NUMBER TWO NOTES FROM THE SHOP TWO DOLLARS

Woodsmith

T.M.

TABLE SAW TECHNIQUES

HOW TO BUILD A FRAME & PANEL DOOR

SPECIAL: DETAILED PLANS FOR CONTEMPORARY CHAIRS AND HANGING LAMP

Talking Shop

ABOUT THIS ISSUE

You may have noticed a few changes with this issue of *Woodsmith*. First, *Woodsmith* is now 12 pages long. I was hoping to get to this length as soon as I could. I just didn't expect it to be this soon.

The extra four pages represent a 50% increase in size. And, considerably more work, but I think it's worth it.

The second major change is with the artwork. Dave Webster is now doing the drawing, so you won't have to put up with my attempts at artwork anymore.

(By the way, our cover girl is Dave's daughter, Kristi, 4 months old. As you can see, she's already an avid reader of *Woodsmith*.)

The third change is a little more subtle, and I'd like to get your reaction to it. There are two articles (Making Box Joints and Making A Raised-Panel Door) that are more technique oriented than project oriented. What I've tried to do with these two articles is present a woodworking technique and tie it in with a project.

Most books or articles I read usually show techniques and projects separately. So, with something like the box joint you learn how to make it, but then you're left hanging. I thought it might be nice to include a small project that incorporates the technique. What do you think about this approach?

NEW SUBSCRIBERS

There are quite a few new subscribers to *Woodsmith* thanks to Gene Schnaser, editor of THE FAMILY HANDYMAN. Gene ran the article on the trestle table (from the first issue of *Woodsmith*) in the February issue of THE FAMILY HANDYMAN. (He even gave us a very nice plug at the end of the article.) Thanks again, Gene.

To those of you who subscribed as a result of seeing that article . . . Welcome to *Woodsmith*! I hope you enjoy this and future issues. And, most of all, I hope you find them useful.

MAIL-ORDER CATALOGUE FIRMS

There are a lot of ways to build things. That shouldn't be of any surprise. There are also a lot of different materials and tools that can be used to build any given project. That shouldn't be any surprise either.

But there may be a surprise when you read in *Woodsmith* how I built something and what tools and materials I used.

For instance, I might say that I used a double-fluted flamboygin to build a project. You don't have one, so you head for your hardware store to buy one. The clerk says, "We don't carry double-fluted flamboygins. Besides, what you really need is a saw-toothed gelderbarb." So, what do you do?

Well, this kind of situation can create problems and headaches. So, to help save time and trouble, I'll do my best to use only readily available tools and materials. When they're a little out of the ordinary, I'll try to mention the brand name and the manufacturer, or I'll include the name of a mail-order catalogue firm where you can get that particular tool.

Which brings me to this point: I'm making up a list of mail-order catalogue firms. The names and addresses of six such firms are listed below. As time goes on I'll be adding to this list.

The firms on this list are reputable, efficient, and pay a lot of attention to the needs (and desires) of woodworkers. It's worth the dollar to write for their catalogue. (It's fun just to look through them and dream, if nothing else.) Here's the list (next column):

ALBERT CONSTANTINE
2050 Eastchester Road
Bronx, New York 10461
(catalogue 50¢)

CRAFTSMAN WOOD SERVICE CO.
2729 South Mary St.
Chicago, Illinois 60608
(catalogue 50¢)

GARRETT WADE COMPANY
302 Fifth Ave.
New York, New York 10001
(catalogue $1.00)

LEICHTUNG INC
701 Beta Drive No. 17
Cleveland, Ohio 44143
(catalogue $1.00)

WOODCRAFT SUPPLY CORP.
313 Montvale Avenue
Woburn, Mass. 01801
(catalogue $1.00)

THE WOODWORKER'S STORE
21801 Industrial Boulevard
Rogers, Minnesota 55374
(catalogue $1.00)

Many of these firms also have retail stores. If you live close by, you might wander over and browse through.

In addition to this list I'm starting some other lists of manufacturers of tools and supplies and firms that offer wood by mail. I'll include these lists in a future issue of *Woodsmith*.

SHOP TIP

While I was building the tissue box cover shown in this issue, I noticed a few of the box joints didn't fit together perfectly. They were close enough that I didn't want to chance re-cutting the joints. So, I went ahead and assembled the box.

While I was sanding it smooth, I saved the sawdust. When the glue was dry and I was ready to apply the finish, I mixed some of the sawdust with a dribble of the Watco Danish Oil I was using to finish the box. This made a kind of paste that I rubbed into the voids with my thumb.

Once the sawdust and oil mixture dried and hardened, I sanded it smooth. Presto, no more voids.

This technique works well, particularly next to end grain. Once the sawdust/oil mixture dries, it takes a sharp eye to see it. And, I think it's easier to work with than wood putty or filler.

NEXT MAILING: May 1, 1979

Number Two **March, 1979**

Editor
Donald B. Peschke
Art Director
David C. Webster
Subscription Manager
Linda Hill

WOODSMITH (ISSN 0164-4114) is published bimonthly (January, March, May, July, September, November) by Woodsmith Publishing Co., 2200 Grand Ave., Des Moines, Iowa 50312.
WOODSMITH is a registered trademark of the Woodsmith Publishing Co.

