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Secrets
to Antique Pine finish

TEMPLATE ROUTING: PERFECT EVERY TIME

Woodsmith®

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Vol. 25 / No. 150

HEIRLOOM TABLES

3 Designs From One Master Technique



Plus:

3 gift projects you
can make this
weekend

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SAWDUST

One question I hear quite often is, "Where do the ideas for your projects come from?" The short answer is, from everyone and everywhere. You just can't tell where the next idea for a project might come from.

For example, a while back I walked through the door of our shop and saw some large tables standing in the middle of the floor. Now they hadn't been there the day before, so I was naturally curious about these tables that had sprung up overnight.

I found out the new Woodsmith Store here in Des Moines needed several large, sturdy tables — and needed them quickly. So our Project Designers volunteered to lend a hand. What they came up with was a design that was rock solid and quick and easy to put together.

Since time is always in short supply around the holidays, I got to thinking that maybe we could incorporate some of those design ideas into a project for the magazine.

Well, we ended up with not one, but three tables — any one of which you'll be able to build surprisingly fast. The secret behind this is in the construction of the table bases. All three tables use the same knock-down base design — which doesn't require any time-consuming joinery to build. And rather than making my own table legs on a lathe, I went with a purchased set of turned legs. So instead of taking days to build, you can have the base assembled in just a few hours.

TABLE TOPS. But the bases aren't the only things about these tables worth mentioning. There are also three designs for tops. And each one is a different size, so you can build the table that suits your needs.

And best of all, if you get started now, the whole family can be sitting around a new table by the holidays.

GIFT BOXES. If you're still looking for a quick project, but want something a bit smaller, check out the gift boxes that begin on page 10.

Terry

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TIPS & TECHNIQUES

Removable Outfeed Table

Like many woodworkers, my workshop is located in the garage. And since my tools share space with the car, I need to be able to move equipment around and "park" it out of the way.

Finding a mobile base for my table saw was easy enough. But the problem was the outfeed table. There just isn't enough room for one that is permanently attached.

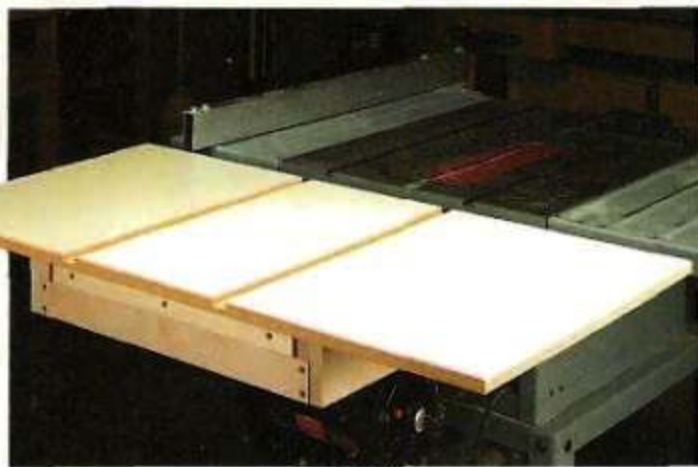
My solution was to build a table that could easily be removed when the saw needed to be stored, as you can see in the photo at right.

What makes this work are a pair of heavy-duty,

full-extension drawer slides that are screwed to the sides of the saw, as shown in the exploded view below.

Then I attached a U-shaped hardwood frame to the slides to hold the table, as in Fig. 2. The drawer slides are able to support up to 100 lbs.

The table is made from $\frac{3}{4}$ " melamine-covered particleboard cut to the same width as the saw table. A pair of $\frac{3}{4}$ "-wide grooves cut in the top match the miter slots to allow the miter gauge to slide past the blade.



To keep the table from sliding around, I screwed three brackets to the bottom of the table, as shown in Fig. 1. The brackets also raise the table flush with the saw table.

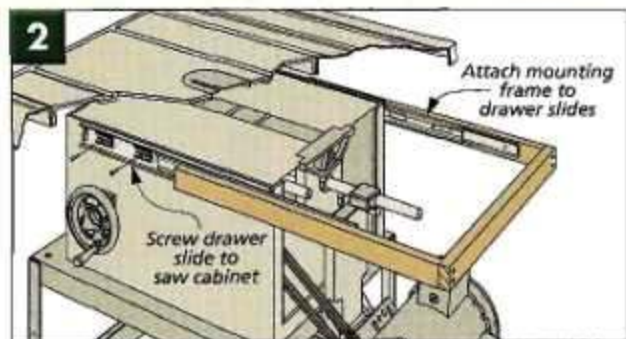
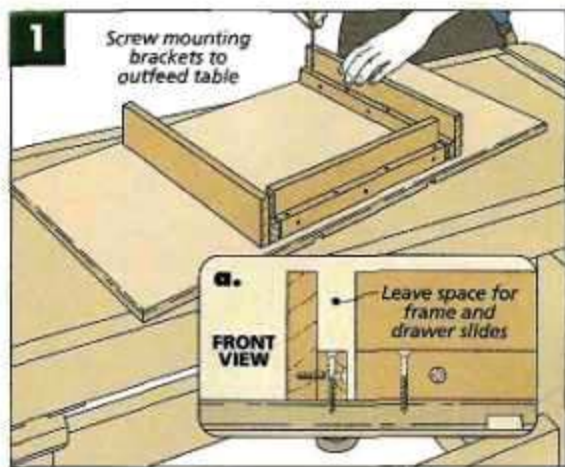
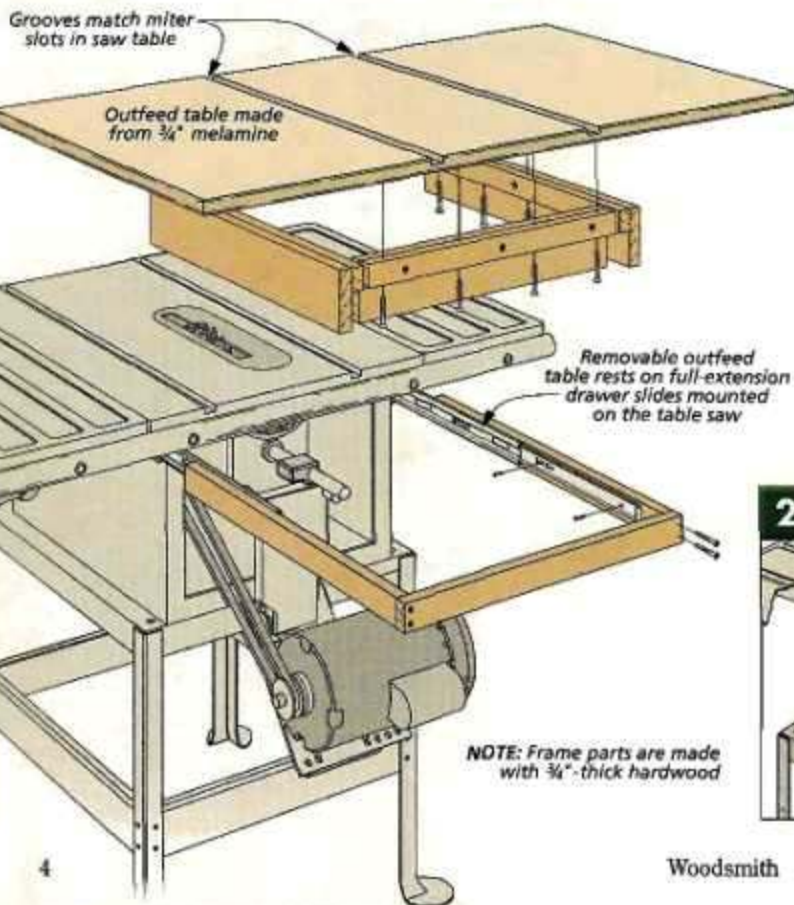
Now when I want to move the saw out of the way, all I have to do is lift off the tabletop and slide in the frame.

Mike Dym
Winton, California

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Router Table Edge Trimming

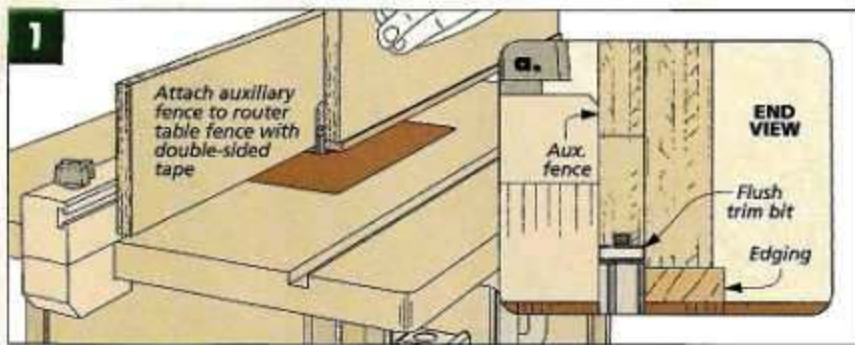
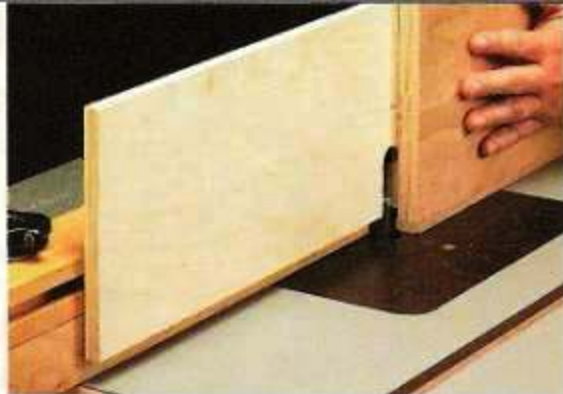
Trimming solid wood edging flush with a plywood panel can be a pain. But I've discovered a technique that makes it much easier.

As you can see in the photo at right, I use my router table to trim the edging. The secret behind this method is a tall auxiliary fence that "floats" just above the table top. This lets the oversize edging slide under the fence before it's trimmed.

The fence is made from a piece of $\frac{1}{2}$ " plywood with a notch cut in one edge to fit around a flush trim bit, as in Fig 1.

To use it, attach the fence to the existing fence with double-sided tape. Then set the fence flush with the bearing on the bit, as in Fig. 1a.

Paul Loschke
Dewey, Arizona



"Quick" Dust Covers

Dust is a problem in just about every workshop. It can be damaging to electronics, like the battery recharging stations for many power tools. To keep out the dust, I recently

started using plastic wrap covers with a built-in elastic band. You can find them in the storage aisle of many grocery stores.

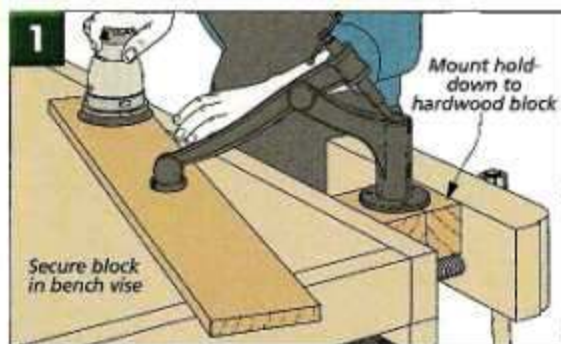
Tim Reagan
Chatsworth, California

Vise Hold-Down

Traditional hold-downs work great for securing a workpiece. The problem is the stem of the hold-down sticks down so far that it would run into the cabinet under my workbench.

To get around this problem, I mounted the hold-down to a hardwood block and clamped it in place in the bench vise.

Mike Bergen
Corvallis, Oregon



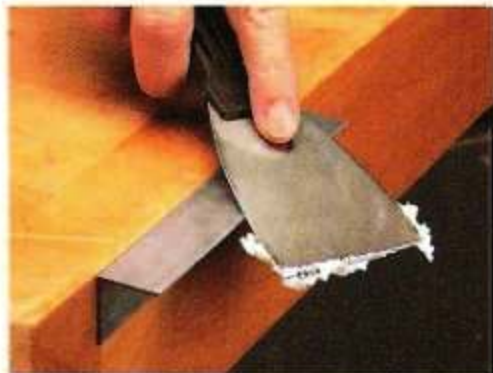
SUBMIT YOUR TIPS

If you have an original shop tip or woodworking technique, we would like to hear from you and consider publishing your tip in one or more of our print or electronic publications.

Just write down your tip and mail it to us: *Woodsmith*, Tips and Techniques, 2200 Grand Avenue, Des Moines, Iowa 50312.

Please include your full name, address, and daytime telephone number so that we can contact you in case we have any questions.

If you would like, you can FAX it to us at 515-282-6741 or send us an email message at: woodsmith@woodsmith.com. We will pay you up to \$200 if we decide to publish your tip.



▲ Andy Pollock of Northampton, MA screwed a piece of aluminum angle to his workbench to provide a place to wipe off putty knives.



TEMPLATE ROUTING: PERFECT EVERY TIME

With a template and special bit you can carve boxes and trays in just about any shape.

Typically, most router work is done on the outside or end of a workpiece — like cutting joints or shaping an edge. But I've found it works just as well to carve out the *inside*.

That's what I'm doing with the box in the photo above. The best part is the amount of time you save. With a chisel and carving gouges this would take hours. But with a router, it takes a few minutes.

The problem is it's too difficult to control the router freehand and get a consistent depth, perfect shapes, and a smooth, even surface. The solution is to find a way to guide the router. To do that I used a template.

The way a template works is simple: you start by cutting out the

shape of your final product in a piece of MDF (the template). The template is then attached to the workpiece. A bearing on the router bit follows the edge of the template as it carves out the workpiece.

Templates are great for making copies of a project later on. You can quickly make as many as you want without extra set up or hassle.

SELECTING TEMPLATE STOCK. Before you get down to routing, you'll need to have the right template. And making a good template starts with selecting the right template material. What you use depends a lot on the type of bit that you're using.

For the inside routing needed for the boxes, I used a tray bit (see the

box on the opposite page). This bit has a large bearing mounted on the shank above the cutting head. The bearing is what touches the template and guides the bit. Now with a big bit like this, you'll want to take several passes (more on this later). So the template needs to be thick enough to touch the bearing for the first cuts *and* when the bit is lowered to its final depth.

You have a few options for the template stock: plywood, solid wood, or MDF. Like I mentioned earlier, I like to use MDF. The main reason is that it's flat and stable. Unlike solid wood, MDF isn't going to expand or contract with the seasons. That way if I want to use the

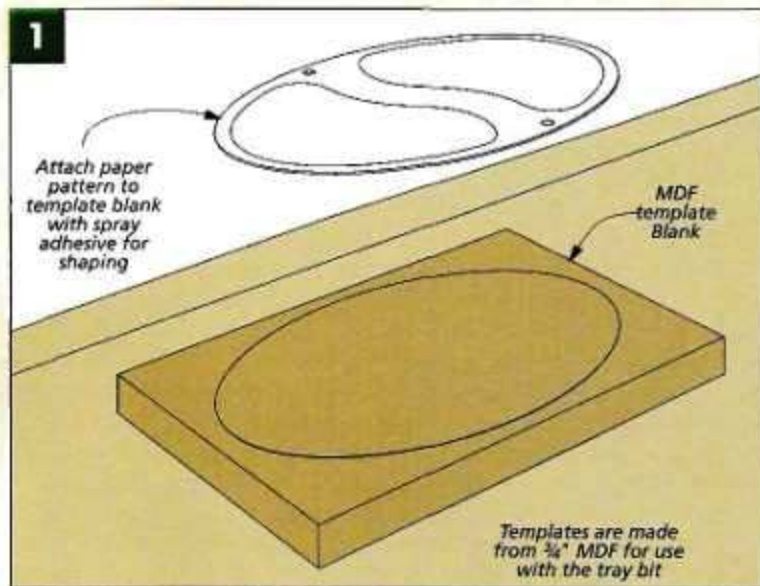
template again in the future, I can be sure I'll get the same results.

Another thing MDF has going for it is it's easy to work with. It takes and holds details very well. Since it's made from wood fibers, there won't be any voids like plywood. This also makes sanding easy and fast.

Finally, it's pretty cheap. So you don't have to worry about any mistakes. While this sounds like a miracle product, I should warn you there is a downside. MDF can be messy. Cutting, sanding, and routing creates a lot of fine dust.

MAKING TEMPLATES. Now you're ready to make the template. I start with a paper pattern showing the template layout. The pattern is then glued to the MDF blank with spray adhesive, as in Fig. 1.

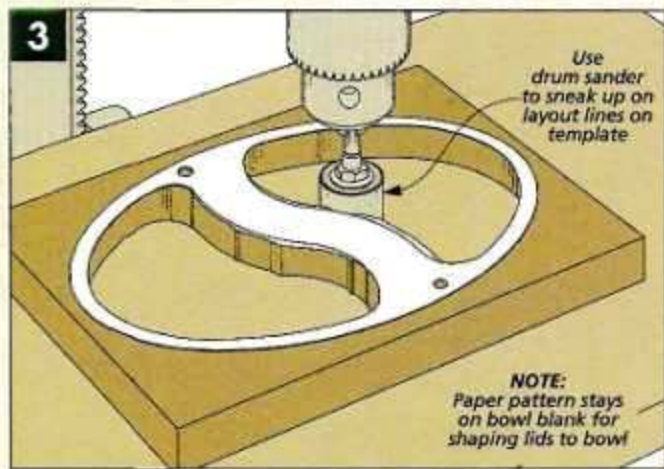
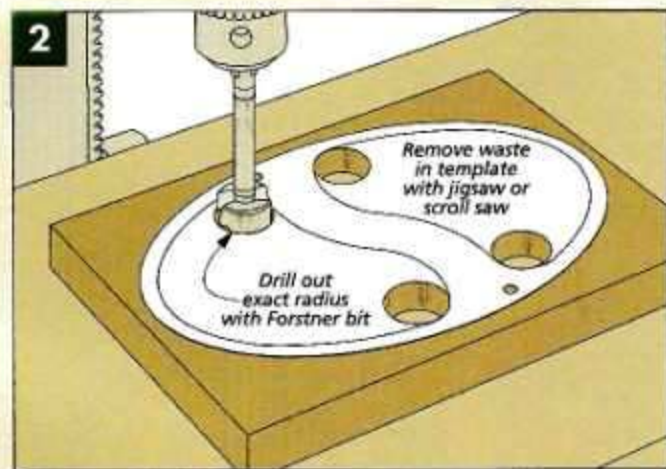
Shaping a template is a two-part process. First, is rough cutting the shape. Next, you'll smooth the profile. Most of the waste is cut out with a jigsaw or scroll saw. But before sawing, I take the opportunity to



drill out the corners with a Forstner bit that matches the radius exactly, as in Fig. 2. This way I don't have to try to perfectly match the radius by sanding. This also gives you a "starter" hole for doing the cutting. Note: The radius of the corners

should be equal to or greater than the radius of the bit you'll be using.

The second step is smoothing. I used a drum sander to slowly sneak up on the layout lines (Fig. 3). Once that is complete, you're ready to put your template to work.



TOOL CLOSEUP: TRAY BIT



The bit I chose for making the boxes is called a tray or dishing bit. At first glance, it looks like a core box bit with a bearing. But there are a few differences. For one, this is a pretty large bit with a diameter of 1 1/4". Second, the end of the bit is flat instead of rounded like a core box bit. This means that the bit can rout a flat bottom in a recess much easier. The result is a

smooth surface that needs very little sanding when you're done.

Because of its large size, it's a good idea to take light cuts with the bit. And with the top-mounted bearing, a thick template stock is a must.

Tray bits are available in several sizes. This one is from Whiteside and cost about \$20. To find out where to get one, see page 34.

Using Templates

Working with a router template is pretty straightforward and simple. But there are a few things you can do to get the best results.

ATTACHING THE TEMPLATE. Once you have a completed router template, you'll need some way of attaching it securely to the workpiece. Here again, you're faced with a few choices.

For the best results, I like to use double-sided tape because it's easy to use. It won't get in the way of my work, and it doesn't leave a mark like clamps or screws would.

But be careful, there are two types of tape out there. There's a thin type of tape that looks like "scotch" tape. You'll want to stay away from this stuff. It doesn't stick to wood well and you might find the template slipping and sliding as you rout.

The good stuff is sometimes labeled "carpet tape" and is cloth-backed for extra strength. I cut it to fit around the edges and openings in the template. It holds very well. In fact, it grabs so well that in order to separate the template from the work-

piece, I have to apply a little mineral spirits to the edges to soften the adhesive enough to pry them apart.

DRILLING TO SAVE TIME. Now you could just pick up the router and plunge into the workpiece, making a lot of passes with the router until you reach the final depth. But I've found a way to remove most of the waste that's a lot quicker and easier.

Here's what I do. Attach the template to the workpiece and then take this assembly over to the drill press. Next, as illustrated in Fig. 4, I drill out most of the waste with a Forstner bit by making overlapping holes.

There are a few things to keep in mind as you're drilling. In Figs. 4 and 5, you can see what I'm talking about.

AVOIDING PROBLEMS. First, because any damage on the template will be transferred to the workpiece by the router bit, keep the drill bit away from the edge of the template (about $1/8"$). (Note: To patch small dings in the template, you can use wood filler and sand it smooth.) This will leave plenty of room to clean up the drill marks and leave a smooth surface.

