BONUS! Full-size Patterns

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- A dovetail layout square anyone can make in a few hours
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TODAY'S WOODWORKER™

PROJECTS, TIPS AND TECHNIQUES

27

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TODAY'S
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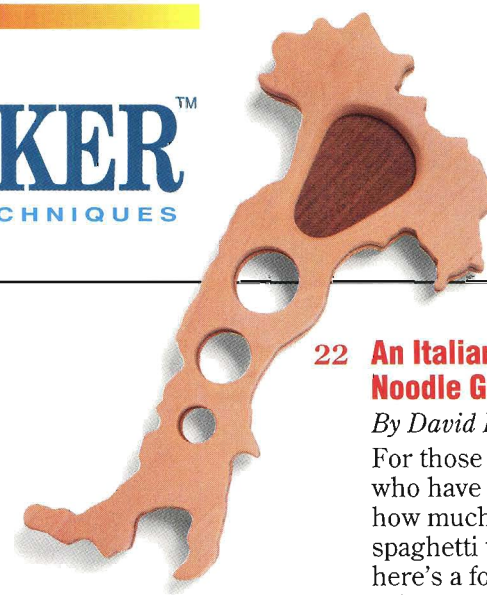
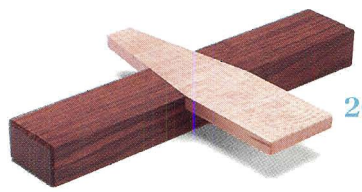
PROJECTS, TIPS AND TECHNIQUES





Safety First

Learning how to properly operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary safety guards have been removed from the equipment shown in some of the photos and illustrations in Today's Woodworker. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturer's instructions and safety precautions.

MAY/JUNE 1993
Vol. 5, No. 3 (Issue 27)

Today's Woodworker, (ISSN: 1041-8113) is published bimonthly (January, March, May, July, September, November) for $18.95 per year by Rockler Press, 21801 Industrial Blvd., Rogers, MN 55374-0044. Second class postage paid at Rogers, MN and additional mailing offices.

POSTMASTER: Send address changes to Today's Woodworker, PO Box 420235, Palm Coast, FL 32142-0235.

One year subscription price, $18.95 (U.S. and possessions); $23.95 (U.S. currency — other countries). Single copy price, $3.95; (other countries, $5.50, U.S. currency). Send new subscriptions to Circulation Dept., Today's Woodworker, PO Box 420235, Palm Coast, FL 32142-0235. Subscribers are welcome to submit project proposals, tips and techniques to the editor, Today's Woodworker, Box 44, Rogers, MN 55374. For purposes of clarity, illustrations and photos are sometimes shown without proper guards in place. Today's Woodworker recommends following ALL safety precautions while in the shop.

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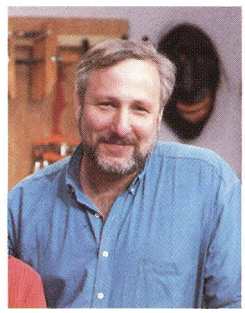
New Contributing Editors

I'm excited to announce a few new faces here at Today's Woodworker. While they won't exactly be deskbound at the home office, our new contributing editors, Richard Starr, Peter Korn and Tom Caspar, will nonetheless be sharing the benefits of their many years of woodworking experience with subscribers on a regular basis.

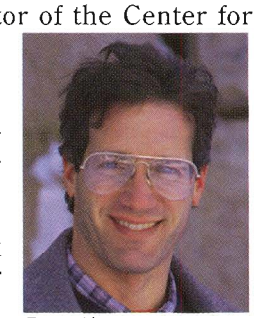
Tom actually made his debut in issue 25 (January 1993), when we ran his story on how to make tabletops. Richard's first article appears in this issue on page eight and Peter's first offering will appear in our next issue. It's been a long search and we considered a lot of candidates, but we couldn't be happier with the results.



Richard Starr

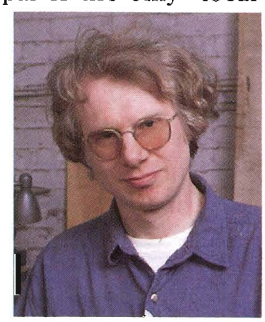
Over the last twenty years Richard Starr has been teaching woodworking to kids in Hanover, New Hampshire. More recently Taunton Press published his terrific book, **Woodworking With Your Kids**. The Public Broadcasting System must have been impressed by the book because it wasn't long before they began offering **Woodworking For Everyone**, a delightful new show where kids and adults learn woodworking together from Rich.

As the director of the Center for Furniture Craftsmanship in Camden, Maine, our second new contributing editor, Peter Korn, offers two week workshops for beginning and experienced woodworkers from June through September every year. Prior to starting this venture Peter spent six years as the program director at Colorado's famous Anderson Ranch Arts Center. Ten years ago you could find him teaching furniture design at Drexel University. Peter's award-winning furniture has been exhibited nationally in galleries, museums and craft shows, and Taunton Press has just published Peter's first book, **Working With Wood: The Basics of Craftsmanship**.



Peter Korn

Of our three new contributing editors, Tom Caspar is the only "local". For the past fifteen years Tom has kept busy as a furniture builder working in traditional styles. We first visited his shop a few months ago and began discussing the idea of Tom writing and working on projects for the magazine. Like Richard and Peter, Tom takes an active interest in educating other woodworkers. He teaches a course for the Woodworkers Guild of Minnesota and conducts regular seminars at The Woodworkers' Store in Minneapolis. Tom's work is on display at the Minnesota Museum of Art and recently took "best of show" and "best technical expertise" at the Minnesota Woodworkers' show.



Tom Caspar

I'd like to welcome all three of these fine woodworkers to our masthead. Each has a unique perspective but, as you may have noticed, all three share one common trait we were really eager to bring on board when we started our search —a commitment to teach others about the joys and rewards to be found in the craft of woodworking.

Before signing off I'd be remiss not to thank Jerry TerHark, Bruce Kieffer and Hugh Foster, our three retiring contributing editors, for their help over the past several years. We wish them well in all their woodworking endeavors.

Larry N. Stoiaken

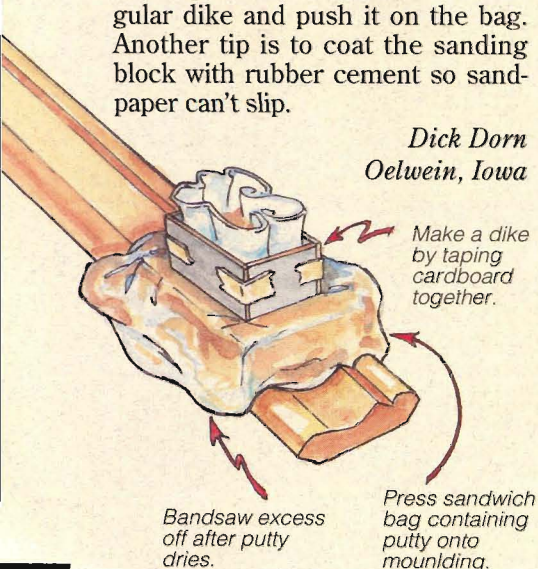
A Better Contoured Sanding Block

My students make their own mouldings for all types of projects, but then they face the tedious job of sanding them. In the past, some students formed contoured sanding blocks out of wood that mated with their moulding shapes. They didn't have much luck —it was time consuming, and was sometimes a dangerous bandsaw procedure.

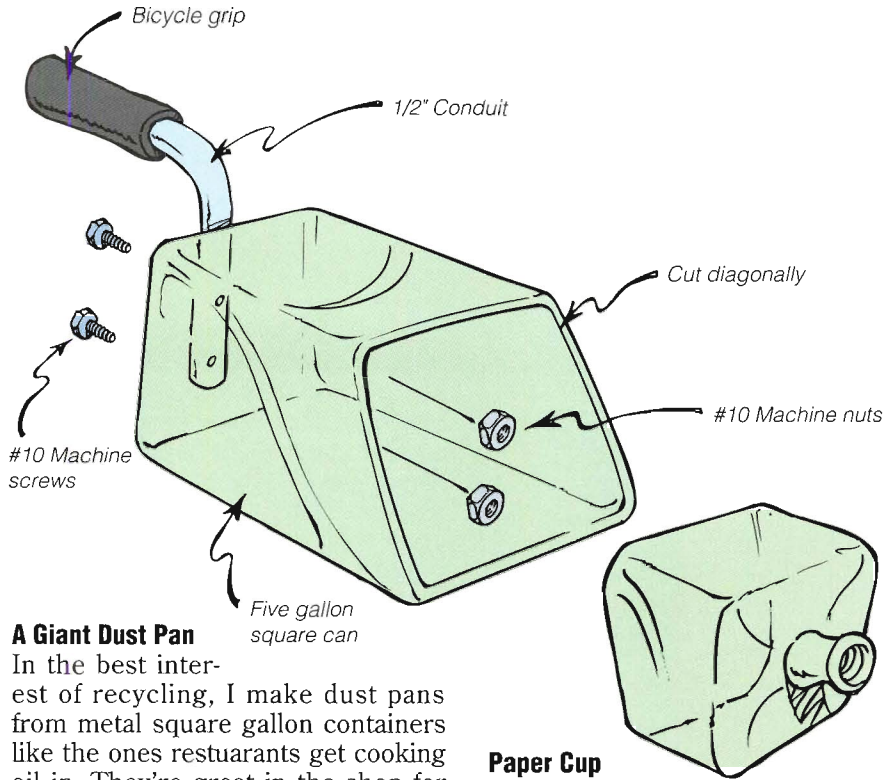
Now we have a terrific method for making sanding blocks that's easy and very precise. We simply mix Durham's Rock Hard Water Putty and enough water to make the consistency fluid, stir well, and pour the mixture into a plastic sandwich bag. We tie the bag closed and knead the contents, then the bag is pressed over a section of the moulding (without allowing the bag to wrinkle under the putty). After an hour we open the bag a little to speed up the drying time. Once the putty hardens we remove the bag and bandsaw the excess from the sanding block.

If we want a thicker grip on a sanding block we fashion a rectangular dike and push it on the bag. Another tip is to coat the sanding block with rubber cement so sandpaper can't slip.

Dick Dorn
Oelwein, Iowa



Low Cost Labor Savers



A Giant Dust Pan

In the best interest of recycling, I make dust pans from metal square gallon containers like the ones restuarants get cooking oil in. They're great in the shop for picking up sawdust, and I use them around the house and yard as well.

Ron Pavelka
Orange, California

Shooting From The Hip

This is an idea I've used for years, but have never seen published. I use the remote from an old garage door closer and the electronic pickup from the main unit to control the central vacuum system in my shop. I hook the remote on my apron and, when I go to use a machine, I simply hit the switch. Very simple, very efficient and very cheap, sort of.

Ben Joseph Abate
Kensington, Pennsylvania

"Free" tack cloths

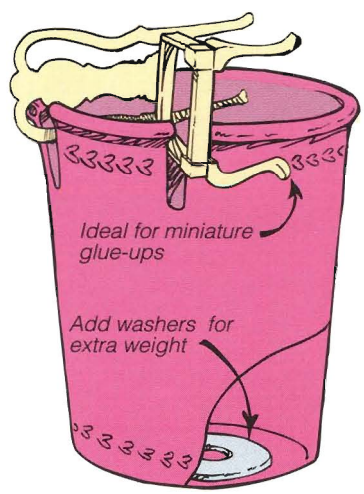
Soak used fabric softener sheets in a solution mixed with equal parts turpentine and boiled linseed oil. Let the solvents evaporate, preferably outdoors, then store the sheets in a ziploc bag. Seal the bag, but leave a 1" breathing hole at the end of the ziploc.

A. C. Hohnke
Media, Pennsylvania

Paper Cup Gluing Aid

I've found that a paper drinking cup can be a big help when gluing small items together like doll house miniatures. I place a few washers in the cup to make it stable and then cut notches in the lip of the cup to hold the items that I am going to glue. This gives good support while the glue is setting and leaves my hands free for adjusting the work.

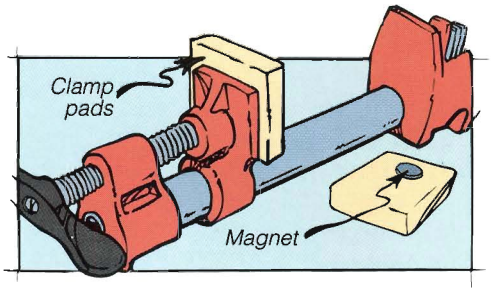
Howard E. Moody
Upper Jay, New York



Removing Pesky Wood Stains

Do your hands get stained from working woods like walnut or cherry, or by woods that are still green? First wash your hands with soap and water, then try scrubbing them with lemon juice, either fresh squeezed or concentrate. If lemon juice fails to remove the stain it probably won't come out except with the passage of time.

Hugh Foster
Manitowoc, Wisconsin



Magnetic Attraction

I recessed button magnets into some small wood blocks to make pads for my pipe clamps. The magnets hold the pad on the clamp jaw so I can concentrate on positioning the clamp. This sure makes clamping a lot easier.

James H. Alexander
St. Louis, Missouri

Crosscutting Plywood

When cutting plywood across the face grain or trimming a hollow core door to length, a circular saw is often the easiest tool to use. However, the grain is likely to tear, resulting in an ugly edge.

To get around this problem, I score the plywood along the cutting line on both surfaces with a utility knife, then use a straight edge and a good blade to follow the scored lines. Using this procedure guarantees a decent cut.

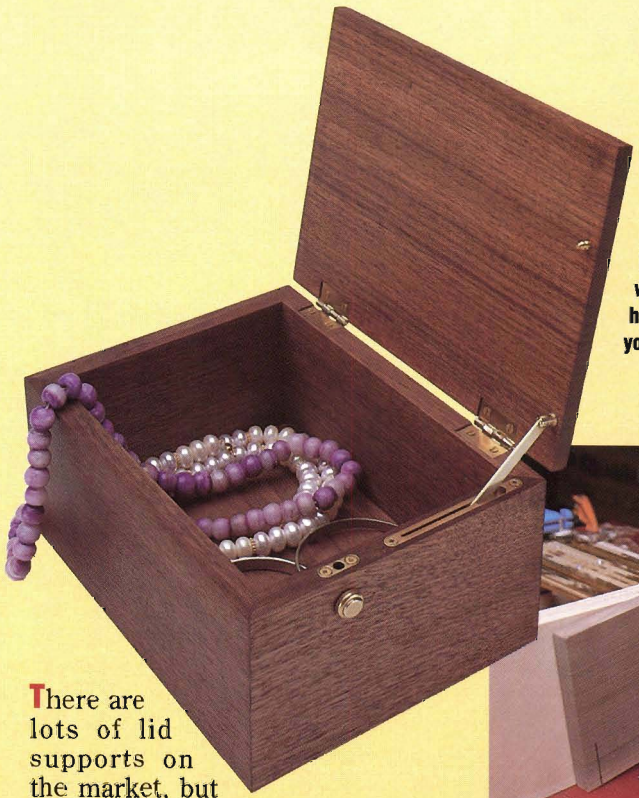
Larry Bedaw
N. Swanzey, New Hampshire

Today's Woodworker *pays from $35.00 (for a short tip) to $150.00 (for each issue's "Pick of the Tricks") for all Tricks of the Trade published. Send yours to Today's Woodworker, Dept. T/T, Rogers, MN 55374-0044.*

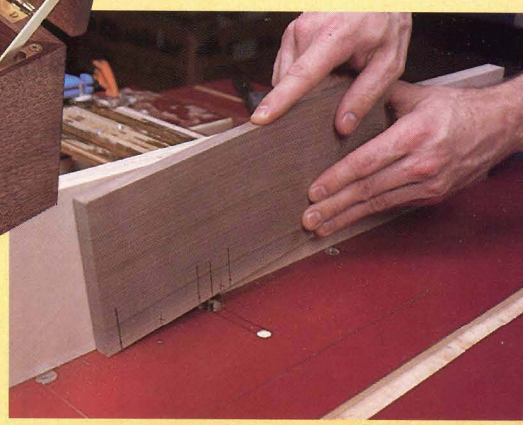
HARDWARE HINTS

Fine Jewelry Box Hardware

By Al Wolford



Rounding out your skillful woodworking with this Brusso hardware is sure to impress your most demanding critics.

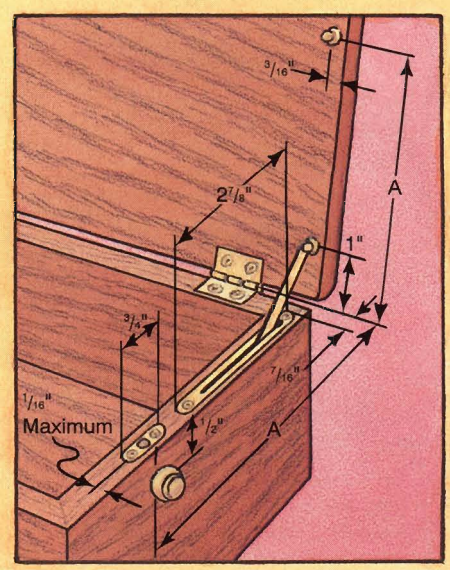


There are lots of lid supports on the market, but if you admire craftsmanship and attention to detail, you'll want to try Brusso's brass jewelry box lid support and catch. Offered by The Woodworkers' Store, this matched set represents the best small box hardware available today.

Installing the Brusso hardware does take some forethought, because you must cut mortises in one side wall of your box for the mechanisms. One thing you'll find about finer hardware, it's generally not just surface mounted.

The lid support is suited for stock from 1/2" to 3/4" thick and normally you don't want the box lid size to exceed 12" x 16". The lid support housing fits into a 1/4" wide x 1/2" deep mortise, as does the button catch. It's very important that the two mortises are within 1/16" of the outside surface on the side wall. The mortises can be cut on a router table (see above), or with a drill press and then cleaned up with a chisel. Drilling a few small holes in the lid and side wall for the remaining parts of the mechanisms will complete the installation.

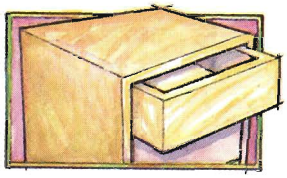
The lid support and button catch require 1/4" wide by 1/2" deep mortises cut within 1/16" of the outside face of the stock. Rout the mortises in several shallow passes, and be sure to layout lines on your stock and on the router table for limiting the drop cuts. You could also drill out the waste and clean up the holes with a chisel.



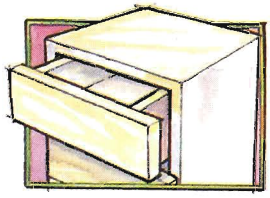
Matching Drawer Joints To Projects

Drawers serve many functions, but it's not always necessary to build them to survive a hurricane. In some circumstances, using a lighter duty construction method is more efficient, saving both time and materials. The key is understanding the type of stress the drawer will undergo during its lifetime, and then selecting an appropriate joint for the application. If, on the other hand, you're building a reproduction piece, by all means use dovetail joints. If you're making a basic cupboard drawer, then consider some of the options discussed below.