Subscriptions: One year (6 issues) $10, Two years (12 issues) $18. Single copy price, $2.50 (Canada and Foreign: add $2 per year.)
Change Of Address: Please be sure to include both your old and new address.
Postmaster: Send change of address notice, Form 3579, to Woodsmith Publishing Co., 2200 Grand Ave., Des Moines, Iowa 50312.

Shaker-Peg Rack

Shaker-peg racks, like the one shown below, can be mounted to the back of a door for hanging your coat or bathrobe . . . . or mounted to a wall in the hallway. Peg racks have a warm, inviting look and add a decorative feature to any wall. But the best part is that they are very easy to make. You can knock one out in about an hour — mounted and ready to use.

My bathrobe was the major instigator of this project. I have a tough time remembering to hang things up in my closet . . . particularly my bathrobe. (Bathrobes are meant to be draped over the end of the bed or hung on a doorknob.) But to keep peace in the household, I decided to make this Shaker-peg rack.

The Shakers stored chairs on racks like this. Peg racks lined the walls near the dining table and ladder-back chairs were hung on them.

Shaker-peg racks have since become a classic style: both functional and decorative. The backplate (or peg board) was usually plain, though sometimes had a chamfered edge.

You can remain true to tradition, or make the backplate any style you want. (A few examples are shown below, including alternatives for the edges.)

MAKING THE PEG RACK

Turn Shaker-style (or similar) pegs on a lathe, if you have one. Or, buy them from *Woodcraft Supply Co.* (page 2)

If you buy the pegs, you should know that the stem is 5/8" long and ½" in diameter (tapered). So, if you use 3/4" stock for the backplate, drill the holes with a ½" Forstner bit. The pegs should be spaced 6" to 8" apart.

MOUNT TO DOOR OR WALL

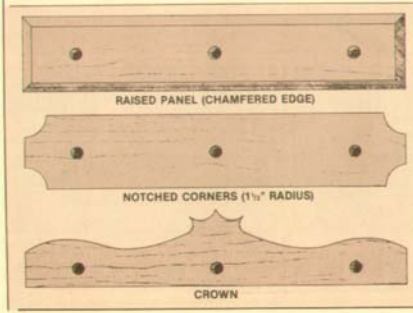
I used brass, round-head screws to mount this rack on the back of a wood door. If you want to mount it on a wall, you might consider this technique: Drill the ½" holes for the pegs first. Then drill a ¼" hole through the bottom of two or three of the ½" holes and into the wall. Secure the rack to the wall with anchor bolts. This way the heads of the bolts are hidden. (Trim about a ¼" off the stem of the peg to allow room for the head of the anchor bolt.)

OTHER POSSIBILITIES

You're going to mount this rack on the back of a door? You might consider making a door stop with an extra peg to prevent damage to the wall.

The peg can be mounted directly to the base board, or make a small block to hold it. Either way, the peg should meet the door about 2/3's of the way from the hinge.

There are other possibilities too. A friend stopped by while I was working on this peg rack and decided to make one like it to display his collection of coffee mugs. He painted the backplate white (to match the walls) and oiled the pegs for a natural wood look.



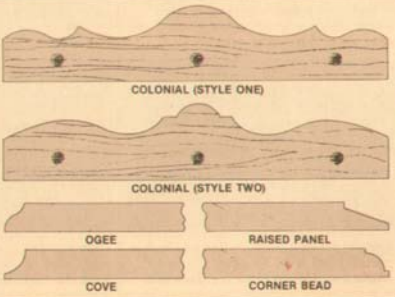


Table Saw Techniques

MAKING A BOX JOINT

Have you ever pulled out a drawer in an old cabinet and discovered it was assembled with box joints. It's customary to smile and give a nod of approval on such occasions.

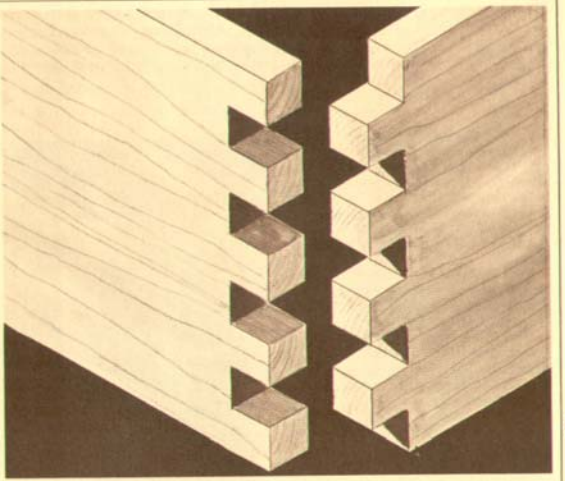
The box joint is a simple, honest joint, one I'd like to see used more often. And one I think ought to be brought out into the open. It's not all that difficult to make, if you have the right set-up.

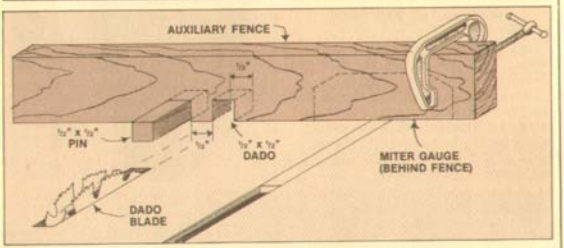
To make perfect box joints use the jig shown at right (along with a good measure of patience and care). The jig is just an auxiliary fence (a *straight* 1x2 will work) clamped to your miter gauge. Using a dado head, cut a notch (dado) the width and depth you want each pin and notch of the box joint to be. (I'll use a ½"x½" as an example.)