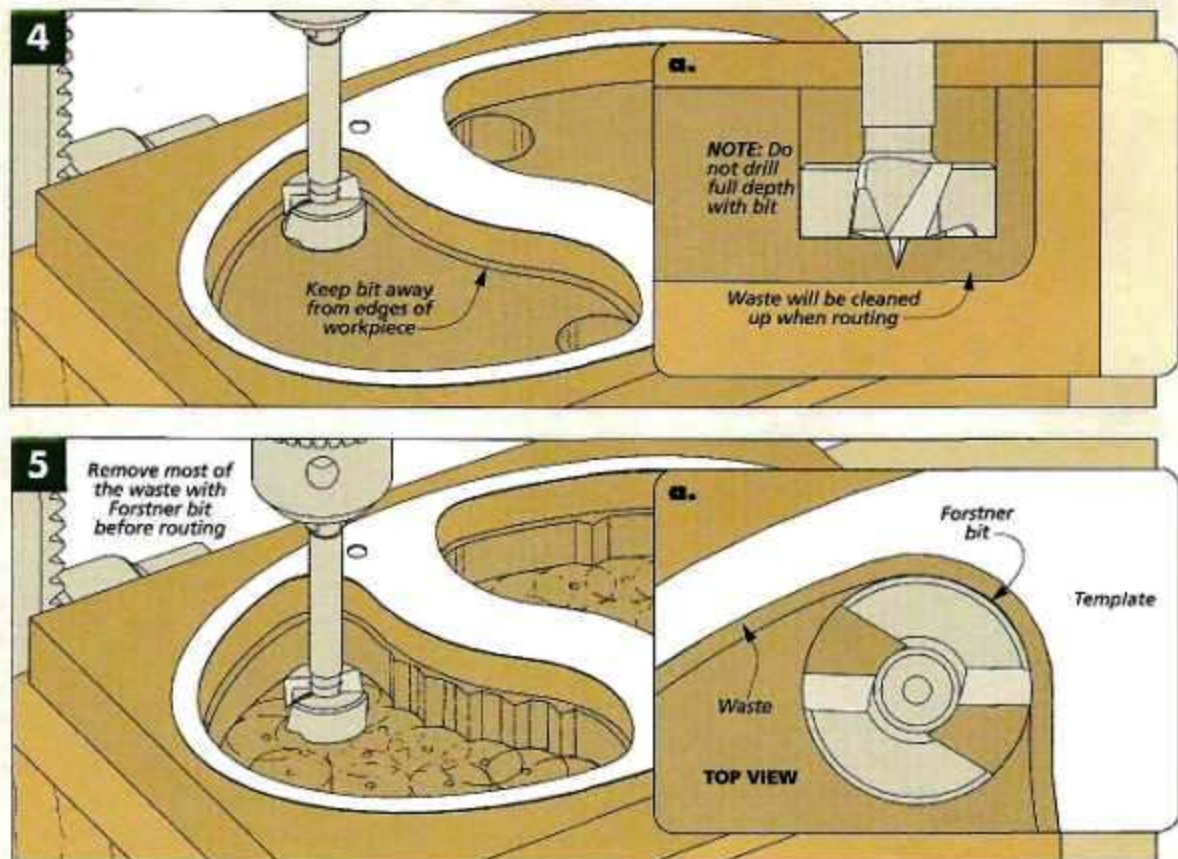
Second, watch how deep you'll drill into the workpiece. The lead spur of the Forstner bit can penetrate farther than you will end up routing. This would leave little dimples all over the bottom of the recess.

Finally, be careful near the corners and along the edges of the recess. If the holes are drilled too deep, the straight-sided drill bit can cut down beyond where the rounded router bit can reach. Fig. 4a shows how you can avoid these problems by leaving extra room at the edges and stopping the cutting edge of the drill bit about $3/16"$ above the bottom of the hole.

ROUTER SETUP

With most of the waste removed, you can secure the template and workpiece to your workbench in a vise or with clamps. And after all the prep work, you'll find that routing is really just a cleanup step.

CHOOSING A ROUTER. The type of router that you use will influence how you go about routing. For the boxes, I found that a fixed base router works just fine. But a plunge router would be



a great choice as well. You can take advantage of its ability to quickly change the depth settings. A plunge router will also let you keep the base in full contact with the template before the bit starts cutting.

Another thing to consider is the size of the router base compared to the openings in the template. If the openings are large, you may want to attach an auxiliary base to your router so that the router can't tip into the opening and damage either the template or the workpiece.

CONTROLLING DUST. There are a few other things to note when routing. The first is dust and chips. As you can see in the photo at right, the router kicks up a snowstorm of dust. So it's a good idea to wear a dust mask in addition to your safety glasses. And if you can connect your router to a shop vacuum, that's even better.

You may notice that when you're routing deeper recesses that it's a little hard to see what's going on. But since you're using a template, there's nothing to worry about. The template keeps you cutting in the right place.

One last thing, because of the size of the tray bit, you'll want to take a series of shallow passes rather than trying to get by with just one or two heavy passes. While you're routing, listen to the sound of the router. It should keep its high-pitched whine. If the pitch drops considerably, slow down or take a lighter cut.

ROUTING WITH THE TEMPLATE

To begin routing with the template, place the router on the template and set the bit for a shallow cut ($1/8"$), as you can see in Fig. 6. Now set an edge of the router base on the template and turn it on. Then tilt the router into the template opening. You'll want to make sure that the cutting edge of the bit won't come in contact with the edge of the template.

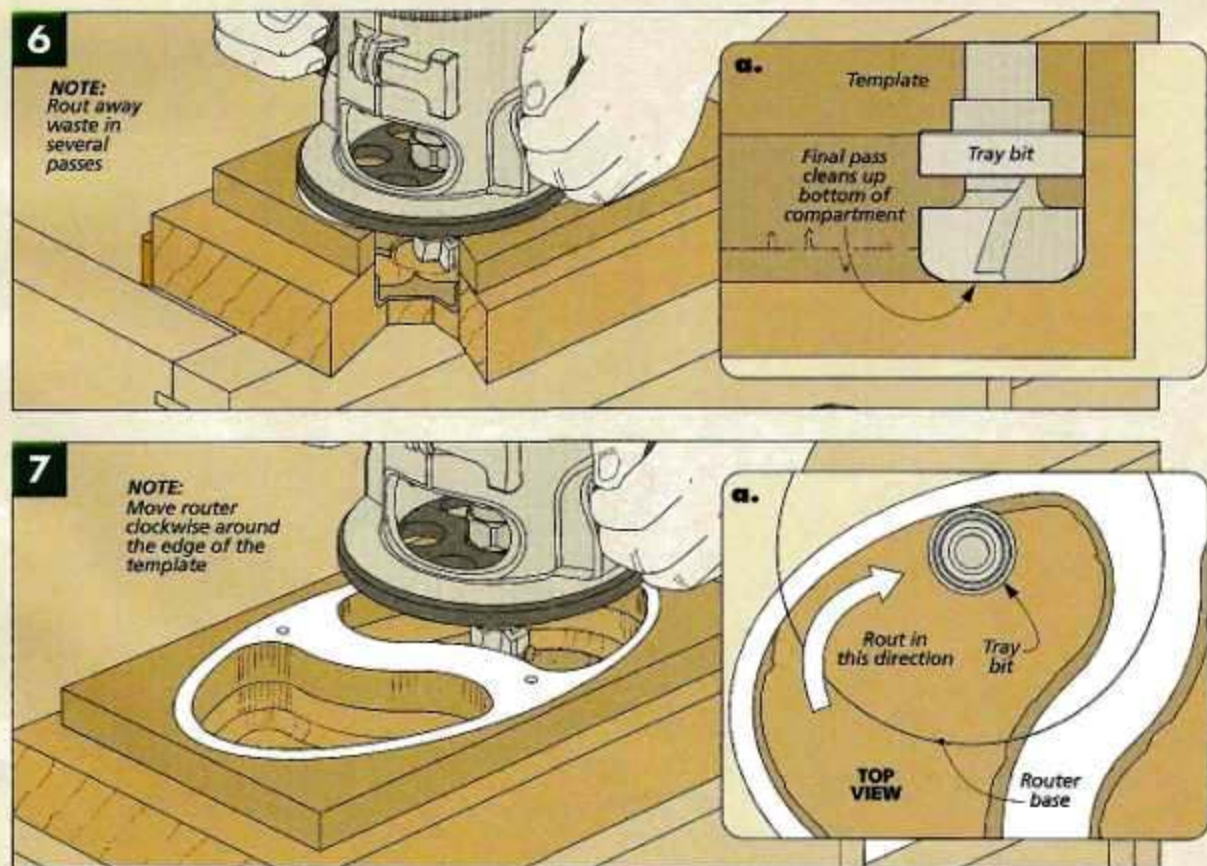
DIRECTION OF ROUTING. Once the router base is flat on the template, with the bit in the middle of one of the openings, I work my way around the compartment from the center to the edge. To do this, move the router around the opening clockwise, as illustrated in Figs. 7 and 7a. Finish up the

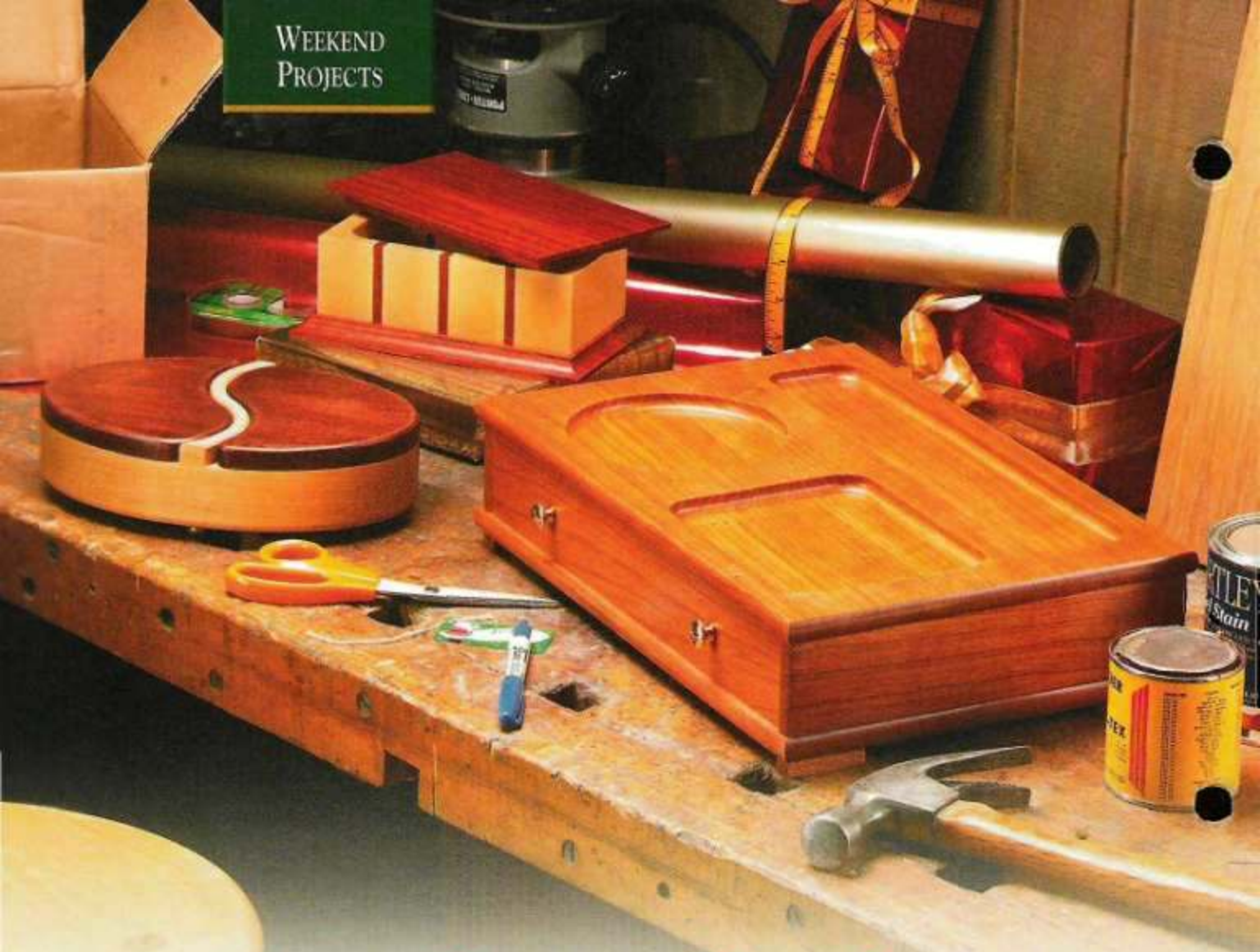


first pass with the bearing of the bit in full contact with the template. After this pass, set it for a deeper cut and make another pass.

On the final pass, you'll be cleaning up any remaining drill bit marks on the bottom of the compartment, as shown in Fig. 6a. Once you're done routing, all that's left is to remove any burn marks with some sandpaper. **W**

▲ After drilling out most of the waste, the final routing will clean up the recess in just a few minutes.





THREE ROUTED GIFT BOXES

What do these three beautiful boxes have in common? Each of them features a simple template routing technique.

Around this time of year, I'm always on the lookout for small, simple projects to build as gifts for friends and family. And the three unique boxes shown in the photo above are perfect examples.

What makes them perfect? For one, they don't require a lot of time or material to make. You could probably make them all from pieces of wood leftover from some of your other projects.

Each of the boxes features simple construction and joinery. In fact, two of the boxes (the jewelry box shown on the opposite page and the secret-compartment box on page 14) are made from either a single block of wood or a glued-up blank. The case of the third box, the

dresser-top valet on page 16, is joined by screws and has a small drawer with a simple locking rabbet.

Best of all, as a woodworker, I get the chance to try my hand at a different kind of template routing technique. With a template, you're not limited to square or straightline shapes. To learn more about this technique, read the article starting on page 6.

In the box projects that follow, you'll see just some of the ways you can use templates to carve out the inside of a box, or to create the shallow recesses of a tray.

So dust off your router and build one or all three of these boxes and get a few names crossed off your gift list. At the same time, you'll be honing a new skill.

OVAL JEWELRY BOX

The first of the boxes, the jewelry box, is the most unusual of the three. With its oval shape and wing-like lids, it also seems a lot more complex, but as you'll see, there isn't anything unusual about building it.

There are only four parts to the jewelry box. The body is made of one piece of 1½"-thick hardwood. A pair of bean-shaped compartments are routed in it to hold the jewelry. Two matching swivel lids enclose the compartments, and a center divider serves as a lid stop.

MAKING THE TEMPLATE. The secret to a free-form project that doesn't have any straight lines or square shapes is to use a router and a pair of templates. Use the pattern on page 13 as a guide for making the box template. Even though the final shape of the box is oval, I made both the template and the box blank an oversize rectangular shape for now. I did this for two simple reasons.

First, the oversize template provides a broad, flat surface for the router to ride on. The second reason is that it's easier to secure the rectangular box blank in the face vise on the workbench.

After attaching the template to the box blank, the first thing you'll do is drill out most of the waste with a Forstner bit in the drill press. Doing it this way is faster than routing.

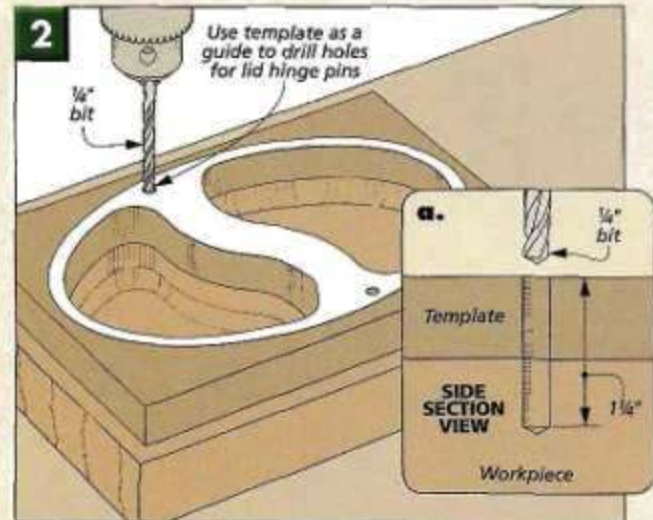
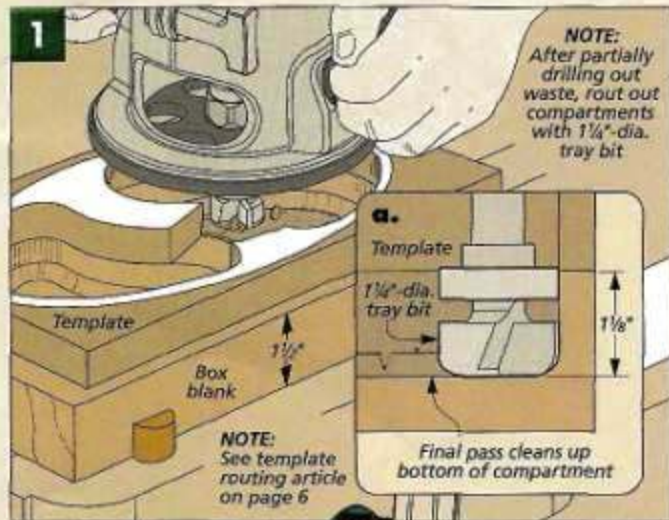


ROUTING WITH THE TEMPLATE. Once the recesses have been drilled to rough shape, you can rout out the compartments, taking shallow passes, as shown in Fig. 1.

DRILLING PIN HOLES. The last thing to do is to drill a pair of ¼"-dia. holes through the template and into the box, as you can see in Figs. 2 and 2a.

These holes will hold steel pins that the lids will swivel on.

Now, although the body of the box isn't quite finished at this point, you can take the template off. Then set the body aside while you work on the lids. When the lids are done, the body will be cut to match the lids for a seamless look.



Shaping The Lids

With the recesses in the body complete, I turned my attention to the lids. After the lids are complete, the rest of the box will be shaped and then sanded smooth.

MAKING THE LID TEMPLATE. But before you make the lids, there's one more template to make. The second template guides you through the cutting and fitting of the lids. The same template is used to shape both lids so that they end up identical.

To make the template, enlarge the pattern on the opposite page and glue it to a piece of $\frac{1}{4}$ " hardboard. The template is then cut to rough shape on the band saw and sanded to the layout lines. Then drill out the $\frac{1}{4}$ "-dia. hinge pin hole

LAY OUT LIDS AND DIVIDER. The lids and center divider of the box are all cut from the same piece of $\frac{1}{2}$ "-thick stock so that the grain will flow across all three parts after they're shaped and attached to the box. So to lay out the parts, you'll need to start with an oversize blank.

Now set the lid template in place on the blank and trace the outline. Then rotate the template 180° to trace the other lid. Just be sure to leave at least $\frac{3}{8}$ " between each lid for the divider, as in Fig. 3.

Leaving this extra space allows for the saw kerfs when cutting out

the lids and still leaves you enough "wiggle" room to shape the divider for a tight fit later on. And to keep the parts from getting turned around while shaping, I used an old trick and marked a carpenter's triangle on the top of the board.

MAKING THE LIDS. At this point, the lids can be cut out from the blank on the band saw. (Remember to save the center for the divider.) Cut just to the waste side of the line.

Next, attach the lid template with double-sided carpet tape and trim the lid to final shape with a flush trim bit installed in the router table, as you can see in Figs. 4 and 4a.

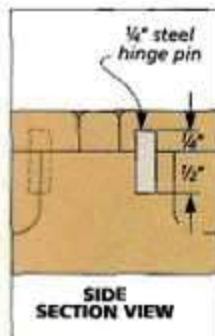
Using the template as a guide, drill a $\frac{1}{4}$ "-dia. hole in the bottom of each lid, as shown in the drawing in the left margin. Then cut a piece of

$\frac{1}{4}$ "-dia. steel rod to fit in the lid and box (about $\frac{3}{4}$ "). The pins can then be glued into the lids with epoxy.

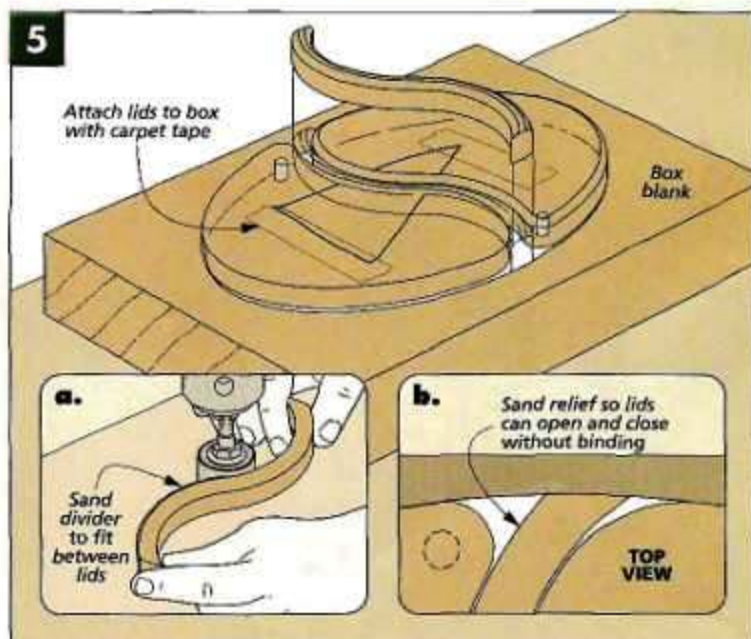
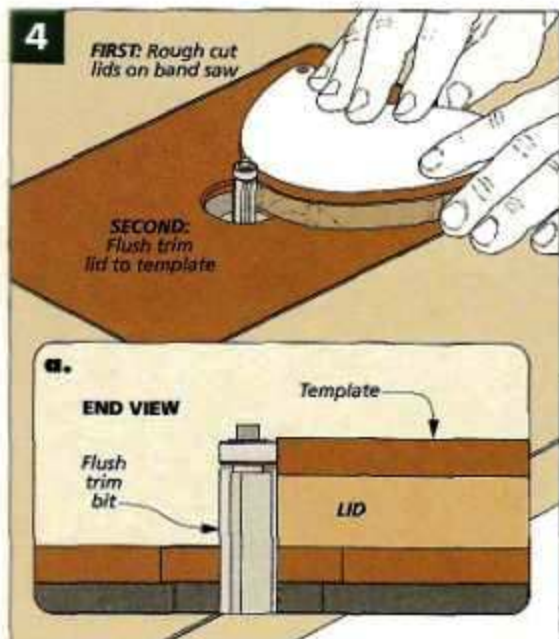
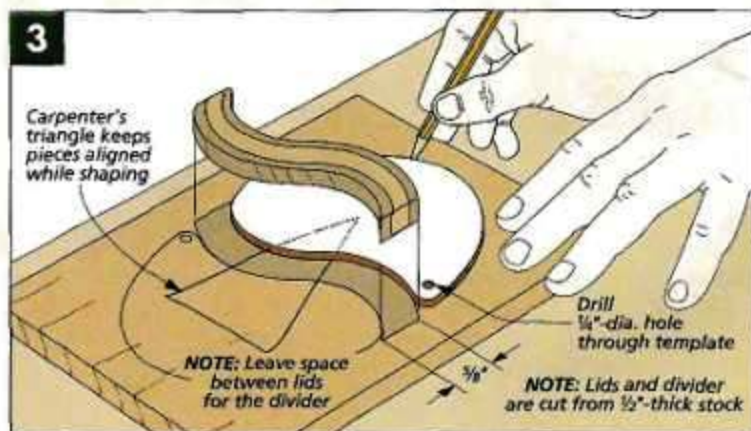
SHAPING THE DIVIDER. Once the glue has dried, you'll need to grab the box body for the shaping and fitting of the divider. To do this, start by attaching the lids with double-sided tape. The tape keeps the lids from moving around while you fit the divider to the space between them, as illustrated in Fig. 5.

