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WINTER/SPRING 2016
ISSUE 62
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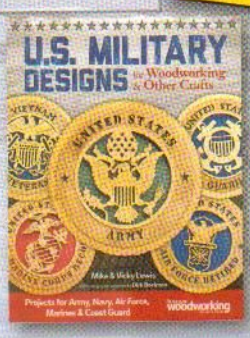

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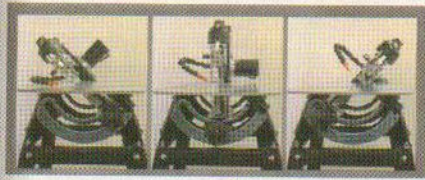

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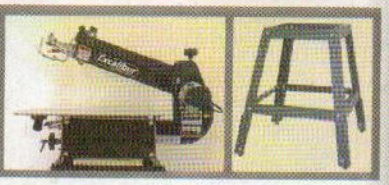

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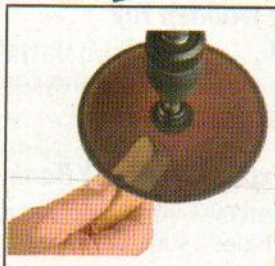

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WINTER/SPRING 2016 ■ ISSUE 62

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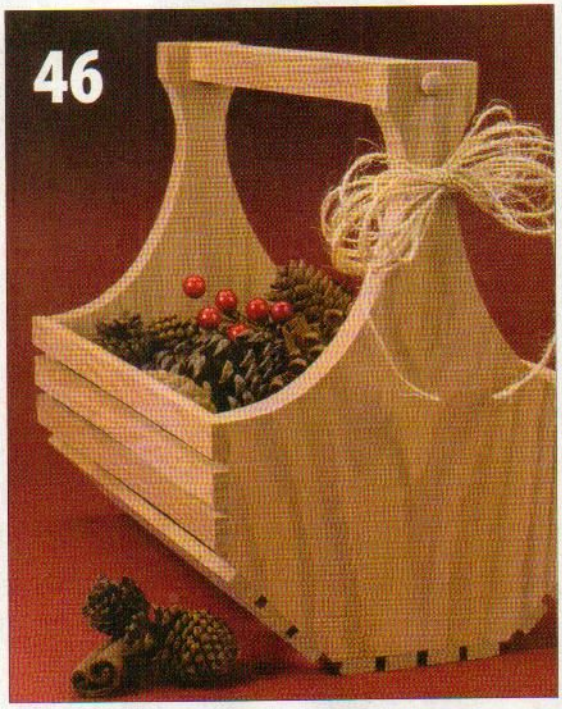

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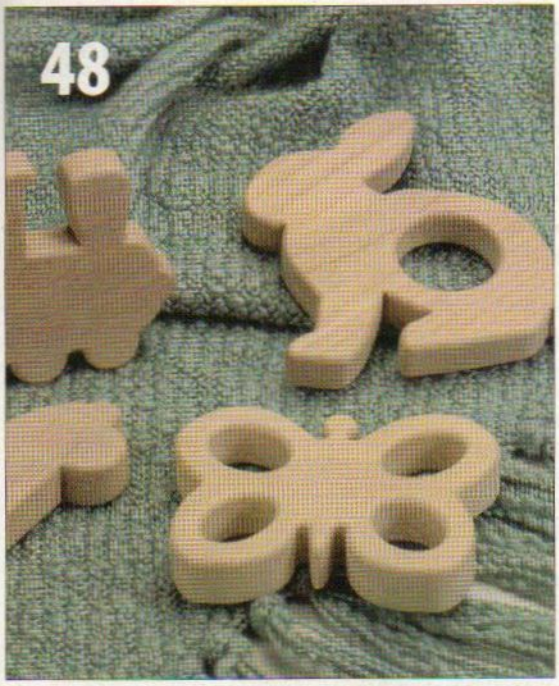
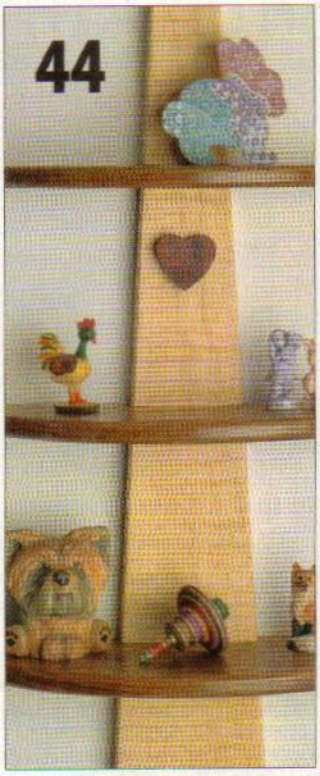
PROJECTS

FEATURES





PATTERNS

TECHNIQUES

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- ***Videos!***
  Watch the Pixelcraft Bank explode (pg. 54).
  See the SawStop save fingers (pg. 36).
  Learn how to cut basket slats (pg. 46).
- ***Bonus Material***
  Koala frame pattern (pg. 18) and extra Pixelcraft Bank patterns (pg. 54).
- ***Design Contest 2016***
  Get the rules & send your entry. See page 14 for more information.

Look for Scroll Saw Woodworking & Crafts on Facebook
Follow us on Twitter, twitter.com/scrollsawer

DEPTS.

What's Up With "Winter"

The Holiday issue of our sister magazine, *Woodcarving Illustrated*, which our staff also creates, has long been delivered to subscribers in November and to newsstands in December. As you can imagine, the carvers would like to have their magazine earlier so they have time to make Christmas projects. So last fall I cheerfully told them, sure, we'll just back up the schedule by a month! No problem! Except that *changed our schedule by a month*, and suddenly you *SSW&C* readers have your "Spring" issue in December. (Doh!)

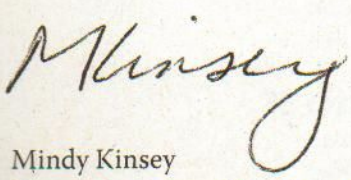
Since each issue will now arrive earlier, we changed the titles to span the seasons: Winter/Spring, Spring/Summer, Summer/Fall, and Fall/Holiday. You will still get the same four issues every year, just a little earlier. Subscribers will receive the Fall/Holiday issue in September. It may look strange to see Santa in your mailbox that early, but you'll have plenty of time to make your holiday projects. And so will the carvers!

Now, on to the next elephant in the issue: there's a table saw on the cover. I know, it seems weird and wrong, but hear me out. We strongly believe that a table saw is the best tool for making straight cuts quickly, accurately, and safely. We have noted many scroll saw projects over the past year that would have been easier to make using a table saw (see page 37 for a partial list). You might not think you need a table saw, but I hope you will read our coverage, look at the project gallery, and consider the idea.

We have devoted another, smaller, section of the issue to pinewood race cars. Spending the month of January making a pinewood car is a rite of passage for millions of kids and a passion for many adults, including plenty of scrollers. We have included patterns, speed tips, and a bunch of accessories that will make car-building easier and the resulting car faster. Want more? Visit our website at www.foxchapelpublishing.com (search "pinewood") for books and a special-issue magazine about pinewood cars.

There's lots more in the issue: the world's (unofficially) largest hand-cut puzzle; cool techniques for adding texture to intarsia and other projects; fretwork animal portraits; a gumball machine; compound-cut tulips, a really pretty basket... I could keep going, but it would be more fun to just flip the page and take a look.

Happy scrolling!



Mindy Kinsey
kinsey@FoxChapelPublishing.com

Reminders:

- We are running a series of smaller contests this year. See page 14 and visit our website for information about topics, deadlines, and cash prizes.
- Our Open House woodworking show will take place on May 13-14, 2016, **not** Mother's Day weekend. See page 15 and visit www.wood-show.com for more information.

SCROLL SAW woodworking & CRAFTS

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

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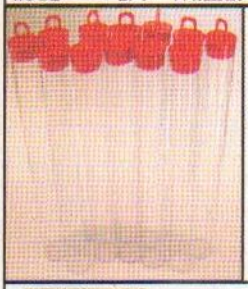

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Clamps for 3-D Projects

I think the "Clamps for Scrolling 3-D Projects" in the Info Exchange of *Scroll Saw Woodworking & Crafts* Holiday 2015 (Issue 61) is an error. It is not an original tip. This idea has been published many times in many publications. For example, in the second chapter of *Making Wooden Chess Sets*, Jim Kape shows pictures of his clamps and how to use them. *Scroll Saw Woodworking & Crafts* has also featured something like this before.

It doesn't seem to be Top Tip material to me, and doesn't seem fair to other people who submit tips. Just my opinion.

Melita Quesada
Via e-mail

Technical editor Bob Duncan responds: Thank you for your feedback. Many scrollers have created elaborate clamps that do a good job; however, we found that Gary's method was new in its simplicity and ease.

Fox Hunt

Robert Gaines of Jasper, Tex., and Don Sprenger of Paul, Idaho, were randomly drawn from the participants who located the fox in our last issue (Holiday 2015, Issue 61). The fox appeared on page 28, in the photo of the nativity scene.

Find the fox in this issue, and tell us the page number and location. Two readers randomly selected from all correct replies will receive a $25 Fox Chapel Publishing gift certificate. Entries must be received by February 18, 2016, to be eligible. *NOTE: The contest fox is an outline drawing that would face left if his feet were on the "ground" (other foxes appearing in SSW&C don't count).*

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

Easy and Fun Photo Gift

I wanted to share an easy and fun project I do with family pictures. I glue a picture that I like onto ¾" (19mm) plywood or MDF, and then cut the outline of the people or main elements in the photo to remove the background. Now the picture doesn't need a frame, can sit on a shelf, and doesn't take up any wall space. You can move the picture wherever and can toss it when it isn't wanted anymore. I have made and given away dozens, and everyone loves them!

TOP TIP

Len Jusko
Via e-mail

Frameless photos are fabulous fun!

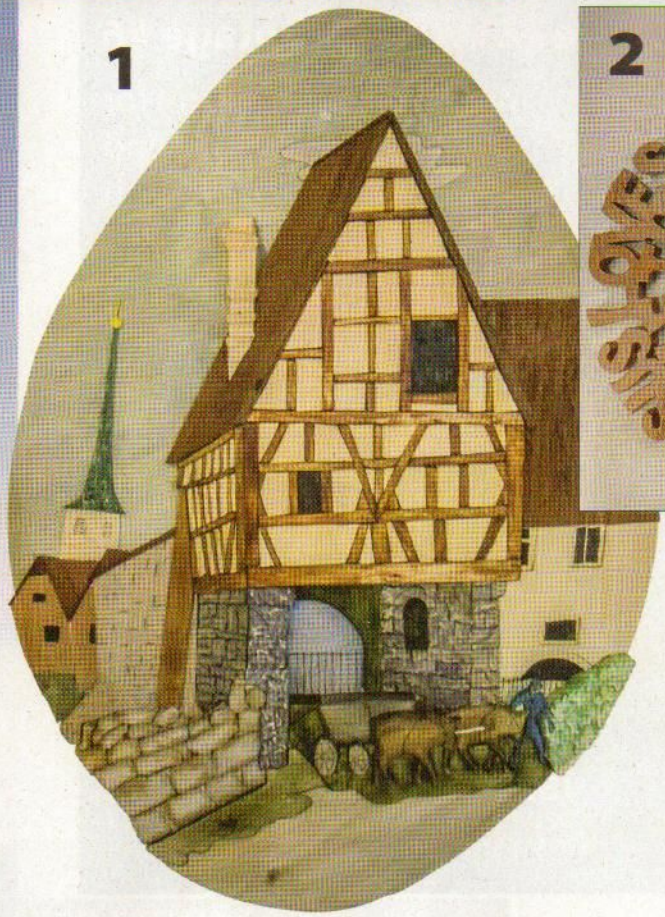
Edible Brush Container

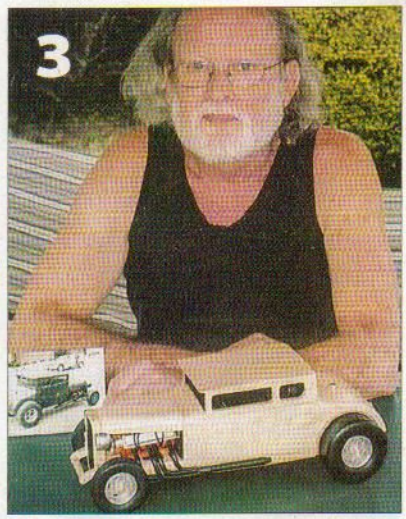
I have used different gadgets and holders to keep brushes and pens in a handy place on a worktable, but I never found the perfect solution. Then, when I was about to toss some old popping corn, I realized I could put the corn in a small flower vase to prop up my paintbrushes so I can find them quickly and easily.

Nardene Park
Surrey, B.C., Canada

This corny storage idea really works.

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



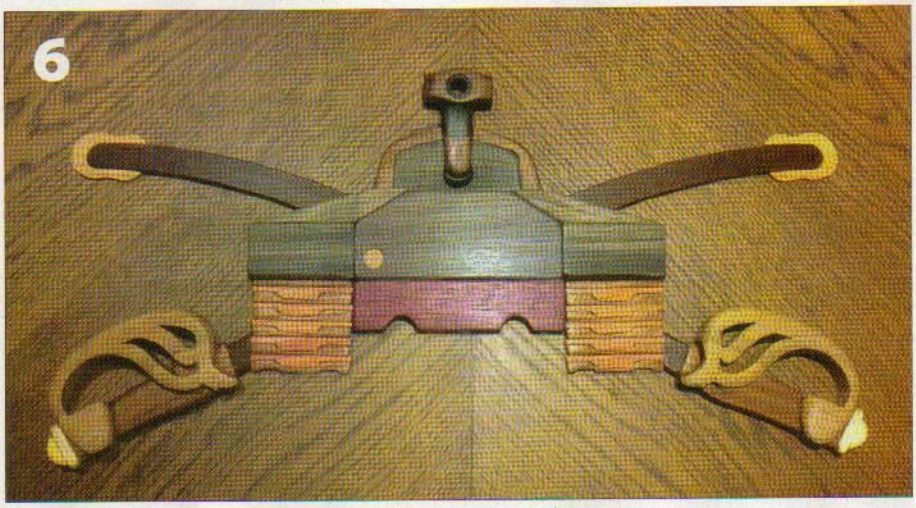


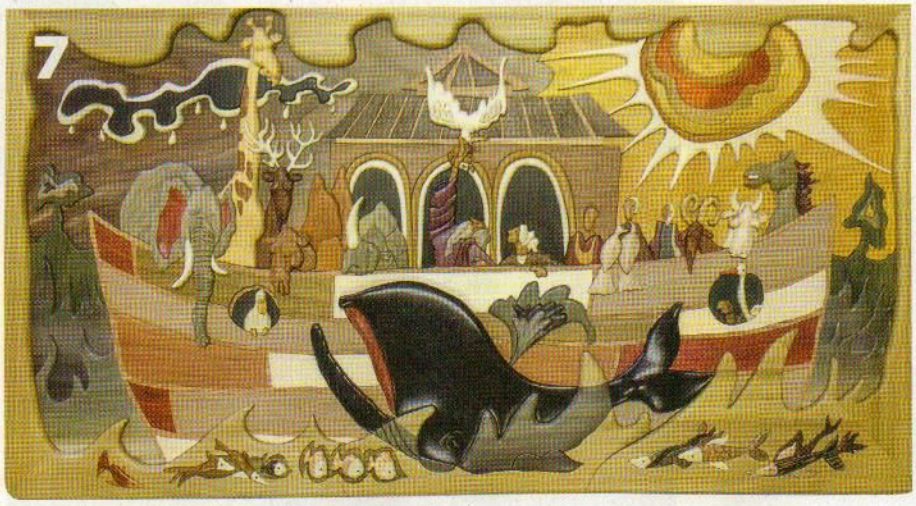
1 German Village Gate
Manfred Wagner of Waldwick, N.J., photographed a village gate in Germany 65 years ago. He created this intarsia piece from the photograph, using 393 pieces of pine. He stained the pieces with food coloring and watered-down paint. He made the roofs of the buildings out of cedar shingles to create a thatched look.

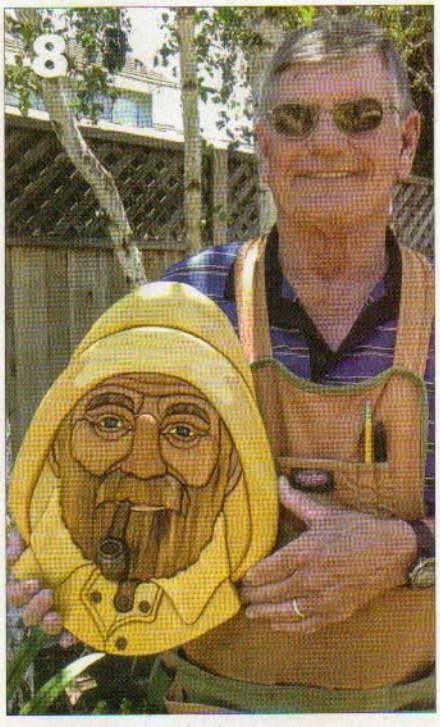
2 Jesus Loves Me Plaque
Joseph Landis of Gandeeville, W. Va., scrolled this "Jesus Loves Me" plaque from a pattern by Paul Boer, which was featured in *Scroll Saw Woodworking & Crafts* Spring 2015 (Issue 58). It won first place in the black walnut category at the West Virginia Black Walnut Festival in Spencer, W. Va.

3 Ford Model T
Sharon Moore of Navarre, Ohio, began scrolling 14 years ago when a friend gave her a scroll saw. She was inspired to design and scroll this 1927 Ford Model T from a car her brother, Don Litman (pictured above), built. The car is detailed—it has a water pump, pulleys, a fan that turns, an alternator, plug wires, radiator hoses, and headers.

4 Yellow Rose of Texas
Donald Nichols from San Antonio, Tex., has been scrolling for the past 15 years. He combined two patterns to create this heart-shaped music box. The box came from a pattern featured in *Woodcraft* magazine, and the rose and rosebud are from *Small Intarsia: Woodworking Projects You Can Make* by Judy Gale Roberts and Jerry Booher. Donald made the box from mesquite, the intarsia rose and rosebud from yellow heart, and the leaves and stem from different shades of red oak.







5 Eagle Portrait
Peter Breese of Oswego, N. Y., created this portrait from a Charles Dearing pattern. He enlarged the pattern and cut it from Baltic birch plywood. He framed it in cherry hardwood.

6 U.S. Armor Branch
Luis Martinez of Aguadilla, Puerto Rico, created this U.S. Armor Branch intarsia piece for a soldier being transferred home. The tank has Jamaican mague, pine, mahogany, ebony, and walnut. The sword is oak, embulla, yellow heart, mahogany, and cherry. It has 57 pieces. Luis added the purple heart as a way to recognize our soldiers' bravery.

7 Noah's Ark
Joel Kaufman of Ellicott City, Md., modeled this pattern, 19" by 35", from a Phillip Ratner tapestry. He used 50 different wood species, incorporating no stains or coloring, to create more than 400 individual pieces and 100 shims. A scroller for four years, he spent more than 600 hours on this piece.

8 The Mariner
Greg Coats of Oxnard, Calif., started scrolling three years ago. He scrolled this intarsia piece using a pattern from Judy Gale Roberts. He used yellow heart, padauk, soft maple, cherry, black walnut, teak, alder, and mahogany. Greg spent about 40 hours working on it, much of it spent on the eyes and face. His effort paid off; the piece took first place in the Ventura County Fair in 2015.

Share Your Latest Work!
Send a slide, professional print, or digital image (300 dpi minimum) with 100 words about you and your piece. Include your hometown, the name of the pattern maker, and a list of wood and materials used. Send to Reader Gallery, Scroll Saw Woodworking & Crafts, 1970 Broad Street, East Petersburg, Pa., 17520, or e-mail editors@scrollsawer.com.

Kutzall Grit Hand Rasps

> **"Kutzall Grit Hand Rasps reach areas many other tools will not."**

Sometimes it is difficult to fit a sanding drum or rotary tool into a tight section of an intarsia or fretwork design. You can always hand-sand, but that's often tedious and uncomfortable. The best tool to reach for is often a rasp, but the utility of traditional rasps is limited because, like the metal files they are related to, they cut only on the push stroke.

Enter the Kutzall Grit Hand Rasps. Kutzall has adapted their carbide-point bit technology and used it to create a set of grit hand rasps that cut on either a push or pull stroke. These tools, which come in a variety of shapes and grits, stand head and shoulders above traditional rasps, reaching areas many other tools will not.

I use the coarse-grit rasps to remove wood quickly. Like coarse-grit carbide-point bits, these rasps will leave scratches on the wood. You can remove them with the finer-grit rasps, which leave only fine scratches on the wood, especially if you shape with, rather than across, the grain.

I find the small fine-grit rasps excellent for straightening less-than-perfect fret cuts. You can use the more aggressive rasps to rough-shape intarsia pieces to reduce sanding, which is especially useful when you're working with exotic wood that can generate noxious dust. They never need sharpening, and you can easily clean them with oven cleaner or a butane torch.

Kutzall Grit Hand Rasps range in price from $25 to $49, depending on the grit, shape, and size. For more information or to purchase, call 810-765-1000 or visit www.Kutzall.com.

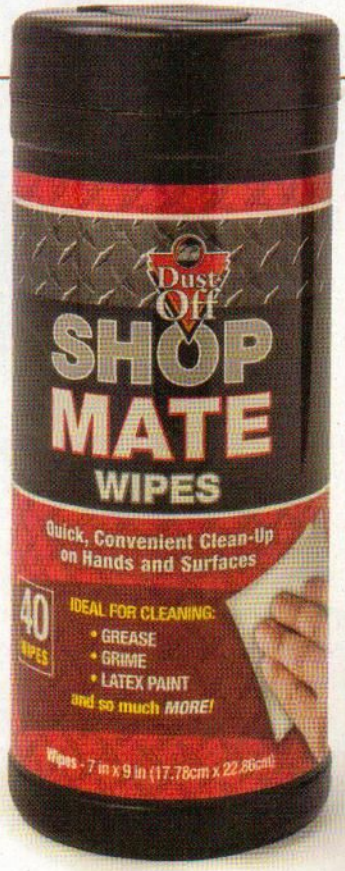
Shop Mate Cleanup Wipes

Dust Off's Shop Wipes are a must for every workshop. With four boys under age 10 (and their 1-year-old sister), my family goes through a lot of pre-moistened disinfecting wipes. Dust Off's Shop Mate Wipes serve the same purpose in your shop. They clean residue, sap, and other gunk from your tools and fingers quickly and, unlike mineral spirits or other solvents, have a pleasant citrus scent.

These wipes particularly excel at removing spray adhesive. Not only do they work great to get the last bit of adhesive off a project, but I use them to clean my fingers after attaching a pattern to a blank. They also cut right through grease and even oil finishes.

These wipes are tough and last a long time. It's really overkill to use a full wipe to clean adhesive or other junk off my hands, so I'll stick the used one in a closed container and reuse it a few times.

Dust Off Shop Mate Wipes are available in packs of 40 for $5.99. Visit www.dust-off.com to purchase or to find a local retailer.



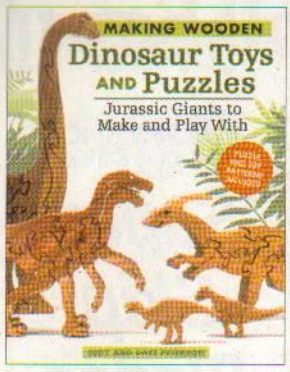
BOOK SHELF

Making Wooden Gear Clocks

6 Cool Contraptions That Really Keep Time

From the Editors of Scroll Saw Woodworking & Crafts Magazine

All of your favorite gear clocks, ranging from the simplest beginner project to the most advanced challenge, have been collected in one place. No more searching through back issues or wondering about corrections; the most up-to-date instructions and full-sized patterns are here for your clock-building convenience. In addition, we've included a gear machine that doesn't keep time but is fascinating just the same.
ISBN 978-1-56523-8893. $14.99.

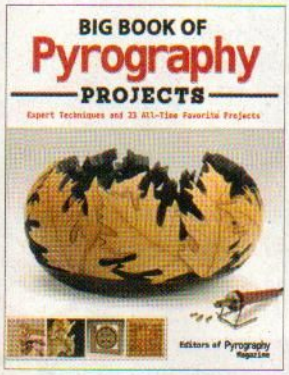


Making Wooden Dinosaur Toys and Puzzles

Jurassic Giants to Make and Play With

By Judy and Dave Peterson

Just in time for the spring craft season, your favorite puzzle book is back in print and better than ever. Enjoy new dinosaurs, redrawn patterns, and fresh photos, plus an all-new set of toy patterns perfect for toddlers. Expert tips will make sure your projects turn out perfectly every time, and info bites about the dinos help you keep up with the kids. For puzzles, play, and display, these dinosaur patterns are the very best.
ISBN 978-1-56523-8909. $19.99.



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From the Editors of Pyrography Magazine

Woodburning is an ancient technique that has been revived as an art and craft. Make realistic portraits, cute craft-show items, remarkable home décor, and much more. With nearly two dozen projects, expert tips, and a gallery of gorgeous projects from around the world, this is the definitive book for people who want to try pyrography. Plus, learn how to make your own patterns, choose and maintain a machine and supplies, pick the perfect material, and stay safe while you burn.
ISBN 978-1-56523-8886. $19.99.

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CALL FOR ENTRIES

Got a good jig or a clever storage system? How about a pretty pendant or beautiful bracelet? Submit your workshop item or jewelry design for a chance to win cash prizes! Your entries can be any size or technique, and painted or unpainted. Special thanks to our friends at Seyco, The Scroll Saw Specialists for sponsoring the cash prizes for Contest 2.

Contest	Category	Entry Period	Online Voting	Winners Published
2	**Jewelry OR Functional: Workshop (*items to use in your shop*)**	**December 15 – February 15, 2016**	**March 1-15, 2016**	**Summer/Fall 2016 issue**
3	Ornaments: Painted & Unpainted	March 16 – June 1, 2016	June 15-30, 2016	Fall/Holiday 2016 issue
4	Functional: Kitchen or Office *(items to use in either room)*	May 17 – September 1, 2016	September 15-30, 2016	Winter/Spring 2017 issue

Entry Information:

- Please e-mail one high-resolution photo or mail one professionally printed photo of your entry, along with the following information: Category, piece name, size, type of wood, and story/inspiration, if any. Also, include your name, address, and e-mail address. If you do not have e-mail, include a phone number instead.
- E-mail your entries to: Editors@scrollsawer.com with a subject of SSW Contest #Jewelry16 or #Workshop16, as appropriate. Or, mail to: SSW Contest #Jewelry16 or #Workshop16, Fox Chapel Publishing, 1970 Broad St., East Petersburg PA 17520. Entries must be received by February 15, 2016.
- All entries must be original designs created by the entrant. They cannot be made from, inspired by, or variations of anyone else's pattern; they cannot be class projects; and no one else can have helped with the piece. By entering, you verify that your entry is your own creation.
- See the Rules for important entry details. Visit www.scrollsawer.com, or send an SASE to the address above to request a printed copy.

