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ISSUE 77

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*Snowman &
Chickadee
by Judy Gale
Roberts (p. 17)*



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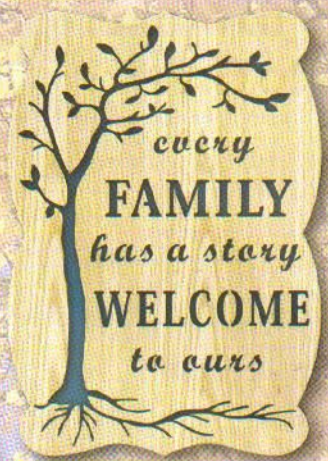
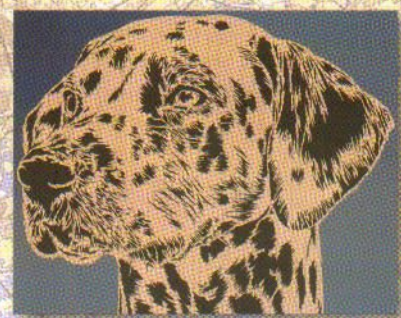
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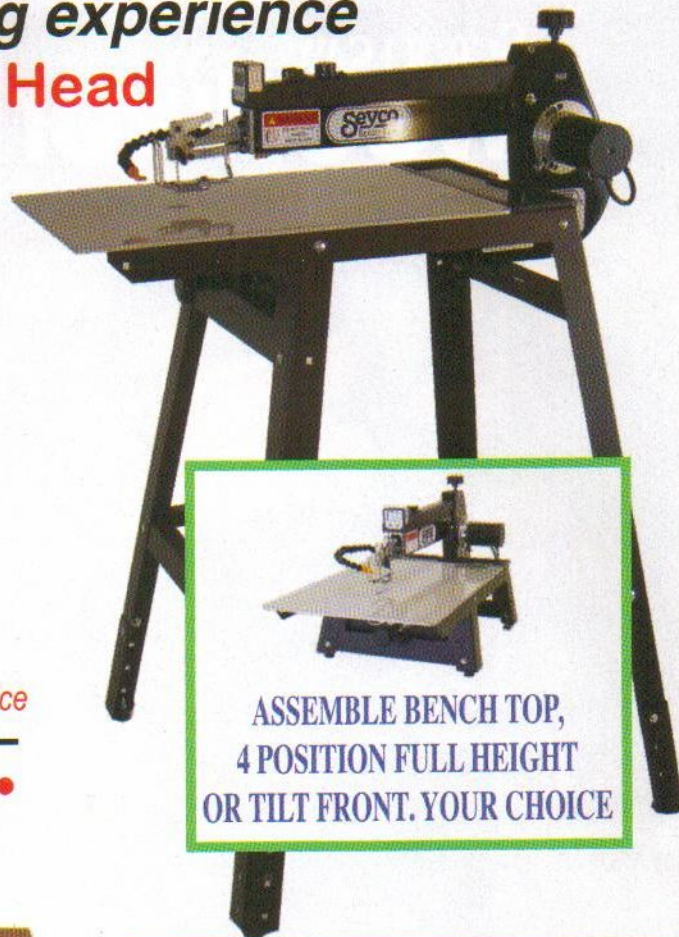
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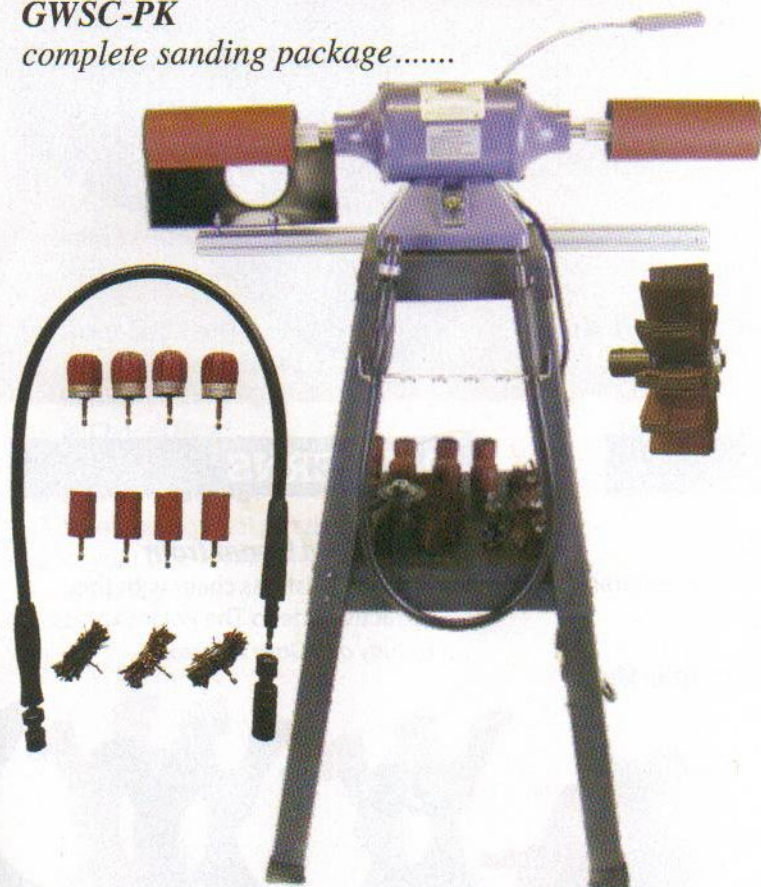


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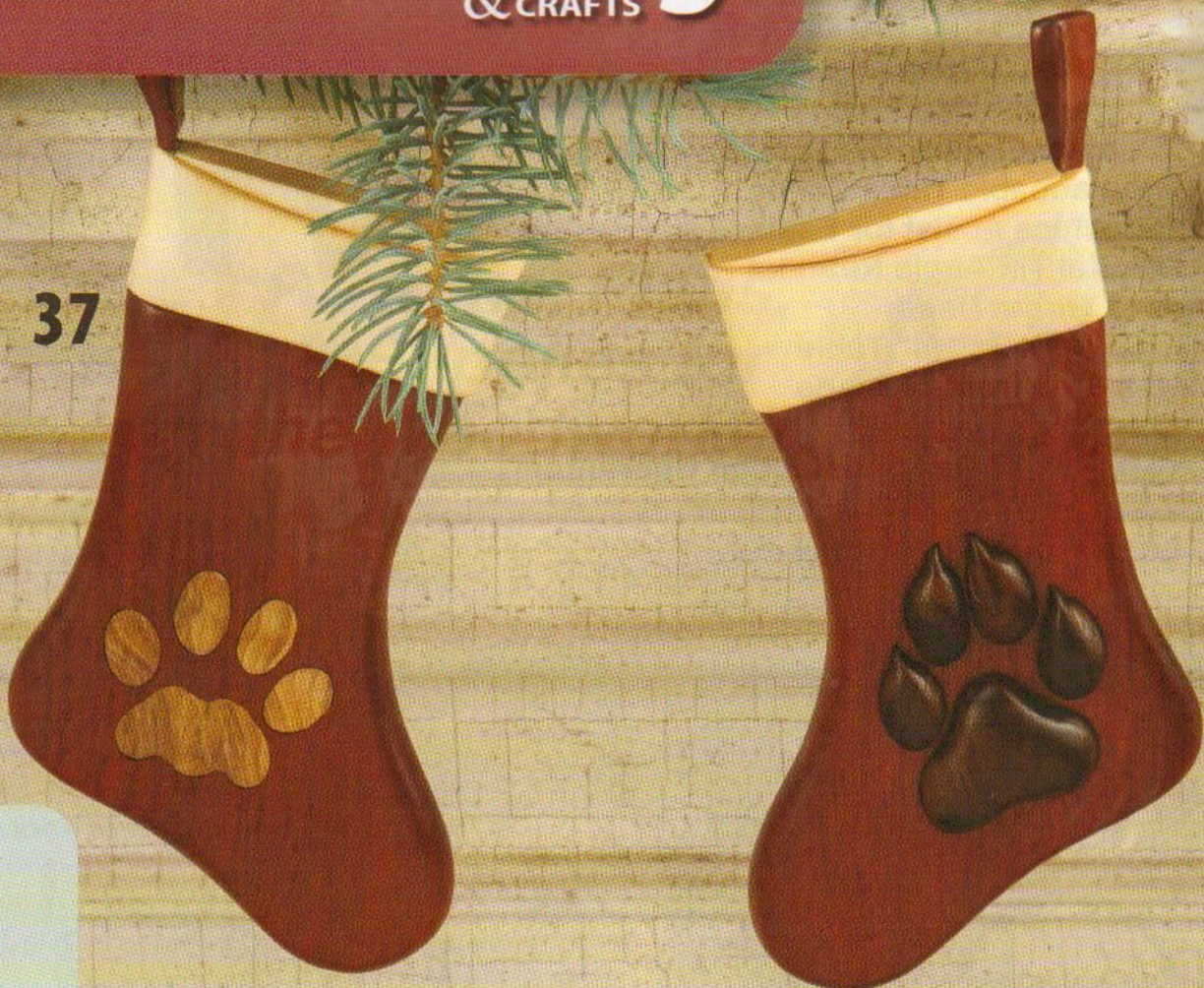


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SCROLLSAW Woodworking & CRAFTS

37



DEPTS.

- 4 Editor's Note
- 6 Reader Gallery
- 8 Letters
- 9 News and Notes
- 12 Product Review
- 70 Coming Features
- 70 Ad Directory
- 72 Sawdust

COVER

- Exquisite Ornaments ... 31, 37, 44
- Wooden Puzzles & Pull Toys ... 20, 24, 72
- Handsome Woodie ... 31
- Snowman & Chickadee ... 17

FEATURES

- 46 Spotlight: Chris Maynard**
This artist cuts birds of a feather—literally!
By Danielle Schagrin
- 66 Should You Add a Lathe to Your Shop?**
Turn this tool into a useful scroll saw companion
By Kaylee Schofield
- 68 Wood Profile: Redheart**
Don't let its density deter you from falling in love with this tropical hardwood
By Bob Duncan

PATTERNS

- 20 Hardwood Steam Train**
Spread Christmas cheer with this attractive ode to The Polar Express
By Judy and Dave Peterson

28



PROJECTS

72

22 **Soaring Angel Fretwork**

Craft a celestial scene with a folk art twist

By Carole Behrer

24 **Old-Timey Pull Toys**

Scroll every inch of these classic designs—even the wheels!

By John A. Nelson

34 **Rustic Winter Scene**

Use tree branches to create a moonlit sleigh ride through the forest

By Armin Täubner

42 **Gift Wine Tags**

Make any occasion special with these elegant, easy-to-cut mementos

By Anna Bondoc

44 **Modern Ornaments**

Trim your tree with these clever takes on a snowman and snowflake

By Anna Bondoc

49 **Perchers Fretwork**

This stylized flock of birds will be a feather in your cap

By Chris Maynard

50 **Stylized Lion and Tiger**

Cat's out of the bag! These geometric inlay pieces are an animal-lover's dream!

By Antoinette and Stanley Wong

56 **Bear Cub Fretwork**

Use negative space to create the illusion of shiny fur

By Charles Hand

72 **Snowy Hemlock**

Scroll an arboreal puzzle for each of your tree-loving friends

By Harvey Byler

17 **Snowman & Chickadee Intarsia**

With a redheart hat and a cedar nose, Frosty just got a glow-up

By Judy Gale Roberts

28 **Mini Reindeer & Sleigh**

You know Dasher, Dancer, and the rest... now you can compound-cut them in a matter of minutes!

By Dave Van Ess

31 **Classic Woodie Intarsia**

This nostalgic car ornament feels like going home for the holidays

By Janette Square

37 **Paw Print Ornaments**

Christmas is going to the dogs (and cats)!

By Janette Square

39 **Toy Tugboat**

This vibrant vessel will charm young sailors and landlubbers alike

By Brad Anderson

54 **Elegant Italian Shelf**

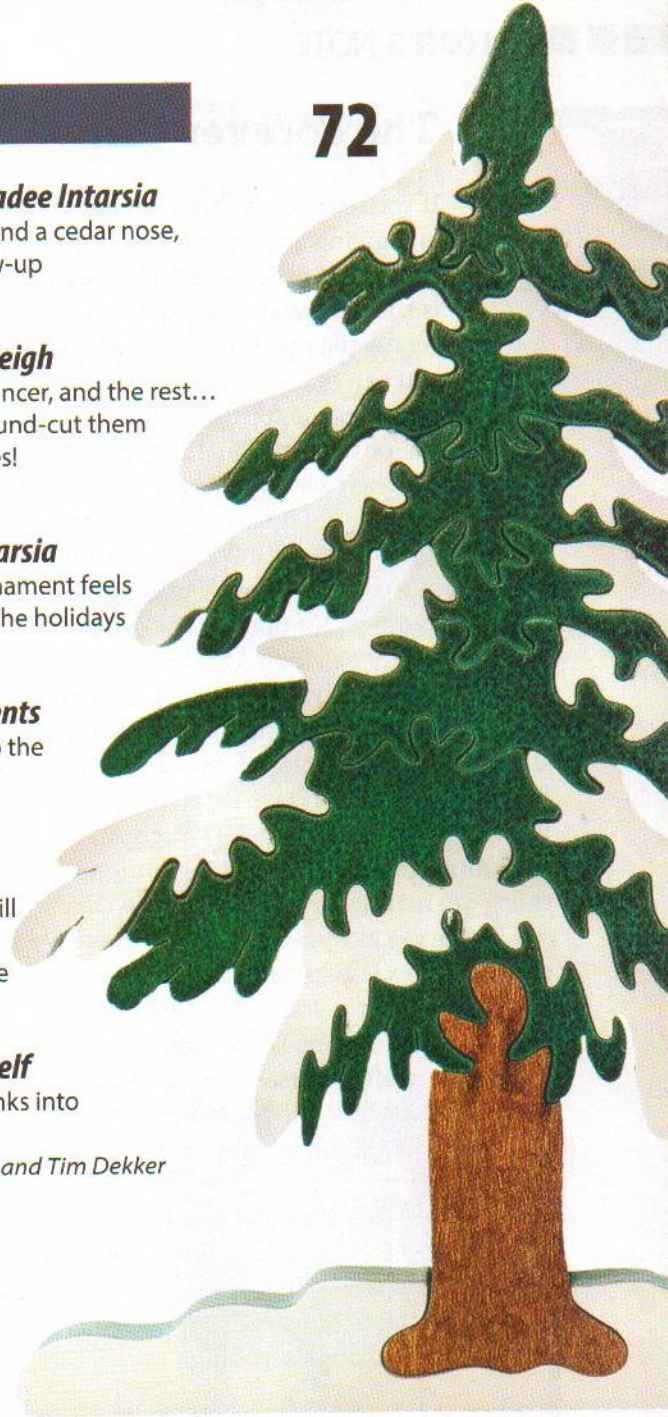
Elevate ordinary planks into a chic wall piece

By Annemarie Adams and Tim Dekker

58 **Walnut Whippet Automaton**

Turn the crank to make this lively pup frolic

By Wanda Sowry



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• **Bonus Video**

See Wanda Sowry's whippet automaton (page 58) in action!

• **Free Pattern**

Download the pattern for an additional pull-toy (page 24).



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The Forever Gift

If you're reading this, chances are you approach the gift-giving aspect of the holiday season a bit differently than most other folks. The main difference, of course, is that you're starting to think not about what you can *get* for the meaningful people in your life, but what you can *make* for them. Maybe not exclusively—few of us have time for that—but you enjoy crafting a special

item or two (or three or four) that will always have a special meaning for their recipients *because you made it for them*.

And by always, I mean *always*. Handmade wooden gifts, each rendered with distinctive character, have staying power—just look at the holiday toys and decorations in this issue. They are not baubles that will be discarded by New Year's Eve; rather, they are heirlooms that will be treasured for years, if not generations. If you make Judy Gale Roberts' cover project, for example, odds are that that Snowman & Chickadee will be standing on the mantle of one of your descendants 100 years from now. Judy and Dave Peterson's Hardwood Steam Train Puzzle? Brad Anderson's Toy Tugboat? The kids you give those playthings to will be giving them to *their* kids in twenty or thirty years time, and when they do they'll be thinking of you.

There are as many ways to express love as there are shapes of snowflakes, I guess. And most kids are always going to be more jazzed to unwrap a box that holds the latest Nintendo Wii Xbox Whatever—I'm not saying such things aren't important.

But long after those mass-produced gifts are recycled or dumped in landfills, the wooden ones that you make and give this year will still be putting smiles on your favorite faces.

News flash: We're moving! Not far, just from our offices in East Petersburg, Penn., to a capacious, seven-acre campus in nearby Mount Joy, where we'll be hosting a big open house next spring (at a date to be determined; see page 9). Hope to see you there!

Until then, happy scrolling!

John Atwood
 John Atwood
 atwood@foxchapelpublishing.com

Handmade treasures like John Nelson's Old-Timey Pull Toys (page 24) will last for generations.



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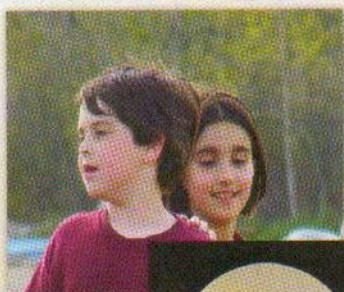
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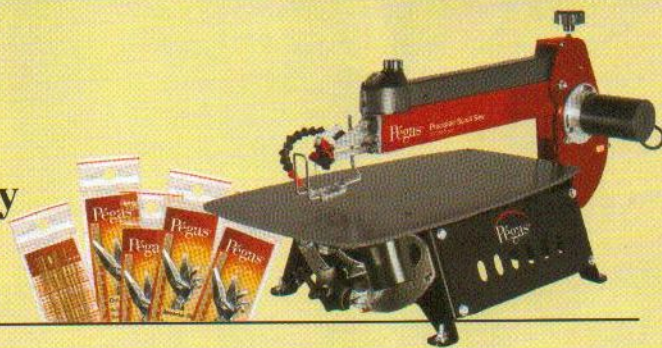


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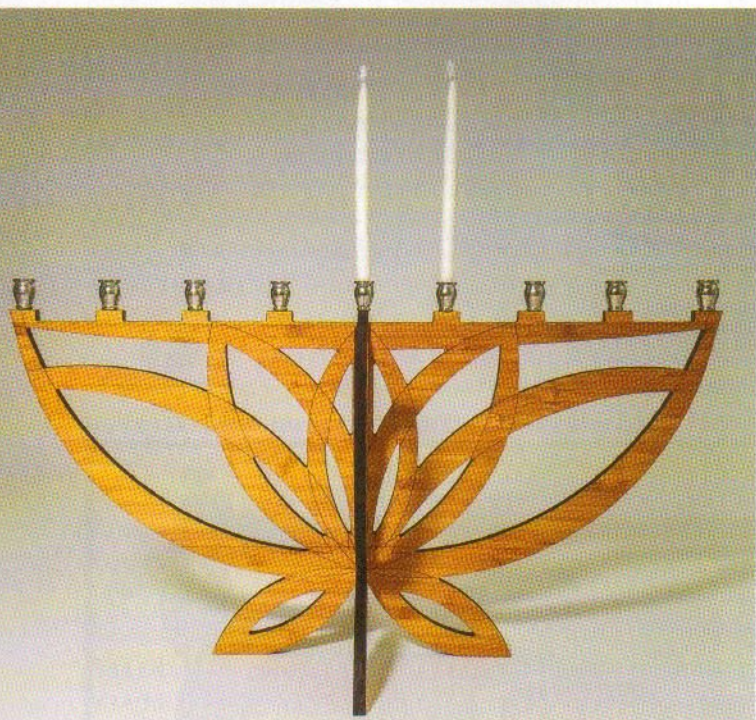
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Barry Lorberbaum *Chicago, Ill.*

Barry Lorberbaum, a self-taught artist with autism, has been scrolling for five years. Channeling his frustration, anger, and pain, he uses the scroll saw to create beautiful "sculpturepuzzles." Described as individual sculptures that fit together to form other sculptures, his designs stimulate the imagination in different ways each time they come together. Barry uses Baltic birch plywood and acrylic paint to bring his sculpturepuzzles to life. See more of Barry's work at barrylorberbaum.com.



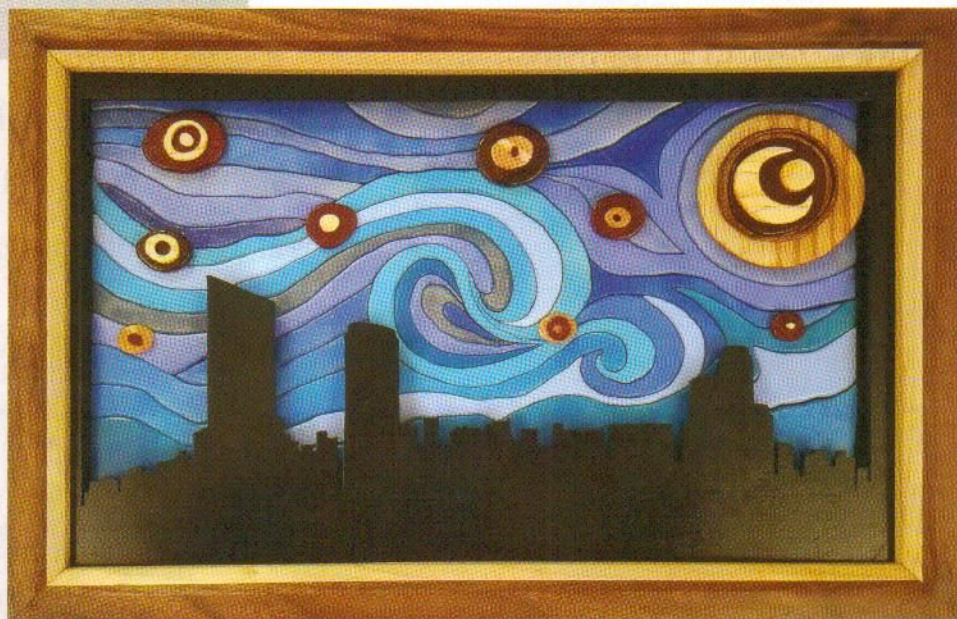
Jessica Giovachino *Long Island, N.Y.*

"I like to start with a traditional design or form, and then simplify and streamline it," said founder and designer of GioGio Design, Jessica Giovachino. Her lotus flower menorah, made from eco-friendly bamboo plywood, encapsulates the balance between the traditional and the modern, and illustrates her love of natural motifs. Jessica used a CNC router to cut her design in two pieces that slot together, allowing for easy transport and assembly. View more of Jessica's nature-inspired décor, jewelry, and furniture at giogiodesign.com.



Dan Fischer *Grand Rapids, Mich.*

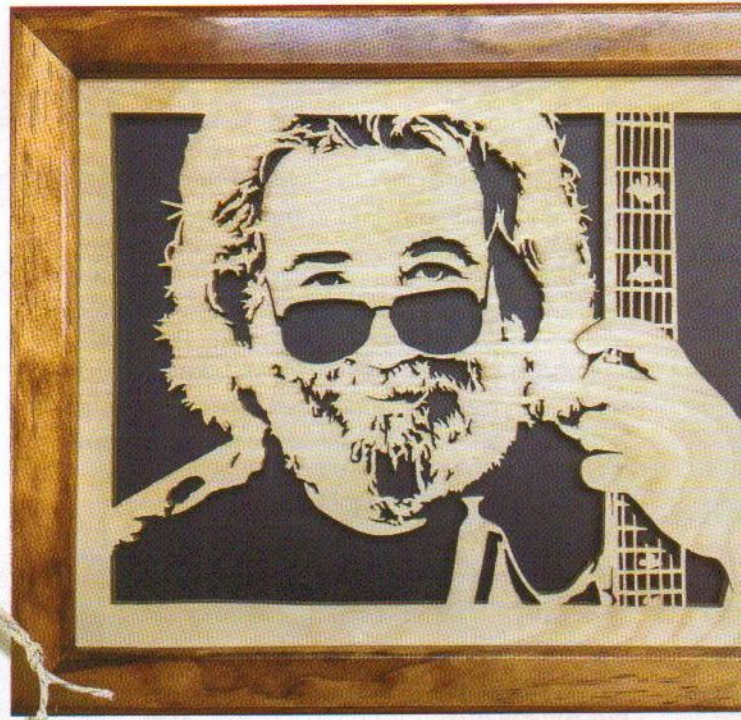
Dan Fischer looked to Van Gogh's *Starry Night* for inspiration to create his *Starry Night Over Grand Rapids*. To add movement and depth, Dan layered stars made from various hardwoods on an airbrushed background. Fittingly, the piece became a retirement gift for a City of Grand Rapids employee. Contact Dan at fischstixwoodworking@gmail.com.





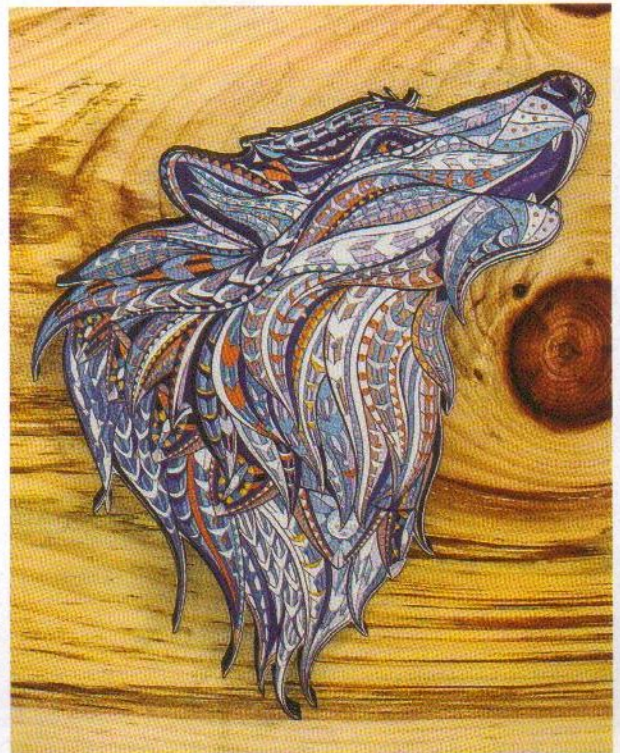
Jon Byerly *Pittsburgh, Pa.*

Jon Byerly's father taught him how to use the scroll saw when he was nine years old. "I was amazed at the precision it had," recalled Jon. Now he uses that precision to create detailed plywood portraits of various celebrities, including Jerry Garcia (photo), Frank Sinatra, and Waylon Jennings. Jon designs his own patterns and makes them available to fellow scroll saw artists. Write to him at jtbwoodcreations@gmail.com.



Jerry Cassette *Twin Lake, Mich.*

Jerry Cassette started scrolling over 30 years ago. Gradually, his hobby became a business as he created designs like his United States Christmas tree ornaments. Measuring approximately 3 1/4" by 2" (8.3cm by 5.1cm), each state is comprised of a unique combination of hardwoods, including cherry, purpleheart, red oak, and walnut. If you want to gift one of Jerry's ornaments to a long-distance loved one, visit his Etsy shop at [WhiteFoxCrafts](http://WhiteFoxCrafts.com).



Jeff Grant *Jamestown, Tenn.*

After Jeff Grant saw a family member working with a scroll saw, he gathered the equipment to start scrolling himself. Now Jeff spends about 5 hours a day at his own saw. He uses paper and fabric prints to add color to his work, cut from 1/2" (1.3cm) Birch plywood and 3/4" (1.9cm) pine. Jeff purchased this wolf pattern from 123rf.com artist maverickinfanta, printed it on a large format color printer, and applied it to the wood with a decoupage medium. You can find Jeff's work at craft shows around Tennessee and online at RidgetopWoodArt.com.

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*, 903 Square Street, Mount Joy, PA 17552 or e-mail editors@scrollsawer.com.

Lucky Dragon

I entered the Spring 2019 (Issue #74) cover contest in the hope that winning would lift the spirits of my aunt Sharon (right) and cousin Sheri (left), who lost their home in the Camp Fire in Paradise, Calif. last November. Sharon had managed to get herself, Sheri, and their two dogs out safely, driving on roads with fire burning on both sides. She is a true hero! But along with their home they lost most of their possessions, including their collection of dragons. Aunt Sharon was absolutely thrilled when she heard that we had won! Now that they live with me, the dragon is prominently displayed in our family room.

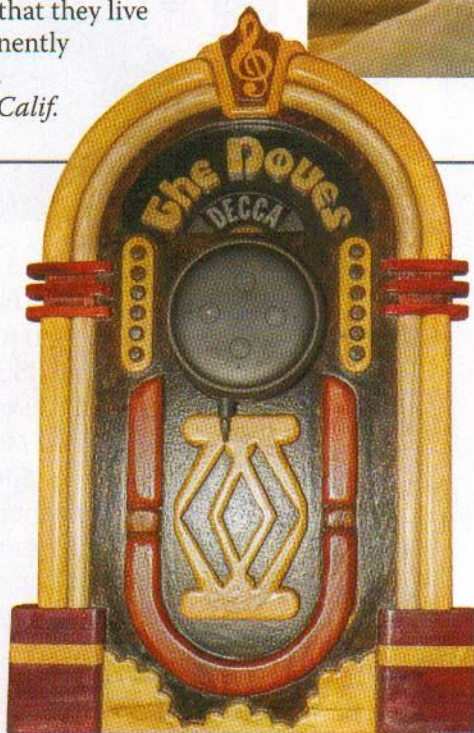
Carlene Ellis Galt, Calif.



For the Record

The intarsia jukebox pattern in the Spring 2019 issue (Issue #74) was superb! I made two for my children, but with one addition: I went to the local antique store and bought some old 45 records, cut out the Decca label, and attached it to the front of the jukebox. I also scrolled the family names to personalize each one.

Anthony Dale Reed
Sedalia, Mo.



The label from a 45rpm record adds a unique touch to Anthony's intarsia jukebox.



Fox Hunt

Roger Sell of Littlefield, Texas, and Doug Buhler of Preston, Idaho, were randomly drawn from the participants who located the fox in our last issue (Fall 2019, Issue 76). The fox was hiding in the lead photo in Sue Mey's article, "Fretwork Guitar and Violin", on page 45.

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 November 22, 2019, 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, 903 Square Street, Mount Joy, PA 17552 or enter online at scrollsawer.com.



Four Art Deco shadow boxes provide a stunning focal point for Rich's coffee table.

Shadow Box Coffee Table

With our 52nd wedding anniversary approaching, I was looking for a special project to make for my wife. She had mentioned we needed a new coffee table. Around the same time, I purchased the Spring 2018 issue of *SSW&C* (Issue #70) and saw Gabriel Schama's "Art Deco Shadow Box" pattern. I made two and placed them side by side. I liked the way they looked and thought four would be even better. That gave me the idea for the table top. I framed the shadow box with butternut wood and counter sank it $\frac{1}{4}$ " (6mm) below the table top to hold the plate glass. Completely assembled, the table measures 21" by 21 $\frac{3}{8}$ " by 31 $\frac{3}{8}$ " (53.3cm by 54.3cm by 79.7cm). It's funny how these things come together!

Rich Mcquarrie Flemington, N.J.

Write to Us! Tell us 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*, 903 Square Street, Mount Joy, PA 17552 or e-mail editors@scrollsawer.com.

Scrolling Sisters Open Store in Mall of America

Sisters Anna Hagen (at left in photo) and Nikki Hollerich (at right) have always been crafty, but everything changed four years ago when this duo from Minnesota discovered the scroll saw. Anna, a family and marriage therapist, and Nikki, a director of finance operations with a background in graphic design, started making simple silhouettes for friends, then progressed to more detailed pieces. Together with their trusty Delta Q3 scroll saw, Anna and Nikki opened a custom wood décor and signage shop in Newport, Minn., in 2015. Its name, Hagen and Oats, is a combination of Anna's last name and a nod to Nikki's cat, Oatmeal. "We didn't realize we would have to explain it eventually," they laughed.

Their scrolling journey took a new turn in March when Anna and Nikki opened a second Hagen and Oats location in the Mall of America, one of the country's premier shopping destinations. The space is filled with

whimsical, Minnesota-themed cutouts, pet portraits, and welcoming rainbows. "Our customers are always so kind," they said. "We like to count how many people say, 'Oh, this is cute!' when they walk in the door."

Whether you check out the brick-and-mortar locations or the online shop, you can always expect something different. "Our style has really evolved over the years," Nikki explained. "What was a great idea a few years ago may be oversaturating the market, so we try to produce new products all the time."

The sisters plan on staying at their Mall of America location through 2019 as a short-term trial. "Owning a small business is like a rollercoaster," they said, reflecting on how far they've come. "We feel very lucky to be where we are and stay as grateful as we can." See more from Hagen and Oats by visiting Hagenandoats.com or follow them on Facebook and Instagram @hagenandoats.



Look for bright colors and modern décor at Hagen and Oats.



SSW&C Is On the Move!

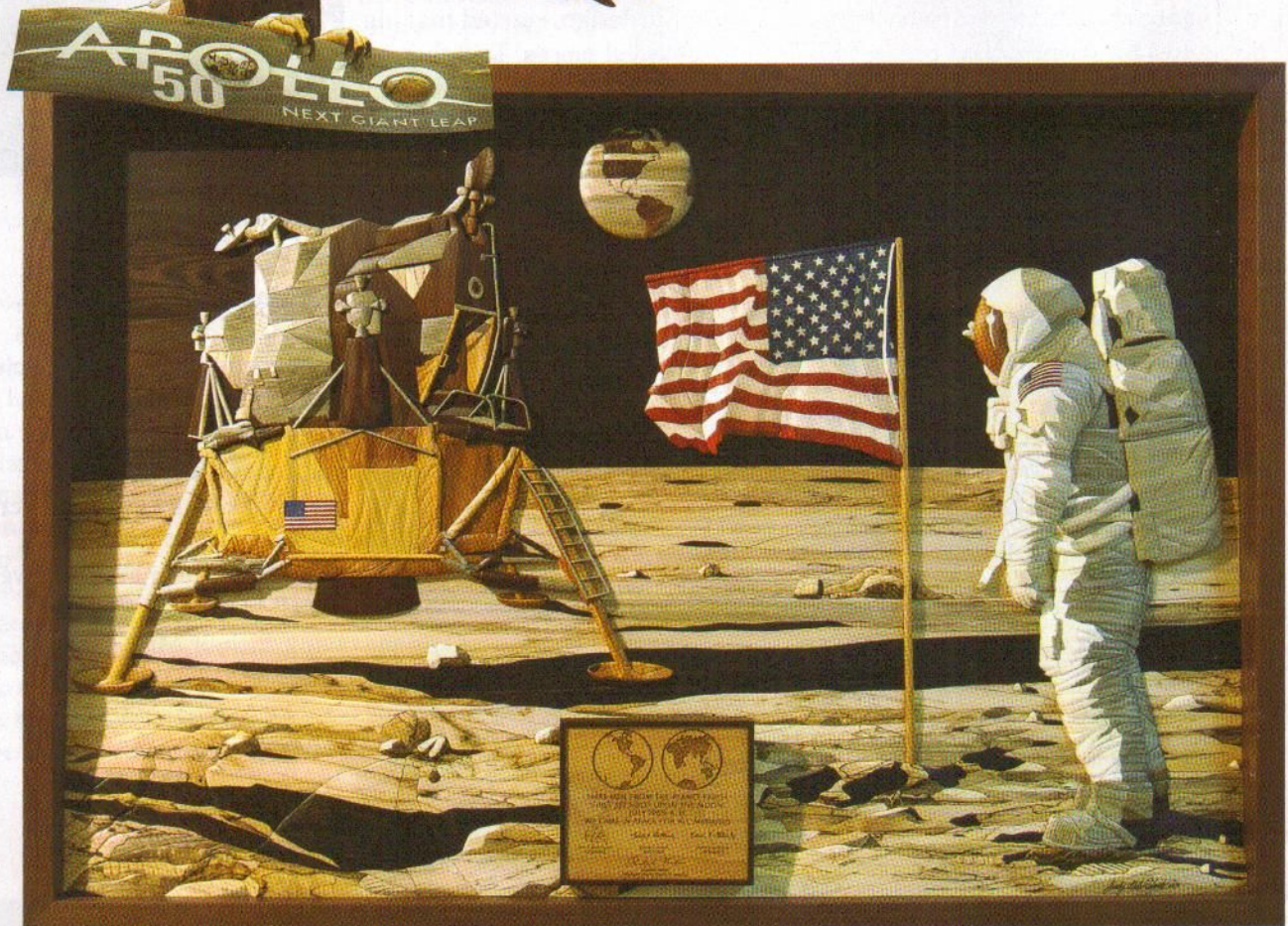
Over the next few months, we'll be relocating our East Petersburg, Penn. offices to nearby Mount Joy! To stay updated on the move and all upcoming events, including our spring open house (date TBD), be sure to pick up the spring issue of *Scroll Saw Woodworking & Crafts* and sign up for our FREE e-newsletter, *Short Cuts*. (Subscribe with your name and email address at scrollsawer.com/enews/.) We look forward to bringing you the world's best scroll saw projects and news from our new home!

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JUDY GALE ROBERTS' Moon Landing Intarsia



Parts of this NASA collaboration have literally achieved lunar orbit

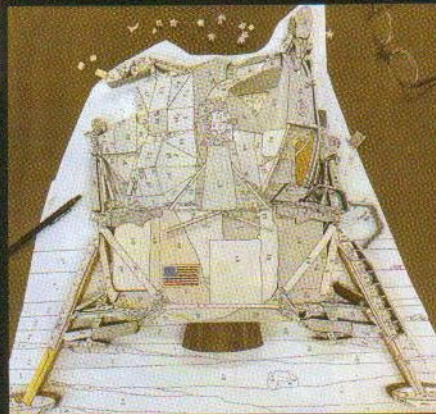
By Kaylee Schofield

When you think of space missions, astronauts sipping Tang—or maybe Apollo 13’s oft-quoted appeal to Houston—might come to mind. But when NASA called Judy Gale Roberts in August of 2018, they had a different sort of mission for her. In advance of the 50th anniversary of the Apollo 11 moon landing (July 20, 2019), the space agency asked her to design an intarsia scene that not only pays homage to the event but also contains real pieces of “moon wood.”

First, some background. The Apollo 14 mission, launched in 1971, marked the beginning of a little-known collaboration between NASA and the United States Forest Service (USFS). It took root when astronaut Stuart Roosa, a former USFS smoke jumper, brought over 500 seeds with him to see if a trip to space would change the trees that grew from them. (It didn’t.) Although Roosa had fastidiously organized them based on species—sycamore, sweetgum, loblolly pine—the package tore in transit, so when the USFS eventually germinated these seeds and sent them to key places around the world (among them the U.S. Space and Rocket Center in Alabama, the Swiss Transport Museum in



Judy spent more than 150 hours designing patterns for the project.



The lunar module before being shaped.



Sanding the astronaut's helmet. In all, the project has over 1,300 pieces and required more than 1,000 hours to complete.