When fitting the divider, make sure the orientation triangle lines up. The space between the lids defines the exact size of the divider.

To fit the divider, I used a drum sander mounted in the drill press, as you can see in Fig. 5a. It's a good idea to test the fit often while shaping the divider. What you're looking



▲ Use the templates as a guide for drilling holes for the steel hinge pins for the lids.

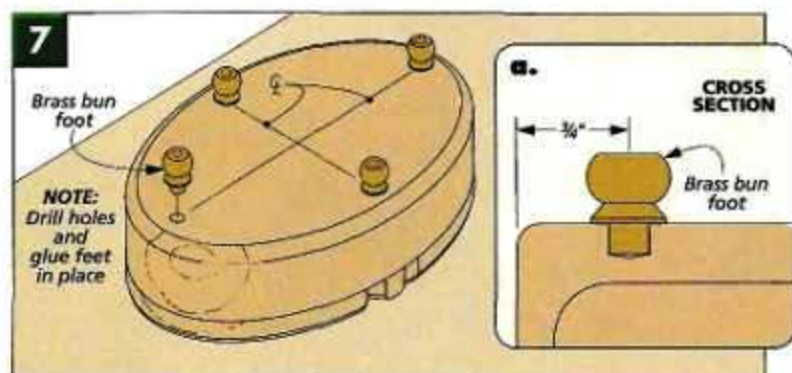
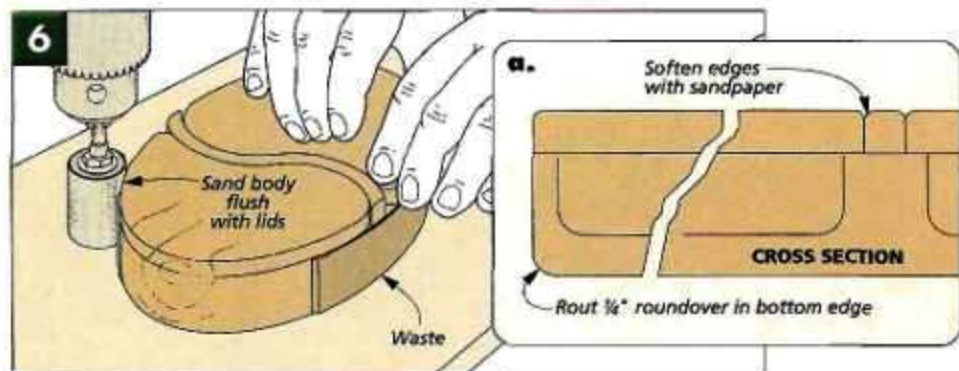


for is a snug fit. At each end of the divider, I sanded a relief, as shown in Fig. 5b. This lets the lids open and close freely without binding. When you're satisfied with the fit, you can ease the top edges with some sandpaper and glue the divider in place.


CUT OUT THE BOX. Now that the lids and divider are complete, the body of the box can be cut from the over-size blank. To do this, trace the outline of the lids on the body. Then remove the lids and rough cut the body on the band saw.

SANDING THE BODY FLUSH. Once the body has been cut out, it still needs some fine-tuning. Here again, I attached the lids with double-sided tape and sanded the body flush with the lids using a drum sander, as shown in Fig. 6. Now it might seem that this is the perfect job for a flush trim bit in the router table, but it's not. The reason is that with so much end grain on the box, routing could cause a lot of tearout and burning.

There's just a couple of things left to do on the box. The first is to soften the sharp top edges of each lid with some sandpaper. Second, I routed a slight ($\frac{1}{4}$ ") roundover on the bottom of the box, as in Fig. 6a.

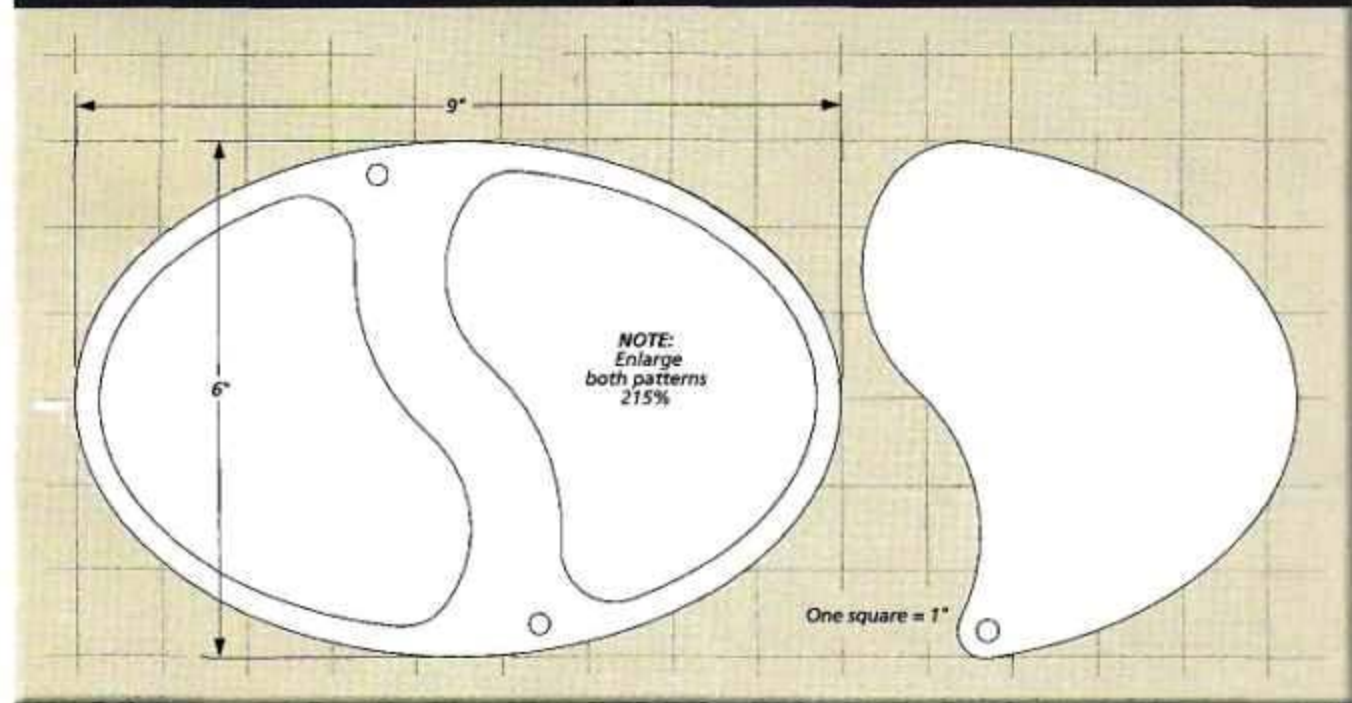


ADDING FEET. The last thing to add to the box are a few brass feet. The feet are glued into holes drilled in the bottom, as in Figs. 7 and 7a. Although the box looks great just as it is, there are a few other details

that you could add. I stained the lids a contrasting color. Then, I applied flocking to the inside of the compartments to match the lid stain. For step-by-step instructions on how to do this, turn to page 18. 

Woodsmith
GO ONLINE
EXTRAS
To download a full-size pattern for the jewelry box and lids, go to www.woodsmith.com

OVAL BOX PATTERNS

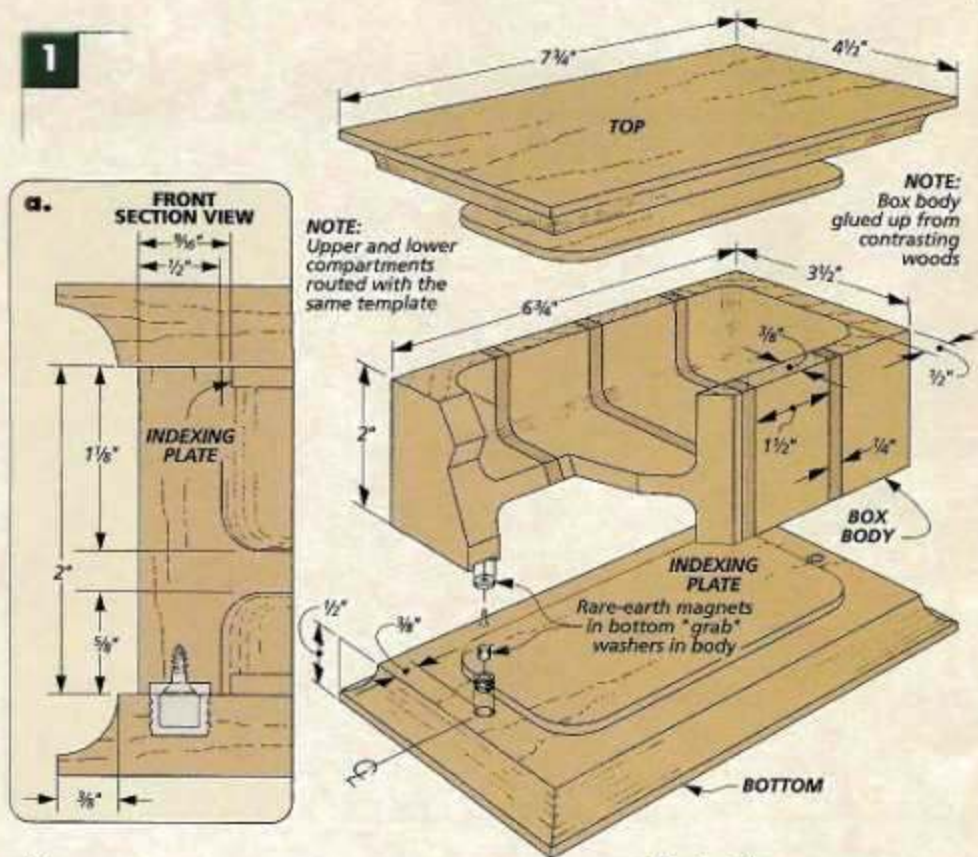




▲ Flip the box over to uncover a second compartment hidden in the base. A pair of magnets attached to the bottom keep it a secret.

SECRET-COMPARTMENT BOX

A template and router are all it takes to “carve” out this box.



This box is hiding something — two things actually. To see what I mean, take a look at the photos above. First of all, you’ll notice the vertical grain in the body of the box. This hides the end grain under the top and bottom. The other thing this box is hiding is a secret compartment in the bottom, as you can see in the inset photo.

MAKING THE BODY. The body of the box is just a large, glued-up block of wood. For contrast, I added a few thin strips of a darker-colored wood (paduak), as shown in Fig. 1, but you can use whatever you like.

To make the body, I started with a sandwich of smaller pieces of wood turned on end. Like I mentioned before, there won’t be any end grain visible on the box.

ROUTING THE COMPARTMENTS. Both the top and bottom compartments are routed using the same template. To make the template, use the half-pattern shown on the opposite page. The only thing that’s different between each compartment is the

depth of each recess, as you can see in Fig. 1a. For more on template routing, turn to page 6.

What's unusual about routing the compartments for this box is that you're cutting into end grain. The hard end grain causes more stress on the bit. So I like to make shallow cuts and move the router a little slower than normal.

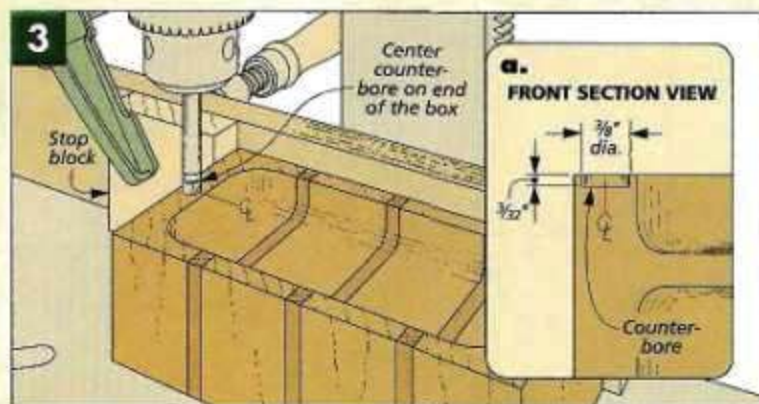
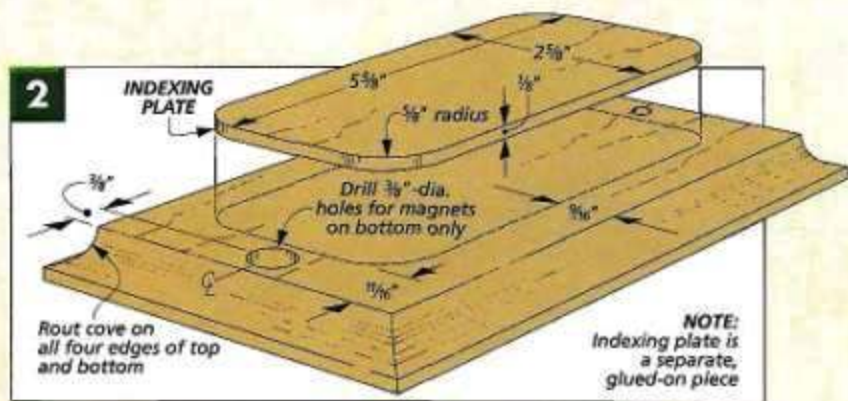
TOP AND BOTTOM. The top and bottom of the box are identical. They're made from $\frac{1}{2}$ "-thick stock and have a $\frac{3}{8}$ " cove routed on all four edges.

To keep the top and bottom centered on the box, there are $\frac{1}{8}$ "-thick indexing plates on the inside face of each piece, as shown in Fig. 2.

The indexing plates have a radius cut on each corner and are long enough to just slip into the compartments. And they're cut a bit narrower than the opening to allow for seasonal movement.

But before shaping, I planed the plates to final thickness. The problem is thin stock has a tendency to break apart in the planer. To support the pieces, I taped them to a plywood carrier (see photo below).

KEEPING A SECRET. To keep the lower compartment a secret, I attached a

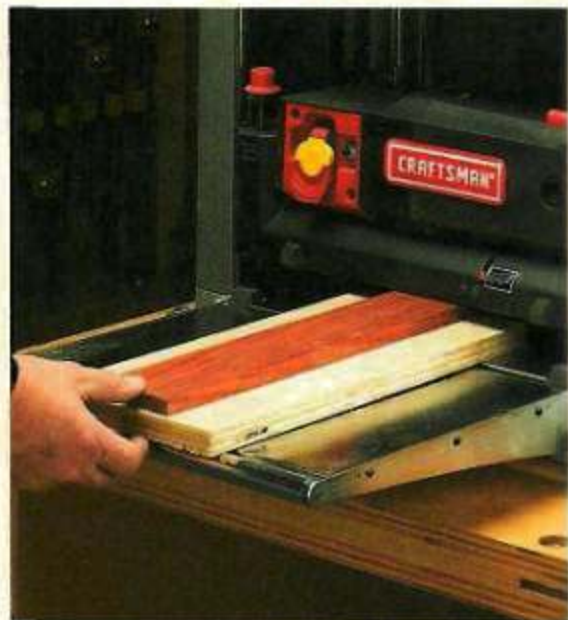
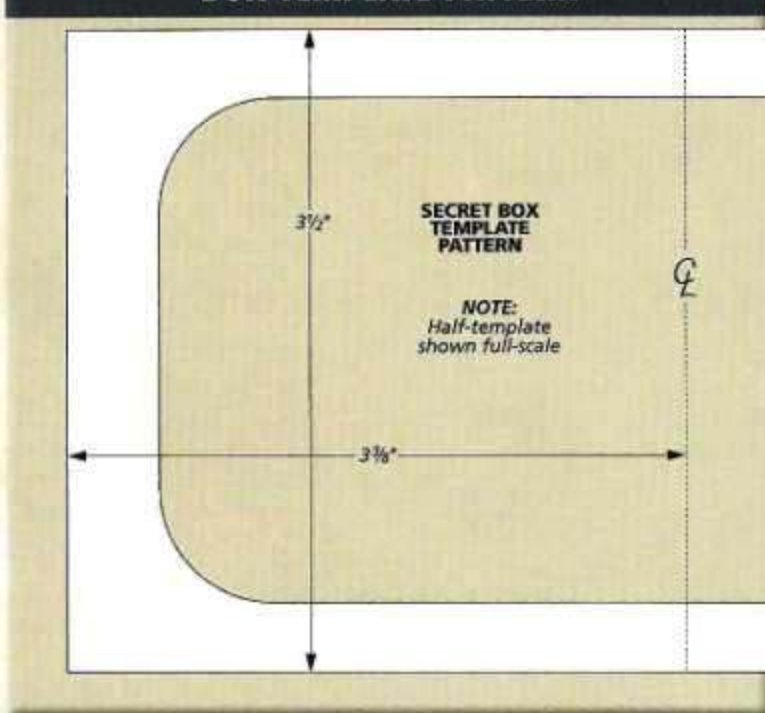


pair of rare-earth magnets to the bottom lock it in place. Each magnet is held in a small cup pressed into a hole at each end of the base (Fig. 2).

For the magnets to work, they need something to grab onto. So I

drilled a counter-bore at each end of the box, as in Fig. 3a, and installed a pair of special, countersink washers. The holes and counterbores are centered on the thickness of the box "walls," as shown in Fig. 3.

BOX TEMPLATE PATTERN



▲ When planing the stock for the indexing plates used for the top and bottom, attach the stock to a $\frac{3}{4}$ " plywood carrier with double-sided tape. The plywood supports the thin stock as it's planed preventing it from getting chewed up by the force of the planer knives.



DRESSER-TOP VALET

This classy organizer features a small drawer and a divided tray top.

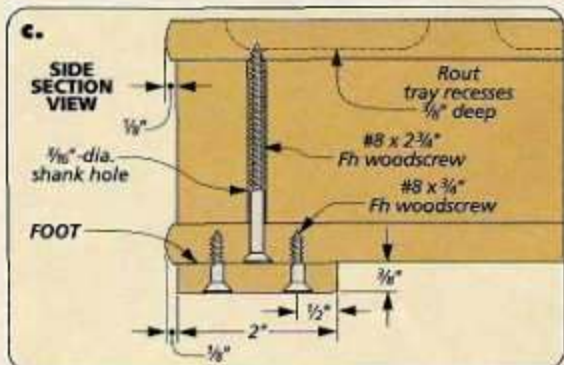
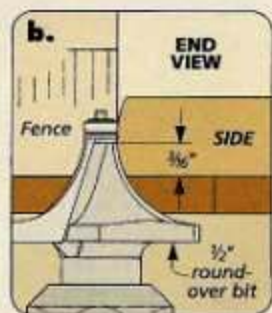
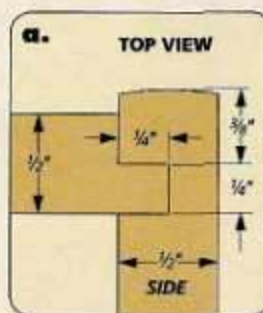
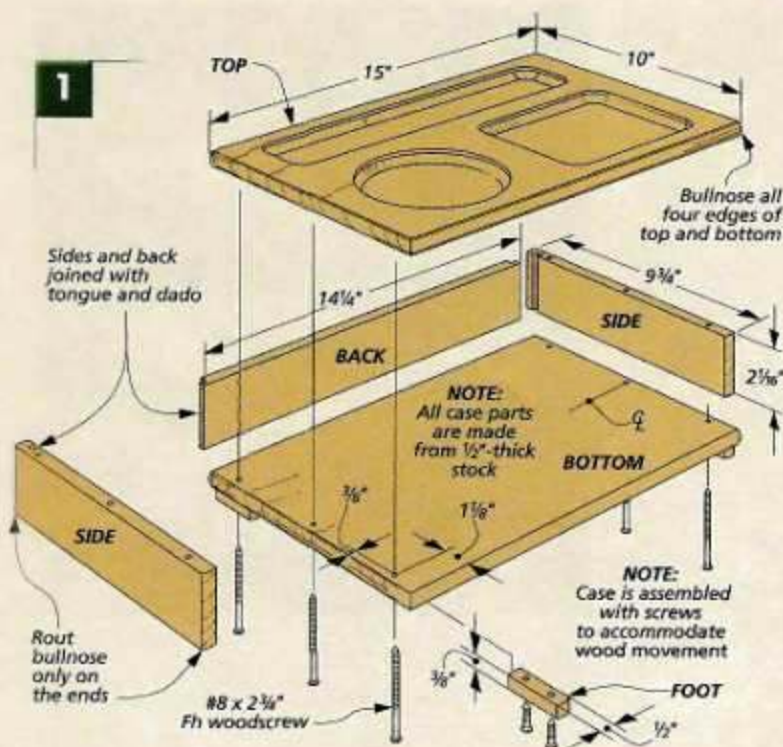
Take a look at this dresser-top valet. It's a basic case with straightforward construction. What's different is the top of the case. It features shallow "wells" to hold the stuff that collects in your pockets during the day and needs a place to rest when you come home, shown in the photo.

