the wood to cup so that a panel will remain as flat as possible.



The adherents to the first school of thought might be called the "rippers." These woodworkers alternate the end grain pattern of every board so that half the boards have their bark side facing up and half have their pith side facing up. Typically, a board cups toward its bark side. In this panel configuration, as every board warps slightly, each one in the opposite direction from the one next to it, the panel looks like a series of ripples and the overall effect is minimal. Holding the panel with table top fasteners or breadboard ends will limit the distortion, but not eliminate it.



The "big wave" proponents orient all their boards with the end grain repeating in the same direction. As the boards cup in this panel, the whole piece will distort into a uniform bowl shape, which can be controlled with just a few fasteners. The panel then feels smooth even if it's not perfectly flat.

Both theories have virtues, but neither is foolproof. It's probably a sign that no matter how hard we try, we can't control everything.

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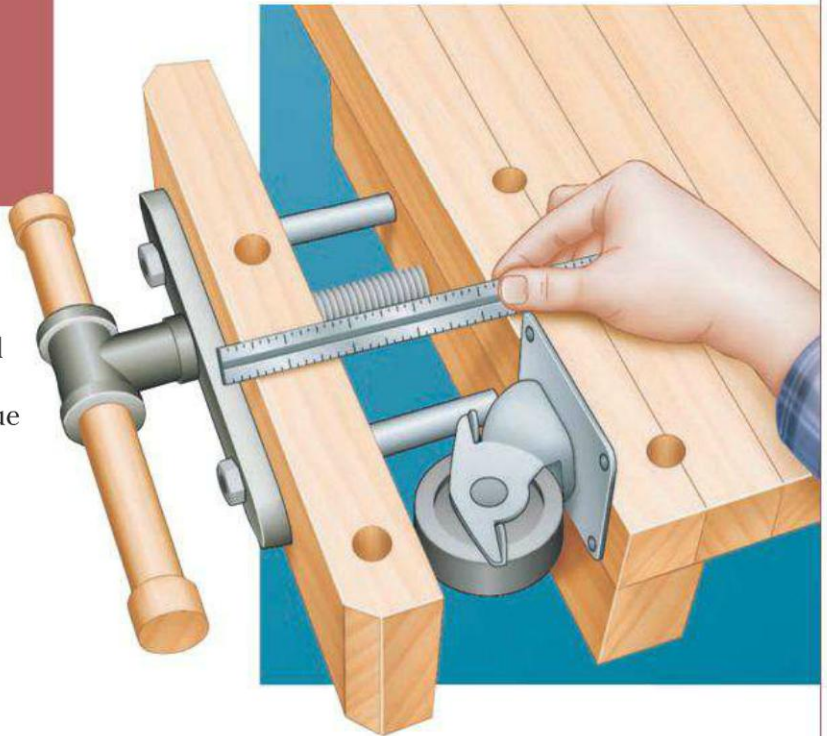


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Tricks Of The Trade

Give Casters the Squeeze

One reader builds his shop carts and tool stands the same height as his workbench and stationary tools, and he puts them on casters to keep everything mobile. Measuring the true height of casters used to be a head scratcher until he came up with this simple method: all you do is clamp the caster in your bench vise and measure the distance between the jaws. You'll get the exact height right off the bat.

