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HOLIDAY 2014
ISSUE 57

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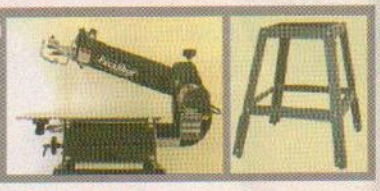

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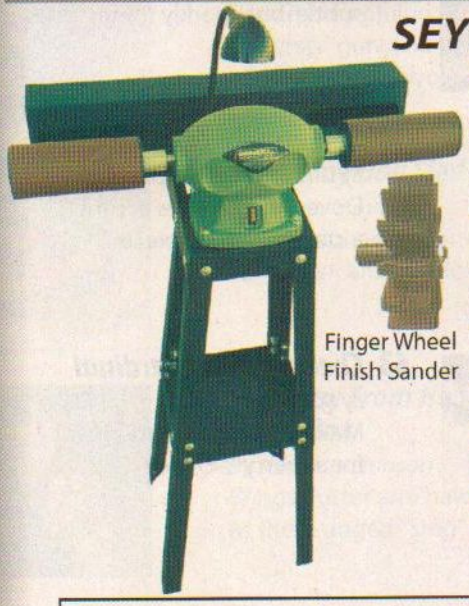

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SCROLL SAW woodworking & CRAFTS
HOLIDAY 2014 ■ ISSUE 57

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This freestanding fretwork tree will be at home on any holiday table.

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TECHNIQUES

ON THE WEB WWW.SCROLLSAWER.COM/SSW57

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Scrolling Shortcuts, pg. 58
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Nuts About the Holidays

Confession: I went a little nuts with the holiday projects for this issue. I was having so much fun collecting ornaments and decorations that I pretty much filled the issue with holiday patterns. We hope you enjoy making both heirloom pieces for your home, like gorgeous in-the-round intarsia, and easy gifts for your family and friends.

Not into Christmas? No worries. Although I admit I was viewing the other projects as gifts or stocking stuffers, you can call them "fun scrolling projects" instead. I particularly love Brian Beals' United States Wildlife Puzzle. Brian worked with his granddaughter, Alexis, to design a layered puzzle that looks like a traditional map of the United States. The true challenge lies underneath the brightly colored state pieces, where 50 animals representing common species across America are nestled together. This is one project that has it all: the pieces are beautiful, the puzzle is challenging, the gift is unique (and educational!), and the project is not only fun to scroll but can, if you like, use up some of your scrap wood.

What if you fall in the other camp: you're way into Christmas and need more patterns than we're offering here? I have exciting news for you. I actually had more holiday projects than I could fit into this issue, so we decided to try something new with them: we're launching an e-magazine! For nearly a dozen more projects (almost 50 additional patterns), visit foxchapelpublishing.com and download the *SSW Holiday 2014 Pattern Collection*. This is not a digital version of the paper product you're holding (and it is not replacing the printed magazine)—it's a compilation of all-new projects, delivered electronically and optimized for printing at home. For now, this is a one-time digital special issue, but if you like and support the idea, we'll look into doing more e-magazines. Let me know what you think!

Finally, I promised last issue to tell you about some of the changes that are going on around Fox Chapel Publishing. Some of them are still in progress, like building our workshop, while others are working out brilliantly, like our new staff members. Our editorial assistant, Carly Glasmyre, joined us in June and has already become an integral part of our team. She is editing articles and layouts, organizing the magazine's departments, and keeping our acquisitions and contracts flowing smoothly. Our advertising sales representative, Maggie Gellers, is even newer—she is starting as this issue goes to press. She will be selling ad space in the magazine and on the web, and booths for Open House. If you have a chance to correspond with either Carly or Maggie, please welcome them to the woodworking world.

Carly Glasmyre

Maggie Gellers

Best wishes to you and yours for a happy and safe holiday season.

Mindy Kinsey

Mindy Kinsey
kinsey@FoxChapelPublishing.com

SCROLL SAW woodworking & CRAFTS
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Carving Chains

I enjoyed your article on wooden chains in *Scroll Saw Woodworking & Crafts* Spring 2012 (Issue 46). At the present time, I do mostly scroll sawing and intarsia, but years ago I carved many wooden chains. I'm enclosing a picture of some of my work. The longest chain shown is carved from a 16' piece of wood; after carving, the length increased to 20' due to the release of wood in each link. All this carving was done with a three-blade Buck pocketknife.

Ray Grapperhaus
Beckemeyer, Ill.

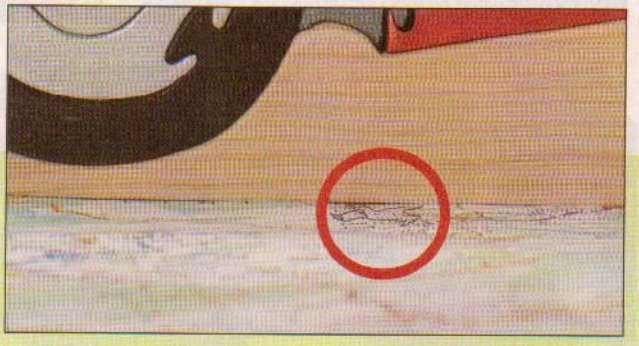
Dozens of feet of wooden chains carved by *SSW&C* reader, Ray Grapperhaus.

Ladybug boxes for children with disabilities.

Woodworking from the Heart

I recently subscribed to *Scroll Saw Woodworking & Crafts*. The two articles about trinket boxes and toy cars (Summer 2014, Issue 55) were a real hit at our woodshop because we do many projects for local special education schools. Some of the things we make include wooden toys for kids to finish, learning disability aids, and other teacher-requested items. These two projects gave us "new" ways of doing "old" things. The kids don't know that, but I assure you that the dedicated guys who do this kind of woodworking from their heart do, and they love doing something new and different for the kids.

Bill Miller
Delray Beach, Fla.



Fox Hunt

Dennis Ernst of Hays, Kan., and Donna Baltz of Waukesha, Wisc., were randomly drawn from the participants who located the fox in our last issue (Fall 2014, Issue 56). The fox was hiding in the road map on the lead photo on page 25, in the Cruisin' Corvette Puzzle article.

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, 2014, 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.

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.

Mekanikos vs. The Minotaur ▶

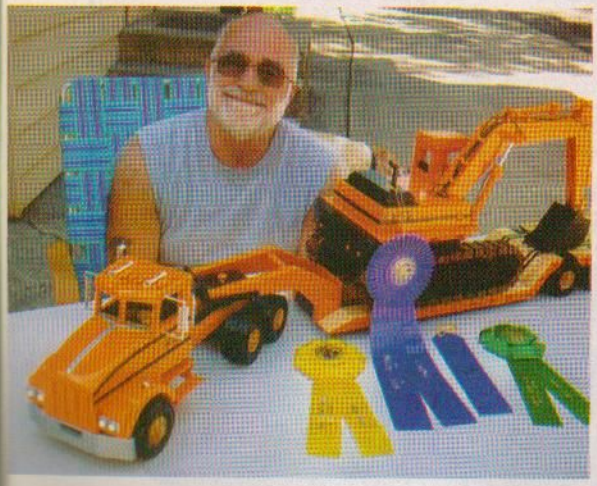
Automata expert **Dug North** designed and cut this carnival scene. *Mekanikos vs. The Minotaur* depicts a sideshow strongman struggling against a monster—or so it seems, until the doors at the front reveal the "truth" about the Minotaur. Dug invented a new method of animation for this piece and made every element of the tableau by hand. See the scene in action at Dug's website, www.dugnorth.com.

Doctor's Caduceus ▲

Luis Martinez of Aguadilla, P. R., designed and created this caduceus as a graduation gift for a friend. The piece is made of cedar, poplar, and a local wood called guaraguao.

Sandhill Crane ▲

Jim Ratzlaff of Henderson, Nev., cut this sandhill crane out of white pine and red cedar. He was inspired to capture the crane's beauty after witnessing the annual migration of these birds.



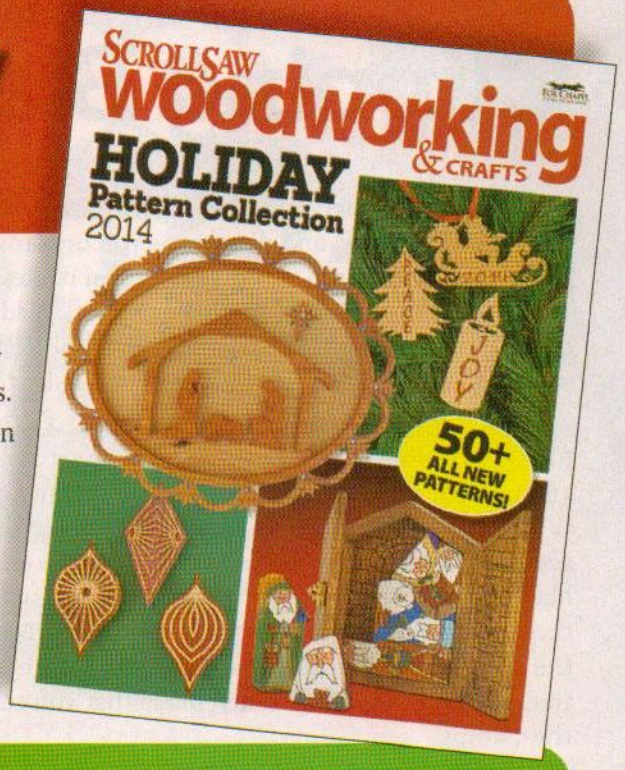
◀ Machines

Ron Jungels of Naperville, Ill., made this excavator, semi-truck, and lowboy trailer from patterns by Toys and Joys. Measuring 36" total, each machine is made out of pine and oak. They won first place at the Dupage County Fair in Wheaton, Ill.

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 glasmyre@ScrollSawer.com.

Get More Holiday PATTERNS



The *SSW Holiday 2014 Pattern Collection* is an all-new digital magazine stuffed with 50+ patterns. These ornaments and decorations were created by your favorite designers, including Gary MacKay, Sue Mey, Judy Peterson, Janette Square, and Dan Wilckens.

The *SSW Holiday 2014 Pattern Collection* is not a digital version of the issue in your hands—this is a fresh set of designs guaranteed to make your holidays more festive! The patterns are optimized for your home printer, so you can download the e-magazine and start scrolling now.

The e-magazine costs just $9.99 and is available for download beginning October 21, 2014. If you prefer, you can order a printed copy of the pattern collection for $9.99, plus $3.99 shipping and handling.

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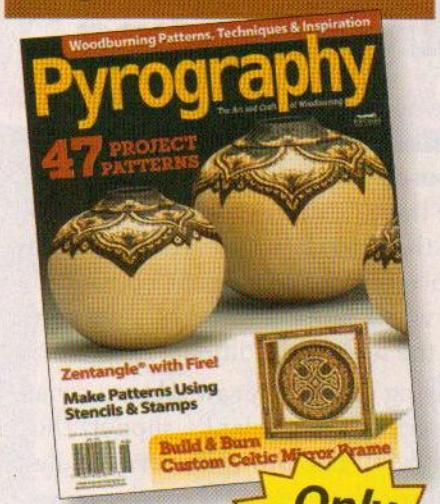

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Clipping Blades

Clipping blade ends at an angle makes threading entry holes easier.

TOP TIP

When you're cutting fretwork, the end of the blade bends and distorts as you unclamp, move, and reclamp it. This distortion makes it difficult to feed the blade through small blade-entry holes, especially if you feed the blades from the bottom. Clipping the excess off the blade can make the blade easier to feed.

Install the blade in the saw, and then free the blade from the top clamp. Note the mark the blade clamps make on the blade, and use side cutters to nip the blade off at an angle about ⅛" (3mm) above the mark. This leaves enough blade to clamp securely, but not enough to distort. Plus, the angle helps the blades fit into the blade-entry holes more easily. If you feed from the top, install the blade, free it from the bottom clamp, and nip the bottom of the blade off at an angle. In either case, be careful that you don't cut off so much blade that you can't secure it in the clamps.

I also rub the blade-entry holes with a small pencil. The pencil makes the holes black and easier to see, and the pencil graphite helps to lubricate the blades as you push them through the holes.

Carl E. Jacobs
Euharlee, Ga.

The shiny underside of a CD will act as a mirror to help you bottom feed a blade into entry holes.

Easier Blade Feeding

With my saw, I have no choice but to bottom-feed the blades. To make it easier to see the small blade-entry holes in fretwork, I use a pen light and an old CD. Lift the blank and place the CD, shiny side up, on the saw table, just touching the blade. The CD acts as a mirror so you can see the blade-entry hole on the bottom of the blank. For dark wood, like the walnut shown here, place a penlight on the table for additional light.

I also tape a playing card to my saw table to act as a zero-clearance insert. For large blanks, support the back of the piece with 1½" (38mm)-thick scrap while you feed the blade through the hole.

Ann Adrian
Richmond, Ill.

TOP TIP in our Spring issue wins a $25.00 Fox Chapel Publishing Gift Card. Send your tips or techniques to: Info Exchange, *Scroll Saw Woodworking & Crafts*, 1970 Broad Street, East Petersburg, Pa., 17520 or e-mail Editors@ScrollSawer.com.

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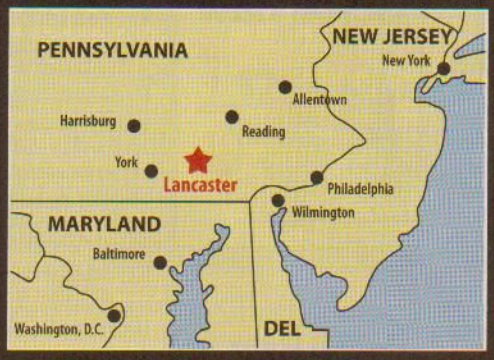

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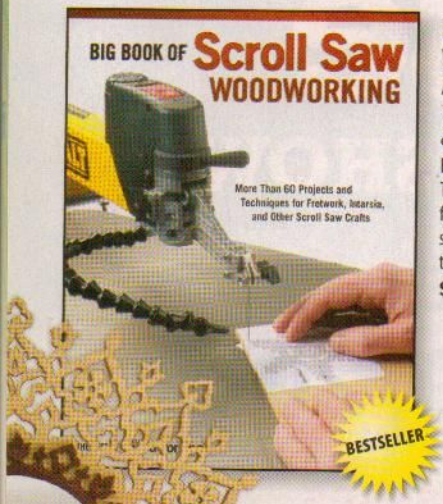

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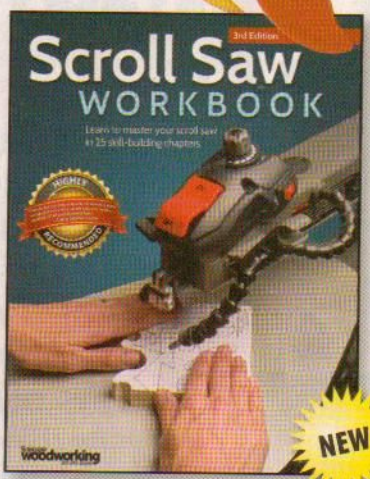

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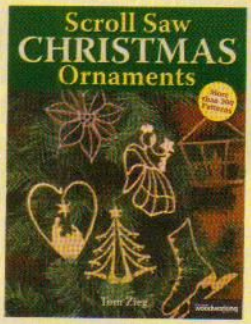

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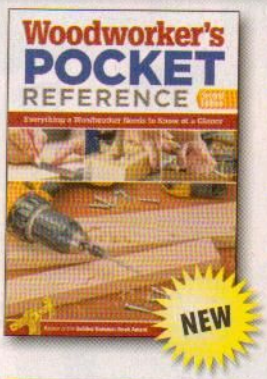

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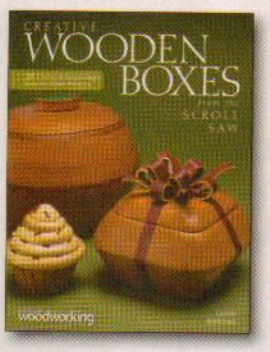

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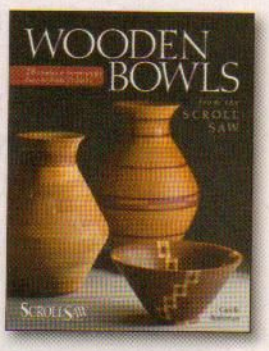

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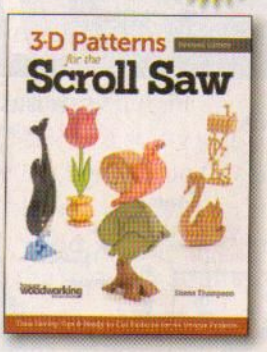

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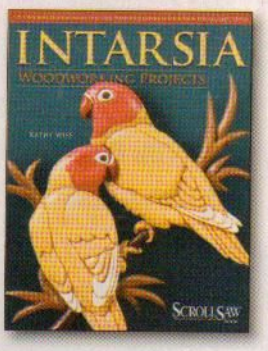

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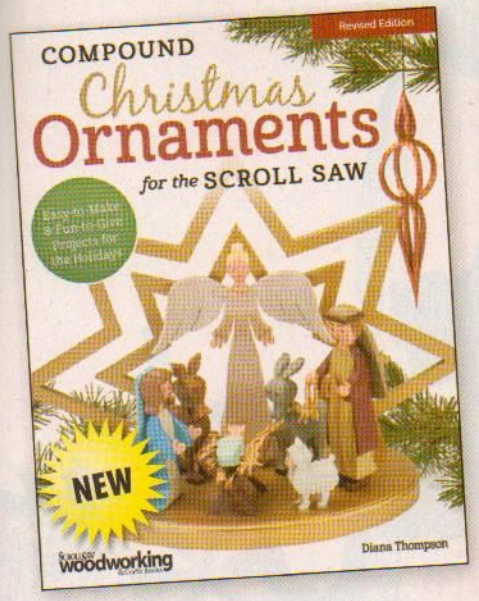

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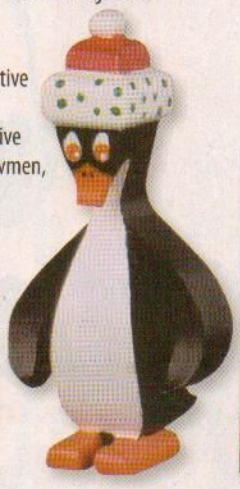

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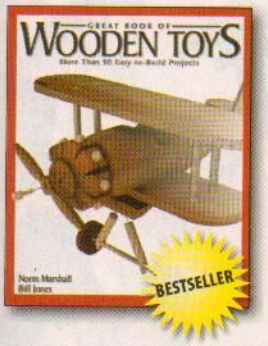

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By Bob Gilsdorf

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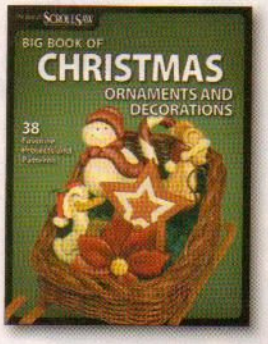

Big Book of Christmas Ornaments and Decorations

38 Favorite Projects and Patterns

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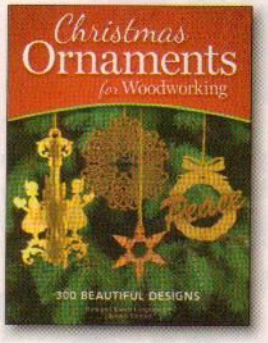

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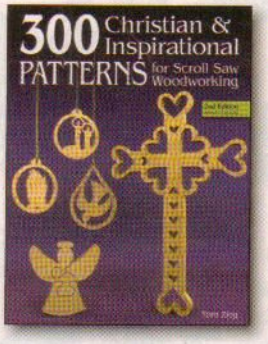

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By Tom Zieg

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Dazzling Snowflake Wreath

Capture the wonder of winter in the crystalline details of this seasonal design

By Alison Tanner

You might enjoy these snowflakes more than the real thing—they won't disappear with a touch or a breath (and they won't need to be shoveled away, either). This decorative piece can be hung on a door or a wall, or used as a centerpiece with a candle placed in the center. No matter where this wreath ends up in your home, its delicate splendor will delight beholders.

Making the Wreath

Cut the wreath from Baltic birch plywood or another wood of your choice, and then sand away any fuzzies. Finish the piece according to your preference. Some of the possibilities include applying a standard wood finish to the wreath, painting it with acrylics, accenting it with craft jewels or glitter, or combining any of these ideas. To hang the piece, use a length of ribbon or attach a hanger with small screws or epoxy.

Materials & Tools

Materials:

- Baltic birch plywood, ¼" to ½" (6mm to 13mm) thick: 11" x 11" (279mm x 279mm)
- Sandpaper
- Finish of choice
- Small hanger and epoxy (optional)
- Ribbon (optional)

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

Tools:

- Blades: #1 reverse-tooth
- Drill with assorted small bits
- Paintbrushes

Pattern for the ***Dazzling Snowflake Wreath*** is in the pattern pullout section.

Alison Tanner began cutting paper at the age of 8, inspired by a visit to the home of Hans Christian Andersen. She is the owner/creator of Papercuttings by Alison, which carries the largest variety of patterns and supplies for the scissorist. For more of her work, visit www.papercuttingsbyalison.com.

Jeweled Christmas Ornaments

Add a bit of bling to your tree with subtle-but-sparkly rhinestones

By Sheila Landry

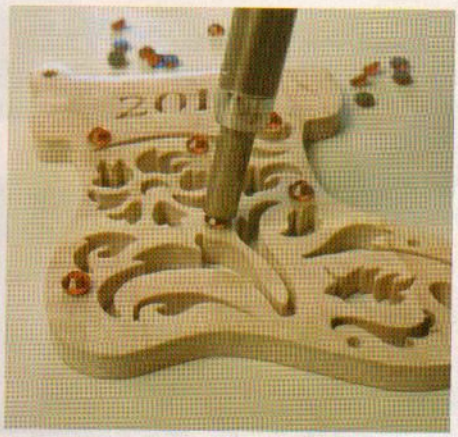
Every Christmas, I love coming up with new ideas for ornaments. These damask-patterned ornaments are gorgeous on their own, but I add rhinestones for extra flare.

Making the Ornaments

Stack the blanks, if desired, and attach the pattern to the top blank (see page 70 for stacking methods). Drill the hanging holes with a 5/32" (4mm) bit. Drill decorative holes as marked, unless you're planning to add rhinestones. Drill blade-entry holes. Cut the date first, and then cut the decorative inner frets. Cut the perimeter, remove the pattern, and sand the ornaments. Spray the ornaments with finish. When the ornaments are dry, attach a piece of ribbon or hanger.

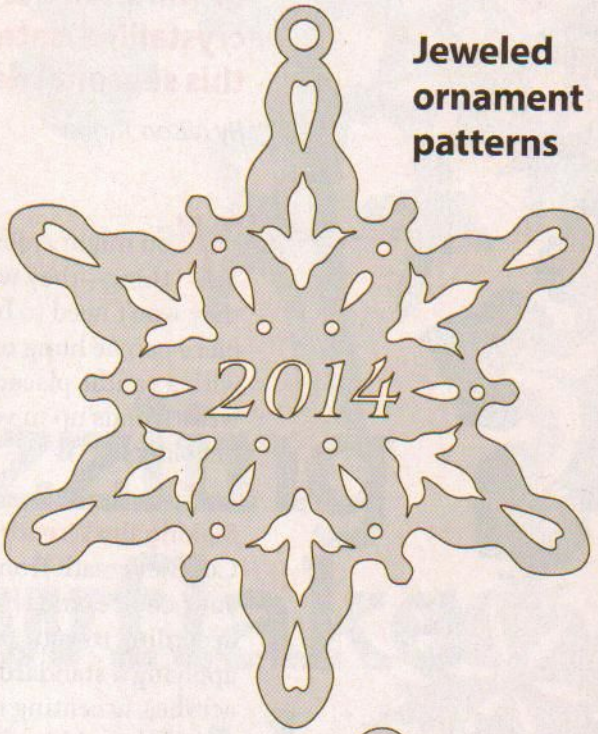
Applying the Rhinestones

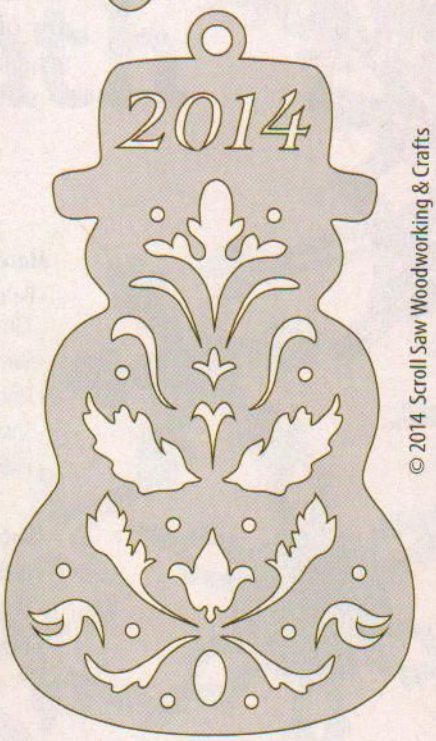
After the ornaments dry, you can apply decorative hot-fix rhinestones. I purchased mine from Rhinestone Canada. These rhinestones already have adhesive on the back, which makes them easy to apply. Set each stone in place, and then hold a heat wand, such as Rhinestone Canada's Red HotFix applicator wand, to the top of each stone for approximately 10 seconds. The heat from the wand will transfer to the stone and melt the glue, bonding the rhinestone in place. There is no mess, and the bond is strong. To see the entire process, check out my demonstration on YouTube: http://bit.ly/1uHwywz.



Hot-fix rhinestones are self-adhesive. To attach them, place them as desired and then touch the top of each one with a heat wand.

Jeweled ornament patterns



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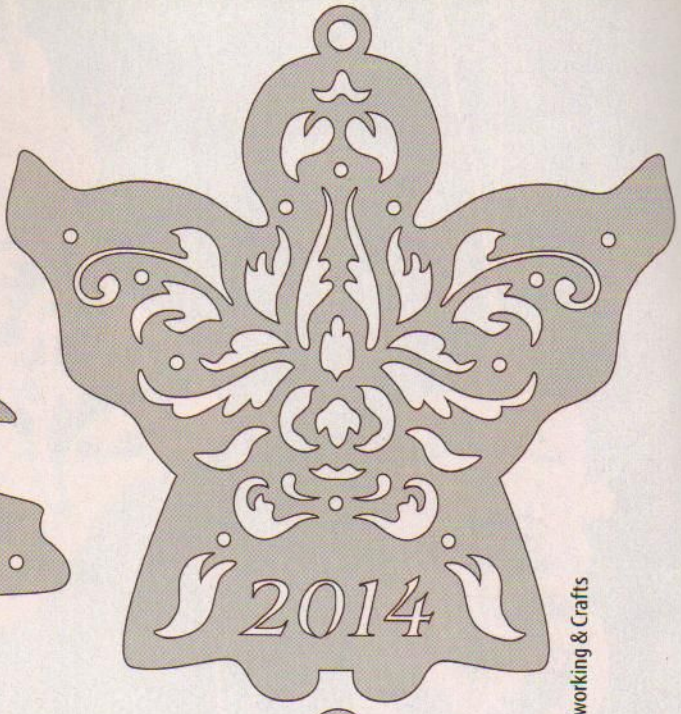
Jeweled ornament patterns



Materials & Tools

Materials:

- Tight-grained hardwood, such as maple, 3/16" (5mm) thick: 7" x 12" (178mm x 305mm)
- Spray adhesive: temporary bond
- Finish, such as DecoArt Acrylic: matte
- Ribbon or cord: 1/8" (3mm) wide (for hanging the ornaments)
- Crystal rhinestones, 4mm (optional): emerald, golden, light Siam, sapphire, crystal, light turquoise

Tools:

- Blades: #2 or #2/0 reverse-tooth
- Drill press: 5/32" (4mm) bit, assorted small bits
- Hand-held orbital sander and various grits (120-400) of sandpaper
- Heat wand (optional)

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

SPECIAL SOURCES:
The rhinestones and Red HotFix applicator wand are available from Rhinestone Canada, www.rhinestonecanada.ca.

Sheila 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, visit www.sheilalandrydesigns.com or call 902-482-7174.

Centerpiece Christmas Tree

Doves and candles accent a stately holiday piece

By Gloria Cosgrove and Alison Tanner
Cut by Rolf Beuttenmuller

Standing almost 11" high, this three-dimensional Christmas tree demands to be noticed. Traditional Christmas icons of doves and candles create a nostalgic silhouette, while a sturdy crossed base keeps the tree steady wherever you set it. The timeless elegance of this design will make it a highlight of any home's holiday décor.

Making the Tree

Stack the two blanks (see page 70 for methods) and cut the interior fretwork designs. Do not cut the center slots. Cut the perimeter of the trees. Separate the stack, and then cut the center slot of each piece. Sand both pieces smooth, and then apply a wood finish of your choice. To display, slot the two pieces of the tree together. The pieces can be glued or kept unglued for easy storage.

Materials & Tools

Materials:

- Hardwood ¼" (6mm) thick: 2 each 8" x 11" (203mm x 279mm)
- Sandpaper
- Finish of choice
- Wood glue (optional)

Patterns for the ***Centerpiece Christmas Tree*** are in the pullout section.

Tools:

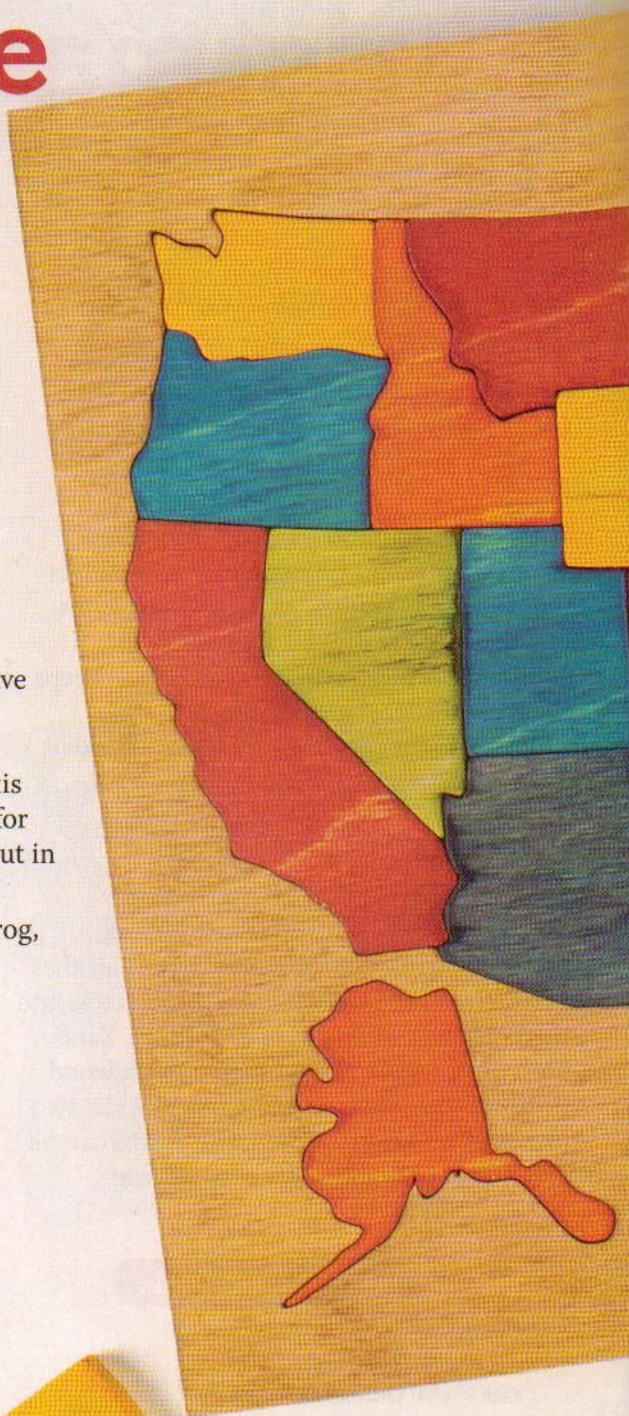
- Blades: #1 reverse-tooth blades
- Drill with assorted small bits

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.

Alison Tanner began cutting paper at the age of 8, inspired by a visit to the home of fairy-tale writer Hans Christian Andersen in Denmark. Alison is the owner/creator of Papercuttings by Alison, which carries the largest variety of patterns and supplies for the scissorist. For more of her work, visit www.papercuttingsbyalison.com.

UNITED STATES
Wildlife Puzzle



Clever puzzle includes animal silhouettes to add a layer of complexity

By Brian and Alexis Beals

This two-in-one design features an animal puzzle underneath a puzzle of the United States. The animal puzzle includes 50 animals native to the country, with an oversized bald eagle in the center. There are multiple solutions for the placement of the animals, but only one solution for the states, of course. The Great Lakes were a challenge, so we decided to include them as a permanent part of the frame.

My granddaughter, Alexis, and I live 500 miles apart, but we have been designing puzzles together for more than a year. For this one, Alexis drew the animals and sent them to me via e-mail. I resized them to fit the puzzle and cut them out of various hardwoods. Alexis painstakingly placed the animals in the puzzle and selected colors for the states. This puzzle is challenging and time-consuming to cut, but in the end you will have a wonderful piece to show off.

Alexis and I extend our thanks to Ruth Chopp, whose sealife, frog, and flower puzzles inspired our version of the USA.

Patterns for the ***United States Wildlife Puzzle*** are in the pattern pullout section.

Materials & Tools

Materials:

- Baltic birch plywood, ⅛" (3mm) thick: 11" x 16½" (279mm x 419mm)
- Baltic birch plywood, ¼" (6mm) thick: 11" x 16½" (279mm x 419mm)
- Light-colored hardwood, such as locust, ¾" (19mm) thick: 11" x 16½" (279mm x 419mm)
- Hardwood scraps, ¾" (19mm) thick (optional): assorted to cut individual animals
- Wood glue
- Transfer paper
- Stain
- Sandpaper: 150- or 180-grit
- Lacquer
- Tung oil or Danish oil
- Dyes or acrylic paints
- Marker: black Micron 03
- Spray adhesive: temporary bond
- Tape: clear packaging; double-sided

Tools:

- Premium scroll saw blades, such as Pegas Modified Geometry: #3, #5
- Drill with bits: #56 wire size; assorted
- Table saw

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

PREPARING THE BLANKS

Step 1: Prepare the blanks. Cut the blanks to size. Use double-sided tape to stack the blanks in this order (top to bottom): ¼" (6mm)-thick Baltic birch plywood, ¾" (19mm)-thick hardwood, ⅛" (3mm)-thick plywood. Make sure the visible grain on the plywood matches the grain direction of the hardwood. Use a table saw to trim the stack to 10" by 15½" (254mm by 393mm).