Switzerland, and the White House), their identities were a mystery.

The Kennedy Space Center in Florida received one of these mystery plants, which turned out to be a sycamore. Planted in 1976, it grew to maturity but fell in a 2017 hurricane. NASA carefully preserved the wood and sent several pieces to Judy. (To her delight, they were all beautifully spalted.) Then she set to work devising a pattern, using official photos from the first moon landing for reference.

The design process alone took around 150 hours. But in January 2019, with the assistance of her team (husband Stephen Catlett, former student Dr. Pete Ricci, assistant Marianne VanderVoord, and office manager Stacy Stackhouse), Judy and crew finally began cutting.

"I changed the piece slightly as I went, because sometimes you sand something smooth only to find that the color didn't end up like you wanted," said Judy. "This happened with the eagle's face, the stars, and the flag. We ended up recutting about 40 pieces total."

"Judy has been totally focused on this," her husband Stephen added. "It's a wonderful project; it has changed our whole lives! Judy usually loves to get outside and dig in the dirt this time of year, but this spring, she said, 'You're going to have to plant the

jalapeños yourself. I want to make this perfect.'"

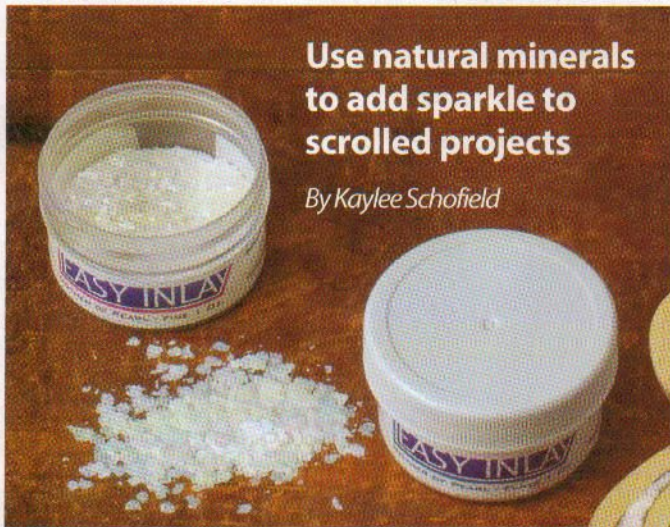
The finished product speaks for itself. Comprising over 1,300 individual pieces (the smallest of which is ¼" square), a dozen wood varieties, and the fruit of 1,000+ shop hours, Judy's creation gives the sense that you're not just looking at the lunar landing—you're *participating* in it. And, as if cutting and shaping were not enough, each piece of the 53" by 56" scene received three coats of polyurethane and five coats of UV-resistant varnish before being glued in place. Slices of moon sycamore make up the flagpole, the laser-engraved sign at the bottom, and "Mars" (the last "o" in Apollo).

On the first week of May, Judy and her team said goodbye to the completed piece as it traveled from her Tennessee studio to its new home at the Kennedy Space Center museum in Cape Canaveral, Florida, where it will hang on permanent display.

"It felt like letting your child go to fulfill the next exciting part of her life," Judy reflected. "There were days when I thought, *I'm tired, my fingerprints are all sanded off, and I can't do this anymore!* But those moments make it that much more satisfying when it's complete."

See more of Judy Gale Roberts' work at intarsia.com.

Easy Inlay Mother of Pearl



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scrolled projects

By Kaylee Schofield

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Easy Inlay's crushed mother of pearl is a simple, straightforward product with a multitude of uses. Derived from the inner shells of mollusks (oysters and abalones), this natural material offers options for those wanting to add pizzazz—but not gaudiness—to wooden jewelry, ornaments, furniture, and smaller functional items like cutting boards (as long as it's covered with a food-safe finish).

We tested both the fine and flake varieties on several scrolled projects. Since Easy Inlay recommends the fine variety for small inlays, editorial assistant Danielle dry-packed it into the delicate frets of her modern snowman ornament (above) until it sat flush with the backer, and then finished the project with a layer of CA glue, sanding the surface smooth when dry. In shallow frets, a little goes a long way. We did notice that although the Easy Inlay website describes this product as “soft, not brittle,” it crumbled readily when handled. For this reason, we made sure to wear safety glasses and masks rated to filter down to 0.1 micron during the test.

Curious to see how another finish would affect the appearance of the product, we dry-packed a mixture of fine and flake into the larger frets of my modern snowflake ornament (see page 44 for the full project). Then we covered the entire piece with a thin layer of two-part epoxy. The hints of color in the mother of pearl showed up here in a muted way, whereas in the



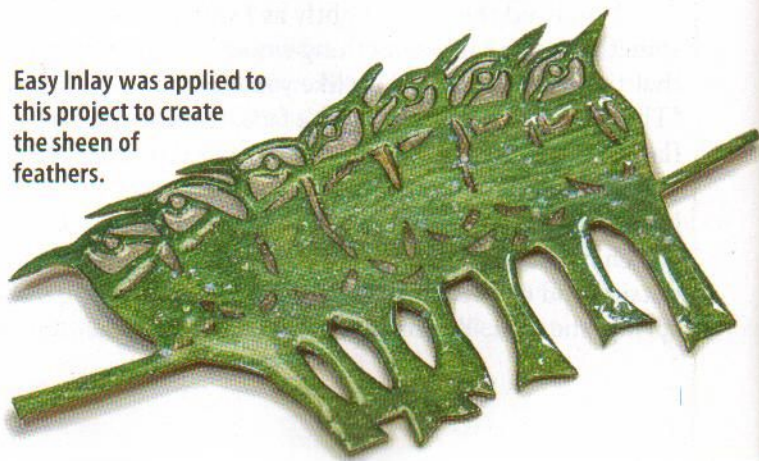
Use Easy Inlay to fill frets, or
as a surface embellishment.



snowman, the individual flakes were more apparent. In both cases, this product added an attractive, variegated sparkle to the existing project without overwhelming or detracting from the wood grain and scrolled elements.

There's no need to use Easy Inlay's mother of pearl just for inlay-type projects. We mixed a small amount of fine and flake with the remaining epoxy from the snowflake and poured it over a painted version of Chris Maynard's “Perchers Fretwork” (below), as well as an ornamental fish designed by Ellen Brown (for a scaly look). You can also dye the product to achieve a different jewel tone, or mix it with one of Easy Inlay's other offerings—cultured opal, crystal calcite, or larger chips of paua abalone.

Easy Inlay was applied to
this project to create
the sheen of
feathers.



A Better Sawhorse

The Bora Speedhorse's folding legs make setup and storage a breeze!

By Bob Duncan

Working height: 31.5" (80cm)

Weight: 17.9lbs

MSRP: \$89 per sawhorse

Boratool.com

Every woodworker needs a good set of sawhorses.

A freestanding pair holds sheet goods (such as plywood) off the ground, making it easier to cut them into scrollable pieces. While you can make your own or pick up an inexpensive set, you may want a more dependable, long-lasting product. Bora's Speedhorse folding sawhorses fit the bill.

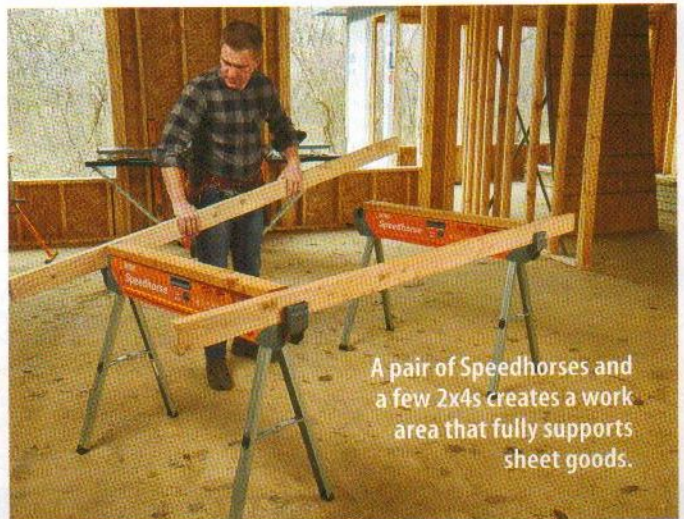
What sets Bora's Speedhorses apart is their ease of use. By moving a lever, you can release the folding legs while holding the sawhorse with one hand; setup takes just a few seconds. The grit on the top of the sawhorses keeps wood from moving around as you cut it into chunks with a circular saw. They also come with pre-drilled holes, allowing you to easily attach 2x4s to the top. With the boards in place, you can insert additional 2x4s in the side slots to prevent plywood from bowing between the sawhorses (lower photo at right).

The Speedhorses are also sturdy; their metal legs sit solidly on the ground and the overall weight keeps them from rocking or moving around. This is a big plus for me, since I also use sawhorses to make a temporary assembly/finishing table. If you have a small shop like me, you'll appreciate this product's versatility and portability.

The price might seem steep for a single sawhorse, but they are the last ones you'll ever buy. They are a solid, easy-to-set-up base for all cutting and assembling tasks.



The unit's sturdy, retractable legs deploy instantly.

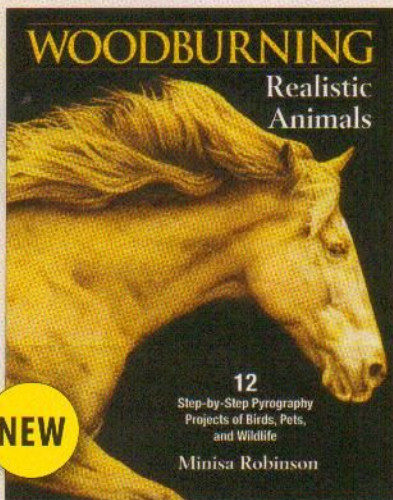


A pair of Speedhorses and a few 2x4s creates a work area that fully supports sheet goods.

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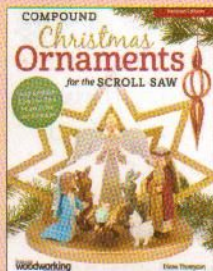
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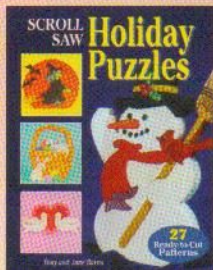
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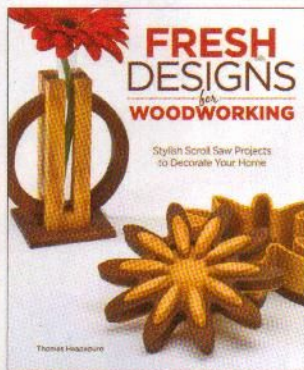
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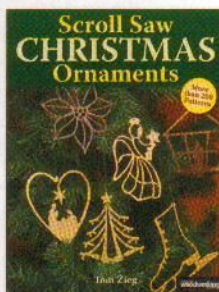
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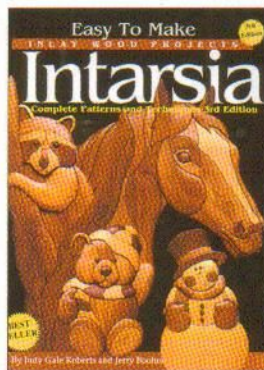
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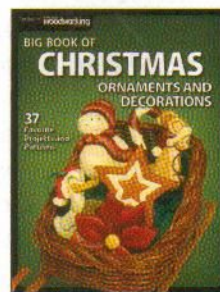
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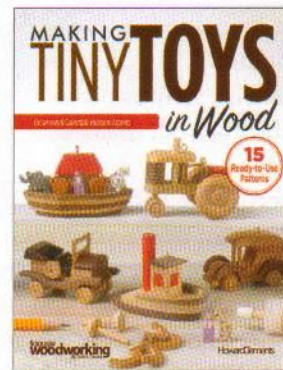
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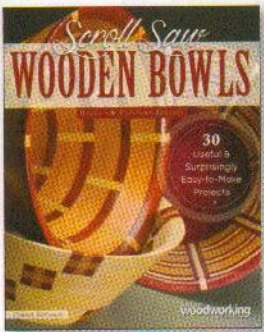
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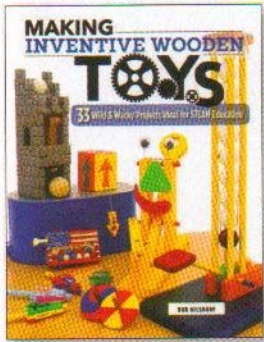
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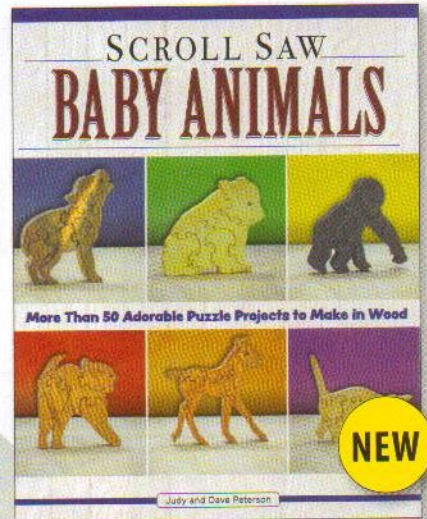


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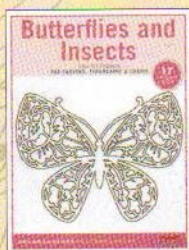
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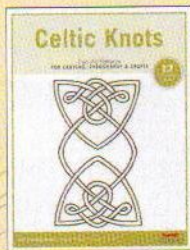
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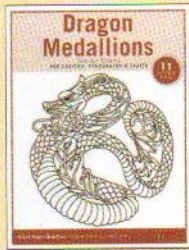
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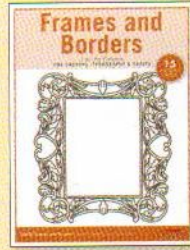
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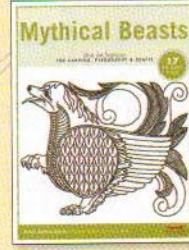
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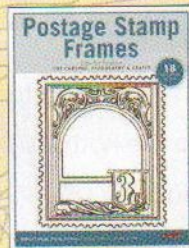
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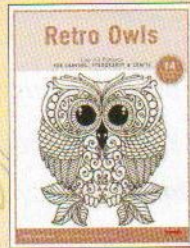
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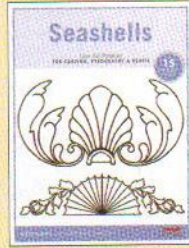
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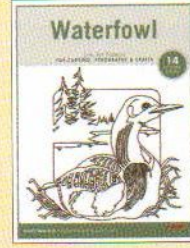
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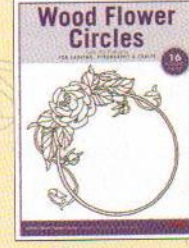
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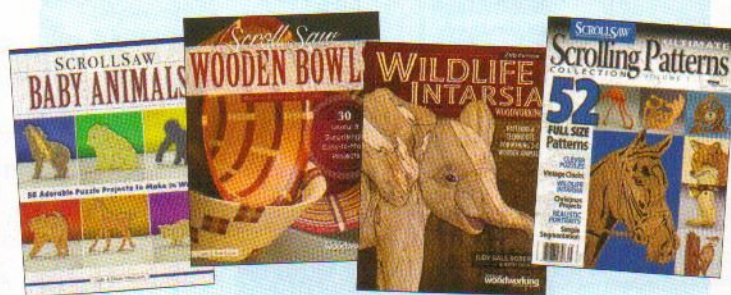
Entries must be received by Dec. 31. The winner will be notified by the first week of Jan. Open only to U.S. residents over the age of 18.

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Snowman & Chickadee Intarsia

With a redheart hat and a cedar nose, Frosty just got a glow-up

By Judy Gale Roberts



I love that shaping an intarsia snowman can be so similar to shaping a real one—the only major difference is that my version won't melt! Select your woods for this piece based on what inspires you; I chose redheart for the hat, gloves, and scarf combo because its grain reminded me of knitted fabric.

Prepping and Cutting

Photocopy the pattern, cutting a separate copy for each part that has a different color or grain direction; I made six for this project. Attach the patterns to the wood with repositionable spray adhesive. *Note: For some hardwoods, such as the redheart in this project, I apply clear packaging tape to the wood before applying the pattern.* Then predrill the areas for the eyes and smile. If you plan to use a raising shim for the nose (rather than a thicker wood), prepare the shim now; I recommend making one from the same material as the nose, because its tip is exposed on the bottom.

Cut the pieces; I used #3 and #5 reverse-tooth blades. For the bird wing, I cut the exterior parts with a #3 and then used a #2/0 to separate the individual feathers; less wood is lost this way because of the small kerf of the blade.

SHAPING THE SNOWMAN

1 Rough in the project. I used an 80-grit sanding sleeve on a sanding drum in a rotary tool. To keep the redheart dust from spreading to the white surfaces, I sanded most of the aspen first. *Note: An abrasive cleaning stick is your best friend when working with aspen and dust from darker woods.* Start with the background snow areas on the base (31 & 33); sand these as thin as possible, especially where they join the snowman body. Use a pencil to mark the thickness on the sides of the lower snowball for reference.

2 Sand the large lower snowball section, staying above the pencil lines on the side. Sand the surface into a dome shape, with the lower part receding slightly to give the appearance that it is sitting behind the base. Round the upper part of the bottom snowball down to about $\frac{1}{2}$ " (1.3cm) where it joins the middle section. After sanding, mark the thickness along the sides. Sand the two midsections (9 & 29) using the same technique. Sand the lower edge to the pencil line. Round the upper section down to about $\frac{1}{2}$ " (1.3cm) where it joins the scarf. Then round the sides down to about $\frac{3}{8}$ " (1cm). Mark the thickness on the two arm sections.

3 Sand the left arm down to the pencil line. Then round the upper and lower portion like a tube. Shape the right arm in the same way. I put the parts end to end and mark the thickness so the arms will be similar on both sides.

4 Sand the head into a dome shape. Keep in mind that the scarf and hat are in front of the head, so the wood that joins them should be sanded thinner. Round the upper and lower edges down at least $\frac{1}{2}$ " (1.3cm). If you used thinner wood for the nose, sand at least $\frac{1}{4}$ " (6mm) off the surface of the face.

5 Sand the hat, gloves, and scarf. Sand the lower right scarf section (28), staying above the pencil lines indicating the thickness of the arm and midsection. Taper the scarf down at least $\frac{1}{4}$ " (6mm) in the areas where it tucks under itself, but do not add details yet. Sand the two parts that wrap around the neck, following a

similar contour to that of the face. The outside edges tuck behind the arms. Mark the thickness on the tied section. Then sand the smaller section (10), tapering it down toward the long part (5) at least $\frac{1}{4}$ " (6mm) to make it look like it wraps under the scarf. Sand the long scarf piece next (5). I added a dip toward the lower edge for interest. Sand the hat, staying about $\frac{1}{4}$ " (6mm) above the thickness of the face but following its contours.

6 Shape the gloves, sanding the surface of the right glove thinner to make the bird stand out. I sanded a dished area, like the palm of your hand, down about $\frac{3}{8}$ " (1cm) where it joins the bird, and did the same for the other hand. Round the edges. Sand the carrot nose, being very careful not to sand the sides below the thickness of the face.

SHAPING THE CHICKADEE



7 Attach the sanding shim. The wing and body have a similar contour, so I like to sand all the sections together as a unit. I used a sanding shim cut to the shape of the entire bird, applying a few pieces of double-sided carpet tape for a temporary bond. Be sure to dust the back of the pieces before applying the tape.



8 Sand the tail section. Bring it down to $\frac{3}{8}$ " (1cm) thick, marking where it joins the wing. Do not sand below this line when shaping the wing. Sand the bird into the basic shape, and then carefully remove the wing sections from the shim. Mark a line $\frac{1}{16}$ " (2mm) down along the inside edge of the bird's body. Sand the body down to the line, maintaining the same angles.

9 **Move to a 120-grit sleeve.** Add more detail to the parts, watching for deep scratches and sanding with the grain as much as possible. I used the edge of a Flex Drum sander to carve the folds on the hat and the light creases on the carrot.

10 **Put the dowels for the buttons in place.** Then sand them down to $\frac{1}{16}$ " (2mm) thicker than the face. I sanded mine while they sat in the face; this was easier than marking each dowel and sanding it separately. If your dowels are loose, you can use the double-sided tape to hold everything in place while sanding. Before removing the dowels, I numbered and marked the backside of each. Then I removed them and rounded the sharp edges slightly. I added two dots to each button with a writing nib in a woodburner.

11 **Add the eye highlight.** I used a small homemade holly dowel. I cut pieces about the size of pencils, and then sharpened them in a pencil sharpener. Drill the spot for the highlight, cut a piece of the dowel longer than needed, and glue it in the hole. After the glue has dried, you can sand it flush with the eye. Continue sanding each part, moving up through the grits until you reach 220. I like to hold the pieces close to a light so any remaining scratches show up.

Assembling and Finishing

Finish the pieces. I used three coats of polyurethane gel. Apply the gel with a 1" (2.5cm)-wide disposable foam brush. The first coat should be heavy; let the wood soak up what it needs to fill the grain. Coat the sides and surface of each part, being careful not to get much on the backs. Wait about a minute to let the wood absorb the gel. Then wipe it off with a paper towel; as that towel gets saturated, use a second one to buff the pieces completely dry. Let the finish dry overnight. Apply the second and third coats six

Pattern for the **SNOWMAN & CHICKADEE INTARSIA** is in the pullout section.

to eight hours apart, covering only exposed surfaces.

To make a pattern for the backing, trace around the finished product on a piece of white paper dusted lightly with repositionable spray adhesive; apply just enough to keep the parts from sliding as you trace. Then attach the tracing to the backing board, cutting a little over $\frac{1}{16}$ " (2mm) inside the line. I used $\frac{1}{8}$ " (3mm)-thick Masonite. Seal the backing board with polyurethane gel and let it dry. Sign your work.

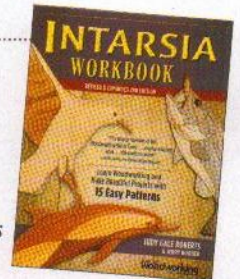
Glue the pieces to the backer. I used Tacky Glue, as it is flexible, allowing me to adjust parts during the 10 to 15 minutes before the glue sets up. Use just a few dots on the back of each part; a little glue goes a long way. First, glue in some exterior parts to "lock in" the pieces. I glued the snow base (32), the left glove (8), and the hat and ball. Add the remaining pieces and let the glue set up about 10 minutes. Attach a hanger or increase the thickness of the white base wood to make the snowman stand on its own.

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Materials & Tools

Materials

- White wood, such as aspen or holly, $\frac{3}{4}$ " (1.9cm) thick: snowman body, snowbank, chickadee torso, and eye highlight, 6" x 22" (15.2cm x 55.9cm)
- Medium red wood, such as redheart or paduak, $\frac{3}{4}$ " (1.9cm) thick: hat, gloves, and scarf, 4" x 14" (10.2cm x 35.6cm)
- Medium orange wood, such as western red cedar or Spanish cedar, $\frac{7}{8}$ " (2.2cm) thick: nose, 3" x 4" (7.6cm x 10.2cm)
- Grayish brown wood, such as spalted hackberry or light walnut, $\frac{3}{4}$ " (1.9cm) thick: bird wing, 2" x 4" (5.1cm x 10.2cm)
- Dark wood, such as Peruvian walnut or dark western red cedar, $\frac{3}{4}$ " (1.9cm) thick: chickadee face stripes and eye, coal details, 2" x 4" (5.1cm x 10.2cm)
- Dark walnut dowels, $\frac{3}{4}$ " (1.9cm) diameter: coal smile, 10" (25.4cm) long
- Masonite or Baltic birch plywood, $\frac{1}{8}$ " (3mm) thick: backer, 14" (35.6cm) square
- Masonite, $\frac{1}{8}$ " (3mm) thick: chickadee sanding shim, 2" x 4" (5.1cm x 10.2cm)
- Spray adhesive
- Pencil
- Sandpaper: assorted grits up to 220
- Sanding sleeves: 80- to 220-grit
- Glue stick: repositionable
- Glue: Aleene's® Tacky

- Tape: double-sided light-traffic carpet tape, clear packaging
- Finish, such as polyurethane gel
- Paper towels
- Permanent marker (optional)
- Hanger (optional)

Tools

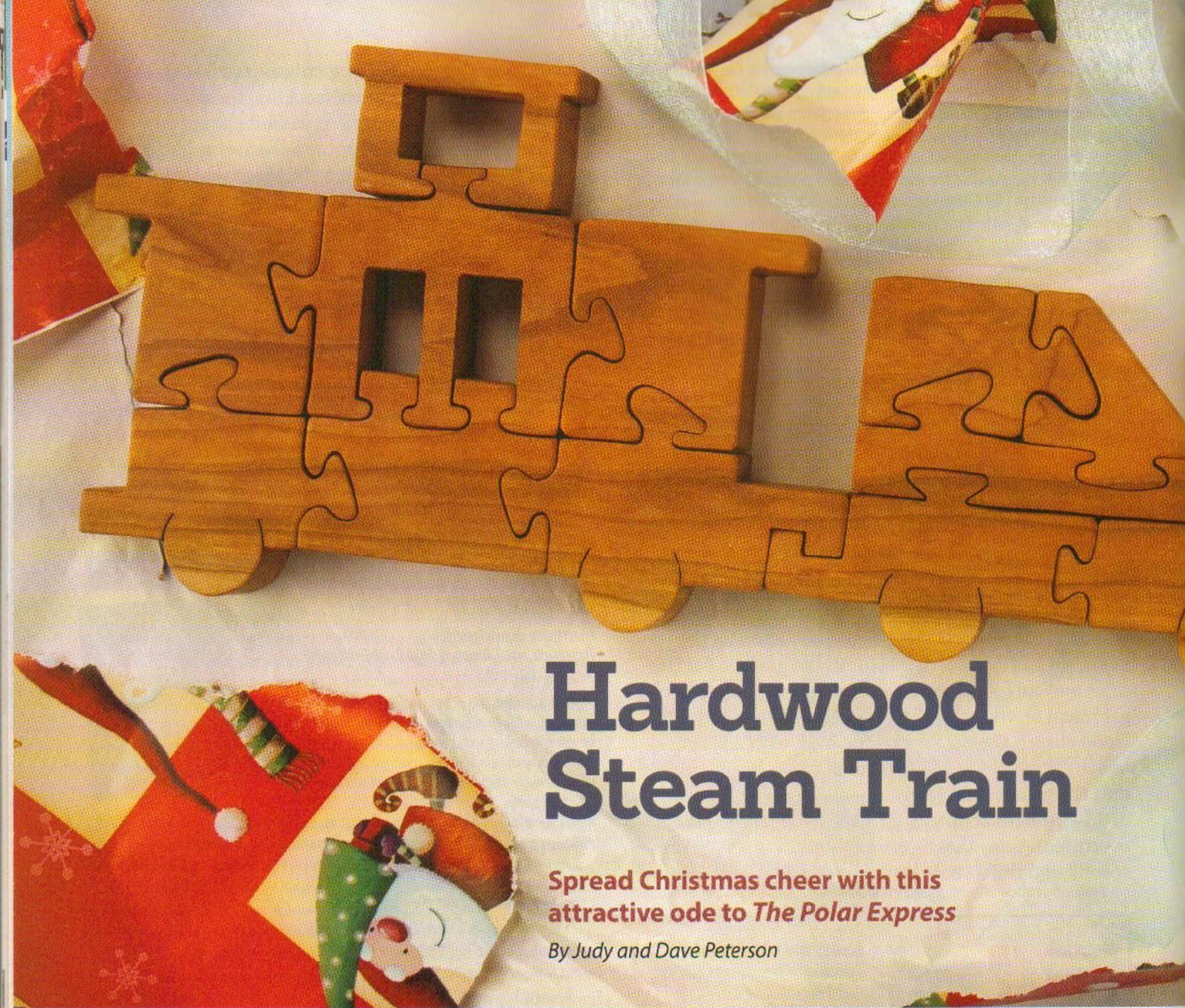
- Scroll saw blades: #2/0, #3 and #5 reverse-tooth
- Sanders: Flex Drum, handheld
- Drill with bits: small
- Rotary tool with sanding drum
- Pencil sharpener
- Woodburner with nib: writing
- Abrasive cleaning stick
- Paintbrush: 1" (25mm) foam

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



Judy Gale Roberts, born in Houston, Texas, has long been recognized as the leading authority on intarsia. Judy

was one of the first ten people to be inducted into the Woodworking Hall of Fame. For more of her work or information on classes held at her home studio in Seymour, Tenn., contact Judy at 800-316-9010, or visit intarsia.com. Judy's numerous intarsia books are available at foxchapelpublishing.com.



Hardwood Steam Train

Spread Christmas cheer with this attractive ode to *The Polar Express*

By Judy and Dave Peterson

The front engine on this project began as a gift for our young great-nephew, who was deeply into trains. It was such a success that for his birthday that year, we added a coal car and caboose.

During the design process, we consulted our kids' old *World Book Encyclopedia*. It had wonderful pictures of old trains. As this project is much more geometric than most of our patterns, we sat there with pencils, ruler, and a compass to ensure an accurate design.

Cutting and Finishing

Select a board and attach the pattern with spray adhesive. Cut the puzzle. When cutting, note that three of the pieces are small enough for a child

to swallow, specifically the smokestack, whistle, and cowcatcher. To avoid safety hazards, consider leaving those areas attached to their connecting pieces; you'll have a six-piece engine and no potential choking problems.

Remove the pattern and sand the pieces with an orbital sander to remove any fuzzies. For a finished look, we round the corners with a Sand-O-Flex abrasive wheel. Work your way progressively through the grits until you reach 180. Then apply your finish of choice; we used natural Danish oil, but you can paint it with thinned acrylics for a bolder look.

Note: If you paint the puzzle, be mindful of the kerf of your blade. We use a #7 blade, so we can get away with painting the interlocking edges of our puzzles.



Pattern for the **HARDWOOD STEAM TRAIN** is in the pullout section.

Materials & Tools

Materials

- Cherry, 1" (2.5cm) thick: 6" x 22" (15.2cm x 55.9cm)
- Spray adhesive
- Sandpaper: 180-grit
- Finish: Danish oil or acrylic paints

Tools

- Scroll saw blades: #7 skip-tooth
- Drill press with Sand-O-Flex abrasive wheel
- Sander: orbital

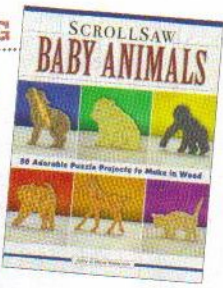
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

FURTHER READING

Scroll Saw Baby Animals: 50 Adorable Puzzle Projects to Make in Wood

By Judy and Dave Peterson

Designs for pandas, piglets, bear cubs, lion cubs, & more, with simplified projects that are safe as toys.



Available on Sep. 16, 2019
 Item 00541. Available for \$17.99 plus S&H (parcel post) from Fox Chapel Publishing, 800-457-9112, FoxChapelPublishing.com, or your local retailer.



A former teacher and librarian, Judy Peterson found her niche in life as a

woodworker. A winner of many design awards, she sells her puzzles at art shows around the country. Her husband, Dave, runs the record-keeping side of the business. Together they have written several books, which are available at foxchapelpublishing.com.

Soaring Angel Fretwork

Craft a celestial scene with a folk art twist

Design by Carole Behrer
Cut by Jon Deck

There's no denying the old-world elegance of this fretwork design. The quiet angel brings glad tidings of peace, love, and joy as stars illuminate the night sky. Delicate bridges make the starry areas a challenge to cut, but the result is worth the time and effort.

Cutting and Finishing

Sand the blank smooth with 220- and then 320-grit sandpaper. Photocopy the pattern and apply it to the surface with temporary-bond spray adhesive. Drill the blade-entry holes for the frets; if you plan to cut the line details on the face, wings, and banner, drill those holes now. Cut the project, making the inside cuts first; I used a #3 blade for the interior and a #5 blade for the perimeter.

Remove the pattern and hand-sand away any fuzzies. If you are woodburning the face, wing, and banner details, mark those areas with graphite transfer paper and a pencil, and go over the lines with a writing tip in a woodburner. Spray both sides with clear semigloss lacquer and let dry. Add D-ring hangers to the back and display.

Pattern for the **SOARING ANGEL FRETWORK** is in the pullout section.

Materials & Tools

Materials

- Cherry, 1/4" (6mm) thick: sized for pattern
- Spray adhesive: temporary-bond
- Sandpaper: 220-, 320-grit
- Graphite transfer paper (optional)
- Pencil (optional)
- Finish: clear semigloss spray lacquer
- Hangers: 2 each D-ring

Tools

- Scroll saw blades, #3, #5 reverse-tooth
- Drill press with bits: small
- Woodburner with nib: writing (optional)

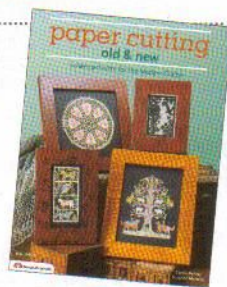
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

WANT MORE FOLK ART DESIGNS?

Paper Cutting Old & New: Scherenschnitte for the Modern Crafter

By Carole Behrer and
Suzanne McNeill

Item DOS404. Available for
\$9.99 plus S&H (parcel post)
at foxchapelpublishing.com,
800-457-9112.



Carole Behrer has been creating scherenschnitte for over 19 years. She lives with her husband John and their three children at Shaw Nature Reserve in Gray Summit, Mo. Carole was selected as one of Early

American Life's 200 Best Craftsmen. Contact her at cbbehler@hotmail.com.





Line details on the face, wings, and banner can be cut or woodburned (as shown here).

Old-Timey Pull Toys

Scroll every inch of these classic designs—even the wheels!

By Kaylee Schofield
Design by John A. Nelson
Cut by Joe Pascucci

ScrollSchool
Family Workshop Project



Want a toy that won't break on assembly or go out of fashion in a year? Our classic whale, bunny, duck, and boat are just the ticket. They're not just stylish and child-safe; made of dense hardwood, they're also durable enough to take on almost any terrain your small friend will. And the wheels are scroll-friendly, so you can construct them in an afternoon—no lathe required.

Cutting and Finishing

Sand the blank with a random orbit sander and 220-grit sanding discs. Wipe away all remaining dust with a cotton rag. Attach the patterns so the grain runs horizontally; use spray adhesive. Then drill the holes for the eyes, hearts, ship's portholes, and axles. I used a $\frac{1}{4}$ " (6mm)-diameter bit for the axles, a $\frac{3}{8}$ " (10mm)-diameter bit for the eyes, and a $\frac{1}{2}$ " (13mm)-diameter bit for the portholes and hearts.

Cut the pieces, taking extra care with the wheels. *Note: if you'd rather not make your own wheels, you can purchase some premade at a hobby shop or online. Just make sure the holes are sized for your axles.* Remove the patterns. If desired, drill a $\frac{1}{4}$ " (6mm)-diameter hole straight down into the back of the boat; you can add ornamentation here later. Round the axles with a disc sander, and round the hearts, bodies, and edges of the wheels with a roundover bit in a router table. Then sand the pieces with a 220-

grit sanding disc in a random orbit sander, moving up through the grits until you reach 600. Dry-assemble the toys to ensure a tight fit between the axles and wheels.

Wipe away the excess dust with the cotton rag and finish the individual pieces as desired; I used a clear satin spray. Once dry, insert the axles, attaching the wheels to the ends with a small amount of wood glue. Glue the axle peg into the back of the boat. Add a screw eye to each toy and attach a ribbon or colored piece of string, if desired.

