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EASY Weekend WOODWORKING™

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HOME GROUP
ACTIVE INTEREST MEDIA

Easy Weekend Woodworking is published by the Home Group of Active Interest Media Holdco, Inc., 2143 Grand Ave., Des Moines, IA 50312. Canada Post Agreement 40038201. Canada BN 84597 5473 RT.

For subscription information about Woodsmith, visit us online at:
Woodsmith.com or call (800) 333-5075

A Supplement to Active Interest Media Publications
2143 Grand Ave., Des Moines, IA 50312
Printed in U.S.A.

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in the kitchen

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Keep your most-used spices close at hand with this rotating carousel.

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A compact serving and storage rack keeps your best bottles of wine readily at hand.

SHOP SAFETY IS YOUR RESPONSIBILITY

Using hand or power tools improperly can result in serious injury or death. Do not operate any tool until you read the manual and understand how to operate the tool safely. Always use all appropriate safety equipment as well as the guards that come with your tools and equipment and read the manuals that accompany them. In some of the illustrations in this book, the guards and safety equipment have been removed only to provide a better view of the operation. Do not attempt any procedure without using all appropriate safety equipment or without ensuring that all guards are in place. Active Interest Media Holdco. assumes no responsibility for any injury, damage, or loss suffered as a result of your use of the material, plans, or illustrations contained in this book.

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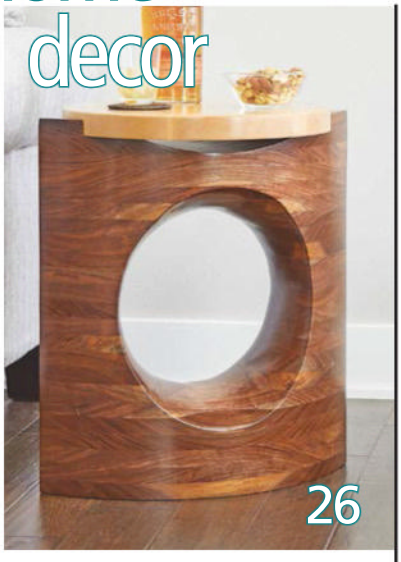

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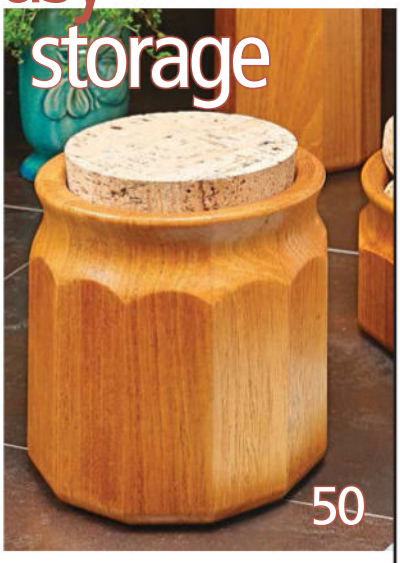

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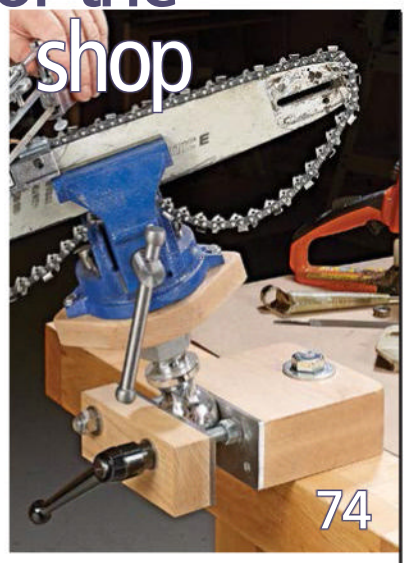

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CHEESE

In The Kitchen

The kitchen is an excellent source of inspiration for quick-to-make and easy-to-manage projects. The pieces you'll find in this section will make great complements to any culinary endeavor, and are a fantastic way to spend a few hours in the shop.

SPICE CAROUSEL 6

BOARD & SLICER 10

MAGNETIC KNIFE BLOCK 14

WINE RACK 20

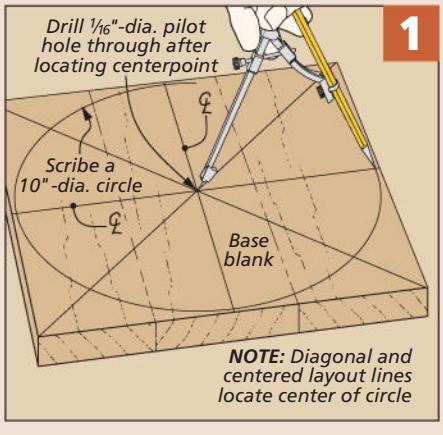
Kitchen Spice Carousel

Solid-wood construction and interesting drill press techniques put an attractive new spin on your spice collection.

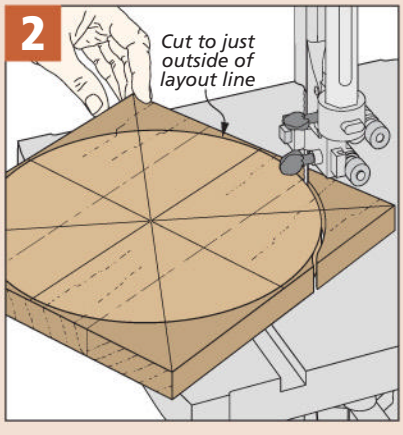
While woodworking is my primary hobby, I also enjoy spending time in the kitchen. I'm not a chef by any means, but my family enjoys some traditional dishes I manage to cook up. One frustration with working in the kitchen, however, is digging through the cupboard to find spices. The various containers don't stack easily and end up lost in the back of the cabinet.

The spinning rack you see above is a welcome solution to any kitchen countertop. Angled slots display eight jars to keep your most often-used spices readily available. And a lazy Susan bearing allows you to spin the carousel to select the seasoning you need. Best of all, the woodworking is simple, but interesting.

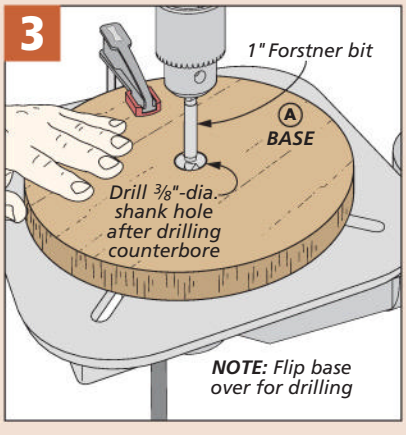
Prepare the Base Blank



Layout. Strike lines across the diagonals and centered on the edges. Scribe a circle before drilling a pilot hole at the centerpoint.



Rough Shaping. Use a band saw to cut the rough shape. Staying close to the line means less cleanup work.



Centered Hole. A counterbored hole is used to mount a bolt for smoothing the edges and later to assemble the body.

CIRCULAR BASE

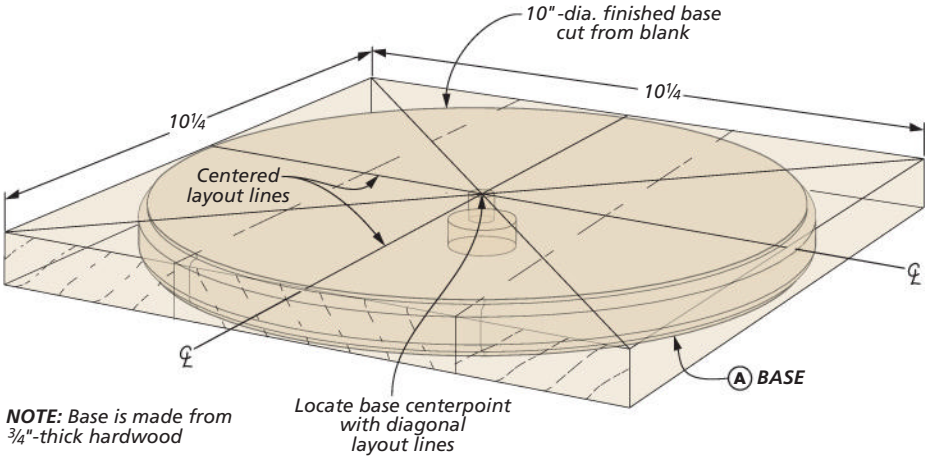
The carousel is made of two main parts: a wide base and a thick body. They're both round, so you'll want to have a compass and straightedge on hand for laying out the centerlines and circles.

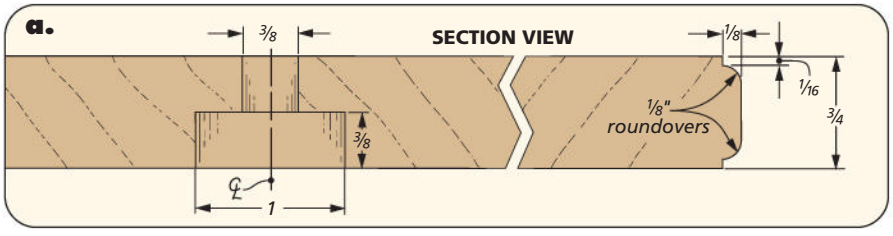
GLUE-UP & LAYOUT. Start constructing the base by gluing up some narrow stock to create a blank that's at least 10¼" wide. Once the glue dries, trim the blank to form a square, then plane both faces smooth. Figure 1 at the bottom of the previous page illustrates the layout. In a nutshell, you'll draw two diagonal lines and two centerlines that locate the slots for the jars.

After scribing a circle on the base blank and cutting it out, I used the drill press to true up and smooth the edges. I used a carriage bolt mounted through the center of the base. So the next operation is to drill a counterbored hole (Figure 3). The counterbore will be used later to assemble the carousel with a lag screw and glue in the final assembly.

TRUING UP THE EDGE. Figure 1 below shows how I used a sanding block to smooth the edge of the base. Install a carriage bolt through the center and secure it with a washer and nut. Chuck this assembly in your drill press. The table acts as a platform for a sanding block.

A file removes the high spots then follow up with progressively finer grits of adhesive-backed sandpaper attached to a wood block. Don't apply too much pressure — let the abrasive do the work.



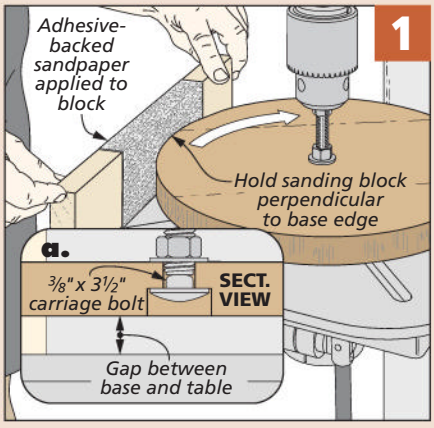


INDEX MARKS. There's one more layout task that will help later on: extending the lines to the edge of the base, (Figure 2 below). These lines come in handy when making the body of the carousel.

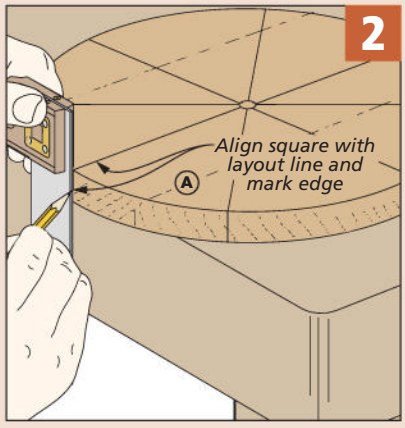
ROUT ROUNDOVERS. The next step involves some quick work at the router table. You can see this work in detail 'a' above and Figure 3 below — I routed a roundover with a 1/16" fillet around the edges of the blank.

For this task, I removed the router fence and used the bearing on the roundover bit to guide the workpiece. After routing one edge, flip the blank over and repeat the process on the opposite edge. I took the time here to carefully sand the roundovers smooth, especially the end grain. If you're applying a stain, you can sand up through 400-grit to provide a more even stain color on the end grain.

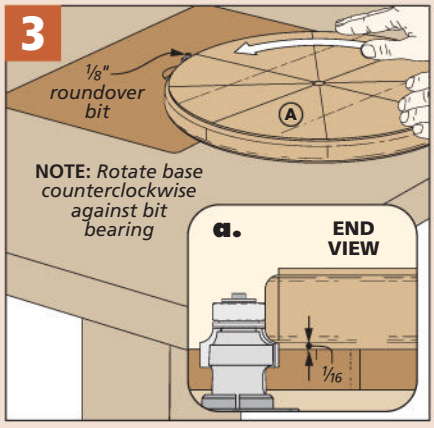
Complete the Base



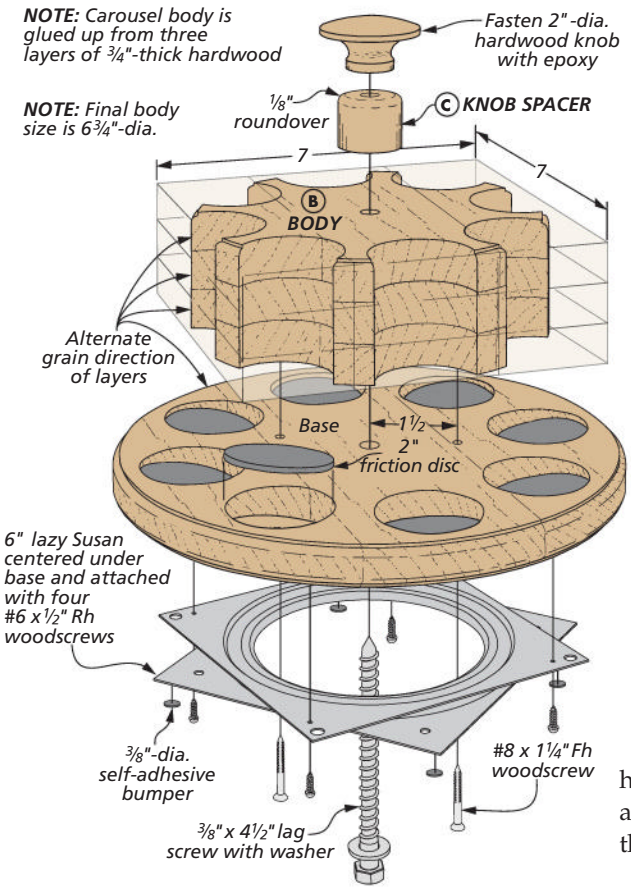
Smoothing the Edge. Use a file and a sanding block to true up the edge of the base and make it smooth.

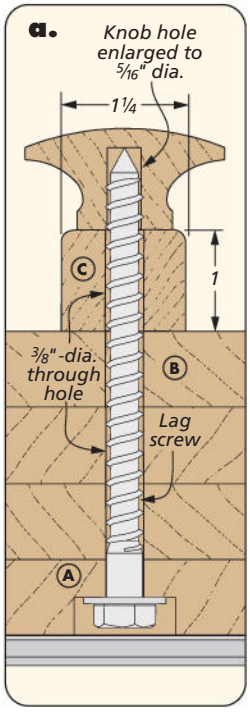


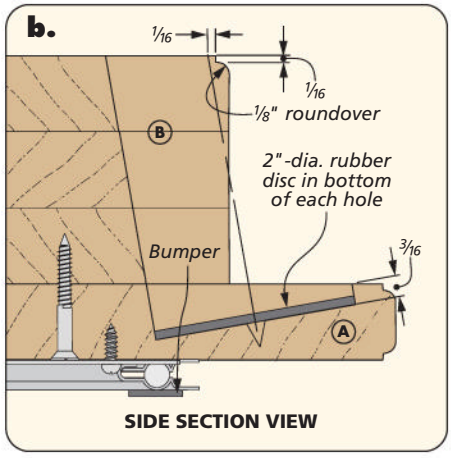
Transferring Lines. To help with aligning the body of the carousel later, extend the lines to the edges.



Routing Roundovers. Use the bearing on the roundover bit to guide the workpiece to profile the top and bottom.







Completing the Carousel

Next on the list is the body of the carousel to hold the spice jars. Later on, you'll bring the two parts together to drill the holes for the jars, then add a spacer, knob, and the lazy Susan bearing.

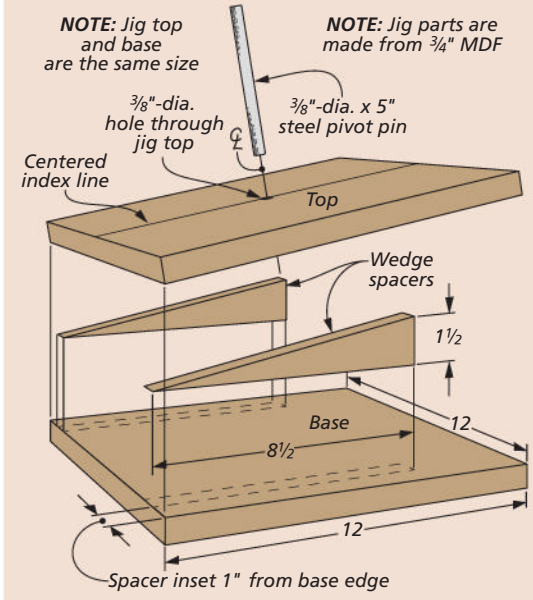
THICK BLANK. The body starts with a blank at least 7" wide by 24" long. After planing this smooth, cut three 7" x 7" squares from the blank and glue them together, alternating the grain direction. This minimizes warping.

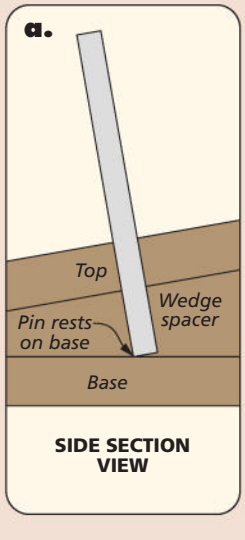
Next, lay out the diagonals and centerlines as you did on the base. After scribing the circle, drill the center hole and then cut the blank to shape (Figure 1, opposite page). Using the same carriage bolt, washer, and nut as before, chuck the assembly into your drill press to sand the outside smooth. Then rout a roundover on the top edge only (Figure 2).

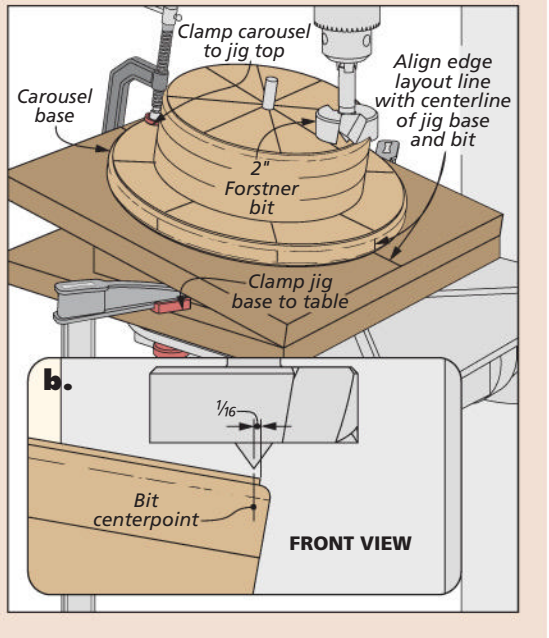
JAR HOLES. The most interesting part of the project comes next. If you take a look at detail 'b' above, you'll see that the holes for the spice jars are angled. This tilts them back for display when stored and keeps them from falling out when you spin the carousel.

Those layout lines you drew earlier come in handy now. Center the body on

Make & Use the Drilling Jig







the base, aligning the layout lines, and fasten it with glue and a couple of screws from the bottom placed near the center.

For consistency and easier drilling, I made the drilling jig you see at the bottom of the previous page. It uses a pivot pin to allow the body and base to rotate for drilling the eight holes.

The box I mentioned and Figure 3 at right provide all of the details you need for setting up the assembly on the drill press. There are a couple of points to keep in mind. First, center the drill bit 1/16" in from the edge of the fillet on the top edge (detail 'b,' previous page).

The other thing to figure out is how to get a consistent depth for all of the holes. Figure 3a at right shows the goal. To set this depth, I drilled the first hole, carefully checking the depth as I went. Then I set the depth stop on my drill press to drill the remaining holes.

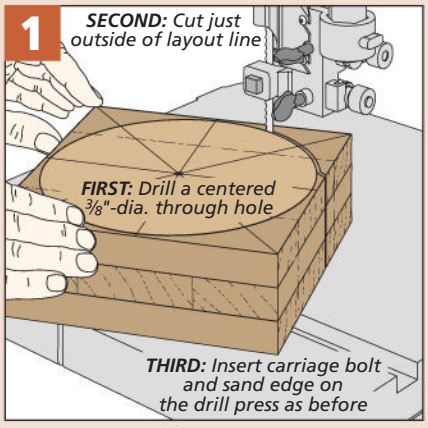
SANDING & ASSEMBLY. Sanding the inside of all the holes was a bit of a challenge. I used a hand drill with a 1½"-dia. sanding drum (Figure 4). Ease the sharp edges of the holes with some sandpaper before adding the knob and finish.

In the main drawing on the opposite page, you'll see how the knob is attached. To elevate it above the jars, I added a spacer made from a dowel. I eased the end of the dowel with sandpaper, then I cut it to length and drilled a centered through hole. Detail 'a' on the facing page shows how the assembly is held together with a lag screw and washer. I used glue to secure all of the parts.

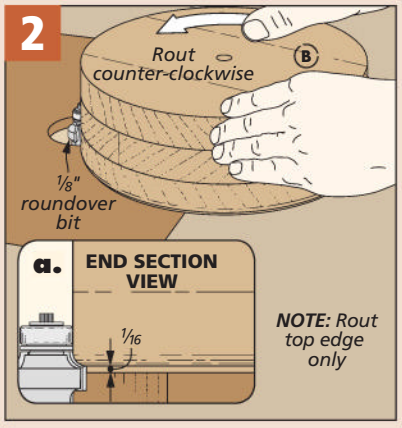
FINISHING TOUCHES. To finish the maple carousel, I used *Pecan* water-based stain and painted the inside of the holes black. For the painted carousel, I applied *Somerset Gold* milk paint followed by a coat of *Basil Green* milk paint. I sanded some areas through to bare wood to simulate wear and then applied a burnt umber glaze. The stain, paint, and glaze are from *General Finishes*. The final coat was spray lacquer (refer to Sources, page 98).

The last items to add are the rubber discs, a lazy Susan bearing, bumpers, and the spice jars. Once the jars are filled with your favorite spices, don't be surprised if your dinner guests ask you to make a spice carousel for their kitchen.

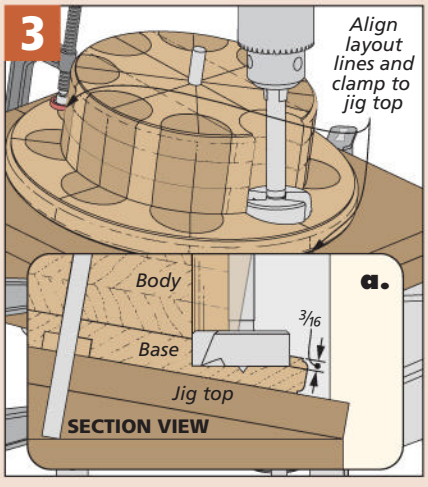
Shape the Carousel Body



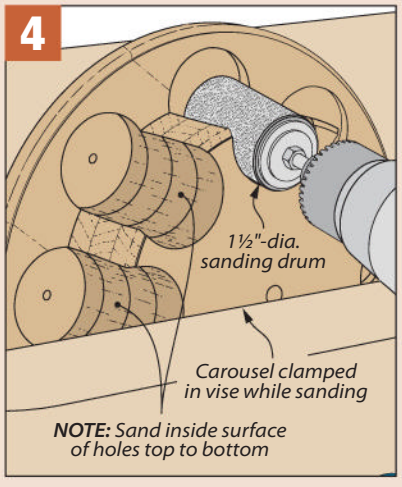
Cutting a Circle. After laying out lines and scribing the circle, cutting the body to shape is an easy task.



Roundover. Using the same setup at the router table you used on the base, round over the top edge.



Drilling Large Holes. With a 2"-dia. Forstner bit and a jig, drilling the holes for the spice jars goes quickly.



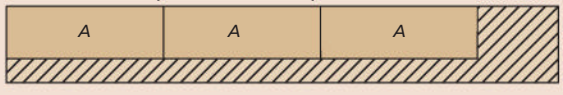
Sanding Smooth. Use a sanding drum in a hand-held drill to sand the inside of the holes smooth.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

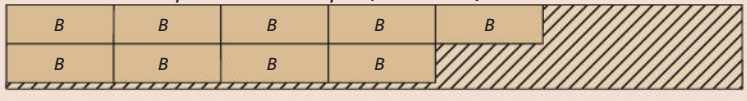
A	Base (1)	¾ x 10-dia.
B	Body (1)	2¼ x 6¾-dia.
C	Knob Spacer (1)	1¼-dia. x 1

- (2) #8 x 1¼" Fh Woodscrews
- (1) 2"-dia. Hardwood Knob
- (1) 3/8" x 4½" Lag Screw
- (1) 3/8" Washer
- (1) 6"-dia Lazy Susan Bearing
- (4) #6 x ½" Rh Woodscrews
- (8) 2"-dia. Rubber Discs
- (4) 3/8"-dia. Self-Adhesive Bumpers
- (8) Spice Jars

¾"x 5"- 36" Poplar or Soft Maple (1.3 Bd. Ft.)



¾"x 5½"- 48" Poplar or Soft Maple (1.9 Bd. Ft.)



Cheese Board & Slicer

The small amount of material and time required to build this cutting board and cheese slicer set makes it the perfect gift for the holidays.

Here in the Midwest, like much of the country, family gatherings and dinners with friends are a common occurrence. And my house is no exception. I love to host friends and family, and I especially enjoy preparing good food for them. My favorite part of these evenings is the time when guests are arriving, the food is cooking, and I have a chance to step away from the kitchen to enjoy a glass of wine and a few light hors d'oeuvres with my guests.

If you're anything like me, however, the light snacks before dinner are always an afterthought. This usually involves rounding up a clean cutting board and knife to slice cheese for everyone. That's where having a designated cutting board and cheese slicer like the one shown here got me excited. Combined, these are the perfect set to complement your dinner nights and cut down on the hustle and bustle of getting dinner ready.

QUICK & EASY. As you can see in the photo above, the cheese slicer uses a commercially available wire to make cuts. While it takes a little bit of work to make the wire holding mechanism, the slicer requires very little time and material. This makes it an ideal gift. Much like the slicer, the cutting board takes little material and is the perfect use for small cutoffs from previous projects. And speaking of the cutting board, that's where I began my build.

Making the Cutting Board

The small footprint of the cutting board makes it the perfect size for slicing your favorite vintage of aged cheddar. The addition of small rubber feet makes it a great, non-slip serving platform, as well.

A TRIO OF BOARDS. While you could cut the board out of a single piece of stock, I decided to glue the board up from three separate pieces of hard maple. Because the board will be used for serving food, it will end up getting washed and wet. Gluing up three pieces of stock for the board gives it the best chance to stay flat and not cup or twist.

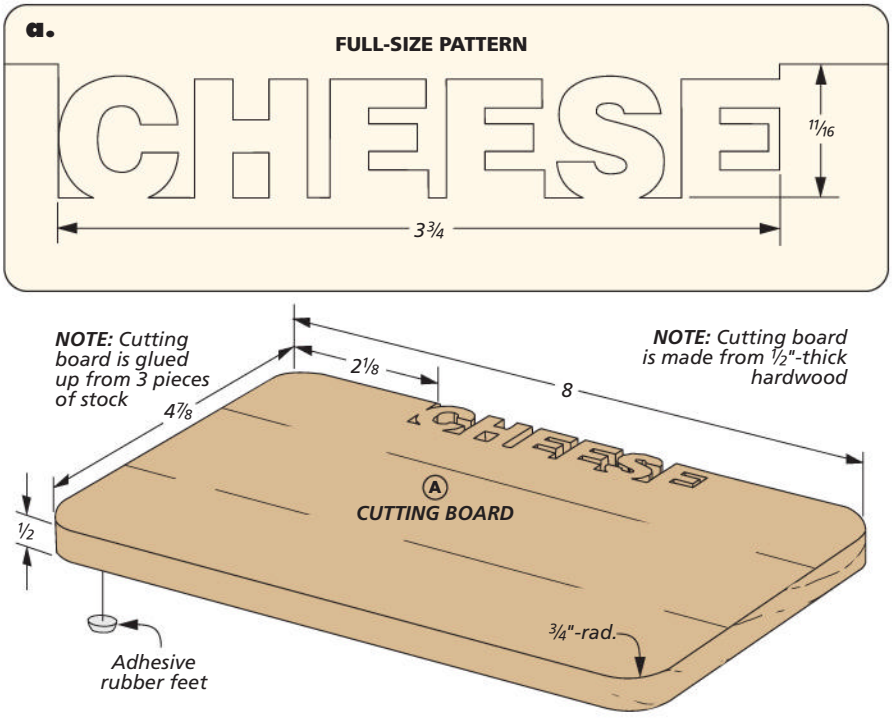
I started with long stock and planed it down to thickness. After cutting it to length, I glued up the board using a waterproof wood glue.

FOLLOW THE TEMPLATE. To dress up the board, I decided to add a decorative element and cut the word "CHEESE" into it. This starts by printing out the pattern shown above. Then, you can center it on the board and mount it with spray adhesive. Before you start sawing out any of the letters at the scroll saw, there are a few starter holes that need to be drilled. You can see how this is done at the drill press in Figure 1, below. Just make sure to use a backer board to keep chipout on the back to a minimum.

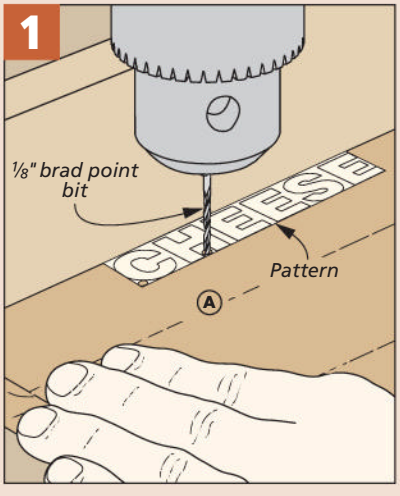
CAREFUL BLADE SELECTION. With the needed starter holes drilled in the board, you can head over to the scroll saw. Before you start creating sawdust, you'll want to give a little thought to what blade you have in your saw. Because I made my board out of hard maple, I wanted a blade that was sturdy, but also gave me the smoothest cut possible. The blade I chose was a #5 crown-tooth blade, and it worked well.

After loading the blade, it's a simple matter of following the pattern and removing the waste, as seen in Figure 2. And, while I was at the scroll saw, I rounded the corners of the board, as well.

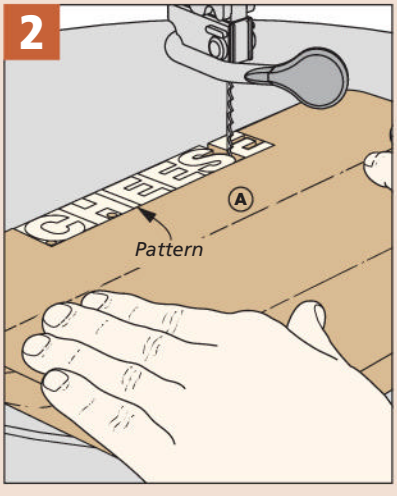
A little fettling with needle files will clean up the letters as needed and a quick sanding breaks the edges. Now, the board is ready for a set of rubber feet and a finish. I used mineral oil since it's a food-safe finish and can be reapplied over time. Then, you can turn your attention to the cheese slicer.



Cut the "Cheese"



Starter Holes. Use a small brad point bit and a backerboard to drill starter holes for the saw blade.

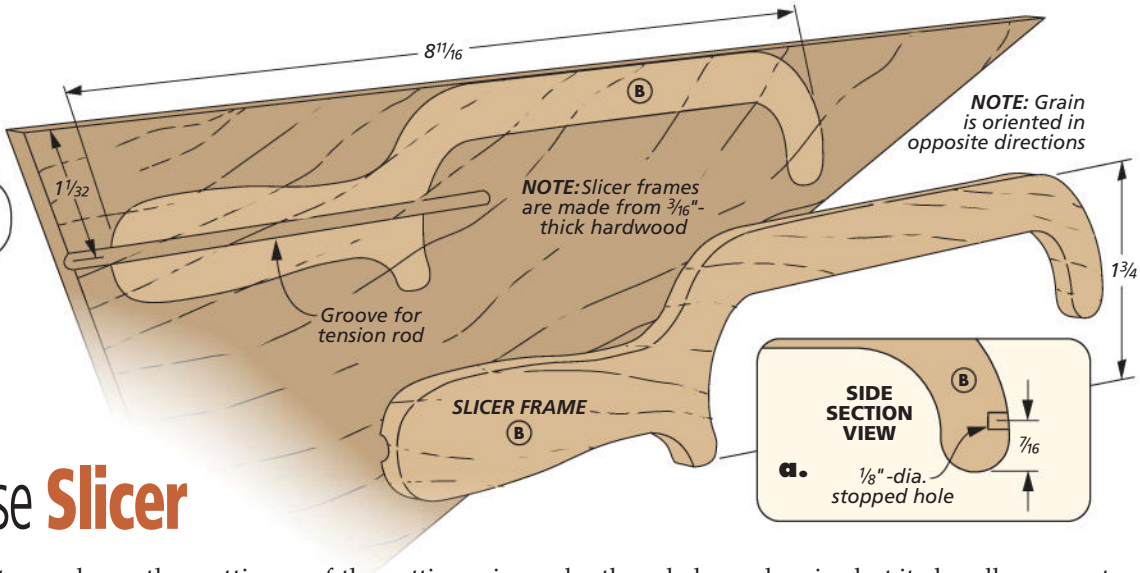


Scroll Work. At the scroll saw, cut around each letter with a fine-toothed blade to remove the waste.

MATERIALS & SUPPLIES

A	Cutting Board (1)	1/2 x 4 7/8 - 8
B	Slicer Frames (2)	3/16 x 1 3/4 - 8 11/16
C	Slicer Scales (2)	3/16 x 1 3/4 - 4 1/8

- (4) Adhesive Rubber Feet
- (1) 3/16"-dia. x 3 3/4" Brass Rod
- (1) 10-24 Brass Knurled Thumb Nut
- (1) 5" Cutting Wire



Cheese Slicer

Now that you have the cutting board complete, the slicer is up next. It presents a few more challenges than the board did. First, it has a curved frame that allows the wire to be tensioned. On the sides of the frame is a pair of scales for a comfortable handle. Finally, there is a wire assembly. This consists of the cutting wire and a threaded brass rod that you'll fashion to hold the wire. Don't worry though. The metalworking is pretty simple. But first, you'll want to start by making the frame of the slicer.

FRAME. The frame is built in two halves. Not only does this make routing the groove for the brass rod easier, but it also allows you to alternate the grain direction so that the frame remains strong. With the stock cut and planed to size, use the pattern to the left to lay out the slicer so that the grain on each half is traveling in alternate directions. Then head over to the router table to rout a groove in the handle

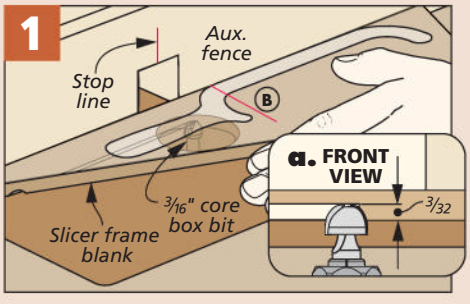
GO 2 Online Extras

For more on grain direction, visit our website:

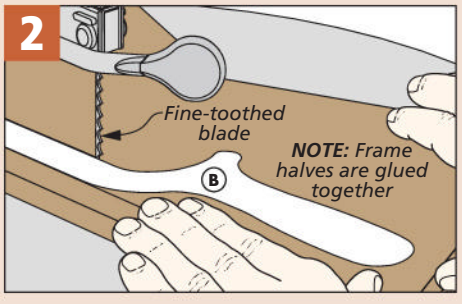
Woodsmith.com/magazine/sip

FULL-SIZE PATTERN

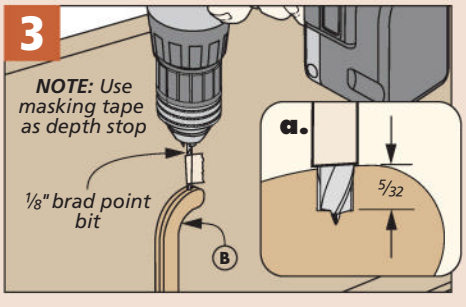
Make the Frame



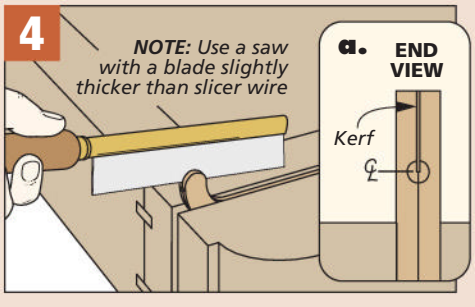
Rout Rod Groove. Using a core box bit in the router table, rout a shallow stopped groove in the handle of each frame blank.



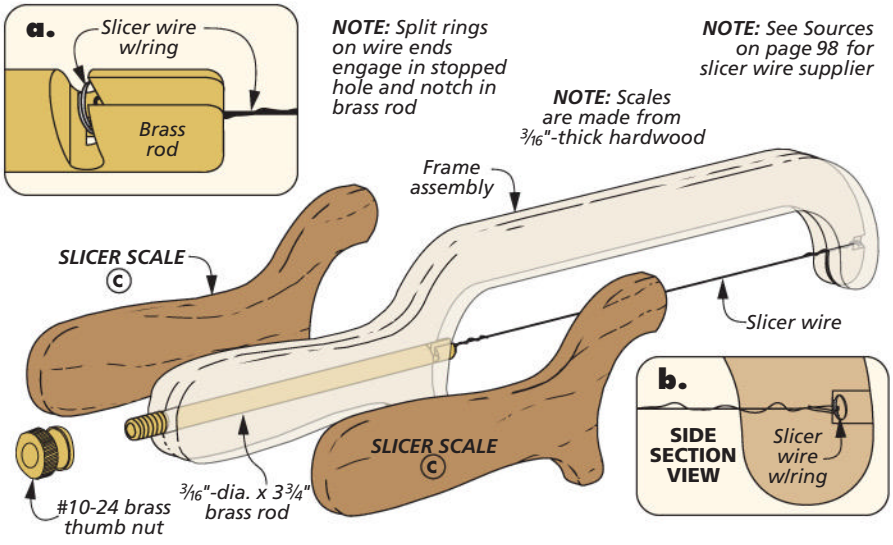
Cut the Frames. At the scroll saw, cut out the slicer frame. Stay to the waste side of the line and use a fine-toothed blade.



Stopped Hole. With a brad point bit, carefully drill a stopped hole in the end of the slicer frame for the wire end.



Cut a Slot. Grab a hand saw with a thin plate and cut a kerf in the slicer frame, cutting half way into the stopped hole.



portion of each half (Figure 1, below).

Now it's time to glue up the two halves. I coated the brass rod blank with paraffin wax and used that to align the halves while the glue dried. The wax allows the rod to slide out without sticking. It's then a simple matter of cutting the frame to shape at the scroll saw, as seen in Figure 2 on the previous page.

There's just a little bit of work left on the frame. First, drill a stopped hole in the end of the frame and then cut a thin kerf into that hole, as seen in Figures 3 and 4 on the previous page. Detail 'a' shows what you're going for.

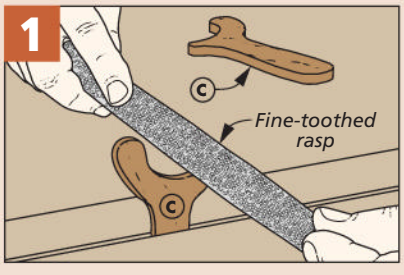
SCALES & ROD

Finally, a pair of scales wraps up the slicer. These can be cut to size at the scroll saw and glued onto the frame. You'll want to make sure to ease the edges with some rasps before gluing the scales on (Figure 1, below). After the scales are glued onto the frame, you can refine the entire slicer shape with sandpaper and ease all the edges, as seen in Figure 2 below. Like the board, the slicer is finished with mineral oil.

TENSION ROD. The wire for the cheese slicer is fed through the kerf into the hole on the end of the slicer and tensioned with a brass rod and nut through the handle. A notch in the rod secures the slicer wire. The steps for creating the tension rod are pretty straightforward. The How-To box to the right will guide you through it. It starts by threading one end of the rod. On the opposite end, a hole is drilled and a notch is cut into that hole using a rotary tool. Finally, a slot is cut into the notch and through the end of the rod (Figure 4).

After the mineral oil is absorbed, you can install the wire with the tension rod. Then, sit back, relax, and have a little cheese with your glass of wine.

Shape the Scales

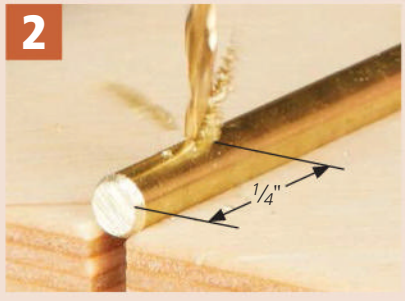


Round Over. Use a rasp to gently round over the edges of the scales, but do not change the overall profile.

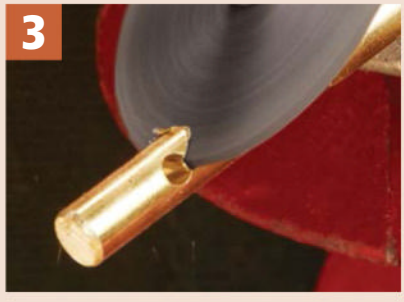
Refine the Shape. After gluing the scales to the frame, sand the entire handle so the scales match the frame.

Cut the Rod

Threads. Using a 10-24 die held in a die holder, cut the threads on the end of the brass rod.



Hole for Notch. Drill a hole in the end of the brass rod to create a stop point for the notch.



Cut the Notch. Load a fiber cutoff disc in a rotary tool and cut an angled notch, stopping in the drilled hole.

Slot for Wire. With the same fiber cutoff disc, cut a slot through the end of the rod for the slicer wire.

Revolving Knife Block

This knife block is not only a great way to show off your knives, but to store them also. The built-in handle makes it easy to move the block from counter to cabinet.

When I recently decided to replace my worn-out knife set, I bought a set of high-quality knives. The knives didn't come with a knife block, however. So I decided to build one.

DESIGN DETAILS. The first thing you'll notice about this knife block is its shape. Instead of a typical "square" knife block, this one is an octagon. The shape is accomplished with the help of a unique bit at the router table.

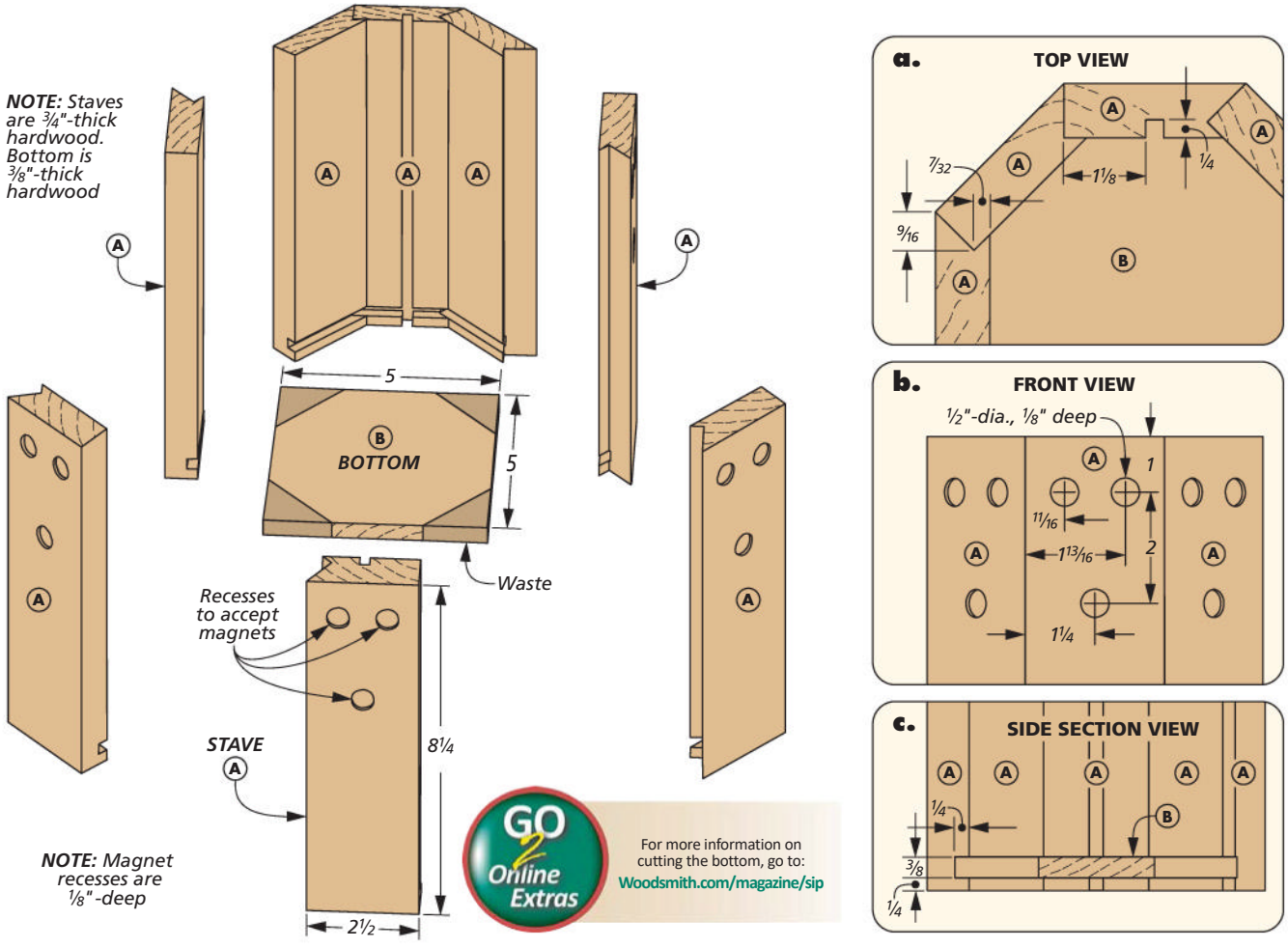
This knife block keeps all of your knives in one place, and it also shows them off. That's because of how the block holds the knives. Instead of slipping into slots, the knives are held to the block with the use of hidden magnets. A lazy Susan bearing allows the canister to spin for easy access to each knife, no matter where they are on the block.

After the canister is assembled, a figured veneer is added to cover the recessed magnets. A divider acts as a handle and also creates two storage areas for other kitchen tools. The best feature of the block, however? That may be its small size. And the fact that it's packed with woodworking techniques, but goes together in a weekend.

STAVES

The knife block consists of just a few parts. A series of staves form a canister that captures the bottom and the divider before the base is added. The first order of business is to cut the staves to size and cut the joinery to assemble the canister.

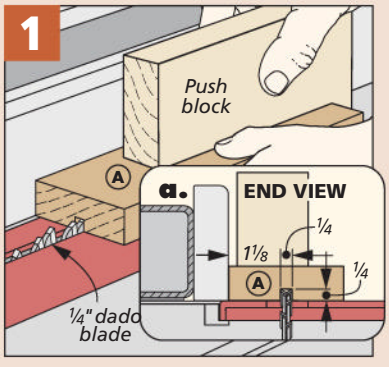
CANISTER PARTS. The staves get cut to size at the table saw. Then using a dado blade, cut a centered groove on two staves to accept the divider that's added later. The details of the groove are shown in Figure 1 on the next page. Figure 2 shows the location for the dado cut near the bottom of each stave. This dado holds the bottom. Before I cut the joinery to connect the staves, I drilled shallow holes on each outside



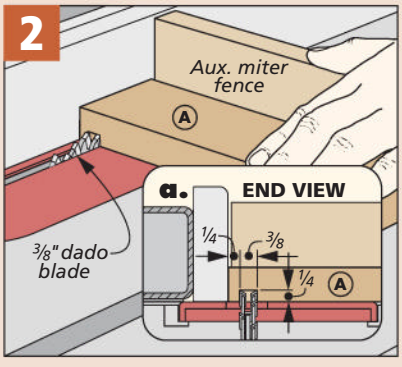
face to accept the magnets. The dimensions can be found in detail 'b' above.

BIRD'S MOUTH. Instead of mitering the staves to create the canister, I used a bird's mouth router bit to cut a notch in one edge. Detail 'a' above shows how the staves fit together with this type of joint. The bird's mouth bit makes clamping the canister together simple. However, the setup for this type of bit is critical, so follow the manufacturer's setup instructions. Figure 3 below shows how to make this cut at the router table. Before moving on to assembling the canister, make sure to cut the bottom to size. Details for laying out and cutting the octagonal bottom can be found at *Woodsmith.com/magazine/sip*.

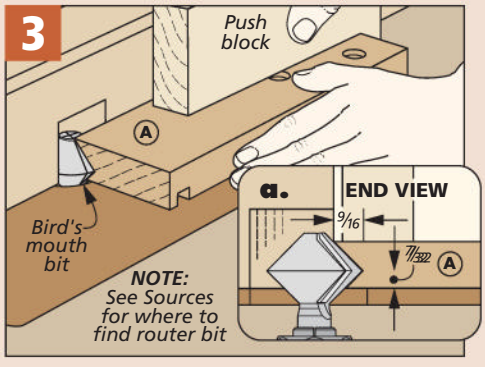
Cut & Shape the Staves



Grooves for Divider. At the table saw, cut a centered groove in two staves to hold the divider.

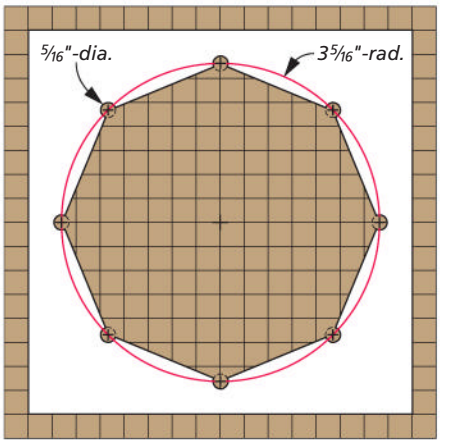


Dadoes for Bottom. Stay at the table saw to cut a dado on each stave to accept the bottom.

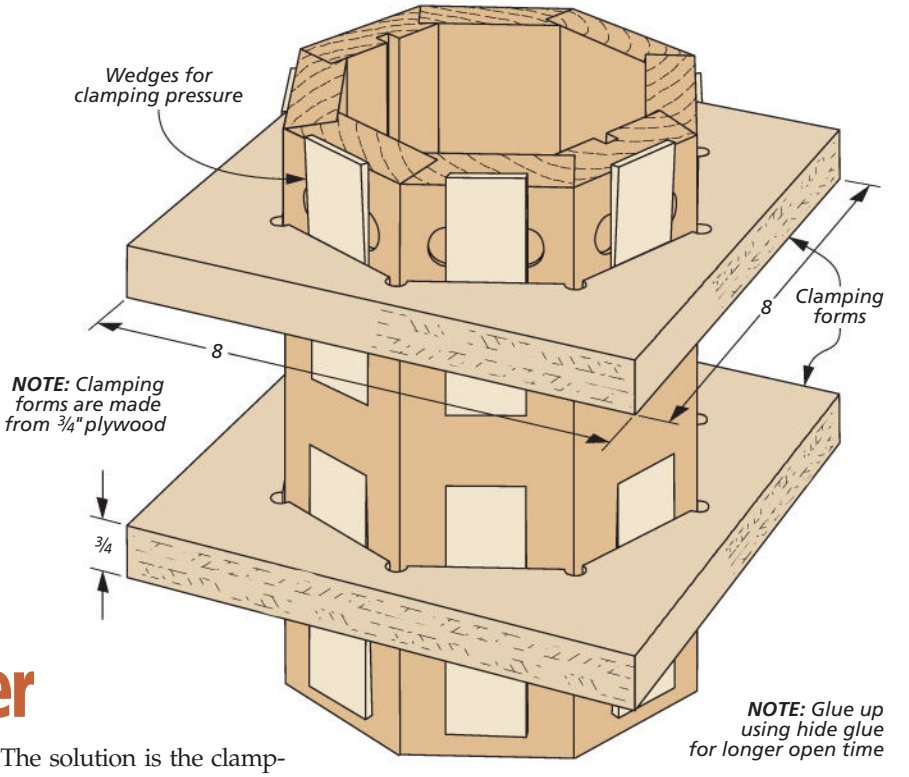


Rout Glue Joint. Use a bird's mouth bit to rout the glue joint on each stave. Set up the bit exactly per the manufacturer's directions.

PATTERN ***CLAMPING FORM*** *(Enlarge 400%)*



Visit our website for details on clamping



NOTE: *Glue up using hide glue for longer open time*

Assemble the **Canister**

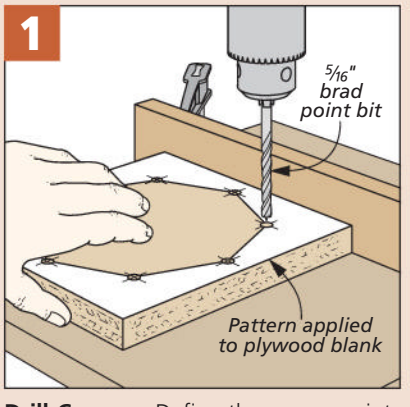
With the staves cut and the joinery complete, it's time to assemble the canister. With miters, clamping the canister together would be a long process, making sure nothing has slipped out of place. With the bird's mouth joint, each stave fits into a mating angled rabbet. This creates a positive reference when gluing the canister and makes assembly a snap.

