

Picture-Framing Techniques

Use router table setups to shape profiles and joinery

by Leon Segal

I started making frames for my family's paintings and photographs because I was unimpressed by the cheap pressed-wood frames I'd seen in department stores. Once I decided to make my picture frames from exotic and domestic hardwoods, I quickly found that no matter what type of frame I built—whether a simple solid frame or a built-up frame like the one in the photo on this page—I could use my shopmade router table to perform 90% of the work and achieve high quality. The router does a fine job shaping the outside of a frame (see the top right photo on the facing page) and rabbeting for a picture and glass. With special fences and jigs, the router also neatly plows grooves for miter splines and for a slide-in back.

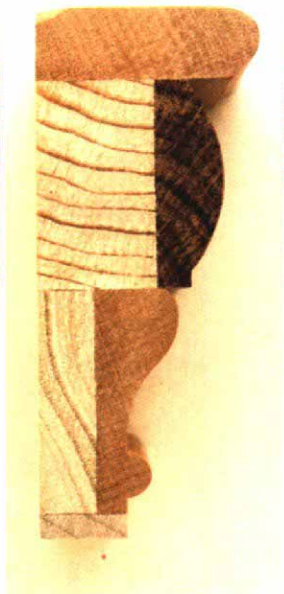
Design and materials

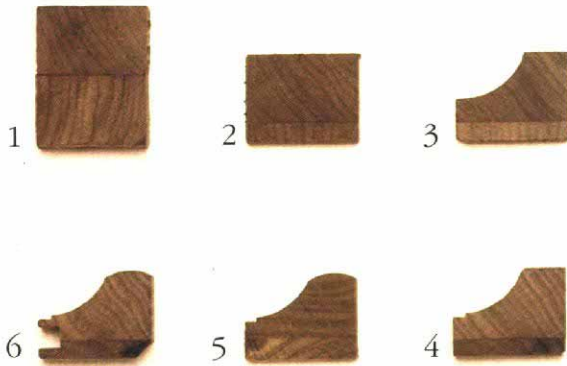
I often vary a frame's design to suit a picture. Although most of the differences are in the frame profile and decorative treatment, I've also tried variations in the construction of the frames. For example, if I need to frame a large portrait that necessitates a wide frame, I combine sever-

al profiles in the frame, such as coves, flutes and ogees (see the inset photo above). Using individual sections can give depth to a frame, and it allows me to save precious species of wood for the visible parts. I use less valuable woods for the unseen fill areas.

Before I make a frame, I usually sketch a profile and note any critical dimensions. I can still refine details and proportions later, but the sketch helps me to choose the woods to use and to figure approximately how much of each kind I will need. Depending on the hardwood that I select, I can give a frame a light look or a more formal appearance (see the top left photo on the facing page), and I can even pick woods that will complement the colors in the picture to be framed. If I'm gluing up a frame, I often prepare contrasting woods, being sure to plane surfaces that will be mated. To minimize bow in the stock, I first rough-

Surrounded by a variety of woods—
For this picture frame, Segal glued router-shaped segments of bocote, madrone and tiger maple over poplar and pine.





The two hardwood frame pieces are identical in profile, and each will accept a simple, applied back. But the bird's-eye maple piece (right) looks lively while the dark walnut piece (bottom) appears more formal. The six cross sections show the shaping sequence Segal used (clockwise from top left): After glue-up (1), he ripped down the stock (2). Then using his router table, he cut the cove, rabbet, roundover, groove and chamfer (3 through 6).



Relying on his shopmade router table for shaping work, Segal advances an assembled frame by the bit, taking multiple passes. He uses a custom-made fence with an appropriately sized cutout for the bit.

crosscut the long pieces in two. Then I joint the sections square.

Decorative inlays are my favorite border for frames. I make my own inlay bandings $\frac{1}{8}$ in. to $\frac{1}{4}$ in. thick, which allows enough depth for router-shaping (see the photo on p. 68). I save cutoffs and frame scraps to make refrigerator magnets or key chains.

Shaping and assembling

Although I frequently build up thicknesses to make a frame, gluelines are seldom a problem. They can be virtually invisible if

located below the rabbet that will hold the picture. On the outside of a frame, you can rout a bevel or cove to disguise the line (see the drawing on p. 68), which also helps remove frame bulk.