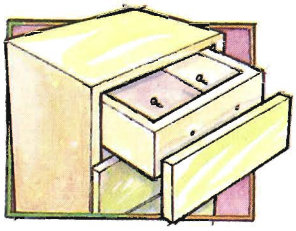
The first thing to figure out is what type of drawer you plan to build (see drawings below). Each type has requirements that make some joints inappropriate, and the use of drawer slides also affects the joint selection.



Inset
This classic, drawer style requires accurate fitting.



Overlay Drawer
An excellent choice for hiding gaps and slide hardware.



False Front Drawer
For production speed and adjustability, nothing beats this technique.

Strength and Good Looks

Among drawer joints, dovetails are the strongest and most visually appealing. They'll withstand considerable pulling forces on a drawer front, and the large amount of gluing surface between the pins and tails guarantees a durable bond. The classic **through dovetail joint** is suited to drawers where you want to show the joinery, whereas **half-blind dovetails** hide the joinery from view on the front of your cabinet. A typical **inset drawer** has half-blind dovetails on the front and through dovetails on the back, as is always true of **overlay drawers** that feature dovetail joints.

Learning to cut dovetail joints takes time and practice, and even after you develop these skills, dovetails require more time to make than most machined joints. Router templates like the Leigh jig speed production, but are most efficient on larger jobs because of their long set up procedure.

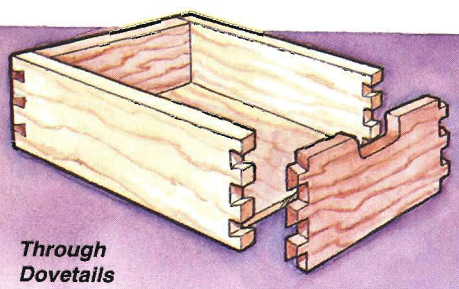
While dovetails are clearly the elite drawer joint, the more modest **finger joint** provides very much the same capabilities, with the distinct advantage of being easy to cut on a table saw. If you're after production speed, strength and an interesting appearance, the finger joint is an excellent alternative. And if you're using plywood for the hidden drawer sides and back, finger joints are the ideal choice.

Speed and Utility

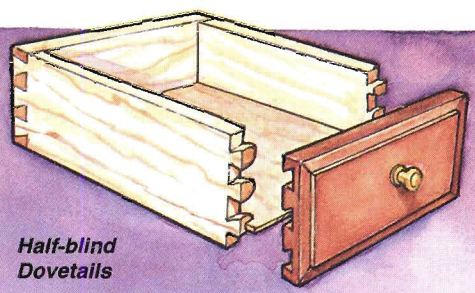
With drawer slides that float effortlessly on ball bearings or nylon rollers, the necessity for a rock solid drawer joint is diminished. Since these drawers operate with such a light touch, little stress is put on the joints. Given this drawer slide technology, simpler joints make sense for the production woodworker.

A simple **dado joint** is always fine for a drawer back since little stress is directed here. When used on the front of a drawer, however, the dado joint must be pinned with a few brads to create a mechanical connection between the two pieces of wood. Pulling on a drawer front that's just dadoed and glued to the sides will eventually break the bond. Gluing a plywood drawer bottom into the sides and front will reinforce this structure immensely. The dado joint is highly suited for plywood construction, where you'll benefit from some side grain to side grain glue bond. In hardwood the joint is entirely side grain to end grain, so you have to depend on a tight fit and the wonders of modern glue.

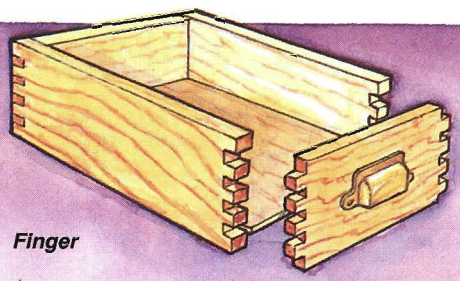
A step above the simple dado is a **tongue and dado joint**. The additional shoulder in this joint strengthens the drawer against racking. Like the dado joint, this one works best for the back of a drawer or for a **false front drawer**. If you do use the tongue and dado joint for the back of a drawer, you can increase its strength by moving the joint further from the end of the board and gluing in a ply-



Through Dovetails
Generally considered the strongest and most attractive drawer joint, through dovetails were once the standard even on production projects.



Half-blind Dovetails
Usually half-blind dovetails are cut on the drawer front only, but with modern routing methods many woodworkers use them on the back as well.



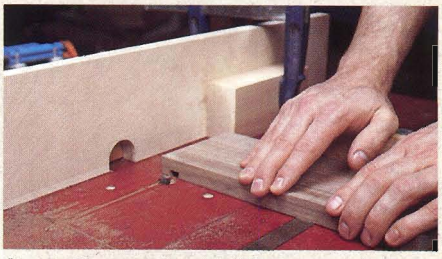
Finger
Taking a close second place to dovetails for overall strength, finger joints are easy to cut on the table saw and are ideal for small production runs.

Drawer Joints For The Desk

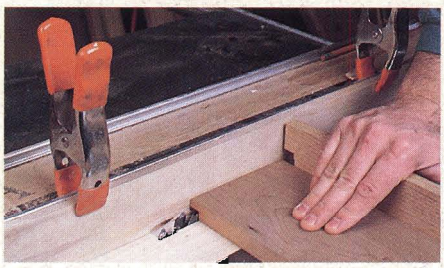
The southwest desk featured on page 14 provides a good example of how to adapt drawer making techniques to fit a particular need. The large main drawer will get lots of use and requires a durable joint at the front with a strong mechanical connection. The small cubby hole drawer, on the other hand, will probably get very light use and only contain small items, so a simpler joint is adequate.

To make the cubby hole drawer quickly and without fuss, a double rabbet joint is fine. With the gripping properties of yellow glue, and pinning each joint with a few brads, this drawer will last through many years of use. Gluing a plywood bottom into grooves around the drawer will dispel any doubts you may have about the strength of this joint.

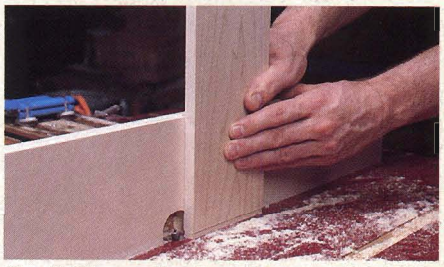
Since side mounted slides are used on the large drawer, the front must extend past the side walls by 1/2". This configuration lends itself to an excellent but seldom used drawer joint, the sliding dovetail. This joint is made entirely with a router and dovetail bit, and one router table set up usually works for both the front and back joints on the drawer.



Step 1: Clamp a clearance block to your router table fence to safely cut the dovetail slots.

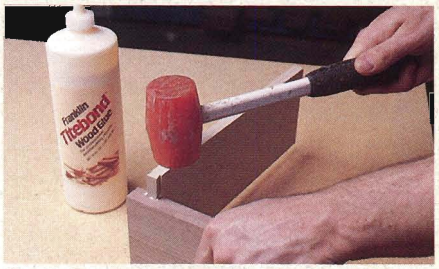


Step 1: When cutting a rabbet in the drawer front, clamp a protective wood face to your saw fence.



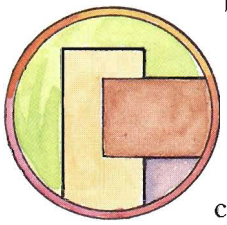
Step 2: When routing the tails, use a 5" or taller fence to keep the workpiece stable.

Step 2: Secure the joint by spreading glue in the rabbet then driving brads in at alternating angles.



Step 3: A snug, but not tight, joint is best. If the joint is too tight all the glue will be forced out.

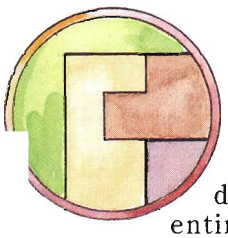
Dado Joint



wood bottom. Cut both parts with the same dado blade by setting the fence for the dado cut first, then shifting the fence to make the rabbet cut for the tongue.

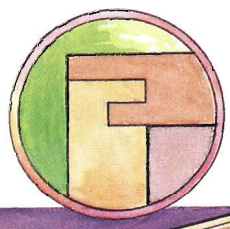
The **locked rabbet joint** is commonly used on commercially made drawers. If properly done, it's a strong joint and, even though there isn't good side grain to side grain contact between the pieces, there is so much surface area contact that yellow glue holds the drawer together just fine.

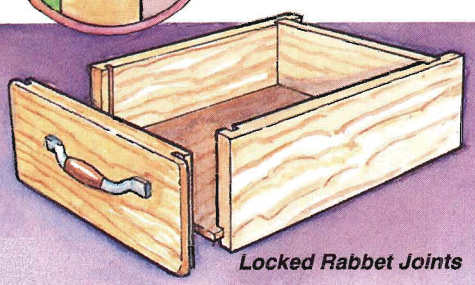
Tongue & Dado



The small tongue strengthens the joint mechanically, like the pins in the dado joint, so that the stress of opening and closing the drawer isn't borne entirely by the glue bond. There are lots of shoulders in this joint, so concern about racking is minimized, particularly if a plywood drawer bottom is installed. The locked rabbet is cut in three easy steps with a standard table saw blade or a 1/4" dado blade, depending on the thickness of your stock. All you have to do is reset the blade height and fence position for each cut.

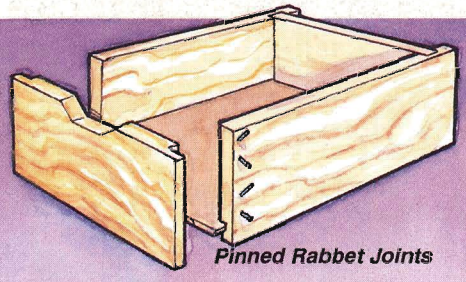
Locked Rabbet





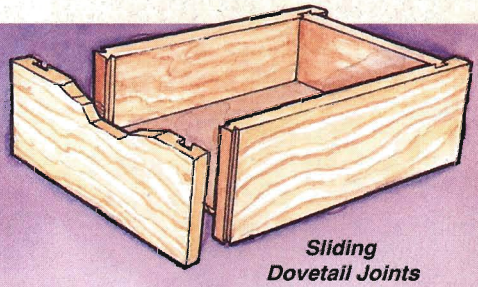
Locked Rabbet Joints

Locked rabbets are well suited to drawers made with plywood. They're easily cut on the table saw and provide lots of gluing area.



Pinned Rabbet Joints

Pinned rabbet joints are fine for light duty drawers, and when a drawer bottom is glued in, the structure becomes even stronger.



Sliding Dovetail Joints

Sliding Dovetails are a perfect compromise. They create more strength than a dado joint but are just as easy to cut on a router table.

Build a Scrap Lumber Magazine Rack

A few basic tools and an extra weekend are the only requirements for building this handy project.

By Richard Starr

As a grade school teacher and the host of the PBS television series *Woodworking For Everyone*, I'm always looking for woodworking project ideas that are accessible to many skill levels. My strategy is to come up with uncomplicated designs that are still pleasing to look at. When Today's Woodworker asked me to design a project article, I naturally applied the same criteria to the task. I eventually landed upon the idea of a simple magazine rack, made with scrap lumber and a few dowels, that can be built with basic tools.

I wanted the magazine rack to fold really flat for storage, so the tops of the legs needed to flare in opposite directions to keep the upper dowels from hitting each other. With the help of some drawing software I tackled this problem and several others on the computer. Later, when I cut templates for the project, I made a few slight changes in the design. Having a computer made the process smoother and I'm convinced it saved me from wasting a lot more wood.

Making the Templates

To begin building your magazine rack, transfer the **full size patterns** between pages 12 and 13 for the legs (pieces 1 and 2) and arms (pieces 3) to 1/4" plywood. Drill 1/16" holes at the center of each dowel hole location and bandsaw the templates to shape.

Now secure the templates to your cherry stock by tacking brads through the holes in the templates. Trace around the templates, then yank the brads out —the marks left by the brads locate the dowel hole positions you'll need to drill in the arms and legs. The template for the outside legs has an extra hole that locates the stop dowel (pieces 4) position, which is on the inside face of each leg. Make sure the outside legs mirror each other.

Drilling The Holes

Drill the 1/2" through holes on the appropriate marks left by the brads before cutting the legs and arms to shape. A brad point bit in a drill press is best for getting clean, accurate holes, although you can get by with an electric hand drill or a brace and bit if you use a square as a guide. Be sure to back up your cherry stock with scrap wood in order to avoid splintering on the exit side of the holes. The 1/4" stop dowel hole in each outside leg should only go in 1/2" deep, so mark your drill bit with masking tape so you stop drilling at this depth.

After boring all the holes, bandsaw the pieces to shape and sand the edges smooth. If hand tools are your pleasure, use a spokeshave. Next, rout the edges with a 3/8" roundover bit, holding the pieces secure with the jig shown in **Figure 1**. Make sure the jig rails are the same thickness as your legs and arms. Tack your leg template to the jig base to mark the peg hole locations, then drill the 1/2" diameter by 1/2" deep peg holes. Now install 1/2" diameter by 1" long pegs in the holes, and chamfer their ends so it's easy to slide the legs and arms into place.

The pegs in the jig secure the center and one end of a leg, but the free end of the leg may want to flex a little while it's being routed. To avoid any chattering, just put a little extra pressure against the leg with the bit's bearing. After the routing, lightly sand the pieces to complete this step.

Wrapping It Up

Cut the connecting dowels (pieces 5) and pivot dowel (piece 6) to length, then round over their ends using a file or a whittling knife, or by simply rolling the dowel ends against a belt or disc sander. To keep the file cutting well, use a file card frequently to remove the built up wood dust. You'll also need to roundover one end of each stop dowel (pieces 4).

Before assembling your magazine rack it's a good idea to apply a finish to all the pieces. I wiped on two coats

Figure 1: The routing jig (see drawing at right) holds your stock steady and supports your router while you roundover the legs and arms.

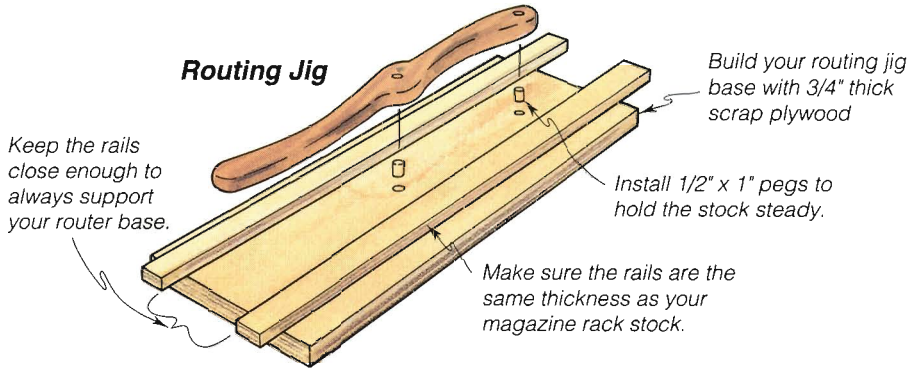
of Danish oil to give the rack a warm, satin luster.

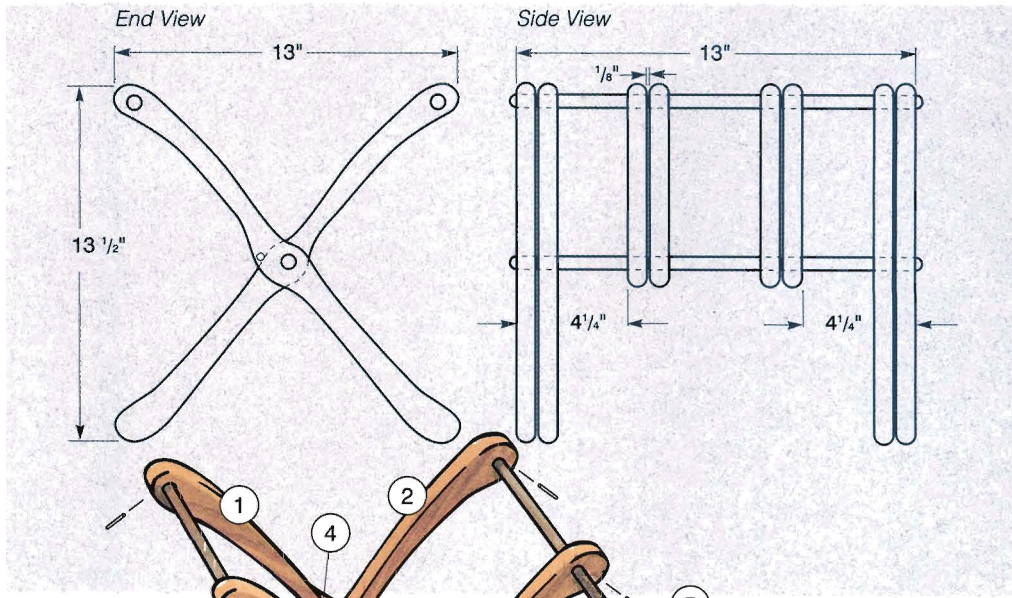
The top end of all the legs and arms are pinned (pieces 7) to the connecting dowels so they remain in place, whereas only the arms and legs on half the assembly are pinned to the pivoting dowel. If all the pieces were pinned to the pivot dowel the rack couldn't fold. Slide the parts onto the dowels in the order shown in the **elevation drawing** at right. If any of the parts fit on the dowels too tightly, enlarge their holes with sandpaper wrapped around a 3/8" dowel. Space the parts on the connecting dowels as shown and, once they're in position, drill 1/8" holes through the cherry pieces and into the connecting dowels and pivot dowel for the pins as shown at right. The 1/8" holes should go through the dowels but stop before exiting the other side of the arm or leg knuckle.

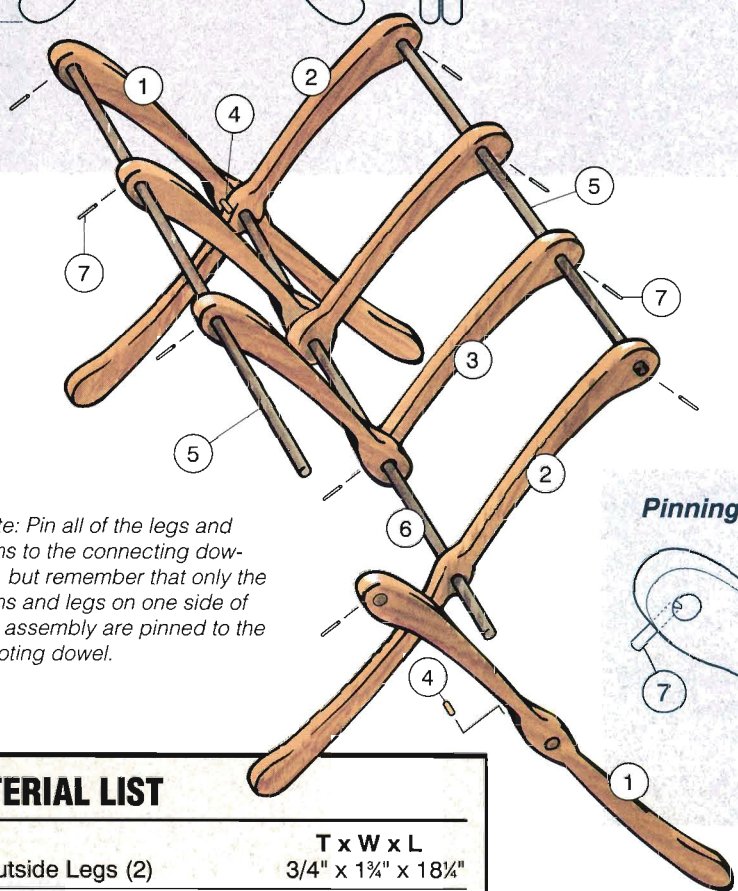
Now put a drop of glue in each pin hole and drive in the pins to lock the arms and legs to the dowels. Trim the pins so they're just off the surface of the cherry pieces, then sand them flush and dab some oil finish on the area.

