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FALL 2007 ■ ISSUE 28

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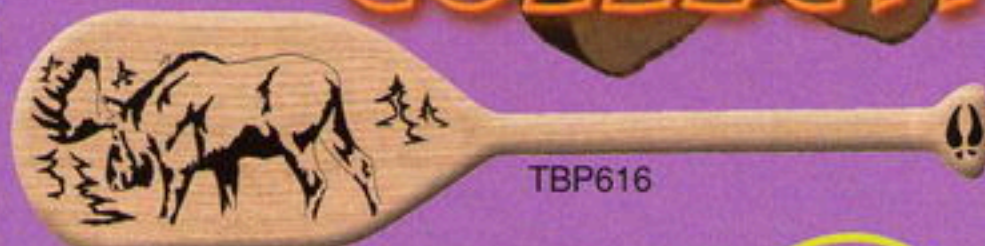
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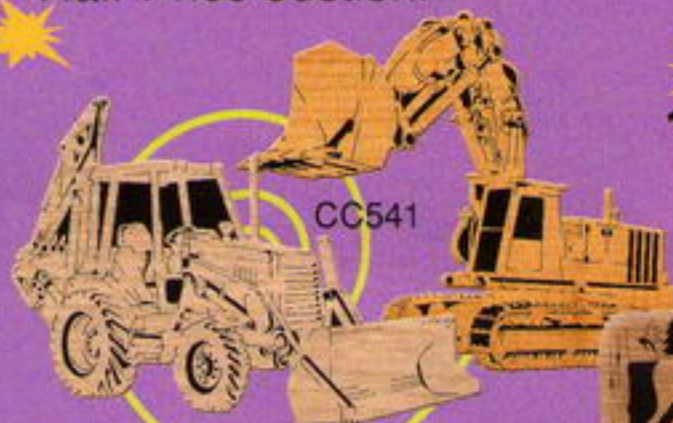
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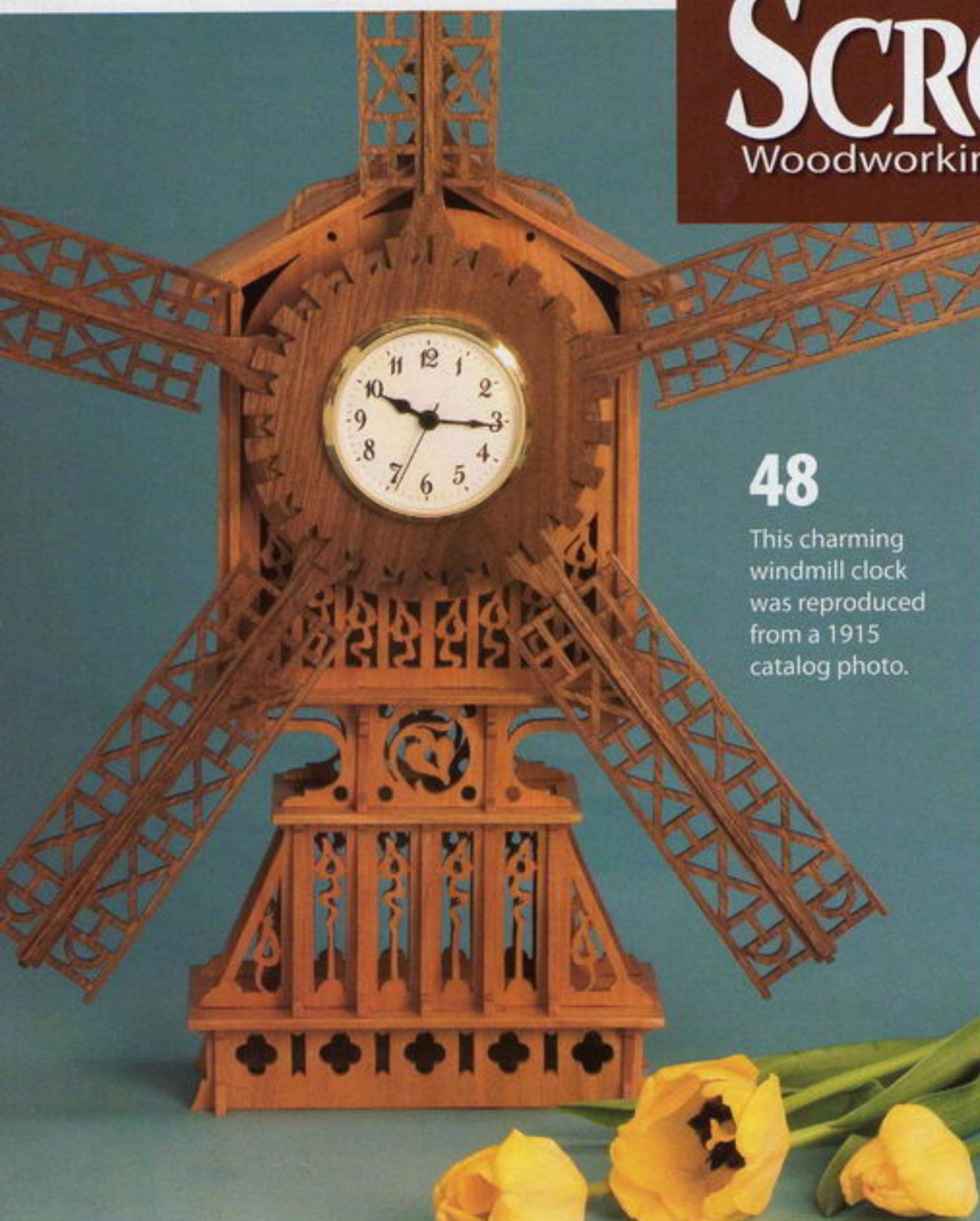
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Woodworking & Crafts



48

This charming windmill clock was reproduced from a 1915 catalog photo.

METHODS

26 Turkey Namecard Holders

by Theresa Ekdorn

Quick and easy layered project adds a personal touch to your Thanksgiving table

30 Tricycle Squirrel Feeder

by Paul Meisel

Easy beginner project is a treat for your backyard visitors

38 Scroller's Aid

by Carl Hird-Rutter

This clever, pocket-sized device combines six scrolling tools in one

62 Paul Bunyan Tray Puzzle

by Russell Greenslade

Vivid colors bring this tall tale to life

74 Elegant Fretwork Timepiece

by Sue Mey

Classic Roman clock face is easy to scroll

FEATURES

22 Sabertooth Cat Puzzle

by Bob Betting

A detailed tray puzzle "cut" from the pages of natural history

48 Windmill Clock

by Pedro Lopez

Detailed fretwork highlights this impressive clock

51 The Puzzle Art of Randy Crossman

by Bob Duncan

An award-winning craftsman serves up a double helping of advice.

68 Trophy Buck Intarsia

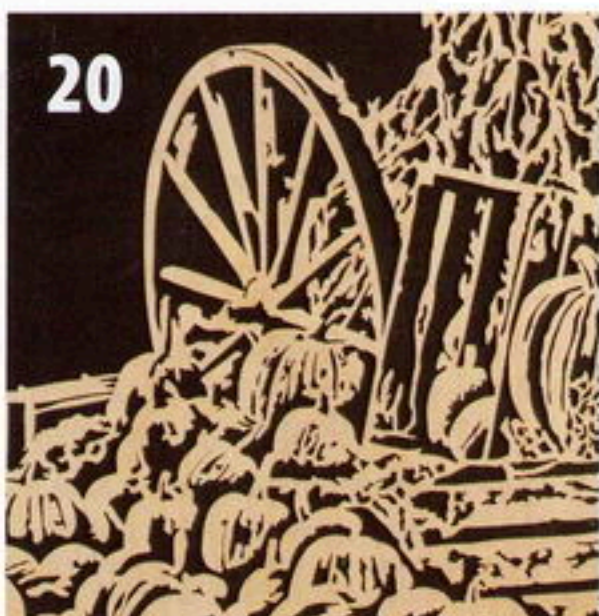
by Kathy Wise

Limited pieces and minimal shaping make this great project simpler than you'd expect.

62



20



44



PATTERNS

20 *Shades of Autumn*

by Kevin Daly

Detailed harvest scene captures the essence of the season

36 *Tiger Portrait*

by Charles Dearing

Capture the regal attitude of this jungle predator with a portrait-style pattern

44 *Canadian Geese*

by Toni Burghout

Choose the level of complexity with two different segmentation patterns

64 *3-D Snowflake Ornaments*

by John A. Nelson

Unique slotted design is easily stack cut for quick production

72 *Birds and Blooms Wall Basket*

by John A. Nelson

This decorative fretwork doubles as a functional mail holder

TECHNIQUES

32 *Kid-friendly Toucan*

by John Morgan

Share your love of woodworking with this easy segmentation project

41 *Preserving Documents in Wood*

by Bill Thurlow

Positioning jigs make it easy to replicate important documents

56 *Coloring Fretwork*

by Toni Burghout

Easy techniques add interest to your fretwork



32



41



51

COVER STORY
The Puzzle Art
of Randy
Crossman

DEPARTMENTS

4 *Editor's Column*

5 *Author Spotlight*

6 *Letters to the Editor*

8 *Info Exchange*

10 *Bragging Page*

14 *News and Notes*

16 *New Products*

18 *Scroll Saw Basics*

78 *Advertising Directory
& Classifieds*

80 *Wood Review*



Our publisher recently treated several staff members to an inspirational day of insight from some of today's top leaders. The event took place on a Friday and I found myself pondering some of the thoughts throughout the weekend. My husband, being a huge Pittsburgh Steelers

fan, was a little jealous that I got to enjoy a pep talk from Terry Bradshaw. Mr. Bradshaw spoke about pursuing your passion, whatever that may be, and not allowing others to discourage you from doing so. He said, "If you work at something that is truly your passion, how can you go wrong?" That made a lot of sense to me.

If you're passionate about something, it energizes you, allowing you to be more productive. Channeling your efforts into areas that you are excited about will naturally produce better results. Another speaker elaborated on that theme. She instructed us to think about what our unique ability or natural talent is. And then think about what we're passionate about. Once you've answered those two questions, determine what areas of these two overlap. That "overlap" will be the area you excel at.

I've always been passionate about art. While I don't think I'm particularly talented in that area, I have a deep appreciation for those who are. I also love to read. Personally, horror novels are my favorite, but I enjoy reading just about anything. The combination of the written word and talented artists makes being the editor of SSW&C an ideal job for me. It energizes me and I look forward to publishing each issue.

I'm lucky to be surrounded by people who are as passionate about the subject matter as I am. It's obvious that our contributors are talented artists. The bonus is that they love to share their work. When I get a thank you note from a first time contributor, it's really an emotional high for me. Our staff members share my enthusiasm and look forward to reading each issue almost as much as our readers do. Even though I do give them an incentive, offering a small prize for the first employee to find the hidden fox, it's heartening to see them setting aside other tasks when the new issue is delivered to their desks.

The best part of my job is hearing from our readers. Whether they send me an email, or make a post on the message board, I know that feedback means they are passionate about the magazine, and more importantly, scrolling. It's that passion for scrolling that will keep this art form alive and able to be passed on to future generations.

Warm regards,

Shannon Flowers

Shannon@FoxChapelPublishing.com



See page 32 for an article that will help you share your passion for scrolling with the next generation.

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Bob Betting

Sabertooth Cat Puzzle - page 22

A resident of Lakewood, CO, Bob is a member of the Colorado Woodworkers Guild. Before retiring, he was a surveyor, appraiser, and searcher of real estate records. He has been working with wood for five years. Bob specializes in the scroll saw and has developed a series of puzzles called Paleo Pets®. He has also designed several Scandinavian Door Harps, timeless designs that play a simple chord when someone opens or closes a door.



Pedro Lopez

Windmill Clock - page 48

Pedro Lopez of Seville, Spain, teaches mathematics at the University of Seville. He cut out fretwork by hand as a child, but recently returned to the hobby. In addition to cutting out fretwork designs, Pedro uses computer programs to design new fretwork patterns, or restore historic designs. He says the accuracy of computer programs makes it a joy to restore the historic patterns and ensure the designs are 100% accurate. He sells his patterns to recover some of the costs of his hobby. For more of his designs, visit www.finescrollsaw.com.



John Morgan

Kid-friendly Toucan - page 32

John is a husband, father, and high school band director from Granbury, TX. He enjoys scrolling, but his favorite tool is the band saw. His father, a carpenter, introduced him to woodworking at a young age. John enjoys playing trumpet, jazz music, and cooking, as well as his time with his wife and two sons. He and his family are students of the martial arts where John holds a black belt in Tae Kwon Do.



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Giving Credit

Several readers had opinions about the discussion on giving credit to the original designer in the Editor's Letter in our last issue.

Issue #27, Summer 2007, looks FANTASTIC!! There are several projects I can't wait to try. Also, thanks for the reminder about crediting designers. Sadly, too many people I know see no problem with pirating movies and music.

Will patterns be any different? Artists deserve the credit due. After all, if it was easy, anyone (including me) could do it. Hats off to their talent and hard work.

Tim Therrien
Glendive, MT

I have just received my copy of SSW&C and I read your comments about giving credit to the people that take the time to make the patterns we use. I completely agree. In fact, earlier this year I had some stickers made to put on the back of my work. That way whoever made the pattern, whether it be

myself, Gary Browning, Jeff Zaffino, Gary Sherrodd, etc. is credited with the pattern design.

Margaret Hewens
Australia

Portrait Of: REEL LOVE
Cut By: MARG HEWENS
Pattern By: JEFF ZAFFINO
Date Cut: MARCH 2007

Excalibur Examined

My daughter purchased an Excalibur EX21 Scroll Saw (reviewed in SSW&C Issue 20, Fall 2005) and I love it, but I did have a few minor problems with the saw.

I needed to make an adapter for her to use to tighten the scroll saw blades as they would come loose and ruin the blade.

Also, in order to keep the arm up and out of the way, you have to tighten the screw so much that it's worn away some of the metal. It tends to be difficult to get the arm back down. I wish they would come up with a different method to hold the arm up that would be smooth and not damage the arm.

Don Arnsmeier
Darlington, WI

Find The Fox

Several readers were a bit confused because the fox in the photo of the Friendship Quilt on Page 14 was facing left. We never intended to confuse readers. The hidden fox for the contest will ALWAYS be just an outline of the Fox Chapel logo.

Fox Hunt

Robert Lorge of Owen, WI, and Jim Staddon of Innisfil, ON, Canada were randomly drawn from the 130 entries who located the Fox in the Summer 2007 (Issue 27) of SSW&C. The fox was located in the upper left corner on the gun stock pictured in the Wooden Teddy Bear ad on the inside front cover.

If you 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

SET IT STRAIGHT

In Summer 2007, Issue 27, one of the contributors to the Friendship Quilt that members of the SSW&C Message Board cut, assembled, and auctioned off for charity, was referred to by only his screen name. Bob Strugnell of Whitby, ON, Canada, was referred to as Bob in Whitby.

The Lang Clock

The patterns for the Lang Clock, which appeared in Summer 2007, Issue 27, were incorrect. Photocopy the patterns at 99% in order to get the correct size. Corrected patterns have also been posted on our website at www.ScrollSawer.com.

Dragon Chest

There were two errors with the Dragon Chest. In the narrative and the Materials list, the notation to cut the short side panel border pieces from 2"-wide stock was incorrect. Cut these two pieces from 2 1/4"-wide stock, as shown on the pattern on the pullout. The long side panel border pattern on the pullout was also incorrect. The pattern should be 2"-wide. Center the pattern on the 2"-wide stock or trim 1/16" off both sides of the pattern. A corrected pattern is available on our website at www.ScrollSawer.com.



September 1, 2007 to be eligible.

NOTE: Contest fox faces left (other foxes appearing in SSW&C don't count). Send your entry to Scroll Saw Woodworking & Crafts, Attn: Find the Fox, 1970 Broad Street, East Petersburg, PA 17520, or e-mail to Editors@ScrollSawer.com.

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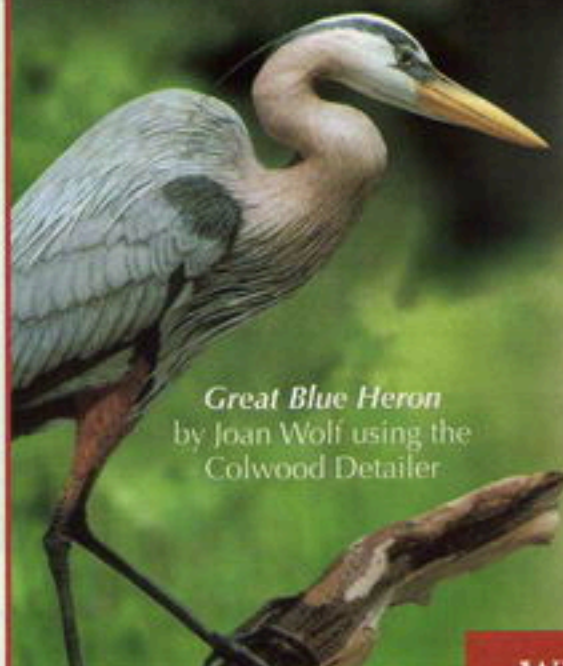
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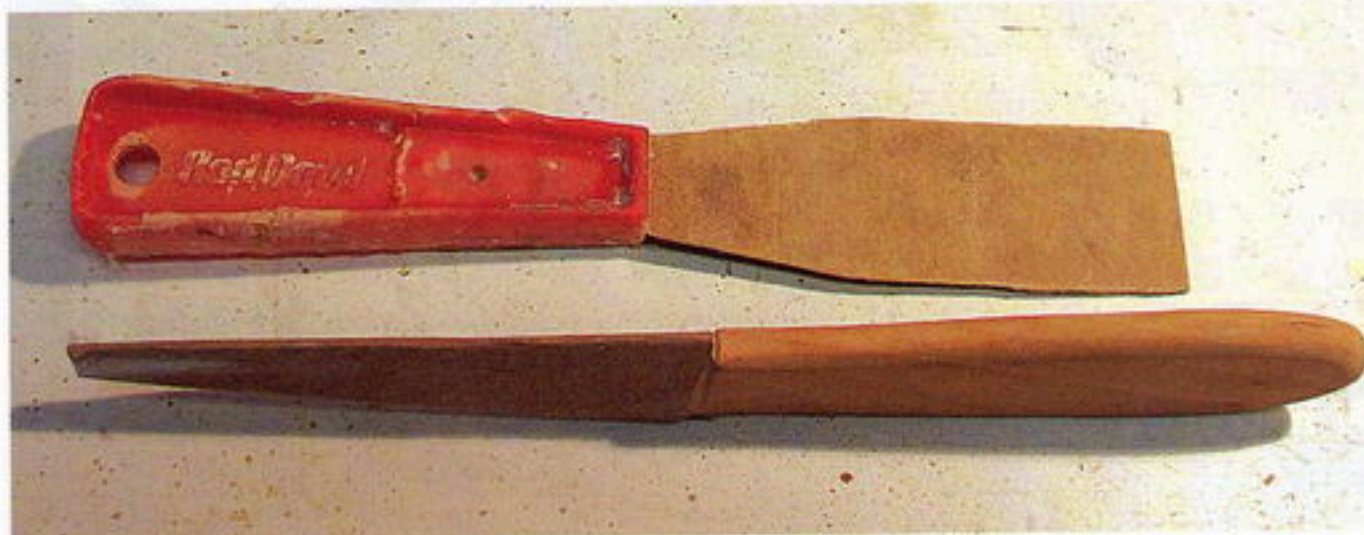
its size. This can be carried further by cutting the putty knife down to a thinner width with a metal-cutting scroll saw blade for tight spaces.

Another handy sanding tool can be made from 1/8"-thick hardwood. Shape the hardwood to resemble a knife, but alter the blade end to suit your needs. On my tool, the blade end is actually shaped like a triangle so I have a blunt 1/8"-thick edge, a narrow, knife-like edge, and two wide edges. Blunt the knife edge so it will

not cut the sandpaper during use. Precut the sandpaper to the blade shape, spray with 3M77, and press onto the blade.

To help adhere the glued sandpaper, I press each tool side on a flat surface for several seconds, rotate the tool to another side and repeat.

Michael E. Dingas
Warner Robins, GA



Cutting on an angle

I do inlay work, so I am constantly changing the table angle. The angle indicators on most scroll saws are not bad, but they do leave a bit of room for improvement. The readily-available plastic angle gauges are not that precise either. Even if the gauges were precise, it is hard to see when the blade is in line with them.

I have had a smart level with a digital readout for many years and decided to try it on the saw. Start by making sure the blade is absolutely square to the table using your method of choice (See page 18 for some tips). Level the saw so the smart level reads 0°. Adjust the saw table to the angle you want with the digital readout. It's easy to repeat that same angle, just be sure to put the level on the same spot on your table every time.

Rolf Beuttenmuller
Bellport, NY

Editor's Note: Prices for digital levels average around \$100. For a more economical solution, see page 16.



Drill press replacement

When I started working on the Lichterbogen featured in *SSW&C* Holiday 2006, Issue 25, I realized that my drill press would not reach in far enough to drill all the blade-entry holes. I have a rotary tool, but since I was stack cutting, I was concerned that my holes would not be square to the blank. To solve this, I purchased a variable-size chuck and plunge router base for the tool. Now I

have vertical holes wherever I need them. It is quicker and easier than my drill press.

Earl Herman
Jacksonville, FL

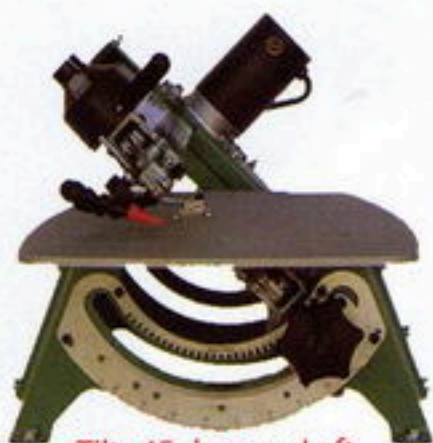
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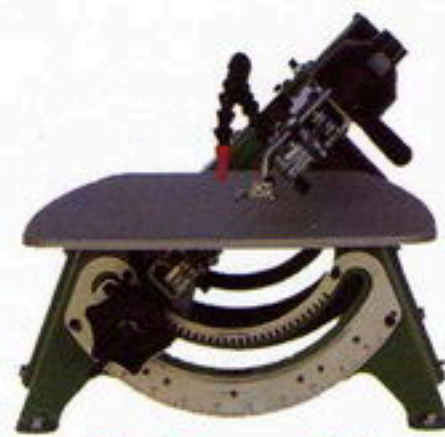
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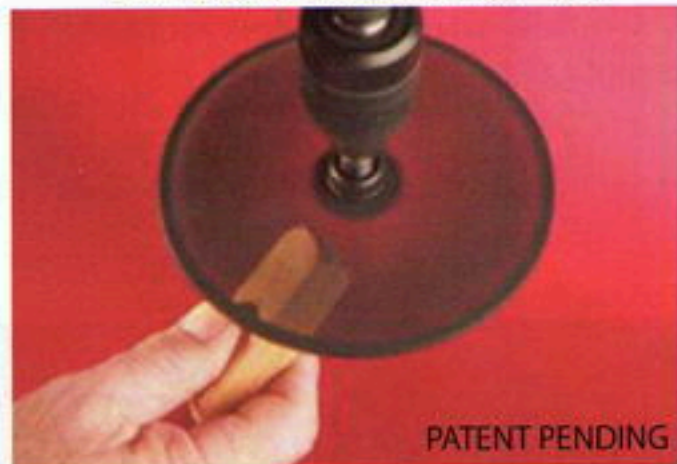


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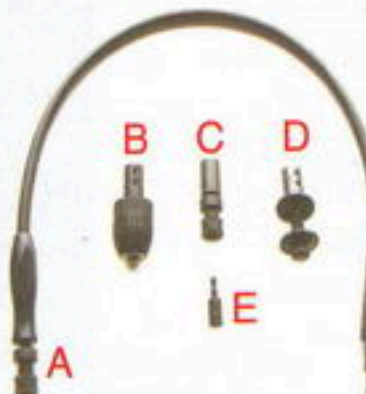
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Steamboat Replica

John Hollinshead of Queensland, Australia, crafted this exact replica of the Cookabura Queen Brisbane River Ferry. The 1,980 pieces that make up the replica were joined using only glue, and the model makes use of the natural colors of local hardwoods. The piece is 30" long and 10" wide.



Hollow Easter Eggs

Tim Snook of Dover, PA, laminated poplar, walnut, and two tones of black cherry together to make his own version of the 3-D Easter Eggs, demonstrated by Fred and Jean Byers in Spring 2007, Issue 26. He also shaped the "yolk" waste section into solid eggs.

Scrolling in School

Nicole Volpa, a 10th grade student at Buena (NJ) Regional High School, cut this clock out of Corian® during a woodworking class in school. The class inspired her to take up scrolling as a new hobby. Her biggest challenge is fighting with her mother for time on the scroll saw. The pattern was designed by Rick and Karen Longabaugh.



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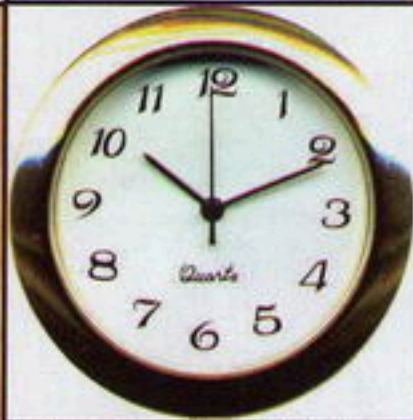
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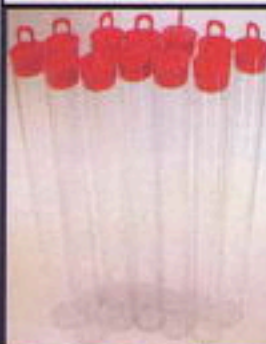
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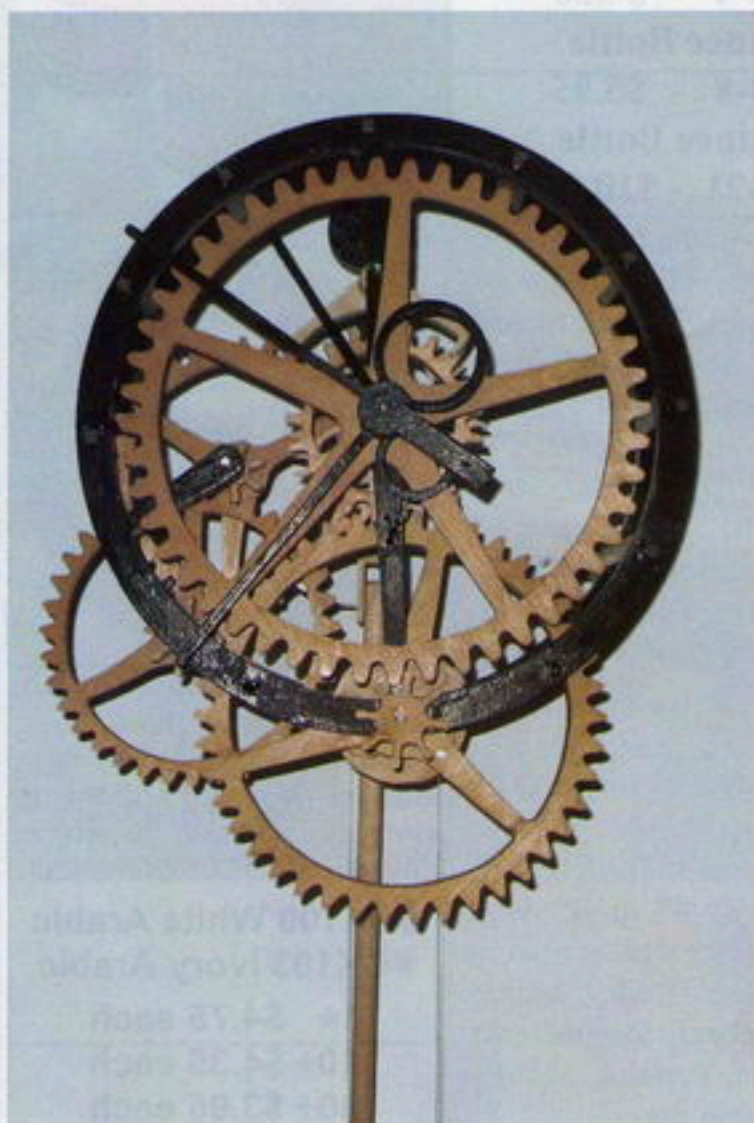
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Intarsia Horses

Velma McGlothin of Vevay, IN, designed this custom portrait from a black and white photo. The piece, which measures 15" x 15", was cut entirely from white pine, and stained or dyed to match the horse's coloring. While she is no stranger to intarsia or segmentation, this is Velma's first custom portrait.



Wooden Gear Clock

Len Skelding of Windsor, ON, Canada cut this clock, which was featured in *SSW&C* Spring 2007, Issue 26. He said it took a bit of tweaking, but the clock is running perfectly now. The clock was designed by Marc Tovar.

Fretwork Bowl

Gary Bratz of Weston, WI, cut this fretwork bowl using the pattern by Sue Mey in *SSW&C* Summer 2006, Issue 23. His piece was cut from oak and given a clear finish to highlight the natural tones of the oak.





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- R. Stout

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Stretching the concepts of a pattern

Toni Burghout and Sue Chrestensen of Chrestensen Burghout Designs are encouraging scrollers to use their creativity and make their own version of existing patterns.

The pair have sponsored two challenges for members of several message boards including the SSW&C Message Board: The Mentora Dragon Challenge and the Aries Zodiac Mask Challenge. In both cases, they provided a free pattern (intarsia/segmentation style) and encouraged the participants to develop their own version of the design using their favorite techniques, colors, or woods. The scrollers were encouraged to send in photos of the completed project.

For the Mentora Dragon Challenge, 14 scrollers took up the challenge and made the pattern their own. The styles ranged from segmentation to intarsia, and even a fretwork adaptation.

For the Aries Zodiac Mask Challenge, four people offered very unique versions including a turned bowl by Jeff Powell with the design inlaid into the bottom.

To view the other entries or browse their patterns for sale, visit www.chrestensenburghoutdesigns.com.



Jeff Powell of Eaton Rapids, MI, incorporated the Aries Zodiac Mask design into the bottom of a turned bowl.

SSW&C website launches online reader's poll

Get a feel for the scrolling community and tell others about yourself. The SSW&C website, www.ScrollSawer.com, now features an online reader's poll in the left column.

The polls give you a chance to anonymously weigh in on a variety of scrolling topics, and allow you to see what others think as well.

After voting, click on the discussion link, which takes you to the SSW&C Message Board and Photo Gallery. Membership on the site is booming! There are more than 2,500 photos in the gallery, and nearly 3,000 members from every corner of the globe. The friendly members love to share their working methods and answer questions about scrolling.

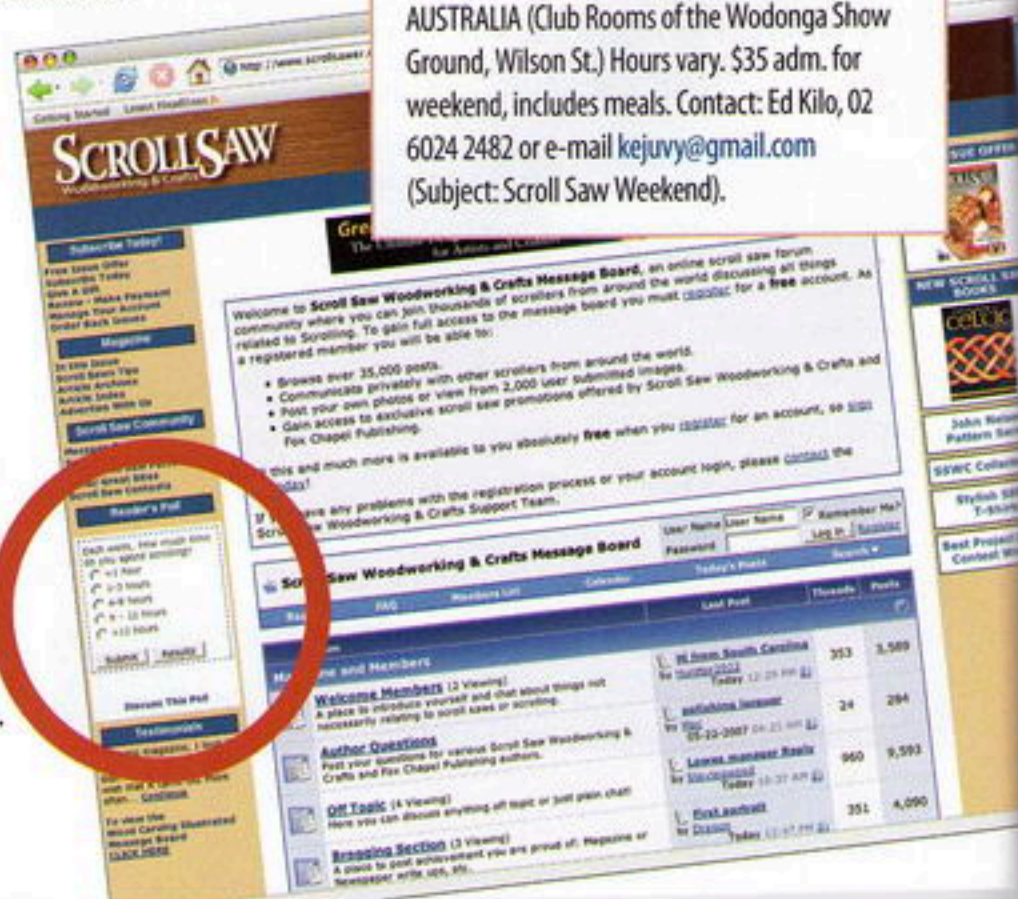
Signing up for the message board is a snap; fill out the registration form, check your e-mail for the confirmation e-mail, and follow the instructions. You'll be posting before you know it! Introduce yourself in the Welcome Members section, or click on the search function if you have a specific question. Don't worry about asking a question that's been asked before. The members are more than happy to help. And if you have a question about using the board, feel free to private message (PM) one of the moderators, or Technical Editor, Bob Duncan (BobD on the message board), duncan@foxchapelpublishing.com.

Scrolling Events

Aug 3-4. Woodburning Celebration and Competition, LEEPER, PA (Cook's Forest Sawmill Center for the Arts). Fri. and Sat. 10am-5pm. Sun. 11am-4pm. Event features artists and instructors Sue Walters, Orchid Davis, Don Warden, and Cheryl Dow. Contact the Center: 814-744-9670, or www.sawmill.org/.

Aug 3-4. The Midwest Scroll Saw Trade Show, RICHLAND CENTER, WI (Richland Center High School). Fri. Classes from 8am-4pm. Sat. Show from 8am-4pm. \$5 adm. Contact: Floyd & Carol Hacker, 888-322-6394, chacker@mwr.net, or Dirk & Karen Boelman, 800-566-6394.

Aug 25-26. Albury Wodonga Woodcrafters Inc. Scroll Saw Weekend, WODONGA, VICTORIA, AUSTRALIA (Club Rooms of the Wodonga Show Ground, Wilson St.) Hours vary. \$35 adm. for weekend, includes meals. Contact: Ed Kilo, 02 6024 2482 or e-mail kejuvy@gmail.com (Subject: Scroll Saw Weekend).



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By Bob Duncan, Technical Editor

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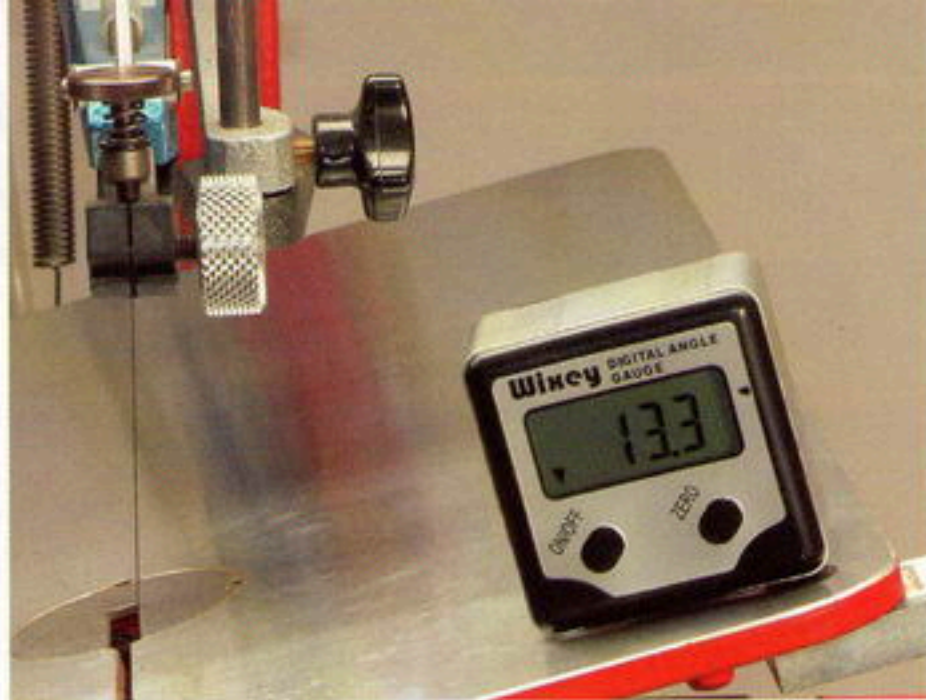
An easy tool to duplicate table angles.

Wixey Digital Angle Gauge

The Wixey Digital Angle Gauge allows you to set the scroll saw table to an exact angle time after time.

The angle gauge was designed for use with table saw or radial arm saw blades, where it is important to get an exact angle for cabinet work. It is very useful for setting an exact scroll saw table angle that can be repeated time after time. While not every scroller needs pinpoint accuracy—the gauge is accurate to 0.1 degrees—scrollers who do a lot of relief scrolling, inlay work, or marquetry will find it invaluable.

Start with a table that is perfectly square to the scroll saw blade. Rare-earth magnets secure the user-friendly gauge to the scroll saw table. If you have an aluminum table, a few nails under the table will lock it in place nearly as well. Turn the gauge on, and press the “zero” button. This lets the gauge know that it is in the starting position. Then angle the saw table to one side or the other and watch the digital readout change.



When you have the angle you want, lock the table in place, remove the gauge, and cut out the material.

When you are ready to re-square the table with the blade, replace the gauge, and shift the table until the digital readout shows 0°. It's as simple as that.

This allows scrollers to note what angle works best for different thicknesses of wood and different blades. Instead of making a number of test cuts to find the correct angle, the gauge allows you to get close on your first try. There will always be a few fluctuations, based on the blade manufacturing and true wood thickness, but the digital angle gauge takes a lot of the guesswork out of cutting on an angle.

The Wixey Digital Angle Gauge is available for \$39.99 + \$8.25 S&H from Woodcraft, 800-225-1153, www.woodcraft.com.

Lee Valley Tape Tip

While Lee Valley's Tape Tip is a simple little device, it is a surprisingly useful tool.

Two tiny rare-earth magnets secure the tip to an ordinary tape measure. The tips shine when it comes to measuring diagonals to ensure that your box



construction is square. To check for squareness, woodworkers measure from corner to corner on opposite sides and make sure the measurement is exactly the same. If you need to measure from the inside corners, the angled tip of the “boss” on the bottom of the tool fits tightly into the corner and doesn't pop out, making it much easier for you to get an accurate measurement—just be sure



to add 1". If you can measure from outside corners, the other end of the “boss” catches the corner exactly, creating a much more secure and accurate grip than the straight tip of a tape measure.

It is also useful when measuring to or from any angled piece. If you use the top angled tip to measure an angle less than or greater than 90°, add 1½".

The tool also can be used as a marking gauge. A pencil fits securely in the notched end (opposite of the angled tip). If you drive a screw part of the way through the molded hole, you can use the tool as a compass. And if you are measuring over a great distance, you can add a screw to the molded hole to act as an extra hand securing the end of the tape measure.

The tape tip is available from Lee Valley for \$3.95, but since shipping and handling is \$7.50, it is something you want to tack on to another order. Contact Lee Valley at 800-871-8158, www.LeeValley.com.

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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 pattern, wait a few seconds, and 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 your 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 the 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 your 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 the holes may interfere with

delicate fretwork. Drill through your 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 your blades through. For thin veining cuts, use the smallest bit your blade will fit through.

Blade Tension

Before inserting a blade, the tension should be completely removed. 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 $\frac{1}{8}$ " 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 allow you to make cuts at different angles. There are times when you want your 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, your cuts will be angled. This interferes with puzzle pieces, intarsia, segmentation, and many other scrolling projects.

The most common method for squaring your table is the small square method. 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 $\frac{3}{4}$ "-thick and check the angle of the cut using a square. Adjust the table until you get a perfectly square cut.

To provide more projects per issue, we have consolidated basic scrolling information here. Because our articles will no longer cover these basics, we will be publish this page in each issue to assist novice scrollers.



You can also use the kerf-test method. Take a $1\frac{3}{4}$ "-thick piece of scrap and cut about $\frac{1}{16}$ " into it. Stop the saw, 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. Scrollers

can use either masking tape, painter's tape, or clear packaging tape.

Another method uses hot-melt glue. Glue the blanks together with a dot of hot-melt glue on each side.

You can also join pieces for stack cutting by driving brads or small nails into as many waste areas as you can. Be sure to cut off any overhanging nails as close to the surface as you can; then sand them flush to avoid scratching or catching on the table.



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Enter as many projects as you want, but entries must be your original design. Projects cannot have been previously entered in a SSW&C sponsored contest. Judges will consider originality of design, quality of construction, and aesthetic appeal as the main criteria when reviewing entries. Deadline for entry is December 31, 2007.

Contest Rules:

- Patterns must be your original design. Designs cannot be altered versions of existing patterns by another designer.
- Projects must feature a significant amount of scrolling. (Projects may include other common woodworking tools in the creation—for example: router, tablesaw, bandsaw.)
- Projects must be able to be made from commonly available wood.

To Enter:

Submit the following information:

- 1 or 2 clear photographs of your work
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- Information on special construction or finishing methods if applicable
- Your name, address and phone number

Entries will be acknowledged but photos and materials received will not be returned. Please do not submit original artwork.

Artists retain all copyrights, but consent to having their project published in SSW&C.

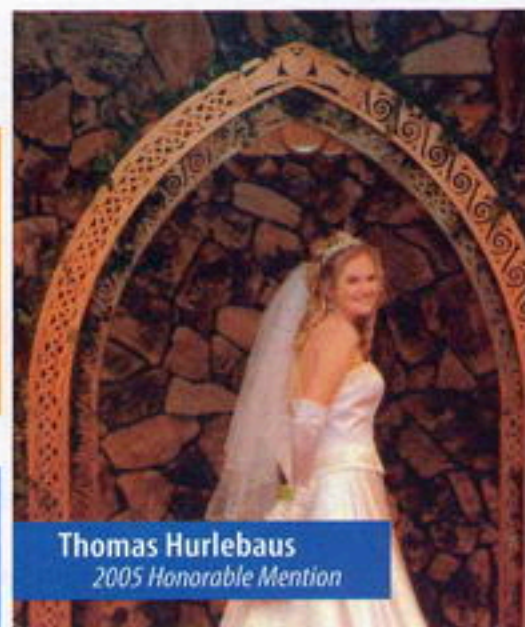
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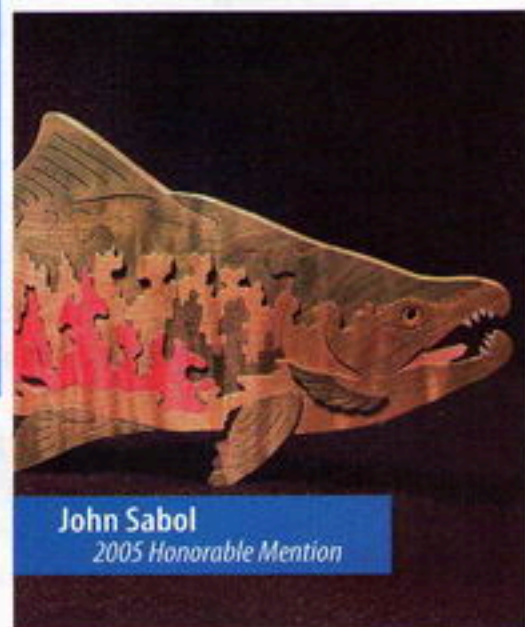
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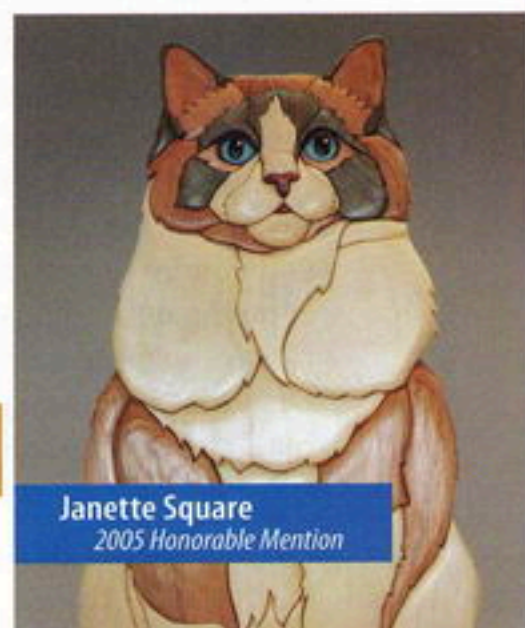
Ken Campbell
2005 Contest Winner



Thomas Hurlebaus
2005 Honorable Mention



John Sabol
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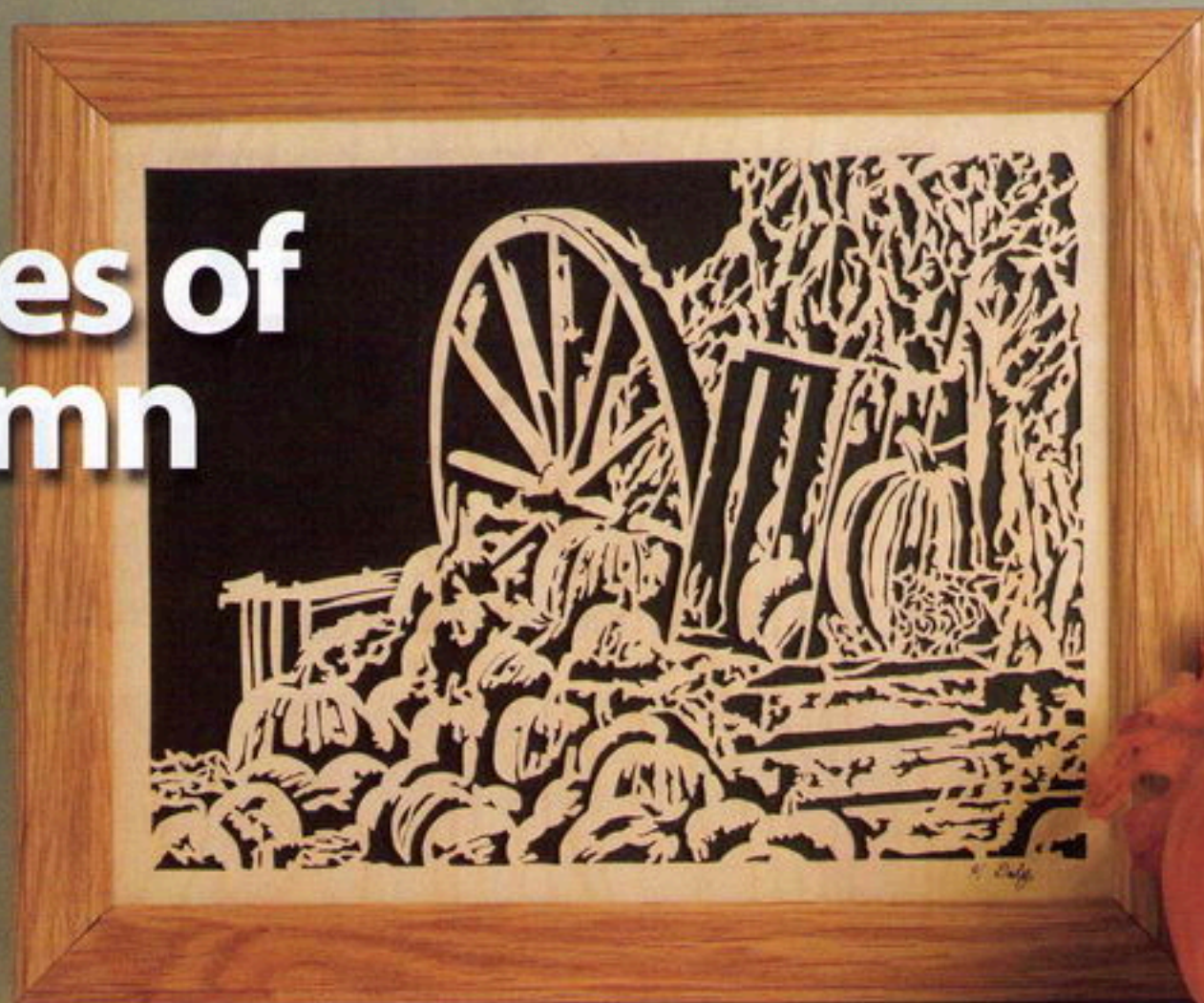


Janette Square
2005 Honorable Mention

Shades of Autumn

Detailed harvest scene captures the essence of the season

by Kevin Daly



Every fall I look forward to our annual family trip to the pumpkin patch. That outing always instills a sense of peace and rejuvenation in me. I love watching my children as they search for the perfect pumpkin to become this year's prized jack-o'-lantern. This image reminded me of our little family adventure, and I set out to capture that feeling in wood.