Materials & Tools

Materials

- Maple, $\frac{3}{4}$ " (1.9cm) thick: duck, 6" x 7" (15.2cm x 17.8cm)
- Oak, $\frac{3}{4}$ " (1.9cm) thick: rabbit, 6" x 9" (15.2cm x 22.9cm)
- Walnut, $\frac{3}{4}$ " (1.9cm) thick: whale, 6" x 7 $\frac{1}{2}$ " (15.2cm x 19.1cm)
- Cherry, $\frac{3}{4}$ " (1.9cm) thick: boat, 5" x 6" (12.7cm x 15.2cm)
- Spray adhesive
- Wood glue
- Cotton rag
- Wooden axle peg, $\frac{1}{4}$ " (6mm) thick
- Finish, such as Krylon COLORmaxx clear satin spray

- Screw eye (optional)
- Ribbon or colored string (optional)

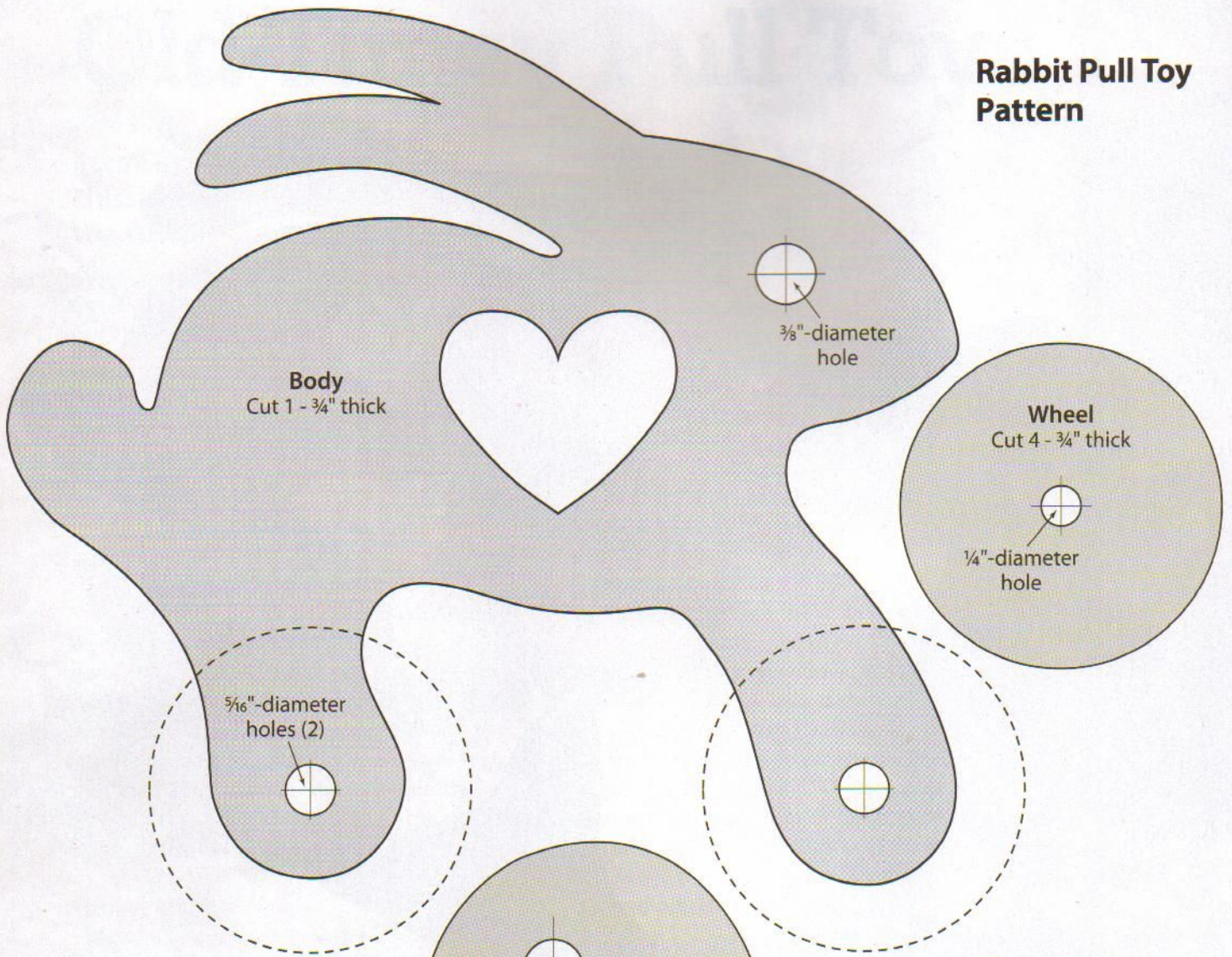
Tools

- Scroll saw blades: #7 reverse-tooth
- Drill press with bits: $\frac{1}{4}$ " (6mm), $\frac{3}{8}$ " (10mm), $\frac{1}{2}$ " (13mm)-dia.
- Router table with bit: $\frac{1}{4}$ " (6mm) roundover
- Sanders: disc, random orbit (with sanding discs up to 320-grit)

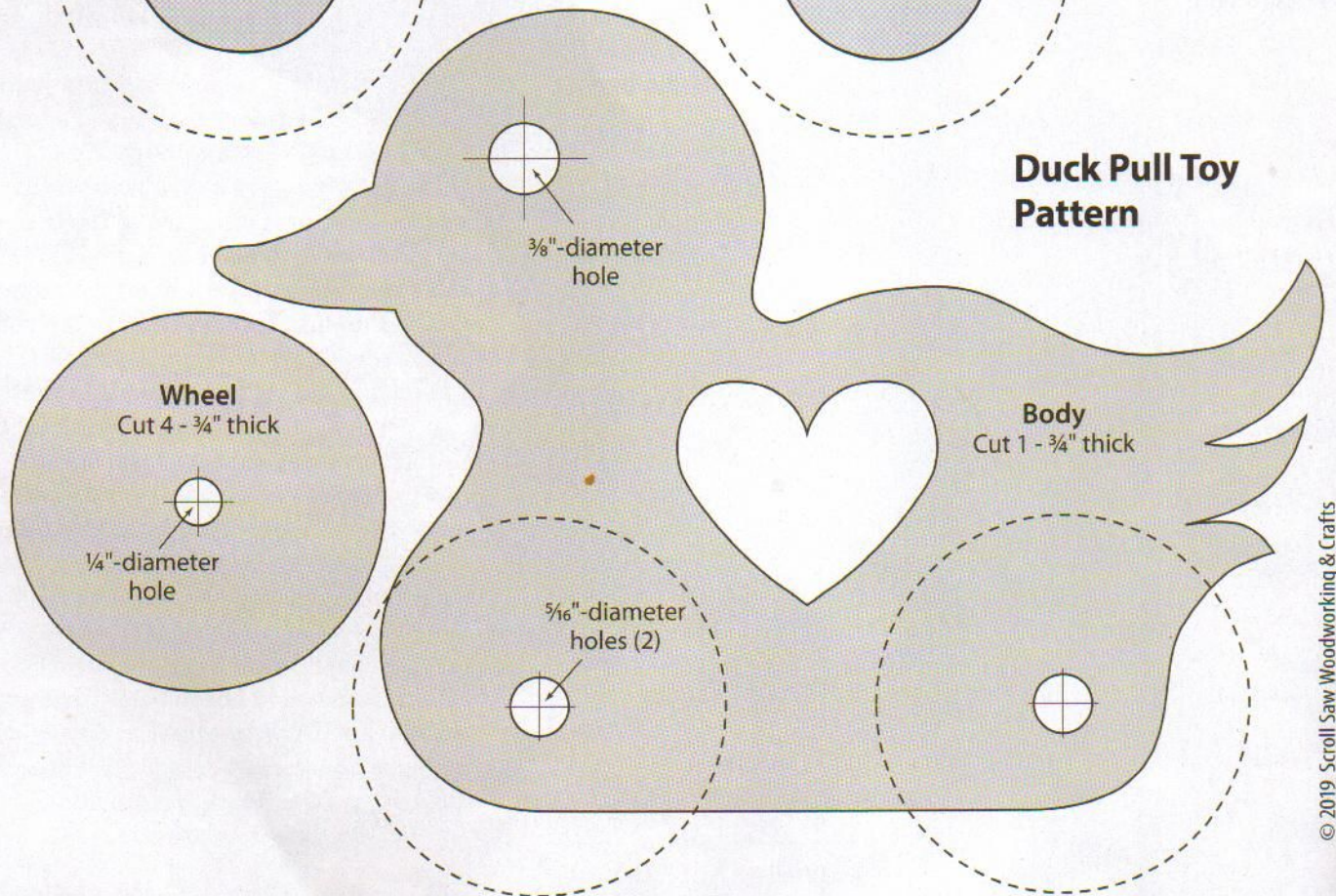
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.



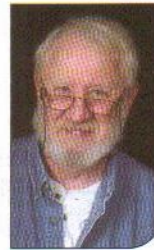
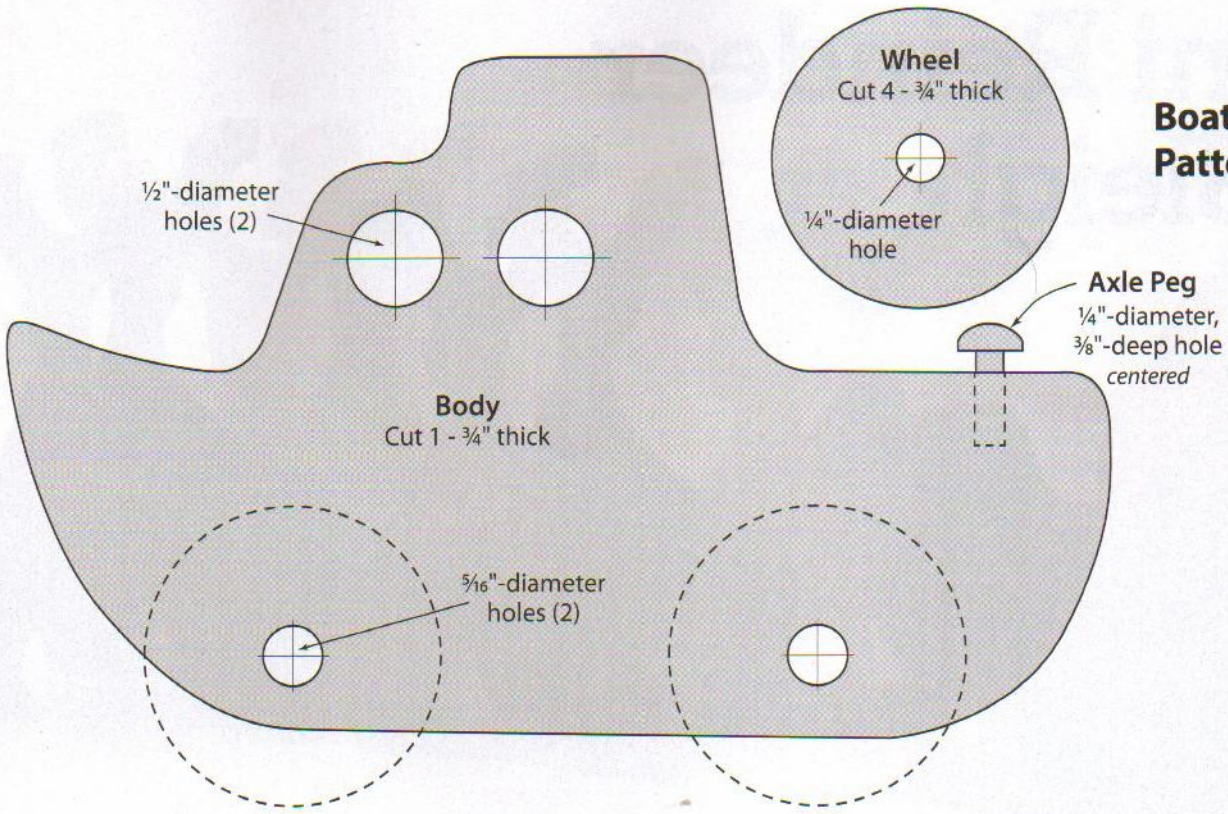
Rabbit Pull Toy Pattern



Duck Pull Toy Pattern

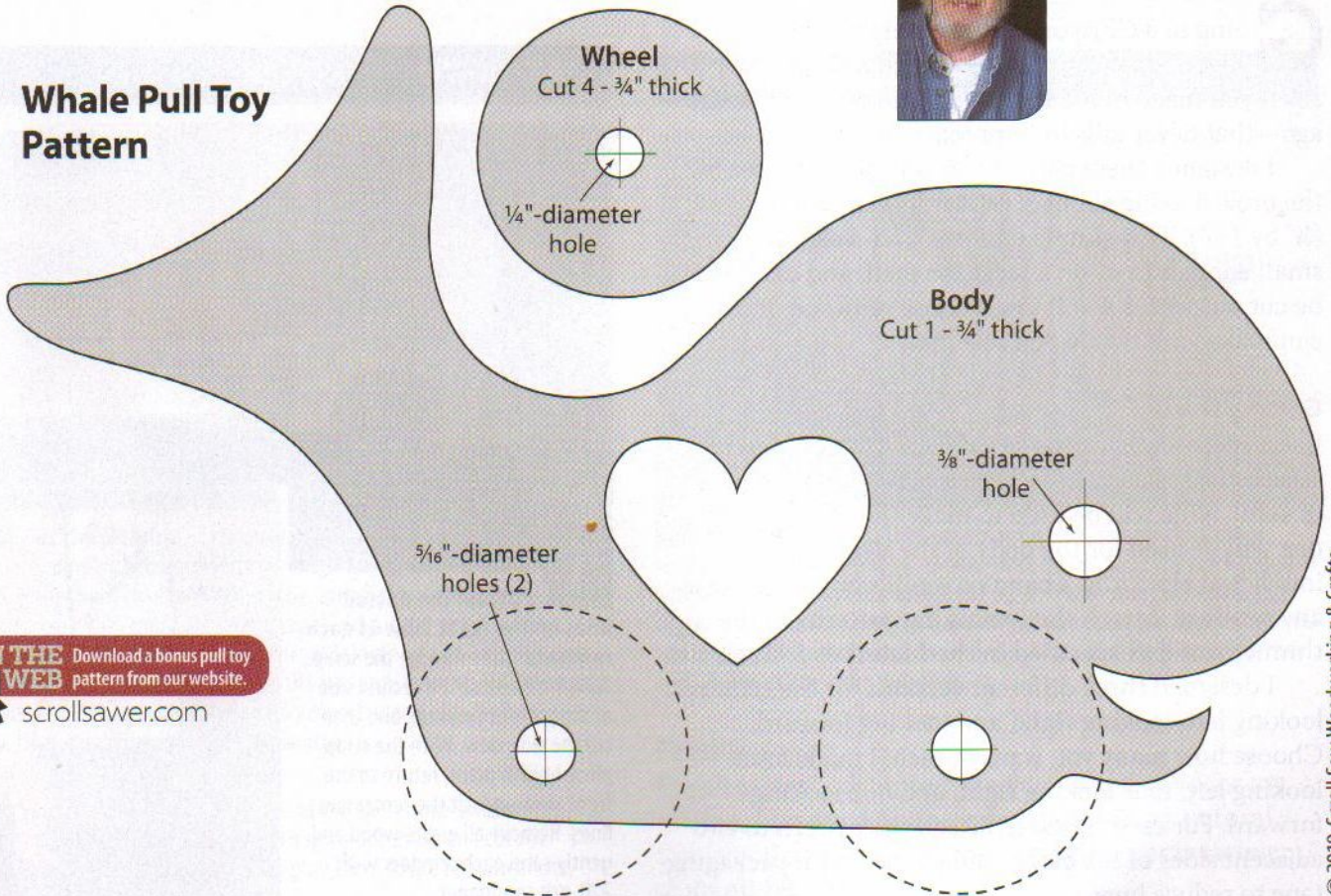


Boat Pull Toy Pattern



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

Whale Pull Toy Pattern



ON THE WEB Download a bonus pull toy pattern from our website.
 scrollsawer.com

Mini Reindeer & Sleigh



You know Dasher, Dancer, and the rest...now you can compound-cut them in a matter of minutes!

By Dave Van Ess

Going to a Christmas party tonight? Bring a special gift for your *deer* friends. When they ask if you made it, tell them it was lumber only hours ago—that never fails to impress.

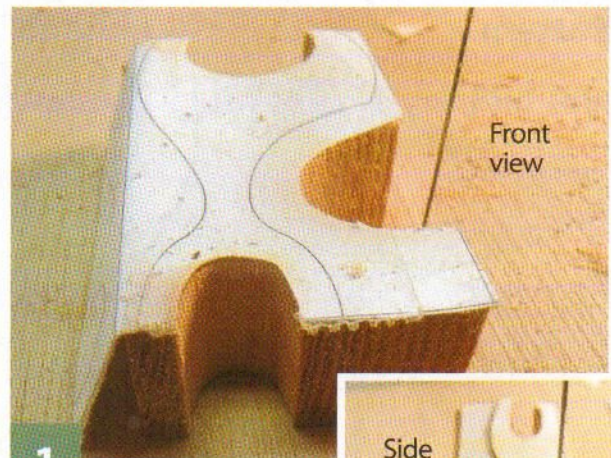
I designed these patterns so you can cut most of the project using about 3' (91.4cm) of a standard 1x2 ($\frac{3}{4}$ " by 1 $\frac{1}{2}$ "). This simple reindeer-and-sleigh set is small enough to sit on a ledge, or shelf, and can easily be cut out with a scroll saw. I chose redwood, but you can make your own wood selection.

Getting Started

Use a ruler to divide the 1x2 (2.5cm)-thick wood into 10 identical blocks, $\frac{3}{4}$ " (1.9cm) by 1 $\frac{1}{2}$ " (3.8cm) by 2 $\frac{1}{2}$ " (6.4cm). Nine will be used to make the reindeer and one will be used for the body of the sleigh. Cut the individual blocks on a band or scroll saw and remove any sawdust. Attach the remaining patterns to the thinner wood as specified in the Materials & Tools list.

I designed three different versions for the reindeer: looking left, looking right, and looking forward. Choose how many you want of each; I made four looking left, four looking right, and one looking forward. For each reindeer, attach the pattern to two adjacent sides of the block, and cover it with packaging tape to reduce burns.

MAKING THE REINDEER



Front view

1 Cut just the dotted lines on the front view of each reindeer. Then remove the scrap. Turn the blank so the second side of the pattern faces up, and then cut the side view. With the scrap piece held in place, return to the front view and cut the remaining lines. Remove all waste wood and gently sand each reindeer with 220-grit sandpaper.



Side view



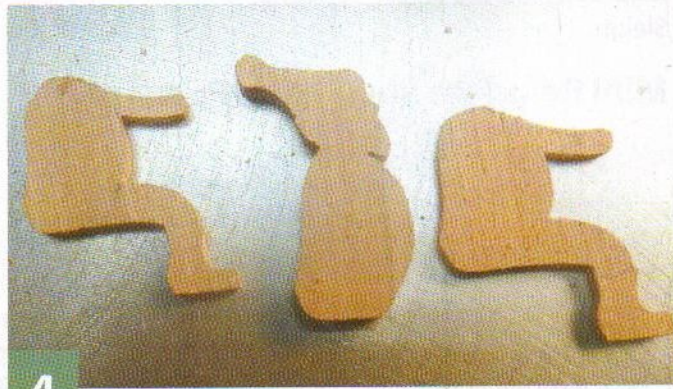
MAKING THE SLEIGH



2 **Cut the sleigh.** The sleigh blank is a stack made of a $\frac{3}{4}$ " (1.9cm)-thick piece, sandwiched between two $\frac{1}{8}$ " (3mm)-thick pieces. Tape the stack together with clear packaging tape, attach the pattern with spray adhesive, cover with more packaging tape, and cut the sleigh outline. Disassemble, transfer the pattern to the middle piece, and cut the sleigh interior (indicated by a dashed line on the pattern). Remove any sawdust and glue the pieces together; I used Rapidfuse™ wood glue, as it dries quickly. Once dry, sand with 220-grit sandpaper.

3 **Make the runners.** Take one of the $\frac{1}{4}$ " (6mm)-thick pieces, attach the runner pattern with spray adhesive, and cut the runners. Remove any fuzzies, glue them to the bottom of the sleigh, and let dry.

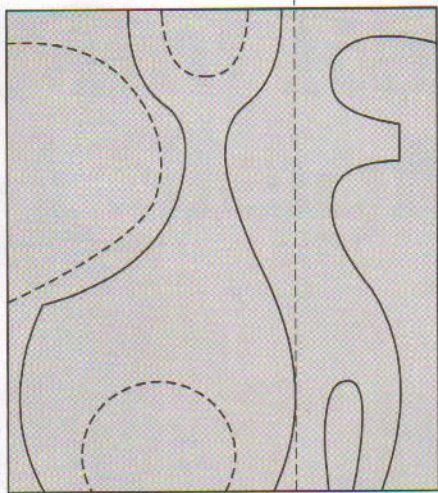
MAKING SANTA



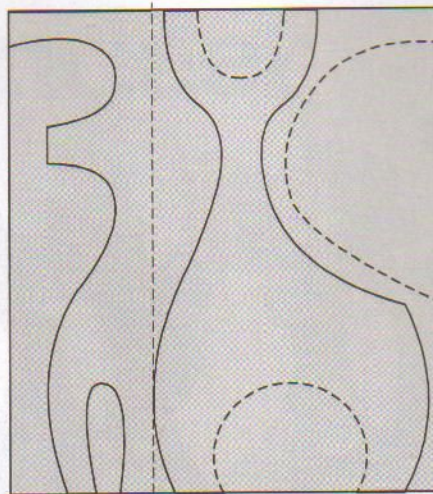
4 **Cut the Santa.** The Santa blank is a $\frac{1}{4}$ " (6mm)-thick piece sandwiched between two $\frac{1}{8}$ " (3mm)-thick pieces. Tape the stack together with clear packaging tape, attach the pattern with spray adhesive, and cut the Santa outline. Trim the head off the two outer pieces and the arms and legs off the center piece. As with the sleigh, glue the pieces together and sand with 220-grit sandpaper.

Finishing

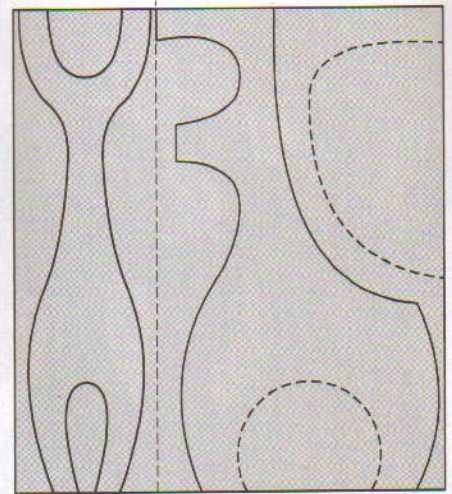
Finish as desired. Since I used a rich redwood for my version, I warmed up the color slightly with natural Danish oil, but you could also use clear spray lacquer or an oil-based stain.



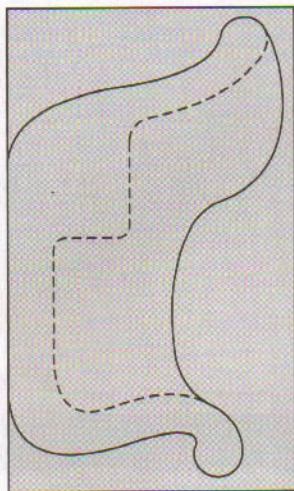
Left-Facing Reindeer



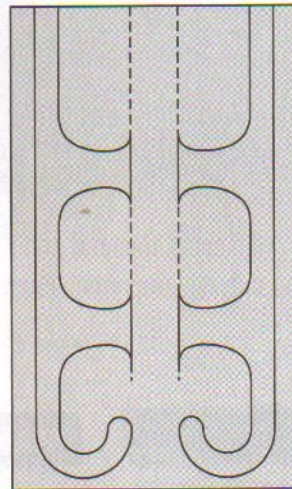
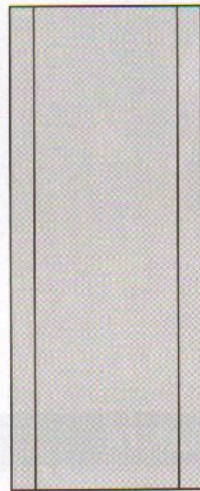
Right-Facing Reindeer



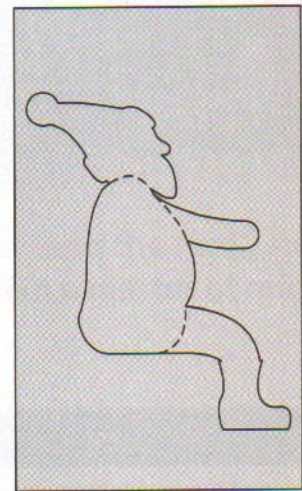
Front-Facing Reindeer



Sleigh



Runners



Santa - Cut 3



Mini Reindeer and Sleigh Patterns

Materials & Tools

Materials

- Redwood, $\frac{3}{4}$ " (1.9cm) thick: reindeer and sleigh body center, 2" x 3' (5.1cm x 91.4cm)
- Redwood, $\frac{1}{4}$ " (6mm) thick: Santa and runners, 2 each $1\frac{1}{2}$ " x $2\frac{1}{2}$ " (3.8cm x 6.4cm)
- Redwood, $\frac{1}{8}$ " (3mm) thick: remaining sleigh and Santa pieces, 4 each $1\frac{1}{2}$ " x $2\frac{1}{2}$ " (3.8cm x 6.4cm)
- Spray adhesive
- Tape: clear packaging
- Sandpaper: 220-grit

- Finish, such as Danish oil
- Glue, such as RapidFuse™
- Decorative pom-poms: $\frac{3}{16}$ " (5mm) dia. (optional)

Tools

- Band saw (optional)
- Scroll saw blades: #3 reverse-tooth
- Ruler
- Clamps (optional)

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

To add more color, glue small pom-poms to the reindeers' noses.

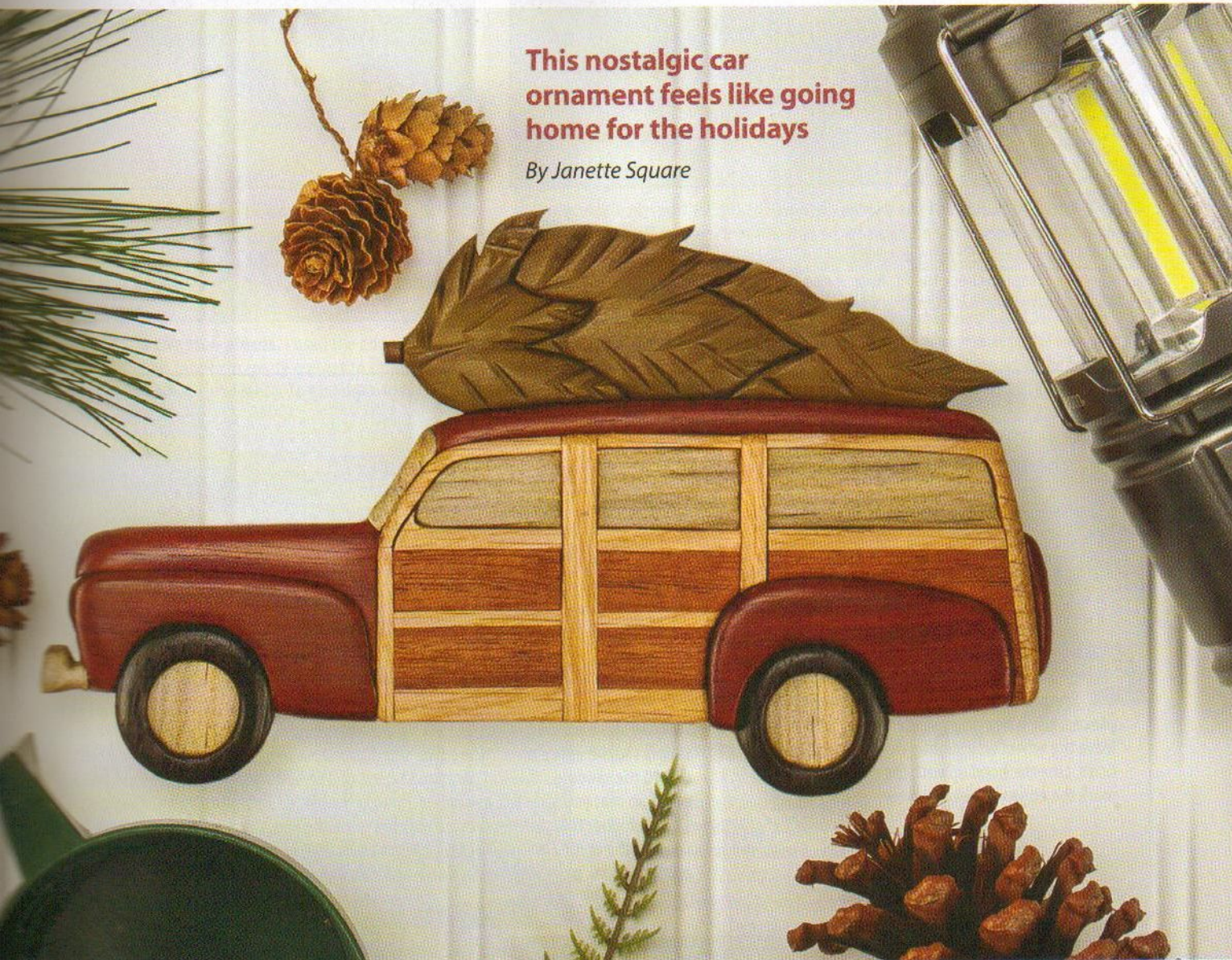


Dave Van Ess is a retired engineer living in Chandler, Ariz. He has been woodworking for 40 years and scrolling for 30. He is the president of Arizona Woodworkers (a greater Phoenix area woodworking club) and volunteers one day a week teaching woodworking to four-year-olds at a local day care.

Classic Woodie Intarsia

This nostalgic car ornament feels like going home for the holidays

By Janette Square



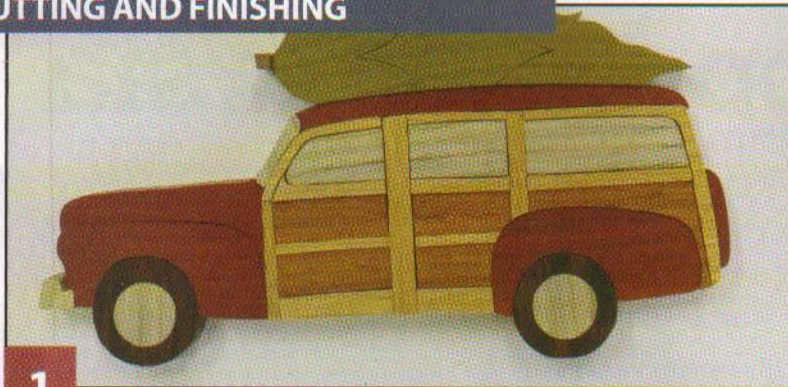
If you remember packing into the family car to go and select the perfect Christmas tree, you'll love this timeless ornament. The main "metal" parts of the car are made from redheart, which is beautiful but a challenge to cut. It burns easily, so you must take special care when scrolling. Always make sure your blade is sharp and change it at the first sign of smoke. Alternately, you could select a softer wood such as red cedar for a similar effect. Either way, it's a great project for using up small scraps. You could also enlarge the pattern to make a wall hanging.

Getting Started

Select your wood and sand or plane it down to the desired thickness. I cut the wood pieces to the rough overall size and then thinned them with a band saw, followed by a few passes on a belt sander with 100- and then 220-grit sandpaper.

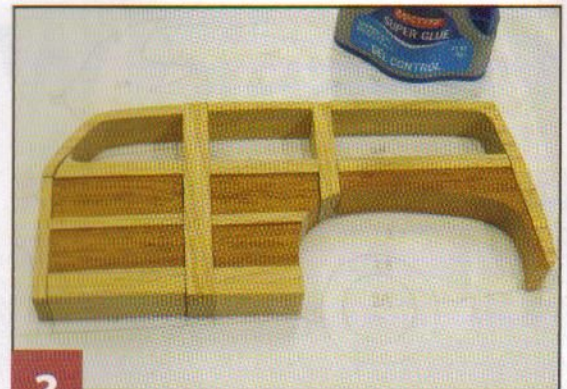
Cover the front of the wood with clear packaging tape. Number and cut out the pattern pieces, and then attach them to the wood with spray adhesive. I left the entire horizontal panel pattern intact to be cut as a unit, as well as the windows and darker side panel pieces. This makes it easier to manipulate the small pieces and ensures grain continuity. Drill blade-entry holes in the insides of the tires, as you will remove them later.

CUTTING AND FINISHING



1

Carefully cut all of the pieces. Remove the fuzzies from the backs with a mop sander. Transfer the numbers to the bottoms of the pieces, and then remove the patterns and tape from the fronts. Assemble the cut pieces on a second copy of your pattern to check the fit. *Note: it also helps to label the "up" direction with an arrow to avoid orienting similarly shaped pieces improperly.*



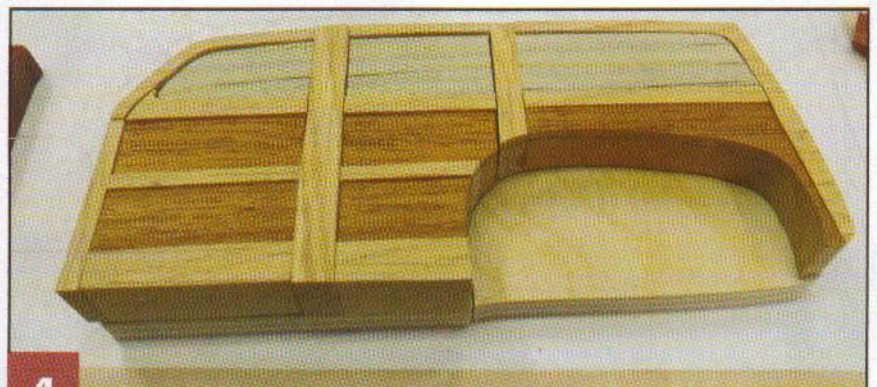
2

Assemble the wood side panels and glue them together. I used cyanoacrylate (CA) glue gel because it sets quickly. The gel is also easier to work with than liquid glue, which runs all over and soaks into the wood.



3

Shape the hood and front wheel well pieces. Use a flex drum sander. Make sure to leave the wheel well slightly thicker than the hood. Line the hood up with the side panels and mark the edge where they meet.



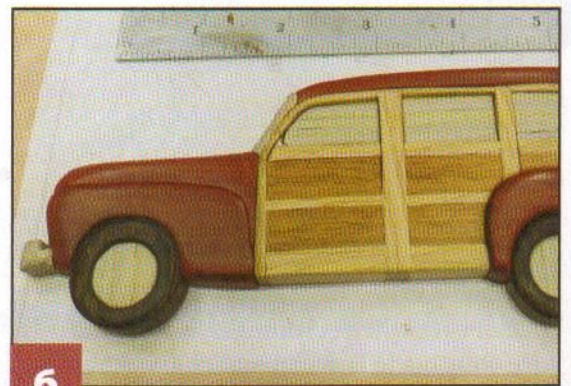
4

Make a sanding shim for the wood side panels. I used a piece of scrap plywood. This will allow you to shape them as one unit. Temporarily reinsert the windows to add support to the entire piece. Using two-sided, pressure-sensitive turner's tape, attach the unit to the sanding shim and begin to shape it on the belt sander. Go lightly and check often, so that you just sand enough to smooth the pieces. You want the side panel to be slightly higher than the hood and about the same thickness as the front wheel well panel. Contour the angled area by the front windshield, then up and around the perimeter of the outermost oak piece. Use the flex drum sander. Remove the side panel from the shim.



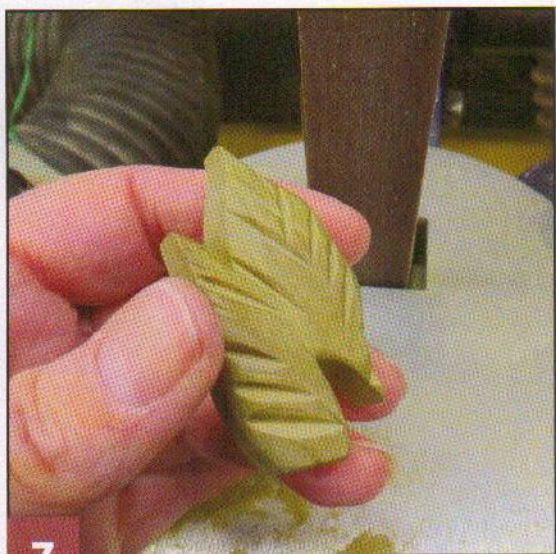
5

Remove the window pieces from the side panel. Then use a ruler to mark the desired thickness around their outer edges; they should be approximately $\frac{1}{16}$ " (2mm) lower than the side panels. Use the belt sander to thin them, keeping an eye on the pencil line. Shape the front window with the flex drum sander, tapering it down and to the left. Thin the inner wheel pieces in the same way.



6

Shape the remaining pieces with the flex drum sander. Glue the rest of the car components together.



7 **Shape the tree pieces.** I used the edge of a 1" (2.5cm) belt sander to create gouges to simulate branches. Then glue the pieces to the top of the car.



8 **Allow the assembly to dry overnight.** Then apply your choice of finish. Trace around the ornament onto a piece of backing material; I used 1/8" (3mm) oak. Apply a second coat of finish to the ornament and one coat to the side of the backer that will be visible. Let dry. *Note: the above photo shows what the back of the assembled piece should look like before you attach it to the backer.*



9 **Attach the ornament to the backer with wood glue.** Once glued, I clamp the backer to the project for good contact and allow it to dry. *Note: Be sure to protect the front of the project with a soft cloth or sock to prevent the clamps from scratching it.* Then apply a hanger of your choice. I found the center point of the ornament by holding it between my thumb and forefinger until it was level. Hang with fishing line, if desired.



Janette Square lives in Yachats, on the Oregon coast. For more of Janette's work, visit her website at square-designs.com.

Materials & Tools

Materials

Sizes are approximate and can vary depending on pattern orientation

- Red wood such as redheart, 1/2" (1.3cm) thick: main body, 2" x 5" (5.1cm x 12.7cm)
- Light wood such as oak, 1/2" (1.3cm) thick: outer wood side panels, 3" x 5" (7.6cm x 12.7cm)
- Medium red wood such as Spanish cedar, 1/2" (1.3cm) thick: inner wood side panels, 1" x 5" (2.5cm x 12.7cm)
- Bluish grey wood such as blue pine, 1/2" (1.3cm) thick: windows and inner tires, 2" x 5" (5.1cm x 12.7cm)
- Black wood such as wenge, 1/2" (1.3cm) thick: outer tires, 1 1/2" (3.8cm) square
- Green wood such as green poplar, 1/2" (1.3cm) thick: tree, 2" x 6" (5.1cm x 15.2cm)
- Dark wood such as walnut, 1/2" (1.3cm) thick: tree trunk, scrap sized for tree
- Baltic birch or oak plywood, 1/8" (3mm) thick: backer, sized for pattern

- Scrap plywood: sanding shim
- Tape: clear packaging, two-sided turner's
- Spray adhesive
- Glue: wood, cyanoacrylate (CA)
- Finish: clear satin gel varnish
- Paper towels
- Hanger
- Fishing line

Tools

- Band saw (optional)
- Drill with bits: assorted small
- Scroll saw blades: #3 (for softer woods) or #5 (for harder woods) reverse-tooth
- Sanders: flex drum, belt with 100- and 220-grits
- Sanding mop: 220-grit
- Clamps: small
- Air compressor or compressed air

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

Pattern for the **CLASSIC WOODIE INTARSIA** is in the pullout section.

Rustic Winter Scene

Use tree branches to create a moonlit sleigh ride through the forest

By Armin Täubner

Editor's Note: In his book Winterszenen im Rahmen: Laubsägemotive und Äste, Armin Täubner offers instruction on a variety of simple and festive woodworking projects for the home. We're pleased to share this excerpt.

Getting Started

Choose a kind of wood; I cut the entire scene from poplar plywood, but you can use any thin stock you prefer. Sand the wood with 220-grit sandpaper and attach the Santa, sleigh, bird, star, and moon patterns to the surface with spray adhesive. Drill the holes for the frets, such as the space between the horse's back leg and tail and the rectangular sections between the sleigh body and runners.

