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SUMMER 2011

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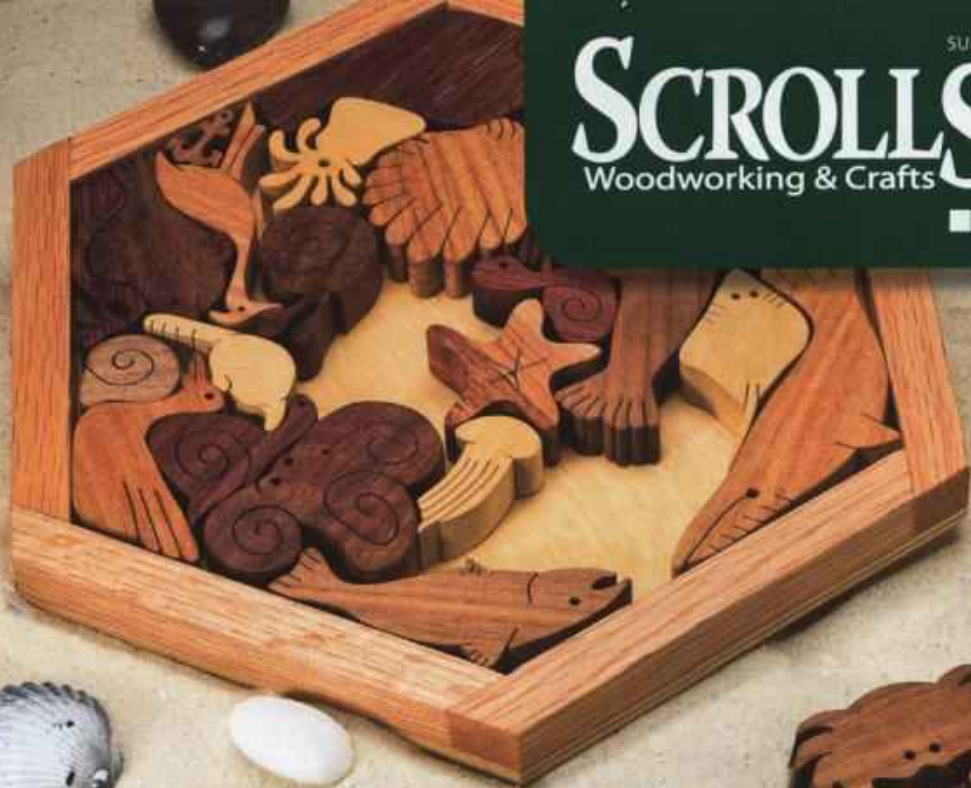
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Woodworking & Crafts

■ IN THIS ISSUE



64 Create a fun and colorful puzzle with contrasting hardwoods.

FEATURES



18 Dealing with Tree-Killing Insects

By Dr. Stephanie Smith
Protect local forests by preventing the spread of invasive insects



20 Mechanical Marvels in Wood

By Kathleen Ryan
Delbert Short uses his imagination and ingenuity to create elaborate contraptions



32 Amazing 3-D Sculptures

By Bob Duncan
Peter Perkins used a variety of techniques to create stunning artwork

METHODS



22 Making a Mechanical Railroad Handcar

By Delbert Short
Articulated figures appear to power the car as it rolls along



40 Creating a Farm in a Barn Puzzle

By Carolea Hower
Store the colorful chunky puzzle pieces in a clever barn-shaped carrying case



64 Making a Sea Life Puzzle

By Ruth Chopp
Easy-to-cut design is a challenging tray puzzle



67 Creating an Intarsia Pelican

By Kathy Wise
Seaside scene is a fun nautical accent



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PATTERNS



36 *Build a Fretwork Eagle Shelf*

By *Lora S. Irish*
Functional shelf combines intricate fretwork with a sturdy tab-and-slot design



46 *Build a Window Peeper Birdhouse*

By *Paul Meisel*
Witness the fascinating activity inside a birdhouse with this clever design



48 *Dragon Fretwork*

By *TJ Brown*
Cut this fantasy design from hardwood for a striking display



50 *Making Fretwork Doll Furniture*

By *Kirk Ratajesak*
Beautiful handmade furniture can be built for any size doll



56 *Frolicking Dolphin Puzzle*

By *Dayle Sullivan-Taylor*
Use contrasting woods to make an interlocking ocean scene



58 *Creating a Realistic Owl Scene*

By *Deborah Nicholson*
Combine cut pieces with natural wood for a unique display



60 *Battle Cry*

By *Kerry Hallam*
Rally the troops with this detailed portrait of a Viking warrior



62 *Screaming Eagle Portrait*

By *Gary Browning*
Spirited portrait celebrates freedom



72 *Pineapple Welcome Sign*

By *Gloria Cosgrove*
Greet guests with a traditional symbol of hospitality



74 *Victorian Fretwork Frame*

By *Sue Mey*
Decorative floral design surrounds a photo or clock insert



76 *Catch-of-the-Day Teddy Bear*

By *Judy Gale Roberts*
Cute intarsia bear is a great beginner project

TECHNIQUES



27 *Maintaining Maximum Control*

By *Joanne Lockwood*
Learn the correct way to hold and maneuver a scroll saw blank

DEPARTMENTS

4 *Editor's Column*

14 *News and Notes*

6 *Letters to the Editor*

16 *Scroll Saw Basics*

8 *Bragging Pages*

79 *Coming Features*

10 *Product Review*

79 *Ad Directory and Classifieds*

12 *Info Exchange*

80 *Sawdust*

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➔ *Online Video*

Mechanical Marvels in Wood, pg. 20
View Del Short's marvelous machines in action.

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Share the link or print the article as a handout for new students.

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Back to Basics

While reading Joanne Lockwood's article on scroll saw techniques (page 27), I was reminded of the class I took with Ron Posten many years ago. There were a half-dozen coworkers in the class, and Ron walked us through the basics, offering pointers and advice along the way.

The class was a lot of fun, and we all left with a couple of finished projects to show off to family and friends. But the part that had the most impact on me was when Ron told us to think of following the pattern line like driving a car. If you veer over the white line on the side of the road, you don't harshly jerk the wheel to get back on the right path, you just steer back on track. The same holds true with scrolling—if you stray off of the pattern line, it's much less noticeable if you gradually get yourself back to the line instead of making an abrupt correction. Ron also told us that when you are driving, you don't just look at the three feet of road in front of your car—you look to see what's up ahead. The same holds true for scrolling—instead of intently watching the spot where the blade is cutting the wood, watch what's coming next. By looking ahead, you'll be better prepared to make smooth turns and accurately follow the pattern line.

One tip I learned in class, and have heard many other scrollers promote, is to warm up before jumping right into your project. Ron cut stair steps, or wiggly worms, to warm up. Even though I know I will get better results if I take a few minutes to warm up first, it's a discipline I have a hard time following.

Another good piece of advice I seldom follow is to watch my tension. Blade tension is not a problem for me, it's the tension in my shoulders and neck. I get so involved in a project that before I know it, I'm holding the blank so tightly my shoulders and neck are stiff. Joanne cautions scrollers to stop and roll your shoulders and neck when you feel things starting to get tense. By the time I realize I'm getting stiff, I'm usually nearing the finish line and I don't want to take the time to roll my shoulders, let alone get up and take a break. It's also usually about that time I start getting sloppy with my cutting.

I definitely still consider myself a novice scroller, but I do know the basics—I just tend to ignore them a lot. Joanne's article is a good reminder that no matter how experienced we are, it never hurts to take a step back and review the basics.

Shannon Flowers

Shannon Flowers
Shannon@
FoxChapelPublishing.com

This butterfly suncatcher was my very first scroll saw project. The pattern is featured in John Nelson's *Scroll Saw Workbook*.



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The Advantages of Masking Tape



Many scrollers prefer covering a blank with masking tape prior to attaching the pattern instead of dealing with thinners or removers.

I do a lot of scrolling. I find it easier to cover the blank with masking tape, and then apply spray adhesive to both the masking tape covered blank and the back of the pattern. With this technique, I don't have any problem with the pattern lifting during cutting and after the project is cut, it's easy to pull off the remaining pattern and masking tape. I do not attach the pattern directly to the blank and use thinner or adhesive remover to remove the pattern—that is a messy job.

Dan Funk
Gooding, Idaho



Fox Hunt

Lynette Miller of Goodspring, Tex., and John Walters of Jamestown, N.Y., were randomly drawn from the participants who located the fox in our last issue (Spring 2011, Issue 42). The fox was in the Step 5 photo on page 62.

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 May 31, 2011 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 St., East Petersburg, Pa., 17520, or enter online at www.ScrollSawer.com.

Are project instructions explicit enough for beginners?



Article Suggestions

I look at each project in *Scroll Saw Woodworking & Crafts* as a beginner. Sometimes it seems as though the contributors assume everyone is an advanced woodworker rather than a beginner. This can discourage newcomers.

In *Scroll Saw Woodworking & Crafts* Spring 2011 (Issue 42), it is difficult to see where and how much wood to remove for the hinges on the cardholder in the "Making Stylish Gifts with Wooden Hinges" article.

In the "Making a Geometric Box" article, it is hard to tell if the box lid has an inner ring so the top fits snugly or if the lid just flops onto the top. Many projects where you fit a liner onto the lid for a snug fit, the instructions are pretty intense when all you have to do is flip the lid and sides upside down so you can trace the position of the sides onto the lid. Then, use the sides to trace the shape of the lid liner onto the lid-liner blank. After you cut out the lid liner, use the marks you traced on the lid to position and glue the lid liner to the lid.

Also, have you done any articles on drum sanders, specifically ones that are small and under \$500? The few articles I have found on the Sand Flee were not good and the Microlux only accepts wood up to 5" wide.

Howard R. Hill Jr.
Groveland, Mass.

Editor's note:

For the wooden hinges, use the quarter template as a guide when rounding the hinge stock. The sections of wood to remove for the hinges are labeled on the pattern. For the lid section, remove the two small rectangles on the outside. For the base section, remove the large rectangle in the center. Round the back of the hinge after assembly using the quarter template as a guide.

The geometric box does have a liner to hold the lid in place. In Step 3, Sue Mey uses the same technique you reference to trace the inside of the box sides onto the lid-liner blank.

We ran a short review of the 9" Sand Flee, which retails for under \$500, in *Scroll Saw Woodworking & Crafts* Holiday 2006 (Issue 25). We will research similar sanders for a possible future article.

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Festive Reindeer ▶

Nancy Phillips of Golden Valley, Ariz., cut a whole herd of compound-cut reindeer. She dressed up the deer with gold and silver paint, glitter, beads, ribbon, and mini garland.

**◀ Fretwork Clock**

Allen Del Sordo of Williamstown, N.J., created this fretwork clock based on patterns available from Wildwood Designs. Allen has been working with wood for more than twenty years and after retiring decided to work with wood on a daily basis.

**Bible Box ▶**

David Sudekum of Mentor, Ohio, created this Bible box from black walnut and poplar. The overlay cross design was cut from Western red cedar. The project is based on a pattern by Steve Good.



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By Bob Duncan

The New Drill Doctor

The Drill Doctor model DDSB now includes a new system to sharpen spade bits.

To sharpen twist bits, the unit features a diamond wheel combined with an easy-to-use system to properly align the bit. This system works with high-speed steel, titanium, and cobalt bits that range in size from $\frac{3}{32}$ " (2mm) up to $\frac{1}{2}$ " (13mm) diameter. You can even sharpen masonry drill bits.

With the new spade-bit sharpening system, you can sharpen all types of spade bits, including spade bits with a screw-driven tip. You can even sharpen spur-type spade bits.

The DDSB kit is not intuitive to use, but it comes with excellent instructions and a video that shows exactly how to use it. After you've sharpened one twist bit and one spade bit, the system makes sense and is simple to use.

Once I learned how to use the system, I sharpened fifteen spade bits in less than an hour. Several of the bits were in very poor shape because I had hit a metal bolt while drilling. After a few minutes of sharpening, one damaged bit drilled holes like it was brand new. I took a $\frac{3}{32}$ " (2mm)-diameter twist bit that I had broken off and quickly restored it to usable condition.

Spade bits are much less expensive than Forstner bits, but as they get dull, spade bits don't cut cleanly. Using



spades bits I sharpened with the DDSB, I found I could drill holes just as clean as when using a Forstner bit. The sharpened spade bits work great to drill holes for clock inserts. Plus, you can use the system to sharpen all of your bits.

The manufacturer's suggested retail price for the Drill Doctor DDSB is \$129.99. To purchase a unit or to find a local retailer, visit www.drilldoctor.com.

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The salve is the consistency of cold hard butter and it literally melts into your skin. Within a few seconds, the dry skin stops itching

and burning, and you can go back to work without worrying about wood or tools slipping out of your grip.

The skin on the back of my hands and between my fingers gets so dry, the skin cracks every winter. But when I apply O'Keeffe's Working Hands on a daily basis, there is no dry skin and no cracking.

O'Keeffe's Working Hands is available for \$7.99 for a 3.4-oz container. To purchase the salve or find a local retailer, visit www.okeeffescompany.com.



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Attaching Blanks with Toothpicks



Instead of glue, tape, or metal brads, I use wooden toothpicks to hold a stack of blanks together. Wooden toothpicks will not scratch your saw table and if you accidentally cut through one, it won't break the saw blade.

Most round wooden toothpicks are approximately $\frac{3}{4}$ " (2.4mm) in diameter. I drill $\frac{1}{2}$ " (2.5mm)-diameter holes where I want to place the toothpicks. Apply a little glue to the toothpicks and slide them into the holes. After the glue dries, trim the toothpicks flush with the top and bottom of the blank.

After you are done cutting the fretwork, use a small diamond bit in a Dremel locked into a Dremel router table to clean up the frets. The router table provides a flat surface to rest the blank on and the diamond bit cuts slowly enough that I can remove errors and fuzzies with great precision.

Alfred Peirola
North Fort Myers, Fla



Prevent damage to your saw table by using toothpicks to secure blanks for stack cutting.



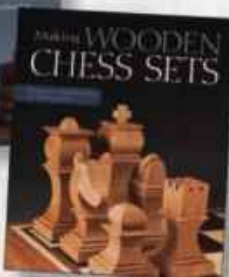
Secure small pieces to the sticky side of masking tape to make painting easy.

Painting Small Parts

When I made the horse and wagon from *Scroll Saw Woodworking & Crafts* Holiday 2009 (Issue 37), I had to paint twenty round top plugs, four holly leaves, and four wheel covers. It can be difficult to keep these small parts in place without getting paint on everything.

To make the task of painting small pieces easier, place the small pieces on the sticky side of a piece of masking tape. Then, tape the strips of masking tape to a piece of cardboard and paint the pieces. Flip the pieces over after the paint dries and reattach them to the tape to paint the other side. You can move the cardboard around to work on another project while the paint dries. When the paint is dry, pull the pieces off of the tape and throw the cardboard away.

Michael A. Esposito
New Haven, Conn.



TOP TIP In our Fall issue wins a choice of an autographed copy of *Simply Wood* by Roshaan Ganief or *Making Wooden Chess Sets* by Jim Kape. Send your tips or techniques to Bob Duncan, 1970 Broad Street, East Petersburg, PA 17520, or Duncan@FoxChapelPublishing.com

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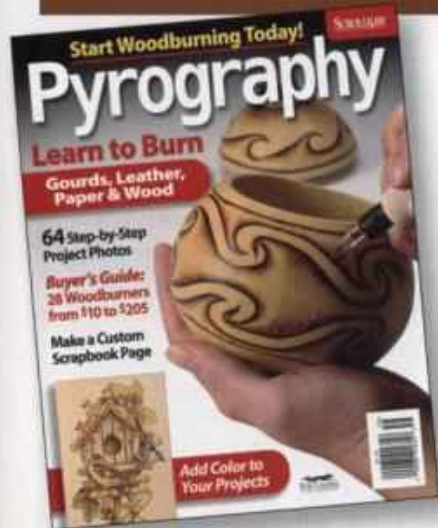
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Strokes of Genius

Erik Originals owner, Erik Warren, who suffers from autism, has been featured in an exhibit at Carnegie Hall in New York City, N.Y.

The exhibit, organized by Strokes of Genius, LLC, features Erik's work along with several other artists with savant syndrome. Savant syndrome is a condition in which people with serious mental disabilities, including autistic disorder, have a remarkable artistic ability in contrast with their overall handicap. As many as one in ten people suffering from autism have remarkable abilities in varying degrees, but savant syndrome is not limited to people suffering from autism.

In addition to the exhibit at Carnegie Hall, Strokes of Genius has set up a traveling exhibition featuring artwork from talented individuals with savant syndrome. The organization was created by Dr. Rosa C. Martinez, a behavioral specialist focusing on autism. The organization's mission is to create awareness of the abilities in special individuals in contrast to the disabilities. Erik uses his scroll saw, but other artists paint, draw, or color.

To learn more about Erik Warren, see the article published in *Scroll Saw Woodworking & Crafts* Fall 2008 (Issue 32) or visit his website at www.erikoriginals.com. For more information on Strokes of Genius, visit www.rcmautismnotebook.com.



Erik Warren's scroll saw artwork is featured in an exhibit at Carnegie Hall.



Pyrography and *Holiday Ornaments, Toys, & Gifts: Volume 2* are 112-page special issues published by *Scroll Saw Woodworking & Crafts*.

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If you're looking to get a head start on holiday projects or are interested in starting a new hobby, the editors at *Scroll Saw Woodworking & Crafts* have created the perfect resources. *Pyrography* and *Holiday Ornaments, Toys, & Gifts: Volume 2* are both 112-page special issue publications packed with projects, techniques, and patterns.

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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 $\frac{1}{8}$ " (3mm) forward, backward, or side to side.

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

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



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 $\frac{1}{4}$ " (19mm) thick and check the angle of the cut using a square. Adjust the table until you get a perfectly square cut.

You can also use the kerf-test method. Take a $1\frac{3}{4}$ " (44mm)-thick piece of scrap wood and cut about $\frac{1}{16}$ " (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.

Sizzling Titles for Summer Projects



Big Book of Intarsia Woodworking

37 Projects and Expert Techniques for Segmentation and Intarsia

By the Editors of Scroll Saw Woodworking & Crafts

Get inspired by the unique designs and inspirational stories from renowned intarsia artists like Kathy Wise and Judy Gale Roberts — both also have great intarsia projects in this issue on pages 67 and 76!

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Intarsia Woodworking for Beginners

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By Kathy Wise

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21 Original Designs with Full-Size Plans and Expert Instruction for All Skill Levels

By Kathy Wise

\$19.95 • Code: 3393



Making Furniture & Dollhouses for American Girl and Other 18-Inch Dolls

By Dennis Simmons

Create a dollhouse and furniture using the

easy-to-follow instructions. Be sure to check out the beehive doll furniture patterns on page 50.

\$24.95 • Code: 4024



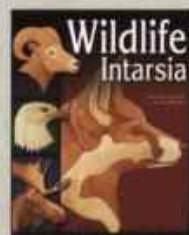
Making Wooden Jigsaw Puzzles

Creating Heirlooms from Photos & Other Favorite Images

By Charles Ross

\$14.95 • Code: 4802

Check out the fun puzzles by Dayle Sullivan-Taylor (page 56) and Ruth Chopp (page 64) in this issue!



Wildlife Intarsia

A Step-by-Step Guide to Making 3-Dimensional Wooden Portraits

By Judy Gale Roberts and Jerry Booher

\$19.95 • Code: 2622



Intarsia Workbook

Learning Intarsia Woodworking Through 8 Progressive Step-by-Step Projects

By Judy Gale Roberts and Jerry Booher

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Easy To Make Intarsia Projects

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How to Create Beautiful Fashion Accessories from a Few Basic Steps

By Lora S. Irish

Well-known scroller and carver Lora Irish invites you to discover the craft of jewelry making — all you need are a few simple tools, some wire and beads.

\$24.95 • Code: 5144

Lora Irish Fretwork Shelf Pattern Pack

Mix and Match Fretwork Shelf Patterns with Complementary Rail Styles

By Lora Irish

See Lora's shelf on page 30!

\$9.99 • Code: ppl101

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Photo by David Cappuett
Michigan State University, www.hogwood.org



The emerald ash borer, originally from Asia, was first discovered in Michigan in 2002 and quickly spread to other areas. This insect has killed more than 40 million healthy ash trees around the United States.

Photo by David Cappuett
Michigan State University, www.hogwood.org



Emerald ash borer eggs hatch into white segmented grubs that chew through the tree until they mature into adult beetles. When the beetle reaches the surface of the bark, it leaves behind a D-shaped hole.

Photo by Gerald L. Lombard, Louisiana State University, www.hogwood.org



Tree weevils, such as the Eastern pine weevil, attack young trees in the winter when the trees are stressed. The weevils' larvae, also grubs, tunnel into the tree the way bark beetles do.

Dealing with Tree-Killing Insects

Protect local forests by preventing the spread of invasive insects

By Dr. Stephanie Smith

Have you ever gone to a tree removal service's bone yard and bought a log to use for woodworking projects? Have you bought firewood and moved it from your home to your camping site? If so, you may have helped an invasive insect species spread.

An invasive species is a type of plant or animal that comes from another area and starts to make itself at home. Fire ants, the scourge of the South, arrived in dirt used as ballast on a ship. Kudzu, the "vine that ate the South," was introduced to stop soil erosion. These plants and animals thrive in their new areas because they have no natural enemies there.

Invasive insects usually kill trees by girdling them, a process in which the insects or their larvae bore through the sapwood areas where food and water are transported, preventing the flow of nutrients through the tree. It is usually safe to assume any tree removed by a tree service is infested with insect pests and should be treated accordingly.

The insect pests that attack lumber can be divided into two categories: primary invaders and secondary invaders. Primary invaders, which include the emerald ash borer and boring beetles, attack and kill healthy trees. Secondary invaders are drawn to trees already diseased or stressed by weather conditions. Secondary invaders include many species, such as bark beetles, tree weevils, and moth caterpillars. If an infestation of secondary invaders gets out of hand, these species will attack healthy trees.

Prevention

In most cases, it is impossible to look at a piece of wood and detect an infestation. The best way to keep from spreading these pests is to buy only kiln-dried or fumigated wood from a commercial vendor. If you must use raw or green wood, check for entry and exit holes in the bark and wood. Remove the bark immediately to deprive the insects of an important hiding spot. Cut



The Asian longhorn beetle is common to the Northeastern United States. This typical boring beetle has a lifecycle similar to the emerald ash borer, but the Asian longhorn beetle will attack any hardwood tree.

the wood into small enough pieces that you can detect pests before transporting it from the area where it was acquired. Obey quarantines and do not move wood from an infested area—even if the wood seems clear—without treating it for pests. There are hefty fines for removing wood from a quarantined area without an inspection and certification that the wood is pest-free.

Treatment

It is difficult for the average woodworker to kill these pests. An atmosphere-controlled fumigator, which is basically a room-sized pressure cooker, is needed to force toxic government-controlled pesticides deep into logs to kill all of the pests. Freezing will usually kill the pests, but you are limited to logs you can fit inside a freezer. Heating wood until the internal temperature is 140° to 150°F for two to four hours will also kill the pests, but it can be difficult to make sure the correct internal temperature is achieved. Drying the wood to less than 15% moisture content typically kills the pests, which is why kiln drying usually renders the wood pest-free.

If you find bugs in your locally harvested wood, your local U.S. Department of Agriculture extension agent will help you determine how to deal with the infestation. Do not just throw the wood away—this can release the insects to infest other nearby trees. If it's a dangerous species, such as the emerald ash borer, the USDA will probably dispose of the wood and may contact your supplier to dispose of any other wood from that tree.

For more information on invasive insect species, visit the USDA website at www.USDA.gov, or phone 202-720-2791.



Stephanie Suesan Smith has a Ph.D. in clinical psychology. She is also a master gardener and woodworker. You can see more of her writing at <http://stephaniesuesansmith.com>.



Photo by Thomas K. Donohue, New Jersey Department of Agriculture, www.bugwood.org

The larvae of the Asian longhorn beetle chew their way through any hardwood tree, which makes the spread of this pest even more devastating. Asian longhorned beetles leave behind a round hole when they exit the tree.

Photo by Eric A. Volney, USM Forest Service, www.bugwood.org



Bark beetles, such as this Southern pine beetle (left), burrow below the tree's bark where they live and lay eggs, which hatch into cream-colored grubs (bottom) that also attack the tree.

Photo by James K. Morley, USDA Forest Service, www.bugwood.org



Mechanical Marvels in Wood

Delbert Short uses his imagination and ingenuity to create elaborate contraptions

By Kathleen Ryan
Photos by Art Maddox

If you ask lifelong woodworker Delbert “Del” Short what he likes to make the most, he’ll say something like: elaborate gismos, gadgets, getups, contraptions, and whatchamacallits—for lack of better terms. That’s because there really are no words to accurately describe his amazing wooden creations.

After decades of making everything from crafts to fine furniture, Del ran short of things that challenged him. So the woodworker simply let his mechanical imagination and artistic eye run amok. Del makes traditional projects to give away to family and friends. But these days it’s Del’s spectacular, off-the-wall, kinetic sculptures that wow the crowd. In fact, YouTube video demonstrations of Del’s crazy machines have captivated thousands of viewers.

When asked what the machines do, Del’s answer is usually the same: “They entertain me. I’m absolutely fascinated by mechanical motion and that’s what they are all about.” Del turns ordinary wood into intricate and whimsical structures that move using a variety of mechanical actions and linkages. And like any good work of art, his creations dazzle and inspire us.

Crammed in alongside his extensive antique tool collection is a fully functional wooden scroll saw that Del designed and built himself. “It works differently from any other scroll saw,” Del explained. “It’s pedal-operated, and I made the drive shaft go the same direction as the pedals.”

When building one of these contraptions, which can take up to eight months to complete, Del makes the big gear in the middle first. Everything has to work together within the overall framework.

“Everything in there has to be removable, because I might need to take them out and put them back in again fifteen or twenty times until I can get it to work properly. I may have to readjust the mechanism or make something completely different,” Del explained.



This machine uses various types of drives, such as a link drive, chain drive, and cage gears. Del changes the direction of motion to wind around through the whole machine so all of the parts work together.

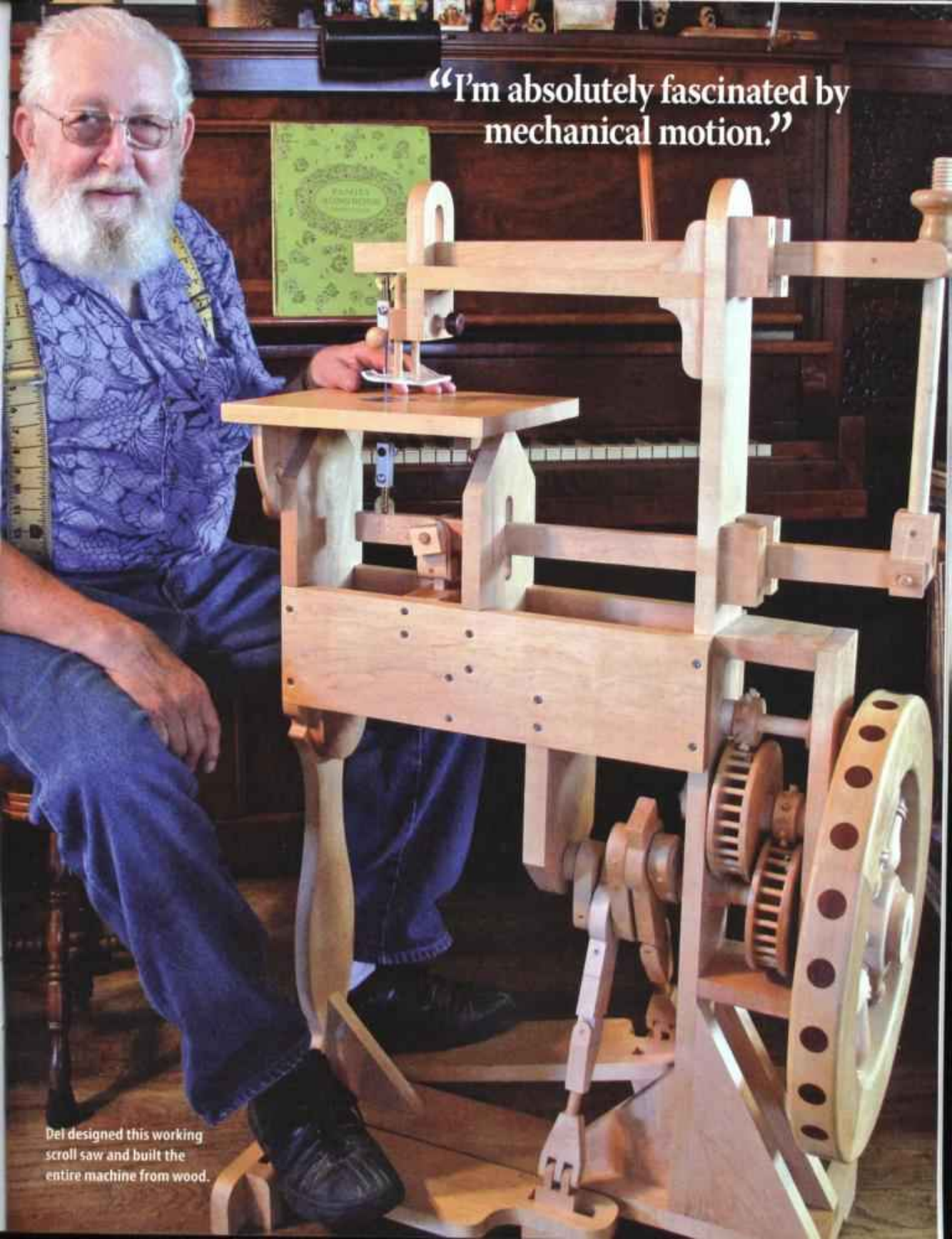
Many people want to buy his machines, but Del’s not selling. “I make these for my own amusement so I’ve never drawn up plans for them,” Del said. “Each machine is a true one-of-a-kind. To make another one I’d have to start all over again from scratch, and it would turn out completely different because I wouldn’t remember exactly how I did it the first time!”