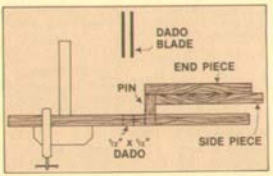
Now cut a pin (½"x½"x2") to fit in that notch. Measure ½" to the left of the pin and cut a second notch. Your measurement here is important . . . be sure it's exactly ½".

Follow the three steps illustrated below to make the cuts for the box joints. However there are a few things to keep in mind:

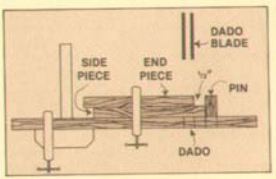
- The width of the cut can vary, but it's usually equal to or slightly less than the thickness of the wood. (½" cut for ½" wood.)
- Plan ahead. The width of the workpiece (which translates to the height of the box) should be an even multiple of the width of the cut. (A 4" high box would have four ½" cuts.)
- There's a tendency for the workpiece (jig and all) to ride up over the dado head. So, hold it down firmly.
- Be certain both workpieces are exactly perpendicular to the table (use a square).
- Make the pins (tongues) a smidgen longer than the width of the wood. Then sand them flush after assembly.



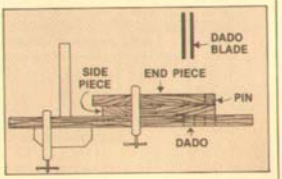




Use the pin as a guide to line up the two pieces. They must be offset the same amount as the width of the dado cut.



Clamp pieces to fence. Make sure the right edge of the forward piece lines up with the right edge of the dado head.



After making the first cut, shift the pieces to the right so the first dado fits over the pin. Proceed accordingly.

Tissue Box Cover

USING A BOX JOINT AND STOPPED DADO

Now that you know how to make a box joint (previous page), what can you do with it? I think this tissue box cover is a terrific project for showing off both the function and style of the box joint.

The dimensions given here are for a *Kleenex* (brand) 280-count tissue box. I mention this because tissue boxes vary in dimension.

All five pieces are cut from ½"x5½" maple. Cut off a 9-3/4" length for the top (C). Then rip the side and end pieces (A,B) to 4" widths and cut to length.

Use the jig (previous page) to cut the box joints. The end piece (B) should always be in front of and offset to the left of the side piece (A).

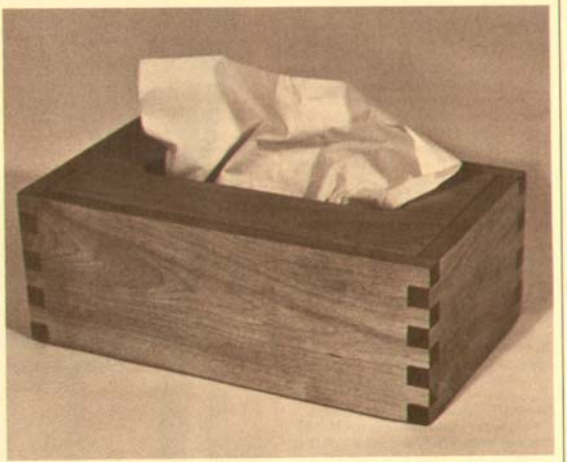
Two methods for cutting the stopped dado in the side pieces (A) are shown below. The drawings illustrate the cutting procedure with the workpiece on edge. For the tissue box the workpiece will be on a face side, but the procedure is the same.

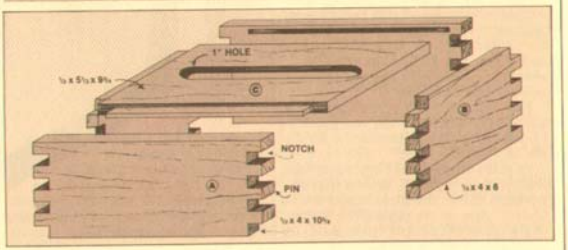
To be fairly certain the top is flush with the side and end pieces, follow this procedure: use a dado head set at ¼" wide and ¼" high. Move the fence so it's 1/8" from the dado head. Cut the stopped dado on the *inside face* of both side pieces (A).

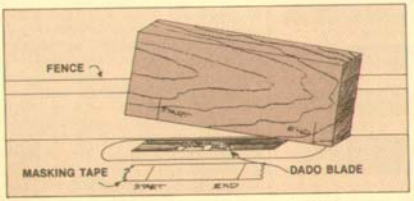
Now use the lip formed between the top edge and the dado to adjust the height of the dado head. Attach an auxiliary (wood) fence to the metal fence and move it so it just barely touches the blade. Cut the top edge first (top side down), then flip it over and cut the bottom side.

Trim an inch or so off the tongue with a chisel so it will fit in the groove. And cut 1" diameter holes in the top and saw out the section between them.

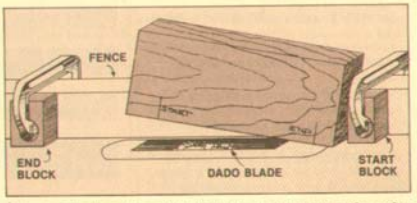
Assemble the box dry. If everything checks out, glue and clamp the box together. However, don't glue the top (C) in place, just let it *float* in the dado.