CUTTING AND ASSEMBLING

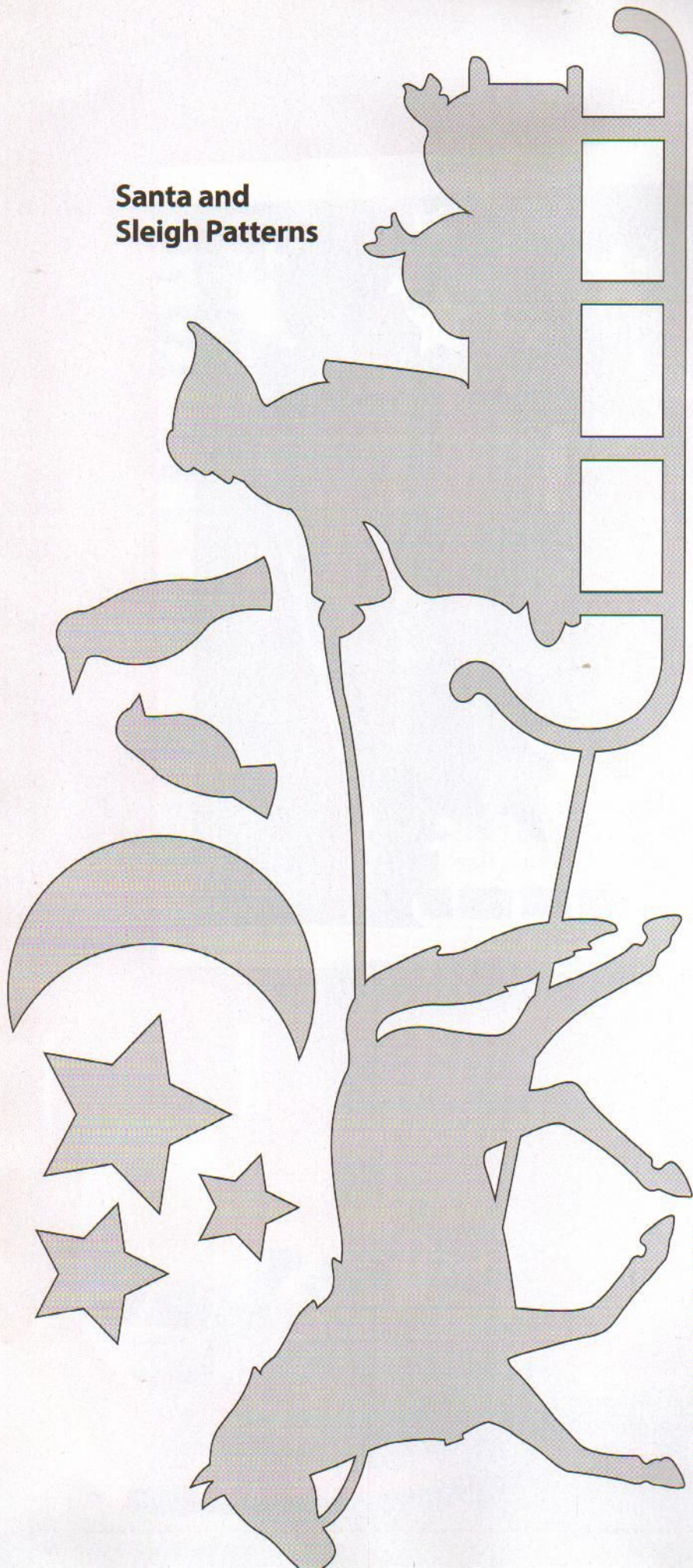
- 1 Cut the frets on the horse and sleigh first.** Then cut the outline, birds, moon, and stars. *Note: only cut the horse and sleigh outline after all inner surfaces are exposed; otherwise, the narrow reins and pull rope will snap.* Gently remove any fuzzies from the pieces with 220-grit sandpaper.
- 2 Assemble the frame.** I made mine by gluing and clamping together four strips of $1\frac{3}{16}$ " (2cm)-thick poplar cut on a table saw. *Note: when gluing, use a square to ensure a 90° angle on each side.* Once dry, reinforce the joints with small, additional strips and more wood glue in the back.
- 3 Prepare the branches.** I used sycamore, but you can use any found wood you like. Cut them to size on the scroll saw, and secure them in the frame with skirting board pins.
- 4 Arrange the winter scene and secure the pieces with a hot glue gun.** You can also vary the number of birds and stars. I left my piece unfinished, but you can apply a few coats of clear satin spray lacquer or similar, if desired. Add a hanger and display.



Look for branches that offer perches for birds and stars.



Santa and Sleigh Patterns



Materials & Tools

Materials

- Poplar plywood, $\frac{1}{4}$ " (6mm) thick: Santa and sleigh scene, $5\frac{15}{16}$ " x $11\frac{13}{16}$ " (15cm x 30cm)
- Poplar plywood, $\frac{1}{8}$ " (3mm) thick: joint reinforcements, 4 each $1\frac{3}{16}$ " x $1\frac{3}{16}$ " (2cm x 3cm)
- Small branches: 4-6 each, cut to $12\frac{5}{8}$ " (32cm) long
- Poplar, $\frac{13}{16}$ " (2cm) thick: horizontal frame pieces, 2 each 1 " x $17\frac{3}{4}$ " (2.5cm x 45cm)
- Poplar, $\frac{13}{16}$ " (2cm) thick: vertical frame pieces, 2 each 1 " x $12\frac{5}{8}$ " (2.5cm x 32cm)
- Spray adhesive
- Sandpaper: 220-grit
- Wood glue
- Finish: clear satin spray lacquer (optional)
- Skirting board pins, $\frac{1}{16}$ " (2mm)-dia: 14 each $1\frac{3}{8}$ " (35mm) long
- Hanger

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

Tools

- Table saw
- Scroll saw blades: #3 reverse-tooth
- Drill press with bits: assorted small
- Hot glue gun with glue sticks
- Square
- Clamps

WANT MORE WINTER SCENES?

Winterszenen im Rahmen: Laubsägemotive und Äste

By Armin Täubner

German edition available at topp-kreativ.de



Paper, wood, clay, or clothing pegs—every material is a source of inspiration for Armin Täubner. Backgrounds in biology and art have informed his creations, in which his favorite subject—animals—figures heavily. Based in Germany,

Armin has been contributing to craft publications for over two decades. The text is in German, but the patterns are universal!



Cat ornament
with inset
paw print

Dog ornament
with raised
paw print

Paw Print Ornaments

**Christmas is going to
the dogs (and cats)!**

By Janette Square

These paw print stockings are a quick, approachable project that would make a great gift for any pet owner. They're also ideal for scrollers who are new to intarsia and inlay, because their small surface area and understated design require minimal cutting and shaping. When done, you can paint, scroll, or wood burn the pet's name into the top for a more personal touch.



Janette Square lives in Yachats, on the Oregon coast. For more of Janette's work, visit her website at square-designs.com.

CUTTING AND SHAPING



1

Select your wood and sand or plane it down to the desired thickness. I made a few passes on a belt sander with 100- and then 220-grit sandpaper. Cover the front of the wood with clear packaging tape. Then attach the pattern pieces to the surface with spray adhesive. Drill blade-entry holes into each paw opening. Cut out all the pieces and assemble them on a copy of the pattern. If you plan to make the paw flush to the stocking (see photo on page 37), glue the pieces in with wood glue before shaping. *Note: To make the cat paw raised, use 3/4" (1.9cm)-thick maple; to make the dog paw flat, use 1/2" (1.3cm)-thick walnut.*

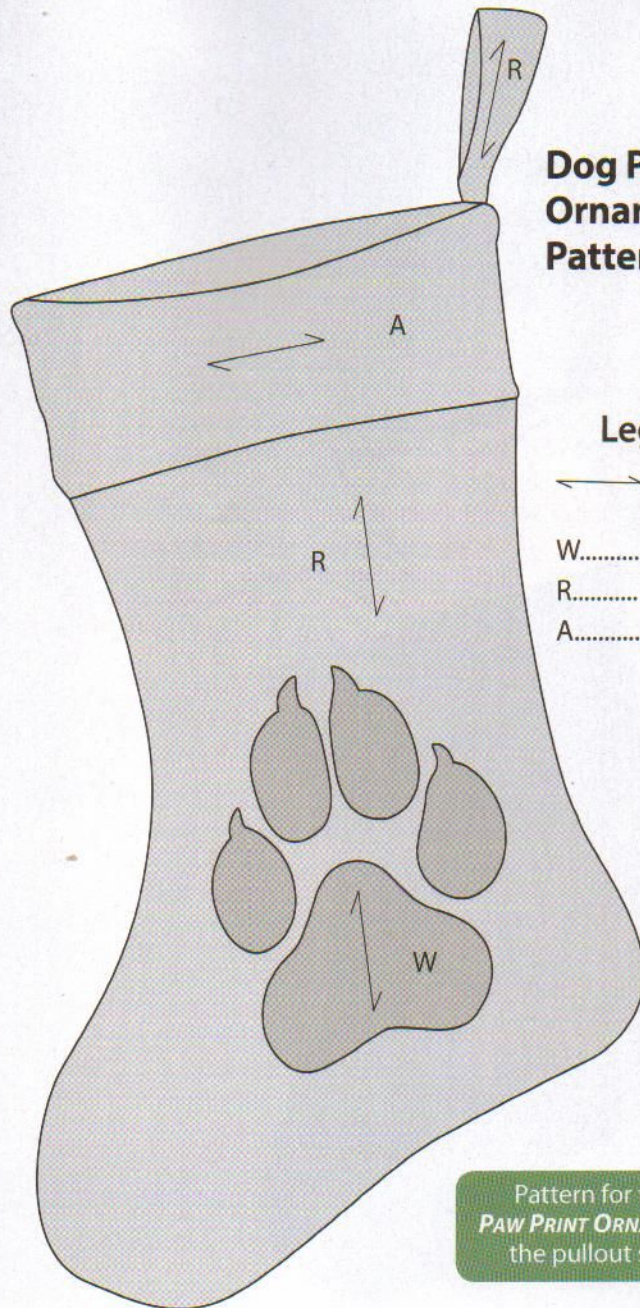


2

Shape as desired. Use a flex drum sander. If you want the paw to stand out from the stocking (as shown above), shape the individual paw pads until you achieve the desired result. Glue the pieces together, let dry, and apply your finish of choice.

3

Make the backer. Trace around the ornament onto a piece of backing material; I used 1/8" (3mm)-thick Baltic birch plywood. Apply a second coat of finish to the ornament and one coat to the side of the backer that will be visible. Let it dry. Then secure the ornament to the backer with wood glue and clamp. Attach hooks to the back. You can tie a ribbon or string onto the hooks or hang them on the wall.



Dog Paw Print Ornament Pattern

Legend

- ← Grain direction
- W..... Walnut
- R..... Redheart
- A..... Aspen

© 2019 Scroll Saw Woodworking & Crafts

Pattern for the **CAT PAW PRINT ORNAMENT** is in the pullout section.

Materials & Tools

Materials

- Red wood such as redheart, 1/2" (1.3cm) thick: main body, 2 each 4" x 5" (10.2cm x 12.7cm)
- White wood such as aspen, 5/8" (1.6cm) thick: stocking tops, 2 each 1 1/2" x 3" (3.8cm x 7.6cm)
- Light wood such as figured maple, 1/2" (1.3cm) thick: cat paw, 2" (5.1cm) square
- Dark wood such as claro walnut, 3/4" (1.9cm) thick: dog paw, 2" x 2 1/2" (5.1cm x 6.4cm)

- Baltic birch or oak plywood, 1/8" (3mm) thick: backer, sized for pattern
- Tape: clear packaging
- Spray adhesive
- Sanding mop: 220-grit
- Glue: wood
- Finish: clear satin gel varnish
- Hangers
- Fishing line or ribbon (optional)

Tools

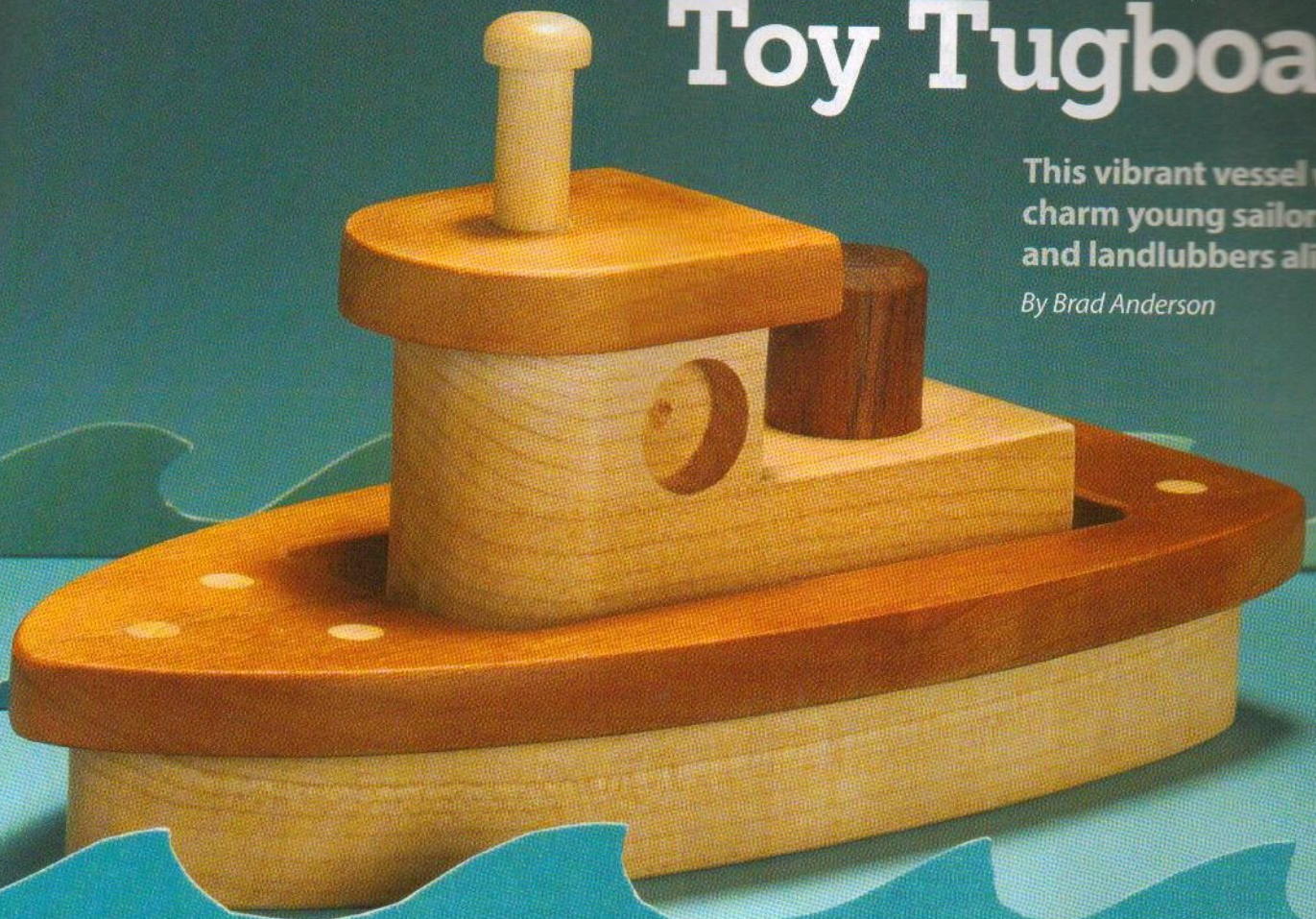
- Scroll saw blades: #3 (for softer woods) or #5 (for harder woods) reverse-tooth
- Band saw (optional)
- Drill with bits: assorted small
- Sanders: flex drum, belt with 100- and 220-grits
- Clamps: small
- Air compressor (optional)

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

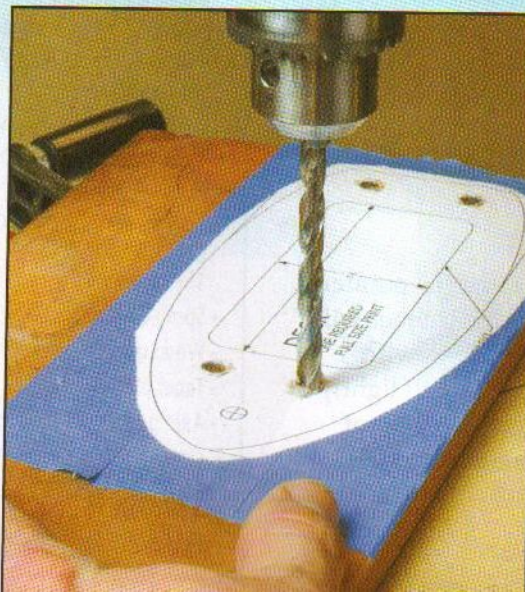
Toy Tugboat

This vibrant vessel will charm young sailors and landlubbers alike

By Brad Anderson



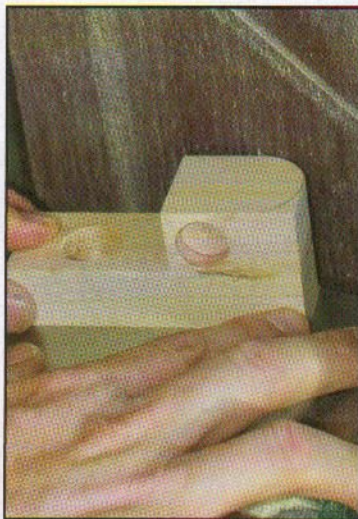
Who doesn't love a tugboat, the small but crucial vessel that moves larger ships through a harbor? This project's compact size makes it a simple toy children can play with on any surface—it even floats! I've also built in a number of details for little hands to grasp.



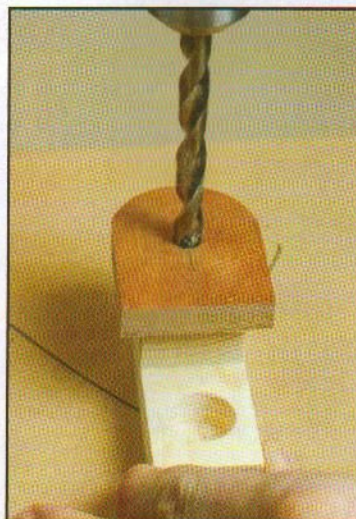
1

Attach the hull and deck patterns to the wood blanks.

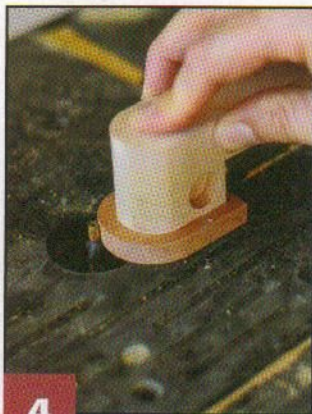
Use spray adhesive. Drill $\frac{1}{4}$ " (6mm) holes in the areas indicated on the deck pattern. Then cut out the pieces. Sand the edges smooth with 220-grit sandpaper in a belt sander, and set aside the inside deck cutout; you'll use this piece to make the roof. Cut the lower cabin, cabin, and roof pieces. Glue and clamp the upper and lower cabin pieces together and let dry.



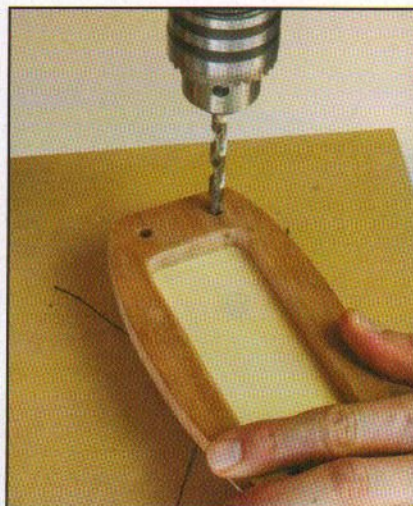
2 **Mark and drill the window and smoke stack holes.** I used a $\frac{5}{8}$ " (16mm)-diameter bit for the window and a $\frac{3}{4}$ " (19mm)-diameter bit for the smoke stack. Mark and establish the curve on the front of the cabin using a belt sander.



3 **Glue and clamp the roof on the cabin assembly.** Let dry. Then mark and drill an $1\frac{1}{32}$ " (9mm)-diameter hole on the roof for the axle peg.



4 **Round the hull, deck, and roof.** Use a $\frac{1}{8}$ " (3mm)-radius roundover bit in a router.



5 **Glue the deck to the hull.** Drill $\frac{1}{4}$ " (6mm)-diameter by 1" (2.5cm) deep holes in the deck. Cut a $\frac{1}{4}$ " (6mm)-diameter dowel to $1\frac{1}{8}$ " (2.9cm) long. Then glue the dowel pieces in and sand smooth. Sand all parts to 220-grit. Glue in the smoke stack and axle peg.

TIP DOWEL HOLES

Be careful to not drill the assembly dowel holes all the way through the hull. This will prevent blowout on the back side.



Finishing

Cover the center of the deck cutout with blue painter's tape; if you leave this area uncovered, the lacquer will interfere with the adhesive. Finish the pieces with shellac or another clear, child-safe finish. Buff lightly with 220-grit sandpaper and apply a second coat of finish. Remove the tape and glue the cabin and deck assemblies together with wood glue.

Materials & Tools

Materials

- Cherry, $\frac{3}{8}$ " (1cm) thick: deck and roof, 4" x 7" (10.2cm x 17.8cm)
- Maple, $\frac{3}{4}$ " (1.9cm) thick: hull and cabin, 5" x 6 $\frac{1}{2}$ " (12.7cm x 16.5cm)
- Wood dowel, $\frac{1}{4}$ " (6mm) thick (for connecting deck to hull): 6" (15.2cm) long
- Walnut dowel, $\frac{3}{4}$ " (1.9cm) thick (for smokestack): 1 $\frac{1}{2}$ " (3.8cm) long
- Spray adhesive
- Wood glue
- Tape: blue painter's
- Axle peg: $1\frac{1}{32}$ " (9mm) dia.

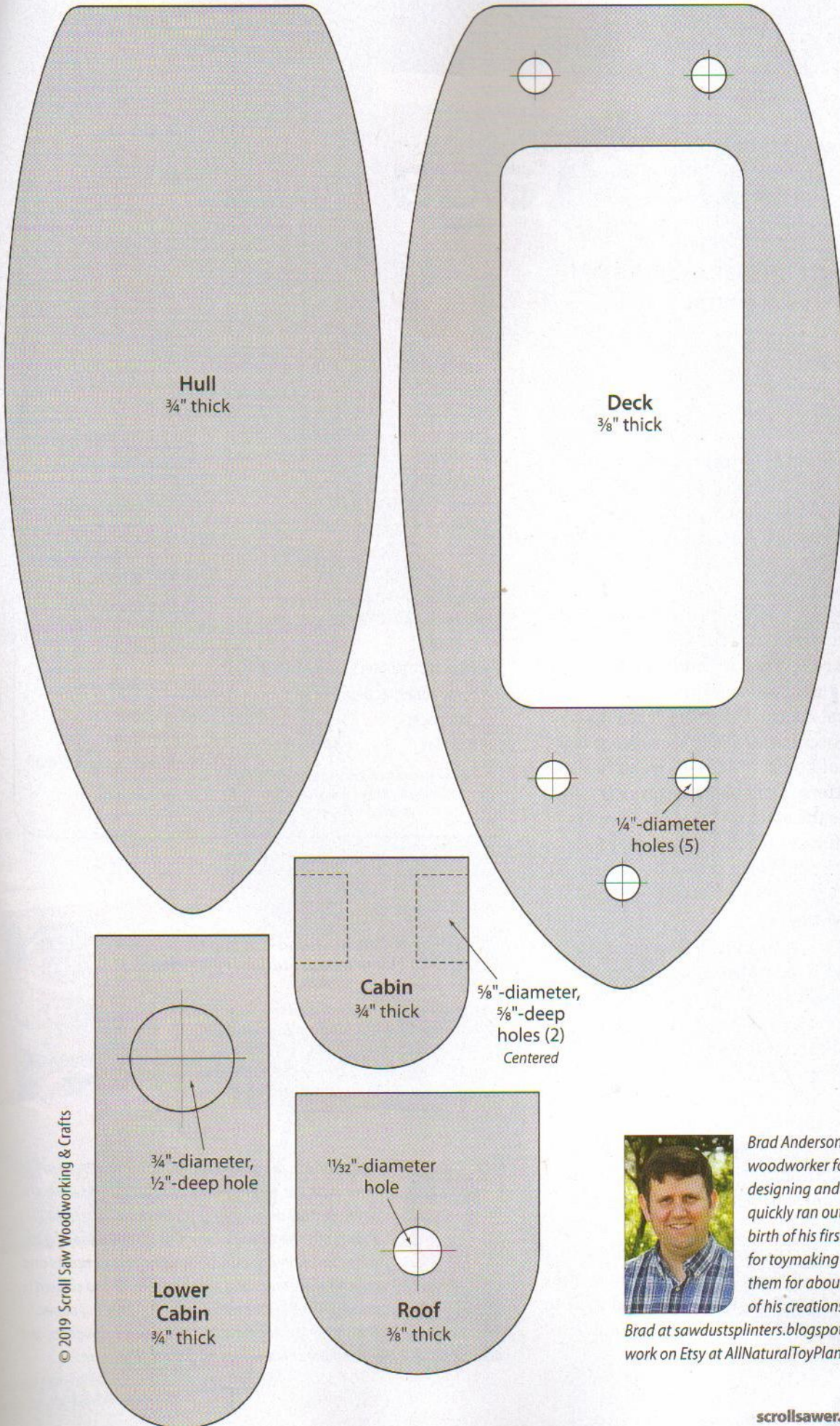
- Finish: clear shellac (or other child-safe finish)
- Sandpaper: 220-grit

Tools

- Scroll saw blades: #5 skip-tooth
- Drill press with bits: $\frac{1}{4}$ " (6mm), $1\frac{1}{32}$ " (9mm), $\frac{5}{8}$ " (16mm), $\frac{3}{4}$ " (19mm) dia.
- Router with roundover bit: $\frac{1}{8}$ " (3mm) radius
- Sander: random orbit
- Clamps: small

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

Toy Tugboat Patterns



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Brad Anderson has been a hobbyist woodworker for about 20 years. He started designing and building furniture but quickly ran out of places to put it. After the birth of his first child, he discovered a love for toymaking and has been designing them for about 4 years. He donates many of his creations to local toy drives. Contact

Brad at sawdustsplinters.blogspot.com or see more of his work on Etsy at AllNaturalToyPlans.com.

Gift Wine Tags

Make any occasion special with these elegant, easy-to-cut mementos

By Mindy Kinsey
Design by Anna Bondoc

A bottle of wine is always a welcome holiday or host gift. Make it more special by adding a keepsake tag. It's easiest to stack-cut thin wood anyway, so make several tags at a time and have them ready for party season.

Prepping and Cutting

Stack the walnut blanks, backing the stack with scrap wood if desired. Cover the top with blue painter's tape and adhere the wine glass pattern to the tape (I used spray adhesive). Repeat for the Baltic birch blanks, adhering the glass center pattern $\frac{1}{4}$ " (6mm) from one short edge; there should be 2" (5.1cm) of wood beyond the bottom of the pattern. Drill blade-entry holes and cut the frets. Separate the stacks, discard the waste pieces, and sand the fuzzies off the project pieces. I used disposable nail files to clean inside the frets.

Assembling and Finishing

Match each walnut layer with a birch layer and mark the backs of the pieces if necessary. Spray the fronts of the walnut pieces with clear semi-gloss lacquer, letting the finish dry and sanding between coats. Repeat to spray the fronts of the birch pieces with warm white paint. Let the finishes dry thoroughly.

Spray the back of a walnut piece with adhesive and align it on the painted side of a birch piece; repeat for the remaining sets and let dry. Spray the back of each assembly with adhesive and align on a piece of colored cardstock or veneer; repeat for the remaining sets and let dry, weighting as needed. Drill a small hole in the center top of each tag and thread a length of ribbon through the hole. Pen a message on the bottom of the tag with your preferred writing implement and tie it to your vintage of choice.

Materials & Tools

Materials

- Baltic birch, $\frac{1}{16}$ " (2mm) thick: 4 each $3\frac{1}{2}$ " x $7\frac{1}{4}$ " (8.9cm x 18.4cm)
- Walnut, $\frac{1}{16}$ " (2mm) thick: 4 each $3\frac{1}{2}$ " x 5" (8.9cm x 12.7cm)
- Scrap wood, $\frac{1}{8}$ " (3mm) thick: 2 each $3\frac{1}{2}$ " x $7\frac{1}{4}$ " (8.9cm x 18.4cm) (optional)
- Tape: blue painter's
- Spray adhesive: permanent
- Sandpaper
- Nail files
- Spray paint: warm white
- Spray finish: clear semi-gloss
- Cardstock or veneer: 4 each $3\frac{1}{2}$ " x $7\frac{1}{4}$ " (8.9cm x 18.4cm)
- Ribbon, $\frac{1}{8}$ " (3mm) to $\frac{1}{4}$ " (6mm) wide: 4 each 10" (25.4cm) long

Tools

- Scroll saw blades: #5 reverse-tooth
- Drill with bits: assorted small

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

FURTHER READING

Simply Paper Cutting: Hand-Cut Paper Projects for Home Décor, Stationery & Gifts

By Anna Bondoc

Readers learn to cut colored paper into bold patterns to create stunning note cards, journals, wall art, picture frames, and gift boxes.

Item 5389. Available for \$19.99 plus S&H from Fox Chapel Publishing, 800-457-9112, or check your local retailer.



Anna Bondoc, author of *Simply Paper Cutting*, is an artist, designer, teacher, writer, and avid home cook. She developed her unique paper cutting technique in 2005 shortly after becoming a new mom and was looking for a way to continue printmaking without toxic paints and solvents. Experimenting with a craft knife and colored paper, she fell in love with cutting and layering paper. She lives in Los Angeles with her husband, daughter, and oh-so-gentle pit bull. For more of her work, visit annabondoc.com.



...and Piping Hot,
But Never Boiled!
Holiday

Happy
Holidays!
from the Joneses

Happy Engagement!
Love, Christine

Pattern for the
GIFT WINE TAGS is in the
pullout section.

Modern Ornaments

Trim your tree with these clever takes on a snowman and snowflake

By Kaylee Schofield

Design by Anna Bondoc

Cut by Danielle Schagrín and Kaylee Schofield

When I was small, my grandfather owned a parcel of land in rural Maine where Christmas trees grew. We claimed a nice tall one for ourselves each year. The raising of the tree was always a grand affair, with macaroni ornaments standing by in tubs organized by sibling and year (and rogue cats getting stuck in the branches). Ornaments are a little like time capsules in their ability to remind us of every Christmas we have seen. This project is a great opportunity to make some new ones.

Cutting and Finishing

Photocopy the patterns and attach them to the wood using temporary-bond spray adhesive. Drill the blade-entry holes for the frets. Cut the innermost frets first and work outward; I recommend stack-cutting a few pieces of plywood so the thin bridges won't snap. You can even add a layer or two of colored cardstock for variation. Once all the frets are done, gently dust off the blank and cut the perimeter of the shape, taking extra care with the points on the snowflake. Separate the stack.

Carefully sand each ornament on both sides with 220-grit sandpaper to remove all fuzzies. Finish as desired; I used a medium stain and then filled the frets with two-part epoxy over Easy Inlay crushed mother of pearl. (For our review of Easy Inlay, see page 12.) Hang with ribbon or colored string.

FURTHER READING

Simply Paper Cutting: Hand-Cut Paper Projects for Home Décor, Stationery & Gifts

By Anna Bondoc

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Materials & Tools

Materials

- Plywood, ¼" (6mm) thick: sized for pattern
- Spray adhesive: temporary-bond
- Sandpaper: 220-grit
- Finish, such as Minwax English chestnut stain
- Epoxy: two-part (optional)
- Crushed mother of pearl, such as Easy Inlay (optional)
- Ribbon or colored string

Tools

- Scroll saw blades: #1 reverse-tooth
- Drill press with bits: assorted small

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

Patterns for the **MODERN ORNAMENTS** are in the pullout section.



SPOTLIGHT

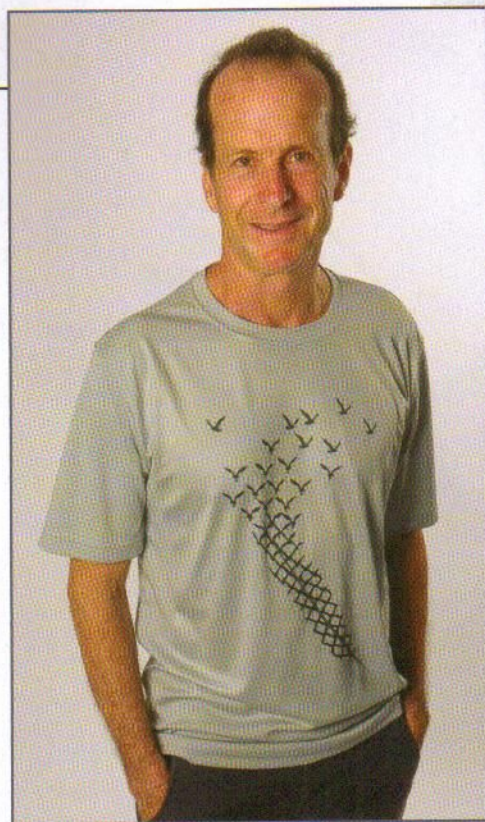
Chris Maynard

This artist cuts birds of a feather—literally!

By Danielle Schagrin

Birds have always been a favored subject for artists in all mediums, from paint to textiles to wood. But Olympia, Washington-based artist Chris Maynard, 65, fashions his birds from a different material; using a small scalpel, he cuts elegant avian silhouettes in actual feathers that he's backed with glue and paper.

In his book, *Feathers: Form & Function*, Maynard presents stunning photos of his scherenschnitte-like artwork, but he also delves into the biologic makeup of feathers in an artful and compelling way. Understanding the biology of a feather—how it grows, how it moves—helps him capture the essence of every nightingale, peacock, or hummingbird he renders in his pieces. And while Maynard's medium is unconventional, we think his work might inspire you to find your own winged muse to cut from wood on the scroll saw—he even provided us with a pattern to get you started (page 49).



SSW&C: Can you tell us about your artistic background?

Chris: I have been focusing on feathers and making art professionally for about ten years. My mother, a professional visual artist, encouraged my creative impulses when I was a child. Through her, I learned to pay attention to form and color. Our family was always making things—presents and projects. As an adult, I continued making art and taught classes at the local community art studio.

SSC&C: Why do you work with feathers?

Chris: I want to fly, but I cannot! It's a desire I share with


many people of all walks of life. Feathers and birds have become symbols for our desires and yearning to fly. They represent escape, transformation, achievement, and hope.

SSW&C: How do you make your pieces?

Chris: I developed a process using glue, paper, and pressure to back each feather and make it sturdy and stable. Then I cut the design with a small scalpel. In the end, you only see the feather, not the backing.

Perchers (Turkey tail feather)





Evening Rush Hour
(European crow feathers)



Much of the time I spend creating a piece is drawing and designing. I start with a sketch, find the right feather, and back it. Then I put an image of the feather and the sketch on a computer to further refine it. It takes a significant amount of time and work to prepare these feathers, some of which are hard to find in the first place.

SSW&C: Where do you acquire the feathers?

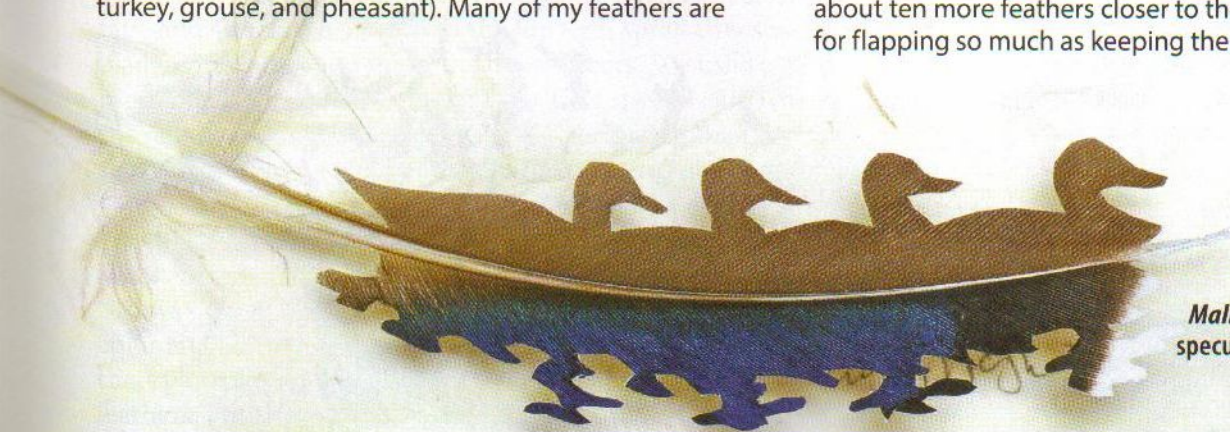
Chris: On my blog, featherfolio.com, I cover a range of topics related to feathers. One of the most popular posts is "Guide to Legal and Illegal Feathers." I want to support conservation, and therefore I support laws meant to protect birds. Feathers from most North American birds are not legal to have or sell. There are some exceptions, namely upland birds that are legal to hunt (including turkey, grouse, and pheasant). Many of my feathers are

naturally shed from non-North American birds that are in captivity in the USA in private aviaries or zoos. (Think of the parrot-type birds that people have as pets.) None of the feathers I use were obtained from birds that were killed for their feathers. I prefer feathers that were naturally shed, so no harm, no fowl (haha!).

SSW&C: Wood artists know that different types of wood have certain qualities that make them more or less ideal to cut. Are feathers the same way?

Chris: Tail feathers are usually better to carve because they tend to be thinner than flight feathers. The approximately ten primary flight feathers on the tip of the wing are thick and the wrong shape for a lot of my work. What are known as the secondary wing feathers, about ten more feathers closer to the body, are not used for flapping so much as keeping the bird aloft. These

(Continued on page 48)



Mallard (Mallard speculum feather)

(Continued from page 47)

are always thinner and wider than the primaries and better suited to my work. The outer edges of feathers are easier to work with. Each species is different, though. For instance, a swan is so heavy that it has pared down its feathers' weight (presumably to aid in flight); they are so thin that they are somewhat translucent.

SSW&C: What can artists who work with other materials, including wood, learn from your work?

Chris: Two things:

1. Any artist tries to capture something of the essence of life. For me, feathers carry something of the essence of the birds that shed them. So, if I am depicting birds in my art by working with feathers, I am one more step toward successfully capturing their essence.
2. The very thing that limits an artist's work can add to creativity. For example, the design choices using a lump of clay or a blank canvas are abundant, but I am limited to the line, form, and color of the feather. This encourages problem-solving to figure out how to portray an idea in an elegant way within these limits.

SSW&C: What else might we see from you?

Chris: I am working on my next book, which will have a lot more about the meaning feathers hold for us. It will also have images of my newer pieces. I'm also excited about several new avenues of expression with feathers that are in the works. I will be working with architects, designers, curators, and builders to install pieces directly on walls, alcoves, and insets in more public places as well as private homes. I will also continue making smaller pieces in shadowboxes, in part because feathers only come in certain sizes.



Wren Song
(Pigeon
and
parakeet
feathers)



FURTHER READING

Feathers: Form & Function

By Chris Maynard

Signed copies available for \$45 through Chris Maynard's blog, featherfolio.com/book. Published through Aviva Publishing.



Where Feathers Come From
(Turkey feather)

Perchers Fretwork

This stylized flock of birds will be a feather in your cap

By Danielle Schagrin
Design by Chris Maynard
Cut by Rolf Beuttenmuller



Artist Chris Maynard uses a scalpel to cut fanciful bird silhouettes into feathers (see page 46). He designed this pattern of bee eaters, a species from sub-Saharan Africa, to be cut from a turkey tail feather, but we discovered it translates beautifully to the scroll saw.

Prepping and Cutting

Sand the front and back of the blanks, moving progressively through the grits until you reach 320. We stack cut $\frac{1}{16}$ " (2mm)-thick Baltic birch plywood for this project. Secure the stack with clear packaging tape and attach the pattern to the top with spray adhesive. Drill the blade-entry holes and make the interior cuts. We used a #2/0 reverse-tooth blade, 28 teeth-per-inch (TPI). Take special care when cutting the details on the birds' faces. Cut the perimeter, then carefully separate the stacks and hand-sand the pieces with 320-grit sandpaper.

Finishing

We were inspired by Chris Maynard's original piece and chose a Minwax ebony stain to give the wood a black tinge that imitates the color and texture of a turkey feather. Real bee eaters are known for their plumage, sporting bright yellow, turquoise, and rust-colored feathers. Finish with satin spray lacquer.