CLAMPING FORM. Even though the bird's mouth joint makes assembling the canister easier, it can still be difficult to get even clamping pressure on each stave. The solution is the clamping forms shown above. Figures 1 and 2 in the lower box show the process for making the clamping forms. You'll need one for the top and one for the bottom of the canister. As you can see above, wedges apply the pressure between the forms and assembly. For more details on this glueup, visit *woodsmith.com/magazine/sip*. Don't forget to put the bottom into the canister as well before gluing in all of the staves and seating the clamping forms.

CHAMFER. After the glue is dry, head back to the table saw to cut a chamfer around the top edge of the canister. The chamfer dresses up the finished block and helps lessen the chance that the top of the block will get dinged with use. To cut the bevel, tilt the blade 22.5° and support the canister with a miter gauge and a tall auxiliary fence (Figure 3). A stop block on the miter fence will ensure that each facet is consistent.

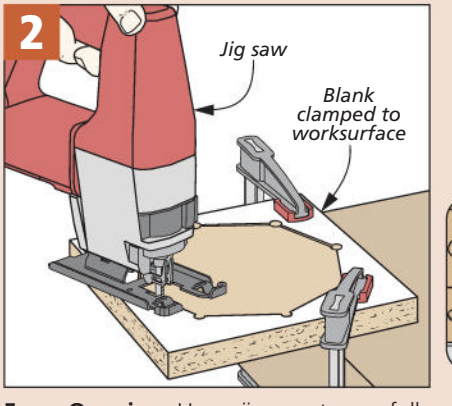
Create the Clamping Forms & Chamfer the Top

1



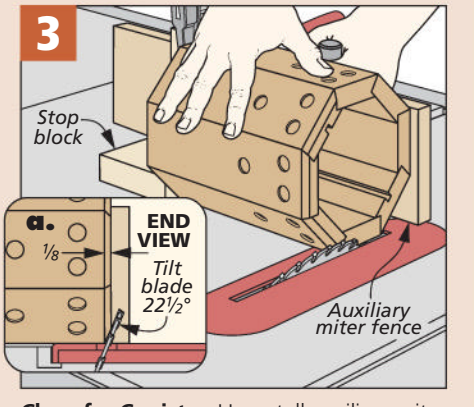
Drill Corners. Define the corner points of the clamping form with a drill bit to avoid damaging stave corners.

2

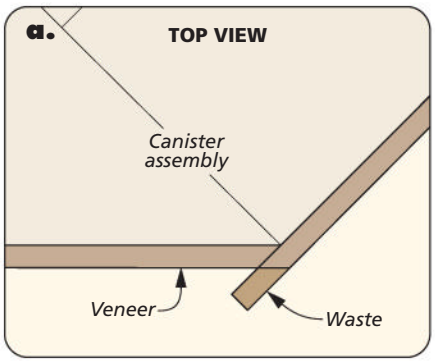


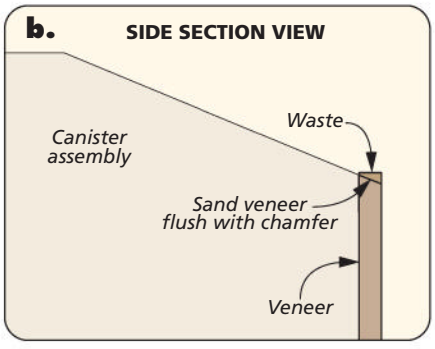
Form Opening. Use a jig saw to carefully remove the waste from the clamping form, keeping the cuts straight.

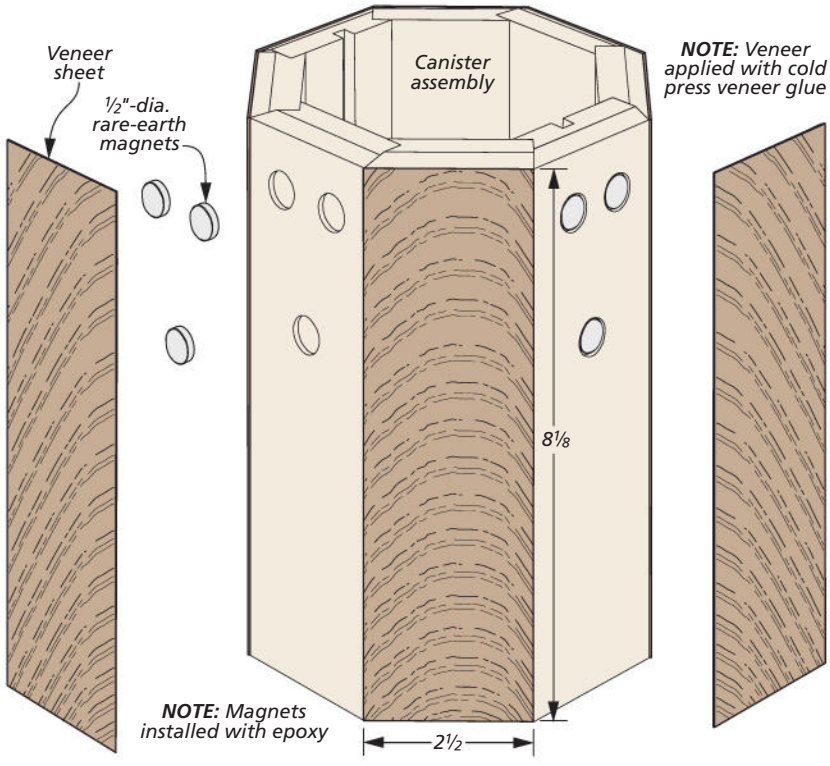
3



Chamfer Canister. Use a tall auxiliary miter fence to support the canister while chamfering the top edge.







VENEERING THE CANISTER

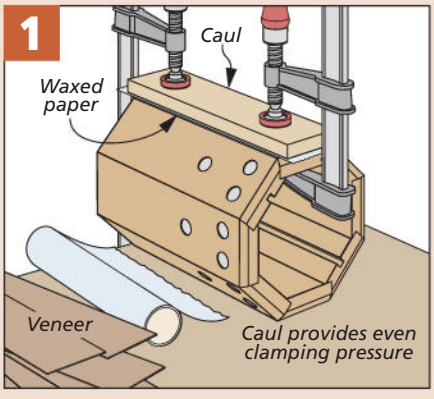
Now that the canister is close to its final form, it's nearly time for the veneer. One final detail to take care of first is to install the magnets that will hold the knives to the block.

EPOXY MAGNETS. To hold the knives in place, I used three rare-earth magnets on each face. The sizing of these are important. If the magnets are too strong, the knives will be hard to remove. Too weak, and the knives won't hold to the block. In this case, ½"-diameter magnets that are ⅛"-thick worked well. Secure the magnets into each of the holes using epoxy and allow them to dry before adding the veneer.

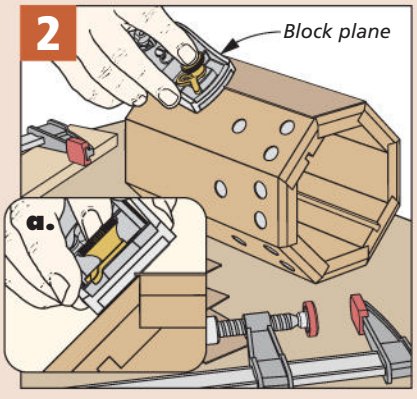
VENEER. To cover the magnets, I used a mahogany veneer. The key to applying veneer is using an even spread of glue and even clamping pressure. Speaking of glue, I used a cold press veneer glue to prevent the adhesive from bleeding through the veneer. The How-To box below outlines the steps of applying and trimming the veneer.

Because of the angles of the staves, each face of veneer needs the edge planed to match the angle of the next stave. That way, when the next piece of veneer is applied, it will lay flat on top of the previous veneer face. Detail 'a' shows how the veneer overlaps. Sand the top edge of the veneer to match the chamfer on the top of the canister (detail 'b'). You're aiming for a smooth transition here.

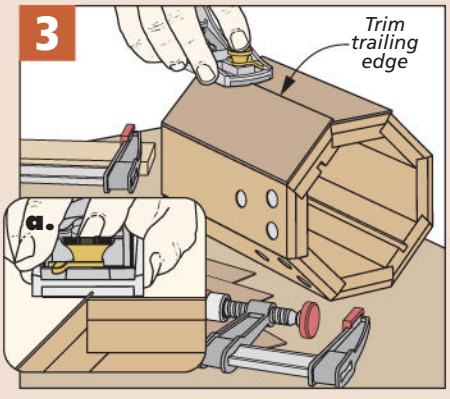
Apply Veneer to Staves



Glue Veneer. Apply the first panel of veneer using veneer glue and a caul to ensure even clamping pressure.



Bevel Veneer. Bevel the edge of each piece of veneer to match the next stave before applying the next veneer panel.



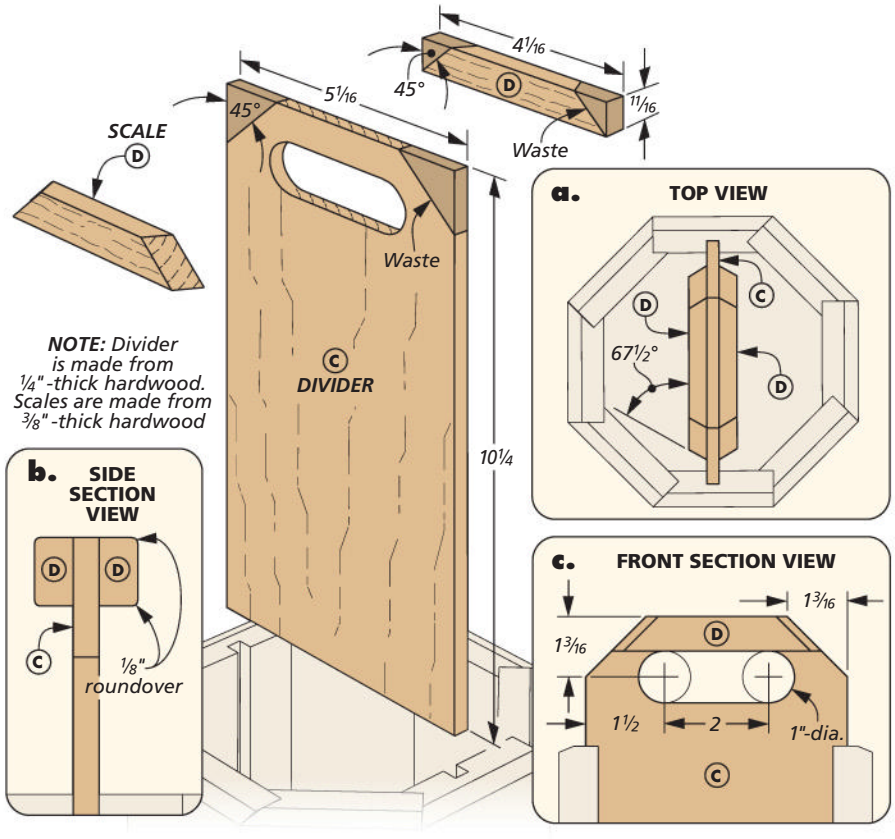
Trim Overlapped Veneer. Trim the overlapping veneer pieces with a block plane to soften the trailing edge.

Adding the Divider & Base

With the veneer attached to the canister and trimmed to size, you're in the home stretch. The last few things to add are a divider and base. As I mentioned before, the divider serves a couple of purposes. First, it offers a handle for carrying the block. Second, it breaks up the open space inside the canister so you can store long-handled kitchen tools.

DIVIDER FIRST. The divider is made of ¼"-thick mahogany. It has a hole cut near the top that's layered with a pair of scales to form a handle. The divider starts as a blank planed down to final thickness and cut to size. Creating the hand hole is a straightforward process. Figure 1 below outlines cutting the opening in the divider.

A pair of scales are attached to both sides of the divider, flush with the top of the opening, to provide a comfortable grip. To create the scales, start with an oversized blank planed to final thickness and cut to width. Rout a ⅛" roundover on both long edges (detail 'b'). After the roundover is done, the scales can be cut to rough length and glued onto the divider blank above the handle opening. It's okay if they're a little long, as you'll trim them next.

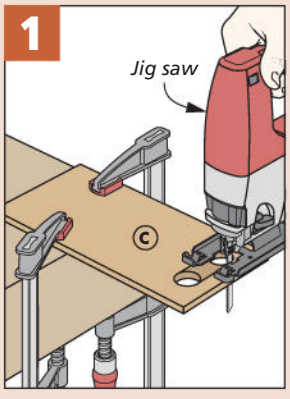


COMPOUND BEVELS. To lighten the look of the divider, the top corners are beveled, along with the ends of the scales. After the bevel is cut, the end of each scale is then chamfered at 22½° to achieve a compound angle that flows nicely. Looking at the angles, it can be easy to get confused on how to cut them. Not to worry, Figures 2 through 4 below guide you through the process. Simply use a miter gauge at the table saw and keep a spacer handy to support the divider and keep it level. With all the bevels cut, you can set the divider off to the side. Don't install it until after the finish is applied.

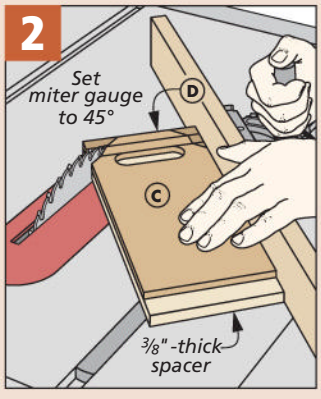
FINAL DETAILS

The final bits of construction to take care of before finishing are to add the

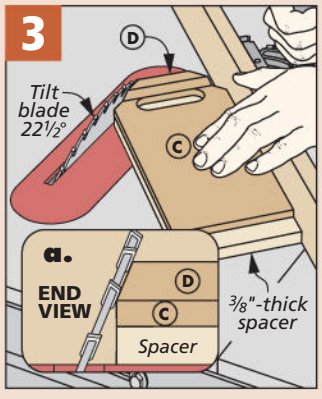
Make the Divider & the Base



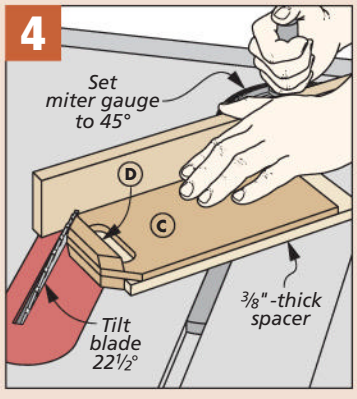
Divider Opening. Use a Forstner bit and a jig saw to cut the opening in the divider.



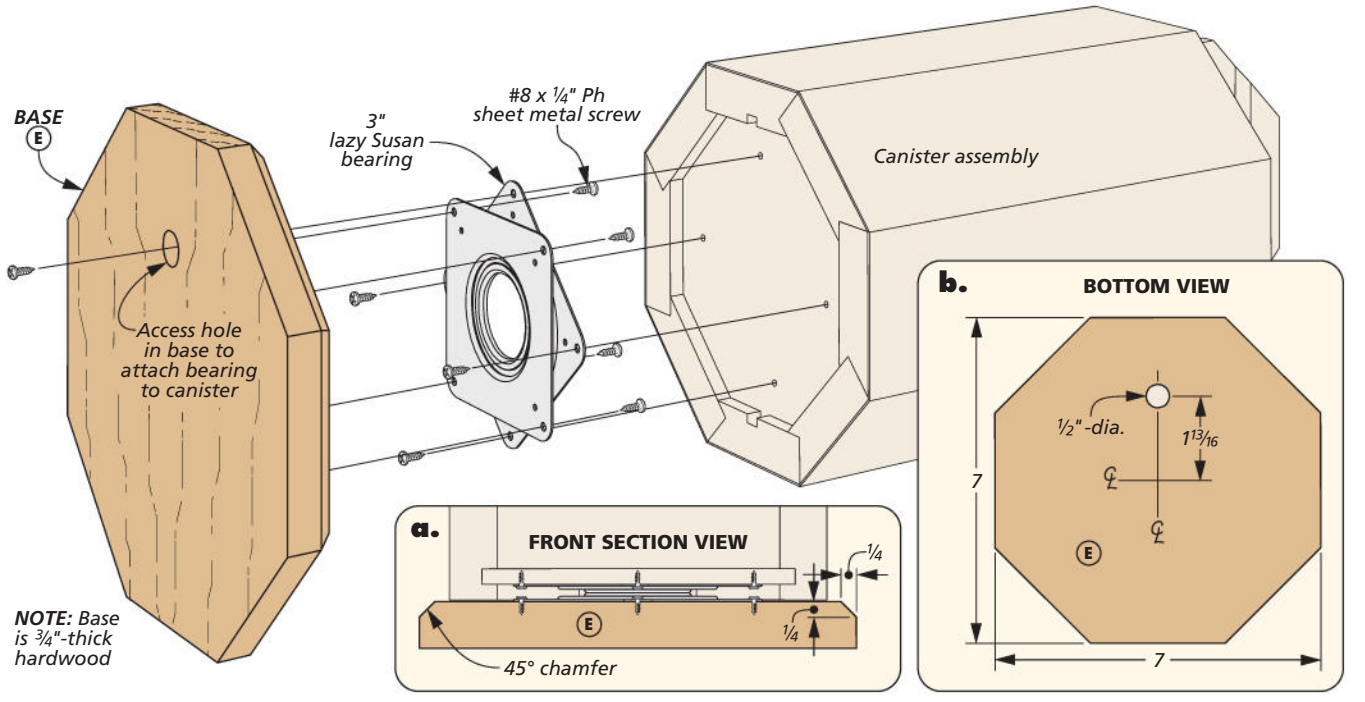
Cut Corners. Cut the corners of the divider assembly using the miter gauge for support.



Chamfer Scales. Tilt the blade 22½° to chamfer the end of the scales.



Bevel Back Side. Set the miter gauge at the opposing 45° angle to cut the remaining chamfers.



base to the knife block. The base not only makes the block more stable, but it also allows the canister to rotate to easily access the knives.

The base is an octagon, like the canister itself, only slightly larger. The same process used to cut the bottom was used here, also. After the base was cut, I used a router bit to form a chamfer along the top side of the base, as shown in Figure 5 below. Don't attach the base quite yet, however — you'll want to apply the finish first.

DYE. To highlight the figure of the veneer, I chose to use a water-based dye. Dye is an excellent choice for projects like this, as it adds a hint of color to highlight the grain without obfuscating it, as a stain might.

Before dying the project, I lightly raised the grain on all of the parts using a damp sponge. The grain was then knocked back down using 400-grit sandpaper. The edge of the divider and the inside of the groove for the divider were taped off to avoid getting any finish on the glue surface.

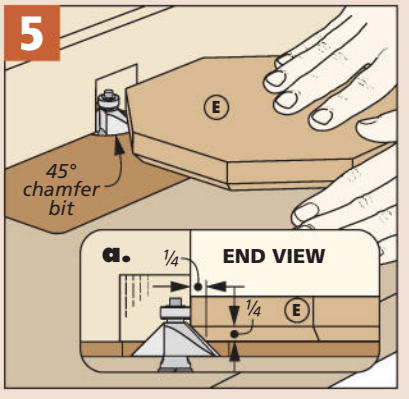
I used *Transtint* "reddish brown" dye dissolved in water to add color to all of the parts. The water-based dye brushes on smoothly with little worry of brush marks. After the dye was dry, the knife block was finished with multiple coats of satin lacquer, sanding in between coats.

ATTACH DIVIDER & BEARING. With the finish applied to the knife block, it was time to put everything together. I started by first marking the center on the top of the base and positioning the lazy Susan bearing over it. An oversized access hole in the base will allow screws to be driven into the canister bottom. See the main drawing above.

The bearing is first mounted to the base. Then, the canister is flipped over to locate the base on the bottom of the canister. Position the access hole to drive the first screw into the canister. Continue to rotate the base and use the access hole for all four screws.

The divider receives a few small dabs of glue along the edges after the tape is removed. Then, simply slide it into the grooves in the canister, making sure to wipe away any excess glue.

With the base attached, you can load the middle up with kitchen tools and stick the knives to the outside. It's sure to look sharp on any counter.



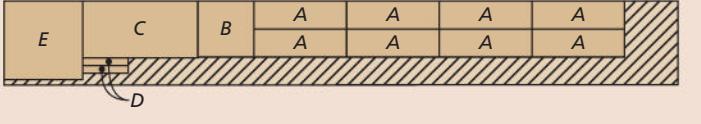
Chamfer Base. Chamfer the top edges of the base at the router table using a 45° chamfer bit.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

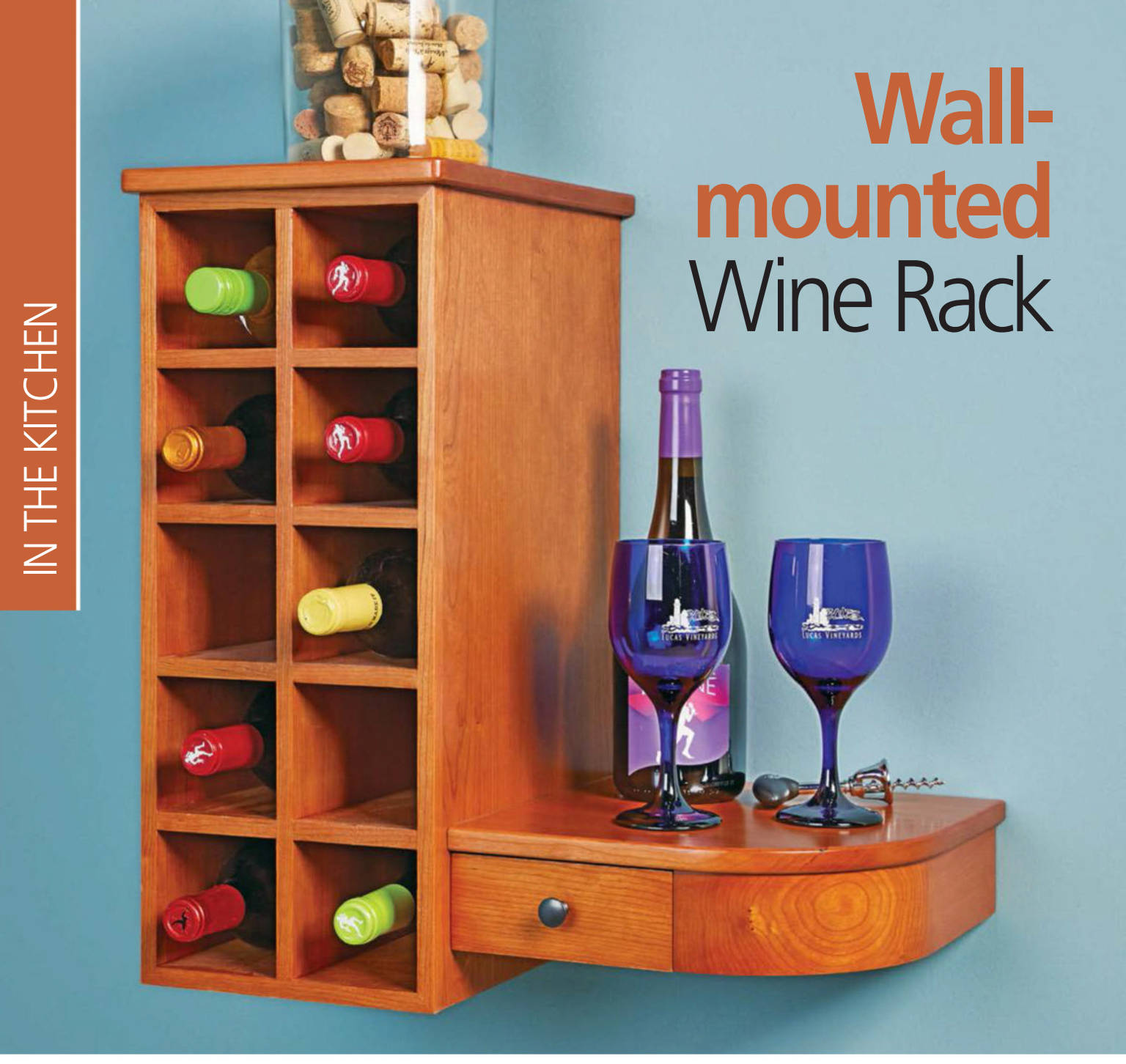
A	Staves (8)	¾ x 2½ - 8¼
B	Bottom (1)	⅜ x 5 - 5
C	Divider (1)	¼ x 5 1/16 - 10¼
D	Scales (2)	⅜ x 11/16 - 4 1/16
E	Base (1)	¾ x 7 - 7

- (1) 3" Lazy Susan Bearing
- (8) #8 x ¼" Sheet Metal Screws
- (24) ½"-dia. x ⅛" Rare-Earth Magnets
- (1) 2 Sq. Ft. Veneer

¾"x 7½" - 60" Mahogany (3.1 Bd. Ft.)



Wall-mounted Wine Rack



This wine rack goes above and beyond with the simple addition of a shelf. A shelf that houses a drawer perfect for the accessories that you need to have close at hand.

Louis Pasteur said "A bottle of wine contains more philosophy than all the books in the world." If that's the case, then you'll have quite the library at the ready with this project. That's not only because of its size, but also due to efficient and stylish design.

The parts for the rack, back and dividers are all made from ½" plywood. This was a perfect compromise when designing the look of the rack. Using ¾" material just felt and looked unnecessarily thick. Plus, using the ½" material for the back added a lot of rigidity to the case. To keep the scale proportional, the drawer is made of ⅜" material. But let's start with the rack that stores the bottles first. That means sizing the case parts.

MITERS. The sides, top, and bottom are joined to each other with miters and splines. The box on the next page

provides you with insight about what I'm sharing here. Cranking the blade to 45° is the first order of business. A handy way to control the length of the parts is to use an auxiliary fence on your miter gauge, with a stop block attached to it (Figure 1). This is the best way to ensure the parts exactly the same length and that the miters are perfectly square.

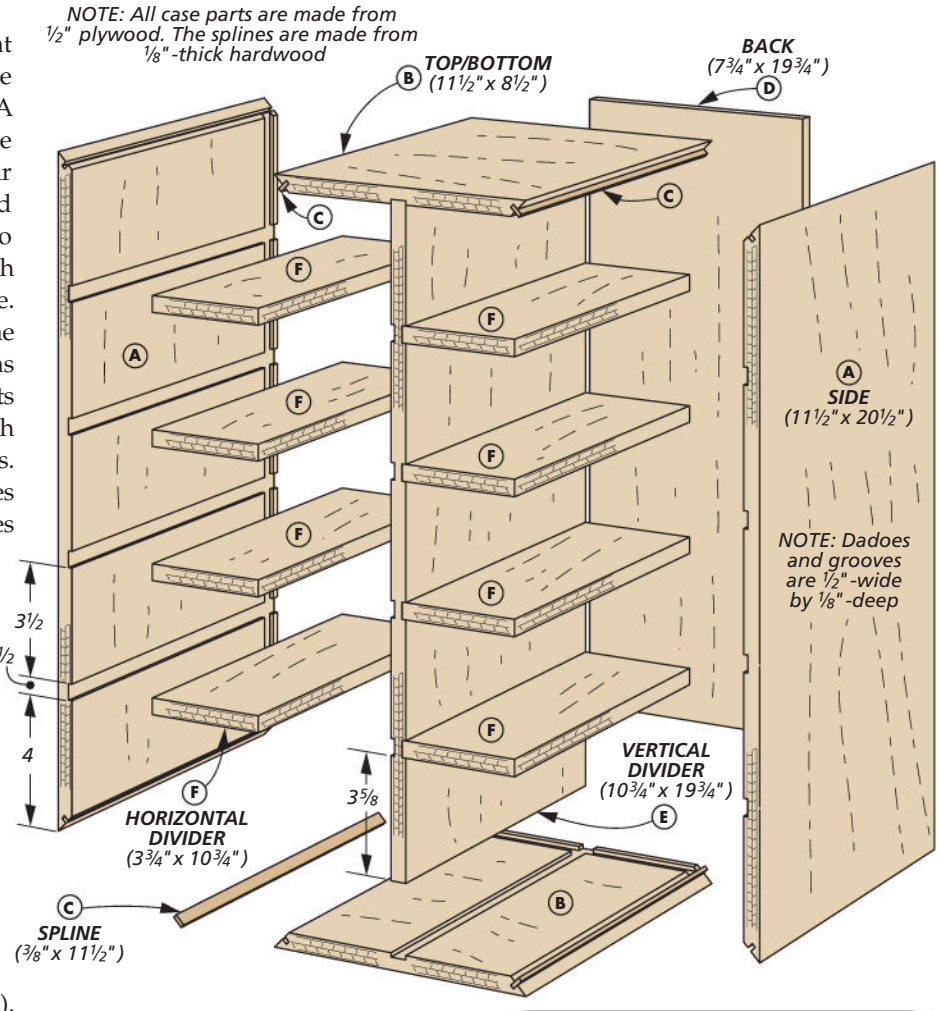
SLOTS IN MITERS. The miters alone wouldn't be a very strong joint. So, as you see in the main drawing, the joints between the miters are reinforced with splines. Figure 2 shows how to do this. Once the slots are cut (and the splines are made) you can focus on the grooves and dadoes.

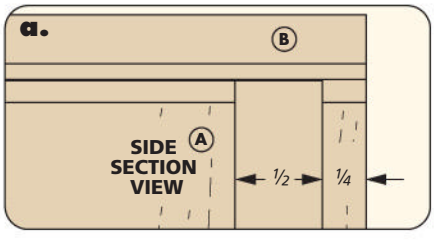
DADOES FIRST. The easiest and strongest way to make the ten compartments in the rack for your wine cache is to join the dividers to the sides and top with dadoes. The dadoes aren't deep — just enough to hold the dividers securely in place. Then you can cut the groove on the rear edge of the parts for the plywood back (detail 'a') at the table saw as well.

ASSEMBLY. I glued up the parts that make up the shell of the rack (the sides, top, bottom, back and splines). While the glue was drying on that assembly, I cut the dividers to size.

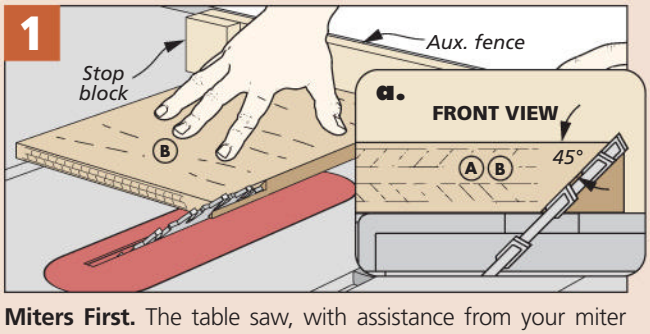
DIVIDERS. The vertical divider has dadoes that align with ones in the sides of the rack. These dadoes hold the horizontal dividers that serve as the shelves for the bottles. Once those bits of joinery are cut in the divider, you can glue it in place in the rack.

Follow that with installing the horizontal dividers. After a warm water cleanup of glue at the joints, you can turn to the finishing touches on the rack — the edging and a hardwood top.

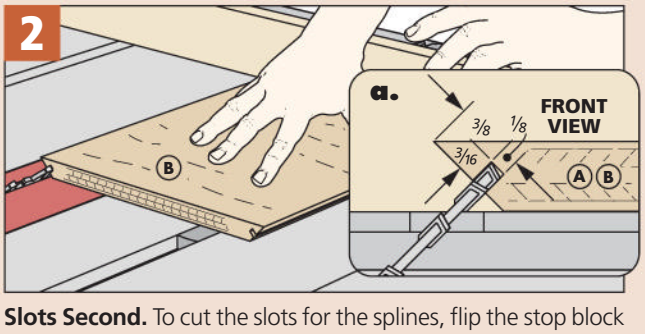




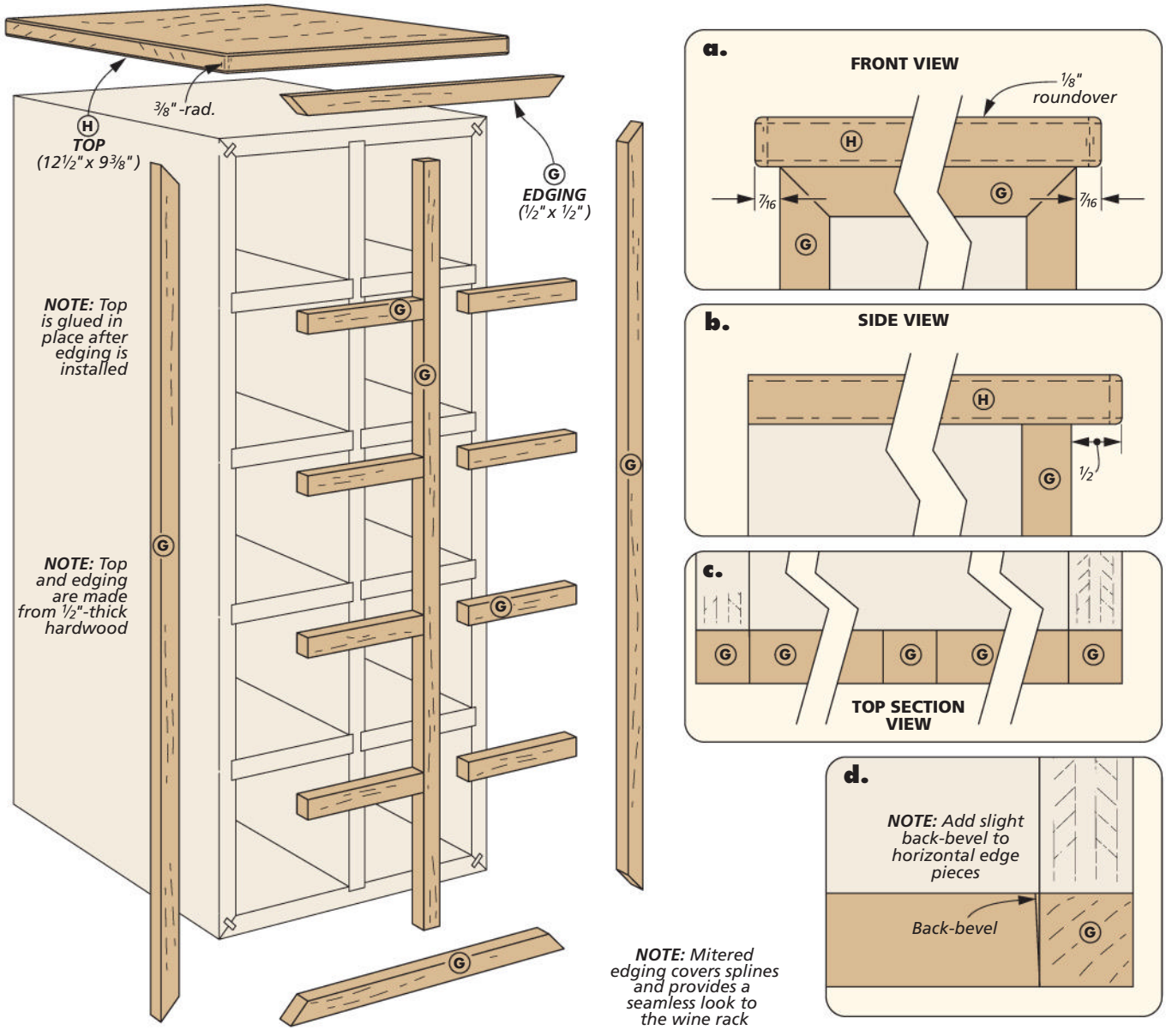
Make the Slotted Miters



Miters First. The table saw, with assistance from your miter gauge, an auxiliary fence, and a stop block guarantees miters that are squarely cut on all four pieces.



Slots Second. To cut the slots for the splines, flip the stop block to the other side of the auxiliary fence. Now you can cut the slots in the miters of sides, top, and bottom.



Edging & Shelf

Simple strips of hardwood dress up the front of the bottle rack by hiding the raw edges of the plywood and the ends of the splines in the miters. The parts that cover the sides, top and bottom are mitered in the corners like the case frame that it's covering. I started with those pieces that make up the rim.

MORE MITERING. Cutting and fitting each piece is the best way to ensure tight, almost seamless miters. I glue each tailored workpiece in place as I go along. The glue sets quickly enough to work on the adjoining piece without fear of knocking it free. Fitting the pieces that cover the dividers is next on the docket.

TIGHT FIT. The long vertical edging and the short horizontal pieces are butted to each other. And they butt against edging you just installed.

There's a little trick that I use to fit butt joints that's a carryover from my trim carpentry days. Detail 'd' above shows this in action. What you're going to do is put a tiny bevel on both ends of the piece. Start by cutting a 1° bevel on one end of the workpiece. Now hold the short edge of that beveled end in its opening and mark a line at the opposite junction. Then cut the small bevel flaring out from that mark. This back-bevel tactic leaves you with snug butt joints.

THE TOP. The top, like all the other parts to this point, is ½" thick. The grain runs from side to side. The top is flush to the back but overhangs the front and sides (details 'a' and 'b'). The sides and front edges have a gentle roundover, while the front corners have modest radius easing them.

THE SHELF

Attached to the right side of the bottle rack is a shelf with a drawer underneath for storing accessories that are handy to have close by when enjoying a glass of wine. The shelf is a convenient place to pour that wine and stow the open bottle.

The curved front on the outer edge of the shelf looks good and won't inflict a bruise on a person that happens to pass close by. We'll start over at the table saw making a framework that supports the shelf and drawer.

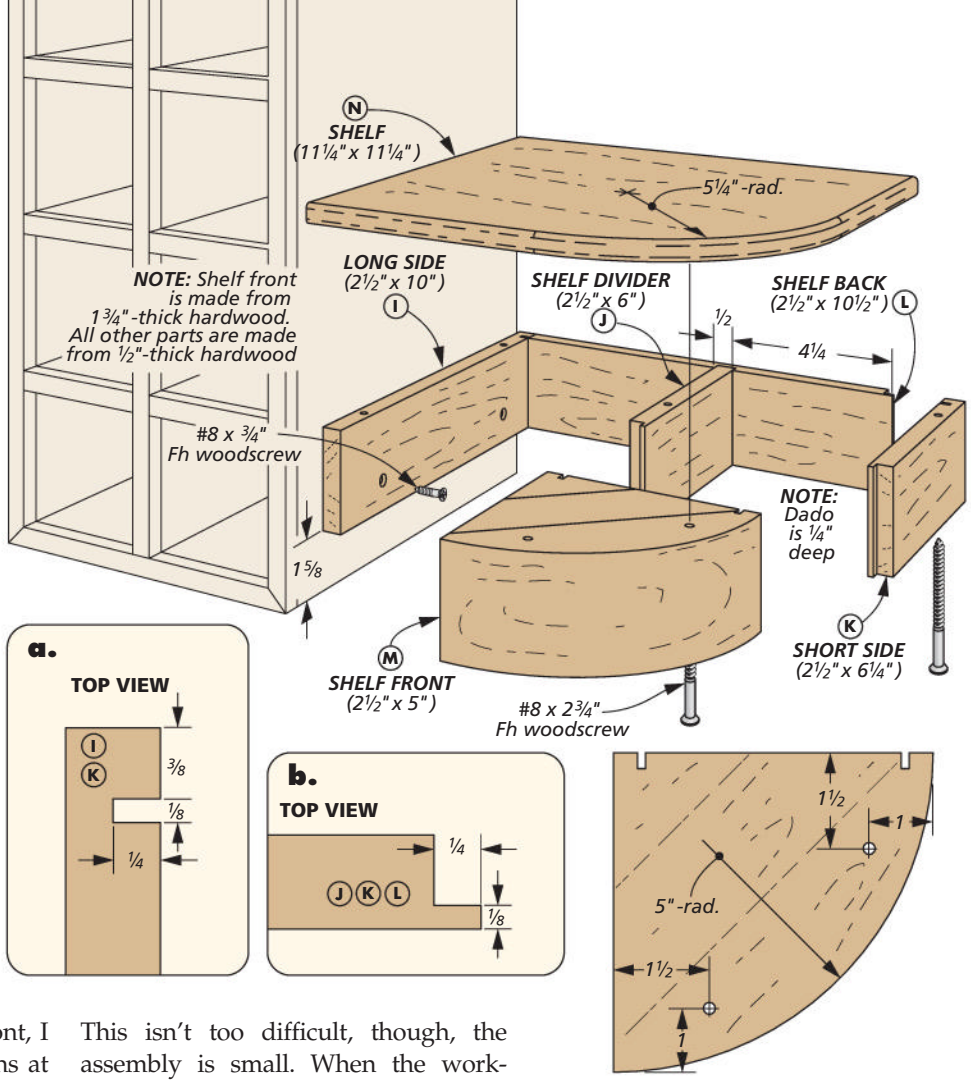
The frame of the shelf consists of four pieces and a block. The block gets shaped into a large arc that is the shelf front on the outer edge of the project. To keep the process efficient, I started by gluing up the blocks that will be for the curved front. While they were drying, I focused on the other parts. It's standard tongue and dado joinery on the frame.

DADOES & TONGUES. With all the pieces cut to final size, I went about cutting the dadoes in the long and short sides (detail 'a'). Next was to fabricate the tongues on the short divider and side, as well as the back (detail 'b'). Finish with a dado in the middle of the shelf back.

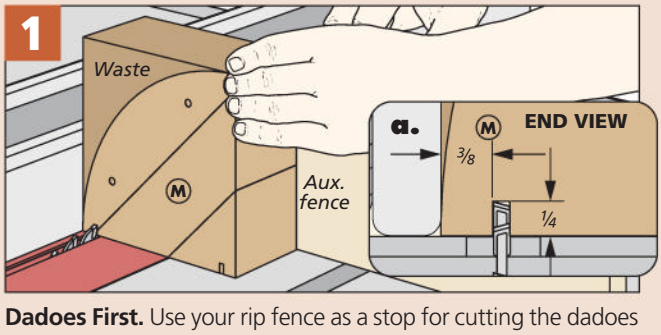
SHELF FRONT. Returning my focus to the block for the shelf front, I trimmed the square inside portions at the band saw and sanded them smooth. As the box below shows, start by cutting the dadoes needed to glue the front to the frame of the shelf. Then, at the band saw, shape the front.

GLUE UP. Make sure everything is flat and flush while gluing up the frame. This isn't too difficult, though, the assembly is small. When the workbench is cleaned up from the gluing process, drill the pilot holes and countersinks for the screws that hold the top in place.

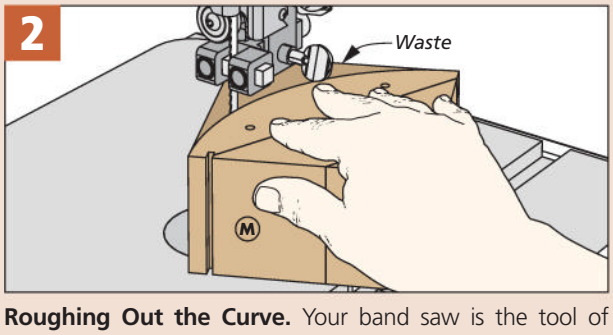
THE TOP. Finishing up the shelf assembly is pretty straightforward stuff. The top of the shelf sits flush with the shelf back and echoes the shape of the frame with a slight overhang along the front and side. Ease that curving edge by routing a roundover. With that done, screw it in place on the frame, then turn your attention to the drawer.



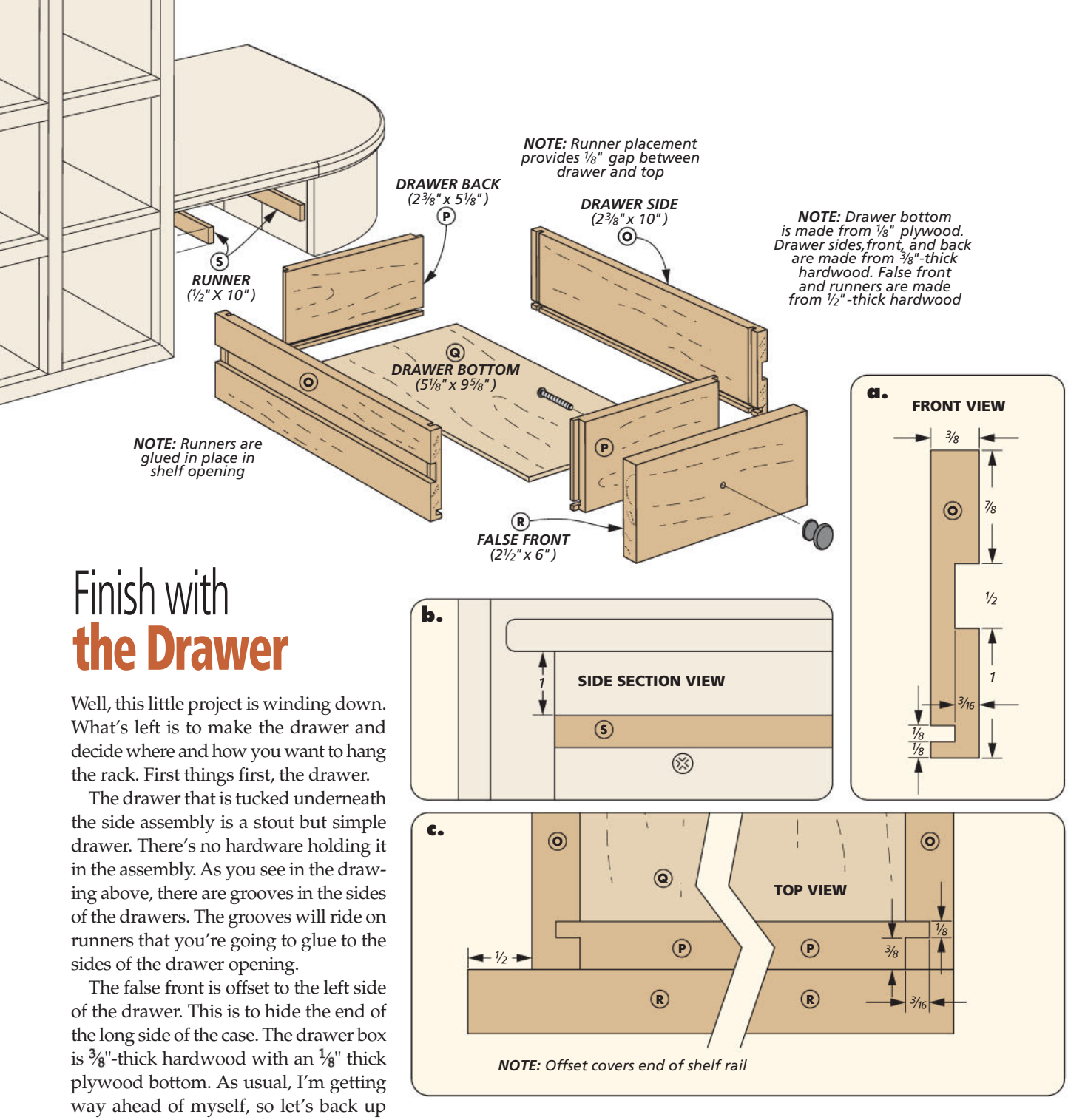
Shaping the Corner



Dadoes First. Use your rip fence as a stop for cutting the dadoes in the shelf front. They're symmetrical on the shelf front so just flip the piece end-for-end to make the second dado.



Roughing Out the Curve. Your band saw is the tool of choice for rough-shaping the curve. Stay on the waste side of the line and sand it smooth afterwards.



Finish with the Drawer

Well, this little project is winding down. What's left is to make the drawer and decide where and how you want to hang the rack. First things first, the drawer.

The drawer that is tucked underneath the side assembly is a stout but simple drawer. There's no hardware holding it in the assembly. As you see in the drawing above, there are grooves in the sides of the drawers. The grooves will ride on runners that you're going to glue to the sides of the drawer opening.

The false front is offset to the left side of the drawer. This is to hide the end of the long side of the case. The drawer box is 3/8"-thick hardwood with an 1/8" thick plywood bottom. As usual, I'm getting way ahead of myself, so let's back up and cut some boards for the drawer.

SIZE THE PIECES. Cut the sides, back, and plywood bottom to size — the false front is sized now as well, but set aside for the moment. As I mentioned a moment ago, you'll see in detail 'a' above, that the sides, front, and back of the drawer are only 3/8" thick. You could easily leave them the same thickness as the rest of this rack and not spend any extra time at the planer. But, for my money, the effort of making thinner parts gives the drawer a better feel (for whatever that's worth).

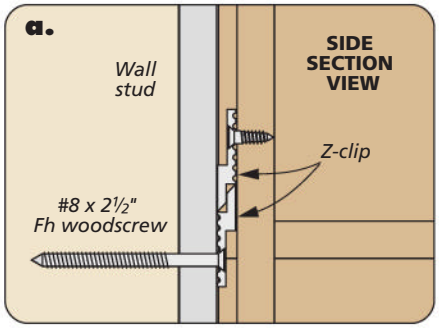
GROOVES NEXT. The grooves for the drawer bottom are first. No need for a dado set here. In fact, all this joinery can be done with a standard blade.

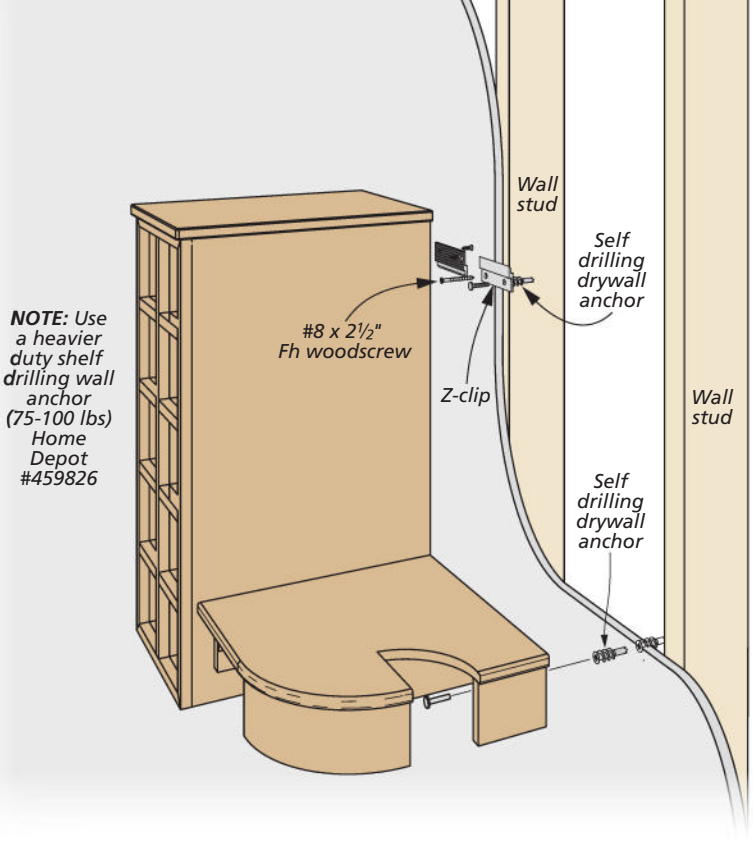
DADOES & TONGUES. Deja vu? Well, sort of. Like on the shelf frame earlier, do the dadoes first, then the tongues. Then you can glue up the box of the drawer.

BIG GROOVE. Now, you will indeed need a dado blade, but not for joinery. You need to cut a groove in the sides of the drawer. Then you can make the runners and glue them in the opening for the drawer. Detail 'b' shows the placement of the runner. I used a spacer to position it in the opening. To complete the drawer, glue on the false front and drill a hole for the pull.

HANGING THE CABINET

As you know the cabinet sitting before you is not that big. But the ten bottles



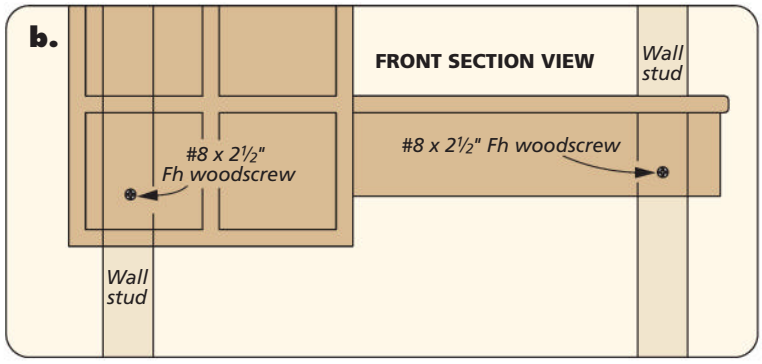


that it can store probably doubles the weight of the cabinet. So, you definitely want the wine rack to be securely attached to the wall. There are two ways to do this.

Z-CLIPS. Detail 'a' above and the main drawing shows the hardware in action. It's simply an extruded aluminum profile that has mounting holes drilled into it. They work in tandem, one is attached to the rack. The other to the wall. This method lets you install the rack safely, but remove it fairly easily.

DIRECT ATTACHMENT. The other option is more permanent — screwing the rack directly to wall studs. Detail 'b' shows how this looks. Here though, placement will be limited by stud location. Either way, you'll have to attach the shelf to a stud or with a wall anchor.

Now, at the end of the day, you can open the drawer and exchange your car keys for a corkscrew. As for being philosophical, that's your choice.