Del was born and raised in Eugene, Ore. His father had a large woodshop that supplied young Del with plenty of wood scraps and nails. “Dad always said the neat thing about working with wood was that you could burn your mistakes,” Del explained. “So I was never afraid to try new things.

“I get an idea and become curious about how it might be made,” Del said. “I spend a lot of time thinking things through, trying to figure out how to do this or that. Sometimes it keeps me up at night, but I just keep on it till I get it. My wife says I’ve got a screw loose,” Del said with a laugh. “Maybe she’s right.”

Contact Del at woodificood@gmail.com or visit www.scrollsawer.com to see his art in motion.





“I’m absolutely fascinated by mechanical motion.”

Del designed this working scroll saw and built the entire machine from wood.

Making a Mechanical Railroad Handcar

Articulated figures appear to power the car as it rolls along

By Delbert Short

Step-by-step photos by Art Maddox

I love making wooden trains and have built many of them over the years. I thought it would be fun to make a toy railroad two-man handcar. It's a nice little addition to any train collection and makes a great gift for children. Kids love to watch the figures move up and down as they push the handcar along.

I suggest hardwood for this project because it produces a more durable toy. I made mine of alder, but any hardwood will do. I make my wheels with a lathe, but you can purchase wheels at craft stores or hobby shops. You will be gluing the end grain of the axle supports to the face grain of the platform, which makes weaker glue joints. While I've never had the axle supports break off of my handcar, there is a simple way to reinforce them if you wish. After the axle supports are attached and the glue is dry, drill holes down through the platform and into the supports, then fill the holes with glued dowels and sand them flush.



Start by transferring the patterns to the blanks. Use oversized blanks to make them easy to hold. To ensure the holes align properly, be sure to stack-cut the figures, the crank wheels, and Part C. Use your method of choice to stack the blanks before drilling the holes (see page 16). Drill the holes as shown on the patterns. I recommend a drill press, but you can use a hand-held drill if you are careful. Use an awl or sharp nail to mark the exact center of the holes to be drilled.

You can add color to the assembled toy with acrylic paints. Do not let paint get in any of the moving areas or it will interfere with the action of the toy.





1

HANDCAR: PREPARING THE PIECES

Step 1: Cut the pieces. Transfer the patterns to the blanks or stacks, drill the holes, and cut the pieces. Parts A, D, E, and F are compound-cut. Fold the pattern along the dotted line and align the fold with the corner of the blank. Drill the holes and cut the side with the rounded ends first. Then, rotate the blank and cut the side with the slots. Sand all of the pieces smooth.



2

Step 2: Assemble the figures' legs. Separate the stacks and temporarily insert a dowel through the hip holes to align the legs. Glue the foot spacers between the feet. When the glue is dry, trim the spacers to the same shape as the feet and remove the dowel.



3

Step 3: Add the axle supports. Glue and clamp the four axle supports (Part J) and the crosslink pivot (Part A) to the bottom of the handcar platform using the dotted lines on the pattern as a guide. Glue and clamp the upright pivot (Part F) into the slot through the top of the handcar platform. A portion of the upright pivot rests on top of the crosslink pivot. When dry, enlarge the holes in the axle supports to $\frac{3}{8}$ " (8mm) diameter, drilling through both supports at the same time so the holes align properly.



4

Step 4: Assemble the crank wheels. Glue a 1" (25mm)-long section of $\frac{3}{8}$ " (3mm)-diameter dowel into the crank hole on one crank wheel. Slide the dowel through the hole on the solid end of the crank link (Part E) and dry fit the dowel into the crank hole on the other crank wheel. Make sure there is enough clearance around the crank link (Part E), but that the crank wheel assembly fits within the axle supports. Trim the dowel to length and glue it into the second crank hole. Slide a section of $\frac{1}{4}$ " (6mm)-diameter dowel temporarily through the axle holes to make sure the crank wheels are aligned properly while the dowel in the crank hole dries.



5

Step 5: Assemble the wheels. Cut two sections of $\frac{1}{4}$ " (6mm)-diameter dowel slightly longer than $1\frac{1}{2}$ " (38mm). Position the crank-wheel assembly between the axle supports. Slide the dowel through the axle support and glue it into the axle hole in the crank wheel. Keep the dowel flush with the inside of the crank wheel so it doesn't interfere with the crank link (Part E). Glue the wheel to the dowel on the outside of the axle support and trim the dowel flush with the wheel. Be sure to leave enough room for the wheels to turn freely. Repeat for the opposite side. Then, cut a $3\frac{1}{2}$ " (89mm)-long section of $\frac{1}{4}$ " (6mm)-diameter dowel. Glue a wheel to one end of the dowel, thread the dowel through the axle supports, and glue the last wheel in place.

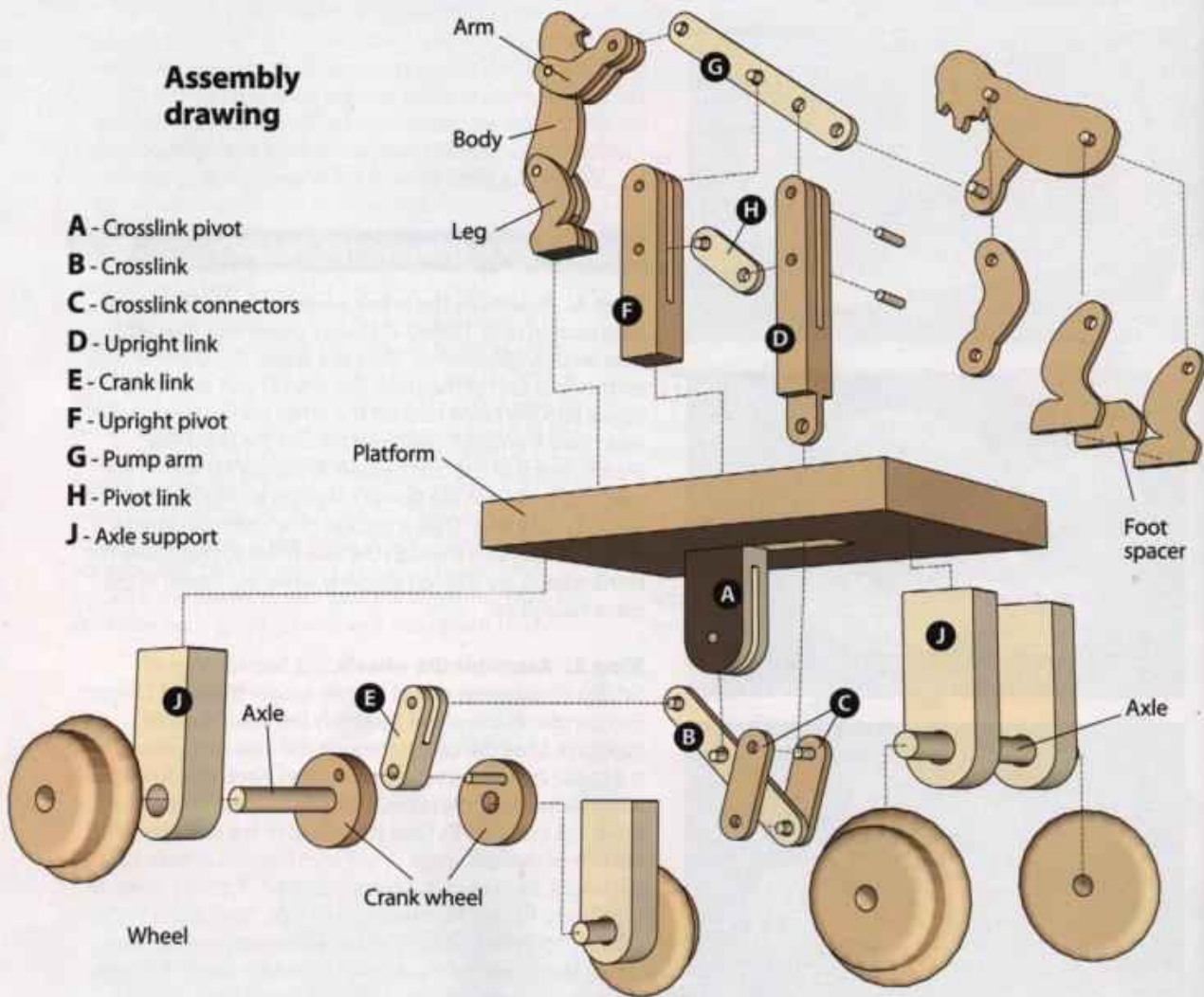


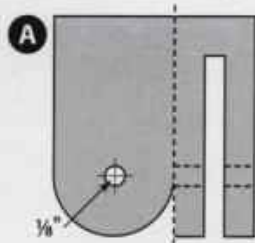
6

Step 6: Finish assembling the project. Use the assembly drawing as a guide. Use $\frac{1}{8}$ " (3mm)-diameter dowels to attach the pieces, trim off the excess dowel, and then sand the dowel flush with the parts. Use glue sparingly to lock the dowels on the outside of the assemblies if necessary, but do not let the glue squeeze out into the inner part of the assemblies. Attach the crosslink (Part B) to the crank link (Part E) and the crosslink pivot (Part A). Thread the upright link (Part D) down through the platform and use the crosslink connectors (Part C) to attach it to the crosslink (Part B). Attach the pump arm and pivot link (Parts G and H) to the upright link and upright pivot (Parts D and F). Assemble the figures and sand the bottom of the feet flat. Attach the hands to the pump arm (Part G), and then glue the feet to the platform.

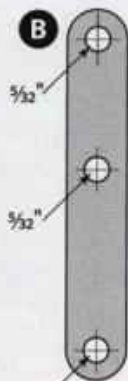
Assembly drawing

- A - Crosslink pivot
- B - Crosslink
- C - Crosslink connectors
- D - Upright link
- E - Crank link
- F - Upright pivot
- G - Pump arm
- H - Pivot link
- J - Axle support





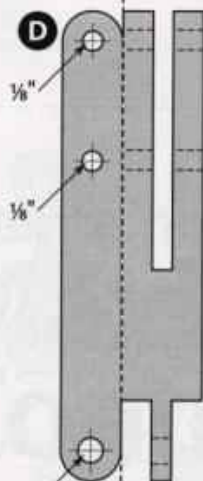
A
Crosslink pivot
Cut 1 - 1/2" stock



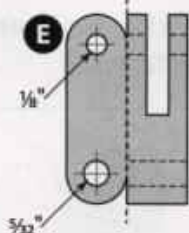
B
Crosslink connector
Stack-cut 2
1/8" stock



C
Crosslink connectors
Stack-cut 2
1/8" stock



D
Upright link
Cut 1 - 1/2" stock

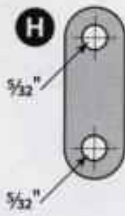


E
Crank link
Cut 1 - 3/8" stock

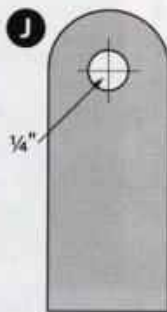


G
Pump arm
Cut 1 - 1/8" stock

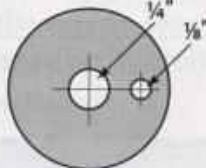
**Mechanical
handcar patterns**



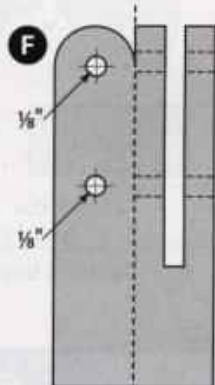
H
Pivot link
Cut 1 - 1/8" stock



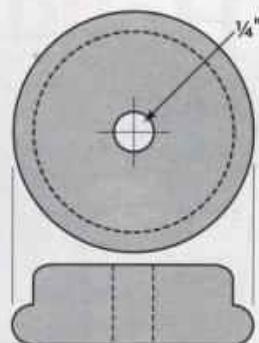
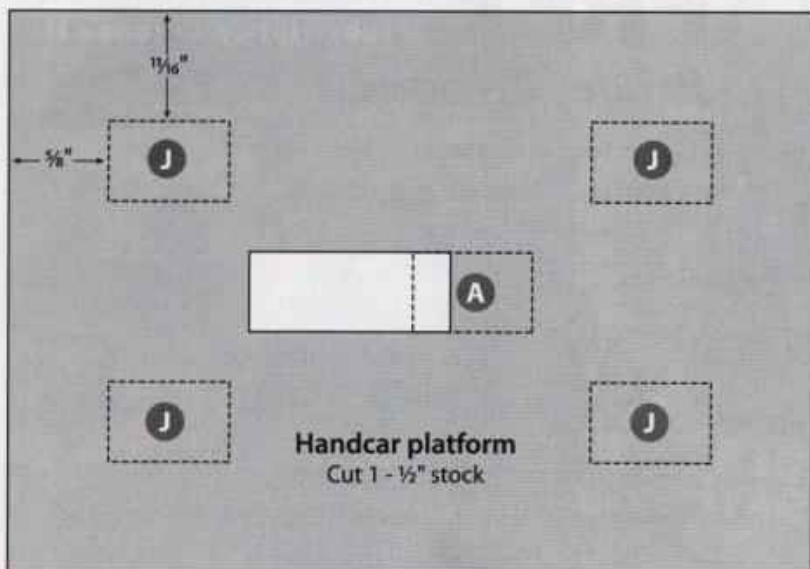
I
Axle support
Cut 4 - 1/2" stock



J
Crank wheel
Stack-cut 2 - 1/4" stock

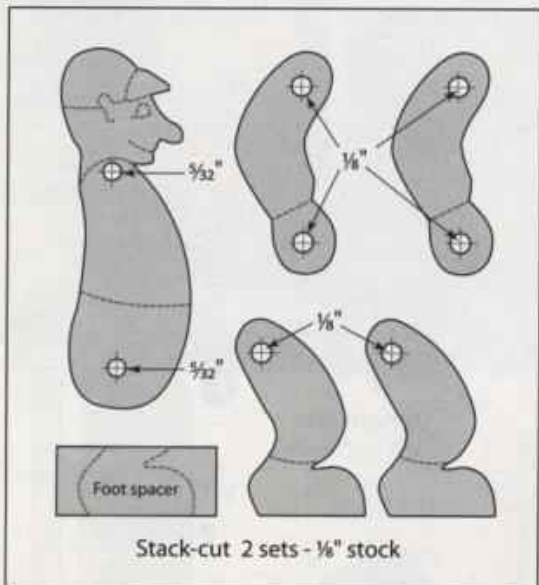


F
Upright pivot
Cut 1 - 1/2" stock



Wheel
Cut 4 - 1/2" stock

Mechanical handcar patterns



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Materials:

- 3/4" x 12" x 12" (3mm x 305mm x 305mm) alder
- 3/4" x 1 1/4" x 2 1/4" (6mm x 29mm x 57mm) alder
- 1/2" x 12" x 12" (13mm x 305mm x 305mm) alder
- 1/8" (3mm)-diameter dowel
- 1/4" (6mm)-diameter dowel
- 4 each 1 1/4" (32mm)-diameter wheels (can be cut from 1/2"-thick stock)
- Assorted grits of sandpaper

Materials & Tools

- Wood glue
- Acrylic paint (optional)

Tools:

- #5 reverse-tooth blades
- Drill press with 3/8", 5/32", 1/4", and 3/16" (3mm, 4mm, 6mm, 8mm)-diameter bits
- Clamps

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

TIPS

TABLE SAW SAFETY

If making your own 1/8"-thick stock on a table saw, use a zero-clearance table insert for safety.



Delbert Short lives in Eugene, Ore., where he spends his time creating mechanical wooden marvels. Contact Del at woodificood@gmail.com or view his art in motion at www.youtube.com/artmad1#p/u.

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Maintaining Maximum Control

**Learn the correct way to hold
and maneuver a scroll saw blank**

By Joanne Lockwood

The best way to learn scroll saw techniques is to take a class. Unfortunately, that's not always an option for new scrollers. Most beginners jump right into cutting a project and are disappointed with the experience and the results.

Beginners should take the time to learn and practice basic techniques. Experienced scrollers can use the following tips when introducing friends to this rewarding hobby.

One of the most important things to learn is how to hold and maneuver a scroll saw blank. Make a copy of the practice pattern and attach it to your blank (see the methods on page 16). Then, get ready to make some sawdust. After you work through the practice pattern, you'll be ready to tackle more challenging projects.

HOLDING AND TURNING A BLANK



DO NOT hold the very edges of the blank. This can cause you to lose control of the cut as you turn a corner.



DO hold the blank with your hands close to the blade.

I position my pinky and thumb on the edge of the blank if possible. This grip provides the most control and prevents the blank from chattering as the action of the saw bounces it off the saw table.



DO NOT try to control the majority of the blank with your non-dominant hand. It will be difficult to control the blank if your weaker, less-coordinated hand is doing most of the work.



DO position the wood so your stronger, dominant hand controls the largest part of the blank. If you are right-handed, the majority of the wood should be positioned on the right side of the blade.



DO NOT put your fingers in front of the blade.

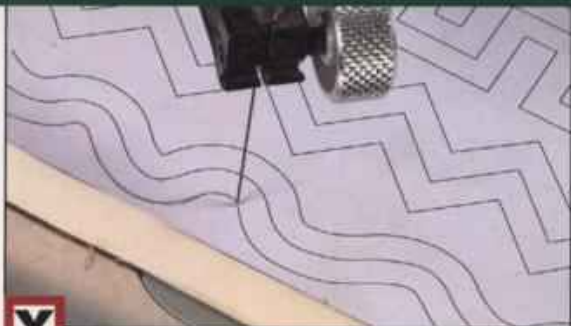
Demonstrators often place their finger on a moving scroll saw blade to show how safe the saws are, but if your finger is held against the wood when you touch the blade, you can get a small slice.



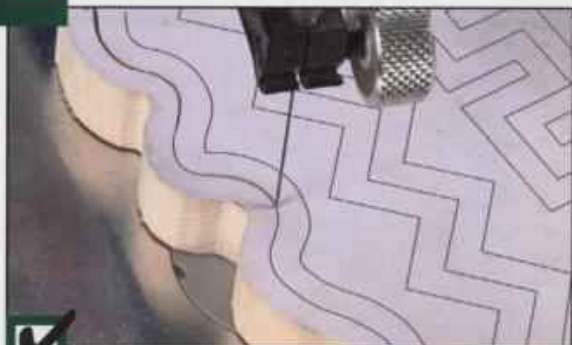
DO keep your fingers away from the front of the blade.

You can have your finger in front of the blade as long as it's a good distance from the blade, but a better position is to have your fingers about an inch away from the side of the blade when possible.

HOLDING AND TURNING A BLANK



DO NOT stop and start feeding the wood into the blade as you attempt to cut a circle or sweeping curve. This will produce a rough and choppy edge.



DO feed the wood slowly, but steadily, into the blade as you cut the curve. The more you can keep the feed rate constant, the smoother the overall cut and shape of the curve will be.



DO NOT turn off the saw when it is time to make a sharp turn. When you turn the saw back on, it will catch the blank and slam it back down onto the table, possibly breaking your work or pinching your finger.



DO keep the saw running and use your finger as a pivot point. Position your finger behind the blade, apply pressure, and use the finger as a pivot point. Use the opposite hand to rotate the blank. With practice, you can turn the blank without hearing the blade cut any wood.



DO NOT maintain a tight grip on your blank for long periods of time. This will cause your neck muscles and back muscles to cramp.

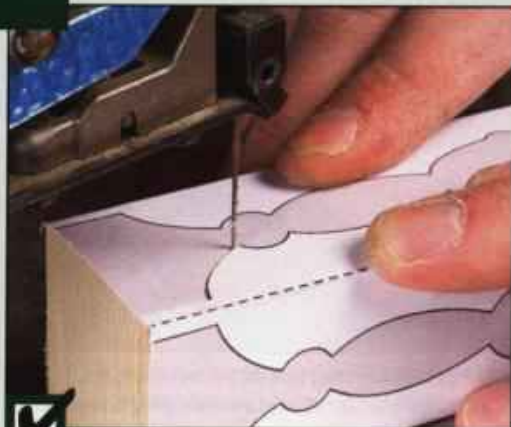


DO stop and relax whenever you feel your muscles tighten up. It doesn't take much effort to hold the blank down. If you feel tension in your neck muscles, stop and roll your head around a few times in both directions. Then, roll your shoulders from front to back and from back to front a few times to relieve the tension.

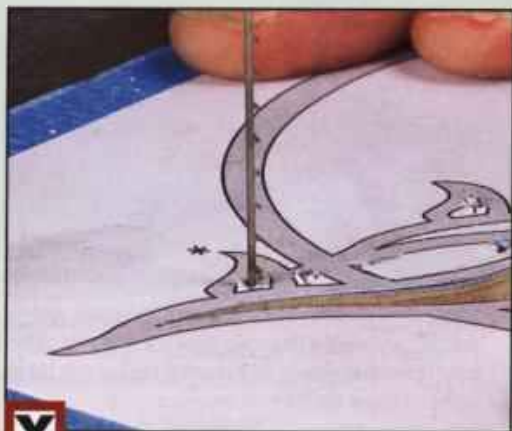
CHOOSING THE RIGHT BLADE



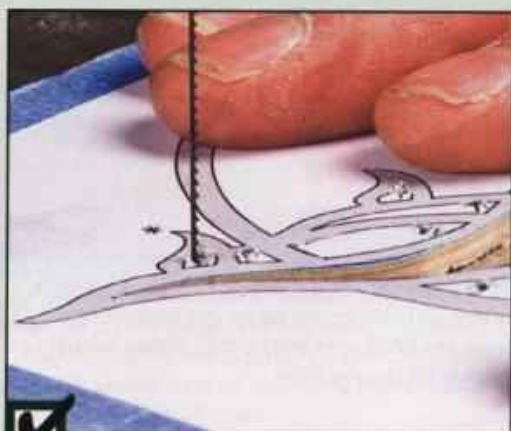
DO NOT use a small blade, such as a #3 blade, to cut wood more than $\frac{3}{4}$ " (19mm) thick. The small blade will dull quickly, burn the wood, and break prematurely.



DO use a large blade, such as a #9 blade, to cut thick wood. The large blade clears the sawdust better and cuts faster than a small blade without dulling, burning the wood, or breaking.



DO NOT use a large blade, such as a #9 blade, to cut intricate designs in thin wood. The large blade cuts thin wood too quickly, does not fit into tight areas, and can be difficult to control.



DO use a small blade, such as a #3 blade, to cut intricate designs in thin wood. The small blade cuts slower than a large blade, fits into tight corners, and is easier to control.

Further Reading

Learning to Use Your Scroll Saw

by Joanne Lockwood

A step-by-step, project-by-project manual taken from Joanne's all-day, hands-on seminar. Includes twenty-three projects.



Available for \$9.95 + S&H from Advanced Machinery, 800-727-6553, www.advmachinery.com. There is also a companion DVD available for \$9.95, or purchase both for \$16.95

ONLINE BONUS

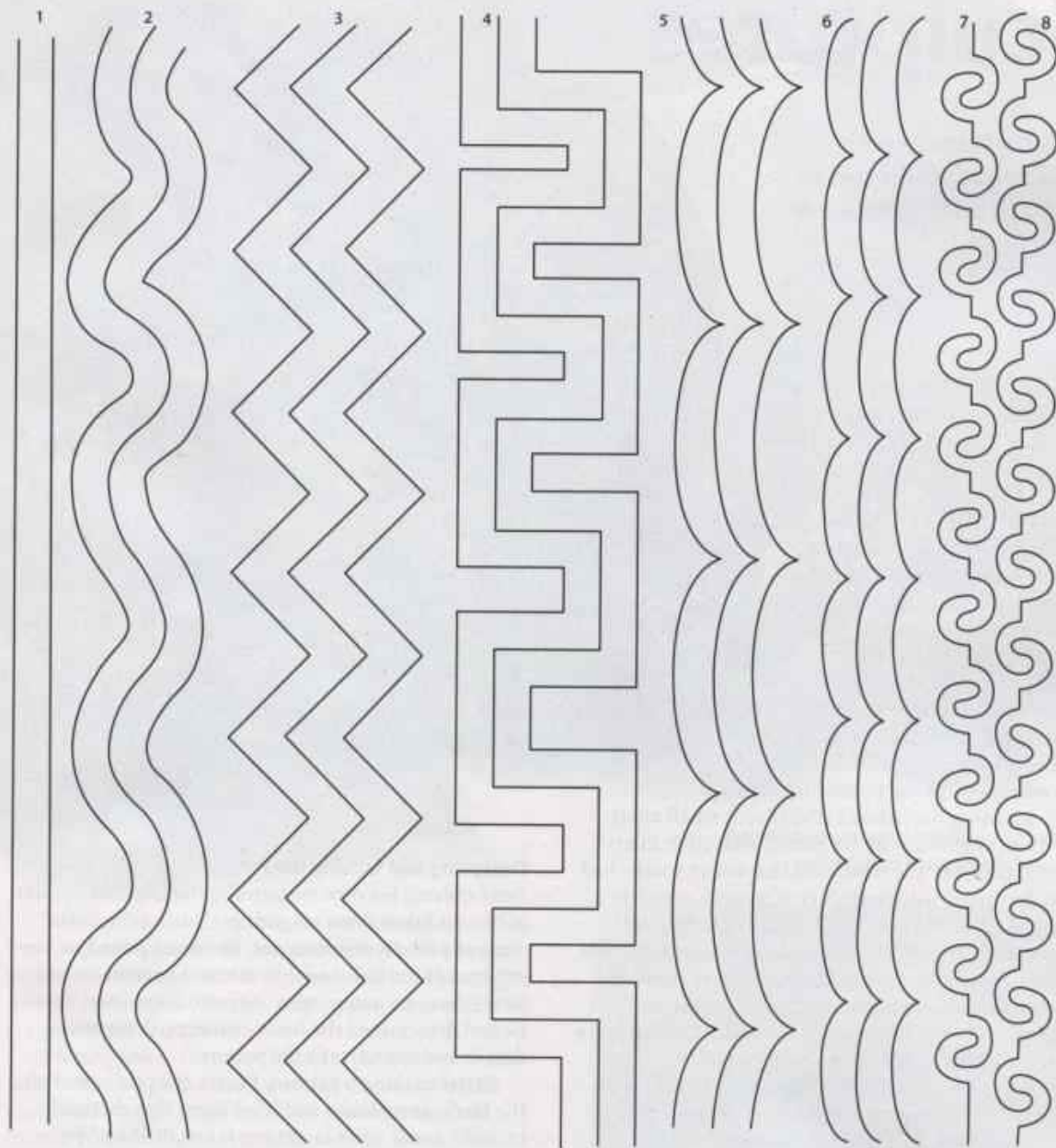
Download and print this article to share with new scrollers.

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Joanne Lockwood has been teaching scroll sawing for more than twenty years. She has introduced thousands to scrolling through her books, classes, and patterns. Joanne lives in Sparks, Nev., with her husband, Max.

Practice board pattern



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Amazing 3-D Sculptures

Peter Perkins used a variety of techniques to create stunning artwork

By Bob Duncan

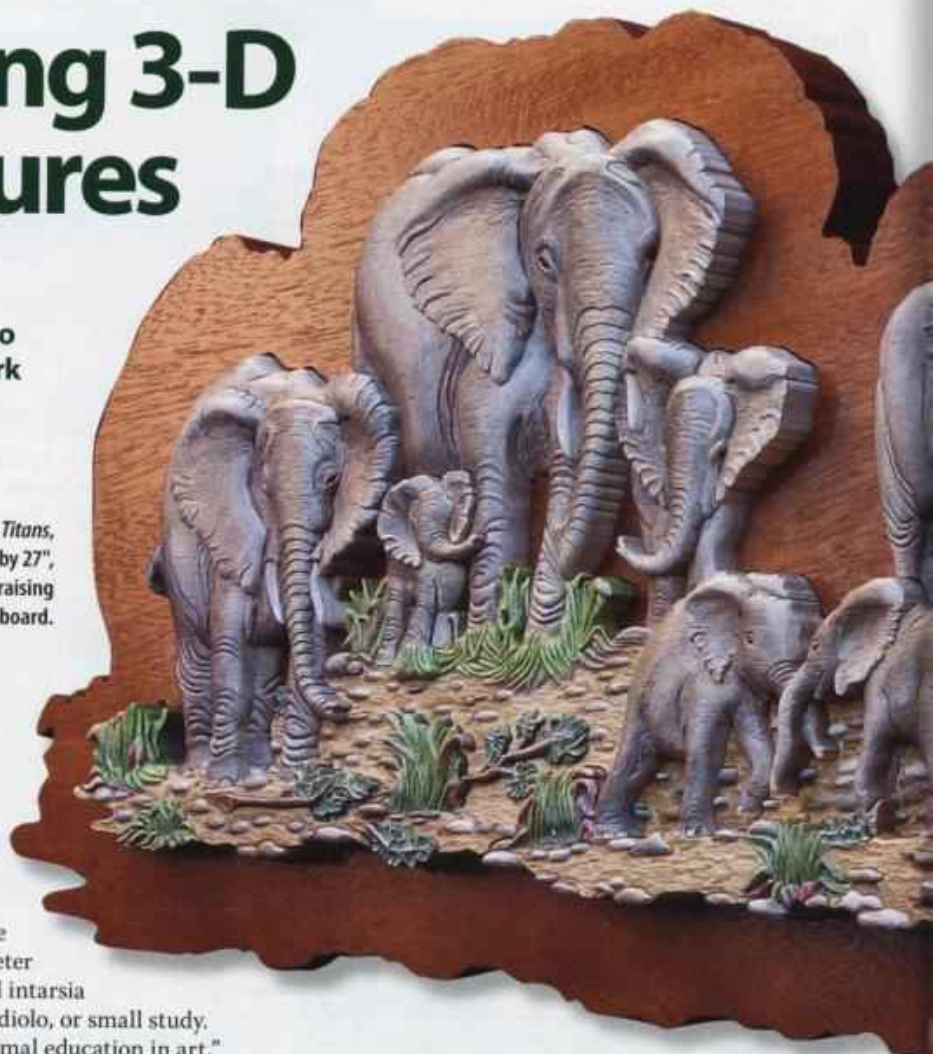
Clash of the Titans, which measures 11" by 27", was created by raising sections of a 1"-thick board.