Step 2: Attach the pattern to the stack. Separate the ⅛" (3mm)-thick Baltic birch plywood from the stack; this will be the bottom of the puzzle. Adhere the United States pattern to the remaining stack. Cover the stack with clear packaging tape to lubricate the blade.

Step 3: Drill the blade-entry holes. Use a #56 wire size bit to drill holes along the outer edge of the mainland, Alaska, and Hawaii. Make sure the scroll saw blade is perpendicular to the table.

TIP

BLADE SELECTION

When I cut the thicker wood, I use a Pegas #5 modified geometry blade because it consistently cuts hard woods without creating a bevel. Because I use water-based dyes and paints for the states, I use a Pegas #3 modified geometry blade instead of a standard puzzle blade. The larger kerf of the #3 blade counteracts any wood swelling created by the water-based finishes. Slow the speed of the blade to make it easier to control.

MAKING THE FRAME

Step 4: Cut the outline of the mainland, Hawaii, and Alaska. Use a #5 blade. Separate the plywood from the hardwood and set aside the hardwood pieces representing Alaska, Hawaii, and the mainland. Then, cut out the Great Lakes (Lakes Huron and Superior will be one piece). Save all of the Great Lakes pieces. Stain the frame top and bottom, if desired, and glue them to the hardwood frame.

Step 5: Glue the Great Lakes pieces to the frame. Paint or dye the four ¼" (6mm)-thick Great Lakes pieces blue. Then, glue the colored plywood pieces to the tops of the appropriate hardwood pieces. Insert the hardwood mainland piece into the frame to help position the Great Lakes. Dab some glue on the bottom of the Great Lakes pieces and insert them into the frame. Let the glue dry, and then remove the hardwood mainland piece. Apply spray lacquer or varnish to the top and sides of the frame.

CUTTING THE PUZZLE PIECES

Step 6: Cut the states. Use a #3 modified geometry blade. Maryland, Delaware, and New Jersey are one piece, as are Connecticut, New Hampshire, Vermont, Rhode Island, and Massachusetts. Sand the pieces, and then use transfer paper to mark the outlines of the multi-state pieces on the blanks. Trace over the lines with a black Micron 03 pen. Use dyes or thinned acrylic paints to color the separate states, and use full-strength acrylic paint for the multi-state pieces (to keep the color on each state separate). Color the two parts of Michigan the same color; color the bit of Virginia on the bottom tip of Maryland the same as the larger part of Virginia. Apply spray lacquer to the top, bottom, and edges of each piece. Avoid brushing shellac because it can dissolve and transfer the water-based colors to the other pieces.

Step 7: Cut the animals. With scissors, cut the outline of the animals puzzle and attach the pattern to the hardwood center cutout. Drill the eyeholes first. Then, plan the cuts, especially for animals like the quail and bobcat, which have delicate parts. Use a #5 modified geometry blade. Cut around the ears and feet first, and then go back and cut the notches. When in doubt, cut inside the lines, because there is often a tight fit. After cutting, assemble the puzzle to check the fit; sand any tight areas and sharp edges. Color the pieces with dyes or acrylic paints, if desired. Or, apply Tung oil finish or Danish oil.

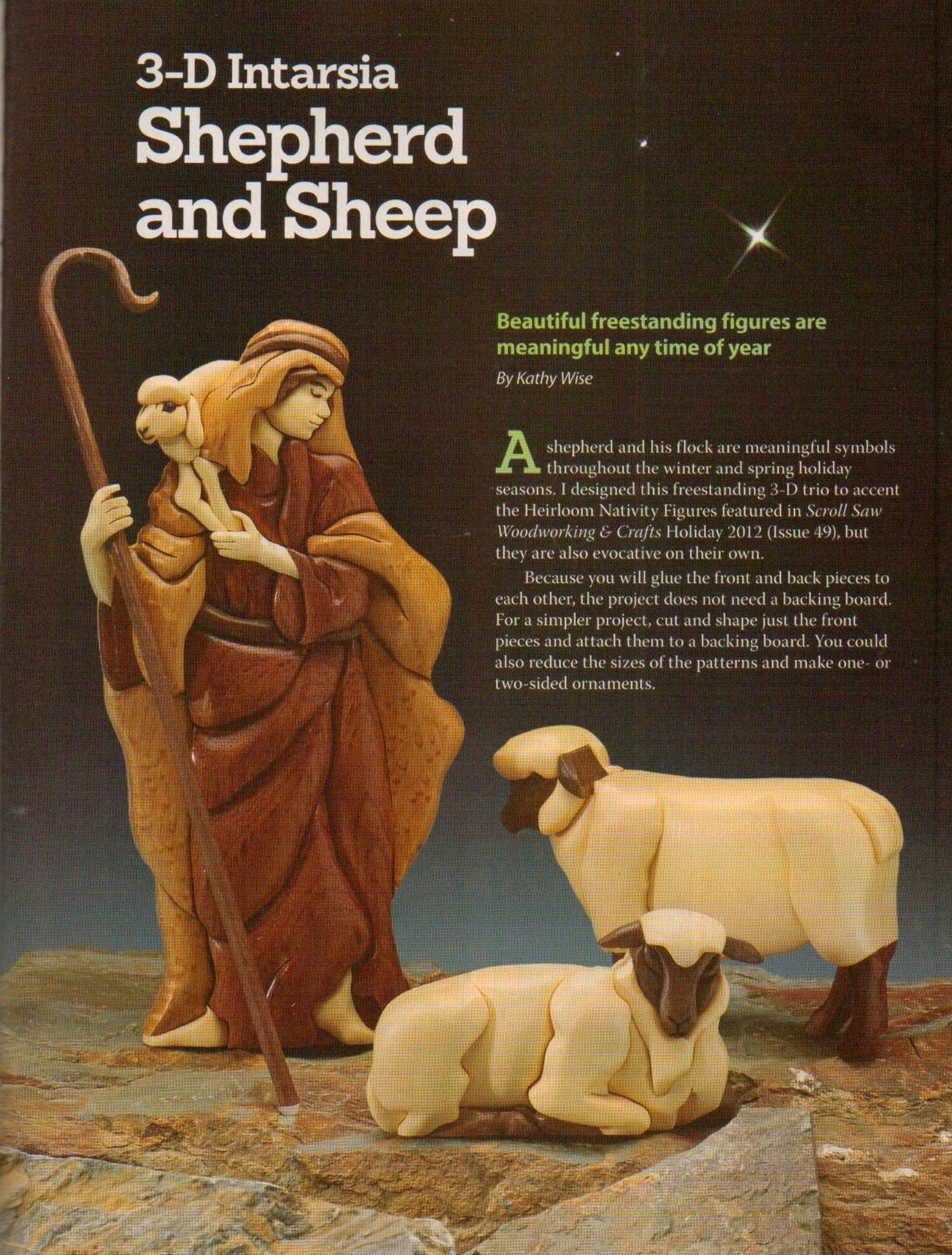
TIP

NATURAL HARDWOOD ANIMALS

While it requires greater cutting skills, I use a variety of hardwood scraps to cut the animals. I prefer the look of the natural hardwoods, and it gives me a chance to use small pieces of expensive hardwoods. I glued together walnut and maple for the eagle and white-tailed deer. I glued together padauk and walnut for the red-tailed hawk.

Since the summer of 2013, Brian and Alexis Beals have been collaborating on state wildlife puzzles that have proven popular at craft shows throughout the Southeast. Grandfather Brian does most of the cutting, and his granddaughter, 14-year-old Alexis, helps with the designs. See more puzzle designs at www.pickenspuzzles.com.

3-D Intarsia Shepherd and Sheep



Beautiful freestanding figures are meaningful any time of year

By Kathy Wise

A shepherd and his flock are meaningful symbols throughout the winter and spring holiday seasons. I designed this freestanding 3-D trio to accent the Heirloom Nativity Figures featured in *Scroll Saw Woodworking & Crafts* Holiday 2012 (Issue 49), but they are also evocative on their own.

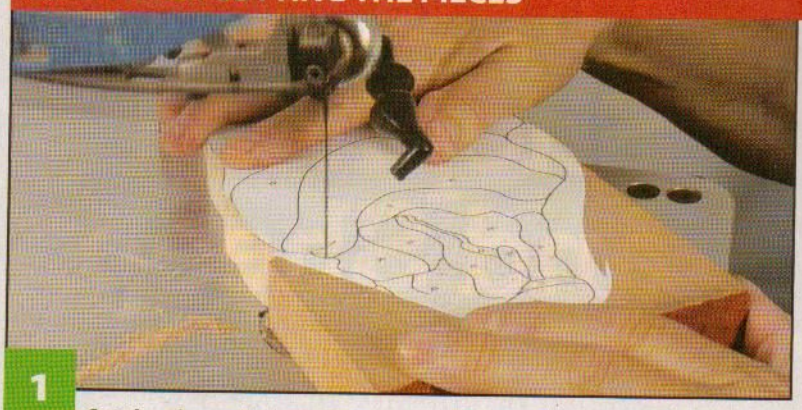
Because you will glue the front and back pieces to each other, the project does not need a backing board. For a simpler project, cut and shape just the front pieces and attach them to a backing board. You could also reduce the sizes of the patterns and make one- or two-sided ornaments.

Getting Started

Make six copies of the pattern, and keep a master copy for later use. Cut each pattern piece and sort them into groups by wood color. Spray adhesive onto the backs of the pattern pieces; attach them to the shiny side of clear shelf paper, such as Con-Tact® brand; and stick the patterns onto the blanks.

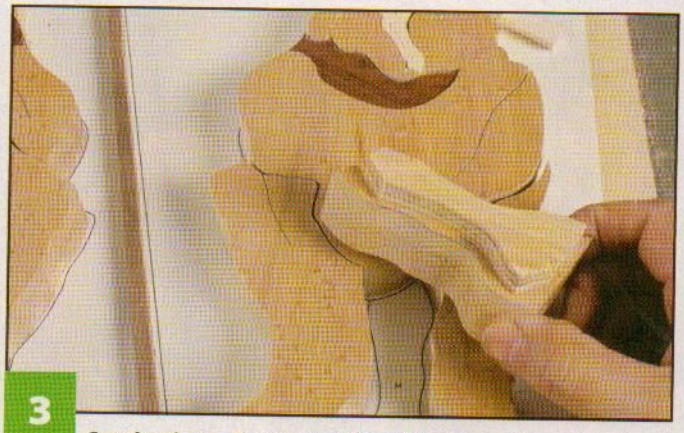
Because this project is essentially two intarsia projects glued back-to-back, the terminology can be confusing. The "front" indicates the shaped side of the front section. The "back" refers to shaped side of the back section. The "reverse side" is the flat side of either the front or back section—the sides that ultimately will be glued together.

SHEPHERD: CUTTING THE PIECES



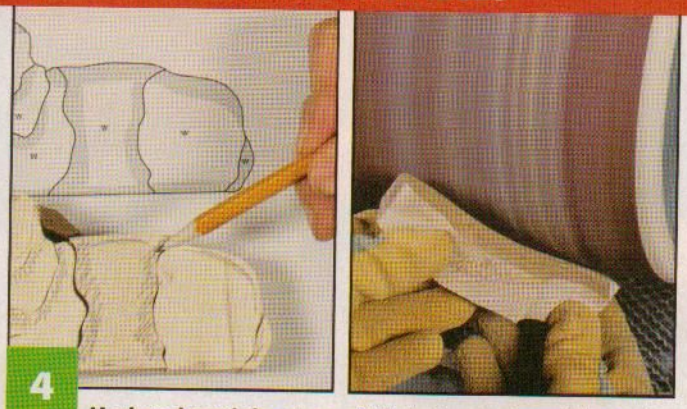
1 **Cut the pieces.** For large pieces, I use a #5 blade. To cut a large piece into smaller sections, like the back of the shepherd, use a #3 blade or smaller. For softer wood, such as aspen, use a reverse-tooth blade to reduce the amount of sanding. For harder wood, use a skip-tooth blade to reduce the burning and speed up the cutting. Always cut the smaller pieces off the larger piece so you have something to hold on to. Cut the staff as one piece.

2 **Organize the pieces.** As you cut the pieces, mark the reverse sides with a pencil. This will ensure you don't accidently sand and shape the wrong side. Attach the master copy of the pattern to an assembly board. Organize the pieces on the board and check the fit. Make any adjustments, and mark the areas to sand.

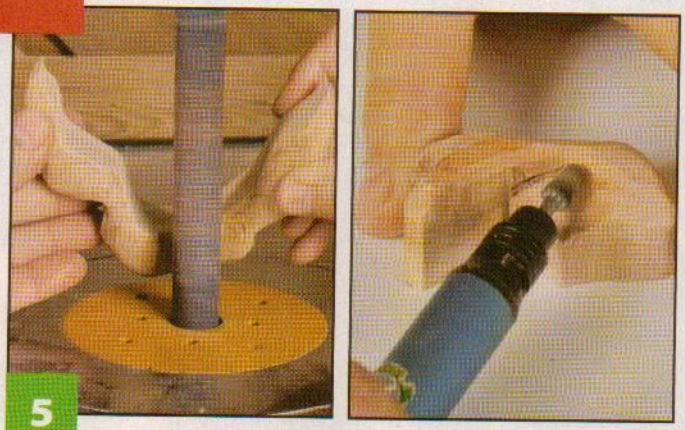


3 **Cut the risers.** Trace the outline of the back bottom robe piece and the front sleeve (on the arm holding the sheep's feet) onto ¼" (6mm)-thick plywood. Cut just inside the lines, and glue the risers to the reverse sides of the appropriate pieces. The risers help the shepherd stand solidly and give more depth to the project.

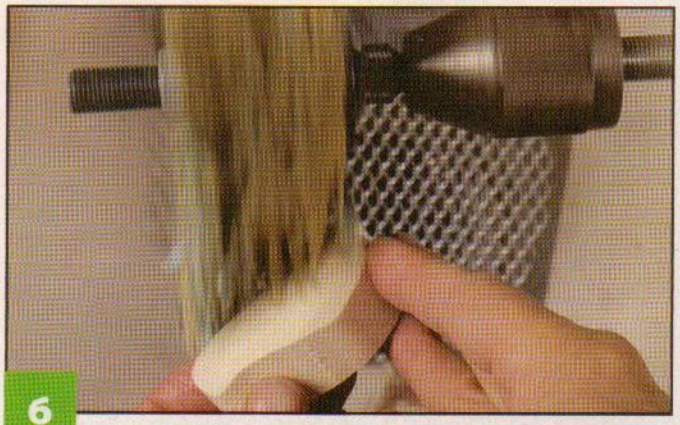
SHEPHERD: SHAPING THE PIECES



4 **Mark and sand the pieces.** Refer to the shaping guides, and mark the pieces with the areas to be sanded. Use a drum sander to shape the pieces. Round the edges first. Then, start sanding the lowest pieces. Mark the level to sand down to, and keep the marks visible as you sand. On the pieces with risers, do not sand so much that the risers will be visible. Work your way up to the thickest pieces.



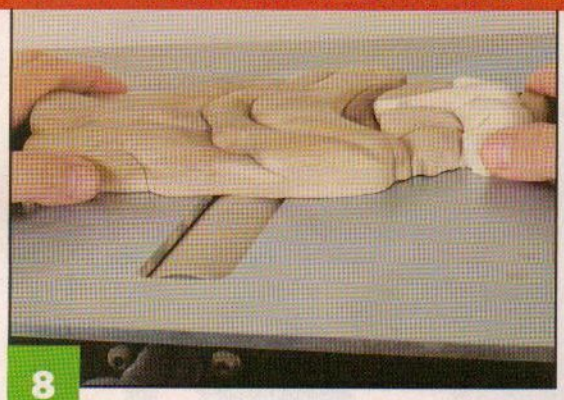
5 **Refine the smaller pieces and check the fit.** Use an oscillating spindle sander or sanding drum in a rotary tool to round the edges in the tight areas. Place the pieces on the pattern often to check the flow. After you are satisfied with the flow, add the face details with a woodburner. Then, fit the staff to the shepherd's hand. You may need to do a bit of sculpting to make the hand fit the staff. Round the ends of dowels for the sheep's eyes.



6 **Smooth the pieces.** Use a ScotchBrite scuffing wheel to smooth uneven areas quickly. Then, buff the pieces with a sanding mop. The mop will smooth the surface, making it easy to apply varnish. Paint the eye dowels black and glue them in place. Check the fit and flow of the pieces one last time, and make any necessary adjustments.

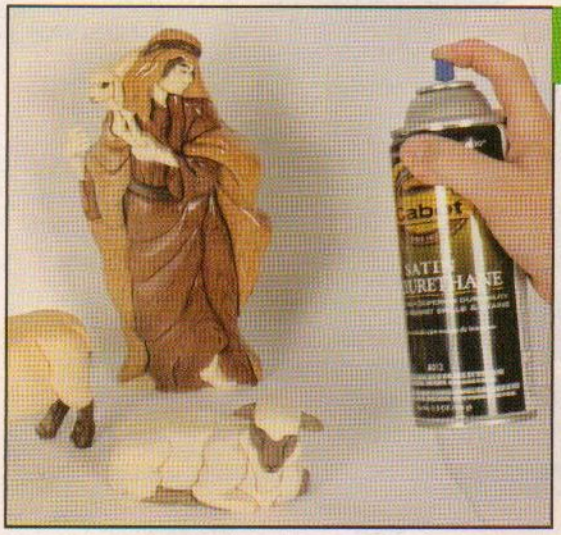
7 **Glue the pieces together.** Place waxed paper on top of the assembly board. Use dots of cyanoacrylate (CA) glue to assemble individual pieces. Starting with the head, glue three or four pieces together at a time. Allow the glue to set before attaching the adjoining pieces. To create a tighter fit between pieces, re-cut along the lines and then re-glue to draw the pieces closer. Do not attach the sheep's outer ears or the hand and shaft yet.

SHEPHERD: ASSEMBLING THE PROJECT



8 **Sand the reverse sides of the two sections flat.** Use a flat drum sander, such as a Sand-Flee, to smooth the reverse sides and ensure a good glue joint between the front and back sections.

9 **Glue the fronts and backs together.** Apply dots of CA glue and wood glue to the reverse side of each front piece, and CA glue accelerator to the reverse side of each back piece. Press together until the glue sets. Sand the edges to match using a ½" (13mm)-diameter 120-grit sanding band in a rotary tool. Buff the joint with a ScotchBrite wheel and smooth it with a sanding mop. Hand-sand the tighter inside edges. Mix CA glue with sawdust to fill any gaps. Buff any excess. Sand the bottom of each figure so it will stand flat. Glue the hand and the sheeps' outer ears in place.



10 **Apply the finish.** Spray all of the pieces with clear satin spray varnish. Follow the manufacturer's instructions, and let the finish dry overnight. Then, glue the staff in place.

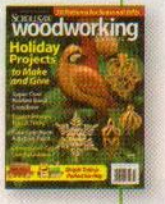
Further Reading

Intarsia Nativity

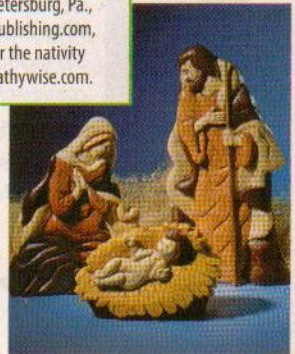
Scroll Saw Woodworking & Crafts, Holiday 2012

By Kathy Wise

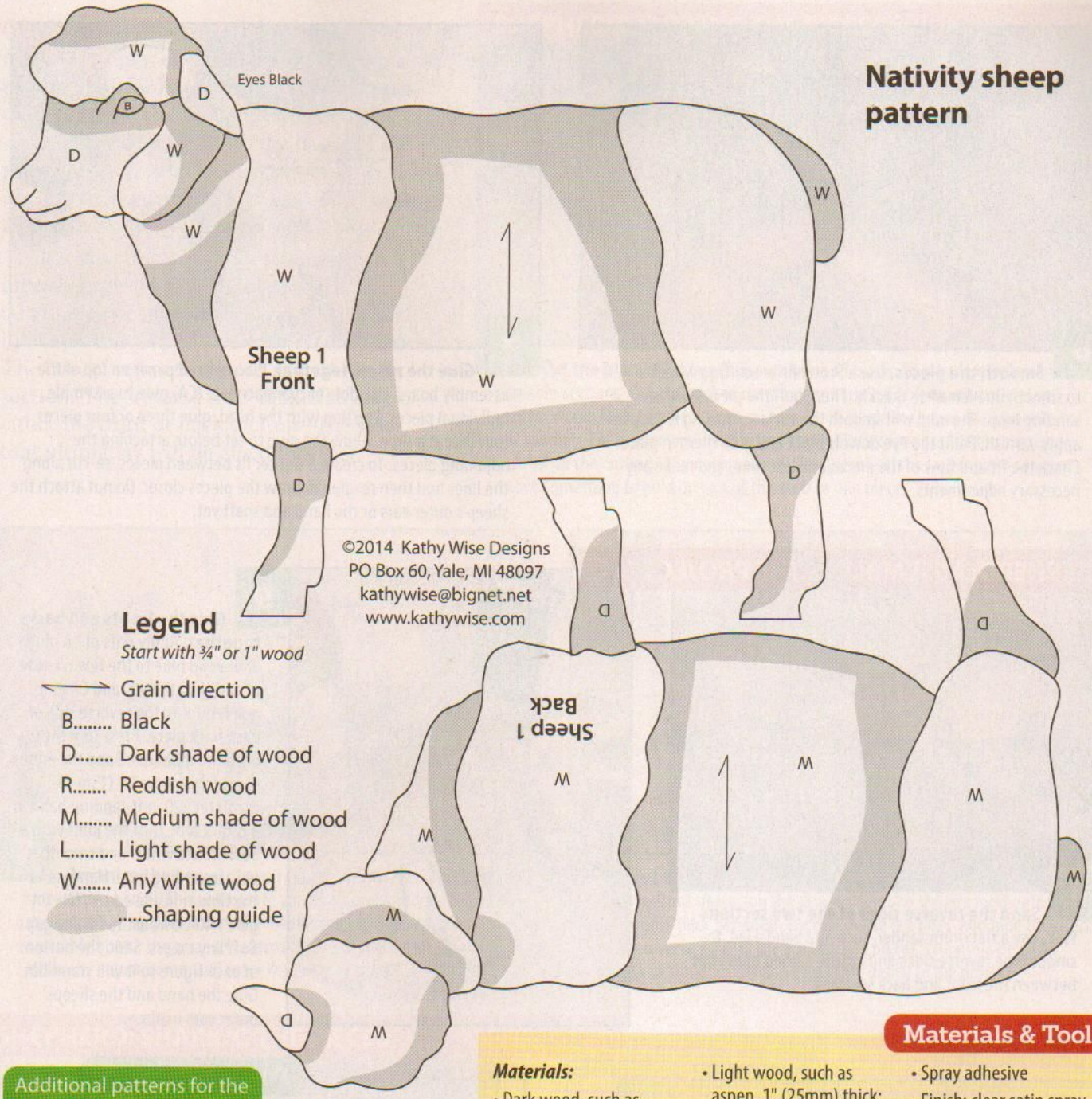
Figures of the Holy Family complement this issue's shepherd and sheep.



Available for $7.99 + $3.99 S&H (parcel post) from Fox Chapel Publishing, 1970 Broad St., East Petersburg, Pa., 17520, 800-457-9112, www.FoxChapelPublishing.com, or check your local retailer. The pattern for the nativity figures (#337) is also available at www.kathywise.com.



Nativity sheep pattern



Legend

Start with ¾" or 1" wood

- Grain direction
- B..... Black
- D..... Dark shade of wood
- R..... Reddish wood
- M..... Medium shade of wood
- L..... Light shade of wood
- W..... Any white wood
- .....Shaping guide

Additional patterns for the *INTARSIA SHEPHERD AND SHEEP* are in the pullout section.

Nationally acclaimed intarsia artist Kathy Wise has written three books and many 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.*

Materials & Tools

Materials:

- Dark wood, such as black walnut, 1" (25mm) thick: hair, sheep, 5" x 8" (127mm x 203mm)
- Dark wood, such as black walnut, ⅜" (10mm) thick: hair, sheep, 3" x 13" (76mm x 330mm)
- Medium wood, such as bird's-eye maple, 1" (25mm) thick: shepherd, 6" x 18" (157mm x 457mm)
- Light wood, such as aspen, 1" (25mm) thick: shepherd, sheep, 6" x 8" (157mm x 457mm)
- Red wood, such as bloodwood, 1" (25mm) thick: robes, 6" x 10" (157mm x 254mm)
- Baltic birch plywood, ¼" (6mm) thick: assorted scraps for risers
- Glue: cyanoacrylate (CA) with accelerator; wood
- Clear shelf paper, such as Con-Tact® brand
- Spray adhesive
- Finish: clear satin spray varnish

Tools:

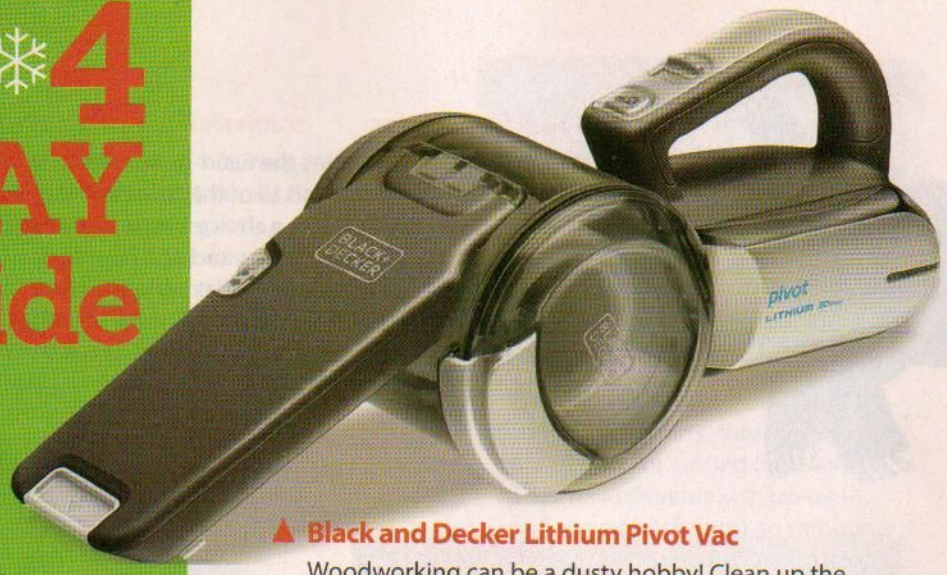
- Scroll saw blades: #5 reverse-tooth, #5 skip-tooth, #3 reverse-tooth
- Sanders: pneumatic drum, oscillating spindle, flat drum, sanding mop, ScotchBrite wheel
- Rotary tool with ½" (13mm)-dia. sanding drum

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

2014 HOLIDAY Gift Guide

Find the perfect gift for all the woodworkers on your list (including yourself!)

It's that time of year again—time for snow, hot chocolate, cookies, and, of course, buying gifts for your favorite woodworker (who might be a family member, a friend, or even yourself). If you need a little inspiration—or want to send a hint Santa's way—start here. We asked scrollers and store owners who have years of experience and work with a huge range of products to tell us about some of their favorites. The products featured are all $150 and below, and are great for scrollers of all skill levels.



▲ Black and Decker Lithium Pivot Vac

Woodworking can be a dusty hobby! Clean up the sawdust in your workshop with Black and Decker's pivot vacuum. The innovative patented nozzle pivots to clean high and low, and in tight spaces. A three-stage filtration system prevents clogs and improves air exhaust, and the lithium technology ensures strong suction and fade-free power. The Black and Decker 20V MAX* Lithium Pivot Vac has a suggested retail price of $79.99; locate a retailer at www.blackanddecker.com.

◀ Rikon Belt Sander

According to John Nelson, this compact Rikon combination sander fits in even the coziest of workshops, but still has enough power to help you complete any project. Both the belt and the disc tables tilt up to 45°, and two dust ports make dust extraction easy. The Rikon 1" x 30" Belt Sander with 5" disc, Model 50-151 has a suggested retail price of $139.99. Locate a retailer on Rikontools.com.

Testors® Aztek® Airbrush ▲

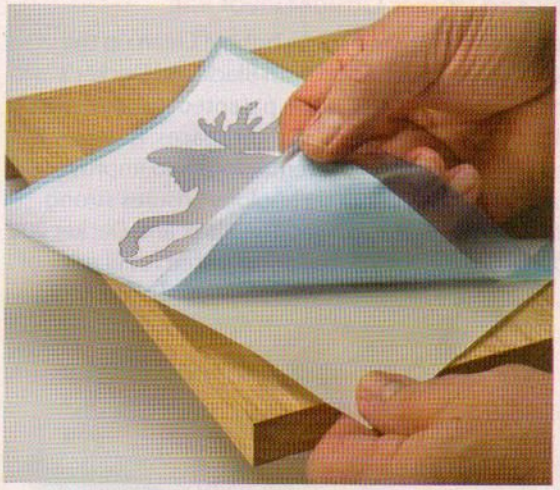
An airbrush is an easy way to add professional-looking colors to your scroll saw creations. Testors® sells a number of different styles that are easy to use, including the affordable Aztek® Double Action Internal Mix set. It features adjustable line-width control, a patented quick-change nozzle system, an ergonomic airbrush, and the accessories and instructions you need to get started. The Testors® Aztek® A370L Double Action/Internal Mix Airbrush has a suggested retail price of $99.99. Locate a retailer at www.testors.com.

◀ Sand-o-Flex Flapsander

Puzzle expert Judy Peterson loves the Sand-o-Flex because of the "little fingers" that reach into all of the holes and curves of puzzle keys. This sander features a choice between slashed abrasives, which are best with moldings and odd contours, and plain abrasives, which work best for flat surfaces. The Sand-o-Flex Flapsander has a suggested retail price of $47.99 and is available from Woodworker.com, Amazon.com, and other retailers.

Proxxon Pen Sander ▲

Proxxon's Pen Sander is perfect for sanding surfaces, slots, and tight corners because it uses a linear sanding motion rather than a rotary or orbital motion. It comes with eight sanding attachments as well as three sheets of adhesive sanding pads. This sander does not come with a transformer; Proxxon recommends an AC adapter of at least 12 to 18V DC and 1.0A. The Proxxon Pen Sander PS 13 has a suggested retail price of $47. Locate a retailer or buy online at Proxxon.com.

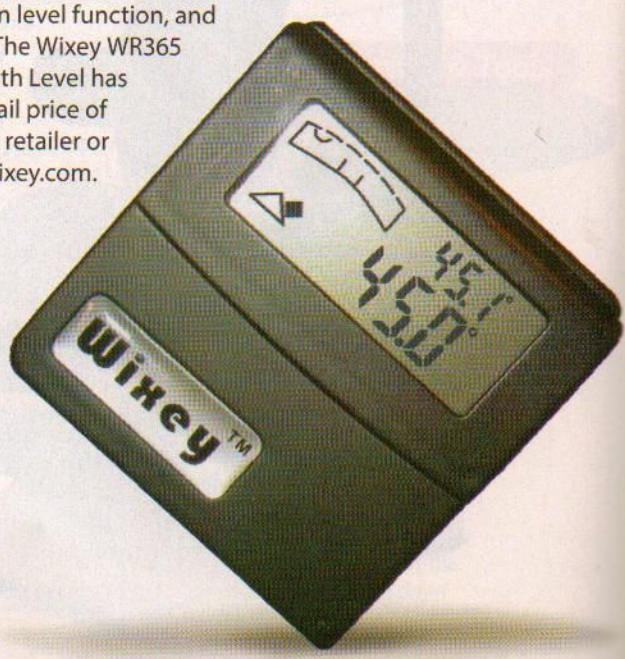


Scroll Saw Tape ▲

Becky Wakeman says that Stick 'N Release Scroll Saw Tape is one of Scroller Patterns & Supplies' most popular items. The two-sided tape leaves no residue, emits no stinky odor, and keeps blades lubricated. The tape comes in 8½" rolls in two lengths: 5' and 20'. Two-sided Stick 'N Release Scroll Saw Tape has a suggested retail price of $6.95 for 5' and $19.95 for 20' and is available from Scrolleronline.com and Workshop Supply, Inc.

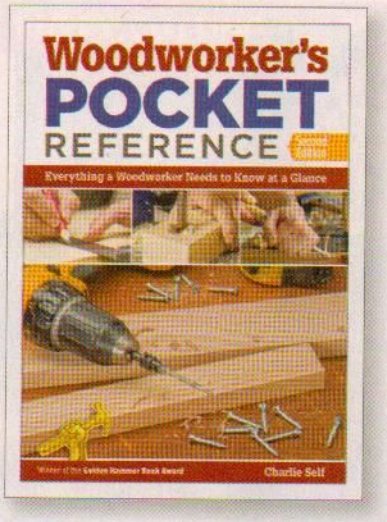
Wixey Angle Gauge ▼

SSW test cutter Rolf Beuttenmuller recommends this angle gauge with a level because it makes cutting bevels on a scroll saw easily repeatable. The gauge's small size makes it easy to attach to scroll saw blades, and magnets ensure the gauge does not budge. The gauge also features a flip-up display, a built-in level function, and a hold feature. The Wixey WR365 Angle Gauge with Level has a suggested retail price of $49.99. Locate a retailer or buy online at Wixey.com.



◀ Klingspor Spindle Mounted Mac Mop

Klingspor's Spindle Mounted Mac Mop is a must-have for intarsia work. These mops will sand even the most difficult shapes and profiles with ease. All you need is a ¼" tool to mount them on—no mounting plates required! Klingspor makes these mops in 80, 120, 180, and 240 grit. The Klingspor Spindle Mounted Mac Mop has a suggested retail price of $29.95 and is available from Klingspor at www.woodworkingshop.com.