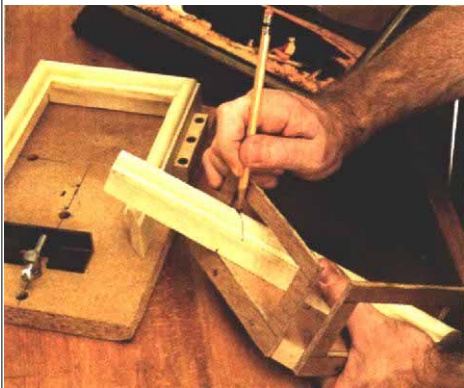
To rout a shape, a $\frac{3}{4}$ -in.-radius cove for example, I take several passes on the router table, plus a light (under $\frac{1}{64}$ in.) finishing pass. This reduces tearout, especially on highly figured stock. Straight-grained stock will usually rout cleanly, but even so, I always move the work slowly. I form the rest of the profile with a sequence of

router shaping (see the top left photo). To make the operations safe and fast, I use several router-table fences with hold-downs dedicated to special tasks. Each one is different in height or has a cutout sized for a particular bit.

To form a recess for the picture, mat and glass, I use a straight bit and plow a $\frac{1}{4}$ -in.-deep rabbet in the inside of the frame. The rabbet's width depends on the size of the picture. I allow $\frac{1}{32}$ in. clearance, so everything slides in easily. The back-holding slot can be cut in the frame itself or in a rail at-

Frames from recycled moldings

by Ted Myers



Marking and clamping miters—Ted Myers made two fixtures to help him make frames from salvaged moldings.

As a certified Yankee, it grieves me to see architectural remnants wasted. Scraps of molding from doors and windows or narrow boards often wind up in a wood stove or at a landfill. Because of a few nails, a lack of breadth, old paint or a knot here or there, these castoffs are sadly condemned to oblivion. I can't bear to see that happen, so I've been backlogging old moldings to make picture frames.

It's fairly easy to strip off layers of paint and to fill nail holes and cracks. Old moldings can be left with their original patina, or once sanded, they can be waxed, painted, stained or varnished. Leftover barn wood, colored by Mother Nature, also makes a handsome frame. If I don't like a piece's profile, I reshape it using handplanes or my router.

To help construct frames, I made two devices: a miter-marking gauge and a clamping fixture (see the photo at left). The gauge lets me accurately transfer a cutoff line that I've marked on the inside

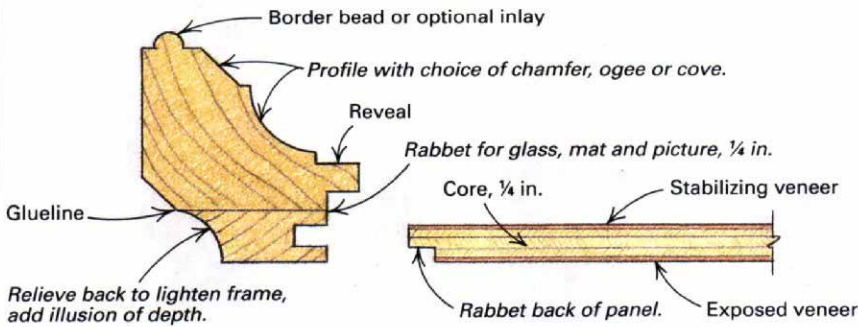
of the rabbet for the picture. To make the gauge, I first cut the right-triangle base from a scrap of 1x4 pine. Then I made the sides from lauan, sawing out the molding windows using a Dremel tool.

The clamping fixture has two fixed stops and two adjustable angle brackets that pivot. Cutouts in the bottom legs of the bracket accept dogs with $\frac{1}{4}$ -20 by 2-in. machine screws that clamp the frame on the particleboard base.

With framed pictures now filling up my family's wall spaces (my stock of moldings greatly reduced), I justifiably took two buckets of 2-in.-long scraps toward the kindling pile. But then I thought: "Why not glue them to that plywood scrap that blew off that fellow's pickup truck—spray it all white—enter it as a piece of sculpture at the next East Grandy Arts-N-Crafts Show?...Now where is that glue bottle?" □

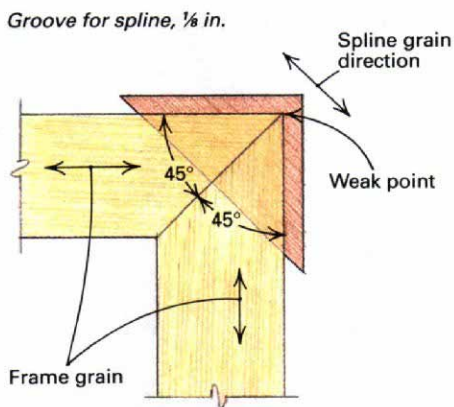
Ted Myers is an English teacher, machinist and woodworker in Cambridge, Minn.

