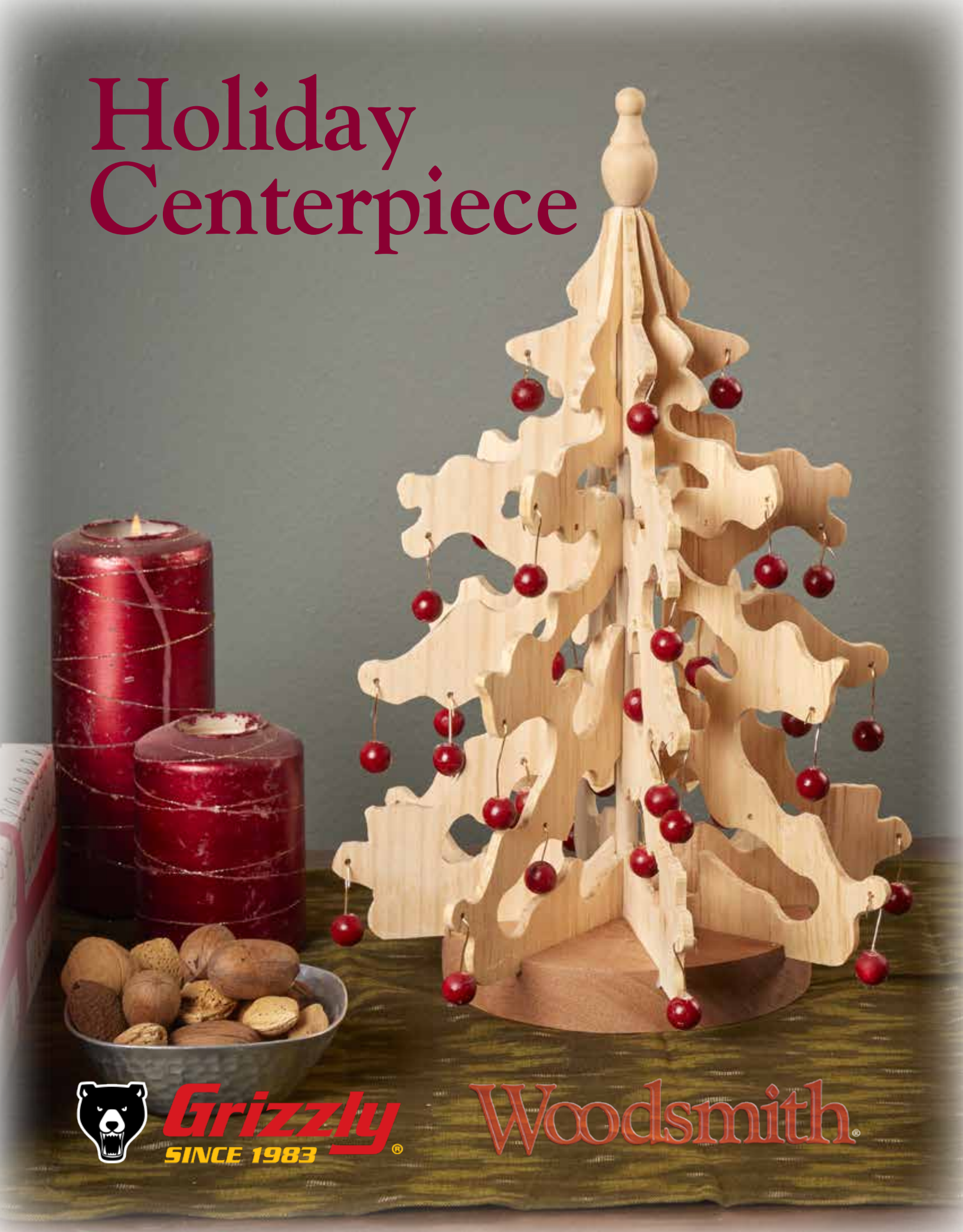
Holiday Centerpiece



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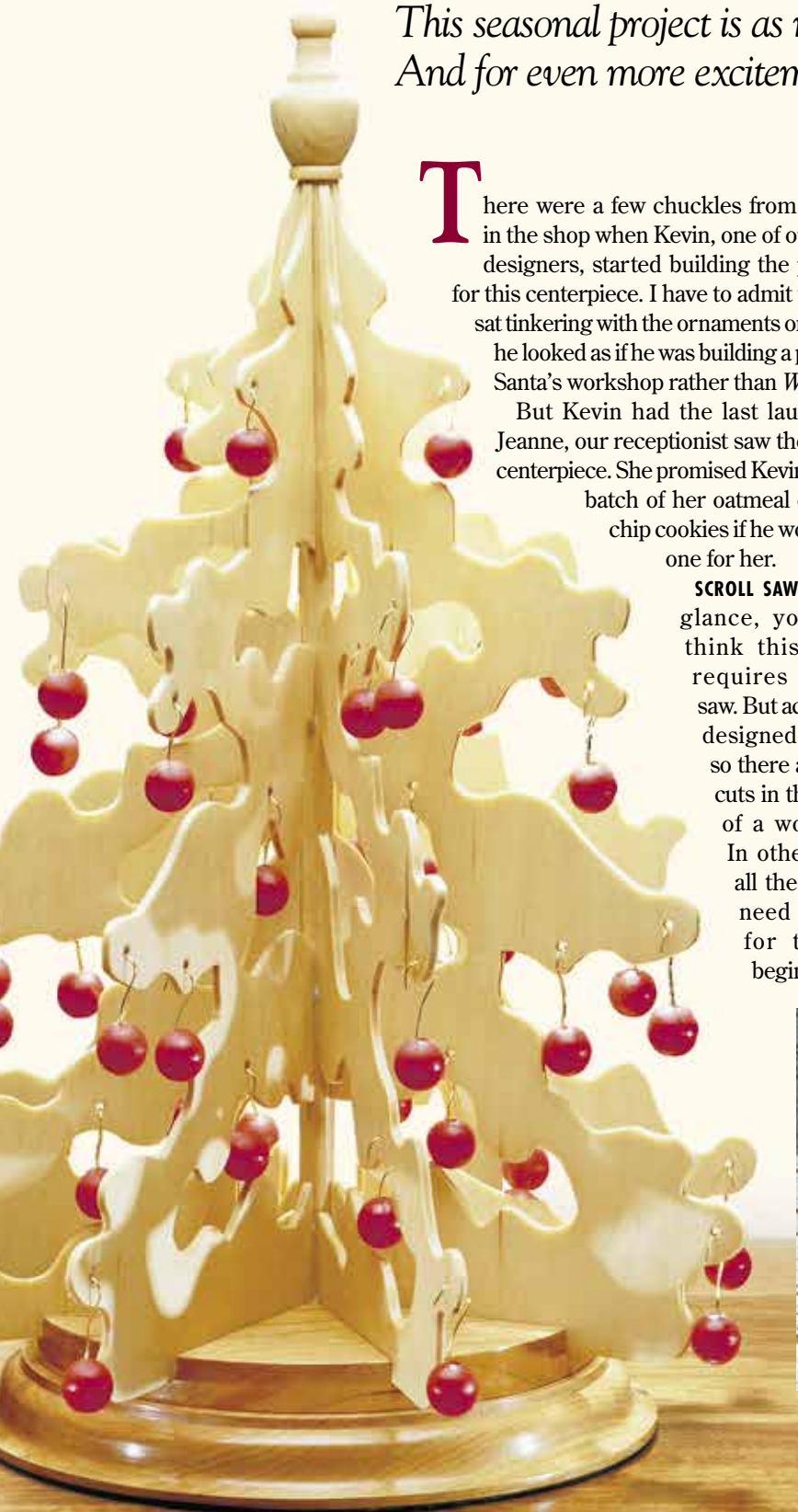
HOLIDAY CENTERPIECE

This seasonal project is as much fun to make as it is to display. And for even more excitement, add a music box movement.



