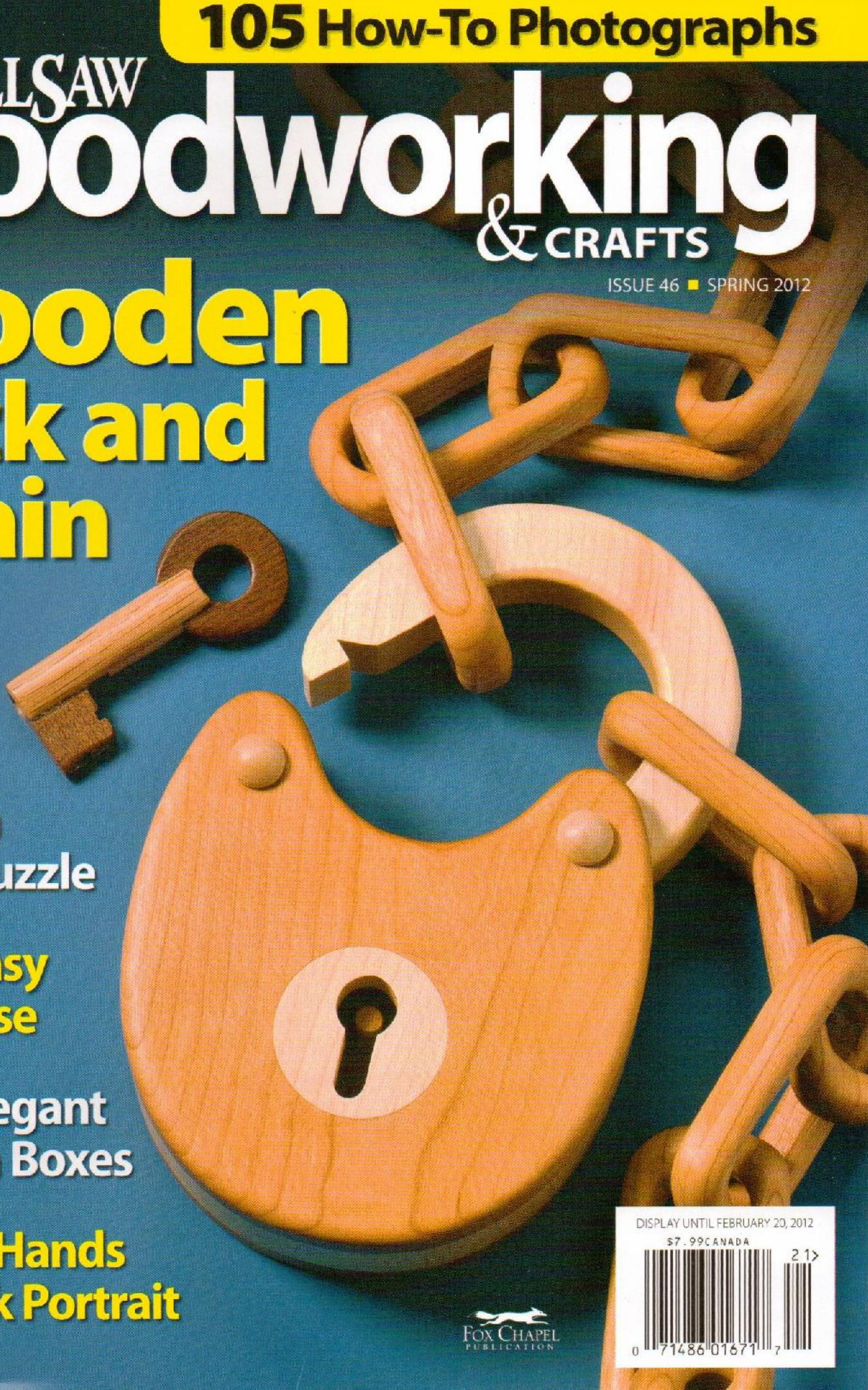
105 How-To Photographs

Scroll Saw Woodworking & Crafts

ISSUE 46 ■ SPRING 2012

Wooden Lock and Chain



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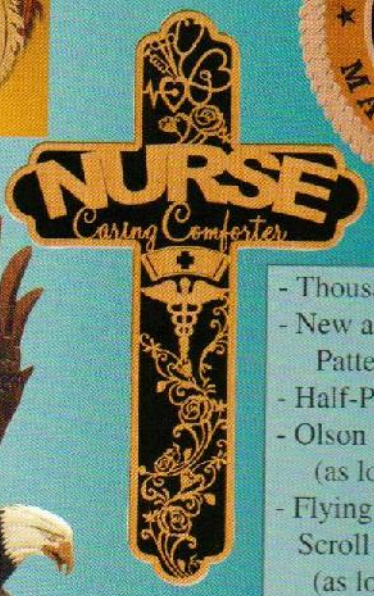

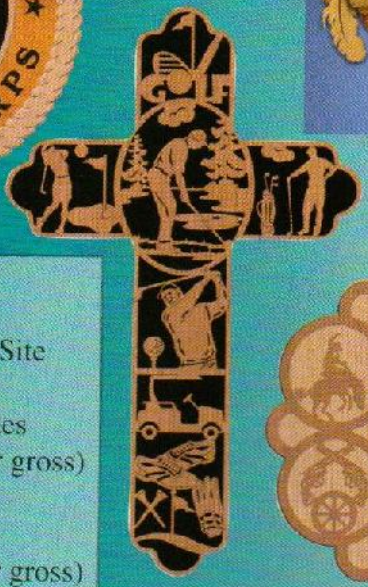

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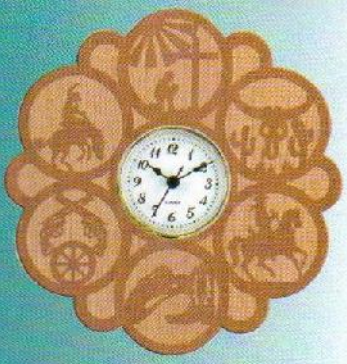

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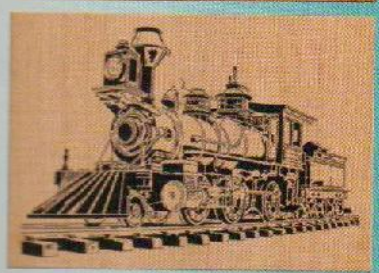

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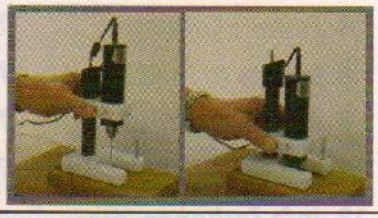

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SCROLLSAW woodworking & CRAFTS

SPRING 2012 ■ ISSUE 46

IN THIS ISSUE

28 Cut a fun frog puzzle from hardwood or plywood.

FEATURES

DEPARTMENTS

ON THE WEB WWW.SCROLLSAWER.COM

Get Involved
Making a Giving Garden, p. 20
Share the link with your child's teacher and download the pattern to cut a garden of ready-to-paint flowers.

Convenient Pattern Download
Cut a Pair of Challenging Snowflake Puzzles, p. 22
Simply print the online pattern and get right to work making these perplexing puzzles.

Informative Video
Build a Working Wooden Padlock, p. 40
Follow along as Adrian Iredale walks you through the construction of a working wooden lock.

Additional online features: community forum • scroller galleries • tips • article index • free patterns • product reviews • subscriber services

PATTERNS

METHODS

Learning to Scroll

When I started working at Fox Chapel in 2010, I focused on learning the company's style and processes. I've been in publishing for a long time, but every company works a little differently. So, I worried about deadlines and commas, and I relied on Bob Duncan, our technical editor, to know that the articles would really produce the projects. By last summer, however, I had a handle on the schedule and had read enough about scrolling to feel as though I knew the basics—and to think that maybe it was time to try it.

From the corners of the office I gathered a scroll saw, blades, scraps of wood, and a copy of John Nelson's classic instruction book, *Scroll Saw Workbook*. At home, I installed the saw, a Delta 20", in a corner of my basement office. Many of the wood scraps had three-piece animal puzzle patterns already attached (remnants, no doubt, of a long-ago workshop). My son, who was taught to scroll in school, eagerly grabbed a cat puzzle and showed me how to hold the wood and make cuts. I took a deep breath and cut a dog puzzle. It was a little wobbly and the pieces only came apart in one direction, but it looked like a dog. Success!

For my next few scrolling sessions, I started at the beginning of the Workbook and sawed my way through lesson after lesson. I cut straight lines and zigzags. I cut outlines. I adjusted the table to be sure it was square and cut another simple puzzle. I cut fretwork and figured out the easiest way to loosen, thread, and tighten the blade. My collection of wooden shapes grew along with my skills.

Despite shoulder muscles tense from hunching over the saw, I feel as though I'm on the right track. Balancing my desire to do "real" projects with my obvious need for lessons and practice, I tried a pattern from the magazine—a simple heart puzzle. The keys weren't perfect, but the puzzle came apart both ways. I gave it to my fiancé, proud as a kindergartener presenting a handmade Mother's Day gift.

Conveniently, my wish list of projects relates to upcoming lessons in the Workbook. Once I learn to stack cut, I can try the snowman puzzle from the holiday issue. After I tackle small pieces and improve my turns, I can do the sealife puzzle from last spring. And when I've completed the lessons on compound cutting, I can do the scrolled chain on pages 36-39 of this issue. It will be a nice balance of work and play.

For me, the ultimate point of learning to scroll is to understand the techniques and actions so I can work with our authors to create good instructional articles. But I have to admit—having fun with my new skill is a great bonus!

Mindy Kinsey
Kinsey@FoxChapelPublishing.com

These are a few of the pieces Mindy has cut so far.

SCROLL SAW woodworking & CRAFTS

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

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I Goofed Page?

As I was paging through *Scroll Saw Woodworking & Crafts* Holiday 2011 (Issue 45), I read the story in the Info Exchange where Linda Ducey tells of covering her finished project with spray adhesive instead of spray finish. I've done that, and I've also covered a project with white spray paint instead of finish. That will stop your heart!

I like Linda's idea, and her letter got me thinking. You have a Bragging Page and an Info Exchange page—so why not an "I Goofed" page? People learn from other's mistakes.

Ronald Appel
Via e-mail

If you have a good "I Goofed" story of making a mistake and learning a lesson, please e-mail Bob Duncan at duncan@foxchapelpublishing.com, or send your story to: I Goofed, 1970 Broad St., East Petersburg, Pa., 17520.

Fox Hunt

Kenneth Bornong of Waterloo, Idaho, and Paulette Reyes of Wilmington, N.C., were randomly drawn from the participants who located the fox in our last issue (Holiday 2011, Issue 45). The fox was on the bottom of page 5 in the Gorilla Glue ad.

Find the fox in this issue, contact us, and tell us the page number and location. Two readers randomly selected from all correct replies will receive a $25 Fox Chapel Publishing gift certificate. Entries must be received by February 27, 2012 to be eligible. *NOTE: The contest fox is an outline drawing that would face left if his feet were on the "ground" (other foxes appearing in SSW&C don't count).*

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

Use Silkies Necklaces instead of elastic cord for a sturdier robot.

Improved Joints for Robot

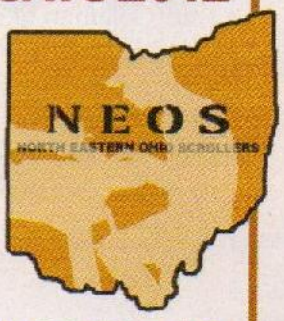
I recently made the wooden robot toy and dog by Fred and Julie Byrne from the *Making Wooden Toys* magazine. My robot came out great, and I wanted to thank you for this very cool project. The design works like a dream, is easy to make, and really looks great.

My only suggestion is to use a product called Silkies Necklaces for the joints. Simply cut the clasp off and use the elastic necklace as a substitute for the cord. The necklaces are much stronger than elastic cords and hold tension a lot better. I use a hemostat to help hold the elastic tight when tying it up. Just pull it tight, clamp it with the hemostat, and tie knots in the ends. The necklaces are sold at craft stores.

Robert Stark
New York, N.Y.

NORTH EASTERN OHIO SCROLL SAW PICNIC 2012

Hosted by the North Eastern Ohio Scrollers



Friday-Sunday, May 4, 5, 6, 2012

Friday May 4th 2012
- Welcome Social, 6pm

Saturday May 5th 2012
- Show open 9am – 4pm
- Contest opens
- Raffle tickets on sale
- Seminars and demos
- Dinner, 7pm

Sunday May 6th 2012
- Show open 9am -3pm
- Seminars and demos
- Raffle winners announced
- Contest winners announced

Lodging: Days Inn Richfield Ohio

We have reserved a block of rooms for the picnic. Remember when booking a room to mention the picnic to take advantage of a discounted room rate and to get a reserved room. $72.00 per night (for 1-2 people/ breakfast included). For more information, please visit the North Eastern Ohio Scrollers website.

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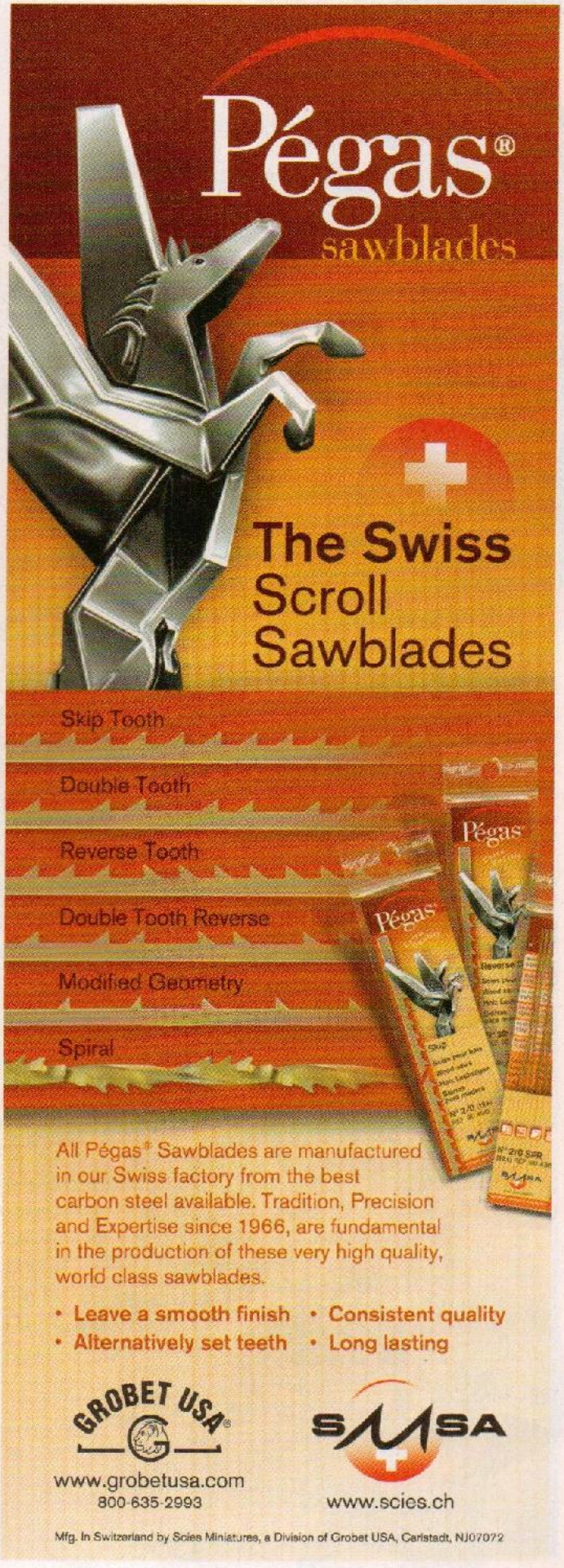

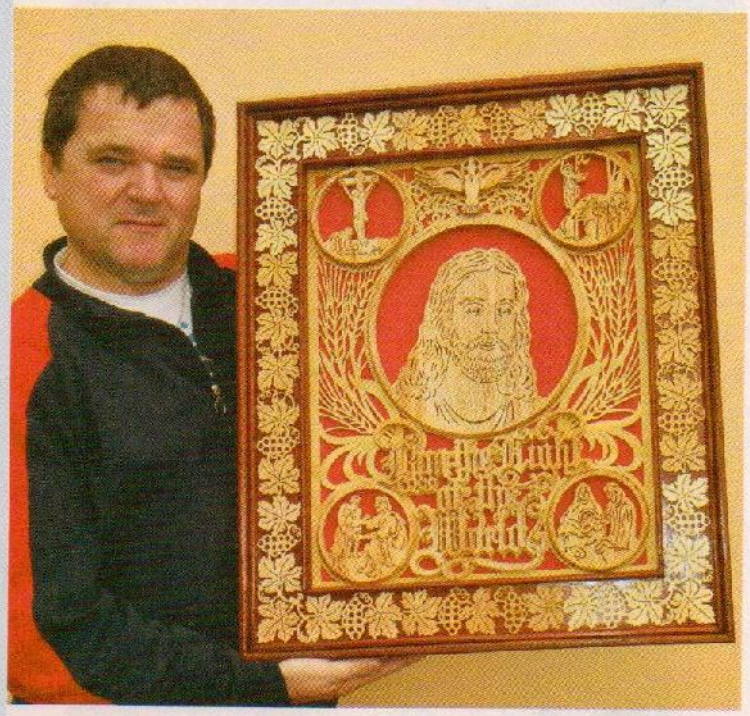

◀ Light of the World

Tony Coleman of Macroom, County Cork, Ireland, created this project based on a pattern designed by Dirk Boelman. Tony used teak, pine, mahogany, and beech to make the plaque. Tony has been scroll sawing for thirty years. He started with a hand fret saw and only upgraded to a powered scroll saw about five years ago.

Combination of Crosses ▶

Roger Wilke of Ellsworth, Ill., combined crosses designed by Gene Reilly and Bobby Riggs, both of which appeared in *Scroll Saw Woodworking & Crafts* Spring 2011 (Issue 42). Roger has been scrolling for about twenty years. In the past he used precut letters to add words to the crosses he made. The article in *SSW&C* inspired Roger to cut his own letters. He cut the cross from walnut and attached the maple letters as an overlay.

◀ Student of Intarsia

Derick Boisvert, a student at Hillside Middle School in Manchester, N.H., spent fifty-five hours after school creating this intarsia reindeer based on a design by Kathy Wise that was published in *Scroll Saw Woodworking & Crafts* Holiday 2009 (Issue 37). Derick made the piece out of pine and stained it different colors as a class project in Paul LeBlanc's woodworking program at the school. Paul introduces all of his students to scroll sawing.

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 woods and materials used. Send to Bragging Page, *Scroll Saw Woodworking & Crafts*, 1970 Broad Street, East Petersburg, Pa., 17520 or e-mail Duncan@FoxChapelPublishing.com.

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Ceros 6" Compact Electronic Random Orbital Sander

Full-featured sander is worth the price

By Bob Duncan

When is a random orbital sanding system worth as much as a mid-range scroll saw? When the system reduces the time spent sanding defects by a considerable amount, gives you a smooth surface quickly, allows you to control the speed enough to sand the most delicate fretwork safely, and allows you to collect most of the sanding dust while you work. The Ceros 6" Compact Electronic Random Orbital Sander does all of these.

Initially, the $495 price tag seemed high. Who would spend that much on a random orbital sander when you can buy one for less than $100 at most home improvement stores? But the first time I used the Ceros, I could see the value of the more expensive tool.

Unlike most random orbital sanders, the Ceros is DC powered instead of AC powered. The DC motor is more powerful than an AC motor, and it is easier to control the speed of the sander. The Ceros does come with an AC converter that it connects to via a thick but extremely flexible cord.

The sander has an electronic speed control that lets you change the speed from slow (4,000rpm) to fast (10,000rpm). The low speed allows you to sand the most delicate fretwork without fear of breaking it. At full speed, using an 80-grit sanding disc, I sanded the laminated plastic off a full-size inexpensive bookcase (to paint it a different color) in less than an hour.

The Ceros is made by Mirka Abrasives, the same company that makes Abranet sanding discs; the Ceros is designed to use these discs. Abranet discs tend to be more expensive than other sanding discs, but they last much longer and allow you to collect the majority of the sanding dust as you work. I attached the Ceros to my shop vacuum, and I was hard-pressed to find any dust not collected as I sanded. The immediate dust removal speeds up the sanding process because you can see right away when to switch to the next grit of sanding disc.

The lightweight sander has a spring-loaded on/off switch on the top, which is a useful safety feature. To use the sander, you turn on the master power switch next to the speed controls. Then, you put the sander on your workpiece and press the spring-loaded switch on the top. If you lift your hand from the switch, the sander shuts off.

All random orbital sanders work in a similar way, and many are available at a lower cost. But if you do a lot of sanding, or if you are like me and want to finish the task of sanding as fast as possible, the Ceros is well worth the price.

The Ceros 6" Compact Electronic Random Orbital Sander comes with the sander, DC converter, an assortment of Abranet discs, the appropriate cords, a wrench, a quick start DVD, and a three-year warranty. The system is available for $495 plus S&H from Woodcraft, 800-225-1153, www.woodcraft.com.

Stack-Cutting Compound Projects

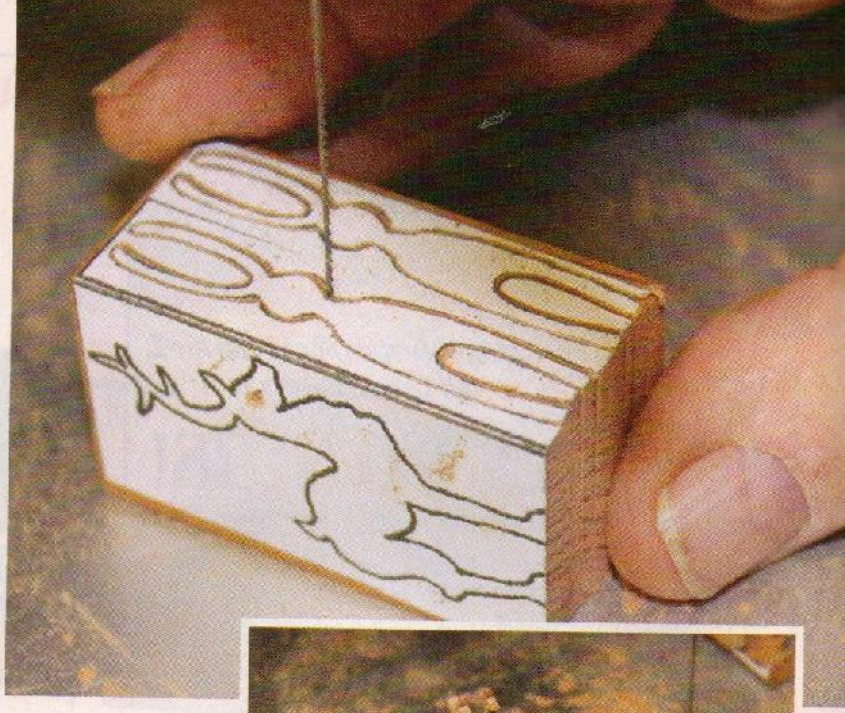
TOP TIP

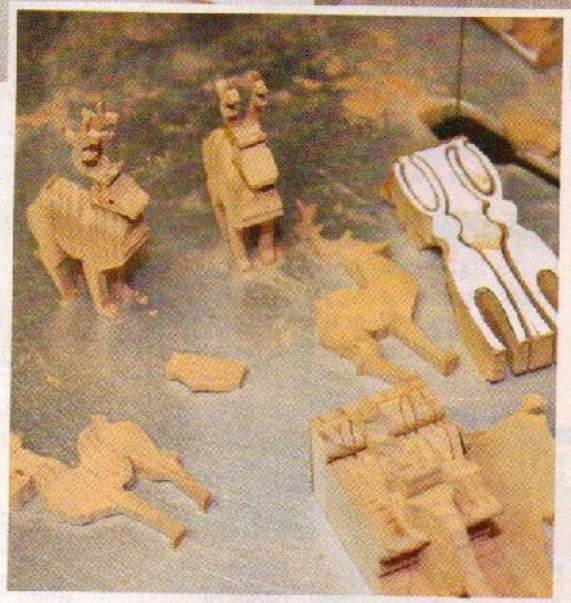
Recently, I was planning to compound-cut several classic reindeer. I usually cut them from ¾"-thick stock, but I found some 1½"-thick stock. I cut the blanks to the correct length and width, but instead of resawing the stock down to ¾" thick, I attached the side-view pattern to the blank. Then, I attached two front-view patterns to the thick blank.

Use tape, a business card, or some other method to create a zero-clearance table insert. Cut both of the front views first; I use Flying Dutchman #3 Polar blades. Use clear tape to secure the cut wood in place. Then, cut the side view, remove the waste, and free the two projects.

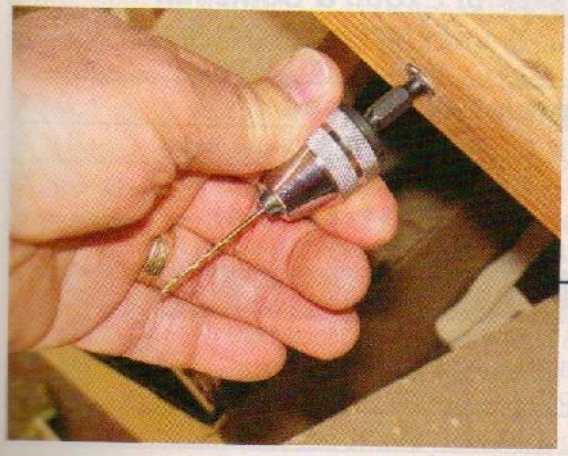
Because you are cutting thick wood, choose a soft wood, such as redwood or poplar. I increased my production rate by one-third using this technique.

Jim Stiek
Tulsa, Okla.





A thicker blank and two front-view patterns will increase your compound-cutting production.

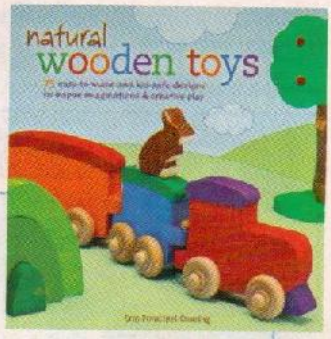


Mount a ¼"-diameter socket to the side of your workbench to make changing bits quicker.

Easy Mini-Chuck Use

I purchased a mini chuck that features a ¼"-diameter hex shank to hold small drill bits securely. The instructions suggest clamping the shank of the chuck in a vise while you hand-tighten the bits in the chuck. To speed up bit changes, I drilled a hole large enough to accommodate a ¼"-diameter socket in my workbench near the drill press and used cyanoacrylate (CA) glue to lock the socket into the hole. Now, I slide the shank of the chuck into the socket to change bits quickly.

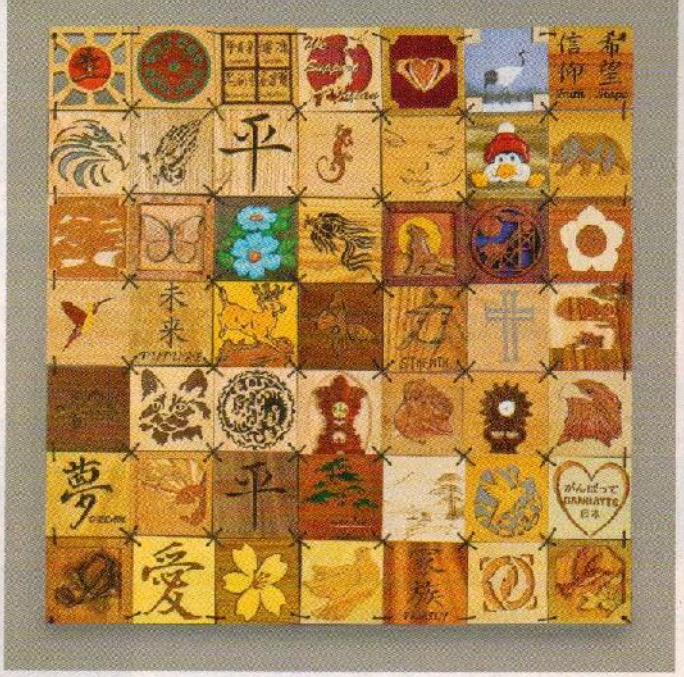
Stephen Dickinson
Tuscon, Ariz.



TOP TIP in our Summer issue wins an autographed copy of Erin Freuchtel-Dearing's *Natural Wooden Toys*. Send your tips or techniques to Bob Duncan, 1970 Broad Street, East Petersburg, PA 17520, or Duncan@FoxChapelPublishing.com

Quilts Benefit Disaster Relief

In March, after the devastating earthquake and tsunami rocked Japan, members of the *Scroll Saw Woodworking & Crafts*, *Woodcarving Illustrated*, and Pyrography Online message boards banded together to help. Within a few months, members from around the world had contributed dozens of scrolled, carved, or woodburned 4" by 4" squares. The magazines' staff assembled the squares into three quilts and auctioned them on eBay. The three quilts raised $600 to benefit the Red Cross' disaster relief efforts in Japan. To see who contributed a specific square, or for close-up photos of each quilt, visit www.scrollsawer.com.



Members of three message boards contributed 154 scrolled, carved, and woodburned squares. The squares were assembled into quilts, which raised $600 for charity.

Rick Bartels made this wooden gear clock based on patterns provided by Clayton Boyer in *Scroll Saw Woodworking & Crafts*.

Midwest Scroll Saw Trade Show

Shannon Flowers and Mindy Kinsey represented *Scroll Saw Woodworking & Crafts* at the Midwest Scroll Saw Trade Show in Richland Center, Wis. The Scroll Saw Trade Show was the only event during 2011 devoted solely to scrolling.

Rick Bartels of Prairie du Chien, Wis., shared the wooden gear clock he cut based on the *SSWC* article by Clayton Boyer (Spring 2011, Issue 42). Show attendees enjoyed seeing the clock on display at the magazine's booth.

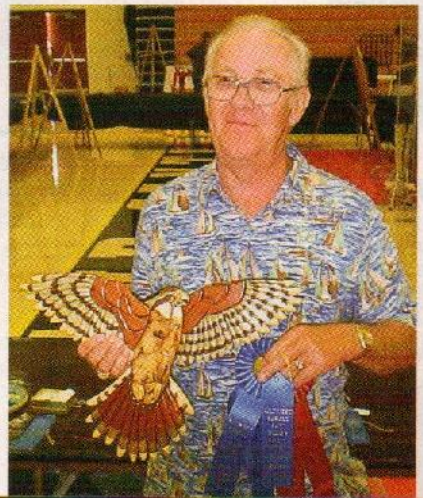
In addition to the vendors selling wood, patterns, books, magazines, equipment, and hardware, the event featured a scroll saw contest and bragging area. In the contest, Nathan Mertz earned the Scroller's Choice Award with his Sea Life Puzzle and Melvin Trombley earned Best in Show with his Kestrel Intarsia Bird. Awards were given for best in class, junior scroller, open (basic, intermediate, and complex), fretwork (basic, intermediate, and complex), and intarsia (basic intermediate, and complex).

Upcoming Events

May 5-6: Richfield, Ohio.
North Eastern Ohio Scroll Saw Picnic. Richfield Days Inn and Conference Center. $12 for both days with advance registration, $7 a day. 9am-4pm Sat. & 9am-3pm Sun. Contact Richard Lee Neiden, 875 Berwin St., Akron, Ohio 44310, www.northeasternohioscrollers.yolasite.com.

Jul 13-14: Springfield, Mo.
Scrollsaw Association of the World Expo and SAW Contest. Ramada Oasis Hotel and Convention Center. $10 for both days with advance registration, $6 a day at the door. 9am-4pm Fri. & 9am-3pm Sat. Contact Gene Jamtgaard, 417-256-4334, www.SAW-Online.com.

Aug 3-4: Richland Center, Wis.
2012 Midwest Scroll Saw Trade Show. Richland Center High School. $8 adm. Contact Dirk or Karen Boelman, 800-566-6394, www.midwesttradeshow.com.



Melvin Trombley was awarded Best in Show for his Kestrel Intarsia Bird.

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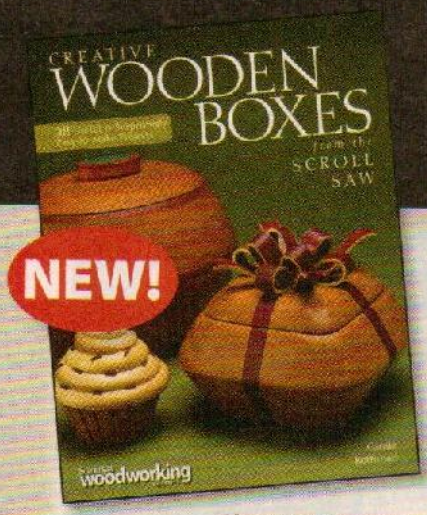

NEW!

Creative Wooden Boxes from the Scroll Saw

28 Useful & Surprisingly Easy-to-Make Projects

By Carole Rothman

Making beautiful, creative boxes on the scroll saw is surprisingly easy. . . and fun! Join Carole Rothman as she shows you how to make band saw-style boxes, jewelry boxes, lidded boxes, and more. Be sure to check out the project from this book on page 60.

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Also Available from Carole Rothman:

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28 Useful and Surprisingly Easy-to-Make Projects

By Carole Rothman

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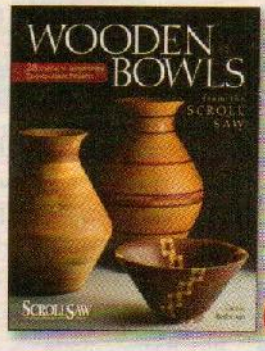

NEW!

Wild & Wacky Birdhouses and Feeders

18 Creative and Colorful Projects That Add Fun to Your Backyard

By Paul Meisel

Make your backyard more exciting this spring with a unique bird or squirrel feeder or a birdhouse that will be sure to attract the attention of backyard critters, not to mention that of your neighbors. Take a look at the Beaver Birdhouse on page 76.

$19.95 • Code: 6790

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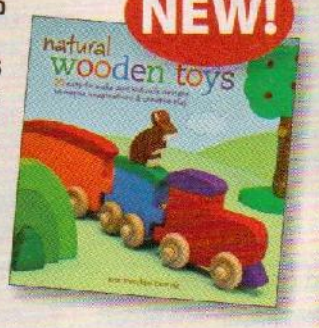

Natural Wooden Toys

75 Easy-To-Make and Kid-Safe Designs to Inspire Imaginations & Creative Play

By Erin Freuchtel-Dearing

Learn how to make safe, colorful, and irresistible imagination-building wooden toys. Step-by-step instructions show you how to make 75 charming designs, and how to create natural, non-toxic finishes.

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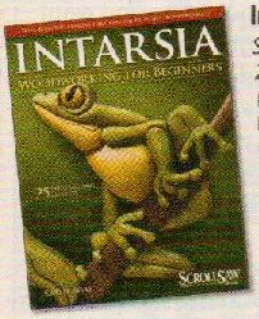
Great Books from Authors Featured in this Issue



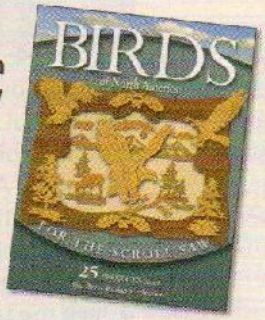
Intarsia Woodworking for Beginners

Skill-Building Lessons for Creating Beautiful Wood Mosaics: 25 Skill Building Projects

By Kathy Wise

Learn the art of intarsia with this skill building guidebook filled with step-by-step instructions, basic lessons and concepts, and helpful techniques.

$19.95 • Code: 4420



Birds of North America for the Scroll Saw

By Rick and Karen Longabaugh

Capture the serenity of North America's most popular birds with these 25 projects including a Bald Eagle, Canadian Goose, Great Horned Owl and more!

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Also from Rick and Karen Longabaugh:

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Miniature Wooden Clocks for the Scroll Saw
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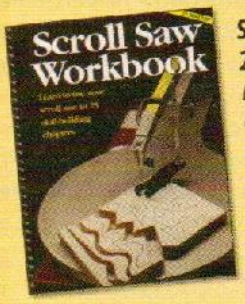
Holiday Ornaments for the Scroll Saw
$16.95 • Code: 2763

Editor Mindy Kinsey's pick as a top Beginner Scrolling Book



Scroll Saw Workbook 2nd Edition

Learn to Use Your Scroll Saw in 25 Skill-Building Chapters

By John Nelson

Learning to scroll has never been easier! The best beginner's technique book with expert instruction to guide you every step of the way.

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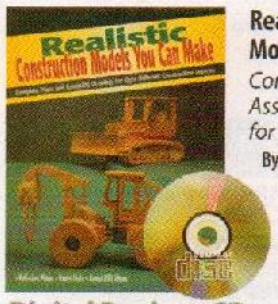

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By Luc St-Amour

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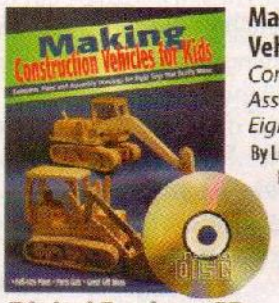

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By Luc St-Amour

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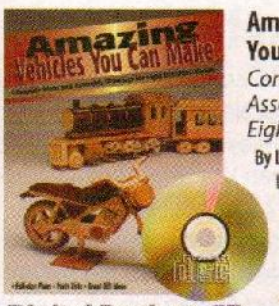

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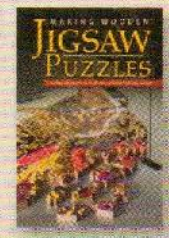
Fun Puzzle Projects



Making Wooden Jigsaw Puzzles

Creating Heirlooms from Photos & Other Favorite Images

By Charlie Ross

Adding a new twist to puzzle making and puzzle solving, author Charlie Ross shares tricks and tips for both beginner and experienced scroll saw woodworkers to make personalized and challenging puzzles from photos and digital images.

$14.95 • Code: 4802

Fantasy & Legend Scroll Saw Puzzles
By Judy & Dave Peterson
$14.95 • Code: 2569

Zodiac Puzzles for Scroll Saw Woodworking
By Judy & Dave Peterson
$17.95 • Code: 3935

Animal Puzzles for the Scroll Saw, 2nd Edition
By Judy & Dave Peterson
$17.95 • Code: 3911

Scroll Saw Art Puzzles
By Tony & June Burns
$14.95 • Code: 1163

Check out the Puzzle Projects in this issue on pages 22 and 28.

Fretwork Patterns

Julie Ann Clock Pattern
By John Nelson
$13.95 • Code: B784

Victorian Jewelry Box Pattern
By John Nelson
$5.95 • Code: B661

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Attaching Patterns

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

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

Removing Patterns

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

Blade-entry Holes

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

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

Blade Tension

Before inserting a blade, completely remove the tension. Clamp both ends of the blade into the blade holders and adjust the tension. Push on the blade with your finger. It should flex no more than ⅛" (3mm) forward, backward, or side to side.

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

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

Squaring Your Table

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

The most common method for squaring a table uses a small metal square, or right angle tool. Set the square flat on the saw table against a blade that has been inserted and tensioned. Adjust the table to form a 90° angle to the blade.

The cutting-through method is also popular. Saw through a piece of scrap wood at least ¾" (19mm) thick and check the angle of the cut using a square. Adjust the table until you get a perfectly square cut.

You can also use the kerf-test method. Take a 1¾" (44mm)-thick piece of scrap wood and cut about 1/16" (2mm) into it. Stop the saw, back the blade out, and spin the wood around to the back of the blade. If the blade slips easily into the kerf, the table is square. If it doesn't slide into the kerf, adjust the table and perform the test again until the blade slips in easily.

Stack Cutting

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

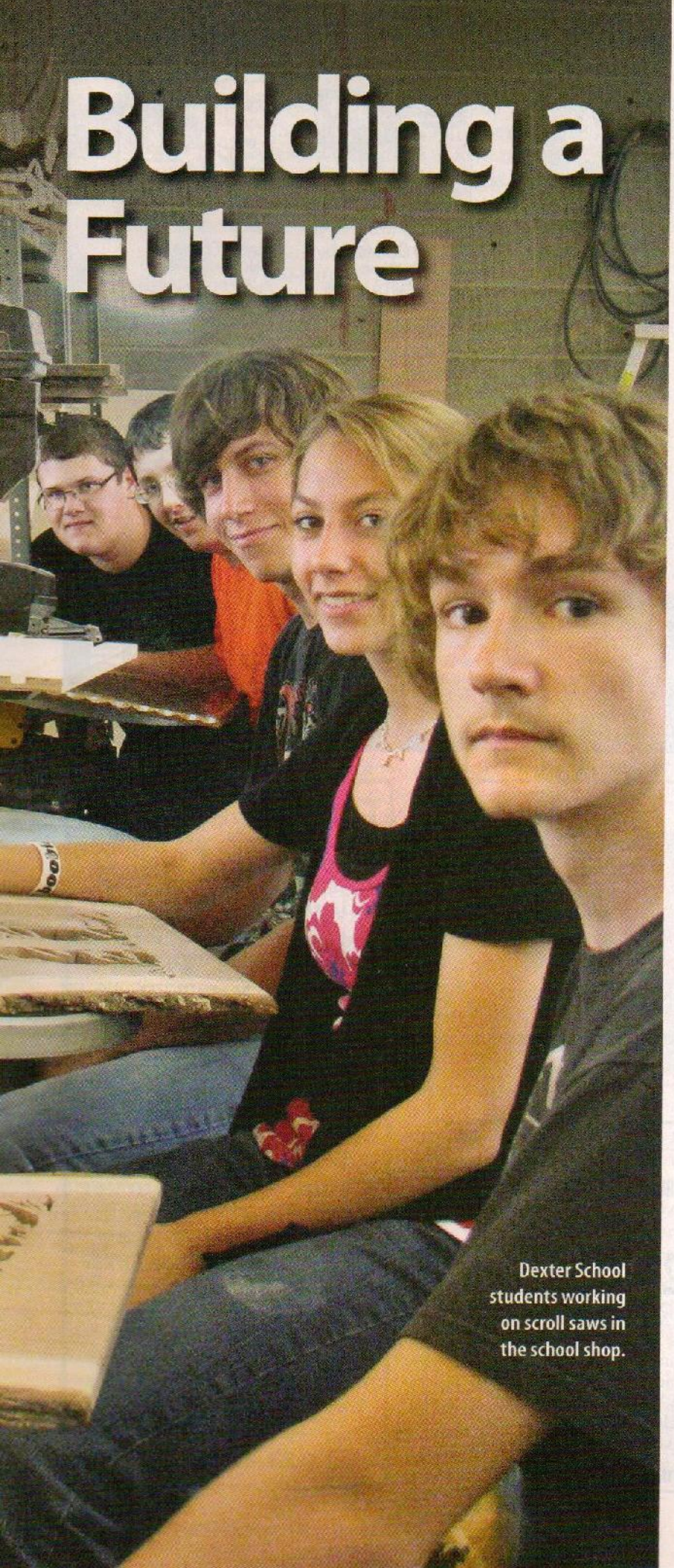
One way to attach blanks is with tape. Line all the layers up and wrap a layer of tape around the outside edge. You can also wrap the whole stack in tape for extra stability. Use masking tape, painter's tape, or clear packaging tape.

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

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

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

Building a Future



Dexter School students working on scroll saws in the school shop.

Dexter School shop students learn life skills along with woodworking

By Mindy Kinsey

At a small school in southeastern Kansas, industrial arts instructor Brian Kuntz is taking a different approach to teaching shop. Instead of beginner projects like bookends and cutting boards, Brian's students make furniture and scroll saw art. "We put on our Fine Arts Fair at the end of the school year every year," said Brian, who has been teaching for sixteen years. "You will see all types of furniture at the show, including dressers, gun cabinets, hope chests, coffee tables, kitchen tables, end tables, beds, curio cabinets, china cabinets, roll-top desks, and TV entertainment centers. We even had a poker table and a 14' shuffleboard table made one year."

Dexter School in Dexter, Kans., has approximately 150 students in grades kindergarten through twelfth and does not hold classes on Fridays. "Even with a four-day school week, we are able to manufacture a lot of furniture and scroll saw wood art," said Brian. "I only have around ten students in class at one time, so I am able to help each student more, allowing us to make such big projects. My eighth-graders are able to build dressers, hope chests, and nightstands in one semester. They even have about two weeks left to use the scroll saw after their big project is finished."