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Special thanks to our friends at Seyco, The Scroll Saw Specialists for sponsoring the cash prizes for the contest!

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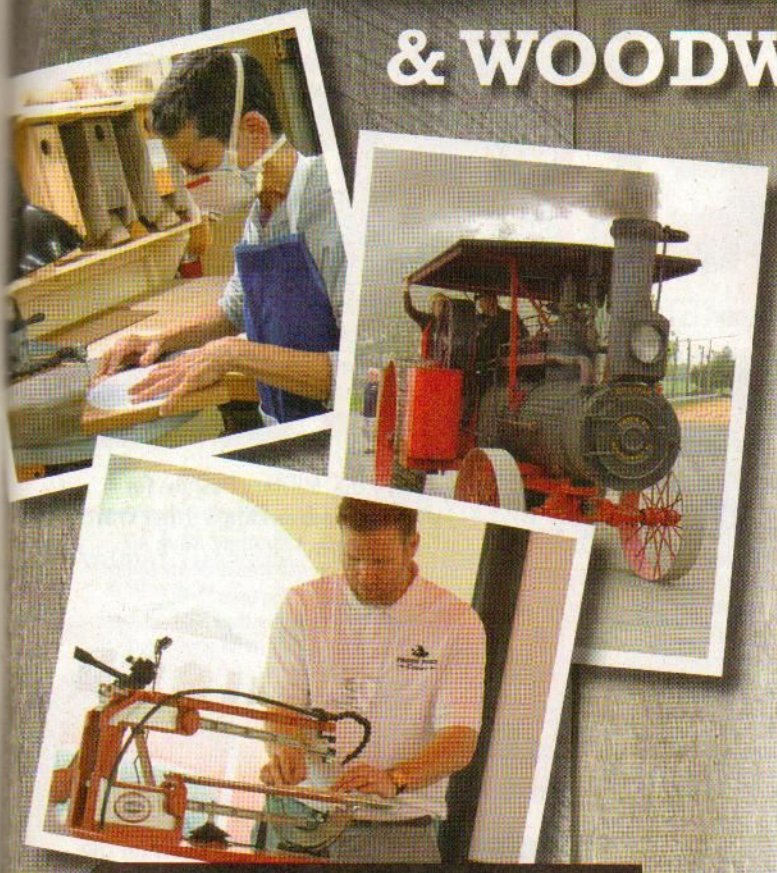

SAVE THE DATE
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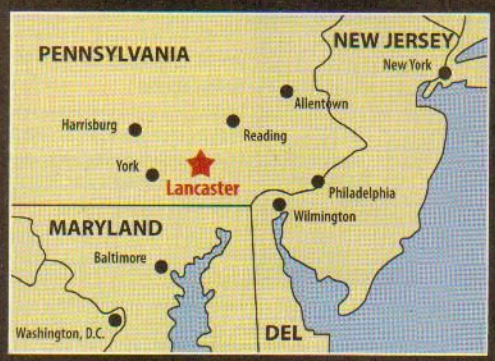

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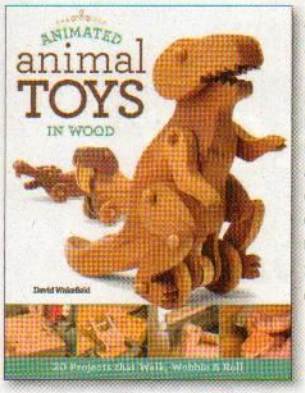

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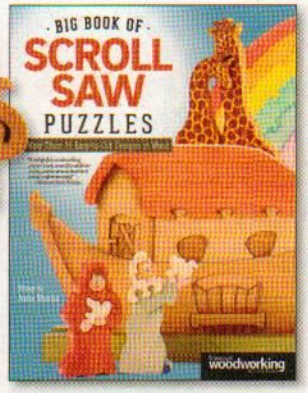

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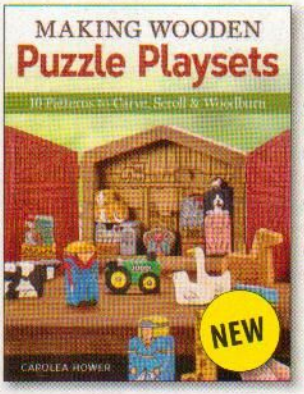

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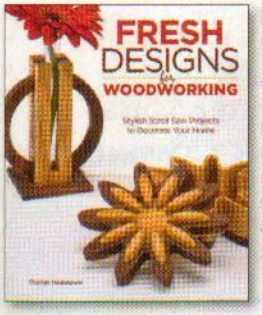

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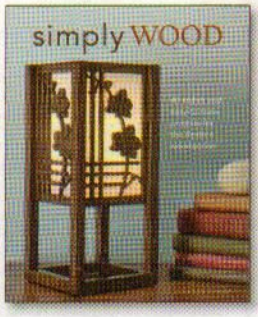

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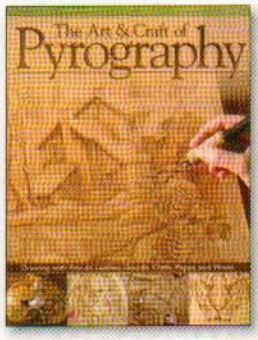

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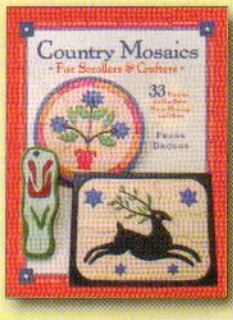

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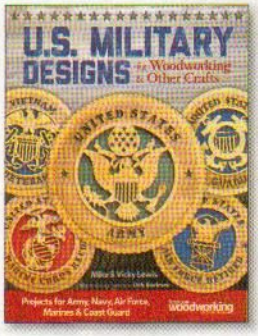

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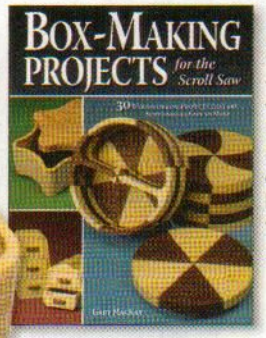

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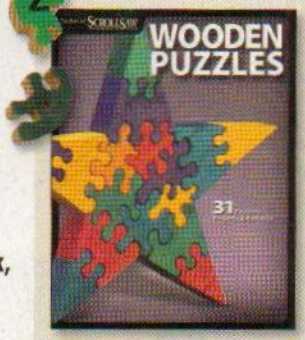

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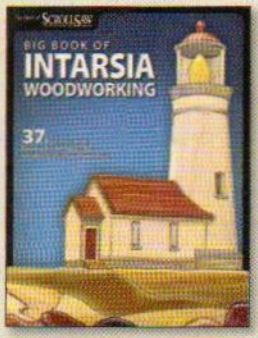

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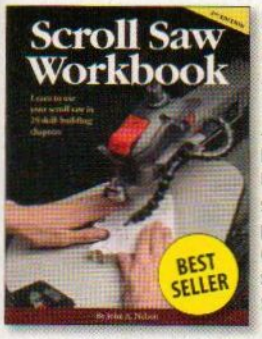

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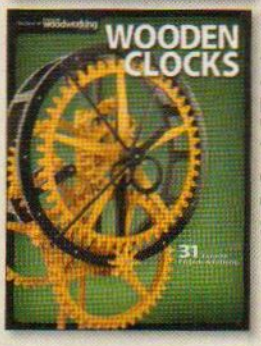

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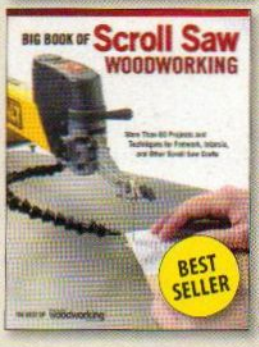

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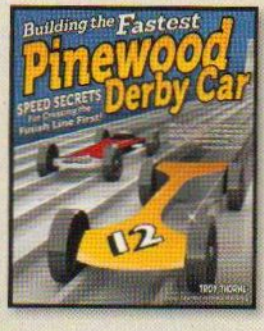

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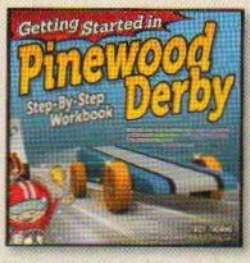

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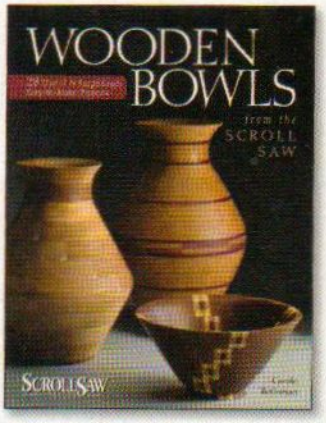

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Fretwork Animal Portraits

TABLE SAW Friendly

Practice cutting portraits with three animal designs of varying difficulty

By George Ahlers
Cut by Leldon Maxcy

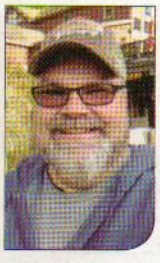
These wildlife portraits make great presents and items to sell. The koala pattern is the most challenging, especially with the addition of the optional overlay frame. While there are fewer frets in the cougar, it features more delicate bridges between the frets than the zebra pattern does. But, all of them can be stack-cut to speed up your production.

Making the Portraits

Use a table saw to cut the blank(s) to size. Center the pattern on the blank. Using standard fretwork techniques, cut the design and sand away any fuzzies. If desired, download the pattern for the koala's optional overlay frame at www.scrollsawer.com. Cut the overlay, remove any fuzzies, align the designs, and glue the two pieces together.

To emphasize the fretwork, attach each sanded project to a piece of Baltic birch plywood painted black or another black backing material. You can frame unfinished wood. If you plan to display an unframed portrait, apply several light coats of spray sealer just to make the portrait easier to dust.

Additional pattern for the *FRETWORK ANIMAL PORTRAITS* is in the pullout section.



George Ahlers lives in northeastern Pennsylvania with his beautiful wife, Wendy. He has been working wood for more than 25 years. George is currently employed at ShawneeCraft Brewery, in scenic Shawnee On Delaware, Pa.; there he gets to pursue two of his favorite pasttimes: brewing beer and woodworking.

Materials & Tools

Materials:

- Baltic birch plywood, ⅛" (3mm) thick: 1 per pattern (optional 2nd for koala) 8½" x 11" (216mm x 279mm) or 11" x 14" (279mm x 356mm)
- Baltic birch plywood, ⅛" (3mm) thick, or alternate black backing material to match plywood blank(s)
- Sandpaper
- Wood glue
- Black paint (optional)
- Frame (optional)
- Clear spray finish (optional)
- Hanger (optional)

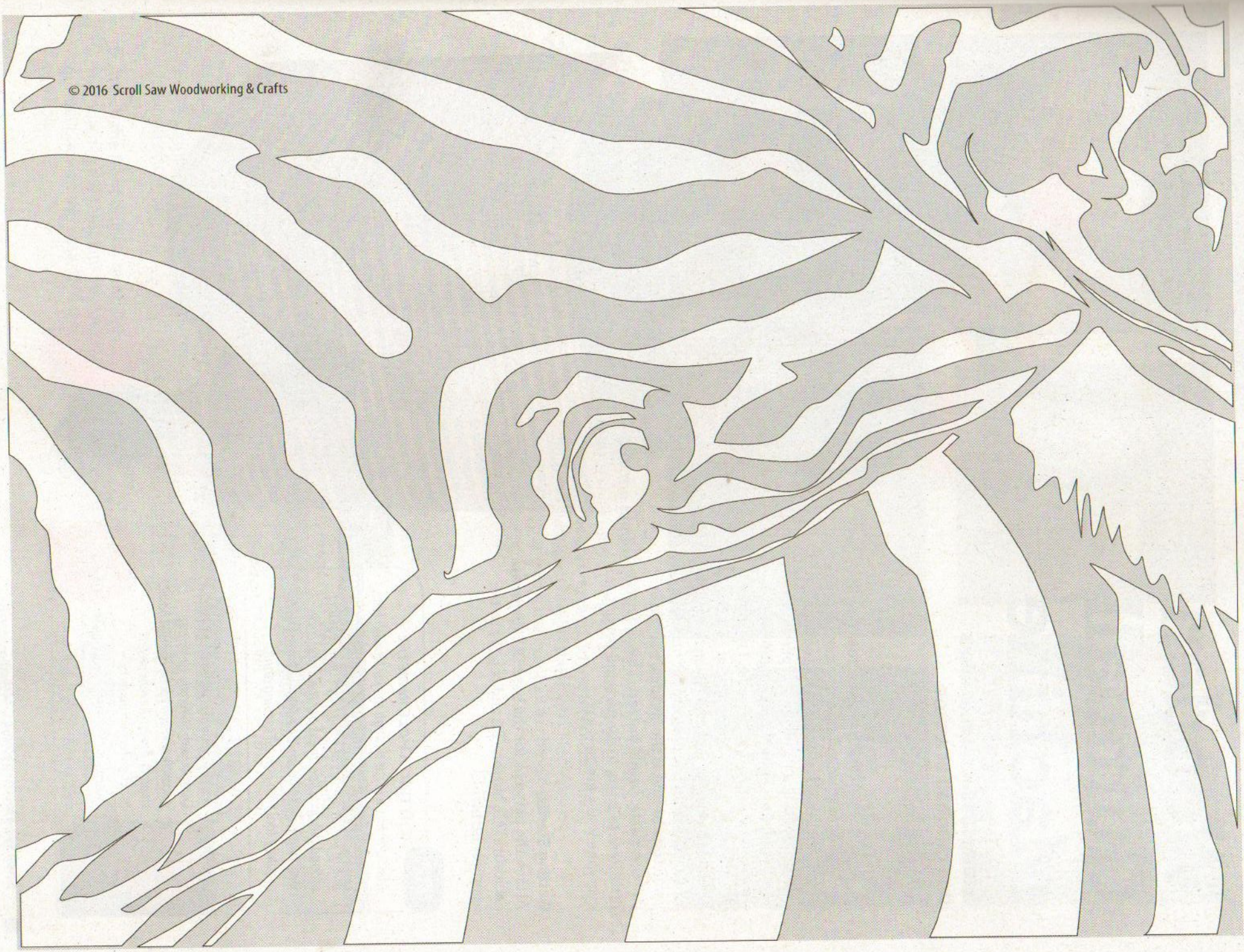
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Tools:

- Scroll saw blades: #2/0 reverse-tooth
- Drill with assorted small bits

Animal portrait patterns

ON THE WEB: Bonus Koala Bear leaf frame pattern on our website.
www.scrollsawer.com



Wooden Gumball Machine

Spring mechanism delivers one gumball at a time

By Levi Dojczman

Requiring only a few tools, this simple-looking gumball machine can be built over a weekend. It was the result of a few hours' noodling around with paper and pencil, wondering how I could make a gumball machine as compact as possible. I designed the machine to fit in the footprint of a regular-sized mason jar, so it fits nicely on any shelf. The only part of the project that may take some time to find is the springs, but you can use elastic bands instead. This is a great little item to bring to dinners and parties, as everyone will want to try it.

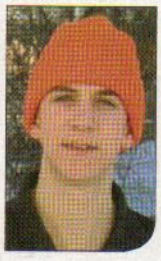
Getting Started

Attach the patterns for the base (A), dispenser enclosure (C), button (E), and top (F) to the appropriate blanks.

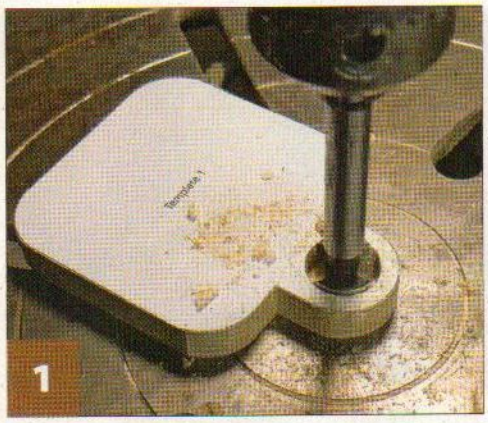
TIP

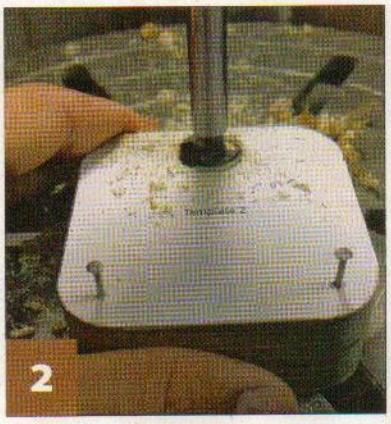
CUTTING A HOLE IN METAL

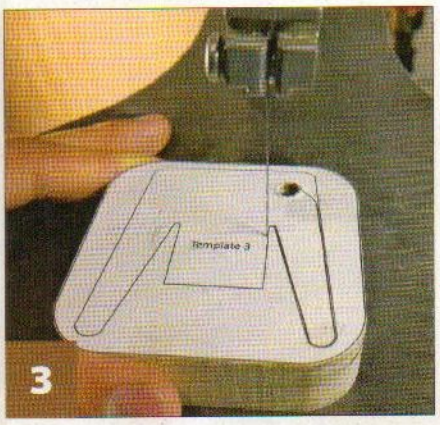
Most drill bits will cut through the jar lid with ease. However, if you're concerned about damaging a bit, drill or punch a series of small holes close together around the circle line, break out the metal circle with pliers, and smooth the edges with a round file or rotary tool with a small sanding drum.

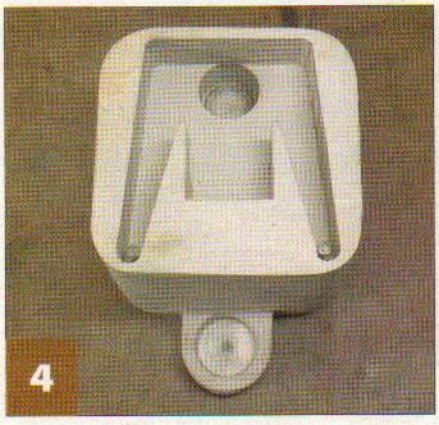


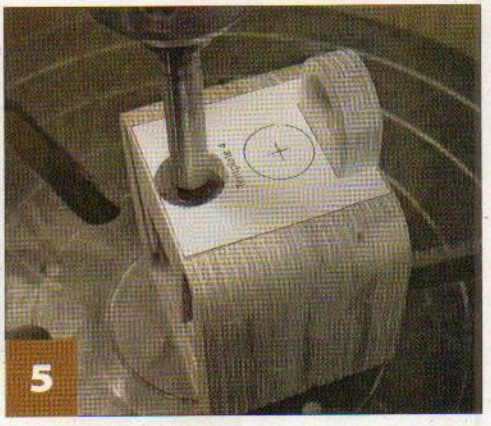
Levi Dojczman lives in Pembroke, Ont., Canada, with his family. He started woodworking at a young age and hasn't stopped, though he now prefers to design his own projects.

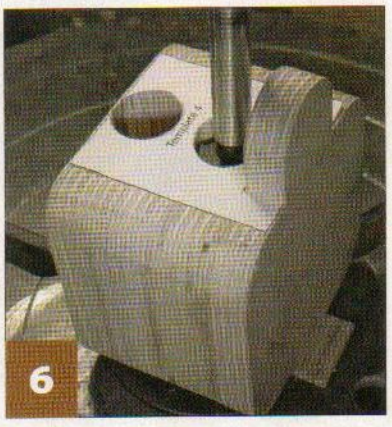












1 Cut the base (A). Drill the hole. Remove the pattern.

2 Glue and clamp the two body blanks (B1 and B2) together. Attach the pattern and cut the piece. Drill the three holes as marked. Trim two nails so the heads stick up ½" (13mm) when inserted into the small holes. Remove the pattern, and glue the nails into the holes.

3 Cut the perimeter of the dispenser enclosure (C). Then, drill a blade-entry hole and cut the inside. Remove the pattern.

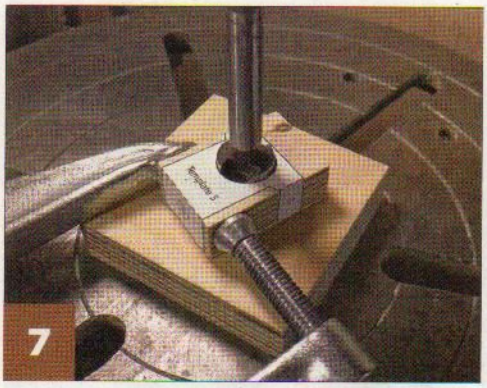
4 Glue the pieces together. Position the dispenser enclosure (C) at the top of the stack and the base (A) at the bottom. Make sure the holes through the body (B) are aligned with the opening in the dispenser enclosure.

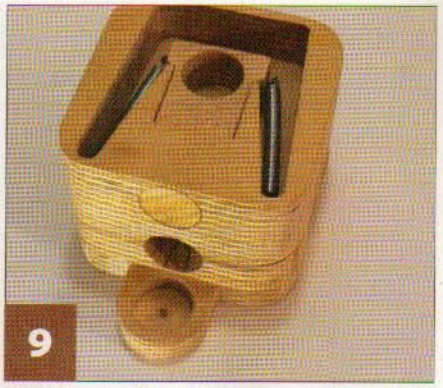
5 Attach the front drilling template. The notch in the template fits over the gumball tray on the base. Drill the top hole.

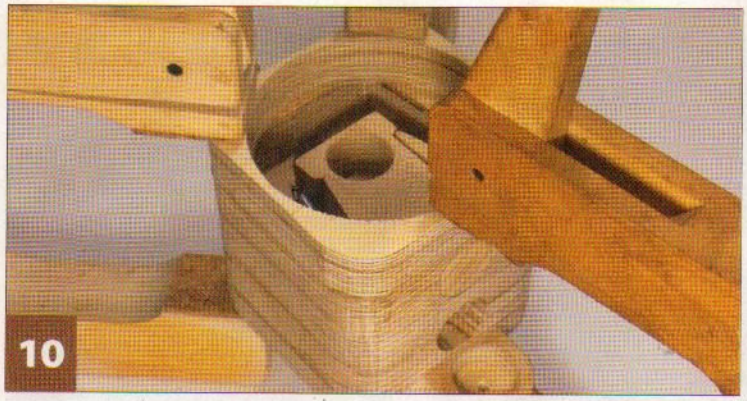
6 Drill the gumball chute hole. Place a ⅛" (3mm)-thick shim under the back of the machine and drill the lower hole as marked on the template. This hole should intersect with the hole drilled down from the top to allow the gumball to come out. Remove the template.

Parts List

	Part	Materials	Dimensions	Presentation
A	Base	Plywood, 7/16" (11mm) thick	3" x 4" (76mm x 102mm)	Pattern
B1	Body 1	Plywood, 11/16" (18mm) thick	3" x 3" (76mm x 76mm)	Pattern
B2	Body 2	Plywood, 7/16" (11mm) thick	3" x 3" (76mm x 76mm)	Glue to B1, cut as one piece
C	Dispenser enclosure	Plywood, 11/16" (18mm) thick	3" x 3" (76mm x 76mm)	Pattern
D	Dispenser	Plywood, 7/16" (11mm) thick	1 ¼" x 1 ¾" (32mm x 44mm)	Pattern
E	Button	Dowel, ¾" (19mm) dia.	¼" (6mm) thick	Dimensions/ pattern
E1	Button rod	Dowel, ¼" (6mm) dia.	1 ¼" (32mm) long	Dimensions
F	Top	Plywood, 11/16" (18mm) thick	3" x 3" (76mm x 76mm)	Pattern







7 Sand the dispenser blank (D) down to 5/8" (16mm) thick. Fold the pattern on the dotted lines and attach it to the blank. Clamp the piece securely to the drill press and drill the hole through the top.

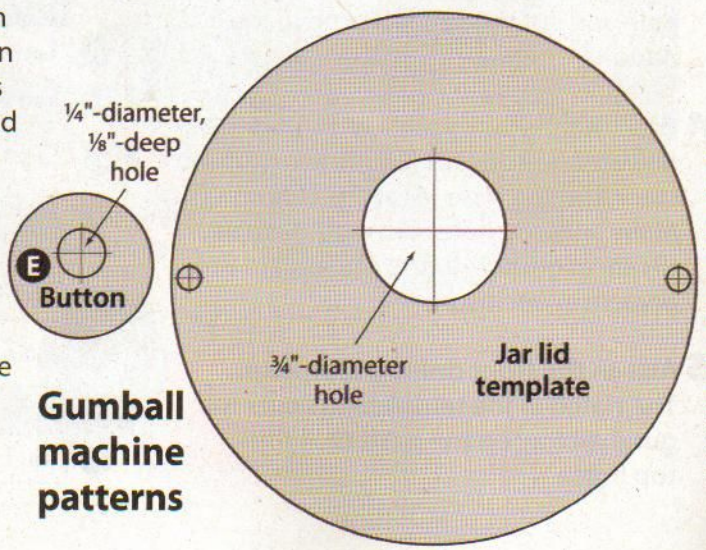
8 Cut the dispenser (D). Drill the remaining holes marked on the pattern. Cut two small nails to 3/8" (10mm) long and insert them into the holes in the sides; they should protrude only 1/8" (3mm). Drill the hole in the button (E). Remove the patterns.

9 Glue the button rod (E1) into the hole in the button. Thread the dowel though the top hole in the machine front and glue it into the front hole in the dispenser. Stretch the springs or elastic bands between the nails in the sides of the dispenser and the nails in the body.

10 Cut the inside of the top (F). I use a 2 13/16" (71mm)-diameter circle cutter in a drill press, but you can drill a blade-entry hole and cut the circle. Cut the perimeter. Then, carefully align the top with the rest of the gumball machine and glue it in place. Take your time with the alignment; the thin walls will be easy to sand through when you are finishing the machine.

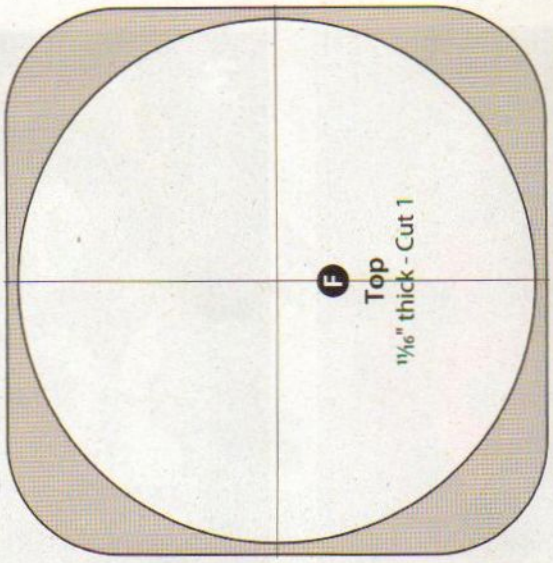
11 Attach the jar lid template to the flat jar lid. Drill the hole as indicated. Place a screw ring and the flat lid into the top of the machine, ensuring the hole in the lid aligns with the hole in the dispenser. Drill two holes as marked, remove the template, and screw the lid to the machine, which also secures the ring.

