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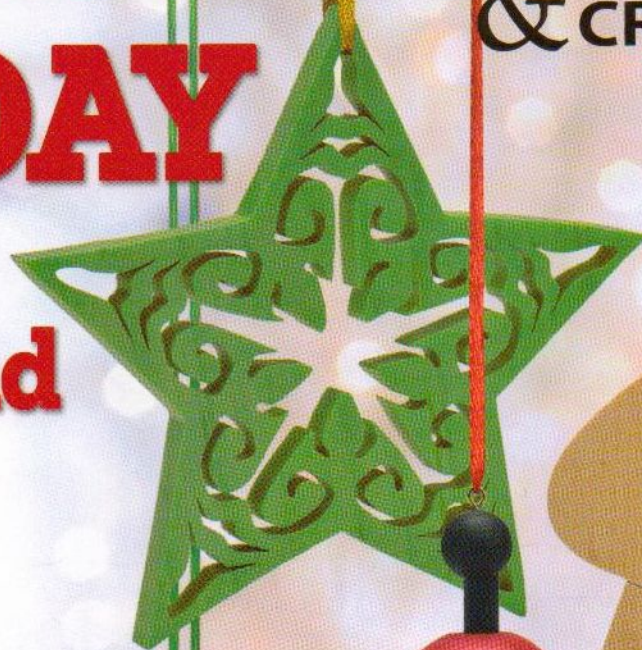
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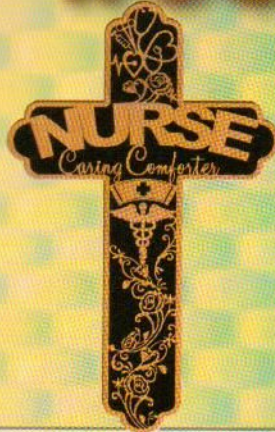
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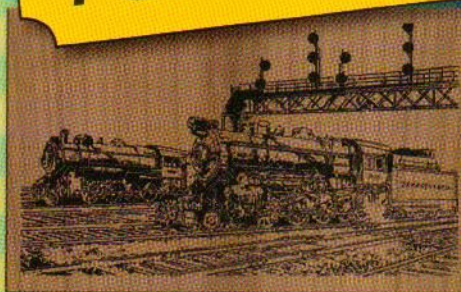
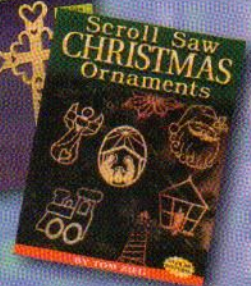
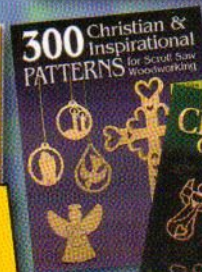
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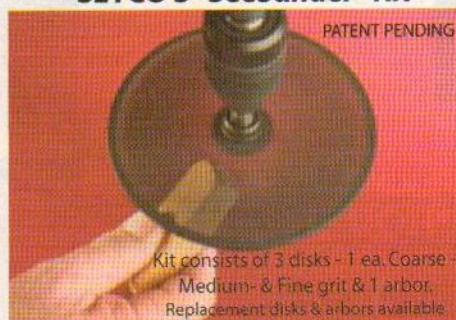


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FEATURES



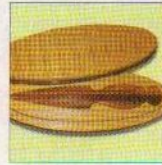
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Bonus Projects & Patterns

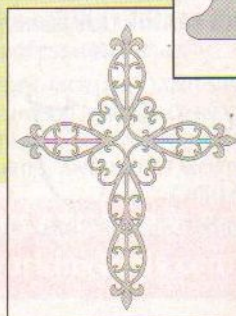
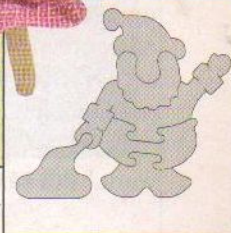
Baby Buggy Ornament, p. 60: Make a doll and quilt to tuck into the buggy.

Simple Santa Puzzle: Chunky pieces are easy to cut and assemble.

Ornate Fretwork Cross, p. 62: Download a second cross pattern and make a set.

Additional online features:

- community forum • scroller galleries
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The Request Issue

Last winter, long-time scroller Paul Smith of Del Rio, Texas, sent a letter to me.

This year my wife decided to decorate our six-foot Christmas tree with only ornaments we have made over the years from patterns we found in your publications. After we completed the tree, my daughter, an avid fan, said, "This is great, but why do you have a Chinese, plastic, lighted star atop the tree?" I replied, "Because I've never seen a pattern!" I am an 85-year-old Air Force retiree (30 years) and am eager to complete my tree this year with a wooden, homemade tree-top star. Could you query your pattern makers with a view of having one available in time for this season?

It's a great idea, so I put out the word. Sue Mey, a well-known designer who lives in South Africa, came through with a simple star that actually lights up like the plastic kind but looks far more elegant (page 48). As a bonus, Sue provided a pattern for an angel tree topper as well.

Thinking about tree toppers led me to consider stockings. If you don't have a chimney, where do the stockings go? Sue answered that question, as well, with two versions of a wall-mounted peg board perfect for hanging stockings (page 58).

Around the same time, Judy and Dave Peterson stopped by for a visit and to share their latest puzzle designs. Judy, Dave, Bob Duncan, and I share a love of fantasy and science fiction. A spirited conversation about Comic-Con, Anne McCaffrey, and *The Hobbit* led me to ask Judy to design a few puzzles based on common fantasy adventure characters. Three puzzles became six, which doubled to a dozen before Judy was done. We're featuring the original set in this issue; a pattern pack of the entire collection is also available, in both booklet and electronic download formats (see page 33).

And not long after that, I received a completely different type of request—or, I should say, a series of requests. A number of readers, some of them experienced scrollers trying new projects, wrote with questions about woodworking. What kind of glue should I use? What about finish? Is this wood safe? Why did that wood warp? Bob and I decided to answer those questions in the form of a new department called Woodworking for Scrollers. It won't run in every issue, but as we see techniques that call for additional explanation, we'll do some research and share the results with you. In this issue, we offer advice on choosing glue (page 31), building joints (page 71), and applying unusual finishes (page 37). Plus, we included a list of toxic varieties of wood with our overview of dust masks (page 74). If you have run across a specific woodworking question while doing a scroll saw project, please let me know.

According to the Rolling Stones, "You can't always get what you want." But I think this issue proves that, actually, sometimes you can.

M Kinsey

Mindy Kinsey

kinsey@FoxChapelPublishing.com

SCROLLSAW woodworking & CRAFTS

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HOLIDAY 2013

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To promote scrolling as an artform and an enjoyable pastime—for all ages and all skill levels.

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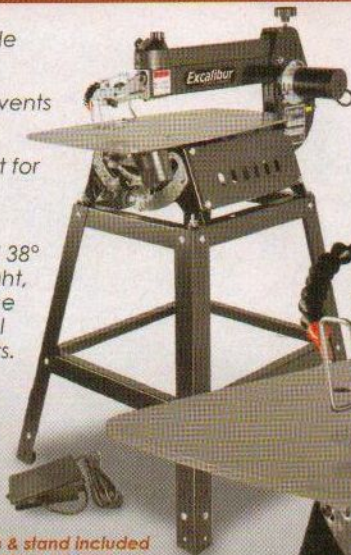
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Tailoring Pattern Sizes

In the Wildlife Cutting Boards article in *Scroll Saw Woodworking & Crafts* Fall 2012 (Issue 52, page 27), the size for the Bear Cheese Board is 8½" (216mm). The pattern for the bear is 9¼" (235mm). I reduced the size of the pattern to make one.

Marc Drainville

Drummondville, Qc., Canada

Editor's response: The size for the cheese board is correct, but you're also right that the bear pattern as printed is too big. The pattern is sized for the much larger cutting board; you have to reduce the size of the pattern to fit the cheese board. Any of the patterns can be adjusted to fit the cutting boards as you like.



Occasionally, scrollers must adjust pattern sizes to match the size of their blank or to meet a multiple-sized project, like the Wildlife Cutting Boards article that ran in our last issue.

Attaching Patterns

In the *Scroll Saw Basics*, Attaching Patterns section, the methods you suggest are from the dark ages. The easiest way I have found to attach patterns is to first use adhesive to attach the photocopy of the pattern to clear shelf liner. Then, peel the backing off the shelf liner and attach it to your wood. The shelf liner is simple to peel off after you finish cutting. I found this technique in your magazine.

Derek Wilson

Martinborough, New Zealand

Editor's response: There are many methods of attaching patterns to blanks. Scroll Saw Basics lists a few of the most common, but you are always free to attach patterns in the manner that works best for you.

Installing Blades

I read with interest Tom Thompkins' "BATS" article, and paid particular attention to his question: "Is the blade mounted correctly in the saw?" Many years ago I suggested that life would be a lot easier if the scroll saw blade manufacturers dipped one end of their blades in white paint to indicate that this end went to the top. Tom's solution of running your finger along the blade does work, but if you chose the correct direction the first time, you often cut your finger! Let's form an "Association of Paint on Scroll Saw Blades" and lobby the manufacturers.

Martin Brown

Via e-mail

CNC Isn't Scrolling

I feel a little betrayed by the article on CNC routers and lasers in *Scroll Saw Woodworking & Crafts* Fall 2013 (Issue 52). I thought this was a scroll saw magazine. I considered canceling my subscription, but there are just too many good patterns and articles in each issue to give it up. I can understand trying to attract new advertisers, but to me CNC routers and laser cutters have NOTHING to do with scroll sawing. Laser and CNC cutting work is not crafting, it is manufacturing.

Terry R. Lenz

*Terry's Scroll Shoppe
Saginaw, Mich.*

Let's Hear From You

We'd love to hear your thoughts on our projects, ideas for new patterns, scrolling experiences, and woodworking show stories. Write to us at:

Letters to the Editor, *Scroll Saw Woodworking & Crafts*, 1970 Broad Street, East Petersburg, Pa., 17520 or e-mail Editors@ScrollSawer.com.

Competing Against CNC

Pretending laser cutters, CNC machines, etc., don't exist won't make them go away. If we want to compete we need to understand these machines' strengths and weaknesses vs. those of scrolling. Then, we can scroll to our strengths rather than futilely trying to match our weaknesses against their strengths.

I don't think the core issue is any different from cheap off-shore labor. To survive you have to figure out how your work can be better. Art can't win a race to the bottom.

I don't foresee doing laser cutting or CNC routing. I scroll because I like the process of scrolling, and I like making one-off pieces. To me the difference between custom work and mass production is one of scale and intent more than of technology.

Rob Caplan
Redmond, Wash.

for Cruises,
at Zoo New
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Fox Hunt

Bud Hanson of Wasaga Beach, Ont., Canada, and Don Hysell of South Solon, Ohio, were randomly drawn from the participants who located the fox in our last issue (Fall 2013, Issue 52). The fox was located in the lower right corner of page 27, in Dayle Taylor's author photo.

Find the fox in this issue, 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 December 1, 2013, to be eligible. *NOTE: The contest fox is an outline drawing that would face left if his feet were on the "ground" (other foxes appearing in SSW&C don't count).*

Send your entry to SSW&C, Attn: Find the Fox, 1970 Broad Street, East Petersburg, Pa., 17520, or enter online at www.ScrollSawer.com.



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◀ Dragon Frame

Sam Clough of Jackson, Mich., made this piece based on the Dragon Challenge pattern published in *Scroll Saw Woodworking & Crafts* Fall 2012 (Issue 48). Sam made the frame for a friend's daughter, who earned her black belt in karate. He cut the piece from ambrosia maple and basswood; a friend painted the dragons.

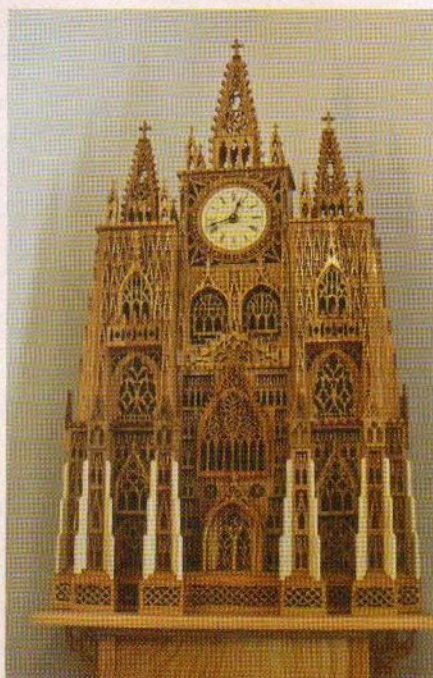


▲ Compound Ornaments and Holder

Wayne Sampson of Camrose, Alb., Canada, designed and made these compound ornaments and display rack. The ornaments are sized for use on a regular tree, but can be displayed year-round in the colorful rack.

Fretwork Clock ▶

Jerry Herold of North Liberty, Iowa, made this cathedral clock and pedestal from oak. The clock pattern was designed by Al Spicer, but Jerry designed the pedestal based on a John Nelson pattern published in *Scroll Saw Woodworking & Crafts*. Jerry got his scroll saw in August 2012 and finished the clock by March 2013.



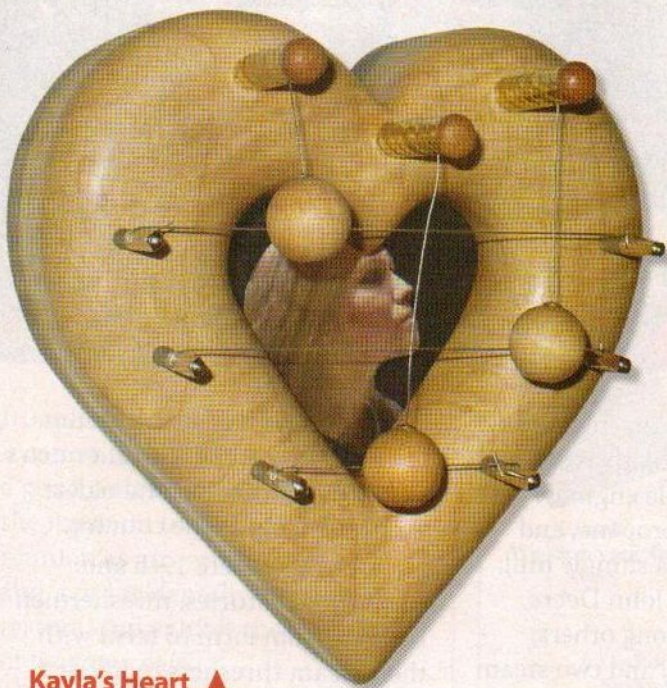
Share Your Latest Work!

Send a slide, professional print, or digital image (300 dpi minimum) with 100 words about you and your piece. Include your hometown, the name of the pattern maker, and a list of wood and materials used. Send to Reader Gallery, *Scroll Saw Woodworking & Crafts*, 1970 Broad Street, East Petersburg, Pa., 17520, or e-mail editors@ScrollSawer.com.

Spiral Walking Sticks ▶

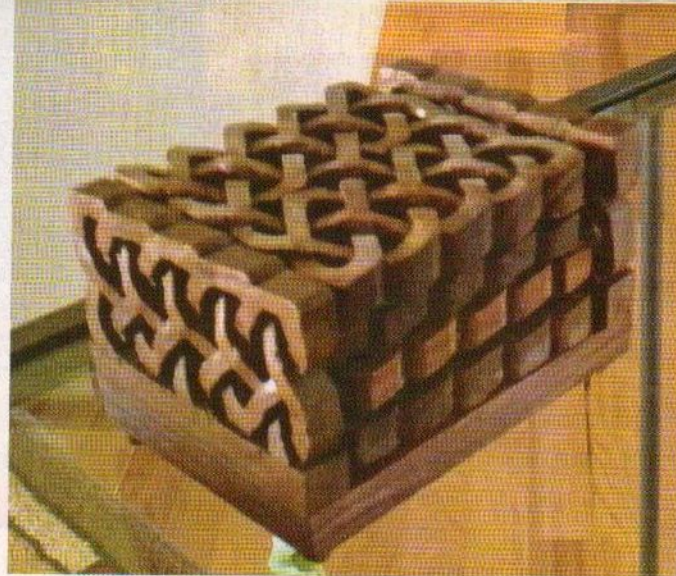
Dan Bowe of Rogers, Ark., created these custom walking sticks using the technique explained by Bruce Pratt in his article, Cutting Elegant Spiral Candlesticks (*Scroll Saw Woodworking & Crafts* Fall 2009, Issue 36). Dan took the technique a step further and created an internal twist. For more of his work, search for Twisted Candlesticks on Etsy.com.





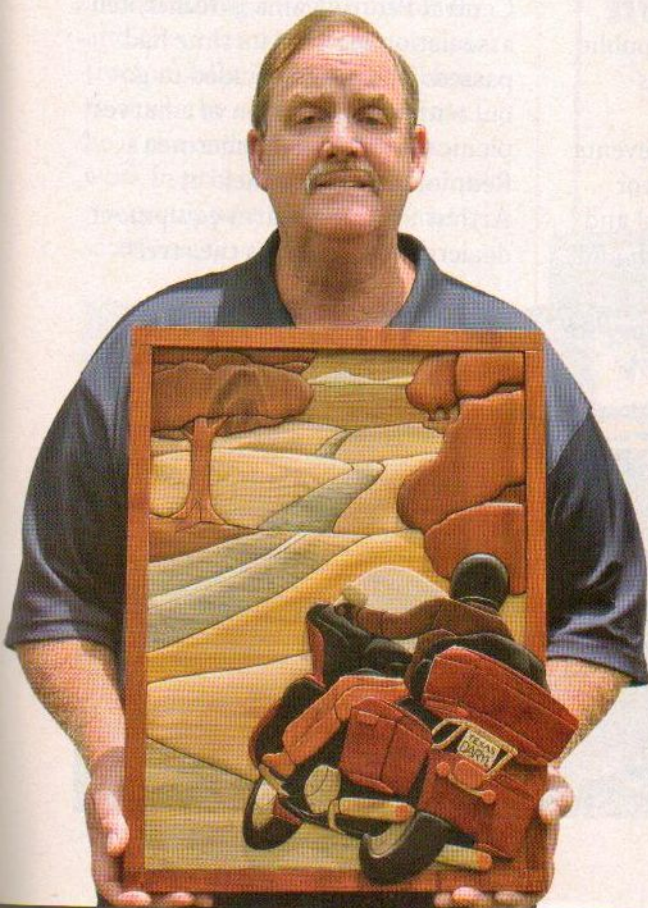
▲ **Kayla's Heart**

Ben Tyler of Sherman Oaks, Calif., created this door harp in memory of a family member who was born with heart problems and, although she received a transplant, passed away at age 19. The door harp is made from figured maple, poplar, and walnut. Ben gave the heart to Kayla's mother.



▲ **Celtic Coasters**

Gary Hazelberg of Green Lake, Wis., reduced the size of Dan Brown's Celtic Knot trivets (*Scroll Saw Woodworking & Crafts* Summer 2013, Issue 51) and turned them into coasters. Gary cut the pieces from walnut and finished them with cutting board oil.



▶ **Intarsia Angel**

Stan Holder of Beaverton, Ont., Canada, made this intarsia angel based on a stained glass angel pattern by Vit-Mar. Stan modified the pattern into an intarsia pattern and used padauk, walnut, ash, and sycamore to make his angel.



◀ **Scenic Bike Ride**

Craig Buckner of Laporte, Texas, made this intarsia design based on a pattern by Judy Gale Roberts. Craig substituted red padauk for the parts where the pattern suggested a white wood.

Rough & Tumble

Home of the upcoming Fox Chapel Open House

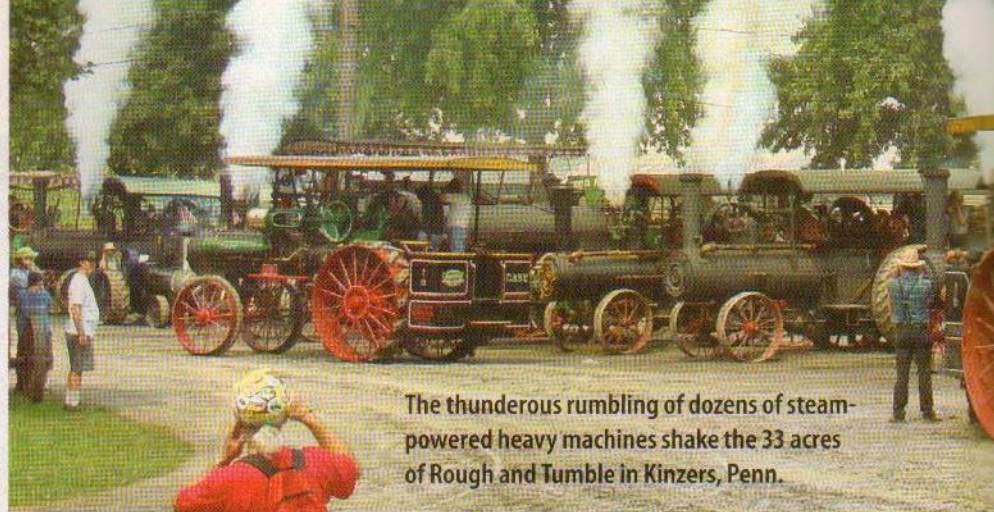
By Mindy Kinsey

Join us on May 9 and 10, 2014, for Fox Chapel Publishing's Open House, which will be held in conjunction with Rough and Tumble's Spring Steam-Up. The Open House will include carving, scrolling, and turning classes and demonstrations, and plenty of vendors with woodworking tools and materials, plus full access to Rough and Tumble's machinery and exhibits. For information and tickets, visit www.wood-show.com or call 800-457-9112.

The rumbling is the first thing you notice. Tractors, big engines, and antique cars are all fired up, their deep growls punctuated by blasts from a locomotive's steam whistle. The air smells like a tantalizing mixture of fuel, steam, cut wood, and sugar. There are people and machines everywhere you look. Welcome to the Rough and Tumble Engineers Historical Association in Kinzers, Penn.

Located about 10 miles east of Lancaster in the Pennsylvania Dutch countryside, Rough and Tumble is a non-profit organization dedicated to preserving America's agricultural and industrial history. The museum is staffed entirely by volunteers brought together by their love of old machines and the relics of America's rural past.

Housed in three dozen buildings spread across 33 acres, Rough and Tumble owns the oldest running internal combustion engine in the United States, built in 1867; the second oldest



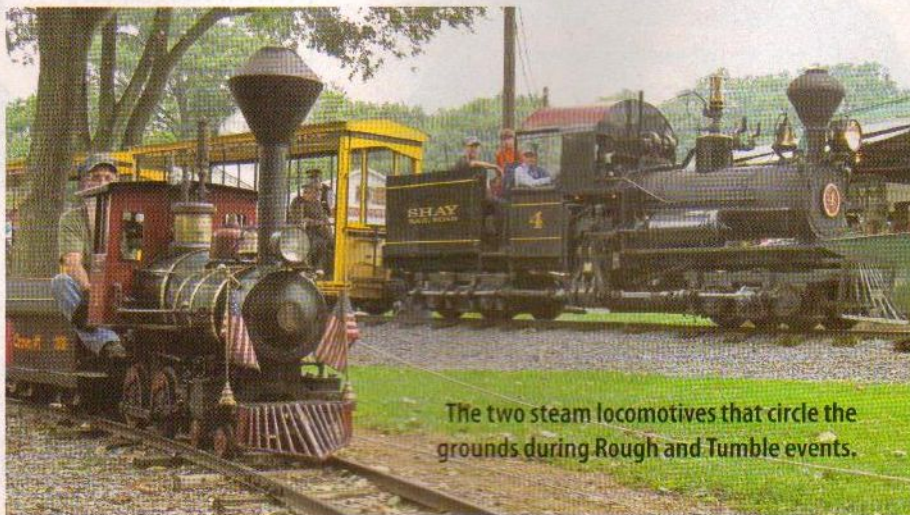
The thunderous rumbling of dozens of steam-powered heavy machines shake the 33 acres of Rough and Tumble in Kinzers, Penn.

running steam traction engine, built in 1886 and recently restored; stationary and mobile engines powered by steam, propane, and gasoline; a sawmill; a shingle mill; restored tractors by John Deere, IH, and Rumley, among others; threshing machines; and two steam trains, which loop the grounds continuously during events. The grounds are also home to a blacksmith shop, a display of model engines, a shop full of shaft-driven machines, antique cars and trucks, and more. Much, much more.

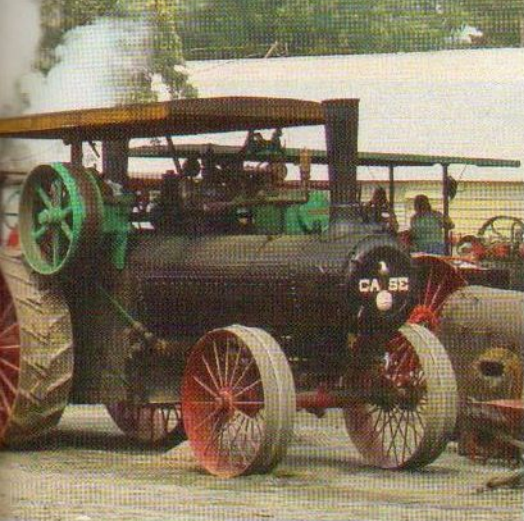
Founded in 1948, Rough and Tumble's mission is not just to collect these objects but to encourage devotees and the public to interact with the machines and experience history. The organization hosts about 10 events each year, ranging from tractor pulls to blacksmithing school and a harvest show. In fact, Rough and

Tumble began not as a museum but as an event: the Threshermen's Reunion, now the second oldest such gathering in the country.

During the late 19th and early 20th centuries, threshermen traveled from farm to farm with their steam threshers to harvest grain. The threshermen and farm families would gather for a celebratory picnic when the harvest was in. The festivities attracted manufacturers and salesmen, who showed off their new farm equipment. As gas-powered tractors gained popularity, steam-powered engines waned and the Central Pennsylvania threshermen's association realized its time had passed. The group decided to go out with a huge version of a harvest picnic—the first Threshermen's Reunion, which was held at Arthur S. Young's farm equipment dealership, just across the street



The two steam locomotives that circle the grounds during Rough and Tumble events.



from Rough and Tumble's present location. The attendees had such a good time that they founded the museum to perpetuate the reunion as an annual event and, not incidentally, to collect, restore, and exhibit the artifacts of by-gone days.

The Threshermen's Reunion, which takes place each August, and its smaller sister event, the Spring Steam-Up, which occurs in May, are opportunities to see the machines at Rough and Tumble running; enjoy music; watch demonstrations of threshing, milling, plowing, and smithing; ride the railroads; and cheer for tractor games and tractor pulls. They are a chance to smell the steam, feel the soot, hear the engines, and see the work in progress—to experience America's past in a unique and satisfying way.



One of many demonstrations of farming implements from by-gone days.

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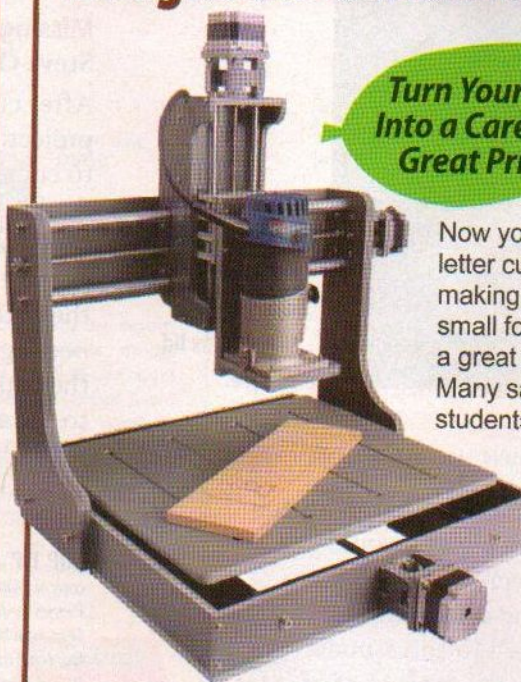
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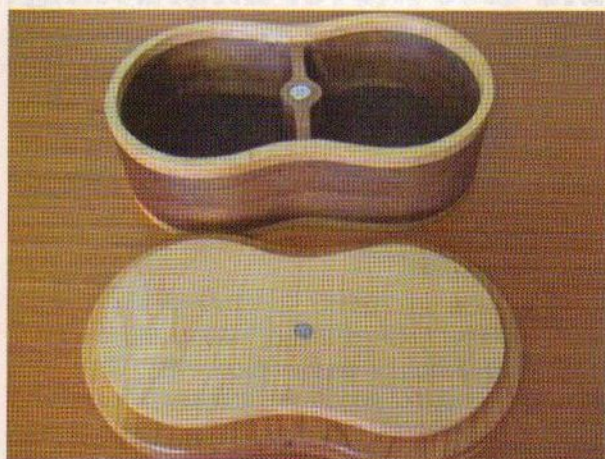
Brett Knutson of Omaha, Nebr.



Use Baltic birch plywood to make a simple table sized to fit your saw or workbench. Mine has two rectangular legs, plus a hand hole in the side so I can slide the organizer in and out from under my Excalibur EX-21 saw. The tubes I used are 1" (25mm) diameter by 5 3/4" (146mm) tall, so size your organizer with that in mind. Drill the holes in the top of the organizer, cut the hand hole in one leg, and glue and screw the pieces together.

The test tubes are called "Baby Soda Bottle" test tubes and are available from www.SteveSpanglerScience.com. The tops are threaded to accept caps from soda bottles, so it's easy to color-code the cap colors. Plus, if your organizer tips over, these tubes will not pop open.

Threaded test tubes with soda bottle caps and a plywood rack make organizing saw blades easy.



An embedded rare earth magnet will keep a box lid secure.

Magnetic Lid

Russ Lavigne of Saint Albans, Vt.

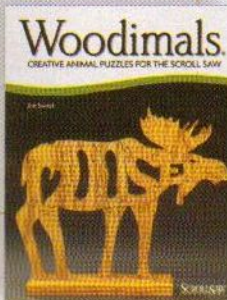
When making a box with the scroll saw, I found my lid liner/lid assemblies didn't fit as snugly as I would like. I embedded a small rare earth magnet in the support structure of the box. I cut the head off a common nail and attached it to the lid positioned to correspond with the rare earth magnet. The larger the magnet, the better the lid will hold; however, if a big magnet won't fit the box design, multiple smaller magnets will work, too.

Missing Intarsia Pattern Piece

Steve Ortiz of Conyers, Ga.

After cutting the eyeholes on an intarsia project, I realized I didn't have the pattern to cut the eyes. I taped Scotch permanent double-sided tape (which is thin and transparent) across the bottom of the eyehole. Then, I dumped some sawdust in the eyehole and tamped it down well. After peeling the tape off the project, I removed the paper backing and attached the tape to the eye blank. The sawdust acted as a makeshift pattern so I could cut the eye.

TOP TIP In our Spring issue wins a copy of *Woodimals: Creative Animal Puzzles for the Scroll Saw* by Jim Sweet. Send your tips or techniques to Bob Duncan, Fox Chapel Publishing, 1970 Broad Street, East Petersburg, PA 17520, or Duncan@FoxChapelPublishing.com



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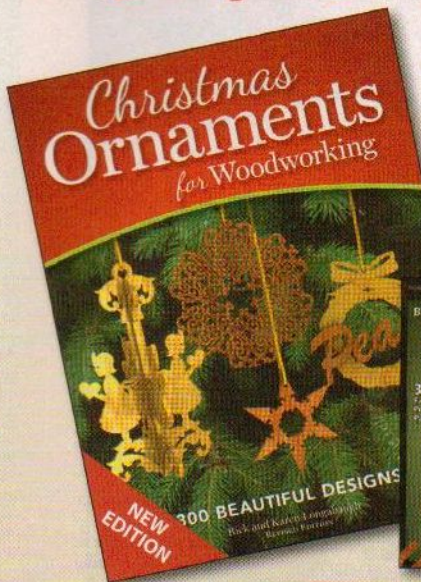
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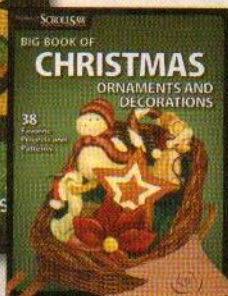
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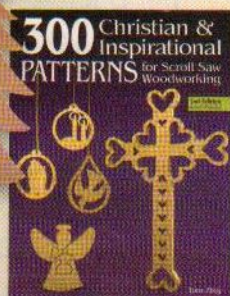
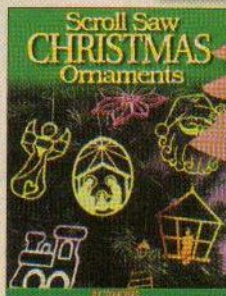
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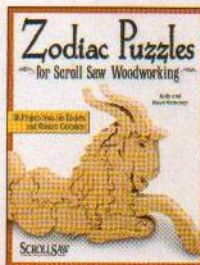
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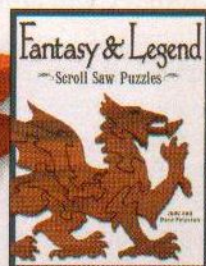
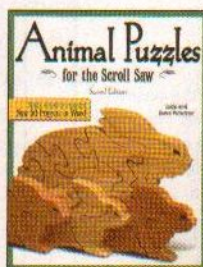
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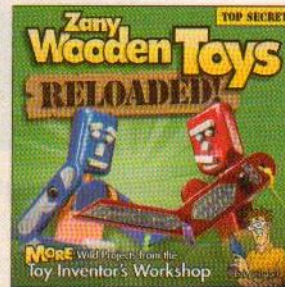
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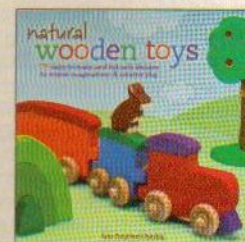
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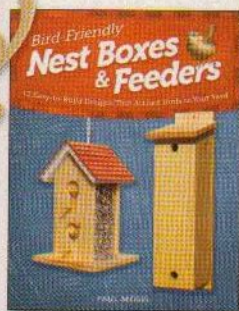
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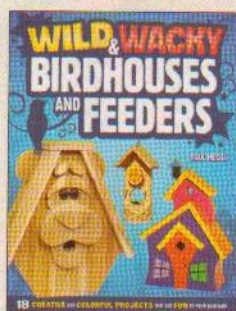
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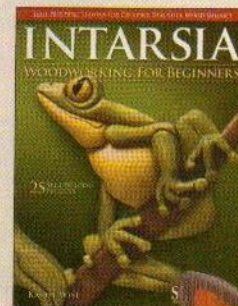
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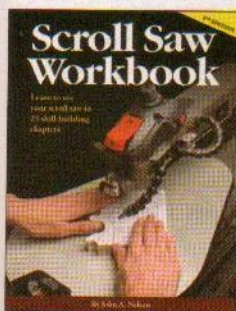
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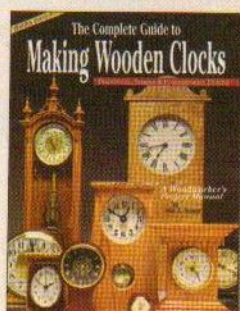
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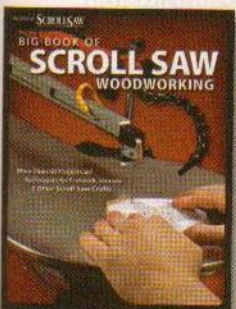
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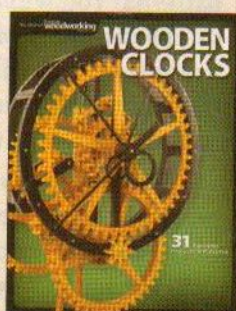
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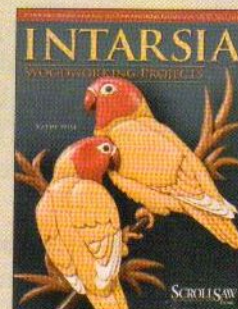
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US



Gloria Candle Tray



Dimensional elements make this design stand out

By Sheila Bergner-Landry

This candle tray will make a wonderful and functional addition to your home this holiday season. The 4" (102mm)-diameter center well will fit many types of jar candles, and you will find it to be a great piece not only for your own home, but also as a gift.

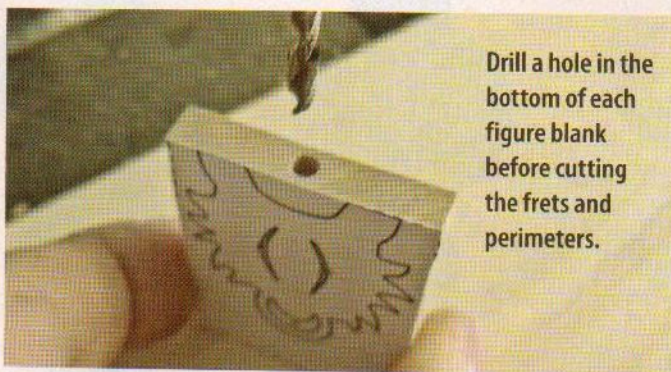
Cutting the center section at a slight bevel allows you to raise the outside frame, giving the piece more interest and dimension. Most of the woodworking for this project is straightforward, but learning a few techniques will make it easier to complete.

Getting Started

Cut the blanks to the dimensions listed; for the figures, those correspond with the dotted-line boxes on the

patterns. You will be drilling holes in the figures, and it is easier to drill into a rectangular blank than an irregularly shaped blank. Plus, the excess wood around the figures gives you something to hold as you cut. Attach the patterns. (See page 78 for details.)

Use the smallest bit that will accommodate the blade to drill the blade-entry hole in the center circle of the plate. Then, use a $\frac{3}{32}$ " (2.5mm) brad-point bit to drill the holes around the outside edge. When drilling the holes for the teardrop-shaped frets, align the bit with the rounded outer edge; it will be easier to cut from both edges toward the pointed end. Use the small bit to drill any remaining blade-entry holes in the tray and figures.



Drill a hole in the bottom of each figure blank before cutting the frets and perimeters.

Cutting the Figures

Mark the center of the thickness of the figure blanks. Set a $\frac{1}{8}$ " (3mm) brad-point bit to drill $\frac{1}{2}$ " (13mm) deep. Drill a test hole in a piece of scrap and check the fit of a $\frac{1}{8}$ " (3mm) dowel. The fit should be snug, but not too tight (there should be room for wood glue). Sand the dowel or adjust the size of the drill bit as necessary. Drill a hole in the bottom of each figure blank.

Cut the frets in the figures with a #2/0 reverse-tooth blade. Then, cut the perimeters of the figures. Cut the dowel into several $1\frac{1}{2}$ " (38mm)-long pieces and glue one into the bottom of each figure.

Cutting the Plate

Cut the perimeter of the plate with a #3 blade. Then, determine the table tilt needed to elevate the border around the center circle. Tilt the left side of the saw table down 3° (or tilt the saw head down 3° to the right if you use an Excalibur saw), and cut a small circle in the scrap wood. Push the circle down into the surrounding wood. The circle should stop about $\frac{1}{4}$ " (6mm) from the top. Adjust the angle in 0.5° increments until the circle fits correctly. To make the circle sit deeper, reduce the angle of the table. To make the circle sit more shallowly, increase the angle of the table. To see a video of this process, visit <http://bit.ly/17o6Sau>.

Thread the blade through the blade-entry hole and cut the inner circle in a clockwise direction, following the arrow on the pattern. Check the fit of the inner circle within the border, set it aside, and then return the saw table (or head) to level.

Use a router and round-over bit to round the top outer edge of the plate and the top edge of the circular hole in the center. Do not round the bottom edge of the center hole or either edge of the center piece.

Cut the frets with a #2/0 reverse-tooth blade. Then, with the bit you used to drill the holes in the figures, drill $\frac{3}{8}$ " (10mm)-deep holes in the border of the plate to correspond with the holes in the figures. Do not drill through the plate.

Finishing the Project

I apply a coat of mineral oil to the pieces to accent the natural wood grain, but any oil finish will work. Apply the oil, allow it to soak in for a few minutes, wipe off the excess, and let the oil set for 24 hours. Seal the pieces with lacquer or shellac, and then apply several light coats of varnish or lacquer. Hand-sand lightly with 400- to 600-grit sandpaper before the last coat. Remove the dust before applying the final coat, and allow the finish to dry completely.

Run a thin bead of glue around the bottom of the circular hole in the center of the tray. Gently press the circle piece into the hole, and use a damp rag to wipe away any glue. Allow the glue to dry thoroughly. While the glue joint will not be as strong as it would be if you had glued bare wood to bare wood, it will be strong enough for this project. Dry-fit the figures into the tray, trimming the dowels so the figures rest on the top of the tray. I leave the figures unglued so I can remove them and store the tray flat.

Caution: Never allow children or pets near burning candles, and never leave burning candles unsupervised. Consider using a battery-operated candle.

Materials & Tools

Materials:

- Maple, $\frac{3}{8}$ " (10mm) thick: plate, $8\frac{1}{4}$ " x $8\frac{1}{4}$ " (209mm x 209mm)
- Maple, $\frac{1}{4}$ " (6mm) thick: angel, 2 each $2\frac{5}{16}$ " x $2\frac{1}{2}$ " (59mm x 64mm); star, $2\frac{7}{8}$ " x $3\frac{5}{8}$ " (73mm x 92mm); cradle, $1\frac{1}{4}$ " x $1\frac{1}{8}$ " (32mm x 41mm)
- Wood glue
- Finish, such as mineral oil and Deft clear

Tools:

- Blades: #2/0 reverse-tooth, such as Olson; #3 reverse-tooth, such as Olson Mach series
- Drill press with bits: $\frac{1}{8}$ " (3mm) brad-point, $\frac{3}{32}$ " (2.5mm) brad-point, assorted
- Random orbital sander
- Router or laminate trimmer with bit: $\frac{1}{4}$ " (6mm)-radius round-over

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Sheila Bergner-Landry grew up in the Chicago area and began her woodworking and painting career when her daughter Danielle was born, more than 20 years ago. A friend, Cari Denison, introduced her to scroll sawing. Sheila relocated to Nova Scotia, Canada, where she has found new inspiration for designs. For more of her patterns, call 902-482-7174 or visit www.sheilalandrydesigns.com.

Patterns for the **GLORIA CANDLE TRAY** are in the pattern pullout section.



Icicle Ornaments

Create delicate-looking designs with a simple compound-cutting technique

By Sue Mey
Cut by Leldon Maxcy

Bring the beauty of winter indoors with these compound-cut icicle ornaments. You can paint, stain, or dye the wood, or leave it natural and finish it with clear gloss to reflect the lights of your holiday tree.

To give the ornaments a unique look, glue up a blank using an assortment of $\frac{1}{4}$ " (6mm)- to $\frac{3}{8}$ " (10mm)-thick pieces of different colored types of wood. Sand the blank so the edges are square before attaching the pattern. Your icicles will be striped or swirled.

Getting Started

For straight blade-entry holes and neat inside cuts, the blocks must have perfectly straight edges at a 90° angle to each other. I cut the stock slightly oversized and use a disc sander to sand it to 1 $\frac{1}{4}$ " by 1 $\frac{1}{4}$ " (32mm by 32mm), but you could also use a table saw.

Fold the patterns on the dotted lines. Cover the blanks with masking tape and use spray adhesive or a glue stick to attach the patterns. Use a drill press to drill $\frac{1}{8}$ " (3mm) blade-entry holes and use a utility knife blade or sandpaper to remove the rough edges around the drilled holes. For an easier ornament, eliminate the smallest frets.

Cutting the Pieces

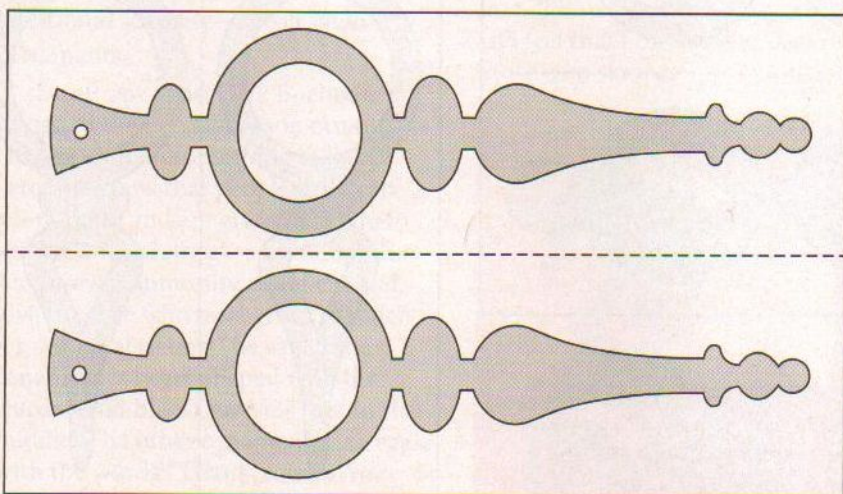
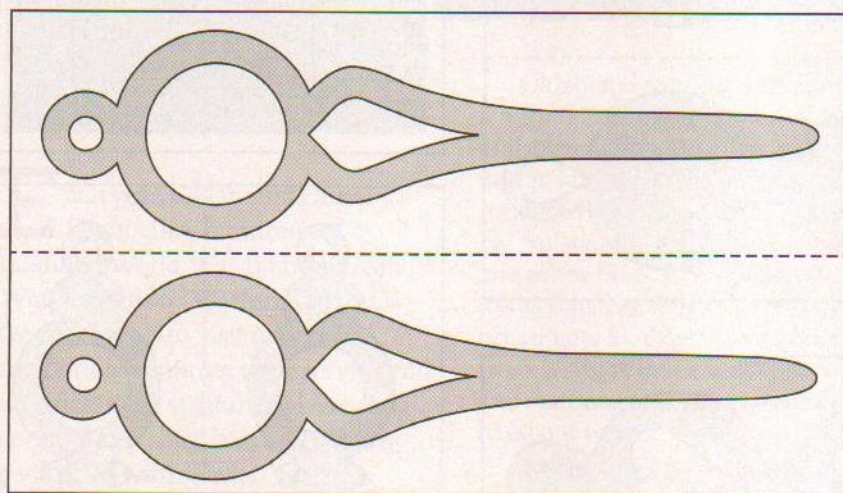
Cut the frets on both sides of the ornament. Then, on one side, drill a blade-entry hole in a waste area and make a single, uninterrupted cut along the perimeter. Vacuum away the dust and wrap clear packaging tape around the block to hold the cut piece in place. Rotate the blank, drill a blade-entry hole, and cut the second perimeter. Remove the waste pieces.

Finishing the Ornaments

Clean the frets with needle files or sandpaper if needed. Sand the pieces with 320-grit sandpaper. Remove all of the sanding dust using a hard-bristled paintbrush. Use a medium-sized artist's brush to apply deep penetrating furniture wax or Danish oil to the ornaments. Place them in the sun to dry, and wipe all the surfaces with a dry, lint-free cloth to remove any residue. Apply several thin coats of clear spray varnish. Allow the varnish to dry thoroughly and sand with 600-grit sandpaper between coats. Thread string through the top hole of the ornaments. If you chose not to cut the small frets in the top section, drill a small hole in the top center of each ornament and insert a screw eye for hanging.