The pattern is actually fairly easy to scroll. It contains about 420 cuts and takes approximately eight hours to complete. Start with the most fragile area first and work your way from the center out. Cut the interior details on sections before cutting the perimeter of that particular piece. Save and replace the scrap pieces to provide support for fragile areas. Save the large open area in the upper left hand corner for last.

I cut this in a stack of five, which helps protect the fragile cuts and allows me to use a larger, more aggressive #3 blade. I wrap the stack completely with blue painter's tape and adhere the pattern on top of the tape, spraying both the pattern and taped surface. Cover the pattern with clear packing tape. Drill the blade-entry holes with a #63 drill bit. I prefer drilling in groups of 50 or so; this

allows me to feel like I'm making progress and gives me a break from cutting.

Once your cutting is complete, lightly sand the finished project, and spray it with three coats of Deft semi-gloss spray lacquer.

This particular project is backed with black mat board. However, I've recently discovered stiff 14" x 16" pieces of felt called EZ-Felt. They're available from craft shops and are very easy to apply. Use Aleene's® Tacky Glue to adhere the felt to the finished portrait, then trim the felt when dry.

Materials & Tools

Materials:

- 1/8" x 11" x 14" Baltic birch plywood or wood of choice
- Deft semi-gloss spray lacquer or finish of choice
- Sandpaper, assorted grits
- Aleene's® Tacky Glue
- Black "EZ-Felt" or black backing material of choice
- Frame of choice

Tools:

- Drill with #63 drill bit
- #3 skip, reverse-tooth blades or blades of choice



Kevin Daly operates K&J Woodworks in Seymore, CT. For more of his designs, visit www.scrollsawpatternsonline.com.



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A detailed tray puzzle "cut" from the pages of natural history

by Bob Betting



I've always been fascinated with paleontology and decided to combine my interests by creating a series of designs I call Paleo Pets®. This puzzle design features a Sabertooth cat (mistakenly called sabertooth tigers); they are also called Smilodon

fatalis, meaning "deadly Smilodon" or "deadly knifetooth."

When scrolling this project, it is best to cut a stack of $\frac{1}{4}$ " or $\frac{1}{8}$ " Finnish or Baltic birch plywood. I stack one piece of $\frac{1}{4}$ ", and two pieces of $\frac{1}{8}$ ". The thicker board on top of the stack gives extra support when cutting the delicate pieces. You may choose to cut a thicker or thinner stack; however it becomes difficult to control your cuts when scrolling wood thinner than $\frac{1}{4}$ ". I prefer a #1 blade (#2 maximum) so the puzzle pieces don't fit too loosely. And with a stack thicker than $\frac{1}{2}$ ", it is hard to control the cut when using a thin blade. Sand all faces with 220-grit sandpaper.

Since this project involves very tiny parts, I recommend making a zero-clearance table. This can be as simple as a piece of painters' tape across the area where the blade comes through the table, or as elaborate as a wooden table that fits on top of the scroll saw table with a small hole that the blade just fits through.

Step 1: Prepare your stock.

Transfer the pattern to the stack of wood. Drill blade-entry holes for the interior veining lines with a $\frac{1}{16}$ "-diameter bit. Make sure your blade is perfectly square to the table. See the Scroll Saw Basics on page 18 for different methods to stack cut, transfer patterns, and check for blade/table squareness.



Step 2: Cut the puzzle pieces.

Use your blade of choice. I use a regular blade. Since I round over the back of the pieces, I'm not worried about rough edges. Assemble the pieces as you cut them. It is helpful to lightly number the back of the pieces with pencil. These numbers

can be sanded off later to preserve the challenge of assembling the completed puzzle.



▲ Step 3: Shape the pieces.

Round over the back of adjoining pieces. This allows them to slide into each other more easily. Use a rotary power carver with a cone-shaped, diamond-tipped bit. Don't round the edges that do not connect with another piece. Hold the grinder so it contacts the wood at about a 45°-angle. It usually takes only a quick, light pass. Do not round the front edges of any piece. If you don't have access to a rotary power carver, you can hand sand the bevel on the back of the pieces.

Step 4: Sand the puzzle. After rounding the pieces, assemble the puzzle, and lightly sand both the front and back. With the puzzle assembled, remove any sanding dust by covering your vacuum nozzle with nylon or thin material to avoid sucking up small pieces.



▲ Step 5 Stain the pieces.

Separate the dark and light pieces. I use red mahogany oil stain for the stripes. Create a foil pan and a foil dipping tray with handles that will fit inside the pan. Lay the pieces on

the foil tray face down, and set the tray inside the pan. Pour the chosen stain over them. Stir them to make sure all surfaces are covered, and let them sit until they are as dark as you want them. Tilt the tray to drain the excess stain into the pan. Lay the tray on a piece of cardboard and cover the pieces with another piece of cardboard. Flip the "sandwich" over to remove the pieces from the tray. Slide them face up onto paper towels, and wipe the excess stain off. Allow the stain to dry thoroughly.



▲ Step 6 Apply an oil finish.

Assemble the puzzle, and place it face-down on a new foil tray. Place the tray in a new foil pan and pour tung oil or Danish oil over the pieces. Allow them to soak for several minutes. Repeat the process in step 5 to remove and drain the pieces. Allow the oil to drain off of the pieces for 10 minutes, and then use more paper towels to wipe the face. Slide the puzzle onto dry towels. Continue to wipe the top every half hour for a few hours, depending on drying conditions. When the puzzle is dry, repeat the tung oil dip, as often as desired. The final wiping should be with a soft cloth. Depending on the smoothness you want for the puzzle surface, you can finish with 0000 steel wool or its equivalent.



▲ Step 7 Make a frame for the puzzle. Use the completed puzzle to make a pattern for the frame. I scan the completed puzzle and print out a copy. Then I draw a line $\frac{1}{16}$ " outside the lines of the puzzle. The pencil line need not be neat, since it is much easier to scroll a smooth, curved line than it is to draw one. Do not try to follow small details such as the teeth or fur, but stay at least $\frac{1}{16}$ " away from all exterior points. Drill a blade-entry hole inside the line, and cut out the frame along the pencil line. Since I stack-cut three puzzles, I stack cut three $\frac{1}{8}$ "-thick pieces for the frames with a #4 reverse tooth blade. Apply an oil finish to the frames and let them dry.

Step 8: Complete the puzzle. Cut three backing boards to size, and paint or stain them a dark color. You can cut the backing board the same size as the frame, or choose to leave a border around the frame. Glue the frame to the backing board. Since the pieces are finished, wood glue will not work. Use a jeweler's glue or gel super glue, and clamp it well. When dry, assemble the puzzle pieces inside the frame.

TIP SCROLLING DELICATE PIECES

Keep a minimum of one finger near the blade at all times when cutting the sabertooth cat. This will keep the blade from pulling the thin wood up and breaking it. This is especially important if you don't use a $\frac{1}{4}$ "-thick board on the top of the stack.



Materials & Tools

Materials:

- ¼" x 8½" x 11" Baltic or Finnish birch plywood
- 2 each ⅛" x 8½" x 11" Baltic or Finnish birch plywood
- 6 each ⅛" x 11" x 14" Baltic or Finnish birch plywood
- Clear packaging tape
- Transparent cellophane tape (see Tip)
- Tung oil, oil stain, or finish of choice
- Heavy duty aluminum foil or pans
- Assorted grits of sandpaper up to 220-grit
- Jeweler's glue or gel super glue

Tools:

- #1 & #4 single-tooth or reverse-tooth blades or blades of choice
- Zero clearance table top or saw table insert
- Rotary power carver with cone-shaped diamond-tipped bit (rounding over the edges of the pieces)

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TIP A LIFTING PATTERN

Keep a transparent tape dispenser near your saw. Tack down any loose pattern corners with a piece of the tape. Use the tape to add extra support to thin pieces as well.



Bob lives in Lakewood, CO. For more patterns, or for a complimentary Smilodon biography, visit his website at www.WoodworkersArt.com.

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Scroll Saw Woodworking & Crafts
Designer: Bob Betting

Turkey

Namecard Holders



**Quick and easy
layered project adds a
personal touch to your
Thanksgiving table**

by Theresa Ekdorn

The individual elements of this project are easy to scroll. When combined, they produce a charming 3D project that your guests can take home as a holiday memento. While producing distinctly different looks, they look equally good made from hardwoods or Baltic birch plywood. The plywood turkeys are a great way to get kids involved. Let them choose the color scheme and paint their own name holders. You can add any number of embellishments, such as beads or feathers, or even paint one pink for that one aunt who prefers flamingos to turkeys! All this variety is sure to add a festive look to your Thanksgiving table.

The name holders are simple to make. Cut the head, body, and tail out of three different pieces of wood. You can stack cut the individual elements to quickly build your own flock.





Step 1: Attach the body and head patterns. Attach the body pattern to the 1/2"-thick wood and the head pattern to 1/4" wood.

Step 2: Drill holes for the legs. Drill 3/32"-diameter holes on the body where indicated for the feet.

Step 3: Assemble the stacks of 1/4"-thick hardwood. Choose two or three contrasting colors of hardwood. Make two copies of the tail feather pattern. Stack the wood, and tack it together, using a small amount of hot glue. Attach one tail feather pattern to the stack, using a glue stick.

Step 4: Cut the tail bands. Do not cut the perimeter of the tail feathers yet. Make a cut in the waste wood between the second and third tail feathers on both sides. This will help you align the pieces when you glue the bands back together. Cut along the dashed lines to create a contrasting center band.

Step 5: Mix and match the band colors. Remove the pattern, and separate the stack of wood. Rearrange the colored bands until you are satisfied with how they look. Use the cut you made in the waste wood to help with proper alignment, then edge glue the pieces together, and allow the glue to dry.

Step 6: Cut the rest of the feathers. Restack the wood,

making sure the bands line up. Attach the second copy of the tail feather pattern to the stack. Drill a blade-entry hole where the veins meet and use a #9 flat blade to cut the veins on the tail feathers. Then cut the perimeter of the tail feathers.

Step 7: Cut the face and body. Use a #3 spiral blade to cut the veining in the face and the wings on the body. Switch to a #9 flat blade to cut around the perimeter of the face and body.

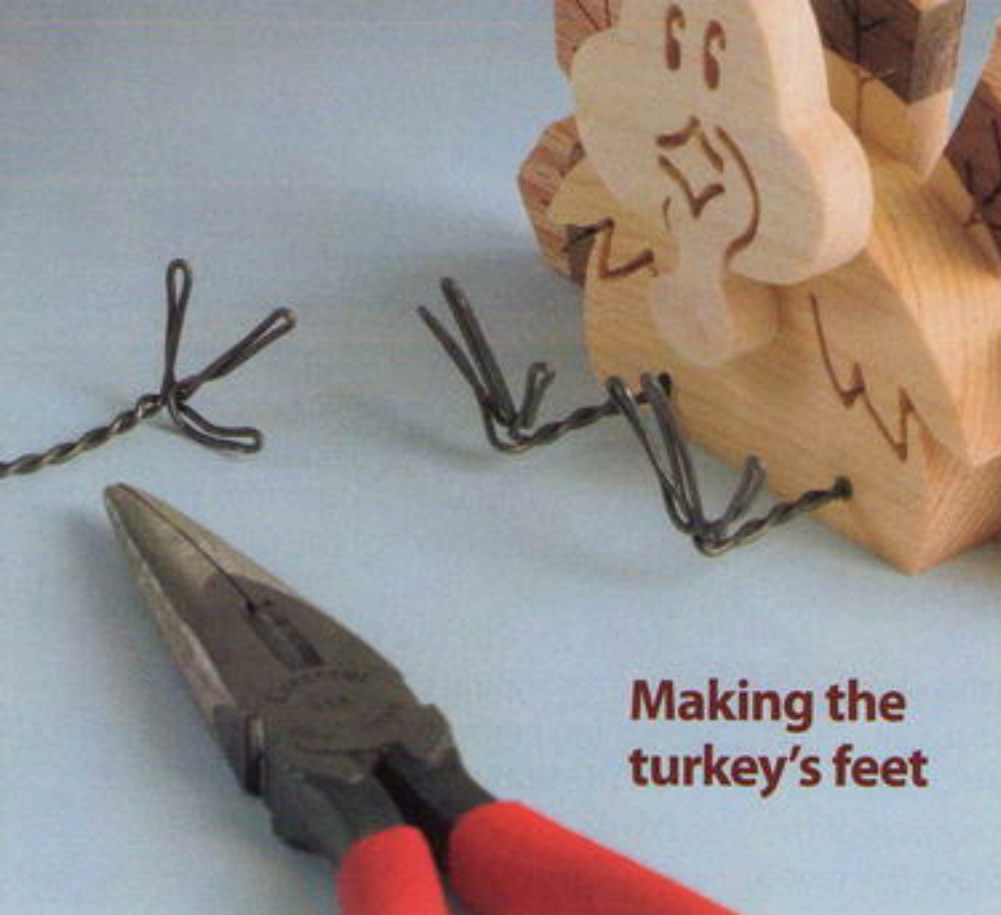
Finishing and assembly

To finish the hardwood turkeys, dip the pieces in tung oil, wipe off any excess oil, and allow the finish to dry according to the manufacturer's instructions.

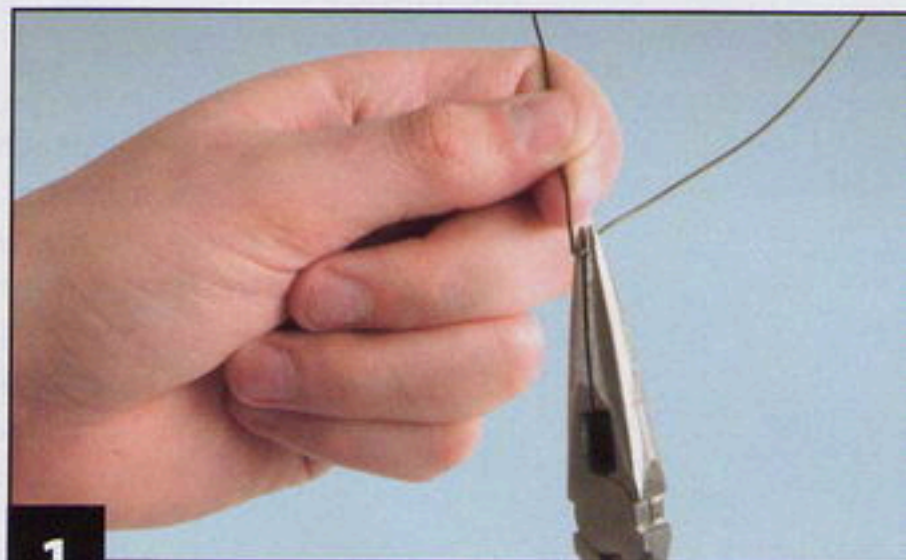
Paint the plywood turkeys with thin washes of acrylic craft paints. Thin the paint with water to the consistency of watercolor paint. After the paint dries completely, sand it with a piece of brown paper bag to remove any grain raised by the thinned paint. Apply a second coat of paint if necessary.

Attach the body to the tail feathers and the head to the top of the body. I use wood glue to attach the pieces. Since the pieces are already finished, you can use cyanoacrylate (CA) glue for a stronger bond. Clamp the pieces together until the glue dries. Apply a clear spray finish, and embellish the turkeys with beads or feathers if desired.



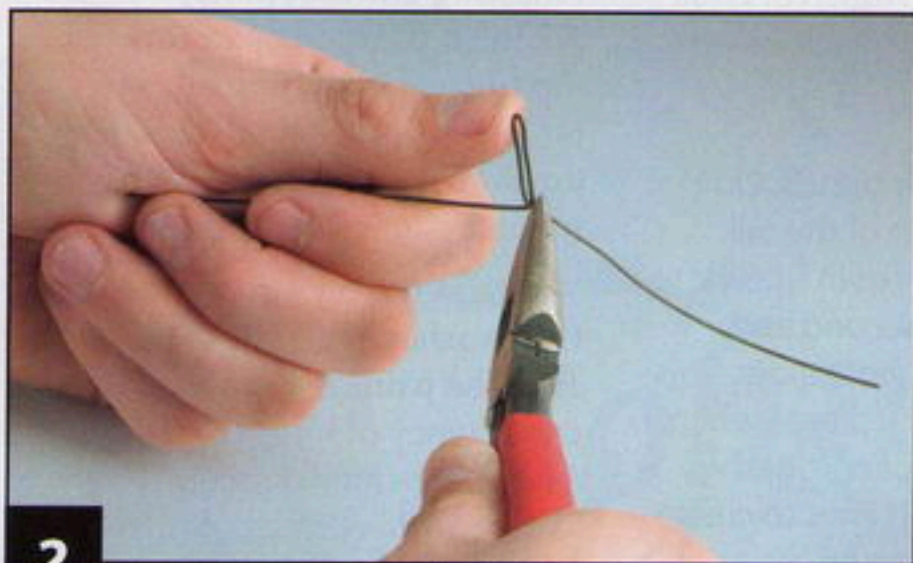


Making the turkey's feet



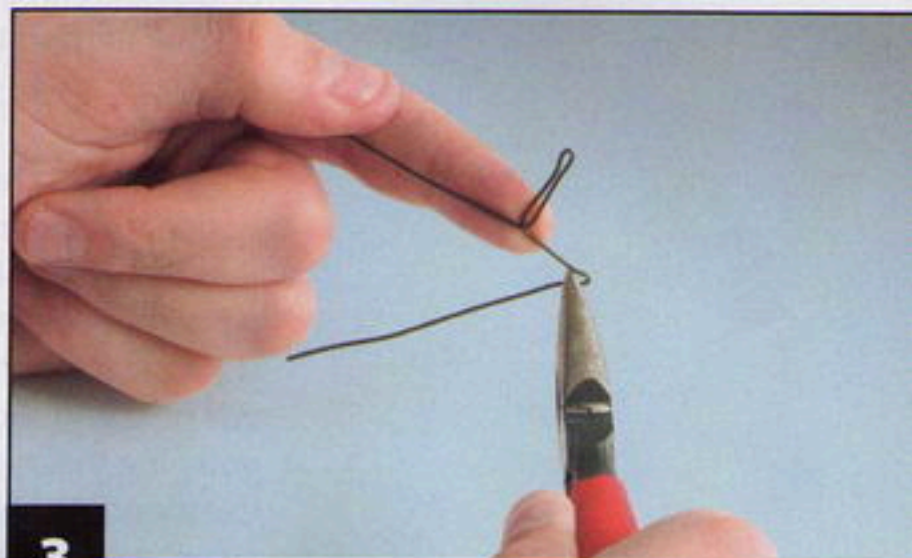
1

Cut 20-gauge wire to length. For each turkey, you need two 8" pieces. Fold each 8" section of wire in half.



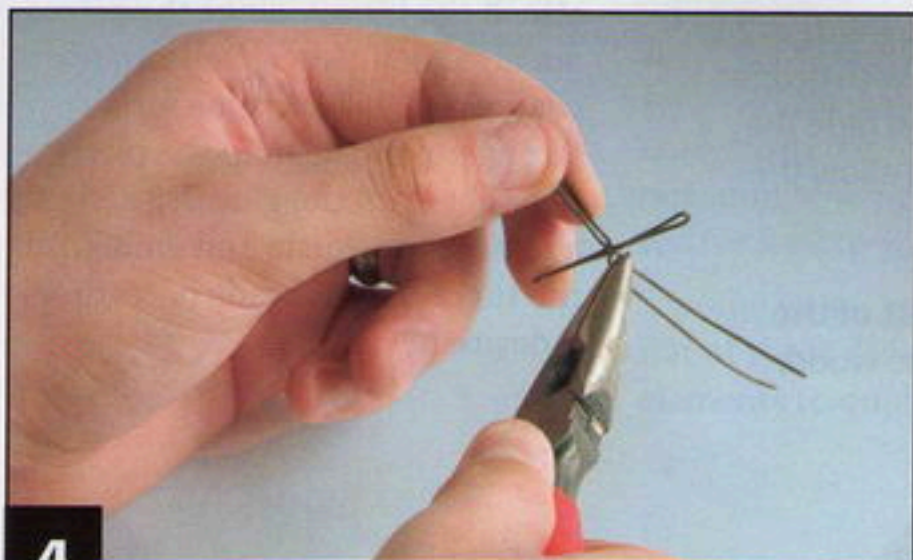
2

Create the center toe. Hold the wire $\frac{3}{4}$ " from the folded end with needle-nose pliers. Bend and twist the two ends 90° from the folded end, crossing the wire to form a twist at the bend.



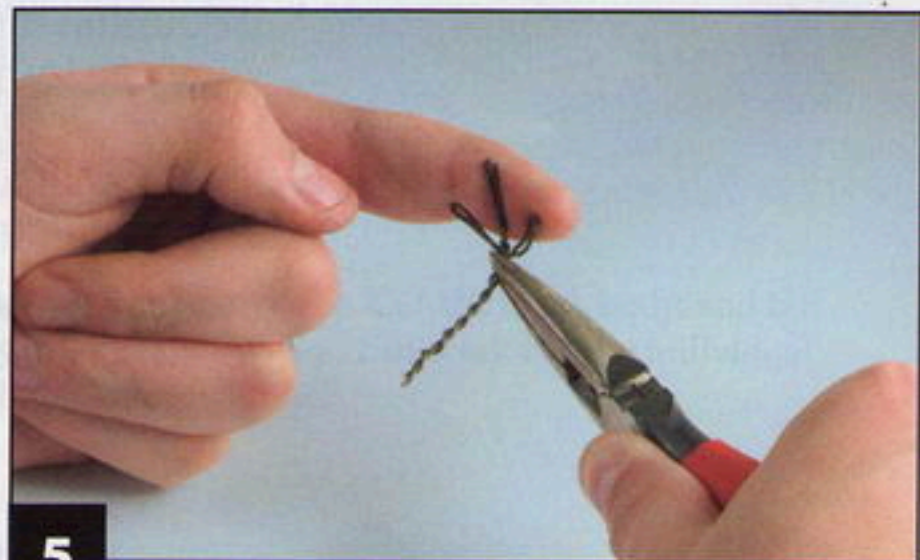
3

Create the second and third toes. Use needle-nose pliers to hold the wire $\frac{3}{4}$ " from the twist made in Step 2. Bend the wire 180° back towards the center. Repeat on the opposite side.



4

Form the leg. Twist the wires together. Start at the intersection where the three toes meet and continue until you have twisted all of the wire together. Cut the wire off at $1\frac{1}{4}$ " for the leg. Decorative beads can be threaded onto the wire before you get to the final few twists.



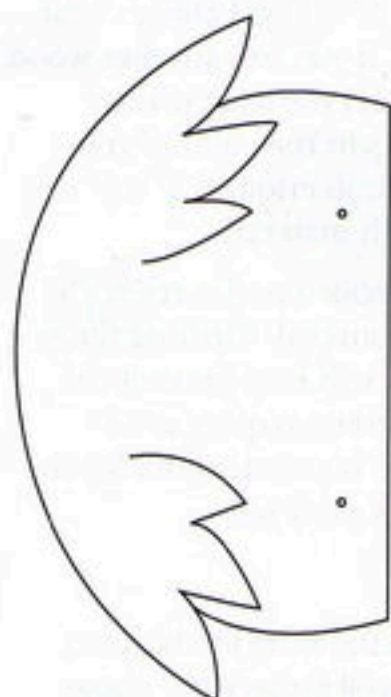
5

Form the foot. Bend the three folded ends up 90°. These folded ends will become the toes, and the twisted wire is the leg. Glue the legs into the holes on the body. Write each guest's name on cardstock, cut the namecards to size, and put them on the legs.

Back view

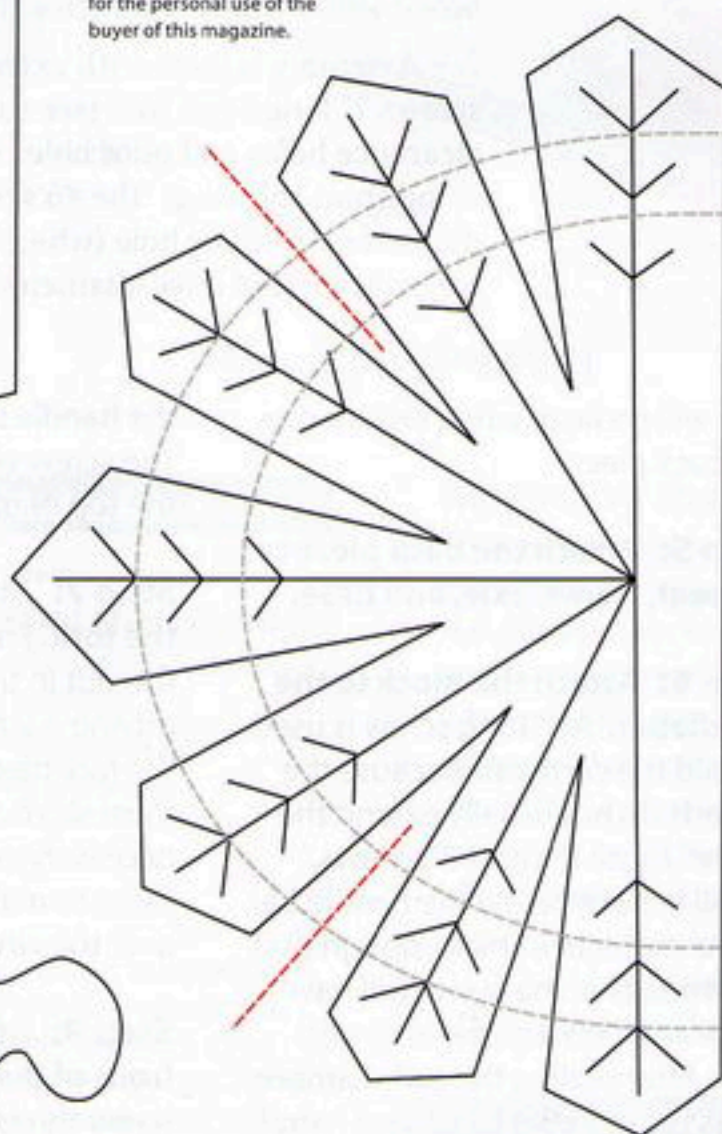


Side view

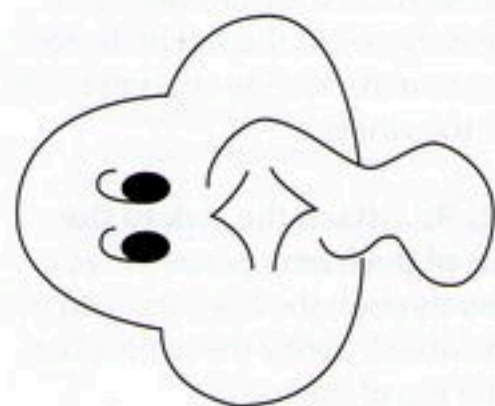


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----- Alignment cuts



Materials:

- ¼" x 4½" x 6½" wood of choice (tail and head)
- ½" x 2½" x 4" wood of choice (body)
- 16" of 20-gauge wire
- Sandpaper, assorted grits
- Finish of choice (tung oil, acrylic paints)
- Clear spray finish of choice
- Feathers, beads, or embellishments of choice
- White cardstock
- Wood glue or cyanoacrylate glue of choice

Tools:

- #3 spiral and #9 flat blades
- Drill with assorted bits, including ⅜"-diameter bit
- Needle-nose pliers with wire cutter



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Tricycle Squirrel Feeder

Easy beginner project is a treat for your backyard visitors

by Paul Meisel

The tricycle squirrel feeder is a great project for beginners, because it doesn't require a lot of precision. In fact, if you cut it from cedar, the project does not even need to be sanded or finished.

All pieces can be cut from $\frac{3}{4}$ " stock. I chose cedar, because it is weather resistant. If you use another wood species, such as pine, a coat of acrylic latex primer followed by one or two topcoats in the color of your choice will add the necessary protection. A 1" x 8" x 6' board will be more than enough material.

Assembly is done with exterior-rated screws; #6 screws 2" long work well (see sources). Drilling screw clearance holes and pilot holes will help prevent the wood from splitting. The #6 screws require a $\frac{9}{64}$ "-diameter clearance hole (which is countersunk for the screw head) and a $\frac{7}{64}$ "-diameter pilot hole.

Step 1: Cut out the pieces.

Attach the patterns to the blanks and cut them to size. Drill the $\frac{9}{64}$ "-diameter holes where indicated, and countersink the holes for #6 and #9 screws. Countersink only the front hole on the handle bar.

Step 2: Assemble the axle.

Center the back wheels on the ends of the axle, and attach each wheel with screws.

Step 3: Attach the axle. Screw the axle to the bottom of the frame.

Step 4: Attach the seat to the frame. The back of the seat and the back of the frame must be in line so

they will be flush when fastened to the back piece.

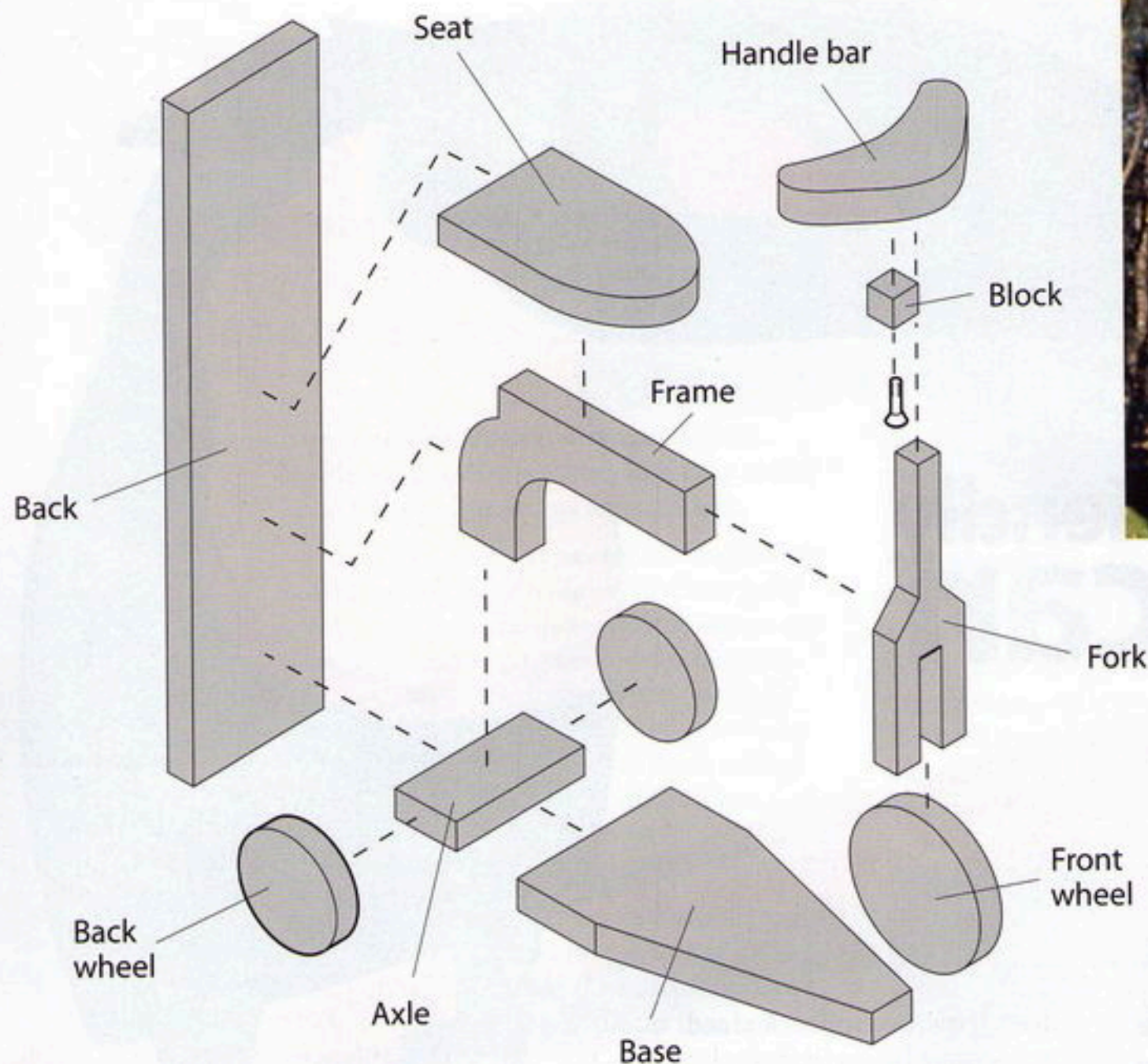
Step 5: Attach the back piece to the seat, frame, axle, and base.

Step 6: Attach the block to the handlebar. A 3" long screw is used to hold the corncob. Because the threads do not usually extend the entire length of most 3" screws, install a block below the handle bar so the material is thick enough that the threads of the screw will have some additional material to grip into. After drilling the $\frac{9}{64}$ "-diameter holes through the block and handle bar, drive the #9 x 3"-long wood screw through the block and into

the handle bar from the bottom. The screw will project $1\frac{1}{2}$ " above the top of the handle bar.

Step 7: Attach the front wheel to the fork. Position the front wheel in the slot in the fork, and secure it by driving a screw through one side of the fork piece. Note: the fork piece must slip over the front wheel—if necessary, re-cut the slot in the fork piece to make it wide enough to slip over the wheel.

Step 8: Attach the fork to the front of the frame piece. Drive a screw through the base and into the front wheel. Screw the handle bar to the top of the fork.



This project was designed so the squirrels look like they are riding the tricycle as they eat the corn.

Assembly drawing

Materials:

- $\frac{3}{4}$ " x 8" x 6' cedar or wood of choice
- Exterior screws #6 x 2" (#1446)
- Exterior screws #9 x 3" (#1414)
- Flush mount hangers (#1262) (optional)

Materials & Tools

Tools:

- Hand drill or drill press
- $\frac{7}{64}$ " and $\frac{9}{64}$ "-diameter drill bits
- Countersink bit
- Screw driver

SPECIAL SOURCES:

A complete hardware parts package, containing all the screws and two pair of flush mount hangers, is available from Meisel Hardware Specialties. Order part #8106 Tricycle Squirrel Feeder Hardware, \$5.99 plus \$5.45 S&H. Meisel Hardware Specialties, 800-441-9870, www.meiselwoodhobby.com.

Mounting the Feeder

There are two ways to display the project. If you are attaching it to an irregular surface—such as to the side of a tree, drill $\frac{9}{64}$ "-diameter holes in the top and bottom of the back piece, and attach it to the tree with #9 x 3" screws. Another excellent method is to attach the project using flush mount hangers. One side of the interlocking hanger is attached to the back of the project, and the other side is attached to a vertical wood post. With this mounting method you can lift the project up to instantly remove it. Use flush mount hangers if attaching the project to a smooth vertical surface on your deck or on a fence post.

To load a cob of field corn on the project, simply screw the end of the cob onto the 3" screw.

Patterns for the **TRICYCLE SQUIRREL FEEDER** are on the pattern pullout section.

Paul has designed over 3,000 woodworking plans. For more projects, visit his website: www.meiselwoodhobby.com.



Kid-friendly Toucan

**Share your love
of woodworking
with this easy
segmentation
project**

by John Morgan

Although many scrollers learned woodworking basics in shop class, today's youth depend, for the most part, on family and friends to pass along those skills. I remember watching in amazement as a toy box, cabinets, toolboxes, stilts, bean flips (sling-shots), and my wooden skateboard came to life at the hands of my father. He encouraged me to participate whenever possible. The earliest project that I remember was the "screwdriver holder" that I hastily cut, drilled, then glued and screwed to the side of my father's workbench (and he never complained). Working with my dad was fun—the way it should be!

My main goal with this article isn't to teach you how to create a segmentation project, but to encourage you to share your love of woodworking with the children in your life.

My boys, Zach and Aaron, have always loved to "build" with their dad. When they were small, I kept a box of scraps in the



"The earliest project that I remember was the "screwdriver holder" that I hastily cut, drilled, then glued and screwed to the side of my father's workbench (and he never complained)."

corner of the garage so they could work beside me. More often than not, they ended up in the wood shavings and sawdust.

Now 11 and 8, they enjoy drilling holes, helping dad fire the nailgun, and using the scroll saw. I don't push woodworking on my sons. They come out and watch when they want, and go in when they are through. I never run them off when they just show up to see what's going on, unless I'm spraying something, or there is a lot of fine dust, and I can't get them some protection.

If they ask to help, I try to find something for them to do, such as using the air compressor to dust off parts that have been cut, wiping pieces down with tack cloth, or testing the fit of pieces that have to go together.

I also suggest projects for us to do together. I let them choose the ones they like, which peaks their interest and keeps them wanting to do more. When they make an obvious mistake, we learn and go on. And most important, I let them do as much of the work as safely possible. During each project, I let them do as much as they feel comfortable with. Nothing is more

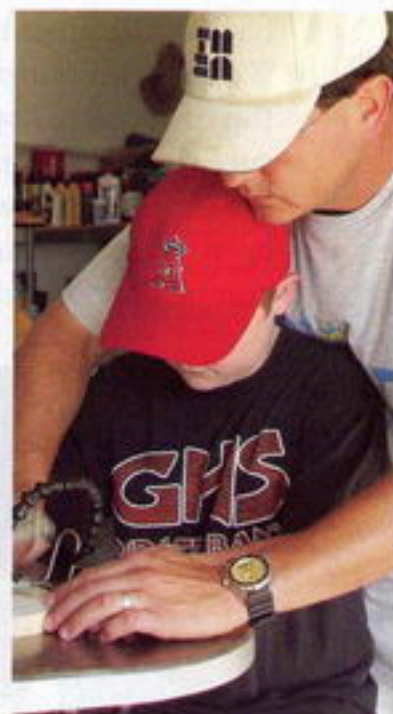
rewarding than their big smiles and sense of accomplishment and pride when the project is completed.

I wish to dedicate this article to my dad, James Morgan, for sharing his love and knowledge of wood and tools, as well as his patience and guidance.



Preparation

I typically transfer the design and cut the perimeter of the pattern, or at least cut it down to a manageable size. I find tracing the pattern onto the wood is easier because the boys don't have to worry about the paper pattern lifting up as they are cutting. I let Aaron drill the hole for the dowel eye.



Cutting

I let Zach and Aaron cut most of the project. Older kids can cut the pieces on their own, but younger children may require a little help. I still stand right over my younger son, often times with my hands on his, or his on mine, to get a "feel" for the cutting operations. I cut the tricky parts, like the circle around the eye, the black portions of the beak, and the tiny talons. Then I cut the 1/4"-thick plywood backing board for the assembled project to be glued to.



Sanding

We pre-sand the board before gluing on the pattern and cutting the segments. The boys use folded pieces of sandpaper and small sanding sticks to round the edges of each piece and to remove any fuzz on the backside. I cut the dowel for the eye to length, but the boys shaped the piece. Aaron sanded the wrong side of a few pieces, so I showed him how to tell which side needed sanding, and on he went. You can put a mark on the back of the piece to avoid any confusion. We then put our pieces back together on top of an extra copy of the pattern, to make sure that all pieces had been sanded and the edges rounded over. I also showed them how to remove the sanding dust with an air compressor or tack cloth.



Painting

Be sure to cover your workspace with newspaper before beginning. The boys use common craft paints to color the segments.



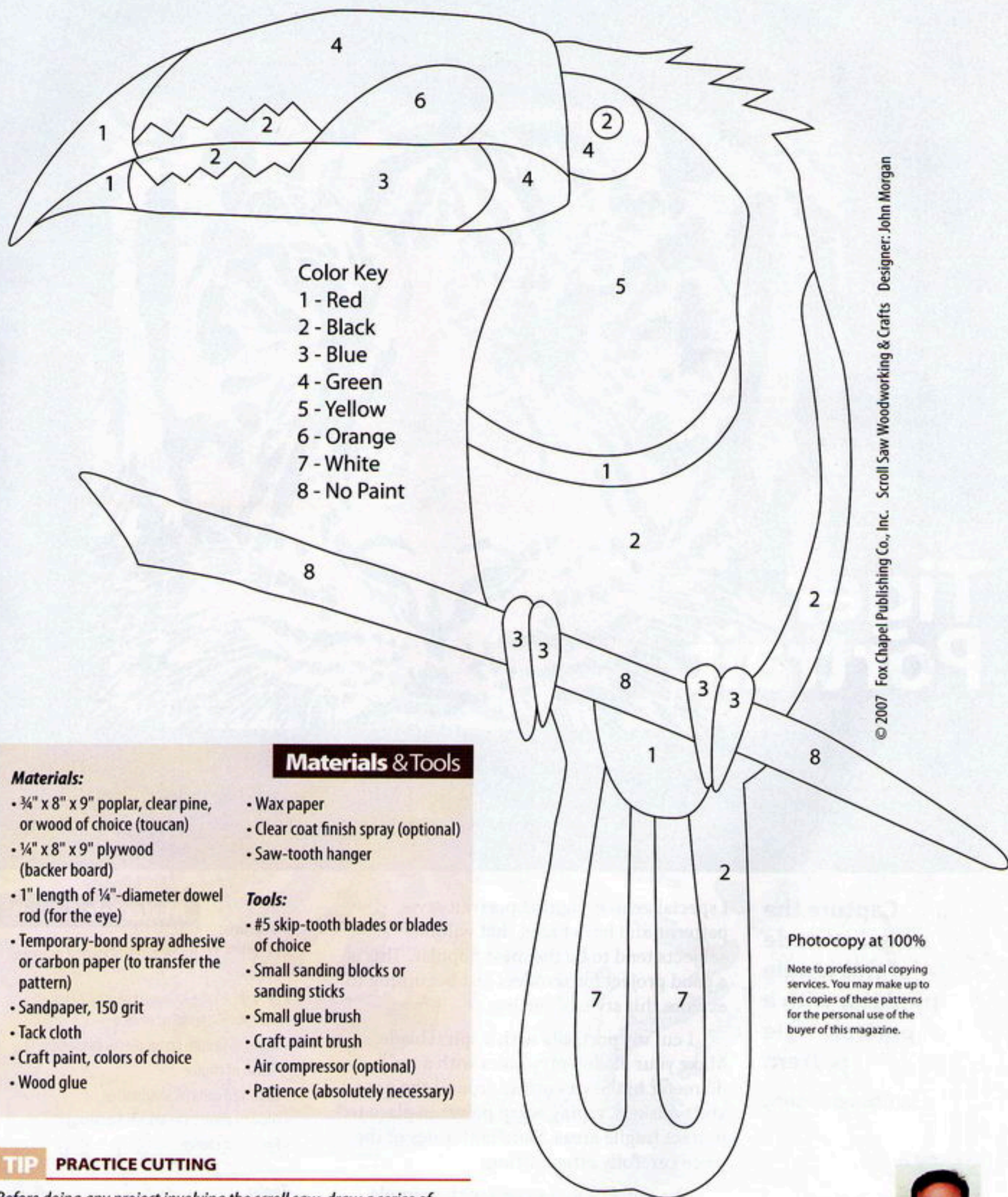
I showed them, on some pieces, that paint didn't need to cover all of the sides. I then let them try to figure out which of the remaining segments should be painted the same way, or fully covered. A few were painted that didn't need to be, and some had to be painted more upon final inspection. Some were painted with a thin coat, and some looked like they had been dipped! Remember, the mistakes are teachable moments! You can show them a picture of the completed project to follow my paint scheme, or let them create their own. It doesn't matter if the project accurately represents the colors of a toucan—just that they have fun doing it.



Final Assembly

With the potential of this getting messy, I pointed out where glue needed to be spread. The boys took turns brushing on glue and placing each piece back together (they assembled the toucan on a sheet of wax paper). Once dry, the boys brushed glue on the backer board and placed the assembled toucan on the backer board. Zach applied pressure for a few minutes to make sure it was set. I sprayed the project with several coats of clear spray and nailed a saw-toothed hanger to the back. It's important to have them help clean up after the project is finished.





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TIP PRACTICE CUTTING

Before doing any project involving the scroll saw, draw a series of straight and curved lines on a piece of scrap, and let the children cut them out. Then let them cut freehand on some scraps to get more comfortable with the saw.

John Morgan is a husband, father, martial artist, and high school band director from Granbury, TX. For more of his work, visit his website at www.woodjam.com.



Tiger Portrait

Capture the regal attitude of this jungle predator with a portrait-style pattern

by Charles Dearing



Charles Dearing, of Liberty Hill, TX, specializes in portrait-style patterns. Visit www.bullrunart.com.

I specialize in designing portrait-style patterns and have found that wildlife subjects tend to be the most popular. This is a good project for scrollers just beginning to explore this style of cutting.

I cut my portraits with a spiral blade. Make your blade-entry holes with a $\frac{1}{16}$ "-diameter bit. Start cutting around the nose and whiskers, taping scrap pieces in place to protect fragile areas. Sand both sides of the piece carefully after cutting.

The portrait looks good with a simple clear finish, but stains and dyes can add realism to the project. Glue on your backing of choice, and frame the completed project.

Materials & Tools

Materials:

- $\frac{1}{8}$ " x 9" x 11" Baltic birch plywood or wood of choice
- $\frac{1}{8}$ " x 9" x 11" plywood painted black or backing material of choice
- Tape (to secure scrap pieces for support)
- Finish of choice
- Assorted grits of sandpaper
- Glue of choice (to attach backing)
- Frame of choice

Tools:

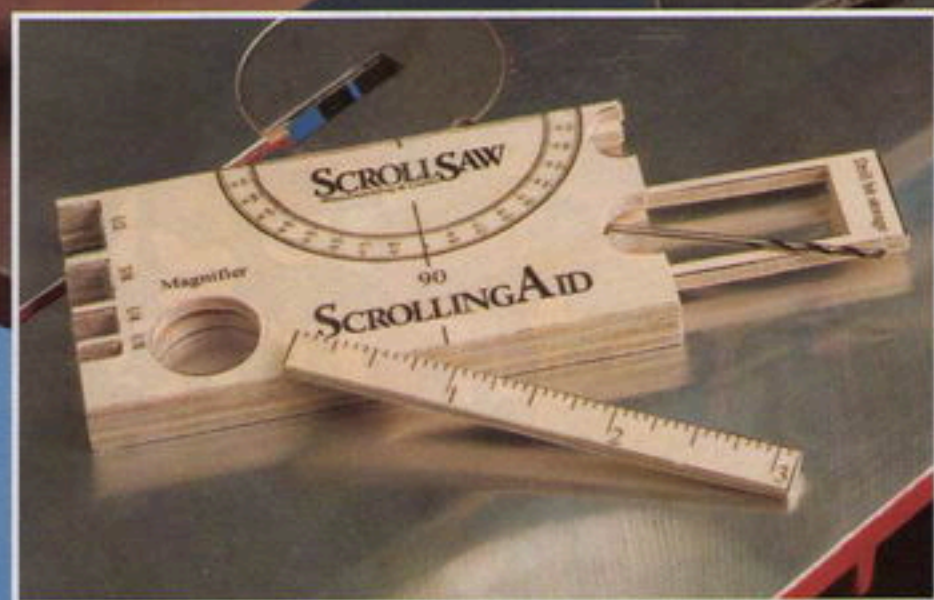
- #3 spiral blades or blades of choice
- Drill with $\frac{1}{16}$ "-diameter drill bits



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Scroller's Aid



This clever, pocket-sized device combines six scrolling tools in one

by Carl Hird-Rutter

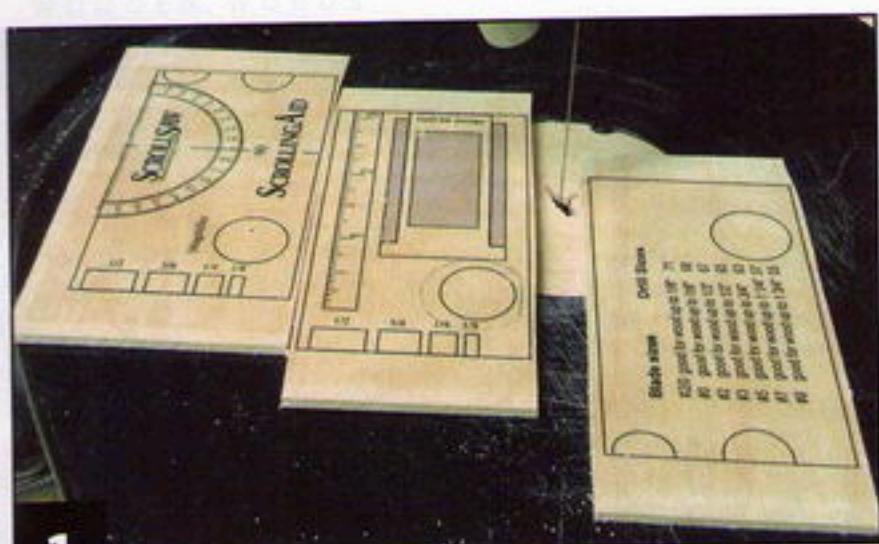
There are some tools a scroller uses every day. In an organized shop, they are always within easy reach. Unfortunately, my shop is not that organized. I designed this project to combine several of the most useful tools into a pocket-sized Scroller's Aid.