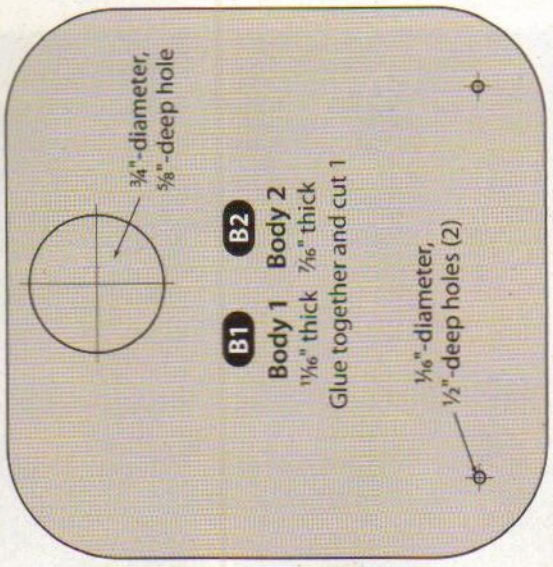
12 Sand away any imperfections and uneven edges. Apply a food-safe varnish, such as butcher-block varnish. Fill a mason jar with gumballs and screw it into place.

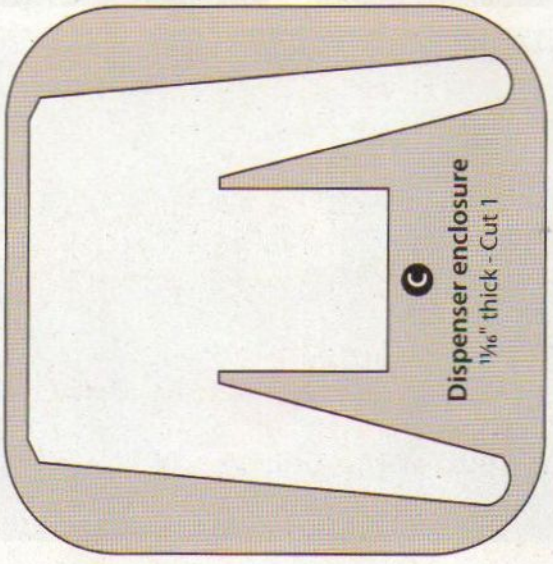


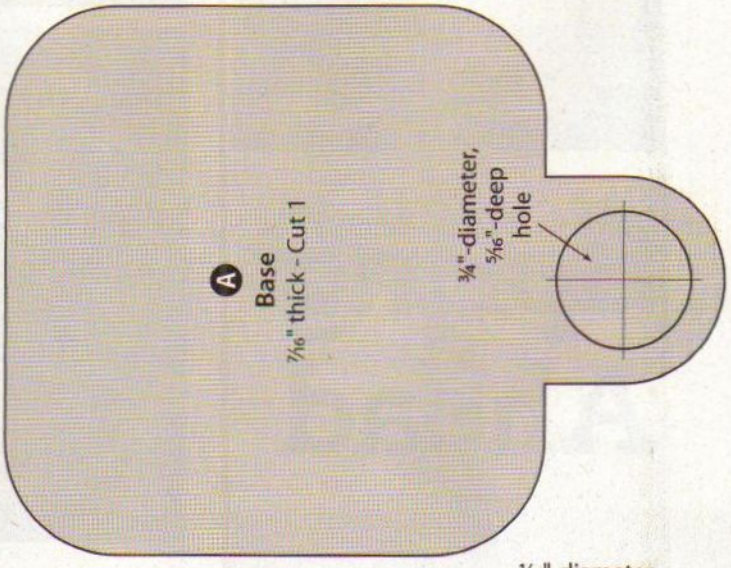
Gumball machine patterns

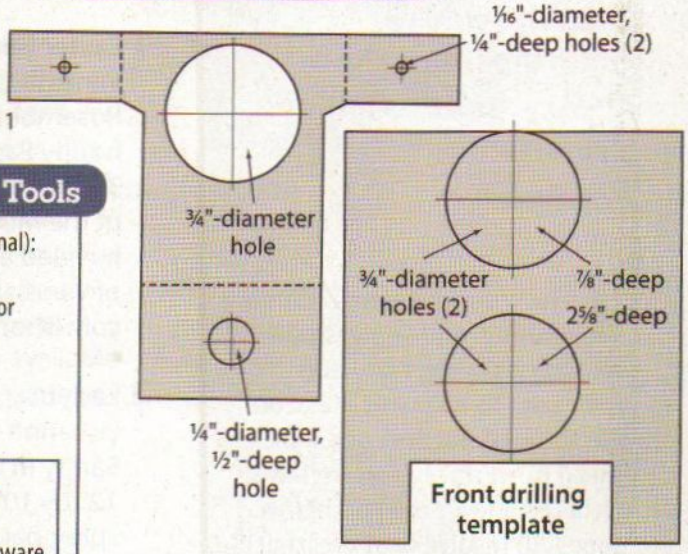
Gumball machine patterns











Materials & Tools

Materials:

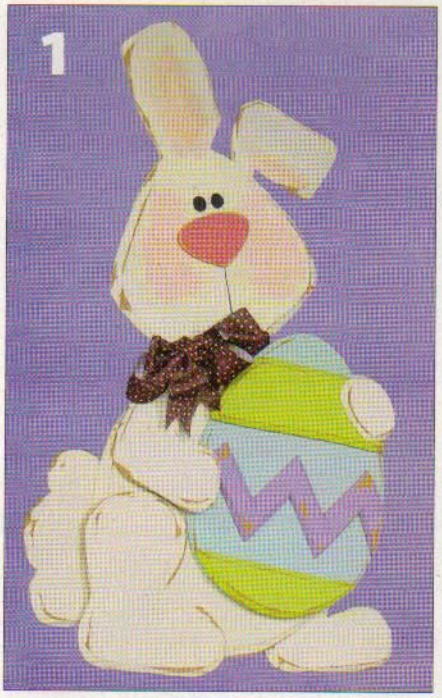
- Baltic birch plywood, 11/16" (18mm) thick: 3" x 9" (76mm x 229mm)
- Baltic birch plywood, 7/16" (11mm) thick: 3" x 8½" (76mm x 216mm)
- Dowel, ¾" (19mm) dia.: ¼" (6mm) long
- Dowel, ¼" (6mm) dia.: 1¼" (32mm) long
- Finishing nails: 4 each
- Wood screws, slotted flat head: 2 each #2 by ½" (13mm) long
- Wood glue
- Springs, expansion style: 2 each 3/16" (5mm) dia. x 1⅝" (41mm) long (or elastic bands)
- Sandpaper
- Finish: food-safe varnish
- Mason jar (1 qt size) with 2-part metal lid

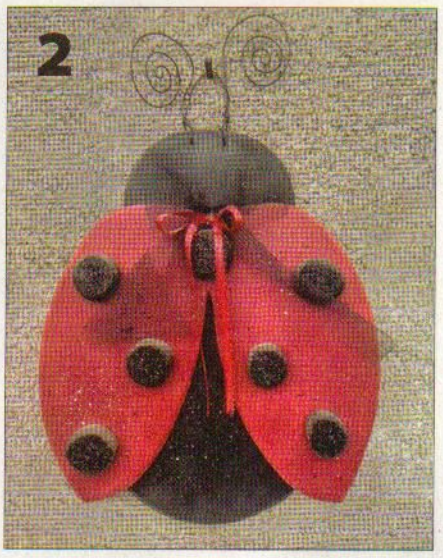
Tools:

- Scroll saw blades, such as Olson: #7 reverse-tooth
- Drill press and twist bits: 1/16" (2mm), ¼" (6mm); Forstner bits: ¼" (6mm), ¾" (19mm)
- Clamps
- Circle cutter (optional): 2 13/16" (71mm)
- Hammer with nail or punch (optional)

SPECIAL SOURCES:
The springs can be found at most hardware stores. You can also find them online at Fastener Megastore, 954-565-5678, www.fastenermegastore.com.

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





Spring Ahead

Beat the winter doldrums with these cheery spring-themed projects

By Kathleen Ryan

The wind is blowing, rain is falling, and snow is piling up. Gray days start late and end early. To help you shake off the winter doldrums and look ahead to warmer days, we have gathered a few projects that we hope will inspire your creativity and spring you into action. Happy scrolling!

1 Easter Bunny
Vanessa Campbell of Rosemount, Minn., made this hoppy Easter decoration, 30" tall. She sanded the edges of the MDF to achieve a beveled appearance. See more of Vanessa's work at www.etsy.com/shop/TheBubbleBox.

2 Ladybug
Liseanne Chapman of Sawdust Sanity in Utah cut this ladybug, 12" by 10", from MDF. The spray-painted body and wings are decorated with acrylic splatter, black glitter, red ribbon, black tulle, and craft wire. Visit www.sawdustsanity.blogspot.com for more ideas from Liseanne.

3 Easter Puzzle
This cute 10-piece puzzle was cut by a veteran scroller, Michael E. Riffel, and painted by Noreen Spielman. You'll find the pattern in *Big Book of Scroll Saw Puzzles* by Tony and June Burns and available at www.foxchapelpublishing.com. Michael shares his work at www.pinterest.com/theriff48.

4 Splash
Wendy Gardiner of Battle Ground, Wash., scrolled this word art in MDF and decorated the letters with paint, feathers, flowers, ribbon, glitter, and scrapbook paper. Visit Wendy online at www.wellgood.etsy.com.

5 Birdhouse
Al Pagliarini of Snowy Creek Designs in Hope Valley, R.I., cut this one-of-a-kind fretwork birdhouse from pine. He finished the house, 10" by 12" by 13", with white exterior paint backed with a black wood panel for contrast and strength. Visit Al's website at www.etsy.com/shop/SnowyCreekDesigns.

6 Flower Basket
Mandi Archibald of Sliverz Wood in Logan, Utah, cut this cheery design, 9", from MDF. She painted and distressed the beadboard front and decorated the flowers with scrapbook paper and faux gems. See more of Mandi's work at www.silverzwood.blogspot.com.

7 Robin's Nest Intarsia
Created by Garnet Hall of Sawbird Intarsia Designs in Estevan, Sask., Canada, this intarsia measures 11" by 17" and was cut from aspen, aromatic cedar, pau amarillo, poplar, and black walnut. Garnet stained the eggs blue. This pattern is available through PS Wood Machines, www.pswood.com. Visit Garnet's website at www.sawbird.com.

8 Majestic Cross
Alan Denison of Sawdust Connection in Mission, Tex., cut this cross, 8½" by 14", from oak using a purchased pattern. Contact Alan at www.sawdustconnection.com.

Note: These projects are intended as inspiration only. The patterns are not in this issue, nor are they necessarily available from the designers.

World-Record Puzzle

Jill Walterbach's puzzle has more than 50,000 pieces ... and fits in a shoulder bag

By Kathleen Ryan

Photos by Wayne Hugins

Jill Walterbach's hand-cut and handpainted record-breaking puzzle has 50,434 pieces and is more than 66' long.

When Jill Walterbach of Surprise, Ariz., set out to break a record, it took her less than a year to design and cut a 66½'-long puzzle comprising 50,434 pieces. That's 10,000 puzzle pieces more than the current record holder. And Jill's ingenious puzzle is small enough to fit in a shoulder bag.

A former engineer, Jill began making wooden toys for her grandchildren in 1990, and then moved on to intarsia and fretwork. "Eventually I got tired of drilling all those holes and taking the blade in and out," Jill recalled. "When a fellow engineer asked me to make a picture puzzle, I began exploring a whole new area that I really enjoyed." After retiring in 2001, Jill began selling her crafts at street fairs and art events. She gradually developed more complex puzzles with layers and hand-painted images. "Now I do puzzles exclusively, calling upon my engineering background to help work out the math involved in figuring all of the angles, height, length, etc."

Then Jill read an article about the 40,000-piece world-record puzzle Dave Evans created in 2013. "I really liked the idea, but I did not have room to make a puzzle that size," she said. (Mr. Evans' puzzle is 8' by 20'.) Mulling it over, Jill remembered an idea she'd had years earlier—to make a puzzle that connected to itself in a circle. Her breakthrough came while cutting a flat puzzle with rows of small pieces. "As I was laying the bottom rows out to sand, they stood on edge and formed an arc," she said.

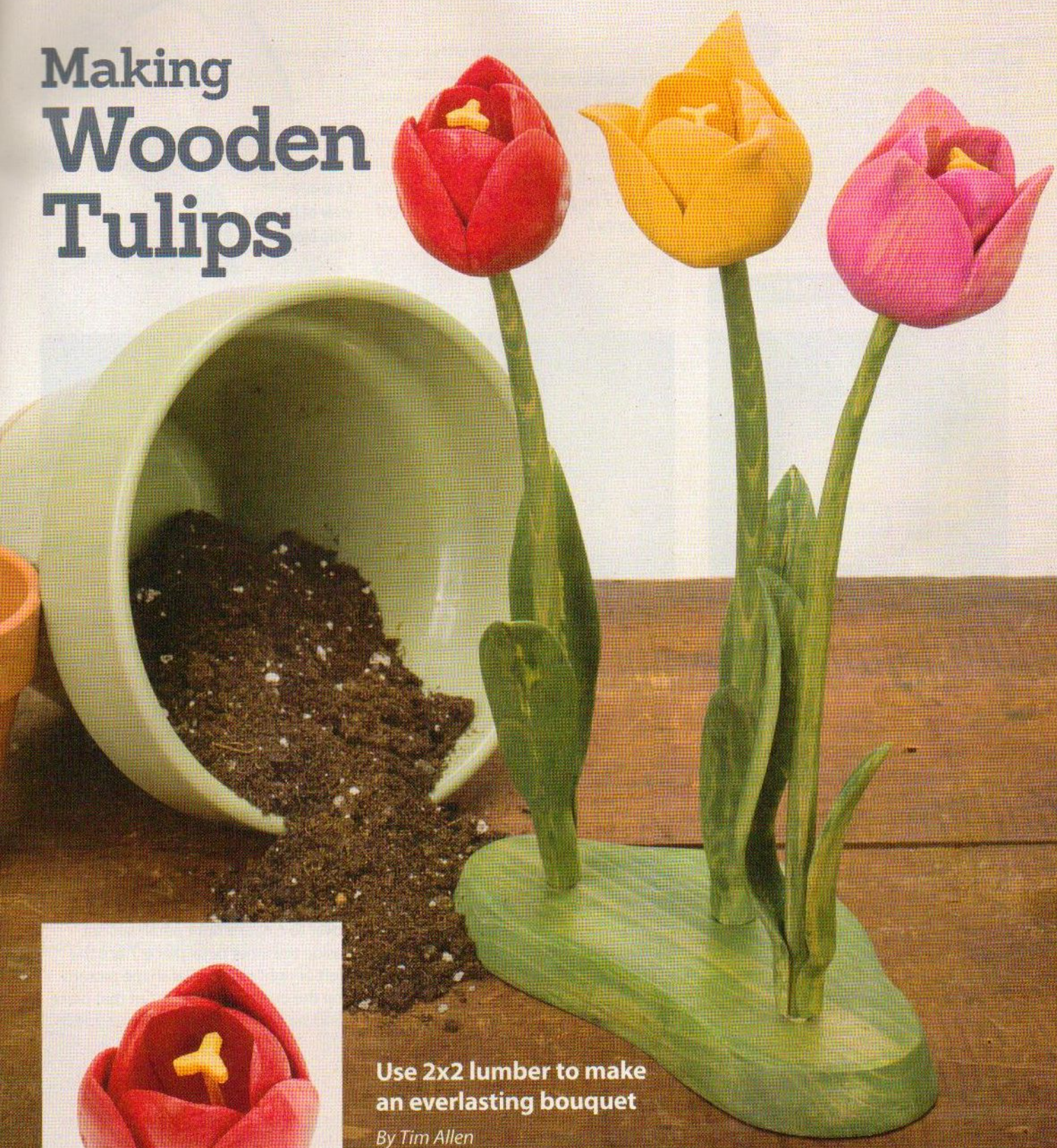
Experimenting, she discovered that she could cut 22" of MDF into 55 pieces to form a circle with a diameter of about 6½". To make larger puzzles, she glued the ends of the circles and wrapped them around a center post. "I just kept painting and cutting panels and wrapping them around the center post until I had over 50,000 pieces. Then I finished the puzzle so I could end it on a seam," she explained. Unfortunately, Jill's puzzle doesn't qualify for a Guinness World Record because she didn't videotape herself cutting the pieces, but she is satisfied with knowing that her puzzle has a record-setting number of pieces.

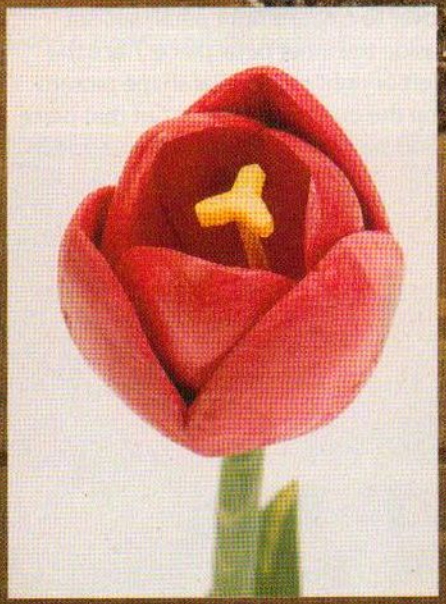
To make a circular puzzle, Jill begins each 12"-long puzzle panel by painting an original abstract design on MDF. She sprays the finished painting with acrylic finish and covers it with tape. "I glue the cutting pattern to the tape and use a ⅜" grid pattern to cut the pieces. After cutting each section, I remove the tape and sand the back. Then, I spray the front and back with acrylic spray. Finally, the puzzle is taped on the backside to prevent accidental un-puzzling."

What does one do after completing an epic project? Keep working, of course. "My newest project is a hand-painted mural 50" in circumference, 50" tall, and wrapped as a cylinder," said Jill. "I delight in creating new and different puzzles, and am proud of my record-breaking accomplishment, but for me the reward is in the process more than the end result."

See more of Jill Walterbach's work at cuttingedgejigsawpuzzles.com.

Making Wooden Tulips





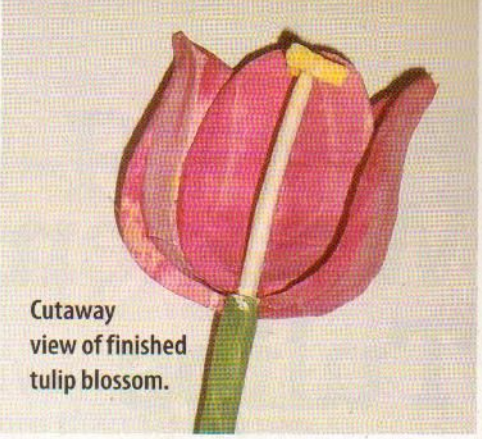
Use 2x2 lumber to make an everlasting bouquet

By Tim Allen

Tulips are one of the classic spring blooms. I make mine from 2x2 pine construction lumber, selecting pieces with few knotholes and nice grain patterns. I stain the flowers so that the grain shows through. I have included three petal patterns and two leaf patterns, so you can vary the shapes of your flowers. I hope you enjoy making them as much as I do.

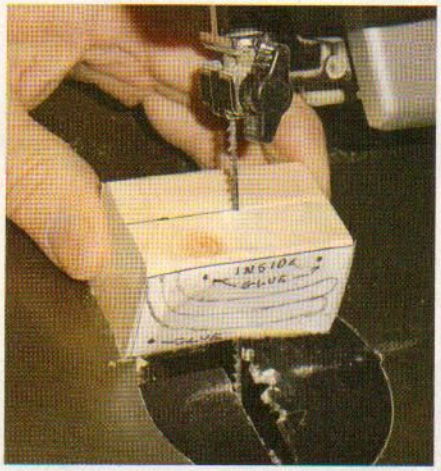
Getting Started

Make six copies of the petal pattern of your choice and two copies of each leaf pattern. You may want to make extra copies of the petal patterns; it is fairly easy to make mistakes the first time. Cut out the patterns. *Note: Each blossom consists of three full inner petals and three full outer petals. You will cut six half-petals in each size and glue them together to achieve properly shaped full petals. The patterns have two sides; cut a left half and a right half for each petal.*

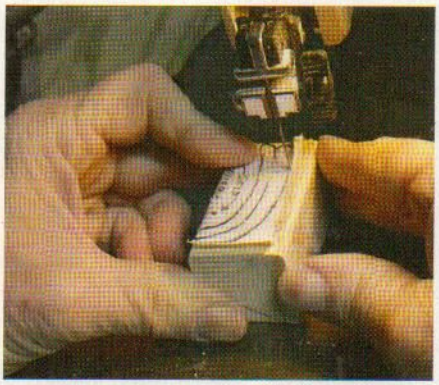


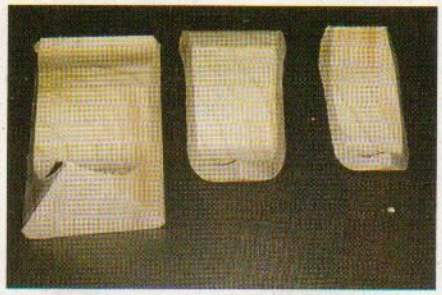
Cutaway view of finished tulip blossom.

MAKING THE BLOSSOM

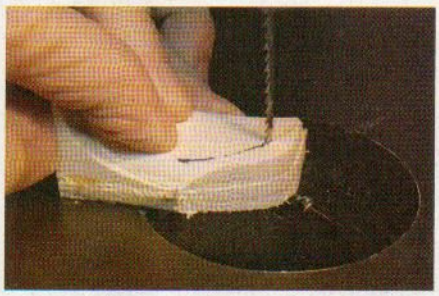


▲ **Step 1: Cut the petal blanks into wedges.** Draw a centerline on the long edge of a petal blank. Attach the petal pattern with the side marked "inside" closest to the marked edge. Set the saw table to 30° and cut along the centerline. Rotate the blank 180° and cut along the line again to create three wedge-shaped pieces. Use dots of cyanoacrylate (CA) glue and clear packaging tape to reassemble the blank. Repeat for the remaining petal blanks, and then return the saw table angle to 0°.





▲ **Step 2: Cut the outer petal shapes.** Cut along the petal pattern lines. To help keep the blank together, cut all but the last ⅜" (10mm) until you have all of the pieces cut. Then, go back and cut the remaining wood to free the petal sections. Discard the scrap from the center wedge. Keep the outer scrap, outer petal, and inner petal pieces.

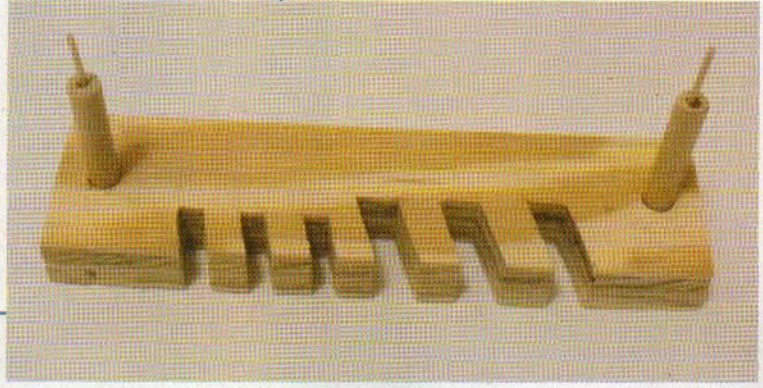


▲ **Step 3: Cut the inner petal shapes.** Stack the outer scrap, outer petal, and inner petal on the saw table. Trace the inner petal shape pattern onto the inner petal. Cut along the line. Use one side of the pattern for the left half of the petal, and flip the template over to create a right petal half. Set aside the inner petal piece. Trace the left or right outer petal shape pattern on the outer petal piece. Cut that piece and set it aside. *Note: Cut three each of*

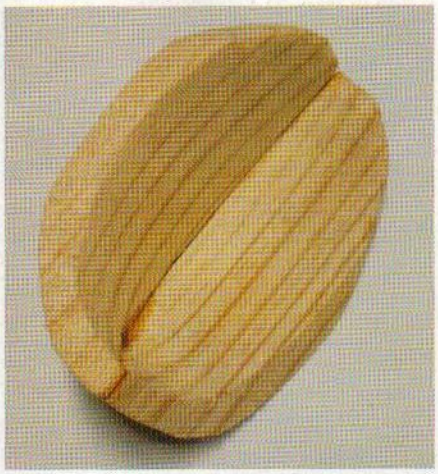
TIP

MAKING THE PETAL HOLDER JIG

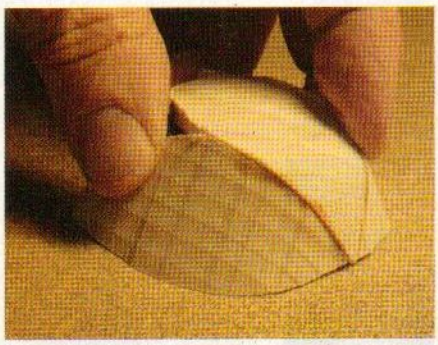
This jig is useful for holding petal assemblies while glue and stain dry. Attach the pattern to scrap ¾" (19mm)-thick lumber and cut along the lines. Drill ⅜" (10mm)-diameter holes in the sides. Cut dowels to fit the holes. Drill ⅛" (3mm)-diameter holes in one end of each dowel, cut off a piece of ⅛" (3mm) diameter dowel or a round toothpick, and glue it in the hole. Put the dowels in the ⅜" (10mm)-diameter holes to hold the petals while you stain.



left inner and outer pieces, and three right inner and outer pieces, per blossom. Use a drum sander or rotary tool with a ½" (13mm)-diameter (or smaller) drum to smooth the inside of each petal piece. The insides of the petals are harder to smooth once assembled.