Pattern for the PERCHERS FRETWORK is in the pullout section.

Materials & Tools

Materials

- Baltic birch plywood, $\frac{1}{16}$ " (2mm) thick
- Tape: clear packaging
- Spray adhesive
- Sandpaper: assorted grits up to 320
- Stain, such as Minwax ebony
- Finish, such as Minwax satin spray lacquer

Tools

- Scroll saw blades: #2/0 reverse-tooth, 28 teeth-per-inch (TPI)
- Drill press with bits: small

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

Stylized Lion and Tiger

Cat's out of the bag! These geometric inlay pieces are an animal-lover's dream

By Rolf Beuttenmuller

Design by Antoinette and Stanley Wong

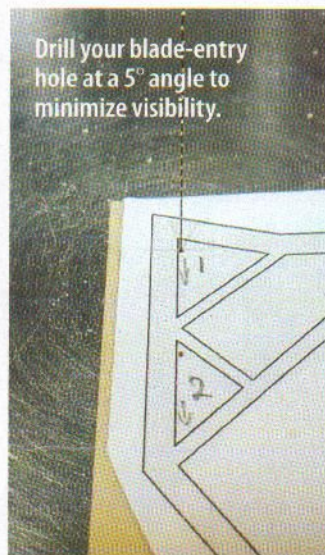
These stylish felines started as small, decorative pins designed by Antoinette and Stanley Wong, but I enlarged them to make these wonderful desk sitters. I made two versions of this project—an intermediate one using two layers of plywood (see page 52) and a more difficult one using plywood and various exotic hardwoods (photo opposite page). If you tackle the latter, keep in mind that you may need more material depending on how you choose to orient the grain.



Number and cut out the pieces for one kind of hardwood before moving to the next.

Cutting and Finishing

Adjust the saw table so the left side tilts down at a 4° angle. Sand the blank with 180- and then 220-grit sandpaper. Attach the first pattern to a piece of Baltic birch plywood with spray adhesive. Position the first piece of hardwood, such as the cherry, underneath the plywood, and secure the stack with blue painter's tape.



Drill your blade-entry hole at a 5° angle to minimize visibility.



Make sure the hardwood grain flows the way you want it to for these first cuts. *Note: To minimize chip-out, I switched to a 28-TPI blade with no reverse teeth for the thin areas of the Baltic birch. I recommend doing a test cut on scrap pieces first.*

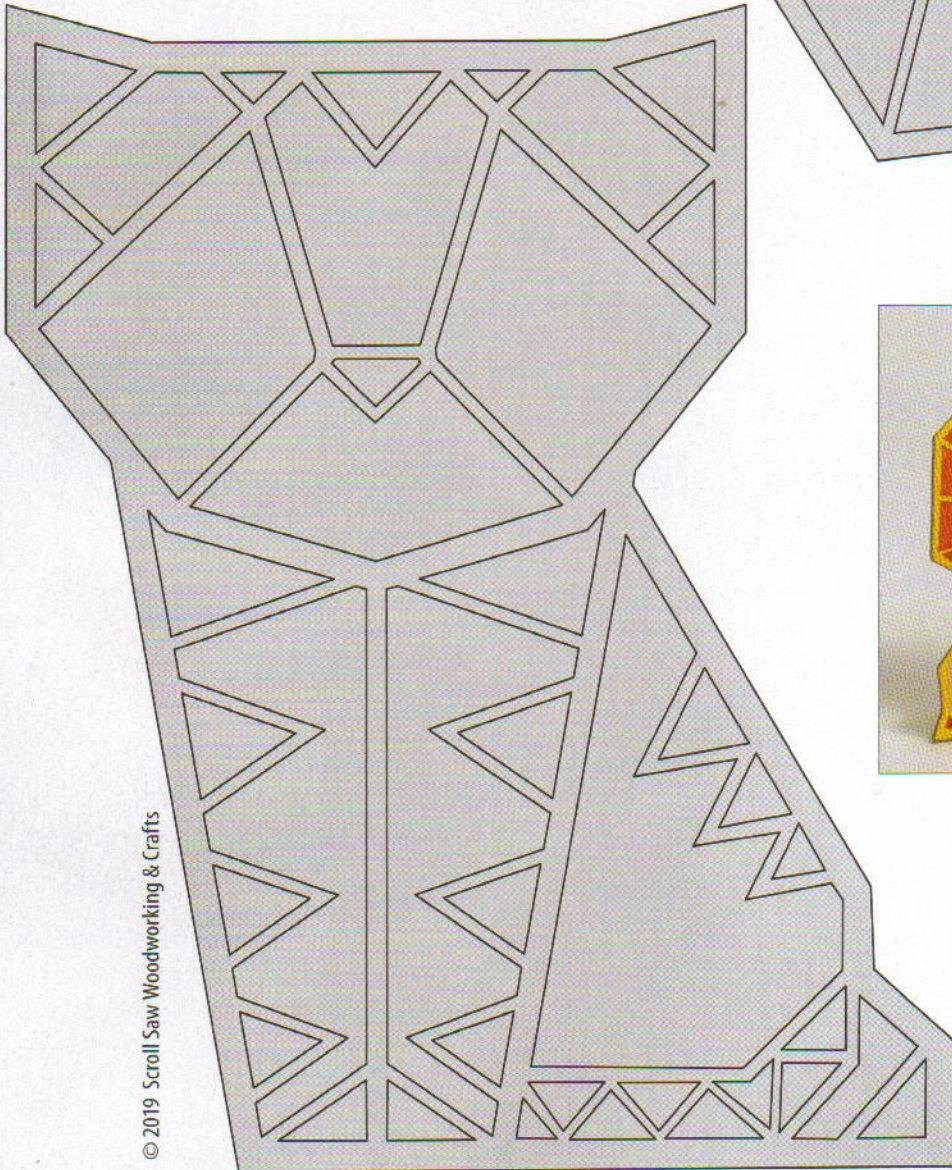
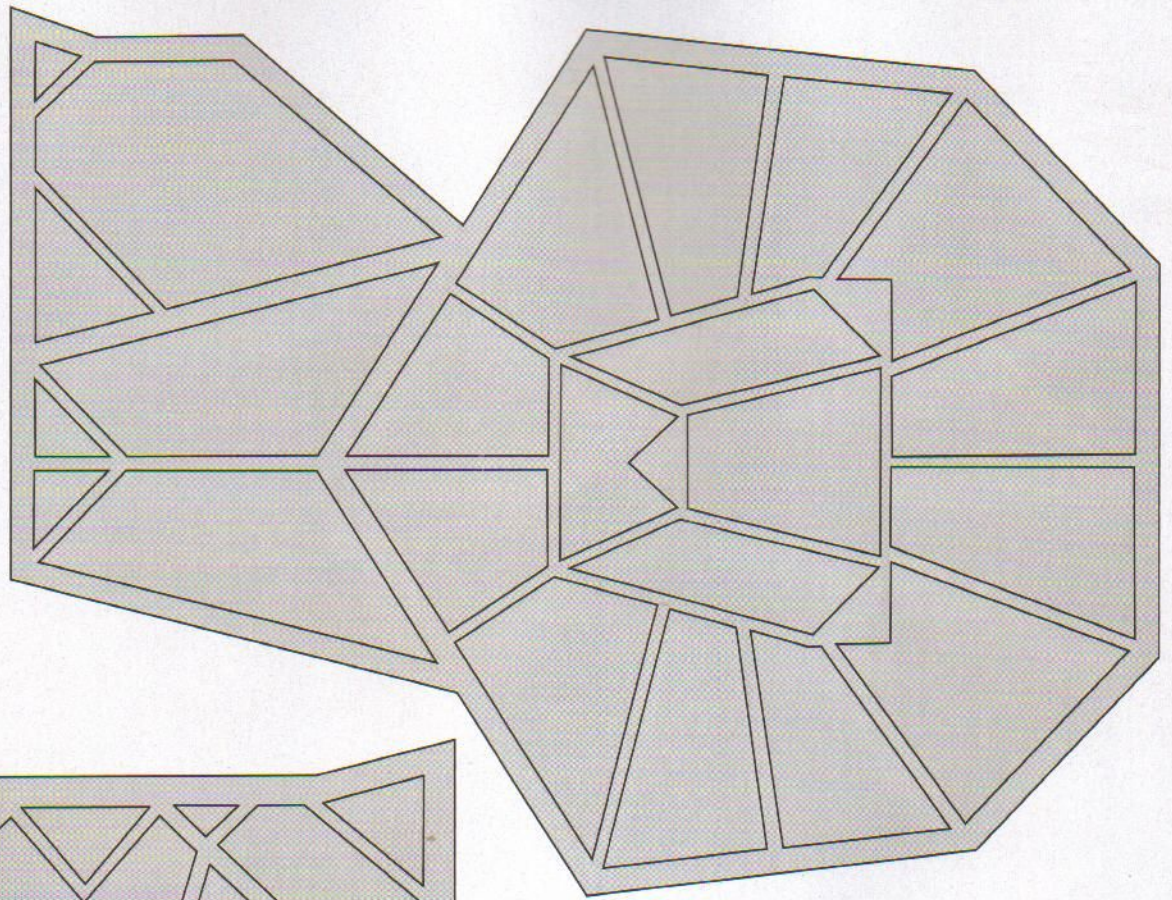
Drill tiny blade-entry holes in the inlay areas. I drilled holes at a 5° angle to minimize visibility, using a wedge on my drill press for ease of preparation. Then make the cuts, always turning the wood in a clockwise direction; this results in the bottom hardwood fitting perfectly into the upper Baltic birch. Number the pieces as you cut them out, making all the cuts for one kind of hardwood before removing the blue painter's tape and attaching the next one. Do not cut the perimeter of the animal at this time.

Once all cuts are made, assemble the pieces on a copy of the pattern, and tap the hardwood elements in place until they are flush with the back. Spread an even coat of glue on the backside of the piece, and attach a second piece of plywood to the back. Clamp between two flat surfaces and let dry. Then cut the perimeter, with the saw table angled as before. Remove any fuzzies and sand smooth with 220-grit sandpaper. Spray with satin lacquer and display as desired.



Orient the grain to make a luxurious lion mane and striking tiger stripes.

Stylized Lion and Tiger Patterns

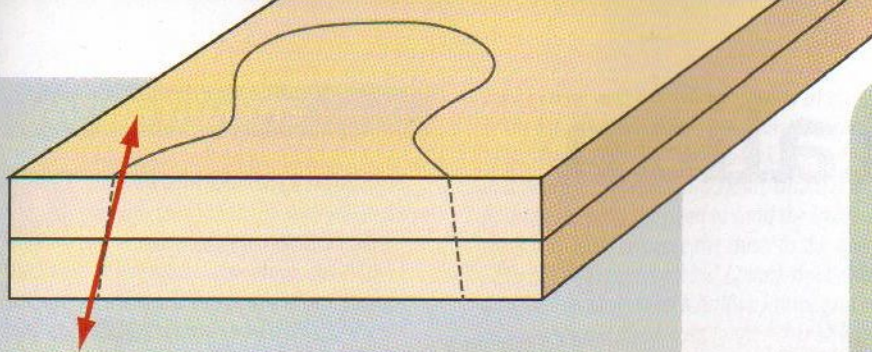


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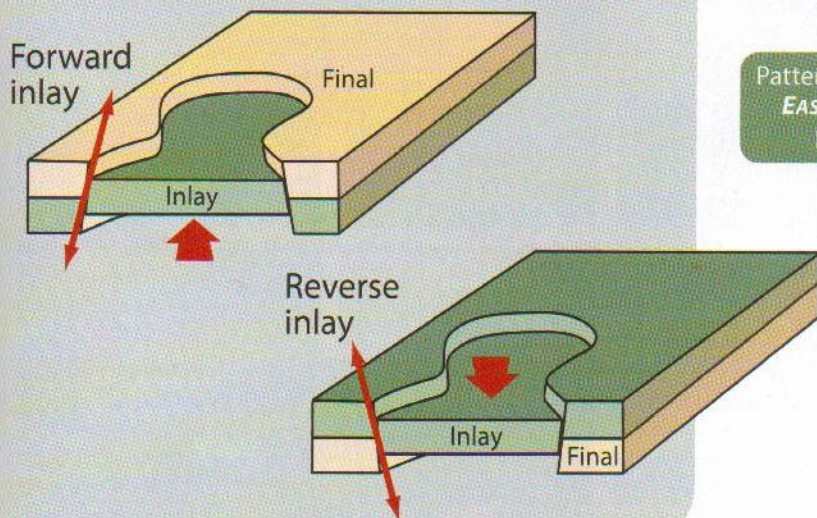
Cutting a Simple Segmentation

For a simpler, more economical approach, you can eliminate the hardwoods and cut the project from two layers of $\frac{1}{8}$ " (3mm) Baltic birch plywood, keeping the grain oriented the same way through all the cuts. I used a 28 TPI blade and alcohol dyes for this version.



Hiding Blade-Entry Holes

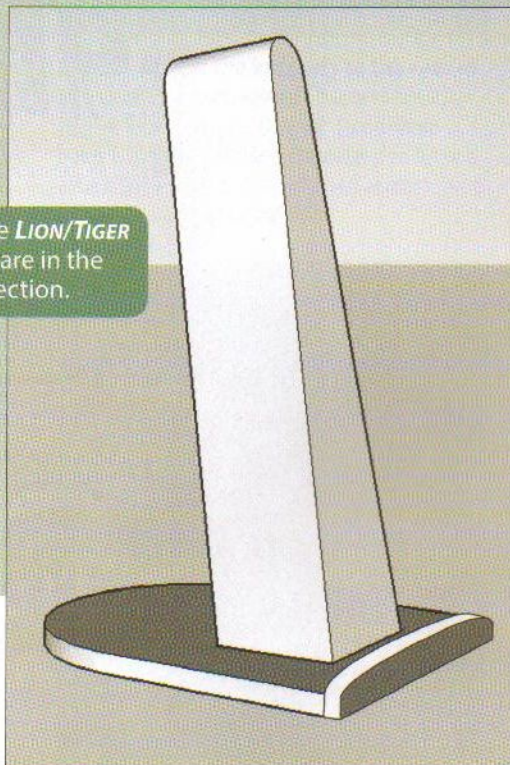
Drill the blade-entry holes at an angle to hide them in the finished project. Angle the drill bit so the hole is in the waste portion of the wood on both the top layer and the bottom layer. You will still be drilling at the same angle for a forward or reverse inlay, just in the opposite direction.



Making a Simple Stand

I designed a simple stand for the lion and tiger from wood scraps I had lying around the shop. The base is $\frac{1}{8}$ " (3mm) cherry, and the stand portion is $\frac{3}{4}$ " (1.9cm) oak. I cut the bottom of the oak at a 10° angle and the sides at a 4° angle, so the piece tilts back and tapers toward the front. I attached a lip to the front of the base with glue to keep the lion or tiger from slipping off the base.

Patterns for the **LION/TIGER EASEL STAND** are in the pullout section.



Materials & Tools

Materials

All woods listed are $\frac{1}{8}$ " (3mm) thick

- Baltic birch plywood: 2 each lion backer and frame, 6" x 7" (15.2cm x 17.8cm)
- Baltic birch plywood: 2 each tiger backer and frame, 7" x 7 $\frac{1}{2}$ " (17.8cm x 19.1cm)
- Cherry: lion's mane, sized for lion backer
- Quarter sawn sycamore: lion's face and body, sized for lion backer
- Holly: lion's muzzle and feet, sized for lion backer
- Holly: tiger's muzzle and feet, sized for tiger backer
- Yellow heart: tiger's face and body, sized for tiger backer

- Wenge: tiger's stripes, sized for tiger backer
- Tape: blue painter's
- Spray adhesive
- Sandpaper: assorted grits up to 500
- Wood glue
- Finish, such as Minwax satin spray lacquer

Tools

- Scroll saw blades: #1 premium reverse-tooth blade, such as Pégas MGT; #2/0 skip-tooth
- Drill press with bits: small
- 5° wedge (for drill press)
- Clamps

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

Antoinette and Stanley Wong are a pair of graphic designers who live in Singapore. Their business, Hug A Porcupine, is inspired by symmetry, patterns, colors, geometric shapes, and animals. Find more of their work at hugaporcupine.com.



Rolf Beuttenmuller started scrolling in 2004 after his wife, June, bought him a scroll saw for his birthday. He joined a local club and enjoys new and challenging projects. His motto is, "I don't know that I can't, therefore I can." Rolf recently retired from Brookhaven National Lab after 34 years of designing and building special

devices for high energy and photon science research. He lives in Bellport, N.Y.

Elegant Italian Shelf



Elevate ordinary planks into a chic wall piece

By Annemarie Adams and Tim Dekker

Looking for a rainy weekend activity? Make a Massironi-style shelf. This project was inspired by Manfredo Massironi (1937-2011), an Italian architect who was fascinated by visual forms. Over the years, his designs have been used and iterated to create pieces in different shapes and sizes.

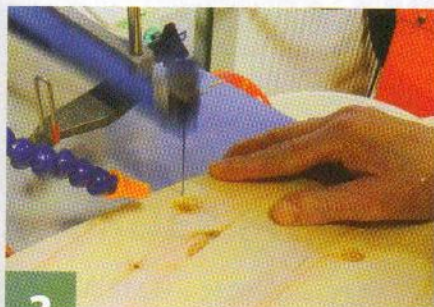
We both like clean, circular designs and the fact that these shelves allow us to display many different objects. However, Massironi shelves are usually rather large, so we scaled down the size for our version.

Getting Started

Decide what size you'd like the shelf to be. The patterns in the pullout are half the size of a traditional Massironi shelf, but this design looks great in any size. *Note: When changing the size of the patterns, remember to adjust the width of the lap joint slots. Make them equal to the thickness of your planks.* Plane the blanks or sand them in a belt sander with 220-grit sandpaper, remove any sawdust, and attach the patterns with spray adhesive. Number all the blanks so you know how they should be oriented and where to attach them later on.

MAKING THE CUTS

- 1 Cut the planks with a scroll saw.** Keep in mind that the saw will remove some material depending on the thickness of the blade. Therefore, cut slightly outside your lines. If the plank edges do not look as crisp and clean as you'd like, use a random orbit sander to fine-tune them. Save the lap joints for the next step.



- 2 Add the lap joints.** Use the scroll saw to create two kerfs at the edges of the lap joints. Once more, consider the saw blade thickness, cutting slightly inside the lines; it's easier to correct a joint that's too small than one that's too wide.

- 3 Finalize the lap joints.** To get clear-cut lap joints, I use a 1/2" (13mm)-wide bench chisel. Depending on how hard the wood is, you may or may not be able to beat the piece of wood out directly. *Note: if you are using a hard wood, such as oak, start by hitting the*



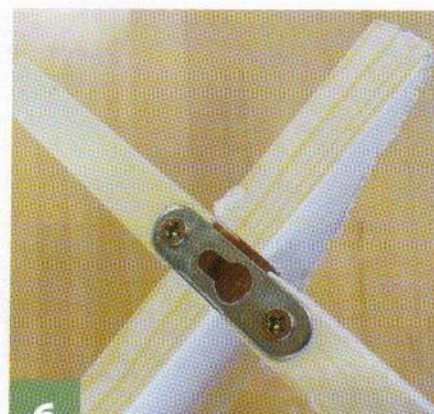
bench chisel with a polyflex hammer at the inside of the lap joint. Try holding the chisel at an angle of 80° from the plane of the plank. This will result in a slightly inward-turning joint, improving fit and removing the need to sand the inside of the joints. Then relocate the chisel to the side of the wood and remove a 1/16" (2mm)-thick chip. Continue until you reach halfway through the plank, turn the plank over to the other side, and redo the procedure to remove the piece of wood.

ASSEMBLING & FINISHING

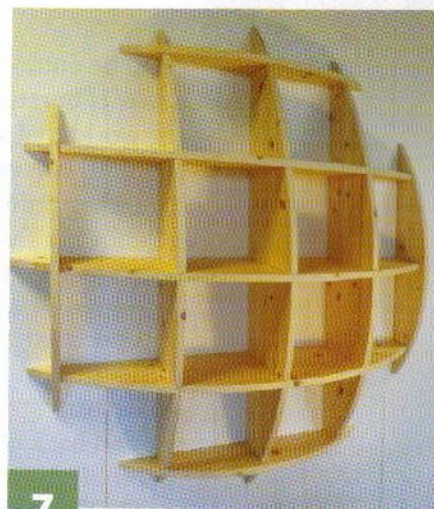


- 4 Dry-assemble the shelf.** Follow the assembly guide in the pullout section. Fine-tune the fit with sandpaper or a file. Do not force the shelf together, as this might put pressure on the wood and crack the planks.

- 5 When you are certain that everything fits, take the shelf apart again.** Give the pieces a final sanding with 220-grit sandpaper. Finish them as desired; this project looks great painted, waxed, oiled, or left natural. We applied a thin layer of light wood wax to give the piece a neutral look.



- 6 Attach the brackets to the rear of the shelf.** We used keyhole hangers because they're less obtrusive. Drill 3/8" (1cm)-deep holes with a 3/8" (10mm)-diameter drill bit and attach the hangers. You will need at least three to hold the weight of the piece.



- 7 Mount the shelf to the wall and use it to display favorite items.**

Materials & Tools

Materials

- Wood planks, 1/2" (1.3cm) thick:
2 each 4 3/4" x 21 5/8" (12cm x 54.9cm)
- Wood planks, 1/2" (1.3cm) thick:
4 each 4 1/16" x 19 7/8" (10.3cm x 50.5cm)
- Wood planks, 1/2" (1.3cm) thick:
4 each 2 3/16" x 12 7/16" (5.5cm x 31.6cm)
- Spray adhesive
- Sandpaper: 220-grit
- Pencil
- Finish, such as paste wax or clear spray lacquer
- Hangers: 3 each keyhole

Tools

- Scroll saw blades: #5 reverse-tooth
- Sander: belt, random orbit
- Drill with bit: 3/8" (10mm)-diameter
- Ruler
- Hammer: polyflex plastic
- Screwdriver
- Bench chisel: 1/2" (13mm) wide

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

Patterns and assembly guide for the *ELEGANT ITALIAN SHELF* are in the pullout section.



Annemarie Adams and Tim Dekker, a mother and son team, enjoy working on projects in wood and metal. Both were born in the Netherlands but have lived in Gothenburg, Sweden, for 20 years. Tim just graduated university and will start his career as an automotive engineer, and Annemarie teaches woodworking to kids aged 12-15. To see more of their work or to get in contact, visit them at [Amaries and timdekker1825](https://www.instructables.com/Amariesandtimdekker1825) on Instructables.

Bear Cub Fretwork

Use negative space to create the illusion of shiny fur

By Charles Hand

Anxious to be outdoors from winter hibernation, this little black bear is bursting with pent-up energy and very curious to investigate the world that awaits. Mother bear will keep a close eye on her cub for up to two years, during which time she'll teach basic survival and hunting skills.

Because Cubby is a fluffy little gal, I've made the cuts on the fur areas slightly rounder than usual. I've also played with the negative space on her neck, paws, and back to give the illusion of a glossy coat.

Prepping and Cutting

Sand the front and back of the blank thoroughly. Blow off the dust or remove it with a tack cloth. Attach removable Con-Tact® creative covering paper to the top of one blank. Apply spray adhesive to the back of the pattern. Let the adhesive set for two to three minutes, and then press the pattern down onto the paper. Eliminate any air bubbles, and then stack the portrait blanks with the pattern on top. Hold the wood flat and the stack securely while you wrap blue painter's tape around the perimeter. Drill blade-entry holes and cut the frets. Since I use spiral blades, I sand the bottom of the stack every 10 cuts to remove the fuzzies.

Sanding and Finishing

Remove the tape from the perimeter and peel off the Con-Tact paper. Sand the portraits carefully. For large open areas, insert the cut out pieces before sanding to protect the delicate bridges. Use needle files to clean up tight areas.

Remove the sander dust with compressed air. Apply a clear spray finish if you don't plan to use a picture frame with glass. Remove the backing board and mat from the picture frame, and line up the portrait to the back side of the mat opening. Attach black felt to the back of the portrait with blue painter's tape. Add the backing board and secure the portrait in the frame.

Framing Notes

A standard 11" by 14" (27.9cm by 35.6cm) mat opening is normally 10½" by 13½" (26.7cm by 34.3cm), so I design my patterns to suit that size. Take a tape measure when shopping for a picture frame and make sure the mat opening is exactly 10½" by 13½" (26.7cm by 34.3cm).

Pattern for the
BEAR CUB FRETWORK is in the
pullout section.



Materials & Tools

Materials

- Baltic birch plywood, 1/8" (3mm) thick: 2 or 3 each 11" x 14" (27.9cm x 35.6cm)
- Sandpaper: 180- to 220-grit
- Tack cloth
- Tape: blue painter's
- White shelf paper, such as Con-Tact® removable adhesive creative covering
- Spray adhesive, such as Elmer's or 3M Super 77
- Finish: clear spray lacquer

- Felt backing, black: 11" x 14" (27.9cm x 35.6cm)
- Photo frame, matted: standard 11" x 14" (27.9cm x 35.6cm)

Tools

- Scroll saw blades: #0 or #1 flat-end spiral (interior cuts) #3 or #5 reverse-tooth flat blades (straight cuts)

- Drill press with bits: 3/64" (1.1mm) dia. or #56 wire size, 1/16" (2mm) dia. or #53 wire size
- Palm sander: fine-grit
- Needle files (optional)
- Air compressor (optional)

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



Charles Hand is retired from a career in electrical/mechanical design, graphic arts, and senior project management. He enjoys intarsia, fretwork, segmentation, inlay, and just about everything there is to cut with a scroll saw.

Charles has won best of show and several other awards for his work and designs at local craft and woodworking shows. For more information and a tutorial on Charles' Con-Tact® paper method and framing technique, or for more of his patterns, visit scrollsawart4u.weebly.com.

Walnut Whippet Automaton

Turn the crank to make this lively pup frolic

By Wanda Sowry

My long-limbed galloping whippet is full of enthusiasm; I see her as a puppy, gangly and a little too small for her feet, who has just been let out into a field. The flailing legs don't move exactly the same way every time, but this unpredictability suits her character.

The crank mechanism is loosely based on Keith Newstead's classic Pegasus design, but rather than anchoring the limbs to make them rise and fall, I've concentrated on trying to make the legs land in a standing position. On the whole, it's a simple mechanism, but requires precision and focus to get right.

General Notes

I do most of my shaping on a 1" (25mm)-wide belt sander, using the edge of the belt to cut into the grooves. I do everything I can with that and a disc sander—before reluctantly moving to my tatty homemade sanding tools.

As you complete this project, remember—don't rush to glue everything together all at once. Once all the pieces are cut and shaped, I assemble and reassemble them multiple times before eventually gluing, constantly checking to ensure the mechanism still works smoothly.

Getting Started

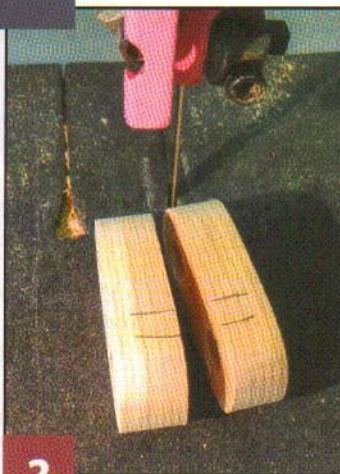
Sand the blanks with a disc sander. Photocopy the patterns and attach them to the surface with spray adhesive.

MAKING THE BASE AND MECHANISM



1

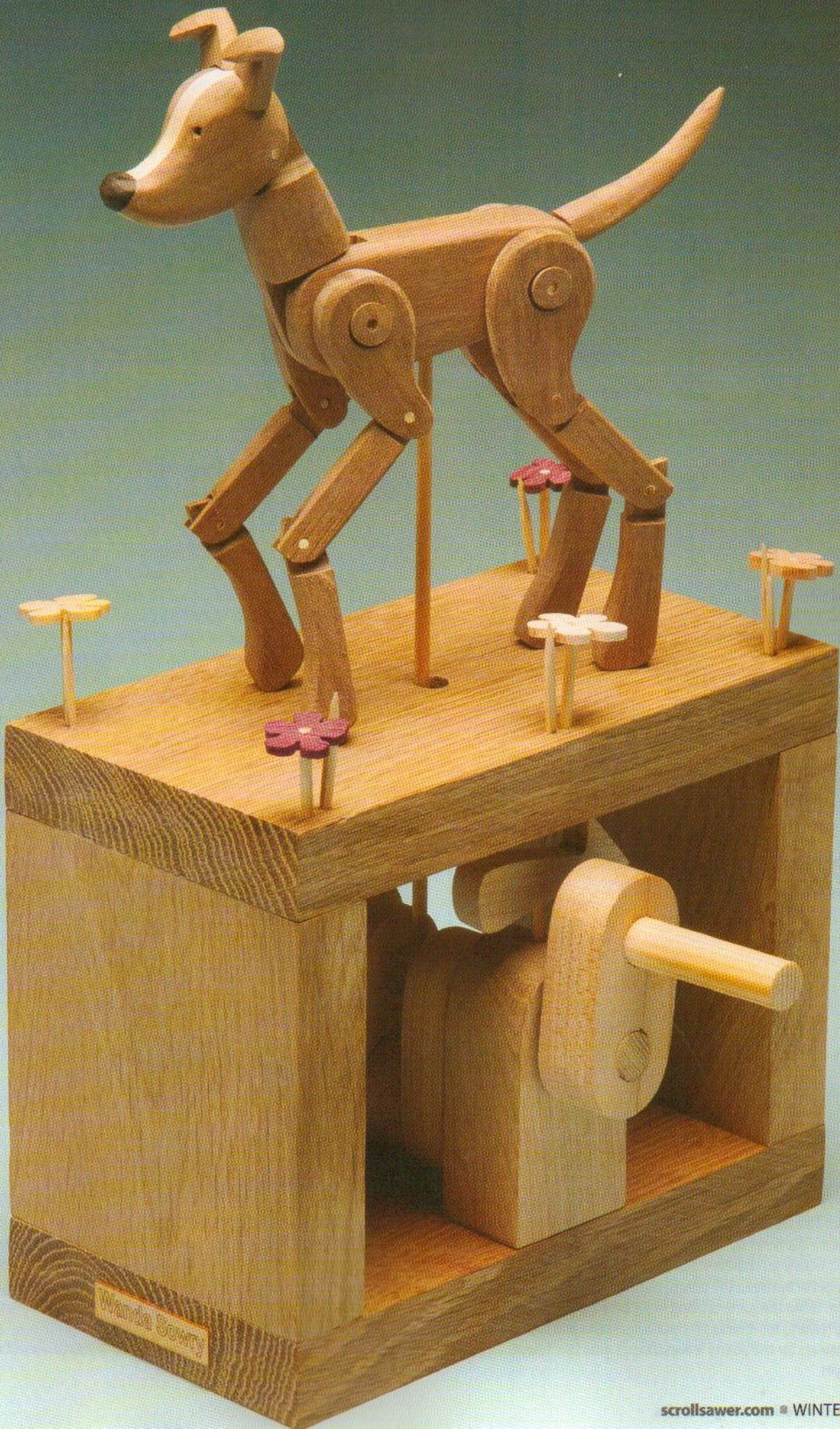
Cut the four base pieces. Use a band saw. I cut an oak plank into four pieces—the top (B), bottom (A), and two sides (C). Drill a $\frac{1}{4}$ " (6mm) hole all the way through the center of the top base piece. Then flip that piece over and drill a hole in the same place using a flat $\frac{1}{16}$ " (18mm)-diameter bit, going about $\frac{3}{4}$ of the way through.

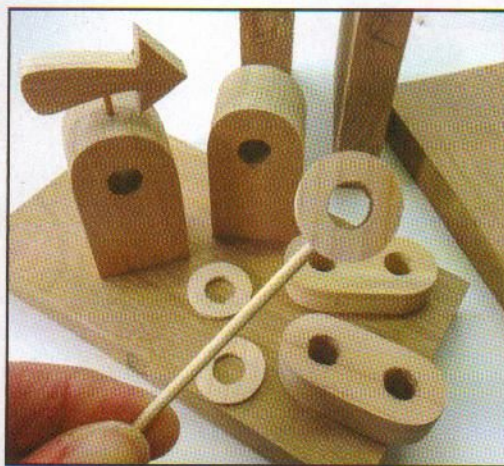
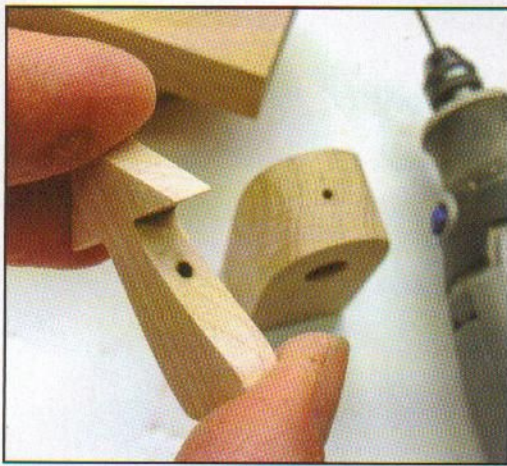


2

Cut the mechanism pieces (E, F, G), arrow (H), pine dowels (I, J), and arched supports (D). Then drill holes in the crank piece (E), arched supports, the two washers (G), the two internal crank pieces (E), and the circular central crank follower (F) as indicated on the patterns. Sand all the pieces with the disc sander, holding identical pieces (such as the arched supports) together with a length of dowel to ensure symmetry while shaping.

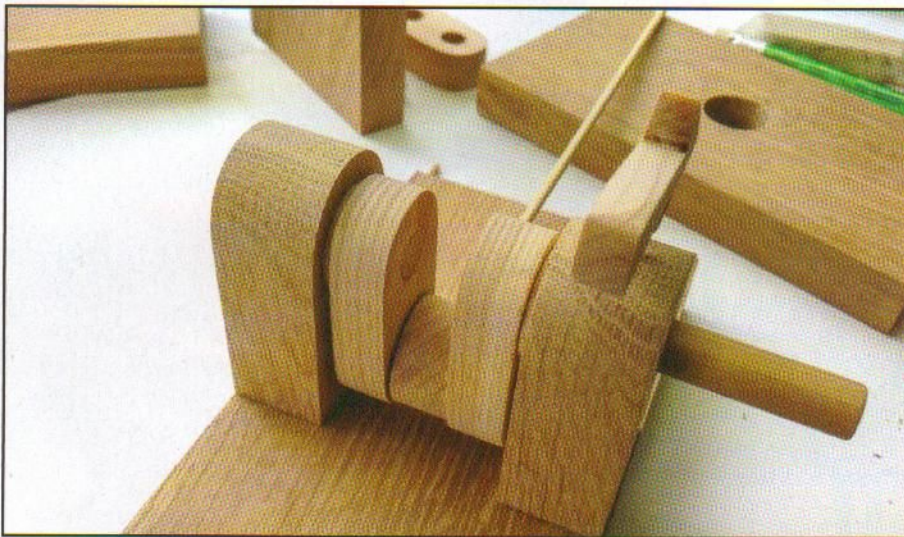






3

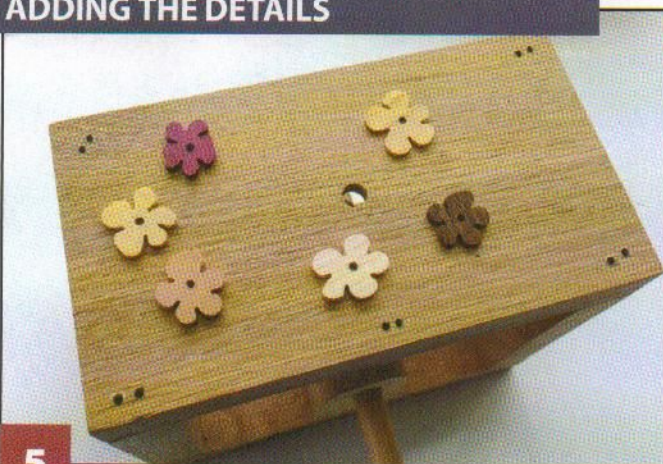
Drill a small hole in the bottom of the arrow. Use a $\frac{1}{16}$ " (2mm)-diameter bit. Drill an identical hole down into the top center of the front arched support. Don't drill all the way through. Glue a length of $\frac{1}{16}$ " (2mm)-diameter toothpick into the hole in the arrow. Then drill a $\frac{3}{32}$ " (2.5mm)-diameter hole in the central crank follower where the skewer for the dog will go. You will need to taper this stick a little on the sander to make it fit.



4

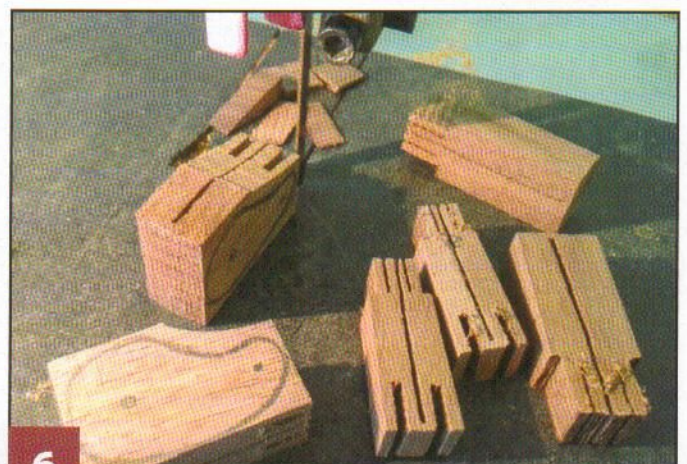
Assemble the mechanism. See Assembly Drawing on page 64. Fix the external crank to the handle, the supports to the washers, the washers to the internal cranks, and the internal cranks to the circular central follower with pieces of pine dowel cut to size. Make sure the center can spin and the holes for the crankshaft line up perfectly. Sand down the ends of the glued dowel until they sit flush with their surroundings; use a belt sander. Dry-assemble the mechanism before gluing it together to ensure that the crank works. Then glue the mechanism pieces together, the supports to the base, and the arrow to the support. Glue the box of the base together. Do not glue the handle or main stick yet.

ADDING THE DETAILS



5

Make the flowers (K). I used small hardwood offcuts. Drill a $\frac{1}{16}$ " (2mm)-diameter hole in the center of each, and then cut the petals. Gently sand them smooth; I used the edge of the belt sander to get in between the petals, but a folded piece of sandpaper works, too. Using the same bit, drill holes into the top of the base. I used $\frac{1}{16}$ " (2mm) toothpicks for the flower stalks and tapered $\frac{1}{8}$ " (3mm) skewers for the pointy leaves. Do not glue the flowers and stalks in yet.