This device is the size of a business card. The magnifier is great for checking the direction of teeth on tiny scroll saw blades. The small ruler doubles as a depth gauge. There is a series of thickness gauges for standard dimensions and a protractor to ensure your

saw table is at the correct angle in relation to the blade.

On the back of the aid is a chart showing what size blade to use, based on the wood thickness, and what size drill is required to drill blade-entry holes for the different blades. This gadget also includes a handy drawer to store tiny numbered drill bits that seem to disappear so often.

The key to the accuracy of this aid is in the transfer of the pattern and the cutting of the project. Start by sanding the plywood with 220-grit sandpaper.



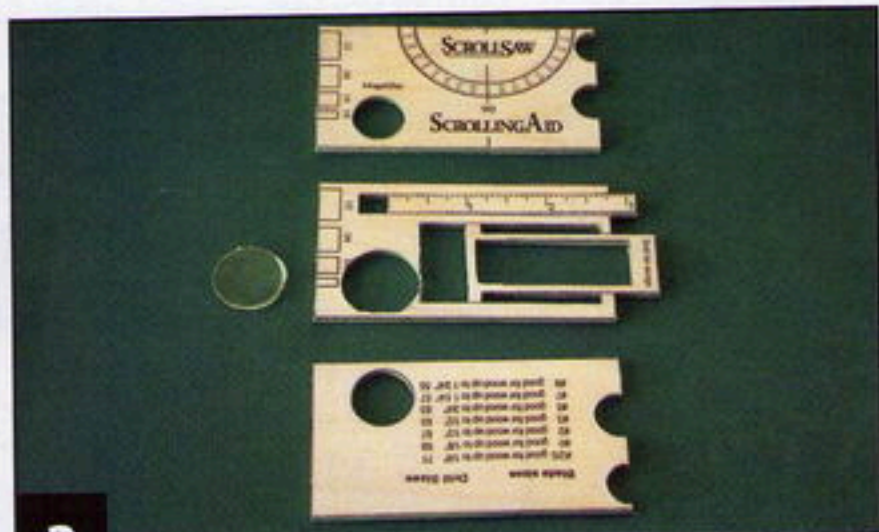
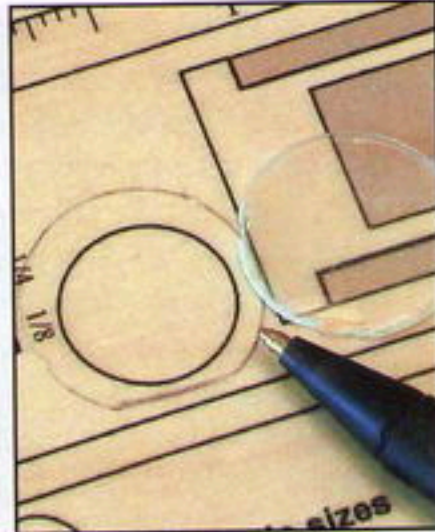
1

Cut the three layers of the aid. Attach the pattern to the blank (see sidebar for tips). It is critical that the flat side of the protractor is straight, flat, and true. Cut along the line slowly, or for better accuracy, cut away from the line, and sand up to it once the project is assembled.



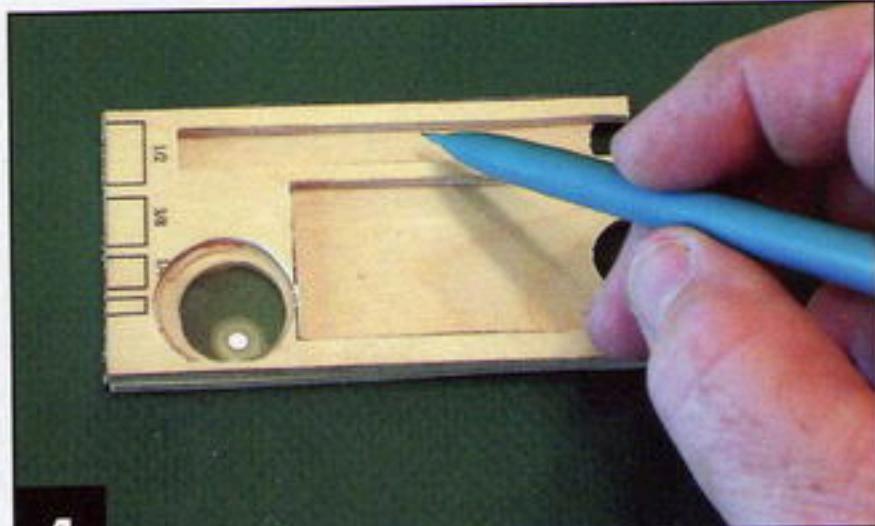
2

Remove the lens from a dollar store telescope. With your scroll saw, cut the telescope about $\frac{1}{4}$ " from the lens. Then break the plastic away from the lens with pliers. You may find this lens is larger than the circle on the center layer of the aid. Place the lens in the correct spot, and trace around it.



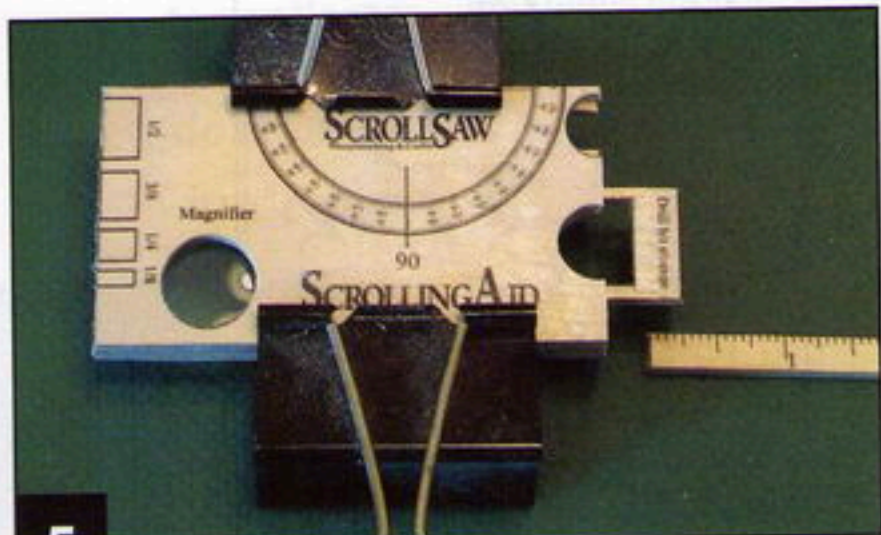
3

Cut the details. Drill blade-entry holes and cut the circles for the magnifier, and the center of the drill bit drawer. Cut the ruler, thumb notches, and the drawer itself. NOTE: Test the fit of the magnifier lens in the hole of the center layer and the length of your drill bits in the drawer. Make adjustments as needed. DO NOT cut out the thickness gauge notches yet.



4

Glue the bottom layer to the middle section. Place the bottom layer of the aid face down, place the middle section on it, and trace an outline of the cut outs onto the lower section. This will show you where the glue can go. Apply glue sparingly to the bottom layer. Clamp the bottom and middle layer together, and allow to dry.



5

Add the top layer. Remove any glue squeeze out from the openings in the middle layer. Slip the drawer into its tray. Drop the lens into the magnifier hole. Apply glue sparingly to the middle layer, avoiding the openings. DO NOT put the ruler in at this time. Clamp the layers together, and allow to dry.



6

Finish the aid. Sand the sides and back of the ruler. This allows it to slide in and out easier. Cut the slots for the thickness gauges undersized and sand them to the lines. Place sandpaper face-up on the scrollsaw table. Put the flat edge of the protractor on the sandpaper, and sand it true. A finish is not needed as the heat transfer will protect the wood and the markings.

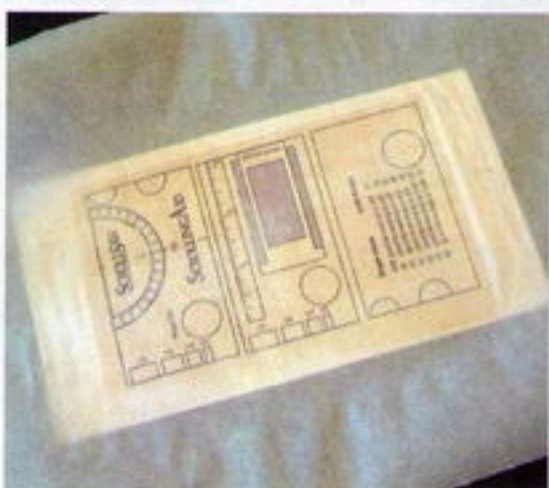
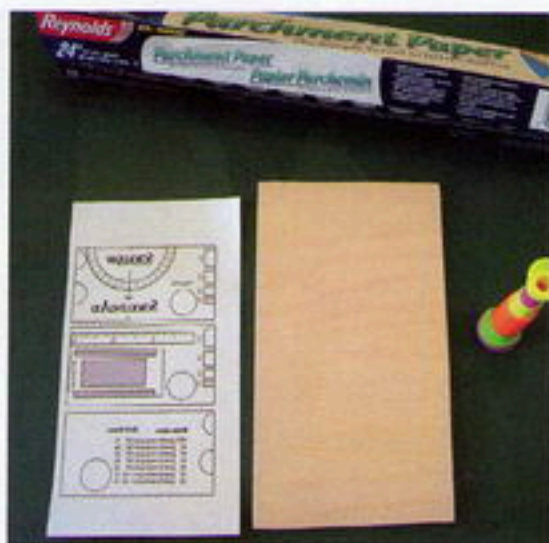
Heat transfer patterns

There are a couple of ways to transfer patterns to wood with heat.

The first is to transfer the toner from a photocopy or a laser printer to wood by using a clothes iron. Toner is fused at a temperature around 400°, but some copiers and printers use a fusing oil, which will impede this process.

The second is T-shirt transfers. In my opinion, this method is better, because it gives the finished project a protective finish. T-shirt transfer paper is designed for inkjet printers. The image is printed in reverse. A reverse image pattern is available for download at www.scrollsawer.com. Place the transfer image-side-down onto the wood. Apply even pressure, and heat it with a clothes iron for 45-60 seconds to release the transfer from the backing paper. I found a medium setting on my iron worked best. Do not remove the backing paper until the transfer has completely cooled. Slip a sharp craft knife under one edge of the paper, and peel it back.

Once you remove the backing sheet, you may find some spots where the transfer did not bond well. There will be shiny blotches on the image. Take a piece of grease-proof parchment paper, and place it on the transfer. Reapply heat with the iron. The grease-proof paper will not stick to the image, allowing you to seal the transfer properly.



Materials & Tools

Materials:

- 1/8" x 4" x 8 1/2" Baltic birch plywood
- Dollar store telescope lens
- T-shirt heat transfer paper
- Grease-proof parchment paper
- Wood glue
- Sandpaper, assorted grits up to 220 grit

Tools:

- #3 reverse-tooth blades or blades of choice
- Inkjet printer
- Clothes iron
- Drill with assorted small drill bits
- Clamps of choice

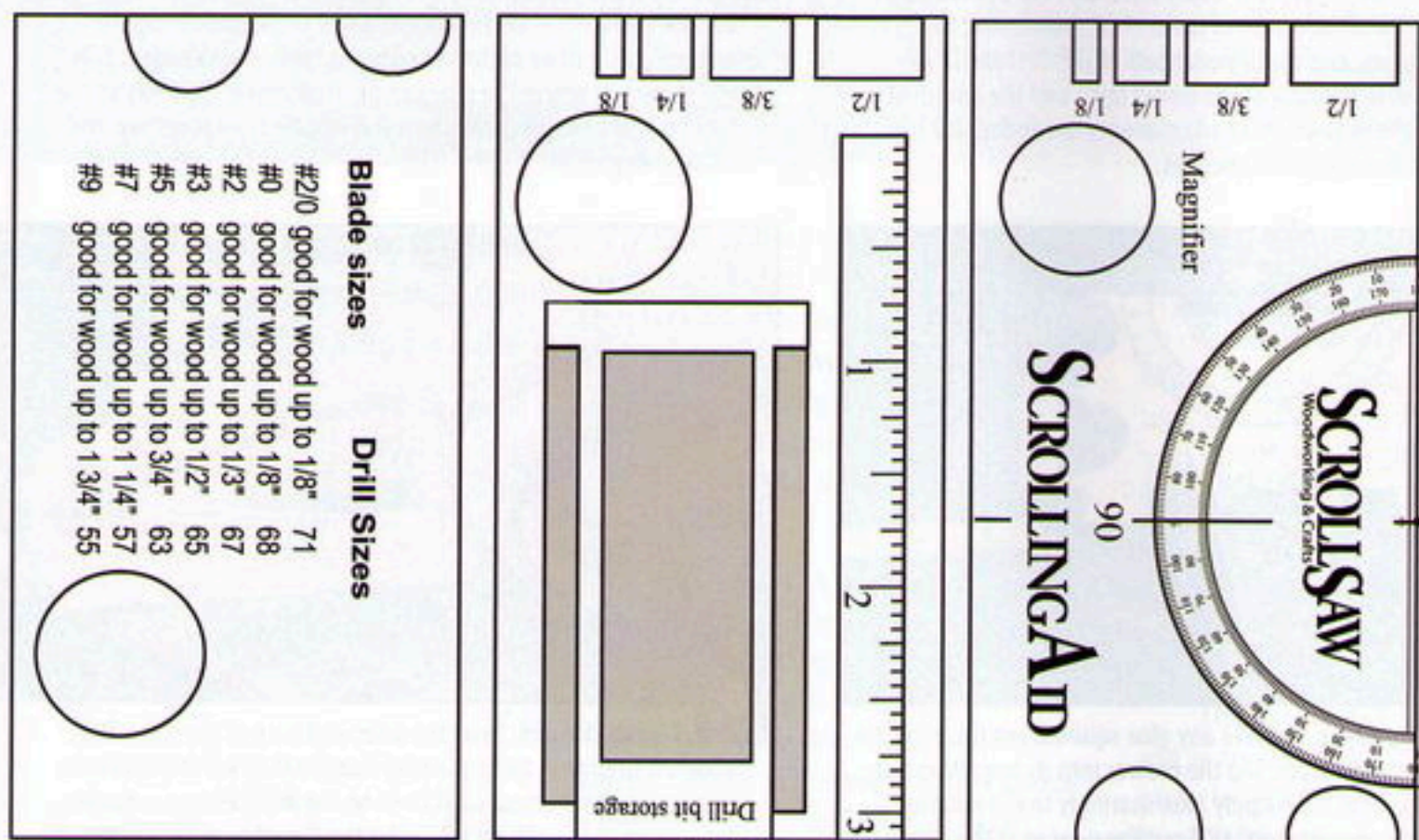
SPECIAL SOURCES:

T-shirt transfer paper is available from a variety of major retailers and office suppliers.

Free Pattern Download
of *Scroll Saw's Aid* at
www.ScrollSawer.com.



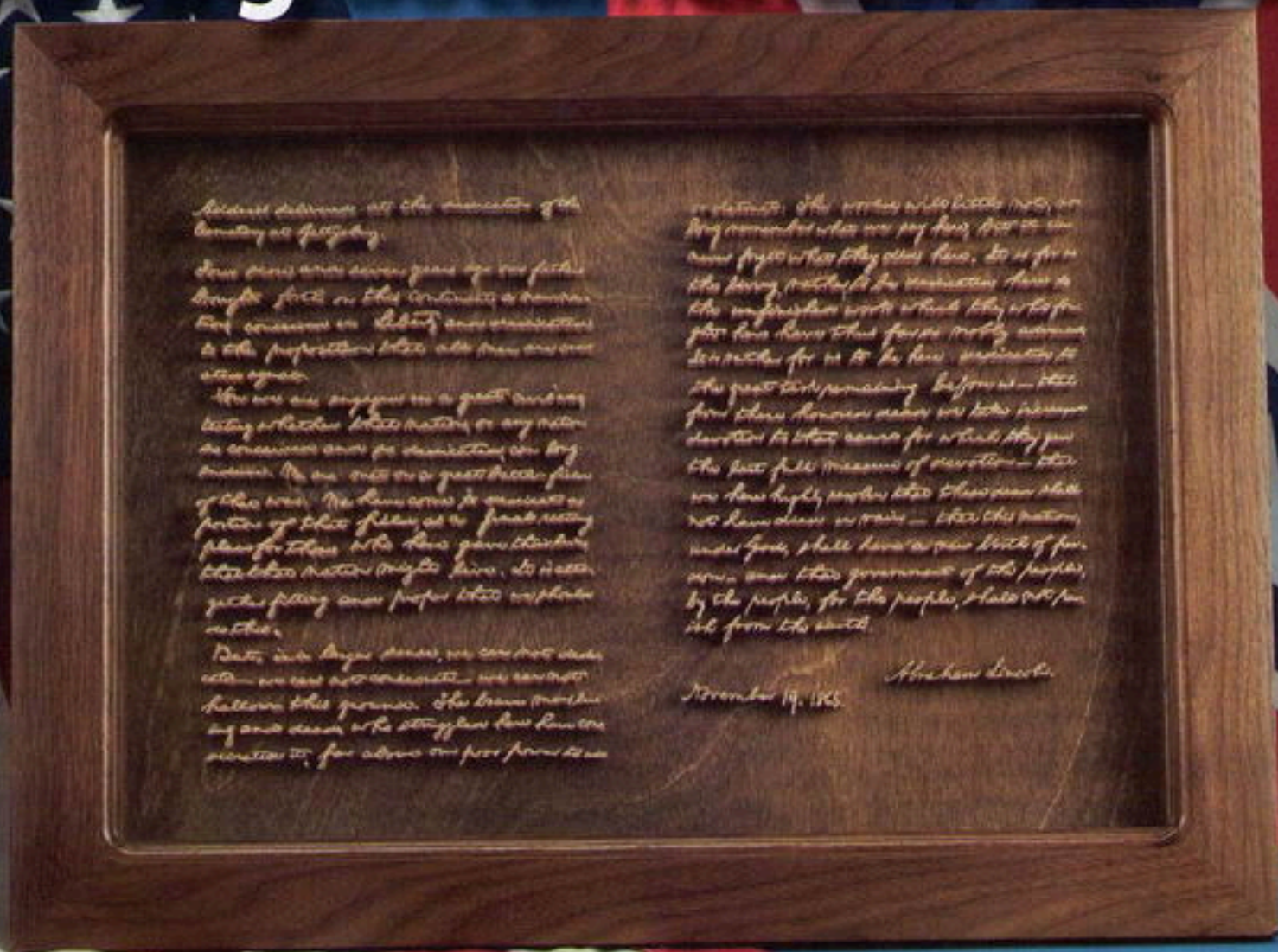
Carl Hird-Rutter lives in Chilliwack, BC, Canada. Visit his website: www.3telus.net/public/scroller/.



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Preserving documents in wood



Positioning jigs make it easy to replicate important documents

by Bill Thurlow

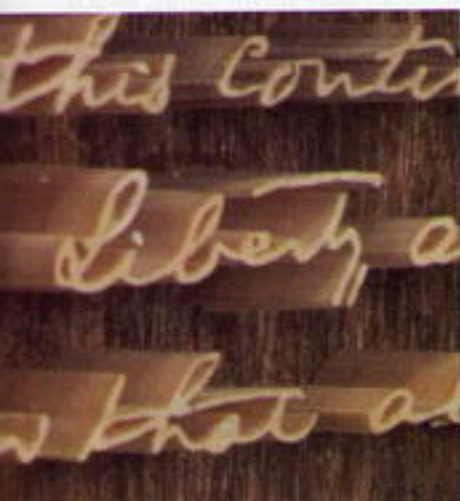
Creating a wooden representation of an important document makes a stunning display. You can easily adapt this technique to personalized items such as birth or marriage certificates to make a one-of-a-kind gift that will be cherished for generations.

The technique does require some patience and a fair commitment of time, but the end result is well worth the effort. The easiest way to practice is to get started. Make several photocopies of the document you'd like to preserve. Since you cut each word out separately and glue it to the backing board, there is no pressure to cut everything perfectly the

first time. If you make a mistake, toss out that word and start over. You've only lost the time invested in that particular word, not the entire project.

I cut all of my pieces out of ½"-thick maple. It doesn't matter whether the maple is air dried or kiln dried, as long as it is dry. If the wood is even slightly green, you run the risk of the wood warping or cracking.

I use #2 regular-tooth blades for all of my cutting. The #2 is aggressive enough not to bog down or bend when I cut the maple, but it is also small enough to get into the tight areas.



A scrolled reproduction of Abraham Lincoln's Gettysburg Address.



Step 1: Make sure your blade is square to the table. Close is not good enough. It has to be exact. There are several techniques to square the blade to the table (see page 18). I cut into a block of scrap wood enough to score the wood, turn the saw off, and rotate the wood to the back of the saw blade. If the blade fits back into the saw kerf, the blade and table are square. If it doesn't fit, adjust the table and make another cut. Continue testing until the blade slips easily into the kerf without moving or bending.

Step 2: Attach the patterns to the wood blocks. Cut each word from the pattern and glue them in sets of five onto blocks of maple. If you have more than five words, the blocks get too big and it's difficult to rotate them. I use wood glue to attach the patterns. Spread the glue on the block, position the pattern and cover it with wax paper. Push most of the glue, but not all, out from under the paper pattern.

Step 3: Drill the blade-entry holes. Drill the holes to cut the inside of the letters such as "o." Then drill blade-entry holes near

each of the words. It is easier to protect the fragile words if you keep them inside the block as long as possible. I use an awl or ice pick to slightly enlarge the bottom of the blade-entry hole to make it easier to thread the blade through.

Step 4: Cut out the words. Cut the insides of the letters first. Then cut the words. I start by cutting across the bottom of the word. That allows me to get a feel for the wood and the blade, since each blade and piece of wood is unique. Let the blade do the work; do not push the wood into the blade or apply any side-to-side pressure. Both will cause the blade to bow, and the cut will not be square.

Step 5: Sand the words. Place the word back into the block. Place 180-grit sandpaper on a flat surface. Turn the block pattern side down. Press lightly on the bottom of the word with your finger while you rub the block back and forth on the sandpaper. The pressure will make the word protrude from the block just enough to sand off the pattern while still protecting the word from breakage. Turn the block over and

use the same technique to remove any burrs on the bottom of the piece. Repeat for each word.

Step 6: Prepare the backing board. I use 1/4"-thick plywood cut to the finished size. Apply a walnut stain according to the manufacturer's directions. Then allow it to dry.

Step 7: Glue the words onto the backing board. I use two shop-made jigs to make it easier to locate the position of the words. Squirt some glue onto a piece of scrap wood. Pick up the word with tweezers, and lightly touch the word to the glue. Position the word on the backing board and press it down lightly.

Step 8: Straighten out the words. After the glue sets for a minute or two, straighten the words out. The glue should be a bit tacky at this point. After positioning the words, clean up any excess wood glue with a sharp tool.

Step 9: Position the finished project in a commercially-made shadow box. I do not apply a finish to the wooden letters, because the project is displayed under glass.

TIP BLADE USE

Change your blade frequently. Blades only go so far. If you try to conserve the blades, you will end up applying pressure on the blade, which leads to angled cuts.

SAVING SMALL PIECES

To prevent small letters and punctuation marks from falling through the space around the blade, I keep a few 3" x 5" note cards near my saw. I cut nearly the whole way around the tiny item, and then I press the note card under the block. Feed the note card and block into the blade together to catch the tiny letter when you finish the cut.

Positioning Jigs

For each project I cut, I make a pair of matching jigs to help me space the words and sentences properly. Both are made from scrap softwood lumber.

Step 1: Cut the slot for the backing board. Cut a $\frac{1}{4}$ "-wide dado $\frac{5}{8}$ " down from the top of each board. Then cut the pieces to size. Inside dimensions should match the size of the original document.

Step 2 Build the reference jig. Cut a piece of $\frac{1}{4}$ "-thick plywood to the size of your document and glue a copy of the document to it. Fit the plywood into the dado and assemble the frame around it. I use screws for easy assembly and disassembly. All measurements will be taken from this reference jig.

Step 3: Build an identical positioning jig. This is assembled the exact same way as the reference jig, except you will use the stained backing board for the bottom.

Step 4: Attach the reference blocks. Glue pieces of wood, cut to the width of the frame, to the top corners of each jig. Take measurements from the inside of the frame on the reference jig. When transferring measurements to the positioning jig, use the reference blocks. Otherwise, you must add the width of the frame to align the notches on the sides of the positioning jig.

Step 5: Mark the left margin. The margin is the distance from the inside of the frame to the left side of the letters. Mark this distance on the top and bottom of the positioning jig.

Step 6 String the left margin. Cut a notch at the marks on the

positioning jig with a knife or chisel. Stick map tacks into the top and bottom frame in line with the notches. Add a second tack to the top about 2" right of the first one. Tie nylon thread to the bottom tack. Position the thread in the notches and run it around the first map tack on the top. Tie it off on the second tack so you can adjust the tightness.

Step 7: Make a word guide. Use a cardboard strip tacked to both sides of the reference jig. Mark the left margin on the strip. Line up the top of the strip with the bottom of each line. Lightly write the sentence on the cardboard to mark the word spacing. Measure down from the inside of the frame to the top of the strip. Transfer these measurements to both sides of the positioning jig.

Step 8: Glue up the words. Use the technique in Step 6 to position another thread at the bottom of the first sentence. Move the word guide to the positioning jig, lining it up with the horizontal thread. Be sure the margin mark lines up with the vertical thread. Use the marks on the word guide to space the words properly. Repeat this process until all the words are glued in place.



Measurements are transferred from the reference jig to the positioning jig.

Materials & Tools

Materials:

- $\frac{1}{2}$ "-thick maple
- $\frac{1}{4}$ "-thick Baltic birch plywood (backing board, jigs)
- $\frac{3}{4}$ " x $\frac{3}{4}$ " soft wood for the jig frames.
- Wood glue
- Wax paper
- 3" x 5" note cards (zero-clearance insert)
- Sandpaper, 180 grit
- Walnut stain
- Commercial shadow box
- Map tacks
- Nylon thread
- Cardboard

Tools:

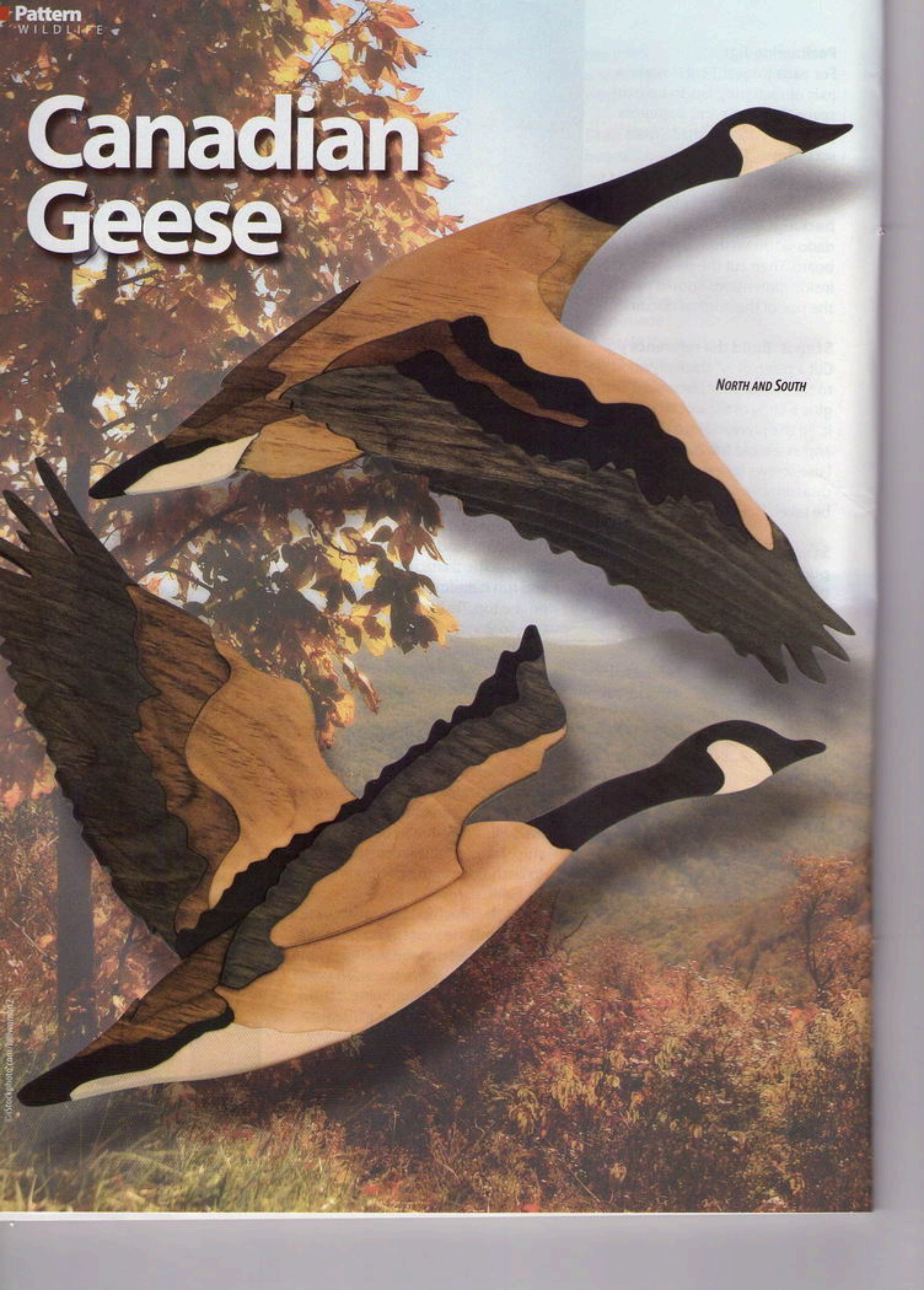
- #2 regular-tooth blades or blades of choice
- Drill with #67 drill bit
- Awl or ice pick (optional)



Bill Thurlow lives in Fontana, CA. His impressive Declaration of Independence was featured in SSW&C Holiday 2004, Issue 17.

Canadian Geese

NORTH AND SOUTH



Choose the level of complexity with two different segmentation patterns

by Toni Burghout

design by Sue Chrestensen and Toni Burghout

Every artist has their own unique interpretation of a subject matter. Both of these projects were inspired by a walk along the boardwalk of a local lake, but the end results are very different.

I designed *NORTH AND SOUTH* with simple, clean lines suitable for a novice scroller. Sue took that same inspiration and created the highly detailed *FACING EAST*, to provide a more challenging project.

It's interesting to note how the same experience affected us in different ways, and in turn generated two substantially different pieces of art.

It began with a leisurely stroll to get our creative juices flowing. The beach was quiet this particular

morning—with the exception of the local wildlife. We found a picnic table and watched the birds as they went about their morning rituals. We were anxious to take some reference photos to assist us in pattern design back at the shop. Within moments, we were surrounded by mallards and geese. It didn't take more than a moment for a gander to tug on my pants. When I put my hand down to greet him, he sounded off at me and frisked my hand for food.

Sue shifted to the end of the bench leaving me and the gander alone. The geese seemed to have a sense of humor this morning, and a couple decided to try their luck with Sue at the other end of the table.

When one tapped Sue, it wasn't the moment I expected—where human and bird commune. Sue jumped up off her end of the table and yelled "back off" at the birds. I was reminded of the grammar school teeter-totter when someone thinks it's fun to jump off. That was me on the ground—covered in coffee and feathers from the panicked gander.

The waterfront was no longer tranquil as the geese screamed and took flight. We didn't get photos that morning, but we did have a good laugh.

NORTH AND SOUTH depicts my recollection of the birds gliding away from us over the water, and I am convinced *FACING EAST* is Sue's interpretation of the birds as they left us on the ground along the shore.

Both projects are cut using standard segmentation techniques. Use your imagination to shape and sand the pieces to simulate movement and direct the flow of the piece. Color the pieces with stains and leather dyes.



FACING EAST

Materials:

NORTH AND SOUTH:

- 2 each $\frac{1}{8}$ " x 11" x 15" hardboard (backing board)
- 2 each $\frac{1}{2}$ " x 11" x 15" clear pine (segmentation)
- Minwax stain, Walnut and Golden Oak
- Black leather dye
- Carpenter's glue

FACING EAST:

- $\frac{1}{8}$ " x 17" x 23" hardboard (backing board)

Materials & Tools

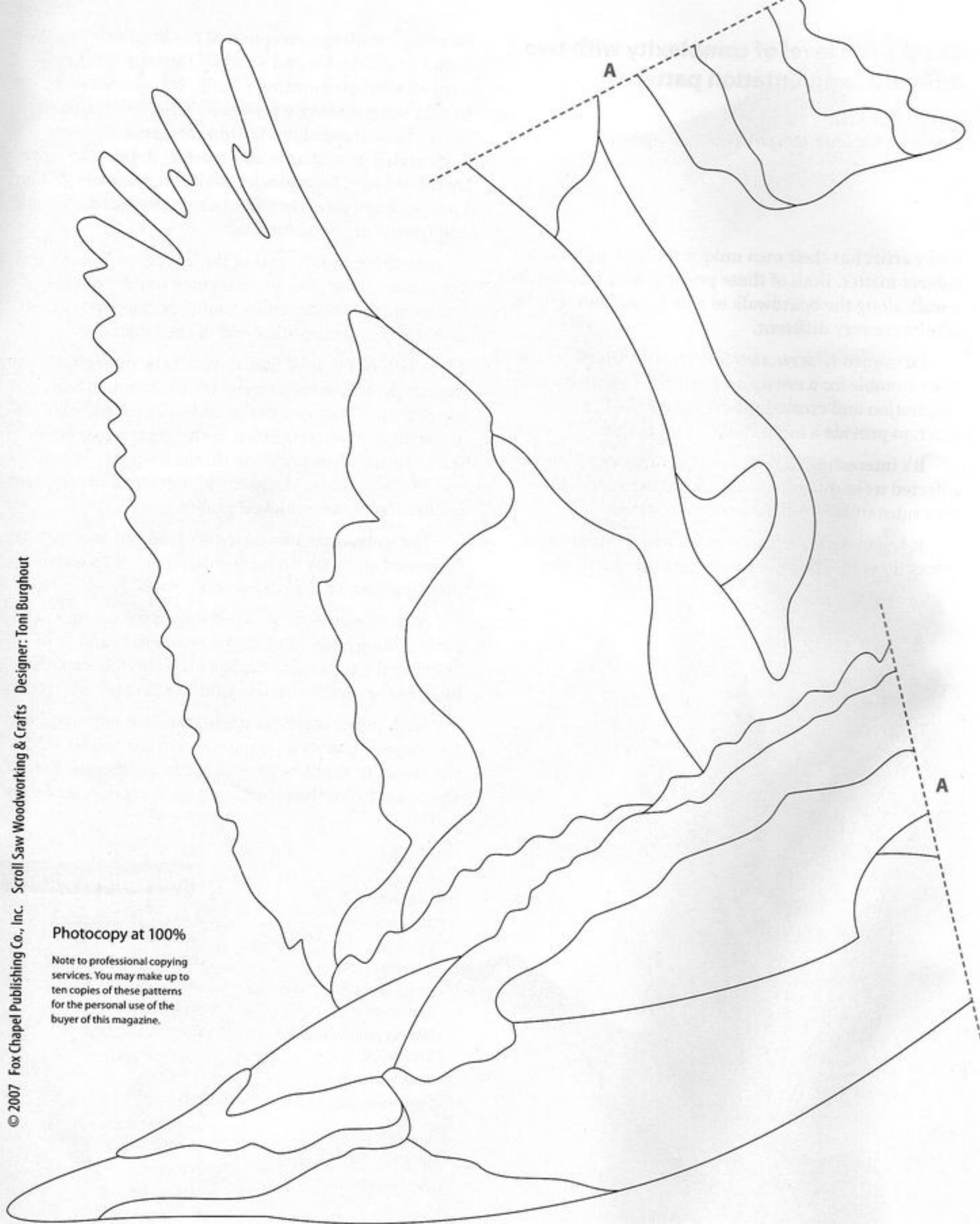
- 1" x 17" x 23" clear pine (segmentation)
- Minwax stain, Walnut and Golden Oak
- Black leather dye
- White paste colorant
- Carpenter's glue

Tools:

- #5 reverse-tooth blades or blades of choice
- Belt sander
- Mop sander

Photocopy at 100%

Note to professional copying services. You may make up to ten copies of these patterns for the personal use of the buyer of this magazine.



B

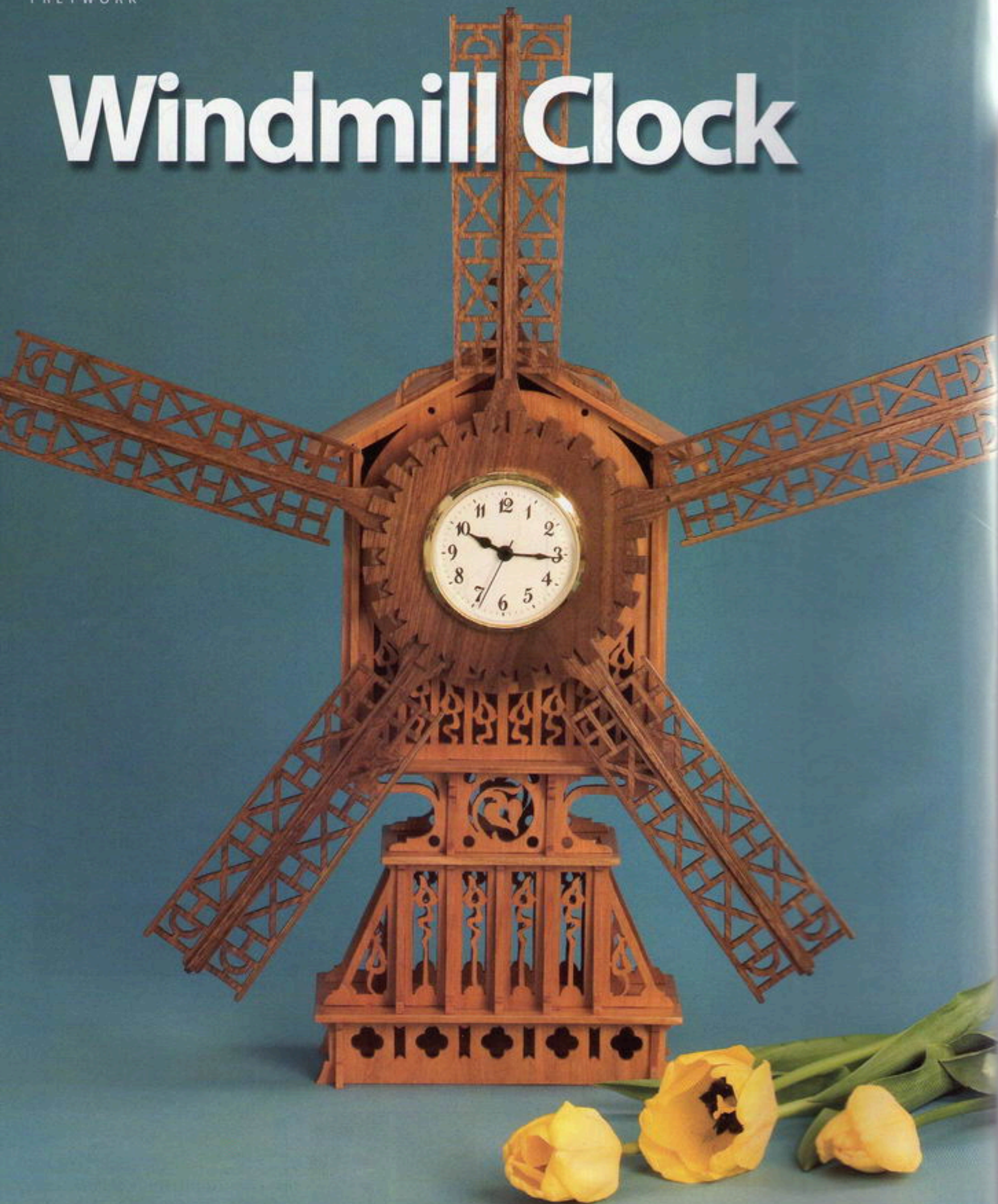


Additional pattern for the
CANADIAN GEESE is on the
pattern pullout section.



Toni Burghout, of Orillia, ON, Canada, and Sue Chrestensen of Grass Valley, CA, are the founders of Chrestensen Burghout Designs. Visit their website at www.chrestensenburghoutdesigns.com.

Windmill Clock



Detailed fretwork highlights this impressive clock

by Pedro Lopez
cut by Ben Fink

This project was inspired by a photo I found printed in an English magazine from 1915. I get a lot of enjoyment from bringing historic patterns back to life, and combining my hobbies of scrolling and working on the computer.

I did make some slight alterations to the windmill clock, such as adding a fifth blade. I hope that today's scrollers enjoy crafting my version of this historic project.

Step 1. Prepare the wood. This project is designed for $\frac{1}{8}$ "-thick wood. Be sure to match the slot thickness to the wood you are using. Several of the pieces can be stack cut, which gives you better control when cutting the thin wood and produces perfectly identical pieces. Start by cutting the pieces to size and attaching the parts to be stack cut.

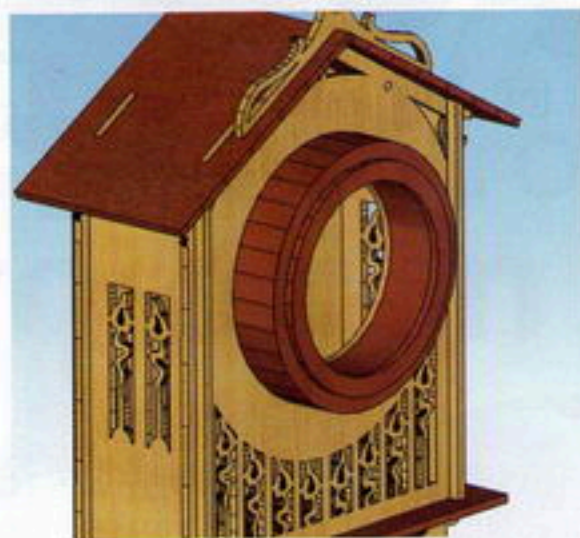
Step 2. Drill the blade-entry holes. Use a $\frac{1}{16}$ "-diameter drill bit. It is best to drill the holes with a drill press to ensure they are perpendicular to your stock.

Step 3. Cut the parts. Use a #1 reverse-tooth blade when cutting single pieces, and a #3 or #5 reverse-tooth blade when stack cutting, depending on the stack thickness. Slow down your saw speed for maximum accuracy. Cut the interior frets of each piece before the perimeter. I cut the $\frac{3}{4}$ "-thick rotation spacer with a #3 blade.

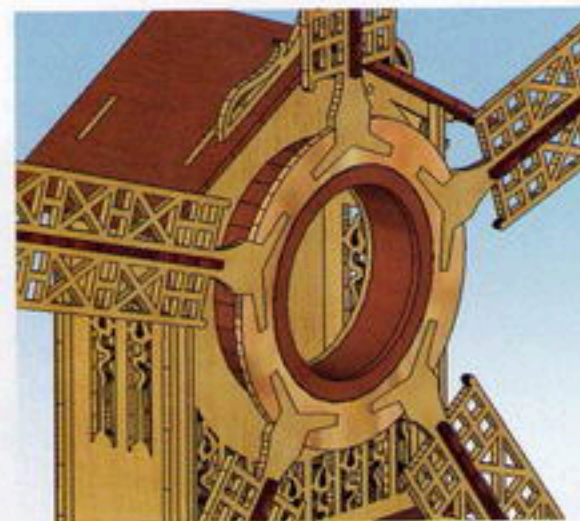
Step 4. Prepare for assembly. Sand the pieces with 220-grit sandpaper. Dry fit the pieces together to make sure they fit properly. Make adjustments as needed. Use the exploded drawing as a guide.

Step 5 Assemble the main body. Because it dries quickly, I use cyanoacrylate (CA) glue. Start with the base (parts C and D) and work your way towards the top. Note that part E forms the outside ribs

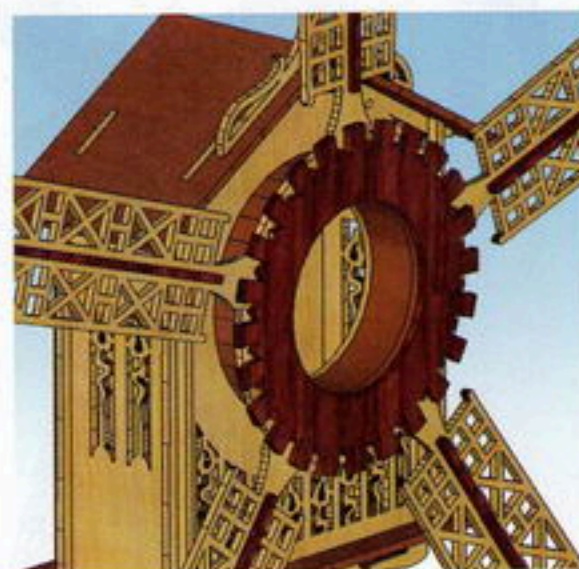
that match part I, resulting in five ribs along the front and back of the clock. Part I is also slotted into part E on each side.



▲ Step 6 Assemble the blade hub. Glue part S to the front of part R and then glue this assembly to the front of part J. The windmill blade assembly will rotate on part S.



▲ Step 7. Assemble the blades. Assemble the individual blades (part U and part T), then glue the blades onto part PA. Fit this blade assembly onto part S. Do not glue the assembly in place. Make sure part PA rotates easily on part S.



▲ Step 8. Lock the blade assembly in place. Glue part Q to the rim of part S. Be careful not to allow the glue to squeeze out onto the blade assembly.

Step 9. Finish the clock. I use a spray lacquer to finish the project after assembly. Apply your finish of choice according to the manufacturer's directions. When dry, add the clock insert to complete the project.

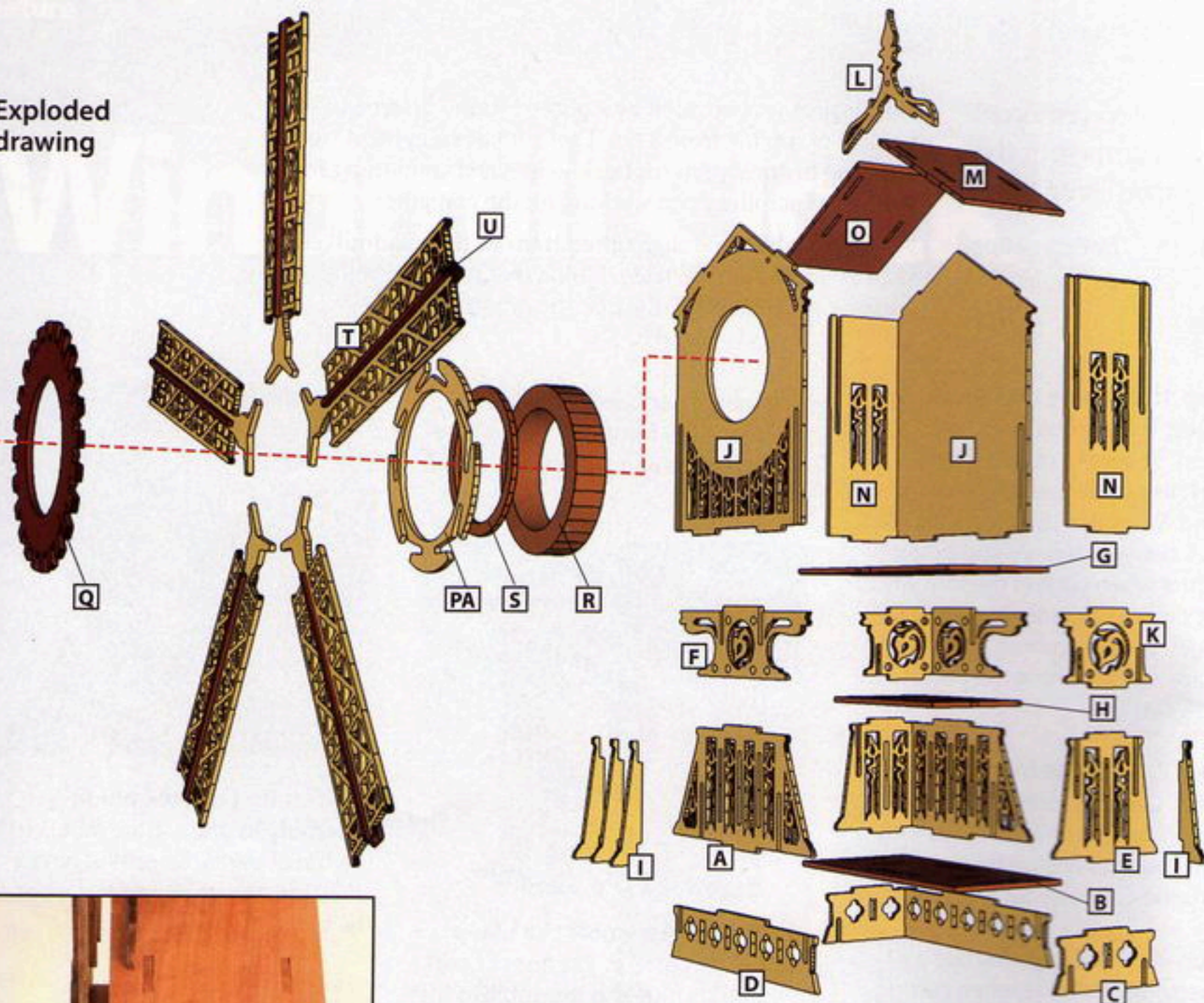
TIP SIZING THE SLOTS

Use a scrap of wood the same thickness as your stock to mark the slots. This will compensate if your wood thickness happens to differ from the slots drawn on the pattern.