Tabletop frame with slide-in back



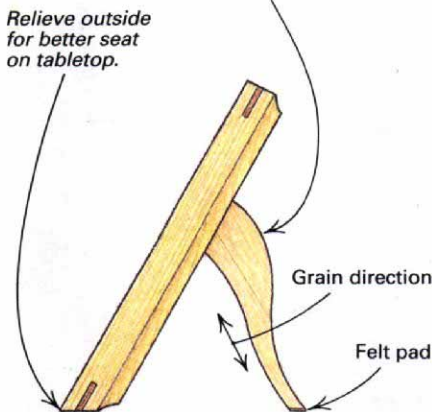
Splined miter detail

When trimming spline, take light, slow passes with router to avoid fracturing.



Picture prop detail

Prop is screwed or doweled to back panel.



With a groove-cutting jig and a slot-cutter in his router table, Segal plows grooves in this inlaid frame for the miter splines. The jig cradles the frame corner securely at a 45° angle to the fence and keeps his hands out of harm's way.

tached to the back (see the drawing at left). I leave a 1/8-in.-thick lip on the back for strength. If I use a back rail, I glue it to the frame after I've routed the other profiles.

Mitering and pre-finishing parts—You can build frames from single moldings (see the story on p. 67), or you can build up a frame from sections and then tilt the frame slightly. This requires the miters to be cut at compound angles. However, I prefer to make non-tilted frames, so I can leave the work flat and cut the miters at 45°. The perception of depth is achieved by the profiles I routed.

Before I cut any miters, I apply a thinned coat of varnish to the pieces. The pre-finish keeps glue stains off the mitered corners, and the thinner prevents the sawblade and router bits from gumming up. I cut the frame miters on my radial-arm saw using a fixture (see the box on the facing page). The wider the frame, the more important the accuracy of the miter. I first miter the long sides of a frame. If I cut a long piece short or if too much tearout occurs, I can almost always cut the shorter section from this longer piece.

Cutting and inserting splines—I usually reinforce my miters by inserting visible corner splines. With the frame glued together, I rout the spline grooves using a slot-cutting bit and the jig shown in the photo below. I cut the splines from contrasting wood, leaving them oversized, so I can trim them flush after the glue is dry.

I orient the grain of the splines at 45°, which means the outside corner is the weakest point, the spot where routing tearout is likely to occur (see the splined miter detail above). Therefore, I make sure the spline and its groove have adequate glue near the point, and I take extra care when trimming the corner. By shaping the underside of the frame, you can reveal more of the spline as a decorative touch (see the photo on the facing page).

Making and fitting the back—How you treat the back of the frame depends on whether you want the picture to hang on a wall or stand on a table. For a wall-hung frame, you can install a cardboard or plywood back with turn-buttons to hold the picture in place. For a standing frame, I like to put on a sliding back, so there won't be any exposed hardware.

To make a decorative back panel, I veneer both sides of a plywood core (see the drawing above). For the core, I use 1/8-in. (3-ply) poplar plywood or 1/4-in. lauan. After I glue on the veneers, I cut the back

panel about 1/2 in. wider than the opening width in the back of the frame. Next I cut the panel 1 in. longer than the opening, so it extends past the frame contents. Then I rout a rabbet on the sides and top of the back so that it slides into the groove in the back (or back rail) of the frame.

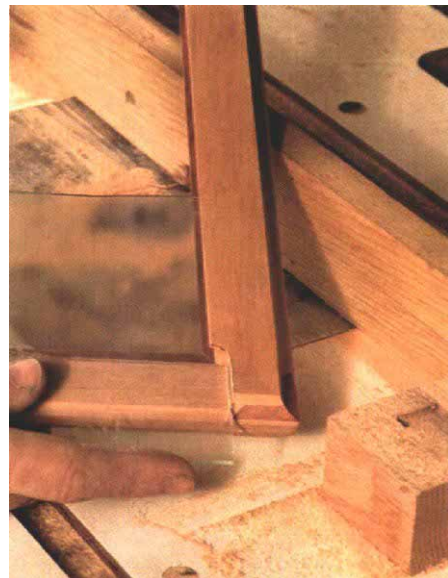
Installing the picture—To slide in the picture, glass, mat and back, there must be an entry slot. After the frame is assembled, I rout an access slot in the frame's bottom where it will be inconspicuous. To set the width of the cut, I clamp on a pair of stop blocks to the router-table fence: one block to start the cut (see the photo at right), one to end it. With a 1/2-in. spiral bit positioned adjacent to the router table's fence, I move the frame left and right between the stops and make the slot in multiple passes. Then I use a chisel and sandpaper to trim and smooth the routed area.

