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SUMMER 2007 ■ ISSUE 27

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As much as the magazine team here at Fox Chapel likes to think of SSW&C as "our" magazine, we really can't take much credit. This magazine belongs to scrollers. For the most part, it's written by our readers. Bob and I both dabble on the scroll saw, but we're early on in our scrolling careers, and our talents lie with the written word, not pattern designing.

We have a few regular authors that contribute an article to every issue, but the bulk of the content comes from you—the reader. As you page through this issue, take note of all the names you've never seen before. These are folks just like you. The only difference is they took the initiative to send us a photo of their idea. Most of them never had anything published before and had no idea how to get started. That's where we come in—we're here to help you make it to print—and showcase your talents in the best light.

There's been a lot of talk about copyright infringement and the sharing of patterns over the last year and it is a real danger to scrollers. Why should designers spend their time and energy to develop patterns if they aren't compensated? What's their incentive? And by compensation, I don't just mean money. Certainly no one is going to become a millionaire by designing scroll saw patterns, but recognition and appreciation go a long way. When showcasing a project you created from a pattern, it's common courtesy to give credit to the designer. We all want people to admire our talents, but it's unfair not to give credit to the designer. What if it was your pattern? You would want people to use the pattern and perhaps even alter it to their own tastes, but in the end, you would want people to know that you designed it—and how they can purchase a copy for themselves.

You'll notice this icon on several articles in this issue. These projects were all entered in our inaugural Best Pattern Design Contest. These are not professional designers and the artist may not have taken home the grand prize, but they did pick up a couple of bucks for sharing the project in SSW&C, and they are getting their 15 minutes of fame (well, at least in the scrolling community). Our readers—you—are extremely talented and we want to acknowledge that. Be sure to check out page 20 for details on this year's design contest. You can enter as many projects as you wish, and you never know, you may be in the spotlight in a future issue!

Warm regards,

Shannon Flowers

Shannon@FoxChapelPublishing.com

SCROLL SAW
Woodworking & Crafts

SUMMER 2007
Volume 8, Number 2, Issue 27

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Contributors
AUTHOR SPOTLIGHT

Dale Helgerson
The Lang Clock - page 35

There are not enough hours in the day for Dale Helgerson!

In addition to working full-time as a welder, Dale, of Kansasville, WI, volunteers his time to help local 4-H members fulfill their woodworking requirements. He usually lets the kids choose a project, and helps them complete it. For many 4-H kids, this is the first exposure they have to sawdust. Dale walks them through the project.

This busy father of three also test cuts a variety of projects for *SSW&C*, and takes commissions for woodworking projects. Even with all these commitments, he still finds time to design projects and help other scrollers from around the world on the *SSW&C* message board.

Gary Sherrodd
Rustic Windmill - page 56

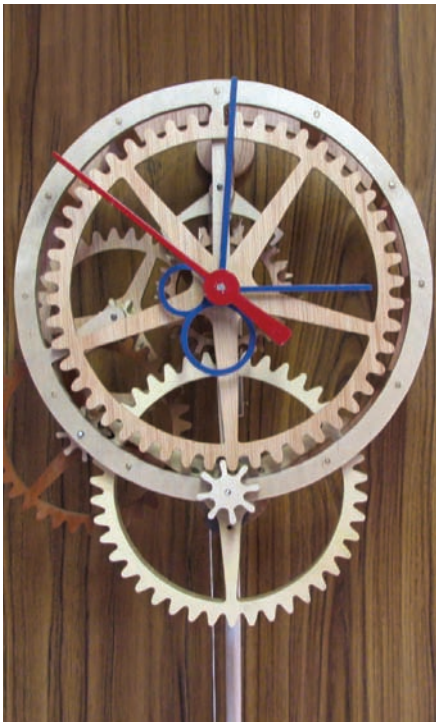
Gary Sherrodd's Woodart Creations Gallery developed from his love of teaching, producing art, and working with wood. He was interested in art all of his life, and experimented with a variety of art mediums before specializing in acrylic paints. After he became friends with the woodworking teacher, whose classroom was next to the art room, everything changed. Gary watched, asked questions, experimented, and learned. As time went by, Gary used less paint until he was "painting with wood."

He now works in his shop full-time. He lives in his childhood home on the Yellowstone river, near Pompey's Pillar, MT. The family barn was remodeled into his art gallery, and his father's old mechanic shop now serves as a large workshop and varnish room.

Donald Horgan
Cryptex Puzzle Vault - page 64

Donald Horgan, of Antioch, CA, is a self-taught woodworker with sawdust falling from the family tree. His paternal grandfather and his maternal great grandfather were both hobbyist woodworkers. In the past 12 years he has discovered the joy of making sawdust with his scroll saw. His wife of 15 years allows him to keep a small garage shop that always seems to creep into the car parking area. A police officer for 16 years, woodworking and scrollsawing are ways to escape from the pressures of his job. With his training in locking mechanisms, it is no surprise that Don was inspired by Dan Brown's novel, *The Davinci Code,* to design and create his own version of the Cryptex, a puzzle vault that is unlocked by a secret code.

Clock Scrolled Down Under



Congratulations on an excellent issue. I have just completed the MLT-13 clock featured on last issue's cover, plans are very good to follow, and it DOES WORK! I have found rubbing pencil lead (graphite) on the pallet ends and tips of the escape wheel works as a lubricant and helps the clock run.

Ron Steer
Blacktown, Australia

Gluing Down a Photo

The best method I've found for gluing down a photo, such as the one used in the Hidden Images Puzzle (Spring 2007, Issue 26) is to use regular carpenter's glue. Pour some glue into a trim roller pan, and apply a thin coat of the glue to the wood with a trim roller. Place the photo in position and smooth it from the center out. Put a piece of wax paper over the photo and add some weight until the glue dries. If you plan to do a large number of puzzles, I'd suggest an inexpensive veneer press.

Ralph Shartle
Cedar Hill, TX

Editor's Note: Modge Podge, which Carl Hird-Rutter suggested for adhering the puzzle to the wood, is less available in the United States than Mod Podge, another decoupage adhesive. Mod Podge, manufactured by Plaid, can be found at most arts and crafts stores.

Mineral Oil

In her article, (Spring 2007, Issue 26) Kayla Helseth suggests using mineral oil as a finish for fretwork. I have a small shop, and do not like to apply most finishes because of the smell. Is the mineral oil she refers to the same kind that is available in drug stores?

Joe Tomeo
Bear, Delaware

Kayla responds: Yes, we just use regular mineral oil. I actually buy it at the vet clinic because it is much cheaper. They give it to horses and cows to clean them out, but it is just regular mineral oil. And it doesn't smell at all; it just takes a bit longer to dry.

SET IT STRAIGHT

Wooden Gear Clock: Unfortunately, some of the patterns for the gear clock were missing. All of the patterns that printed were accurate, but the cable drum and axle lengths did not print. The pattern was originally supplied as a CAD drawing and the line weight was not thick enough to actually print. Our software compensated for the problem and the lines appeared on all our proofs. We'd like to thank our printer, Fry Communications, for helping us correct the problem by re-printing the entire pattern in this issue. For assembly instructions, see Spring 2007, Issue 26.

Welcome Sign: The pattern in the article on Kayla Helseth (Spring 2007, Issue 26) did not match the photo of the project. We apologize for this error. You can download a corrected pattern from our website (www.scrollsawer.com) or send a SASE (Welcome Sign, 1970 Broad St., East Petersburg, PA 17520) for a print.

Fox Hunt

Ralph Kleinowski of Port Richey, FL, and Amy Nielsen of Maple Valley, WA were randomly drawn from the 110 entries who located the Fox in the Spring 2007 (Issue 26) of *SSW&C*. The fox was located in the photo of the Virginia state quarter on page 63 of Cutting Coins.

If you find the fox in this issue, contact us and tell us the page number and location. Two readers randomly selected from all correct replies will receive a $25 Fox Chapel Publishing gift certificate. Entries must be received by June 1, 2007 to be eligible.

NOTE: Contest fox faces left (other foxes appearing in SSW&C *don't count).* Send your entry to *Scroll Saw Woodworking & Crafts*, Attn: Find the Fox, 1970 Broad Street, East Petersburg, PA 17520, or e-mail to Editors@ScrollSawer.com.

TOP TIP

Making Your Own Toy Wheels

Editor's Note: in SSW&C Issue 26, Alvin Bulgrien suggested buying the wheels for his wooden tractors. Ralph Shartle shares his tips for making them in your shop.

Make your own wooden wheels for the John Deere Tractor or any other project that requires wooden wheels.

Start with a hole saw ⅛"-diameter larger than the size of the wheel you want. Drill into the wood enough to score the wood and so that the integrated center drill reaches the backside of the blank. Then replace the hole saw with a Forstner bit that is about ¼" smaller in diameter, and use the center hole drilled by the hole saw to align the Forstner bit. Drill in ⅛"-¼" with the Forstner bit on both sides to give the wheel depth. Chuck the hole saw back in the drill press, and continue drilling until you cut nearly the whole way through. Flip the blank over and drill the rest of the way through the blank. The center drill for the hole saw automatically drills the hole for the axle. A little rounding work with the sander gives you a perfect wheel.

When making the axle holes in the body, it's usually a good idea to determine the exact size of your dowel or axle pegs. Some of the round stock is manufactured overseas, where they use the metric system, so a ⅛"-diameter dowel may be 3mm, which is closer to 3/32"-diameter. A hole that is precisely the size of the axle lets you put a toy together without using glue, which makes it easier for you to adjust.

Ralph E. Shartle
Cedar Hill, TX

Easy pattern removal

Apply clear packaging tape to the face of the blank. Spray a generous coating of spray adhesive to the pattern, and place the pattern on the taped surface. When you are done cutting, pull off the tape and sand the blank lightly to remove any remaining residue.

Jason Paranich
Woodland, PA

Finger protection

I use flexible wrapping tape to protect my fingers. Some woodworking suppliers, such as Lee Valley and Rockler offer 1"-wide rolls, but I found it at a local tractor supply company in 4"-wide rolls, which I cut down to 1"-wide strips, for about the same price. The tractor supply company sells the tape as "vet wrap tape."

Lowell C. Kirkley
Temple, TX

Rivets for stack cutting

I dislike using adhesives, such as double-sided tape, to attach pieces of plywood together for stack cutting. So when I was making the Rotating Christmas Pyramid (Holiday 2005, Issue 21), I needed a way to stack two pieces of ⅛"-thick Baltic birch plywood together. I drilled four ⅛"-diameter holes around the outside of the piece, and used 3/16"-diameter pop rivets to hold the plywood pieces together. The pop rivet tool pulls the aluminum rivets up far enough that it doesn't scratch the table, but holds the pieces securely together.

Jim Bennett
Chester, VA

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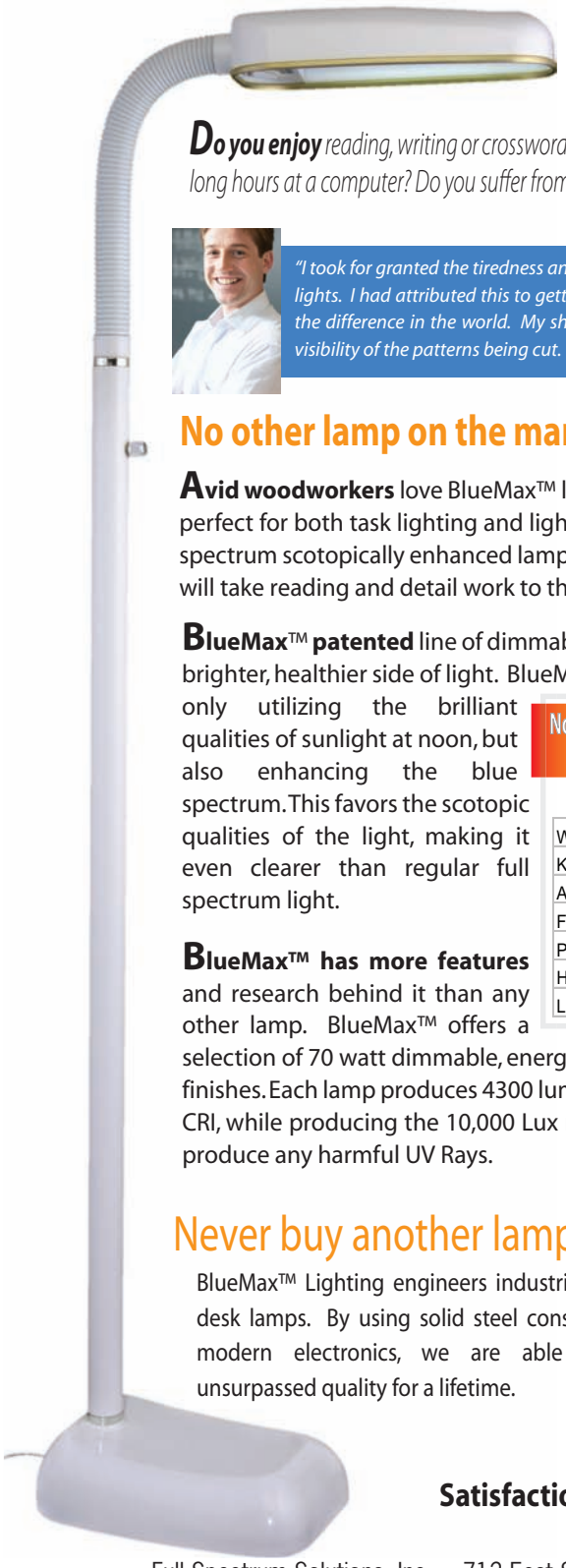

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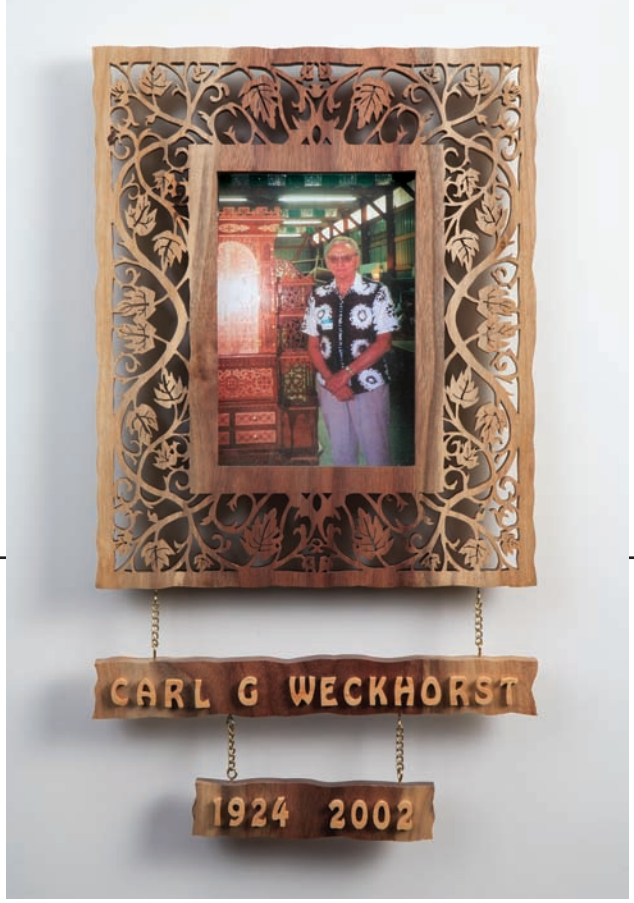


Memorial Frame

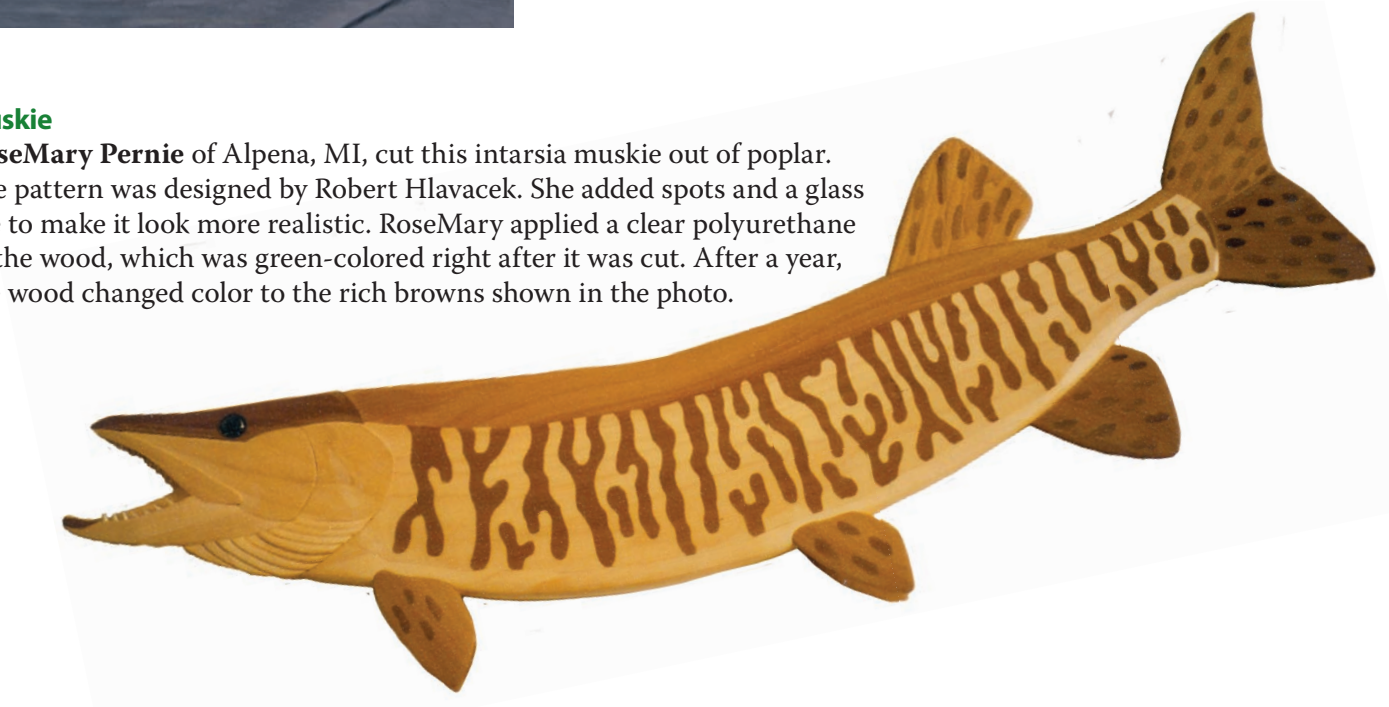
Scrolling historian, **Ernie Lang** of Cabot, PA, adapted and cut this frame in honor of the late Carl Weckhorst. Carl, a fretwork pattern designer, also devoted a significant portion of his life to salvaging, recreating, and restoring historic fretwork patterns. Many of his patterns were made available through Wildwood Designs.

Scrolling in School

Chris D'Esposito, a 2003 graduate of Springfield, PA, High School, built this desk from African ribbon and Honduras mahogany. He embellished it with fretwork on the top and decorative scrolled accents on the pigeon holes.

Muskie

RoseMary Pernie of Alpena, MI, cut this intarsia muskie out of poplar. The pattern was designed by Robert Hlavacek. She added spots and a glass eye to make it look more realistic. RoseMary applied a clear polyurethane to the wood, which was green-colored right after it was cut. After a year, the wood changed color to the rich browns shown in the photo.



Intarsia Ornaments

Roy Whitford of Janesville, WI, has already cut these ornaments designed by Kathy Wise, which appeared in the Holiday 2006, Issue 25. His pieces are made from a variety of hardwoods cut, sanded, shaped, and glued together.

Got cheese?

Al Weinberg designed and cut this whimsical intarsia piece. Made from a variety of hardwoods, the piece demonstrates Al's talents for achieving dimension in his work with some parts measuring nearly 2"-thick. The pattern is available for $10 incl. postage. Contact Pat Kowalke, 1542 Dublin Ln., Escondido, CA 92027, ppattyk@cox.net, 760-489-9804.

At the Pond

This waterfowl scene, by **Richard Hare**, of Toledo, OH, was cut in multiple layers and assembled into a shadowbox frame. Richard designed the pattern for the scene based on local wetlands bordering Lake Erie. It is cut from ¼"-thick Baltic birch plywood.

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Scrolling for a Good Cause

A scrolled quilt put together by members of the *SSW&C* Message board.

The members of the *Scroll Saw Woodworking & Crafts* Message Board have banded together on a number of occasions. For the Fox Chapel Publishing Open House, the group made and assembled a "scrolled quilt." In all, members contributed 45 squares to the quilt, which was auctioned off to benefit the Shriner's Hospital for Children. The following members contributed one or more squares: Toni Burghout, Kerrie from Australia, Daniel Addy, Dan Hart, Neal Moore, Gill Dexter, Carl Hird-Rutter, Bill Walker, Rhys Hanna, Bill Yardley, Bob in Whitby, Robert Kraszewski, Bruce Millward, Pete Ripaldi, Albert Sorenson, Teresa Gillbanks, Dale Helgerson, Marcel LeBlanc, Evie Bay, Betty Mitchell, Allan Sanson, Theresa Ekdom, Kelly Nigl, James Daniels, B. "Smitty" Smith, and Barry Stratton. Between the quilt and other items donated to the Charity Auction, over $1,800 was raised.

Message board members have also banded together to help out victims of a fire. Member Steve Westfall, of Arthur, WV, (Steviegwood on the board), posted a story about his friends who lost their home in an accidental fire.

Steve's purpose was not to rally support, but simply to share his views about workplace practices that he disagreed with. He was shocked at the support for Daniel and Dorothy Bailey, and their two children. Steve said scrollers put together care packages of necessities, sent projects to help the family decorate their new house, or to be raffled off to offset expenses.

Sharing their passion with children

Scrollers from the Scroll Saw Club in Harrisburg, PA, teamed up with the Chaplains at Hershey (PA) Medical Center to make a series of musical animals for the children at the hospital. The club meets regularly at the Woodcraft store in Harrisburg.

Scrolling for Charity in the UK

Gordon L. Degg of Alsager, Stoke-on-Trent, England, developed a method to mass-produce bookmarks after the charity he supports, the "Bible Society", asked him to make 500 for a fund raiser back in 2004.

Gordon built a jig that allows him to cut the 1/64"-thick plywood he uses for the bookmarks with a knife. That allows him to get much straighter and crisper lines on the sides. When he's ready to scroll the designs, he stacks 15 pieces of the thin plywood and adds a piece of 1/32"-thick plywood on the top and bottom to support the fragile fretwork.

Scrolling Events

May 12. Shenandoah Valley Scrollers 4th Annual Scroll Saw Picnic, HARRISONBURG, VA (Mt. Pleasant Church of the Bretheren). Sat. 8am-4pm. Free adm. Contact: Janis Ralston, 540-810-2626, The_Ralstons@hotmail.com, or Jim Early, 540-943-9320.

Jun 9-10. Tri County Scrollers Scrollabration 2007, LEBANON, PA (Lebanon Expo Center). Sat. 9am-4pm, Sun. 11am-3pm. $6 adm. at the door, $10 for both days (advance sales only). Contact: Mike Freitag, 717-733-1546, or Ben Fink, 717-367-8064, info@scrollabrationpa.com.

Jul 21. 2nd Annual Upstate New York Scrollsaw Festival and Trade Show, VOLNEY, NY (Volney Firehouse). Sat. 9am-4pm. $3 ADM. Contact: John Meloling, 315-638-1153, jmelolin@twcny.rr.com or Barbara Raymond, barbchas@twcny.rr.com.

Aug 3-4. The Midwest Scroll Saw Trade Show, RICHLAND CENTER, WI (Richland Center High School). Fri. Classes from 8am-4pm. Sat. Show from 8am-4pm. $5 adm. Contact: Floyd & Carol Hacker, 888-322-6394, clhacker@mwt.net, or Dirk & Karen Boelman, 800-566-6394.

Aug 25-26. Albury Wodonga Woodcrafters Inc. Scroll Saw Weekend, WODONGA, VICTORIA, AUSTRALIA (Club Rooms of the Wodonga Show Ground, Wilson St.) Hours vary. $35 adm. for weekend, includes meals. Contact: Ed Kilo, 02 6024 2482 or e-mail kejuvy@gmail.com (Subject: Scroll Saw Weekend).

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By Bob Duncan, Technical Editor

Light Reduces Strain on Eyes

The BlueMax High Definition Lamp makes a big difference when you're scrolling by providing bright, shadow-free light.

Full Spectrum Light

It's hard to explain how the light is different from ordinary light. The only word I can think of is "clean." Colors pop out under the light, and the contrast between white and black is amazing.

I've tried many methods of making the line show up better against the scroll saw blade, but none of that is necessary with the BlueMax light.

The BlueMax technology is based on the therapy lights for people affected by Seasonal Affective Disorder (SAD), a form of winter depression caused in part by a lack of sunlight. The lights simulate sunlight and provide light at a wavelength that is more comfortable to read or work under.

Just under 8"-wide, the units use three double light tubes. Unlike many traditional lights the light is virtually shadow free. The lamps are an investment, ranging in price from $159 for desk models up to $239 for floor models. But they come with a lifetime warranty which covers 100% of the parts and labor. Once you work under one of these lamps, you'll wonder how you ever managed with an ordinary light.

BlueMax lamps can be ordered through Full Spectrum Solutions at www.bluemaxlighting.com or 877-258-3629. The shipping price depends on your location, but ranges from $9 to $25.

Microplane Sanding Discs

Microplane has developed a set of stainless steel sanding discs that attach to random orbit sanders. The discs use the same cutting technology used in the Microplane rasps.

Instead of a disc covered in an abrasive grit, the Microplane discs are covered with small cutters.

I sanded a piece of inexpensive, splintery luan plywood. I was honestly shocked with the results.

I drew a series of pencil lines on the wood to use as a reference and began sanding with the medium disc. Seconds later, the lines had been removed along with the splintered wood. It was as smooth as if I had sanded it with 150-grit sandpaper. Switching to the fine disc gave me glass-smooth results. And there was no noticeable decrease in the performance after nearly three hours of sanding!

A three-disc set of Microplane stainless steel sanding discs is available for $13.95 + $5 s&h, us.microplane.com, 800-555-2767.

Hobby Clamps

Some scrolling projects require you to be a contortionist to clamp them properly. Scrollers use a variety of items, ranging from tape to rope, weights to pure brute force, but Lee Valley has introduced a new clamping system designed for irregular shapes.

Hobby Clamps use space-age carbon fiber rods and polycarbonate plastic arms (or jaws). Since both jaws move independently, it is easy to adjust the clamps and workpiece with just one hand.

While they look fragile, the rods are light, flexible, and strong. The clamps operate on the offset locking principle—if you skew a round rod passing through a round hole, friction keeps the pieces from sliding.

The kit includes three rods, six arms, and an entire strip of connectors to join the rods together. Kits are available for $14.50 + $7.50 s&h from Lee Valley, 800-871-8158, www.LeeValley.com.

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Attaching Patterns

Temporary-bond spray adhesive is the most common method used to attach patterns to stock. Photocopy the pattern. Spray the adhesive on the back of the pattern, wait a few seconds, and press the pattern down onto the blank. Rubber cement or glue sticks work similarly.

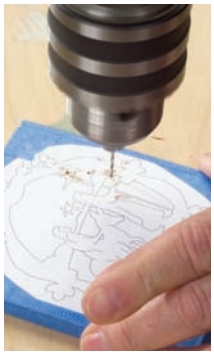
You can also use graphite or carbon transfer paper. Place the pattern on your blank and slip a sheet of transfer paper in between the pattern and the blank. Use a few pieces of painter's tape to hold the pattern and transfer paper in place. Trace around the pattern with a red pen (so you know where you have traced). Choose a light-colored transfer paper for darker woods. Carbon paper costs less than graphite paper, but must be sanded off before finishing.

Removing Patterns

Dampen the paper pattern with mineral spirits to aid in removal. Commercial adhesive removers work as well. A quick wipe of mineral spirits will remove most adhesives left behind on the wood.

Blade-entry Holes

Some patterns have blade-entry holes marked. If the pattern doesn't, place the holes near a line to be cut to prolong your blade life, but don't place the hole on a curving line or inside corner (if possible). Drill the hole perpendicular to the blank. Use a drill press if you have one; otherwise the holes may interfere with delicate fretwork. Drill through your blank into scrap wood to prevent tear out on the back side of the blank.



If you have the space, use a larger bit—it will make it easier to thread your blades through. For thin veining cuts, use the smallest bit your blade will fit through.

Blade Tension

Before inserting a blade, the tension should be completely removed. Clamp both ends of the blade into the blade holders and adjust the tension. Push on the blade with your finger. It should flex no more than ⅛" forward, backward, or side to side.

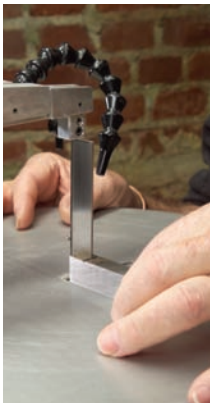
A blade that does not have enough tension will wander. It will also flex from side to side, making for irregular or angled cuts. If you press too hard on a loose blade, it will usually snap.

A blade that has too much tension is more susceptible to breaking and tends to pull out of the blade holders. In general, it is better to make the blade too tight rather than too loose.

Squaring Your Table

Most scroll saws have an adjustable table that allow you to make cuts at different angles. There are times when you want your saw set at an angle, but most cutting is done with the blade perpendicular to the table. If the table is even slightly off-square, your cuts will be angled. This interferes with puzzle pieces, intarsia, segmentation, and many other scrolling projects.

The most common method for squaring your table is the small square method. Set the square flat on the saw table against a blade that has been inserted and tensioned. Adjust the table to form a 90°-angle to the blade.



The cutting-through method is also popular. Saw through a piece of scrap wood at least ¾"-thick and check the angle of the cut using a square. Adjust the table until you get a perfectly square cut.

To provide more projects per issue, we have consolidated basic scrolling information here. Because our articles will no longer cover these basics, we will be publish this page in each issue to assist novice scrollers.

You can also use the kerf-test method. Take a 1¾"-thick piece of scrap and cut about 1/16" into it. Stop the saw, and spin the wood around to the back of the blade. If the blade slips easily into the kerf, the table is square. If it doesn't slide into the kerf, adjust the table and perform the test again until the blade slips in easily.

Stack Cutting

Stack cutting lets you cut several pieces of a project—or even several projects—at one time. Essentially, you attach several blanks together, and cut them as one unit.

One way to attach blanks is with tape. Line all the layers up and wrap a layer of tape around the outside edge. You can also wrap the whole stack in tape for extra stability. Scrollers can use either masking tape, painter's tape, or clear packaging tape.

Another method uses hot-melt glue. Glue the blanks together with a dot of hot-melt glue on each side.

You can also join pieces for stack cutting by driving brads or small nails into as many waste areas as you can. Be sure to cut off any overhanging nails as close to the surface as you can; then sand them flush to avoid scratching or catching on the table.

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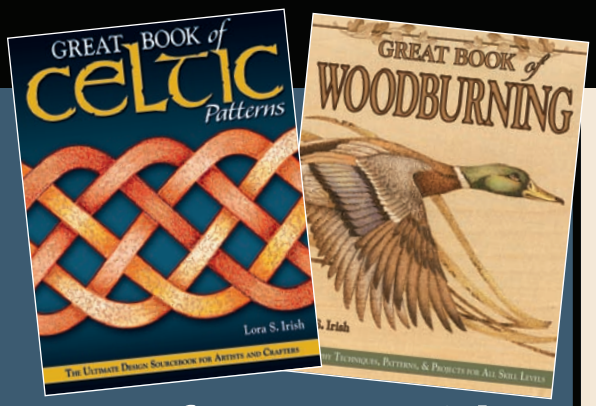

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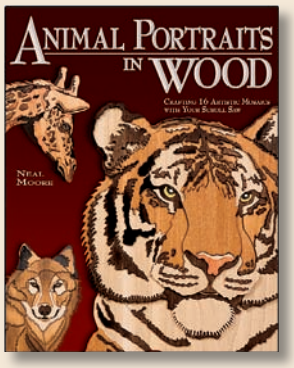

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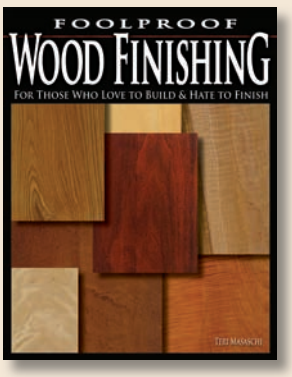

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BEST PROJECT DESIGN CONTEST 2007

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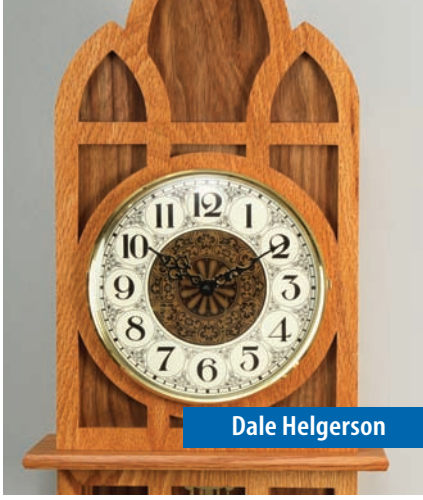
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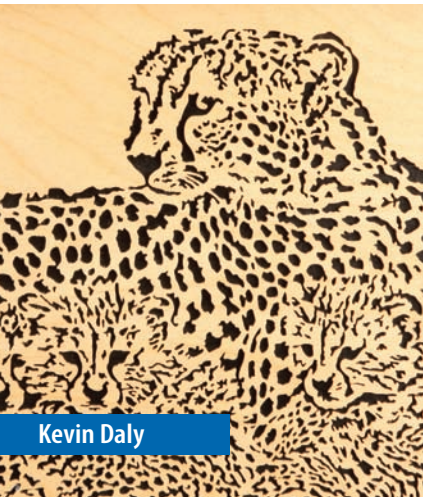
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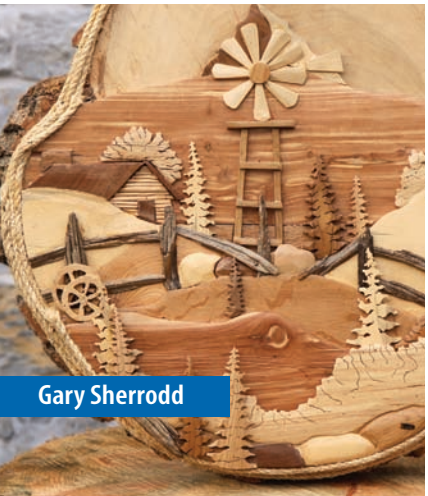
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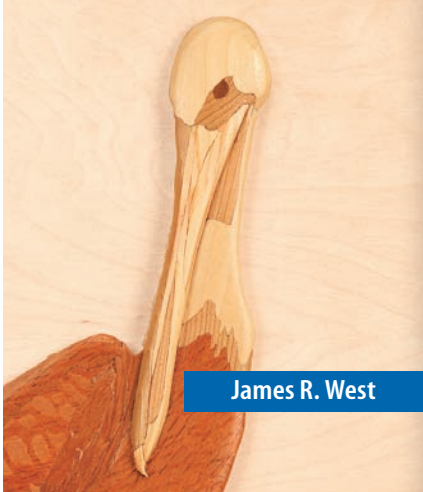

James R. West

SHOW OFF YOUR TALENTS!

Win big prizes! Grab your time in the spotlight!

SSW&C is looking for scrollers ready to show off their talents. Entries compete for top prizes and the chance to have their work featured in the pages of *Scroll Saw Woodworking & Crafts*. All the projects on this page have been published from entries in the 2005 contest. Judges will choose one Grand Prize winner and three Honorable Mentions. Photos of finalists will be posted on the *SSW&C* website where readers will have the opportunity to select the People's Choice winner.

Enter as many projects as you want, but entries must be your original design. Projects cannot have been previously entered in a *SSW&C* sponsored contest. Judges will consider originality of design, quality of construction, and aesthetic appeal as the main criteria when reviewing entries. Deadline for entry is December 31, 2007.

Contest Rules:

- Patterns must be your original design. Designs cannot be altered versions of existing patterns by another designer.
- Projects must feature a significant amount of scrolling. (Projects may include other common woodworking tools in the creation—for example: router, tablesaw, bandsaw.)
- Projects must be able to be made from commonly available wood.

To Enter:

Submit the following information:

- 1 or 2 clear photographs of your work
- Information on the project size and types of wood used
- Information on special construction or finishing methods if applicable
- Your name, address and phone number

Entries will be acknowledged but photos and materials received will not be returned. Please do not submit original artwork.

SUBMIT ENTRIES TO:

Best Project Design Contest ■ Scroll Saw Woodworking & Crafts
1970 Broad St., East Petersburg, PA 17520 ■ Or email: Editors@scrollsawer.com

Pocket Sundial

Nostalgic, functional timepiece is easy to make

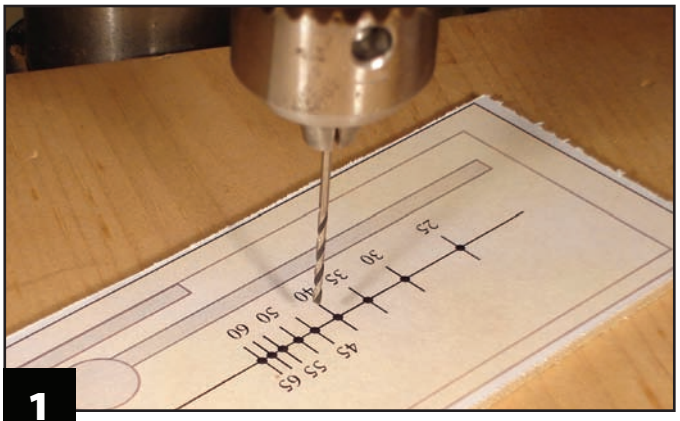
By Carl Hird-Rutter

This clever little project is sure to attract lots of attention. It's really very easy to craft and can be carried in your pocket for a fun diversion anywhere you go.

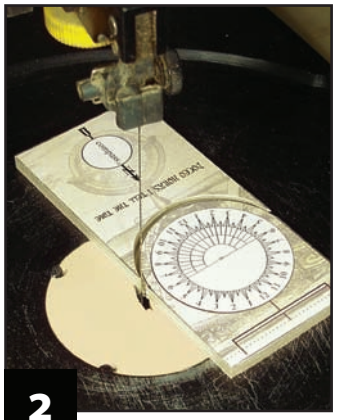
Based on the principles of an equatorial sundial, the project measures time based on the position of the sun. Sundials are the world's oldest form of clocks. They work on the principle that the shadow of an object moves as the sun moves through the sky.

This sundial is made up of three layers. The design is based on an ancient Chinese model. Although the project is easy to make, follow the instructions carefully to minimize mistakes and improve the accuracy.

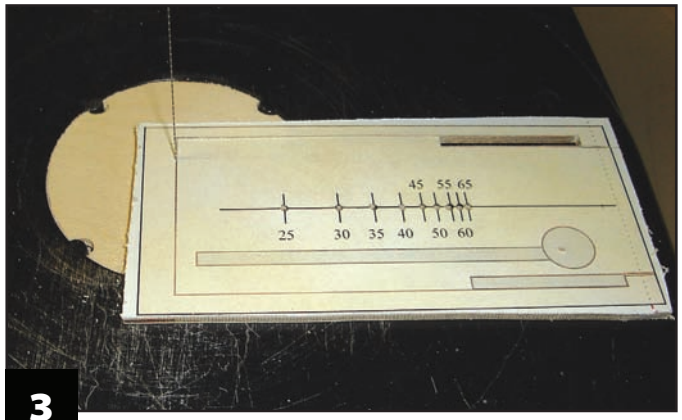
The pattern is attached permanently to the wood in this project. Sand all of the surfaces before starting. Spray a generous amount of adhesive on the wood and the paper. Position the pattern on the wood, and allow it to dry thoroughly.



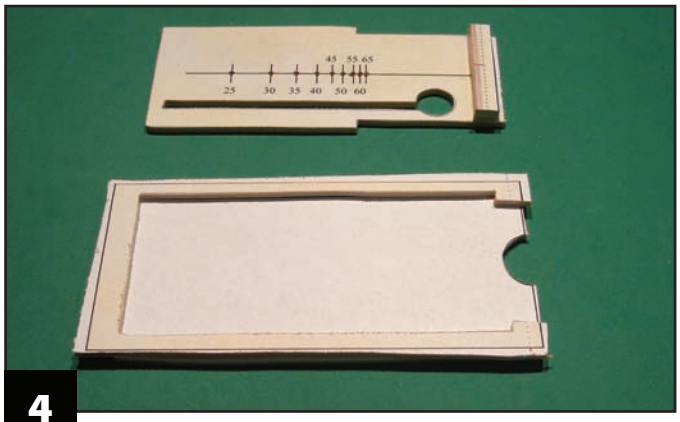
1 **Drill the required holes.** Drill the latitude holes and blade-entry hole for the compass with a 1/16"-diameter bit. Drill the blade-entry hole for the gnomon slot (see sidebar). Use a bit the same diameter as your bamboo skewer to drill the center of the dial. This must be a snug fit. It's better to make the hole too tight and sand down the skewer, than to have a loose fit.



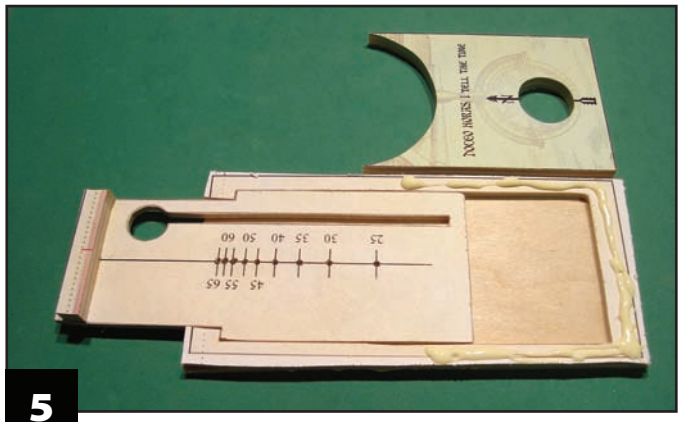
2 **Cut the top layer.** Cut out the dial and the hole for the compass. If you make it a snug fit, you won't even need glue. If needed, change the hole size to match the compass you are using. Cut the dial pivot tab. Note that there is a wide kerf on the inside of the tab. Sand the two tabs on the dial to allow room for pivoting.