The administration and school board are very supportive of the program, so the school shop is well equipped. "The school has good equipment, and that makes a big difference," said Brian. "We have two Excalibur and two DeWalt scroll saws. We have a Sand Flee and all kinds of sanding mops."

In a confidential tone Brian added, "Most scroll sawyers may say this is crazy, but we use all spiral blades from Mike's Workshop in South Dakota. You can cut so much faster with a spiral. I believe if you can begin with a spiral and master it, you will have no problems using any other blade. It works for me and my students."

Industrial arts students in Dexter, Kans., with their fretwork projects.

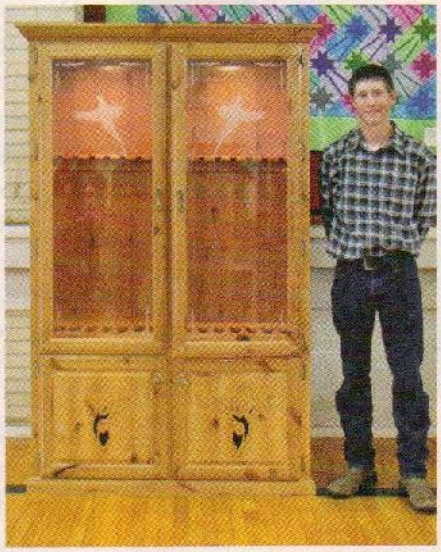
Brian developed and taught a new class, Wood Art, during the last school year. He said, "The students are required to do an intarsia piece, a bowl cut on a scroll saw, a jewelry box, and a fretwork piece. This class really fine-tunes their hand skills. Learning how to make a perfect cut and shape it to the right softness takes practice, time, determination, and patience."

The results of those skills were displayed at the Fine Arts Fair in May. The gym was crammed with the students' projects, which were judged by four shop teachers from the surrounding area. Every student received recognition, and cash prizes donated by local Farm Bureau Insurance agents were awarded in seven categories. Fox Chapel Publishing donated prizes of free subscriptions and gift cards. Senior Tanner McClure won Best of Show in Woods for his gun cabinet, bed, and curio cabinet; Best Scroll Sawyer; Best Wood Art; and Overall Outstanding Shop Student of the Year. Cody Drake won Runner-Up Best of Show, and Courtney Kuntz won the Best Jr. High Project.

Brian noted that his students' love for woodworking doesn't stop at the school doors. "Three students now have their own scroll saws. One of them has even taken his work on the road to art and craft shows," he said. "I personally do about ten art shows a year with my own wood art. I have taught my students that you can make a little money on the side by scroll sawing. It's a lot easier and a lot more fun than roofing on a hot windy day in Kansas."

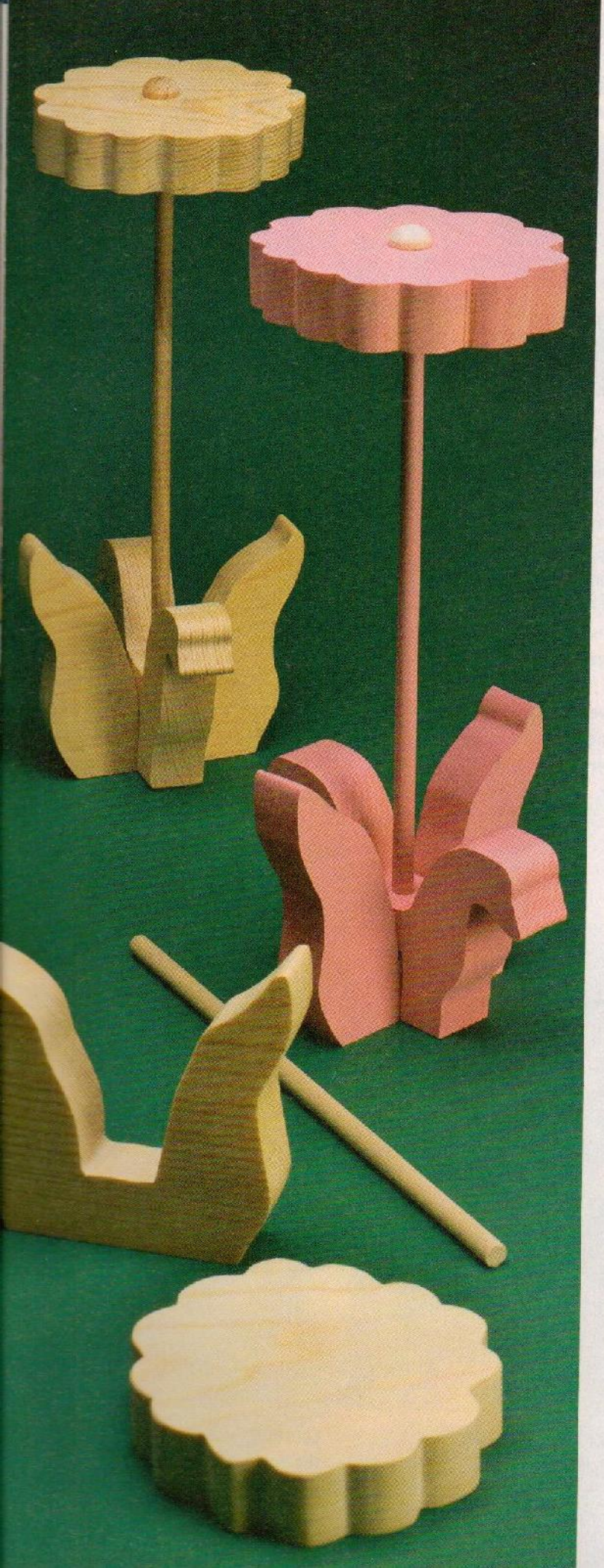
For more information about Dexter School's industrial arts program, contact Brian Kuntz at bkuntz@usd471.org.

Senior Tanner McClure won Best of Show in Woods for his gun cabinet, bed, and curio cabinet; Best Scroll Sawyer; Best Wood Art; and Overall Outstanding Shop Student of the Year.



Cody Drake won the prize for Runner-Up Best of Show.

Courtney Kuntz won for the Best Jr. High Project.



Making a Giving Garden

Everyone wins when you cut and donate these simple flowers

By Tom Kantos

I started making cut-out projects for my children about thirty years ago when I saw how much they loved to play with and color the wooden shapes I made. I now make cut-outs of various projects for my grandchildren's school classes. I've cut more than 800 wooden shapes and donated them to various schools and groups.

The impact of these small projects can be great. About ten years ago, our daughter Terri was teaching second grade at a small school in an isolated community. I cut out 6"-tall Christmas trees for her class to paint and decorate with beads, stickers, and glitter glue. When the project was completed, one of the little girls said to Terri, "Teacher, this is the only Christmas tree we will have at our house this year." The piece of wood cost twenty cents and cutting it took two minutes of my time, but the tree made a big impression on that child. Teachers enjoy the project, too; one jokingly threatened to fail my grandson to ensure cut-outs for the following year's class.

There is no limit to what you can make. My projects over the years have included hearts for Valentine's Day; flowers and birdhouses for Mother's Day; a maple leaf for fall; and snowmen, trees, and stars for Christmas. The projects are not limited to children—I have also cut flowers for seniors at a nursing home.

I like the flower project for several reasons. Number one is the ease of the project. There are no complicated cuts. It's fun to make, and it looks great for the effort, time, and cost involved. Plus, this project will make the children in your life, regardless of their ages, very happy and very busy. It allows them to show their creativity and to make a gift for their mothers. All for a very small investment—when I made the project for my grandson's class last year, it cost about $8 to make twenty-two flowers and it took three hours to cut the pieces.

My reward for doing these projects is happy kids, thank-you notes from parents, and knowing I helped. I hope you enjoy these flower cut-outs as much as I do.

Making Mother's Day Flowers

Delight children and adults alike with this simple, inexpensive, and fun project. You can also make flowers for other occasions, such as weddings (painted white), fiftieth birthdays (black), or breast cancer awareness (pink). Use your imagination and have fun.

Getting started

I always start a project by checking with the teacher. I send a note with a brief description of the project, the teacher's responsibilities, and supplies the school should furnish. I also ask how many children are in the class and prepare several extra sets just in case.

I usually suggest that the teacher spray a coat of flat white paint on the cut-outs before the kids start painting. I suggest that each child sign and date the completed project to add to the memory in later years.

Cutting and assembling the flowers

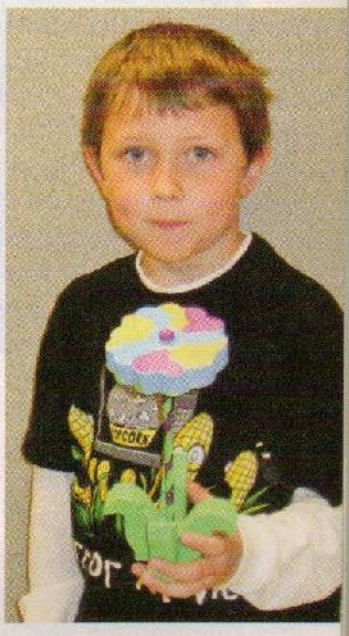
First, transfer the pattern to a piece of scrap plywood, cardboard, or stencil plastic and cut templates. Trace the templates onto the project blanks, avoiding any knots or blemishes that will restrict painting. Cut all of the pieces and lightly sand them.

Match sets of leaves together, ensuring that the assembled base sits flat without wobbling. Use a drill or drill press and a ¼" (6mm)-diameter Forstner bit to drill through the center of the top piece in the assembled leaf base and ¼" (6mm) into the bottom piece. Clean the sawdust from the drilled hole. Separate the leaf pieces, place a couple drops of glue in the holes in both pieces, reassemble the base, and push a dowel through the top piece and into the bottom piece. If necessary, tap the dowel with a hammer to seat the two pieces and stem together.

Check the flower head for blemishes; if there are any, make that side the bottom of the flower. Use a ¼" (6mm)-diameter Forstner bit to drill a ⅜" (10mm)-deep hole in the center of the flower bottom. Use a ⅜" (10mm)-diameter Forstner bit to drill a ¼" (6mm)-deep hole in the center of the flower top. Do not attach the flower to the dowel stem—it is easier for children to paint the flower in pieces. When the kids paint the flowers, expect imagination, not perfection. You simply cannot believe what some of the children do with these projects.

Provide a bottle of wood glue so the teacher can assemble the projects after the children paint the flowers. Show them that the button goes in the larger hole in the top of the flower and the stem goes in the smaller hole in the bottom of the flower. It may be helpful to mark the inside of the larger hole with an X so the children know which side will face up.

Third-graders paint their Mother's Day flowers.



Tom's grandson Colby shows the flower he made in third grade.

Materials & Tools

Materials:

Materials for one flower

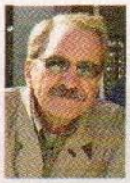
- Pine or scrap wood, ¾" (19mm)-thick: flower, 4½" x 8½" (114mm x 216mm)
- Scrap plywood, cardboard, or stencil plastic: template, 4½" x 8½" (114mm x 216mm)
- Dowel, ¼" (6mm)-diameter: 8" (203mm)
- Wooden button: ⅜" (10mm)-diameter

Tools:

- Blades: #5 or #7 reverse-tooth
- Drill or drill press and Forstner bits: ¼" (6mm)- and ⅜" (10mm)-diameters
- Hammer (optional)
- Pencil or pen
- Sandpaper
- Wood glue

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

Patterns for the ***GIVING GARDEN FLOWER*** are in the pattern pullout section.

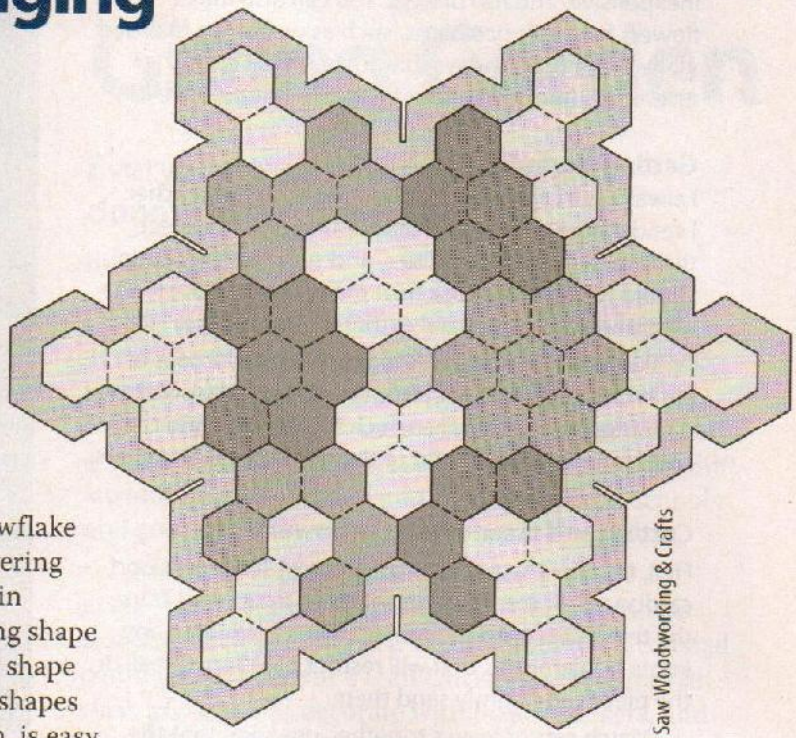


Tom Kantos was born and raised in Minnesota. He is retired from the U.S. Immigration Service and has been scroll sawing for thirty years. Tom and his wife, Rose, live in International Falls. They travel, fish, spend time at their cabin, and enjoy their kids and grandkids.

Cut a Pair of Challenging Snowflake Puzzles

Chase away the winter blues with these contrasting stack-cut puzzles

By William Waite
Cut by Rolf Beutenmuller



Snowflake puzzle pattern

I have designed more than 300 puzzles, but this snowflake is special to me because it was my first. After discovering a complete set of hexagon-based pieces within certain mathematical parameters, I then looked for a pleasing shape into which the pieces could fit. I liked the snowflake shape the best, but it's fun to use the pieces to make other shapes outside the tray. The smallest piece, a single hexagon, is easy to lose, so I glued it in place in the center, both as a guide for placing the other pieces and to limit the number of solutions to 161. With the smallest piece loose, there are thousands of solutions to the puzzle.

The easiest way to make a puzzle with a contrasting frame is to stack-cut two puzzles at one time. Choose contrasting woods, such as walnut and Baltic birch. I finish the puzzles with clear acrylic to highlight the wood grain, but you can also stain or paint them. Painting the puzzle makes it more challenging because it prevents you from using the wood grain as a clue during assembly.

With the thinner pieces sandwiched between the thicker pieces, stack all four pieces of wood, use spray adhesive to attach the pattern, and tape the stack securely. Cut the perimeter of the snowflake. Separate the pieces, and then restack and tape the two thicker pieces. Drill a small blade-entry hole and cut the pieces, striving for accuracy. Separate the stacks and sand the edges if necessary.

There are several ways to add the detail lines on both sides of the puzzle pieces. You can engrave the lines with a rotary-power carver, burn the lines with a woodburner, or draw the lines with a permanent marker. Align the frame with the puzzle bottom and glue it in place; clamp it until dry. Swap all of the puzzle pieces except the center hexagon and assemble the puzzle with the contrasting pieces. Remove the center hexagon, put a dot of glue on the bottom, and replace it. Check for and remove any glue squeeze-out. Repeat for the second puzzle.

Materials & Tools

Materials:

- Walnut, ⅛" (3mm)-thick: backing board, 4" x 4¼" (102mm x 108mm)
- Walnut, ¼" (6mm)-thick: puzzle, 4" x 4¼" (102mm x 108mm)
- Baltic birch, ⅛" (3mm)-thick: backing board, 4" x 4¼" (102mm x 108mm)
- Baltic birch, ¼" (6mm)-thick: puzzle, 4" x 4¼" (102mm x 108mm)
- Spray adhesive
- Clear packing tape
- Sandpaper: assorted
- Fine-tip permanent marker (optional)
- Wood glue
- Finish of choice

Tools:

- Blades: #1 reverse-tooth
- Drill and bit: 1/16" (2mm)-diameter
- Woodburner, permanent marker, or rotary-power carver (optional)
- Clamps

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

William Waite of Prairie du Chien, Wis., has designed hundreds of puzzles and brainteasers. For more of William's work, visit his website at www.puzzlemist.com.

Praying Hands Portrait

Peaceful fretwork picture makes a thoughtful gift

By John Nelson
Cut by Leldon Maxcy

A serene image of hands joined in prayer is appropriate for any religion and many occasions. Scroll the portrait to mark Easter or Passover. Cut, paint, or woodburn a name and date on the bottom to make a meaningful baptism, first communion, or confirmation gift.

Cut outward from the center, and support the delicate frets by leaving the waste in place as you cut. For an easier project, increase the size of the pattern to 130% and cut the design from an 11" by 17" blank. After cutting, sanding, and finishing the portrait, you can add a frame and/or backer board, or simply hang the cutting as a stand-alone portrait.

Materials & Tools

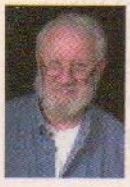
Materials:

- Baltic birch plywood, ¼" (6mm)-thick: portrait, 8½" x 11" (216mm x 279mm)
- Baltic birch plywood, ⅛" (3mm)-thick (optional): backing board, 8½" x 11" (216mm x 279mm)
- Sandpaper: assorted grits
- Frame (optional)

Tools:

- Blades: #1 reverse-tooth

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



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

Center the portrait on stock sized to fit the frame of your choice.

Making a Floral Trivet

Simple design is easy to cut and has many uses

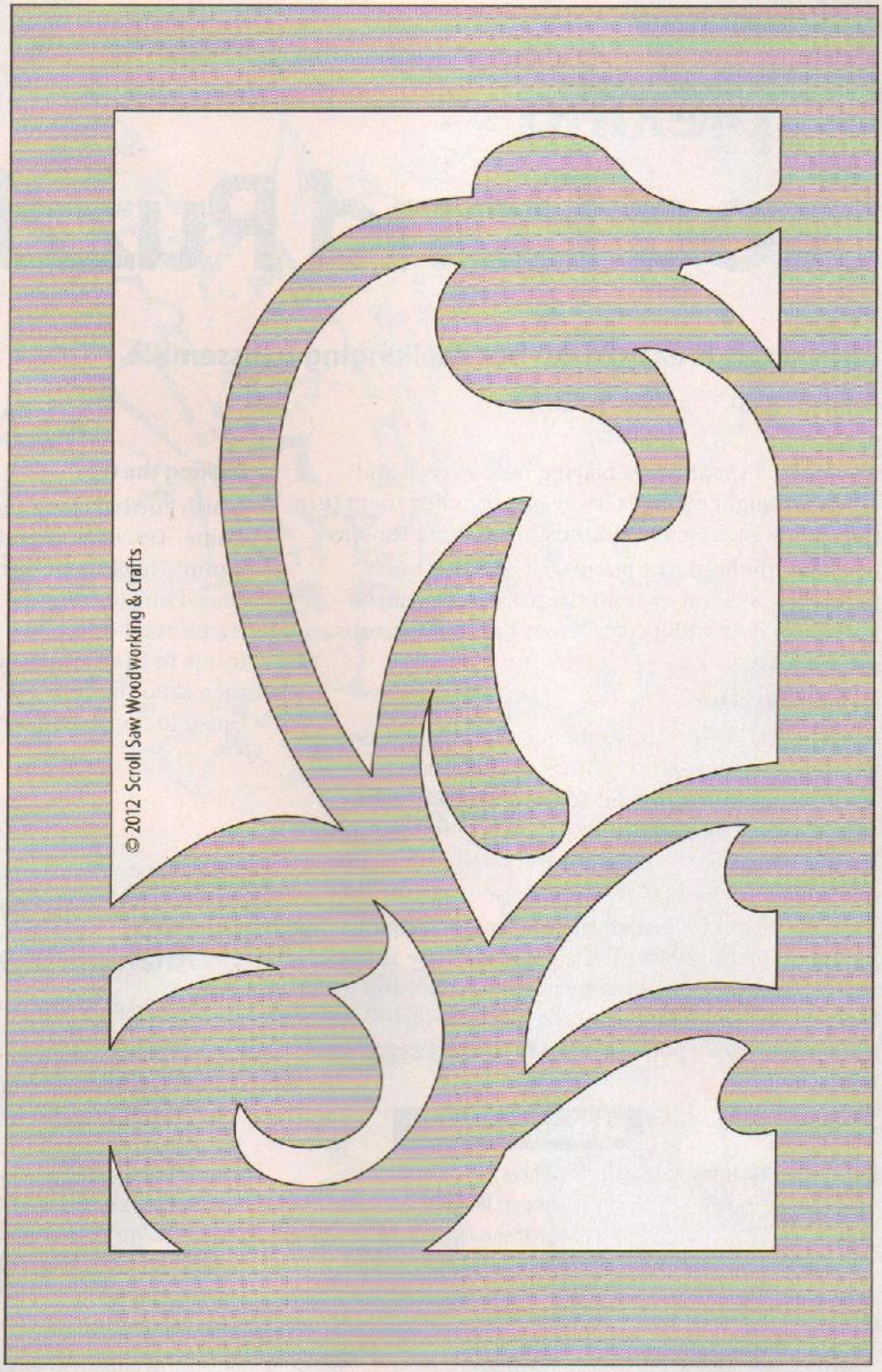
By Brian Dahlen
Cut by Dale Helgerson

Designing is an obsession for me. As a kid I sat on the beach in Wisconsin and sketched to the sound of the waves. Now, years later, my options have increased thanks to home computers so I'm into doodling, cartooning, animating, and creating 3-D models, but I'm still listening to the waves pound at the beach—this time on Maui. Something about being near the water inspires me.

My designs have their roots in the old engravers, like Albrecht Dürer, Gustave Doré, and William Blake, as well as the Art Nouveau movement and Baroque art. I enjoy the smell and feel of the wood and often imagine I can still feel life within it. Creating something out of wood for utility or beauty brings me a sense of satisfaction that feeds my spirit.

The large open frets make this pattern ideal for beginners. You can use the stylized tulip design in a number of ways. Cut a single pattern to use as a trivet. Stack-cut and group two or more images to make an interesting wall display. Cut four patterns, connect them in a rectangle, and add a bottom to form a luminary. The pattern resizes well, and the simple design is easy to stack-cut from paper to make cards or tags.

Floral trivet pattern



Materials & Tools

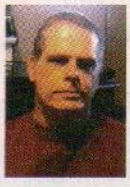
Materials:

- Cherry, ½" (13mm)- to ¾" (19mm)-thick: 5⅛" x 8" (130mm x 203mm)
- Sandpaper
- Finish of choice

Tools:

- Blades: #5 reverse-tooth

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



An artist since his childhood, Brian Dahlen co-wrote three books of scroll saw patterns with Patrick Spielman. In addition to woodworking, Brian enjoys cartooning and animation. See his illustration work at http://crazywulf.deviantart.com and http://sputcomix.deviantart.com.

Perplexing Frog Pond Puzzle

Tray puzzle is easy to cut but challenging to assemble

By Ruth Chopp

As a child, I spent hours playing near a creek and pond. I brought tadpoles home and watched them turn into frogs. This puzzle reminds me of those fun days.

You can make this puzzle out of Baltic birch plywood and paint or stain the pieces, or create a puzzle in contrasting colors from hardwood scraps.

Cutting the pieces

Lightly sand ½" (13mm)-thick Baltic birch plywood and attach a copy of the pattern to the blank. When the glue is dry, refer to the pattern to drill appropriately sized eye holes on each of the critters. Drill the blade-entry holes for the small inside cuts. Use a wood backing to avoid tear-out when drilling.

Cut the puzzle pieces, remembering to change blades frequently. Peel off the patterns, wipe the pieces with mineral spirits to remove the adhesive, and let them dry. Lightly sand all of the pieces with 180-grit sandpaper. Apply polyurethane to the pieces and let them dry.

Materials & Tools

Materials:

- Baltic birch plywood, ½" (13mm)-thick: puzzle and frame, 7½" x 8¾" (191mm x 222mm)
- Baltic birch plywood, ¼" (6mm)-thick: tray bottom, 7½" x 8¾" (191mm x 222mm)
- Hardwood (optional), ½" (13mm)-thick: frame, 6 each ½" x 4½" (13mm x 108mm)
- Scrap plywood (backing board, drying board)
- Temporary-bond spray adhesive
- Wood glue
- Sandpaper: 180-grit
- Polyurethane: Minwax clear or finish of choice

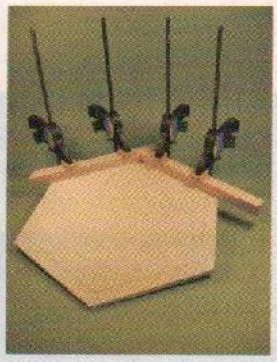
Tools:

- Blades: #3 reverse-tooth
- Small clamps
- Miter box or table saw (optional)
- Drill or drill press and wire bits: 55, 56, 52, 44, 42, 35, 30
- Foam brush

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

Making the tray

Finish cutting along the dashed lines to create the frame. Trace the outside of the cut frame onto ¼" (6mm)-thick Baltic birch plywood and cut along the traced line to form the tray bottom. Lightly sand the frame and bottom with 180-grit sandpaper. Glue the frame to the bottom, clamping all sides. Let dry, and then sand the perimeter. Use a foam brush to apply finish to the puzzle tray and let it dry.



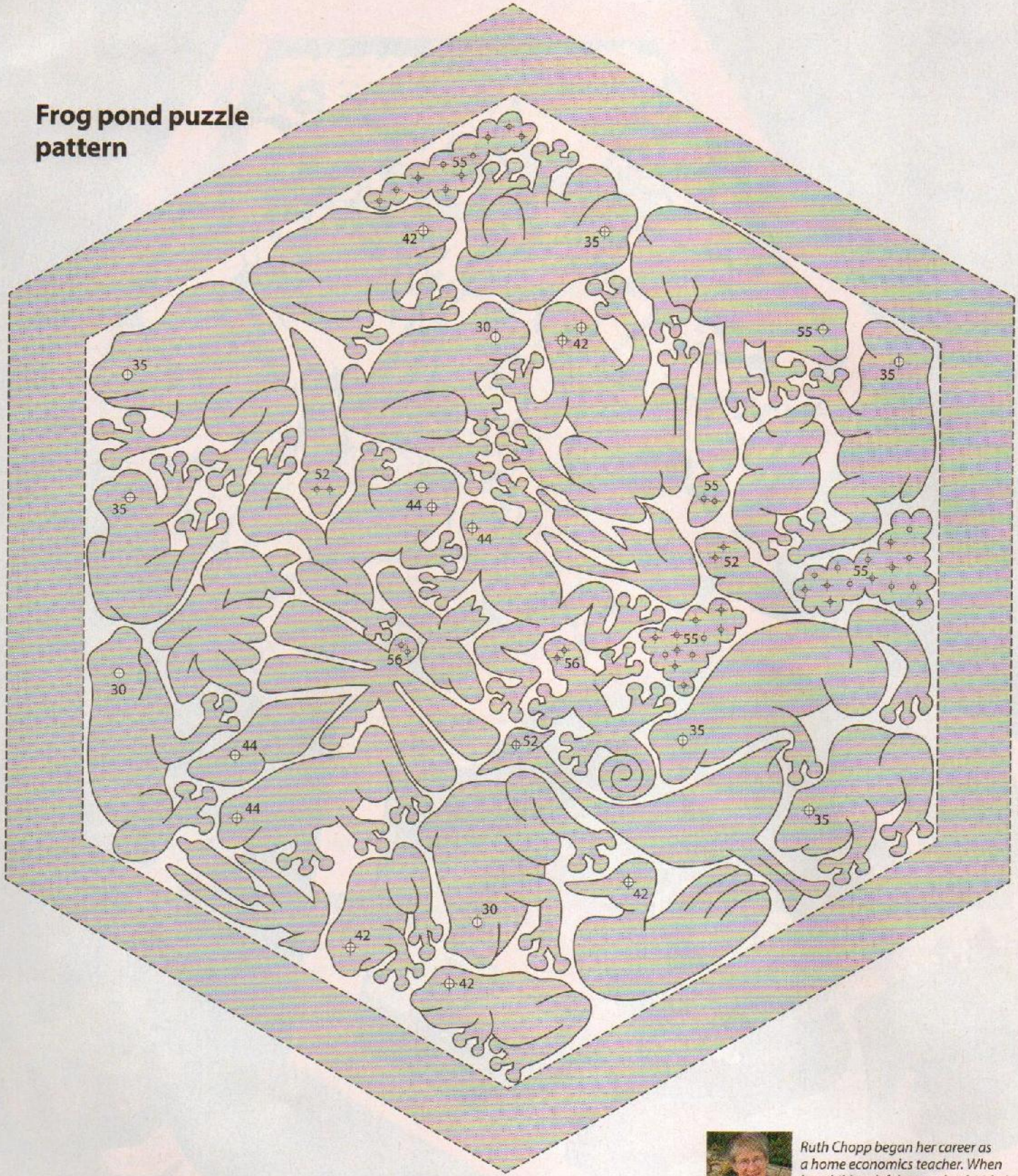
Alternate tray style

To make the tray bottom, trace the dashed lines from the pattern onto ¼" x 10" x 10" (6mm x 254mm x 254mm) Baltic birch plywood and cut along the perimeter only. Using ½" (13mm)-thick hardwood and a table saw, cut six strips, each ½" wide x 6" long (13mm x 152mm). Cut one end of each strip at a 60° angle.

Clamp (do not glue) the first strip to the tray bottom, aligning the strip with the inside traced line so it overlaps the edges of the tray bottom. Position the angled cut on the second strip against the first strip and align the strip with the traced guidlines. Apply glue to the second strip and clamp it in place until the glue dries. Align and glue the remaining strips one at a time, drying in between, until all are glued. Unclamp and remove the first strip, apply glue, and clamp it until dry.

After the glue is dry on the last strip, use a band saw or scroll saw to cut off the overhanging strips. Sand the perimeter and joints.

Frog pond puzzle pattern



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

Easy-to-Make Intarsia Pet Portraits

Complete these simple designs in a weekend

By Janette Square

As a vendor at a cat show, I need projects I can sell inexpensively. To create them, I simplified the head area of my existing cat designs and made some new patterns as well. In both cases, I limited the number of pieces to make these portraits quick and easy.

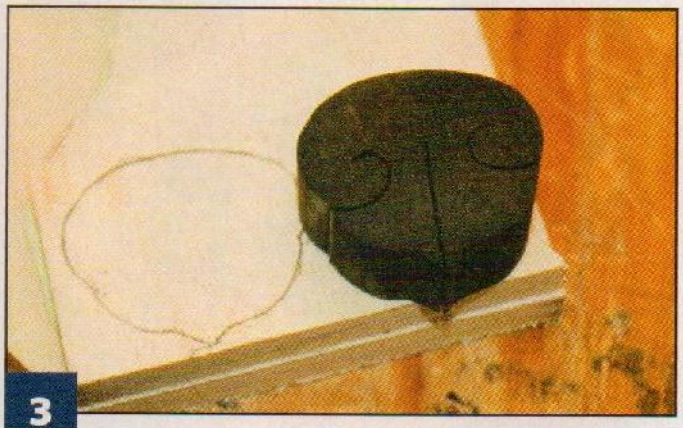
I designed the two projects featured here based on photos I took of my cat, Peaches, and my parents' dog, Kelly. Both are a total of only sixteen pieces plus the frame, and can easily be completed in a weekend. You can cut the frames from a single piece of wood or in sections, depending on the look you want and the stock you have available.

I encourage you to change the wood selection to customize your portrait. Add additional pattern lines to create customized markings to match your own pets. Shaping these portraits, with such few pieces, can be as simple or detailed as you want. I spend twice as much time shaping as I do cutting the pieces.

PET PORTRAITS: CUTTING THE PIECES

1 **Cut the pieces.** Cover the blanks with clear packaging tape. Cut the individual pattern pieces and attach the pattern pieces to the tape with spray adhesive. Use the grain of the wood to accent your design. Drill ⅛" (3mm)-diameter blade-entry holes for the pupils and irises, and cut all of the pieces.

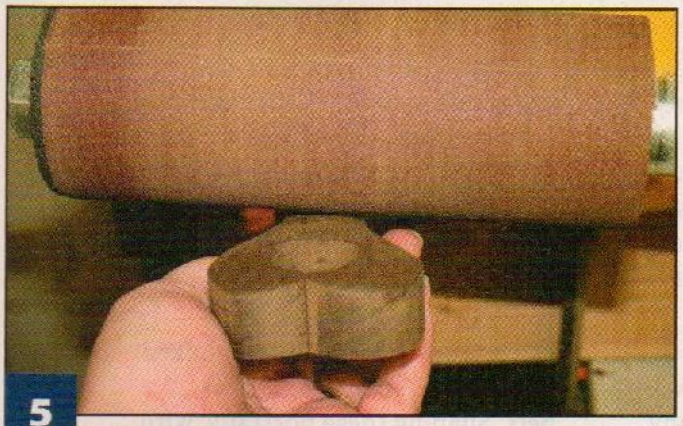
2 **Dry-assemble the pieces.** Check the fit of the eye pieces, and then glue the ebony pupils into place. Remove any fuzzies from the back of the pieces and dry-assemble the project to check the fit of the pieces. Adjust the fit or recut pieces as necessary.



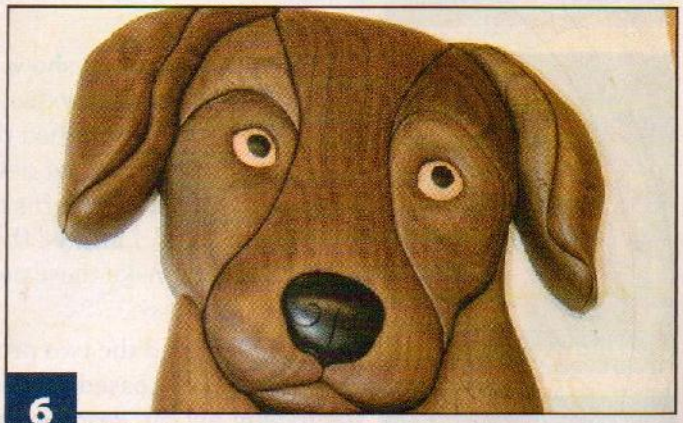
3 **Cut the riser for the nose.** Because the dog's ebony nose is totally enclosed, I cut it from thinner stock to make it more economical and easier to cut. Place the cut nose on a scrap of ½" (13mm)-thick stock or two pieces of ¼" (6mm)-thick stock glued together, and trace the outline of the nose. Then, cut on the traced line to create a riser.

PET PORTRAITS: SHAPING THE PIECES

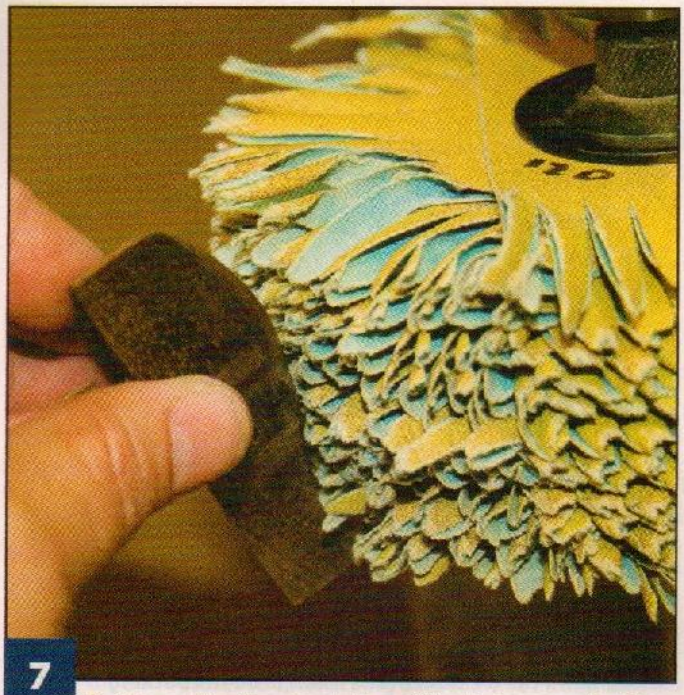
4 **Shape the face.** Use a flame-shaped carving bit in a rotary-power carver to roughly shape the face. Carve an indent around the lower part of the eyes and taper the sides to make the muzzle protrude. Use ¼" (6mm)-square pieces of double-sided woodturner's tape or carpet tape to attach the pieces to a scrap piece of ¼" (6mm)-thick plywood, and then rough-shape the face as a whole.



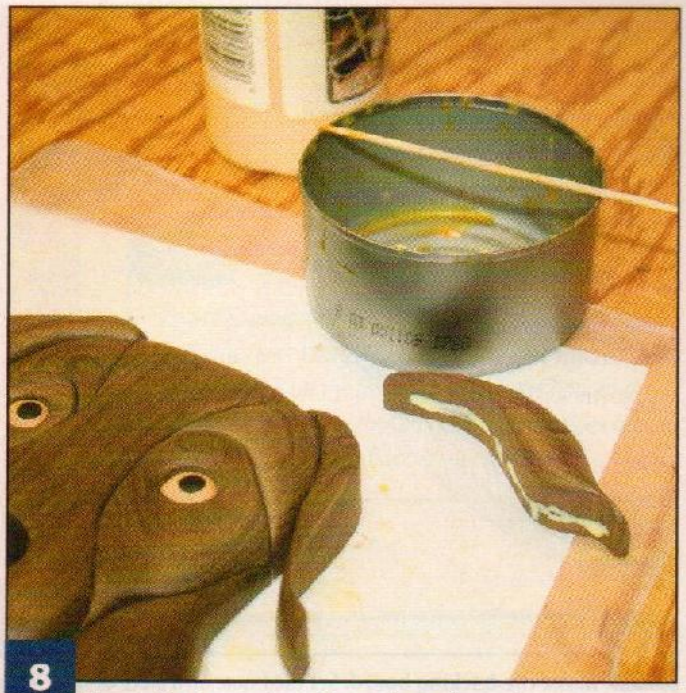
5 **Refine the individual pieces.** I use a drum sander, such as a Flex Drum sander. Remove any scratches left by the rotary-power carver. Sand a little and then reassemble the pieces on the plywood to carve more details. Continue the process until the overall look of the face is correct. Sand small areas with a sanding drum in a rotary-power carver.



6 **Finish shaping the pieces.** Gently round the eyes so they sit slightly below the adjoining pieces. Use an oscillating spindle sander to shape the cat's concave ears so the bottom of the inner ear is about ⅛" (3mm) lower than the points where they attach to the cat's head. Round the dog's nose to meet the muzzle. Use the photos of the completed projects as guides to shape the rest of the pieces.

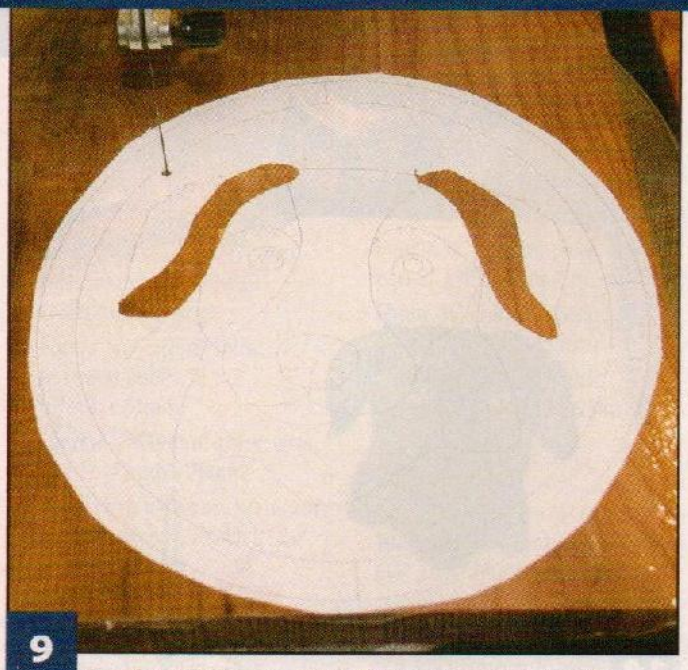


7 **Finish sanding the pieces.** Use a 100-grit drum on a flexible drum sander to sand each piece. Dry-assemble the project and check the overall shape of the pieces. Sand each piece with a 220-grit drum to remove any scratches and fine-tune the shape. Then, sand each piece by hand with 220-grit sandpaper to soften the edges. Use a mop sander to polish the pieces.

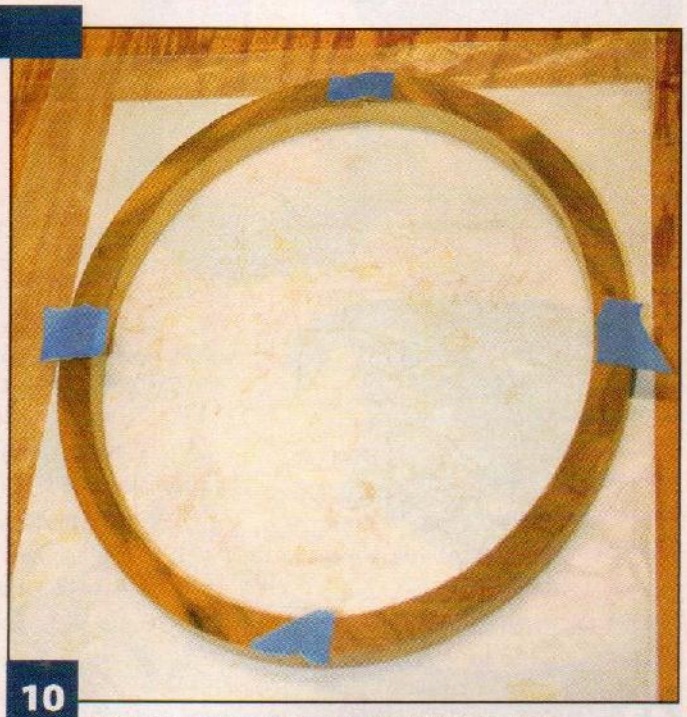


8 **Assemble the project.** Place a sheet of waxed paper over the master pattern and dry-assemble the project on top of the waxed paper. Apply a little glue to the inside of the holes for the eyes and nose from the back, and insert the eyes and nose pieces from the front. Work your way out and continue edge-gluing the pieces together. Check the fit as you go. When the project is assembled, allow the glue to dry thoroughly.

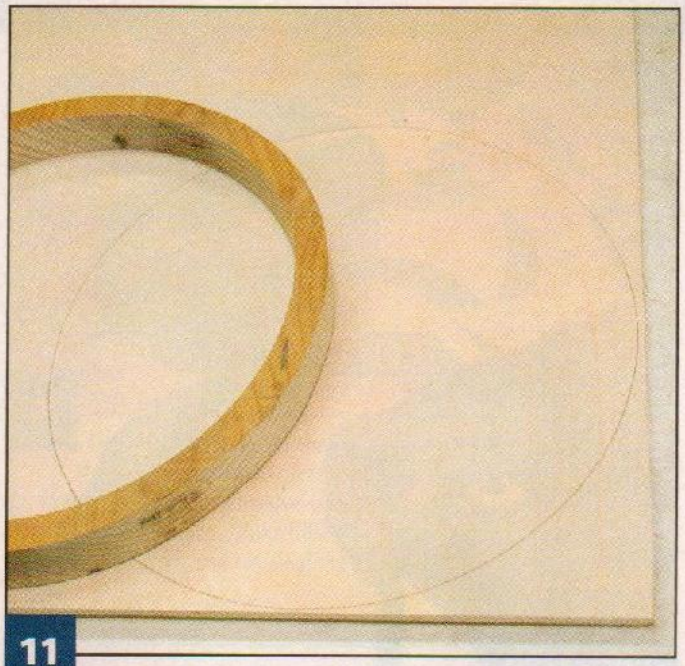
PET PORTRAITS: MAKING THE FRAMES



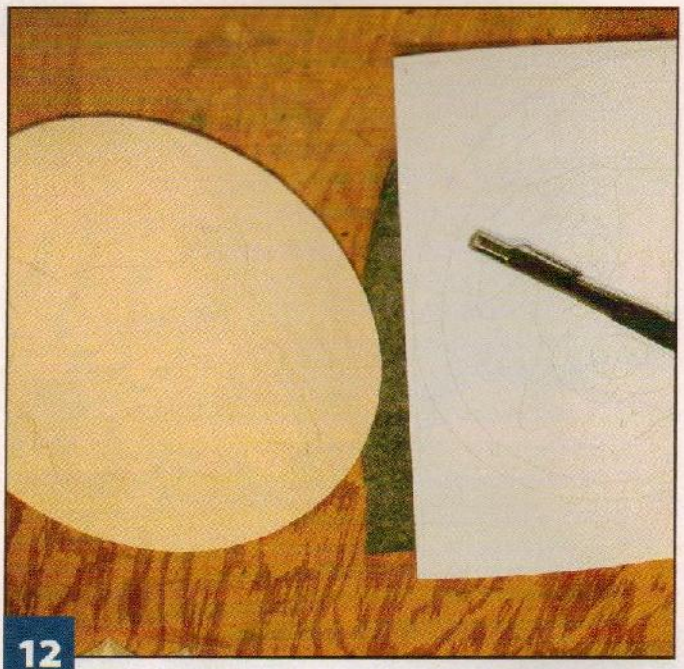
9 **Cut the solid frame.** Attach the pattern to a blank, drill a blade-entry hole, and cut the inside of the frame. Then, cut the outside of the frame. Sand the inside and outside edges with a spindle sander. Hand-sand the frame and round the edges slightly. Polish the frame with a mop sander.