Peter Perkins' interest in the scroll saw began as a relaxing hobby. After he retired from a career in manufacturing engineering, Peter began exploring the capabilities and history of the scroll saw. The hobby turned to an obsession after a visit to the Ducal Palace in the Italian city of Urbino. Peter was entranced by the beautiful intarsia work adorning the palace's studiolo, or small study.

"As an engineer with no formal education in art," Peter explained, "the revelation that entire rooms had been decorated with magnificent intarsia artwork changed my hobby into an obsession. During the Renaissance, the world's greatest art masterpieces did not just happen; they were the cumulative result of diligent experimentation and relentless practice."

Inspired by the breathtaking artwork created more than five hundred years ago, Peter began exploring new techniques and pushing the boundaries of what could be created with a scroll saw. He experimented with different tools, wood thicknesses, finishes, and techniques to develop his own style.

"I've settled on 1"-thick boards," Peter said. "These boards allow me to telescope the design outward to create a 3-D form. I carve a variety of textures into the surfaces and use paint to create my own variation of contemporary intarsia."



Designing and Cutting the Project

Peter created his own patterns by tracing photocopies of images taken from magazines. During the initial stage of pattern development, he concentrated on the outlines of the individual elements, which he would later telescope out or raise to create dimension. Once he had determined the basic elements, Peter added details and contours to the pattern.

"After making a pattern, I mark the position of all the blade-entry holes and label them alphabetically to make sure I don't forget any when drilling," Peter explained. "Then, I use airbrush ink to subdue the bright whiteness of the photocopies."

Peter covered the blank with clear packaging tape to protect and stabilize the pattern during long scrolling sessions. A project like *Clash of the Titans* required up to thirty hours of cutting time.



Peter Perkins was passionate about exploring new techniques to create unique 3-D artwork.

To accommodate large blanks in his small workshop, Peter mounted his scroll saw on a sled, which he could move from side to side. He supplemented the saw table with a removable worktable and supported oversize blanks on floating pylons.

"I wear gloves whenever I handle the pieces," Peter said. "Not only does it help me grip the pieces better when cutting and shaping, it also prevents skin oils from accumulating on the surface of the wood. These oils can interfere with the finish."

Peter strove to create intricate details and realism in his artwork. To reach this objective, he added a finger wheel to his saw. That enabled Peter to move the blade by hand when cutting intricate areas, such as the creases in the calves' trunks or the tree leaves.





He used small spiral blades to cut the elements that would be raised and used flat blades to create the detail lines. Peter glued veneer reinforcement pieces into the back side of the veining lines to support fragile areas of the design without the use of connecting bridges.

Shaping and Finishing the Project

Peter used traditional woodcarving tools, including skew chisels and gouges, to shape the pieces. He made his own micro chisels out of jeweler's screwdrivers to add fine details.

Peter created the general contours with the chisels and gouges, but as the sculpture began to emerge, he turned to 180-grit aluminum-oxide, cloth-backed sandpaper to establish and blend the final contours. Once Peter was happy with the shape of the piece, he prepared all of the surfaces for the finish. He started with 180-grit sandpaper and worked up through progressive grits to 320 grit. Peter created sanding

sticks from scrap wood or plastic cards cut into different shapes. He could bend the plastic cards, such as old credit cards, to conform to any contour. Peter secured thin belts of cloth-backed sandpaper to the sanding sticks with rubber bands so he could rotate the belt to provide fresh abrasive.

To create fine detail, such as the folds and creases in the elephant's legs, Peter re-shaped the sharp cutting edge of a woodburner tip into a half-round shape. He then marked the intended creases with low heat and increased the heat to deepen the creases. The woodburner compressed the wood but did not remove any material, so Peter used diamond bits to vary the depth of the creases and folds.

Peter used transparent acrylic pigments mixed with water and mediums to create glazes. The mediums improved paint flow, retarded drying time, and created a variety of surface finishes from matte to full gloss. Before adding color, Peter sealed the pieces with two airbrushed coats of cellulose sanding sealer. He added



Peter created a custom support system to handle oversized blanks in his small workshop. Dust collection was installed both above and below the worktable.



Peter adapted his scroll saw so he could control the cutting action with a finger wheel. This provided superior control when making intricate cuts.



Instead of using bridges to add strength to the design, Peter glued pieces of veneer in the veining cuts on the back of the project. The veneer supports fragile areas and is not visible from the front.



Peter created sanding sticks by using rubber bands to secure belts of sandpaper to scrap wood or plastic cards.

color with several washes, enabling Peter to slowly build gradations of color to accent or diminish texture and add highlights or shadows to emphasize contours. When the paint was dry, Peter sealed the project with an oil finish or varnish.

For *Clash of the Titans*, Peter used the original pattern to cut the background from 1"-thick mahogany. He then glued the finished sections into the background at varying heights to add to the dimensionality of the design. The project took nearly five hundred hours to complete, but after a career based on meeting deadlines, Peter derived immense pleasure and satisfaction from working at his own pace to create his heirloom-quality artwork.



Peter Perkins was interviewed for this article before his death in May 2010. Peter lived with his wife, Inene, in Warwickshire, England, where he regularly displayed his work at local woodworking and woodcarving shows and exhibitions.



Peter added color to his artwork with transparent acrylic pigments mixed with mediums to create glazes.

Build a Fretwork Eagle Shelf



Functional shelf combines intricate fretwork with a sturdy tab-and-slot design

*By Lora S. Irish
Cut by Rolf Beuttenmuller*

The intricate fretwork makes this a challenging project, but the finished shelf is well worth the effort. Stack-cut the sides to speed production and support the fretwork during cutting. The patriotic eagle design makes this functional shelf an ideal gift for friends or family who served in the military.

Start by cutting the blanks to the sizes listed in the materials list. Sand the blanks smooth with progressively finer grits of sandpaper. Stack together the two side blanks using one of the techniques explained on page 16. Attach the patterns to the blanks using your method of choice. Adjust the size of the slots to match the thickness of your stock if necessary. It is better to cut the slots slightly undersize and sand them for a perfect fit. Drill pilot holes to match the diameter of your screws where indicated on the

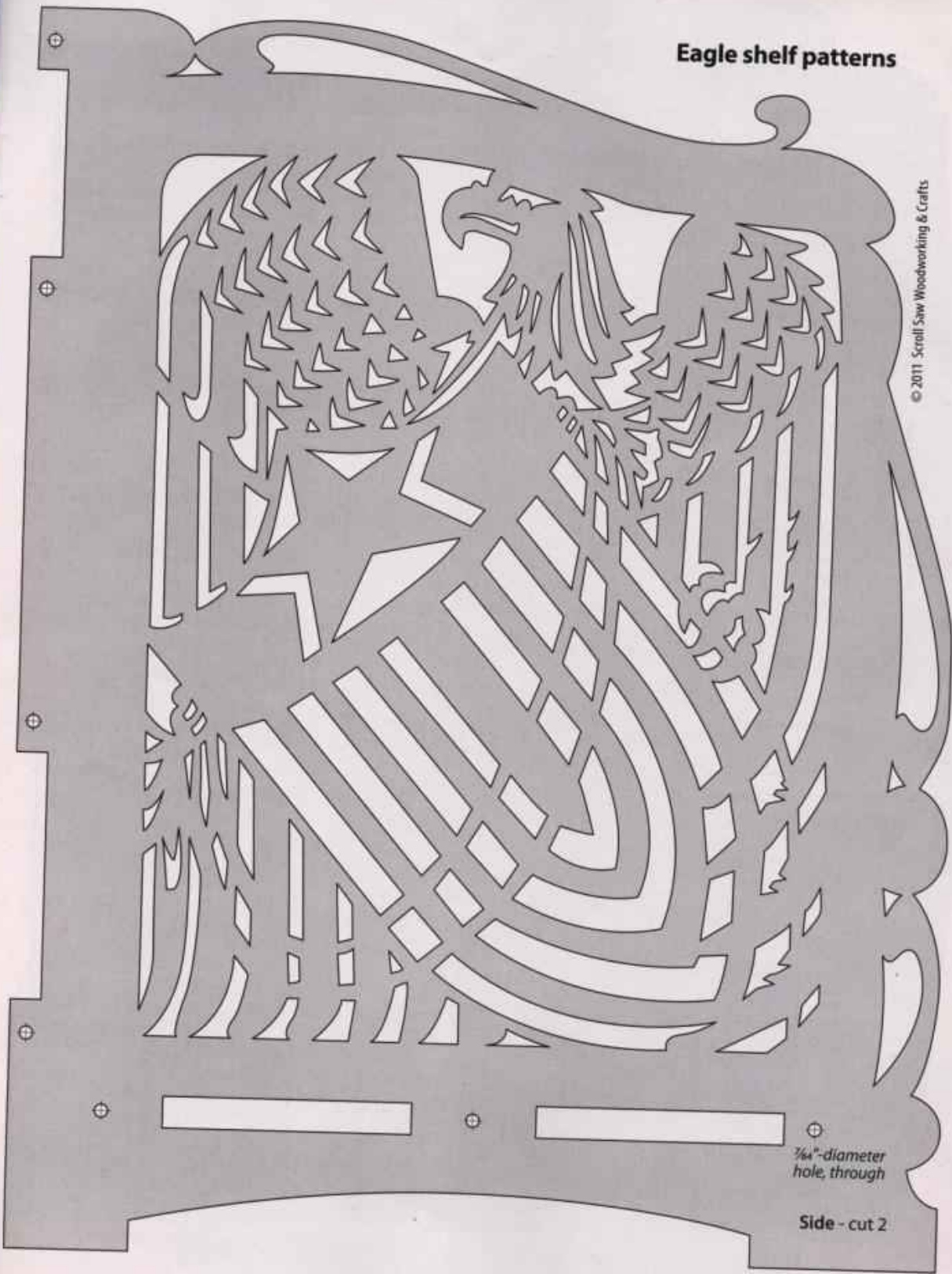
pattern. Drill blade-entry holes and cut the fretwork and slots. Then, cut around the perimeter.

Sand the pieces to remove any tear out or fuzzies. Dry assemble the pieces to make sure everything fits properly. When you are satisfied with the fit of the pieces, glue and clamp the pieces together and allow the glue to dry overnight.

After the glue dries, use the pilot holes drilled earlier to drill holes deep enough to accommodate $\frac{3}{8}$ " (19mm)-long screws. Apply your finish of choice. I suggest several coats of spray lacquer. Finally, drive the screws from the sides into the rails and bottom. Round-head brass screws accent the overall design. If you use flat-head screws, drill a small countersink hole to accommodate the taper under the head. Otherwise, the taper may crack the wood.

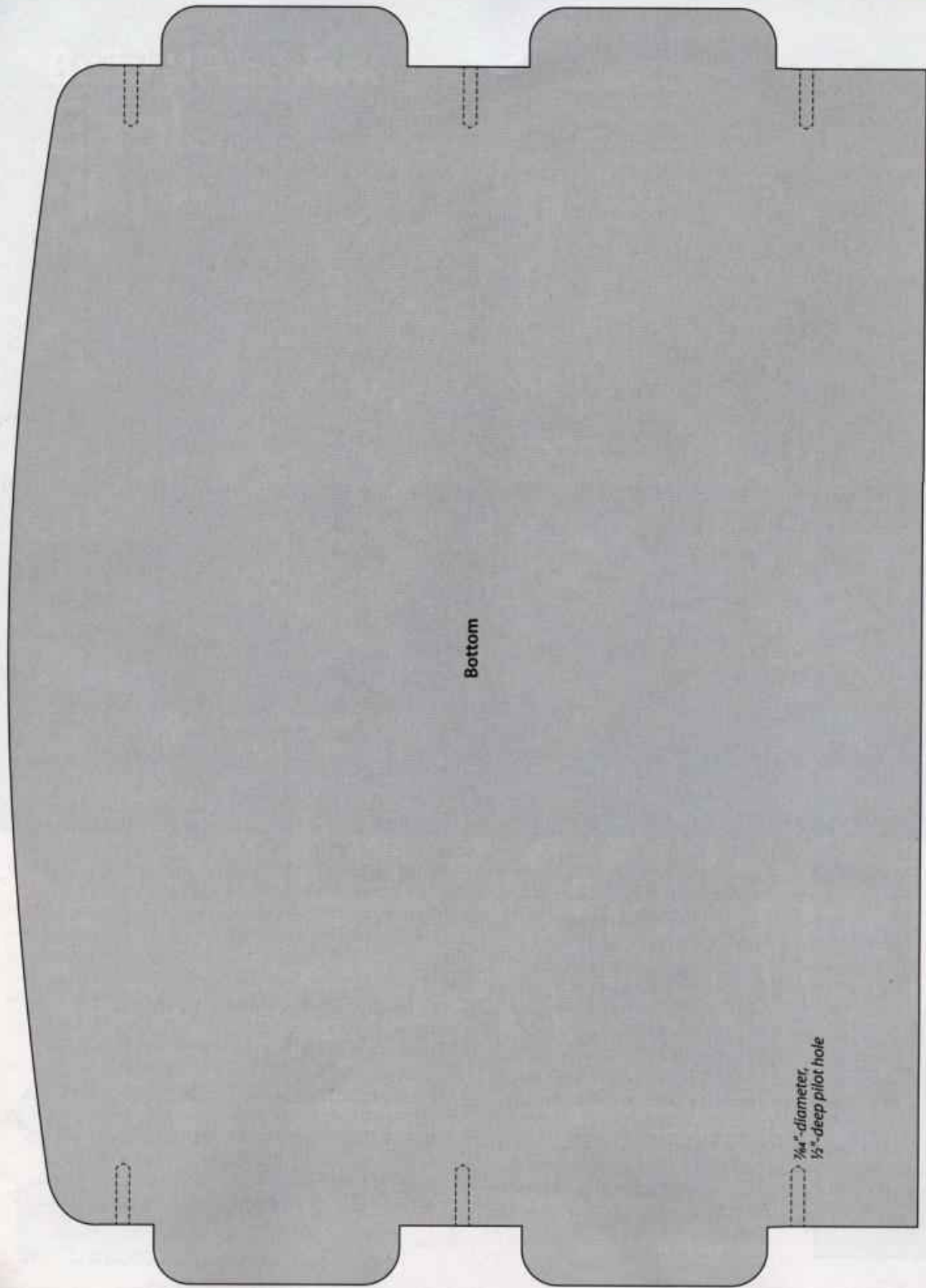
Eagle shelf patterns

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$\frac{3}{4}$ "-diameter hole, through

Side - cut 2



Bottom

$\frac{3}{4}$ "-diameter,
 $\frac{1}{2}$ "-deep pilot hole

Top rail

$\frac{1}{64}$ "-diameter,
 $\frac{1}{8}$ "-deep pilot hole

Bottom rail

$\frac{1}{64}$ "-diameter,
 $\frac{1}{8}$ "-deep pilot hole

Materials & Tools

Materials:

- $\frac{1}{4}$ " x $3\frac{1}{4}$ " x $10\frac{3}{4}$ " (6mm x 83mm x 273mm) pine (bottom rail)
- $\frac{1}{4}$ " x $2\frac{3}{4}$ " x $10\frac{3}{4}$ " (6mm x 70mm x 273mm) pine (top rail)
- 3 each $\frac{1}{4}$ " x $7\frac{3}{4}$ " x $10\frac{3}{4}$ " (6mm x 197mm x 273mm) pine (bottom, sides)
- Assorted grits of sandpaper up to 220 grit
- Wood glue
- Spray lacquer
- 14 each #4 by $\frac{3}{8}$ " (3mm x 19mm) brass round-head wood screws

Tools:

- #3 reverse-tooth blades
- Drill with assorted small bits
- Screwdriver
- Clamps

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

Further Reading

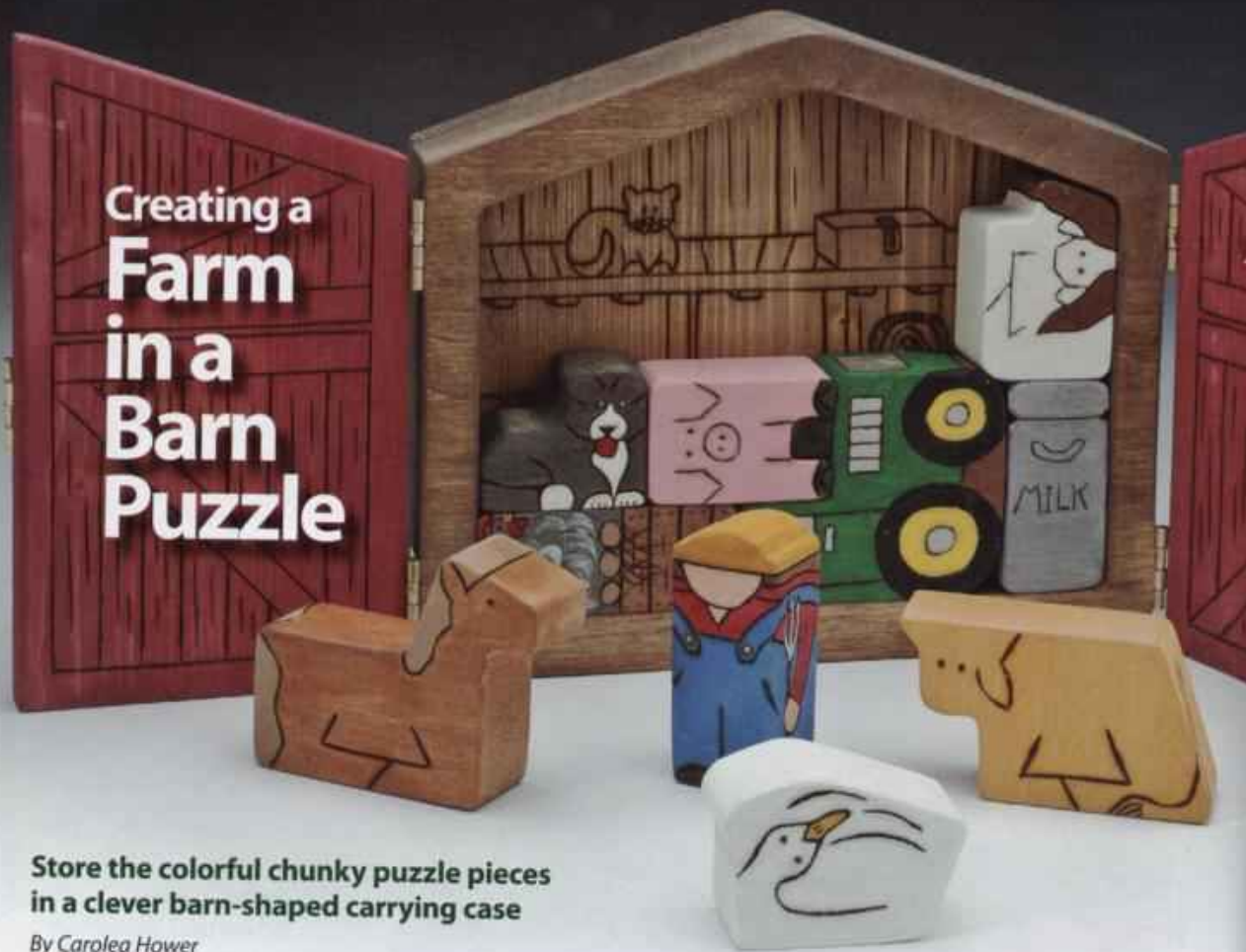
Exclusive Lora S. Irish fretwork shelf pattern pack, featuring seventeen additional side patterns with mix-and-match rail patterns, is available for \$9.99 + \$4.75 S&H from Fox Chapel, 800-457-9112, www.FoxChapelPublishing.com.



Lora S. Irish is a nationally known artist and the author of many books, including North American Wildlife Patterns

for the Scroll Saw and World Wildlife Patterns for the Scroll Saw, both available from Fox Chapel Publishing, www.foxchapelpublishing.com. Lora lives in Mount Airy, Md., with her husband, Michael. For more of her work, visit her digital pattern warehouse at www.carvingpatterns.com.

Creating a Farm in a Barn Puzzle



Store the colorful chunky puzzle pieces in a clever barn-shaped carrying case

By Carolea Hower

Last year, a friend asked me to make a few puzzles based on an old nativity puzzle. My friend wanted to give each of her children one of the puzzles for Christmas. Her puzzle had no details and was quite large. After some thought, I designed a smaller nativity puzzle and added a background scene and details to the pieces and stable doors.

I was quite pleased with the results of my first puzzle. Having been raised on a farm, I knew my second puzzle would have a farm theme.

This farm in a barn puzzle can be completed in a weekend. The color scheme makes painting quick and easy. Woodburned details add interest and simplify the painting process. Inexpensive woodburners are available at most craft and hobby stores. If the project is intended for children under three years of age, enlarge the pattern to prevent a choking hazard.

Interior details are woodburned on the inside of the puzzle case.

FARM PUZZLE: CUTTING THE PIECES



1 **Transfer the patterns to the blanks.** Use your method of choice. I use acetone to transfer the lines from a laser photocopy of the pattern onto the blank (see *Transferring the pattern*, page 43). If you transfer the pattern with graphite paper, your project will be a mirror image of mine. Cut the perimeter on all three pieces.



2 **Cut the puzzle pieces.** Drill a blade-entry hole where indicated on the center blank and cut along the dashed line. Cut the puzzle pieces into two sections by cutting along the side of the farmer and bottom of the horse and tractor. Remove any small waste pieces, such as the triangles under the milk can lid, before cutting each puzzle piece free.

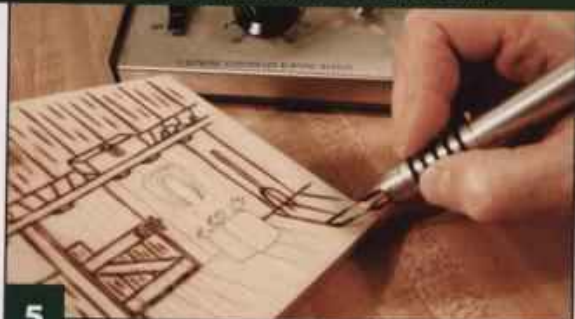


3 **Add the detail patterns.** Sand the edges of each cut piece by hand. Transfer the additional detail patterns to the back layer and each of the puzzle pieces using graphite paper or acetone.



4 **Sand the pieces.** I use a 1" (25mm)-wide belt sander equipped with a 120-grit belt to round all of the sharp corners. Then, hand-sand the edges of the pieces with 120-grit sandpaper.

FARM PUZZLE: FINISHING THE PUZZLE



5 **Woodburn the details.** Use a skew tip in your woodburner to burn deep lines along all of the transferred details. The deeply burned lines keep the paints from bleeding and add contrast to the stained barn scene.



6 **Assemble the box.** Attach the barn back to the puzzle ring from the center blank with 1" (25mm)-long brads. Mark the vertical line between the doors. Cut and sand the doors. Attach the doors to the puzzle ring with double-sided tape. Press the doors firmly down onto the tape.

FARM PUZZLE: FINISHING THE PUZZLE



- 7** **Sand the outside of the puzzle.** Sand the perimeter of the assembly with a disc sander equipped with a 120-grit disc. Sand until all three layers are flush on all sides. Use a 6" (152mm)-long square to make sure the sides are square with the bottom. Then, sand off any sharp corners.



- 9** **Finish the doors.** Transfer the detail lines to the front and back of the doors and burn in the lines using a skew tip. Use the center pattern to transfer the puzzle solution onto the back of the barn and burn those lines. Dilute one part barn red acrylic paint with two parts water to create a wash. Apply this wash to the doors. Stain the rest of the barn assembly.



- 8** **Attach the hinges.** With the doors taped in place, attach the hinges with small screws. Use a thin knife blade to separate the tape securing the doors to the puzzle ring and remove the tape. Check to make sure the doors open freely. Remove the doors from the hinges, but leave the hinges attached to the puzzle ring. Sand the inside edges of the doors if needed.



- 11** **Attach the latch.** Reattach the doors to the hinges. Mark the location of the latch and install the latch. Seal the completed puzzle with spray lacquer or spray varnish if desired.



- 10** **Paint the pieces.** Paint the puzzle pieces with acrylic paint washes using one part paint to two parts water. Do not dilute the white or metallic paint. Mix medium flesh, white, and tompte red to make a pink for the pig. To add the highlights to the dog's eyes, apply a small amount of white to the eye using the tip of a round toothpick.

Materials:

- 2 each $\frac{3}{4}$ " x 6" x 7" (10mm x 152mm x 178mm) pine (front, back)
- $\frac{3}{8}$ " to $\frac{3}{4}$ " x 6" x 7" (16mm to 19mm x 152mm x 178mm) basswood (center)
- Acetone or graphite paper (optional)
- Wiping rags
- #19 by 1" (25mm) wire brads
- 4 each $\frac{3}{4}$ " x $\frac{3}{4}$ " (19mm x 19mm) hinges
- $\frac{3}{4}$ " x $1\frac{1}{4}$ " (19mm x 48mm) brass-plated hasp
- 20 each #1 by $\frac{3}{4}$ " (10mm) screws
- Stain of choice
(I use Minwax special walnut 224)
- Sandpaper, 120 grit
- Clear double-sided tape
- Round toothpicks
- Delta Ceramcoat acrylic paints: tompete red (farmer's shirt, dog's tongue), copen blue (farmer's overalls), medium flesh (farmer's face, hands), black (farmer's shoes, tractor tires, tractor exhaust pipe, dog's body, pig feet), burnt umber (fork handle), Christmas green (tractor body), spice brown (ground under tractor, horse body), aluminum (tractor windows, hubs, radiators, door handles), brown velvet (chicken crate and nest box, sheep's horns), bambi brown (eggs, horse mane, horse tail), yellow (chicken bill, goose bill), white (chicken body highlights, dog details, goose body), golden yellow (cow), barn red (barn doors)

- Plaid Apple Barrel acrylic paints: bright yellow (tractor tire rims),
- Plaid FolkArt acrylic paints: gilded oak (farmer's hat), coffee bean (farmer's hair), aluminum (fork tines), medium gray (chicken body), cardinal red (chicken's comb)
- DecoArt acrylic paint: splendid gold (farmer's buttons), oyster white (sheep body), gunmetal (milk can)

Tools:

- #7 reverse-tooth blades
- Ruler
- Pencil
- Woodburner with skew tip
- 1" (25mm)-wide belt sander with 120-grit sandpaper
- 10" (254mm)-diameter disc sander with 120-grit sandpaper
- Drill with $\frac{3}{8}$ " (3mm)-diameter bit
- Hammer
- Small screwdriver
- #03 pointer brush
- $\frac{3}{4}$ " (6mm)-wide shader brush
- $\frac{1}{2}$ " (13mm)-wide shader brush
- Knife
- 6" (152mm) square

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

**Transferring the pattern**

The pattern includes detail lines that are woodburned to enhance the finish. You can use the paper pattern when cutting the blank, but will need to transfer the detail lines for finishing.

There are several ways to transfer the detail lines to the wood. You can place graphite or carbon paper between the pattern and the blank and trace the lines onto the wood. You can also make a photocopy of the pattern and transfer the toner from the pattern onto the blank using heat. Trim the excess paper off of the photocopy and use tape to secure the pattern in position face down on the blank. Make sure the tape does not cover any of the pattern lines. Run a hot iron or heated stamping tool along the pattern lines. You could also apply a small amount of acetone to a rag and rub the rag firmly over the back of the pattern. The acetone will soak through the paper and dissolve a small amount of the photocopy toner, which will transfer to the blank. Pure acetone can damage your skin and lungs, so use caution and work in a well-ventilated area. With any of these methods, lift a corner of the pattern to make sure all of the pattern lines have transferred before removing the pattern.

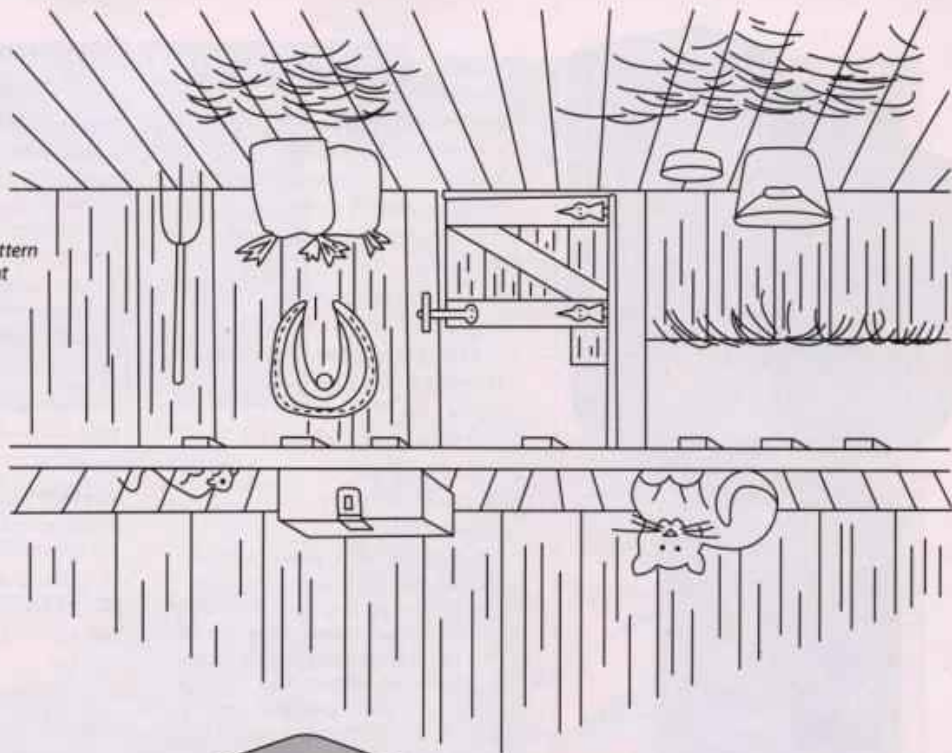


Carolea Hower lives on a farm outside Arkansas City, Kan., with her husband, Ken. For more of her work, visit her website at www.puzzlesinabox.com.