Use a strip of masking tape to mark where the blade comes up and again where it goes back down.



Clamp a block on the right where the dado starts, and another block on the left where the dado ends.

CONTEMPORARY CHAIRS

Don't let anybody tell you that building a chair is easy. It's not. But that shouldn't discourage you. Chairbuilding challenges your skill, your precision, and your patience. Then rewards you with a warm sense of accomplishment (and a place to sit down) when the work is done.

CUTTING THE WOOD

All of the pieces for these chairs are cut from 5/4 (pronounced five-quarter) oak. When 5/4 hardwood is dried and planed, it comes out to 1 1/16" thick.

The back legs can be cut from 3½" wide material. All other pieces for the armless chair can also be cut from 3½" wide stock (see Cutting Diagram). For the arm chair you'll need 5½" wide stock.

The back leg is the only tricky piece to cut. I drew a pattern on a piece of scrap 1 x 4 and cut it out to get a little practice before starting in on the oak.

The top part of the back leg angles back at 15 degrees. To get that angle, put a mark 25" up from the bottom. Then go up another 9" (to 34") and measure back 2½" and put a mark, then 3½" and put another mark. Connect the marks as shown in the Cutting Diagram. The width for the bottom part is 1½"; it tapers to 1" at the top.

Cut the front legs (A), the bottom rungs (D), and the curved seat supports (F) to the size shown on the Materials List. The angled side rail (C) and the arm (E) should be cut about 1" long and trimmed to fit during assembly.

Note that the width of the curved seat support (F) differs for the two styles of chairs. You need a little more width for the arm chair.

To make the curved cut in the front and back seat supports (F), draw a gentle freehand curve. The curve should arc so it's 3/4" deep at the center. The depth of the curve isn't critical, but it must (for good appearance) be symmetrical.

When you make the cut, set your band saw table or sabre saw base at 5 degrees (the same angle of the side rail).

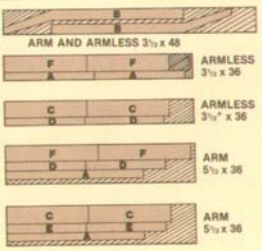
GETTING THINGS IN ORDER

Once all the pieces are cut, sand them fairly smooth. (It's a lot easier to sand them now, than after assembly.)

One of the biggest headaches involved with building these chairs is keeping everything in order. I devised a simple system to help during the drilling procedures. Here's the system:

Use some masking tape and write a note to yourself on *every* piece: "R" and "L" for right and left side of the chair; "in" for inside of the chair; "F" and "B" for front and back, or "T" and "B" for top and bottom. (I said it was simple.) Stick the masking tape with the note to each piece. When you start drilling the holes, you'll be thankful for these notes.

CUTTING DIAGRAM



A CHOICE OF DOWEL JOINTS

These chairs can be assembled in two ways. One way is to drill all the way through the legs and have the dowel joints visible (this is the easiest way). The second way is to make blind dowel joints.

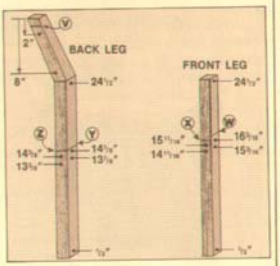
What's the difference? If you drill all the way through and use dowels and plugs, it will be obvious that you've used

doweled joints. Then when anyone sees the chair, and looks closely, he'll say, "Oh, you used doweled joints. That's impressive."

If, on the other hand, you use blind dowel joints, most people won't even notice it. If you tell them that the chair is put together with blind dowel joints, they'll probably just say, "Oh."

DRILLING THE HOLES

Lay out the pieces for the left side of the chair. Since the angled side rails (C) are still in the rough-cut stage, now is the time to cut them. Make a 5-degree cut at one end, then measure back 15" and cut the other end of 5 degrees (so both ends are parallel). When this piece is placed between the two legs, the distance between the legs should be 14 7/8".



If you're making the arm chair, cut the arm to the 14 7/8" length now, too.

The easiest way to drill the holes for the dowels is to drill through the front and back legs first. Make all the marks as shown above. (Here is where the notes on the masking tape will save a lot of hair-pulling.)

Once the holes are drilled in the front and back legs, line everything up on an assembly table. Clamp the pieces down in position. The angled rail (C) should meet the front leg 17" up from the bottom (line W on the drawing).

Since this rail angles down 5 degrees, it meets the back leg 16 11/16" up from the bottom (line Y).

Using the holes in the legs as guides, drill into the ends of the side pieces (C, D, E). A portable drill with a 3/8" twist bit will work just fine.

Before you drill the holes, plan ahead. If you're going to use 3/8" x 2" dowel pins to assemble the chair, and then fill the holes with dowel plugs, allow room for both dowel pin and plug. Wrap a piece of masking tape around the bit to act as a depth gauge.

After drilling through the front leg, insert the dowel pins (no glue yet) in the front holes. Then switch everything around, clamp the back leg in position, and drill away.

When you've got the left side done, drill the right side in the same way. Then position the front seat support (F) between both front legs. To prevent the dowels from running into each other, the curved seat supports (F) are shifted down ½". That is, the top of the front seat support meets the front leg 16½" up from the bottom (line X), and the back seat support meets the back leg 15 11/16" up from the bottom (line V). (Nobody said this was easy.)

