

# Line-and-berry inlay

BY STEVE LATTA

## A HANDFUL OF SPECIALTY TOOLS



To cut the grooves and stringing for this project, I used several tools of my own design. Enhanced versions of the prototypes shown here are manufactured by Lie-Nielsen ([www.lie-nielsen.com](http://www.lie-nielsen.com)).

For grooves, the straight-line cutter (right) has an adjustable fence that references on an outside edge. The adjustable-radius tool (front) cuts circles and arcs of varying sizes. The freehand tool (left center) rides against any guide—straight or curved.

To cut the stringing, I used a slicing gauge (rear) that works like a modified marking gauge, and a thickening gauge (far left) that has two adjustable blades.



**Sawteeth.** The teeth on these cutters are sharpened like those on a crosscut saw, allowing the tool to cut both groove walls and clear the waste in one stroke.

To decorate the door on my Pennsylvania spice box (pp. 58-67), I chose the line-and-berry style of inlay common on spice boxes and other 18th-century Pennsylvania furniture.

All of the motifs on the door date to this era—the central pinwheel in particular was popular among Pennsylvania Germans in Lancaster County at that time. Still, I think the various elements combine nicely to create a design that feels fresh and not outdated.

It's not necessary to decorate the back of the door, but because this was to celebrate our 10th wedding anniversary, I wanted to make the extra effort. The techniques involved are essentially the same as those used for the front. The back also features inlaid lettering, which I'll demonstrate on [FineWoodworking.com](http://FineWoodworking.com).

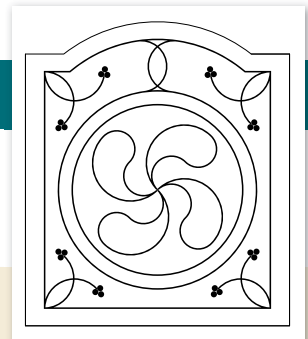
### Transfer the design to the panel

Leave the panel extra thick until the inlay is complete. Should the need arise (pray that it doesn't), any mistakes can be "erased" with a pass through the thickness planer. Of course,



### Lay out the pattern

Use layout tools to transfer the design to the panel. Below, Latta marks the termination points for the corner arcs.



### Online Extra

For free front and rear pattern downloads and a video on inlaid lettering, go to [FineWoodworking.com/extras](http://FineWoodworking.com/extras).

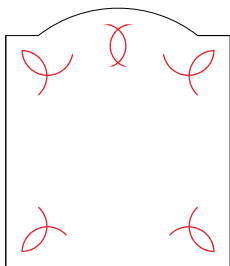


a lot of hard work also gets erased.

Draw the design full scale on paper, making sure to include both sides of each inlay line. These are essential to properly plot the pivot points for arcs that merge with other lines. After establishing the pattern, transfer it onto the panel. Now use a combination square to mark a short line where each corner arc will end. Set the arc so that only half the width of the line actually merges into the border. This maintains a fluid sweep all the way into the corner.

### Cut a groove, then fill it

My method for setting intersecting or overlapping stringing is simple but effective: Cut a groove and fill it immediately, before cutting the next.



## Start at the corners

Setting these arcs first helps ensure that they merge smoothly into the border (not shown in this drawing).

This is especially important when it comes to arcs that merge or intersect, because the background grain at these junctions can be very fragile. Filling the first groove ensures that this grain will be supported, preventing chipout when the intersecting groove is cut. Also, since the second groove is sliced right through the first string of inlay, the two strings intersect cleanly without a lot of fussing over butt joints.

Start by cutting and filling one of the two arcs in each corner. Slice the stringing off only as needed, one string at a time. Lay a small line of glue on each wall of the groove and press the stringing into place with your fingers or the butt of a chisel. Don't press the stringing below the surface.