Icicle ornament patterns



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Materials & Tools

Materials:

- Wood, 1¼" (32mm) thick: 1¼" x 4¾" (32mm x 111mm)
- Temporary-bond spray adhesive or glue stick
- Tape: masking; clear packing
- Sandpaper
- Deep penetrating liquid furniture wax or Danish oil
- Lint-free cloth
- Clear spray varnish
- Thread or string
- Small screw eyes (optional)

Tools:

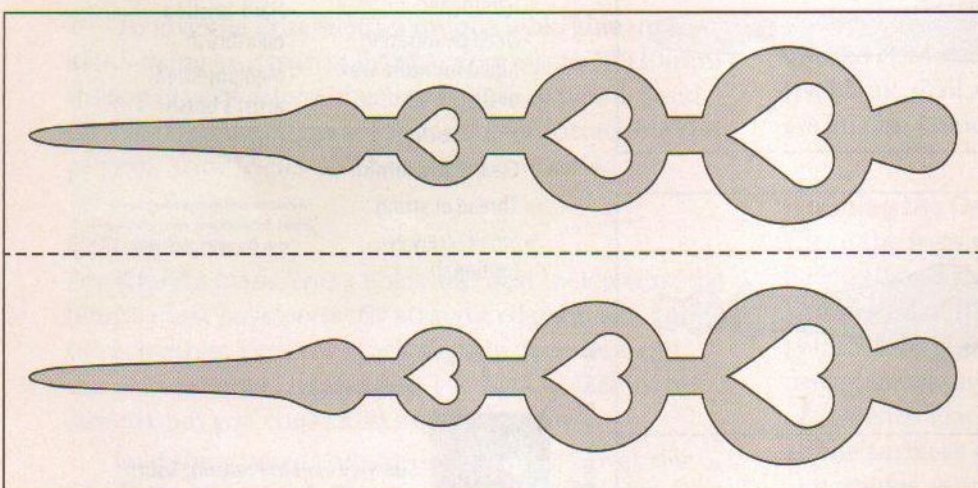
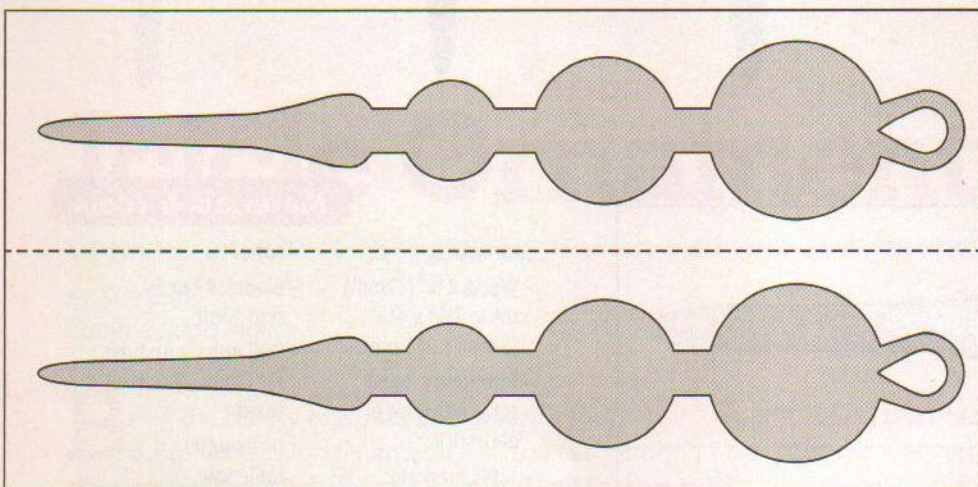
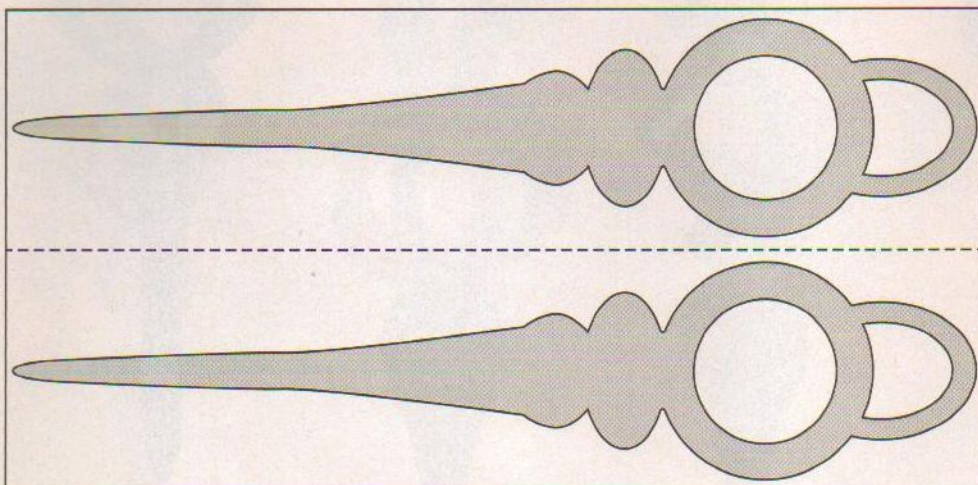
- Blades: #7 or #9 skip-tooth
- Drill press with bits: ⅛" (3mm), assorted small
- Disc sander or table saw
- Needle files
- Hard-bristled paintbrush
- Medium-sized artist's brush
- Utility knife blade

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



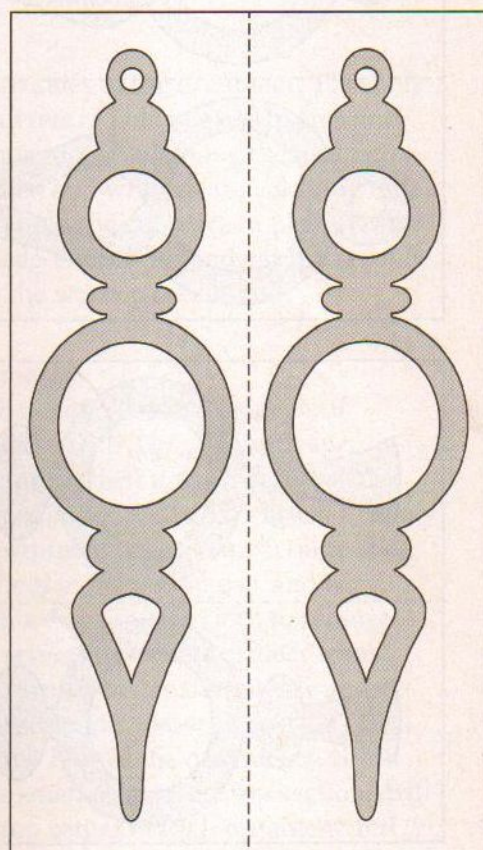
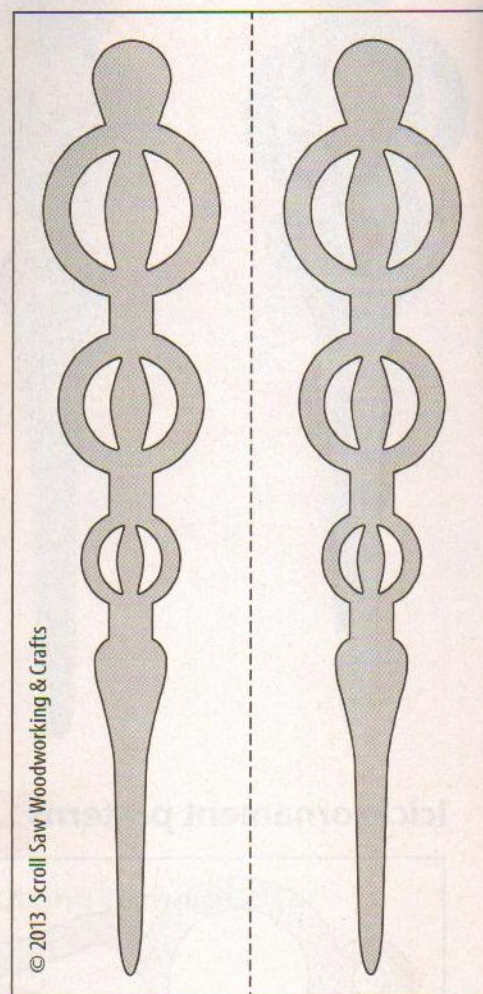
Sue Mey lives in Pretoria, South Africa. To see more of her work, including a variety of patterns, special offers, and pattern-making tutorials available for purchase, visit www.scrollsawartist.com. Contact Sue at suem@storage.co.za. Her first pattern book, *Lighted Scroll Saw Projects*, is available from www.schifferbooks.com and other outlets.

Icicle ornament patterns

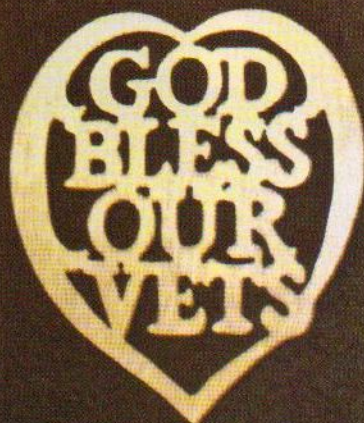
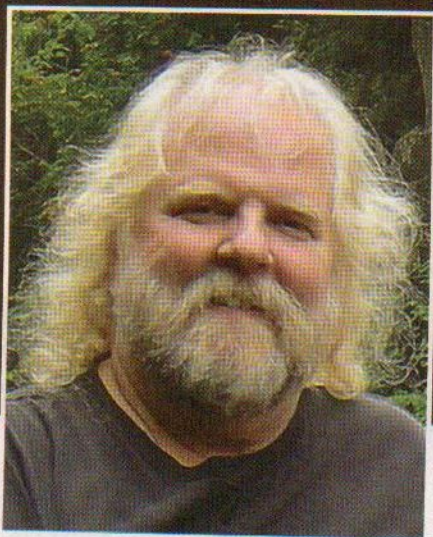


Additional patterns for
ICICLE ORNAMENTS are in the
pattern pullout section.

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Veteran Ornaments on Honor Flight



Wisconsin scroll saw artist Dirk Boelman honors veterans

By Kathleen Ryan

Each year, Oklahoma Honor Flights flies hundreds of qualified World War II and Korean War veterans to Washington, D.C., free of charge, to visit national memorials honoring their service and sacrifice. Each veteran is given a bag containing a shirt, hat, and a fanny pack filled with snacks. Veterans aboard a recent flight received an additional surprise—scroll sawn ornaments.

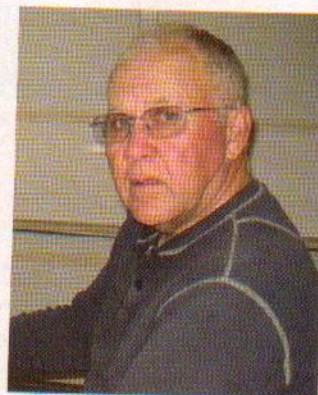
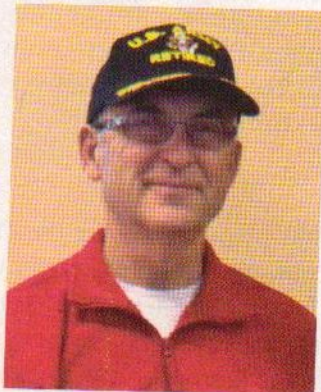
Scroll saw artist Dirk Boelman designed the two all-season ornaments. "I wanted to do something to let veterans know that people truly care about them and are grateful for their service and sacrifice—something the scroll saw community could cut and give to those who have given so much for our great nation," he said. One ornament is heart-shaped with the words "God Bless Our Vets" cut in the middle. The other ornament is an eagle with the words "Thank You for Your Service."

Oklahoma resident Ken Younkin, a retired U.S. Army Reserve colonel and cutter for the Portrait Freedom group, jumped at the opportunity to produce these meaningful ornaments. He enlisted the help of fellow scroller and retired U.S. Army Reservist Ed John. Together they made nearly 200 ornaments for this project, mostly cut from 1/8"-thick Baltic birch plywood, and continue to make even more to hand out to vets.

"My dad was on the beach at Normandy during World War II," Ed said. "I love supporting the military and feel that I owe a great debt to those who served."

As an official volunteer guardian for Honor Flights, Ken handed the ornaments to vets during the flight and at the monuments. "We as a nation are losing somewhere in the neighborhood of 1,000 of these wonderful heroes every day. This is our way of thanking them," Ken said.

Dirk offers his veterans' ornaments patterns free to scrollers. To receive a copy, e-mail Dirk Boelman at dirkdraws@centurytel.net or send a self-addressed stamped envelope to Vet Ornaments Patterns, c/o Fox Chapel Publishing, 1970 Broad St., East Petersburg PA 17520.



Retired U.S. Army Reservists Ken Younkin (left) and Ed John (right), scrolled hundreds of Dirk's veteran ornaments to give to Honor Flight participants.

Letter Opener Gift Sets



**Mix and match
colorful hardwoods
for a custom look**

By Cindy Vincett

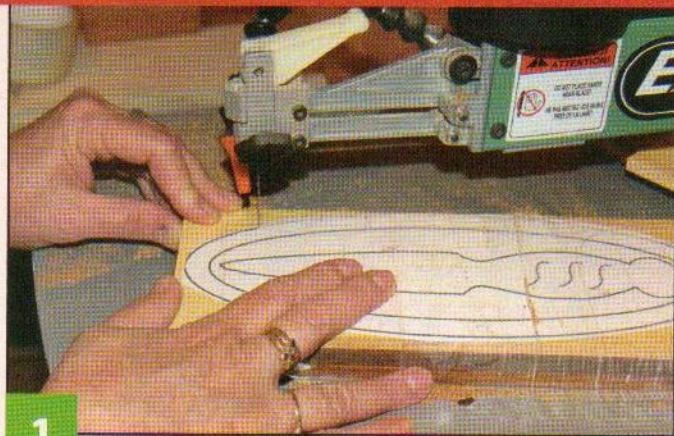
My dad was an executive in a major company. I remember as a child seeing elegant pen and pencil sets sitting on his desk. We are now in an era where the desk blotter and pen and pencil sets have been replaced with computers, but we still get traditional mail. After the fifth time I cut a finger opening envelopes, I came up with the idea for these elegant-looking letter openers with custom cases.

These are quick and easy to make. Use my letter opener patterns or combine the case pattern with other letter openers simply by resizing the patterns. I suggest cutting two sets at a time so you can mix and match wood types for contrasting results.

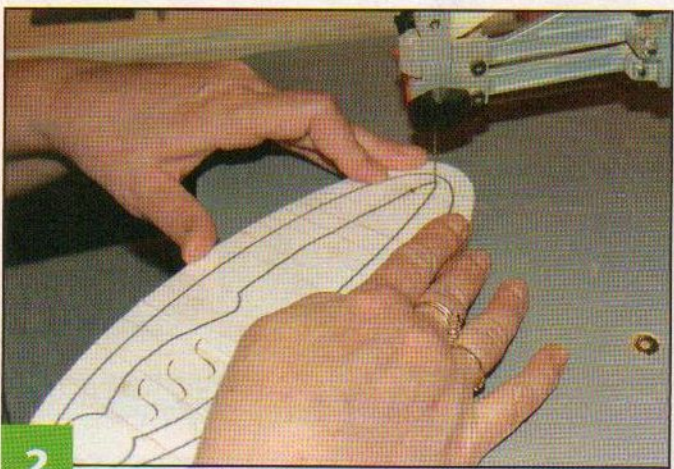
Getting Started

Make two copies of the pattern, keeping the original for future use. Prepare the blanks and stack them in two groups of three. Put the hardwood that will become the actual letter opener at the top of each stack. Secure the stack and attach the pattern (see page 78 for methods). Check that the blade is square with the saw table.

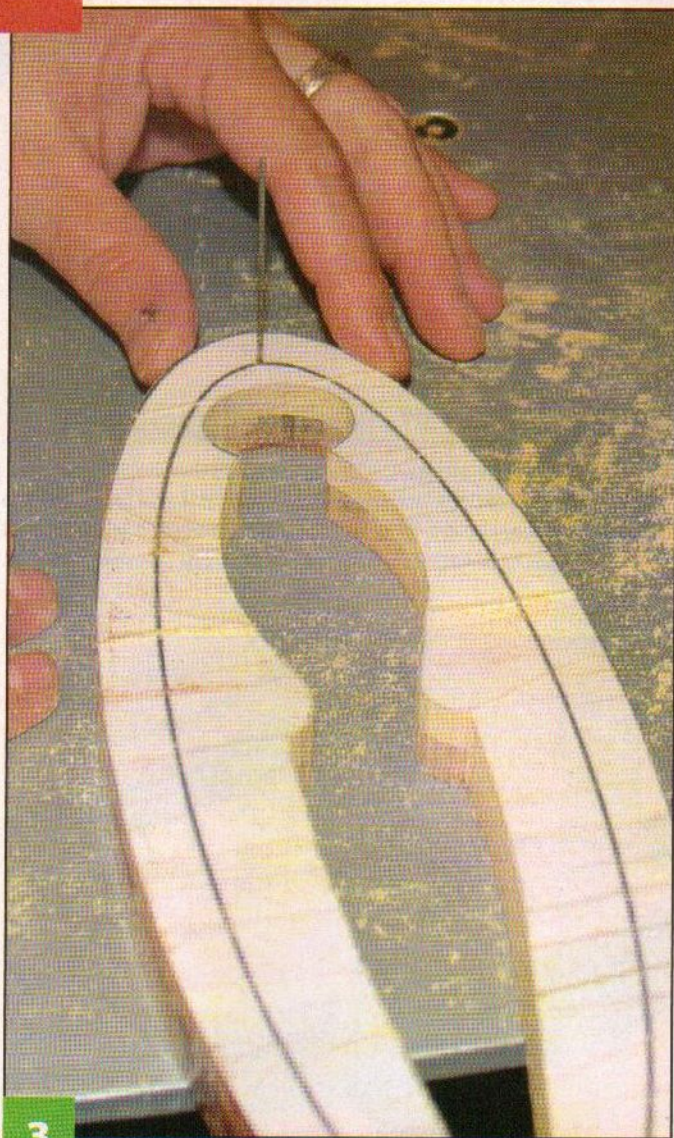
LETTER OPENER: CUTTING THE PIECES



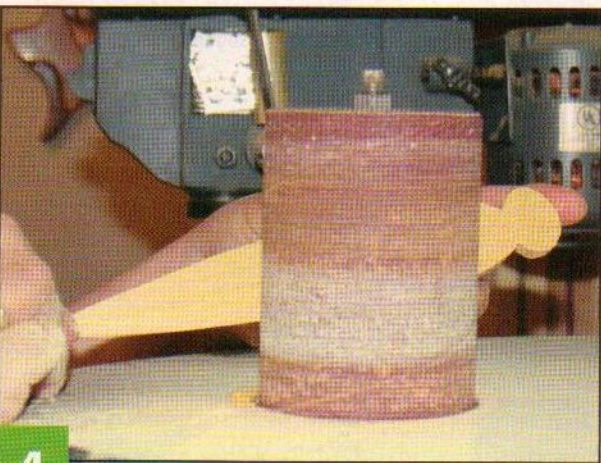
1 **Make the first cut.** Cut around the outside ring of each stack. Separate the stacks and set the two bottom pieces of each stack aside for the box lids and bottoms. Remove the tape and pattern from one of the top pieces and stack the two letter opener pieces together.



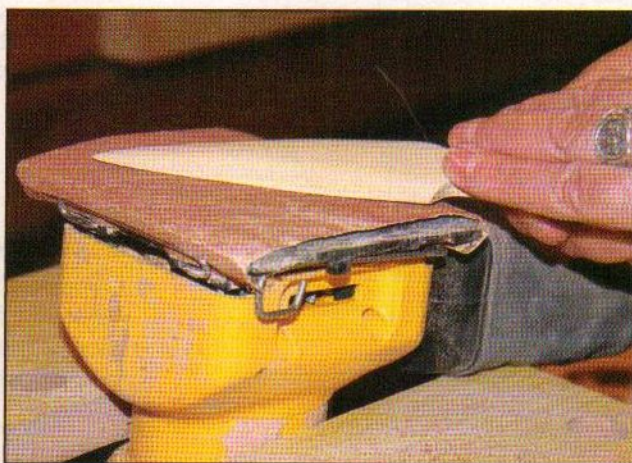
2 **Cut the letter openers.** Drill blade-entry holes with a $\frac{1}{32}$ " (1mm) bit. Cut the frets in the handle first. Then, cut around the perimeter of the letter opener.



3 **Cut the inner ring.** Cut carefully along the inner ring. Remember, these pieces must fit together later. Mix and match the pieces to determine the color combination you want.



4 **Sand the letter opener.** Use 80-grit sandpaper in a belt or spindle sander (above, left) to shape the letter opener. Make equal strokes on both sides to keep the blade balanced. You could also use a palm sander clamped in a vise (above, right).



LETTER OPENER: ASSEMBLING THE CASE



5

Prepare the pieces. Put the openers into their holders and then place the box pieces in order from left to right: box lid, with the inside of the lid facing down; lid ring, with the glue side up; letter opener holder, with the glue side up; and the box bottom, with the glue side up. Sand all of the pieces smooth with 120-grit and then 220-grit sandpaper.



6

Glue together the pieces. Apply glue to the top of the lid ring. Align the top of the ring with the bottom of the lid and clamp it in place. Allow the glue to dry. Apply glue to the bottom of the letter opener holder and place it on the top of the box bottom (do not glue the letter opener). Use the lid to align the holder, carefully remove the lid, and clamp the holder in place until the glue dries.



7

Sand the edges of the box. Place the lid on the box, and sand the edges flush and remove any glue squeeze out. I use a spindle sander to sand grooves into the top of the lid for additional texture. Then, apply your choice of finish; I suggest natural Danish oil or a spray lacquer.

Additional pattern for the
LETTER OPENER GIFT SETS is
in the pullout section.

Materials & Tools

Materials:

(To make two sets)

- Tigerwood, 1/4" (6mm) thick:
3 each 3 1/2" x 8 1/2" (89mm x 216mm)
- Yellowheart, 1/4" (6mm) thick:
3 each 3 1/2" x 8 1/2" (89mm x 216mm)
- Wood glue
- Clear packing tape
- Spray adhesive
- Sandpaper: 80, 120, 220 grits

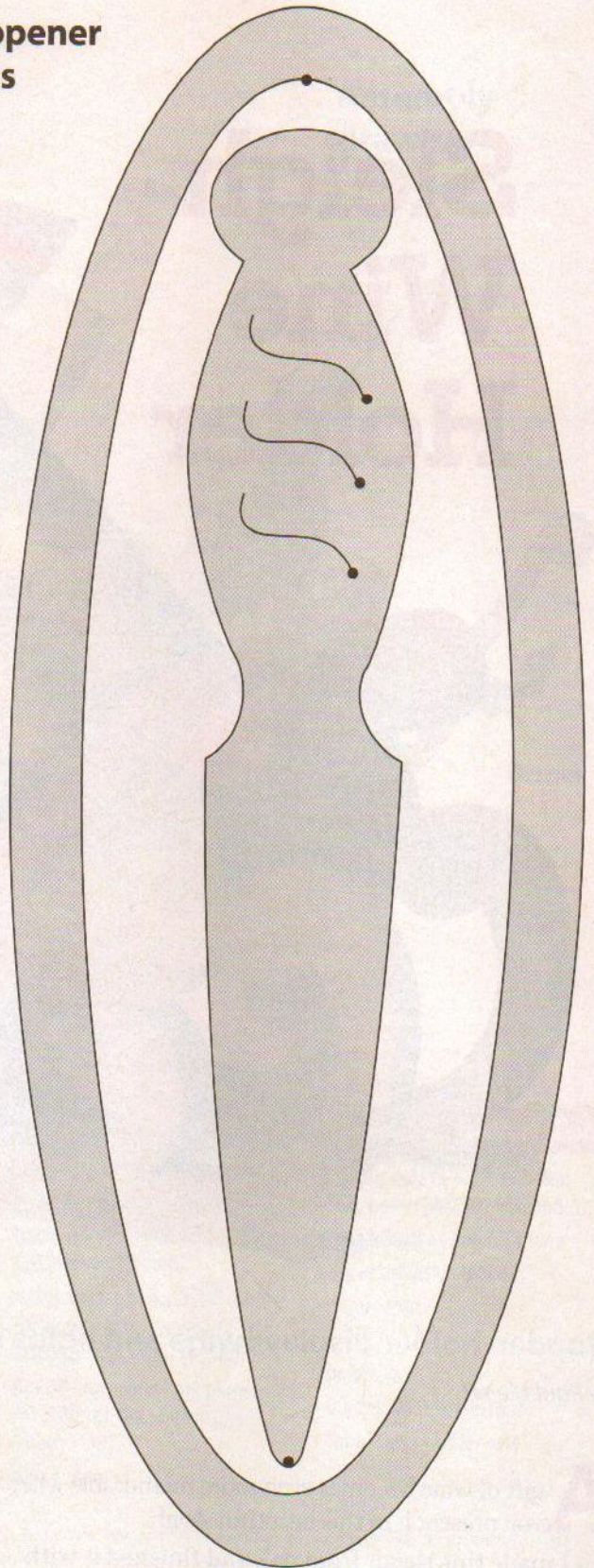
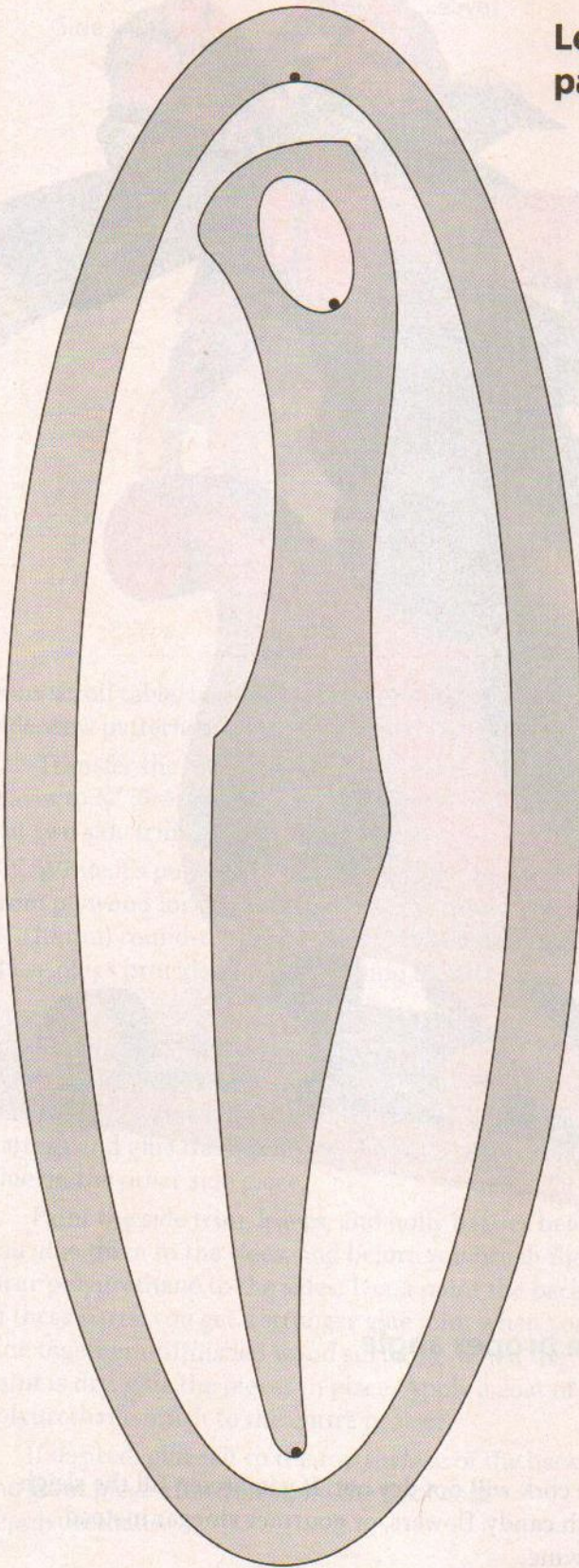
- Finish: natural Danish oil or spray lacquer

Tools:

- Blades: #5 reverse-tooth
- Drill with bits: 1/32" (1mm)
- Sander: oscillating spindle or vibrating palm

The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.

Letter opener patterns



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Cindy Vincett has been scrolling for about 10 years; she started when simple curiosity about a scroll saw in her dad's garage got the best of her. Cindy began with simple projects, moved on to advanced scenic patterns, and eventually began designing her own patterns. Currently she is experimenting with combining the tradition of the scroll saw with the modern wonder of 3-D CNC carving, with some pretty interesting results.

Sleigh Wine Holder



Wooden holder displays wine and holds it at the proper angle

By Paul Meisel

A gift of wine becomes even more memorable when you present it in this beautiful sleigh.

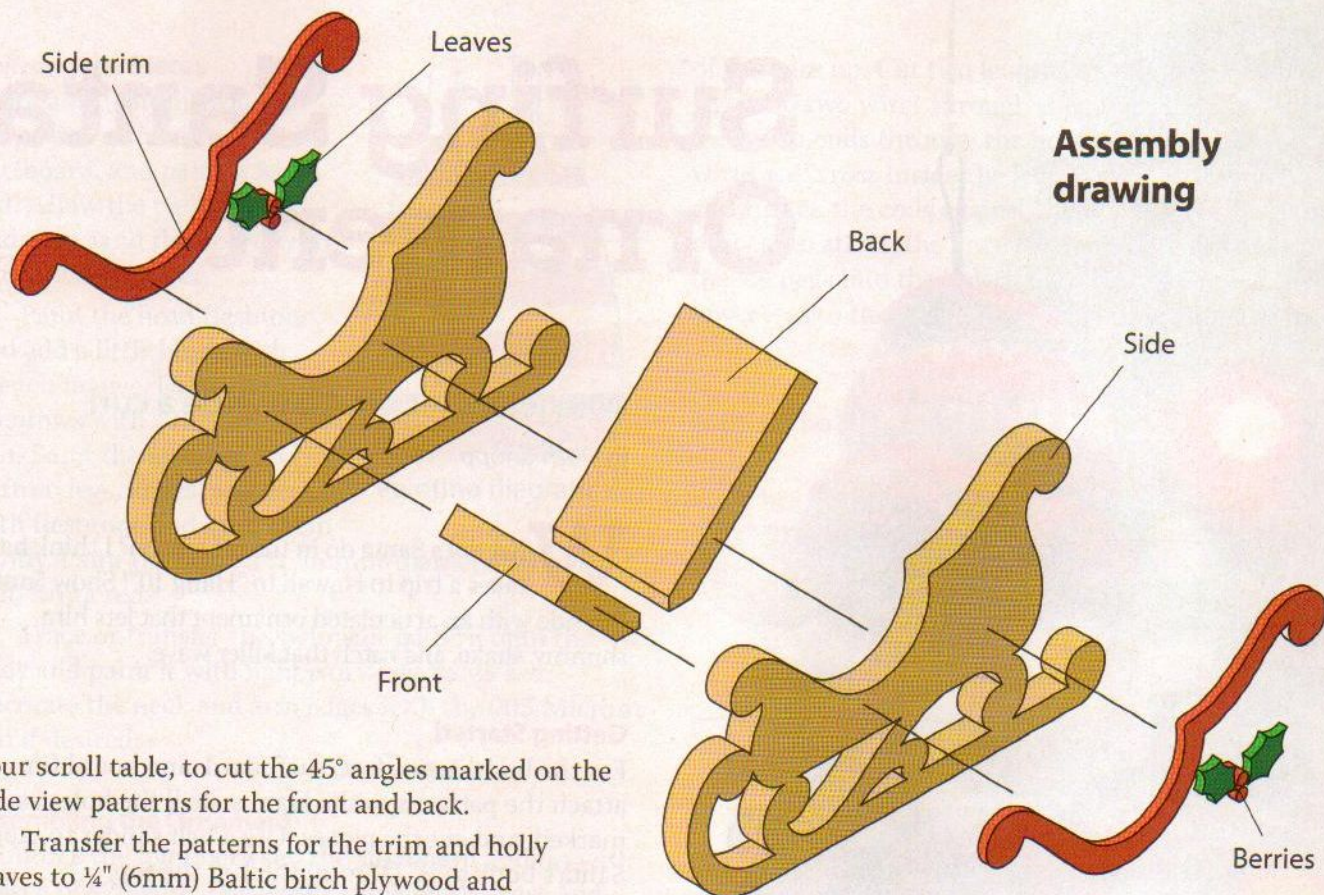
I made this sleigh from oak and finished it with polyurethane to bring out the richness of the wood. The plywood side trim is painted, which provides welcome contrast and aesthetic balance.

The finished project measures 12½" long with an inside width of 3½", which will accommodate most wine bottles. Because the wine bottle rests at an angle,

the cork will not dry out. If you prefer, fill the sleigh with candy, flowers, or gourmet vinegar instead of wine.

Cutting the Pieces

Attach the sleigh patterns to the appropriate blanks and cut the pieces. The front and back are 3½" (89mm) wide, but you can make them wider to accommodate larger wine bottles. Use a table saw or miter saw, or tilt



Assembly drawing

your scroll table, to cut the 45° angles marked on the side view patterns for the front and back.

Transfer the patterns for the trim and holly leaves to ¼" (6mm) Baltic birch plywood and cut two side trim pieces and four leaves.

While it's possible to cut four ⅜" (10mm) circles from plywood for the holly berries, I prefer to use ⅜" (10mm) round-top screw plugs. The smooth top of these plugs provides a nice finishing touch.

Assembling the Sleigh

Position the front and back pieces on one of the side pieces as shown by the marks on the side piece pattern and glue them in place. After the glue dries, glue on the other side piece.

Paint the side trim, leaves, and holly berries before you glue them to the sides, and before you brush the clear polyurethane to the sides. Don't paint the backs of these parts; you get a stronger glue joint when you glue together unfinished wood surfaces. When the paint is dry, glue the pieces in place. Apply a coat of polyurethane finish to the entire project.

If desired, glue felt to the top surface of the back and front piece after you apply the final coat of polyurethane.

Patterns for the **SLEIGH WINE HOLDER** are in the pattern pullout section.

Materials & Tools

Materials:

- Oak, ¾" (19mm) thick: front, back, sides, 8" x 48" (203mm x 1219mm)
- Baltic birch plywood, ¼" (6mm) thick: side trim, leaves, 12" x 12" (305mm x 305mm) (#9560)*
- Round-top screw hole plugs, ⅜" (10mm)-dia.: berries, 4 each (#1472)*
- Wood glue

- Acrylic paints, such as Delta: red, green (#02507, #02068)*
- Finish such as polyurethane
- Spray adhesive (#1447)*
- Sandpaper

Tools:

- Blades: #5 reverse-tooth
- Table saw or miter saw (optional)
- Clamps

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

SPECIAL SOURCES:

The parts marked with an asterisk above are available from Meisel Hardware Specialties. To order parts or to request a catalog, contact Meisel Hardware Specialties, P.O. Box 70, Mound, MN 55364-0070; 1-800-441-9870; www.meiselwoodhobby.com



Paul Meisel of Mound, Minn., has designed more than 3,000 woodworking plans. For more ideas of what to build, to order parts, or to request a catalog, contact Meisel Hardware Specialties, 1-800-441-9870; www.meiselwoodhobby.com.

Surfing Santa Ornament

Wire joints let Mr. Claus ride a curl

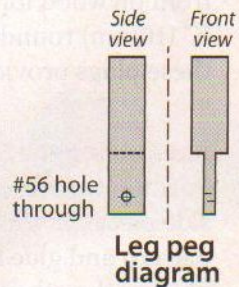
By Ruth Chopp

What does Santa do in the off-season? I think he takes a trip to Hawaii to "Hang 10"! Show Santa's fun side with an articulated ornament that lets him shimmy, shake, and catch that killer wave.

Getting Started

For the body, arms, feet, surfboard, and board fin, attach the patterns to the blanks, drill the holes as marked, and cut the pieces. Use a belt sander to taper Santa's body to $\frac{1}{2}$ " (13mm) thick at the top.

For the legs, cut two each top legs and bottom legs and drill the holes as marked. Use a $\frac{1}{16}$ " (2mm) bit to drill a hole through the center of two $\frac{3}{8}$ " (10mm)-diameter wooden balls for the knees. Then, cut two pieces of $\frac{3}{16}$ " (5mm) dowel to a length of $1\frac{1}{16}$ " (20mm). Cut each piece of dowel as shown in the diagram and then use a #56 wire bit to drill a hole through each of the resulting pegs.



For the head, drill the following holes in a $\frac{7}{8}$ " (22mm)-diameter wooden ball: for the top hanger, use a #56 bit and drill $\frac{1}{2}$ " (13mm) deep; for the neck, use a $\frac{3}{16}$ " (5mm) bit and drill $\frac{1}{2}$ " (13mm) deep; for the nose, use a $1\frac{5}{64}$ " (6mm) bit and drill $\frac{3}{16}$ " (5mm) deep, slightly below center; for the eyes, use a #60 bit and drill $\frac{1}{4}$ " (6mm) deep, just above the nose.

Sand all of the pieces with 120-grit sandpaper.



Painting the Pieces

Mark a $\frac{1}{2}$ " (13mm)-wide stripe down the center of the surfboard, and paint it Santa red. Allow the paint to dry, and then sand the board with 120-grit sandpaper.

Paint the head fleshtone and add a little blush with French mauve. Draw the eyebrows with a 005 Micron pen. Paint the feet, top and bottom legs, knees, and arms with fleshtone and sand them lightly. Paint the nose, a $\frac{1}{4}$ " (6mm)-diameter wooden ball, Santa red.

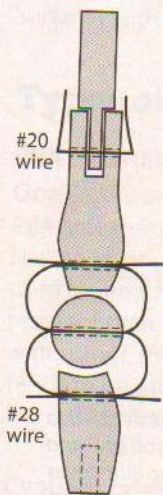
Trace or transfer the swimsuit pattern onto the body and paint it with light ivory and Santa red. Decorate the neck and arm edges with the 005 Micron pen if desired.

Assembling the Ornament

Reinforce the joint between the surfboard and fin with a piece of #20 wire. Use jewelry glue on the wire and wood glue on the edge of the fin that joins with the surfboard.

For the eyes, cut off the ends of two pins with black heads, leaving the pins about $\frac{3}{16}$ " (5mm) long. Glue the nose and eyes in place. Then, glue the neck to the head and body.

To attach the arms to the body, cut a length of #20 wire. Feed it through one arm, the body, and the other arm, making sure the hands face opposite directions. Roll each end into a coil and flatten the coils against the shoulders.



Leg assembly diagram

Cut two $\frac{3}{4}$ " (19mm)-long pieces from the center of a round toothpick. Fit one end of each toothpick into the holes in the feet. Dab some wood glue onto the bottoms of the feet, position them on the surfboard, and push the toothpicks through the feet and into the holes in the surfboard. Trim the protruding toothpicks to $\frac{3}{16}$ " (5mm). Spray the surfboard and attached feet, as well as the rest of the unattached pieces, with matte spray and let them dry.

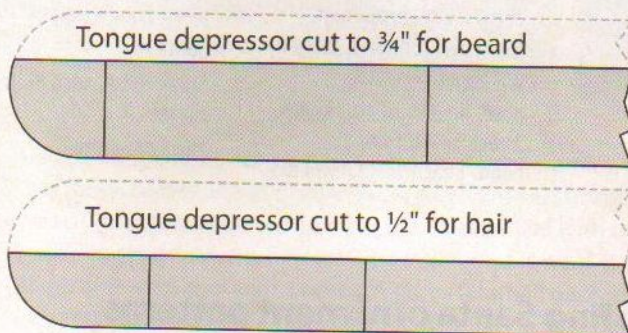
Insert the tab on each leg peg into the slot in each top leg. Cut two short lengths of #20 wire. Thread the wires through the holes and bend the ends



Painting diagram

of the wire up. Cut two lengths of #28 wire for each leg. Feed two wires through each knee ball, and then feed both ends through the hole in the top leg (the wires will cross inside the leg). Roll the ends into coils and flatten the coils against the top leg. Use the same process to attach the knee to the lower leg. Then, glue the leg pegs into the holes in the body, and glue the lower legs to the toothpicks protruding from the feet.

Making the Beard and Hair



Cut a wide tongue depressor to the shapes shown above. Wrap yarn close together around the depressor between the vertical lines. Hand-stitch the yarn together along one side. Slide the loops off the depressor and use hot glue to attach it under the Santa's nose and in a curve up to eye level. Use the thinner pattern to shape the other tongue depressor and use the same process to make the hair. Use hot glue to attach the hair around the back of the head.

Making the Hat

To knit the hat, cast on 20 stitches using two-ply red yarn. Do ten rows of stockinette stitch (alternate knit and purl rows). Then, tie on white yarn and knit two rows of white. Knit two rows of red, and then knit two more rows of white. Knit two final rows of red and bind off the yarn. Sew the back center seam together and turn up the hat cuff. Hot-glue the cuff to Santa's head. Insert the two ends of the #24 wire into the hole in Santa's head with jewelry glue. Insert stuffing into the hat, tamping it down to fill out the hat. Use fishing line to tie the hat closed around the wire and clip off the excess fishing line.

To make the hat from fabric, cut a 2" by 4" (51mm by 102mm) rectangle of fabric. Fold it in half with the right sides together and stitch the side parallel to the fold, forming a tube. Turn the hat right side out. Fold one end up $\frac{1}{4}$ " (6mm), and then fold it over again. Hot-glue the cuff to Santa's head and continue as above to add the wire hanger, stuff the hat, and tie it closed.

Materials:

- Pine, $\frac{3}{16}$ " (5mm) thick: surfboard, $1\frac{1}{2}$ " x 4" (38mm x 102mm)
- Pine, $\frac{3}{4}$ " (19mm) thick: body, $1\frac{1}{4}$ " x 2" (32mm x 51mm)
- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: surfboard fin, $\frac{1}{2}$ " x $\frac{3}{4}$ " (13mm x 19mm)
- Baltic birch plywood, $\frac{1}{4}$ " (6mm) thick: top legs, bottom legs, arms, feet, $1\frac{1}{2}$ " x $6\frac{1}{4}$ " (38mm x 159mm)
- Wooden balls: nose, $\frac{1}{4}$ " (6mm) dia.; knees, 2 each $\frac{3}{8}$ " (10mm) dia.; head, 1 each $\frac{7}{8}$ " (22mm) dia.
- Dowel, $\frac{3}{16}$ " (5mm) dia.: 2" (51mm) long
- Glue: jewelry, wood, hot glue sticks
- Tongue depressors: 2 each wide
- Wire: #20, #24, #28
- Acrylic paint, such as Delta Ceramcoat and DecoArt Americana: fleshtone, light ivory, French mauve, Santa red
- Spray finish, such as Krylon: matte
- Yarn: off white

- Hat-making supplies: red yarn OR scrap of fabric
- Stuffing
- Fishing line
- Sewing pins: 2 each with black heads
- Toothpicks, round wooden: 2
- Sandpaper: 120 grit
- Micron pen: 005 black

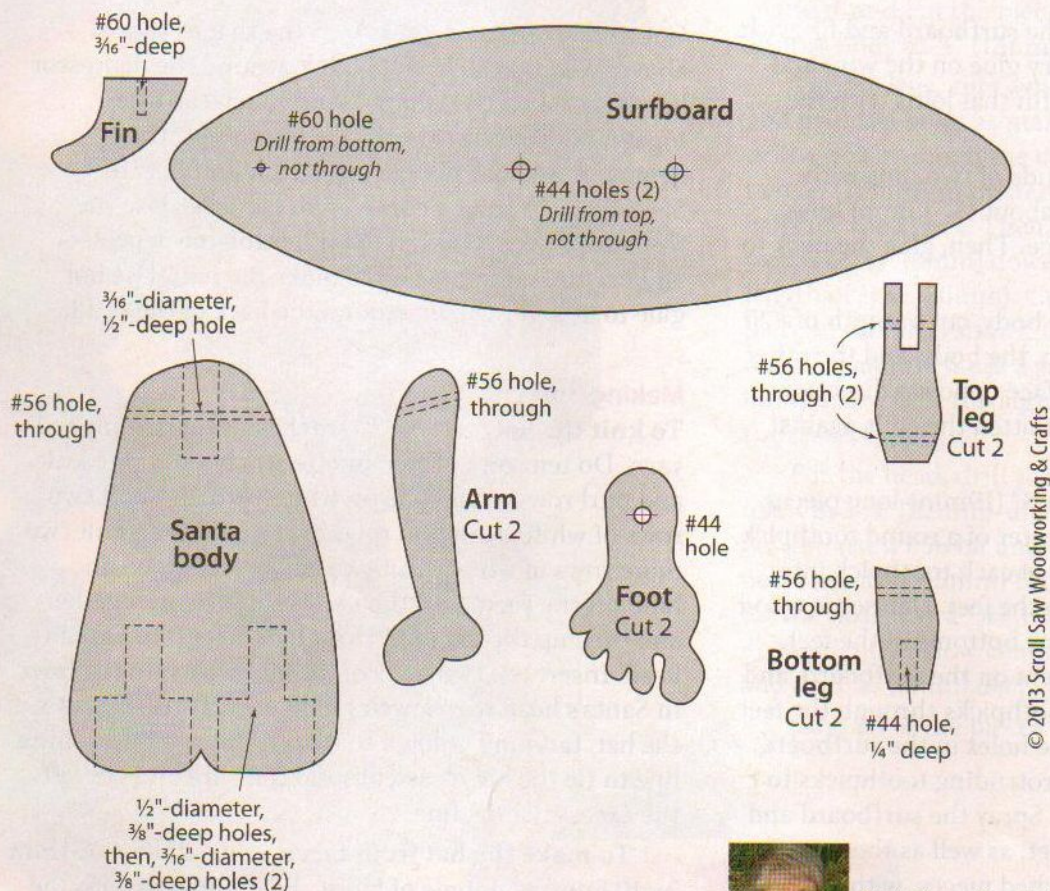
- Blades: #3 reverse-tooth
- Knitting needles: size one (optional)
- Paintbrushes
- Pliers
- Thread and needle
- Belt sander
- Wire cutters
- Hot glue gun

Tools:

- Drill with bits: $\frac{1}{16}$ " (2mm), $\frac{3}{16}$ " (5mm), $\frac{1}{8}$ " (5.75mm) twist; $\frac{1}{2}$ " (13mm) Forstner; #44, #56, #60 wire size

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Surfing Santa ornament patterns



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Ruth Chopp began her career as a home economics teacher. When her children left home, she decided to try woodworking, noting that using a scroll saw and a sewing machine are really quite similar. Ruth loves wooden Christmas tree ornaments, so she designed her own; she now has about 300 patterns. Contact Ruth via e-mail at melchopp@comcast.net.

Gluing Wood Together

Choose the right glue for your wood and joint

By Bob Duncan



Two factors contribute to the success and longevity of a glue joint: the gluing process and the type of glue. For information on joints, see page 71. To explore the types of glue used in woodworking, read on.

The Gluing Process

Flat Surfaces and Clamping

Glue molecules bond only with wood, not with other glue molecules. The tighter the space between the boards, the stronger the joint will be. Because smooth, flat pieces will fit together more tightly, make sure the wood is smooth and flat before joining. Use clamps when gluing to reduce the space even more. Apply enough glue to cover the surface, and clean up any squeeze-out before you finish the project.

Finishes and Oily Woods

Raw wood glues best to raw wood, so for the strongest glue joints, glue the pieces together before applying any finish, or use tape to mask off the areas that will be glued. Naturally oily wood, such as teak or ebony, does not bond well. Before applying glue to these types of wood, wipe the mating surfaces with acetone and quickly apply the glue and clamps.

Types of Glue

PVA Glue (Elmer's Wood Glue, Titebond I, Titebond II, Gorilla Wood Glue, Aleene's Tacky)

PVA glue makes a strong joint between two porous surfaces, like wood, and therefore is the most common adhesive used by woodworkers. Yellow wood glue is more water resistant than white wood glue, but none of these glues are waterproof. PVA glue is not good at filling gaps. Tacky glue tends to be thicker than wood glue, and it gets tacky faster, but it does not create as strong a bond.

Cyanoacrylate (CA) glue

- **Standard CA glue (Super Glue):** Cyanoacrylate glue lacks the strength of wood glue but dries much faster. This glue

was designed to bond everything from wood, ceramics, and fabric to metal and plastic. A CA glue bond is strong if you try to pull it apart (remember the commercial with the man dangling from his helmet?), but the bond is weak if you apply sideways pressure. Some CA glues fill small gaps, but you sacrifice strength for the gap-filling ability. Some newer CA glues have rubber mixed in to create a more flexible joint. CA glue can be a good choice for fretwork projects or to quickly connect pieces while stronger glue sets, as for intarsia projects.

- **Nexabond 2500:** A company called Bioformix has designed a new CA glue specifically for woodworking and claims this glue is stronger than white glue. Ordinary CA glue contains water, which causes wood to swell slightly when the glue is applied. As the wood dries, it shrinks. This expansion and contraction weakens the joint. Nexabond 2500 removes the water to eliminate the wood movement and make a tighter joint. It's comparable in price to other CA glues and sets up as fast. For more information, visit www.bioformix.com.

Polyurethane Glue (Original Gorilla Glue, Elmer's Polyurethane, Titebond Polyurethane)

Polyurethane glue uses moisture to activate a sticky foam joint. This glue fills gaps and is waterproof, but, according to a test by *Fine Woodworking* magazine, is not as strong as PVA glue. Polyurethane glue is also messier than PVA glue because you must apply water to the two surfaces and the glue creates foam as it cures. You must clamp these joints tightly; the foam can actually push the joint apart.

Epoxy and Silicone Glues (5-minute epoxy, JB Weld, Goop, E6000)

If you need to join wood with some other material, you have a gap to fill, or you need to join end grain with something, use silicone or epoxy. They are not as strong as other glues in tight joints, but they are much stronger when used on gaps, end grain, or non-porous material. Silicone glue often contains harmful chemicals and does not smell good. Most epoxies must be mixed before using.

Fantasy Puzzles

The fiction fans on your list will love these character puzzles

By Judy and Dave Peterson



With the popularity of fantasy movies lately, these three figures—a halfling, a dwarf, and a wizard—are sure to be hits as holiday gifts. Customize them with your wood selection or add personal touches with paint, stain, or dyes.

Cutting the Puzzles

After you attach the patterns to the blanks, cover the patterns with clear packaging tape to lubricate the blade and reduce the chance of scorching the wood. Drill any blade-entry holes required to cut the detail lines, such as the dwarf's eyes and facial details, as indicated on the pattern. Cut the puzzle pieces, and then sand them smooth. Use a flap sander to round the edges of the pieces slightly, and then finish them with clear Danish oil.