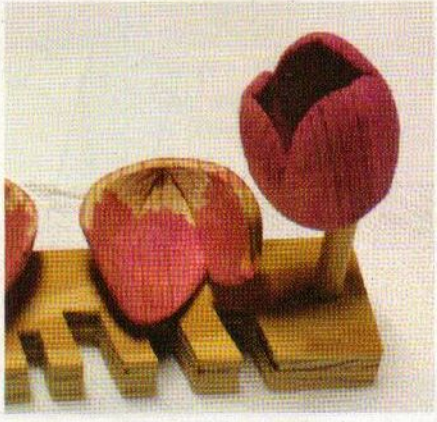


▲ Step 4: Assemble the petals. Glue two inner petal pieces together, matching the top and bottom points to form one slightly cupped full petal. If needed, smooth and square the gluing surfaces by rubbing them on 120-grit sandpaper placed flat on the bench. *Note: If you use cyanoacrylate (CA) glue, hold the pieces together for 30 seconds until the glue sets. If you use wood glue, set the pieces in a slot in the petal jig to dry.* Repeat with a second set of inner petals. Shape the tops of the glued petals and the remaining unglued petal pieces using a rotary tool or pad sander. Don't round the gluing surfaces.



▲ Step 5: Glue a half-petal to one side of each full petal. Position the half-petals and align the inside edges of the gluing surfaces so they will match and form a full petal when you assemble the two pieces of the blossom. Dry-fit the halves and sand the gluing surfaces as needed. Repeat the entire process with the outer petal pieces. You should have two inner and two outer flower assemblies.

▲ Step 6: Glue the two inner halves together. This makes an inner petal assembly with three full petals. When the glue is dry, sand the outside of the assembly smooth, and ensure it will fit inside the two outer halves. Sand the lower part of the inner assembly as needed.

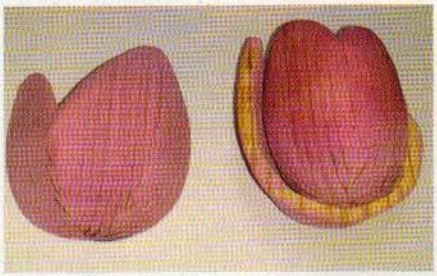


▲ Step 7: Stain the blossom halves. I use red, pink, or yellow acrylic paint. Dip a paper towel in water, then in the paint, and wipe the paint on the blossom halves. *Note: Do not stain the bottom of the outer petals or the remaining gluing surfaces.* Wipe off the excess and let dry.

TIP

CYANOACRYLATE (CA) GLUE

I use cyanoacrylate (CA) glue, such as Super Glue, for these flowers. It dries in about five minutes (instead of 90 minutes for wood glue). Wear rubber gloves to avoid gluing your fingers to the wood or to each other. Apply the glue sparingly; the thinned acrylic paint doesn't adhere well to the glue.

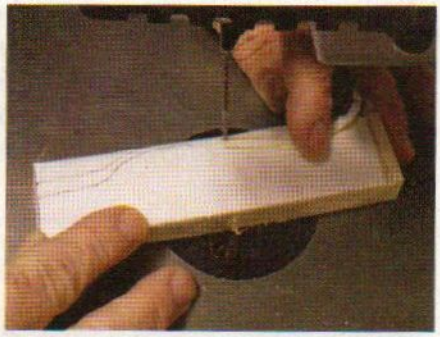


▲ Step 8: Assemble the blossom. Place the inner assembly between the halves of the outer assembly and glue the outer assembly together, ensuring the seams meet at the bottom of the blossom. Let dry. Carefully drill a ⅛" (3mm)-diameter hole through the bottom of the blossom for the pistil. Then, use a ¼" (6mm) bit to enlarge the hole in the outer petals only for the stem. Sand the lower part of the flower smooth using progressively finer sandpaper, up to 220 grit. Stain the outside and set it in the petal jig to dry.

MAKING THE STEM & LEAVES

Step 9: Make the stem, pistil, and stigma. Attach the stem pattern to the blank. Cut one side, being careful at the thin top (the pistil); tape the pieces back together; and cut the other side. Remove the scrap and use a sander or rotary tool to round the stem. Work slowly on the pistil; I have broken quite a few of them by hurrying. As you are sanding, check that pistil and stem fit snugly into their holes and adjust as necessary. Flatten the top of the pistil. Shape the bottom of the stem so it will fit into a 5/16" (8mm)-diameter hole in the base. Finish the stem with green paint or stain, but leave the wood raw where it will fit into the hole in the flower. Cut the stigma (the triangular part at the top of the pistil) from

⅛" (3mm)-thick scrap, round the edges with a rotary sander, and paint it yellow.



▲ Step 10: Make the leaves. Attach patterns to two leaf blanks and cut along the thin edge. Tape the pieces back together, tilt the saw table to 25°, and cut the other side. The bottom end of each pattern has a slanted line that shows which way to make the slanted cut. Remove the waste and sand the inside faces of the leaf halves using a spindle sander. Glue the halves of each leaf. Round the edges with the sander. Sand the leaves smooth and stain them.

MAKING THE BASE

Step 11: Make the base. Refer to the photo on page 29 and draw your own base pattern. Set the saw table to 25°, attach the pattern to the blank, and cut the base. Sand the top of the base round and smooth. Drill 5/16" (8mm)-diameter holes for the stems. Stain the "grass."

Step 12: Assemble the tulip. Put a touch of glue on the top of the stem, push it into the blossom, and let it dry. Glue the stigma to the top of the pistil. Put the stems into the base, but don't glue them; this makes the project more portable. Fit the leaves to the stem, and glue them in place, holding them with a rubber band while the glue dries. Finish the tulips with two to three coats of spray shellac.

Patterns for the ***WOODEN TULIPS*** are in the pattern pullout section.

Materials & Tools

Materials:

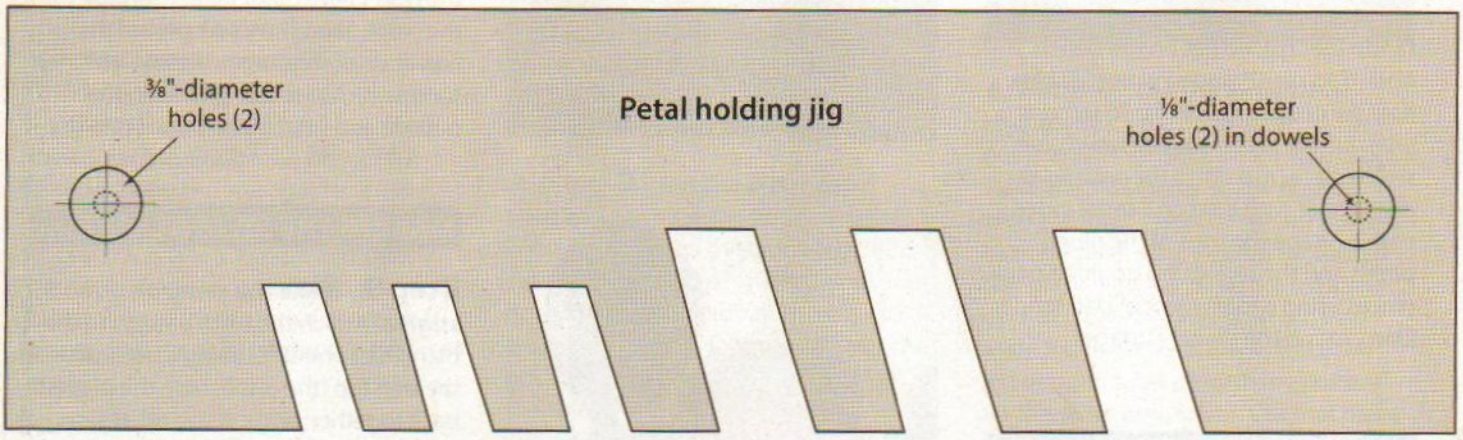
- Poplar or pine, 1½" (38mm) square: petals & stem, 30" (762mm)
- Poplar or pine, ¾" (19mm) thick: leaves, 2" x 24" (51mm x 610mm)
- Poplar or pine, ¾" (19mm) thick: base, 4" x 6" (102mm x 152mm)
- Scrap wood, ¾" (19mm) thick: 3" x 8" (76mm x 203mm)
- Dowel scraps: ¼" (6mm), ⅛" (3mm) dia.
- Sandpaper
- Sleeves for sanding drums: 80, 120 grits
- Glues: cyanoacrylate (CA), wood
- Acrylic craft paints, such as Craftsmart: dark green outdoor, yellow, red outdoor, pink blossom
- Finish, such as spray shellac

Tools:

- Scroll saw blades: #5 reverse-tooth or another heavy-duty blade
- Rotary tool with sanding drums: ¼" (6mm) dia., ½" (13mm) dia.
- Sanders: drum, pad

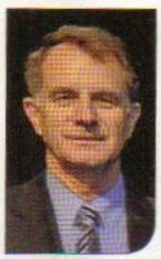
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Assembly and staining jig pattern



Parts List

Part	Materials	Dimensions	Quantity
Petals	Light wood such as poplar, 1 ½" (38mm) square	2 ½" (64mm) long	6
Leaf 1	Light wood such as poplar, ¾" (19mm) thick	2" x 6" (51mm x 152mm)	2
Leaf 2	Light wood such as poplar, ¾" (19mm) thick	2" x 4" (51mm x 102mm)	2
Stigma	Light wood such as poplar, ⅛" (3mm) thick	Small scrap	1
Stem	Light wood such as poplar, 1 ½" (38mm) square	10" (254mm) long	1
Base	Light wood such as poplar, ¾" (19mm) thick	4" x 6" (102mm x 152mm)	1



Tim Allen lives with his wife, Karen, in Mechanicsville, Md. He is a retired submariner who works as a government contractor creating and maintaining computer systems for government agencies. He started woodworking about 10 years ago and designs most of his own creations.

Viking Longship Intarsia

Use colorful wood to portray an iconic ship under full sail

By Glenn L. Borreson

A thousand years ago, the Vikings were fearless explorers and warriors. Their famous longships came to represent the bravery and relentlessness of these early Scandinavian people. Cut this intarsia design to honor their memory. It's a great gift for folks with Scandinavian ancestry.

Making the Project

Use standard intarsia cutting and shaping techniques for this piece. Trace the assembled ship or use the ship pattern to make the backing board. Then, glue and clamp the pieces to the backing board. (The light wood visible between the sails and riggings is the backing board.) Apply a clear finish, and attach a hanger to the back.

Glenn L. Borreson, a retired Lutheran pastor from Holmen, Wisc., has been a woodworker since he was in grade school. He also enjoys genealogy, historical research, and presenting programs about his Norwegian heritage.

Materials & Tools

Materials:

- Medium wood, such as muninga, ½" (13mm) thick: 3" x 4½" (76mm x 114mm)
- Light wood, such as maple, ½" (13mm) thick: 3" x 4½" (76mm x 114mm)
- Dark wood, such as walnut, ½" (13mm) thick: 4" x 8½" (102mm x 216mm)
- Blue or purple wood, such as purpleheart, ½" (13mm) thick: assorted scraps
- Red wood, such as red cedar, ½" (13mm) thick: assorted scraps
- White wood, such as aspen, ½" (13mm) thick: assorted scraps
- Yellow wood, such as pine or oak, ½" (13mm) thick: assorted scraps
- Light plywood, such as Baltic birch, ¼" (6mm) thick: 8" x 8¾" (203mm x 221mm)
- Sandpaper
- Wood glue
- Clear finish
- Hanger

Tools:

- Scroll saw blades: #5 reverse-tooth
- Sanders
- Clamps

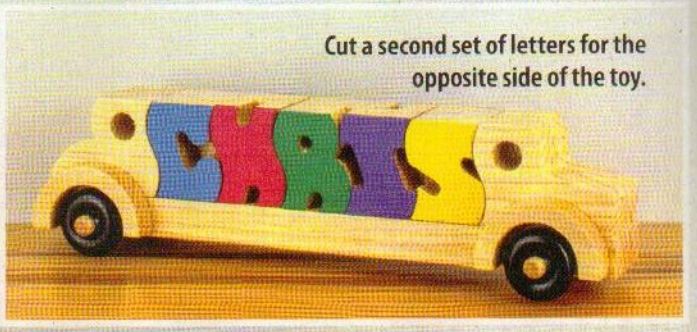
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Pattern for the ***Viking Longship Intarsia*** is in the pattern pullout section.

The Shields

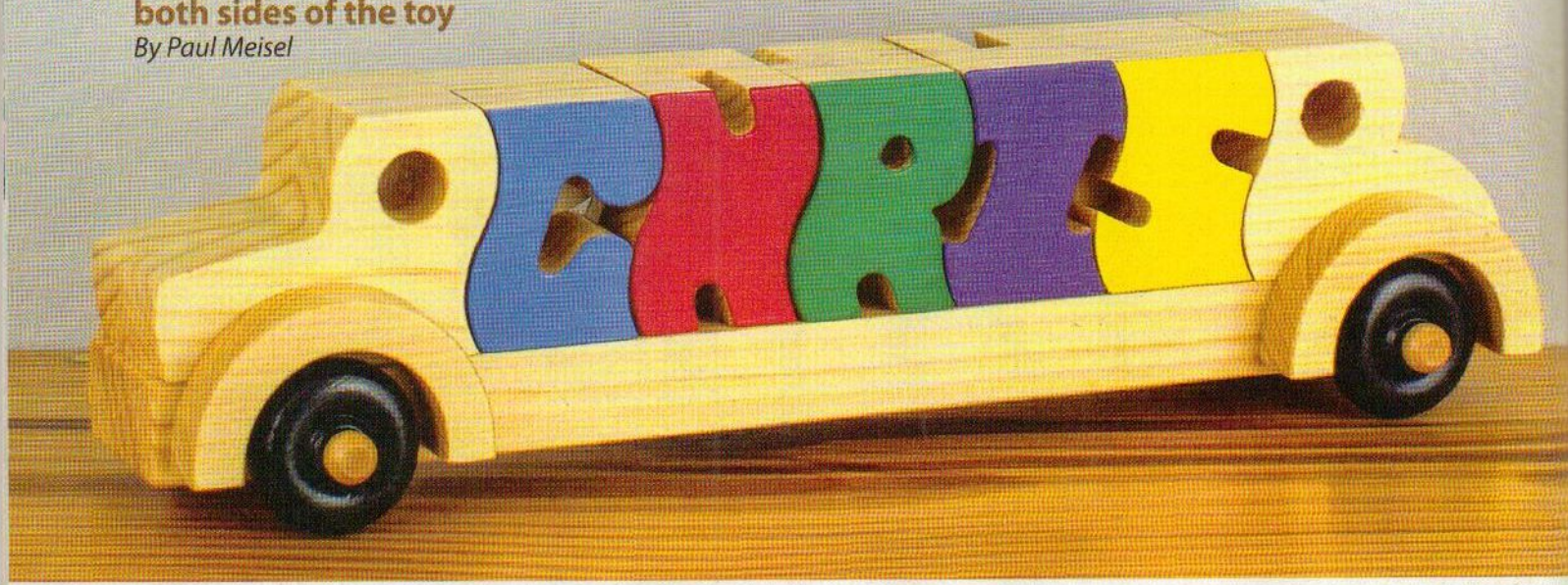
The shields on the side of the longship pay homage to the flags of the Scandinavian countries where the Vikings came from. From left to right, the shields represent Iceland, Finland, Denmark, Sweden, and Norway.

Auto-graph Wooden Toy


Cut a second set of letters for the opposite side of the toy.

Work a little saw magic to personalize both sides of the toy

By Paul Meisel



Kids will love their personalized Auto-graph (a play on the word autograph) toy. Long or unusual name? No problem! Any name, short or long, will fit just fine.

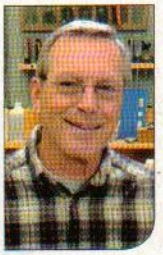
Plus, adults will do a double-take when they realize the name can be read from either side of the car! The secret is two sets of alphabet patterns. You cut each letter twice: once from the right-side patterns and once from the left-side patterns. Because all of the letter blocks are identical in size, any letter can be placed back-to-back with any other letter.

Selecting the Wood

I cut the front and back from ¾" (19mm)-thick lumber and face-glued them together to create the required 1½" (38mm) thickness. It's possible to cut the pieces from a single piece of thick stock, but I find it easier to cut thinner wood on a scroll saw. I cut my toy from pine, but you can use most common domestic species of wood. Avoid some of the exotic tropical hardwoods, which can be toxic. If you have any doubts, check the wood toxicity chart at www.scrollsawer.com.

Cutting List

	Part	Materials	Dimensions	Presentation	Quantity
A	Front	Pine, ¾" (19mm) thick	1 ¾" x 2 ⅝" (44mm x 67mm)	Pattern	2
B	Back	Pine, ¾" (19mm) thick	1 ¾" x 2 ⅜" (44mm x 60mm)	Pattern	2
C	Letters	Pine, ¾" (19mm) thick	1 ½" x 1 ¾" (38mm x 44mm)	Pattern	2 for each letter
D	Base	Pine, ¾" (19mm) thick	Varies depending on number of letters	Drawing/calculations	1
E	Fender	Pine, ½" (13mm) thick	1 ¼" x 2 ¼" (32mm x 57mm)	Pattern	4



Paul Meisel and his team at Meisel Hardware Specialties have designed more than 3,500 projects and plans for the home hobbyist woodworker. He has shared at least 25 projects from his collection in past issues of Scroll Saw Woodworking & Crafts.

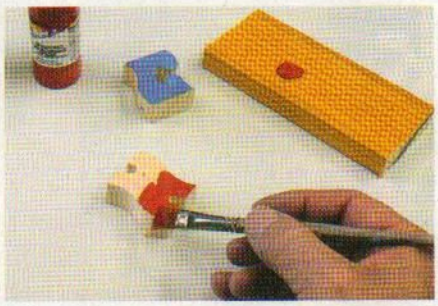
CUTTING THE PIECES

Step 1: Cut two each of the car front and back pieces. Then, cut a left and right version of each letter of the name.

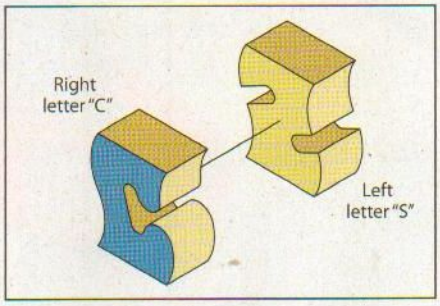
Step 2: Determine the length of the base. It will vary depending on the number of letters in the name. The pattern is based on a name with five letters. For each additional letter, add 1¼" (32mm) to the length of the base. If the name has less than five letters, subtract 1¼" (32mm) from the length of the base for each letter.

Step 3: Cut the base to size. Drill the axle holes. Remove the patterns and sand the pieces. Dry-fit the letters, front, and back on the base to make sure they fit properly.

Step 4: Cut the fenders. I ripped ¾" (19mm)-thick stock down to ½" (13mm). Remove the patterns, sand the pieces, and glue and clamp the fenders in place. Make sure you leave enough clearance for the wheels to turn.

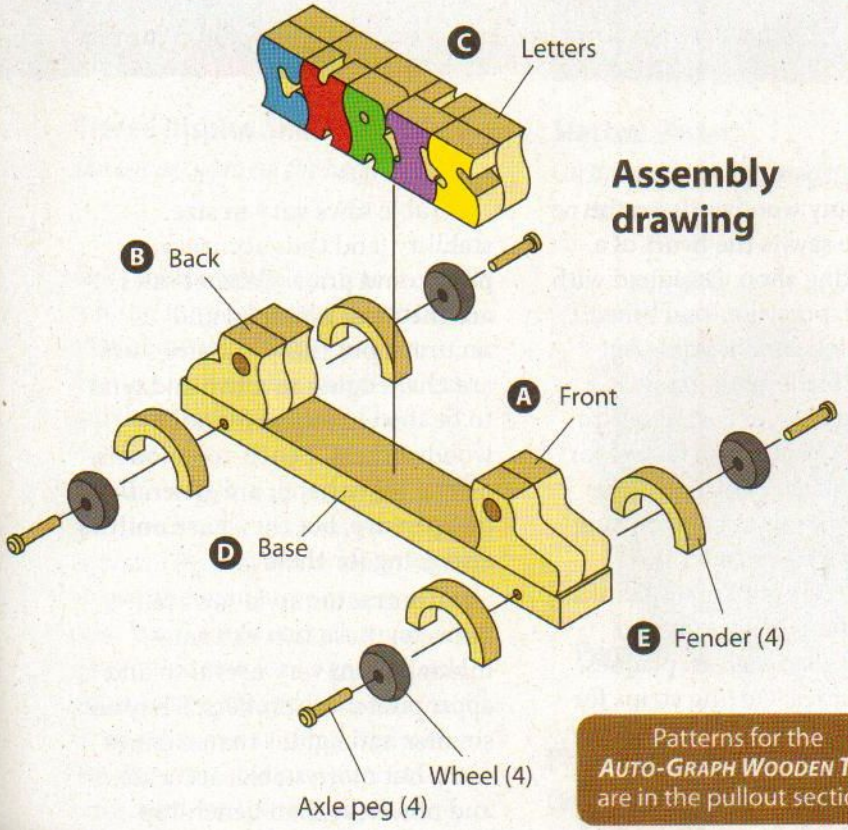


▲ Step 5: Paint the wheels black. Paint the face of each letter a different color. Some colors may require two coats. Allow the paint to dry thoroughly.



▲ Step 6: Glue the letters back-to-back. Pay attention when you glue the right letters to the left letters. For the name "Chris," shown in the photo, the right letter "C" has the left letter "S" glued to the back of it. It is easy to accidentally mix up or reverse the letters.

Step 7: Glue the front and back to the base. You can either glue the letters in place or leave them loose to form a puzzle. Before attaching the wheels, brush clear varnish onto everything except the shanks of the axle pegs. Use a mallet to pound the axle pegs into the holes; the tight fit means you do not need to use glue. To keep from pounding the axles down so far that the wheels won't turn, I slip a 1/16" (2mm)-thick spacer (such as a piece of chipboard) behind the wheel. Tap the axle peg down until the wheel just touches the spacer. When finished, remove and discard the spacer.



Assembly drawing

Patterns for the *AUTO-GRAPH WOODEN TOY* are in the pullout section.

Materials & Tools

Materials:

- Pine, ¾" (19mm) thick: 5¼" x 48" (133mm x 1,219mm)
- Wheels: 4 each 1¼" (32mm) dia. (#W125)*
- Axle pegs, 7/32" (5.5mm) dia.: 4 each 1⅛" (29mm) long (#AP1)*
- Sandpaper: 100, 220 grits
- Wood glue
- Acrylic paints, such as Delta Ceramcoat: black (#02506, 2 oz.)*, red (#02507, 2 oz.)*, yellow (#02509, 2 oz.)*, orange (#02042, 2 oz.)* blue (#02074, 2 oz.)*, green (#02662, 2 oz.)*, purple (#02590, 2 oz.)*
- Clear varnish, such as Delta Ceramcoat: satin (#07003, 8 oz.)*
- Temporary bond spray adhesive (#1447)*

Tools:

- Scroll saw blades, such as Olson: #5 or #7 reverse-tooth (Olson 456PGT* or 458PGT*)
- Drill press with bit: 7/32" (5.5mm) dia.
- Scissors
- Paintbrushes

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

SPECIAL SOURCES:

Items marked with an asterisk (*) are available from Meisel Hardware Specialties.

To order parts or to request a catalog, call 800-441-9870 or visit www.meiselwoodhobby.com.

Let's Talk Table Saws

Why you need a table saw, buyer advice, safety tips & the best accessories

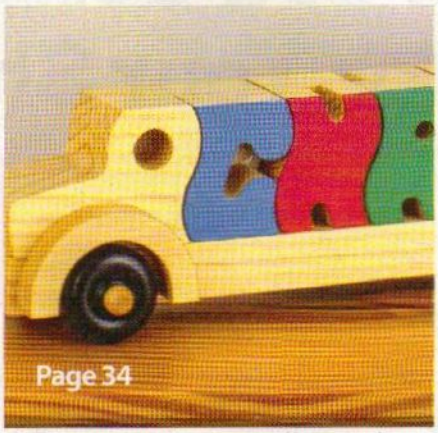
To many woodworkers, the table saw is the heart of a woodworking shop. Designed with a flat table, precision-machined rails and slots, and a stable but adjustable blade, a table saw is usually the most accurate saw in the shop, as well as the fastest for making straight cuts. Any time you make a straight cut—cutting fretwork portraits to fit into frames; cutting ornament blanks; cutting square or rectangular trivets, puzzles, shelves, plaques, boxes, or bases; cutting strips for baskets or bookmarks; or cutting straight-edged pieces for any project—using a table saw would make the work faster, easier, and more accurate.

Table saws vary in size, stability (and thus accuracy), power, and price. Cabinet saws are the most powerful and accurate, but these massive saws are challenging to move and tend to be too expensive for hobby woodworkers. Bench-top models, on the other hand, are generally inexpensive, but they have nothing else going for them.

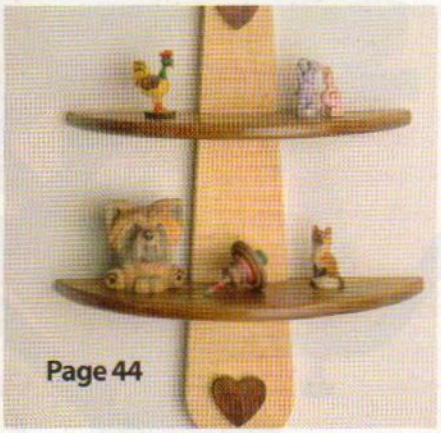
Contractor-style saws fall between these two extremes, making them very useful to and appropriate for scrollers. They are smaller and lighter than cabinet saws, but more stable, accurate, and powerful than bench-top models. You can find contractor

Table Saw-Friendly Projects In This Issue:

Fretwork Animal Portraits
Cut the blanks to fit frames.



Auto-graph Wooden Toy
Cut the base to size.

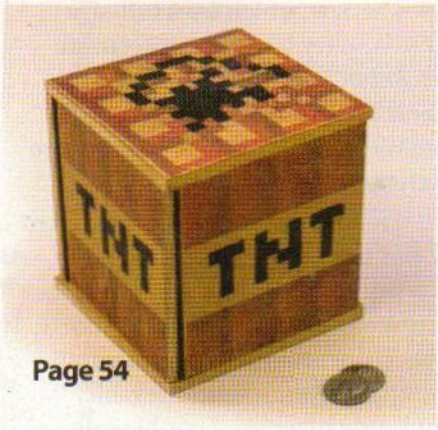


Tiered Display Shelf
Use a taper jig to cut the back.

Slatted Basket
Cut the slats and the straight edges on the ends.

saws with convenient features, like folding for portability or storage; that come with technology to avoid cutting you; or that simply get the job done without a lot of bells or whistles.

We're going to share a few of our favorite table saws, along with accessories that make them easier to use and some important safety tips. We'll show you what you can use a table saw for in general and point to specific projects that can be made easier with a table saw. We use our table saw almost every week, and we think you will, too. Let's talk table saws!



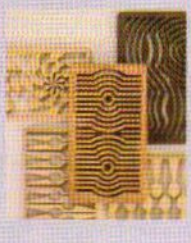
Pixelcraft Exploding Prank Bank
Cut the pieces to size.