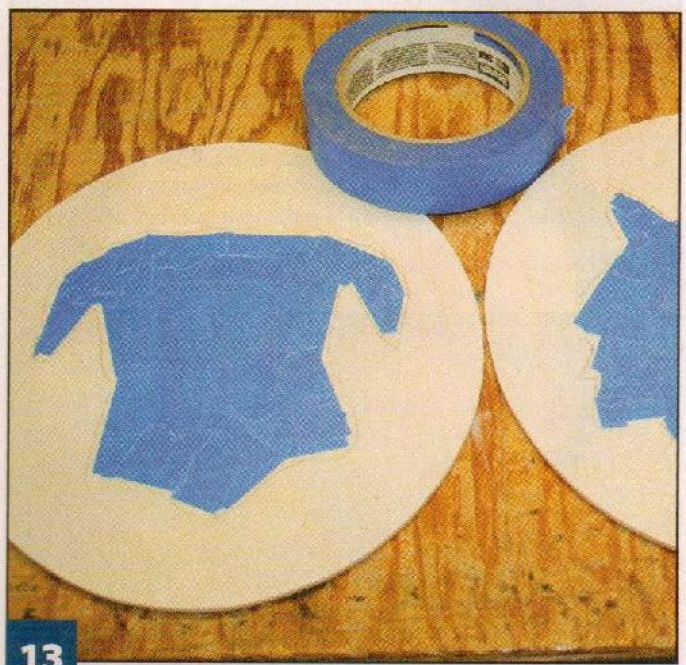
10 **Make the sectioned frame.** (Alternate) Attach the patterns to the blanks and cut the pieces. Number the backs of the blanks and sand off any fuzzies on the fronts and backs. Place waxed paper on top of the master pattern and dry-assemble the pieces on the waxed paper. Apply glue to the edges and use blue painter's tape to hold the pieces together while the glue dries. Make sure all of the edges align tightly and the surface is flat. Then, sand the frame using the techniques explained in Step 9.



11 **Make the backing board.** Set the frame on a piece of ⅛" (3mm)-thick Baltic birch plywood. Orient the grain vertically and make sure there are no plugs or defects in any area not covered by the frame or animal face. Trace the outside of the frame onto the plywood and indicate the top by drawing a small arrow where it won't show. Cut the backing board, and then sand the sides and edges. Dry-assemble the piece to make sure the backing board is not visible around the frame.

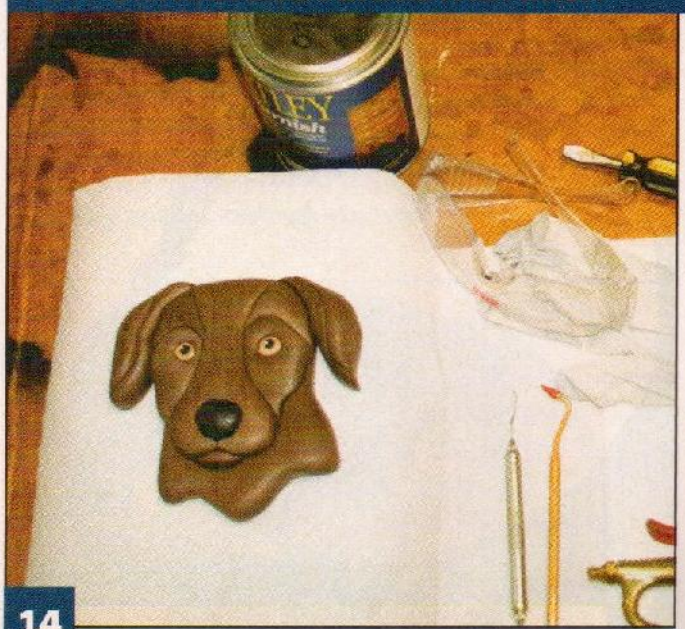


12 **Mark the location of the intarsia on the backing board.** Hold the pattern up to a light to align the backing board with the oval frame pattern lines. Use double-sided tape in a blank area near the top or the bottom to attach the pattern to the backing board. Slide carbon paper under the pattern and trace a line about ⅛" (3mm) inside the outline of the face. Remove the pattern and carbon paper.

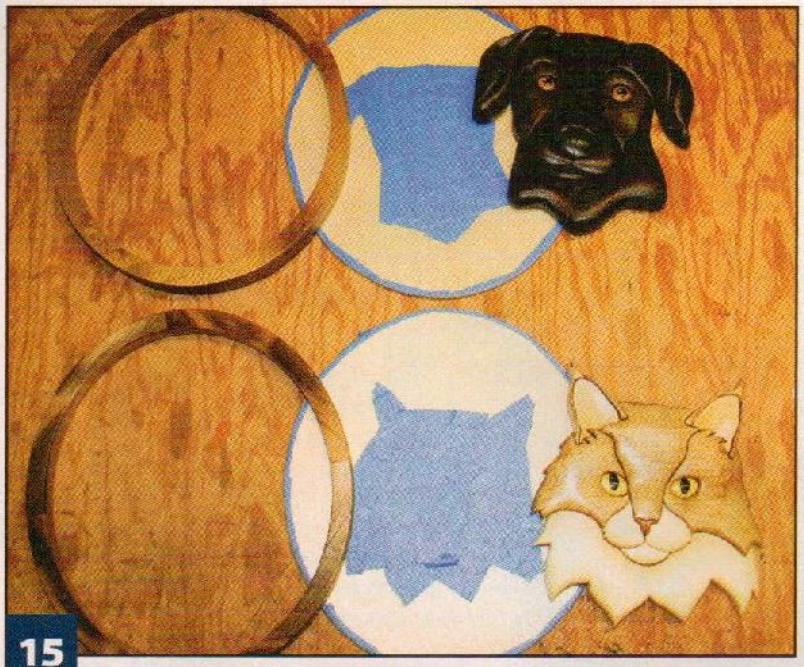


13 **Apply a finishing mask.** Cover the area for the animal's face, which was marked in Step 12, with blue painter's tape to keep the glue area free of finish. Then, mask the outside ⅛" (3mm) of the backing board where the frame will be attached. Trim off any tape that hangs over the edges.

PET PORTRAITS: APPLYING THE FINISH



14 **Apply the finish.** Apply gel varnish to all of the intarsia and frame pieces and wipe off the excess. Use compressed air to blow the finish out of the cracks, and then remove the excess finish with a rubber-tipped dental tool and paper towels. Use a sharp dental tool to remove the excess finish from the detail lines, such as the nostrils. Finish both sides of backing board. Allow the finish to dry overnight and apply a second coat. Use a skewer and white acrylic paint to add highlights to the pupils.



15

Glue the pieces to the backing board. When the varnish is dry, remove the masking tape. List the varieties of wood on the back of the backing board and sign your work. Apply glue to the outer edge of the backing board with a glue brush. Align the frame with the backing board and clamp it in place. Use a soft cloth to protect the front of the frame from the clamps. Remove any glue squeeze-out. Use the same process to glue and clamp the intarsia to the backing board. Attach a hanger to the back (see TIP).

TIP **ATTACHING THE HANGER**

Hold the project between your thumb and forefinger until the piece hangs level. Mark the spot where your finger is on the back and attach the hanger at this spot. Make sure the hanger hardware does not protrude through the backing board.

Patterns for the ***INTARSIA PET PORTRAITS*** are in the pattern pullout section.

Janette Square lives in Eugene, Ore. For more of her work, visit her website at www.square-designs.com.

Materials & Tools

Materials:

Dog:

- Peruvian walnut, ⅞" (22mm)-thick: main color, 7" x 12" (178mm x 305mm)
- Ebony, ½" (13mm)-thick: nose and pupils, 2" x 2" (51mm x 51mm)
- Cherry, ¾" (19mm)-thick: eyes, 1" x 1" (25mm x 25mm)
- Baltic birch plywood, ¼" (6mm)-thick: nose riser, 2 each 2" x 2" (51mm x 51mm)

Cat:

- Myrtlewood, ⅞" (22mm)-thick: main body, 5" x 13" (127mm x 330mm)
- Aspen, ⅞" (22mm)-thick: chest and muzzle, 6" x 6" (152mm x 152mm)
- Yellowheart, ¾" (19mm)-thick: eyes, 1" x 2" (25mm x 51mm)
- Poplar, ¾" (19mm)-thick: inside ears,2" x 4" (51mm x 102mm)
- Ebony, ½" (13mm)-thick: pupils, ½" x ½" (13mm x 13mm)
- Cherry, ⅞" (22mm)-thick: nose, 1" x 1" (25mm x 25mm)

All projects:

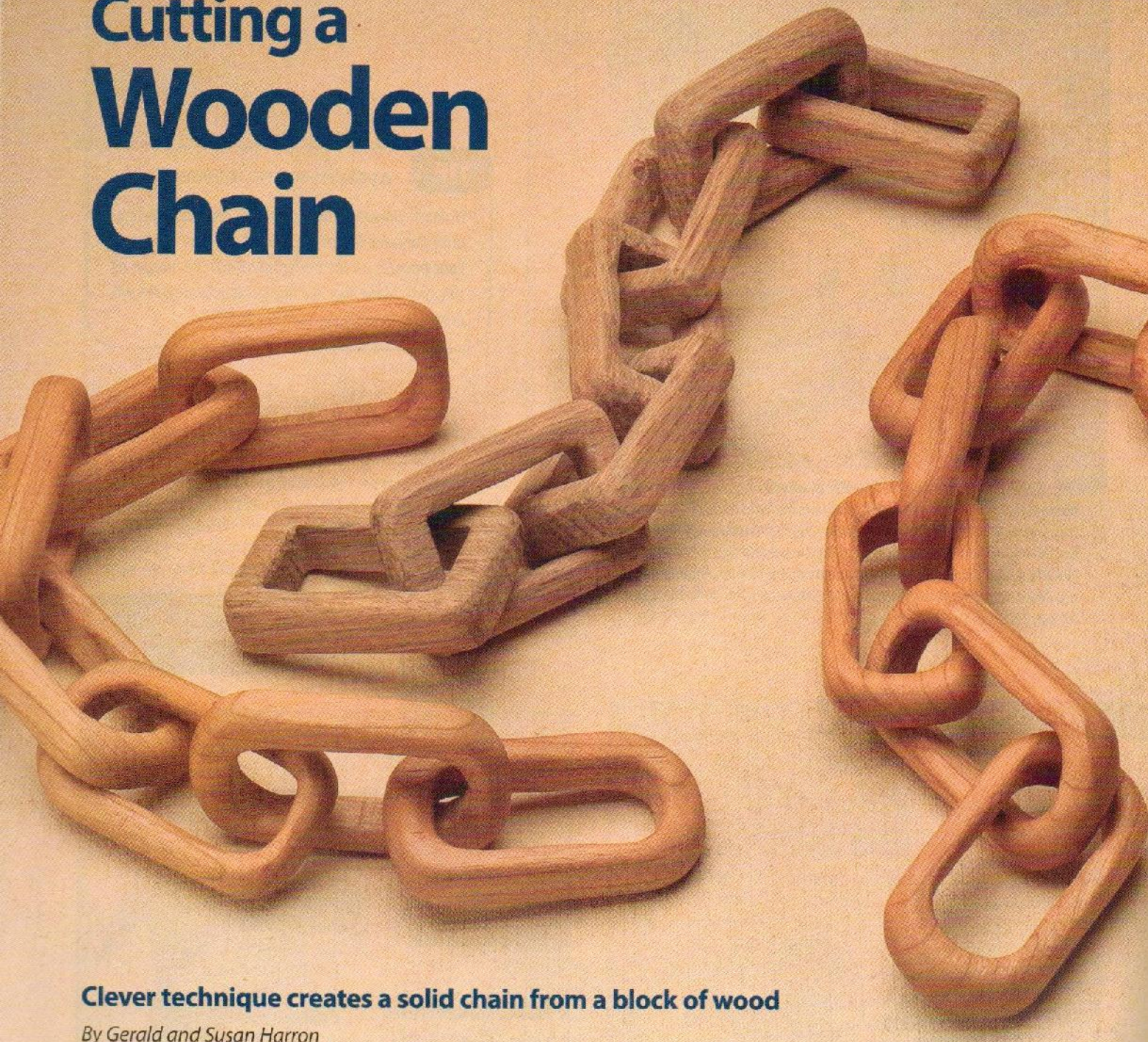
- Myrtlewood, ½" to ¾" (13mm to 19mm)-thick: one-piece frame, 8¼" x 9¼" (209mm x 235mm)
- Myrtlewood, ½" to ¾" (13mm to 19mm)-thick: four-piece frame, 6" x 8" (152mm x 203mm)
- Baltic birch plywood, ⅛" (3mm)-thick: backing board, 8½" x 9½" (216mm x 241mm)
- Baltic birch plywood, ¼" (6mm)-thick: rough shaping, 8" x 9" (203mm x 229mm)
- Tape: double-sided woodturner's tape or carpet tape, packaging, and blue painter's tape
- Spray adhesive
- Fine-point permanent marker
- Sandpaper: 220-grit
- Wood glue
- Wood skewer
- Waxed paper
- Varnish: clear satin gel
- Paper towels
- Acrylic paint: antique white
- Carbon paper
- Picture hanger (1 per project)

Tools:

- Drill and bit: ⅛" (3mm)-diameter
- Blades: #2/0 or #1 and #7 reverse-tooth
- Flex Drum sanders: 100-, 220-grit
- Oscillating spindle sander (optional)
- Belt sander (optional)
- Sanding mop
- Rotary-power carving tool with assorted power carving bits
- Air compressor or compressed air
- Small glue brush
- Dental tools (removing excess varnish)

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

Cutting a Wooden Chain



Clever technique creates a solid chain from a block of wood

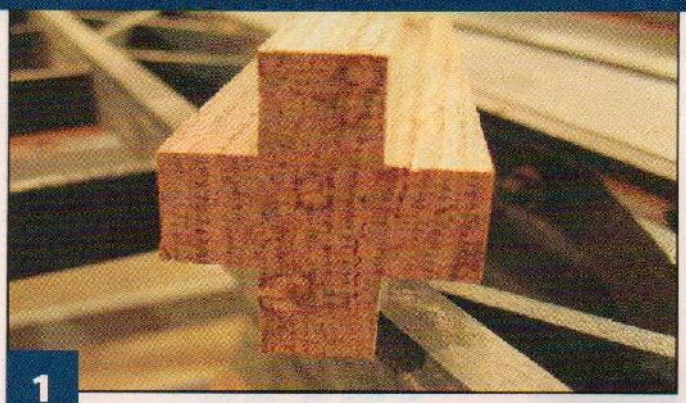
By Gerald and Susan Harron

I've always been fascinated by wooden chains whittled from a block of wood, but carving a chain can be time consuming. I decided to try making a continuous chain using a scroll saw. It took a little time to work out the process, but the end result is a guaranteed conversation starter.

I've seen scroll-sawn chains where each link was cut individually. To assemble a chain, these links were cut or broken along the grain and glued back together. The method I developed allows you to cut a solid chain from nearly any wood. Because you have to snap the wood between the links, hard wood, such as oak, works better than soft wood, such as pine.

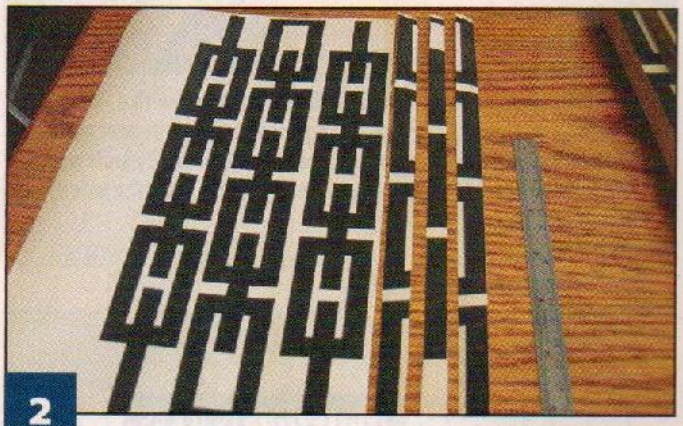
I've included patterns for two styles of chains: a square-link and a rounded-link version. I've demonstrated with the square-link style, but the process to create rounded links is nearly identical. The throat depth of your scroll saw limits the length of the chain. To make a longer chain, use a spiral blade, and cut and paste several copies of the pattern together.

CHAIN: PREPARING TO CUT



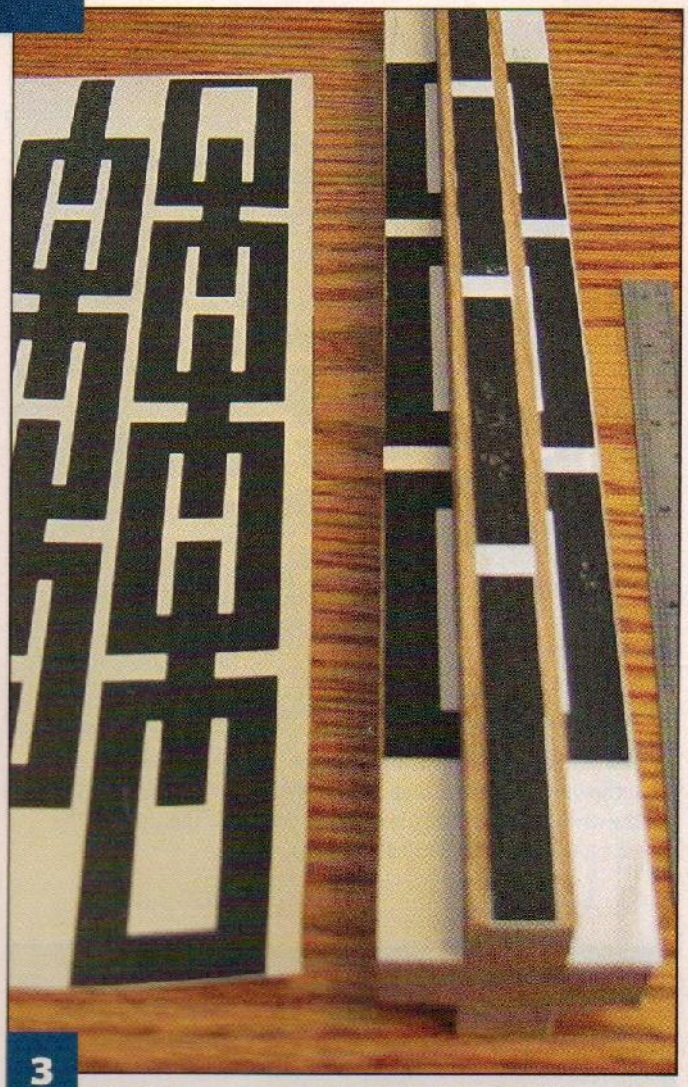
1

Prepare the blank. Cut the blank to size. Set a table saw or router table to remove a rectangle that is one-third the width and one-third the thickness of the blank from each corner to create a cross-shaped profile. For a 1½" (38mm)-square blank, these rectangles will be ½" x ½" (13mm x 13mm). Test the saw or router on scrap wood before cutting the project blank. Use two cuts for each side on the table saw or make several passes with a router.



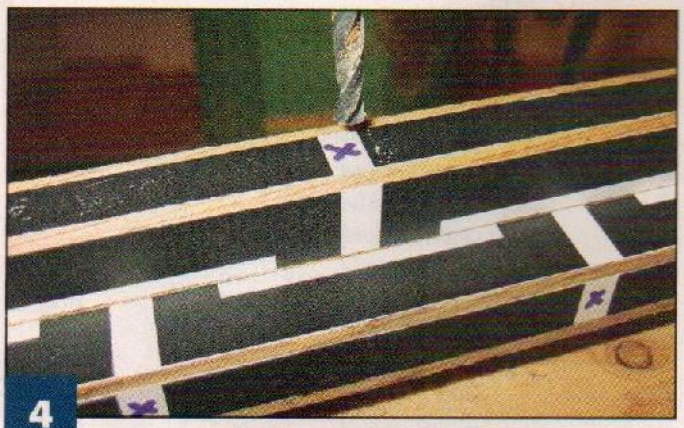
2

Prepare the patterns. Enlarge or reduce the patterns to match the size of the blank. Make photocopies of the patterns. Cut the A and B patterns apart. Then, cut along the dashed lines to separate each pattern into three strips.



3

Attach the patterns to the blank. Use a glue stick to attach the three pattern strips from Pattern A to the three sections of the top of the blank. Center the middle pattern strip on the middle section of the blank. Rotate the blank 90° and attach the three strips from Pattern B to the three sections of that side of the blank.



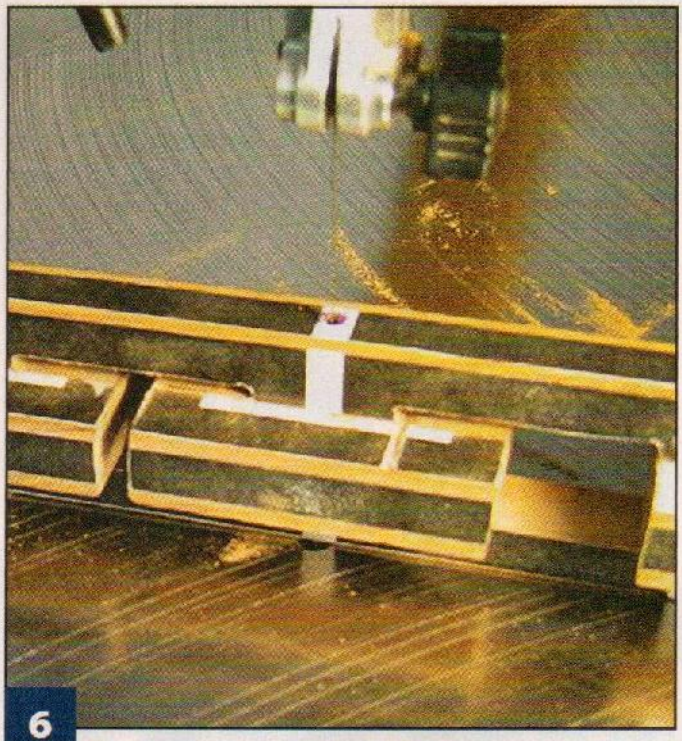
4

Drill the blade-entry holes. Use a ⅛" (3mm)-diameter bit to drill the blade-entry holes on the center section of each side as marked on the pattern. Drill four blade-entry holes on one side and three blade-entry holes on the other side.

CHAIN: CUTTING THE LINKS

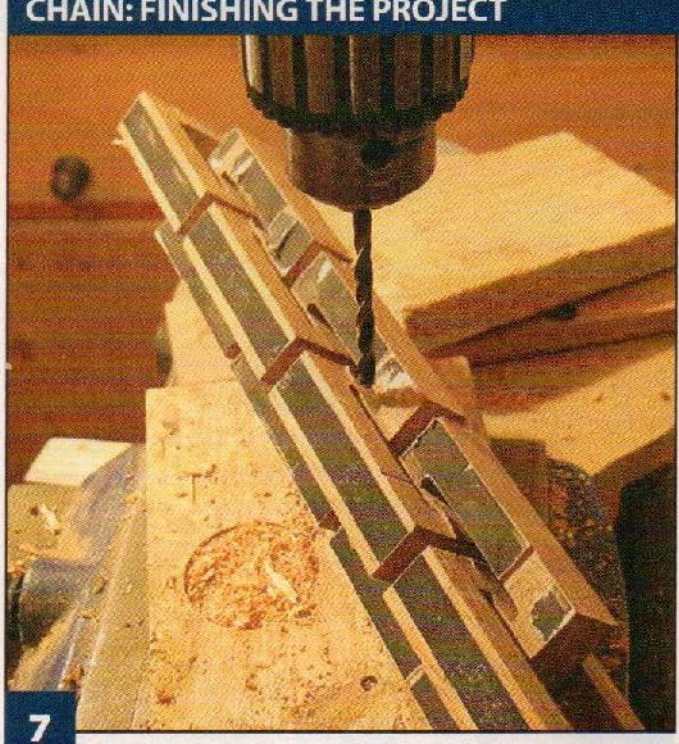
5

Cut between the links on Side A. The goal is to remove the white waste sections and leave the gray chain links. Cut the area between the links. Then, cut along the sides. Carefully cut along the sides of the links without cutting into the links to prevent excessive sanding later. Position appropriately sized blocks under the protruding sides for extra support.



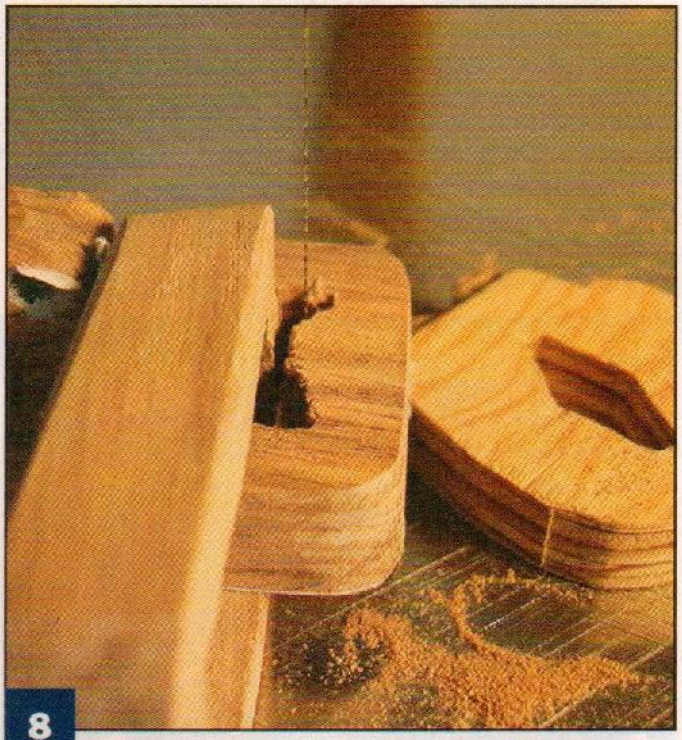
6

Finish cutting the links. Rotate the blank 90° and use the technique explained in Step 5 to cut the links on Side B. Remove the white waste sections, leaving the gray links. Then, cut off the excess wood on either end of the blank.



7

Free the links from each other. I use a drill with a ⅛" (3mm)-diameter bit to drill at an angle into the area between the links. You could also use a rotary-power carver or hobby knife to remove the wood. Once the area is weak enough, snap the wood to free the links.



8

Finish shaping the links. After you free the links, use a scroll saw to cut away the excess wood on the insides of the links. Sand the links with a belt sander, rotary-power carver, or by hand. Remove all of the patterns, the sharp corners, and any saw marks. You can also use a router with a round-over bit to remove the sharp corners. Be careful using a router to shape small parts.

Materials & Tools

Materials:

- Oak, 1½" (38mm)-thick: 1½" x 12" (38mm x 305mm)
- Sandpaper: assorted grits
- Glue stick

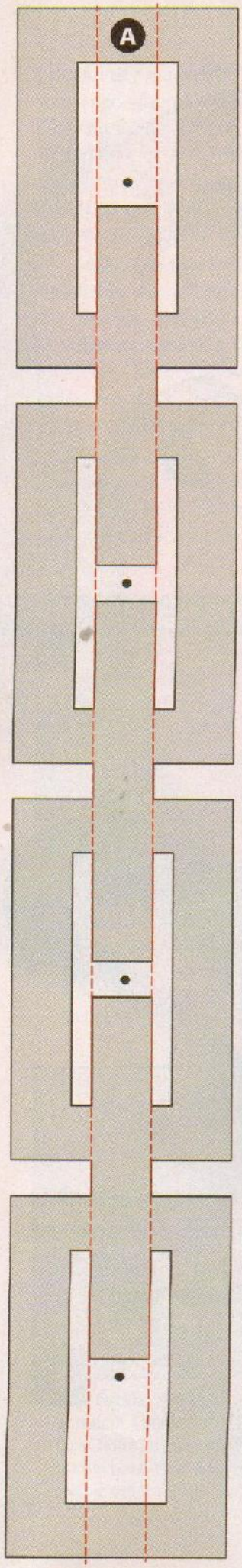
Tools:

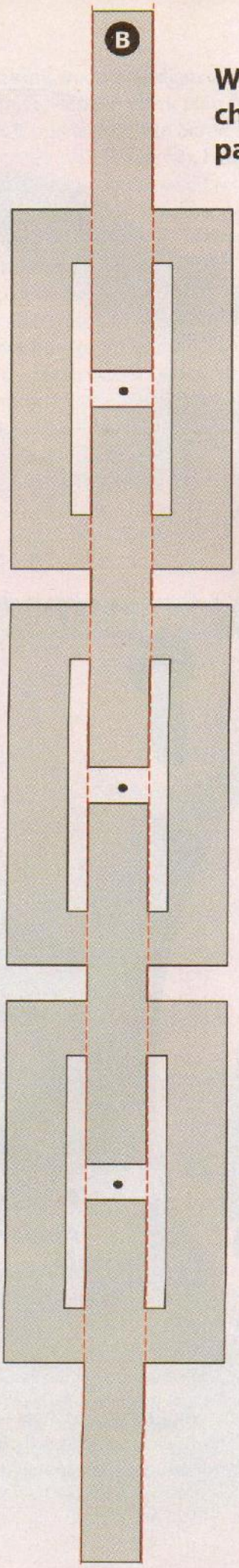
- Blades: #5 skip-tooth
- Table saw or router with straight and round-over bits
- Drill and bit: ⅛" (3mm)-diameter
- Rotary-power carver and assorted bits (optional)
- Belt sander (optional)

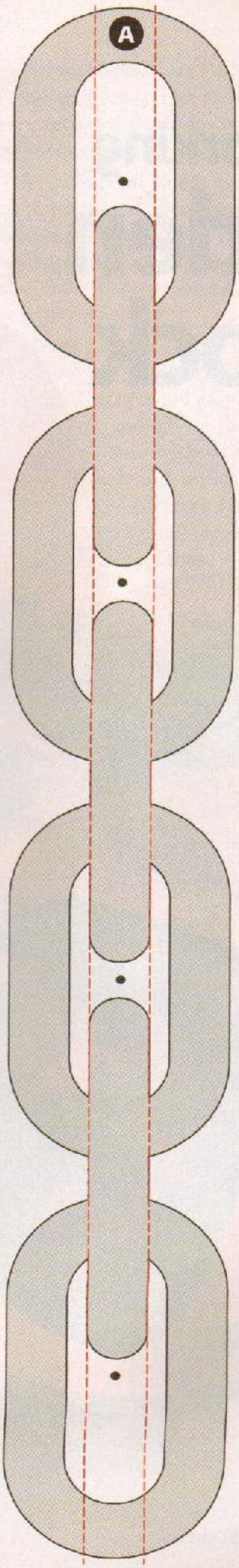
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

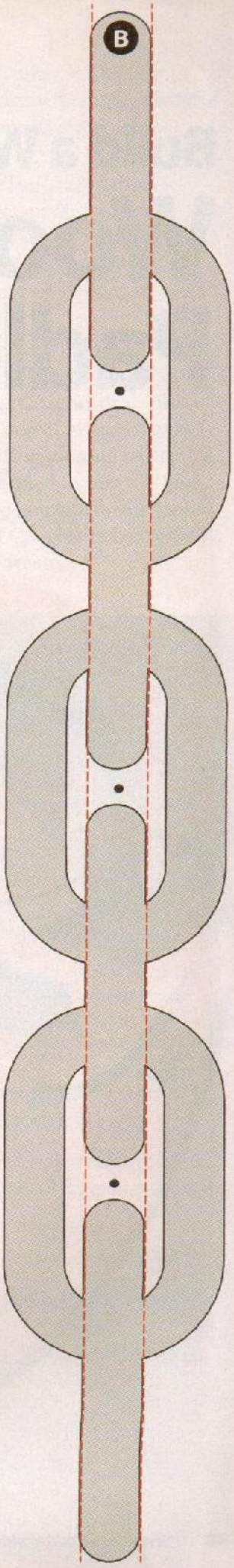
Gerald and Susan Harron run the Saw4Joy.com website. The site was begun as a family adventure in 2005. Many of the patterns on the site were created by the Harrons' five children, who also wrote the PHP code for the site. The scrolling resource site features downloadable patterns that are free for personal use. Visit the site at www.Saw4Joy.com.

Wooden chain patterns

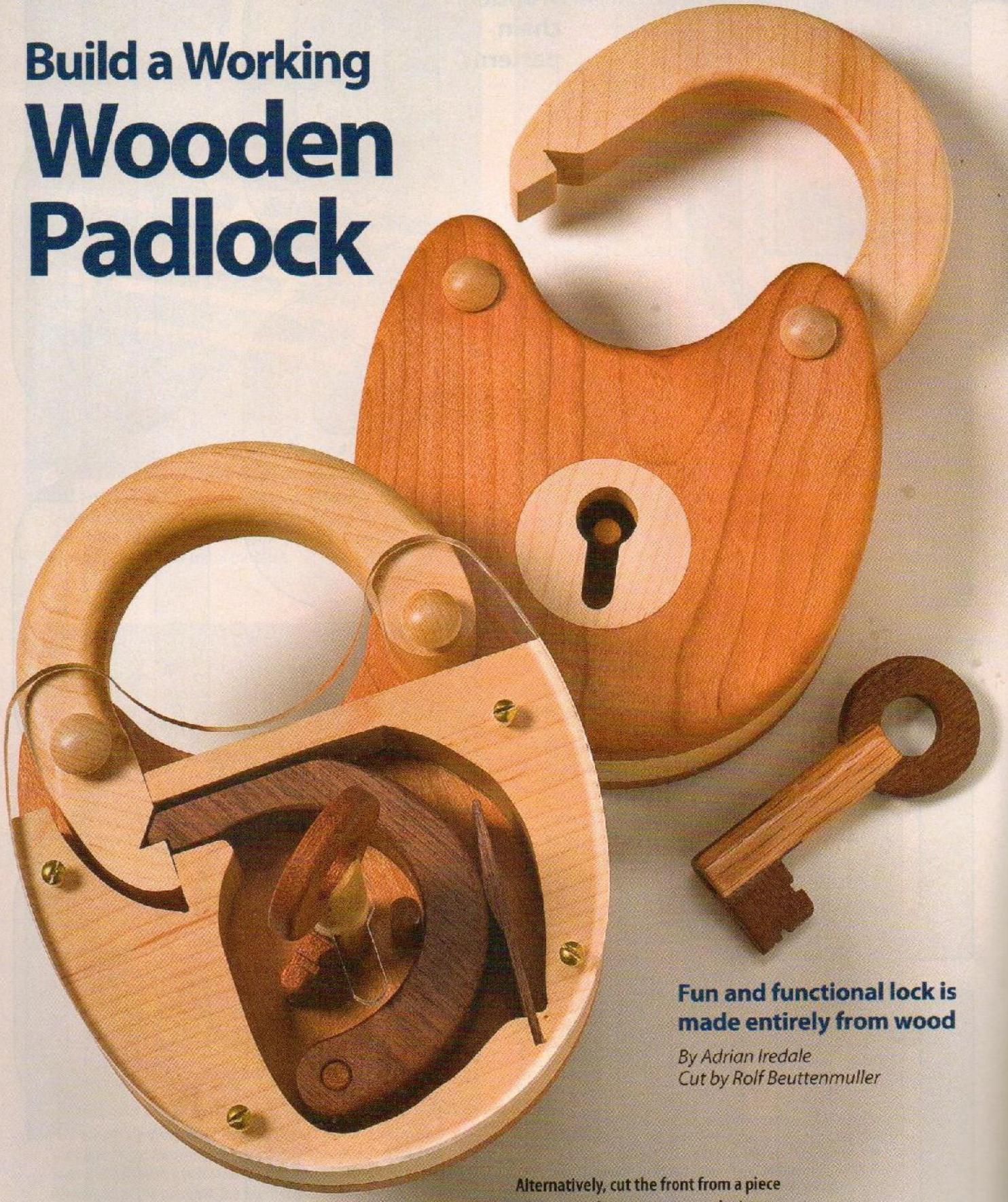








Build a Working Wooden Padlock



Fun and functional lock is made entirely from wood

By Adrian Iredale
Cut by Rolf Beuttenmuller

Alternatively, cut the front from a piece of clear acrylic so you can see the inner mechanism in the finished project.

I began my journey in making wooden gadgets a few years ago when I purchased a wooden clock plan from Clayton Boyer, whose work was featured in *Scroll Saw Woodworking & Crafts* Spring 2011 (Issue 42). I taught myself how to draw with a CAD program and then designed a few of my own projects. My wooden gadget videos on YouTube have had more than 850,000 views.

Although this lock project looks complex, you can build it in a day. The instructions guide you through the process, and you can also watch a video at www.scrollsawer.com that shows how to build a wooden lock. This lock is all wood—there are no metal parts. However, if you want to show off the inner mechanism, you can cut the front from clear acrylic.

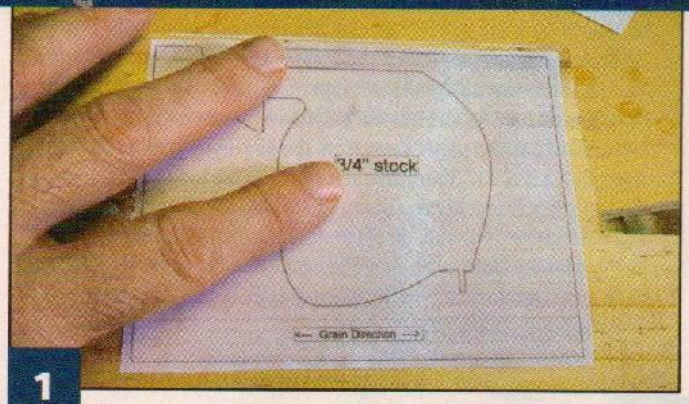
Double check the size of the dowels you purchase. I've found that ¼"-diameter dowels are usually slightly smaller than ¼". The actual size isn't critical, but you need to drill the holes to match the dowels.

For my locks, I use Radiata pine, Australian myrtle, and Australian red cedar, which are common in my area, but the lock can be made from almost any hardwood.

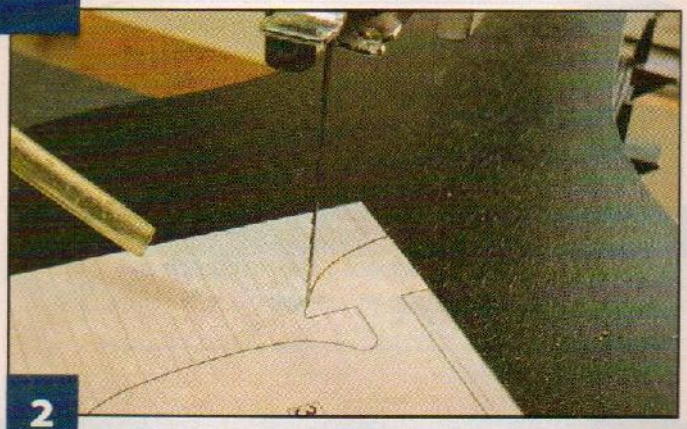
Make several copies of the full-size pattern before you begin. Photocopiers can distort your patterns, so make all the copies at one time so the distortion is the same for all of the patterns. I make several copies for reference or to remake any necessary parts.

When making locks, I often use cyanoacrylate (CA) glue, such as Super Glue. It may not bond as well as ordinary wood glue, but CA glue dries quickly and is strong enough for this project, which means I can build my lock without waiting for glue to dry. CA glue sands well, and, unlike wood glue, any CA glue left on exposed surfaces disappears when you apply the finish. I buy small tubes of CA glue because they are easy to use and there is no waste.

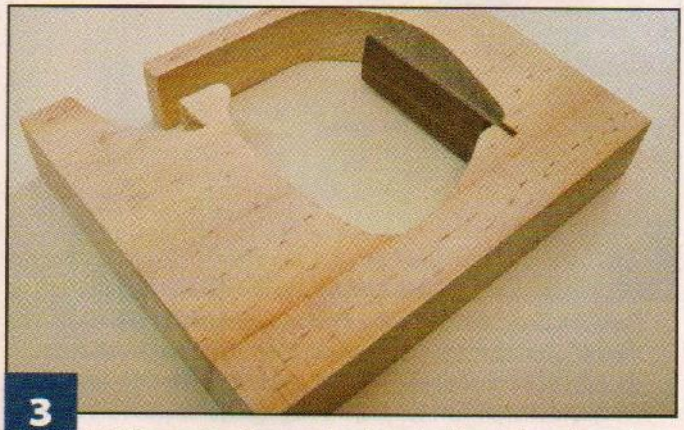
PADLOCK: CREATING THE MAIN PARTS



1 **Attach the patterns to the blanks.** Trim the patterns, but leave extra paper around the pattern lines to ensure good adhesion. Attach the patterns to the blanks with spray adhesive, aligning the grain with the arrow when applicable, and allow the glue to dry.



2 **Cut the middle layer.** Cut down the middle of the line or cut just outside of the line and sand up to the line. Cut the middle layer, remove the pattern, and sand the faces. Be sure to cut the rectangular outline exactly on all three layers because it is used to properly align the middle, back, and front layers during assembly.

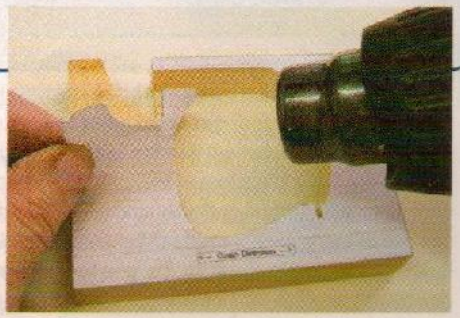


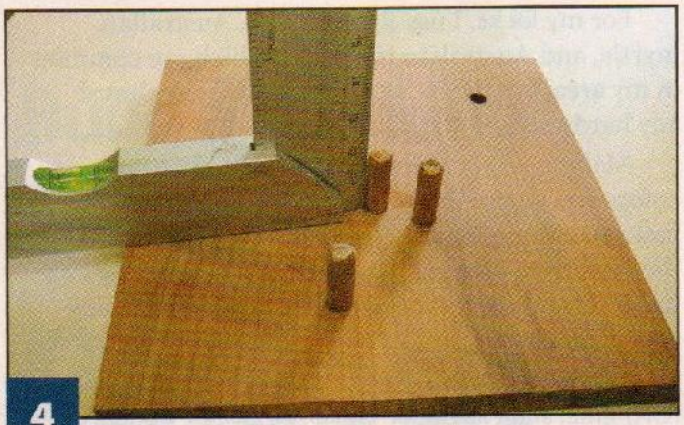
3 **Cut the spring.** Choose a hard wood with a tight grain, such as walnut. Cut the spring and slide it into the notch in the middle layer. Note: Test the spring several times before gluing the front layer in place. If the spring does not straighten all the way, the tongue will not return fully and the shackle will not latch.

TIP

REMOVING PATTERNS

If the patterns are difficult to remove, heat them with a heat gun or hair dryer. Use mineral spirits to remove any excess glue from the blank.