Woodworker's Pocket Reference

Covering topics like wood, fasteners, joints, and finishing, *Woodworker's Pocket Reference* will prove invaluable for beginning and expert woodworkers alike. The book is conveniently sized for a workshop apron, so you can quickly get the information you need for your current project. *Woodworker's Pocket Reference,* 2nd ed. has a suggested retail price of $12.99 and is available from Fox Chapel Publishing and local woodworking retailers.

Platinum Reverse Skip Tooth Blade #7 ▲

Designed by the intarsia expert Judy Gale Roberts, these blades are perfect for cutting hardwoods. They have extremely sharp teeth and strong backs, and go through a special hardening process to keep them performing. The wide spaces between the teeth allow for the rapid discharge of dust, and the reverse teeth prevent tear-out on the underside. Each blade is 5" long. The Platinum Reverse Skip Tooth Blade #7 has a suggested retail price of $5.95 per dozen and is available from Intarsia.com, Woodshop Supply, and Seyco.com.

Irwin Quick Clamps ▲

Every woodworker needs clamps—and lots of them! Scroller Janette Square's favorite is the Irwin Quick clamp. The handle and jaws are lightweight but strong and will hold your piece in place without ruining the finish. The clamps have a throat depth of 3¾". The Irwin Quick-Grip XP Bar Clamp has a suggested retail price of $28.99. Locate a retailer at Irwin.com.

8" Bench Mount Drill Press ▲

The expert scroller and pattern designer John Nelson recommends this bench press drill for any scrolling project. An all-purpose drill press for the home or shop, it features a heavy-duty ball bearing motor, an adjustable depth stop with a gauge, and a cast iron base and head for optimal durability. The tilt table rotates 360°, tilts 45° left and right, and can be locked in place. The Central Machinery Tools 8" Bench Press Drill has a suggested retail price of $99.99 and is available from Harbor Freight.

Magnifying Bench Lamp ▲

Rolf Beuttenmuller says that this lamp is a two-in-one lighting and magnification tool. Ideal for detailed work, the 5" lens focuses at a comfortable distance (3" to 9") and is encircled by a 22-watt fluorescent bulb that generates a cool, shadow-free light. The adjustable lamp has an integral flip-up lens dust cover, and comes with a 2½" capacity table-mounting clamp. The Magnifying Bench Lamp from Lee Valley Tools has a suggested retail price of $44.50, and is available from Leevalley.com.

Claus the Christmas Puppy

This in-the-round intarsia puppy is adorable from head to tail

By Judy Gale Roberts

Start the holidays off right with this Christmas puppy intarsia project. This adorable pup peeks out of its doghouse to offer warm greetings to all.

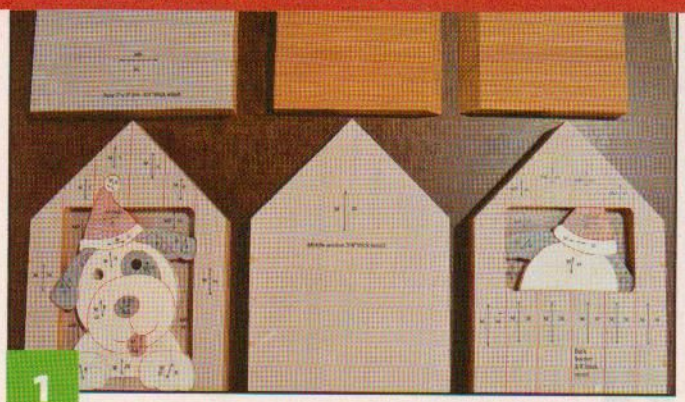
Intarsia projects are always fun and unique, not only because they use different colors of wood to "paint" a picture but also because they create the illusion of depth. Areas of a project that are farthest from the viewer are the thinnest; parts that are supposed to be the closest are progressively thicker as they "move" toward the viewer. This doghouse takes dimension one step further by making the doghouse itself 3-D.

Getting Started

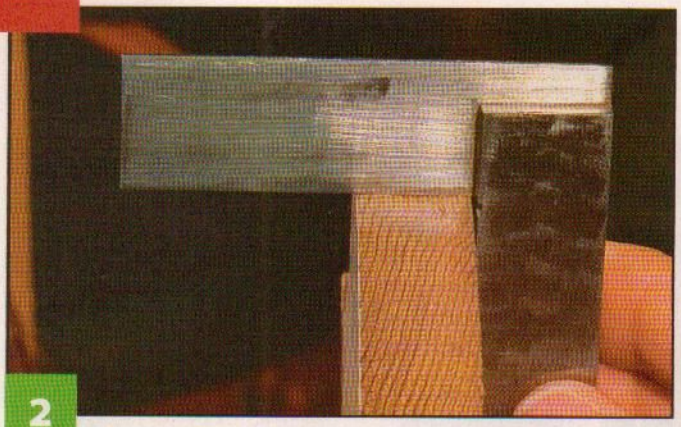
Make at least five copies of the pattern. Keep one pattern as the master copy, and cut the four extra patterns into individual pieces to glue onto different colors of wood.

Make sure the wood is as flat, smooth, and dust-free as possible. Lay out the pattern pieces on the different types of wood. To glue patterns to wood, I use a Xyron Creative Station 9" with repositionable adhesive. This is a sticker-making machine often used for scrapbooking. It turns all of my patterns into stickers that are easy to apply to wood, peel off easily, and do not leave residue on the wood. If you prefer, glue the patterns to the wood with a repositionable glue stick or adhesive spray.

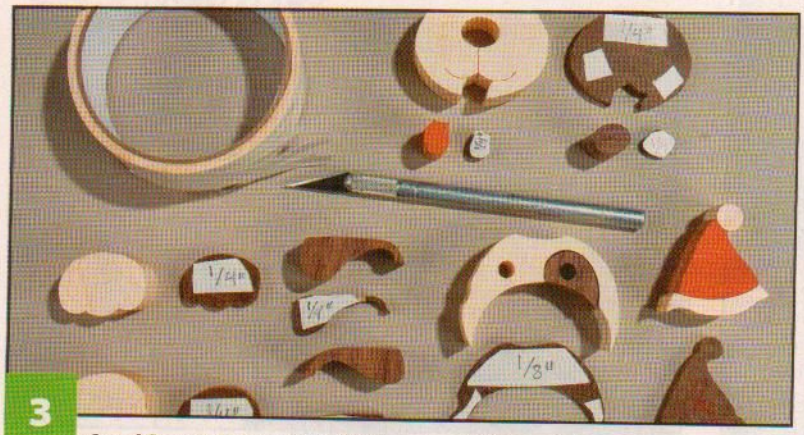
PUPPY: CUTTING THE PIECES



1 **Cut the pieces.** Use a #3 or #5 skip reverse tooth blade. As you cut, organize the pieces and mark the backs. Leave the patterns on the wood. Use a small blade (from a #1 to a #2/0) to cut the slats on the doghouse and to separate the nose section from the face. I cut the 45° angle for the roof on the scroll saw by tilting the table, but you could cut it on a miter saw. Sand off any fuzzies on the back of each piece.



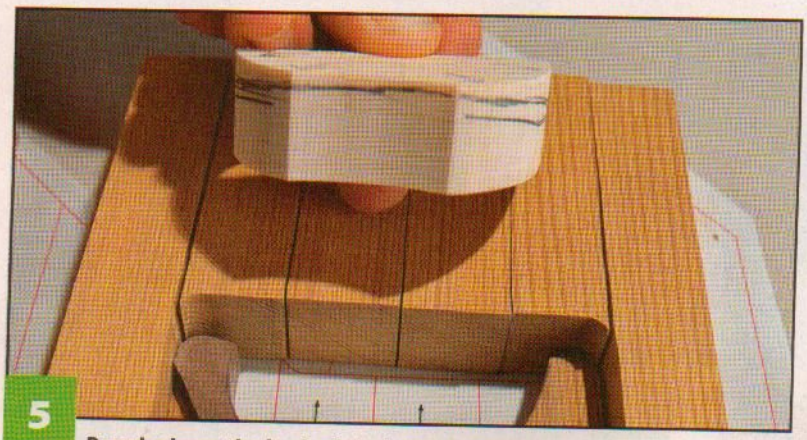
2 **Check the fit of the pieces.** Use a small square to check the edges, and then fit the pieces together. If the pieces do not fit, the pattern line is probably too heavy. Trim these areas with a sharp blade, rather than sanding them to the line; sanding each piece can make everything out of square. When all of the pieces fit together well, be sure the backs are numbered and then remove the patterns.



3 **Cut shims.** Cut shims from ¼" (6mm) and ⅛" (3mm) plywood or tempered hardboard (tempered on both sides). I used a ⅛" (3mm) shim to raise the dog's face. The rest are ¼" (6mm). Use light-duty double-sided carpet tape to stick the shims on the backs of the pieces. *Note: Do not glue the shims in place yet; you may need to adjust them. You will glue them into place after you apply the finish.*

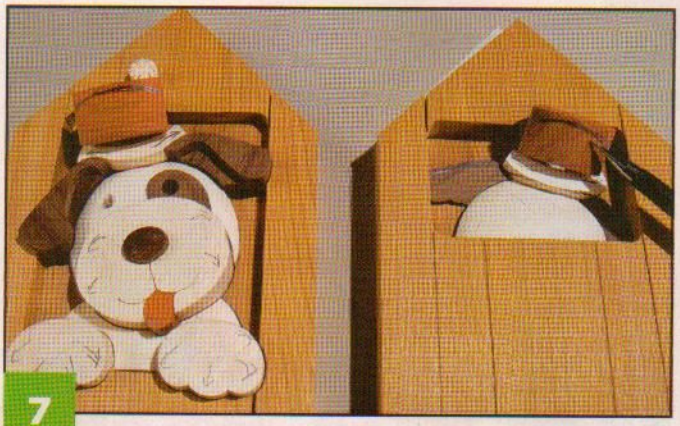
PUPPY: SHAPING THE PIECES

4 **Mark and sand the doghouse background.** Use a soft Flex Drum sander with an 80-grit sleeve to sand the doghouse background pieces in the front view down to ⅜" (10mm) thick. Mark the thickness of the background pieces onto the dog pieces. Repeat the process for the back view.



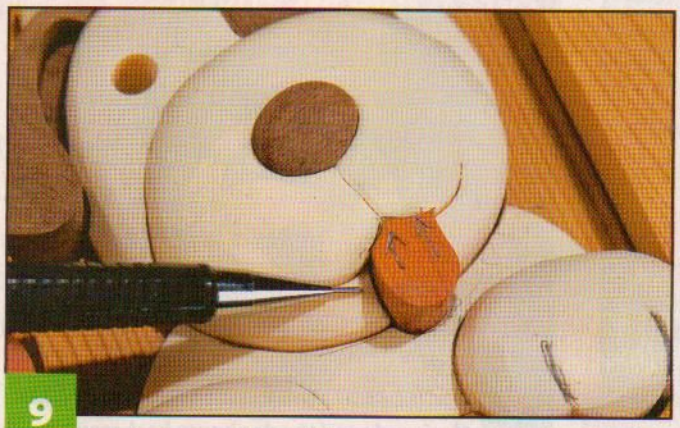
5 **Rough-shape the back of the head.** Sand ¼" (6mm) off the top of both ears. Mark the ear thickness on the sides of the head. Sand ⅛" (3mm) off the top of the back of the head, and round the sides to the ears. Mark the head thickness on the hat trim. Sand the fur trim until it is ⅛" (3mm) thicker than the hat, and round the edges to match the contour of the hat.

6 **Shape the dog's body.** Use the Flex Drum sander and 80-grit sleeve to sand at least ¼" (6mm) off the top of the body piece. Then, round the sides down toward the outside edges. Mark the final thickness of this piece onto the surrounding pieces.

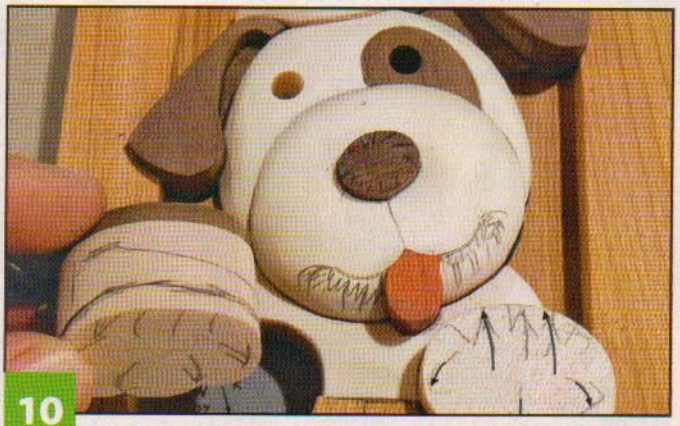


7 **Sand the face and hat.** Attach the two parts of the upper face to the shim so you can sand the section as one unit. Sand about ⅛" (3mm) from the top of the assembly, and then round the sides. Round the sides of the hat, and sand it at least 1/16" (2mm) thinner than the fur trim and pom-pom. Do not sand the hat down below the thickness of the doghouse sides.

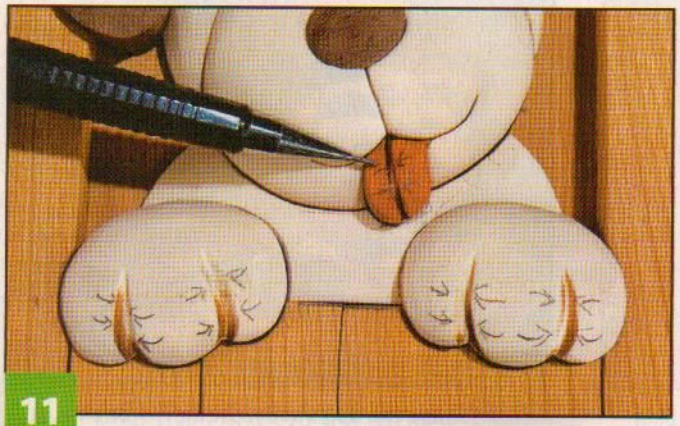
8 **Shape the rest of the dog.** Sand the inner ears below the thickness of the face. Sand the fur trim to just thicker than the hat, and sand dips into the rim above the ears to imply the hat is wrinkled. Taper the roots of the ears to match the contour of the face. Taper the top of the outer ears back so it looks like they are folded over, but keep the ears thicker than the house. Round the pom-pom.



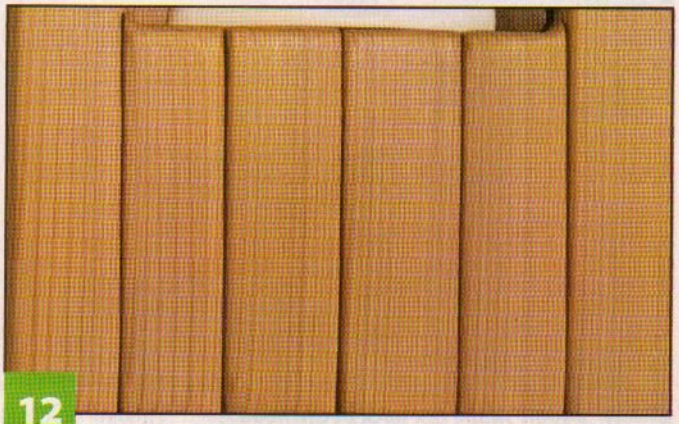
9 **Detail the mouth.** To define the mouth, lower the chin area. Use a round-tip hobby knife to take ⅛" (3mm) off where the chin joins the tongue. Sand to blend the chin into the surface of the mouth area. Mark where the chin joins the tongue, and taper the tongue below the upper lip. The tip will be the thickest part of the tongue.



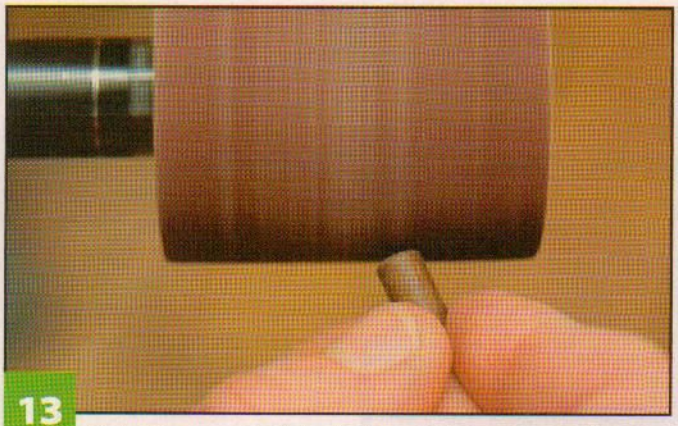
10 **Polish the pieces.** Taper the feet to match the contour of the body. When you are satisfied with the shapes of the pieces, use a 120-grit sleeve to sand the pieces with the grain, followed by 180- and 220-grit sleeves. When you are finished, hand-sand each piece with 220-grit sandpaper. Check for scratches and pencil marks. Dust the pieces with compressed air, and check that they are smooth.



11 **Detail the paws and tongue.** Use a Wonder Wheel or rotary tool and refer to the dashed lines on the patterns to carve a groove down the center of the tongue and grooves to define the toes. Use sandpaper or a small inflatable sander to remove any burn marks.



12 **Shape the slats.** Round each slat piece to emphasize the separations between them. Round the edges around the opening. Then, round the outside edges of the base and the two roof sections.

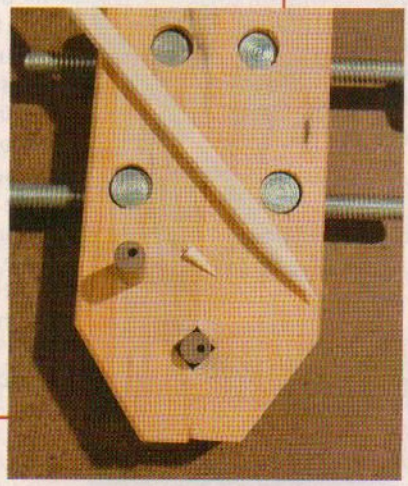


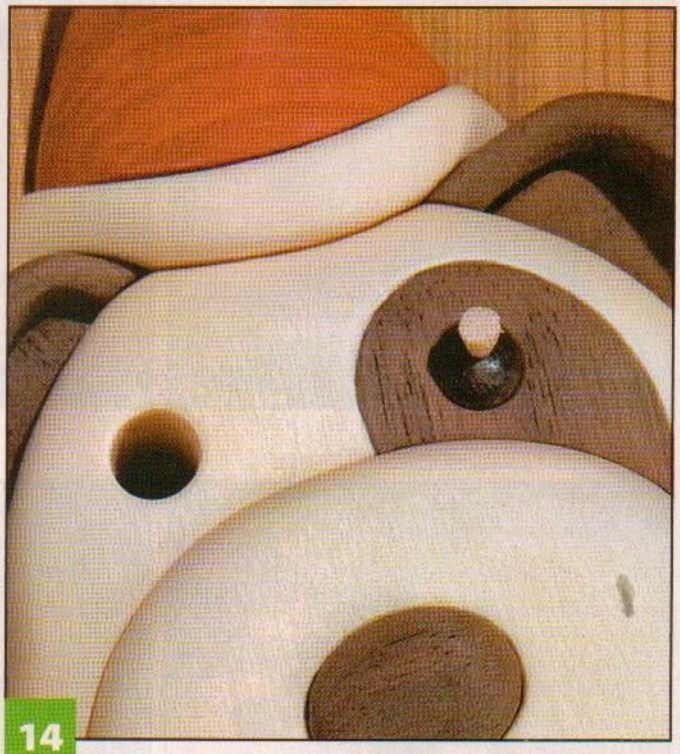
13 **Make the eyes.** Mark the thickness of the wood around the eyes on the side of a walnut dowel. Sand the dowel, rounding the surface down to the pencil line. I used a Wonder Wheel to burnish the surface of the dowel. The wheel burns and puts a sheen on the surface. Cut off the piece and repeat for the second eye.

TIP

DOWEL CLAMP

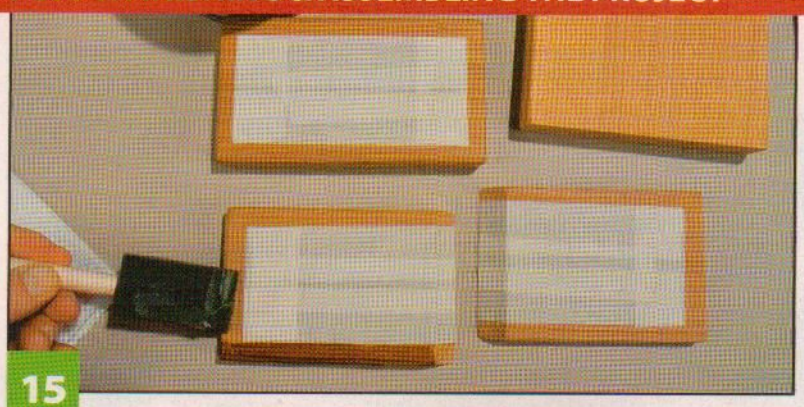
A student of mine gave me this handy clamp to hold dowels; it makes it so much easier to drill. He bought the clamps and cut the "V" at a 45° angle, which makes a square for the dowel to go in when clamps are put together.





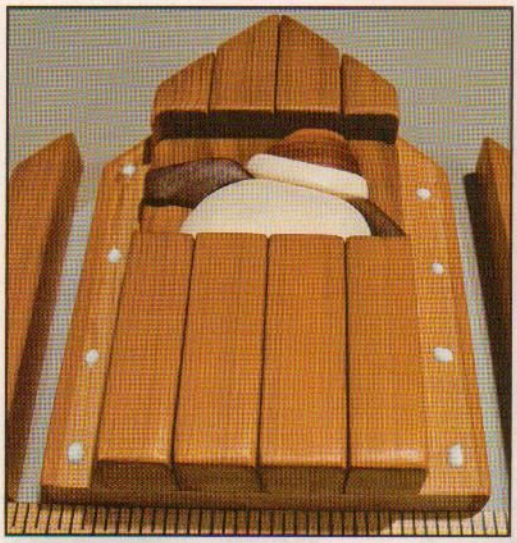
14 **Make highlights for the eyes.** Use a pencil sharpener on the end of a piece of aspen to make a perfect cone shape. For each highlight, drill a 1/16" (2mm)-diameter hole in the eye dowel. Cut the tip off the aspen cone, and glue it in place with a dab of woodworker's glue. When dry, use a small inflatable drum sander to sand the aspen flush with the rest of the eye. Try not to sand the eye too much; if walnut dust gets in the pores of the aspen, it's almost impossible to remove.

PUPPY: FINISHING & ASSEMBLING THE PROJECT



15 **Apply the finish.** Apply masking tape to the parts that will be glued together, like the underside of the rooftop pieces and the top center of the base. Then, use a foam brush to apply three coats of a polyurethane gel finish. The first should be heavy and allowed to dry overnight; the second and third can be lighter and applied 6 to 8 hours apart. While applying the finish, wait a minute before using a paper towel to wipe away excess gel. With a second paper towel, buff the piece completely dry. Don't overuse a paper towel or it will leave some lint.

16 **Glue the raising shims to the pieces.** I use tacky glue, because it takes a little longer to set (10 to 15 minutes), which gives me time to adjust the pieces.



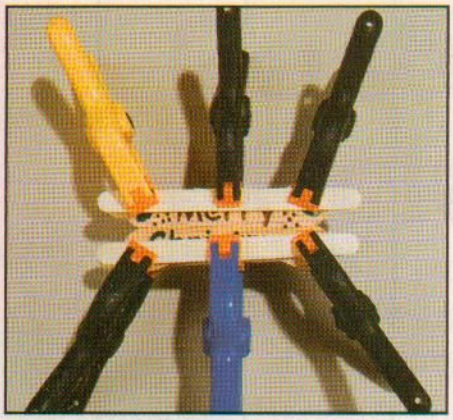
17 **Glue the back of the doghouse.** Apply a few dots of glue to each piece; if you apply too much, it should wipe off easily. Glue the two outside slats first, lining them up with the flat bottom and the angled top. Use paper to space the slats evenly. Glue the dog pieces to the back, and let the back dry thoroughly.

18 **Glue the front side.** Using the technique in Step 17, glue the two outside pieces first. Glue together the remaining slats, and then glue the dog parts in place. Let the glue set before gluing the rest of the parts. Glue the house to the base, and then glue the roof to the house. To glue the roof, tape two roof parts together, and then glue along the angled edge. Check to make sure the overhang is evenly spaced from the front to the back.

PUPPY: CUTTING & ATTACHING THE SIGN

If you would like to add the optional sign hanging on the doghouse, cut two sections of ⅛" (3mm) Baltic birch or any light-color plywood. Apply finish to the outward-facing sides of the wood before you cut the fretwork.

19 **Cut the sign.** Stack the blanks using double-sided tape. Drill the blade-entry holes for the letters and leaves. I use a 1/16" (2mm) bit to drill the holly berries, as well. Cut the letters and holly leaves, and then cut the perimeter of the sign.



20

Assemble the sign. Lay red and green acetate on top of the lettering and leaves. Mark and cut the pieces, and glue them in place with dabs of tacky glue. Then, apply glue to the edges of the plywood. I used craft sticks and small clamps to hold the two pieces together until the glue dried. To attach the sign, drill a small hole in the center of the sign and use a small straight pin to hang it on the front of the doghouse.

Materials & Tools

Materials:

- Dark wood, such as dark western red cedar or walnut, ¾" (19mm) thick: 4" x 4" (102mm x 102mm)
- Medium-dark wood, such as western red cedar, mahogany, or cherry, ¾" (19mm) thick: 6" x 3" (152mm x 76mm)
- Medium-dark wood, such as western red cedar, mahogany, or cherry, ½" (13mm) thick: 6" x 9" (152mm x 229mm)
- Medium wood, such as western red cedar, pecan, or red oak, ¾" (19mm) thick: at least 6" x 22" (152mm x 558mm)
- White wood, such as aspen, white pine, or holly, ¾" (19mm) thick: 6" x 6" (152mm x 152mm); eye highlights, ¼" (6mm) dia. x 8" (203mm) long
- Red wood, such as red heart, blood wood, or aromatic cedar, ¾" (19mm) thick: 3" x 4" (76mm x 102mm)
- Walnut dowel, ¼" (6mm) dia.: eyes
- Plywood or tempered hardboard, ⅛" (3mm) and ¼" (6mm) thick: scraps for shims
- Adhesive: Glue stick, spray adhesive, or a Xyron Sticker Maker
- Finish, such as polyurethane gel
- Glue: tacky, wood
- Tape: double-sided light-traffic carpet, masking tape
- Sandpaper: 220 grit

Optional Sign

- Baltic birch or any light-color plywood, ⅛" (3mm) thick: 4" x 1¾" (102mm x 44mm)
- Acetate sheets: red, green (available at art and craft supply stores)
- Pin

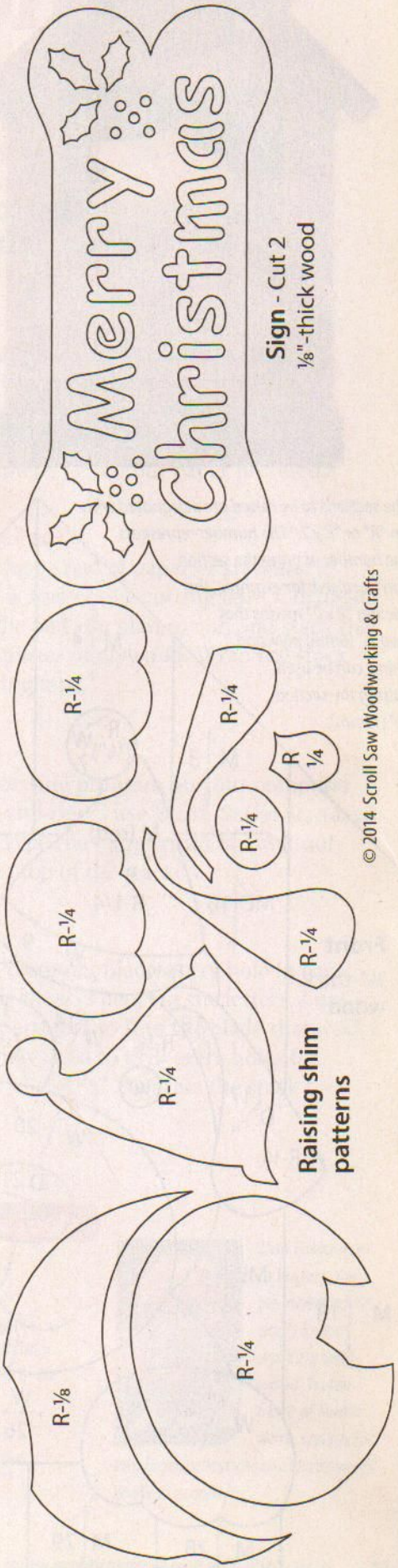
Tools:

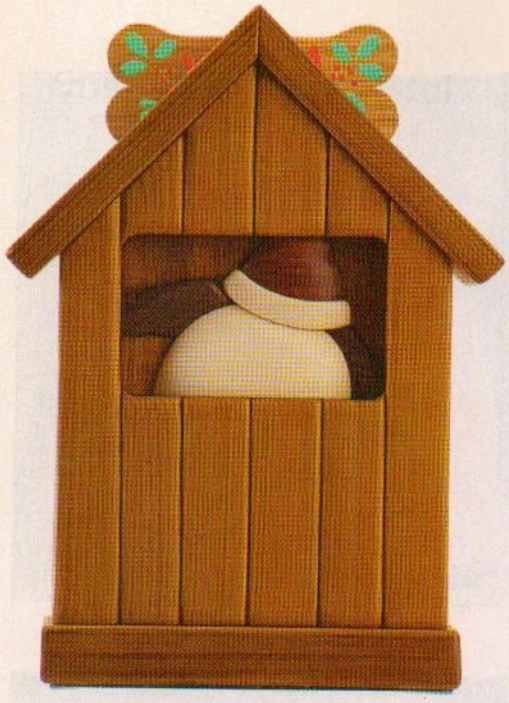
- Blades: #3 or #5 skip reverse tooth, #5, #1, #0, #2/0
- Pencil sharpener
- Small inflatable sander
- Drill with 1/16" (2mm) drill bit
- Flex drum sander with 80-, 120-, 180-, 220-grit sleeves
- Air compressor or canned air
- Wonder wheel or rotary tool
- Hobby knife with round tip
- Foam brush: 1" wide

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

Judy Gale Roberts has long been recognized as the leading authority on intarsia. Judy was one of the first 10 people to be inducted into the Woodworking Hall of Fame. For more of her work or information on classes held at her studio in Seymour, Tenn., contact Judy at 800-316-9010, or visit www.intarsia.com. Judy's numerous intarsia books are available at www.foxchapelpublishing.com.

Intarsia puppy patterns





The sections to be raised are designated with an "R" or "R x 2." The number represents the number of times the section can be raised; for example, the section "R x 2" means that two ¼" (6mm) plywood shims can be used, raising the section ½" (13mm).

Front
¾"-thick wood

Back
¾"-thick wood

Intarsia puppy patterns

Custom Sticky Notes

Add a name or custom greeting to ordinary sticky notes

By Dan Bowe

Sticky notes are always useful, but with this project you can make them even better by personalizing them! This allows others to see at a glance who the note is from. Once you master the technique, experiment with other paper products.

Prepare to Cut the Pads

It's tough cutting just a pad of paper or stationery; paper flexes, so it is sort of like cutting Jell-O. Instead, mark the side of the pad you plan to cut, and stack the pad between two pieces of plywood. Wrap the stack with clear packaging tape.

Make the Pattern

Open a word-processing program on your computer and choose a font and size. I use Brush Script standard, 48pt, and bold it. Type the name, print it, cut it out, and attach it to the top of the stack.

Cut the Paper

Drill a 1/16" (2mm)-diameter blade-entry hole in the widest part of each letter. Then, cut the letters. I use a #2/0 blade, but experiment to find the blade that works well for you. You may need to drill extra holes for dotted letters like "i" and "j." Separate the stack to free the pad.

Materials & Tools

Materials:

- Sticky notes
- Baltic birch plywood, 1/4" (6mm) thick: 2 each, 3" x 5" (76mm x 127mm)
- Tape: clear packaging

Tools:

- Scroll saw blades: #2/0
- Drill with bits: 1/16" (2mm)-dia.

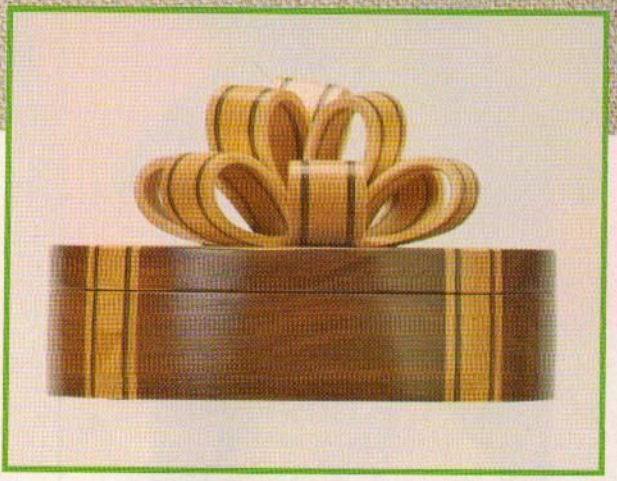
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Dan Bowe lives in Rogers, Ark. He inherited his dad's love of working with wood. To see more of Dan's work, search for twistedcandlesticks or Dan Bowe at www.etsy.com.