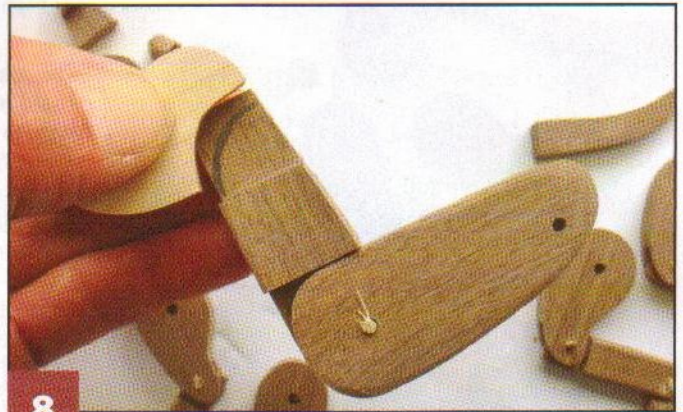
6

Cut the pieces for the dog's body (R) and legs (L, M, N, O, P, Q). Note: I cut the leg parts in pairs to make them the same. Round and shape them on the belt sander, making the legs skinny and the feet large. Then drill the holes for the leg hinges, tail, and belly using a $\frac{3}{32}$ " (2.5mm)-diameter bit. That includes drilling pilot holes for the shoulders while the pairs are still attached. Sand two $\frac{1}{8}$ " (3mm)-diameter skewers down to $\frac{3}{32}$ " (2.5mm)-diameter for the shoulder joints and body pins.



7

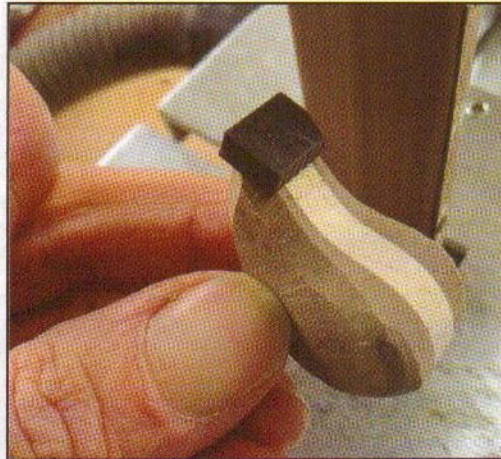
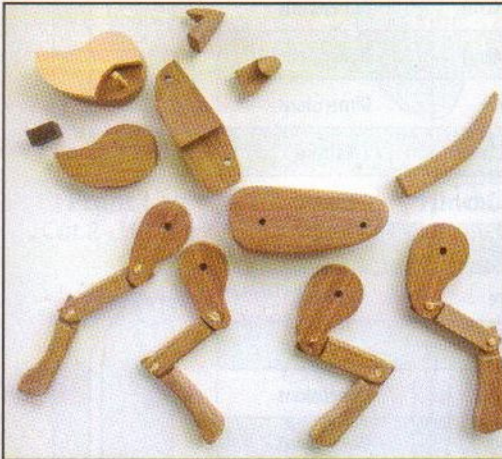
Drill the remaining holes. I used a $\frac{1}{8}$ " (3mm)-diameter bit for the shoulder joints, a $\frac{1}{16}$ " (2mm)-diameter bit for the outside of each joint, and a $\frac{3}{32}$ " (2.5mm)-diameter bit for the insides. Carefully curve the inside edge of each leg piece on the belt sander, working your way down from the torso. Doing this ensures that the joints only bend one way. Dry-assemble the joints with the toothpick pins, making sure they do not lock in one position. When you're happy with the way the dog's limbs move, apply glue to the outside of each joint pin, one at a time. Do not attach the shoulder joints to the torso yet.



8

Cut the face (T, U), neck (W), ears (X), and tail (S) pieces.

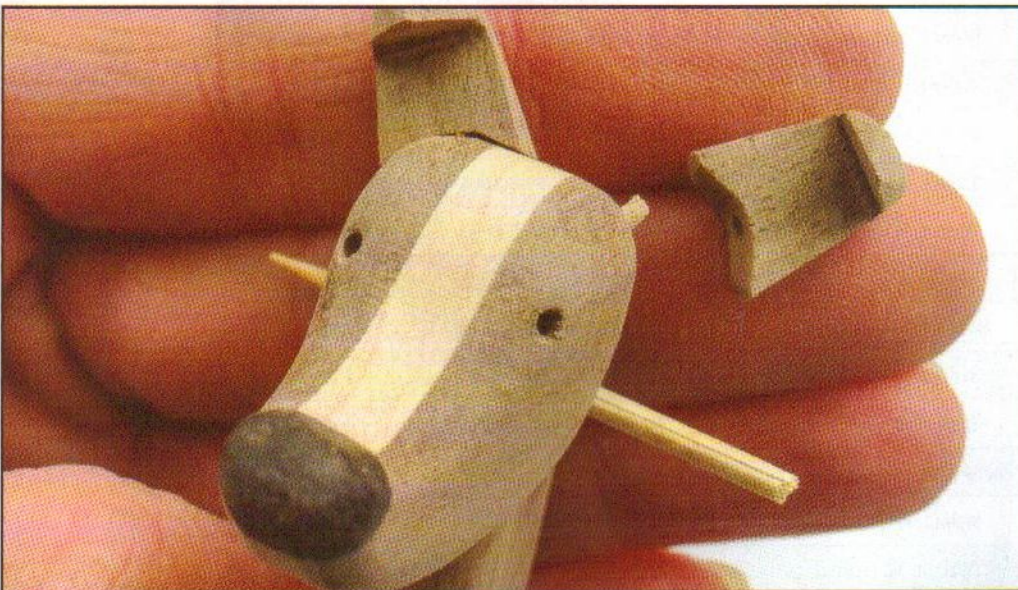
Drill a pilot hole through the bottom of the neck, then redrill with a $\frac{1}{8}$ " (3mm)-diameter bit. Draw and then sand a small curve from the front of the neck to the top, so the head can move backward and forward slightly. Then sand the curve of the chest, narrow and shape the neck, and run the shoulder joint skewer through it. Line up the maple center of the head and sand it to size.



9

Glue one walnut side to the maple and let dry.

Drill the hinge joint, holding the other walnut side in place to ensure the holes are symmetrical. Use the $\frac{3}{32}$ " (2.5mm)-diameter bit for the inside and the $\frac{1}{16}$ " (2mm)-diameter bit for the outside. Glue on the other walnut side piece and nose (V). Clamp the pieces and let dry. Sand and shape the head and nose on the belt sander.



10

Mark the eyes with a pencil.

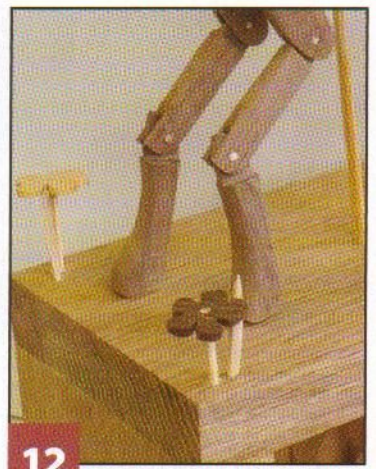
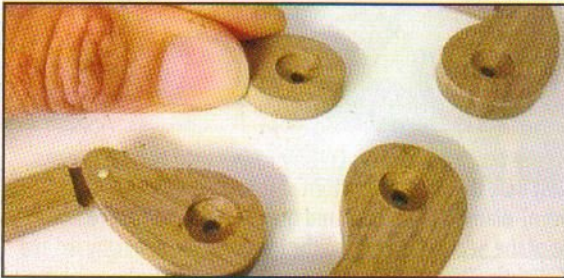
For added precision, mark the eyes again with a pin or pencil compass point. Then drill the eyeholes with the $\frac{1}{16}$ " (2mm)-diameter bit. Use the same bit to add holes in the ears and tail, and add matching holes in the head and rump where their toothpicks will go. Shape the tail and ears so they sit flush with the curve of the head and rump. Put the dog on the follower stick, letting the legs dangle. Shorten and taper the stick and sand the feet until the dog repeatedly lands in a standing position. Glue on the handle.



11

Mark the outside of all four shoulder joints with a pencil; it's easy to countersink the wrong sides.

Using a $\frac{5}{16}$ " (8mm)-diameter jobber drill bit, make a plughole shape on each shoulder. To make the circular washers, drill four holes in a piece of walnut with the $\frac{3}{32}$ " (2.5mm)-diameter bit. Around each hole draw a circle slightly bigger than the plughole you made with the jobber bit, and then cut the circles out. Sand the washers to size by attaching them to the end of a stick and spinning them against the belt sander until they fit the plugholes perfectly. Glue the washers in place, leaving enough clearance for the legs to swing. Glue the tail and ears in place.



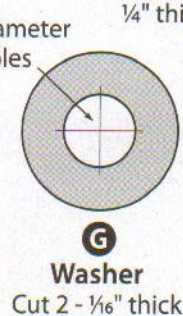
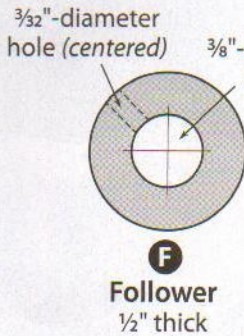
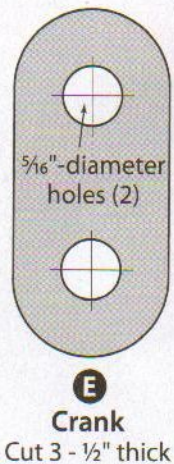
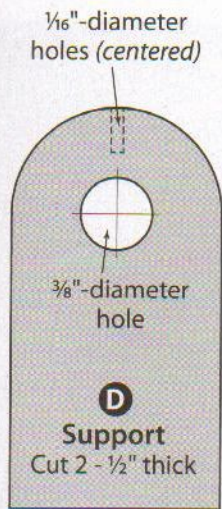
12

Glue in the flowers and leaves, making sure the feet don't catch.

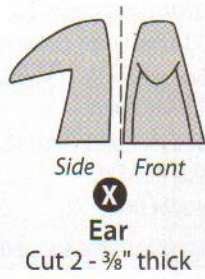
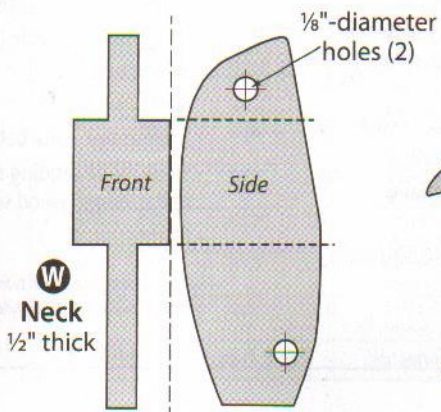
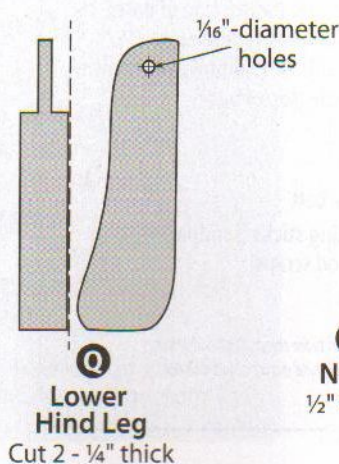
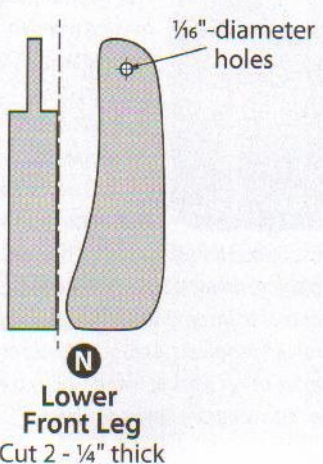
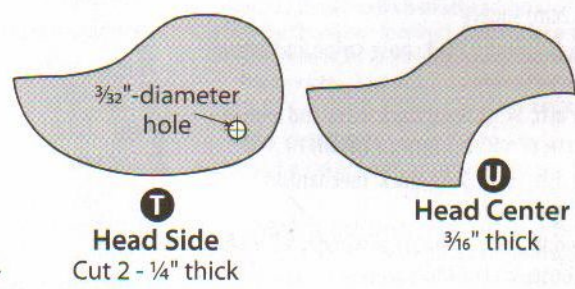
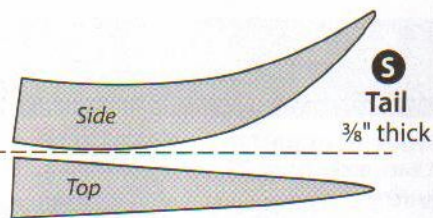
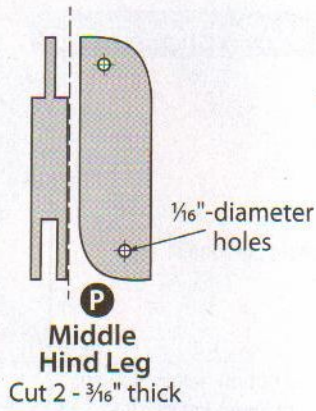
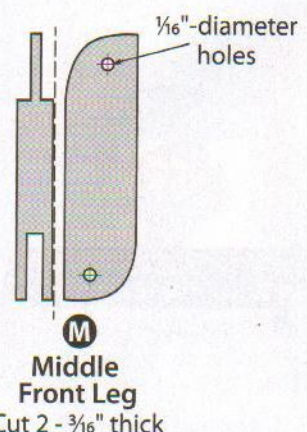
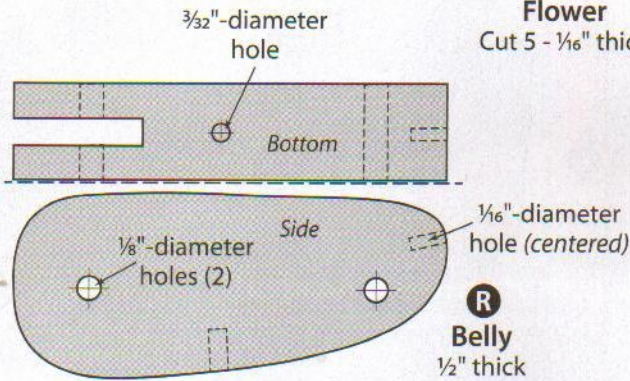
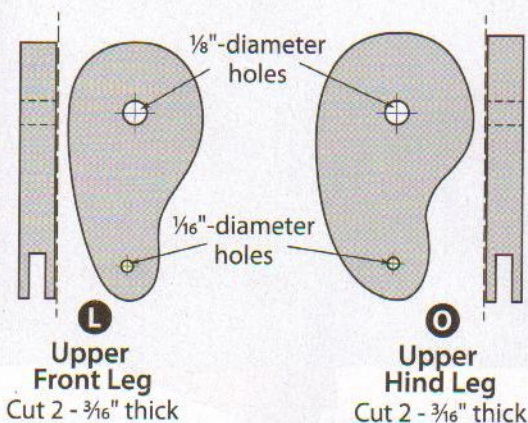
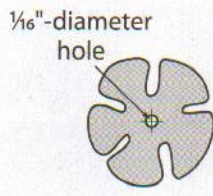
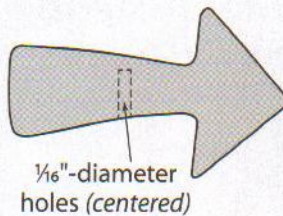
Parts List

	Part	Quantity	Materials	Finished Dimensions	Presentation
A	Base Bottom	1	Oak, $\frac{1}{2}$ " (1.3cm) thick	3" x 5 $\frac{1}{2}$ " (7.6cm x 14cm)	Dimensions
B	Base Top	1	Oak, $\frac{1}{2}$ " (1.3cm) thick	3" x 5 $\frac{1}{2}$ " (7.6cm x 14cm)	Dimensions
C	Base Side	2	Oak, $\frac{1}{2}$ " (1.3cm) thick	3" (7.6cm) square	Dimensions
D	Support	2	Ash, $\frac{1}{2}$ " (1.3cm) thick	1 $\frac{1}{16}$ " x 2" (2.7cm x 5.1cm)	Pattern
E	Crank	3	Ash, $\frac{1}{2}$ " (1.3cm) thick	1 $\frac{3}{16}$ " x 2 $\frac{1}{16}$ " (2cm x 5.2cm)	Pattern
F	Follower	1	Ash, $\frac{1}{2}$ " (1.3cm) thick	1 $\frac{3}{16}$ " (2cm) square	Pattern
G	Washer	2	Ash, $\frac{1}{16}$ " (2mm) thick	1 $\frac{3}{16}$ " (2cm) square	Pattern
H	Arrow	1	Maple, $\frac{1}{4}$ " (6mm) thick	$\frac{7}{8}$ " x 1 $\frac{3}{8}$ " (2.2cm x 3.5cm)	Pattern
I	Crankshaft	3	Dowel, $\frac{5}{16}$ " (8mm) dia.	1 $\frac{1}{4}$ " (3.2cm) long	Dimensions
J	Handle	1	Dowel, $\frac{5}{16}$ " (8mm) dia.	1 $\frac{3}{4}$ " (4.4cm) long	Dimensions
K	Flowers	5	Colorful hardwoods, $\frac{1}{16}$ " (2mm) thick	$\frac{3}{4}$ " (1.9cm) square	Pattern
L	Upper Front Leg	2	Walnut, $\frac{3}{16}$ " (5mm) thick	$\frac{3}{4}$ " x 1 $\frac{5}{16}$ " (1.9cm x 3.3cm)	Pattern
M	Middle Front Leg	2	Walnut, $\frac{3}{16}$ " (5mm) thick	$\frac{3}{8}$ " x 1 $\frac{7}{8}$ " (1cm x 3.5cm)	Pattern
N	Lower Front Leg	2	Walnut, $\frac{1}{4}$ " (6mm) thick	$\frac{1}{2}$ " x 1 $\frac{1}{2}$ " (1.3cm x 3.8cm)	Pattern
O	Upper Hind Leg	2	Walnut, $\frac{3}{16}$ " (5mm) thick	$\frac{3}{4}$ " x 1 $\frac{3}{8}$ " (1.9cm x 3.5cm)	Pattern
P	Middle Hind Leg	2	Walnut, $\frac{3}{16}$ " (5mm) thick	$\frac{3}{8}$ " x 1 $\frac{1}{4}$ " (1cm x 3.2cm)	Pattern
Q	Lower Hind Leg	2	Walnut, $\frac{1}{4}$ " (6mm) thick	$\frac{1}{2}$ " x 1 $\frac{1}{2}$ " (2cm x 3.8cm)	Pattern
R	Belly	1	Walnut, $\frac{1}{2}$ " (1.3cm) thick	1 $\frac{5}{16}$ " x 2 $\frac{1}{4}$ " (2.4cm x 5.7cm)	Pattern
S	Tail	1	Walnut, $\frac{3}{16}$ " (2.5mm) thick	$\frac{3}{4}$ " x 1 $\frac{7}{8}$ " (1.9cm x 4.8cm)	Pattern
T	Head Side	2	Walnut, $\frac{1}{4}$ " (6mm) thick	$\frac{7}{8}$ " x 1 $\frac{3}{8}$ " (2.2cm x 3.5cm)	Pattern
U	Head Center	1	Maple, $\frac{3}{16}$ " (5mm) thick	$\frac{7}{8}$ " x 1 $\frac{3}{8}$ " (2.2cm x 3.5cm)	Pattern
V	Nose	1	Ebony or wenge, $\frac{1}{4}$ " (6mm) thick	$\frac{1}{2}$ " (1.3cm) square	Dimensions
W	Neck	1	Walnut, $\frac{1}{2}$ " (1.3cm) thick	1 $\frac{3}{16}$ " x 1 $\frac{15}{16}$ " (2cm x 4.9cm)	Pattern
X	Ear	2	Walnut, $\frac{3}{8}$ " (1cm) thick	$\frac{9}{16}$ " x $\frac{5}{8}$ " (1.4cm x 1.6cm)	Pattern

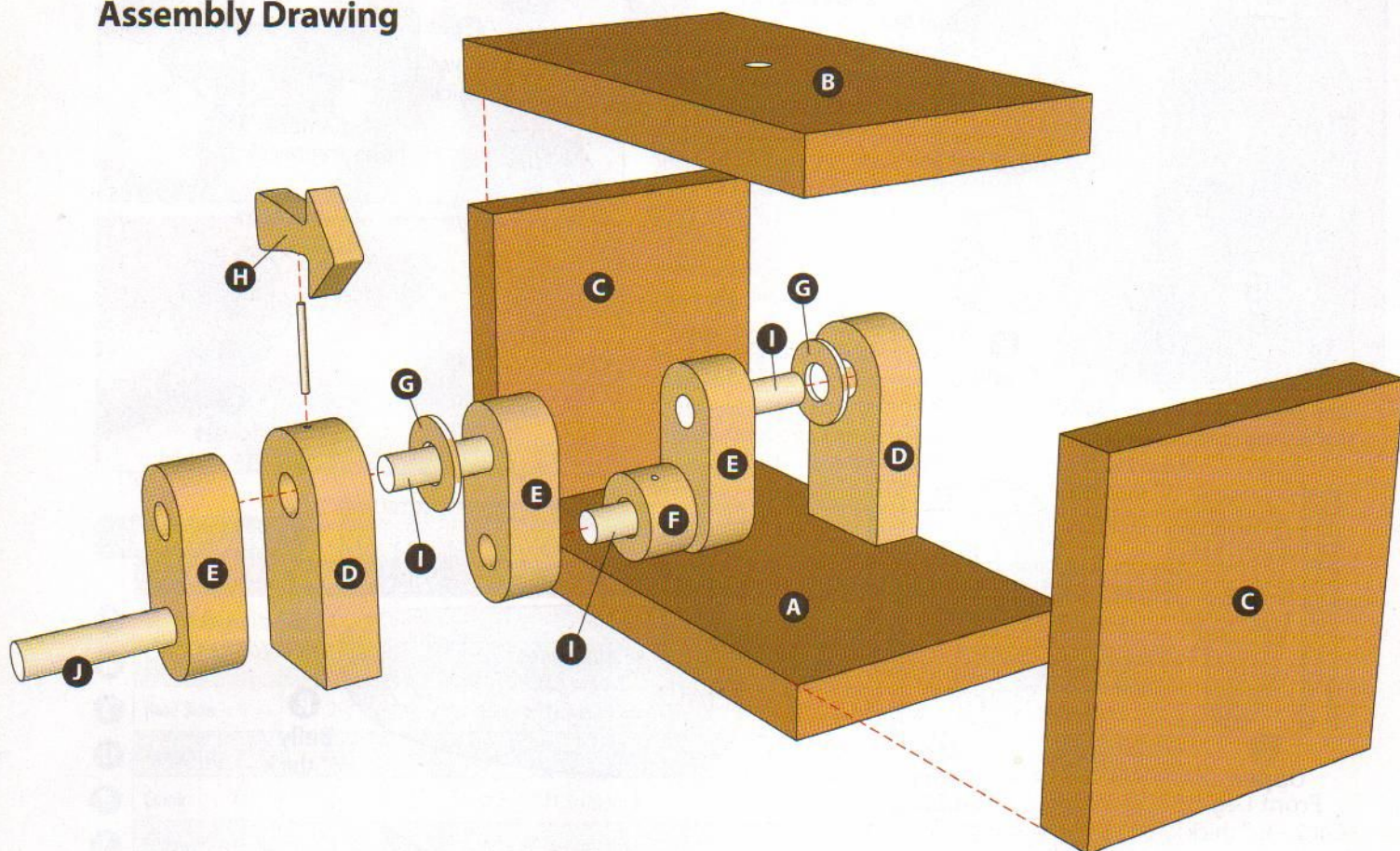
Whippet Automaton Patterns



H Arrow
1/4" thick



Automaton Mechanism Assembly Drawing



Materials & Tools

Materials

- Walnut, 1/2" (1.3cm) thick: ears, neck, and torso, 5" (12.7cm) square
- Walnut, 1/4" (6mm) thick: legs, face, and tail, 6" (15.2cm) square
- Maple, 1/4" (6mm) thick: nose stripe and arrow, 2" (5.1cm) square
- Oak or ash, 3/4" (1.9cm) thick: base and arched supports, 6" x 9" (15.2cm x 22.9cm)
- Oak or ash, 1/2" (1.3cm) thick: mechanism, 3" (7.6cm) square
- Dark wood, such as ebony or wenge, 1/4" (6mm) thick: nose, 1/2" (1.3cm) square
- Colorful wood offcuts, such as zebrawood, purpleheart, yellowheart, and pear, 1/16" (2mm) thick: flowers, 5 each 1" (2.5cm) square
- Pine dowel, 5/16" (8mm) dia.: crank, 12" (30.5cm) long
- Bamboo skewer, 1/8" (3mm) dia.: 18" (45.7cm) long
- Bamboo toothpicks, 1/16" (2mm) dia.: 8" (20.3cm) long
- Spray adhesive

- Masking tape
- Pencil
- Pin or pencil compass
- Wood glue
- Sandpaper: assorted grits
- Finish: satin spray lacquer (optional)

Tools

- Band saw
- Drill press with bits: 1/16" (2mm) (joints, flowers, arrow, eyes, ears), 3/32" (2.5mm) (joints), 1/8" (3mm) (shoulders), 1/4" (6mm) (top of base), 5/16" (8mm) jobber (shoulders countersink), 1 1/32" (9mm) (mechanism), 3/8" (9.5mm) (mechanism), 1 1/16" (18mm) paddle (top of base)
- Scroll saw blades: #3, #5 skip-tooth
- Sander: disc, mini belt
- Shop-made sanding sticks (sandpaper glued to flat-edged wood scraps)
- Clamps: small

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

ON THE WEB See the Walnut Whippet in motion on our website.
scrollsawer.com



Wanda Sowry began making wooden automata in 1998 while studying craft and design at college. She exhibits at craft and automata shows in

the United Kingdom and Europe, and creates commissioned pieces using photos to incorporate personal details for gift recipients. Contact Wanda or see more of her work at wandasowry.com or on Instagram @wandasowry.



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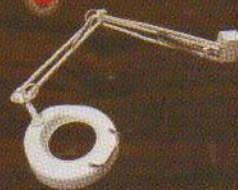
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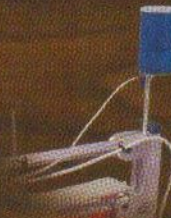
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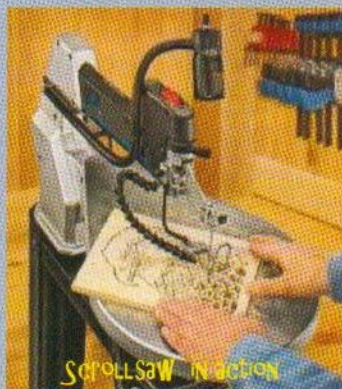
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7	.045"	.017"	11.5	3/4" to 1 1/2" hardwood	\$9.95	\$65.00
9	.053"	.018"	11.5	1 1/2" to 2 1/2" hardwood	\$9.95	\$65.00
12	.062"	.024"	9.5	straight-line cutting	\$9.95	\$65.00
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2M	.028"	.013"	30	up to 1/8" wood & metal	\$9.95	\$65.00
6M	.039"	.020"	20	up to 3/16" wood & metal	\$9.95	\$65.00

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Should You Add A Lathe To Your Shop?

Turn this tool into a useful scroll saw companion

By Kaylee Schofield

This article is not meant to be comprehensive. Visit the American Association of Wood Turners at woodturner.org for educational materials and local chapter information.

If you have put off buying a lathe for fear of making your scroll saw jealous, it might be time to reevaluate. This versatile tool has been a woodworking essential for over 3,000 years, used on everything from espresso tampers and ice cream scoops to entire tables. But even if you don't intend to make fully turned pieces, the lathe can be a handy addition to any scroll saw project arsenal.

Applications

If you use a scroll saw to make toys, such as John Nelson's wheeled whimsies (page 24) or Brad Anderson's classic tugboat (page 39), such projects call for details like wheels, dowels, and axle pegs. For these, you have a few options—scroll and shape your own, buy them premade, or turn them yourself. However, as test-cutter Joe Pascucci learned (page 24), scrolling and shaping your own wheels can be a time sink: "Making the wheels took more time than making the [toy] bodies!" he said.

The premade route doesn't present problems in terms of cost—simple wooden wheels and axle pegs will run you around \$0.10 each when purchased in

bulk. But if you'd rather not accumulate a cache of extra pieces you may never use—or if you want them in something other than a standard size, or made from a specific wood—a lathe might be your best bet.

Indeed, a lathe can be a useful complement to your scroll saw for all kinds of projects. Perhaps you want to make your mother a fretwork trivet or set of coasters, but need a round blank to get started. Maybe you want to adorn your tree with wooden icicle ornaments but don't have the time to compound-cut them all. And if Wanda Sowry's walnut whippet (page 58) inspires you to delve further into the world of automata, a lathe will let you make custom-turned components ranging from body parts to cranks to tiny carrots and turnips in a garden. It's also a great tool for using up offcuts that might otherwise go to waste.

What to Look For

What kind should you buy? Chris Horst, owner of George's Woodcrafts in Marietta, Pa., said, "Think about what you'll be turning long-term." A larger lathe will turn a wider range of items, from drawer knobs to table legs, but isn't ideal for those with limited shop space and a strict interest in smaller projects.

Kaleb Kilmer, a specialist at Next Generation Furniture Restoration in Bainbridge, Pa., agreed. "A benchtop lathe is the way to go for turning small items,

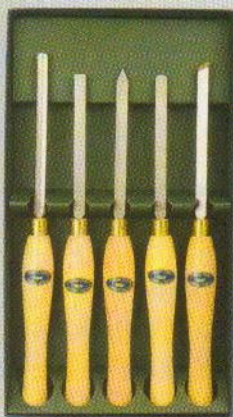
since it's more affordable and will take up less space in the workshop. If you've got an interest in turning larger items, you'll likely need a larger lathe that would benefit from being mounted directly to the shop floor."

Either way, he advised, look for a few key features when shopping around: "Solid build (you don't want any part of the machine to wiggle or loosen with vibration), easy cleaning and maintenance (a clean, well-maintained tool is safer and more efficient), and the ability to adjust the drive end to allow for turning away from the lathe's bed (for non-spindle pieces that are too large to swing over the bed rails)."

In other words, find a lathe that's made to last. Several companies offer passable benchtop lathes for \$150-\$200, but if you're planning to use yours frequently, take things like construction, speed range, and motor quality into account (not just low price). "I don't ever think about buying lathes, because our Delta has lasted 30 years," Chris said.

About Cutting Tools

It's also necessary to consider the hand tools you'll be using. Luke Voytas, Woodshop Technician at the Goggle Works Center for the Arts in Reading, Pa., said, "A turned product is just as much affected by the quality of the cutting tools (and the way you use them) as by the lathe itself." And wherever you buy them, look for good-quality steel but don't spend a fortune—"grinding down a \$300 gouge can feel like watching money burn away before your eyes!" he noted.



Crown Carbon Steel 5-Piece Woodturning Set \$154

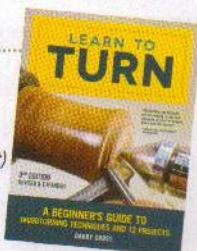
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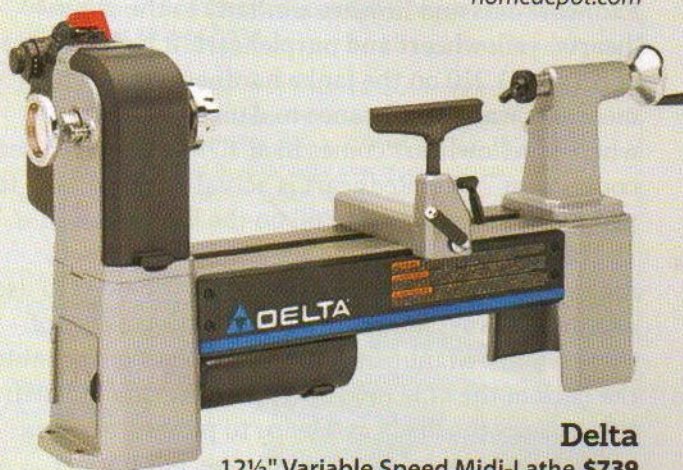
This modestly priced lathe has a ½ HP motor and reaches a maximum speed of 3,200 rpm. With a cast-iron body and straightforward design, this model is all you'll need to turn small items like pens, pepper shakers, and toy parts.
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WOOD PROFILE

Redheart

Don't let its density deter you from falling in love with this tropical hardwood

By Bob Duncan



Janette Square utilized redheart on her classic woodie (page 31) and festive paw print ornaments (page 37). The clothing accessories on Judy Gale Roberts' snowman (page 17) are also redheart.

Redheart can refer to a number of wood species that boast a similar deep red color. The most common variety called redheart is also known as “chakte kok,” and grows from Mexico to as far south as Brazil and Paraguay. Its actual color can vary from a bright watermelon red to pink to a dark brownish-red. Like most tropical hardwoods, redheart can be dense and difficult to cut. But its rich, natural color makes it worth the effort.

Machining

Redheart cuts and finishes similarly to the other ‘hearts’: yellowheart and purpleheart. It is the softest of them at 1,210 on the Janka hardness scale, which measures wood’s resistance to dents and wear—whereas yellowheart comes in at 1,790 and purpleheart comes in at 2,520. Redheart is actually comparable to white oak in hardness (1,360 on the Janka scale).

Like black cherry, another popular red wood, redheart scorches easily when cut, so you need to use caution. I always apply tape when cutting either of these woods. Manufacturers apply a light lubricant to the back of the tape to keep it from sticking to itself; this greases the blade and helps to prevent burning. Some folks like clear packaging tape, but I prefer blue painter’s tape for easy removal. As redheart can be a bit splintery, applying tape will reduce the splinters and make it easier to remove your pattern after cutting.

Selecting the right blade is also important when working with redheart. Choose an aggressive blade

with deep gullets (the spaces between the teeth); a skip-tooth or premium blade is ideal. The right teeth will help clear the sawdust and reduce burning. Use the largest blade you can and change blades often. If the wood does scorch, I suggest hand-sanding the darkened spots; once you warm up an area, the friction from power sanding (unless you’re using a coarse grit) will continue to darken the area.

Finishing

Redheart sands well. Unlike some of the oilier tropical hardwoods, you don’t need to pretreat it before gluing or applying a finish. Unfortunately, as with purpleheart, the vivid color fades to a reddish-brown when exposed to sunlight; a finish with UV inhibitors, such as spar varnish, will slow—but not stop—this color change. I suggest keeping it away from strong light as much as possible.

At a Glance

If you want to branch out and try a new species of wood, consider redheart. Its vibrant, natural color is worth the additional effort it takes to cut. If you equip yourself with the proper saw blade and finish, you may well find yourself working with this eye-catching wood more often.

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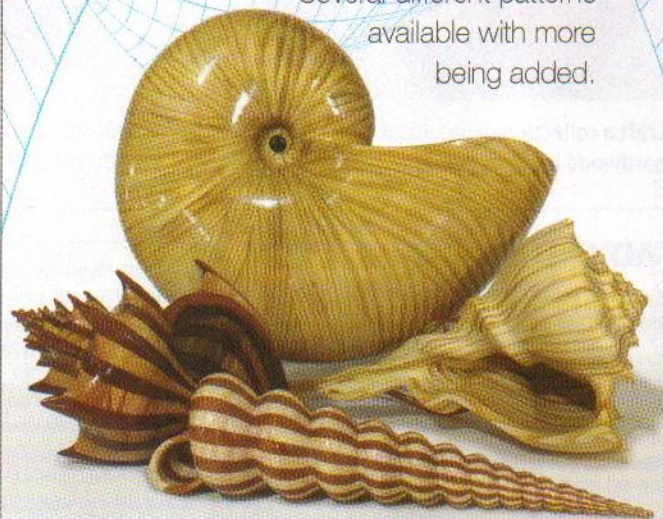
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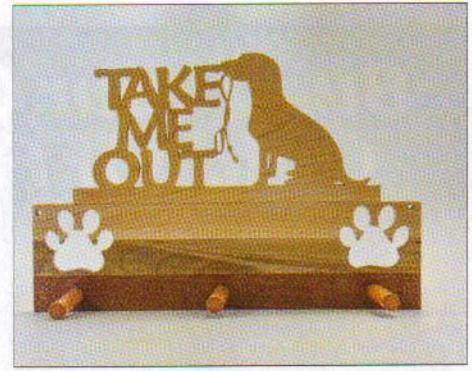
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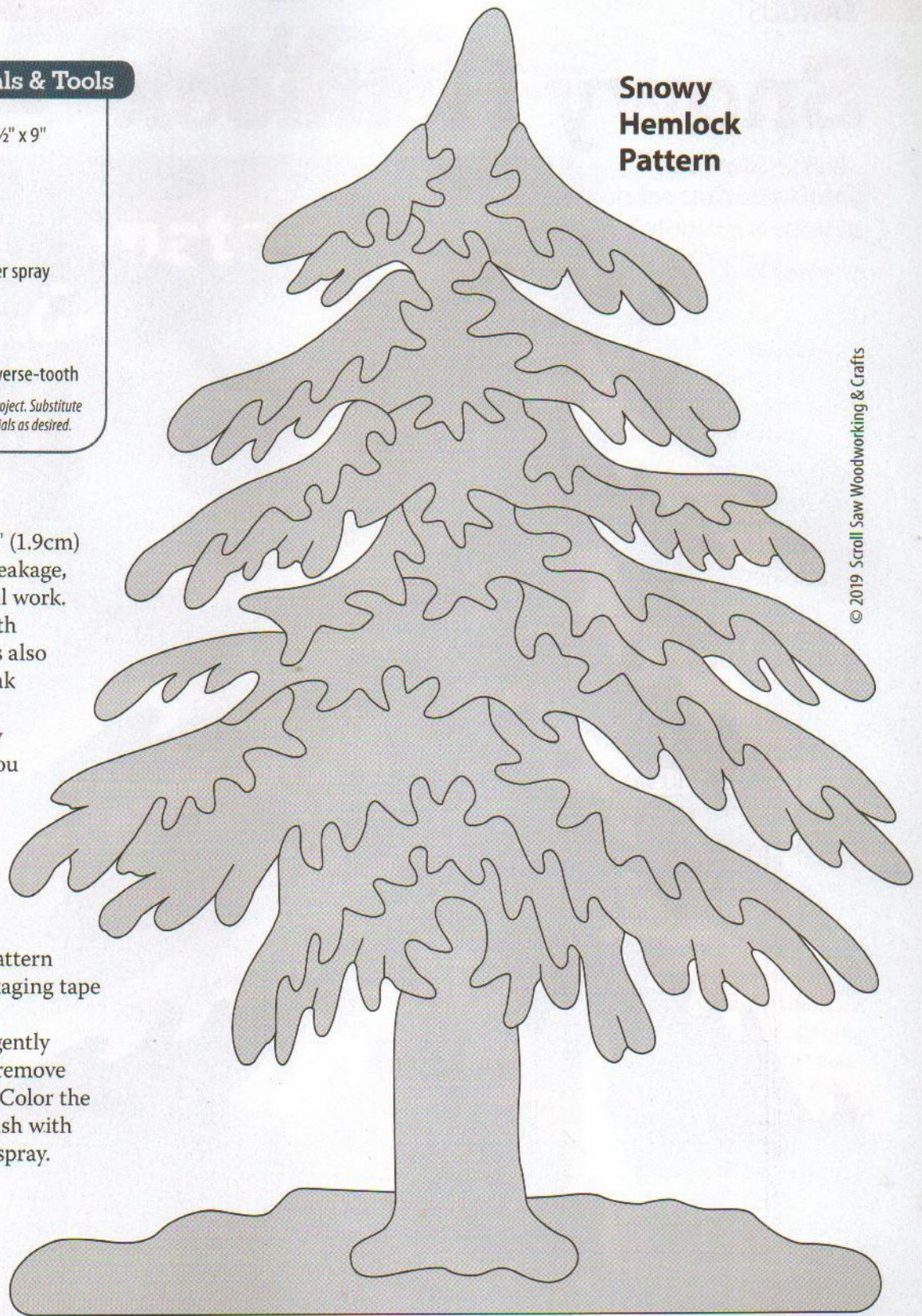
- Plywood, $\frac{3}{4}$ " (1.9cm) thick: 6 $\frac{1}{2}$ " x 9" (16.5cm x 22.9cm)
- Spray adhesive
- Tape: clear packaging
- Sandpaper: assorted grits
- Finish: tung oil or clear lacquer spray
- Aniline dyes or acrylic paints

Tools

- Scroll saw blades: #2 or #5 reverse-tooth

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

Snowy Hemlock Pattern



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Cutting and Finishing

For this puzzle, I used $\frac{3}{4}$ " (1.9cm) plywood to minimize breakage, but any type of wood will work. (A natural wood look with snow-capped branches is also attractive.) Sand the blank with 120-grit sandpaper, working up progressively through the grits until you reach 320. Remove all sander dust from the surface. Photocopy the pattern and attach it to the wood with spray adhesive. Then cover the entire blank, pattern included, with clear packaging tape for ease of cutting.