Pedro lives in Seville, Spain. A math teacher, he restores historic patterns as a hobby. For more of his work, visit www.finescrollsaw.com.

Exploded drawing



Materials:

Wood of choice: (Test cutter Ben Fink used cherry and walnut)

- 2 each $\frac{1}{8}$ " x 3" x $6\frac{1}{2}$ " (A)
- $\frac{1}{8}$ " x $3\frac{1}{2}$ " x $6\frac{3}{4}$ " (B)
- 2 each $\frac{1}{8}$ " x $1\frac{1}{2}$ " x $3\frac{1}{4}$ " (C)
- 2 each $\frac{1}{8}$ " x $1\frac{1}{2}$ " x $6\frac{3}{4}$ " (D)
- 2 each $\frac{1}{8}$ " x 3" x $3\frac{1}{4}$ " (E)
- 2 each $\frac{1}{8}$ " x $1\frac{3}{4}$ " x 6" (F)
- $\frac{1}{8}$ " x $3\frac{1}{4}$ " x $6\frac{3}{4}$ " (G)
- $\frac{1}{8}$ " x 3" x $4\frac{1}{2}$ " (H)
- 2 each $\frac{1}{8}$ " x $2\frac{3}{4}$ " x $3\frac{1}{4}$ " (I)
- 2 each $\frac{1}{8}$ " x $6\frac{1}{2}$ " x $7\frac{3}{4}$ " (J)
- 2 each $\frac{1}{8}$ " x 2" x 3" (K)
- $\frac{1}{8}$ " x $3\frac{1}{2}$ " x $4\frac{1}{4}$ " (L)

- 2 each $\frac{1}{8}$ " x $3\frac{1}{4}$ " x $4\frac{1}{4}$ " (M, O)
- 2 each $\frac{1}{8}$ " x $3\frac{1}{2}$ " x 6" (N)
- $\frac{1}{8}$ " x 5" x 5" (P or PA)
- $\frac{1}{8}$ " x $5\frac{1}{4}$ " x $5\frac{1}{4}$ " (Q)
- $\frac{1}{8}$ " x $3\frac{1}{2}$ " x $3\frac{1}{2}$ " (S)
- 4 or 5 each $\frac{1}{8}$ " x $2\frac{1}{4}$ " x 8" (T)
- 4 or 5 each $\frac{1}{8}$ " x $\frac{1}{2}$ " x $6\frac{3}{4}$ " (U)
- $\frac{3}{4}$ " x 4" x 4" Pine or wood of choice (R)
- Assorted grits of sandpaper

Materials & Tools

- Cyanoacrylate (CA) glue
- Finish of choice (I use spray lacquer)
- $3\frac{5}{16}$ "-diameter clock insert

Tools:

- #1, #3, & #5 reverse-tooth blades or blades of choice
- Sanding sticks or needle files

SPECIAL SOURCES:

$3\frac{5}{16}$ "-diameter clock inserts are available from Klockit, www.klockit.com, 800-556-2548.

Patterns for the *WINDMILL CLOCK* are on the pattern pullout section.

The **Puzzle Art** of Randy Crossman

An award-winning craftsman serves up a double helping of advice.

A PUZZLE PIECE is 9" x 7½" and has about 300 pieces.



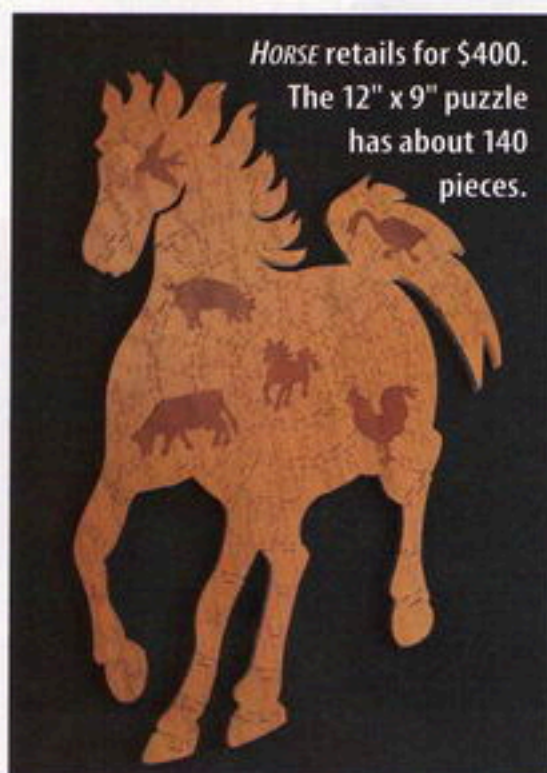
COUNTRY FOLK ART contains approximately 825 pieces.



BOY AND GIRL SLEIGH RIDERS retails for \$600.

Learn how to cut freehand puzzles. And see how you can build a successful business based on your own creativity and original designs.

by Bob Duncan



HORSE retails for \$400. The 12" x 9" puzzle has about 140 pieces.

Twenty years ago, when Randy Crossman was a stay-at-home dad, he began cutting puzzles on the scroll saw in his spare time. It started out as a welcome diversion that ultimately garnered national exposure. Randy's puzzles now offer a way to supplement the income received from his custom furniture business.

Randy met his business partner, Bruce Marston, when looking for a location to practice his woodworking. The two men ended up renting the same property and quickly discovered they had more in common than a real estate lease. Both were highly accomplished craftsmen with a deep respect for traditional hand-made methods. They were well-versed in 19th century furniture styles and their love of old-fashioned sleighs led them to start a joint venture called the Vermont Sleigh Company.

The company produces decorative sleighs as well as custom furniture featuring the distinctive sleigh design. Randy began inlaying puzzles in the tabletops as a way to combine his hobby with his livelihood and soon realized there was a market for his custom puzzles.

The side business, now known as X-Man Puzzles, began with a few sales of his large puzzles. These puzzles average between 2,000 and 4,000 pieces and can take six to eight months to cut.

"I don't make a living with my puzzle business," Randy said. "When I set up the X-Man Puzzles website, I decided on a few rules for myself. I do the best work I can, and I do not compromise on anything. I set the prices for my high-end puzzles and don't negotiate that price just to make a sale. In the high-end market I'm

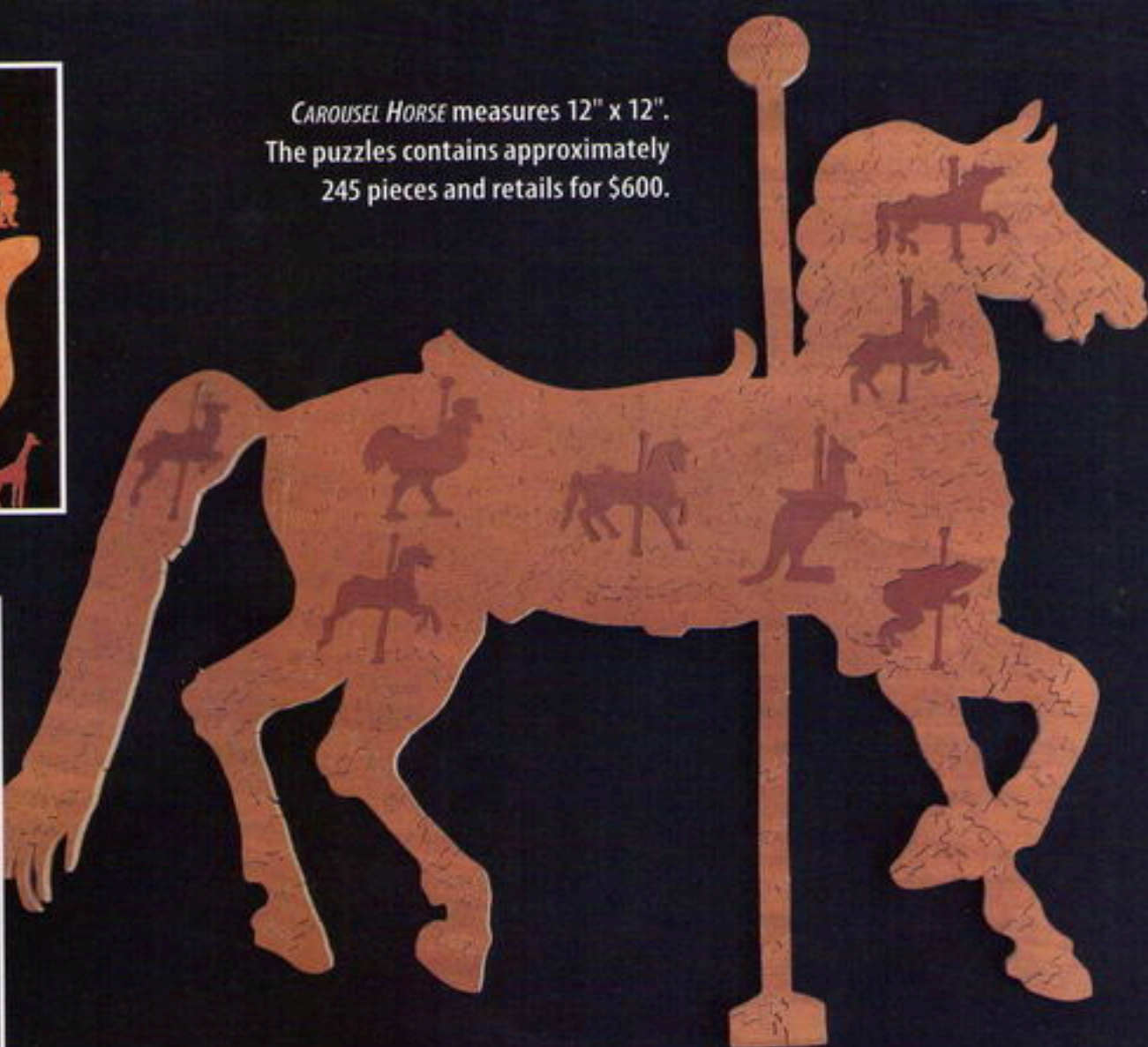


NOAH'S ARK, 200 pieces.



BASKET, over 4,000 pieces.

CAROUSEL HORSE measures 12" x 12".
The puzzle contains approximately
245 pieces and retails for \$600.



trying to create, there is no one out there doing what I'm doing."

The hardest part about launching Randy's side business of custom puzzles was getting the word out. While he stresses the importance of creating an attractive website with really nice photos, and keeping that website updated, Randy found the best way to spread the word about his puzzles was through press releases.

"Take a unique and interesting item you have in your product line," he said. "You've got to have a good and unusual project. Something the magazine's readers would be interested in. Physically mail a press release to anyone who might have an interest in it. Don't e-mail something; most people delete e-mails like that. If you really want to make an impression on a publisher or an editor, do the groundwork and call ahead to see

what person specifically to send the release to."

The technique works. Randy has had his work featured in nearly 20 publications including *Better Homes and Gardens*, *Sleigh Magazine* and *Southern Living*, earning him national recognition.

Like most scrollers, Randy struggles with pricing his work. It can take a bit of trial and error to find out what the market will bear. "People have to decide if they want to sell their pieces themselves or through a gallery," he said. "You can't price it both ways. If you find a retail price where your product sells, in order to sell that through a gallery, you need to be willing to accept 40% less. But if you are marketing your product directly to the public, it takes time, money, and patience to build up a clientele, which you get automatically by selling through a gallery."

Due to the labor involved with his large puzzles, Randy realizes that if he wants to get paid for his time, his pricing structure will produce a limited customer base. He continues to create them because he loves doing it and wants to share his work with the public. To increase the profitability of X-Man Puzzles, Randy has started designing a lower-end puzzle line. This new line features puzzles cut from business cards as well as folk-style puzzles small enough to fit into a CD case. He continues to use his scrolling skills to embellish custom furniture and is always on the look out for new ways to expand his business.

Randy strongly believes there will always be a demand for hand-crafted, high quality goods, and is thankful that his skills and talent allow him to serve that market.

Cutting a puzzle freehand

by Randy Crossman

My puzzle patterns start with an original line drawing that I break down into sections. These sections help to keep things symmetrical. Each individual puzzle piece is cut freehand inside the sections.

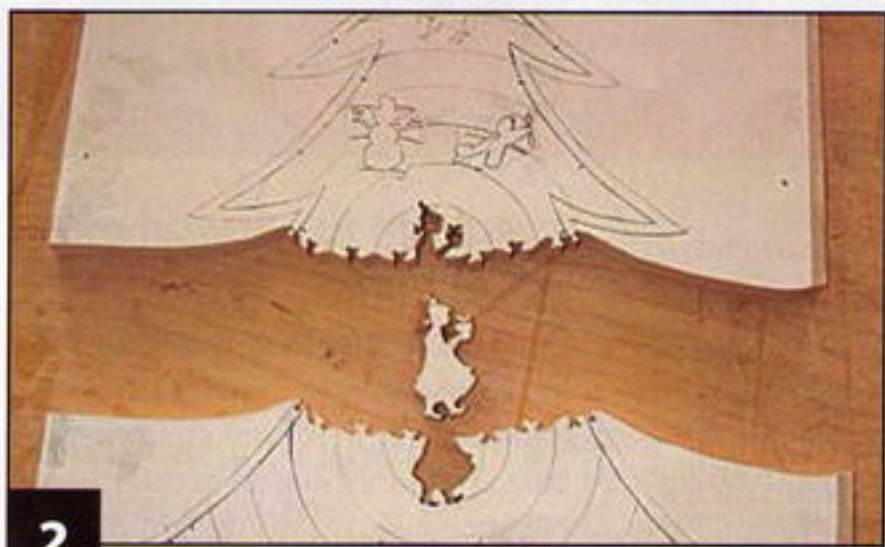
I use three-ply, 1/4"-thick cherry plywood. I stack two pieces together with double-sided masking tape. One piece is left the natural color of the wood. The other piece is either rotated 90°, so the grain is in the opposite direction, darkened with a dark cherry stain, or both. That way I can mix and match pieces to give each puzzle a unique look. It is very important to have your saw table square to the blade when cutting puzzles, otherwise the pieces won't fit together easily.

In the steps below, I'll demonstrate my freehand cutting technique. For those hesitant to give this technique a try, I've included a pattern for my *Folk Art Snowman* that can be gift boxed in a CD case.



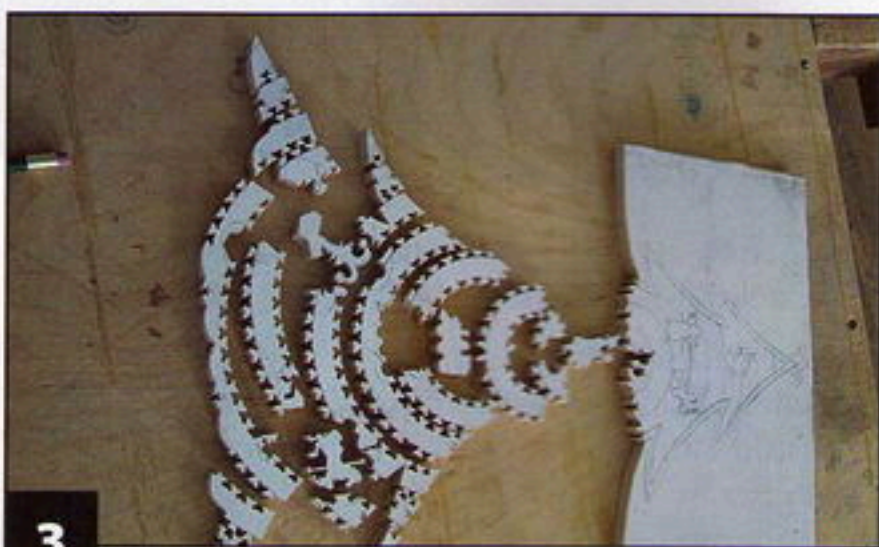
1

Prepare the pattern. Start with a simple line drawing and use a compass to draw concentric circles to guide your cuts. Adhere the pattern to the blank, using your method of choice. Attach the two blanks together with double-sided masking tape. Rotate one piece 90° so the grain runs in opposite directions between the two pieces.



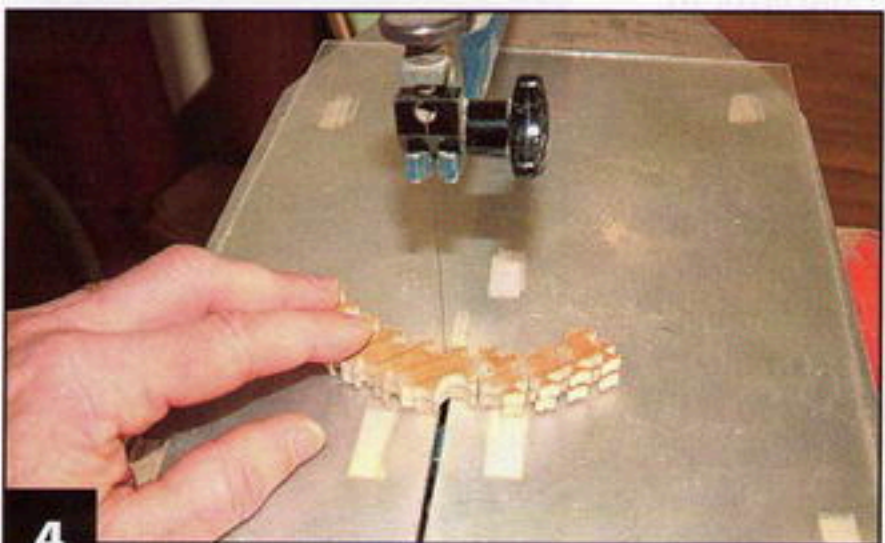
2

Cut the puzzle into manageable pieces. The challenge is to cut it into sections so the sectioning cut is disguised among the other puzzle cuts. You don't want the line to be obvious. Remember to cut lobes inside each ring or section of the puzzle.



3

Cut out the concentric rings and internal images. Use the circles as a guide, but cut out the lobes and sockets freehand. Do not worry about cutting out the individual pieces right now; continue breaking the puzzle into more manageable pieces.



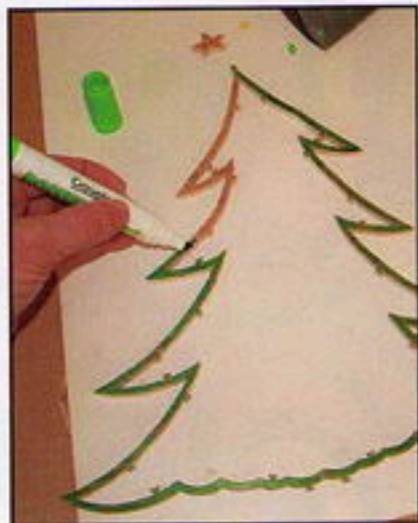
4

Cut out the puzzle pieces. Each ring is broken down into individual pieces. Vary the position of the lobe and socket to add interest. I use a piece of clear acrylic as a zero-clearance insert.



5

Separate the stacks. Sand off any rough edges left by the cutting process. Assemble the puzzles and place them side-by-side to decide which pieces to mix and match.



6

Stain the pieces for contrast. I like to set off the shaped pieces by using a dark cherry spray stain. For this project, I also use a green marker to color in the frame of the puzzle.



7

Finish the puzzle. Apply a coat of clear lacquer to the entire puzzle. Take a photo of the completed puzzle and include it to aid the new owner in assembly.

Materials:

- 2 each 1/4" x 4" x 4 1/2" three-ply cherry plywood or plywood of choice
- Cherry spray stain
- Assorted grits of sandpaper
- Double-sided masking tape
- Spray lacquer
- Spray adhesive
- Clear acrylic or zero-clearance insert material of choice

Materials & Tools

Tools:

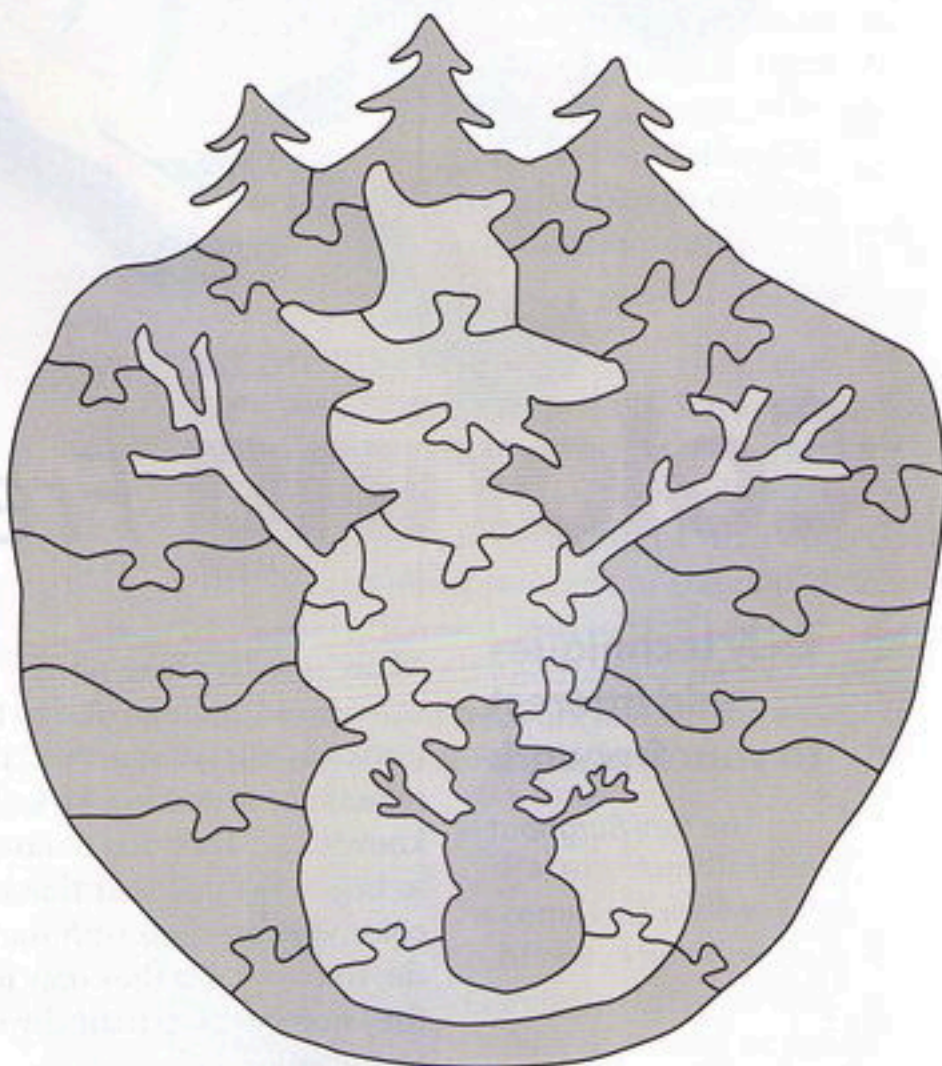
- #0, #1, or #2 Eberle double-tooth blades or blades of choice

SPECIAL SOURCES:

Double-sided masking tape is available from ULINE, 800-958-5463, www.uline.com.



Randy sells the *Folk Art SNOWMAN* puzzle, which has 24 pieces, for \$34.



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Scroll Saw Woodworking & Crafts Designer: Randy Crossman

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Randy lives in Rutland, VT. Visit his website at www.xmanpuzzles.com.



Coloring *Fretwork*

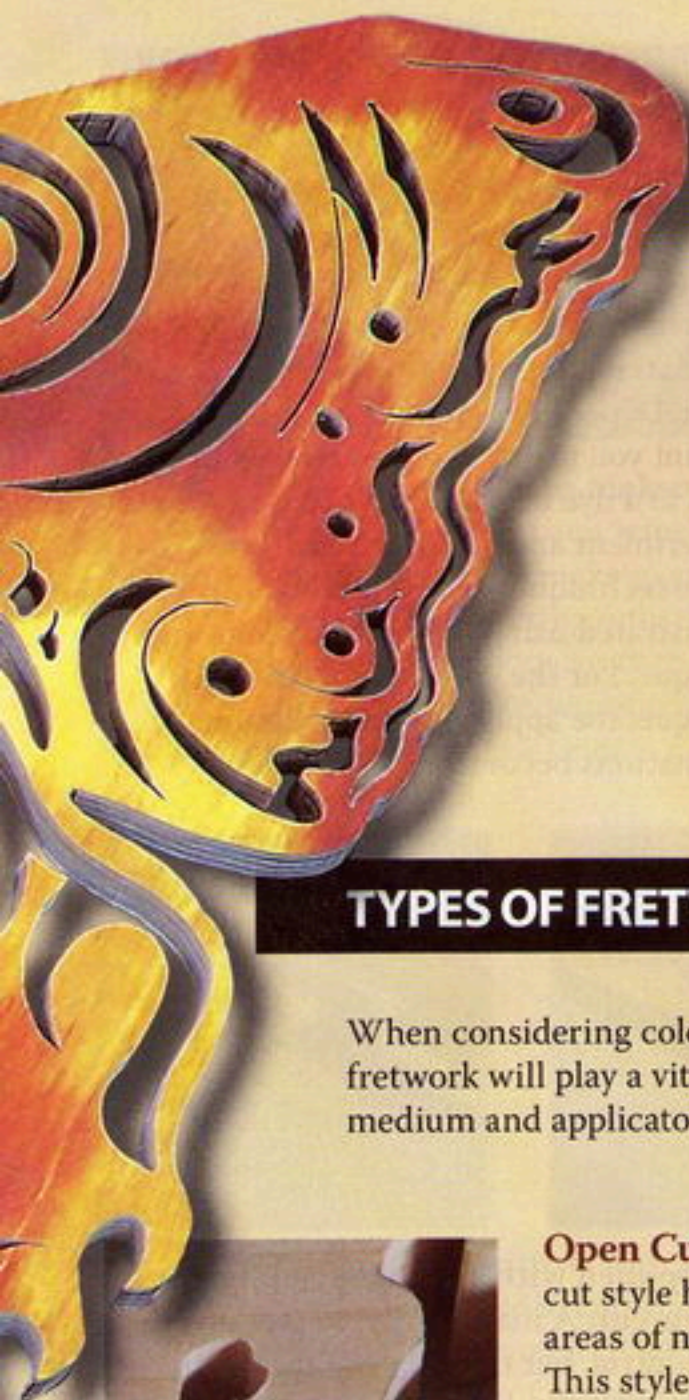
**Easy techniques
add interest
to your fretwork**

by Toni Burghout

Many scrollers have never considered adding color to their fretwork. For most artists, this reluctance is due to a lack of knowledge. They don't know where to begin and may fear that the color will interfere with the lines of the fretwork. Or they may feel that they need to be artistically inclined to add color.

In this article we'll explore a variety of mediums and techniques you can use to enhance your fretwork. I'll demonstrate some of the pros and cons and show you how I've used color to enhance my own designs. Prior to adding color to your scrolled project, I suggest that you experiment

with the various applicators and mediums you anticipate using. Control and coverage will vary depending on the type of wood, coloring medium, and type of application. Most of the fretwork projects I color are cut from pine, basswood, or Baltic birch plywood. These species have proven their durability, are light colored in their natural state, and work well with the coloring mediums we'll look at in this article.



TYPES OF FRETWORK

When considering color, the style of fretwork will play a vital role in what medium and applicator you use.



Open Cut: The open cut style has large areas of negative space. This style of pattern provides easy access to the inside cuts with most applicators. You can also leave the inside cuts natural for a vivid contrast. Open cut

fretwork lends itself well to preparation and post-cut coloring techniques.



Fine Line: The fine line style is mainly created by making veining cuts or portrait style cutting. The narrow negative spaces and detail lines are more likely to clog up with some mediums.

Fine line fretwork is best suited for more fluid colorants or the preparation coloring technique.



APPLICATORS

There are a variety of applicators to choose from. Sponges, paint brushes, foam paint brushes, roller applicators, cloths, cotton daubers, cotton swabs, makeup applicators, and gauze are some of the commonly-used ones. With a little imagination, I'm sure you'll discover many more options. Each applicator will give you a different amount of control, and some offer a different texture. Matching different applicators with coloring mediums and fretwork styles enables the artist to get creative, and turn an ordinary pattern into an exceptional project.

MEDIUMS

Different coloring mediums all have different effects on fretwork. Depending on the style of fretwork, applicator, and desired outcome, some mediums are better suited than others. This doesn't mean you can't or shouldn't use them; only that you need to plan when to use them. You will need to take into account both the style of fretwork and the time you apply the color during the project.



Paints: Acrylic paints come in a wide variety of colors and brands. Paints tend to be less fluid and can clog detail lines. You can adjust the viscosity by thinning them with water or a flow medium to the desired consistency

and opacity. Some of the most commonly used applicators for paint are brushes, foam brushes, rollers, sponges, cotton swabs, makeup applicators, and gauze.



Stains: Woodworkers have been using stains, such as Minwax, for centuries. Stains provide an easy and economic way to make common woods look like more exotic species. While stains are very fluid and spread rapidly, you can

create some unique effects with a controlled application. Stains are usually applied with cotton daubers, cloth, foam brushes, cotton swabs or sponges. I try to use applicators such as cloths and sponges to help control the spread of the color.



Dyes: Similar to stains in their fluidity, dyes are a good option for fine line fretwork as they won't clog detail lines. Leather dyes such as Fiebing's and Pro Dye are one of my favorite colorants, and they come in a broad array of colors.

Dyes spread quickly over the wood surface, making short work of the coloring process. Depending on the project, the amount of control the applicator provides may be paramount. I have found the best applicators for dyes are cotton daubers, cotton swabs, cloths, and sponges.

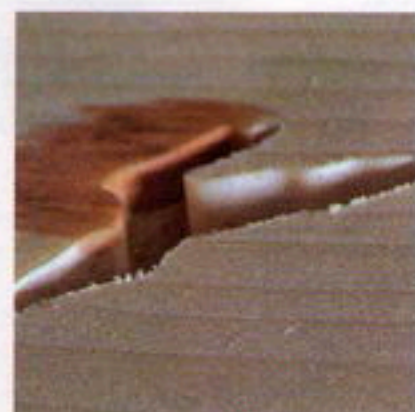


Pastes: While pastes such as Kiwi and Baroque have a tendency to clog detail lines in fine line fretwork projects, they do offer better control. They are an excellent medium choice for post-cut coloring an open-cut style fretwork

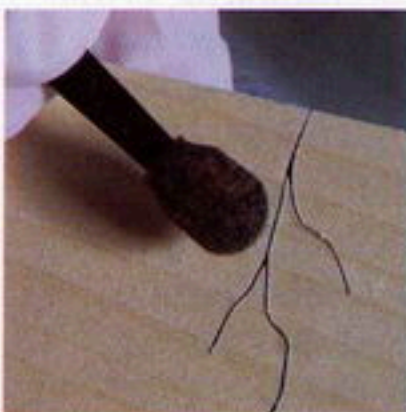
piece. I prefer to use pastes when using the layering technique of adding color. Because you need to rub pastes into the wood, cloths and makeup applicators are the most effective methods of applying this medium.

COMBINING STYLE, APPLICATOR, AND MEDIUM

Now that we have explored these three elements, let's take a look at combining them to achieve different effects. There are virtually unlimited combinations. I'll demonstrate a few of the most common combinations as well as the pros and cons of each. Depending on the thickness of the paint you use, it will give you similar results to a dye or paste. I encourage you to experiment and discover your own favorite techniques. These methods are all demonstrated using the post-cut coloring technique. For the preparation coloring technique, the applicator and medium combinations become less important.



Stain applied with a makeup applicator on an open-cut: A make-up applicator gives you some control, but the thin stain will still run into the cut edge. Depending on the project, this may be a desirable effect. Remember the make-up applicator if you want to color the inside edges and have smaller areas.



Stain applied with a makeup applicator on a veining cut or fine line: The makeup applicator holds the stain well (no drips) until you are in the position you want to begin. Because the stain is thin, you don't run the risk of clogging the thin lines.



Stain applied with a makeup applicator on a veining cut, then wiped with a cloth: Depending on the makeup applicator, you may want to try using only the edge to trace the veins, then wipe away the excess stain. This method adds definition and separation to the veins or fine lines.



Leather dye applied with a cotton dauber on a veining cut: The dauber is an excellent applicator to apply leather dye on a fine line cut because there are no fibers that will transfer to the cut. The dye, being very fluid, easily seeps

through the vein, accenting it, but keeping the line clean.



Stain applied with a cloth applicator on an open cut: For added control, I suggest you carefully load your cloth with stain and dab on a scrap piece of wood or cloth to release some of the fluid from the material. This is an effective way of coloring both open cut and veining. Wipe toward the cut if you want to keep the inside cuts clean, or wipe away from the cut, across the wood surface, if you want to accent the edge of open cut.



Paste applied with a makeup applicator on an open cut: Using a makeup applicator with paste allows for a good deal of control. Rub towards the cut lines to achieve good surface coverage while keeping the colorant out of the inside cut.



Paste applied with a makeup applicator on a veining cut: Pastes tend to clump in the thin cuts. If you do choose to try pastes on this type of fretwork, draw the pastes along the vein and not across them to help prevent clogging. It is advisable to give the applicator a quick wipe on another surface, such as a cloth or scrap piece of wood, after it is loaded with paste. This will break up any clumps of paste and give a more uniform color.



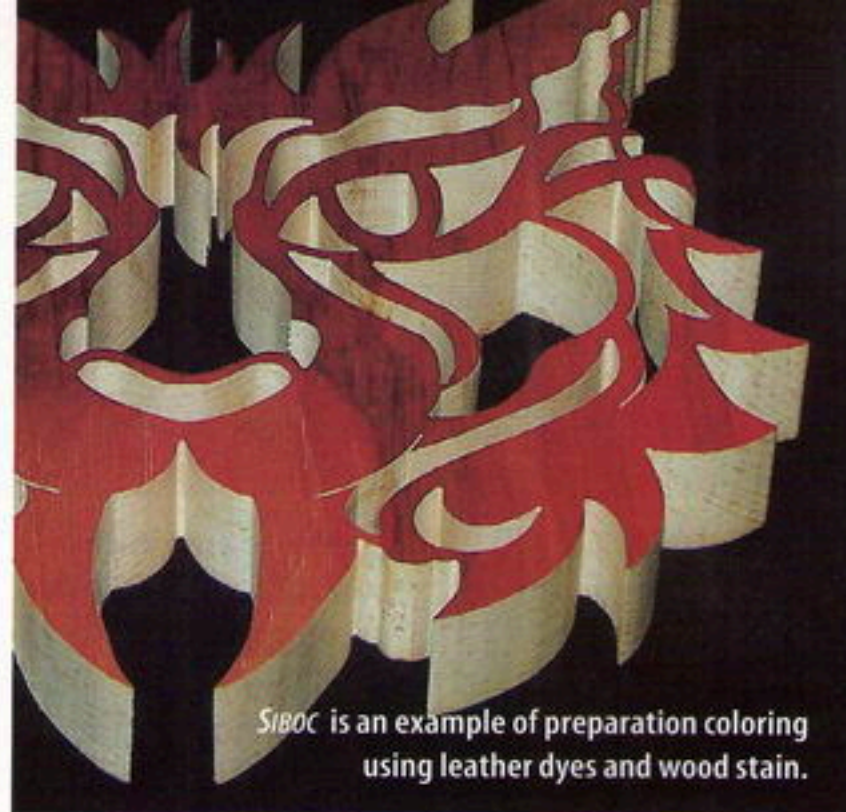
Leather dye applied with a cotton dauber on an open-cut: This method is only advisable when you want to color the entire inside edge as well as the surface of the wood. Note how the colorant quickly bleeds to the inside of the cut.

TECHNIQUES



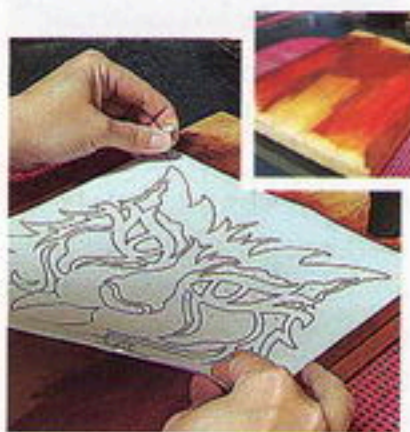
There are three simple methods or techniques to add color to fretwork: preparation coloring, post-cut coloring, and layer coloring. Each method has advantages and you can achieve a surprising assortment of effects with a little creativity and experimentation.

No matter what type of medium or technique you use, the important thing is to have fun and expand your horizons by stepping outside of your comfort zone. Use scrap wood to make practice blocks and experiment. Notate which technique, medium and applicator you used on each practice block for future reference. When you are ready to add color to your fretwork, you can go back to your practice blocks and duplicate the effect.



SIBOC is an example of preparation coloring using leather dyes and wood stain.

Preparation coloring: Because it is the simplest way to add color to your fretwork, I suggest beginners start with preparation coloring. With this technique, you apply the color to the wood before applying the pattern. This leaves natural wood in the sharp inside cuts for maximum contrast. Preparation coloring can be challenging since you are applying color to the wood in a somewhat blind manner.



Step 1. Apply the colorant. Draw a grid on the pattern and extend the lines to the perimeter of the wood. Apply the color and attach the pattern to the blank with push pins to preserve orientation. Allow to dry.



Step 2. Prepare for cutting. Cover the wood with painter's tape to protect the coloring from glue residue. Adhere the pattern to the taped surface, and cut. Your colored fretwork will have sharp clean edges.

Home Is Where Your Story Begins

STORY BEGINS is post-cut colored using acrylic paints applied with a sponge.

Post-cut coloring: Post-cut coloring is done after your fretwork is completely cut out. You can either dip your fretwork in a shallow pan of coloring medium, or use an applicator to add color to the scrolled project.

Pay special attention to the qualities of your coloring medium when choosing this technique. Some mediums are more likely to bleed into your cut edge, which may not be a desirable result.



Surface application: *AIR, EARTH, FIRE, WATER* demonstrates the control possible when using a medium with high resistance to flow, such as pastes applied with a cotton swab.



Controlled highlights: Note how I allowed some of the yellow coloring to bleed into the inside cuts, while the darker color was applied with more control to keep other cuts natural. You can achieve striking results with combinations of mediums and applicators.



FANTASY BUTTERFLY was post-cut colored using leather dyes and the layering technique.

Layer Coloring: Coloring in layers can be done in conjunction with the preparation or post-cut coloring technique, or even a combination of the two. You can add several layers of color by sanding areas and introducing new colors to the areas where the previous color has been removed. With the layer coloring technique, you can produce subtle shading or brilliant contrasts to your projects.



Step 1. Add your base color and remove pigment to create highlights. I start by preparation coloring my stock black. Sand away the colorant in strategic areas to allow for the second color to be added.



Step 2. Add the highlight color. For this step, I like to use pastes because of the control the medium offers. Carefully rub the pastes into the areas that were previously sanded. This gives soft highlights and adds depth to the project.

Toni is one of the founders of Chrestensen Burghout Designs. See more of her designs at www.chrestensenburghoutdesigns.com.



Paul Bunyan

Tray Puzzle

Vivid colors bring this tall tale to life

by Russell Greenslade



Tall tales and legends have always fascinated me. Children are drawn to the colorful characters and entertaining stories. Spend some time with the special child in your life and have fun re-telling the story of Paul Bunyan as they work on assembling the puzzle.

I prefer to cut my puzzles from basswood, because it has a plain grain, and sands and finishes well. This piece is finished with thin washes of acrylic paint followed by an oil finish for durability.

Step 1: Prepare the blanks.

Cut the blanks to the size listed in the materials list. Sand with progressively finer grits of sandpaper up to 220-grit. Adhere the pattern to one of the blanks.

Step 2: Drill a blade-entry hole where indicated on the pattern. Drill a 1/8"-diameter hole for Babe's

eye. Thread a #5 reverse-tooth blade through the blade-entry hole, and cut out the puzzle section. Do not cut through the frame.

Step 3: Cut the outside of the frame. Trace the frame perimeter onto the other blank, and cut along that line to make the backing board.

Step 4: Glue the frame onto the backing board. Use wood glue.

Step 5: Sand the pieces. Even up the backing board and frame. Use a belt sander to reduce the thickness of the sky by 3/8", the sun by 1/4", the mountain by 3/16", the trees and forest by 1/8", and all of Babe except for her ear by 1/16".

Step 6: Paint the puzzle pieces. Thin acrylic paint to the consistency of skim milk with water, and paint the pieces. Use the picture as a guide, or paint the pieces as desired.

Step 7: Apply an oil finish to the entire piece. Dip the pieces in your oil finish of choice; I use Danish oil, but pure tung oil is a good choice if the puzzle will be used by youngsters. Wipe the pieces with a soft rag, and set them aside to dry on paper towels.

Materials:

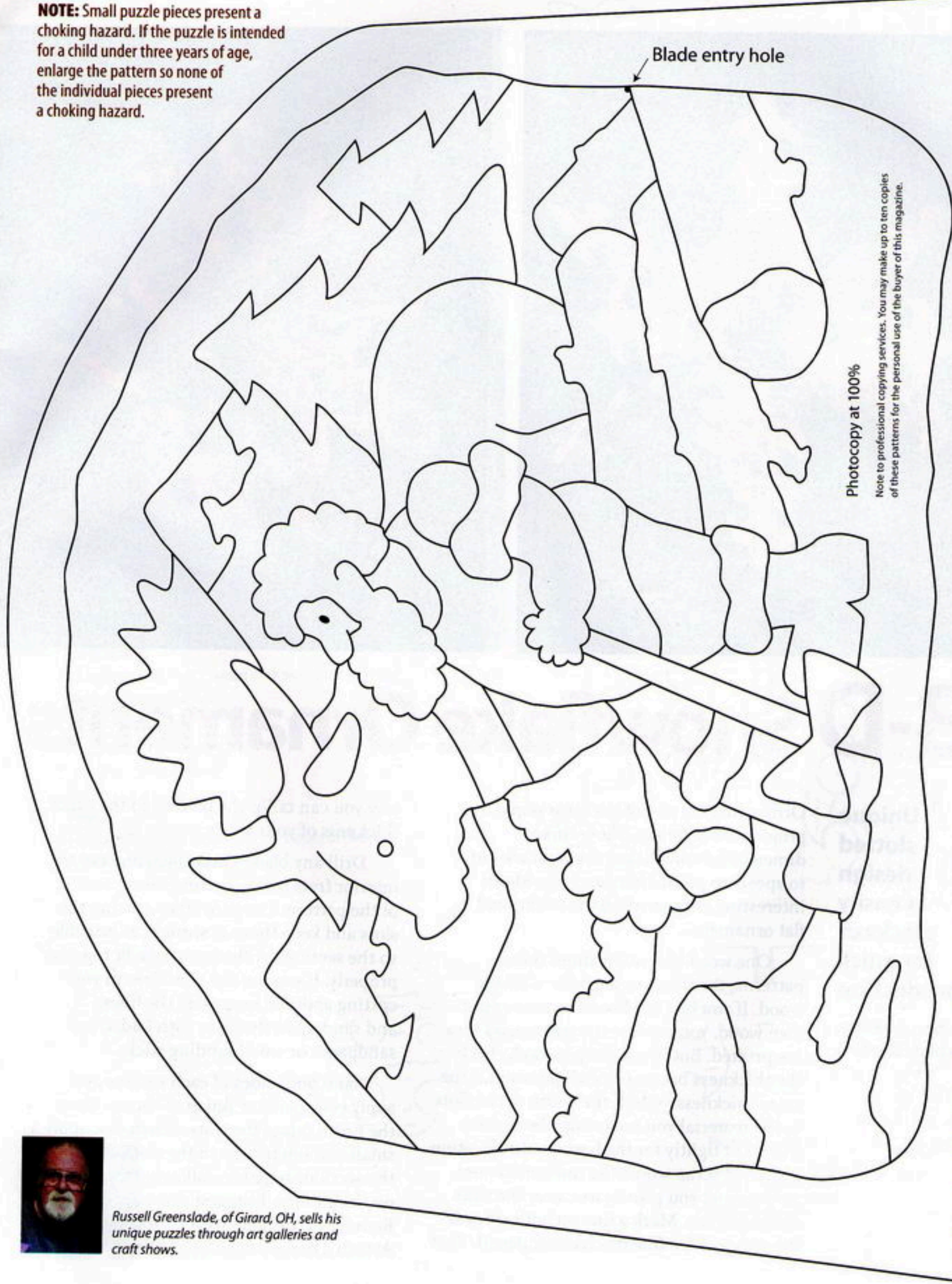
- 2 each 3/4" x 8 1/2" x 10 1/2" basswood or wood of choice
- Assorted grits of sandpaper up to 220-grit
- Acrylic paint of choice
- Oil finish of choice
- Paper towels

Tools:

- #5 reverse-tooth blades or blades of choice
- Drill with 1/8" and 1/16"-diameter drill bits
- Belt sander or sander of choice
- Paint brushes of choice

Materials & Tools

NOTE: Small puzzle pieces present a choking hazard. If the puzzle is intended for a child under three years of age, enlarge the pattern so none of the individual pieces present a choking hazard.



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Russell Greenslade, of Girard, OH, sells his unique puzzles through art galleries and craft shows.

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3-D Snowflake Ornaments

**Unique
slotted
design
is easily
stack cut
for quick
production**

*by John A. Nelson
cut by Ben Fink*

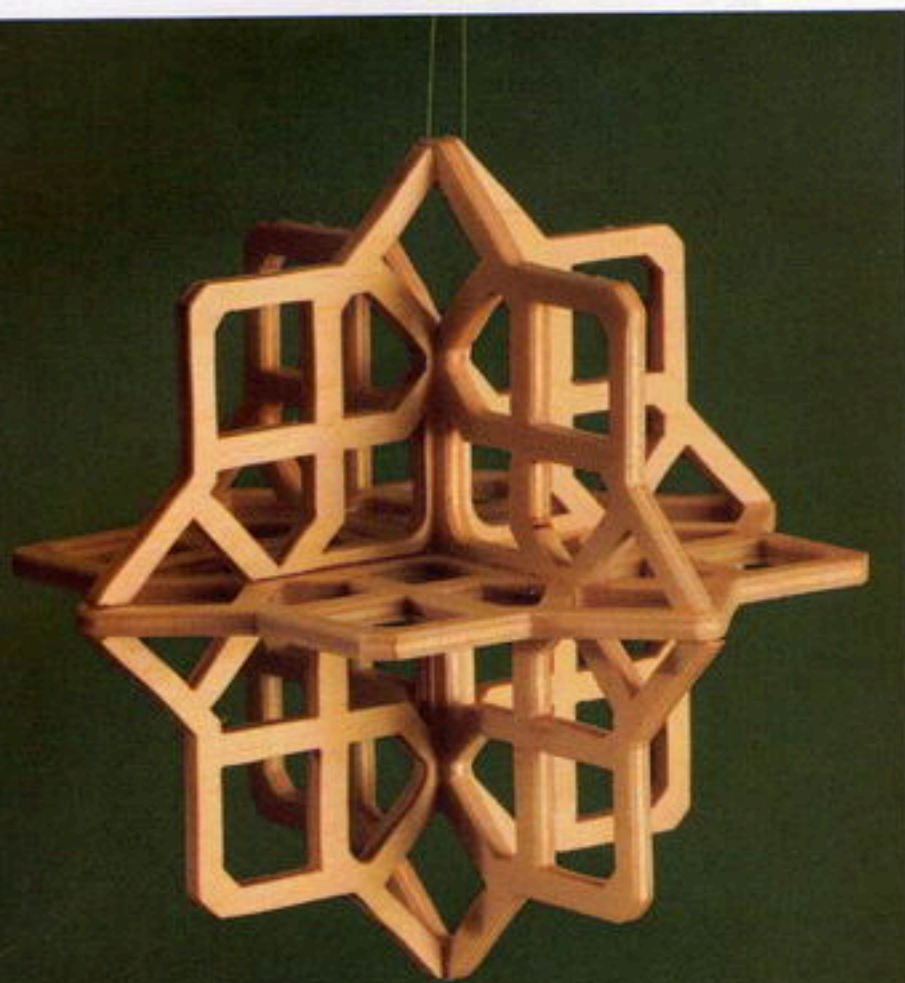
Ornaments are one of the most popular projects for scrollers. These three-dimensional snowflakes can be stack-cut to speed up production, and provide an interesting alternative to the traditional flat ornaments.

One word of caution about these patterns; the slots are sized for $\frac{1}{8}$ "-thick wood. If you buy hardwood or resaw your own wood, you can use the patterns as they are printed. But if you use plywood, check the thickness because not all plywood is the same thickness. Match the width of the slots to the material you are using. These slots should fit tightly for the best results. Position a piece of scrap wood, the same thickness as the wood you plan to use, over the slots in the pattern. Mark a line on both sides of the scrap with a fine mechanical pencil. That

way you can tailor the pattern to the exact thickness of your stock.