Farm in a barn puzzle patterns

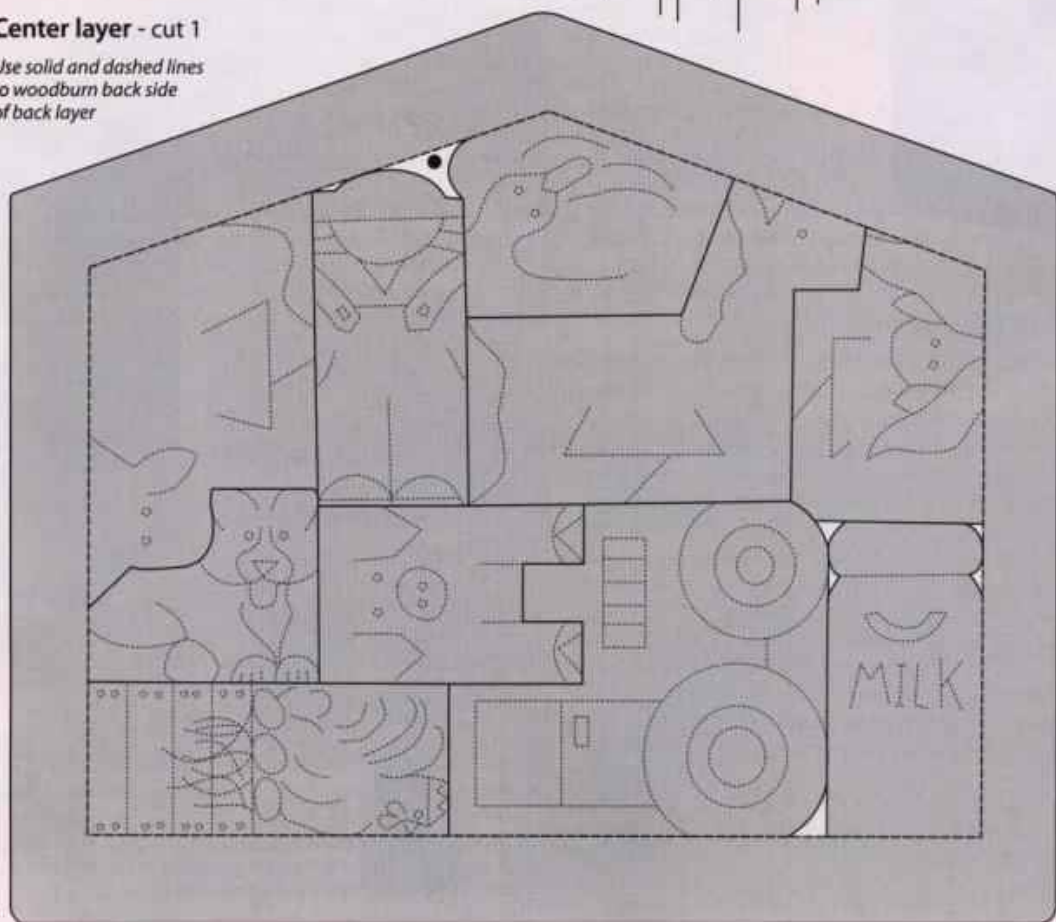
Back layer

Transfer detail pattern
to woodburn front
side of back layer



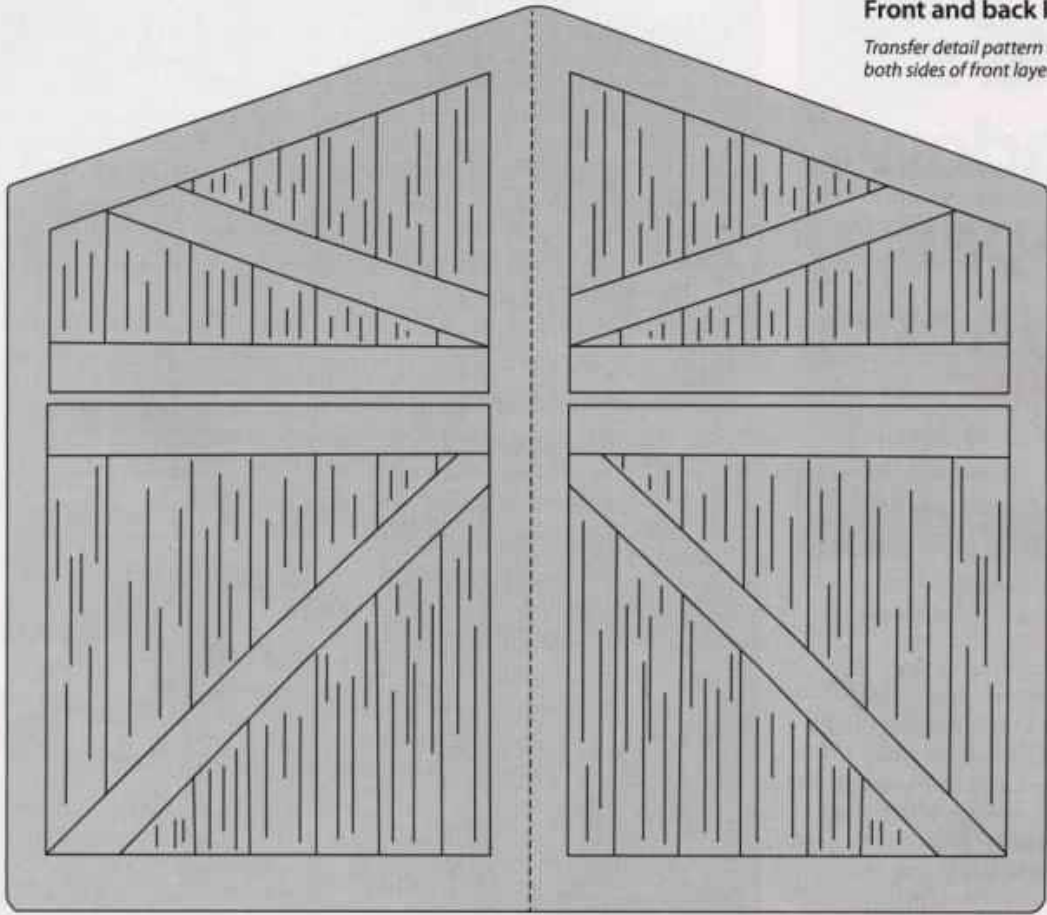
Center layer - cut 1

Use solid and dashed lines
to woodburn back side
of back layer



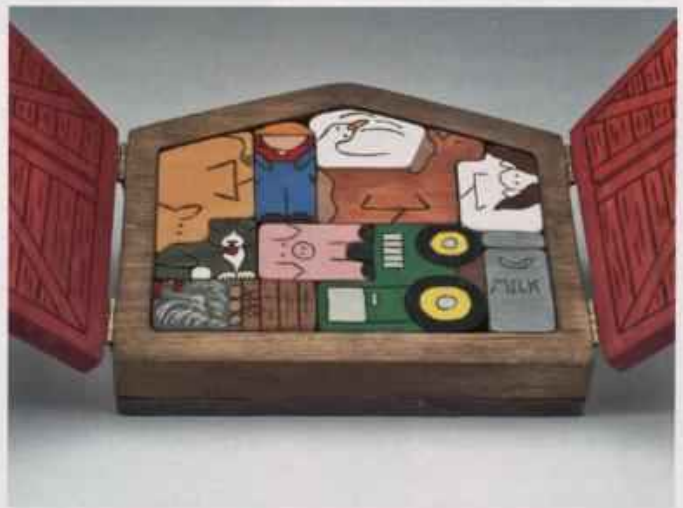
Front and back layer - cut 2

Transfer detail pattern to woodburn both sides of front layer.



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Additional patterns for the **FARM IN BARN PUZZLE** are in the pattern pullout section.



Build a Window Peeper Birdhouse

Witness the fascinating activity inside a birdhouse with this clever design

By Paul Meisel

Get a close-up view of birds building their nest and raising their family with this clever design. Witness the excitement when the eggs first hatch and watch as the tiny birds hold their mouths wide open waiting impatiently for morsels of food brought to them by their parents. You will be right there to see the tiny birds leave the safety of the nest and take their first awkward flight.

This special view of the life of a baby bird is possible because of the clear plastic panel on the back of the birdhouse. Position the birdhouse with the clear panel facing your window to watch everything from inside your home.

Cut the Pieces

This project features a 1½" (32mm)-diameter entrance hole, which creates a house suitable for chickadees, nuthatches, titmice, and wrens. Enlarge the hole to 1½" (38mm) diameter for sparrows and warblers. I suggest hanging the birdhouse from the eaves of your house so you can position it at the best viewing height.



I cut this project from cedar because it is resistant to decay, but you could use pine.

With careful placement, all of the parts can be cut from one 1" by 8" by 6' (25mm x 203mm x 1,830mm)-long board. The project is designed for ¾" (19mm)-thick stock but could also be made from ¾" (22mm)-thick stock with no adjustments to the patterns.

Use the patterns to cut the front and back pieces. Cut the roof A blank to 5½" by 8" (133mm

by 203mm). Cut the roof B blank to 6" by 8" (152mm by 203mm). Cut the bottom blank to 4½" by 5½" (121mm by 146mm). Cut the two side pieces to 5½" by 8½" (146mm by 216mm). Then, cut the 45° bevel on the top edge of both sides. Cut the ¼" by ¼" (3mm by 3mm) groove for the clear acrylic back on the side pieces. The groove is positioned ¼" (6mm) from the back of each side. Drill the ¼" (3.5mm)-diameter screw clearance holes and countersink for the

screws that hold the bottom in place. Finally, drill the appropriate size entrance hole in the front of the birdhouse for the type of bird you wish to attract.

Most of the project is assembled with water-resistant glue and finishing nails. Do not glue the bottom in place; it is removable so you can clean out old nests.

Attach the patterns to the appropriate blanks. I rip a strip of $\frac{3}{8}$ " (19mm)-thick stock down to $\frac{1}{2}$ " (13mm) thick for the eyes. The rest of the pieces are cut from $\frac{3}{8}$ " (19mm)-thick stock. Drill the $\frac{1}{4}$ " (6mm)-diameter holes where indicated for the plastic eyes before cutting the wooden eyes to shape.

Assemble the Birdhouse

Sand all of the pieces smooth. Glue and nail the facial features in place. I nailed them from the front and filled the nail holes with putty. They could also be nailed from the inside, which would eliminate the need for putty. Glue and nail the ears to the sides.

After you attach the facial features, use the exploded view in the pattern pullout section to assemble the birdhouse. Glue and nail the sides to the front and

back. Slip the clear acrylic into the grooves in the sides and attach the removable bottom piece with screws. Center the roof A and B pieces and attach them to the sides with glue and nails. Drive a few nails down through the end of the roof A piece into the end of the roof B piece. Glue and nail the hands to the front. Cut the shanks on the plastic eyes down to $\frac{1}{2}$ " (13mm)-long with a hacksaw or side cutter. Then, glue the plastic eyes in place.

If you use cedar or redwood, you do not need to apply any sort of finish. These weather-resistant woods will darken over time, but resist rotting and decay. If you use a less weather-resistant wood, apply a coat of exterior preserver or a coat of sanding sealer before applying a coat of exterior polyurethane. Do not apply finish to the inside of the birdhouse.

Hanging the Project

Drill $\frac{3}{32}$ " (2.5mm)-diameter holes $1\frac{1}{2}$ " (38mm) in from each end on the ridge line of the roof for the screw eyes. I use #16 jack chain to hang the birdhouse. Open the appropriate chain links using pliers and attach the ends of the chain



Attach the whimsical facial features and ears before assembling the box.

to the screw eyes. Squeeze the link closed with pliers to secure the chain to the screw eyes. Attach two screw eyes under the eave of your house or other suitable location and use the same technique to open a link and secure the chain to the other screw eyes.

Materials:

- $\frac{3}{8}$ " to $\frac{7}{8}$ " x 8" x 6" (19mm to 22mm x 203mm x 1,830mm) cedar
- $\frac{1}{8}$ " x 5" x 7" (2mm x 127mm x 178mm) clear acrylic (8773)*
- 2 each $\frac{1}{4}$ " (23mm)-diameter brown plastic eyes (9915)*
- 4 each $1\frac{1}{4}$ " (33mm)-long screw eyes*
- 16 feet (4,875mm) of #16 jack chain*
- 4 each #6 by 2" (51mm)-long wood screws
- $1\frac{1}{4}$ " (32mm)-long finishing nails, brads, or fasteners

- Assorted grits of sandpaper
- Water-resistant wood glue

Tools:

- #7 skip-tooth blades, such as Olson #448-F
- Table saw

Materials & Tools

- Hand drill or drill press with $\frac{3}{16}$ " (3.5mm)- and $\frac{3}{32}$ " (2.5mm)-diameter bits
- Countersink bit
- Claw hammer (or brad nailer)
- 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. A kit (3037) including 4 screw eyes and 16' of jack chain to hang the birdhouse is also available. To order parts or to request a catalog, call 800-441-9870 or visit www.meiselwoodhobby.com.

TIPS PROPER VENTILATION

Although not shown in the pattern drawings, it is a good idea to drill several $\frac{3}{8}$ " (10mm)-diameter air-vent holes in the side pieces just underneath the edges of the roof pieces and four $\frac{1}{4}$ " (6mm)-diameter drain holes in the bottom piece.

Patterns for the **WINDOW PEEPER BIRDHOUSE** are in the pattern pullout section.



Paul Meisel of Mound, Minn., and his staff have designed more than 3,500 woodworking plans. To see project plans in many different categories, visit his website (see special sources). Paul is currently working with Fox Chapel on a new book of birdhouse designs.

Dragon Fretwork

Cut this fantasy design from hardwood for a striking display

By TJ Brown

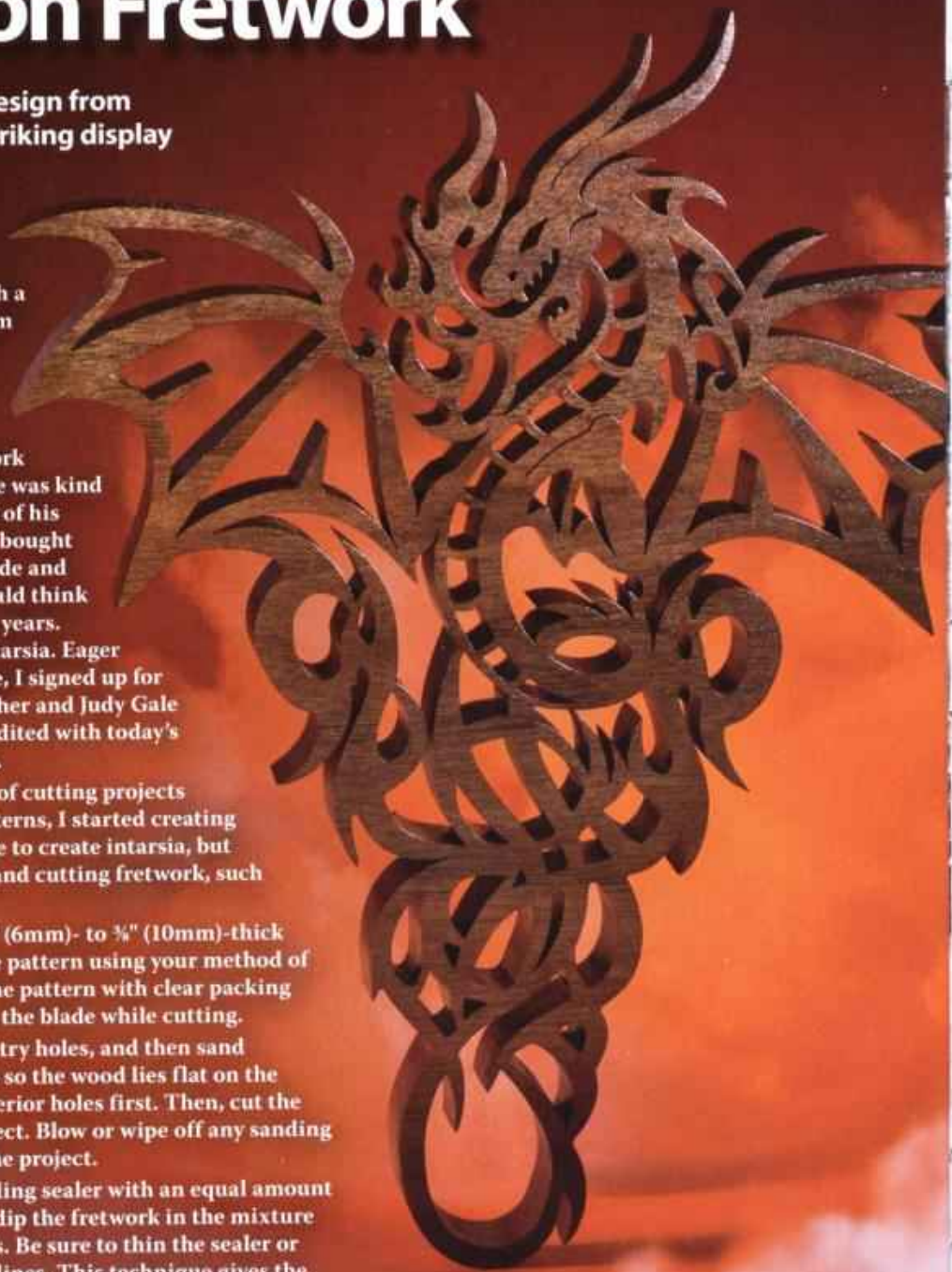
I started scrolling with a used saw I bought from a retired gentleman. In the mid '90s, I met Bernie Mazu. Bernie did the most amazing scroll saw work I had ever seen, and he was kind enough to share some of his knowledge with me. I bought the best scroll saw made and used it every way I could think of for the next twenty years. Then, I discovered intarsia. Eager to learn the technique, I signed up for a class with Jerry Booher and Judy Gale Roberts, the team credited with today's popularity of intarsia.

After many years of cutting projects from commercial patterns, I started creating my own designs. I love to create intarsia, but also enjoy designing and cutting fretwork, such as this dragon.

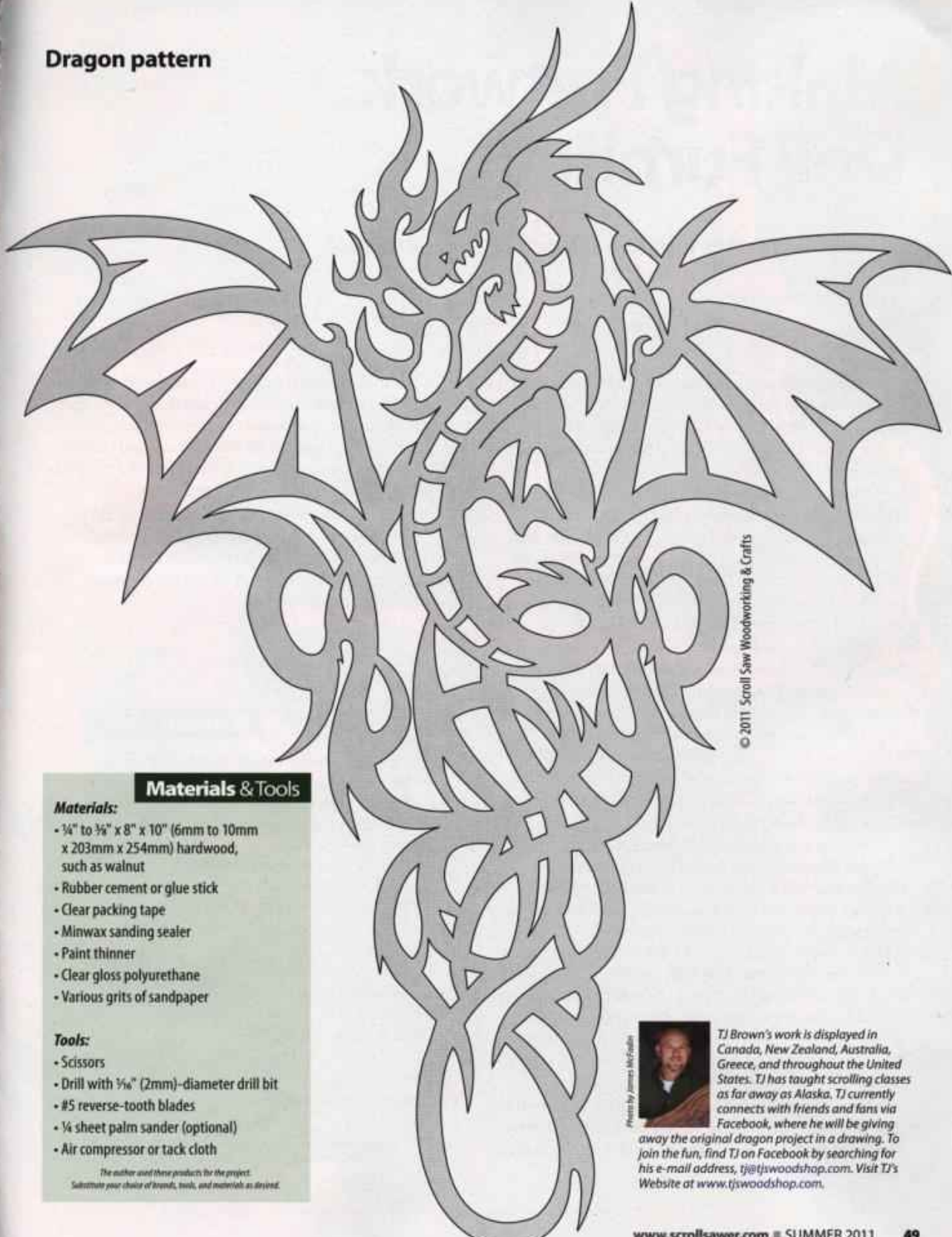
I suggest using $\frac{1}{4}$ " (6mm)- to $\frac{3}{8}$ " (10mm)-thick hardwood. Attach the pattern using your method of choice. Then, cover the pattern with clear packing tape to help lubricate the blade while cutting.

Drill the blade-entry holes, and then sand the burrs off the back so the wood lies flat on the saw table. Cut the interior holes first. Then, cut the perimeter of the project. Blow or wipe off any sanding dust after you sand the project.

Mix Minwax sanding sealer with an equal amount of paint thinner and dip the fretwork in the mixture to coat the inside cuts. Be sure to thin the sealer or it will clog the detail lines. This technique gives the project a better overall look, and it also reduces the amount of polyurethane required for the final finish. Let the sealer dry overnight, and then sand with 100-, 150- and 220-grit sandpaper. Blow or wipe the dust off and spray the fretwork with clear gloss polyurethane.



Dragon pattern



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Materials & Tools

Materials:

- ¼" to ¾" x 8" x 10" (6mm to 10mm x 203mm x 254mm) hardwood, such as walnut
- Rubber cement or glue stick
- Clear packing tape
- Minwax sanding sealer
- Paint thinner
- Clear gloss polyurethane
- Various grits of sandpaper

Tools:

- Scissors
- Drill with ⅜" (2mm)-diameter drill bit
- #5 reverse-tooth blades
- ¼ sheet palm sander (optional)
- Air compressor or tack cloth

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

Photo by James McFadden



TJ Brown's work is displayed in Canada, New Zealand, Australia, Greece, and throughout the United States. TJ has taught scrolling classes as far away as Alaska. TJ currently connects with friends and fans via Facebook, where he will be giving away the original dragon project in a drawing. To join the fun, find TJ on Facebook by searching for his e-mail address, tj@tjwoodshop.com. Visit TJ's Website at www.tjwoodshop.com.

Making Fretwork Doll Furniture

Beautiful handmade furniture can be built for any size doll

By Kirk Ratajesak
Cut by Rolf Beuttenmuller

Every little girl loves doll furniture, and pieces crafted by a parent or grandparent will be treasured far more than store-bought pieces. Barbie's custom vanity will be the talk of the playground and the lucky owner can proudly say, "My pappy made it for me!"

These patterns are sized for Barbie®-style 11½" dolls. Adjust the patterns to create miniatures for a dollhouse or custom pieces for a prized antique doll. To size the furniture for 18" dolls, such as American Girl® dolls, increase the patterns by 157%. Be sure to adjust any slots to fit the width of the stock when enlarging or reducing patterns.

For maximum durability, create these pieces from Baltic birch plywood and finish the pieces with nontoxic paint. The furniture can also be cut from solid wood, such as oak, cherry, maple, or poplar. Avoid exotic woods because they could be toxic. For a clear food-safe finish, apply shellac or beeswax, or allow your finish of choice to dry thoroughly according to the manufacturer's instructions before giving the furniture to children.

Stack-cut any of the parts where multiples are needed. Do not cut the dotted lines on the chair legs or table legs while the pieces are stacked together. Separate these pieces and match the thickness of your stock with the width of these dotted lines. Adjust the width as needed. Cut up to the centerline from the bottom on one of the chair legs, and then cut down to the centerline from the top on the other chair leg. For the table legs, cut the slot on the lower portion on one of the legs, and then cut the slot on the upper portion on the opposite leg. Test the fit of the legs and sand the slots to fit if needed.

There are two ways to add the mirror to the vanity. The first is to cut a mirror sticker (available in hobby stores for model cars) to size and stick it to the vanity.

Glue the frame pieces in place to hide the edges of the sticker. The second method is to cut the area for the mirror out of the vanity and cut mirrored acrylic to fit into the hole. Glue the frame in place, and then use epoxy or silicone glue to attach the mirror to the parts of the frame that overhang the hole.

Used the dashed lines on the patterns to aid in assembly. The durability of the furniture depends on the strength of the glue joints; tight joints create stronger glue joints. Glue and clamp the pieces together until the glue dries.

Materials & Tools

Materials:

- ¼" x 2½" x 22" (6mm x 64mm x 559mm) cherry (bench)
- ¼" x 6¼" x 18" (6mm x 159mm x 457mm) oak (table)
- ¼" x 8½" x 18" (6mm x 216mm x 457mm) cherry (vanity)
- ½" to ¾" x 2½" x 6" (2mm to 3mm x 64mm x 152mm) mahogany (vanity, optional)
- ¼" to ¼" x 2¾" x 5" (3mm to 6mm x 67mm x 127mm) mirror sticker or mirrored acrylic (vanity)
- ¼" x 3½" x 12¼" (6mm x 89mm x 311mm) cherry (per chair)
- ¼" x 3" x 10" (6mm x 76mm x 254mm) cherry (quilt rack)
- Spray adhesive
- Wood glue
- Assorted grits of sandpaper
- Finish of choice

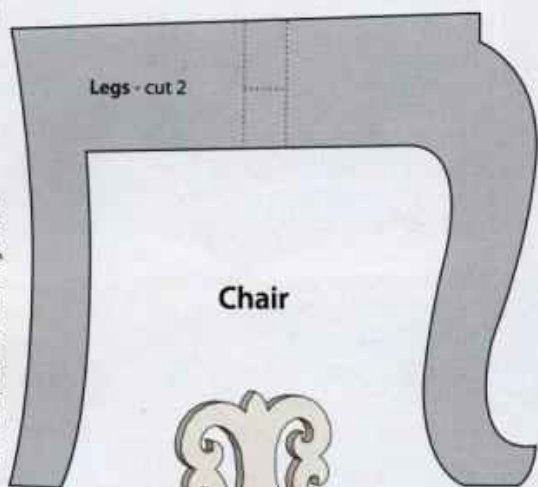
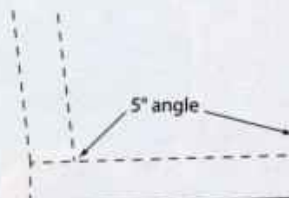
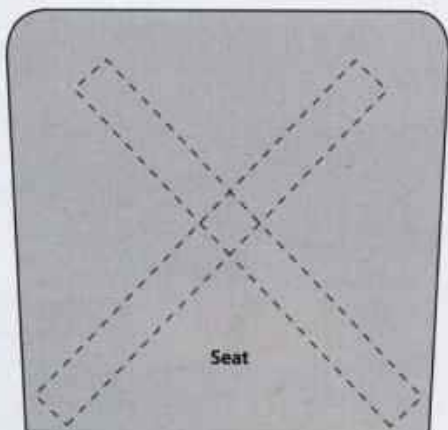
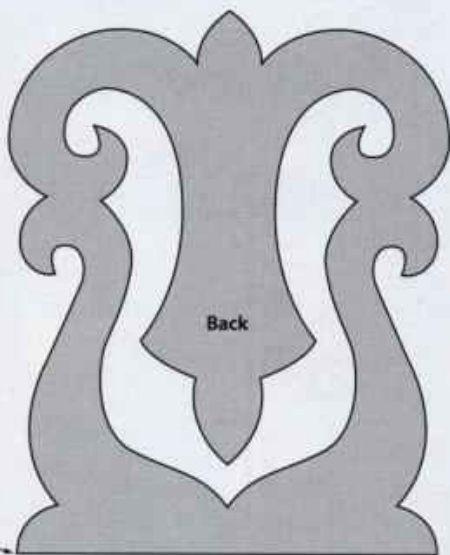
Tools:

- #5 reverse-tooth blades
- Drill with assorted small bits
- Clamps

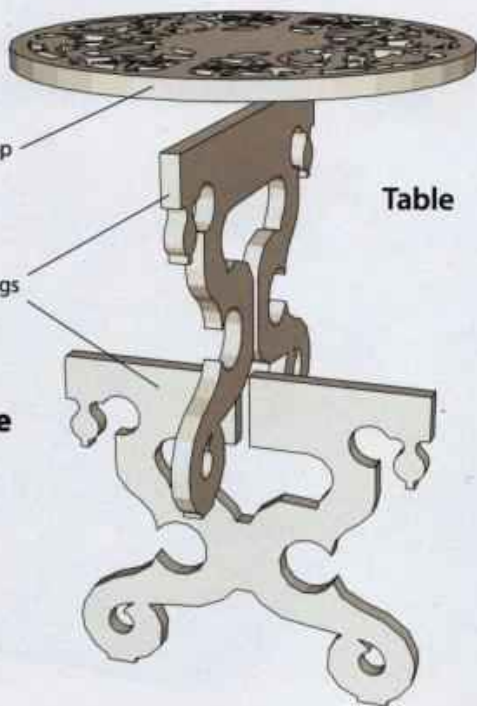
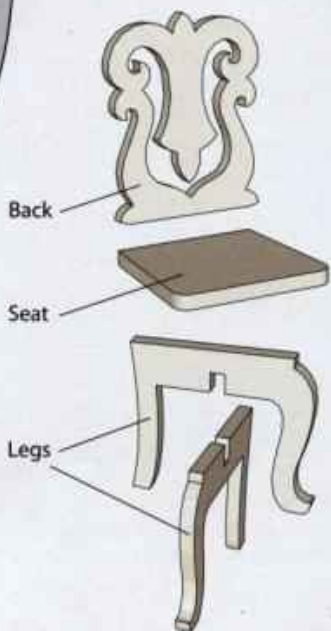
The author used these products for the project.
Subscribe your choice of brands, tools, and materials as desired.