There were a few chuckles from the guys in the shop when Kevin, one of our project designers, started building the prototype for this centerpiece. I have to admit that as he sat tinkering with the ornaments on the tree, he looked as if he was building a project for Santa's workshop rather than *Woodsmith*.

But Kevin had the last laugh when Jeanne, our receptionist saw the finished centerpiece. She promised Kevin a double batch of her oatmeal chocolate chip cookies if he would build one for her.

SCROLL SAW. At first glance, you might think this project requires a scroll saw. But actually, we designed the tree so there aren't any cuts in the middle of a workpiece. In other words, all the cuts you need to make for the tree begin and end on the edge of the workpiece. This means that you can use a scroll saw, a band saw, or even a coping saw to cut out the pieces of the tree. And since trees are random in shape and size, you don't have to worry about following a pattern exactly. Nevertheless, we've supplied a couple of patterns to serve as guidelines.

MUSIC BOX MOVEMENT. After building the prototype for this centerpiece, we decided it might be nice to add a musical movement to the base. So that's exactly what we did, see page 5.

In order to create enough space for the movement, we had to come up with a way to make a thick, hollow base, see photo below. I could have done this on a lathe, by turning a profile on a single, thick blank, and then hollowing out the middle. But instead, I used a router to create three "rings" of wood, each with a different profile routed on the edge. When glued together, these rings make a thick base, with a hole in the middle for the movement. For more on making these rings, see page 7.

TREE. Whether you plan to build the standard base or the musical version, the tree is exactly the same. Essentially, it's made up of eight "branches" and a "trunk" that fit into a round platform. I began with the branches.

▲ *An optional base for the centerpiece can be made to hold a music box movement, see page 10. When the music box is wound up, the tree revolves slowly while the music plays.*

Instead of making all the branches identical, I used two patterns (four of each). The goal here is to give the tree a little variety. But by cutting all four branches of the same pattern at once, I also saved some time.

The branches are made out of 1/8"-thick Baltic birch plywood. (Baltic birch is available at some hobby stores and through mail order, see page 10 for sources.) I cut four blanks for the branches, making them large enough to fit two branches on each blank. Then I taped the blanks together with carpet tape, see Fig 1.

To lay out the branch patterns, start by enlarging the patterns at right by 200%. Then after cutting out each pattern affix them to the top blank using a spray adhesive or rubber cement. (You'll have to place one of the patterns face down in order to get them both on the same blank.)

DRILLING HOLES. Before beginning to cut the branches out, I drilled the 1/8" holes that will be used to hang the ornaments once the centerpiece is completed, see Fig. 2. Note that there are five holes on the first pattern and seven on the second.

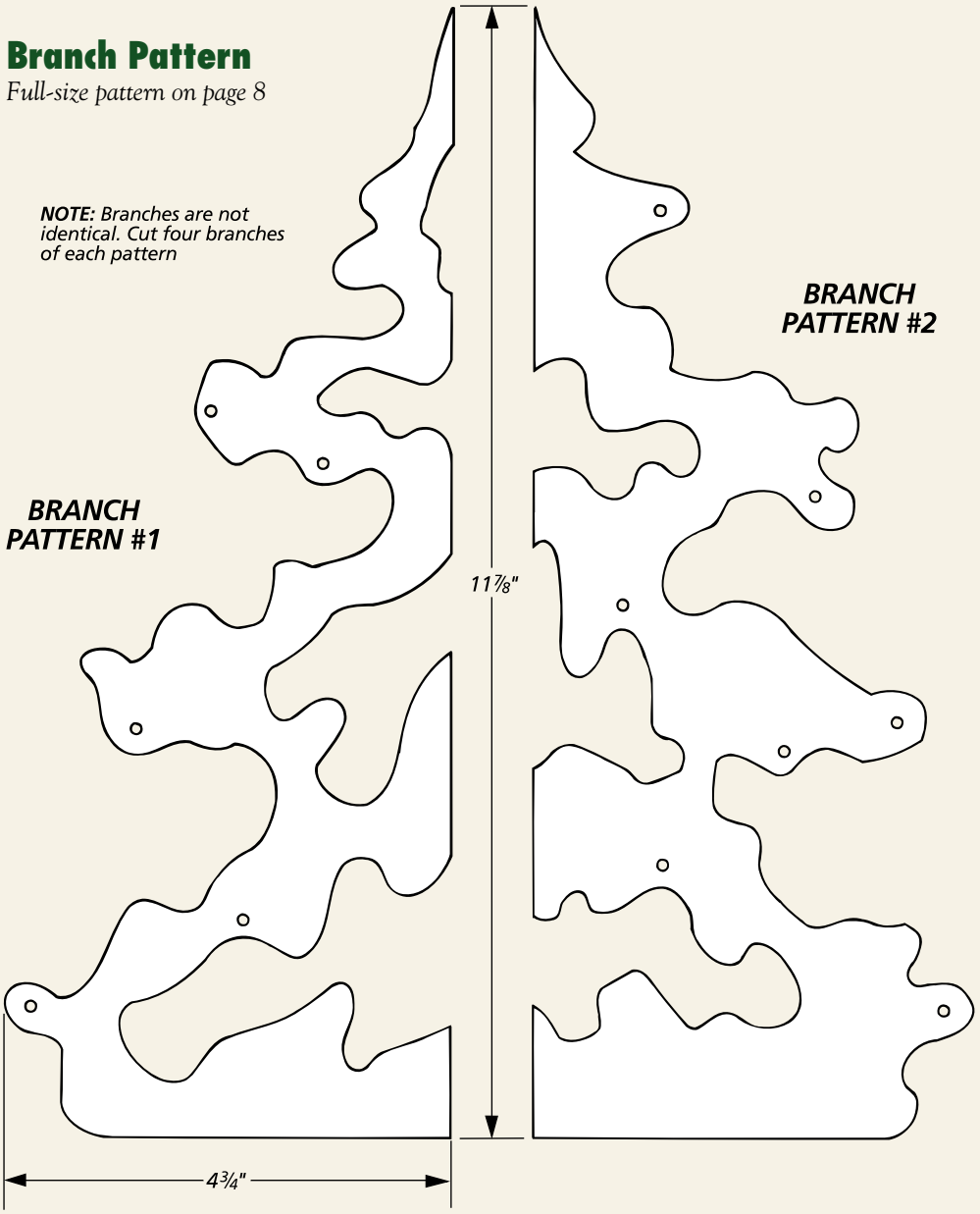
CUTTING OUT THE BRANCHES. With the holes for the ornaments drilled, the branches can be cut out, see Fig. 3. Just follow the outlines of the pattern to remove the waste areas.