TOP AND BOTTOM. The top and bottom of the case are glued-up panels with a bullnose routed on all four edges, as shown in Fig 1b.

To make the shallow wells in the top, I used a special tray bit in a router guided by a template. Use the pattern shown on the opposite

page to make the template. You can learn more about template routing by reading the article on page 6.

MAKING THE CASE SIDES. The sides and back are cut to size from $\frac{1}{2}$ "-thick stock. A bullnose is routed on each end of the sides to match the top and bottom, as in Figs. 1 and 1b.



I used a tongue and dado joint to connect the sides and back of the case. To make the joint, a dado is cut near the back of each side piece, then a matching tongue is cut at each end of the back, as in Fig. 1a. With the joints cut, the sides and back can be glued together.

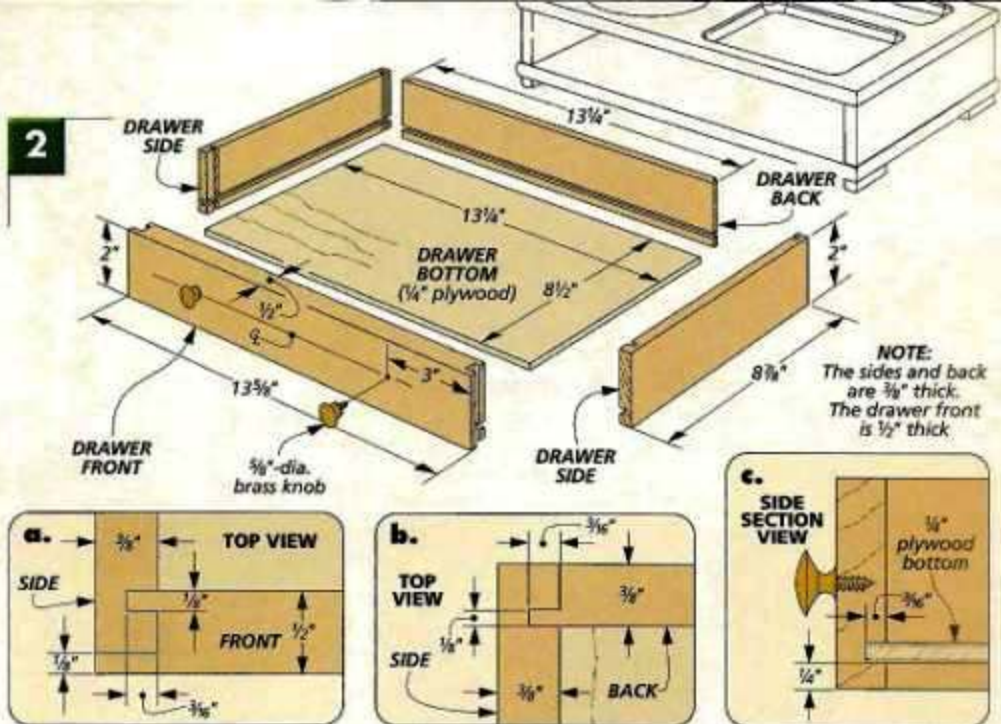
BOX ASSEMBLY. I was looking for a simple way to attach the top and bottom to the sides of the case. The trouble is, this is a cross-grain joint. And there's no way glue will stand up to seasonal movement.

The solution to this problem is to use long screws to pin the top and bottom to the sides, as in Fig. 1. The holes in the sides are oversize, which allows the sides to move independently from the top and bottom, as shown in Fig. 1c.

Small, wood feet are screwed to the bottom to complete the case, as in Fig. 1c. To make them, I routed the bullnose on an oversize blank first, then cut them to final size.

BUILDING A SIMPLE DRAWER

With the case complete, you can begin working on the drawer. As you can see in Fig. 2, it's just a basic drawer with tongue and dado and locking rabbet joinery.



The tongue and dado is straightforward enough to make. The joint is cut just like the one that joins the side and back of the case (Fig. 2b).

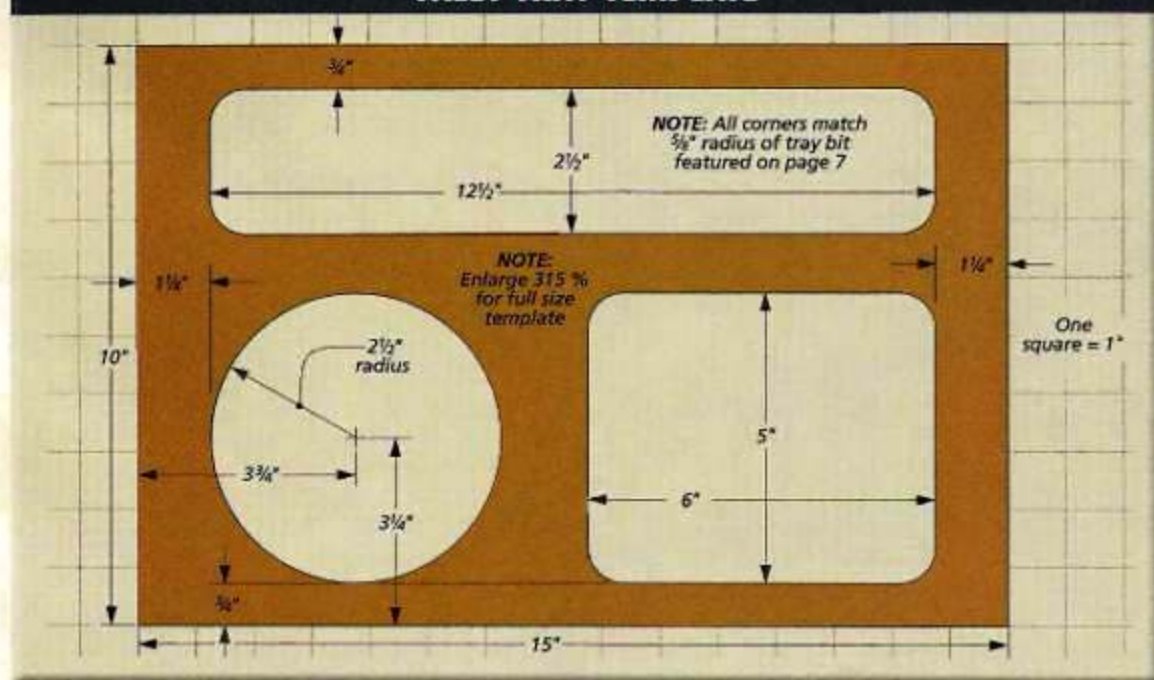
CUTTING A LOCKING RABBET. I used a locking rabbet to join the front and sides of the drawer, as you can see in Fig. 2a. I did it this way because it's a stronger joint for the front.

You could also use a drawer joint bit in the router table to make this joint. To see how, turn to page 34.

After cutting the joinery, the next thing I did was cut a 1/4" groove near the bottom edge of all the parts. This groove will hold a 1/4" plywood bottom, as shown in Fig. 2c.

FINAL ASSEMBLY. The final piece to make is the plywood drawer bottom, as in Fig. 2. It's sized to fit in the grooves in the drawer parts. Then all that's left to complete the valet is to screw a pair of brass knobs to the drawer front. ■

VALET TRAY TEMPLATE



SHOP NOTES

Routing Spline Grooves

Ordinarily, breadboard ends are attached to a solid-wood panel with a tongue and groove or mortise and tenon joint. But since the panel in the oak dining room table on page 30 is plywood, it calls for something a little different. Here, the breadboard ends are attached to the plywood slab with $\frac{1}{4}$ " hardboard splines. The splines provide additional glue area and keep the breadboard ends flush with the table top.

SLOT CUTTER. To cut the grooves for the splines, I used a slot cutter in a hand-held router, as in the photo above. But since I didn't want the spline to show on the ends, I needed to make stopped grooves in both parts.

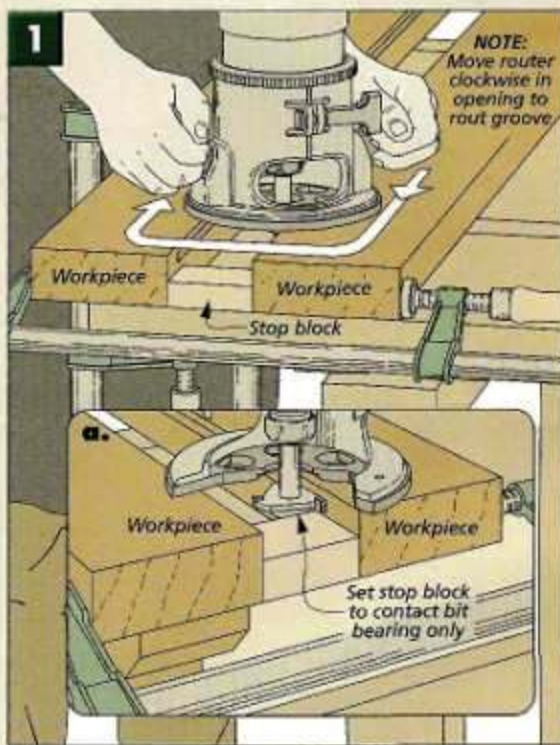
STOP BLOCKS. To do this, I clamped a pair of stop blocks between the breadboard ends. Doing it this way has a couple of advantages. First, you can cut

the grooves for both parts with one setup. Second, using both workpieces provides greater surface area for the router to ride on, as in Fig. 1a. This way it can't tip while cutting and spoil the groove.

The blocks are sized to stop the bit 2" from the ends and are longer than the diameter of the cutter. This way the bit isn't trapped by the pieces.

After setting the depth so that the groove will be $\frac{1}{4}$ " below the surface, I clamped the blocks so that they "catch" the bearing on the end of the bit.

ROUT GROOVE. To rout the groove, set the router on the breadboard ends, making sure the bit isn't touching the sides and turn on the router. Slowly bring it into the workpiece until the bearing touches. Then move the router clockwise around the opening (Fig. 1). 



1 After sanding the inside and finishing the outside of the box, brush a thick base coat of the paint-like adhesive to all the inside surfaces.



2 While the paint is still wet, apply the flocking fibers with the shaker applicator. After the paint dries, brush out any excess fibers.


Suede-Tex Application

To dress up the jewelry box on page 10, I wanted to line the compartments. There are two ways to do this.

One way would be to line the recesses with felt. But with all the curves and the rounded bottom, that would be a tough job to say the least.

The other way is to use Suede-Tex, which gives the same look of felt. It is actually a two-part flocking made of a pigmented undercoat adhesive and

tiny fibers. It's available in a variety of colors (see page 35 for sources).

It's best to apply it after applying finish to the project. Otherwise, you could contaminate the flocking. Start by brushing on a thick coat of adhesive (I like to use a glue brush). Then, while it's still wet, you can blow on the fibers. To get an even covering, don't be afraid to apply too much. You can reuse any excess later. 

Trimming Large Panels

One of the biggest challenges of building the kitchen table on page 29 is squaring up the table top. Ripping it to final width on the table saw is no problem since the sides are straight.

The problem comes in trimming the ends. It's nearly impossible to crosscut the uneven ends on the table saw. The table top is just too big for the miter gauge to hold.

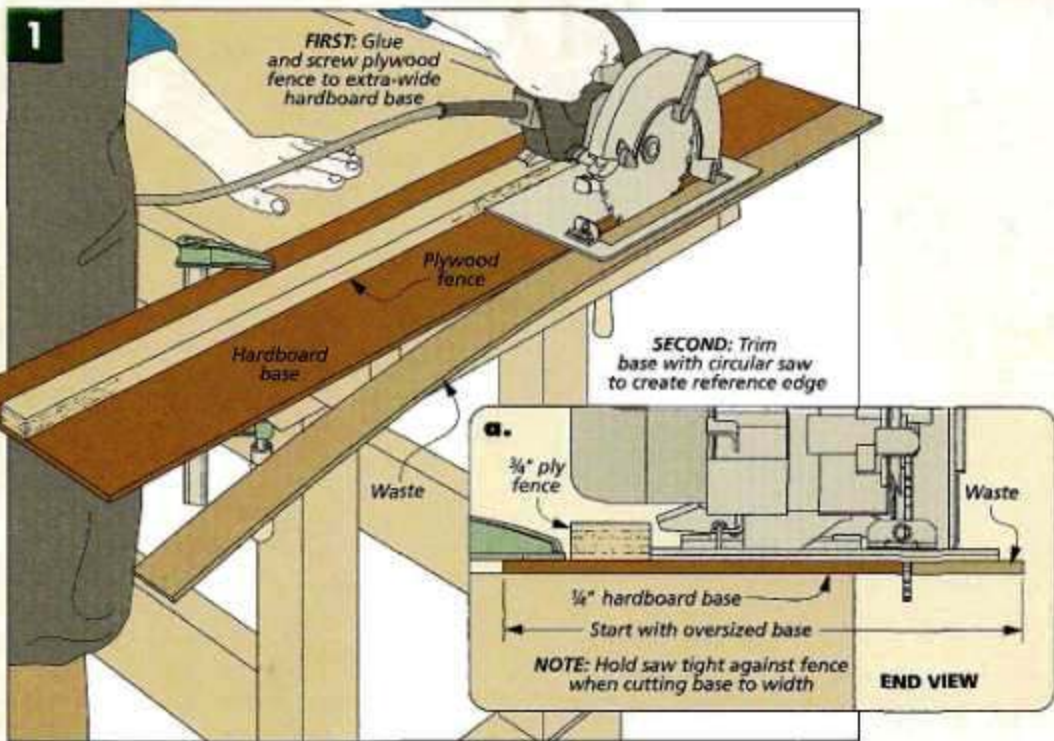
To solve this problem, I turned to a technique normally used for breaking down large sheets of plywood — a circular saw and cutting guide. One of the benefits of this method is that I don't have to muscle around the panel, I can either work on the floor or benchtop.

As you know, it can be tough to get a clean cut from a circular saw. But I've found that you can eliminate a lot of the chipout if the panel is backed up. I like to use a sheet of rigid foam insulation, as shown in the photo at right. It also helps to put the good side of the panel face down.

To guide the saw, I made a simple edge

guide. It directs the saw for cutting a straight line, and it makes a reference edge so you know exactly where the saw will cut.

To make an edge guide, start with an extra-wide base of $\frac{1}{4}$ " hardboard, then glue and screw on a plywood fence. Finally, use the fence as a guide for the saw and trim away the waste to create the reference edge (Fig. 1). **W**

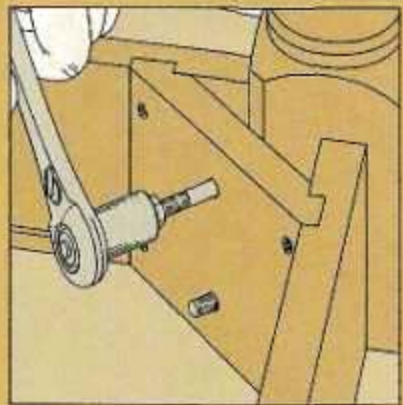


HANGER BOLT DRIVING OPTIONS

Hanger bolts are great for building knock-down table legs. The trick is knowing how to drive them in without damaging either sets of threads or backing out the bolt.

The simplest way is to use a pair of nuts tightened against each other, as you can see at the top in the photo at left. A socket wrench makes quick work of driving the bolt home, as in the drawing at right. Then you can remove the nuts with a pair of wrenches.

Another option is to use a commercial driver (shown at the bottom of the photo at left). It has a hex head that you chuck into a drill. All you do is thread it on the bolt and drive it in. Reversing the drill removes the driver.



KNOCK-DOWN TABLE BASE

Traditional knock-down table construction has been around for a long time. And once you try it, the reasons become obvious. First, it can really simplify the joinery without sacrificing strength. Second, it makes the assembly of the frame a leisurely process and pretty much foolproof. And last but not least, it allows you to disassemble a table into manageable pieces for moving or storage.

HOW IT WORKS

At first glance, you'd be hard pressed to tell that a knock-down table wasn't built with mortise and tenon joinery.

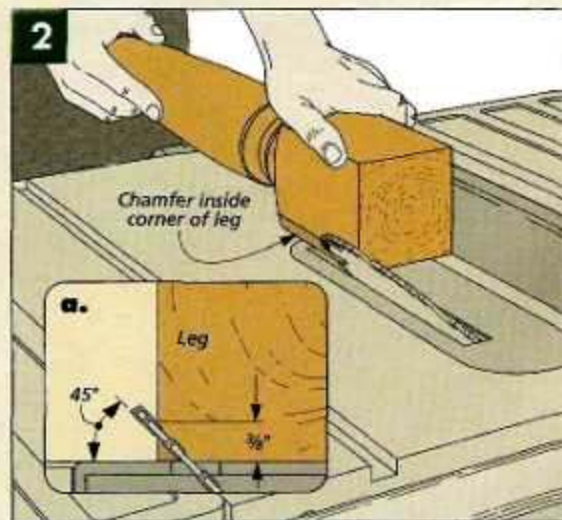
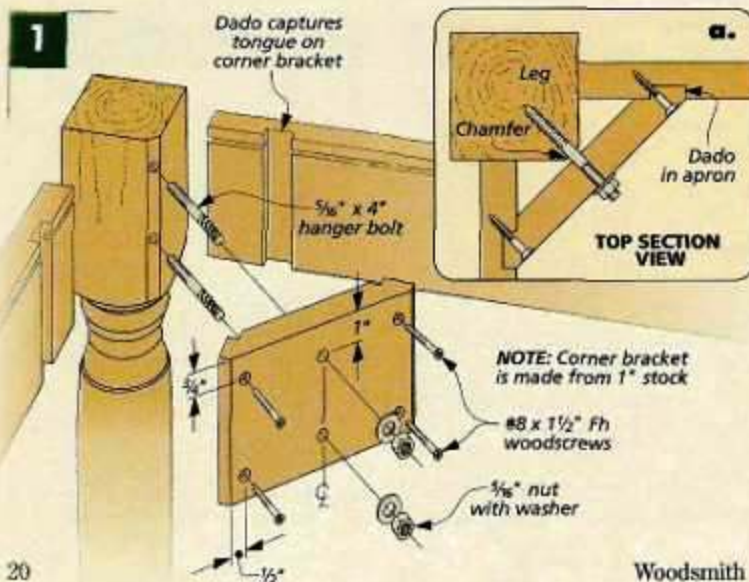
But the key here is that there isn't any joinery between the legs and the apron. On a traditional knock-down base, stout, wood corner brackets are fixed between the apron pieces to create a rigid frame. Hanger bolts inserted into the legs mate with holes in the brackets (Fig. 1). And when the nuts are snugged down, the legs and apron are pulled into a tight, square base (Fig. 1a).

THE LEGS. The usual place to start the joinery of a table base is with the legs, and in this case it's an easy job. All you need to do is to chamfer the inside, top corner of each leg as

shown in Figs. 2 and 2a. This serves a couple purposes. It'll give you clearance for the corner brackets and a flat surface in which to install the hanger bolts. That's it.

THE APRONS. The work on the aprons is almost as easy as the legs. You can get started by cutting them to width. And since you won't be cutting any tenons on the ends of the aprons, their length will be the distance separating the top ends of the legs. Just make sure the apron ends are clean and square.

To give the corner brackets a better grip on the apron, I cut a wide



dado at each end of the apron pieces. These dados capture a 1" wide tongue on the ends of the corner brackets. The result is an extremely rigid base (Fig. 1a).

MAKING THE CORNER BRACKETS. With the work completed on the legs and aprons, all you need now are the corner brackets. And to ensure the frame ends up true and square, you want all four brackets to be identical. But with a simple step-by-step process, this isn't difficult.