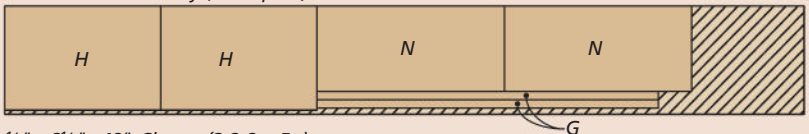


MATERIALS, SUPPLIES & CUTTING DIAGRAM

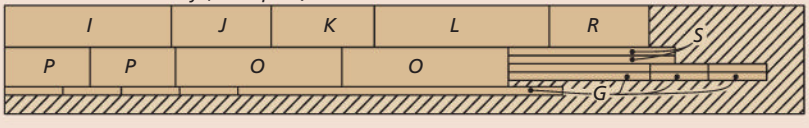
A	Sides (2)	½ ply - 11½ x 20½
B	Top/Bottom (2)	½ ply - 11½ x 8½
C	Splines (4)	⅛ x ⅜ - 11½
D	Back (1)	½ ply - 7¾ x 19¾
E	Horizontal Divider (1)	½ ply - 10¾ x 19¾
F	Vertical Dividers (8)	½ ply - 3¾ x 10¾
G	Edging	½ x ½ - 108 rgh.
H	Top (1)	½ x 12½ - 9⅜
I	Long Side (1)	½ x 2½ - 10
J	Shelf Divider (1)	½ x 2½ - 6
K	Short Side (1)	½ x 2½ - 6¼
L	Shelf Back (1)	½ x 2½ - 10½
M	Shelf Front (1)	2½ x 5 - 5
N	Shelf (1)	½ x 11¼ - 11¼
O	Drawer Sides (2)	⅜ x 2⅜ - 10
P	Drawer Front/Back (2)	⅜ x 2⅜ - 5⅛
Q	Drawer Bottom (1)	⅛ ply x 5⅛ - 9⅝
R	False Front(1)	½ x 2½ - 6
S	Runners (2)	3/16 x ½ - 10

- (6) #8 x 2¾" Fh Woodscrews
- (6) #8 x ¾" Fh Woodscrews
- (1) Drawer Pull
- (1) 36" Z-clip

½"x 6½" - 48" Cherry (2.2 Sq. Ft.)



½"x 6½" - 48" Cherry (2.2 Sq. Ft.)



1¾" x 4" - 24" Cherry (1.3 Bd. Ft.)

***ALSO NEEDED:** One 48"x 48" Sheet of ½" Cherry Plywood. One 12"x 12" Sheet of ⅛" Cherry Plywood*

Home Decor

Showing off your woodworking around the house doesn't always have to be as elaborate as dressers and cabinets. These five, small projects are a practical way to spruce up your home while practicing some unique woodworking techniques.

WINDOW PLANTER BOX 28

BEVERAGE STAND 32

LAMINATE END TABLE 36

CRAFTSMAN MIRROR.....40

SHADOW BOXES.....44

Window Planter Box

Give your home's curb appeal a little boost with this easy-to-build project. In the process, you'll learn some tricks for rock-solid construction.

Outdoor projects need to be built like a tank to handle the weather extremes they face. The problem is many outdoor projects often end up looking like tanks, too. But not this window planter box.

While this simple project has the charm of a picket fence, it offers some great lessons in building for the outdoors. Underneath its cottage-style appearance lies a sturdy framework that easily supports a heavy-duty plastic liner filled with potting soil and plants. The construction is designed to shed water like a duck's back for durability.

All this is accomplished by combining strong but light cedar, durable joinery, and some classic details. With an easy weekend's worth of effort, you'll enjoy the rewards of its design (and the blooms) season after season.

CONSTRUCTION OVERVIEW. The window box consists of three basic components. It starts with a wide upper frame that creates a lip to support the plastic liner.

The second component is a set of slats captured in a groove in the upper frame. These have decorative cutouts to give the window box its unique look.

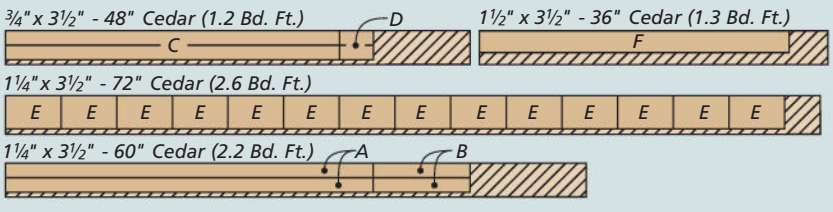
Finally, a hidden inner frame anchors the lower portion of the window box and gives it added strength. The open frame allows excess water from the liner to drain away freely. The construction process starts with making the frames and then adding the slats.

UPPER FRAME. Take a look at the drawing on the top of the opposite page and you'll see a few details that separate the upper frame from its counterpart. The corners are joined with miters for a clean look and to limit the amount of exposed end grain that can absorb moisture (leading to decay). A stepped, angled groove on the underside of the frame parts accepts the slats and establishes the taper of the box (detail 'a').

The process for doing this is more manageable than it appears on the surface. The trick is knowing the right order of operations. The box below walks you through the main steps. I prepared

MATERIALS, SUPPLIES & CUTTING DIAGRAM

A	Upper Frame Frnt/Bck (2)	1¼ x 1½ - 38	F	Hanging Cleat (1) (opt.)	1½ x 2¼ - 32
B	Upper Frame Ends(2)	1¼ x 1½ - 10	•	(1) 36" Flower Box Liner	
C	Lower Frame Frnt/Bck (2)	¾ x 1½ - 34½	•	(2) Hanger Brackets (opt.)	
D	Lower Frame Ends (2)	¾ x 1½ - 6½	•	(10) #14 x 1" Ph Woodscrews (opt.)	
E	Slats (28)	⅜ x 3 7/16 - 5¾	•	(3) #14 x 11/2" Ph Woodscrews (opt.)	

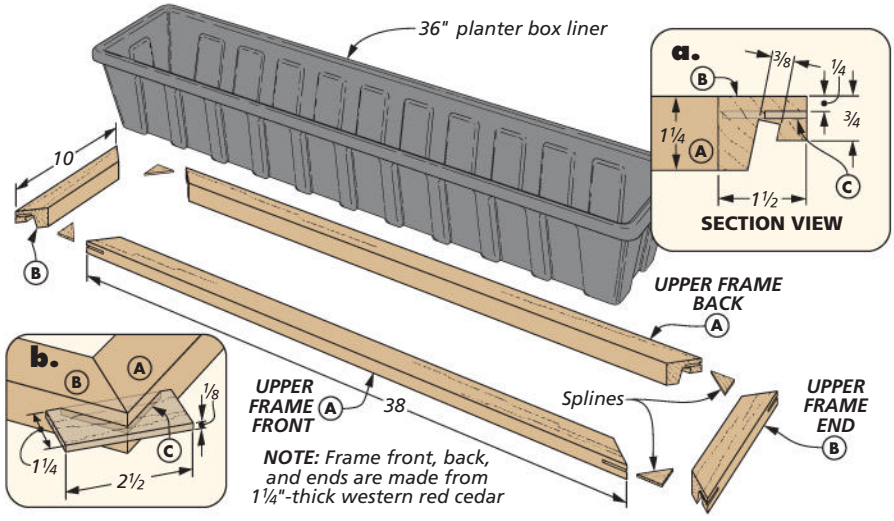


extra-long blanks for the front, back, and two end pieces. These match the final thickness and width of the frame parts (detail 'a' at right).

The angled groove is the first detail to tackle (Figure 1). Cutting it before creating the step means the rectangular blank has the most stability. To create a lip on the frame blanks, turn the blanks on edge and trim away their outer edges. Replace the dado blade with a regular blade and set it square to the table (Figure 2).

The upper frame is joined with miters cut on the ends. I did this by placing the top face down on the saw table. Take your time setting up the saw and miter gauge for accurate cuts.

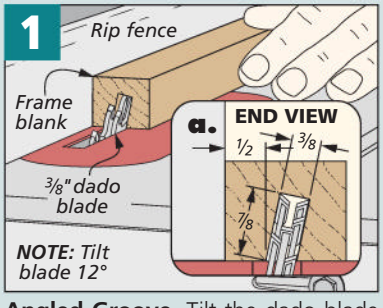
Gluing up a mitered frame is tricky. What makes it harder is that the previous steps don't leave much surface area for clamps. My solution was to make an MDF clamping form to fit inside the completed frame, as illustrated in Figure 3.



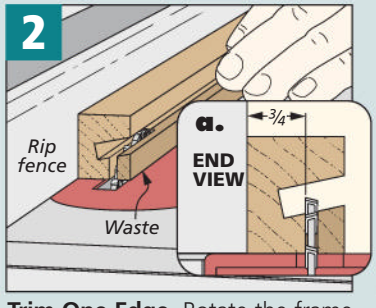
SPLINES. The mitered joints look great, but the joints aren't durable enough to make the grade outdoors. In order to strengthen the joint, I used a table saw jig to cut a slot through the joint and added splines. The jig holds the frame at a 45° angle. As a result, the bottom of the slot is perpendicular to the mitered face, as in Figure 4. The grain of the spline will run across the joint line to increase the amount of long grain glue surface.

Then, size a spline blank to match the width of the slots. After cutting the splines to rough length, glue them in place and trim them flush (Figure 5).

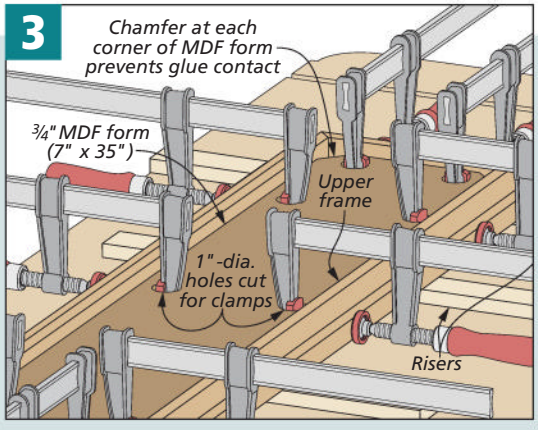
Make a Mitered Frame



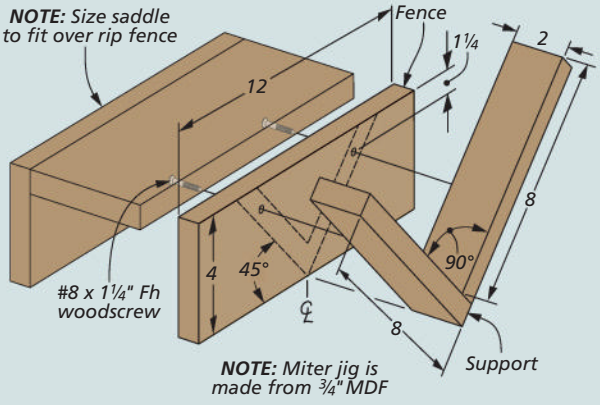
Angled Groove. Tilt the dado blade to create the groove that holds the slats in the upper frame.

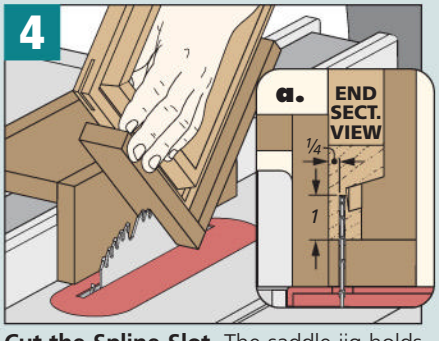


Trim One Edge. Rotate the frame blank on edge to cut away one side of the groove.



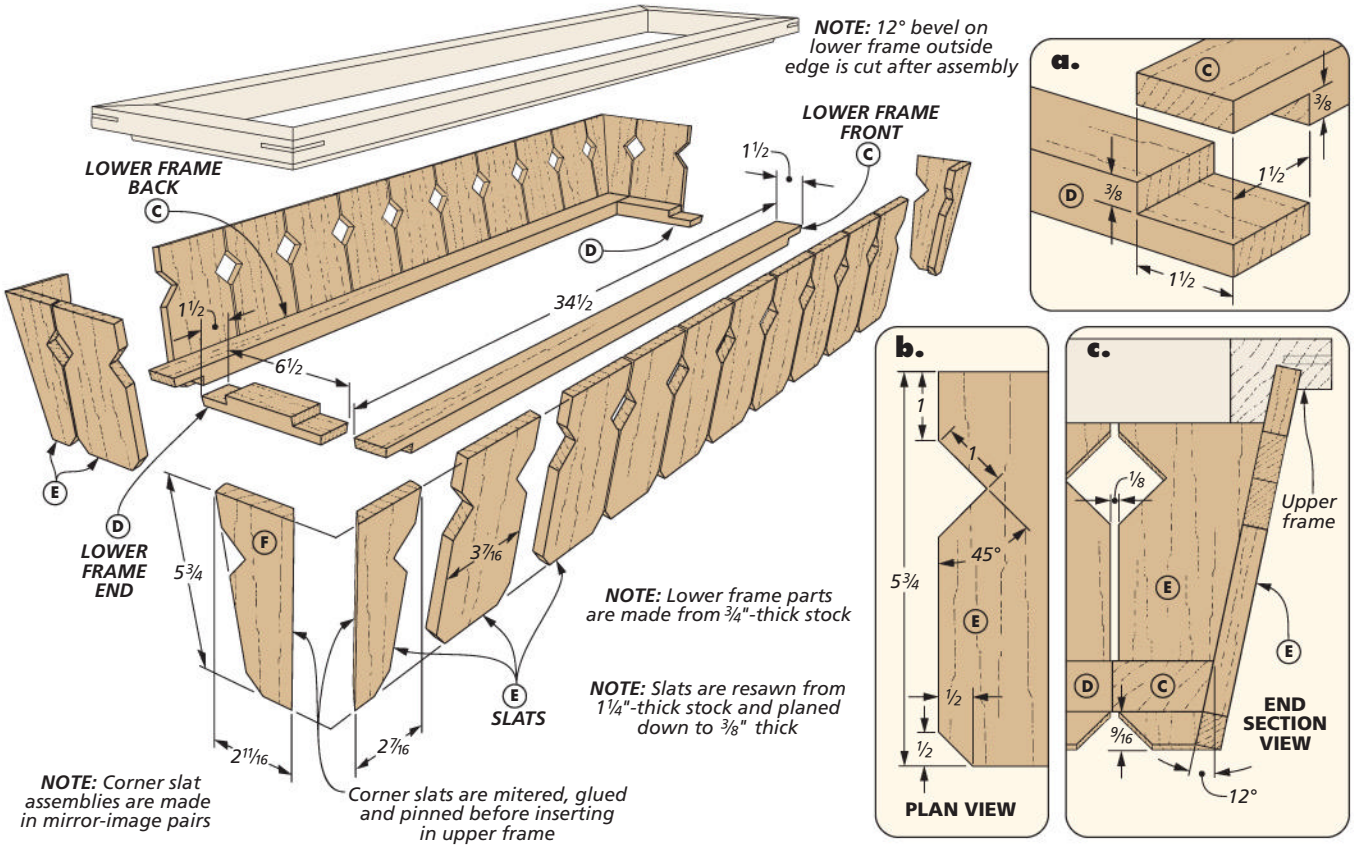
Gluing Form. An MDF form keeps the frame square while the glue dries. Drill holes in the form to provide access for the clamp heads.





Cut the Spline Slot. The saddle jig holds the frame in the correct position to cut the spline slots that reinforce the miters.

Trimming Splines. Cut away most of the excess with a hand saw.



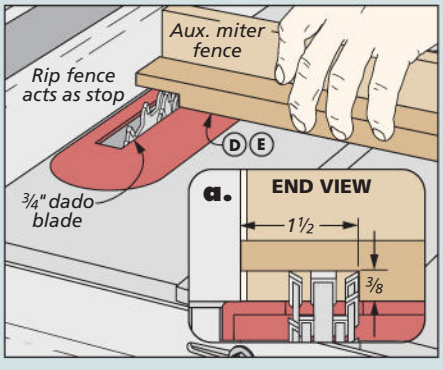
Lower Frame & Slats

The lower frame of the planter box is simpler than the upper frame. Instead of miters and a clean look, I chose the brute strength of half laps.

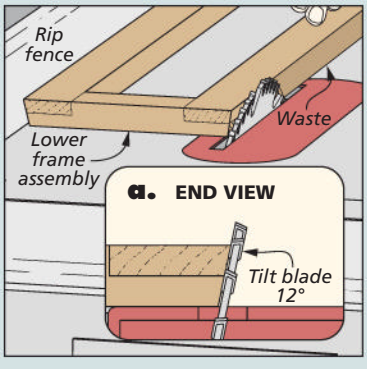
TABLE SAW JOINERY. In addition to the sturdy construction, the half laps joining the lower frame are easy to cut on the table saw. All it takes is one setup, as shown in the box below.

There's one catch: the lower frame rests inside the slats, which are angled outward. The frame needs to be beveled to match the slope of the slats. This is best done after assembly. For the ends, the miter gauge offers the best control and results. For the long edges, you can use the rip fence (lower right drawings).

Cut Half Laps & Bevel



Cutting Half Laps. The key to the half laps is taking the time to set the blade height to half the thickness of the parts.



Bevel The Frame. The saw blade is tilted to match the slope of the groove in the upper frame.

SLATS. The slats give the window box its distinctive look. The lower ends are dog-eared and chamfered, with a diamond cutout along the middle.

The box on the facing page gives you a good summary of the process. But, there are a few additional things to highlight.

EXTRA PARTS. I resawed the slat blanks from thicker stock. The key when planing them to size is to aim for a snug fit in the groove in the upper frame.

It's a good idea to make a few extra slats to use as test pieces and have a few extras on hand in case of a miscut.

Most of the slats are straightforward to make. But the corner slats are mitered and tapered to create a seamless edge and match the bevel of the frames. This adds a few steps but isn't complicated.

TWO-STEP DIAMONDS. The diamond-shaped cutout is the first detail to add to the slats. This is done by making two cuts on each edge of the slats. The key here is making sure the cutout on each slat is located consistently. A stop block attached to the rip fence is a good way to register the parts to make the cuts.

Mark the location of the top edge of the cutout on one of the slats. You can use that as a gauge to position the stop

block (Figure 1). Now it's just a matter of making the same cut in all the slats.

Completing the notch involves changing the setup. You need to flip the slats around to make the second cut. So I moved the auxiliary fence on the miter gauge to offer better support for the slats.

Like before, grab a test piece to fine-tune the position of the rip fence. I also found it necessary to lower the blade slightly to prevent scoring the opposite side of the cutout, as in Figure 2.

A CHAMFER ON THE END. The final detail step is cutting a chamfer on the lower corners of all the slats, as you can see in Figure 3. By now, you have a pretty good idea of how this cut is made.

BEVEL & TAPER. The basic slats are complete. Now, cut the corner slats to final size. This involves cutting a taper along the length and mitering the edge of the corner slats — a compound-angle cut. To do this, use a sled to hold the slat at the correct angle (Figure 4). You can find details at *woodsmith.com/magazine/sip*.

FINAL ASSEMBLY. Bringing all these parts together is the payoff for the careful work you've been doing. I flipped the upper frame upside down on my bench and marked centerlines on the length.

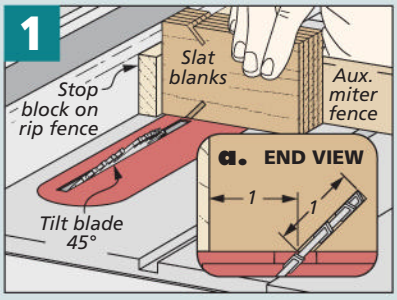
From there, I glued the mating corner slats together (Figure 5). Be sure to use a waterproof glue. Once the miter joint is dry, you can glue the corner pieces in place (Figure 6). Avoid waiting for glue to dry by pinning the slats in the grooves.

The lower frame is added next. What's important here is that the frame rests level across the bottom, as in Figure 7.

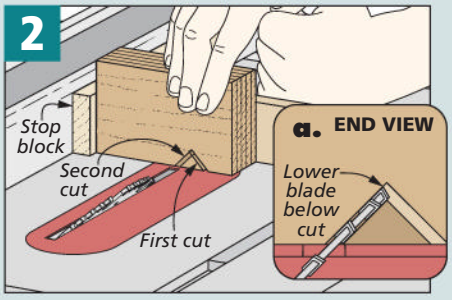
The goal with the remaining slats is to space them evenly between the corners. I marked a centerline on two slats and aligned them with the marks on the frame (Figure 8). Set the slats into the groove (without glue) and tweak the side-to-side location to get even gaps (about ⅛"). Then glue the slats in place one at a time.

There are several ways to attach the planter box to a house. At *woodsmith.com/magazine/sip*, you can see one solution that uses a hanging bracket and beveled cleat. Even though cedar is weather-resistant, I primed and painted the planter (refer to Sources on page 98). Then it's a matter of dropping in the liner and picking the flowers to put inside.

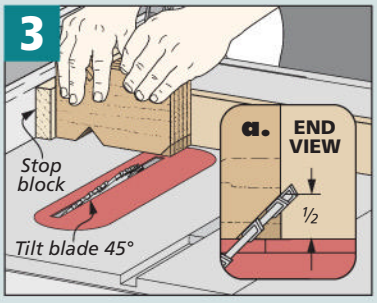
Shape & Install Slats



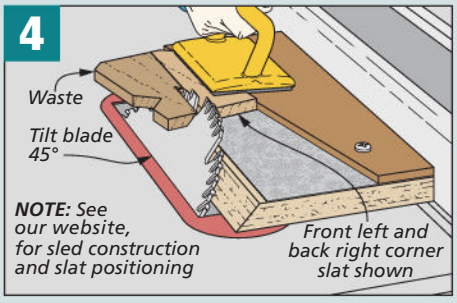
A Decorative Notch. You can speed up the shaping process by cutting several slats at one time.



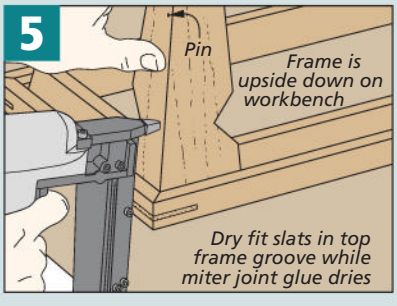
Second Cut. Reposition the stop block and lower the blade to cut a crisp point on the inside of the notch.



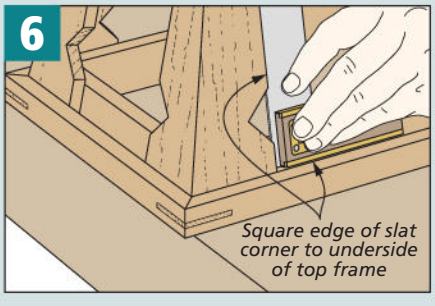
Chamfer. The setup for cutting the chamfer on the lower end is similar to creating the notch.



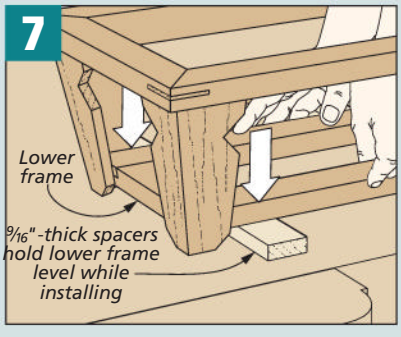
Slat Sled. To accurately cut the beveled taper on the corner slats, I used a simple jig to register the parts.



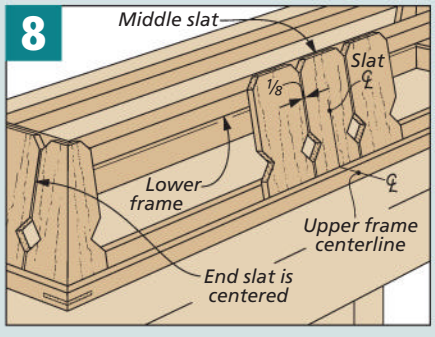
Nail Glued Corners. Drive 23-gauge pins to act as clamps for holding the miter joint tight as the glue dries.



Start at the Corner. Use a try square to make sure the corner slat assemblies are aligned during the glueup.



Add the Lower Frame. Insert the lower frame through the upper frame and glue it to the corner slats.



From the Center. Center the middle slat between the corners. Then space the remaining slats equally in between.

Beverage Stand

The sleek design of this beverage stand goes hand-in-hand with its single-minded purpose.

In issue 240 of Woodsmith, we featured the campaign chair shown here as a project. Once the chair was designed and built, we realized that it was missing just one thing — a convenient place to set a drink. So we came up with this simple beverage stand. It's just the right size for a cup of coffee (or another beverage of your choice).

While we designed the stand to complement the campaign chair, the style is basic enough to match several different decors. So even if you aren't planning to build the campaign chair, you may want to consider adding this stand to your favorite lounging spot.

Chair Pair. The beverage stand was designed to complement our campaign chair. You can find plans for the chair at *WoodsmithPlans.com*.

GO 2 Online Extras

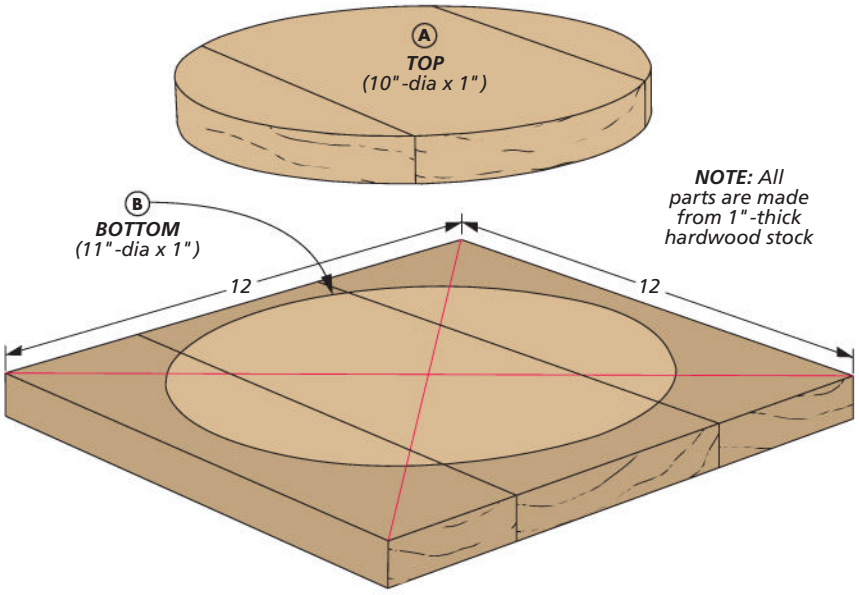
For more on the circle jig, visit out website:
Woodsmith.com/ magazine/sip

Making the **Blanks**

The beverage stand consists of only three major parts — a base, a top, and a column. I chose to start with the base and top. There's not much to these. Each one is simply a circle that's cut out of 1"-thick stock.

To make the base and top, I started by gluing up a blank for each one. Even though the finished top is 1" smaller in diameter in size than the base, I found it easier just to make two identically sized blanks. (I made my blanks 12" x 12".)

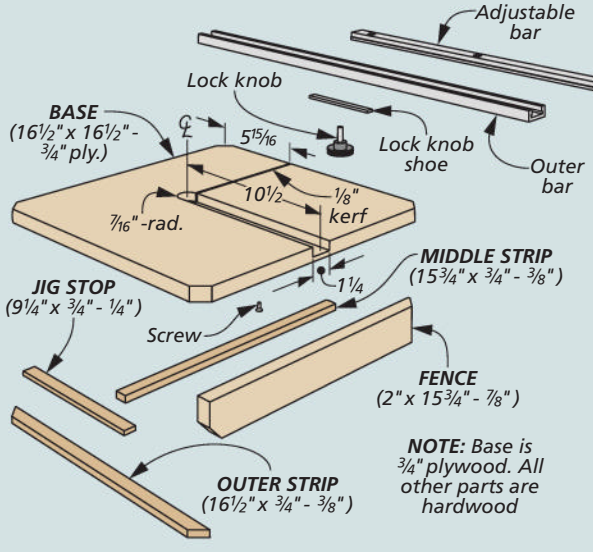
After the glue is dry and the clamps are removed, the next step is to lay out the round profiles of the top and base. To do this, I simply drew a pair of diagonal lines from corner to corner of the blank to locate the centerpoint. Then I used a compass to draw the two circles.

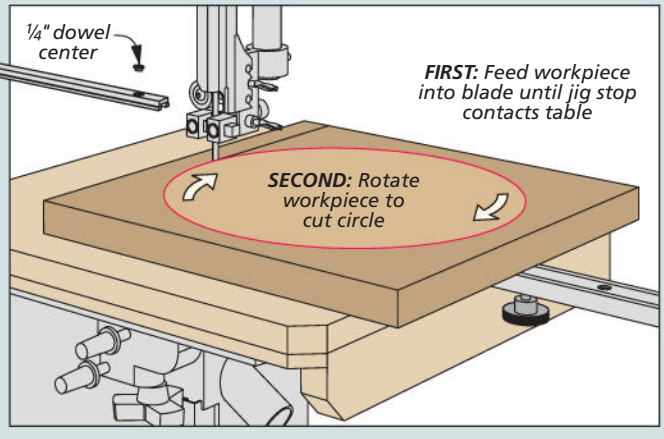


CIRCLE CUTTING. Cutting out the circles can be done using a jig saw or a band saw. I opted to use the band saw, along with the circle-cutting jig that you see in the box below. The jig simply fits over the table of your band saw. An adjustable bar with a dowel center serves as a pivot point as you cut the circle.

No matter which method you use to cut the circles, you'll likely have to spend at least a little time sanding the edges smooth. You can do this by hand, but if you have a disc sander at your disposal, it will make the job go much faster. The goal is to end up with two smooth, perfectly round blanks.

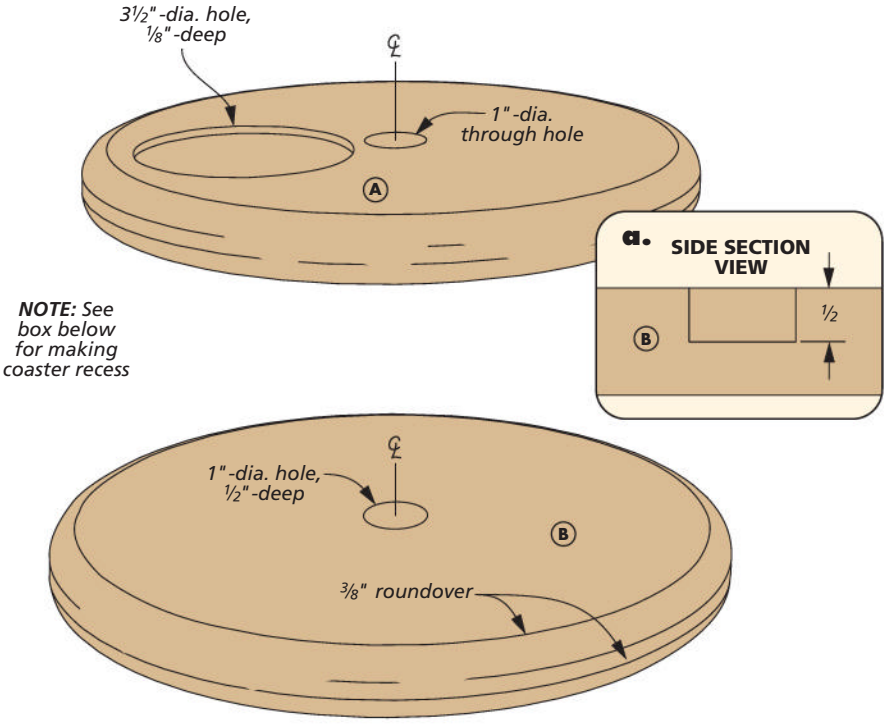
Band Saw Circle-Cutting Jig





Circle-Cutting Jig. To use the jig, position the adjustable bar so the distance between the blade and the dowel center equals the radius of the circle you wish to cut. Then push the jig and blank into the blade and slowly turn the blank to cut the circle.

Coaster Material. Cork (top) or leather hide (bottom) are both suitable materials for the built-in coaster of the stand.



Complete the **Table**

With the blanks for the top and base sized and cut to shape, you just have a little more work to do to complete them. Then the last part to make will be the column.

CENTERED HOLES. The first step in completing the top and base is to drill a centered hole in each piece. You can see these in the main illustration above, and they serve as mortises for the tenons you'll turn on the ends of the column.

Both of the holes are 1" in diameter. The hole in the base is ½" deep. But the hole in the top goes all the way through the thickness of the workpiece, to accommodate a wedged tenon. You can use the centerpoint left behind by the dowel center of the circle-cutting jig to locate the holes on the blanks.

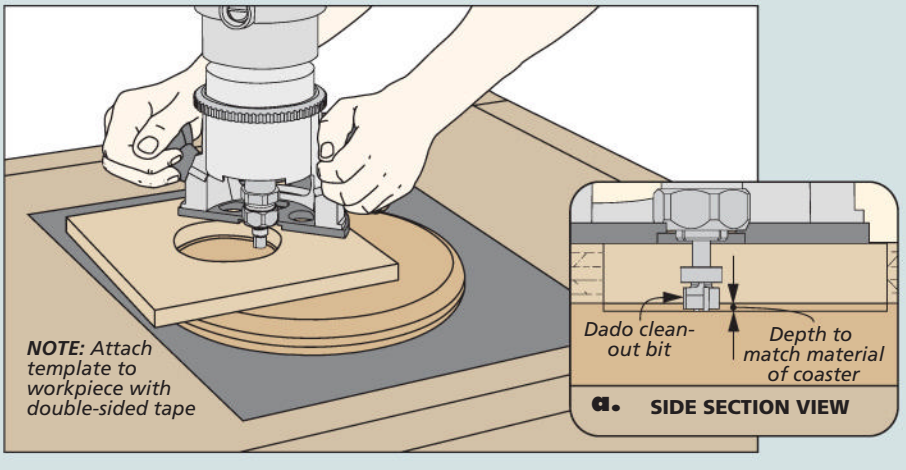
To soften the edges of the base and top, I routed a roundover on both edges of each piece. Once this is done, you can set the base aside for now. But there's still one more step left to complete the top of the stand.

COASTER RECESS. The top features a built-in coaster, so you never have to worry about your drink leaving a white ring in the finish. I used cork for the coaster material (upper photo). But you could also use a scrap piece of the leather or hide that you used to make your campaign chair.

Create the Coaster Recess

Rout the Recess. A router and template are used to create the recess for the coaster. Using a wing cutter, I cut a large hole in a piece of ¾" MDF for the template. It's attached to the workpiece with double-sided tape. The bearing on the router bit rides against the edge of the opening in the template.

The exact position of the recess isn't critical. I positioned mine so it was roughly centered between the edge of the top and the center hole.



The coaster material is let into a recess in the top of the stand. I made this recess using a router and a dado-cleanout bit. A simple template can be used to guide the bit, as shown in the box on the previous page.

The coaster recess completes the top, but hold off on gluing the coaster material in place until after you've applied a finish to the entire project.

TURNING THE COLUMN

With the base and top complete, you can "turn" your attention to making the column. This starts out as a 2"-square turning blank, cut slightly oversize in length. After laying out the centerpoints on each end, you can mount the blank in your lathe.

To shape the column, I started by turning the square blank round, using a roughing gouge. Then I turned a tenon at each end to fit the mortises drilled in the top and base.

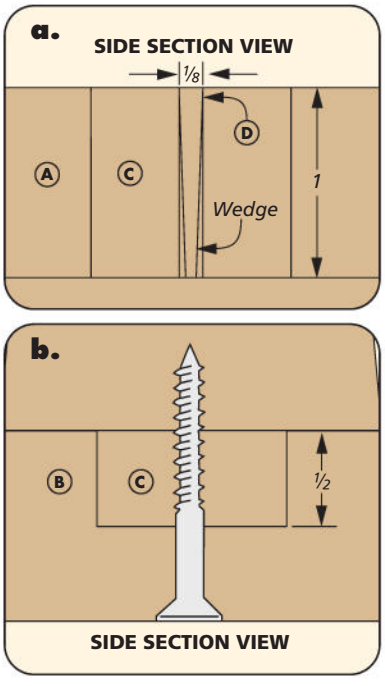
The column tapers in toward the center from both ends in a gentle curve. The box below shows how I created this profile.

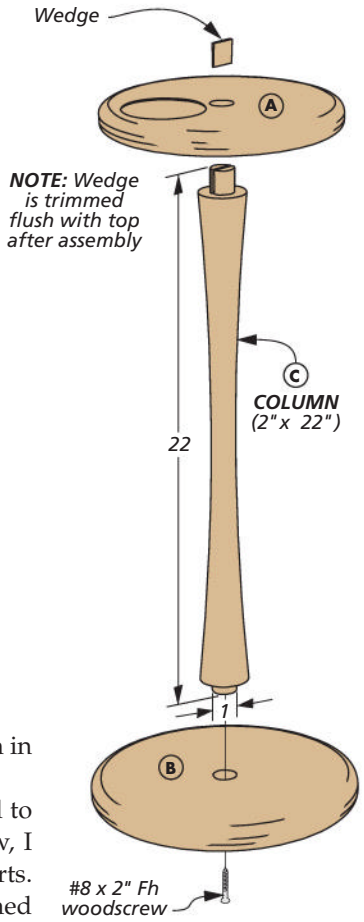
Before assembling the stand, I cut a kerf in the top tenon of the column. This will hold a wedge after the top is glued in place.

ASSEMBLY. To assemble the stand, the column is glued into the base. A countersunk pilot hole for a woodscrew is drilled through the center of the base and into the column, as shown in detail 'b' above.

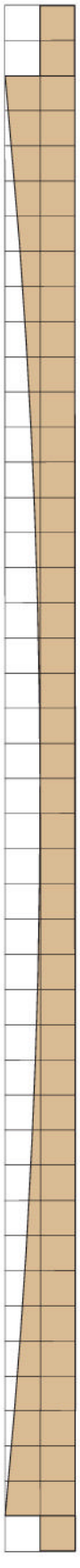
The top of the stand is also glued to the column, but instead of a screw, I used a thin wedge to secure the parts. The wedge is extra long and trimmed flush after it's in place in the kerf (detail 'a').

After staining and finishing the stand, you can add the coaster material of your choice. Then your project is ready to take its place next to your favorite chair.





Half-Pattern (½" squares)



MATERIALS & SUPPLIES

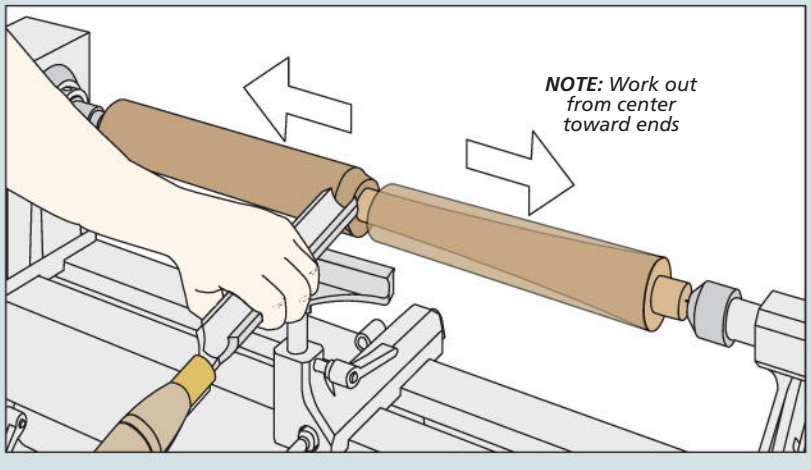
A	Top (1)	1 x 10-dia.
B	Base (1)	1 x 11-dia.
C	Column (1)	2-dia. x 22

- (1) Adhesive-Backed Cork
- (1) #8 x 2 Fh Woodscrew

Shape the Column

Turn the Column to Shape. To create the curved profile of the column, start by cutting a ½"-deep groove at the middle. This will serve as a guide so you know how deep to cut.

Then using a gouge, remove the bulk of the waste, working from the center out toward the ends. Once most of the waste is gone, switch to a round-nose scraper to refine the profile. Some sanding will remove any tool marks and blend out the curves.



Laminated End Table

Here's a refreshing break from a traditional project. This end table has you sculpting wood in a way that's more like pottery than woodworking.

The end table you see above was inspired by the work of Wendell Castle. To many he was known as the father of the art furniture movement. At the core of most all of his projects are layers of wood strategically laminated and shaped into organic, fluid pieces.

This end table is not quite that ambitious. But the base has the same laminated DNA as it's fancier siblings, so making those layers is where you'll start.

1"-thick walnut sized from 5/4 boards make up the 23 layers of the body of the end table base. You'll need eight templates to shape the layers of the base. The full-size patterns are online at *Woodsmith.com/magazine/sip*.

MASTER TEMPLATE. To make the whole base uniform in shape, you want the outer profile of each layer of the lamination to match perfectly. To ensure that outcome, you'll make the largest template first, then use it as a reference to make the others.

After you print out all the patterns, focus on the master template. The box at the bottom of the next page shows the first step of making the template (Figure 1). A belt or disc sander brings the template to its final shape. After making the other templates, you can start to work on shaping the blanks for each layer.

WIDE WALNUT. I started with boards that are the full width of the templates. The reasoning here is to avoid having joint lines in any of the layers. It's a subtle thing, but the vertical lines from a glued-up board can be surprisingly distracting. Finding boards this wide

means you're going to have some sap wood showing in the base. I'm okay with that. As you see in the main photo on the previous page it adds nice contrast and visual interest to the project.

LAYING OUT THE PARTS. Use the templates and a standard sized permanent marker to trace the shapes on the boards. Be mindful of grain direction as you go along. To go easy on your budget, fill in the boards with the smaller pieces between the larger ones where you can. There are a lot of parts involved in the making of the base, so it's wise to label and number each part along the way.

ROUGHING OUT. Before moving to the band saw, I cut each part free with a jig saw. Then, cut out each piece to the outer edge of the marker line (Figure 2, below). Now it's time to head to the router table to make the final shapes.

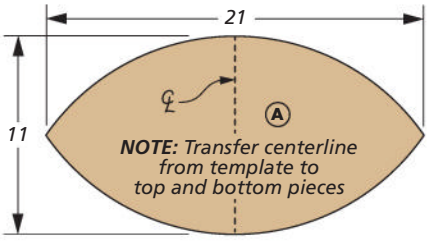
Double-sided tape holds the template to the blanks. To make a really smooth edge, I used a three-fluted ½" by 1½" flush-trim bit in the router table to shape the parts (Figure 3 below). Repeat the process for all the parts.

GLUE UP SEQUENCE.

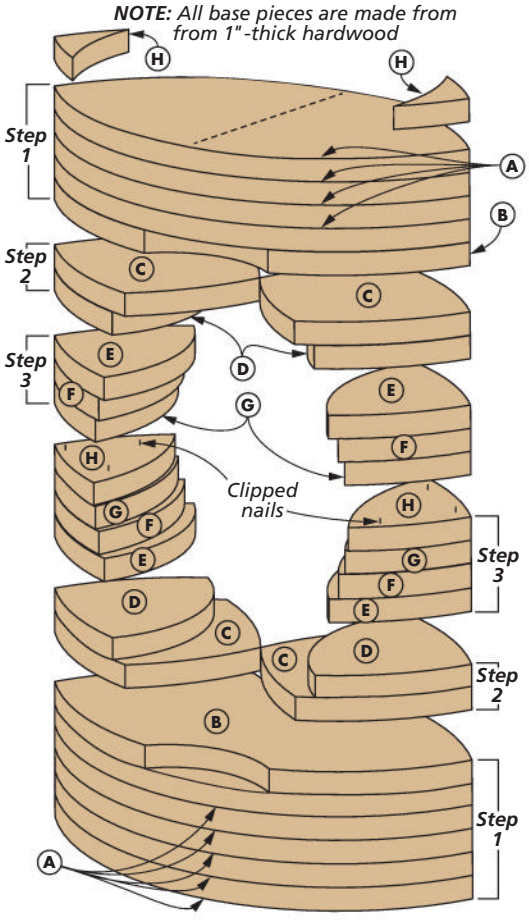
The drawing to the right shows how to bring the base together. First the two halves are assembled in three steps. Step one is the solid pieces at the top and bottom of the base. Apply glue around the perimeter of each piece and pin nail them one at a time with 18# 1½" pin nails. Then clamp up the section.

Now add to each of those sections the pieces bracketed in step two. Then repeat the process with the pieces in step three.

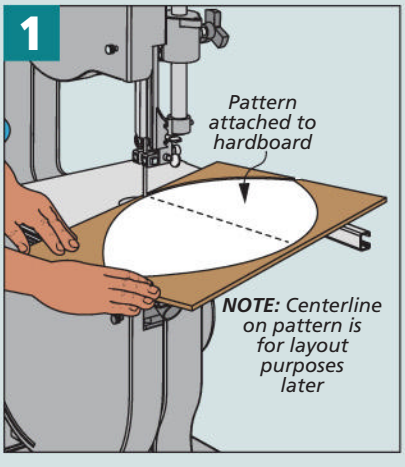
When each half is complete, you're ready to bring them together. One trick I've learned to help prevent headaches during a large glueup like this is to use a clipped pin nail or brad in one of the halves. This prevents them from shifting apart while you're clamping them together. Once the clamps come off, you're ready to do some carving.



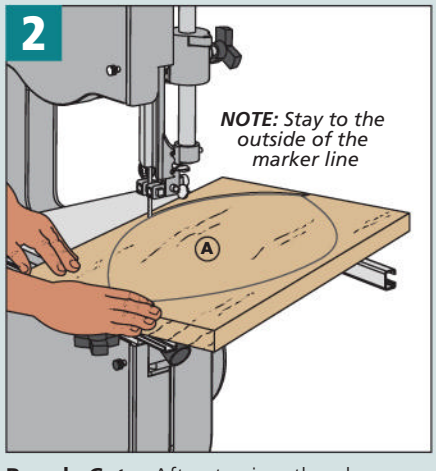
NOTE: All of the templates used to make the end table derive from the shape you see above



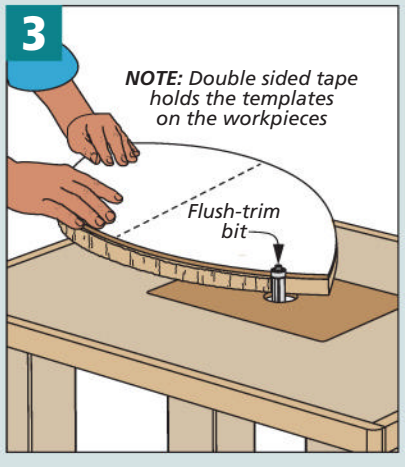
Making the Template & Base Layers



Master Template. The master template is roughed out at the band saw. Then the edges are sanded smooth.



Rough Cuts. After tracing the shape on the blank, cut it out at the band saw, staying on the waste side of the line.



The Finished Shape. Attach the template to the blank and make the final shape at the router table.

Carving. The shaping of the base starts by knocking down the edges of each layer. As you see above, work from the outside in on each quadrant of the opening. Rotate and flip the base as you go.

Smoothing. A sanding drum with an aggressive grade of paper (80 grit) attached to a large drill works well. When the ribs of the layered boards are removed, all that's left is some hand sanding.

A power carving disc works best in the begining

GO 2 Online Extras

For cutting diagram for this end table, go to:

Woodsmith.com/magazine/sip

Shaping the **Base**

After packing away the clamps and cleaning up the mess of putting the base together, you're ready to make a brand-new mess. This mess starts with sanding the exterior of the base smooth. If your glue-up went well this should be a breeze.

To prevent flat spots, sand in the direction of the arc of the base from side to side. For best results, sand with a progression of grits from 100 to 220.

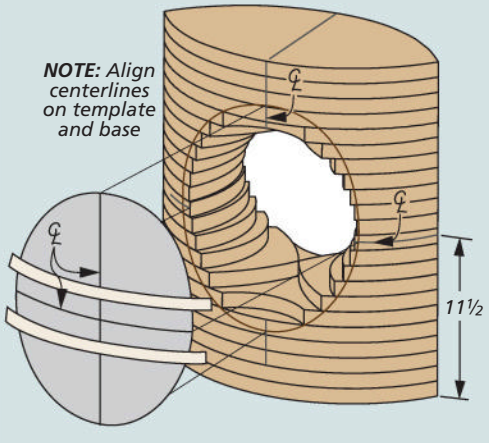
After vacuuming the surface clean, it's time to draw centerlines in both directions on the sides of the base, as shown in the box below. To locate the horizontal centerline, just measure up from the bottom. The vertical centerline is established by the marks you transfer from the master template. That will guarantee the ovals on either side of the base line up.

THREE TEMPLATES. It takes three templates to hone the look of the base (two of them are shown in the box to the left). The large outer template defines the edge of the oval that is centered on the surface of the base. The narrow curve template shown in the upper right drawing is used at the top of the base. To stiffen the templates, I used spray adhesive and attached them to poster board, then cut them to their final shape. Use a fine-point brown marker to trace the outlines on to the base.

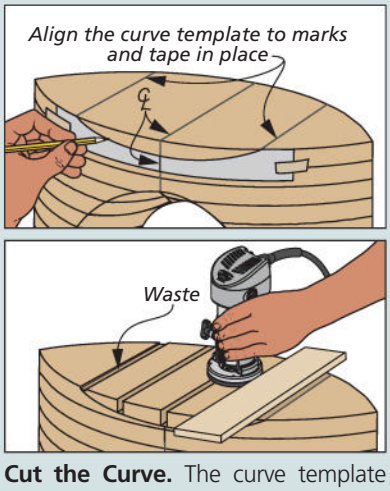
IT'S A GRIND. The photo above left shows how the shaping process starts. Use a grinder to create the rough shape from inside out one quadrant at a time.

Now is where the third template comes into play (see, I didn't forget it).

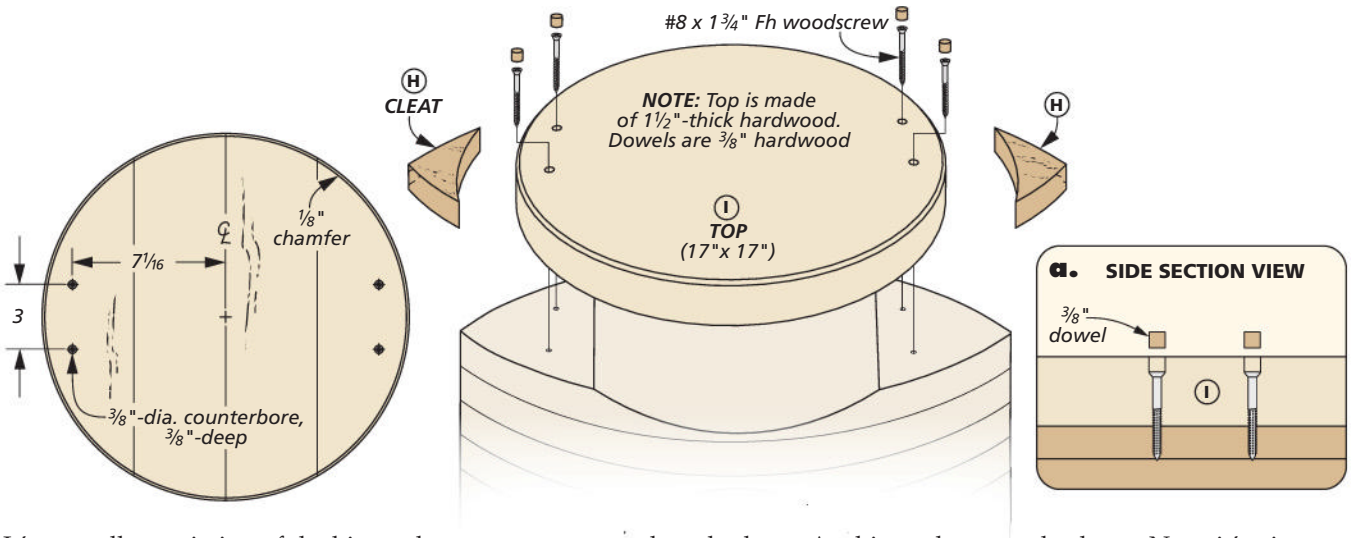
Shaping with Templates



Attach the Oval. Tape holds the large oval template in place while you trace its profile onto the faces of the end table base.



Cut the Curve. The curve template is taped to the top of the base. Use your router and a straight bit to make grooves for carving depth guides.



It's a smaller variation of the big oval. You'll want to glue it to a piece of ½" plywood that has finger holes. You use it as a loose guide to shape the small opening in the center of the base. This step is firmly in the camp of artistic license.

After the grinding is done, use the sanding drum as the photo on the right shows. Then hand sand the interior the same way you did the outer surface.

CREATE THE CURVE. Creating the curve for the top is shown in the two smaller drawings on the previous page. The grooves you make in the bottom drawing are the landmarks that roughly guide the grinding depth. Then use the sanding drum and the sandpaper process to complete the base. At this point, it's time to make the top for the end table.

THE TOP

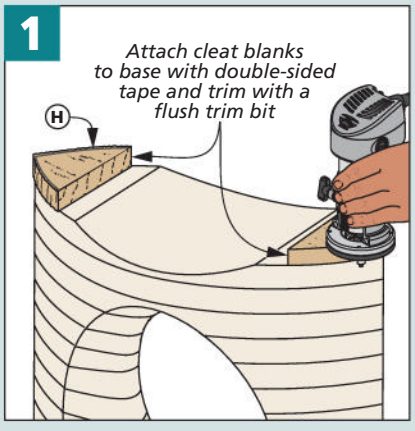
To make the top, start by gluing up four 8/4 boards. Use a router trammel and straight bit on half of the circle shape. Then finish with a pattern bit that follows the work done by the trammel. Ease the top edge and drill the counterbored shank holes you see in detail 'a' above. Now you're ready to fit and shape the cleats.

CLEATS. The cleats that nestle up to the top are a custom fit. The box below walks you through the steps. When the cleats are shaped, glue them in place on the base. Next it's time to attach the top to the base. First, set the top in place between the cleats and drill pilot holes in the base. But don't attach the top quite yet.