Cut the puzzle, and gently hand-sand the pieces to remove fuzzies and sharp edges. Color the pieces as desired and finish with tung oil or clear lacquer spray.

Harvey Byler, Sr. was introduced to woodworking after moving to Ohio with his wife, Fanny, in 1980. When their son was a few years old, Harvey began utilizing scraps of wood left over from cabinetwork to make puzzles, and a new love was born. Since then, Harvey has designed around 900 traditional puzzles and over 1,700 custom name puzzles. When people ask what he does for a living, he likes to reply, "What I do is puzzling to people." He has worked with distributor and business partner Claire Calderone since 2005. To see more of Harvey's work, check out Puzzimals on Etsy.

Snowy Hemlock

Scroll an arboreal puzzle for each of your tree-loving friends

By Harvey Byler



As winter approaches, I always look forward to seeing snow-covered trees. Here is one that can be enjoyed year round—minus the cold. Or, if you prefer warmer thoughts, you can dye or paint the puzzle entirely green for summer.

(Continued on page 71)

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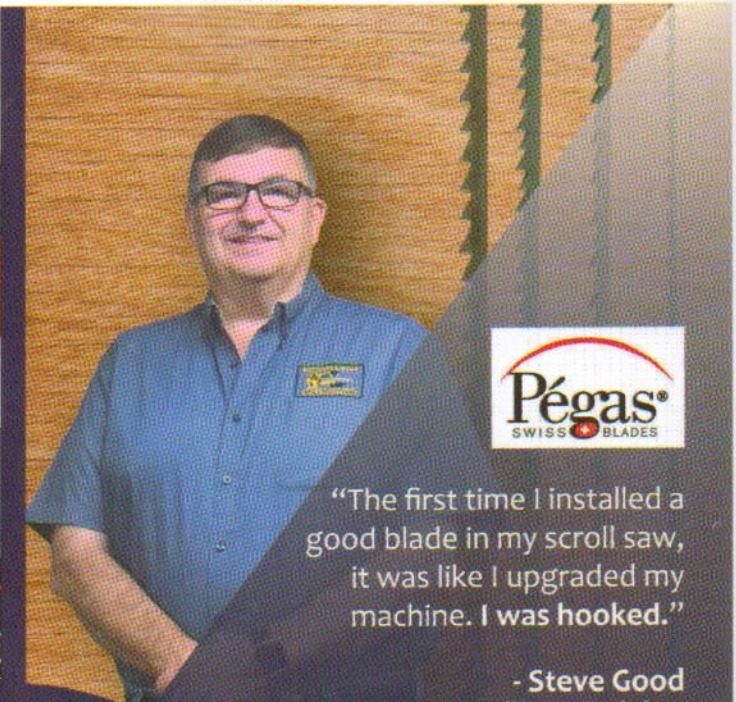
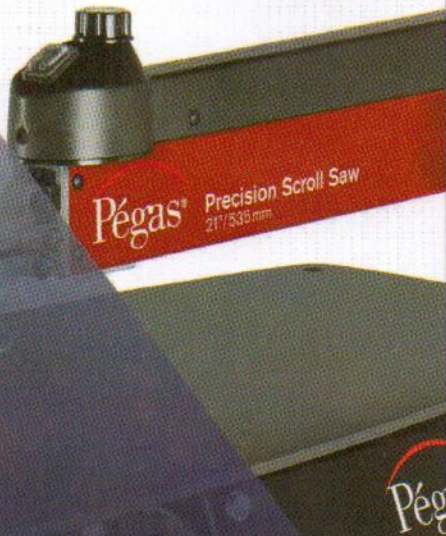
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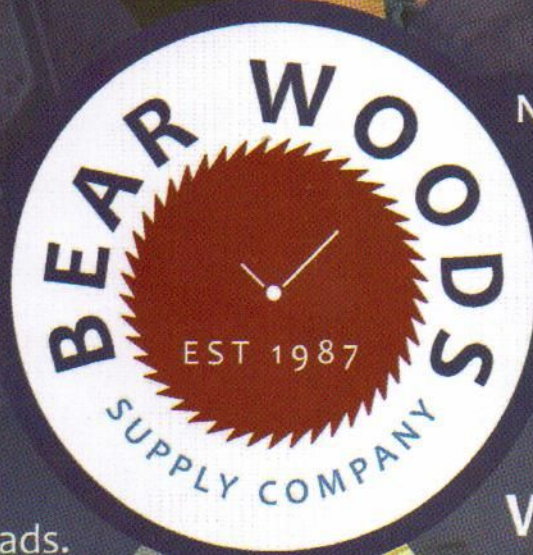
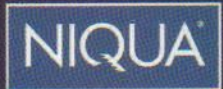
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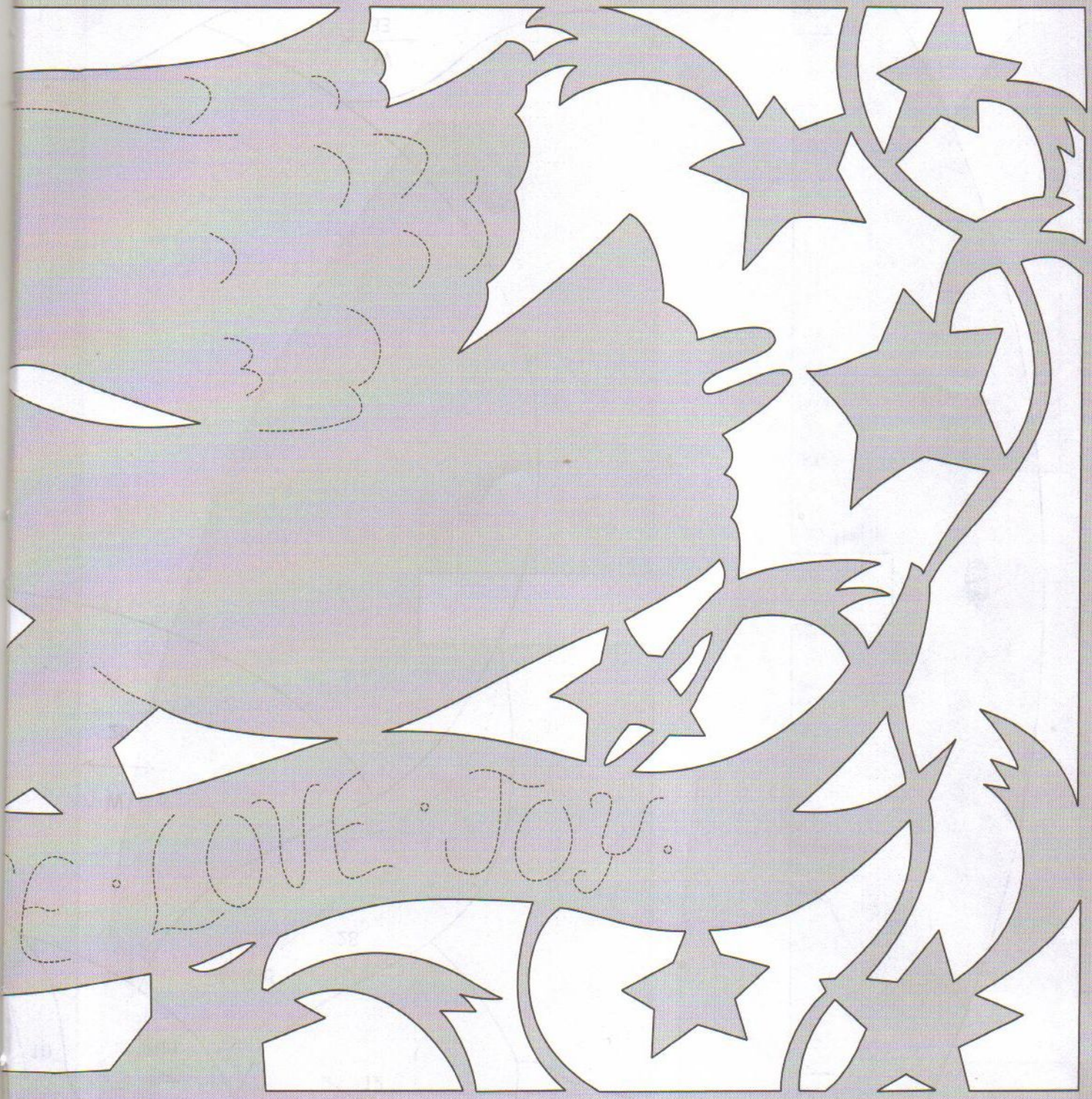


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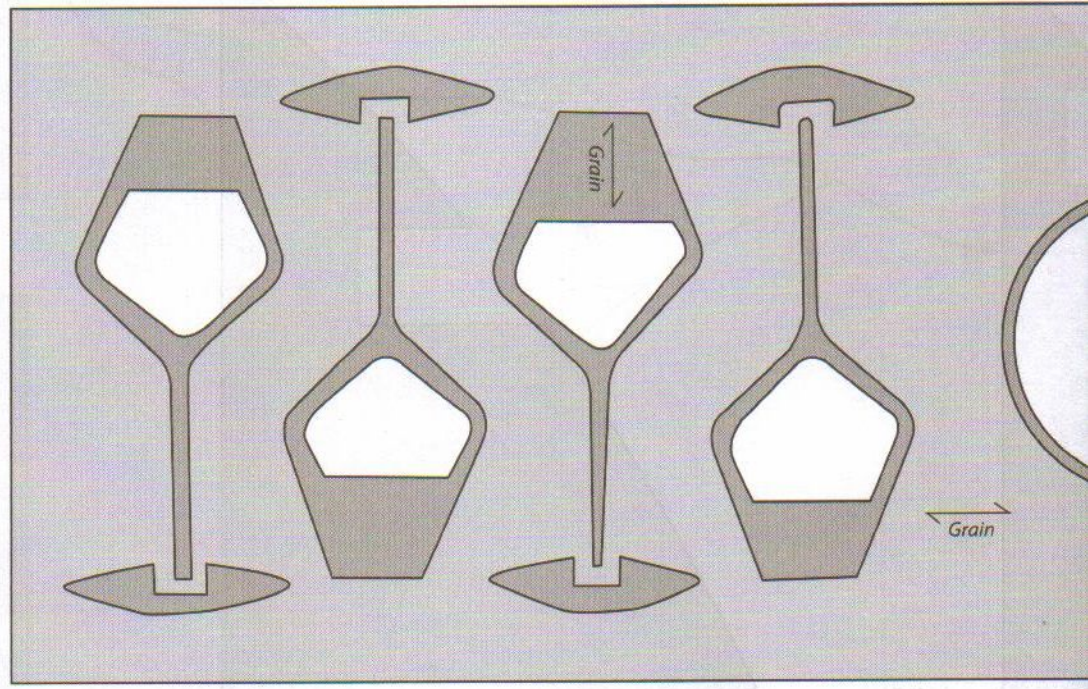
Woodburning
lines

PEACE

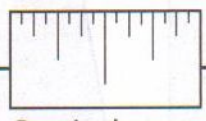


LOVE JOY

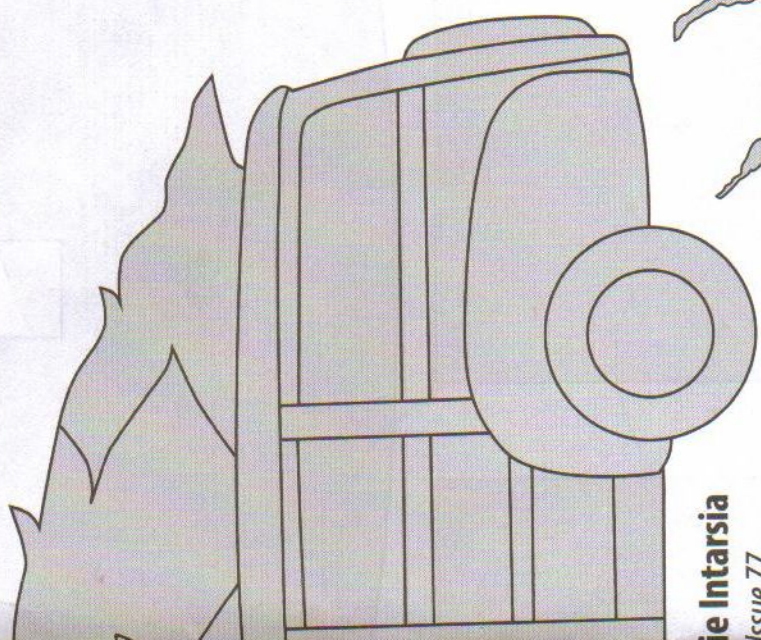
Gift Wine Tags
Page 42 - SSWC Issue 77
Designer: Anna Bondoc



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One inch



4A

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

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Snowman & Chickadee Intarsia.....	17	Modern Ornaments.....	44
Hardwood Steam Train.....	20	Perchers Fretwork	49
Soaring Angel Fretwork.....	22	Lion/Tiger Easel Stand	50
Classic Woodie Intarsia	32	Elegant Italian Shelf	54
Cat Paw Print Ornament	37	Bear Cub Fretwork.....	56
Gift Wine Tags	42		

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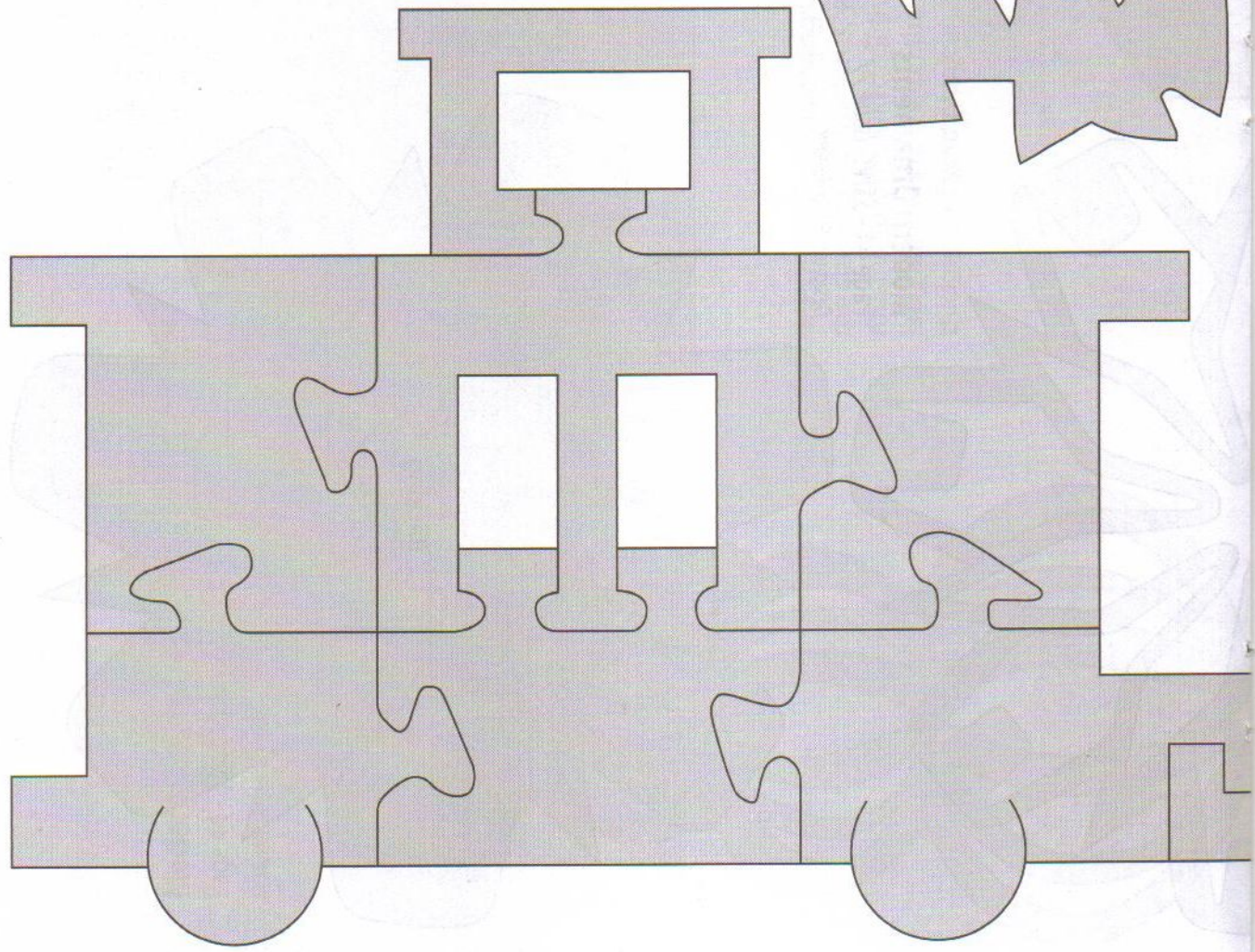
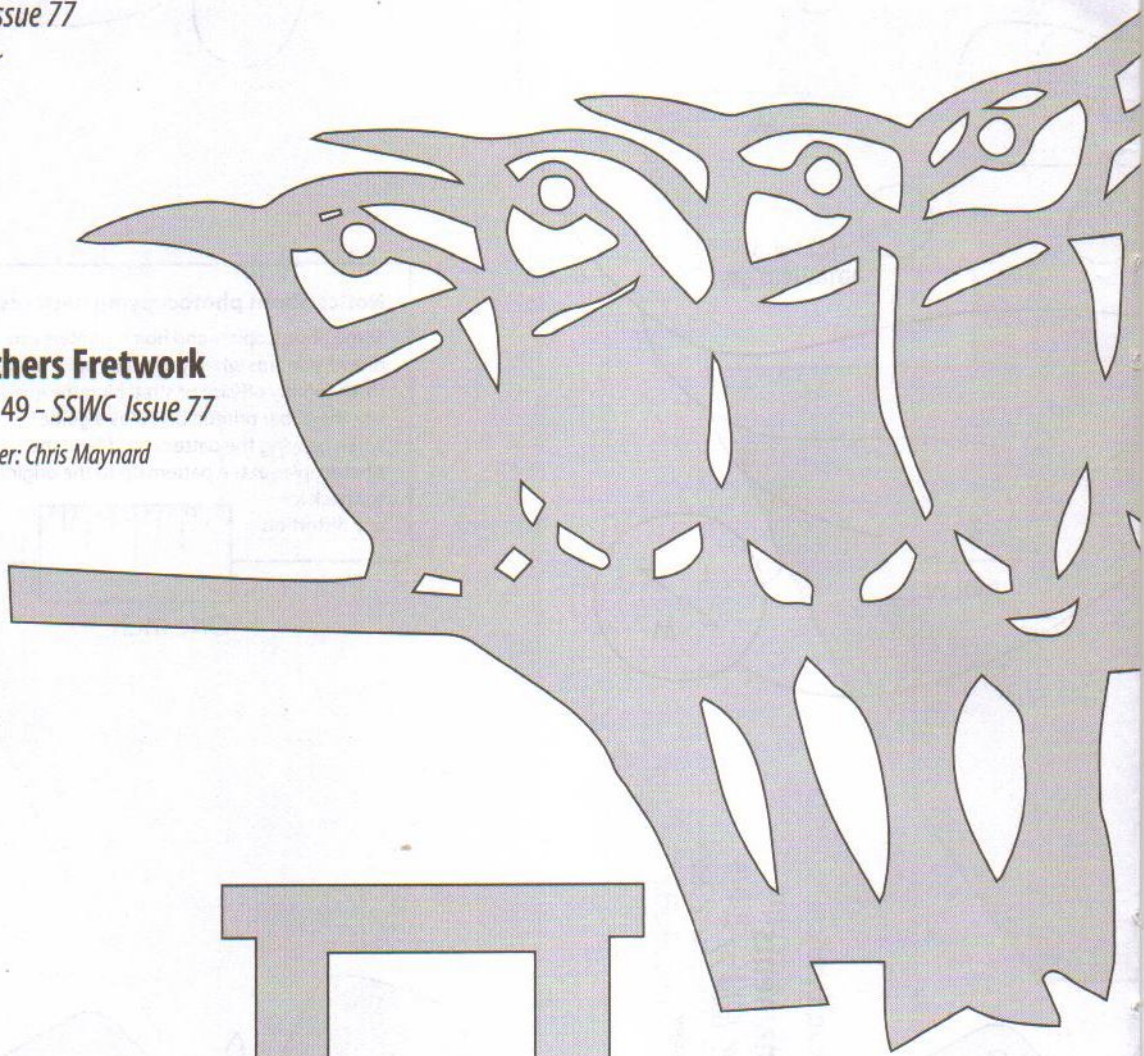
Bear Cub Fretwork
Page 56 - SSWC Issue 77
Designer: Charles Hand

Designer: Carole Behrer

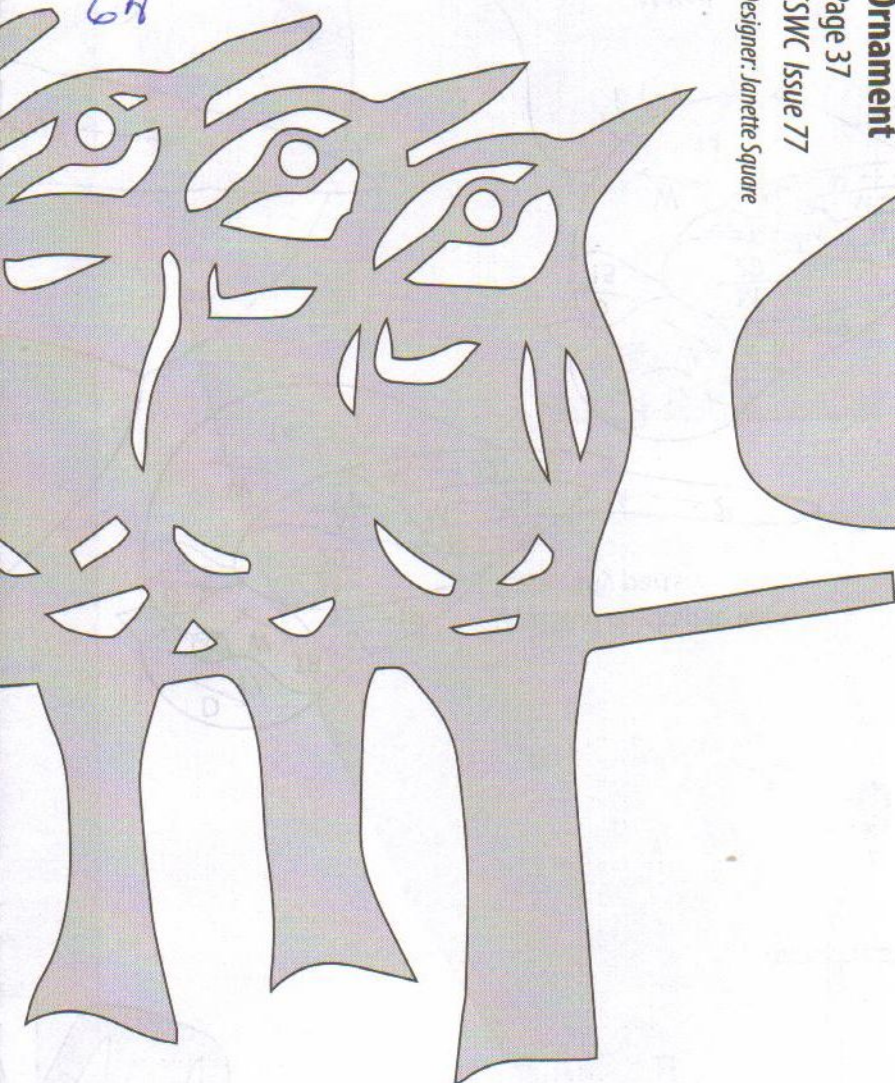
Perchers Fretwork

Page 49 - SSWC Issue 77

Designer: Chris Maynard



6A



Designer: Janette Square

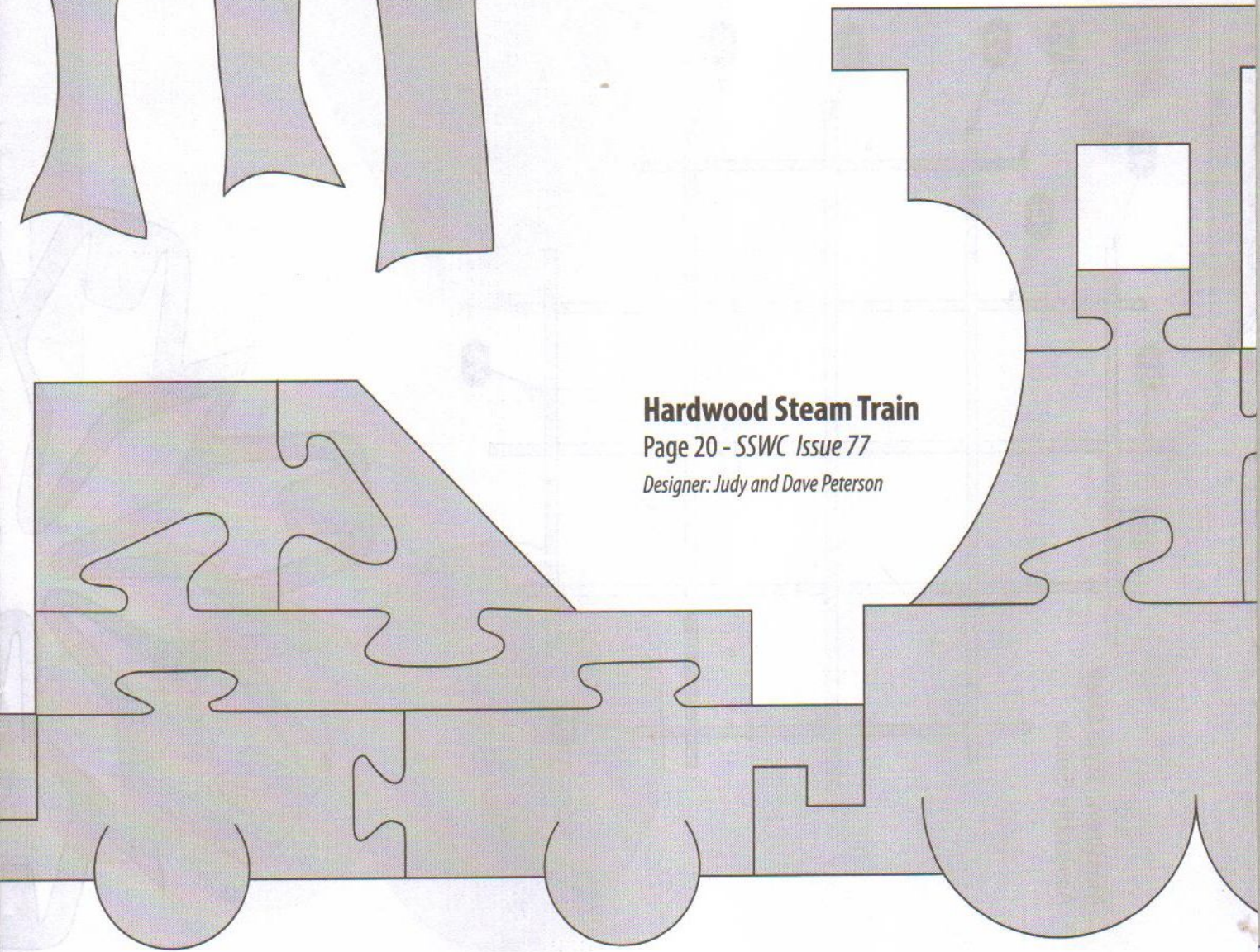
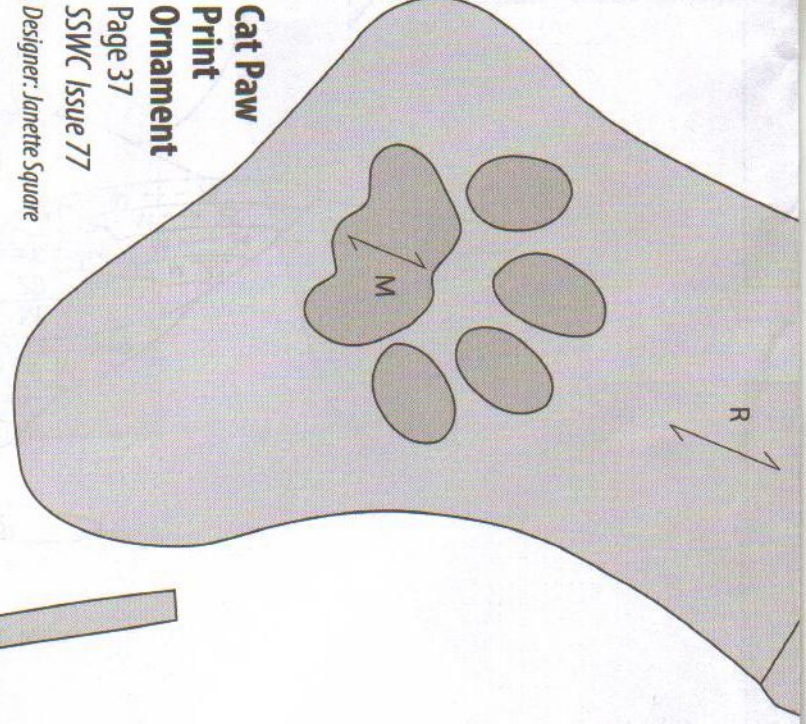
SSWC Issue 77

Page 37

Ornament

Print

Cat Paw

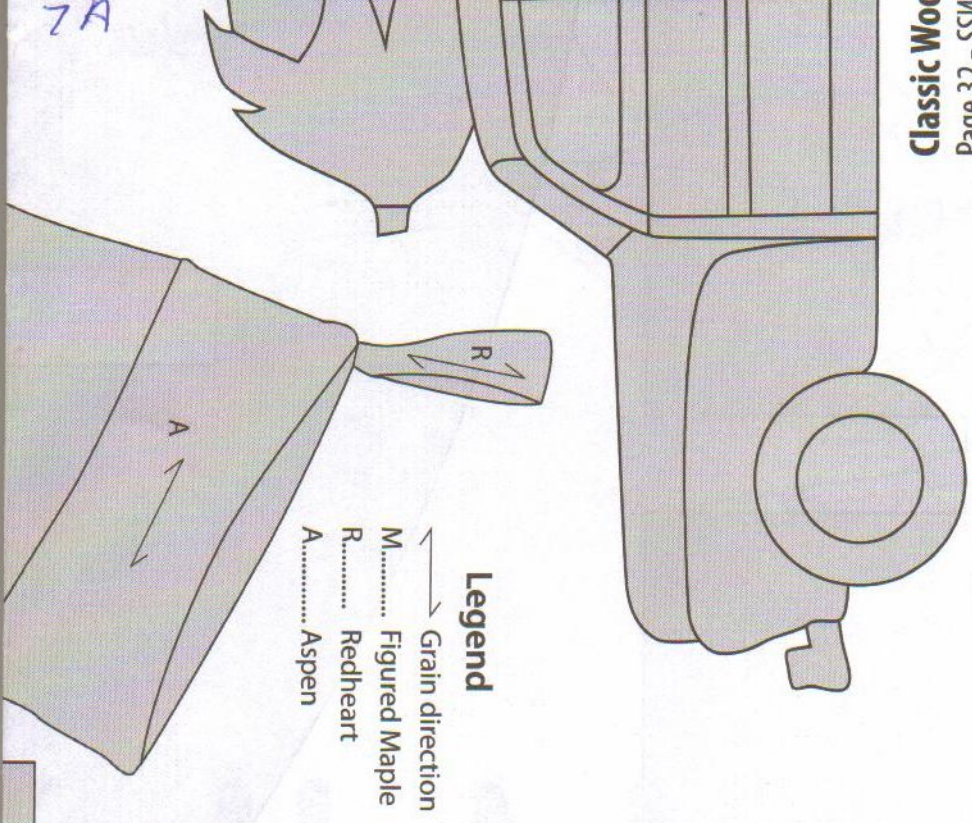


Hardwood Steam Train

Page 20 - SSWC Issue 77

Designer: Judy and Dave Peterson

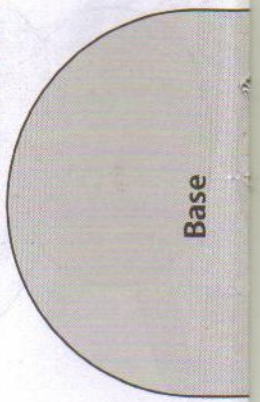
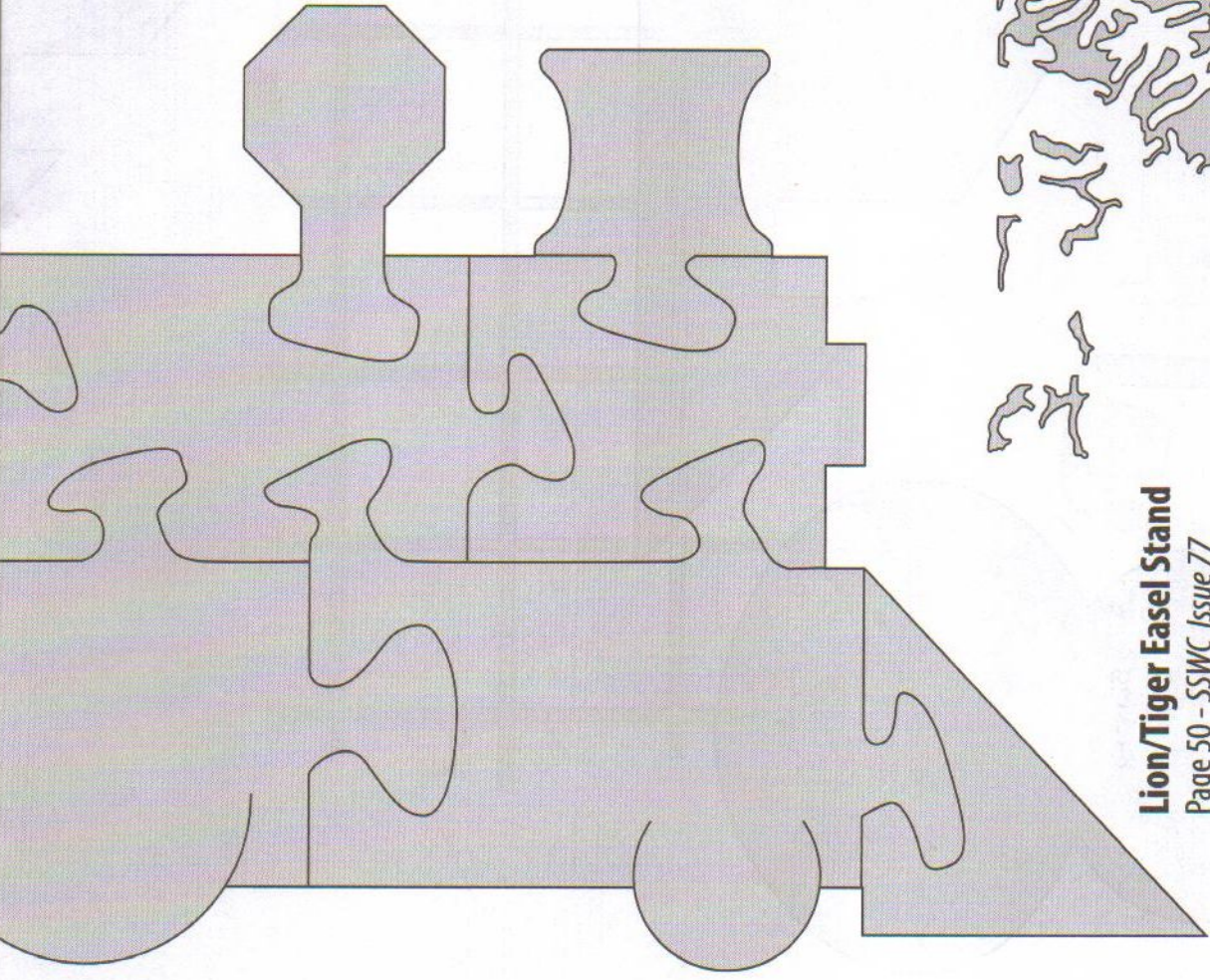
7A