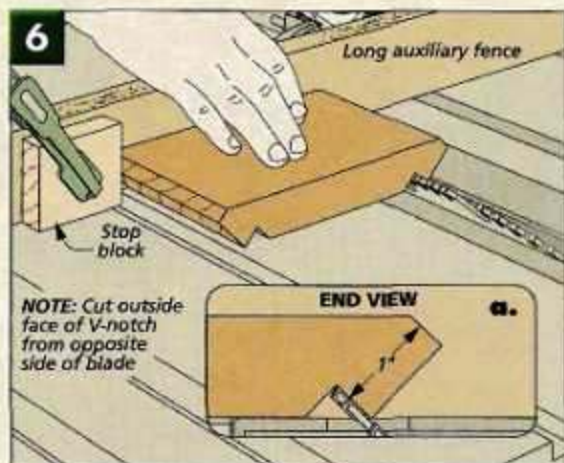
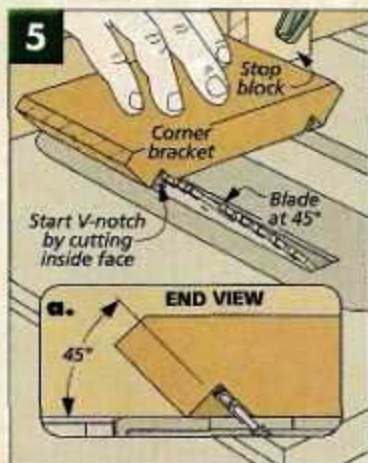
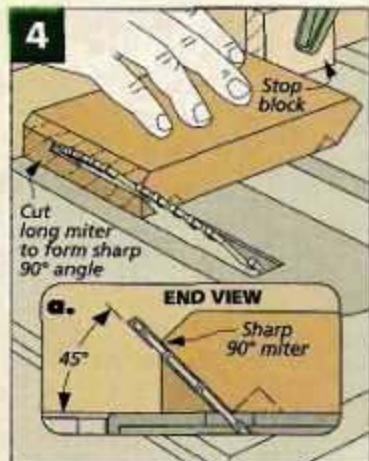
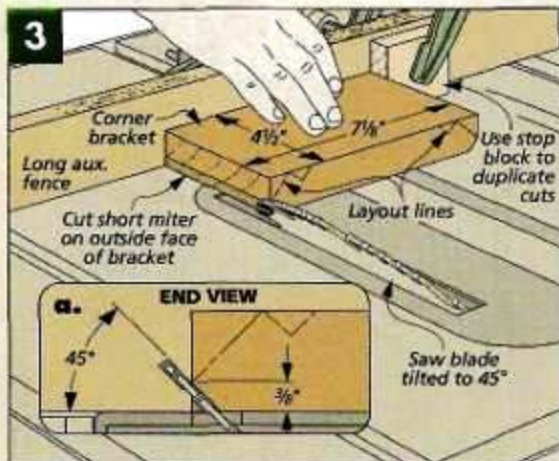
You can get started by cutting the four bracket blocks to size from 1" stock (Fig. 3). Next, lay out all the cuts on just one block — your set-up piece. You'll use this piece to make your initial cuts. A stop block on the miter gauge will make duplicating the cuts in the other pieces a cinch.

FIRST CUT. Fig. 3 shows how to get started by cutting the short 45° miter on the outside face. Just sneak up on the layout line, adjusting the stop block as you go. When your cut is right on the line, you can flip the piece end for end to make the opposite cut. Then cut the other pieces.

SECOND CUT. Now reset the stop block to make the long 45° cut on the inside face using the same steps as before (Figs. 4 and 4a).

THE TONGUE. The final two cuts on the brackets will form a V-notch and complete the tongue. Again, using a stop block I first cut the inside face of the V-notch (Figs. 5 and 5a).

Now to complete the tongue, you'll have to make the final cut

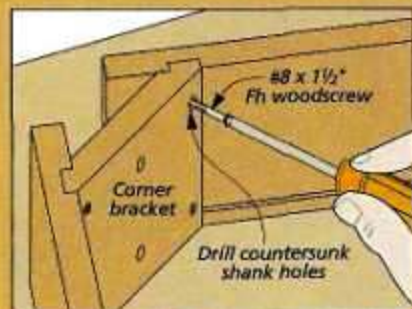


from the opposite side of the blade. If you take a look at Figs. 6 and 6a you'll see how I made this cut. The long auxiliary fence on the miter gauge makes it possible. Remember that the goal is a snug fitting tongue, so check the fit in the dados as you sneak up to the layout line.

HOLES. One more task and the base is ready to assemble. Two oversized holes drilled in each corner bracket will hold the 5/16" hanger bolts.

ASSEMBLY. At this point you're ready to put the pieces together. The box below shows the simple steps to the assembly.

EASY UPSIDE-DOWN ASSEMBLY



1 The base can go together corner by corner. First, a bracket is fastened to the aprons with woodscrews.



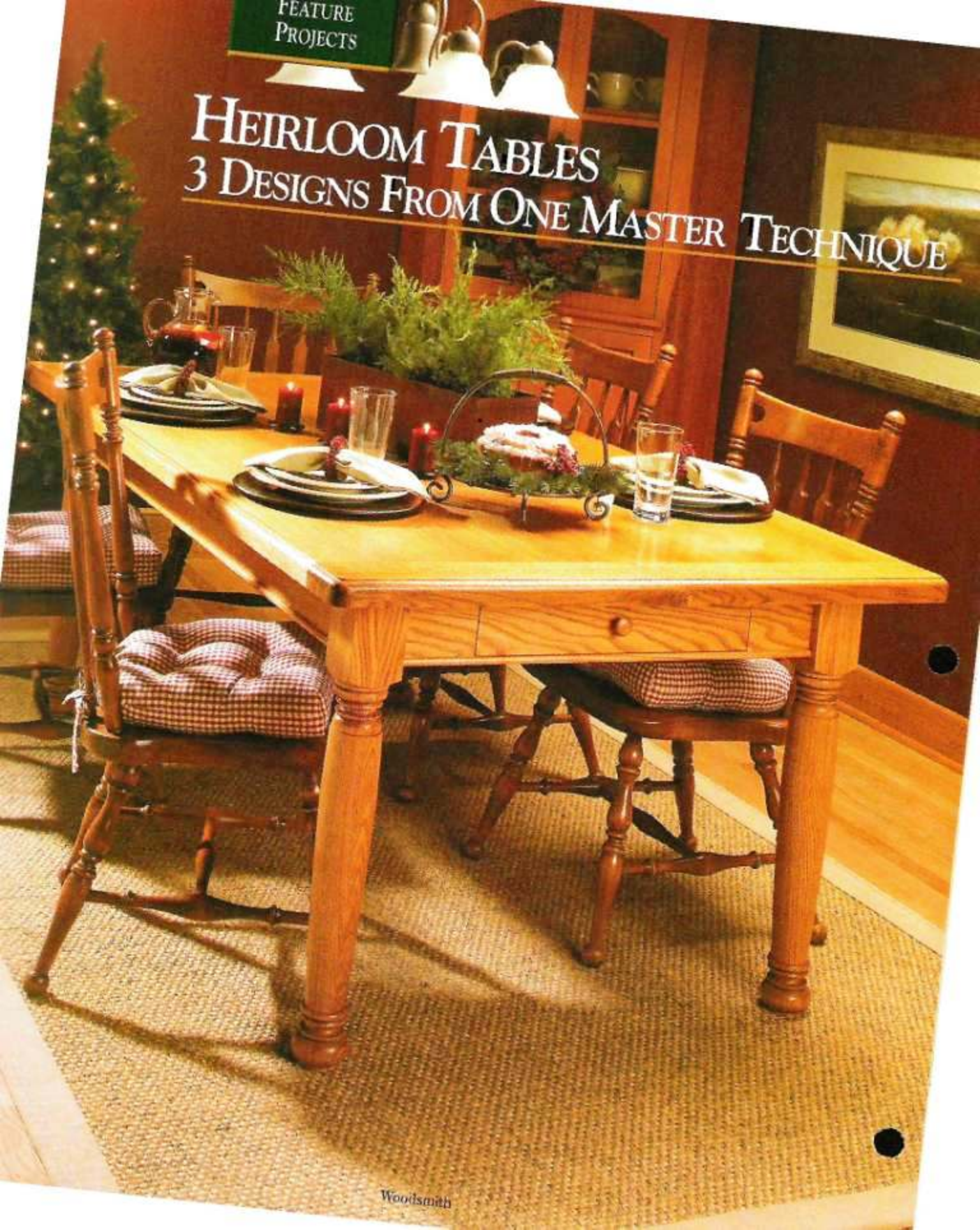
2 Next, the predrilled holes in the corner brackets are used to drill pilot holes in the legs for the hanger bolts.



3 Finally, the hanger bolts are installed. Tightening down the nut draws the leg and apron tightly together.

FEATURE
PROJECTS

HEIRLOOM TABLES 3 DESIGNS FROM ONE MASTER TECHNIQUE



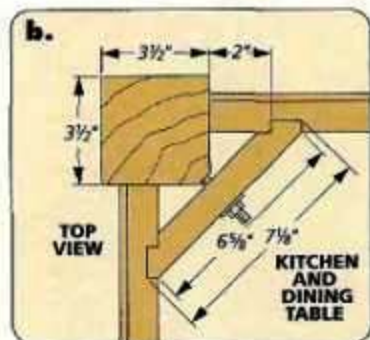
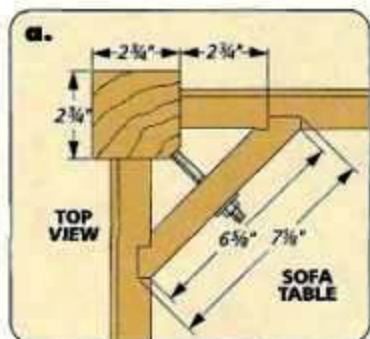
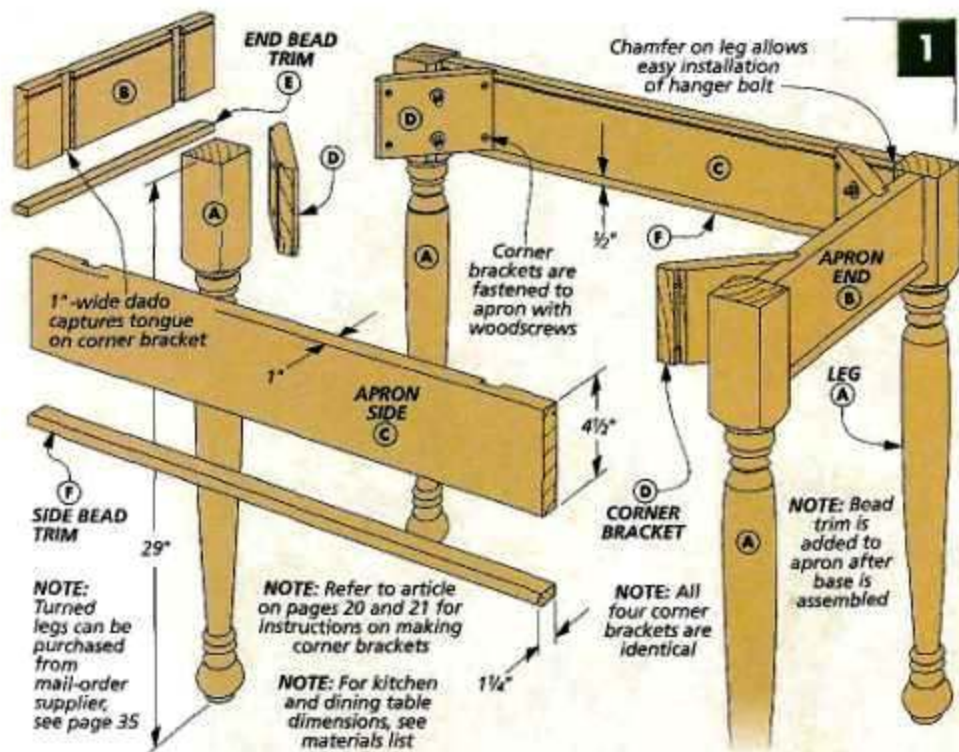


I've always enjoyed designing and building tables. With just a little effort you can come up with a table that's not only functional but attractive. And the choices can be endless. That's what helps make this three-table lineup so interesting.

All three of the tables share the same style of knock-down base. You just start with the nicely detailed, purchased legs and the rest is a snap. The technique here is so straightforward, don't be surprised if your base is assembled in a day. But you might want to slow things down a little and include a drawer. It's really only a little more work and it gives you the chance to customize a bit.

Finally, you can add a top to make each table unique. The plank and cleat top on the maple sofa table at right is about as easy to build as they come. And while the thick pine top on the kitchen table above is pretty standard, it looks right at home. The breadboard-end top on the oak dining table gives you some different challenges and a classic look. But I'm guessing you'll only have one difficulty with these tables, deciding which one to build.





1 TECHNIQUE — 3 TABLE BASES

One of the nicest things about the knock-down technique I used for these tables is that the process is so easy. And it can be used on just about any size or style of table. And as you can see from the photos on pages 22 and 23, the results can't be beat.

The three tables that I built using the knock-down technique have bases that are all pretty much identical in style. I just varied the sizes of the bases (and legs) and then I added a detail or two for interest. Before you get started on one of the tables, you'll want to read over the

article on pages 20 and 21. This will give you all the basics on the knock-down technique, so I won't get into the construction details of each base. I'll just try to point out some of the differences and the finer points.

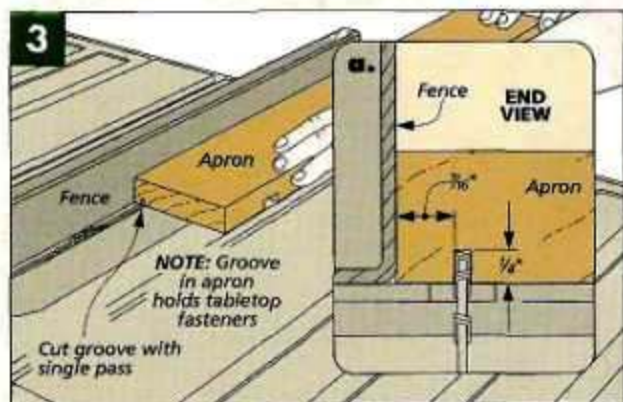
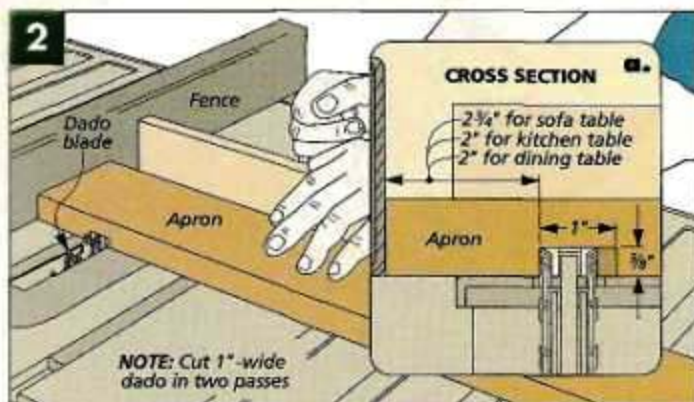
THE BASE. Fig. 1 shows the breakdown of the base for the maple sofa table. All three of the bases follow this same design. Only the dimensions and one minor, but important, detail are different.

DADO POSITION. If you take a close look at Figs. 1a and 1b, you'll see that the position of the dados in the

aprons is different. The reason is simple. I used nice, purchased legs for all three tables. They weren't expensive and they look great. (For information on turning the legs, see sources on page 35.) But in order to keep the legs in scale with the table, I used smaller legs for the sofa table. (The sofa table legs are 2 3/4" square while the legs for the dining and the kitchen table are 3 1/2" square.) Rather than change the size of the corner brackets for the sofa table, it made more sense to just reposition the dados in the aprons.

For information on the finishes used on the heirloom tables go to woodsmith.com

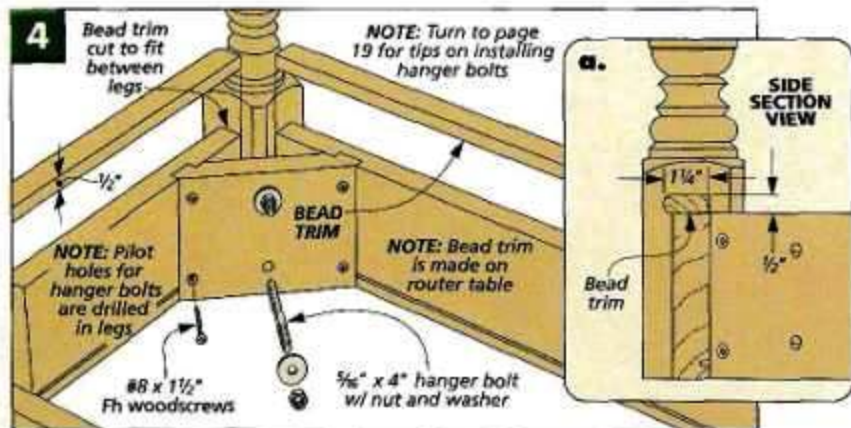
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The dados that hold the corner brackets are 1" wide (Fig. 2a). This means you'll have to make a couple of passes with a dado blade to get the full width. You can set the fence for the first pass as shown in Fig. 2. And after each apron piece is cut with this setting, just reposition the fence to end up with a 1"-wide dado.

FASTENER GROOVE. When the time came to fasten the top to the frame, I wanted it to be quick and easy. To prepare for that, I cut a groove around the top, inside edges of the apron pieces (Figs. 3 and 3a) that will hold metal tabletop fasteners.

WOODSCREWS AND ANCHOR BOLTS. After you've made the corner blocks (refer to page 21), you're ready to put it all together (Fig. 4). About the only tools you'll need for the assembly are a drill, a screwdriver, and a wrench. The article on pages 20 and

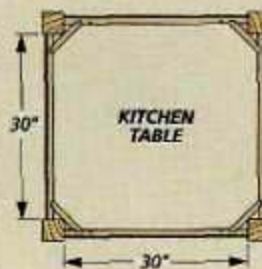


21 gives you a play by play on this. And you'll find some tips on installing anchor bolts on page 19. It's a nice sight when you tighten the nuts on the anchor bolts and the legs and the apron close up tightly.

ADD A BEAD. I thought the apron needed just a little detail and a sim-

ple way to accomplish this was to add 1/2" bead molding around the bottom edge (Figs. 4 and 4a). You can make the bead molding with a 1/4" round-over bit in the router table. Then it's just a matter of cutting the pieces to fit snug between the legs and gluing them in place.

MATERIALS, SUPPLIES, & CUTTING DIAGRAMS



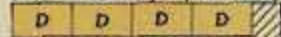
SOFA TABLE BASE

A Legs (4)	2 3/4 x 2 3/4 - 29
B Apron Ends (2)	1 x 4 1/2 - 16
C Apron Sides (2)	1 x 4 1/2 - 30
D Corner Brackets (4)	1 x 4 1/2 - 7 1/8

1" x 6 1/2" - 96" Maple (5.4 Bd. Ft.)



1" x 5" - 36" Maple (1.6 Bd. Ft.)



KITCHEN TABLE BASE

A Legs (4)	3 1/2 x 3 1/2 - 29
B Apron Ends (2)	1 x 4 1/2 - 30
C Apron Sides (2)	1 x 4 1/2 - 30
D Corner Brackets (4)	1 x 4 1/2 - 7 1/8

1" x 6 1/2" - 96" Pine (5.4 Bd. Ft.)



1" x 6 1/2" - 96" Pine (5.4 Bd. Ft.)



DINING TABLE BASE

A Legs (4)	3 1/2 x 3 1/2 - 29
B Apron Ends (2)	1 x 4 1/2 - 30
C Apron Sides (2)	1 x 4 1/2 - 58
D Corner Brackets (4)	1 x 4 1/2 - 7 1/8

1" x 6 1/2" - 96" Red Oak (Two boards @ 5.4 Bd. Ft. each)



1" x 5" - 36" Red Oak (1.6 Bd. Ft.)



E End Bead Trim (2)	1/2 x 1 1/4 - 16
F Side Bead Trim (2)	1/2 x 1 1/4 - 30
• (16) #8 x 1 1/2" Fh Woodscrews	
• (8) 5/16" x 4" Hanger Bolts w/Nuts & Washers	

E End Bead Trim (2)	1/2 x 1 1/4 - 30
F Side Bead Trim (2)	1/2 x 1 1/4 - 30
• (16) #8 x 1 1/2" Fh Woodscrews	
• (8) 5/16" x 4" Hanger Bolts w/Nuts & Washers	

E End Bead Trim (2)	1/2 x 1 1/4 - 30
F Side Bead Trim (2)	1/2 x 1 1/4 - 58
• (16) #8 x 1 1/2" Fh Woodscrews	
• (8) 5/16" x 4" Hanger Bolts w/Nuts & Washers	

ADD A DRAWER

How do you make a great looking table a little more practical? Just add a drawer. For this kitchen table (or the oak dining table) it's a natural. It's an easy way to make good use of some otherwise wasted space. The work is really pretty straightforward and when you're done, I think you'll be glad you tackled it.

clean lines of the table apron. So I made a couple of design decisions. First, the drawer front is flush with the apron. And then second, I cut the drawer front and the apron ends from a single piece of wood. With a flush front and perfect grain match, the drawer blends right in.

To create the drawer opening, you'll want to start with a slightly oversized blank ($\frac{1}{4}$ " extra in length and width). First, rip a $\frac{3}{4}$ "-wide apron top from one edge. Then cut this piece to the final apron length. Now size the two apron ends and the drawer front (D) from the remaining piece (in sequence) of the blank (Figs. 5 and 8). When you glue the apron ends to the apron top, you'll have a perfectly-sized opening.

Next, you can take all the apron pieces back to the table saw to cut the dados for the joinery. You'll notice in Fig. 5 that both the front and the back aprons have a second set of narrow dados. These will hold the drawer guide rail assemblies. A long auxiliary fence will help you make these cuts in the front apron piece (Figs. 6 and 6a).

After the dados are cut, you can go ahead and add the decorative bead to the bottom edge of the apron pieces (Fig. 5a). The bead is needed to stiffen the front apron during assembly and act as a lower stop when the guide rails are added.

ADD SUPPORT RAILS. Once the base is assembled, the guide rail assemblies come next. A look at Fig. 7 shows how these three-piece assemblies are installed. Each one is just a $\frac{3}{4}$ "-thick guide rail capped with a top and bottom runner.