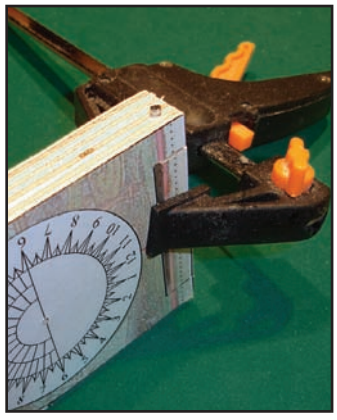
3 **Cut the middle and bottom layers.** Cut the drawer and gnomon slot, but leave the retaining tabs. Test the drer by sliding it in and out. Cut the perimeter of both layers, but cut the long sides well outside of the lines. The sides will be trimmed when assembled to ensure a smooth edge. Cut the finger notch.



4 **Assemble the bottom section.** Glue the pivot tab from the top section onto the middle section, aligning the pivot and center lines. Glue the outer section from the middle layer to the bottom layer. Use the glue sparingly to avoid squeeze out in the inner section. Clamp the pieces until the glue is dry.



5 **Assemble the three layers.** Fit the drawer inside the compartment and make sure it slides freely. With the drawer in place, test fit the top piece with the compass. When satisfied with the fit, glue the top in place. Make sure the glue doesn't seep into the space where the drawer slides. Clamp until dry.



6 **Assemble the sundial.** Set the dial in place and use the top layer as a guide to trim the outer edges. Clamp the dial in place, aligning the dotted lines. Using a square for proper alignment, drill two pilot holes through the dial into the pivot tab. Insert two small brads to serve as hinges. Put the gnomon in the slot.

How a sundial works

The part of the sundial that casts a shadow is called the gnomon. The relative time can be calculated by the length of the shadow or by marking the position of the shadow on a dial.

Normally sundials are designed to work in a specific location. This sundial is an equatorial-style sundial and is adjustable for anywhere in the northern hemisphere.

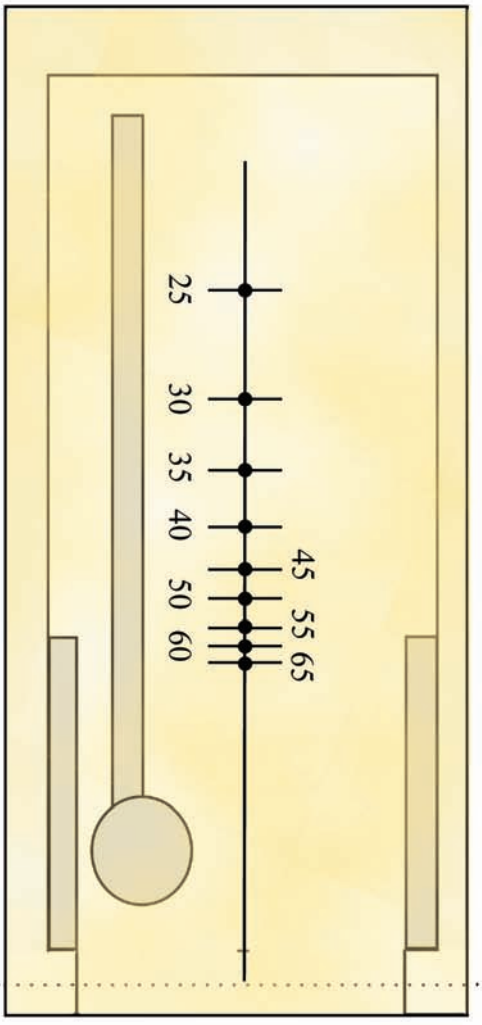
The gnomon represents the earth's axis, and the dial plate represents the equator. In order for the equatorial sundial to work accurately, you must use the compass to orient the dial to the North/South axis of the earth.

Further Reading

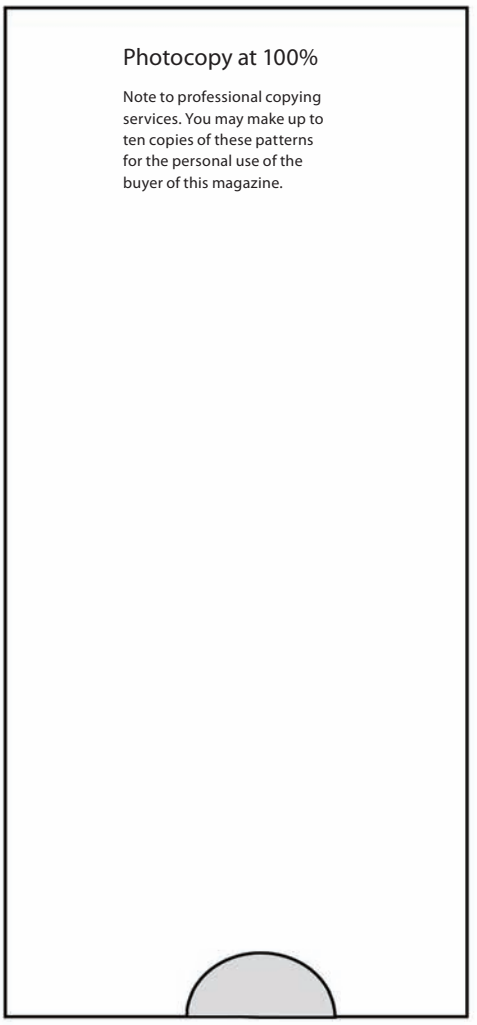
Joe Cahak, a sundial enthusiast and engineer, provided a lot of encouragement on this project. Joe has a website where he displays a couple of sundials he made for his brothers, www.astrocalculator.com. He has also written software to aid in designing of sundials. You can reach Joe at sunshinedesign@cox.net.

Top layer (¼"-thick)

Middle layer (⅛"-thick)



Bottom layer (⅛"-thick)



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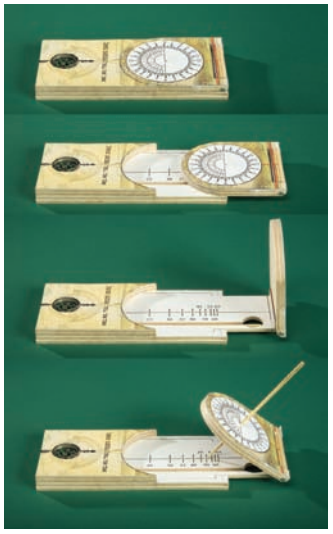
Materials & Tools

Materials:

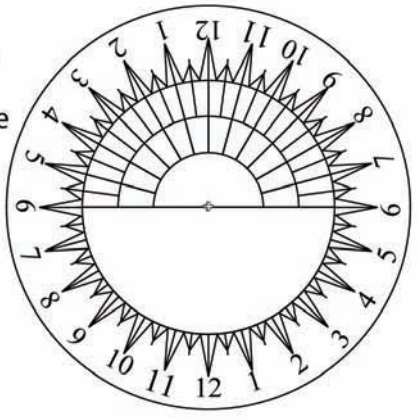
- ¼" x 2½" x 5¼" Baltic birch plywood
- 2 each ⅛" x 2½" x 5¼" Baltic birch plywood
- Bamboo skewer, 3⅜"-long (sand to a point on one end)
- Inexpensive compass
- 2 each brads or small nails
- Spray adhesive
- Wood glue of choice
- Sandpaper, assorted grits

Tools:

- #2 reverse-tooth blade of blade of choice
- Drill press with 1/16"-diameter and 3/16"-diameter bits
- Assorted clamps
- Square



Dial for the Southern Hemisphere



Carl Hird-Rutter lives in Chilliwack, BC, Canada. Visit his website at: www3.telus.net/public/scroller/.

Free Pattern Download of *Pocket Sundial* template at www.ScrollSawer.com.

Operating the dial

Remove the gnomon from the slot and thread it through the dial with the point towards the middle layer. Select the latitude closest to your location, and rest the point of the gnomon in that hole. With the dial level, turn the sundial so the compass is indicating North. The shadow cast by the gnomon indicates the approximate time. This dial does not account for daylight savings time.

Whimsical Windchimes

Cute kitty is a quick project for any skill level

By Michelle E. Martin

This little kitty is sure to enhance any porch or overhang with his whimsical expression and beautiful melody. The simple cuts and easy assembly make it a perfect project for beginners.

Since it will be painted, it's an ideal project to use up scrap pine. Don't be intimidated by the chimes; if you follow the simple directions, your cat will be playing a tune in no time.

Step 1: Transfer the pattern, and painting lines, to the stock. Use carbon or graphite paper. Note that there are two patterns for the rear cat body: one showing the front placement and painting guides, the other showing the rear. Drill the two holes on the winding key of the mouse. Cut the pieces, using a #5 blade on ¾"-thick, and a #2 blade on ¼"-thick stock.

Step 2: Prepare the pieces for assembly. Transfer the detail lines to the opposite side of the rear cat body. Mark the center point on the bottom of the base piece. Sand the pieces and test fit them together. Drill the rest of the holes as specified, EXCEPT the hole for the plastic nose. On the clapper piece, drill a 5⁄64"-diameter hole through the center. Measure the width of your bead and make a socket for the bead by drilling a second hole, centered on the first. This socket should be slightly smaller than the width of your bead and no deeper than ¼". Smooth out any rough areas with wood putty.

Step 3: Assemble the cat. Glue the muzzle to the face. Glue the tail to the back of the rear body. Glue the head assembly to the front body. Clamp all three until dry. Set the body assemblies up on their feet to make sure the cat stands straight. Line up the left edges as close as possible; then glue and clamp the assemblies together. Glue on the paw pieces. Then drill the hole for the plastic nose through the muzzle into the head piece. Fix any tear out with wood putty.

Step 4: Paint the project. Before priming, spot-coat any knots with shellac (unless using a shellac-based primer). Prime and sand the pieces to a smooth finish. Paint the large

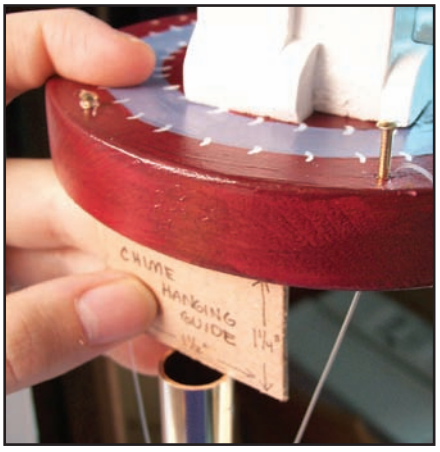
areas with flat brushes and use a #0 round brush to add the details. Paint the face right up to the eye holes. Paint edges to match the "fur" color closest to them. On the base, paint just inside the cat assembly placement lines. Paint both sides of the mouse. Re-drill the holes around the base.

Step 5: Attach the base. Drive two wood screws up through the base until the tips just stick out from the top. Match the screws with the holes in the base of the cat and check for unpainted sections around the cat. Apply a thin layer of wood glue on the bottom of the cat, put it in place, and screw it fast. Cover the screws with wood putty, and paint them to match the base.

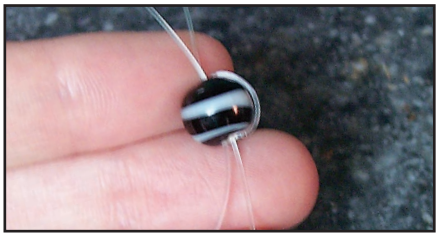
Step 6: Varnish the windchime. Use an exterior-grade, clear-drying varnish. Then dab a small amount of E6000 adhesive on the shanks of the cat's eyes and nose, and insert them into the holes. Make sure the eye slits are straight before you push them all the way in.

Step 7: Attach the hanging hardware. Position the medium-sized screw eye on the top of the cat, ⅝" from the back edge of the rear piece and approximately 1" from the nearest left-hand fur curl. Thread an 18"-long piece of fishing wire through the eye and tie both ends to the steel craft ring. Pull the ends with a pair of pliers to assure a tight knot. Position the smaller screw eye at the center mark on the bottom of the base piece.

Step 8: String the chimes. Cut a 1¼" cardboard template to ensure that the tops of the chimes are all the same distance from the base. Hang the cat and base. Cut a 60" piece of fishing line, smash one end flat, and thread it through a tapestry needle. Tie the other end to



an escutcheon pin and use pliers to pull the knot tight. Pass the needle top to bottom through a right-hand hole. Pull the line through and insert the pin into the hole. Thread the needle and line through the longest chime tube and back up through the next hole on the right. Use the cardboard to set the hanging distance. Use pins to lock the line in each hole and continue around the base to hang the rest of the chimes. Insert the last pin only halfway. Remove the needle, wrap the line around the shank of the pin, and knot it tightly. Press the pin the rest of the way into the hole, and cut off the excess.



▲ Step 9: Hang the clapper. Thread the bead onto a 20" piece of fishing line. Make a loop around the bead with the bead centered on the line. Make a second loop. The two loops hold the bead in place. Insert the clapper, socket-side down, onto the line until the bead rests in the socket. Tie the mouse wind-catcher about 7½" below the bottom of the clapper. Cut off any excess line.

Step 10: Attach the clapper to the base. Thread the end of the line through the small screw eye, pulling it up until the clapper is level to the middle of the longest tube. Knot the line tightly, and cut off the excess.

Michelle E. Martin lives in Powder Spring, GA and is currently working on compiling a book of her most successful chime designs.

Materials & Tools

Materials:

- ¾" x 11" x 11¼" pine
- ¼" x 5" x 5½" birch plywood
- 2 each ½" (12 mm) plastic cat eyes (green or yellow)
- 1⅝" (18 mm) pink plastic animal nose
- Medium-sized five-tube wind chime set (longest tube 11"-12" long)
- Monofilament fishing line (30lb weight)
- 10 each #15 small nails or escutcheon pins, ⅝" long
- 2 each screw eyes (small and medium)
- 2 each #6 x 1½" wood screws
- Steel craft ring, 1" diameter
- Screw hook (any size)
- Titebond II wood glue
- ¼" to ⅜" diameter glass or wooden bead, with a hole large enough to pass a #20 tapestry needle through
- Sandpaper, assorted grits
- E6000 silicone adhesive
- Acrylic paint: white, black, pink, gray, metallic silver, burgundy, and slate blue, or colors of choice
- Water-based, clear-drying, satin-finish exterior varnish
- Shellac and primer of choice
- Paintable, exterior carpenter's wood putty
- Carbon or graphite paper

Tools:

- #2 and #5 reverse-tooth blades or blades of choice
- Drill with various sized bits
- Assorted hand clamps
- Bar or pipe clamp
- Awl (to punch starter holes for screw eyes)
- Tapestry needle, #20 size
- Paint brushes, flat size 4, 6, and 8, and round size 0
- Needle-nose pliers

SPECIAL SOURCES: Unstrung wind chime tube sets, as well as plastic shank eyes and noses, are available from Meisel Hardware Specialties, P.O. Box 70, Mound, MN 55364-0070, or 800-441-9870, www.meiselwoodhobby.com.

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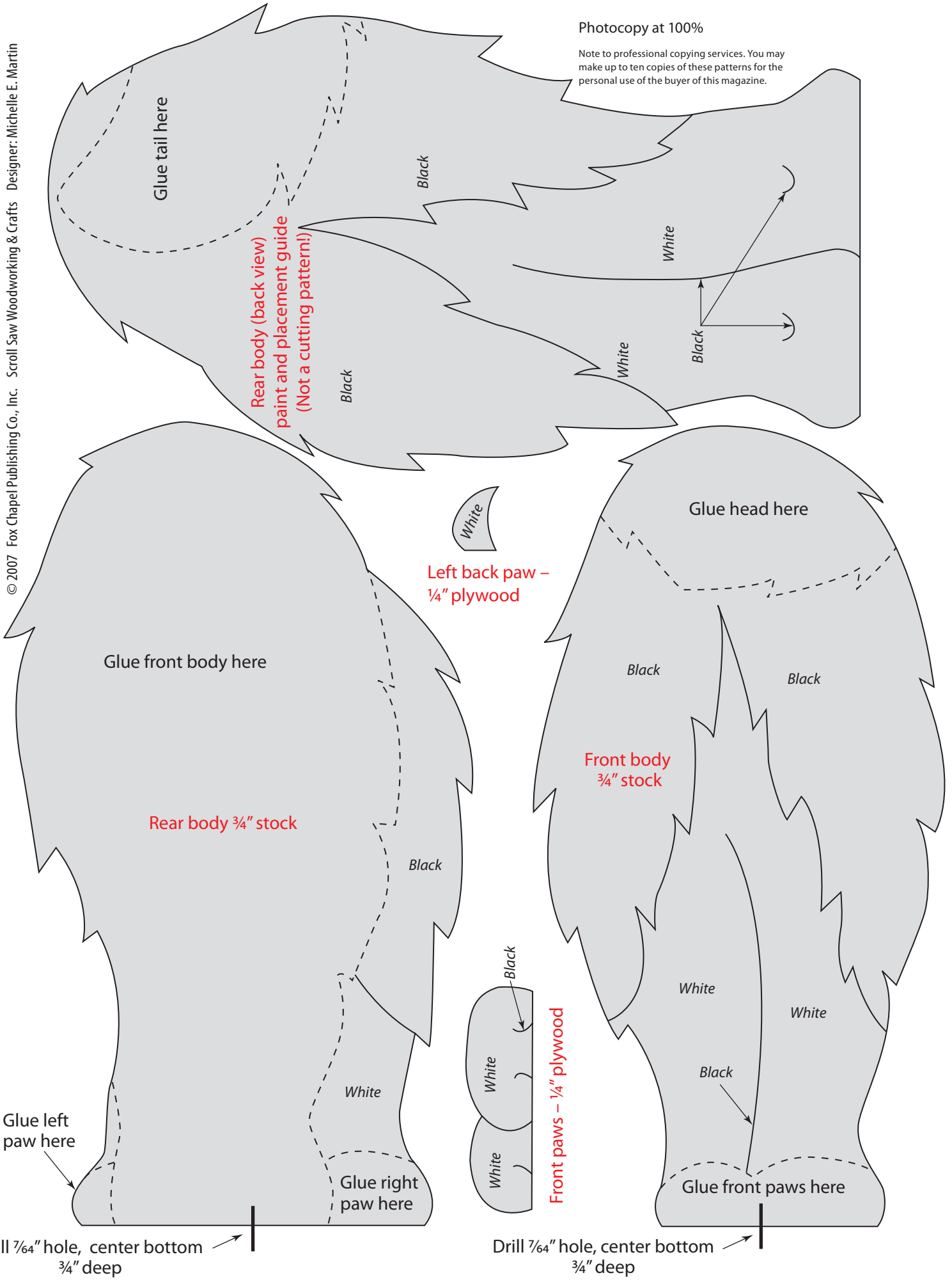
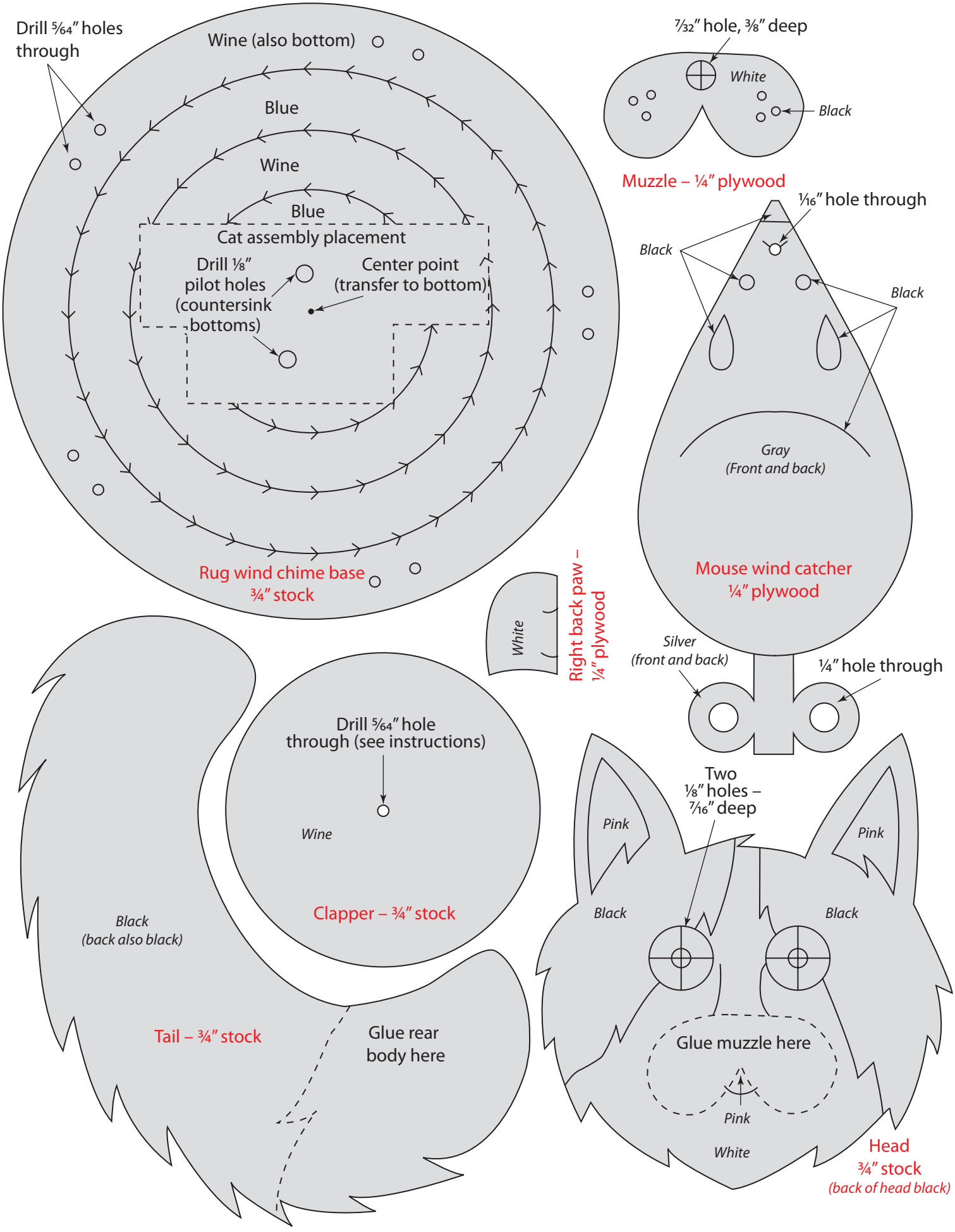



Drill 5/64" holes through
Wine (also bottom)
Blue
Wine
Blue
Cat assembly placement
Drill 1/8" pilot holes (countersink bottoms)
Center point (transfer to bottom)
Rug wind chime base
3/4" stock
7/32" hole, 3/8" deep
White
Black
Muzzle – 1/4" plywood
1/16" hole through
Black
Black
Gray
(Front and back)
Mouse wind catcher
1/4" plywood
White
Right back paw – 1/4" plywood
Silver
(front and back)
1/4" hole through
Drill 5/64" hole through (see instructions)
Wine
Clapper – 3/4" stock
Black
(back also black)
Tail – 3/4" stock
Glue rear body here
Two 1/8" holes – 7/16" deep
Pink
Pink
Black
Black
Glue muzzle here
Pink
White
Head
3/4" stock
(back of head black)

Airplane Whirligig

This model P-51 Mustang adds a whimsical touch to your yard or garden

By Paul Meisel

Of the various whirligig projects I have designed, the airplanes from World War II are my favorites. The P-51 Mustang was originally designed and built for the British air force. It first saw action in 1940. Later, the P-51 was used in the American air force.

The project in the photograph was painted to reflect an American version. Many veterans feel it was one of the best all-around fighter airplanes of WWII. After the war, the P-51 remained in US service into the 1950s and served as a combat fighter in the Korean War. By the time the war ended in 1945, over 15,000 airplanes were built. About 150 remain airworthy today.

This P-51 Mustang whirligig is an easy project to make for your yard. You can follow my paint scheme or customize the whirligig with your own design. The body swivels to face into the wind, and the 3-blade propeller assembly spins in even the slightest breeze.

Restored P-51 Mustang in flight.

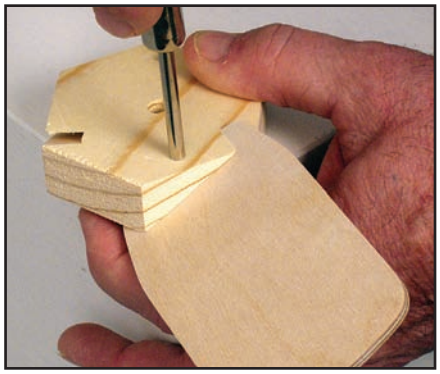
I made the fuselage from ¾"-thick pine. The horizontal stabilizer and wing are both ½"-thick exterior plywood. The propellers are cut from ⅛"-thick plywood. The drawings on the following pages should be enlarged 200% to make the whirligig to the original scale, using the stock listed in the materials list.

Step 1: Transfer the patterns to the stock. Enlarge the patterns and trace them onto the stock, using carbon paper. Flip the half-patterns over when tracing to make the full wing and stabilizer peices.

Step 2: Cut out the pieces. I use an Olson #456PGT blade to cut the ¾"-thick and ½"-thick stock. Cut the ½"-thick parts first. Then cut the profile of the fuselage. The slots in the fuselage must match the thickness of your plywood. Because plywood thicknesses vary, measure your plywood, and cut the slots in the fuselage to match.

Step 3: Cut three propellers from the ⅛"-thick plywood. I use an Olson #455PGT blade.

Step 4: Assemble the whirligig body. Insert the horizontal stabilizer and the wing in the slots in the fuselage. Glue them in place using water-resistant glue.



▲ **Step 5: Assemble the propeller hub.** Glue the propeller blades into the slots in the hub. Sand the surface of the plywood if the fit seems too tight. Slip a piece of scrap wood under the hub to raise it off the table, and secure each blade with two brads, one on each side of the hub. A brad pusher simplifies this task. Although not included in the parts kit, you may also wish to drive ⅝" galvanized wire brads in to help secure the blades in the hub.

Step 6: Add the bushings. Insert one nylon-flanged bushing into the ¼"-diameter hole on each side of the propeller hub. Drill a 7⁄64"-diameter hole 1⅛"-deep in the front of the fuselage and attach the hub to the fuselage with a 2" x #6 round-head screw. Tighten the screw, but be sure the hub spins freely.

Step 7: Determine the balance point. Rest the project on your finger to determine the balance point. Mark ½" forward of the balance point, and drill a ¼"-diameter x 1¼"-deep hole in the bottom of the fuselage. The location of this hole may be different from that shown on the drawing.

Step 8: Add the fiberglass rod. Glue the ¼"-diameter fiberglass rod in the hole in the bottom of the fuselage. When you remove the whirligig from the post, you do not want the rod left protruding in case a child would fall on it.

Step 9: Paint the project. Use the reference photo and color recommendations on the patterns as guides, or do some research to find other paint schemes. Prime the project with a quality exterior-rated primer. Then paint the topcoats with exterior paint. Transfer the detail lines either freehand or by using graphite transfer paper. Then paint the accents. I use a black paint marker to outline the windows. Paint the stake green to blend with your lawn. You may wish to finish by brushing a coat of polyurethane over the final coat of paint. Caution: polyurethane may react chemically with some paints, especially the paint marker. If you apply polyurethane, test on a painted piece of scrap wood first.

Step 10: Display the project. It can be mounted on a deck railing, a fence post, or simply on a 2" x 4" or 4" x 4" wood post that has been pounded in the ground. Drill a 5⁄16" hole 1¾" deep in the top of the post. Slip the 5⁄16" nylon-flanged bushing in this hole. A 5⁄16"-diameter round bead or a ball bearing (not included in the parts kit) can be dropped into the hole to act as a bearing surface. After the project adjusts to the humidity, the hub may swell, so it may be necessary to adjust the screw after a few days.

Materials & Tools

Materials:

- ½" x 11" x 30½" exterior plywood (horizontal stabilizer & wings)
- ¾" x 7½" x 24⅝" pine (fuselage)
- ¾" x 2⅝" x 3" (propeller hub - *optional, if ordering propeller package listed below*)
- ⅛" x 2⅜" x 12" plywood (propellers - *optional, if ordering propeller package*)
- Single Engine, 3-Blade Propeller Hardware Parts Package (Meisel Part #2023SSW)*
- Graphite transfer paper (Meisel Part #9367)*
- ⅝" x #18 gauge brads (Meisel Part #1609)*
- Sandpaper, 80 & 120 grits
- Exterior wood glue
- Stain blocking primer
- White exterior primer
- Exterior paint: white, blue, black, yellow, & silver
- Polyurethane (optional)

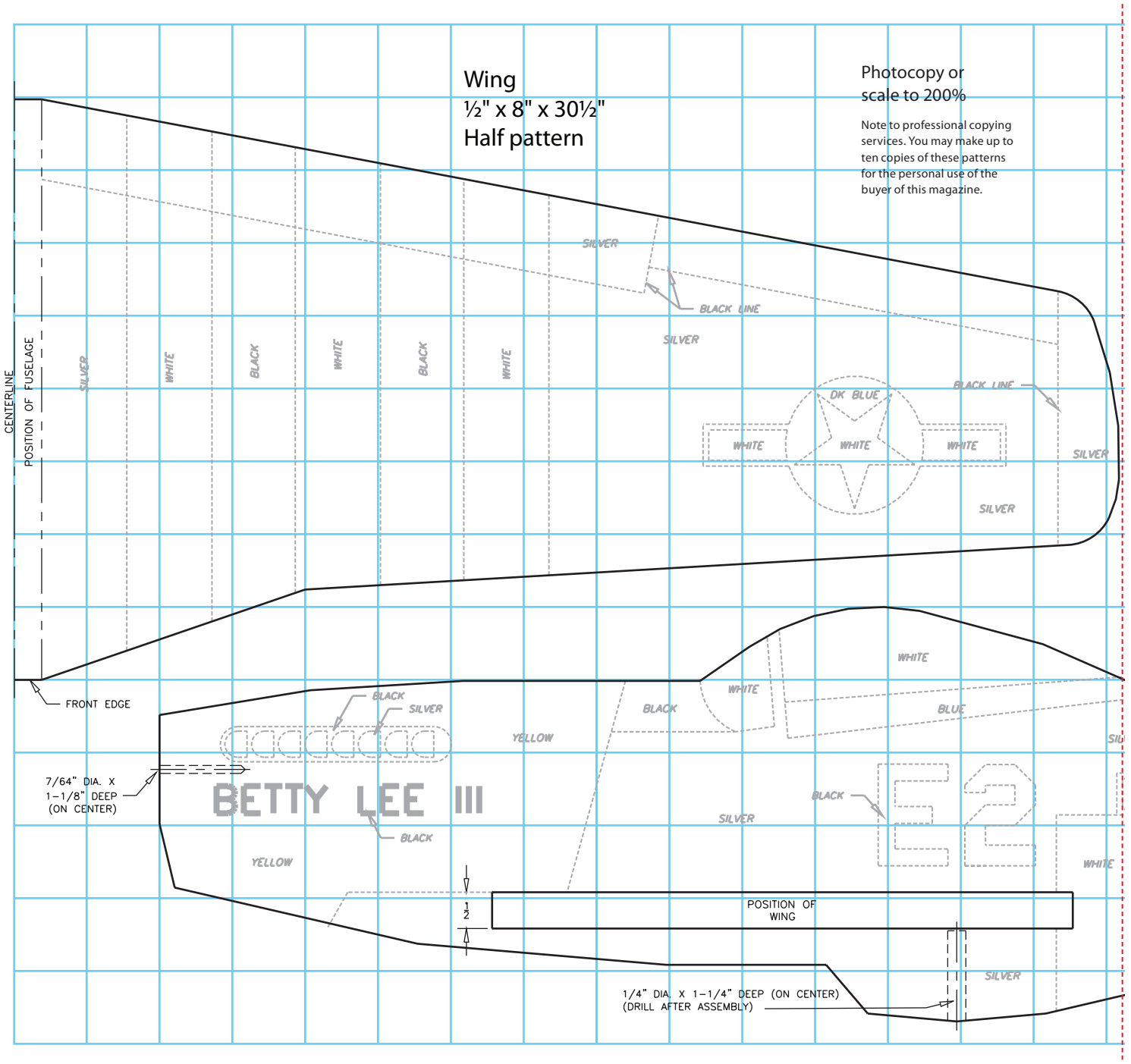
Tools:

- Olson #455PGT & #456PGT blades* or blades of choice
- Drill with 7⁄64", ¼", and 5⁄16"-diameter bits
- Brad driver (Meisel Part #7081, optional)*
- Slotted screwdriver
- Paint brushes

SPECIAL SOURCES:

A propeller hardware parts kit, including all bushings and shafts, a pre-cut hub and ⅛" exterior birch plywood for propellers, is available for $5.99 (order part #2023SSW).

Other available materials listed above: #9367 Graphite Transfer Paper $14.00 for 12 sheets, #1609 ⅝" x #18 gauge wire brads, $1.59/1.75oz box, plus S&H from: Meisel Hardware Specialties, P.O. Box 70, Mound, MN 55364, 800-441-9870, www.meiselwoodhobby.com.



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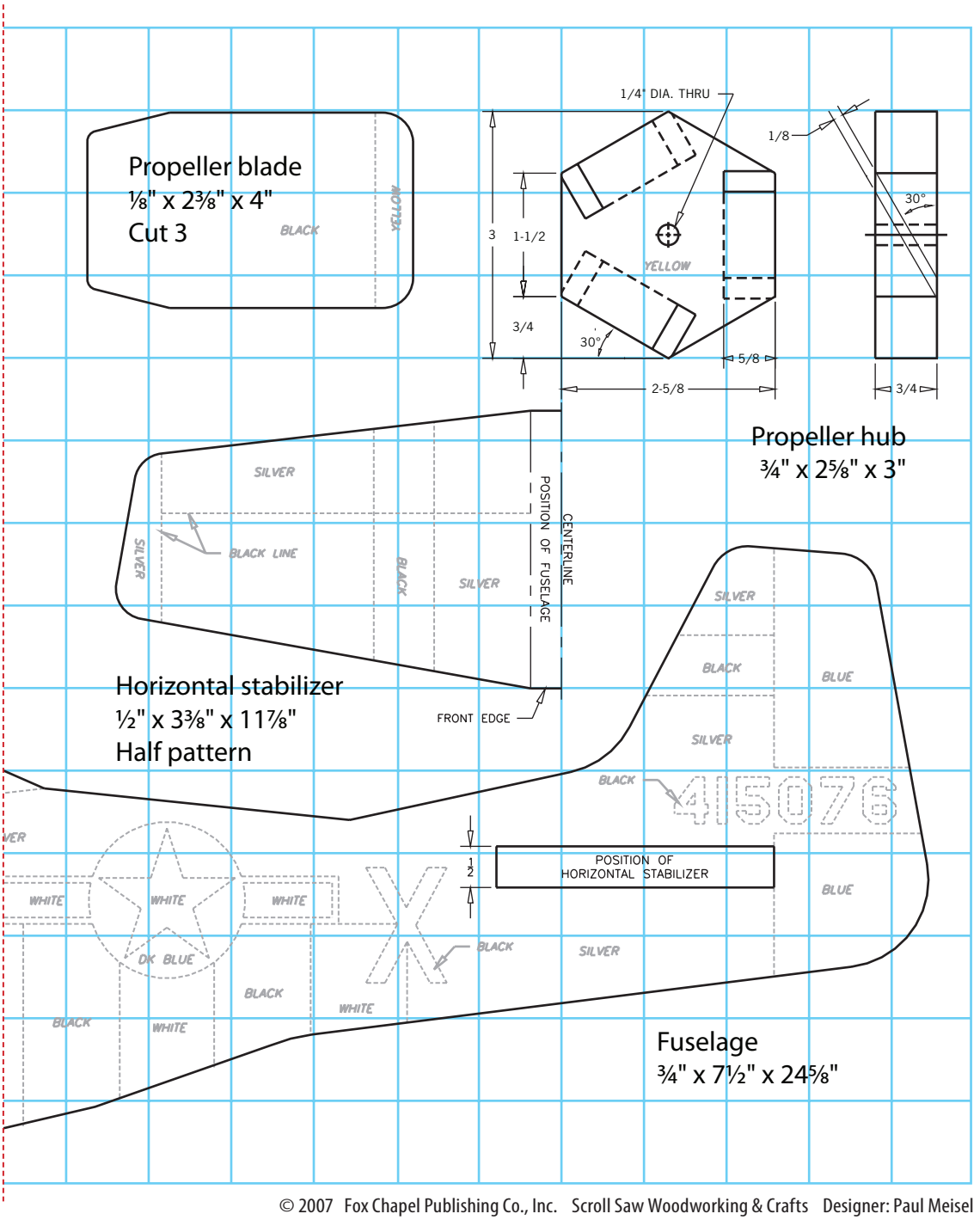
BETTY LEE III

Free Pattern Download of *Airplane Whirligig* insignia at www.ScrollSawer.com.



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Paul Meisel designs woodworking plans and is the owner of Meisel Hardware Specialties in Mound, MN.

Feline
SILHOUETTES

Stylish cats make a striking display

By Toni Burghout

These silhouettes are quick and easy to cut and make an ideal gift for any cat lover. The portraits were designed to fit 8" x 8" stock, but can be adjusted to suit any number of projects. They can be individualy framed and displayed as a set or mounted into a single frame. Alter the size of the patterns to easily adapt them for use as coasters, ornaments, or to decorate other woodworking projects.

The silhouettes capture four cat's facial expressions. While not meant to depict any one breed, I got my inspiration from watching Tao, my Siamese cat, play with her favorite catnip mouse.

Each panel is cut out in an open-cut style of fretwork. Cutting one is as easy as transferring the pattern to the blank, drilling blade-entry holes, and cutting it out. I use an Ogee bit in my laminate trimmer to give each piece a decorative edge. I apply a clear finish, but you can personalize it with your finish of choice.