Doll furniture patterns

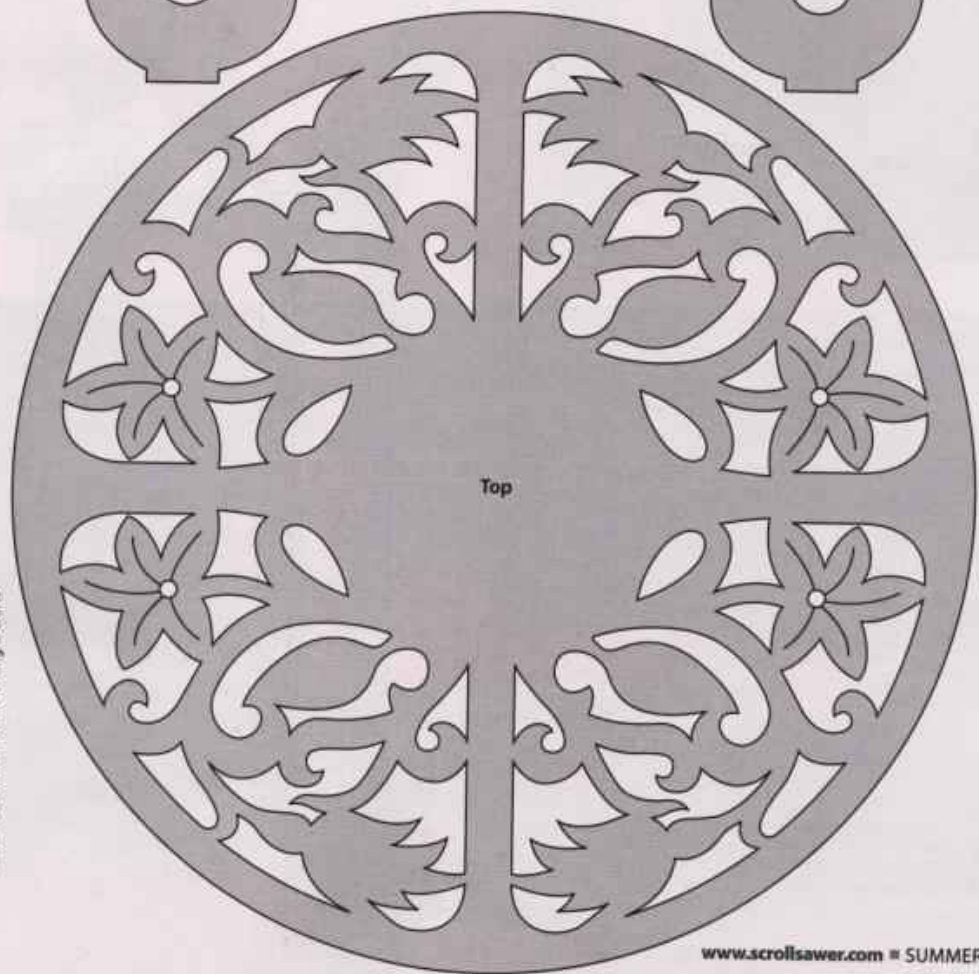
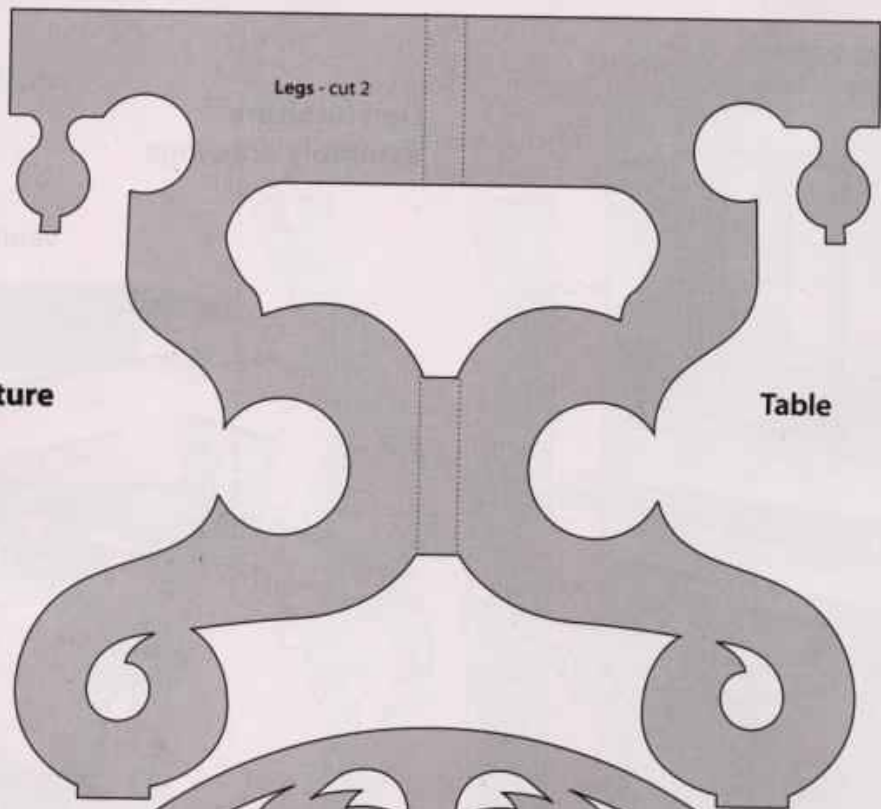


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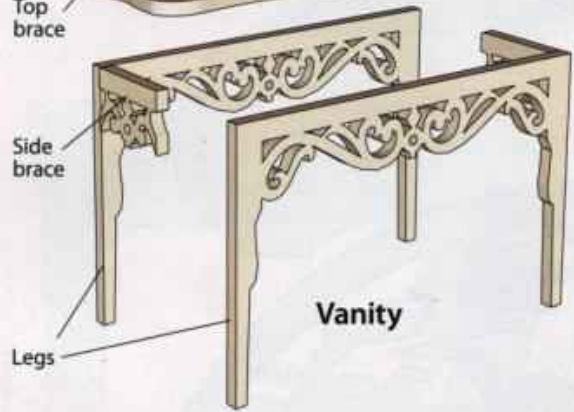
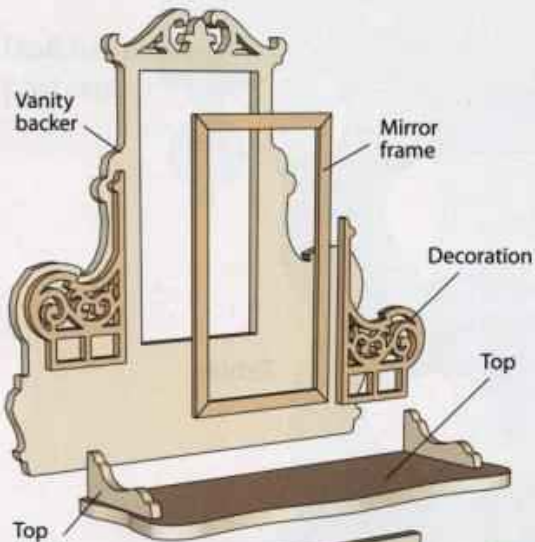


Doll furniture assembly drawings

**Doll furniture
patterns**

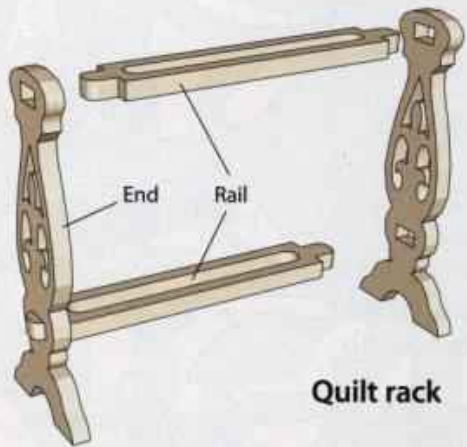
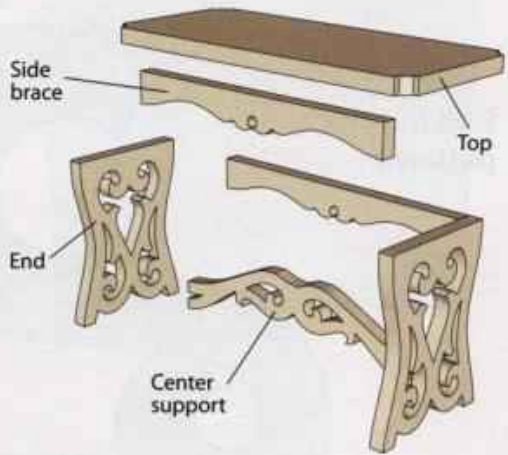


Doll furniture assembly drawings

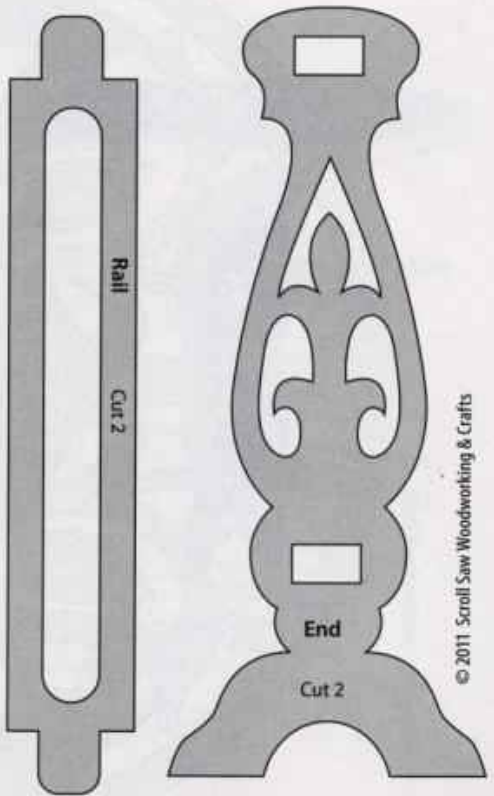


Vanity

Vanity bench



Quilt rack



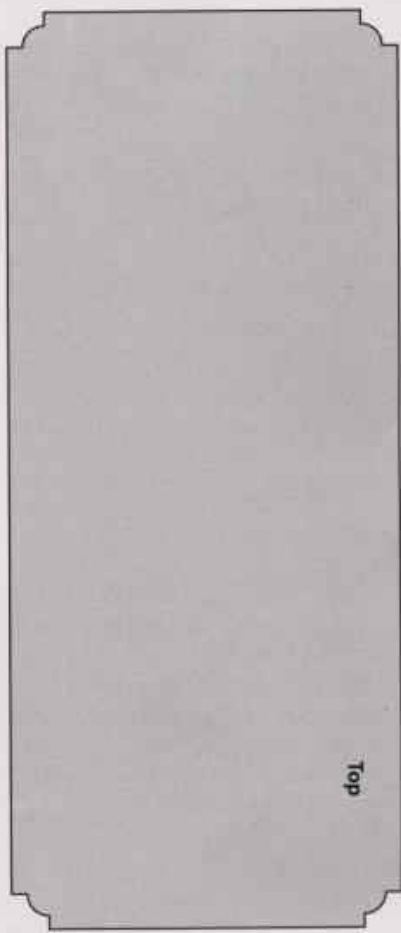
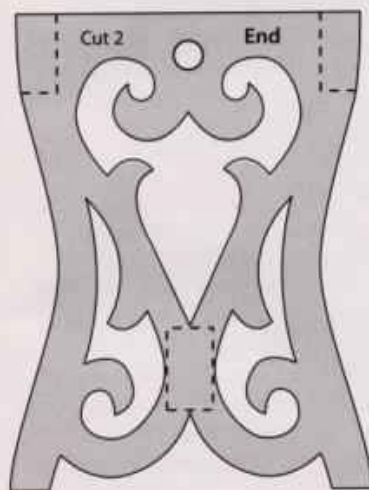
Kirk Ratajesak has been creating handcrafted artwork since 1973. Since 1992, Kirk has focused on carving gunstocks. For more of his work, visit www.kgratajesak.com.

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Doll furniture patterns

Additional patterns for
FRETWORK DOLL FURNITURE
are in the pattern pullout

Vanity bench



Frolicking Dolphin Puzzle

Use contrasting woods to make an interlocking ocean scene

By Dayle Sullivan-Taylor

I have been fascinated with dolphins since I was a teenager. After graduating from high school, I took courses at the Dolphin Research Center and joined a research trip to the Brazilian Amazon to study pink river dolphins. Later, I worked at the New England Aquarium as a whale-watch naturalist and boat captain. I'm also an avid wildlife photographer, so I have a lot of research material to draw on when making my puzzles.

For the dolphin puzzle, I chose two woods with contrasting colors: black walnut for the dolphins and bird's eye maple for the background, base, and stands. The grain pattern in the maple looks like bubbles or splashes—perfect for water pieces.

Making the Pieces

Start by making three copies of the main pattern and two copies of the stand pattern. When you cut, use the smallest blade possible so the puzzle pieces fit together tightly. Cut slowly and do not force the cut, which can bend the blade and prevent the pieces from fitting properly. Make sure your blade is square to the saw table. Do not cut the stand pieces yet.

Attach a pattern to the stock for the dolphins. Cut the dolphin pieces and remove the pattern. Assemble the puzzle and tape it together using clear packaging tape. Pay special attention to the bottom pieces.

Place the assembled dolphins on top of the base pattern. Use a mechanical pencil to trace along the bottom of the dolphins where they meet the base to account for any discrepancies. Cut the base, following the traced line where applicable. Take your time to ensure the puzzle will fit properly. Cut along the perimeter of the pattern for the background piece.

To finish the edges of the dolphin puzzle pieces, I use a small corner-rounding router bit in my Dremel tool, which is attached to a small router table. This smooths all of the edges quickly and evenly for a uniform look. Round over the edges on both sides of

the pieces. Then, I use a sanding star in a drill press to sand and polish the pieces. Do not over-sand; it will produce loose-fitting pieces. Repeat the process for the base and background. However, you do not need to router the back of the base because it is glued to the background.

Assembling the Puzzle

I use wood glue for strength and thick cyanoacrylate (CA) glue for speed. Glue the base to the background. Clamp the pieces and let the glue dry overnight. Then, use a disk sander to sand the edges flush.

Measure the width of the finished base and background. Adjust the stand pattern to fit your piece. The stand needs to have a tight fit, so it is better to cut the center slightly smaller than needed, and then sand for a proper fit. Rout the edges and sand the stands as you did with the puzzle.

I finish the puzzle with natural-colored Danish oil to let the beauty of the wood shine through.

Materials & Tools

Materials:

- $\frac{3}{4}$ " x 8" x 8" (19mm x 203mm x 203mm) black walnut (dolphins)
- $\frac{1}{2}$ " x 2 x 10 $\frac{1}{2}$ " (13mm x 51mm x 267mm) bird's eye maple (base)
- $\frac{3}{4}$ " x 8" x 11" (19mm x 203mm x 279mm) bird's eye maple (background)
- $\frac{3}{4}$ " x 2 $\frac{3}{4}$ " x 3 $\frac{3}{4}$ " (19mm x 70mm x 83mm) bird's eye maple (stands)
- Clear packaging tape
- Mechanical pencil
- Wood glue

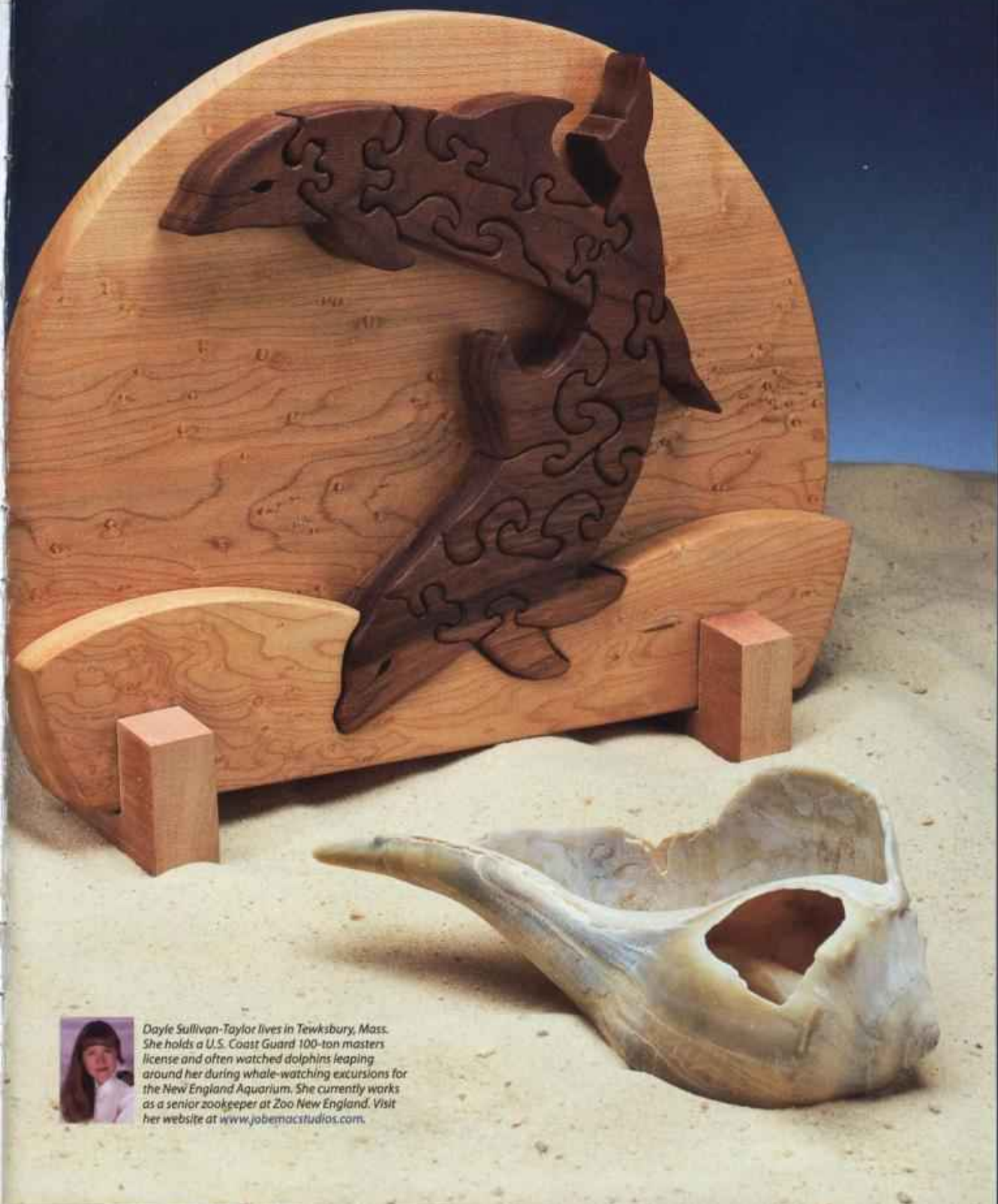
- Thick cyanoacrylate (CA) glue
- Clamps
- Natural-color Watco Danish Oil

Tools:

- #5 reverse-tooth blades
- Drill press
- $\frac{1}{16}$ " (2mm)-diameter drill bit
- Dynabrade Sanding Stars, 220 grit
- Dremel rotary tool with router table and 615 corner-rounding router bit

Patterns for the **FROLICKING DOLPHIN PUZZLE** are in the pattern pullout section.

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



Dayle Sullivan-Taylor lives in Tewksbury, Mass. She holds a U.S. Coast Guard 100-ton masters license and often watched dolphins leaping around her during whale-watching excursions for the New England Aquarium. She currently works as a senior zookeeper at Zoo New England. Visit her website at www.jobemacstudios.com.

Create a Realistic Owl Scene

**BEST
PROJECT
DESIGN CONTEST**

RUNNER-UP
SCROLL SAW WOODWORKING & CRAFTS

Combine cut pieces with natural wood for a unique display

By Deborah Nicholson

I love animals, especially all kinds of birds. Owls are nocturnal, which means they are awake and hunt at night. Because of this, many people have never seen an owl in the wild. Unlike other birds of prey, owls have forward-facing eyes that are fixed in their sockets. This means they have to turn their heads to focus on their prey. Owls can turn their heads 135°. There are many different kinds of owl. The elf owl is the smallest at just 5.3" tall, and the largest is the eagle owl, at 28.4" tall, with a wing span of 6.6'. An owl has a sharp beak and powerful talons which are used to kill its prey before swallowing it whole (unless it is too big). Owls do not build nests. Instead, they look for sheltered areas or abandoned nests in trees, underground burrows, buildings, barns, and caves. Their eggs are white and almost round, and range in number from just a few to a dozen, depending on the species.

I got the idea for this project while creating sketches for a T-shirt for a local Swamp Fest in

Hernando County, Fla. While I was researching photos of the great horned owl, I came across pictures of baby owls, called owlets or howlets. The owlets were just a ball of fuzzy feathers with huge eyes.

The owl and owlet are made from pine. I cut the pieces on a scroll saw and shaped them using a belt sander and hand sander. I used acrylic paint thinned with water to create the different colors.

I cut pieces of cedar to appropriate sizes to create a nest hollow. The nest is made of seven pieces of cedar: a background, with the owls on top; a support piece under the owls; two thin pieces of cedar with bark attached on each side of the owls; and a small piece at the bottom front. This arrangement creates a small opening in front of the owls. Using a hot glue gun, I glued branches in the opening to create a nest, allowing the wood to dictate the shape. Attach a hanger to the back for a wall hanging or sand the bottom flat for a freestanding display.

Materials:

- ¼" x 9" x 14" (19mm x 229mm x 356mm) pine (owls)
- Cedar with bark, approximate sizes:*
- ½" x 8" x 16" x (13mm x 203mm x 406mm) (backing)
- ½" x 3" x 7" (13mm x 76mm x 178mm), ½" x 4" x 6" (13mm x 102mm x 152mm) (right side)
- ½" x 3" x 10" (13mm x 76mm x 254mm), ½" x 3" x 13" (13mm x 76mm x 330mm) (left side)
- 1" x 3" x 5" (25mm x 76mm x 127mm) (owl support)
- ½" x 3" x 6" (13mm x 76mm x 152mm) (front)

Materials & Tools

- Twigs
- Acrylic paint
- Wood glue

Tools:

- #5 blades
- Belt sander
- Hand sander
- Paintbrushes
- Hot glue gun, glue sticks

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

Pattern for the **REALISTIC OWL SCENE** is in the pattern pullout section.



Deborah Nicholson grew up in Chicago, and has lived in Hernando Beach, Fla., for eighteen years. An artist all her life, she works in various mediums, including mosaics, clay, and paint, and especially enjoys combining media. Deborah began working with wood by making frames with her father, who is also an artist, but her love of creating took over and soon the wood became the art.



Battle Cry

Rally the troops with this detailed portrait of a Viking warrior

By Kerry Hallam

Original photo by Dan Landron

When I came across Dan Landron's photo of a bearded warrior, I immediately envisioned a commander leading his army into battle. Dan took this photo at the Washington Renaissance Festival and graciously gave me permission to turn the photo into a pattern and enter the completed cutting in the 2009 *Scroll Saw Woodworking & Crafts* Best Project Design Contest.

I wanted to give the Viking a fierce look and knew the photo required a few modifications. I changed the look of the beard three times until I was satisfied. Then, I adjusted the look of the eyes to give the warrior the fierce, battle-hungry look I envisioned. To add drama, I cut out most of the background. This decision makes the area around the horns fragile, so be careful while cutting.

I stack-cut three portraits at the same time to speed production and lend support to the fragile fretwork. I used two 3/8"-thick oak plywood blanks and one 1/4"-thick Baltic birch plywood blank. Because the project is 11" by 14", I use a spiral blade to cut the portrait. I leave a 1/4"-wide strip of wood around the outside of the cut design to make it easier to frame the completed cutting. You can size the pattern to 8 1/2" by 11" and use flat blades, but it will be challenging to cut.



Materials:

- 3/8" x 11" x 14" (3mm x 279mm x 356mm) oak plywood or Baltic birch plywood
- 1/4" x 11" x 14" (3mm x 279mm x 356mm) Baltic birch plywood painted black or black foam core (backing board)
- Assorted grits of sandpaper
- Wood glue
- Finish of choice
- Frame of choice

Materials & Tools

Tools:

- #1 spiral reverse-tooth blades
- Drill with assorted small bits
- Clamps

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

Pattern for **BATTLE CRY** is in the pattern pullout section.



Kerry Hallam of Sumter, S.C., earned several awards in the 2009 Scroll Saw Woodworking & Crafts Best Project Design Contest. For more of Kerry's work, visit www.kerrysbladeart.blogspot.com.



Barrie Gray 1/3

John H. ... 97



Screaming Eagle Portrait

Spirited portrait celebrates freedom

By Gary Browning
Cut by Rolf Beuttenmuller

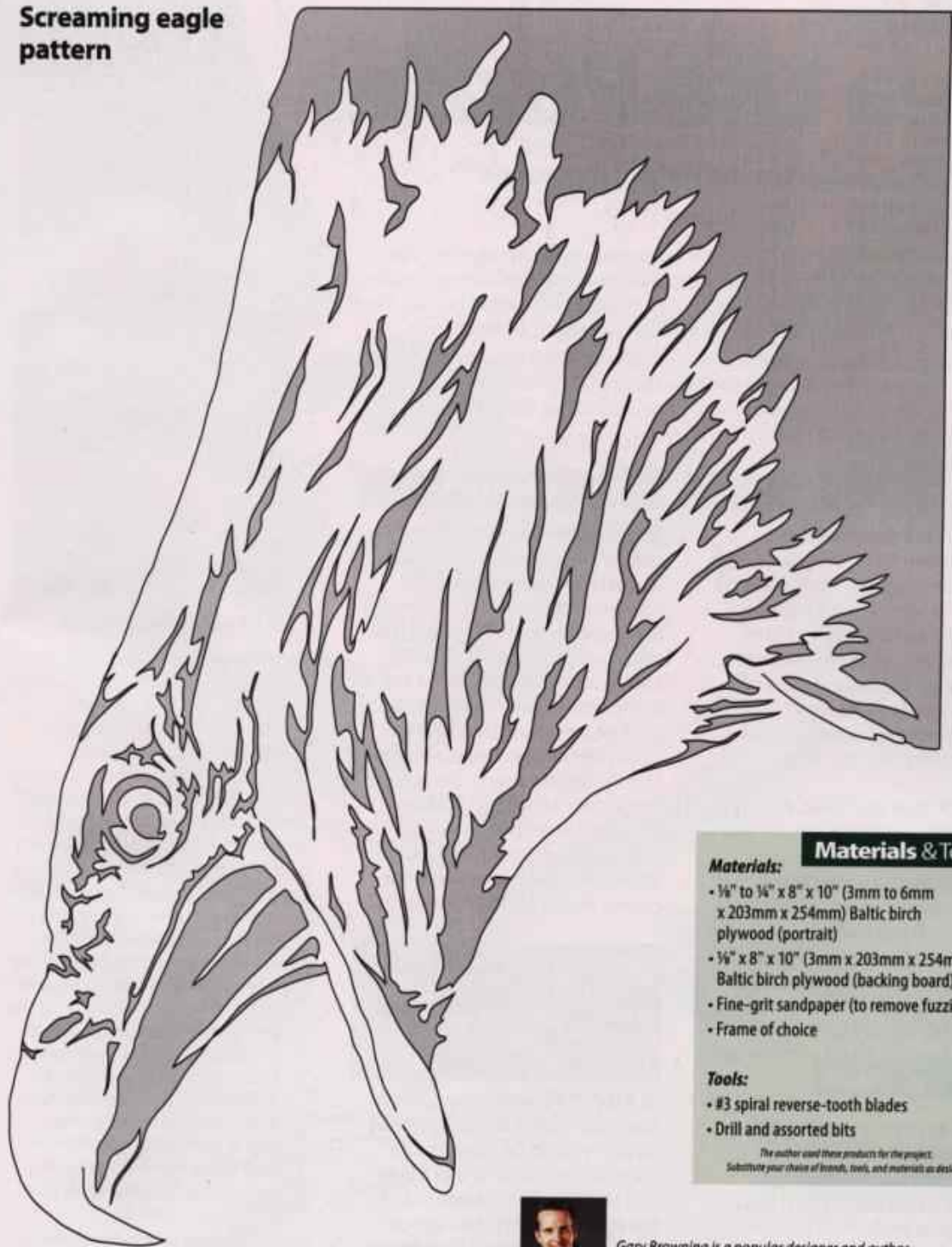
The bald eagle is an American symbol of freedom, resilience, and justice. It was chosen on June 20, 1782, as the emblem of the United States of America because of its majestic looks, long life, and great strengths.

Bald eagles live only in North America, from northern Canada through northern Mexico. They have two centers of focus in their eyes, which allow them to see to the front and sides at the same time. Their perfect vision is four times that of a human, and

they can see about three square miles from a fixed position. On June 28, 2007, the Interior Department took the American bald eagle off of the federal list of endangered or threatened wildlife and plants.

The bald eagle lives along coasts and on ridges near open water. It sweeps down fast and low in the valleys and up high into the boundless skies above. One can almost imagine this portrait screaming out the spirit of unlimited freedom.