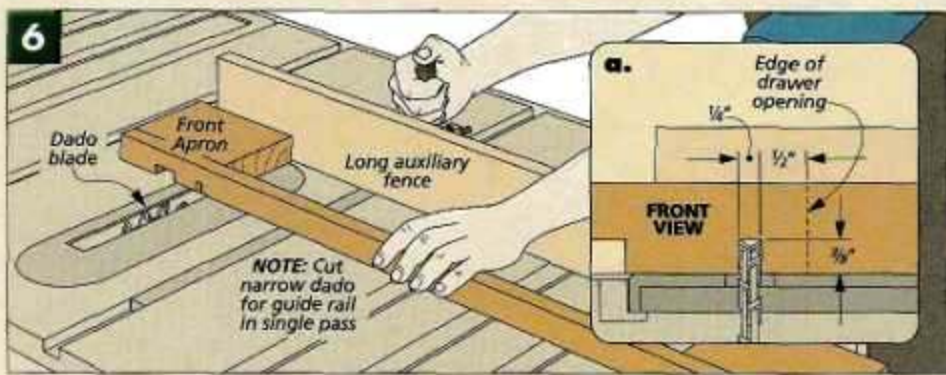
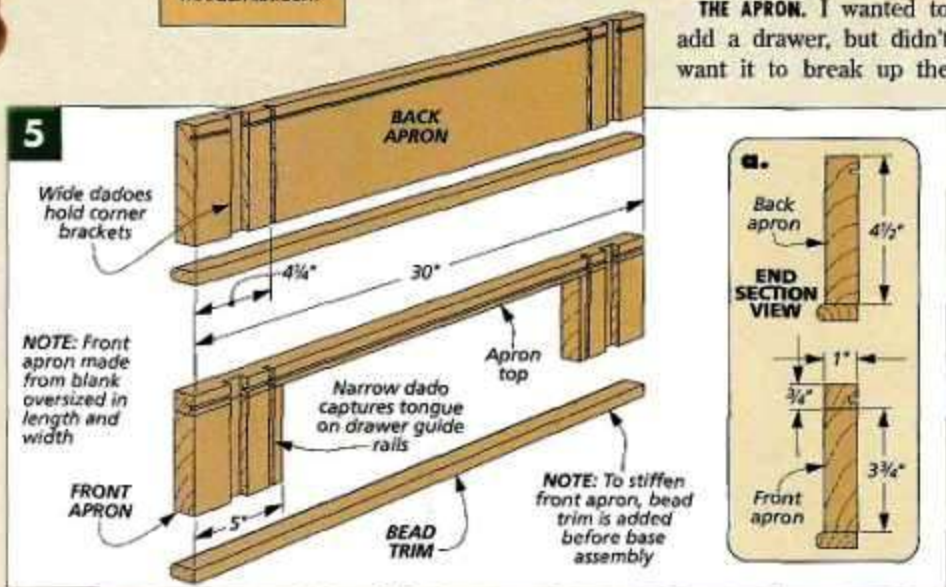
I started by cutting the *guide rails* (A) to size and then creating a tongue on each end to fit the narrow dados in the apron pieces (Fig. 7a). When the guide rails are ready to install, they simply slide in from above. A little glue and the bead molding will hold them in place.

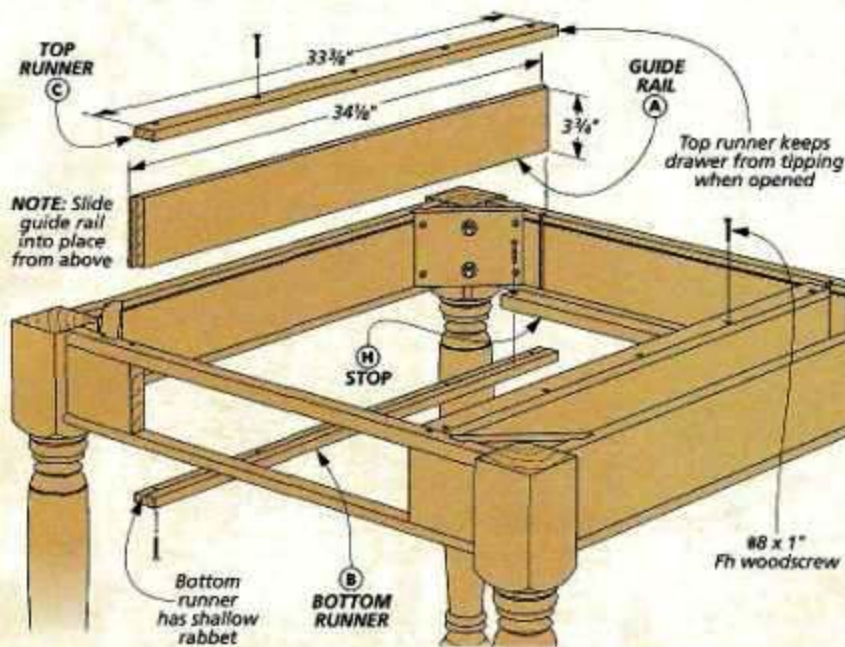
Next comes the two drawer runners. The *bottom runner* (B) is

▲ A nice, deep drawer is a great addition to this old-style, pine kitchen table.

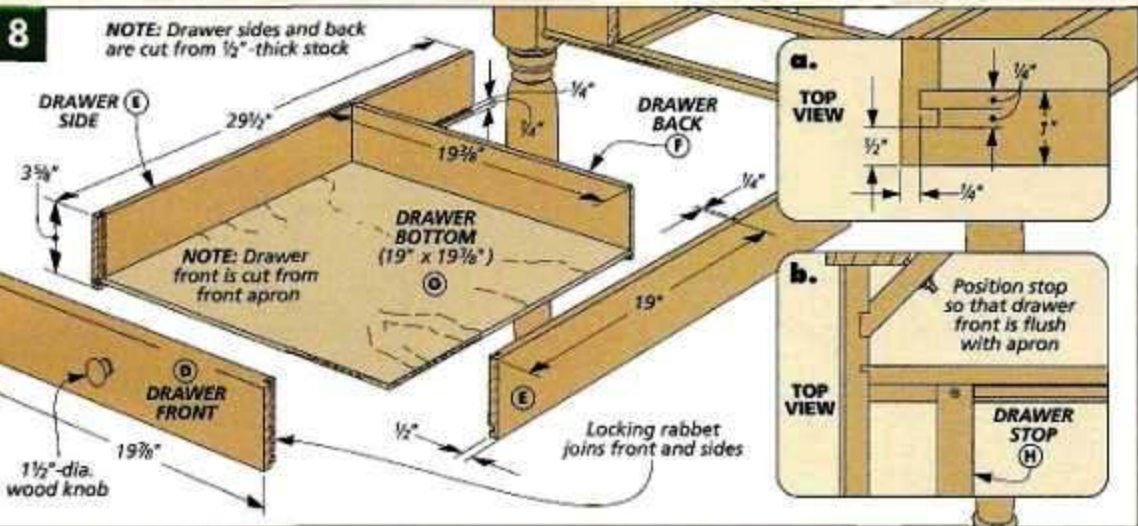
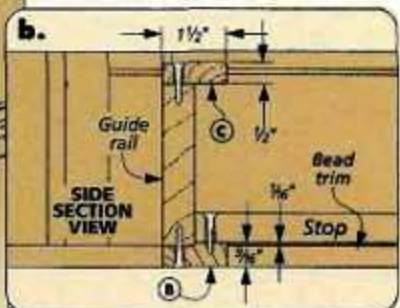
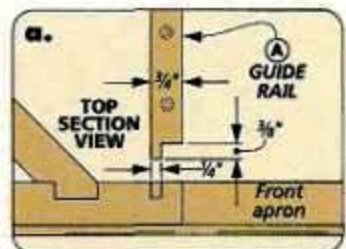


For more on how to add a drawer to the oak dining table visit us at woodsmith.com





7



slightly thicker ($\frac{9}{16}$ "") than the *top runner* (C) and has a $\frac{1}{16}$ " rabbet that fits over the guide rail (Fig 7b). This allows the drawer to sit above the decorative apron bead and will save some wear and tear on the apron. After the runners are screwed and glued to the guide rails, you're ready to build a drawer.

BUILD A DRAWER. As you can see in Fig. 8, this drawer is a little unusual. The sides of the drawer extend far beyond the back. This is a handy trick that allows you to easily get at stuff buried at the back of the drawer without risk of it falling out.

The drawer joinery is pretty standard. A locking rabbet (Fig. 8a)

joins the *drawer front* (D) and the *drawer sides* (E). A tongue and dado joins the *drawer back* (F) to the sides (Fig. 8). The $\frac{1}{4}$ " plywood *drawer bottom* (G) fits in a groove.

After the drawer was assembled, I added a $1\frac{1}{4}$ " wood knob. Finally, position a *drawer stop* (H) across the guide rails as shown in Fig. 8b.

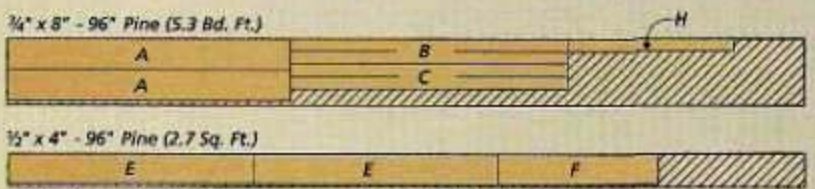


▲ Learn a new way to cut a locking rabbet joint on page 34.

MATERIALS, SUPPLIES, & CUTTING DIAGRAM

- A Guide Rails (2) $\frac{3}{4} \times 3\frac{3}{4} - 34\frac{1}{8}$
- B Bottom Runners (2) $\frac{9}{16} \times 1\frac{1}{2} - 33\frac{3}{8}$
- C Top Runners (2) $\frac{1}{2} \times 1\frac{1}{2} - 33\frac{3}{8}$
- D Drawer Front (1) $1 \times 3\frac{3}{8} - 19\frac{3}{8}$
- E Drawer Sides (2) $\frac{1}{2} \times 3\frac{3}{8} - 29\frac{1}{2}$
- F Drawer Back (1) $\frac{1}{2} \times 3\frac{3}{8} - 19\frac{3}{8}$
- G Drawer Bottom (1) $\frac{1}{4}$ ply. - $19 \times 19\frac{3}{8}$
- H Drawer Stop (1) $\frac{3}{4} \times 1\frac{1}{2} - 20$

- (22) #8 x 1" Fh Woodscrews
- (1) $1\frac{1}{4}$ "-dia. Wood Knob w/Screw



NOTE: Drawer front (D) is cut from apron piece

ALSO NEEDED: $\frac{1}{4}$ " plywood for drawer bottom

3 CLASSIC TABLETOPS

One of the most noticeable parts of a table is, of course, the top. An easy way to give a table its own interesting look is with a top that's a bit unique. So for each table base, I tried a little different approach to the top.

For the maple sofa table I tried something "old" — a top made from

individual boards fastened together with cleats and woodscrews. It's a great style and it's easy to build.

A kitchen table needs a large, functional (and easily cleaned) surface that will hold up to some heavy use. A top glued up from thick stock involves a little bit of work but will

look great on this classic table and stand the test of time.

The breadboard-end top on the dining table has a more elegant look. You might think it would be a challenge. But don't worry, with a plywood center panel and simple joinery, it goes together easily.

Plank And Cleat Top

I would wager a guess that most of the earliest tabletops were made with plank and cleat construction.

And that's one reason why I chose this technique for the maple sofa table. I wanted to give this table an old "tavern" look. And I should also mention that this type of top is really appealing from a building standpoint. It really doesn't require a lot of exacting work. So making this style of tabletop look good is an easy job.

THREE PLANKS. A glance at Fig. 9 shows how this top goes together.

You can keep the glue bottle on the shelf. All you have here are three wide planks fastened together with a couple of cleats and woodscrews.

The first task is to cut the three planks (A) to size. Why three planks and not two or four? Well, traditionally wide boards were used for this type of top. It only made sense — the wider the boards the fewer the number needed and the fewer the spaces between them. So I used wide stock and the two "joint lines" give the top just the right look.

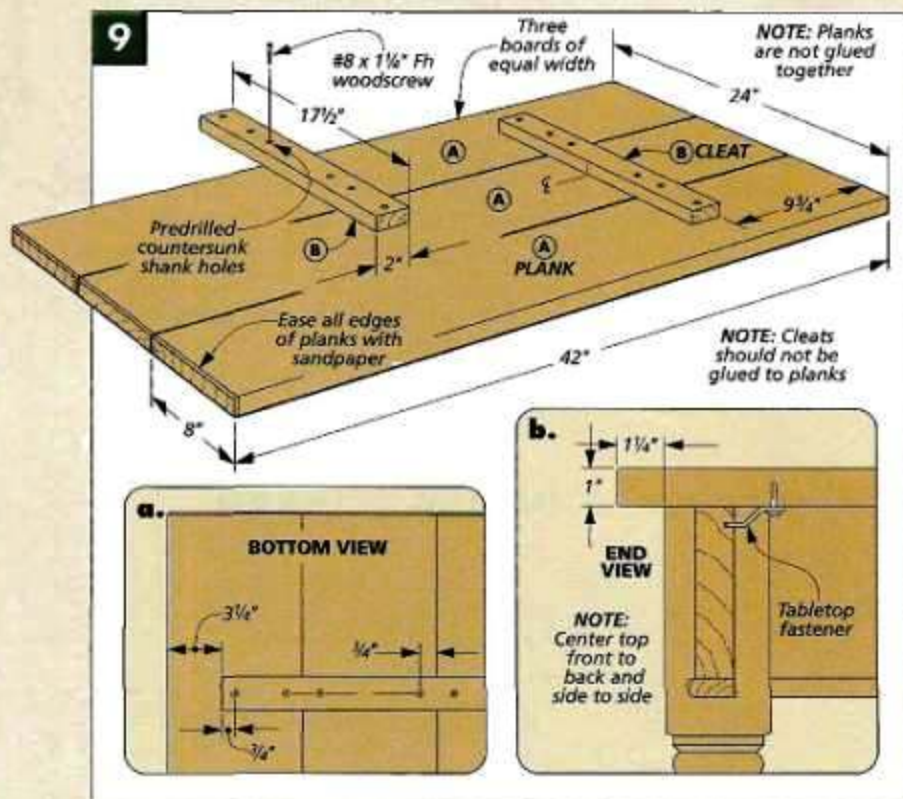
SAND AND EASE THE EDGES. Once the planks are ready, you can pick up some sandpaper. Since the planks are pre-cut to size and won't be glued together you can do a lot of the sanding before assembly. I made sure to knock off all the sharp edges and corners of each plank. I wanted the look of three individual boards, not one smooth top.

ATTACH THE CLEATS. With the planks prepared, they can be connected to make a top. The two cleats (B) can be cut to size from $\frac{3}{4}$ " stock and then the countersunk shank holes are predrilled (Figs. 9 and 9a). Now just carefully line up the planks (you might want to tighten a clamp across them) and position the cleats (Fig. 9a). Use the predrilled shank-holes to drill some pilot holes in the planks and add the woodscrews. Don't be tempted to glue the planks to the cleats, they need to be able to move with changes in the humidity.

FASTEN IT TO THE BASE. That's the long and short of it. Finally I used a handful of metal tabletop fasteners to hold the top to the base (Fig. 9b).



▲ A simple plank and cleat top creates an age-old look.



A Glued Slab Top

The base that I built for the pine kitchen table has a solid, old farmhouse feel to it. So it needed a top to match. The choice was pretty obvious. A solid top, glued up out of thick, pine stock (1"), would look right at home on this frame.

A WIDE GLUEUP IN THREE PARTS. The top that I built for this table was 44" square. Honestly, it's one of the widest glueups I've ever had to do. So to do a good job of it, I used a couple of simple tricks.

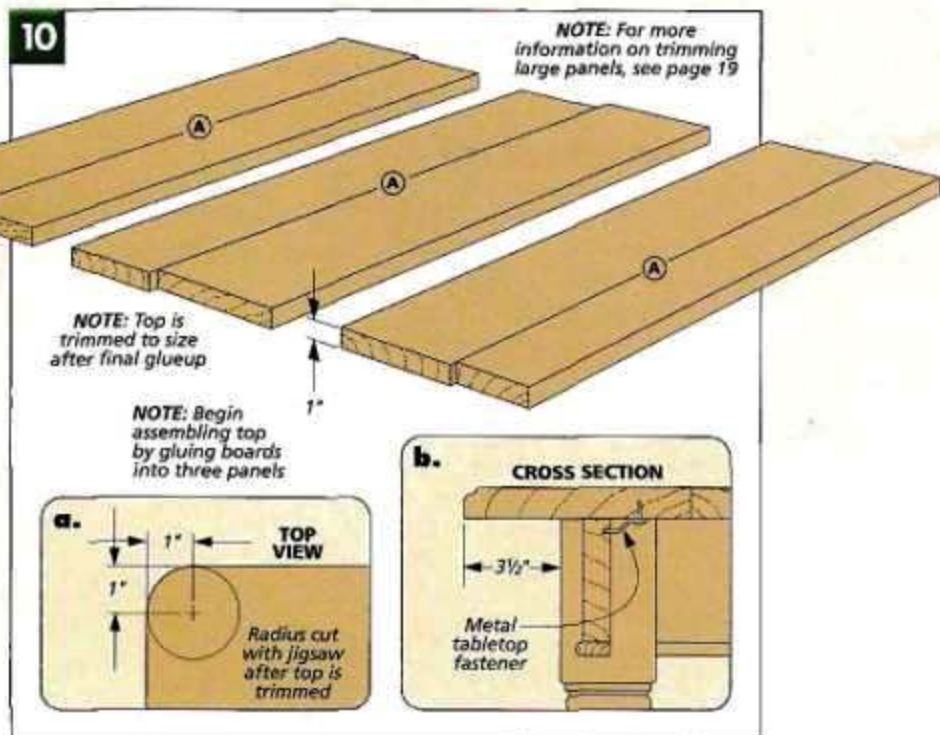
Fig. 10 shows the first. I cut all the boards needed to rough length and then glued them into three narrower panels. Smaller glueups are a lot easier to handle and the process is a bit more relaxed. You only have one or two joints at a time to worry about fitting and lining up.

Once the individual sections are ready, you can complete the job by gluing them together. But keeping a large panel flat during this process takes a little doing. Fig. 11 shows a simple solution. A couple of long, wide cauls clamped across the ends of the glueup will keep it perfectly flat while the glue dries.

TRIM THE TOP. I was pleased with how my rough top turned out. After a short spell with the belt sander, it was ready to be trimmed to size. But not many table saws will accommodate a panel this size, so I resorted to a circular saw with a shop-made guide for this job. You can find more on this on page 19.

THE IMPORTANT DETAILS. Once the top is cut to size, the hard part is behind you. All you have left are a couple of simple but important tasks.

► This top, glued up from thick pine, is the perfect match for the solid kitchen table base.

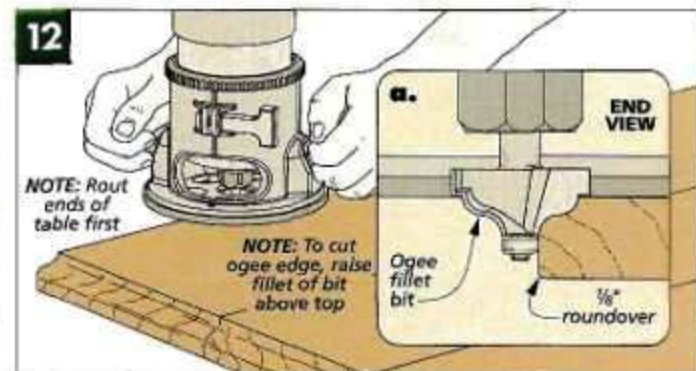
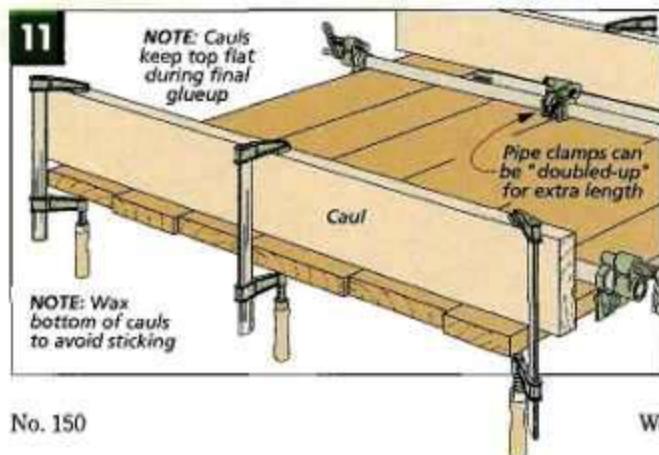


A kitchen table is certainly going to get a lot of use and abuse so any sharp edges and corners wouldn't hold up for long. You can easily solve this problem and add a couple of nice details at the same time.

First, I picked up a jigsaw and cut a 1" radius on all four corners of the top (Fig. 10a). And then after they were sanded smooth, I used a handheld router to add a profile to both

the upper and lower edges of the top. The lower edge can simply be eased with 1/8" roundover. The upper edge gets a classic, ogee profile as shown in Fig. 12a.

Attaching the top is the last step. You should have an even overhang on all four sides of the base (Fig. 10b). And if you work with the table upside down, attaching the tabletop fasteners goes a lot smoother.





Breadboard-End Top

A large dining table needs a top with a little bit of style. Something maybe just a bit more formal, and with a little more detail than a table for everyday use. But to match the simple look of the base for the oak dining table you don't want to get carried away. I think the breadboard-end top in the photo above hits the nail on the head.

Breadboard end construction has been used on tabletops for a long

time, so it fits right in with the traditional look of the table base. A breadboard end refers to the stout piece fixed across the end of the top (it was commonly used on breadboards). The idea was that a breadboard end would help keep a wide tabletop flat over time. To me, it not only serves this practical purpose but it also gives an otherwise large, flat surface a more interesting look.