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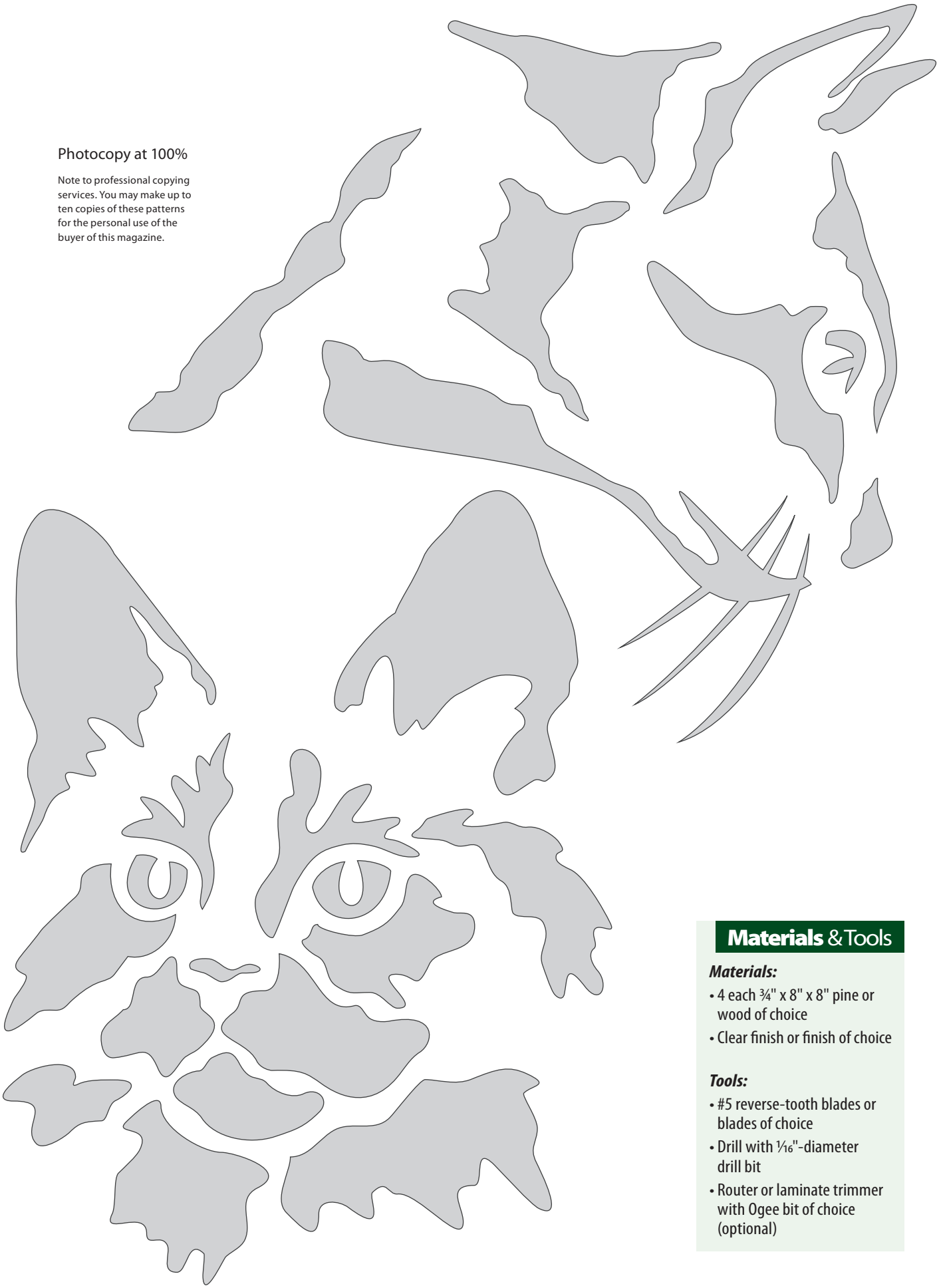


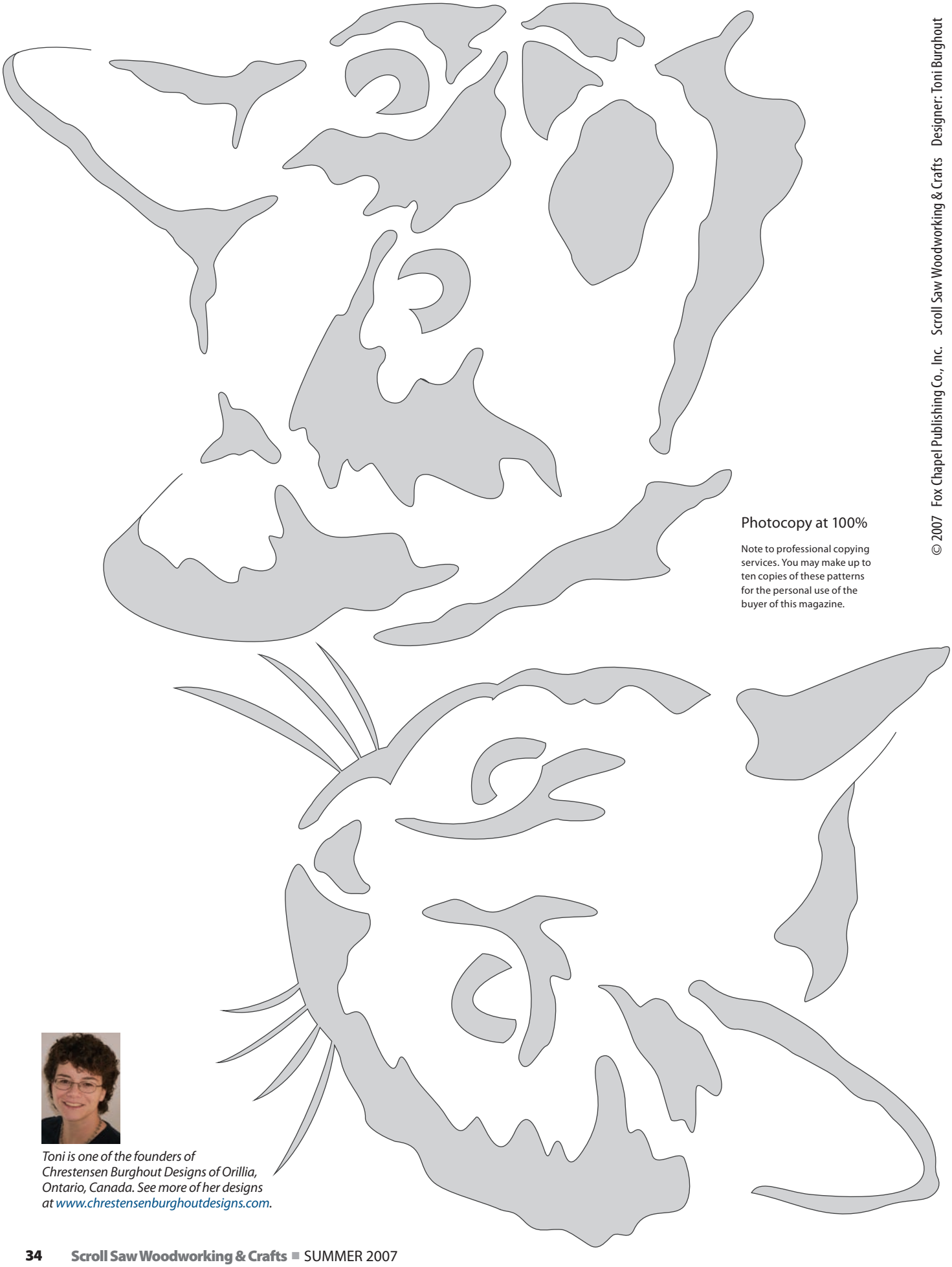
Materials & Tools

Materials:

- 4 each ¾" x 8" x 8" pine or wood of choice
- Clear finish or finish of choice

Tools:

- #5 reverse-tooth blades or blades of choice
- Drill with 1/16"-diameter drill bit
- Router or laminate trimmer with Ogee bit of choice (optional)



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Toni is one of the founders of Chrestensen Burghout Designs of Orillia, Ontario, Canada. See more of her designs at www.chrestensenburghoutdesigns.com.

DESIGN CONTEST Finalist

The Lang Clock

Easy-to-cut clock is a beautiful addition to any home

By Dale Helgerson

A friend inquired about a clock after seeing some of my scrolling. She looked at photos and thumbed through several catalogs, looking for a clock that suited her tastes. They were all "too frilly" and "too fancy," so I designed something specifically for her.

With paper, pencil, straight edge, and compass, I began drawing ideas. When I delivered the clock to her, she loved it. This clock is named after her; after all, she inspired me to design it!

The Lang Clock is best made by stack-cutting two clocks at once, using contrasting woods. By saving the cut-outs from one type of wood and inserting them into the other, you can create two attractive clocks with very little waste.

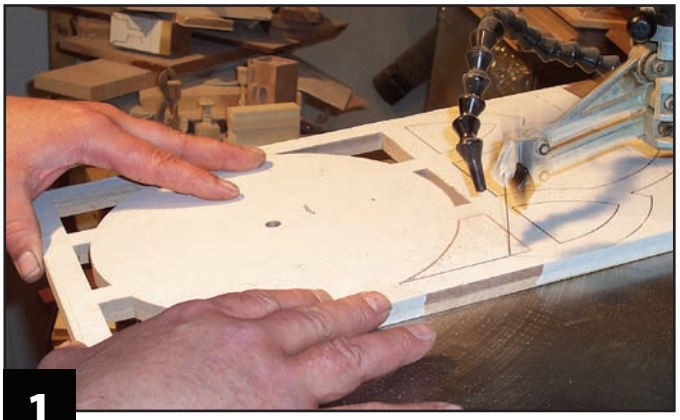
The project uses mainly straight cuts and gradual curves. This makes it easy enough for the beginner, yet elegant enough for the skilled scroller. It can be cut using pin end blades, something that very few of the larger clock patterns are capable of.

The clocks pictured were cut using red oak and walnut, but any two contrasting woods will look equally impressive. Try experimenting with different combinations to personalize your timepiece.

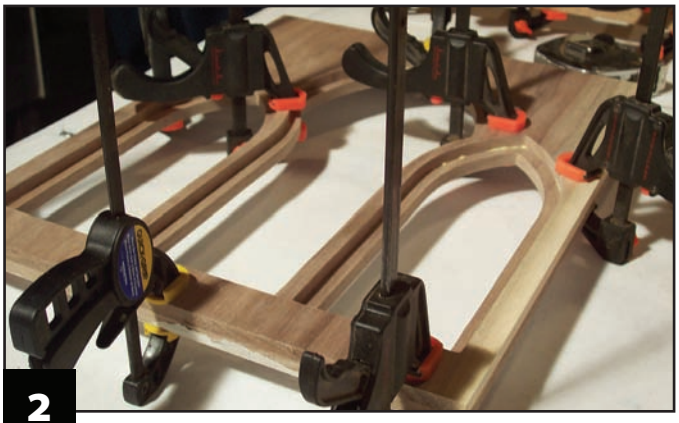
Cutting the Clocks

Start by cutting the pieces to size, using the materials list and cutting diagram as guides (see Pattern Pull Out). I use a table saw and a miter saw. Cut each piece to size in both red oak and walnut. Attach the contrasting pieces together to stack cut on the scroll saw. I tape the edges together with masking tape, but double-sided tape works as well. I do not suggest using nails or brads, because the thin hardwood splits easily.

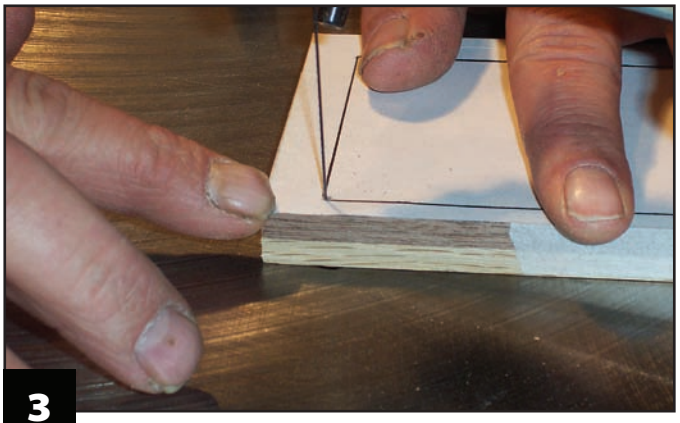
Apply clear packaging tape to the top of the stack. Apply spray adhesive to the back of the pattern, and align the corner of the pattern with the bottom corner of the stack. Press the pattern firmly onto the taped surface. The tape lubricates the blade and makes it easier to remove the pattern.



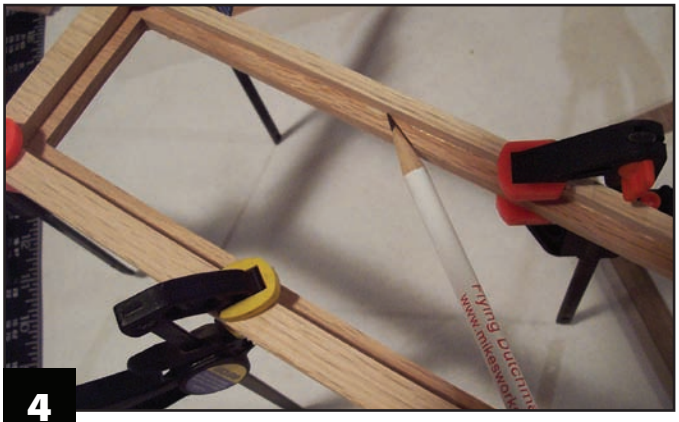
1 **Cut the first round of parts.** Drill a 13/32"-diameter hole for the clock movement on part A. On parts A, B, N and NA, drill 1/16"-diameter blade-entry holes and cut the frets. DO NOT cut the perimeters at this time. Cut the corner notches on part B. Save the inside cut outs from parts B and NA for later use.



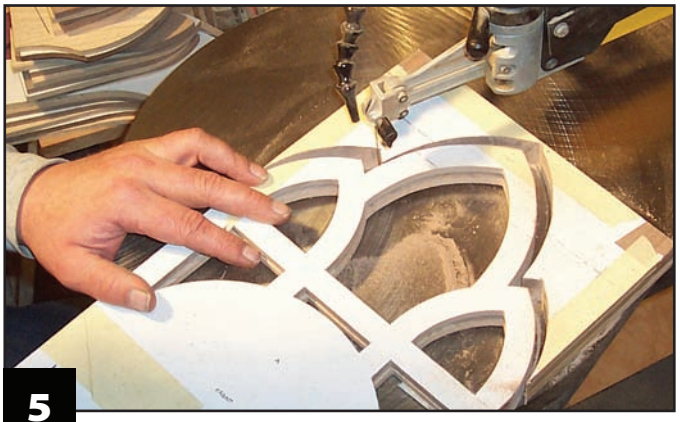
2 **Glue the parts together.** Separate the stacks and remove the patterns from B and NA only. Apply a light coat of yellow carpenter's glue to the top side of parts B and NA. Matching the woods, line up the top edges of A and B, and the bottom edges of N and NA. Clamp until dry. The arches on A and N are thicker and will create a lip for the inlays. Repeat for the second clock.



3 **Cut the second round of parts.** Drill the blade-entry holes as close to a corner as possible. Cut parts C, D, DA, E, EA, F, G, H, K, L, M, and O. Save the cutouts from parts DA and EA. Separate all of the stacks and remove the patterns. Lightly sand all the pieces. Group the parts according to wood species with the exception of part O. The oak O will be assembled with the walnut clock.



4 **Glue part D to DA and E to EA.** Parts D and E are longer than DA and EA. Line these parts up with the overhang at the top and the thicker long side to the left of one piece and the right of the opposing piece. Matching the woods, glue part D to DA and E to EA. Line up the bottom edge and side and clamp until dry. Note that you are creating a lip for the inlay as you did in step 2.



5 **Cut the outer arches.** Stack both N/NA assemblies together. Stack both A/B assemblies together. For the A/B stack, use 1/4"-thick material to shim between the two pieces at the lower end and on the bottom so it sits flat on your saw table. Secure the stacks with masking tape and cut the outer profiles. I use a #7 FD-SR blade. Remove the patterns and sand lightly.

6 **Glue in the inlays.** Glue the contrasting cut outs from parts B, DA, EA, and NA into the openings. (I use Aleene's quick dry tacky glue). Check for any glue squeeze-out.

7 **Cut parts I and J to size.** Bevel one edge as shown on the plan. Drill and countersink a ⅛"-diameter hole where indicated on part J. This will be used to mount your clock onto the wall.

Assembling the Clocks

Clock assembly is straightforward. Use the exploded drawing on the following page as a guide.

Step 1: **Test fit the pieces.** Align the sides (D and E) and front (A/B) together with C, G and I to be sure the edges line up nicely. Slight variations of wood thickness may make it necessary to trim parts C-G, and I, so the corners of D and E meet nicely with part A/B. Note that the sides will fit into the notches on B and the wider long side is towards the back.

Step 2: **Attach part I to part C.** The beveled edge should face the inside of the clock. Use wire brads and glue for added strength; the clock hangs from the bevel.

Step 3: **Attach one side.** Line up one side (D or E) with the back of A/B, sliding the piece up into the notch on B. Line up C beneath B and drill small pilot holes through A/B into C. The pilot holes help to prevent the wood from splitting—choose spots where the wood is least likely to split. Glue and clamp the side (D or E) and C to A/B. Use ¾" brads through the pilot holes to strengthen that joint as it will bear the weight of the clock.

Step 4: **Attach the floor and opposite side.** Line up G flush with the bottom of the first side and attach the remaining side panel (D or E). Glue and clamp until dry.

Step 5: **Attach part O.** Be sure to use the contrasting wood and place O inside the clock case. Use a pencil to mark the cut-out circle location on the inside of A/B. Remove O and apply a bead of glue approximately ¼" outside your pencil line and along the inner edges of the case. Insert O back in the case. Run a bead of glue (like a bead of weld) around the outer edge of O, as well as around the inside of the circle. Weigh down or clamp the piece to hold it in place.

Step 6: **Test fit the shelf to the lower portion of the clock.** The notch in F should fit snugly over the sides of part N/NA. Widen the slot if needed.

Step 7: **Glue the main base together.** Glue and clamp H ½" down and parallel to the flat edge of N/NA. H should be centered on N/NA to allow you to attach L and M flush with the sides of N/NA. It is best to dry fit these pieces first in case any adjustments are needed. Glue the base sides (L and M) in place with the straight edge flush with H and the longer side against N/NA.

Step 8: **Attach the base fretwork front.** Glue K on top of the sides and flush with part H.

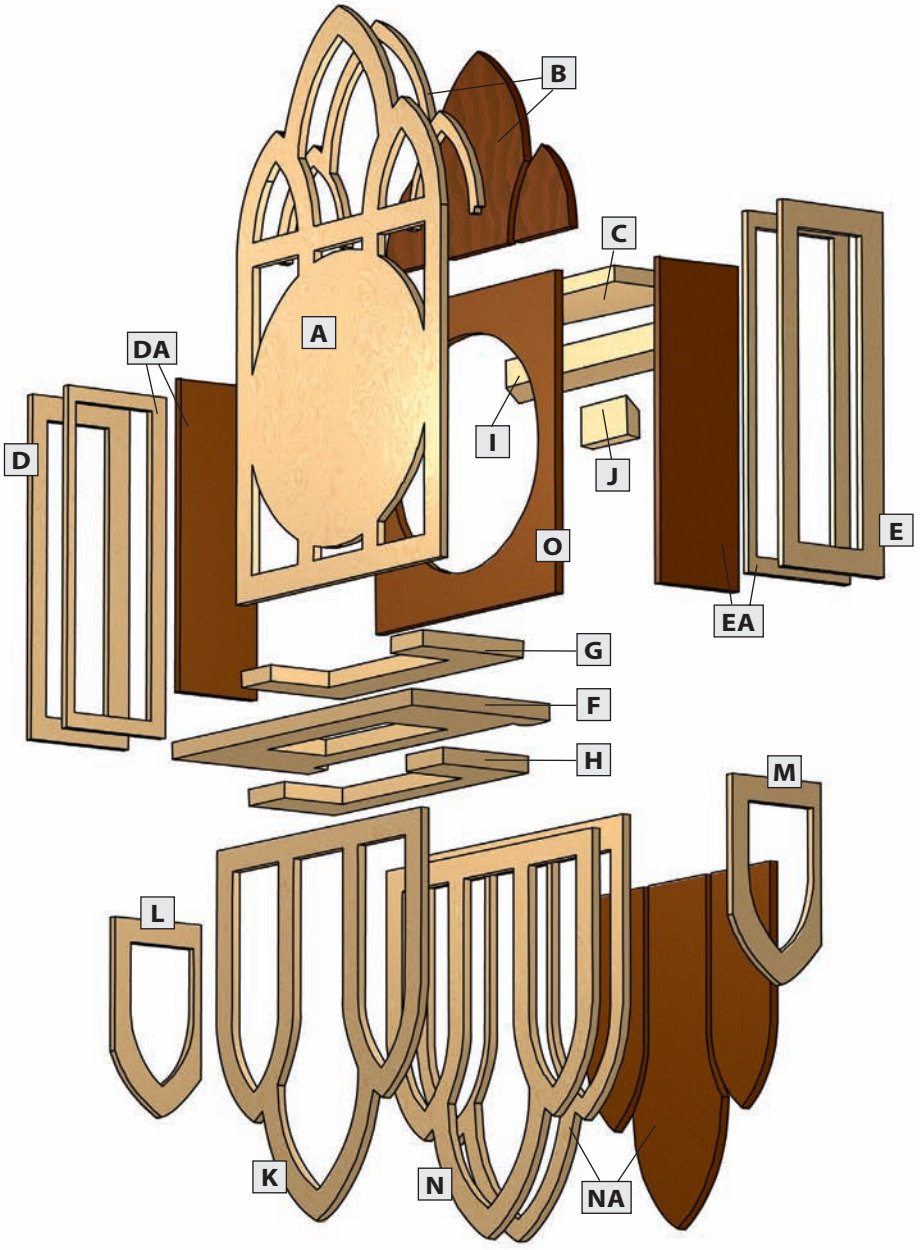
Step 9: **Sand all of the corners to a crisp, sharp point.** Putty any nail holes, if applicable.

Step 10: **Attach the shelf to the clock base.** Glue and clamp F to the lower clock assembly.

Step 11: **Assemble the two sections.** Line up the pendulum opening, and look straight down the corner to ensure proper alignment. Use two #6 x 1¼"-long wood screws and glue to hold the halves together. Insert the screws through G into the base assembly.

Step 12: **Apply your finish of choice.** I apply one coat of Danish oil, followed by four coats of Deft clear, semi-gloss wood finish. Sand between coats of Deft with fine-grit sandpaper.

Step 13: **Install the clock movement.** A 7" to 8"-diameter dial looks best. I used a 7⅞" dial on the clocks shown. Screw part J to the wall, with the bevel up and towards the wall. Align the bevel on I and J to hang up your clock.



A - Front overlay
B - Crown inlay/underlay
C - Top (not on pattern)
D & E - Body side overlay
DA & EA - Body side inlay/underlay
F - Base shelf
G - Upper floor
H - Lower floor
I - Hanger strip
J - Wall hanger strip
K - Base fretwork front
L & M - Base fretwork sides
N - Base overlay
NA - Base inlay/underlay
O - Underlay body panel
- Oak
- Walnut

TIP **GLUE-SQUEEZE OUT**

To remove glue squeeze out in tight corners, use a straw to easily remove it!

Dale lives in Kansasville, WI and is a woodworking leader for the local 4-H club. Contact him at luckyscroller788@yahoo.com.

Materials & Tools

Materials:

2 each of contrasting woods like oak and walnut in these dimensions:

- ¼" x 10" x 17⅝" (A)
- ¼" x 10" x 6¾" (B)
- ½" x 3½" x 9" (C) (no pattern)
- ¼" x 3½" x 11" (D)
- ¼" x 3½" x 10⅞" (DA)
- ¼" x 3½" x 11" (E)
- ¼" x 3½" x 10⅞" (EA)
- ½" x 4¾" x 12" (F)
- ½" x 3½" x 9" (G)
- ½" x 3" x 9½" (H)
- ½" x 1¼" x 9" (I)
- ½" x 1¼" x 2½" (J)
- ¼" x 10" x 11¾" (K)
- ¼" x 3" x 6⅛" (L)
- ¼" x 3" x 6⅛" (M)
- ¼" x 10" x 12½" (N)
- ¼" x 10" x 12½" (NA)
- ¼" x 8⅞" x 9⅞" (O)
- Clear packaging tape
- Small brads (¾"-long)
- 2 each #6 x 1¼" wood screws
- Spray adhesive
- Glue of choice
- Finish (I use Danish Oil and Deft clear wood finish)

Clock Movement Parts:

- #2653 Hermle chime with pendulum
- #2529 6" lyre attachment
- #3618 7⅞"-diameter Arabic Elegant dial
- #8931 hands (3⅛"-long minute) black
- #2528 3½" pendulum bob
- #2521 pendulum rod (request Single Hook) *This movement from Wildwood requires the speaker mount.*

Tools:

- Table saw and miter saw (optional)
- Drill (press or handheld)
- Clamps for assembly
- Various drill bits, including 13/32"-and 1/16"-diameter
- Various scroll saw blades (I use Flying Dutchman #5 Two-Way cut and #7 Scroll Reverse)
- Screwdriver for mounting movement (if needed)
- Hammer if using small brads during assembly

SPECIAL SOURCES: A good source for thin wood is Petersons Custom Lumber, www.petersonscustomlumber.com.

Clock movement parts can be ordered from Wildwood Designs, 800-470-9090, www.wildwooddesigns.com.

Part numbers for Klockit components for the Lang Clock can be found on our website: www.scrollsawer,com.

Additional patterns for the ***Lang Clock*** are on the pattern pullout section.

Waste after finish cut with Front Overlay **A**

B
Crown
Inlay/Underlay

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Note to professional copying services. You may make up to ten copies of these patterns for the personal use of the buyer of this magazine.

Using Pinned Blades

Finally a clock that can be made with pinned blades! By carefully placing your blade entry holes in parts DA, EA, and NA you can cut this clock on a saw that requires pin end blades. Using a 3⁄16"-diameter drill bit, drill your blade-entry holes right on the pattern line for the area to be cut on parts DA, EA, and NA. All other openings to be cut should be drilled in the waste areas as you normally would. Once assembled, your blade-entry holes will only be visible from the backside of your clock.

DESIGN CONTEST WINNER

Dragon Chest

Original designs and vivid colors are highlights of this distinct box

By Kenneth Campbell

I crafted this project to meet my personal preferences and never imagined it would be awarded the grand prize in *SSW&C*'s Best Project Design Contest. When I read about the contest, I decided to enter the chest just for fun. The dragon design started out as a drawing that had nothing to do with woodworking. I thought it would be fun to design a dragon tattoo. So I started doodling and ended up with a sketch of the main dragon that adorns the lid.

Once the dragon design was on paper, it just seemed natural to cut the design out of wood. I transferred the image to ¼"-thick poplar and cut it out. I had no idea what I would do with the cutout at this point, but I decided to add some texture. As I worked on the dragon, the idea of a mini-chest slowly took shape and I incorporated elements of the main design in the trim work and box sides. I wanted to showcase the dragon design and decided to stain it black and add a bright backing board for contrast. I'm very pleased with the end result and am thrilled that my project was chosen as the contest winner.

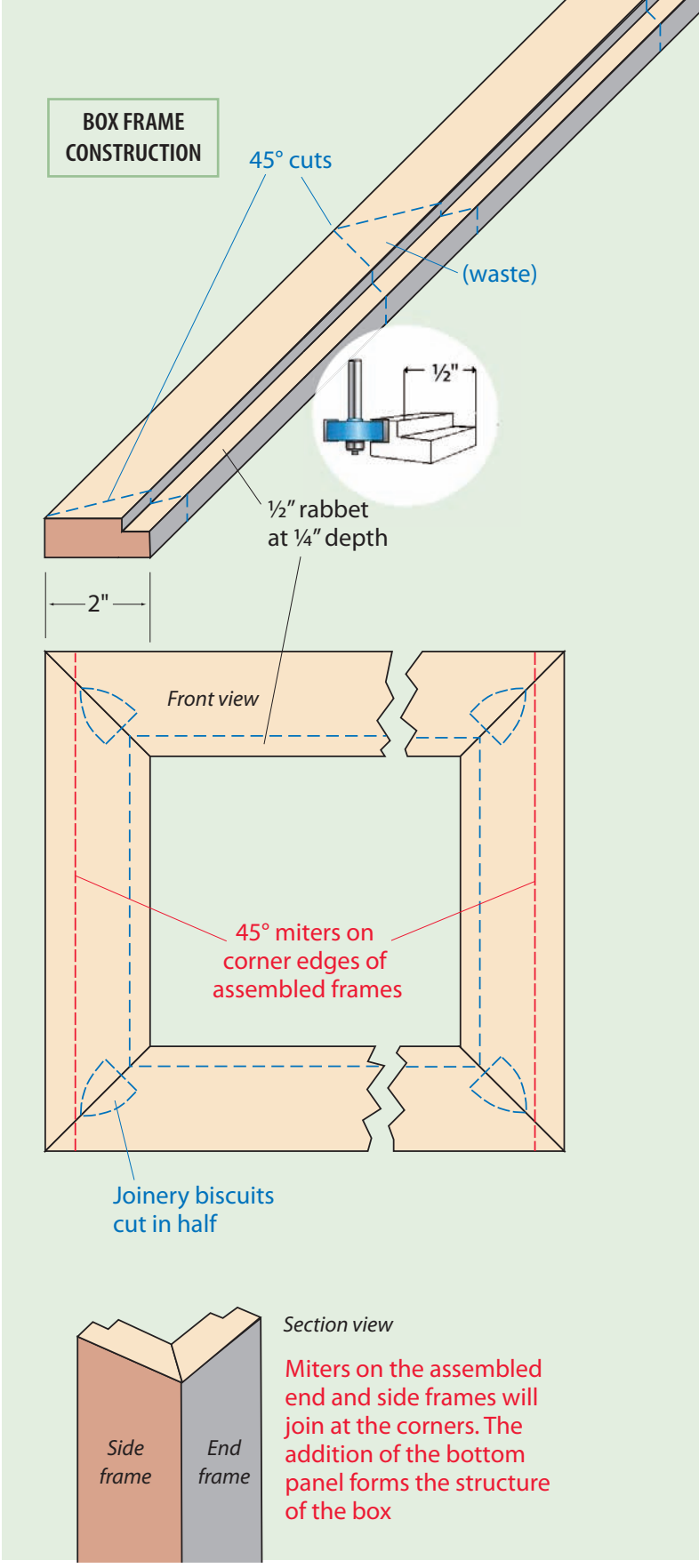
Step 1: Transfer the patterns to the blanks. Apply spray adhesive to the back of the patterns, and position them on the blanks.

Step 2: Prepare the frame overlay pieces for stack cutting. The long sides and short sides are mirror images of each other, so when you stack them together, be sure that the sides of the wood you want to be the bottoms are facing each other. Wrap blue painter's tape around the edges to hold the stack together. I cut the pieces to size and cut the miters with a miter saw. Note that not all of the patterns are an equal width.

▲ **Step 3: Cut out the patterns.** Drill blade-entry holes where needed with a ⅛"-diameter drill bit. Then cut out the pieces, using your blade of choice.

Step 4: Cut the main dragon designs. I use a flexible shaft tool with 120-grit sanding drums to add texture. These will be affixed to the padauk after the box is assembled.

Step 5: Finish the dragon designs. Hand sand the pieces with 100, 150, and 220-grit sandpaper. Stain them with black India ink.



Step 6: Cut the box frame parts. Cut three pieces of poplar to ¾" x 2" x 8'. Then cut a ½"-wide x ¼"-deep rabbet on one side of each piece, (see box frame construction). I use a router and rabbet bit. Cut the sections to length at a 45° angle.

Step 7: Cut the panels from ¼"-thick poplar. Use the materials list as a guide.

Step 8: Assemble the frames. Cut biscuit slots on the mitered ends of all of the frame pieces. Since the wood is only 2"-wide, cut the biscuits in half. You can also use dowels or splines. Apply glue to the biscuits and miters, and clamp them together until dry. When complete, you will have four box side frames.

Step 9: Cut the miters on the frame parts. Use a miter saw to cut a 45° miter on the sides. The top and bottom of the frame will remain square.

Step 10: Add the panels. Glue the poplar panels into the frames.

Step 11: Assemble the box. Cut the box bottom to size noted in the materials list. Assemble the box, using biscuits to strengthen the miter joints where the sides come together and where the sides meet the bottom.

▲ **Step 12: Glue the fretwork designs over the poplar frame pieces.** Be sure to position the wider pieces so they overhang the short sides by ¼". This keeps the box corners in proportion.

Step 13: Cut the lid frame. The upper framework of the lid is cut from commercial molding. For the lower framework, rip a piece of ¾" x 2" x 8' poplar to a width of 1¾", so the upper framework overhangs the lower portion (see box lid construction). Use an Ogee bit to route a decorative edge along the length of the poplar. Apply wood glue to the top of the poplar and align the back edge of the molding and poplar. Clamp them together until dry. Cut the pieces to length using 45° miters on both ends. Cut the lid guide to size.

Step 14: Assemble the lid. Cut the lid panel to size, and glue the frame pieces to it using biscuit joints to add strength where the panel meets the frame and where the frame pieces join. The bottom of the panel should be approximately ¼" up from the bottom edge of the frame. Glue the bottom lid guide to the underside of the panel.

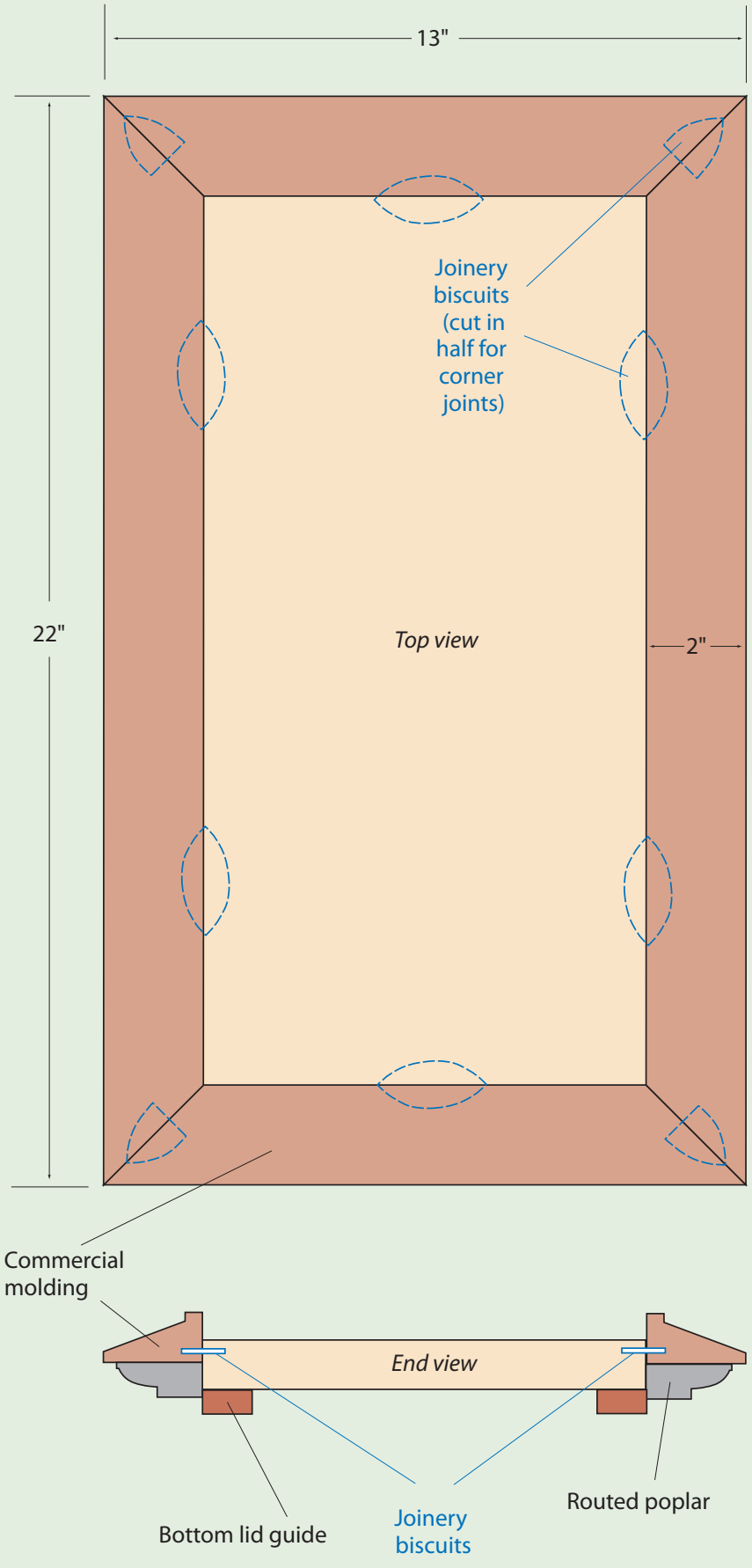
▲ **Step 15: Sand the poplar frames and fretwork overlays**· Start with 120-grit, and move on to 220-grit.

▲ **Step 16: Stain the poplar frames and fretwork with black India ink.** Tape off the inner panels and apply a clear, satin wood finish to the stained areas. Cut the feet, stain them, and glue them to the bottom.

Step 17: Cut the padauk panels. You may need to edge-glue the padauk to make the larger panels. Sand them with 220-grit sandpaper. Apply a high-gloss, clear lacquer.

Step 18: Glue the panels in place. After the padauk is in place, cut and stain 1"-wide strips of poplar to hide the layers of wood on the inner edges of the frame pieces.

▲ **Step 19: Glue the dragon designs to the box.** Use two-part epoxy since both the padauk and poplar have already been finished.



BOX LID CONSTRUCTION

Materials & Tools

Materials:

- 3 each ¾" x 2" x 8' poplar (box frames)
- 4 each ¼" x 6" x 7" poplar (end panels, end panel designs)
- 4 each ¼" x 6" x 16" poplar (side panels, side panel designs)
- ¾" x 2" x 8' molding of choice (lid frame)
- ¾" x 2" x 8' poplar (lid frame, underside)
- ¾" x 9" x 18" poplar (lid panel)
- ½" x 1" x 8' poplar (bottom lid guide)
- 2 each ¼" x 6" x 7" padauk (end panels)
- 2 each ¼" x 6" x 16" padauk (side panels)
- ¾" x 9" x 18" padauk (top panel)
- ¾" x 9" x 18" poplar (bottom)
- 4 each ¼" x 2" x 20" poplar (side fretwork frame, top and bottom)
- 4 each ¼" x 2" x 11" poplar (end fretwork frames, top and bottom)
- 8 each ¼" x 2" x 10" poplar (fretwork frame sides)
- ¼" x 9" x 18" poplar (lid dragon design)
- 4 each 1½" x 3½" x 3½" pine (feet)
- Wood biscuits
- Assorted grits of sandpaper up to 220-grit
- Black India ink
- Clear spray lacquer, high-gloss and satin
- Masking tape
- Glue: wood glue and two-part epoxy

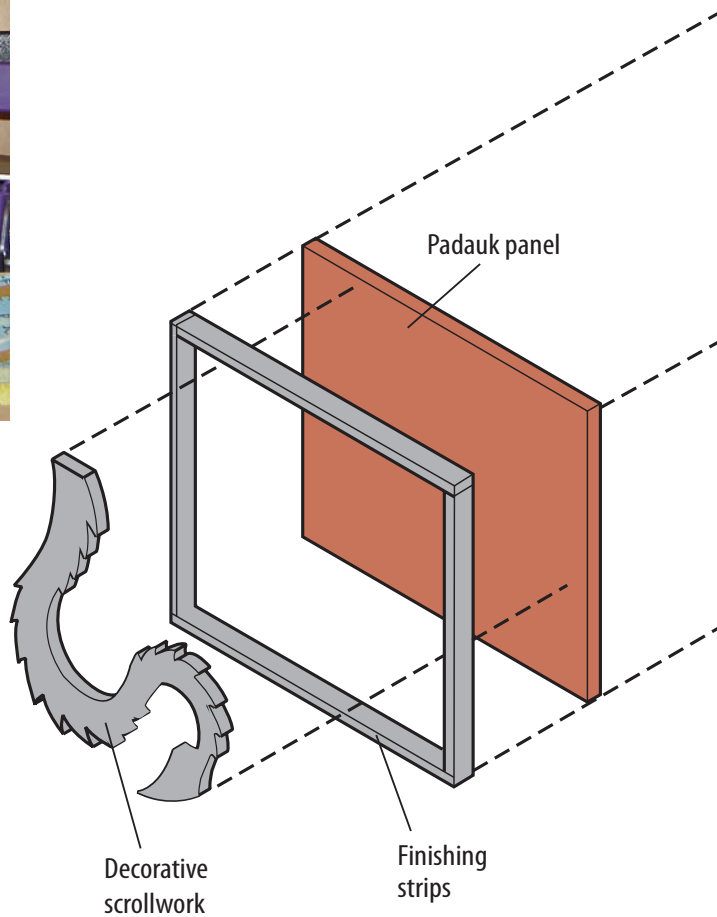
Tools:

- #3 reverse-tooth blades or blades of choice
- Saws: miter saw and table saw
- Router with ½" radius rabbet bit and decorative edge bit of choice
- Biscuit jointer or biscuit-joint router bit
- Assorted clamps

Kenneth Campbell: Design Contest Winner

Ken lives in Delano, CA where he majors in Art and works as a substitute teacher. Previously, he created props for theme parties in the Palm Springs area which gave him the freedom to be creative and the opportunity to work with a variety of mediums. While Ken has only been scrolling for four years, he views the scroll saw as an outlet for his creative energies.

The dragon chest was the grand prize winner in SSW&C's *Best Project Design Contest. Ken was awarded a complete Sand Flee package from RJR Studios, an EX21 Excalibur scroll saw from Seyco, Flying Dutchman scroll saw blades from Mike's Workshop, a woodburning package from Colwood, Ott-Lite Lamp from Lumenet, $50 gift certificate from Woodcraft, and $400 in cash and prizes from Fox Chapel and* Scroll Saw Woodworking & Crafts.



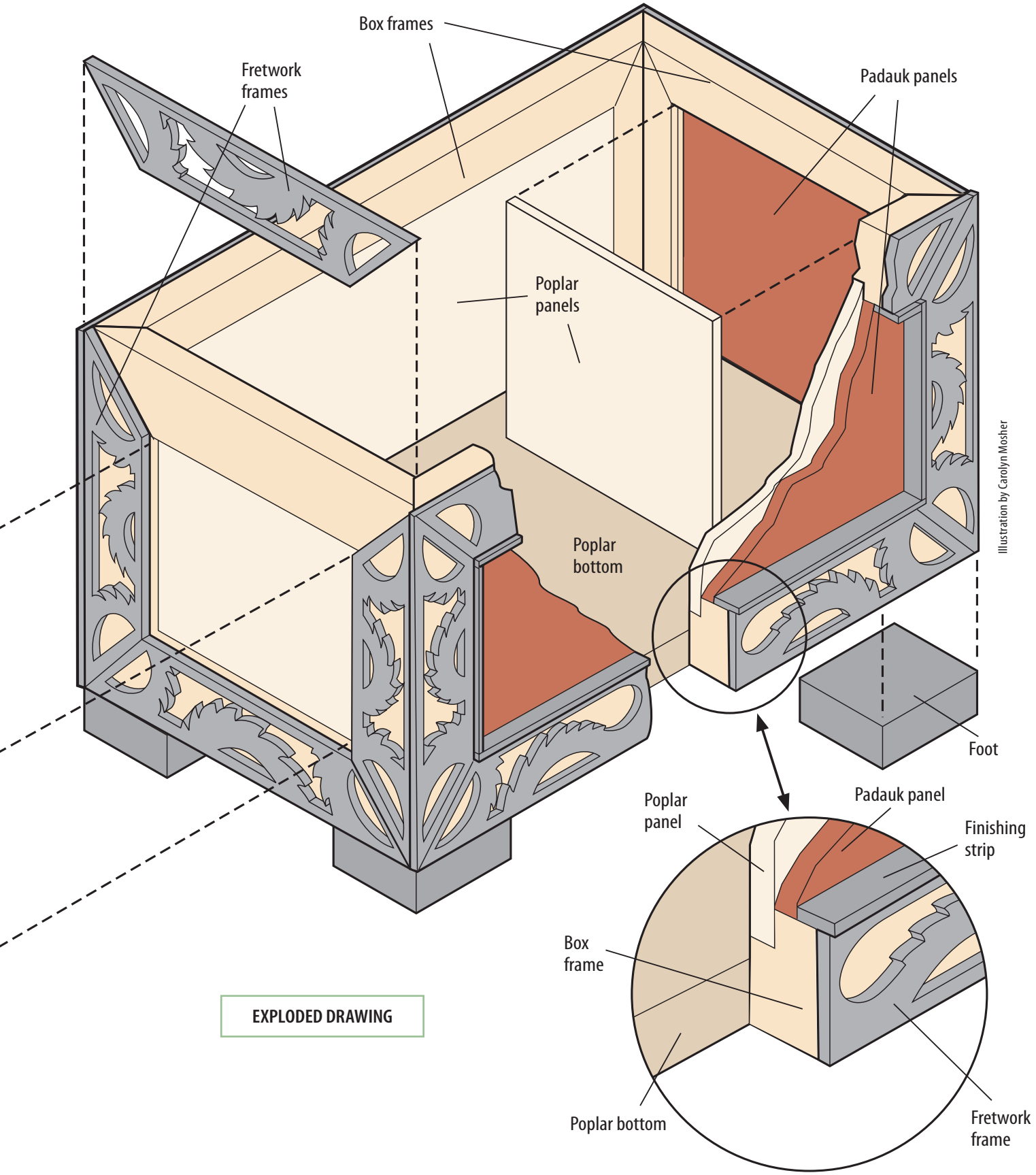


Illustration by Carolyn Mosher

EXPLODED DRAWING

Additional patterns for the ***Dragon Chest*** are on the pattern pullout section.