Materials & Tools

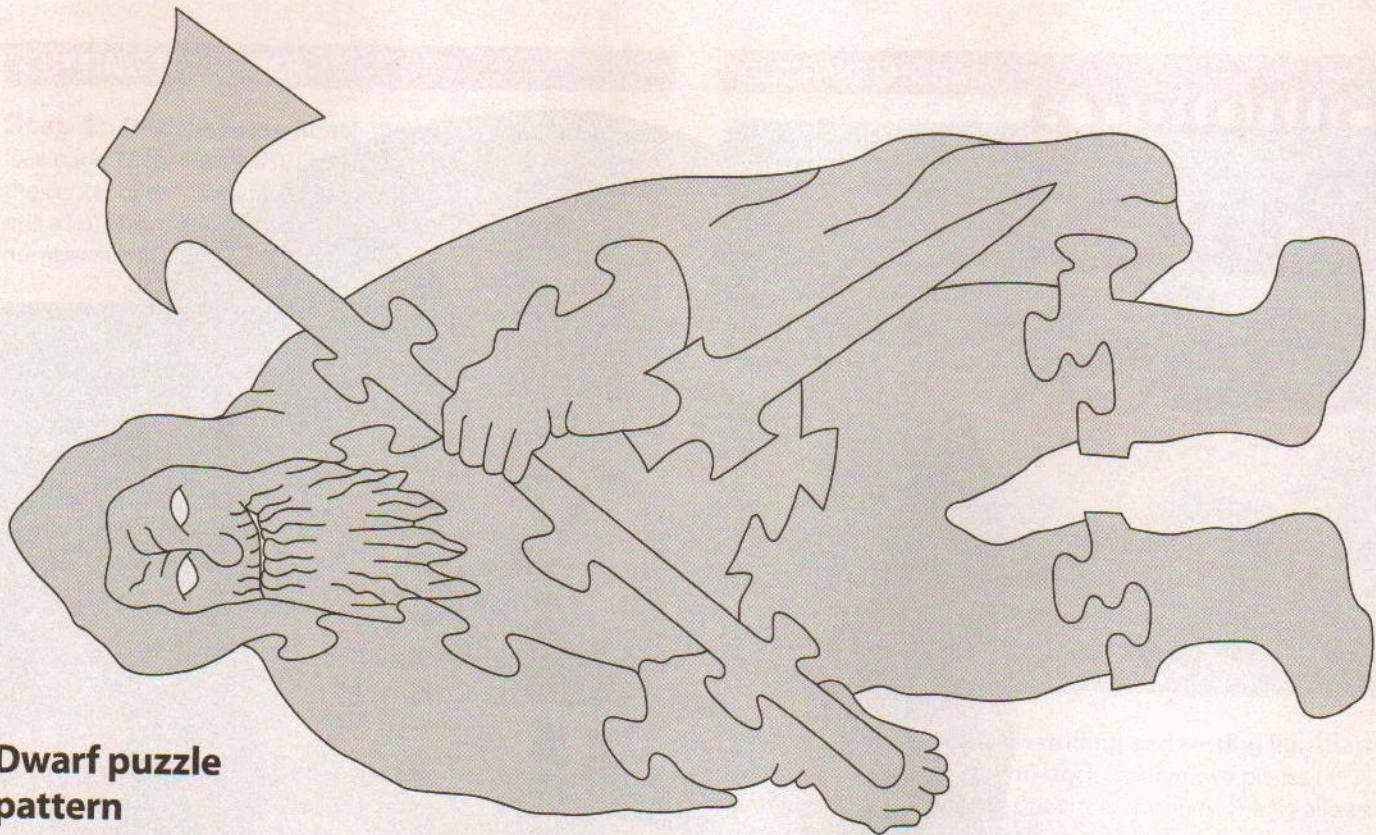
Materials:

- Cherry, 1" (25mm) thick: dwarf, 4½" x 7¼" (114mm x 184mm); halfling, 5¼" x 5½" (133mm x 140mm); wizard, 6¼" x 10" (159mm x 254mm)
- Spray adhesive
- Clear packaging tape
- Finish, such as clear Danish oil

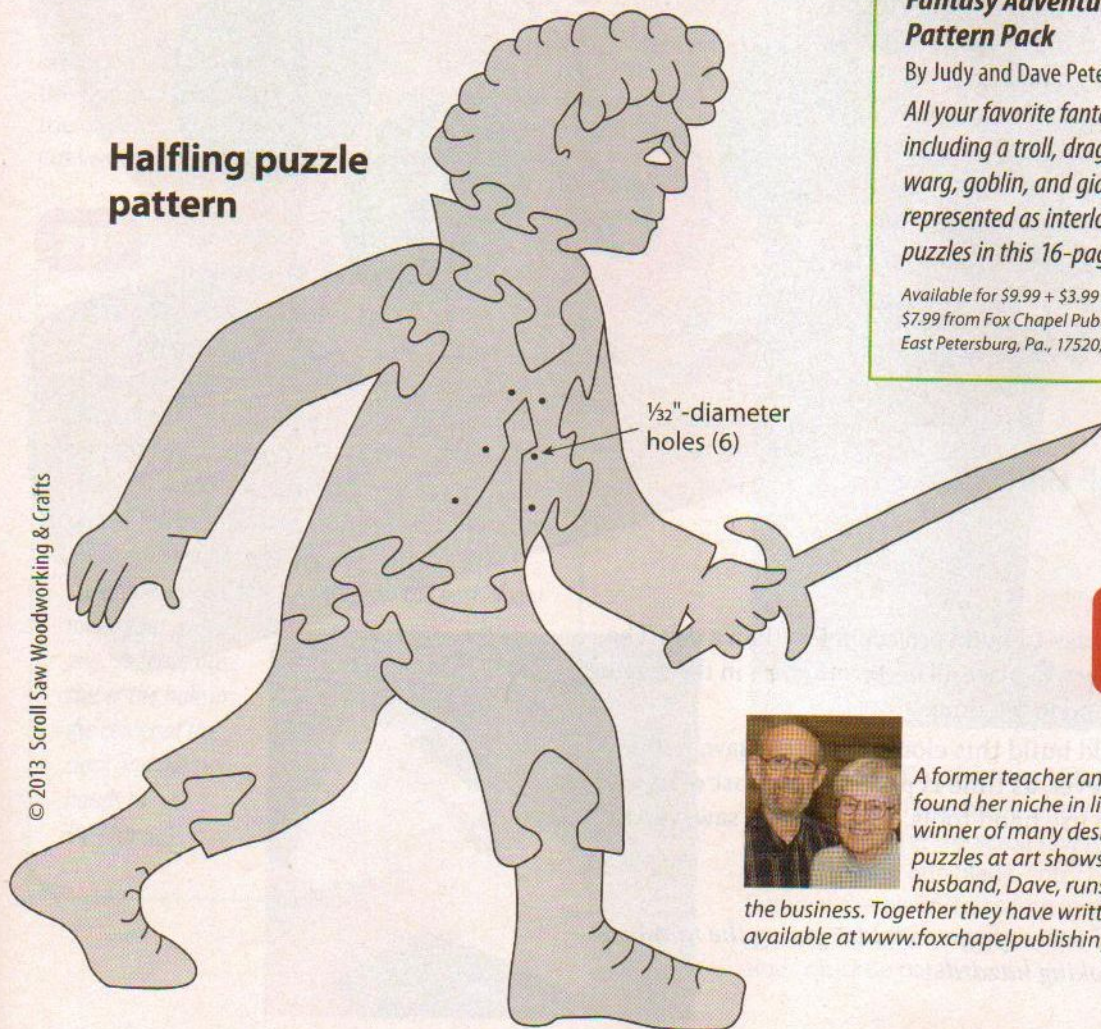
Tools:

- Scroll saw blades: #7 skip-tooth
- Sander (I use a drum sander)
- Flap sander
- Brushes
- Drill with assorted small bits

The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.



Dwarf puzzle pattern



Halfling puzzle pattern

$\frac{1}{32}$ "-diameter holes (6)

Further Reading

Fantasy Adventure Puzzles Pattern Pack

By Judy and Dave Peterson

All your favorite fantasy characters, including a troll, dragon, elves, warg, goblin, and giant spider, are represented as interlocking, upright puzzles in this 16-page booklet of full-sized patterns.

Available for \$9.99 + \$3.99 S&H (parcel post); e-book available for \$7.99 from Fox Chapel Publishing, 800-457-9112, 1970 Broad St., East Petersburg, Pa., 17520, www.FoxChapelPublishing.com.



Additional pattern for the **WIZARD FANTASY PUZZLE** is in the pullout section.



A former teacher and librarian, Judy Peterson found her niche in life as a woodworker. A winner of many design awards, she sells her puzzles at art shows around the country. Her husband, Dave, runs the record-keeping side of the business. Together they have written several books, which are available at www.foxchapelpublishing.com.

Building a Puzzle Clock



Colorful clock teaches youngsters how to count and tell time

By Adrian Iredale

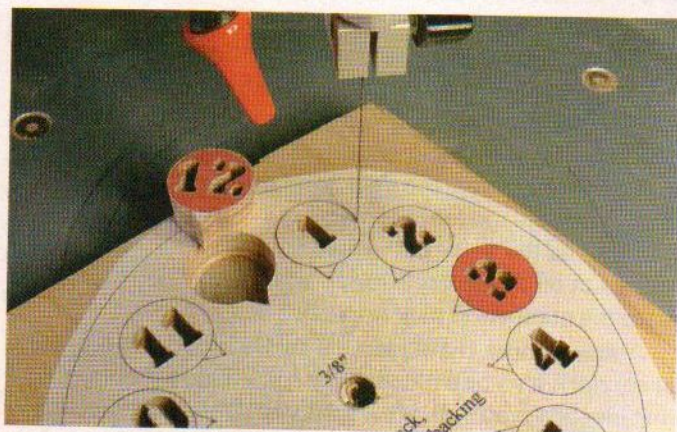
You can complete this easy-to-build project in less than a day. The toy will help a child learn to place all of the numbers in the correct positions on the clock face and to tell time.

Theoretically you could build this clock with a fretsaw, hand-drill, and sandpaper. However, as time is precious to most of us and I am not skilled enough to use hand tools, I use a scroll saw, vertical disc sander, and a drill press.

Note: For children under 3 years of age, consider gluing the numbers into the face to avoid a choking hazard.

CUTTING THE CLOCK

Step 1: Drill the holes. Attach the patterns to the blanks (see page 78 for methods). Drill an $\frac{1}{32}$ " (9mm) hole through the center of the clock face (refer to Tip before drilling). Then, drill a $\frac{1}{32}$ " (1mm) blade-entry hole for each number and number surround.



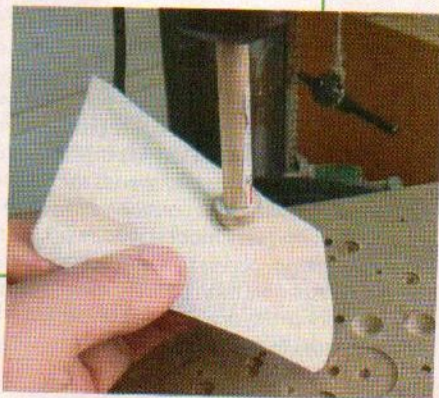
▲ Step 2: Cut the numbers and number surrounds. Use a #3 skip reverse-tooth blade to cut the numbers. Use a #5 skip-tooth blade to cut the number surrounds. The kerf (saw width) of the #5 blade is large enough that the number surrounds will fit easily into the clock face even after they are painted. Set the surrounds aside.

Step 3: Cut the face. Glue and clamp the clock face, with the number surrounds removed, to the backing board. Allow the glue to dry, and then cut the perimeter of the clock. Then, cut two $\frac{1}{8}$ " (3mm)-thick washers and the clock hands.

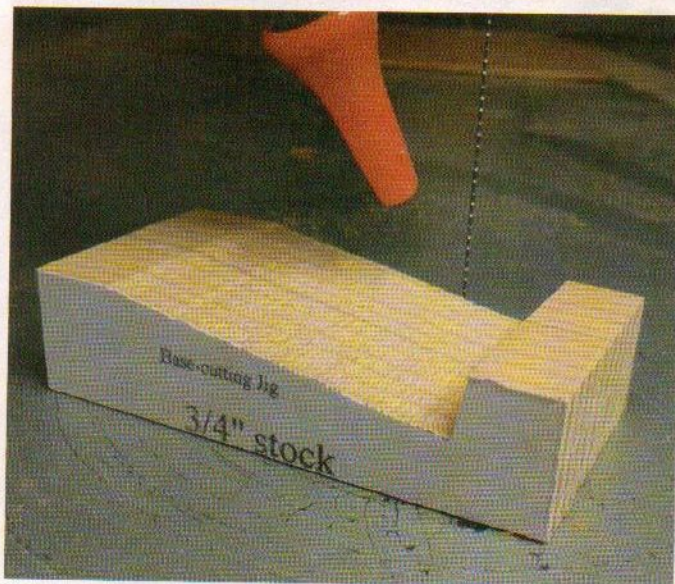
TIP

MAKING AN AXLE PEG

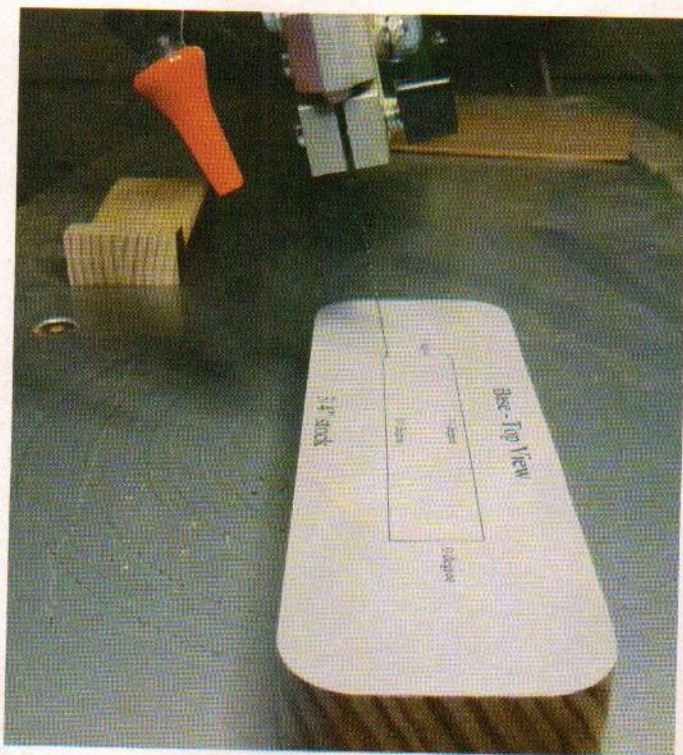
While axle pegs are available, I make my own. Drill a $\frac{3}{8}$ " (10mm)-dia. hole in the center of the post button, and then cut the perimeter of the button. Use a dot of cyanoacrylate (CA) glue to attach the button to a short length of scrap $\frac{3}{8}$ " (10mm) dowel, chuck the dowel in a drill press, turn on the drill press, and use sandpaper to round the button. Cut the post to length, separate the button from the scrap dowel, and glue it in place on the post. If you make your own peg, increase the size of the hole in the center of the clock and the two hands to $\frac{3}{8}$ " (10mm).



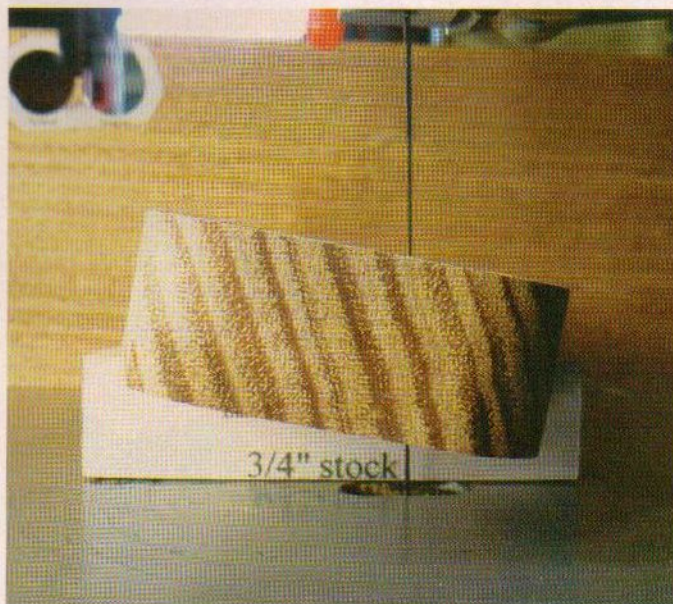
CUTTING THE BASE



▲ Step 4: Make the base drilling and cutting jig. Attach the jig pattern to $1\frac{1}{4}$ " (32mm) stock (or glue two pieces of $\frac{3}{4}$ " (19mm) stock together). Cut along the lines. The jig allows you to drill the hole and cut the short sides of the base slot at the correct angle.



▲ Step 5: Cut the long sides of the base. Put the base on the jig and drill two blade-entry holes along the long sides of the base slot. Set the scroll saw to cut at a 10° angle, insert the blade through one blade-entry hole, and cut along the line. Remove the blade, reinsert it in the other blade-entry hole, and cut the other long side. The diagonal cuts along the long sides must be parallel.



▲ Step 6: Cut the short sides of the base. Reset the scroll saw so the blade is perpendicular to the table. Place the base on the jig, insert the blade through the blade-entry holes, and cut the short sides. The jig ensures that the blade is angled correctly to meet the bottom of the angled cuts on the long sides.



▲ Step 7: Attach the clock face to the base. Insert the number surrounds and sand the clock face, back, edges, and base. Insert the tail of the clock into the base until the number six surround just clears the top of the base. Make sure the surround is easy to remove and replace. Trim off the excess clock face protruding from the base, and then glue the clock into the base. Sand the bottom of the base.

ASSEMBLING & FINISHING THE PROJECT

Step 8: Paint the number surrounds and hands. While this is optional, I think it helps the child assemble it correctly. I painted the 3, 6, 9, and 12 number surrounds red so the quarter-hour marks are obvious. Paint the hands and axle peg blue.

Step 9: Assembling the clock. Slide the hands onto the axle peg in this order: minute hand, washer, hour hand, and final washer. Insert the peg into the hole in the clock face and adjust it so the hands will rotate easily but are not too loose. If the hands are too tight, sand the inside of the hole. If the hands are too loose, run a bit of cyanoacrylate (CA) glue around the inside of the hole, allow it to dry, and test again. Cut off the excess axle peg and glue the peg in place. Place the numbers in their respective holes.

You will notice I have placed a “maker’s mark” on the face of my clock. It’s a nice touch to put something on a project that identifies you as the builder. My daughter designed my maker’s mark and had the stamp made at brandingirons.com/fireheated.html. This was an excellent gift that I treasure and use often.

Materials & Tools

Materials:

- Plywood, $\frac{1}{2}$ " (13mm) thick: clock face, 7" x 7" (178mm x 178mm)
- Plywood, $\frac{1}{8}$ " (3mm) thick: backing board, washers, 7" x 7" (178mm x 178mm)
- Hardwood of choice, $\frac{3}{4}$ " (19mm) thick: base, 2" x 6" (51mm x 152mm)
- Wood of choice, $\frac{1}{4}$ " (6mm) thick: hands (and post button, optional), $1\frac{1}{2}$ " x $2\frac{1}{2}$ " (38mm x 64mm)
- Axle peg, $1\frac{1}{32}$ " dia. x $1\frac{1}{2}$ " (38mm) long, OR dowel, $\frac{3}{8}$ " (10mm) dia. x 2" (51mm) long

- Spray adhesive
- Glue: wood; cyanoacrylate (CA)
- Acrylic paint: red, green, blue
- Sanding disc: 120 grit
- Sandpaper: 120, 240, 400 grit

Tools:

- Blades: #3 and #5 skip reverse-tooth
- Vertical disc sander
- Drill press with bits: $\frac{1}{32}$ " (1mm), $\frac{1}{16}$ " (2mm); $\frac{3}{8}$ " (10mm) (optional)

The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.

Patterns for the **PUZZLE CLOCK** are in the pattern pullout section.



Adrian Iredale lives on the east coast of Australia with his wife, Wendy. The pair have two grown daughters and recently became grandparents for the second time. Adrian works part-time as a business software consultant and spends the rest of his time playing in sawdust; he considers himself to be a normal bloke with average skills and very modest woodworking tools. Adrian attributes his woodworking success to the tutelage and encouragement of greater craftspeople than himself, such as Clayton Boyer, the master wooden clock artist, and Adrian’s uncle, Ian Fraser, who is 90 years old and builds toys for charity.

Fancy Finishes

Easy techniques to add color and shine to your Christmas ornaments

By Mindy Kinsey

For most projects, scrollers use finishes that accent, preserve, and protect the beautiful varieties of wood they choose. But Christmas calls for a little glitz and glamour. Add sparkle, shine, and texture to your ornaments with these easy techniques. They're especially useful for hiding the edges of plywood ornaments, and are a perfect way to get kids involved in holiday gift-giving.

Glitter

Glitter will stick to any wet surface, making it an easy choice for adding a little shine to an ornament. Sprinkle iridescent clear glitter or colorful sparkly glitter on immediately after spraying your ornaments with clear poly. Top with a second coat of poly to seal the glitter in place.

For the shimmer of glitter without the flakes, try painting an ornament with glitter glue. You can use it alone or with a basecoat of oil or paint.

Gold Leaf & Gilding

Turn plywood into gold! For a smooth gold finish, use sheets of gold leaf. For a hammered gold effect, use flakes. Spray the ornament with permanent adhesive and either dip it in leaf flakes or rub a sheet of leaf onto the adhesive. Gently brush off the excess leaf and spray the ornament with clear sealer.

To gild just the edges of an ornament, skip the gold leaf and reach for a gold paint pen or metallic acrylic paint. This is a great trick for hiding plywood edges on fretwork ornaments.

Texture

For an icy texture, apply undiluted acrylic paint to an ornament and let dry. Then, top the paint with a layer of crackle glaze, such as Kroma Crackle, and let the glaze dry. The glaze will crack as it dries, creating interesting shapes and textures. Leave the crackle layer white or dry-brush it with diluted acrylics for even more color.

Or, spray an ornament with white paint and sprinkle fine clear or white glitter into the wet paint to add texture and shine in one step.

Snow

For the look of new-fallen snow, use artist's acrylic modeling paste on your ornaments. Squeeze a dab of the paste onto a piece of cardboard and stir it with a small paintbrush until it's



Clockwise from left: Paint, glitter, and faux gilding; paint and crackle glaze; gold leaf; paint, modeling paste "snow," and glitter; gloss poly and glitter; Glimmer Glaze and glitter.

creamy. Then, generously paint the "snow" onto the upper edges of the ornament. You can sprinkle glitter onto the wet paste if desired.

Subtle Shine

Add translucent color and subtle shine to ornaments by using alcohol inks and glitter paints, like Glimmer Glaze. For deeper color, seal the wood before applying the ink or paint and apply several coats.

Crazy Color

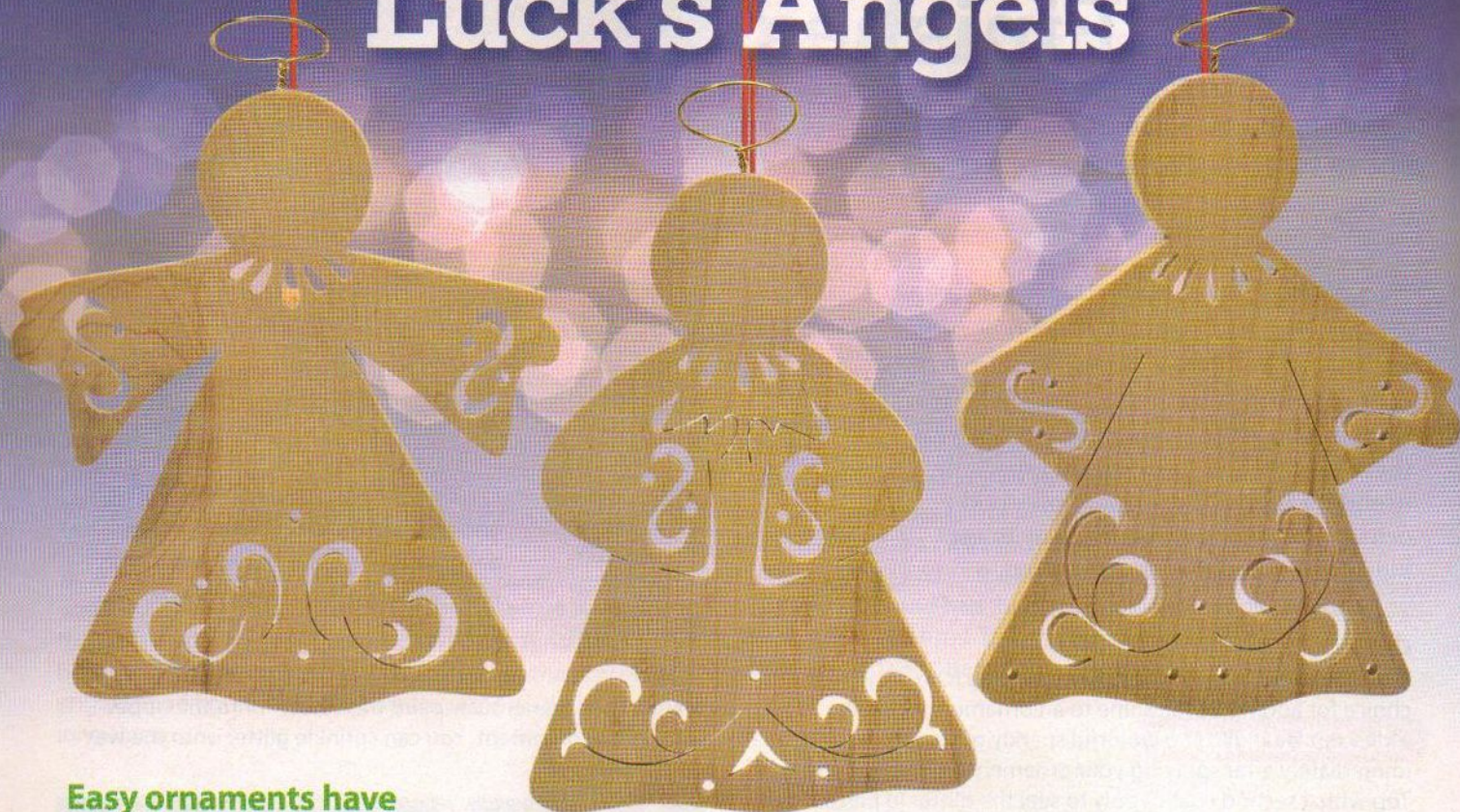
To marleize with shaving cream, squirt shaving cream onto a plate until you have a mound of cream. Drip dots of alcohol ink, food coloring, or liquid watercolor paint onto the shaving cream. Gently swirl with a toothpick, and then dip the ornaments into the color. Blot on a paper towel and let dry.

To marleize with oil, pour boiled linseed oil into a shallow pan. Carefully float dots of alcohol ink, food coloring, or liquid watercolor paint on the surface of the oil. Gently swirl the oil with a toothpick, and then dip the ornaments into the color. Blot on a paper towel and let dry. Dispose of oily towels carefully.

To create a lacy effect, apply undiluted acrylic paint to the ornaments and let it dry. Then, place a loosely woven piece of lace over the ornaments and apply white spray paint. Add more coats per the manufacturer's instructions if desired, and then remove the lace.

For random splatters of color, apply white or silver spray paint to the ornament and let dry. Then, pour a small puddle of acrylic paint onto a palette or plate. Dip an old, dry paintbrush or toothbrush lightly into the paint, point it at the ornament, and run your finger over the bristles to flick paint onto the ornament. Repeat with additional colors of paint. Warning: Wear a smock because this can be messy!

Luck's Angels



Easy ornaments have extra meaning

By Theresa Ekdorn

Angels are universal symbols of hope, inspiration, and faith. It feels as though so many tragedies have happened recently. One hit close to home—a young friend lost her life in a tragic car accident. These angels were made in memory of those gone before their time and those they left behind.

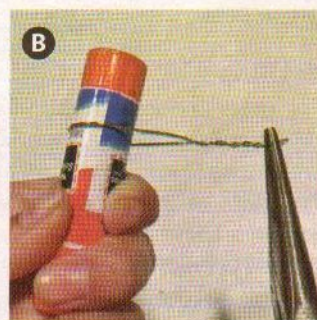
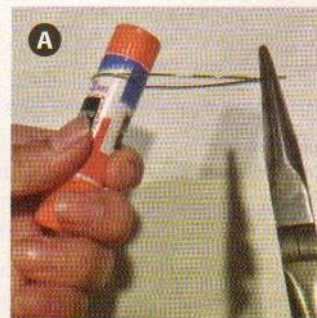
Cutting the Ornaments

Copy the pattern and attach it to the blank. Use the smallest bit available to drill the blade-entry holes, and then cut the fretwork. Use a $\frac{1}{8}$ " (3mm) bit to drill small decorative holes as indicated on the pattern. Then, cut around the perimeters of the angels.

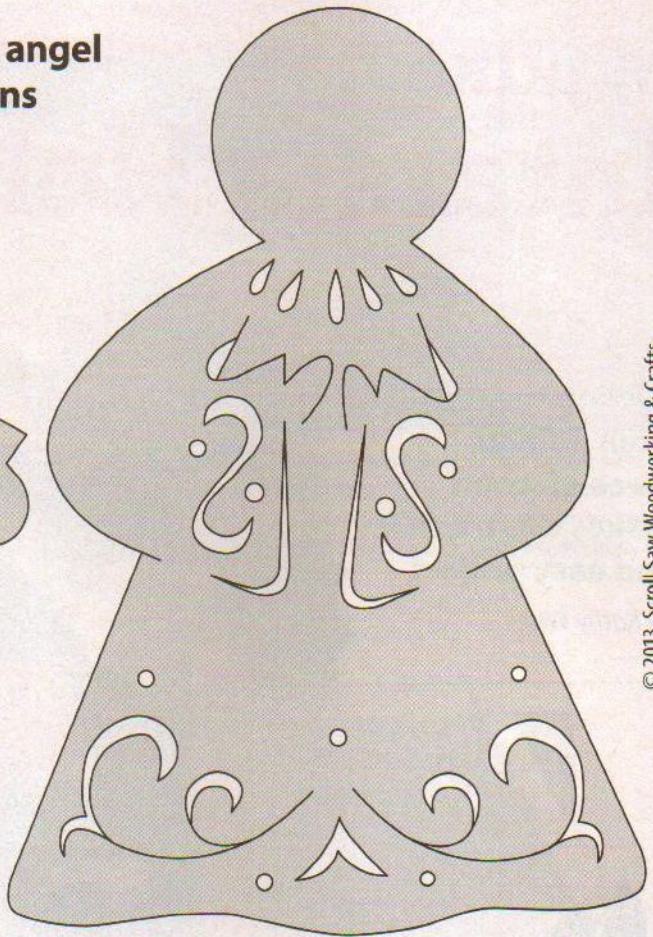
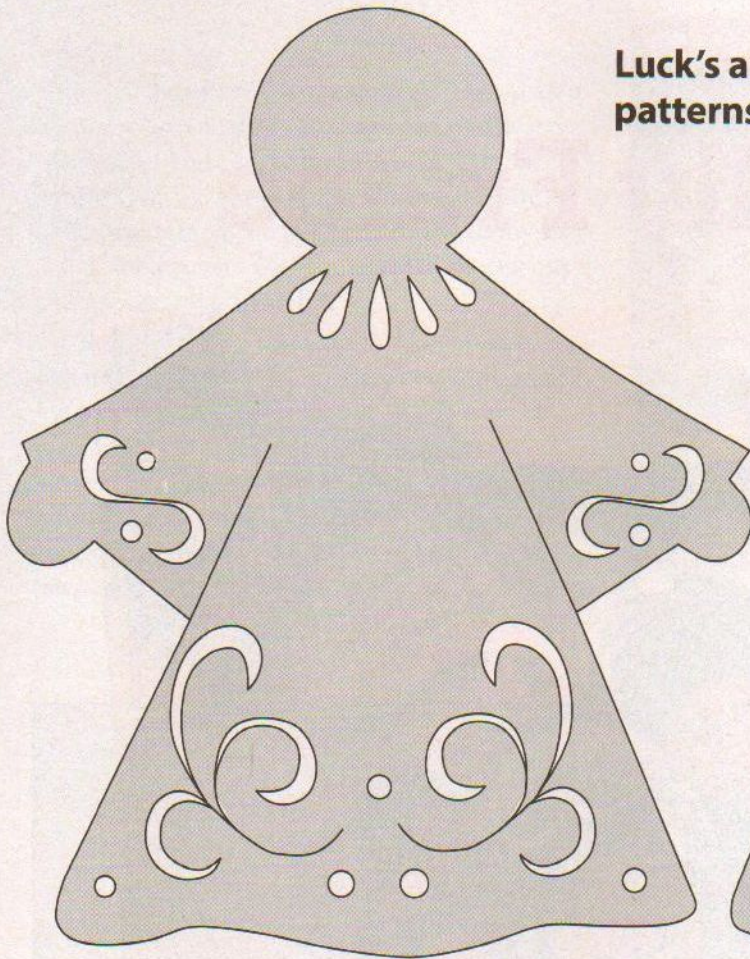
After cutting the angels, sand them smooth. Dip them in tung oil and let them dry completely. Once the finish is dry, drill a $\frac{5}{64}$ " (2.25mm)-diameter by $\frac{1}{4}$ " (6mm)-deep hole in the top center of each angel's head for the halo.

Making the Halos

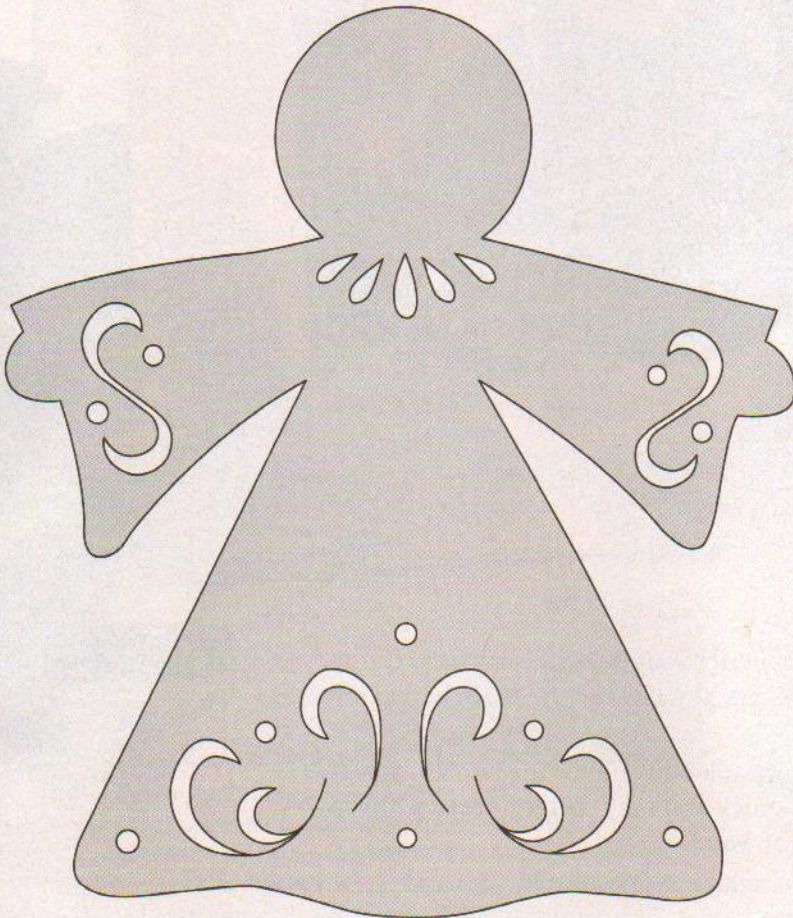
For each halo, cut a piece of wire approximately 8" (203mm) long. **A)** Wrap the wire around a glue stick or dowel, holding the ends together tightly with needle-nose pliers. **B)** Twist the wire ends together tightly. **C)** Remove from the dowel and trim the end to $\frac{1}{2}$ " (13mm) long. Glue the end of the wire into the hole in an ornament using the gel cyanoacrylate (CA) glue, such as Super Glue, and then gently bend the halo into position. To hang the ornaments, tie a ribbon or thread around the halo.



Luck's angel patterns



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Materials & Tools

Materials:

- Light wood, such as birds-eye maple, $\frac{3}{8}$ " (10mm) thick: per angel, $4\frac{1}{2}$ " x $5\frac{1}{2}$ " (114mm x 140mm)
- Wire: 22-gauge gold
- Sandpaper
- Finish, such as tung oil
- School glue stick or 1" (25mm)-dia. dowel
- Gel cyanoacrylate (CA) glue, such as Super Glue

Tools:

- Blades: #3 and #5 skip-tooth, such as FD Polar
- Drill with assorted bits, including $\frac{1}{8}$ " (3mm) and $\frac{5}{64}$ " (2.25mm)
- Needle-nose pliers with wire cutters

*The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.*



Theresa Ekdorn lives in Roscommon, Mich. Contact her at tekdom@hotmail.com or www.WoodNGoods.artfire.com.

Making an Intarsia Holly Frame

Cutting the leaves
from a single
piece of wood
makes this a quick
and easy project

By Kathy Wise



Make this festive frame for your loved one as a beautiful and thoughtful Christmas gift. It is guaranteed to be a family heirloom.

I use ash for the frame, bloodwood for the berries, and cherry for the leaves. This is a quick and easy pattern because the leaves are cut from one piece of wood.

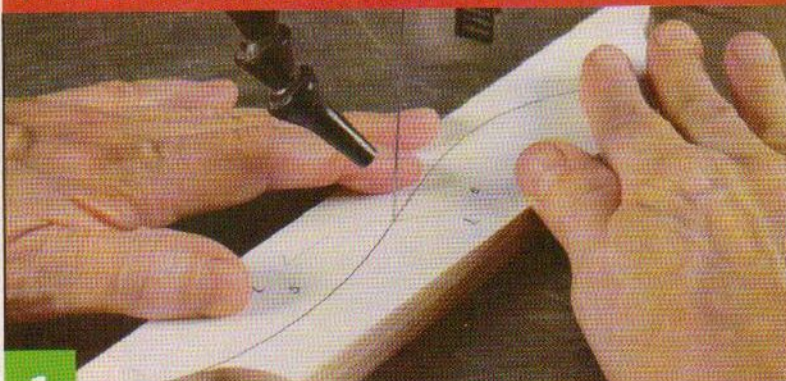
For a different look, reduce the pattern by 75% and use it for a hanging ornament frame.

Getting Started

Make six copies of the pattern. Always keep a master copy to use later. Tape clear adhesive shelf paper flat to a piece of wood. Cut the pattern pieces, apply spray adhesive to the back, and attach the patterns to the shiny side of the shelf paper. Cut the pattern pieces out and group them by color.

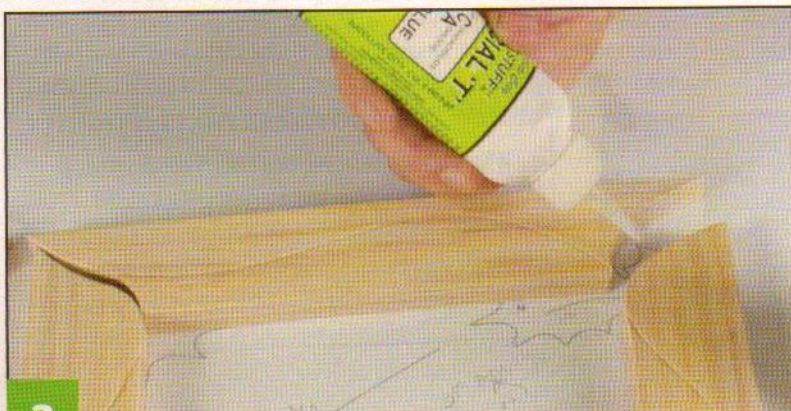
For a good fit, the wood must be flat. Plane any wood that isn't flat. Peel and stick the pattern pieces to the selected pieces of wood using the grain direction arrows as guides. Cut large pieces into smaller, more manageable pieces. Use a small square to check a cut edge to make sure the blade is perpendicular to the saw table.

FRAME: CUTTING & SHAPING THE PIECES



1

Cut the frame pieces. Use a #5 reverse-tooth blade. Place the cut pieces on a copy of the pattern and check the fit. Make any necessary adjustments and number the back of each piece with a pencil. Sand the straight edges smooth; I use a portable drum sander, such as a Sand Flee. Then, sand the edges lightly to give them a slight bevel.



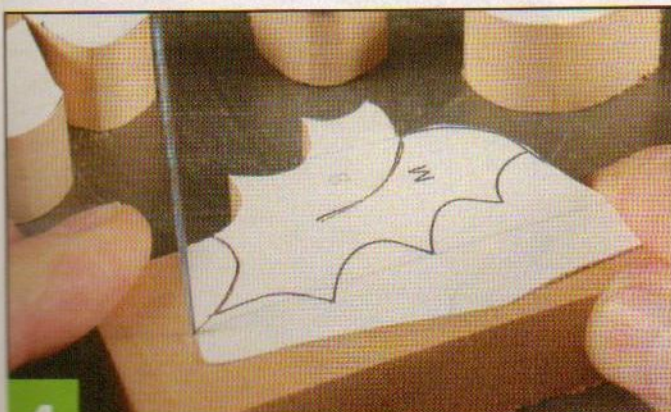
2

Glue the frame together. Apply cyanoacrylate (CA) glue to one side of the frame section and accelerator to the corresponding side of the other frame section. Assemble the pieces quickly. Put together the corner pieces while on the pattern so you can see if you need to adjust for a tight fit. Make any adjustments on the corners covered by the leaves.



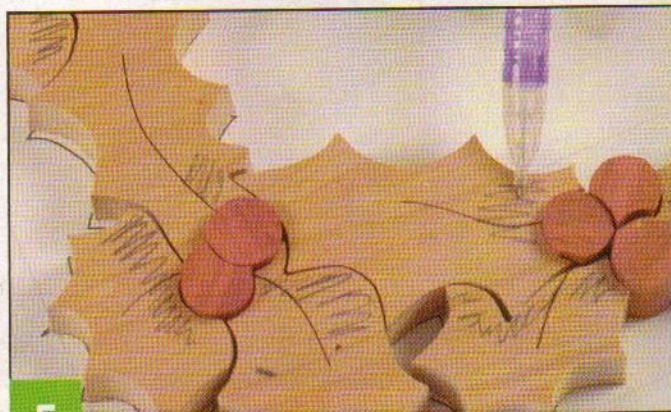
3

Cut the frame back and spacer. Attach the appropriate patterns to tempered hardboard or Baltic birch plywood. Cut the backing board to size. Then, cut the U-shaped spacer.



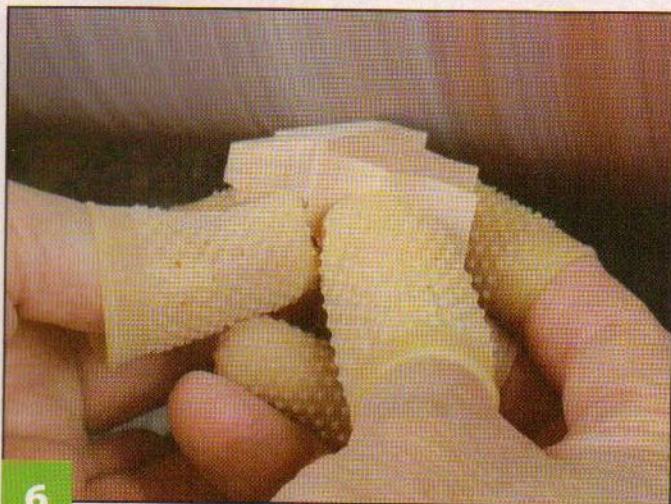
4

Cut the holly leaves. Use a #3 blade. Cut the larger sections apart, and number the back of each piece with a pencil. Cut carefully around the berries. To eliminate the sharp turns, cut right off the edge of the blank at the tips of the leaves. Then, move on to the next curved line. This makes it easier to get sharp points at the tips of the leaves.



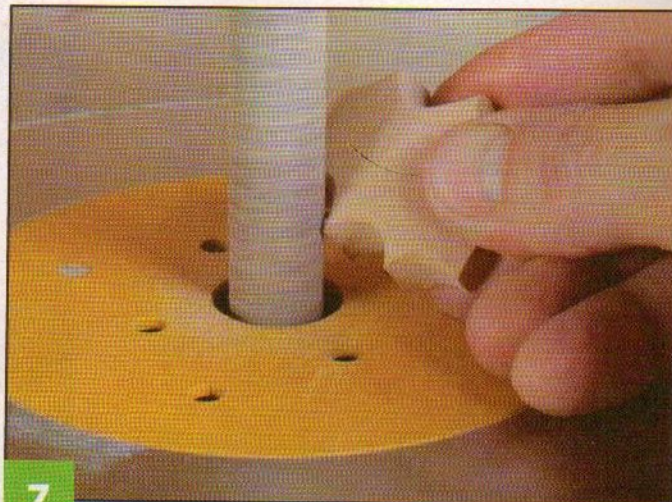
5

Check the fit of the pieces. Place the cut pieces in position on a full-sized pattern taped to a board. Check the fit and flow of the pieces and make any necessary adjustments. Use a pencil to mark the areas of the leaves to sand down. Mark the halfway point on the leaves so you know how far down you can sand.



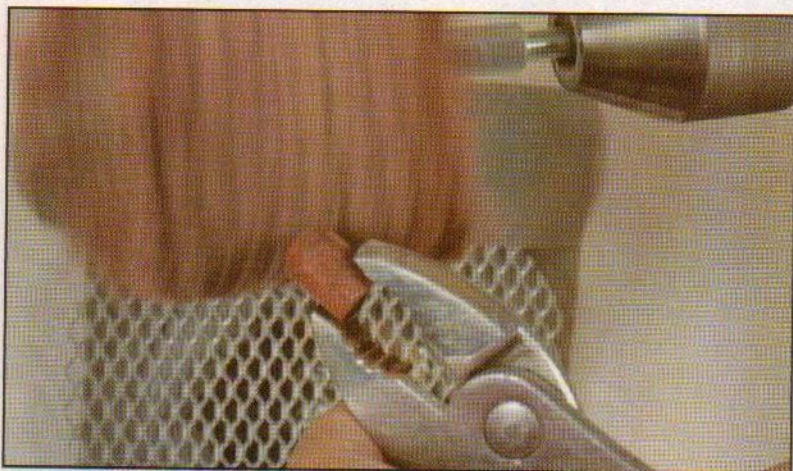
6

Sand the pieces. Use an 8" (203mm) pneumatic sanding drum with 120-grit sandpaper to remove wood quickly and a 2" (51mm) drum with 220-grit sandpaper to smooth and finish sand the pieces. Sand down the lowest sections on the leaves first. Replace the pieces next to the others on the pattern often to check the flow.



7

Soften the edges of the leaves. Use a rotary carver with a sanding drum or a 1/2" (13mm) oscillating spindle sander to round the edges of each leaf. Hold the berries with a pair of pliers as you sand them on the drum sander.



8

Finish sanding the pieces. Buff the pieces with an abrasive mop, such as ScotchBrite, to remove any sanding marks and soften the edges. Then, buff the pieces with a 220-grit sanding mop to give the pieces a nice sheen and make it easy to apply the varnish finish.

TIP

CUTTING PIECES THAT FIT TIGHTLY

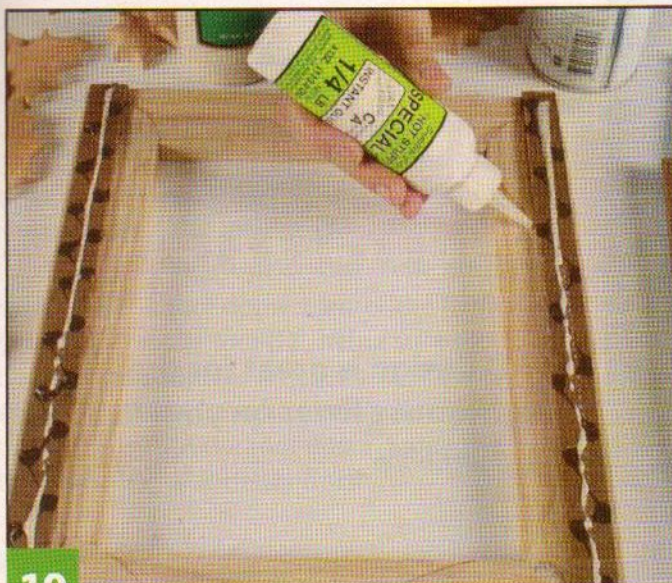
When cutting the leaves, don't worry about straying off the lines. Because you are cutting each cluster from one piece of wood, they will fit tightly together even if you don't cut exactly on the lines. However, cut carefully on lines that meet other pieces, such as when cutting around the berries and the edges where the frame parts join together.

FRAME: ASSEMBLING THE PROJECT



9

Tack the leaves together. Place a sheet of waxed paper over the pattern and dry-assemble the leaves and berries on top of it. Check the fit and make any final adjustments. Tack the leaves and berries together with CA glue. Let the glue dry, peel off the waxed paper, and sand the back of each section flat. I use a portable drum sander.