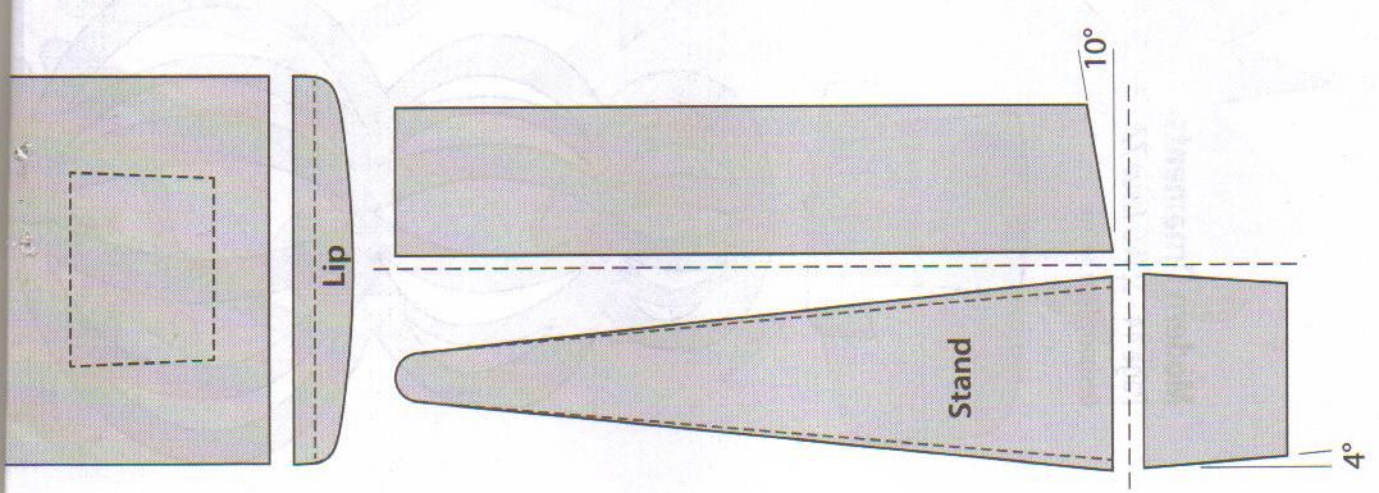
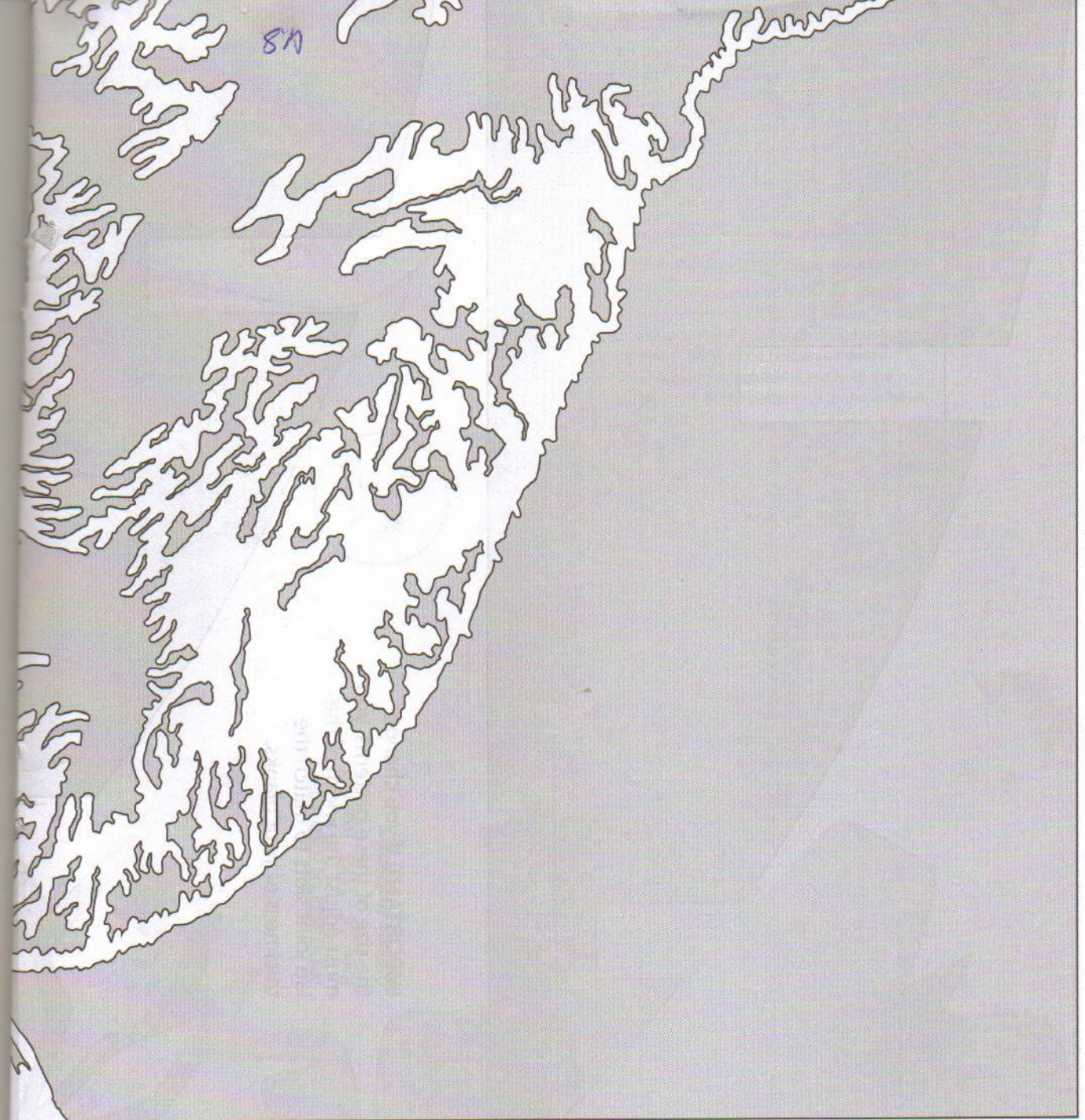
Classic Wood
 Page 32 - SSWC
 Designer: Janette Sq



Lion/Tiger Easel Stand
 Page 50 - SSWC Issue 77
 Designer: Rolf Beuttenmuller



Base

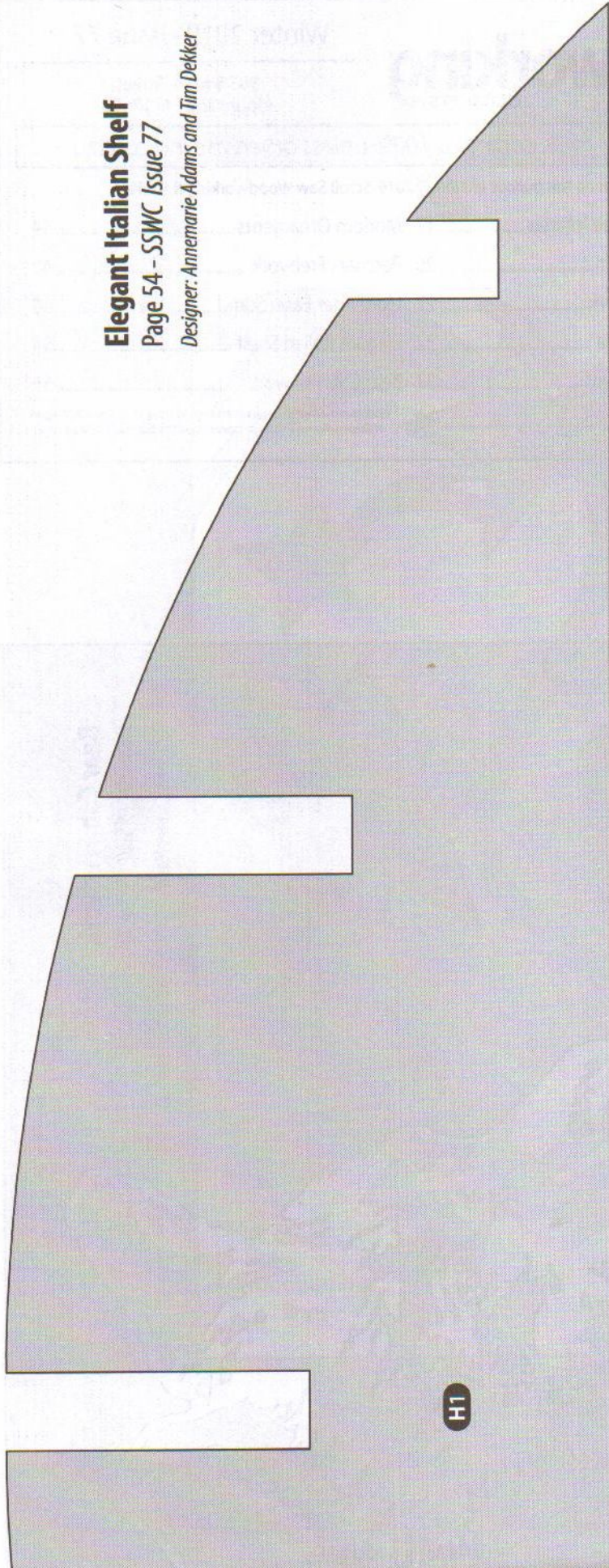


13

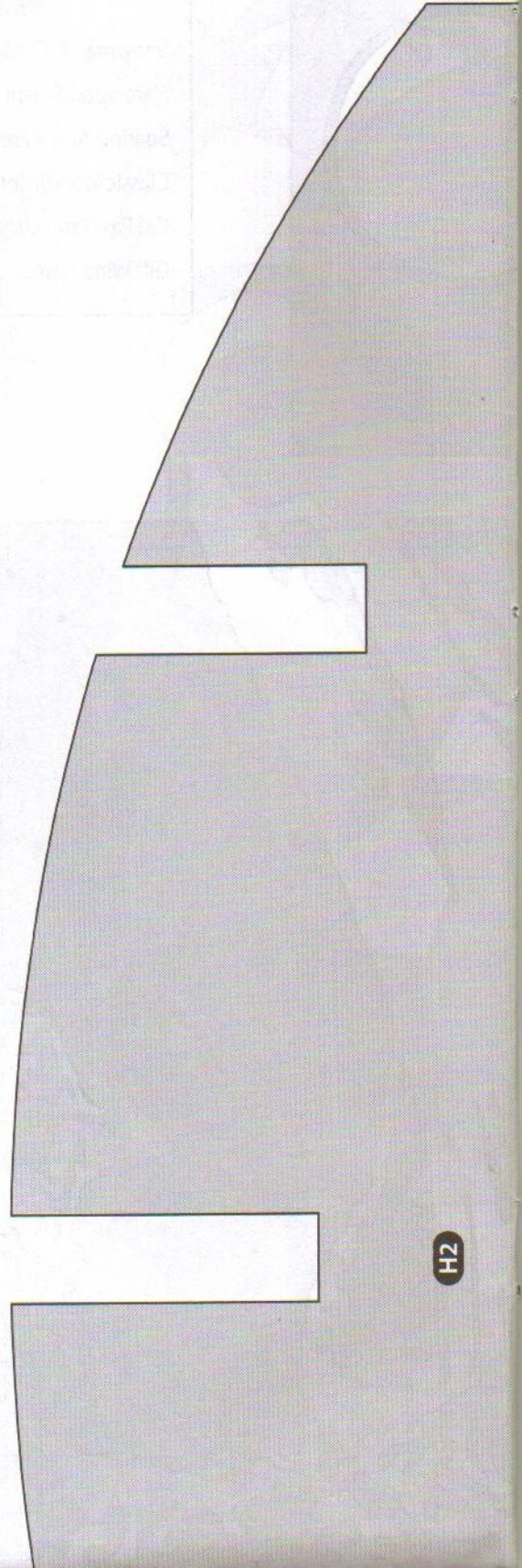
Elegant Italian Shelf

Page 54 - SSWC Issue 77

Designer: Annemarie Adams and Tim Dekker

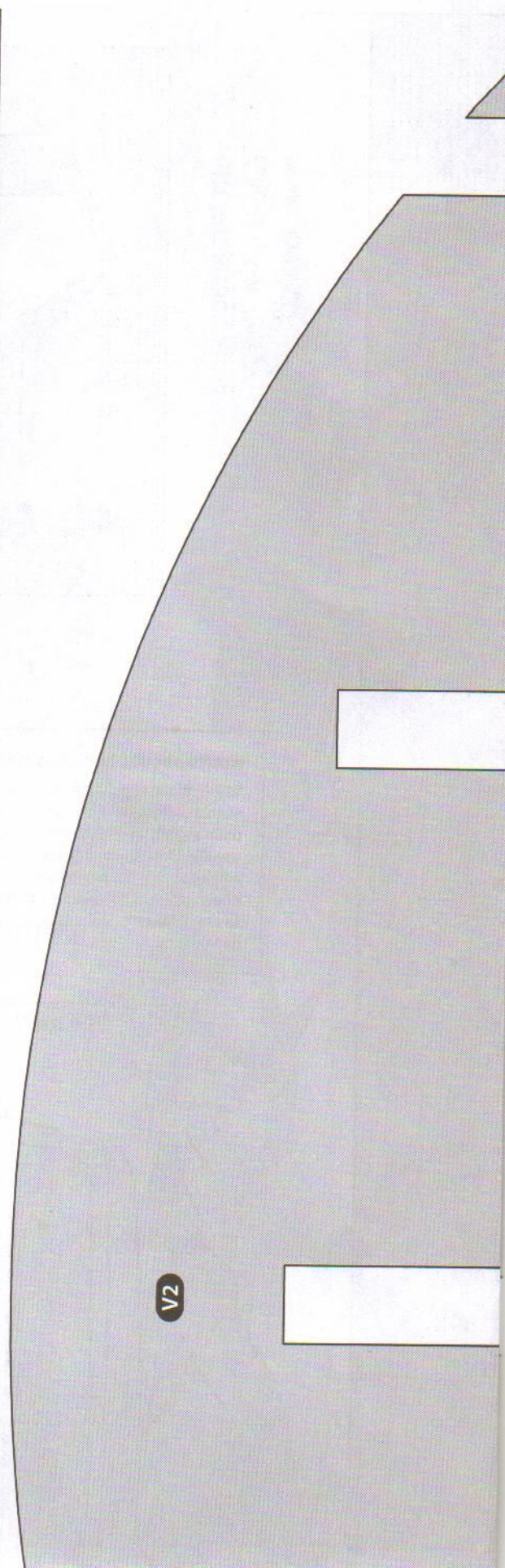
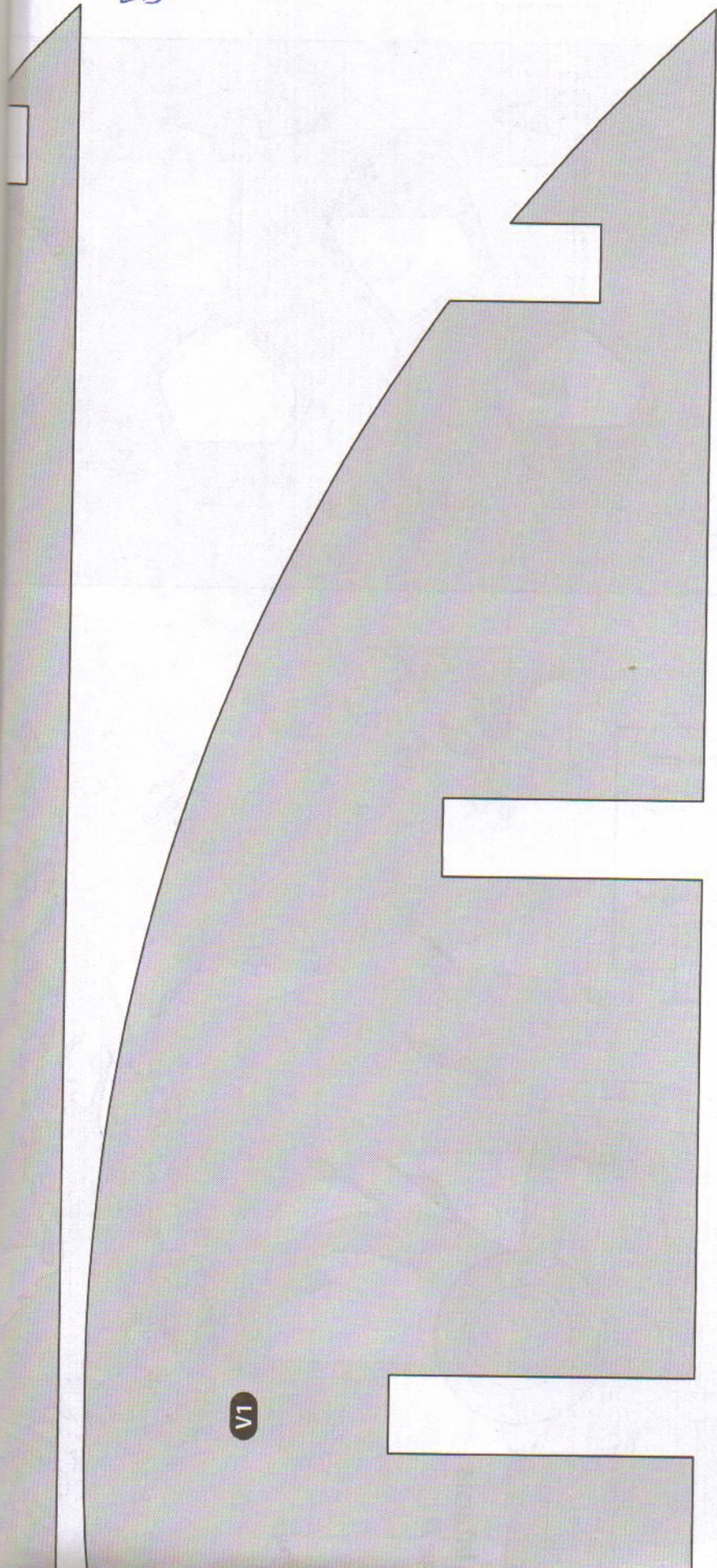


H1

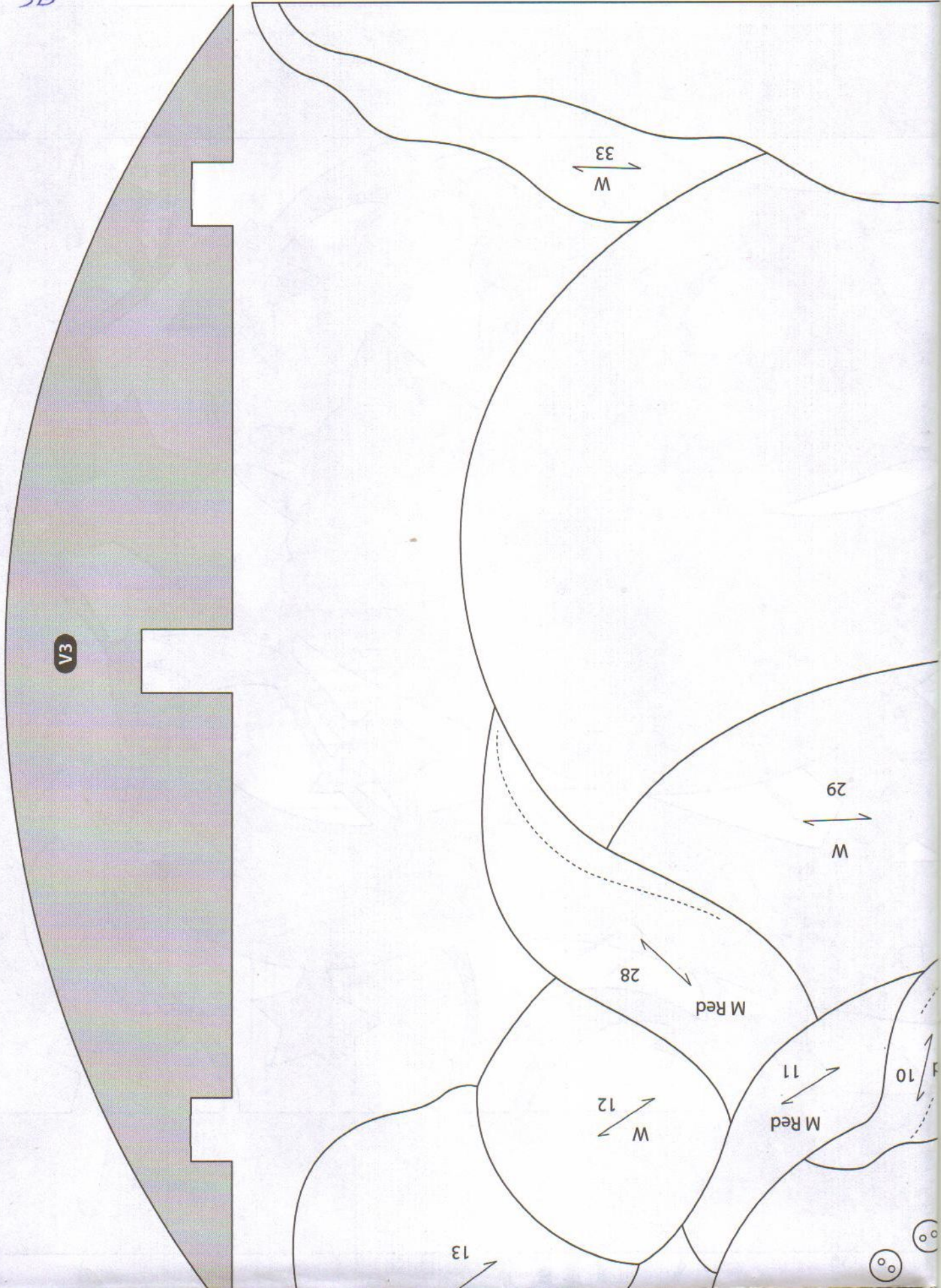


H2

23



3B



4B

32
W

31
W

Page 17 - SSWC Issue 77
Designer: Judy Gale Roberts

Snowman & Chickadee Intarsia

30
W

9
W

- R..... Raise this part 1/8" to 1/4"
- W..... White Pine, or Any White Wood
- M..... Medium Shade of Wood
- D..... Dark Shade of Wood
- ↔ Grain Direction

Legend

R
M Red
5

6
M Red

7
W

8
M Red

1/4"-diameter
holes (8)

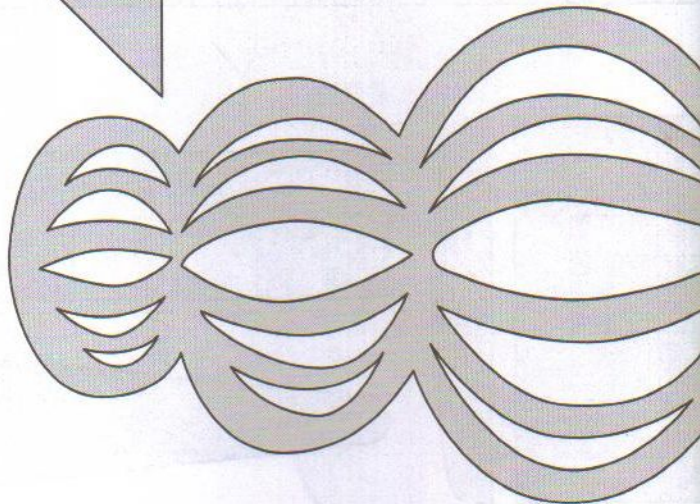
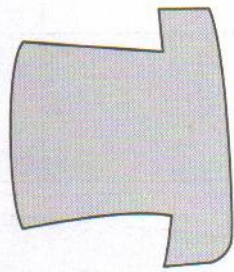


5B

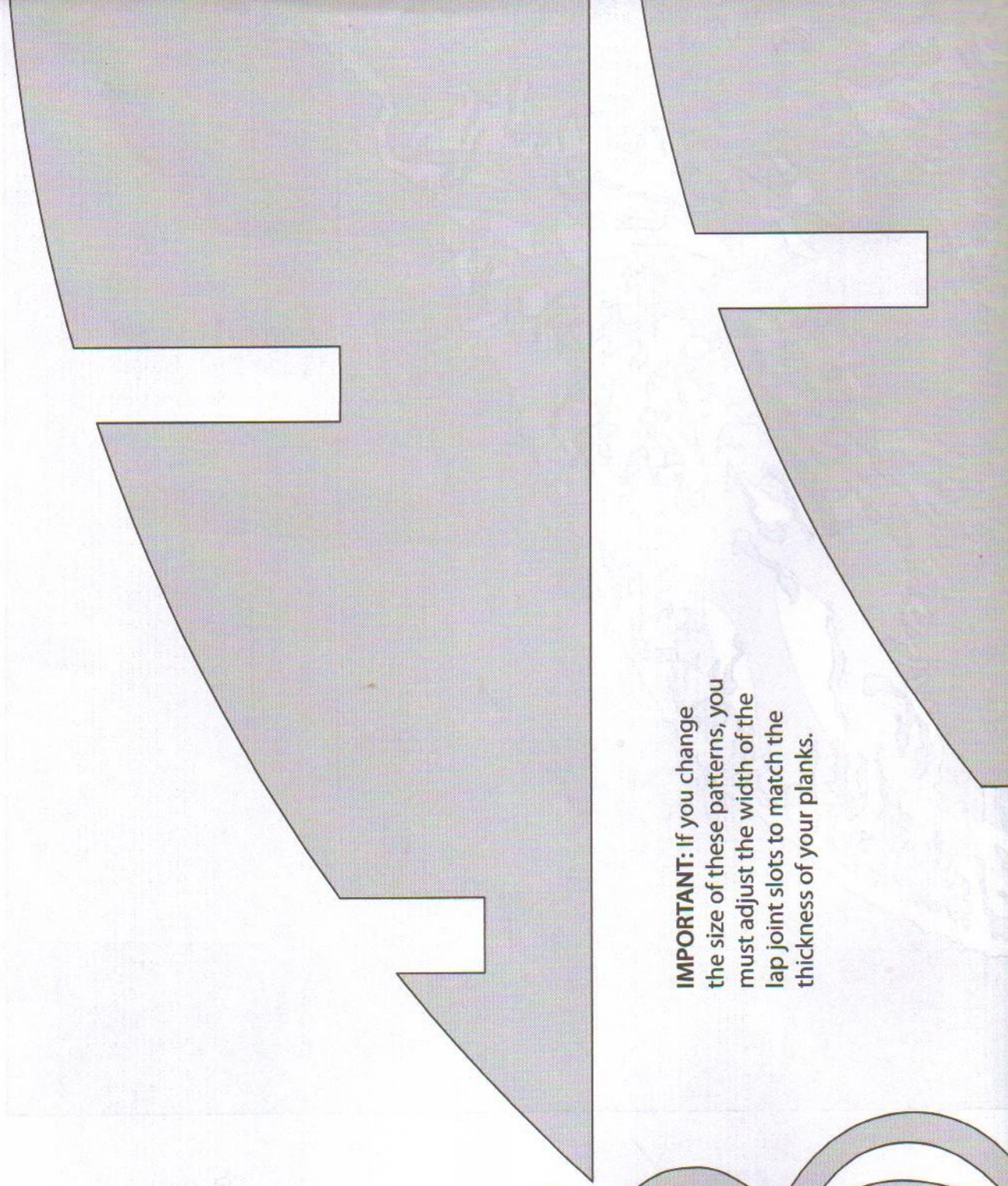
Modern Ornaments

Page 44 - SSWC Issue 77

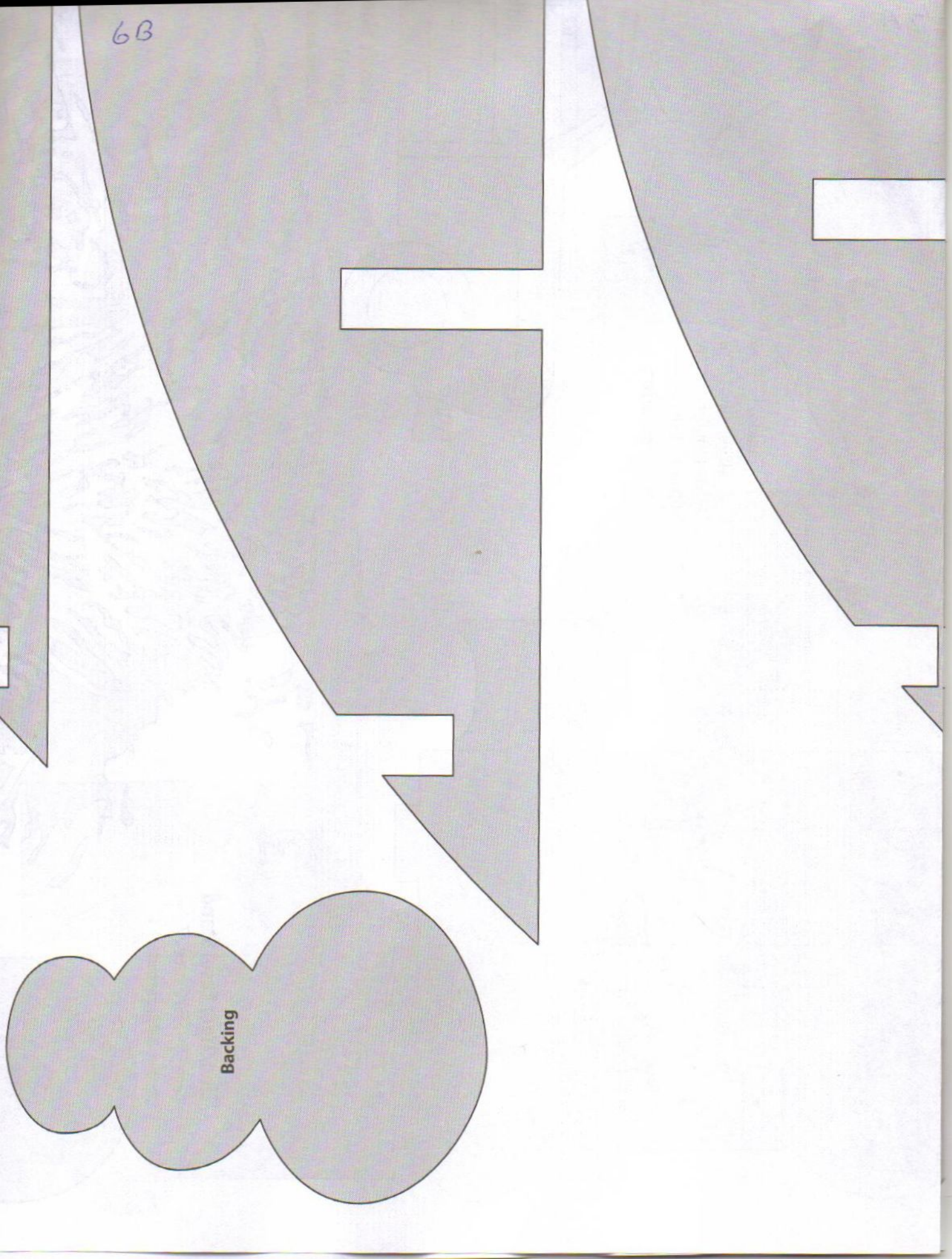
Designer: Anna Bondoc



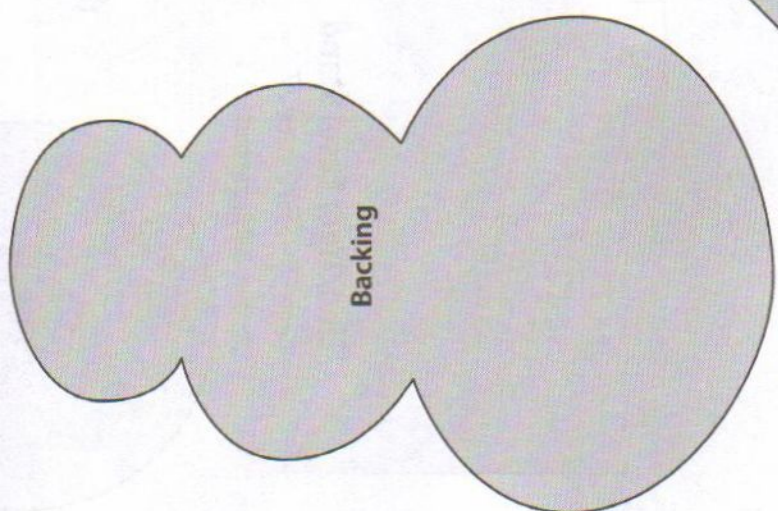
IMPORTANT: If you change the size of these patterns, you must adjust the width of the lap joint slots to match the thickness of your planks.

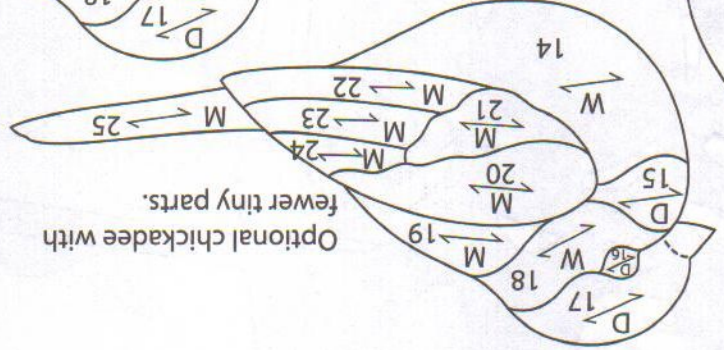
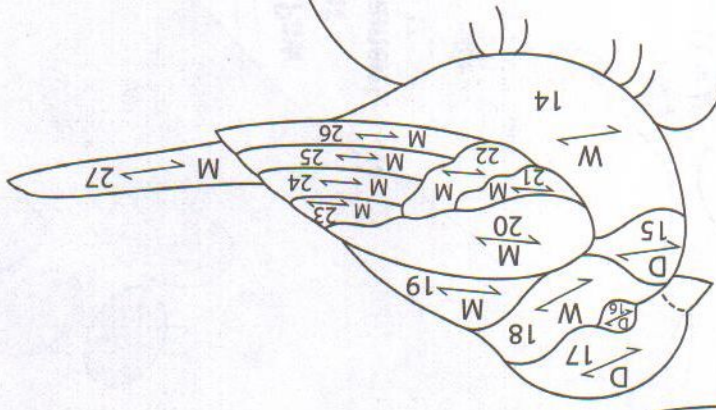


6B

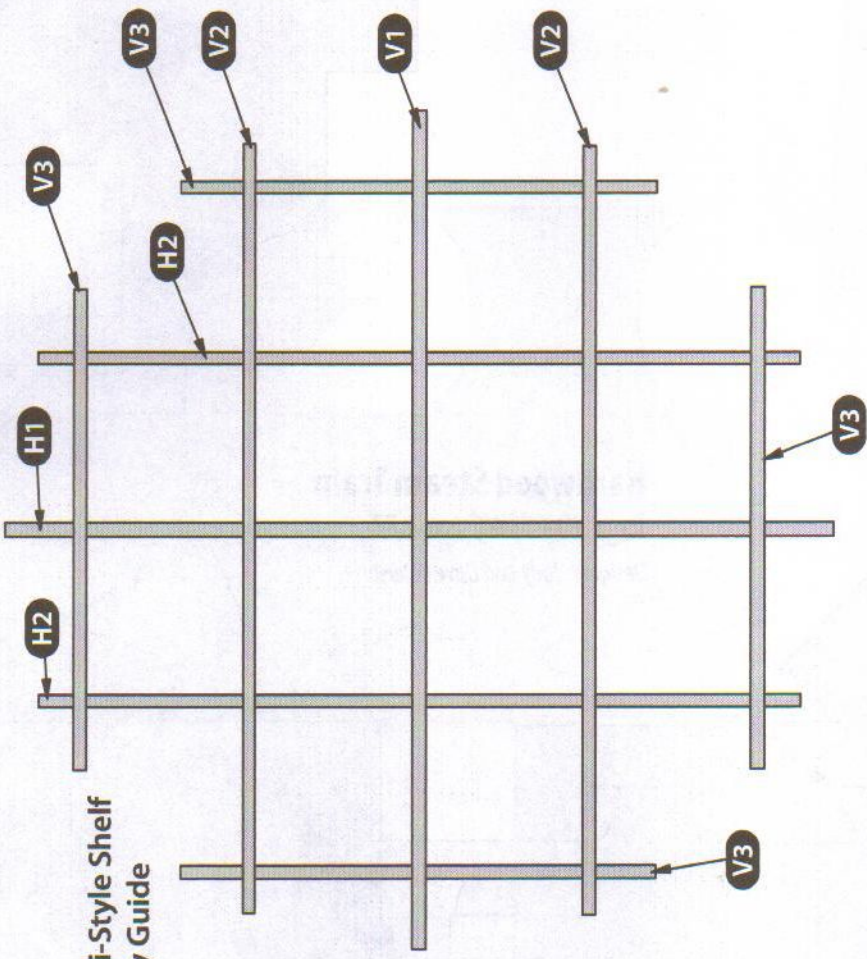


Backing

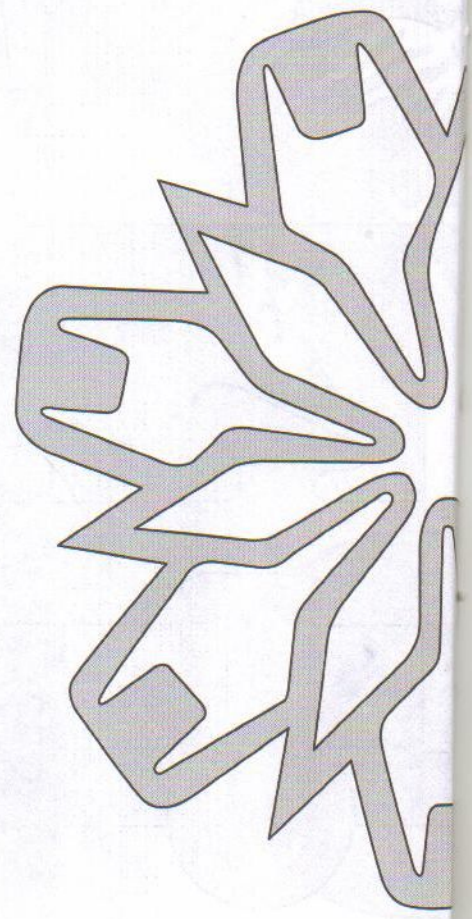


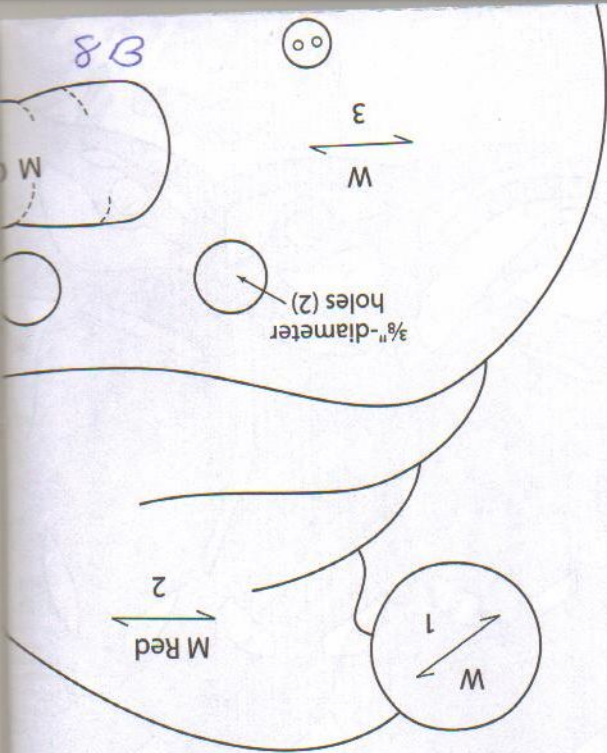


Optional chickadee with fewer tiny parts.



Massironi-Style Shelf Assembly Guide





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One inch

Modern Ornaments
 Page 44 - SSWC Issue 77
 Designer: Anna Bondoc