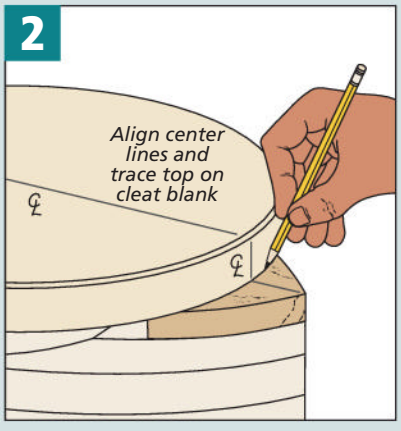
FINISHING PROCESS. It would be difficult to apply finish in the narrow gap between the base and the top if they were attached. To avoid all that frustration, I applied oil (*Seal-a-Cell*) to the base and the underside of the top. When that was dry, I sprayed both parts with two coats of lacquer.

Now it's time to screw the top to the base and glue walnut plugs in place. After sanding them smooth, oil and lacquer the top. There you have it — an end table with an artistic soul.

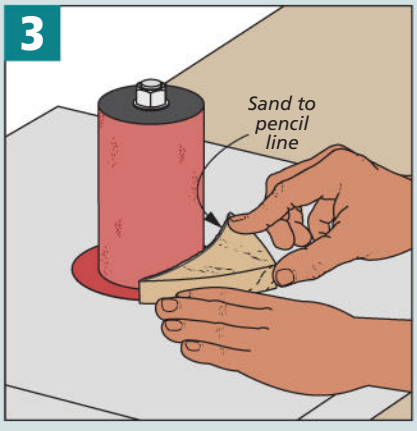
Fitting the Cleats



Outer Edges First. Attaching the cleats temporarily to the top allows you to rout their edges to match it exactly.



Inside Edge. First, set the top in place on the cleats. Then use a sharp pencil to trace the top's shape.



Inside Shape. A drum sander quickly shapes the inside edges of the cleats. Then glue the cleats to the base.

Craftsman Mirror

Arts & Crafts Details. First, faux tenon plugs add interest to the sides of the mirror. Then there's positive and negative space interplay created by the middle stiles. Finally, the cap adds the crowning Craftsman touch to the mirror.

Mirror, mirror, on the wall ... There is a certain magic to mirrors. That magic comes from the alchemy that appears to happen when you apply silvering to the back of a piece of glass — this simple act transforms the glass, giving it the magical power we call a reflection.

This reflection adds light and depth to the environment it resides in. Rooms seem to expand when a mirror is added, hinting at something beyond, creating an illusion of openness. Of course, a mirror also helps in the more mundane activities of life: straightening your tie, fixing your hair, or making a final check for little green bits left from lunch hiding in your teeth.

The mirror you see in the photos on this page is graced with a Craftsman-inspired frame. The design pays homage to a bed frame that was in issue 235 of *Woodsmith*. You can find that plan, and plans for a nightstand and dresser as well, that form a wonderful Craftsman suite of bedroom furniture at *WoodsmithPlans.com*.

Stiles & Rails

Mirrors of the size we are using here are heavy, so it's important to have a frame that can carry the load. That's not going to be a problem though, as you see in the drawings to the right. In keeping with the Craftsman spirit, the stiles and rails used for this mirror are generously proportioned. As are the tenons on the three rails that join them to the stiles.

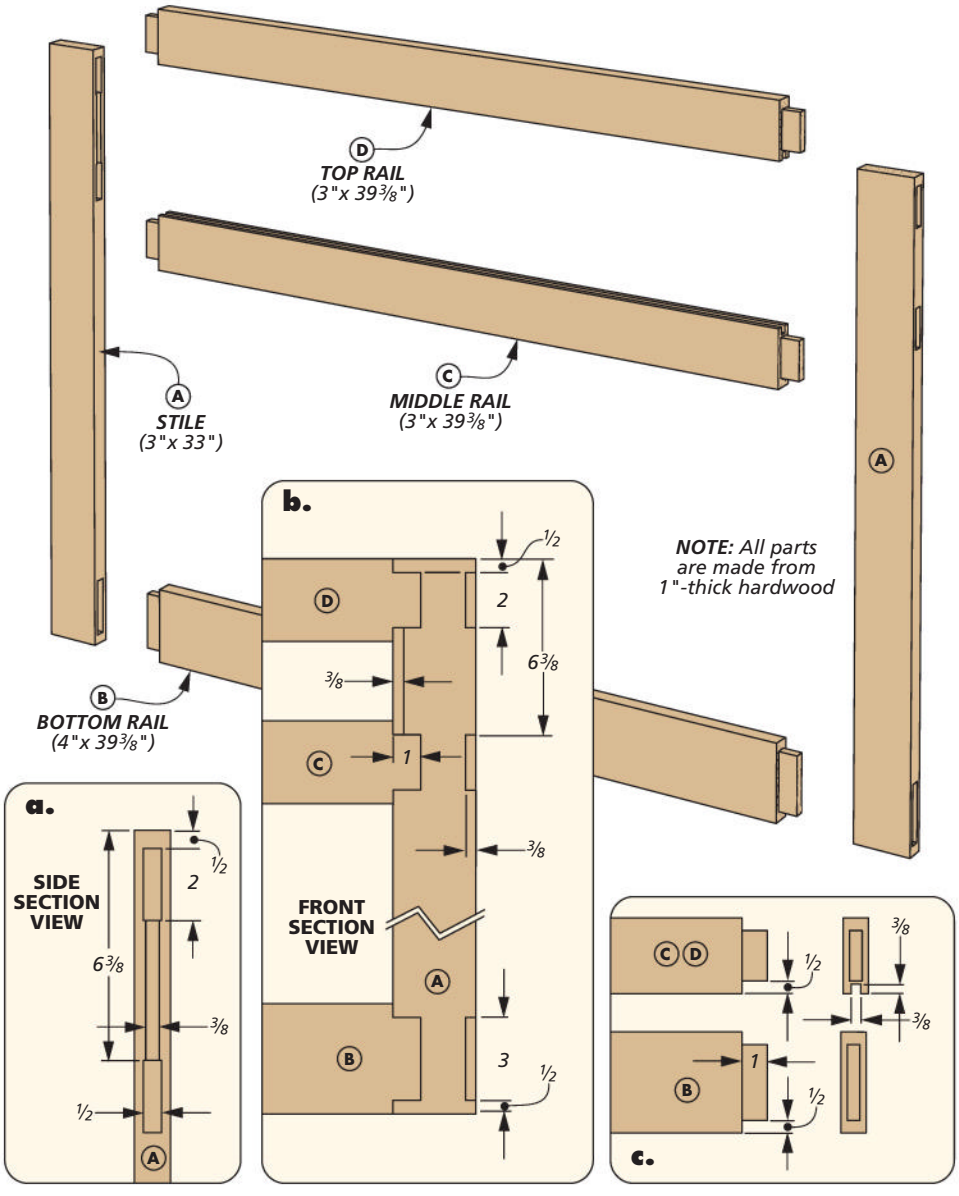
To get started, cut the workpieces to their final size. Then you can set aside the rails and focus on the stiles.

MORTISES IN THE STILES. There are two sizes of mortises you need to make in the stiles. The longer mortise is for the bottom rail tenons on the inside of the mirror, and the tenon plugs on the outer edges of the stiles. The shorter mortises are for the middle and top rails, all of these are shown in detail 'b.' The box below shows the steps needed to make the mortises on the inside, as well as the outside edges of the stiles.

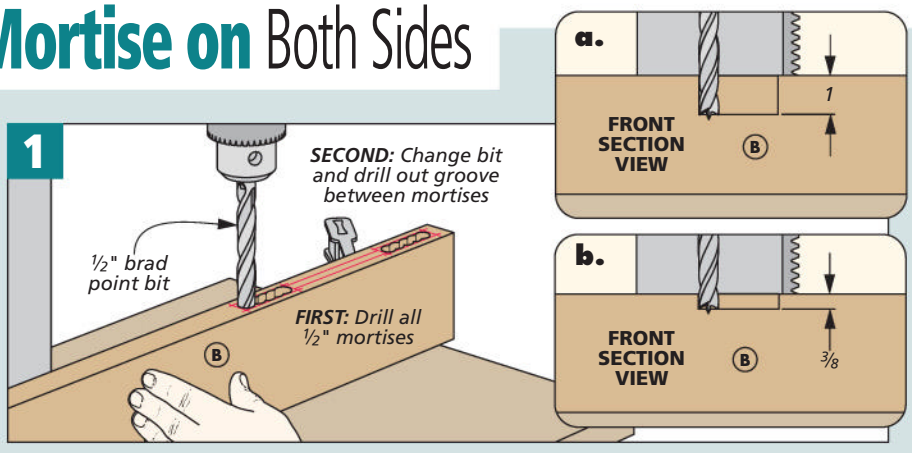
Detail 'a' shows a groove between the two upper mortises. This groove holds a filler piece that you'll make later. I used a smaller brad point bit and made those grooves at the drill press.

TENONS ON THE RAILS. The tenons on the rails are made at the table saw. Using the rip fence as a stop, and the miter gauge to guide and support the rails, I cut all the cheeks first. Then I stood the rails on their edges to make the shoulders (detail 'c').

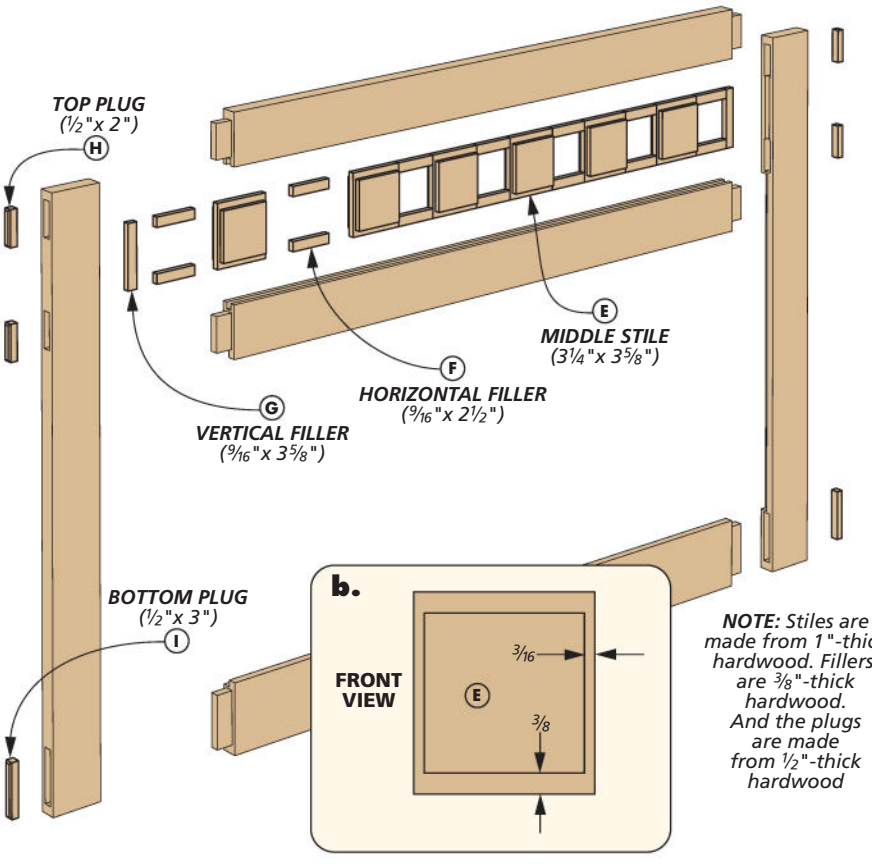
All that's left here is making the grooves in the middle and top rails (detail 'c'). Now you're over halfway home on this project. On the next page, you'll find the directions for making the rest of the parts of the mirror frame.

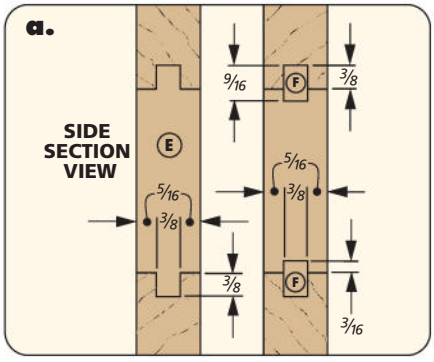


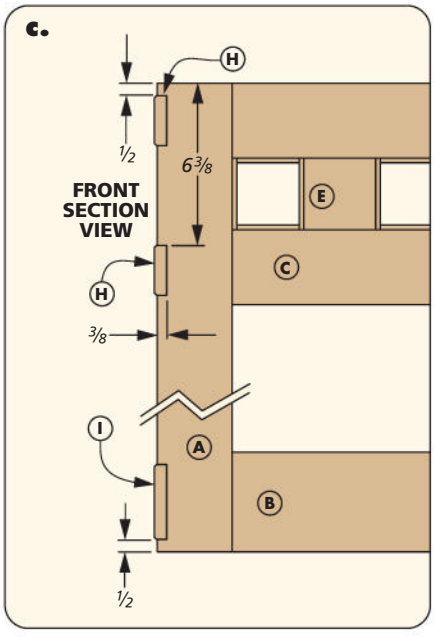
Mortise on Both Sides



A Two-Tiered Mortise. Start out with the larger, deeper mortises for the rails (detail 'a'). Use this bit for the tenon plug mortises as well (detail 'b').Then you can change out the bit and make the groove between the two rail mortises.



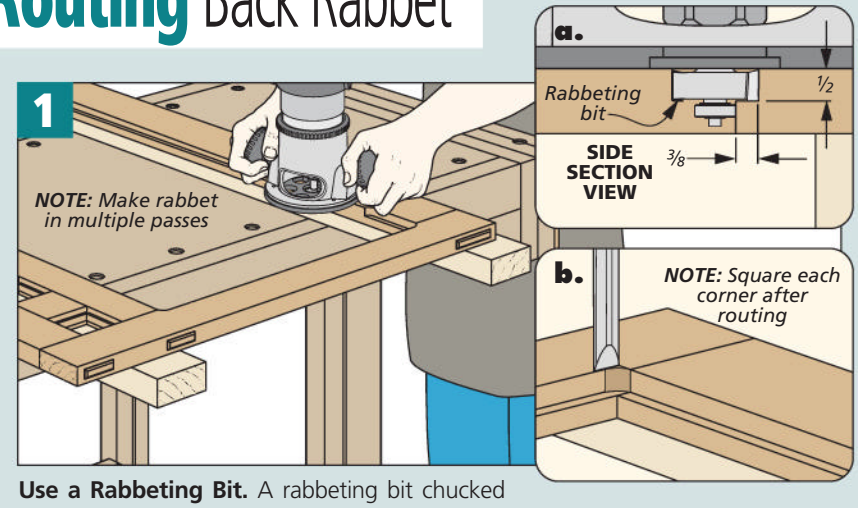




Decorative **Details**

You've got a few more pieces to make before you can glue up the mirror frame. As you see in the drawing above, there are six middle stiles. Technically, these are the only pieces you need to glue up the frame. But, I used filler pieces to help space the stiles evenly across the length of the mirror. The tenon plugs and the cap for the top of the mirror are decorative elements that can wait until later.

Routing Back Rabbet



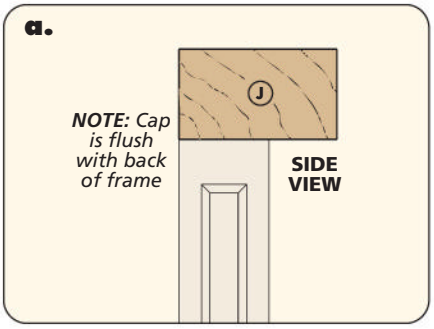
Use a Rabbeting Bit. A rabbeting bit chucked into your router is the best way to make the rabbet in the back of the frame that holds the mirror and hardboard back. Square the corners with a chisel afterward.

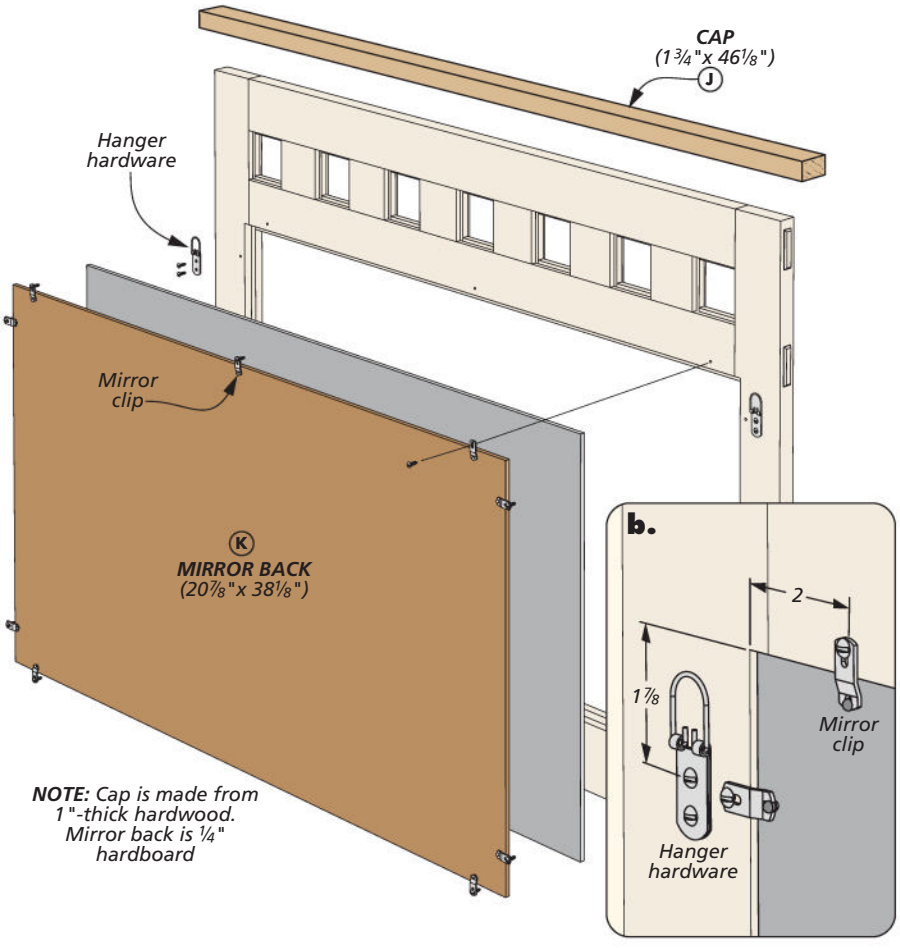
START WITH STILES. The easiest way to make the stiles is to start with a blank that's longer than the total length of the six stiles. Using your table saw with a dado blade buried in an auxiliary fence, cut the narrow tongues on the long edges (detail 'b'). Then, cut each of the middle stiles out of the blank.

Making the tongues that go in the groove of the rails is just a matter of switching back to the setup you used for the tongues, this tongue is a little wider than the first one you made.

FILLERS. The filler strips do the double-duty of spacing the stiles in the frame and adding a nice shadow line accent across the top of the frame. I milled the fillers in long strips, but held off on cutting them to length until the next step — the dry run.

DRY RUN. Doing a dry run before going live with glue has always paid off in my book. In this instance there's an added benefit of getting to space the stiles,





and cut the fillers to an exact fit. Then a light pencil mark keeps track of all the part locations during a glueup. Still, I use slow set glue when this many parts are involved.

RABBET. To accommodate the mirror and the hardboard back, you'll need to add a rabbet to the backside of the mirror. The box at the bottom of the previous page shows you how.

DECORATIVE DETAILS

There are just a few things left to do on the mirror. Let's start with the cap. The cap that's glued on the top of the frame adds to the Craftsman look. It's centered on the length of the mirror and flush with the back (detail 'a').

TENON PLUGS. As you see in detail 'c' on the previous page, the tenon plugs come in two sizes to match the rails that they're associated with.

I started with long blanks that are the width and length of the mortises in the stiles. Next, chamfer both ends with a chamfer bit at the router table. Then cut them to fit at the table saw. Repeat this process until you have all the plugs you need.

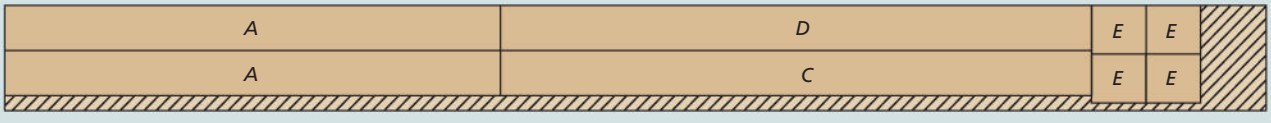
The mirror clips you see in detail 'b' above hold the hardboard back in the frame and the mirror itself in place. The hanger hardware will need screws in studs with broad heads to secure the mirror on your wall.

After the stain is dry, two coats of lacquer will be a good reflection on your woodworking skills. Sorry, I couldn't resist. This mirror is an instant classic in whatever setting it resides.

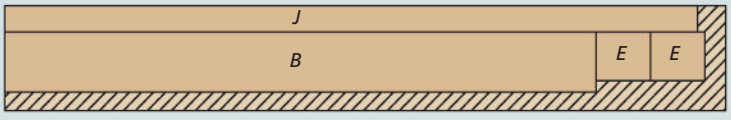
MATERIALS, SUPPLIES & CUTTING DIAGRAM

A	Stiles (2)	1 x 3 - 33	F	Horizontal Fillers (14)	⅜ x 9/16 - 2½	K	Mirror Back (1) ¼ hdbd. x 20⅞ - 38⅛
B	Bottom Rail (1)	1 x 4 - 39⅜	G	Vertical Fillers (2)	⅜ x 9/16 - 3⅝		
C	Middle Rail (1)	1 x 3 - 39⅜	H	Top Tenon Plugs (4)	½ x ½ - 2	•	(1) ¼ x 20⅞ - 38⅛ Mirror
D	Top Rail (1)	1 x 3 - 39⅜	I	Bottom Tenon Plugs (2)	½ x ½ - 3	•	(1) Mirror Hanging Hardware
E	Middle Stiles (6)	1 x 3¼ - 3⅝	J	Cap (1)	1 x 1¾ - 46⅛	•	(10) Mirror Clips

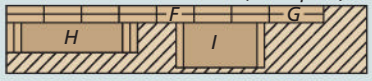
1"x 7"- 84" White Oak (5.1 Bd. Ft.)



1"x 7"- 48" White Oak (2.9 Bd. Ft.)



½"x 4½"- 24" White Oak (0.8 Sq. Ft.)



***ALSO NEEDED:** One 24"x 48" Sheet of ¼" Hardboard*

Shadow Boxes

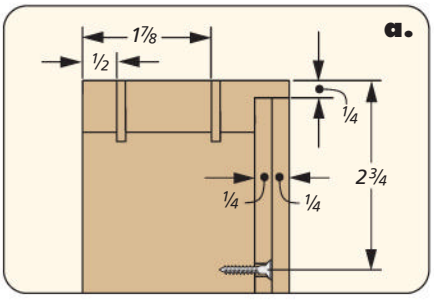
Featuring custom frames and a decorative painted finish, these attractive boxes are a great way to showcase your prized collections.

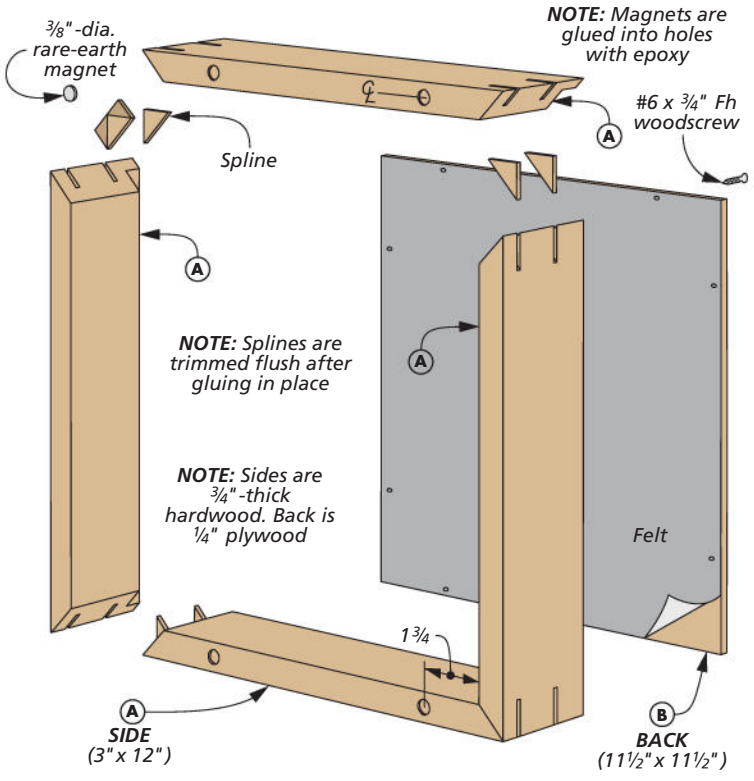
There's something about the three-dimensional aspect of shadow boxes that I've always found appealing. Unlike a painting or a print, the curated items in a shadow box have sense of depth and dimension that somehow evokes the feeling of looking at artifacts behind the glass of a museum case.

However, the shadow boxes shown here are likely to attract as much attention as the items they display. Each one features a unique, attractive frame made from built-up moldings. The frames are easily removed from the shadow boxes without taking them off the wall, making it easy to change out your display whenever the mood strikes you. And to top it off, a crackled paint finish gives these shadow boxes a distinctive look.

Traditionally, shadow boxes were used by retired servicemen to store and display their medals, insignia, and regimental colors. Today, of course, shadow boxes are used to display all sorts of items. And because of this, each box in this trio is a different size. This gives you a little more versatility when it comes to choosing the right size for the items you wish to display. Or if you wish, it's a simple matter to alter the dimensions of the individual boxes to suit your needs.

Crackle Finish. A crackled paint finish gives the shadow boxes an antique appearance. Visit *Woodsmith.com/magazine/sip* for more.





Start with a Case

As I previously mentioned, there are three sizes of shadow boxes in this set. The basic construction is the same for all three. The only differences are the overall length and width and the profiles used on the frames for each box.

The drawings here (and throughout the article) show the smallest of the three shadow boxes. For the dimensions of the medium and large shadow boxes, refer to the drawings on page 49.

Each shadow box is comprised of two basic assemblies — a case that holds the items being displayed and a detachable frame that contains a piece of acrylic. I started by building the cases.

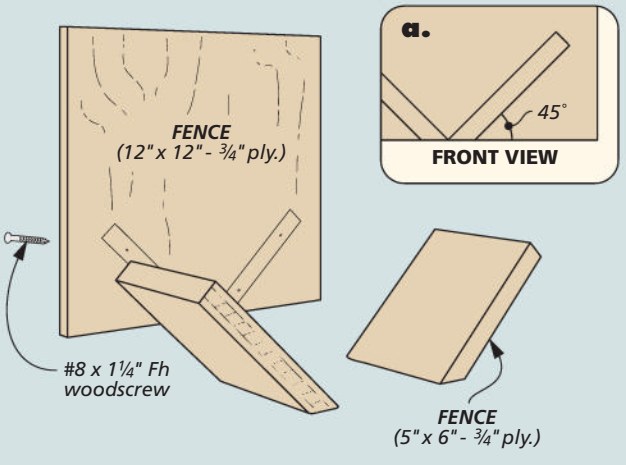
CASES. As you can see, the case is simply an open box with mitered corners. A plywood back is set into a rabbeted opening in the back of the case. The depth of the cases is the same for all three shadow boxes. So if you're making the set, start by ripping enough stock for all three cases to a finished width (that'd be 3").

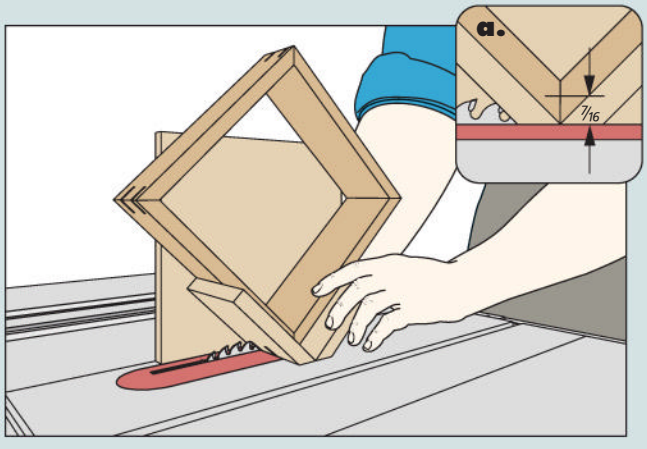
Next, using a dado blade, I cut a rabbet along one edge of all the parts for the cases. This rabbet will hold the back panel, and can be done now in one go. With this done, you can miter the individual case pieces to their finished lengths.

ASSEMBLY. I glued up the cases using band clamps. There's not much to this, but you want to make sure that the miters are tight, the corners are square, and there's no twist to the assembly.

SPLINES. Miter joints aren't typically known for their strength. So to help reinforce the miters, I decided to add some splines. To do this, I made a simple cradle jig to hold each case as I

Splined Miter Jig





Kerfs for Splines. To use the jig, set the table saw rip fence to locate the kerfs at the desired position on the case. The case rests in the cradle of the jig while making the cut.

cut kerfs through the corners for the splines. You can see the jig I used in the box at the bottom of the previous page.

Each corner of the case receives a pair of kerfs. The spacing for these kerfs is shown in detail 'a' on the previous page. After cutting the first kerf on all four corners of the case, I reset the rip fence to cut the second kerf.

SPLINES. The splines are made from ⅛"-thick stock. I cut the splines oversized to begin with and glued them into the kerfs. After the glue is dry, you can use a hand saw to trim them down, then finish by sanding them flush with the sides of the case.

BACK. The last part to make for each case is a back. The back panel is nothing more than a piece of ¼" plywood cut to fit in the rabbeted opening.

I applied a piece of felt to the inside face of the back panel with some spray contact adhesive. But you could use another material to line the back if you prefer, or even just paint it. The back is simply screwed in place, but hold off on installing it until after you've painted the case.

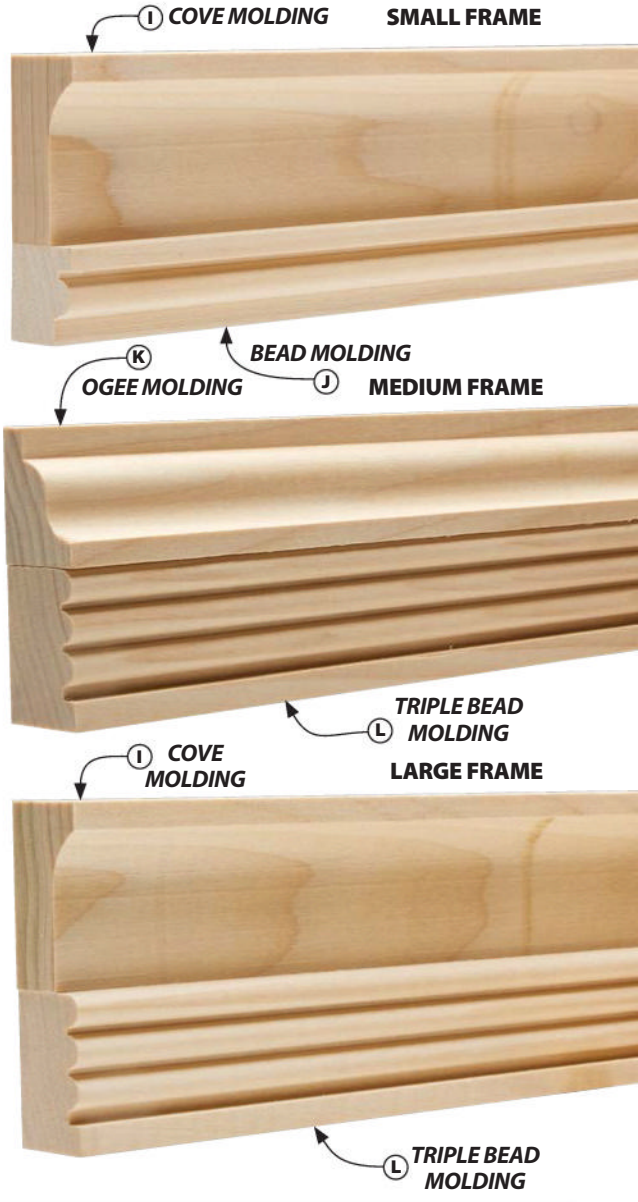
The last step before moving on to the frames of the shadow boxes is to drill shallow holes on the front edge of the case for some rare-earth magnets. The magnets are glued into place with epoxy, but I waited to glue them in until after I was done painting the entire project.

FRAMES

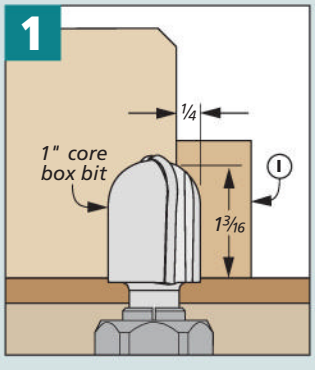
The frame stock for each shadow box is made by gluing up a pair of moldings. Even though all three frames are different, they're all made up from just four simple profiles used in different combinations. The photos at right show the profile combinations for each shadow box frame. And the drawings below show how the individual moldings are made at the router table.

In order to minimize tearout, I routed the deeper profiles in two passes, removing the bulk of the waste in the first pass. Then I increased the depth of cut slightly for the clean-up pass.

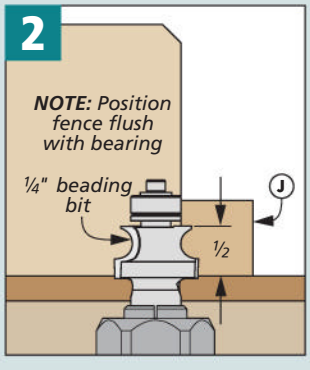
Make sure to create enough of each molding profile so that you'll have plenty of stock for all three frames (if you're building all of them, that is). Then glue the moldings together edge to edge to create the frame stock. There are a couple more steps before you can cut the individual frame pieces to length though.



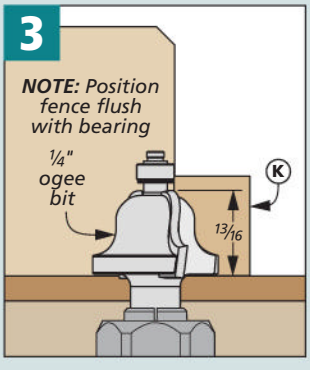
Frame Molding Profiles



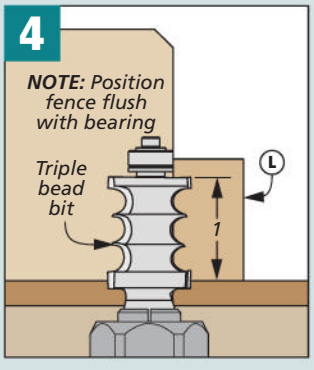
Cove. Rout the cove profile in multiple passes, raising the bit between each pass until reaching the final depth.



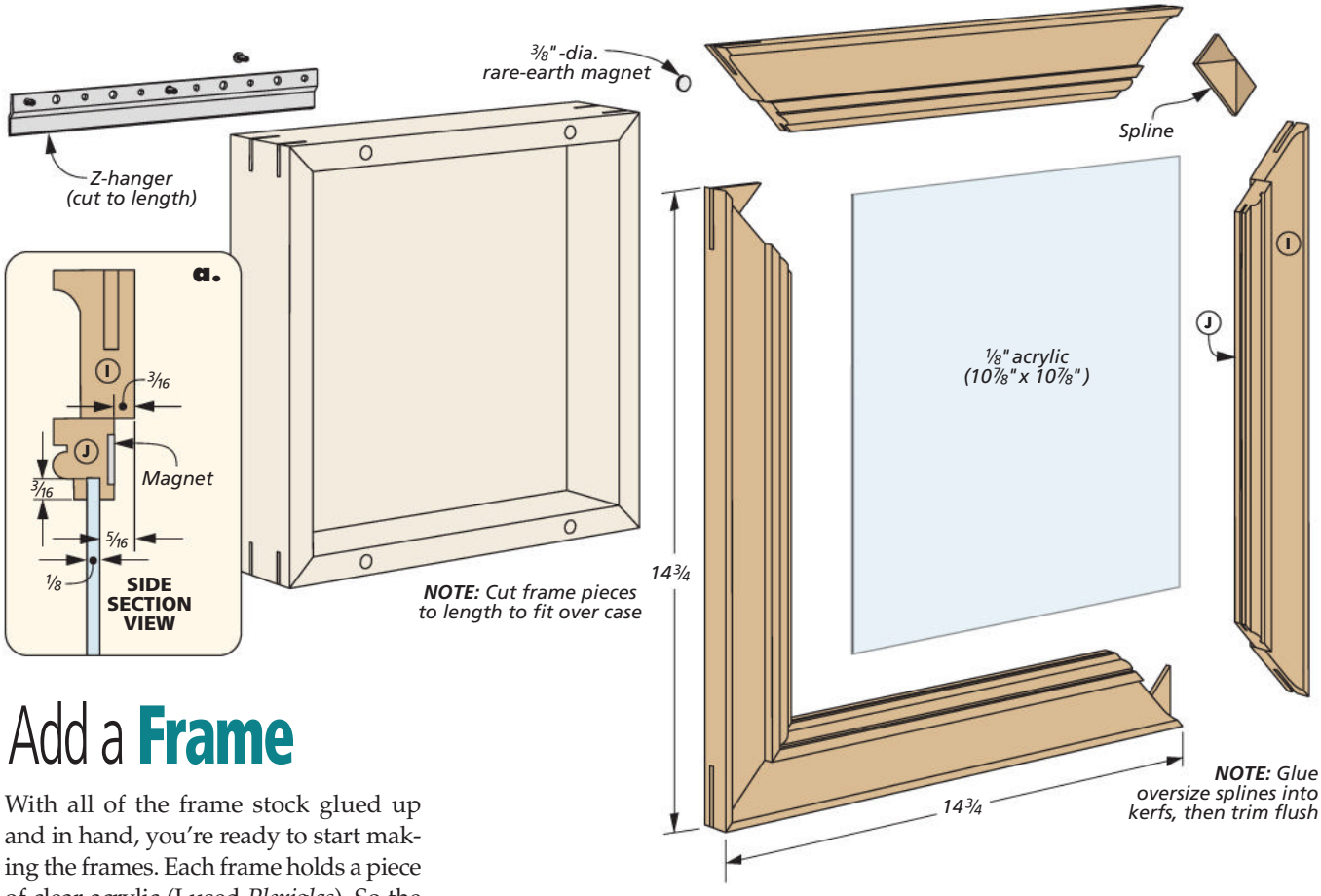
Single Bead. To rout the bead profile, set the router table fence flush with the bearing of the bit, the make the cut.



Ogee. The ogee profile is routed in two passes, raising the bit to the final height for the second pass.



Triple Bead. The triple bead profile is complex, but shallow enough that it can be routed in a single pass.



Add a **Frame**

With all of the frame stock glued up and in hand, you're ready to start making the frames. Each frame holds a piece of clear acrylic (I used *Plexiglas*). So the first order of business is to cut a kerf on the inside edge of the frame stock for the acrylic (detail 'a').

The inside face of the frames are also rabbeted to fit over the cases. (You can see this in the lower left photo.) Rather than trying to cut these rabbets after the frames are assembled, it's easier to cut them on the frame stock. That means the next step is to set up a dado blade in your table saw to cut a shallow rabbet in the back face of all the frame stock, as shown in detail 'a' above.

At this point, you can begin mitering the frame pieces to length. The rabbet on the back of the frame should fit loosely around the case. This will allow for a layer of paint or finish without making the fit too tight.

Once you have all the frame pieces cut to length, dry assemble the frame and measure for the acrylic panel. Once you have the acrylic cut to size, glue the frame up with it inside, using band clamps to hold the pieces together while the glue dries.

SPLINES. Like the cases, I reinforced the mitered frame with the use of splines. You can use the same jig as before to cut the kerfs for the splines. After gluing the splines in place, trim them flush with the edges of the frame.

MAGNETS. As I mentioned, the frames are held to the cases with rare-earth magnets. Drill some shallow holes for the magnets in the back of the frame to align with the magnets in the case. Just make sure to check the polarity of the magnets before you glue them in place.

The last step to complete the shadow boxes is to apply a finish and screw the back in place. You can visit *Woodsmith.com/magazine/sip* for more information on the crackle finish we used. To hang the shadow boxes on the wall, I used Z-hangers.

Now comes the fun part — deciding which items you wish to display and how to arrange them. But I'll leave that part up to you.

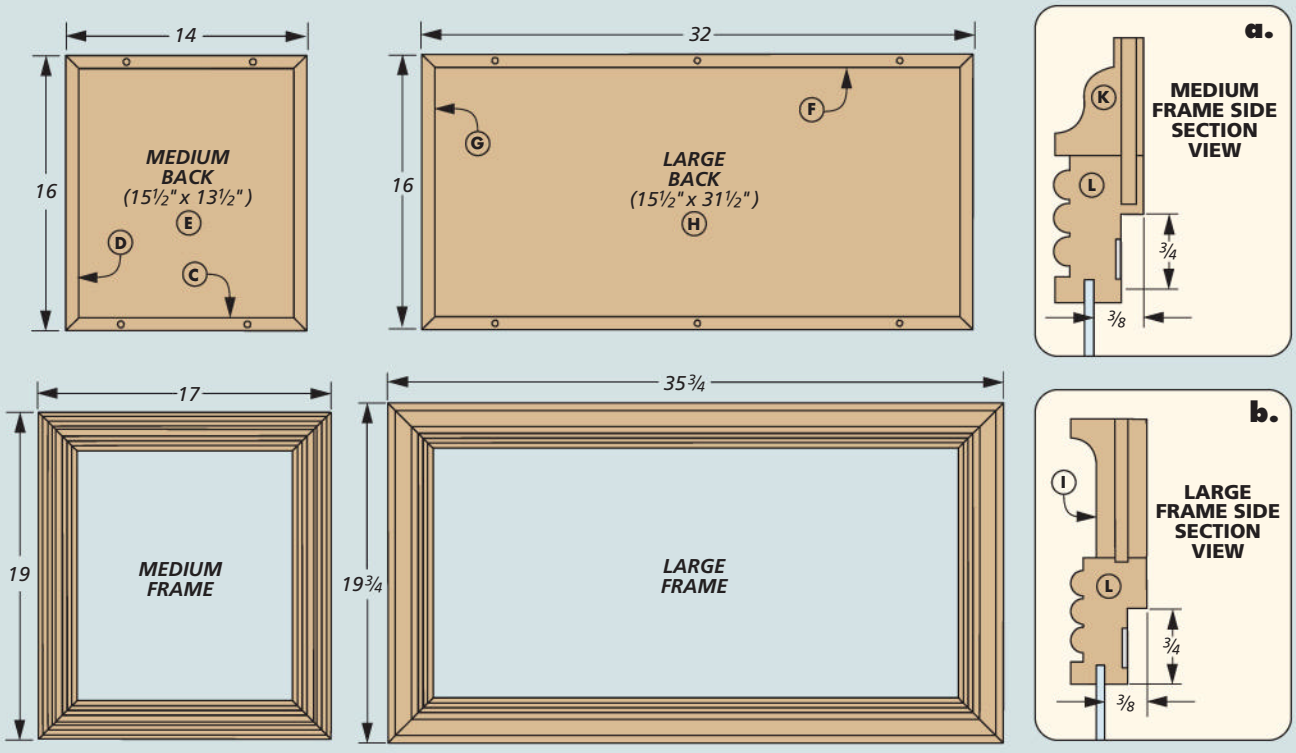
Detachable Frames. The frame is held to the case with rare-earth magnets, making it easy to add or remove items displayed inside.

Z-Hanger Mounts. The shadow boxes are attached to the wall using a two-piece Z-hanger. This makes installation a breeze.

Shadow Box Dimensions

Medium & Large. The dimensions for the medium and large shadow box cases and frames are shown below. Keep in mind that the actual dimensions of your finished frames may vary slightly, so measure those before committing. The key here is to size the frame so the rabbeted opening on the back just fits over the front edges of the case, as shown in details 'a' and 'b.'

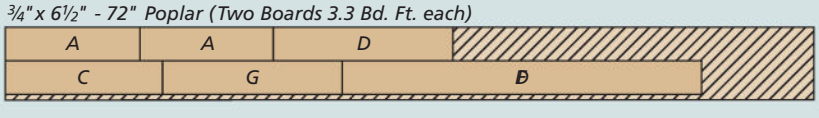
When it comes to adding the reinforcing splines to the frames, you'll want to center the kerfs on the edge of the frame as much as possible, to avoid blowing out the front or back face of the frame molding. Thanks to its ogee, there's not a lot of thickness at the edge of the medium-sized frame, so you'll have to take care when making those cuts. Again, you can see this in details 'a' and 'b' below.



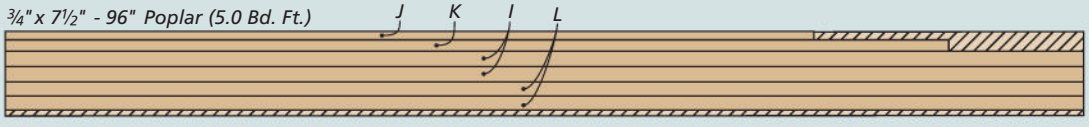
MATERIALS, SUPPLIES & CUTTING DIAGRAM

A	Sm. Case Sides (4)	¾ x 3 - 12
B	Sm. Case Back (1)	¼ ply. - 11½ x 11½
C	Med. Case Top/Btm. (2)	¾ x 3 - 14
D	Med. Case Sides (2)	¾ x 3 - 16
E	Med. Case Back (1)	¼ ply. - 15½ x 13½
F	Lg. Case Top/Btm. (2)	¾ x 3 - 32
G	Lg. Case Sides (2)	¾ x 3 - 16
H	Lg Case Back (1)	¼ ply. - 15½ x 31½
I	Cove Molding	¾ x 1⅜ - 192 rgh.
J	Bead Molding	¾ x ¾ - 72 rgh.
K	Ogee Molding	¾ x 1 - 84 rgh.
L	Triple Bead Molding	v x 1¼ - 192 rgh.

- (14) 1/16" x ⅜"-dia. Rare-Earth Magnets
- (28) #6 x ¾" Fh Woodscrews
- (1) 48" x 48" Sheet of ⅛" Acrylic
- (1) 1 yd. Felt
- (1) 12" Z-hanger w/Screws
- (1) 18" Z-hanger w/Screws
- (1) 30" Z-hanger w/Screws



ALSO NEEDED:
48" x 48" sheet of ¼" Birch plywood




OLD SOUTH
TOMOLIVES
BRAND
PICKLED GREEN
TOMATOES
Reese
DOUBLE MARTINI
Sour Cocktail
Onions

Easy Storage

Storage is always a welcome addition, even in a bite-sized form. The projects you'll find in this section come together quick and offer some visually and functionally interesting storage options, great for your own home or as a gift to friends and family.

FLIP-DOWN COAT RACK.....52

TURNED CANISTERS.....56

RUSTIC WALL SHELF.....62

DOUBLE-DOOR BOX.....68

Flip-down Coat Rack

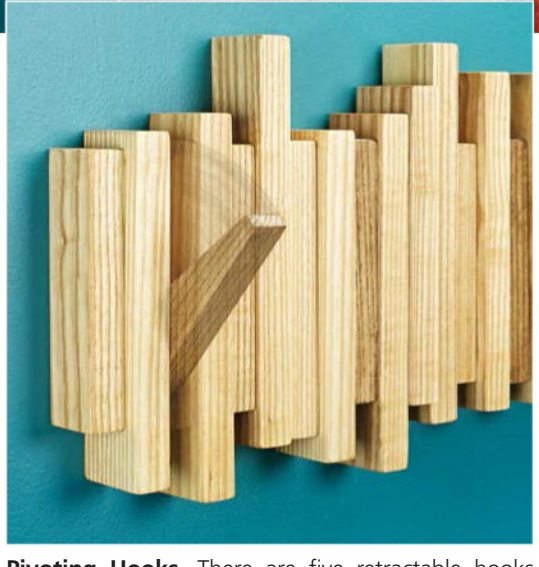
Sporting a mid-century vibe, this coat rack is one part wall art, one part handy place to park your jacket, or hat.

If you're looking for a quick project, but not in the mood to go shopping for a pile of lumber and hardware, this little coat rack fits the bill. In fact, there's a good chance that you could use up some of that leftover lumber in the bin. The rack is basically 29 blocks that are tied together with dowels. Five hooks flip down to bring this playful mid-century-style coat rack to life.

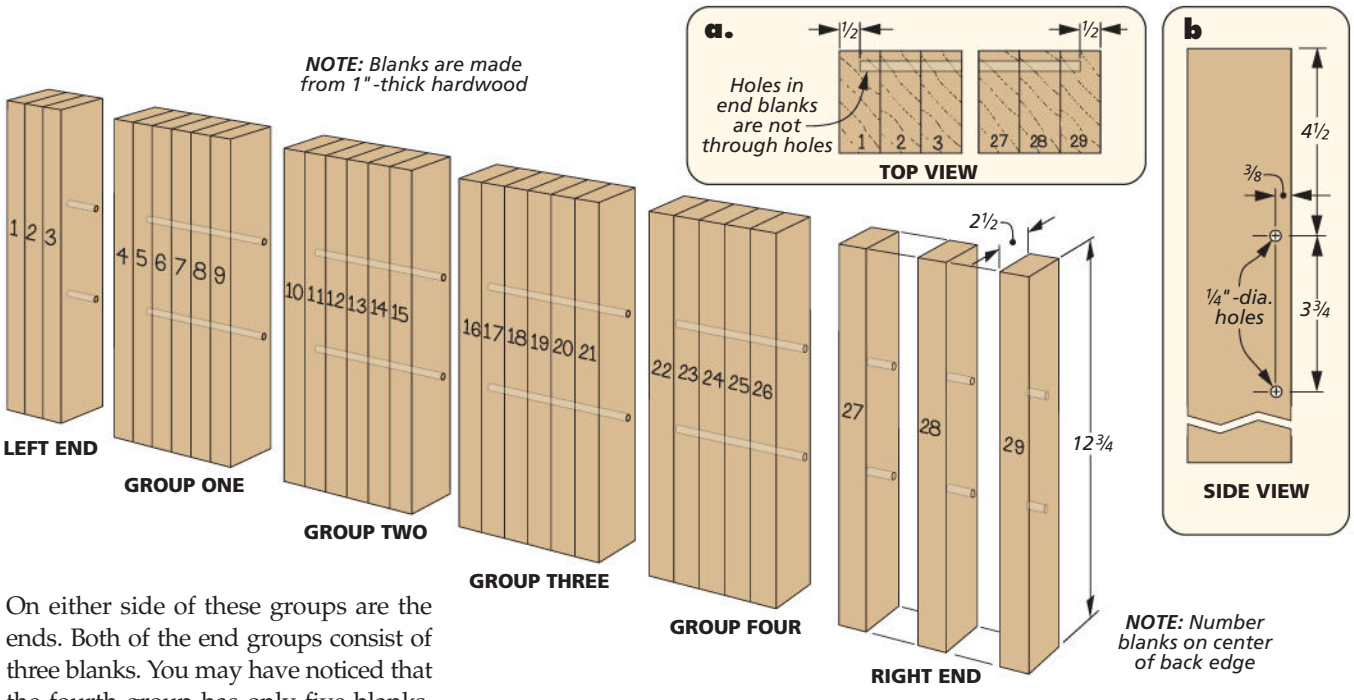
CONTROLLED CHAOS. Even though the rack looks a little like a keyboard gone wild, when it comes to putting all this together, don't be too concerned. There's a method to the madness. The blocks all start out as identically sized blanks. Then you trim them to width and length to make six sets of varying-sized blocks. Some of those you flip to make an interesting overall arrangement.

START WITH BLANKS

As you see in the drawing above, there are four main groups of blanks that make up the body of the rack.



Pivoting Hooks. There are five retractable hooks nested within the body of the rack. They're attached to the rack with metal pins that allow you to flip them up and out of the way when not in use.



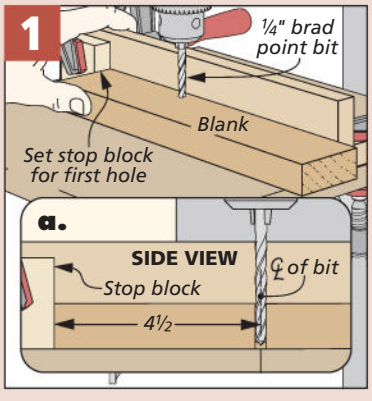
On either side of these groups are the ends. Both of the end groups consist of three blanks. You may have noticed that the fourth group has only five blanks. This is for the sake of visually balancing the hooks. No worries, though, it will become clear later.

PREPARING THE BLANKS. As I mentioned earlier, the rack starts out as 29 identically sized blanks. Aside from cutting the blanks to size, the only other thing to do now is drill a pair of holes in each one. These holes will eventually house dowels that tie the blocks together. Drilling the holes first is the key to maintaining the relationship of the blocks, even after they're cut to final size. This design safety net takes some of the worry out of assembling the rack.

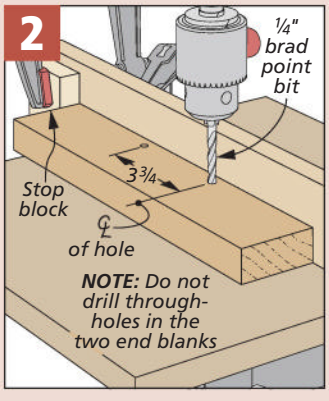
GROUPS ARE GOOD. That being said, start by grouping and numbering the blanks. This will save confusion and headaches down the road. The drawing above shows the numbers centered on the front of each blank. But in reality, it's best to number them on the back. In a little while, you'll be ripping most of the blocks to different widths and cutting them to varying lengths. By numbering the back edge of the blanks, you don't have to worry about trimming away any of your numbers.

Drilling the holes is a straightforward process. As Figures 1 and 2 below show, a simple stop block setup guarantees proper location of the holes. If you take a quick look at detail 'a' above, you'll see these are all through holes, with the exception of the two end blocks. Next, you'll turn the blanks into blocks, make some hooks, and start shaping all the parts into a finished coat rack.