Screaming eagle pattern



© 2011 Scroll Saw Woodworking & Crafts

Materials & Tools

Materials:

- ¼" to ¾" x 8" x 10" (3mm to 6mm x 203mm x 254mm) Baltic birch plywood (portrait)
- ¼" x 8" x 10" (3mm x 203mm x 254mm) Baltic birch plywood (backing board)
- Fine-grit sandpaper (to remove fuzzies)
- Frame of choice

Tools:

- #3 spiral reverse-tooth blades
- Drill and assorted bits

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



Gary Browning is a popular designer and author of Scroll Saw Portraits, available from Fox Chapel Publishing, www.FoxChapelPublishing.com. For more of Gary's work, visit his website at www.angelfire.com/md2/creativewood/browning.htm.

Making a Sea Life Puzzle

Easy-to-cut design is a challenging tray puzzle

By Ruth Chopp

I live in Gig Harbor, Wash., and grew up playing on the beaches of Puget Sound and camping in the forest parks. That probably explains my passion for woodworking and sea life, which come together in this fun puzzle. The project is easy to cut, but the design can be challenging to reassemble.

You can make this puzzle out of birch plywood and paint or stain the pieces. The puzzle I entered in the Best Project Design Contest was made using five or six different hardwoods with contrasting colors, which is a good way to use small pieces of scrap wood.

PUZZLE: CUTTING THE PIECES

Step 1: Prepare the pattern.

Lightly sand $\frac{1}{2}$ " (13mm)-thick Baltic birch plywood. Use spray adhesive to attach a copy of the pattern to the blank. Alternatively, cut the pattern into individual puzzle pieces and attach the patterns to scraps of hardwood. Plan the wood selection so adjacent pieces are cut from contrasting colors of wood.

Step 2: Drill the holes. When the glue is dry, drill the eye holes and blade-entry holes for the small inside cuts. Use a wood backing to avoid tear out when drilling. Use a #52 wire bit for the following holes: starfish center, snail eye, kelp hole, anchor hole, heron eye, octopus inside cut, sea cookie inside cut. Use a #42 wire bit for the whale eye. Use a #44 wire bit for all of the other creatures' eyes.

Step 3: Cut the puzzle pieces.

Remember to change blades frequently when cutting the pieces—I cut about seven pieces per blade. 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.

PUZZLE: MAKING THE TRAY

Step 4: Make the tray. Finish cutting along the dashed lines to create the frame. If you cut hardwood pieces, attach a copy of the pattern to $\frac{1}{2}$ " (13mm)-thick stock and cut along the dashed lines. Trace the outside of the cut frame onto $\frac{1}{4}$ " (6mm)-thick Baltic birch plywood and cut along the traced line to form the tray bottom. Lightly sand the frame and bottom pieces with 180-grit sandpaper. Glue the frame to the bottom, clamping each length of the side. When the glue is dry, remove the clamps and sand the perimeter.



▲ Step 5: Finish the puzzle. Drill toothpick-sized holes in a piece of scrap plywood. Dip each puzzle piece in finish, wipe it with a lint-free rag, and place a toothpick in the eye hole. Insert the toothpick in a hole in the scrap plywood and allow the pieces to dry. Use a foam brush to apply finish to the puzzle tray and let it dry.

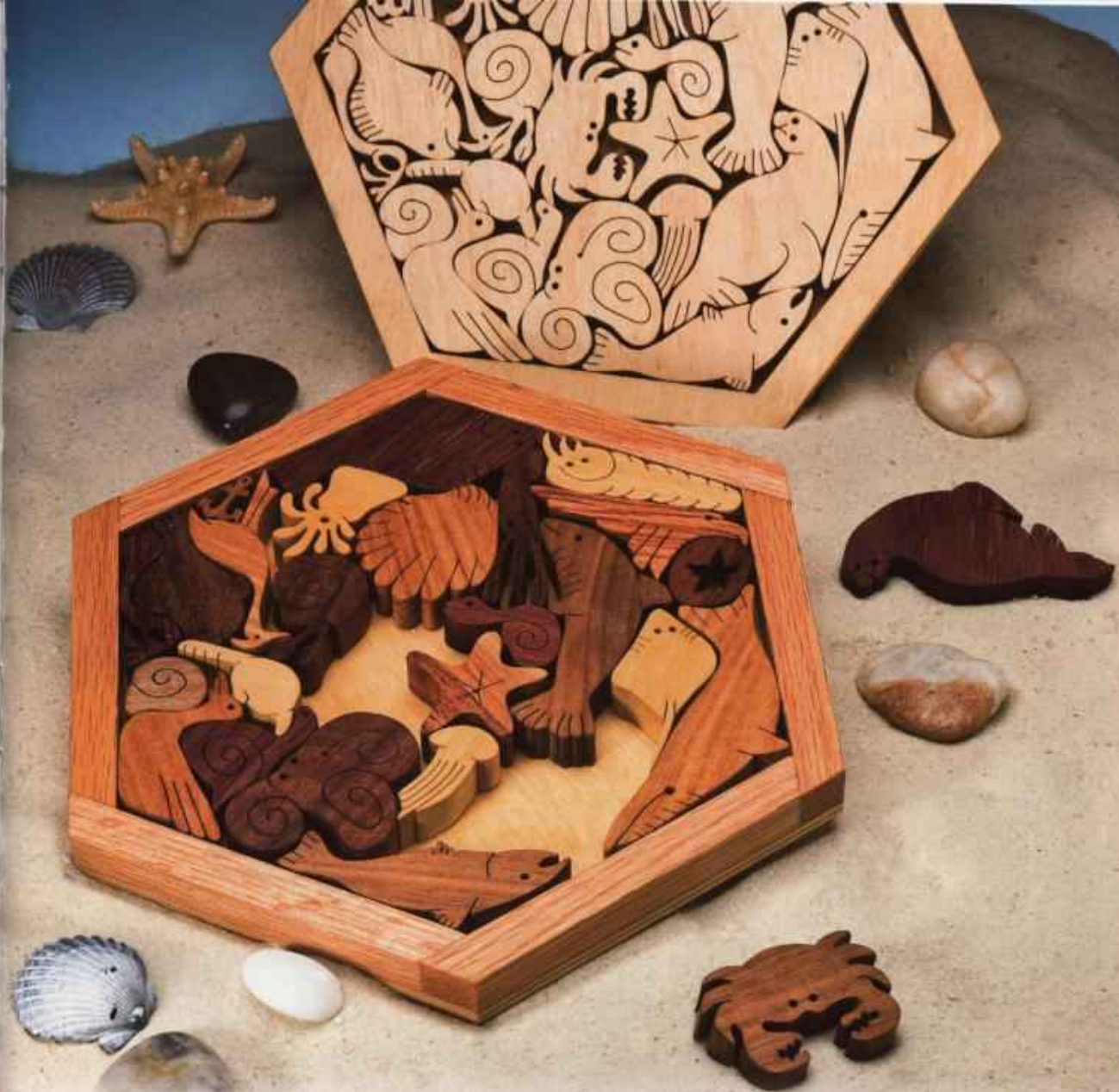


Alternate tray style

To make the tray bottom, trace the dashed lines from the pattern onto $\frac{1}{4}$ " x 10" x 10" (6mm x 254mm x 254mm) Baltic birch plywood and cut along the perimeter only. Using $\frac{1}{2}$ " (13mm)-thick hardwood and a table saw, cut six strips, each $\frac{1}{2}$ " (13mm) wide by 6" (152mm) long. 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 guidelines. 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.



Materials:

- ½" x 10" x 10" (13mm x 254mm x 254mm) Baltic birch plywood (puzzle pieces and frame)
- ¼" x 10" x 10" (6mm x 254mm x 254mm) Baltic birch plywood (tray bottom)
- Assorted hardwood scraps (optional)

- Temporary-bond spray adhesive
- Mineral spirits
- Lint-free rags
- Minwax wood finish in natural
- Sandpaper, 180 grit
- Toothpicks
- Scrap plywood (backing board, drying board)

Materials & Tools

Tools:

- Wire drill bits: #52, #42, and #44 (¼", ⅜", and ½" standard bits)
- #5 reverse tooth blades
- Foam brush

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

Creating an Intarsia Pelican



Seaside scene is a fun nautical accent

By Kathy Wise

This content pelican is sitting atop a piling at the water's edge, waiting for its next meal. The design brings back fond memories of vacations at the seashore and is a great addition to beach house décor.

I use bird's eye maple for the pelican's body because the grain pattern resembles feathers. I also use cherry, black walnut, yellowheart, sycamore, bocote, wenge, and ebony for this piece. You can add optional details on the sycamore rope with a woodburner.

Make six copies of the pattern and keep a master copy for later use. Cut and group the pattern pieces together by color. Apply spray adhesive to the back of the pattern pieces, attach them to the shiny side of a piece of clear contact paper, and then cut the pattern pieces apart. The contact paper makes it easy to remove the patterns from the wood without leaving a sticky residue. The contact paper also lubricates the scroll saw blade as you cut the pieces. Plane any wood that is not flat before attaching the patterns to the stock. Attach a full-size pattern to a piece of thin plywood or hardboard to use as a backing board and assembly board.

PELICAN: CUTTING THE PIECES



1

Attach the patterns. Peel and stick the pattern pieces onto the wood. Align the grain direction with the arrows on the pattern pieces. Cut the large pieces into smaller manageable pieces. Use a small square to check a cut piece to make sure your blade is square to the table.



2

Cut the pieces. Use a #5 reverse-tooth blade. Cut the individual feathers from the wing section with a #2 or #3 blade. This method gives you a larger piece of wood to hold as you cut. Number the bottom of each cut piece with a pencil.



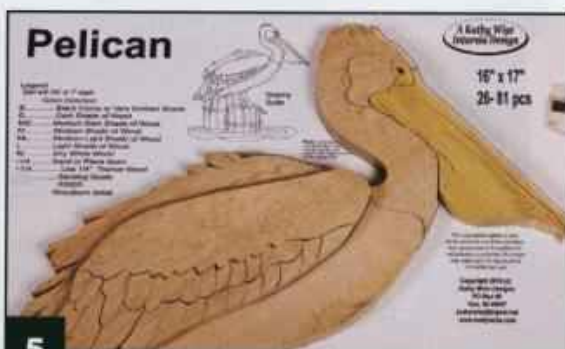
3

Cut the riser for the tip of the wing. Cut or plane a piece of the same wood you used for the wing to $\frac{1}{2}$ " (13mm)-thick. Trace the tip of the wing onto the riser and cut along the traced line. Glue the wing piece to the riser and sand the edges so it appears to be one piece.



4

Cut the other risers. Use the pattern as a guide to cut $\frac{1}{2}$ " (13mm)-thick risers for the rest of the wing. Glue the riser to the bottom of the main wing section, adjacent to the riser made from the same wood. Do not glue the small feathers to the riser yet. Cut a $\frac{1}{4}$ " (6mm)-thick riser for the cheek area.



5

Dry assemble the pieces. Place the cut pieces and risers in place on the pattern taped to the backing board. Check the fit and grain direction of the pieces. If there are major problems in the fit, color, or grain direction, cut new pieces now. You can fine-tune the fit of the pieces later.

PELICAN: SHAPING THE PIECES



6 **Establish the basic contours.** Sand the shaded areas indicated on the shaping guide. I use a pneumatic drum sander. You can use other drum sanders or a rotary-power carver equipped with sanding drums. I wear rubber fingertips to protect my fingers while sanding.



7 **Shape the lowest pieces.** Lower the water pieces, and then mark the height of the water on the pilings. Lower the pilings, but do not go lower than the pencil mark. Shape the rope, keeping it higher than the pilings. Replace the pieces back into the project often.



8 **Shape the pilings.** Sand a slight curve on each piece of the piling. Remove the rope section and line up the top and bottom pieces of the piling to make sure you are sanding them to the same level.



10 **Shape the feet.** Mark the level for the feet, keeping them thicker than the pilings. Sand and shape the feet using the lines as a guide. Make sure the foot that appears farther from the viewer is thinner or lower than the other foot.



9 **Shape the tight curves.** I use a 1/2" (13mm)-diameter sanding drum in a rotary-power carver or an oscillating spindle sander with a 1/2" (13mm)-diameter drum to round the inside of tight curves, such as the curves in the bottom water pieces.

PELICAN: REFINING THE PIECES



- 11** **Shape the wings.** Mark the edges of the wings where they meet the lower body. Do not sand lower than this mark. Sand a sharp bevel onto each feather so they appear to fit under the adjacent ones. Round the outside edges of the wing sections and each feather.



- 12** **Shape the head, neck, and body.** Glue the cheek area to the riser and keep that section higher than the surrounding pieces. Round the body and neck. Sketch in guidelines and shape the beak. Use a rotary-power carver or carving tools to add the feather details to the head. Round the eye and fit it into the corresponding hole.



- 13** **Finish sanding the pieces.** Dry assemble the project and check for overall fit and flow. Make any necessary adjustments, and then buff the pieces with a 220-grit sanding mop. The mop works quickly, fits into the curves and crevices, and gives the pieces a beautiful sheen.

PELICAN: ASSEMBLING THE INTARZIA



- 14** **Assemble the pelican in sections.** Use cyanoacrylate (CA) glue to tack the sections together. This keeps the pieces from shifting around as you glue them to the backing board. Glue together the head and neck; the top of the back and upper wing; the water, feet, and pilings; and the back feathers. Do not glue the small feathers together.



- 15** **Assemble the wing feathers.** Assemble all of the sections on the backing board. Remove the wing feathers in sections and keep them in the proper order. Spread five-minute epoxy on the riser. With the riser in position, quickly place the feathers in position and adjust them to fit evenly before the epoxy dries. Tack all of the parts of the pelican together with CA glue.



16

Attach the backing board. Trace the outline of the assembled project onto the backing board. Cut $\frac{1}{16}$ " (2mm) inside the line. Apply wood glue to the back of the project and use dots of CA glue between the wood glue. Apply CA glue accelerator to the backing board and press the project onto the backing board until the CA glue sets.



17

Apply the finish. Because this project has many small pieces, I use a clear satin spray varnish finish. Follow the manufacturer's directions and apply two coats of finish, allowing the varnish to dry thoroughly between coats. Apply clear gloss finish to the eyes for a lifelike look. Attach your hanger of choice to the back.

Materials:

- $\frac{3}{4}$ " x 5" x 6" (19mm x 127mm x 152mm) medium-dark wood, such as bocote (piling)
- $\frac{1}{2}$ " x 4" x 16" (13mm x 102mm x 406mm) medium figured wood, such as wavy maple (water)
- $\frac{1}{2}$ " x 1" x 1" (13mm x 25mm x 25mm) black-stained wood or ebony (eye)
- 1" x 3" x 6" (25mm x 76mm x 152mm) light wood, such as sycamore (rope)
- 1" x 5" x 9" (25mm x 127mm x 229mm) yellow wood, such as yellowheart (beak)
- $\frac{3}{4}$ " x 6" x 7" (19mm x 152mm x 178mm) dark wood, such as wenge (piling)
- 1" x 9" x 19" (25mm x 229mm x 483mm) light wood, such as bird's eye maple (body)
- $\frac{1}{4}$ " x 14" x 16" (6mm x 356mm x 406mm) plywood or tempered hardboard (backing board)
- $\frac{1}{4}$ " (6mm)-thick scrap of plywood (cheek riser)
- $\frac{1}{2}$ " x 5 x 10 (13mm x 127mm x 254mm) plywood (risers)

Materials & Tools

- Roll of clear contact paper
- Spray adhesive
- Titebond wood glue
- Clear satin spray varnish
- Clear gloss finish (eyes)
- Wiping rags
- Hanger
- Cyanoacrylate (CA) glue, such as Super T glue, and accelerator
- Dark stain or black spray paint (optional to paint edges of backing board)

Tools:

- #3 and #5 reverse-tooth blades
- Pneumatic drum sander
- Oscillating spindle sander
- Rotary-power carver and sanding drums
- Stationary drum sander (optional, see Tip)
- Carving tools (optional)
- Woodburner (optional, to add rope details)

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

TIPS BETTER GLUE ADHESION

Use a stationary drum sander to sand the bottom of your project flat after you tack the pieces together. The flat back will sit perfectly on the backing board and give you a solid glue joint.

Pattern for the *INTARSIA PELICAN* is in the pattern pullout section.



Cardinal on Branch - #336



Nationally acclaimed intarsia artist Kathy Wise has authored two books and more than thirty articles. Her award-winning intarsia mural work has set a new standard for the art of intarsia. Private and semi-private intarsia classes are available. For a free catalog of 450 patterns, contact: Kathy Wise Designs Inc., P. O. Box 60, Yale, Mich. 48097, Fax 810-387-9044, www.kathywise.com, kathywise@bignet.net.

Pineapple Welcome Sign



**Greet guests with
a traditional symbol
of hospitality**

*By Gloria Cosgrove
Cut by Dale Helgeson*

A time-honored symbol of hospitality, this pineapple includes charming flowers and butterflies with its welcoming message.

Cut the sign from $\frac{1}{8}$ " to $\frac{1}{4}$ " (3mm to 6mm)-thick wood and display it as cut or mount it on a contrasting backing board. If you plan to hang the sign outside, finish it with weather-resistant polyurethane. For indoor display, leave the wood natural or finish it to coordinate with your décor.

Stack-cut the pattern from colored paper and use the cuttings as overlays to create unique change of address announcements or party invitations. To stack-cut paper, sandwich multiple sheets of paper between two sheets of scrap plywood and wrap the stack tightly with masking tape. The tighter you secure the stack, the better the results.

Materials:

- $\frac{1}{8}$ " to $\frac{1}{4}$ " x 8" x 10"
(3mm to 6mm
x 203mm x 254mm)
red oak
- $\frac{1}{8}$ " to $\frac{1}{4}$ " x 10" x 12"
(3mm to 6mm
x 254mm x 305mm)
Baltic birch plywood
(backing board, optional)
- Wood glue (optional)

Materials & Tools

- Assorted grits of sandpaper
- Finish of choice

Tools:

- #3 reverse-tooth blades
- Drill with $\frac{1}{16}$ "
(2mm)-diameter bits
- Assorted clamps

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



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

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www.scrollsawer.com

Victorian Fretwork Frame



Use the section cut from the center as a photo backer.

Decorative floral design surrounds a photo or clock insert

By Sue Mey

Cut by Norm Nichols

Use this intricate design as a striking wall clock or to showcase a favorite photo. The floral fretwork creates a nostalgic romantic feel and draws attention to the center of the project.

Cut the project from thick hardwood for a stand-alone project or use thin wood with a contrasting backing board for a different look.

Cutting the Project

Cover the fretwork blank with masking tape and use spray adhesive or a glue stick to attach the pattern. Drill $\frac{1}{16}$ " (2mm)-diameter blade-entry holes for the frets and cut the fretwork.

To make a photo frame, drill a $\frac{1}{32}$ " (1mm)-diameter blade-entry hole on the dotted line and cut the center opening. Keep the center piece to use as a backer for the photograph. Attach the frame overlay to the overlay stock, drill a blade-entry hole, and then cut the overlay.

To create a clock, use the center mark for alignment and trace the back of the clock insert onto the blank. Stack the fretwork with the backing board if applicable, and then drill a blade-entry hole inside the traced line. Cut just inside the line and sand the opening so the insert fits snugly in the hole.

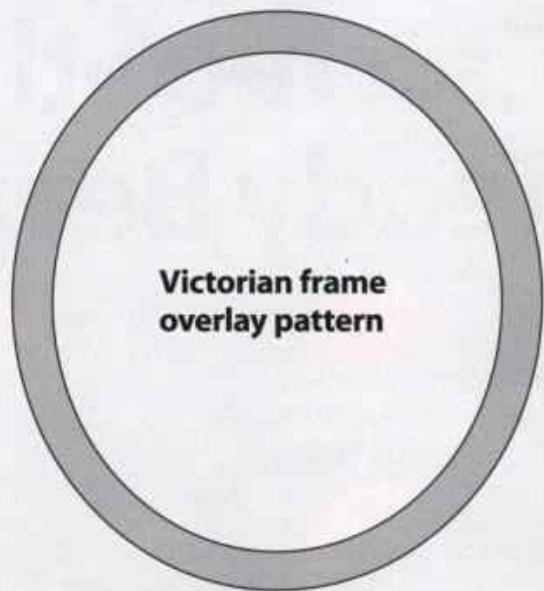
Cut around the perimeter of the project last. If you are making a backing board, use tape to stack the fretwork and backing board blanks together before you cut around the perimeter of the project.

Assembling the Project

Remove the patterns and tape. Hand-sand all of the pieces. Remove the sanding dust. Glue and clamp the frame overlay to the fretwork or the fretwork to the backing board if applicable. Allow the glue to dry, and then apply several thin coats of clear spray varnish to the project.

To complete the photo frame, drill pilot holes for the small screws and attach the picture-frame holders to the back. Reduce the thickness of the center cut out to accommodate the glass or protect the photo with two coats of clear spray varnish or artist's fixative.

Attach a small triangular picture-frame hanger to the back of the project with epoxy.



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Additional pattern for the VICTORIAN FRETWORK FRAME is in the pullout section.

Materials & Tools

Materials:

- $\frac{1}{4}$ " to $\frac{1}{2}$ " x $10\frac{3}{4}$ " x $10\frac{3}{4}$ " (6mm to 16mm x 273mm x 273mm) red oak (fretwork)
- $\frac{1}{8}$ " to $\frac{1}{2}$ " x $10\frac{3}{4}$ " x $10\frac{3}{4}$ " (10mm to 13mm x 273mm x 273mm) contrasting wood (optional backing board)
- $\frac{1}{8}$ " x 4" x 4" (3mm x 102mm x 102mm) red oak or plywood (picture frame overlay)
- $\frac{1}{8}$ " x 4" x 4" (3mm x 102mm x 102mm) glass (optional)
- Masking tape
- Temporary-bond spray adhesive or glue stick
- Wood glue
- Sandpaper, assorted grits

- Clear spray varnish
- Artist's fixative (optional)
- Small triangle picture hanger
- Epoxy glue
- Clock insert (Optional, choose a $3\frac{1}{4}$ "-diameter oval insert or enlarge the pattern to accommodate your insert)
- Picture frame holders and screws

Tools:

- #3 and #5 reverse-tooth blades
- Drill press with $\frac{1}{16}$ " (2mm)- and $\frac{1}{32}$ " (1mm)-diameter bits
- Clamps

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

Catch-of-the-Day Teddy Bear

Cute intarsia bear is a great beginner project

By Judy Gale Roberts

This well-equipped bear is ideal for fishermen and is a perfect Father's Day gift. A combination of thoughtful wood choices, careful cuts, and patient sanding will ensure a good fit and a great finished project.

The most accurate way to cut the parts for intarsia projects is to make multiple copies of the pattern, cut out the separate pieces, and glue them to the different shades of wood. Make all of the copies at one time to be sure they're sized the same, as copiers can vary. As you cut out the pattern pieces, leave $\frac{1}{8}$ " to $\frac{1}{4}$ " (3mm to 6mm) around each piece to allow you to get the blade on track before you start cutting the piece.

Cutting the Pieces

Make sure the wood is as flat and smooth as possible. Use spray adhesive or a glue stick to attach the patterns to the wood.

Before you begin cutting, check that the blade is square to the table. Drill the holes for the eyes on the bear and the fish before you cut those sections. I use a universal #5 blade for cutting $\frac{3}{4}$ " (19mm)-thick wood. To make interior cuts, like the head, use a smaller blade, like a #1, #0, or #2/0.

As you cut, keep the blade in the center of the line. Check the parts often to make sure the cuts are square. Take your time and do not push the wood. Leave the pattern on the wood until you have cut all of the parts. Sand off any burrs on the back side of each part and label the back of each piece with its number. The numbers help you assemble the project and identify which side is the back.

After cutting the pieces, fit them together on a complete paper pattern. If they don't fit, look to see if you have cut outside the pattern line and trim those

areas with a sharp blade. It is easier to keep the parts square by trimming with a blade rather than sanding to the line. Practice trimming on scrap wood or along the outside edges. When you are satisfied with the fit, remove the patterns.

Sanding and Shaping the Pieces

The bear is whimsical, so you can relax a little when shaping the pieces. I sand the thinner parts first and work my way up to the thicker parts. After sanding a part, use a pencil to mark the thicknesses on the sides of any adjoining parts. Use the pencil guidelines to keep from removing too much wood. To sand a consistent contour on sections, like the head, make a sanding shim. Cut the sanding shim from scrap plywood in the approximate shape of the section to be sanded as a unit. For the bear, I cut sanding shims for the head, ears, feet, vest, and arms. Use light-duty double-sided carpet tape to hold the pieces to the sanding shims. Rough-shape the entire project using either 80-grit or 100-grit sandpaper on an inflatable sander, and then fine-tune the parts by hand-sanding with 120- and 220-grit sandpaper.

Raise the nose by cutting a piece of $\frac{1}{4}$ " (6mm)-thick plywood to fit under parts 7 and 8, and a second $\frac{1}{4}$ " (6mm)-thick piece to fit under part 8.

To make the eyes, use a walnut dowel for the bear and a maple dowel for the fish. To create highlights, drill a $\frac{1}{16}$ " (2mm)-diameter hole in each eye dowel. Place the eye in the face and sand a slight dome shape on the surface of the dowels, just barely thicker than the face. Burnish the eyes with a Wonder Wheel grinding disk or hand-held rotary tool. Then, cut a scrap of aspen about the size of a pencil and use a



pencil sharpener on the end. This makes a perfectly round cone-shaped plug. Cut the end off of the tapered aspen and glue it into the highlight hole. After the glue dries, sand the aspen flush with the eye.

Use the dashed lines on the pattern as a guide and add grooves on the fins and tail of the fish. Use a Wonder Wheel grinding disk or hand-held rotary tool to carve and burnish the grooves.

Check all of the pieces for cross-grain scratches and any noticeable pencil marks, and then thoroughly blow the dust off the parts. Check again for scratches.

Finishing the Project

I finish the pieces with three coats of clear satin gel polyurethane.

Put a heavy first coat on the sides and surface of each part, but try not to get much gel on the back. Let the gel soak for at least a minute, then use paper towels to wipe the part dry. Allow the first coat to dry overnight. Allow the second and third coats to dry six to eight hours each.

To make the backer board, spray a piece of paper with a light coat of adhesive and assemble the project on top. Trace around the project. Remove the pieces and use more spray adhesive to apply the traced

Special Sources

Two additional outdoorsmen bear patterns are available at www.intarsia.com.



pattern to $\frac{1}{8}$ " to $\frac{1}{4}$ " (3mm to 6mm)-thick tempered hardboard. Cut the backer about $\frac{1}{16}$ " (2mm) inside the traced line.

Assemble the project on the backer, making sure the board is not exposed. Trim the board as necessary. Use wood glue to glue three or four exterior pieces, such as the ears, reel, and feet, to help lock the project in place. Let the glue set, and then glue the rest of the pieces to the board.

Materials:

- 4 copies of the pattern
- Glue stick
- Lint-free cloths
- $\frac{3}{4}$ " x 4" x 4" (19mm x 102mm x 102mm) dark wood, such as dark western red cedar or walnut
- $\frac{3}{4}$ " x 6" x 6" (19mm x 152mm x 152mm) medium-dark wood, such as western red cedar, mahogany, or cherry
- $\frac{3}{4}$ " x 8" x 14" (19mm x 203mm x 356mm) medium wood, such as western red cedar, pecan, or red oak
- $\frac{3}{4}$ " x 6" x 7" (19mm x 152mm x 178mm) light wood, such as western red cedar, oak, or northern white cedar
- $\frac{3}{4}$ " x 3" x 3" (19mm x 76mm x 76mm) white wood, such as aspen, white pine, or holly
- $\frac{1}{2}$ " x 4" (10mm x 102mm) dark dowel, such as walnut (bear eyes)
- $\frac{1}{8}$ " x 4" (3mm x 102mm) dark dowel, such as maple (fish eye)
- Scraps of Baltic birch plywood (shims)
- $\frac{1}{8}$ " to $\frac{1}{4}$ " x 14" x 22" (3mm to 6mm x 356mm x 559mm) tempered hardboard or Baltic birch plywood (backing board)
- Double-sided light-duty carpet tape
- Assorted grits of sandpaper
- Spray adhesive
- Wood glue
- Polyurethane gel
- Paper towels

Materials & Tools

- #### Tools:
- Scissors
 - Thickness planer (optional)
 - #5 and #1, #0, or #2/0 blades
 - Drill with $\frac{1}{8}$ " and $\frac{3}{16}$ " (3mm and 10mm)-diameter bits
 - Sanders of choice
 - Rotary-power carver or Wonder Wheel grinding disk
 - Pencil
 - Pencil sharpener

Pattern for the **CATCH-OF-THE-DAY TEDDY BEAR** is in the pattern pullout.



Judy Gale Roberts, born in Houston, Tex., has long been recognized as the leading authority on intarsia. Judy was one of the first ten people to be inducted into the Woodworking Hall of Fame. For more of her work or information on classes held at her home studio in Seymour, Tenn., visit www.intarsia.com. Judy's numerous intarsia books are available at www.FoxChapelPublishing.com.

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

In our next issue...



Freestanding killer whale puzzle is a quick and easy project



This elegant fretwork box makes a beautiful gift



Creative use of dowels highlights this catfish intarsia scene

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WWW.SCROLLIT.COM We carry lots of Scroll Saw Blades and Accessories. Olson, Flying Dutchman, books, patterns, steel squares, small drill bits and woodworking plans. There are many tips for scrollers, too.

Belle of Louisville

David Aprile grew up in Louisville, Ky., where he spent countless hours watching the riverboats parade up and down the majestic Ohio River. His favorite was the beautiful *Belle of Louisville*. Now in its ninety-fifth year of operation, the *Belle* is the oldest river paddleboat steamer in operation today. It is listed on the National Register of Historic Places and designated a National Historic Landmark. "In my youth, I went on the *Belle* many times for parties and dances, and I made lots of rough models of it as a kid," recalled the sixty-three-year-old. A life-long woodworker, David has created hundreds of items of all kinds. "But I wanted the challenge of recreating this grand old paddle wheeler as exactly as possible."

A stickler for detail, David acquired the *Belle's* original

blueprints. Then, using a scroll saw, table saw, back saw, mini belt sander, jig saw, large belt sander, chisels, and knives, he began building the *Belle* from plywood, pine, balsa wood, and fiberglass. David also made the metal brackets and fixtures by hand. "I even did all the scroll work that was on the boat in tin," he explained.

