

A Basic Mirror Frame Detailed to Your Liking

Dress up a molded frame with fretwork cut from a spectacular piece of wood

by D. Douglas Mooberry



The key to a strong miter joint—The author cuts slots for splines in all four corners of a mirror frame.

Mirrors make great wedding presents. You can make them as small or as large as you like, depending on how generous you're feeling. Mirrors don't require a lot of material or time, either. I learned that in college, when I needed to come up with gifts and a little spending money.

After I graduated from college and was unable to find a business that wanted to make me president, I started making mirrors full time. Then other furniture projects came along, and mirrors got put on the sidelines, until I hired an apprentice.

Although I build Chippendale-style mirrors, the basic construction techniques are

applicable to any style mirror, with or without fretwork. Actually, you could use these techniques to build picture frames, too. Best of all, you don't even need clamps to assemble them.

Fretwork pattern is up to you

Copying an existing mirror is the easiest way to get a design. My mirror is a copy of one owned by my mother. Trace the design onto plain paper. Then go back with your pencil to refine any ragged curves. The fretwork on old mirrors usually looks symmetrical, but often it's not.

If you trace the fretwork from an old mirror, copy one-half of the design, or you can

use mine (see the drawing on p. 77). When copying it onto a workpiece, use both sides of the pattern for a mirror image. If you plan to make only one mirror, tape the design to the wood and cut away. For repeatability, make reusable templates out of scrap laminate or fiberboard.

If you don't have a mirror to copy, look in books and magazines. When you find a picture you like, blow it up on a photocopier to the desired size. Or use an existing design and modify it. Use ears from one design on another. But don't take away too many details, or you risk making something bland. Old mirrors have lots of details, lots of curves, little points and frills. Don't make

your mirror look like it was made at a factory with a pin router and a 1/4-in. bit.

Select straighter-grained stock for the frame

Heavily figured woods, such as tiger or birds-eye maple, are prone to movement, and that can give you fits if the frame starts warping. In any given board, there are usually sections of greater and lesser figure. Use the less-figured areas for the frame, and the highly figured stock for the fretwork.

I try to keep a distance between my fingers and things that can cut them off. That's why I run molding using large stock whenever possible (see the top photo). Molding can be cut with a variety of router bits to get a specific shape (see the drawings at right). Or you may find one bit that gives you just what you want in a single pass. You're the designer, and you don't have to be a slave to someone else's ideas. There are many ways to shape a pleasing molding.

I use 1 1/4-in.-thick stock for the frame, and I shape the profile on the router table or shaper. When using various router bits to create a custom molding, draw out the profile on the edge of a board for a visual aid. Chuck in the first bit, make the necessary adjustments and mill all the stock the same way. Then set up the second bit, and do the same. This method not only saves you time, it ensures that the molding will match. One rule of woodworking is that every time you run molding, it comes out slightly different.

Next rip the molding 7/8 in. wide on the tablesaw. Then return to the router table and cut the rabbet on the back of the frame using a straight bit or rabbeting bit (see the bottom photo). The rabbet must be deep enough to hold the mirror glass and back panel. Don't forget to leave some room for the nails. I make my rabbets 3/8 in. wide by 1/2 in. deep.

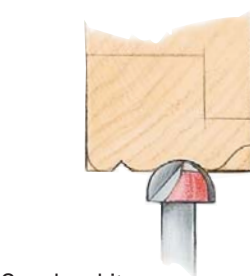
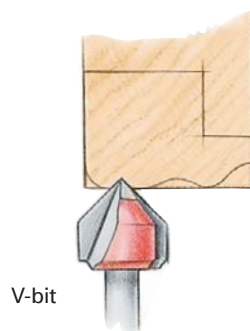
Splined miters join the frame

There are many ways to cut miters, but I prefer a chop saw. I set up a simple fence on the saw—just a 3/4-in. by 3-in. by 3-ft. scrap that allows me to set up a length stop. It's very important that the miter be exactly 45°. The graduations on a chop saw aren't always accurate; check your settings by cutting and fitting some scrap.