Drill Dowel Holes



Drill First Hole. Drill through holes in all of the blanks except the two end blanks.



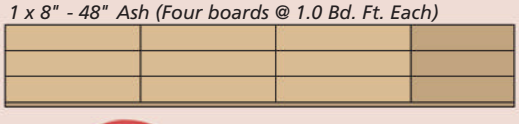
Drill Second Hole. After repositioning the stop block, drill the second hole.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

A	Blocks (5)	1 x 2½ - 9	E	Blocks (6)	1 x 2 - 7
B	Blocks (7)	1 x 2⅜ - 10	F	Blocks (5)	1 x ¾ - 6¾
C	Blocks (3)	1 x 2¼ - 11	G	Hooks (5)	1 x 1⁷⁄₁₆ - 7⁵⁄₁₆
D	Blocks (3)	1 x 2⅛ - 8			

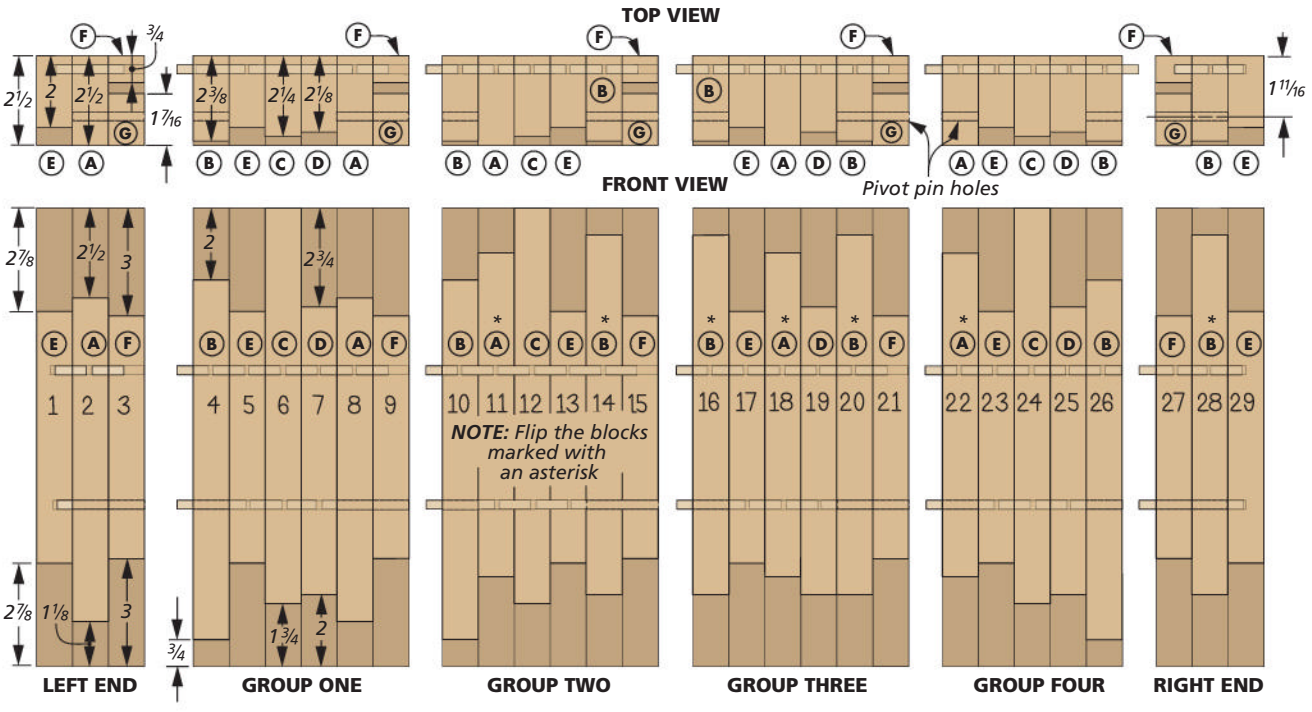
- (6) 2" Z-clips
- (6) #8 x ¾" Fh Woodscrews
- (1) ¼"-dia. x 15" Steel Rod
- (2) ¼"-dia. x 36" Hardwood Dowel

1 x 8" - 48" Ash (Four boards @ 1.0 Bd. Ft. Each)



GO Online Extras

For a full-size template of the flip-down hook, go to:
Woodsmith.com/magazine/sip



Assembling the **Coat Rack**

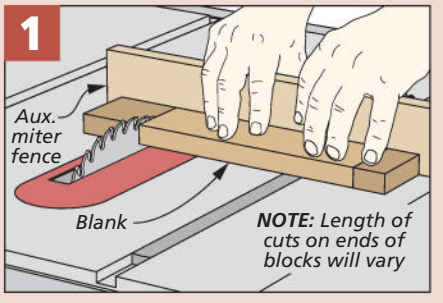
With the blanks arranged and drilled, the next stage of construction is turning them into finished blocks. This involves three steps: ripping the blanks to width, cutting them to length, and flipping certain blocks to achieve the final look of the rack. This isn't difficult if you follow the drawing above. It takes all of the guesswork out of the process. We'll start by ripping the blanks to create the staggered depth of the rack.

RIPPING SEQUENCE. Whenever I have a number of rip cuts to make, I prefer to start with the widest and work my way to the narrowest rip, and that's what I did here. To keep this process orderly, I set up a staging area next to my table saw where I could lay out the groups of blocks exactly as you see them in the drawing above.

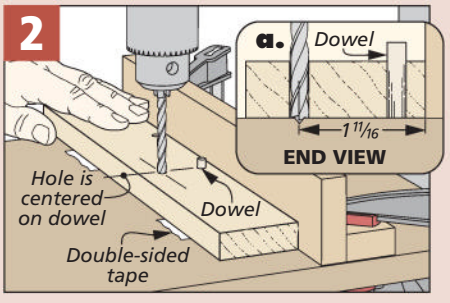
To get started, I referenced the top view drawing and noticed that some of the blanks don't need to be ripped. So all of those are labeled 'A.' Then I went for the next size down. I ripped them and labeled them 'B' as I put them back in their place. You get the idea. When it comes to making the last, narrowest set of blocks, don't throw away the waste. Those leftover pieces will be used to make the hooks, so set them aside for the moment.

CROSSCUTS & ARRANGEMENT. Moving on, Figure 1 below shows crosscutting the blocks with a miter gauge. These cuts create the staggered vertical profile of the rack. The front view drawing above shows how this looks. As before, I cut each set of blocks to length. As you drop them back into their groups it's time to do some end-to-end flipping. This creates a more "random" appearance without having to make different blocks.

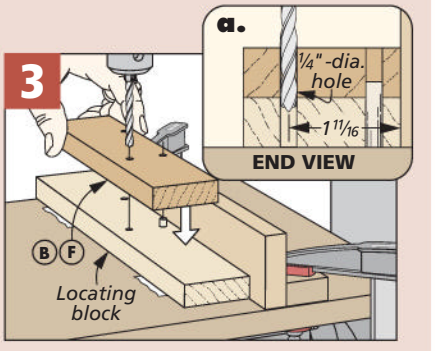
Size Blocks & Drill Pivot Pin Holes



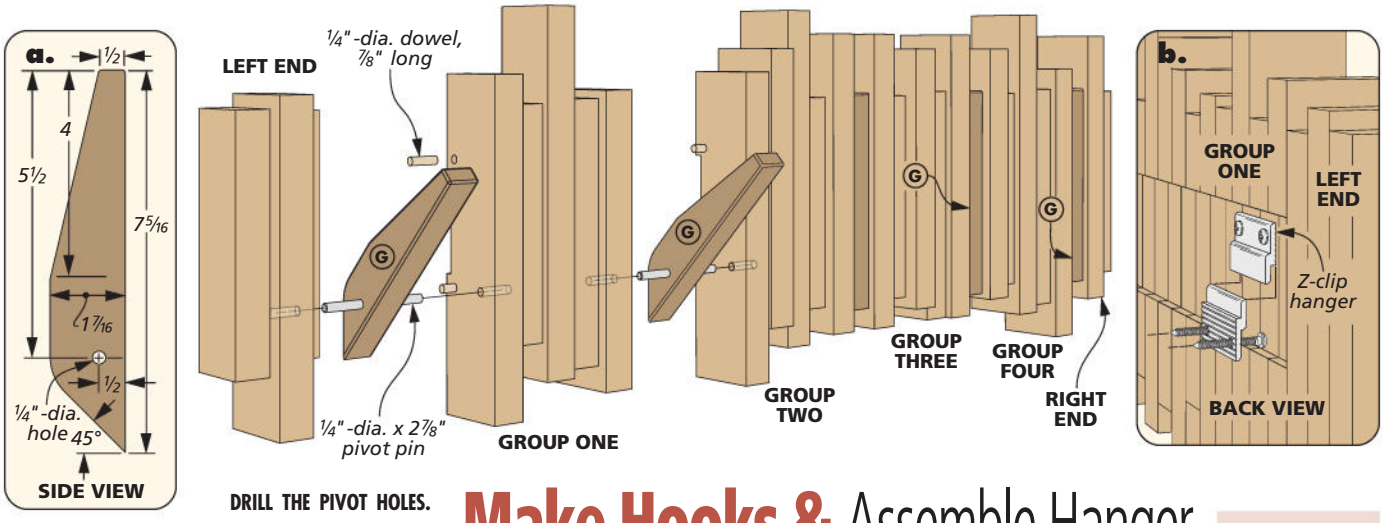
Cut to Length. Each individual block needs to be trimmed to length. Once cut, place it back in its group.



Use Block as Locating Jig. Drill a hole in one of the blocks. Tape the block in place and fit a dowel in the rear hole.



Drill Pivot Pin Holes. Place the blocks that require a pivot hole onto the dowel and drill the rest of the through holes.



DRILL THE PIVOT HOLES. To finish up the work on the blocks, you have to drill some holes for steel pins. The hooks pivot on these pins. The top view drawing on the previous page shows which blocks need these holes. Figures 2 and 3 on the previous page show how to locate and drill these holes.

MAKE THE HOOKS

Taking a break from the blocks that make up the body of the rack, it's time to fashion the hooks. Start by sizing the scraps that you set aside earlier (detail 'a' above). After drilling the hole for the pivot pin (Figure 1), cut the 45° angle on the bottom. The long bevel is the next order of business, as in Figure 2.

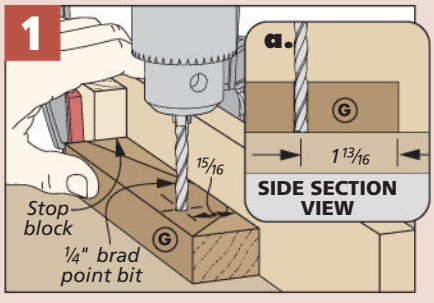
The main drawing above shows steel pins going through the hooks and into the rack. I used a hack saw to cut these to length from a piece of ¼"-dia. steel rod, and then removed any burrs.

GLUE UP. Gluing up the body is next. Figures 3 and 4 show how to do this. I cut some ⅞"-long pins from a section of ¼"-dia. dowel and left ⅜" protruding to join it to the next block. I suggest you apply finish to each group separately before bringing them together.

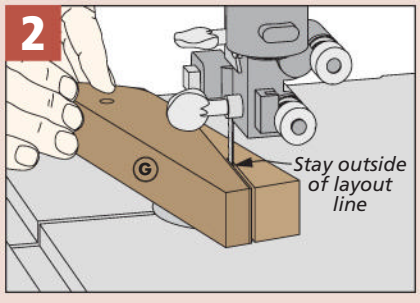
You can also glue up the two end groups, but hold off on adding them just yet. You'll need to cut a dado in the back of the four middle sections to create a recess for some hanging brackets. Figure 5 shows this.

After installing the last two hooks and gluing on the ends, all that's left to do is mount the rack on the wall. The hardware for hanging the rack draws it snugly to the wall (detail 'b').

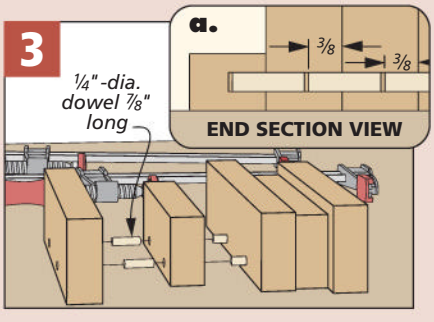
Make Hooks & Assemble Hanger



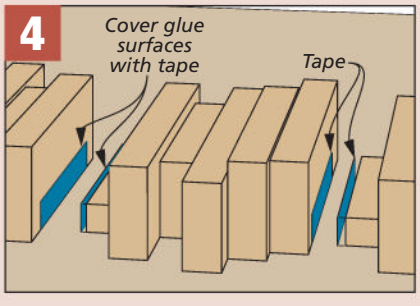
Drilling Pivot Hole. Use a stop block at the drill press to accurately position the pivot hole in each of the hooks.



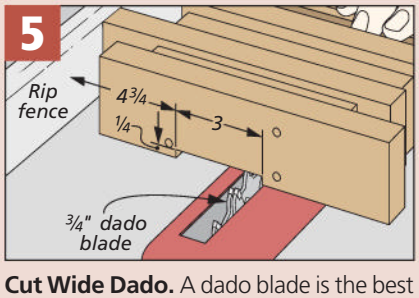
Cutting Long Bevel. At the band saw, cut the long bevel on the hooks. Then sand the surface smooth.



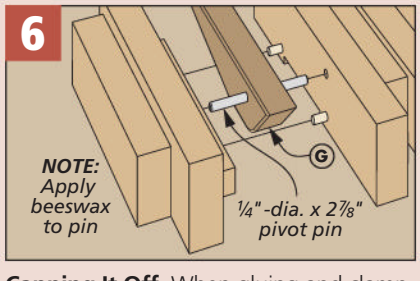
Glue Up Groups. Glue up the groups and ends separately. Dowels are used to align the groups accurately.



Protect Mating Surfaces. Before adding finish to the groups, use tape to protect the mating surfaces.



Cut Wide Dado. A dado blade is the best way to cut the wide recess in the back of the four glued-up sections.



Capping It Off. When gluing and clamping the ends in place, make sure the hooks pivot freely.

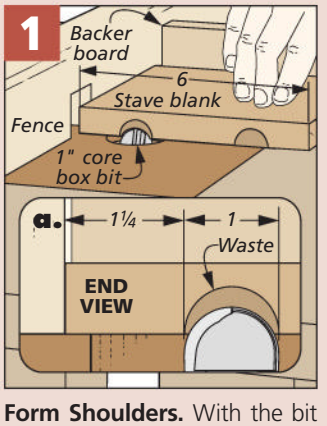
Turned Canisters

Whether used for storage or as a table centerpiece, this set of turned containers is the perfect project to give as a gift or proudly display in your home.

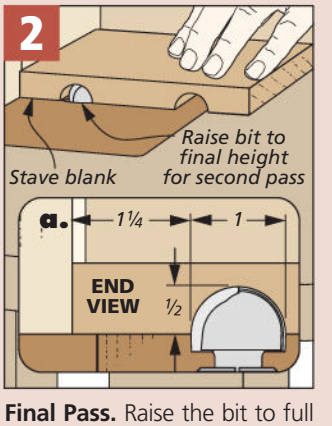
Turning wood on the lathe is a very addicting pastime. Sometimes I get so caught up in turning that I neglect the other tools in my shop. That changed when this fun little project came along. While there is certainly some woodturning involved in making this set of decorative canisters, you'll also use several other techniques that will keep you moving around your shop.

The canisters are really nothing more than 12-sided staved cylinders, where the parts are beveled and joined edge-to-edge. The open neck top is shaped on the lathe, and a piece of plywood serves as the bottom. A large cork stopper acts as a lid on the medium-sized container. Since all three canisters use the same

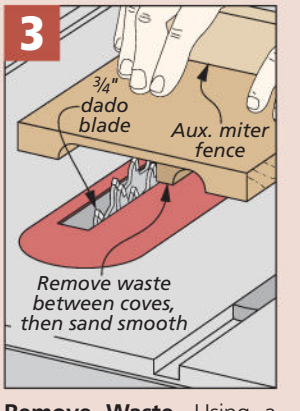
Shape the Staves



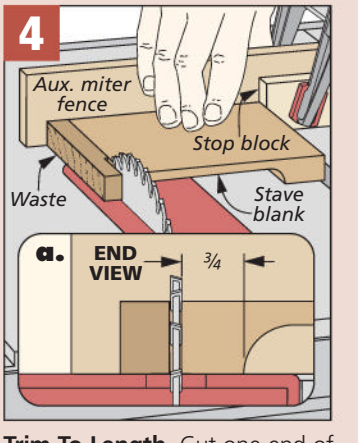
Form Shoulders. With the bit lower than final depth, make one pass on each end.



Final Pass. Raise the bit to full height and make the final pass on each end.



Remove Waste. Using a dado blade at the table saw, remove the waste.



Trim To Length. Cut one end of each stave blank to final length at the table saw.

process to construct, I'll focus on building the medium-sized container here. For the utensil holder and shallow bowl dimensions, visit *Woodsmith.com/magazine/sip*.

SHAPING STAVES. As you can see in the drawings at right, the staves have a dished-out interior. I found it best to do this at the router table and table saw before the staves were glued together. The How-To boxes at the bottom of the previous page show the process. I'll just point out a few details.

I used wide blanks (6") and cut them a little long (measurement shown in Figure 1 on previous page). The wide blanks let me get three staves from each section. I also cut one extra stave blank to use for test pieces later on.

By making the stave blanks extra long, only one router fence position is needed to define the shoulders of the dished-out area. I made a couple passes with a core box bit to create these (Figures 1 and 2). The rest of the material can be removed at the table saw (Figure 3). I then trimmed the stave blanks to final length, as shown in Figure 4.

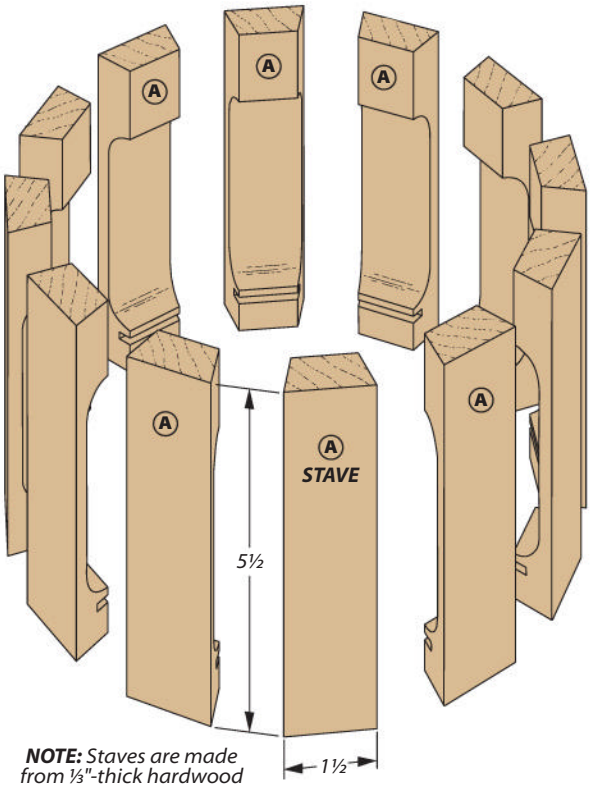
COMPLETE THE STAVES

With the interior face of the stave blanks dished out, I spent a little time sanding the inside face smooth. It's much easier to do this before cutting the staves free from the blanks. The How-To box at right shows the rest of the work to be done on the staves.

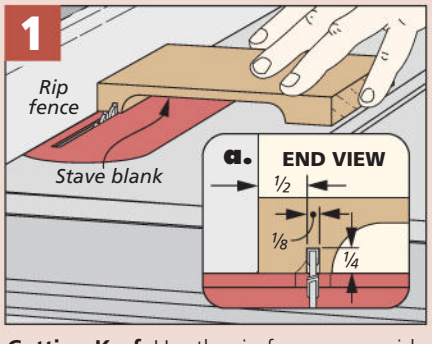
KERF FOR BOTTOM. First up is a kerf on the inside face of each blank (detail 'b', above). These kerfs house a tongue that's cut on the edge of the plywood bottom later on. A pass through the table saw makes quick work of this cut (Figure 1).

EXACT WIDTH STAVES. You can rip the staves free from the blanks (Figure 2), but leave them a little wide (this includes the extra stave blank). The key to tight-fitting joints between the 12 staves is to ensure that both edges of each stave are beveled at exactly 15°. I made these rip cuts at the table saw.

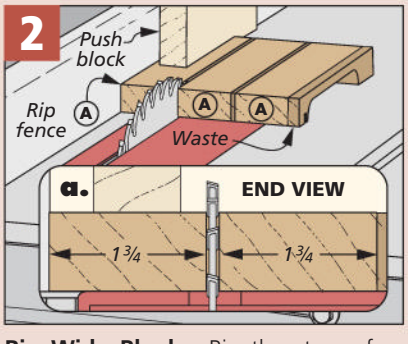
With the blade angle set, use the rip fence as a guide to sneak up on the final width on a test piece, as shown in Figures 3 and 3a. Rip one edge of each stave before flipping them end-for-end and ripping the other edge (Figure 4).



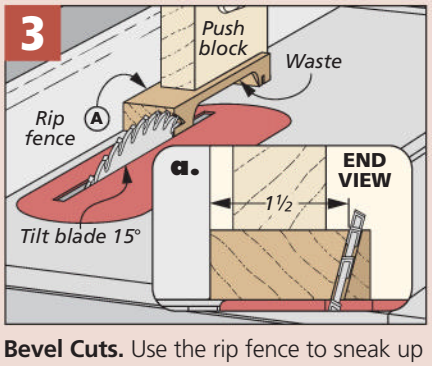
Cut Kerf & Bevel Staves



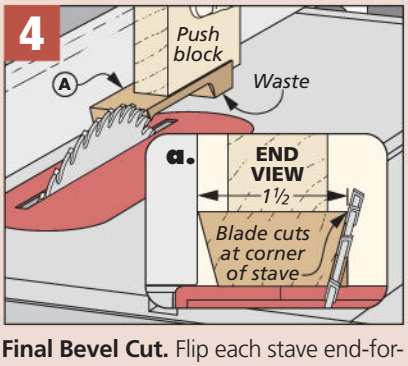
Cutting Kerf. Use the rip fence as a guide to cut the kerf on the lower, inside face of each blank.



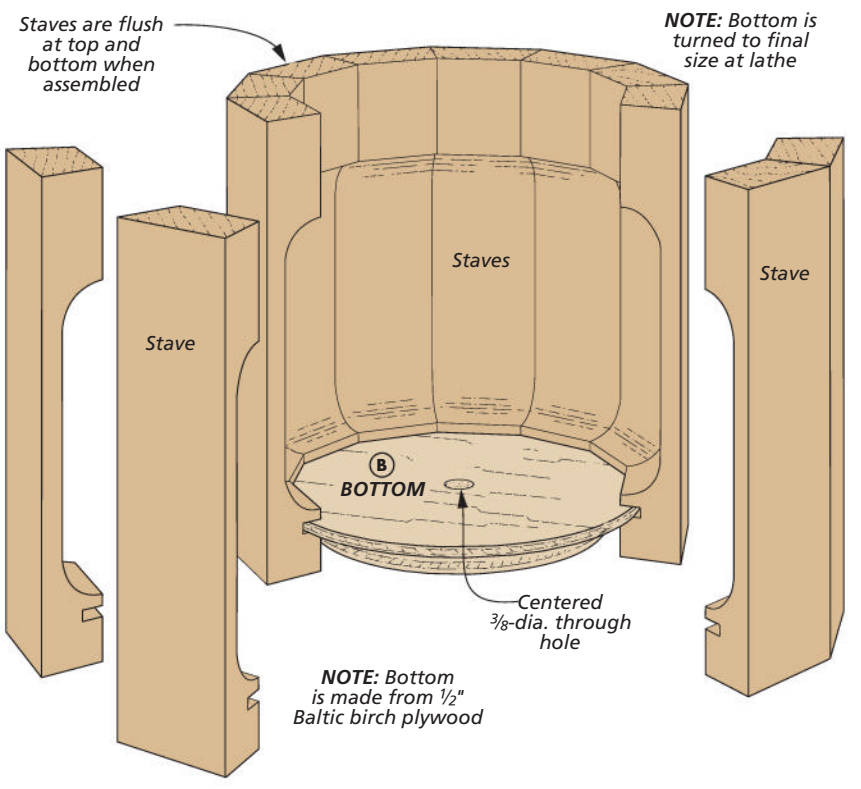
Rip Wide Blanks. Rip the staves free from the blanks, but leave them a little wide for now.

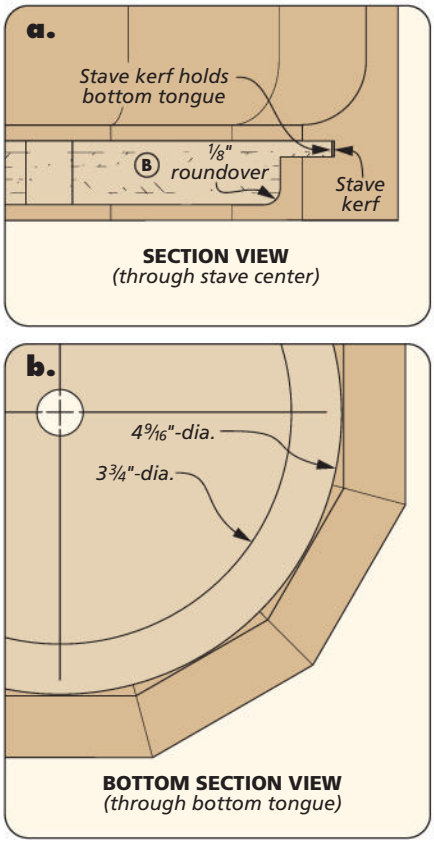


Bevel Cuts. Use the rip fence to sneak up on the final width of a test piece. Rip one edge on the rest of the blanks.



Final Bevel Cut. Flip each stave end-for-end and make a bevel cut on the opposite edge.



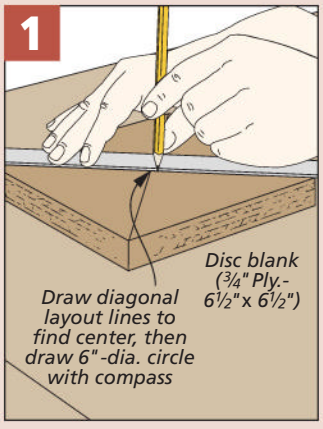


Assembling the **Staves & Bottom**

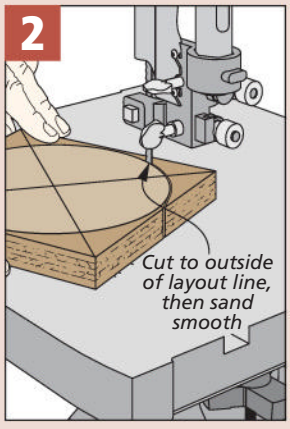
With the shaping work on the staves completed, you can turn your attention to making a plywood bottom. I used Baltic birch for its void-free quality. Before making the bottom, however, you'll need to make a mounting disc for the lathe. This disc attaches to the lathe faceplate and allows you to shape the plywood bottom. After assembling the canister, the mounting disc is used to mount the entire assembly to the lathe for turning the opening.

MOUNTING DISC. The How-To box below shows the process for making the mounting disc and attaching it to the faceplate. This same mounting disc can be used to make all of the canisters. Start by finding the center of a

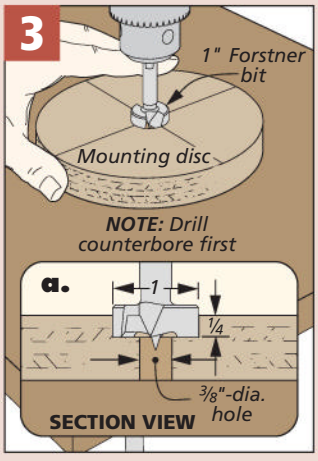
Prepare Mounting Disc



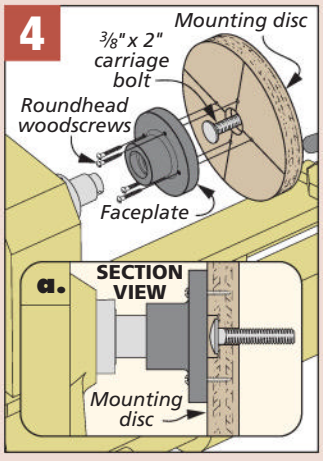
Find Center. Locate the center of the mounting disc blank with intersecting lines.



Rough It Out. Cut the mounting disc to rough size at the band saw.



Carriage Bolt Hole. Drill the counterbore and center hole at the drill press.



Faceplate. Attach the mounting disc to the lathe faceplate with screws.

square blank (Figure 1). It's not critical that the outside edge of the mounting disc be perfectly round, so I just cut the disc out at the band saw, as shown in Figure 2. To accommodate a carriage bolt, drill a counterbored hole in the disc (Figure 3).

After that, it's just a matter of lining up the screw holes in the faceplate with the layout lines on the disc and attaching it with screws. I then installed the assembly on the lathe (Figure 4).

MAKE THE BOTTOM

The process for making the bottom starts off very similar to the mounting disc. You'll start by finding the center of a square blank, cutting it to rough size at the band saw, and drilling a through hole in the center (Figure 1, at right).

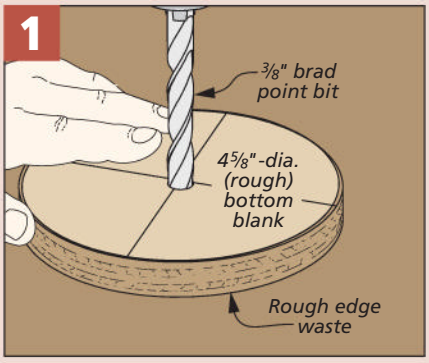
Here's where things are a little different: The edge of the bottom has a rabbet formed around its perimeter. The tongue that's created has to fit inside the kerfs cut in the staves. If the bottom is too big, there will be gaps between the staves come assembly time. If the bottom is too small, then you'll risk having gaps on the inside of the canister where the bottom slips into the kerf. Details 'a' and 'b' on the previous page show what I mean.

CAREFUL TURNING. Getting the bottom to the perfect size takes some careful turning and a little patience. This begins by attaching the bottom blank to the mounting disc (Figure 2). Use a square-nosed scraper to turn the bottom round, as shown in Figure 3. Leave it slightly oversized for now. You can sneak up on the final diameter after the rabbet is cut.

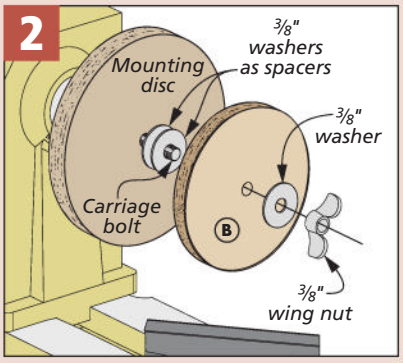
Now switch to a parting tool to cut the rabbet that forms the tongue on the edge of the bottom (Figure 4). Check the thickness of the tongue often. When it's sized correctly, remove the bottom from the mounting disc and wrap the staves around the bottom, as shown in Figure 5.

If you left the diameter of the bottom a little big, there will be a slight gap between the staves when you try to close them around the bottom (detail 'a'). Put the bottom back on the lathe and turn just the tongue down until the gaps disappear. Then, all that's left is to round over the bottom edge with sandpaper, as shown in detail 'a' on the previous page.

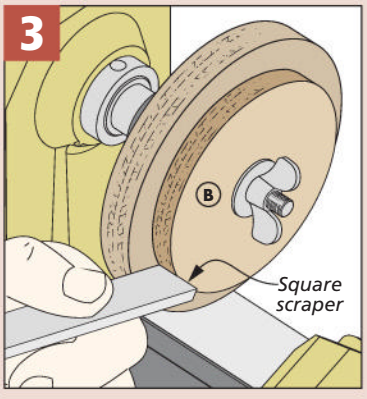
Shape Bottom & Assemble Staves



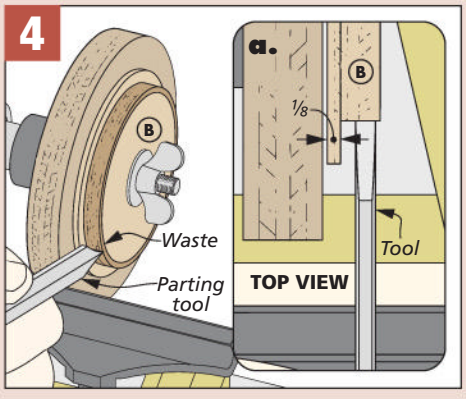
Drill Center Hole. After locating the center and cutting to rough size, drill the center hole in the bottom blank.



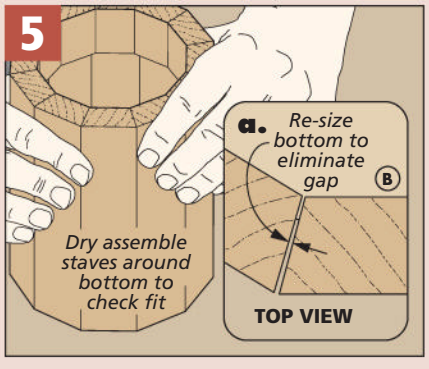
Attach to Lathe. With washers acting as spacers, attach the bottom blank to the mounting disc.



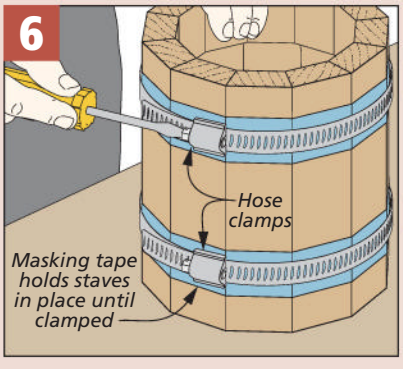
Round It Out. Use a square-nosed scraper to turn the bottom blank perfectly round.



Form Tongue. A parting tool works well to cut the rabbet and form the narrow tongue on the edge of the bottom.

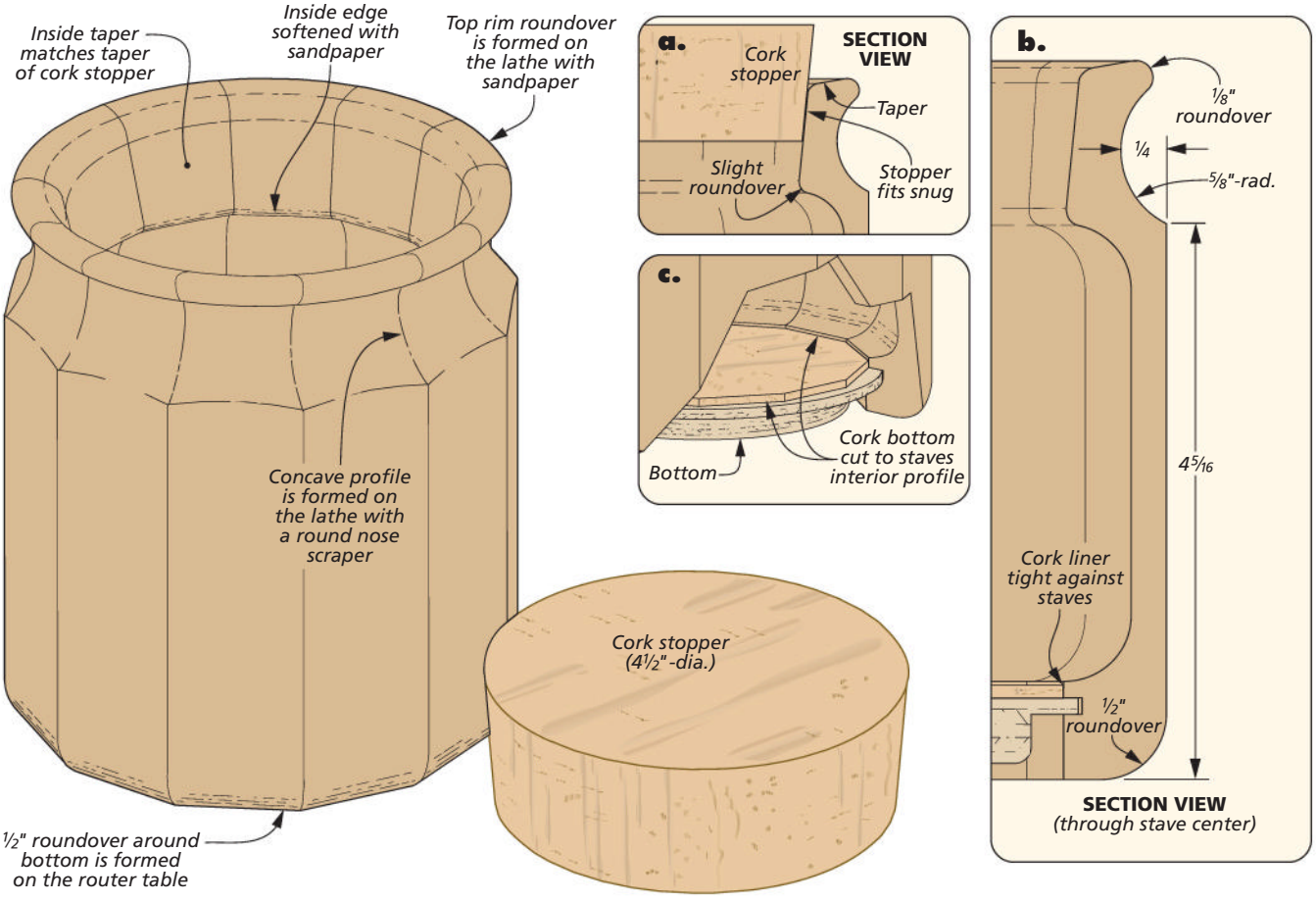


Test Assembly. Check the fit often. If a gap remains between the staves (detail 'a'), turn the tongue smaller.



Final Assembly. Use masking tape as the initial clamp. A couple of hose clamps provide additional pressure.

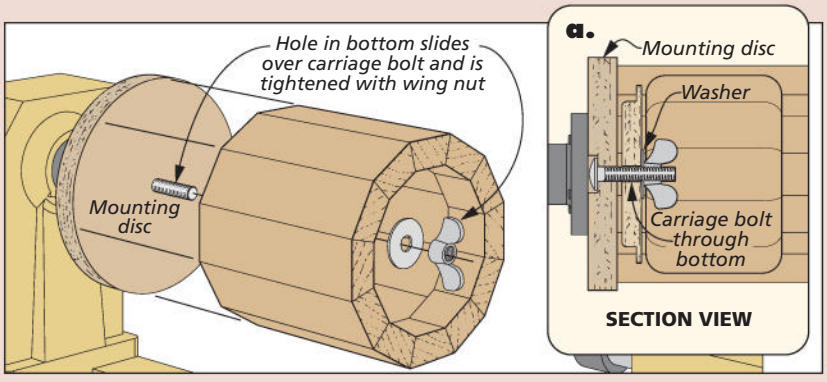
ASSEMBLY TIME. To assemble the staves, I started by laying out a couple strips of masking tape (sticky side up) and placing the staves edge-to-edge across the strips of tape. (A straightedge helps keep the ends aligned.) After adding glue to the beveled edges and in the kerfs, carefully roll the staves around the bottom to form the cylinder. I added a couple hose clamps using very light pressure (Figure 6). Be sure to clean up any glue squeeze-out on the inside, as well as the outside.



Completing the **Canister**

The glued-up canister should be starting to look like the finished product at this point. But there are a few more details to take care of before we're finished here. This includes forming the neck and rim of the canister on the lathe and sizing the opening for a purchased cork stopper to fit in place. The bottom edge gets rounded over at the router table, and a thin piece of cork is cut to fit inside to cover the plywood bottom.

Mount Canister in Lathe



Attach Canister to Mounting Disc. Using a wing nut and washer, attach the canister to the mounting disc. This will lock the container in place as the profile is formed around the mouth of the cylinder.

MOUNT UP. Start by attaching the canister to the mounting disc you made earlier with the wing nut and washer (How-To box at left). Just a couple of turning rules to note when working with a staved-cylinder on the lathe: First, always use the lowest speed possible when beginning to turn a cylinder. Trying to start at too high of a speed could result in damage to the workpiece. And second, be sure that your turning tools are sharp. Forming the opening of the canister is delicate work, and sharp cutting tools are a must.

LAYOUT WORK. Since I wanted to retain the crisp edges on the lower portion of the canister, I began by drawing a pencil line around the outside to mark where the bottom edge of the concave depression begins. To make this mark, measure over from the bottom edge of the container. You'll find this dimension in detail 'b,' above. Then, use a pencil and a combination square to mark this line all the way around the cylinder.

SLOW & STEADY. As shown in Figure 1 on the next page, I used a round-nose

scraper to gently form the profile on the outside, top edge. Take very light cutting passes to avoid chipout near your layout line. Even with a light touch, sharp tools will remove this material very quickly, so be careful not to overdo it.

FORMING THE LIP. Moving on to the lip, I used a combination of scrapers and sandpaper to bring this to shape. When shaping the inside edge of the canister, the tool rest should be moved in front of the opening (Figure 2). If you're going to use a cork stopper like the one shown on the previous page, you'll want to have that on hand before tapering the inside of the lip. Remove material slowly and check the fit of the stopper often. The goal is to achieve a snug fit with the cork stopper (detail 'a' on the previous page).

With the opening sized to accommodate the cork stopper, use sandpaper to smooth the outer lip and the sharp edges at the top and bottom of the taper on the inside of the container (Figures 3 and 3a). And before removing the canister from the lathe, I also took some time to do all of the finish sanding on the areas I just shaped.

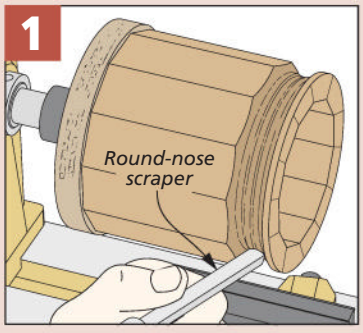
ROUT BOTTOM EDGE. At this point, the bottom edge of the canister is still square and susceptible to chipping. To solve this problem, I chose to round this edge over at the router table. Figure 4, at right, shows the details.

A CORK BOTTOM. Since the plywood bottom has a hole in it from being attached to the mounting disc, a suitable solution was needed to cover it up. I decided to use a thin piece of cork to match the lid. But the challenge was cutting it to fit exactly between the staves, as shown in detail 'c' on the previous page.

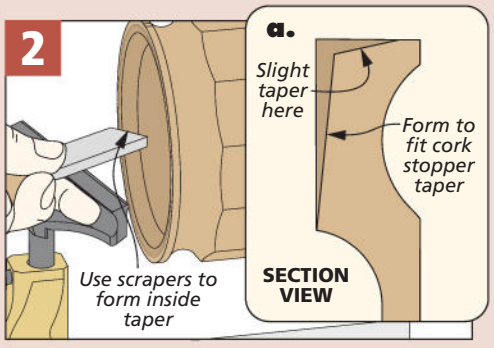
My solution was to turn the canister upside-down and do a "rubbing" over the bottom of the staves (Figure 5). This profile matches the shape of the inner canister. After finishing that, I was able to use that to create a posterboard template. Then I used the template as a guide on the cork sheet and cut it out with a sharp utility knife (Figure 6).

The cork is held in place with a little glue. To see how I finished my canister set, check Sources on page 98. After that, you can load them up with your favorite snacks or decorative items.

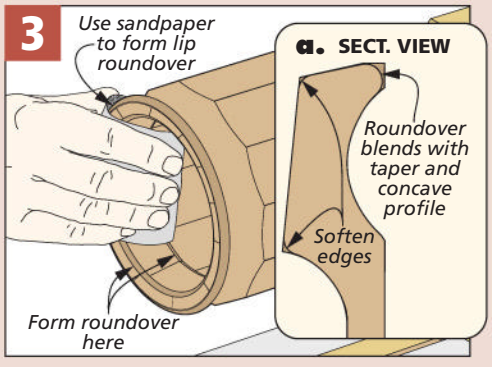
Shape Container & Finish Work



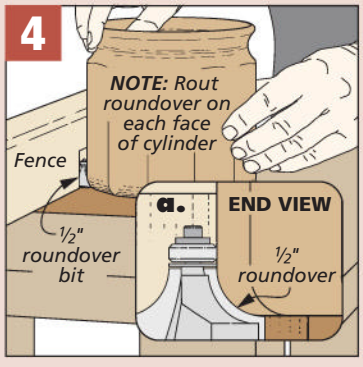
First Turn. Start by forming the concave profile on the upper edge with a round-nose scraper.



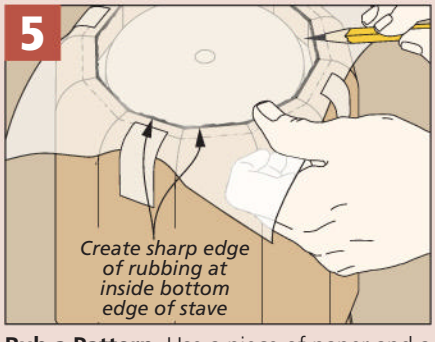
Form the Opening. Use a scraper and light pressure to form the lip and inner taper. Check the fit of the cork stopper often.



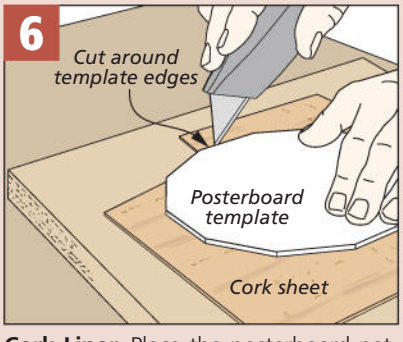
Finish Sanding. Sandpaper is all that's needed to break the edges around the lip and at the bottom of the taper.



Rout Roundover. A trip to the router table makes quick work rounding over the bottom edge.



Rub a Pattern. Use a piece of paper and a pencil to make a rubbing of the bottom of the canister.

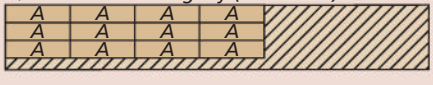


Cork Liner. Place the posterboard pattern on the cork sheet and use a sharp utility knife to cut it to shape.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

A Staves (12)	¾ x 1½ - 5½	• (1) 4½"-dia. Cork Stopper
B Bottom (1)	½ ply. - 5 x 5	• (1) 12"x 12" Cork Sheet

¾"x 6" - 36" Mahogany (1.5 Bd. Ft.)



ALSO NEEDED: *One 12" x 12" sheet of ½" Baltic birch plywood*

GO 2 Online Extras

For more size options, visit: Woodsmith.com/magazine/sip

Rustic Wall Shelf

Vertical storage is just as welcome in the home as it is in the shop. The elegant charm of this shelf is matched only by its sturdy construction.

When it comes to furnishing a home in the modern day, our cups truly runneth over. However, there are some areas of the home — spaces unutilized, a few canvases unpainted — that often remain empty. If you've flipped through enough issues of *Woodsmith*, you'll likely find a discussion on the use of vertical space in the shop, and that space is no less important in the home.

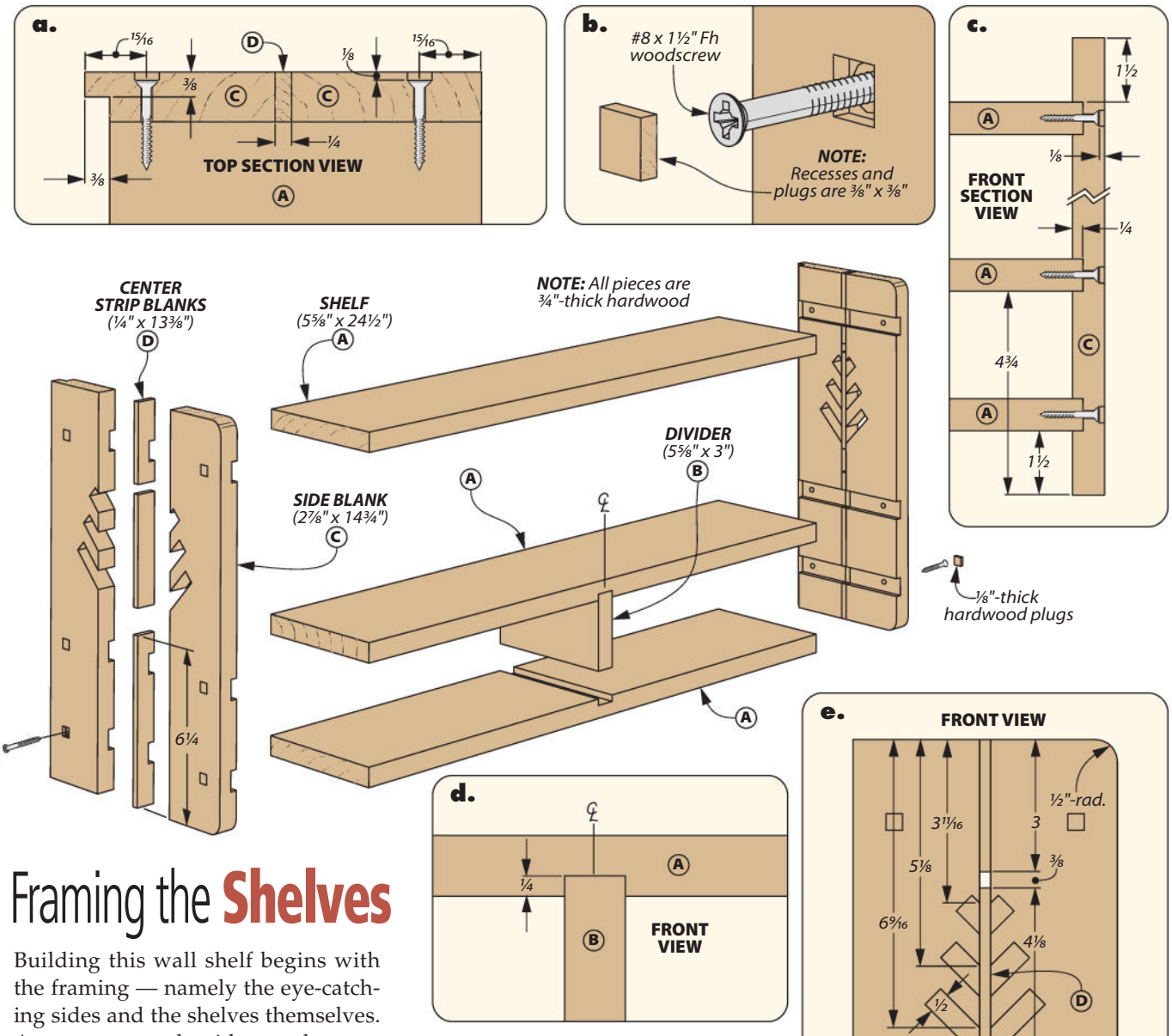
This wall shelf brings a lot to the table in a little package. Whether it's spices in the pantry or curios in the living room, it adds utility wherever it resides.

Several elements easily catch the eye: cutouts in the side panels, a shiplapped back, and drawers whose only hardware is a pair of ring pulls. This shelf doesn't shout for attention, but instead draws in your gaze. All in all, it provides beginners a chance to practice the basics, experts a chance to flex their skills, and all woodworkers with a beautiful addition to their home.

Sheaf Relief. The subtle yet stylish cutouts add a sense of openness to the shelf, and are easy to make from just a few pieces and a couple cuts at the table saw.

Dual Drawers. These drawers exemplify simplicity and solid construction. The only hardware you'll find here are the traditional ring pulls.


OLD SOUTH
TOMOLIVES
PICKLED GREEN TOMATOES
Reese
DOUBLE MARTINI
Sour Cocktail Onions
CREMA



Framing the **Shelves**

Building this wall shelf begins with the framing — namely the eye-catching sides and the shelves themselves. As you can see, the sides are the most complex parts here (though they're easier to make than they look). Because of that, I chose to get the shelves and divider done first before moving on to the meatier bits of this assembly.

SHELVES. Three shelves make up this project: two to hold the drawers and one to use as an actual shelf. After cutting these three pieces to size, the top shelf will already be complete. The other two will need a centered dado (detail 'd') to hold the divider. Once these were cut, I sized the divider as well. With the first four parts of the project finished, it's now time to dip into something more complex.

SIDE PANELS. The sides of the wall shelf feature a cutout shaped like a head of wheat. Each side is made of five pieces, and while there is some juggling to be done, each piece is fairly simple.

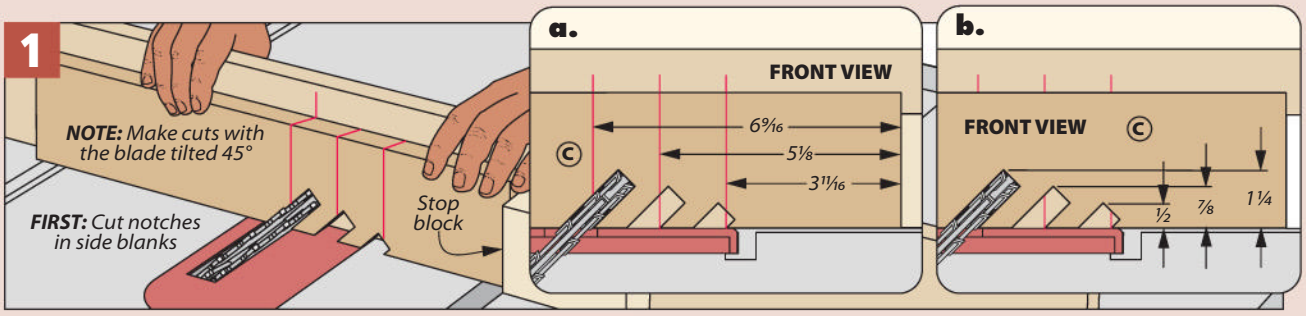
Both sides consist of a pair of side blanks joined by three center strips. To make these, I started out with two boards that each would be wide enough to cut the two side blanks and three center strips from. Doing this ensures that the sides will look like one solid piece after gluing them back up.