Festive Gift Boxes

Use an easy gluing technique to "wrap" gorgeous gift boxes with wooden ribbon

By Carole Rothman

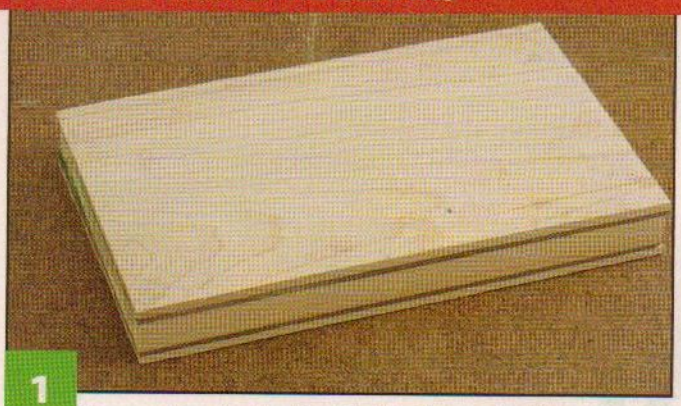


Combine two easy techniques—lamination and compound-cutting—to make attractive boxes with 3-D bows. I used dyed veneer to depict holiday themes: red and green for Christmas, and blue and white for Chanukah.

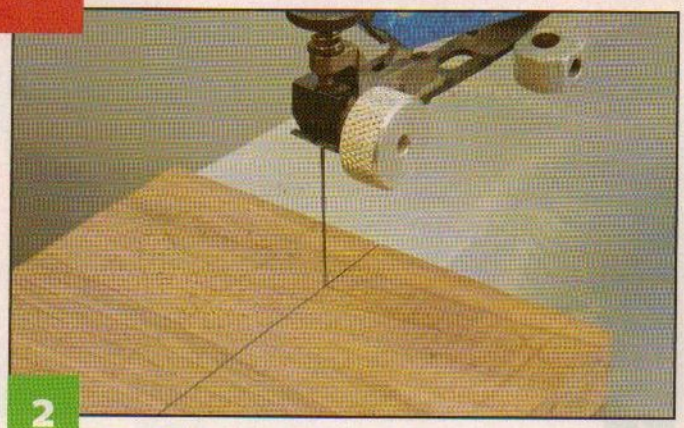
The box is not difficult, but do take care to glue the strips of each box component at right angles to each other. The nine loops may look daunting, but they are easy to cut, and the pattern allows ample wood for sanding away mishaps.

Choose seasonal colors or select someone's favorites for a lovely box that can contain gifts or be a gift itself.

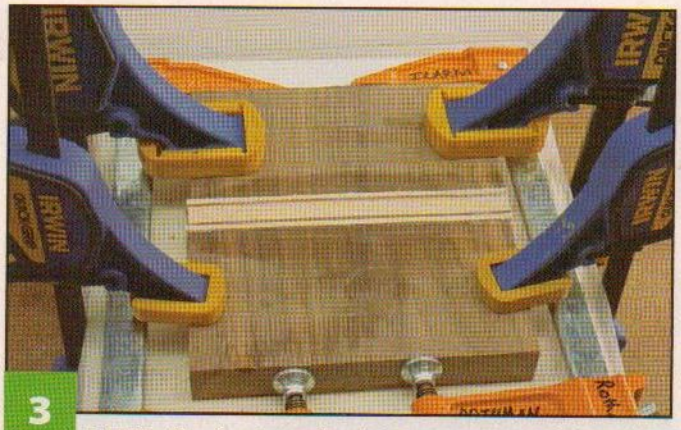
BOX: PREPARING THE BLANKS



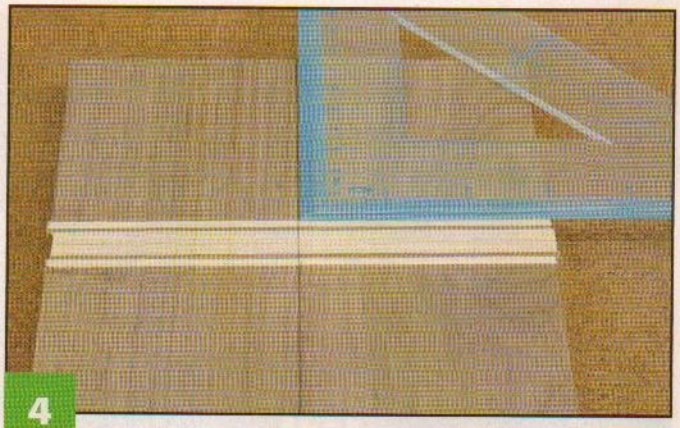
1 **Prepare two lamination blocks.** Glue one for the ribbons and one for the loops, using the lamination diagram (see page 43) as a guide. You will have more control if you glue in two or more sessions, starting at the middle and adding wood evenly to each side. Clamp the wood and let the blocks dry thoroughly.



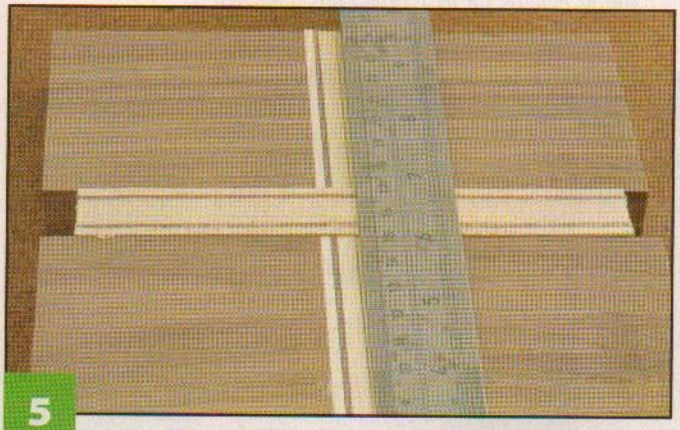
2 **Make the first box cut.** Draw a line down the center of the walnut body blank and cut it into two equal pieces. Sand as needed to make the cut edges glue-line smooth and square with the top and bottom faces of the blank.



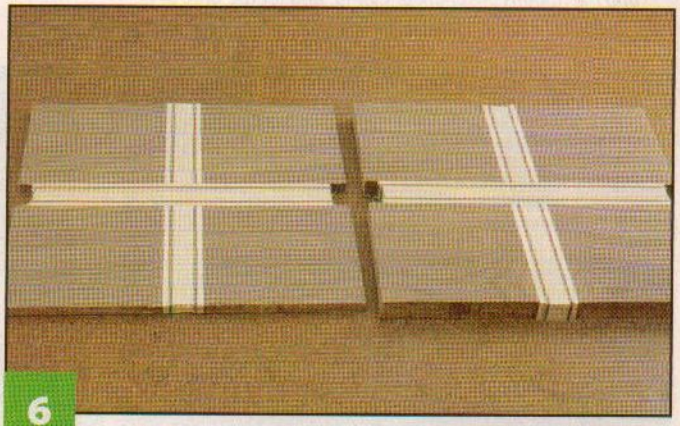
3 **Add the first laminated strip.** Cut two 7/8" by 6" (22mm by 152mm) strips from the lamination block earmarked for the box ribbons. Glue and clamp one strip between the two walnut body halves, with the striped face up, and allow the glue to dry.



4 **Make the second box cut.** Draw a line down the center of the laminated strip to use for aligning the strip halves in Step 5. Use a square to draw a line down the center of the blank, perpendicular to the glued-in strip. Cut the piece in half along this line and sand the edges smooth.

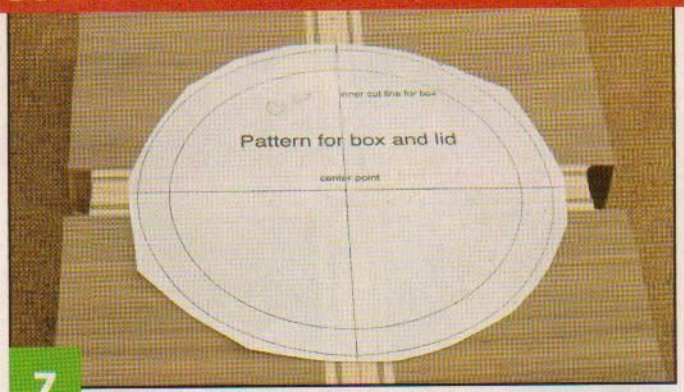


5 **Add the second laminated strip.** Glue the second laminated strip to one of the halves. Clamp and let it set. Then, glue the remaining half to the other side of the laminated strip. Be sure the halves of the cut strip are aligned perfectly with each other to create a continuous strip. Sand both faces of the blank smooth.

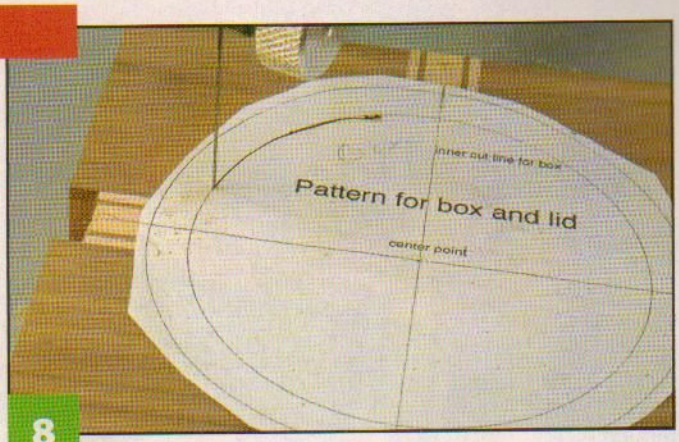


6 **Glue the bottom and lid blanks.** Cut two 1/4" by 6" (6mm by 152mm) strips from the laminated block for the ribbons. Repeat Steps 2 to 5 with the walnut box bottom blank. Cut two 1/2" by 6" (13mm by 152mm) strips from the same laminated block. Repeat Steps 2 to 5 with the walnut box lid blank. As an alternate to clamping the thinner wood, you can achieve a good bond by rubbing the glued surfaces back and forth until they drag (or catch), and then letting them dry.

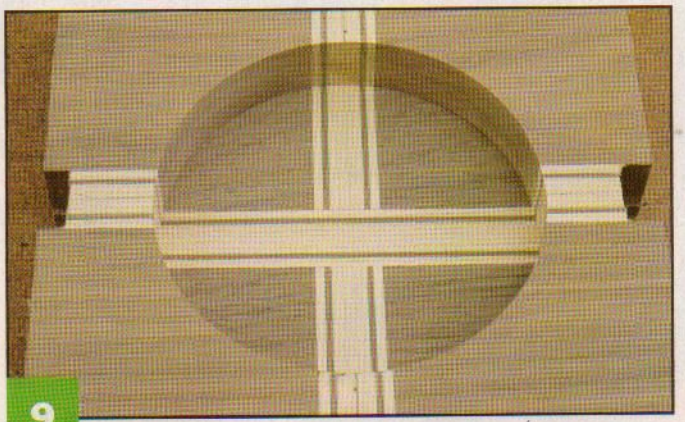
BOX: MAKING THE BOX



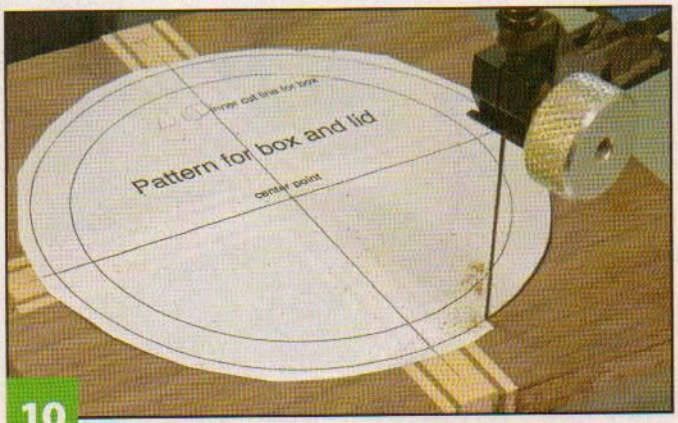
7 **Attach the box pattern.** Draw a line down the center of each laminated strip on the box body blank; the lines intersect at the center of the blank. Mark the center with an awl. Use the awl to align the center of the pattern with this mark, and attach the pattern with repositionable adhesive. Make sure that the lines on the strips align with the cross lines of the pattern.



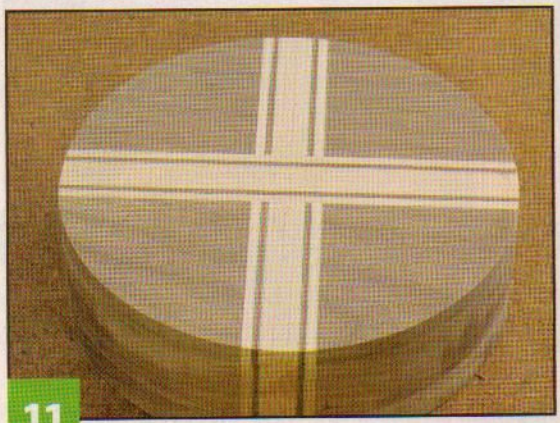
8 **Cut the inside of the box.** Use a 1/16" (2mm)-diameter bit to drill a blade-entry hole just inside the inner cut line for the box. Insert a #9 blade and cut around the line. Remove the center and save it for another use. Remove the pattern and set it aside until Step 10. *NOTE: The photos in steps 7, 8, and 10 do not show the innner cut line for the lid, which appears in the revised pattern.*



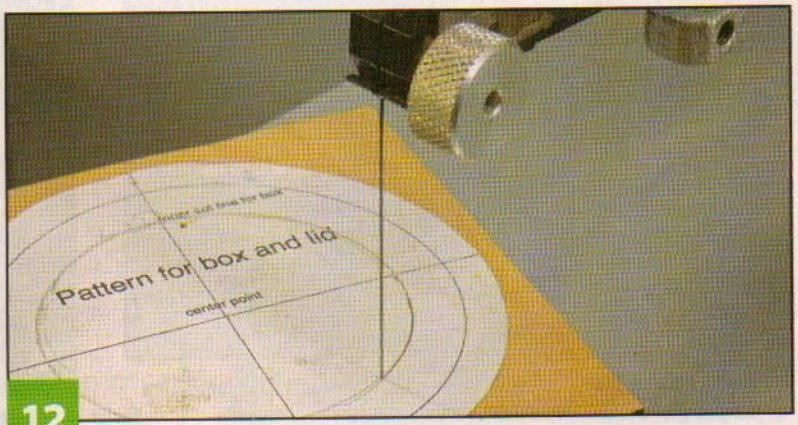
9 **Attach the bottom to the box body.** Sand the inside of the box smooth with a spindle sander. Then, remove any fuzzies from the lower edge. Glue the box body to the prepared bottom. *Note: Be sure that the grain of both pieces runs in the same direction and the ribbons are aligned.* Clamp, and let the glue dry.



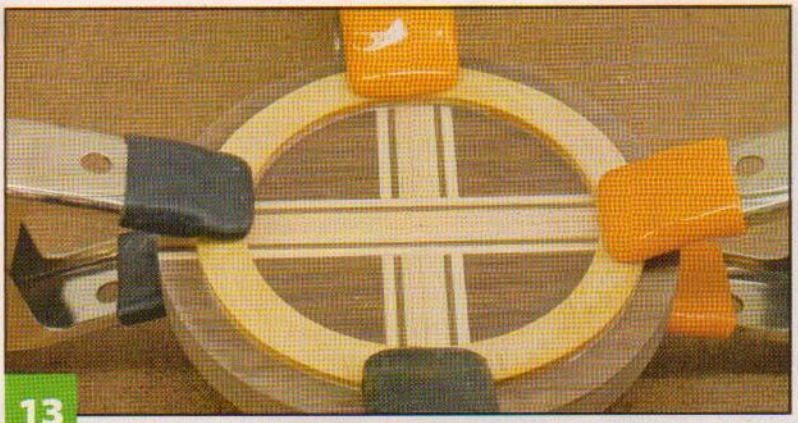
10 **Cut the box and lid.** Reattach the pattern and cut along the outer circle to complete the box. Sand the sides lightly to remove any ridges and blade marks. Use the method explained in Step 7 to attach the pattern to the lid. Cut around the outer circle to complete the lid. Remove the pattern and save it for Step 12.



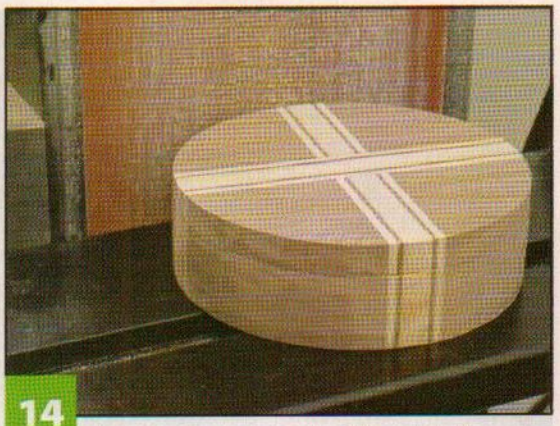
11 **Sand the box and lid.** Use small pieces of double-sided tape to secure the lid to the box. Make sure that all four strips on the box and lid are aligned. Sand the box and lid until the sides are flush. You will do the final sanding in Step 14.



12 **Cut the lid liner.** Attach the pattern to the lid liner blank with repositionable adhesive. Drill a blade-entry hole on the inside of the innermost circle and cut out the center. Cut around the outer line to complete the lid liner, creating a wooden ring. *Note: You could also leave the lid liner as a solid circle by only cutting around the outer line. Once you have glued the circle in place, you can add a center decoration.*



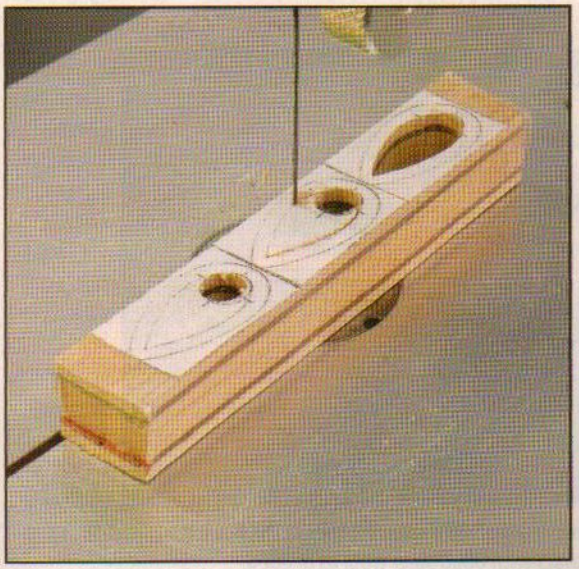
13 **Attach the lid liner.** Sand the lid liner until it fits inside the box, and soften the edges. Invert the lid and center the liner on it. Put the box on top of the lid and position it so that the ribbons on all sides are aligned. Remove the box carefully and mark the position of the liner. Glue the liner into place, clamp, and let dry. If the liner slips when you apply the clamps, slide it back into position.

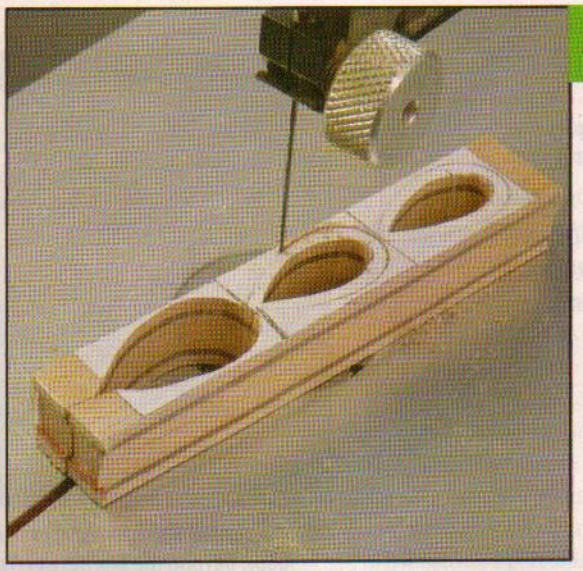


14 **Sand the box.** Sand the inside and outside of the box. Soften or round over the upper edge of the lid.

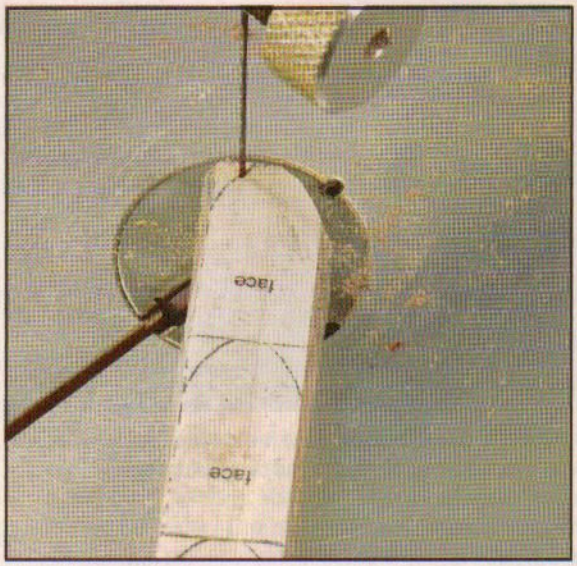
BOX: MAKING THE RIBBON LOOPS

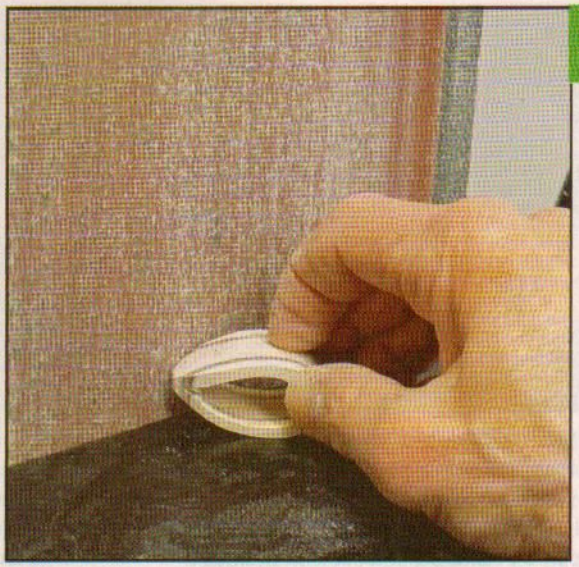
15 **Prepare the loop strips.** Cut the laminated blank for the loops into four ⅞" (22mm)-wide strips. Attach three loop patterns to each strip. This will give you nine loops plus three extras. Attach the side of the pattern with the drill hole marked to the plain side of the strip; attach the side of the pattern marked "side" to the striped side of the strip. Attach clear packing tape to the drilled face to avoid shredding the pattern.





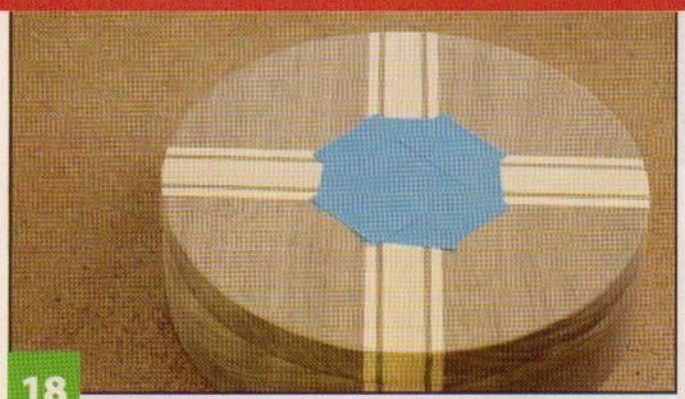
16 **Cut the sides of the loops.** Use a ⅜" (10mm)-diameter bit to drill holes where indicated. Insert the blade and cut the inside of each loop. Cut the outside of each loop, keeping the strip intact. Replace each loop and tape it securely into place.



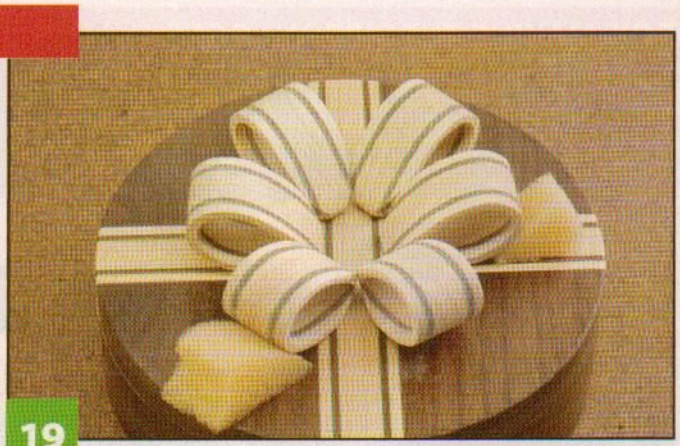


17 **Complete the loops.** Place the strip face-side up and cut along the curved bottom to free the loop. Remove the waste after cutting each loop. Sand the inside and outside of each loop until smooth. The thinner the loop, the more it will resemble real ribbon.

BOX: FINISHING THE PROJECT



18 **Seal the box.** Mask the center of the lid with blue painter's tape so the gluing area for the loops is covered. Apply a sealer coat of shellac to the box and lid, inside and out. Let it dry, and then sand with 320-grit sandpaper or a sanding mop. *Note: If you used the blue veneer, test the shellac on scrap wood. If it gives the wood a greenish cast, use clear spray lacquer instead.*



19 **Glue on the loops.** Remove the tape from the box lid and space six loops evenly to form a circle. Glue them in place with wood glue or Nexabond glue, supporting the loops as needed until the glue is dry. Check the positioning of the remining three loops and sand them as needed to fit attractively on top of the bottom layer. Glue them into place.

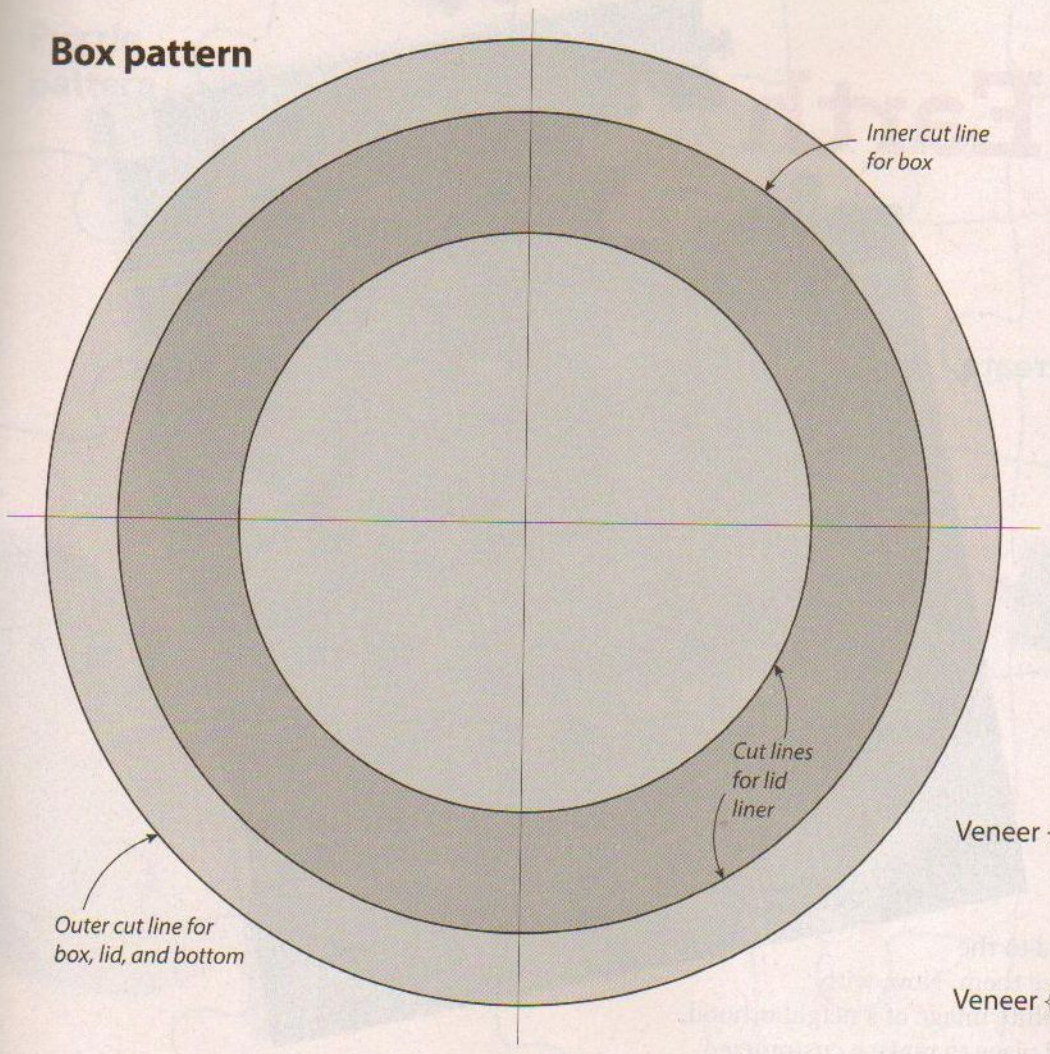
TIP

ATTACHING THE LOOPS

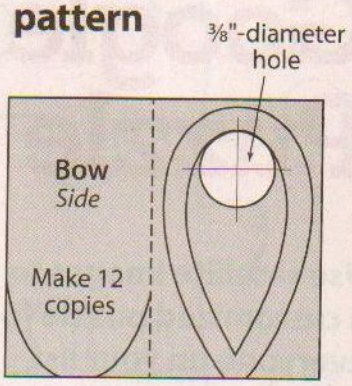
For greater control over placement, attach the loops to the lid with small pieces of masking tape, and then remove and glue them in place one at a time.

20 **Finish the box.** Apply several coats of clear spray lacquer to the box and loops, buffing the box between coats with 0000 steel wool as needed.

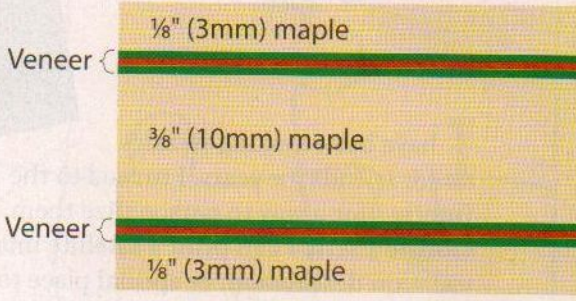
Box pattern



Bow pattern



Ribbon lamination diagram (enlarged for clarity)



NOTE: These materials are for the Christmas version. For the Chanukah version, substitute blue veneer for the green, and white veneer for the red.

Materials & Tools

Materials:

Wood for box

- Walnut, ⅞" (22mm) thick: box body, 6" x 6" (152mm x 152mm)
- Walnut, ½" (13mm) thick: lid, 6" x 6" (152mm x 152mm)
- Walnut, ¼" (6mm) thick: bottom, 6" x 6" (152mm x 152mm)
- Yellowheart, ⅛" (3mm) thick: lid liner, 5" x 5" (127mm x 127mm)

Wood for lamination block

- Maple, ⅛" (3mm) thick: 2 each, 4" x 6" (102mm x 152mm)
- Maple, ⅜" (10mm) thick: 4" x 6" (102mm x 152mm)
- Green or blue veneer: 4 each, 4" x 6" (102mm x 152mm)
- Red or white veneer: 2 each, 4" x 6" (102mm x 152mm)

Wood for ribbon loop block

- Maple, ⅛" (3mm) thick: 2 each 4½" x 5" (114mm x 127mm)
- Maple, ⅜" (10mm) thick: 4½" x 5" (114mm x 127mm)
- Green or blue veneer: 4 each, 4½" x 5" (114mm x 127mm)
- Red or white veneer: 2 each, 4½" x 5" (114mm x 127mm)

Additional materials

- Spray adhesive: repositionable
- Glue: wood glue such as Weldbond, Nexabond (optional)
- Steel wool: 0000 grit
- Sandpaper
- Tape: blue painter's and double-sided
- Spray shellac
- Spray lacquer

Tools:

- Scroll saw blades: #9, #3
- Awl
- Drill with bits: 1/16"(2mm), ⅜" (10mm)
- Press or clamps and boards for gluing
- Sanders for box and loops

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

Carole Rothman of Pawling, N.Y., is a retired psychologist and college professor. She is also an award-winning cake decorator. Visit Carole online at www.scrollsawbowls.blogspot.com. You'll find her books Creative Wooden Boxes from the Scroll Saw *and* Wooden Bowls from the Scroll Saw *at www.foxchapelpublishing.com.*

Google Earth Puzzle

Use satellite images to create a customized puzzle for everyone on your list

By Dan Bowe

This puzzle shows the Fox Chapel Publishing office in East Petersburg, Penn.

I have been making puzzles for friends for years. I turned to the Internet for a way to personalize them. Now, with Google Earth, I can print a satellite image of a neighborhood, vacation destination, or special place to make a customized puzzle for each friend.

Printing the Puzzle

Start by logging onto Google Maps (www.googlemaps.com). Type the address of the place. Click on the box in the bottom left corner that says "Earth." This brings up satellite imagery of the location and allows you to zoom in or out. *Note: The more you zoom in, the blurrier the image will be.* Zoom in and out until you get the sharpest picture possible. Size the map to 8" by 10" and print it on 8½" by 11" glossy photo paper. Use white glue to attach the printout to thin plywood.

Cutting the Puzzles

If you are comfortable cutting puzzles freehand, just start cutting. If you prefer to use a pattern, there are two methods to attach a pattern to the blank. The easiest is to attach a pattern to the back of the puzzle blank, but it can be time-consuming to remove the pattern after you cut. Instead, I attach the pattern to another thin piece of plywood the same size as the puzzle blank. Stack the pattern blank on top of the puzzle blank, and wrap clear packaging tape around the stack.

Regardless of the method, use a #3 or #5 premium reverse-tooth blade (such as a Flying Dutchman ultra-reverse) to cut the puzzle. Remove any tape or pattern, and reassemble the puzzle as you cut. Discard the pieces cut from the pattern blank or use them for a different project.