If everything has gone correctly, your magazine rack should fold and tuck together nicely. For a beginning woodworker this is a significant triumph, and for those who are more advanced this is an excellent project for a small production run for gifts or to sell at craft fairs. In either case you'll have completed a beautiful project in a few short hours.

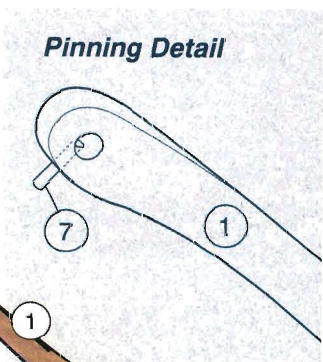
Richard Starr is a contributing editor for Today's Woodworker magazine. He also teaches and writes about woodworking, and is the host of the PBS television series, **Woodworking For Everyone.**







Note: Pin all of the legs and arms to the connecting dowels, but remember that only the arms and legs on one side of the assembly are pinned to the pivoting dowel.



MATERIAL LIST

		T x W x L
1	Outside Legs (2)	3/4" x 1¾" x 18¼"
2	Inside Legs (2)	3/4" x 1¾" x 18¼"
3	Arms (4)	3/4" x 1¾" x 10"
4	Stop Dowels (2)	1/4" x 1½"
5	Connecting Dowels (2)	1/2" x 15½"
6	Pivot Dowel (1)	1/2" x 15½"
7	Pins (12)	1/8" x 1⅜"

Can Do Can Crusher

After crushing over two thousand cases of beer cans, we're convinced that this design is built to last.

By Robert G. Buffalow

If ever a woodworking project was put through its paces, this is it. After helplessly watching a couple of store bought can crushers fall apart within just one short year of use, I decided to make my own. Basically, the commercial models weren't rugged enough. They were made of lightweight metal and plastic with riveted joints. In no time at all the joints gave way and some of the parts cracked. The design that comes from my shop is plenty beefy, and my buddies and I have personally seen to testing the prototype. One of my friends owns a gas station here in Lakewood, Colorado, where a bunch of us gather every night to play cards. Since installing my homemade crusher at his place, over two thousand cases worth of beer cans have been crushed.

My can crusher is made from simple parts, most of which you probably have around the shop. Even if you have to buy the material, it'll only set you back a few bucks. Take a look at the material list before you begin and make sure you have all the hardware.

Digging Through the Scrap Bin

I found all the hardwood I needed for the crusher in my scrap bin. The pieces are pretty small so you might get as lucky as I did. If you don't have the scrap material you can get all the wood parts except for the dowels from a 3/4" x 6" x 39" board (see cutting diagram on page 12). In either case, cut the arms (pieces 1), the base (piece 2) and the sides (pieces 3) to the sizes described in the material list. Cut your stock for the jaws (pieces 4) a little oversize at first, then trim them to size later, after the laminations are dry.

Now that the parts are cut, glue the four jaw pieces into two pairs. I decided to make the jaws extra thick like this so they'll stand up to the stress of can crushing. This is one of the places where the store bought can crushers cracked.

While the glue dries in the jaw laminations, drill the bolt holes in the arms and sides **(see elevation drawings on page 12)**. Make sure the counterbored carriage bolt holes in the sides are deep enough to conceal the bolt heads. Once all the holes are drilled, trim the front corners on the side pieces to a 3/4" radius and rout all but the back edges with a 3/8" roundover bit. Use this roundover bit on all the edges of the arms as well.

Figure 1: To ensure straight holes in the handle and washers, use a wood handscrew clamp to hold the dowels square to the drill press table.

The next parts of the can crusher to tackle are the handle (piece 5) and washers (pieces 6). First cut a piece of 1⅛" diameter dowel for the handle and cut another 3" long piece for the two washers. Find the center point on both ends of each dowel and chuck a 3/8" brad point bit in your drill press. To hold the dowels steady and square to the bit while you bore the lengthwise bolt holes, secure them in a wood handscrew clamp **(See Figure 1)**. You'll have to bore into both ends of each dowel to complete the through holes. Once the holes are drilled, cut the 3" dowel to length for the washers.

By now the glue in the jaw laminations is probably dry so you can cut them to their finished size. For a more durable wearing surface I covered the working face of each jaw with plastic laminate (pieces 7). Use contact cement to adhere the plastic and, once it's set, trim it flush with the jaws and soften the edges with a mill file.

The guide bolt holes that pass through the upper jaw are a full 3/8" in diameter, but the holes in the lower jaw are slightly smaller so they secure the threaded end of the guide bolts **(see elevation drawings on page 12)**. Drill the upper jaw holes completely through the lamination, and while you're at it, drill the pivot holes in the sides of both jaws as well. Now switch to a slightly smaller bit and drill the lower jaw holes for the guide bolts 3/4" deep. After drilling all the holes, rout the bottom back edge of the lower jaw with a 3/4" roundover bit. Rounding this edge is necessary to allow the lower jaw to pivot without binding against the base.

Putting the Pieces Together

All the parts are cut and drilled now, so you can move on to the assembly. Clamp each side to the base and drill two countersunk pilot holes for #8-2" wood screws (pieces 8). Separate the pieces to spread glue in the butt joints, then permanently screw them back together. Next, drill three countersunk pilot holes in the base for screwing the crusher to the wall, and rout the front edges of the base with a 3/8" roundover bit.

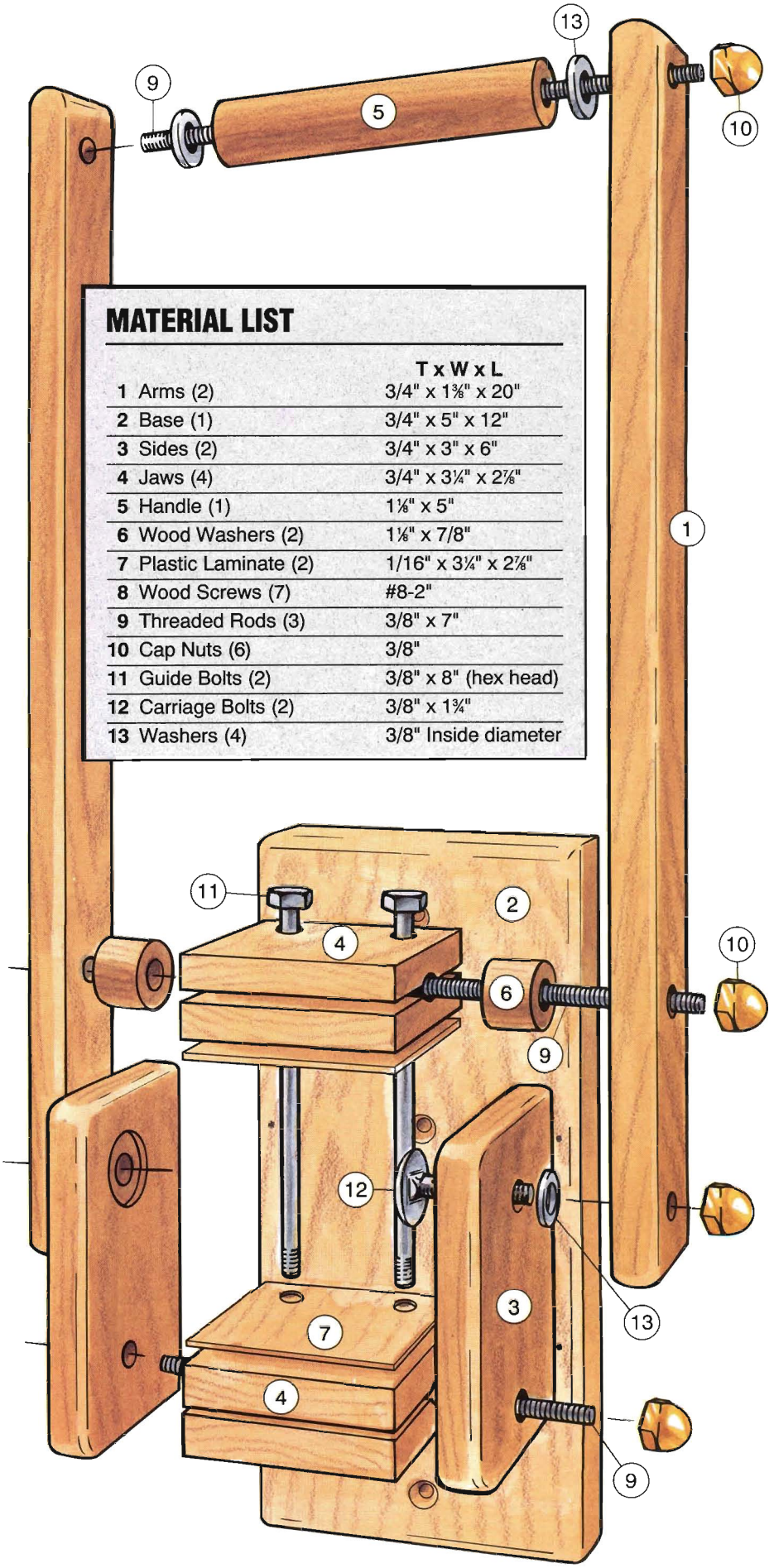
I finished all the wood parts of my can crusher with two full coats of polyurethane, which I recommend because it's so tough and durable. You'll want to brush the finish on now, before you go further with the assembly, so you cover all the nooks and crannies easily.

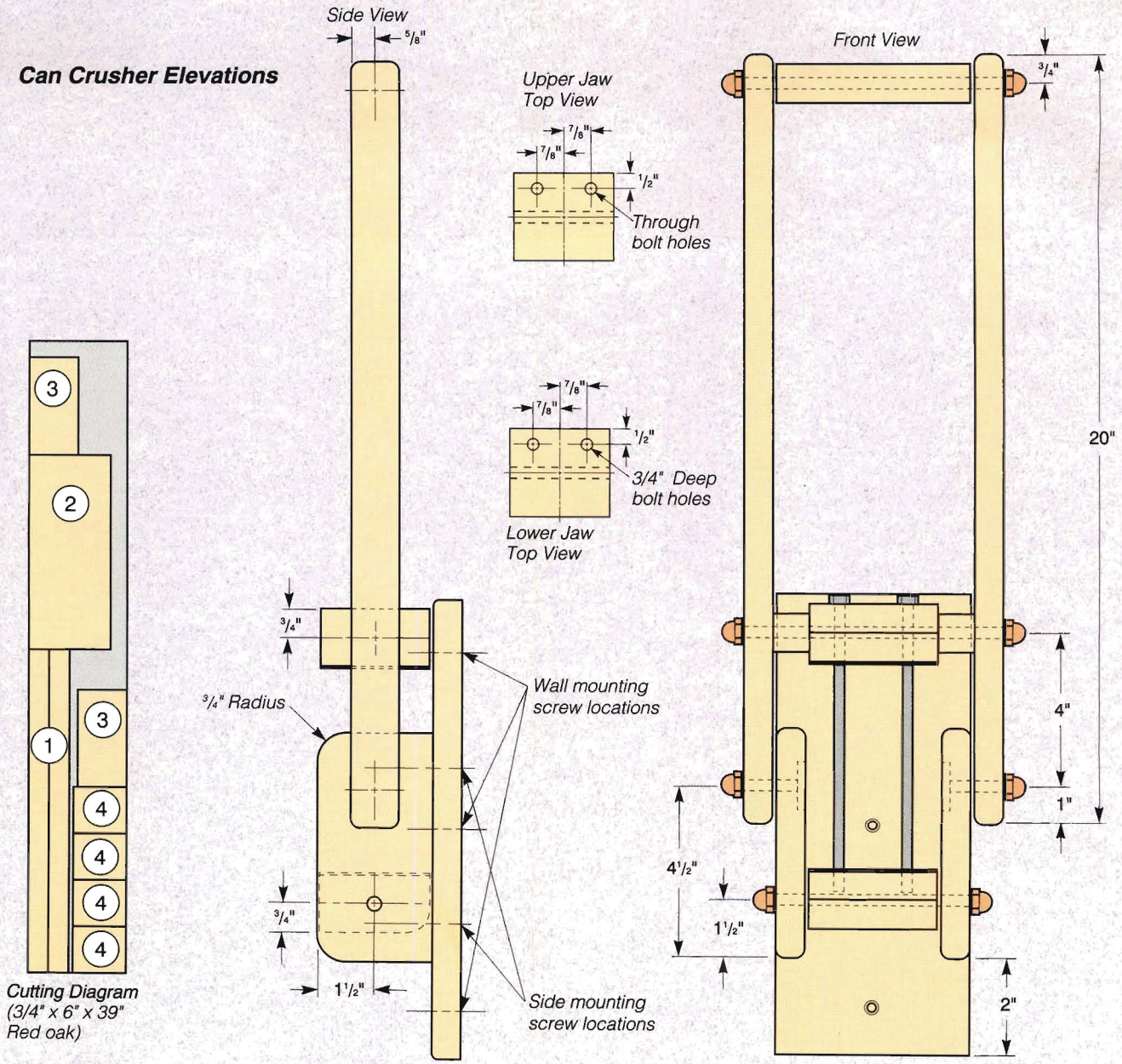
Using a hacksaw, cut your continuous threaded rod into three 7" long sections (pieces 9) for the handle and jaw assemblies, and test fit the cap nuts (pieces 10) on their ends. If the cap nuts fail to thread onto the rods properly, you can usually file the tips of the threads a little bit to get them to work.

Now assemble all the parts except the guide bolts (pieces 11). Once everything is together, push the handle and jaws into the fully open position and put a few drops of quick set-

MATERIAL LIST

		T x W x L
1	Arms (2)	3/4" x 1⅜" x 20"
2	Base (1)	3/4" x 5" x 12"
3	Sides (2)	3/4" x 3" x 6"
4	Jaws (4)	3/4" x 3¼" x 2⅞"
5	Handle (1)	1⅛" x 5"
6	Wood Washers (2)	1⅛" x 7/8"
7	Plastic Laminate (2)	1/16" x 3¼" x 2⅞"
8	Wood Screws (7)	#8-2"
9	Threaded Rods (3)	3/8" x 7"
10	Cap Nuts (6)	3/8"
11	Guide Bolts (2)	3/8" x 8" (hex head)
12	Carriage Bolts (2)	3/8" x 1¾"
13	Washers (4)	3/8" Inside diameter





ting epoxy in the lower jaw holes. Slip the guide bolts through the upper jaw holes and thread them into the holes in the lower jaw. Stop driving the guide bolts when the bolt heads sit about 1/16" off the top of the upper jaw.

Your crusher is now complete, but you still need to mount it on the wall. It's very important, in fact essential, that the screws holding the crusher on the wall be driven into the studs. If you miss, when you go to crush your first can you'll probably end up with a hunk of sheetrock at your feet. If you do hit the studs give the crusher a trial run, or better yet, throw a party and really put your project to the test. Once you start crushing cans you'll quickly notice another advantage of my design —the cans fall directly out of the jaws after they've been crushed. All you have to do is set a recycling bag below the crusher to catch the falling cans. Now that's Rocky Mountain ingenuity.

Bob Buffalow does his woodworking in Lakewood, Colorado. His can crusher is available, completely assembled, for $35.00 plus $8.50 for shipping and handling. If you'd like one, give Bob a call at 303-988-2882.

How To Use Brush-On Lacquers

By Bob Flexner

If you've ever used polyurethane, you know what a problem dust can be. Because polyurethane takes so long to cure, some dust settles and sticks to the finish even though you think your room is clean. The embedded dust detracts from your work.

You can overcome most of the dust problem and still get a durable finish by using a brushing lacquer instead of polyurethane. You may not have thought of lacquer as a brushable finish. In fact, it's usually sprayed because it cures too fast to be brushed. To make lacquer brushable manufacturers slow the curing time by dissolving the lacquer in slower-evaporating solvents.

Using lacquer instead of polyurethane has some advantages, as well as some disadvantages. The principal advantage is that lacquer, even brushing lacquer, cures very fast. This reduces dust problems and allows you to apply two or three coats a day. Another advantage is that, unlike polyurethane, to get a good bond with brushing lacquer you don't have to sand between coats. Each new coat of lacquer partially dissolves and fuses with the previous coat to make a perfect bond. You only have to sand to remove dust nibs or to level other flaws in the finish.

The principal disadvantage of lacquer is that it isn't as durable as polyurethane. Coarse objects will scratch it. Hot objects, such as coffee cups, will leave an imprint. Solvents, such as finger-nail-polish remover, and strong alkalies, such as ammonia, will dissolve it. Therefore, on heavily used surfaces such as table tops, you still may prefer polyurethane.

Preparing For The Finish

You can use any oil-based or water-based stain before applying brushing lacquer as long as you wipe off all the excess stain and allow it to dry overnight. You also can use water-soluble and non-grain-raising (NGR) dyes. But you can't use lacquer-based stains, or dyes dissolved in alcohol or lacquer thinner. The solvent in the lacquer will dissolve these stains and dyes, and your brush will smear them.

The best applicator is a natural bristle brush with flagged bristles. Flagged bristles are split on their ends so they feel soft and apply the finish smoothly. Don't use a sponge brush as it will dissolve in the lacquer.

The most widely available brushing lacquer is Deft Clear Wood Finish. It's available at paint stores and home centers, or you can order it from *Constantine's, 2050 Eastchester Rd., Bronx, NY 10461 (800-223-8087)*. Deft Clear Wood Finish comes in two sheens—gloss and semi-gloss. I recommend the semi-gloss for most situations. It produces a very attractive sheen without rubbing.

Applying The Brushing Lacquer

There are three tricks to applying a fast drying finish like brushing lacquer: first, apply the finish liberally in wet coats; second, move fast; and third, avoid brushing over areas that have begun to set up, even if you've missed a small spot. This differs from the way you brush polyurethane. With polyurethane you spread the finish over a large surface and then smooth it with long straight strokes running with the grain. With brushing lacquer you need to get each stroke pretty close to right the first time.

For this reason it's important to practice applying brushing lacquer to scrap wood, just as you would practice with a new woodworking tool before using it on a real project. Once you've practiced, get started by brushing on your first coat of lacquer. There's no need to thin the lacquer unless the manufacturer recomends it, and with Deft, you don't need to apply a separate sanding sealer first. Deft sands easily enough itself.

Let the lacquer cure for at least two hours. You'll notice that the surface feels rough because, as with any finish, the first coat locks raised wood fibers in place. Sand the surface lightly with 280 grit or finer sandpaper — just enough to make it feel smooth.

Remove the sanding dust using a brush, vacuum, or tack cloth, then brush on at least two full strength coats, allowing a minimum of two hours drying time between each coat. If you miss a place and the finish has begun to set up, don't go back and fill it in. You'll just cause more damage. Wait until the finish cures, sand the area smooth, then apply another coat. No matter what problems occur, you can always sand out the damage and apply another coat.