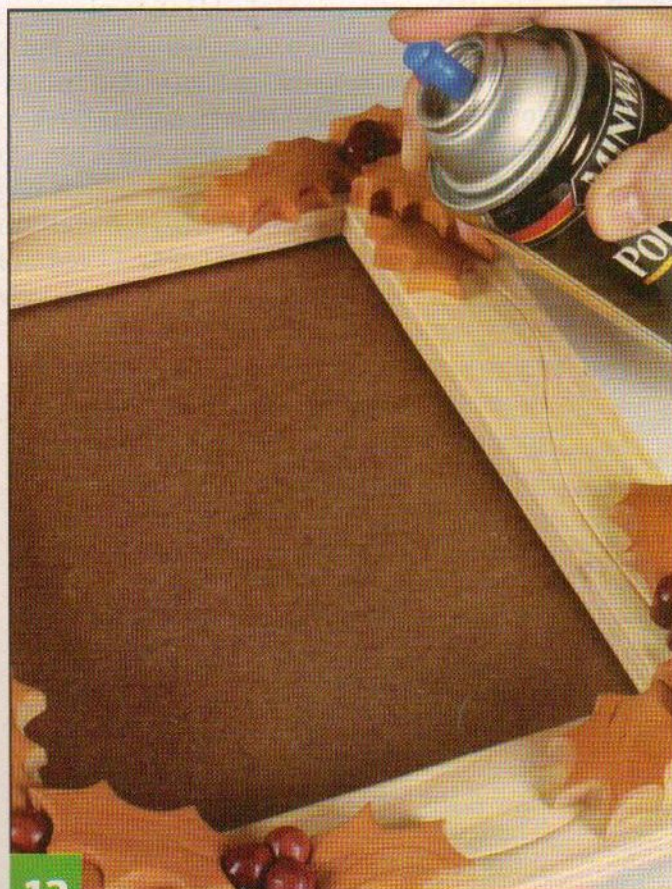
10

Assemble the frame. Apply dots of wood glue and CA glue to the back of the spacer and spray accelerator on the front of the backing board. Glue these sections together. Apply CA glue and wood glue to the front of the spacer and accelerator to the back of the frame and glue these sections together. Use a router or sand the edges of the spacer and backing board at an angle so they do not show from the front of the frame.



11

Attach the leaves and berries to the frame. Add dots of wood glue and CA glue to the back of the leaf assemblies and spray accelerator in the appropriate parts of the frame. Press the leaves down firmly for a few seconds for the CA glue to hold. Use glue sparingly so you don't have a lot of squeeze-out along the edges.



12

Finish the frame. Apply a coat of satin spray varnish. Allow it to dry and apply a second coat. Attach a picture hanger to the back, or use two screws to hold a hanging wire.

Materials & Tools

Materials:

- Medium wood, such as cherry, ½" (13mm) thick: leaves, 5" x 10" (127mm x 254mm)
- Light wood, such as ash, ½" (13mm) thick: frame, 5" x 30" (127mm x 762mm)
- Red wood, such as bloodwood, ½" (13mm) to ¾" (19mm) thick: 4" x 5" (102mm x 127mm)
- Baltic birch plywood or tempered hardboard, ¼" (6mm) thick: 12" x 30" (305mm x 762mm)
- Adhesive shelf paper: clear
- Spray adhesive
- Glue: wood, such as Titebond; cyanoacrylate (CA), such as Super T
- Cyanoacrylate (CA) glue accelerator
- Spray varnish
- Hanger, or screw eyes and wire

Tools:

- Blades: #3 and #5 reverse-tooth
- Sanders: pneumatic drum, portable drum
- Rotary tool or oscillating spindle sander

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

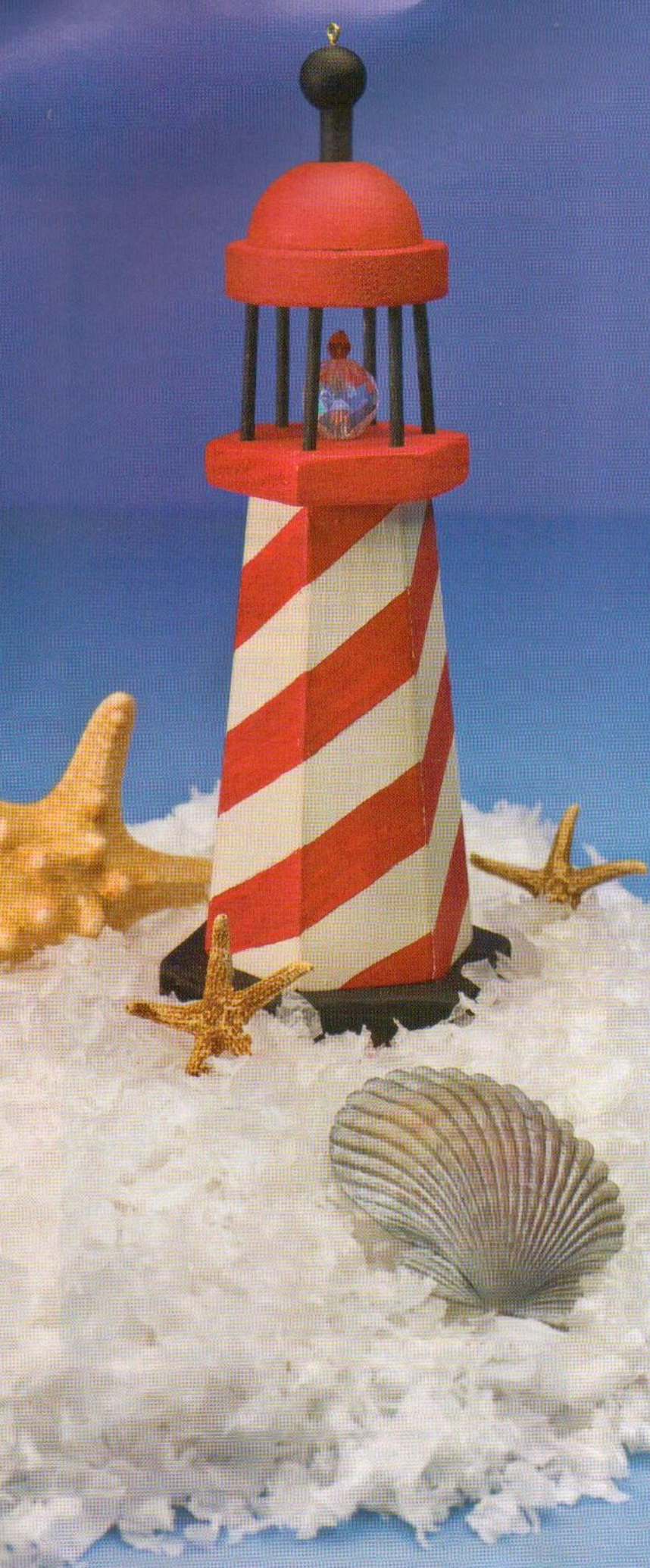
Patterns for the **INTARSIA HOLLY FRAME** are in the pattern pullout section.



Nationally acclaimed intarsia artist Kathy Wise has written three books and more than 38 articles. Her new book, *Intarsia Birds: Woodworking the Wise Way*, is available now for \$23 including shipping. For a free catalog of 500 patterns, contact: Kathy Wise Designs Inc., P.O. Box 60, Yale, Mich. 48097; fax 810-387-9044; www.kathywise.com; kathywise@bignet.net.

Cardinal
#336





Making a Lighthouse Ornament

3-D design is great for the lighthouse lover on your list

By Ruth Chopp

Some people love lighthouses. I'm not sure if it's the romance of a guiding light at sea, the lovely landscape around the lighthouse, or just the geometry of the tall structures. Whatever the reason, this ornament is for the lighthouse lover on your list.

Getting Started

Attach the patterns to the blanks and cut the parts. For the top of the lighthouse, cut a 1" (25mm)-diameter wooden ball in half to form the roof dome. Cut a $\frac{1}{4}$ " (6mm)-thick slice off a 1 $\frac{1}{4}$ " (32mm) wooden dowel to form the roof (D). Drill the holes marked on the patterns. Remove the patterns and sand everything with 120-grit sandpaper.

Assembling the Walls

Use a belt sander to bevel the vertical edges of all six lighthouse sides (A) 60° toward the inside of the lighthouse. Place two strips of masking tape flat on the bench, and put the six lighthouse sides side by side on the two strips. Put four dots of wood glue on each seam, and on the two outside edges of the sides (on both ends). Roll the sides into a cylinder, using the tape and rubber bands at the top and bottom to hold everything in place while the glue dries.

Sand the inside top piece (B) until it fits within the assembled sides. Glue it in place. Then, sand the inside bottom piece (C) until it fits inside the assembled sides. Add glue to the sides of the inside bottom and use a toothpick in the hole to adjust the position. Remove the toothpick when the glue is dry.

Making the Top

Cut a $\frac{3}{16}$ " (5mm) dowel to $\frac{5}{8}$ " (16mm) long. Drill a $\frac{3}{16}$ " (5mm)-diameter by $\frac{1}{8}$ " (3mm)-deep hole in a $\frac{3}{8}$ " (10mm)-diameter wooden ball. Glue the ball onto the dowel and paint the assembly black. Drill a small pilot hole in the top of the ball to insert a hanging eye.

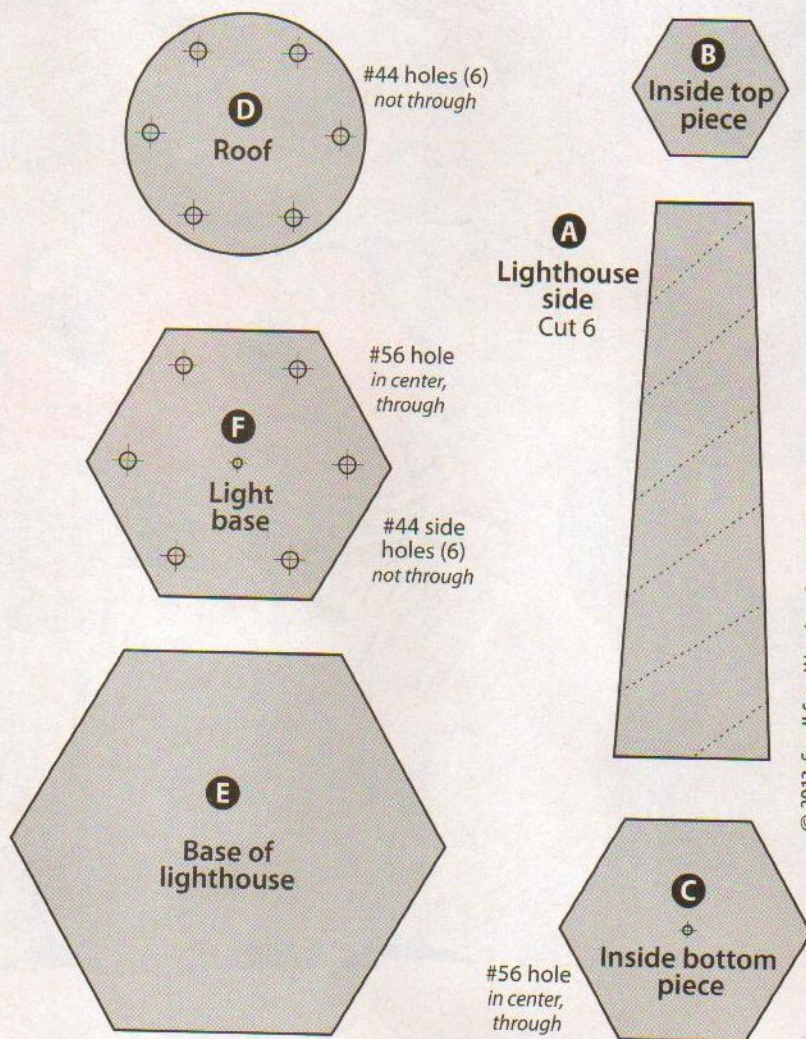
Drill a $\frac{3}{16}$ " (5mm)-diameter hole in the middle of the roof dome. Center the flat half of the ball on the roof (D), being sure the holes in the roof face down. Paint the roof assembly red. When the paint is dry, glue the black dowel into the roof dome. Spray the top assembly with matte finish.

Finishing the Ornament

Cut six toothpicks to $1\frac{3}{8}$ " (53mm) long and paint them black. Paint the lighthouse base (E) black. Paint the lighthouse sides with red and white stripes. Paint the light base (F) red. Allow the paint to dry.

Glue the black base and the red light base to the sides, ensuring the holes in the red light base are facing up. Glue the toothpicks into the holes in the light base. Spray all of the pieces with matte spray. Thread a small red bead and then a larger clear bead onto a small sewing pin and cut the pin off at $\frac{3}{4}$ " (19mm) long. Use jewelry glue to glue the pin into the center hole in the light base. Glue the top assembly to the toothpicks. Insert a screw eye or a bent #24 wire eye in the hole on top.

Lighthouse ornament pattern



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Materials:

- Pine or Baltic birch plywood, $\frac{1}{4}$ " (6mm) thick: lighthouse base, light base, inside top, 2" x 5" (51mm x 127mm)
- Pine or Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: lighthouse sides, inside bottom, 2 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " (64mm x 114mm)
- Wooden balls: 1 each 1" (25mm), $\frac{3}{8}$ " (10mm) dia.
- Dowel, $\frac{3}{16}$ " (5mm) dia.: $\frac{5}{8}$ " (16mm) long
- Dowel, $1\frac{1}{4}$ " (32mm) dia.: $\frac{1}{4}$ " (6mm) long
- Beads: 1 each $\frac{1}{2}$ " (13mm)-dia. sparkling clear, 1 each $\frac{5}{32}$ " (4mm)-dia. sparkling red
- Round toothpicks: 7
- Glue: wood, jewelry
- Small sewing pin

Materials & Tools

- Tape: blue painter's
- Acrylic paint, such as DecoArt American and Delta Ceramcoat: Santa red, black, light ivory

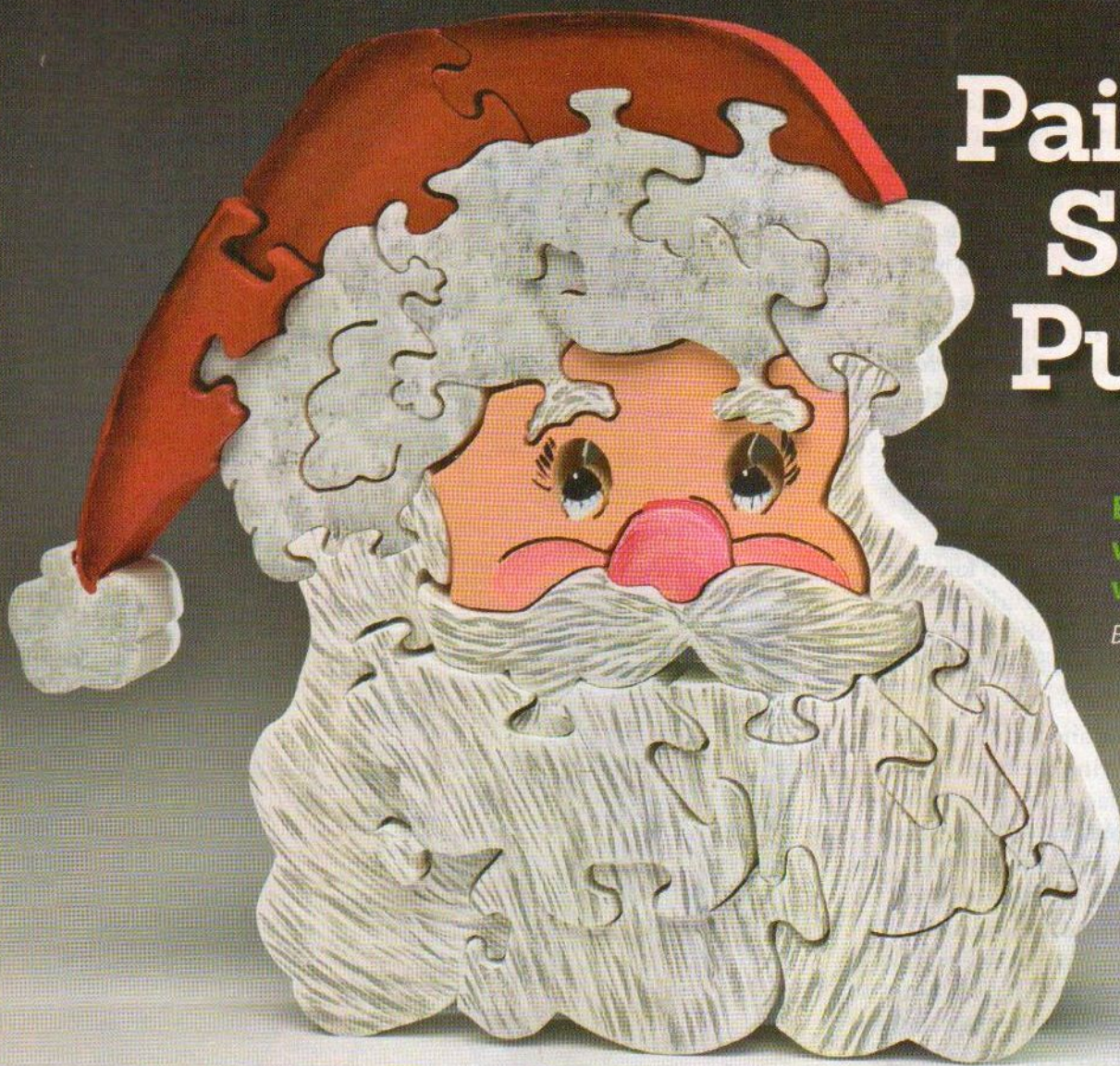
Tools:

- Blades: #3 reverse
- Drill with bits: $\frac{3}{16}$ " (5mm), #44, #56 wire size
- Paintbrushes
- Wire cutters
- Belt sander



Ruth Chopp began her career as a home economics teacher. When her children left home, she decided to try woodworking, noting that using a scroll saw and a sewing machine are really quite similar. Ruth loves wooden Christmas tree ornaments, so she designed her own; she now has about 300 patterns. Contact Ruth via e-mail at melchopp@comcast.net.

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Painted Santa Puzzle

Embellish this wooden puzzle with acrylic paint

By Kevin Johnson

This Santa will look good on any table and bring fun to the holiday season. I created the design in part to add to my collection of holiday-themed puzzles, and in part because my daughter asked for a Santa puzzle. Her Santa decorates her room year 'round and is one of her favorite Christmas toys.

Cutting the Santa

Apply the pattern to the wood. (See page 78 for methods.) Start by drilling the blade-entry holes for the eyes and hat accent. Be sure to put a piece of scrap wood under the blank to prevent tearout as you drill. Cut the detail areas first so you have a larger piece of wood to hold as you cut. Then, cut the outline and start cutting the pieces. I start at the bottom, because I like to build it up as I go. Use the pattern lines as a guide, but you don't have to follow them exactly. If you

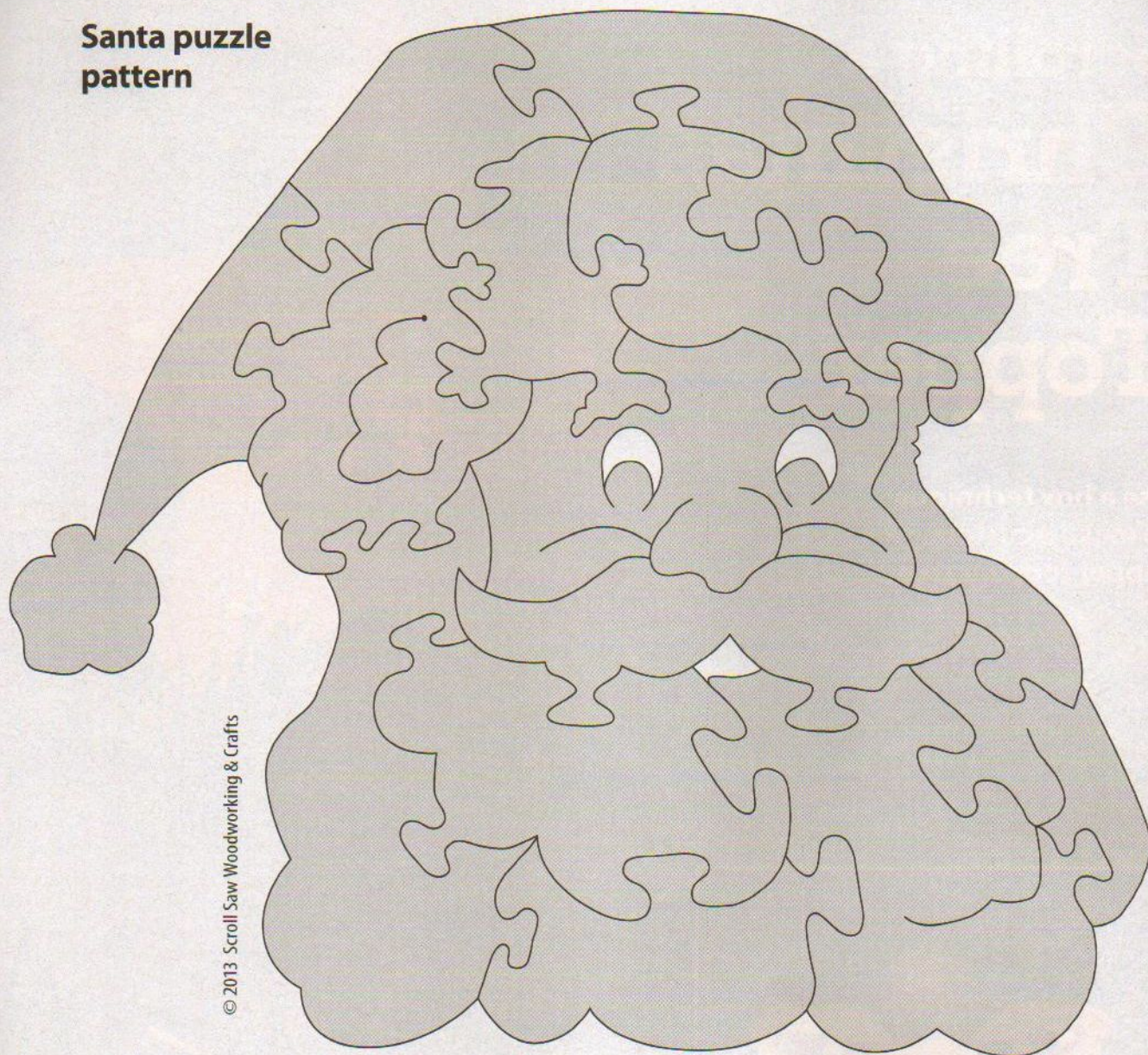
go off the line, just keep going; you may find you like the way it turns out.

Choose the blade you are most comfortable with. When I started using a scroll saw I played with many different blades. I feel the most comfortable with spiral blades because they let me be more aggressive, but if you prefer, you can use flat blades.

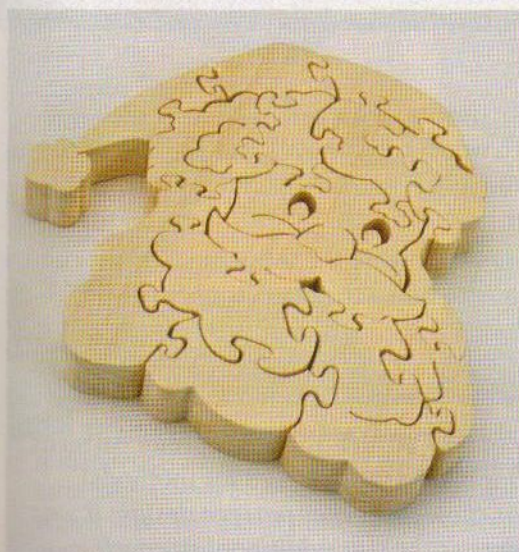
Finishing the Puzzle

Sand the finished pieces. I use a hand sander on the assembled puzzle. Use acrylic paints to detail the puzzle as desired. For vibrant colors, seal the wood before painting; if you plan to use color washes for a more muted look, you can apply them directly to the bare wood. When the paint is dry, spray the puzzle with several thin coats of clear lacquer.

Santa puzzle pattern



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Materials & Tools

Materials:

- Aspen, $\frac{3}{4}$ " (19mm) thick:
6 $\frac{1}{2}$ " x 7 $\frac{1}{4}$ " (165mm x 184mm)
- Spray adhesive
- Sandpaper: 100, 220 grits
- Acrylic paint
- Wood sealant, such as shellac
- Spray lacquer: clear

Tools:

- Blades: 3/0 spiral, such as Flying Dutchman, or #3 reverse-tooth
- Drill press and bit: $\frac{1}{16}$ " (2mm)
- Hand-held sander
- Finishing sander, such as 3M Scotch Brite: fine

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

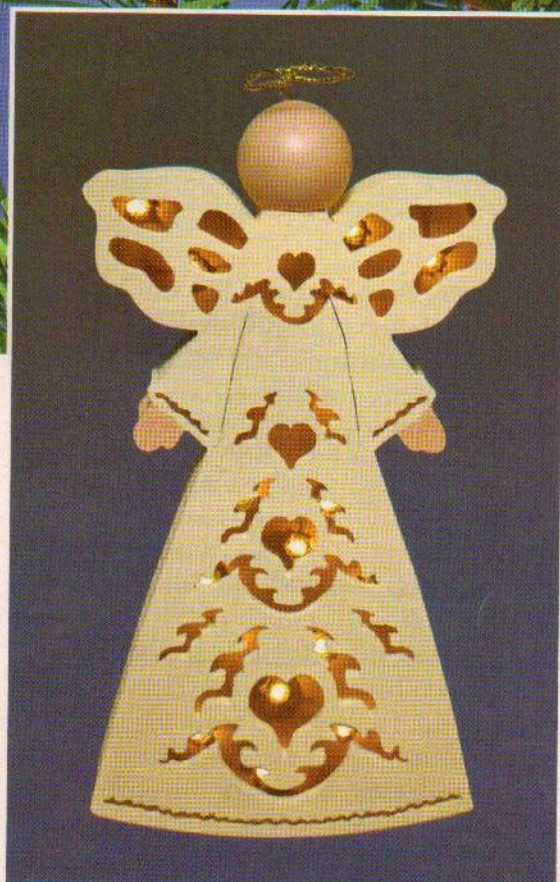


Kevin Johnson lives in Fennimore, Wis., with his wife, Tanya, and two children, Kale and Gwen. Kevin has been scroll sawing for three years and has been designing his own puzzles for two years.

Scrolling a Christmas Tree Topper

Use a box technique to make a custom topper for your tree

By Sue Mey
Cut by Leldon Maxcy



Scroll sawyers cut ornaments all the time, and most of us have trees decorated with wooden ornaments. But how many people have a store-bought star (or angel) as the topper? This year, make your own wooden topper.

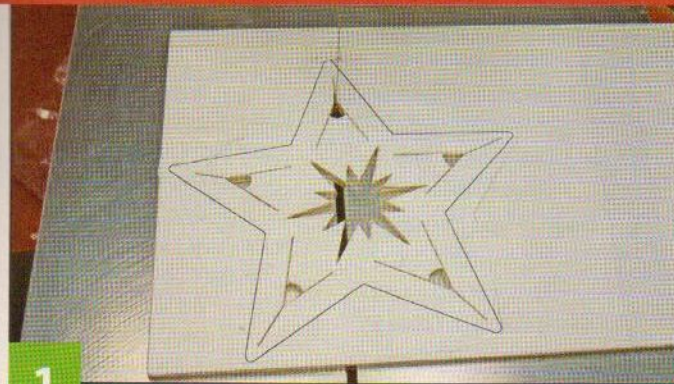
I'm demonstrating how to create the topper using the star pattern, but the technique to make the angel topper is nearly identical.

Getting Started

Cut the blanks roughly to size. Attach the appropriate patterns to the front and box sides blanks (see page 78 for methods).

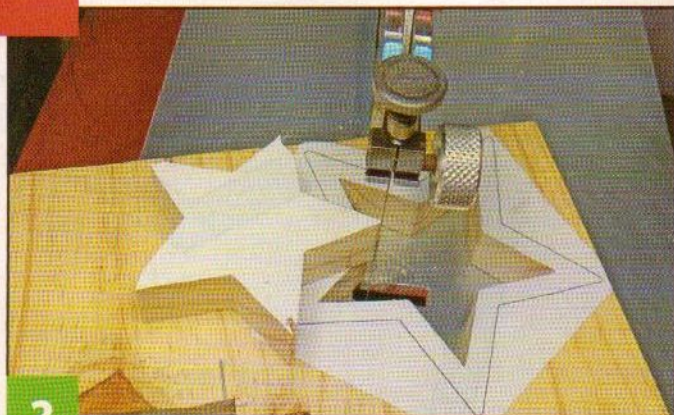
Note: The how-to photos show an earlier pattern design; it was modified to give the points of the star additional strength.

TREE TOPPER: CUTTING THE PIECES



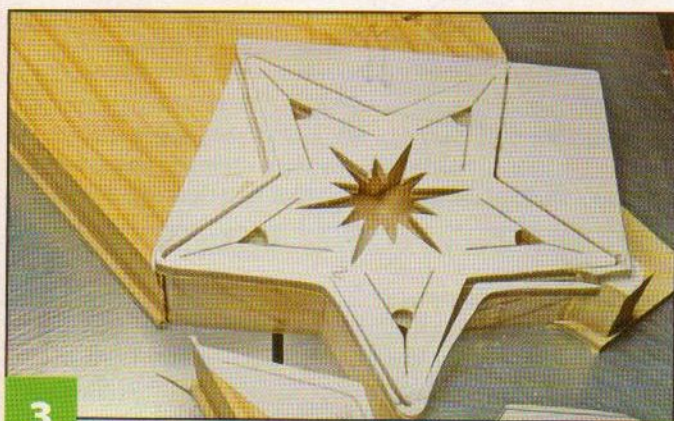
1

Cut the fretwork. Drill $\frac{1}{16}$ " (2mm) blade-entry holes in the front fretwork piece. Cut the frets with a #1 blade.



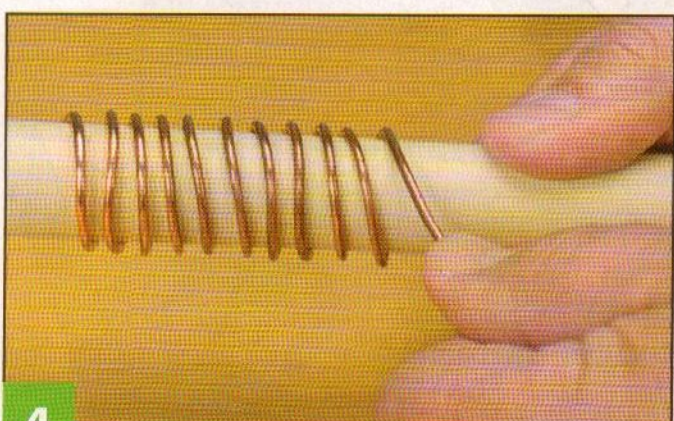
2

Cut the box sides. Drill a $\frac{1}{16}$ " (2mm) blade-entry hole and cut the inside of the box with a #5 blade.



3

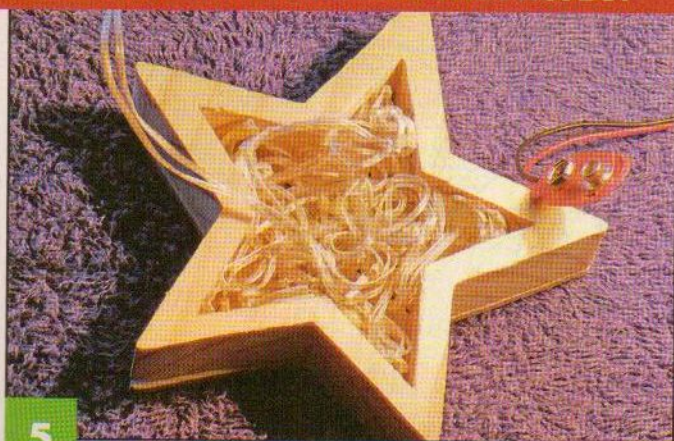
Cut around the perimeter of the star. Align the front, box sides, and back blank, and secure them together with double-sided tape. Cut the perimeter of the stack with a #7 blade. Drill a hole for the coil in the bottom of the box sides. Remove the patterns and tape, and hand-sand all of the pieces. Use sandpaper to remove the sharp outer edge of the front piece.



4

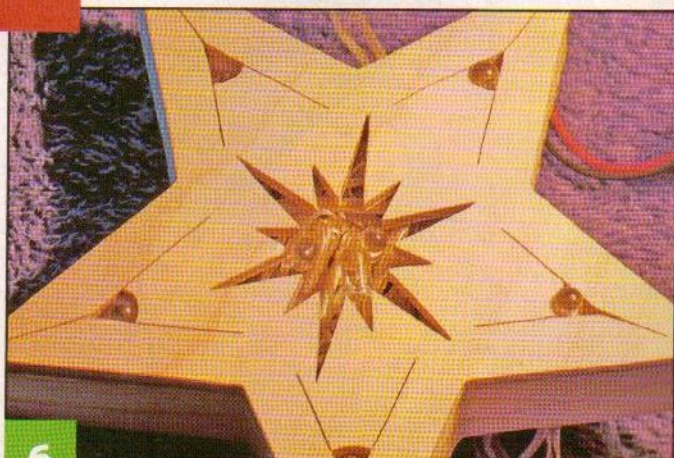
Make the wire spring holder. Clip the joint and straighten a wire coat hanger. Wrap the wire around a dowel or a cone-shaped piece of Styrofoam (available at most craft stores), bending the top end vertically. Carefully remove the wire from the dowel or Styrofoam to preserve the shape.

TREE TOPPER: ASSEMBLING THE PROJECT



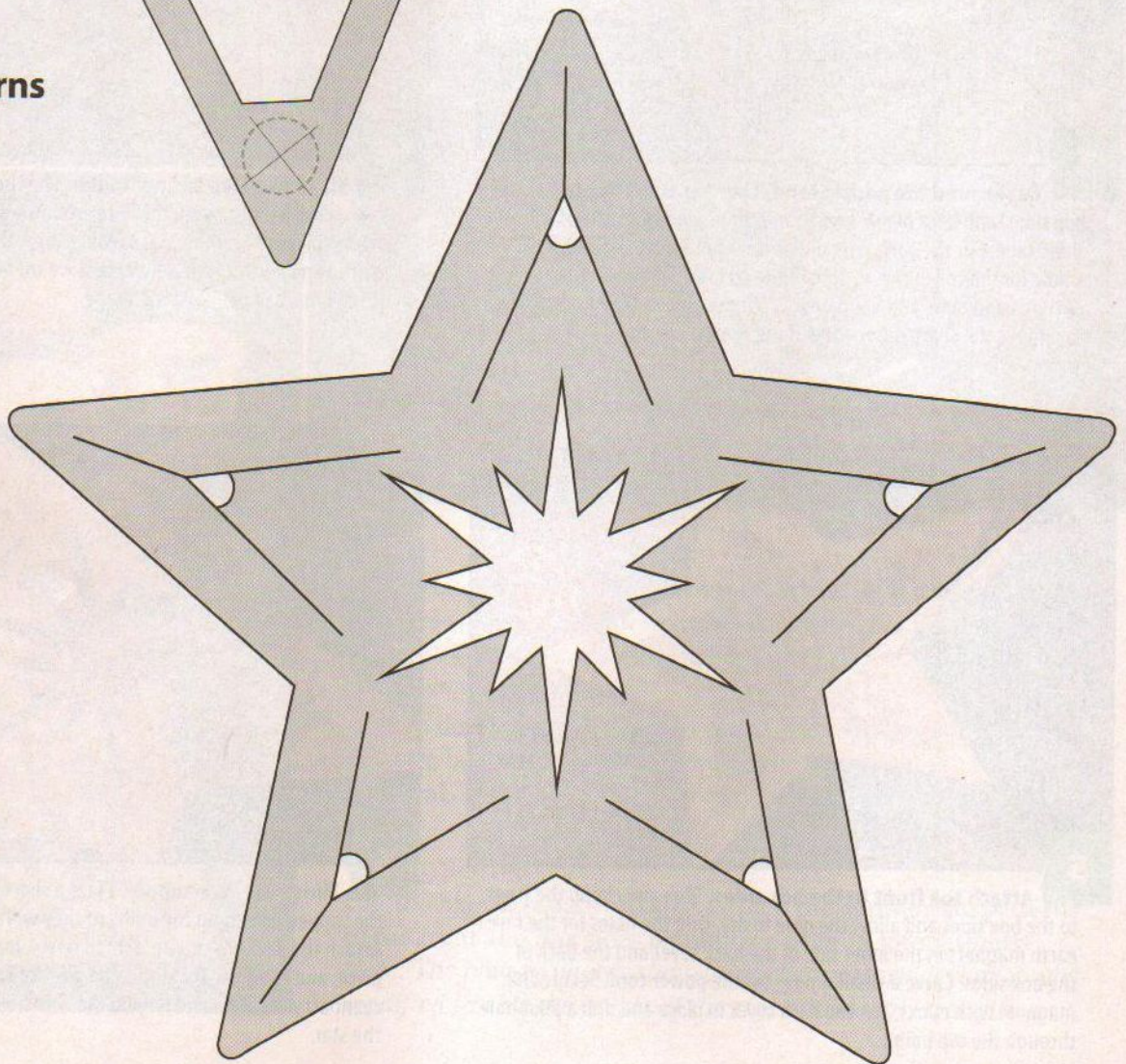
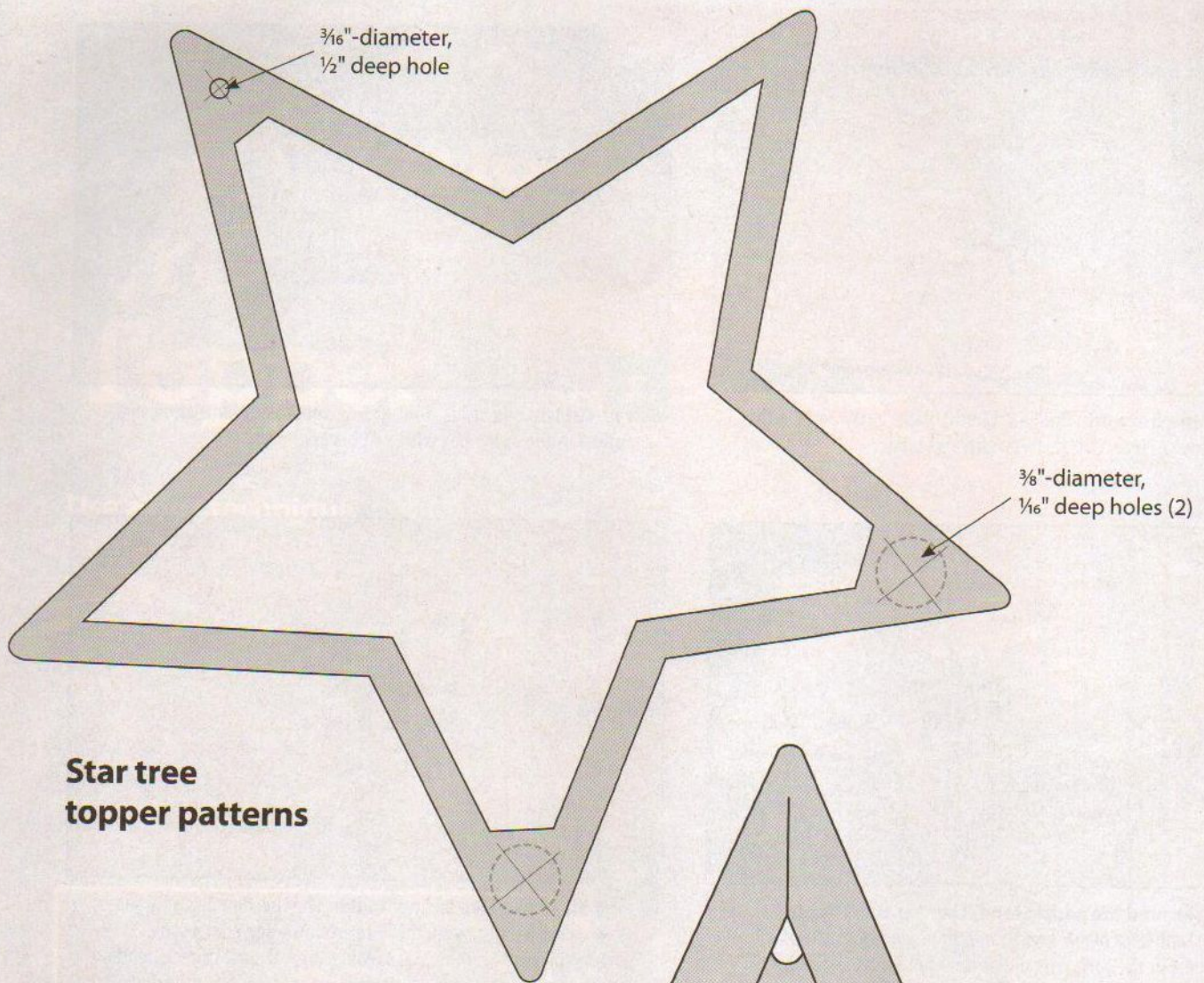
5

Attach the front to the box sides. Glue and clamp the front to the box sides and allow the glue to dry. Drill the holes for the rare earth magnets in the inner side of the back cover and the back of the box sides. Carve a small groove for the power cord. Secure the magnets with epoxy. Put the back cover in place and drill a pilot hole through the top point.



6

Finish the tree topper. Place a short strand of rice lights in the topper, arranging the bulbs so they will show through the frets. Attach the back cover with a small screw, leaving it loose enough to pivot, and twist the backing until the rare earth magnets catch. Use cyanoacrylate (CA) glue to glue the wire holder into the bottom of the star.



Materials & Tools

Star Tree Topper

Materials:

- Yellow wood, such as yellowheart or canary wood, $\frac{3}{4}$ " (19mm) thick: box sides, 6" x 6" (152mm x 152mm)
- Yellow wood, such as yellowheart or canary wood, $\frac{1}{4}$ " (6mm) thick: front and back, 2 each 6" x 6" (152mm x 152mm)
- Tape: masking or blue painter's, double-sided
- Temporary bond spray adhesive or glue stick
- Sandpaper
- Glue: wood, epoxy,

- cyanoacrylate (CA) glue
- Spray varnish: clear
- Rice lights, mini: set of 10 to 20 battery-operated
- Strong, bendable wire, such as a wire coat hanger
- Styrofoam cone or dowel
- Screw, small
- Rare earth magnets: 2 each $\frac{1}{16}$ " (1mm) thick x $\frac{3}{8}$ " 10mm dia.

Tools:

- Blades: #1, #5, #7 reverse-tooth
- Drill press with $\frac{1}{16}$ " (1.5mm) bit
- Clamps

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

SPECIAL SOURCES:

Look for the mini rice lights in craft stores or order them online: www.save-on-crafts.com, www.christmascentral.com, www.batteryoperatedcandles.net, or www.audreyscrafts.com

Materials & Tools

Angel Tree Topper

Materials:

- Baltic birch plywood, $\frac{1}{4}$ " (6mm) thick: front and back, 2 each 4" x 6 $\frac{1}{2}$ " (102mm x 165mm)
- Baltic birch plywood, $\frac{3}{4}$ " (19mm) thick: box sides, 4" x 6 $\frac{1}{2}$ " (102mm x 165mm)
- Wooden ball: head, $\frac{3}{4}$ " (19mm) dia.
- Fine wire (halo)
- Acrylic paint: flesh, white
- Wood glue
- Tape: masking or blue painter's, double-sided
- Sandpaper

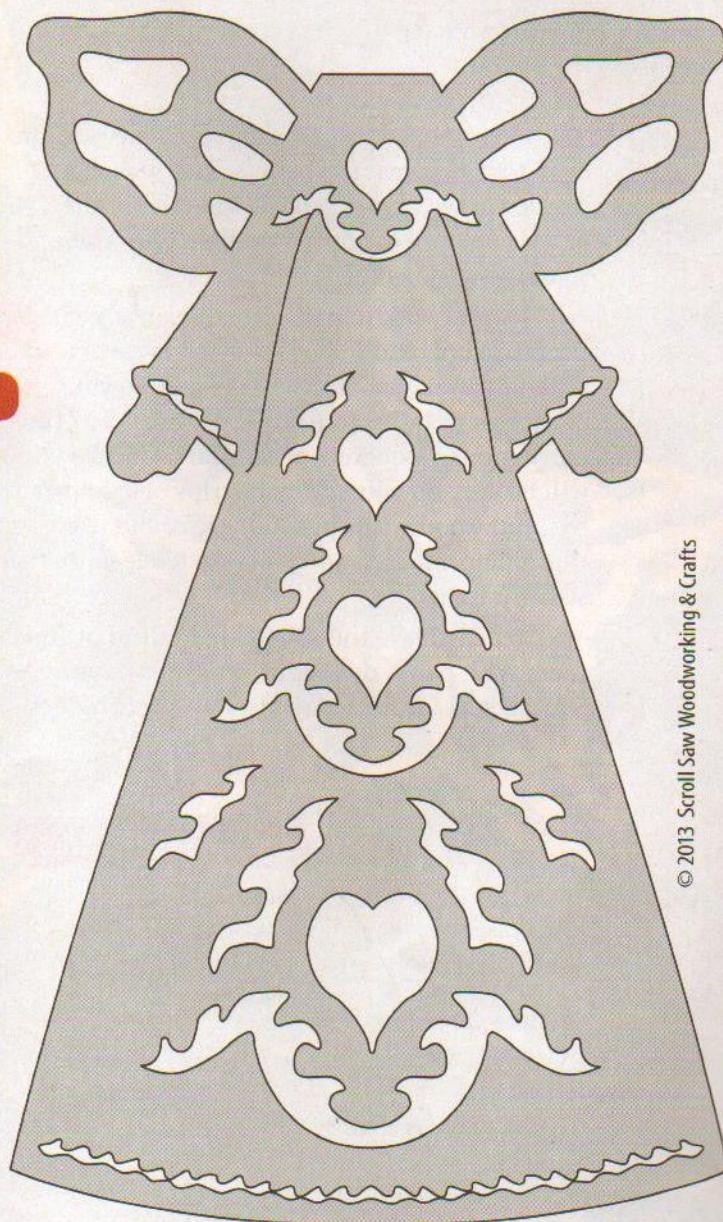
- Temporary bond spray adhesive or glue stick
- Spray varnish: clear
- Styrofoam cone or dowel
- Strong, bendable wire, such as a wire coat hanger
- Rice lights, mini: set of 10 to 20 battery-operated
- Screw, small
- Rare earth magnets: 2 each $\frac{1}{16}$ " (1mm) thick x $\frac{3}{8}$ " 10mm dia.

Tools:

- Blades: #1, #5, #7 reverse-tooth
- Drill press with $\frac{1}{16}$ " (1.5mm) bit
- Clamps

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Angel tree topper pattern



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Additional pattern for the **ANGEL TREE TOPPER** is in the pattern pullout section.



Sue Mey lives in Pretoria, South Africa. To see more of her work, including a variety of patterns, special offers, and pattern-making tutorials available for purchase, visit www.scrollsawartist.com. Contact Sue at suem@storage.co.za. Her first pattern book, *Lighted Scroll Saw Projects*, is available from www.schifferbooks.com and other outlets.

Starflake Ornaments

Starflake
ornament
patterns

Combine snowflakes and stars
for stellar fretwork ornaments

By Leldon Maxcy

Every year, I try to come up with a new design for Christmas ornaments. This season, I decided to see what I could design if I kept the outside shape of the ornament the same. These starflake ornaments are the result.

The fretwork insides for these ornaments are simple to cut, and they don't need to be perfect. After all, every snowflake is unique, so your ornaments can be, too. However, take your time cutting the perimeters of the stars. Crooked lines will be very obvious. Attach strips of sandpaper to scrap wood with spray adhesive, and use these shop-made sanding blocks to clean up the straight lines.

You can leave the starflakes natural or finish them with paint, dye, stain, or glitter paint/glue. See page 37 for finishing ideas and techniques.