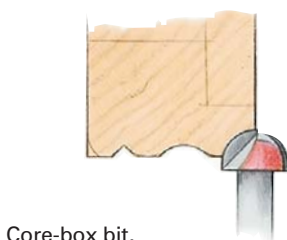
Now it's time for the real fun: sanding the molding. It is much easier to sand the molding before the frame is assembled. The better your tooling, the less you have to sand. When I first started making mirrors I had

SHAPING THE MOLDING

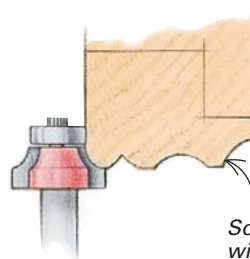
With a little creativity, you can mix and match stock router bits to create interesting moldings.



Core-box bit,
1/2 in. dia.



Core-box bit,
1/2 in. dia.



Soften sharp edges
with sandpaper or
handplane.

Roundover bit, 3/16 in. radius



Shape the frame. Start with wide stock. When using multiple router bits, sketch the molding profile before beginning.



Cut a rabbet for the glass and back panel. After the molding is machined and ripped to width, cut a rabbet 3/8 in. wide by 1/2 in. deep.

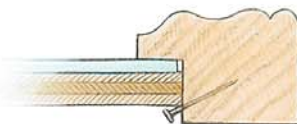
CONSTRUCTION OF A MIRROR

Install an auxiliary fence on the miter saw to prevent tearout. Cut the molded frame pieces to size, then glue and clamp (packing tape works well) the mitered corners. When dry, cut slots for the corner splines on the tablesaw with a V-jig. Glue the splines into the slots, then cut off the excess when the glue has set.



A view from the back

The glass and back panel fit into a rabbet cut into the rear of the frame.



another cabinetmaker make moldings for me because I didn't have a fully equipped shop. This cabinet shop would sharpen their shaper knives every five years, whether they needed it or not. For me, this meant lots of sanding. I would sand till there was no skin left on my fingers and then wrap my fingertips in duct tape and sand some more.

I keep my tools sharp, so there's very little sanding needed these days. And I have found another essential tape for the shop—clear packing tape, the kind that stretches. I like it better than fancy clamps for joining miters and other joints. To assemble the frame, dab a little yellow glue on the mating surfaces of a miter, then wrap the two pieces tightly with tape. Put the whole frame together this way in one session, and make adjustments to all the miters as you glue up so that all the joints are tight. The larger the frame, the easier it goes together because it will flex to conform.

After the glue has dried, remove the tape, and cut the grooves for the corner splines to reinforce the frame. I cut the grooves on a tablesaw using a simple V-jig (see the photo on p. 74). The jig holds the frame at a 45° angle and safely guides it through a standard 1/8-in. kerf blade, cutting about 1 in. deep into each corner.

I plane spline stock, of the same wood as the frame, to 1/8 in. thick. Glue these strips into each corner (see the photo at left). Once the glue has set, cut off the excess, and sand or plane the joints smooth. Now cut a shallow dado into the top and bottom edges of the frame to hold the fretwork. (The side pieces are just edge-glued to the frame.)

Use a scroll saw for the fretwork

Trace or tape your design for the fretwork onto stock that's been resawn to 1/4 in. thick. Be sure to align the fretwork stock so that the grain runs in the same direction as the frame. In other words, the grain on the horizontal pieces runs left to right; the grain on the vertical fretwork runs up and down.

Before starting, look over your stock, and make sure the edges that attach to the frame are jointed before cutting out the patterns. It's very difficult to true up the edges of little pieces.

I use a variable-speed scroll saw and a fine-tooth blade to cut the fretwork. Many of the newer scroll saws, those that keep the blade under constant tension, cut very smoothly. If you cut right to the line with a fluid motion, you end up with cutouts that

Splines secure a miter-joined frame.

require very little sanding and filing.