BLIND JOINTS

Accuracy is the key to blind dowel joints. The whole process is very similar to that described above, except you don't drill all the way through the legs.

Drill holes in the legs to a depth of 5/8". Then insert dowel centers, push each of the side pieces (C, D, E) up against the leg firmly enough for the pointer to leave a mark. Use a doweling jig (don't free-hand it) and drill the holes in the ends of each piece.

ON WITH THE GLUING

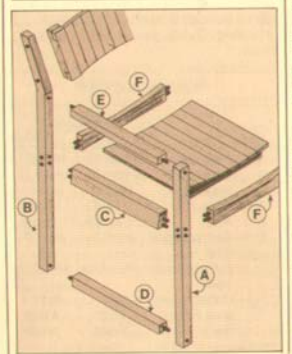
Now you're ready to glue together the pieces for each side. Put some glue in the holes (I used *Franklin Titebond* and a *Q-Tip*) and insert the dowel pins. Sometimes they need a little persuading to seat fully. A rubber mallet makes a good persuader.

Put a bar clamp wherever there's a crossmember, and draw everything together. As you're doing that, check the square of each side with a framing square.

Once both sides are assembled, glue the curved seat supports (F) between the two side assemblies.

It's starting to look like a chair! Make sure the rungs rest squarely on the assembly table. If they don't, you'll have a rocking chair — but these chairs are not supposed to rock. So, loosen the bar clamps and jiggle things around until both sides rest squarely on the assembly table. Then clamp the rungs down to the table with some C-clamps, and re-tighten the bar clamps.

ASSEMBLY DIAGRAM



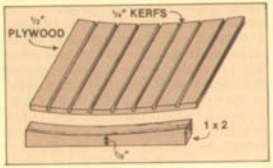
CONTEMPORARY CHAIRS

MAKING THE SEAT

Measure the inside dimensions of the chair. (The arm chair should measure 17½" by 17½"; the armless chair is 17½" by 15½", but measure to be sure.)

Subtract ¼" from the width measurement to allow room for the upholstery material, and cut a piece of ½" plywood to these dimensions.

In order to get the plywood to bend easily along the curve, cut a series of ¼" deep kerfs, as shown below.

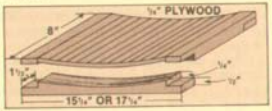


Cut two lengths of 1 x 2 — 17" for the arm chair, 15" for the armless. Now hold these 1 x 2s up against the curved seat support (F), and mark the same curve. Make the same 5-degree angled cut in each of the 1 x 2s.

MAKING THE BACK REST

The back rest consists of a curved frame made from some scrap 2 x 4, and ¼" plywood. Rip the 2 x 4 to 1" widths and cut off two pieces 8" long, and two pieces 15¼" (or 17¼" for the arm chair).

Cut lap joints in the ends of each piece as shown below, and make a curved cut (this is *not* angled) in the long pieces. The curve should be 5/8" deep at the center.



Glue and nail the frame together. Then measure the inside dimensions of the frame. Cut a piece of 1/4" plywood to fit inside the frame. Cut 1/8" deep kerfs in the plywood so it will bend to the curve.

UPHOLSTERING THE SEAT

Don't worry, you don't need a needle and thread to upholster these chairs. For each chair you do need some heavy-weight upholstery fabric, cotton upholstery batting (or 1" foam), a staple gun, and some upholstery tacks (the fancy brass ones).

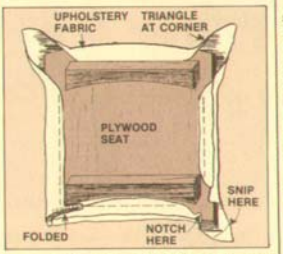
Since upholstery fabric comes in several widths, I can't give you the exact yardage necessary. But, what you need is enough for pieces of the dimensions shown in the Materials List. These dimensions are larger than you actually need — enough for trim.

Cotton upholstery batting comes 27" wide (available at *Sears*). You'll need 2 yards per chair. (You can use 1" foam instead.)

Start the upholstery work by placing three layers of cotton batting (or 1" of foam) on the plywood seat. Then center the upholstery fabric on top. Flip the whole thing over and pull the fabric tight at the center of each side. When it's tight, fire in a couple of staples.

While you're pulling and stapling, flip the seat over occasionally to make sure the fabric is lined up on the seat. Now move along one side, from the center to a corner, stapling as you go. Then do an adjacent side.

You should have a triangular-shaped piece of fabric sticking up at the



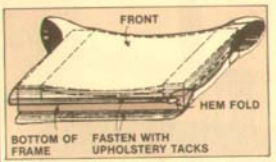
corner. Snip off about half its height and cut two notches right where it folds. Don't over-do this trimming operation, leave enough so the fabric won't pull apart. Fold the corner down and staple it in place. Keep doing that for all four corners. That's all there is to it (it says here).

UPHOLSTERING THE BACK REST

Upholstering the back rest goes just like the seat. Put two layers of cotton batting (or the foam) on the front of the frame, and wrap the fabric around so the ends meet at the bottom of the frame. Fold the fabric from the back side over an 8" side, and staple it in place. Now fold the fabric from the front side over the fabric you just stapled, and staple it in place.