Materials & Tools

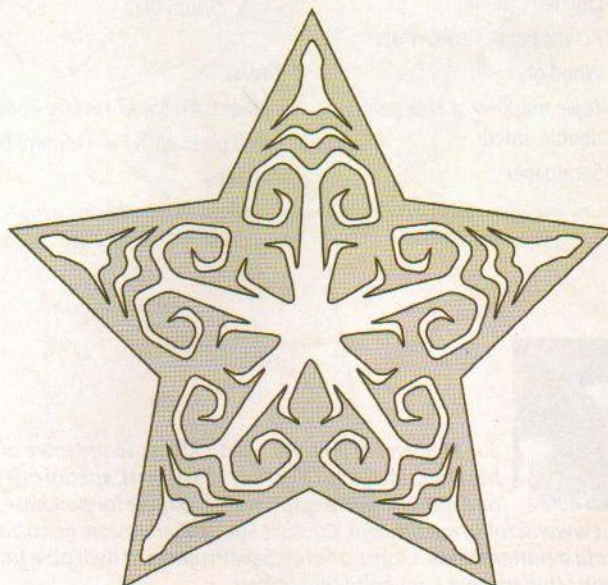
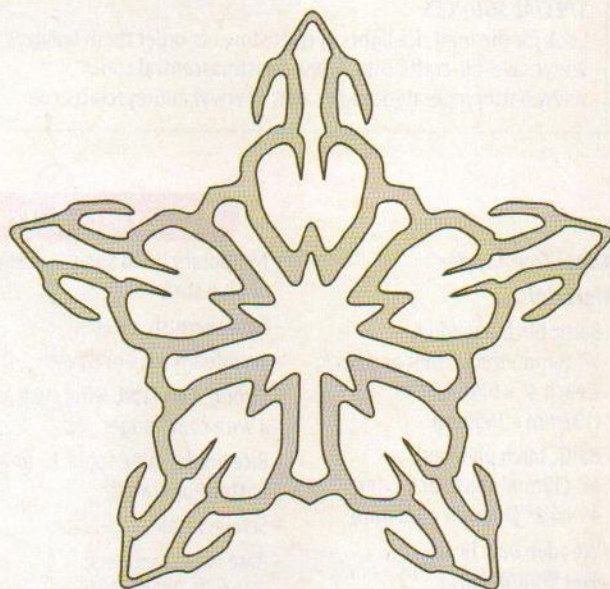
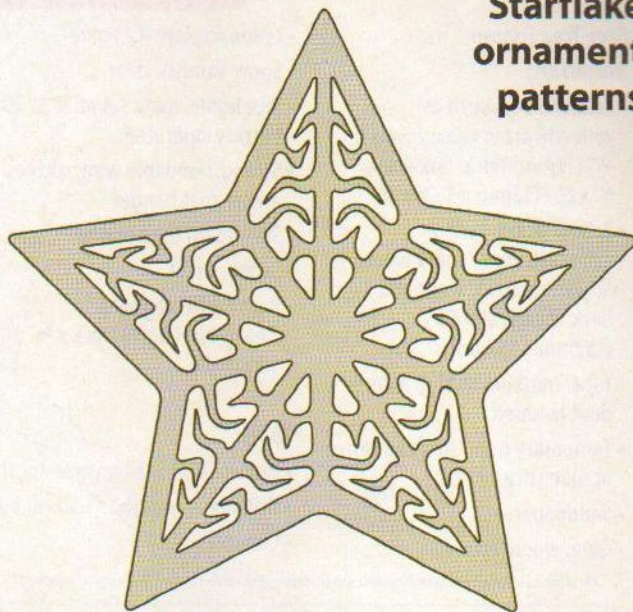
Materials:

- Hardwood, $\frac{1}{4}$ " (6mm) thick: per ornament, $3\frac{1}{4}$ " x $3\frac{1}{2}$ " (83mm x 89mm)
- Spray adhesive
- Sandpaper
- Finish, such as mineral oil

Tools:

- Blades: #3 reverse-tooth
- Drill with assorted small bits

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Leldon Maxcy resides in Cullman, Ala. He has been scroll sawing since he was 14. Now 29, he enjoys scroll sawing just as much as he did when he first started. You can check out more of Leldon's projects on his website, www.leldonscrollsawing.homestead.com.



Custom Pet Earrings

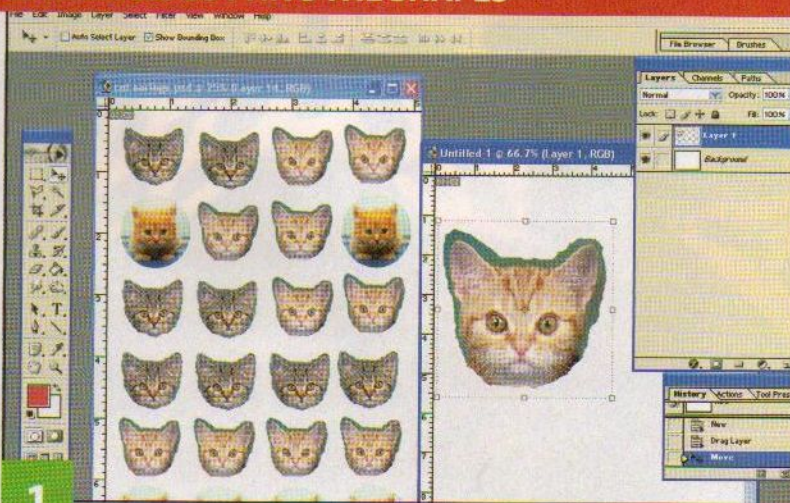
Turn pictures of your pets into cute jewelry

By Kevin Landry

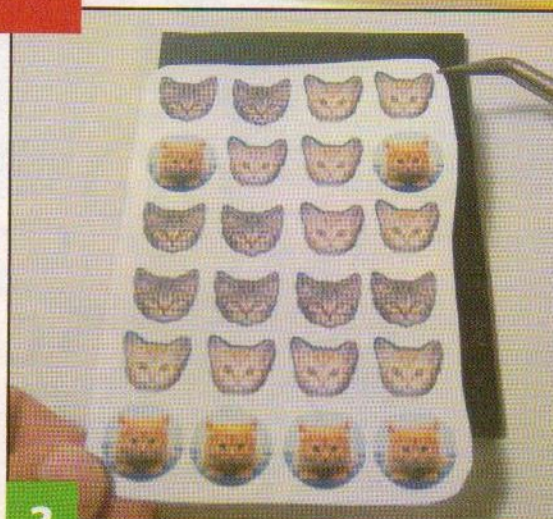
These pet earrings are simple in design and execution, but make a great gift to remember a beloved pet or an ardent animal lover. I used kitten faces, but you could also use a full-body photo; just be sure the photo is small enough to make a reasonably sized earring.

Cut from cast acrylic plastic, these earrings require no sanding or finish. The materials are fairly easy to obtain at local stores or online.

EARRINGS: CUTTING THE SHAPES



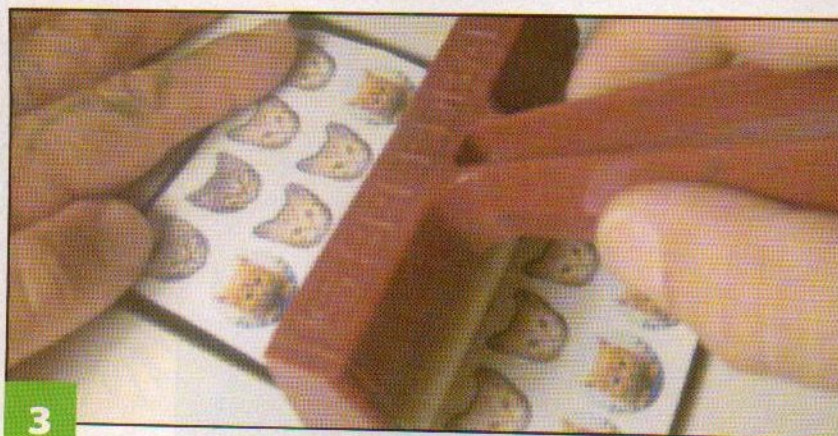
1 **Print the photo.** *Note: Always work with a copy, not your original photo.* Open the photo in photo-editing software, such as Photoshop or Gimp. Crop around the pet's face and erase the background. Create a new blank document with a white background. Drag and drop the edited image onto the new document. Position copies of the image (or different images) four across and five down. Under "File," click on "Print Preview" and check the box "Scale to fit media." Then, print the photos on 4" x 6" (102mm x 152mm) photo paper with an inkjet printer.



2 **Mount the photo onto the acrylic plastic.** Make sure the temperature is between 70°F and 80°F. Avoid dusty areas, fans, and strong breezes. Place the print face down on newspaper or scrap paper. Remove the plastic cover and dust from the acrylic. Spray a medium amount of adhesive on the back of the print. Wait a few seconds for the adhesive to become tacky, and then grab the print with tweezers and place it on the acrylic.

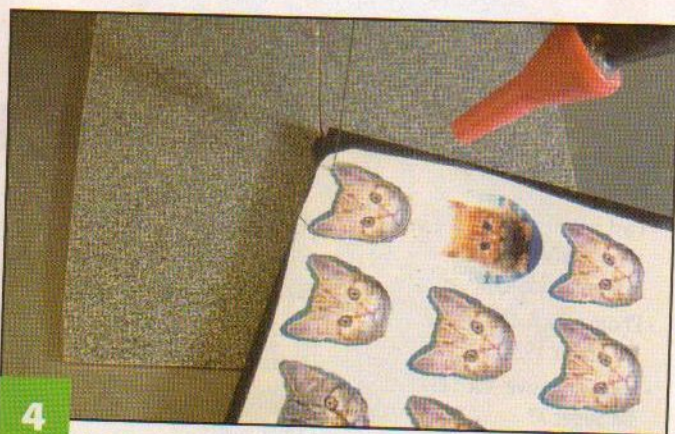
Cast vs. Extruded Acrylic

Most inexpensive acrylic plastic is extruded (forced out of a machine into a sheet) rather than cast (poured into a mold). Extruded acrylic melts easier and sticks in drill bits. Cast acrylic acts more like wood—it's easier to cut and drill. Cast acrylic can be more difficult to find; most hardware stores and home improvement stores carry extruded acrylic. Check model stores and hobby stores. Cast acrylic tends to cost more than extruded, but it's worth the extra money.



3

Seal the photos on the acrylic. Use light pressure with a brayer or rolling pin to lock the print on the acrylic. Apply more pressure and roll again. Allow the adhesive to set for 10 minutes, and then apply two coats of spray finish, allowing the finish to dry for 15 minutes between coats. Allow the second coat to dry for 30 minutes.



4

Cut the faces. Use double-sided tape to attach cardboard or scrap laminate to your saw table to create a zero-clearance insert before cutting the small pieces. Cut a round shape for the face with two bumps for the ears, cutting on the outside of the image and avoiding any sharp turns, points, and ridges. Carefully clean off any debris, but DO NOT remove the protective film from the back. Apply a light coat of finish over the cut pieces, particularly the sides, and let it dry for 15 minutes.

EARRINGS: SEALING THE IMAGES



5

Prepare to pour the resin. Use a level to ensure your work surface is flat and level. Otherwise, the resin will end up thick in one spot and thin in another. Secure waxed paper to the leveled work surface with double-sided tape. Use another strip of double-sided tape to attach the cut faces to the waxed paper. Mix equal parts resin base and hardener and stir vigorously for one minute with a craft stick, scraping the sides and bottom.



6

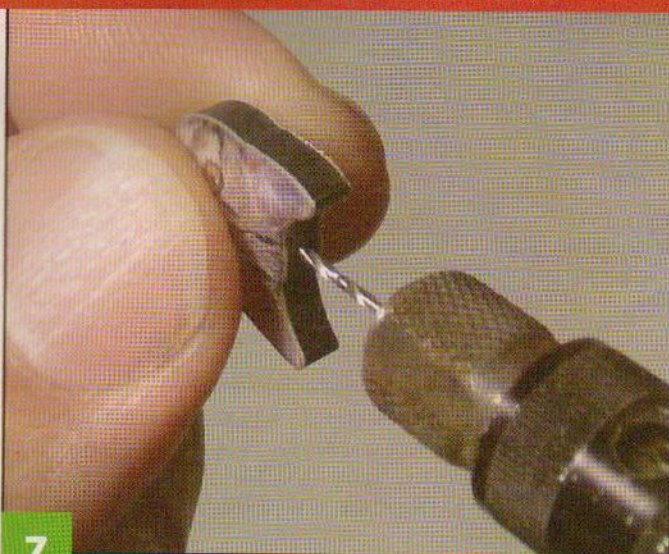
Apply the resin. Use the craft stick to scoop up a small amount of resin and place it on the each cut shape. Move the mixture over the entire surface, but avoid getting it on the sides. While you wait five minutes for the resin to flatten, clean the measuring cup with paper towels and isopropyl alcohol. Then, use a straw to lightly blow over the resin surface to remove air bubbles from the mixture. Cover the pieces to keep out dust and insects. Wait 30 minutes, and then remove any dust or debris with a toothpick. Allow the resin to cure for 48 hours.

TIP

TOUCHING UP RESIN

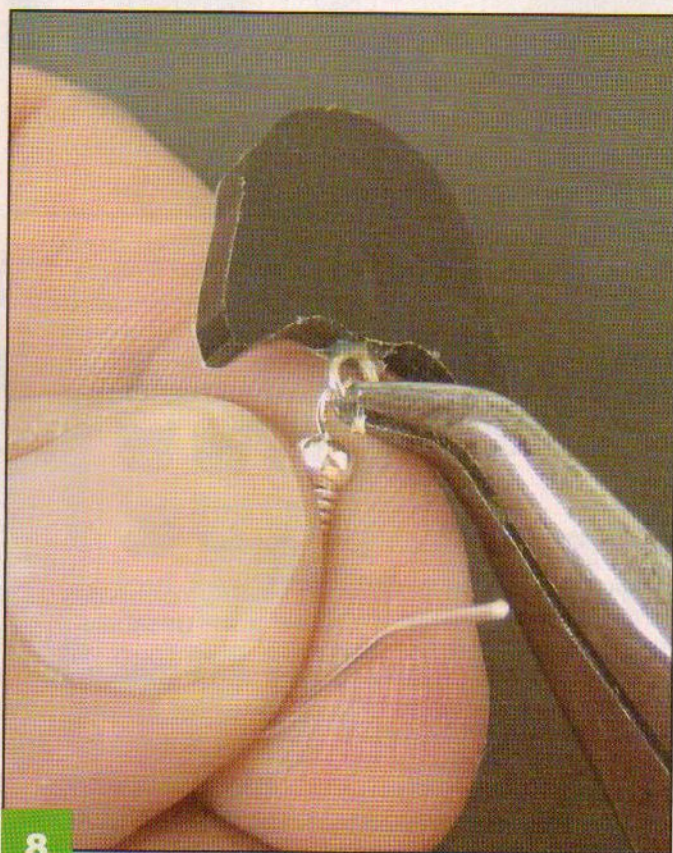
If the resin flowed onto the sides of the earrings, wait until it has fully cured and carefully break it off with pliers or a hobby knife. Touch up any spots you missed with gloss nail hardener.

EARRINGS: ADDING THE HARDWARE



7

Drill the holes. I use a magnifier or an Opti-viewer. Hold an earring in one hand and use a rotary tool to drill a hole in the resin. On my Dremel, I set the speed to a relatively slow speed, about 1½, and use a ⅜" (2.5mm)-diameter drill bit. Make several passes, drilling a little deeper each time until the hole is about halfway through the earring.



8

Attach the hardware. Cut the eyelet posts to the depth of the holes, about ¼" (6mm). Place a drop or two of cyanoacrylate (CA) glue on the post and work the post into the hole. Make sure the eyelet hole is parallel with the face of the earring, and let the glue set overnight. Use pliers to open the hanger loop, attach the earring hook, and close the loop. Remove the backing from the earring.



TIP

HOLDING RACK

Use a table saw to cut grooves in a piece of scrap wood. The width should equal the thickness of the earrings, and the depth should equal about half the height. This rack will hold the earrings upright as you attach the posts.

Materials & Tools

Materials:

- Cast acrylic plastic, ⅛" (3mm) thick: black 4½" x 6½" (114mm x 165mm)
- Photo paper: 4" x 6" (102mm x 152mm)
- Spray adhesive, such as 3M Super 77
- Spray finish, such as Krylon Crystal Clear: clear satin
- Epoxy resin finish, such as Envirotex Lite
- Cyanoacrylate (CA) glue, such as Loctite extra time control
- Hardware: earring hooks and eyelets
- Isopropyl alcohol in a mini spray bottle
- Large straw
- Craft stick
- Toothpicks
- Double-sided tape

- Waxed paper
- Paper towels
- Scrap paper or old newspaper

Tools:

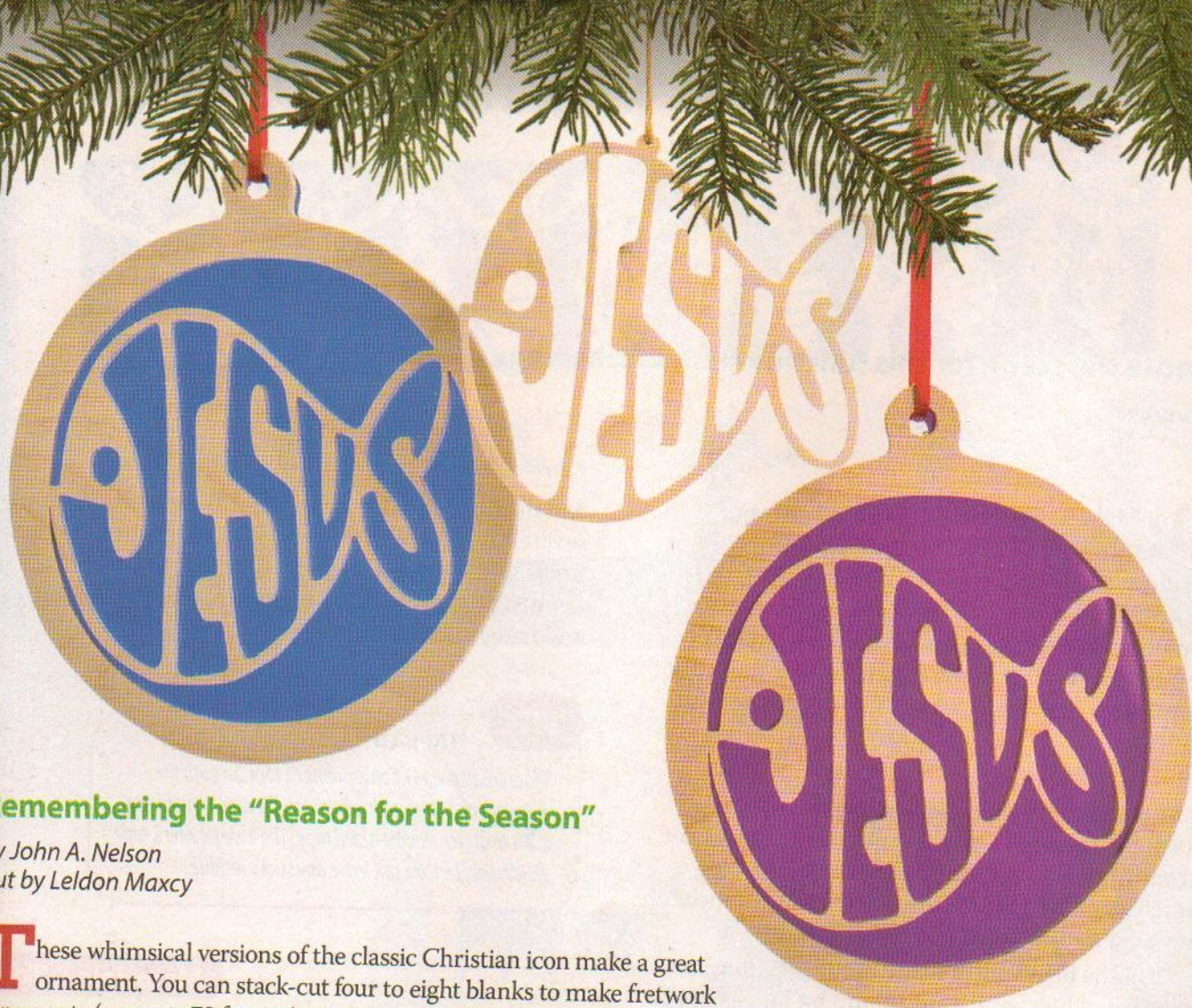
- Blades: #3/0
- Small pliers
- Brayer or rolling pin
- Opti-viewer/magnifier (optional)
- Rotary tool with flex shaft and bits: ⅜" (2.5mm) diameter
- Computer, printer, photo-editing software
- Scissors
- Level
- Measuring cup: mini (shot glass size)
- Tweezers

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Born and raised in Lowell, Mass., Kevin Landry has been scroll sawing and wood crafting since 1999. A musician since age 12 and a lifelong artist and craftsman, Kevin enjoys creating unique and original photograph heirloom pieces using acrylic, hardwoods, and resin concepts.

Fretwork Religious Ornaments



Remembering the "Reason for the Season"

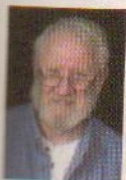
By John A. Nelson

Cut by Leldon Maxcy

These whimsical versions of the classic Christian icon make a great ornament. You can stack-cut four to eight blanks to make fretwork ornaments (see page 78 for tips). Or, for a stained glass look, stack four blanks to cut the fretwork. Then, add four pieces of colored acrylic to the bottom of the stack, cover the stack with clear packaging tape, drill the $\frac{1}{16}$ " (2mm) hole for the hanger, and cut around the perimeter of the stack. Paint or finish the top of the fretwork pieces and use silicone glue, epoxy, or cyanoacrylate (CA) glue to attach the acrylic to the back. Clamp as needed.

For a different look, enlarge the design and cut it from thicker wood to use as a wall hanging.

Patterns for the **FRETWORK RELIGIOUS ORNAMENTS** are in the pattern pullout section.



John A. Nelson is the author of Fox Chapel's popular Scroll Saw Workbook, available at www.foxchapelpublishing.com.

Materials & Tools

Materials:

- Baltic birch plywood, $\frac{1}{8}$ " or $\frac{1}{4}$ " (3mm or 6mm) thick: $3\frac{3}{8}$ " x $3\frac{3}{8}$ " (86mm x 92mm)
- Lacquer: semi-gloss spray
- Colored acrylic plastic, $\frac{1}{8}$ " (3mm) thick: $3\frac{3}{8}$ " x $3\frac{3}{8}$ " (86mm x 92mm)

- Glue: silicone, epoxy, or cyanoacrylate (CA)

Tools:

- Blades: #5 reverse-tooth
- Drill with assorted small bits
- Spring clamps (optional)

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Scenic Stocking Hanger

Choose the scene for this functional fretwork hanger

By Sue Mey

Don't have a mantel where you can hang your stocking with care? This functional design solves that problem. Simply attach as many pegs as needed and hang this holder on the wall. You can even use a temporary hanger like a Command hook to avoid damaging the wall. Plus, you can choose the scene that suits your décor and add color or not, as you like.

Cutting the Pieces

Cut the fretwork blank and backing board to size. Attach the fretwork blank to scrap wood to prevent tearout while you cut. Cover the blank with blue painter's tape, and attach the pattern to the tape with spray adhesive or a glue stick.

Drill the blade-entry holes; use a $\frac{1}{32}$ " (1mm) bit for the small holes and a $\frac{1}{16}$ " (2mm) bit for the larger holes. Cut the frets with a #1 blade, but do not cut the perimeter. Separate the stack and discard the scrap. Use double-sided tape to attach the backing board (see Tip).

Cut the perimeter of the stack with a #5 blade. Drill the $\frac{1}{4}$ " (6mm)-diameter by $\frac{1}{2}$ " (13mm)-deep holes for the Shaker pegs where indicated.

Finishing the Project

Separate the stack and remove the pattern and tape. Hand-sand all of the surfaces and remove the sanding dust. Paint or stain the backing board. Allow the paint or stain to dry, and then glue and clamp the backing board to the overlay. Squeeze glue into the peg holes

and insert the Shaker pegs. After the glue is dry, apply several thin coats of spray varnish or lacquer to the project, allowing each coat to dry thoroughly before applying the next coat. Attach a hanger to the back and hang the stocking holder on a wall.

TIP

TAPE TIP

Place small pieces of blue painter's tape on both the fretwork and the backing board in the areas where you plan to attach double-sided tape. The blue painter's tape holds well, but doesn't leave any sticky residue.

Materials & Tools

Materials:

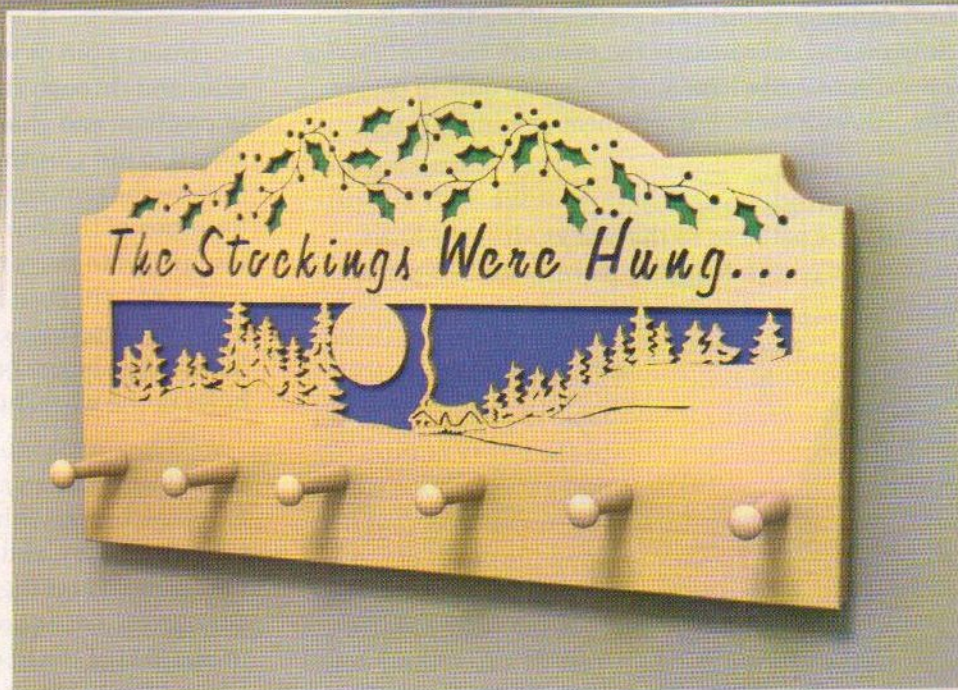
- Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: fretwork, 7" x 12 $\frac{1}{4}$ " (178mm x 311mm)
- MDF or Baltic birch plywood, $\frac{1}{2}$ " (13mm) thick: backing board, 7" x 12 $\frac{1}{4}$ " (178mm x 311mm)
- Tape: blue painter's; thin double-sided tape
- Temporary-bond spray adhesive or glue stick
- Wood glue
- Sandpaper

- Walnut wood stain or acrylic paint in assorted colors
- Lacquer or varnish: clear spray
- Shaker pegs, $\frac{1}{4}$ " (6mm) dia.: 6 each
- Saw-tooth hanger or 2 each picture hangers

Tools:

- Blades: #1 and #5 reverse-tooth
- Drill press with bits: $\frac{1}{32}$ " (1mm), $\frac{1}{16}$ " (2mm), $\frac{1}{4}$ " (6mm)
- Clamps

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Patterns for the **SCENIC STOCKING HANGER** are in the pattern pullout section.



Sue Mey lives in Pretoria, South Africa. To see more of her work, including a variety of patterns, special offers, and pattern-making tutorials available for purchase, visit www.scrollsawartist.com. Contact Sue at suem@storage.co.za. Her first pattern book, *Lighted Scroll Saw Projects*, is available from www.schifferbooks.com and other outlets.

Baby Buggy Ornament

Charming buggy will delight new parents and little girls alike

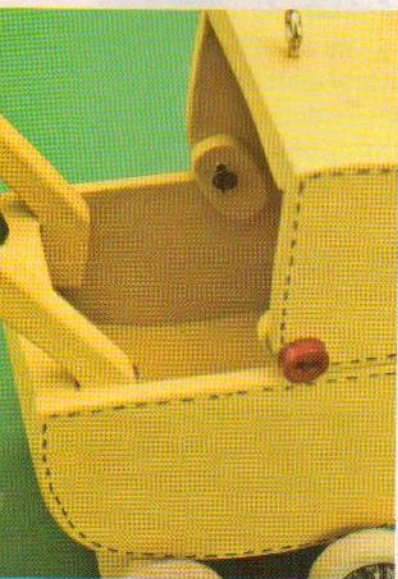
By Ruth Chopp



Designed with a moving hood and wheels, this darling ornament is a perfect gift for Baby's First Christmas—just customize the sign with the child's name and the year. Add a handmade dolly and quilt to delight little girls with their own ornament or miniature toy.

Getting Started

Transfer the patterns to the blanks, drill the holes, and cut the pieces. Sand the pieces with 120-grit sandpaper.



Assembling the Buggy

Glue the buggy sides (A) to the buggy bottom (B), and glue the hood sides (C) to the hood roof (D). Sand the edges of the sides flush with the hood roof and buggy bottom. Test-fit a $\frac{1}{8}$ " (3mm) dowel in the holes in the buggy handle supports (F) and make adjustments as necessary. Glue and clamp the handle supports inside the buggy sides.

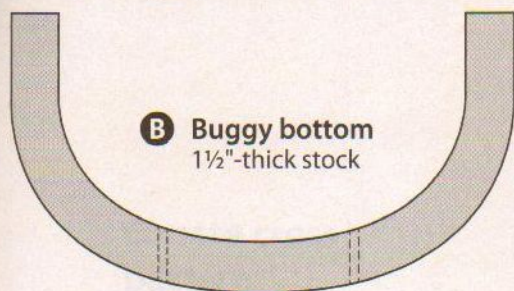
Insert a pin or wire through the holes in the hood sides and through the hood pivots (G). Place the hood in position, and glue and clamp the pivots to the buggy side. (Do not glue the hood.) Allow the glue to dry, and remove the temporary pivot wires and hood. Mark the locations of the four screw holes on the buggy bottom. Use an awl to mark the hole locations. Drill the holes with a #41 bit. Drill holes in the wheel holders (H) with a #56 bit. Insert four round-head brass screws into the holes in the buggy bottom and thread them into the holes in the wheel holders; tighten.

Finishing the Buggy

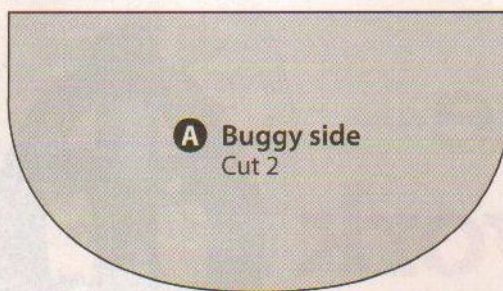
Paint the buggy with golden straw acrylic paint, allow the paint to dry, and then sand it lightly with 180-grit sandpaper. Paint the three holly leaves (I) with Hauser dark green. Glue three red beads around the hole in one side of the hood. Then, glue the holly leaves around the beads and draw a few squiggly lines around the leaves with a 005 Micron pen. Use the same pen to make the dotted lines around the sides of the buggy body and hood.

Paint the sides and back of the signs (J, K) with Hauser green. Let the signs dry, and then paint the front section of each with light ivory. Add the dotted

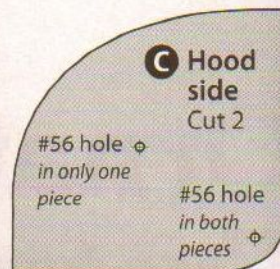
Baby buggy ornament patterns



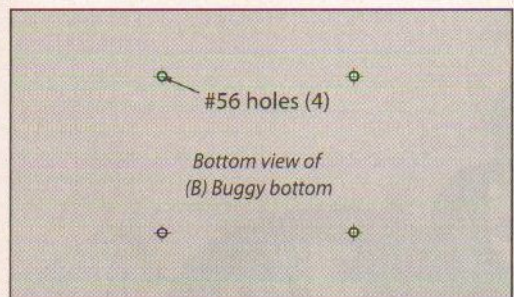
B Buggy bottom
1 1/2"-thick stock



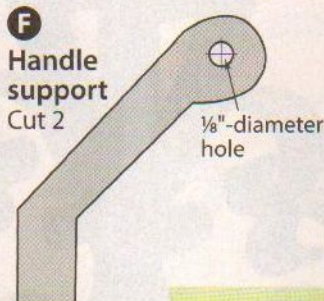
A Buggy side
Cut 2



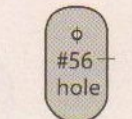
C Hood side
Cut 2



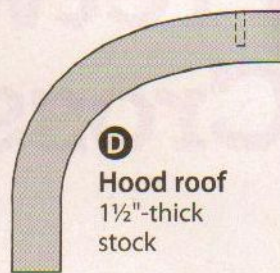
#56 holes (4)
Bottom view of
(B) Buggy bottom



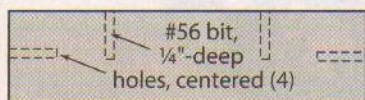
F Handle support
Cut 2



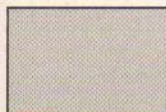
G Hood pivot
Cut 2



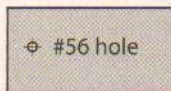
D Hood roof
1 1/2"-thick stock



H Wheel holder
Cut 2



J Sign on buggy side



K Sign on handle



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Materials & Tools

Materials:

- Baltic birch plywood, 1/8" (3mm) thick: buggy sides, hood sides, signs, pivots, holly, 3" x 5" (76mm x 127mm)
- Basswood, 1 1/2" (38mm) thick: buggy bottom, hood roof, 3" x 3 1/2" (76mm x 89mm)
- Pine, 5/16" (8mm) thick: wheel holder, 1" x 1 1/2" (25mm x 38mm)
- Pine, 3/16" (5mm) thick: buggy handle supports, 1 1/2" x 2" (38mm x 51mm)
- Dowel, 1/8" (3mm) dia.: 2" (51mm)-long
- Spray adhesive
- Wood glue
- Sandpaper: 120, 180 grits
- Wood screws, slotted round-head brass: 4 each #2 x 1/2" (13mm) long
- Micron pen: black 005
- Spray finish, such as Krylon: matte
- Stain, such as Minwax: natural
- Wire, #28: black
- Brass screw eye: 1/2" (13mm) dia.
- Beads: transparent red
- Wooden wheels, 3/4" (19mm) dia.: 4 each
- Brass jewelry link, 1/4" (6mm) dia.
- Furniture nails, such as Anchor: 4 each antique brass
- Buttons, 1/4" (6mm) dia.: 2 each red
- Acrylic paint, such as DecoArt Americana and Delta Ceramcoat: golden straw, Hauser dark green, light ivory
- Plastic doll (optional)

Tools:

- Blades: #3 and #9 reverse-tooth
- Drill with bits: 1/8" (3mm)-dia., #41 wire size, #56 wire size
- Clamps
- Awl
- Flat screwdriver: small
- Pliers
- Paintbrushes

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

lines, the "1st Christmas," and any other text with the Micron pen. Glue the side sign to the buggy side. Seal the hood and buggy with matte finish.

Dip the wheels in Minwax natural stain and allow them to dry. Use decorative furniture tacks (nails) to attach the wheels. Leave a little wiggle room so the wheels turn freely.

Cut two 3" (76mm)-long pieces of #28 wire. Feed both ends of one piece through a small wooden button. Twist the ends of the wire together once, and feed the wires through the holes in the hood and pivot piece. Use pliers to twist the wire in a tight coil, and twist and press the wire against the side of the buggy. Repeat for the other side. Insert the dowel into the handle supports. Add a small screw eye to the top of the buggy hood. Use a brass jewelry link to attach the "1st Christmas" sign to the handle.



Ruth Chopp began her career as a home economics teacher. When her children left home, she decided to try woodworking, noting that using a scroll saw and a sewing machine are really quite similar. Ruth loves wooden Christmas tree ornaments, so she designed her own; she now has about 300 patterns. Contact Ruth via e-mail at melchopp@comcast.net.

Ornate Fretwork Cross

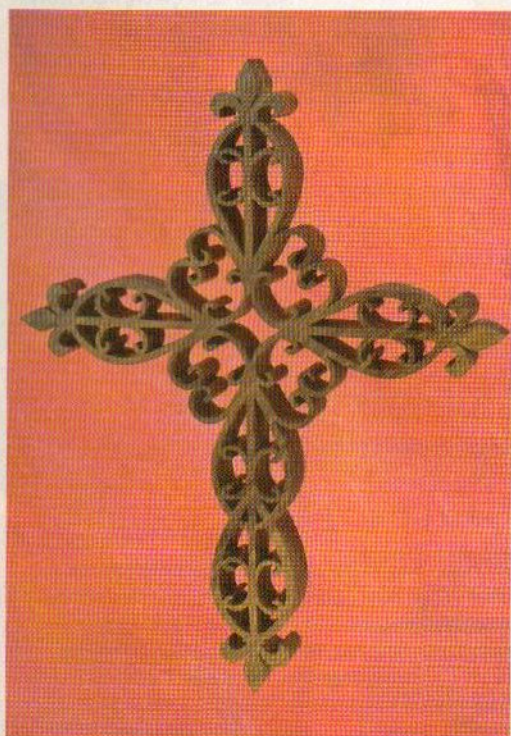


**Intricate stylized design
makes a great gift**

By Bobby Riggs

While this intricate cross looks delicate, the open spaces make it quick and easy to cut. You can cut and finish this cross in a weekend.

I make most of my crosses from natural hardwoods and apply a clear finish. If you are concerned about the strength of the design, you can either cut it from plywood and paint it, or cut it from hardwood and attach a plywood backing board.



Ornate cross pattern



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Materials & Tools

Materials:

- Walnut, $\frac{3}{4}$ " (19mm) thick: 8" x 10½" (203mm x 267mm)
- Spray adhesive
- Sandpaper
- Finish, such as spray lacquer

Tools:

- Blades: #5 reverse-tooth
- Drill with assorted small bits

*The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.*

ON THE WEB Download an alternate cross pattern from our website.
www.scrollsawer.com



Bobby Riggs has been scrolling for 10 years. Born in West Virginia, Bobby now lives in Texas, where he works for a large airline. Bobby and his wife have two sons and three grandchildren. Crosses are Bobby's favorite subject to cut.

Wooden Book Box

Use colorful wood scraps to create the look of old leather books in this clever box

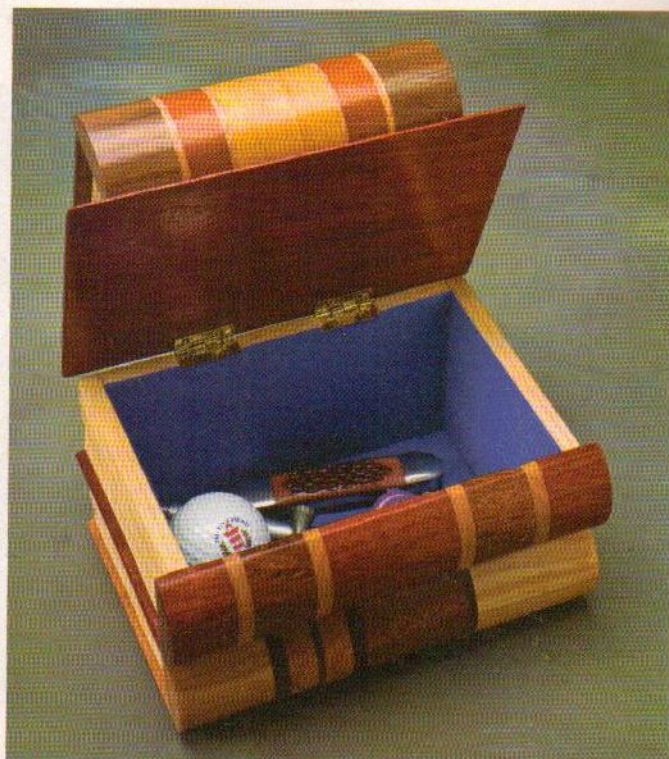
By L. Kim Braa

This box was inspired by the faux leather-bound book storage boxes found at home interior stores. I realized that I could make a similar box out of wood using the scraps of colorful, exotic, and expensive hardwoods that I have saved from previous projects. I make the “pages” from white oak cut into strips, shaped, and laminated back together. It is, admittedly, a very time-consuming and tedious process. It’s possible to use a rotary tool to carve the grooves, but I prefer the look of the cut and glued pages. I make the pages and book fronts slightly larger than their finished sizes and then cut and square them to fit the assembled box.

Wood Notes

Many of the varieties of wood that I used are high on the Janka hardness scale, which creates some challenges. Use these tips to avoid problems, and feel free to substitute different wood for those listed.

- These woods can be brittle; they splinter and scorch easily, and dull blades quickly. Take your time, keep firm pressure on the wood while cutting, and follow the grain direction lines on the patterns. Always apply clear packaging tape to the blanks, use slower speeds, and use sharp blades to minimize scorching.
- Many are porous, meaning that sawdust from darker varieties can discolor lighter varieties. While sanding, try not to carry color from darker woods onto lighter woods, and remove the sanding dust frequently. Before applying any liquid, including mineral spirits, adhesive remover, and finishes, remove all sanding dust with an air-compressor, vacuum, or clean, soft-bristled paintbrush.
- These types of wood can cause eye and skin irritation. Wear a mask and eye protection while you work, and substitute wood varieties if you have known allergies to any of the types listed here.



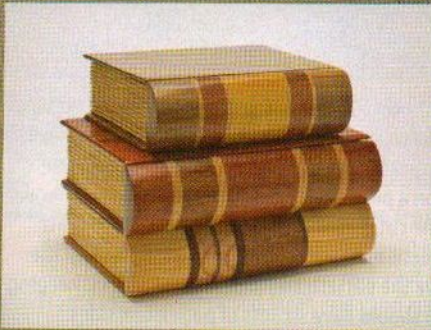
Getting Started

Make sure all of the wood is as flat as possible, and sand both sides of each piece with 120-grit sandpaper. If you work on this project over a period of time, keep the thin cut pieces weighted down to prevent cupping. Refer to the cutting lists for dimensions on all pieces except for the decorative fronts. Make sure the table is square with the blade. After an initial shaping with a belt sander (if necessary), I sand all pieces with 120-grit sandpaper and work my way through the grits to 400 grit.

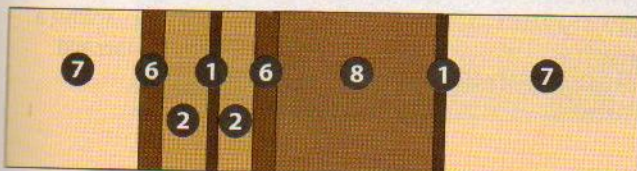
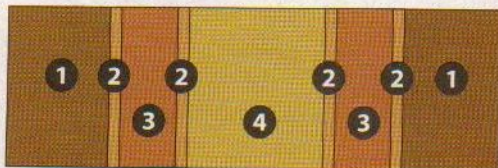
Preparing the Hardwood Scraps

When choosing wood for the decorative fronts, select varieties with similar densities. Different densities of wood sand differently, and it’s easy to sand gouges in soft wood while shaping harder wood. All of the decorative book fronts are the same width, but the lengths vary.

When preparing the stock, make the widths of the pieces slightly oversized to allow you to trim the edges square after laminating. All of the stock is at least $\frac{3}{4}$ " (19mm) thick, except the accent bands. To create the accent bands, cut strips of thin stock to $\frac{3}{4}$ " (19mm) wide and slightly more than $1\frac{3}{4}$ " (44mm) long. The decorative fronts look better if most of the wood grain is horizontal. Once you have cut all of the pieces for the lamination, remove the burrs and make sure the gluing surfaces are flat. Test-fit for gaps and sand or re-cut as necessary for the tightest possible fit.

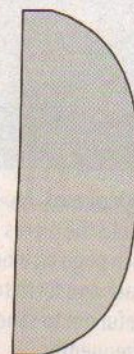


Decorative book fronts diagram



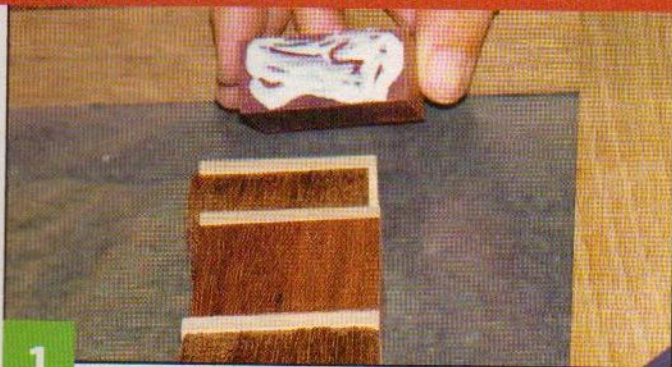
Suggested hardwoods:

- ❶ Black walnut
- ❷ Red oak
- ❸ Leopardwood
- ❹ Yellowheart
- ❺ Bloodwood
- ❻ Chechen
- ❼ Cypress
- ❽ Mahogany



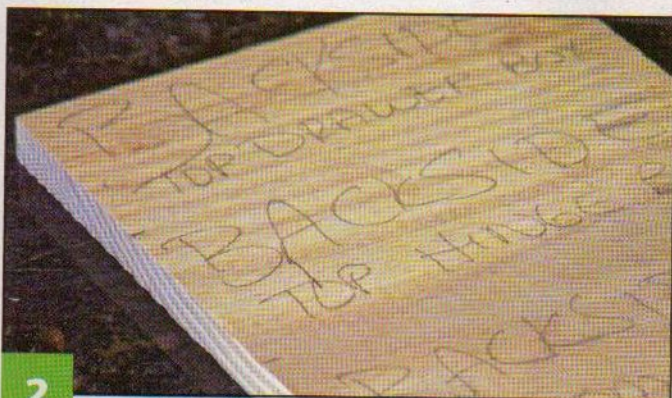
Shaping guide for decorative book fronts

BOOK BOX: MAKING THE LAMINATIONS



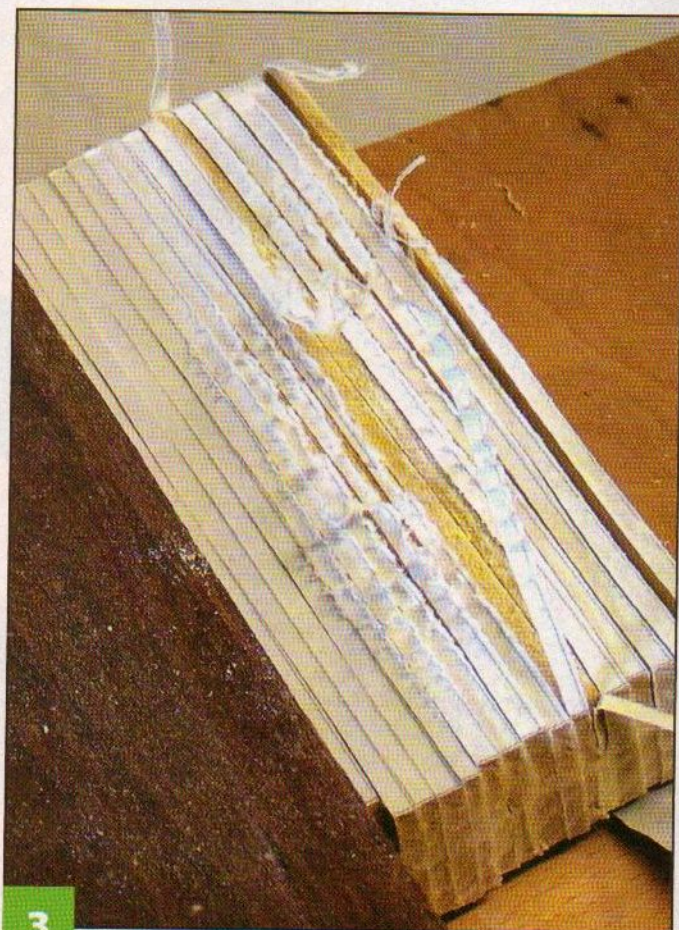
1

Glue up the decorative book fronts. Referring to the diagram on page 65, cut enough pieces of wood to create two book fronts slightly larger than $1\frac{3}{4}$ " by 7" (44mm by 178mm) (pieces I) and one slightly larger than $1\frac{3}{4}$ " by $5\frac{1}{2}$ " (44mm by 140mm) (piece A). Arrange the pieces as you plan to use them and glue them together, placing one end and side of each assembly against a right angle and clamping to keep the pieces as square and flat as possible.



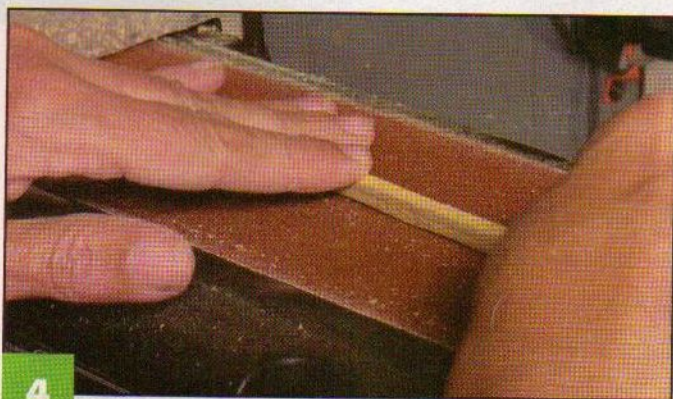
2

Prepare to cut the book pages. Cut the box sides/pages blanks (pieces H) to size, mark the top edges, and label the back of each section. Color the right edges of the blanks so you can reassemble the pages in order if you drop them. Stack the blanks with double-sided tape, attach the pattern to the top of the stack, and cover it with clear packaging tape.



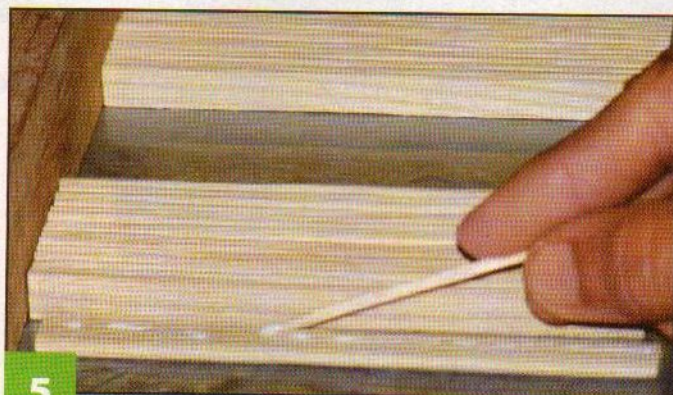
3

Cut the pages. Using a #5 reverse-tooth blade, cut the first and last page of each section accurately. The other pages are more flexible; wavy cuts add to the appearance of an older book. As you cut, line up the pieces in order on a piece of thin stock so they're easy to move later. Measure across the cut pieces to make sure you have at least $1\frac{5}{8}$ " (41mm) for each section. As you finish a section, square up the top and label it. Remove the pattern and separate the stacks, keeping the pieces in order. You should have six sets of pages/box sides.