It would have been easier with a table saw...

Inlay Pencil Box
(Holiday 2015 #61)
Cut the pieces to size.

Bangles
(Holiday 2015 #61)
Cut the blanks to size.

Nightlight
(Fall 2015 #60)
Cut the base, top, and sides.



Casserole Trivets
(Fall 2015 #60)
Cut the outsides to size.

Better with Age Plaque
(Summer 2015 #59)
Cut the bottom and sides of the plaque.

Shabby Chic Shelf
(Spring 2015 #58)
Cut the shelf top and support to size.

Why Should You Consider a SawStop for Your Shop?

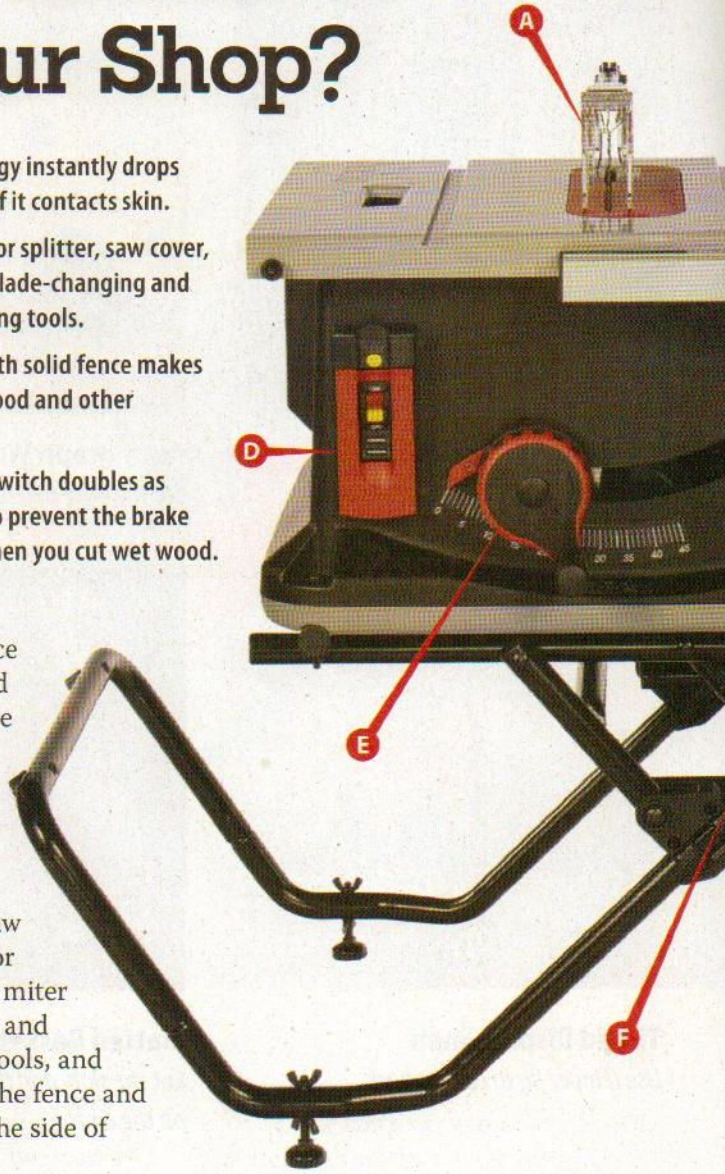
By Bob Duncan

The SawStop Jobsite Saw is my top choice in table saws for the hobby woodworker. This saw combines portability, accuracy, and safety into one package. Admittedly, it costs around $1,300, which is more than most other portable-style saws. But you are paying for a solidly made saw with an accurate fence and SawStop's trademark anti-injury technology.

Like all SawStop saws, the Jobsite Saw comes equipped with a system that senses a person's skin if it touches the spinning blade. The sensor watches the minuscule electric current running through the blade, which changes when it comes into contact with the moisture in a person's skin. When that happens, the saw automatically drops the blade down to its lowest position and slams an aluminum brake into the blade. The process destroys both the brake cartridge and the blade, but I value my body parts more than those two items. To prevent a false brake trigger, the saw allows you to disable the sensor if you're cutting wet wood, but this means you also lose the safety feature. However, you can test wood to see if the sensor will engage the safety system before cutting.

The SawStop Jobsite Saw folds for portability. When folded, it takes up a bit more room than a wheelbarrow and is heavy but well balanced, so it's easy to maneuver. You can unfold it and be ready to cut in less than a minute, including attaching your dust collector to the integrated port.

While the top is made of aluminum, the fence is solid and accurate. You can spread the table out for a greater surface area while cutting, and the well-made rip fence features a bar that slides out to support your stock if the fence is positioned over an open area. Under the table, the saw has onboard storage for the splitter, saw cover, miter guide, blade-changing and brake-unit-changing tools, and instruction manual. The fence and push stick mount on the side of the saw.



A SawStop technology instantly drops and brakes blade if it contacts skin.

B Onboard storage for splitter, saw cover, miter guide, and blade-changing and brake-unit-changing tools.

C Extended table with solid fence makes it easy to rip plywood and other sheet goods.

D Oversized power switch doubles as moisture sensor to prevent the brake from engaging when you cut wet wood.

The saw, which uses full-size 10"-diameter blades, was accurate out of the box. I did not need to adjust the ruler for the fence at all, and the blade height and angle were extremely easy and fast to adjust.

The one item I was disappointed in was the miter guide. While every other accessory was solid, the plastic miter guide fence felt flimsy. The T-slot style bar fit solidly into the appropriate slot in the table, but I didn't feel like I could really trust that the fence was staying in position. I'm sure they use plastic to reduce the overall weight of the saw, but I felt this was one area where the saw fell short.

While the SawStop Jobsite Saw is not intended to compete with a standard floor-mounted cabinet table saw, it stands far above the other portable and even contractor-grade table saws available.

Visit www.sawstop.com to find a retailer.

The SawStop folds to a footprint about the same size as most band saws.

Not Recommended

Although inexpensive bench-top saws are widely available, we don't recommend any of them. Unless you bolt the saw to a heavy bench, it will move and slide as you use it. Similarly, saws with folding or telescoping legs are shaky (literally) at best. In both cases, the miter guide and fence are usually flimsy, which means you can't cut accurately. The table surface is too small to handle most plywood or MDF easily. The motors are underpowered, and the saw blades tend to dull fast. Rather than working around these problems with aftermarket parts and shop-made solutions, save time and money by buying a better quality, although more expensive, saw.

More Options

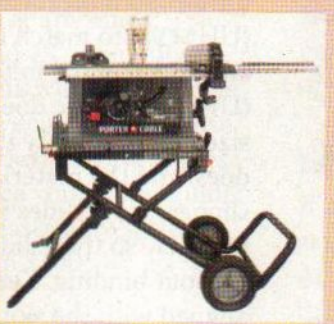
The compact size of contractor-grade and job-site saws makes them ideal for smaller workshops. Plus, they are more affordable than full-sized table saws, with prices averaging between $300 and $800. *Popular Mechanics* magazine tested several popular saws in this price range in March 2015. Here are some of their favorites.

Bosch 4100DG-09

This saw is powerful and accurate, and has an innovative arbor lock button, which makes it easier to change blades, among other features. Approximate retail $760.

Rigid R4510

The Rigid saw is as powerful as the Bosch, but is slightly smaller so it is more portable and easier to maneuver. It has fewer features than the Bosch. Approximate retail $500.



Porter-Cable 10" Jobsite Saw

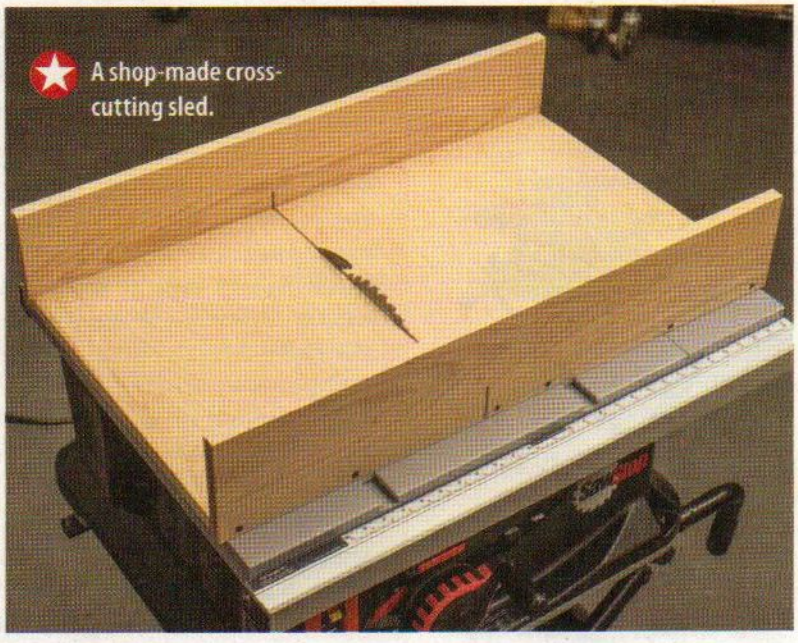
The Porter-Cable is user-friendly, reasonably powerful, and accurate. Approximate retail $300.

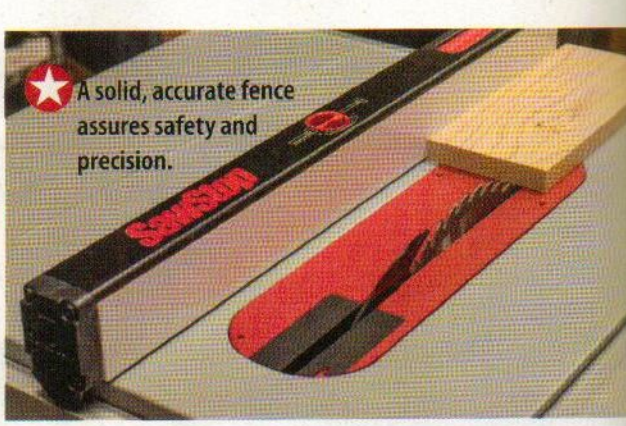
COMING SOON

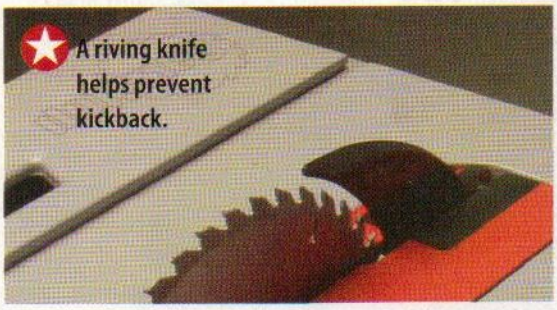
Bosch Reaxx Jobsite Saw

Bosch is working on a saw with safety technology designed to save fingers. Their Reaxx Jobsite Saw detects flesh that comes into contact with the saw blade and immediately drops the blade below the table top without damaging the blade. Each safety cartridge can be used twice and resets quickly. The saw is due out in 2016 with an expected retail price of $1,499 (U.S.).

Tips & Accessories


A shop-made cross-cutting sled.


A solid, accurate fence assures safety and precision.


A riving knife helps prevent kickback.

THE ESSENTIALS

High-Quality Blades

For smooth cuts, you need good-quality, sharp blades. Look for carbide blades with the thinnest kerf (width of cut) possible. They last a long time, and the thinner kerf means that you are removing less wood, which functionally increases the power of the saw. It is more effective to buy dedicated blades for crosscutting and ripping, rather than a combination blade. The specialized blades are designed to do their jobs effectively, prevent splintering, and clear sawdust to cut faster and cleaner. If you can only choose one, get a good crosscut blade first. Then, as you rip more wood, or if you use the table saw to resaw thick stock, invest in a good ripping blade.

Crosscutting Sled

A crosscutting sled fits in the table saw's miter guide slots to support large pieces of wood. Used with a fence, it keeps the work secure and ensures clean, square cuts. You can buy a sled, but it's also easy to make. Size two strips of wood or ultra-high molecular weight plastic (UHMW) to match the thickness and width of the miter guide slots. (UHMW plastic does not change size with humidity the way wood does, and the material is naturally slippery, so it slides well.) Cut them precisely so they slide in the slots without binding. Keep the strips aligned with the slots and screw them to a large piece of plywood, MDF, or melamine. Slide the sled across the saw table to make an initial cut. To crosscut a piece of wood, align the cutting line with the existing cut on the sled, and cut it to size.

Fence

A fence is a straight edge locked in place parallel to the saw blade. The distance between the fence and the blade determines the width of the cut piece. Every table saw comes with a fence, but most likely you'll want to replace it with a better one. Look for a fence that is easy to lock and move, and that makes itself parallel to the saw blade with the minimum of adjustment. The more expensive fences are usually easier to adjust and create more accurate cuts, but the quality of less expensive fences is increasing. You can also look online for plans to make your own fence.

Splitters and Riving Knives

Kickback usually happens when a cut piece tightens up on the saw blade because the fence is off or the wood is twisted. Riving knives and splitters prevent the wood from binding too tightly on the blade. A riving knife is usually integrated into the lifting mechanism of the saw, so it moves with the saw blade. You can use a riving knife if you're cutting a groove or dado. However, not every saw can accommodate a riving knife. A splitter attaches to the table insert at a fixed height, so it can only be used when you are cutting through a piece. You can attach a splitter to any saw with a removable table insert.

Using a push stick keeps hands away from the blade. A featherboard helps prevent kickback.

Push Sticks

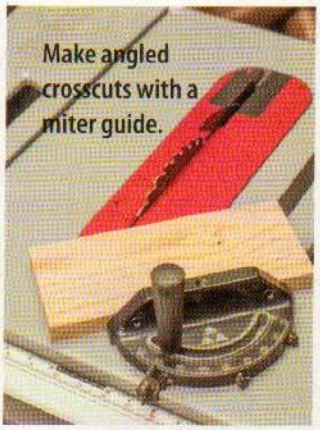
Push sticks allow you to push wood past the blade without risking your fingers. They can range from a notched piece of wood to an elaborate multipart adjustable pusher. You can find plans online for push sticks of every shape and size, but even a long, thin strip of wood with a notch cut in the end is better than nothing!

The GRR-Ripper may be the ultimate push stick.

▲ GRR-Ripper by MicroJig

There's something to be said for the more elaborate pushers. MicroJig's GRR-Ripper system holds the wood securely with rubber pads and adjusts to accommodate your wood and cut. It straddles the blade, providing equal pressure and forward movement on all of the pieces to control the feed and virtually eliminate kickback. Locate a retailer at www.microjig.com.

A taper jig helps you rip boards at a precise angle.



Make angled crosscuts with a miter guide.

Use a digital angle guide for accurate bevel cuts.

ACCESSORIES FOR SAFETY & PERFORMANCE

Miter Guide

A miter guide allows you to crosscut pieces at any angle between 90° and 45°. The miter guides that come with inexpensive saws tend to be challenging to use. If you find yourself cutting angles regularly, replace your miter guide; you can get a reasonably accurate one for less than $100.

Featherboard

A featherboard keeps loose pieces of wood from being flung back at you by holding the wood firmly against the blade, fence, and/or table surface. A featherboard, whether made of wood or plastic, generally has an angled edge cut with slots to create "feathers," or "fingers." The feathers flex in the direction the workpiece is traveling and keep it from being dragged backward by the blade friction. Some featherboards attach to the fence and others to the miter guide slots or table surface. A featherboard can be finicky to set up. However, if you are making a large number of the same cuts (such as the slats for the basket on page 46), it's worth the time to set up and use a featherboard.

Taper Jig

If you want to rip a piece of wood at an angle, you need a taper jig. After you set this inexpensive tool to the desired angle, it rests against the rip fence as you slide the board along it to quickly rip the board at an angle, creating a tapered board.

Angle Guide

Most table saws allow you to angle the blade and usually have an indicator to tell you the angle—but the indicator is seldom accurate. You can use a bevel square and protractor, but it's easier to buy a digital angle guide that attaches to the blade with magnets. They are relatively inexpensive, much easier, and more accurate.

Table Saw Safety

By Ralph Bagnall

Driving a car safely is far more difficult than safely operating a table saw, and most of us do that almost daily. Many of the same rules that keep us safe on the road will keep us safe when working in the wood shop.

Saw Setup

The blade must be parallel to the miter slot, and the rip fence must be parallel to the blade. The procedure for aligning your particular saw will be outlined in the owner's manual. Setting up your saw properly greatly reduces the chance of kickback, creates cleaner cuts, and extends the life of the saw blade.

A coat of wax prevents rust and makes cutting smoother.

Keep the saw table clean and free of obstructions. A light coat of paste wax will help prevent rust and keep the parts sliding smoothly. The throat plate surrounding the blade must be in good condition and adjusted flat with the top of the saw so that parts do not get caught as they move across.

A clean, sharp blade is critical to safe saw operation. Dull or dirty blades will cut poorly and have a much larger risk of kickback. Never use a damaged blade under any circumstances.

Always unplug your saw when doing any maintenance.

Always unplug your saw completely any time you change blades.

Work Space

Your workspace should be clean and free from obstructions. Clutter on the saw table or around your feet can only distract you and lead to accidents. Your workspace should be lit well. Keep pets and children out of the workshop so you can focus on your cutting.

You should always stand to the left of the blade so that you are not directly in the path if a part kicks back. *Never* cut parts freehand. *Always* guide cuts with the rip fence, the miter gauge, or some type of sled. *There is no safe way to cut freehand.* Use the rip fence and miter gauge separately to avoid binding and kickback.

Plan and visualize cuts before making them. Imagine where your fingers need to go and how the cut piece will rest when it is past the blade before you find yourself in trouble. Many safety devices are available to help you. (See page 41 for more information.)

Most saws now come with a paddle switch that allows you to shut it off with your knee if something goes wrong during a cut. Know where the power switch is and practice shutting down the saw while it is unplugged.

Just as with driving, your greatest safety device is between your ears. Never use any power tool when you have been drinking alcohol, are on medications, or when tired. If you are uncomfortable making a particular cut, *do not do it.* There is always more than one way to do anything in woodworking. Use your head, and you will get years of safe, accurate use from your table saw.

Ralph Bagnall is a woodworking author and consultant working out of Fort Myers, Fla. He has published articles with Woodworker's Journal, Woodcraft, Woodshop News, and Wood magazines, and consults for Rockler, MicroJig, Bessey, and Freud. For more of his work, visit www.consultingwoodworker.com.

TIPS

BLADE HEIGHT

While it's tempting to raise the blade the whole way, it's safer to raise the blade just above the thickness of the wood. This keeps most of the blade away from your fingers and puts less blade in contact with the wood, which reduces the chances of kickback.

KICKBACK

If you don't have firm control over the wood as you push it into a turning table saw blade, friction from the blade can make it fly back at you: kickback. To avoid kickback, always use a clean, sharp blade; apply firm, even pressure to the wood on both sides of the blade, but do not pinch the kerf; and make sure the blade and fence are parallel. In addition, always stand to the left of the blade, which should keep you out of the path of potential missiles if something goes wrong.

▲ RIPPING THIN STRIPS

When you are ripping thin strips off a wide board, don't set the fence for the thickness of the strip. You can easily push the kerf closed and bind the blade; you'll need to use a thin push stick very close to the blade to hold the slice; and the cut slice will fly back at you like a missile once it's free. Instead, keep the wide side of the board between the fence and the blade. Either use a push stick or a featherboard to hold the slice against the blade as you slide the wider board. Then, do the math and reset the fence incrementally after each cut. You'll have more control, and each slice will fall harmlessly to the side. See a video of this technique at www.scrollsawer.com.

Tiny Tambour Clocks

Use scrap wood to make miniature mantel clocks

By Dan Wilckens

Elegant fretwork clocks dress up any décor, but large clocks take forever to cut. These small-scale clocks are quick and easy to cut, assemble, and finish. Sized for a desk or display shelf, the clocks are great to give as gifts or to fill up a craft show table. The mix-and-match nature of the parts allows you to create a host of clocks from assorted wood scraps.

Making the Clocks

Use the same general process to make all of the clocks. Attach the patterns to the wood, drill the blade-entry holes, and cut the fretwork. You can drill, rather than cut, the holes for the clock insert, if you prefer. Remove the patterns and sand the pieces smooth. Glue and clamp the upper base to the center of the lower base and the crown to the clock body. Make sure the pieces fit tightly together, especially on the top of the clock body and the lower wings (where you can glue side grain to side grain). Allow the glue to dry. Align the overlays on the clock body, and glue and clamp them in place. Then, glue and clamp the clock body assembly to the center of the base. Finish the clock with spray lacquer according to the manufacturer's instructions. Install the mini clock inserts.

Materials & Tools

Materials:

- Hardwoods: assorted
- Blue painter's tape
- Spray adhesive
- Sandpaper
- Wood glue
- Finish, such as spray lacquer
- Clock inserts: 29/32" (23mm) dia.

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

Tools:

- Scroll saw blades: #1 reverse-tooth
- Drill with bits: assorted small; 7/8" (22mm)-dia. Forstner (optional)
- Planer or drum sander (to adjust wood thickness)
- Sander (belt or handheld)
- Squeeze clamps

The patterns for the ***Tiny Tambour Clocks*** are in the pattern pullout section.

Dan Wilckens started scrolling 25 years ago in the shop he built with his father. They started out doing it as a hobby, and then began designing their own patterns and making them available for others to enjoy. He still makes sawdust in the same shop; that is where the magic is. His background is in tooling design and tool and die work. See more of Dan's work at www.wilckenswoodworking.net.

Tiered Display Shelf

TABLE SAW Friendly

Easy to mount! Hide the screws behind heart-shaped covers

By Paul Boer

I've always had a difficult time hanging shelving units on the wall. I measure and remeasure to get the screws for the keyhole slots aligned properly. This problem was compounded by the narrow center post design that I wanted for this project. The solution was to hide the two mounting screws with scroll-sawn hearts that I press-fit into the center post after hanging the unit. I used traditional scroll saw joinery and screws to attach the three shelves to the center post.

Getting Started

Use temporary-bond spray adhesive to attach the patterns to the appropriate blanks. Adhere the two heart patterns to the backs of the blanks. You will drill the holes for the dowels into the backs, leaving the top surfaces unmarked.

Materials & Tools

Materials:

- Light wood, such as curly maple, ¾" (19mm) thick: center post, 4" x 24" (102mm x 610mm)
- Dark wood, such as walnut, ¼" (6mm) thick: shelves, 5" x 38" (127mm x 965mm)
- Red wood, such as padauk, ⅜" (10mm) thick: hearts, 2½" x 4" (64mm x 102mm)
- Dowel, ⅜" (10mm) dia.: 2 each ½" (13mm) long
- Spray adhesive
- Sandpaper
- Wood glue

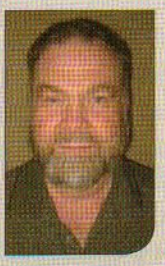
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

- Wipe-on polyurethane or clear spray finish
- Wood screws, Phillips: 6 each #8 x 1½" (38mm) long
- Pan-head sheet metal screws, Phillips, with plastic wall anchors: 2 each #10 x 1½" (38mm) long

Tools:

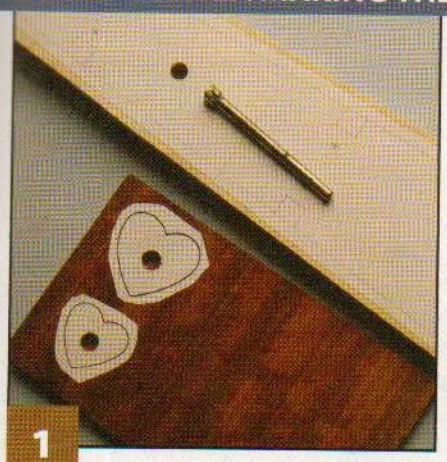
- Scroll saw blades: #1, #5 skip-tooth
- Drill press with twist bits: ⅛" (3mm), 9/64" (3.5mm), 5/32" (4mm), 3/16" (5mm) dia.; Forstner bit: ⅜" (10mm) dia.; countersink
- Router with ¼" (6mm)-radius round-over bit

Patterns for the ***TIERED DISPLAY SHELF*** are in the pattern pullout section.

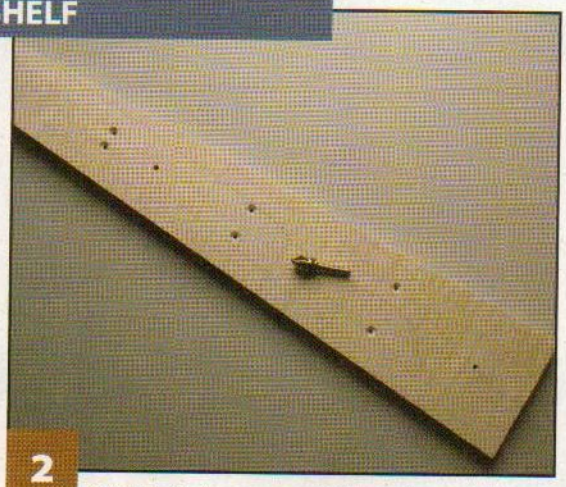


Paul Boer has been designing his own patterns since 1992 when he bought his Hawk scroll saw. He lives in Pella, Iowa, and can be contacted by e-mail at paulanddori@gmail.com.

DISPLAY SHELF: MAKING THE SHELF



1 **Drill the holes in the hearts.** Then, drill the mounting holes in the center post.

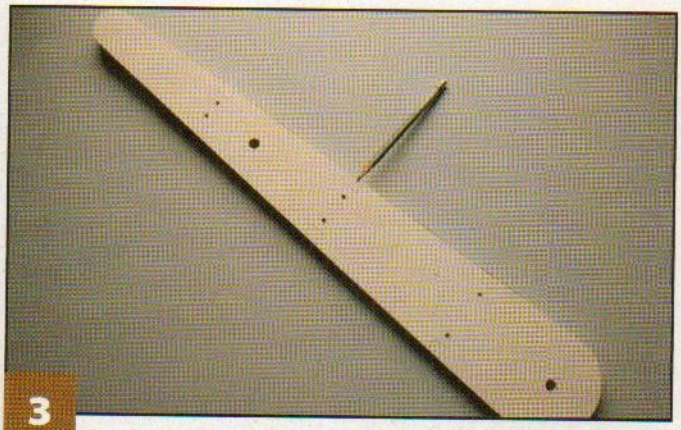


2 **Drill the holes to attach the shelves to the center post.** Countersink the backs of these holes. Drill ⅛" (3mm)-diameter blade-entry holes as needed.