The next step will be making those decorative cutaways (detail 'e'). The box at the top of the next page show how to create cutouts that make the head of wheat.

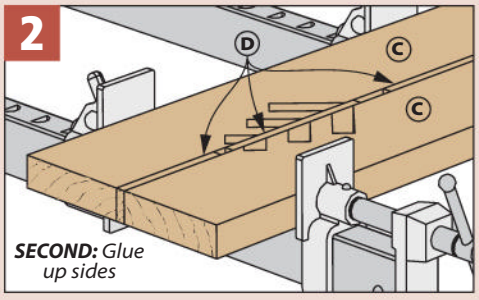
Once the notches are in place, cut the strip blanks to their final lengths (as shown in detail 'e'). Once you have them properly sized, glue up the sides, positioning the strips between the blanks (Figure 2).

To finish the sides, return to the table saw to cut the shelf dadoes (Figure 3). The back edges need a rabbet as well (detail 'a' above). Lastly, rounding off their front corners wraps these pieces up.

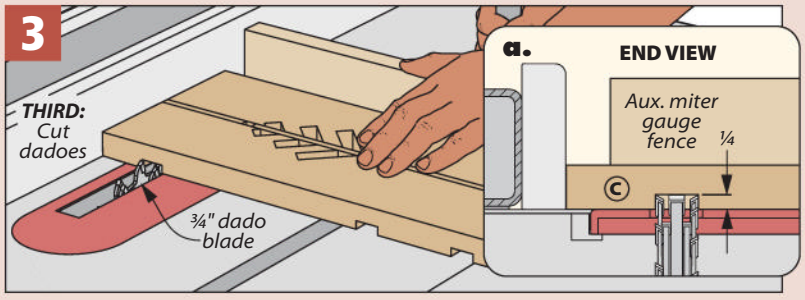
Decorative Cutouts



Notching the Blanks. After sizing the side blanks, install a dado blade at the table saw. Once the first notch is cut, raise the blade to cut the next notches in the blanks as shown above. A stop block ensures the cuts stay at the same place on the pieces.



Bring Them Together. To form the sides, glue up the two pairs of blanks with the center strips in, keeping the faces flush.



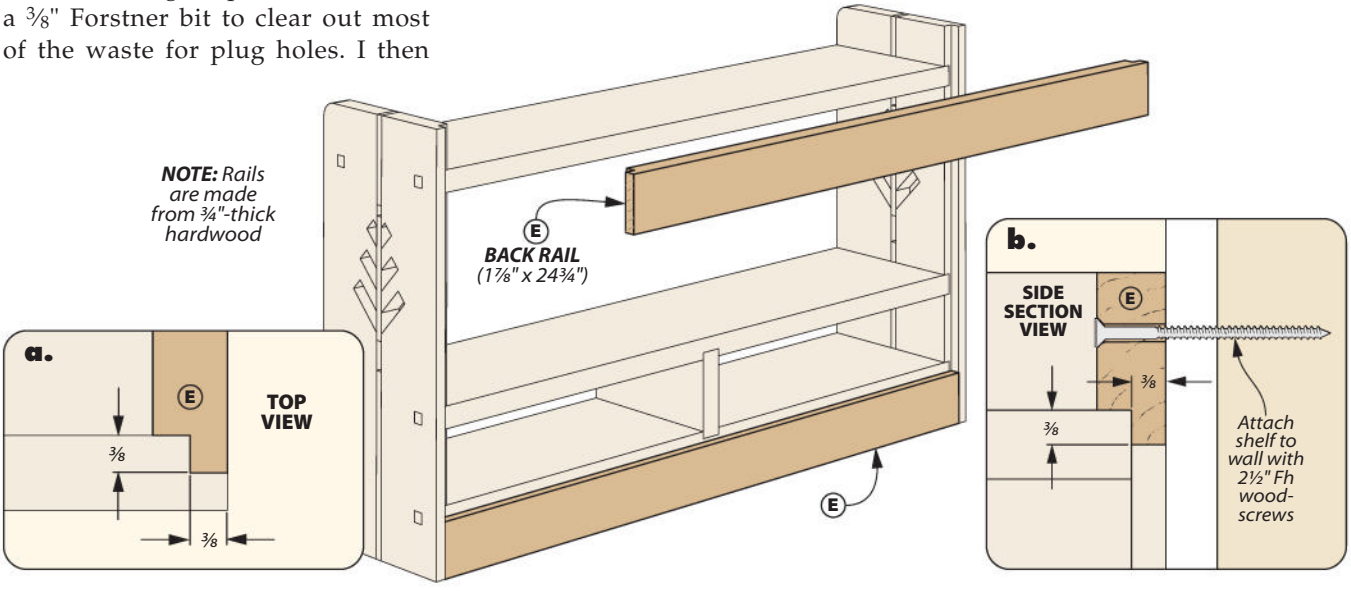
Shelf Dadoes. Once the sides have dried, the final piece of joinery can be made on the sides. Return to the table saw and widen the dado stack, then cut the dadoes that will accept the shelves.

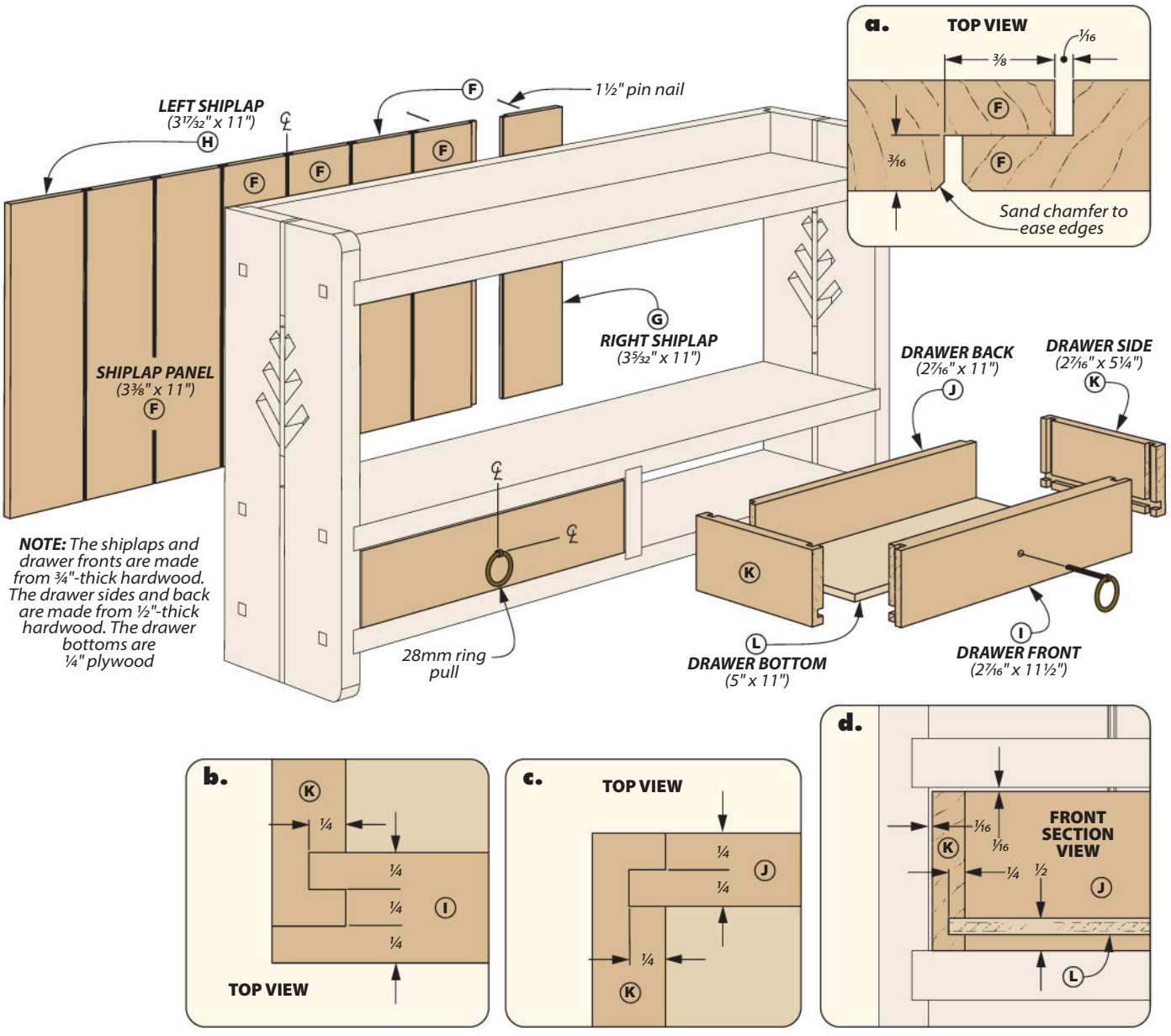
PUTTING IT TOGETHER. As you can see on the previous page, the main assembly of the wall shelf is held together by woodscrews. These provide more strength when connecting the end grain of the shelves than glue, and are hidden using hardwood plugs.

After drilling the pilot holes, I used a ⅜" Forstner bit to clear out most of the waste for plug holes. I then squared up the corners with a chisel. Lastly, I drove the screws in and glued in the plugs.

RAILS

Before moving on to the back and drawers, there's a pair of parts to take care of: the rails. After sizing these pieces (see the illustration below), I headed over to the table saw. Rabbets on these pieces accept the sides and shelves (as you can see in details 'a' and 'b'). I cut these using a dado blade at the table saw, then glued the rails in place.





Shiplapped **Back**

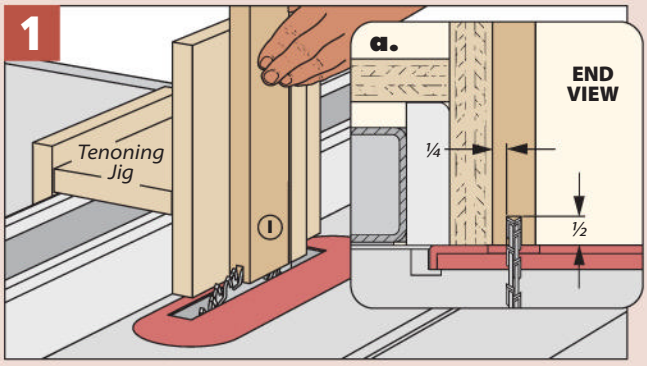
While the sides may catch the eye first, a longer look at the rustic wall shelf will reveal one of its other focus-stealing features: the shiplapped back. Though lapping is certainly more work than adding a simple panel, it's an excellent way to give depth and visual interest to an otherwise overlooked area. Plus, as with the cutout sides, shiplapping is easier to accomplish than it may look.

SIZING THE PANELS. The back begins with eight panels (illustration above). When sizing them, match their lengths to the distance between the top and bottom rails. There's a slight difference in the width of the end panels. Size these two pieces last. The intent here is to make each shiplapped panel appear equal in width when viewed from the front, so take the measurements directly after fitting the other panels in place.

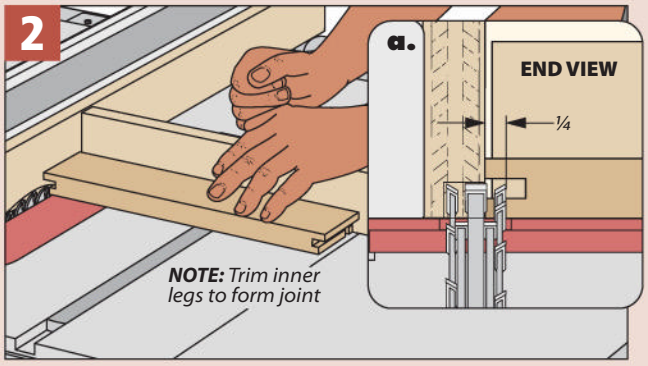
LAPPING. As the name implies, this technique descends from the craft of shipbuilding. This method offered our ancestors a way to build water-tight structures without our modern conveniences. Shiplapping has since been used in exterior siding, as it provides excellent weather resistance. Of course, our wall shelf doesn't need that kind of protection, but it still offers a sense of rustic style.

Shiplapping is made by overlapping rabbets with slight gaps in between to form shadow lines (detail 'a' above). Making it is easy at the table saw, using a dado blade buried in an auxiliary fence. The middle panels have rabbets on opposing edges, while the far left and right panels only have one rabbet. After making the cuts, I sanded a slight chamfer onto the front edges to accentuate the channels.

Locking Rabbet Joint



Vertical Cut. The locking rabbet joint first needs a slot cut into both ends of the drawer fronts. This is best done with a vertical cut at the table saw using a dado blade.



Trimming the Inside. To finish the locking rabbet, cut the inner "legs" formed after the vertical cut, as shown above. This will fit the dado cut into the drawer sides.

ATTACHING THE BACK. It's necessary to leave some room for seasonal movement when attaching the back pieces. While the shiplapping partially accounts for this, I also pin nailed these pieces in place rather than gluing them. I began on the right, then worked my way across.

DRAWERS

The final element is the drawers. Dadoes and grooves, combined with tongues, hold most of the drawers together (see details 'c' and 'd' on the previous page). However, a locking rabbet provides extra strength to the fronts while also hiding the sides. This element is the most complex, so I chose to start there.

LOCKING RABBETS. After initially sizing the drawer pieces, I began with the fronts. You can see how to make the joinery here in the illustrations above. A vertical cut at the table saw starts things off (Figure 1). From there, trimming down the inner "legs" completes the fronts (Figure 2).

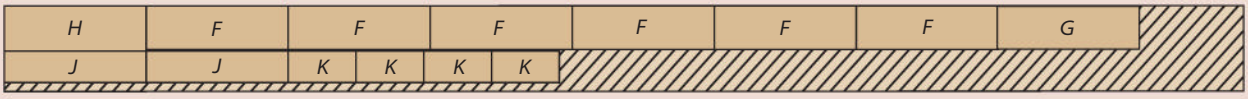
DRAWER JOINERY. To accept the front and back pieces, a dado needs to be cut on each end of the sides. In turn, the backs are rabbeted as well. Finally, a groove is cut at the bottom for the plywood panel.

ASSEMBLY. With all the joinery cut, the drawers can be glued up. Once dry, the only hardware you'll need to add is the two ring pulls. Otherwise, the drawers simply fit in place, no slides needed. After attaching the pulls, all that's left is to find the right place to install the shelf.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

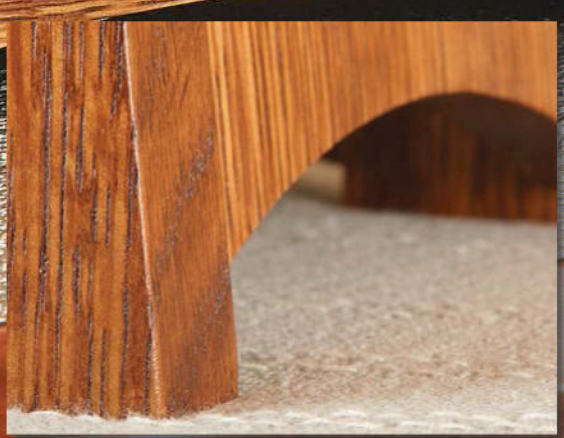
A	Shelves (3)	3/4 x 5 5/8 - 24 1/2	F	Shiplap Panels (6)	3/8 x 3 3/8 - 11	K	Drawer Sides (4)	1/2 x 2 7/16 - 5 1/4
B	Divider (1)	3/4 x 5 5/8 - 3	G	Right Shiplap (1)	3/8 x 3 5/32 - 11	L	Drawer Bottoms (2)	1/4 ply. - 5 x 11
C	Side Blanks (4)	3/4 x 2 7/8 - 14 3/4	H	Left Shiplap (1)	3/8 x 3 17/32 - 11			
D	Center Strip Blanks (2)	3/4 x 1/4 - 13 3/8 rgh.	I	Drawer Fronts (2)	3/4 x 2 7/16 - 11 1/2	• (2) 28mm Ring Pulls		
E	Rails (2)	3/4 - 1 7/8 x 24 3/4	J	Drawer Backs (2)	1/2 x 2 7/16 - 11	• (16) 1 1/2 Pin nails		

1/2" x 6 1/2"- 96" Riftsawn Red Oak (4.0 Bd. Ft.)



3/4" x 6"- 96" Riftsawn Red Oak (2.2 Bd. Ft.)

3/4" x 6 1/2"- 72" Riftsawn Red Oak (1.8 Bd. Ft.)



Fine Details. The sloped sides, tapered stiles, and a few curved details give this box strong Arts and Crafts appeal. Offset surfaces always add more visual interest.

Double-Door Box

Here's a new take on a small box. With doors on the front, it provides a unique storage solution.

Box making offers an appealing rabbit hole in the world of woodworking. Whether it's your main focus or just a diversion in between other furniture projects, a box offers a fun use of shop time. One of the best reasons to build a box is to explore new ideas in design, construction, or technique.

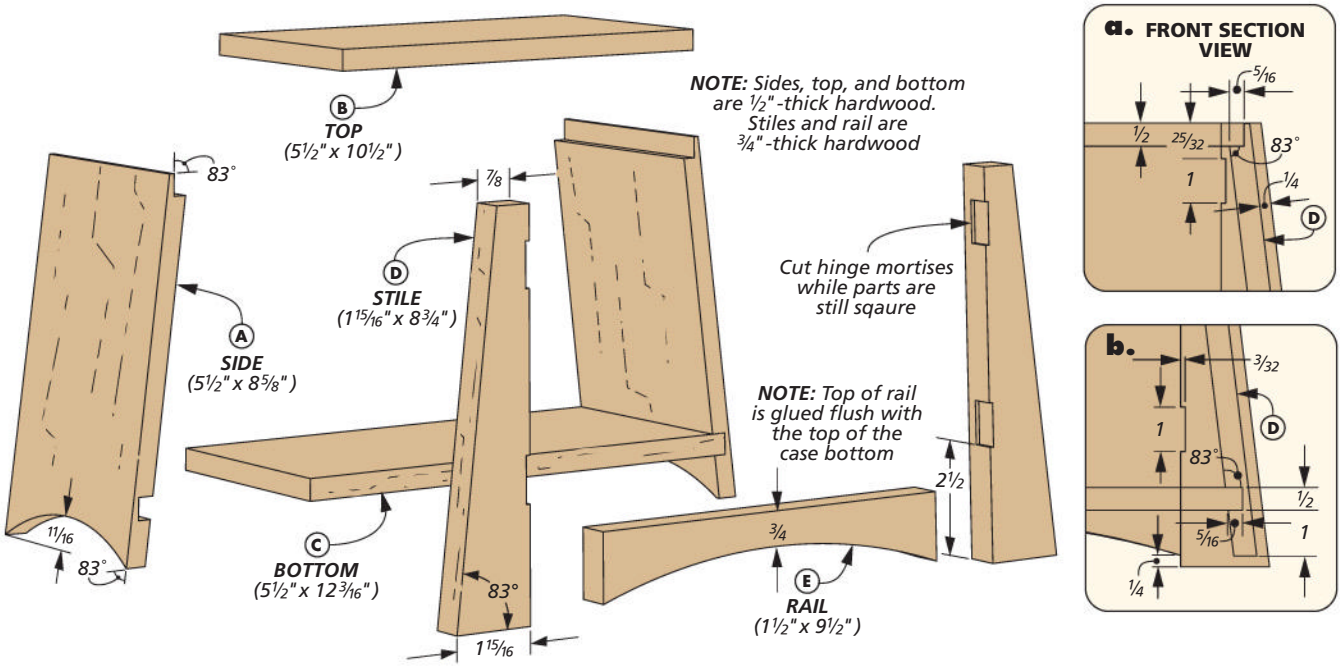
This box takes a different approach in the design category. Most boxes open at the top with a hinged, lift-off, or pivoting lid. Here, the box has a pair of doors at the front — like a full-size cabinet. This twist changes the relationship with how you interact with the box.

With both doors open, you still have full access to the contents. Though now, the items stored inside are organized in a different way. I see this box working really well on a mantle or on a shelf of a bookcase. These are places where you don't need to pick up the box to access the contents.

As for the styling, the details on this box lean heavily on Arts & Crafts motifs: quartersawn white oak, tapered sides, simple arcs, and offset surfaces. Creating details like the frame and panel back and doors at a small scale is a delight. Plus, it also allows (even forces) you to focus on crisp results and tight-fitting joinery.

Like any other box, this one lets you dive in and get it done in a short time and with a minimal investment in materials. I do, however, recommend going with high-quality hinges and knobs. The payoff is a great education and good-looking box. It's time to build.

Ball Catch. The small scale frame and panel doors require an appropriate catch. A ball catch like this works well, is more or less invisible, and doesn't intrude on the storage.



Just a **Small Cabinet**

If you take out the dimensions, this box could just as easily be a full-scale cabinet. The building process goes the same way, too. There are three main assemblies to look at first: the case, a front face frame, and a back frame-and-panel assembly. We'll work from the inside out.

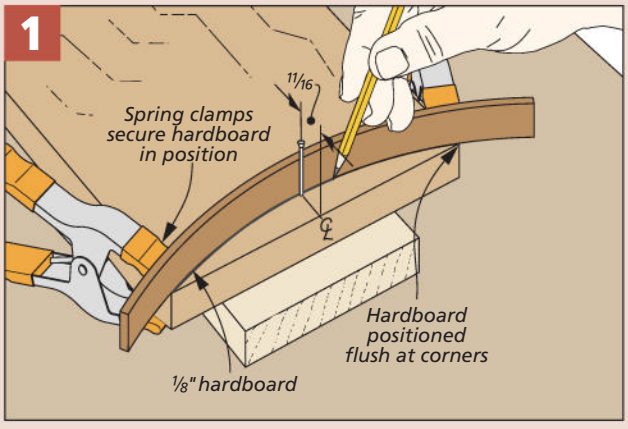
INNER CASE. The two sides, top, and bottom that make up the case are fairly simple pieces. It's all solid wood (I used quartersawn white oak). The wrinkle is that the parts are joined at a 7° angle. Getting there is surprisingly easy to do.

Begin the process with the sides by cutting matching angles on each end of both pieces. Then swap the blade for a ½" dado blade. Keep the blade tilted to the same angle and cut a rabbet and a dado in the sides, as shown in details 'a' and 'b' above. That's all there is to managing the angled assembly. The remaining parts all have square ends.

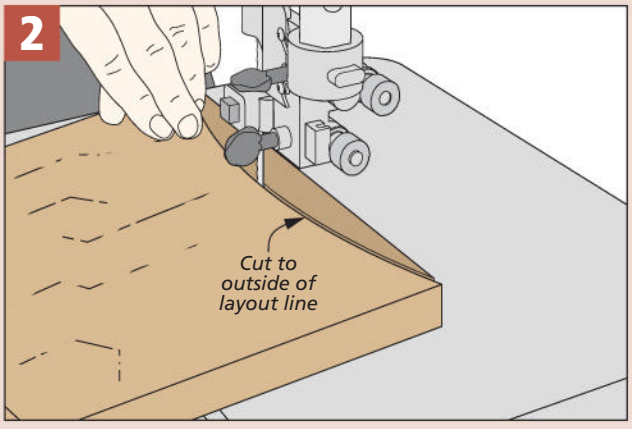
The lower edge of the sides has an arc cut into it. The drawings in the box below show how to accomplish this.

TOP & BOTTOM. The top and bottom can be cut to size and fit into the dado and rabbet. You may need to adjust the lengths slightly in order for them both to seat in their respective places (details

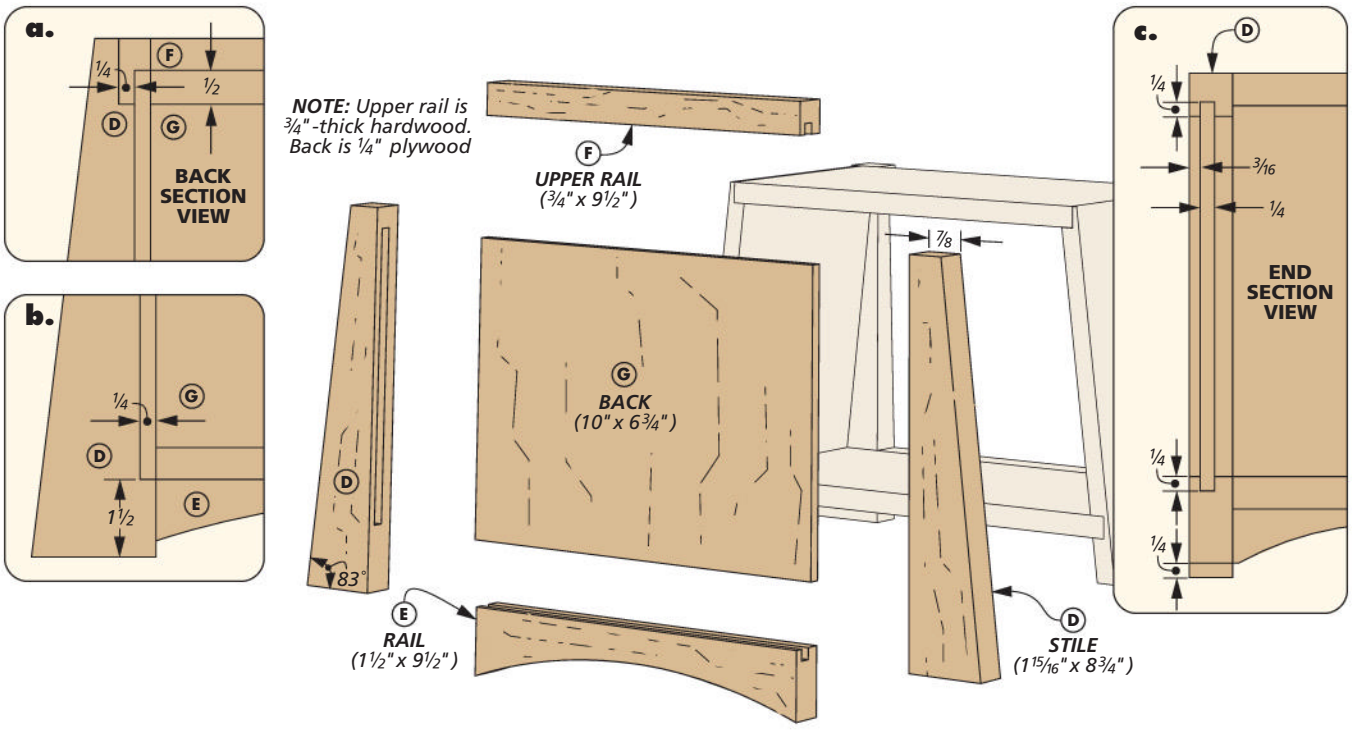
Lay Out the Arc & Cut It



Flexible Guide. Bend a thin ruler or piece of wood to match the height of the arc. A pin nail and spring clamps do the job nicely. Then, trace the curved profile on the workpiece.



Angled Curve. In order to match the slope of the sides, tilt the band saw table while making the cut. Then smooth it with a file and sandpaper.



'a' and 'b'). At this point, glue the inner case together. Make sure the joints stay closed. And just like on a regular case, you can measure from corner to corner to make sure the assembly is true.

FACE FRAME. A face frame covers the front of the case. It consists of a pair of stiles and a rail. On the inside edge of the rails, it's a good idea to cut the hinge mortises before gluing them in place. The stiles also have a taper on the outside edges that matches the slope of the case. I cut these at the band saw and smoothed them with a block plane. The stiles can be glued to the case flush with the top and with a ¼" reveal with the case sides.

The rail is cut to fit between the stiles. The lower edge of the rail has an arc on it to echo the look on the sides. It's glued to the case flush with the case bottom.

BACK FRAME

Around back, it's time to work on the last case assembly. You can see the components in the drawing above. There are a few additions and changes when compared to the face frame.

First off, this assembly adds an upper rail and a back panel to fully enclose the back. Then all five parts are joined together as a single assembly before getting glued to the case. The back panel serves as the bridge here.

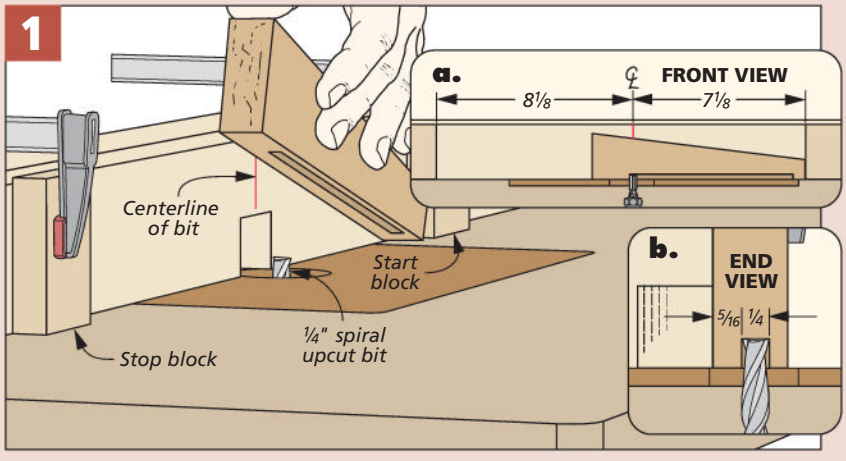
The back fits into an off-center groove on the inside edge of all the parts. For the rails, it's a through groove running the length of the parts. For the stiles though, the groove is stopped.

With small pieces like this, I prefer to cut grooves at the router table using a straight bit. The router table is ideal for creating the stopped grooves, as well. The box below shows how it's done.

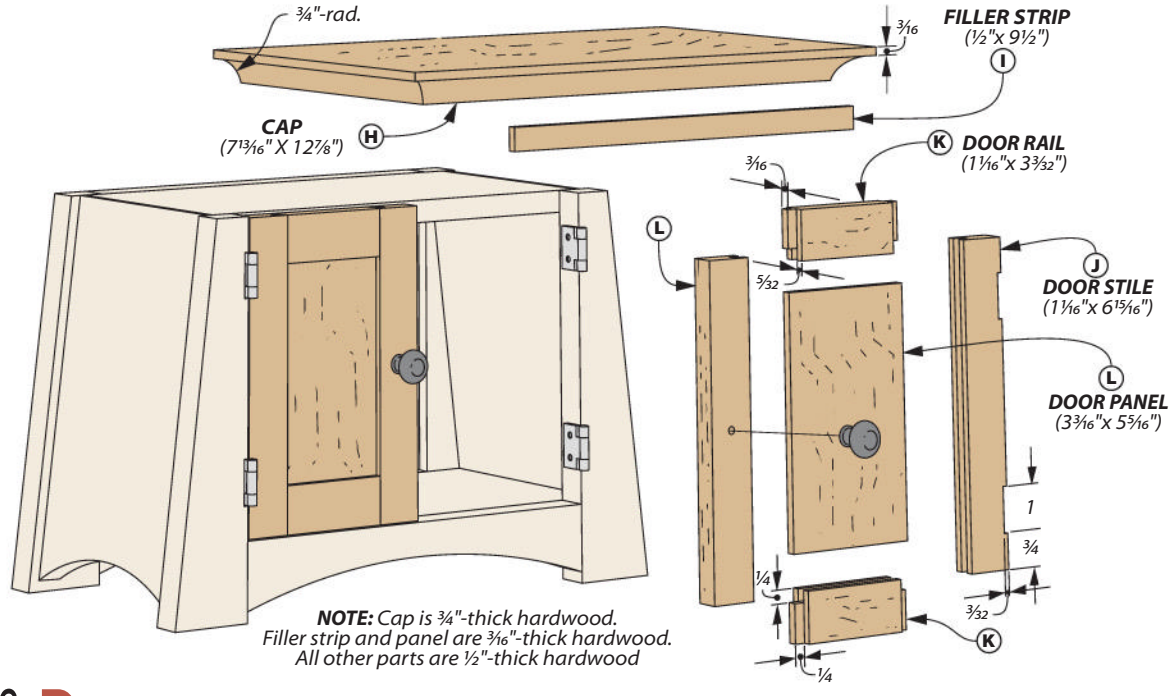
If you have a spiral upcut bit, use it — it'll make for a cleaner cut here.

MORE DETAILS. Before gluing up the frame, cut the tapers in the rear stiles. Take the time to form the arc on the lower rail as well. This assembly can be glued together. Once it's dry, you can attach it to the back of the case. The frame should be set flush with the top and centered side to side.

Stopped Grooves



Start & Stop. Using stop blocks clamped to the router table fence, lower the stile over the spinning bit and slide it along the fence until you reach the stop block, then lift the piece off the table.



Top & Doors

The upper portion of the box needs a better-looking solution than seeing the top, sides, and stiles all coming together. So a single-piece cap is the next piece to make (drawing above).

ONE PIECE OR GLUED. This is the widest part of the project. Since it will be a focal point, the important detail here is the grain. If you have a board this wide that has a consistent grain pattern, then go ahead and use it. If not, then a glued-up cap is better than a single piece with widely varying grain.

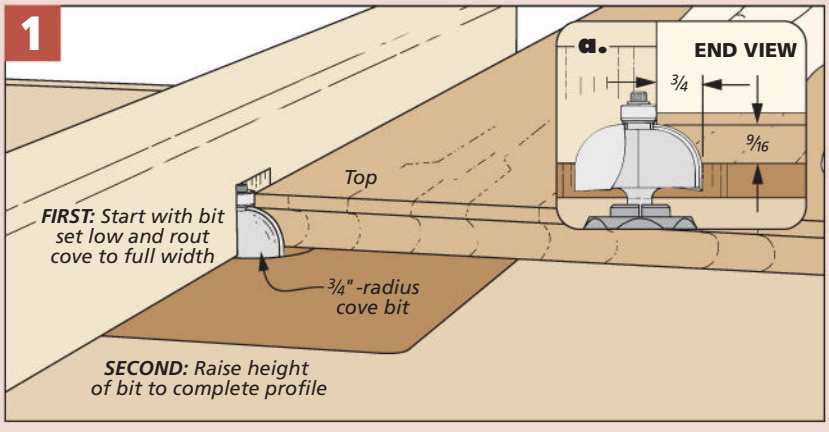
The top has a cove profile routed along the lower edges of the sides and front. This echoes the arcs on the lower parts of the box, maintaining our Arts & Crafts motif. Doing this at the router table is the ideal method, as shown in the box below. I found that a backer board keeps the bit from causing chip out as the end grain is being routed.

ATTACHING THE CAP. The cap is glued to the top of the box. Since the grain in the cap and box runs in the same direction, you don't have to worry about expansion and contraction issues. The real issue here is getting a good fit between the cap and box.

I sanded the top of the box by applying some sandpaper to the table saw top to create a flat reference surface. Do the same with the underside of the cap and the fit should be seamless. The cap gets glued down flush with the back edge of the box and centered side to side.

FILLER STRIP. The final piece to add to the case is a thin filler strip. This is cut to fit along the upper edge of the case top. It serves as a doorstop to keep the doors flush with the front face of the stiles and lower rail.

Routing Cove Profiles

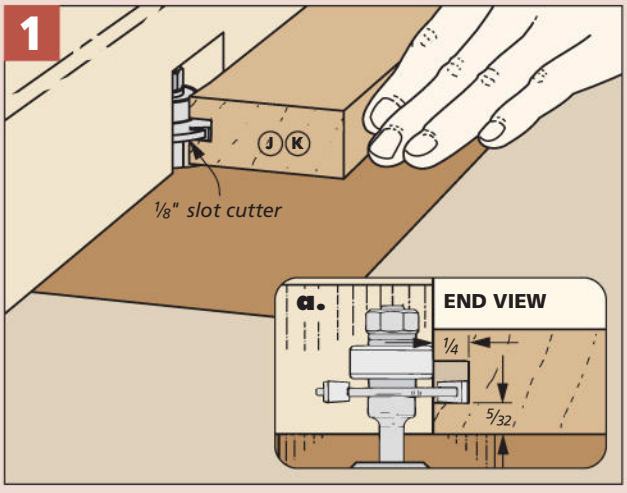


Back it Up. Rout the ends of the cap first using a backer board to prevent chipout. Then form the cove along the front edge — no backer board necessary. Sand the profile to remove any bit marks.

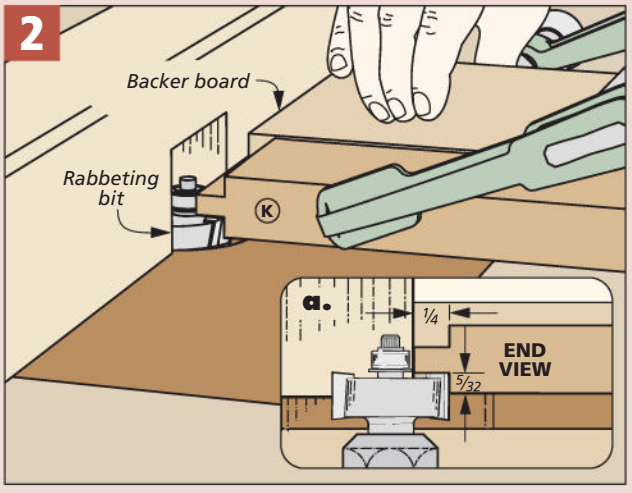
DOUBLE DOORS

The two doors for the box are frame-and-panel constructions, just like they would be on a larger cabinet. Building these types of doors on a smaller scale means adjusting the process in order to make the pieces safely and accurately. For me, that means heading to the router table to cut the joinery.

Stub Tenon & Groove Joinery



Cut the Grooves. With a 1/8" slot cutter, make one pass, flip the piece over and make a second pass to widen the groove to 3/16".



Form Stub Tenons. Stub tenons are made in several passes. Raise the rabbeting bit between each pass until the stub tenon just fits the groove.

STUB TENON & GROOVE. The box above shows the two steps. It starts with making grooves on the inside edge of all the stiles and rails, as in Figure 1.

I like to use a slot cutter for these kinds of grooves. I find that it cuts smoother and puts less stress on the router's motor compared to using a typical straight bit. With such small parts, using a push block is also a good idea to keep your fingers well away from the action.

STUB TENON. The slot cutter could be used to make the other part of the joint, the stub tenon. However, I switched to a rabbeting bit, as illustrated in Figure 2 above. After chucking it in, Set the bit so that it's a hair lower than the groove. Make a pass along each face and test the fit. If necessary, raise the bit slightly and make another pair of passes. Repeat until the stub tenon slips into the groove with a gentle press-fit. This process maximizes the strength of the tenon.

PANELS. The door panels are made from solid wood, so they'll look just as good from the inside as they do from the outside. I resawed them from thicker stock and planed them to final thickness — 3/16" thick.

For narrow panels like this, you don't need to worry about expansion and contraction. Which means you can glue them into the grooves. After assembly, trim the door to size allowing for a 1/16" on all sides.

HINGE MORTISES. Set the doors in place and transfer the hinge mortise locations from the box to the door edges. You can cut the mortises with a straight bit in the router table by holding the door on its edge.

Along with the knobs, you can then install the ball catches in the upper edges of the doors. The catch plate is attached to the underside of the top.

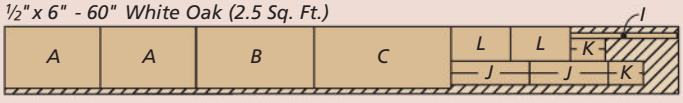
FINISH. To match the darker finish on the hardware I used, I chose to stain the box with *Varathane*'s "Gunstock." I followed this with two coats of spray satin lacquer to give it a nice shine in the photos. After applying a finish, you can find it a home and select the treasures you want to store inside.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

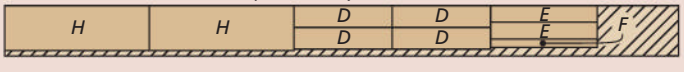
A	Sides (2)	1/2 x 5 1/2 - 8 5/8 rgh.
B	Top (1)	1/2 x 5 1/2 - 10 1/2
C	Bottom (1)	1/2 x 5 1/2 - 12 3/16
D	Stiles (4)	3/4 x 1 15/16 - 8 3/4
E	Lower Rails (2)	3/4 x 1 1/2 - 9 1/2
F	Upper Rail (1)	3/4 x 3/4 - 9 1/2
G	Back Panel (1)	1/4 ply. x 10 - 6 3/4
H	Cap (1)	3/4x 7 13/16 - 12 7/8
I	Filler Strip (1)	3/16 x 1/2 - 9 1/2
J	Door Stiles (4)	1/2 x 1 1/16 - 6 15/16
K	Door Rails (4)	1/2 x 1 1/16 - 3 3/32
L	Door Panels (2)	3/16 x 3 3/16 - 5 5/16

- (2pr.) 1 1/4" x 1" Butt Hinges w/screws
- (2) 3/4"-dia. x Knobs
- (2) 5/16"-dia. Ball Catches

1/2"x 6" - 60" White Oak (2.5 Sq. Ft.)



3/4"x 4 1/2" - 60" White Oak (1.9 Bd. Ft.)



ALSO NEED: *One 24" x 24" sheet of White Oak plywood*

For The Shop

What collection of projects would be complete without some new goodies for your shop? From layout tools to workstations, this section features top-quality additions to your shop that won't break the bank. A bit of wood, some hardware, and a few hours of your time are a small price to pay for these results.

MULTI-FUCNTION SWIVEL VISE 76

SHOP-MADE MARKING KNIFE.....80

FRENCH CURVES 84

3 PLYWOOD PROJECTS.....90

Multi-function Swivel Vise

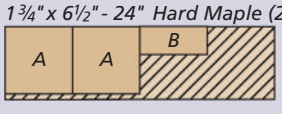
Position a workpiece exactly where you need it with this versatile vise. The quick-change design allows for mounting multiple accessories.

MATERIALS, SUPPLIES & CUTTING DIAGRAM

A	Vise Block (1)	2½ x 6 - 6
B	Front Jaw (1)	1¾ x 2½ - 6
C	Jaw Plate (2)	2½ x 6 - ¼ Steel
D	Vise Mounting Plate (1)	1 x 5¼ - 5¼

- (1) 2 5/16"-dia. Hitch Ball
- (1) 1" Pipe Flange
- (1) ½"-13 Adjustable Handle
- (2) ½"-13 x 10¾" Threaded Rods
- (4) ½"-13 Hex Nuts
- (1) ½"-13 Hex Lock Nut
- (6) ½" USS Washers
- (1) ¼"- 2½" x 24" Steel Bar
- (8) #8 x 1" Fh Woodscrews
- (1) ¾"-10 x 7" Hex Bolt
- (1) ¾"-10 Hex Nut
- (2) ¾" USS Washers
- (4) ¼"-20 x 1¼" Hex Head Mach. Screws
- (4) ¼" USS Washers
- (4) ¼"-20 T-nuts

1¾"x 6½"- 24" Hard Maple (2.2 Bd. Ft.)



1"x 6 "- 12" Hard Maple (.6 Bd. Ft.)

***NOTE:** Parts A are planed to 1¼" thick*

There's no denying that many of us could benefit from a fully adjustable, rotating vise in our shop from time to time. Having the ability to quickly rotate and position a workpiece is a huge advantage when performing certain tasks. However, finding the workbench space to permanently mount a tool that may not be used all the time isn't the best use of a work area. The shop-built vise shown here is the perfect solution.

This vise can be temporarily mounted to a workbench using existing dog holes and easily removed when not needed. But the genius of this vise is the use of a standard hitch ball between the vise jaws that gives you complete adjustability on two axes. Simply release the handle to rotate and tilt the workpiece to the position needed.

On the main mounting platform, which is shown above, I attached a machinist's vise (also called a mechanic's vise) for handling many common clamping situations. For even more versatility, we created a few additional clamping fixtures. The plans for these are available online at our website, *Woodsmith.com/magazine.sip.*

VISE BLOCK & FRONT JAW

The vise is constructed from a combination of hardwood and steel hardware. But you won't need a full metal shop to fabricate

the steel components. Most of the steel work can be performed with a hack saw, a few metal files, and a drill press.

BLOCK & JAW FIRST. It really doesn't matter whether you make the vise block and front jaw from one solid blank or glue it up from thinner stock. Just be sure to choose a solid hardwood for long-term durability. For the vise block, I planed an oversized blank down to 1¼" thick. I then cut the board in half and face glued the pieces together.

After cutting the two parts to size, you'll want to lay out the locations for the ½"-dia. through holes in the block and jaw. These holes will house the threaded rods that secure the vise halves together. Detail 'a' at right shows the position of these holes.

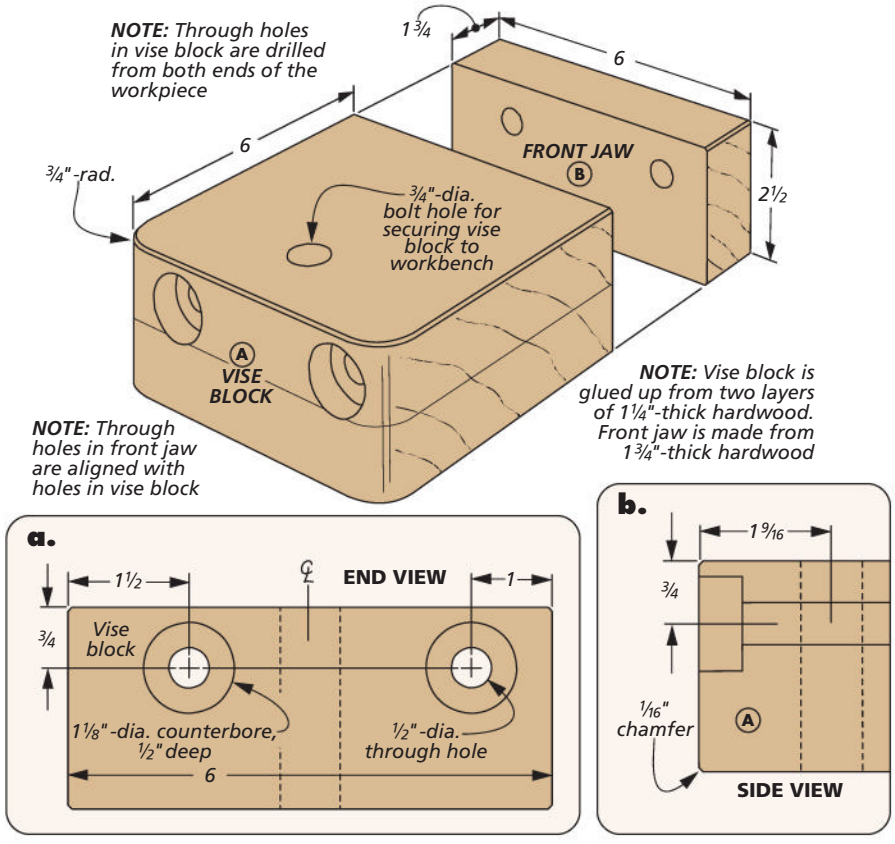
COUNTERBORE & DRILL. Start by drilling the counterbores on the back end of the vise block using a Forstner bit in the drill press. The How-To box below gives the details. Now switch to a ½"-dia. twist bit and drill the two through holes in the front jaw.

The block also gets two holes that match up with the holes in the jaw. However, because the block is 6" wide, these holes need to be drilled from both ends of the block. I transferred my layout lines around the face of the workpiece, as shown below. With the workpiece positioned against the drill press fence, drill at least halfway through one end of the block. Flip the piece end-for-end, keeping the same face against the fence, and complete the holes.

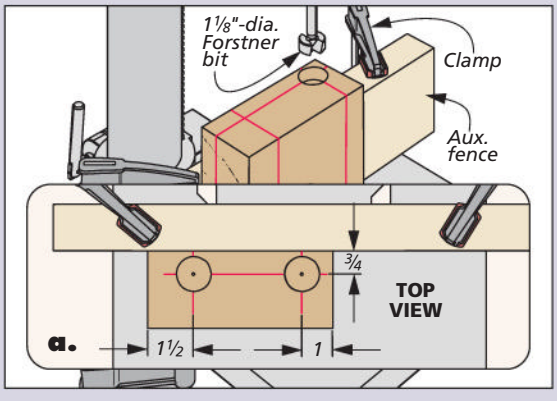
One more hole in the top of the vise block completes the drilling operations. This ¾" hole is for the bolt needed to secure the assembly to the workbench.

ROUND CORNERS. The back corners of the vise block are rounded off. This is easy to do at the band saw. A quick trip to the disc sander does a good job cleaning up the saw blade marks and leaving a smooth surface.

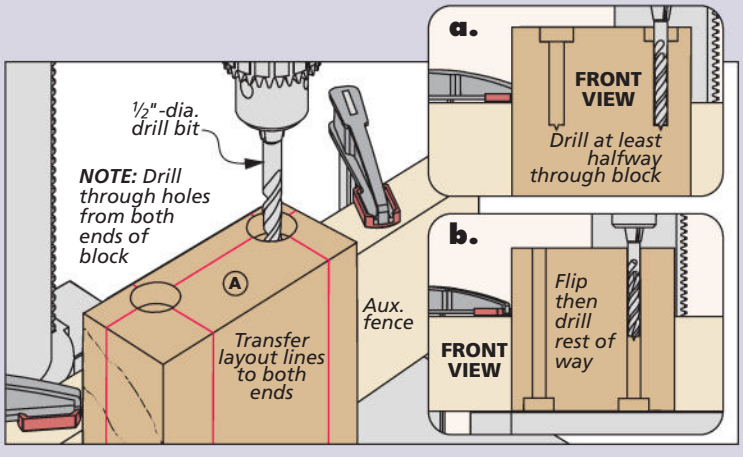
CHAMFER EDGES. To ease any sharp edges, I used a chamfer bit in the router table to chamfer the top and bottom edges of the vise block, as well as the top, bottom, and side edges of the front jaw.



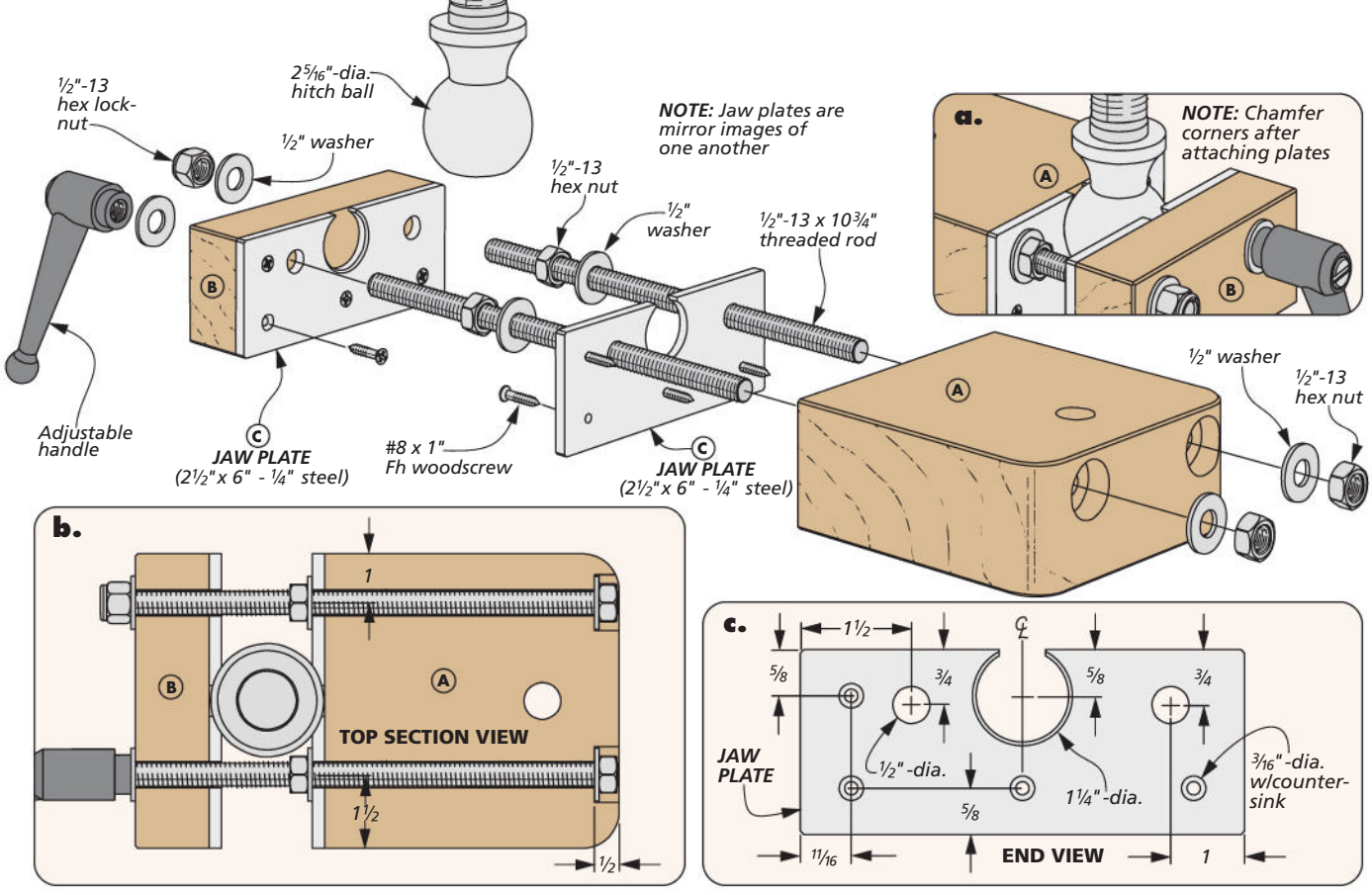
How-To: Drill Long Holes



Two Counterbores. After laying out the hole locations, reference the workpiece against the drill press fence in order to drill the counterbores with a Forstner bit.



Drill Twice. Starting on the counterbored end of the block, drill at least halfway through the block (detail 'a'). Then flip the piece end-for-end and complete the holes by drilling through the other edge (detail 'b').