After the fretwork is cut out, clean up any rough edges, and sand the pieces up to 220-grit. Next glue the fretwork to the frame using rubber bands for clamps (see the bottom photo). I suggest gluing up one side at a time. If you try to do the entire mirror, you're likely to misalign a just-completed section while banding together another. For reinforcement, add glue blocks between the fretwork and frame on the back.

The top and bottom cutouts fit into 1/4-in.-deep grooves cut in the frame. I size these two pieces slightly wider than the frame. After glue-up, I trim them with a chisel; that makes a snug fit to the ears. After another go around with sanding, I finish the mirror with aniline stains and then shellac. When it's dry, I rub it out with steel wool and apply a couple of coats of paste wax. I like to finish both sides of the frame.

It's best to order the mirror glass after you've glued up the frame (see the box at right), just in case your plan dimensions have strayed from the actual piece. Cut the frame back out of 1/4-in. stock or plywood; size it for a snug fit. A good-fitting back will cover up a loose-fitting mirror.

If you want to have some fun, stick an old newspaper between the mirror and the back before assembling it. Fifty years from now, the person who replaces the mirror will appreciate the old headlines.

The mirror and back are held in place with brads partially nailed into the frame's rabbet. I use a nail gun because it's faster than predrilling little holes and then carefully tapping away at tiny nails with a hammer. Ironically, the brads from an air nailer look much like the handmade square-cut nails from Tremont Nail Co.

Finish by attaching a pair of picture hangers to the back, and string a piece of stranded wire between them. □

D. Douglas Mooberry builds custom and reproduction furniture in Unionville, Pa.

How to get scratch-free mirror glass

Glass-shop owners, like woodworkers, don't like to throw useable scraps away. When you order a small piece of glass, there's a chance it will come from an offcut that's been kicking around the shop. Oftentimes, these pieces will have suffered little scratches on the back, and you don't notice them until you've completely assembled your mirror. Specify that you want a scratch-free mirror, and check it before taking it home.

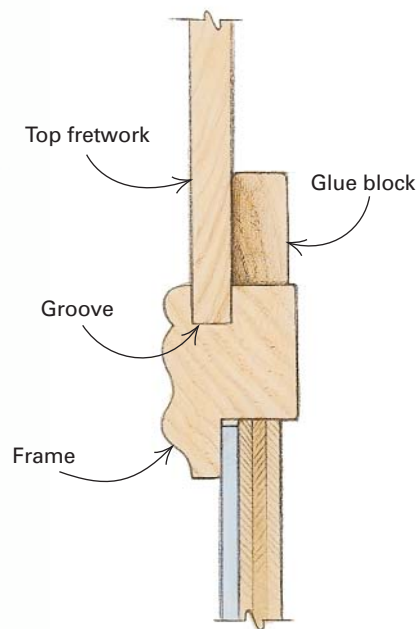
Always order your mirror glass 1/8 in. shy of the frame's inside dimensions. There are two reasons for that: possible frame shrinkage and inaccuracies at the glass-cutting shop.

I use 1/8-in.-thick clear mirror glass. If you prefer, you can go with 1/4 in., which has a better reflective quality (less distortion) because it's stiffer. But 1/4-in. glass is twice the weight, and you will have to make your frame 1/8 in. thicker to accommodate it.

Mirror glass can be ordered with a variety of tints, from gold to gray to brown, even peach, and that costs extra. You can also have the glass edge beveled. —D.D.M.

DRESSING UP A MIRROR FRAME WITH FRETWORK

The top and bottom fretsawn pieces fit into grooves cut into the frame; the side ears are edge-glued to the frame.



Side view detail



Clamp the fretwork to the frame. Rubber bands are great for holding the odd-shaped fretwork in place while the glue dries.