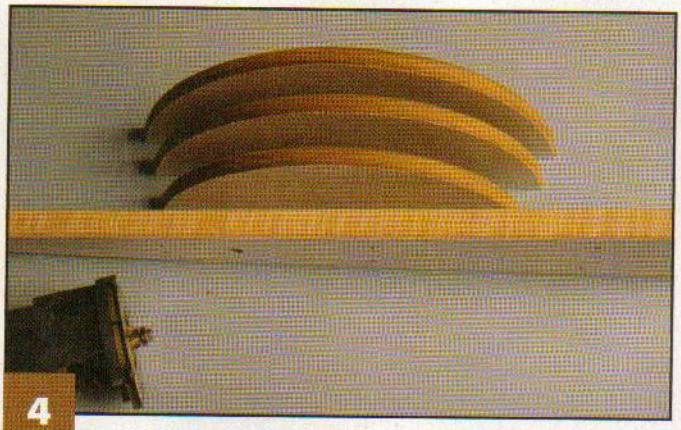
TIP

MARKING THE PILOT HOLE LOCATIONS

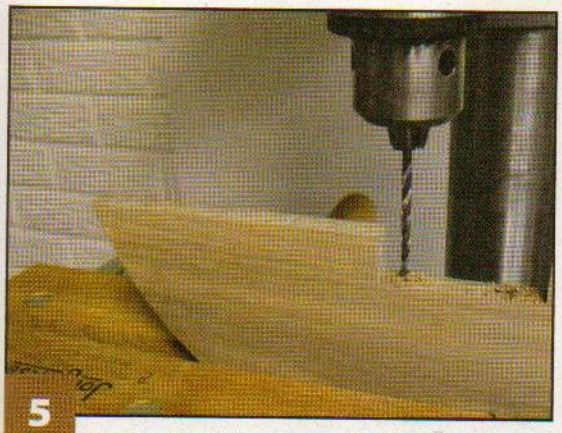
Dry-assemble the shelves and center post, and then poke a scratch awl through the pilot holes in the center post to mark the pilot holes for the shelves.



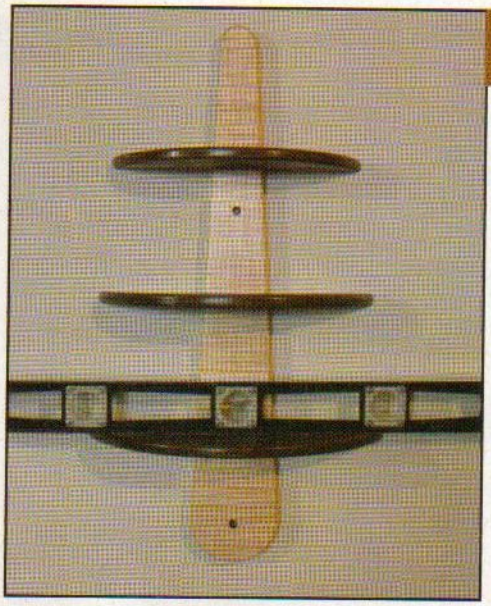
3 **Cut the perimeters of the shelves and center post.** Use a #5 blade. Do not cut the shelf notches in the center post yet. Use a #1 blade to cut the perimeters of the hearts. Cut the dowels to length. Sand the edges of the pieces smooth.



4 **Round the face edges of the center post.** Use a router and ¼" (6mm)-radius round-over bit. Round the curved edges of both sides of the three shelves. Dry-fit the shelves to the center post and mark any variations for the shelf notches. Cut the notches with a #5 blade and check the fit. Remove the patterns and sand as needed.



5 **Mark and drill the screw pilot holes in the shelves.** Screw the shelves to the center post. Glue the dowels into the hearts. Apply two coats of wipe-on polyurethane, allowing it to dry for a day between coats, and lightly sand with 800-grit sandpaper. Remove the dust and apply a final coat of polyurethane.



6 **Mark the position of the top mounting screw on the wall.** Drill a 5/32" (4mm)-diameter pilot hole into the wall. Thread the screw through the hole in the upright and into the wall. (Use a plastic wall anchor if mounting into drywall.) Place a level on the bottom shelf to determine where the hole for the second screw should be. After inserting the second screw, press the two hearts into the holes to hide the screws.

TABLE SAW Friendly

Slatted Basket

Use a scroll saw and table saw to make quick baskets

By John A. Nelson
Cut by Jon Deck and Bob Duncan

Baskets are always popular projects, and this one is especially quick and easy to make using a table saw and a scroll saw. You can reduce or enlarge the pattern to make any size basket. It is beautiful made from colorful hardwoods, but if they are hard to find, use a light wood and paint it.

Making the Basket

Transfer the patterns to the blanks for the end pieces; stack them if you feel comfortable cutting 1½" (38mm)-thick stock. While it's possible to cut the perimeter with just a scroll saw, a table saw makes the straight cuts easier and more accurate. Carefully set the miter guide on a table saw to make the angled cuts for the bottom. Then, make the straight cuts on the top, sides, and bottom. Use a scroll saw with a #7 reverse-tooth blade to cut the curving section. Use the table saw to rip the ¼" (6mm)-thick slats and cut the handle to size. Drill the holes for the handle.

Use the pattern to mark the locations of the slats on both end pieces; I make a tiny saw kerf, but you can mark them with a pencil. Sand the pieces smooth. Use glue and a pin nailer to attach the slats to the ends; fill the pin holes or leave them visible for a rustic look. Use screws to attach the handle; cover the screw holes with button plugs. Apply a clear finish or paint the basket as desired. Buff the piece with #0000 steel wool and apply a coat of paste wax.

Materials & Tools

Materials:

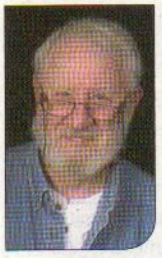
- Hardwood, ¾" (19mm) thick: ends, 2 each 6¾" x 9⅝" (171mm x 245mm)
- Hardwood, ⅝" (16mm) square: handle, 10½" (267mm) long
- Hardwood, ¼" (6mm) thick: slats, ⅝" x 12" (16mm x 305mm)
- Wood glue
- Brad pins
- Spray adhesive
- Steel wool: #0000
- Sandpaper
- Wood screws: #6 x 1¾" (44mm) long
- Screw button plugs: 2 each ⅛" (3mm) dia.
- Wood filler (optional)
- Paint or clear finish
- Paste wax

Tools:

- Table saw
- Scroll saw blades: #7 reverse-tooth
- Drill with bit: ⅛" (3mm) dia.
- Pin nailer
- Screwdriver

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

Pattern for the ***SLATTED BASKET*** is in the pattern pullout section.



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

Hardwood Baby Teethers

Use maple to make durable, nontoxic baby toys

By Tim Gilman

Making toys for your children, grandchildren, or friends' children is one of the most rewarding woodworking projects. These patterns were designed for our two children as an alternative to commercially available plastic teethers. We use maple, which is hard and naturally inert, and do not apply any finish, making these teethers 100 percent chemical free. Maple this thickness can be put in the refrigerator or freezer and, when removed, it stays cold for a long time to soothe a baby's gums. When the kids are done putting things in their mouths, get out paint or markers and let them be creative by adding color to these toys.

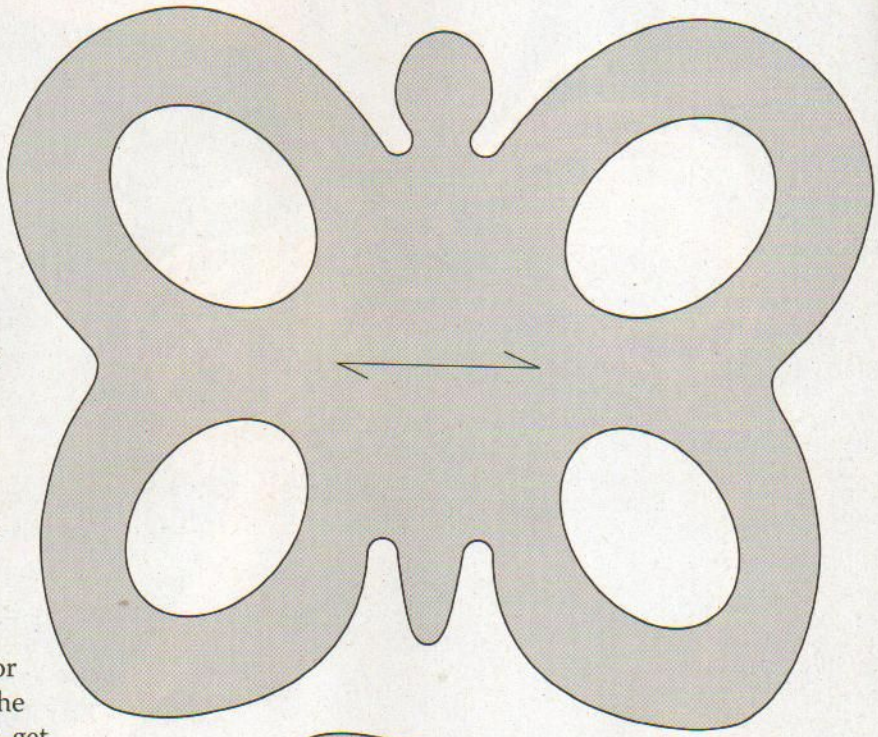
Getting Started

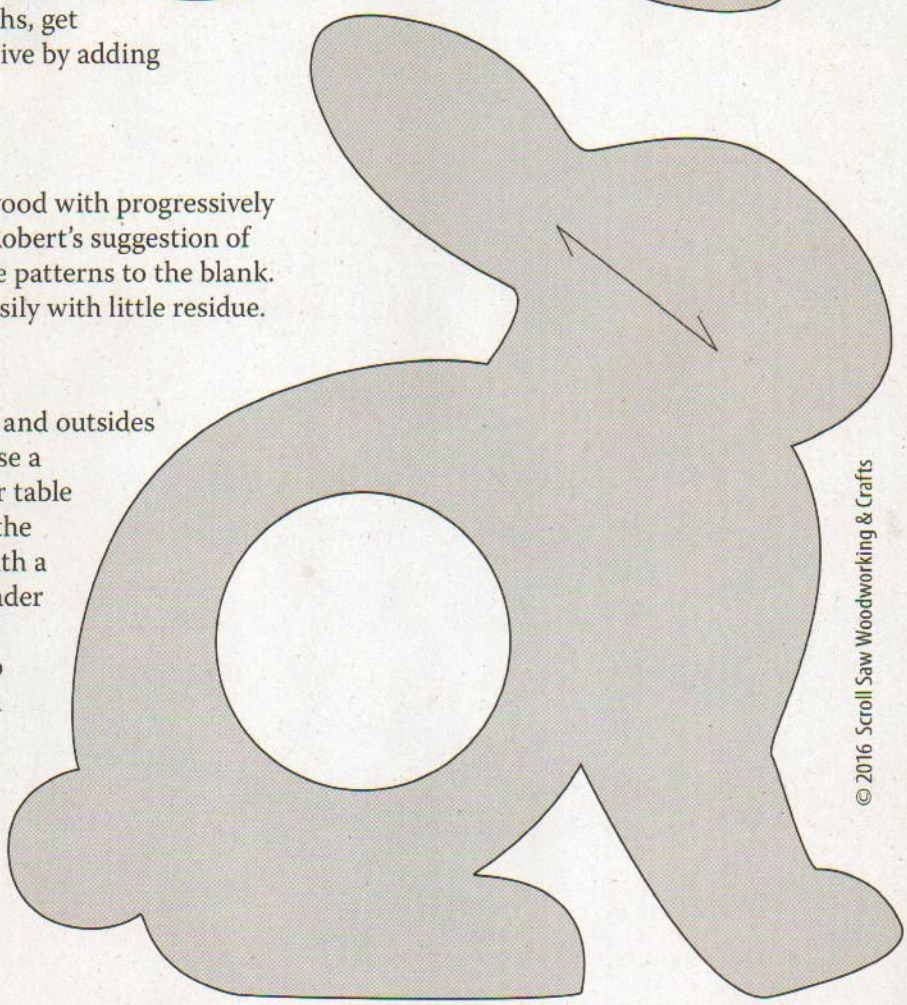
Use a random orbital sander to sand the wood with progressively finer grits up to 180-grit. I use Judy Gale Robert's suggestion of Scotch Restickable glue sticks to attach the patterns to the blank. The glue sticks adhere well, but remove easily with little residue.

Making the Teethers

Drill blade-entry holes and cut the insides and outsides of the pieces with a #7 skip-tooth blade. Use a ⅛" (3mm)-radius round-over bit in a router table to round the edges. You could also round the edges with sandpaper. Buff the teethers with a 180-grit sanding mop. Run the teethers under water and stand them on a paper towel to dry overnight. Use a 320-grit sanding mop to make them as smooth as possible. Use a 320-grit foam-backed sanding sheet to get any tight areas. Thoroughly inspect the teethers to ensure they do not have any fibers that could break off (and always supervise children who are using them). If the surfaces ever get rough, you can quickly bring them back to a smooth finish with 320-grit sandpaper.

Teether patterns





Additional patterns for the **HARDWOOD BABY TEETHERS** are in the pullout section.

Tim Gilman has been teaching tech ed for 11 years in Harrisburg, Pa. With the birth of his first child, Grayson, he started cutting scroll saw puzzles. Tim now sells the puzzles at several arts and craft shows a year and at www.graysonsworkshop.com. He also teaches scroll saw classes at the local Woodcraft store.

Materials & Tools

Materials:

- Maple, ¾" (19mm) thick: assorted sizes
- Glue stick, such as Scotch Restickable
- Sanding discs
- Foam-backed sanding sheets: 320 grit
- Sandpaper

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

Tools:

- Premium scroll saw blades, such as Pegas modified geometry: #7
- Router table with ⅛" (3mm)-radius round-over bit, such as Whiteside small pilot (#1980)
- Random orbital sander
- Sanding mops: 180, 320 grits
- Drill press with assorted small bits

Three Ways to Add Texture to Intarsia

Easy ideas for adding something extra to your intarsia

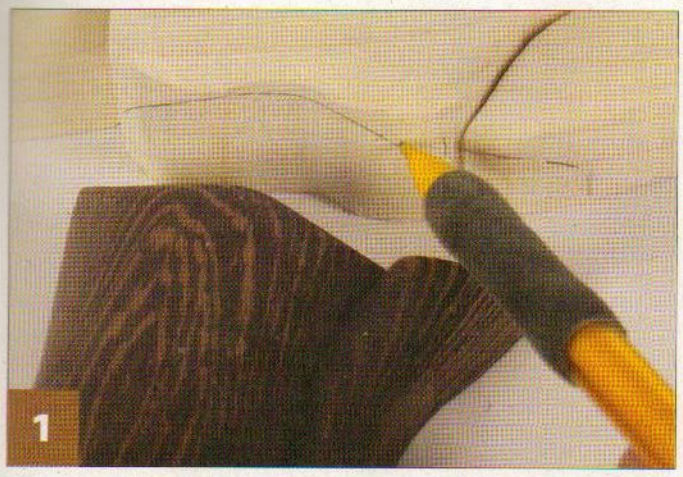
By Kathy Wise

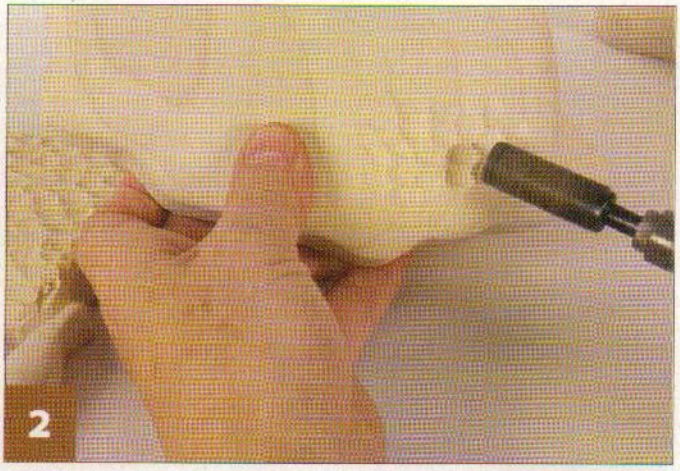
This spring lamb is a quick pattern that is fun to customize. Feel free to change this pattern in any way to make it unique and different from any other artist using it. I devised three ways to add texture to the lamb's wooly coat. Or, if you don't want to texture the lamb, you can make it with a highly figured wood like wavy maple to mimic the wooly effect. You could also make the entire lamb white, instead of accenting it with black legs and head.

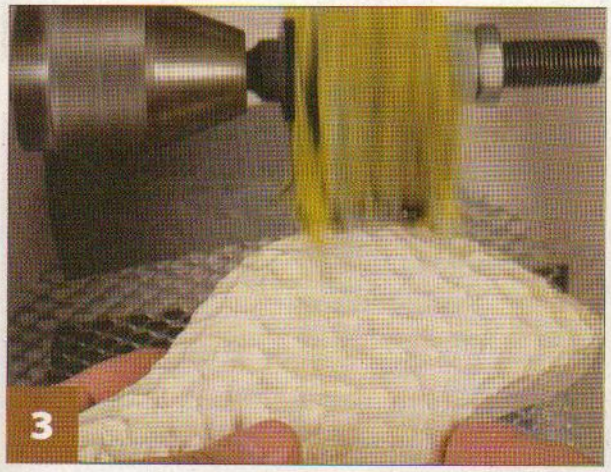
I will demonstrate three ways to add texture to the wooly areas. Always test the texture on a piece of scrap wood to see if you like the finished look before doing the actual pieces.

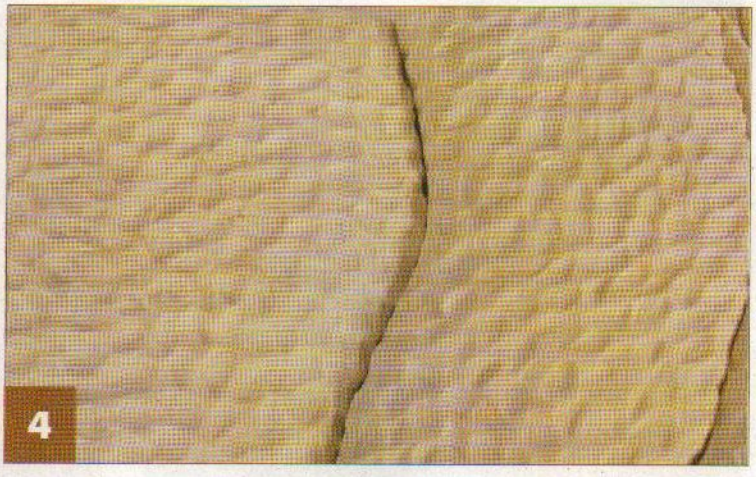
Getting Started

Cut and shape the pieces using standard intarsia techniques, but do not cut and shape the base yet. Buff all of the pieces with a 220-grit sanding mop.









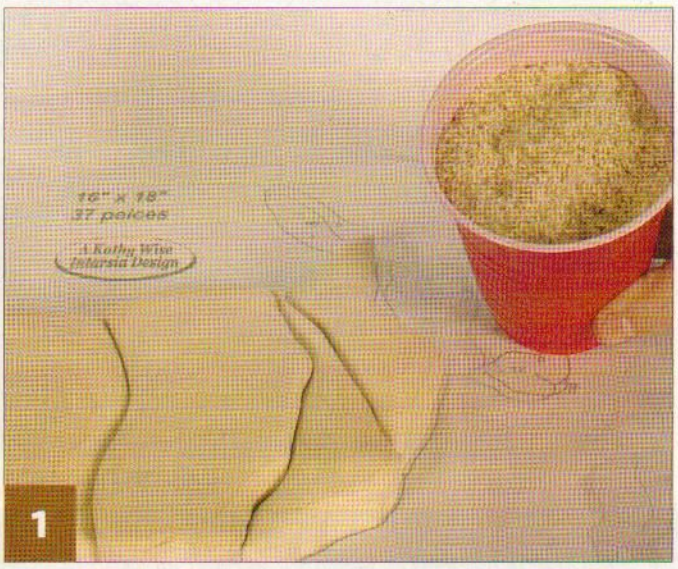
1 Dry-assemble the pieces on the pattern. Use a pencil to lightly mark the sides of the wooly sections where they meet the head and leg sections.

2 Carve a series of concave "scoops" in the wood. Use a cylinder-shaped bit in a rotary tool. Make the divots random depths and widths. They should be as close together as possible to simulate wool. Avoid carving below the pencil marks on the edges, which would interfere with the final fit.

3 Buff away any burrs from the carving bit. Use a 220-grit mop sander.

4 Edge-glue the textured pieces. Use cyanoacrylate (CA) glue. Make sure all of the surfaces of the body pieces are textured, especially the visible parts of the edges.

Achieve four distinct textures using (clockwise) wood grain, sawdust, paint, or carving.



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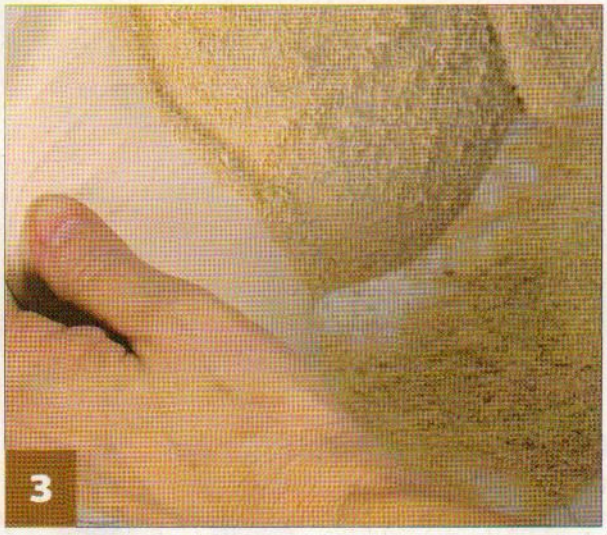

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4

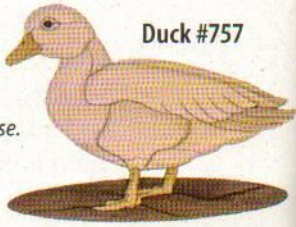
1 Make the sawdust. I use a router on the scraps left after cutting the wooly body sections. You could use any sawdust, but I suggest you avoid sander dust; it is too fine to look right.

2 Edge-glue the textured sections together. Use CA glue. Mark the edges where the textured sections meet the smooth sections to avoid getting sawdust on those joints.

3 Apply CA glue. (You could also use 2-part 5-minute epoxy.) Use a disposable brush to spread a medium coat on the top and sides of a small section of the textured pieces. I work in 3" by 3" (76mm by 76mm) sections. Cover the wet glue with a great deal of sawdust and press it in. The sawdust will absorb the glue and turn darker. Use a fan to blow any glue fumes away as you work.

4 Shake off the excess sawdust. Let the glue dry. Move on to the next section and repeat the process until all of the areas are covered (except the marked joint sections). Patch up any bare spots. Apply several coats of clear satin finish to lock the sawdust in place.

Nationally acclaimed intarsia artist Kathy Wise has written three books and more than 40 articles. For a free catalog of 500 patterns, contact Kathy Wise Designs Inc., P.O. Box 60, Yale, Mich. 48097; fax 810-387-9044; www.kathywise.com; kathywise@bignet.net.



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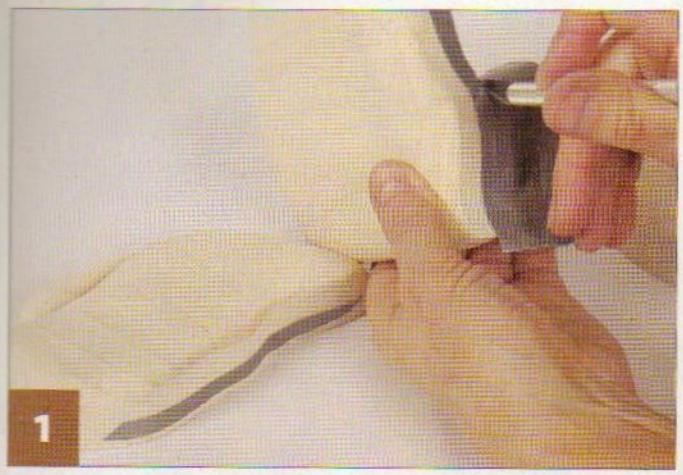
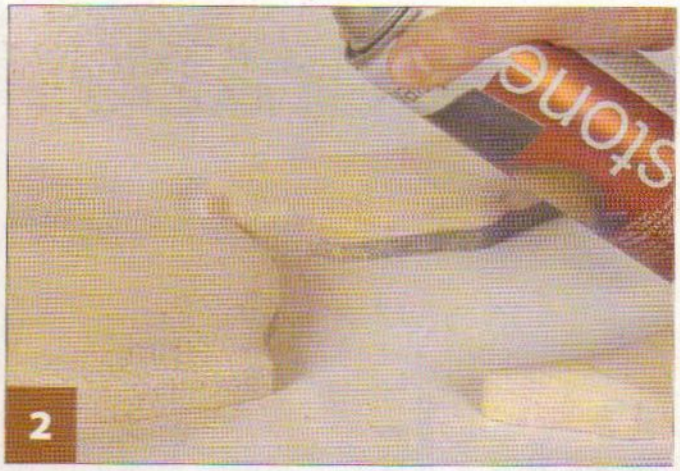




1 Mask off the glue joints. This will keep the paint off the gluing surfaces, which will create better joints. I trim the tape to just the lower half of each side, so some of the textured paint will be visible between the pieces.

2 Apply the stone-texture paint onto the front and sides. Follow the manufacturer's instructions. Allow it to dry completely. I used the off-white color with the black legs. You can apply another color (such as white satin) on top of the textured paint, if desired.

3 Edge-glue the pieces together. Use CA glue.

Patterns for the ***Spring Lamb Intarsia*** are in the pattern pullout section.

Finishing the Lamb

Use standard intarsia techniques to assemble and finish the lamb. Apply clear satin spray finish to the untextured pieces before edge-gluing them together with CA glue. Sand the back flat with a flat-drum sander, such as a Sand Flee. To fit the legs to the base, place them in position on top of the base pattern and trace the outline. Cut the base, sand it, and glue it in place. Place the pre-glued lamb and base on the backing board, trace the outline, and cut. Use dots of CA and wood glue to glue the lamb to the backer board. Spray the backer board with accelerator, place it in position, and make any necessary adjustments quickly (you have about 6 seconds if you use accelerator). Flip the project right-side up and apply pressure to the lamb evenly. Apply another coat of the finish, if desired, and let it dry overnight. Use clear gloss on the black eye to give the lamb a lifelike look. Attach a hanger to the back.