Clean your brush thoroughly in a well ventilated area with lacquer thinner, then wash the brush with soap and water. Wrap the brush in heavy paper so the bristles dry straight, and store the brush in a drawer or hanging from a hook. If lacquer hardens on the brush, a soaking in lacquer thinner will reclaim it.

Bob Flexner makes and repairs furniture in Norman, Oklahoma. He is the author of a book due out in October entitled **Understanding Wood Finishing** *(Rodale Press, 215-967-8790).*

Santa Fe Style Woodworking

The popularity of southwest style furniture is growing by leaps and bounds, and Rick has certainly captured this rich, traditional look in his newest desk design.

By Rick White

As it turns out, they do a lot more than punch cattle and drill for oil in the old southwest. Among other things, it's a place where artists and woodworkers have created a rich identity that's completely unique to this part of the country. When I was in Santa Fe a few years ago, I was struck by all the desert colors, the rough textures of the buildings and the unusual furniture syles. The furniture construction reminded me of the mission pieces that are so popular now, but the distinctive southwestern motif completely separates this more ornate style from its plainer looking eastern cousins.

My desk is used mostly for writing letters and paying bills, although I built it with enough space for a small computer. To keep my paperwork and accessories organized I included a few cubbyholes and drawers. In addition, I built in a special feature — one you can't see in the photographs. I made a secret compartment in the desk top for hiding small, important items, like money and keys. If you look at the **exploded view drawing** on page 17 you'll see the compartment clearly.

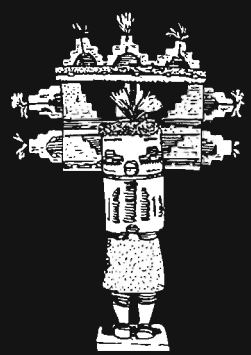
I used white ash for the desk because it gets that bone dry look featured on many of the southwest pieces I saw. The desk requires 7 board feet of 2" square stock, 18 board feet of 1¼" thick material, 25 board feet of 3/4" lumber, and 15 board feet of 1/2" thick ash. I also used a small amount of plywood for the project's hidden parts.

As you can see in the pictures, some of the tenons go completely through the legs, which is a trademark of mission furniture pieces as well as those from the southwest. Even though most of this work is done on a table saw and drill press, I'd recommend sharpening a couple of your favorite chisels for the finer detail work.

Mortising the Legs

To get the best match, I always cut my desk legs (pieces 1) from the same piece of stock, ripping the edges of

The motifs found on southwestern furniture are generally the same designs used for centuries by Pueblo Indians to decorate their pottery, weavings, baskets and figurines. Using geometric forms as symbols and drawing on common ancestral themes, the Pueblo Indians developed a highly sophisticated vocabulary to describe their life and art.



the board to get the straightest grain possible. Once the pieces are ripped, joint two adjacent sides on each leg, then plane them to their finished size. Now cut the legs to length and layout the mortises **as shown in the elevation drawings below**. On the through mortise layouts, be sure to label the shallow haunch areas and to draw your lines completely around the legs. The haunched joints may seem like extra work, but they ensure that your aprons and legs will never twist away from each other. To help align the drill bit when boring out the mortise waste, draw a line down the center of all the mortise layouts.

Now chuck a 1/2" bit in your drill press and clamp a fence to its table to align the bit with the center of the mortise layouts. Drill all the mortises 9/16" deep first, then readjust the drilling depth for the through mortises. When drilling the through holes, bore into the legs from both sides to avoid tearout.

Clean out the mortises with your chisels, again working from both sides of the legs. On the side walls of all the mortises keep your chisel square to the stock, but undercut the end walls a hair to help the tenon fitting.

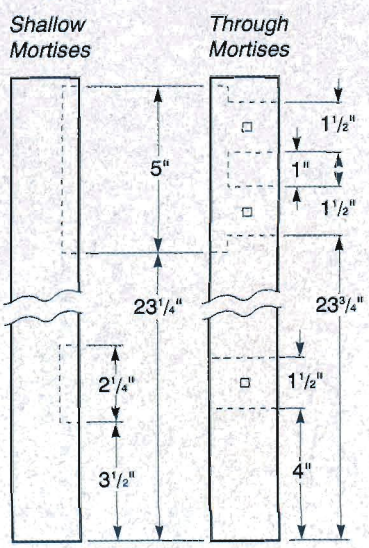
Cutting The Tenons

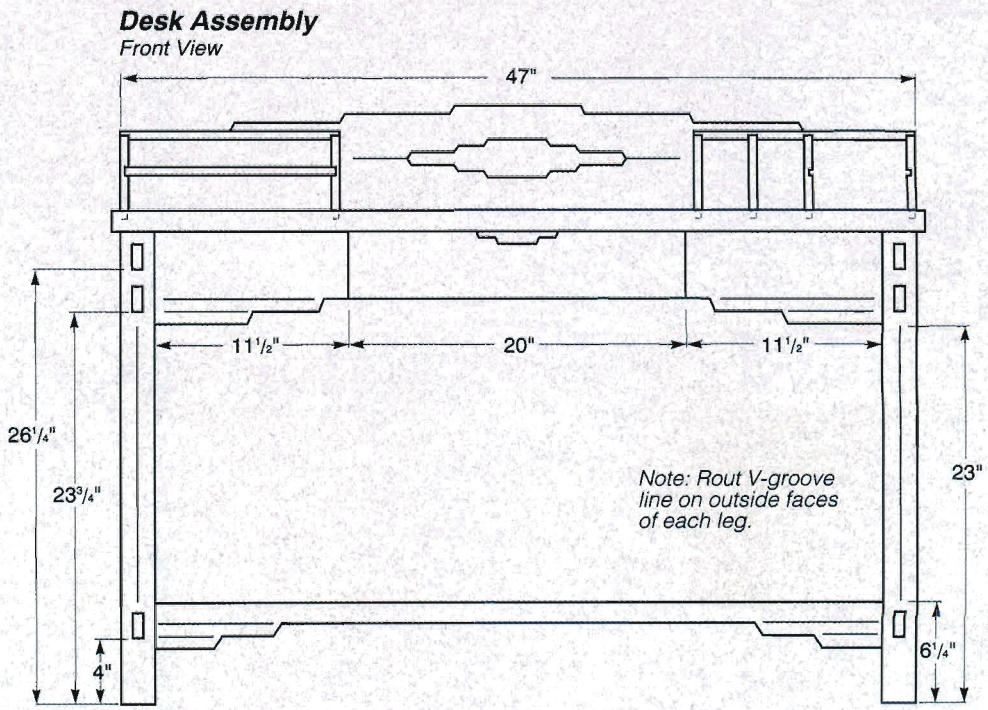
Now that the legs are made, cut pieces to size for the aprons (pieces 2, 3 and 4) and stretchers (pieces 5 and 6). The front apron measurement is a little longer than the back apron to allow for cutting away the drawer front later.

To cut the tenons install a 1/2" dado blade in your table saw. Raise the blade 1/16" and set the fence for cutting cheeks for the through tenons on the side aprons and stretchers **(See Figure 1)**. Next, raise the blade to 1/4" and cut edge shoulders on the side apron tenons, then raise the blade to 5/8" and cut edge shoulders on the side stretchers. Now raise the blade to 3/4" and reset the fence for cutting haunches on the aprons. Remove the waste between the apron through tenons with a hand saw and chisel.

Lower the dado blade back to 1/16" and set the fence for cutting 1/2" long tenons on the front apron, back apron and back stretcher. Once the cheeks are cut, raise the blade to 1/4" and cut edge shoulders on these pieces.

The ends of the through tenons are chamfered to add a decorative appearance. Tilt a standard table saw blade 45°, then clamp a clearance block to





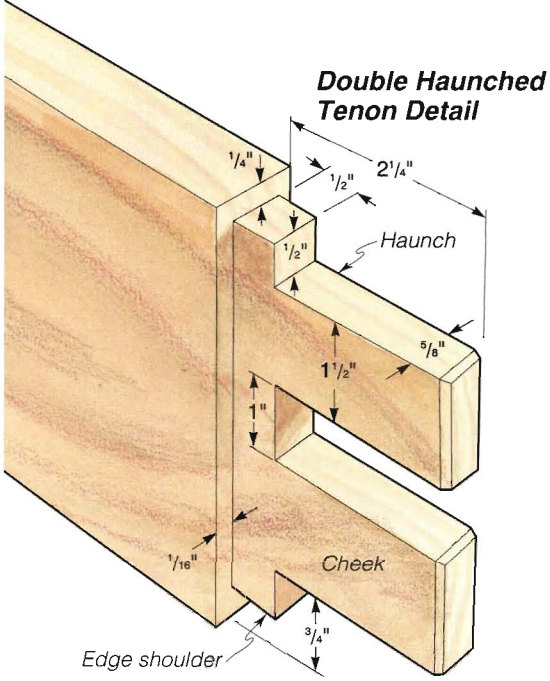


Figure 1: Haunched double tenons create a very strong joint and guarantee that the aprons and legs will never twist out of alignment.

the fence **(See Figure 2)**. Adjust the set up to cut 1/8" deep chamfers. For the inside edges on the double apron tenons, form the chamfers with a file.

Decorating the Aprons and Stretchers

The **full size patterns** of the aprons and stretchers between pages 12 and 13 detail the decorative shapes and V-groove lines on these pieces. Cut out the patterns, then trace the outside shapes and the routing lines onto your stock. (**Note**: the stretchers have decorative lines on both sides, while the aprons feature lines on the outside only.) Layout the routing lines on the legs as well **(see elevation drawings on page 15)**.

Now chuck a 1/2" V-grooving bit in your router and install a straight edge guide. Using the guide to center the bit on each line, rout to a depth of 3/16". Once all the V-grooving is done, bandsaw the outside shapes on the aprons and stretchers. Smooth the edges, then rout a 1/8" deep chamfer on all the stretcher and leg edges, and all but the top inside edge of the aprons.

As I said earlier, the front apron is a little long to accommodate cutting out the drawer front (piece 17). Well, now is the time to remove that piece. Layout the drawer on the front apron **(see elevation drawing on page 15)** and cut it with your table saw. Set the drawer piece aside and cut the remaining front apron pieces to a length of 12".

The free ends of the front apron are supported in the desk assembly by two apron supports (pieces 7). Cut the supports to size, then set up a 3/8" dado blade in your table saw to form 3/8" x 3/8" tongues on each end of both pieces **as shown in the elevation below**. After cutting the tongues, use the dado blade to cut slots in the front and back aprons to fit the tongues on the apron supports.

To allow the desk top to expand and contract freely, it's held to the base with table top fasteners (pieces 8). You should prepare for this hardware by cutting a 3/8" deep slot on the inside surface of the aprons and on one face of each apron support. Set the fence 1/2" from the blade, and be sure to avoid cutting into any of the through tenons.

Assembling the Base

Glue together the sides of the base assembly first and, after they dry, join them with the front and back pieces and the apron supports. It's wise to take a wet rag and clean the glue off the through tenons right away. Later, if you see glue that you missed, use a sharp chisel to slice it off.

A common technique on southwest furniture is crosspinning the mortise and tenon joints. In earlier times, when glue wasn't as dependable as it is today, these pins provided insurance against loosening joints. Today they aren't needed so much, but I still like the look. However, I've come up with an easier, more modern method.

First drill 7/32" pilot holes with 3/8" counterbores in the legs so the holes are centered on the through tenons. Next, layout a 3/8" square around each hole and use a chisel to square the counterbores. Now drive a #8-1¼" wood screw (pieces 9) into each pilot hole to pin the joints. To cover the screws, rip a 3/8" x 3/8" x 24" strip and cut it into 1/2" long plugs (pieces 10). Put a few drops of glue into each square hole and drive in the plugs. After the glue sets, cut off the excess and sand the plugs flush.

There's just one more piece to add to the base assembly to make it structurally sound. Make a spanner (piece 11) to fit between the apron supports in your drawer opening **(see elevation drawing below)** and clamp it into place. Now drill two 7/32" countersunk pilot holes through the apron supports into each end of the spanner and drive in #8-1¼" screws.

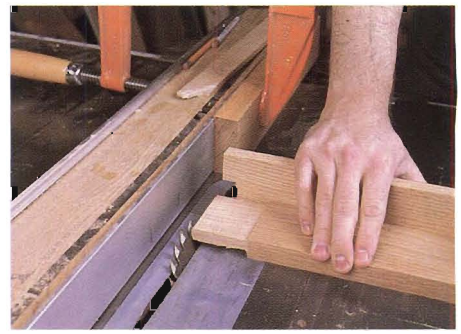


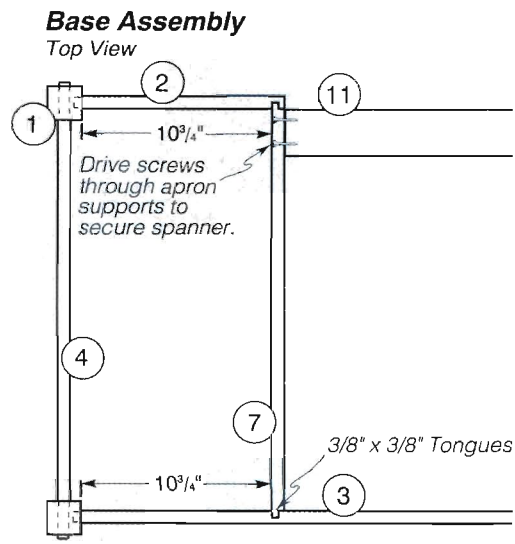
Figure 2: Chamfer the ends of the tenons by tilting your blade 45° and clamping a clearance block to the fence to align the workpiece with the blade.

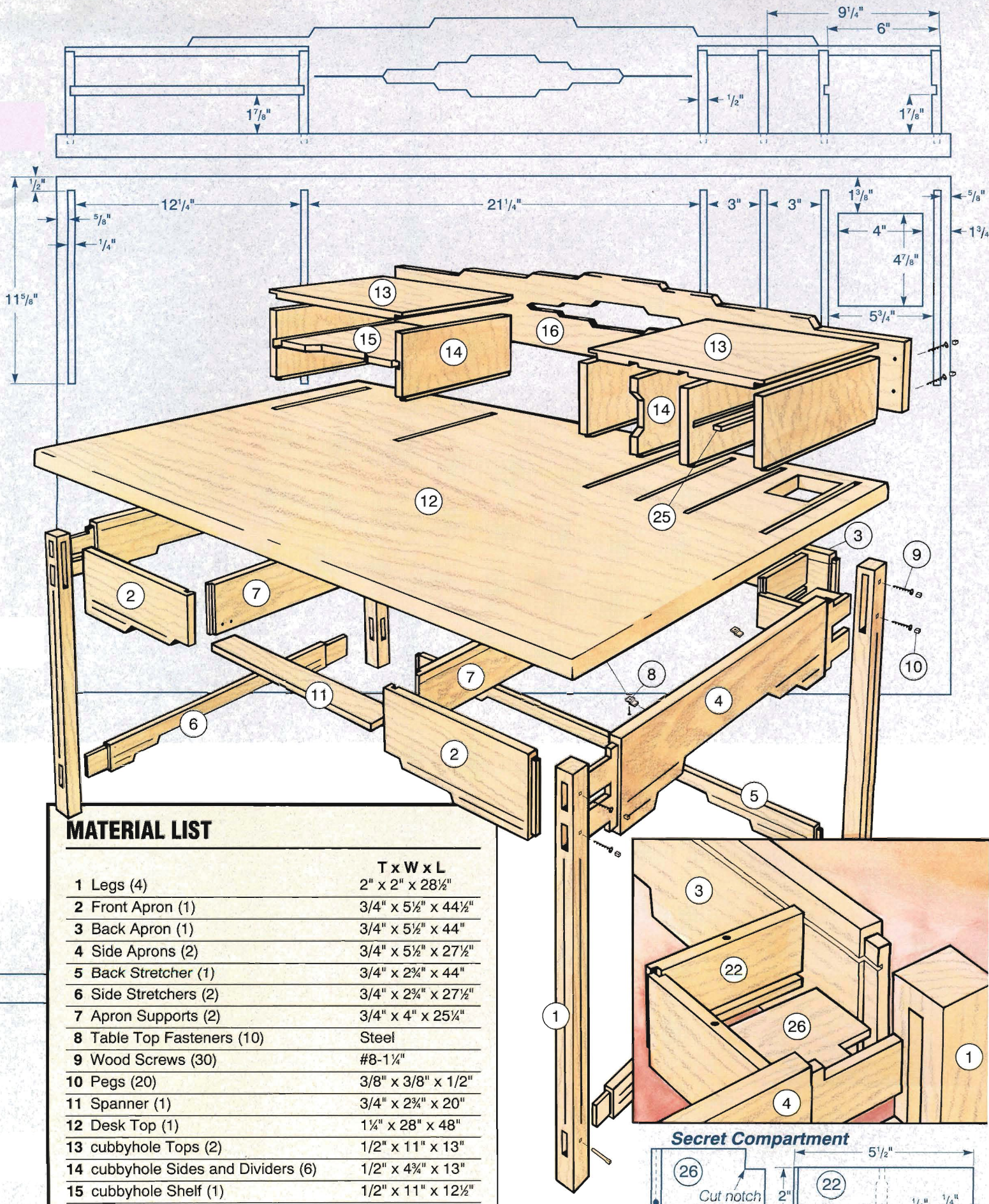
Making the Top and cubbyholes

The desk top (piece 12) is made up of five boards that are jointed and glued together. Build your panel a little wider and longer than the finished size, then cut it down later. Scrape off the glue when it dries to a rubbery consistency and, after the panel sits overnight, sand its surfaces smooth.

You'll also need to join several boards for the cubbyhole structures (pieces 13, 14 and 15). It's important that the grain in all the cubbyhole pieces run parallel with the grain in the top, otherwise they're likely to split with seasonal movement. I made a 60" long by 12" wide panel and cut it into the various pieces the following day.

The cubby sides and dividers are secured to the desk top with tongue and dado joints **(see elevation drawing at right)**. Layout the dadoes in the top and chuck a 1/4" bit in your





MATERIAL LIST

		T x W x L
1	Legs (4)	2" x 2" x 28½"
2	Front Apron (1)	3/4" x 5½" x 44½"
3	Back Apron (1)	3/4" x 5½" x 44"
4	Side Aprons (2)	3/4" x 5½" x 27½"
5	Back Stretcher (1)	3/4" x 2¾" x 44"
6	Side Stretchers (2)	3/4" x 2¾" x 27½"
7	Apron Supports (2)	3/4" x 4" x 25¼"
8	Table Top Fasteners (10)	Steel
9	Wood Screws (30)	#8-1¼"
10	Pegs (20)	3/8" x 3/8" x 1/2"
11	Spanner (1)	3/4" x 2¾" x 20"
12	Desk Top (1)	1¼" x 28" x 48"
13	cubbyhole Tops (2)	1/2" x 11" x 13"
14	cubbyhole Sides and Dividers (6)	1/2" x 4¾" x 13"
15	cubbyhole Shelf (1)	1/2" x 11" x 12½"
16	Backsplash (1)	3/4" x 6¼" x 47"

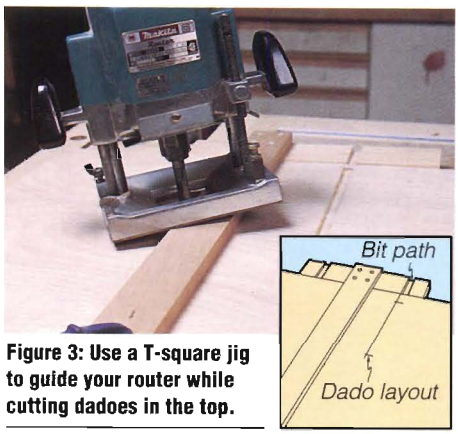


Figure 3: Use a T-square jig to guide your router while cutting dadoes in the top.

router, setting it to cut 1/4" deep. Now make a T-square jig for routing the dadoes in the top **(See Figure 3)**. Align the bit paths in the jig with the layout lines on the top and rout the dadoes, making sure to start the dadoes 1/2" from the top's back edge.