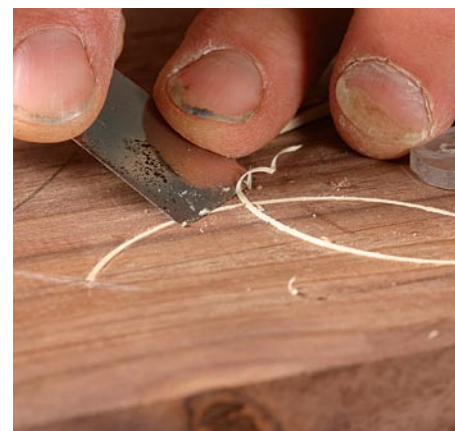
By the time the fourth arc is set, the first one should be dry. Use a card scraper or a wide chisel, bevel down, to cut it flush. Once this is done, you can cut and fill the second arc in each of the pairs. Afterward, lay out and cut the two intersecting arcs that connect the border to



**Cut the arc.** A precise groove depth isn't crucial, but aim for about  $\frac{1}{16}$  in. A sharp pivot point anchors the radius tool while the saw-tooth cutter plows the groove. The action is like that of scribing an arc with a compass, with repeated strokes in one direction.



**Yellow glue is best.** It gets tacky quickly and flows well in a narrow plastic syringe. With the curved tip, it's possible to place a fine bead of glue on each wall of the groove. The syringe is \$2.60 from [www.leevalley.com](http://www.leevalley.com).



**The string doesn't have to touch bottom.** Work instead to keep it proud of the background—it's much easier to level the inlay to the surface than vice versa. Press the inlay into the groove with your fingers and trim the ends with a chisel (left) when you reach them. Then use a chisel, bevel down, to trim the string flush. If you sand, do so sparingly. Too much at this stage will create a dished, uneven surface.

## MAKE YOUR OWN STRINGING



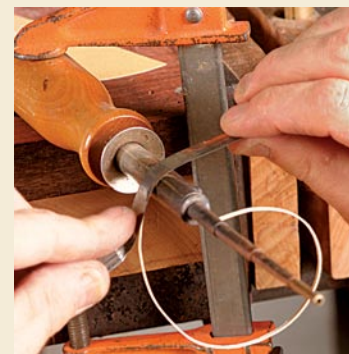
**Solid, straight-grained holly makes the best stringing.** Latta resaws stock to approximately 0.040 in. using a thin-kerf tablesaw blade and two push sticks.



**Cut the strips into strings.** Brace the work against a low fence and score it deeply with the slicing gauge. Cut the stringing wide enough to stand proud when set into the groove.



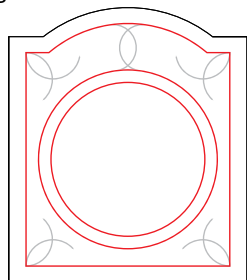
**Sneak up on a snug fit.** Pull the string through the thickness gauge until it seats between the groove walls. If there's a lot of chatter in the cut, flip the stringing and pull from the opposite end.



**A woodworker's curling iron.** To put a bend in the holly stringing, Latta uses a burn-in knife with the spatula replaced by brass tubing. An automotive feeler gauge helps him handle the work.

## Inlay the border and rings

The arch-top border echoes the panel's shape. Three different tools are used to cut the border and circle grooves.



**Plow the straight borderlines.** The straight-line cutter's fence keeps the blade parallel to the edge. The tool acts as its own depth stop.



**Shield the surface.** The centerpoint for this arc won't fall on a future inlay line, so protect the walnut from the cutter's sharp pivot with a piece of Lexan. Drill a hole partially through the plastic to receive the point.



**Cut the upper arc.** Be sure that the blade cuts through the tops of the interlaced arcs so that they connect seamlessly with the borderline.



**Cut the short segments and clean up the corners.** Use the freehand tool against a straight-edge, which is clamped to the surface, to make the grooves straight (above). Use a chisel (right) and a dental pick with a chisel tip to clear debris from the corners. A set of four dental-style carver's cleanup picks is \$9.50 from [www.leevalley.com](http://www.leevalley.com).



the inner ring. Take some time here to make sure that the curves all flow nicely together.

### Install the border and cut the circles

Once all of the various lines that merge with the outer border have been inlaid, the border itself can be cut and installed. The border inlay grooves will slice through the existing inlay, again creating clean intersections with a minimum of fuss.