Materials & Tools

Materials:

- White wood, such as poplar, aspen, or wavy maple, 1" (25mm) thick: 7" x 15" (178mm x 381mm)
- Dark wood, such as wenge or black walnut, 1" (25mm) thick: 6" x 20" (152mm x 508mm)
- Medium wood, such as cherry, ½" (13mm) thick: 4" x 18" (102mm x 457mm)
- Medium dark wood, such as black walnut, 1" (25mm) thick: 2" x 4" (51mm x 102mm)
- Black wood, such as ebony, 1" (25mm) thick: 1" x 1" (25mm x 25mm)
- Tempered hardboard, ⅛" (3mm) to ¼" (6mm) thick: 9" x 11" (229mm x 279mm)
- Clear shelf paper, such as Con-Tact brand
- Spray adhesive
- Glue: cyanoacrylate (CA) glue, wood
- Stone-texture spray paint (optional): light color
- Disposable brush (optional)
- Clear satin spray finish
- Mirror-style hanger

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

Tools:

- Scroll saw blades: #5 reverse-tooth
- Sanders: pneumatic drum, oscillating spindle, portable drum, sanding mop
- Rotary tool with bits

TABLE SAW Friendly

Pixelcraft Exploding Prank Bank

Simple bank hides a surprising secret

By Mark Stevenson

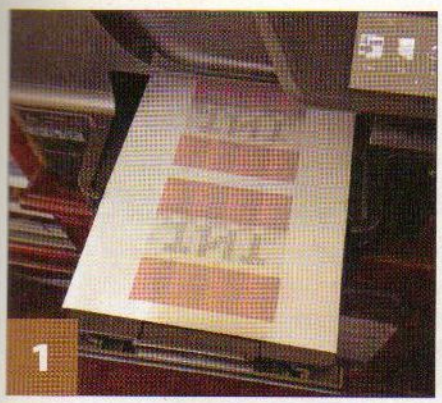
This Minecraft-inspired bank "explodes" when you drop a coin into it. It is a fun project that can be completed quickly and easily with a table saw and a few other tools.

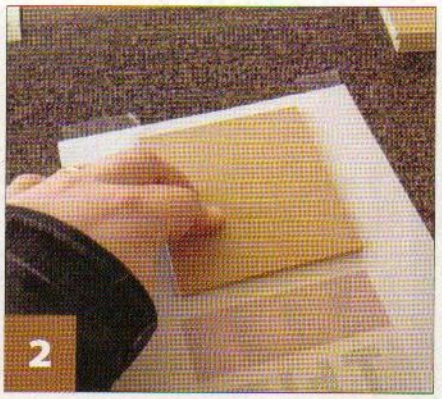
I used ¼" (6mm)-thick MDF for my project, because that's what I had lying around. Plywood would be more durable. I hold the sides together with a magnetic strip from a craft store.

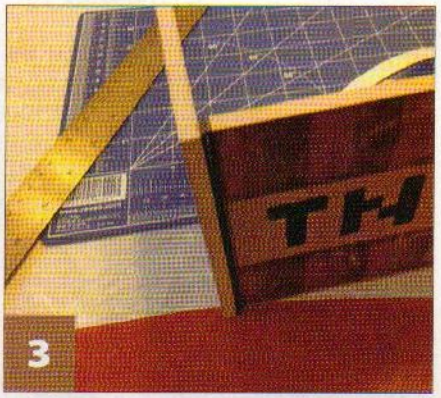
Getting Started

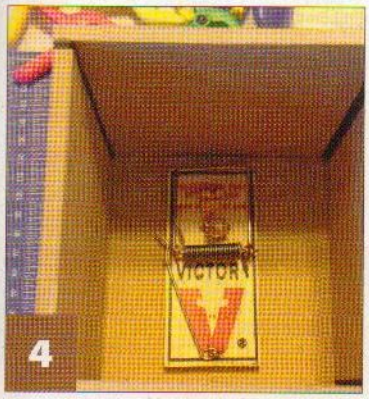
Cut the blanks to the sizes in the Materials list. A table saw speeds up the process substantially, but you can cut the pieces with any saw. If you are not using a table saw, I suggest cutting away from the lines and sanding up to them for accuracy.

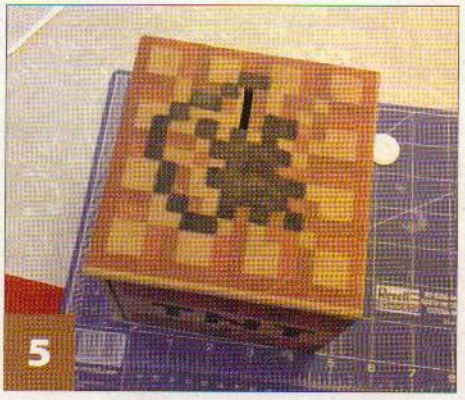
I found an easy way to transfer the artwork to the bare wood. You'll need the cheapest Avery labels you can find, a computer, and an inkjet printer. Peel off and discard the labels. Then, scan the artwork into your computer and proceed to Step 1. If you prefer, download unreversed artwork at www.scrollsawer.com, print it, and glue it to the wood.

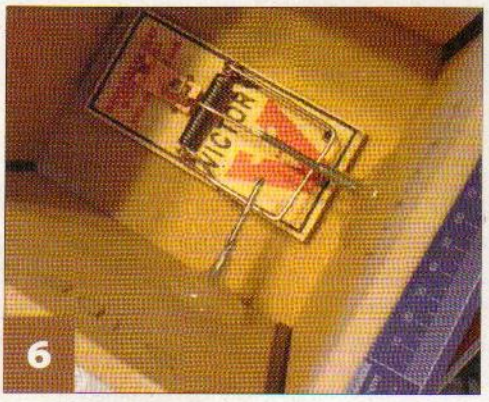












1 Print the design. Insert the waxy label backing sheet into an inkjet printer. Set the printer for best quality and actual size. Print one Top and two Sides. The printed designs will look slightly faded, but they will be darker when transferred to the wood.

2 Transfer the designs to the wood. Lay the printed sheet on a flat work surface, ink side up. Without moving or sliding it, place the wood on top of the image. Press it firmly and rub it all over to ensure an even transfer. Lift the wood straight up without sliding it. The ink should have transferred to the wood and dried almost instantly. Seal it with a few coats of clear sealer. Repeat for the remaining pieces.

3 Add the magnets to the box. The sides sit on the bottom, and the top sits on the sides. Use the sides to mark the lengths of the magnets. Use a metal ruler and cutting mat to cut the strips in half lengthwise to produce two ¼" (6mm)-wide strips. While the magnetic strips are self-adhesive, I use cyanoacrylate (CA) glue, such as Super Glue, to lock them in place. Refer to the diagram on page 48 to attach the magnetic strips. We don't want the box to be too solid; it needs to be able to fly apart easily.

4 Center the assembled side pieces on the bottom. Position the mousetrap approximately centered on the bottom, check the position against the slot mark on the lid, and mark it with a pencil. Apply CA glue to the bottom of the mousetrap and hold it firmly in place until the glue sets.

5 Add the lid. Make sure the coin slot is centered over the mousetrap activator lever. Drill a blade-entry hole and cut the slot. I use a file to smooth the slot. Check to make sure a quarter fits into the slot easily. Set the mousetrap and drop a coin through the slot to make sure it hits the activator lever.

6 Designate the front and one side of the box. Mark a location on both where you know a nail sticking though the wood will be hit by the snapping arm of the mousetrap. Try to choose an inconspicuous place (such as the red area). Then, hammer the nails straight through the wood, and use another nail or a nail set to drive the head of the nail flush with the surface of the wood. Reinforce the back end of the nail with a blob of hot glue. Repeat the process for the other nail. Then, round the ends of the nails with a sanding drum in a rotary tool.

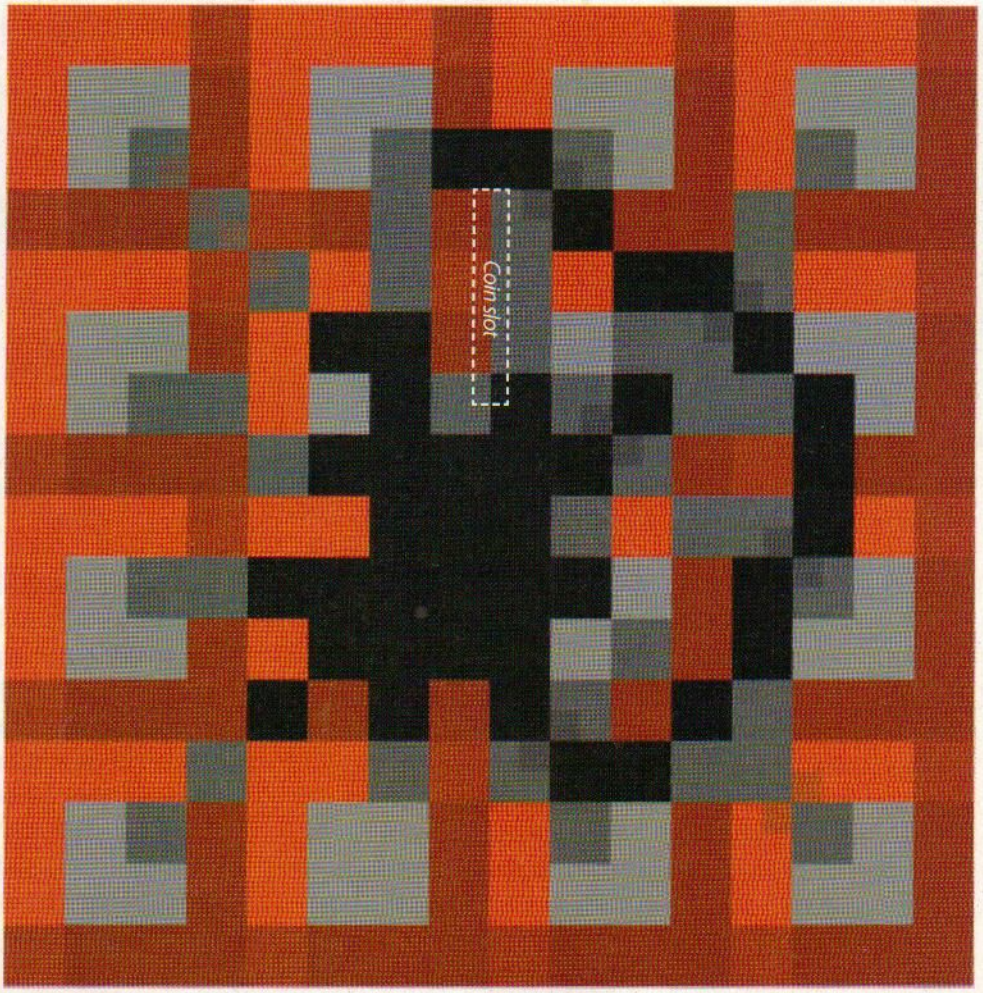
Setting Up the Prank Box

Arm the mousetrap, assemble the sides, and place them on the bottom. Make sure the nails are positioned in the path of the mousetrap arm. Place the lid in position (aligning the coin slot properly). Then, encourage someone else to drop a coin in the bank, and watch them jump!

Placing the Magnetic Strips

Once I had the magnetic strips cut, I glued them to the wood. (The magnetic strip's sticky backing isn't strong enough; CA glue will hold much better.) The pattern is important because every side piece has to have the magnets applied in exactly the same positions (one strip on an edge piece, and one on the opposite side/back). Make sure you are orienting the pieces so the TNT reads correctly. Lay the pieces out, and they should butt up against each other nicely to sit on the base.

Exploding bank top transfer



ON THE WEB Downloadable pixelcraft transfers available online.
www.scrollsawer.com

Exploding bank side transfers

Materials & Tools

Materials:

- Plywood or MDF, ¼" (6mm) thick: 4 each 4½" (114mm) square; 2 each 5" (127mm) square
- Avery labels
- Sandpaper
- Clear spray sealer
- Mousetrap
- Magnetic strip: 36" (914mm)
- Cyanoacrylate (CA) glue, such as Super Glue
- Finishing nail, 10d: 2 each

Tools:

- Table saw
- Scroll saw and blades: #5 reverse-tooth
- Drill or drill press with assorted small bits
- File or sanding stick
- Quarter (or other large coin to test the size)
- Hammer with nail set (or extra finishing nail)
- Hot glue gun with glue (optional)
- Rotary tool with sanding drum

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

Mark Stevenson grew up watching his dad make furniture and wooden toys in his garage woodshop. Mark designed and built his first rubber band Gatling gun after building a CNC machine with his brother-in-law. He simplified the design to make the plans accessible to more traditional woodworkers.

Intarsia Flower

Simple design allows you to focus on shaping the realistic perspective

Pattern by Lucille Crabtree
Article and sample by Janette Square

This simple yet elegant flower is a great way to practice your shaping skills and use up some smaller pieces of wood. This flower is one of the many designs given to me by Lucille Crabtree. My hope is to keep her designs out there and available for intarsia enthusiasts for many years to come.

While this is an easy project to cut, you can really enhance the finished product through shaping. I suggest finding a real flower or a photograph and studying it. Look at each petal and see how one overlaps the next. Study the leaves. Do they curve inward or outward, or are they flat? For shaping, you want the petals that overlap others to be thicker. They should be thinner where they seemingly disappear behind another petal.

To illustrate the center of the flower, taper each of the petals (except the front one) so that the narrow inside of each piece is thinner than the outside. Add curves and contours for more interest. The front petal piece should be the thickest. Gently round the edges of this one and maintain the overall thickness. Remember, no two flowers are alike. Be creative and make this project your own.

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

Materials & Tools

Materials:

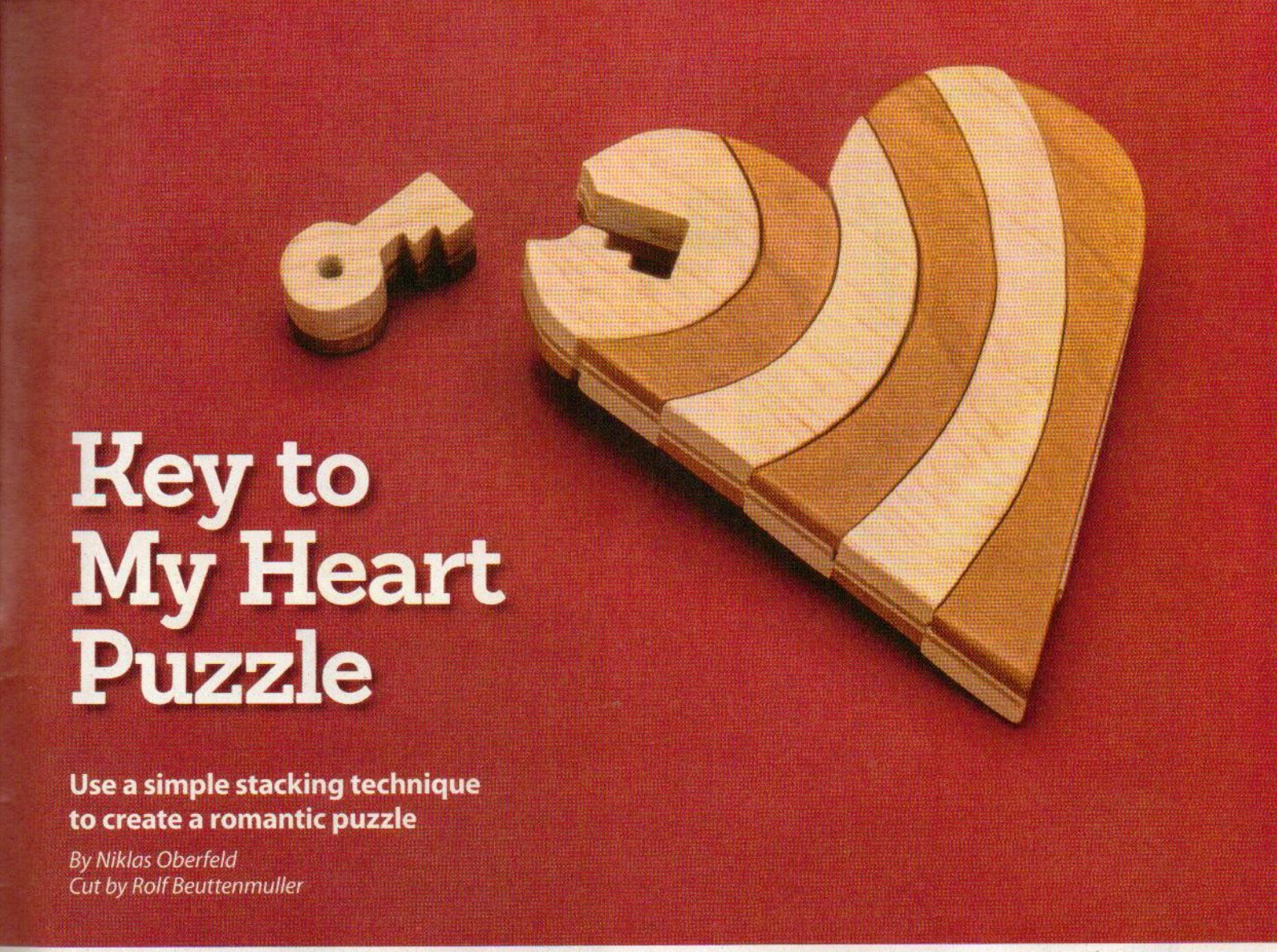
- Red wood, such as aromatic red cedar, ⅞" (22mm) thick: 8" x 8" (203mm x 203mm) or assorted scraps
- Light or green wood, such as poplar, ¾" (19mm) thick: 5" x 10" (127mm x 254mm)
- Baltic birch plywood, ⅛" (3mm) thick: backing board, 7" x 8" (178mm x 203mm)
- Spray adhesive
- Packaging tape
- Wood glue
- Sandpaper
- Drum sander sleeves: 120, 220 grits
- Finish
- Hanger

Tools:

- Scroll saw blades: #1, #7 reverse-tooth
- Sanders: flex drum, spindle, mop

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

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



Key to My Heart Puzzle

Use a simple stacking technique to create a romantic puzzle

By Niklas Oberfeld
Cut by Rolf Beuttenmuller

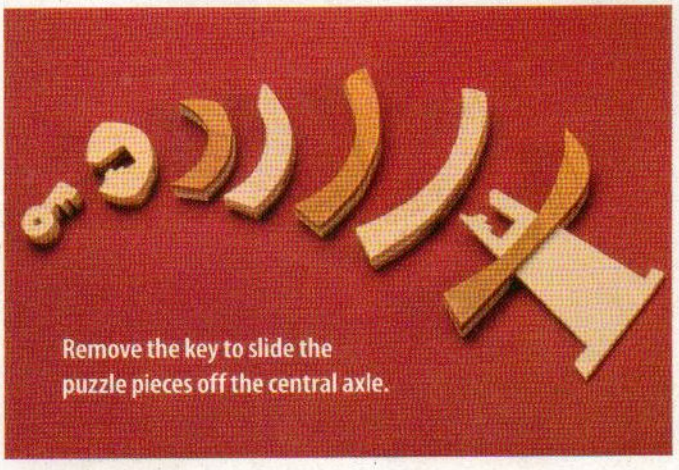
The axle and key puzzle is one of the simplest 3-D puzzles to make. Playing with it is pretty simple, too. Just slide the puzzle pieces down the central axle in their correct order, and then lock the last piece onto the axle with a plug or key.

I don't know when I designed my first axle and key puzzle, but it was way before I knew most of the tricks and techniques an average scroller takes for granted. It was a heart puzzle with a key-shaped key. For this project, I made a variation on my old plans by using two colors of wood and alternating them to give the heart a striped look. It will add some complexity to the workflow, but the result is worth it. To make up for that, the piece is very forgiving. You can stray from the lines considerably without messing up the final result.

To make the pieces easy to align when cutting the outlines of the heart, the patterns are designed to create custom jigs. To preserve the integrity of the jigs, do not cut in from the side of the blank unless otherwise indicated (the axle and grip cuts in Step 1).

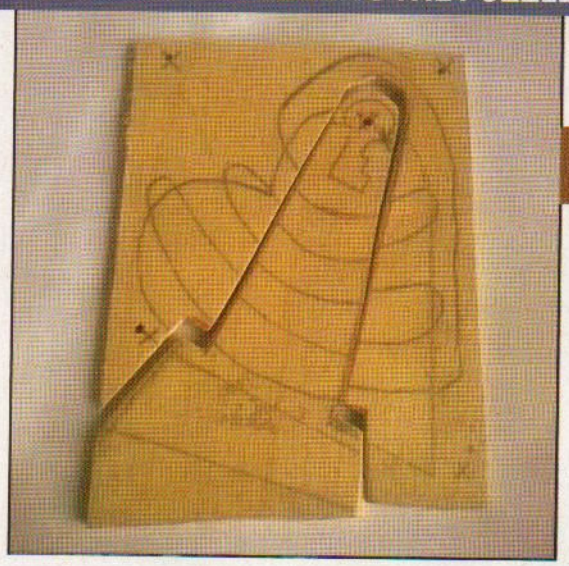
Getting Started

Transfer the patterns to the wood; I trace them and copy the pattern labels to the wood. Cut the outer rectangles. Drill a hole in the key in each layer as precisely as possible. Use a bit the same diameter as a toothpick; I use a 3/64" (1.2mm)-diameter twist bit.



Remove the key to slide the puzzle pieces off the central axle.

HEART PUZZLE: MAKING THE PUZZLE

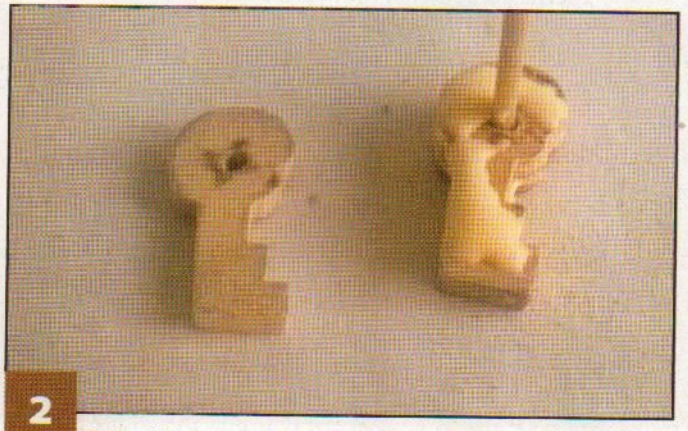


1 **Cut the axle on the middle blank.** Slide the axle in and out of the slot; it should slide freely. Sand or file any spots that stick. Stack the three layers and put a toothpick in the key to align them. Secure the stack with tape or drill additional alignment holes and insert toothpicks.

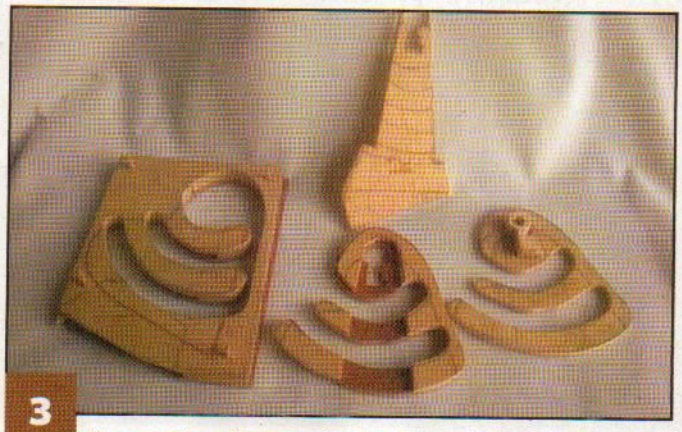
TIP

SECURING THE KEY

To make a key that stays in place (and can only be removed from one side), tilt your saw table a degree to the left or right. This will help secure the key (which slides out easily).



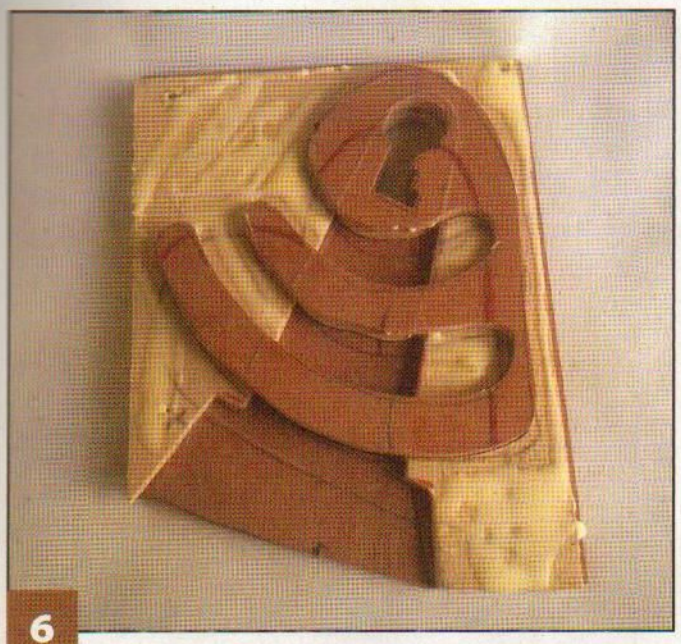
2 **Drill a blade-entry hole and cut the key.** Remove any patterns and use a toothpick to align the pieces of the key; glue and clamp them together. When the glue is dry, cut the toothpick and drill out the hole in the key with a 3⁄16" (5mm)-diameter bit.



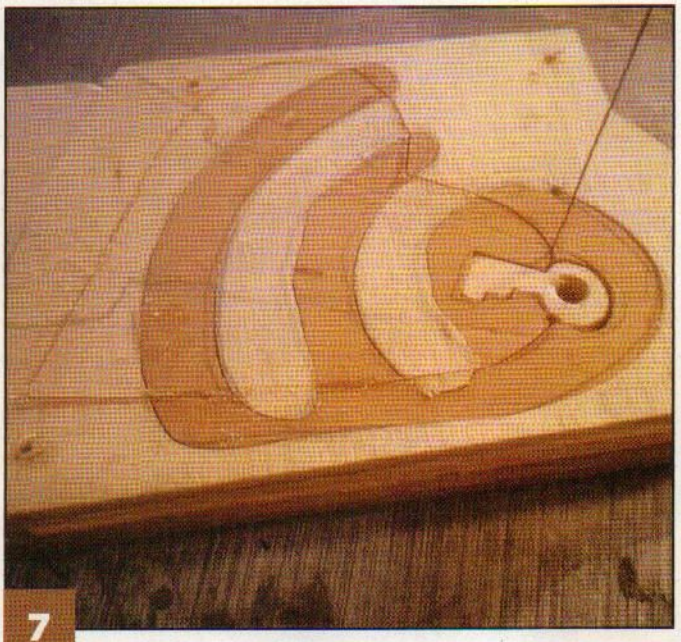
3 **Remove the axle from the stack (very important!).** To cut the stripes, drill a blade-entry hole and cut along the line. This will free three pieces from the center layer; set them aside for now. Remove the cut pieces from the jig and separate the stack.

4 **Place the top cut piece on the bench.** Insert the axle and use the key to hold the two in place. Use the axle and key to carefully align the center layer pieces and glue them in place.

5 **Glue the bottom cut piece to the top of the center layer.** Use the key to help align the pieces. Carefully remove the axle and key before the glue dries (to keep them from getting glued in place).