Layout the access hole for the secret compartment **as shown in the elevation drawing on page 17**, and drill through each corner of the layout with a 1/2" bit. Now cut the hole with a saber saw, then smooth the edges with a file and rout around the opening with a 1/2" roundover bit.

Finish up your work on the top panel by routing its side and front edges with a 3/4" roundover bit, but cut with the lower part of the bit only **(See Figure 4)**. Sand the edges thoroughly to remove any saw marks, then sand the whole top to 120 grit.

The panel for the cubbyholes has dried by now, so sand it smooth and cut it into the pieces listed in the material list. Use the **full size patterns** to lay out the shape on the front edge of the shelf and one of the dividers, and use a saber saw to make the cuts.

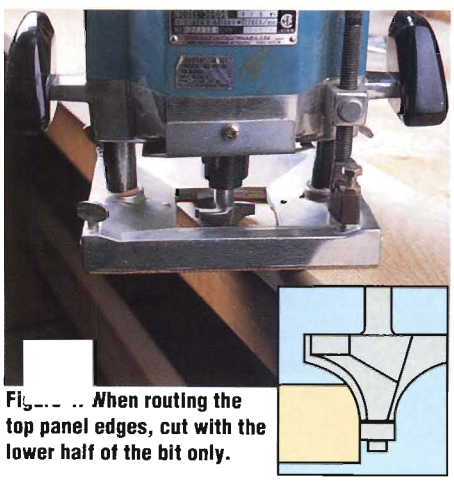


Figure 4: When routing the top panel edges, cut with the lower half of the bit only.

Once this is done, install a 1/2" dado blade in your table saw to cut the 1/4" deep dadoes and rabbets in both top pieces and in some of the sides and dividers **(see elevation drawing on page 17)**. As always, be sure to clamp a wood face to your fence to protect it during the rabbet cuts.

Now replace the 1/2" dado blade with a 1/4" blade, and raise it 1/8" to cut the bottom tongues on the cubbyhole sides and dividers. Keep the wood face clamped to the fence and slide the fence right up to the blade. Cut the cheeks first, then flip the pieces up on their front edge to cut a 1/8" deep shoulder on the front of each tongue.

Sand all the cubbyhole pieces to 120 grit then assemble them on the desk top. When the glue dries, cut the drawer runners (pieces 25) and glue them into place, then rout the top edges of both cubbyhole structures (except for the back edge) with a chamfering bit.

I've left cutting the backsplash (piece 16) until now because, for the best appearance, it has to fit your desk exactly. Cut the backsplash to fit behind the cubbyholes on your desk top, then cut out the **full size pattern** —be sure to cut out the interior opening on the pattern as well. Center the pattern on your backsplash and trace it onto the wood (be sure to trace the interior opening and the V-grooves on both sides of the stock). Now rout the V-grooves with a straight edge guide just as you did earlier on the aprons and stretchers. Next, place a back-up board underneath the backsplash and drill through the board with a 1/2" bit at each turn of the interior opening **(See Figure 5)**. Use a saber saw to cut the opening from hole to hole, then cut the decorative top edge. Once the edges are smooth, rout both sides of the opening with a chamfering bit.

Clamp the backsplash into position on the desk top and drill four counterbored pilot holes into each cubbyhole structure. In addition, drill four counterbored pilot holes up into the backsplash from underneath the desk top. Square the counterbores in the back-

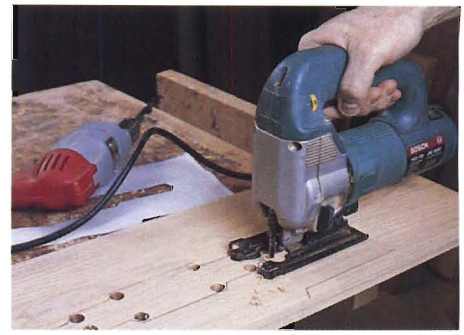


Figure 5: To form the opening on the backsplash, first drill relief holes at every inside corner, then use your saber saw to cut from hole to hole.

splash and drive a #8-1¼" screw into each hole. Finish up by gluing plugs into the backsplash holes.

The Drawers and Secret Compartment

Begin work on this stage by cutting the fronts (pieces 17 and 18), backs (pieces 18 and 19) and sides (pieces 20 and 21) of the drawers, but be sure to measure your drawer openings first to see if these sizes fit well in your desk. Cut the walls (pieces 22) for the secret compartment while you're at it.

There are many different joints you can use for the drawers in this project. I decided that sliding dovetails on the large drawer and double rabbets on the small cubbyhole drawer would serve well. For a discussion on drawer joints, turn to *Design Options* on page 6. You'll also find instructions for cutting basic rabbet and sliding dovetail joints in the *Techniques* article on page 7.

For routing the dovetail slots in the large drawer, use a 1/2" dovetail bit raised 5/16" **(see drawer elevation at right for the layout)**. When cutting the tails, always test your set up on scrap wood first. After you get a good sample fit, cut the tails on the drawer back and sides.

The rabbet joints for the small drawer and secret compartment pieces are cut using a 1/4" dado blade in your table saw. As with any cut where the fence is set right next to the blade, clamp on a wood face for protection.

Once the joints are formed, switch to a 1/2" dado blade and cut the drawer runner grooves in the small drawer sides **(see elevation drawing at right)**. Now cut out the **full size patterns** of both drawer fronts to trace the shapes onto your stock, then cut

MATERIAL LIST

		T x W x L
17	Large Drawer Front (1)	3/4" x 4" x 20"
18	Small Drawer Front and Back (2)	1/2" x 4⅛" x 5½"
19	Large Drawer Back (1)	1/2" x 2¾" x 18⅝"
20	Large Drawer Sides (2)	1/2" x 3¼" x 23"
21	Small Drawer Sides (2)	1/2" x 4⅛" x 10½"
22	Secret Compartment Walls (2)	1/2" x 2" x 5½"
23	Large Drawer Bottom (1)	1/4" x 18½" x 22¼"
24	Small Drawer Bottom (1)	1/4" x 5" x 10½"
25	Small Drawer Runners (2)	1/2" x 1/2" x 10¾"
26	Secret Compartment Bottom (1)	1/4" x 5¼" x 5½"
27	Drawer Slides (1 pair)	22" Accuride

Southwest Desk Hardware Kit

A hardware kit is available for this project that includes one pair of Accuride drawer slides, table top fasteners and a bag of #8-1¼" wood screws.

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the shapes with a saber saw. File and sand the edges smooth.

Cutting grooves for the bottom panels (pieces 23, 24 and 26) can be done with a 1/4" straight bit in your router table **(see elevation drawing at right)**. During this operation, be sure to avoid routing beyond the dovetail slots in the large drawer front, although you should rout the full length of all the other pieces (except for the large drawer back, which doesn't require a groove).

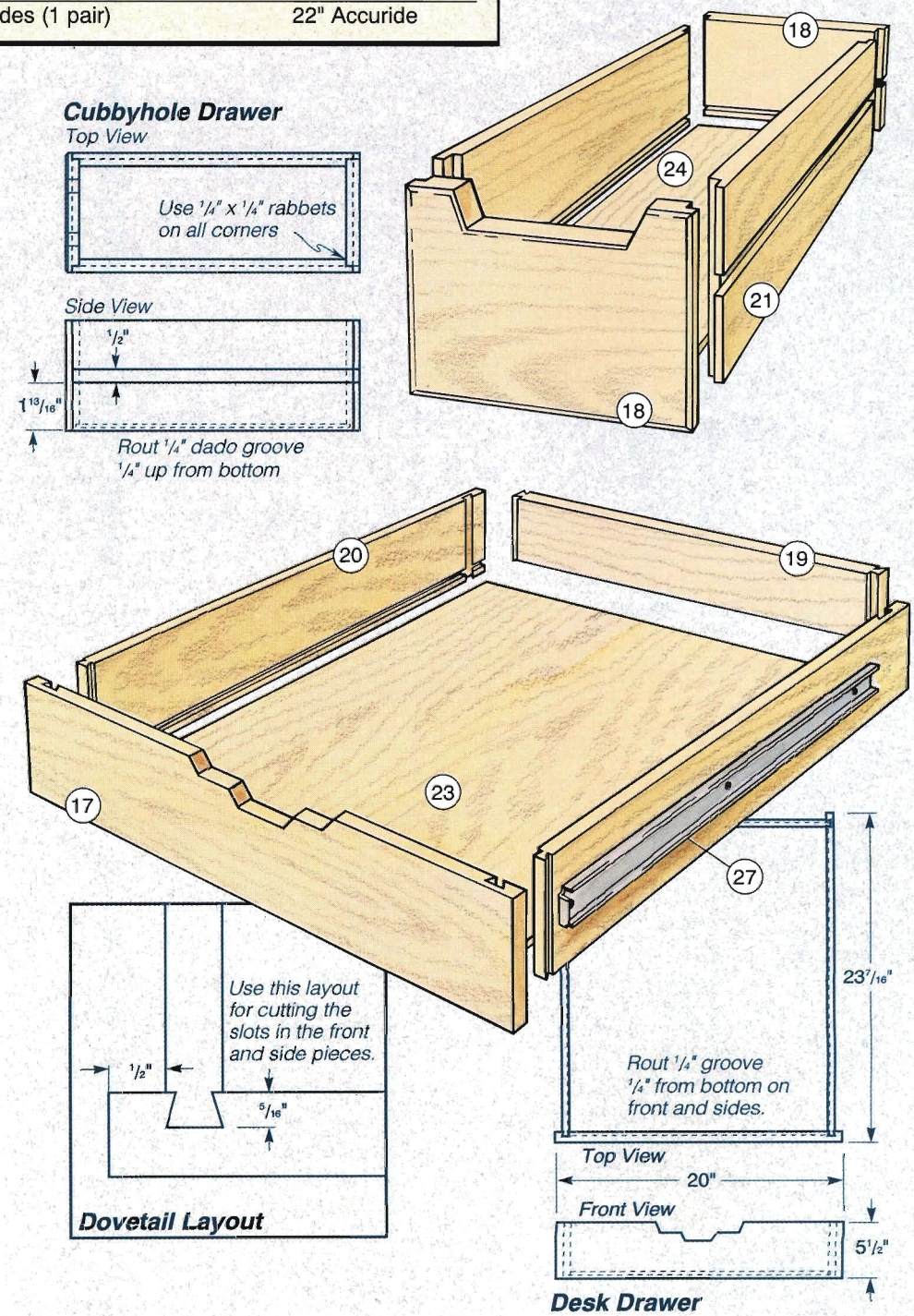
Cut the bottom panels for the drawers and check the fit of the parts. When everything fits correctly, glue the drawers together. On the large drawer, secure the bottom to the back wall with a screw, and on the small drawer, be sure to extend the drawer runner grooves through the back with a chisel after the glue dries.

The bottom of the secret compartment must fit snugly around the right rear leg of the desk. Cut the piece to size, then remove one corner **as shown in the elevation drawing on page 17**. Drill counterbored pilot holes in the walls for screwing the compartment to the desk top, then glue the unit together and screw it into place.

Install the drawer slides (pieces 27) in the desk and on the large drawer. Once you have the drawer operating properly, disassemble the hardware to give your desk a final sanding. Apply several coats of brush-on lacquer (see *Finishing Thoughts* on page 13), then put the desk together for the last time using the table top fasteners to attach the top to the base.

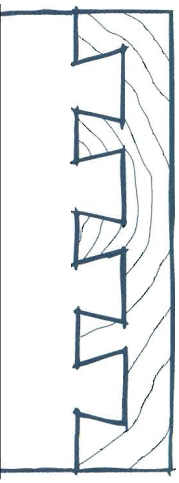
While scanning the travel section of my Sunday newspaper last week, I read that Santa Fe had overtaken San Francisco as the number one tourist stop in the U.S. I guess that means my new desk is pretty fashionable.

Rick White, a professional woodworker, serves on the editorial advisory board of Today's Woodworker.

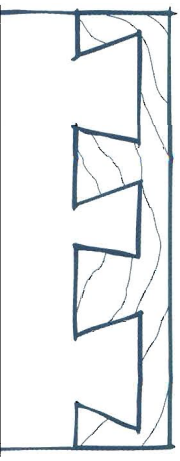


Make Your Own Dovetail Layout Square

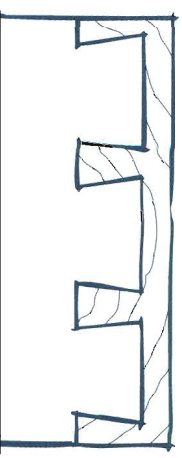
By Tom Caspar



When tails and pins are all the same size and regularly spaced, it's a pretty sure bet they were cut with a router and a template. Another revealing sign is seeing tails that extend halfway into the drawer front.



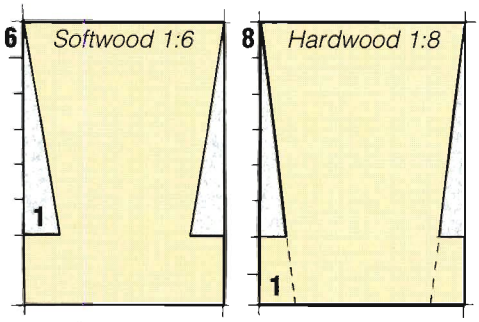
Country cabinetmakers cut their tails at irregular intervals and pitches. The steeply angled tails are always larger than the pins and, unlike routed tails, they reach a full two thirds of the way into the drawer front.



Classically trained cabinetmakers cut more refined and delicate dovetails, with the base of the pins being as thin as possible. The tails usually are steeply pitched and extend a bit over two thirds of the way into the drawer front.

Here's an accurate dovetail layout square that's made following an almost foolproof method. You might think that making it requires lots of fussy cutting and fitting, but the key is a pair of simple wedge shaped cutting guides used on every table saw cut.

Traditionally, the pitch of a dovetail angle was laid out using proportions of 6:1 or 8:1, although some cabinetmakers just cut their dovetails by eye. What a 6:1 pitch means is that for every six inches you move up, you move over



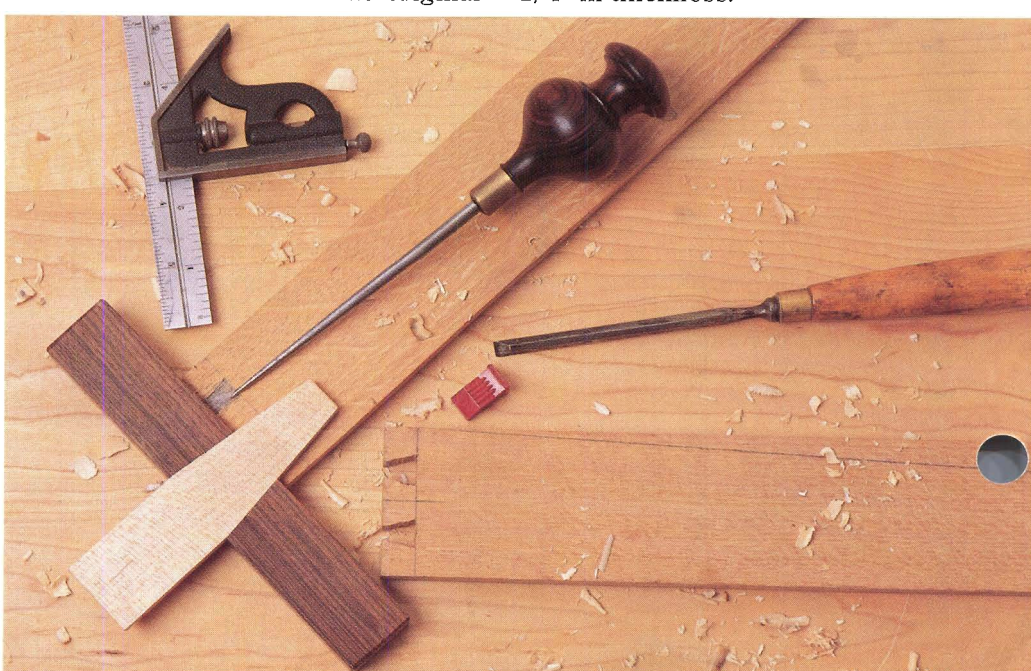
one inch. When fitting a dovetail joint, a wider angle like the 6:1 is more forgiving than a shallower one, however, the primary difference between pitches is aesthetic. I prefer the look of a 6:1 dovetail **(see drawing above)**.

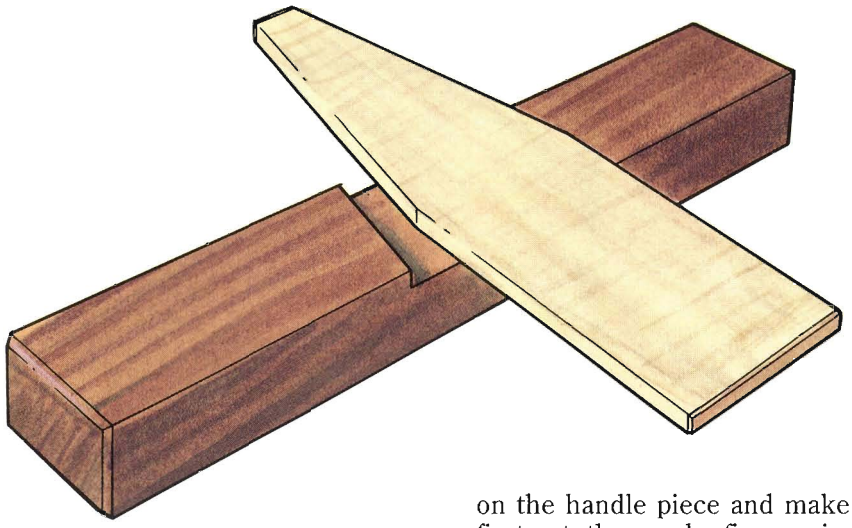
It's easy to draw a 6:1 pitch. Working from the corner of a board, mark a line six inches away along one edge. Next, align a square with the mark, measure in 1" and make a second mark. Connect the original corner with the second mark to draw the angle. You can use this method to draw any pitch you want.

Cutting Quartersawn Maple

Rosewood handles are traditional for layout tools, but any stable, dark hardwood will do. For the blade I prefer quartersawn maple because it's very stable, resists wear, and pencil lines are easy to see when drawn against it. Quartersawn maple also shows a unique figure.