4

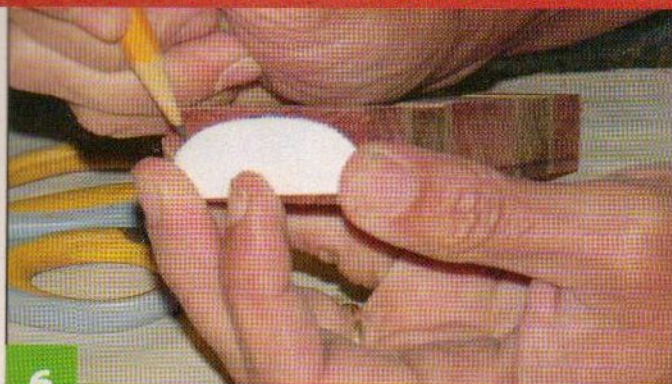
Shape the page pieces. Move the pages to the sanding area. Use scrap blocks to hold the pieces in order as you carefully sand the unmarked side of each page on a belt sander. Apply light pressure and rock the page back and forth to round the front. Repeat for all of the pages. Be careful not to sand your fingers and knuckles. Use a belt-cleaning stick frequently.



5

Glue the page pieces together. Remove any dust. Be sure the colored ends face the same way and the individual pages are in order. Place a piece of waxed paper on the bench. Butt the pages against a block of scrap wood. Glue the pieces of each section together and clamp a piece of scrap wood across the top to keep it flat.

BOOK BOX: SHAPING THE DECORATIVE FRONTS



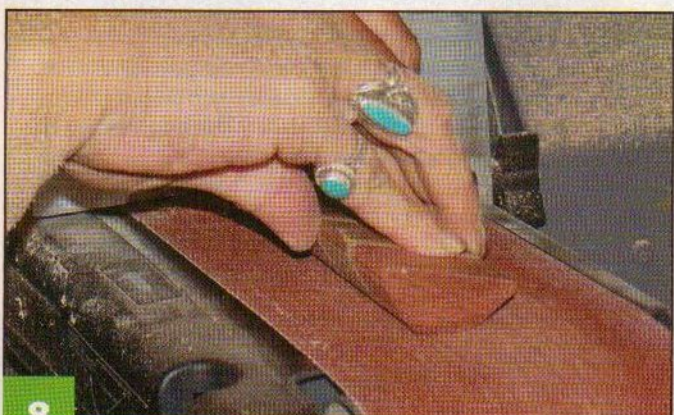
6

Prepare to shape the decorative fronts. Cut the laminated blanks to $1\frac{3}{4}$ " (44mm) wide, and then cut one to $5\frac{1}{2}$ " (140mm) long (piece A) and two to 7" (178mm) long (pieces I). Draw a line $\frac{1}{8}$ " (3mm) up from the back side and the length of each piece. Stiffen the shaping guide (page 65) with several layers of clear packaging tape, cut it out, and trace the shape onto the ends of the blanks.



7

Rough-shape the decorative fronts. With the belt sander and using the arches on the ends as guides, bevel the front sides. The bevels should run from the front of the blank to the reference line drawn in Step 6. Switch between decorative fronts to allow the blanks to cool so you don't scorch the wood. Use a sanding-belt cleaner often.



8

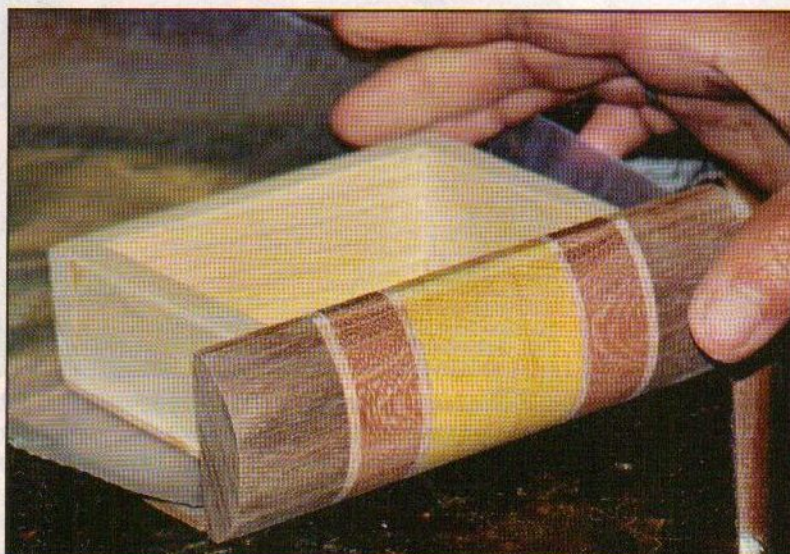
Finish shaping the decorative fronts. Round the decorative fronts on the belt sander using a rocking motion. Use the shaping guide as a reference. Run your fingers across the fronts to check for raised areas and sand accordingly.

BOOK BOX: MAKING THE DRAWER



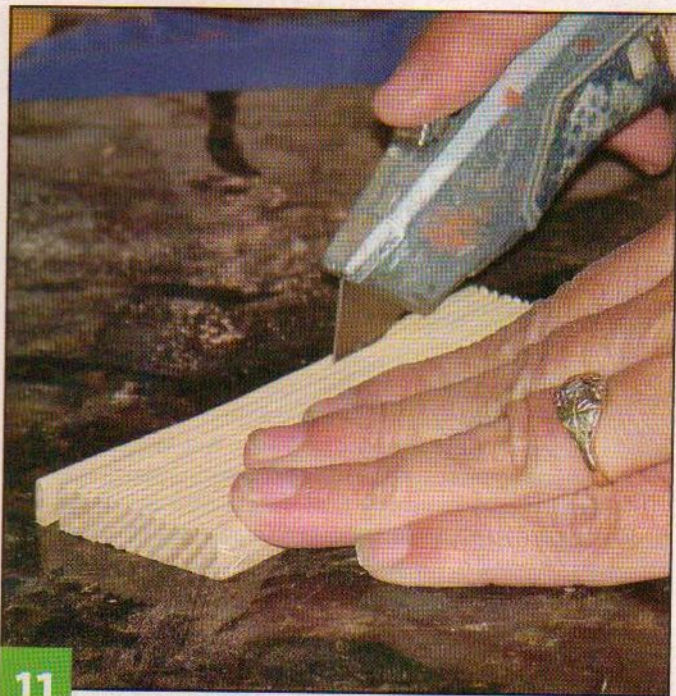
9

Make the drawer. Cut drawer pieces B, C, D, and E to size, sand them, and remove the dust. Clamp and glue the pieces, making sure the drawer is as square and flat as possible and removing any glue squeeze-out.



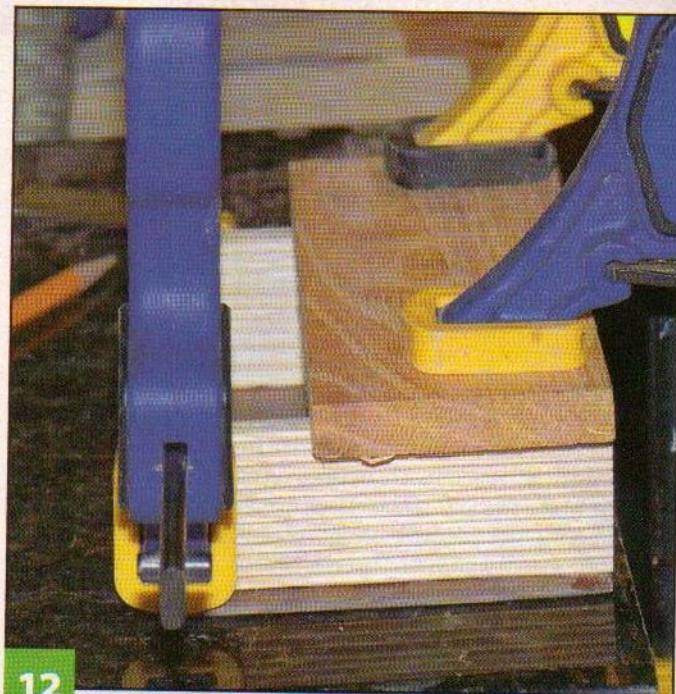
10

Attach the decorative front to the drawer. Sand the drawer, lightly round all the edges except the front, and remove the dust. On the back of the decorative drawer front (A), mark 1" (25mm) in from both ends. Place the box bottom blank (F) on the bench and cover it with waxed paper. Place the drawer with its front flush with the edge of the box bottom blank. Test-fit the decorative front—it should cover the drawer and the box bottom blank. Glue and clamp the decorative front to the drawer.



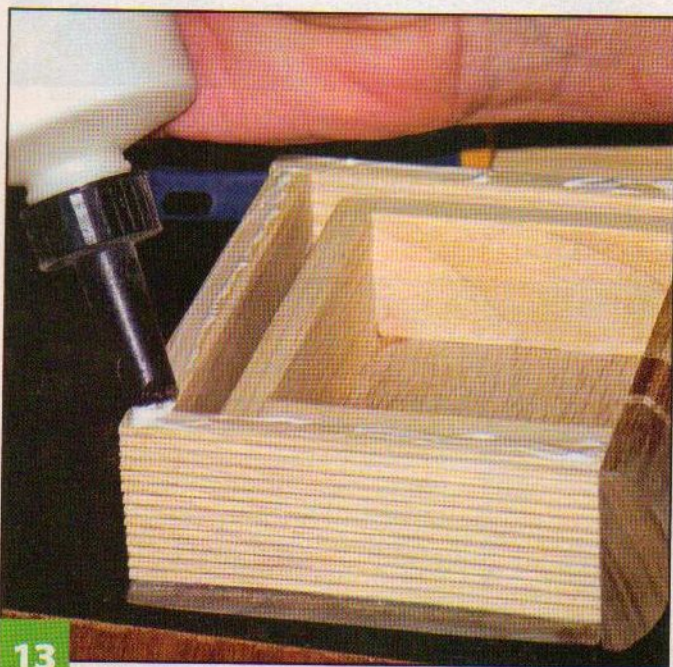
11

Finish the top box pieces. Cut two box sides/pages to 4" (102mm) long by 1½" (38mm) wide. Cut or sand small amounts from the edges of the sections so those pages don't become too thin. If necessary, use a sharp utility knife to split off one of the pages. Sand the pieces square and remove any glue residue from the inside. Cut the box back (G), top (F), and bottom (F) to size, sand everything, and remove the dust. On the top of the box bottom (F), draw lines ½" (13mm) in from each 4" (102mm)-long end.



12

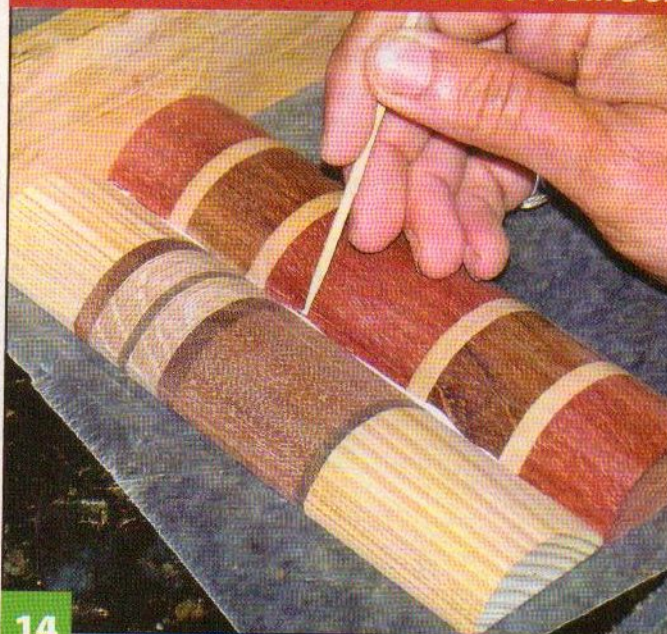
Glue the sides and back to the bottom. Glue the box sides/pages on the box bottom, aligned with the pencil lines. Glue the box back (G) between the sides and flush with the back of the box bottom. Check for square and use a flat piece of scrap wood to keep things flush as you clamp everything in place.



13

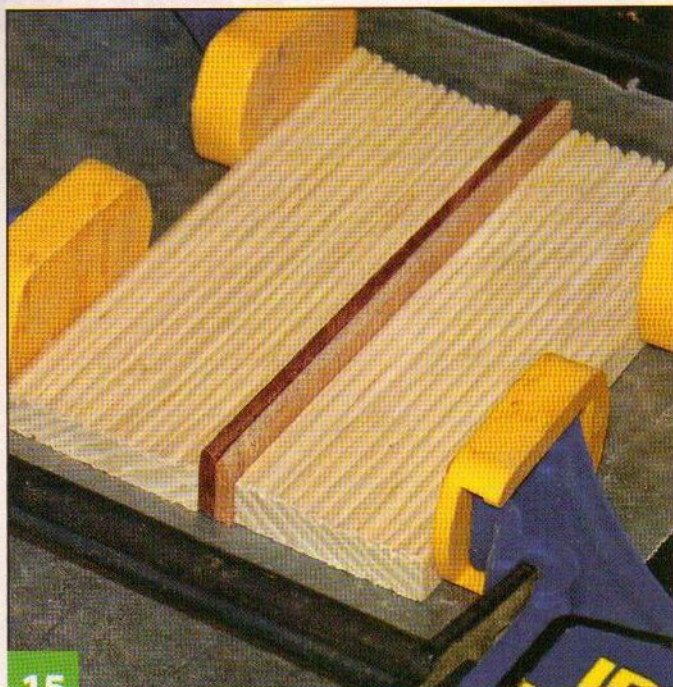
Attach the top book cover. Carefully slide the drawer into the box. Use a flat piece of scrap as a guide as you align the box top (F) flush with the side and front edges and glue it in place. Carefully remove the drawer and any glue squeeze-out. Clamp the top against the sides and back; do not position clamps in the open center area.

BOOK BOX: ASSEMBLING THE BOTTOM BOX



14

Glue together the bottom box decorative fronts. Place waxed paper on the bench and position the decorative fronts (I) side by side on the bench. Make sure there are no gaps, and then glue and clamp them together. Remove any glue squeeze out. Cut the plywood box front (J), center it on the back of the decorative front, and glue and clamp it in place.



15

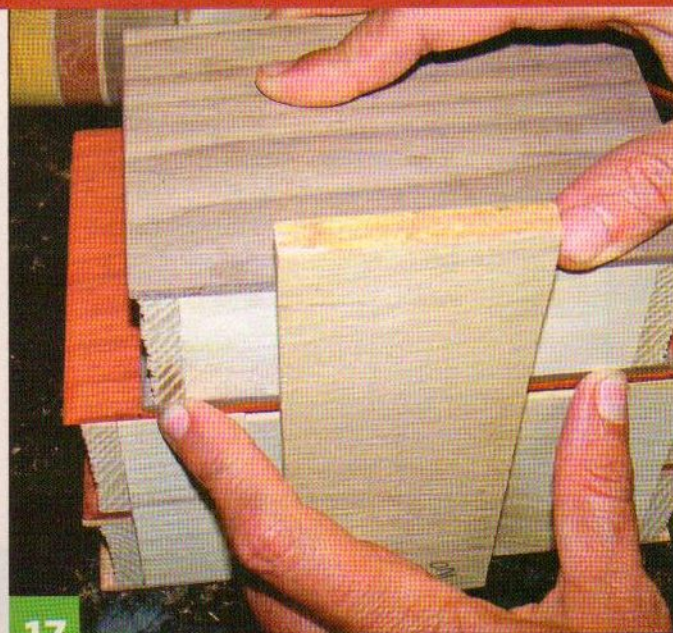
Assemble the box sides. Cut the box lid (L), bottom (M), and side trim (N). Sand the pieces and round the edges slightly. Use the pattern to cut the box back (K). Use the technique explained in Step 11 to trim two sets of box sides/pages to $1\frac{5}{8}$ " (41mm) wide and two sets to $1\frac{1}{2}$ " (38mm) wide. Cut all of the side pieces $4\frac{1}{2}$ " (114mm) long. Glue and clamp the pieces together in this order: $1\frac{5}{8}$ " (41mm) side, bloodwood trim, mahogany trim, $1\frac{1}{2}$ " (38mm) side. When the glue is dry, cut or sand the sides to $4\frac{3}{8}$ " (111mm) long.



16

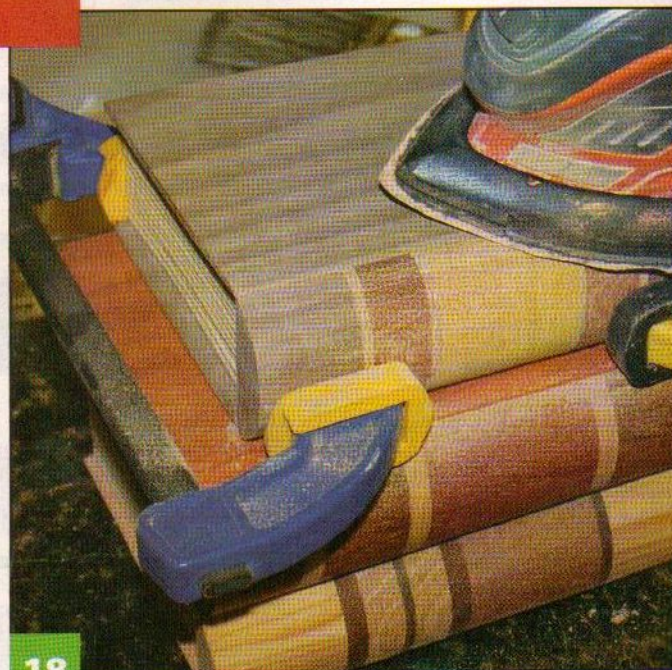
Glue up the bottom assembly. Draw lines $\frac{1}{2}$ " (13mm) from the ends of the box bottom (M) and use the lines as guides to position the box sides/pages and back, and to glue and clamp the box together. Remove the glue squeeze out and make sure the box is square. When the glue is dry, you may want to reinforce the joints with corner blocks or braces.

BOOK BOX: COMPLETING THE PROJECT



17

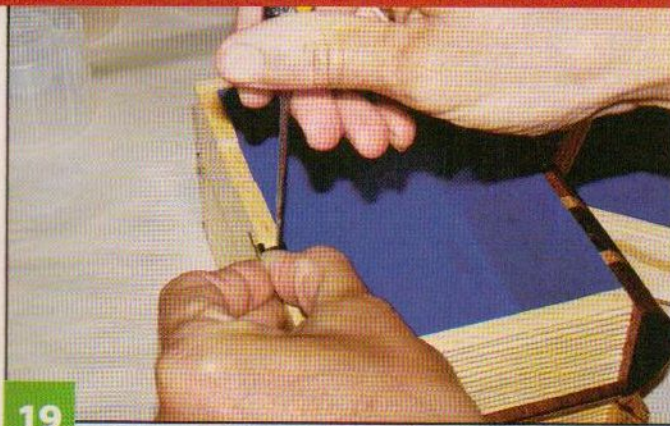
Attach the drawer assembly to the box lid. Use small strips of carpet tape to attach the lid (L) to the hinged box. Use sandpaper to taper the lid toward the front and round the side edges slightly. Center the drawer assembly on the lid with the back edges flush, and glue and clamp the drawer to the lid. Remove any glue squeeze-out.



18

Finish sanding and shaping the box. Slide the drawer into place and use two clamps to hold it while you sand the box lid so it blends with the decorative front. Eliminate the $\frac{1}{8}$ " (3mm)-wide lip on the decorative front. Sand away any glue, burrs, or burn marks. Fold a sheet of 400-grit sandpaper and use it to clean the grooves between the pages on the box sides.

BOOK BOX: COMPLETING THE PROJECT



19

Finish the box. Pry the lid off and remove all of the dust with compressed air, a vacuum, or a clean, soft-bristle paintbrush. Wipe the box lightly with mineral spirits to remove any glue residue or remaining dust, working from light wood to dark wood to prevent color bleeding. Apply several thin coats of shellac; apply the finish sparingly to prevent color bleeding. Buff with a brown paper bag or 0000 steel wool between coats. Then, apply several thin coats of semi-gloss lacquer. To flock the inside of the box, basecoat the inside of the box with acrylic paint and then follow the manufacturer's instructions to apply the flocking fibers. Align the hinges and install the brass screws. Use a permanent marker to sign and date the bottom of the box.

Materials & Tools

Materials:

- Brass narrow hinges and screws, 1 pair, 1" x $\frac{7}{8}$ "
- Repositionable spray adhesive
- Tape: lightweight clear packaging; double-sided carpet
- White wood glue
- Toothpicks, wooden
- Cotton swabs
- Sandpaper: assorted grits 120-400
- Sanding pads for detail sander: assorted grits 120-400
- Sanding-belt cleaning stick
- Paper towel or lint-free cloth
- Waxed paper

- Brown paper bag OR 0000 steel wool
- Shellac
- Finish: semi-gloss spray lacquer

Tools:

- Scroll saw blades, such as Flying Dutchman Ultra Reverse: #3, #5
- Sanders: detail and belt
- Clamps
- Utility knife
- Pencil
- Ruler
- Triangle and/or combination square, small square

The author used these products for the project.
Substitute your choice of brands, tools, and materials as desired.

Patterns for the **WOODEN BOOK BOX** are in the pattern pullout section.

Cutting List for Top Box (drawer)

	Piece	Size	Material
A	Drawer decorative front	1 $\frac{3}{4}$ " x 5 $\frac{1}{2}$ " (44mm x 140mm)	$\frac{3}{4}$ " (19mm) laminated hardwood*
B	Drawer sides (2)	1 $\frac{1}{4}$ " x 3" (32mm x 76mm)	$\frac{3}{8}$ " (10mm) white oak
C	Drawer back	1 $\frac{1}{4}$ " x 4 $\frac{1}{2}$ " (32mm x 114mm)	$\frac{3}{8}$ " (10mm) white oak
D	Drawer bottom	3 $\frac{5}{8}$ " x 4 $\frac{1}{2}$ " (86mm x 114mm)	$\frac{1}{4}$ " (6mm) Baltic birch plywood
E	Drawer front	1 $\frac{1}{4}$ " x 4 $\frac{1}{2}$ " (32mm x 114mm)	$\frac{1}{4}$ " (6mm) Baltic birch plywood
F	Box top/bottom (2)	4" x 5 $\frac{1}{2}$ " (102mm x 138mm)	$\frac{1}{8}$ " (3mm) black walnut
G	Box back	1 $\frac{1}{2}$ " x 4 $\frac{1}{2}$ " (38mm x 114mm)	$\frac{3}{8}$ " (10mm) white oak
H	Decorative box sides (2)	6" x 6" (152mm x 152mm)	$\frac{3}{8}$ " (10mm) white oak



L. Kim Braa grew up in the Midwest and moved to the Gulf Coast region more than 13 years ago. To see more of Kim's work, visit her website at www.gonecoastalart.com. You can contact her at lkimbrea@att.net.

Cutting List for Bottom Box (hinged lid)

	Piece	Size	Material
I	Decorative front (2)	1 $\frac{3}{4}$ " x 7" (44mm x 178mm)	$\frac{3}{4}$ " laminated hardwood*
J	Front	3 $\frac{3}{8}$ " x 6" (86mm x 152mm)	$\frac{1}{4}$ " (6mm) Baltic birch plywood
K	Back	3 $\frac{3}{8}$ " x 6" (86mm x 152mm)	$\frac{3}{8}$ " (10mm) white oak
L	Lid	4 $\frac{1}{2}$ " x 8" (114mm x 203mm)	$\frac{1}{8}$ " (3mm) bloodwood
M	Bottom	4 $\frac{3}{8}$ " x 8" (111mm x 203mm)	$\frac{1}{8}$ " (3mm) mahogany
N	Side trim (4)	$\frac{1}{2}$ " x 4 $\frac{1}{2}$ " (13mm x 114mm)	Cut 2 each from $\frac{1}{8}$ " (3mm) bloodwood and $\frac{1}{8}$ " (3mm) mahogany

* Suggested varieties of wood: black walnut, red oak, leopardwood, yellowheart, bloodwood, chechen, cypress, and mahogany. Refer to the Decorative Book Fronts Diagram on page 65 for more information.

Understanding Wood Movement

Take the natural expansion and contraction of wood into account when making joints

By Bob Duncan

Wood is porous, so it absorbs moisture from the air around it. As the amount of moisture in the air changes, depending on the season and the climate control where the wood is stored, the wood expands and contracts. It can move enough to warp a board or break apart joints, and the larger the piece of wood, the more it will move. Plus, different types of wood move at different rates. So, when you plan to make a project from solid wood, you need to take wood movement into account or your beautiful frame or stunning box can literally break apart.

To avoid problems with wood movement, use manufactured wood, such as plywood, particleboard, or MDF. Because they are made of ground-up wood fibers or thin sheets of wood glued together with alternating grain directions, these types of wood are basically as stable as a piece of plastic. However, they aren't as attractive as solid wood.

A better way to avoid problems is to use strong joints. A carefully chosen and well-built joint accounts for wood movement and can be stronger than the wood around it. Let's examine a few types of common joints and the ways you can use them to build strong projects. For more on wood glue and how to use it, see page 31.

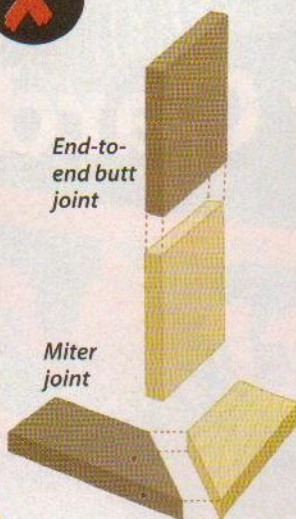
About Grain

Trees are made of hollow vessels that transport water and food up and down the trunk. These vessels give cut wood the visible lines we call grain. Think of a piece of wood like a bundle of straws—the long sides of the straws are the faces and edges of the wood, and the open ends of the straws are the cut ends, or end grain, of the wood. Wood joints are strong when faces and edges are joined, but weak when the ends are joined because the glue gets absorbed into the open “straws.”



End-to-end butt joint

Miter joint



End Grain Joints

Joints made by gluing end grain are weak and often break apart if you rely only on the glue, which absorbs into the wood. If you must glue end grain, reinforce the resulting butt joint with brads, dowels, a corner block, or metal corner braces.

Miter Joints

A miter joint consists of two ends cut at angles and glued together. While they look nice from the outside, miter joints are extremely weak glue joints because they essentially create a double end-grain joint. If you really want to use a miter joint, reinforce it with small brads, a corner block, or a metal corner brace.



Panel joint

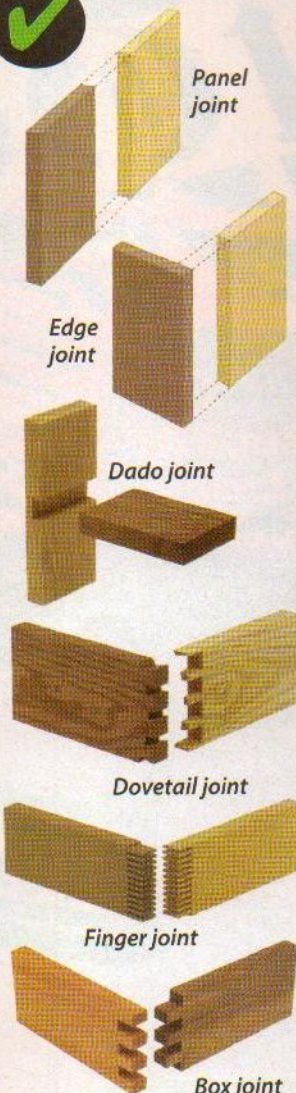
Edge joint

Dado joint

Dovetail joint

Finger joint

Box joint



Panel Joints and Edge Joints

When you glue the edges of two pieces of wood together with the grain running the same direction, it's called a panel joint. These joints are extremely strong as long as the edges are flat, square, and smooth. An edge joint is similar, but instead of joining the two edges, you join the edge with the flat side of another board. This is also a strong joint.

Grooves, Dados, and Rabbets

Grooves, dados, and rabbets are all types of notches in the wood, and they are often used to add a bottom to a box. If a box bottom is made with solid wood and glued in place, it will expand and break the box apart. To avoid the problem, cut grooves in the box walls that are slightly wider and deeper than the box bottom is thick and long. Assemble the box walls and “float” the bottom in the grooves without gluing it, thus giving the bottom panel space to expand as needed.

Dovetails, Finger Joints, Box Joints

These joints all use interlocking pins to assemble pieces both by fitting together and by offering a much greater glue surface than that of a flat piece. You will often see these strong joints used for boxes and drawers; dovetails, especially, will hold together even without glue. While it is simple to use routers and templates to cut these joints, the templates limit the size and shapes of the pins. Many woodworkers use handsaws and chisels to create custom pin sizes.

In general, the strongest joints combine the best possible glue joints with a strong mechanical joint. When in doubt, reinforce the joint with screws, nails, dowels, or braces.

Scroll Sawn Greeting Cards



Saw a stack of wooden and paper greeting cards

By Gloria Cosgrove
Cut by Rolf Beuttenmuller

These seasonal designs are sized just right for greeting cards. You can stack-cut cardstock or thin plywood to make overlays for greeting cards, or use slightly thicker hardwood to create a card that doubles as an ornament. You could also increase the size of the patterns to make wall hangings.



Attach the designs to cardstock to create unique holiday greetings.

Making the Cards

To cut the pieces, make a stack of thin plywood or cardstock. Sandwich the stack between two pieces of $\frac{1}{8}$ " (3mm) or $\frac{1}{4}$ " (6mm) scrap plywood, wrap the stack with painter's tape, and attach the pattern to the tape. Drill blade-entry holes and cut the pieces. I suggest using a skip-tooth blade, because a reverse-tooth blade tends to trap the sawdust inside, which can heat the blade. If the blade gets too hot, it will scorch the paper. The sacrificial scrap on the top and bottom of the stack will keep the cut edges of the cardstock clean. Separate the stack, clean the frets, and finish the wood, if desired.

Cut the cardstock for the cards to fit in business-size envelopes. Secure a paper or wood overlay to each card with double-sided tape, tacky glue, or hot glue.

Patterns for **SCROLL SAWN GREETING CARDS** are in the pullout section.

Materials & Tools

Materials:

- Plywood, $\frac{1}{16}$ " (2mm) thick or cardstock: $2\frac{3}{4}$ " x $6\frac{7}{8}$ " (70mm x 175mm)
- Scrap plywood, $\frac{1}{8}$ " (3mm) to $\frac{1}{4}$ " (6mm) thick: 2 each, $2\frac{3}{4}$ " x $6\frac{7}{8}$ " (70mm x 175mm)
- Cardstock (for cards)
- Double-sided tape, tacky glue, or hot glue

- Blue painter's tape
- Spray adhesive

Tools:

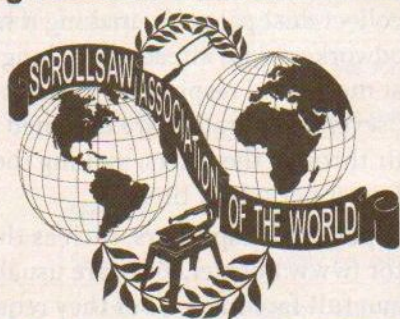
- Blades: #3 skip tooth
- Drill with assorted small bits

The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



Art has always been a part of Gloria Cosgrove's life. Gloria started sketching as a child. She quilted and worked with pastels, watercolors, and oil paints before discovering scherenschnitte (paper cutting). With her daughter, Alison, she maintains a mail-order business selling original artwork and papercutting patterns. For more of her work, visit www.papercuttingsbyalison.com.

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Respirators and Dust Masks

Wear a mask to prevent illness and disease caused by dust

Cutting and sanding scroll saw projects produces a lot of dust. In addition to posing a fire hazard, dust can cause health problems ranging from skin, sinus, and lung irritation to serious impairment and disease. According to the Occupational Health and Safety Administration (OSHA), inhaling fine wood dust in large quantities can even cause cancer.

You can reduce the risk by using dust collectors and shop vacuums, but these only capture the largest particles. Improve your odds by using an air cleaner to catch some of the fine dust; attach a HEPA-grade furnace filter to a box fan to make a simple air cleaner.

To really protect your lungs, however, you need to wear a dust mask or respirator. They are widely available in a variety of styles and price points. The important thing is to pick one and use it every time. It's a simple way to prevent problems so you can spend more time making projects.

Disposable Dust Masks

You can pick up a box of 50 "nuisance" rated dust masks for less than \$15, but they will not catch the smallest particles. (The most dangerous particles are less than 10 microns in size.) Disposable masks are also uncomfortable to wear for long periods of time.

OSHA rates dust masks based on the amount of particles they block. Choose a disposable mask that is rated at least N95, meaning it will block 95% of the particles. I suggest a mask with a metal nose clip that you can bend to fit the shape of your nose and a non-return valve that allows you to exhale easily. Both of these additions help keep your safety glasses from fogging up.

Reusable Dust Masks

For a more comfortable mask, upgrade to a reusable dust mask or half-face respirator.

The Dust Bee Gone (www.DustBeeGone.com) is a popular reusable dust mask. It is not OSHA approved, but the manufacturer claims it filters dust down to



3 microns in size. The Dust Bee Gone is comfortable to wear and can be washed. Unfortunately, some dangerous particles are smaller than 3 microns.

Half-face respirators are a step up from the reusable masks. These masks feature a molded plastic or rubber construction that conforms to your face, use replaceable filters, and are more comfortable to wear. You can choose the level of protection the filters provide, including filters that capture the dangerous vapors from spray finishes or solvents.

One of my favorite half-face masks is the RZ Mask (www.rzmask.com). Originally designed for ATV riders, these neoprene masks are comfortable and feature washable carbon filters fine enough to trap tiny smoke particles.

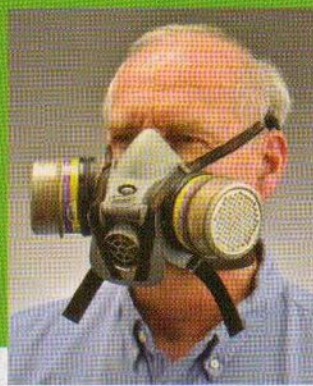
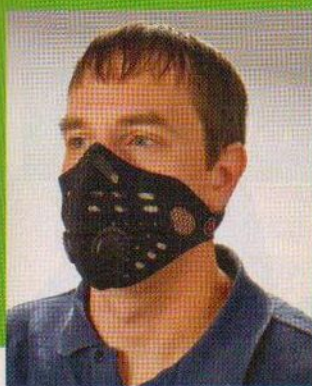
Powered Respirators

Over time, the filters for disposable dust masks and respirators collect dust particles, making it harder to breath. Woodworkers who already have lung problems can find dust masks and respirators difficult to use. Fortunately, several respirators are designed to use a fan to pull air through the filters, making them easier to wear for longer periods of time.

Half-face powered respirators, such as the Power Air Respirator (www.Rockler.com), are usually less expensive than full-face masks, but they require you to attach a separate battery pack for the filters somewhere on your body. You can pick up one of these units for \$100 or less.

The more expensive full-face masks, such as the Trend Airshield (www.trend-uk.com), are more comfortable to wear, protect your whole face, and include a rechargeable battery pack integrated into the mask (so you don't have to deal with a separate pack). These units tend to cost several hundred dollars.

You have many choices among dust masks and respirators. Pick one and use it every time to prevent dust-related problems before they begin.



Masks and respirators from left to right: Disposable dust mask, washable reusable dust mask, neoprene dust mask, half-face canister respirator, half-mask powered respirator, full-face powered respirator helmet.

Possible Reactions to Woods

Wood	Class	Reaction type	Potency	Source	Incidence
Alder	Irritant*	Respiratory, eye, skin	No info†	Dust	No info
Ash	Irritant	Respiratory	No info	Dust	No info
Avodire	Irritant	Respiratory, eye, skin	No info	Dust	No info
Bald cypress	Sensitizer**	Respiratory	Small	Dust	Rare
Beech	Sensitizer	Respiratory	Great	Dust	Rare
Birch	Sensitizer	Respiratory, nausea	Great	Dust	Rare
Black locust	Irritant	Nausea	Great	Dust	Rare
Bubinga	Irritant	Eye, skin	No info	Dust	No info
Red cedar, Eastern	Irritant	Respiratory, eye, skin	No info	Dust	Common
Red cedar, western	Sensitizer	Respiratory	Great	Dust, leaves & bark	Common
Cocobolo	Irritant	Respiratory, eye, skin	Great	Dust & wood	Common
Ebony	Irritant, sensitizer	Respiratory, eye, skin	Great	Dust & wood	Common
Elm	Irritant	Eye, skin	Small	Dust	Rare
Goncalo alves	Sensitizer	Eye, skin	Small	Dust & wood	Rare
Greenheart	Sensitizer	Respiratory, eye, skin	Extreme	Dust & wood	Common
Ipe	Irritant	Respiratory, eye, skin	No info	No info	No info
Mahogany	Irritant	Respiratory, eye, skin	Small	Dust	Rare
Maple, spalted	Sensitizer	Respiratory	Great	Dust	Rare
Oak, red	Irritant	Nasal	Great	Dust	Rare
Padauk	Irritant	Respiratory, eye, skin, nausea	Extreme	Dust & wood	Common
Purpleheart	Sensitizer	Eye and skin, nausea	Small	Dust & wood	Rare
Rosewood	Irritant, sensitizer	Respiratory, eye, skin	Extreme	Dust & wood	Common
Sassafras	Sensitizer	Respiratory, nausea, nasal cancer	Small	Dust & wood	Rare
Teak	Sensitizer	Eye, skin	Extreme	Dust	Common
Walnut, black	Sensitizer	Eye, skin	Great	Leaves & bark	Common
Willow	Sensitizer	Nasal cancer	Great	Dust	Common

Wood Toxicity

All sawdust can irritate your respiratory system, but some varieties of wood are more dangerous than others. For example, fir and hemlock can be irritants, while rengas can cause blisters and fever, and mulga is poisonous. You should always wear a dust mask while cutting and sanding wood, but use extra caution when working with varieties that are known irritants. For a comprehensive list, visit www.wood-database.com.

* An **irritant** causes an almost immediate reaction each time the wood is used.

** A **sensitizer** does not necessarily irritate, but it makes a person more likely to be strongly affected by a wood classed as an irritant. If you are exposed to an irritant after being exposed to a sensitizer, you are more likely to have a more serious reaction to the irritant.

† **No info** indicates that the information for this wood is still being developed.

Chart from Woodworker's Pocket Reference, Fox Chapel Publishing, Inc.

Seyco Scroll Saw Dust Collector

Quiet but powerful vacuum cleans up most scrolling dust

While few scroll saws come set up for dust collection, there are many shop-made systems designed to collect the fine sawdust scroll saws create both above and below the table. Many of these shop-made systems are designed to attach to a shop vacuum, most of which are extremely noisy. Ray Seymore of Seyco has assembled a much quieter system for scroll sawyers.

Ray started by choosing a small, quiet, but powerful vacuum. He attached the vacuum to a plastic canister set up to act as a cyclone, which dumps the larger dust into the canister to keep the vacuum's dust bag empty longer. The vacuum hose attaches to the saw table (top or bottom) with a powerful magnet. I mounted the vacuum under the table to keep it out of the way while cutting, and it sucked up the majority of the dust.

As a side benefit, the vacuum's hose accommodates some of the hand tools that use a smaller dust collector port, such as a Festool jigsaw and the Ceros random orbital sander.

The vacuum is a welcome reprieve from the loud shop vacs I've used in the past. The power and low noise come at a price though; this vacuum is not designed for prolonged use. Ray suggests using a three-way plug to attach the vacuum and your scroll saw to a foot pedal. That way, when the saw turns on, the vacuum turns on.

The system, complete with vacuum, cyclone container, hoses, and magnet, is available for \$149.95. Visit www.Seyco.com, or call 800-462-3353.

Seyco's magnetic mounting vacuum hose lets you capture dust from above or below the saw table.

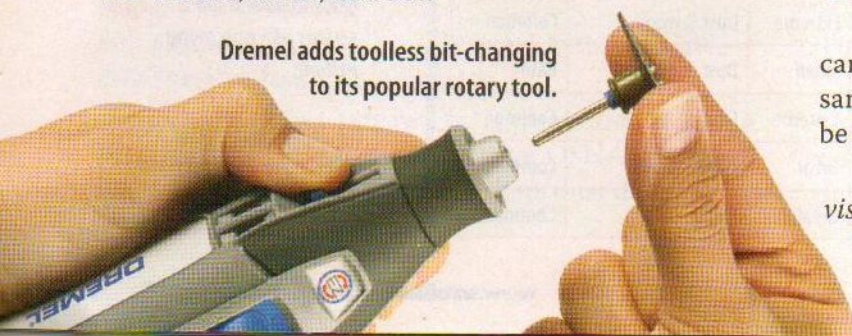


Dremel 4200

Dremel constantly makes changes to their rotary tools. The 4200 incorporates a new toolless bit-changing system with a number of popular accessories.

The new bit-changing system alone is worth the price of the kit. Gone are the days of hunting for a little wrench or fighting with the three-jaw chuck. To change bits, pull up on the strong spring-action lever, take the old bit out, and put the new bit in. At times, the spring seems almost too strong, and it can be a bit awkward to pull up, but it's better than fighting with the wrench, collet, and nut.

Dremel adds toolless bit-changing to its popular rotary tool.



Included with the kit are the lawn mower blade and garden tool sharpening attachment, the rotary shield attachment, a circle cutter and straight edge guide, a sanding and grinding guide, the multipurpose cutting kit, and the detailer's grip. These attachments turn the Dremel from a woodcarving tool into a tool sharpener, router, spiral cutter, and even a grout remover, and they are easy to attach. The attachments are light duty, but if you only need to cut circles or sharpen lawn mower blades a couple times a year, they serve their purpose.

The 4200 kit also comes with a variety of cutting, carving, and polishing bits and wheels, as well as sanding drums. The kit is inclusive enough that you'll be able to get a feel for what other bits you might like.

The kit is available for \$129.99. For a local retailer, visit www.dremel.com or call 800-437-3635.

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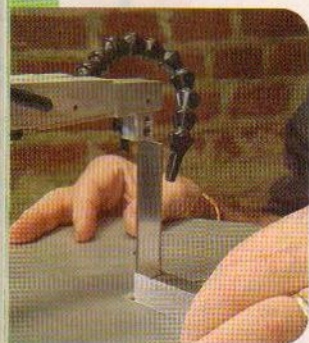
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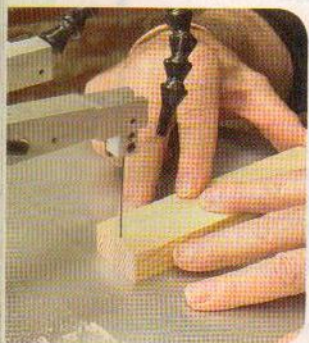


To avoid repetitive instructions, this page is included in each issue to assist novice scrollers with basic scrolling techniques.



Squaring Your Table

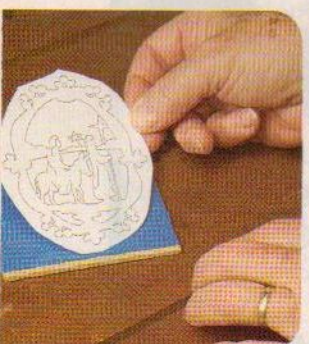
Most scroll saws have an adjustable table that allows you to make cuts at different angles. There are times when you want the saw set at an angle, but most cutting is done with the blade perpendicular to the table. If the table is even slightly off-square, the cuts will be angled. This interferes with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



The most common method for squaring a table uses a small metal square, or right angle tool. 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 3/4" (19mm) thick and check the angle of the cut using a square. Adjust the table until you get a perfectly square cut.

You can also use the kerf-test method. Take a 1 3/4" (44mm)-thick piece of scrap wood and cut about 1/16" (2mm) into it. Stop the saw, back the blade out, 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.



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 copy of the pattern, wait a few seconds, and then 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 the 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.

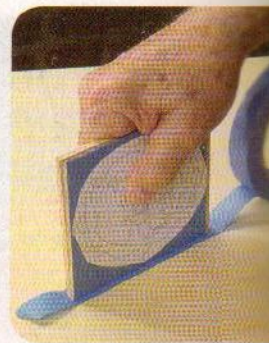
Stack Cutting

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. Use masking tape, painter's tape, or clear packaging tape.

Hot-melt glue is another option. Glue the blanks together with a dot of hot-melt glue on each side.

You can also join pieces by driving brads or small nails into as many waste areas as you can. Cut off any overhanging nails as close to the surface as you can, and then sand them flush to avoid scratching or catching on the table.



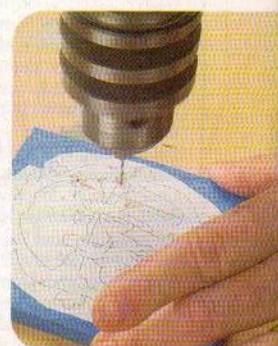
Blade Tension

Before inserting a blade, completely remove the tension. 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 1/8" (3mm) 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.

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 the 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, use a hand drill and make the holes as vertical as possible. Drill through the 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 the blades through. For thin veining cuts, use the smallest bit the blade will fit through.



Removing Patterns

Dampen a glued 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.

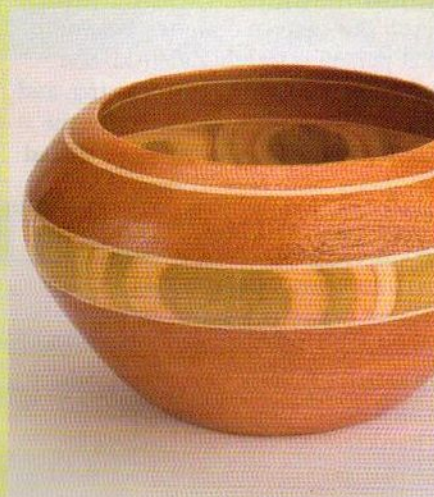
In our next issue...



Make a pretty fretwork box for gifts or keepsakes.



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Hope for the Holidays

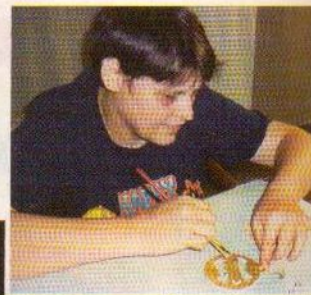
Behind every great scroller is a great scroll saw pattern designer. For some, that person is Candy Zalenski. She has been modifying, customizing, and designing scroll saw patterns for the past 12 years. Candy has also donated designs to help organizations like Portrait Freedom and various scroll saw clubs and animal shelters.

This year, Candy designed a new "Hope" ornament to spread even more cheer. She is partnering with the local Saint Helens, Ore., Elks Club, which distributes scores of pies for Thanksgiving and food baskets for Christmas. "I help support adults with developmental disabilities at Riverside Training Centers in Saint Helens," said Candy. "We thought it would be extra special to add a scroll saw cut ornament gift to the baskets this year. It seemed like the perfect opportunity to involve our folks in a way that would allow them to give back to their

community, as many have expressed a desire to do. It gives them a sense of accomplishment that can really make them shine."

Candy took stacks of ornaments to the center and enlisted the talents of the people there to decorate them. "They dug into their arsenal of paint, glitter, and ribbon, along with other objects and bling, to jazz up each ornament so that it became a unique work of art," Candy explained. "The Elks Club is really excited about adding our 'Hope' holiday ornaments to their food baskets. Each ornament comes with an inspirational tag explaining a bit about the center to the recipients. We hope the food baskets will fill our neighbor's stomachs and the ornaments will help fill their spirits."

To receive a free "Hope" ornament pattern, contact Candy at www.scrollsawpatternsbycandy-zine.com.



Candy Zalenski (right) and clients of the Riverside Training Centers in Saint Helens, Ore., including Tammy Land (above), make and donate ornaments.



Tony Pope (right) leads a talented group that makes hundreds of wooden toys for children in need.



Retirement Community Spreads Holiday Cheer

For the past decade the Sun City Grand Woodcrafters Club, in Surprise, Ariz., has made hundreds of top-quality handmade toys for children in need of some holiday cheer. Last year the group built and donated 982 toys. This year, they hope to top 1,000 toys.

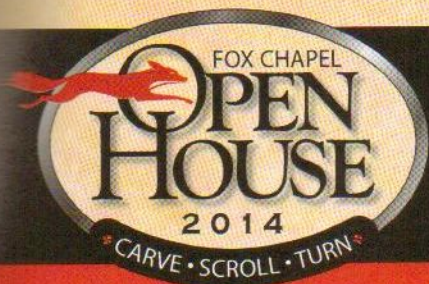
Members Tony Pope and Ken Saelens spearhead the annual effort, organizing the woodworkers who dedicate at least one evening each week all summer and fall to building toys. "It's fun watching people make toys and thinking about the children who might be getting them, without asking what is in it for me," said Ken, who has made and given away well over 500 toys.

To make the toys even more spectacular, the group partners with

other clubs. "The community service division of the Grand Stitches makes blankets, pillows, and seat rests for rockers and baby cribs, while the Art Club members use their artistic talents to make these toys come to life," said the woodcrafters club's president, Steve Noe. "We are also indebted to the residents who assure that each crib comes with a baby doll."