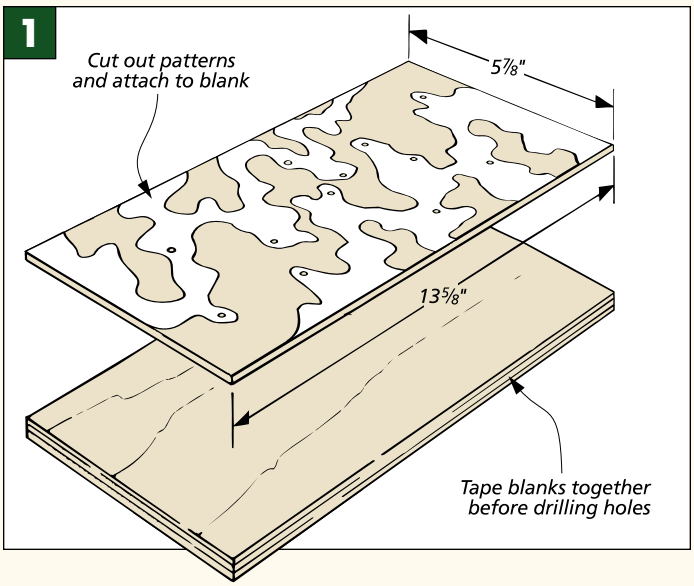
Once all the waste areas have been cut away, remove the tape and separate the branches. Now you're ready to start making the trunk and platform that holds the branches.

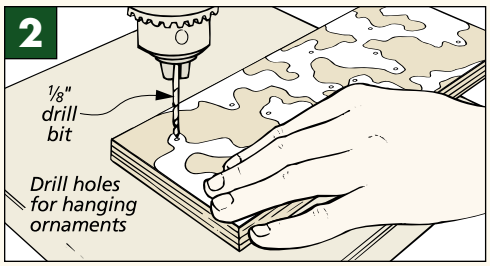
Branch Pattern

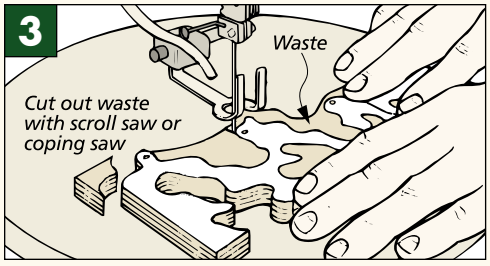
Full-size pattern on page 8

NOTE: *Branches are not identical. Cut four branches of each pattern*









Making the "trunk" of the tree is a snap. The trunk is nothing more than a 3/8"-dia. dowel, cut 1/8" longer than the branches, see drawing at right. (I made mine 12".) Then I drilled an 1/8"-dia. hole 1/2" deep on one end of the trunk for a finial that will be added later, see detail 'a'. But for now, just set the trunk and branches aside while you work on the platform.

PLATFORM. The branches and trunk are mounted in a round platform. This is simply a piece of 1/2"-thick cherry stock and in a sense, it serves as the "root system" of the tree. That's because there are four 1/4"-deep, intersecting kerfs to hold the branches and a hole to hold the trunk.

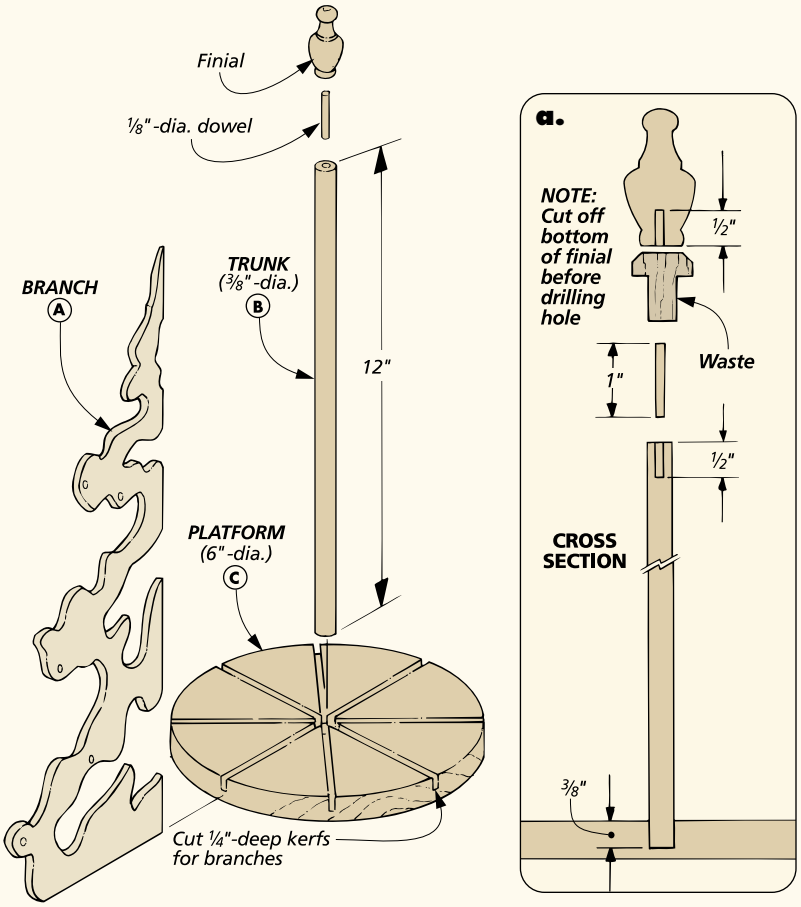
Although the finished **platform (C)** is round, I started out with a square blank. This makes it easier to cut the intersecting kerfs. Before beginning on the kerfs, however, I drilled a 3/8"-dia. hole 3/8" deep in the exact center of the blank for the trunk, see Fig. 4.

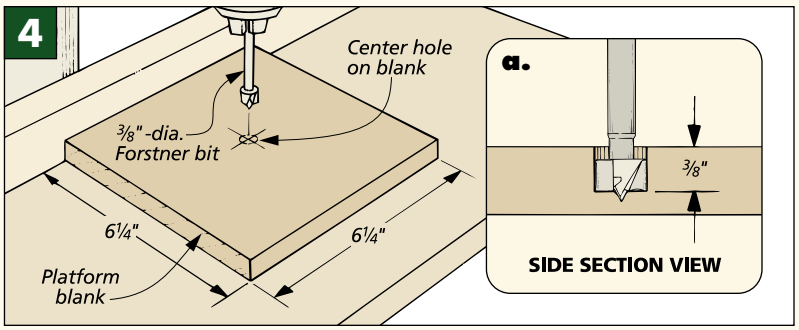
Next, I cut kerfs for the branches by making four passes on the table saw, see Fig. 5a. The first two passes are centered on the width and length of the blank. Then using a miter gauge and stop block, I cut diagonal kerfs from corner to corner across the blank, see Fig. 5.