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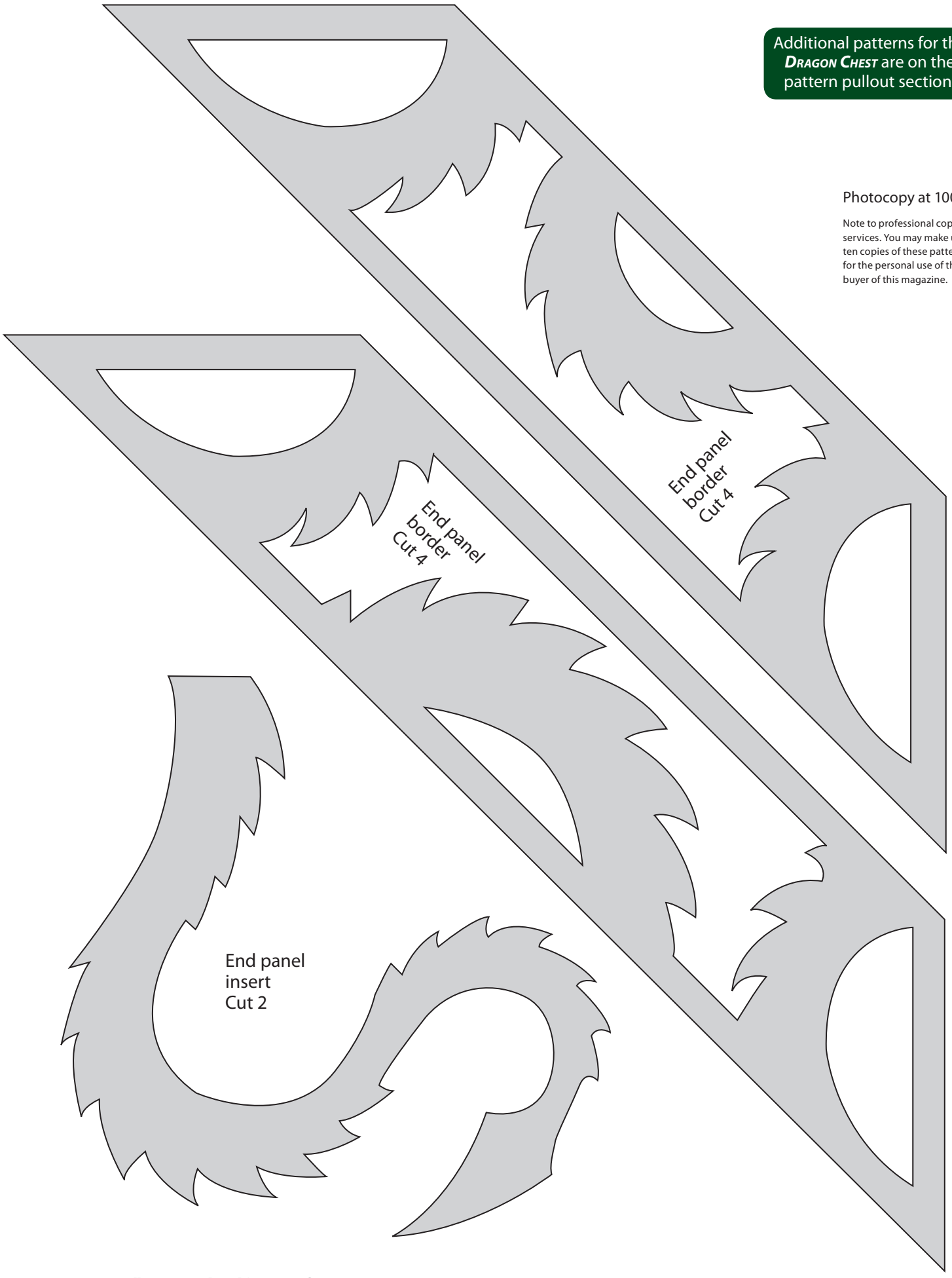
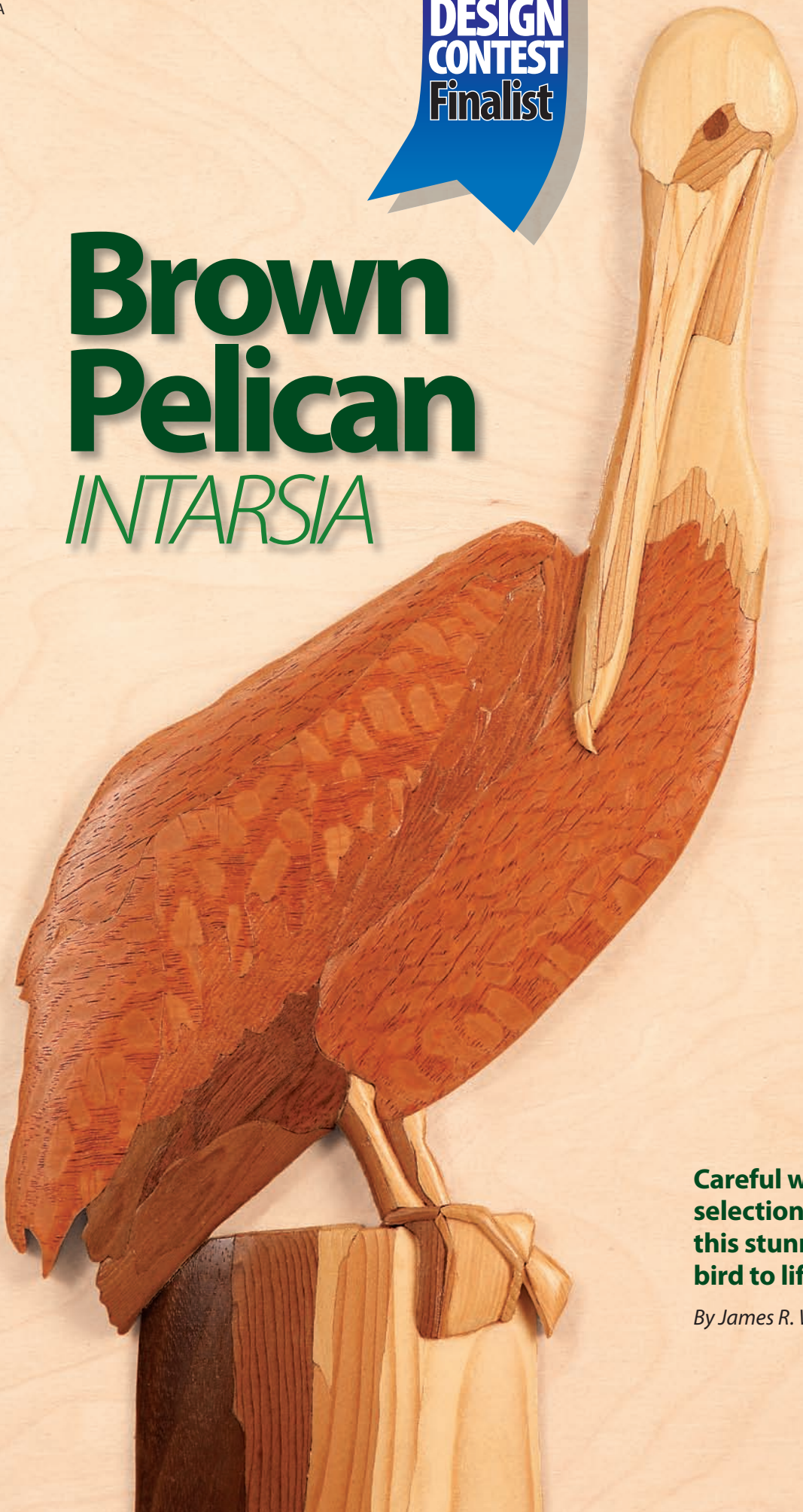


DESIGN CONTEST Finalist

Brown Pelican INTARSIA



Careful wood selection brings this stunning bird to life

By James R. West

A rustic frame of weathered wood accents the pelican portrait.

Inspiration

I have made many projects from commercial patterns and finally decided it was time to create my own. Finding the right image is important. The brown pelican began when I saw a picture a friend had—it was an image I felt compelled to make. Make sure the image you are using is copyright free or you have the photographer's permission to use it when making the pattern.

Making the Pattern

Start by scanning the image into a computer. While not necessary, it is helpful because you can print the image at any size. I print both color and black and white copies. If you want a larger size, print the image in overlapping sections, and splice them together. Using a light table or back-lit piece of frosted glass makes this task much easier.

I use the color copy as a reference and the black and white copy to trace the pattern. This makes it easier to determine where to make the wood color and grain direction changes. You have to find a happy medium between detail and practicality. If the pieces are too small, the detail is overwhelming. If they're too big, fit and warping can become a problem.

Wood Selection

Wood selection is critical. Color, grain pattern and structure all affect the final appearance. Visualize the finished project in your mind, and make notes on the pattern to reflect your mental image. I had a piece of lacewood that was wonderfully figured and took advantage of this effect to accent the flow of the feathers on the body.

I've found that using different thicknesses of stock can add quite a bit of depth to the project. I re-saw woods on the band saw to a variety of thicknesses, usually in ⅛"-increments. It saves time sanding and thinner stock is much easier to cut. I use ½"-thick as the base thickness on all my projects.

On this project, the head and bill were cut from ⅝"-thick stock, and the leg which is further away in the picture, was cut from ⅜"-thick stock. Once the finished project was shaped and the varying heights were blended together, the 3D effect was achieved.

Applying the pattern

I Make all of the copies needed for the project at the same time, and overlap areas that are too big to fit on one page. There is some distortion inherent in photocopies, but if you make all of the copies at the same time, the distortion is minimized.

To glue the pattern pieces down, I use spray adhesive, but on the small pieces, some of the craft-rated sprays do not hold well. You will need to experiment with the different types of adhesives and determine how heavy to spray it onto the pattern to find what works best for you.

Finishing

Finish on the project is a personal preference. For its long-lasting qualities and low maintenance, I use an oil-based varnish. Many patterns recommend a custom-cut backing board for a stand alone appearance, but I usually add a frame to all of my pieces. For this project, I used a Baltic birch backer and made a rustic frame from weathered oak that spent the first 50 years of its existence as the handles on a wheel barrow. Don't be tempted to cut corners in this area. A distinct frame can really enhance the appeal of your project.

Materials & Tools

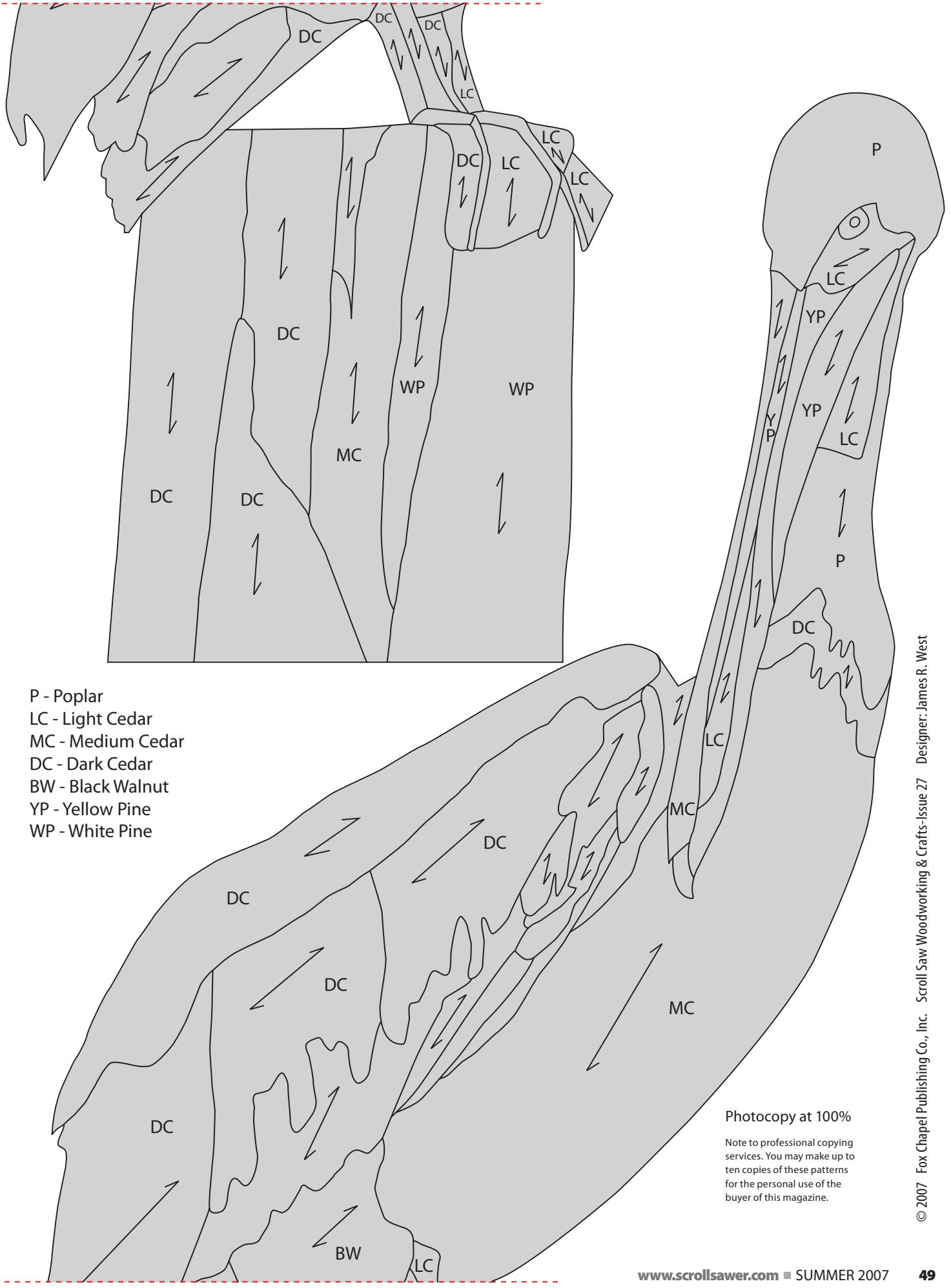
Materials:

- ¾" x 1½" x 5" poplar
- ¾" x 4" x 4" light cedar
- ¾" x 4" x 7" medium cedar
- ½" x 7" x 10" dark cedar (lacewood)
- ½" x 1½" x 3" black walnut
- ¾" x ¾" x 4½" yellow pine
- ⅜" x 4¾" x 2" white pine
- 14⅞" x 22¼" Baltic birch backer board
- Oil-based varnish of choice
- Assorted grits of sandpaper

Tools:

- Scroll saw blades of choice
- Sanding tools of choice (I use a random-orbit palm sander and a belt sander)
- Band saw (optional for re-sawing wood)

James lives in Saint Francisville, LA. An intarsia enthusiast for 10 years, he now designs his own patterns.



P - Poplar
LC - Light Cedar
MC - Medium Cedar
DC - Dark Cedar
BW - Black Walnut
YP - Yellow Pine
WP - White Pine

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Note to professional copying services. You may make up to ten copies of these patterns for the personal use of the buyer of this magazine.

FRETWORK

Display Shelf

Intricate cutting and easy assembly combine for a beautifully functional project

By Richard Preator

This classic shelf dates back to 1899. It was originally billed as a tobacco cabinet, but the timeless design is perfect for showcasing any collectible. I cut the shelf from dark wood, but choose wood to best complement your décor.

After cutting the stock to the listed sizes, sand both sides in a progressive order with 120, 220, and 320-grit sandpaper. Separate the paper patterns, and fit them on the panels. Lay the patterns face down on old newsprint, and spray them with your adhesive of choice, keeping the nozzle 12" to 16" from the pattern.

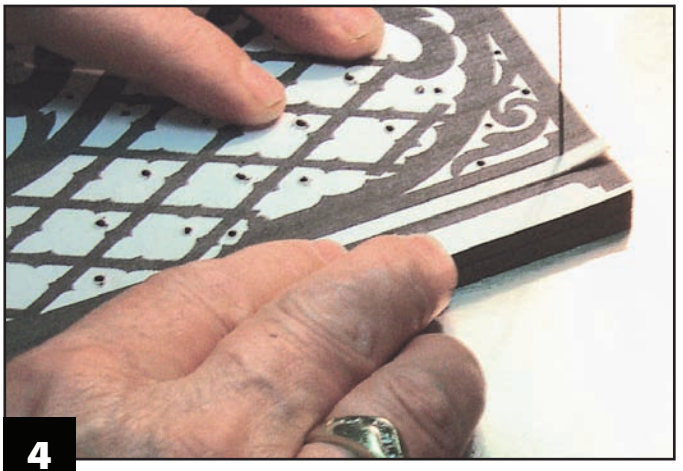
Allow the adhesive to dry for a couple of minutes. Touch a pattern with your fingertip. If you can lift the pattern, then it is tacky enough to apply to the stock without soaking into the wood.

The pattern is drawn for 3/16"-thick wood. If you choose a different thickness, be sure to adjust your slot widths accordingly.

1 **Stack the duplicate parts.** Align the blanks. Drill two holes in the waste area with a #50 drill bit. Snip the points off the nails, put a piece of metal under the stack, and carefully drive the nails in until you hit the metal. Snip off the top of the nails

2 **Drill the blade-entry holes.** For most holes, use a 1⁄16"-diameter bit. I use a drill press set to at least 650 RPM and drill into a wooden backing board to minimize splinters.

3 **Scribe a line around the slots.** For proper assembly, slot widths need to be accurate. This is especially important in the areas where two pieces overlap each other. Line a piece of scrap wood up with the slot and scribe a sharp line around the profile.



4 **Cut and fit the slots and joints.** When sawing on patterns that have fine detail and small fret areas, I use a #5 double-tooth blade. Some practice and skill is required to make the straight cuts for the overlapping joints. Saw just up to the scribed lines.

5 **Test the fit of the joints.** Use a piece of scrap wood to test the fit. Use a 6" double-cut file to remove any high spots on the slot interior. Be sure to support the thin sections to prevent breakage. Then cut the perimeter of the pieces.

6 **Cut the internal frets.** Cut in a counter-clockwise direction to keep the smooth side of the blade against the finished side of the cut. Fill previously cut slots with scrap wood to keep delicate pieces from breaking.

7 **Cut the frets with nails last.** Cut all other interior frets first. Then cut one area with a nail in it. Leave the scrap in place. This helps keep the pieces aligned while you cut the last fret.

8 **Cut the back panel.** The piece is challenging to cut due to its size. Since it is not stack cut, a #2 or #4 blade will give you more control. Be as accurate as possible when cutting the slots.

9 **Sand the pieces.** Wipe the pattern sparingly with mineral spirits, allow to work for a few minutes, and the pattern will pull right off. Wipe the wood lightly with mineral spirits to remove any residue. Attach 320-grit sandpaper to a flat surface with double sided tape. Rub the small pieces back and forth on the paper to remove any fuzz and prepare the surface for a finish. The larger fretwork pieces should be hand-sanded, using a sanding block.

10 **Assemble the shelf.** Dry fit the pieces and make any adjustments. Glue the sides and the face arch panel first. Squeeze glue onto scrap wood and use a toothpick to apply the glue to the insides of the slots. Dry fit the other pieces again to verify the glue-up is square. Glue the mirror on the back panel with contact cement, then glue up the remaining pieces. When dry, tape off the mirror and apply your finish of choice. I use spray polyurethane.

Materials & Tools

Materials:

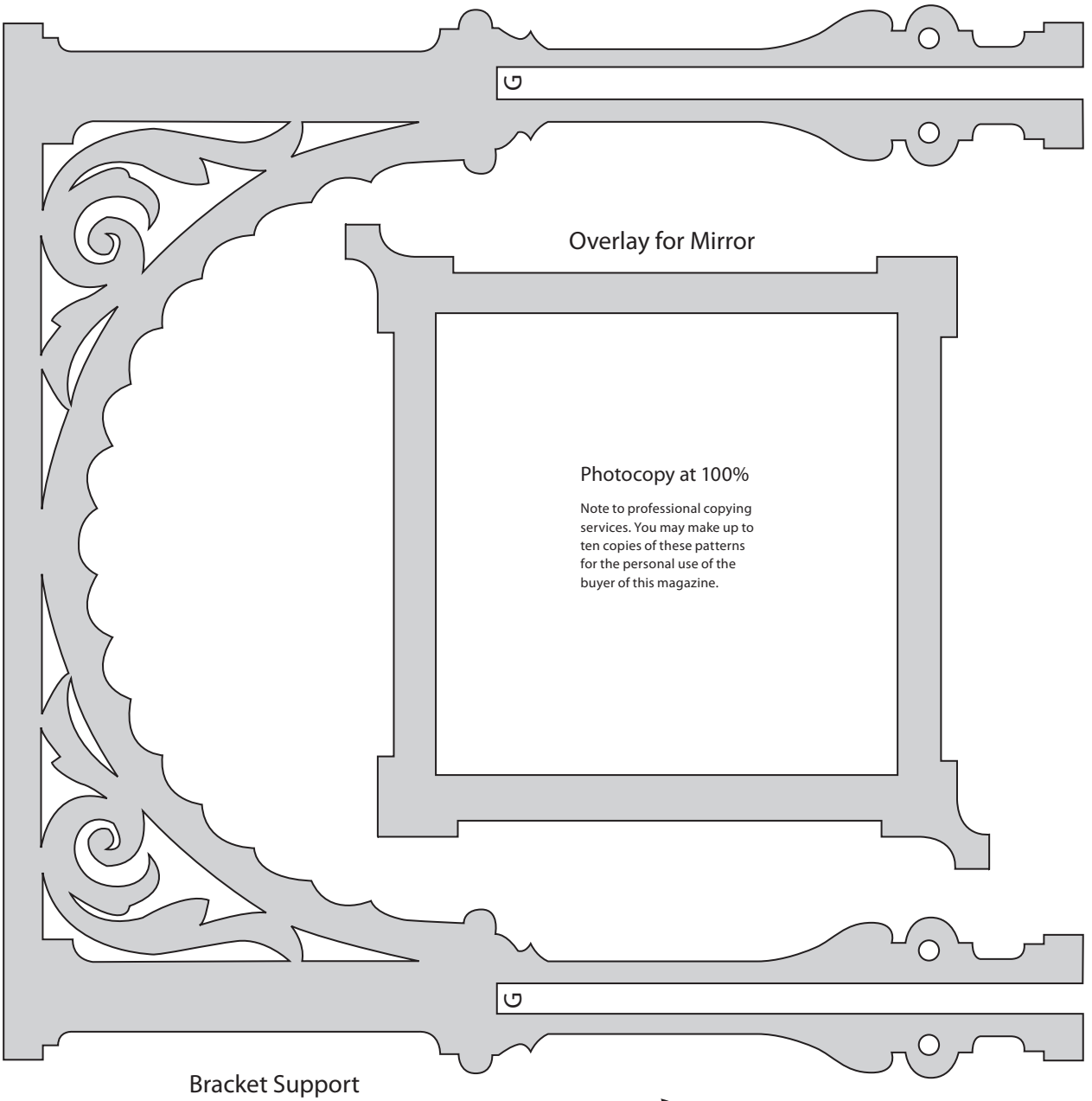
- 3/16" to 1/4" x 13" x 13" walnut or mahogany (back panel)
- 2 each 3/16" to 1/4" x 5" x 7" walnut or mahogany (side panels)
- 3/16" to 1/4" x 7" x 7" walnut or mahogany (arch panel)
- 2 each 3/16" to 1/4" x 4" x 4" walnut or mahogany (brackets)
- 2 each 3/16" to 1/4" x 5" x 11" walnut or mahogany (shelves)
- Spray adhesive
- Double-sided tape
- 3" x 3" beveled glass mirror
- Spray polyurethane or finish of choice
- Contact cement (to attach mirror)
- Wood glue of choice
- Several 1½"-long finishing nails
- Assorted grits of sandpaper up to 320-grit
- Toothpick (to apply glue)

Tools:

- #2 or #4 and #5 double-tooth blades or blades of choice
- 6" double cut file
- Bench knife
- Drill with #50 and 1/16"-diameter drill bits
- Hammer
- Diagonal wire cutters
- Sanding block

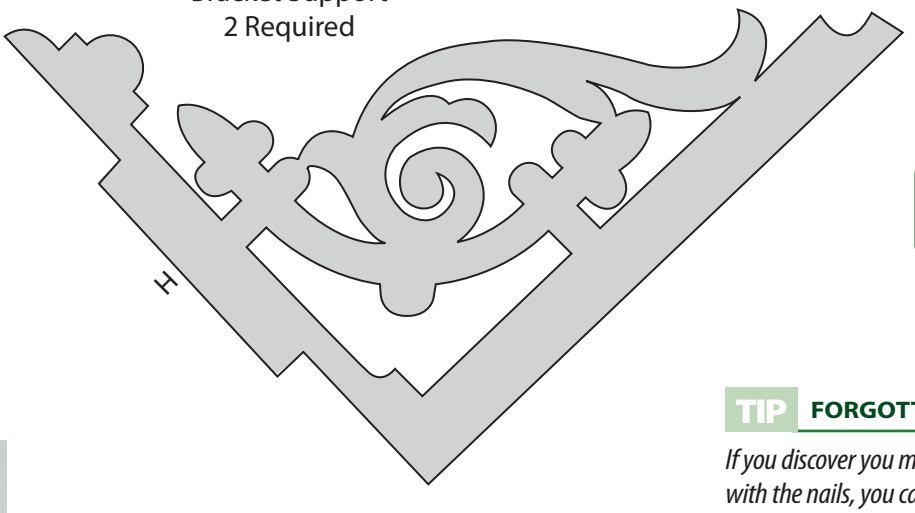
SPECIAL SOURCES:

The mirror, #B-523, is available from Potomac Display , 410-374-9495, www.potomacdisplay.com.



Front Arch, 1 Required

Bracket Support
2 Required



Additional patterns for the ***Fretwork Display Shelf*** are on the pattern pullout section.

Richard lives in Peculiar, MO and excels at restoring historic scroll saw patterns. Visit his website: www.peculiarfretworks.com.

TIP **FORGOTTEN CUTS**

If you discover you missed an area after you've cut the frets with the nails, you can use double-sided tape to re-stack the layers. Use a flat surface with a stop to line the layers up. When finished, run a thin knife blade between the boards, and twist it lightly to break the tape bond.

Motorcycle Puzzles

DESIGN CONTEST Finalist

Quick and easy freestanding puzzles make great gifts

By William Berry

These motorcycles are inspired by the puzzles designed by Judy and Dave Peterson. They make great craft show items and I have a hard time keeping up with demand.

They can be cut from a number of woods, but due to the various angles, there will be fragile areas. I've cut them from padauk, bubinga, maple, oak, and poplar. I usually stain the poplar, but have had requests to paint them.

Attach the pattern to your blank and drill the blade-entry holes for all interior cuts. For easy assembly, it is important to make sure your blade is square to the saw table (see page 18.)

Step 1: Cut the interior cuts and puzzle pieces. Start with the interior cuts, then cut each puzzle piece individually, moving from one end to the other. Rotate your work clockwise whenever possible. For a round tire with minimal tool marks, make one slow, continuous cut without stopping.

Step 2: Make the accent cuts. Cut any accent lines before freeing the piece from the rest of the board. It is easier to cut the details while you still have stock to hold onto.

Step 3: Sand the surface to remove any defects. Clean up the sides with a pad sander and round over the edges with a flap sander. You can also sand the entire project by hand; it will just take longer.

Step 4: Remove the sawdust from the pieces. Use compressed air, a vacuum, or a tack cloth.

Step 5: Apply a finish. For hardwoods, apply a coat of Danish oil according to the manufacturer's instructions. To stain the puzzle, dip the individual pieces into the stain. Wipe off the excess, and place on a paper towel to dry. When dry, apply a coat of polyurethane to protect the finish. For a simple paint job, apply the appropriate colors to each puzzle piece. I use metallic silver for any chrome parts. Paint over the edges of the pieces where the rounding ends, so no wood shows in between pieces when assembled. Apply a clear coat when dry.

Caution: These puzzles contain small pieces which can be a potential choking hazard. This project is not intended for children under 3 years of age.

William's scrolling business is based in Saline, MI. Visit his website at: www.taurpiocreations.com.

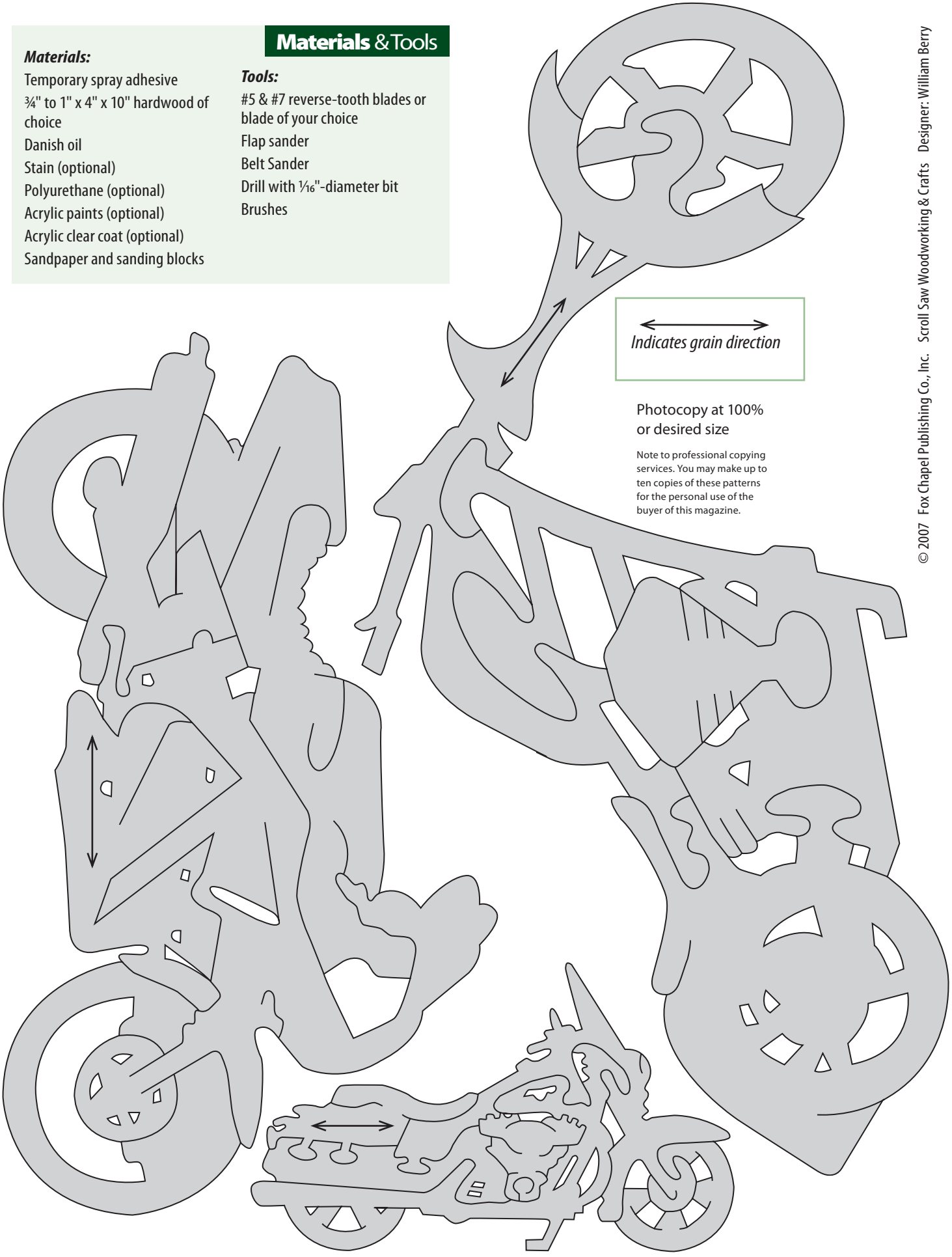
Materials & Tools

Materials:

Temporary spray adhesive
¾" to 1" x 4" x 10" hardwood of choice
Danish oil
Stain (optional)
Polyurethane (optional)
Acrylic paints (optional)
Acrylic clear coat (optional)
Sandpaper and sanding blocks

Tools:

#5 & #7 reverse-tooth blades or blade of your choice
Flap sander
Belt Sander
Drill with 1/16"-diameter bit
Brushes



Photocopy at 100% or desired size

Note to professional copying services. You may make up to ten copies of these patterns for the personal use of the buyer of this magazine.

Rustic Windmill

Creative layering techniques produce a unique 3D scene

By Gary Sherrodd

This free-form style of scrolling is an ideal way to use up all of those interesting scraps of wood you can't bear to throw out.

The process allows for a wide range of creative interpretation. You are not limited by a pattern and can combine different elements such as scrolled shapes and natural materials to achieve a variety of effects.

I chose a cottonwood slab for the core of my project, but you can use just about anything for your "canvas"—be creative and experiment with different materials. You must allow each piece to dry after gluing it in place before proceeding. With a good wood glue and tight clamps, the project can be worked on within 30 minutes. I plane the wood for layers and individual elements to a thickness of ¼". Sand after each layer or element is added with 120-grit sandpaper.

Step 1: Determine the orientation of your core and add the background hills. Use the grain and wood color to create the sky. Use a slightly darker color for the main hill. Cut the bottom straight and the sides to fit the slab. Shape the top into rolling hills. Below the hills, add a strip of light wood to represent a wide expanse of flat land between the layers. Below this, add a spacer for the next layer.

Step 2: Add the mountain top and next set of hills. As you move along, match up adjoining pieces by tracing the lines from your existing piece. Cut half of the mountain. Trace the center of the mountain to form the other half. When you are happy with the fit, glue it into place. Use a lighter wood for the next set of hills. Cut to fit the slab at the bottom, and form a valley in the center with the hills rising to the outsides.

Step 3: Add the cabin and another hill. The logs for the cabin are made from ⅛"-wide strips of cottonwood that are sanded round. Sketch in the cabin and door before gluing the strips in place. Trim the logs with a carpenter's knife, and add the roof using a dark wood. Shape the hill to fit the bottom of the slab with a gentle curve on the top.

Step 4: Add the windmill and some trees. The legs and braces are cut to ⅜"-wide and sanded before gluing. Cut the cottonwood blades and bevel one side with a sander. Space the blades an equal distance apart with all bevels facing the same direction. Add the windmill center and fin. Size the tree pattern to suit, or cut your own trees free-hand. Remember that branches do not sprout from the tree evenly and that no two branches are the same. Add a tree top above the cabin roof. Sand down the thickness of this piece so it appears to be growing behind the cabin.

Gary is the owner of Woodart Creations Gallery in Pompeys Pillar, MT. Contact Gary, care of SSW&C: comments@scrollsawer.com.

Step 5: Add the fence and wagon wheels. I use weathered wood for the fence to give it an authentic look. Free-hand cut the fence pieces and assemble them with some rocks in the center under the windmill. The rocks are sketched onto the wood then cut to shape and sanded to fit closely together. Cut and sand the wheels before gluing them in place.

Step 6: Add the foreground. Add another rolling hill, some more trees, a bush, and rocks. Any areas that will extend to the end of your core slab should be cut or sanded to fit. Allow the glue to dry thoroughly. Hand-sand everything with 120-grit sandpaper. Remove all of the dust, and apply your finish of choice.

Materials & Tools

Materials:

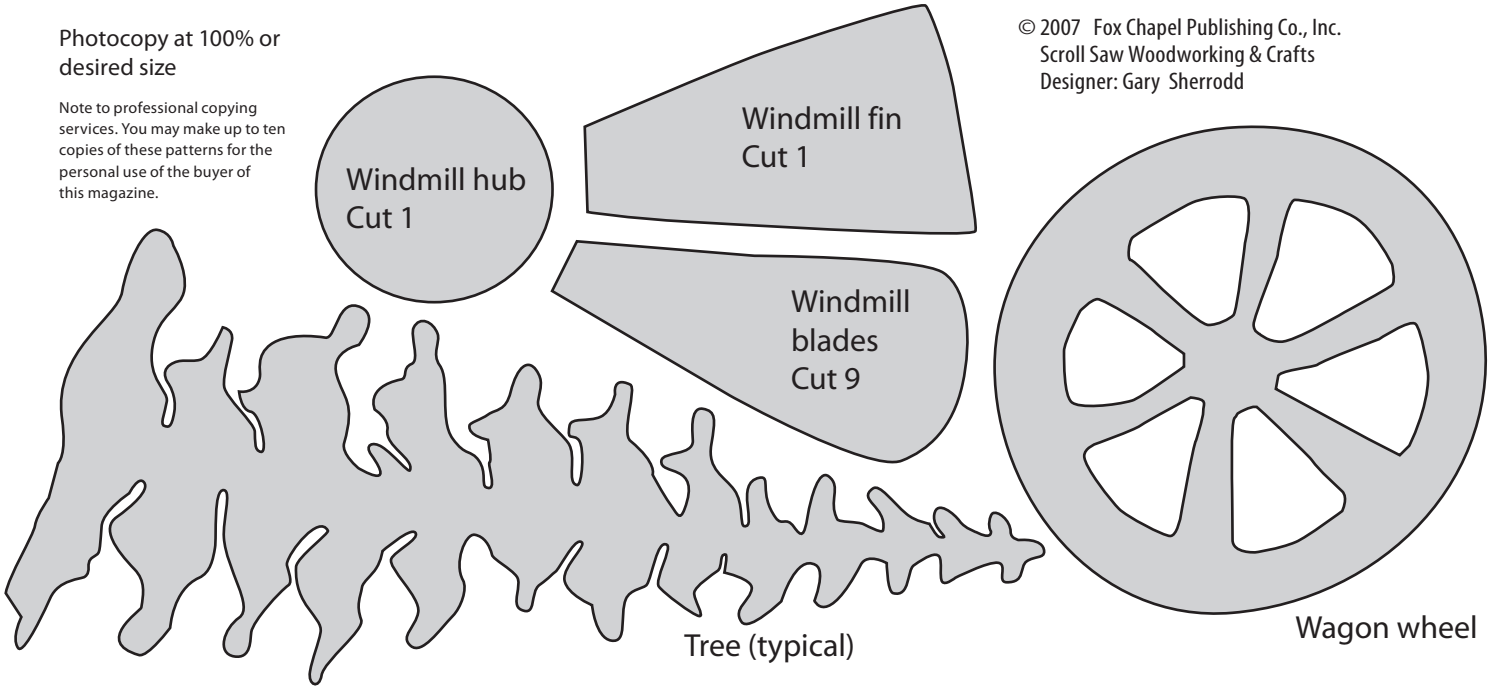
- 3" x 27" x 23" cottonwood slab or background of choice
- Assorted scraps of ¼"-thick wood. (I use Russian olive, walnut, elm, cherry, pine, blue pine, wormwood, red cedar, and brown cedar)
- Water-based gloss polyurethane or finish of choice
- Wood glue of choice
- Sandpaper, assorted grits

Tools:

- #2 spiral and #5 skip-tooth blades or blades of choice
- Sanders of choice (I use a strip sander, belt sander, a random orbit sander, and a vibrating palm sander)
- Drill and ⅜"-diameter bit (to drill blade-entry holes)

Photocopy at 100% or desired size

Note to professional copying services. You may make up to ten copies of these patterns for the personal use of the buyer of this magazine.



Blue Jay Intarsia

Shaping in sections speeds up the finishing process

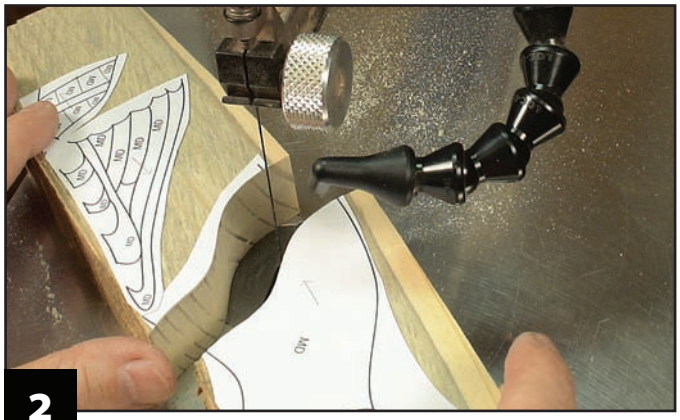
By Kathy Wise

Blue jays are one of the most common birds in the United States. Intelligent and adaptable, they take advantage of almost any food source. Blue jays can imitate a variety of sounds—including the scream of a hawk, that is sure to clear the way at the local feeder.

This lively blue jay design is highlighted by the use of blue pine, a piece of yellow pine that was attacked by pinecone beetles, which transmit the blue stain fungus. Blue and grey wood can be difficult to find, so another alternative would be to paint a white wood with a wash of blue acrylic or oil paint. Practice on scrap wood until you are satisfied with the color.

Start by transferring the patterns to the workpiece. Make two copies of the pattern, and always keep a master copy. Cut the pattern pieces, and divide them into groups based on color. Spray adhesive to the back of the pattern pieces, and adhere the pattern to the shiny side of a piece of clear contact paper (I use Contact Brand). Cut each pattern piece from the contact paper. Attach a full-size pattern to contact paper, using the same method. Transfer the full-size pattern to the wood you plan to use as a backing board. The contact paper can be re-positioned if needed, and it is easy to remove after cutting.