Drill any blade-entry holes and cut the interior frets before cutting the perimeter of the pattern. Use care when cutting the slots and keep them as straight as possible so the sections of the snowflake fit together properly. If you are not confident in your cutting abilities, cut inside the lines, and sand up to the lines with folded up sandpaper or small sanding sticks.

Sand both sides of each section and apply your paint or finish of choice. Keep the finish out of the slots. When dry, apply a small amount of glue to the slots, and slide the sections together, following the notations on the pattern. I suggest cyanoacrylate glue. Remove excess glue with cotton swabs. Attach a hanger to complete the ornament.



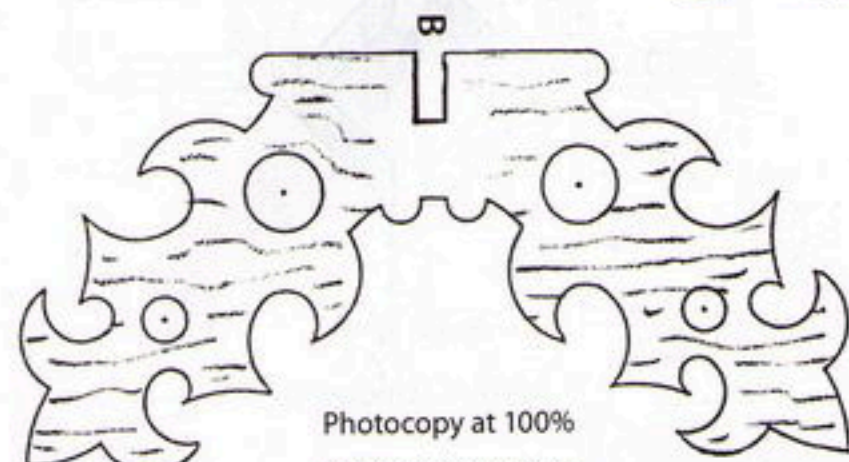
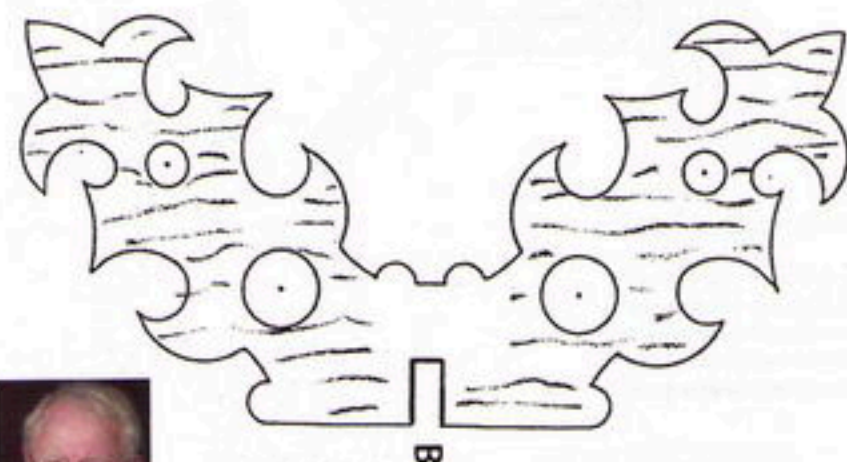
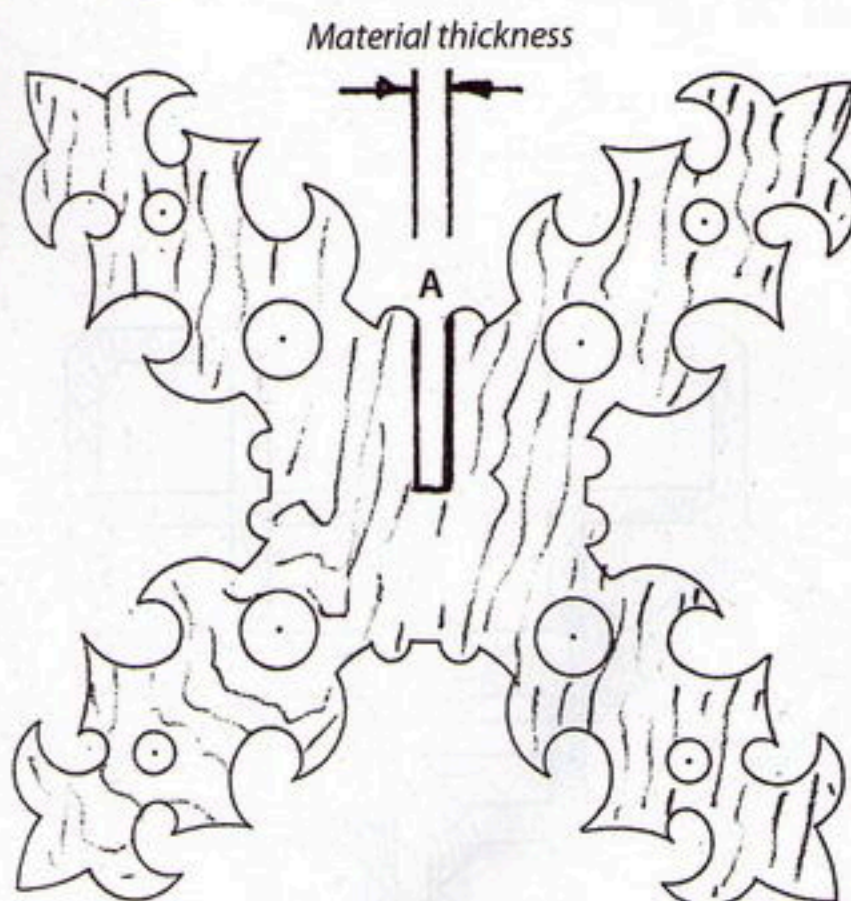
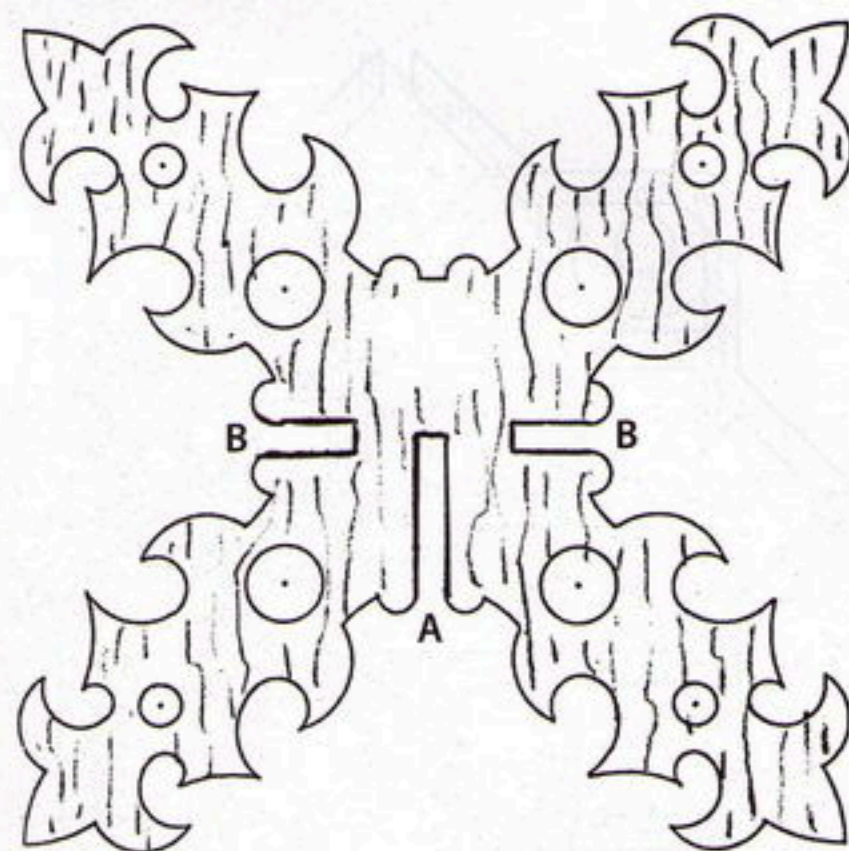
Materials & Tools

Materials:

- 3 each $\frac{1}{8}$ " x $4\frac{1}{2}$ " x $4\frac{1}{2}$ " wood of choice (per ornament)
- Fine mechanical pencil
- Glue of choice
- Assorted grits of sandpaper
- Finish or paint of choice

Tools:

- #1 and #3 reverse-tooth blades or blades of choice
- Sanding sticks (optional)

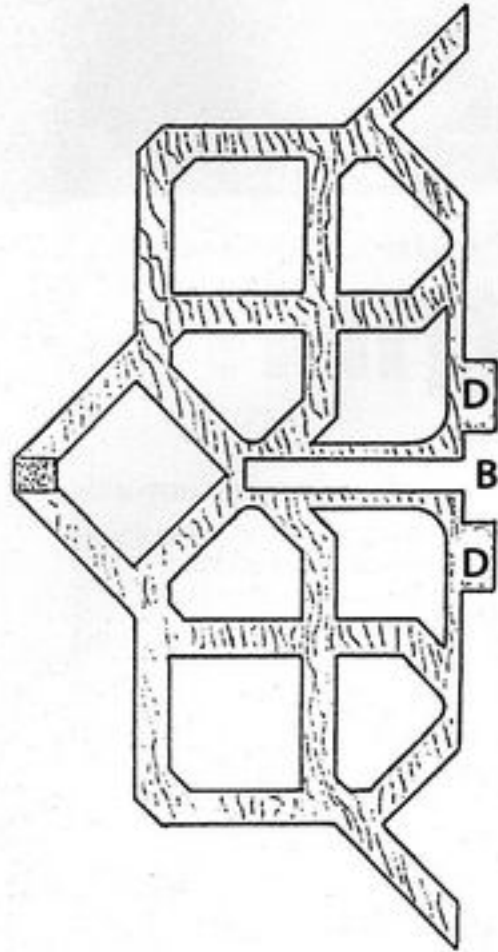
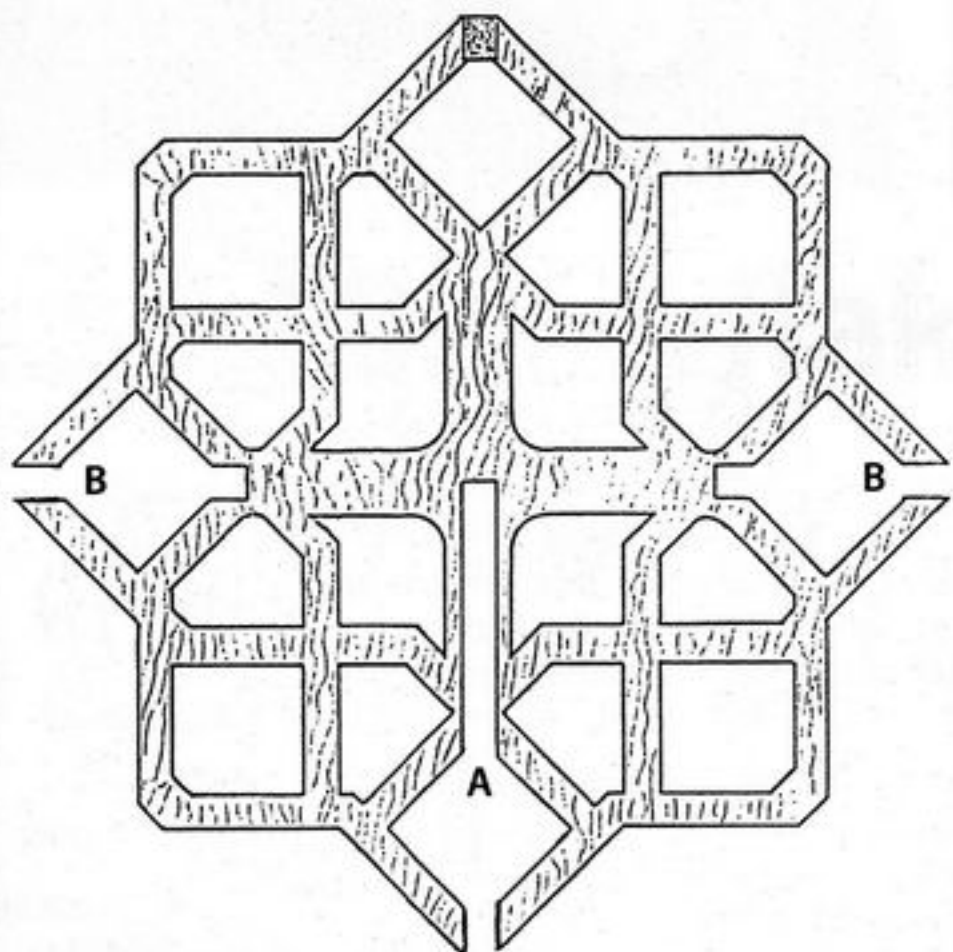
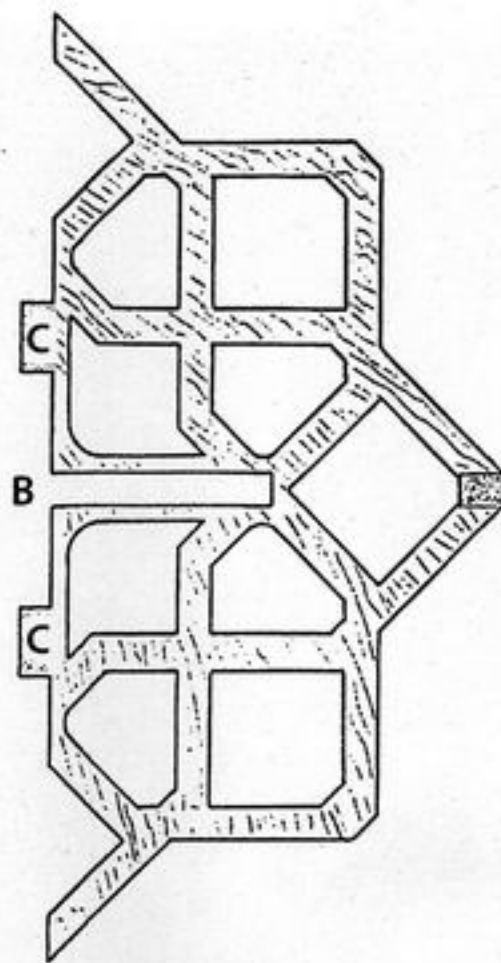
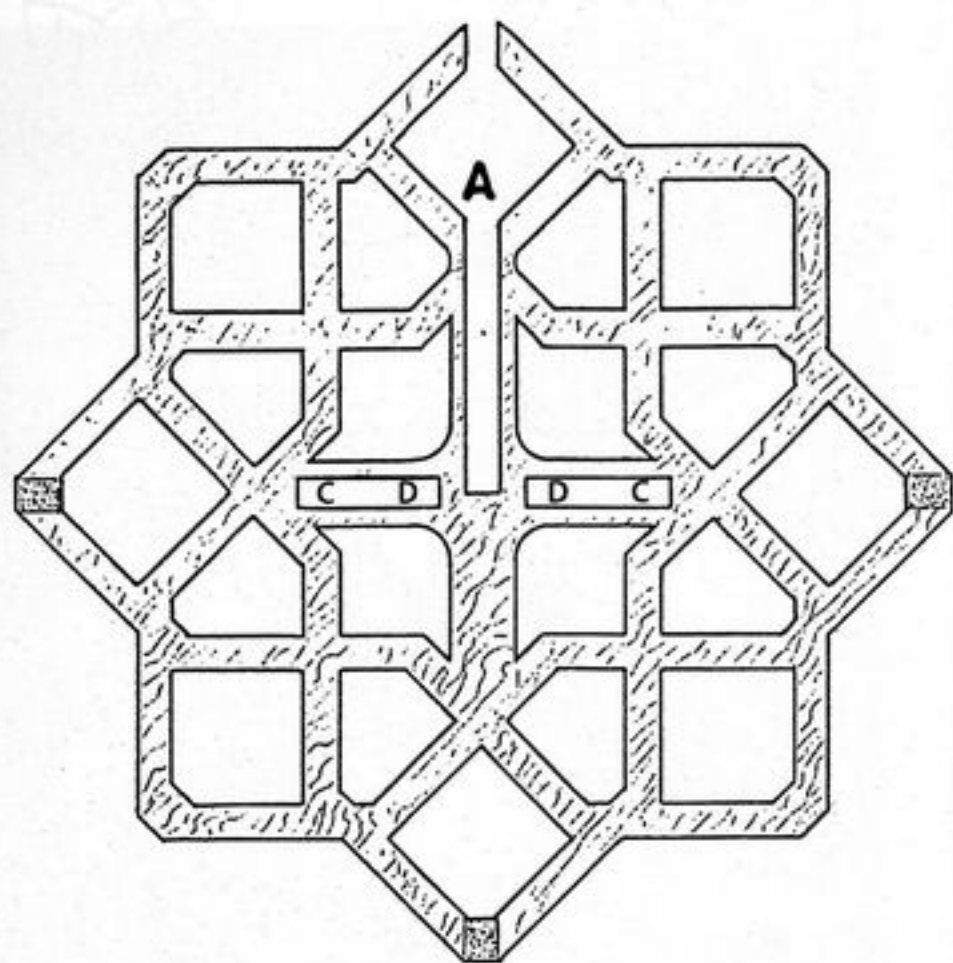


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John is a prolific author and pattern designer. For more of his patterns, visit www.FoxChapelPublishing.com.

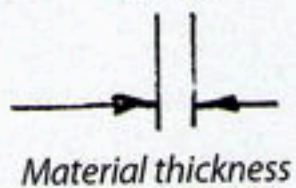
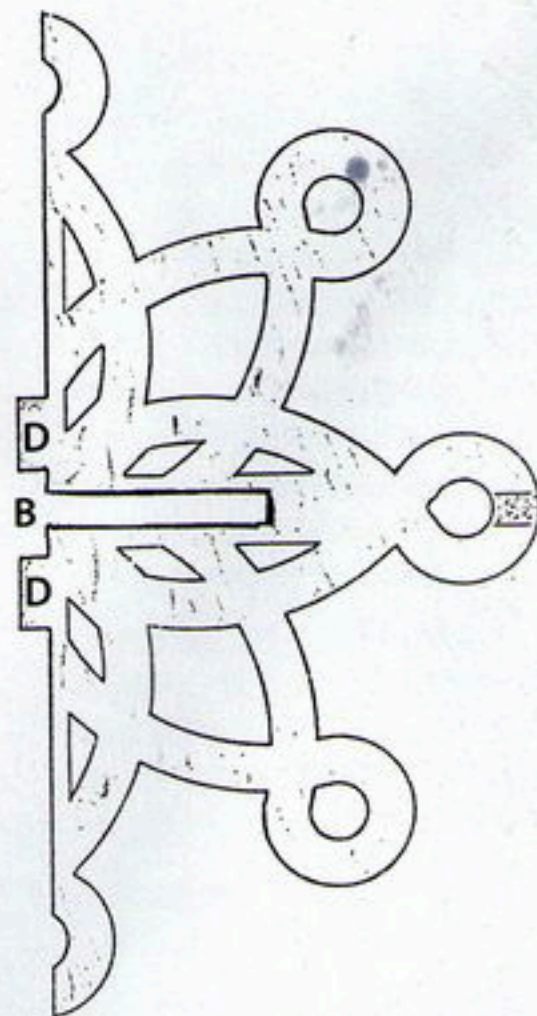
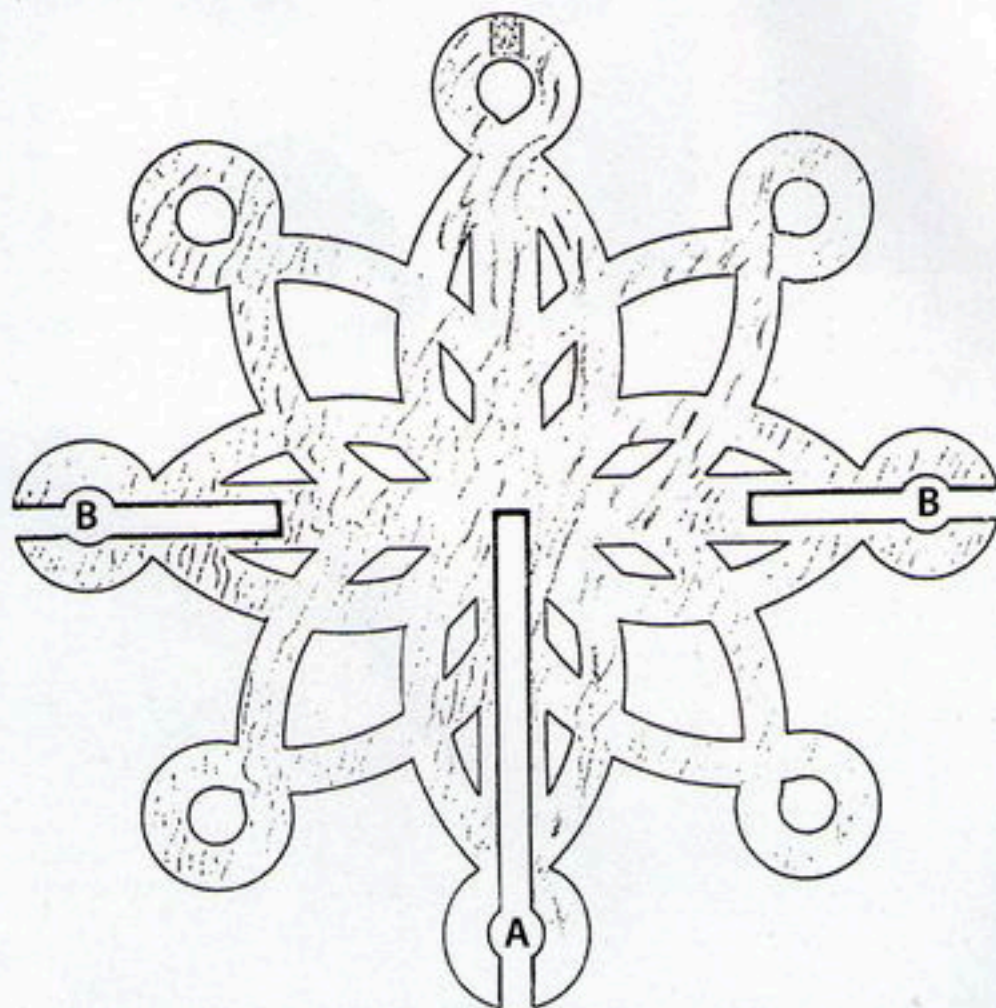
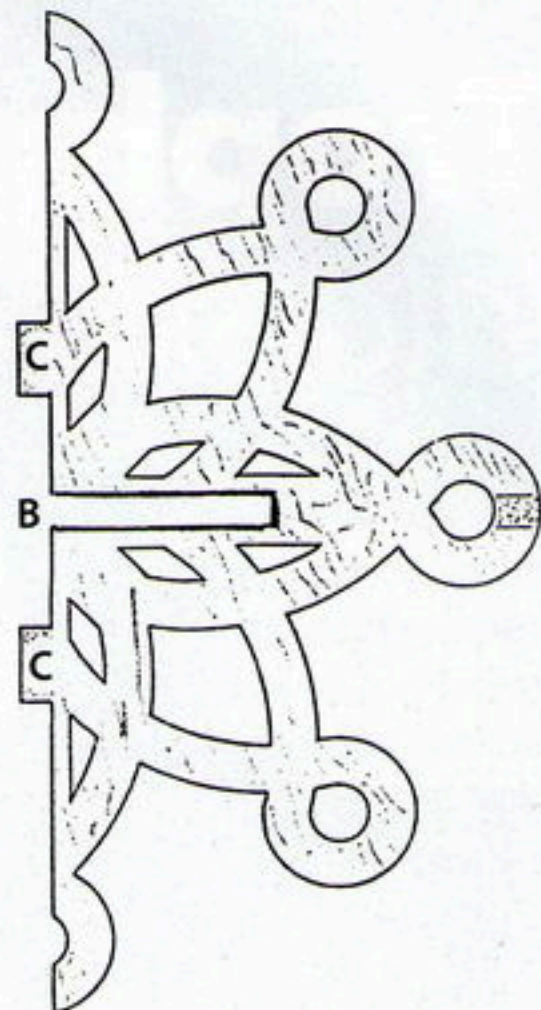
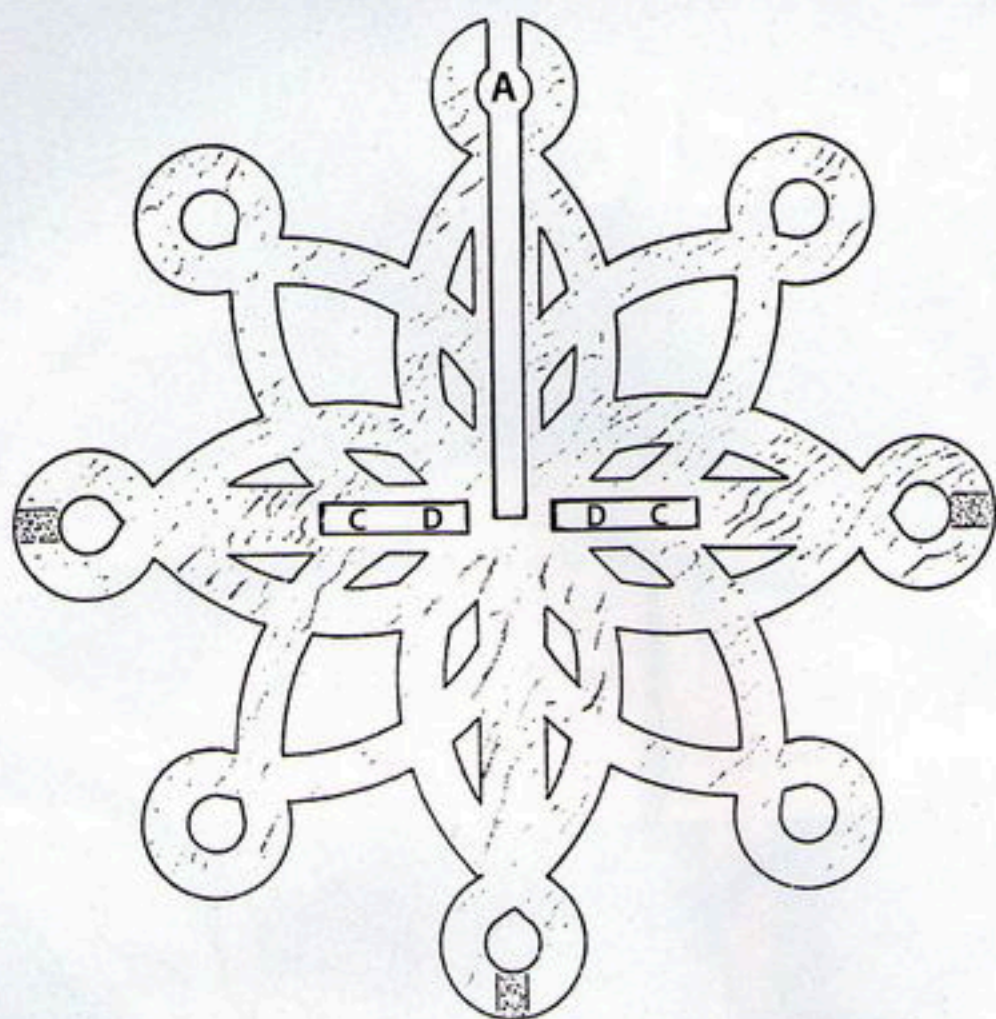


Material thickness

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Free Pattern Download
of 3D SNOWFLAKE ORNAMENT at
www.ScrollSawer.com.



Trophy Buck

Intarsia

Limited pieces and minimal shaping make this great project simpler than you'd expect

by Kathy Wise

This majestic portrait of a whitetail buck is the perfect gift for the hunter or wildlife enthusiast in your life.

For a simpler project, you can make the buck as a silhouette without the oval frame. The deer bust itself is only 34 pieces and is made with cherry, black walnut, wenge, ebony, poplar, and ash. By adding the curly maple background and oval frame, it brings the number of pieces to 46.

Make at least seven copies of the pattern, keeping a master copy for future use. Get started by cutting and grouping pattern pieces together by color.

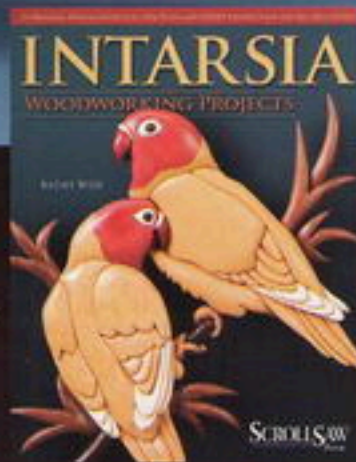


EDITOR'S NOTE

WE'RE PROUD TO ANNOUNCE that *Scroll Saw Woodworking & Crafts* and Kathy Wise have partnered to publish *Intarsia Woodworking Projects*, an original collection of 21 FULL-SIZE pull-out intarsia patterns enclosed in a special bound-in pouch. Available October 2007, *Intarsia Woodworking Projects* will include three step-by-step tutorials—one for each beginner, intermediate, and advanced section—along with a helpful “getting started” chapter covering wood selection, tool use, and project set-up.

—SF

To purchase these patterns individually—if they were available—would cost well over \$150. With the purchase of *Intarsia Woodworking Projects*, you can have them ALL for \$19.95. See page 77 for more details!

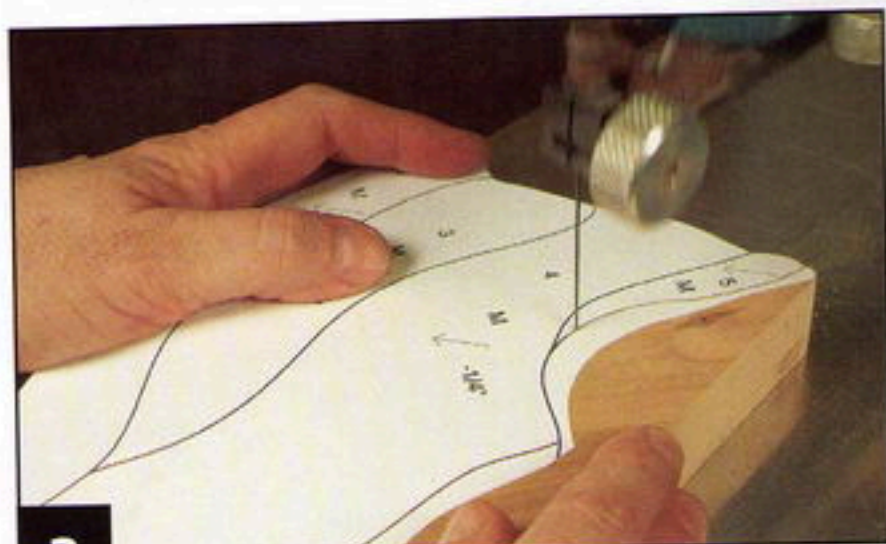




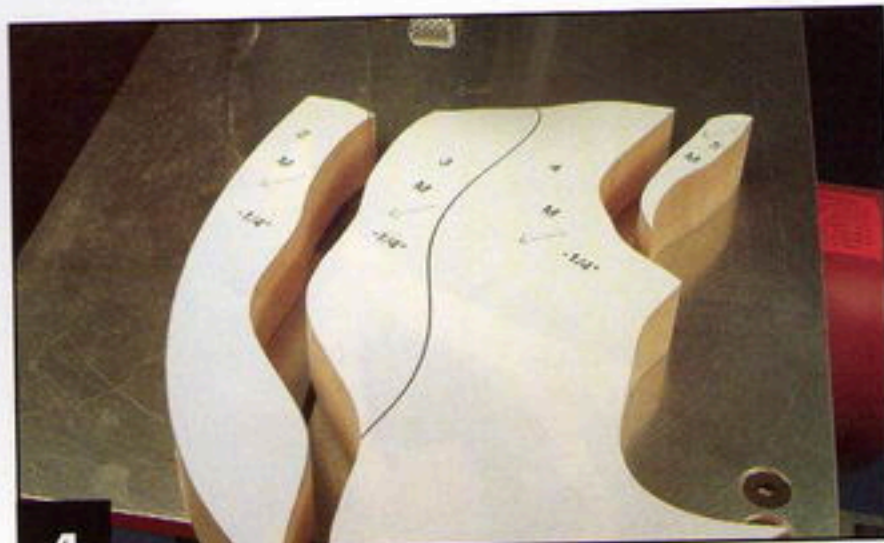
1 **Attach the patterns to contact paper.** Apply spray adhesive to the back of the patterns. Stick the pattern pieces to the shiny side of a piece of clear Contact Brand contact paper and cut out each piece. Use a full-size, complete pattern for the assembly board and the backing board.



2 **Choose your wood for each piece.** Peel and stick the pattern pieces onto your selected stock. Be sure to line up the grain direction. It is important to start with flat wood for a good cut and fit. Plane or sand the wood as necessary before attaching the pattern.



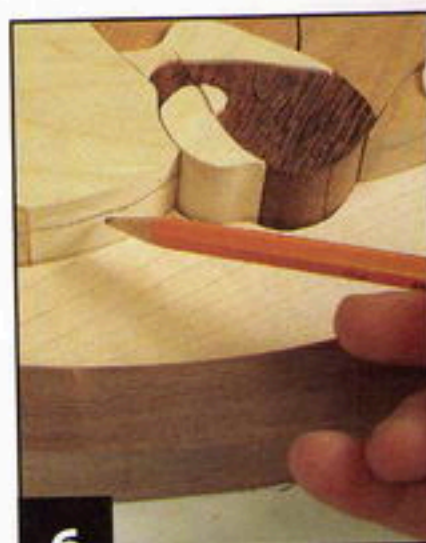
3 **Cut the pieces into large sections.** Use a #5 reverse-tooth blade or your blade of choice. Check one of the cut pieces with a small square to make sure your blade is square to the saw table. Adjust your saw table as needed to get a square cut.



4 **Cut the individual pieces.** Switch to a #2 or #3 reverse-tooth blade. Start at one end of the section and work your way to the opposite side. Number the bottom of each piece with a pencil after cutting it.



5 **Position the pieces on the assembly board.** Attach a full pattern to the plywood. This will serve as the assembly board, and later be used for the backing board. Check each piece for fit, grain pattern, and color. Now is the time to cut new pieces if you want to make any adjustments.

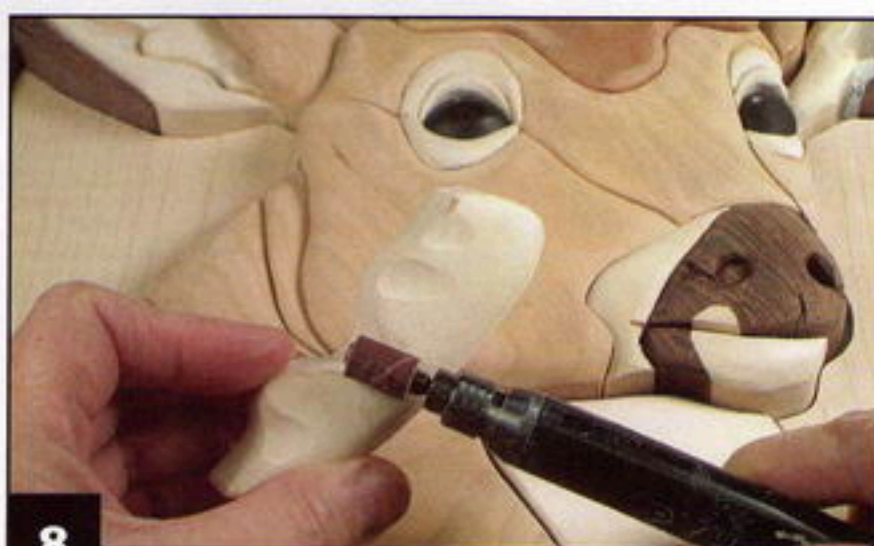


6 **Shape the pieces.** Use the pattern as a guide. Mark where to remove wood with a pencil. Sand and shape each piece with a pneumatic drum sander or a rotary power carver with sanding drums. Protect your fingers with rubber fingertips, and replace the pieces back on the assembly board to check for fit and flow.



7

Shape large sections. Some sections should flow from piece to piece. Temporarily attach these pieces together with a few drops of cyanoacrylate (CA) glue and an accelerator. Sand the contours as desired. Separate the pieces by rapping them against a hard surface to break the glue joints.



8

Lightly round the edges of each piece. I use an air grinder with a $\frac{1}{2}$ "-diameter sanding drum to round the inside edges of the eyes and ears that I can't reach with the pneumatic drum sander. Shim up the eye pieces to the correct height.



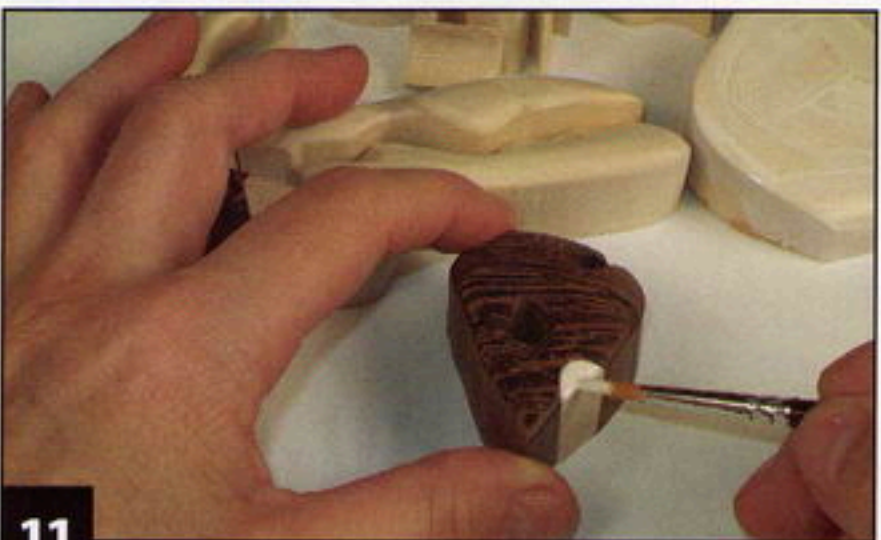
9

Finish sanding all of the pieces. Use a sanding mop. It works quickly and gets into all of the curves and crevices. It also puts a finished sheen on the wood. Dry assemble the pieces on the assembly board and look at it from different angles to spot any pieces that need extra attention.



10

Cut out the backing board. Cut $\frac{1}{4}$ " inside the perimeter line of the pattern attached to the assembly board/backing board. Mark the glue side with a marker. Stain or paint the back and edges of the board. Sand the glue side clean for better adhesion of the intarsia pieces.



11

Apply white gel stain to the white areas. This prevents the wood from yellowing. Since I didn't separate the dark and white pieces of the nose, which were glued together for easier sanding, it requires careful brush work and wiping of the gel stain. Let the stain dry overnight.



12

Tack the sections together. I use CA glue and accelerator. Pre-gluing sections prevents the pieces from shifting while you glue them to the backing board. Make sure the sections fit tightly as you glue. Start at the head, and work down to the neck. Glue the horns to the head, and add the top two background pieces. Finally add the bottom background pieces and the frame pieces.



13

Glue the pieces to the backing board. Spread Titebond glue, or your glue of choice, evenly onto the back of the intarsia. Avoid using too much glue to prevent squeeze out between the intarsia pieces. I use dots of CA glue and accelerator to help "clamp" the pieces together until the wood glue sets. Press down for about a minute until the CA glue adheres. Clamp the pieces to the backing board, and allow everything to dry overnight.

TIP CLEAN OILY WOOD WITH THINNER

I use black ebony for the eyes. The very black wood makes the animals seem alive. But sometimes the pattern won't stay in place on oily or resin-rich woods such as ebony and lignum vitae. Wipe the surface with paint thinner or mineral spirits to remove the oil and the pattern will adhere.



Matching the project to your skill level

The original design that inspired this project is a 4½' x 5' mural, WHITETAIL WOODS, which has nearly 1,100 pieces. The mural took over five months to complete. WHITETAIL WOODS is a stunning project that celebrates the beauty of nature and the fall season.

Trophy Buck Intarsia, featured in this article, is inspired by the buck in the upper left hand corner of the mural. The buck portrait captures the gentle nature of the animal, but is better suited for beginner and intermediate intarsia artists.



14

Apply a clear gel varnish. Brush varnish on the intarsia, and wipe off the excess with a clean cloth. Blow excess gel out of cracks with an air compressor, and wipe up as you go. Use cotton swabs for small areas. Apply two coats according to the manufacturer's instructions, and dry overnight. Apply a clear gloss finish to the eyes for a lifelike look. Trim any overhanging backing board, and retouch the paint. Attach your hanger of choice.

Materials & Tools

Materials:

- 1" x 9" x 16" medium-tone wood such as light cherry (body and head)
- 1" x 4" x 5" medium-dark wood such as dark cherry (head)
- 1" x 7" x 10" white wood such as poplar (nose, eyes, and ears)
- 1" x 5" x 7" black wood such as wenge (nose and ears)
- ¾" x 2" x 2" black wood such as ebony (eyes)
- ¾" x 8" x 16" dark wood such as black walnut (frame)
- ¼" x 15" x 11" white wood such as curly maple (background)
- ¼" x 14" x 19" plywood (assembly board/backing board)
- Roll of clear contact paper
- Spray adhesive
- Titebond glue or wood glue of choice
- Gel natural varnish or spray varnish
- White gel stain

- Black paint or dark stain (backing board)
- Wiping rags
- Hanger of choice
- Cyanoacrylate (CA) glue and accelerator

Tools:

- #2 or #3, and #5 reverse-tooth blades or blades of choice
- Drill and ⅜"-diameter drill bit (hole for eye, optional)
- Pneumatic drum sander
- Mop sander
- Rotary power carver or air grinder with ½"-diameter sanding drum
- Assorted clamps
- Pencil and marker

Pattern for the **Trophy Buck Intarsia** is on the pattern pullout section.



Kathy Wise has been sculpting dogs and animals professionally for more than 25 years. Much of her time is now spent in the wood shop and art studio working on new and exciting designs for intarsia artists. For a free catalog of more than 280 patterns,

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#230, Dachshound Buddies



Birds & Blooms

WALL BASKET

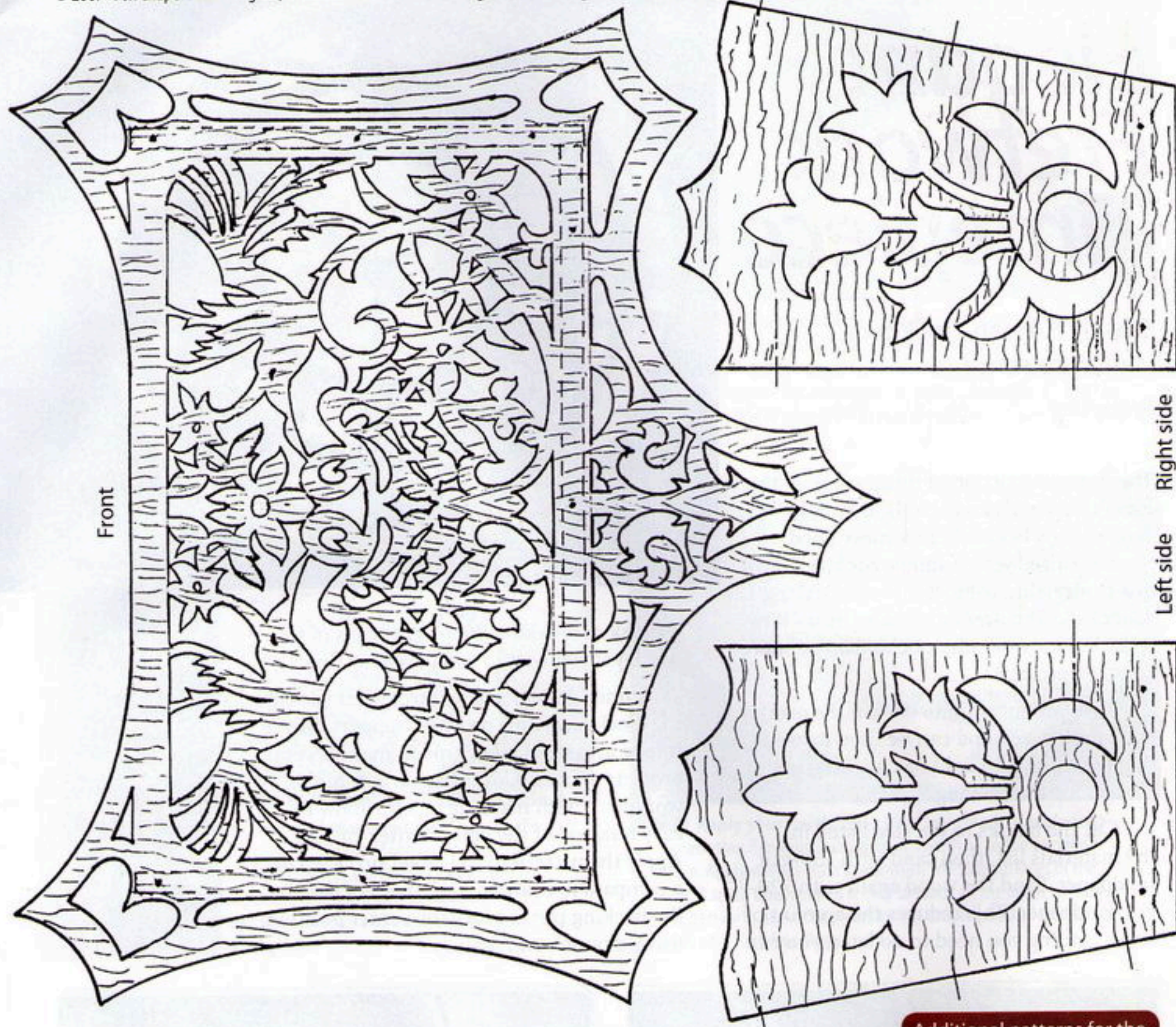
This decorative fretwork doubles as a functional mail holder

*by John A. Nelson
cut by Ben Fink*

Show off your scrolling skills with this intricate, Victorian design. Easy assembly of the fretwork pieces produces an attractive project that functions as a handy place to store important correspondence.

If you plan to stack cut the sides, note that they are mirror images of each other. When assembling the stack, be sure that the surfaces you want to face out are stacked facing each other. This will give you both a left and right side for the front pocket. The front edge of the bottom piece is beveled to match the angled sides. This bevel can be cut on the scroll saw or sanded to shape.

After cutting, sand both sides of each piece. Use the pattern as a guide and assemble with wood glue. Small brads can be used to reinforce the joints. Apply your finish of choice and add a hanger to complete the project.



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John A. Nelson is a prolific designer
and artist. For more of his work, visit
www.foxchapelpublishing.com.

Materials:

- $\frac{1}{4}$ " x $8\frac{1}{2}$ " x $13\frac{1}{2}$ " wood of choice (backing)
- $\frac{1}{4}$ " x 6" x $6\frac{3}{4}$ " wood of choice (front)
- 2 each $\frac{1}{4}$ " x $2\frac{3}{4}$ " x $3\frac{1}{2}$ " wood of choice (sides)
- $\frac{1}{4}$ " x 2" x $4\frac{3}{4}$ " wood of choice (bottom)

- Assorted grits of sandpaper up to 220-grit
- Finish of choice (I use an oil finish and spray lacquer)
- Wood glue
- Small brads (optional)
- Hanger of choice

Materials & Tools

Tools:

- #3 reverse-tooth blades or blades of choice
- Drill with $\frac{1}{16}$ "-diameter drill bit

Elegant Fretwork Timepiece

**Classic Roman clock face
is easy to scroll**

by Sue Mey

The fretwork portion of this project, with roman numerals and scrolls, is simple enough for a beginner to achieve good results. Paired with a simple backing board of a contrasting color, it makes a striking wall clock. The overlay can also be used to replace a store bought mechanism on more complex projects.

I use walnut stain to darken the overlay, but a dark hardwood can be used instead. Maple, beech, and light oak are all good choices for the backing.

Cut the blanks to the size listed in the materials list, then sand with 150-grit sandpaper. Sand the wood again with 320-grit sandpaper. This reduces the amount of hand sanding you need to do later; you run

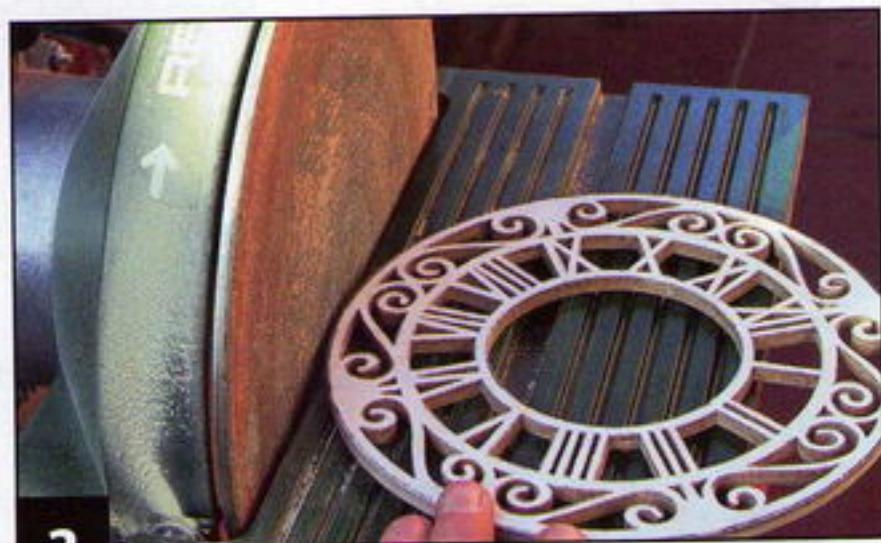
the risk of breaking the fragile parts of the overlay if you wait to sand after cutting.