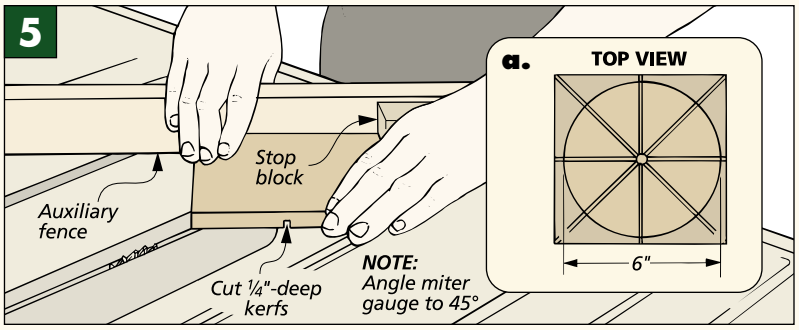
CUTTING A CIRCLE. Usually, I use a band saw for cutting circles. But since I wanted the edge of the platform to be nice and smooth, I used a router table and a simple jig, see Figs. 6 and 6a. A pivot point on the jig allows you to turn the blank in a perfect circle, trimming off each corner. (For more on this, see page 7.)

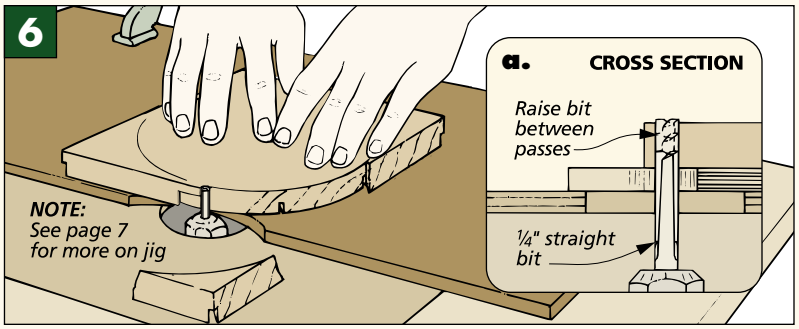
ASSEMBLY. After the platform is finished, the tree can be assembled. Start by gluing the trunk into the hole in the platform. Then the branches can be glued into the kerfs and to the trunk of the tree, see Fig. 7. Just make sure to alternate the two branch patterns as you go along, see Fig. 7a.

BASE. The platform serves its purpose by holding the branches and trunk of the tree. But to "spruce" up the tree (pun intended) I added a 3/4"-thick base with an ogee profile under the platform, see Fig. 7. (Shop Note: If you want to make the









optional musical base instead, see the instructions starting on page 5.)

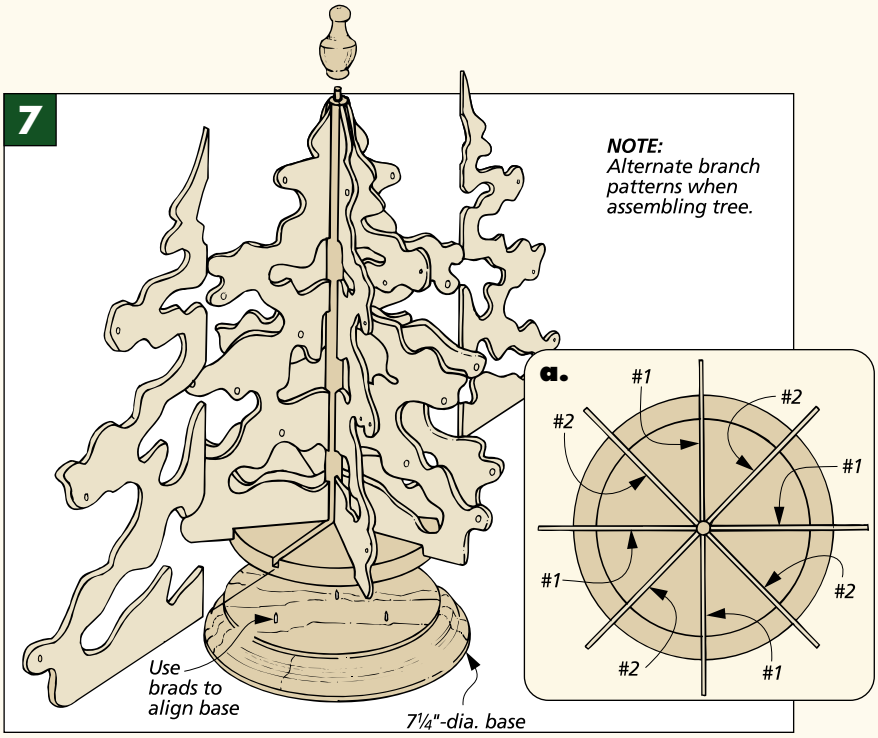
Like the platform, the **base (D)** also starts off as a square cherry blank (7½" x 7½"). But after cutting it to it's round shape on the router table, I routed an ogee profile around the edge, see Figs. 8 and 8a.

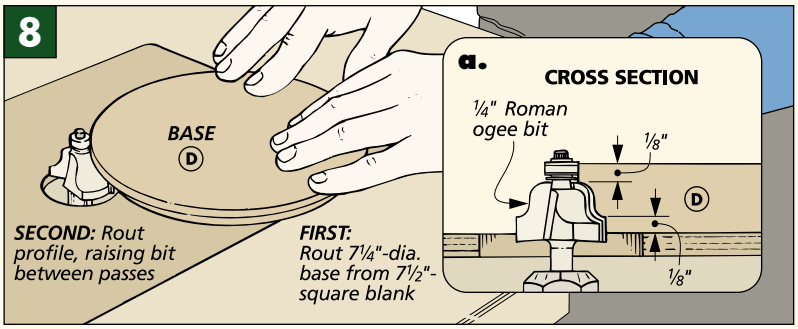
Once you've finished routing the ogee profile, the base can be glued to the platform. To help keep the two pieces aligned while gluing them up, I drove some small brads partially into the base and snipped their heads off so that about ⅛" of the brad remained, see Fig. 7. The brads prevent the tree and platform from sliding out of position as the pieces are being glued up.

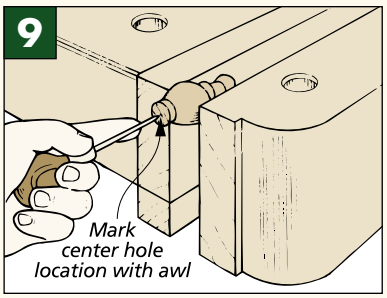
FINIAL. No tree is complete without a decoration of some kind at the top. In this case, I used a store-bought finial. Shop Note: I couldn't find a finial in the size I wanted, so I bought a larger one and cut it down to 1⅞".

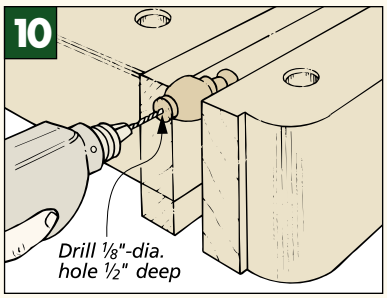
To attach the finial, I marked the bottom with a scratch awl, see Fig. 9. Then I drilled an ⅛"-dia. hole ½" deep in the bottom of the finial, see Fig. 10. Now the finial can be glued to the top of the trunk, using an ⅛" dowel to strengthen the joint, see drawing at top of page 3.

FINISH. Wiping or brushing a finish on this project presents a bit of a challenge because of the branches. So instead, I finished it with a spray lacquer (Deft). Then I added some felt pads to the bottom of the base and made some ornaments to hang on the branches, see box below.