Use the straight-line tool to cut the bottom and side grooves, cleaning out the corners by hand. Cut the two short straight lines along the upper edge of the border by riding the freehand tool against a Lexan piece clamped to the work surface. Self-adhesive sandpaper keeps the Lexan from slipping.

When laying out the upper arc, take time to ensure it will cut directly through the top ends of the two interlacing arcs, making a nice transition. After the grooves are cut and the corners cleared out, set the stringing, mitering the corners with a sharp chisel.

After checking the pivot location to ensure a nice flow, cut the first circle with the radius tool, using Lexan attached with double-sided tape to protect the surface under the pivot. Prepare a piece of stringing.

I join the ends with a scarf joint that disappears when properly executed. Before setting the string, make an angled cut on one end and line it up with the grain. Then pencil a straight reference line on the walnut to align the cut for the mating half. Inject glue all the way around and begin setting the stringing. To complete the circle, lap the free end over the scarf joint, align a chisel with the reference mark, and cut the mating half. Put in the second circle.

### Repeated arcs form the pinwheel

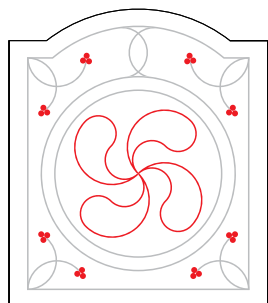
The center pinwheel looks complicated, but it uses only four pieces of stringing. To prevent blowout of



**Rotate the workpiece as you cut.** This is less awkward than walking around your bench to complete the circle. Be sure that the outer circle cuts through the bottom of the interlaced arcs, creating a seamless transition.

## Add the pinwheel and berries

A simple combination of arcs creates the pinwheel design. The berries are clustered plugs of holly and aromatic cedar.



**Lay out the pinwheel.** Use the 45° head on a combination square to mark out the axes. Then, from the center-point, use dividers set at  $\frac{1\frac{1}{8}}$  in. to step off four points in each direction along each axis.



**Cut the small arcs.** Latta used a shop-made tool because his Lie-Nielsen prototype won't cut a small enough radius. The production model will.



**Set the short string.** This short central piece stops where the curve changes direction. Cut the scarf so the long side of the joint is on the inside of the curve.



**Cut and fill the two large arcs.** Use Lexan to protect the surface from the pivot point (above). The long stringing segment completes the pair of pinwheel blades. Placing each scarf joint at the transition of two opposing curves takes advantage of the tension in the curled stringing. Each piece wants to uncurl toward the other, which helps hold the joint together.



the walnut background, a logical sequence of cuts is essential. I inlay one pair of opposing blades at a time. Each pinwheel blade is made by linking two small arcs in an S-shape and then drawing a larger arc to connect the two ends.

Cut the four small arcs first, making sure they transition smoothly into one another. To prevent the background from collapsing during subsequent cuts, glue in a short piece of stringing that runs through the center of the pinwheel and fills about two-thirds of the center arc in each direction. Make a scarf-joint cut at each end. Let the glue dry, level the stringing, and then cut the larger arcing grooves, which meet in the center.

Once the larger arcs are cut, slice off a long piece of stringing and take it to width with the planing gauge. Splice it into the first scarf joint and wind it around to complete the first blade. Next, set it through the center of the wheel and then bend it in the opposite direction to complete the second blade.

Repeat the process with the other two blades.

### Set the berries

For this piece, I used  $\frac{1}{4}$ -in. berries of aromatic cedar and holly in a traditional trio pattern. Mark the location of each berry with a circle template. Use an awl to indent the center of each circle and, using a sharp brad-point bit, drill and fill only one hole of each set at a time.

Make the plugs using any standard  $\frac{1}{4}$ -in. plug cutter. Glue them in and level them to the surface with a chisel. Let the glue dry thoroughly before drilling for the next adjoining berry. Start too soon, and as you drill, the walnut between the holes will flake out and look awful. □



**Insert the plugs.** Level each one before the glue fully sets. That way, if a plug breaks off below the surface, it can easily be drilled out and replaced.