Materials & Tools

Materials:

- Baltic birch plywood, ¼" (6mm) thick: 2 each 8" x 10" (203mm x 254mm)
- Glossy photo paper
- White glue
- Spray adhesive
- Tape: clear packaging

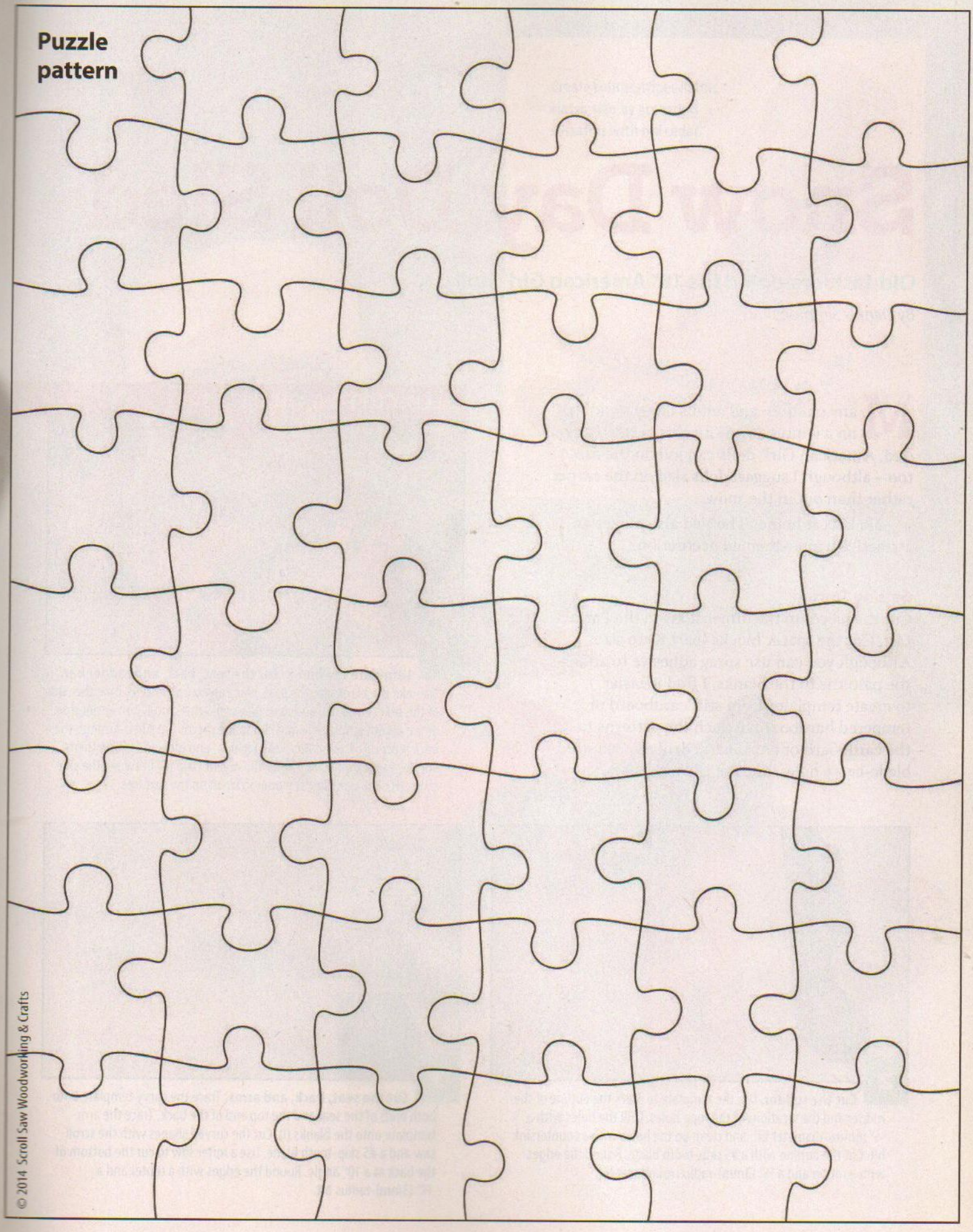
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Tools:

- Blades, such as Flying Dutchman: #3 or #5 reverse tooth

Dan Bowe lives in Rogers, Ark. He inherited his dad's love of working with wood. To see more of Dan's work, search for twistedcandlesticks or Dan Bowe at www.etsy.com.

Puzzle pattern



Snow Day Doll Sled

Old-fashioned sled fits 18" American Girl® dolls

By Dennis Simmons

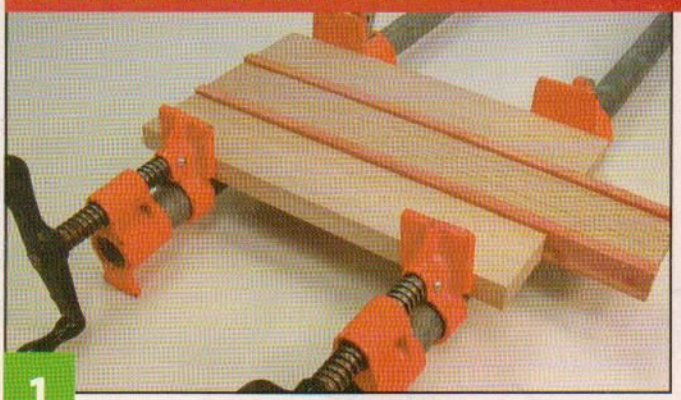
Many children and adults enjoy sledding on a winter day. With this perfectly sized sled, American Girl® dolls can join in the fun, too—although I suggest dolls sled on the carpet rather than out in the snow.

No kids at home? The sled also makes an attractive winter-themed decoration.

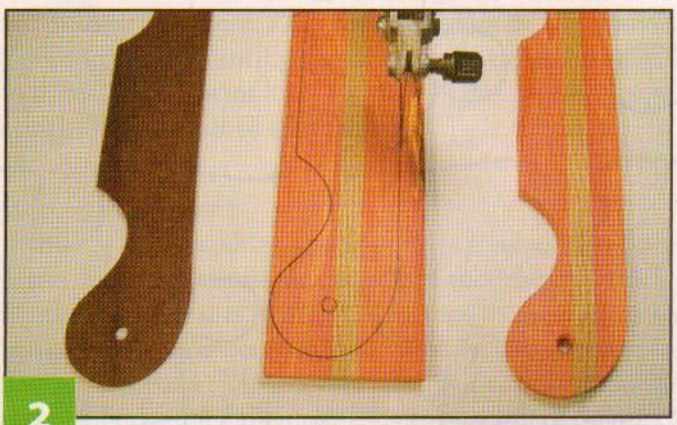
Getting Started

Cut the pieces to the dimensions in the Parts List. Cut the spacer blocks (part K) to size. Although you can use spray adhesive to attach the patterns to the blanks, I find it easier to create templates from stiff cardboard or tempered hardboard. Attach the patterns to the cardboard or hardboard, drill any required blade-entry holes, and cut the templates.

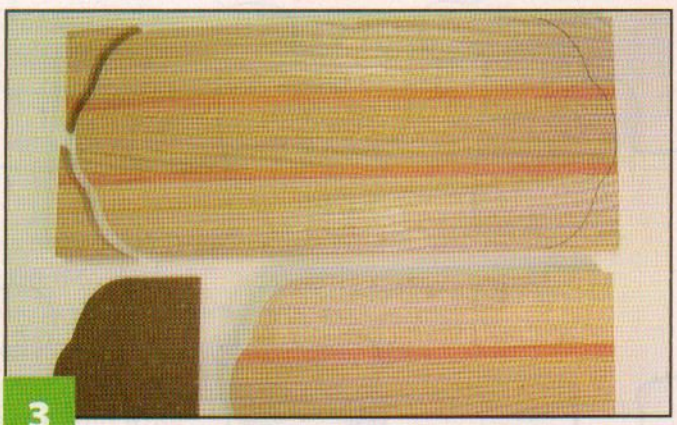
SLED: CUTTING THE PIECES



1 **Laminate the blanks for the seat, back, and rudder bar.** To make the blanks for the seat, place an accent strip (B) on either side of the seat center (A), and then place an outer strip (C) on either side of the accent strips. Glue and clamp the pieces together. Arrange the back pieces (D, E, F) in the same fashion, and glue and clamp them. For the rudder, glue and clamp the accent strip (G) between the side strips (H). Use a thickness planer to clean up the surfaces.



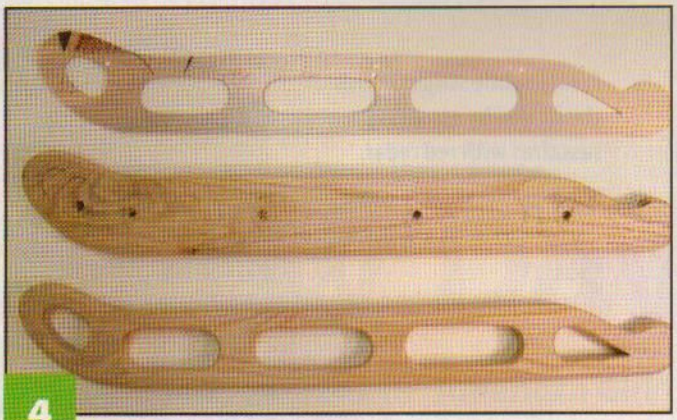
2 **Cut the rudder.** Use the template to mark the outline of the rudder and the locations of the rope holes. Drill the holes with a ¼" (6mm)-diameter bit, and clean up the holes with a countersink bit. Cut the outline with a #5 skip-tooth blade. Round the edges with a router and a ⅛" (3mm)-radius roundover bit.



3 **Cut the seat, back, and arms.** Trace the curvy template onto both ends of the seat and the top end of the back. Trace the arm template onto the blanks (I). Cut the curved shapes with the scroll saw and a #5 skip-tooth blade. Use a miter saw to cut the bottom of the back at a 10° angle. Round the edges with a router and a ⅛" (3mm)-radius bit.

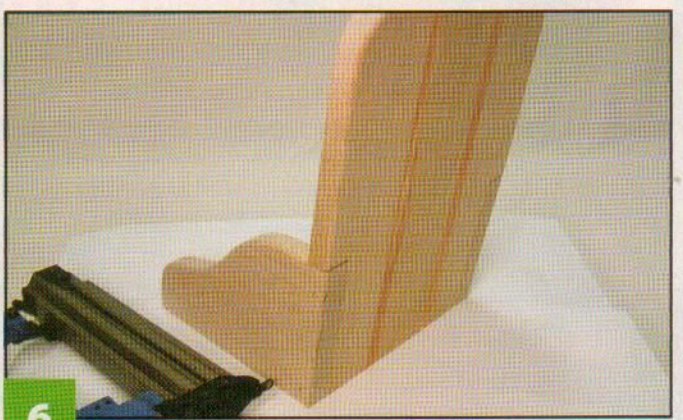
Create subtle stripes in this classic sled by accenting sassafras with red cedar.

SLED: ASSEMBLING THE PROJECT

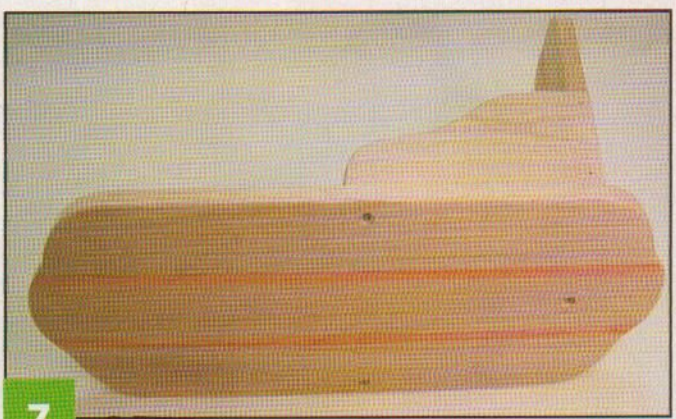


4 **Cut the runners.** Trace the templates onto the blanks (J). Drill blade-entry holes and cut the frets. Then, cut the perimeters. Round the bottom edges of the runners with a router and a ⅜" (10mm)-radius bit. Round the other edges with a ⅛" (3mm)-radius bit.

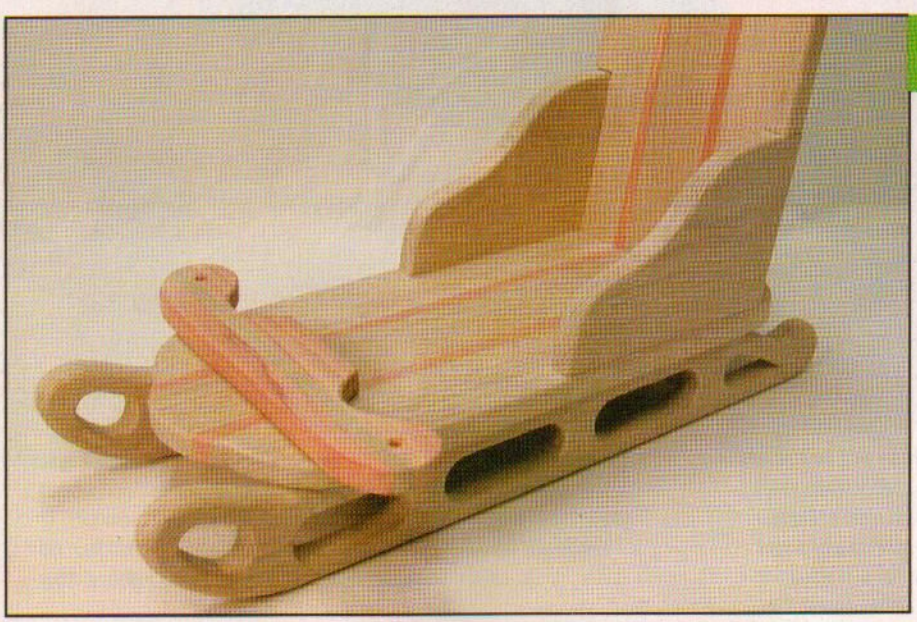
5 **Assemble the runners.** Align the spacer blocks flush with the top edges of the runners (the runners are upside down in this photo). Use glue and brads to attach the runners to the spacer blocks. Fill the brad holes with wood putty.



6 **Attach the arms to the back.** Cut notches in the back for the arms. The notches should match the thickness and height of the arms. Use a hand saw to cut the top of the notch at a 10° angle to match the angle on the bottom of the back. Use glue and brads to attach the arms to the back, and fill the brad holes with wood putty.



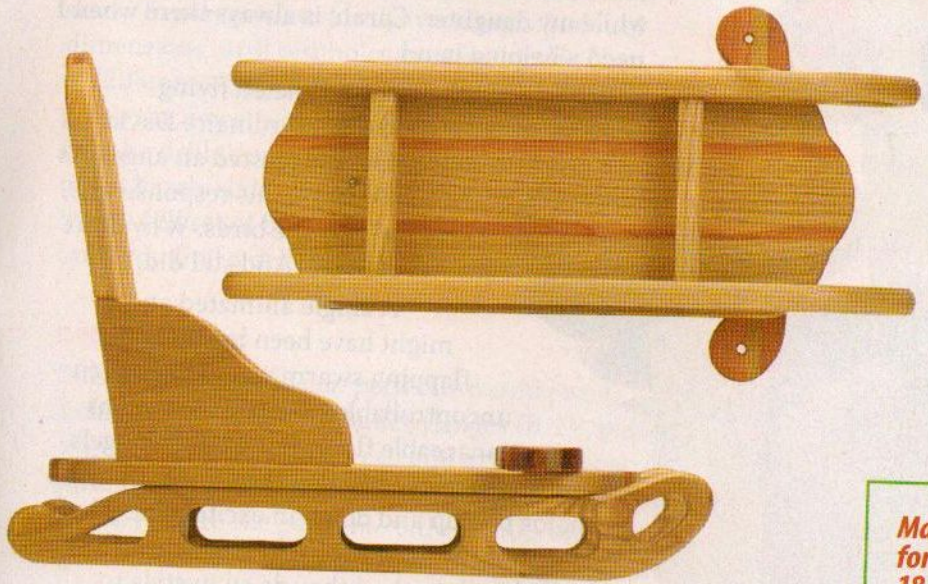
7 **Attach the back and arms to the seat.** Drill a 1/16" (2mm)-diameter hole at a 10° angle through the bottom of the seat and into the back; countersink the hole. Apply glue to the bottom of the back and arms, and use a #4 by 1" (25mm) long flat-head wood screw to secure the back to the seat. Repeat the process, without the angle, to attach the arms to the seat.



8 **Finish assembling the sled.** Apply glue to the top edges of the runners, and place the seat in position. To secure the runners, drive brads through the seat and into the runners and spacer blocks. Use glue and brads to attach the rudder 1¾" (44mm) from the front of the seat. Fill the brad holes with wood putty. Apply clear finish, and attach a tow rope through the holes in the rudder if desired.

Parts List

	Item	Quantity	Dimensions	Presentation	Material
A	Sled seat center	1	5/8" x 1 3/4" x 15 1/2" (16mm x 44mm x 394mm)	Dimensions	Sassafras
B	Sled seat accent strips	2	3/8" x 5/8" x 15 1/2" (10mm x 16mm x 394mm)	Dimensions	Eastern red cedar
C	Sled seat outer strips	2	5/8" x 2" x 15 1/2" (16mm x 51mm x 394mm)	Dimensions	Sassafras
D	Sled back center	1	5/8" x 1 3/4" x 11" (16mm x 44mm x 279mm)	Dimensions	Sassafras
E	Sled back accent strips	2	3/8" x 5/8" x 11" (10mm x 16mm x 279mm)	Dimensions	Eastern red cedar
F	Sled back outer strips	2	5/8" x 1 15/16" x 11" (16mm x 50mm x 279mm)	Dimensions	Sassafras
G	Rudder accent strip	1	3/8" x 5/8" x 10" (10mm x 16mm x 254mm)	Dimensions	Sassafras
H	Rudder side strips	2	5/8" x 1" x 10" (16mm x 25mm x 154mm)	Dimensions	Eastern red cedar
I	Seat arms	2	5/8" x 4 1/4" x 6" (16mm x 108mm x 152mm)	Pattern	Sassafras
J	Runners	2	3/4" x 3 1/2" x 18 1/2" (19mm x 89mm x 470mm)	Pattern	Sassafras
K	Spacer blocks	2	5/8" x 1 1/2" x 4 5/8" (16mm x 38mm x 117mm)	Dimensions	Sassafras



Patterns for the ***Snow Day Doll Sled*** are in the pattern pullout section.

Materials & Tools

Materials:

- Sassafras, 5/8" (16mm) thick: 4 1/4" x 46" (108mm x 1168mm)
- Sassafras, 3/8" (10mm) thick: 5/8" x 10" (16mm x 254mm)
- Sassafras, 3/4" (19mm) thick: 3 1/2" x 38" (89mm x 965mm)
- Eastern red cedar, 5/8" (16mm) thick: 2 1/4" x 10" (57mm x 254mm)
- Eastern red cedar, 3/8" (10mm) thick: 1 1/2" x 27" (38mm x 685mm)
- Flat-head screws: 3 each #4 x 1" (25mm)
- Sandpaper
- Wood glue
- Wood putty
- Brads
- Finish: clear
- Rope (optional): 36" (914mm) long

Tools:

- Blades: #5 skip tooth
- Miter saw
- Hammer or brad nailer
- Drill with bits: 1/4" (6mm) dia., countersink
- Router with bits: 1/8" (3mm)-radius roundover, 3/8" (10mm)-radius roundover

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

Further Reading

Making Wooden Furniture for American Girl® and Other 18-Inch Dolls, 3rd Edition

By Dennis Simmons

Easy-to-follow plans allow you to make heirloom-quality furniture scaled for American Girl and other 18" dolls. Projects include chairs, beds, tables, desks, and more.

Available for $19.99 + $3.99 S&H (parcel post) from Fox Chapel Publishing, 1970 Broad St., East Petersburg, Pa., 17520, 800-457-9112, www.FoxChapelPublishing.com, or check your local retailer.

Dennis Simmons lives in Rushville, Ind. You may contact him by e-mail at Intarsiawood@hotmail.com.

Stairway From Heaven Music Box

Wings flutter and halos bob as these angels "sing"

By John Hutchinson

Photo by Will Kanzeg

I never used to believe in angels, but evidence now suggests that they've always believed in me. My mother sits on my left shoulder pointing the way, while my daughter, Carah, is always there when I need a helping hand.

While brainstorming animated flying creatures with toymaker extraordinaire David Wakefield, I suggested an angel. As I remember it, his response was, "That's for the birds. Why don't YOU do it?" And so I did.

A single animated angel might have been lonely, and a flapping swarm would have been uncontrollable, so a trio won out as a manageable flock. But what do angels do? Let's see. They flap their wings. Their halos bob up and down in excitement. They descend a stairway from heaven when they're called to duty. And they do so in style to the accompaniment of celestial music.

Three flying angels with bobbing halos make for a pretty cool automaton, but I decided to gild the lily by adding the element of music. A hand-cranked musical movement that plays "Hark! The Herald Angels Sing" turned out to be the perfect complement to the theme.

I'm calling it a Christmas table centerpiece—my excuse, because real men don't build monuments to their angels. Maybe they should.

Attaching Patterns

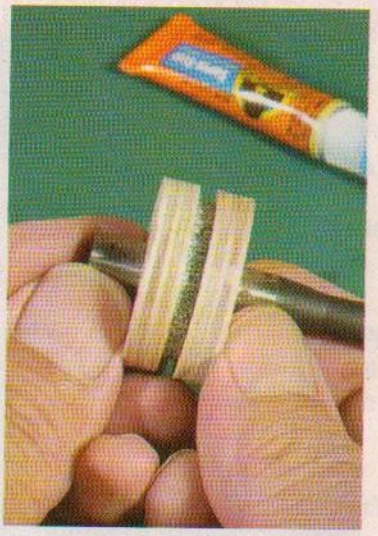
When working with parts that require a high degree of accuracy, the patterns must stay firmly attached to the blank. I don't care for double-sided tape or spray adhesive; instead, I use a simple flour-and-water paste. Mix flour with water until the paste has the consistency of tomato soup, and use a brush to apply a thin coat to the wood. Press the pattern into place and let the paste dry thoroughly. To remove the pattern after cutting, apply a damp paper towel to the pattern; it should slide right off. Wipe off any residue with the damp paper towel.

Dowels and Drill Sizes

Dowels are seldom the exact dimension specified; they are usually oversized. And, obviously, a ¼"-diameter dowel will not fit into a ¼"-diameter hole. For this article, I drill most of the holes with common bit sizes. To compensate for the variations in dowel dimensions, drill test holes in scrap wood. Then, chuck 8" (203mm)-long sections of dowel in an electric drill, grasp the dowel with a piece of 80-grit sandpaper, and run the drill to spin the dowel and sand it down until it just barely slides through the appropriate hole. If you have a full set of bits, you can drill test holes in scrap until you find a drill bit that will work for your dowels.

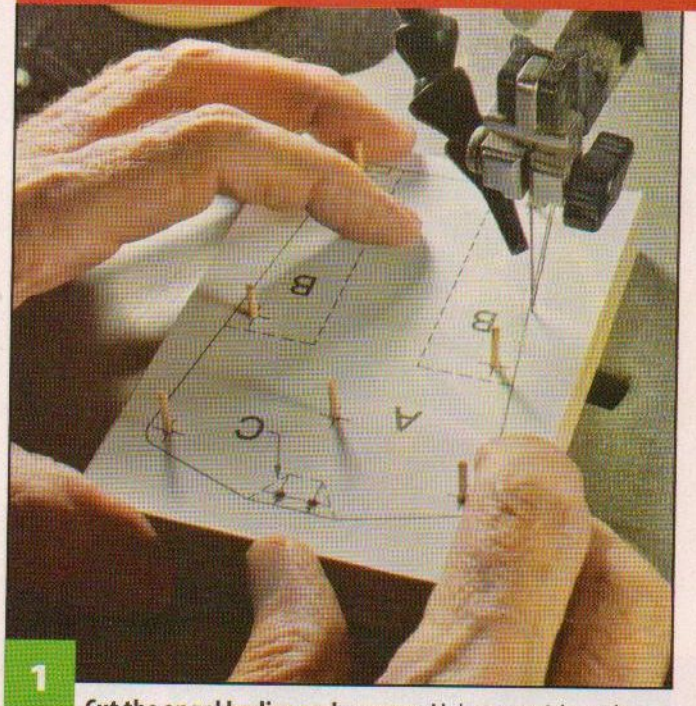
Getting Started

This project depends on perfectly round parts, including the cams (A), pulley flanges (B, D), pulley centers (C, E), music axle cap and axle crank cap (F, G), and axle washers (H). Start by cutting these round pieces. Adhere the patterns to the blanks and drill all of the holes as marked. (Each cam has two holes: the center hole is for sanding and polishing on a drill press, and the offset hole is for the axle.) Rough-cut just outside the lines. Stack a couple of the duplicate parts on a ⅜" (10mm)-diameter bolt, tighten them down with a nut, and chuck the bolt in a drill press. Use 80-grit sandpaper on a sanding block to sand to the pattern lines. Keep the sanding block perpendicular to the drill press table to keep from beveling the edges of the objects. After sanding the cams round, polish them with a 3M buffing pad to reduce friction. Set the axle caps and washers aside.



Glue narrow strips of 80-grit sandpaper to the edges of the pulley centers with the grit side out to provide a non-slip surface for the O-ring pulley belts. Then, apply wood glue to the pulley centers and, using an axle or drill bit to ensure proper alignment, sandwich a center between two pulley flanges; clamp and let dry. Make three standard pulley assemblies (pieces B-C) and one music pulley assembly (D-E). The center axle needs a double pulley: glue a center between two flanges, and then add an extra center and flange to one side. Clamp tightly and let the entire assembly dry.

MUSIC BOX: MAKING THE ANGELS



1 **Cut the angel bodies and spacers.** Make two stacks with three outer body blanks in each stack, attach a pattern (I) to the top of each stack, and drill the holes as marked. Use toothpicks or dowels to keep the pieces aligned, if desired. Cut just outside the perimeter lines, and then separate the stacks. Glue a piece of 1/16" (2mm)-thick plywood to a piece of ¼" (6mm)-thick plywood to create the blanks for the body spacers (J) and collar spacers (K). Stack the blanks, if desired; attach the patterns; drill the holes; and cut the spacers.

2

Assemble the bodies. Glue the spacers between the outer body layers. Glue round toothpicks into the holes as shown to help align the layers. Allow the glue to dry, and cut the toothpicks off flush with the surface of each body. Then, sand the edges of the body assemblies to the pattern lines. Redrill the wing pivot holes to clear away any glue that might have migrated into the holes.

3

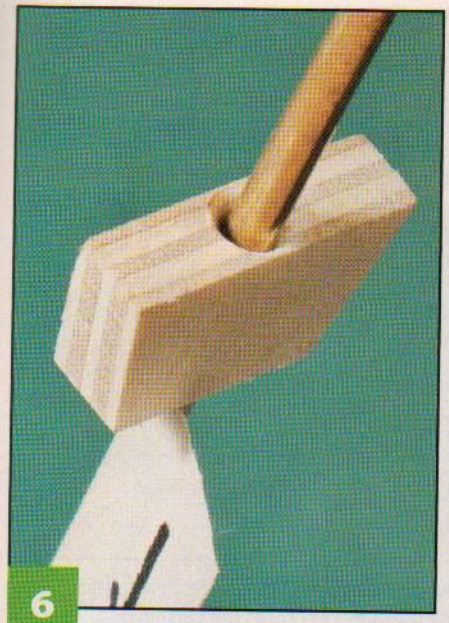
Cut the wings and hands. Make three stacks of wing blanks (four blanks in each stack), and attach a wing pattern (L) to the top of each stack. Drill all of the holes marked on the pattern and cut the frets for the stained glass. Then, cut just outside the perimeter lines. Pair the wings, aligning them with toothpicks and dowels, and sand the edges up to the pattern lines. Paint the outsides and edges of the wings gold. While the paint dries, trace the wing insert pattern (M) onto the colored acetate and cut six inserts. Create two stacks of three hand blanks and cut the hands (N).

4

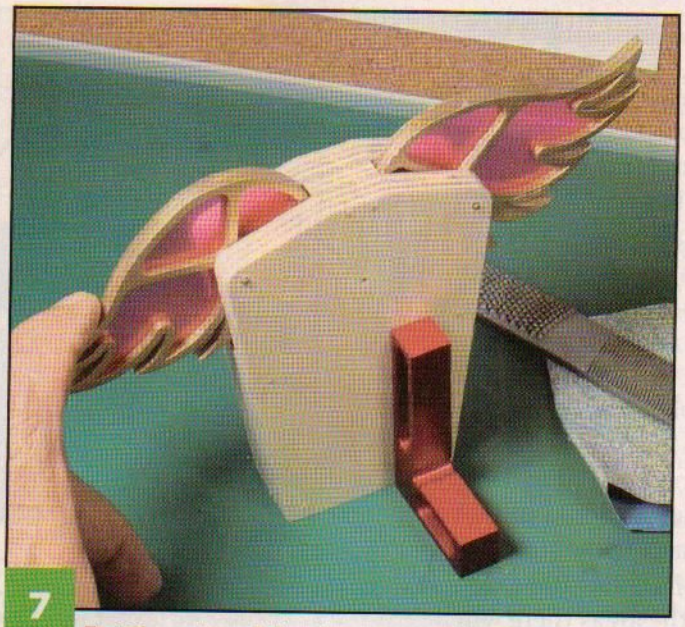
Assemble the wings. Use small dabs of cyanoacrylate (CA) glue, such as Super Glue®, to adhere the acetate to the wood, and use wood glue on the sections not covered by acetate. Use as little glue as possible so the glue doesn't squeeze out and show on the acetate. Clamp the wings and let dry.

5

Add the weights to the wings. Because the wings need to be overbalanced toward the center of the body, you need to add extra weight to that section. For each wing, I cut the head off a ⅜" (10mm)-diameter steel bolt (part P) and a ¼" (6mm)-long section of the threaded part of that bolt (part O) with a hacksaw and used a generous application of gel CA glue to bond the the counterweights to the wooden wing.



6 **Make the wing lifters and push rods.** Drill a hole in each wing lifter blank (Q) before cutting the piece. Then, cut the brass push rods (R) to length. Measure down 3 13/16" (20mm) from the top of each rod and use a small triangular file to nick the rod several times to create a spot for the glue where the wing lifters attach. Clean the rods thoroughly, and then use CA glue to attach the wing lifters to the rods.

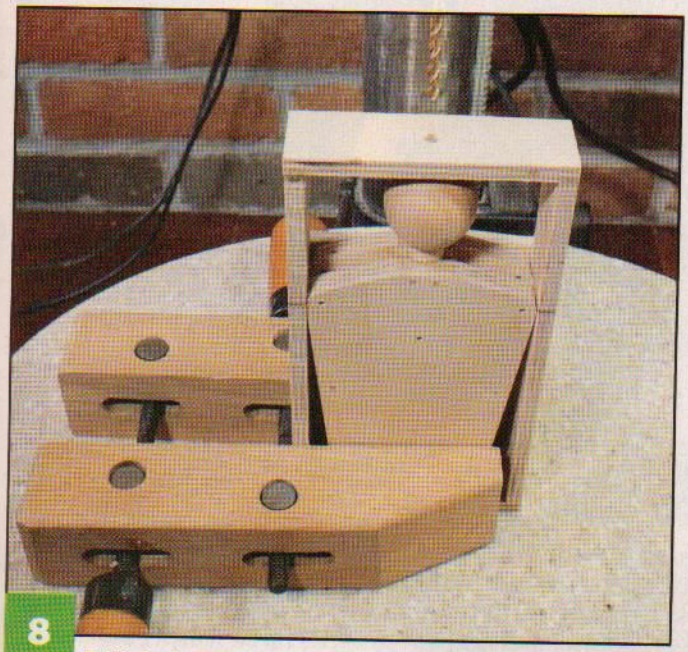


7 **Test the action of the wings.** Insert brass wire brads through the shoulder holes, through the wings, and out the other side. Test the action of the wings, and then disassemble the wings before painting the angels.

TIP

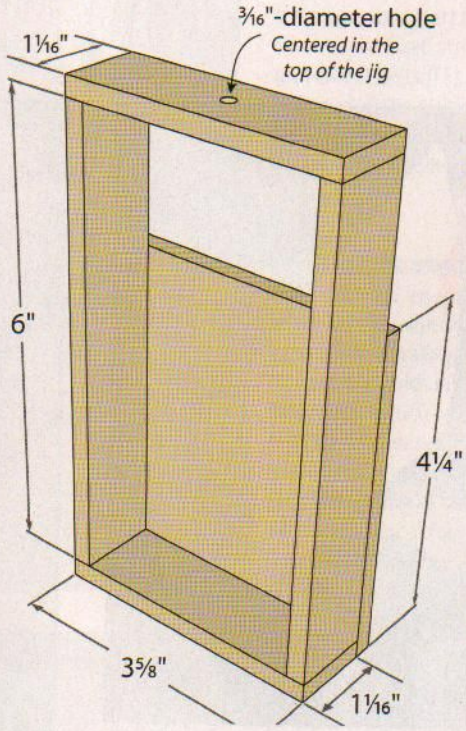
CLEANING THE STAINED GLASS

To remove sawdust and fingerprints from the angels' stained glass wings, soak one end of a cotton swab with window cleaner and gently clean the acetate. Use the dry end of the swab to remove any residue.



8 **Drill the hole in the neck and collar assembly.** Glue a head (S) and a neck (T) to the top of each collar spacer (K). Refer to the drawing at right and make a simple jig to help you drill the push-rod hole correctly. Then, drill a 3/16" (5mm)-diameter hole through the head and neck of each angel for the push rod.