HOW TO BUILD IT

The top needed for the dining table is pretty large so I ruled out solid wood. A glueup of this size would be too difficult. A top made from a nice piece of straight-grained $\frac{3}{4}$ " oak plywood made a lot more sense. When you use plywood for the center panel of the top, you eliminate a lot of the hard work and add quality at the same time. You'll have a consistent color

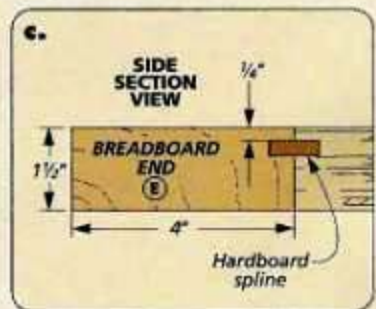
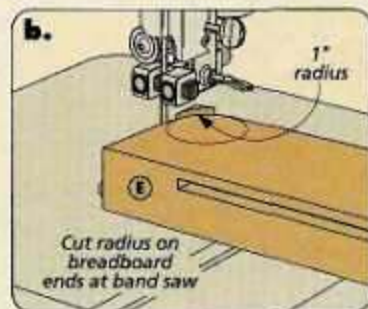
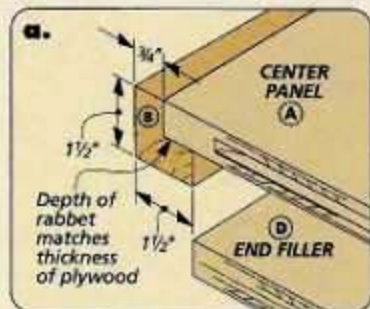
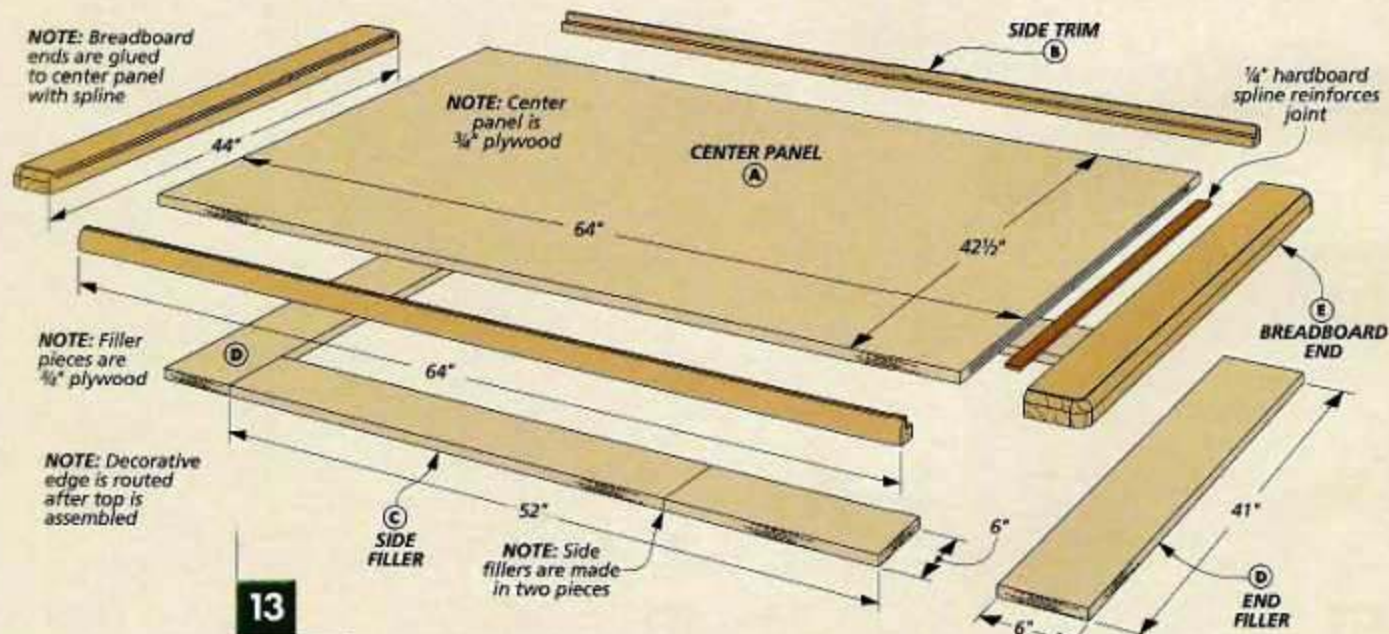
and grain pattern and attaching the breadboard ends "cross grain" won't cause a problem.

When you take a look at Fig. 13, you can see how the top is put together. You have a center panel that's trimmed on the long sides and "capped" on both ends. Some filler pieces beneath the center panel beef-up the thickness. It's simple.

THE CENTER PANEL. The first thing to do is to cut the $\frac{3}{4}$ " plywood center panel (A) to size. You want crisp, square edges so the trim pieces and breadboard ends will fit well.

SIDE TRIM. Now you can start hiding the edges of the plywood. Fig. 13a shows how I added a couple of rabbeted side trim (B) pieces. The rabbet wraps around the edge of the table and provides more glue surface. But then only a narrow band of wood will show from above.


ADD THE FILLERS. Once the side trim is added, you can cut the plywood

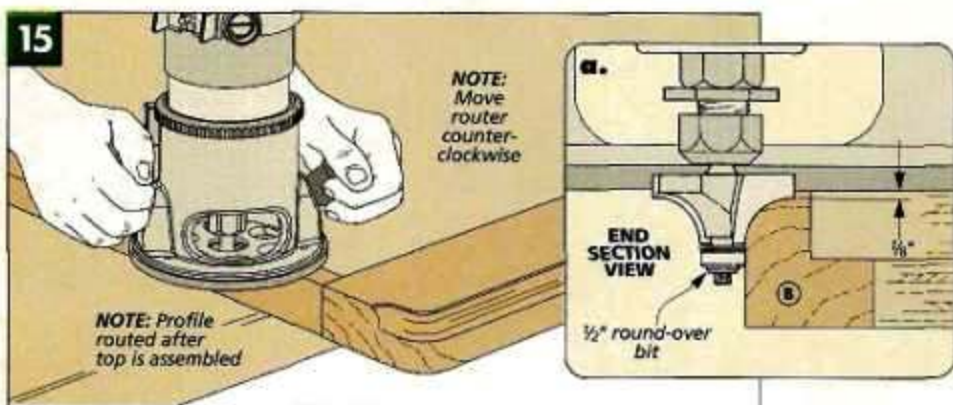
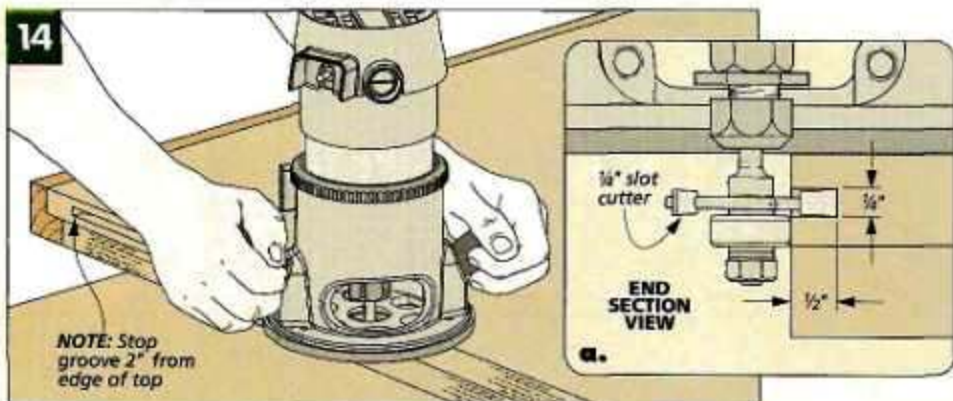


side fillers (C) and end fillers (D) to size and glue them in place. Just snug the side fillers up to the side trim and then add the end fillers flush to the ends of the center panel.

ADD THE ENDS. Now the top is ready for its breadboard end pieces. After you've cut the two breadboard ends (E) to size, there's some simple joinery to work on. Fig. 13c shows how I fit a "blind" hardboard spline across this joint to add strength.

A 1/4" slot cutter in a hand-held router makes cutting the stopped groove for the splines easy. You can check out page 19 for a clever way to cut the slots in the breadboard ends. And Figs. 14 and 14a show the details for the plywood center panel.

SOME NICE DETAIL. Before I glued the breadboard ends in place, I cut a radius on the outside corners (Fig. 13b). And the final detail is a 1/2" roundover with a shoulder, as shown in Figs. 15 and 15a. The completed top can then be attached and the table is ready for a finish. 



MATERIALS, SUPPLIES, & CUTTING DIAGRAMS

PLANK AND CLEAT TOP

- A Planks (3) 1 x 8 - 42
- B Cleats (2) 3/4 x 2 - 17 1/2
- (6) Metal Tabletop Fasteners w/Screws
- (12) #8 x 1 1/4 Fh Woodscrews

1" x 8 1/2" - 96" Maple (7.1 Bd. Ft.)



1" x 8 1/2" - 96" Maple (7.1 Bd. Ft.)



GLUED SLAB TOP

- A Top (1) 1 x 44 - 44
- (8) Metal Tabletop Fasteners w/Screws

1" x 8 1/2" - 96" Pine (Three Boards @ 7.1 Bd. Ft. each)



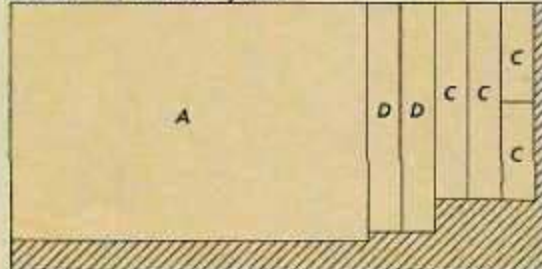
BREADBOARD-END TOP

- A Center Panel (1) 3/4 ply. - 42 1/2 x 64
- B Side Trim (2) 1 1/2 x 1 1/2 - 64
- C Side Fillers (2) 3/4 ply. - 6 x 52
- D End Fillers (2) 3/4 ply. - 6 x 41
- E Breadboard Ends (2) 1 1/2 x 4 - 44
- (10) Metal Tabletop Fasteners w/Screws

1 1/2" x 8" - 96" Red Oak (10.6 Bd. Ft.)



48" x 96" - 3/4" Red Oak Plywood



ALSO NEEDED: 1/4" hardboard for splines

AN OLD COLOR ON NEW PINE

You don't have to wait years to get the warm look of aged pine. With the right finishing techniques you can easily make pine look old.

I've always enjoyed spending time browsing through antique stores — especially the ones with lots of furniture. It's a great source for ideas and a little inspiration. And often what catches my eye are the simple old pieces built out of pine. This furniture is often a little beat up, but what more than makes up for this is the rich, warm color of the wood. It's a look that's hard to beat.

And as well as admiring the old pine pieces, I like to work with good pine and create a few new pieces of my own. But working with pine has one minor challenge. I don't necessarily want my pine projects to look brand new. Sometimes I like my new pieces to have that old pine color I've often seen. A little premature aging is what I'm after.

PINE. Normally, staining wood to add some "age" isn't a big deal. But pine is a different challenge. Although pine is a soft wood, it's not evenly soft. There can be a lot of difference in the density of the wood across a board.

The softer

wood in the board tends to soak up a lot of stain, while the harder wood blocks it out. The color can end up pretty uneven and somewhat blotchy.

GOOD SURFACE PREP.

The first step to getting a good stain job on pine is careful sanding. Just make sure all the parts are sanded to the same grit so all the surfaces are an even smoothness. Pay special attention to the end grain. If it's rough, it'll really soak up a stain. As a rule I'll sand pine to 180 grit and I'll sand finer on the end grain.

AMBER SHELLAC

If you just want to give a pine project the warm glow of slightly aged pine, amber shellac is the way to go. As you can see in the photo in the lower left corner, a single coat will turn raw pine from its natural yellowish-white color to a much more pleasing "pumpkin" pine color.

Amber shellac is

actually a "colored" finish, not a stain. So you can avoid the problems (blotching and uneven color) you might have applying a stain. The application is easy and you'll get a rich, beautiful color on the pine.

APPLYING SHELLAC. I start with a small can of premixed amber shellac. But the off-the-shelf commercial mixes are going to be too thick to flow out well. So the first thing to do is thin the shellac. I usually thin shellac at a rate of 1 part shellac to 2 parts denatured alcohol. As you see in the photo above, this lightens the color of the amber shellac considerably and will make it much easier to brush out.



▲ The jar of shellac on the right is thinned with two parts denatured alcohol. The color is lighter and it will "flow" much better.

▶ Brushing on a coat of amber shellac will add some instant age to pine. Applying multiple diluted coats gives better control of the final color.



▲ Amber shellac can be a great tool for achieving a slightly aged pine color.



Under the right conditions, shellac dries very fast — within 5 or 10 minutes. Start by applying a thin coat and when it's dry, sand it lightly. A second coat will give you a little deeper color. Applying multiple light coats gives you greater control over the final color.

TOPCOAT. Now although amber shellac is a finish and forms a film on the wood, I'll rarely use it without a harder topcoat. It's just not very water or scratch resistant.

My choice of a topcoat over the shellac is a good quality varnish — either brushed or wiped. Pine is a pretty soft wood, so to me it makes sense to use a pretty hard finish for the best protection. A few coats of polyurethane or a standard varnish will create a tough film and you won't need to "baby" the soft wood.

A second reason I prefer varnish is the little bit of extra amber color it will impart to the wood. A topcoat of varnish over the shellac will really enhance the warm glow of old pine.

STAINING PINE

But sometimes the old pine pieces that I admire have a much darker, deeper color. In the past pine was often considered an inferior furniture wood, so these pieces were stained to resemble more expensive hardwoods. The stain and the natural

aging of the wood and finish makes for an unbeatable color. So to get this darker, "aged" color, you're going to need to start with a stain. And successfully staining pine requires a slightly different approach.

FIRST A CONDITIONER.

Before staining pine, I always apply a pre-stain conditioner. A conditioner acts to seal the wood a little bit in advance of the stain. The stain that you apply afterwards can still penetrate, but in a more controlled way. A conditioner will go a long way toward eliminating the blotches and uneven color you may otherwise see on pine.

You can condition the pine in a couple of ways. Sometimes, I'll use a light coat of dilute amber shellac. The shellac will seal the wood just enough to keep the stain from penetrating deeply. You'll get a slightly lighter (the wood won't accept as much stain) but more even color.

Commercial conditioners work a little differently but do the same thing. The ones that I've used are just thin, colorless liquids (like stain without the pigments). You apply it



to the wood and let it soak in. The solvent fills the pores of the wood so that when you apply the stain (while the conditioner is still wet) it won't penetrate as deeply. It's pretty simple and it works well.

THICK STAIN. Once the wood is conditioned, the stain can be applied. And choosing the right type of stain is important. I've found that on pine the thicker the stain the better. The thick, gel stains that I like to use on pine are not absorbed into the wood as deeply as the liquid types. This means the pigments in the stain will lay closer to the surface and you'll get a much more even color.

APPLYING THE STAIN. When you're staining over a conditioner, you want to make a few minor adjustments to your routine. With the conditioner sealing the wood, the pigments won't penetrate as deeply. So the goal is to leave a little more "color" on the surface.

After applying the stain, I let it dry just a little longer than usual. When the stain has dulled down a bit, I start to clean off the excess, wiping with the grain. Let your rag get a little bit "dirty" with stain (see photo above). Continue to wipe until you have an even, "streak-free" color on the surface. When the stain is dry, a topcoat of varnish will bring out the warm glow you're after. **W**



▲ A pre-stain conditioner followed by a gel stain is the recipe for beautifully "aged" pine.



▲ A simple step-by-step finishing process gave this country-style pine kitchen table the beautiful, warm color of a classic antique.

ONE-BIT LOCKING RABBET

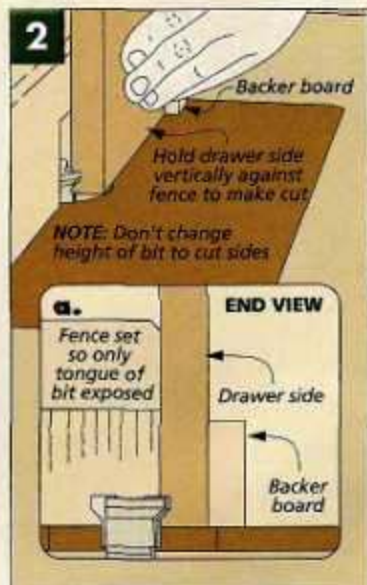
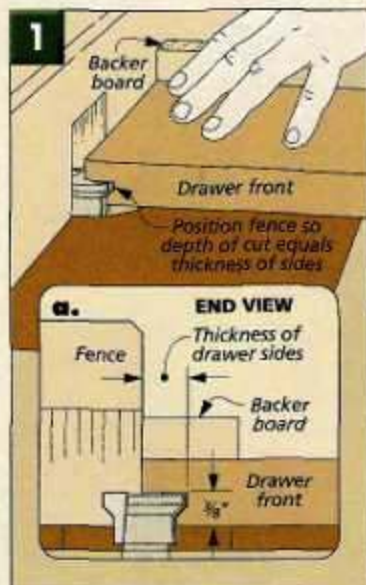
A new way to make a tried and true joint.

In woodworking it's easy to get into a rut. But often there's a reason. You tend to stick with what works.

That's why, when I have to build drawers for a project, more often than not I'll return to the trusted locking rabbet joint for the joinery. It makes a strong drawer and I've always liked the way it looks.

A dado blade on the table saw has generally been my tool of choice to cut this joint. But recently I came across a new way to make this joint — with a drawer lock router bit. Its clever design allows you to cut both halves of the joint with a single bit. And I found that it works pretty well.

THE SETUP. The key to using one of these bits is the setup. After you have the bit installed in the router table, the first step is to adjust it to the right height. In order for the joint to be a tight fit, this is pretty important. The cutting height of the bit is given by the



manufacturer (mine was $\frac{3}{8}$ ") and it will only work right when it is set at this particular height.

Once you've zeroed in on the correct height, you won't have to change it. Both halves of the joint can be cut using this same setting. The trick is in how you hold the different pieces as you rout the joint.

FRONT AND BACK. First you want to make the cut on your front and back drawer pieces. These pieces are routed flat as shown in Fig. 1. Just set the fence to rout the ends to a depth that matches the thickness of the sides, as shown in Fig. 1a. You can prevent chipout with a backer board.

THE SIDES. Now all you have to do is rout a matching cut in the drawer sides. But this is a little different. Don't change the height of the bit but move the fence forward so that only the "tongue" of the bit will cut (Fig. 2a). Now you'll cut the sides with the pieces standing on end.

Just hold the side tightly against the fence and make a shallow pass (Fig. 2). Again, using a backer board is a good idea. You'll want to sneak up on the depth of the cut, testing the fit as you go. When the side fits flush with the end of the drawer front, you're joint is done.



LIPPED DRAWERS

Occasionally a design calls for a drawer with a lipped front as shown in the near photo at left. Kitchen cabinets and some furniture styles often call for this treatment. And the drawer lock bit will easily accommodate it. It's simply a matter of making a deeper cut in the drawer front. A couple of passes will be necessary.

SOURCES

Three Beautiful Boxes

The main item you'll need when making make one (or all three) of the boxes featured in this issue is the special bowl and tray router bit.

The bit that I used (photo at right) came from Whiteside Machine Co. (1376B). Other companies offer similar bits. Just be sure that the one you purchase has a bearing on the shank for template routing.

SPECIAL ITEMS. Each one of the unique boxes requires a special item or two.

JEWELRY BOX. For the jewelry box (page 10), I ordered the four brass feet (10147), as well as the Suede-Tex supplies from Rockler. You'll need a bag of fibers (73080) and a can of adhesive (73130). An inexpensive "mini-flocker" is also available (28035).

SECRET BOX. You can purchase the rare earth magnets (99K31.01), the magnet cups (99K32.51), and special washers (99K32.61) from Lee Valley. The paduak lumber can be ordered from Rockler.

VALET BOX. All you need for the valet box on page 16 are two 5/8"-dia. brass knobs. Rockler carries this item (68627).



MAIL ORDER SOURCES

Similar project supplies may be ordered from the following companies:

Rockler
800-279-4441

rockler.com
Brass Feet, Brass Knobs,
Padsak Lumber,
Suede-Tex Flooring
Supplies, Tabletop
Fasteners,
Turned Table Legs,
Wood Knobs

Woodsmith Store
800-835-5084
Amana Router Bits,
Bartley Gel Stain,
Brass Knobs,
Wood Knobs

Amana Tool
800-445-0077

amanatool.com
Bowl and Tray
Router Bit,
Drawer Lock Bit

McFeely's
800-443-7937

mcfelys.com
Hanger Bolts, Hanger Bolt
Driver, Router Bits

Lee Valley
800-871-8158

leevalley.com
Brass Knobs, Rare Earth
Magnets, Suede-Tex
Flooring Supplies,
Tabletop Fasteners,
Wood Knobs

Whiteside Machine Co.
800-225-3982

whitesiderouterbits.com
Bowl and Tray
Router Bit,
Drawer Lock Bit

Woodworker's Supply
800-645-9292

woodworker.com
Brass Knobs, Drawer
Lock Bit, Tabletop
Fasteners,
Turned Table Legs,
Wood Knobs

Heirloom Tables

You really won't need a lot of supplies to build any of the three tables from the article starting on page 22.