Unfortunately, maple is almost never cut into quartersawn boards. But there's an easy way to make a quartersawn blade from a 2" thick plainsawn board. If you look at the end grain on a maple plank you'll notice that in some areas the grain runs almost parallel with the surface. By tilting your table saw blade, you can slice off a quartersawn strip. First cut your 2" thick board to a length of 12". Next, adjust an angle gauge so it's perpendicular with the end grain in a desirable spot, then use the gauge to help tilt your saw blade to the correct angle. Set the saw fence to cut the desired spot and make the first pass **(See Figure 1)**. Plane this new edge, then complete the operation by moving the fence over to cut off a 5/16" thick slice. Plane this piece to 1/4" in thickness.





Cutting Guides are the Key

Now it's time to make the 6:1 wedge shaped cutting guides. Use any well seasoned scrap of hardwood that's at least 3/4" thick. Cut the piece 16" long and 2½" wide, and follow the method described earlier to layout a 6:1 taper on one face of the board. Next, cut a scrap of 1/4" plywood to measure 3" by 20" and nail it to the cutting guide piece so it's edge is aligned with the pitch line **(See Figure 2)**. For added safety during the next cut, nail a 3/4" thick scrap piece under the overhanging plywood. Now set your fence to align the saw blade with the pitch line and rip the cutting guide piece into two identical wedges. Joint the sawn edges after removing the plywood, and trim the narrow end of each wedge so they're 1/4" wide.

For the next series of cuts, your miter gauge must be accurately set at 90° and slide in your table saw grooves without wiggling. If your gauge isn't reliable, either make a crosscutting jig or gang two miter gauges together like I do, using a 2" wide by 16" long piece of hardwood **(See Figure 3)**.

Cut several handles out of 3/4" thick stock to measure 1¼" wide by 7" long —the extras are for trial cuts. On one long edge, mark the center of each handle, then make another set of marks 11/16" to each side of the center line. These outside marks represent the wide end of the dado you're about to cut.

To cut the tapered dadoes in the handle set the table saw blade height at 1/4", then clamp one of the cutting guides against the miter gauge **(See Figure 4)**. Clamp the second cutting guide to the fence as a stop block. Align the proper mark on the handle piece and make your first cut, then make five or six more cuts to reach the center line. Reverse the cutting guides and cut the other side of the dado. For a good glue joint the dado should have a smooth, flat bottom, so use a file to remove the tracks left by the saw blade.

Now rip the quartersawn maple piece to width so it matches the wide end of the dado in your handle, then file its edges smooth, keeping them square and straight.

Cutting the Handle Dado

Like the handle dado, the tapered end of the blade is cut with the help of the cutting guides. First draw lines 7/16" in from each edge on one end of the blade. Next, screw a stop block to the wide end of one cutting guide so it sticks out past the right angle corner a little. Set the maple against the cutting guide and adjust the saw fence to align one mark on the end of the maple with the saw blade —do this on the back side of the saw blade **(See Figure 4)**. When you've got it right, make the first cut, then flip the maple over and make the second cut. The taper will fit the handle dado perfectly and should project about 1½" from the handle. If it doesn't, move the saw fence a hair closer to the blade and trim both edges of the taper.

Cut the blade to length so its square end sticks out 2", then file the sharp corners on the blade and handle. Sand the pieces and spread glue in the handle dado. Clamp the joint and be sure to check the alignment of the two pieces with a square. Once the glue dries, your handmade layout tool is ready to go to work.

Tom Caspar is a contributing editor with Today's Woodworker magazine and a professional woodworker.

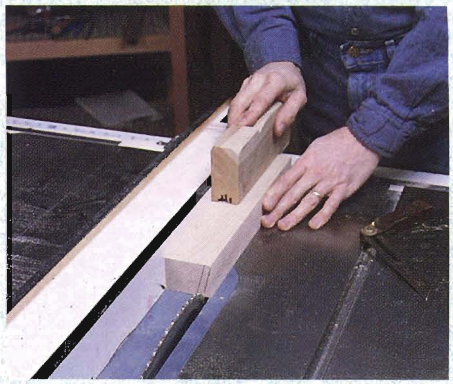


Figure 1: Tilt your saw blade so it's perpendicular to the end grain of a maple plank, then make two cuts to form the quartersawn layout tool blade.

Figure 2: To rip the cutting guides, nail a scrap of plywood to the board so its edge aligns with the pitch line, then cut the piece along this line.

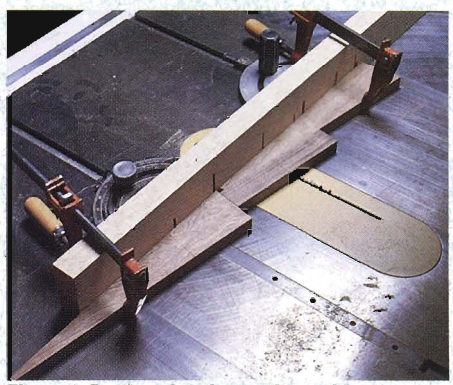


Figure 3: By clamping the cutting guides to your miter gauge fence as shown, you can cut perfect tapered dadoes in your layout tool handles.

Figure 4: Screw a stop to the square corner of one cutting guide and, keeping the saw off, use it to align the marks on the maple with the saw blade .

Hey Paisan! Spaghetti For Five Tonight?

Add some noodle know-how to your favorite Italian recipe!

By David Larson

The galloping gourmet I'm not. When I cook, I need all the help I can get. For instance, whenever I make spaghetti, I have no idea how many noodles to cook. I don't know about you, but I always end up with too much or too little.

The answer to my noodle dilemma was a measuring device. After doing a little research at the kitchen table, I found that a 7/8" diameter hole would hold just the right amount of spaghetti for one light eater. Splendisimo! I had cracked the mystery.

From there (after dusting off an old high school math formula for the area of a circle) I calculated that hole sizes of 1⅛" and 1½" yielded two and three times more noodles than the 7/8" hole. I was just about ready for a life without spaghetti leftovers.

My Little Italy

Once I had the hole sizes, I needed a theme for my project. Without too much thought an Italian theme popped into my head. After enlarging a small map of Italy to the right size, I laid out my three measuring holes, and added a tray for cradling a stirring spoon.

Beech is a good wood for kitchen utensils, and it's the species many manufacturers of kitchen wares use for their products (see *Today's Wood* at right). If beech isn't available in your area, maple is the best substitute. Cut two pieces of beech 8" x 15" for the outside faces of the lamination and plane the material to 5/16" thick. (There's nothing special about this thickness, so if you don't have a planer, just get stock that's close to this size.)

Now cut the map of Italy from the **full size pattern** insert between pages 12 and 13 and trim the spoon tray opening out of the overall shape. Trace the map and the opening onto one of the beech pieces and mark the hole centers with an awl. Drill a 1/2" access hole in the spoon tray area and use a saber saw to cut the opening. Vigorously round over the edges of the spoon tray opening with a file, then sand the edges smooth.

Figure 1: Forstner bits produce the smoothest holes, but to avoid tearing out the back of the lamination be sure to use a back-up board.

The author's simple measuring device solves one of the most perplexing culinary challenges known to mankind: how many noodles should I cook?

Figure 2: The noodle grouper is made of three laminations. The outside layers are 5/16" thick beech and the center layer is 1/8" thick walnut.

Now cut a piece of 1/8" thick walnut to 8" x 15" for the center lamination and lay the top piece onto the walnut to trace the spoon tray. Glue the three layers together, keeping the glue about 3/8" away from the spoon tray opening and the traced line on the walnut piece.

When the glue dries use a drill press and Forstner bits to bore the three measuring holes, and be sure to use a scrap piece underneath the project so you don't tear out the holes. Next, bandsaw the Italian peninsula to shape with a 1/8" blade. File and sand the edges of your project smooth and ease any sharp corners, then flip the lamination over to drill four 3/8" diameter by 1/4" deep holes for the feet. Cut the 1/2" long feet from a walnut dowel rod and glue them into the holes.

Applying several coats of a nontoxic salad bowl finish will keep the wood from absorbing any food juices and will stand up to repeated washing, although it's never a good idea to leave a wood utensil soaking in water. Once the finish dries, screw a swivel hanger to the back of Italy for mounting the project on the wall.

The next time you have guests over for a spaghetti dinner, pull out your Italian noodle grouper and put it to work. And if you like leftovers you better measure a little extra this time.

David Larson is an amateur woodworker who spends much of his spare time building a houseful of furniture.

Beech (Fagus grandifolia)

By Gordon Hanson

"Beechwood aged," boasts a national beer brewer about its flagship brand —a statement that leaves one wondering just what beechwood has to do with brewing beer. Well, the irony is that what beech offers for this purpose is really what it lacks —namely a strong taste or odor that might taint the flavor of foods and drinks.

On the whole, Beech keeps a low profile in the woodworking world. That's not to suggest it's unimportant —quite the contrary. Beech is a very popular species, but it's more of a behind-the-scenes player than a star. While other species like walnut, cherry and oak grab the limelight for their looks, beech —a relatively plain wood with a reddish hue —is often employed for structural parts where function is its only importance.

If you're looking for a workhorse that's durable and strong, beech is an excellent choice. You'll find that it's preferred for workbench tops, flooring, desk tops and counters since it resists wear, as well as nicks and dings.

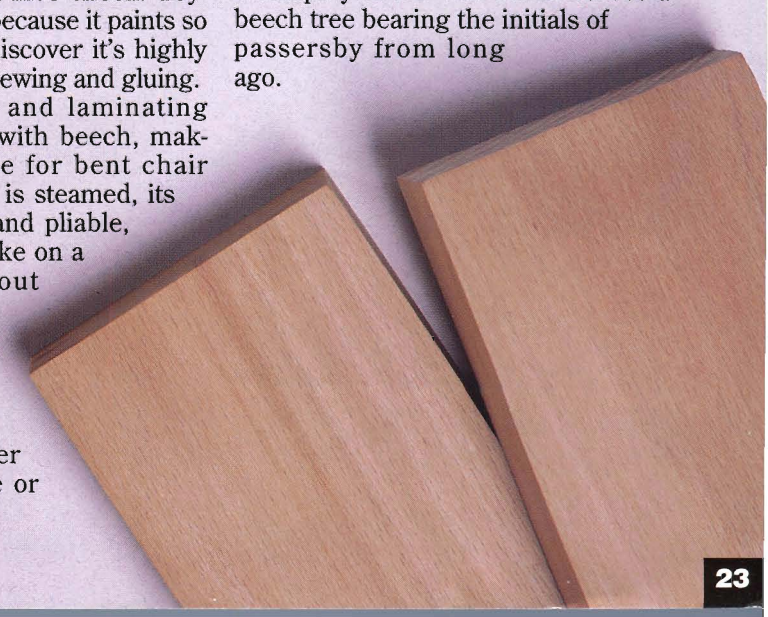
There's a telltale way of distinguishing beech from other woods. The evenly distributed, tiny reddish-brown flecks exposed on the lumber separate beech from all other woods. Beech is exceptionally even textured with small, consistently spaced pores, giving it superb machining qualities. Turners like beech because of its easy workability, using it for furniture construction and tool handles. The wood's smooth texture accepts finishes well and it polishes to a nice sheen. Toymakers like beech because it paints so nicely. You'll also discover it's highly rated for nailing, screwing and gluing.

Steam bending and laminating work wonderfully with beech, making it a top choice for bent chair parts. When beech is steamed, its cells become soft and pliable, allowing them to take on a new shape without harm to the fibers, and the cells keep their new shape after cooling and drying.

You'll hardly ever find lawn furniture or

fence posts made of beech because it has poor decay resistance. Beech is quite difficult to dry and prone to significant shrinkage and warpage during the process. Once dry, however, the wood is relatively stable if not subjected to extreme swings in humidity.

The beech is a unique looking tree with grayish bark that's remarkably smooth from twigs to trunk, giving romantics a good place to carve their names. Interestingly enough, carvings in beech trunks can be preserved for decades —sometimes even centuries. Rebecca Rupp, in her book of tree folklore titled *Red Oaks & Black Birches*, mentions the Presidents' tree of Takoma Park, Maryland. A Union soldier stationed to protect Washington, D.C., during the Civil War carved the names of all the presidents from George Washington to Andrew Johnson, plus the name of then Lt. General Ulysses S. Grant. Perhaps you too will come across a beech tree bearing the initials of passersby from long ago.



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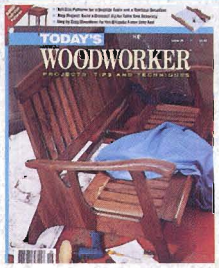

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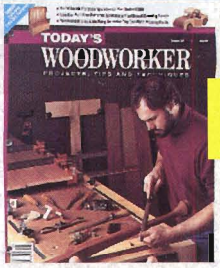

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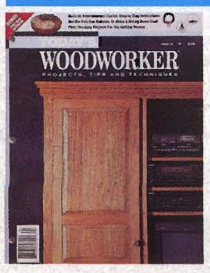

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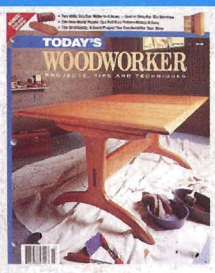
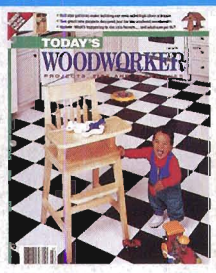
Item 79707 .....$3.95

23



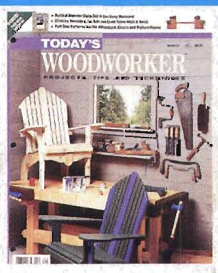
Contemporary dining room table, drill bit cabinet and three weekend gift projects.
Item 79699 .....$3.95

22



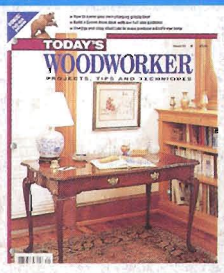
Classic tavern mirror, a high chair for the ages, display case and a weekend bird feeder.
Item 79681 .....$3.95

21



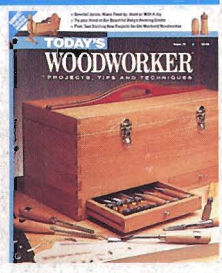
Adirondack Chair, easy to make deck set, scroll saw project and a sofa table.
Item 79673 .....$3.95

20



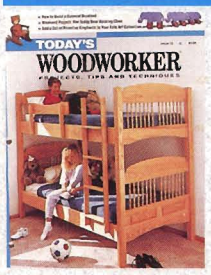
A Queen Anne desk with cabriole legs, carved grizzly bear and a table lamp.
Item 79665 .....$3.95

19



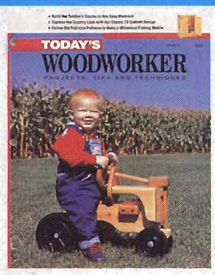
Craftsman's toolbox, a swinging cradle, turned salt and pepper shakers and a simple bookcase.
Item 79582 .....$3.95

18



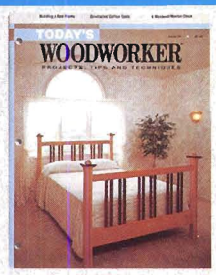
A sturdy bunk bed, crafting folk elephants, a Teddy Bear chair and a Shaker table.
Item 72199 .....$3.95

17



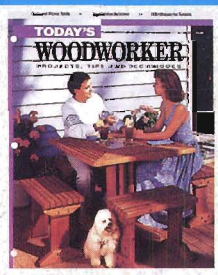
Country TV cabinet, an elegant bureau caddy, the angler's mobile and a toddler's tractor.
Item 72161 .....$3.95

16



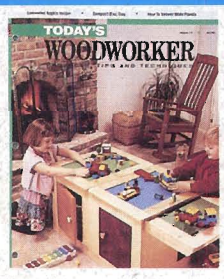
Crafting a maple bed frame, a contemporary mantel clock and a dovetailed coffee table.
Item 71639 .....$3.95

15



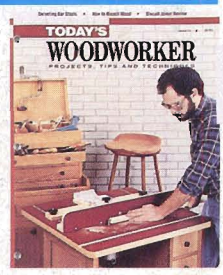
Picnic table for four, a birdhouse for turners, a simple dulcimer and a joiner's mallet.
Item 66878 .....$3.95

14



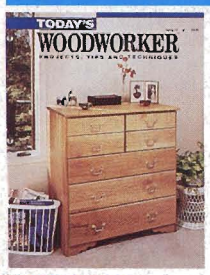
A craftsman style rocking chair, brightly colored toybox and a compact disc holder.
Item 66860 .....$3.95

13



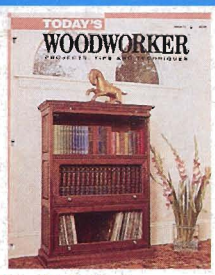
Precision router table, a swiveling bar stool and tips on buying a new biscuit joiner.
Item 68700 .....$3.95

12



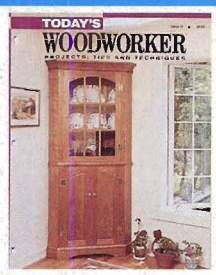
Butternut bureau, a Shaker swivel mirror and deep-reach hand screw clamps.
Item 38521 .....$3.95

11



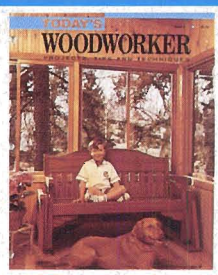
Barrister's bookcase, spinning string tops, a kid's step stool and an easy to make desk tray.
Item 38513 .....$3.95

10



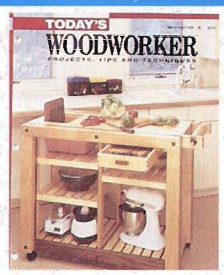
Classic corner cabinet, bent lamination fishing net and a white oak trivet scrollsaw project.
Item 38505 .....$3.95

9



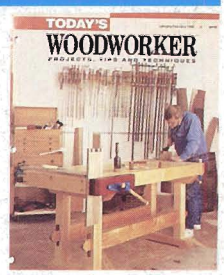
A porch glider for two, continuous grain box, Chippendale mirror and spoon carving tips.
Item 38497 .....$3.95

8



Kitchen work station, Shaker candlestand table, baker's rolling pin and a step stool.
Item 38489 .....$3.95

7

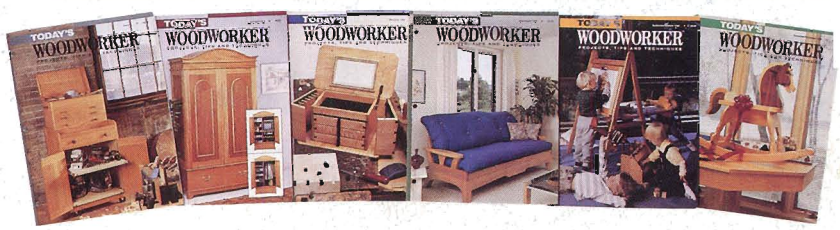


European workbench, turned stamp holders, bandsawn heart box and a breakfast tray.
38471 .....$3.95

Binders
60962.....*$7.95*
(2+ - $6.95 each)