Drilling jig

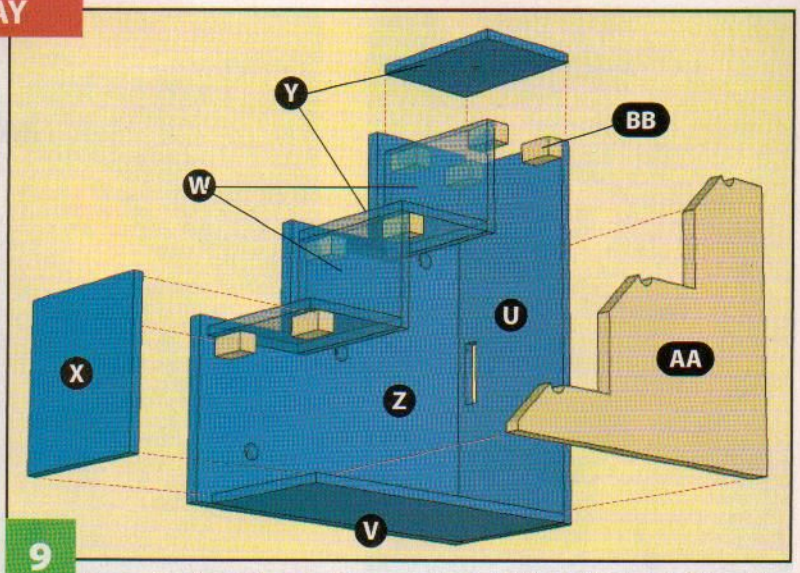


MUSIC BOX: PAINTING THE ANGELS

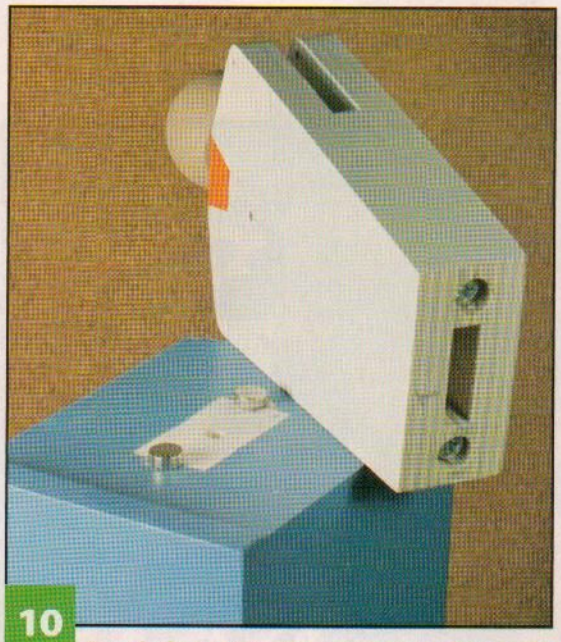
For a festive look, I painted the angel's robes with unthinned white acrylic paint and added a red collar accent. Paint the heads in your choice of color(s). I decided to make my design multicultural. Glue pairs of hands together, and then paint the hands of each angel the same color as its head.

MUSIC BOX: ASSEMBLING THE STAIRWAY

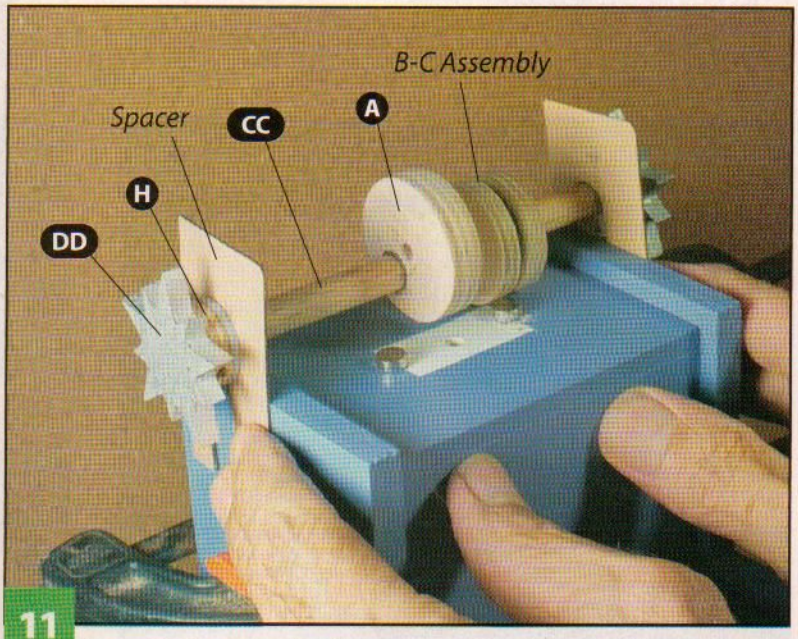
Start by cutting the stair back (U) to size. Attach the partial pattern, drill a blade-entry hole, and cut the slot for the music drive belt. Then, cut the stair bottom (V), risers (W, X), and treads (Y) to size. Make a stack of the two stringer blanks (Z) with the jack stringer blank (AA) on top. Attach the pattern to the top of the stack, and use a dimensioned square to mark the center of each hole with an awl. Drill the holes, and then cut the perimeter of the pattern. Separate the stack, and cut the light grey lines to make the jack stringer. Cut the gluing blocks (BB) and axles (CC) to length. Attach the patterns and cut the star axle caps (DD) and star axle crank (WW). I mask off the areas there will be glue joints and paint most of the pieces before assembling them.



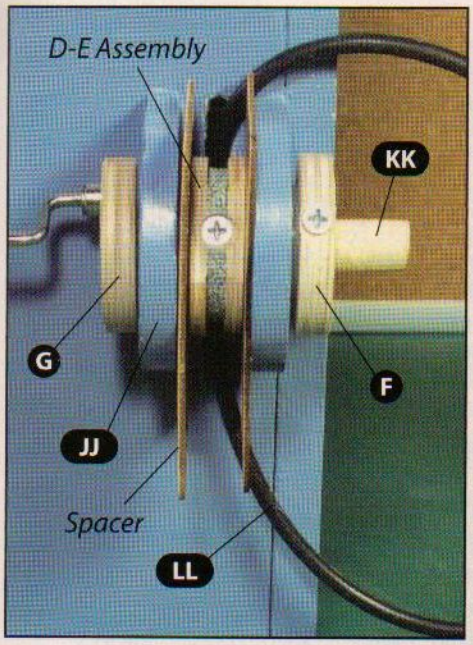
9 **Assemble the stairway.** Place one stringer (Z) flat on the bench. This will be the fixed stringer. Glue and clamp the large riser (X) to the bottom position on the stringer and the small risers to the other spots on the stringer. Then, glue and clamp the treads (Y) to the stringer using the gluing blocks (BB) to reinforce the joints. After the glue has set, rotate the assembly upright. Use the push rods(R) as a guide to place the angels in position, and use a square to ensure that the treads and risers are perpendicular to each other and to the angels. Mark the location of each angel on its tread. Glue the jack stringer (AA) just inside the assembled stairway.

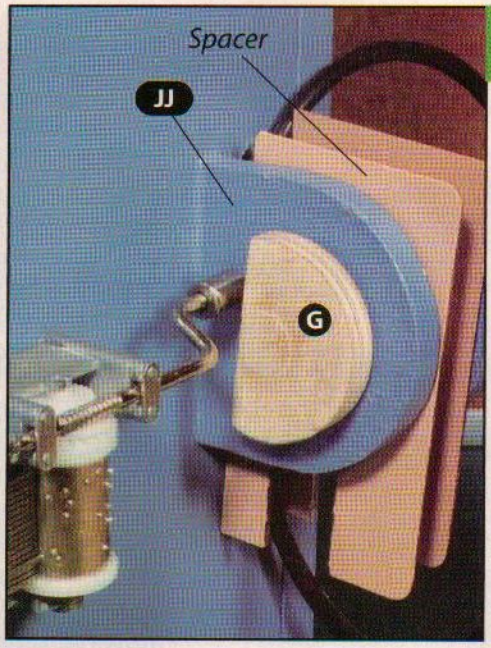


10 **Attach the positioning magnets to the treads.** Use CA glue to attach two small rare earth magnets to each tread. Mark the magnet locations on the bottom of each angel. Drill and countersink matching holes, and drive screws that have the same diameter head as the magnets into the holes. Make sure the countersink is deep enough to accommodate the magnets. This allows you to remove the angels for storage.



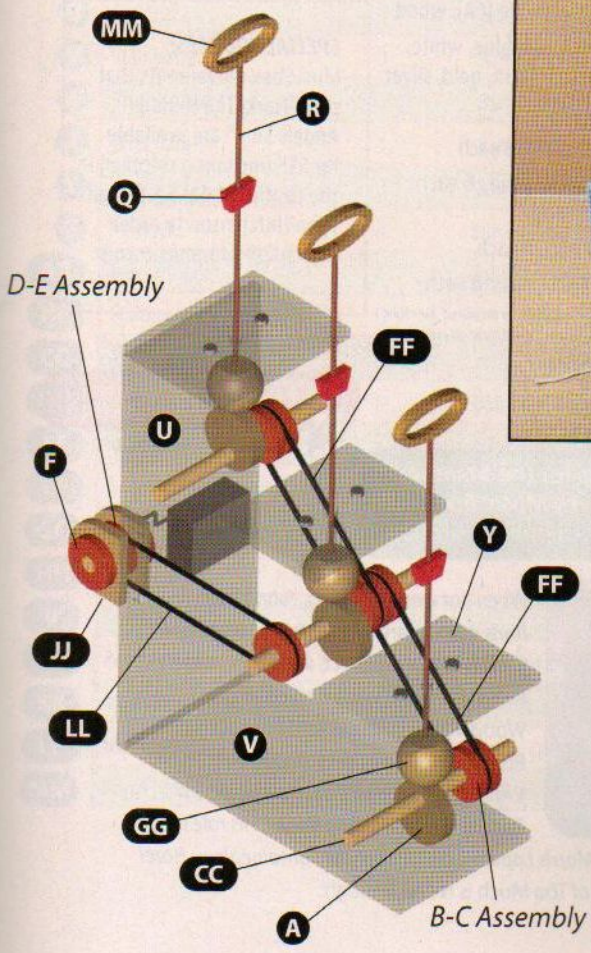
11 **Assemble the axles.** Dry-fit an axle cap (DD),axle washer (H), cam (A), and pulley (B-C assembly) on each axle (CC). Clamp the removable stringer against the open side of the stairs, and hold each axle assembly above the stair it corresponds with. Place 1/16" (2mm)-thick spacers on the outsides of the stringers, and move the axle washers and caps outside the stringers. Position the cam over the hole in the tread. Position the drive pulley on the center axle, just inside the fixed stringer. The double pulley goes on the center axle, as well. Align the top and center pulleys against the cams. The bottom pulley should be about 3/8" (10mm) to the right of the cam. Mark the positions of the cams and pulleys, slide them aside, apply a small amount of CA glue to the marked areas, and slide the cams and pulleys back into position.

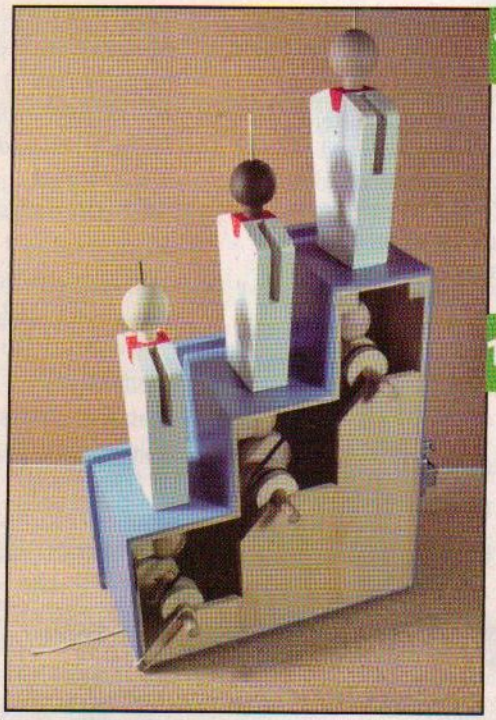




12 **Attach the music mechanism.** Refer to the photo at far left and dry-fit the pieces of the music mechanism (G, JJ, spacers, D-E assembly, F) on the music axle (KK). Center the assembly over the slot in the back of the music box and mark the positions of the mounts and the music movement; screw the music movement in place. Test the movement of the crank cap (G) and adapt it to fit if necessary (see photo at near left). Disassemble the axle and, using CA glue, attach the pulley to the axle. Reassemble the axle and mounts, gluing the caps in place. I drive screws through the pulley and cap because the torque required to work the music movement is strong enough to snap the CA glue joints. Loop the music box belt (LL) over the pulley, and then glue the mounts to the box.

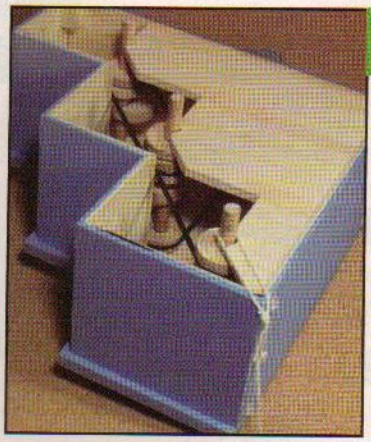
Axle and pulley assembly diagram





13a **Install the axles and belts.** Remove the caps and washers from both ends of the axles, and insert the appropriate end through the fixed stringer. Install the angel movement belts (FF) over the pulleys as shown. Pull the music box belt (LL) in through the slot in the back and loop it over the drive pulley.

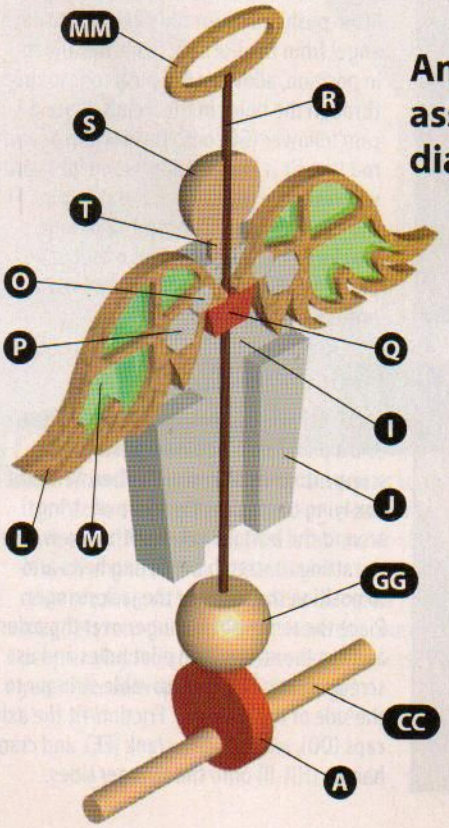
13b **Place the angels.** Insert a wing lifter-push rod assembly (Step 6) into each angel from the bottom. Place the angels in position, allowing the push rods to drop through the holes in the treads. Place a cam follower (GG) onto the bottom of each rod (the fit is loose). Apply wood lubricant wherever the axles touch the stringers. Set the cams at (top to bottom) 12 o'clock, 3 o'clock, and 6 o'clock. This offset of 90° per cam will produce a "wave" motion in both the wings and halos.



13c **Attach the removable stringer.** Drill a pilot hole and insert a temporary screw into the bottom of the box. With the box lying on its side, tie a loop of string around the bottom axle and the screw. Use the string to stretch the O-ring belts and to position the axles on the jack stringer. Place the removable stringer over the axles, and cut the string. Drill pilot holes and use screws to attach the removable stringer to the side of the stairway. Friction-fit the axle caps (DD), washers (H), crank (EE), and crank handle (HH-II) onto the stringer sides.

14

Finish the angels. Drill a ⅛" (3mm)-diameter hole in each halo blank (MM) for the push rod. Drill a blade-entry hole, cut the inside of each halo, and clean it up with round files and sandpaper. Then, cut, file, and sand the outside of each halo. Glue the halos to the tops of the push rods. Carefully drill a 5/64" (1mm) hole along the glue line on the thumb side of each pair of hands, and glue in a toothpick peg to attach the hands to the front of each angel. Place the wings in position and press the brads into the holes; cut the brads flush with the bodies.



Angel assembly diagram

Materials & Tools

Materials:

- Baltic birch plywood, 1/16" (2mm) thick: scraps
- Baltic birch plywood, ⅛" (3mm) thick: 12" x 24" (305mm x 610mm)
- Baltic birch plywood, ¼" (6mm) thick: 12" x 24" (305mm x 610mm)
- Baltic birch plywood, ⅜" (10mm) thick: 12" x 24" (305mm x 610mm)
- Brass rod, ⅛" (3mm) dia.: 3 each 8" (203mm) long
- Clear acetate: assorted colors
- Wooden ball knobs (predrilled with 5/32" or 4mm stop holes), 1¼" (32mm) dia.: 6 each
- Wooden ball knobs (predrilled with stop hole), 1" (25mm) dia.: 1 each
- Hardwood dowel, such as maple, ⅜" (10mm) dia.: 20" (508mm)
- Dowel, ¼" (6mm) dia.: 1" (25mm) long
- Wood lubricant, such as Slideez
- Sandpaper: 80 grit
- Glue: cyanoacrylate (CA); wood
- Acrylic paint: red, blue, white, yellow, brown, flesh, gold, silver
- Toothpicks
- Brass wire brads: 6 each
- Bolt, ⅜" (10mm) dia.: 6 each 1" (25mm) long
- Small screws: 20 each
- Rare earth magnets: 6 each
- Rubber O-rings, ⅛" (3mm) dia.: 2 each 3½" x 3¾" (89mm x 95mm); 1 each 3⅞" x 4⅛" (99mm x 105mm)
- Music box movement, hand cranked (see Special Sources)

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

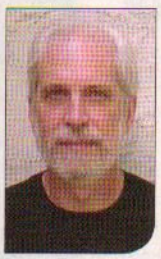
Tools:

- Scroll saw blades: #5 reverse tooth
- Drill press with bits: ⅛" (3mm), 3/16" (5mm), ¼" (6mm), ⅜" (10mm), 7/16" (11mm), countersink
- Clamps
- Buffing pad, such as 3M brand
- Hacksaw
- Files: triangular; round
- Sanding tool, such as Sand Devil
- Metal ruler
- Dimensioned square
- Sanding block
- Bolt ⅜" (10mm) dia: 3" (76mm)long, with nut (sanding mandral)

SPECIAL SOURCES:
Music box movements that play "Hark! The Herald Angels Sing" are available for $15 (including shipping in the continental U.S.). E-mail John Hutchinson to order: jhutchi2@columbus.rr.com.

ON THE WEB See a video of this project in motion on our website.
www.scrollsawer.com

Patterns for the ***STAIRWAY FROM HEAVEN MUSIC BOX*** are in the pattern pullout section.



When not woodtinkering, John Hutchinson finds a few spare moments for his multiple professions of architect, illustrator, and writer. His work has appeared in Fine Woodworking, Woodworker's Journal, Popular Woodworking, *and* American Woodworker, *as well as three books by Popular Woodworking Books. His role model is architect Morris Lapidus, designer of the Fontainebleau Hotel and author of* Too Much is Never Enough.

Parts List

	Part Name	Quantity	Materials	Dimensions	Presentation
A	Cam	3	Baltic birch plywood, ⅜" (10mm) thick	1 ¾" x 1 ¾" (44mm x 44mm)	Pattern
B	Pulley flange	9	Baltic birch plywood, ¼" (6mm) thick	1 ½" x 1 ½" (38mm x 38mm)	Pattern
C	Pulley center	5	Baltic birch plywood, ⅛" (3mm) thick	1 ¼" x 1 ¼" (32mm x 32mm)	Pattern
D	Music pulley flange	2	Baltic birch plywood, ⅛" (3mm) thick	1 ½" x 1 ½" (38mm x 38mm)	Pattern
E	Music pulley center	1	Baltic birch plywood, ⅛" (3mm) thick	1 ¼" x 1 ¼" (32mm x 32mm)	Pattern
F	Music axle cap	1	Baltic birch plywood, ¼" (6mm) thick	1 ½" x 1 ½" (38mm x 38mm)	Pattern
G	Music axle crank cap	1	Baltic birch plywood, ¼" (6mm) thick	1 ½" x 1 ½" (38mm x 38mm)	Pattern
H	Axle washer	3	Baltic birch plywood, ¼" (6mm) thick	1" x 1" (25mm x 25mm)	Pattern
I	Angel outer body	6	Baltic birch plywood, ⅜" (10mm) thick	3 ¼" x 4 ¼" (83mm x 108mm)	Pattern
J	Angel body spacer	6	Baltic birch plywood, 5/16" (8mm) thick	1" x 2 ¾" (25mm x 70mm)	Pattern
K	Angel collar spacer	3	Baltic birch plywood, 5/16" (8mm) thick	½" x 1" (13mm x 25mm)	Pattern
L	Wing	12	Baltic birch plywood ⅛" (3mm) thick	2 ¾" x 4" (70mm x 102mm)	Pattern
M	Wing insert	6	Colored acetate	2 ½" x 3 ½" (64mm x 89mm)	Pattern
N	Angel hand	6	Baltic birch plywood, ⅛" (3mm) thick	¾" x 1 ⅛" (19mm x 29mm)	Pattern
O	Wing counterweight 1	6	Bolt section, ⅜" (10mm) dia.	¼" (6mm) long	Dimensions
P	Wing counterweight 2	6	Bolt head, ⅜" (10mm) dia.	¼" (6mm) long	Dimensions
Q	Wing lifter	3	Baltic birch plywood, ¼" (6mm) thick	⅝" x 1" (16mm x 25mm)	Pattern
R	Push rod	3	Brass rod, ⅛" (3mm) dia.	8" (203mm) long	Dimensions
S	Angel head	3	Ball knob	1 ¼" (32mm) dia.	Dimensions
T	Angel neck	3	Maple dowel, ½" (13mm) dia.	⅜" (10mm) long	Dimensions
U	Stair back	1	Baltic birch plywood, ¼" (6mm) thick	3" x 10 ¼" (76mm x 260mm)	Dimensions/Pattern
V	Stair bottom	1	Baltic birch plywood, ¼" (6mm) thick	3" x 8 ½" (76mm x 216mm)	Dimensions
W	Riser (small)	2	Baltic birch plywood, ¼" (6mm) thick	3" x 3" (76mm x 76mm)	Dimensions
X	Riser (large)	1	Baltic birch plywood, ¼" (6mm) thick	3" x 4 ¼" (76mm x 108mm)	Dimensions
Y	Tread	3	Baltic birch plywood, ¼" (6mm) thick	3" x 3" (76mm x 76mm)	Pattern
Z	Stringer	2	Baltic birch plywood, ⅜" (10mm) thick	9 ½" x 11" (241mm x 279mm)	Pattern
AA	Jack stringer	1	Baltic birch plywood, ⅜" (10mm) thick	9 ½" x 11" (241mm x 279mm)	Pattern
BB	Gluing blocks	12	Pine, ½" (13mm) thick	½" x 1" (13mm x 25mm)	Dimensions
CC	Axle	3	Dowel, ⅜" (10mm) dia.	5 ⅜" (137mm) long	Dimensions
DD	Star axle caps	5	Baltic birch plywood, ¼" (6mm) thick	1 ¾" x 2" (44mm x 51mm)	Pattern
EE	Star axle crank	1	Baltic birch plywood, ⅜" (10mm) thick	5" x 5" (127mm x 127mm)	Pattern
FF	Angel movement belts	2	O-ring, ⅛" (3mm) dia.	3 ½" x 3 ¾" (89mm x 95mm)	Dimensions
GG	Cam follower	3	Ball knob	1 ¼" (32mm) dia.	Dimensions
HH	Crank handle	1	Dowel, ¼" (6mm) dia.	1" (25mm) long	Dimensions
II	Crank knob	1	Ball knob	1" (25mm) dia.	Dimensions
JJ	Pulley mount	2	Baltic birch plywood, ¼" (6mm) thick	1 ½" x 2" (38mm x 51mm)	Pattern
KK	Music axle	1	Dowel, ⅜" (10mm) dia.	1 ½" (38mm) long	Dimensions
LL	Music belt	1	O-ring, ⅛" (3mm) dia.	3 ⅞" x 4 ⅛" (99mm x 105mm)	Dimensions
MM	Angel halo	3	Baltic birch plywood, ¼" (6mm) thick	1 ⅛" x 2 ¼" (29mm x 57mm)	Pattern

SCROLLING SHORTCUTS:
Add Color the Easy Way

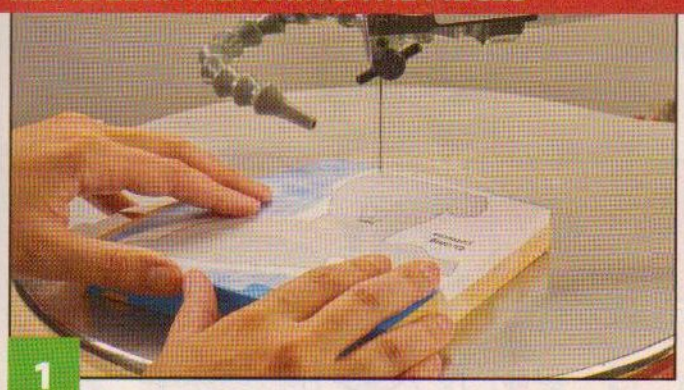
Skip the paint and use preprinted artwork to decorate your scrolled designs

By John Nelson

If you'd like to spice up your scrolling projects but you're not confident in your painting ability, this easy method is for you. Instead of complex painting and shading, simply attach my artwork to your scrolled pieces! I use Mod Podge, an all-in-one glue, seal, and finish, but you can also use plain white glue. Once you try this method, you'll be pairing it with your kids' artwork, wrapping paper, coloring pages, scrapbook paper, and more to create all sorts of instantly decorated projects.

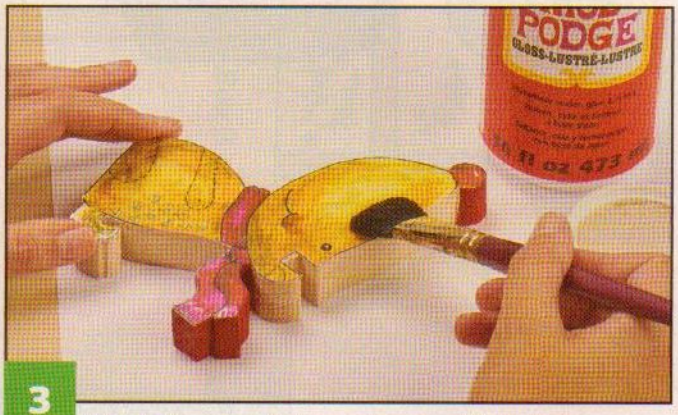
If you prefer, you can paint the designs onto the pine pieces using traditional methods or cut the pieces from hardwood and woodburn the details. Whatever method you choose, we'd love to see your project and hear what you think of the Scrolling Shortcuts method; send pictures and your thoughts to us at editors@scrollsawer.com.

REINDEER: PREPARING THE PIECES

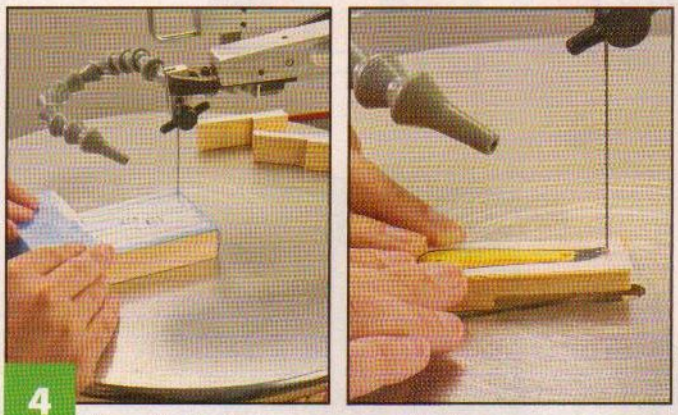


1 **Cut the wooden pieces.** Attach or transfer the cutting patterns to the blanks (for easy placement of the artwork later, the cutting patterns are slightly larger than the artwork). Measure and mark the rectangular pieces as noted in the Materials List. Use a #5 blade to cut the pieces. *Note: Do not cut the legs at this time.*

2 **Sand and paint the pieces.** Use 120-grit sandpaper to sand any rough edges. Paint the sled rails and the dowel black. I also suggest brushing or spraying a quick coat of paint over the pieces to finish and disguise the edges. I use white for the body and ears, and gray for the antlers. Use a brush to paint the edges of the scarf area red.



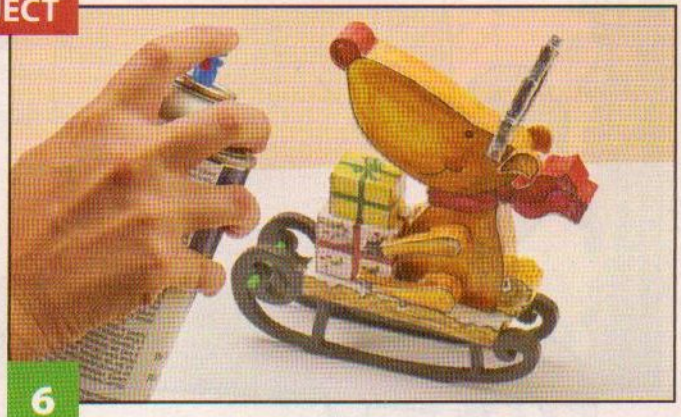
3 **Attach the artwork.** Cut out the artwork for each piece, trimming just outside the black lines. (It's okay if some paper shows; it should blend in with the paint.) Apply a medium-heavy coat of Mod Podge to the front of the wood and the back of the artwork. Too little Mod Podge will make wrinkles, so err on the heavier side—you can always wipe away any excess. Place the artwork on the wood and smooth from the center outward until you remove all bubbles. Let it dry. *Note: Do not adhere the sleigh bed artwork at this time.*



4 **Cut, paint, and adhere the legs.** The legs are cut to fit around the packages. Use the cutting pattern to cut four leg blanks. Turn a blank so the notch is down and position a piece of leg artwork with the hoof on the thin end of the blank; attach the artwork with Mod Podge. When the artwork is dry, use the saw to cut out the leg. If desired, paint the sides of the legs tan and black to match the artwork. Repeat for the remaining three legs.

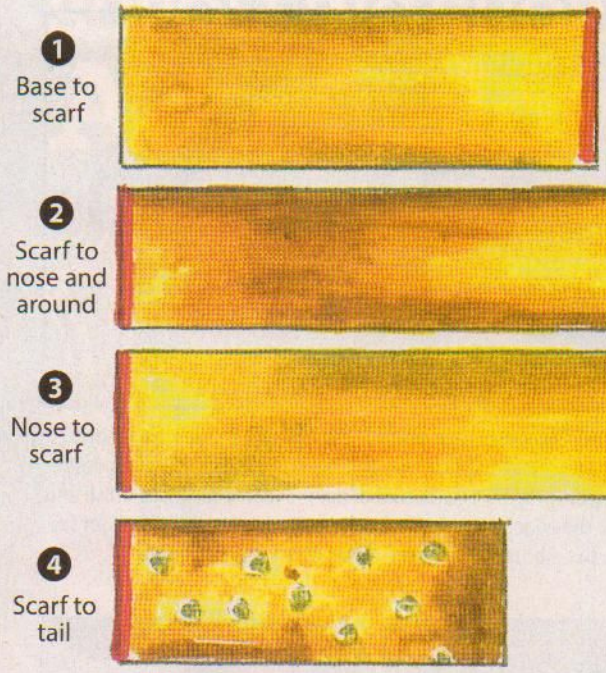
REINDEER: ASSEMBLING & FINISHING THE PROJECT

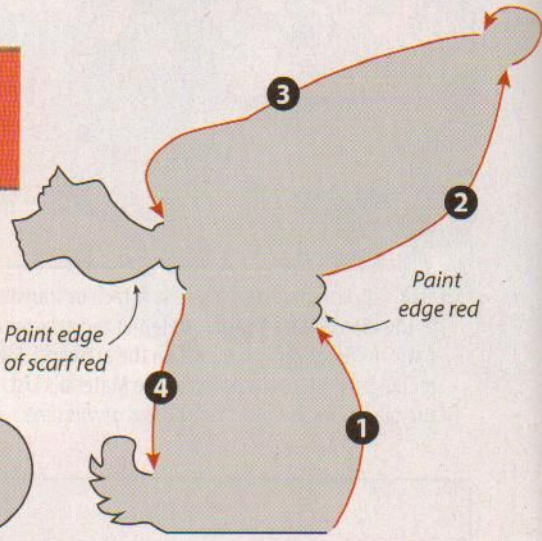
5 **Assemble the sled and the reindeer.** Glue the sled body between the rails; once dry, use Mod Podge to attach the sled body artwork. Insert the dowel into the front of the sled. Drill small holes in the legs and body as marked. Using small nails, locate and glue the legs in place. Glue the ears and antlers to the body. Ensure that the reindeer sits correctly, and then glue the body and boxes to the sled.



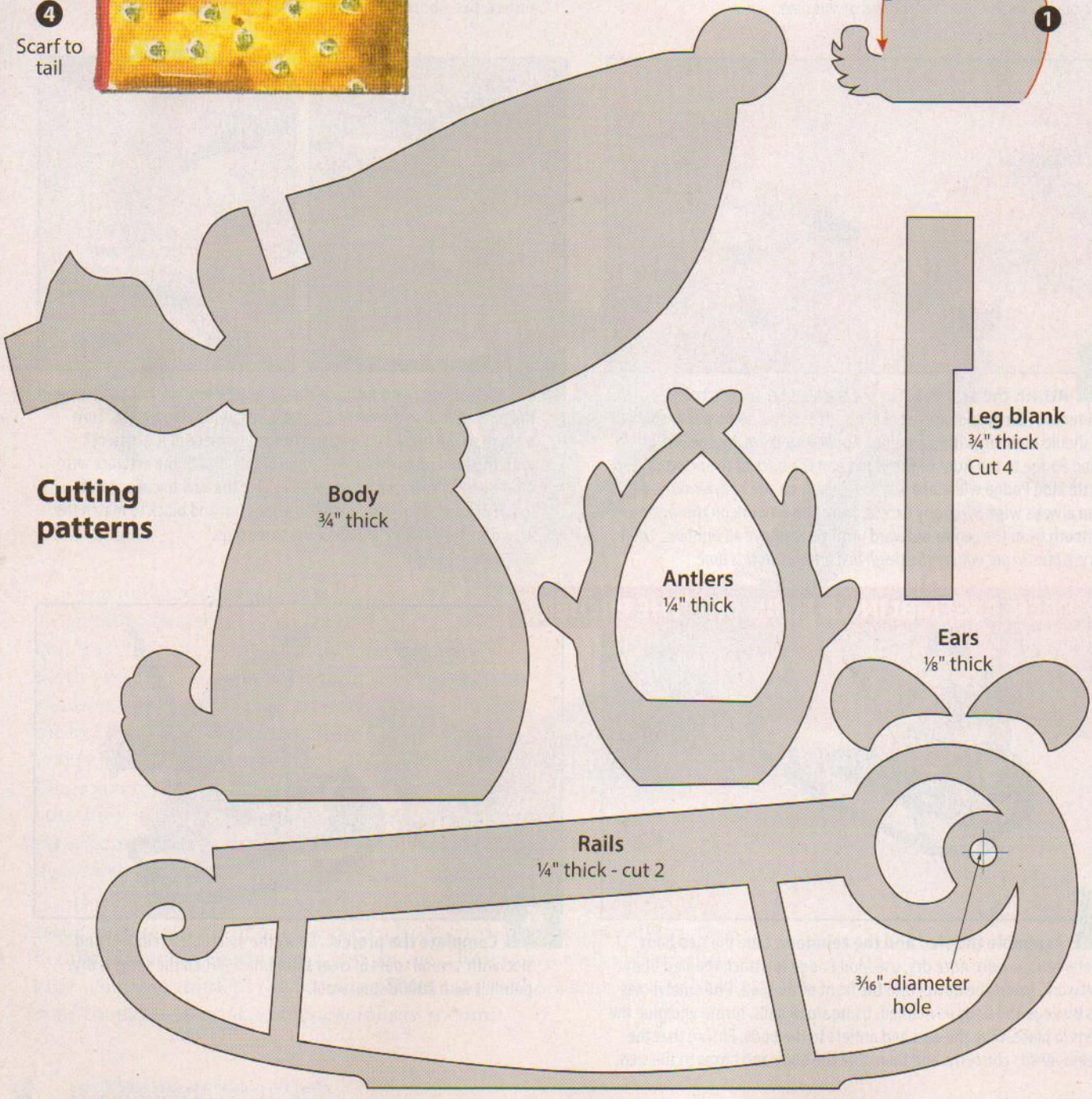
6 **Complete the project.** Spray the assembled reindeer and sled with several coats of clear satin finish. When the spray is dry, polish it with #0000 steel wool.