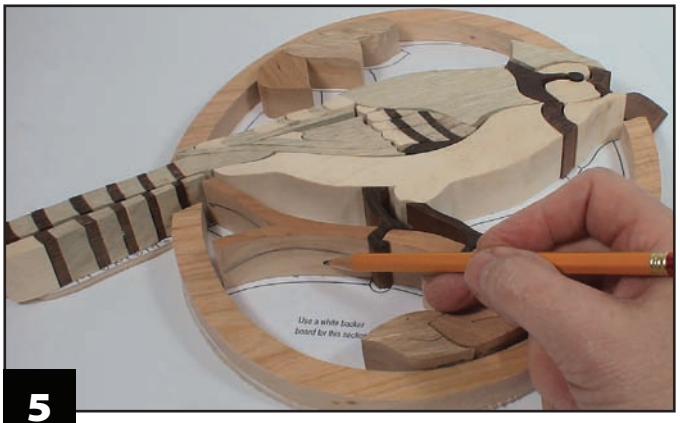
1 **Choose the wood for each piece.** Stick the pattern pieces onto your stock. Align the grain direction with the arrows. For a good cut and fit, plane any wood that is not flat before you lay out your pattern. Cut large pieces into smaller, manageable pieces.



2 **Cut the pieces.** Make sure your blade is square to the saw table. Carefully cut all of the pieces, using your blade of choice. For the thick pieces, I use a #5 skip-tooth blade. I use a #3 reverse-tooth blade for the cuts between the wings. Leave the feather sections intact for the time being.

3 **Glue the feather sections together.** I use cyanoacrylate (CA) glue. If you need to remove the pattern to check the fit, you can replace it afterwards, or sketch on the individual feathers. Cut out the individual feathers for the wings and tail. Note: on the top wing sections, the white wood is glued only to the grey wood.

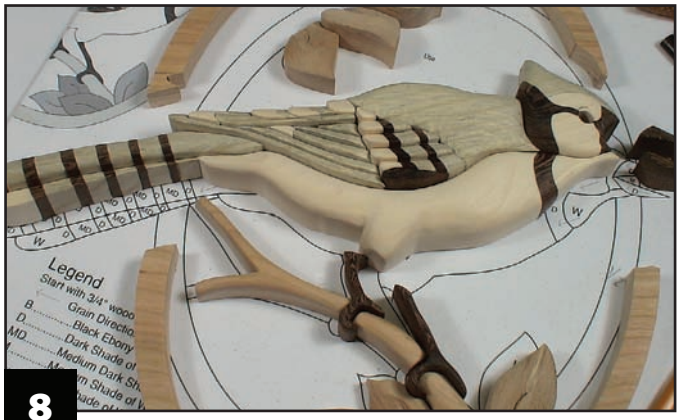
4 **Check the pieces for fit.** Place all of the cut pieces on a pattern adhered to the backing board. Check to see how you like the grain pattern. If you want to make any changes, now is the time to do it. Glue together areas that should be shaped as one piece such as the head and tail sections. Shim up the breast wing section ¼" before sanding to give the piece more depth.



5 **Shape the pieces.** Refer to the shading on the pattern. Pencil in marks as a guide and replace the pieces often to check your progress. Re-mark as needed. I use a pneumatic drum sander and wear rubber fingertips for protection. An air grinder with a ½"-diameter sanding drum works well for the small pieces.

6 **Finish sanding the pieces.** I use a sanding mop. A 120-grit mop rounds the pieces quickly and gets into all of the curves and crevices. Use a light touch with the softer woods. Then switch to a 220-grit mop to put a beautiful sheen on the wood. Dry fit the pieces together and make any adjustments by re-cutting or sanding for a tight fit.

7 **Glue the feathers together.** When you are happy with the fit, glue the feather sections together. For a project with less pieces, you can burn the dark stripes onto the feathers with a woodburner. Press the three wing feather sections up against the body, and glue them in place using CA glue. You need a tight fit in these areas.



8 **Glue the project together.** I use CA glue and glue accelerator. Position all of the pieces on the full pattern. Glue the bird together first. Then move on to the frame sections, the legs and branches, and the leaves. Apply pressure to make sure you have a flat bottom and a tight fit. Then apply a spray varnish to the entire project. Follow the manufacturer's instructions.

9 **Cut the ¼"-thick backing board.** Place the assembled blue jay on the backer, and trace around the perimeter. Cut along your lines. You can use walnut like in the project, a mirror or colored acrylic, or forego a backing board and leave the piece open for an airy look. If you decide not to use a backing board, be sure to reinforce your glue joints with more CA glue or epoxy. Sand the back before gluing for a tight fit.

10 **Glue the project to the backing board.** Apply a light, but thorough layer of wood glue to the back of the project. I use a few drops of CA glue and accelerator to lock the pieces in place. You could also clamp the pieces together until the glue dries. If any of the wood glue squeezes out, clean it up with a wet cotton swab. Attach a hanger to the back of the piece.

Materials & Tools

Materials:

- ½" x 1" x 1" black ebony or black wood of choice (eye)
- 1" x 8" x 5" poplar or white wood of choice (face, body, feathers)
- 1" x 5" x 5" walnut, wenge, or dark wood of choice (face, feathers, legs, beak)
- 1" x 5" x 5" grey or blue colored wood of choice (may be stained or painted, body, head, feathers)
- ½" x 9" x 13" cherry or medium-colored wood of choice (oval frame)
- ¾" x 4" x 4" cherry or medium-colored wood of choice (branch)
- 1" x 5" x 5" beech or different medium-colored wood of choice (leaves)
- ¼" x 12" x 12" walnut or plywood of choice (backer)
- ¼" x 6" x 6" plywood of choice (shims)
- Clear contact paper
- Spray adhesive
- Wood glue
- Cyanoacrylate (CA) glue and accelerator
- Spray varnish, satin & gloss
- White gel stain
- Hanger of choice
- Wiping rags
- Epoxy

Tools:

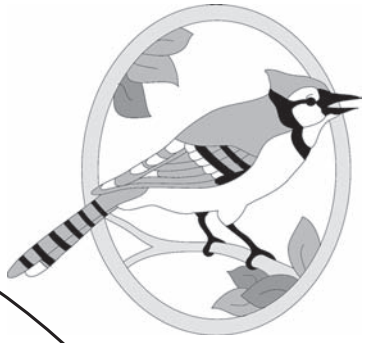
- #5 skip-tooth blades or blades of choice
- #3 reverse-tooth blades or blades of choice
- Pneumatic drum sander, air grinder with sanding drum, or sanding tools of choice
- Clamps (optional)

Kathy Wise has been sculpting dogs and animals professionally for more than 25 years. Much of her time is now spent in the wood shop and art studio working on new and exciting designs for intarsia artists to cut and enjoy. Kathy is currently working with Fox Chapel on a book of intarsia patterns scheduled for a September release. For a free catalog of more than 280 patterns, Contact Kathy Wise Designs Inc at: www.kathywise.com, kathywise@bignet.net, P.O. Box 60, Yale, MI 4809, fax, 810-387-9044.

Ride'm Cowboy
#650os (oversized)

TIP KEEPING WHITE WOOD WHITE

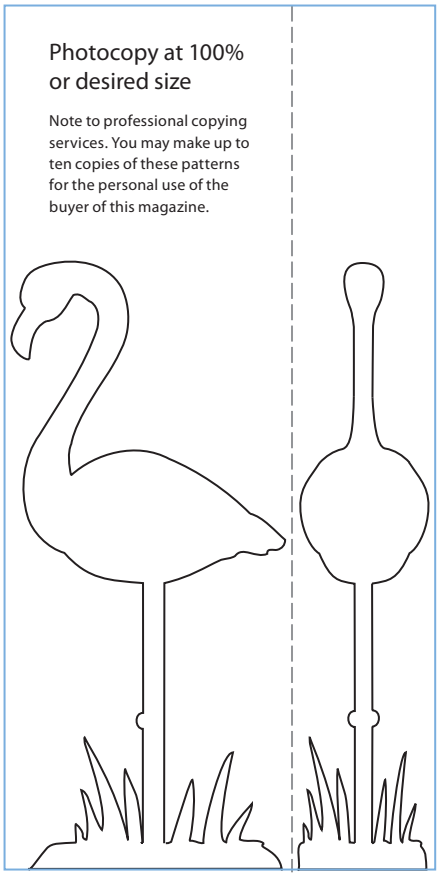
Varnish tends to add a slight yellow tone to white wood. To prevent that, apply one coat of a white gel stain, let it dry a few minutes, and wipe it off with a clean rag. Repeat, then let it thoroughly dry overnight before applying varnish.

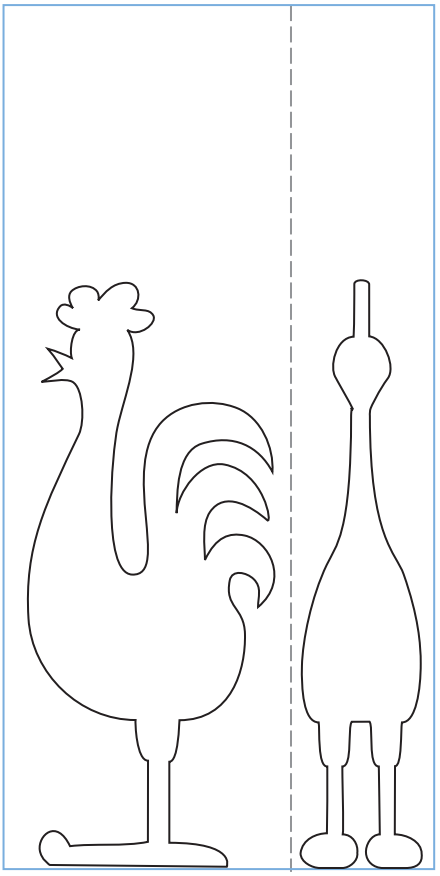


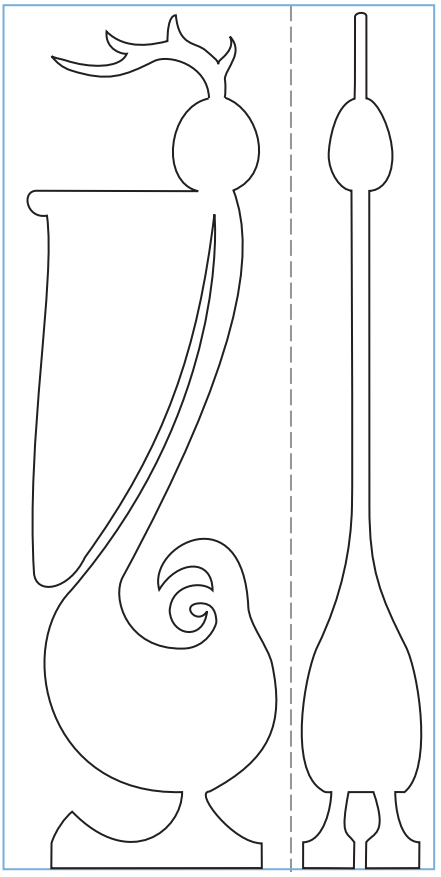
Feathered Friends

Fun compound birds are easy to scroll

By John Fleig
Cut by Ben Fink







These cute little birds are quick and easy. Since they take only two to three cuts and can be made from a small piece of scrap wood, they make perfect gifts that are sure to bring a smile. They also make great demonstration projects. Have a few finished birds for display and give away the demo pieces as you complete them. The excitement is sure to draw attention.

Test cutter Ben Fink cut these from Spanish cedar. I suggest a blade with 12.5 teeth-per-inch. Most blade manufacturers have a chart to show the TPI of the blades; some consider that a #5 skip-tooth blade, others consider it a #7.

If you decide to cut these pieces out of a harder wood, you will need to experiment to find the best blade for balance of cutting speed, smoothness, and maneuverability.

These patterns are cut using standard compound-cutting techniques. Photocopy the pattern, fold it on the dotted line and apply spray adhesive to the back of the pattern. Line the fold up with the corner of the block, and press it into place. Cut out one profile. Attach two pieces of scrap wood to either side of the profile you just cut to hold the cut-out piece in place. Alternately, you can tape the piece back in place. Then cut out the other profile. Push the cut pieces out, remove the scrap pieces from the front and back, and you are left with the 3D project.

You can paint them if you want, but they look great with a natural finish as well.

Materials & Tools

Materials:

- ¾" x 1½" x 4½" pine or wood of choice (for each bird)
- Finish of choice (optional)
- Spray adhesive
- Clear tape (optional)
- Thin scrap to hold the pieces in place (optional)

Tools:

- Scroll saw blades with 12.5 teeth-per-inch or blades of choice

John lives in Sulphur, LA and has a variety of woodworking plans and patterns available on his website: www.unclejohns.com.

Wooden Puzzle Vault

Ben Fink (www.bensscrollsaw.com) and Lora Irish (www.carvingpatterns.com) worked together to craft this custom version for our publisher. For this project, we used ½"-thick stock for the end cap.

Clever design will keep them guessing

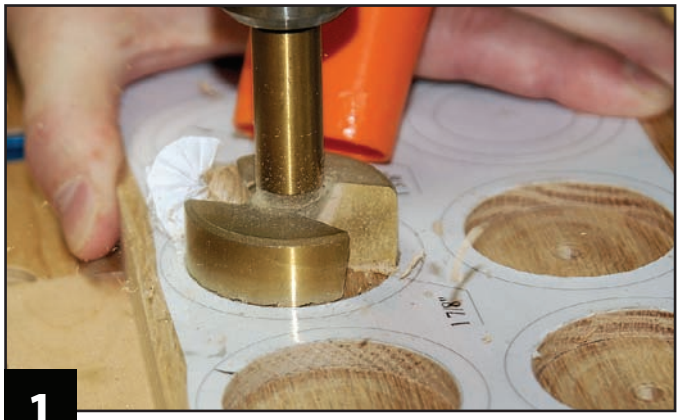
By Donald Horgan
Process photos by Dennis Horgan

While reading *The DaVinci Code* by Dan Brown, I was intrigued by the description of what he called a "Cryptex," or vault protected by a combination lock. After reading the passage describing the cryptex, I knew I had to design one in wood. The project is actually quite simple and can be put together in a weekend with tools most woodworkers have.

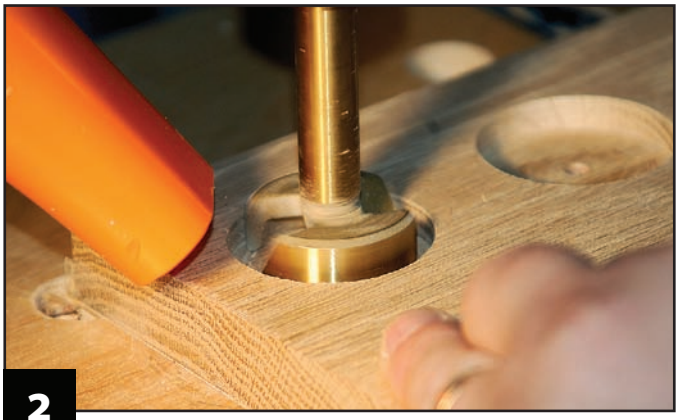
I have been a police officer for 16 years and have used woodworking as the ultimate stress reliever. This project combines my love of reading, a life of law enforcement, and my passion for woodworking.

I worked my way through several prototypes and was excited to try out the finished product on my family and friends. The reactions were priceless! With each new vault, my children bug me to give them "just the first letter." My colleagues try to figure out a mechanical way around the lock! With a five-dial vault, using all 26 letters, there are 11,881,376 possible combinations! It is a great conversational piece and could be used to conceal a small gift for a special birthday or anniversary.

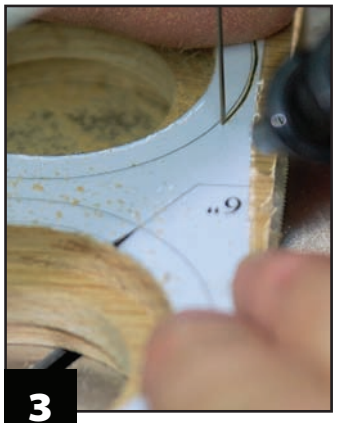
To get started building your own vault, attach the pattern for the seven rings to the blank, using spray adhesive. Cover the pattern with clear packaging tape. The side with the pattern attached will be called Side A. The opposite side will be called Side B.



1 **Drill one side of the rings.** Drill a 1⁄16"-diameter hole through the center of each ring so you can locate the center from either side. Be careful, the center is important to the smooth working of the vault. Using a 1⅞"-diameter Forstner bit, drill ¼" deep on six of the rings. The seventh undrilled ring will become the bottom ring.

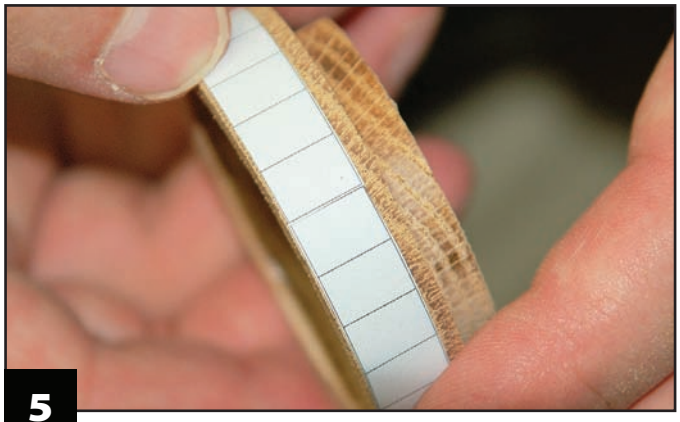


2 **Drill the holes in Side B.** Turn the material over. You should be able to see the center hole. Use this as a reference, and drill a 1⅝"-diameter hole ¼" deep. Do not drill the first ring, as this will become the top ring, and do not drill the bottom ring. Then drill a 1⅜"-diameter hole through the center of all seven rings. To reduce tearout, drill partway through from each side.



3 **Cut out each of the rings.** Your five main rings will have a hollow core with a 1⅞"-diameter opening on the A side, a 1⅝"-diameter opening on the B side and a 1⅜"-diameter lip in the center. I use a #7 blade to cut the perimeter of the rings. Cut 1⁄16" outside the line and sand to the line with a belt or disk sander.

4 **Add a rabbet around each ring.** With Side A facing up on a router table, use a ¼"-radius rabbeting bit to cut a ¼" x ¼" rabbet around each ring. Use a push block to hold the ring. Your fingers will be close to the bit. This rabbet allows the rings to nest inside of each other.

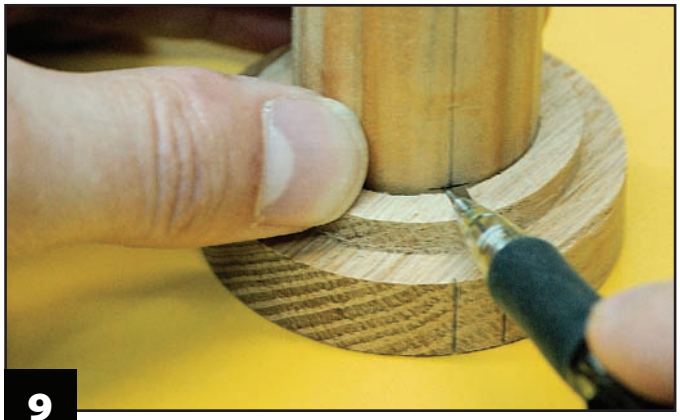


5 **Cut out and attach the Letter Dial Marking Templates to the five interior rings.** If you cut precise rings, the templates will wrap around the rings, line up end to end, and divide the ring into 26 equal sections. If the rings are not the correct circumference, cut a little away from the lines on each space in the next step to tweak the difference over several spaces.

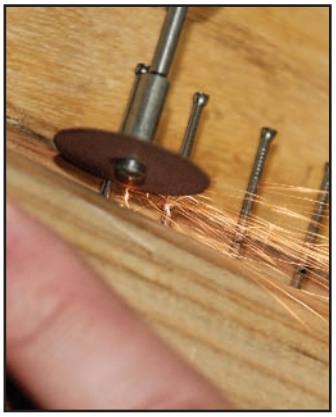
6 **Define the letter spaces and cut the keyway.** Use a #7 or finer blade to score the spaces for the letters. Cut one notch on the interior of the ring, corresponding to a letter space on the outer perimeter. These notches become the keyway, allowing you to remove the vault. Randomize the notch locations with respect to the grain, so the grain pattern can't be used to solve the code.

7 **Mark the end rings.** Stack a letter ring next to the end rings. Transfer lines for one letter space and score the lines on your saw. Cut the interior notch on the top ring, matching the scored lines. On the bottom ring, center a notch between the scored lines, just wide enough for a nail, to prevent wiggling of the vault.

8 **Drill the hole in the center compartment.** The interior compartment is made from a 1⅜"-diameter dowel. Cut the dowel to a length of 4⅜". Mark the center on one end. Drill a ⅞"-diameter hole 3⅜"-deep. Be sure to keep the hole square to the dowel. Clamp the dowel, and use a drill press.

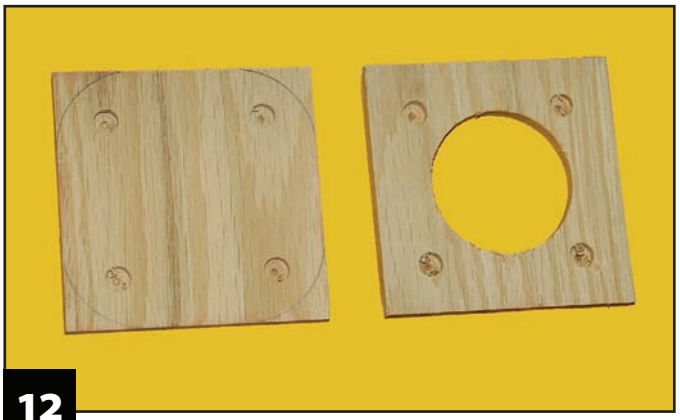


9 **Mark the location of the locking pins.** Mark a line the length of the dowel. Place the dowel (with the opening on top) in the bottom ring. Mark the top of the ring on the line. Add the first ring and mark the top on the dowel line. Use the same method to mark the location of the next three rings. This removes any discrepancies that may prevent the rings from turning.



10 **Insert the pins.** Mark ⅜" below the first mark on the dowel. This will house the pin that fits into the slot on the bottom ring. Clip both ends off of a 3d-finish nail and use it to drill a hole at the mark you just made and at each of the four marks for the letter dials. Clip the points off of five more nails, and glue them in place with CA glue. Cut the nails to a ⅛" height.

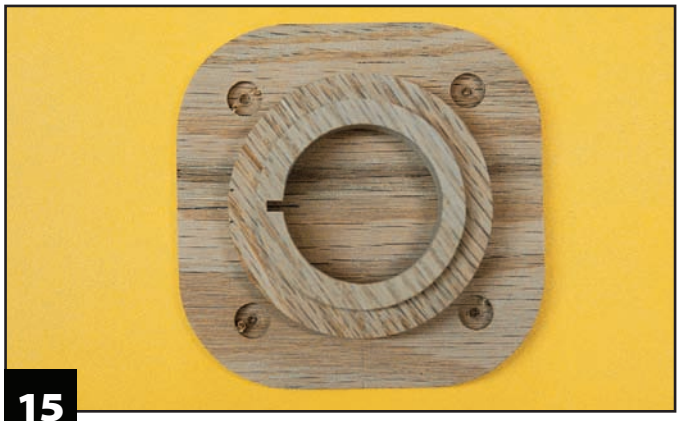
11 **Cut the access door.** Put the dowel inside the rings and mark the location of the top of the seventh ring. Cut the door just below the mark, on the opposite side of the pins. An angled cut on the ends will help keep the door closed. Drill a 1⅜"-diameter x ⅜"-deep hole in the end cap, then cut the perimeter.



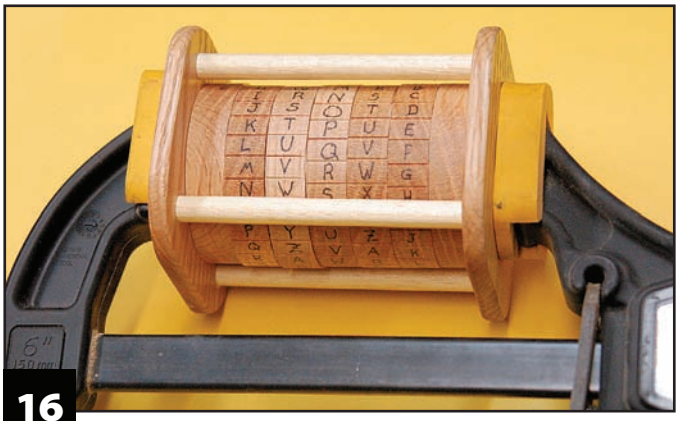
12 **Cut the end pieces.** Drill a 5/16"-diameter x ⅛"-deep hole in the corners of both framework ends as shown on the pattern. Cut the rounded corners and drill a 1⅞" hole through the center of one piece. Sand the edges or round them over on the router table. Round the edges of the end cap with a ⅛"-radius round-over bit.

13 **Cut the dowel supports.** Measure the total height of the seven rings stacked one on top of another. It should be close to 3½". Add twice the actual depth of the 5⁄16"-diameter holes in the end caps, and an additional 1⁄16". This gives enough room for the rings to turn easily. Cut four 5⁄16"-diameter dowels to this length. Dry fit all the pieces together including the end cap and dowel.

14 **Trim the dowel and determine your code.** Measure the space between the frame and the end cap. Trim that much minus 1⁄32" from the open end of the dowel so the end cap clears the frame. Write the code letters in the spaces over each notch on the letter dials and continue the alphabet from those letters. Darken the single spaces on the two end rings.



15 **Assemble the cryptex.** Glue the bottom ring in the middle of the solid framework end, with the notch pointing to the center of one side. Glue the top ring into the hollow framework end, aligning the notch in the center to match the bottom. Keep the grain running the same direction on the ends and the end cap.



16 **Glue the final pieces in place.** Glue the support dowels to the bottom, stack the rings in the proper order and glue the top framework in place. Align the pointer on the end cap with the pins on the dowel, and glue it onto the open end of the dowel. Clamp both assemblies and allow to dry. Apply a clear spray finish.

Materials & Tools

Materials:

- ¾" x 5½" x 11" red oak or wood of choice (rings and end cap)
- ¼" x 3½" x 7" wood of choice (framework ends)
- 18" of 5⁄16"-diameter dowel
- 5" of 1⅜"-diameter dowel
- 6 each 3d finishing nails
- Spray adhesive
- Clear spray finish
- Wood glue

Tools:

- #7 blades or blades of choice
- Drill press
- 1⁄16"-diameter twist drill bit
- 1⅞", 1⅝" and 1⅜"-diameter Forstner bits
- 5⁄16"-diameter brad point or Forstner bit
- ⅞"-diameter spade or Forstner bit
- Table saw (optional)
- Miter saw (optional)
- Router or router table with ⅛" and ¼"-radius round-over bits and ¼" rabbeting bit
- A belt or disk sander
- Dremel tool with cut-off wheel or diagonal cutters
- Ultra-fine permanent marker

SPECIAL SOURCES:
1⅜"-diameter dowels are available from Cherry Tree Toys, 800-848-4363, www.cherrytreetoys.com.

Making it difficult

The more equidistant the pins are from the bottoms of the rings, the harder it will be to exploit the mechanical weaknesses to solve the code. You can create false mechanical "hints" by creating divots in the bottom side of the inner rings to give the illusion of a pin sliding up into a notch. This is especially effective when placing the divots on vowels, and the letters R, S, T, and L.

Provide a hint that will not give away the answer too quickly. Cryptic rhymes or questions work well.

Don's original cryptex was unlocked with the code word ENJOY.

Neater Letters

Printing neat letters on the round dials can be somewhat of a challenge. With some practice and a steady hand, you can get good results with a fine tip marker or a woodburner.

An alternate method is to add the alphabet with rub-on letters used for scrapbooks. They are available at many craft stores in a variety of fonts and once sealed, the letters are very durable. One source is Making Memories, www.makingmemories.com.

Donald Horgan lives in Antioch, CA. A self-taught woodworker, Don has been scolling for 12 years.

EXPLODED DRAWING

A view of the male and female ends of the rotating rings. The notches cut into the inside of the rings make a keyway for the pins to follow.

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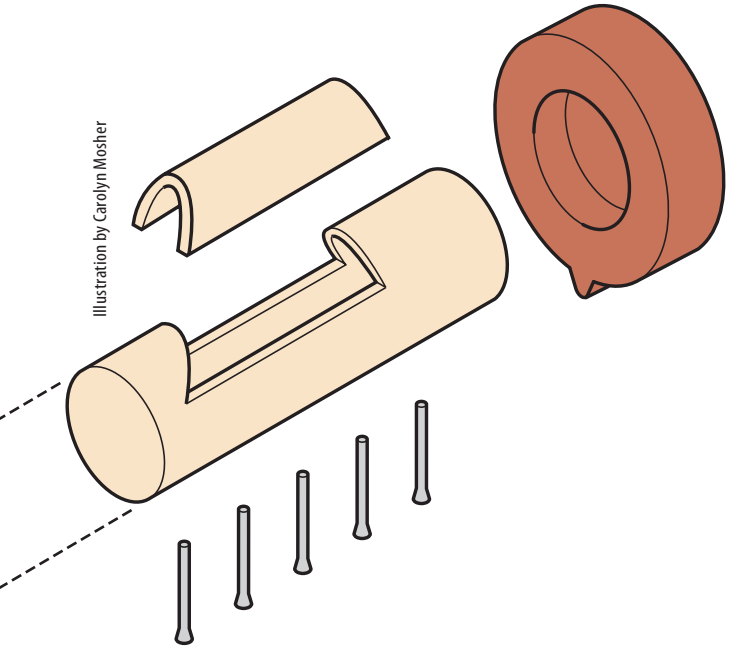
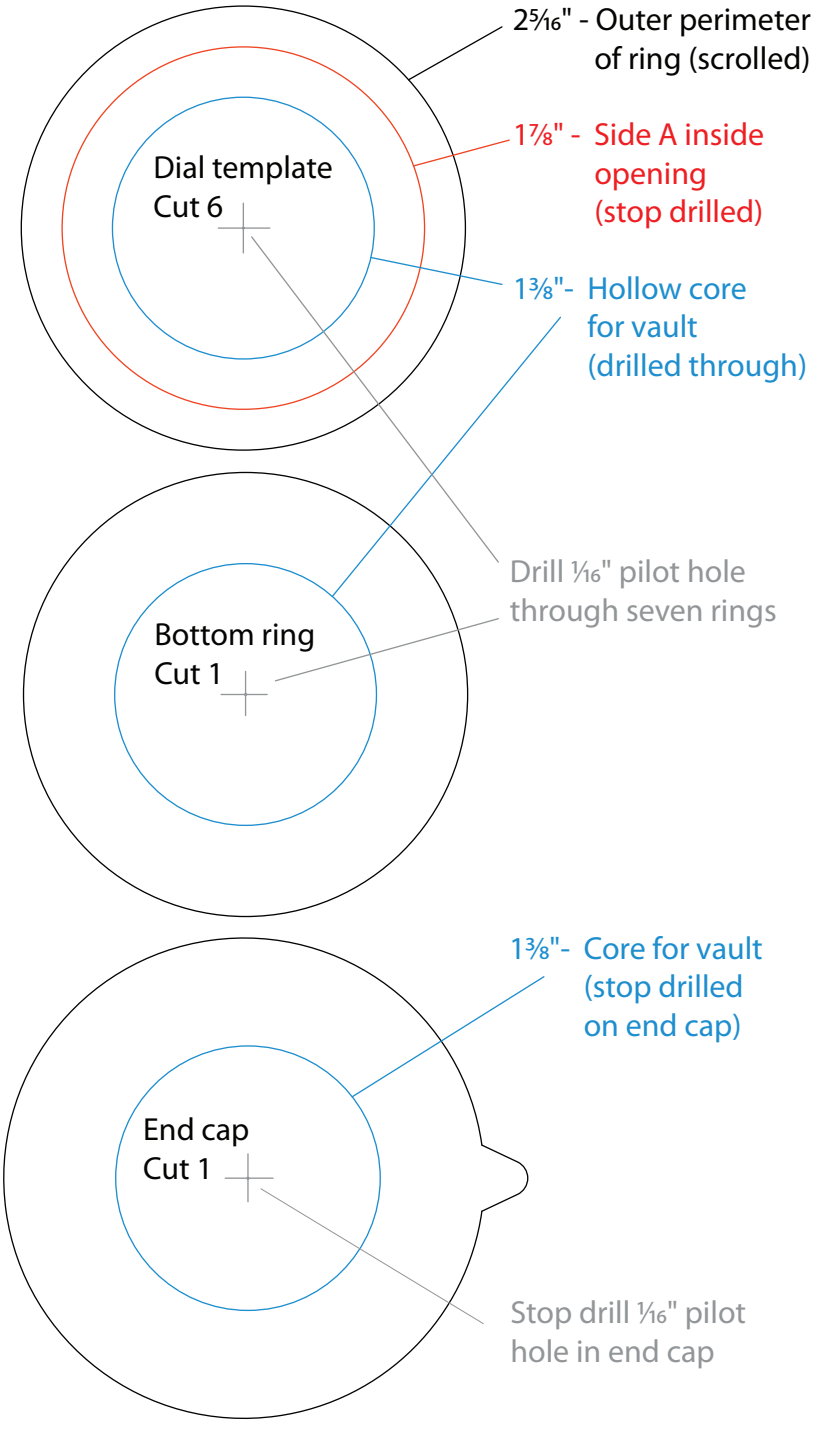
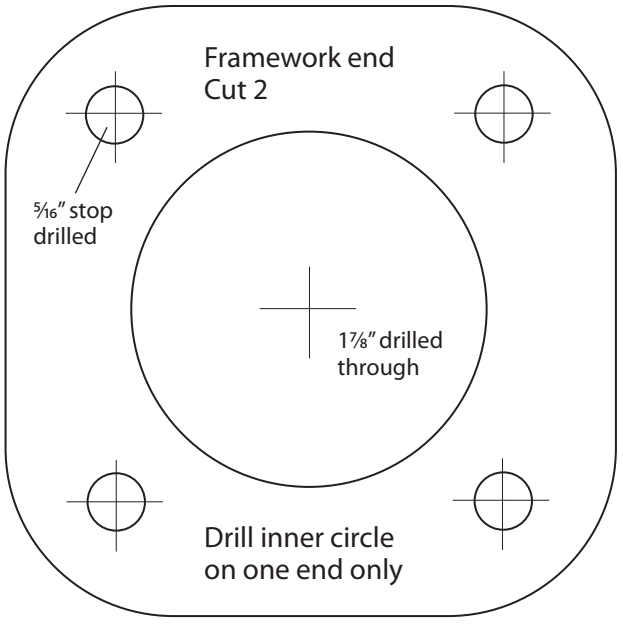


Illustration by Carolyn Mosher





Letter dial marking template

Peggy's Cove Lighthouse

Famous landmark makes a serene nautical portrait

By Enzo Santomarco

I have always had a passion for the sea. Through the internet, I can explore lands I may never have the opportunity to visit. I was drawn to Peggy's Cove Lighthouse by the simplicity and colors. It has been a solitary landmark on the Atlantic shore of Nova Scotia, Canada, for nearly 140 years; this portrait is my tribute to the picturesque scene.

Attach the pattern to the blank, using your method of choice (I use temporary-bond spray adhesive). Drill the blade-entry holes with a 1/16"-diameter drill bit. I cut the fretwork with a #2 blade in a hand fretsaw frame. After cutting, sand the portrait lightly with 220-grit sandpaper.

Spray paint your backer board black. Apply a coat of clear, spray lacquer to the portrait. Glue the pieces together with your glue of choice, and clamp until dry. I added a simple, rustic frame to accent the project.

Materials & Tools

Materials:

- 2 each 1/8" x 8" x 10" Baltic birch plywood or wood of choice (you can substitute MDF for one piece)
- Temporary-bond spray adhesive
- Black spray paint
- Wood Glue
- Clear, spray lacquer
- Sandpaper, 220-grit

Tools:

- #2 blades or blades of choice
- Drill with 1/16"-diameter bit
- Clamps of choice

Enzo is a firefighter in Talsano, Italy. He can be reached at enzo.santomarco@virgilio.it.

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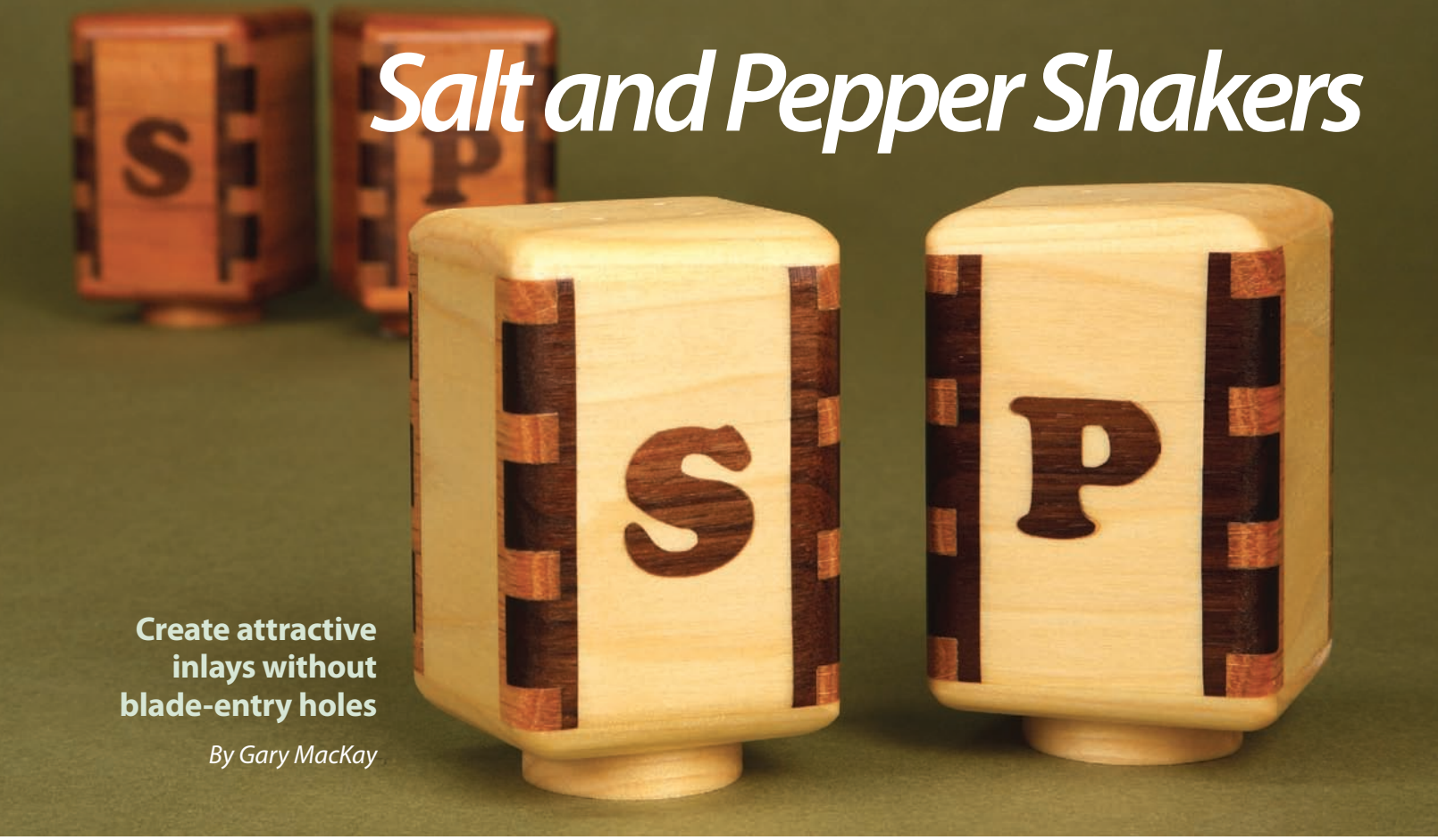
Salt and Pepper Shakers



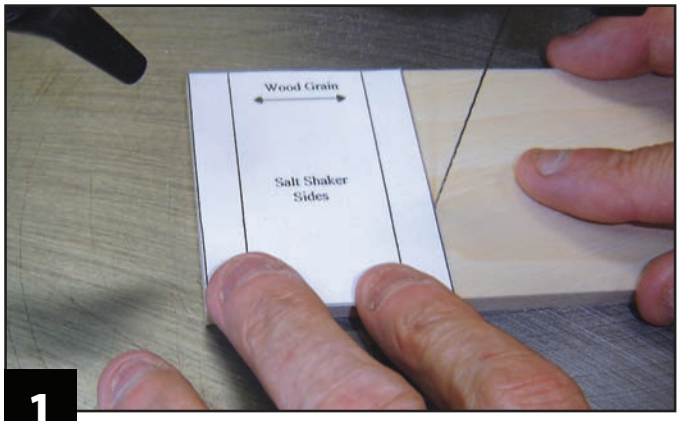
Create attractive inlays without blade-entry holes

By Gary MacKay

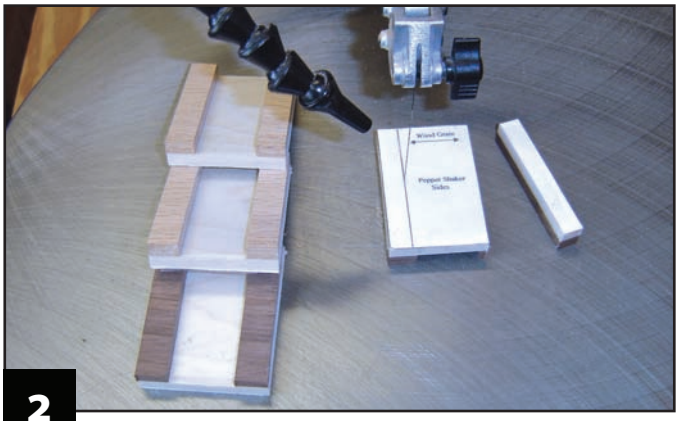
With picnic season just around the corner, these durable salt and pepper shakers will look great at your outdoor events. They are a perfect way to show off your skills and make a thoughtful gift.