Hardware & Vise

With the bulk of the woodworking for the vise done, you can turn your attention to some light metal-working. The two steel jaw plates are fabricated and attached to the vise block and front jaw. These jaw plates help to secure the hitch ball. It's then just a matter of adding some hardware and making the machinist's vise mounting platform.

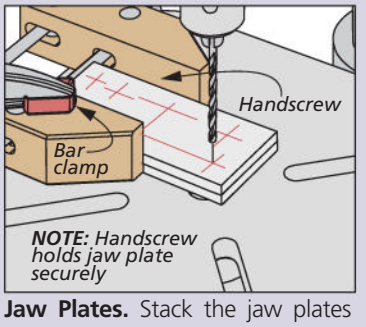
TWO STEEL JAW PLATES. To keep the amount of metal cutting needed to a minimum, I purchased a section of ¼"-thick steel that was 2½"-wide and long enough to accommodate both jaw plates. All I needed to do was cut the two sections to length with a hack saw and clean up the edges with a metal file.

DRILLING THE HOLES. Several holes need to be drilled in the steel jaw plates (detail 'c'). The large center hole secures the hitch ball, while the two ½"-dia. holes allow the threaded rod to pass through. Also, there are four mounting holes in each plate. To keep them all aligned, I stacked the plates together to drill these holes, as shown in the How-To Boxes below.

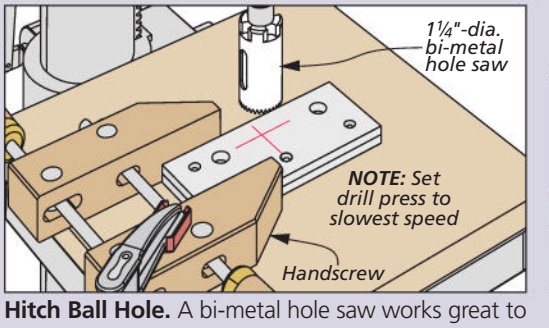
Be sure the workpieces are secured to the drill press table. This keeps the pieces from potentially catching on the drill bit and spinning. I used a handscrew to hold the workpieces and clamped it to the table.

After drilling all of the through holes, remove the clamps and label the two jaw

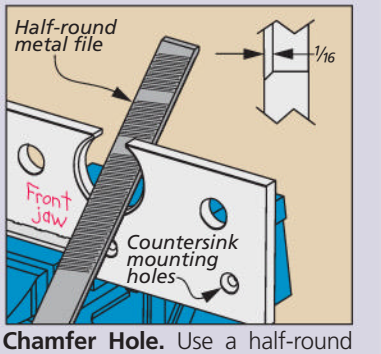
How-To: Metal Work



Jaw Plates. Stack the jaw plates and clamp in a handscrew. A bar clamp secures it to the table.



Hitch Ball Hole. A bi-metal hole saw works great to drill the hole in the center of the plates. Cutting fluid is essential for drilling this large hole.



Chamfer Hole. Use a half-round metal file to chamfer the edge of the hitch ball hole.

plates (drawing lower right, previous page). This ensures the countersinks for the mounting holes and the chamfered edges of the large center holes are mirror images when drilled.

ADD VISE HARDWARE. The jaw plates are attached to the vise block and front jaw with woodscrews. I filed a slight chamfer on all four corners of each jaw plate to match the chamfer on the block and jaw.

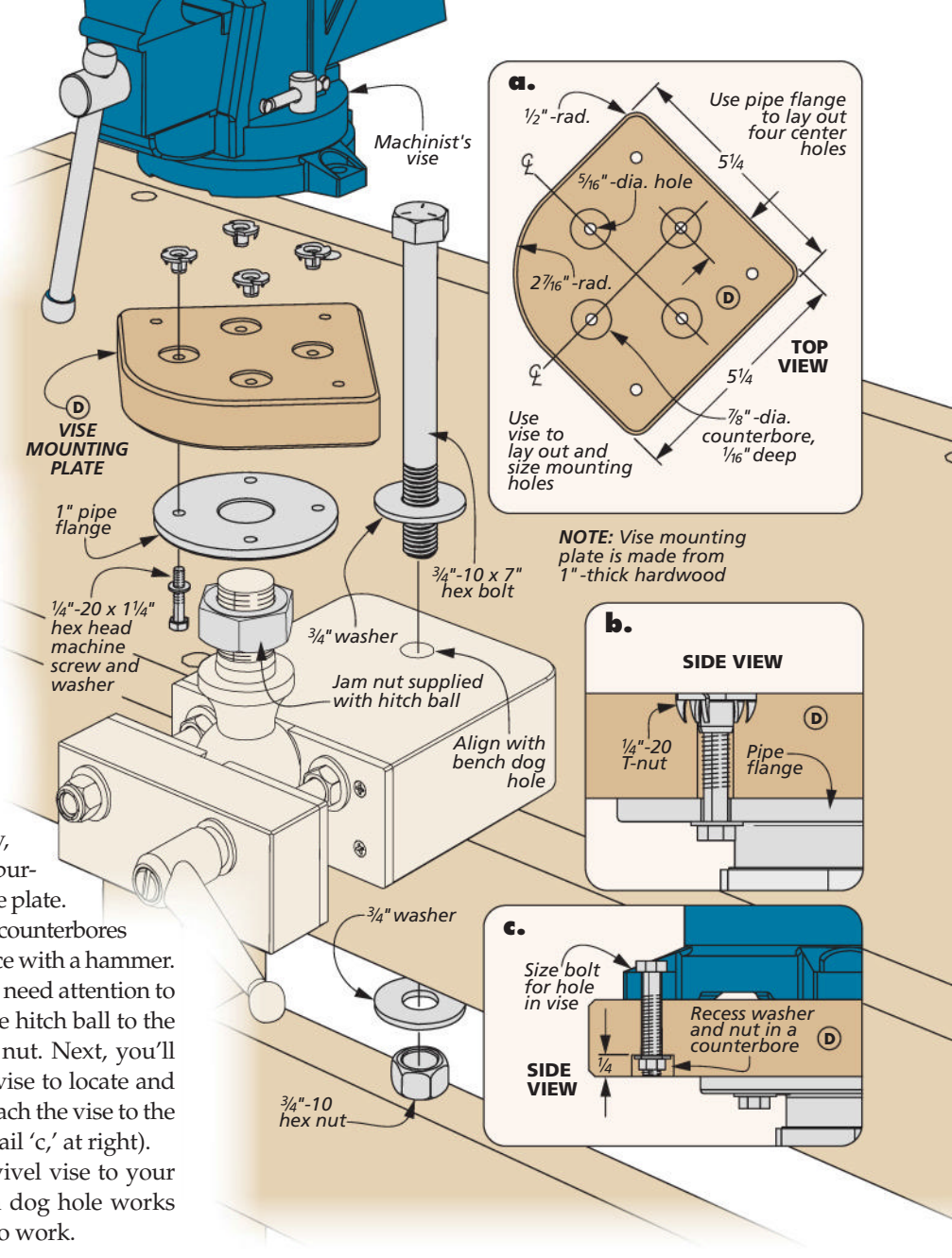
Now secure the vise block and front jaw assemblies together with a pair of threaded rods, washers, and nuts. You can see how this hardware comes together in the main illustration on the previous page. Also, install the adjustable handle on one threaded rod.

VISE MOUNTING PLATE. The next step is to make the mounting plate for attaching the machinist's vise (detail 'a'). Cut the plate to size and round the corners with a band saw. I also chamfered the edges to match the vise block and jaws.

Since flange hole patterns may vary, you'll want to use the pipe flange you purchased to mark the mounting holes on the plate. Once this is done, drill through holes and counterbores for some T-nuts and then tap them in place with a hammer.

FINISHING TOUCHES. Just a few more details need attention to complete the swivel vise. First, screw the hitch ball to the flange and secure it with the supplied nut. Next, you'll use the hole pattern of the machinist's vise to locate and drill the holes in the mounting plate. Attach the vise to the mounting plate with bolts and nuts (detail 'c,' at right).

Finally, you're ready to attach the swivel vise to your workbench. A large hex bolt through a dog hole works great. Now you can put your new vise to work.



Additional Clamping Fixtures

You can give the multi-function swivel vise even more versatility with the addition of the two clamping fixtures shown in the photos at right. The plans for these fixtures are available on our website.

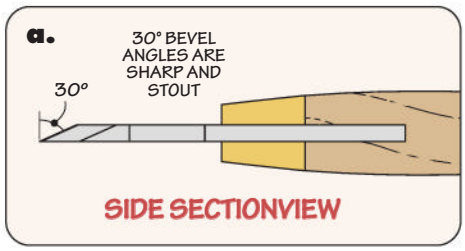
GO 2 Online Extras

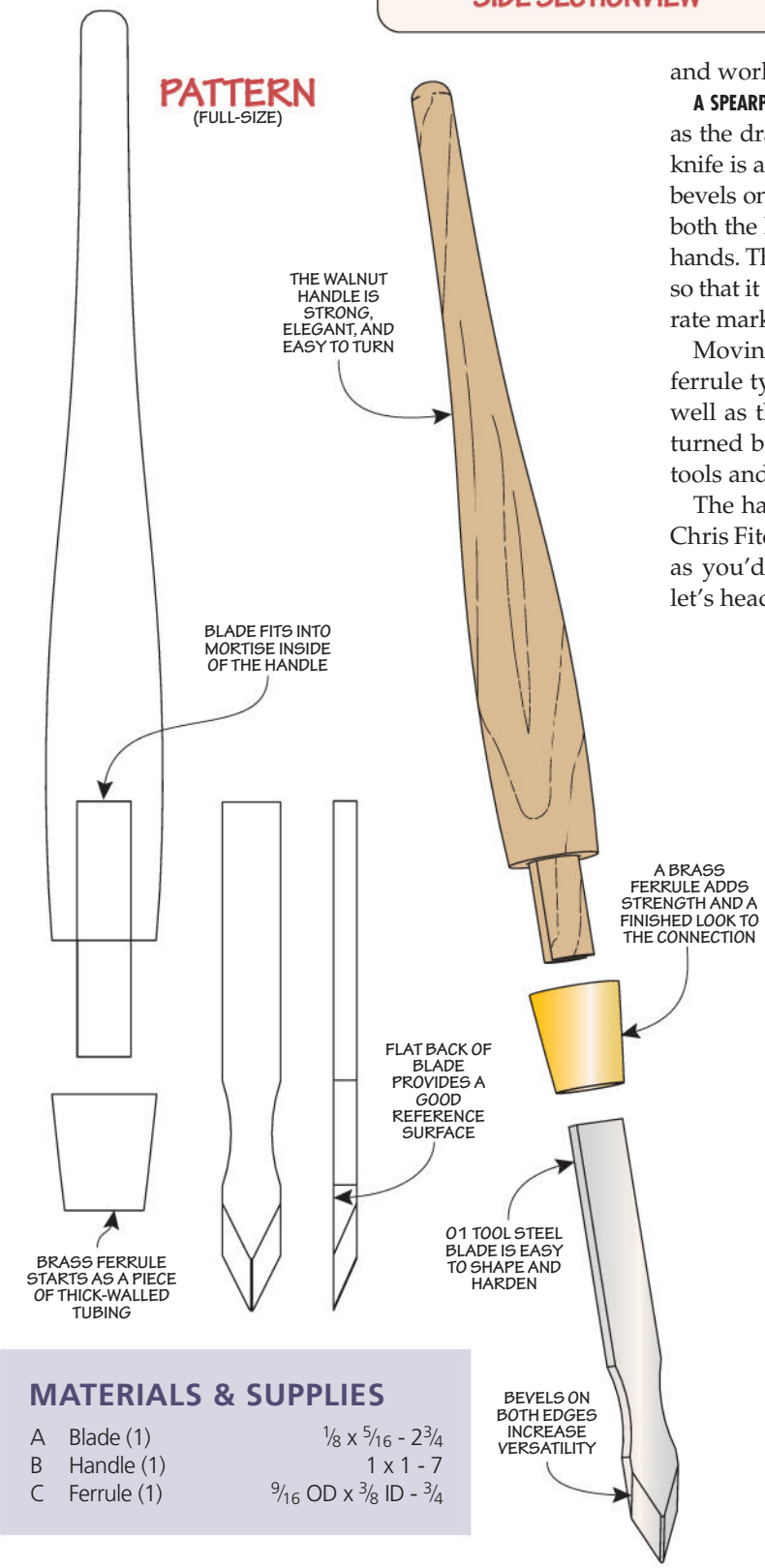
For two more handy accessories, go to:
Woodsmith.com/magzine/sip

Shop-made Marking Knife

Construction Details

OVERALL DIMENSIONS:
¾"-DIA. x 7" LONG





MATERIALS & SUPPLIES

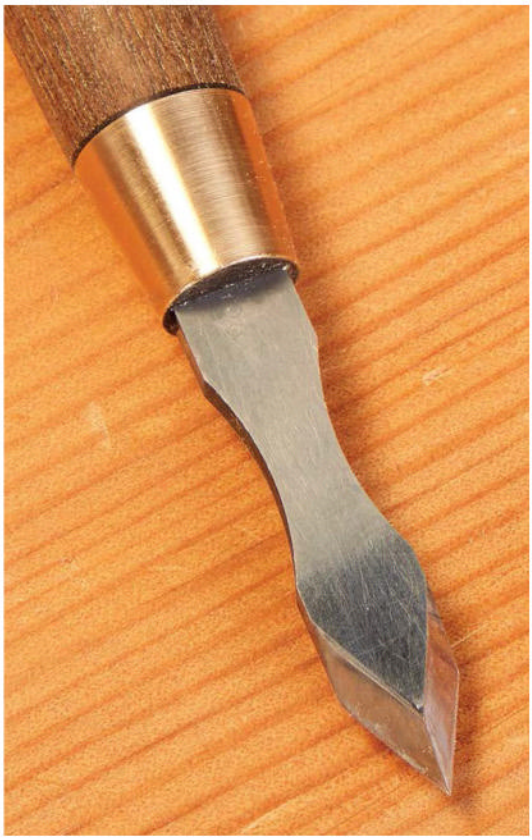
A	Blade (1)	1/8 x 5/16 - 2¾
B	Handle (1)	1 x 1 - 7
C	Ferrule (1)	9/16 OD x ⅜ ID - ¾

Marking and layout tools — we've dedicated entire articles to them, and that should speak to their importance in the shop. Being able to accurately mark parts and strike layout lines are tasks where a quality marking knife is without equal. The marking knife you see here can be made in a quick afternoon in the shop, and works in some great turning and metalworking.

A SPEARPOINT TIP. As you can see in the photo below, as well as the drawing to the left, the business end of this marking knife is a spearpoint blade. This design has a sharp tip with bevels on both edges. This means it can be used to mark on both the left and right sides of parts, as well as used in both hands. The backside of the blade is honed flat with no bevels so that it can be referenced flat along a straightedge for accurate marking.

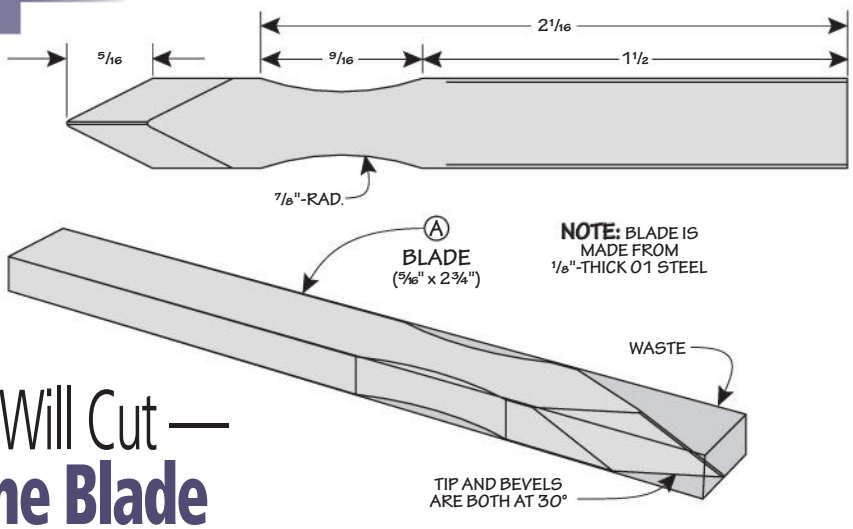
Moving up from the blade, you'll see that there's a brass ferrule tying the blade to a walnut handle. The ferrule (as well as the handle) is turned at the lathe. If you've never turned brass at the lathe, you're in for a treat. With sharp tools and light cuts, brass cuts like butter.

The handle design shown here is one that our designer, Chris Fitch came up with. However, feel free to get as fancy as you'd like with the design (or wood) on yours. Now, let's head into the shop and get started.



Double Bevel. This blade shape is ideal for marking a variety of parts. The flat back of the blade offers a wide reference surface for scribing accurate lines.

FIGURE 1



It Will Cut — the Blade

The business end of the marking knife is the blade. At its core, a marking knife really only needs a blade. Many marking knives are simply bars of steel with a bevel ground on one end. Of course, we'll fancy ours up in a bit. Let's start with the blade.

WONDERFUL O1. Of all the steels available, O1 tool steel is my favorite. It works very easily, takes a wicked sharp edge, and is easy to sharpen. O1 tool steel is readily available from online retailers. See our sources on page 98.

With your blank in hand, you may be tempted to start by cutting it to length. Hang on though — you'll find it easier to work on the blade with a bit of extra material to hold onto.

Before we start working on the blade, let's make some layout lines to guide our work. Use a black permanent marker (or layout fluid, if you have it) and scribe a few layout marks onto the blade. Use the measurements in Figure 1 to mark these accurately.

The first task is to create the small swoops on each side of the blade. This "necked down" area is a nice detailand provides a touch more visibility as you're working in tight areas. These swoops are easy to make with a round file, or if you have a sanding drum for your drill press, you could use that too. Use a coarse grit to remove material efficiently.

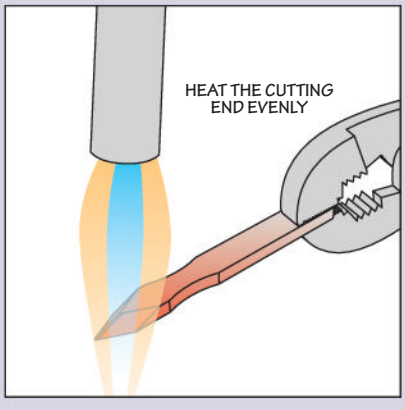
BEVELS NEXT. Now, clamp your blade in a metal vise and grab a good file. It's time to form the bevels. Instead of trying to create the shape of the end and the bevels in one go, I do this in a two-step approach. First, file off the corners to shape the tip. This will create the spear-point end. Take your time to ensure a symmetrical shape.

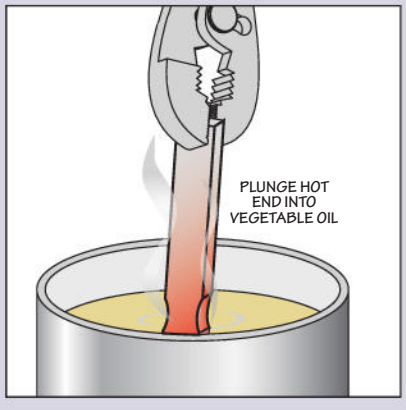
Once you have the tip shaped, you can start to form the bevels. Here, we chose a 30° bevel. It's stout enough to not be fragile, but still holds an edge nicely. File the edges down until they're just sharp. You will do the final honing after the knife is finished.

HEAT TREAT. Now is the time to cut your blade to length and heat treat it. Heat treating O1 is easy. Use a propane (or MAPP) torch to heat the blade until a magnet will no longer stick to it. Once you've reached that point, plunge the steel into vegetable oil to harden it (the O in O1 stands for oil). After it's cooled, check the edge with a file — a file will not bite into a properly hardened edge. If you're successful, you can pop it into an oven at 400° for a couple of hours to temper it. This reduces the brittleness of the hardened steel. Clean any scale off the steel with sandpaper, and turn your attention to the handle.

Forged Steel

When heat treating a blade, the goal is to get the entire cutting edge to an even temperature. Hold the blade in a pair of vise grips, and move it back and forth through the flame for an even heat. You want the entire cutting tip to be non-magnetic before quenching.



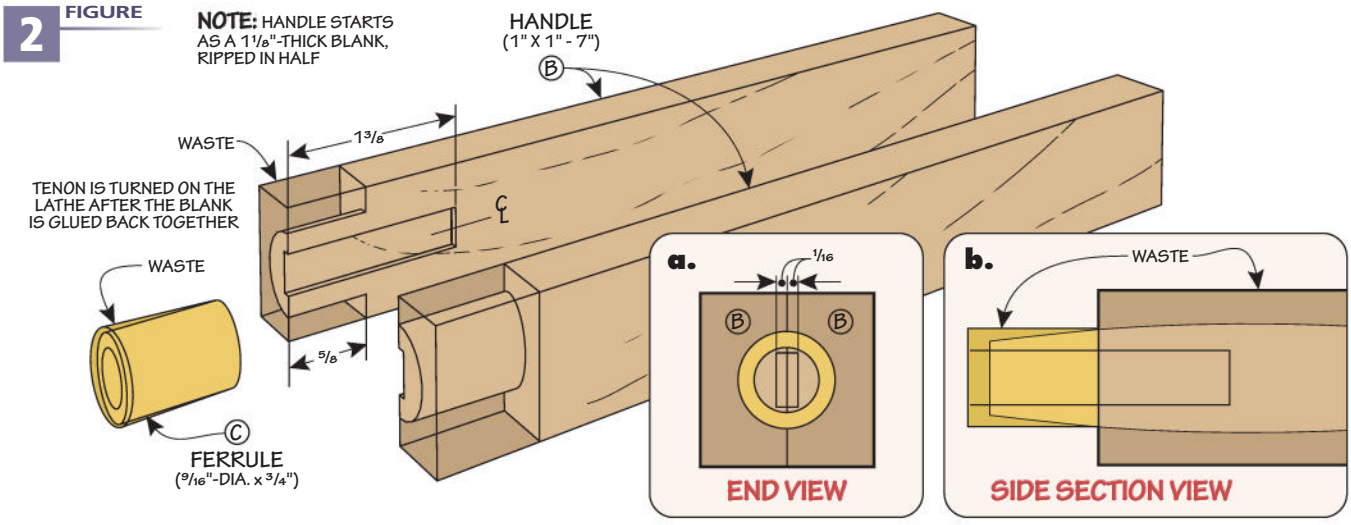


HANDLE & FERRULE

Looking at Figure 2 on the next page, you'll see that the handle starts as one blank that's been ripped in half. This allows you to create a mortise for the blade before turning it.

MORTISE FIRST. After selecting your stock and ripping it in half, load up a straight bit in the router table. You'll want to rout a shallow stopped groove in each part, as you see in Figure 2. Test the fit by clamping the blank back together and inserting the blade. Fine-tune as needed for a slip fit, then glue the handle back together.

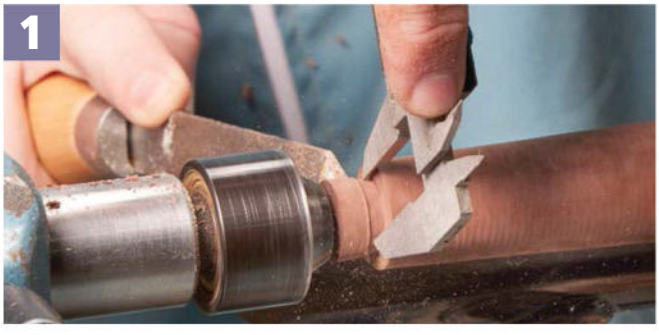
TO THE LATHE. Now, it's time to head to the lathe and turn the handle. Hold the handle in a chuck, with the



mortised end supported by the tailstock. Use a spindle roughing gouge to turn the blank round. The brass ferrule will slip over a tenon, as you see in Figure 2b. Form this tenon with a parting tool (Step 1, below). As you form the tenon, remove the tailstock to test the fit. Once the ferrule slips over the tenon, epoxy it in place and wait for it to cure.

Here's where you can really start to experiment with shapes. Turn the handle to whatever shape you like. A slim shape is generally more comfortable to hold and something tapered makes for a firm grip. As you turn the brass ferrule, take light cuts. As long as your tools are sharp, the brass should turn nicely. Be careful trying to make a continuous cut between the wood and brass, however — you'll find the two materials will cut differently and have a tendency to leave a ridge where they transition. Instead, get the ferrule and handle both close to the finished shape, then blend them together with sandpaper. Finally, part the handle off of any excess held in the chuck.

Epoxying the blade into the handle is the final step before sharpening. A five-minute epoxy works well. Make sure to wipe any squeezeout away with acetone before the epoxy cures and hone the blade to a razor edge.

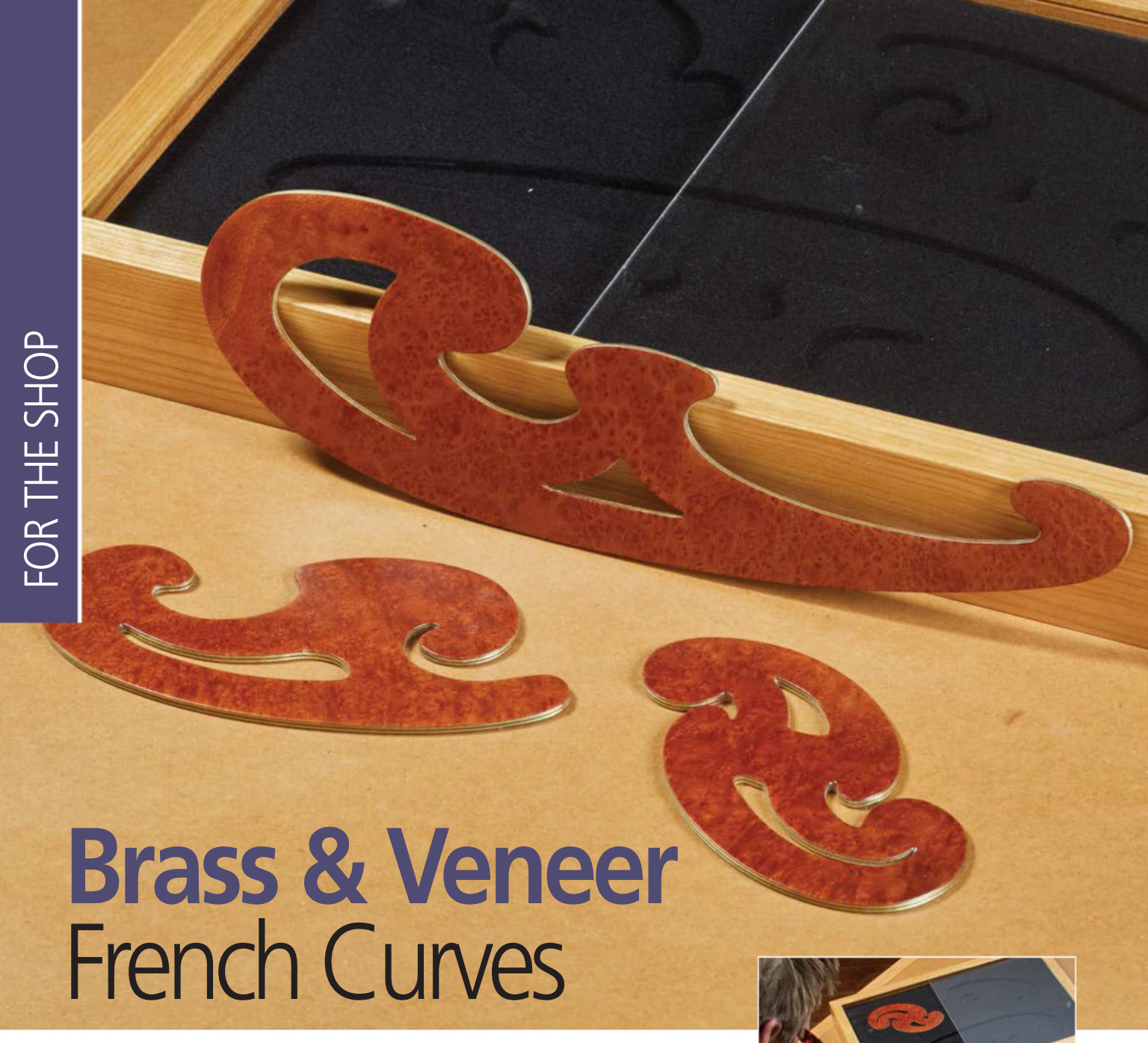


Ferrule Tenon. Turn a tenon on the tailstock end of the workpiece. Use a pair of calipers to measure the inside diameter of the brass tube, and transfer that to the blank.

Test the Fit. Pull the tailstock away and test the fit of the tube. It should be snug the entire length of the tenon. Once you're happy with the fit, cut the tube to length.

Glueup. Spread epoxy on the tenon and press the ferrule into place. Wipe away any squeezeout. Hydraulic pressure may push the ferrule off, so bring the tailstock up to "clamp" it in place.

Brass Shaping. Start by turning away the brass ferrule, and getting that to shape. Leaving a large bulk of material in the handle will help reduce chatter from cutting the harder brass.



Brass & Veneer French Curves

A well-built project begins with a well-made layout. And, to create a quality layout, you'll need quality tools. For many projects, you'll be able to get by with squares and rules, but as you continue on your woodworking journey, you'll eventually find more organic designs that call for something unique.

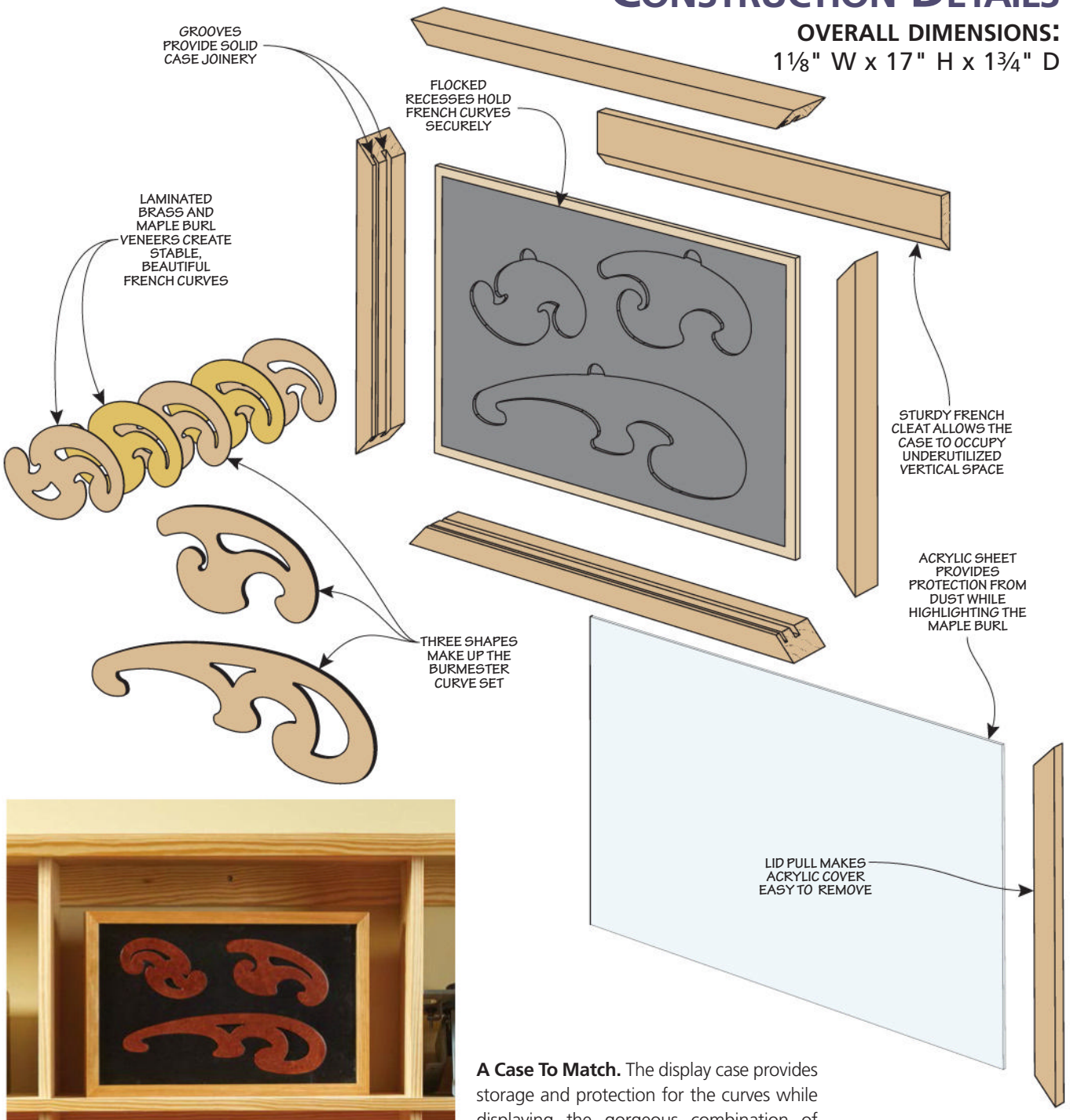
French curves have been a part of the woodworking arsenal in some form or another for centuries. They began as simple, curved splines used by boatwrights, but they evolved throughout the years into the three shapes above.

Curiously, these curves aren't actually French. Though they were inspired by a larger selection of 28 curves commonly used in France, these three shapes were invented by the German mathematician Ludwig Burmester. These forms saw mass appeal and spread to shops across the world. Without getting too deep in the geometric weeds, these three tools allow you to create curves with nearly any pitch. For the ones above, we used brass and maple burl veneer to create stable, elegant curves — plus a display case to show off this gorgeous set.

Drawing Curves. These French curves combine spirals, parabolas, and ellipses to make a set of essential tools for laying out organic and curved designs.

Construction Details

OVERALL DIMENSIONS:
1⅛" W x 17" H x 1¾" D



A Case To Match. The display case provides storage and protection for the curves while displaying the gorgeous combination of maple burl veneer and brass.

MATERIALS & SUPPLIES

A	Large Curve (1)	⅛ x 3 7/16 - 12⅛	F	Case Lip (1)	¾ x 1¼ - 11	• (1) .032" x 6" - 36" Formable 260 Brass Sheet
B	Medium Curve (1)	⅛ x 3 5/16 - 6 11/16	G	Case Panel (1)	½ Ply. - 10 x 16	• (1) ⅛" x 12" - 24" Acrylic Sheet
C	Small Curve (1)	⅛ x 3 1/16 - 5¼	H	Lid Pull (1)	¾ x ½ - 11	• (1) Black Flocking Kit
D	Case Sides (2)	¾ x 1¾ - 17	I	French Cleat (2)	½ Ply. - 2 x 15½	
E	Case End (1)	¾ x 1¾ - 11				

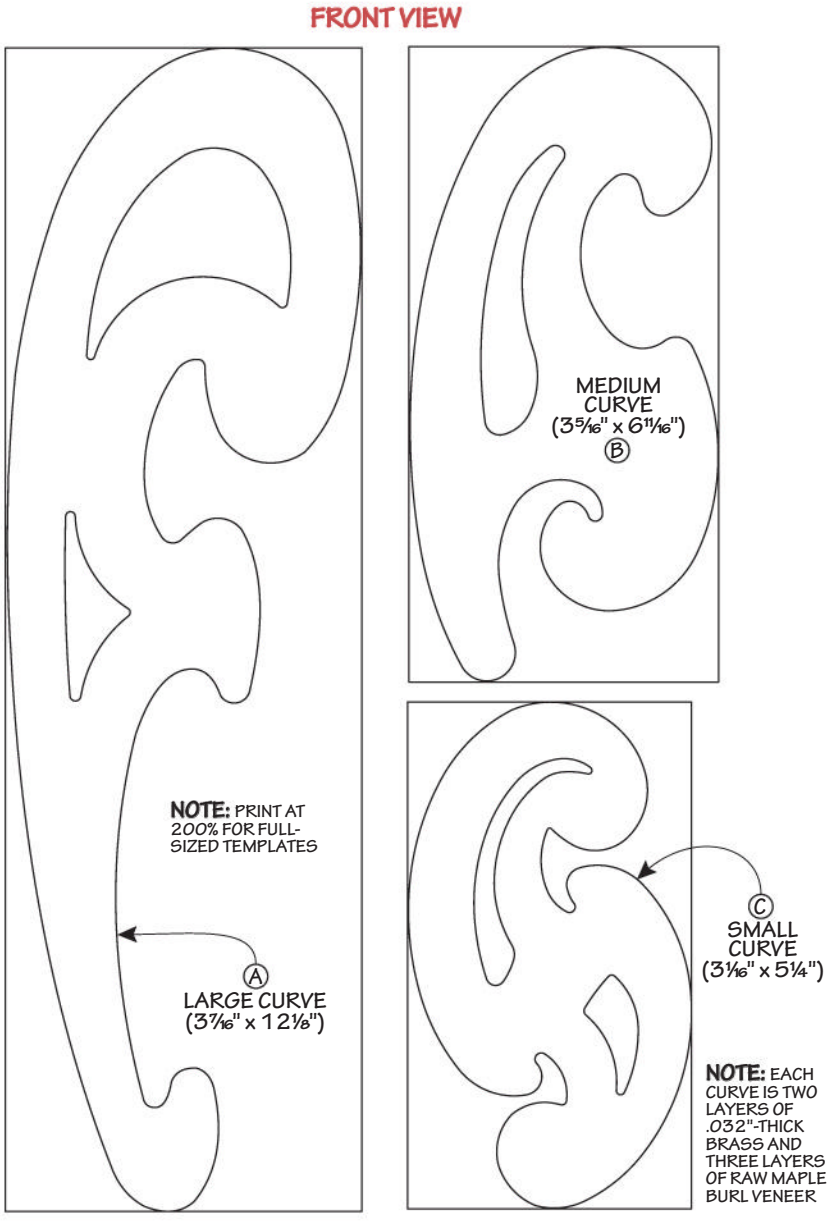
Laminating the **Curves**

This project begins with three blanks, which will be shaped to the patterns you see at right. To ensure these curves stay stable throughout their lifetimes, they're assembled from five layers: two of brass and three of the maple burl veneer you can see on page 85.

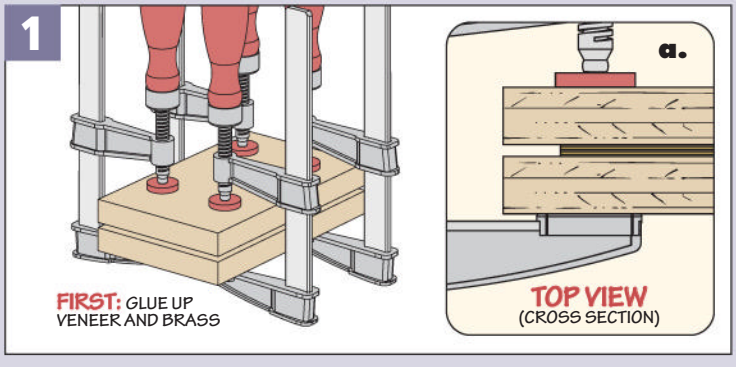
After cutting the brass and veneer slightly oversized, I glued them up, as in Step 1 below. I did this using a couple pieces of plywood to keep all the laminations in full contact. However, brass isn't the easiest thing to adhere to. To make sure there wouldn't be any issues with these laminations coming apart down the road, I used epoxy for the glueup. Additionally, I used some sandpaper to scuff up the faces of the brass, giving the epoxy something more to "grab on" to.

SHAPING THE CURVES. Once the clamps come off, it's time to start working these curves to shape. After attaching the patterns, I took the blanks over to the band saw and removed the larger sections of waste (Step 2 below). After that, it's time for some work by hand.

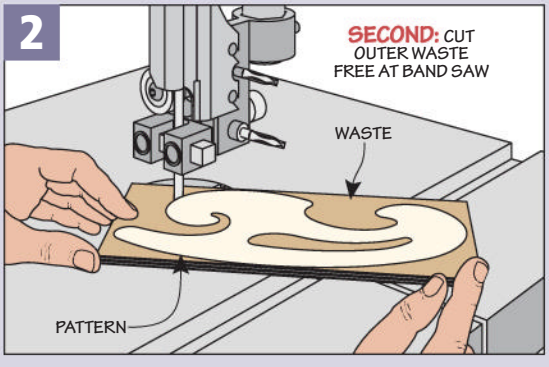
If you look to Step 3 on the next page, you'll see how I did the majority of the shaping. After clamping up my blank in a vise, I used a fret saw to cut along the edge of the pattern. Here, the goal



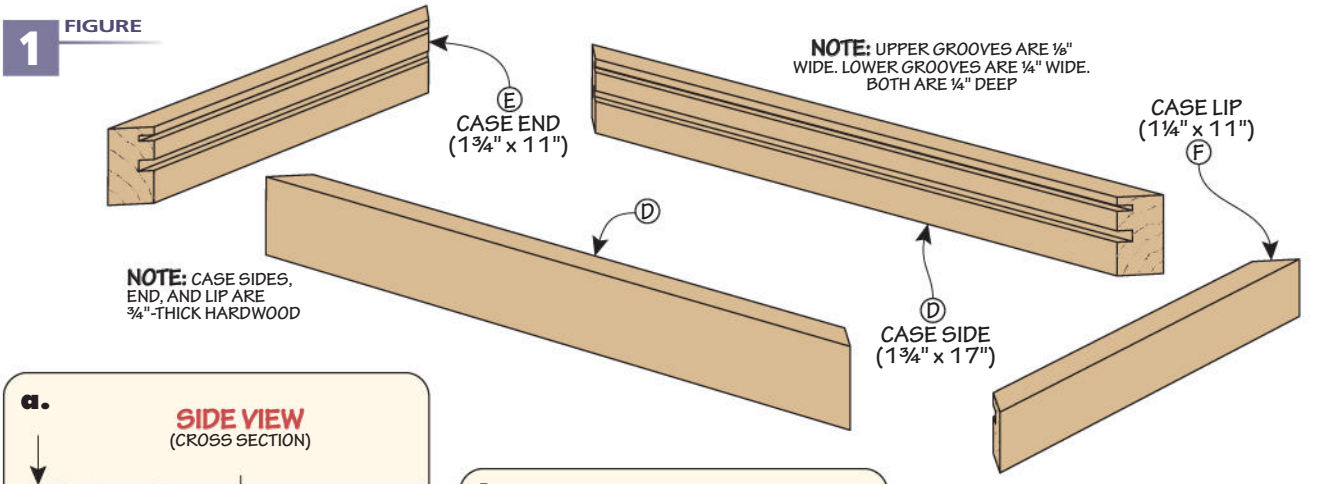
Shaping Laminated Blanks



Laminations. Begin the curves by gluing up the sheets of veneer and brass. Use plywood to ensure a solid connection between the laminations.



Rough Cut. After gluing up the blanks for the curves, use the band saw to remove the majority of the waste.



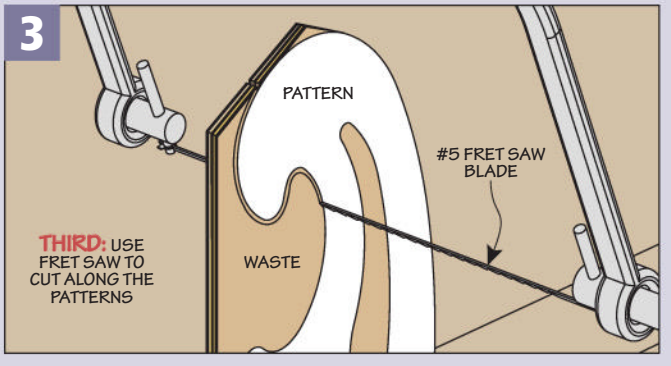
is like blackjack: get as close to the pattern as you can without going over. If you're not familiar with using a fret saw, take your time. The closer you get to the pattern now, the less time you'll need to spend with the files.

FINAL FILING. The last step in making these curves (before moving on to the display case) is to file them down, as in Step 4. Flat files work well for the longer arcs while round and triangle files are great for the corners. While you file, work carefully to avoid chipping out the exterior veneers.

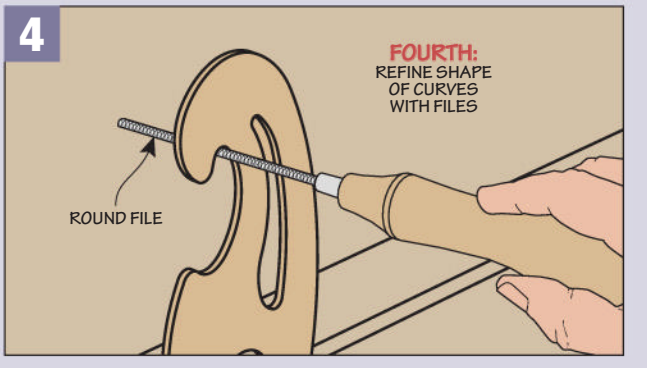
FRAMING THE CASE

With the French curves completed, it's time to get started on the display case. The case begins with the four pieces you see above: two sides, an end, and a lip that provides access for the lid. When cutting these to size, I recommend flipping to page 89 and taking a look at the lid pull. To make sure this would match up with the case lip beneath it, both in terms of shape and grain, I created an overly wide blank that I could cut both pieces from. Additionally, when cutting them to length, miter these pieces to fit together as in Figure 1 above. Once this is done, you can separate the case lip from the lid pull.

Finally, take these pieces over to the table saw; it's time to make the grooves that will accept the case panel and acrylic sheet (which we'll get to next). I cut the grooves to the dimensions shown in Figures 1a and 1b. A flat-top blade does the job fine here. To locate the grooves, register the fence off of the nearest edge — that will keep the grooves aligned across the sides, end, lip, and lid pull.

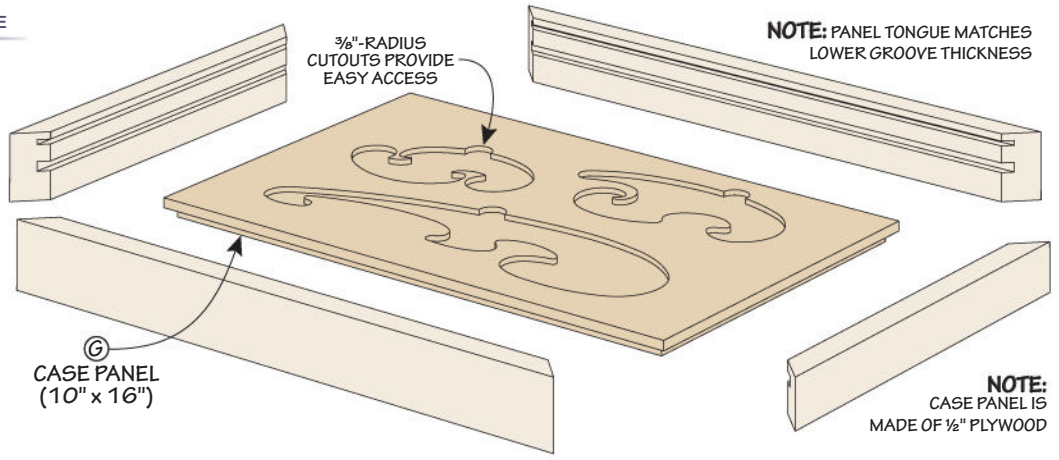


Refine the Shape. Using a fret saw, cut as close to the patterns as possible while still staying on the waste side.



Filing Down. File the curves to their final shapes. Round and triangle files are particularly useful for the tight, inside curves.

FIGURE 2



Completing the Display Case

A key part of the case is the central panel you see above. Rabbets around the edges allow the panel to slide into the surrounding case pieces, while recesses on the face allow the curves to fit neatly inside when not in use.

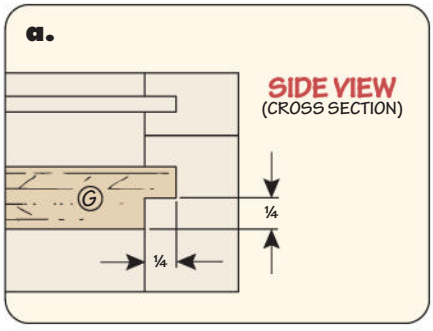
After cutting the panel to size, I put my dado stack back in and buried it in an auxiliary fence. Then, I cut a rabbet on each edge (as in Figure 2a).

CREATING A TEMPLATE. Next on the docket are the recesses that accept the French curves; the box below shows how I went about making them. To kick it off, I began by making a template (Step 1). A piece of hardboard works great, and all you need to do is trace your curves onto the piece. Additionally, to make it easy to pull the curves out, I used a circle template to add slight finger recesses (Figure 2).

To cut out the shapes for the recesses, I brought back out my fret saw. After drilling a hole for blade access, I removed the waste and refined the shape with files and sandpaper. As you work, fit the curves in the template to check your progress and perfect the fit.

ROUTED RECESSES. With the template in hand, you can now make the recesses. As you can see below, I used a trim router for this, along with a hinge mortise bit. As the name implies, these bits are usually used to rout the mortises for a set of hinges, but they work particularly well here, as they're really nothing more than a short pattern bit.

To accurately set the bit depth, use one of your completed French curves. The exact thickness of raw veneer may vary, so this will ensure your curves sit flush with the panel when they're in place. After that, secure the template to the panel with a few pieces of double-sided tape and rout away.

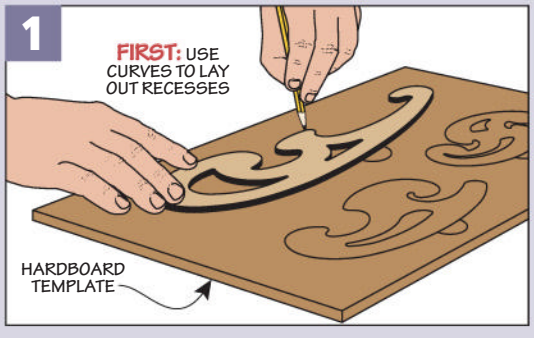


LID & FRENCH CLEAT

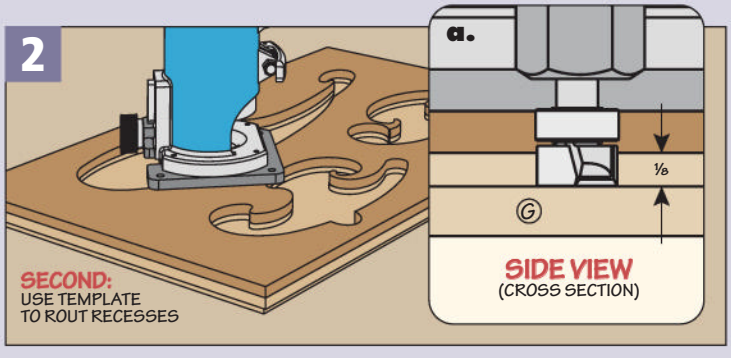
With all the pieces of the case made, it's time to put it together. The glueup is simple, as the case panel will register all of the pieces. After the glue dries, it's time to make the lid.

ACRYLIC COVER. To me, it would've been a shame to hide that wonderful maple

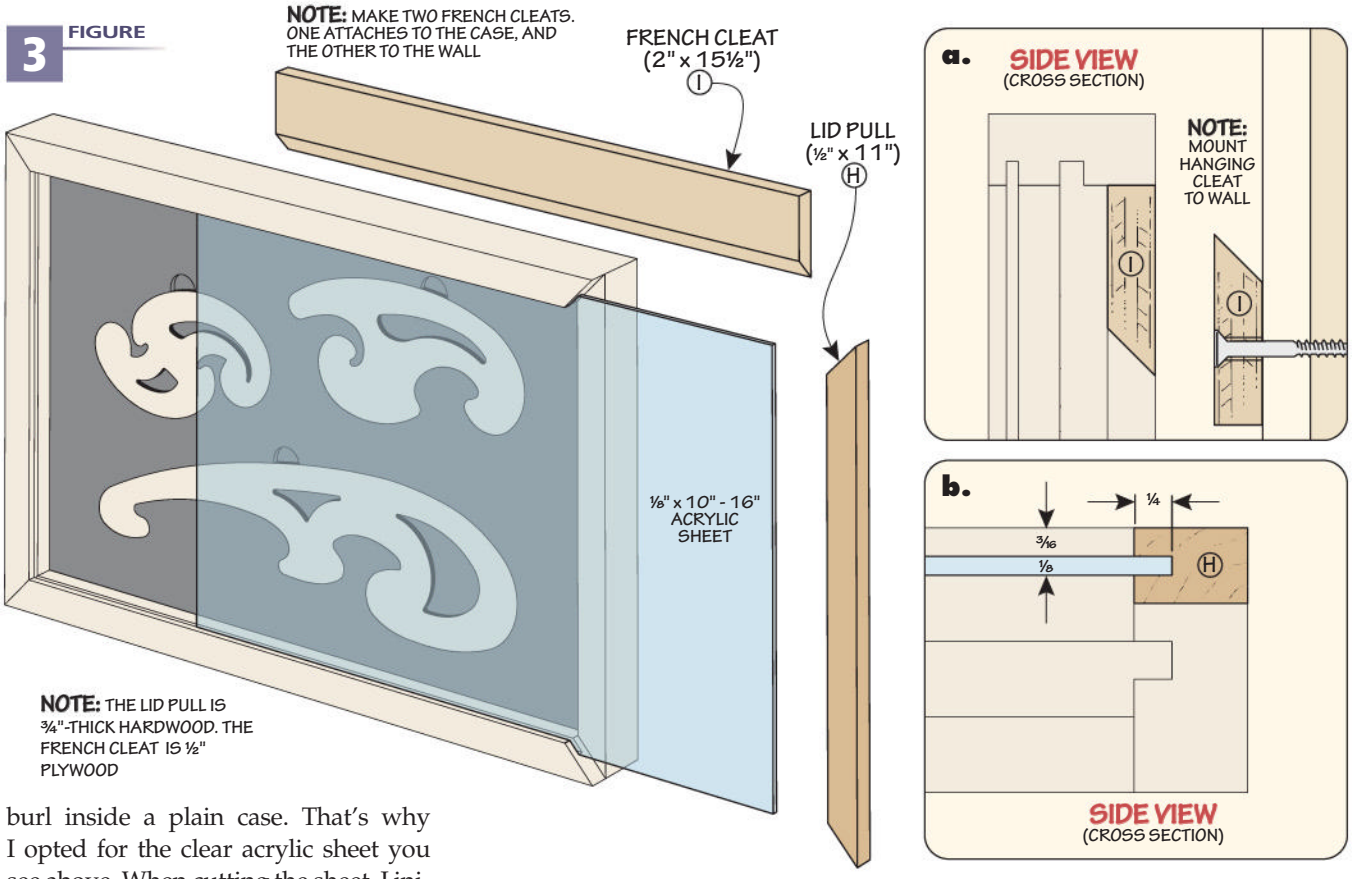
Template Routing



Layout. Trace the shape of the French curves onto a hardboard template, then add the finger recesses.