Other toys include airplanes, old-fashioned cars, helicopters, race cars, dump trucks, and even toy golf carts. Recipient organizations have included Operation Angel Tree at Luke Air Force Base, the West-Side Food Bank, Eve's Place, the Surprise Fire Department First Responders, and the Elves Organization.

For more information, contact scgwoodcrafters@gmail.com.



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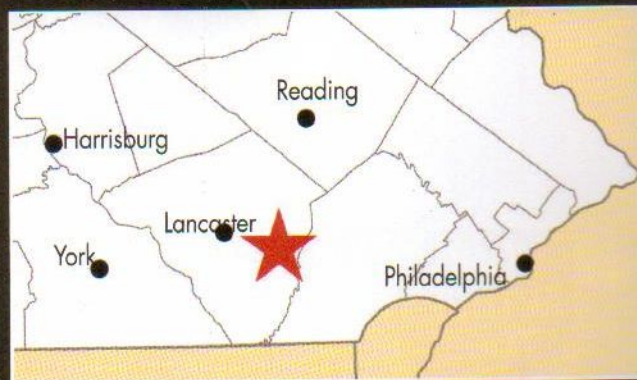
◆ Instructors & Class Coming Soon

In early January, we will be revealing the classes and making them available for purchase. Due to class sizes, pre-registration is highly recommended to guarantee you a seat. **Remember to join our newsletter at Wood-Show.com to be notified when the classe schedules and instructors have been posted.**

◆ New Location: Rough and Tumble Historical Association, Lancaster County, Penn.

One of the world's best museums of old tools and farm equipment.

RoughAndTumble.org



◀ Gary MacKay teaches a class in making a box on the scroll saw.

▼ Dale Wissler demonstrates how to use a vintage wooden scroll saw.

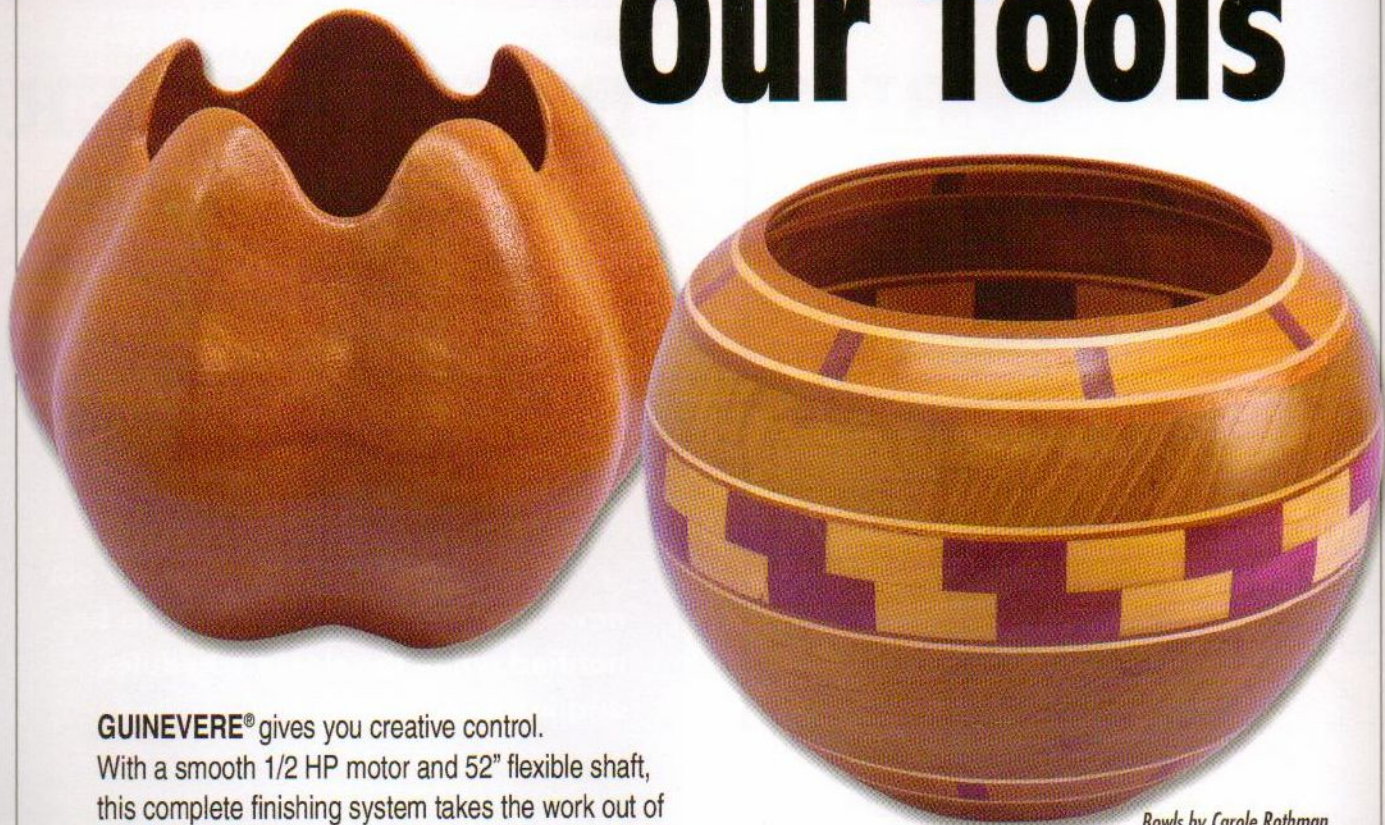
◀ Between instructing intarsia classes, Kathy Wise poses with one of her popular designs.

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Bowls by Carole Rothman
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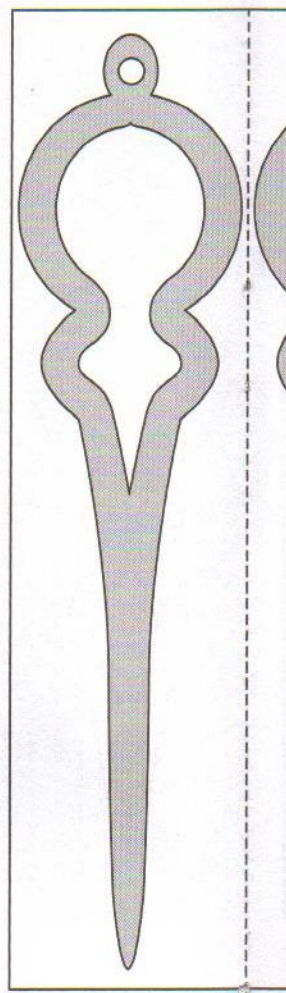
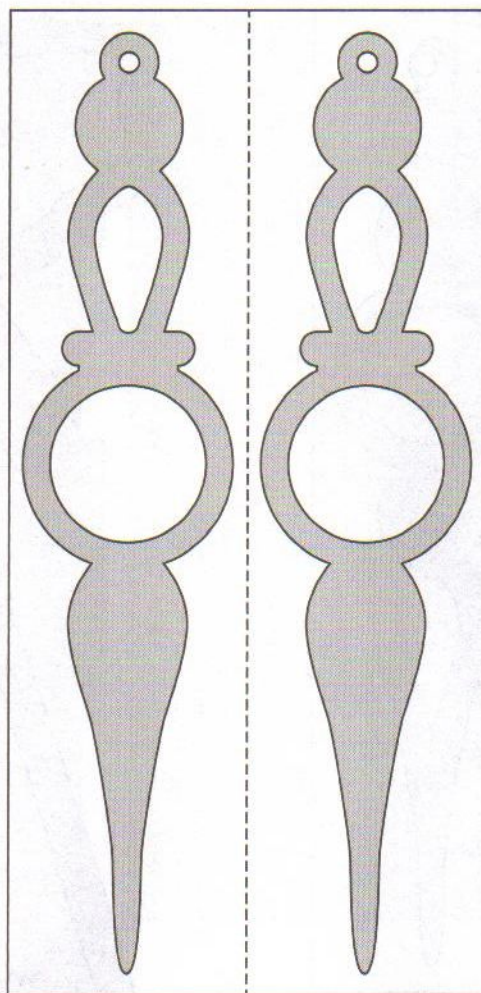
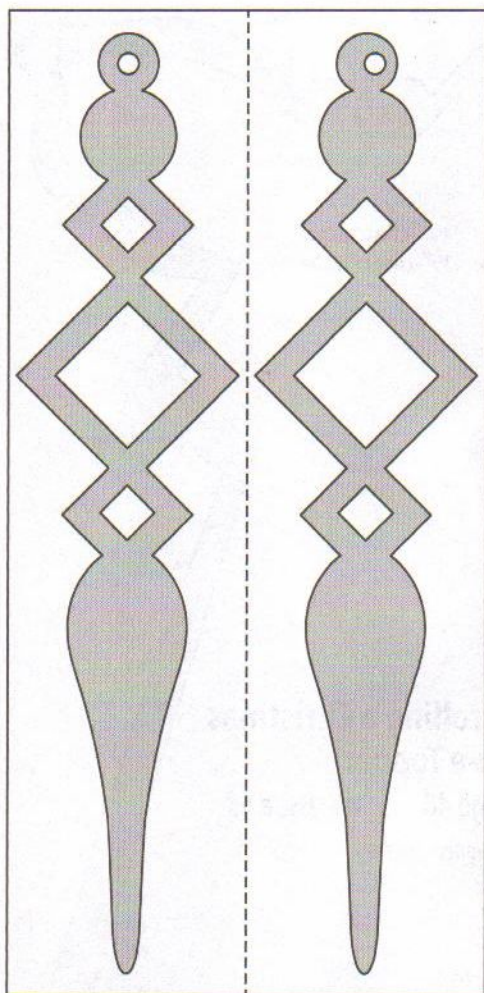
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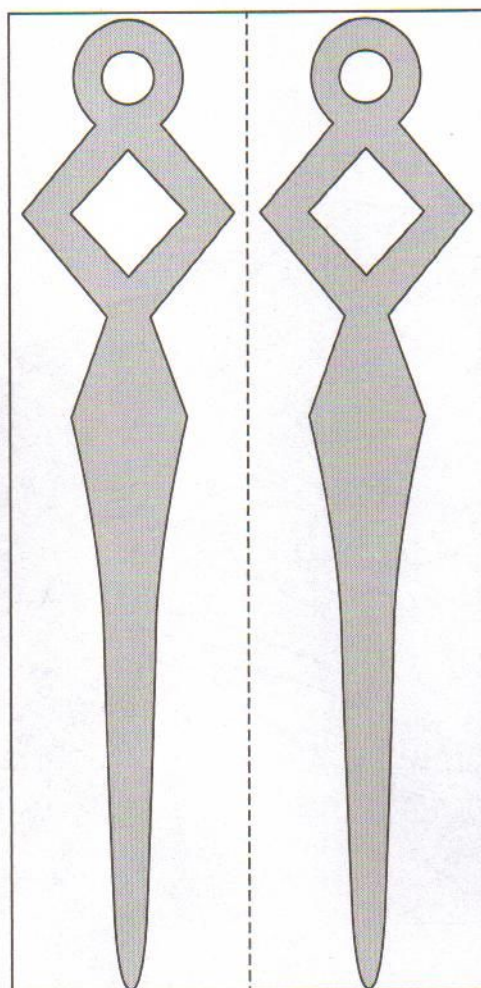
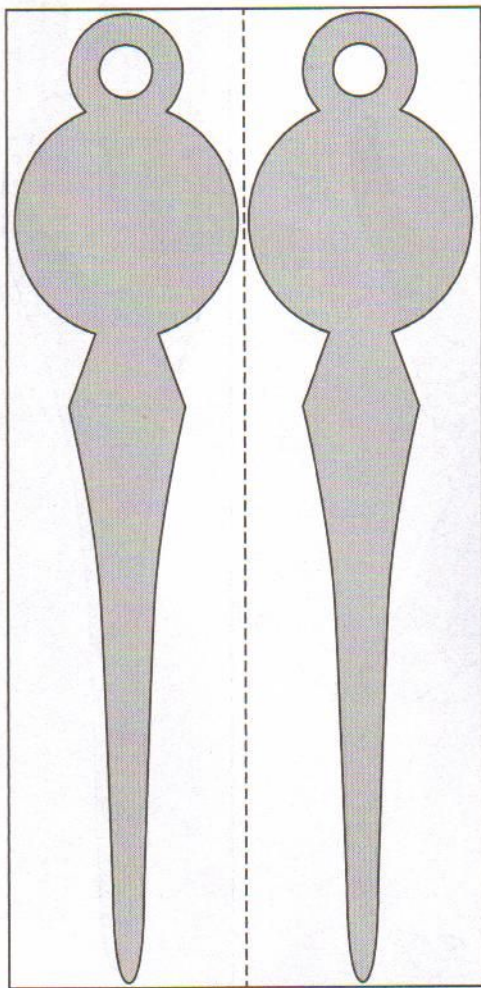


Icicle Ornaments

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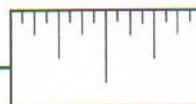
Designer: Sue Mey





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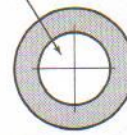


One inch



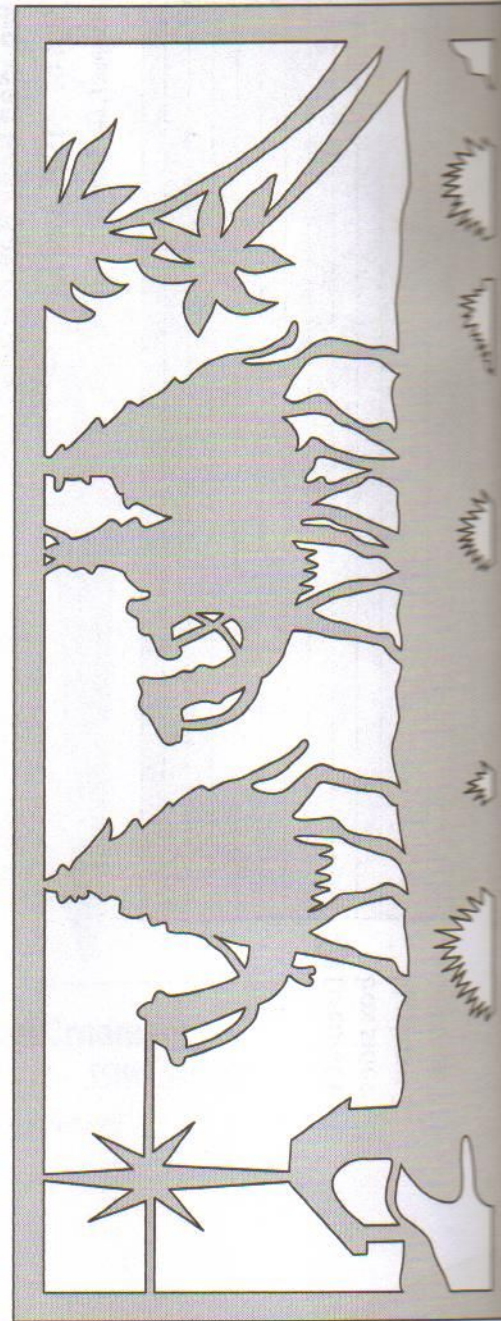
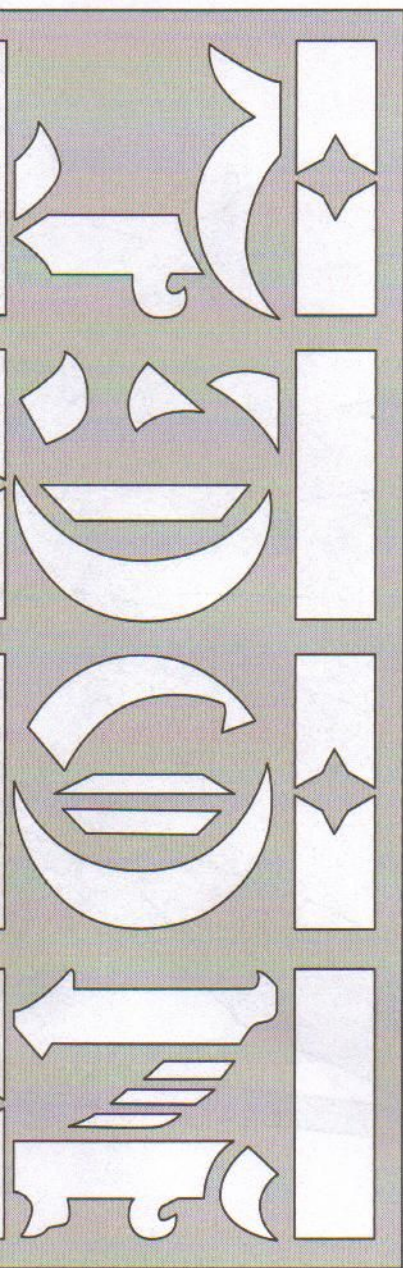
$\frac{3}{8}$ "-diameter,
 $\frac{1}{8}$ "-deep hole

$\frac{3}{8}$ "-diameter hole



Hand nest can

Spacer, cut 2

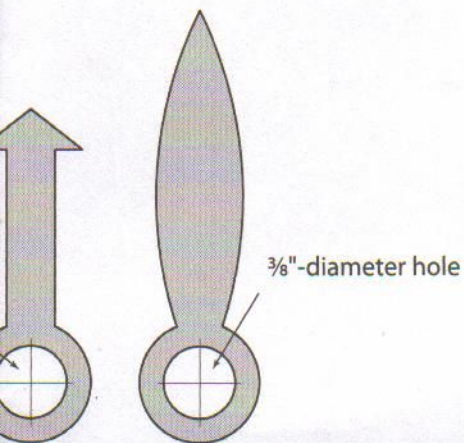


Building a Puzzle Clock

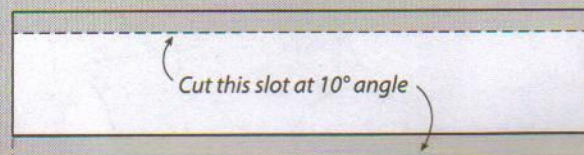
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Designer: Adrian Iredale

Base-cutting Jig
3/4" stock



Base - Top View
3/4" stock

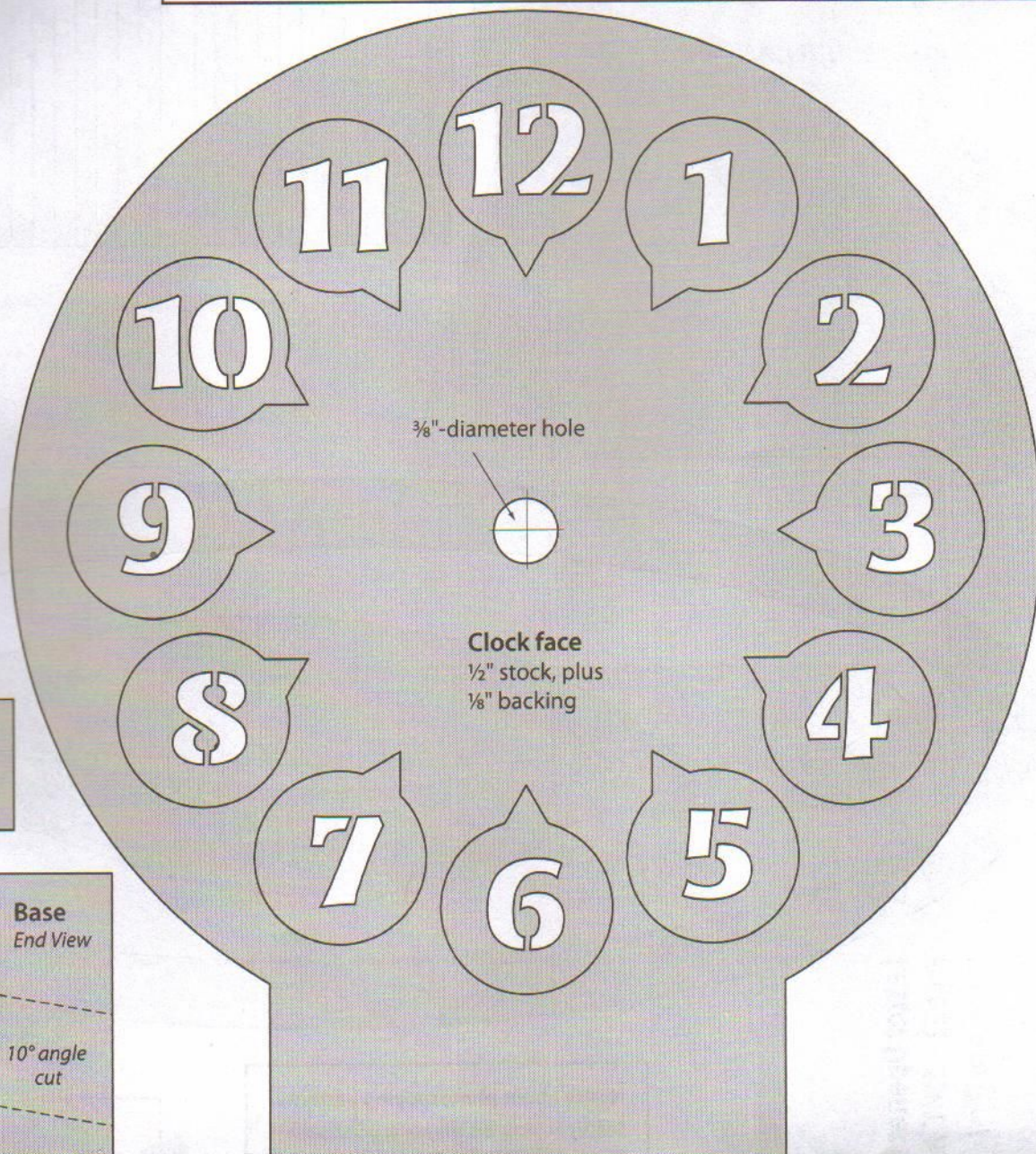


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Base
End View

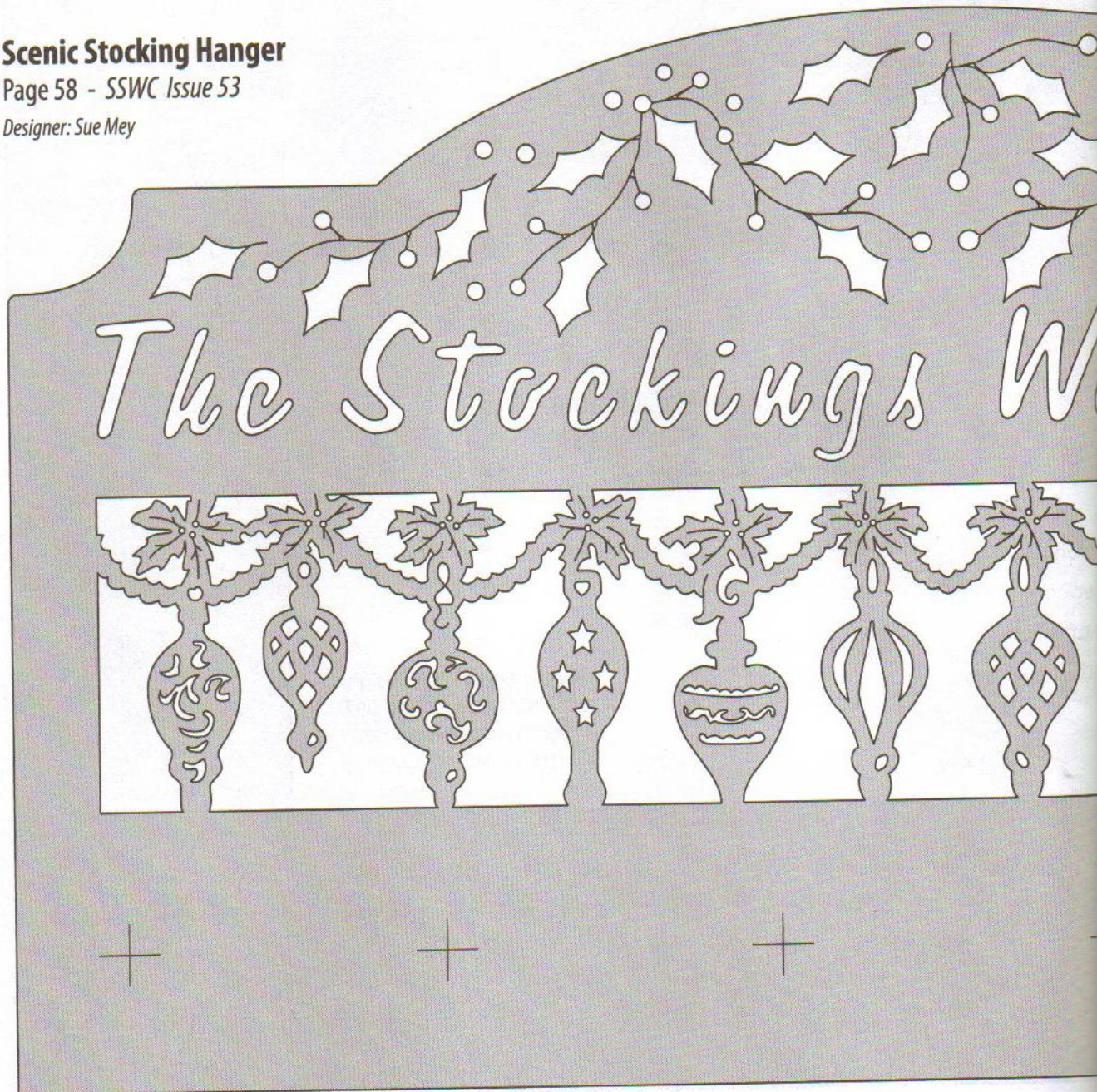
10° angle
cut

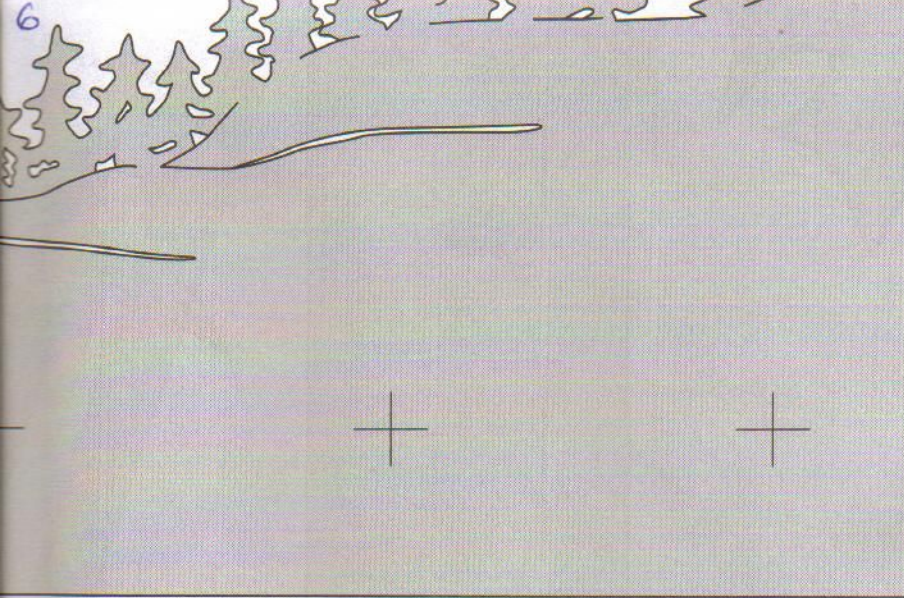


Scenic Stocking Hanger

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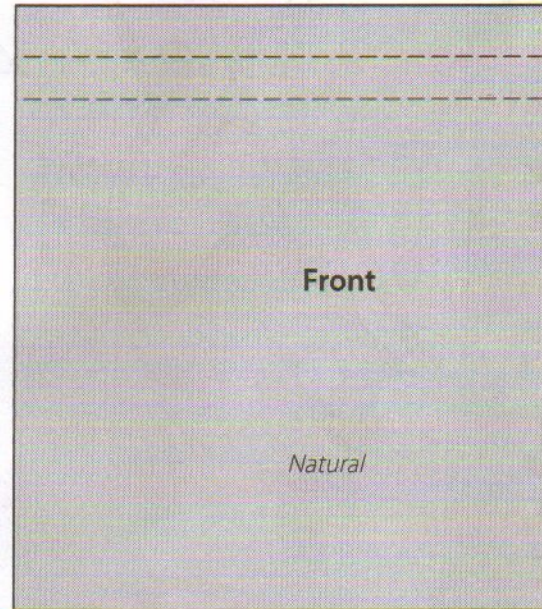
Designer: Sue Mey





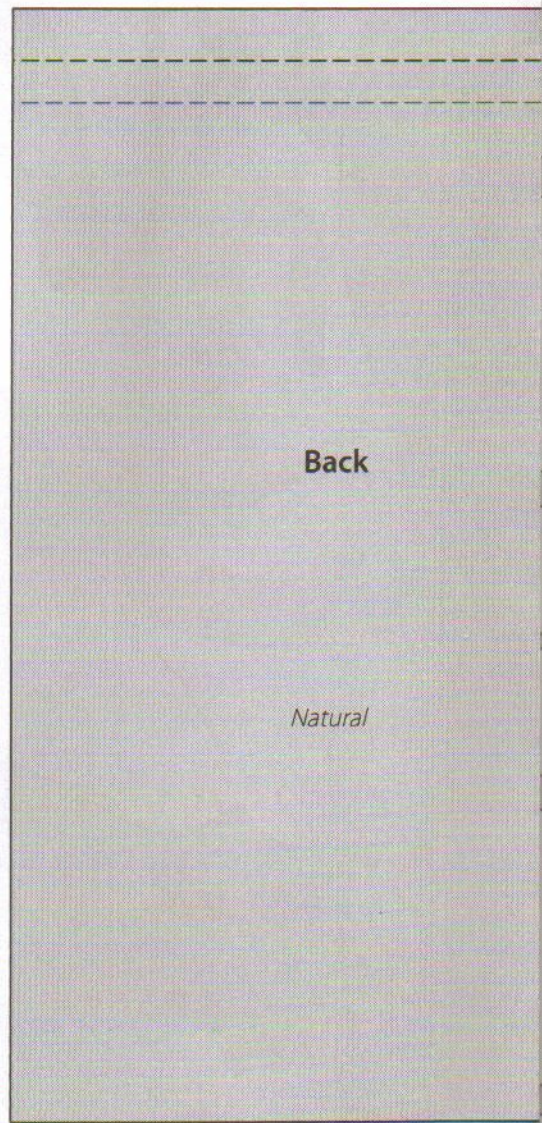
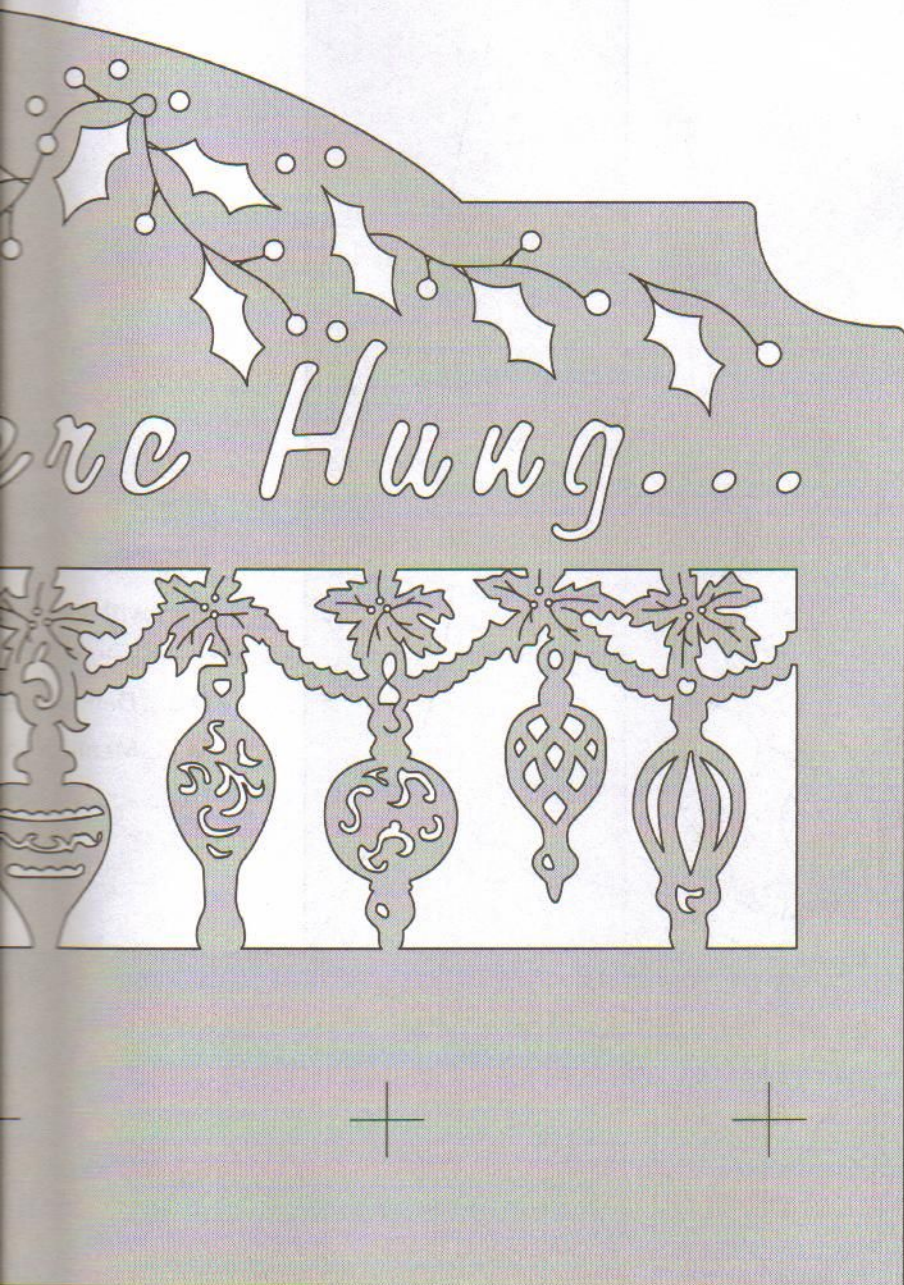
1/4" stock

1/8" stock



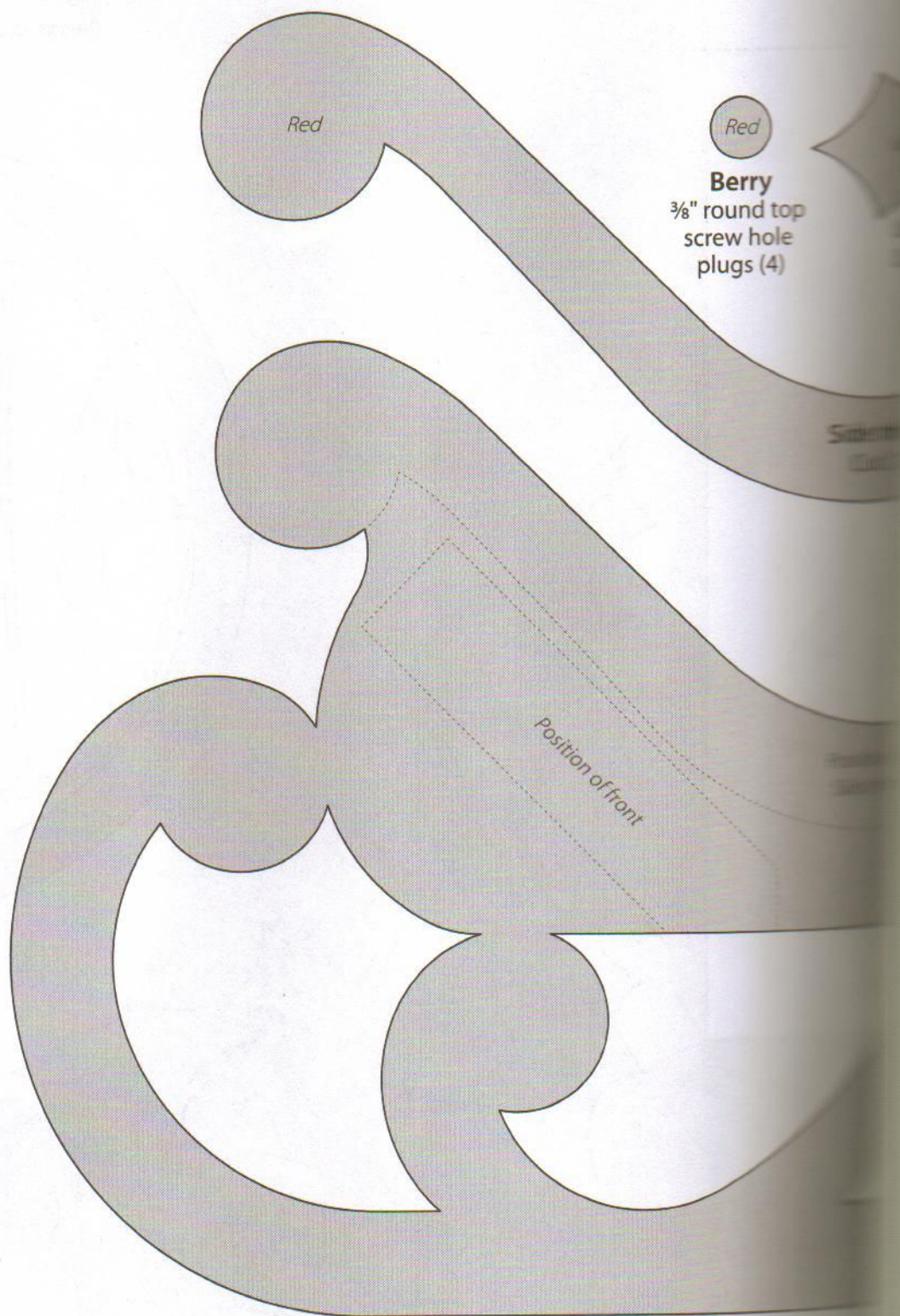
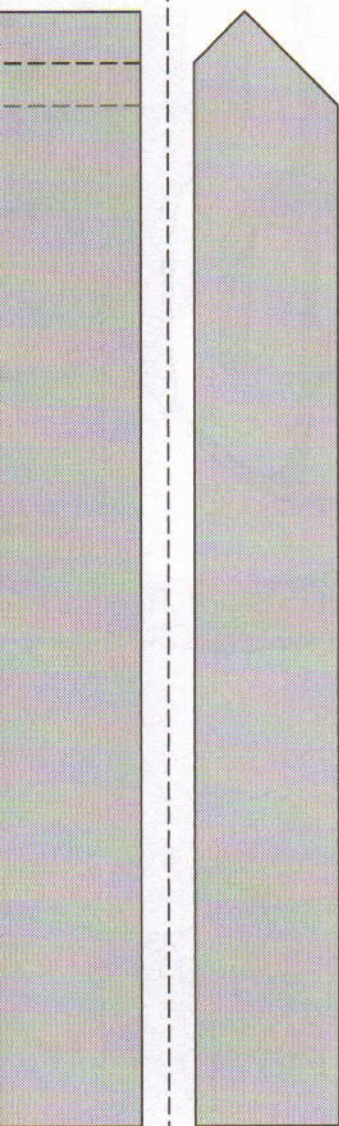
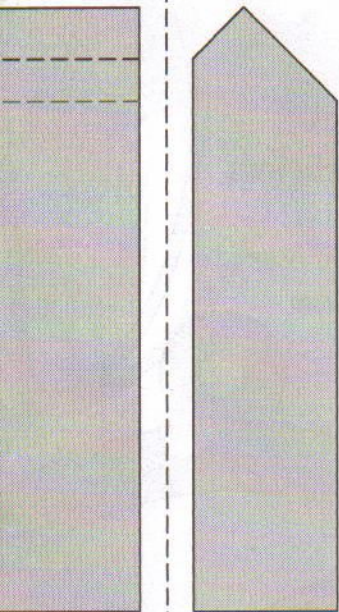
Front

Natural

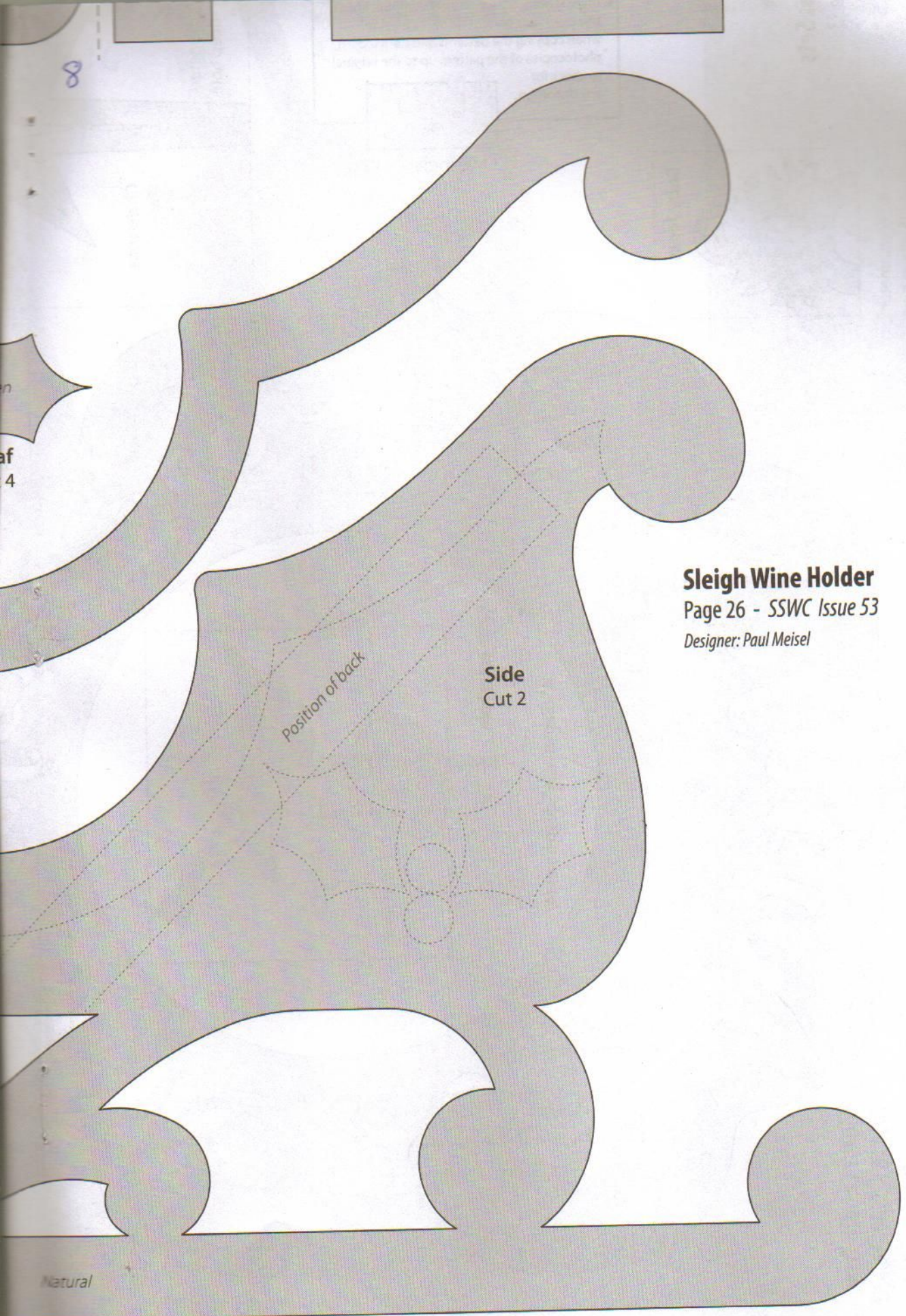


Back

Natural



Berry
3/8" round top
screw hole
plugs (4)



Sleigh Wine Holder

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Designer: Paul Meisel

Square up top cut

Square up top cut

K Back (Bottom box)

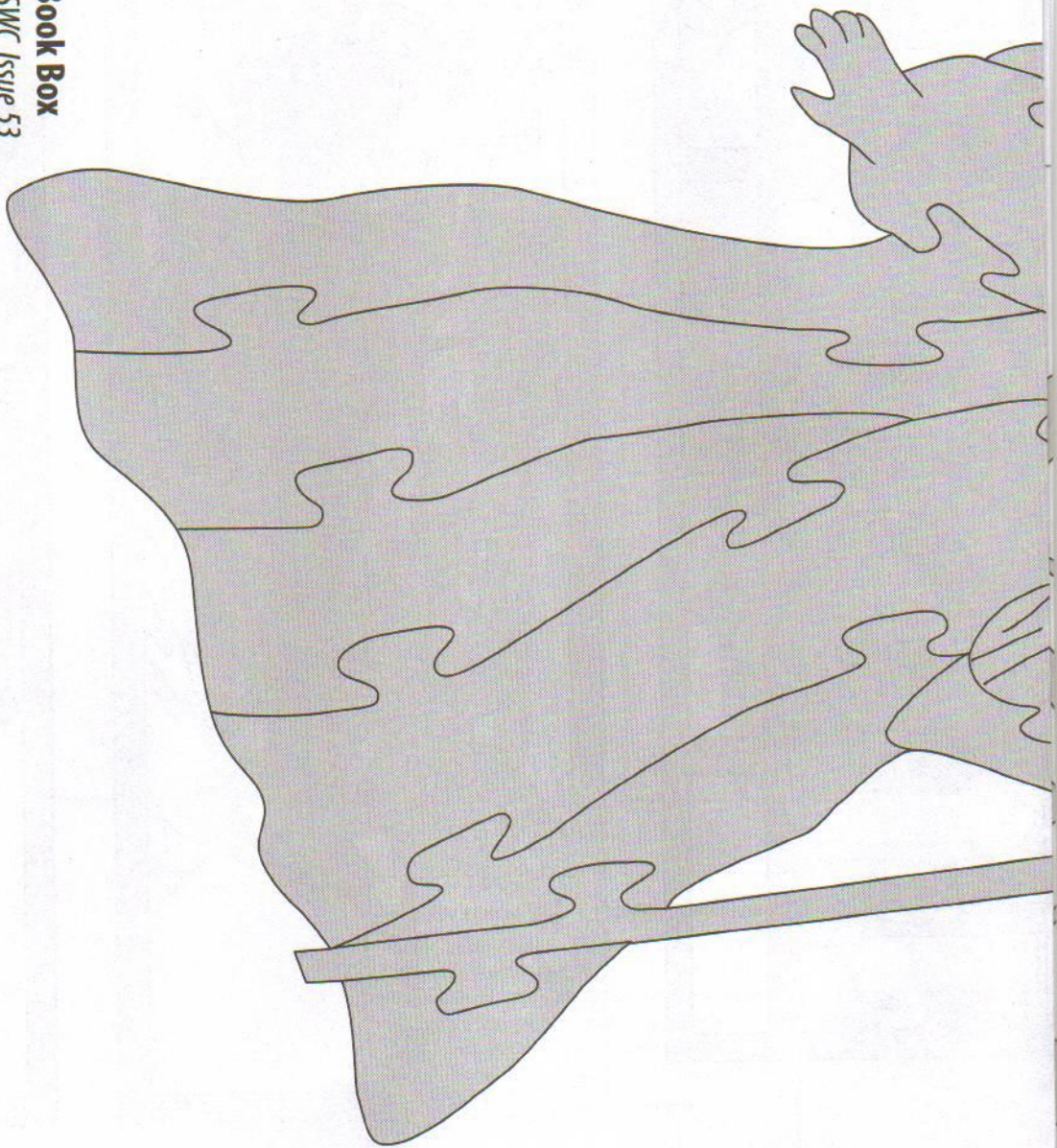
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Letter Opener

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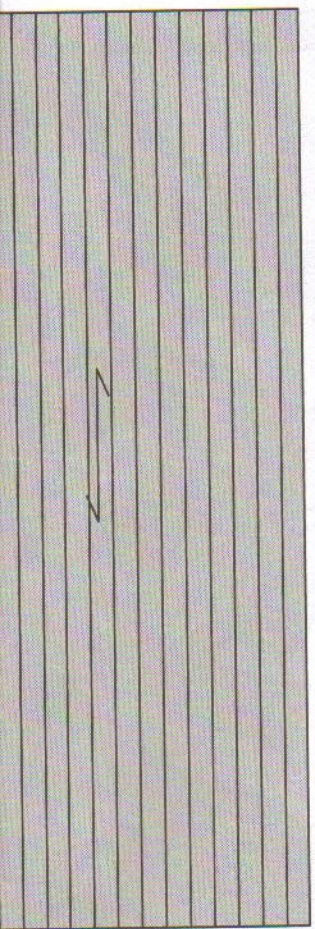
Designer: Cindy Vincett