Reindeer edge color overlays

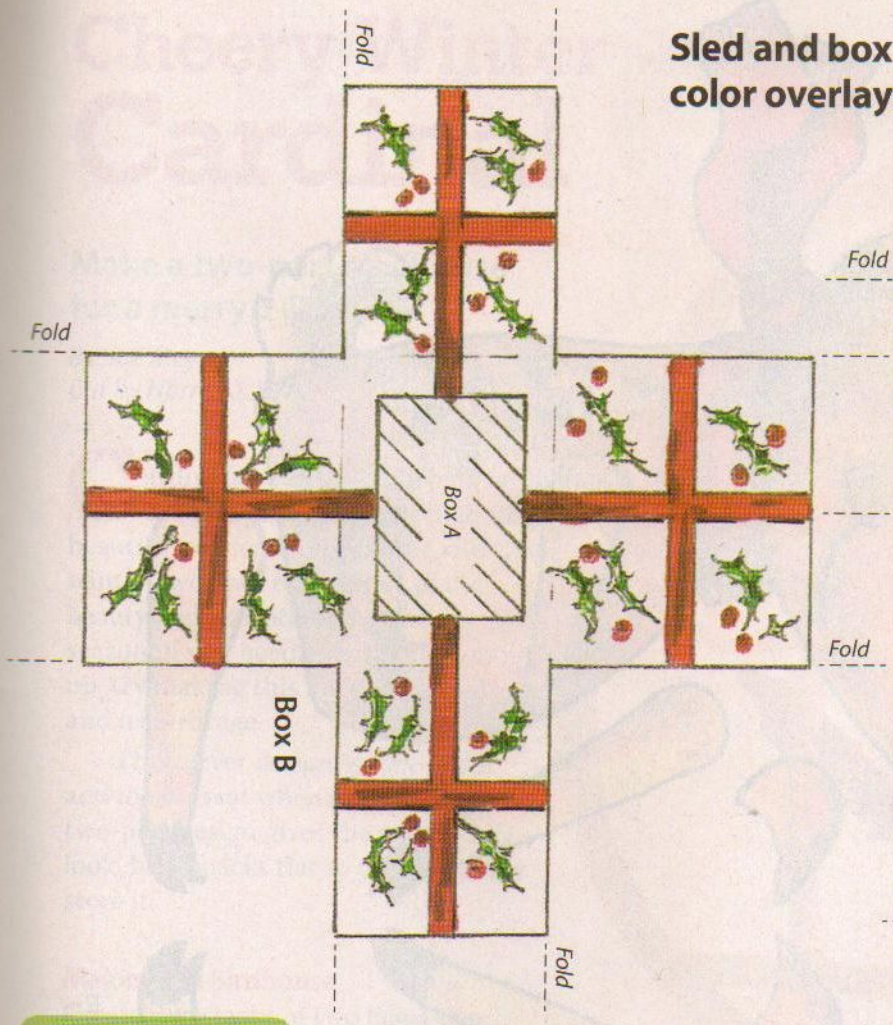


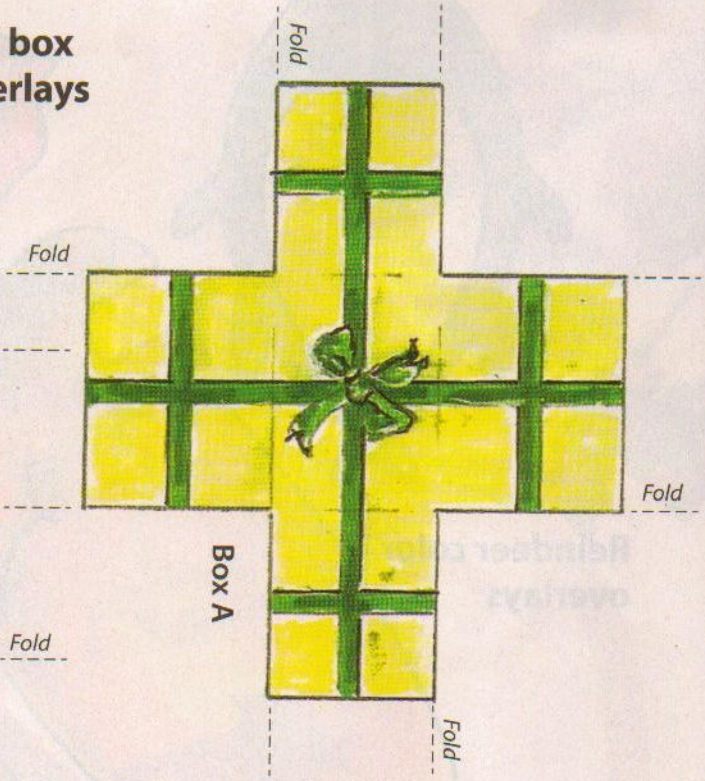


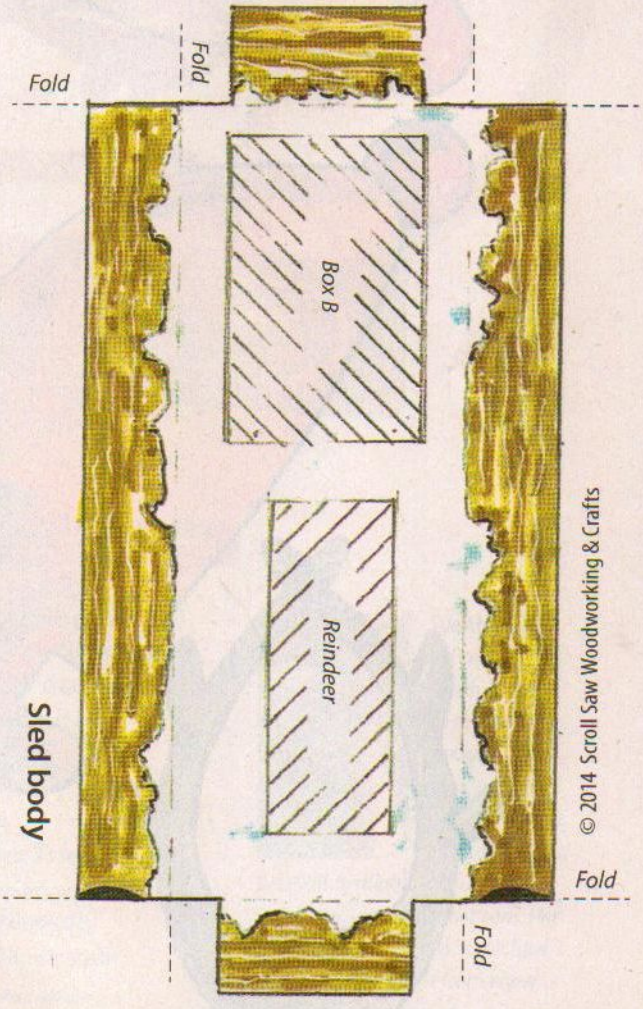
Cutting patterns



Sled and box color overlays







Parts List

Item	Dimensions	Materials	Presentation
Body	¾" x 5 ⅜" x 5 ⅜" (19 x 137 x 137mm)	Pine	Pattern
Legs	¾" x 2 ½" x 2 ¾" (19mm x 64mm x 70mm)	Pine	Pattern
Antlers & Ears	¼" x 3" x 4 ½" (6mm x 76mm x 114mm)	Pine	Pattern
Sled rails	¼" x 5" x 6 ¾" (6mm x 127mm x 171mm)	Pine	Pattern
Sled bed	½" x 1 ½" x 4 ⅛" (13mm x 38mm x 105mm)	Pine	Dimensions
Sled front bar	3/16" dia. x 2 ½" (5mm x 64mm)	Dowel	Dimensions
Box A	1 ⅛" x 1 ⅜" x 1 ⅝" (29mm x 35mm x 41mm)	Pine	Dimensions
Box B	⅞" x 1" x 1 ¼" (22mm x 25mm x 32mm)	Pine	Dimensions

Materials & Tools

Materials:

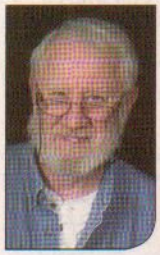
- Sandpaper: 120 grit
- Paint: red, white, black, gray, tan
- Mod Podge
- Wood glue
- Nails, small: 4 each
- Steel wool: #0000
- Finish: clear satin spray

Tools:

- Blades: #5
- Drill with bits: 3/16" (5mm), assorted small
- Paintbrushes
- Squeegee

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

Reindeer color overlays



The author of many scroll saw patterns and books, John A. Nelson still enjoys designing new projects; the color concept is his latest brainstorm. John lives in Narragansett, R.I., where he visits the beach and plays the piano. He has given up the bagpipes.

Cheery Winter Cardinal

Make a two-part birdhouse for a merry 3-D look

By Sue Mey
Cut by Norm Nichols

Cardinals have always been a symbol of Christmas. The way their bright, beautiful red feathers contrast with the wintery weather reminds us of the beauty and warmth of the holiday season. If you need a winter pick-me-up, try making this happy cardinal and its birdcage.

This clever design is easy to cut and looks great when assembled. Its two-part design gives the piece a 3-D look, but it packs flat so you can safely store it.

Making the Birdhouse

Create two stacks of two blanks each (see page 70 for stacking tips). Cover the top of each stack with blue painter's tape, and use spray adhesive or a glue stick to attach a pattern to each one. (The stack supports the fragile fretwork.) Drill 1/16" (2mm)-diameter blade-entry holes and cut the frets with a #3 reverse-tooth blade. Then, cut the perimeters of the pieces. Remove the patterns and tape, and hand-sand all of the pieces. (If the bottom pieces are torn, discard them.) Remove the sanding dust, and paint both sides of the bird with red acrylic paint. When the paint is dry, apply several thin coats of clear spray varnish. Slide the two pieces together, and lock them in place with small beads of cyanoacrylate (CA) glue, if desired. Stand the birdcage on a flat surface, or thread string or chain through the top opening to hang it.

Patterns for the ***Cheery Christmas Cardinal*** are in the pattern pullout section.

Materials & Tools

Materials:

- Baltic birch plywood, 1/8" (3mm) thick: 4 each 8½" x 11" (216mm x 279mm)
- Tape: masking or blue painter's; thin double-sided
- Adhesive: temporary-bond spray or glue stick
- Acrylic paint: red
- Sandpaper
- Glue: cyanoacrylate (CA) (optional, but suggested)
- Varnish: clear spray
- Thread or chain (optional)

Tools:

- Blades: #3 reverse-tooth
- Drill press with bit: 1/16" (2mm) dia.
- Paintbrush: small

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, and a wide variety of patterns and pattern-making tutorials available for purchase, visit www.scrollsawartist.com. Her pattern book, Lighted Scroll Saw Projects, *is available from www.schifferbooks.com and other outlets.*

Chomping Shark Toy

Push this predator and watch his crunching jaws in action

By David Wakefield

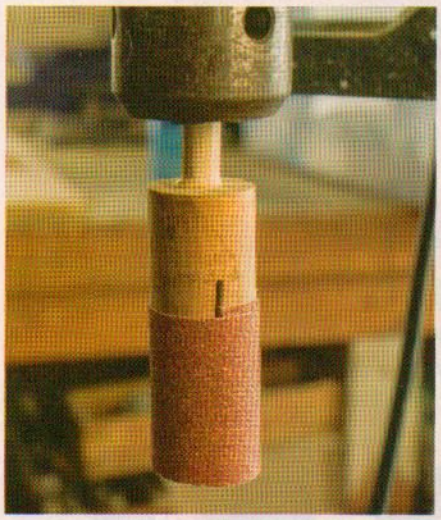
People love to hate sharks—but I bet they will adore this fearsome fellow. My wheeled land shark has authentic biting action, an aquiline physique, and creepy staring eyes, but he's more of a playmate than a predator.

This shark is one of 20 toys featured in *Animated Animal Toys in Wood.* In addition to high-quality patterns and instructions, I offer tips, techniques, and simple assembly jigs that ensure woodworkers of all skill levels can easily create these toys.

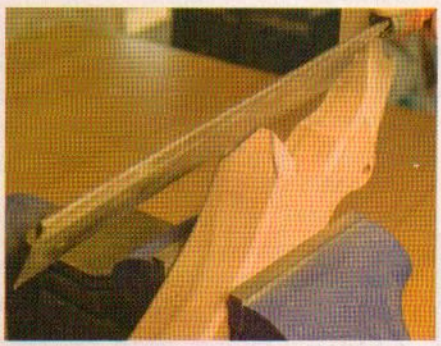
Selecting the Wood

I use cherry for toys because it is strong and light, sands to a fine finish, doesn't splinter easily, and looks good when oiled, but any hardwood will work. You could use softwood for the body, but the animated head should be made from hardwood.

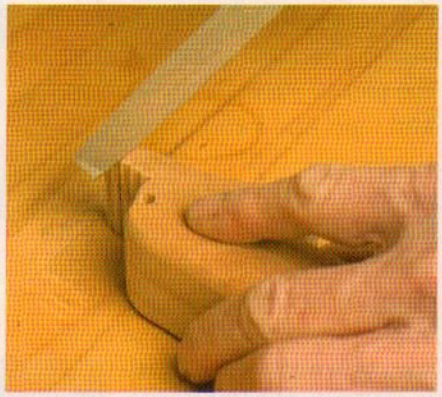
MAKING THE BODY



Step 1: Make the body. Transfer the body pattern (A) to the blank. Cut the perimeter, and sand it with a sanding drum with 80- and then 120-grit sandpaper. To sand the curves of the dorsal fin, I made a sanding drum by cutting a slot in the end of a dowel, inserting one end of a strip of sandpaper in the slot, wrapping the sandpaper around the dowel, and securing it with tape. After sanding, round the edges of the body with a router and ¼" (6mm)-radius quarter-round bit (I use a carbide bit with a roller bearing to minimize burning).

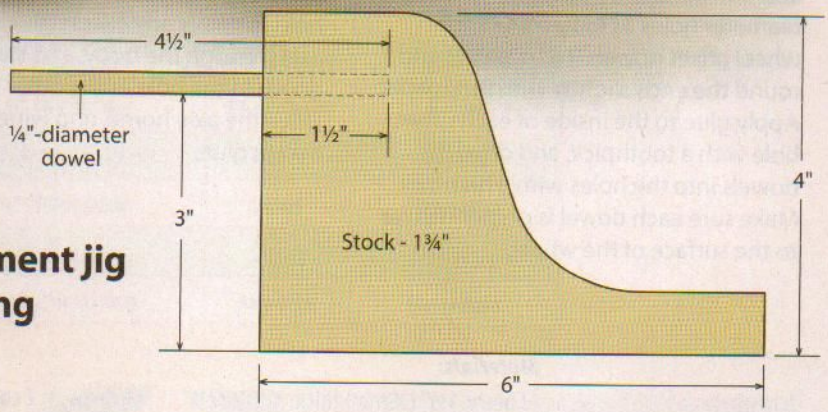


Step 2: Rough-shape the tail and fins. Transfer the top view of the tail (A2) to the blank. Hold the blank firmly on the saw table and cut the sides of the tail. Sand the edges with the sanding drum and 80-grit and 120-grit sandpaper. Sketch the dorsal fin and then use a handsaw to cut away the sides.



Step 3: Refine the tail, fins, and bottom jaw. Clamp the body in a vise with the tail sticking up at a 45° angle. Rasp and then file the edges of the newly sculpted tail and dorsal fin.

Then, hand-sand the sides of the tail and dorsal fin with the grain to remove all of the cross-grain scratches, using first 80- and then 120-grit sandpaper. File the edges of the teeth from both directions with a small flat file, making a clean bevel on each tooth. Hand-sand the routed edges of the body.



Alignment jig drawing

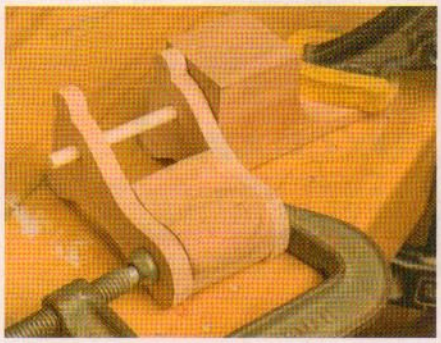
MAKING THE ADD-ONS

Step 4: Make the pectoral fin. Transfer pattern F to the blank, cut the perimeter, and sand the edges with a sanding drum using 80- and 120-grit paper. Soften the edges by hand-sanding with 80- and 120-grit sandpaper.

Step 5: Cut and shape the head side pieces. Transfer pattern C to the blanks, and drill the eyeholes. Cut the pieces and edge-sand them with 120-grit sandpaper, except where the spacer will meet the edges (this will be sanded after assembly). Flat-sand both sides of the pieces with 80- and 120-grit sandpaper. Use a small flat file to put a clean bevel on the outside edges of each tooth.

Step 6: Cut the head spacer. Transfer pattern B to the blank, leaving extra wood around the spacer to make it easier and safer to cut. Do not cut along the top of the nose yet; sand the edges with 80-grit and then 120-grit sandpaper first. Then, cut along the top of the nose, but do not sand this section yet.

Step 7: Make a simple alignment jig. Use the drawing above to create a simple alignment jig to ensure the elements of the head are aligned properly. This jig can also be used for many other animated toys.



Step 8: Glue the head together. Apply glue to the sides of the head spacer (B), working it away from the edges to avoid squeeze-out. Use the alignment jig to clamp the head sides (C) to the spacer, and allow the glue to dry. Edge-sand the top and front of the jaw with 80- and 120-grit sandpaper. Then, attach the top view pattern (page 68) to the head and cut away the sides of the nose. Edge-sand and then hand-sand the nose with 80-grit and 120-grit sandpaper with the grain to remove the cross-grain scratches. Hand-sand the edges with 120-grit sandpaper.

Step 9: Prepare the wheels and offset dowels. If you don't purchase pre-made wheels, use a 1¾" (44mm) inside diameter hole saw or patterns D and E to cut the wheels. Drill 5/16" (8mm)-diameter holes as marked. Cut the wheel offset dowels (H) to length and round the ends slightly with sandpaper. Apply glue to the inside of each offset hole with a toothpick, and drive the dowels into the holes with a hammer. Make sure each dowel is perpendicular to the surface of the wheel.

ASSEMBLING THE TOY

Step 10: Attach the head to the body. Apply glue to the inside of each eyehole in the body. Place the head in position, slide one eye peg (I) through the eyehole in the head, and continue sliding it into the hole in the body by giving it a little twist. Use a hammer to tap it in until the clearance between the head and body is about 1/16" (2mm) (see Clearance Gauge Tip at right). Repeat the process for the other side.

Step 11: Attach the back wheels. Cut the axle dowels (G) to length and round the ends with sandpaper. Apply a little glue to the insides of the wheel axle holes. Place one wheel on top of waxed paper (to keep glue off the bench) and drive the dowel into the hole. Remove any excess glue, slide the axle through the body, and start the dowel in the hole in the other wheel. Drive the axle home, and wipe off any excess glue.

TIP

CLEARANCE GAUGE

When using a peg to attach one part of a toy to another, you must leave a tiny clearance between the peg head and the toy, or the parts will bind. A homemade clearance gauge can help you drive pegs into the proper depth every time. I use a band saw to cut a modified wedge shape into a piece of scrap. Keep one edge flat, but trim about half of the other side down to 1/16" (2mm). Cut a 1/4" (6mm)-wide groove in the thin side to accommodate the dowels. (See photo at left.)

Step 12: Attach the front wheels. Repeat the process explained in Step 11 to attach one wheel to the axle dowel. Insert the axle through the body. Position the offset dowels (already attached to the wheels) so that one dowel is up and one dowel is down, and attach the remaining wheel to the axle. Be sure not to make them so tight that the head is pinched. If this happens, saw the axle assembly apart, cut the dowels flush, re-drill the axle holes, cut a new (longer) dowel, and try again. Remove any excess glue, and edge-sand the axle ends when the glue has set up.

Step 13: Attach the pectoral fin. Glue and clamp the pectoral fin (F) into the slot on the bottom of the body.

Materials & Tools

Materials:

- Cherry, 1½" (38mm) thick: 3½" x 12¼" (38mm x 311mm)
- Cherry, 1" (25mm) thick: 1⅝" x 2¼" (41mm x 57mm)
- Cherry, ½" (13mm) thick: 1½" x 6" (38mm x 152mm)
- Cherry, ⅜" (10mm) thick: 1¾" x 7" (44mm x 178mm)
- Wooden wheels, ½" (13mm) thick: 4 each 1¾" (44mm)-dia.
- Dowel, 5/16" (8mm) dia.: 9" (229mm) long
- Axle pegs: 2 each 7/32" (5.5mm) dia. x 1 1/16" (27mm) long
- Sandpaper: 80-, 120-grit
- Glue: wood
- Waxed paper
- Oil finish

Tools:

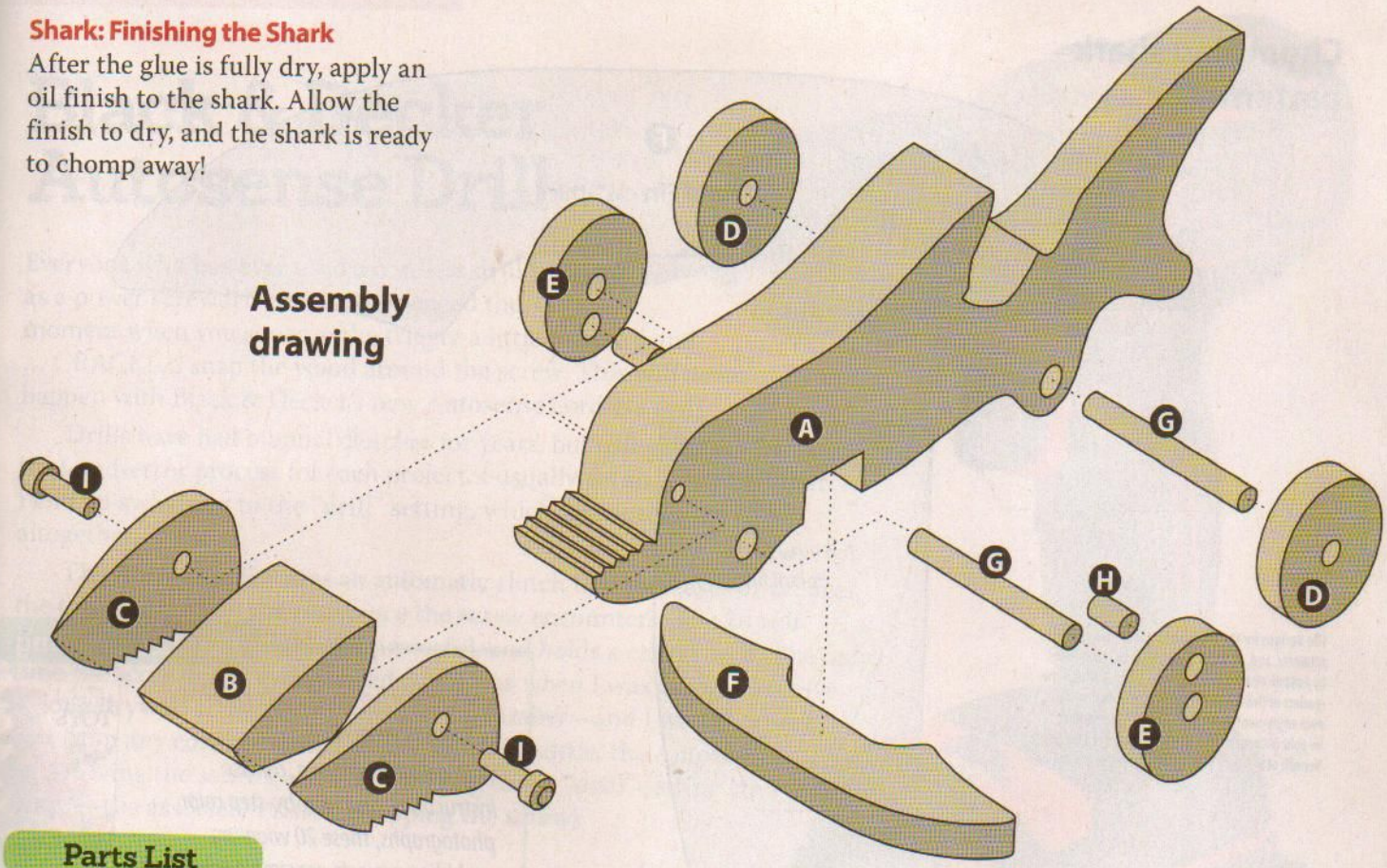
- Scroll saw blades: #9 or #12
- Drill press with bits: 7/32" (5.5mm), 9/32" (7mm), 5/16" (8mm), ⅜" (10mm); sanding drum
- Router with bit: ¼" (6mm)-radius carbide quarter-round with roller bearing
- Hand saw
- Wood rasp
- File: small flat
- Clamps
- Hammer
- Assembly jig (see Step 7)
- Clearance gauge (see TIP)

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

Shark: Finishing the Shark

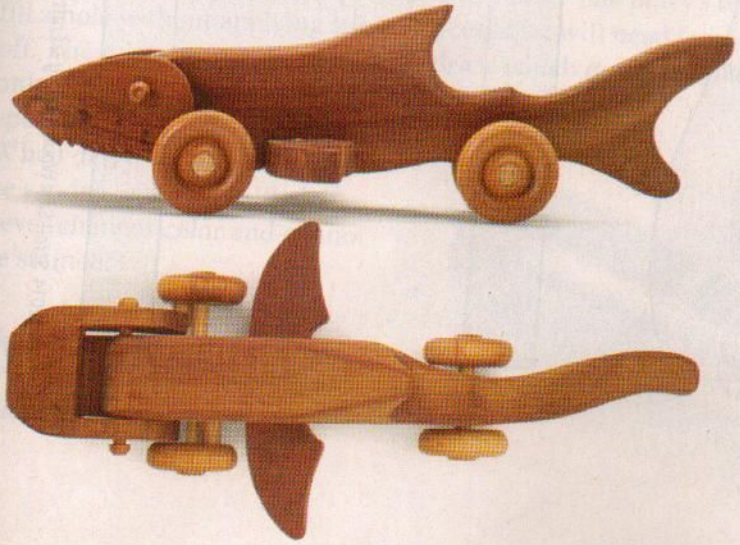
After the glue is fully dry, apply an oil finish to the shark. Allow the finish to dry, and the shark is ready to chomp away!

Assembly drawing

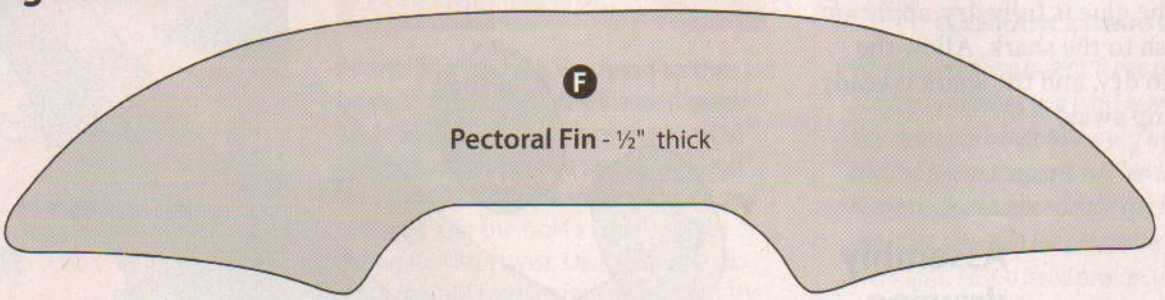


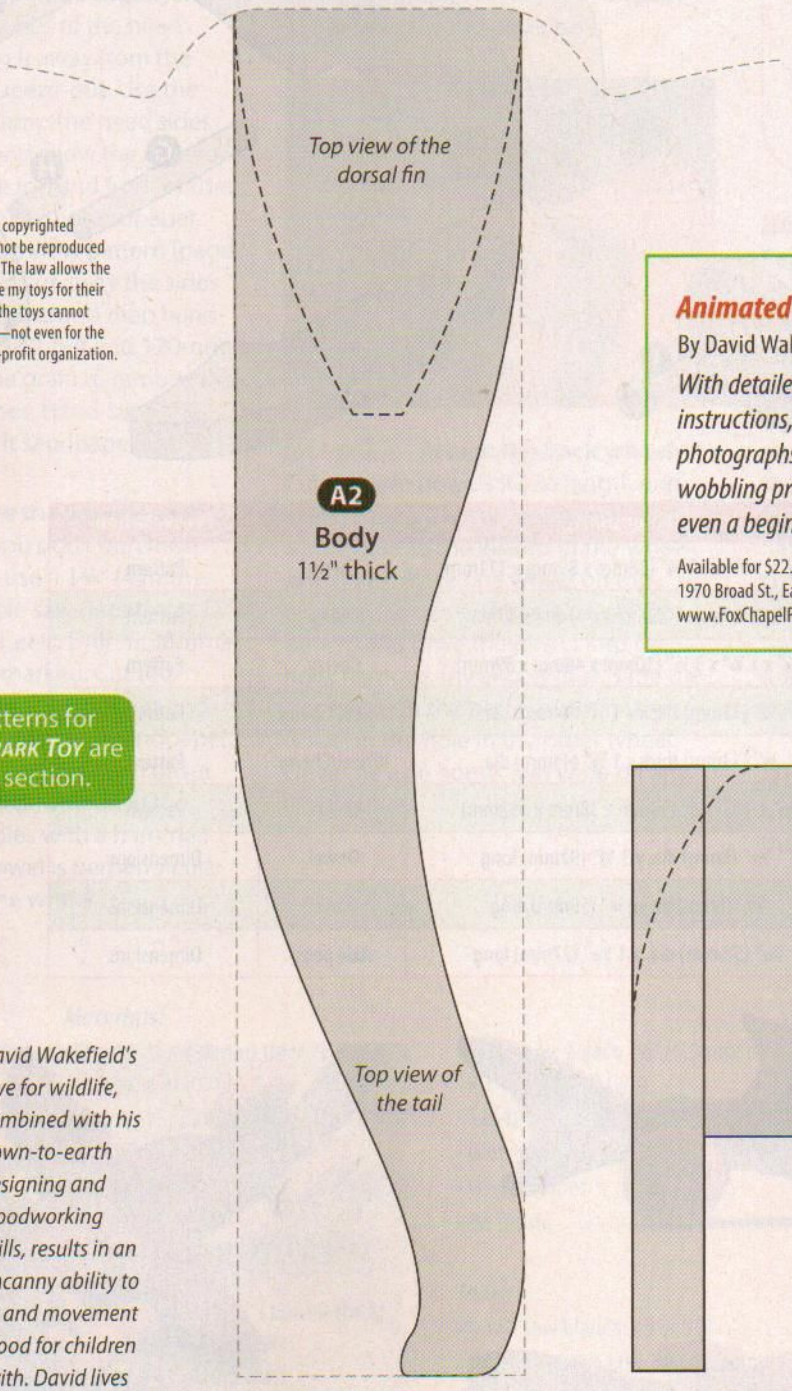
Parts List

	Description	Quantity	Dimensions	Material	Presentation
A	Body	1	1 ½" x 3 ½" x 12 ¼" (38mm x 89mm x 311mm)	Cherry	Pattern
B	Head spacer	1	1" x 1 ⅝" x 2 ¼" (25mm x 41mm x 57mm)	Cherry	Pattern
C	Head sides	2	⅜" x 1 ¾" x 3 ½" (10mm x 44mm x 89mm)	Cherry	Pattern
D	Rear wheels	2	½" (13mm) thick x 1 ¾" (44mm) dia.	Wheel/Cherry	Pattern
E	Front wheels	2	½" (13mm) thick x 1 ¾" (44mm) dia.	Wheel/Cherry	Pattern
F	Pectoral fin	1	½" x 1 ½" x 6" (13mm x 38mm x 152mm)	Cherry	Pattern
G	Axles	2	5/16" (8mm) dia. x 3 ⅝" (92mm) long	Dowel	Dimensions
H	Wheel offset dowels	2	5/16" (8mm) dia. x ¾" (19mm) long	Dowel	Dimensions
I	Eyes	2	7/32" (5.5mm) dia. x 1 1/16" (27mm) long	Axle pegs	Dimensions



Chomping shark pattern





Additional patterns for the ***Chomping Shark Toy*** are in the pullout section.