If you lift a standing frame from a table, you don't want the sliding back to fall out.

So I insert cardboard spacers to form a friction fit between the picture and the back. If I'm not using a mat, I just insert more cardboard. After I have fit the picture, I mark and cut the back to final length.

Other back details—When a frame is destined for a table or desk, I give it a simple prop to support the frame upright (see the picture prop detail on the facing page). I make the prop from scrapwood, sometimes laminating together a few pieces. By installing the prop to the back with a single fastener, I make the prop swivel, so the picture can stand either vertically or horizontally. You may have to vary the length of the leg, the angle of the frame or the attachment location to get the frame to sit the way you want. And you may want to relieve some more of the frame bottom, so it sits more comfortably on the tabletop. □

Leon Segal is a business manager and woodworker in Randolph, N.J.



Access slot—After routing a picture-entry slot by sliding this frame between two stop blocks on his router table, Segal checks the fit of the glass. The frame back was covered to show more of the spline.

A mitering fixture

The radial-arm saw has been my mainstay for cutting miters for years. When I'm mitering, I leave the saw set at 90° and skew the work using a fixture (see the drawing at right). This saves me from resetting the saw each time I make a cut.

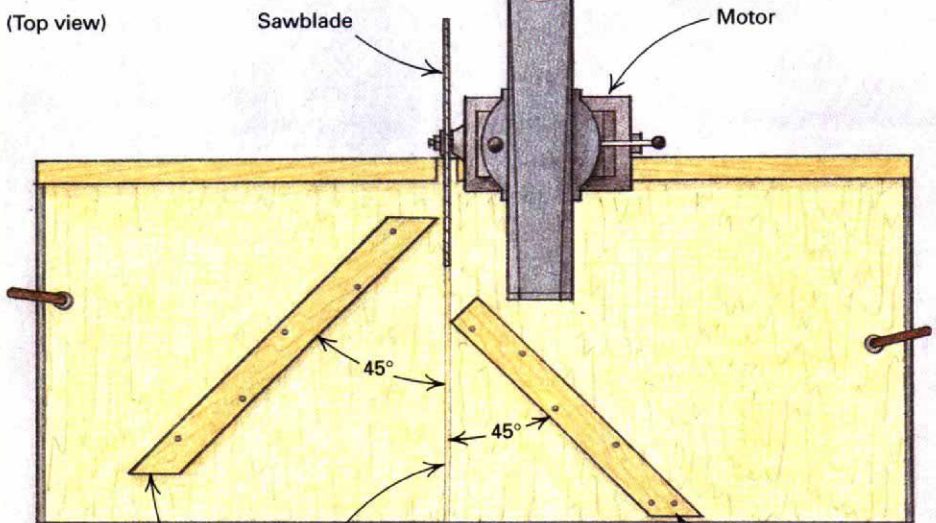
The mitering fixture sits on the saw's table and butts against the rear crosscutting fence. The fixture has two fences screwed to a plywood auxiliary table, similar to the one shown in *FWW*#93, p. 14. But unlike that setup, my device enables exact miters at any point in a piece of stock—an important feature if you want to cut a miter near the center of a long section.

I can align long work against either miter fence without the piece interfering with the normal fence. This also allows the waste to fall safely in back of the crosscutting fence. The different heights of the fences let me miter either left- or right-handed. I just shim the work with a block of appropriate thickness so that the workpiece clears the opposite fence.

When you're screwing down the lower fence, countersink the heads, so they won't interfere with the work when you're aligning a piece against the right fence. And when you're shimming work with plywood or other stock, raise the blade, so it just cuts through the workpiece. If the work tends to slip when supported against the exposed height of the fence, stick some 220-grit sandpaper to the registration surface using double-faced tape. —L.S.

Radial-arm saw miter fixture

(Top view)



(Front view)