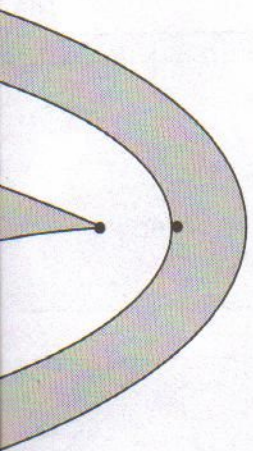
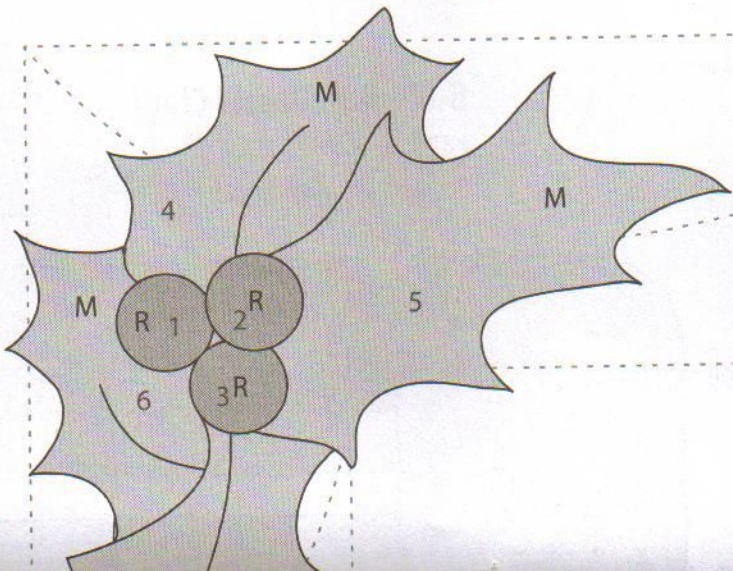
Wooden Book Box

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Designer: L. Kim Bragg

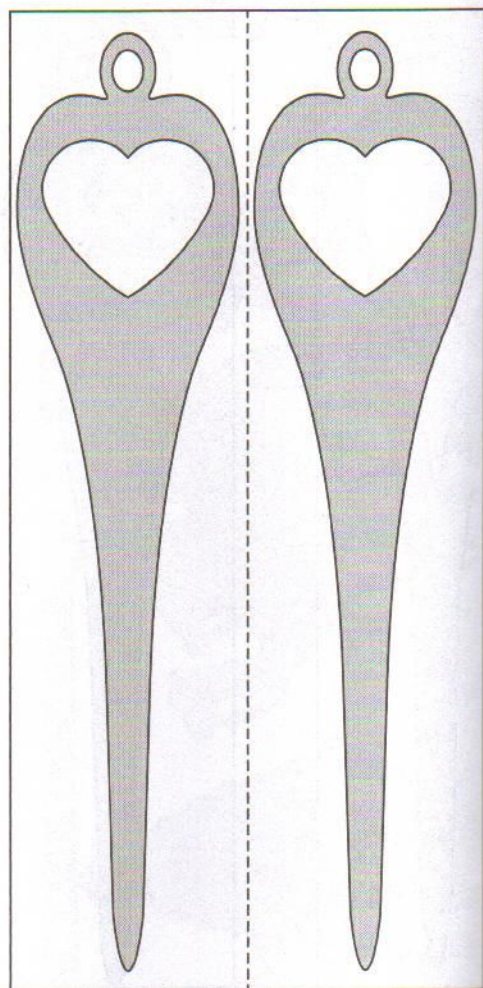


Decorative
box sides
Stack cut 2
at a time

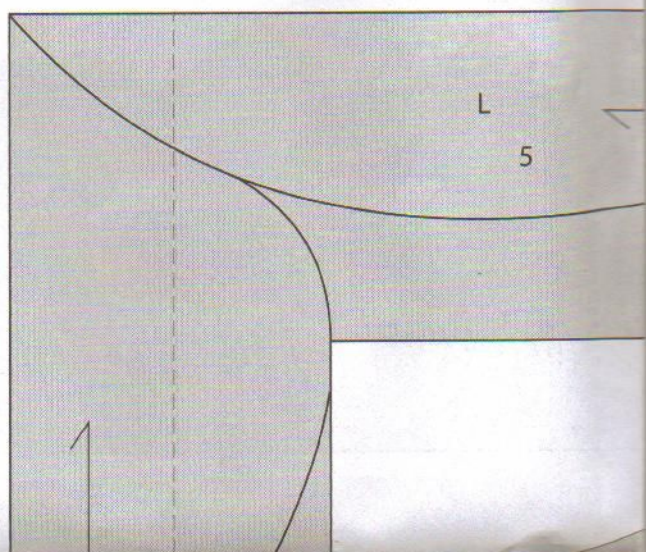
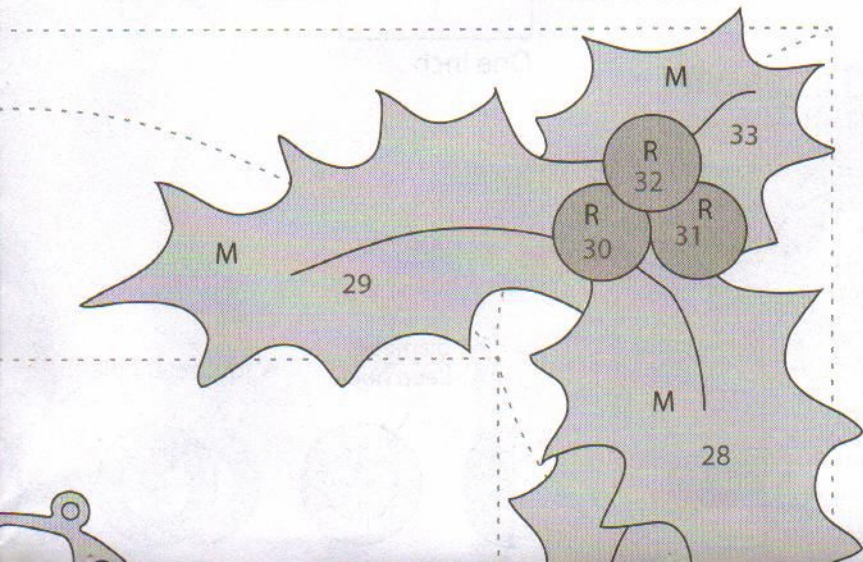


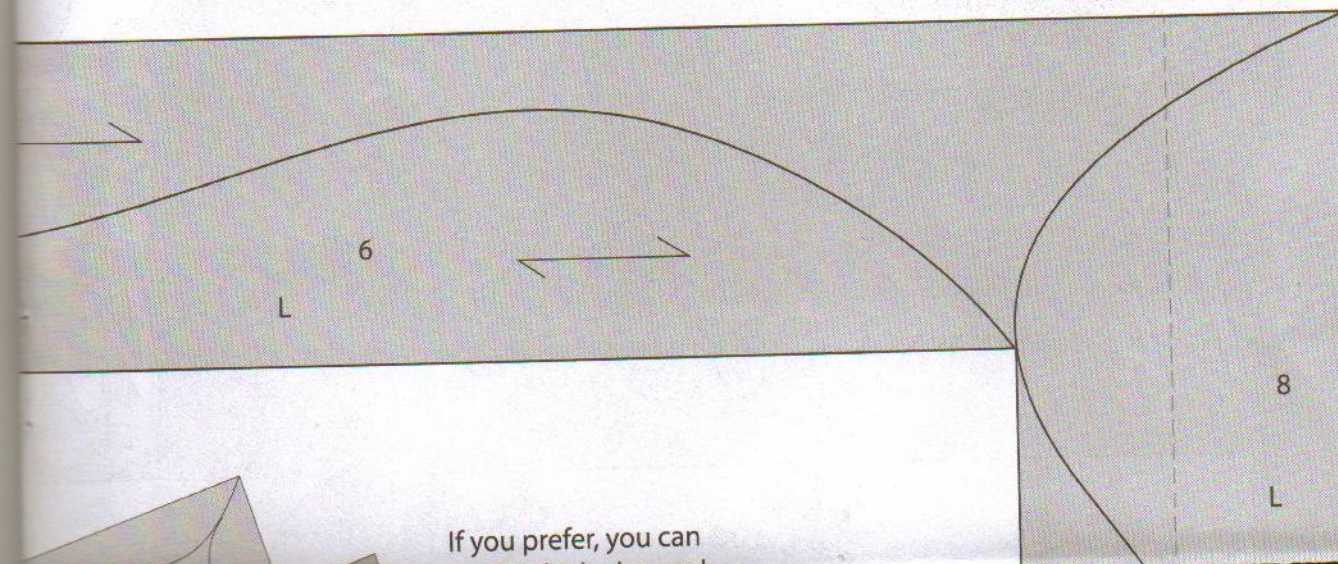
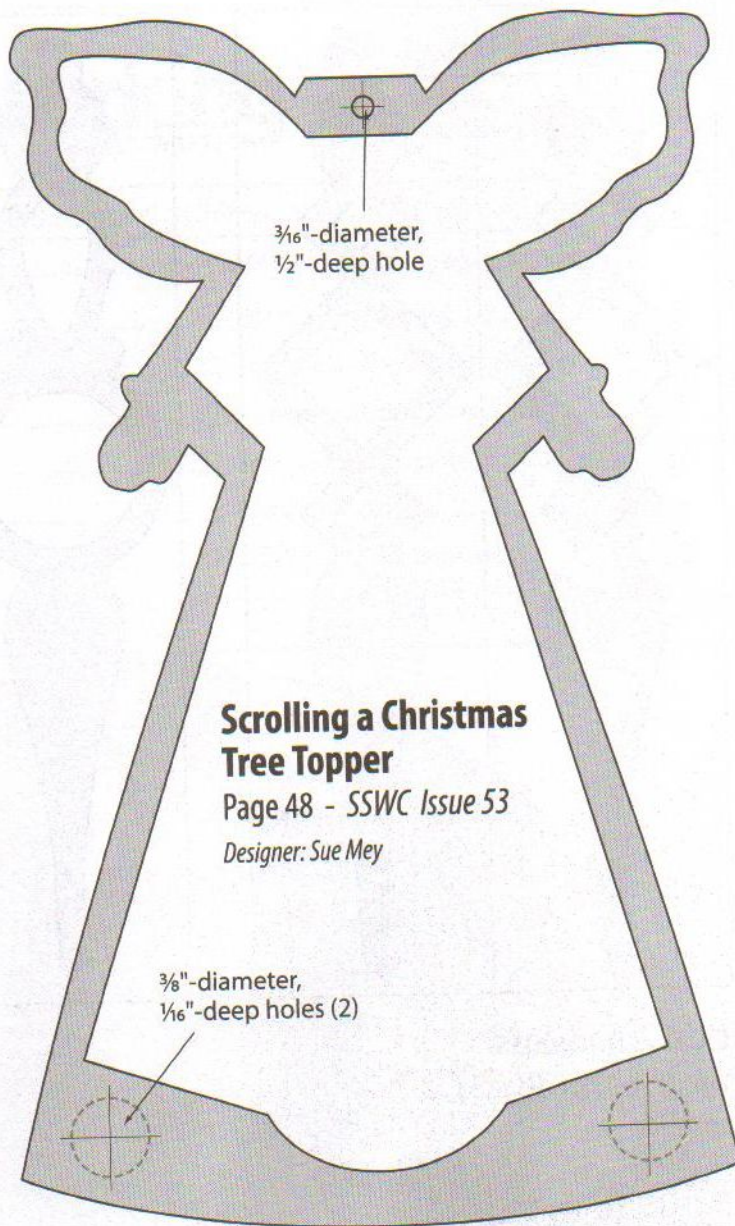
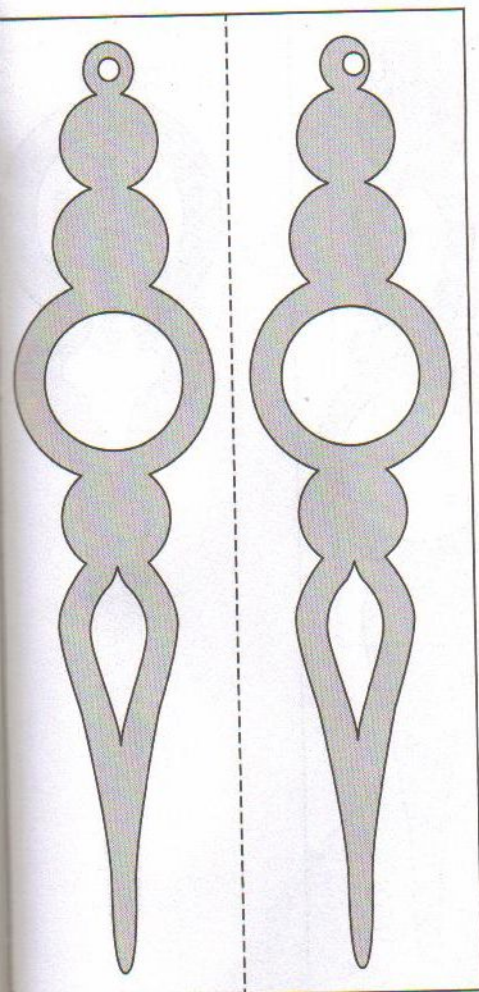


Fantasy Puzzles
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 Designer: Judy Peterson



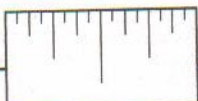
Icicle Ornaments
 Page 18 - SSWC Issue 53
 Designer: Sue Mey





If you prefer, you can
use $\frac{1}{4}$ " thick plywood

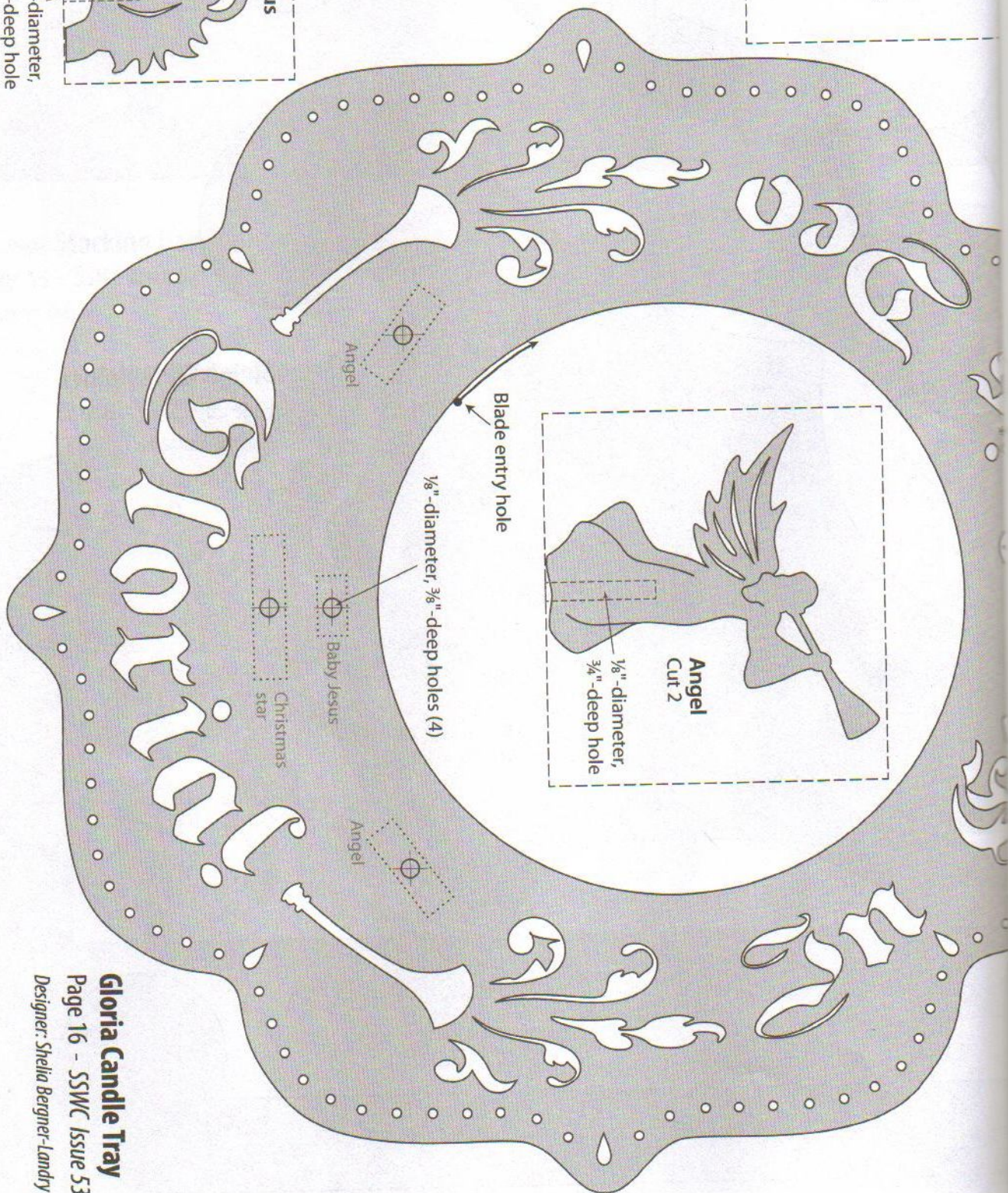
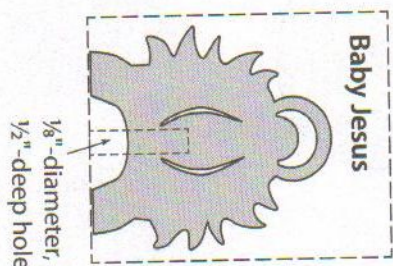
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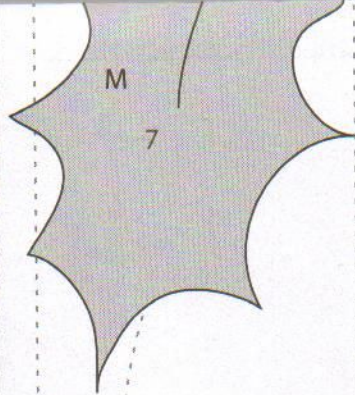
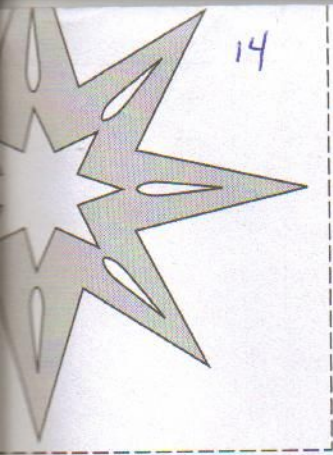


One inch

diameter,
deep hole

Christmas
star

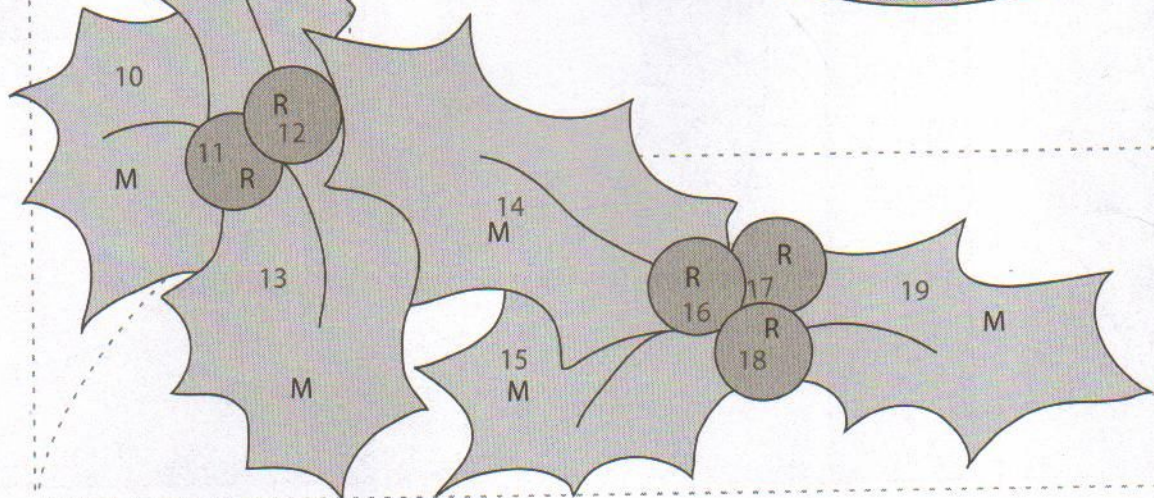
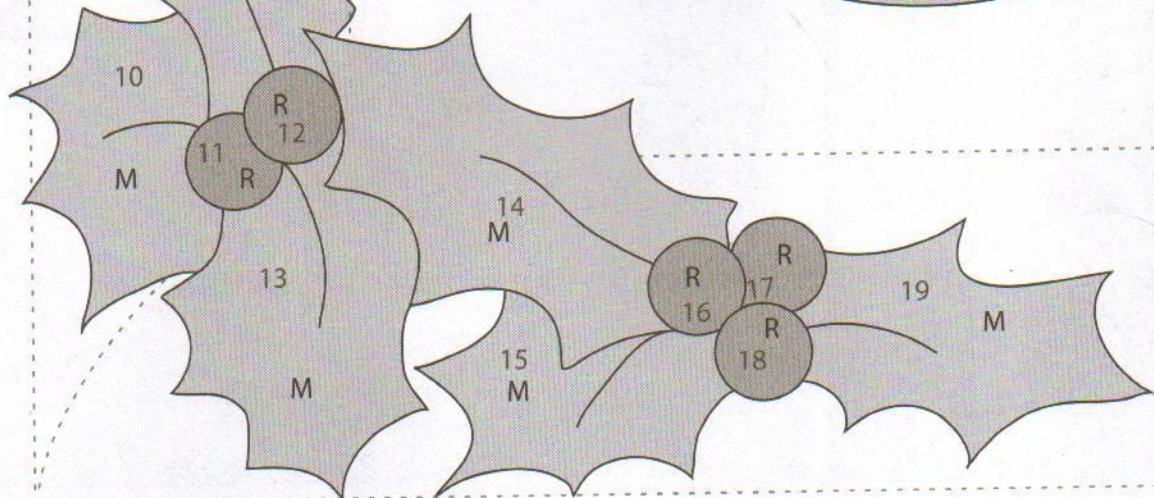
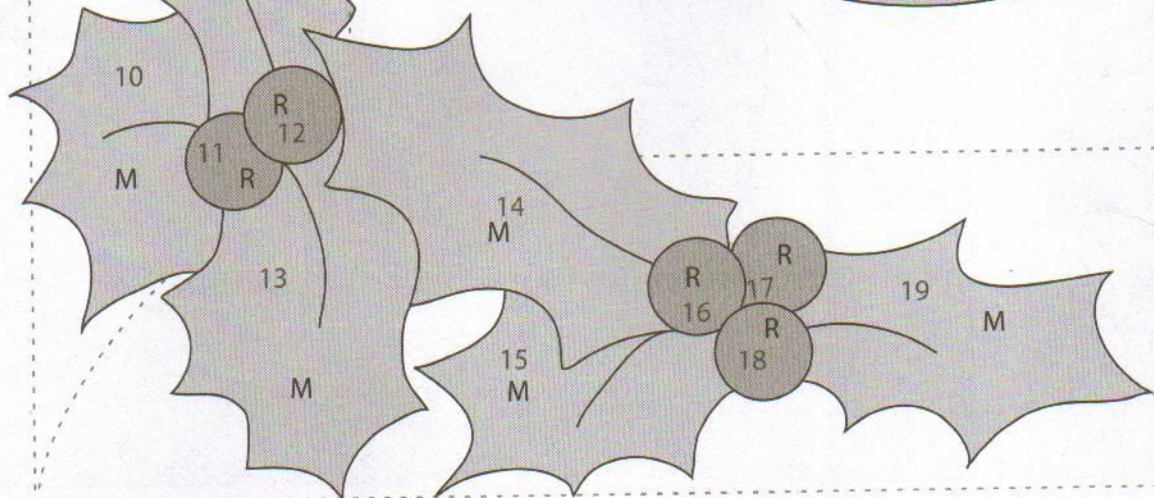
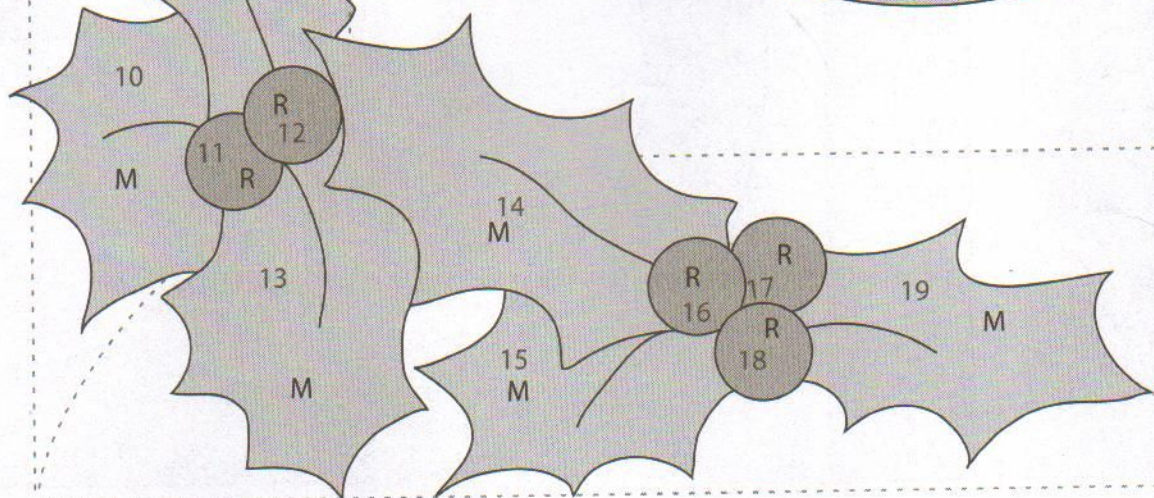
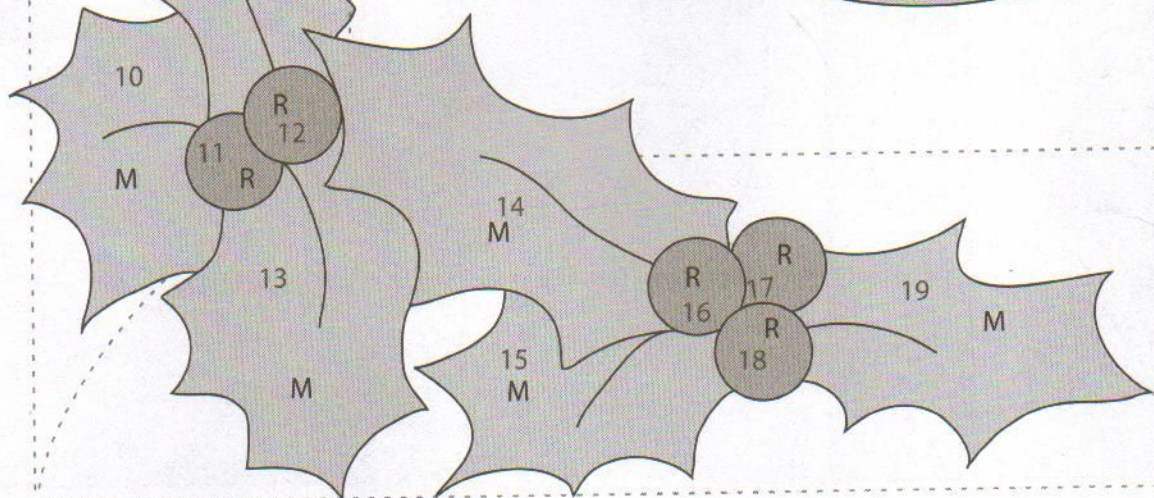
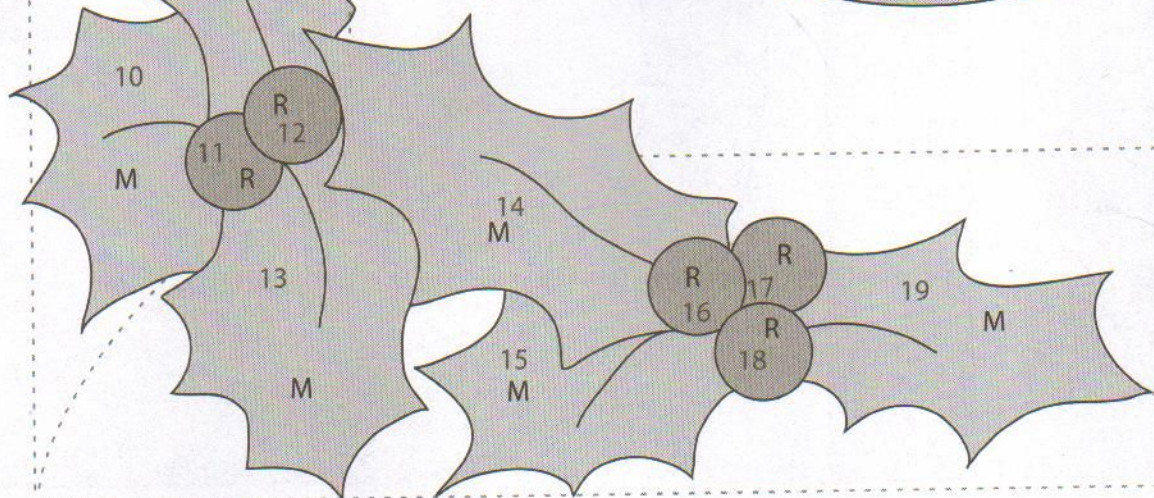
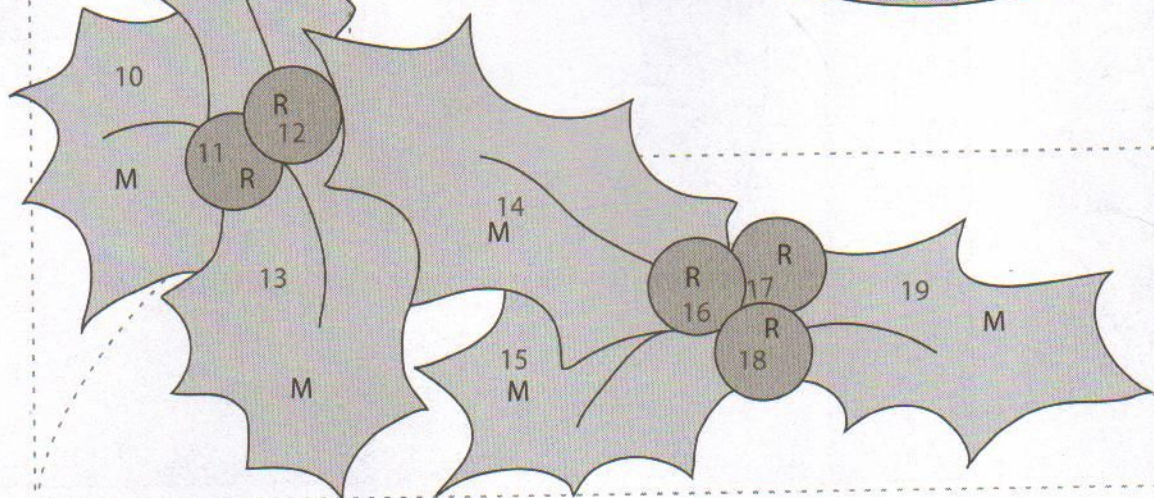
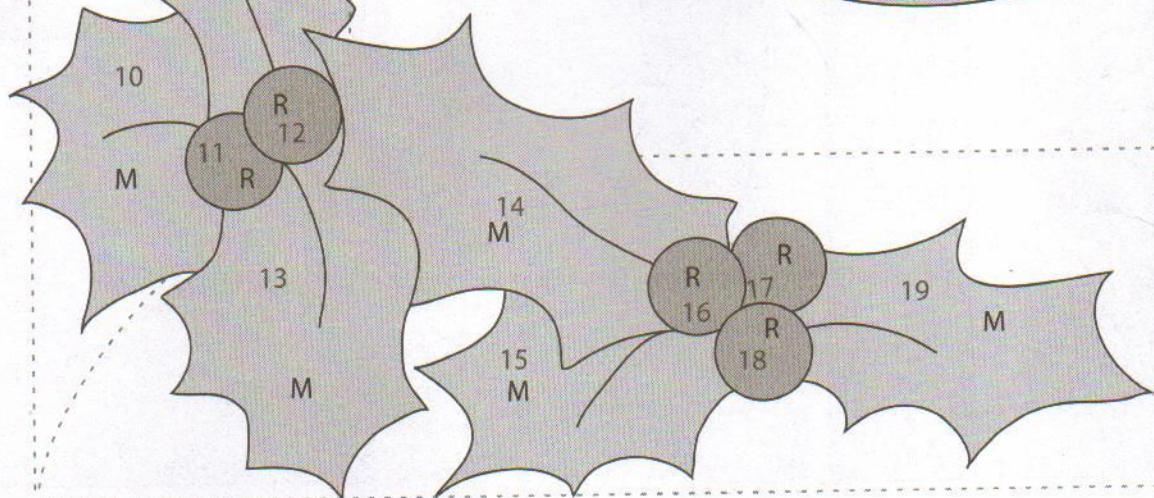
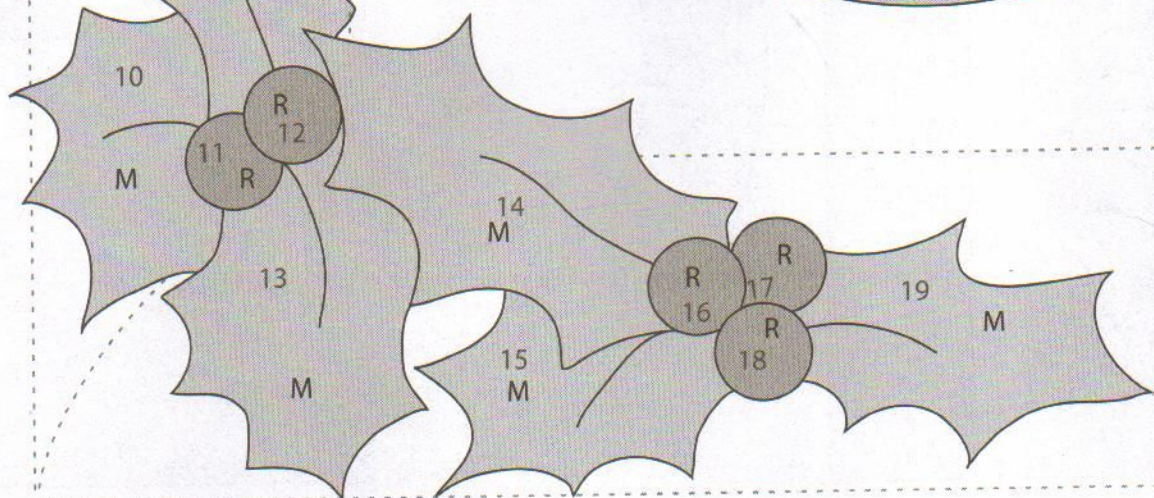
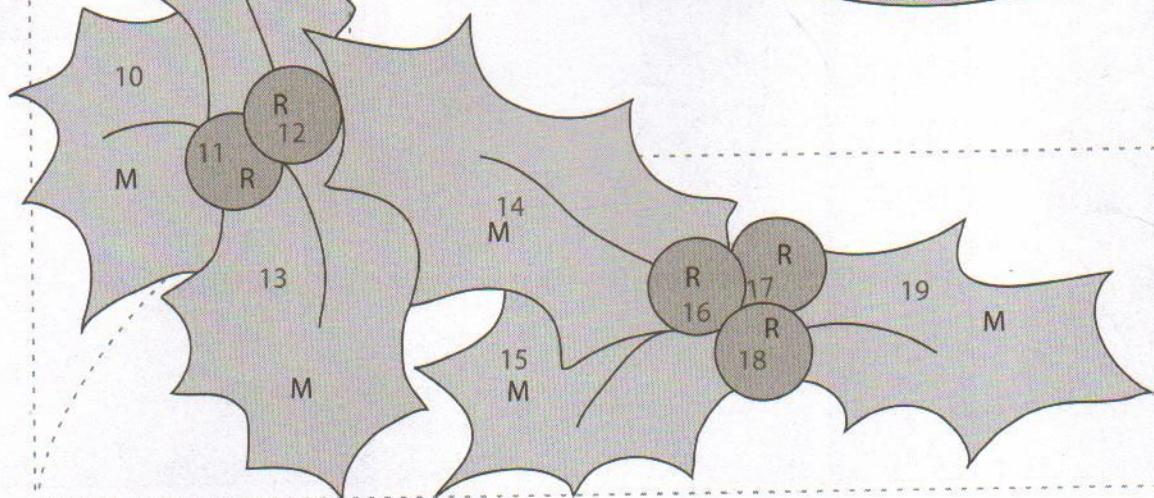
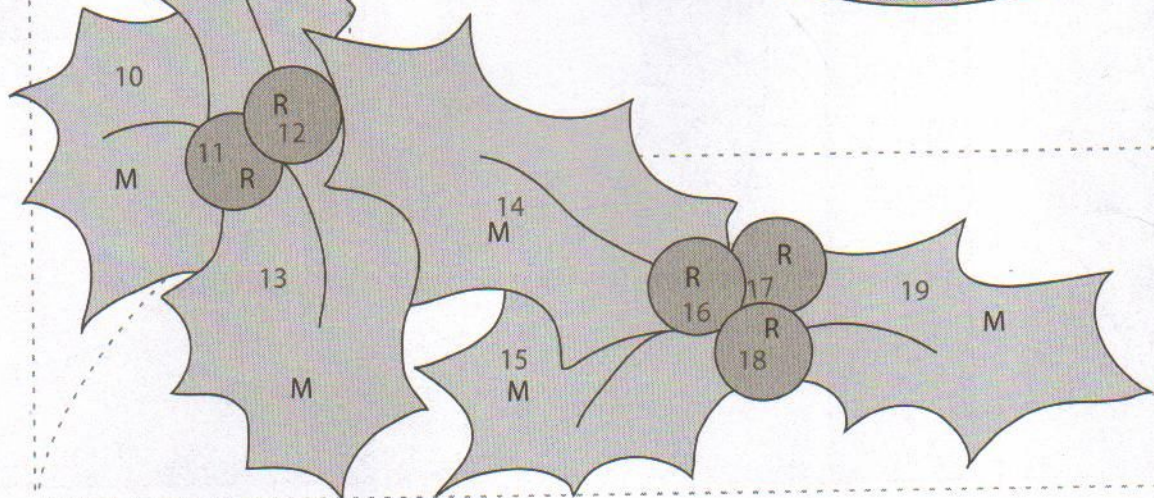
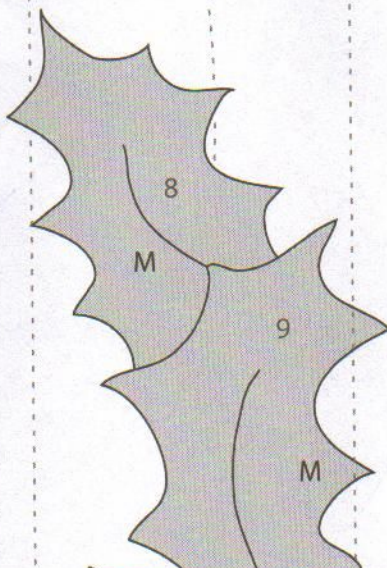
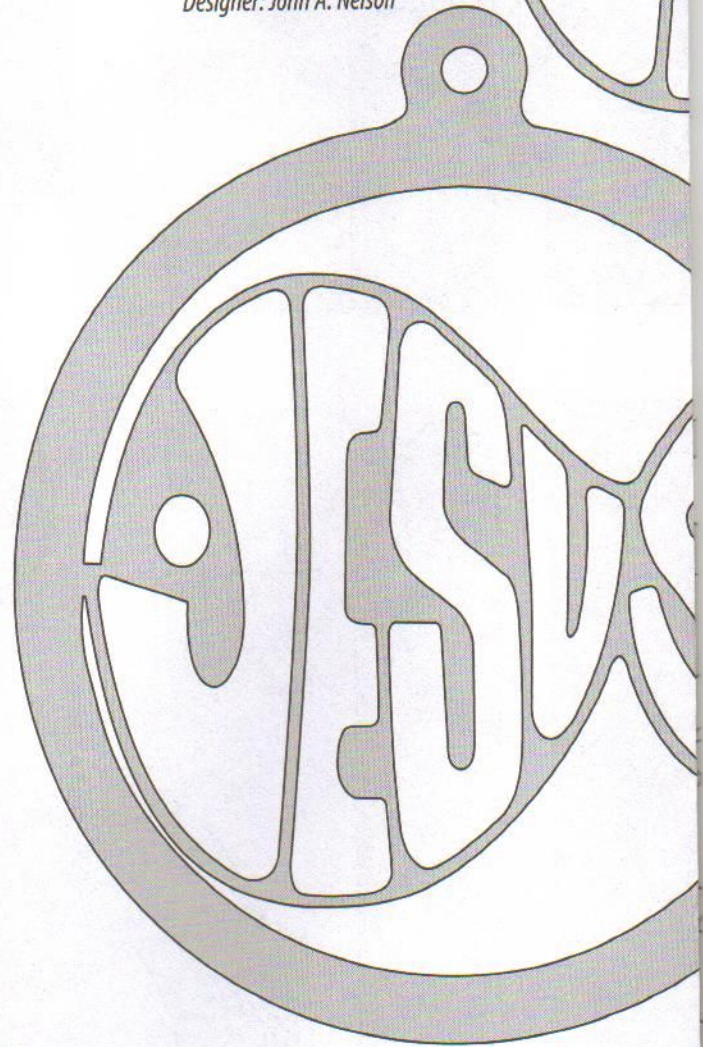


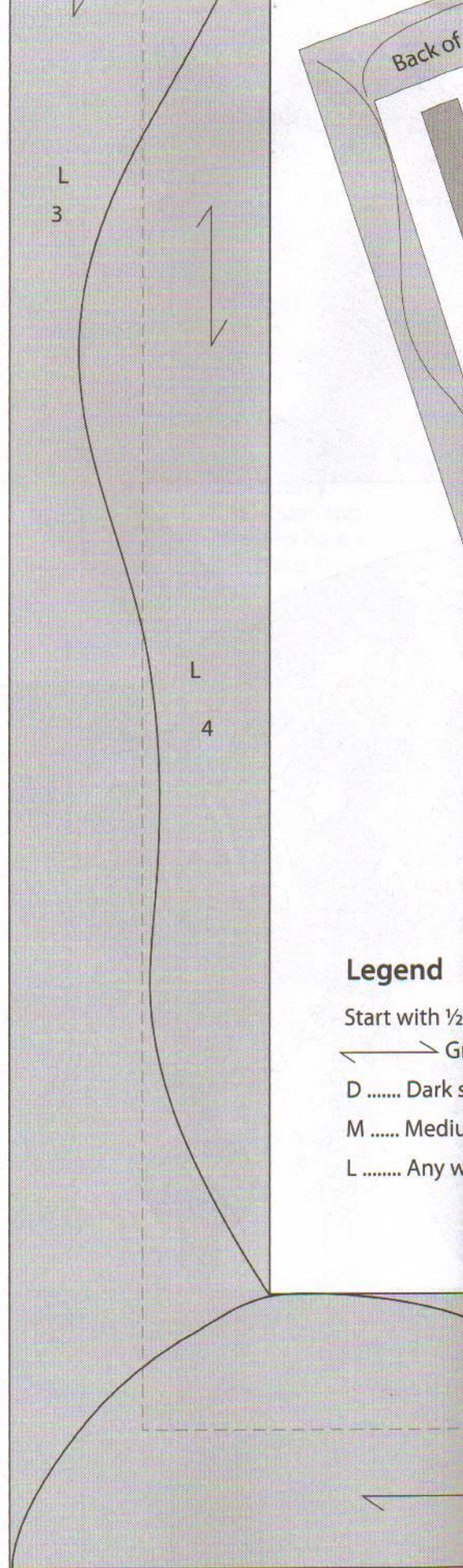
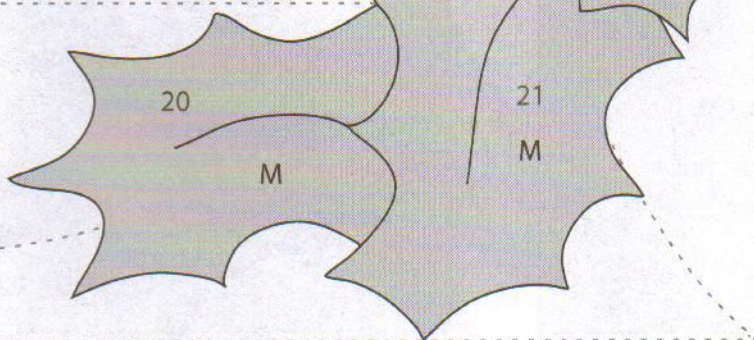
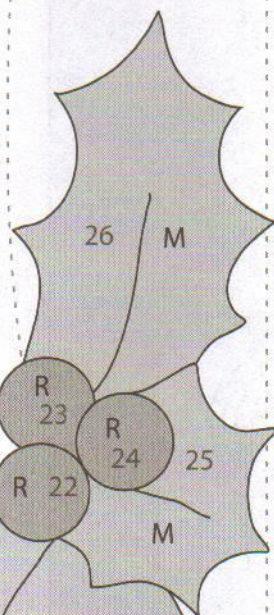
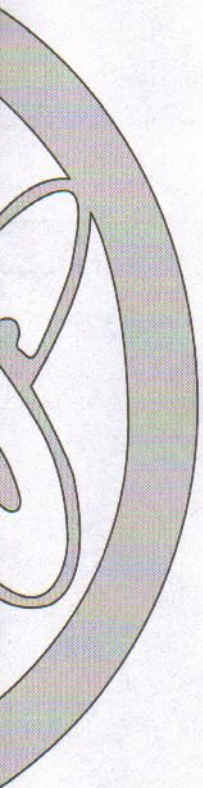
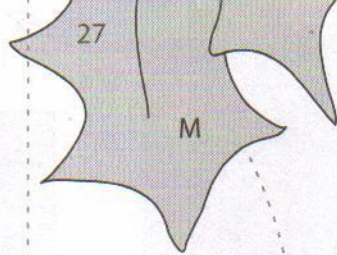
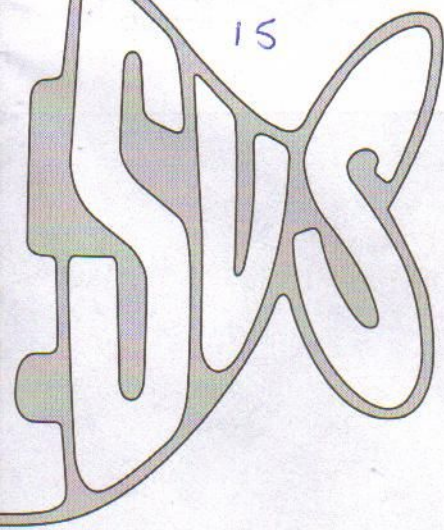


Fretwork Religious Ornament

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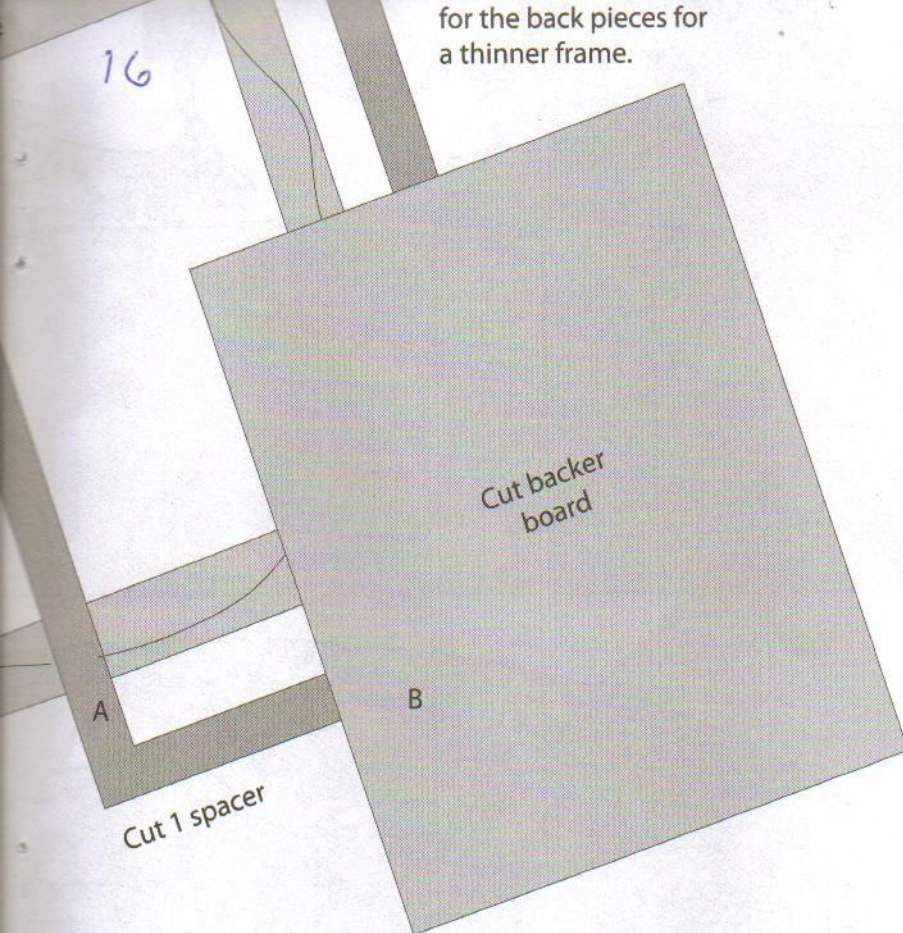
Designer: John A. Nelson





16

for the back pieces for
a thinner frame.



Intarsia Holly Frame

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Designer: Kathy Wise

wood
direction
of wood
side of wood
wood

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