I find I have better control if I stack-cut the clock face. This provides support for the fragile areas and allows me to make several projects at once. Cover the surface of the workpiece with masking tape to allow for easy removal of the pattern after cutting. Apply the pattern to the taped surface. Use a compass to draw an 8"-diameter circle on the backing piece. Mark the center position, using a punch and mallet.



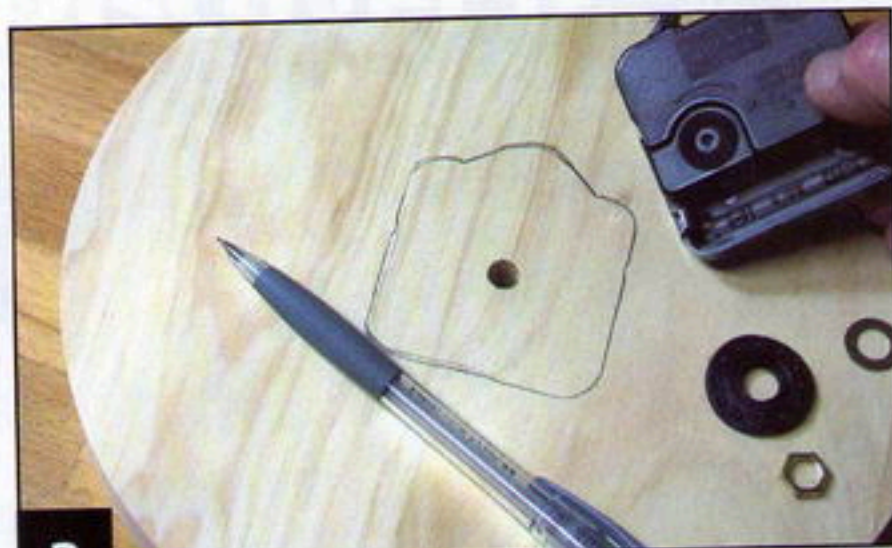
1

Drill the blade-entry holes and cut the frets. Use a $\frac{1}{8}$ "-diameter bit where space allows and a $\frac{1}{16}$ "-diameter bit for tight areas. Remove any burrs from the back by scraping with the grain of the wood. Use a #3 blade and reduce the speed when cutting fragile parts.



2

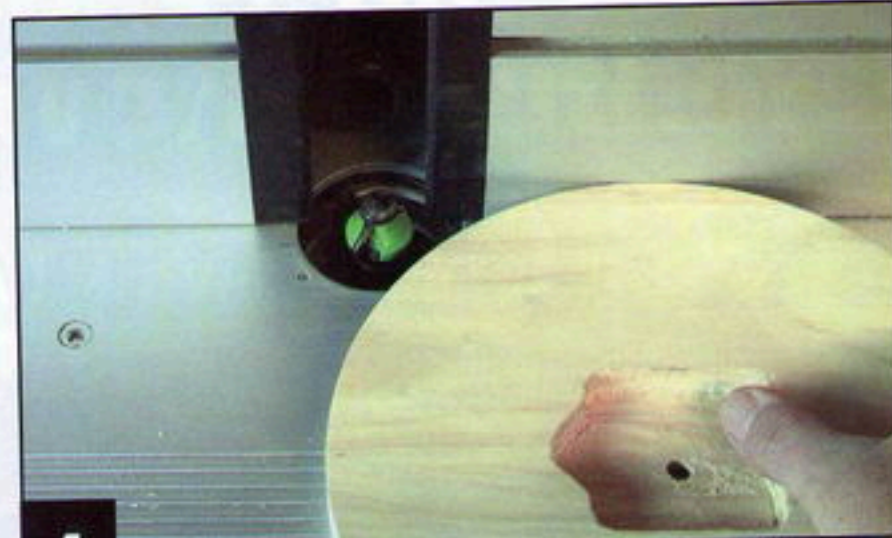
Sand the edges of the work pieces. After all frets are cut, cut the perimeter on the overlay and backing board with a #9 blade. Cut outside the line and use a disc sander to sand up to the pattern lines. Turn the work pieces slowly and evenly against the disc. You can also cut the circles with the scroll saw if you prefer.



3

Prepare the backing board for the clock mechanism.

Drill the center hole for the quartz movement shaft, using the corresponding bit for your shaft diameter. Place the movement in position on the rear of the backing board, and draw the outline with a sharp pencil.



4

Finish shaping the backing board.

Carve an opening for the quartz movement. Create the recess to the proper depth so the shaft will protrude enough in the front. Use carving tools or a router to create the recess. Using a router and a round-over bit, round over the front edge of the backing board.



5

Remove the pattern and masking tape.

Separate the plywood layers by inserting your blade of choice between the two pieces and prying them apart. Sand the pieces by hand with 320-grit sandpaper. Switch to 500-grit sandpaper to get a smooth finish. Be careful not to catch and break any fragile pieces. Remove all of the sanding dust.



6

Apply your finish.

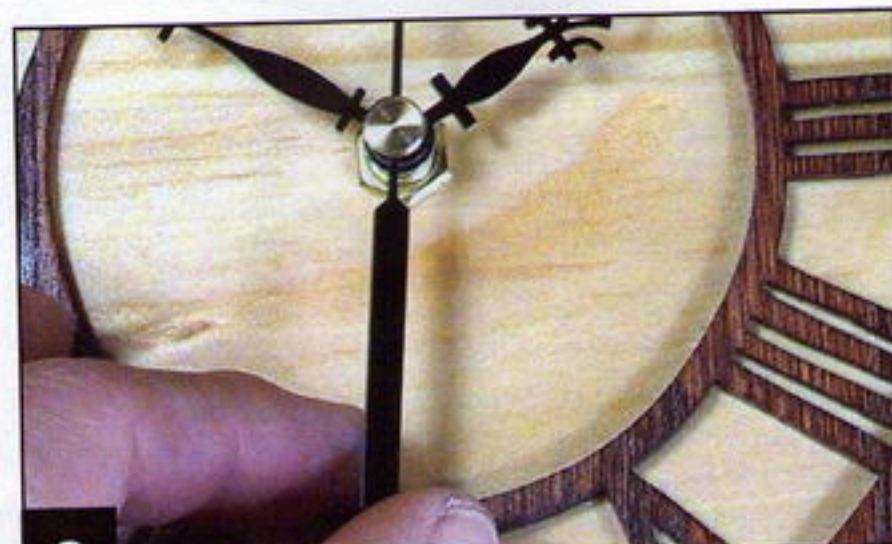
Use a small paintbrush to apply deep-penetrating furniture wax liquid or Danish oil to the backing piece. Apply walnut stain to the front and side surfaces of the face. A small brush makes it easy to reach all the inside surfaces of the fretwork. Allow the pieces to dry, and wipe all of the surfaces with a dry, lint-free cloth.



7

Glue up the clock.

Line up the clock face with the recess on the back. Apply small beads of wood glue to the back of the clock face piece. Position it on the backing board, and clamp it in place. Remove any glue squeeze out with a toothpick. When dry, apply several thin coats of clear spray varnish.



8

Finish assembling the clock.

Attach a saw-tooth hanger to the back. Place the quartz movement in position, and tighten the nut in the front. Insert the clock hands onto the shaft: first the hour, then the minute, and finally the second hand. Insert a battery, and set the correct time.

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TIP ZERO CLEARANCE INSERT

Use a piece of cereal box or shirt cardboard to make a zero clearance insert. Drill a small blade-entry hole in the cardboard, and tape it to your saw table with some masking tape. The zero clearance insert helps support fragile areas and reduces the risk of breaking those parts.



Sue Mey lives in Pretoria, South Africa. To see more of her work, visit www.geocities.com/meydenhart.

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Scroll Saw Woodworking & Crafts
Designer: Sue Mey

Materials:

- 1" x 9" x 9" light colored hardwood of choice (backing)
- 1/8" x 8" x 8" Baltic birch plywood or hardwood of choice (overlay)
- Masking tape
- Spray adhesive
- Thin, double-sided tape (optional)
- Sandpaper – assorted grits
- Wood stain – walnut (optional)
- Deep-penetrating furniture wax liquid or Danish oil
- Lint-free cloth
- Wood glue
- Clear spray varnish
- Saw-tooth hanger
- Quartz movement and hands

Tools:

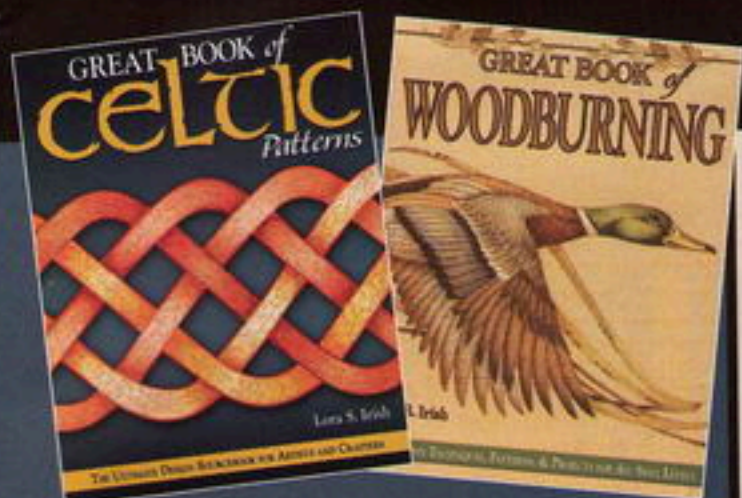
- 3 and #9 reverse-tooth blades or blades of choice
- Drill press with 1/16"-, 1/8"- and 5/16"- diameter bits (size of the larger bit may vary to match the shaft diameter of quartz movement)
- Disc sander and palm sander
- Router with round-over bit
- Punch and mallet
- Sharp pencil
- Clamps, assorted sizes
- Assorted paint brushes of choice to apply the finish

Materials & Tools

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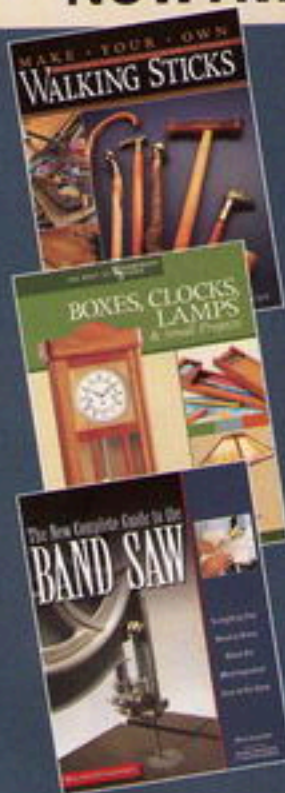
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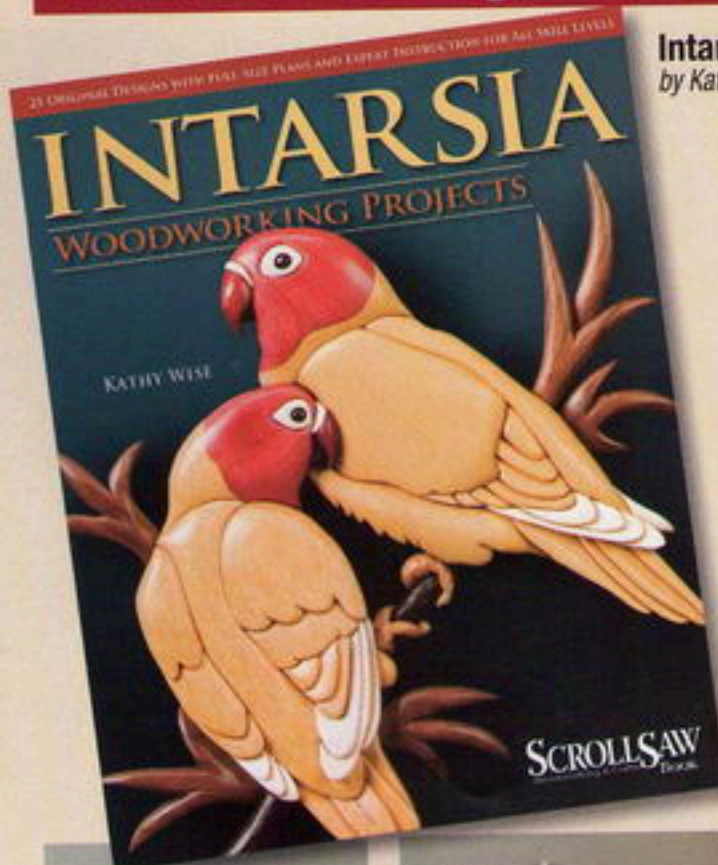
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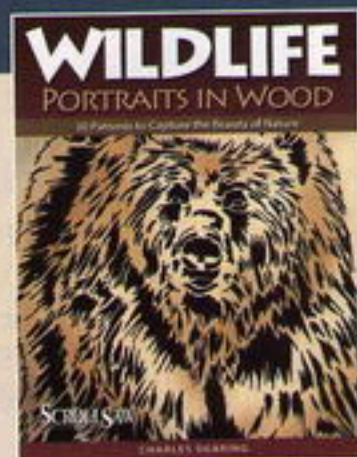
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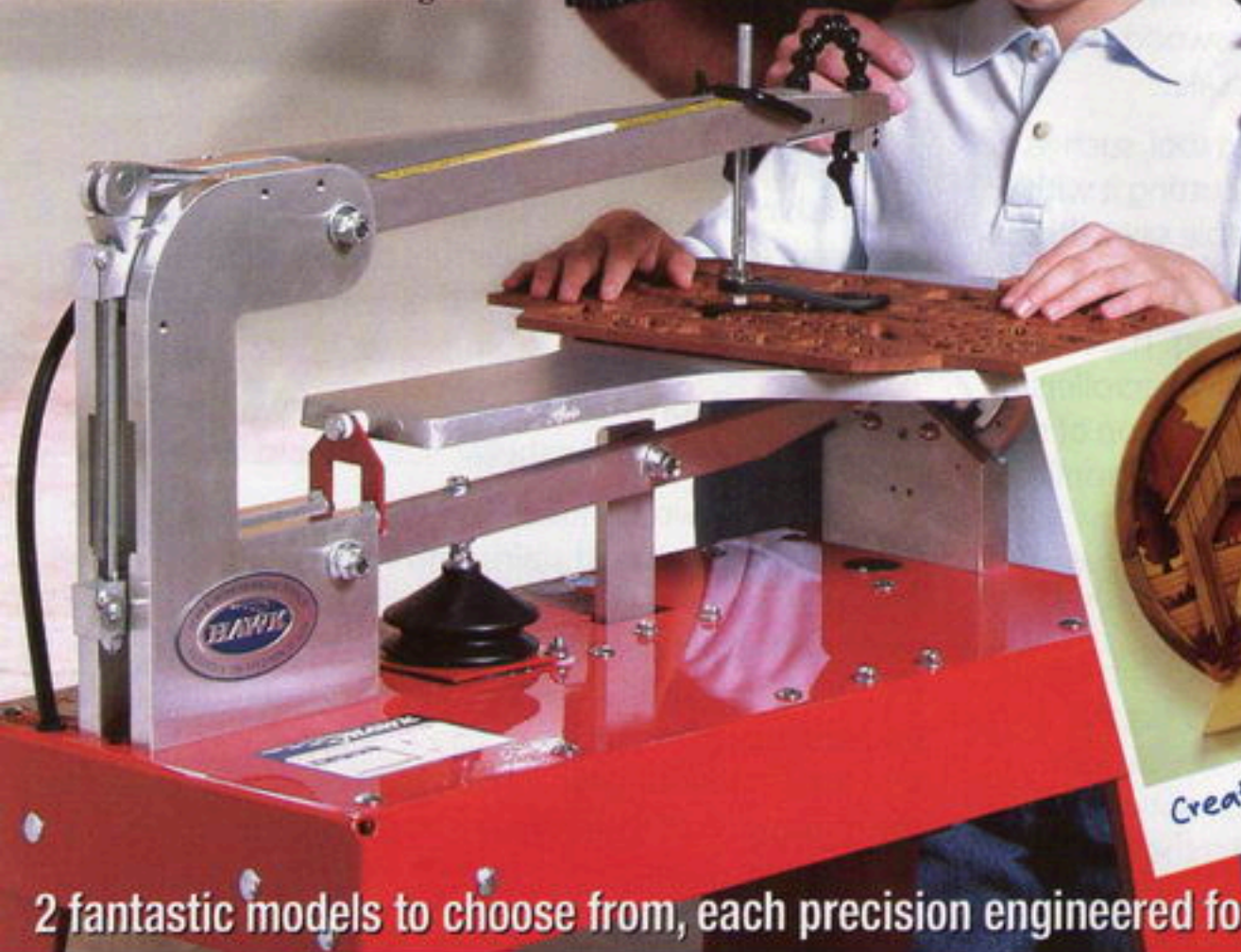
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Black Cherry

By Bob Duncan

Black cherry is one of the most beautiful and valuable hardwoods. The rich, reddish-brown color of the heartwood looks wonderful with an oil finish. But cherry is not an easy wood to work with. The natural "sugars" in the wood that make it very smooth and soft-looking also make it easy to burn when cutting or routing. Those same compounds make it susceptible to blotching if you apply a stain or dye. In the end, the beautiful grain, rich color, and smooth finish make it well worth the extra work.

Machining

Black cherry is right in the middle of the domestic hardwoods when it comes to hardness. According to the *Woodworkers Pocket Reference*, cherry weighs in at 950 on the Janka hardness scale, more than twice as hard as basswood. It is close to black walnut, which is at 1010 on the scale.

Cherry cuts cleanly when you use a bladed tool, such as a chisel, knife, or plane, and sands well. When cutting it with a power saw (scroll saw, band saw, or even a table saw), the wood tends to burn when you cut.

There are a few ways to deal with the burning. The first is to use some sort of tape on top of the wood. Many scrollers use clear packaging tape on top of the wood, or on top of the pattern glued to the wood. All tapes have a lubricant applied to the top surface to prevent each successive layer from permanently sticking to the next layer. This helps to lubricate the saw and alleviates burning.

The second way to prevent burning is to use a skip-tooth blade in the largest size that you can comfortably cut the design with. Do not use a reverse-tooth blade. The design of a skip-tooth blade helps to force the sawdust out of the kerf, which cuts down on the heat generated by the cutting process. The up-pointing bottom teeth on a reverse-tooth blade tend to trap the sawdust and increase the heat.

Practice on scrap wood to determine the best saw speed and feed rate for the thickness of wood you are using. If you are not feeding the wood into the blade fast enough, the blade will continue to move up and down in one spot and will burn the wood in that area. But if you feed too fast, you will bow the blade, and the accuracy of your cut will suffer.

Another way to minimize burning is to use the thinnest wood you can. The heat that builds up in a piece of 1/4"-thick wood is less than the heat that builds up in a 1"-thick piece.

The burn marks can be sanded off. Just be sure not to change the shape of your piece when sanding.

Finishing

Cherry sands to a smooth surface, and takes oil or natural finishes well. But staining or dyeing the wood can be difficult. Most of

the time, cherry is stained or dyed to disguise the lighter sapwood or to match up several different tones of wood used in one project. The easiest way to avoid the staining problem is to choose wood in the same tone that will not need to be stained. If staining does become necessary, Teri Masaschi, author of *Foolproof Wood Finishing*, offers a few tips.

With any finishing procedure, always make a start-to-finish sample in a piece of wood cut from the same wood you are finishing. That will tell you in advance if you are going to experience any difficulties. Be sure to choose a big enough sample that you can see if any problems will happen.

The best way to prevent blotching in any wood is to use a size of some sort. According to Teri, the two easiest sizes to use are a glue size and a shellac size or sealcoat.

Glue sizes work with oil-based stains. Shellac works with oil or water-based stains, and water or alcohol-based dyes. To make a glue size, combine one part white glue with three parts warm water. Brush the size onto the sample and let it dry. Then apply your stain of choice according to the manufacturer's instructions. The watered-down glue soaks into the wood a little bit and provides a barrier that restricts the absorption of the stain—so all the parts of the wood absorb stain evenly.

Shellac seal coats are usually done with one pound of de-waxed shellac flakes mixed with 8oz of denatured alcohol. Brush the shellac mixture onto the wood, allow it to dry, and sand it lightly with 300-grit sandpaper. Then apply your stain or dye of choice according to the manufacturer's instructions. The shellac also seals the wood to prevent the stain from absorbing at different rates in different areas.

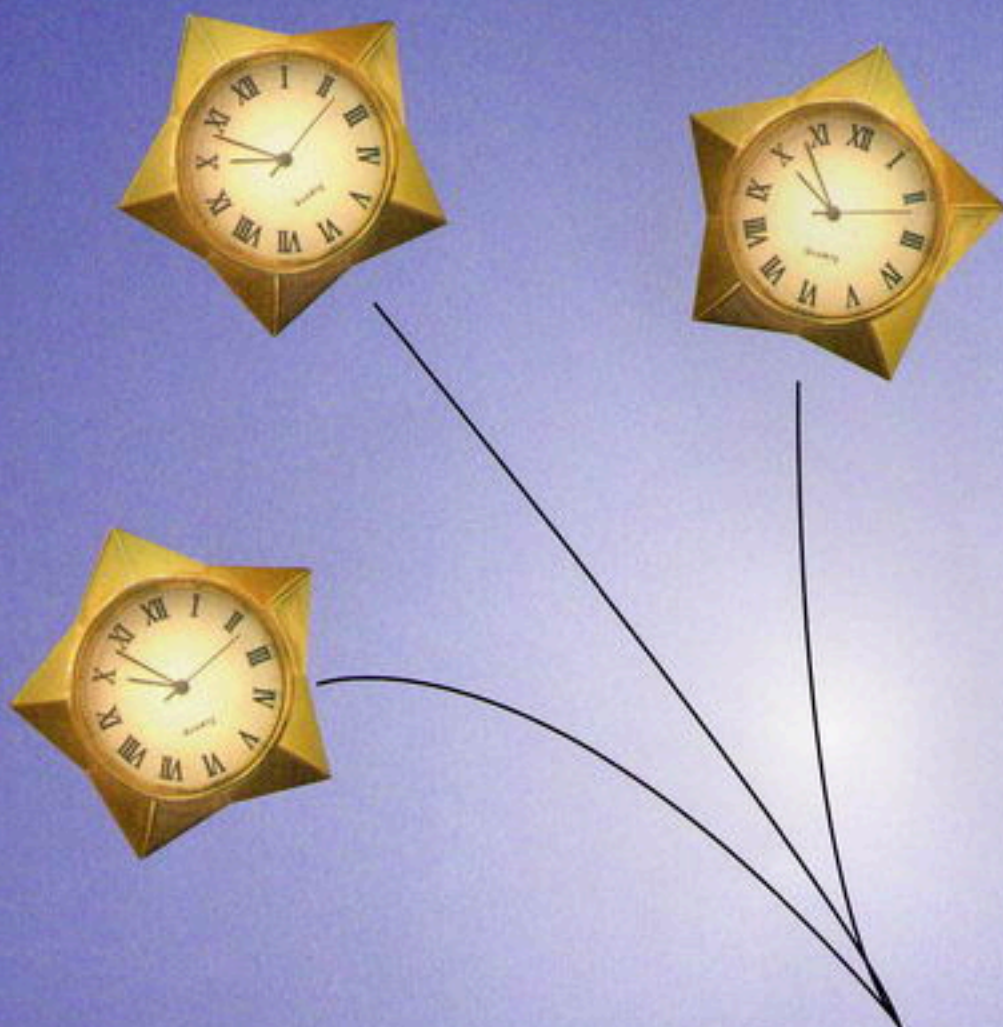
At a glance

Cherry is a rich wood with a beautiful color and grain that sands well. It is more difficult to cut and finish, but the end results are worth the extra effort.



Cherry adds warmth and depth to the windmill clock featured on page 48.

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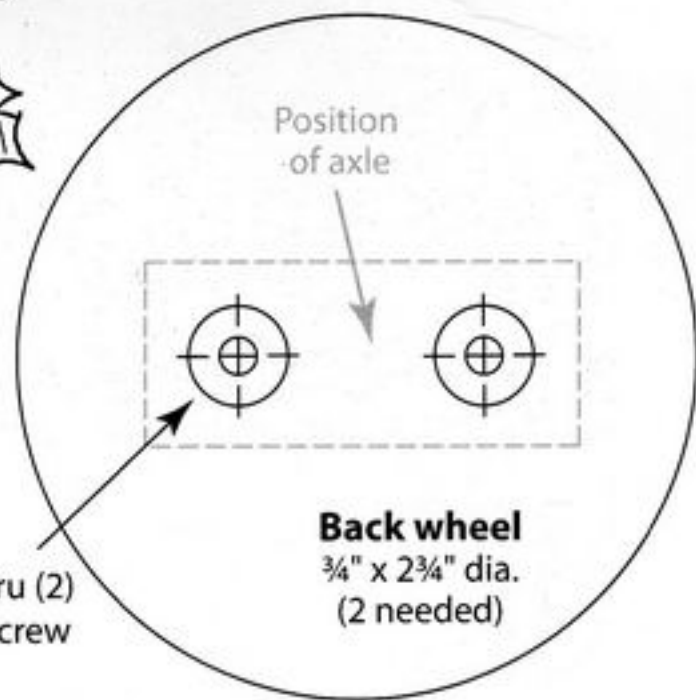
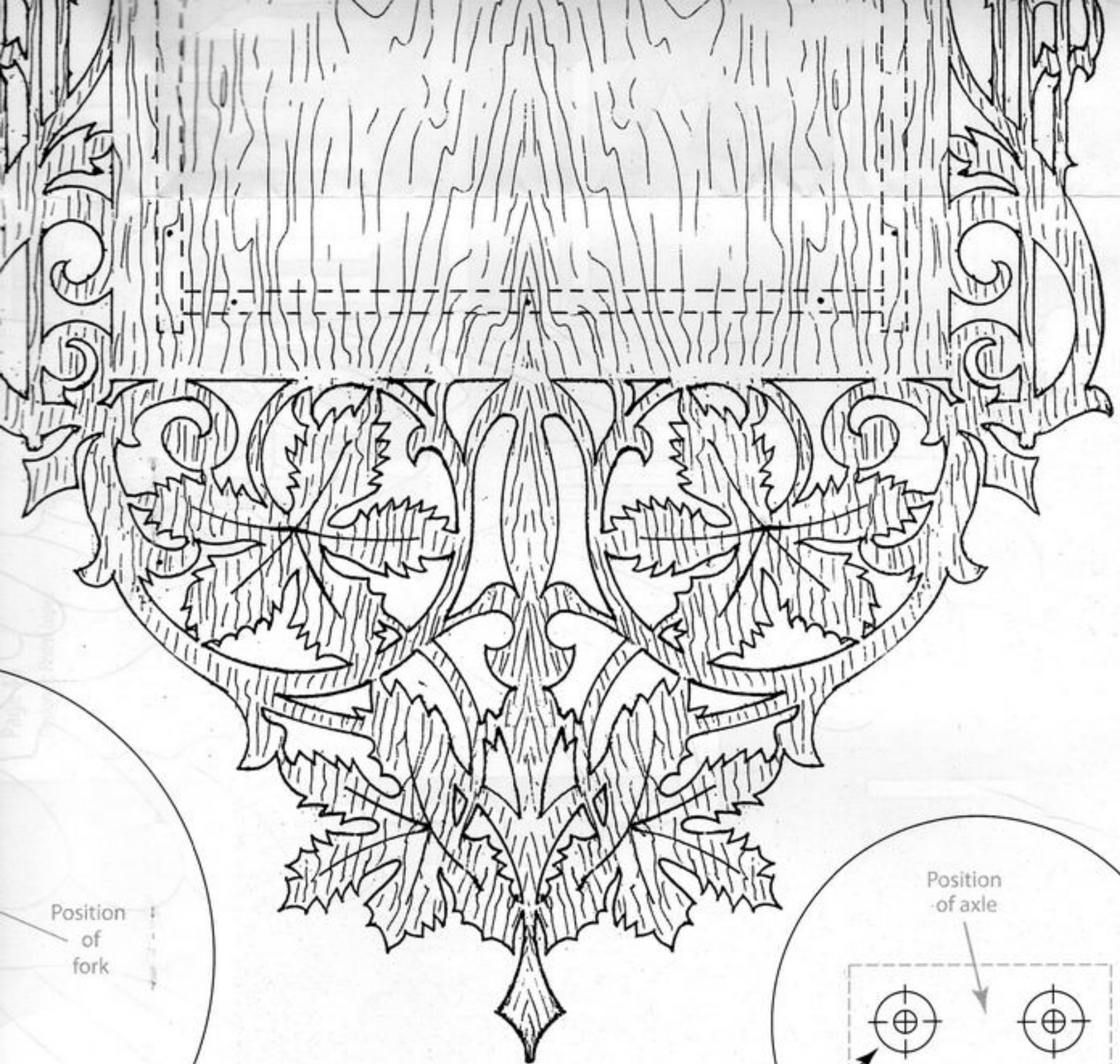
Tricycle Squirrel Feeder.....	30	Trophy Buck Intarsia.....	68
Canadian Geese.....	44	Birds & Blooms Wall Basket	72
Windmill Clock.....	48		

Birds & Blooms Wall Basket

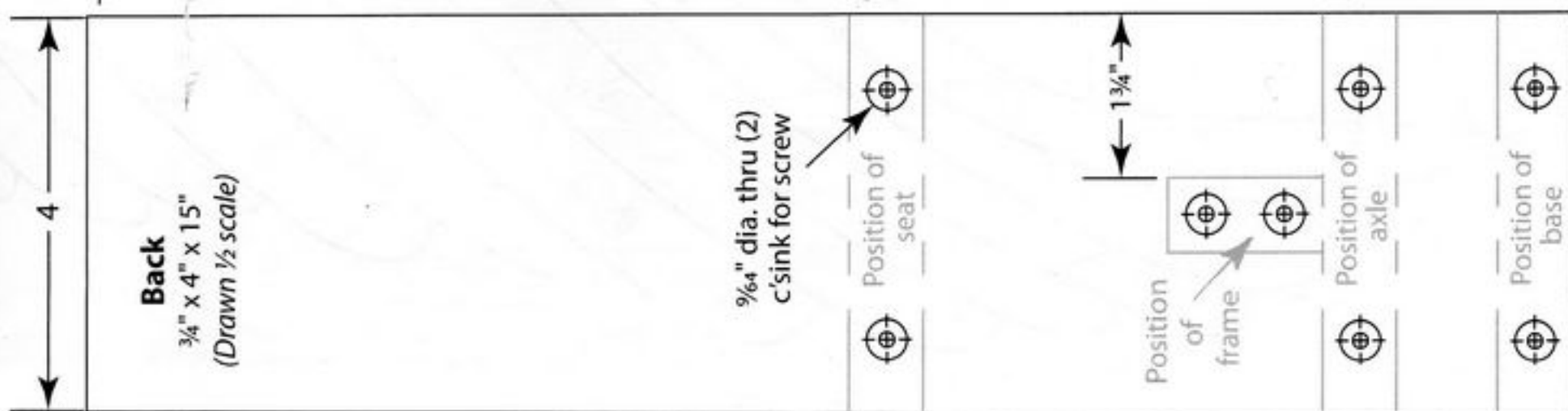
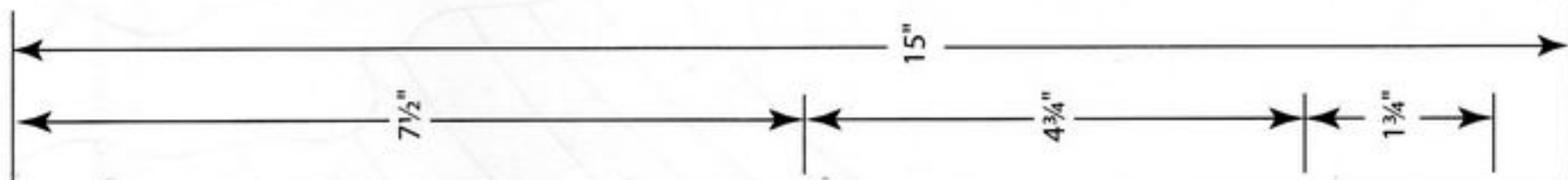
Page 72

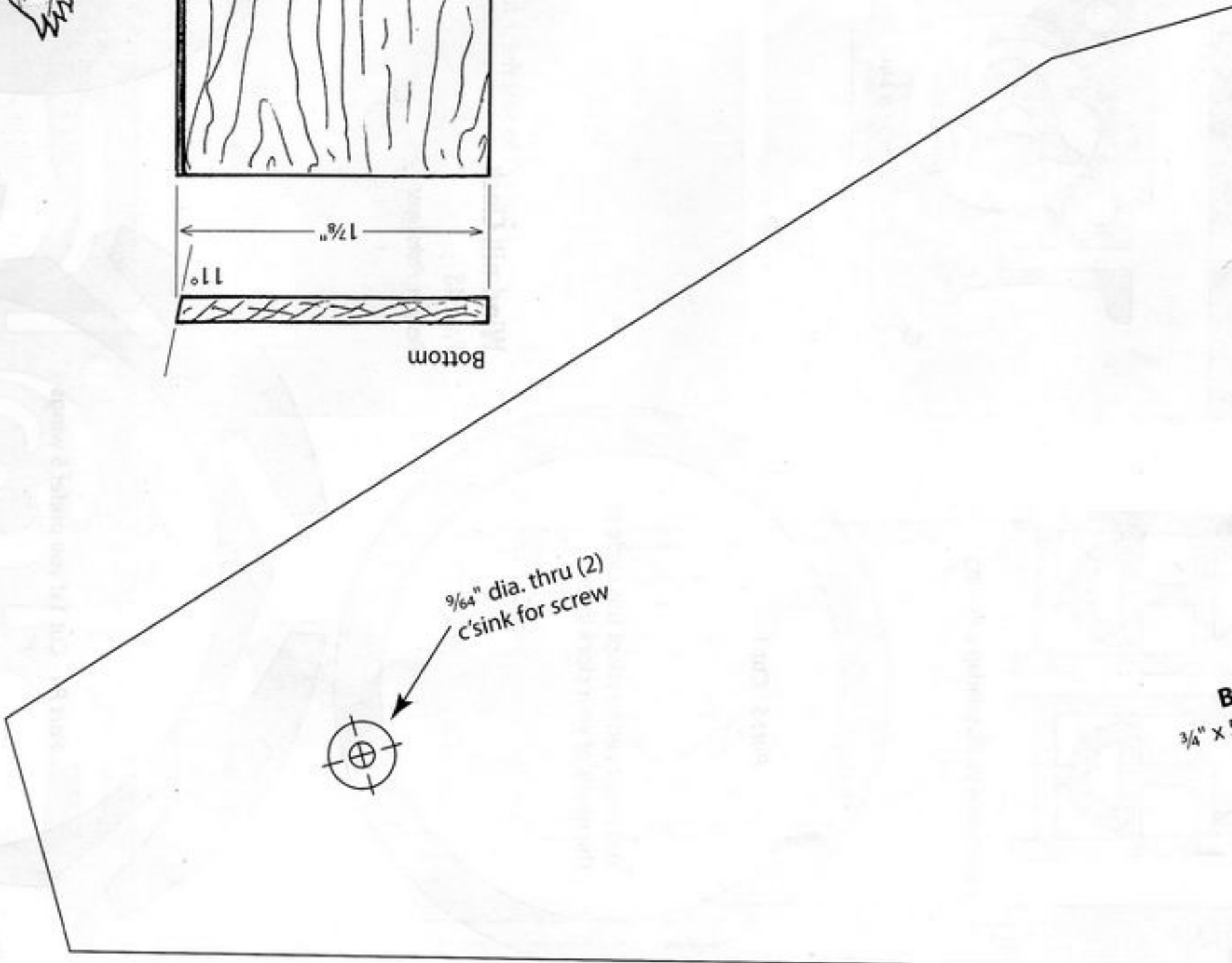
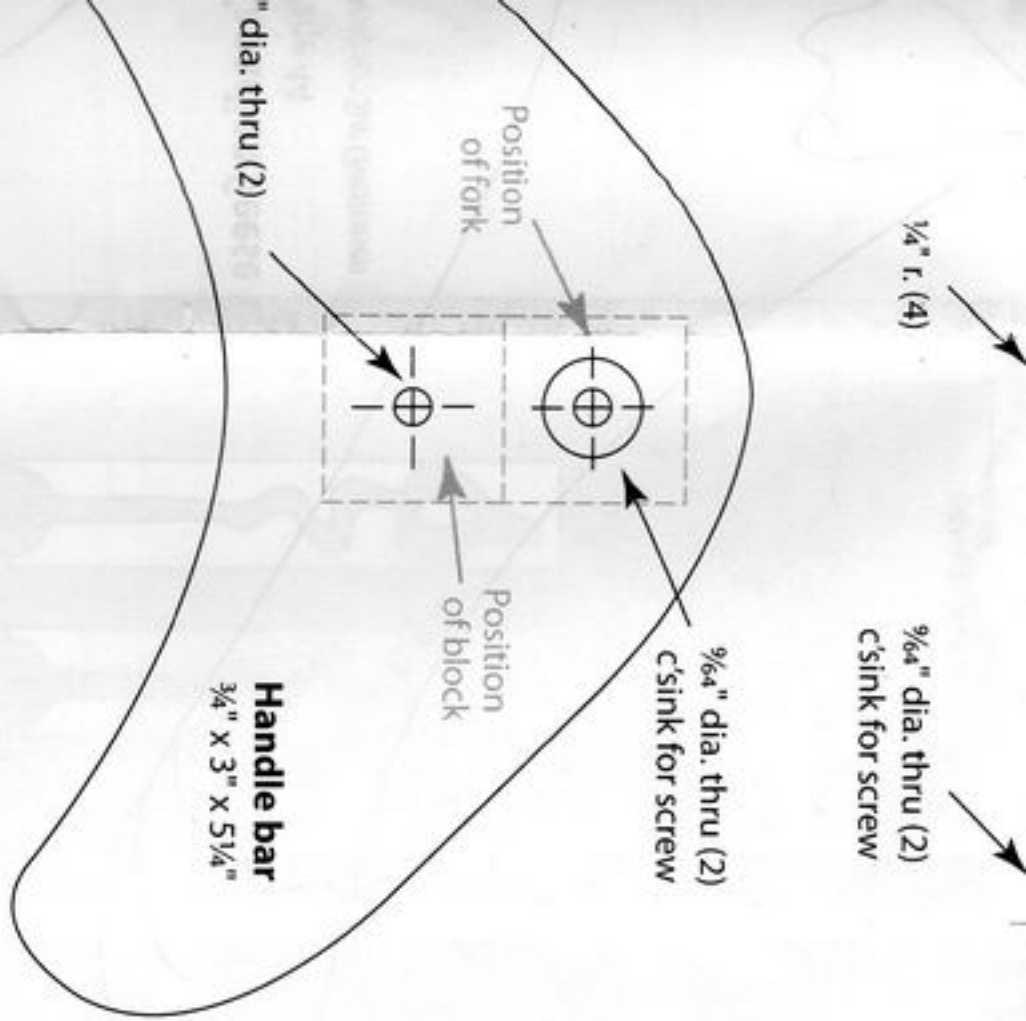
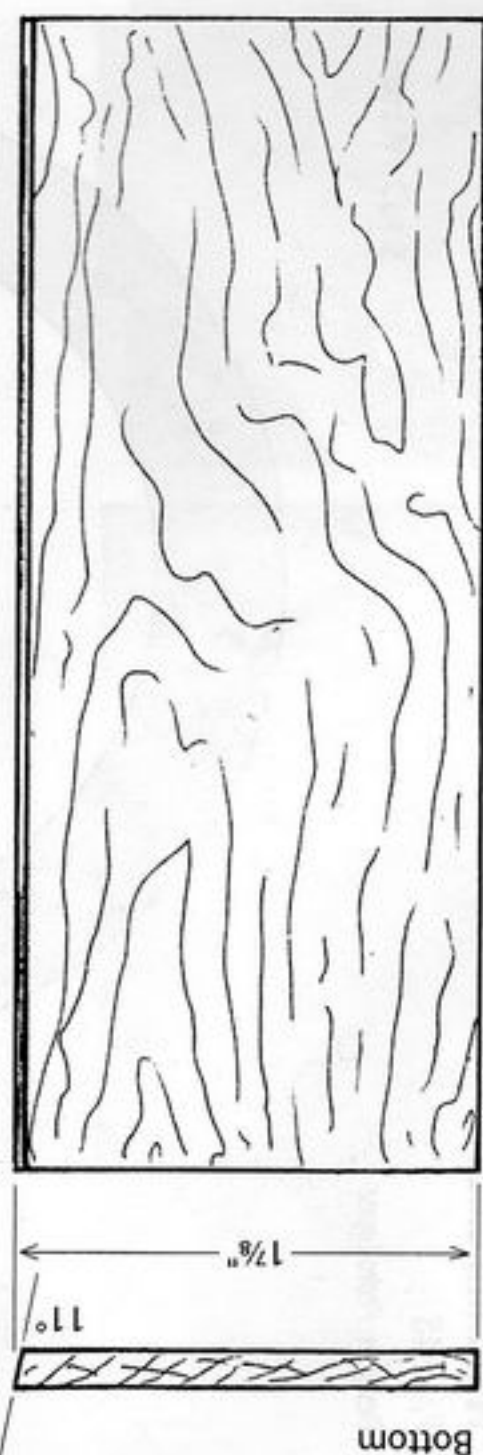
Designer: John A. Nelson





$\frac{9}{64}$ " dia. thru (2)
 c'sink for screw





Back
 $\frac{3}{4}$ " x 4" x 15"
(Drawn $\frac{1}{2}$ scale)

4

Front wheel
 $\frac{3}{4}$ " x 4" dia.