Treat the triangles at the top corners just like you did on the seat: trim, notch, and staple. Now do the other side.

The bottom edge works like the sides, except you use upholstery tacks. Pull the back side around first and staple it in place. Then pull the front around, folding it like a hem, and tack it in place with upholstery tacks (the fancy brass kind).



FINISHING WORK

Before you fasten the seat and back rest in place, you'll want to apply the finish. I used several coats of *Watco Danish Oil*. You could also use tung oil or a polyurethane varnish.

Now fasten the seat to the curved seat supports with No. 8 - 1½" woodscrews. For the back rest, measure down from the top of the back leg 2 1/2" and 8". Drill 3/8" countersink holes. Then put the back rest in place — 1" down from the top (line V) — and drill a lead hole through both the leg and the upholstered frame. Drive in No. 8 - 2½" woodscrews and fill the hole with a 3/8" plug.

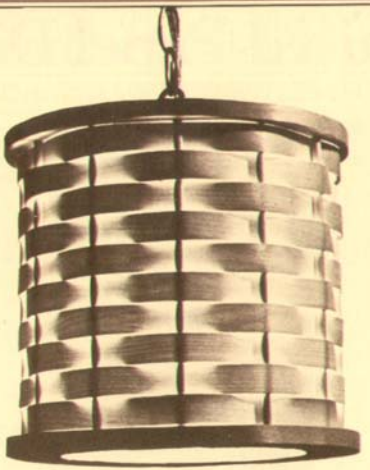
THE FINAL TEST

When the chair is together, and the glue is dry, sit on it. Now, lean back on the legs. See, it holds together. And feels pretty comfortable. Admire it for awhile, sit on it, rock it around, stand on it, whatever. Relax, you've built a good chair.

MATERIALS LIST

Code	Piece	Dimensions** Arm	Armless
A	Front leg	1⅛x25	1⅛x17
B	Back leg	1⅛*x34	(same)
C	Side rail	2¼x15⅛	(same)
D	Rung	1⅛x14⅛	(same)
E	Arm	1¼x14⅛	(none)
F	Seat supports	2¼x17½	2¼x15½
	Seat (¼" plywood)	17¼x17⅛	15¼x17⅛
	Back (¼" plywood)	8x14¼	8x12¼
	Seat (fabric)	23x23	21x23
	Back (fabric)	21x23	21x21

**All pieces 1⅛" thick *Tapers to 1" at top



Hanging Lamp

The key to this project is veneer strips (sometimes called veneer tape or plyedge). I bought them at a local lumber yard, but they're also available from mail-order catalogues *(Constantine's* and *The Woodworker's Store*, page 2).

The ones I used are 13/16" wide, but you should get the strips first and, if necessary, make any adjustments in the dimensions given here. (I used five strips.)

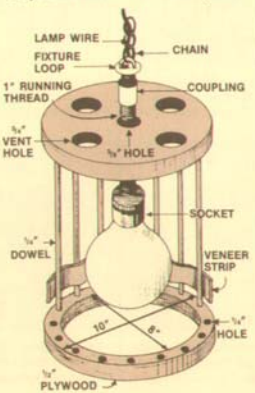
MAKING THE LAMP

The top and bottom pieces are 10" diameter circles cut from ½" plywood. Both pieces should be marked for drilling twelve ¼" holes, ½" in from the outside edge. These holes are drilled to a depth of 3/8". (Use a protractor to mark off twelve 30-degree sections around the outside edges of both pieces.)

Cut four 3/4" vent holes and a 3/8" hole in the center of the top piece. The bottom piece has an 8" diameter hole cut out of the center.

The veneer strips are cut to 32" lengths (three per 8' length). Then cut *one* ¼" dowel 10" long. Check to see if the veneer strips will fit by inserting the dowel in

One day I held some thin balsa wood up to a light. The wood took on a warm, golden glow. The idea struck me that I could make a lamp with thin veneer strips and achieve the same effect.



the top and bottom pieces and laying the ten veneer strips in place. If they fit, go ahead and cut the other dowels to the 10" length (adjust, if necessary) and glue them in place.

Weave the veneer strips around the dowels, overlapping the strips where they meet in the back. Use contact cement to glue veneer strips to the outside edges of the circular plywood pieces, and to the inside of the bottom piece.

WIRING THE LAMP

The diagram shows the electrical parts you'll need. The socket can be wired to a ceiling box and then to a switch, or wired as a hanging ("swag") lamp, or to a ceiling box with a socket equipped with a pull chain.

An excellent source to help with the wiring is the *Reader's Digest Complete Do-it-yourself Manual.* There's a section on wiring ceiling lamps and installing switches. It also shows how to tie an Underwriter's knot in the socket.

The light bulb I used is a 100 watt "globelite" by *duro-lite.* I was a little shocked with the price ($5.80), but it's warranted for one year or 4000 hours.

Raised-Panel Door

PANEL: TWO CUTTING METHODS

I'm not sure *why* I like raised panel doors so much, I'm just sure I like them. They seem to be asking you to admire the natural beauty and the nobility of the wood. much like you would admire a painting.

The simplest frames and panels attract me the most. There's nothing fancy to intrude on the beauty of the wood. It's for this reason that the construction of the panel is important.