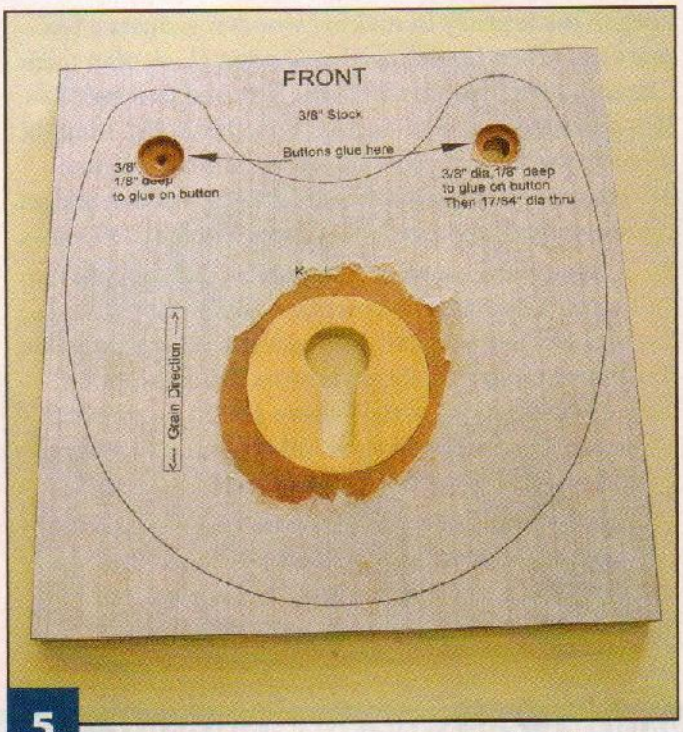


4

Cut the back. Cut the outline. Mark the center of all of the holes with an awl or center punch. Drill the four ¼" (6mm)-diameter x ¼" (6mm)-deep holes with a brad-point bit—do not drill through the blank. Cut three ¼" (6mm)-diameter x 1" (25mm)-long dowels for the key guide, key stop, and tongue pegs. Chamfer the ends of the dowels and glue the pegs in place. DO NOT glue the shackle pin in yet. Use a square to ensure the pegs are perpendicular to the board. Make sure the dowels do not stick out more than ¾" (19mm); if they do, sand the dowels down to ¾" (19mm).

TIPS **ALTERNATE METHODS**

- *If using flat buttons without a peg on the back, mark the location of the button holes with an awl instead of drilling the ⅜" (10mm)-diameter holes.*
- *If you don't have a 17/32" (12.5mm)-diameter bit for the hole in the key guide insert, drill a blade-entry hole and cut the entire opening with a scroll saw.*



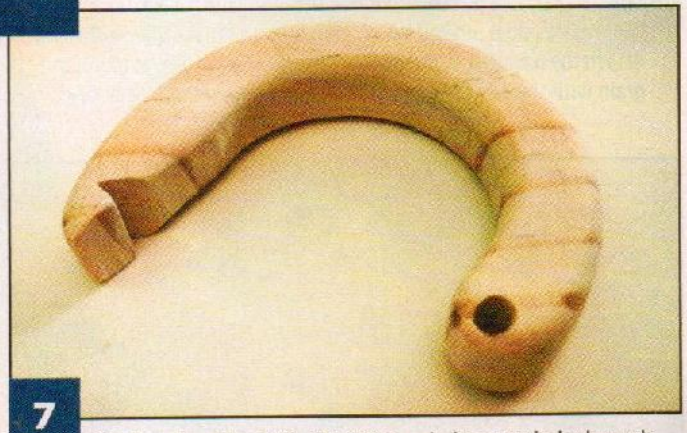
5

Make the front. Cut the rectangular outline. Use a Forstner bit to drill an accurate 1½" (13mm)-diameter key insert hole. Drill ⅜" (10mm)-diameter x ⅛" (3mm)-deep holes for the buttons. Drill a 17/64" (6.5mm)-diameter hole through the blank in the center of the right button hole for the shackle pin. Do not remove the pattern, but pull a bit of pattern paper away from the key insert hole as shown. Then, drill a 17/32" (12.5mm)-diameter hole at the top of the slot in the key guide insert blank. Cut the guide slot, and then cut the key guide perimeter. Cut outside of the lines and sand the insert to fit tightly into the front layer. Glue the insert into the front. If there are gaps, rub sanding dust into the gap and soak it with a few drops of CA glue. Sand off any excess filler.

PADLOCK: MAKING THE MECHANISM

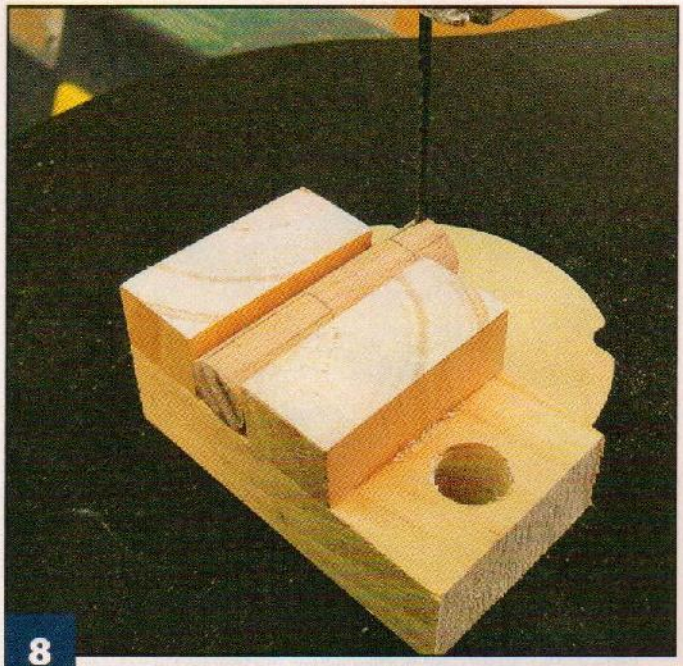
6

Create the tongue. Drill a 17/64" (6.5mm)-diameter hole through the blank. Then, sand the blank to just thinner than ¾" (19mm) so the tongue doesn't bind in the lock. It is important to cut this part accurately. Cut outside the lines and sand up to the lines if necessary. Sand the edges of the tongue by hand. The inside and outside curves must be perfectly smooth in order for the lock to operate properly. Do not sand farther than the pattern lines or the lock will not operate correctly. Remove the pattern and rub soap, wax, or a crayon on all of the sides of the tongue for smoother operation.

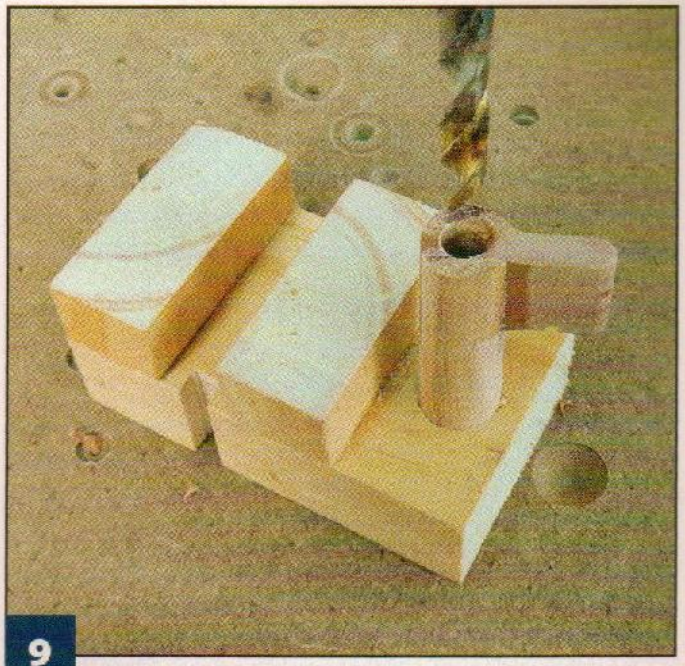


7

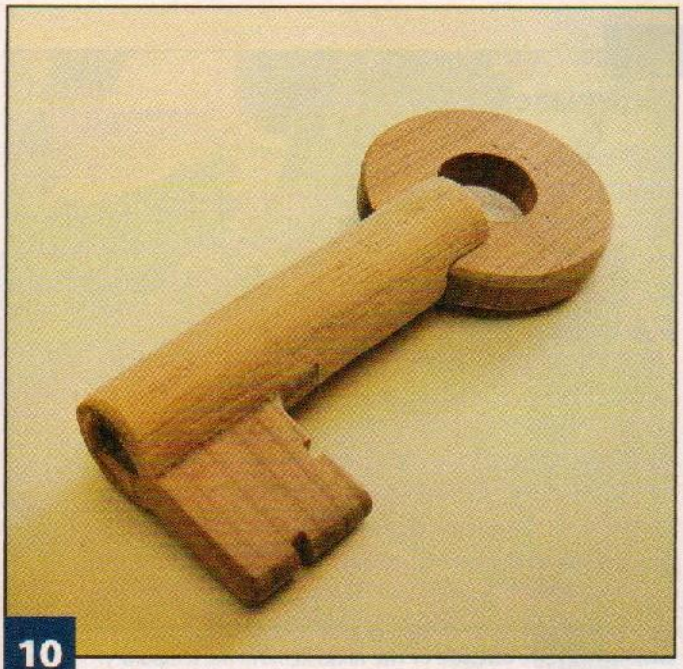
Cut the shackle. Drill a 17/64" (6.5mm)-diameter hole through the blank, and then cut the shackle. Sand the shackle to just thinner than ¾" (19mm) so the shackle doesn't bind in the lock. Round the sides of the shackle with a router and round-over bit or with sandpaper. Do not alter the shape of the triangular notch.



8 **Make the key dowel.** Create a jig to cut the dowel using scrap wood. Glue two small blocks to a larger block to create a slot just big enough to hold a ½" (13mm)-diameter dowel. Drill a ½" (13mm)-diameter hole in one end of the jig (for use in Step 9). Hold the dowel between the small blocks in the jig. Cut a ¼" (6mm)-wide x ⅞" (22mm)-long slot in the blade end of the key dowel and a ¼" (6mm)-wide x 5/16" (8mm)-long slot in the handle end of the key dowel.

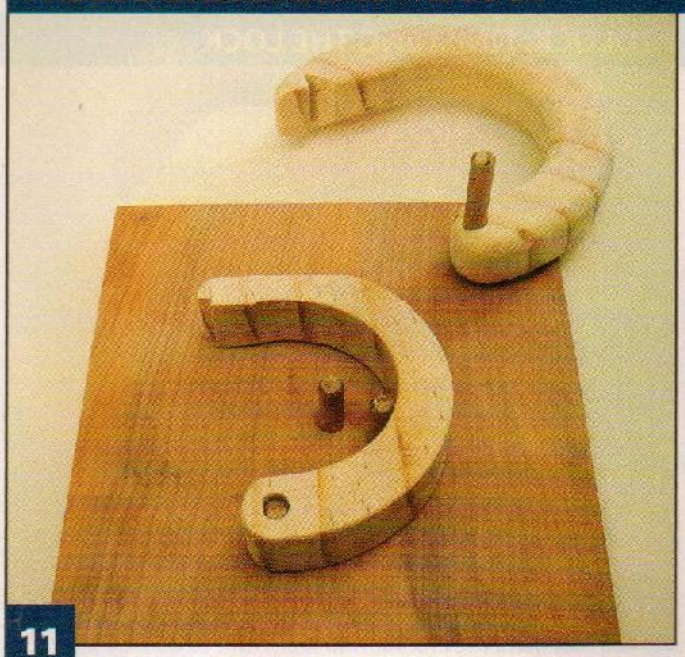


9 **Cut the blade end of the key.** Cut the side view of the key blade. Then, use a sander to shape the end view. Glue the blade into the appropriate slot in the key dowel and let the glue dry. Put the handle end of the key dowel into the hole in the cutting jig. Drill a 17/64" (6.5mm)-diameter x ¾" (19mm)-deep hole in the center of the blade end. This hole must be in the center so it fits properly over the key guide peg in the back piece.

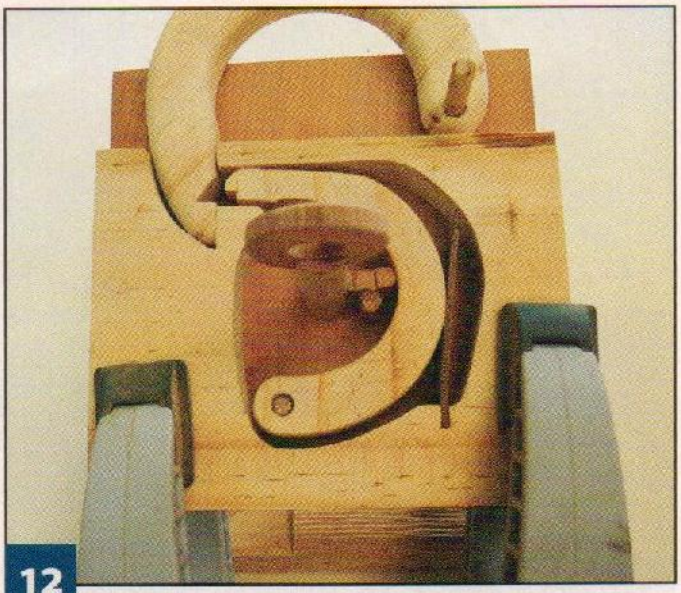


10 **Finish the key.** Cut the key handle, paying attention to the grain direction. Notice that there is a flat spot on the circle; cut or sand the flat spot to the line. Insert the handle into the key dowel with the flat spot resting against the bottom of the hole in the dowel. Glue the key handle in place.

PADLOCK: ASSEMBLING THE LOCK



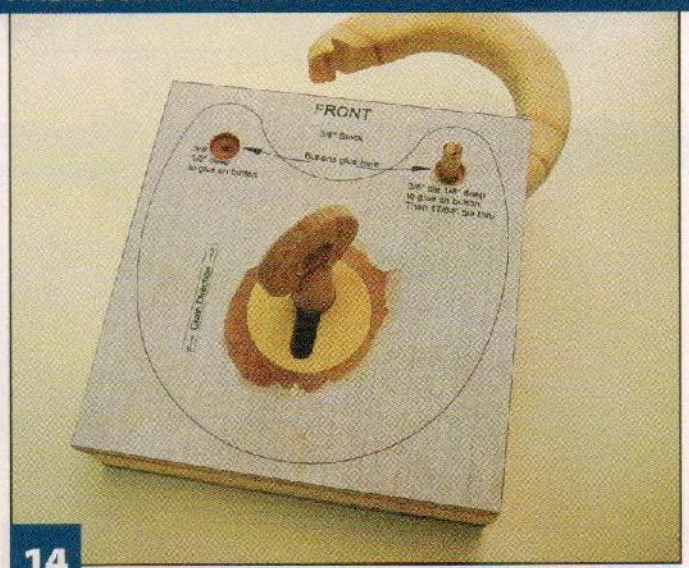
11 **Begin assembling the lock body.** Use the assembly diagram on page 45 as a guide. Place a ¼" (6mm)-diameter dowel in the hole for the shackle peg on the back layer. Do not glue the dowel in place. Slide the shackle onto this dowel. Position the tongue on the tongue peg so it curves up and around the key pegs. Place the middle layer onto the back layer, aligning the bottom and sides. Do not rush these assembly steps. Once you glue the three layers together, there is no going back.



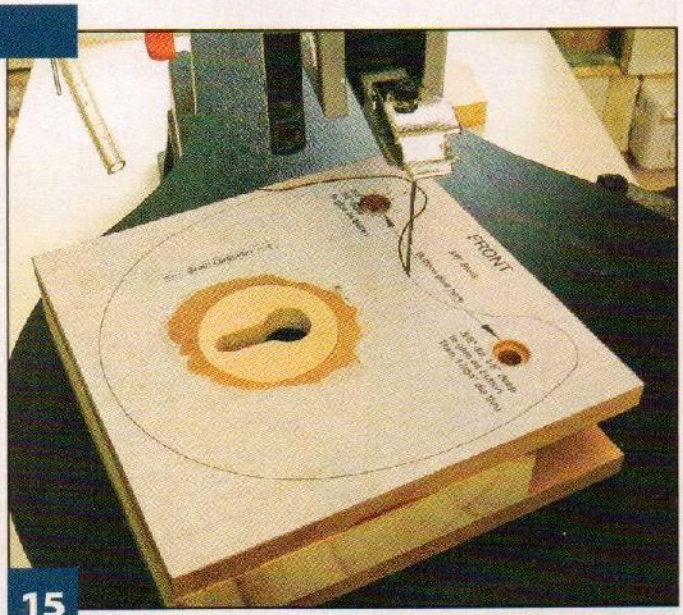
12 **Check and adjust the fit.** The tongue should fit snugly between the spring and the key stop peg. If it doesn't fit properly, move the middle piece until the tongue fits properly. Clamp the middle to the back and make sure the shackle latches into the tongue properly. Put the key onto the key guide peg. Turn the key until the key blade rests against the top of the key stop peg. This movement should push the tongue into the spring, disengaging the shackle. The tongue in this area MUST be smooth or the key will bind. Turn the key a few times to make sure the spring returns the tongue properly, engaging the shackle each time. If the tongue does not engage the shackle, cut a new spring from hard dense wood.

13 **Glue the middle to the back.** If the key does not move all the way around to the key stop, sand the blade end down a little and try again until the key moves the tongue away from the shackle and the key blade rests against the key stop peg. If all works well, remove the tongue and shackle. Make sure you mark the correct alignment of the layers before removing the clamps. Glue the spring into the middle layer. When the glue is dry, glue the middle layer to the back layer, ensuring no glue gets onto the internal mechanism area. Clamp the layers together and let the assembly dry.

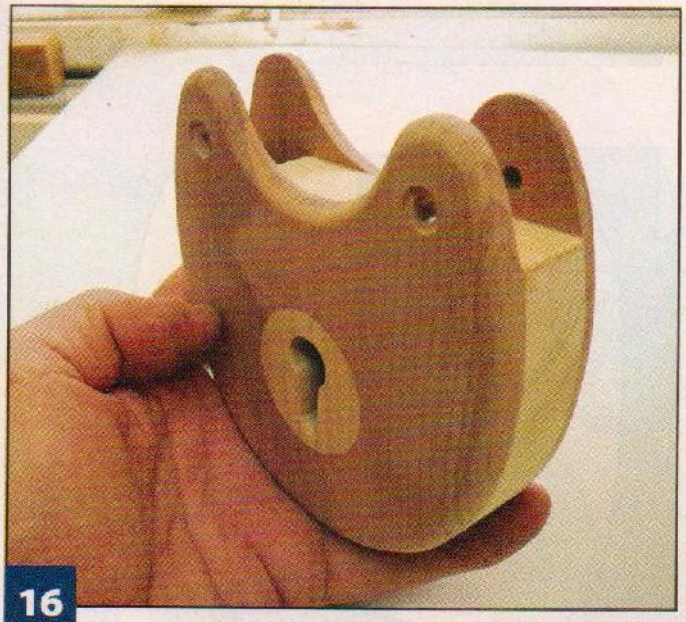
PADLOCK: FINISHING THE LOCK



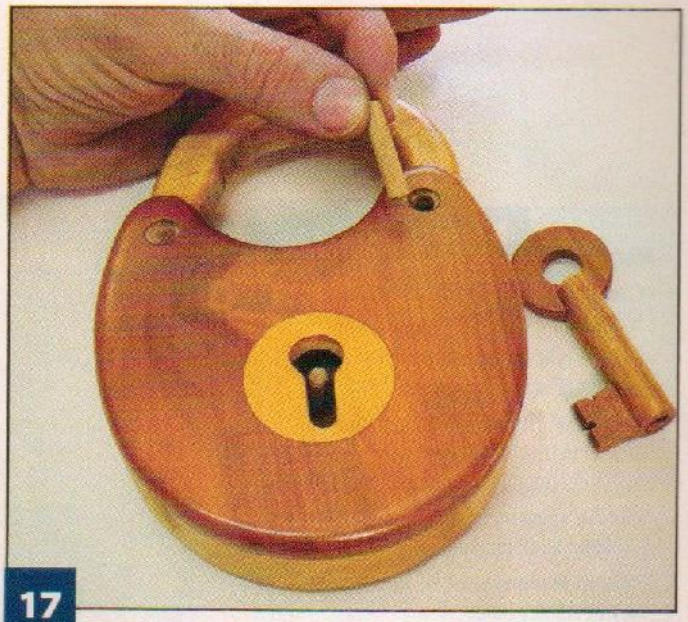
14 **Assemble the mechanism.** Replace the tongue and shackle, and then check that the lock mechanism still works—the tongue engages the shackle, securing the lock, and the key unlocks the shackle when fully turned against the stop peg. Put glue on the face of the middle layer, making sure no glue can get onto the internal mechanism. Place the front layer on the middle layer, using the temporary shackle dowel as a guide. Put the key through the front layer onto the key guide peg to align the front layer perfectly. Clamp the three layers together. Let the assembly dry.



15 **Cut the outside of the lock.** Remove the temporary shackle dowel and shackle. Plug the keyhole and the shackle hole with paper towels or rags to keep sawdust out of the lock mechanism. Then, cut the perimeter of the lock body. Remove the pattern and use a router with a round-over bit or sand the edges of the body by hand.

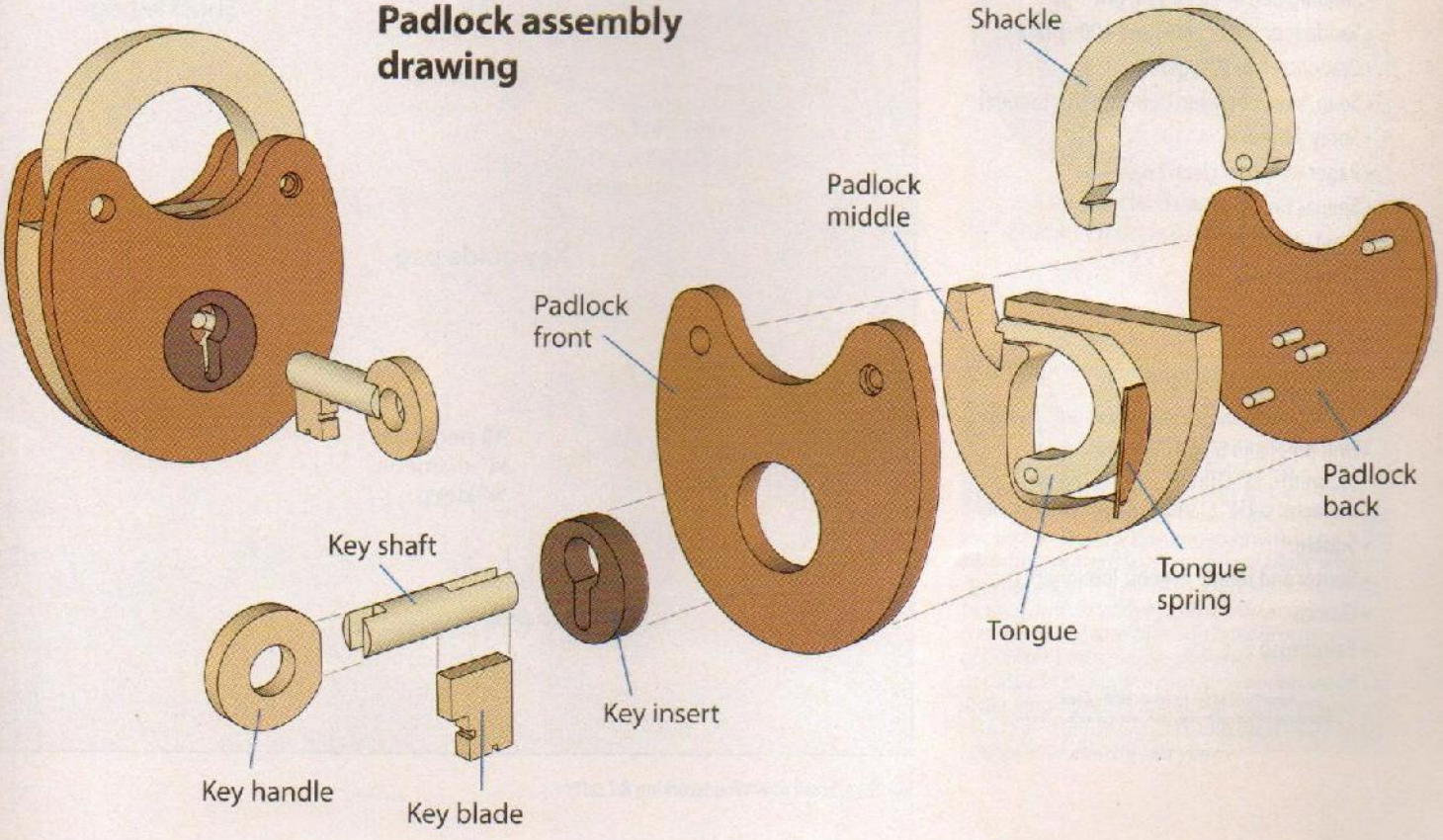


16 **Apply the finish.** I use shellac flakes dissolved in denatured alcohol. Apply two coats of shellac with a rag, allowing the finish to dry for about ten minutes between coats. Use a brush to get into the tight places. Rub the shellac into the wood grain as you apply the finish. After the second coat, buff the finish with 00 steel wool, and then apply two more coats. Buff with steel wool, and apply one or two more coats of shellac. Apply a finish coat of clear carnauba wax.



17 **Complete the lock.** Remove the plugs from the key and shackle holes. Cut the shackle pin down to 1¼" (33mm) long. Place the shackle in the lock body and push the shackle pin into place so it seats in the hole in the back piece. Glue the two buttons in place. Insert the key and turn it clockwise to open the shackle. To secure the lock, turn the key counterclockwise and close the shackle; you should hear a nice click as the tongue engages the shackle, locking it in place.

Padlock assembly drawing



Padlock patterns

Materials & Tools

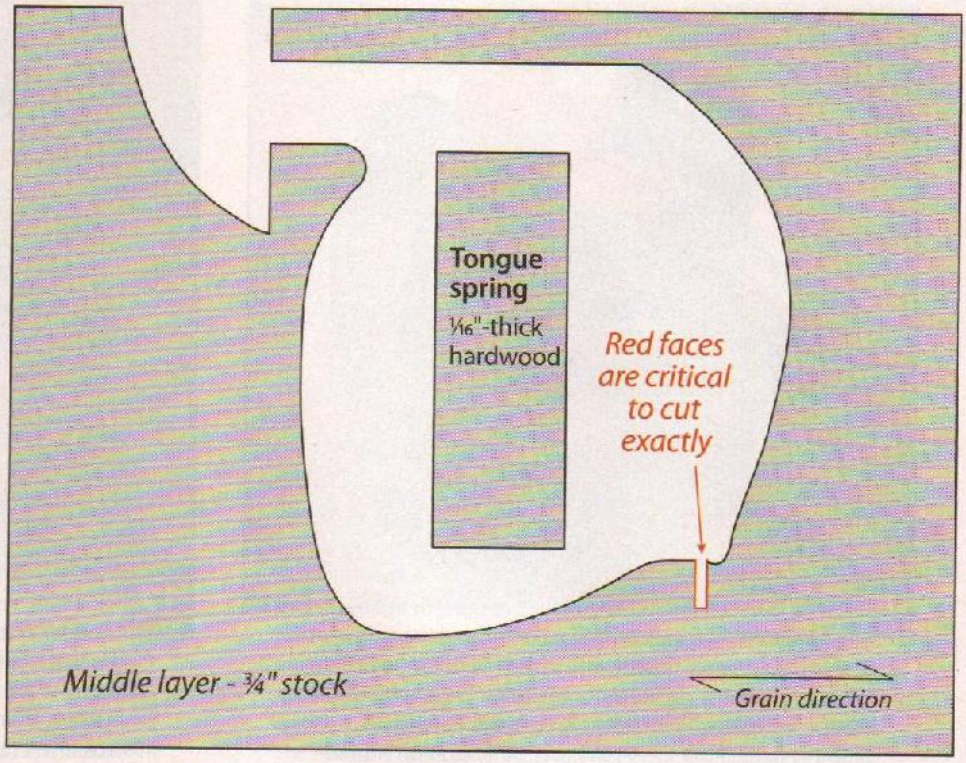
Materials:

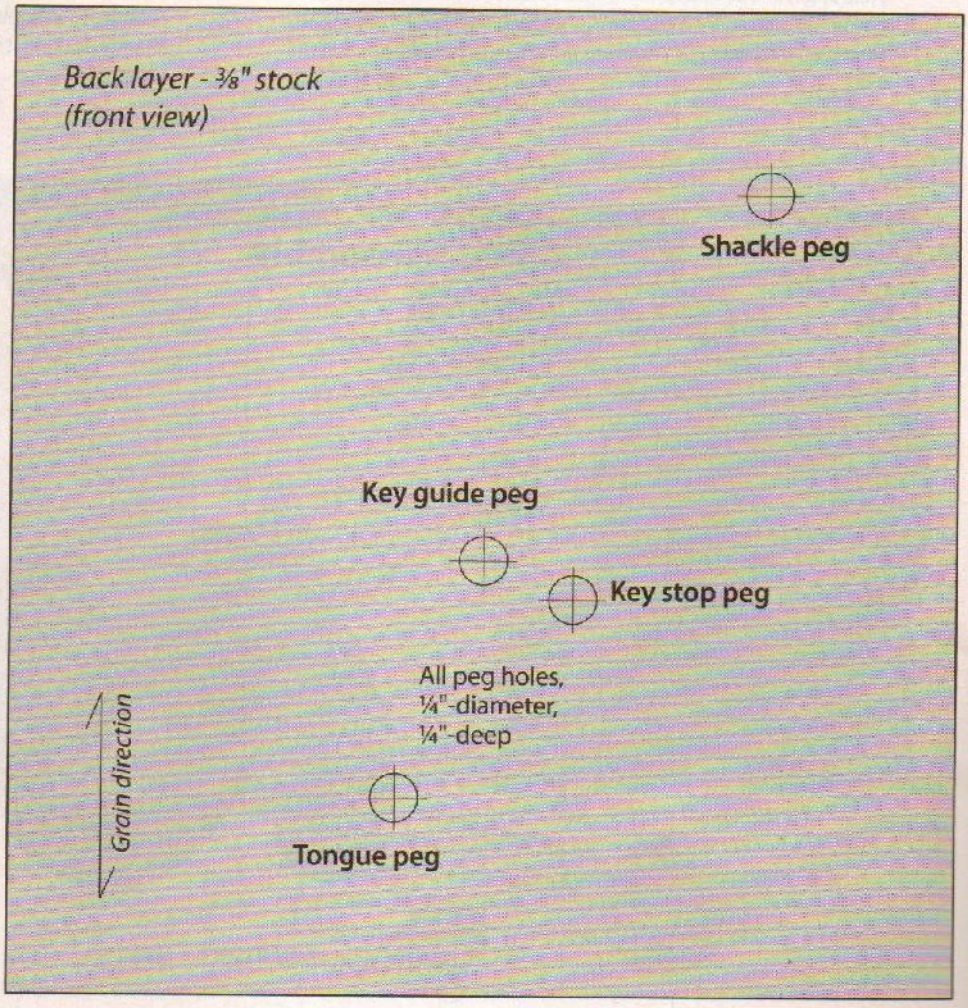
- Cherry, ⅜" (10mm)-thick: front and back, 5½" x 12" (140mm x 305mm)
- Clear acrylic (optional), ⅜" (10mm)-thick: front, 4¾" x 5" (121mm x 127mm)
- Maple, ⅜" (10mm)-thick: key insert, 2" x 2" (51mm x 51mm)
- Maple or walnut, ¾" (19mm)-thick: middle, shackle, tongue, 4½" x 12" (114mm x 305mm)
- Walnut or mahogany, ¼" (6mm)-thick: key head, key blade, 2" x 4" (51mm x 102mm)
- Walnut, 1/16" (2mm)-thick: spring, ¾" x 3" (19mm x 76mm)
- Oak or maple dowels: key shaft, ½"-diameter x 2"-long (13mm x 51mm); shackle peg, key stop peg, key guide peg, tongue peg, ¼"-diameter x 5"-long (6mm x 127mm)
- Wooden buttons: 2 each ½" (13mm)-diameter
- Scrap wood (key dowel cutting jig; see Step 8)
- Sanding belt or discs: 120-grit
- Sandpaper: 120-, 240-, and 400-grit
- Cyanoacrylate (CA) glue
- Soap, wax, or crayon (lubricant for tongue)
- Spray adhesive
- Paper towels or clean rags
- Shellac finish
- Steel wool: 00
- Carnauba wax

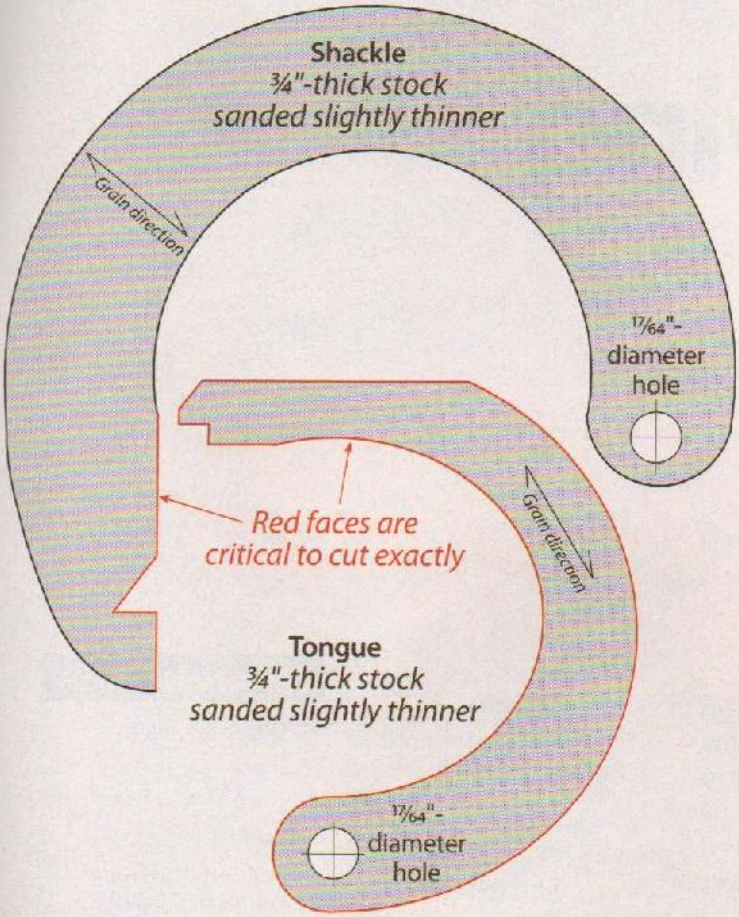
Tools:

- Blades: #5 reverse-tooth
- Vertical sander, belt sander, or disc sander
- Drill press and bits: ¼" (6mm)-, 17/64" (6.5mm)-, ⅜" (10mm)-, 13/32" (12.5mm)-diameters; 1½" (13mm)-diameter Forstner
- Square
- Router and round-over bit (optional)
- Clamps
- Paintbrush

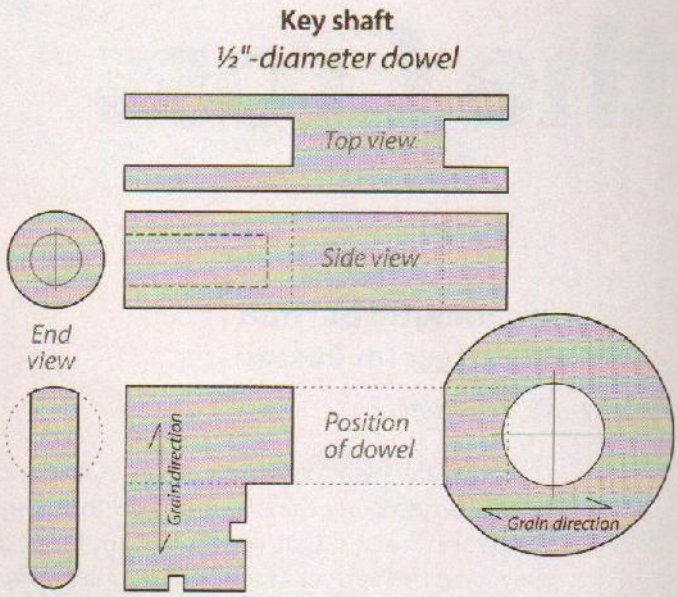
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

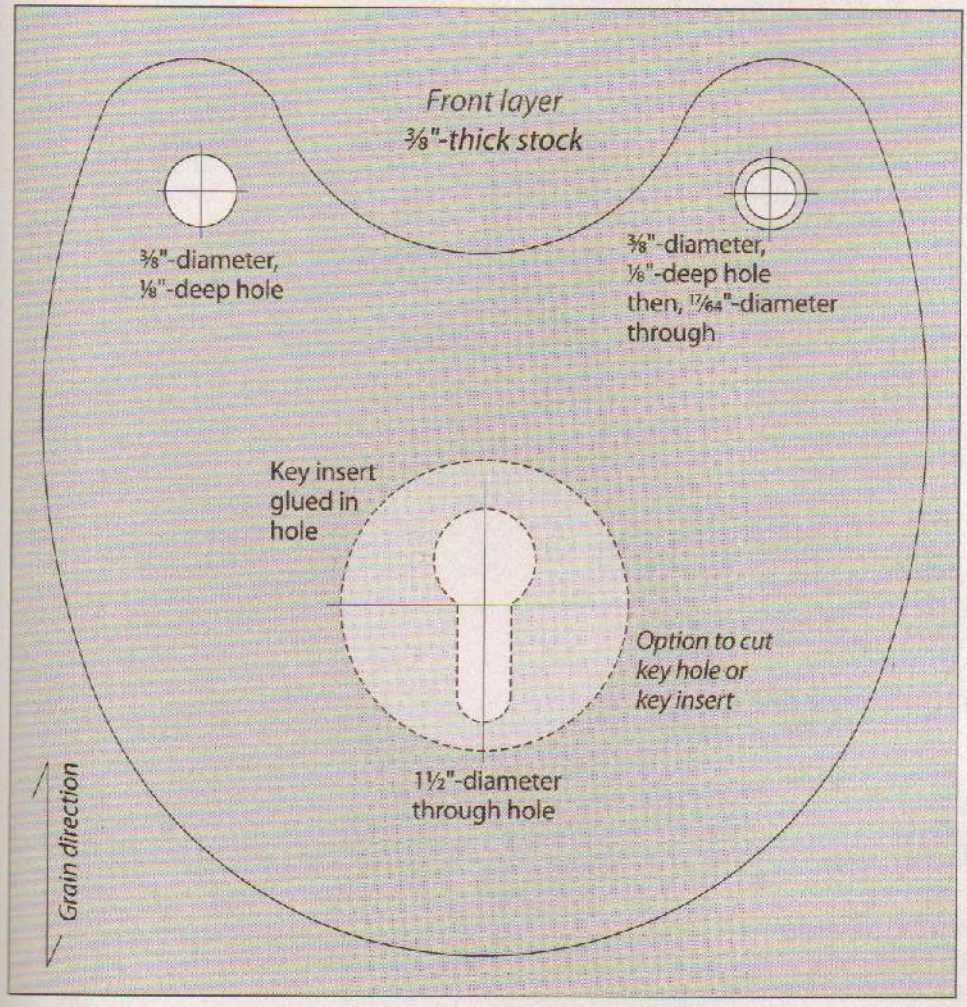


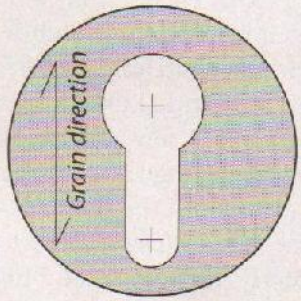




Padlock and key patterns







Key guide insert
⅜"-thick contrasting stock

Adrian Iredale lives on the east coast of Australia with his wife, Wendy. The pair have two grown daughters and became grandparents recently. Adrian works part-time as a business software consultant and spends the rest of his time playing in sawdust; he considers himself to be a normal bloke with average skills and very modest woodworking tools. Adrian attributes his woodworking success to the tutelage and encouragement of greater craftspeople than himself, such as Clayton Boyer, the master wooden clock artist, and Adrian's uncle, Ian Fraser, who is eighty-five years old and who built more than 300 toys for charity last year.

Jesus Carrying the Cross

Meaningful portrait is perfect for Easter

By Mike Fehring

I recently decided to create a series of fretwork portraits depicting the life of Jesus. I found images in the public domain that were just right for patterns—they have the perfect amount of detail. Patterns in the series include *Jesus Carrying the Cross*, a cropped version of which is shown here; *His Divine Powers*; *Jesus in Jerusalem*; *The Resurrection*; and the newest pattern, *Ascending*.

This pattern may look difficult, but if you take your time and relax while you work, you can cut even the most intricate pattern. Carefully center the pattern on the blank. I used a spiral blade to cut the entire portrait. A few areas were tight, but I stabilized them by beginning the cuts against a previously cut area and cutting into the solid areas of the plywood. I removed the fuzzies from the back using a torch, but you could gently sand them off. I finished the portrait with natural oil stain and added a plywood backing board sprayed with black paint.

Materials & Tools

Materials:

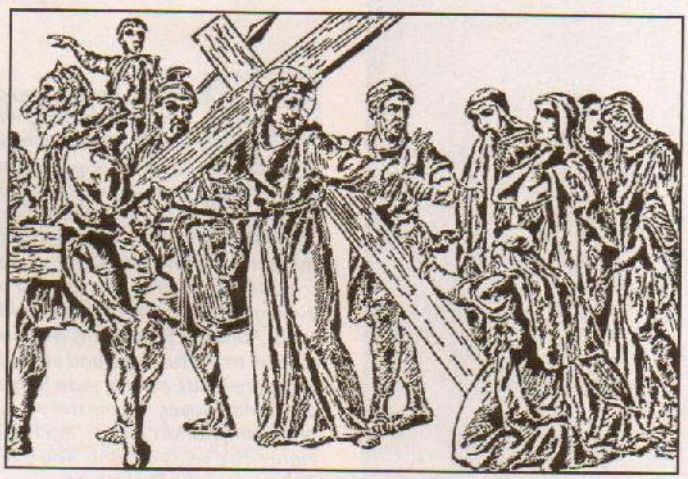
- Hardwood plywood, ⅛" to ¼" (3mm to 6mm)-thick: portrait, 11" x 14" (279mm x 356mm)
- Baltic birch plywood, ⅛" to ¼" (3mm to 6mm)-thick: backing board, 11" x 14" (279mm x 356mm)
- Sandpaper: assorted grits 220 and finer
- Natural oil stain, such as MinWax
- Spray paint: black
- Frame

Tools:

- Blades, such as Flying Dutchman: #1 spiral
- Torch (optional)

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

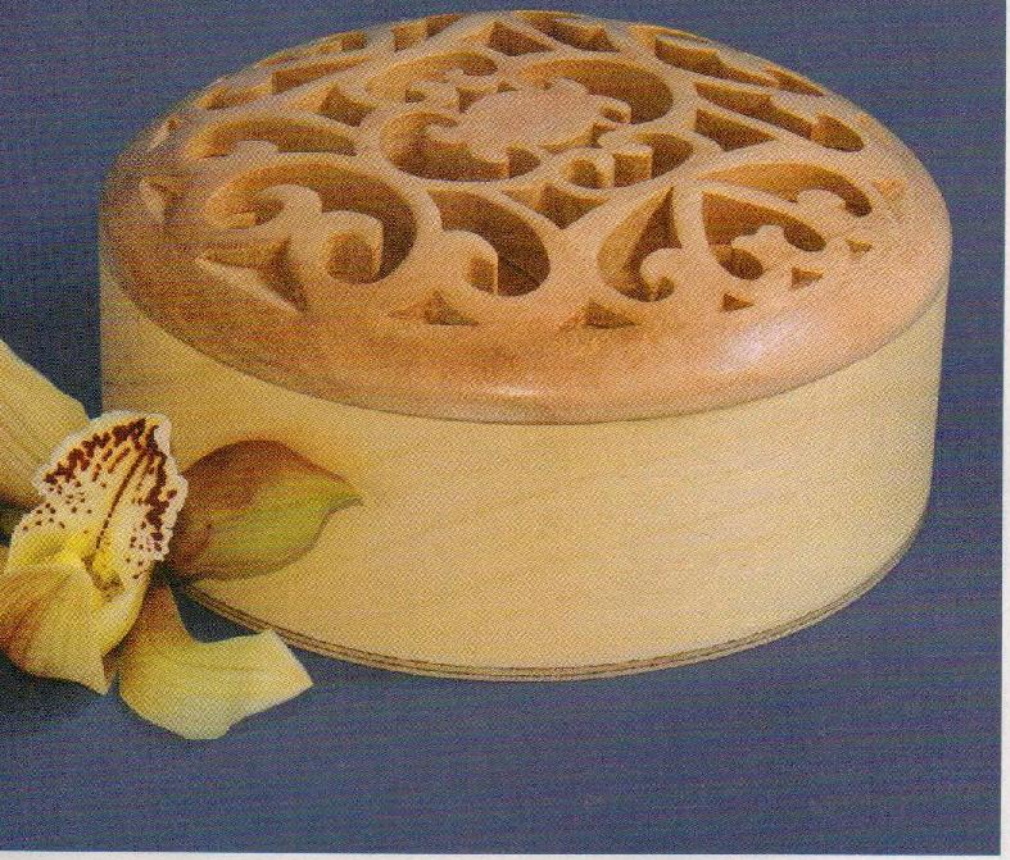
Pattern for ***JESUS CARRYING THE CROSS*** is in the pattern pullout section.