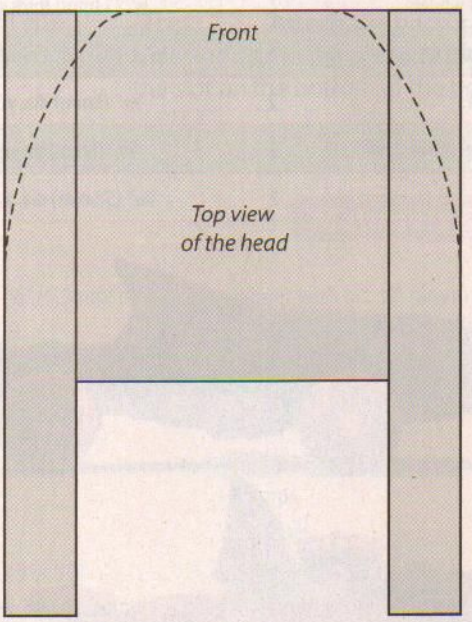
Further Reading

Animated Animal Toys in Wood

By David Wakefield

With detailed patterns, concise instructions, and step-by-step color photographs, these 20 wiggling, wobbling projects are simple enough for even a beginner to complete in a weekend.

Available for $22.99 + $3.99 S&H (parcel post) from Fox Chapel Publishing, 1970 Broad St., East Petersburg, Pa., 17520, 800-457-9112, www.FoxChapelPublishing.com, or check your local retailer.



David Wakefield's love for wildlife, combined with his down-to-earth designing and woodworking skills, results in an uncanny ability to capture the character and movement of creatures in hardwood for children (and adults) to play with. David lives in Ohio, where he has been designing toys for 35 years.

Black & Decker Autosense Drill

Everyone who has ever used a cordless drill as a power screwdriver has experienced the moment when you squeeze the trigger a little too hard and ... CRACK! ... snap the wood around the screw. This will never happen with Black & Decker's new Autosense cordless drill.

Drills have had manual clutches for years, but using one is often a trial-and-error process for each project. I usually get so frustrated that I end up switching to the "drill" setting, which disengages the clutch altogether.

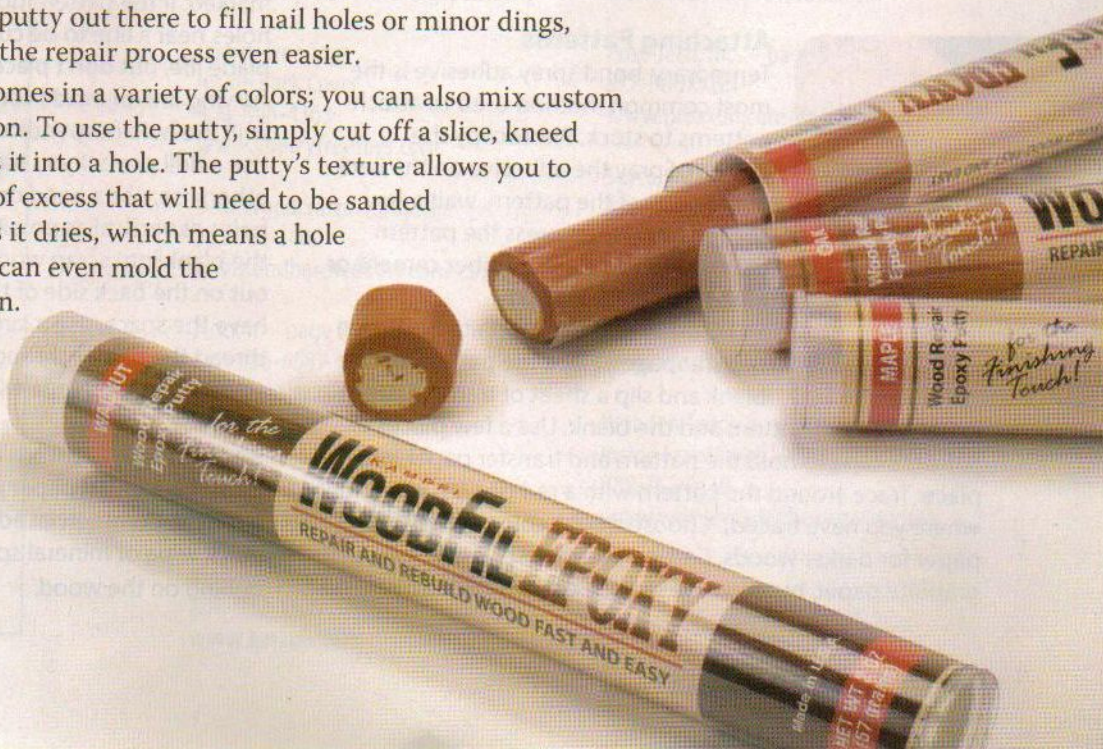
The Autosense features an automatic clutch that increases or reduces the torque based on the resistance the screw encounters. The 20 volt lithium ion battery is light and powerful, and holds a charge well. The only time the screwdriver even slowed down was when I was using it to drive 3"-long drywall screws into construction lumber—and I would expect that from any cordless drill. Despite slowing a little, the Autosense kept driving the screws without resorting to the "drill" setting (and without the associated risk of snapping the screw).

The Black & Decker Autosense Drill is available at many retailers for $79. Visit www.blackanddecker.com to find a local retailer.

Kampel's WoodFil Epoxy

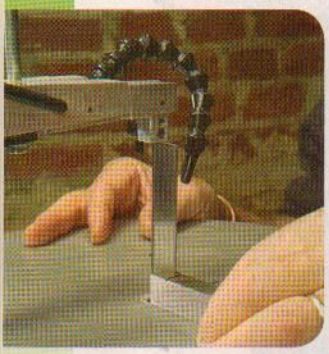
While there is a variety of wood putty out there to fill nail holes or minor dings, Kampel's WoodFil Epoxy makes the repair process even easier.

This two-part epoxy putty comes in a variety of colors; you can also mix custom colors using the standard selection. To use the putty, simply cut off a slice, kneed it to mix the two parts, and press it into a hole. The putty's texture allows you to fill a hole without applying a lot of excess that will need to be sanded off. The epoxy does not shrink as it dries, which means a hole only needs to be filled once. You can even mold the epoxy to repair a damaged section. When dry, the epoxy patch can be sanded, cut, and drilled. It never changes color and cannot be stained.



The WoodFil Epoxy is available for $10.60 per tube from www.americantechnologyinc.com.

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 ¾" (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 1¾" (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

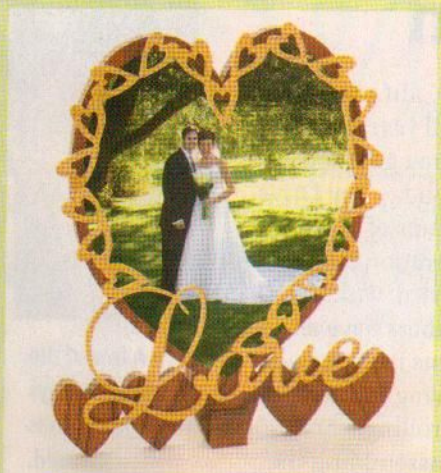
Some patterns have blade-entry holes marked. If the pattern doesn't, place the holes near a line to be cut to prolong the blade life, but don't place the hole on a curving line or inside corner (if possible). Drill the hole perpendicular to the blank. Use a drill press if you have one; otherwise, use 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...

Fill these delightful cupcake boxes with candy, toys, or trinkets.



Display your favorite photo in this elegant frame.

Young scroller designs simple sports puzzles.

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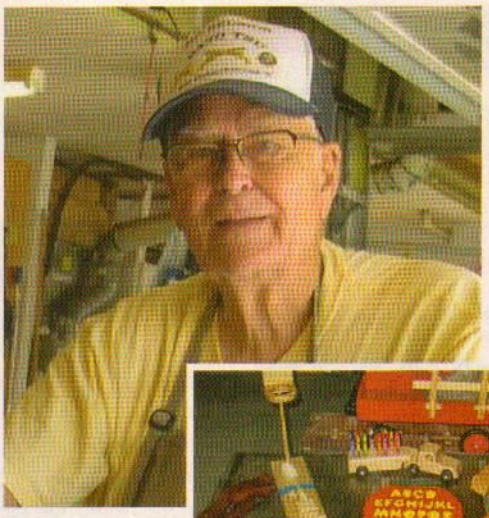
ADVERTISING DIRECTORY

Holiday Toys For Needy Children

Woodworkers from the Orange County (Calif.) Scroll Saw Association reflect on the holidays all year long. Throughout the year, they are busy creating gifts for needy children as part of their annual Holiday Toy Drive. Since 2002, the club has provided thousands of toys for local groups and charities, including Operation Santa Claus in Santa Ana and Homefront America, which helps military families. Association members have also donated handmade toys to wildfire victims in the region and the children of service members serving in Iraq. Approximately 56 members help with scrolling, carving, drilling, routing, sanding, painting, and assembling the toys either on their own or at monthly meetings. The toy lineup includes, but is not limited to, hand-cut wooden cars, tanks, trucks, trains, airplanes, animals, jigsaw puzzles, alphabet boards, table-top basketball games, and jewelry boxes.

"When we first started, we made 385 toys and donated to 10 charities. Then, we hit a record of 4,565 toys for 33 organizations," said Donald Borchardt, the chairman of the toy drive for the past eight years. When all of the toys are completed, the members carefully box them up, load them into their cars, and deliver their labors of love just in time for the holidays.



Donald Borchardt has been the chairman of the toy drive for the past eight years.

A few of the thousands of toys that the club has created.

"There is a great deal of joy and satisfaction knowing that, because of our efforts, some child will get a toy who might otherwise get nothing," Donald added.

For more information, visit www.ocssa.us.

Ornaments For Charity

Each holiday season since 2010, Scroll Saw Village, an online community of scroll saw enthusiasts, has presented *Ornaments For Charity*, a free e-book filled with original ornament patterns exclusively designed by its members. In exchange, the organization hopes that those who download the e-book will make a donation to a charity of their choice, such as Toys For Tots, Make-A-Wish, Habitat for Humanity, or Feeding America. Donations can include money, goods, or time.

"This isn't about buying an e-book of patterns. It's more of a nudge to get folks to help those in need. We hope they'll dig deep when donating," said Travis Cook, the administrator of Scroll Saw Village and publisher of *Ornaments For Charity*. "We don't monitor the donations. Instead, we rely on the honor system, knowing the people of the scroll saw community have kind and generous hearts."

The e-book contains only ornament patterns in a mix of traditional, secular, and religious designs. "We try very hard to include patterns for all the different religions and traditions that celebrate during this time of year," Travis said. The current edition has 30 pages with 105 patterns. Because more patterns are added each year, the 2014 issue is expected to expand that offering substantially. According to Travis, it will be available for download on Thanksgiving Day. "We sincerely hope that everyone will enjoy these patterns and wish them happy holidays from the Scroll Saw Village!" he added.

For more information, visit www.scrollsawvillage.com.

Travis Cook shows one of the free designs offered in Ornaments for Charity.

The eBook of ornament patterns includes traditional, secular, and religious designs.

Your Vision. Our Tools.

"I totally endorse Guinevere Tools.

It is the best tool I've ever used along with my scroll saw.

Guinevere makes me feel like all projects are possible."

Mike Seale
Sugarland, Texas

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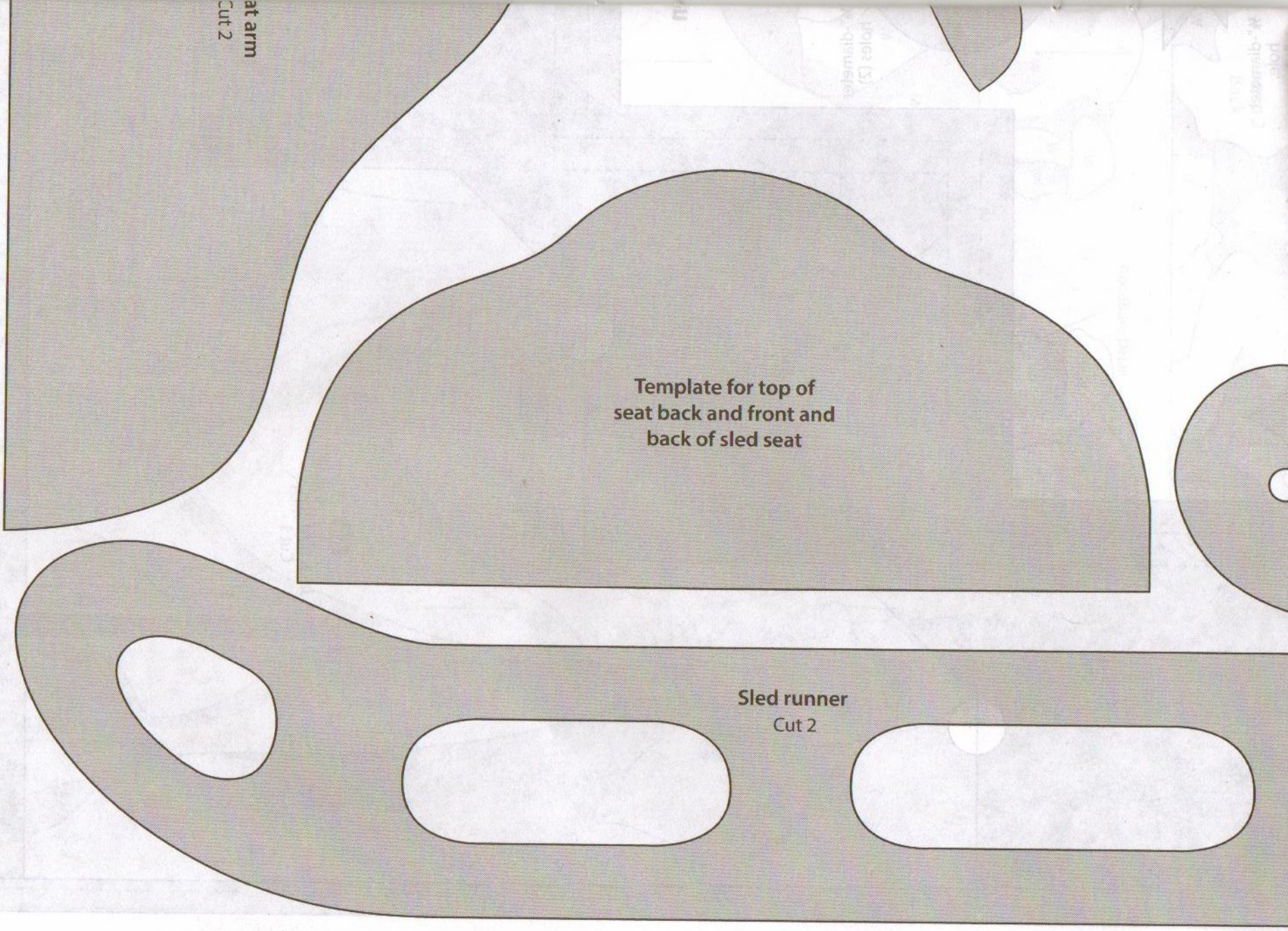
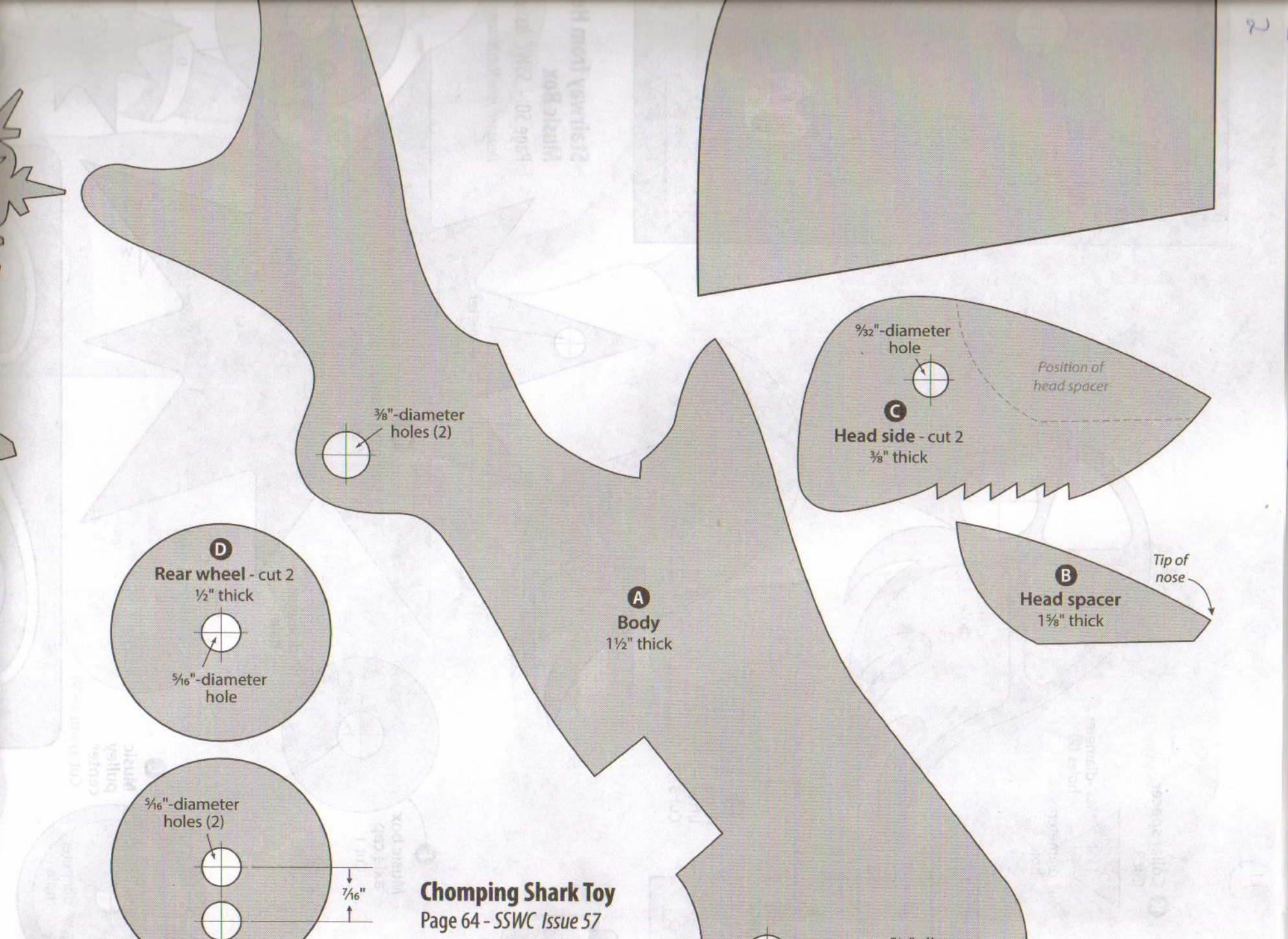

at arm
Cut 2
Template for top of
seat back and front and
back of sled seat
Sled runner
Cut 2



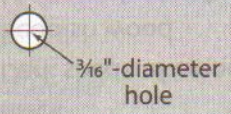
Chomping Shark Toy

Page 64 - *SSWC Issue 57*

Stairway from Heaven Music Box

Page 50 - *SSWC Issue 57*

Designer: John Hutchinson



Y **Treads**
Cut 3

Notice about p

Some photocopi
distort patterns v
them slightly off-
Use the 1" bar pri
when copying th
photocopies of t
to check for
any distortion.

E **Front wheel** - cut 2
½" thick

4

otocopying patterns

and home printers can
en you print them, making
e or stretching the image.
ed below as a guide
atterns and hold the
pattern up to the original

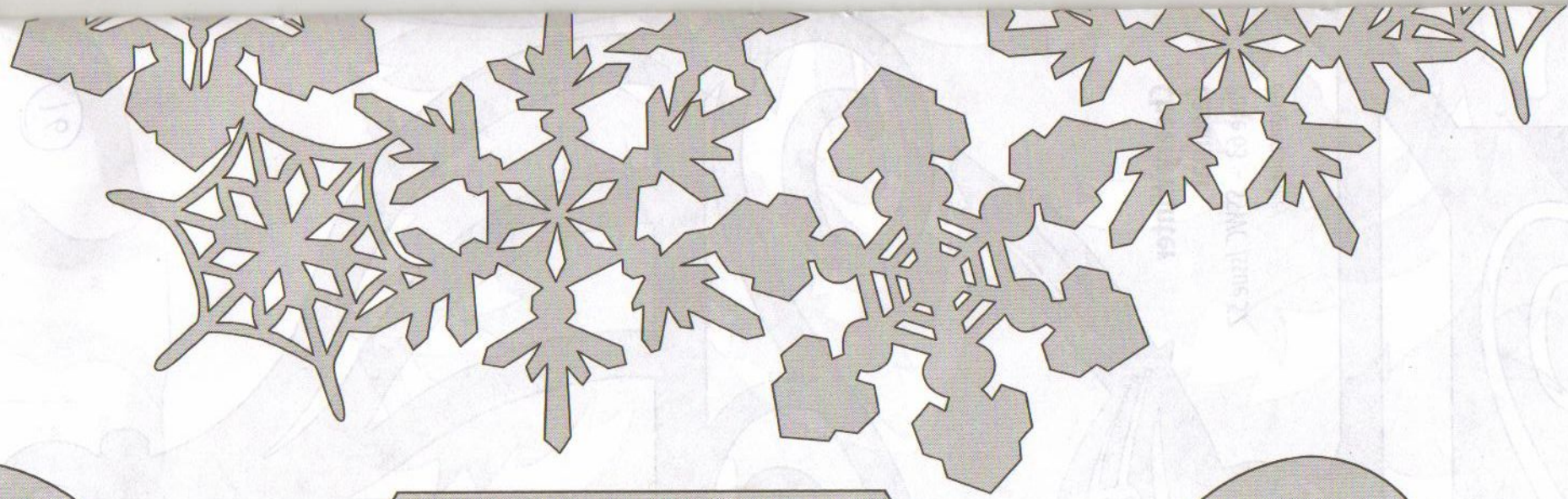
ne inch

SCROLL SAW woodworking & CRAFTS

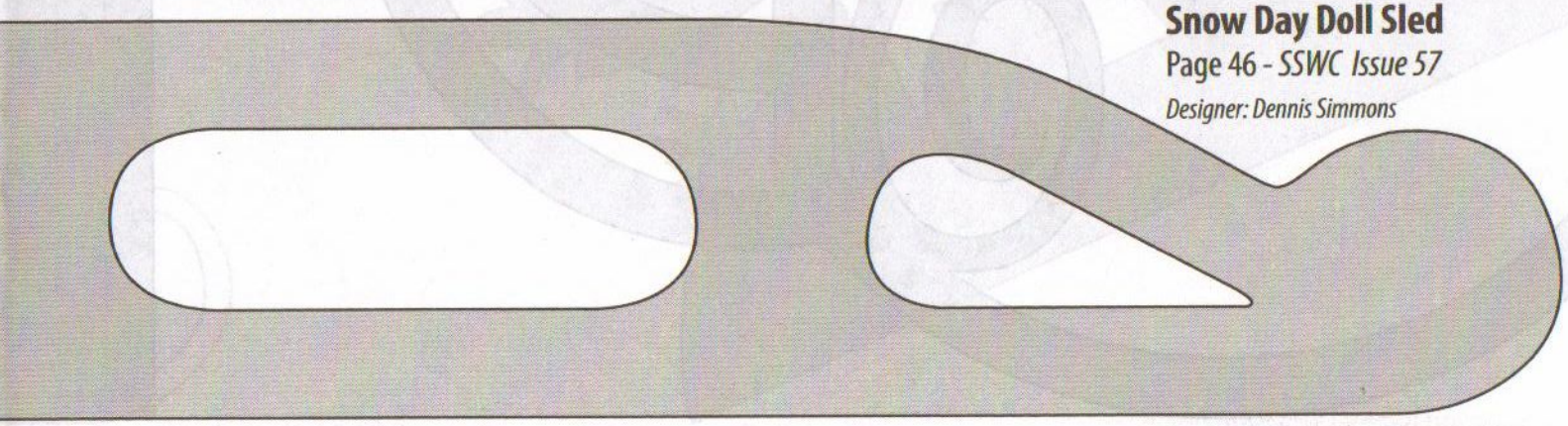
Holiday 2014 - Issue 57

1970 Broad Street
East Petersburg, PA 17520

All patterns to be copied at 100% unless otherwise indicated.



Sled rudder



Snow Day Doll Sled

Page 46 - *SSWC Issue 57*

Designer: Dennis Simmons

Dazzling Snowflake Wreath

Page 14 - *SSWC Issue 57*

Designer: Alison Tanner

United States Wildlife Puzzle

Page 20 - *SSWC Issue 57*

Designer: Brian and Alexis Beals


Painting guides


Sheep 2
Back
hand is an overlay
on top of the sleeve
Woodburn Detail
Woodburn Detail
Eyes Black
Shepherd
Front
©2014 Kathy Wise Designs
PO Box 60, Yale, MI 48097
kathywise@bignet.net
www.kathywise.com

3-D Intarsia Shepherd and Sheep

Page 23
SSWC Issue 57

Designer: Kathy Wise

Legend

Start with ¾" or 1" wood

- Grain direction
- B..... Black
- D..... Dark shade of wood
- R..... Reddish wood
- M..... Medium shade of wood
- L..... Light shade of wood
- W..... Any white wood
- .....Shaping guide
- Riser
- Overlays

I **Angel outer body**
Cut 6

Wing pivot holes

5/64"-diameter holes (9)

MM **Halo** - cut 3

⅛"-diameter hole

N **Hand**
Cut 6

5/64"-diameter hole

JJ **Pulley mount**
Cut 2

7/16"-diameter hole

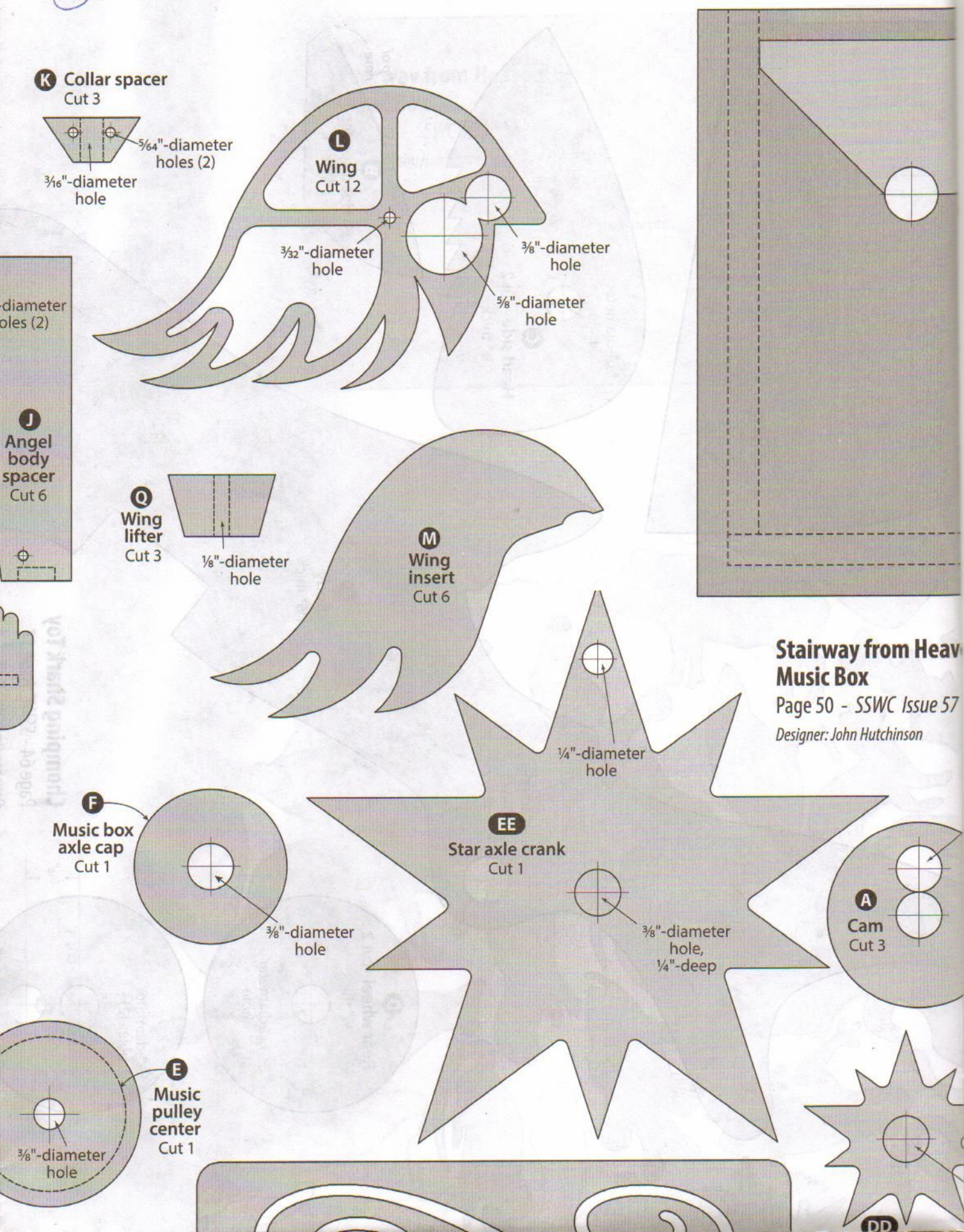
G **Music box axle crank cap**
Cut 1

⅜"-diameter hole

D **Music pulley flange**
Cut 2

Sheep 2 Back

(11)



Stairway from Heav
Music Box
Page 50 - *SSWC Issue 57*
Designer: John Hutchinson

Jack stringer
Cut 1
AA
7⁄16"-diameter
holes (3)
Stringer
Cut 2
Z
ameter
es (2)
diameter
hole,

Centerpiece Christmas Tree

Page 19

SSWC Issue 57

Designer: Gloria Cosgrove and Alison Tanner


W
W
D
H
Axle washer
Cut 3
3/8"-diameter hole
Pulley flange
Cut 9
C
Pulley center
Cut 5
3/8"-diameter hole

Star axle cap
Cut 5

Stairway from Heaven Music Box
Page 50
SSWC Issue 57
Designer: John Hutchinson

U **Stair back**
(partial pattern)

This side attaches to the stringer

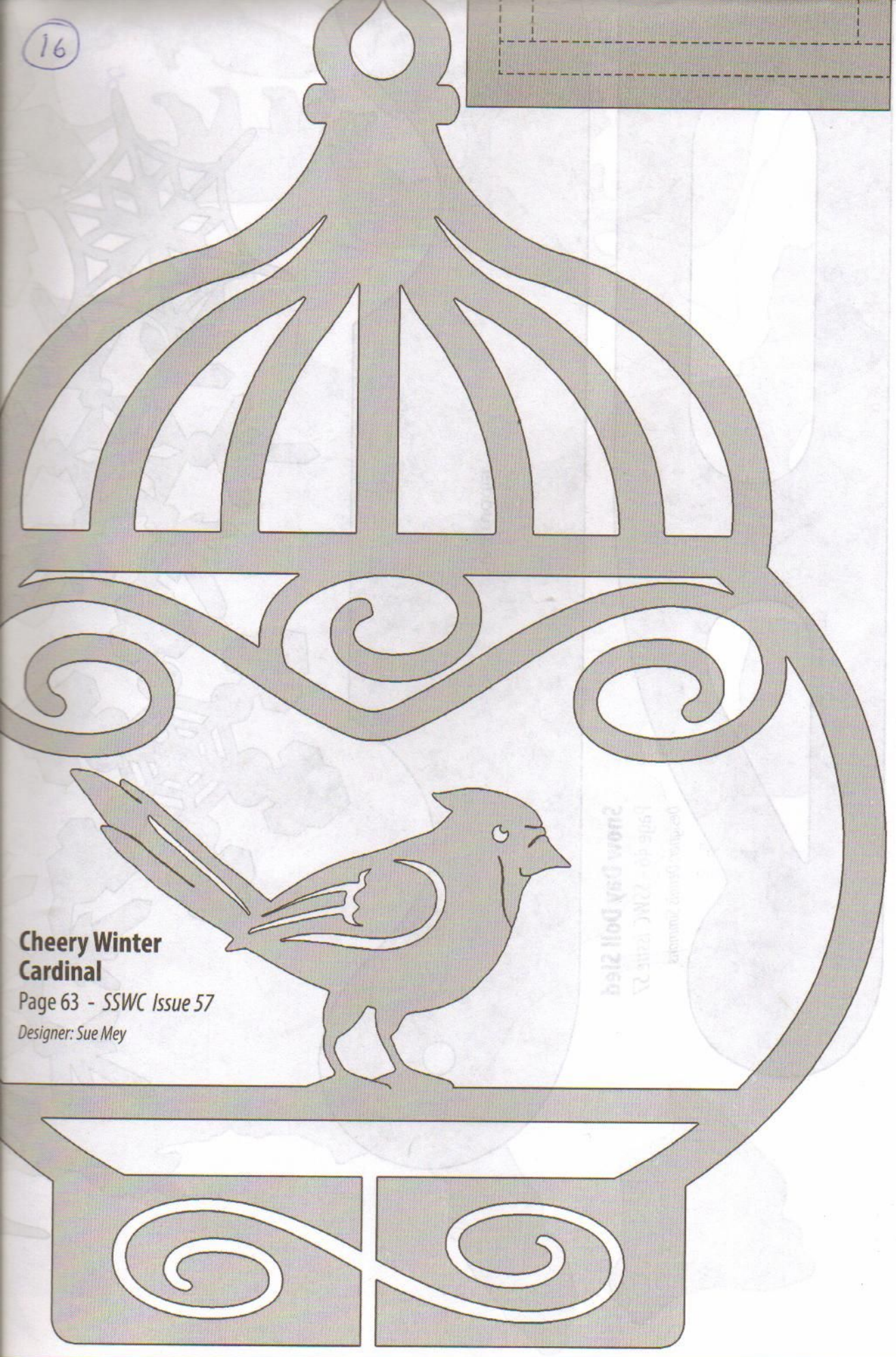
Bottom of staircase

Z

Notice about photocopying patterns

Some photocopiers and home printers can distort patterns when you print them, making them slightly off-size or stretching the image. Use the 1" bar printed below as a guide when copying the patterns and hold the photocopies of the pattern up to the original to check for any distortion.

One inch



Cheery Winter Cardinal

Page 63 - *SSWC Issue 57*

Designer: Sue Mey