SHOP-MADE ORNAMENTS

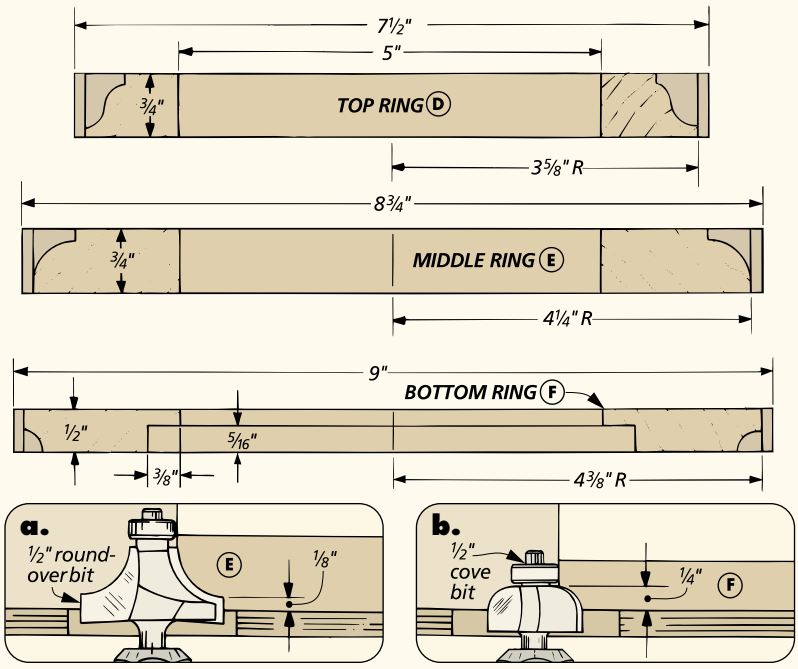
To make ornaments for the tree, I simply used some brass wire and wood beads (available at craft or hobby stores, or see sources on page 8).

First the beads are painted, see Step 1. Then the wire is cut and bent into long 'S'-shaped hooks, see Step 2. Finally, the hooks are glued into the holes in the beads, see Step 3.

1 *The beads are painted with a spray enamel. Stringing the beads on a dowel first makes it easier to paint them.*

2 *To make the hooks for the ornaments, simply cut the wire into 2"-long pieces and bend them into shape.*

3 *A small bend at the end of the wire wedges into the hole in the bead. Then a drop of glue holds the wire in place.*



Optional Base

Although it might look difficult, the base for the music box movement is really straightforward. It's just three wood rings, each with a different profile routed on the edge. When they're glued together one on top of the other, the rings create a built-up molding in the shape of a large "donut." Then a plywood bottom is added to conceal the "hole" of the donut.

RINGS. To make the rings, I started by cutting a square blank for each one. The blanks for the **top ring (D)** and **middle ring (E)** are cut from ¾"-thick stock, while the blank for the **bottom ring (F)** is made from ½"-thick material. Each blank is ¼" larger than the finished diameter of the ring, see drawing above.

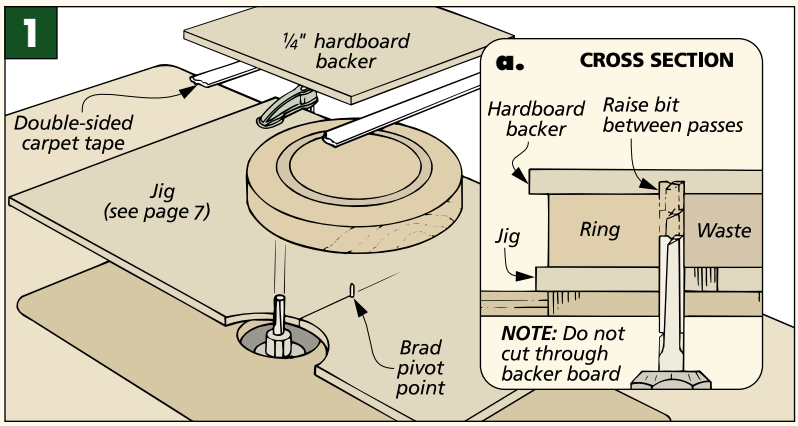
Shop Note: It's important that the blanks are flat. If you can't find any flat, wide boards, it's better to glue up the blanks from narrow stock.

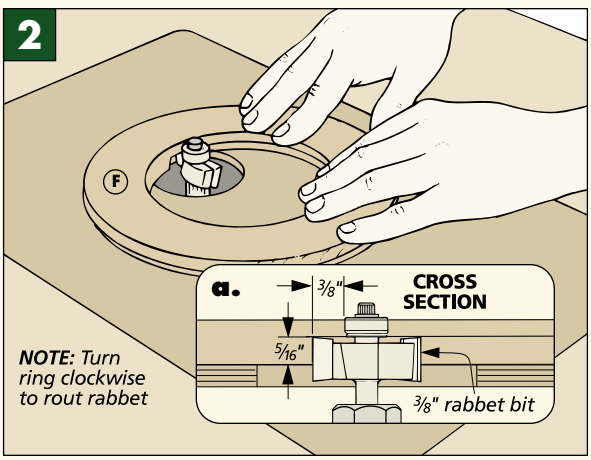
Cutting the rings out of the blanks requires making a smooth, circular cut on both the inside and the outside of the ring. To do this, I used the same jig as when making the platform. (For more on this, see page 7.)

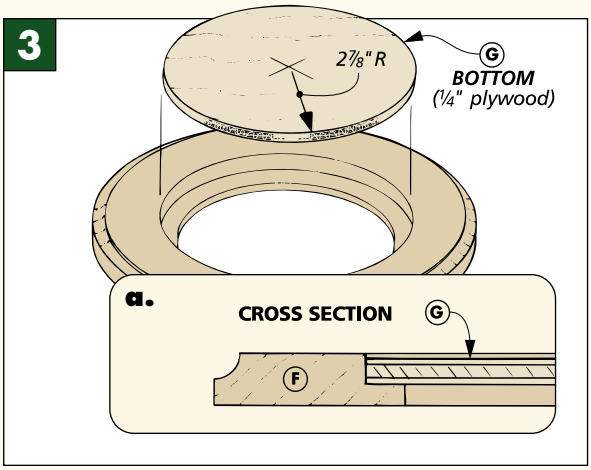
The outside of each ring is routed in the same fashion as the platform. But cutting the inside diameters of the rings required a different approach. I had to come up with a way of holding on to both the ring and the center of the blank once the two pieces were cut free. To do this, I used double-sided carpet tape to fasten a backer board to the top of the blank to keep the pieces together, see Fig. 1. Shop Note: When cutting the ring free, make sure you don't cut all the way through the backer board.

PROFILES. After cutting the three rings, the *outside* edge of each is routed with a different profile. This way, when the rings are glued together, they will create a built-up molding.

A Roman ogee profile is routed onthe top ring, see Fig. 8a on page 4.







Then I routed a ½" roundover with a shoulder on the edge of the middle ring, see detail 'a' on previous page. Finally, a ¼" cove is routed on the underside of the bottom ring, see detail 'b' on previous page.