Position
of
fork

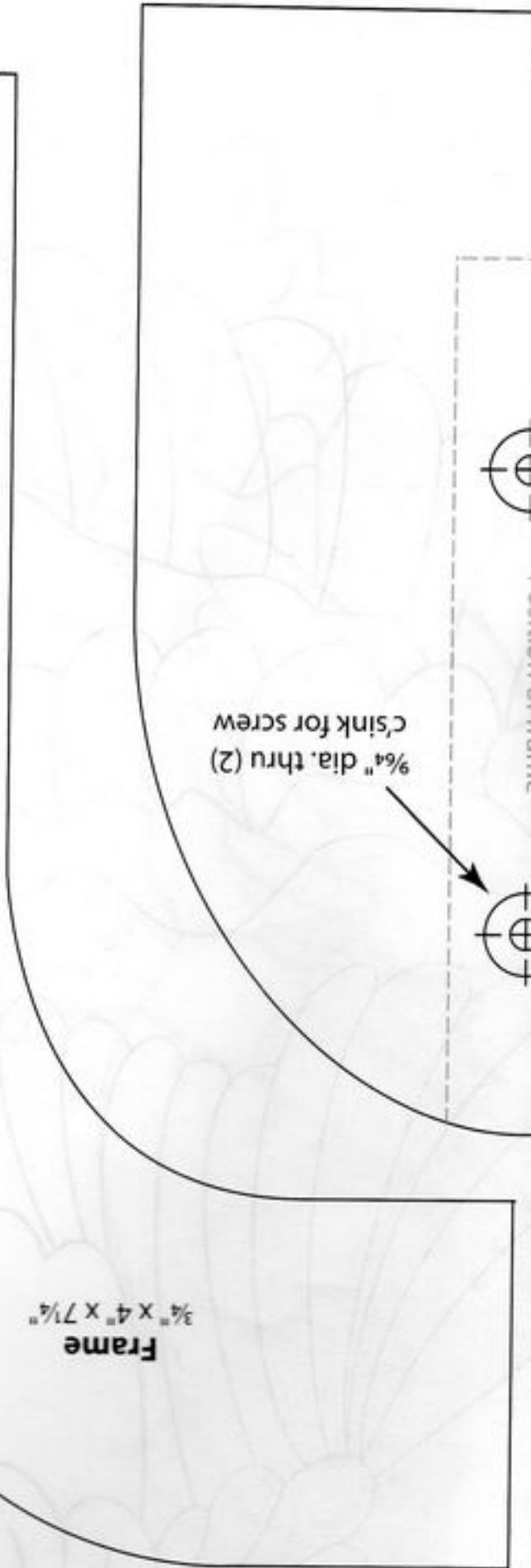
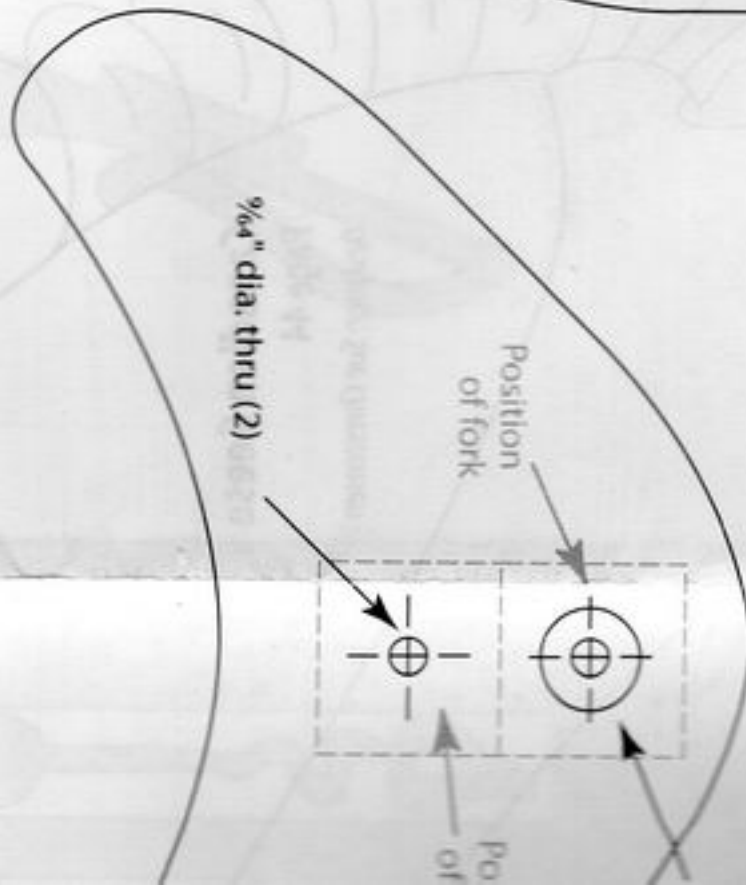
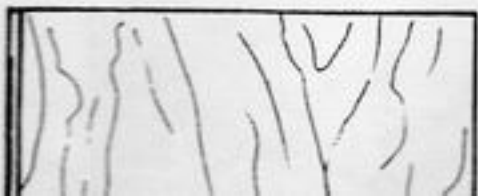
Frame
 $\frac{3}{4}$ " x 4" x 7 $\frac{1}{4}$ "

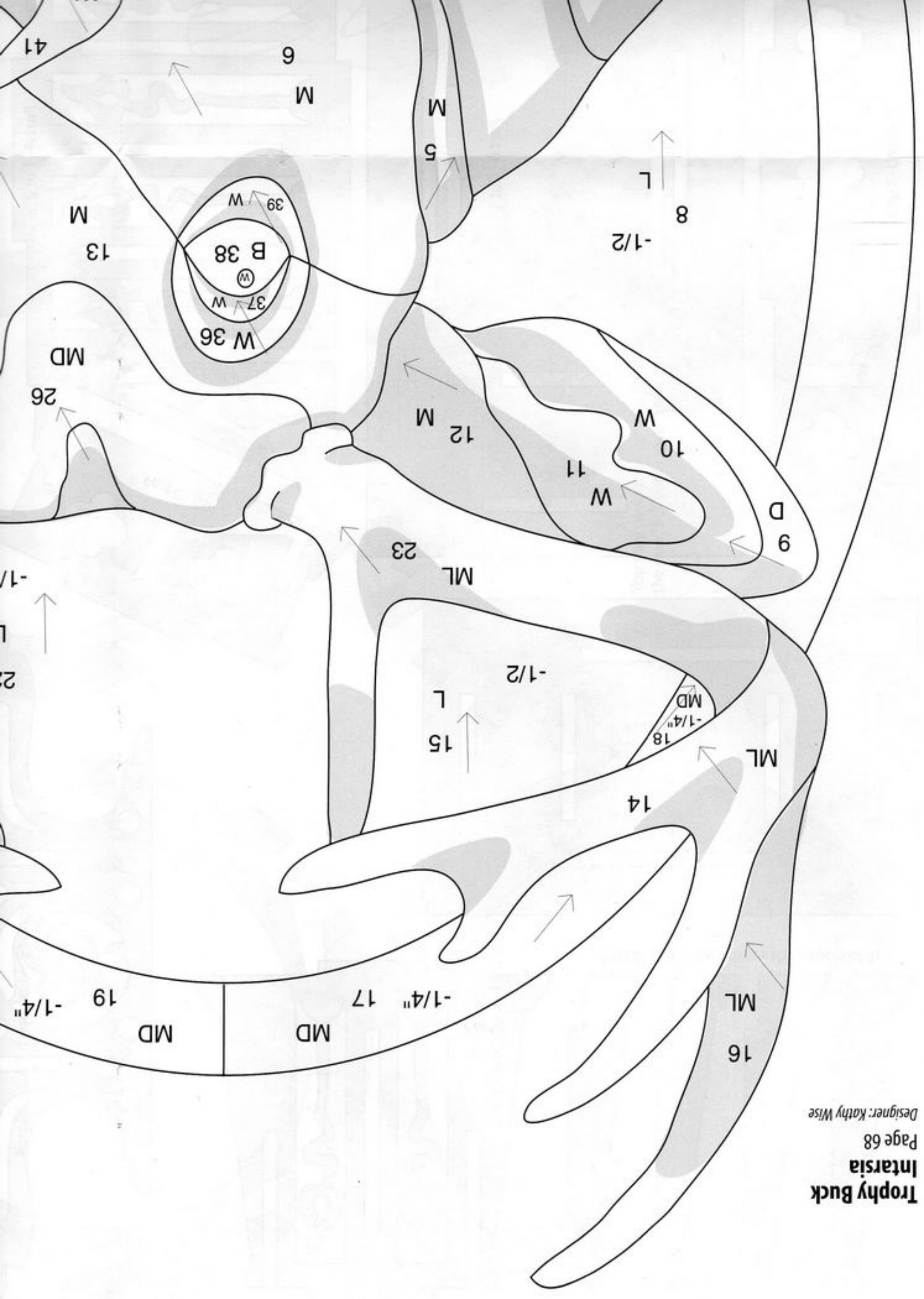
$\frac{5}{64}$ " dia. thru (2)
C'sink for screw

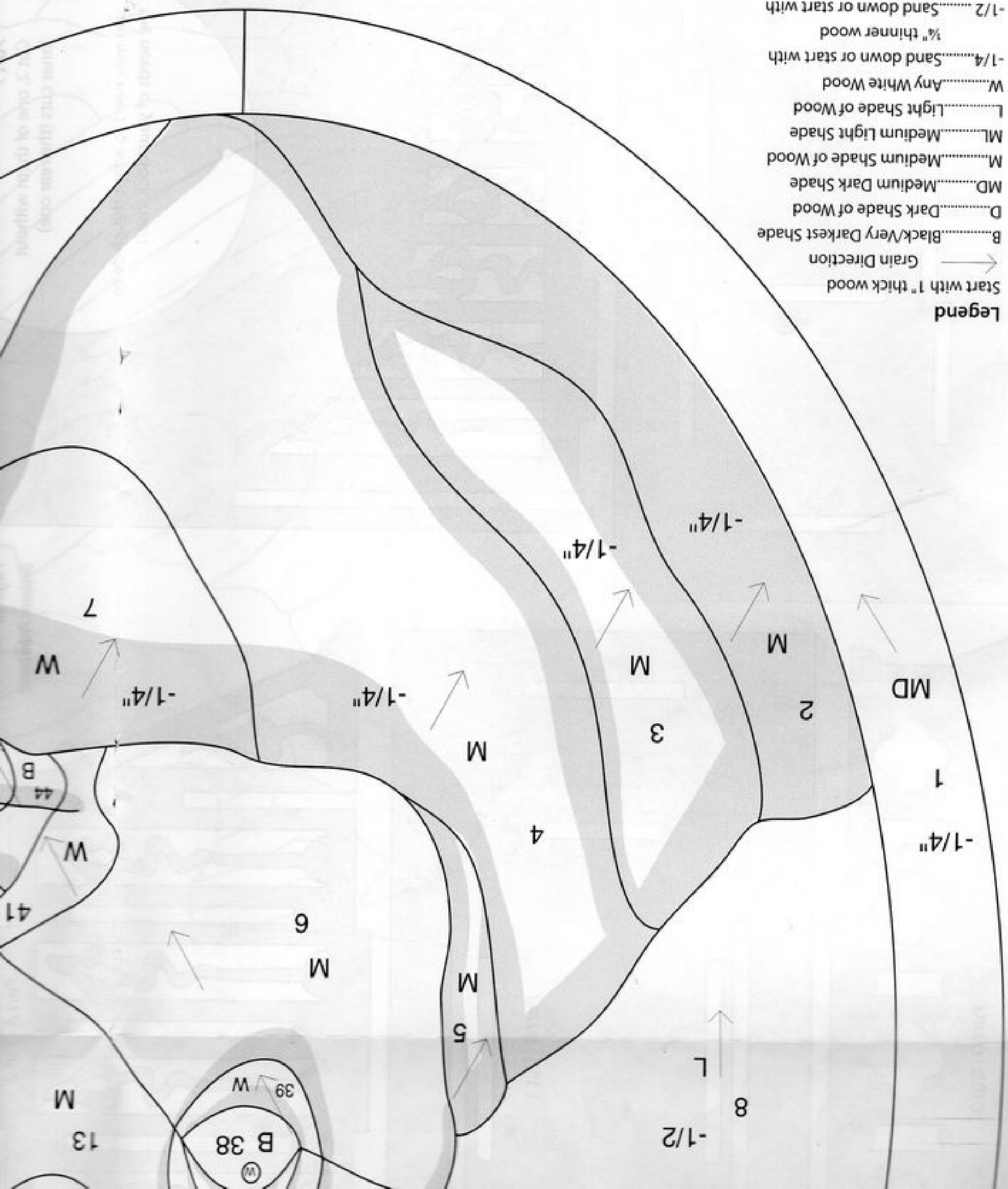
$\frac{5}{64}$ " dia. thru (2)

Position
of fork

$\frac{1}{4}$ " r. (4)



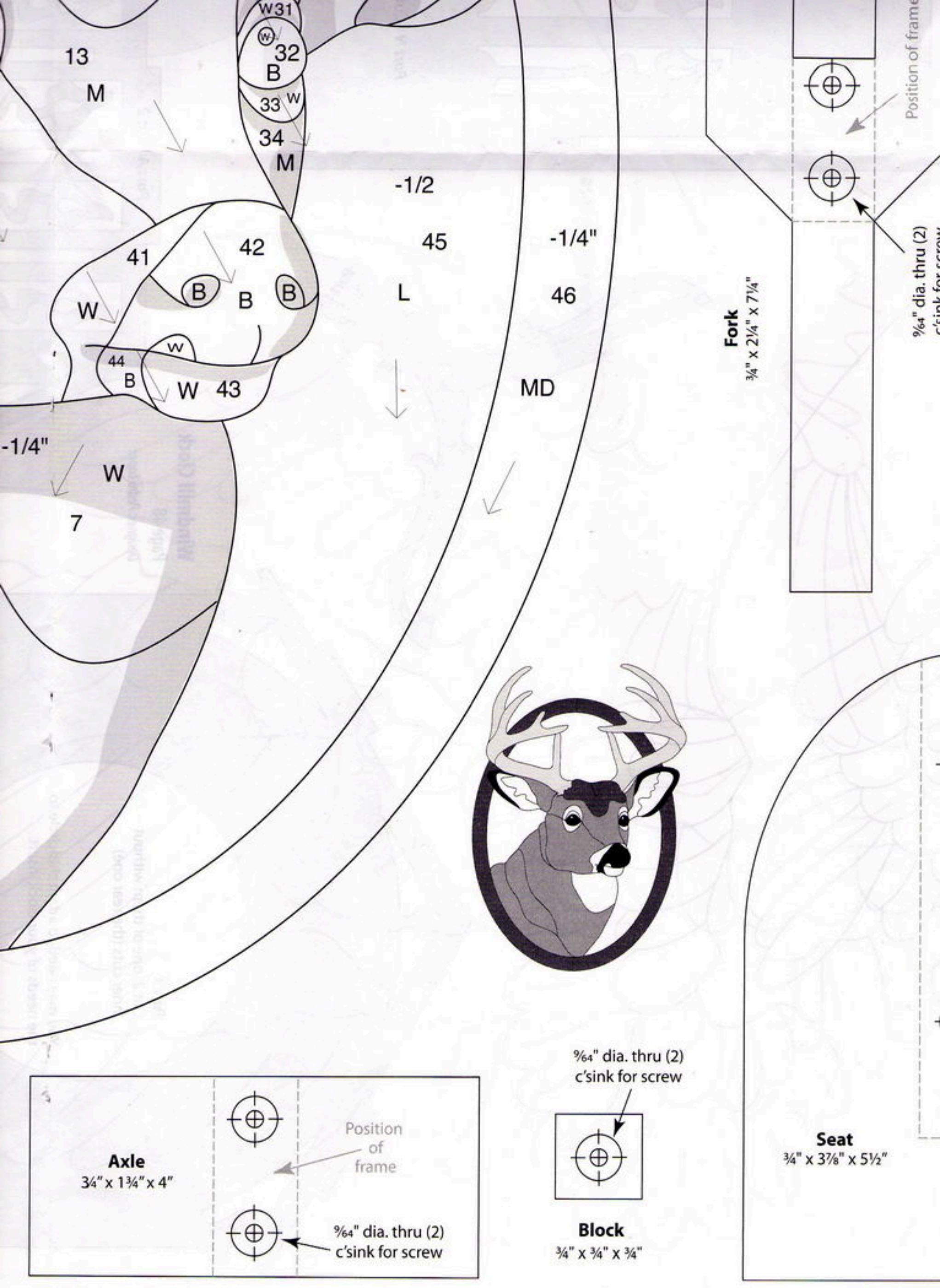




Legend

- Start with 1" thick wood
- Grain Direction
- B.....Black/Very Darkest Shade
- D.....Dark Shade of Wood
- MD.....Medium Dark Shade
- M.....Medium Shade of Wood
- ML.....Medium Light Shade
- L.....Light Shade of Wood
- W.....Any White Wood
- 1/4.....Sand down or start with 1/4" thinner wood
- 1/2.....Sand down or start with 1/2" thinner wood
- Shaping Guide

3/4" x 1 3/4" x
Axle



13
M

31 W
32 B
33 W
34 M

-1/2

45

-1/4"

46

MD

Fork

3/4" x 2 1/4" x 7 1/4"

9/64" dia. thru (2)
c'sink for screw

Position of frame

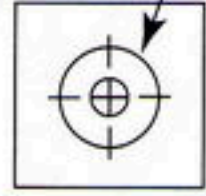
-1/4"

W

7



9/64" dia. thru (2)
c'sink for screw



Block

3/4" x 3/4" x 3/4"

Seat

3/4" x 3 7/8" x 5 1/2"

Axle

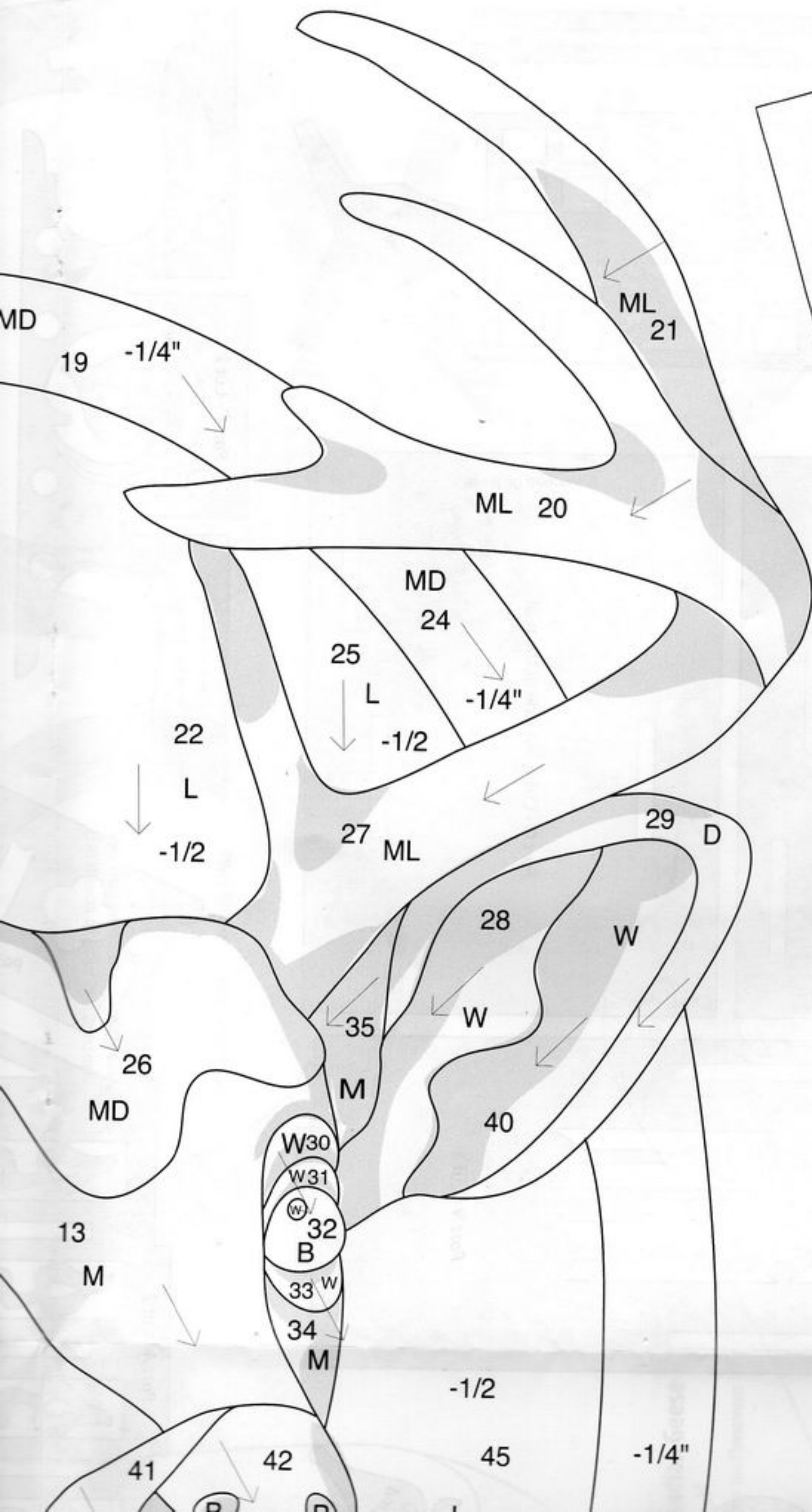
3/4" x 1 3/4" x 4"



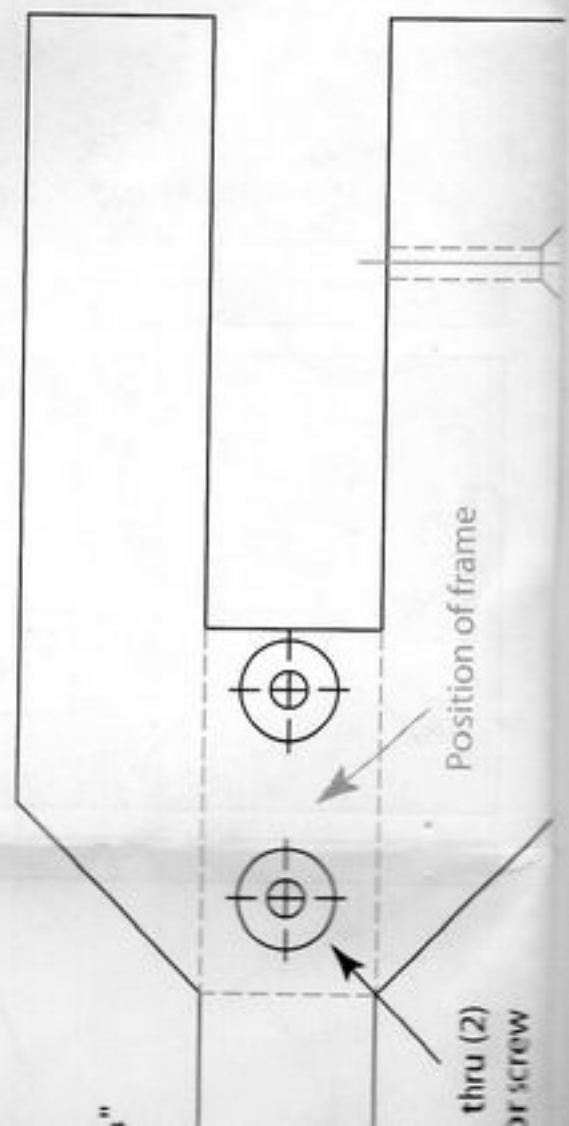
Position
of
frame

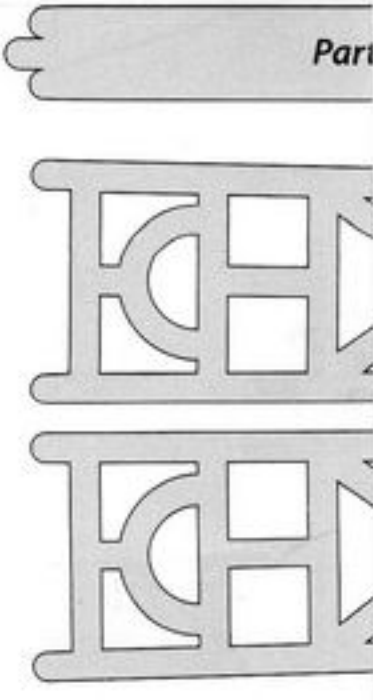


9/64" dia. thru (2)
c'sink for screw



8/56 X 1/2
as



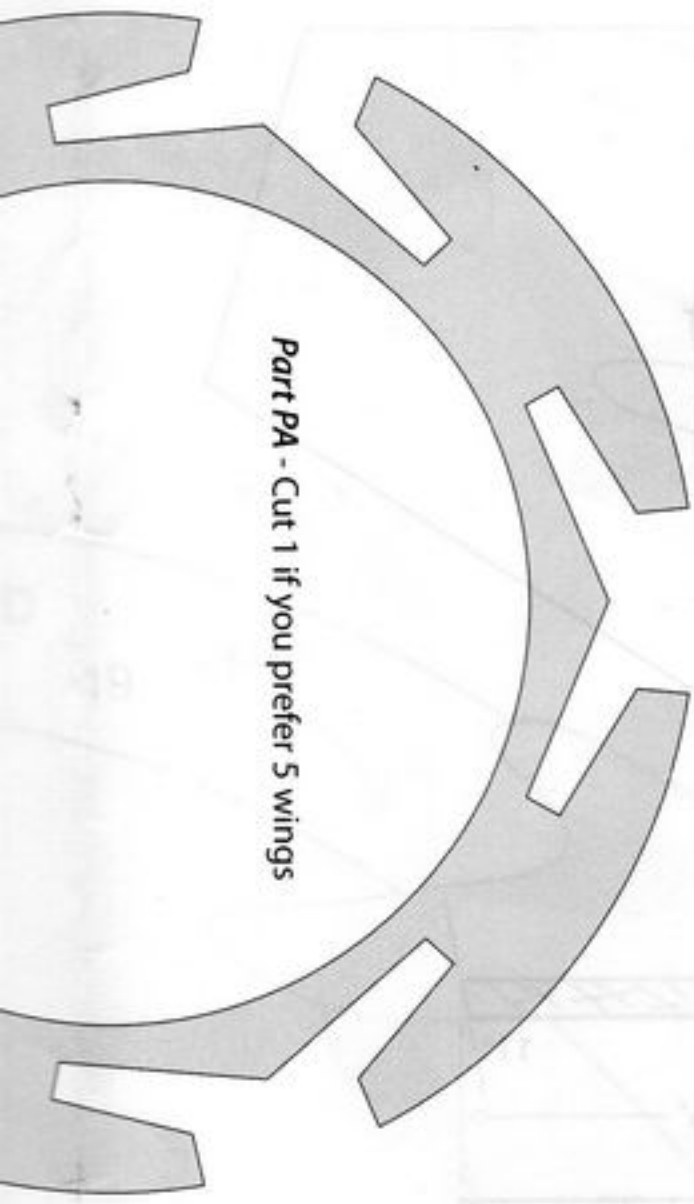


Cut 4 or 5 depending on your choice

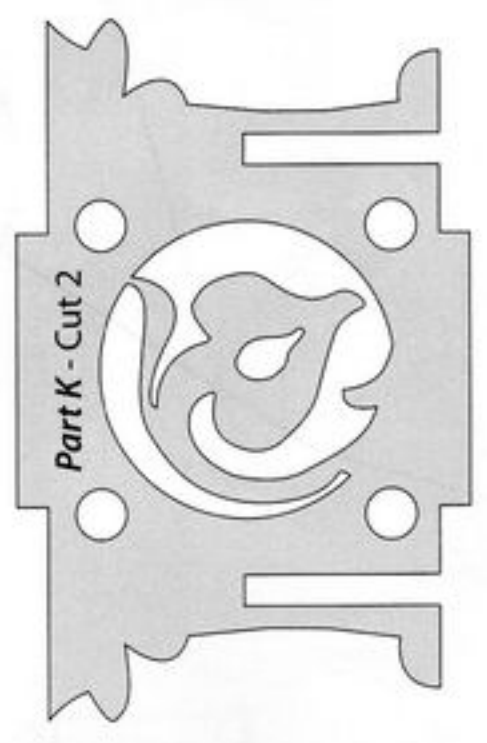


Part S - Cut 1

You may need to adapt this circle to the needs of your clock insert



Part PA - Cut 1 if you prefer 5 wings

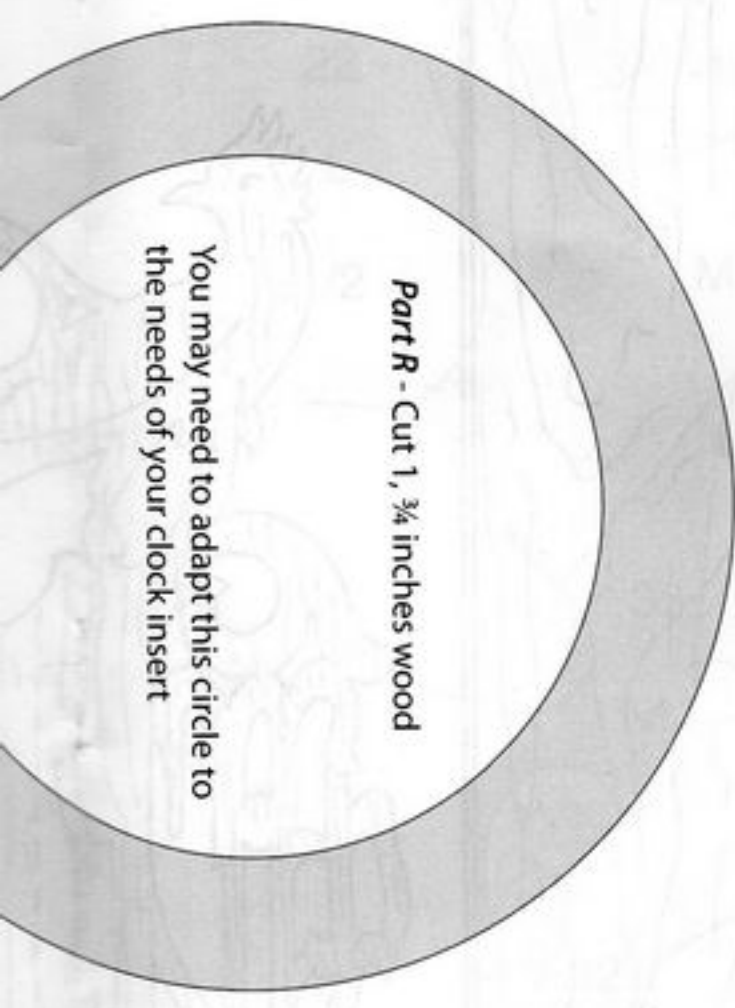


Part K - Cut 2

Windmill Clock

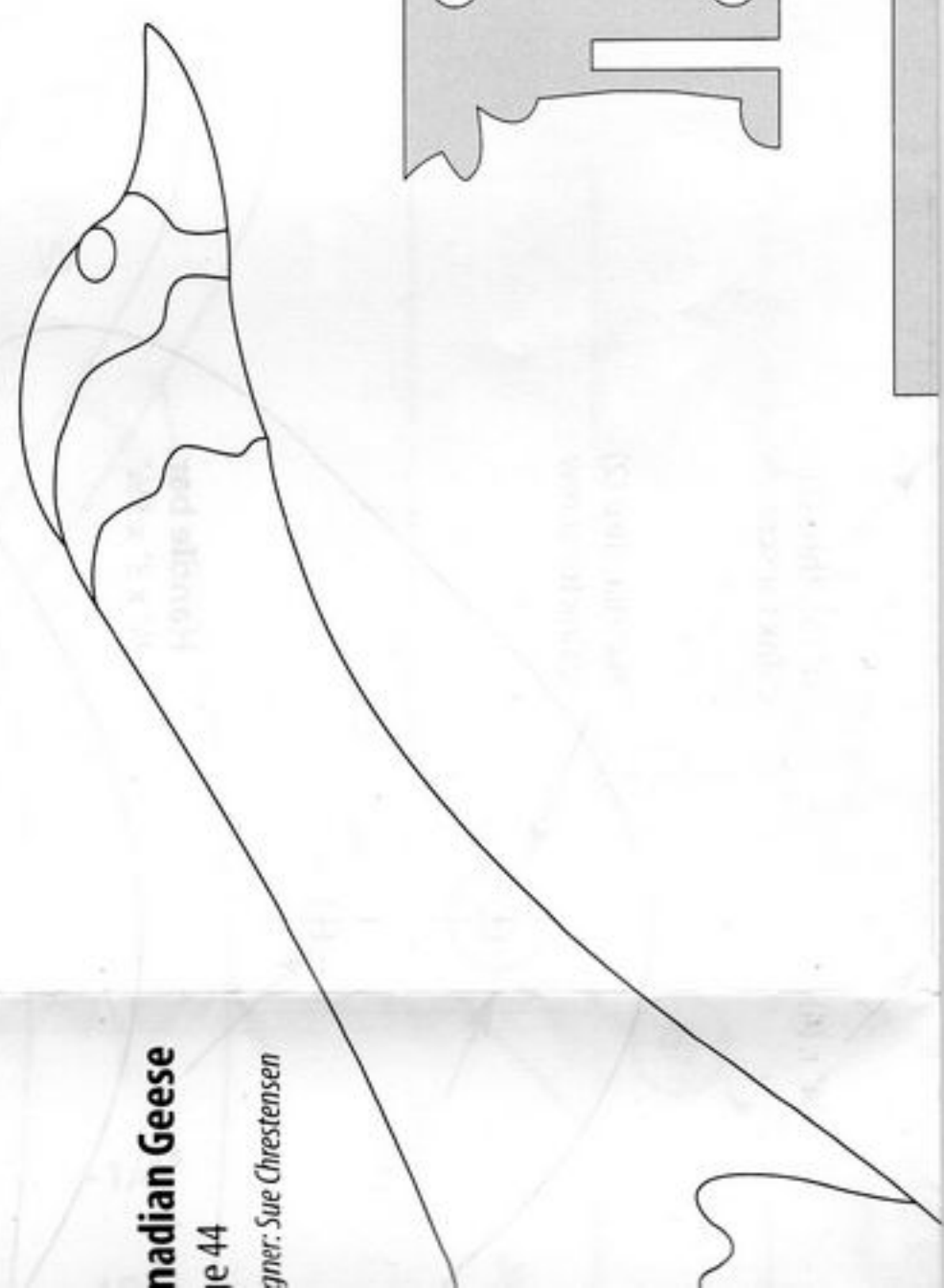
Page 48

Designer: Pedro Lopez



Part R - Cut 1, 3/4 inches wood

You may need to adapt this circle to the needs of your clock insert



Nadrian Geese

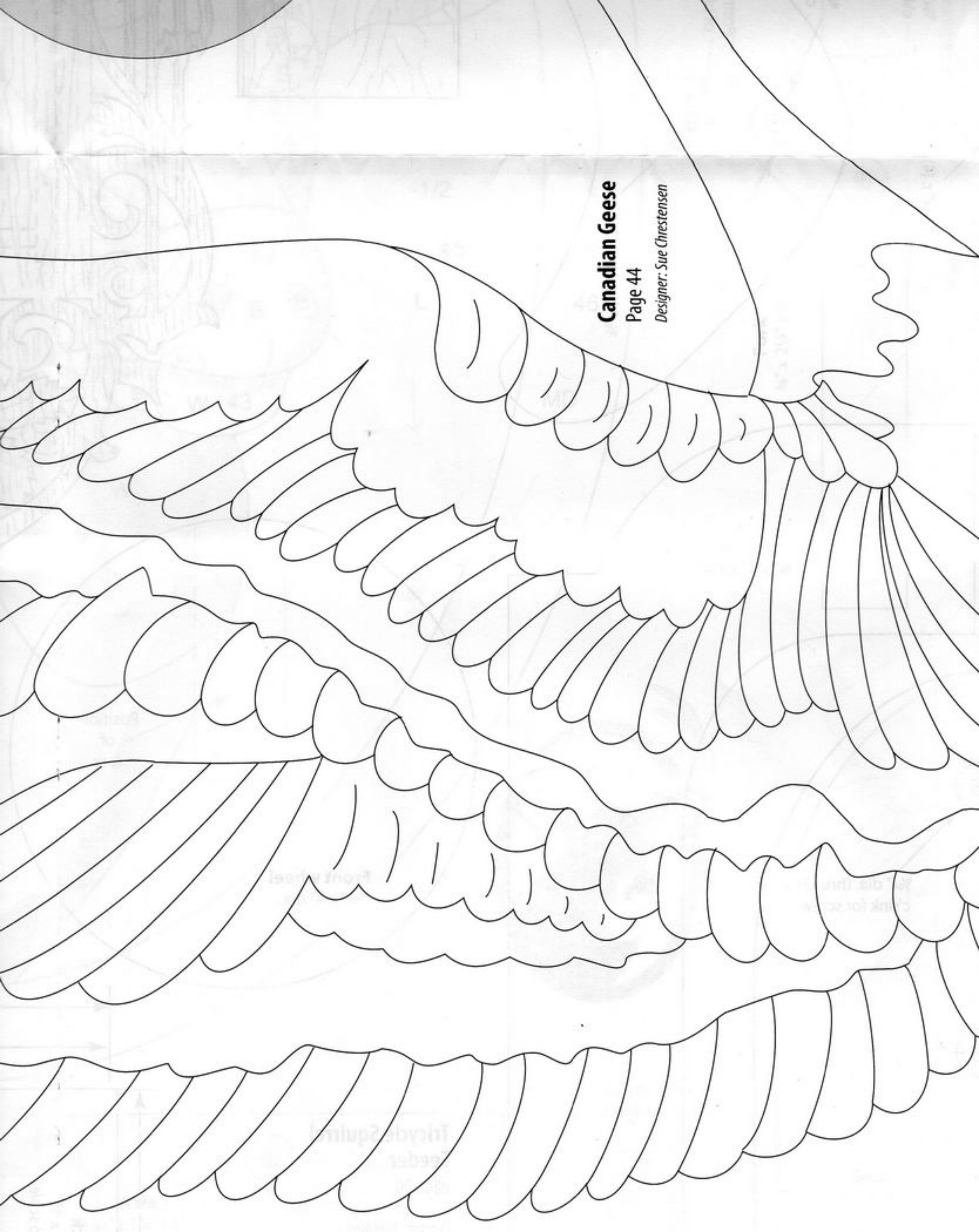
Page 44

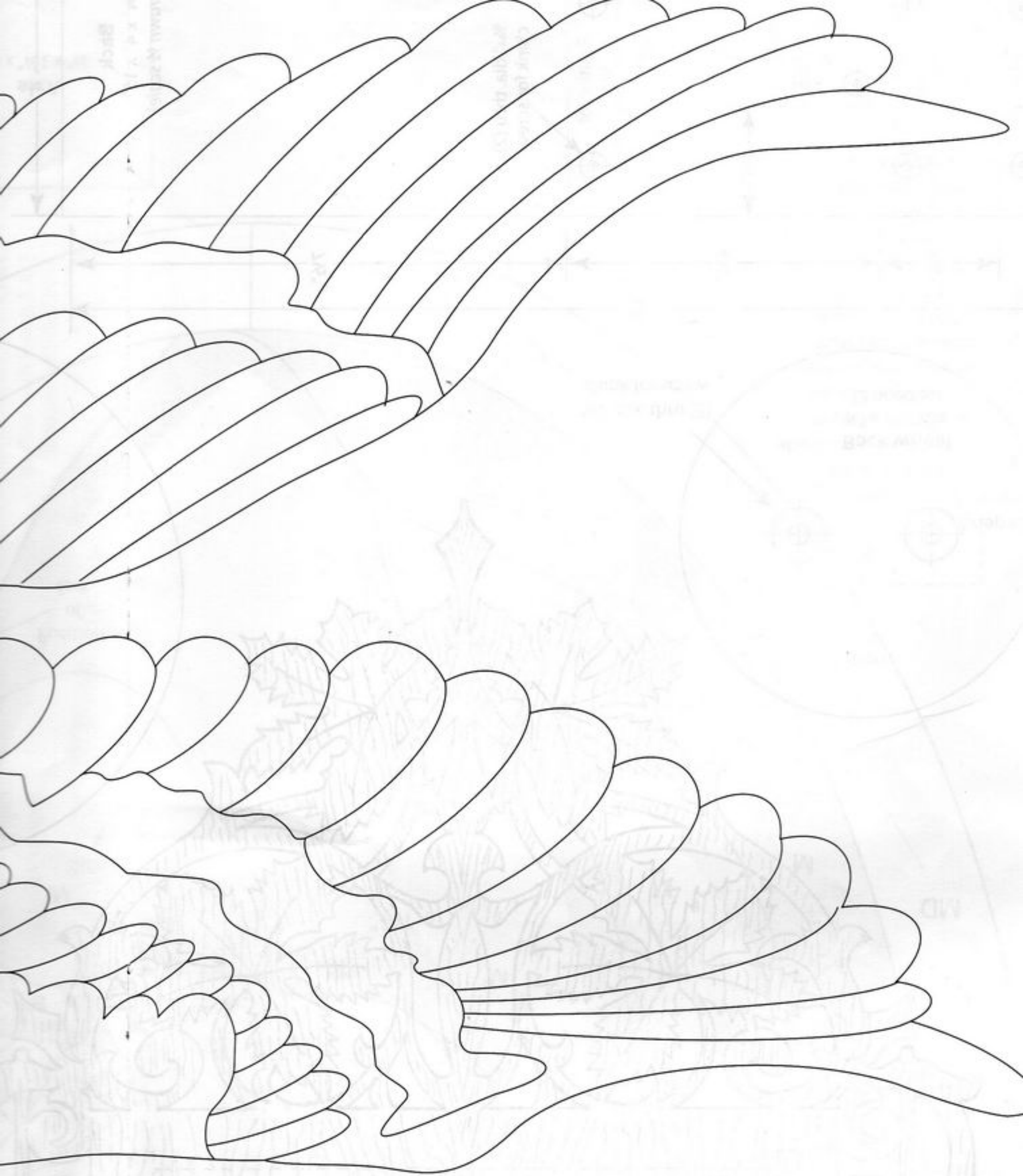
Designer: Sue Chrestensen

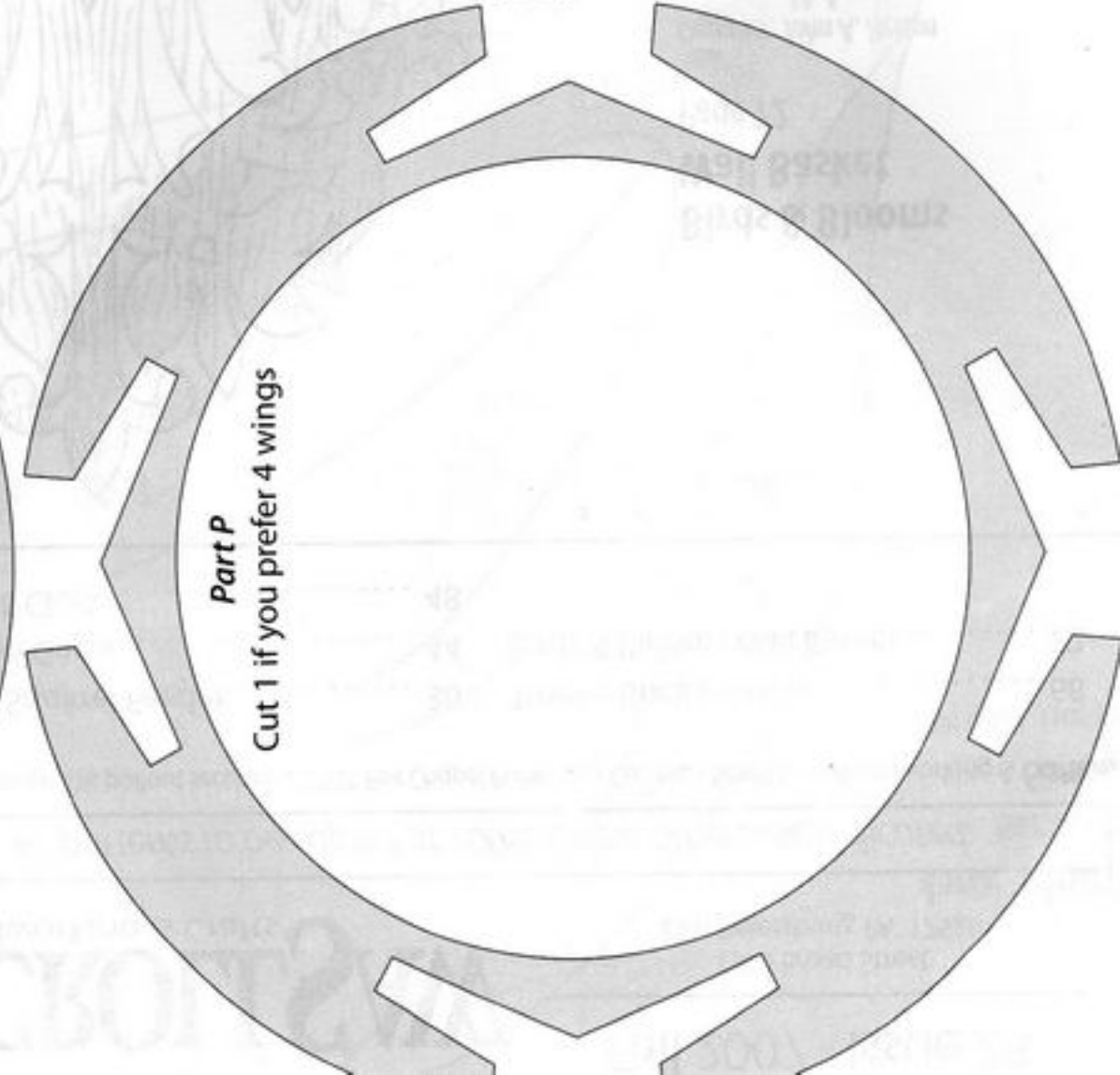
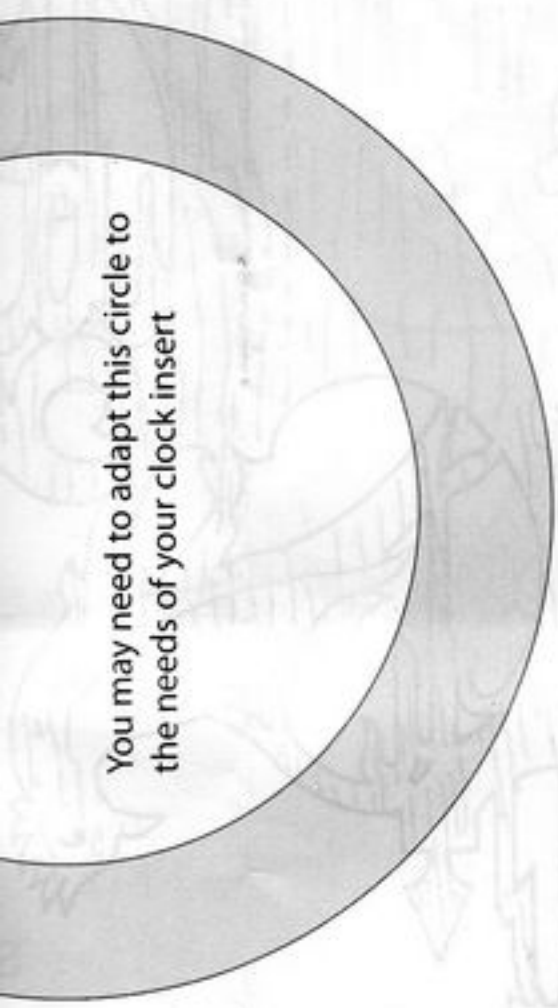
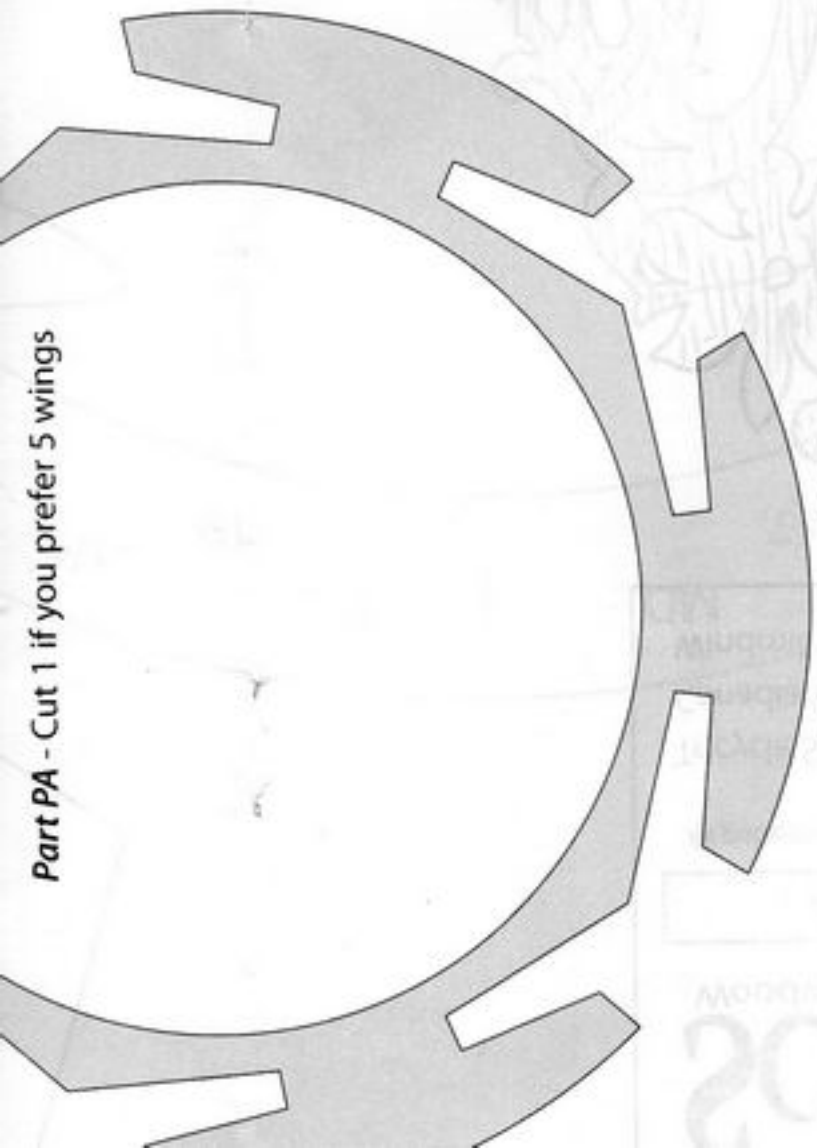
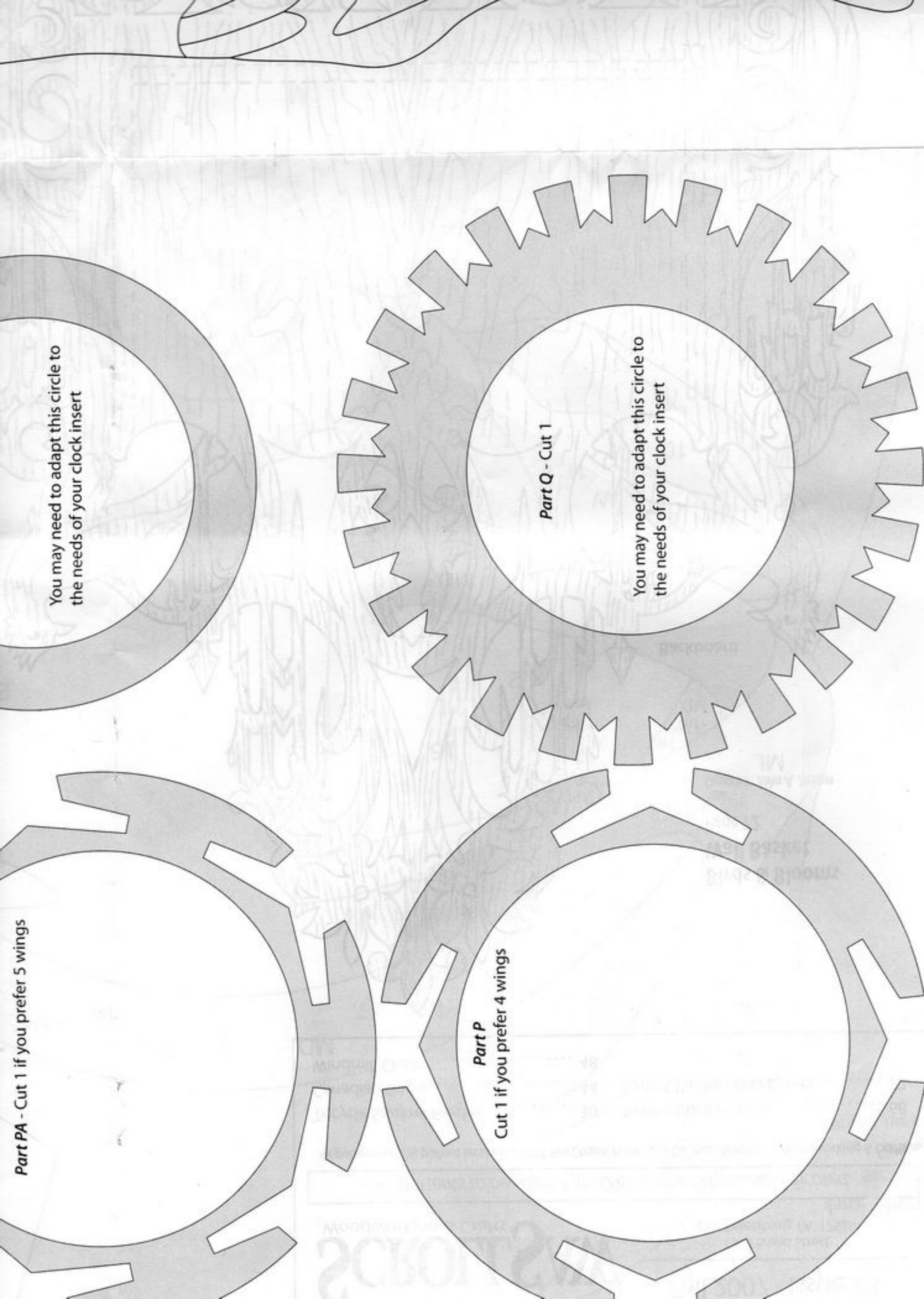
Canadian Geese