The full version of Mike's *Jesus Carrying the Cross* pattern is available on his website, www.mikefehring.com.

A retired Marine, Mike Fehring lives in Ridgecrest, Calif., and works as a systems engineer. In addition to woodworking, he's interested in scouting and home improvement. A scroller for more than fifteen years, Mike enjoys creating patterns but says the biggest thrill is seeing that someone has cut something he designed. All of the patterns from Mike's Jesus series are available on his website, www.mikefehring.com.

Shaping a Domed Lid Box



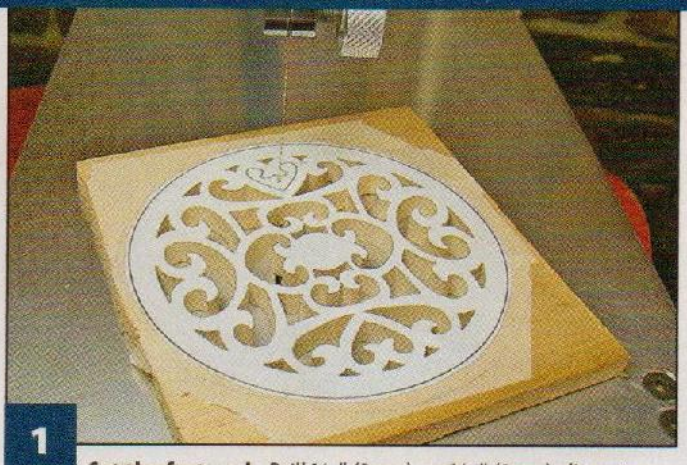
Create a fretwork lid with a rounded contour

By Sue Mey

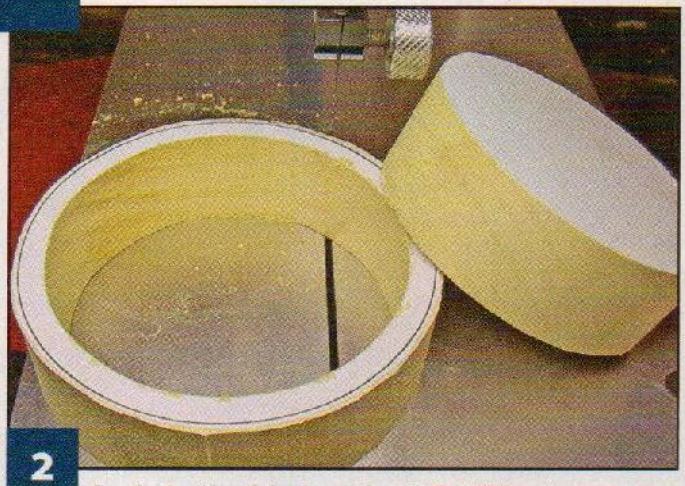
Most fretwork boxes tend to be a bit square, but I've always admired the look of turned boxes. While I have made round boxes on a scroll saw before, I wanted to take the idea a step further and create a contoured lid.

Start by preparing the blanks. Cut the blanks to a manageable size. Cover the blanks with masking tape and use spray adhesive or a glue stick to attach the patterns. Attach the lid pattern to one of the lid blanks; the other lid blank will be used later.

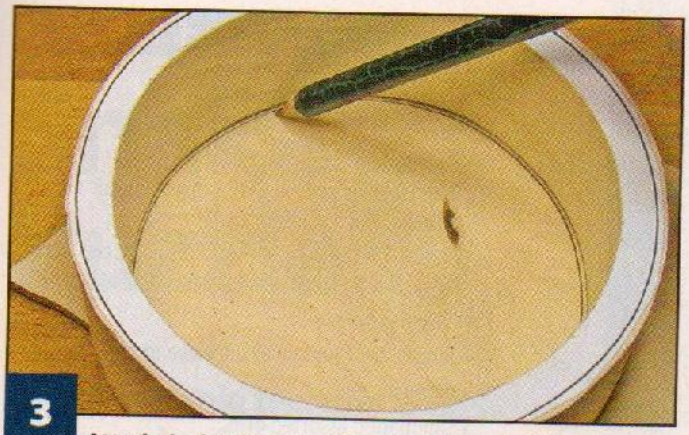
BOX: CUTTING THE PIECES



1 **Cut the fretwork.** Drill 1/16" (2mm)- or 1/32" (1mm)-diameter blade-entry holes for the fretwork on the lid. Cut the fretwork with a #3 blade. Do not cut the perimeter of the lid yet.



2 **Cut the inside of the box sides.** Drill a 1/8" (3mm)-diameter blade-entry hole on the inside of the box sides. Use a #9 blade to cut the inside of the box sides. Then, sand the inside to remove any irregularities.

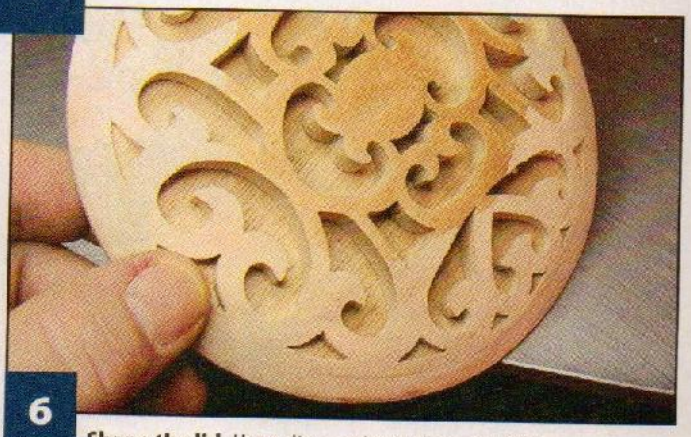


3 **Attach the box bottom.** Place the sides on the lid liner stock and trace the inside of the sides onto the lid liner. Sand any pencil marks from the box sides. Glue and clamp the box sides to the box bottom stock.

4 **Cut the lid.** Glue and clamp the fretwork lid to the solid lid piece. Make sure the grain runs the same direction on both lid pieces. Cut just outside the perimeter of the assembled lid. Use a disc sander to sand the edges of the lid up to the pattern lines.

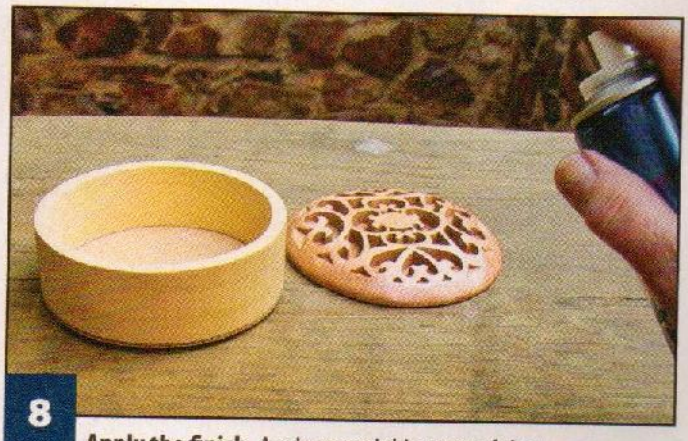
BOX: FINISHING THE PIECES

5 **Finish the pieces.** Cut the lid liner. Cut the box sides just outside the perimeter line on the pattern. Use a disc sander to sand up to the pattern lines.



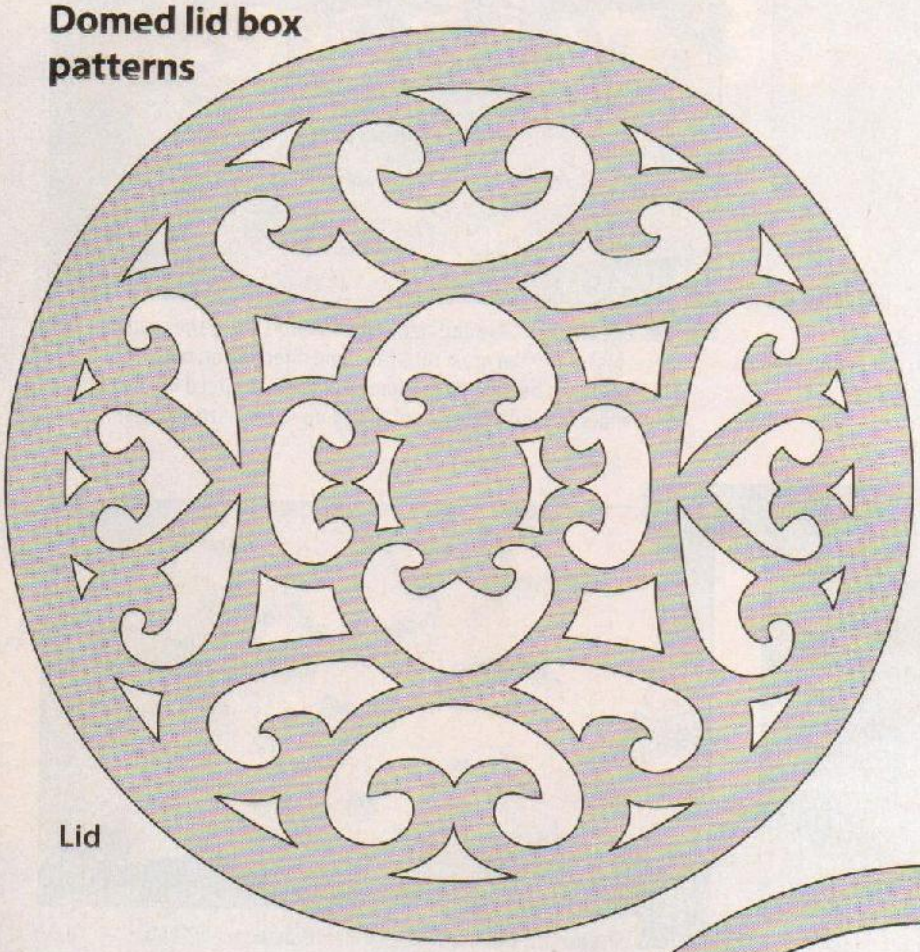
6 **Shape the lid.** Use a disc sander to shape the lid to a rounded profile. Then, remove all of the patterns and tape, and sand all of the pieces by hand using 220-grit sandpaper. Remove the sanding dust with a clean paintbrush and a lint-free cloth.

7 **Attach the lid liner.** Apply small beads of wood glue on one side of the lid liner and place it on a sheet of clean paper glue-side down to remove the excess glue. Carefully lift the liner and center it on the bottom of the lid. Place the box upside down on the lid to position the liner exactly, and allow the glue to set for a minute. Carefully lift the box away and clamp the liner to the lid. Remove any glue squeeze-out with toothpicks or damp cotton swabs.

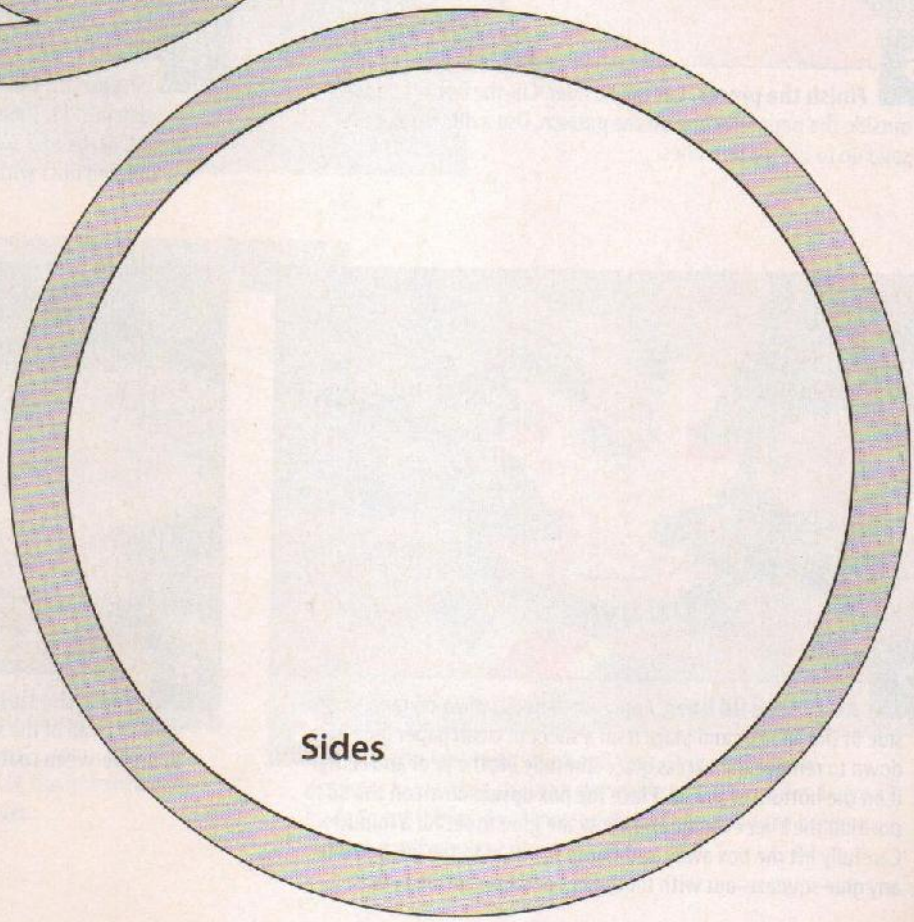


8 **Apply the finish.** Apply several thin coats of clear spray varnish to all of the surfaces of the box and lid. Allow the varnish to dry between coats according to the manufacturer's instructions.

Domed lid box patterns



Lid



Sides

Materials & Tools

Materials:

- Mahogany, 5/16" (8mm)-thick: lid, 2 each 5" x 5" (130mm x 130mm)
- Plywood, 1/8" (3mm)-thick: lid liner, 4 5/16" x 4 5/16" (110mm x 110mm); bottom, 5" x 5" (130mm x 130mm)
- Maple, 1½" to 2" (38mm to 51mm)-thick: sides, 5" x 5" (130mm x 130mm)
- Masking tape
- Temporary-bond spray adhesive or glue stick
- Wood glue
- Sandpaper: assorted grits
- Clear spray varnish

Tools:

- Blades: #3 and #9 reverse-tooth
- Drill press and bits: 1/8" (3mm)-, 1/16" (2mm)-, and 1/32" (1mm)-diameters
- Disc sander
- Clamps
- Sharp pencil
- Clean paintbrush
- Lint-free cloth

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

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

Cut an Articulated Snake Puzzle

Use this simple technique to make snakes in a variety of sizes

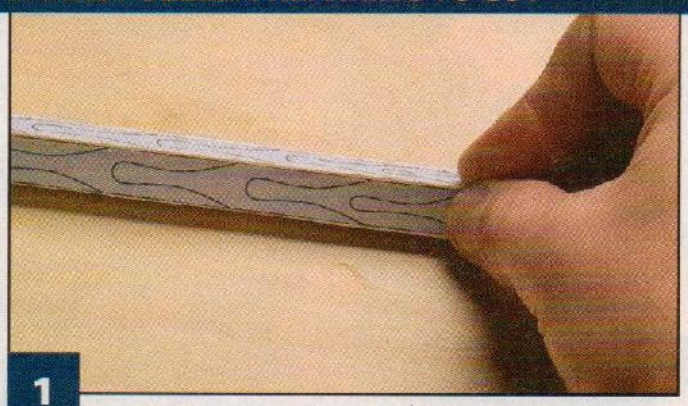
By Arthur Harpool

The slithery movement of an articulated snake puzzle is fascinating, and the project is sure to spur conversation. I regularly challenge visitors to take one apart and then reassemble it. I have seen similar puzzles cut with a band saw, but I had difficulty finding a pattern or instructions. I also wanted to do small snakes, and tiny pieces are difficult to cut safely on a band saw. Then, I saw Len Wardle's "Lateral Locking Lizard Puzzle" in *Scroll Saw Woodworking & Crafts* Fall 2005 (Issue 20), and I was inspired to make a snake puzzle. These puzzles have small and delicate pieces, and should not be given to young children.

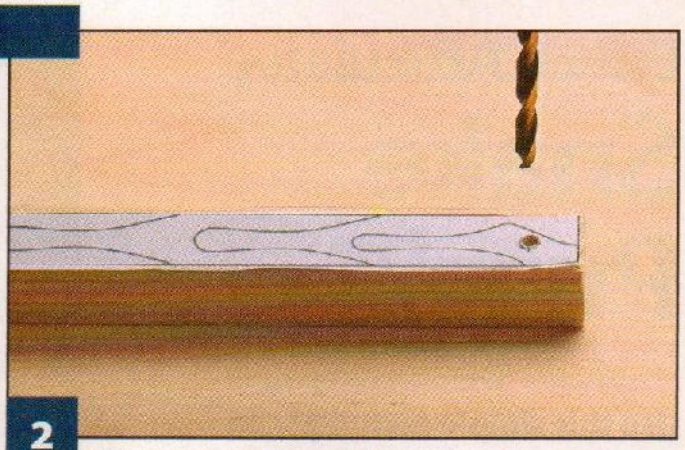
This project can be cut in less than one hour, with finishing requiring another hour or more, depending on the number of pieces. It's important to be patient and accurate when laying out the pattern and cutting the puzzle. The puzzle pieces lock together using an eye pin. I use a toothpick for the eye pin and hardwood (such as walnut, oak, purple heart, or maple) for the snake's body. You can also get an interesting look if you use ½" (13mm)-thick Baltic birch plywood. I practice cutting on softer woods, but softer woods break too easily for regular use.

I sized this pattern to use a ½" by ½" by 10" (13mm by 13mm by 254mm) blank. You can make it longer or shorter by adding or removing pieces from the middle. Experiment with thicker or thinner blanks to create a variety of snakes. The length and girth of the snake puzzle are limited by the size of your scroll saw.

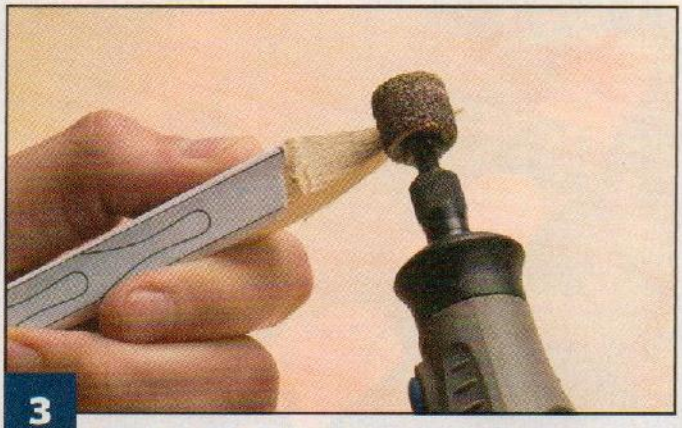
SNAKE PUZZLE: PREPARING TO CUT



1 **Transfer the pattern to the blank.** Attach a copy of the pattern or trace the pattern onto the blank. The long tab portions of the pieces have an end that is wider than the middle; this keeps the snake from slipping apart. These tabs fit into the next two pieces, not just the adjacent piece, to lock the puzzle together.

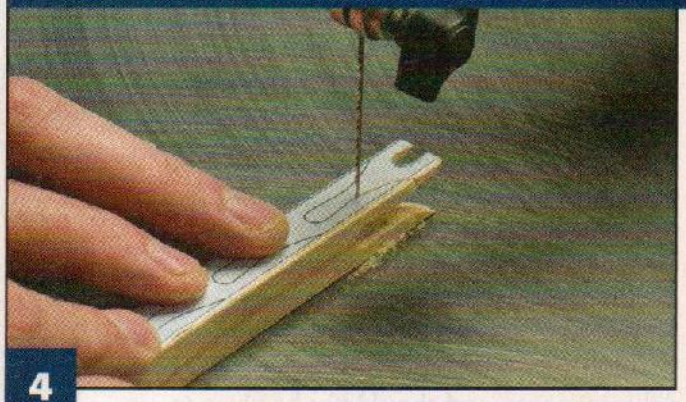


2 **Drill the hole for the eye.** Drill a 1/16" (2mm)-diameter hole through the snake's head for the eye pin. Look at the pattern lines to make sure the eye hole penetrates the first two pieces to secure the puzzle together. On larger puzzles, drill a 1/8" (3mm)-diameter eye hole and use a dowel for the eye pin.



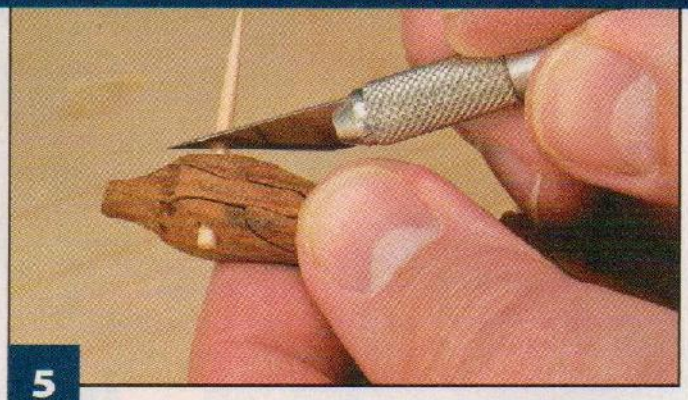
3 **Shape the head and tail.** Use a drum sander in a rotary-power carver or a belt sander to shape the head on one end and the tail on the other. Keep the head and tail in proportion. A 1" (25mm)-long head and 2" (51mm)-long tail look good for this size pattern. Do not shape the body yet. Redraw any lines that were sanded off.

SNAKE PUZZLE: CUTTING THE PIECES

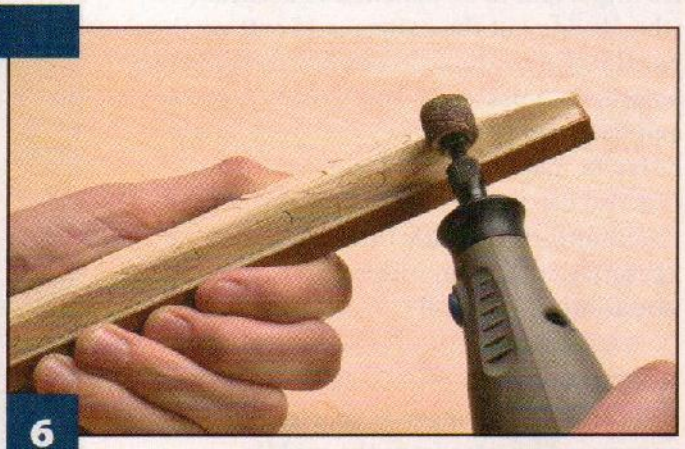


4 **Cut the pieces.** Make sure the saw table is square to the blade. Cut along the lines using a #2 skip-tooth blade. Start at the head of the snake and cut the top-view pattern. Remove the cut piece, set it aside, rotate the puzzle 90°, and cut the side-view pattern. Keep the pieces in order and follow the same process to cut the remaining pieces. Remove any fuzzies with a fine file or sandpaper.

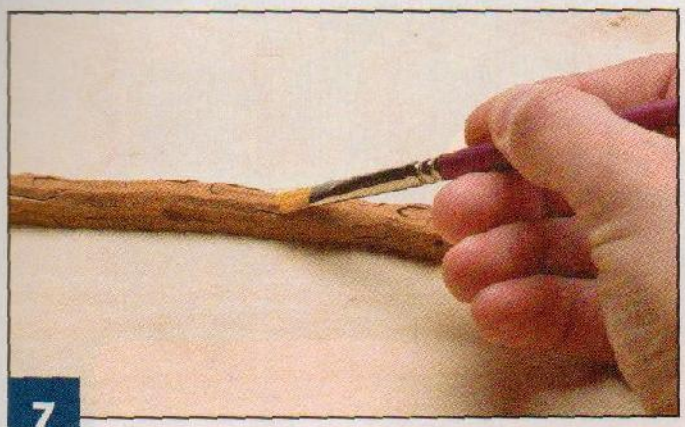
SNAKE PUZZLE: FINISHING THE PROJECT



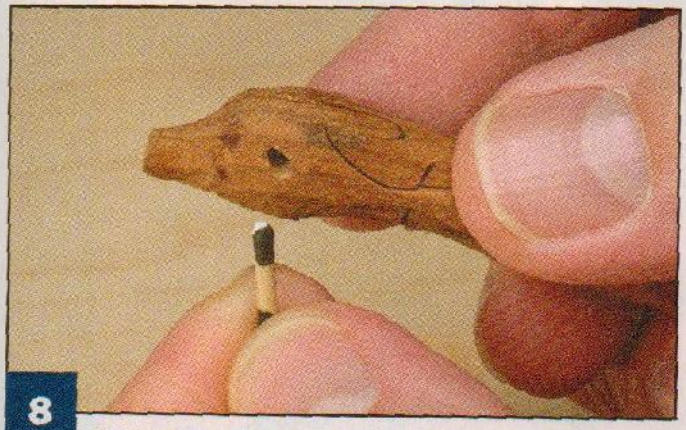
5 **Make the eye.** Reassemble the puzzle, starting at the back of the snake. Cut a piece of a round toothpick slightly longer than the width of the snake for the eye; the eye should protrude slightly on each side. Test-fit the eye to make sure you can remove it easily by hand, but it does not slide out on its own. Round the ends of the toothpick to make the eyes look more natural.



6 **Shape the snake.** Use double-sided woodturner's tape to mount the snake to a 1/4" x 1/2" x 12" (6mm x 13mm x 305mm) board. Make sure all the joints are tight and the snake is firmly attached to the tape. Use a sanding drum in a rotary-power carver to shape the body. Do not sand the whole way through the joints. Keep the puzzle assembled as you remove the snake from the tape. Then, take each piece apart to remove any fuzzies and dust.



7 **Apply the finish.** Apply a coat of oil finish to the assembled puzzle. Carefully wipe off the excess oil from the outside of the puzzle. Then, disassemble the puzzle and use cotton swabs to remove the excess oil from the insides of the joints. Allow the finish to dry, and use the same technique to apply a second coat of oil.

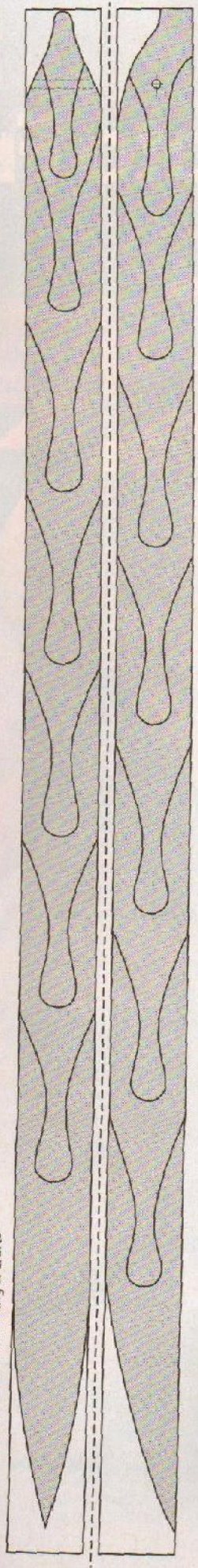


8 **Finish the puzzle.** Paint the ends of the toothpick black. When the paint is dry, apply a small white dot in the center of each eye as a highlight. Reassemble the puzzle and insert the eye pin to lock the pieces in place.

Variations:

Enlarge or reduce the pattern to make larger or smaller puzzles. Change the diameter of the eye pin and the size of the scroll saw blade as needed. Larger snakes have less movement than smaller snakes. Increase the movement by rounding the bottom edges. I hold the puzzle in my hand and use a rotary tool while holding several joints tightly together.

The snake may be painted to give it a more realistic appearance. Paint the snake after it has been shaped, but prior to cutting the pieces. This prevents the paint from interfering with the fit of the puzzle. Cut a painted snake freehand or put painter's tape on top of the painted snake and draw the pattern onto the tape.



Articulated snake puzzle pattern

Materials & Tools

Materials:

- Maple, ½" (13mm)-thick: ½" x 10" (13mm x 54mm)
- Scrap wood, ¼" (6mm)-thick: ½" x 12" (13mm x 305mm)
- Double-sided woodturners' tape
- Danish oil, such as Watco
- Graphite transfer paper or spray adhesive
- Round wooden toothpick
- Cotton swabs
- Acrylic craft paint: black, white
- Sandpaper: assorted grits

Tools:

- Blades: #2 skip-tooth
- Rotary-power carver with sanding sleeve
- Stationary belt sander (optional)
- Fine file or sandpaper
- Drill and bit: 1/16" (2mm)-diameter
- Small wood clamp (optional)
- Tray (optional, to store parts while cutting)

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

Arthur Harpool lives in Portland, Ore., and has been an enthusiastic woodworker since middle school. Arthur prefers scrolling and carving, and thinks the day isn't complete without time in his shop. Arthur may be contacted at oregoncarver@hotmail.com.

Creating a Stork Photo Frame

Celebrate a new life with this custom intarsia frame

By Kathy Wise

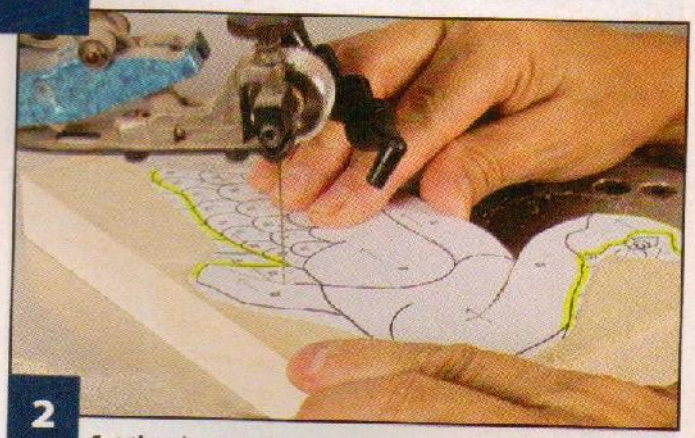
Herald the arrival of your new baby or grandchild with this adorable frame. The project makes a perfect gift for new parents and is sure to be a family heirloom.

For this intarsia I used cherry for the frame, yellowheart for the beak, bloodwood for the head, black walnut for the feet, wenge for the wings, poplar for the white body and the bag, and ebony and lacewood for the hat. If you don't have wood wide enough to make the frame from a single piece, make it in two sections by cutting on the dotted lines. You can enlarge the stork pattern by 150% and use it as a stand-alone piece (see the pattern for details).

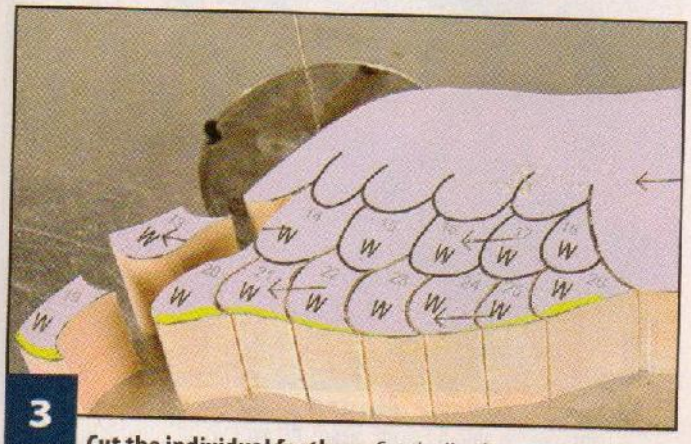
Start by making five copies of the pattern. Always keep a master copy to use later. Cut out the pattern pieces and group them together by color. Apply spray adhesive to the backs of the pattern pieces and attach them to the shiny side of clear contact paper. Cut each pattern free from the contact paper. Cut two frame patterns; use one pattern for the backing board and one for the frame.

STORK FRAME: CUTTING THE PIECES

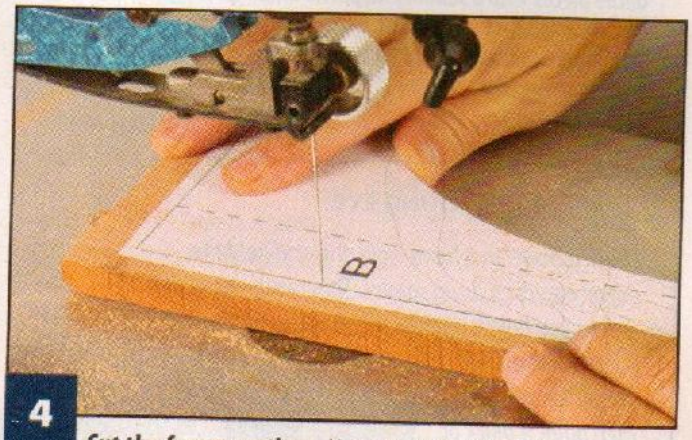
1 **Attach the patterns to the blanks.** Plane or sand the blanks flat. Cut large blanks into manageable pieces. Peel off the paper backing and stick the patterns to the blanks. Match the grain direction arrows with the grain of the wood. Use a highlighter to mark the lines that intersect with other colors of wood so you know to cut carefully along those lines.



2 **Cut the pieces.** Cut a piece of scrap wood with a #3 or #5 reverse-tooth blade and check the cut edge with a small square to make sure the blade is square to the table. As you cut the pieces, write the number of each piece on the bottom and place it on a pattern taped to the backing board blank. Make sure you like the grain pattern and color of the pieces you've cut; if you want to make a change, cut a new piece now.



3 **Cut the individual feathers.** Cut the line between feather 19 and feather 20, but do not cut the feathers free. Move on and cut the lines between feathers 20 and 21. Work your way through the entire first row of feathers. Then, go back and cut feather 19 and 13 free. Cut the rest of the feathers in the first row free, and then move on to the second row of feathers.

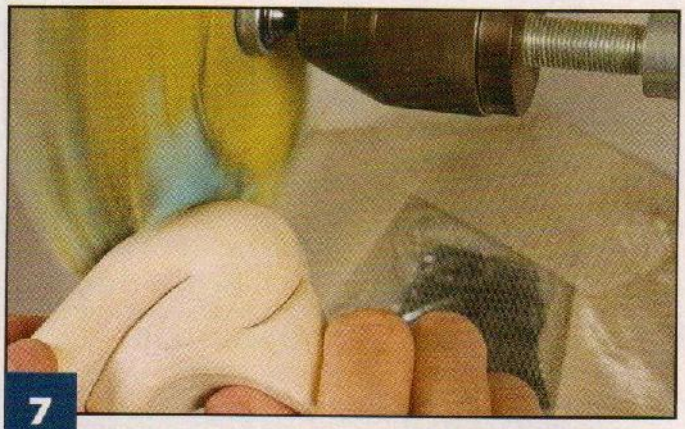


4 **Cut the frame sections.** You can cut the frame from one piece of wood, but changes in humidity can cause expansion and contraction of the wood, breaking the glue joints. To avoid this problem, use the dotted lines on the pattern to cut the frame from two pieces of wood. Smooth the inside of the frame with an oscillating spindle sander, and sand the edges with a portable drum sander or belt sander if desired.

5 **Cut the backing board and frame support.** Use double-sided tape to attach the rough sides of the tempered hardboard together and attach a pattern to the top. Cut around the perimeter of the frame and separate the stack. Then, cut along the dotted line on the piece with the pattern attached.

STORK FRAME: SHAPING THE PIECES

6 **Begin shaping the pieces.** I use a pneumatic drum sander, and I protect my fingers with rubber fingertips. Use a rotary-power carver or die grinder equipped with a sanding drum for the small parts. Hold the individual feathers with pliers, tweezers, or forceps. Mark the thickness of the surrounding pieces on each piece and sand to the line. Replace the pieces back on the pattern to check the fit and flow. Round the edges of the frame slightly.

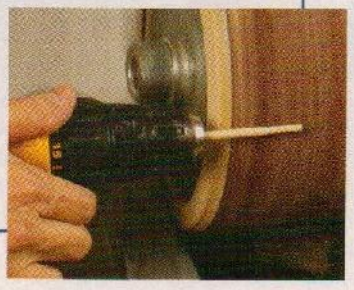


7 **Finish the pieces.** Carve the inside curves of the neck with a die grinder, rotary-power carver, or hand tools. Then, buff all of the pieces with a sanding mop. The sanding mop gets into the curves and crevices and puts a finished sheen on the wood much faster and easier than sanding by hand. Hold small pieces with pliers, tweezers, or forceps.

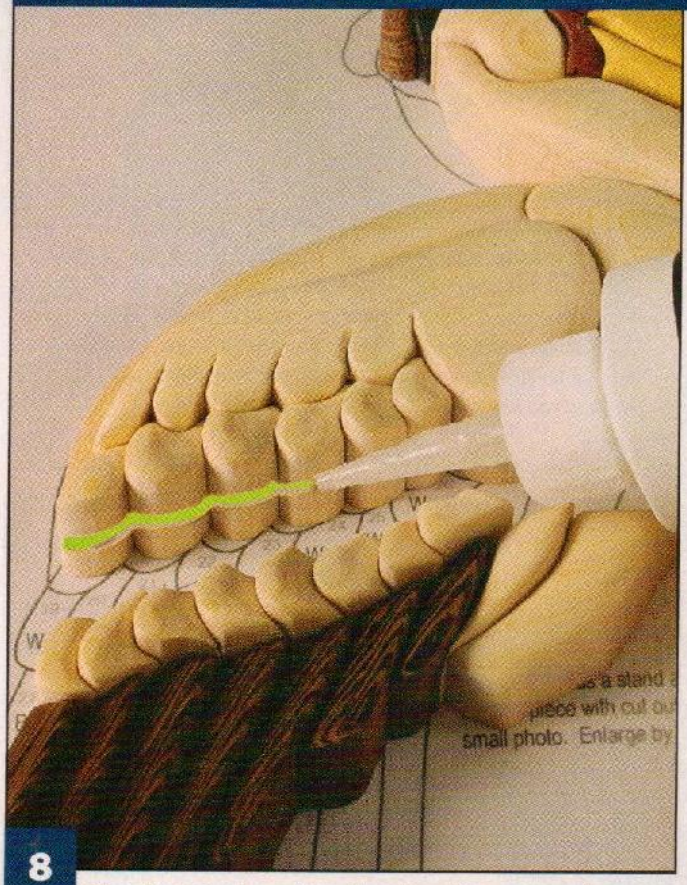
TIP

EASY ROUND EYE

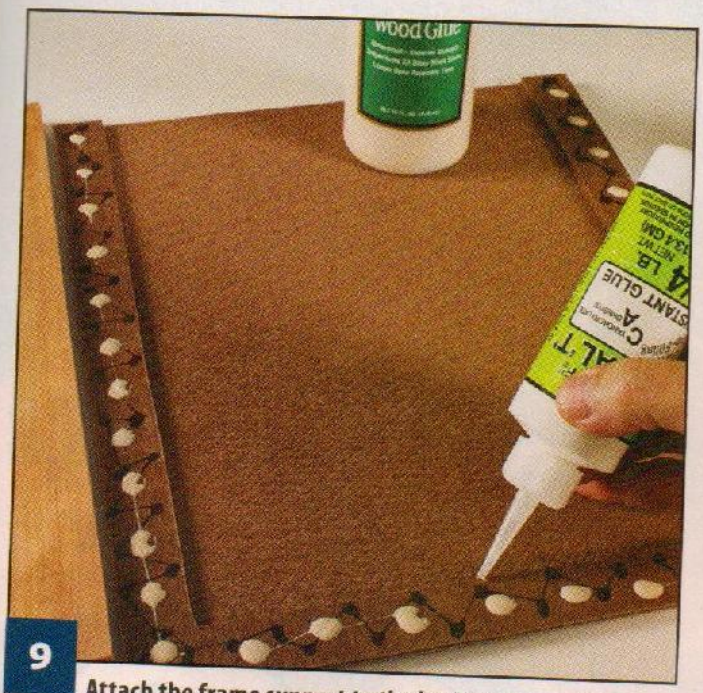
Chuck a dowel in a hand-held drill and hold the dowel against a drum sander. Spin the dowel in the drill as you hold it against the sander until the eye is sized and shaped properly. Cut the dowel to the proper length, and then paint it black or color it with a black permanent marker. Then, paint it with a clear gloss finish.



STORK FRAME: ASSEMBLING THE PROJECT



8 **Glue the intarsia sections together.** Use cyanoacrylate (CA) glue to attach the stork sections and bag sections together. Place the pieces on a pattern covered with waxed paper and make sure the pieces fit tightly together. Start at the top and work to the bottom. The green line in the photo shows the area to put the CA glue on the feathers. Try to space the feathers so there is an equal gap between all of the feathers. Sand the bottom of each section flat. Do not add the legs yet.



9

Attach the frame support to the backing board. Put dots of wood glue and CA glue on the backing board, and apply CA glue accelerator to the back of the frame support. Use the same technique to attach the frame pieces to the frame support. Sand a bevel onto the edges of the frame support and backing board so they will not be visible from the front.

10

Finish the frame. Use a copy of the pattern to mask the areas where the stork's body and the bag attach to the frame. Apply two coats of clear satin spray varnish to the stork body and legs, the frame, and the bag. Allow them to dry overnight. Then, attach the legs to the stork.

11

Attach the intarsia to the frame. Mark the location of the stork and bag, and remove the mask. Spray CA glue accelerator on the frame. Apply dots of CA glue and wood glue to the intarsia and attach the intarsia to the frame. Wipe off any excess glue with cotton swabs and attach a hanger to the back.

Patterns for the ***Stork Photo Frame*** are in the pattern pullout section.