BOTTOM. There's one other detail to take care of before gluing up the rings. A rabbet has to be routed on the bottom ring to receive a ¼"-thick plywood bottom. I did this on a router table, using a rabbet bit, see Figs. 2 and 2a. Shop Note: The rabbet is cut slightly deeper than the thickness of the bottom so that the base will rest flat on the bottom ring instead of the plywood bottom, see Fig. 3a.

After cutting the rabbet I cut the ¼"-thick plywood **bottom (G)** to fit in the recessed opening, see Figs. 3 and 3a. To do this, I used the same method as for making the rings.

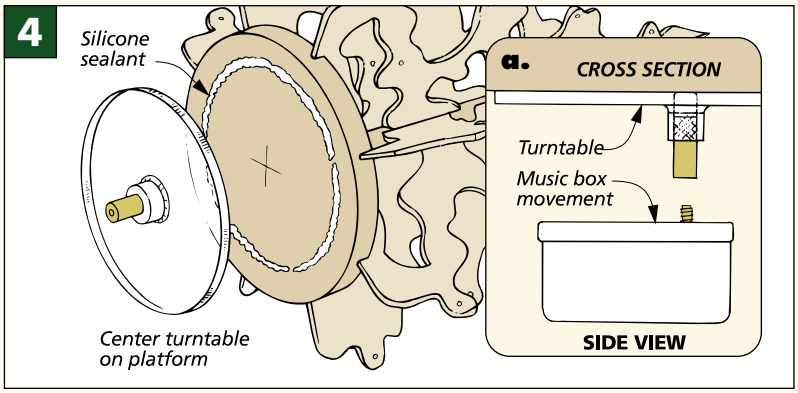
ASSEMBLY. Keeping the rings aligned while gluing them up can be a bit tricky. To make things easier, I assembled the base in stages, starting with the bottom and middle rings. Next, I added the top ring, and then finally the bottom. Shop Note: For a better appearance, assemble the rings so the grain runs in one direction.

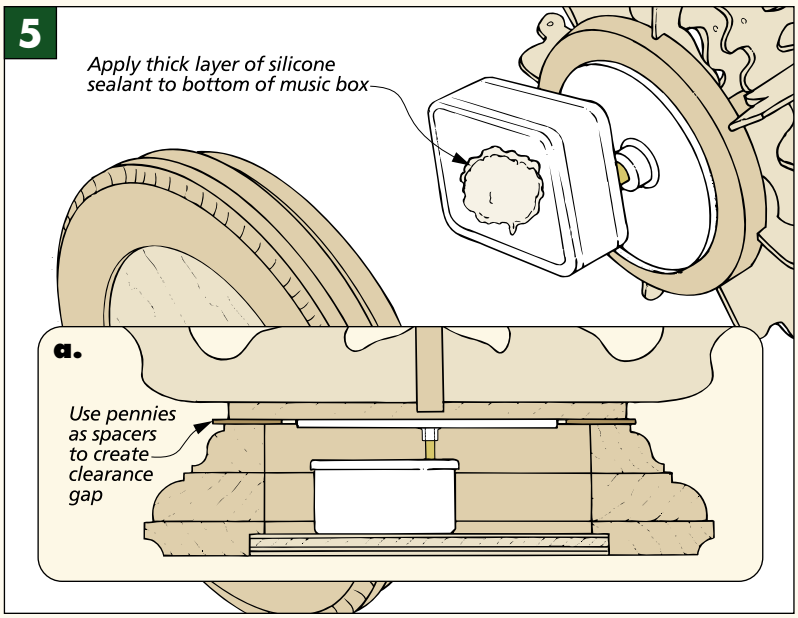
MUSIC BOX MOVEMENT. The movement I used for this centerpiece comes with a plastic turntable, see Fig. 4a. The tree is attached to the turntable so the movement is wound by turning the tree. Then as the music plays, the whole tree revolves slowly.

Attaching the turntable to the bottom of the tree is easy. It's just a matter of applying a bead of silicone sealant to the bottom of the platform and centering the turntable on the platform, see Fig. 4.

Positioning and gluing the movement to the bottom of the base is a little more involved. If it isn't positioned correctly when it's glued down to the base, the tree and the base won't align while the tree is turning.

To solve this problem, I threaded the music box onto the turntable before gluing it down to the base, see Fig. 5. Then I added a thick layer of silicone to the bottom of the movement and glued it down to the bottom of the base, making sure to center the tree over the base.





And to create a clearance gap so the tree wouldn't rub on the top of the base while it was turning (as well as to make sure the tree was sitting level), I slipped a few pennies between the platform and the top ring of the base while the glue set up, see Fig. 5a.

MATERIALS

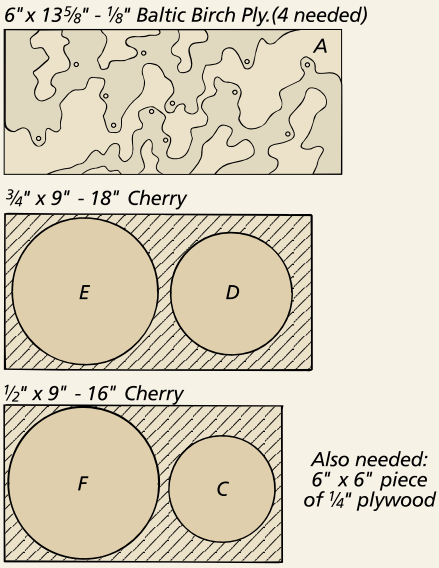
A	Branch Blank (4)	⅛ply.-5⅞x13⅝
B	Trunk (1)	⅜ x 12 dowel
C	Platform (1)	½ x 6 dia.
D	Base/Top Ring (1)	¾ x 7¼ dia.
E	Middle Ring (1)*	¾ x 8½ dia.
F	Bottom Ring (1)*	½ x 8¾ dia.
G	Bottom (1)*	¼ ply.-5¾ dia.

*Required only for optional base

SUPPLIES

- (1) ⅛" x 1" Hardwood Dowel
- (1) 2⅞" x 11/16"-dia. Finial
- (4) ¾"-dia. Felt Discs
- (40) ⅝"-dia. Round Wood Beads
- 8' of 20 gauge Brass Wire
- (1) Musical Movement w/Turntable

CUTTING DIAGRAM

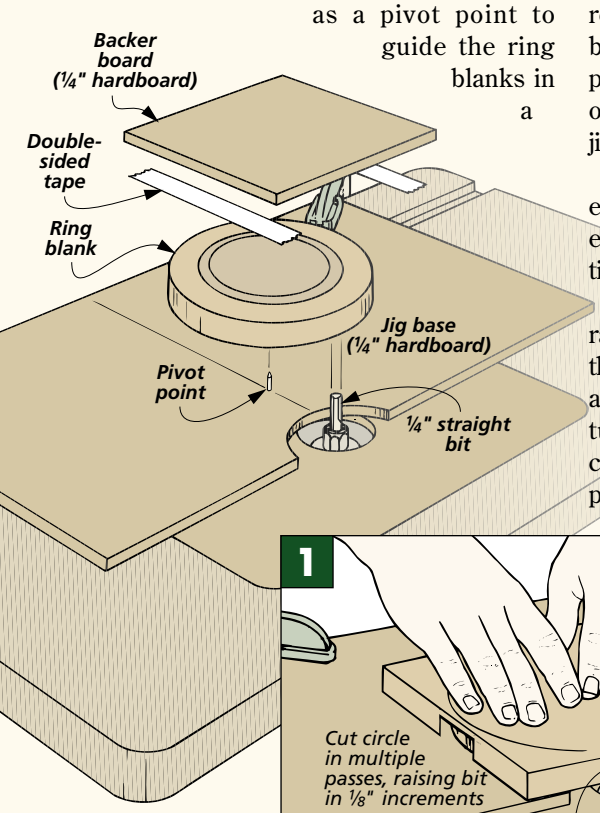


Shop Notes

Cutting Circles with a Router

I generally use a band saw for cutting circles. But making the rings for the base of the centerpiece calls for cutting a circle on the *inside* as well as the outside of a workpiece. To do this, I used a router table and a basic jig.