Since the wood, especially the grain pattern, is on display, select the pieces for the panel with great care. Look for grain patterns and coloring that complement one another. The pieces that are joined together should look like they *belong* together.

The edge joining can be accomplished with a simple butt joint, or with dowels, or with a stopped dado and spline. (Be sure the dowels (or spline) stop before they intrude on the chamfered border.)

Depending on the size of the finished panel, the chamfered border should be 1" to 1½" wide, and cut at about a 15° angle.

The sawblade method produces a tapered border that should slide at least ¼" into the frame.

The second method (using a molding head) will produce an angled, then flat, border. The flat portion can be cut so it slides all the way into the frame's dado, or so about ¼" is visible.

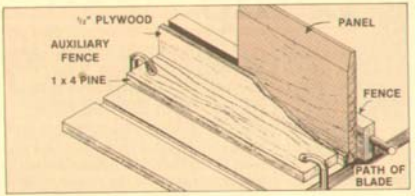
If you want a wider border than a 1" knife on the molding head allows, make multiple cuts. You might also try different knives for decorative effects.

Whichever method you use (saw blade or molding head) cut the *end grain* first. Then the final cut (with the grain) will clean up the panel.

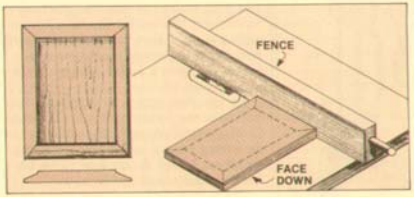
A final note: The panel should *float* in the frame. (Don't glue it in place.) The frame's dado should be deep enough to allow for expansion and contraction of the panel due to atmospheric changes. (An 1/8" should be enough.)

There are dozens of ways to make a raised-panel door. Raising the panel is discussed on this page. A method I stumbled on by accident for making the frame is shown on the next page.

SAW BLADE METHOD

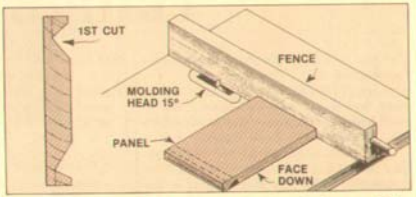


Use a straight 1x4 and ¼" plywood to make an auxiliary fence. Angle blade at 15°, move metal fence ¼" from blade, insert panel, and clamp auxiliary fence in place. Cut end grain first.

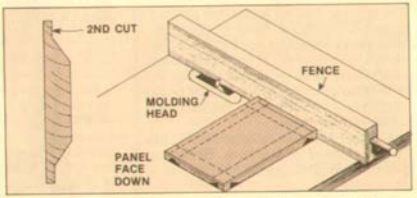


With panel face down, position fence so saw blade will make a verticle cut on the chamfered border. For best results, clamp a hold-down block directly over the saw blade.

MOLDING HEAD METHOD



Use a straight knife on the molding head, angled at 15°. Make first cut so deepest point is a minimum of ¼" from edge. Position hold-down block over knife, and cut end grain first.



After making angled cut, attach an auxiliary (wood) fence to metal fence and move fence so it just barely touches the knife. Clamp hold-down block over knife.

Raised-Panel Door

FRAME: MITERED HALF-LAP WITH DADO

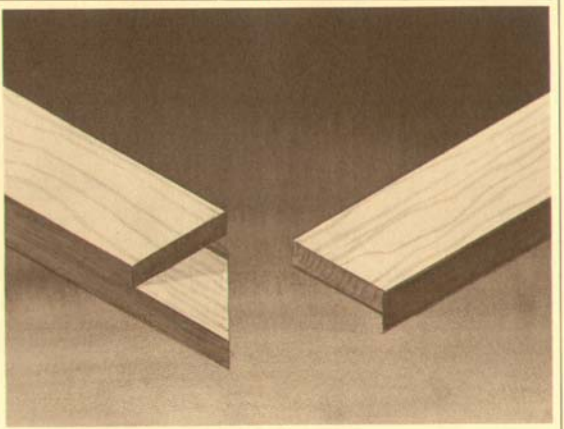
It happened one day. I was looking at a drawing of a mitered half-lap. "That's really an intriguing joint," I thought, "there's got to be some interesting way to use it."

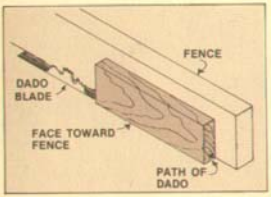
At the same time I was building a small cabinet with a raised-panel door. The mitered half-lap and the frame for the door: it was love at first sight!

There are two things I really like about using the mitered half-lap. Most frames for panel doors are assembled by using a mortise and tenon, or doweled joints. Both can be a real hassle if you don't have the right equipment. The mitered half-lap can be made easily on a table saw.

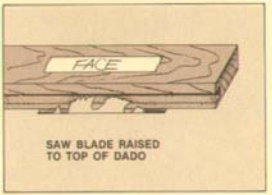
Another problem: The panel is usually set into a stopped dado in the frame. By using the mitered half-lap, you don't have to stop the dado or trim the panel to fit. Just cut a dado and it's automatically hidden by the joint. Clean and simple.

Follow the six steps illustrated below for cutting the mitered half-lap. When finished the mitered half-lap looks like a butt joint on one side and a mitered joint on the other side.