Materials & Tools

Materials:

- Wenge, ¾" (19mm)-thick: wings, 4" x 6" (102mm x 152mm)
- Black walnut, ½" (13mm)-thick: legs, 5" x 9" (127mm x 229mm)
- Ebony, ¾" (19mm)-thick: hat, 1½" x 2½" (38mm x 64mm)
- Lacewood, ¾" (19mm)-thick: hat, 2" x 3" (51mm x 76mm)
- Cherry, ½" (13mm)-thick: frame, 11" x 14" (279mm x 356mm)
- Bloodwood or redwood, ¾" (19mm)-thick: head, 2" x 2" (51mm x 51mm)
- Yellowheart, ¾" (19mm)-thick: beak, 2" x 5" (51mm x 127mm)
- Holly or poplar, ¾" (19mm)-thick: body, 7" x 8" (178mm x 203mm)
- Plywood or tempered hardboard, ¼" (6mm)-thick: frame support and backing board, 2 each 12" x 14" (305mm x 356mm)
- Contact paper: clear
- Spray adhesive
- Wood glue, such as Titebond
- Spray varnish
- Screw eyes and wire or hanger
- Cyanoacrylate (CA) glue and accelerator

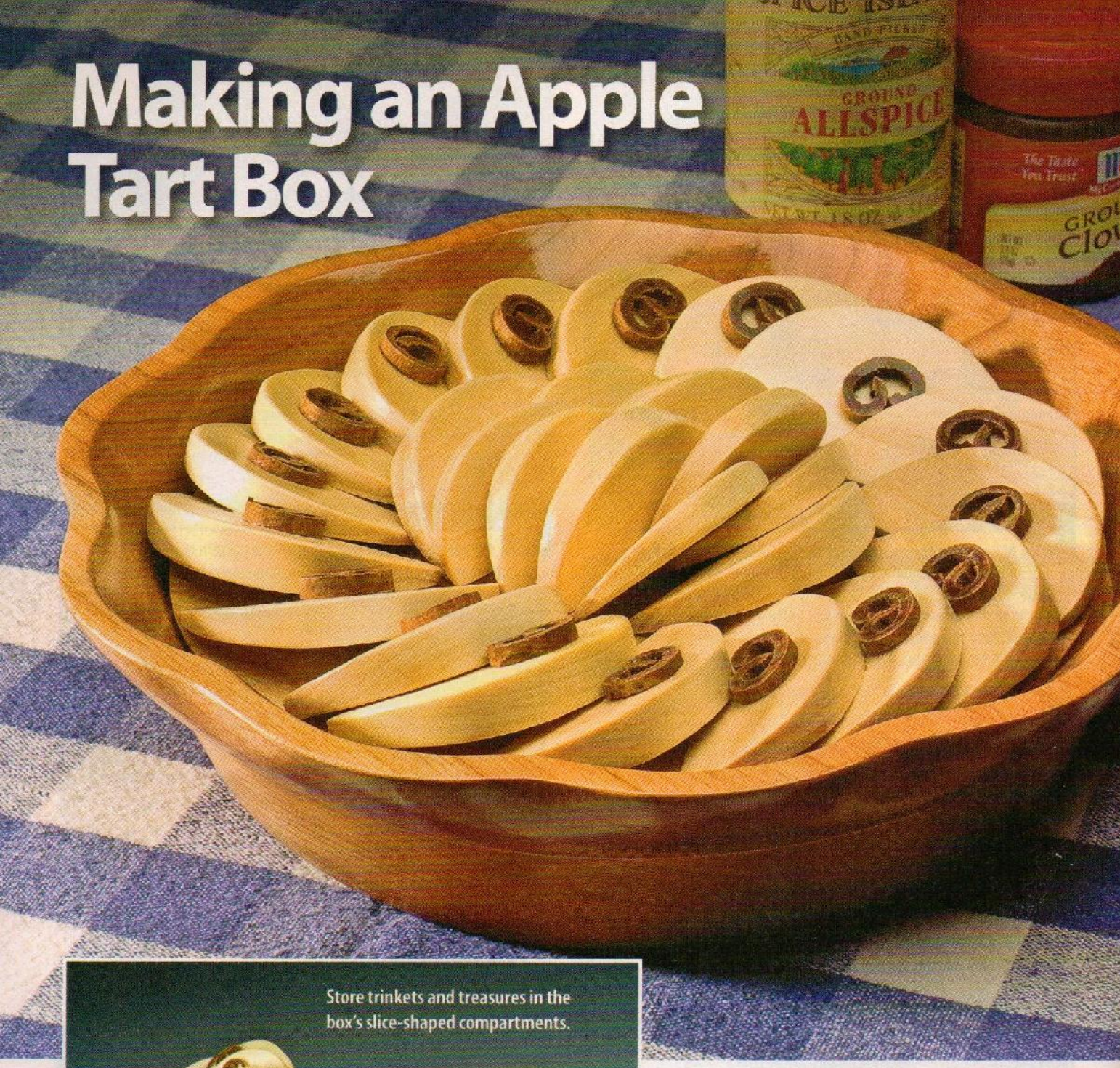
Tools:

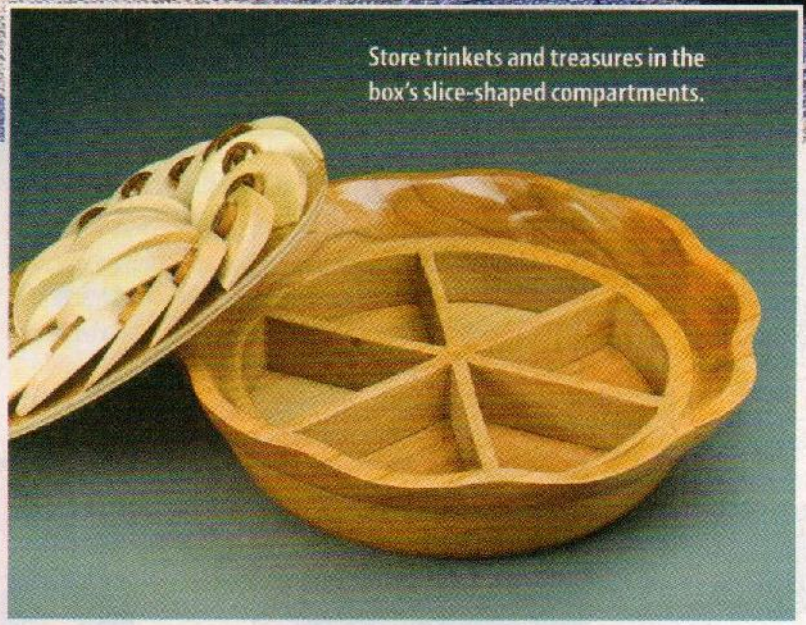
- Blades: #3 or #5 reverse-tooth
- Sanders: pneumatic drum sander or rotary-power carver, portable drum or belt, and oscillating spindle
- Rubber fingertips (available at office supply stores)

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

A nationally acclaimed intarsia artist, Kathy Wise has written two books and more than thirty articles. Her new book, Intarsia Birds: Woodworking the Wise Way, *will be available in Spring 2012. Private and semi-private intarsia classes are available. For a free catalog of 500 patterns, contact: Kathy Wise Designs Inc., P.O. Box 60, Yale, Mich. 48097, fax 810-387-9044, www.kathywise.com, kathywise@bignet.net.*

Making an Apple Tart Box





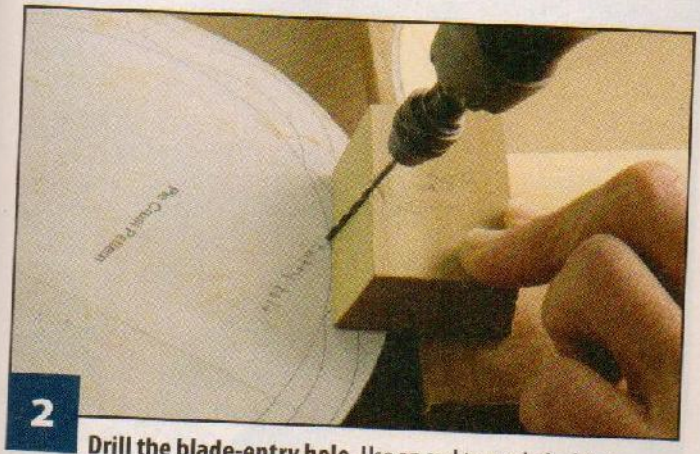
Store trinkets and treasures in the box's slice-shaped compartments.

Clever design looks and smells like a delicious dessert

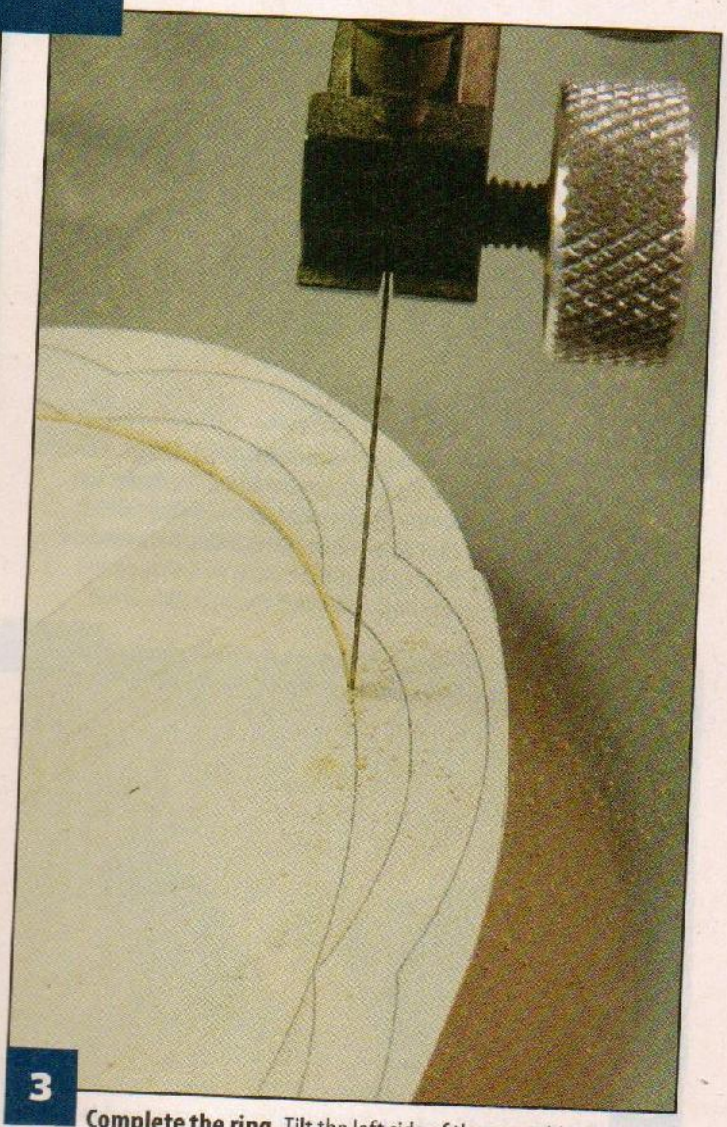
By Carole Rothman

Cherry and aspen were the ingredients for this apple tart box. The crust, made from a fluted rim and six-segment base, looks realistic and provides support for the decorative lid. Once you complete the crust, top it with wooden apples and slices of real cinnamon bark for a project that smells as good as it looks.

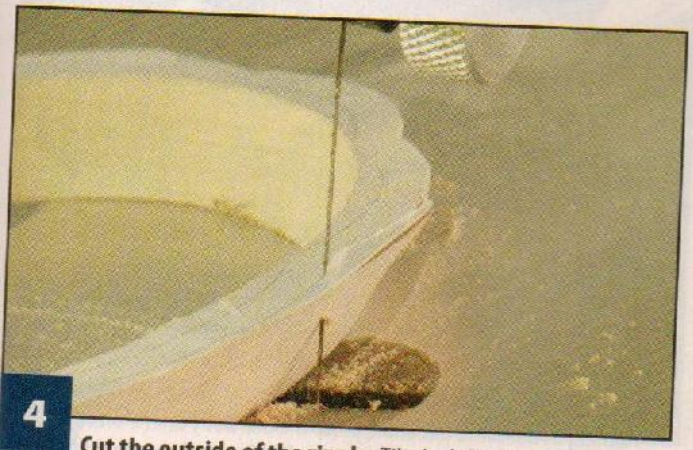
1 **Cut the outer circle.** Make two copies of the crust pattern and tape them together to form a circle. Using repositionable adhesive, attach the taped pattern to an 8½" (216mm)-square piece of cherry. Cover with clear packing tape if desired to prevent the wood from burning. Set the saw table to 40° with the left side tilted down. Cut along the outer circle in a clockwise direction.



2 **Drill the blade-entry hole.** Use an awl to mark the blade-entry hole where indicated on the pattern. Using a 25° angle guide or a drill press with a tilting table, drill a 1/16" (2mm)-diameter blade-entry hole at a 25° angle. The tip of the bit should angle in toward the center of the pattern.

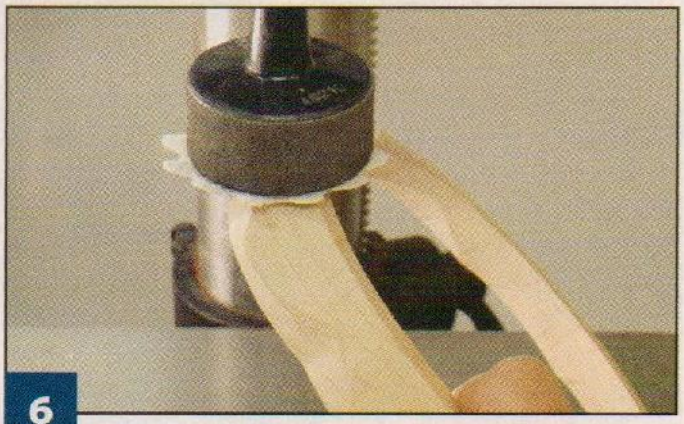


3 **Complete the ring.** Tilt the left side of the saw table down to 25°. Insert the blade into the blade-entry hole and cut clockwise around the circle to complete the ring. The ring will be about ¼" (6mm) wide at its lower edge. Save the remainder of the blank for another project.

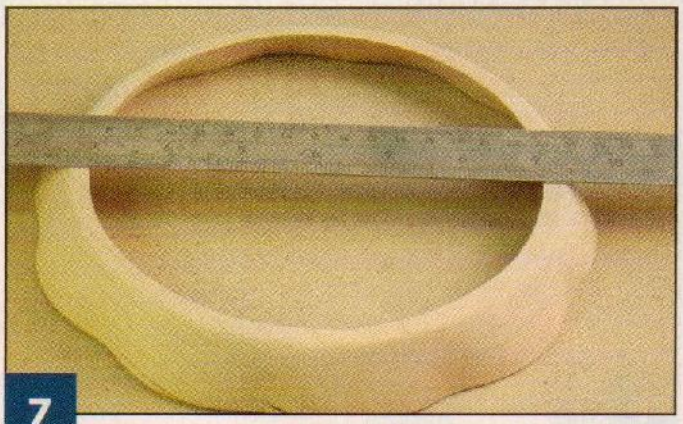


4 **Cut the outside of the ripple.** Tilt the left side of the saw table down to 15°. Cut clockwise along the outside of the ripple. This is the preliminary shaping for the outer edge.

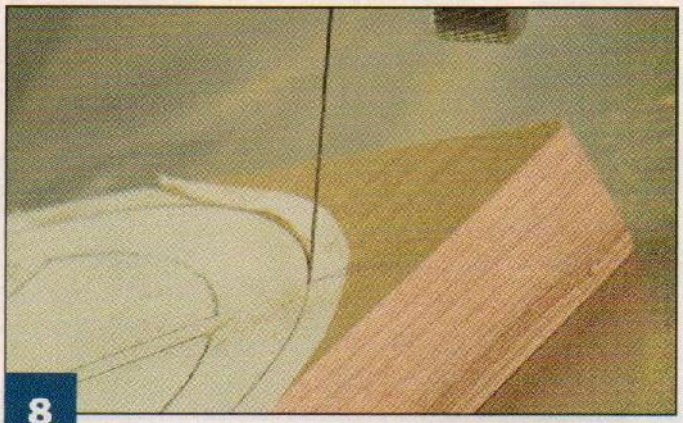
5 **Cut the inside of the ripple.** Tilt the left side of saw table down to 45°. Cut along the inside of the ripple. Be careful not to cut into the lower edge. This is the preliminary shaping for the inside of the ripple.



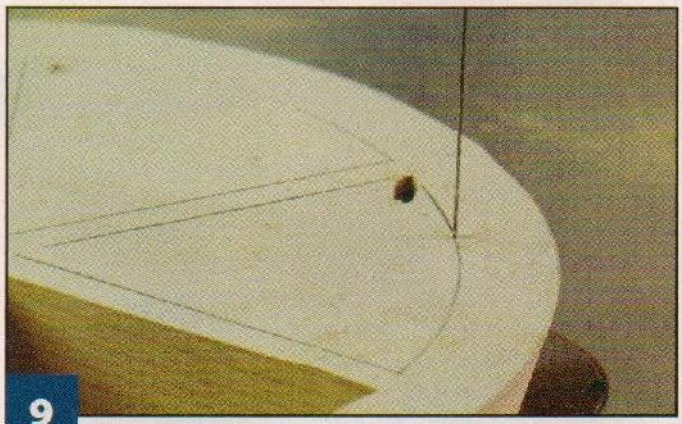
6 **Shape the ripple.** Use a hook-and-loop pad sander with a coarse-grit pad to shape and smooth the outside of the ripple. Use an inflatable-ball sander with a coarse-grit sleeve to shape the inside of the ripple until the curves are smooth. Using both sanders, sand with increasingly finer grits until the rim is well-shaped and smooth. Soften the upper edges and round the underside of the lower outer edge.



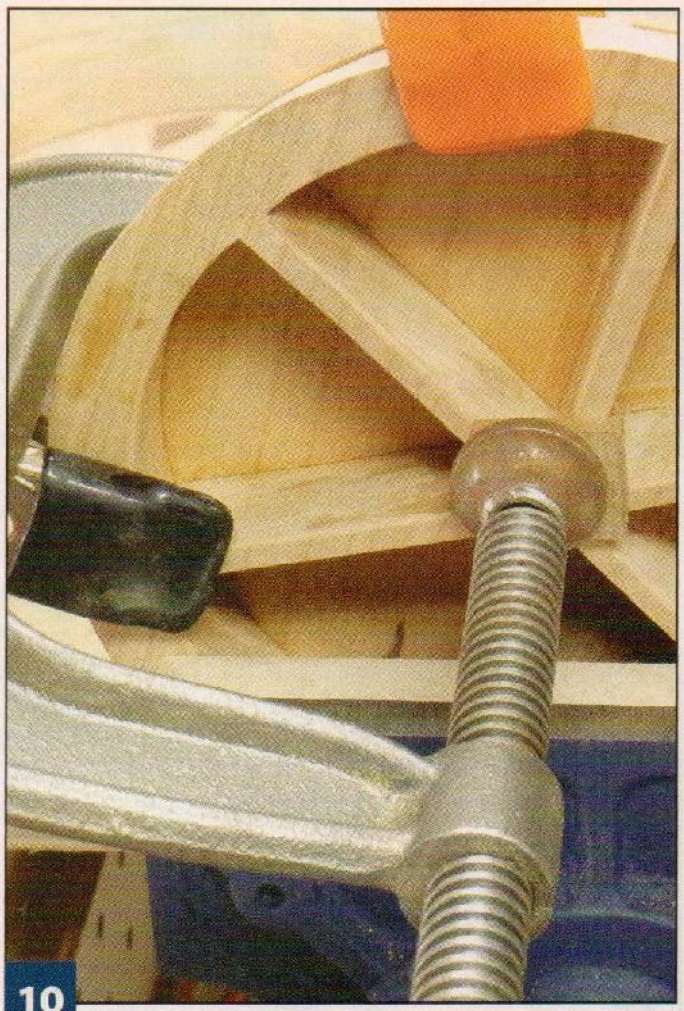
7 **Measure the diameter for the lid.** Measure and record the diameter of the opening at the lower edge. It should be about 6" (150mm). You'll need this measurement for making the lid in Step 13.



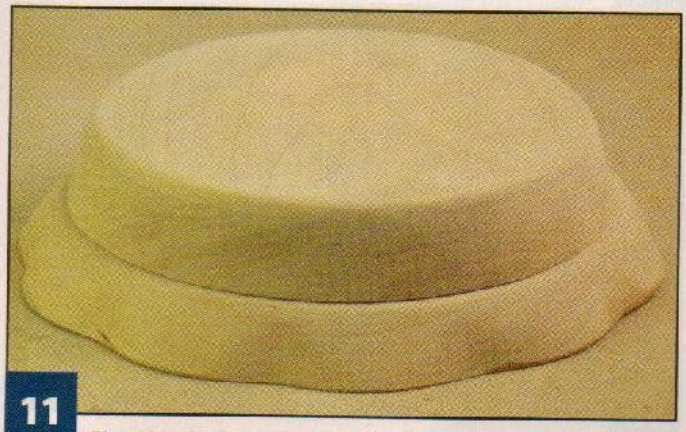
8 **Cut the outside of the box body.** Using repositionable adhesive, attach the box body pattern to the ⅞" (22mm)-thick piece of cherry. Tilt the left side of the saw table down to 15° and cut clockwise around the outer circle.



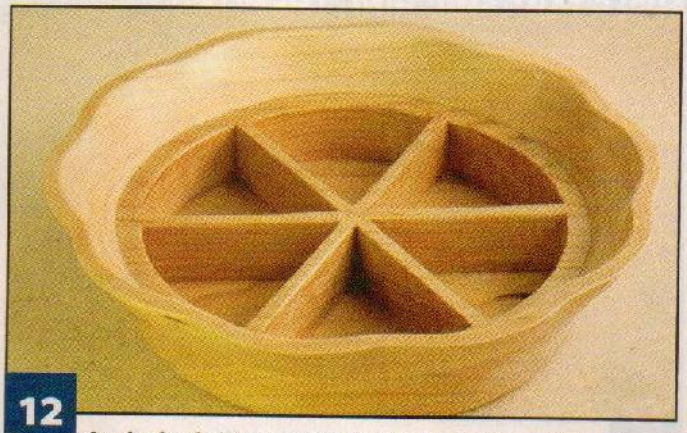
9 **Cut the segments.** Drill ⅛" (3mm)-diameter blade-entry holes straight into the blank near a corner in each of the six segments. With the saw table level (square to the blade), insert a blade into the holes and cut each segment. Sand the insides of the segments until they are smooth. Soften the upper edges. Do not sand the outside at this time.



10 **Cut and assemble the box bottom.** Keeping the grain running in the same direction, place the box body on the piece of ¼" (6mm)-thick cherry. Trace the lower edge. This is the cutting line for the box bottom. Tilt the left side of the saw table down to 15°. Cut clockwise on the traced line. Sand the upper surface smooth. Glue and clamp the bottom to the box body.

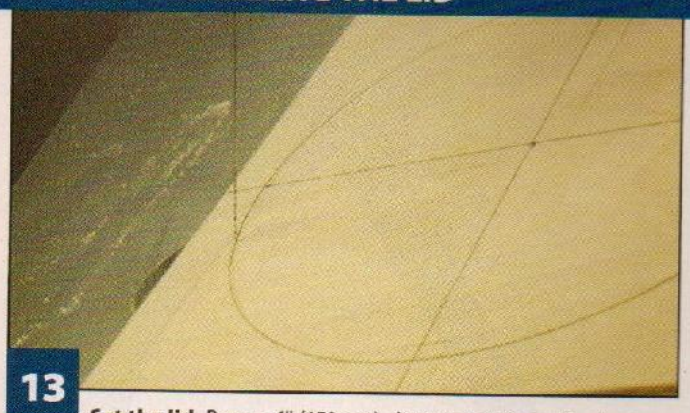


11 **Glue the ripple edge to the box body.** Sand the outside of the box body smooth. Round the lower edge. Place the ripple edge on the box body. Invert the pieces so you can align them more easily, and glue them together. Clamp for five minutes. Remove the clamps and clean off any glue squeeze-out. Re-clamp and let the glue dry.

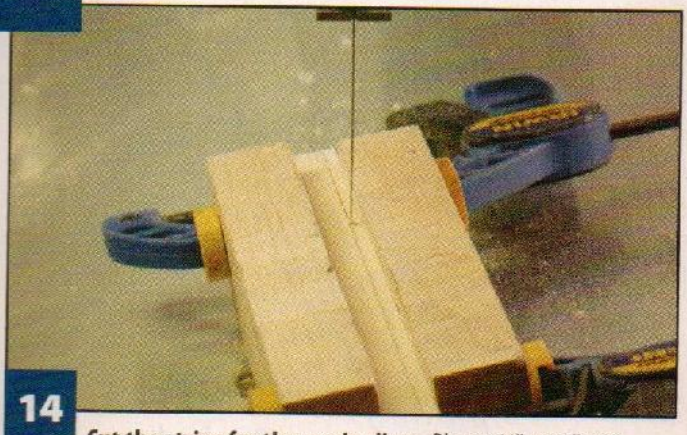


12 **Apply the finish.** Apply a coat of shellac to the entire box to seal the wood and reveal glue spots. Sand away any glue spots and sand the box until smooth. Apply several coats of shellac or clear lacquer, rubbing with 0000 steel wool between coats as needed.

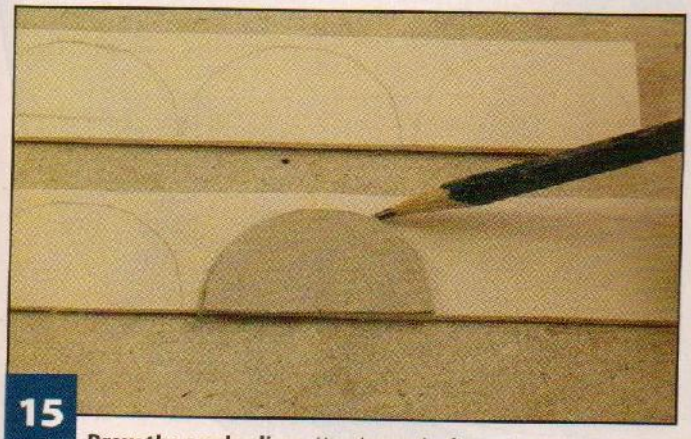
APPLE TART: MAKING THE LID



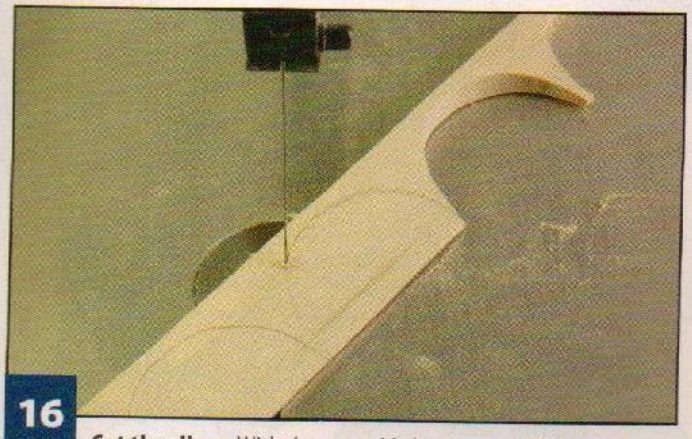
13 **Cut the lid.** Draw a 6" (150mm)-diameter circle on the piece of ¼" (6mm)-thick plywood. If the diameter you measured in Step 7 is different, use that figure instead. Tilt the left side of the saw table down to 25°. Cut along the circle in a counterclockwise direction. This will give you a circle that is wider at the bottom than at the top. The wider face will be the top of the lid. Sand the edges and faces smooth.



14 **Cut the strips for the apple slices.** Place a ½" x 1¼" x 9" (13mm x 30mm x 230mm) piece of aspen on its ½" (13mm)-thick edge. Draw a line ⅛" (2mm) from one of the longer edges. Tilt the left side of the saw table down to 10°. Cut along the line, using blocks and clamps if desired. Keep the wood flat on the saw table and the marked line on your right. Sand the faces of the two angled strips until smooth. Repeat this step with the remaining three pieces of aspen.

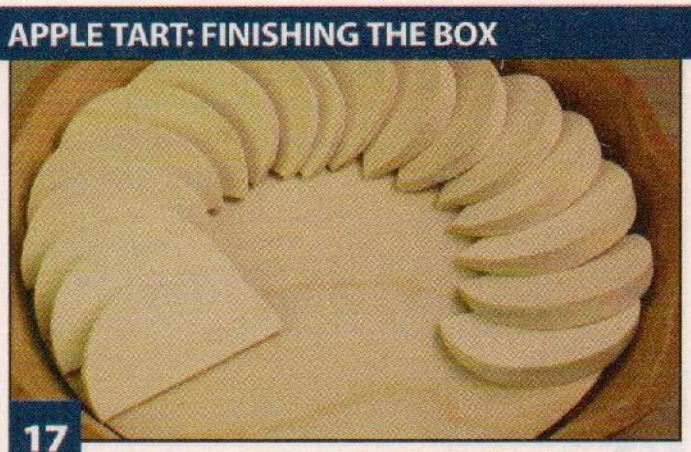


15 **Draw the apple slices.** Use the apple slice pattern to make a cardboard template. Use the template to draw four half circles on each angled and sanded strip of aspen. For thin slices, place the flat side of the pattern on the thinner edge of the strip. For thicker slices, place the pattern higher up on the strip.

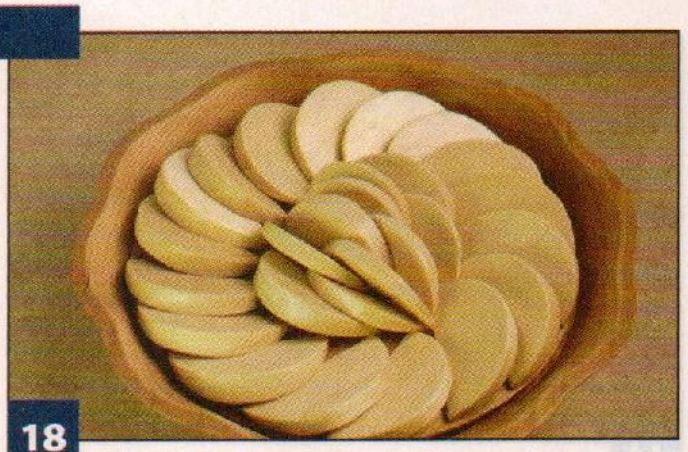


16 **Cut the slices.** With the saw table level, use a #3 blade to cut the slices. Sand the edges smooth and remove all fuzzies.

APPLE TART: FINISHING THE BOX

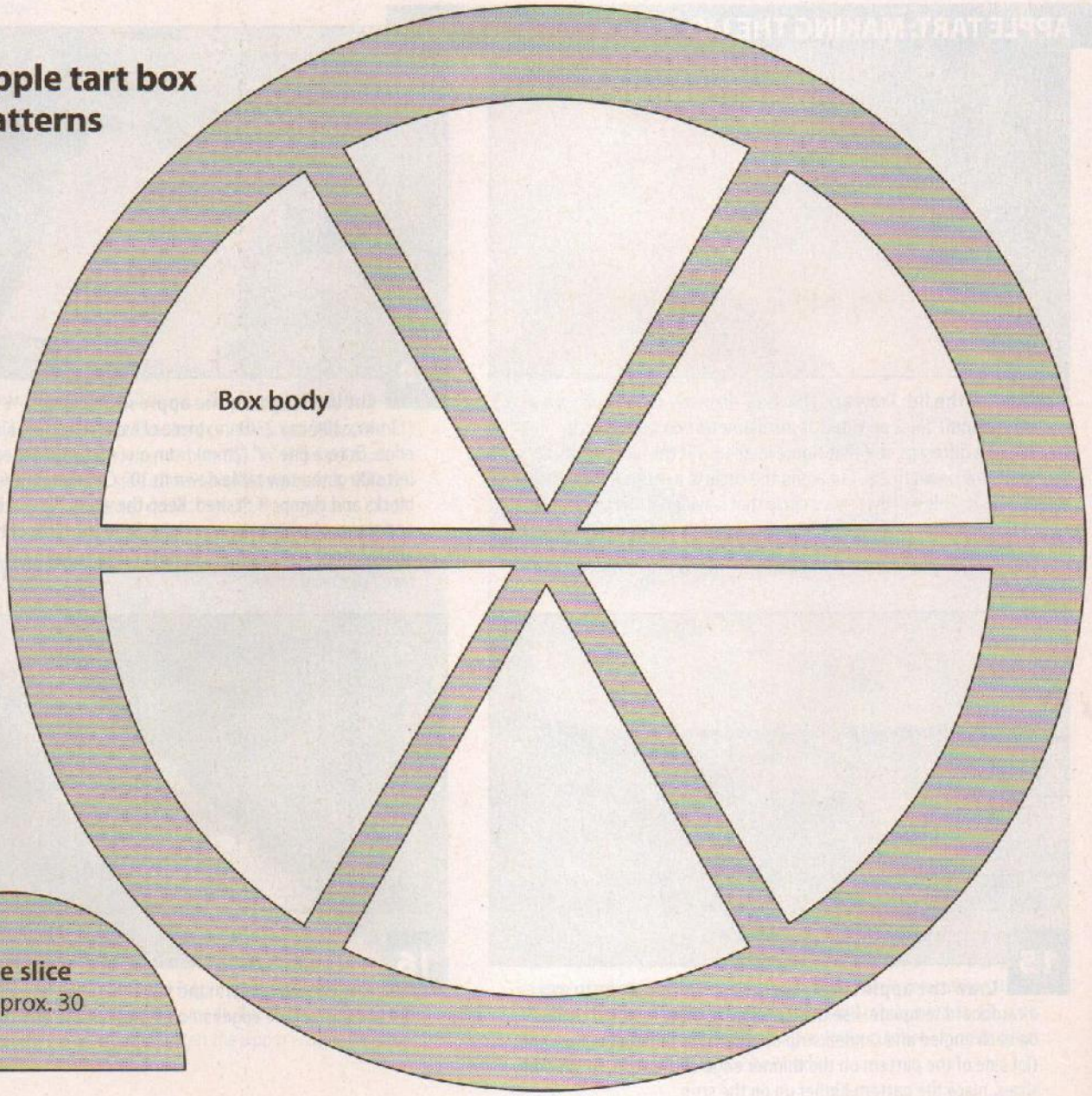


17 **Glue the slices around the lid.** Place the piece of plywood cut in Step 13 on the box body to help position the slices. Overlap the slices along the perimeter, rotating them slightly to cover the edge of the plywood. When you are satisfied with your arrangement, glue the slices in place.



18 **Finish the box.** Glue on the remaining slices, placed on edge, to fill the center of the lid. Sand to fit if necessary. You may have some slices left over. When the glue is completely dry, remove the lid. Finish with a coat of spray shellac or clear lacquer. Glue on slices cut from a cinnamon stick, if desired.

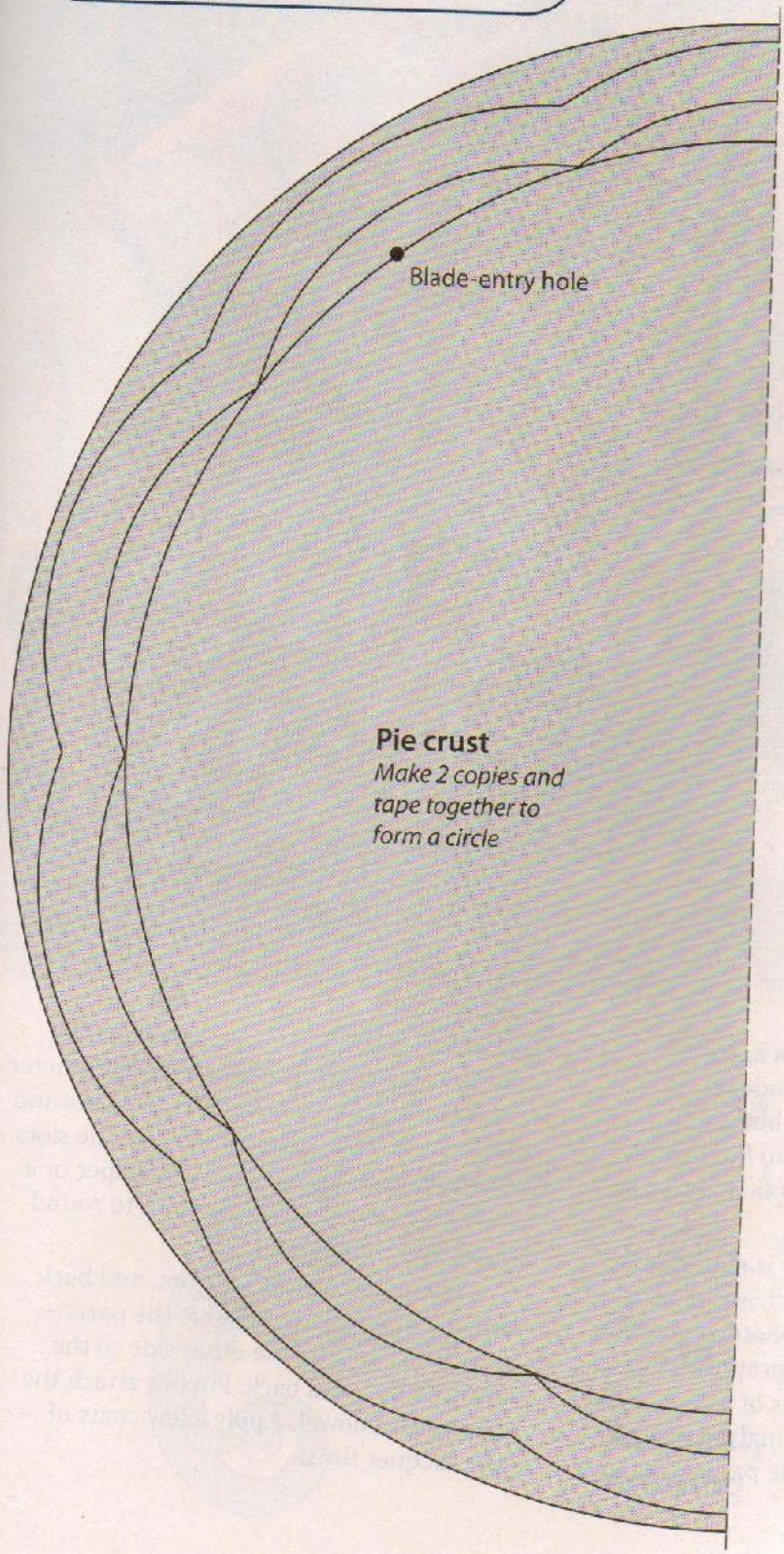
Apple tart box patterns



TIP

CINNAMON APPLE TART

To create a tart that smells as good as it looks, buy a stick of cinnamon with an attractive pattern on its end. Cut thin slices from the stick and glue them to the apple slices after finishing. You may need to make a zero-clearance insert to prevent the slices from falling through the opening in the saw table.



Materials & Tools

Materials:

- Cherry, ¾" (19mm)-thick: ripple edge, 8½" x 8½" (215mm x 215mm)
- Cherry, ⅞" (22mm)-thick: box body, 7" x 7" (180mm x 180mm)
- Cherry, ¼" (6mm)-thick: box bottom, 6½" x 6½" (165mm x 165mm)
- Plywood, ¼" (6mm)-thick: lid, 7" x 7" (180mm x 180mm)
- Aspen, ½" (13mm)-thick: apple slices, 4 each 9" x 1¼" (230mm x 30mm)
- Cinnamon stick: 3" (75mm) long, with an attractive pattern on its end (optional)
- Repositionable adhesive
- Glue, such as Weldbond
- Sleeves for inflatable round sander: various grits from 80 to 320
- Discs for 2" (50mm) hook-and-loop pad sander: various grits from 60 to 320
- Sandpaper: assorted grits
- 0000 steel wool
- Thin cardboard: apple slice template, 3" (75mm) square
- Spray shellac
- Clear spray lacquer
- Clear packing tape (optional)

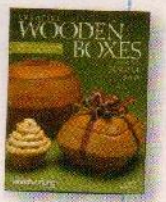
Tools:

- Blades: #9, #3
- Drill or drill press and bits: 1/16" (2mm)- and ⅛" (3mm)-diameter
- Awl
- Compass
- 25° shopmade angle guide
- Press or clamps
- Inflatable round sander and pump
- 2" (50mm) hook-and-loop pad sander
- Clamps and blocks (optional)

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

Further Reading

Creative Wooden Boxes from the Scroll Saw



By Carole Rothman

Searching for unique and interesting box projects for the scroll saw? Author Carole Rothman has created 28 beautiful designs for boxes you'll love to make and love to use. All of the projects are useful, surprisingly easy to make, and are great for gift giving.

Available for $24.95 plus $3.99 S&H from Fox Chapel Publishing 1970 Broad St., East Petersburg, Pa., 17520, 800-457-9112, www.foxchapelpublishing.com, or check your local retailer.

Carole Rothman of Somers, N.Y., is a retired psychologist and college professor. She is also an award-winning cake decorator. Visit Carole online at scrollsawbowls.blogspot.com.

Building a Fretwork Wheelbarrow

Tab-and-slot assembly adds strength to this functional design

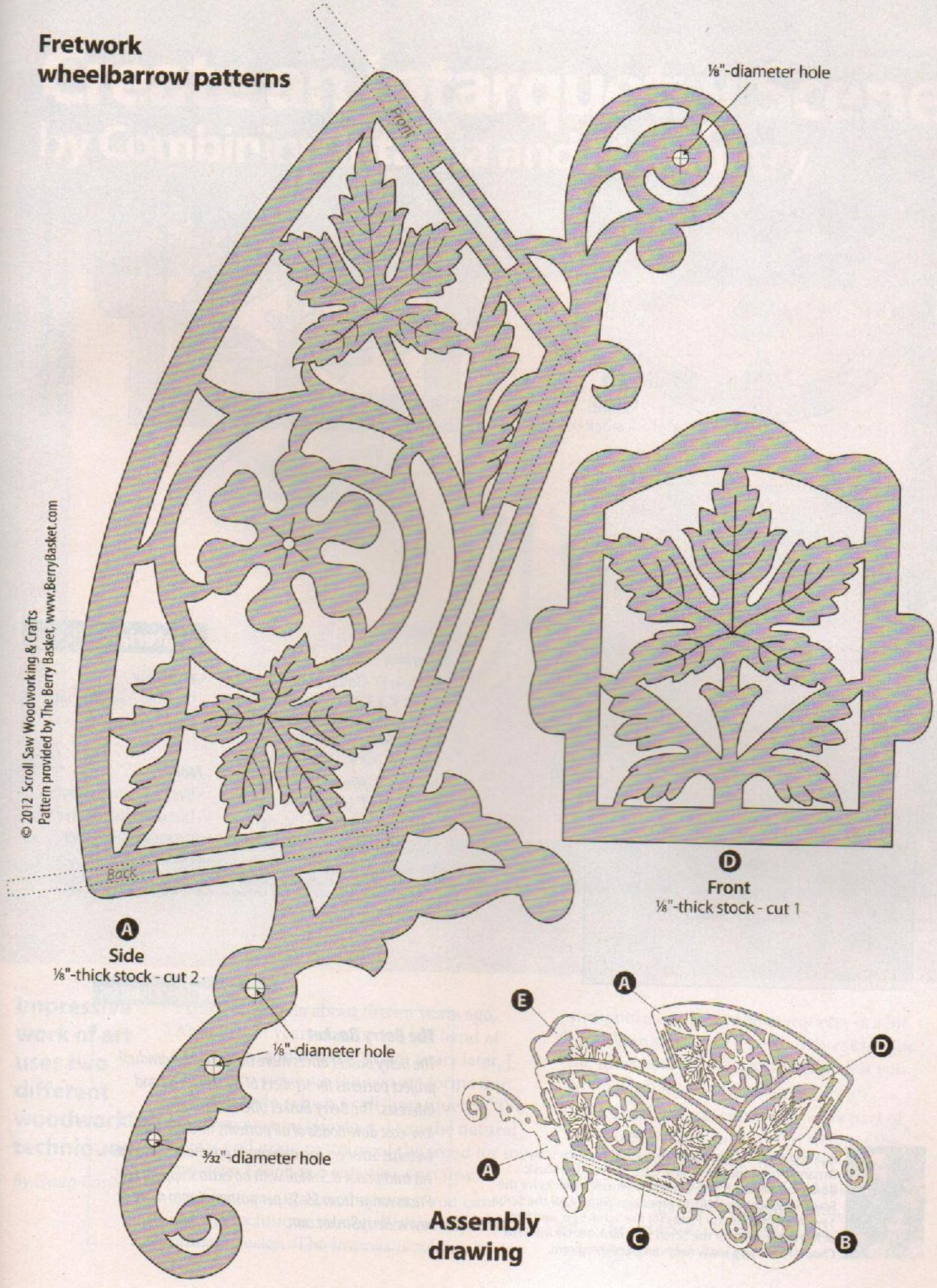
By Rick and Karen Longabaugh
Cut by Dale Helgerson

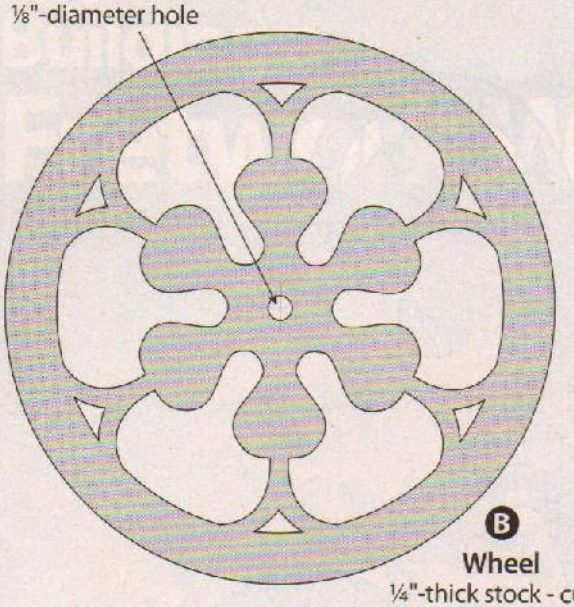
This fretwork wheelbarrow is a great spring decoration. The tab-and-slot construction makes for easy but strong joints. Use the wheelbarrow to hold dried flowers, potpourri, a potted plant, or fresh flower blossoms.