David cut the working paddle wheel from plywood and pine and set it into a handmade metal frame. According to the woodworker, the three most difficult aspects of the project were keeping all of the components precisely to scale, building the three inner levels of the boat, and actually making the model waterworthy. The *Belle of Louisville* model measures about 6' long by



Woodworker and riverboat enthusiast David Aprile used original blueprints to make this scale model of the *Belle of Louisville*.



18" wide by 18" tall and took about six months to complete.

For more information about the project, contact David Aprile at megatechboss@juno.com.

Teen Scrolls His Way To Scholarships

When Josh Blevins first heard about the National Fine Arts Festival, hosted by the International Pentecostal Holiness Church, he decided to give it a shot. The competition encourages teenagers to use their gifts and talents to make a positive impact

on their churches, schools, and communities. Participants reflected the "Relentless" theme in categories ranging from vocal and instrumental performances to dance, speech, mime, painting, and creative writing. "I wanted to do something different," said the seventeen-year-old high school senior from Bland, Va. Instead of a paintbrush, Josh turned to his trusty Hitachi scroll saw. His palette was a piece of 1/4" oak plywood.

In keeping with the theme, Josh decided to tackle an intricate fretwork depiction of the face of Christ. "I chose this pattern

because Christ didn't give up on us, so why should we give up on him?" Josh explained. He also handcrafted a walnut frame for the piece. After winning first place at the local and state levels, Josh headed for the national competition in Orlando, Fla. "I was really nervous," he admitted. As it turned out, Josh had nothing to worry about. He won the top award, netting a gold medal and two scholarships for college. Josh plans to study civil engineering.

Josh offers advice for other kids who may want to take up the scroll saw. "Patience is the key. It may take a while to get the hang of it, but don't give up. The finished product makes you feel like you have accomplished something great!"

To make his award-winning project, Josh used a pattern called *Crown of Thorns*, which is available from www.woodenteddybear.com. You can reach Josh by e-mail at joshuablevins08@gmail.com



Teen scroller Josh Blevins won a national award and two scholarships with his *Crown of Thorns* portrait.

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by Carole Rothman
www.scrollsawbowls.blogspot.com

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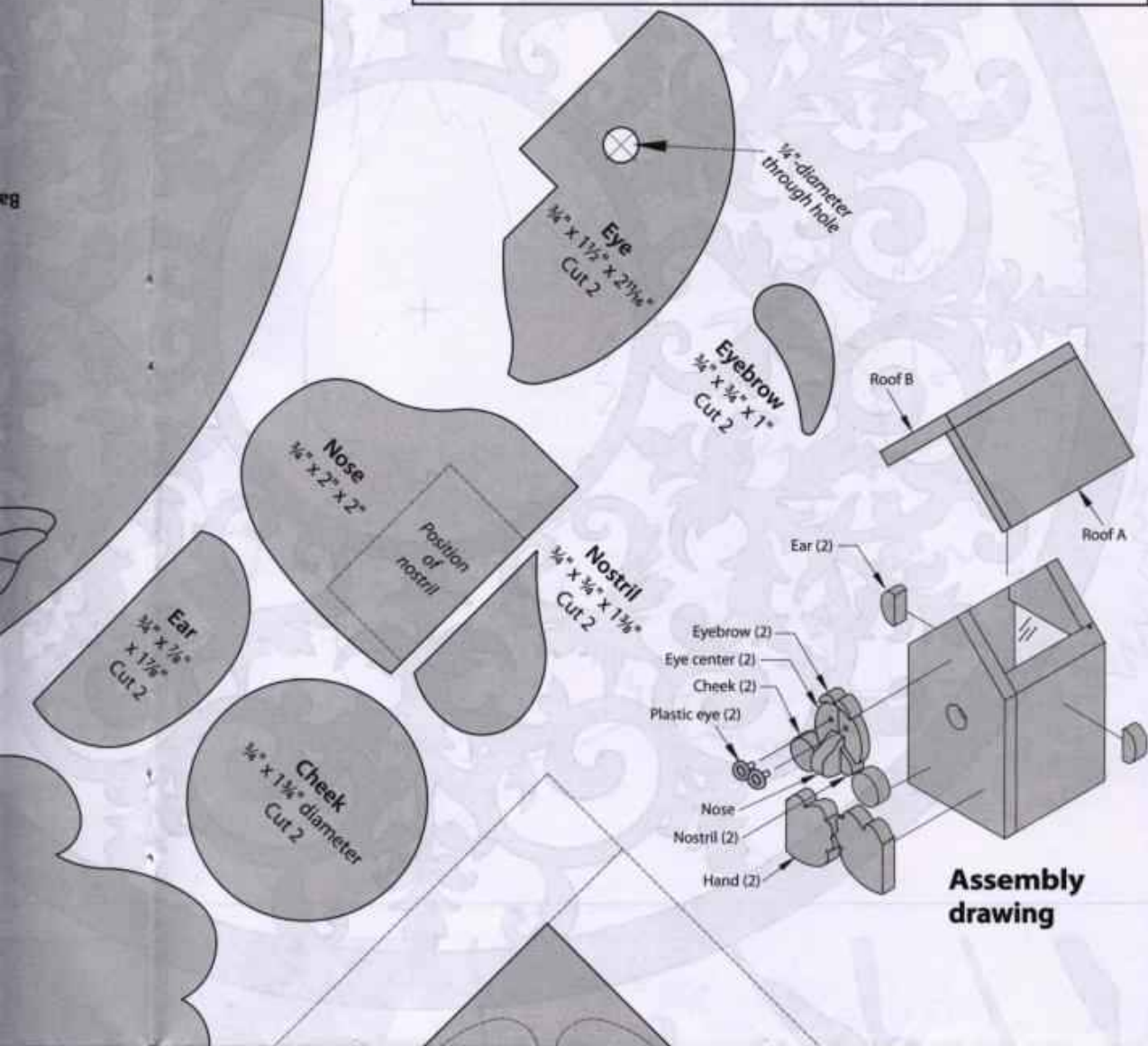
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Creating a Farm in a Barn Puzzle.....	40	Battle Cry.....	60
Build a Window Peeper Birdhouse.....	46	Creating an Intarsia Pelican.....	67
Making Fretwork Doll Furniture.....	50	Victorian Fretwork Frame.....	74
Frolicking Dolphin Puzzle.....	56	Catch-of-the-Day Teddy Bear.....	76
Create a Realistic Owl Scene.....	58		

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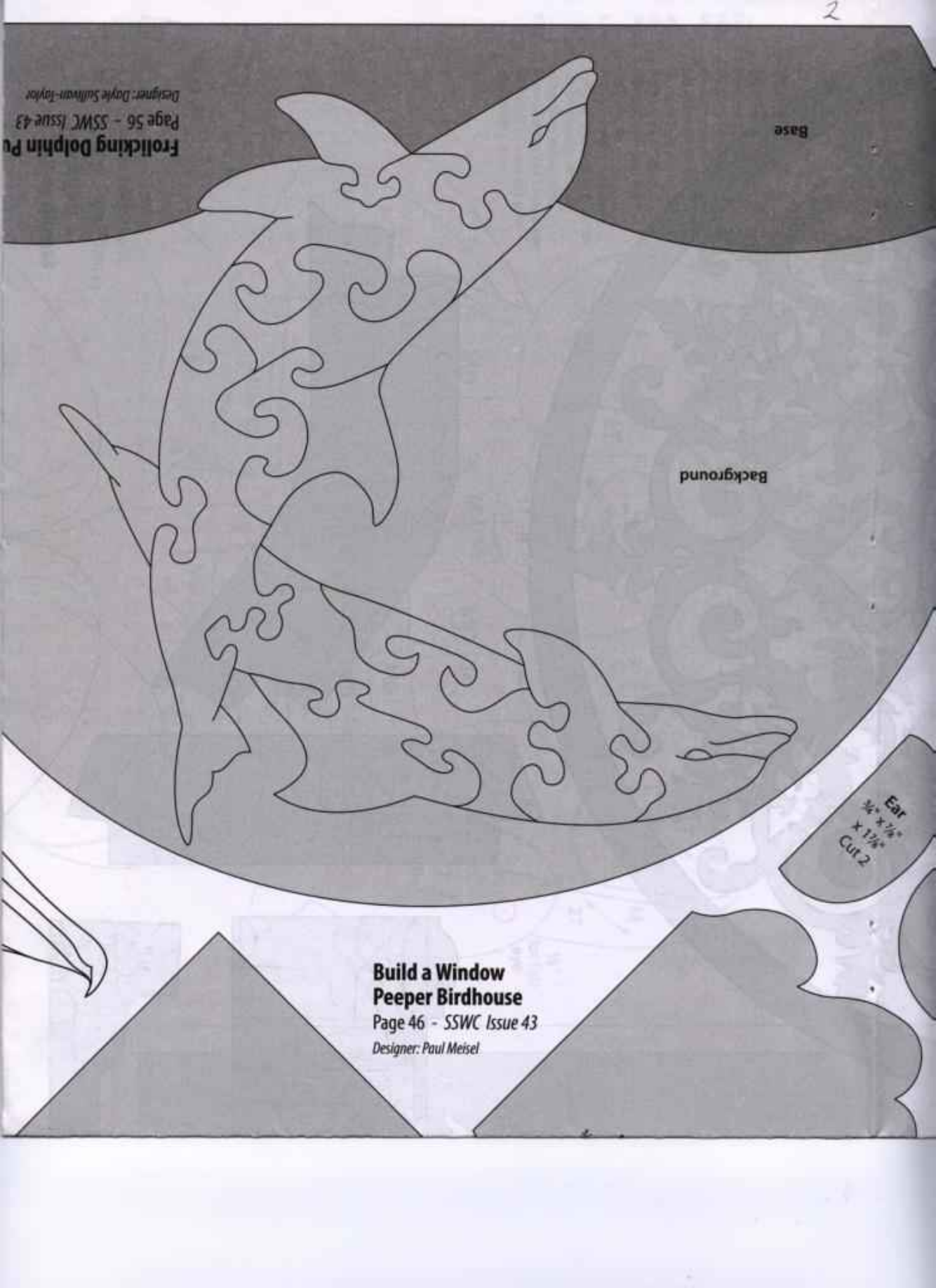
Frolicking Dolphin Pu
Page 56 - SSWC Issue 43
Designer: Doyle Sullivan-Taylor

Base

Background

Ear
3/4" x 1/4"
x 1 1/2"
Cut 2

**Build a Window
Peeper Birdhouse**
Page 46 - SSWC Issue 43
Designer: Paul Meisel



Position of roof B

Position of roof A

Position of eyes, nose and nostrils

Position of cheek

Position of cheek

Position of side

Position of side

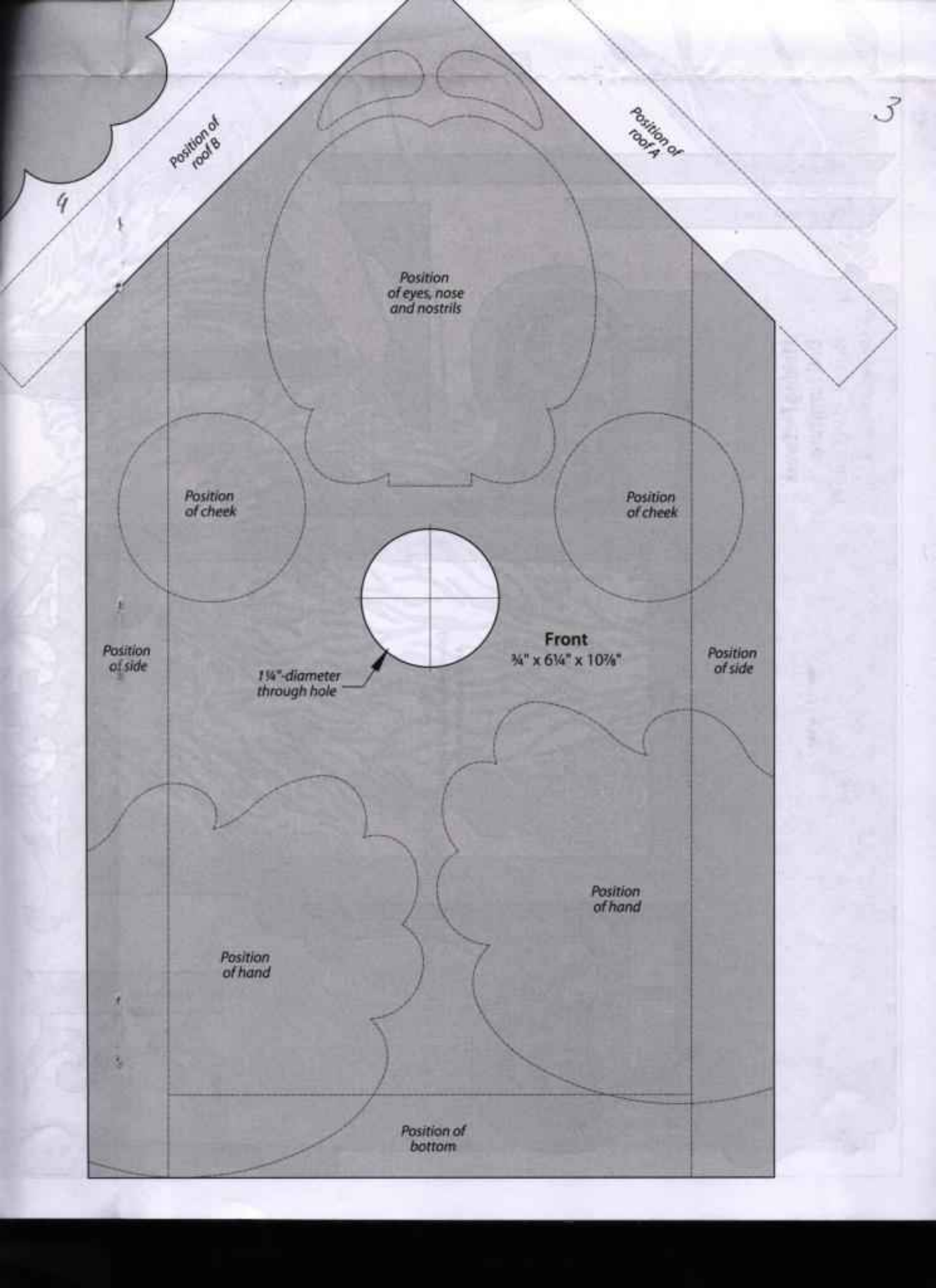
1 1/4"-diameter through hole

Front
3/4" x 6 1/4" x 10 7/8"

Position of hand

Position of hand

Position of bottom



Back
 $\frac{3}{4}" \times 3\frac{1}{4}" \times 4\frac{3}{4}"$

Hand
 $\frac{3}{4}" \times 3\frac{1}{8}" \times 3\frac{3}{4}"$
Cut 2

Position of ear
(other side)

Side
 $\frac{3}{4}" \times 5\frac{3}{4}" \times 8\frac{1}{2}"$
Cut 2 (Right side shown)

$\frac{1}{4}" \times \frac{1}{4}"$ groove

$\frac{3}{64}"$ -diameter through hole
countersink for screw (2)
(other side)

Position of
bottom

Side
view

Position
of side

Notice about photocopying patterns

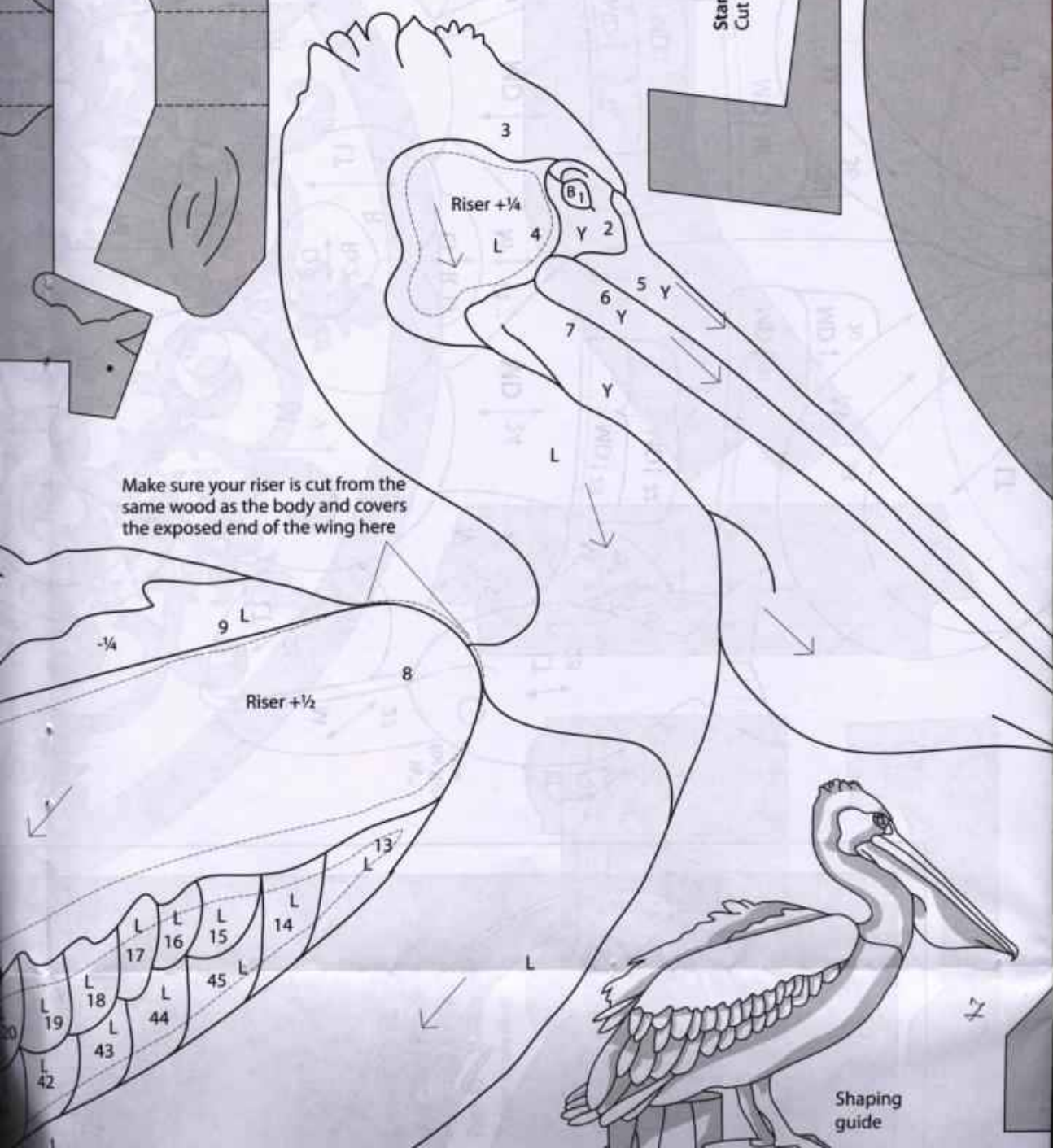
Some photocopiers and home printers can distort patterns when you print them, making them slightly off-size or stretching the image. Use the 1" bar printed below as a guide when copying the patterns and hold the photocopies of the pattern up to the original to check for any distortion.



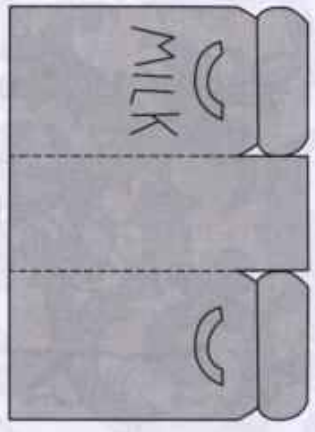
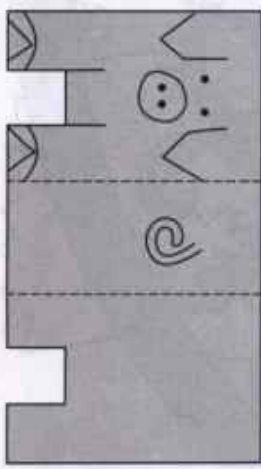
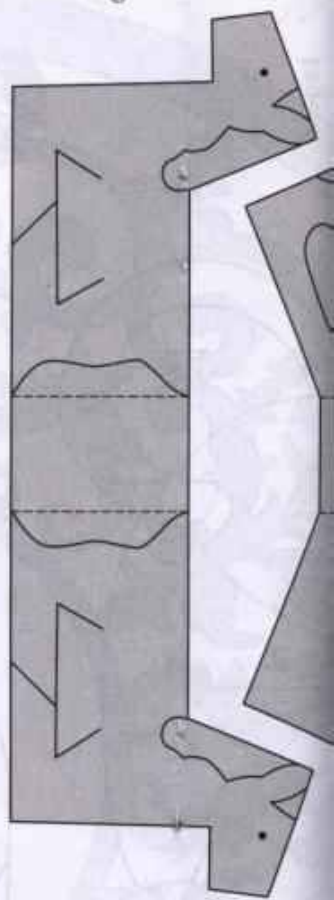
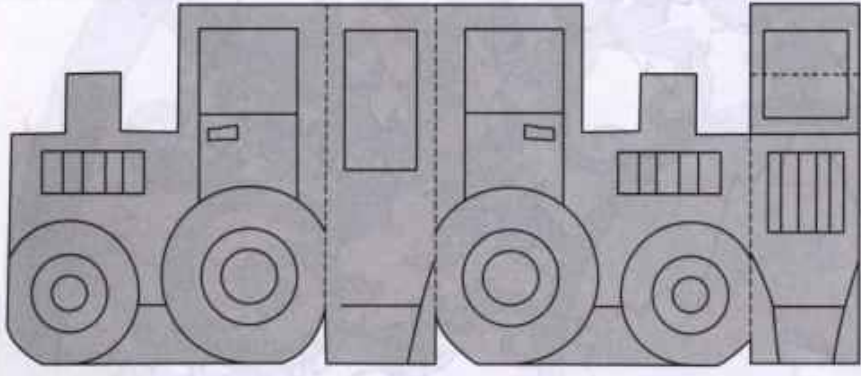
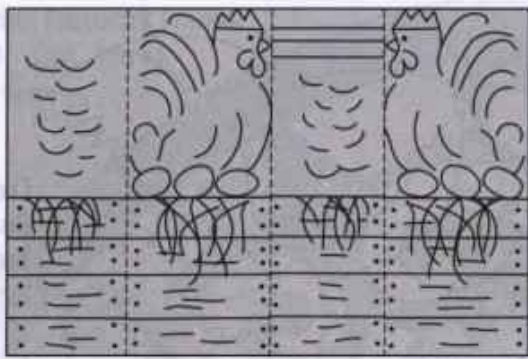
One inch

Stand
Cut 2

Make sure your riser is cut from the same wood as the body and covers the exposed end of the wing here



Shaping
guide

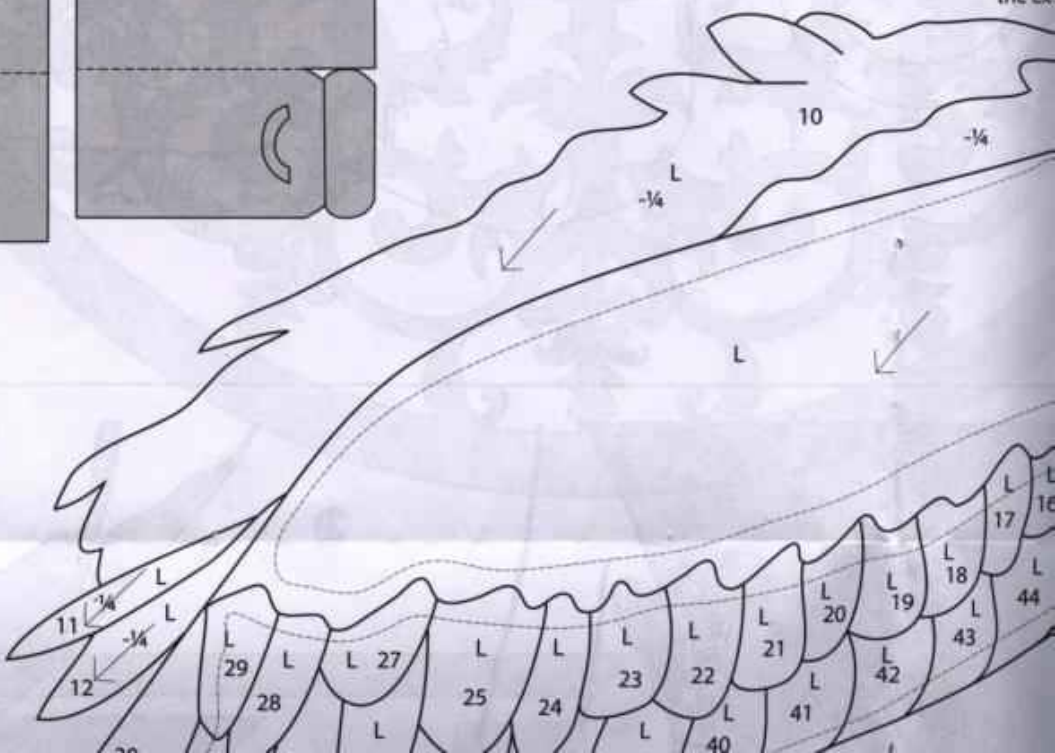


**Creating a Farm
in a Barn Puzzle -
Painting patterns**

Page 40 - SSWC Issue 43

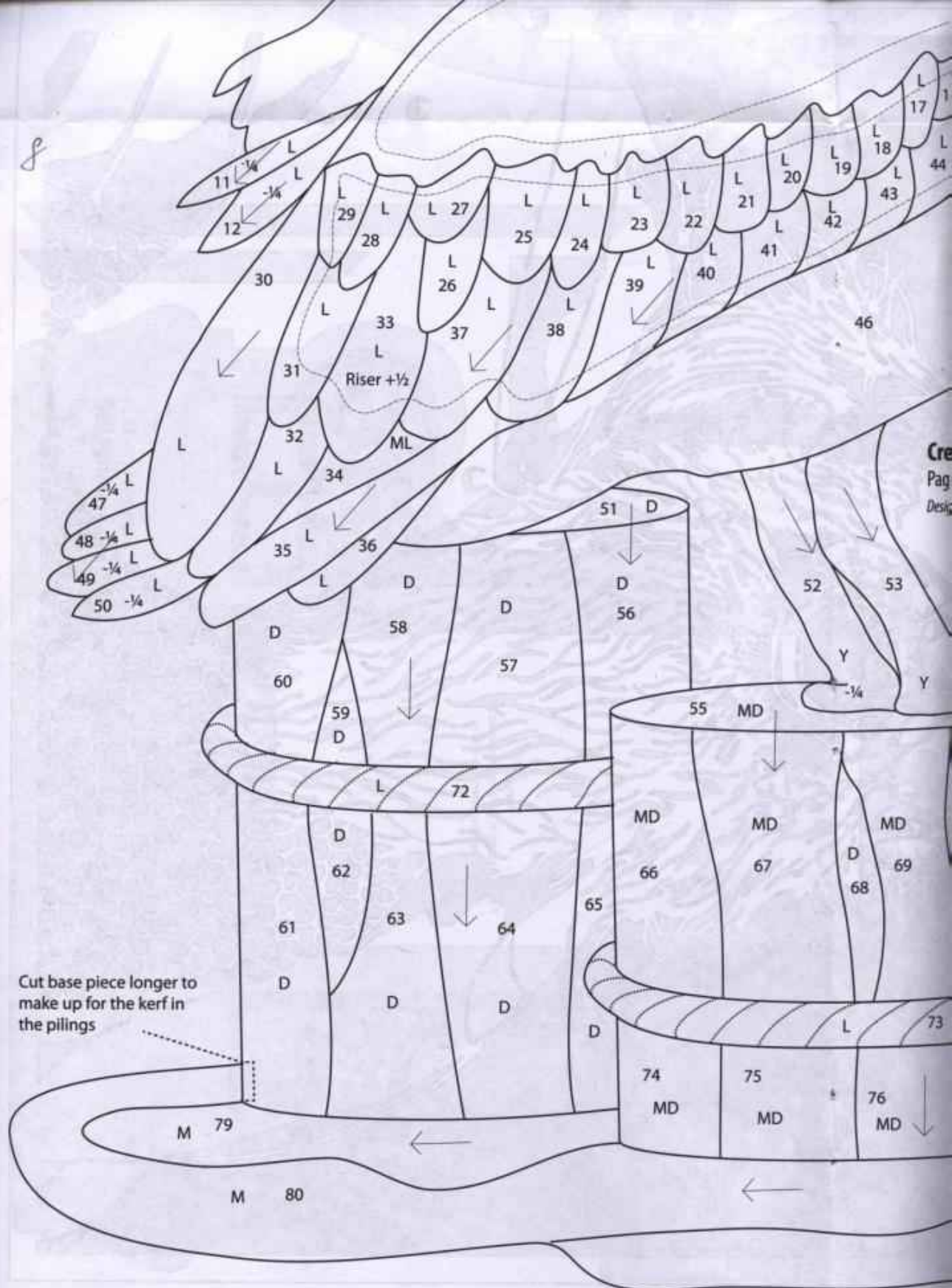
Designer: Carolea Hower

Make
same
the ex



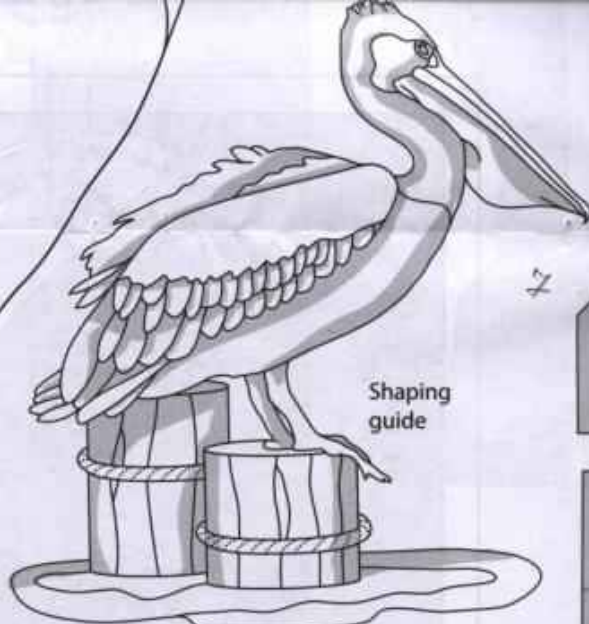
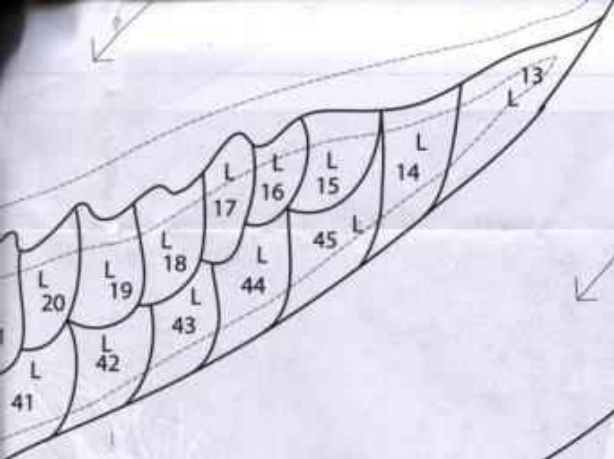
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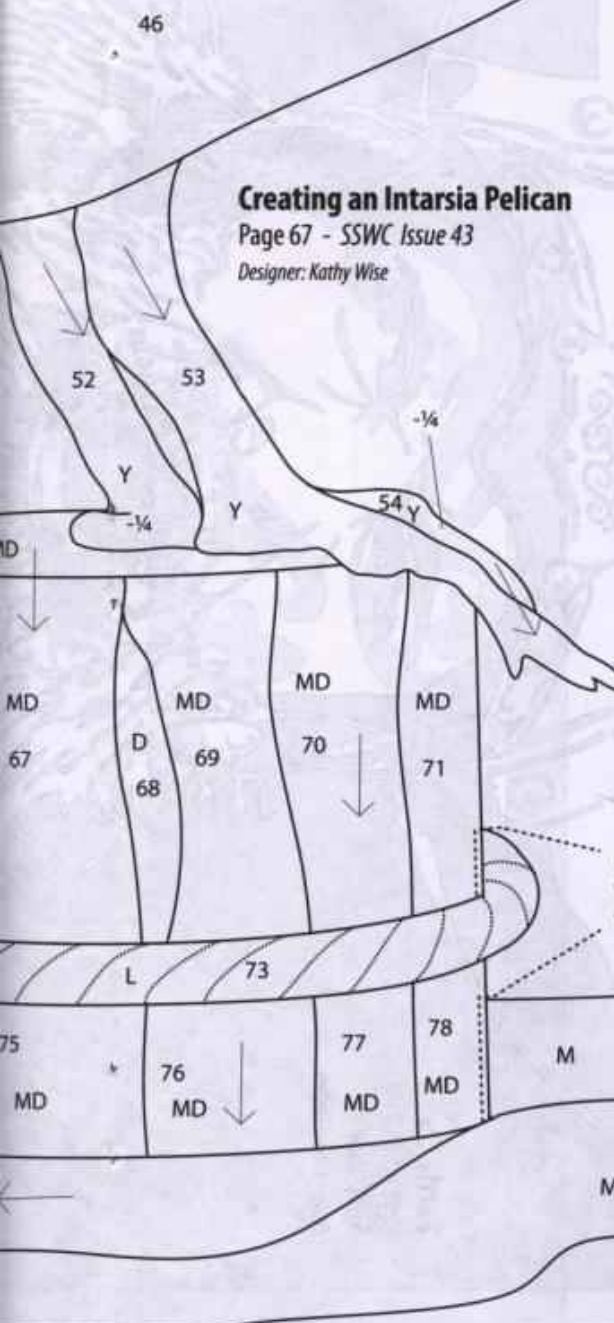
Cut base piece longer to make up for the kerf in the pilings