The jig is just a piece of 1/4"-thick hardboard with a small nail driven through one side. The nail serves as a pivot point to guide the ring blanks in a perfect circle, see photo.



OUTSIDE CIRCLES. I cut the outside circles of the rings first. To do this, start by making a small hole in the middle of the ring blank to allow it to slip over the pivot pin. Shop Tip: You can use a nail the same size as the pivot pin to drill the hole.

The next step is to set up the jig. This is just a matter of placing the jig on the router table so the distance between the bit and the pivot pin equals the radius of the ring. Then clamp the jig to your router table.

(Since the outer diameter of each ring is different, you'll have to reposition the jig for each ring.)

Starting with the bit raised about an 1/8", lower the blank over the pivot pin and the rotating bit. Then turn the blank counterclockwise, making a complete revolution.

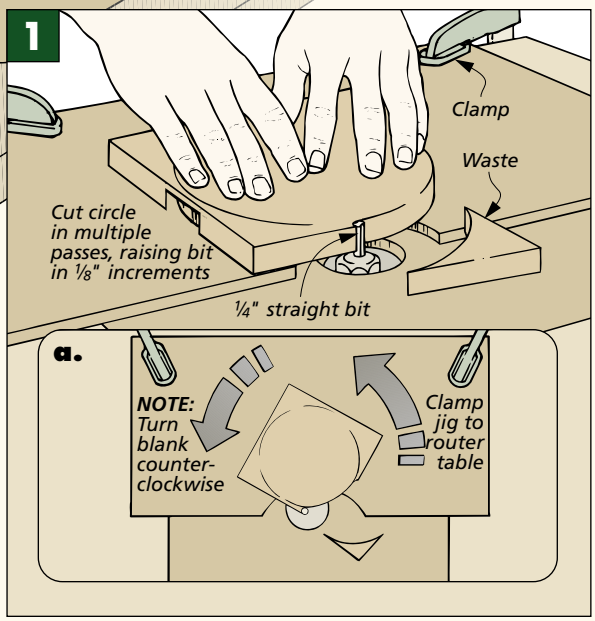
Now just repeat the process, raising the bit between passes until you've cut through the blank, see Figs. 1 and 1a.

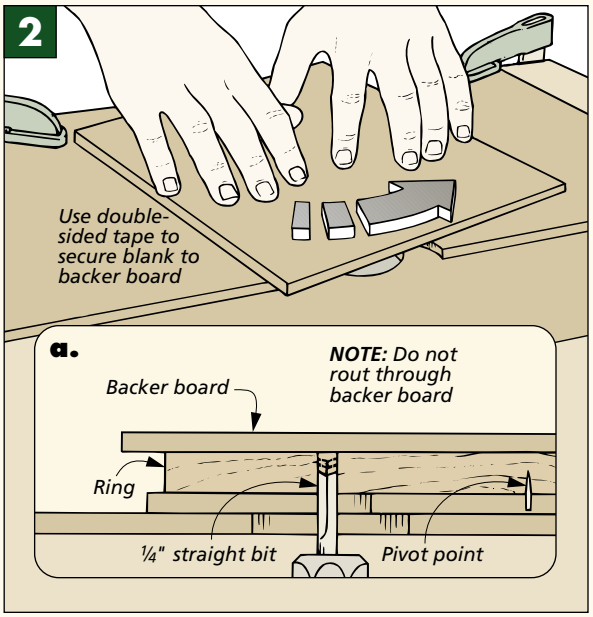
INSIDE CIRCLES. When cutting the outside of the rings, the waste simply falls away from the bit. But when cutting the inside, the waste is trapped. This means there's a danger of kickback.

To avoid this, I carpet-taped the blank to a backer board before routing the ring, see drawing at left.

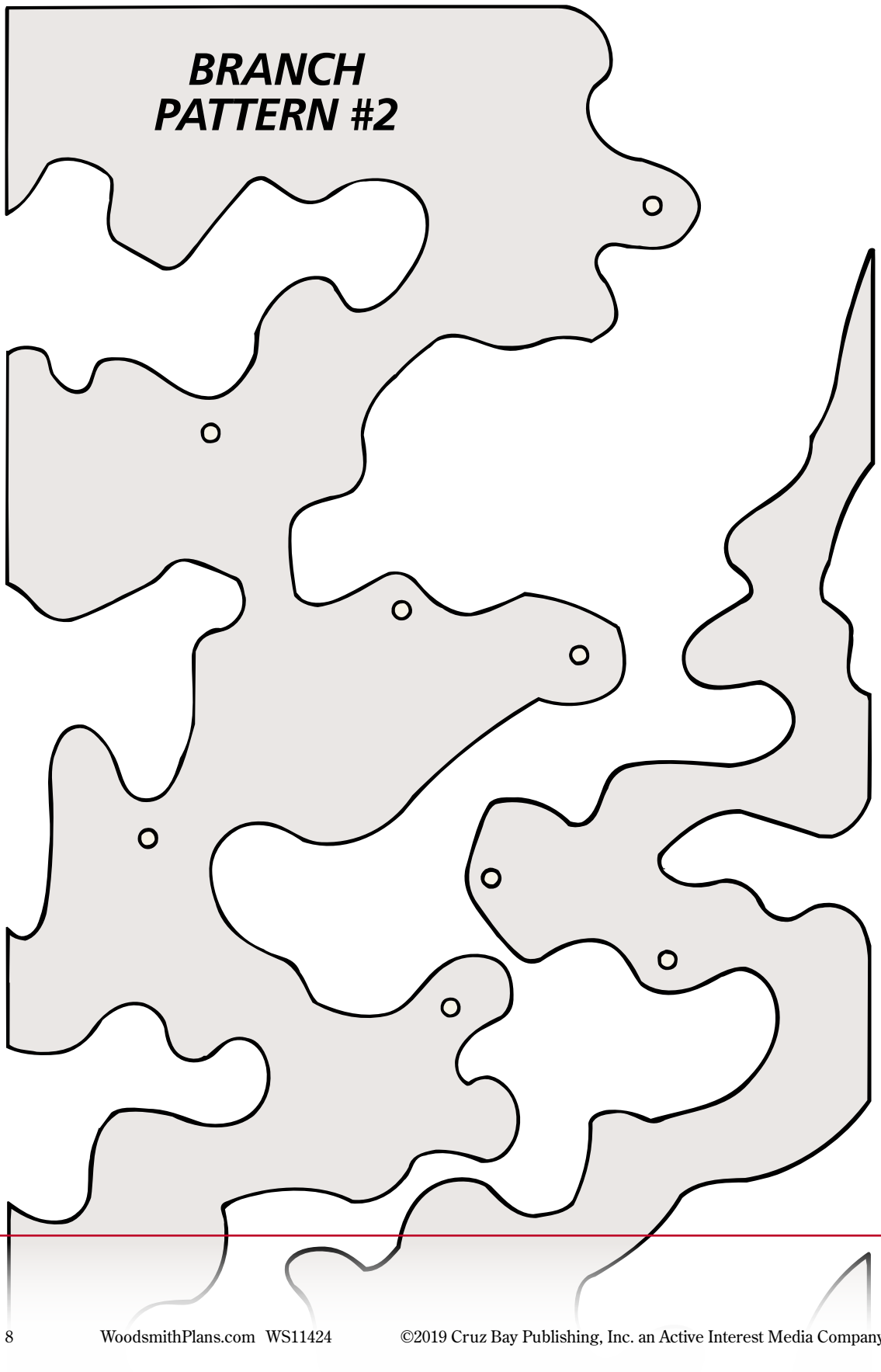
The backer board holds both the ring and the waste securely even after making the final router pass, see Figs. 2 and 2a.