While this wheelbarrow is made from red oak, you can make it from any hardwood or even plywood. Attach a photocopy of the pattern to the blank using spray adhesive. If you use a different thickness of wood, adjust the sizes of the slots accordingly. Drill the holes where indicated on the pattern and any necessary blade-entry holes. Cut the frets and slots, and then cut around the perimeter of the patterns. Dry-assemble the pieces and make sure the tabs fit properly into the slots. Sand the wood smooth. Use sandpaper or a router and a small round-over bit to round the edges of the pieces.

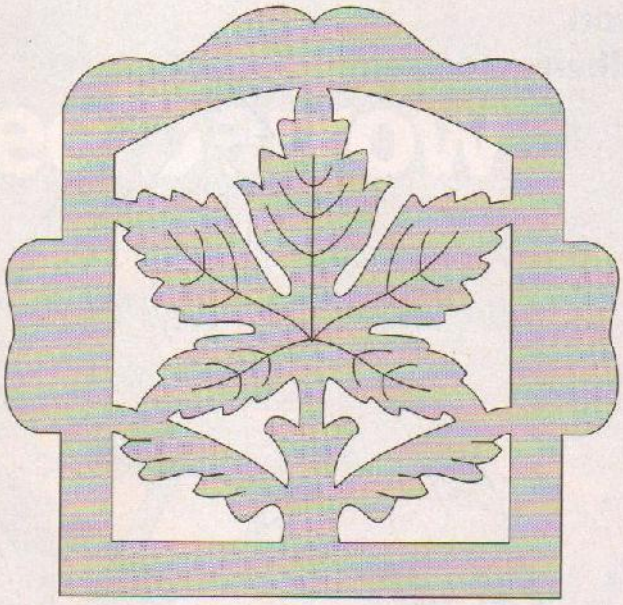
Assemble the bottom, front, and back with one of the sides and glue the parts in place. Then, glue the other side to the bottom, front, and back. Finally, attach the wheel with a dowel. Apply a few coats of spray lacquer finish.

Fretwork wheelbarrow patterns

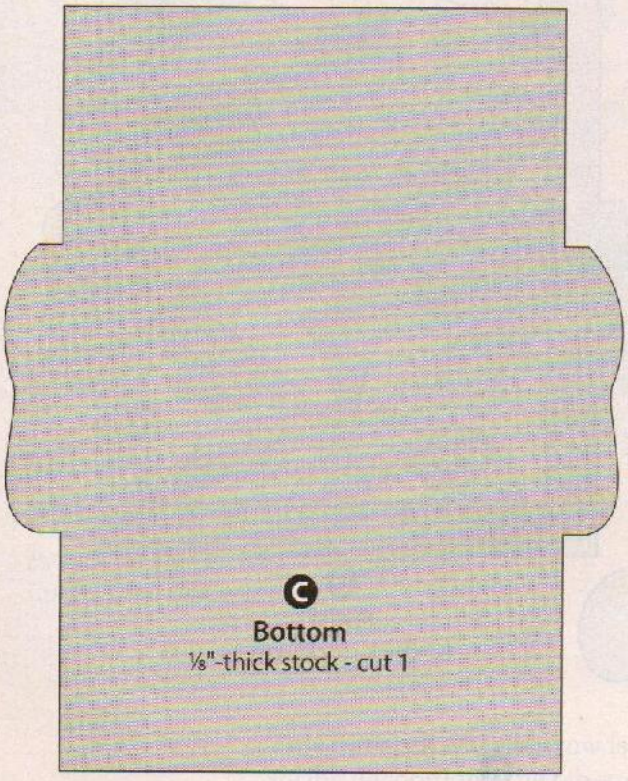




B
Wheel
¼"-thick stock - cut 1



E
Back
⅛"-thick stock - cut 1



C
Bottom
⅛"-thick stock - cut 1

Materials & Tools

Materials:

- Red oak, ⅛" (3mm)-thick: sides, 2 each 5" x 10½" (127mm x 267mm); bottom, 3½" x 4" (89mm x102mm); front, 3⅜" x 3¾" (86mm x 95mm); back, 3¼" x 3⅜" (83mm x 86mm)
- Red oak, ¼" (6mm)-thick: wheel, 3" x 3" (76mm x 76mm)
- Dowel: ⅛"-diameter x 3"-long (3mm x 76mm)
- Spray adhesive
- Wood glue
- Sandpaper: assorted grits
- Finish of choice

Tools:

- Blades: #2 reverse-tooth
- Drill with bits: assorted small
- Router with bit: small round-over

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

Further Resources

The Berry Basket

The Berry Basket offers more than 1,000 individual project patterns for scrollers of all skill levels and interests. The Berry Basket offers convenient, low-cost downloads of all patterns through their website. Scrollers can also opt to purchase patterns via traditional U.S. Mail with no extra shipping fees. Prices range from $5-$9 per pattern. Learn more at www.BerryBasket.com.

Rick and Karen Longabaugh are the authors of Holiday Ornaments for the Scroll Saw, Custom Wooden Music Boxes for the Scroll Saw, Miniature Wooden Clocks for the Scroll Saw, Scenes of North American Wildlife for the Scroll Saw, Wildlife Collector Plates for the Scroll Saw, *and* Birds of North America for the Scroll Saw, *all available from Fox Chapel Publishing, www.foxchapelpublishing.com.*

Create an Intarquetry Scene
by Combining Intarsia and Marquetry

Impressive work of art uses two different woodworking techniques

By Doug Casper

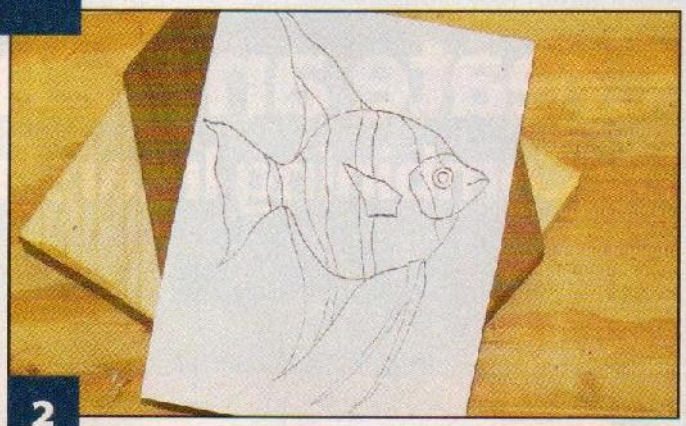
I started intarsia about fifteen years ago. About eight years ago, I tried my hand at marquetry and loved it. A few years later, I decided to combine the two art forms into my own style, which I call "intarquetry." I've not seen anyone else do it. I use the natural colors and grain patterns of the wood for my projects; I don't use any dyes or stains.

Once you master the basics, you can use the technique to embellish nearly any intarsia design. The intarsia is relatively straightforward, but the marquetry is a bit more complex. I use a vacuum press to glue the marquetry to a backing board, but you could use a series of cauls and clamps.

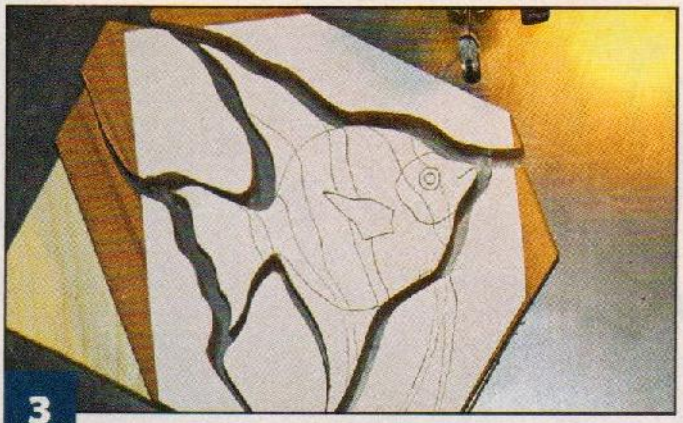
I usually start with the intarsia part of the project. After cutting and shaping the intarsia, place it on the marquetry plan and adjust the marquetry to suit the intarsia. Create the marquetry background, and then glue the intarsia on top of the marquetry to add depth to the design.

INTARQUETRY: MAKING THE INTARSIA

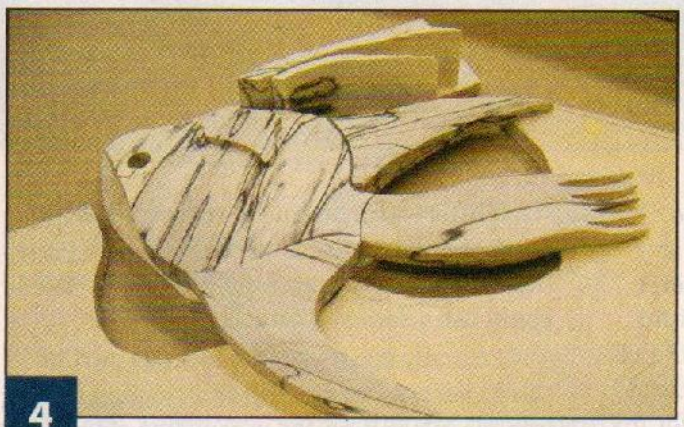
1 **Cut the solid angelfish.** I use spalted maple. Wear a dust mask when cutting spalted wood; inhaling dust from spalted wood can cause a respiratory infection. Drill a blade-entry hole to cut the side fin or cut the piece from a separate blank. Drill the eye hole and cut all of the pieces. Dry-assemble the pieces.



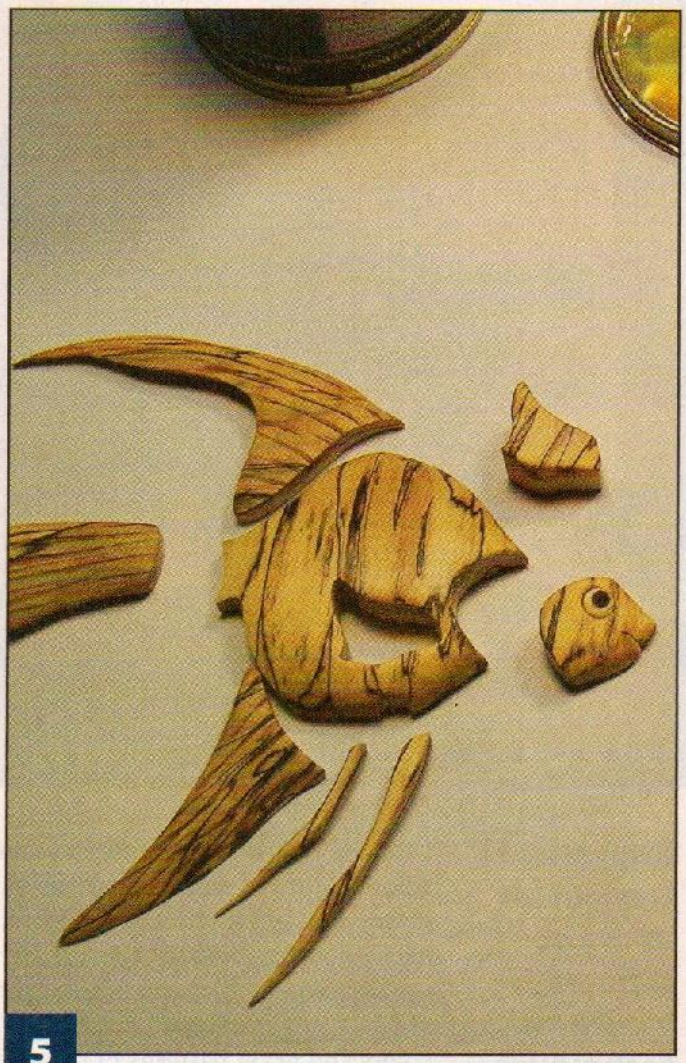
2 **Prepare to cut the striped angelfish.** Stack the darker wood (mahogany) on top of the lighter wood (sycamore) and place a pattern on top to determine the grain direction for each of the pieces. Use double-sided tape to attach the darker wood to the top of the lighter wood. Then, use spray adhesive to attach the pattern to the top of the darker wood.



3 **Cut the striped angelfish.** Drill a blade-entry hole for the side fin and drill the eye hole. Then, cut the individual pieces. Mix and match the dark pieces and light pieces, and dry-assemble the angelfish to make sure you like the color and grain direction. Because you are stack cutting, the pieces should fit together perfectly. Use copies of the patterns to cut both eyes.



4 **Shape the intarsia.** Use your choice of sander. Use double-sided tape to attach pieces to scrap wood, called sanding shims. The sanding shims provide support for fragile pieces, such as the thin bottom fins, and combine pieces that should be shaped as a whole, such as the face and body. Keep the side fins thicker than the body. Round the sides of the fish to make it look realistic.



5 **Apply the finish to the fish.** Apply three coats of gel varnish to the angelfish pieces. Do not apply finish to the back of the fish. Allow the varnish to dry between coats. Glue the intarsia fish together. Make sure the backs of the assembled intarsia pieces are smooth and flat.

Marquetry Hints

- Cut the marquetry using the back side or reverse of the pattern. I trace the pattern onto tracing paper and flip it over, but you could flip the pattern digitally as long as you keep the registration marks aligned.
- Cut the marquetry with the left side of the scroll saw table tilted down 11° while using a #2/0 blade. Set the saw to a slow speed and cut counterclockwise, keeping the good wood on the left side of the blade.
- Use blue painter's tape to temporarily hold the marquetry pieces together only on the side you plan to glue to the backing board. Use only veneer tape on the front.
- Apply the glue to the backing board; do not apply glue to the veneer. To give the project a finished look and prevent warping, add veneer to the back and edges of the backing board.
- Sand the marquetry carefully. If you are too aggressive, you can sand through the thin veneer.

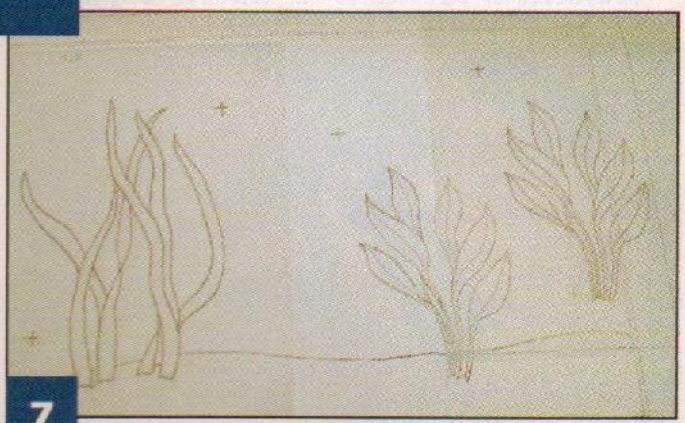
TIP

ZERO-CLEARANCE INSERT

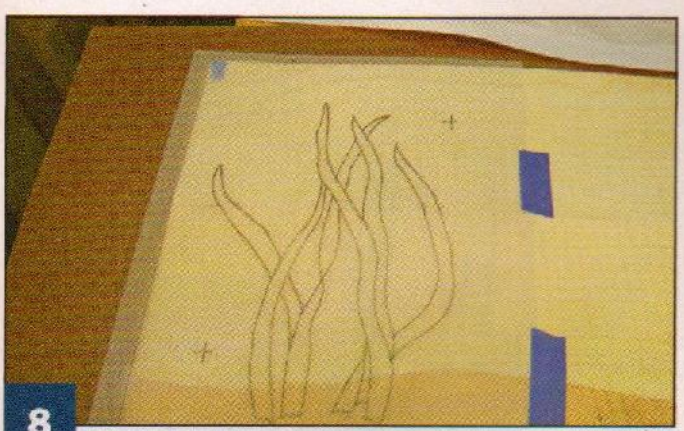
Instead of using an auxiliary table or making a separate zero-clearance insert for my scroll saw, I place a few pieces of blue painter's tape over the blade hole and push the blade through the tape. The tape is easy to replace as needed.

INTARQUETRY: CUTTING THE MARQUETRY

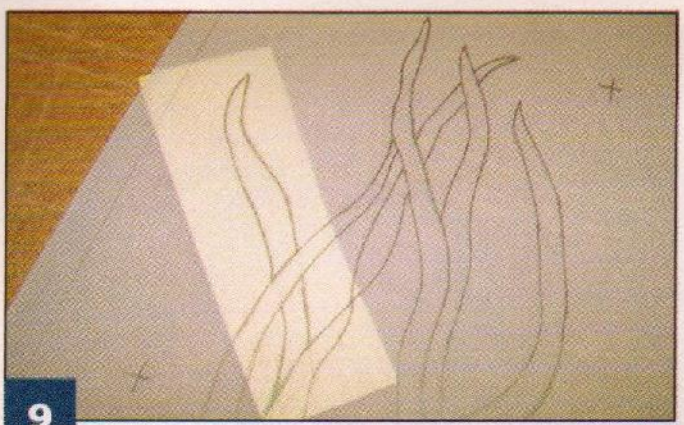
6 **Cut the marquetry background.** Use blue painter's tape to attach the dark veneer (quilted cherry) to the light veneer (birch). Transfer the reverse pattern of the horizon line and registration marks to the stack. Tilt the left side of the saw table down 11° and use a #2/0 blade to cut along the horizon line.



7 **Prepare to cut the marquetry plants.** Secure the dark ground and light water of the background using blue painter's tape on the back and veneer tape on the front. Place tracing paper over the plants on the master pattern and trace each of the plants, including the registration marks. Because we'll be working from the back of the marquetry, you need to reverse the patterns for each of the plants.

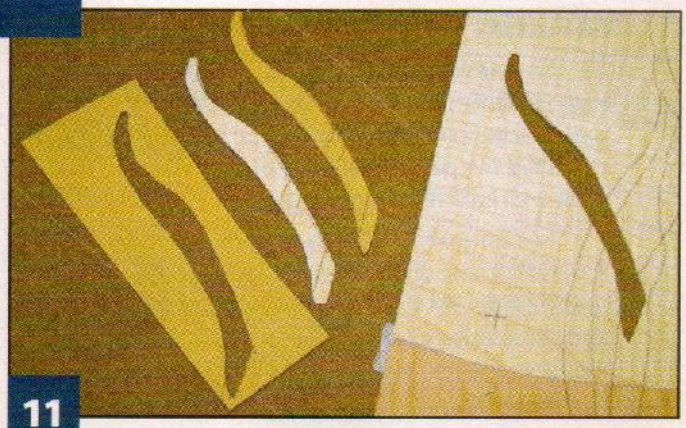


8 **Trace the plants onto the background.** Use the registration marks to position the plant patterns on the back of the veneer background. Use blue painter's tape to keep the patterns in place, and then use graphite paper to trace the plants onto the background.

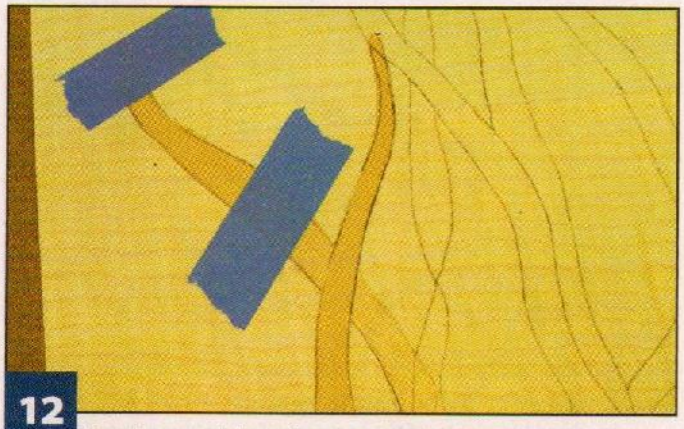


9 **Trace the first leaf onto the veneer.** Start with the leaf farthest in the back and work your way forward. Place the veneer for the leaf (figured ash) under the traced plant pattern and align the grain. Use graphite paper to transfer the individual leaf pattern onto the veneer. Trace the leaf a bit longer where it runs underneath an adjacent leaf. Then, use the plant drawn on the background to align the veneer for the individual leaf, and hold the veneer in place with blue painter's tape.

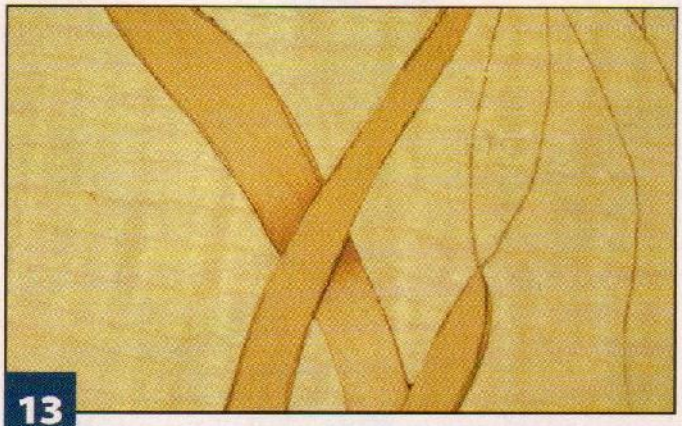
10 **Cut the leaf.** Drill a small blade-entry hole in an area that will be cut later. Make sure the saw is tilted 11° to the left and cut counterclockwise along the pattern line. Cut with the wood you want to keep on the left side of the blade and the waste wood on the right side of the blade. Cut the leaf as a solid piece, ignoring any leaves that are layered on top. Cut through both the leaf and the background.



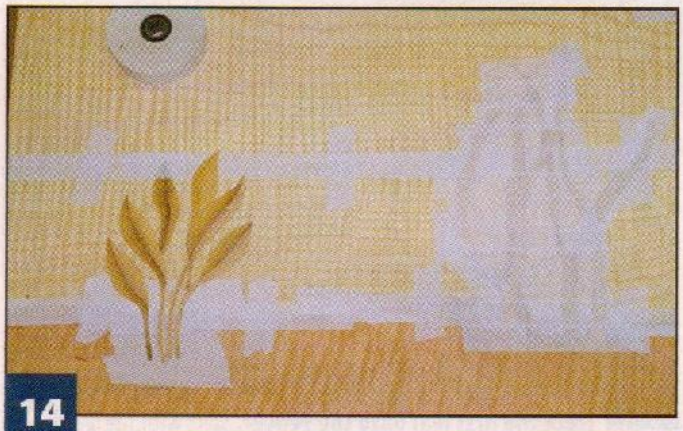
11 **Insert the leaf into the background.** Remove the tape holding the leaf veneer in place. Remove the cut leaf from both the veneer and the background and insert the figured ash leaf into the background. The leaf fits into the background like a cork because of the beveled cut along the perimeter. Use blue painter's tape to hold the leaf in place.



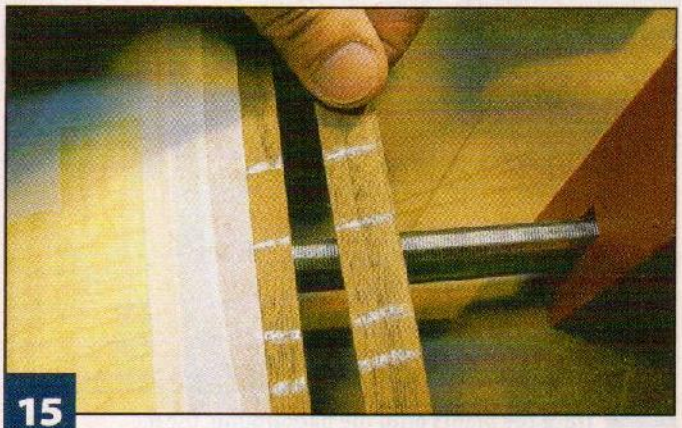
12 **Cut the remaining pieces.** Repeat Steps 9, 10, and 11 to cut the remaining individual leaves. Remember to work from the leaves farthest in the back to the leaves in the foreground. Cut the leaves a bit long anywhere an adjacent leaf sits on top. Tape each leaf in place before proceeding to the next leaf.



13 **Shade the leaves.** Lightly pull the ends of the veneer leaves through heated sand to shade the areas where the leaves run underneath adjacent leaves (see sidebar on page 74). Experiment with scrap veneer to get comfortable with the sand-shading technique before you shade the leaves.

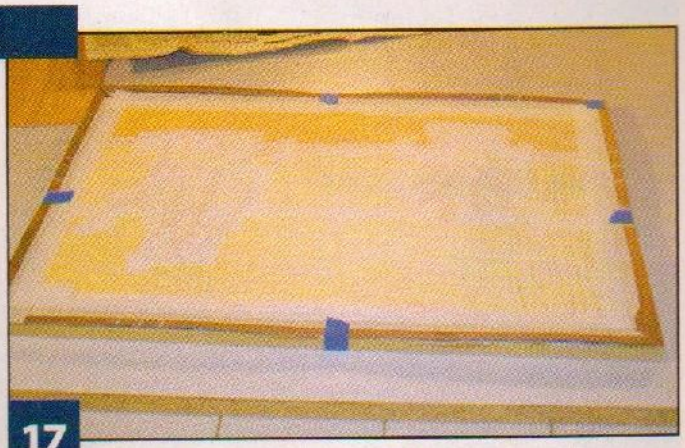


14 **Finish assembling the veneer.** Use a veneer saw to cut the thin maple border and place it in position. Use the veneer saw to cut strips of walnut wide enough for the outer frame and edge bands, and place them in position. Apply veneer tape to the front of the veneer to secure all of the pieces.



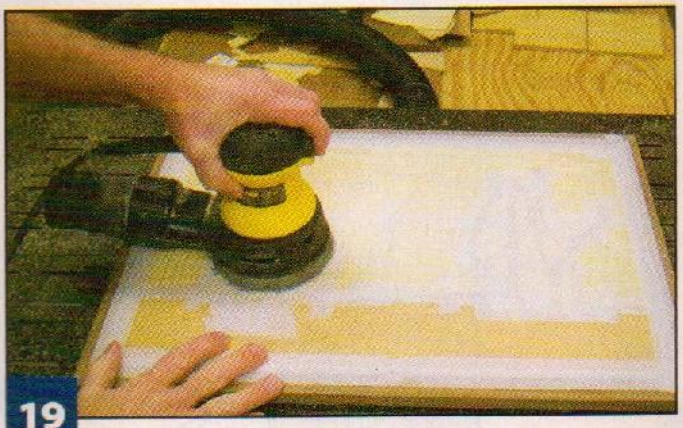
15 **Trim the walnut veneer.** Draw registration marks across the outer frame and edge band. Use a straight edge and a veneer saw to free the edge band from the outer frame. The registration marks act as a guide to align the edge bands with the outer frame during final glue up.

16 **Prepare the backing board.** I use MDF as a backing board, or substrate, for the marquetry. MDF is stable and supports the fragile veneer. Cut the MDF to size, and then spread white glue evenly across the MDF using a ⅛" (3mm) glue spreader. Do not apply glue to the veneer.



17 **Glue the marquetry to the MDF.** Remove the blue tape from the back of the veneer and place the marquetry on the glued surface of the MDF. Tape the edges of the veneer to the MDF to keep it from shifting. Use clamps and a caul or a vacuum veneer press to hold the veneer in place for two hours.

18 **Assemble the back and edge bands.** Prevent the MDF from warping by covering the back with veneer. Spread glue on the back of the MDF, position the veneer, and clamp it in place for two hours. Use a glue brush to apply glue to the edges of the MDF, and then use cauls and clamps to attach the edge bands to the sides of the MDF, aligning the registration marks.



19 **Carefully sand the marquetry.** Use a random orbital sander equipped with 80-grit paper to sand off the veneer tape. Do not sand through the veneer. Work your way up through 120-, 150-, and 180-grits. Sand in long even strokes, and let the sander do the work to keep from scratching the veneer.

20 **Attach the intarsia to the marquetry.** Glue and clamp the angelfish in place. Round the end of a dowel and cut off small sections to represent the bubbles. Glue the bubbles in place using the photo as a reference.

21 **Apply the final finish.** Mix three parts polyurethane with one part mineral spirits and brush the finish onto the project. Allow the finish to dry, and then apply a second coat. Follow the same process to apply four to five coats of finish.

Intarsia fish patterns

Shading with Sand

I use heated sand to shade select areas on the veneer. The shading creates the look of shadows and adds dimension to the work.

Make sure the sand is free from debris. I use builder's sand that I screen and rinse to remove large grains and impurities. You can also use children's play sand. Heat the sand in an old frying pan. I use an electric heating element but the kitchen stove works just as well.

Use tongs or pliers to hold small pieces of veneer. Drag the veneer through the hot sand to darken the desired areas. You may need to pull the veneer through the sand several times to get the correct shade. Don't leave the veneer in the sand as it will burn and shrink. Experiment with different temperatures and practice with a piece of scrap before shading the veneer pieces for the project.

Doug's first attempt at combining intarsia and marquetry resulted in this stunning eagle and lake scene.

Materials:

- Birch veneer: water, 12½" x 19" (305mm x 483mm)
- Quilted cherry veneer: ground, 4" x 19" (102mm x 483mm)
- Figured ash veneer: plants, 9" x 10" (229mm x 254mm)
- Maple veneer: border, ¾" x 20" (19mm x 508mm)
- Walnut veneer: frame and sides, 4" x 37" (102mm x 939mm)
- Anigre veneer: back, 15" x 22" (381mm x 559mm)
- Spalted maple, ½" (13mm)-thick (oversized for optimal grain selection): solid fish, 10" x 10" (254mm x 254mm)
- Sycamore, ½" (13mm)-thick: striped fish, 4" x 6" (102mm x 152mm)
- Mahogany, ½" (13mm)-thick: striped fish, 4" x 6" (102mm x 152mm)
- Birch dowels: bubbles, 3/16" (5mm)- and ¼" (6mm)-diameters
- MDF, ⅜" (10mm)-thick: backing board, 15" x 22" (381mm x 559mm)
- Sanding discs: assorted from 80- to 180-grit
- Polyurethane
- Mineral spirits
- White glue
- Tape: veneer, blue painter's, double-sided

Materials & Tools

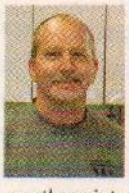
- Gel varnish
- Dust mask
- Graphite paper

Tools:

- Blades: #2/0 reverse-tooth
- Random orbital sander
- Glue spreader: ⅛" (3mm)
- Glue brush
- Clamps and clamping cauls
- Veneer saw
- Vacuum press (optional)
- Drill and bits: assorted small bits

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

Additional patterns for the ***Intarquetry Scene*** are in the pattern pullout section.



Doug Casper is fifty-four years old and lives with his wife, Sherri, and two dogs in Surprise, Ariz. Doug works as a physical therapist assistant and has been working with wood as a hobby for eighteen years. The woodworker focuses mostly on intarsia and marquetry, but he has built a few small pieces of furniture. Contact Doug at Intarquetry@yahoo.com.

Wacky Beaver Birdhouse

Fun cartoon birdhouse adds a touch of whimsy to your yard

By Paul Meisel

This birdhouse project emphasizes the beaver's most recognizable features—its large front teeth and distinctive flat tail. The project pictured was finished using a dark wood stain, although it could also be finished using brown paint. The distinctive black and white highlights are simple to paint.

The finished project measures approximately 19" high with a 5" by 6" inside cavity, which is suitable for chickadees, nuthatches, and titmice. Enlarge the hole to 1½" for flycatchers, tree swallows, or warblers.

PREPARING THE PARTS

This project is constructed mostly from ¾" (19mm)-thick lumber. I made mine from pine. Cut the eyebrows, eyes, nose, and teeth from ⅜" (10mm)-thick lumber. You can resaw ¾" (19mm)-thick lumber to ⅜" (10mm) or sand or plane thicker stock down to ⅜" (10mm). Refer to the cutting diagram in the pattern pullout for the suggested position of the pieces on the blanks.

Use water-resistant glue and finishing nails for most of the assembly. Do not glue the back piece to the assembly—use screws so you can remove it for cleaning. The plan shows screw clearance holes drilled and countersunk in the back piece, allowing you to attach the back piece with #6 x 2" (51mm)-long screws.

Although they are not shown, drill ⅜" (10mm)-diameter air vent holes underneath the roof edges and ¼" (6mm)-diameter drain holes in the bottom.

The roof does not extend over the back of the house. This allows the finished project to be mounted on a flat vertical surface or post. Use a flush-mount hanger to attach the house to a wooden post.

Transfer the patterns for the eyebrows, eyes, nose, and teeth to the ⅜" (10mm)-thick stock and cut the pieces. Mark the locations of the holes for the plastic eyes on the eyes, but do not drill the holes yet.

Then, transfer the remaining patterns and dimensions to the ¾" (19mm)-thick stock. Drill a 1¼" (32mm)-diameter hole through the front. Drill ⅜" (10mm)-diameter air vent holes in the sides. Drill ¼" (6mm)-drain holes in the bottom. Drill and countersink 9/64" (3.6mm)-diameter screw clearance holes in the back. Cut 45° bevels on the two side pieces and finish-sand all of the parts.

ASSEMBLING THE PROJECT

Step 1: Assemble the birdhouse. Glue and nail the side pieces to the bottom piece. Glue and nail the front piece to the side and bottom pieces. Attach the back piece with screws but no glue. Glue and nail the roof B piece to the roof A piece. Glue and nail the roof assembly to the front and side pieces, but do not attach the roof assembly to the back piece. If using a flush-mount hanger, drill screw pilot holes in the back piece but do not attach it until after finishing the piece.

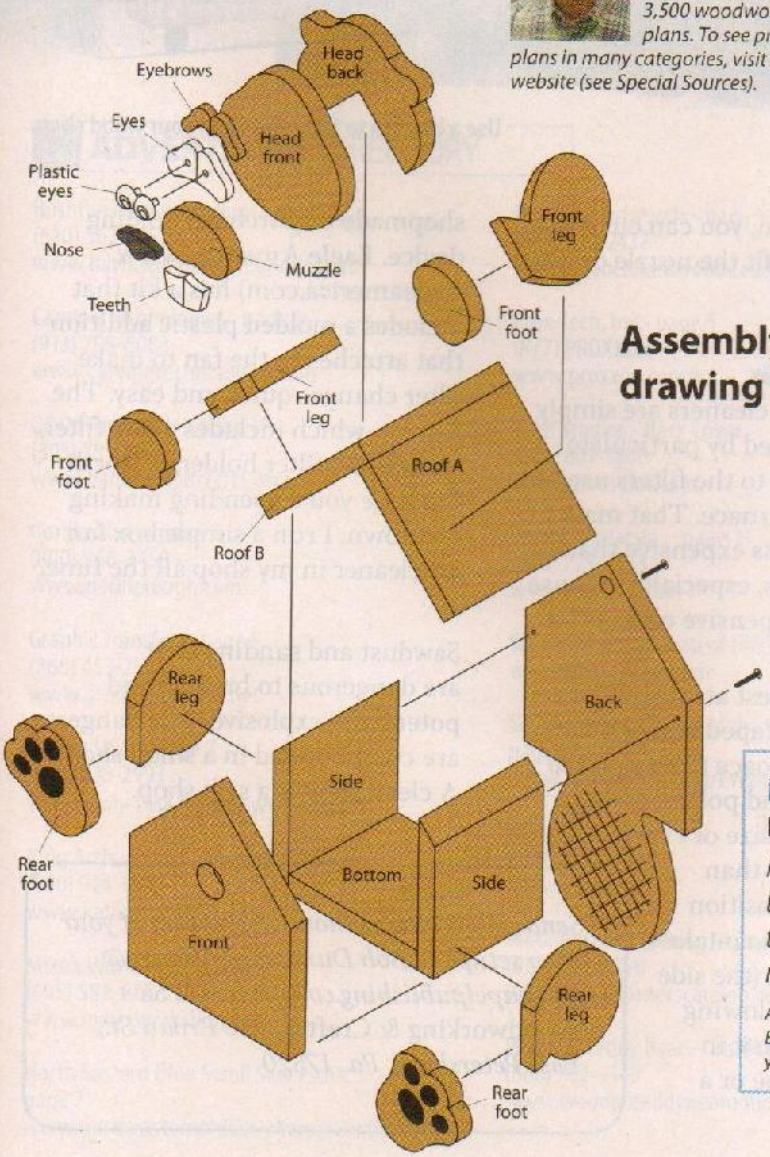
Step 2: Add the facial features. Glue the eyebrows, eyes, muzzle, and tooth pieces to the head front as shown on the pattern and reinforce the joints with nails if desired. Glue the nose to the muzzle. Drill ¼"-diameter x ¾"-deep (6mm x 19mm) holes through the eye pieces for the plastic eyes. Glue the head front to the head back, and then glue the head assembly into position on the birdhouse assembly.

Step 3: Add the legs and feet. Glue and nail the front and rear foot pieces to the front of the birdhouse assembly as shown on the front-view drawing in the pattern pullout. Glue and nail the front leg pieces to the roof, butted up against the front foot pieces. Glue and nail the rear leg pieces to the side pieces, butted up against the rear foot pieces.

Step 4: Apply the finish. This project can be finished with a dark stain, like walnut or teak, or simply painted brown. Paint the teeth and eye pieces white. Paint the nose and the pads on the rear feet black. Use a black paint marker to draw the crosshatch lines on the tail. Do not paint the inside. After finishing, install the plastic eyes and the flush-mount hanger.

Attach the legs to the sides and roof of the birdhouse.

Paul Meisel of Mound, Minn., and his staff have designed more than 3,500 woodworking plans. To see project plans in many categories, visit his website (see Special Sources).



Assembly drawing

Materials & Tools

Materials:

- Pine, ⅜" (10mm)-thick:
  2 each eyebrows, 1½" x 1½" (38mm x 38mm)
  2 each eyes, 1⅝" x 1⅞" (41mm x 48mm)
  Nose, 1" x 2⅛" (25mm x 54mm)
  2 each teeth, 1" x 1⅜" (25mm x 35mm)
- Pine, ¾" (19mm)-thick: muzzle, front feet, rear feet, front legs, rear legs, head front, head back, front, back, sides, 10" x 8' (254mm x 2,440mm).
  Patterns are not provided for the following parts; cut them to the sizes listed:
  Bottom, 5" x 6" (127mm x 152mm)
  2 each sides, 5" x 6" (127mm x 152mm)
  Roof A, 5¾" x 6½" (146mm x 165mm)
  Roof B, 6½" x 6½" (165mm x 165mm)
  Refer to the cutting diagram in the pattern pullout for placement of the ¾" (19mm)-thick parts.
- Plastic eye: 2 each 13⁄16" (21mm)-diameter (#3437)*
- Exterior screws: #6 by 2" (51mm)-long
- Flush-mount hanger (#1262)*
- Wood glue, water-resistant
- Sandpaper: assorted grits
- Primer, exterior latex
- Paint, semi-gloss or gloss exterior latex: brown (optional), white, black
- Dark stain, such as walnut or teak (or brown paint)
- Paint marker: black

Patterns for the ***WACKY BEAVER BIRDHOUSE*** are in the pattern pullout section.

Tools:

- Blades: #7 reverse-tooth, such as Olson #448-F
- Table saw, planer, or sander
- Hand drill or drill press with bits: 9⁄64" (3.5mm)-, ¼" (6mm)-, ⅜" (10mm)-, 1¼" (32mm)-diameters
- Countersink bit
- Screwdriver

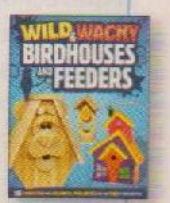
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

SPECIAL SOURCES:
Items marked with an asterisk (*) are available from Meisel Hardware Specialties. To order parts or to request a catalog, call 800-441-9870 or visit www.meiselwoodhobby.com.

Further Reading

Wild & Wacky Birdhouses and Feeders
By Paul Meisel

Make your backyard more exciting with a unique bird or squirrel feeder or a birdhouse that will be sure to attract the attention of backyard critters, not to mention that of your neighbors.



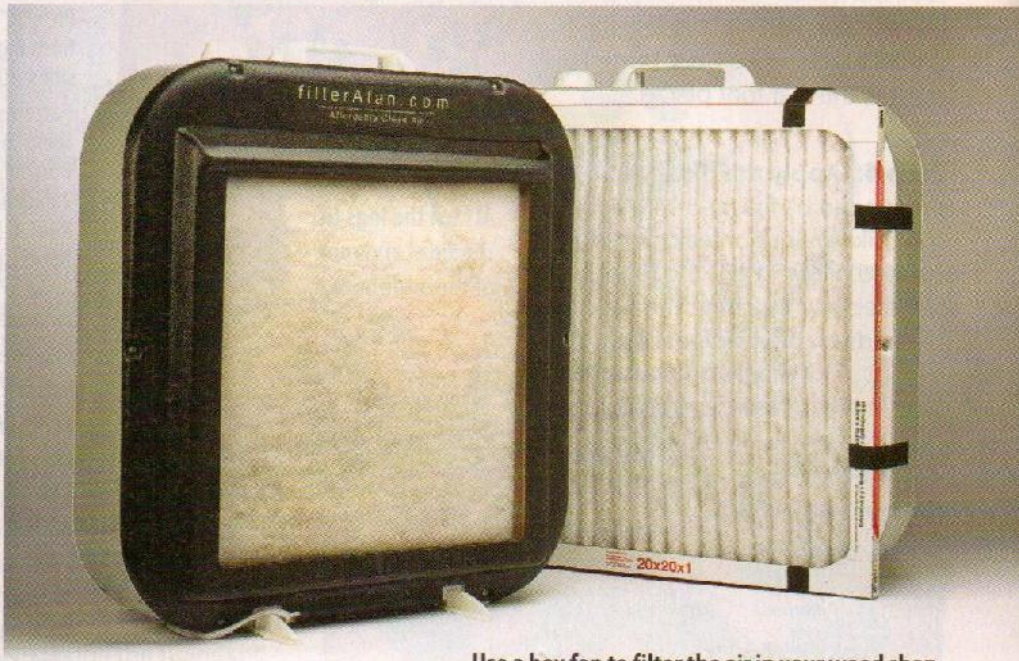
Available for $19.95 plus $3.99 S&H from Fox Chapel Publishing, 1970 Broad St., East Petersburg, Pa., 17520, 800-457-9112, www.foxchapelpublishing.com, or check your local retailer.

By Bob Duncan

Workshop Dust Collection

The tools used to create most wooden projects make dust. The scroll saw makes fine sawdust. Sanders make even finer sanding dust. Routers, band saws, and table saws all create dust. None of it is good to breathe, and fine sawdust and sanding dust can explode with the slightest spark. That's why most woodworkers set up a system to collect as much dust as possible, keeping it off the floor and out of the air.

The best way to control dust in your shop is to collect as much as possible at the source, and then filter the rest from the air. Most scrollers don't need an expensive system of pipes and tubes, but you should work aggressively to remove both large and nearly microscopic particles of dust—the smallest particles are the most dangerous to breathe and the most flammable.



Use a box fan to filter the air in your wood shop.

Collecting Dust at the Source

The more dust you can collect at the source, the better. With a bit of thought, you can rig a shop vacuum to collect sawdust as you cut with your scroll saw. Some saws have aftermarket systems to collect dust. Many sanders, both hand-held and stationary, come ready to attach to a shop vac.

Pneumatic drum sanders require a bit of an investment or a little creativity. Some commercial dust hoods are designed to collect the dust created by a sander or a lathe, but you can also construct a hood from plywood (seal the joints with silicone caulk). A commercial hood will be easier to put together, but it might take a few fittings to adapt it to your shop vac. If you make your own, you can cut a hole in the back to fit the nozzle on your shop vac.

Filtering the Air

Most shop air cleaners are simply fans surrounded by particulate filters, similar to the filters used in a forced-air furnace. That makes air cleaners less expensive than dust collectors, especially because there are inexpensive options for smaller shops.

The simplest air cleaner is a furnace filter taped to a box fan. Look for a furnace filter rated to reduce dust and pollen, and buy one the same size or slightly bigger than the box fan. Position the filter on the intake side of the fan (the side opposite the blowing air) and secure it in place with tape or a shopmade or purchaed holding device. Eagle America (www.eagleamerica.com) has a kit that includes a molded plastic addition that attaches to the fan to make filter changes quick and easy. The $65 kit, which includes a fan, filter, and plastic filter holder, is worth the time you'd spending making your own. I run a simple box fan air cleaner in my shop all the time.

Sawdust and sanding dust are dangerous to breathe and potentially explosive. The dangers are compounded in a small shop. A clean shop is a safe shop.

Send photos and a short description of your shop setups to Bob Duncan at duncan@foxchapelpublishing.com or Scroll Saw Woodworking & Crafts, *1970 Broad St., East Petersburg, Pa. 17520*

In our next issue...