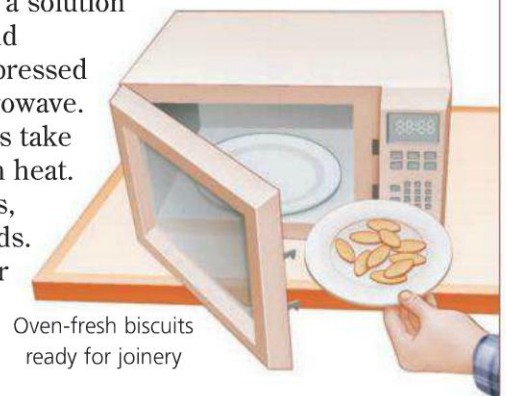


Drive-through Shop Towels

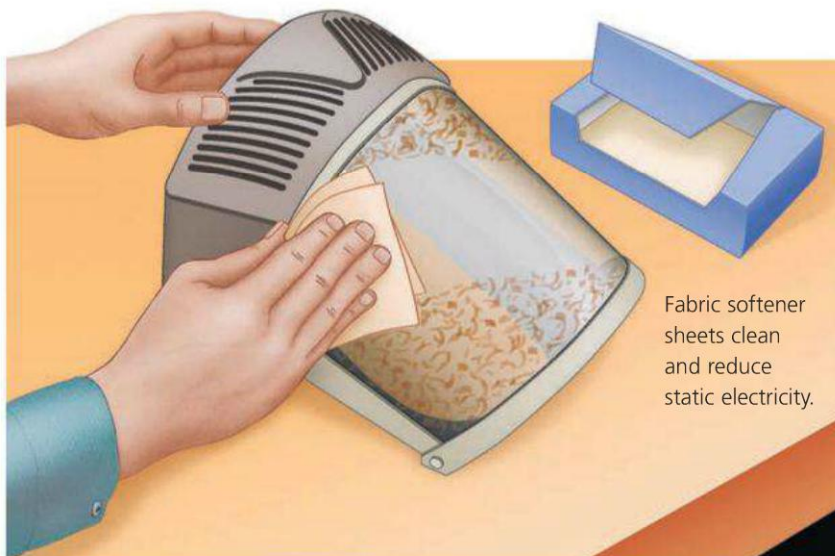
How many times have you gone through a fast food drive-through and been given a bigger wad of napkins than you need? Instead of throwing the unused ones away, just collect the extras and bring them into the shop to use for glue-ups instead of expensive paper towels. These napkins are virtually free, they work fine for clean-ups and they will help you do your part for the environment.

Hot Cure for Swollen Biscuits

Like most woodworkers, you might buy plate-jointer biscuits in large quantities. Regardless of how you try to keep them dry, they still seem to absorb moisture in a damp shop until they don't fit in biscuit slots. Here's a solution that drives out the moisture and shrinks them back to the compressed size. Just pop them in the microwave. In a 1,500-watt oven, #0 biscuits take about 20 to 25 seconds on high heat. Size #10 takes 25 to 35 seconds, and #20 biscuits take 40 seconds. Nuke them right before use for best results.



Oven-fresh biscuits ready for joinery



Fabric softener sheets clean and reduce static electricity.

Anti-static Shield Wipes

A face shield is a good companion to have in the shop, but the plastic builds a static charge that attracts dust. Here's an easy way to clean it and reduce the static cling. Wipe the shield with a fabric softener sheet. You can use them over and over again, then grab a fresh one from the laundry room whenever you need it.

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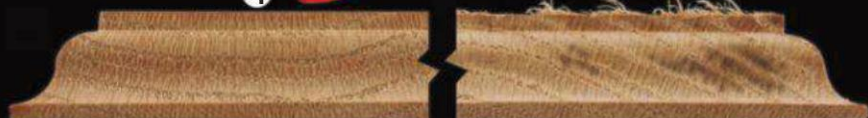
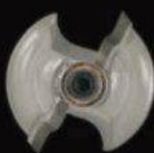


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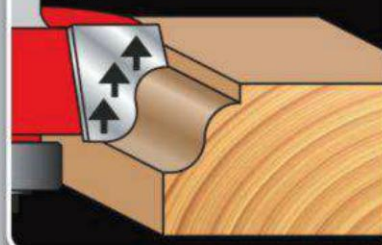


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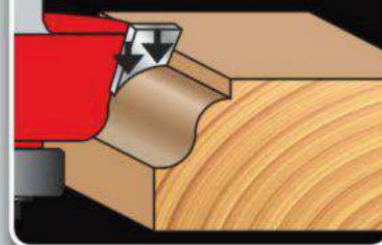


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