The idea for this project started when I was inlaying a dark-colored wood inside a light-colored wood for tree ornaments. No matter what I did to fill it, you could still see the blade-entry hole. In the past, I made cuts with the grain, then glued and clamped the saw kerf closed. I proceeded to test cut an inlay, using this technique. It worked great with NO hole to fill in.

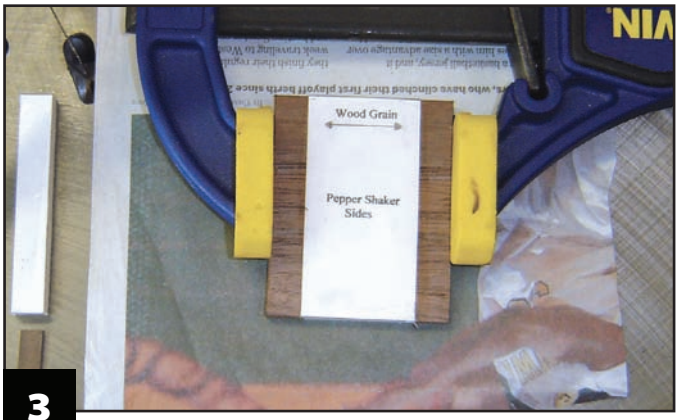
The contrasting box-joint trim is made using stack-cutting techniques. Small amounts of expensive woods are ideal for this project.



1 **Cut the shaker sides.** Cut four salt shaker and four pepper shaker side patterns. Use spray adhesive to adhere one pattern at a time to the ¼" x 2½" x 17" shaker sides stock. Cut each side. Do not remove the patterns. Separate the salt and pepper shaker sides, and place them pattern-side down.

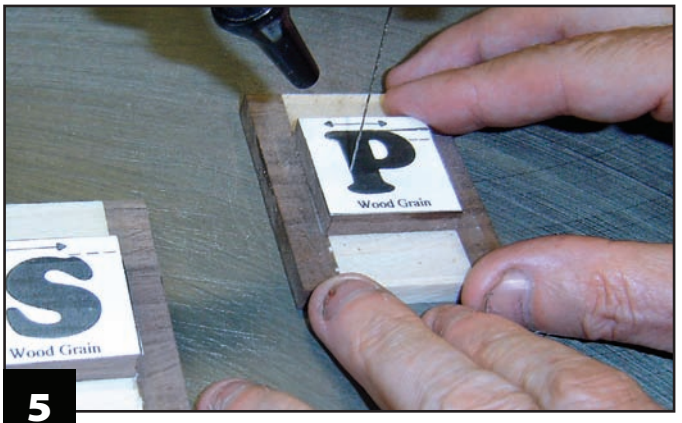


2 **Cut the box joint trim.** Cut eight each ½"-wide walnut and oak trim pieces. Adhere the trim pieces to the shaker sides using double-sided tape. Both shakers should have two sides with walnut and two sides with oak. Cut both pattern lines on the shaker sides. Keep the trim pieces with the sides.



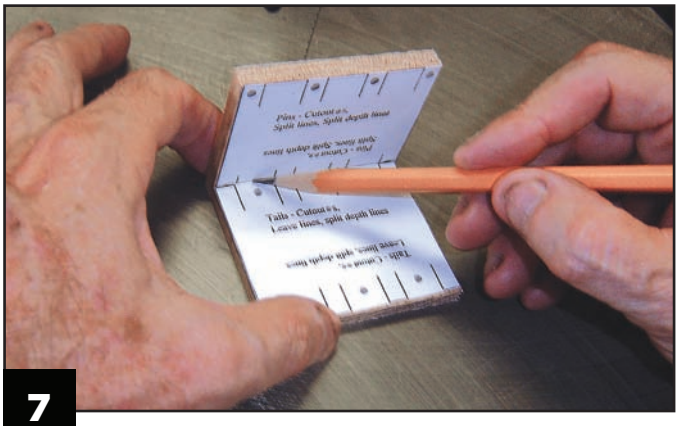
3 **Glue up the sides.** Separate the trim pieces, and glue the walnut and oak to the poplar sides. Keep the pieces in order for a good fit. Use a quick grip clamp to hold the trim pieces to the sides. Wipe off any excess glue, and leave the pieces clamped for 30 minutes. Let dry overnight, then remove the patterns.

4 **Inlay the "P" center.** Align the grain with the arrow on the pattern. Stack the walnut and poplar inlay with poplar on top. With the table tilted (see sidebar), cut along the red dashed line. Separate the pieces. Use a pin to place glue into the walnut kerf and circle. Clamp the kerf closed, insert the center "P" and let dry.

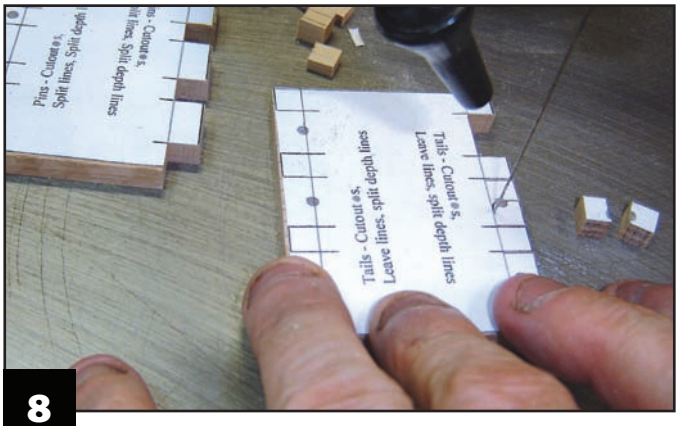


5 **Inlay the letters.** Attach the letter patterns using a pin to line up the "P" with the inner circle inlay. On two sides with walnut trim, make a pencil line ⅝" up from the bottom. Line up the bottom of the inlay stock with the lines, and attach them with double-sided tape. With your table tilted, cut the dashed lines.

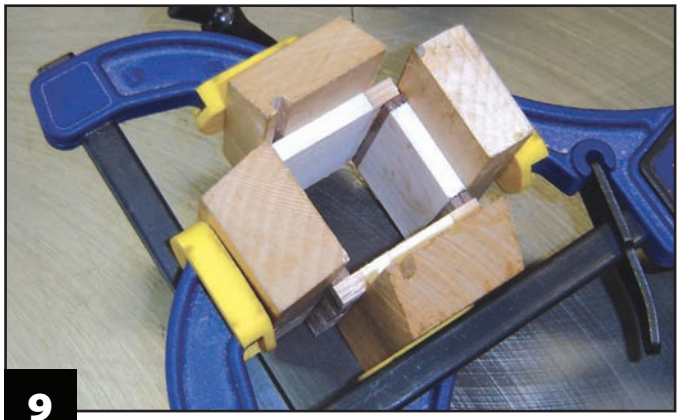
6 **Assemble and sand the sides.** Glue and clamp the kerfs closed, glue in the inlays, and let dry. Make a holding jig by gluing a ⅛"-thick piece to the end of a larger piece of scrap wood. The ⅛" piece acts as a cleat and keeps the wood from sliding. Use a belt sander and the holding jig to sand both surfaces of all the sides.



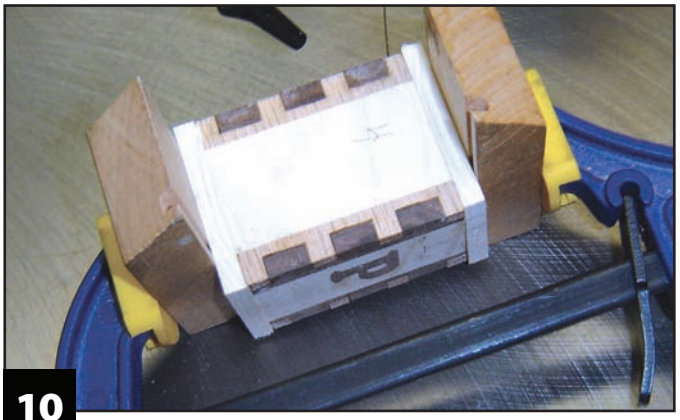
7 **Prepare the box joint cuts.** Practice on scrap wood before cutting the shaker sides. Adhere one pins and one tails pattern to the scrap stock. Lay one side on a flat surface and line the other side up against the edge. Mark the depth with a pencil. Repeat the process to mark all four sides. Square your blade to the saw table.



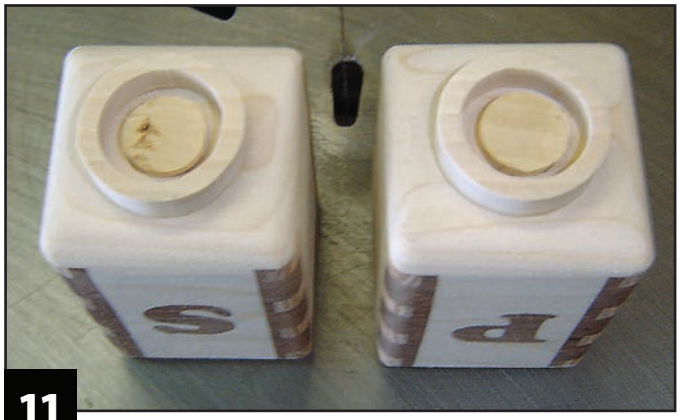
8 **Test-cut the box joints.** Cut up to depth line, cutting to the inside of the pre-printed lines on the tails and splitting the lines on the pins. Cut out the waste, marked with a dot. Cut right on the depth line. Test fit the joints. Mark any sections that bind with a pencil, and shave off the marks with the scroll saw for a good fit.



9 **Assemble the sides.** Adhere the pins and tails patterns to the sides. Mark the depth lines and cut the box joints. Remove the patterns and test fit the sides. Spread glue into the box joints, and slide the sides together. Clamp the shakers together. After 10 minutes, clean up any glue squeeze-out. Allow to dry overnight.



10 **Cut the remaining parts.** Test cut a hole in scrap wood to match your cork. It should protrude less than ¼". Adhere the patterns for the shaker bottoms, drill blade-entry holes, and cut the circles to match your cork. Drill and cut the stands and tops. Use a belt sander to level off the top and bottom of the sides. Glue and clamp the tops and bottoms in place and allow to dry.



11 **Finish the shakers.** Place clear tape over the condiment and cork holes to prevent dust from getting inside. Use a belt sander to sand the sides, and round over all the corners. Glue the stands onto the shaker bottoms. Apply your clear finish of choice.

Materials & Tools

Materials:

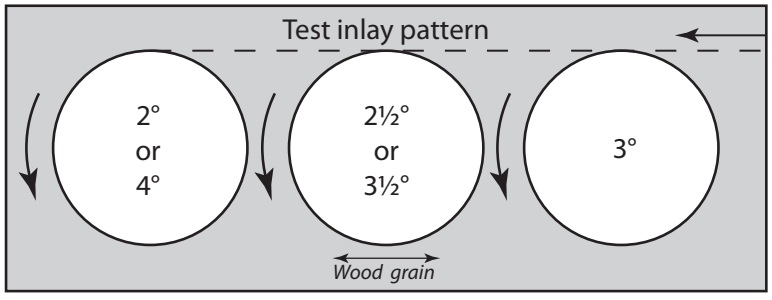
- ¼" x 2½" x 17" poplar (shaker sides)
- ¼" x 2½" x 4" walnut (box joint trim)
- ¼" x 2½" x 4" oak (box joint trim)
- 2 each ¼" x 1½" x 4" scrap wood (test inlay)
- 2 each ¼" x 1¼" x 1¼" walnut ("S" and "P" inlays)
- ¼" x 1¼" x 1¼" poplar ("P" center)
- 2 each ¼" x 2" x 2½" scrap wood (test box joints)
- ¼" x 2" x 2" scrap wood (test bottom)
- 4 each ¼" x 2" x 2" poplar (shaker tops and bottoms)
- 2 each ¼" x 2" x 2" poplar (stands)
- Wood glue
- 2 each ⅝"-diameter corks (available at hardware and craft stores)
- 4 each ¾" x 1" x 3" scrap wood (clamping blocks)
- Spray adhesive
- Double-sided tape
- Clear packaging tape
- Assorted grits of sandpaper
- Clear finish of choice

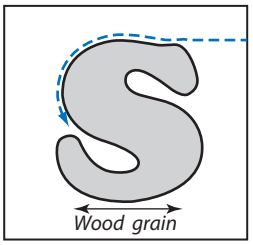
Tools:

- #5 reverse-tooth blade or blades of choice
- Drill with 3/32"-diameter bit
- Belt sander
- Awl (to remove glue squeeze-out)
- Pin (to align pattern)
- Toothpick
- 2 each quick-grip clamps

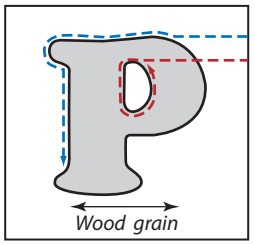
Make a test inlay

Stack the inlay test pieces together with double-sided tape and attach the test pattern. Tilt the right side of your saw table down 3°. Use a #5 blade to cut along the dashed line in a counter-clockwise direction, cutting out the circle. The bottom circle should drop out. Separate the pieces, clamp the bottom piece's kerf closed. Test fit the top circle into the bottom piece. If the circle fits tightly (not flush), then reset the table to 2½° and re-test. If the circle fits too loosely, then reset the table to 3½°, and re-test. I use the 3° table tilt.

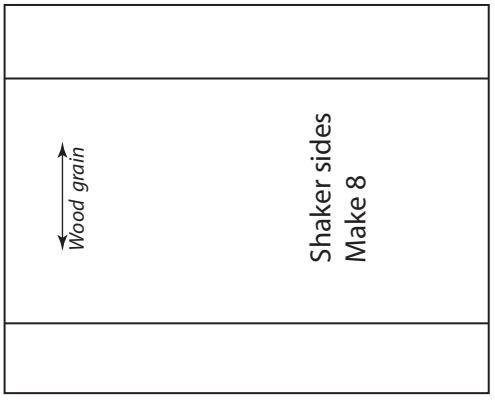


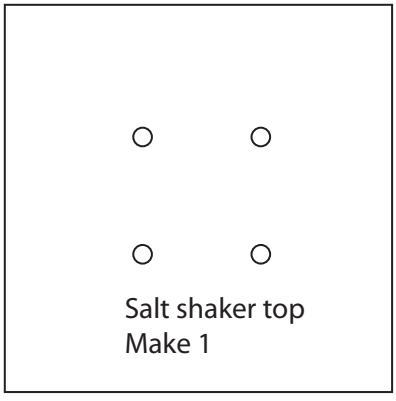


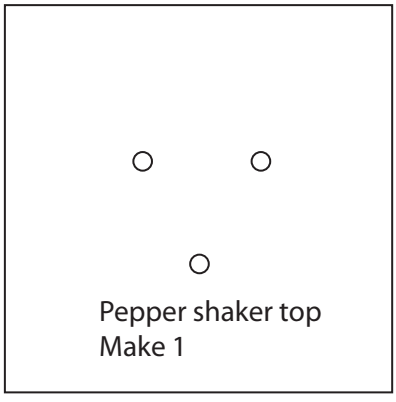
"S" Inlay Make 1

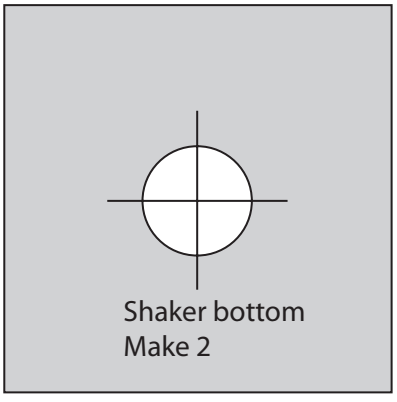


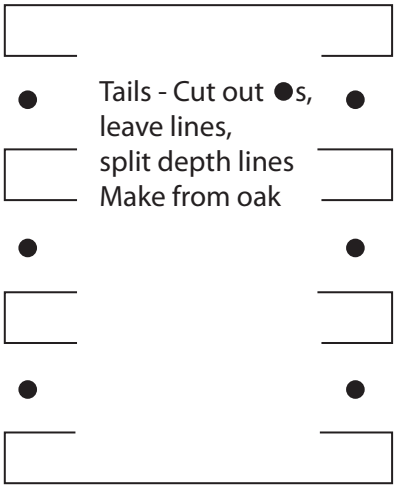
"P" Inlay Make 2

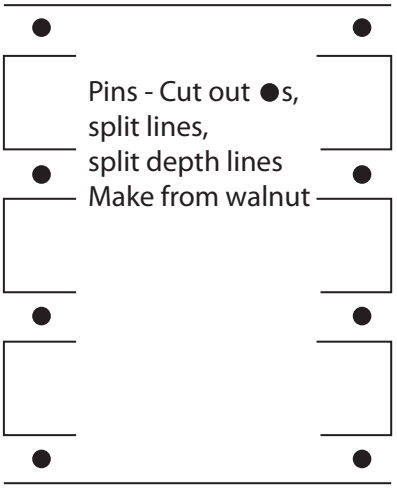




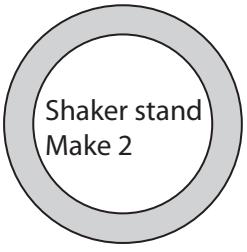








Tails & Pins - Make 5 each (includes one for test cutting)



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Gary lives in South Carolina and is the author of Box-Making Projects for the Scroll Saw. *Contact Gary care of SSW&C.*

Midnight Serenity

Mirror image design evokes sense of peace

By Kevin Daly

There are few things more peaceful and relaxing than going out around sunrise in a canoe. I tried to capture that with this portrait. My goal is to elicit emotion.

This pattern is a little easier than most of my designs and only contains about 120 cuts. The toughest part of the cutting is the arm of the paddler. Be sure to take your time and cut around this area first. I use a #3 flat, reverse-tooth blade. This minimizes clean-up time and makes the long, straight cuts much easier to accomplish.

I stack-cut five portraits at a time, which helps protect the fragile cuts and allows me to use the larger, more aggressive #3 blade. Completely wrap the stack with blue painter's tape. Coat the pattern and the blue tape with spray adhesive and apply the pattern to the stack. Drill the blade-entry holes with a #63 bit, and cut the portrait from the center out.

When complete, lightly sand the finished project and spray it with three coats of Deft semi-gloss lacquer or apply the finish of your choice. I apply two coats of Deft, lightly sand the portrait, then sign it with an ultra-fine black permanent marker. When dry, I apply the third coat.

I use Foamies, an inexpensive craft foam as the backer for my 8" x 10" cuttings. It is available from craft shops and most department or discount stores with a craft section. I use Aleene's® tacky glue to adhere the foam to the portrait.

The portrait can be framed individually or incorporated into a lid for a custom box or a backer for a shelf. There are a myriad of uses for these types of patterns limited only by your imagination.

Materials & Tools

Materials:

- ⅛" x 8" x 10" Baltic birch plywood or wood of choice
- Deft Semi-gloss spray lacquer or finish of choice
- Sandpaper, assorted grits
- Aleene's® Tacky Glue
- Black Foamie (craft foam)

Tools:

- Drill with #63 drill bit
- #3 Skip, reverse-tooth blades or blades of choice

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Kevin Daly operates K&J Woodworks in Seymore, CT. For more of his designs, visit www.scrollsawpatternsonline.com.

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In our next issue...

Intricate cutting produces stunning wildlife portrait.

Fretwork overlay makes it easy to create this classic timepiece.

An in-depth look at the art of making custom puzzles.

Manufactured WOODS

By Bob Duncan

While there is a wide variety of both hard and soft woods suitable for scrolling, there are several manufactured woods that deserve a mention.

Manufactured woods range from expensive commercial flooring to economical medium-density fiberboard (MDF). The most commonly used type is plywood. Both MDF and plywood are readily available in large sheets, giving you the dimensions and strength needed for bigger projects. Wear and tear of blades on manufactured woods is comparable to what you would experience with domestic hardwoods.

MDF accepts paint well.

Medium Density Fiberboard

Medium Density Fiberboard (MDF) is made up of ground-up wood fibers, glued and pressed together. The wood is more finely ground in MDF than in particleboard. This makes it more uniform through the entire board, but it isn't as strong as particleboard.

MDF ranges in color from a chocolate brown to a light tan, and thicknesses from ¼" to 2". It is usually used for molding or intricately shaped pieces where the larger chips of particleboard are undesirable.

MDF is a good choice for scrollers because of its uniform particle size. There is no grain to contend with, and it cuts easily. It is not particularly attractive, so most scrollers end up painting or staining it. It accepts both finishes well and is best suited for less intricate fretwork or segmentation projects.

Baltic Birch Plywood

Baltic birch plywood is a favorite among scrollers and considered a high-density plywood. All plywood is made up of more than one layer, or ply, of material.

Baltic birch is a good medium for intricate fretwork.

Some manufacturers sandwich an MDF core between two thin layers of hardwood. Others use inferior woods of varying thickness as a core, and include voids and weak areas. High-density plywood boasts a larger number of thin layers, with alternating grain directions, which adds strength to the wood.

Baltic birch is an inexpensive alternative to hardwoods and is stronger than traditional wood of the same thickness. Another top feature is the bland, but smooth surface. These qualities make it an ideal medium for intricate work.

Baltic birch is easily stack-cut and accepts most finishes well. With a little practice, it can be disguised as a hardwood by using stains and finishes.

Laminate Flooring

Commercial flooring comes in a wide array of colors and finishes. *SSW&C* author Carl Hird-Rutter has cut several designs in bamboo flooring. Coordination of your pattern with the finish can create a very effective piece of art.

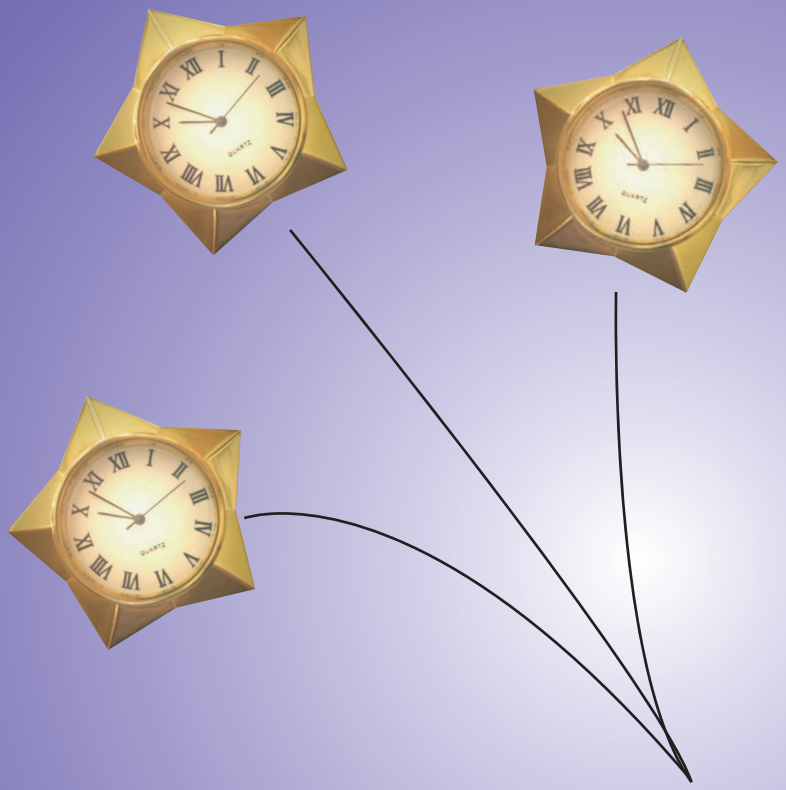
This panda design is cut in bamboo flooring.

This material is usually quite easy to cut. Something to be aware of is the orientation of the layers in the laminate. You will find that no matter how sharp your blade is, it may still scorch the material inside the cut. Apply tape to the face of the wood to help prevent burning.

Since the material is pre-finished, it speeds up the process for many projects. There are several types of laminate flooring and the finish depends on the orientation of the laminations. Editor Shannon Flowers used a scroll saw to cut a house sign out of scraps of her kitchen flooring. The sign shows no wear after three years in the elements.

Unfinished laminate flooring is perfect for outdoor projects.

SCROLL INTO THE NEXT GALAXY



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The Lang Clock

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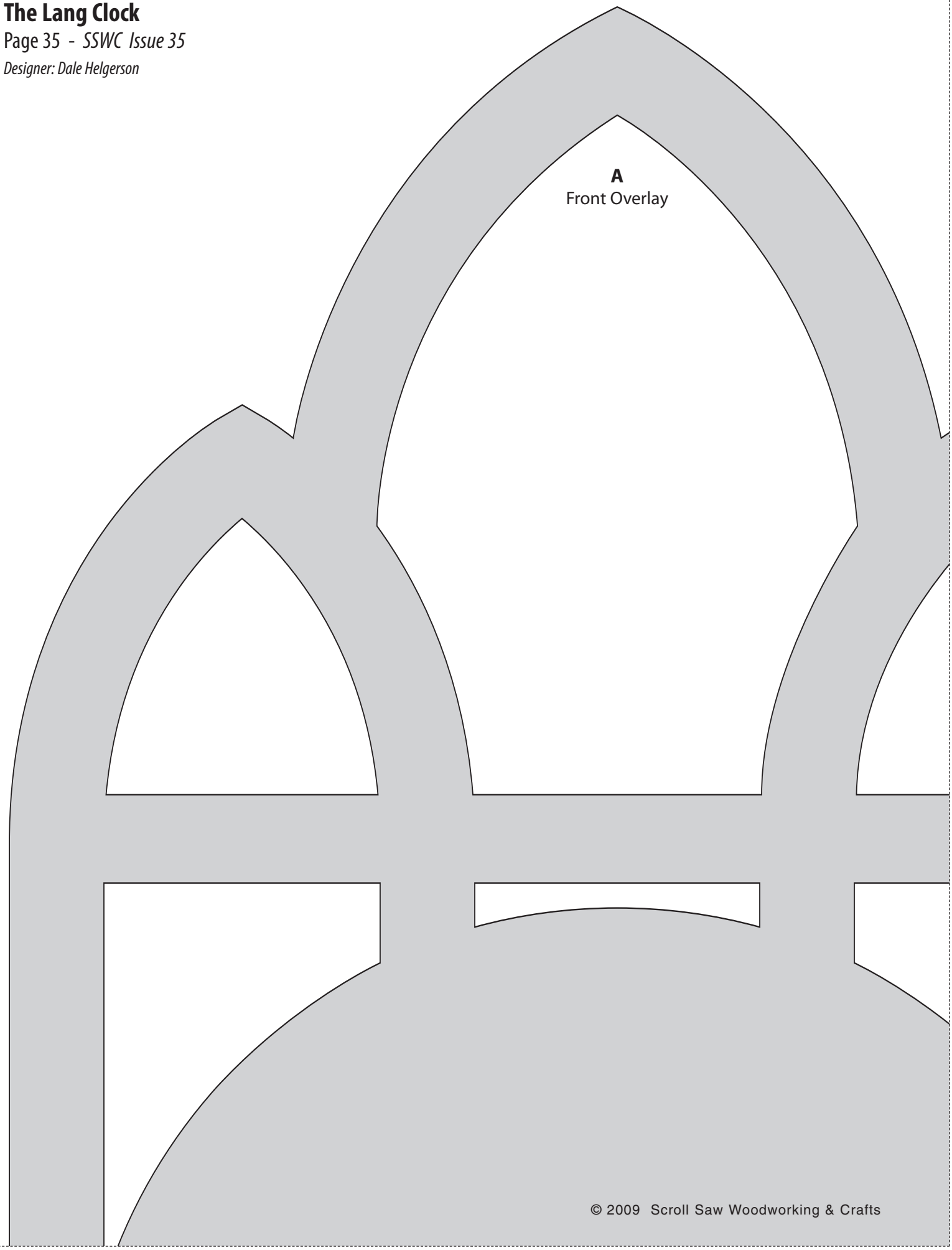
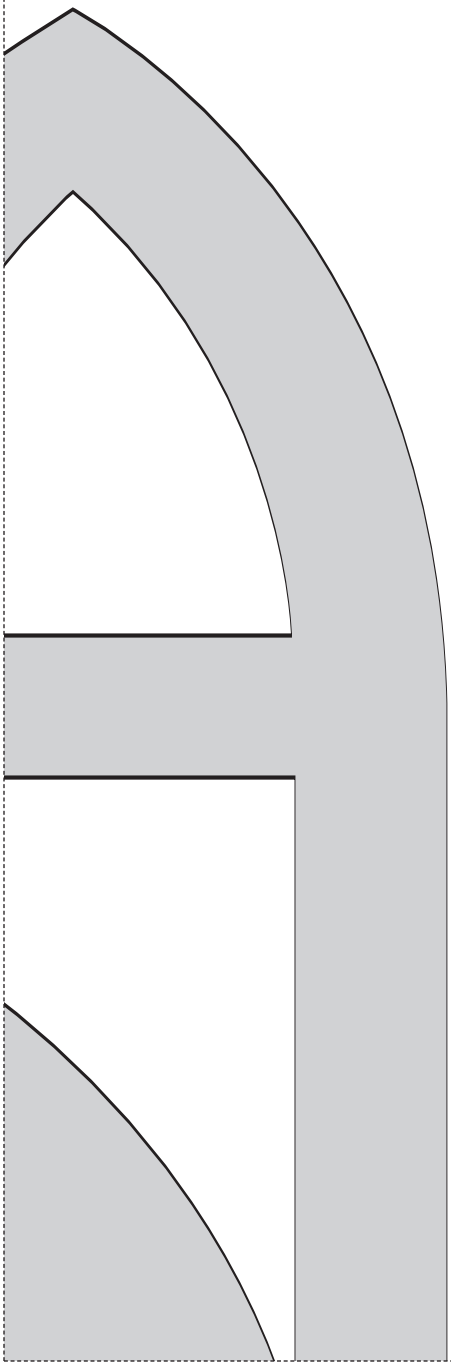
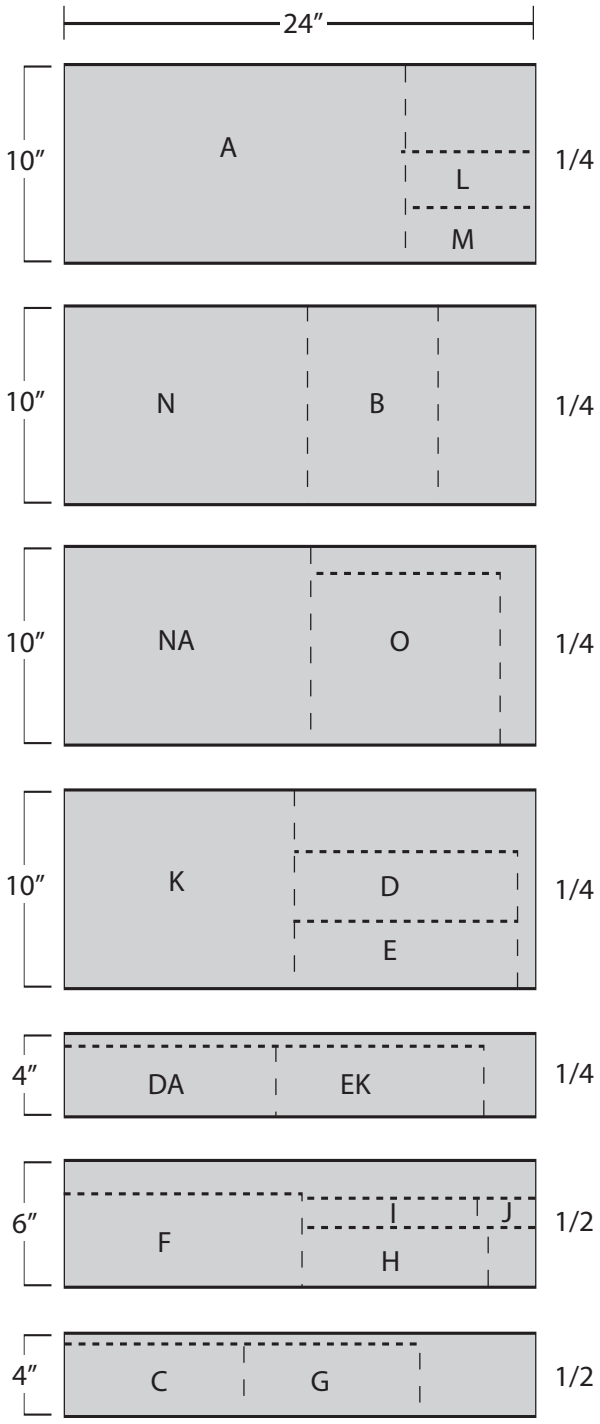
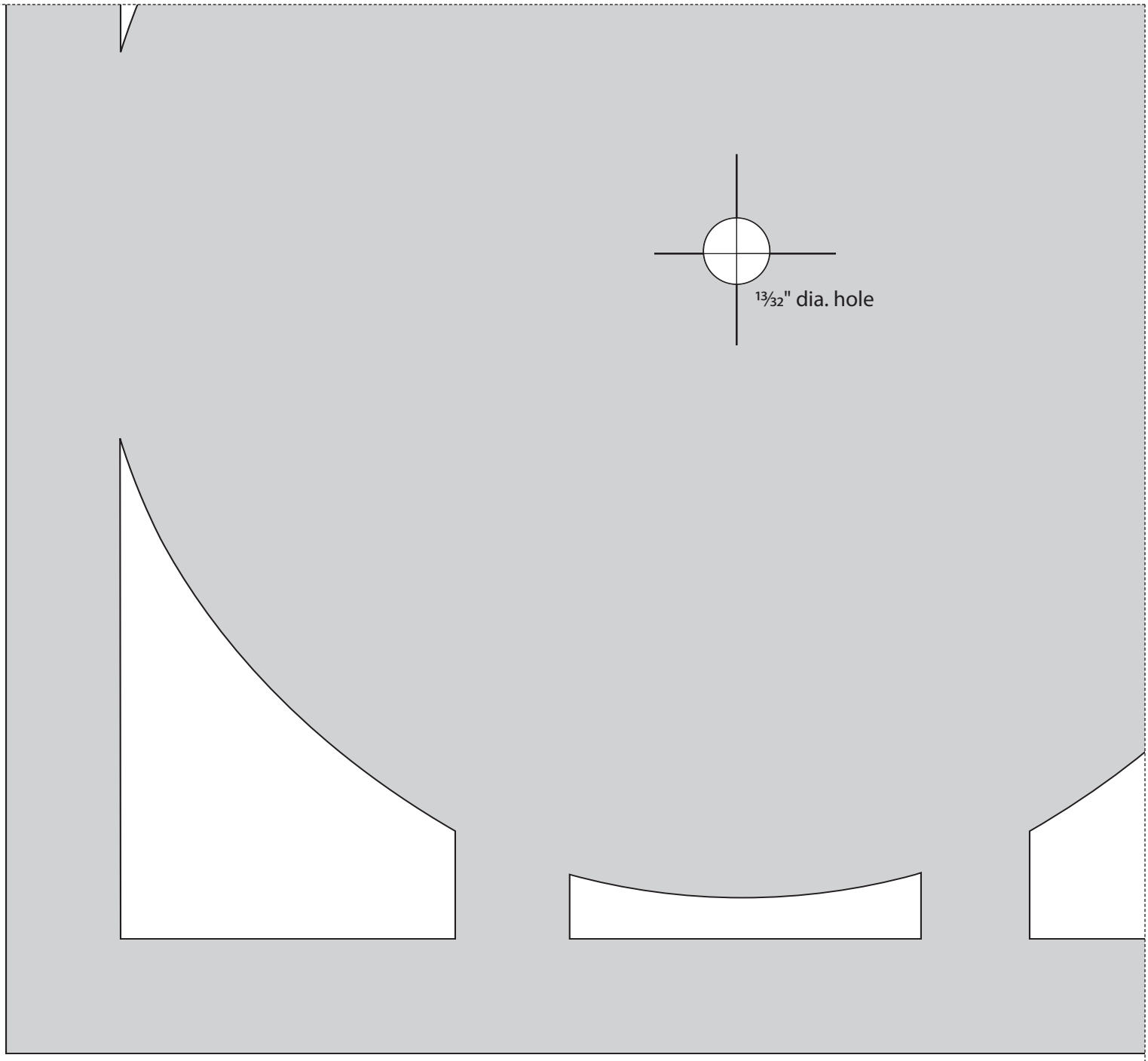
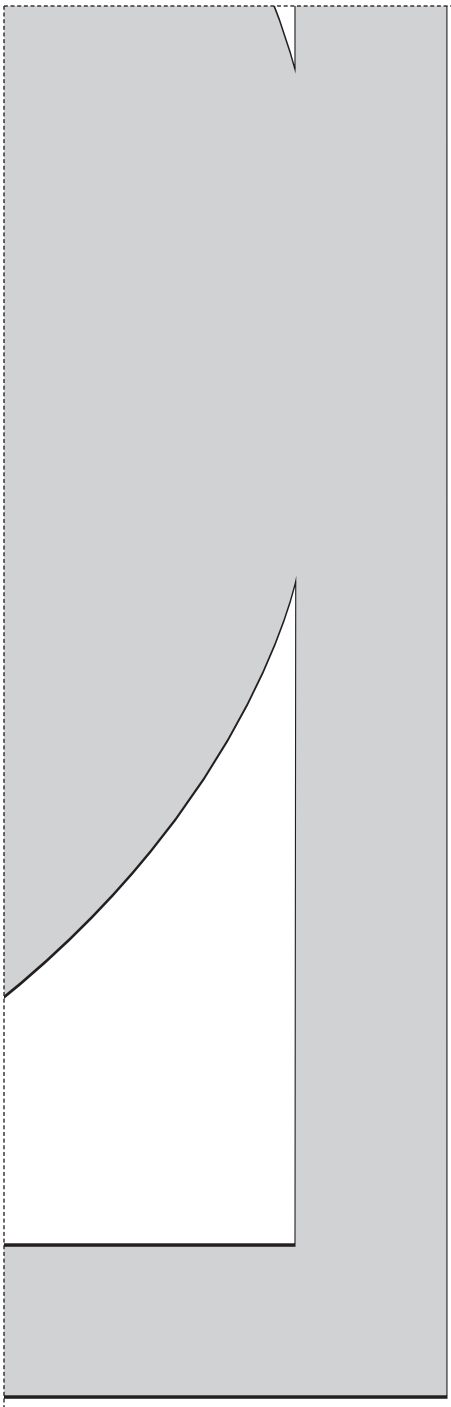
Designer: Dale Helgerson