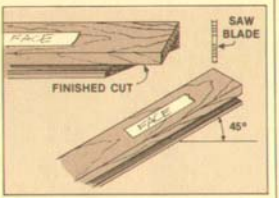




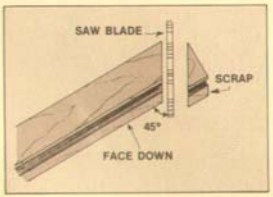
Use a dado head to cut a ¼" dado in both the stile (verticle) and rail (horizontal). Set the blade 1/8" from the fence.



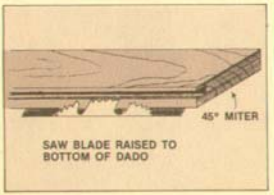
Mark both rail and stile with the word "face". Use top edge of dado on stile to mark the height of saw blade.



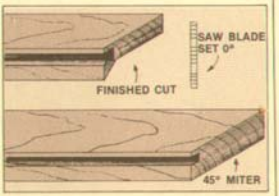
Set the miter gauge at 45° and cut the bottom part of the stile. Make repeat cuts, sliding stile to left.



Cut off both ends of the rail at 45°. This cut is made with the face side of the rail down.



With face side down, raise sawblade to the bottom of the dado cut. (It's best to lower it slightly and sand to fit.)



With miter gauge at 0° cut off the bottom part of the rail. Make repeat cuts all the way to the tip of the point.

Scrap Wood Project

PENCIL AND CARD HOLDER

My friends get a big chuckle whenever they see this pencil and card holder on my workbench. The chuckle comes when they ask why the pencils on one side stick straight up and the pencils on the other side are at an angle.

"It's simple," I explain, "the angled pencils are sharp and ready to use. The pencils straight up are dull and need to be sharpened."

Now I have to admit that this explanation is usually met with a strange look that seems to be hiding the comment, "Is this guy playing with a full deck?"

Then I say, "You know how irritating it is to pick up a dull pencil when you need one with a good sharp point? This way I know which pencils are sharp and which are dull."

"Oh yea," is the usual response; while they are thinking, "maybe this guy isn't so crazy after all."

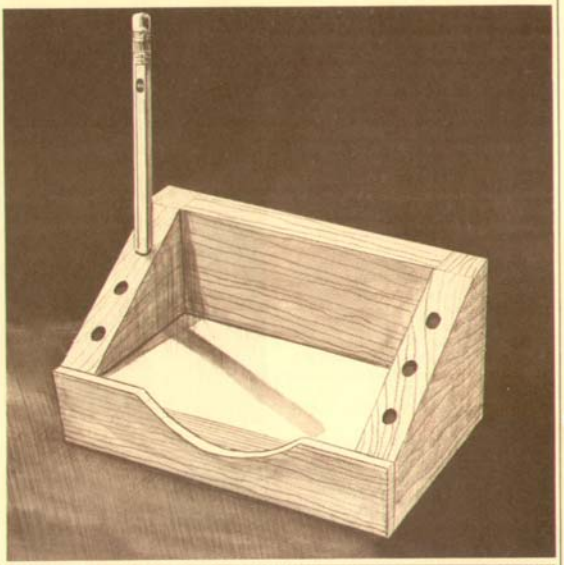
Well, crazy or not, this is a fun and useful little project to make. I like to think up ways to use pieces of scrap wood. (I just can't bring myself to throw away even the smallest piece of scrap.) And, it's handy to have those 3 x 5 cards around to take notes, or sketch a joint, or make out a shopping list.

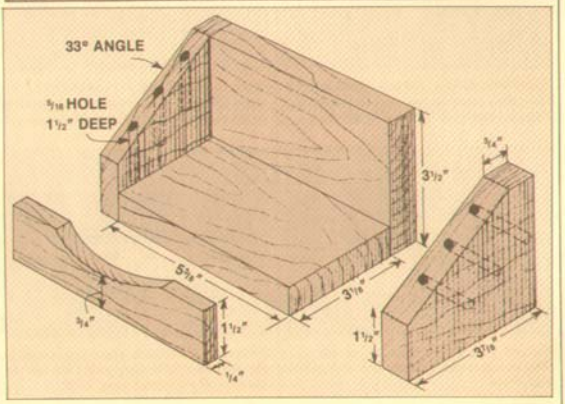
I made one of these holders out of some scrap pine for my workbench. But I plan to make another out of some scrap oak or walnut for my desk.

The dimensions given here are based on using scrap 1 x 4 pine, but any thickness of wood will work. The front piece (C) can be anywhere from ¼" to 3/4" thick — depending on what kind of gems your scrap bin yields.

On the side where the pencils are angled, drill the holes with the bit perpendicular to the angled (front) side. Where the pencils are straight up, drill the holes with the bit perpendicular to the bottom edge.

To make the angled cuts on the side pieces, use an auxiliary fence on your miter gauge (a 1 x 2 will work) and start the cut 1½" in from the bottom edge. The angle is 33 degrees. It should end so there's 3/4" left at the top edge.





MATERIALS LIST

Code	Piece	Dimensions
A	Back	¾ x 3½ x 5⅛
B	Sides	¾ x 3½ x 3⅛
C	Front	¼ x 1½ x 6⅝
D	Bottom	¾ x 3⅛ x 5⅛