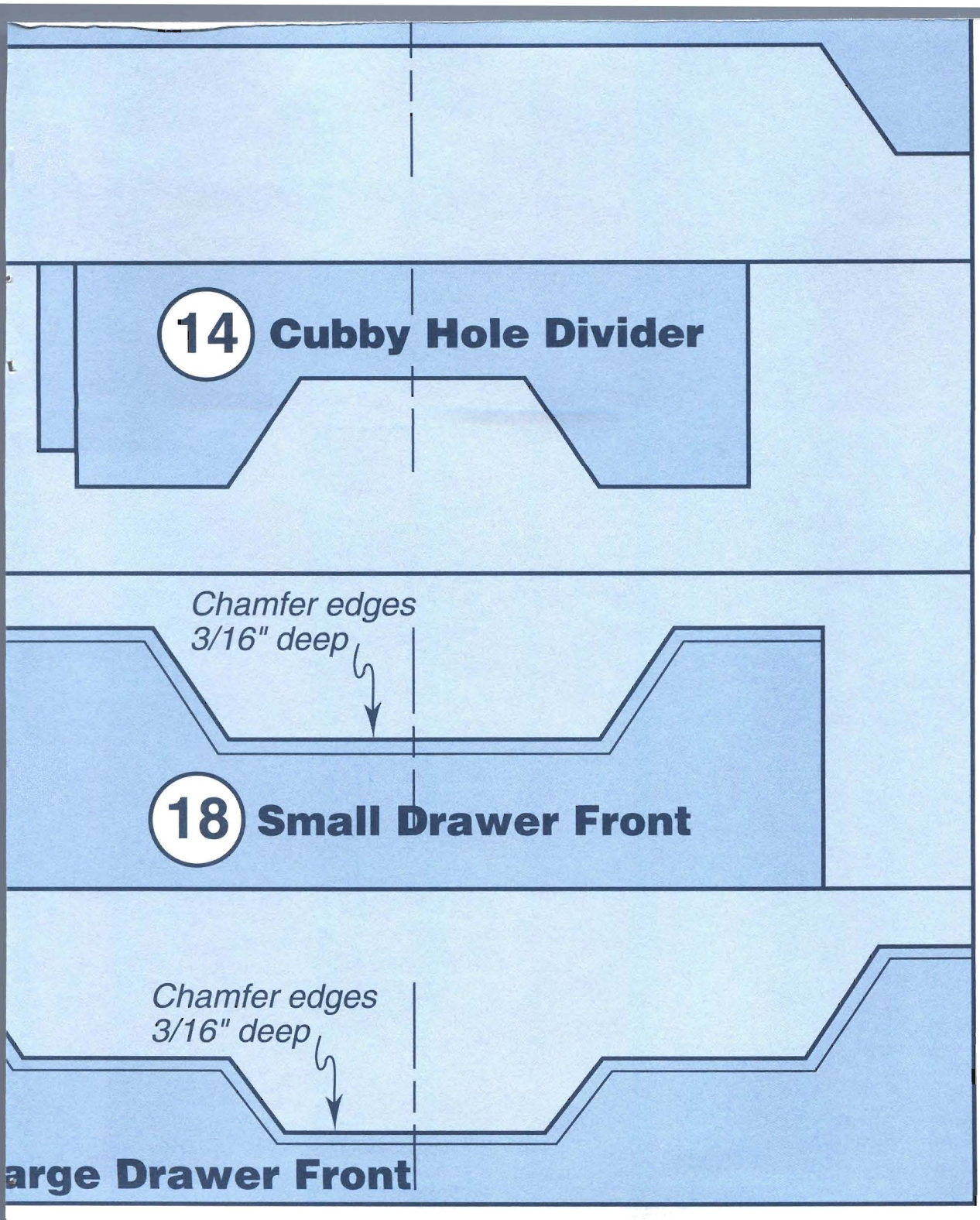
Stoneware Mugs
88329.....*$5.95*

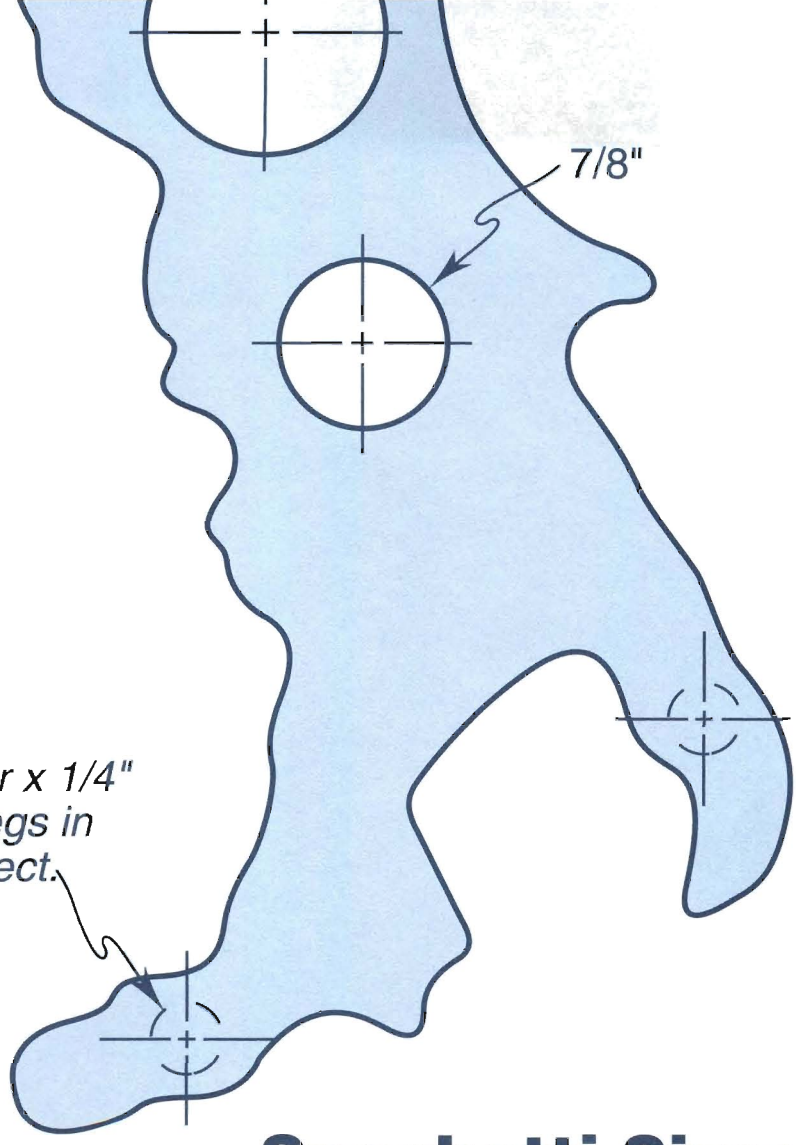
Issues 1-6 described on order form.



To order Back Issues, Binders, Hardware Kits or Craftplans, please use the order form on page 12.

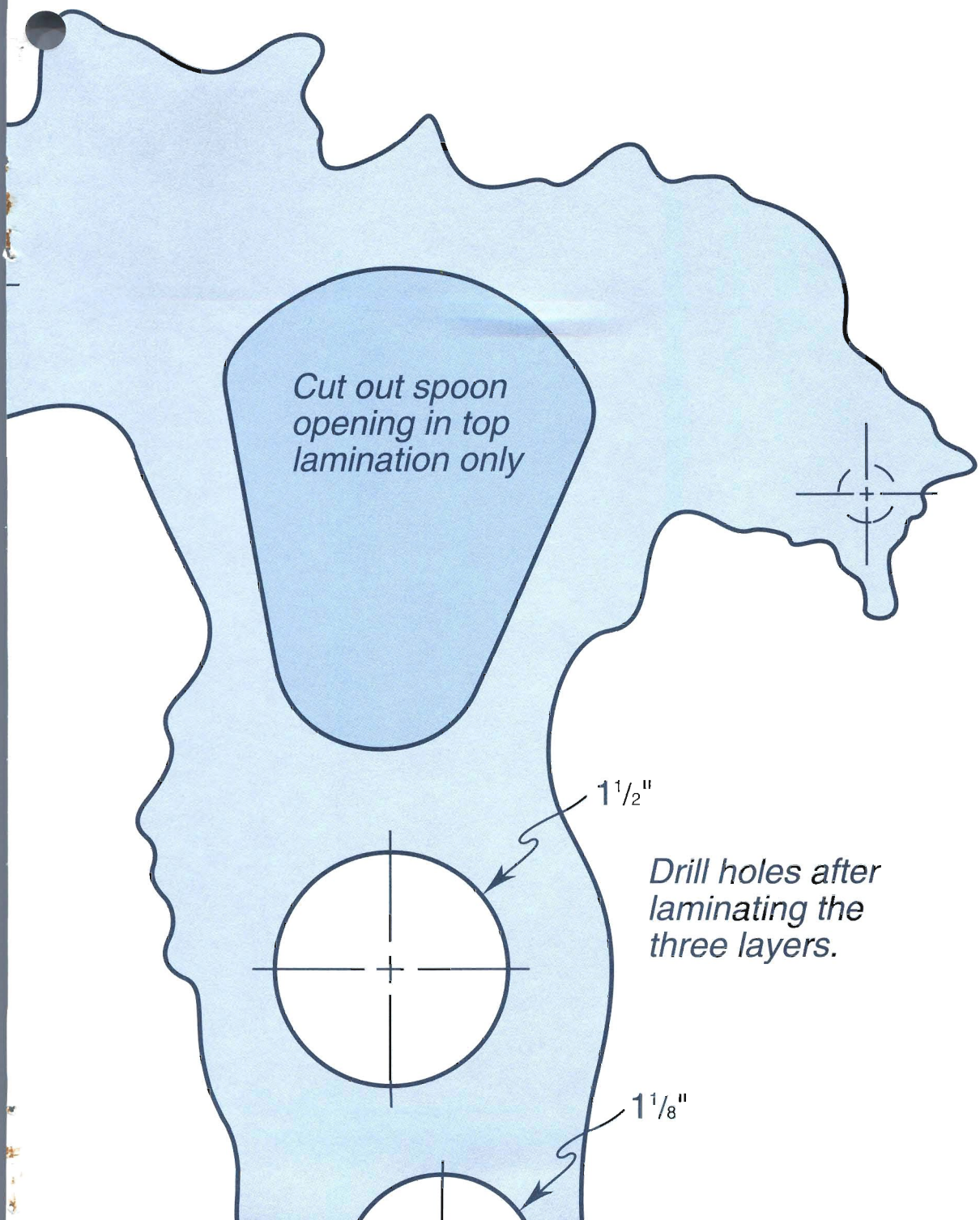
table saw.