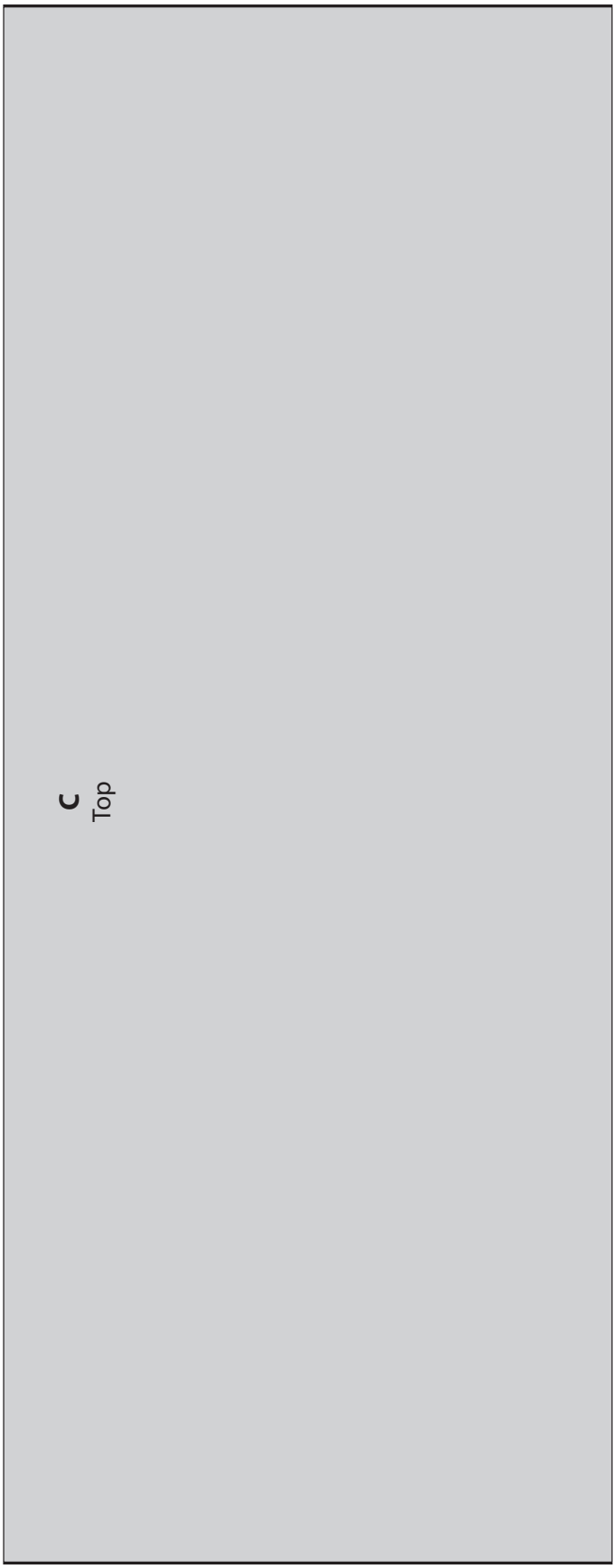


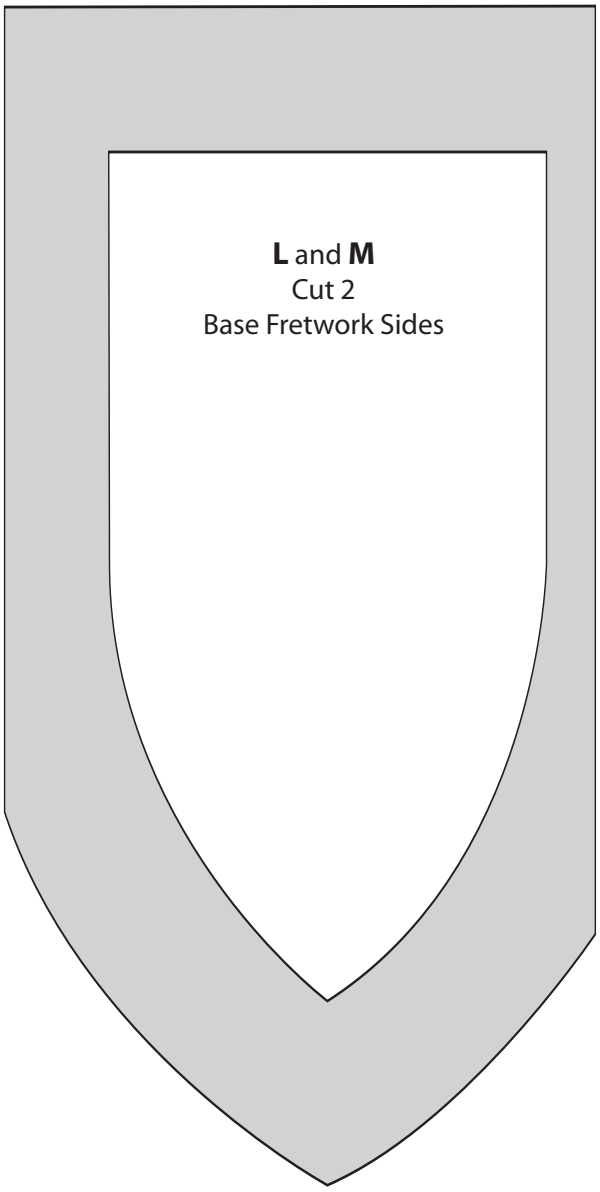


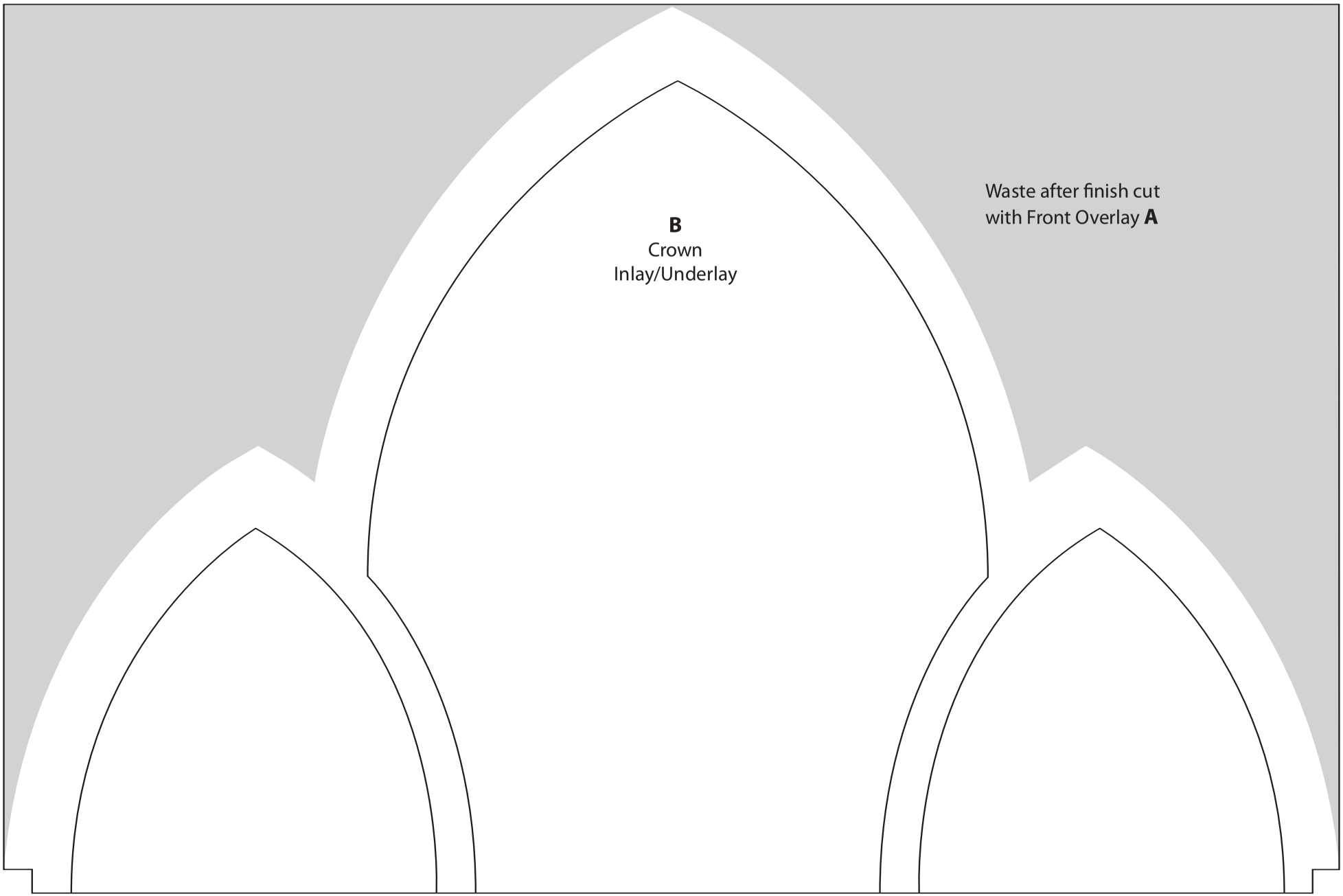

24″
10″
A
L
M
1/4
10″
N
B
1/4
10″
NA
O
1/4
10″
K
D
E
1/4
4″
DA
EK
1/4
6″
F
I
J
H
1/2
4″
C
G
1/2

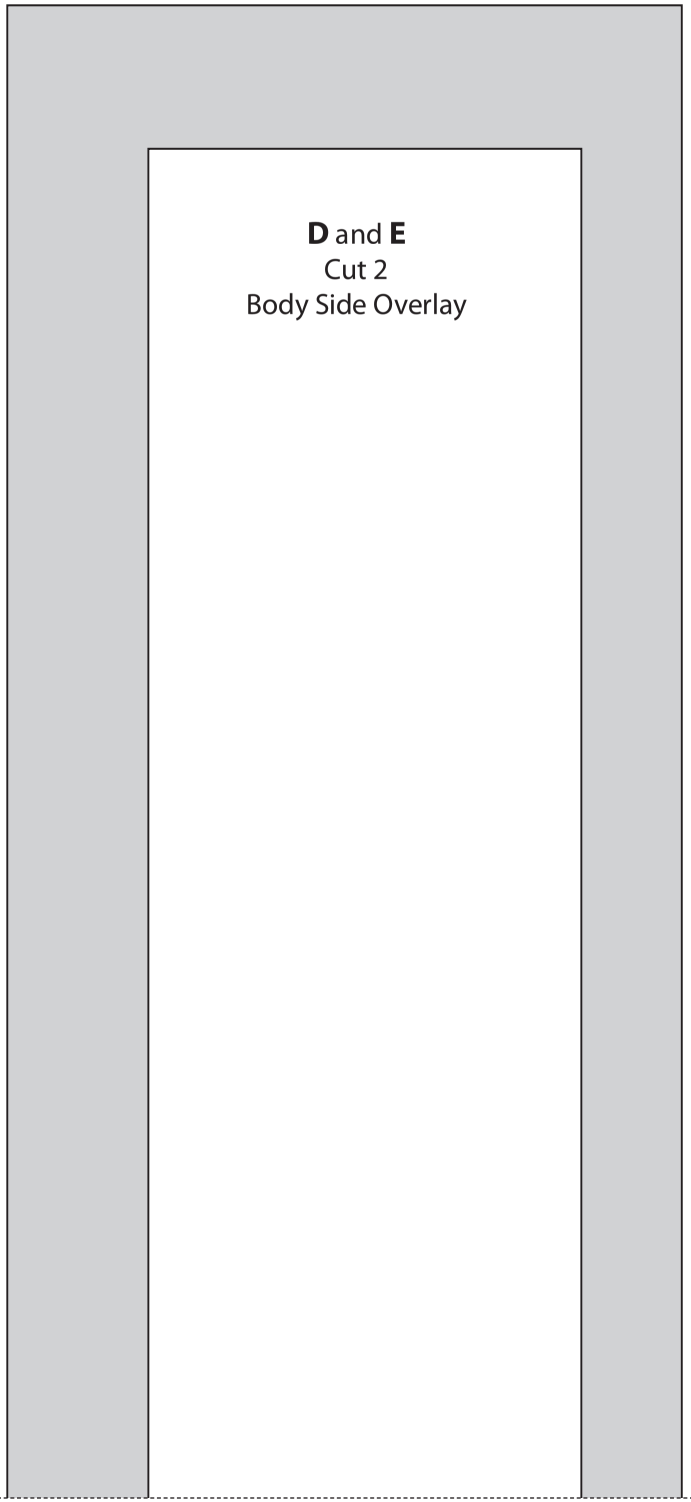

13⁄32" dia. hole

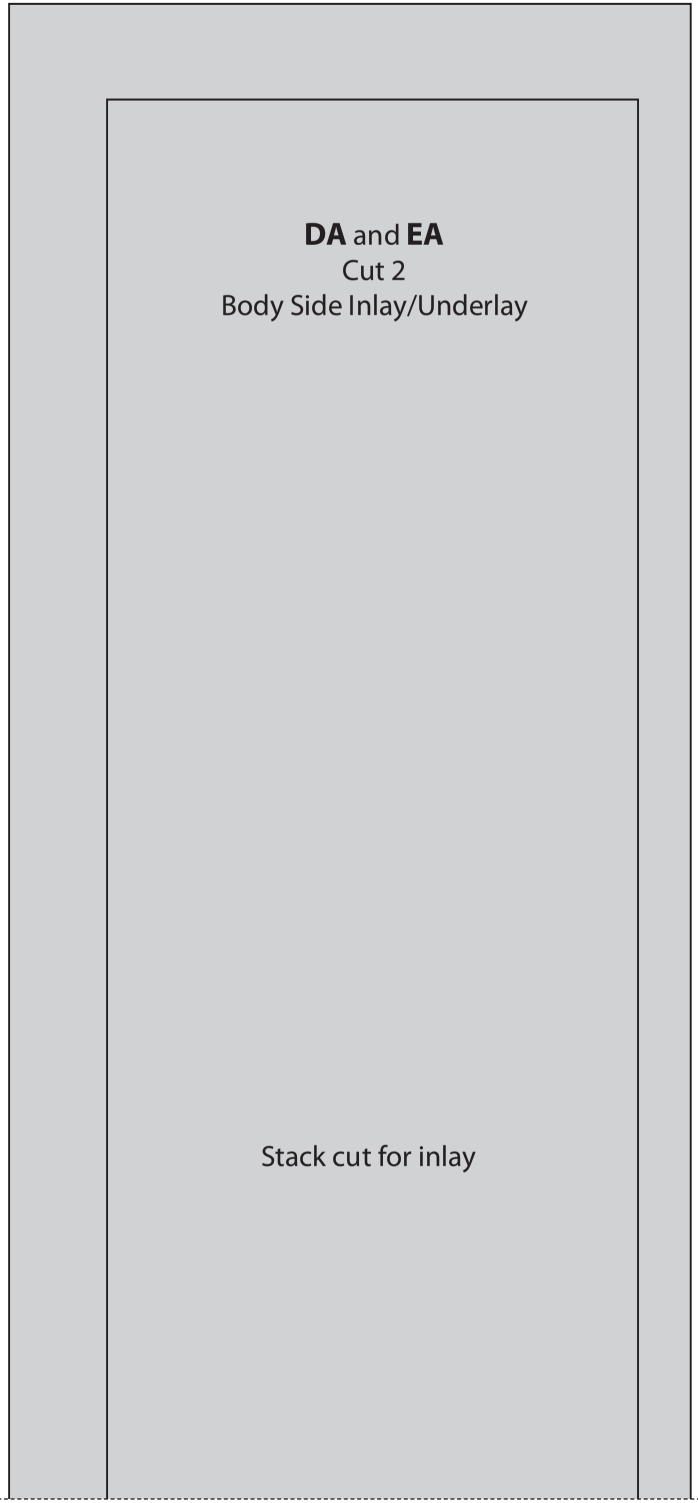


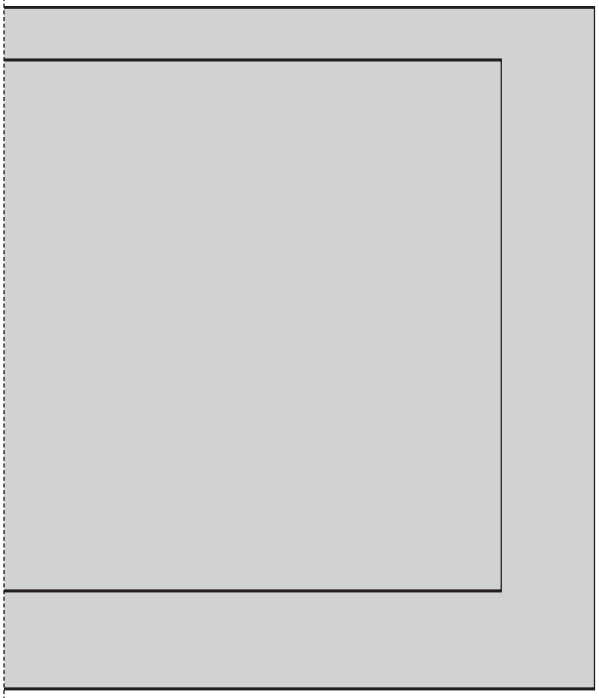

C
Top

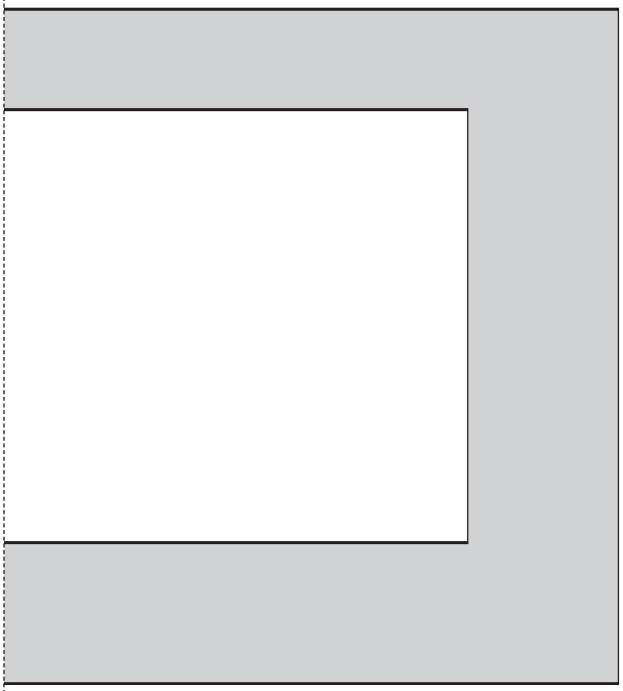

L and M
Cut 2
Base Fretwork Sides

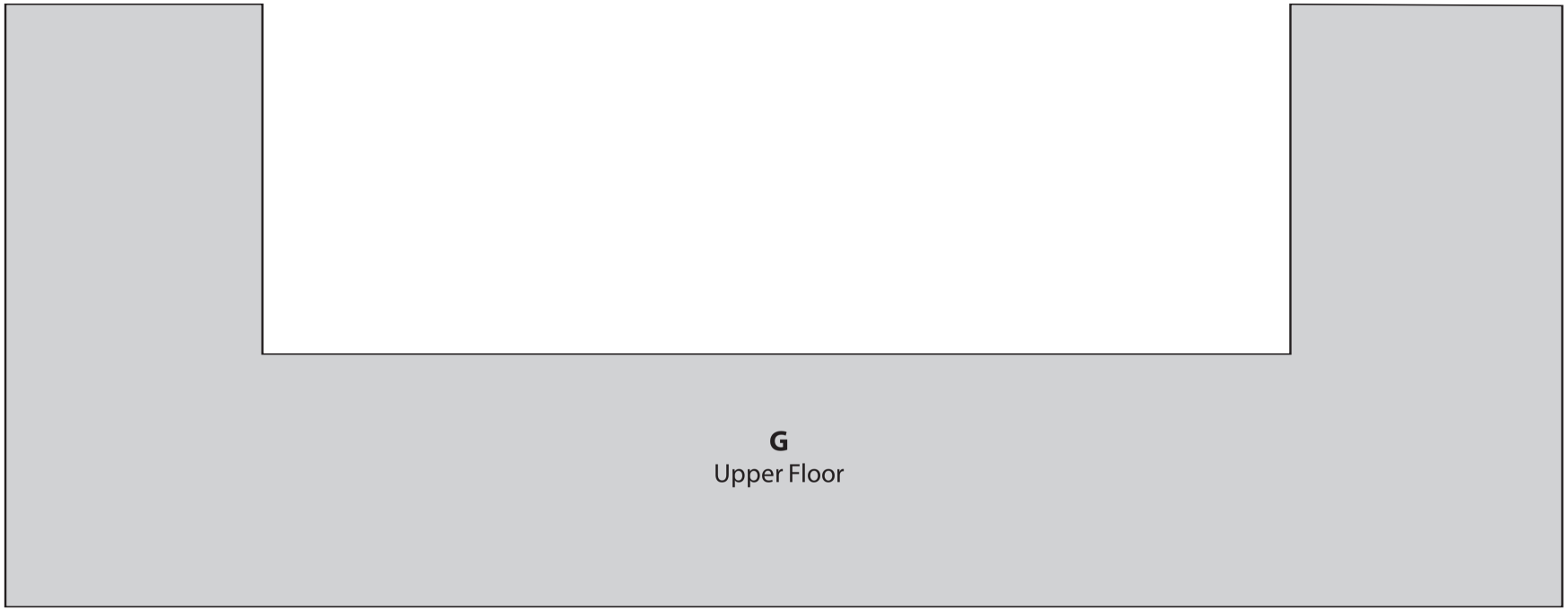

Waste after finish cut
with Front Overlay **A**
B
Crown
Inlay/Underlay

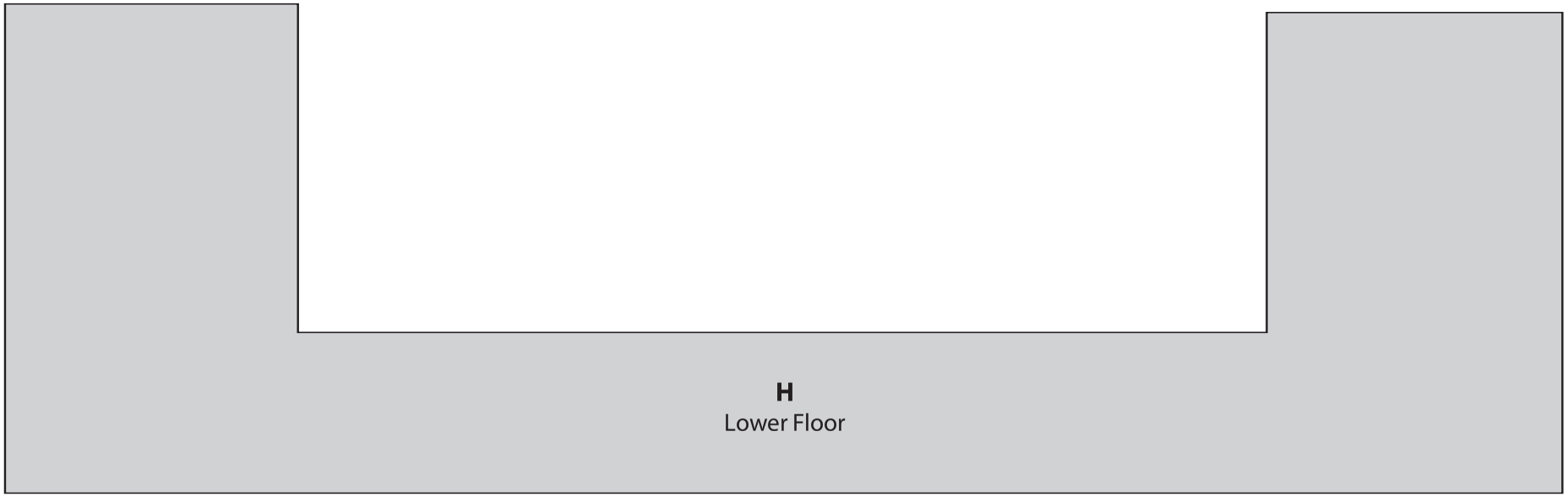

D and **E**
Cut 2
Body Side Overlay

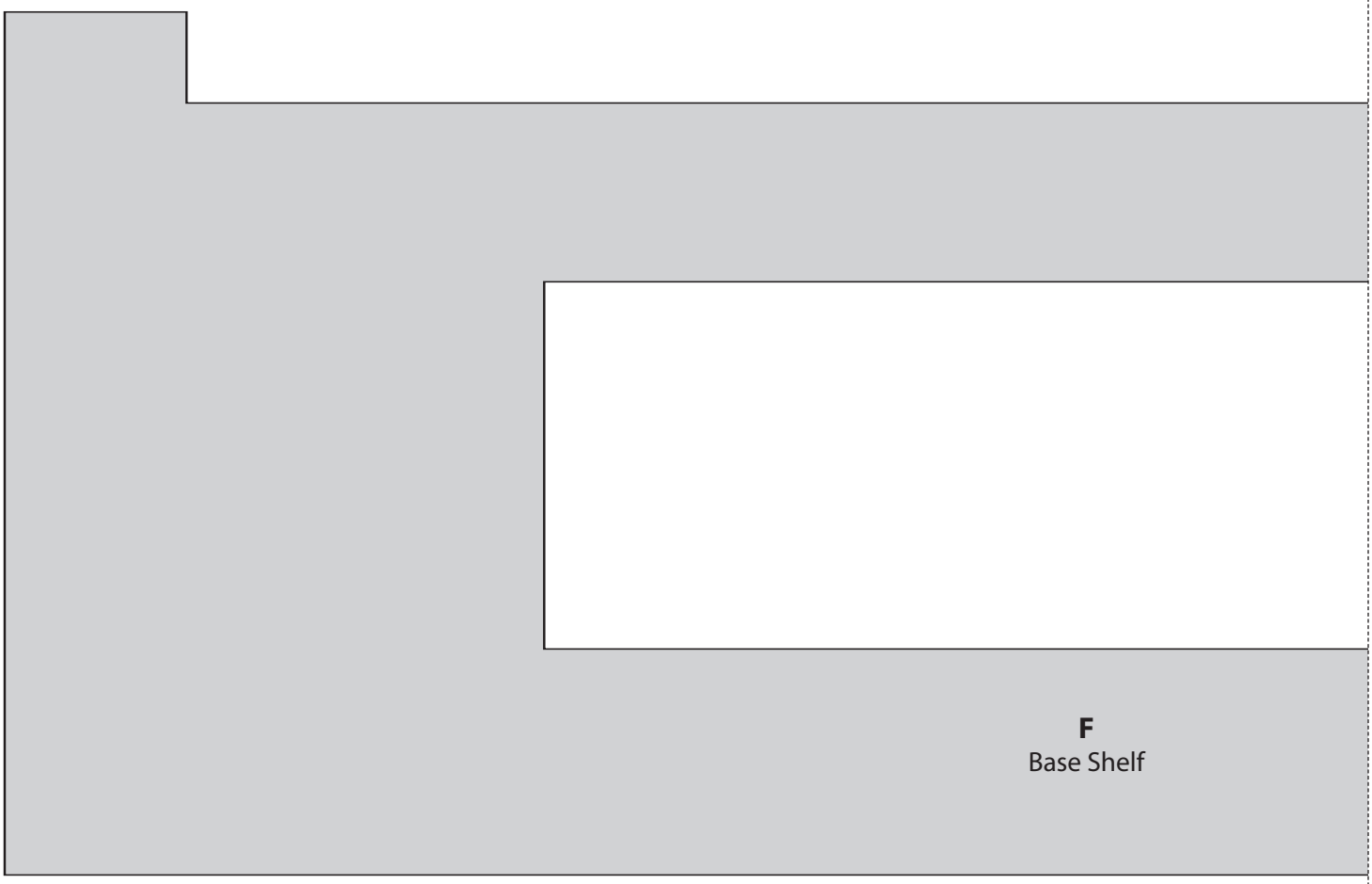

DA and **EA**
Cut 2
Body Side Inlay/Underlay
Stack cut for inlay

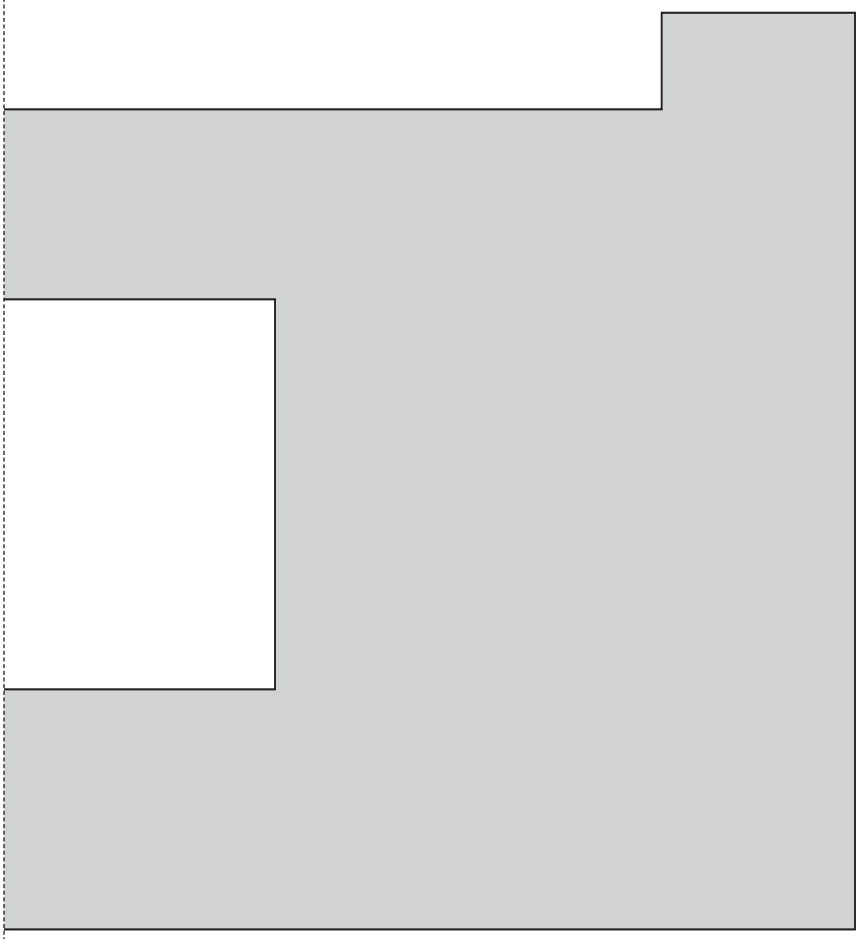


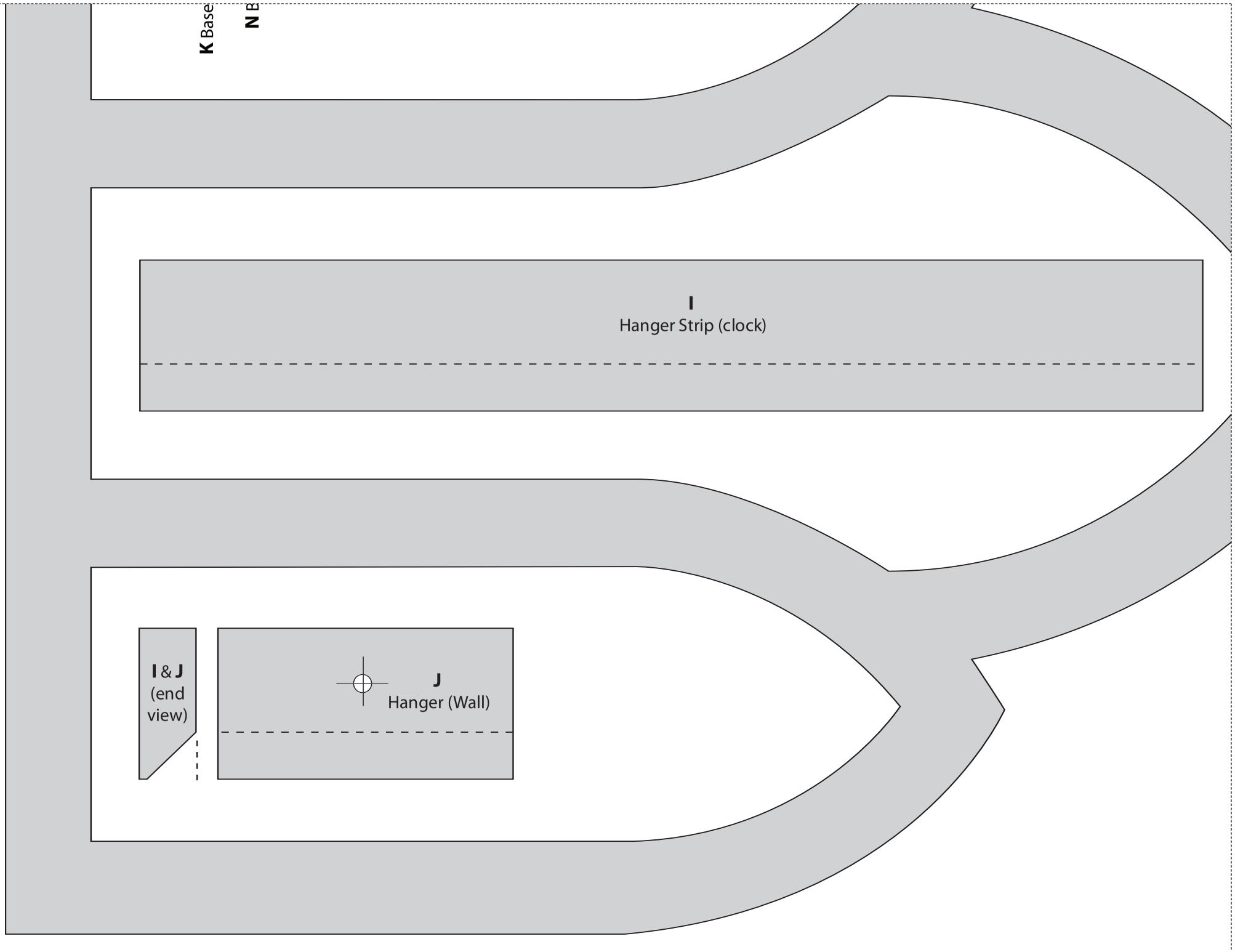


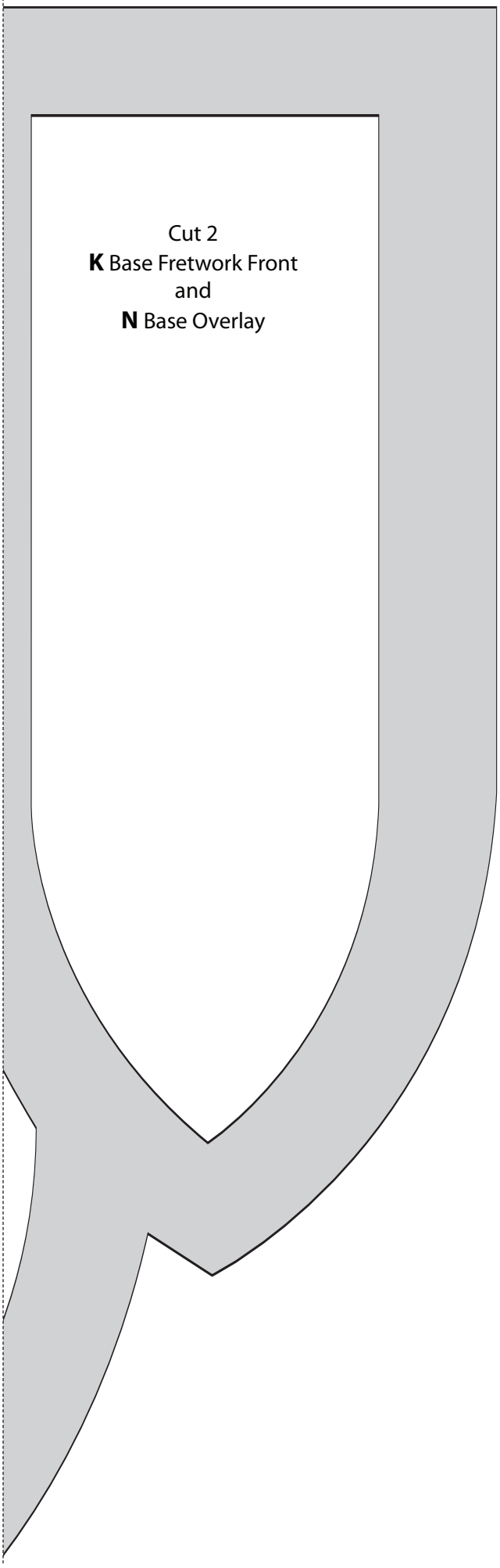

G
Upper Floor

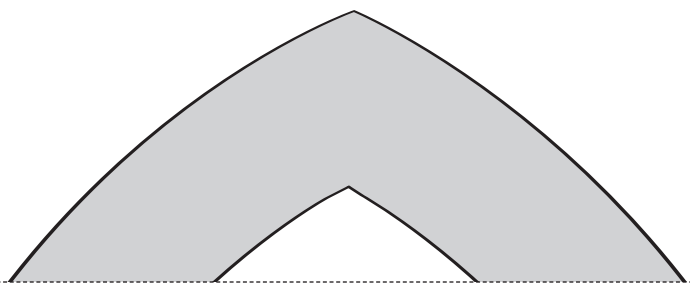

H
Lower Floor

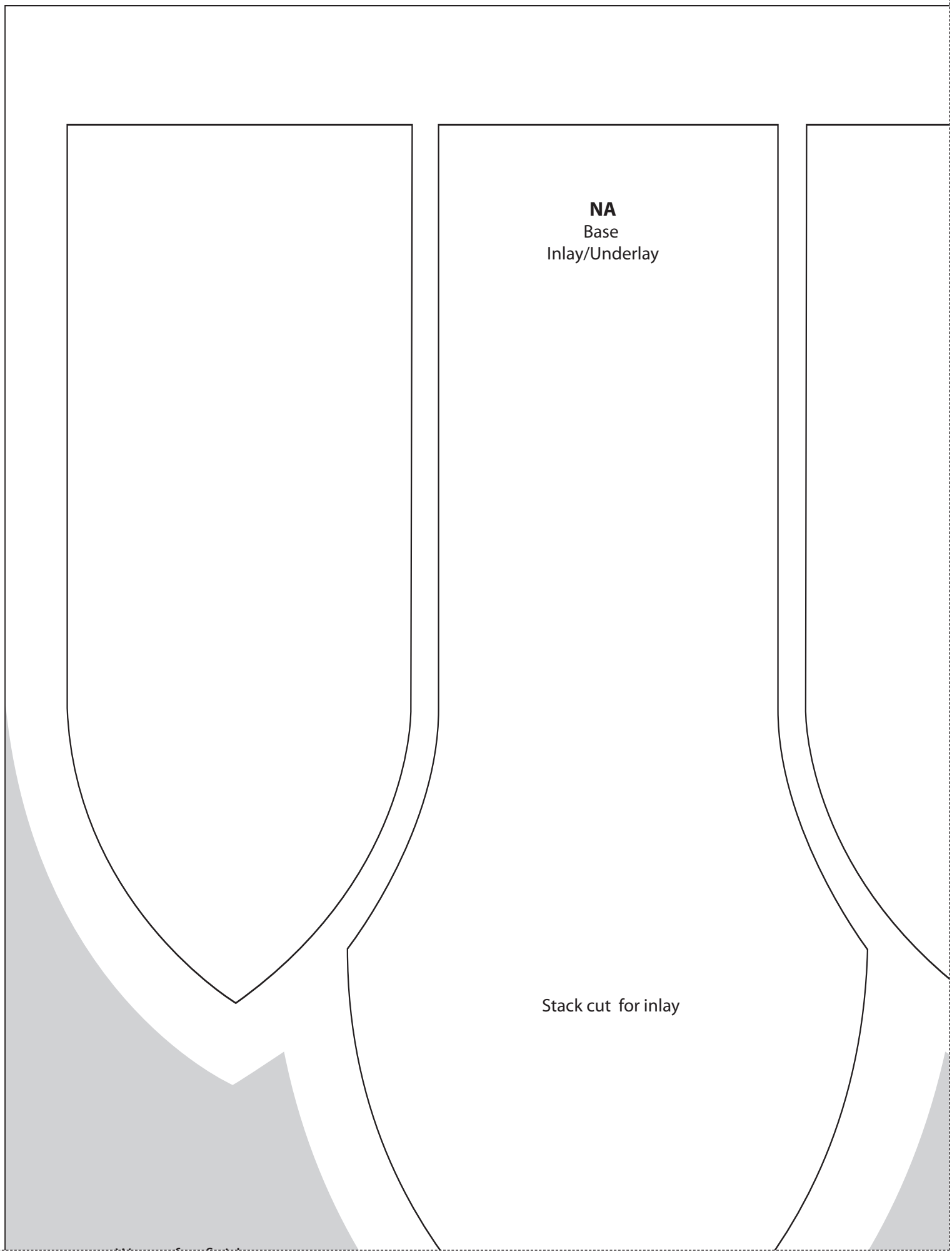

F
Base Shelf

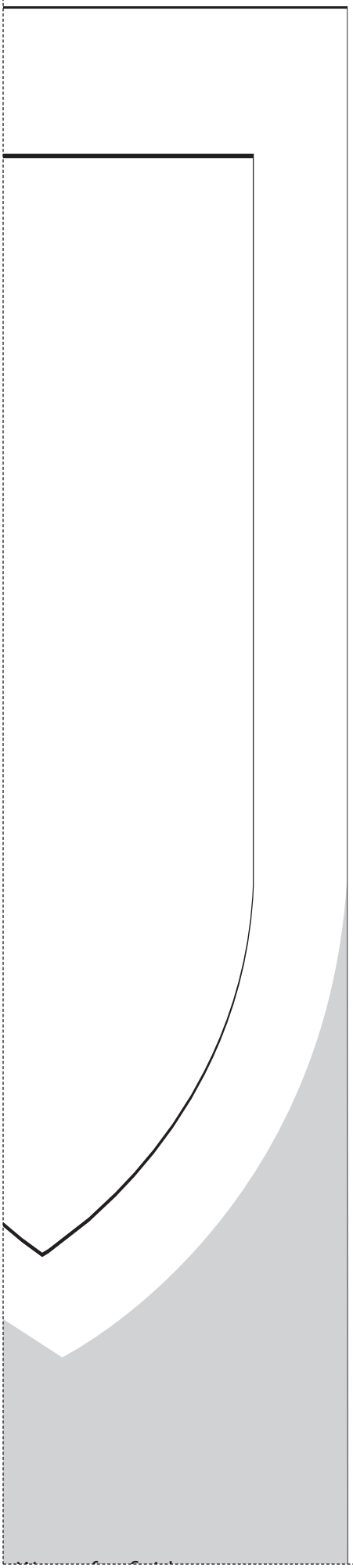



K Base
N B
I
Hanger Strip (clock)
I & J
(end
view)
J
Hanger (Wall)