Creating an Intarsia Pelican

Page 67 - SSWC Issue 43

Designer: Kathy Wise



Legend

Start with 3/4" or 1" wood

- ← Grain direction
- B Black ebony or very darkest shade
- D Dark shade of wood
- MD Medium-dark shade of wood
- M Medium shade of wood
- L Light shade of wood
- 1/4 Sand or plane down
- +1/4 Use 1/4" thicker wood
- Sanding guide
- ⌒ Riser
- ~ Woodburn detail

Cut base and rope piece longer to make up for the kerf in the pilings

M 82

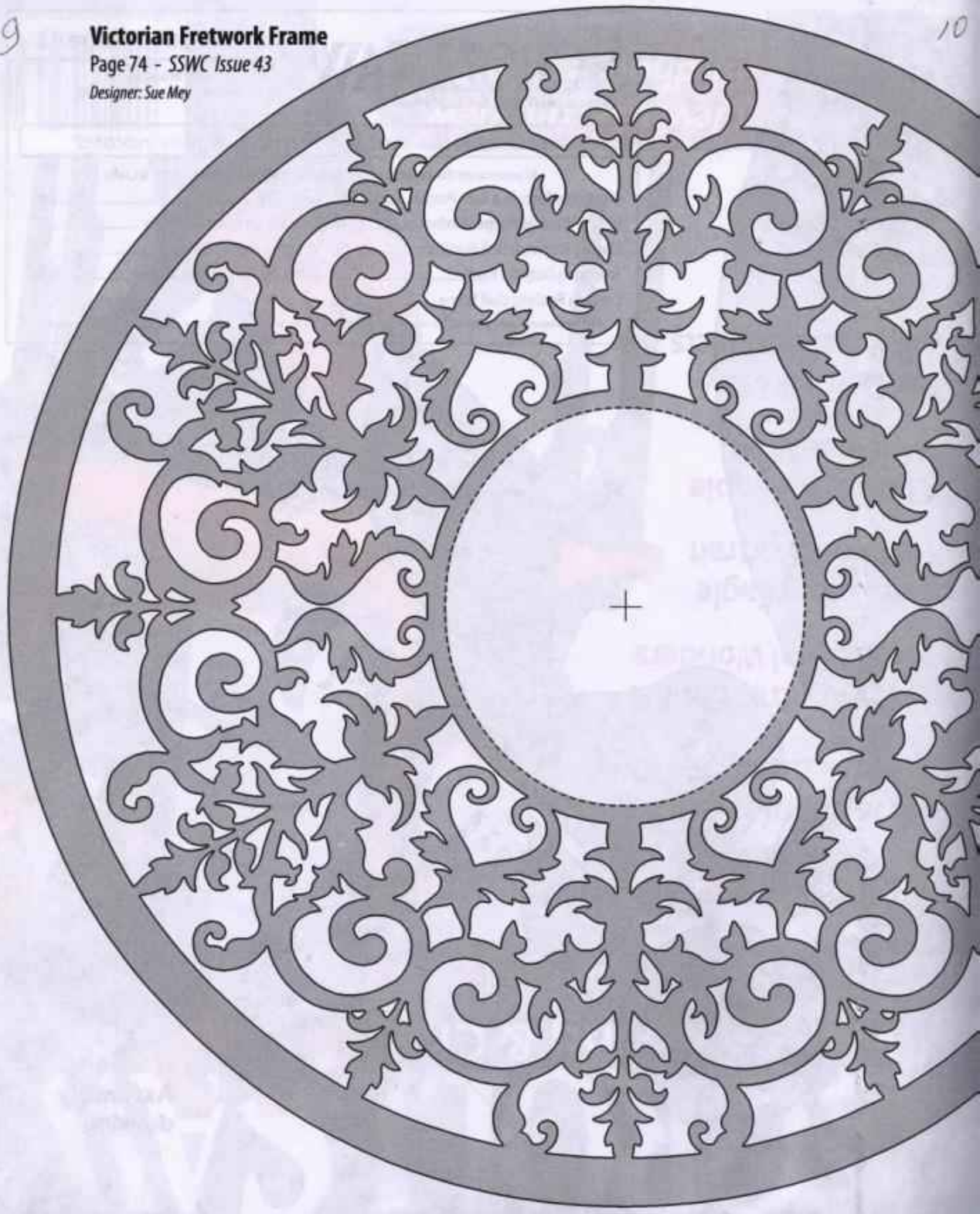
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Victorian Fretwork Frame

Page 74 - SSWC Issue 43

Designer: Sue Mey

10

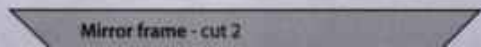


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14



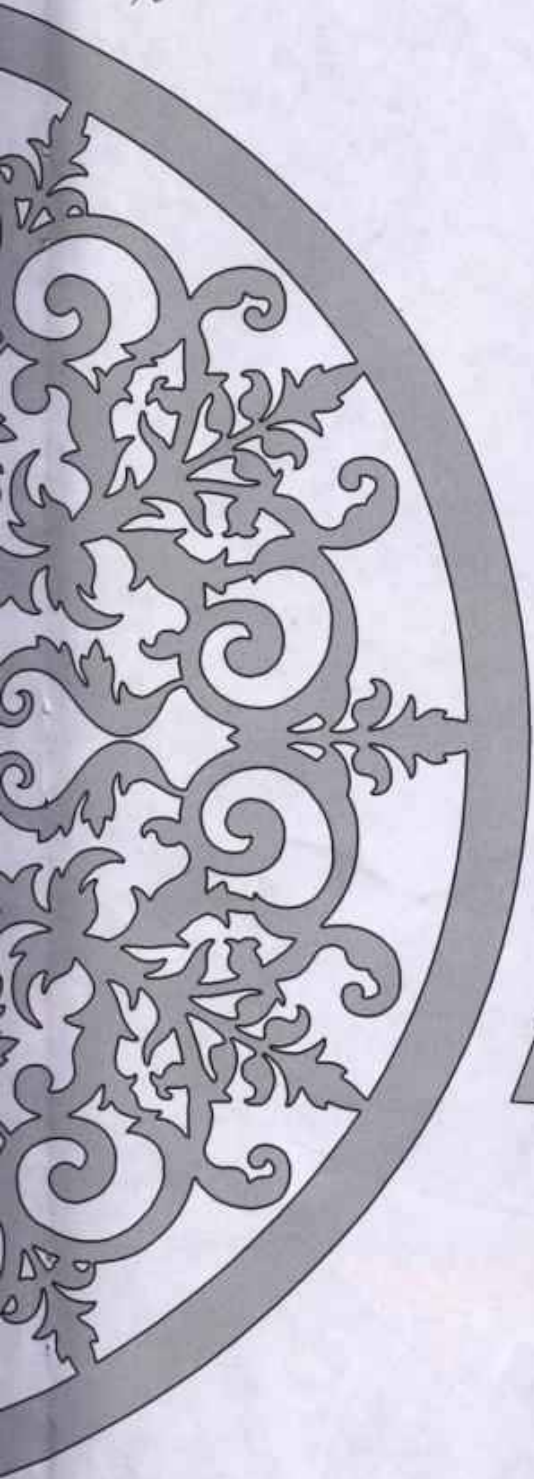
Mirror frame - cut 2



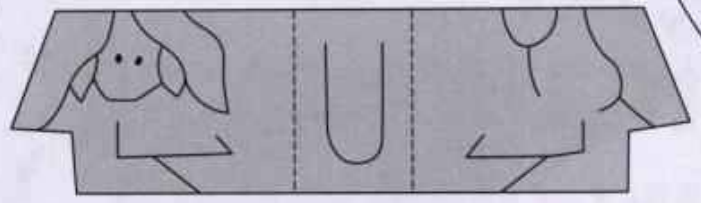
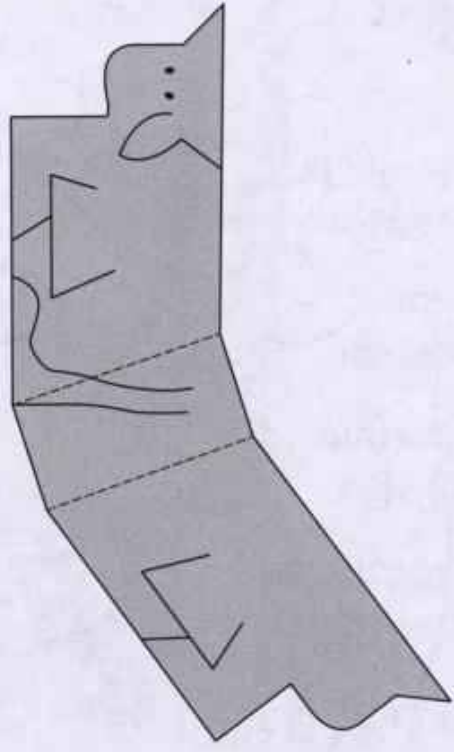
Mirror frame - cut 2



Mirror frame - cut 2



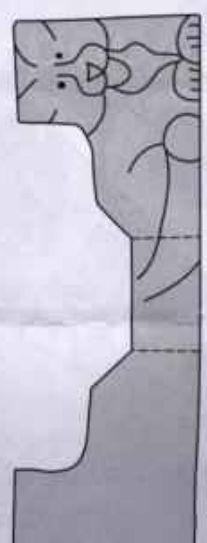
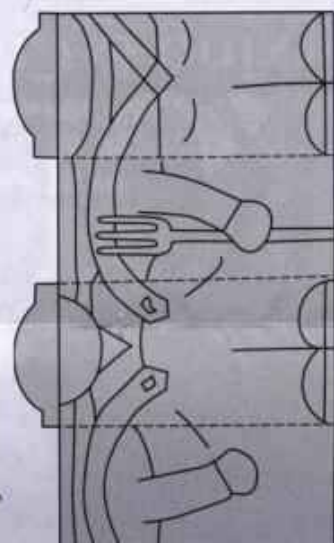
**Catch-of-the-Day
Teddy Bear**
Page 76 - SSWC Issue 43
Designer: Judy Gale Roberts



35

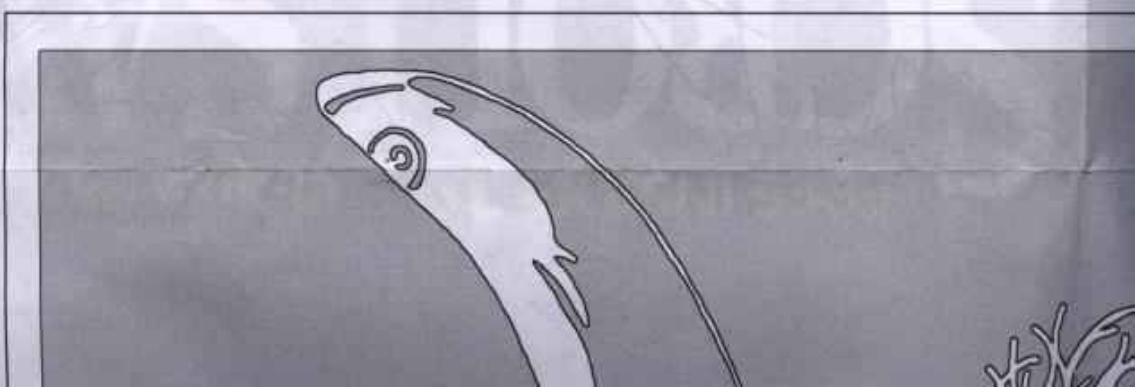
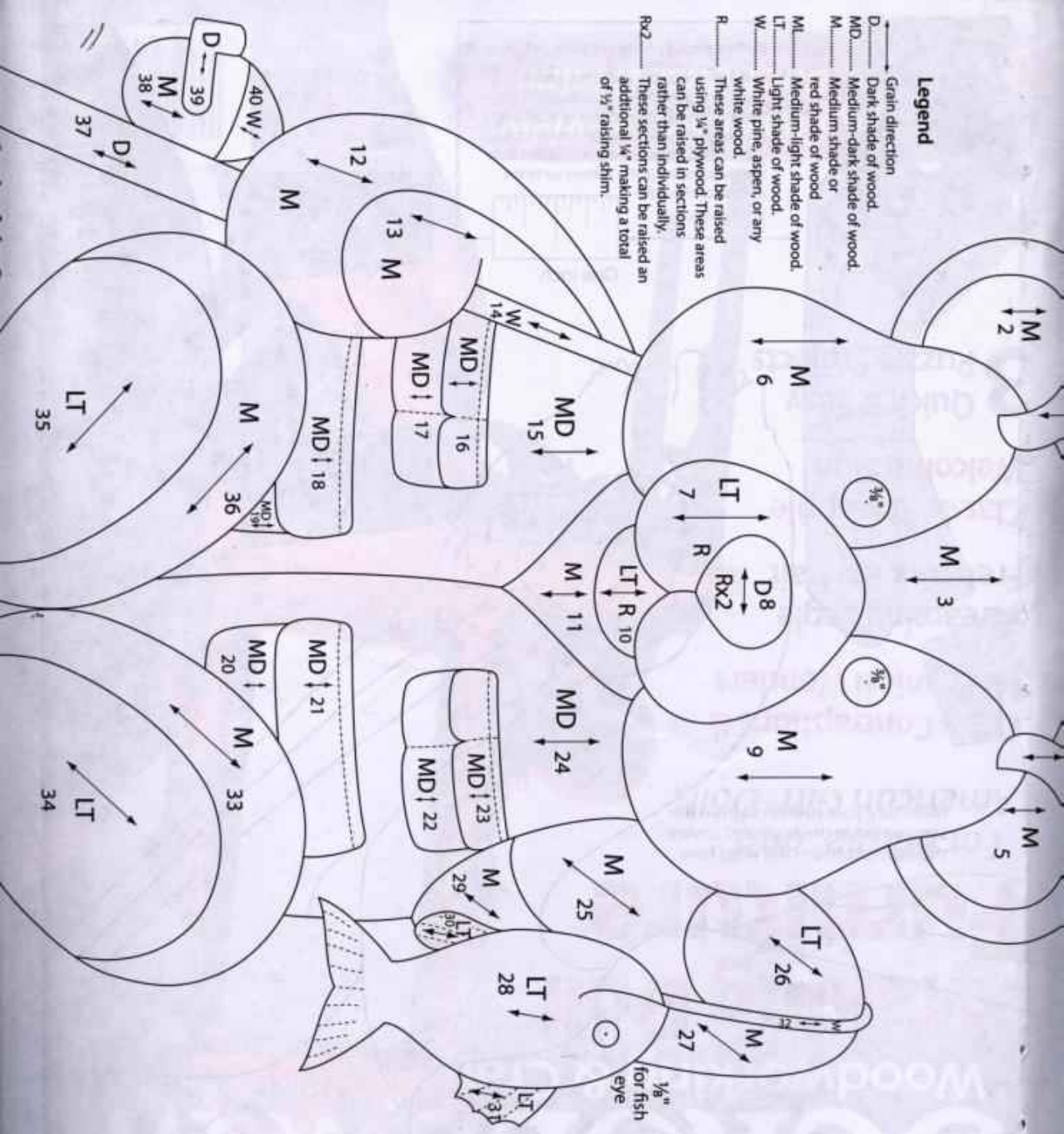
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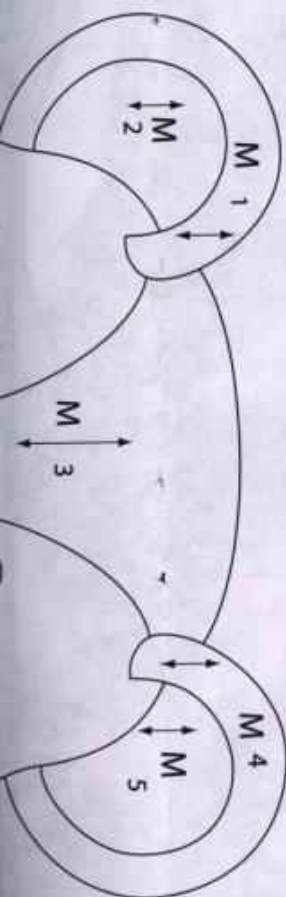
**Creating a Farm
in a Barn Puzzle -
Painting patterns**
Page 40 - SSWC Issue 43
Designer: Carolea Hower



Legend

- Grain direction
- D Dark shade of wood.
- MD Medium-dark shade of wood.
- M Medium shade or red shade of wood
- ML Medium-light shade of wood.
- LT Light shade of wood.
- W White pine, aspen, or any white wood.
- R These areas can be raised using 1/8" plywood. These areas can be raised in sections rather than individually.
- Rx2 These sections can be raised an additional 1/8" making a total of 1/4" raising skin.

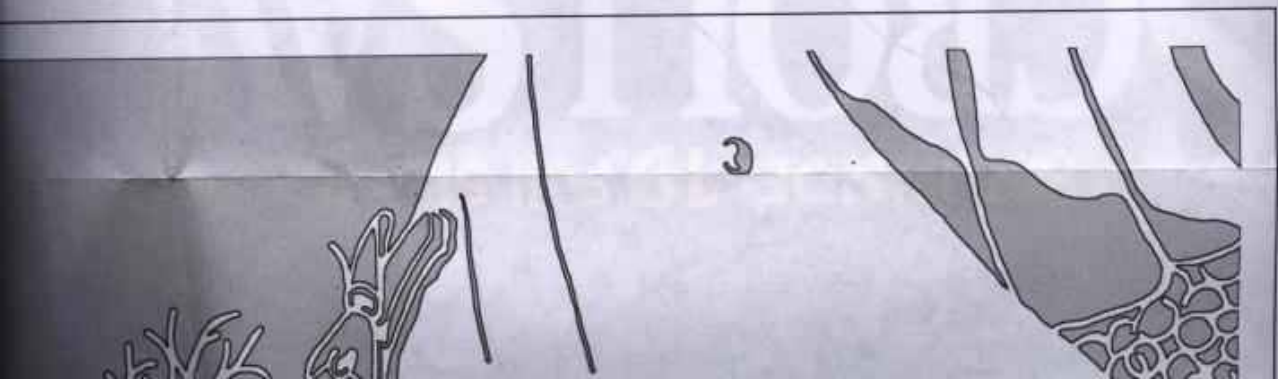




Create a Realistic Owl Scene

Page 58
SSWC Issue 43

Designer: Deborah Nicholson



4

Mirror frame - cut 2

Mirror frame - cut 2

14

Top
brace - cut 2

**Making Fretwork
Doll Furniture**
Page 50 - SSWC Issue 43
Designer: Kirk Raropiech

Vanity backer

Optional - use thin material
Decoration

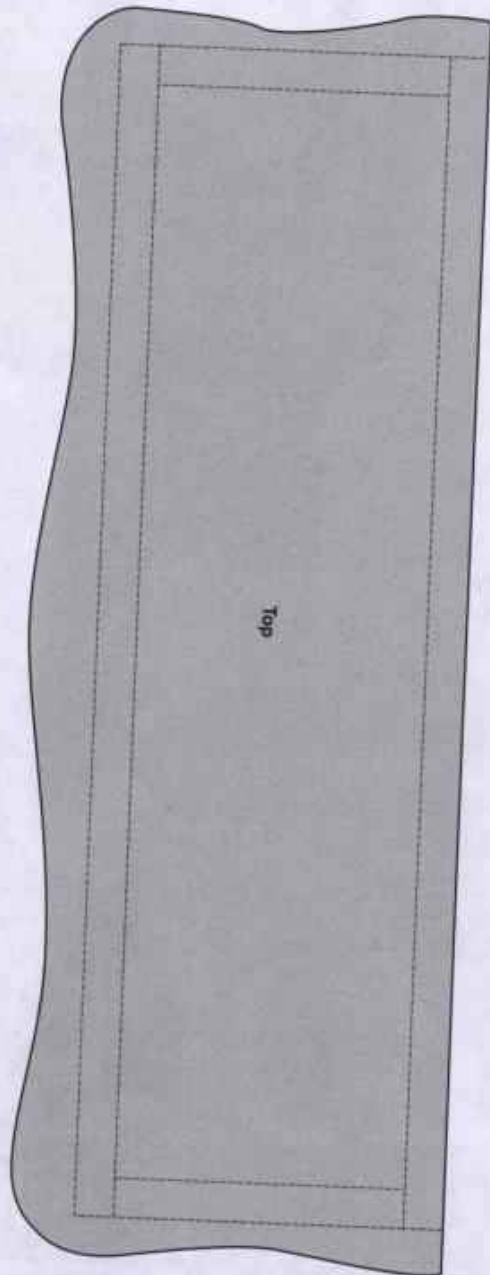
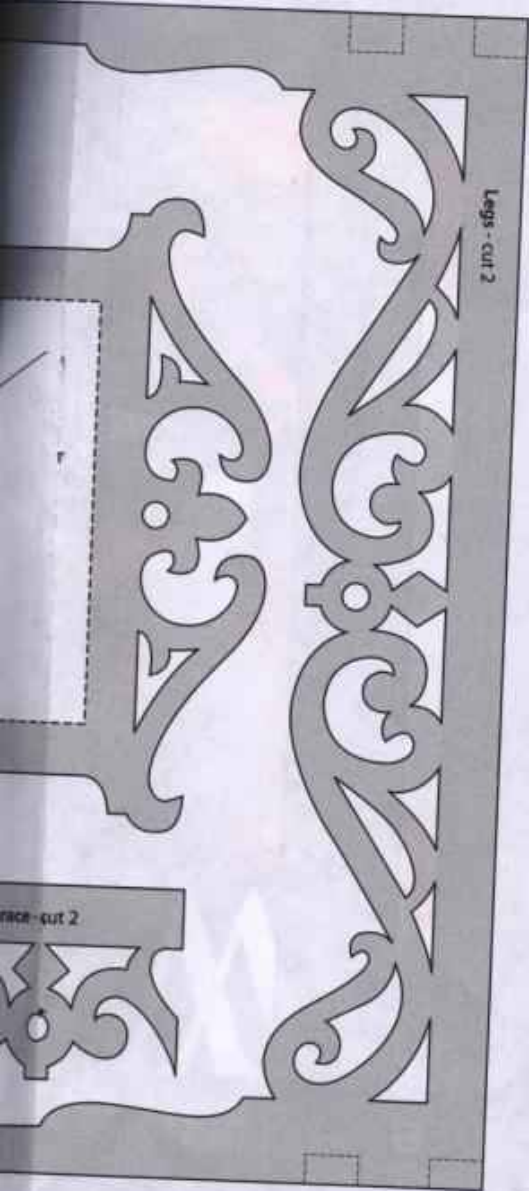
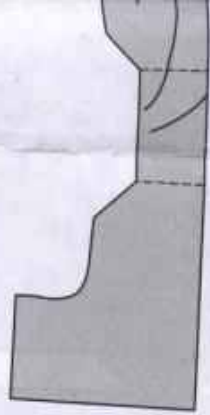
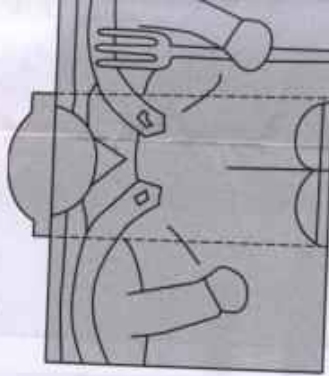
Mirror
Leave backer solid if using
a self-adhesive mirror

Side brace - cut 2

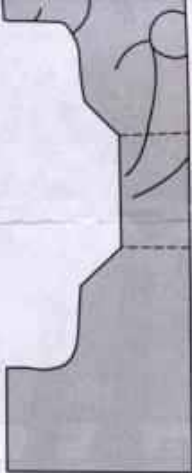
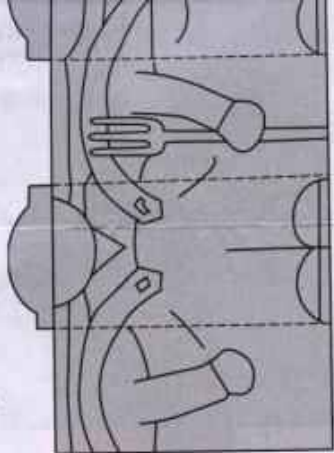
Creating a Farm
in a Barn Puzzle -
Painting patterns

Page 40 - SSWC Issue 43

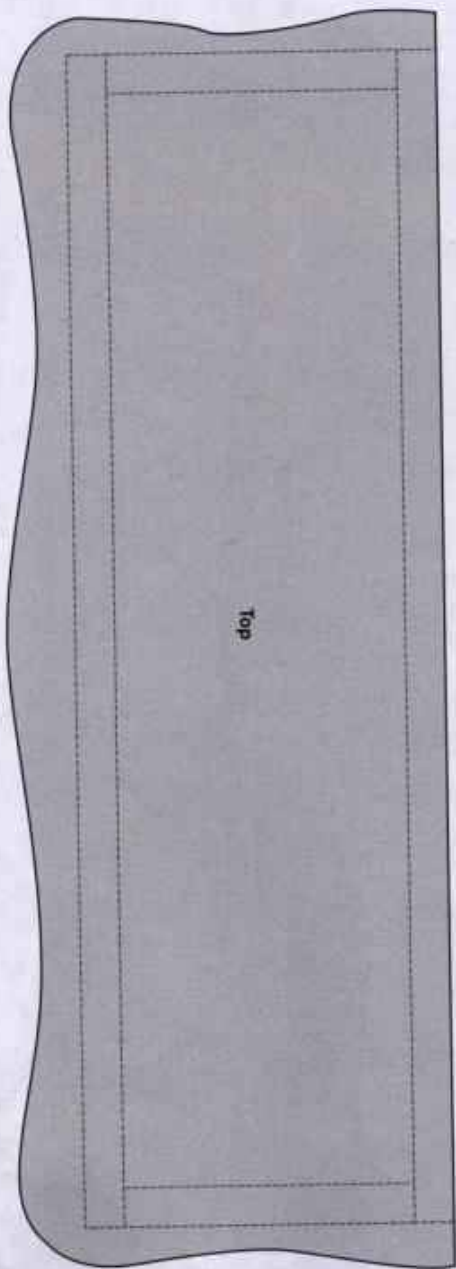
Designer: Carolea Hower



**Creating a Farm
in a Barn Puzzle -
Painting patterns**
Page 40 - SSWC Issue 43
Designer: Caroleen Howler



15





Battle Cry

Page 60

SSWC Issue 43

Designer: Kerry Hallam