Compound-cut lanterns add an element of fun to outdoor events

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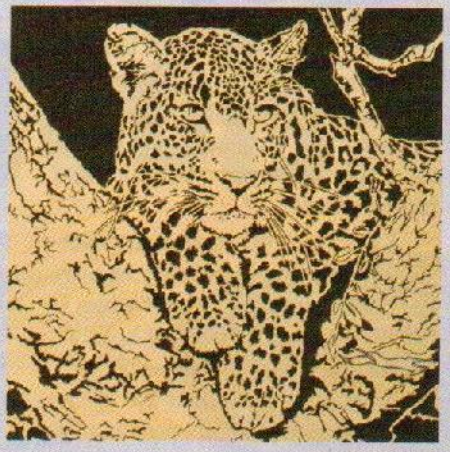

Intricate leopard pattern tests your portrait-cutting skills

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Scrolling a Good Book

Kara Witham uses a scroll saw to transform books into safes. Each Secret Safe Book is handcrafted from new or used books.

Some people might consider Kara Witham a bit of a bookworm because she surrounds herself with books. However, this Chicago, Ill., artist isn't reading the pages, she's scroll sawing her way right through them and turning ordinary books into secret hiding places.

Kara's interest started in 2009. "One night I was aimlessly wandering the corners of the Internet when I ran across some images of hollow books and it just clicked with me," she said. She researched the idea, ordered supplies, and made her first book cutouts with an X-Acto knife. She ended up in the emergency room with a neatly sliced index finger that required nine stitches. Kara replaced the knife with a scroll saw, and orders poured in. Kara named her new company Secret Safe Books.

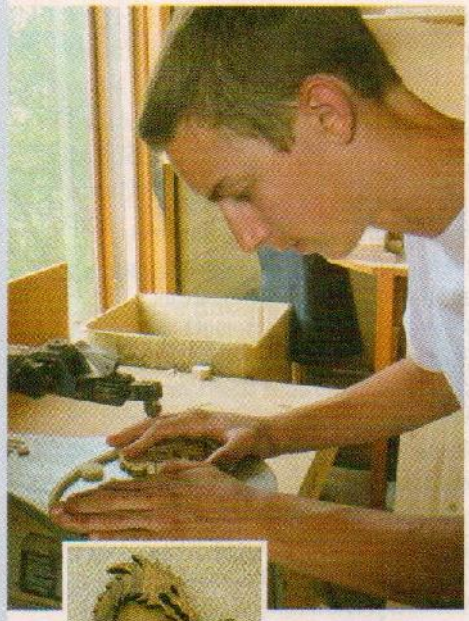
To craft a book, Kara selects just the right volume and draws an outline of the hollow to be cut. Next, she braces the page block with nails on each side and drills a blade-entry hole. Then, she sets the saw to its highest speed and cuts the page block. Kara uses sanding strips to turn her scroll saw into a power sander to smooth the interior. Finally, she glues in a magnetic closure.

Kara explained, "With the scroll saw I'm able to cut more intricate designs, like hearts in books that I've done for ring bearer books or engagement rings. I can also make circles and rounded corners, as well as cut through very thick material.

"It's been a long process of learning, and I'm still honing my techniques, but it's pretty darn satisfying to make real money after years of tortured-soul starving-artist gigs," she said with a laugh.

For more information, visit www.SecretSafeBooks.com.

Scroll Saw Entrepreneur Wins Awards



Sixteen-year-old Nathan Girkins, owner of Willowbrook Woodworking in Morrison, Colo., works at his scroll saw.

The 8" by 24" dragon cut from poplar and stained sells for $40.

At an age when most kids are still trying to figure out what they want to be when they grow up, Nathan Girkins has earned two entrepreneurial awards for his scroll saw-based business, Willowbrook Woodworking. The sixteen year old earned the 2010 Celebration for Young Entrepreneurs and the 2012 Christian Home Educators of Colorado Business Plan Contest.

When Nathan received a scroll saw for his thirteenth birthday, "I was hooked right away," he said with a laugh. "I am very left-brained, and because woodworking involves building and putting stuff together, it fits me like a glove." Nathan made simple signs for his friends and family, and then moved onto artwork and toys using free patterns available on the Internet.

In 2009, Nathan designed and built his first Marshmallow Blaster. He sold them at local craft fairs, where they did very well. So, Nathan set up a website, complete with Paypal to make ordering online easier. He also brought on fourteen-year-old photographer Nathan Johnson and an assistant craftsman, fifteen-year-old Daniel Langemann, to help.

"The business really evolved from there into what it is today," Nathan said. "My goal is to have my products sold in local stores. I'd also like to have more than thirty-three percent of income come from the online store and expand enough to support myself through college."

Nathan plans to attend Colorado School of Mines to obtain a civil engineering degree while continuing to build his business.

Nathan also teaches a beginner woodworking class for kids who want to learn the basics. His advice to beginners? "Don't expect anything to turn out right the first time. Human error is very prevalent in woodworking, so be prepared to fix mistakes and to have stuff break, warp, pop apart, or just not fit right. Most importantly though, have fun and be safe!"

For more information, visit Nathan's website at www.willowbrookwoodworking.com.

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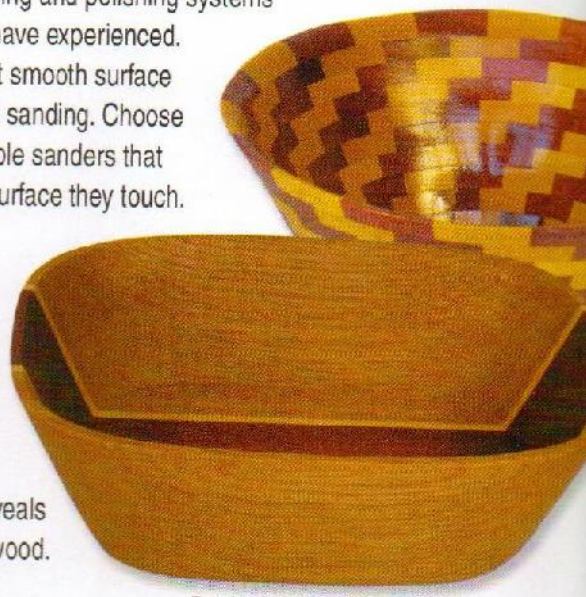

Bowls by Carole Rothman
www.scrollsawbowls.blogspot.com

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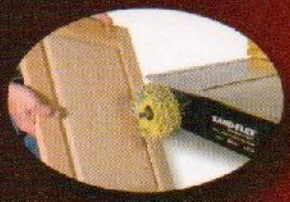
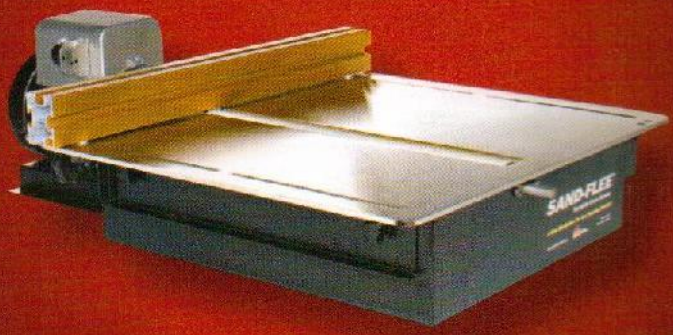


PROFILE SANDING



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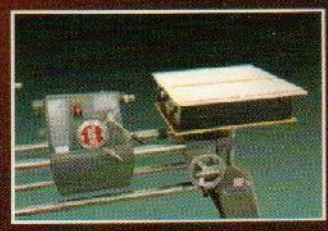

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Creating a Stork Photo Frame

Page 56 - *SSWC Issue 46*

Designer: Kathy Wise

(2)

Position of
head front

Head back
¾" x 6⅜" x 6½"
cut 1

Walnut

Head front
¾" x 6½" x 6½"
cut 1

Rear leg
¾" x 4⅜" x 4¾"
cut 2

Walnut

Can be used as a stand-alone intarsia piece with cut out for small photo. Enlarge main pattern by 150%

13 W
19 20 W W
27 28

Walnut

¾"

Position of bottom

Walnut

Front foot
¾" x 3" x 3⅛"
cut 2

Walnut

Rear foot
¾" x 3⅞" x 5"
cut 2

Black

Black

Black

Black

Walnut

Front leg
¾" x 3¼" x 3½"
cut 2

Walnut

(3)

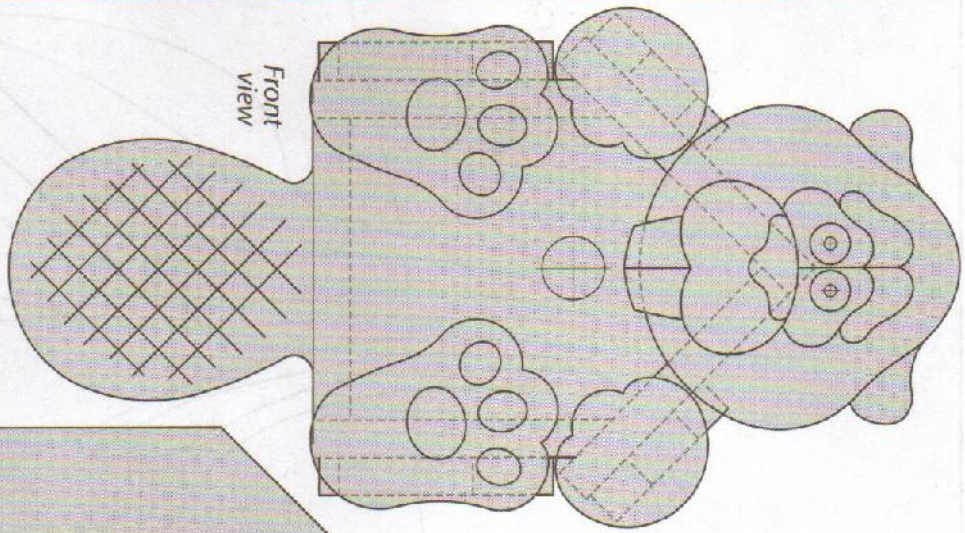
(4)

SCROLL SAW woodworking & CRAFTS

Spring 2012 - Issue 46

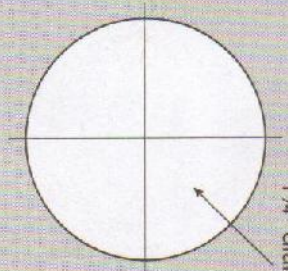
1970 Broad Street
East Petersburg, PA 17520

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

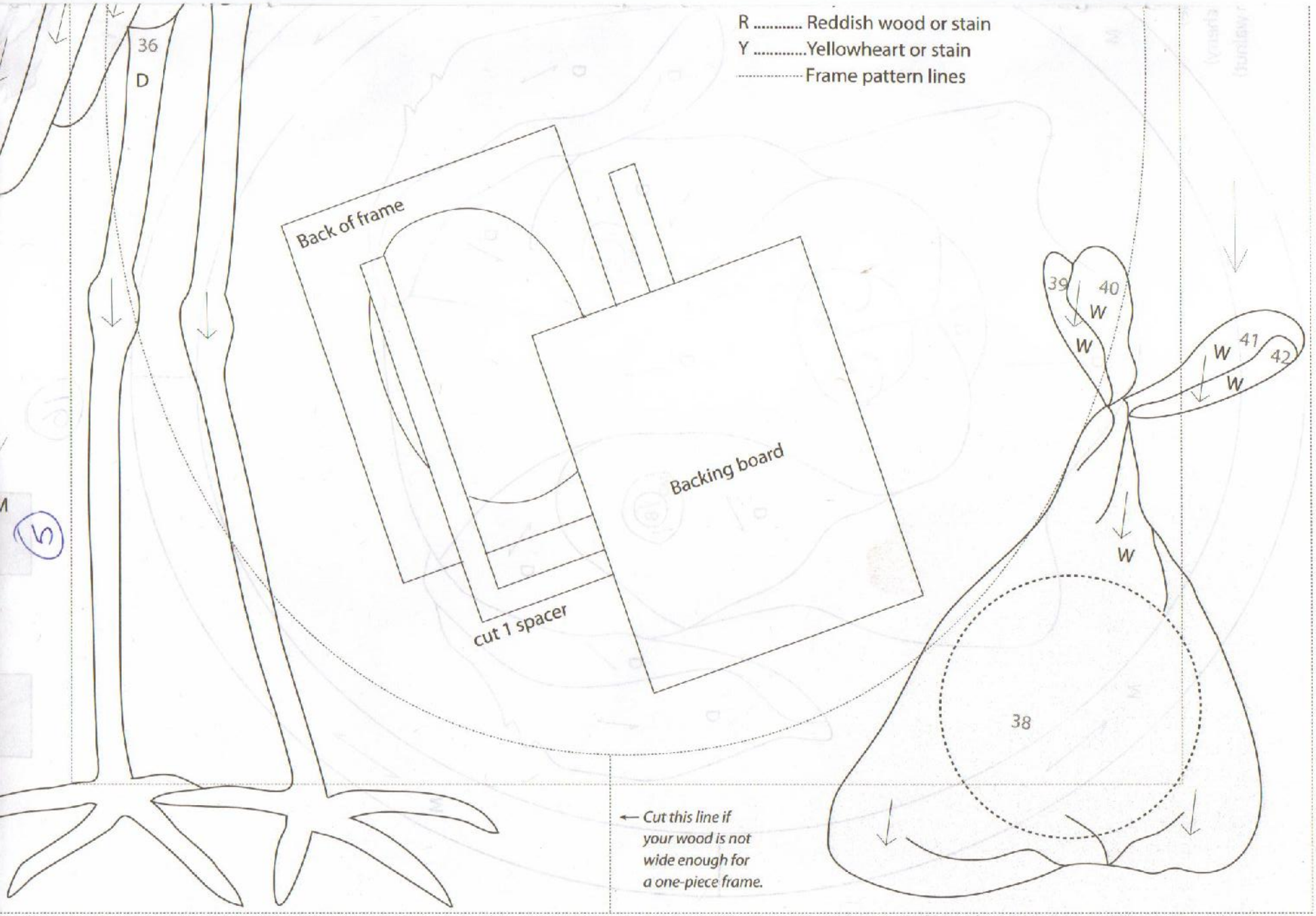


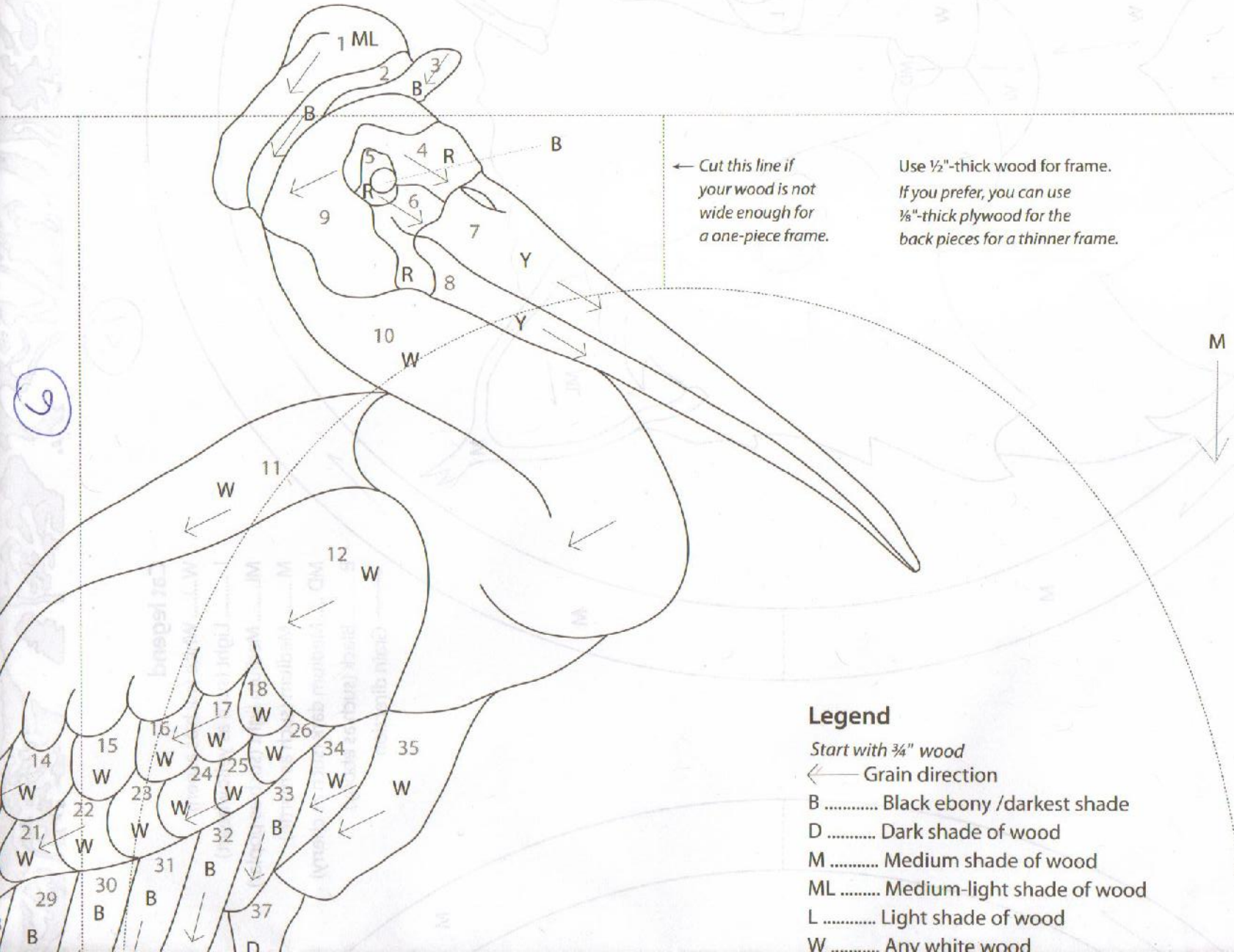
Wacky Beaver Birdhouse
Page 76 - *SSWC Issue 46*
Designer: Paul Meisel

Position of side



Front
¾" x 7½" x 9"
cut 1


R ..... Reddish wood or stain
Y .....Yellowheart or stain
..... Frame pattern lines
36
D
Back of frame
Backing board
cut 1 spacer
39
40
41
42
W
38
← Cut this line if your wood is not wide enough for a one-piece frame.



← *Cut this line if your wood is not wide enough for a one-piece frame.*

Use ½"-thick wood for frame.
If you prefer, you can use ⅛"-thick plywood for the back pieces for a thinner frame.

Legend

Start with ¾" wood

← Grain direction

B ..... Black ebony /darkest shade

D ..... Dark shade of wood

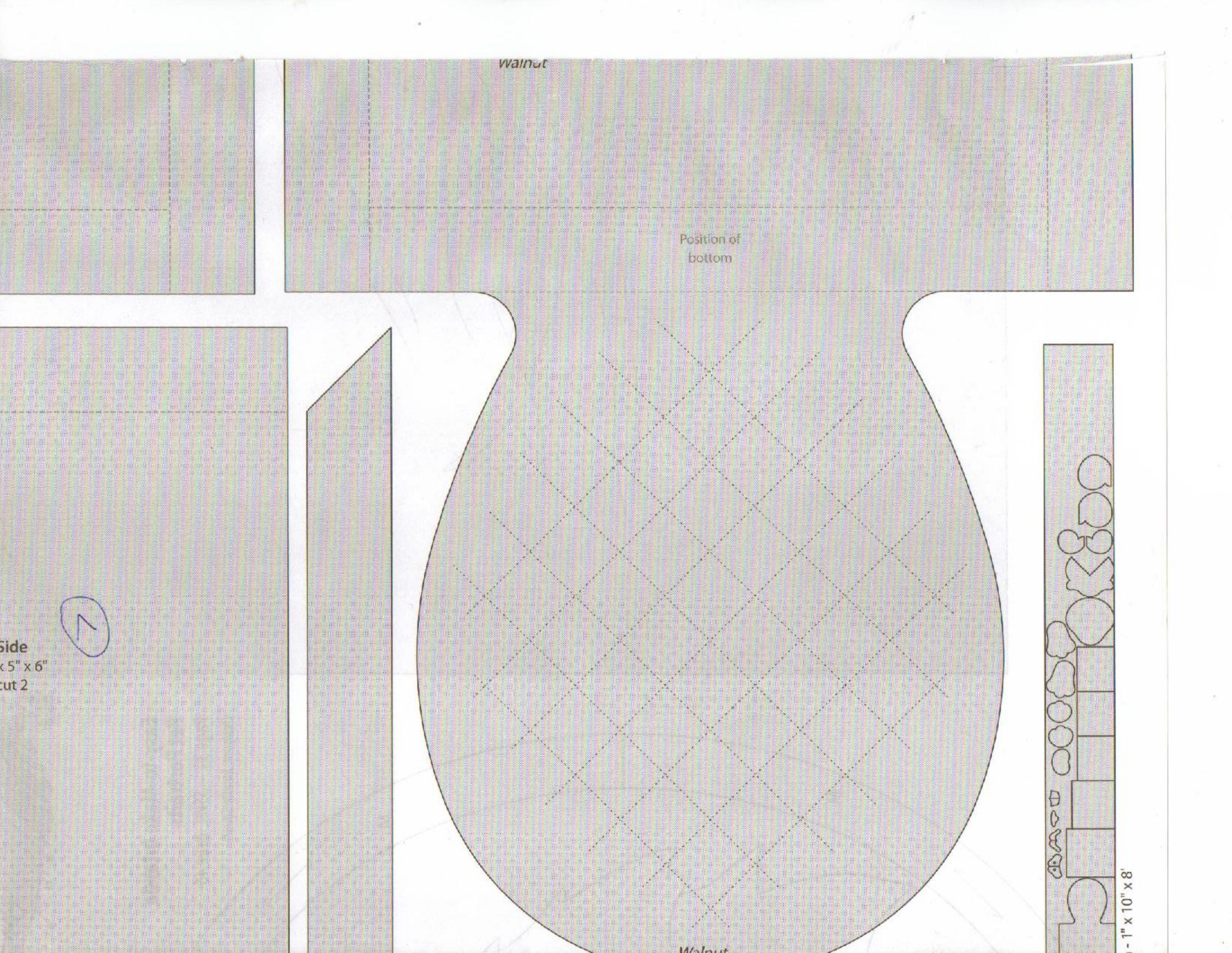
M ..... Medium shade of wood

ML ..... Medium-light shade of wood

L ..... Light shade of wood

W ..... Any white wood

Cutting diagram


Walnut
Position of bottom
Side
x 5" x 6"
cut 2
7
- 1" x 10" x 8'

8

Position of side

Position of side

Position of hanger

Back
¾" x 7½" x 15⅛"
cut 1

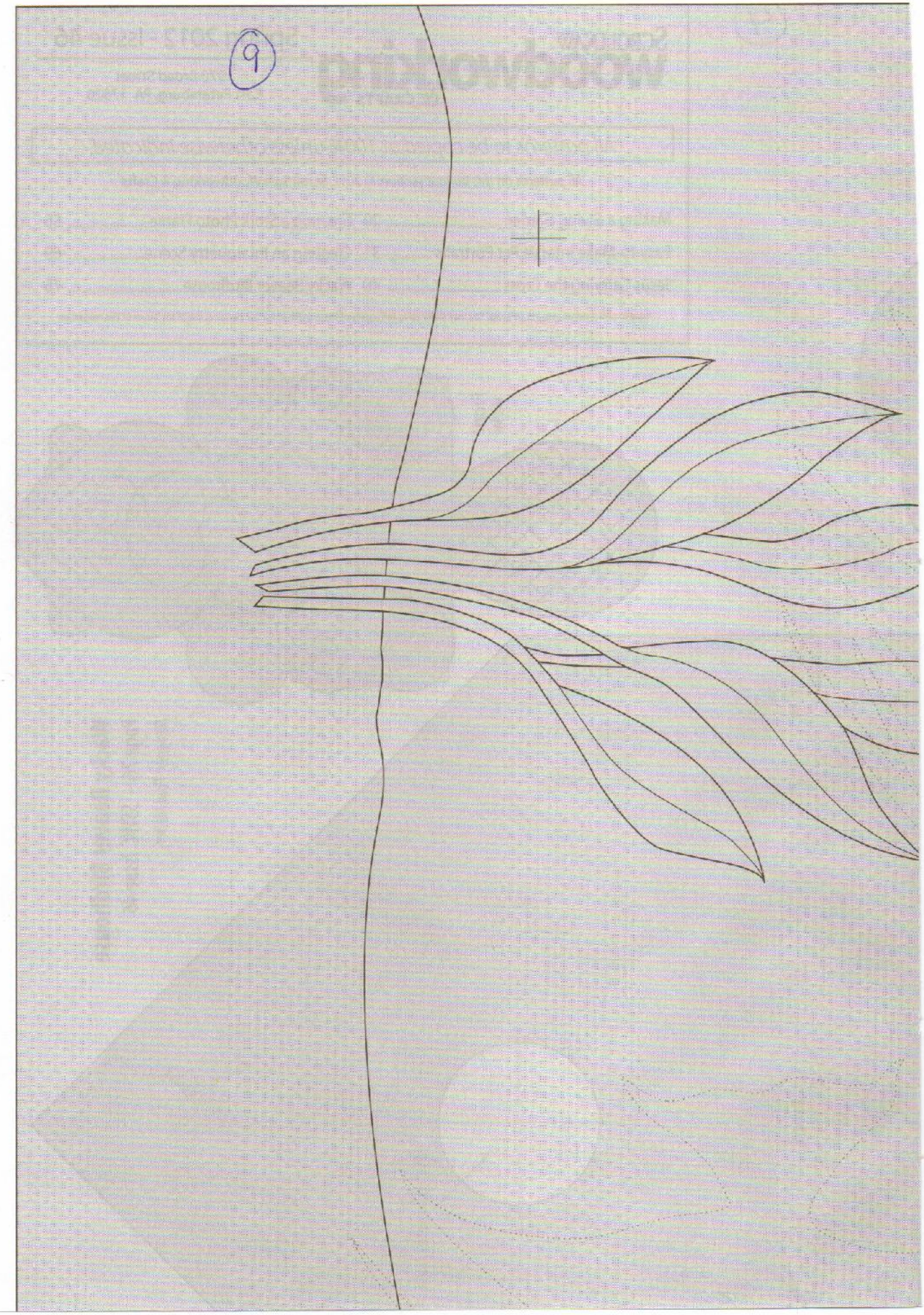
Position of side

Position of side

Notice about photocopying patterns

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

One inch

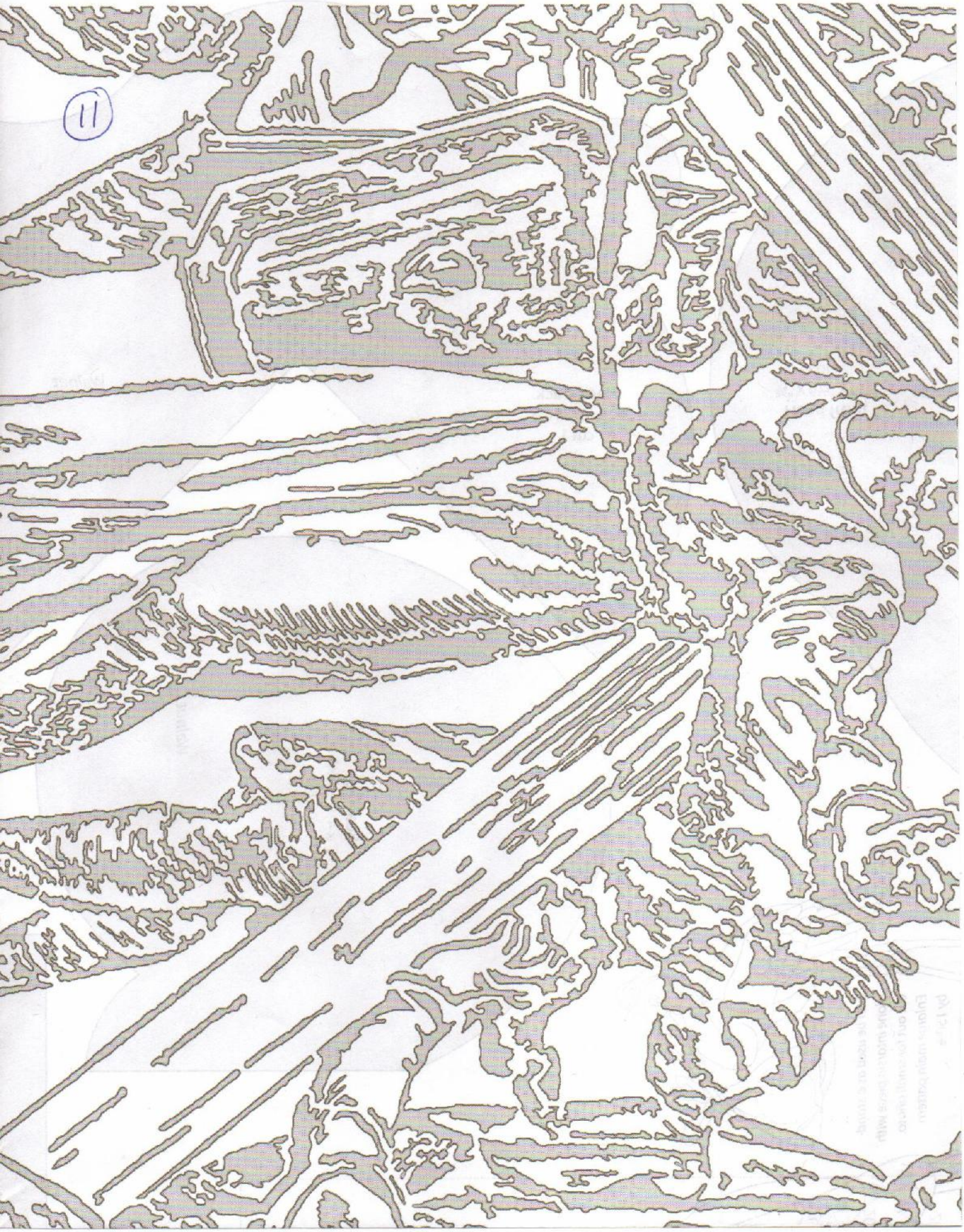

9

Create an Intarquetry Scene

Page 69 - *SSWC Issue 46*

Designer: Doug Casper

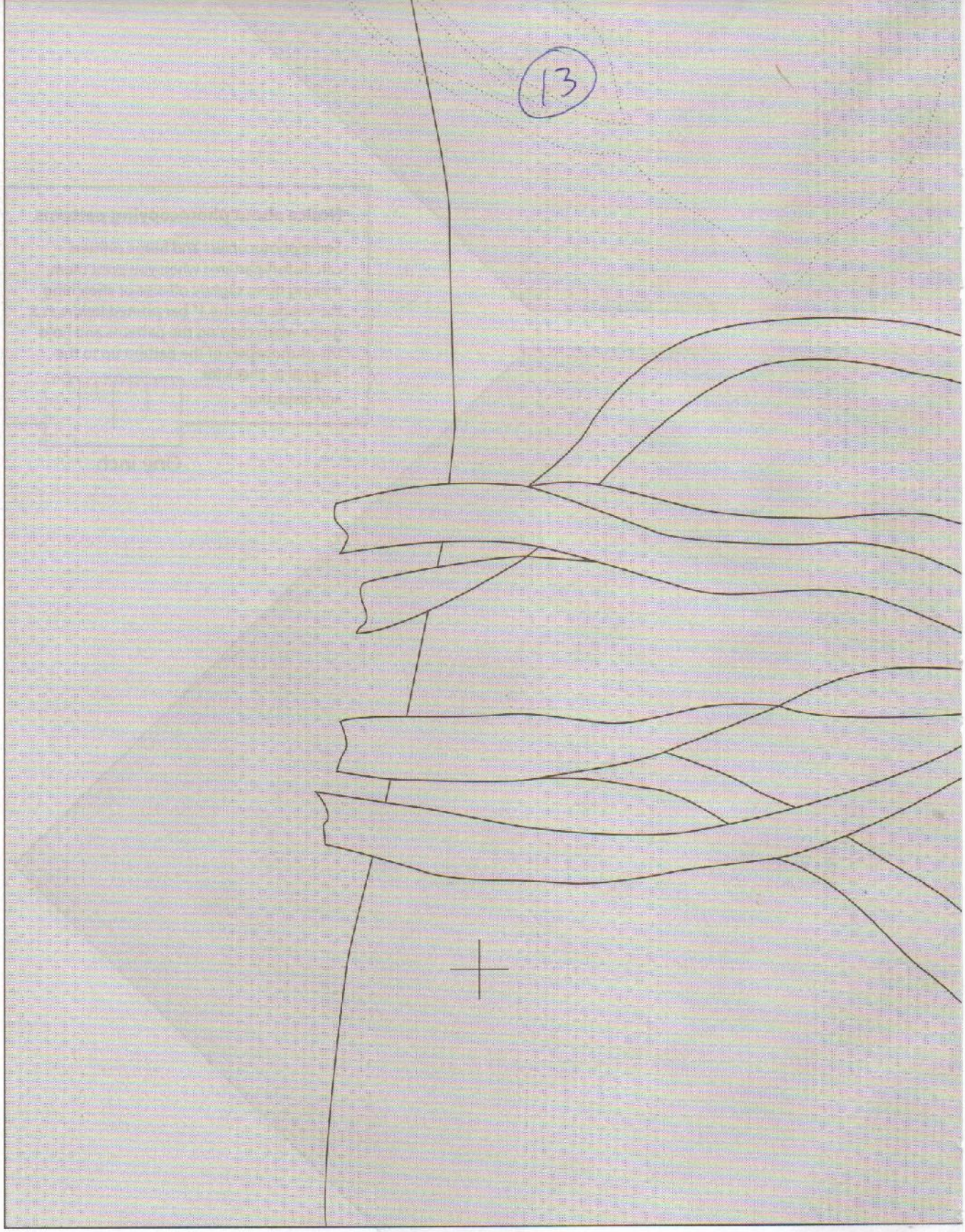
10


11

(12)

Making a Giving Garden
Page 20
SSWC Issue 46
Designer: Tom Kantos

Jesus Carrying the Cross
Page 48 - *SSWC Issue 46*
Designer: Mike Fehring

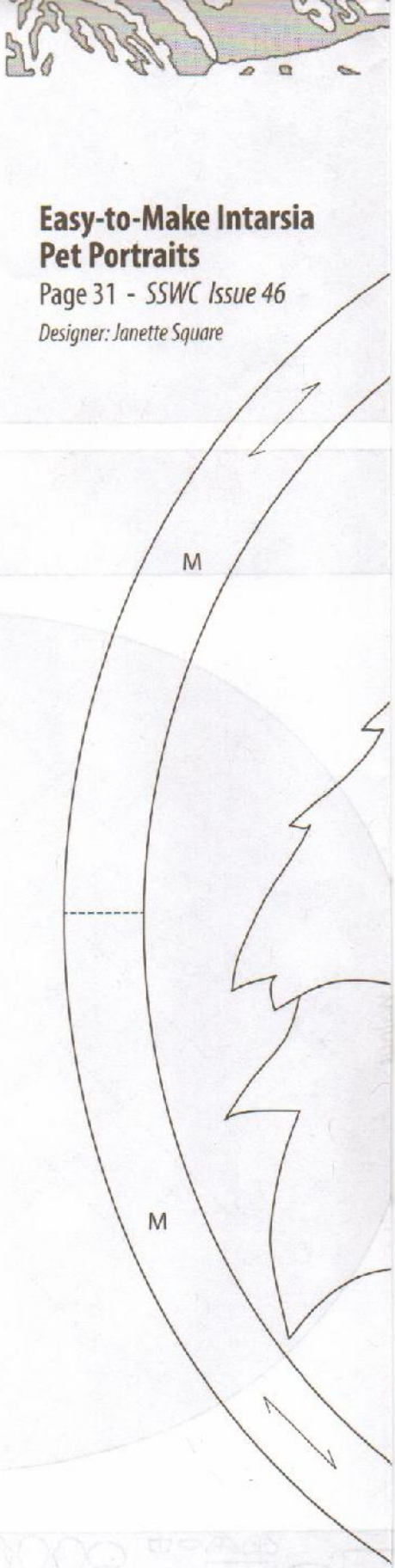

13

14

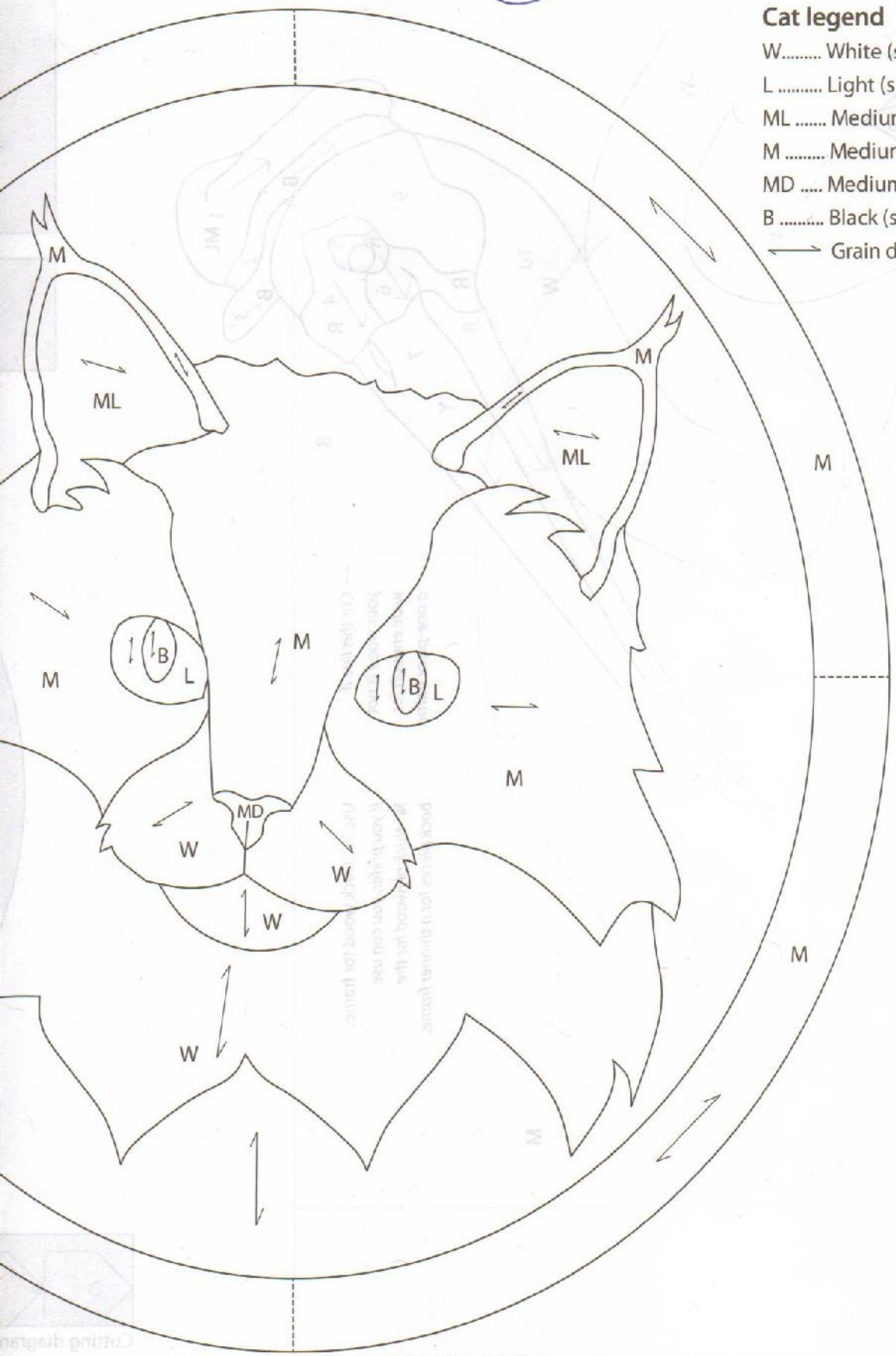
Easy-to-Make Intarsia Pet Portraits

Page 31 - *SSWC Issue 46*

Designer: Janette Square



15

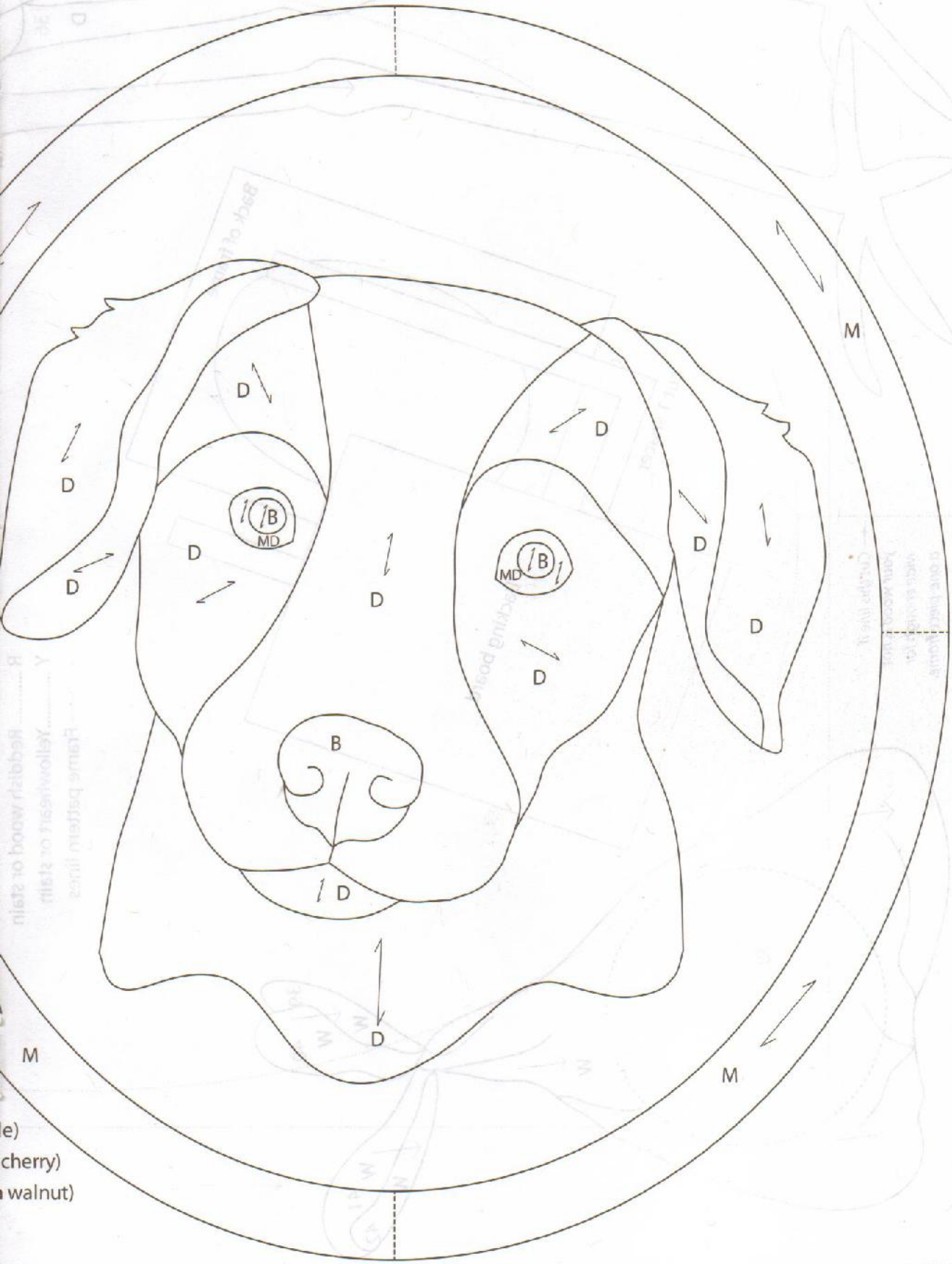


Cat legend

W..... White (such as aspen)
L ..... Light (such as yellowheart)
ML ..... Medium light (such as poplar)
M ..... Medium (such as myrtle)
MD ..... Medium dark (such as cherry)
B ..... Black (such as ebony)
⟷ Grain direction

Dog legend

M ..... Medium (such as myrt
MD ..... Medium dark (such as
D ..... Dark (such as Peruvian
B ..... Black (such as ebony)
⟷ Grain direction



le)
cherry)
walnut)