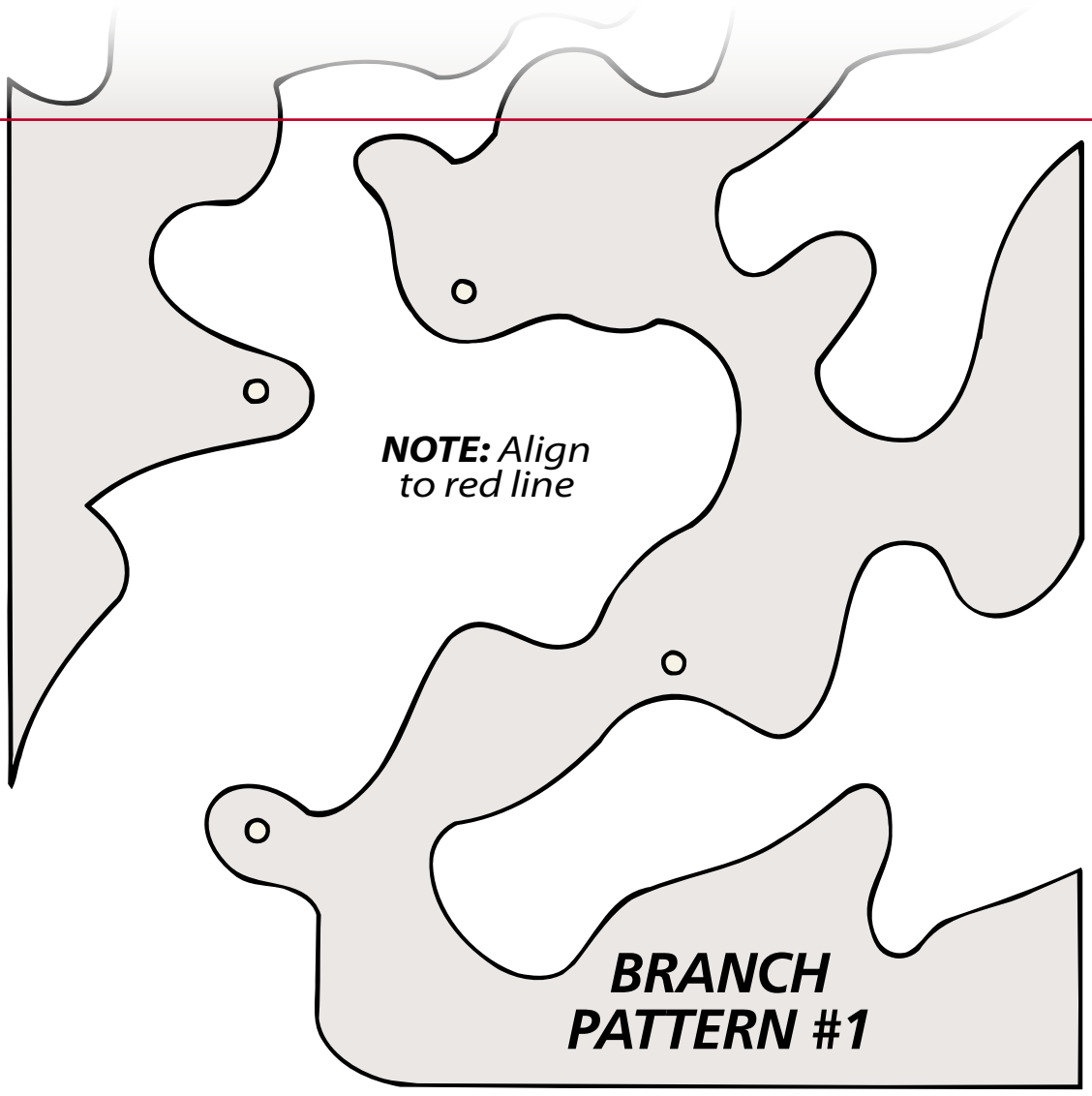
Shop Note: Just make sure you don't rout all the way through the backer board when making the final router pass.





FULL-SIZED PATTERNS





Project Sources

MAIL ORDER SOURCES

Casey's Wood Products
800-452-2739
caseyswood.com

Hobby Lobby
800-888-0321
hobbylobby.com

Lee Valley
800-871-8158
leevalley.com

McMaster-Carr
630-600-3600
mcmaster.com

National Art Craft Company
888-937-2723
nationalartcraft.com

Rockler
800-279-4441
rockler.com

To build the holiday centerpiece, you'll need quite a few odds and ends. Most of these wooden parts can be found at your local hobby and craft stores, as well as big box and hardware stores. If you are having trouble finding them in your area, here are some online sources that may help.

- **National Art Craft**
  2¾" Clear Plastic Turntable 122-029-09
- **Casey's Wood**
  Red Painted Wood Beads. 3011Red
  2⅞"-tall Birch Finial. 134
- **Rockler**
  ⅛" Baltic Birch Plywood 78875
- **Hobby Lobby**
  20-gauge Brass Wire 1914225
  ⅝" Felt Discs. 1894732

MUSICAL MOVEMENT. If you would like your centerpiece to rotate and play music, then you can build the optional base and add a musical movement (and a turntable). These single-melody movements are commonly available, and you can choose from a wide variety of songs, see the catalogs listed at right.

BALTIC BIRCH PLYWOOD. To make the branches of the centerpiece, we used a special ⅛"-thick plywood called Baltic (or Finnish) birch. What's nice about this plywood is that you won't find voids or knots in the plies. So the edges look cleaner than normal plywood that has voids and seams.

Of course, these plywoods are a bit more expensive and a bit harder to find. If you can't find it at local woodworking or hobby stores, you can order it through the sources listed at right.

Manufacturers and retailers will periodically redesign or discontinue some of their items. So you'll want to gather all the hardware, supplies, and tools you need before you get started. It's easy to adjust dimensions or drill different-sized holes to suit your hardware.