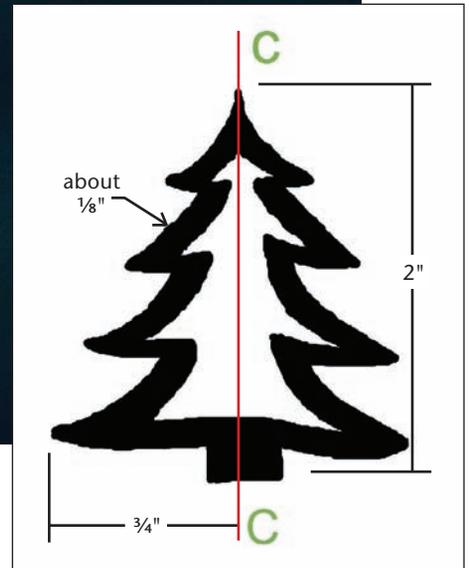# INSIDE-OUT PROFILE-TURNED TREES

Roger Zimmermann

Figure 1. Use this as a model for your own tree design.

October is not too early to think about making Christmas ornaments, like these inside-out trees. Using the basic techniques of ring turning described in past articles (vol 16, no 4 and vol 26, no 1 and no 6) and adding a few additional steps, you can turn both the inside and outside of an object and easily make multiples. With a little imagination, you can use the technique to design other styles of ornaments, such as holiday bells.

Make a pattern

Begin by drawing a full-size pattern on paper like the one shown in *Figure 1*.

A thick-tipped marker works well to achieve the width for the outline of the tree. Strike a line of symmetry through the tree, dividing it in half; the two sides of the pattern do not have to be identical. Here, the tree leans a bit and the symmetry is off just enough to give the ornament a handmade character.

Glue the pattern to two pieces of thin wood whose edges are butted together but not glued. Align the line of symmetry with the seam between the two pieces of wood. When the glue is dry, use a sharp knife to cut the paper pattern apart along the seam *(Photo 1)*.

With a bandsaw or scrollsaw, cut out each half pattern, both inside and outside edges *(Photo 2)*. Mark or paint the edges of the wood black.

Prepare two disks

Cut two disks of the wood you want to use for the ornaments. The larger the diameter, the greater the number

1 Glue the pattern to two thin pieces of wood, then slice down the middle to create half-trees.

2 Carefully cut out each pattern piece.

3 Make sure the face of each disk is flat, so they can later be glued together securely.

4 Screw the two disks together and carefully true up the assembly.

of ornaments you can produce. I used two 9"- (230mm-) diameter pieces for these trees. Each one should be half the thickness of the full-size pattern.

Attach a glue block to one side of each disk. These blocks are tenons for mounting each disk into a scroll chuck. One at a time, mount each disk into the scroll chuck and true up each face to make them flat (Photo 3). They will be glued together eventually, so ensure that each surface is flat.

Screw the two disks together using two screws, one on each side. If possible, orient the grain patterns on the disks to give what looks like branches sloping down. Make sure the screws are placed far enough on the inside of the disks, away from where the tree pattern will be turned. The glue blocks will be on the outsides (Photo 4).

Using one of the glue-block tenons, mount the assembly into the scroll chuck, using the tailstock center for support. Before tightening the chuck's jaws, ensure that the seam between the disks is perpendicular to the axis of the lathe. Re-center the piece as needed until the seam is aligned properly. Tighten the chuck jaws, and then true up the tail-stock-end glue block. True up the disks. Everything should now be in alignment.

Insert the pattern

Take the screwed-together disks to the bandsaw and cut a slot for the patterns (Photo 5). You will need to use a board that is thicker than the glue-block tenon to support the disk when cutting the slot.

Remove the screws and separate the two disks. Glue one half of the pattern into each disk, making sure the edges along the symmetry line are flush with the faces of the disks, and that the bottom of the pattern is flush with the outside diameter of the disks (Photo 6).

Turn the inside profile

One at a time, mount each disk into a scroll chuck using the glue blocks.

Support the disk with the tailstock. Remove material that represents the inside of the tree pattern until you just touch the painted edge of the pattern (Photo 7). I do not sand the trees, but if you want yours smooth, now is the time to sand.

With the inside profiles turned on each disk, glue the disks together where the profiles come together. To ensure a good bond, apply a light coating of wood glue to both disks. Align the disks at the pattern slot and clamp them together. This completes the inside profile of the tree.

Turn the outside profiles

After the glue has set, remount the assembly, using the glue-block tenons, into a scroll chuck and turn the first outside profile. Use the same techniques as for the inside. Sand if you want. When the first side of the tree is complete, flip the assembly end for end and remount it to complete the other side.

The magic

Carefully part away the turned profile ring from the wood left on the inner area of the disk. Use a very slow lathe speed for the finishing cut that separates the tree-profile ring from the solid wood in the middle.

Now it is time to slice the ring into wedges to cut individual trees. Cut the wedges so the tree trunk is between ¼" to ½" (6mm to 12mm) thick, or whatever looks about right to your eye (Photo 8). Real trees are thicker near their trunk, so the orientation of the tip of the tree to the inside of the ring results in an appropriately sculpted look.

Voilà! The tree appears like magic. A ring this size will make about forty inside-out trees.

Sand and finish the trees however you want. I happen to like the rough cut surfaces. To that, I apply tung oil or thinned acrylic paint. Happy holidays. ∎

5 Cut a slot in the disks that will house the two tree-pattern pieces. (Avoid the screws.)

Flush with surface
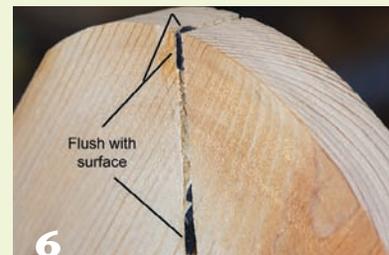
6 Glue a half-pattern into the slot on each disk. The inside of each pattern should face the outside of the disk, away from the tenon. The trunk of the tree should be on the outside rim of the disk.
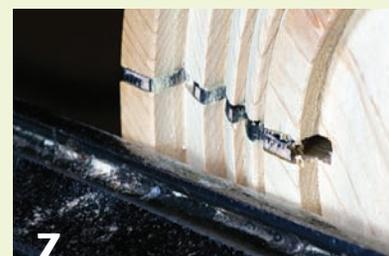
7 Turn the inside tree profile of each disk. The black paint on the pattern warns you when to stop.

8 With the outside profiles turned and the center of the disk parted off, saw out the trees.

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