Page 44

Designer: Sue Chrestensen







Part P

Cut 1 if you prefer 4 wings

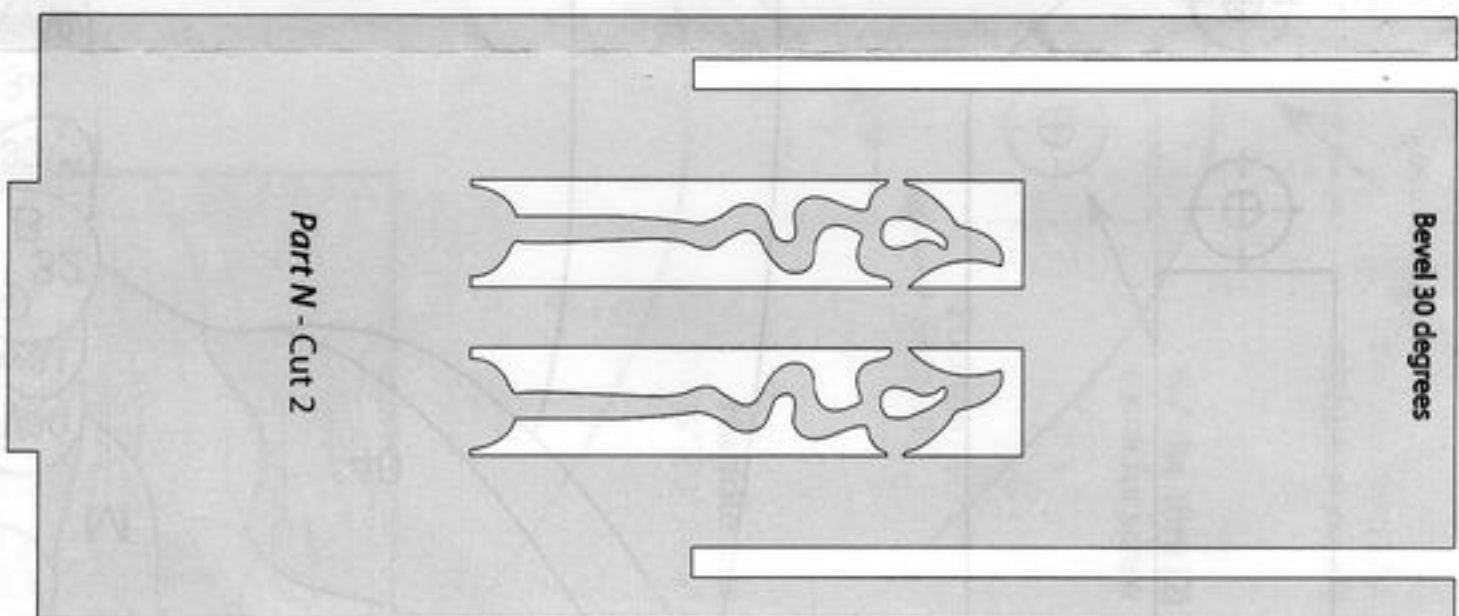
Part Q - Cut 1

You may need to adapt this circle to the needs of your clock insert

Part PA - Cut 1 if you prefer 5 wings

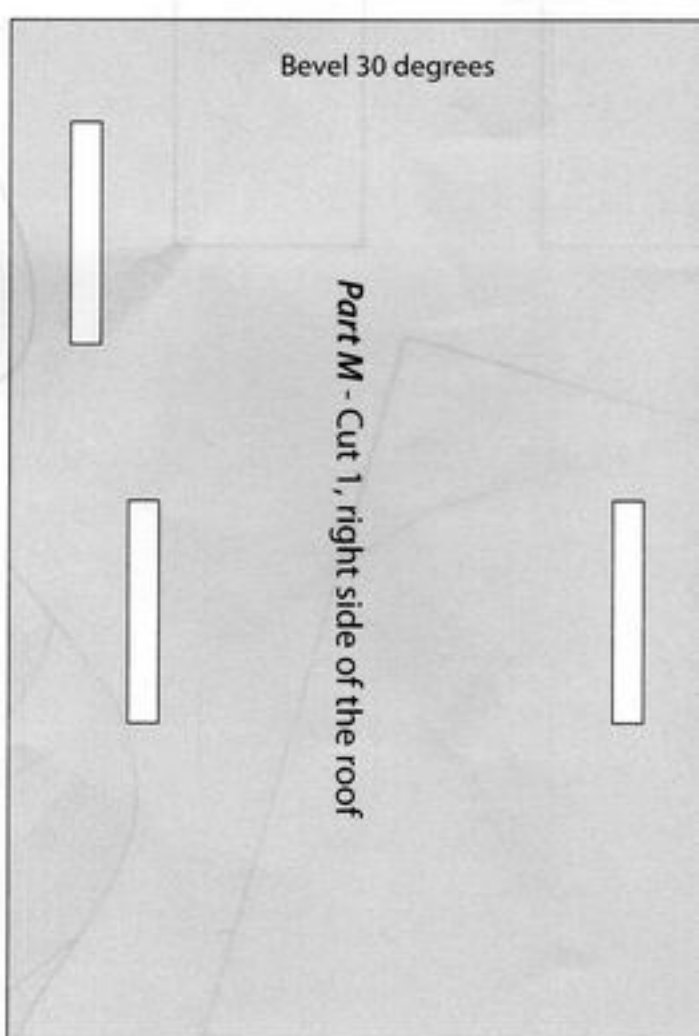
You may need to adapt this circle to the needs of your clock insert

Bevel 30 degrees



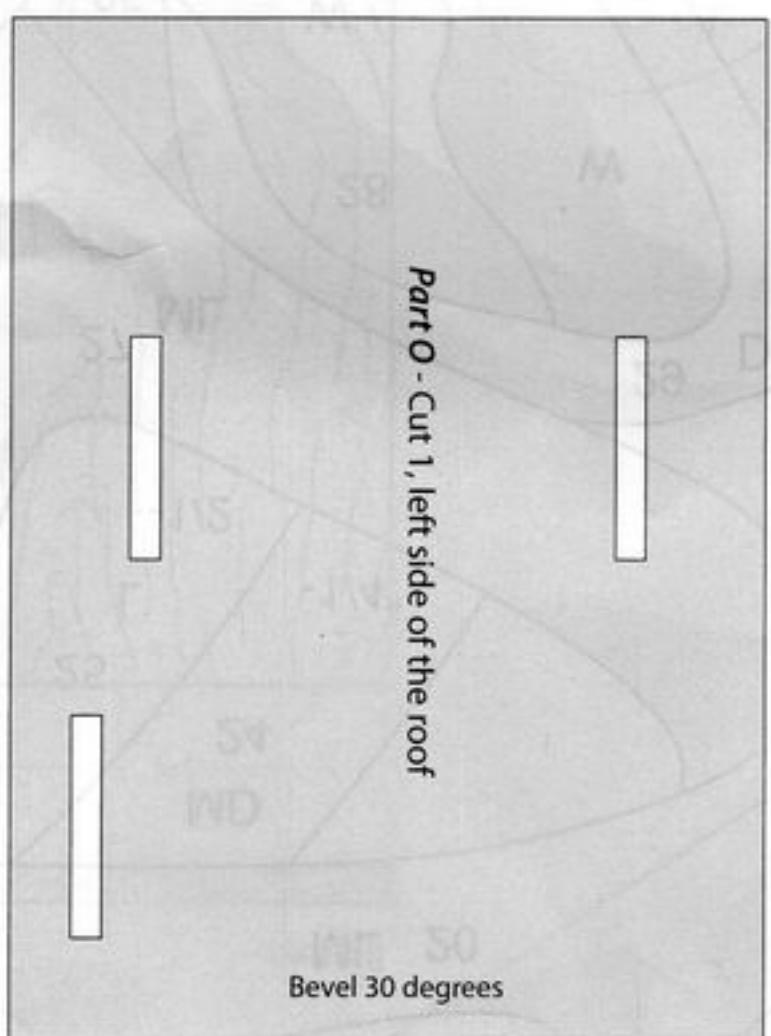
Part N - Cut 2

Bevel 30 degrees



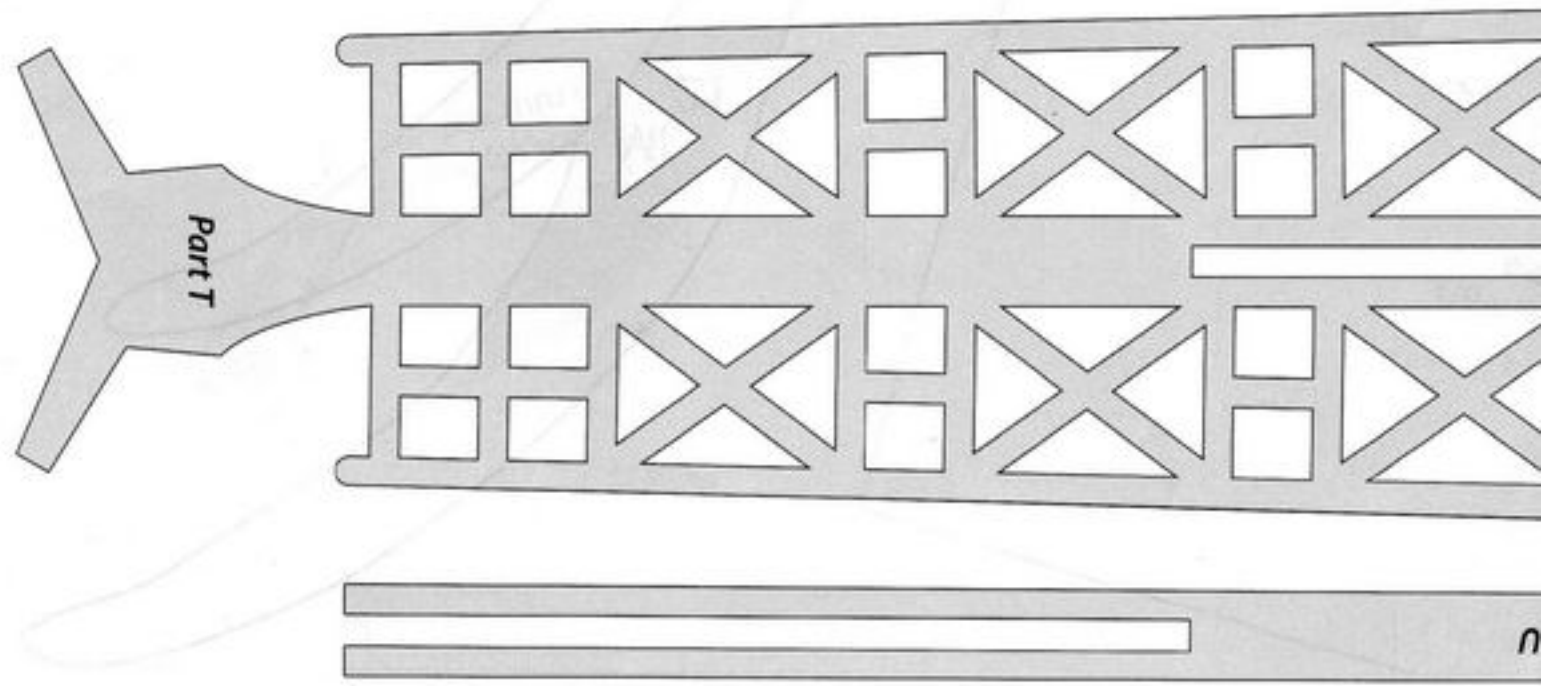
Part M - Cut 1, right side of the roof

Part O - Cut 1, left side of the roof

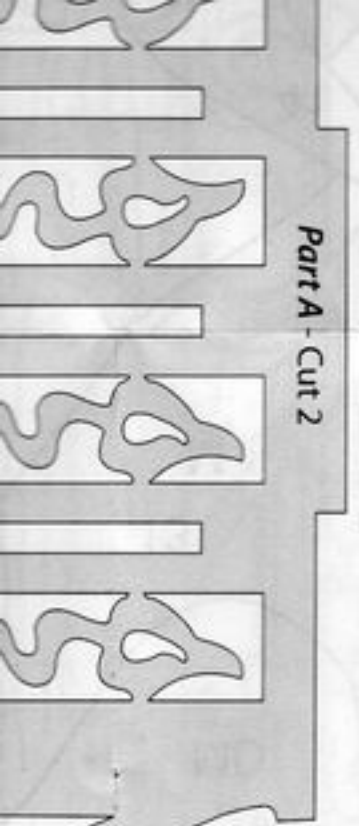


Bevel 30 degrees

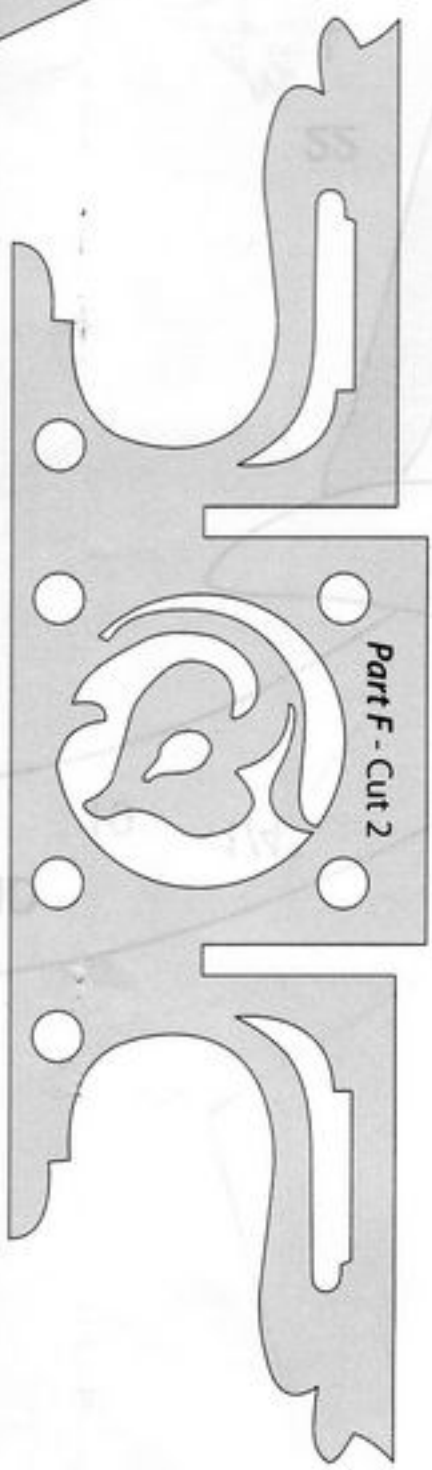
Part T

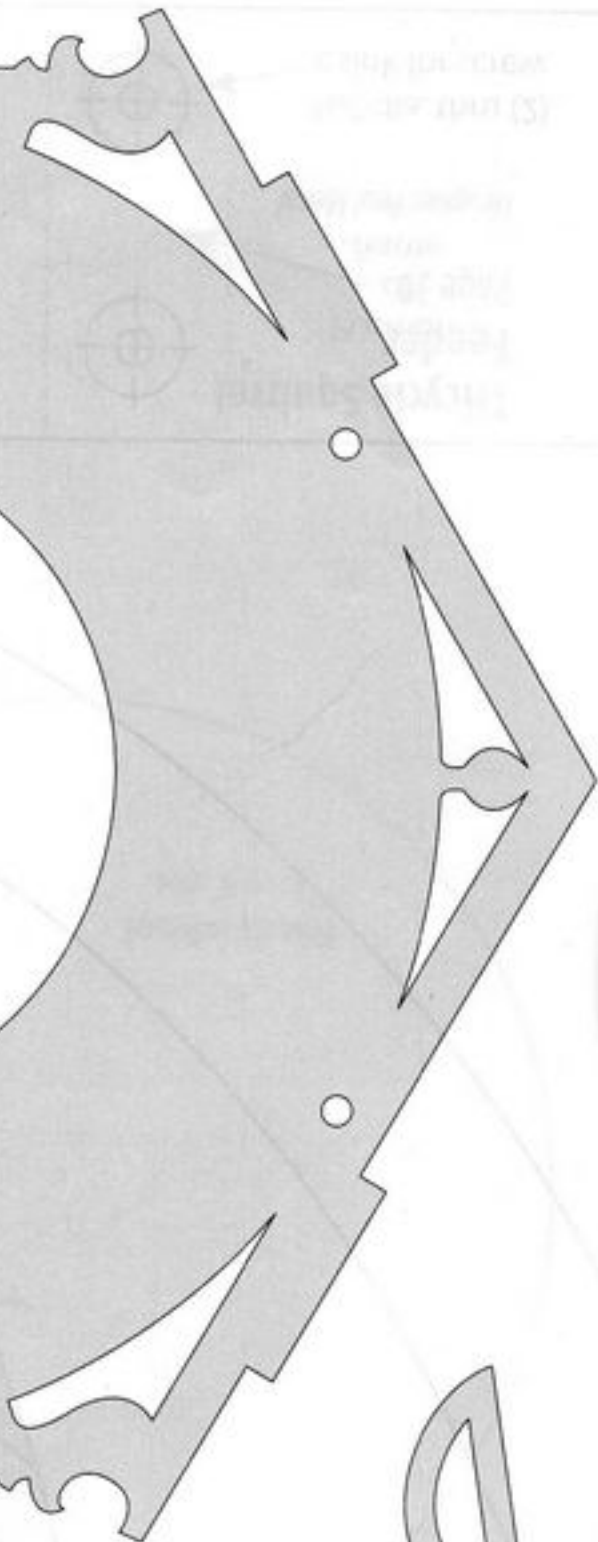
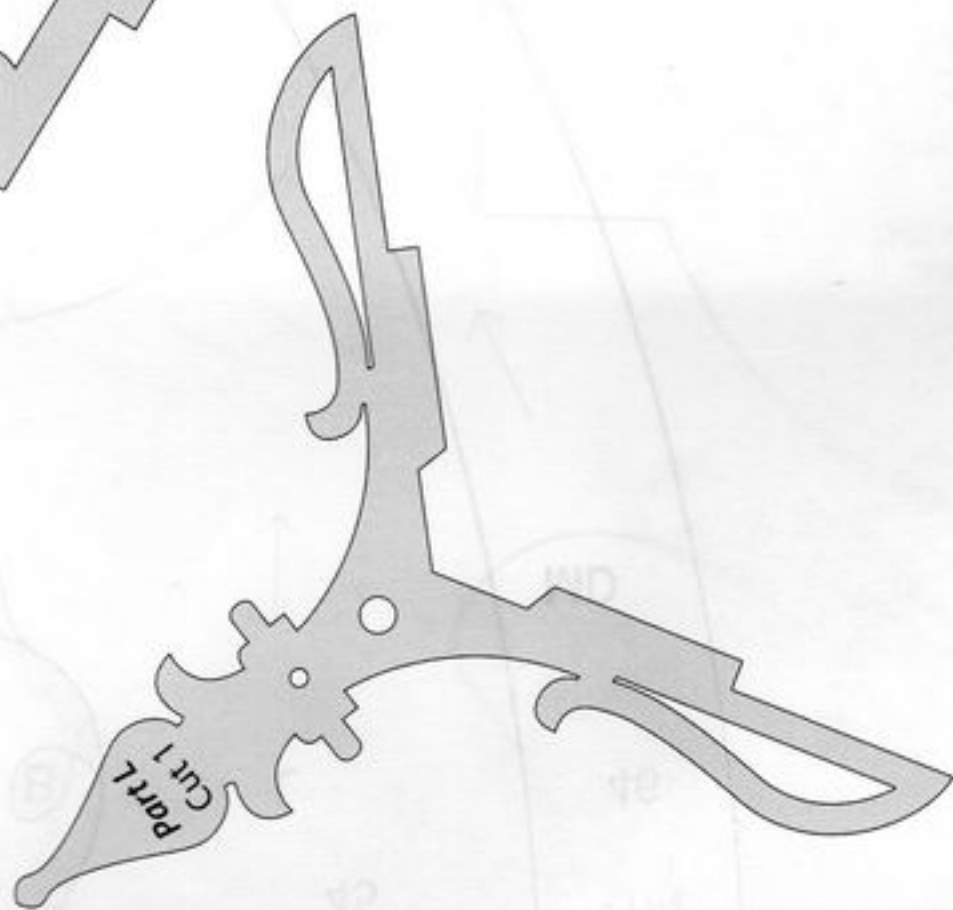


Part A - Cut 2



Part F - Cut 2





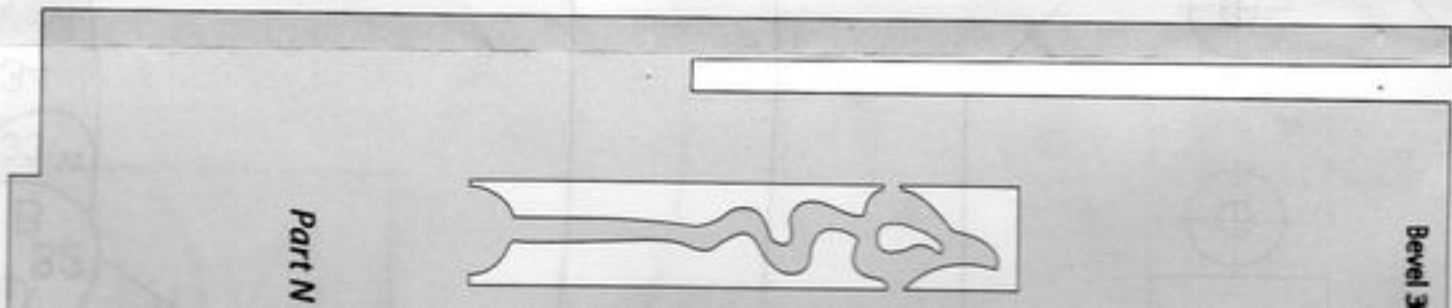
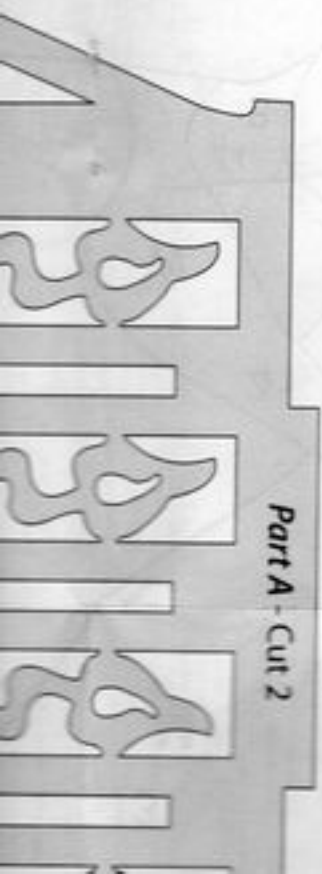
Part J
Cut 2, one of them without
inner cuts (the rear one)

You may need to adapt this circle to
the needs of your clock insert

Windmill Clock

Page 48

Designer: Pedro Lopez

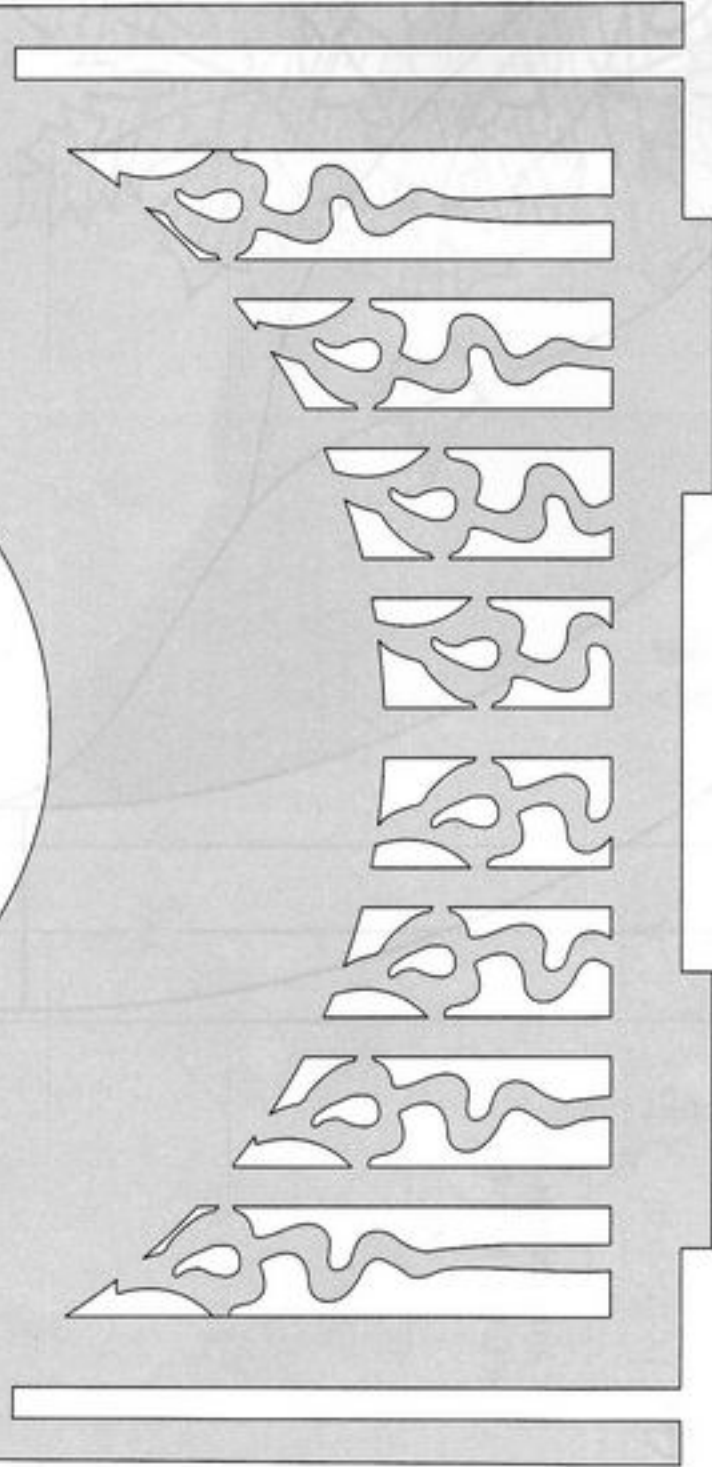


Bevel 3

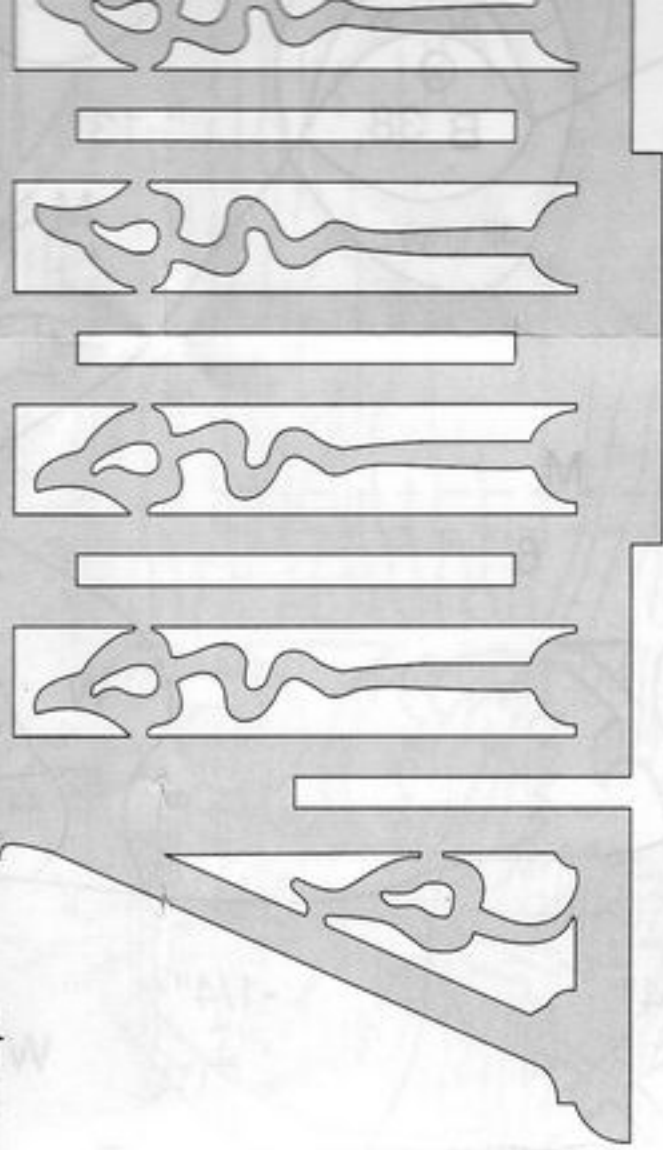
Part J

Cut 2, one of them without inner cuts (the rear one)

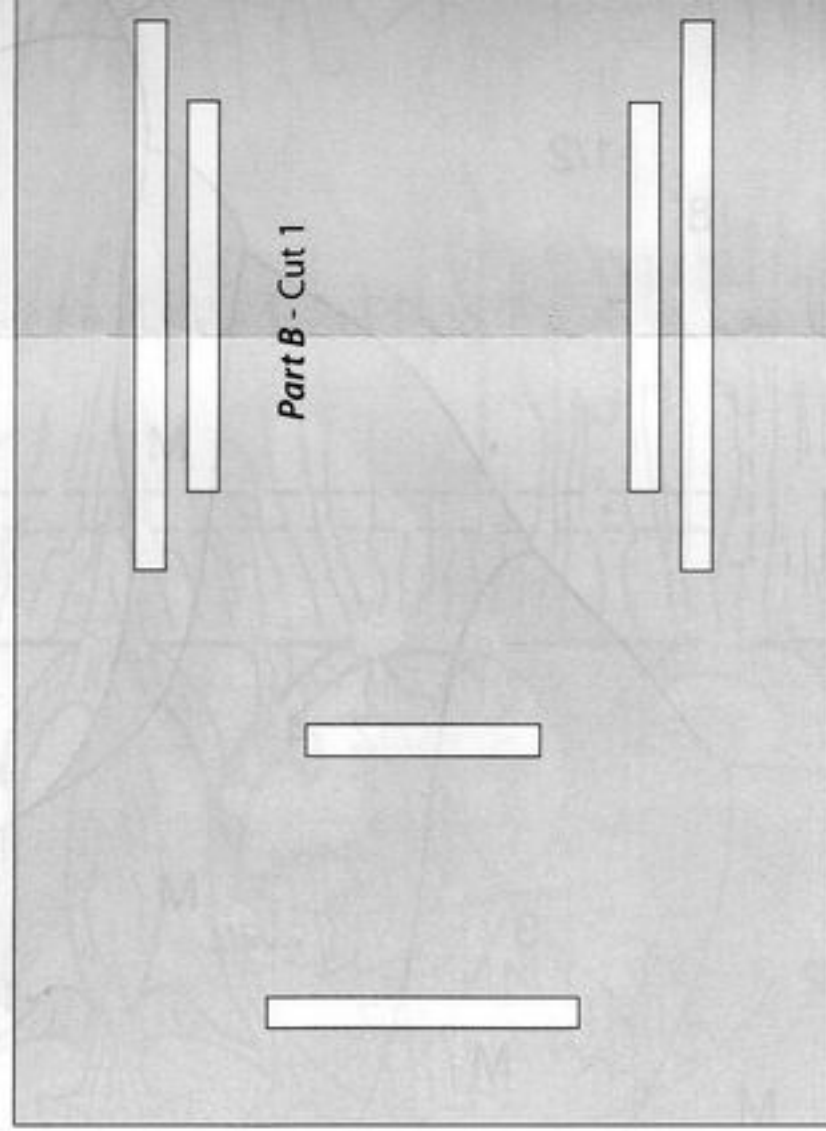
You may need to adapt this circle to the needs of your clock insert



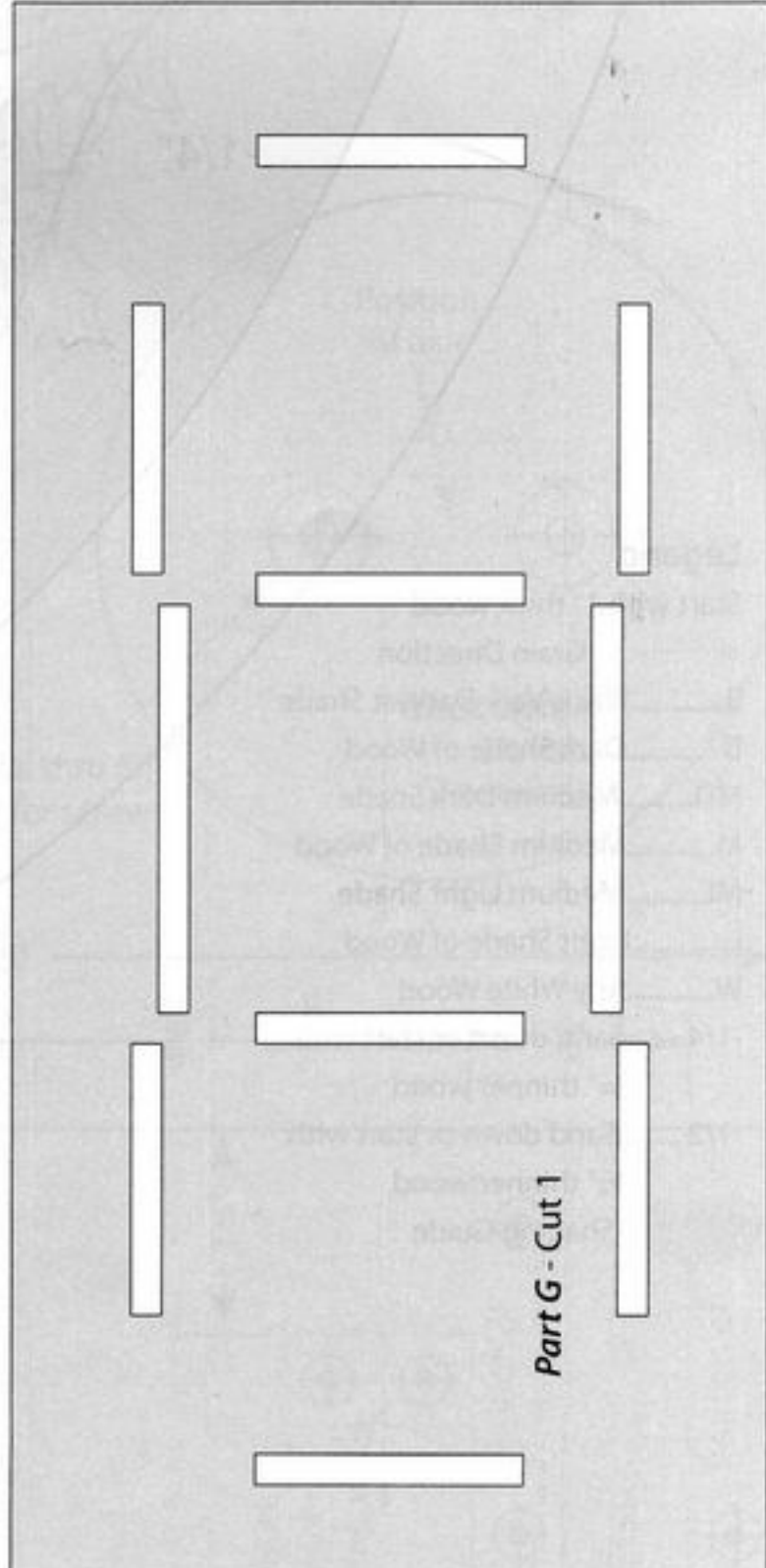
Part A - Cut 2



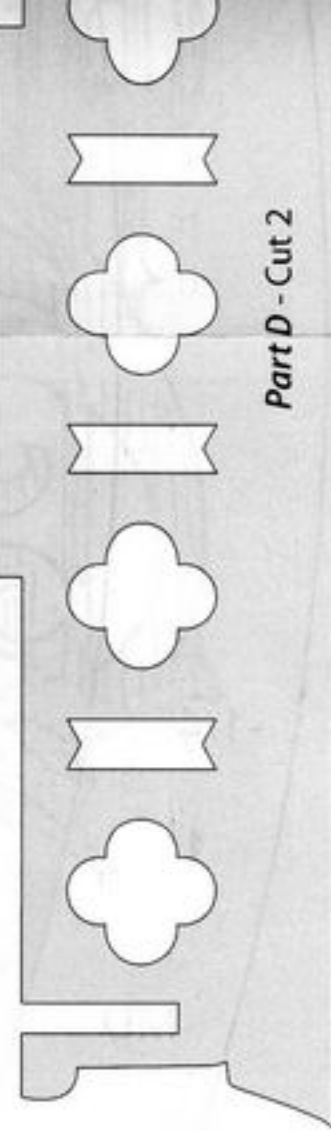
Part B - Cut 1

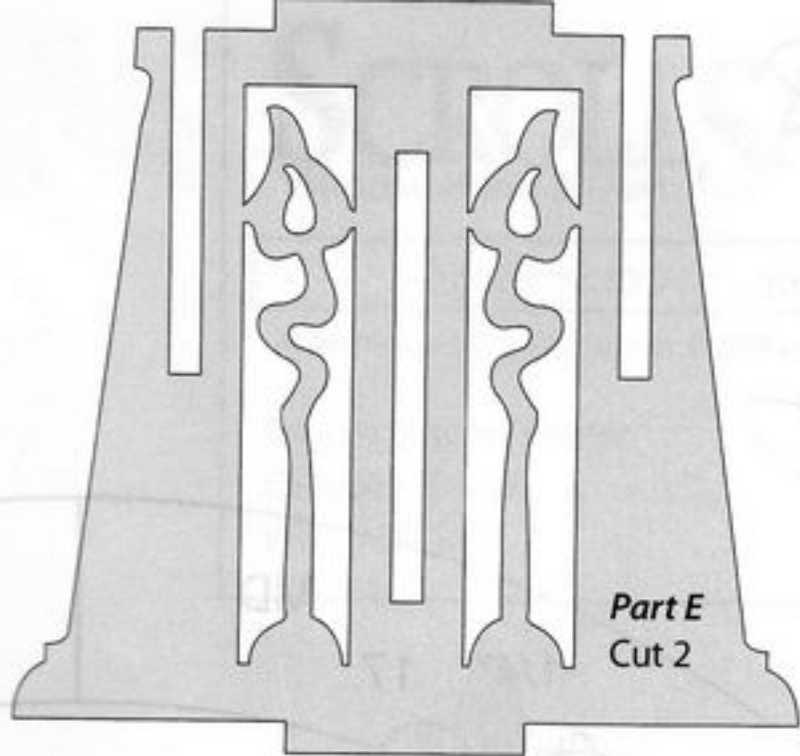


Part G - Cut 1

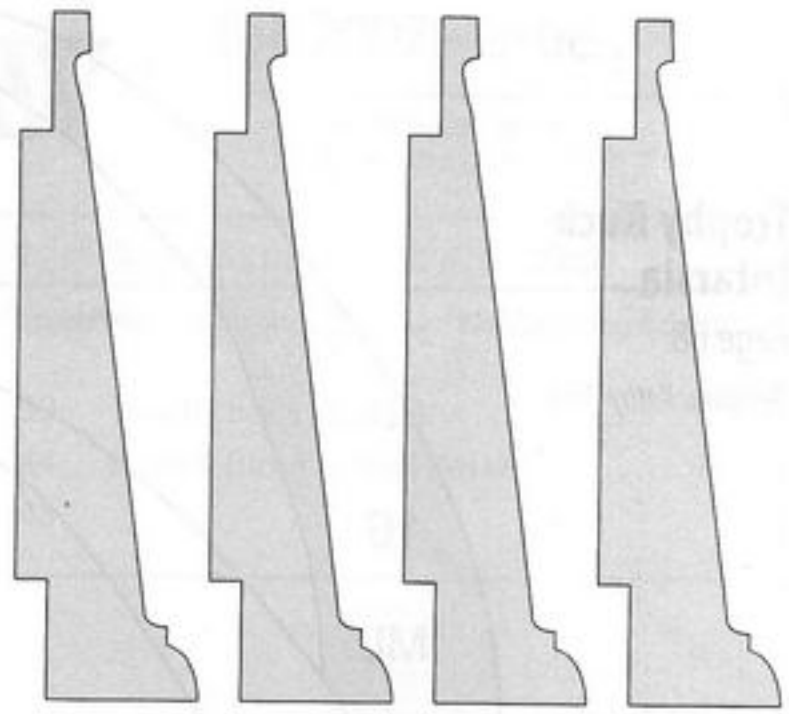


Part D - Cut 2

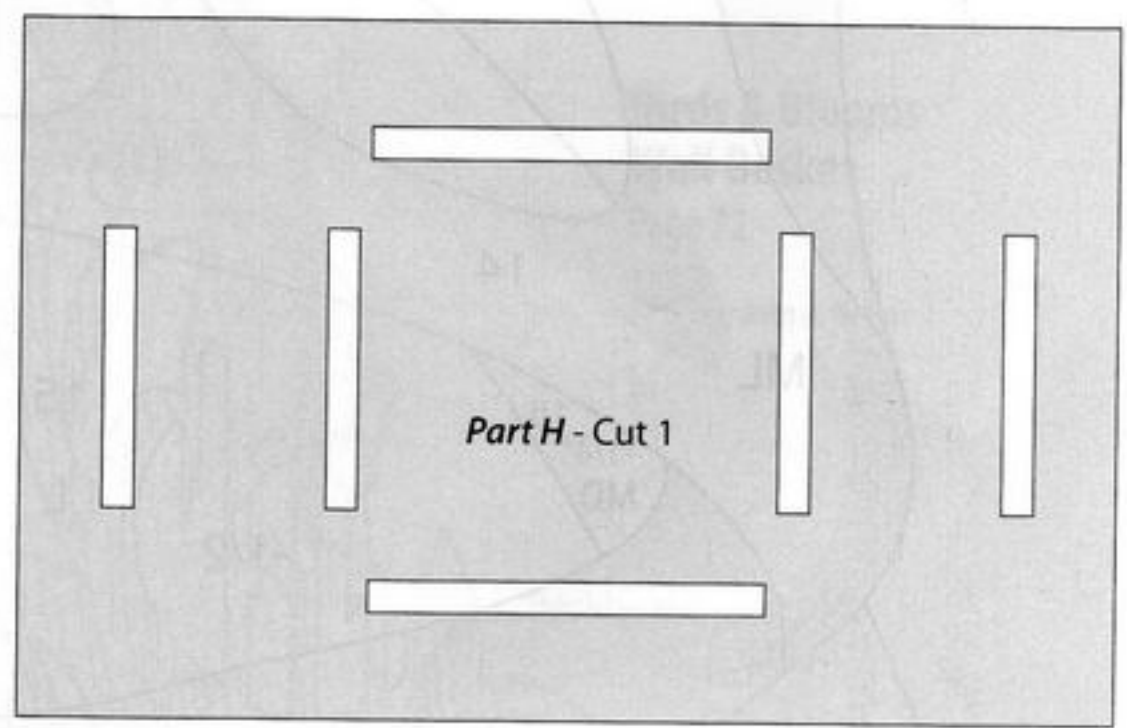




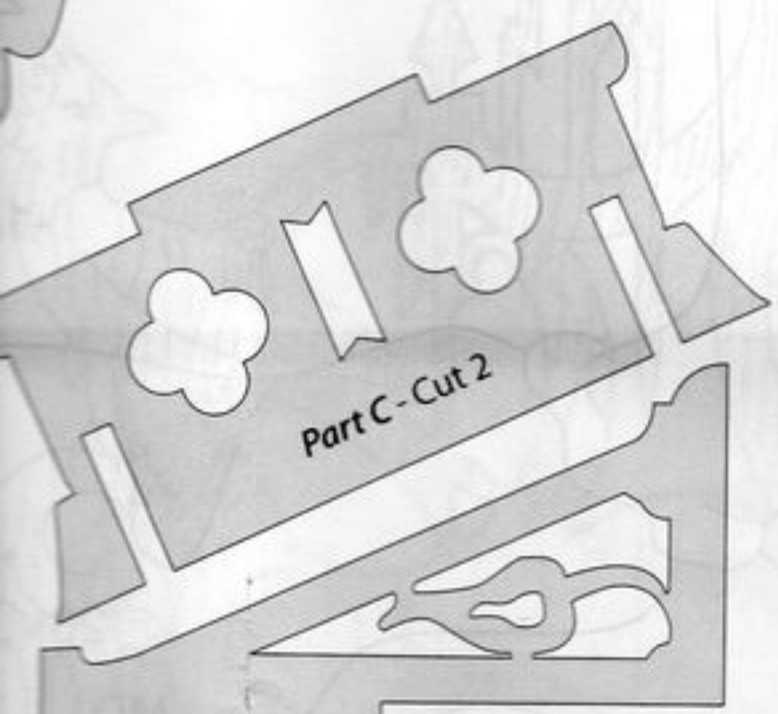
Part E
Cut 2



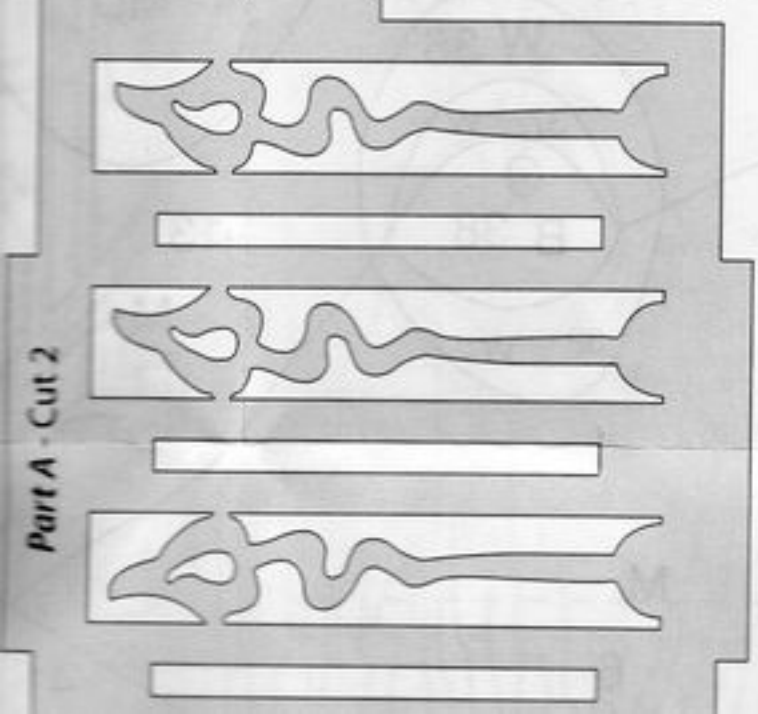
Part I - Cut 8 (two times this group of 4)



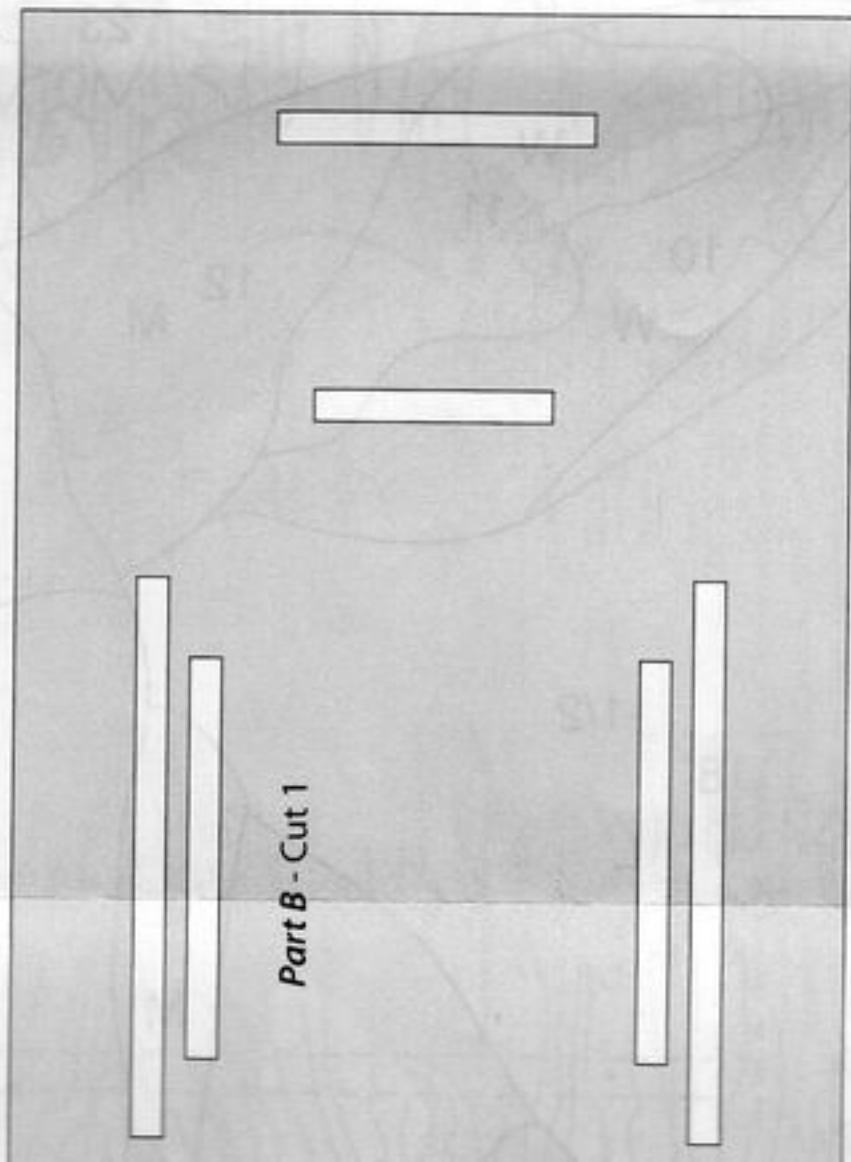
Part H - Cut 1



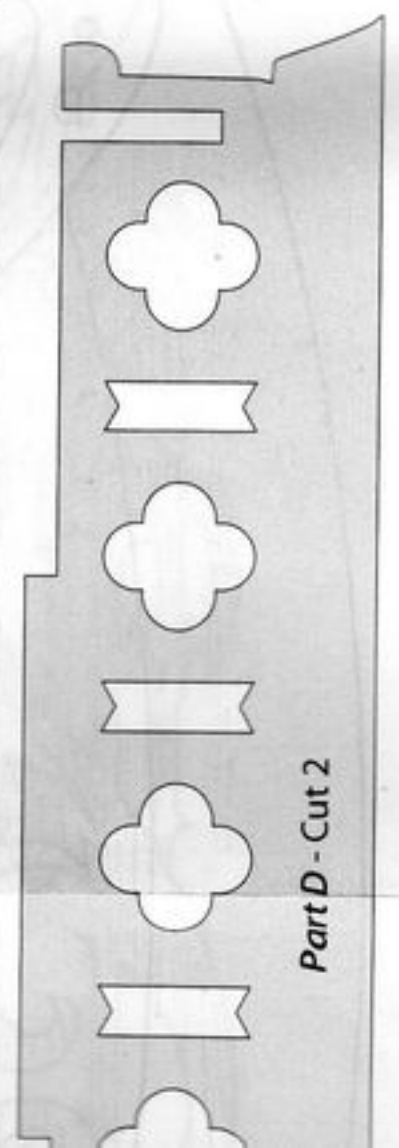
Part C - Cut 2



Part A - Cut 2



Part B - Cut 1



Part D - Cut 2