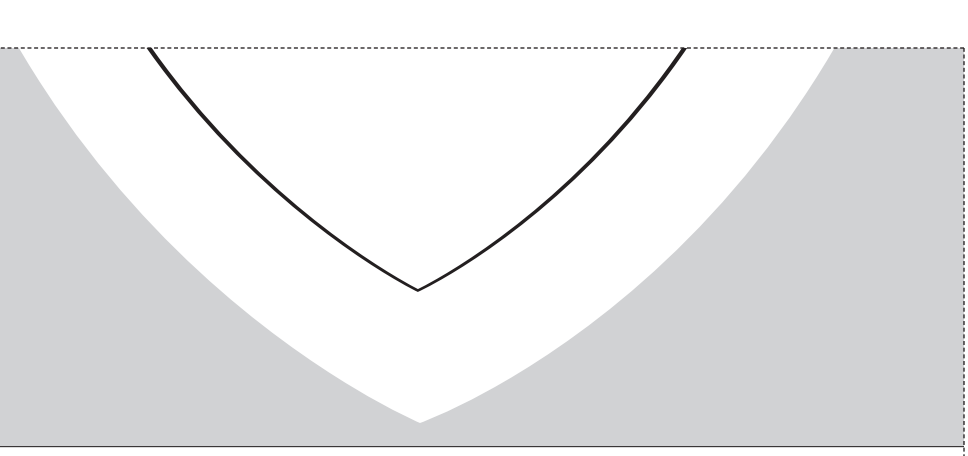

Cut 2
K Base Fretwork Front
and
N Base Overlay

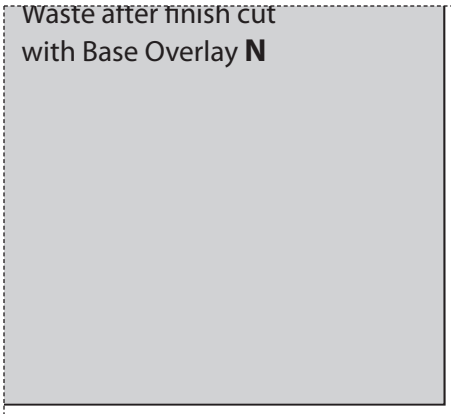



NA
Base
Inlay/Underlay
Stack cut for inlay

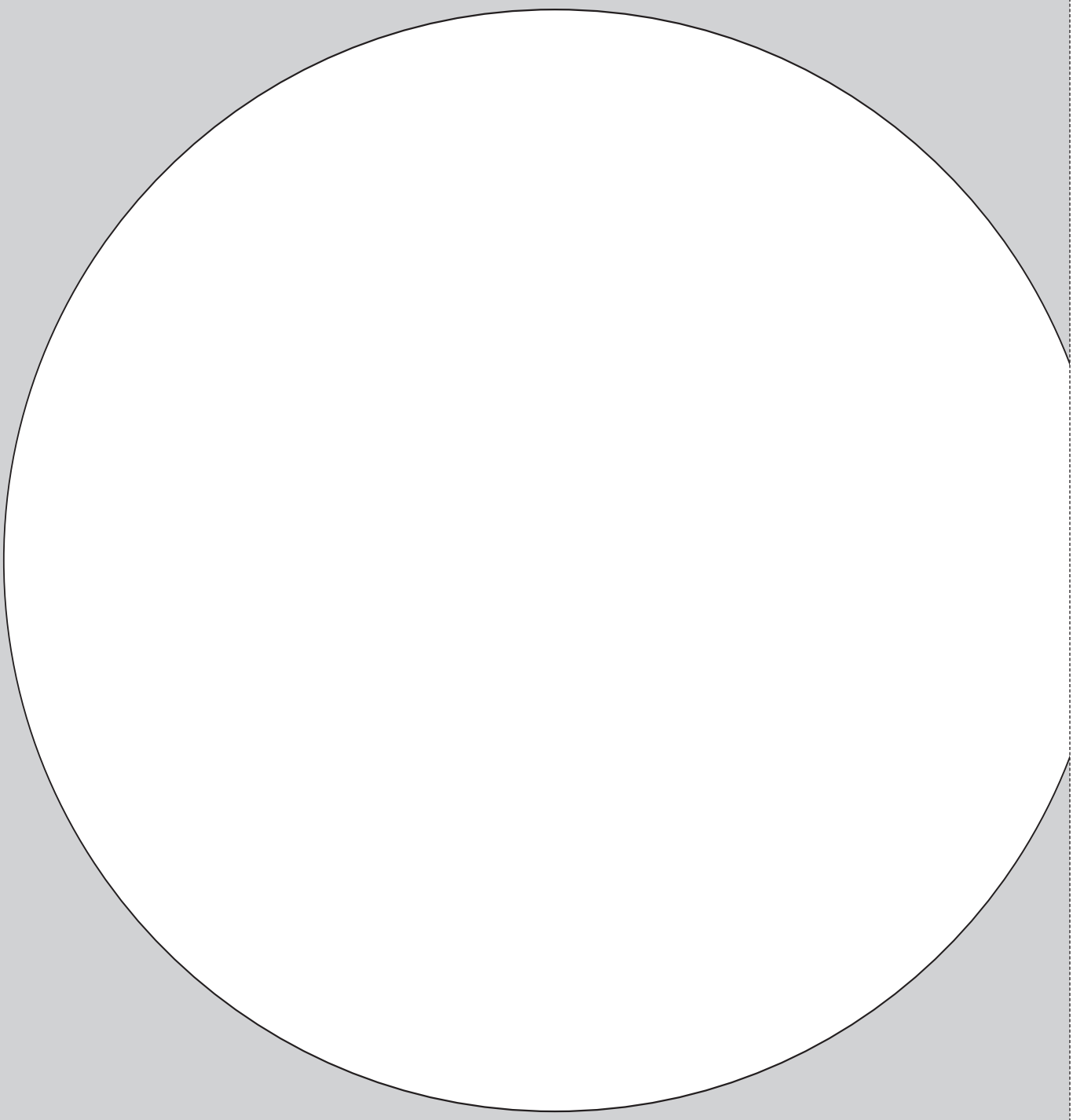


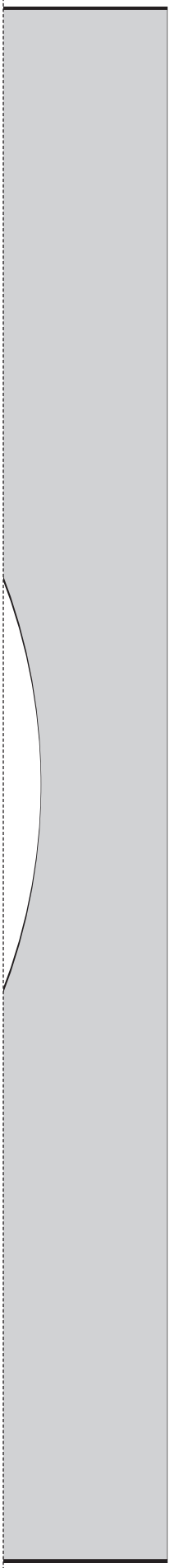
Waste after finish cut
with Base Overlay **N**




Waste after finish cut
with Base Overlay **N**

O
Underlay Body
Panel





Dragon Chest

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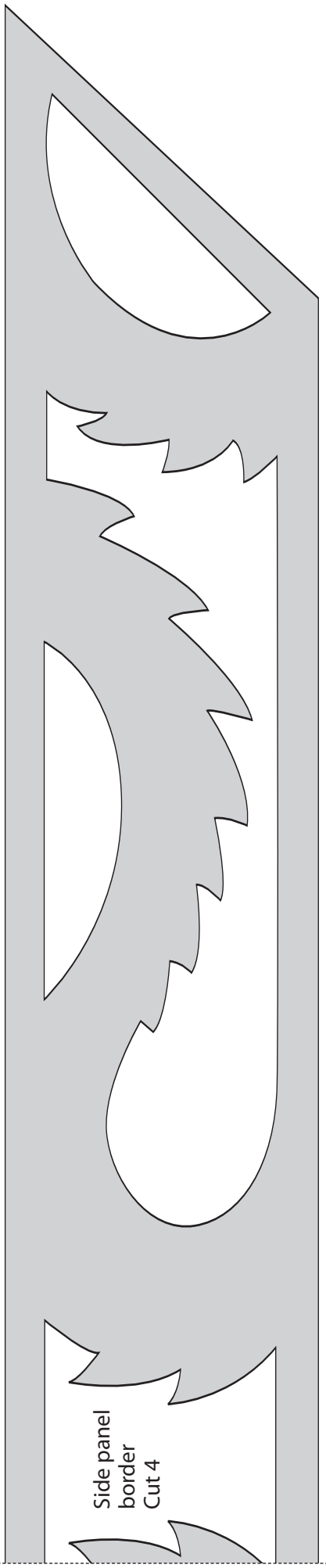
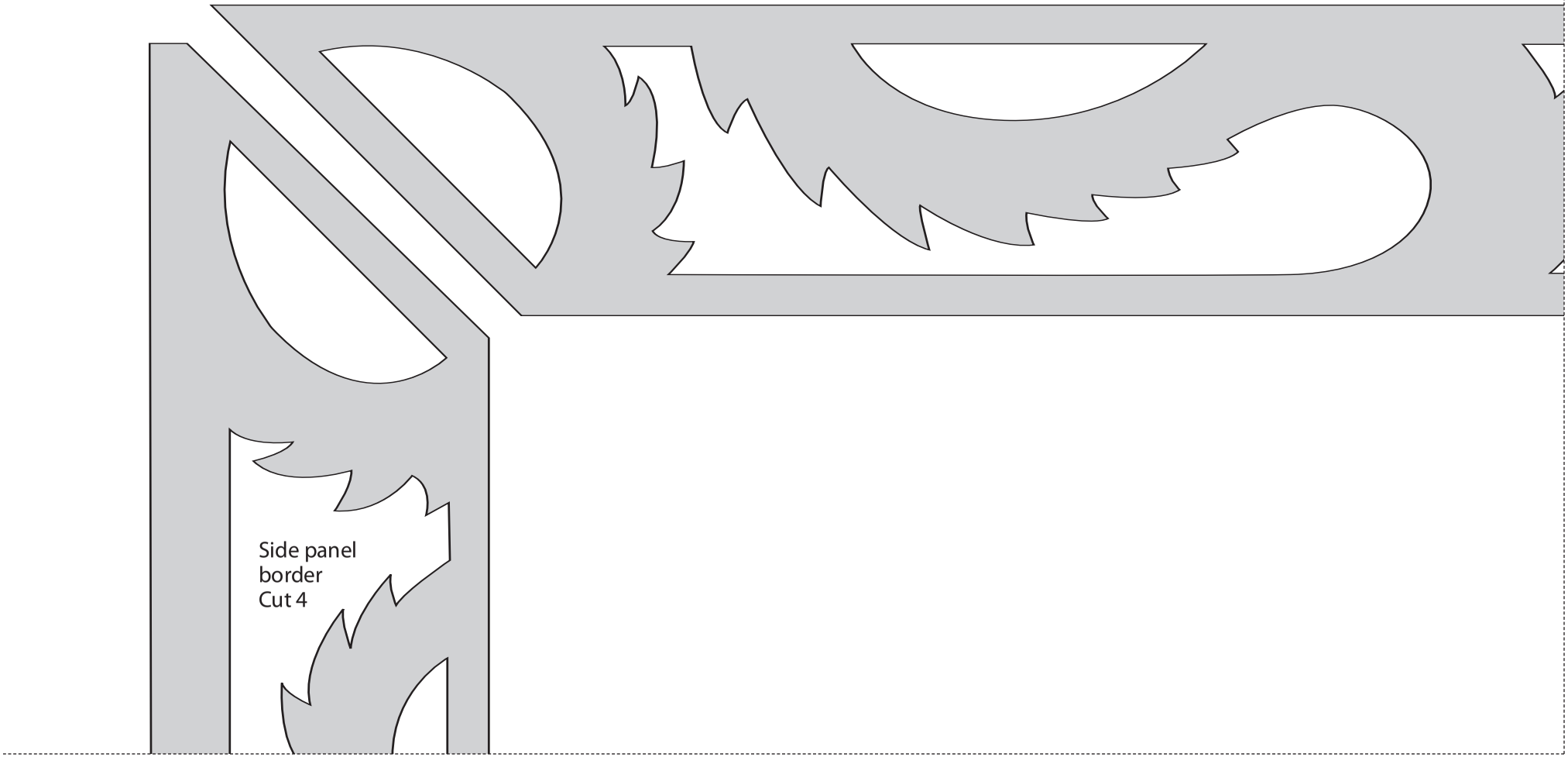
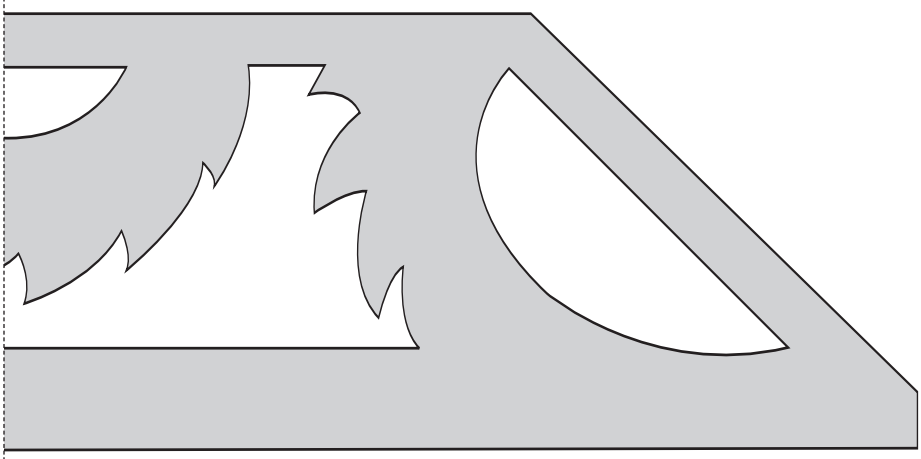
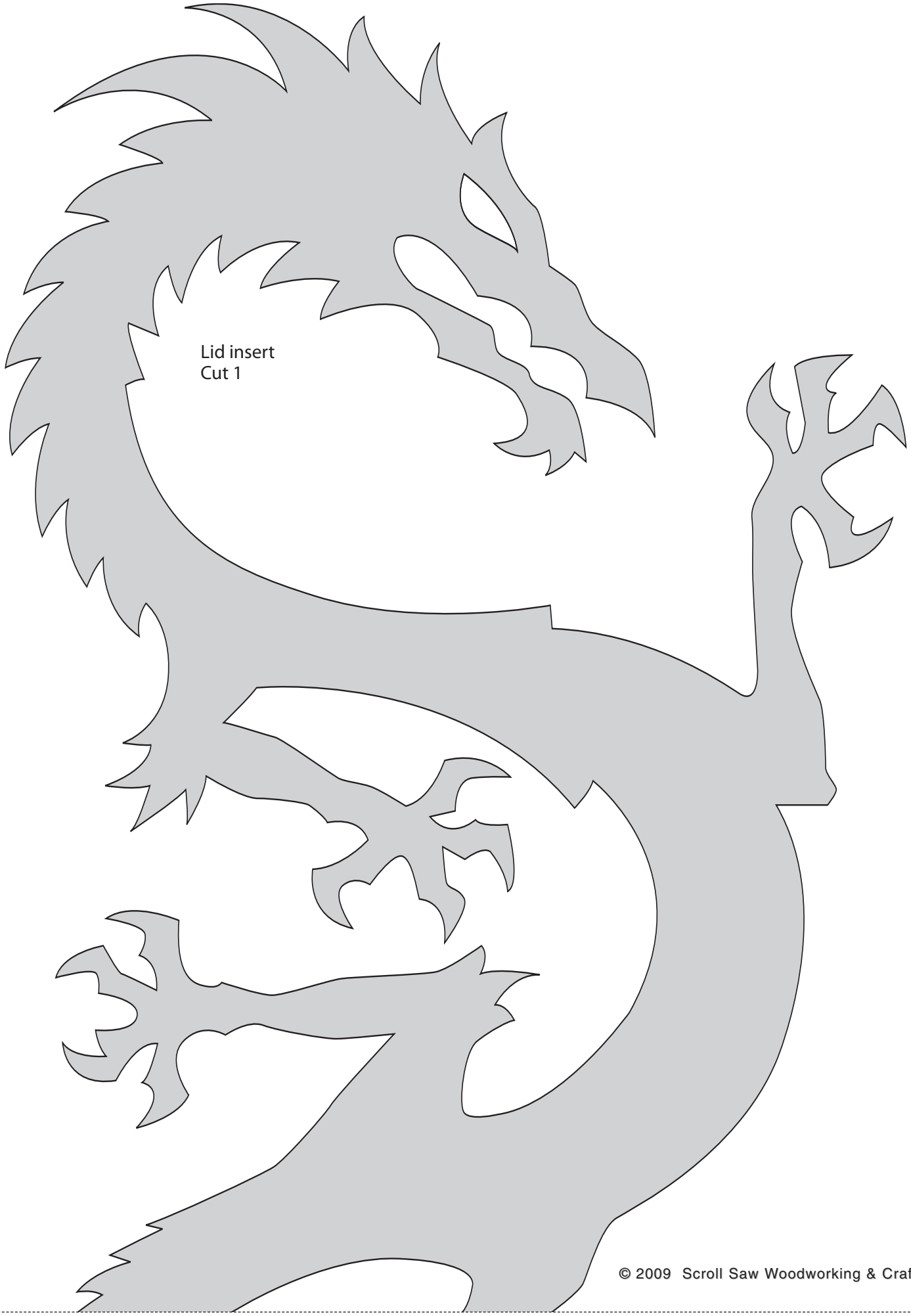
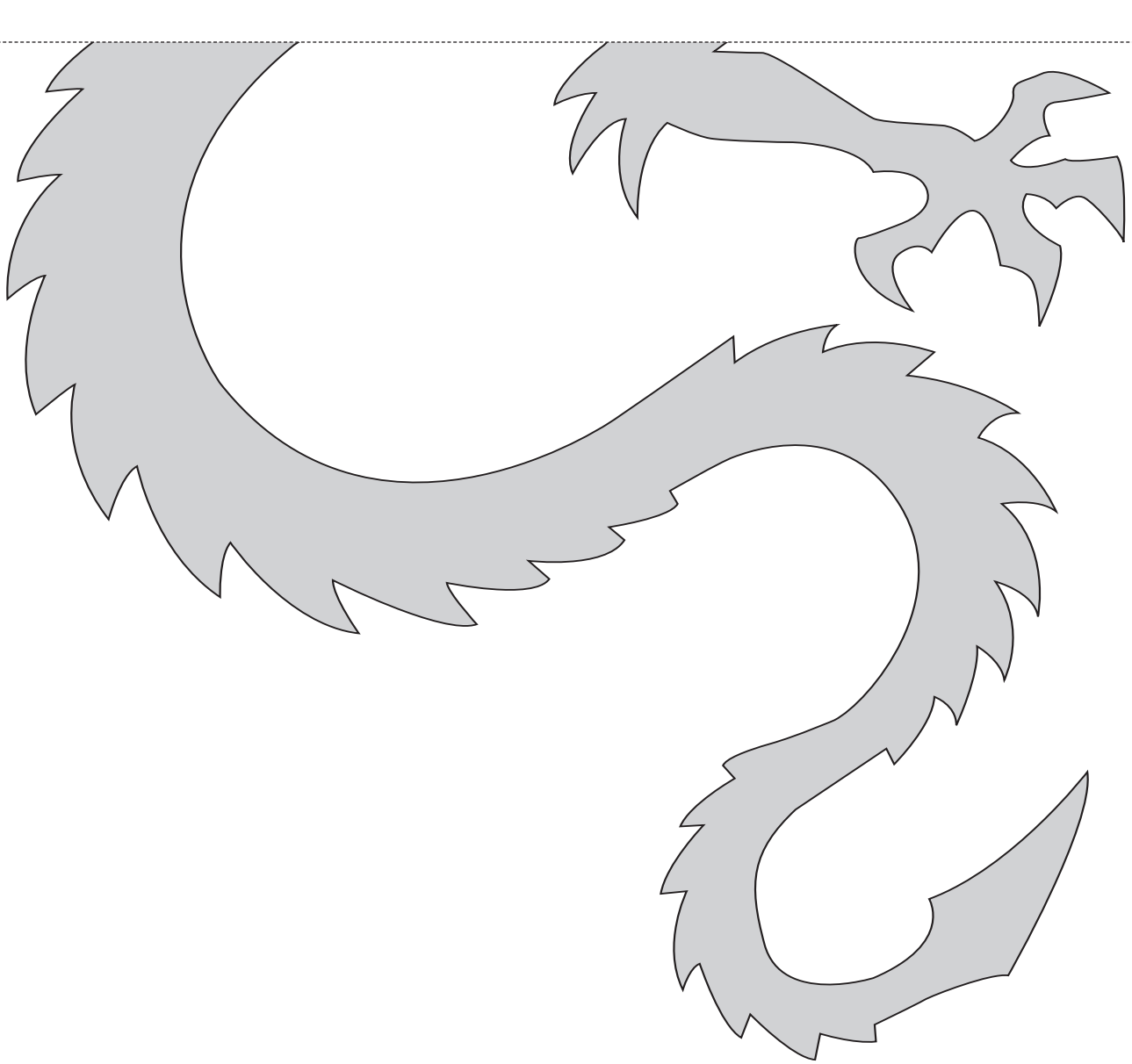
Designer: Kenneth Campbell

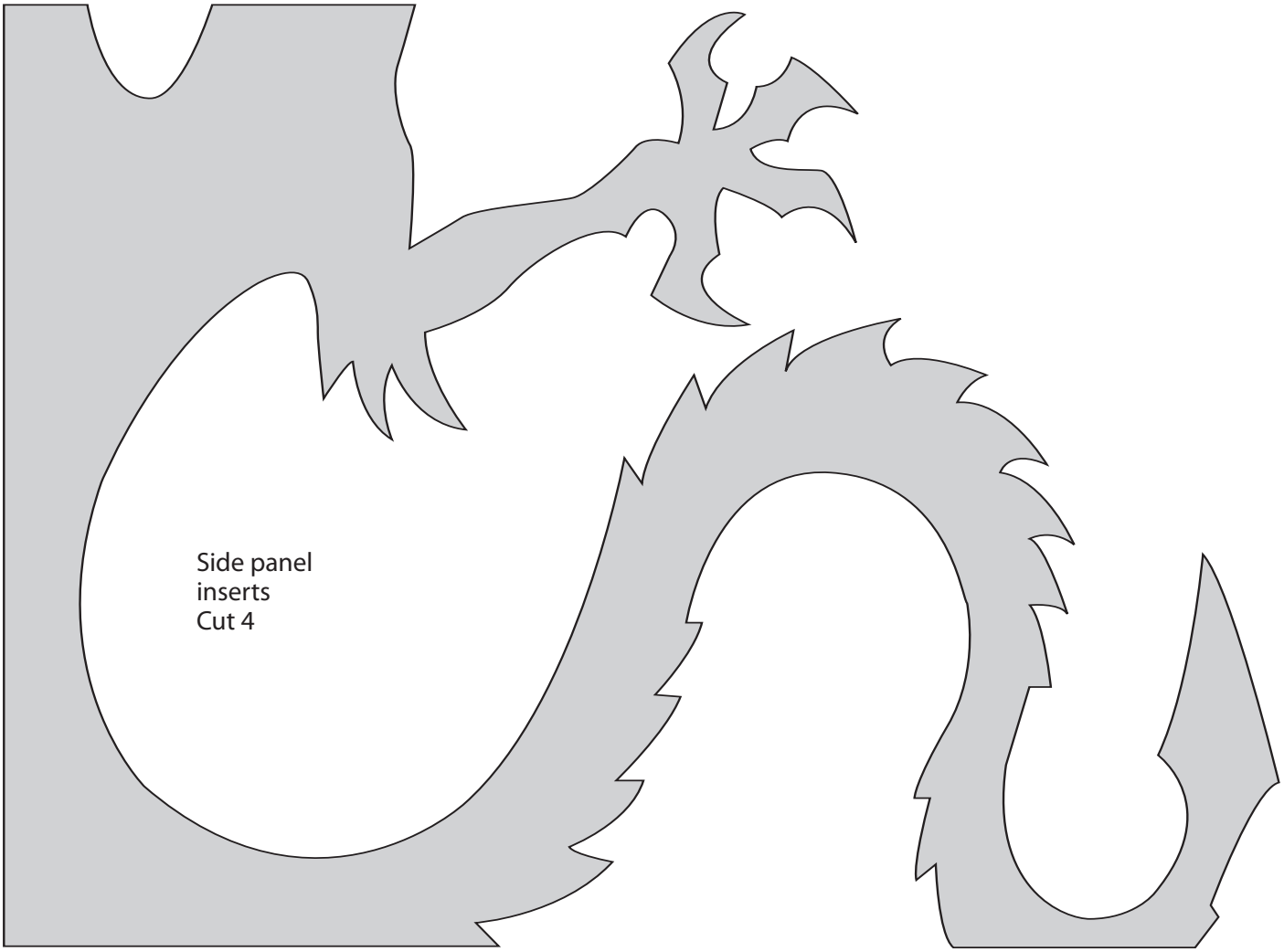


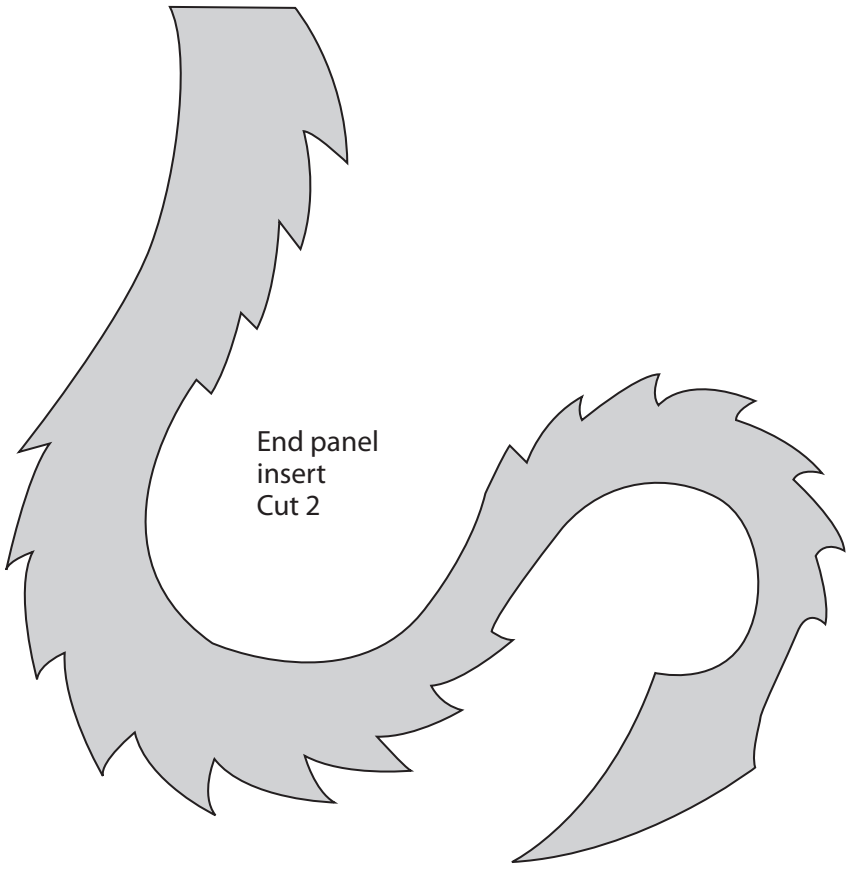

Side panel
border
Cut 4

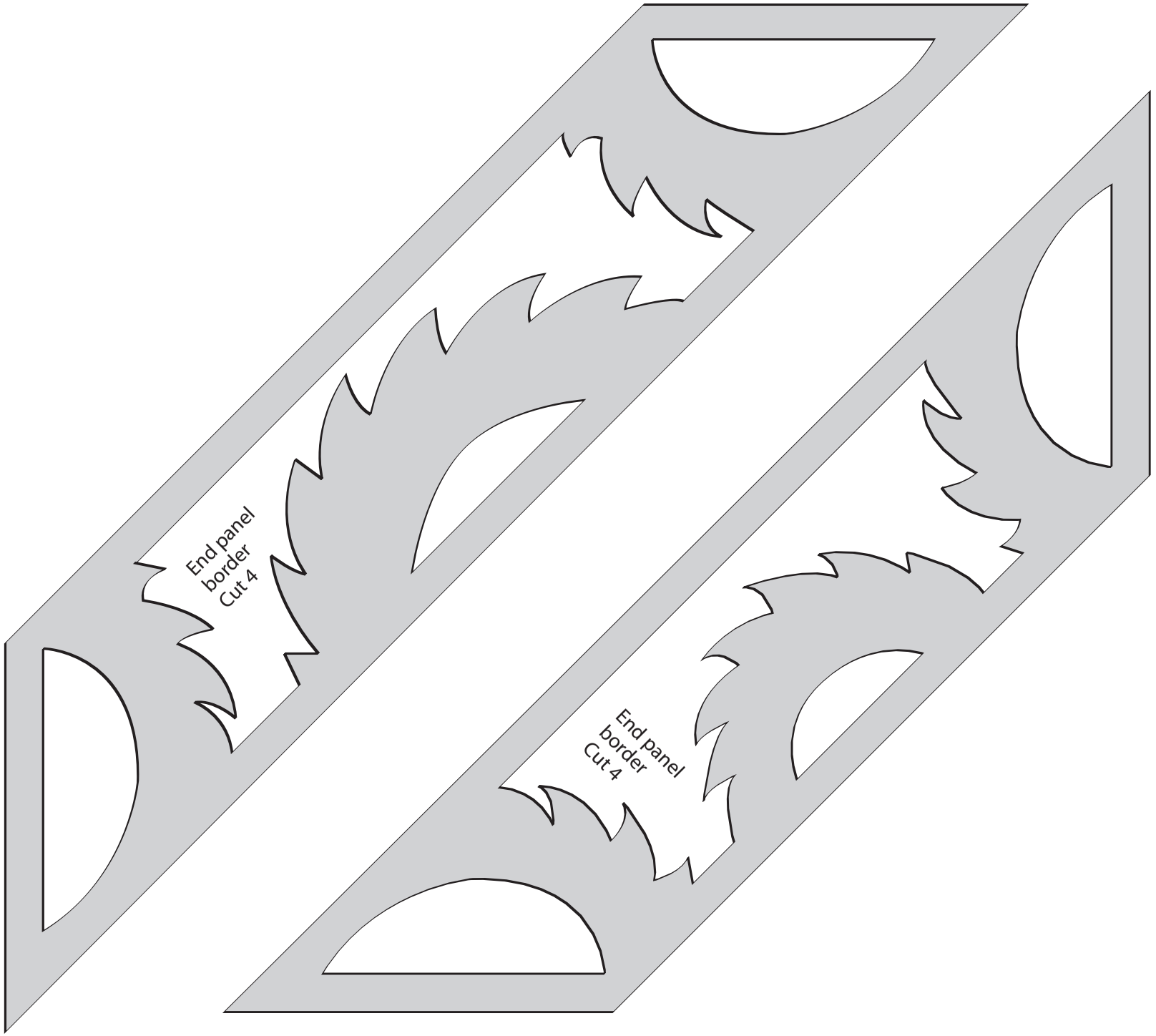







Side panel
inserts
Cut 4


End panel
insert
Cut 2


End panel
border
Cut 4
End panel
border
Cut 4

Fretwork Display Shelf

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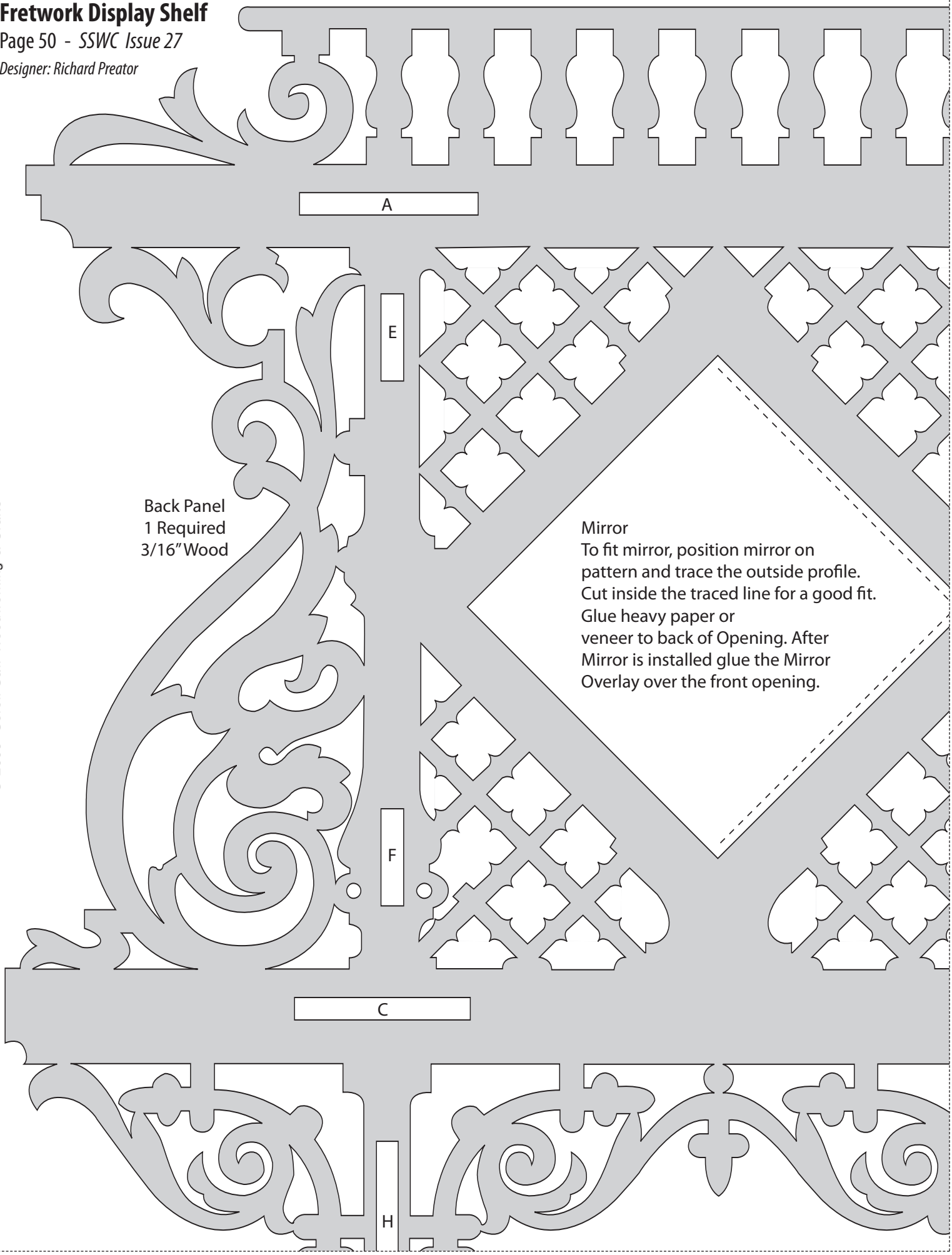
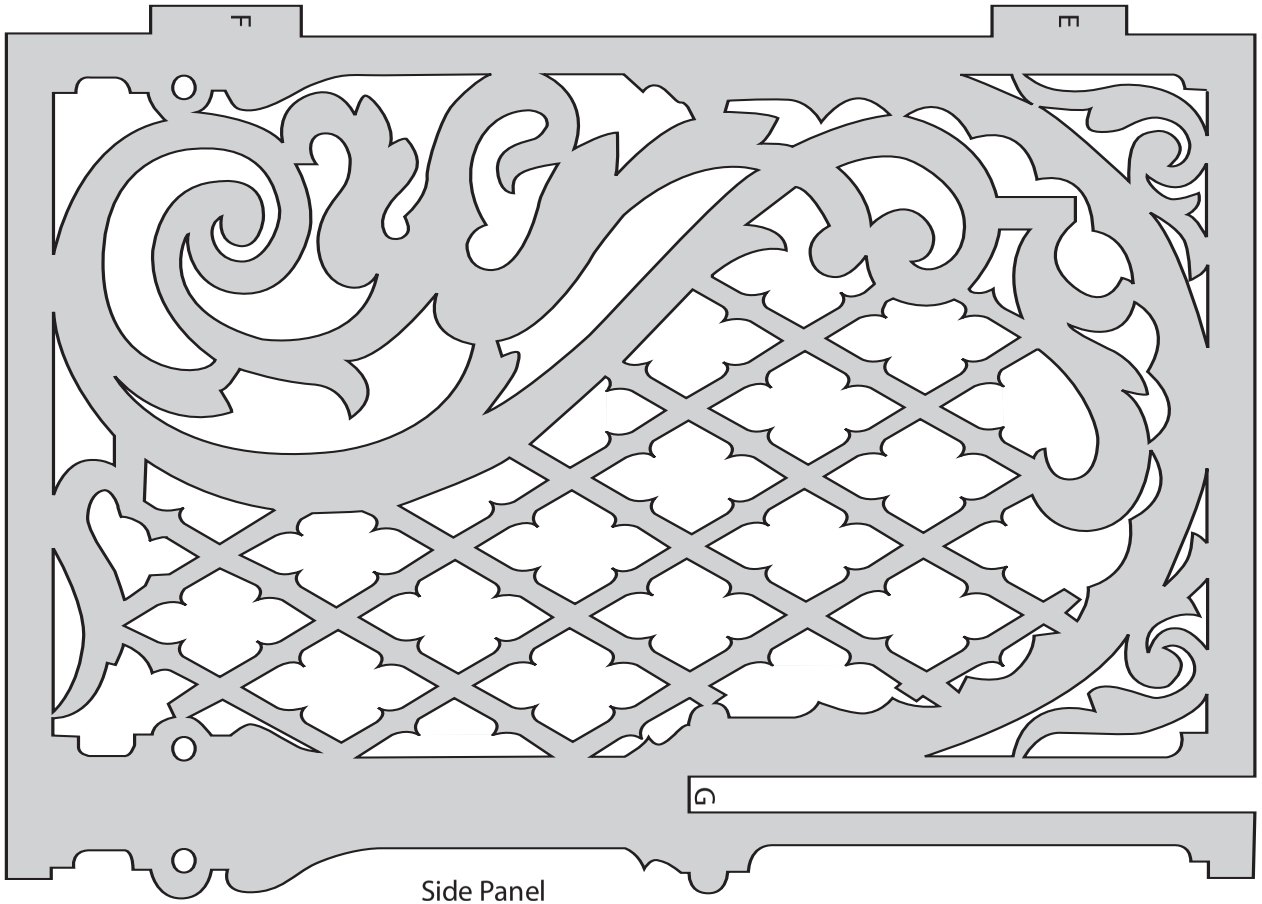
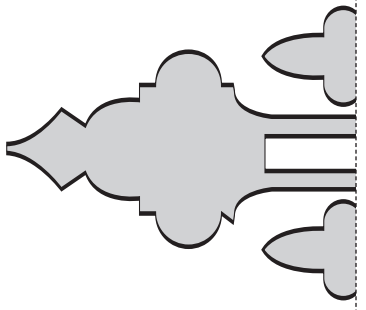
Designer: Richard Preator

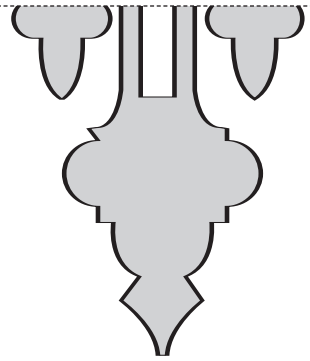


B
E
F
D
H

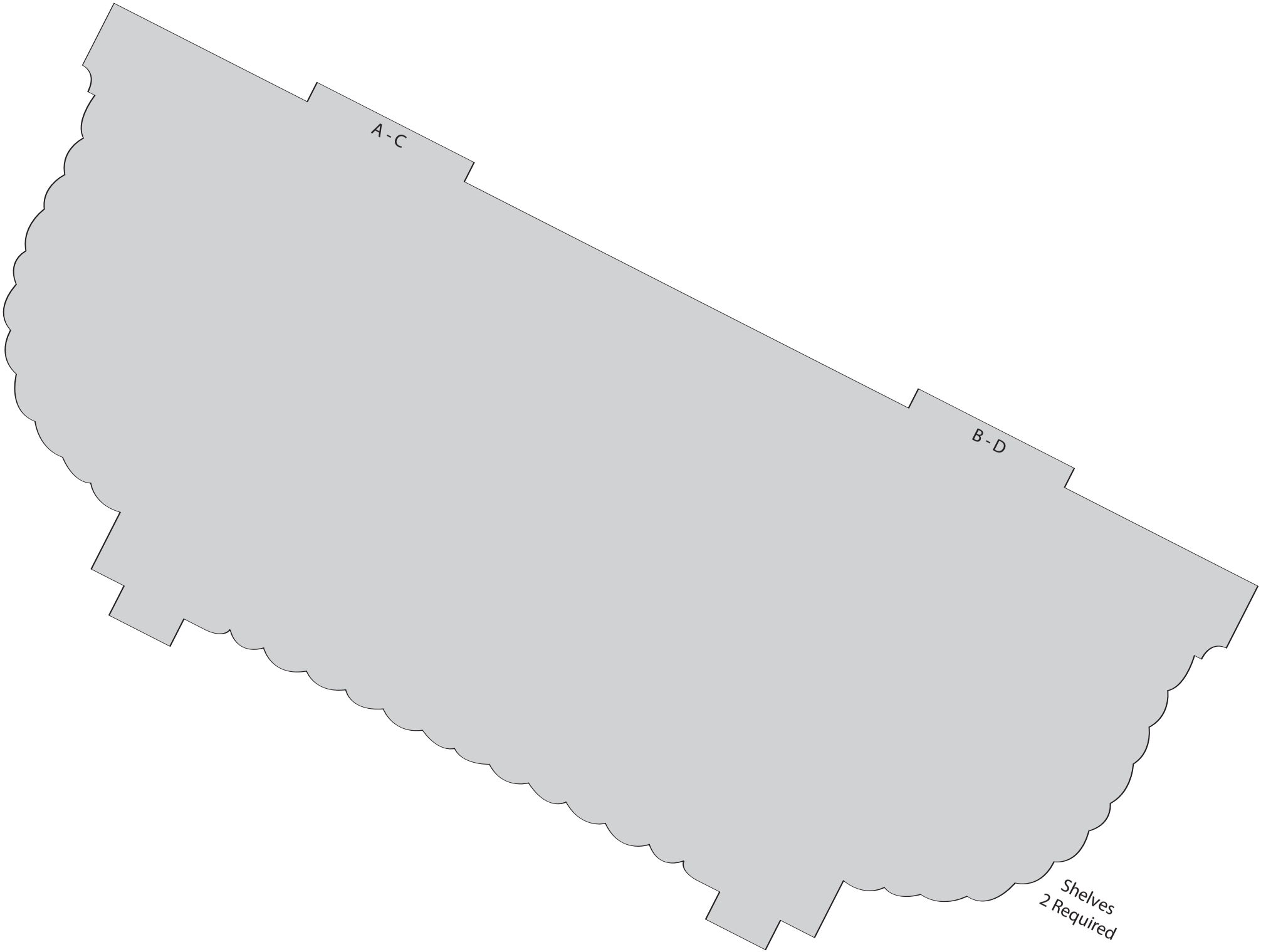


Side Panel
2 Required
(Stack and Cut)





Front Arch, 1 Required


A - C
B - D
Shelves
2 Required