HANGER BOLTS. The 5/16" x 4" hanger bolts with nuts and washers are what hold it all together. If you can't find this size of hanger bolt locally, they can be ordered

in packages of ten (HB-3140) from McFeely's. This is where I also purchased the handy hanger bolt driver (HB-3199).

TURNED LEGS. I decided against turning my own legs. It was much easier to purchase them through Rockler. The legs are very

good quality and the price is reasonable. (If you want to turn your own legs, check out Woodsmith Online Extras for details.)

You'll need 3 1/2"-dia. oak legs (65943) to build the dining table, 3 1/2"-dia. pine legs (65951) for the kitchen table, and I used 2 3/4"-dia.

maple legs (65967) for the smaller sofa table.

TABLETOP FASTENERS. Each table requires a handful of tabletop fasteners (34215) available from Rockler.

KNOB. You could likely find a wood knob for the drawer locally. If you can't, give Rockler a try.



Drawer Lock Bit

The drawer lock bit that I tried out was made by Amana (55387). It also comes in a 1/4" shank (55386). Several other manufacturers make similar bits and sources are listed in the column at right.

Finishing Pine

I purchased all of the finishing supplies that I needed locally. Amber shellac and de-natured alcohol are fairly common items and can be found at many paint, hardware, or home improvement stores.

The pre-stain conditioner that I use is made by Minwax. It's a pretty common brand, but others are available. I've had good luck with Bartley Gel Stain. And Minwax makes a good gel stain as well.

WOODSMITH PROJECT SUPPLIES

We now feature hardware from **ROCKLER** in many of our new project kits. To order, please use our toll-free order line, see below. It's open Monday through Friday, from 8 AM to 5 PM Central Time. Before calling, please have your VISA, MasterCard, Discover, or American Express card ready.

If you would prefer to mail in an order, please call the toll-free phone number below for more information concerning shipping charges as well as any applicable sales tax.

1-800-444-7527

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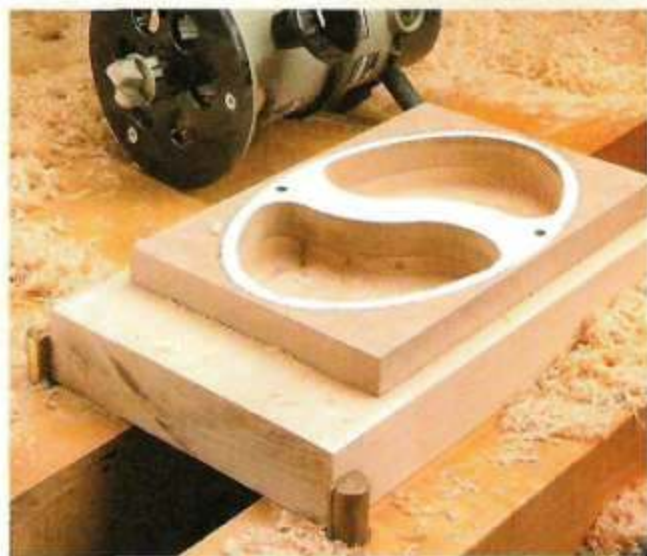
FINAL DETAILS



- ▲ **Oak Dining Room Table.** This classic table has it all — turned legs, a breadboard end top, and an easy-to-build knock-down base. Or use the same master technique to build a kitchen or sofa table. The plans begin on page 22.

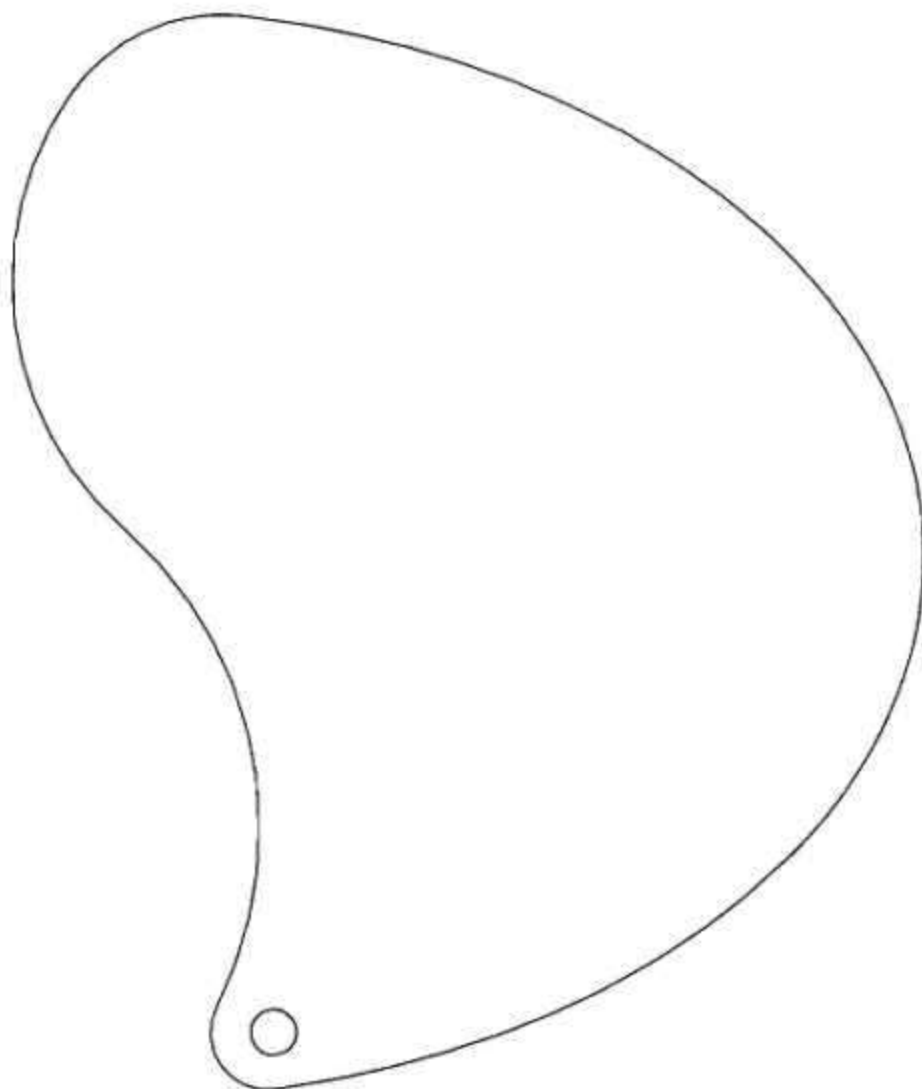


- ▲ **Gift Boxes.** Each of these boxes is unique, but all three can be built using the same router technique. They make the perfect gift project. And one of them has a secret. Best of all, they can each be built in a weekend. The detailed instructions start on page 10.

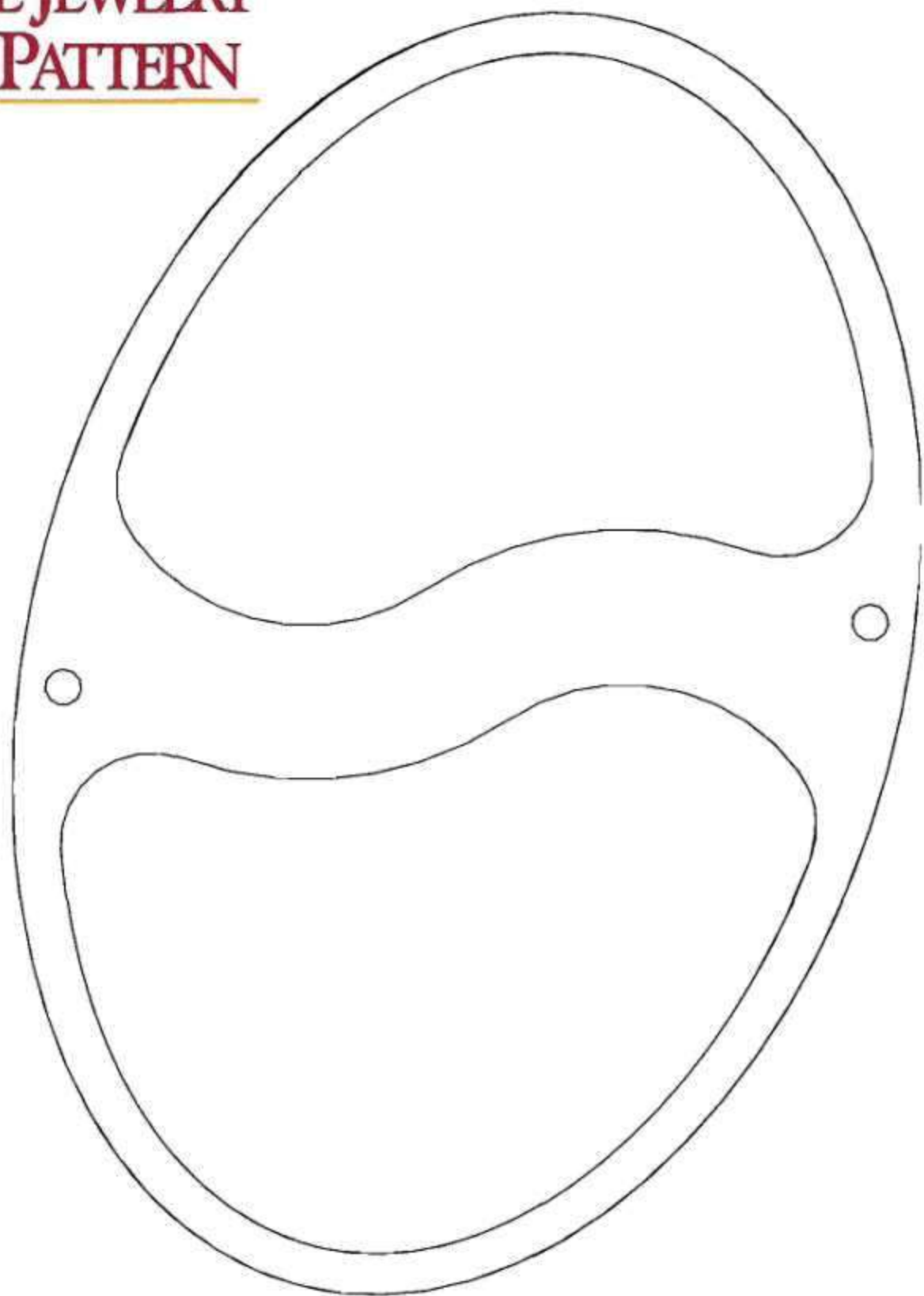


- ▲ **Template Routing.** All you need is a template and a special router bit to hollow out just about any shape in a workpiece. We'll show you the inside story on template routing and how to get the best results. The technique article begins on page 6.

OVAL JEWELRY BOX LID TEMPLATE



OVAL JEWELRY BOX PATTERN



DINING TABLE DRAWER OPTION

Adding a couple of drawers to the oak dining table will make good use of some extra space. You'll have a convenient place to store placemats, linens or even serving utensils.

The process is just like that described for the pine kitchen table on pages 26 and 27 of issue No. 150. (You'll want to read over these pages before you start.) Only the dimensions of some of the pieces are different and on this table you're adding a drawer at both ends. (You can also add a drawer to just one end of the table.)

DRAWER OPENINGS. You'll begin by modifying the two apron ends to create drawer openings. I started with two slightly oversized apron blanks. Then I cut an apron top, two end pieces and a drawer front from

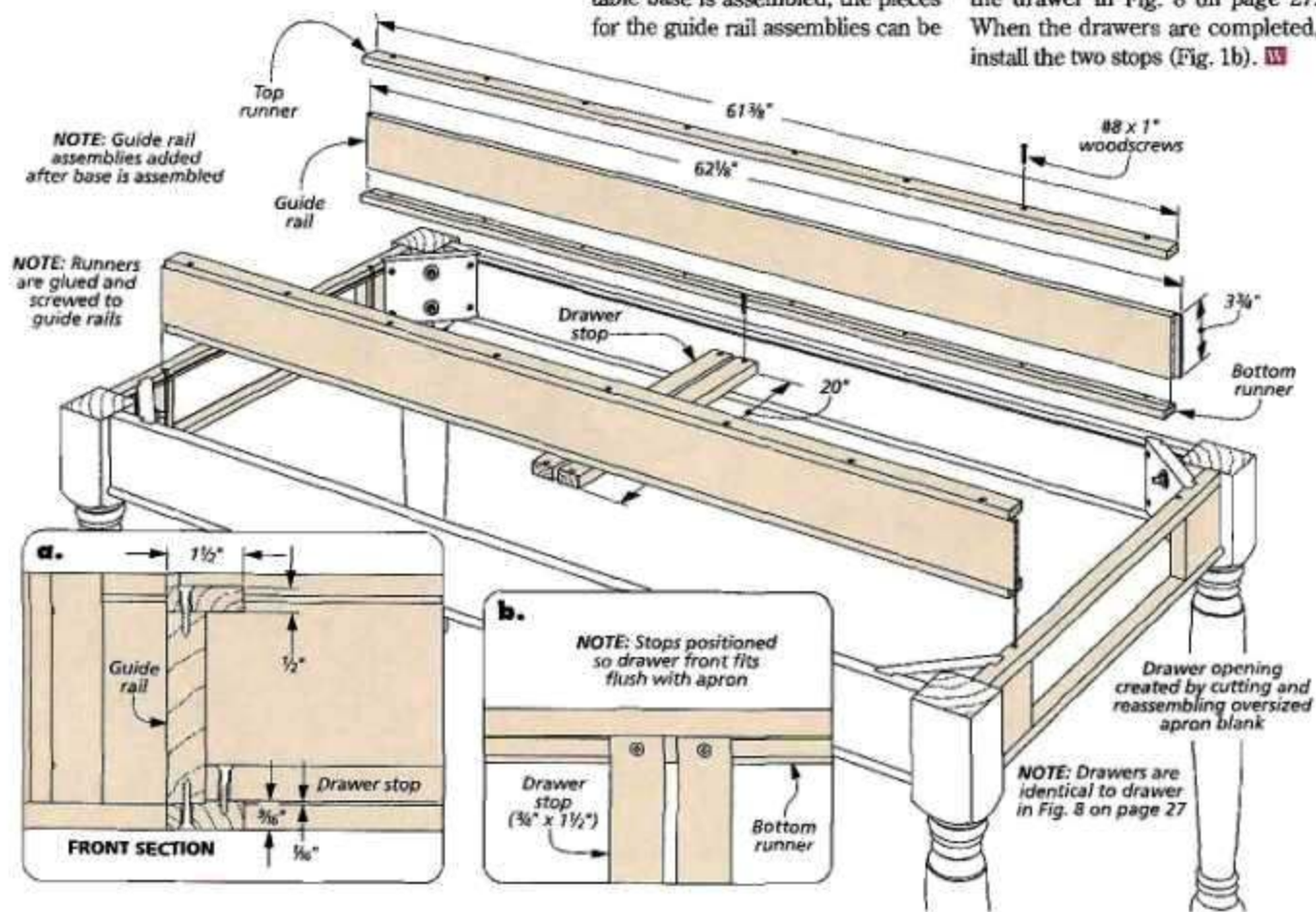


each piece. Reassembling the apron top and two ends will create the opening and the grain of the apron and drawer will appear seamless.

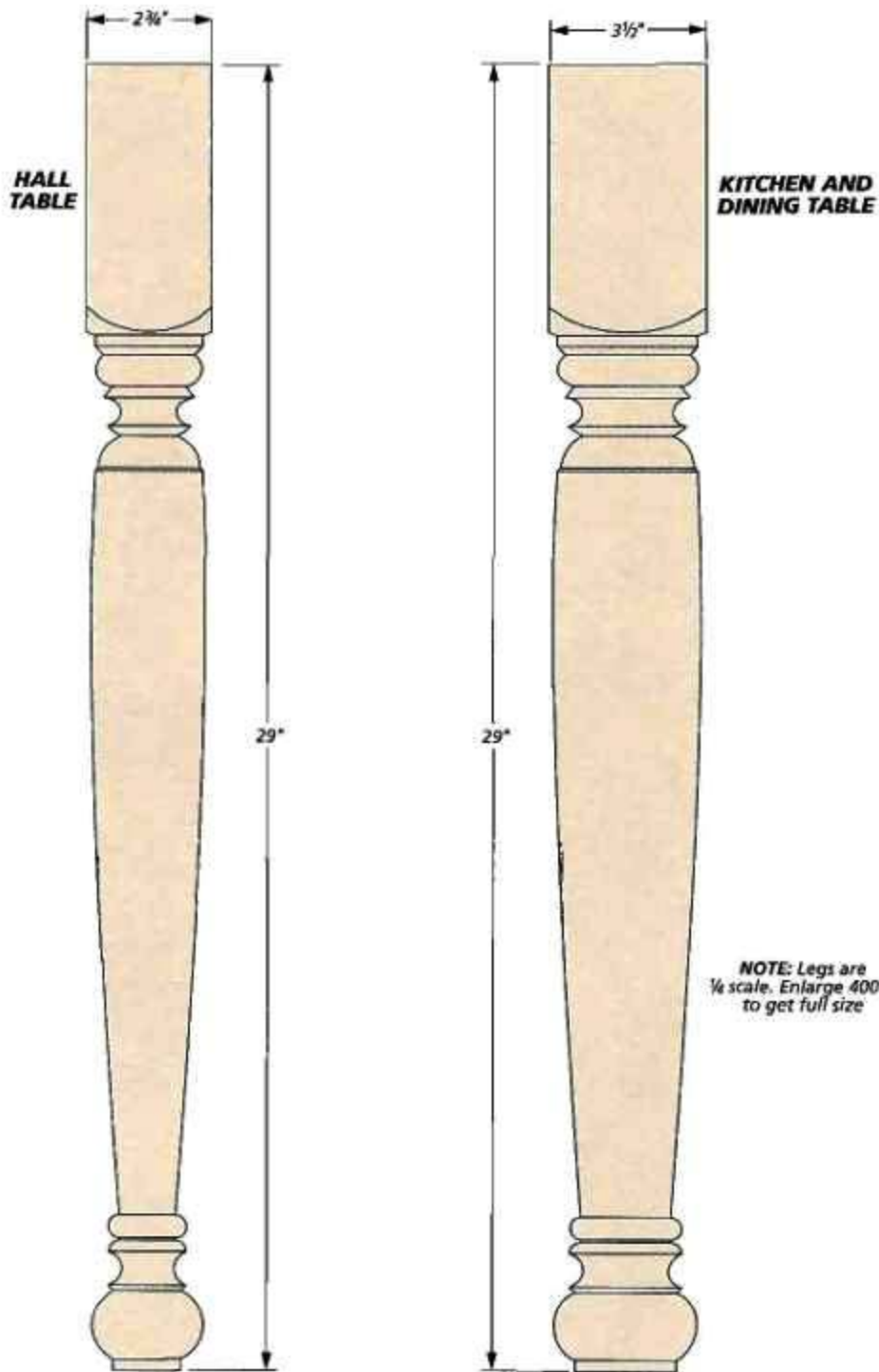
GUIDE RAIL ASSEMBLIES. Once the table base is assembled, the pieces for the guide rail assemblies can be

cut to size, joined and added to the base as shown in the drawing below.

BUILD THE DRAWERS. The final step is to build the two drawers. These are identical in size and construction to the drawer in Fig. 8 on page 27. When the drawers are completed, install the two stops (Fig. 1b).



TURNED LEG PATTERNS



FINISHING YOUR HEIRLOOM TABLE

Oak Dining Table

I wanted to keep the large, oak dining table, in the photo at right, fairly light in color. But I also wanted to blend any color variation in the wood and enhance the beautiful figure of the oak. To accomplish this, I turned to a custom-mixed stain that I've used on oak a couple times before and had very good results with.

I started by taking a trip to an art store to pick up a small tube of burnt umber artist's color. Back at the shop, I mixed 3 tablespoons of the burnt umber pigment to 2 pints of boiled linseed oil.

Once your stain is well mixed (it takes quite a bit of stirring to get a smooth mix), it can be applied just like an oil stain. Wipe or brush it on, let it sit on the surface for a short while, and then thoroughly wipe off any excess with a clean rag.

You want to let the stain dry for a good 24 hours before applying the topcoat. A dining table needs a pretty durable finish, so I followed the stain with 3 coats of *General Finishes* wiping varnish. This gave me just the right amount of build with a nice, soft sheen.



Pine Kitchen Table

I tried two different approaches for the finish on the pine kitchen table — one very traditional and one with a more contemporary feel.

TRADITIONAL. For the traditional version in the top photo at left, I started by staining the entire table with *Bartley Antique Pine Gel Stain*. The article on page 22 of issue No. 150 — *Antique Pine Finishing Secrets* — will give you some helpful information on successfully staining pine. Again, for a topcoat, I applied three coats of *General Finishes* wiping varnish.

PAINTED. On the second version (bottom photo at left) I went for a little bit lighter look and painted the base with an off-white satin latex paint. A painted base will tend to "scale down" the appearance of the solidly built table. This option makes a lot of sense if the table is going into a smaller space.

Before I brushed on the latex paint, I applied a coat of white pigmented shellac sealer (there are several brands). This will keep any defects (sap pockets, knots) in the pine from showing through the paint. The table top was finished exactly like the first version.



Maple Sofa Table

The choice of a stain color for the maple sofa table in the photo above was pretty easy. I wanted to give it that rich, aged maple color you find on some classic antiques.

Maple is a wood that can often look blotchy after staining. Thick gel stains are a good solution to this problem. So after some careful finish sanding, I applied a coat of *Bartley Country Maple Gel Stain*. It was the perfect color. When the stain was dry, I followed the same routine — three coats of *General Finishes* satin wiping varnish. The finish is durable but not too thick. 