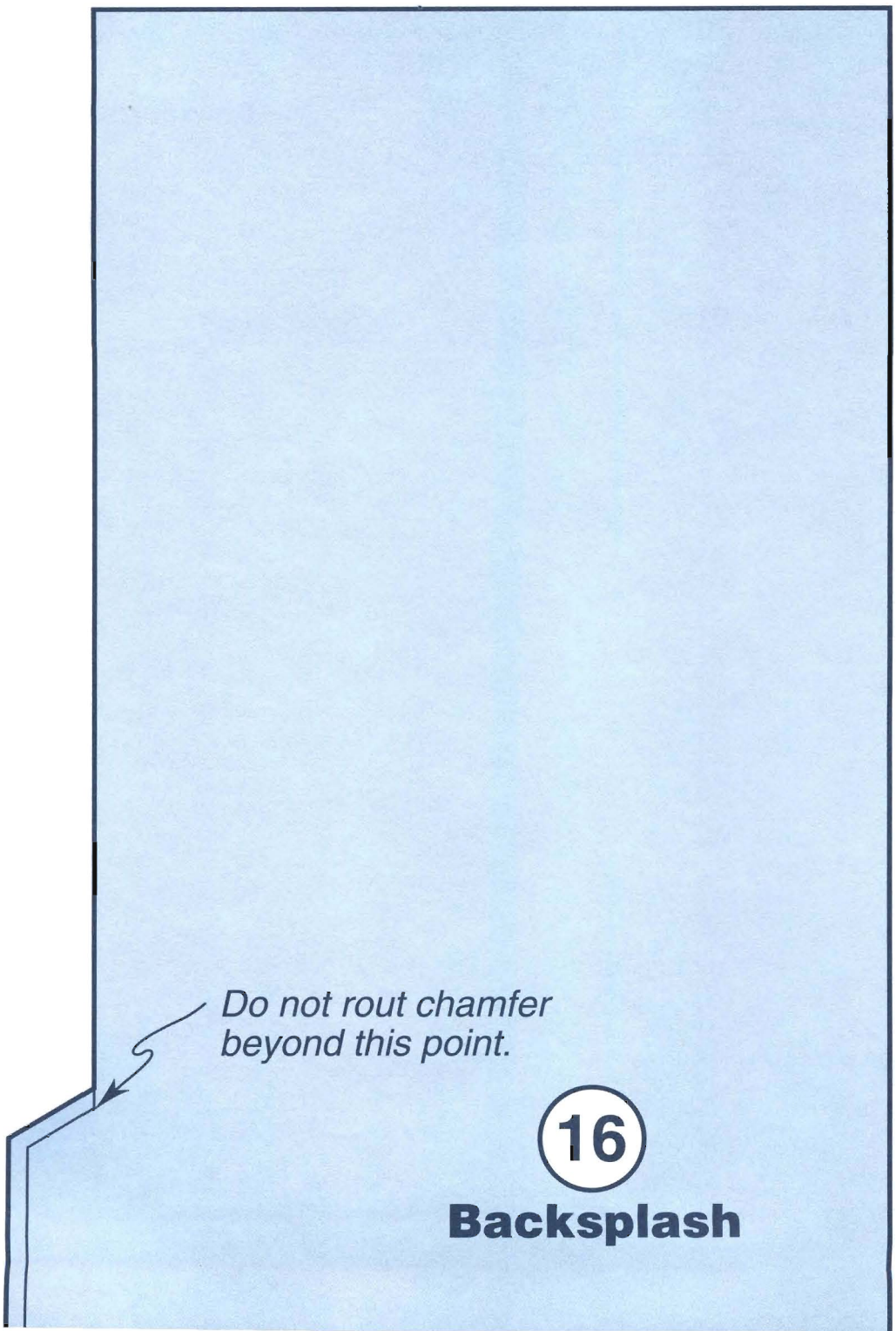

14 Cubby Hole Divider
Chamfer edges
3/16" deep
18 Small Drawer Front
Chamfer edges
3/16" deep
arge Drawer Front



Spaghetti Sizer

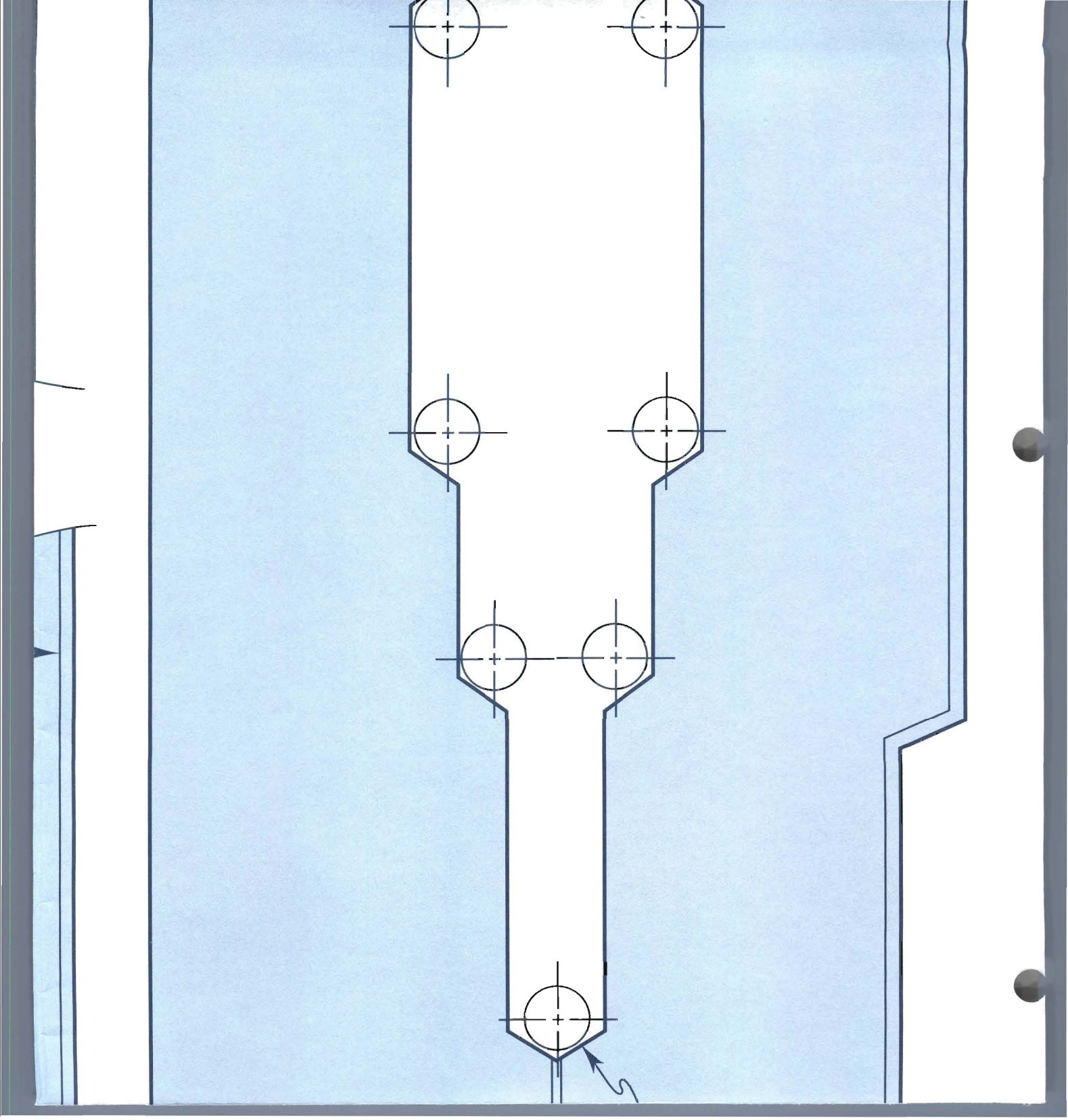
ubby Hole Shelf

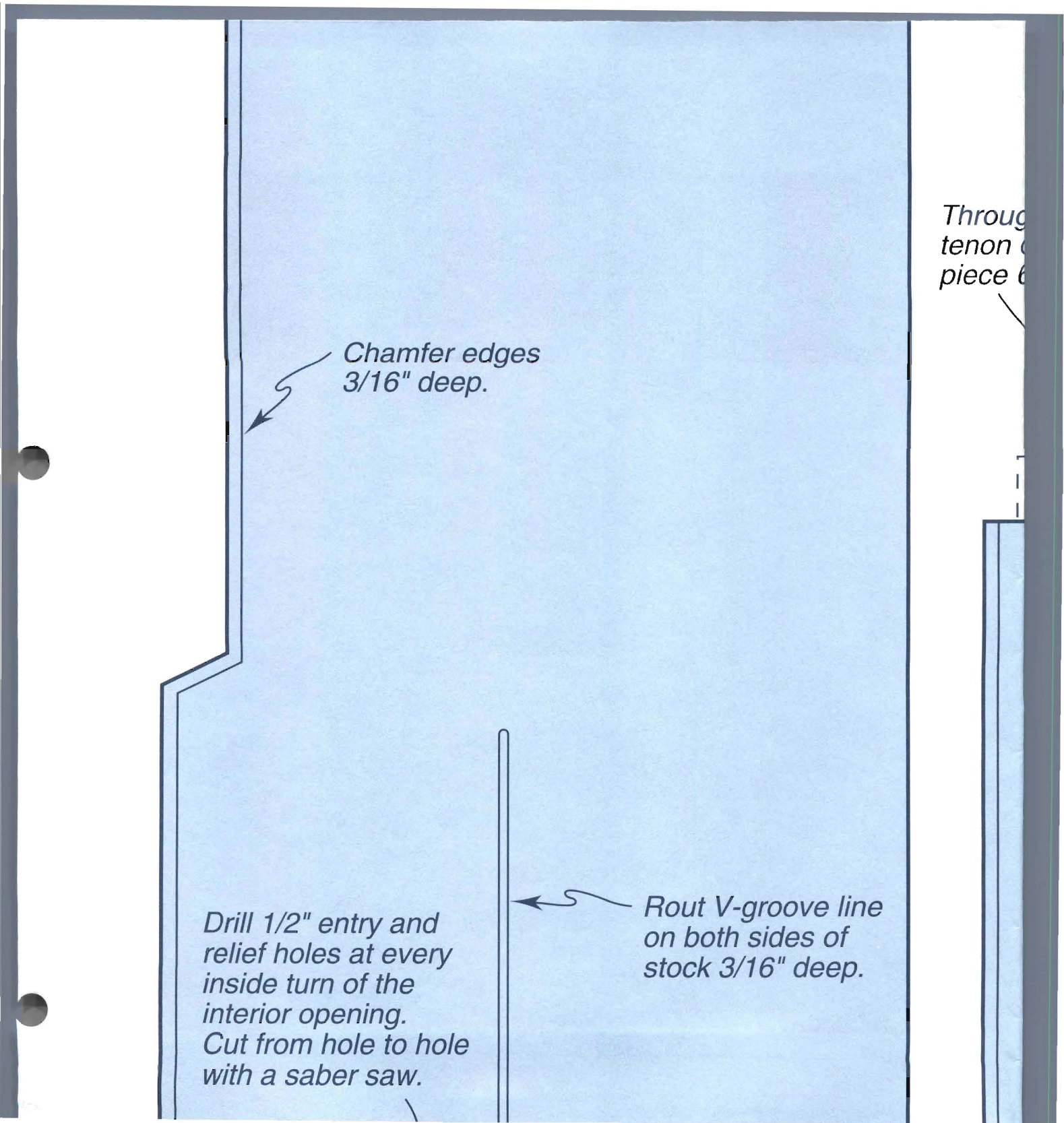

Cut out spoon opening in top lamination only
1 1/2"
Drill holes after laminating the three layers.
1 1/8"

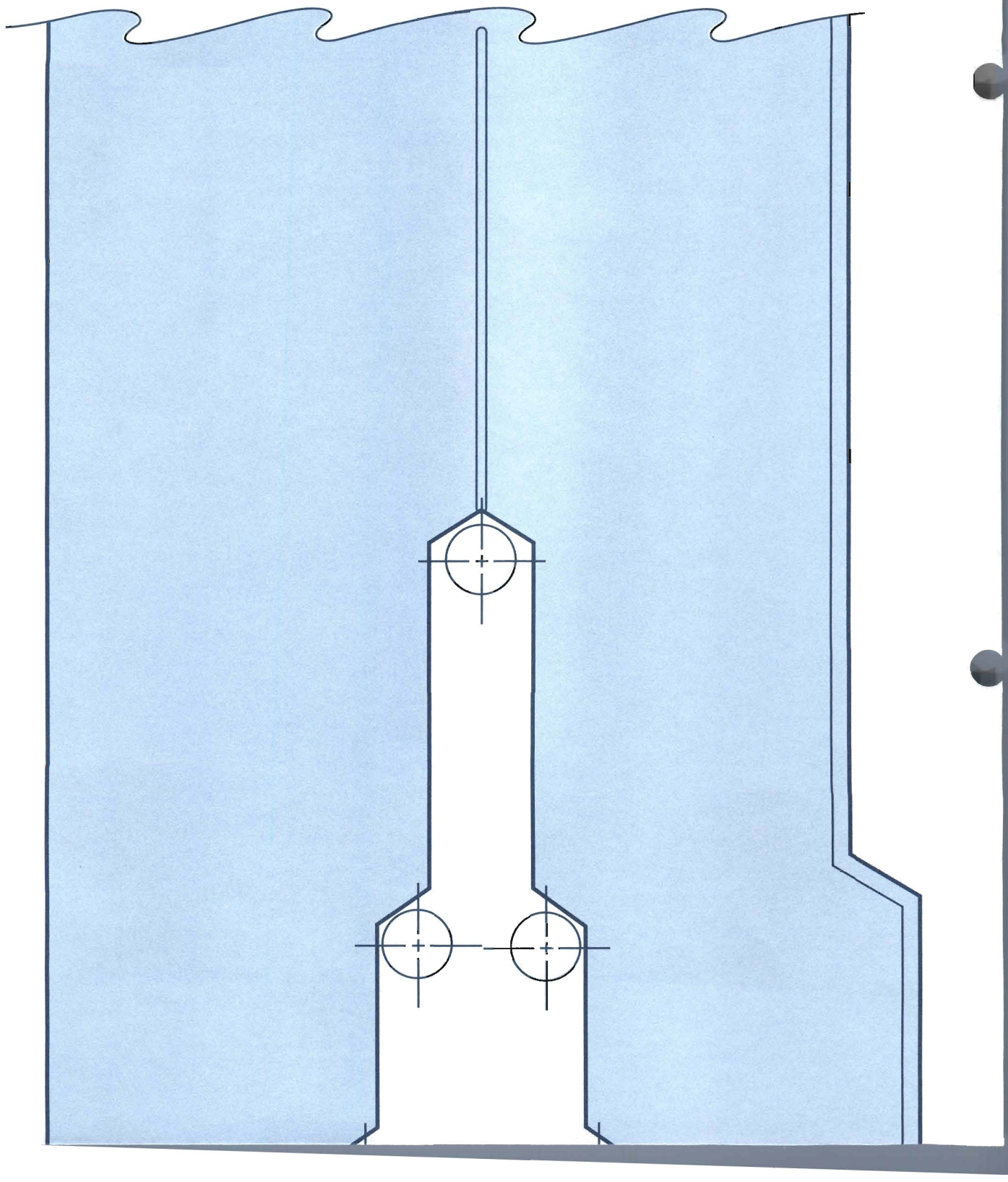


16

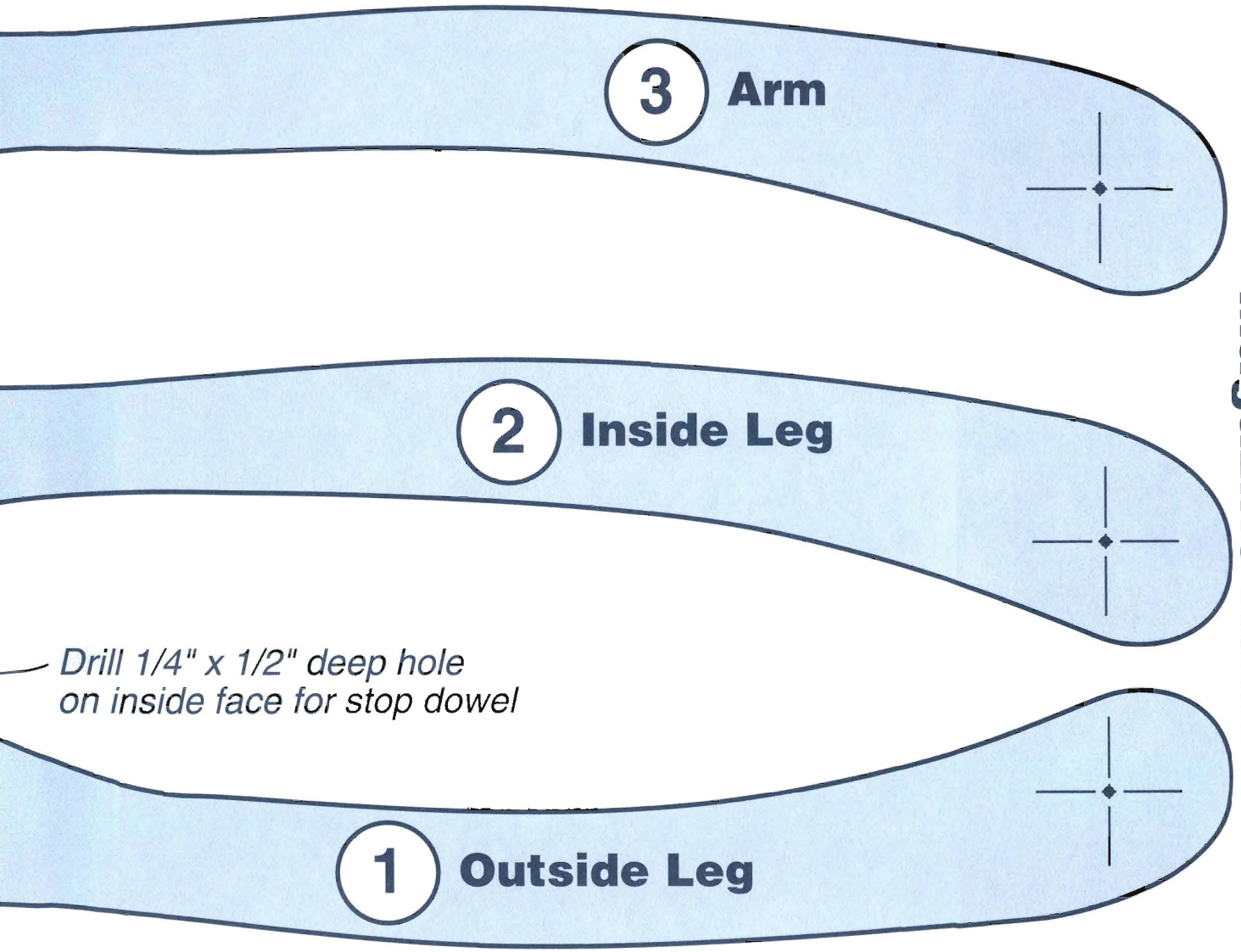
Backsplash



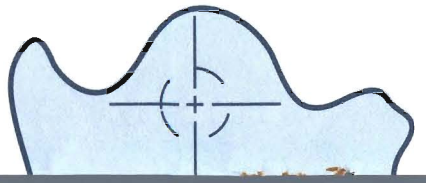

Throug
tenon
piece
Chamfer edges
3/16" deep.
Rout V-groove line
on both sides of
stock 3/16" deep.
Drill 1/2" entry and
relief holes at every
inside turn of the
interior opening.
Cut from hole to hole
with a saber saw.

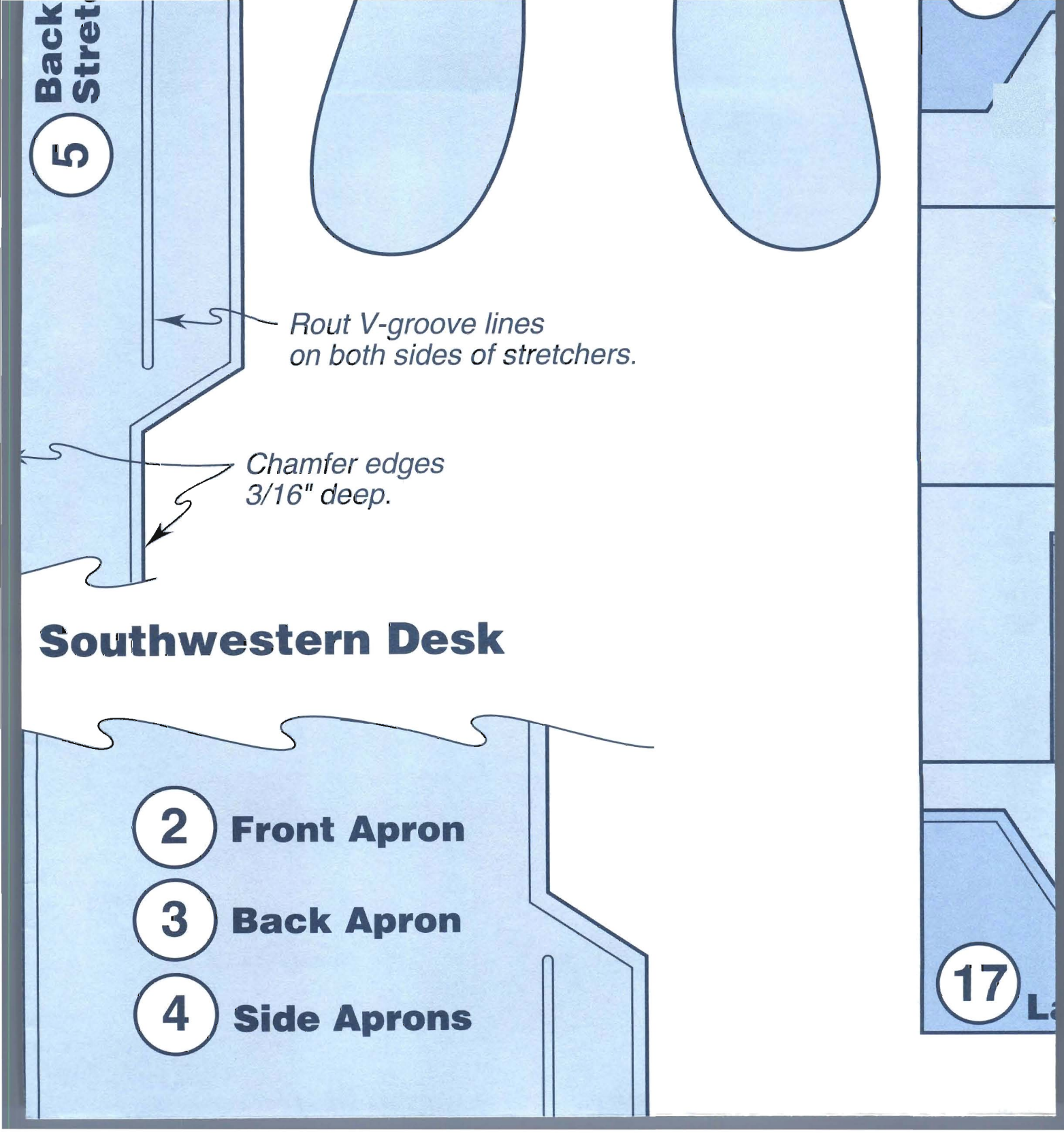


Magazine Rack



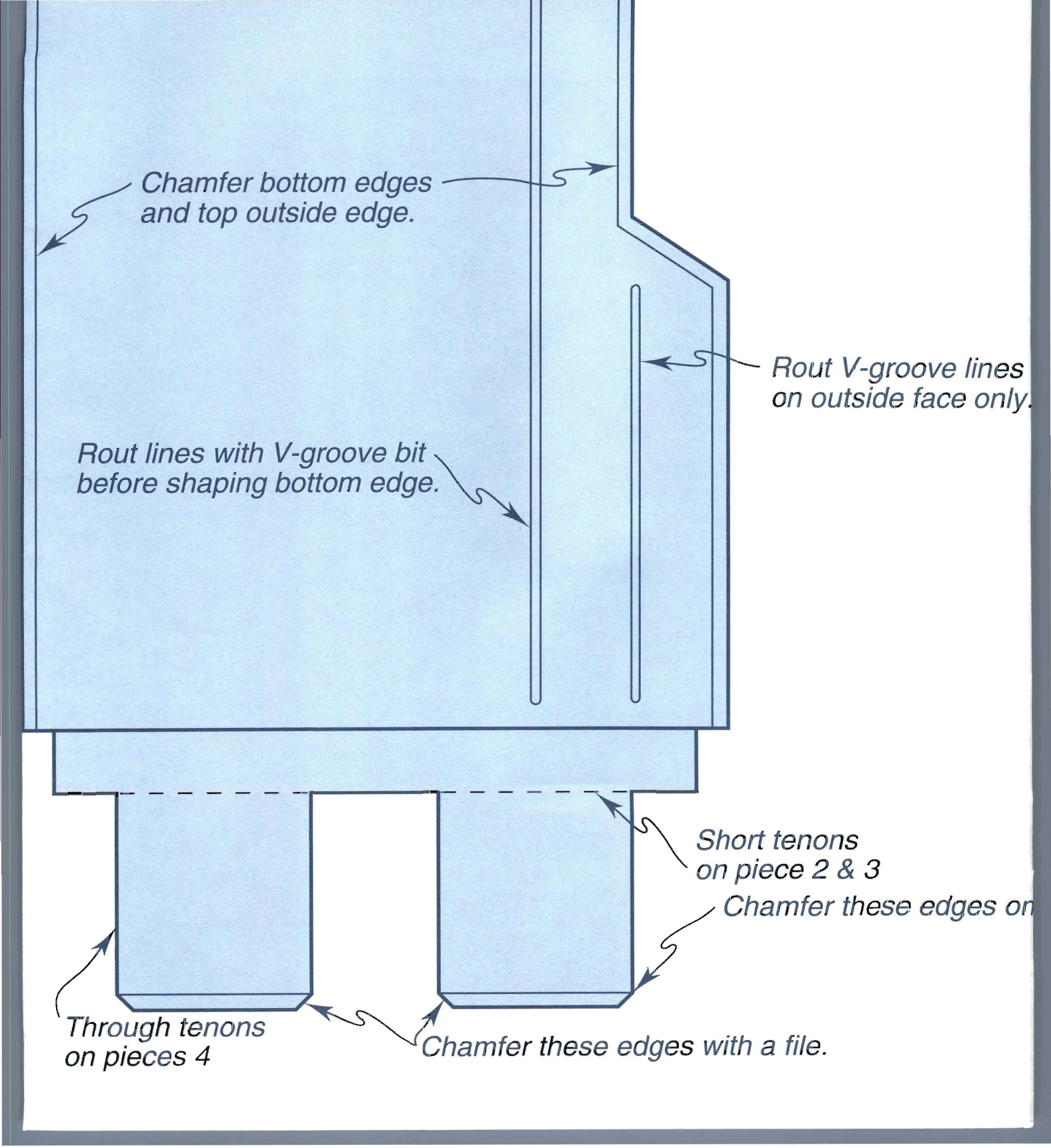
lywood then drill 1/16"
h dowel location. Use
mplates to 3/4" stock.
stock from the brads
drilling dowel holes.





Southwestern Desk

Short tenon
on piece 5
6 Side Stretchers
Lay patterns on 1/4"
holes at center of ea
small holes to tack t
The marks left on th
become locations fo
Dri
de
un
15 c


Chamfer bottom edges
and top outside edge.
Rout V-groove lines
on outside face only.
Rout lines with V-groove bit
before shaping bottom edge.
Short tenons
on piece 2 & 3
Chamfer these edges on
Through tenons
on pieces 4
Chamfer these edges with a file.