Routing. To create the recesses, stick the template to the case panel with double-sided tape, then rout the recesses with a hinge mortise bit.



burl inside a plain case. That's why I opted for the clear acrylic sheet you see above. When cutting the sheet, I initially oversized it. Then, I worked the size down until it was narrow enough to slide easily into place. After that, I slid it all the way in and fit the lid pull over the end to determine the proper final length. Once the sheet was sized, I glued the lid pull on using CA glue.

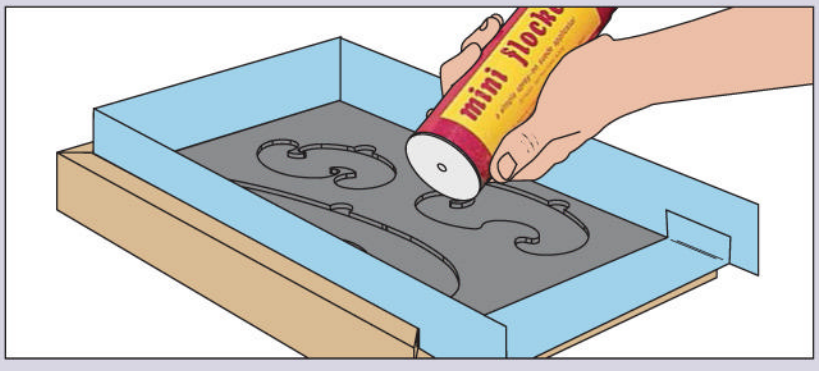
FRENCH CLEAT. The curves aren't the only French part of this project. I added a French cleat along the back side (Figure 3a). To create this piece, start with an overly wide blank cut to length, then rip it at 45° to create the two cleats. One cleat is attached to the back of the case, while the other screws to the wall, allowing the case to be hung.

FINISHING. Now, it's time for some finish. On all pieces except the case panel, I applied a few coats of lacquer. Lacquer provides protection along with a classic, glossy look. Additionally, the lacquer will ensure the veneer and brass laminations on the curves stay married for years to come.

FLOCKING. At this point, the inside of the case panel may seem rather plain. Luckily, flocking is an easy process that adds color and texture — plus it also grants a smooth fit to the case's interior.

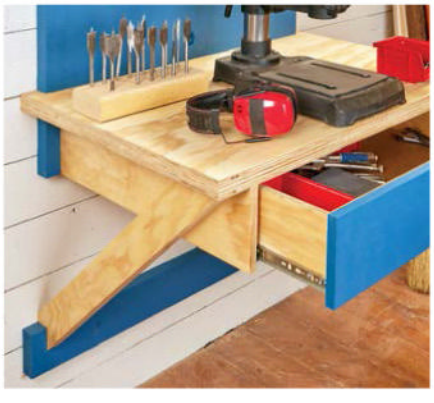
Start off by applying painter's tape to the sides, end, and case lip to mask them (illustration below). Next, brush on the adhesive (included in the kit), spreading an even coat across the case panel. Load the flocking tube and use it to pump the fibers over the panel. After you have a generous coat of fibers over the panel, let the adhesive dry. It should be fully dried in about ten hours, but I usually give it a full twenty-four to be sure I won't muss it up. When you return to the case, shake out any excess (the frugal woodworker can reuse those fibers), then give it a blast with an air hose or brush it to remove the last of the fibers that didn't adhere. Now, all that's left is to find the right spot in your shop to display your new tools.

Fire the Flocking



Flocked Case. To complete the case, mask the sides and ends with painter's tape, apply the adhesive, then use the gun to pump the flocking on the inner case.

3 Plywood Shop Projects



Sturdy Supports. The table brackets on either side of the top add strength and stability to the surface of the workstation.

Most every woodworker I know dreams of building beautifully detailed shop furniture. Pieces that show off wood selection and joinery skills. There's nothing wrong with such dreams — but oftentimes your budget is standing in the way, slowly wagging a finger that says, "No way, not yet."

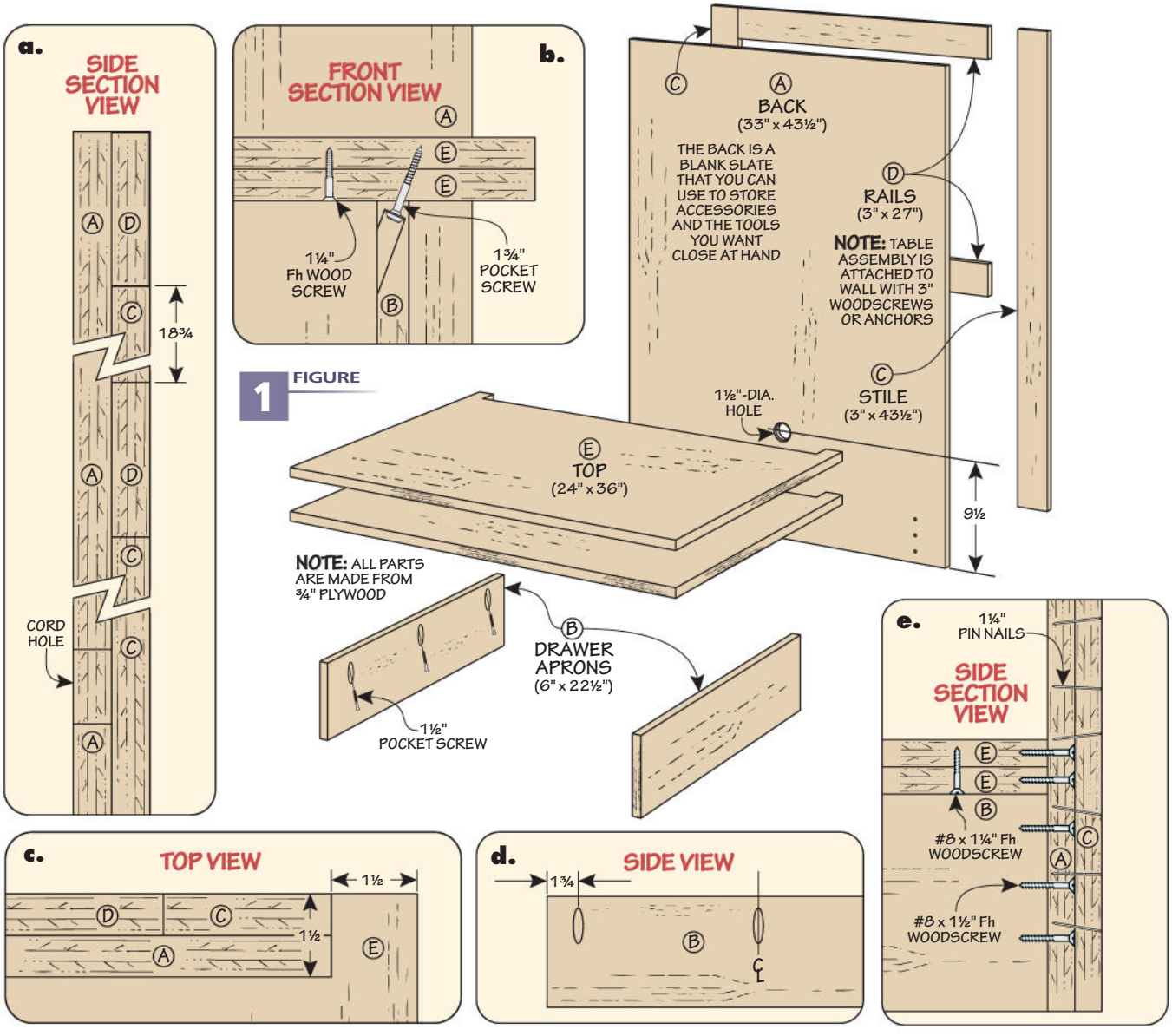
So here we're offering an alternative that won't bruise your wallet too much, and yet provides you with a basic shop that lets you get to work. First, a workstation for daily tasks. Then a cabinet with plenty of storage. Following that up is a workbench that gives you a surface to tackle projects big and small.

We did invest in decent hardware — Euro hinges and full-extension drawer slides. Quality hardware is always worth the investment (it can be reused). Let's start with the workstation.

A STURDY WORKSTATION

Most every shop or garage benefits from a workstation. Workstations like this one you see here are mounted to the wall and don't take up floor space.

On all these projects we used ¾" premium ACX plywood. I started by cutting and ripping to size all the parts for the table assembly that you see on the next page. Then I focused on the



1 FIGURE

part that makes up the back. All that's needed here is a hole for power cords to pass through. (All of the exposed edges on these projects are eased with a sanding block.) Next, it's time to drill the pocket screw holes in the drawer aprons (Figure 1d). Then screw them to the back from behind, as shown in Figure 1e.

STILES & RAILS. As you see in Figures 1 and 1a, for the sake of rigidity, we've added stiles and rails to the rear of the back. Glue and brad nails hold them in place. Now you can focus on making the top.

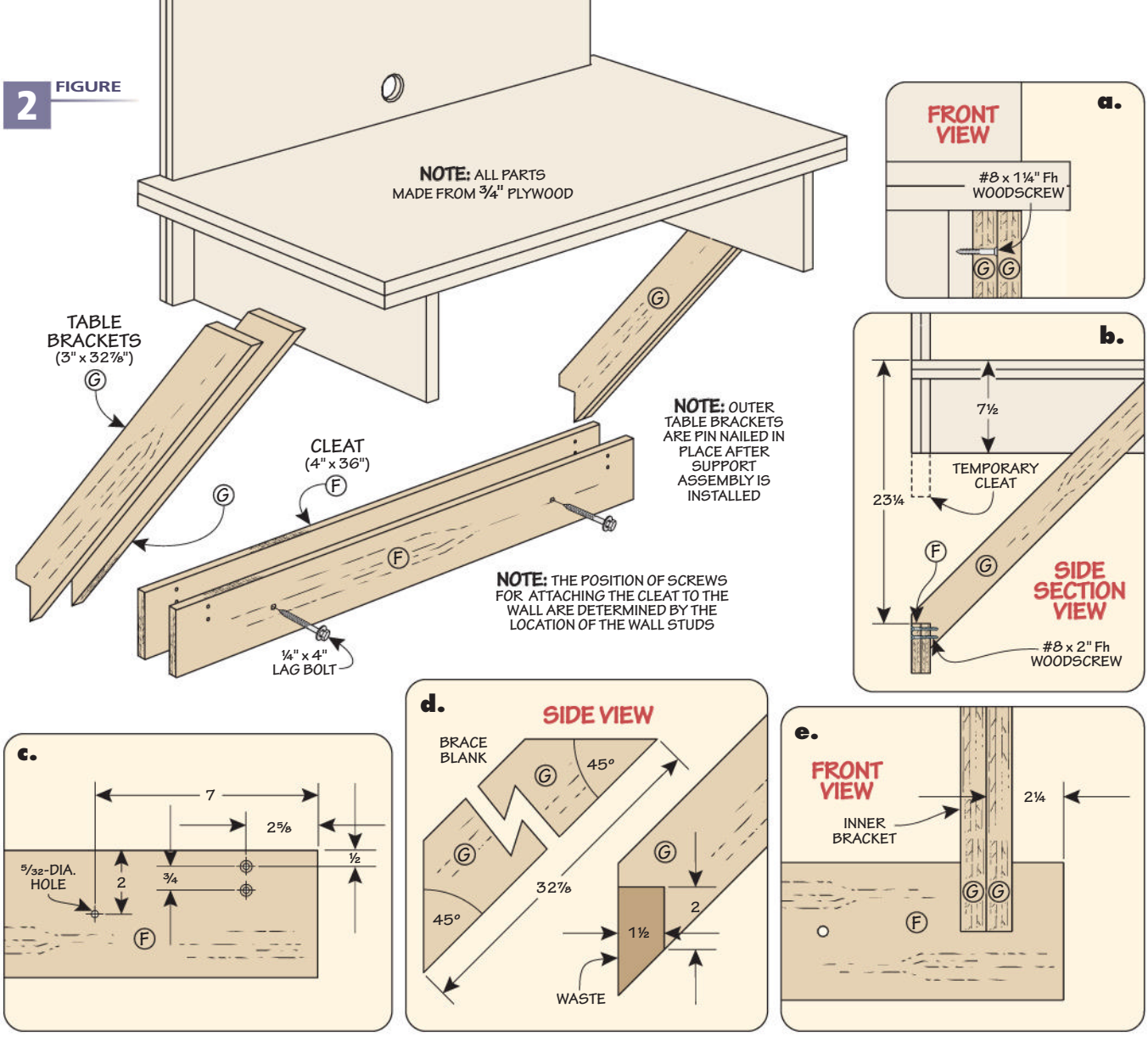
THE TOP. The top is comprised of two pieces of plywood that are glued and screwed together. Figure 1c shows the notch you need to cut along the back edge, allowing the top to wrap around the back. You can cut most of the length of the notch at the table saw by setting the rip fence to the distance shown in Figure 1c and raising the blade into the top. The remainder of the waste can be removed with a jig saw.

Figures 1b and 1e show how to attach the top to the table assembly. Now you can turn the page to make the support assembly and the drawer.

MATERIALS & SUPPLIES

A	Back (1)	33 x 43½ - ¾ Ply.
B	Drawer Aprons (2)	6 x 22½ - ¾ Ply.
C	Stiles (2)	3 x 43½ - ¾ Ply.
D	Rails (2)	3 x 27 - ¾ Ply.
E	Top (1)	24 x 36 - 1½ Ply.
F	Cleat (1)	4 x 36 - 1½ Ply.
G	Table Brackets (2)	3 x 32⅞ - 1½ Ply.
H	Drawer Sides (2)	5 x 21¼ - ¾ Ply.
I	Drawer Front/Back (2)	5 x 26¾ - ¾ Ply.
J	Drawer Bottom (1)	20½ x 26¾ - ¼ Hdbd.
K	False Front (1)	5⁵⁄₁₆ x 28⅜ - ¾ Ply.

- (22) #8 x 1¼" Fh Woodscrews
- (10) #8 x 1½" Fh Woodscrews
- (6) 1½" Pocket Screws
- (2) #8 x 2" Fh Woodscrews
- (9) #8 x 3" Fh Woodscrews (Or Anchors)
- (1pr.) 20" Full-Extension Drawer Slides



Finish up the Workstation

In theory, the table assembly you just built could hang as-is on the wall, but doing so would limit the weight you could place on the top. The support assembly you'll make here eliminates that problem and expands the capabilities of the workstation.

There are three parts to this assembly. First are the cleats that will be attached to the wall. Second is the pair of table brackets that get attached to the laminated cleat and the sides of the drawer aprons. Both pieces are made from two layers of ¾" plywood that are glued and pin nailed together.

HANG THE TABLE. The first order of business is to attach the table assembly to the wall. Once you've established the height you want the tabletop to be at, Figure 2b shows the distance from that point to the top of the temporary cleat (and the mounting bracket). With the cleat in place, you can screw the table assembly to the studs in the wall.

BRACKETS. Now it's time to make the brackets I spoke of earlier — first let's tackle the cleats. Start by cutting the two pieces slightly oversized, then glue and pin nail the two together while holding one long side flush (be mindful of the hole locations you see in Figure 2c). Then you can trim the cleat to its final size and drill the countersunk shank holes on the backside of the workpiece.

Next up is making the table brackets. Figure 2d shows the details involved. First, make the 45° cuts on the ends, then cut the notch along the bottom with your jig saw.

SOME ASSEMBLY REQUIRED. It's time to screw the inner table brackets to the cleat. The bracket is screwed in place from the backside of the cleat, as in Figure 1b. The distance in from the end of the cleat for the inner brackets matches the outside dimensions of the table aprons (Figure 1e shows this). Now you can slip the brackets around the aprons and press the cleat against the wall. When you're comfortable with the fit in both positions, you can screw the brackets to the aprons and the cleat to the studs in the wall.

Once the cleat is anchored to the wall you can spread glue on the inside face

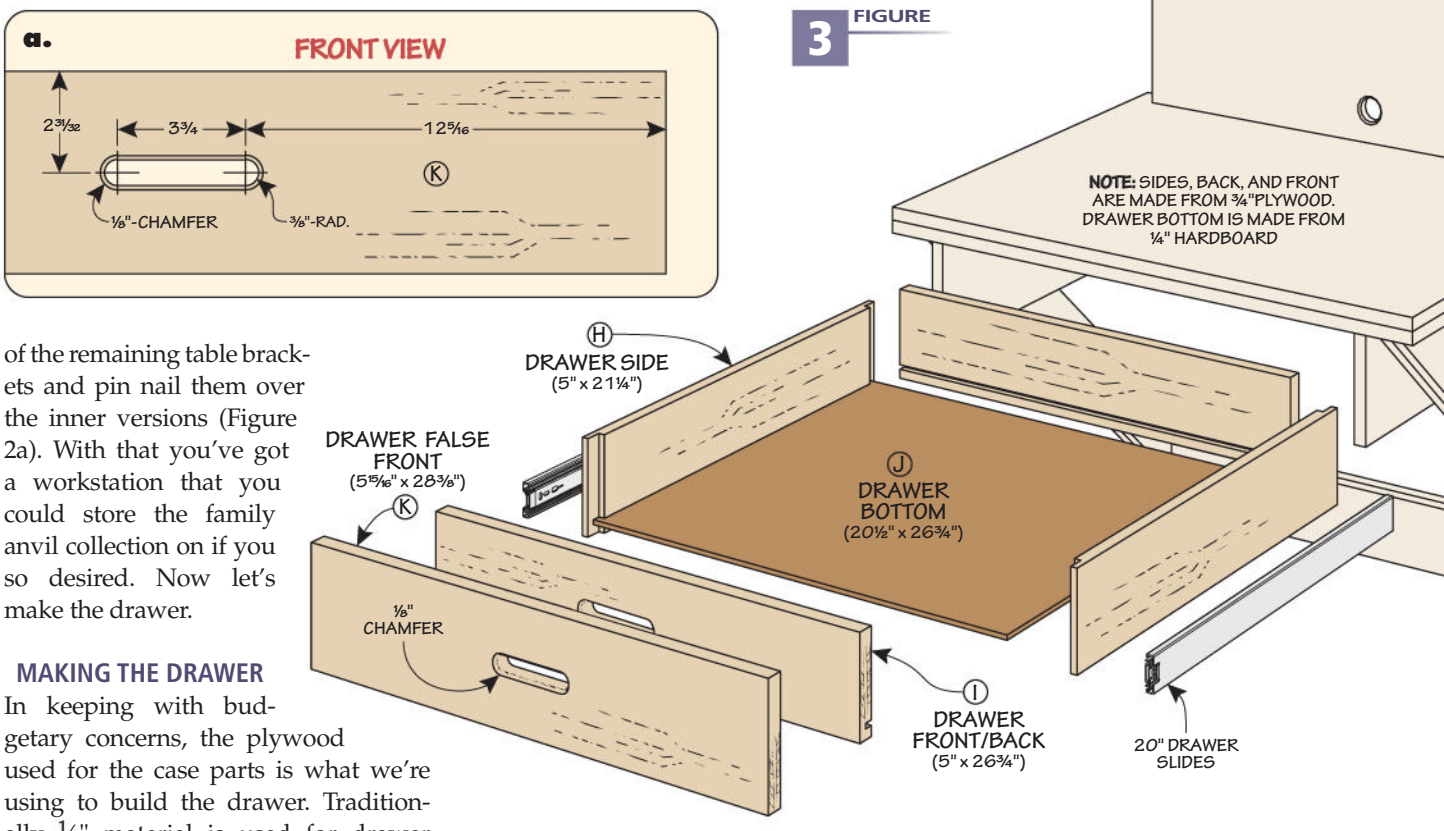


FIGURE 3

of the remaining table brackets and pin nail them over the inner versions (Figure 2a). With that you've got a workstation that you could store the family anvil collection on if you so desired. Now let's make the drawer.

MAKING THE DRAWER

In keeping with budgetary concerns, the plywood used for the case parts is what we're using to build the drawer. Traditionally ½" material is used for drawer boxes, but in this case the drawer box is large enough that the thicker material doesn't compromise the storage space. Hardboard is used for the drawer bottom — that tradition stays.

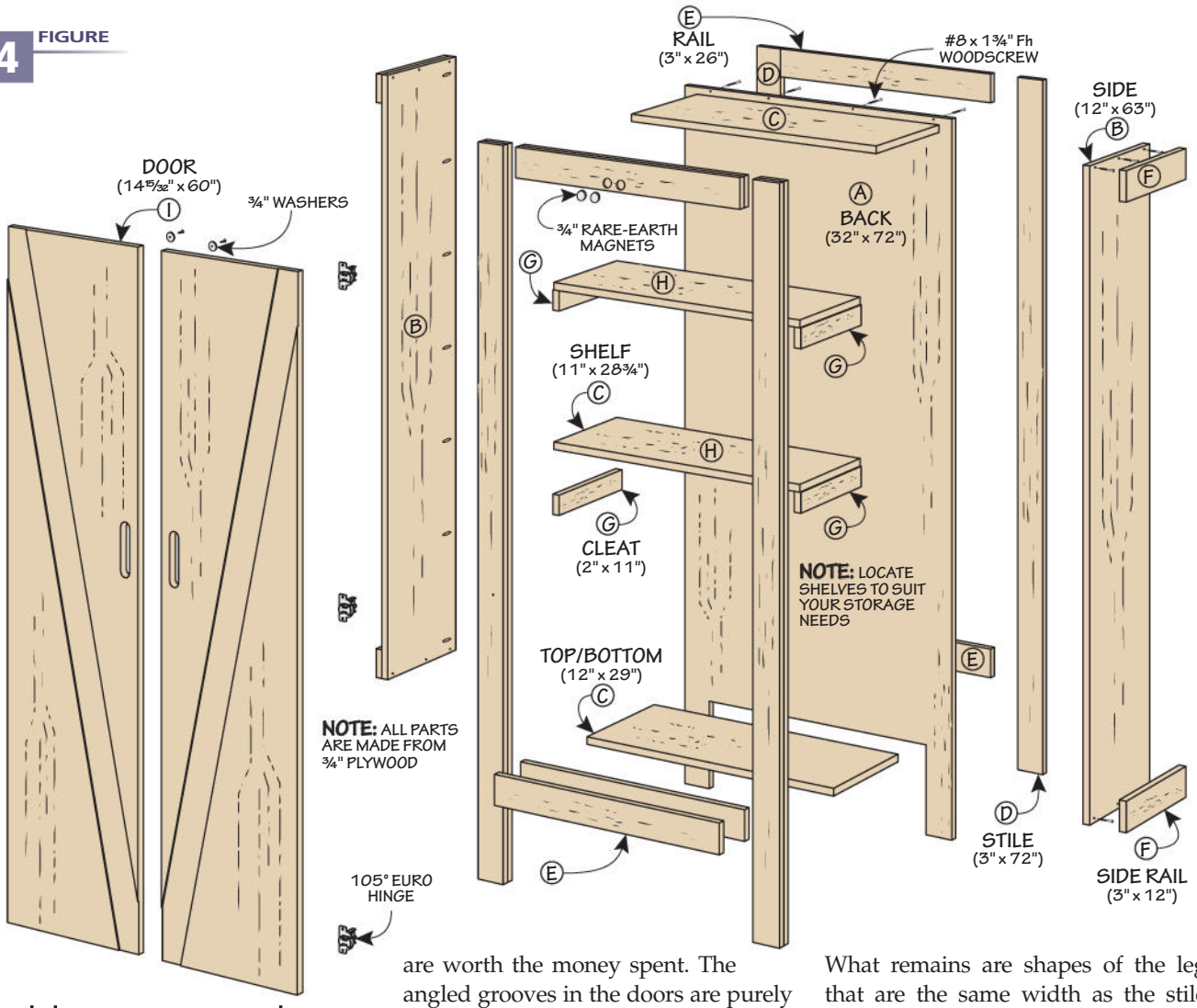
SIZING PARTS. Regardless of how thick the material is, the first order of business is to cut all the parts to size — so do that. Then change out the blade to a dado set that lets you cut the rabbets on the ends of the sides, as shown in the Top View of Figure 3c.

Next on the hit parade is to cut grooves along the lower edge of the sides, front, and back for the hardboard drawer bottom. Figure 3b shows these details. Once you've cut the bottom to size you can glue up the box and turn your focus to making the false front.

FALSE FRONT. The false front serves two purposes: it covers up the ends of the drawer slides, and the gap that they make between the drawer box and drawer cleats. It also adds rigidity to the drawer box. Once the part is cut to size, lay out the opening in the front for the finger pull (Figure 3a). Now head to the drill press and drill out the ends of the pull opening. Then you can rough out the remaining waste between the holes with a jig saw. To smooth the opening you can make a hardboard template and use it in combination with your plunge router and a flush-trim bit that has the bearing on top.

You want this finger pull opening to extend through the drawer front as well (Figure 3c). To do that, install the drawer slides on the drawer and the cleats, and slide the drawer in the opening. Next position the false front on the box and screw it in place. Then trace the pull opening on the drawer front. Once you've removed the drawer and roughed out the opening, you can use your router set up to match the opening in the false front. Chamfering the opening in the drawer is all that's left to do. Now it's time to make a cabinet.

FIGURE 4



Add Storage with a **Tall Cabinet**

The second plywood project is the cabinet you see in Figure 4. Our version comes with two shelves that rest on cleats. As with most of our projects you can modify them to suit your situation (please send us photos when you do). As with the workstation, we invested in quality hardware. The Euro-hinges are worth the money spent. The angled grooves in the doors are purely a decorative whim that plays well with the table brackets on the workstation and the crossbars on the sides of the workbench. We are fashionable creatures, after all. Let's start with the back.

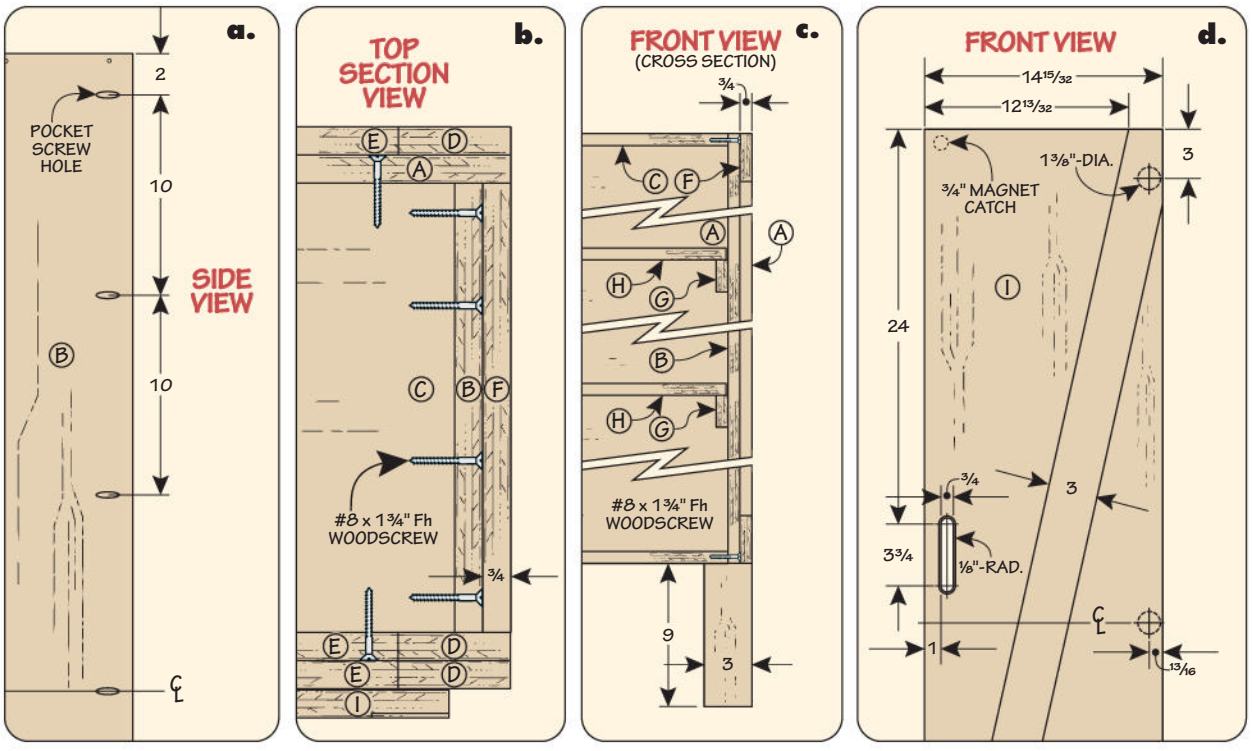
THE BACK. This project is a simple build mainly because the back of the cabinet is a silhouette of its front profile. This means you'll stack the parts on the back starting with the sides, top, and bottom. But before we do that, you need to cut the back to size and remove the waste at the bottom (Figure 1c). What remains are shapes of the legs that are the same width as the stiles you'll laminate to them shortly.

Now you can cut the sides, top, and bottom to size; the top and bottom need no additional work. At this time, you can drill the pocket holes on the inside face of the sides (Figure 1a). Notice in Figure 4b that the sides are set in from the edge of the back by the thickness of the rails. You can use a scrap piece of plywood held flush to the edge to ensure the sides are spaced properly while screwing them to the back. The top and bottom are next up — they're screwed to the sides and the back as shown in Figures 4b and 4c.

STILES & RAILS. The stiles and rails add some rigidity to the cabinet and bolster the butt joinery of the project. Start by ripping and cutting all the stiles and rails to size. Then you can glue and pin nail the ones that go onto the back (and the side rails while you're at it). Figure 4b shows how the front stiles and rails

MATERIALS & SUPPLIES

A	Back (1)	32 x 72 - ¾ Ply.	G	Cleats (4)	2 x 11 - ¼ Ply.
B	Sides (2)	12 x 63 - ¾ Ply.	H	Shelves (2)	11 x 28¾ - ¾ Ply.
C	Top/Bottom (2)	12 x 29 - ¾ Ply.	I	Doors (2)	14 15/32 x 60 - ¾ Ply.
D	Stiles (6)	3 x 72 - ¾ Ply.	• (36) #8 x 1¾" Fh Woodscrews		
E	Rails (6)	3 x 26 - ¾ Ply.	• (3 pr.) 105° 1½" Euro Overlay Hinges		
F	Side Rails (4)	3 x 12 - ¾ Ply.	• (14) 1½" Pocket Screws		



are glued and brad nailed to the front edge of the cabinet. Alternating the angle of the brad nails makes for a good bond between the two layers. Now you can turn your focus to working on the inside of the cabinet.

SHELVES. Our cabinet has two shelves that rest on cleats brad nailed to the sides. This is the fork in the road of this project where you can customize the cabinet to meet your needs. One thing to note is that we made the shelves and cleats one inch narrower than the sides. This allows you to add a nose to the shelves if extra rigidity is needed for storing heavy items.

Whatever configuration you come up with, it's just a matter of cutting the cleats and shelves to size and doing a little layout work on the interior of the sides to locate the cleats. Then glue and brad nail them in place. You could also use shelf pins and make the shelves adjustable if that tickles your fancy. When you're done with the inside, turn your attention to making the doors.

DOORS

Making the doors is the last woodworking item on the list for this cabinet. As you see in Figure 4 the doors are held in place with overlay Euro-style hinges. The doors overlay the sides 1½" and 1⅛" on the top and bottom. Start by cutting the doors to size. Next, you'll need to lay out and drill the holes for the finger holes, remove the waste with a jig saw. Sand the opening smooth, then round over the edges (Figure 4d).

DECORATIVE GROOVE. The box below walks you through the process of making the angled grooves on the door fronts. Lastly, drill the holes for the hinges (Figure 4d), just be wary while drilling the hole for the top hinge, you don't want it to break through the groove.

Angled Grooves

Making decorative angled grooves is easily done with your router, a dado cleanout bit, along with the setup you see to the right. You'll need two long guide boards for the bearing on the bit to ride against. A wide base is temporarily attached (with double-sided tape) to the router base to support it as it travels back and forth in the shallow opening between the guide boards.

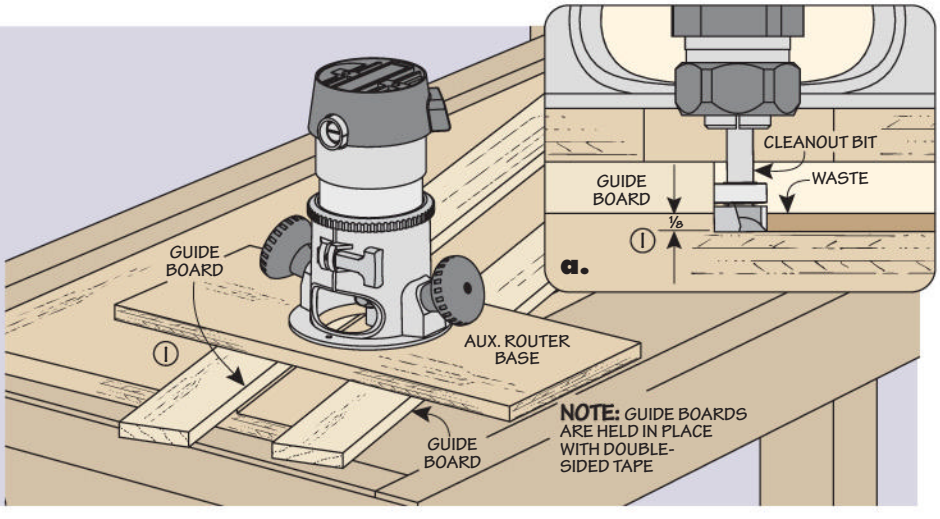
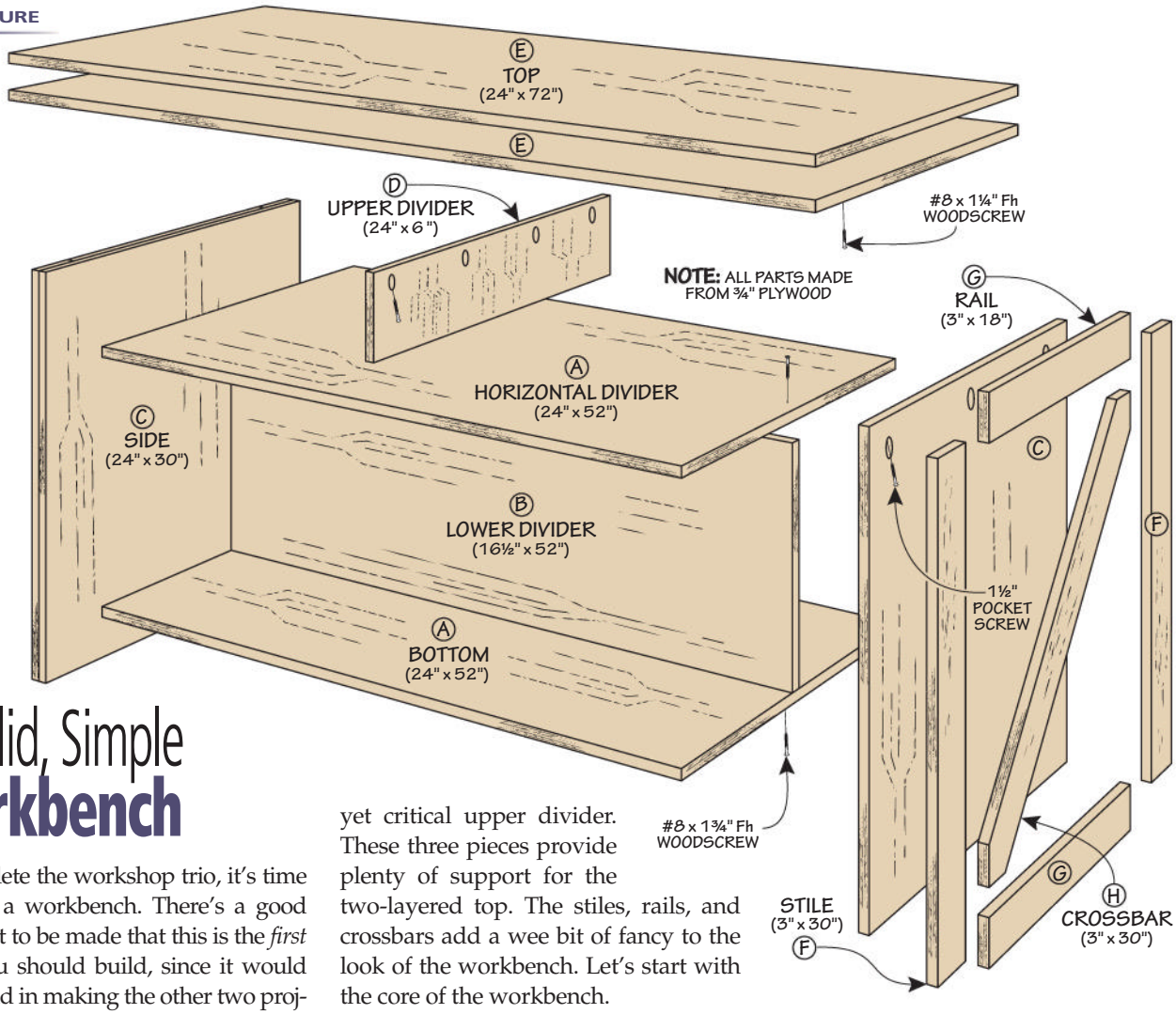


FIGURE 5



A Solid, Simple **Workbench**

To complete the workshop trio, it's time to make a workbench. There's a good argument to be made that this is the *first* thing you should build, since it would greatly aid in making the other two projects. I'm sure many of you will do just that. For what it's worth — our reasoning behind placing it at the end has more to do with the specifics of magazine layouts than woodworking priorities.

Let's take a gander at what we're dealing with in this workbench — starting with the interior core. As you see above, three pieces of plywood are assembled in an I-beam shape, creating some strong innards for the workbench. The sides are screwed to those members along with a modest, yet critical upper divider. These three pieces provide plenty of support for the two-layered top. The stiles, rails, and crossbars add a wee bit of fancy to the look of the workbench. Let's start with the core of the workbench.

A STABLE BASE. You can get the ball rolling by sizing the three core pieces you see in the main drawing above. Once the sawdust is swept away, drill countersunk shank holes on the underside of the bottom and the top of the horizontal divider for the screws to attach them to the lower divider. Figure 5a shows those screws installed, along with the ones that fasten the upper divider in place. You'll need to drill pocket holes in the upper divider before installing it, Figure 5d shows their location.

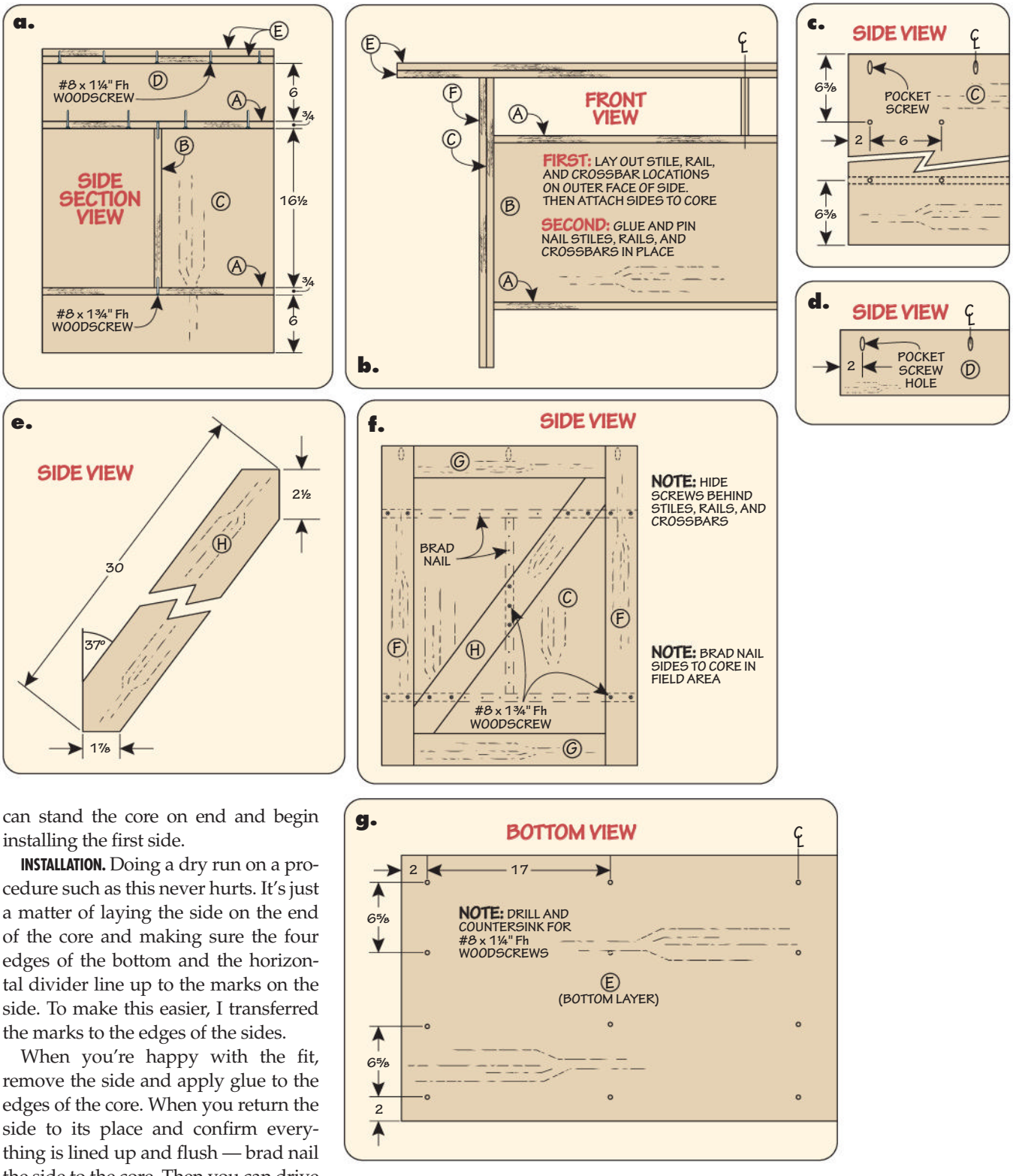
MATERIALS & SUPPLIES

A	Bottom/Hor. Divider (2)	24 x 52 - ¾ Ply.	G	Rails (4)	3 x 18 - ¾ Ply.
B	Lower Divider (1)	16½ x 52 - ¾ Ply.	H	Crossbars (2)	3 x 30 - ¾ Ply.
C	Sides (2)	24 x 30 - ¾ Ply.			
D	Upper Vert. Divider (1)	6 x 24 - ¾ Ply.	•	(32) #8 x 1¾" Fh Woodscrews	
E	Top (1)	24 x 72 - 1½ Ply.	•	(20) #8 x 1¼" Fh Woodscrews	
F	Stiles (4)	3 x 30 - ¾ Ply.	•	(9) 1½" Pocket Screws	

THE SIDES

The plywood sides are next up. The sides lift the core of the workbench off the floor and also support the top. After cutting them to size, I drilled the pocket holes on the outside face where the sides will attach to the top. They'll be hidden behind the rails when all is said and done.

In fact, you'll hide the screws that fasten the core to the sides behind the stiles, rails, and crossbars that are applied to the sides. Figure 5f on the opposite page shows the plan of attack for this cloak and dagger work. To do that successfully you'll need to lightly draw the outline of the stiles, rails, and crossbars on the face of the sides, so you know where to drill the countersunk shank holes. Once you've done the layout on the sides and drilled the appropriate holes, you



can stand the core on end and begin installing the first side.

INSTALLATION. Doing a dry run on a procedure such as this never hurts. It's just a matter of laying the side on the end of the core and making sure the four edges of the bottom and the horizontal divider line up to the marks on the side. To make this easier, I transferred the marks to the edges of the sides.

When you're happy with the fit, remove the side and apply glue to the edges of the core. When you return the side to its place and confirm everything is lined up and flush — brad nail the side to the core. Then you can drive the screws into the side. Now you can rotate the base to the other side and repeat the process. To add the top, start by flipping the base right side up.

THE TOP. The top is two layers of plywood glued and screwed together. Figure 5g shows the screw pattern that's on the underside. The next step is to attach it to the base. The top, while centered side to side, is flush to the base front to back (Figure 5a). Pocket screws join these two together (Figure 5f shows these screw locations). Lastly, it's time to trim out the sides. Start with the stiles first. Use glue and brad nails for a firm bond, holding them flush to the edges of the sides. Follow up with the rails, then the crossbars. There you have it — after you've painted and oiled your new shop furniture it's time to get to work.

Easy Weekend Woodworking **Sources**

MAIL ORDER SOURCES

Amazon
amazon.com

American Woodcrafters
800-995-4032
americanwoodcrafters supply.com

Cheese Slicing, LLC
920-627-6969
cheeseslicing.com

Flock It!
815-986-1097
flockit.com

General Finishes
800-783-6050
generalfinishes.com

Home Depot
800-466-3337
homedepot.com

Horton Brasses
860-635-4400
horton-brasses.com

House of Antique Hardware
888-223-2545
houseofantiquehardware.com

HValley Tools
hvalleytools.com

McMaster-Carr
mcmaster.com

Menards
menards.com

Rockler
rockler.com

Varathane
varathanestain.com

WidgetCo
widgetco.com

Windowbox.com
888-427-3362
windowbox.com

Woodcraft
800-225-1153
woodcraft.com

Most supplies you'll need for projects in this book are available at hardware stores or home centers. For specific products, take a look at the sources listed here.

SPICE CAROUSEL (P. 6)

The carousel was stained with Pecan water-based stain, and the inside of the holes were painted black. The stain and paint are from *General Finishes*. Spray lacquer was used for the final two coats.

- **Lee Valley**
  2" Friction Discs 88K5908
  Spice Bottles 12K8210
  6" Lazy Susan. 12K0103
  Flat-Bottom Bumpers 00S2005
- **American Woodcrafters**
  2" Birch Knob KB-200

BOARD & SLICER (P. 10)

Both the cheese slicer and the cutting board were finished with a coat of mineral oil.

- **Cheese Slicing, L.L.C.**
  5" Slicing Wire CW-GRY5

KNIFE BLOCK (P. 14)

- **HValley Tools**
  Bird's Mouth Bit. 7839
- **Lee Valley**
  3" Lazy Susan. 12K0101
- **Rockler**
  "Reddish Brown" Dye. 27582

WINE RACK (P. 20)

The wine rack was finished with *Varathane* "Traditional Cherry" gel stain. After staining, it was sprayed with a couple of coats of lacquer.

- **Horton Brasses**
  5/8" Brass Knob. H-42-0.625
- **Lee Valley**
  1/4" x 36" Z-Clips 00S1860

WINDOW PLANTER BOX (P. 28)

The planter box was primed and then painted with *Benjamin Moore*'s exterior paint in Mountain Peak White.

- **Amazon**
  Hanger B0DK7JXDXM
- **Windowbox.com**
  36" Box Liner. NM-02368

BEVERAGE STAND (P. 32)

The beverage stand was finished with a 50/50 mixture of *Minwax* "Provincial" and *General Finishes'* "Candlelite," then two coats of lacquer. The cork was purchased at a local hobby store.

LAMINATE END TABLE (P. 36)

The end table was finished in two stages, each with a coat of Seal-a-Cell from *General Finishes* followed by a coat of lacquer.

- **Woodcraft**
  Holey Halahad Disc 149993

CRAFTSMAN MIRROR (P. 40)

The mirror was finished with *Varathane* "Gunstock" stain. When the stain was dry, I sprayed it with a couple of coats of lacquer.

- **Rockler**
  Glass Retainer Clips 22359
- **Home Depot**
  D-Ring Hangers 153012

SHADOW BOXES (P. 44)

The shadow boxes were painted with a base of *Benjamin Moore* "Amherst Grey." After applying the crackle, a coat of *Benjamin Moore* "Bone White" paint was applied.

- **McMaster-Carr**
  3/8"-dia. Magnets 5862K143
  12" Z-Hangers 2152A16
  18" Z-Hangers 2152A13
  30" Z-Hangers 2152A14

FLIP-DOWN COAT RACK (P. 52)

To stain the body of the coat rack, I used *Watco*'s Danish oil in "Natural." The hooks were finished with *Watco*'s Danish oil in "Dark Walnut" for some contrast.

- **Rockler**
  2" Z-Hangers 2152A16
- **McMaster-Carr**
  1/4" Steel Bar Stock. 8920K115

TURNED CANISTERS (P. 56)

The 1/8"-thick cork sheet for the bottom of the canister is available at most craft stores. The canisters were finished with three coats of spray lacquer.

- **WidgetCo**
  Cork Stopper. 6-R56-XXX-CS

RUSTIC WALL SHELF (P. 62)

The wall shelf was finished with a few coats of boiled linseed oil. At the time of writing, the ring pulls used on the shelf are no long available to U.S. customers (though those outside the U.S. can find them at *Lee Valley*). Instead, ring-and-staple pulls can be found second hand, at places such as *House of Antique Hardware*. Alternatively, any 28mm (about 1 1/8") ring pulls will have the right proportions.

DOUBLE-DOOR BOX (P. 68)

Both the hinges and knobs are in the "dark antique" finish. The box was stained with *Varathane*'s "Gunstock." It was then sprayed with two coats of satin lacquer.

- **Horton Brasses**
  3/4" Brass Knob. K-12-0.75
  Butt Hinges PB-405
- **Lee Valley**
  5/16" Bullet Catches. 00G1150

SWIVEL VISE (P. 76)

The hardwood parts of the swivel vise were finished with two coats of spray lacquer.

- **McMaster-Carr**
  Hitch Ball 8785T6
  Adjustable Handle 6270K52
- **Amazon**
  Machinist's Vise. 4935504
- **Home Depot**
  1" Pipe Flange 860727
- **MetalsDepot**
  Steel Bar Stock F214212

MARKING KNIFE (P. 80)

The wood of the marking knife was finished with Danish oil.

- **McMaster-Carr**
  O1 Tool Steel 9516K42
  Bronze Bushing 6381K459

FRENCH CURVES (P. 84)

The curves and their case were finished with a couple coats of lacquer. We used the black flocking kit from *Flock It!* which you can find on their website under their *Suede-Tex* flock options.

- **McMaster-Carr**
  .0320" Brass Sheet. 8956K126
  1/8" Acrylic Sheet 8560K257

3 PLYWOOD PROJECTS (P. 90)

The paint used on the projects is interior matte "Chinese Porcelain," from *Pittsburgh Paint* and was purchased at *Menards*. The areas unpainted were protected with a coat of Seal-a-Cell oil from *General Finishes*.

- **Menards**
  4' x 8' ACX Plywood 1251064
  Chinese Porcelain Paint . . 5511908
- **Home Depot**
  105° Hinges 1005093926
  20" Drawaer Slides . . . 1002748069
- **Rockler**
  3/4" Rare-earth Magnets. 37554
  3/4" Magnet Cups 34211
  Washers for 3/4" Magnets. . . . 33972

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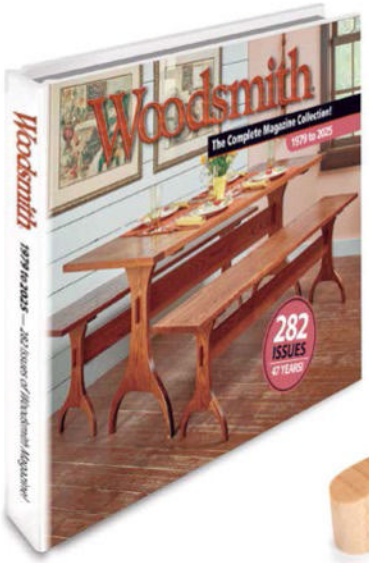

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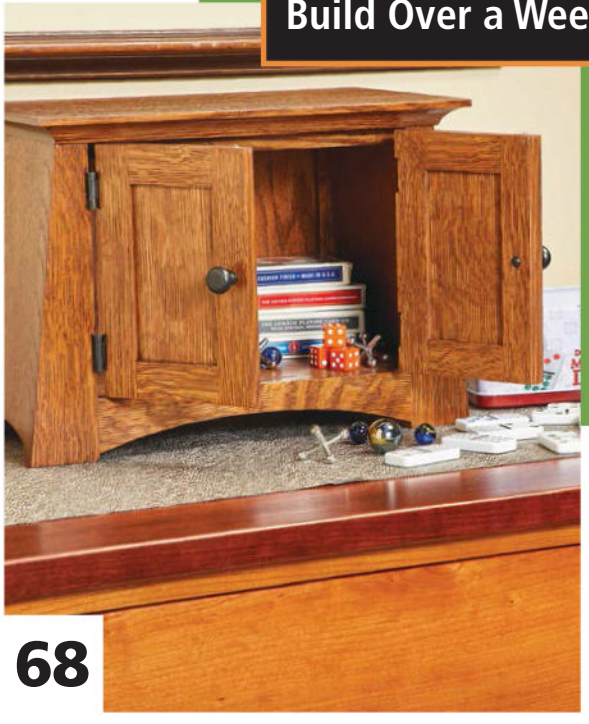

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