6 **Reassemble the jig.** Insert the assembled cut pieces into the hole in the bottom layer of the jig. Glue the center jig layer to the top of the bottom layer. Repeat the process to attach the top jig layer to the center jig layer. Be careful not to glue the cut pieces to the jig pieces. Allow the glue to dry. Insert the axle and lock it in place with the key.



7 **Cut the perimeter of the heart.** Be careful when cutting near the key. Remove the cut pieces from the jig, and sand them smooth. Slide the pieces off the axle and sand as needed. Write (or woodburn) a secret message on the axle, if desired. Apply a coat of oil, wax, or a finish of your choice. Be careful that the finish doesn't interfere with the movement of the pieces. Tie a leather loop to the hole in the key.

Variations on a Theme

The easiest way to change the puzzle is to choose different varieties of wood. You could also use one light wood and add color with stains or dyes. Or, download an alternate pattern from www.scrollsawer.com to change the stripes into zigzags. After you master the technique, try cutting more pieces. You could also change the shape of the outline to make a rocket, fish, Christmas tree, or any other shape you can imagine.

Materials & Tools

Materials:

- Dark hardwood, such as walnut or mahogany, ⅛" (3mm) thick: 3" x 4" (76mm x 102mm)
- Light wood, such as cherry or maple, ⅛" (3mm) thick: 3" x 4" (76mm x 102mm)
- Baltic birch plywood, ⅛" (3mm) thick: 3" x 4" (76mm x 102mm)
- Toothpicks
- Sandpaper
- Wood glue
- Leather cord
- Finish, such as wax or oil

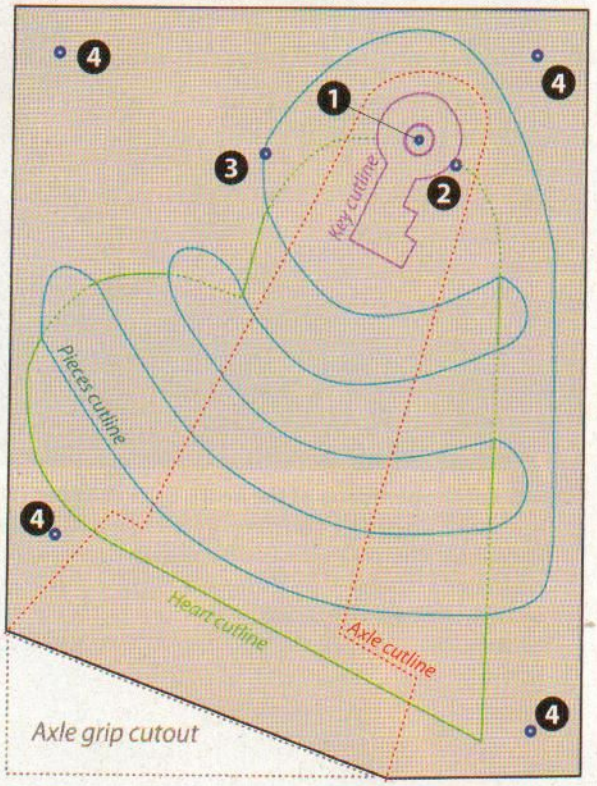
The author used these products for the project. Substitute your choice of brands, tools, and materials as desired.

Tools:

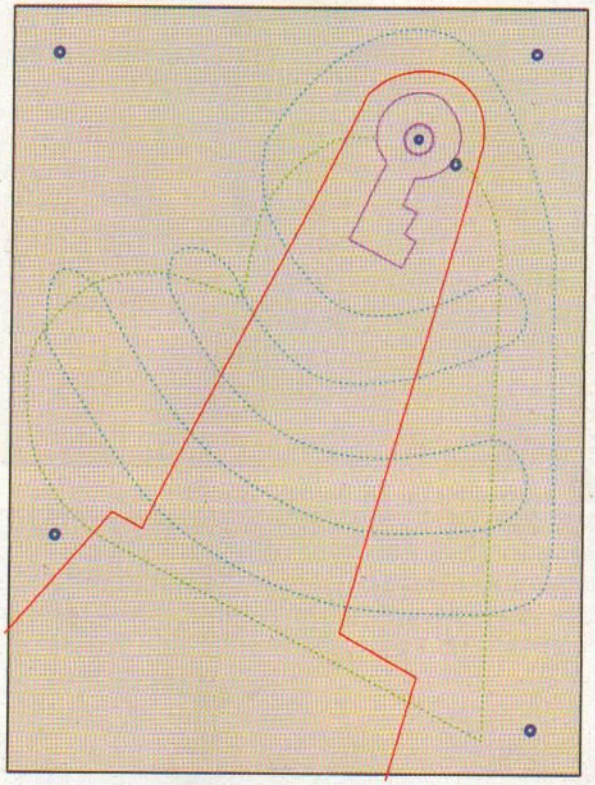
- Scroll saw blades: #2 to #5 reverse-tooth
- Drill with bits: 3/64" (1.2mm), 3/16" (5mm)

Heart puzzle patterns

Top layer (⅛" light wood)



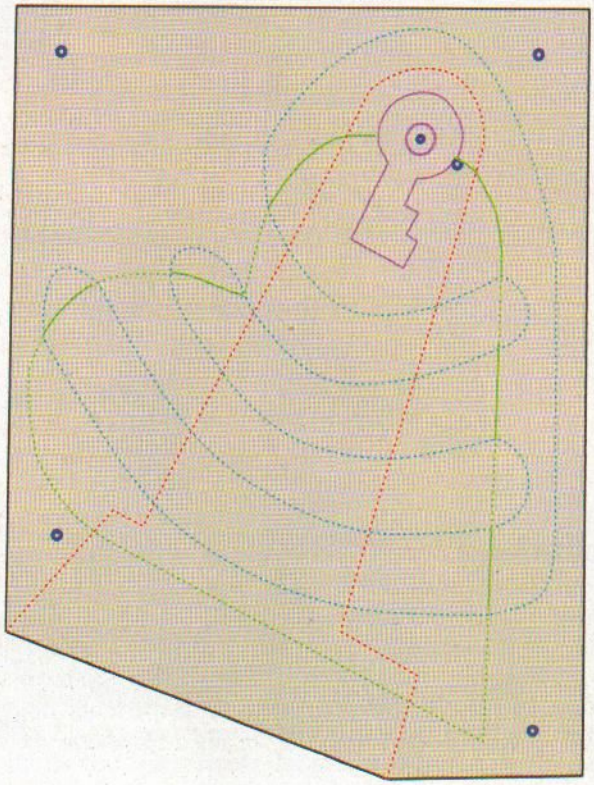
Center layer (⅛" plywood)

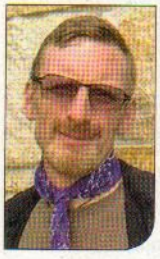


Drilling legend

1. Key center hole: 3/64"-diameter hole
2. Key blade-entry hole: 1/16"-diameter hole
3. Pieces cutline entry hole: 1/16"-diameter hole
4. Toothpick holes for alignment of layers (optional): 3/64"-diameter holes

Bottom layer (⅛" dark wood)





Niklas Oberfeld grew up in Belgium and Germany, and then married a girl from Oklahoma. They now live in Texas. As a woodworker, he still has to master cutting a single straight line, so he designs his projects to be virtually foolproof against bad sawmanship. He still manages to mess them up regularly.

Pinewood Champ Speed Secrets

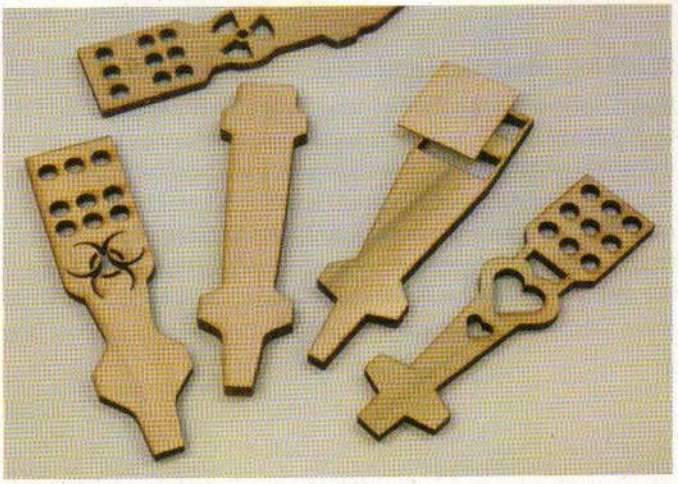
Designing, cutting, and finishing a pinewood race car is a rite of passage for millions elementary school kids—and a passion for many adults. Whether you're teaching woodworking and physics to a Scout or Awana racer, or trying to break the speed record yourself, you'll find tips to help right here. These new products, proven patterns, and expert techniques will help you take your car from good to great and bring home a trophy on the big day.

NEW PINEWOOD PRODUCTS

Pinewood Derby fans are always looking for ways to tweak their cars and minimize friction to shave a few seconds off their race times. These tools and gadgets make traditional tasks easier and introduce a few new tricks.

Laser-Cut Car Bodies

Save yourself some time and effort with these precision pre-cut car bodies. Steve Robbins of Derby Monkey has worked out the best placements for the weights and where to remove wood from the front to make each of these ready-to-assemble cars a winning design. Available starting at $9.95 plus shipping and handling from Derby Monkey, 888-826-8920, www.DerbyMonkey.com.

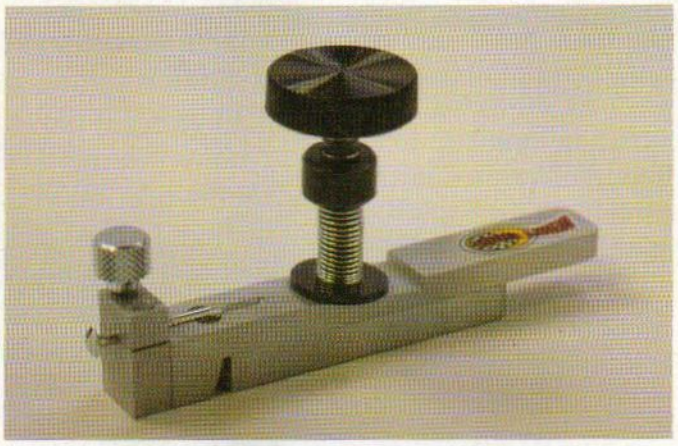


Center of Gravity Stand

This precision tool helps you determine the car's center of gravity for proper weight placement. Use the stand to determine the balance point easily, and then measure the distance between the balance point and rear wheels with the integrated ruler. Available for $9.95 plus shipping and handling from Derby Monkey Garage, 888-826-8920, www.derbymonkey.com.

Pro Axle Bender

Bent axles are one of the easiest and fastest ways to improve your car's performance. This precision tool allows you to bend standard or aftermarket axles (made from harder materials) to any angle between 0.5° and 10°. The tool is useful whether you want your car to travel straight down the track or to ride the center rail. The MSRP is $79.95. Visit www.DerbyWorx.com to find a retailer.

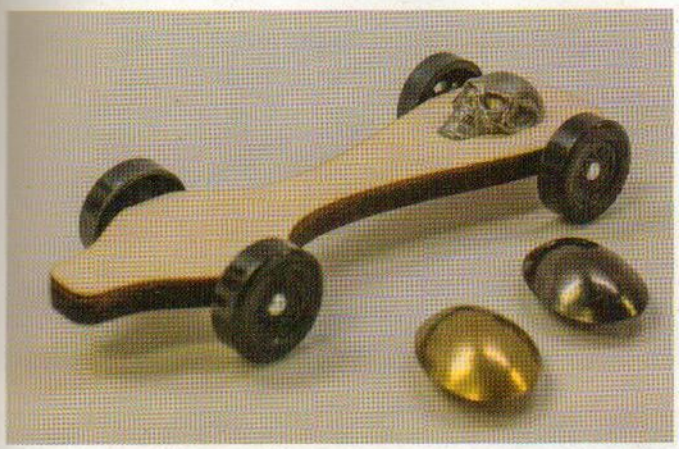


Pro Body Slotter

There are a number of tools and jigs on the market to drill or re-drill holes for axles, but there are times that a slot for an axle is better. The Pro Body Slotter allows you to reposition and cut accurate axle slots in a body block. The MSRP is $16.95. Visit www.DerbyWorx.com to find a retailer.

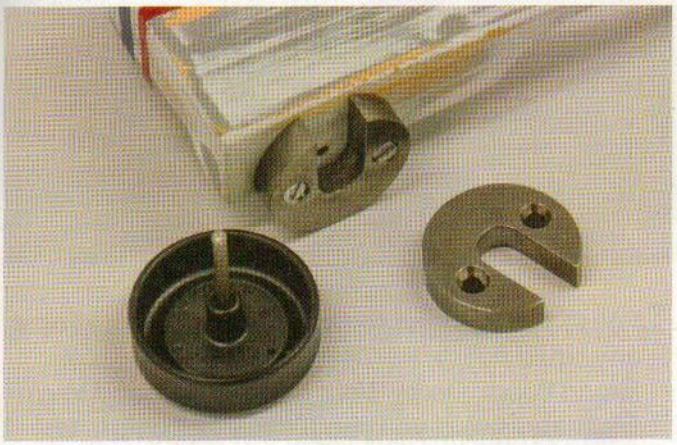
Precision-Machined and Aftermarket Axles

If you don't have the time or tools to adjust the axles yourself, you can buy a set. Check your pack's rules before using aftermarket axles. For example, you can find official Boy Scouts of America axles that have been precision CNC-machined to remove friction points. Additional axles, ranging from machined stainless steel to specially designed titanium, are also available. The MSRP range from $10.95 to $34.95. Visit www.DerbyWorx.com to find a retailer.



Decorative Weights

Experts agree that proper weight distribution can make or break a car. The goal is to keep the weight to the back, but not so far back that it makes the front end of the car rise. Decorative weights, made from tungsten, help dress up your car. Two new weights are the domed canopy, which comes in 2.5oz and 3.5oz sizes, and the skull, which weighs 2.9oz. The MSRP range from $14.95 to $19.95. Visit www.DerbyWorx.com to find a retailer.



Aero Weights

Add more weight to a small car body with tungsten weights engineered to attach to the sides of a derby car; the wheels fit around them. While it requires precision to position the weights properly so they don't rub on the wheels or wheel hubs, this extra weight right at the back axles helps keep the potential energy of your car high. The pair of Aero Weights with mounting screws weighs 2.3oz. The MSRP is $21.95 for the set. Visit www.DerbyWorx.com to find a retailer.

Pro Bore Wax

Several experts have found that waxing the wheel bores in addition to applying a lubricant, such as graphite, improves the performance of the wheel and axle. While many waxes will work, this new one is specially formulated to work with the types of plastic used in Pinewood Derby wheels. It's easy to apply and to buff out, and compatible with all of the popular Pinewood Derby lubricants. The MSRP is $5.95. Visit www.DerbyWorx.com to find a retailer.

Testors CreateFX

This new line of paints from Testors includes textured paints, stains, washes, markers, adhesive, masking tape, hobby knives, and paintbrushes. These products are designed for use on everything from plastic to metal, resin, and even putty and other wood fillers. They come in a variety of colors ranging from florescent, glitter, frosted glass, and texture to traditional primary and secondary colors in acrylic, enamel, and lacquers. For more information, visit Testors.com.

Advanced Wheel Bore Polishing

Expert technique to improve your car's performance

By Steve Robbins

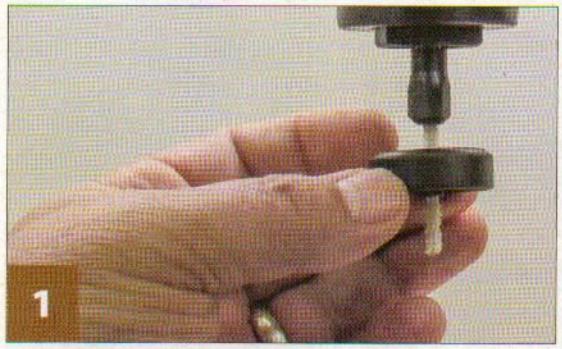
The number-one enemy of a pinewood race car is friction. Most friction occurs where the wheel bore rubs the axle shaft as the car races down the track. To combat this, you must polish the axles and the insides of the wheel bores.

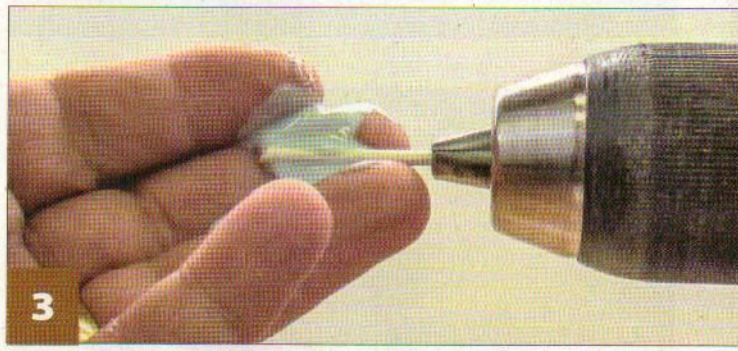
This advanced polishing technique goes beyond basic wheel bore preparation. It will put a super-smooth surface on the inside of the wheel bore and significantly reduce the surface contact friction. You'll only need a few tools and supplies, most of which you may already have lying around the house. If not, you can find them in most stores or through a Pinewood Derby specialty store.

Getting Started

Prepare the outside of each wheel by truing the tread and making sure they are perfectly round (called truing the circumference). Make sure the wheel bores are true and free of debris. If there is an issue, correct it or get another set of wheels. Pre-prepared aftermarket wheels (with already trued bores) are available.

Set up your work station. I use a variable-speed rotary tool in a drill press system, but a hand drill or drill press will work, as well. Use a low speed; a fast setting can create too much heat and friction in the wheel bore, which causes the plastic to melt and gum up. Choose soft, cotton-type pipe cleaners (the fluffier the better). Cut them into 2" (51mm)-long sections, and chuck one in the drill (or use a holder, such as the Derby Worx Pro Bore Polisher, that attaches to the drill and holds the pipe cleaner).





1 Polish the inside of the bore. You can use almost any liquid polish; I've used Brasso, Turtlewax Liquid Polish, Derby Worx Micro-Polish, and Micro-Gloss abrasive. If you choose another polish, test it on a spare wheel to make sure it doesn't react to the plastic. Apply the polish to the pipe cleaner, turn on the drill, and polish the inner wheel bore for 10 seconds.

2 Refine the inside of the bore. Repeat Step 1 using a fresh pipe cleaner and finer liquid polish, such as Micro-Surface Finishing Products' Micro-Finish Polish.

Materials & Tools

Materials:

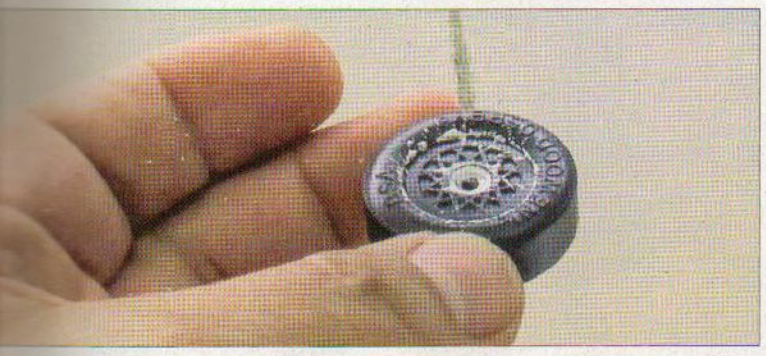
- Pinewood Derby wheels
- Liquid polish: Brasso, Turtle Wax, Derby Worx Micro-Polish, or Micro-Gloss abrasive
- Fine liquid polish: Micro-Surface Finishing Products' Micro-Finish Polish
- Pipe cleaners
- Cotton swabs with paper handle
- Wax: Meguiar's Tech wax, Liquid Glass Auto Polish, or Derby Worx Pro Bore Wax

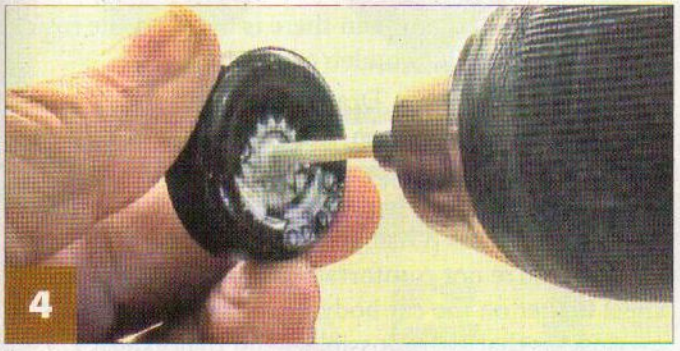
Tools:

- Variable-speed drill, rotary tool in a drill press system, or drill press
- Derby Worx Pro Bore Polisher (optional)

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

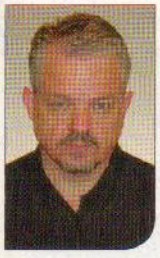
By Steve Robbins of Derby Monkey



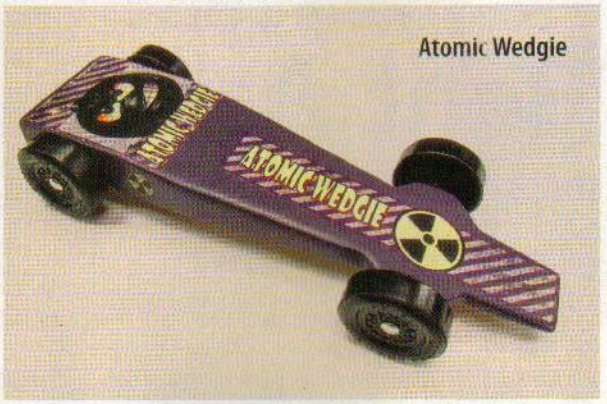


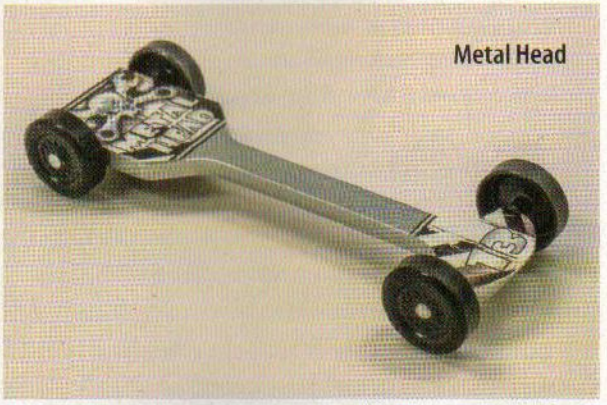
3 Prepare to wax the inside of the bore Choose a cotton swab with a paper stick (such as a Q-Tip). Cut the cotton tips off both ends, and cut one off at an angle. The paper shaft fits tightly into the wheel bores. Chuck the stick in a hand-held variable-speed drill. Apply a high-quality liquid wax, such as Meguiar's Tech Wax, Liquid Glass Auto Polish, or Derby Worx Pro Bore Wax, to the inside of the bore and the outside of the paper stick.

4 Wax the inside of the bore. Turn on the drill at its lowest setting and insert the stick into the wheel bore. Increase the drill to medium speed and polish the wheel bore for 15 seconds. Allow the wheel to dry for at least two hours. Carefully remove any waxy residue from the bore with a pipe cleaner. Insert the pipe cleaner slightly into the bore and rotate around the circumference of the bore. Do not move the pipe cleaner back and forth. If you inspect the wheel bore under lighted magnification, you should see a highly polished surface.



Steve Robbins is the owner of Derby Monkey, an online Pinewood Derby supply store. He also serves as the department chair and a professor for the Tyler Junior College Vision Care Technology program in Tyler, Texas. A previous Scout Master, Steve has years of experience in developing and testing pinewood car speed techniques. Visit his website at www.DerbyMonkey.com.

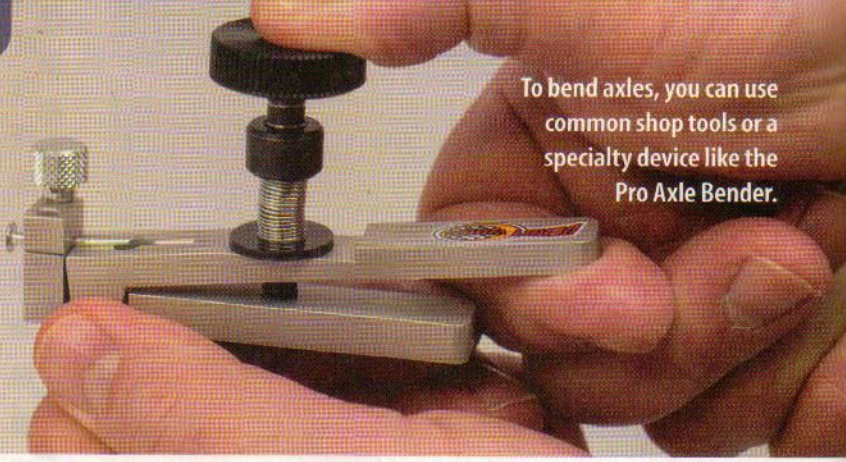




Patterns for all of these ***PINEWOOD DERBY CARS*** are in the pullout section.

Pro Speed Trick: Bent Axles

This counterintuitive trick can help your car go faster



To bend axles, you can use common shop tools or a specialty device like the Pro Axle Bender.

Editor's Note: In this article, we bring together information presented by Mark Rober in his poplar YouTube video on using science to win Pinewood Derby races (with Mark's permission) as well as information by Jay Wiles, inventor of the Rail Rider technique. To see Mark's video, visit www.youtube.com/watch?v=-RjJtO51ykY.

Most people who make pinewood racers try to give a car a reasonably aerodynamic shape, place the weights properly, and prepare the wheels and axles. To win races, you need to go further and address the interaction between the axles and the wheels.

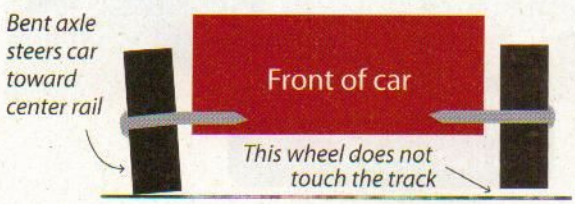
Some Derby experts suggest adjusting the wheels to run in the middle of the space between the car body and axle head. A perfectly aligned car should run straight down the track. However, tracks are not always perfect, so even these well-tuned cars swerve back and forth slightly, which slows the car. The swerving also causes the wheels to rub against the wooden body, creating friction and further slowing the car. Instead, Mark Rober suggests bending the axles to move the wheels away from the car body entirely.

Mark suggests you use a straight axle to lift one front wheel so it doesn't touch the track at all. Then, bend and orient the back axles so the wheels angle inward, insuring the wheels always ride against the head of the axle. If you polish the inside of the axle head and the outside of the wheel properly, there is less friction between them than there is between the inside of the wheel and the wooden car body.

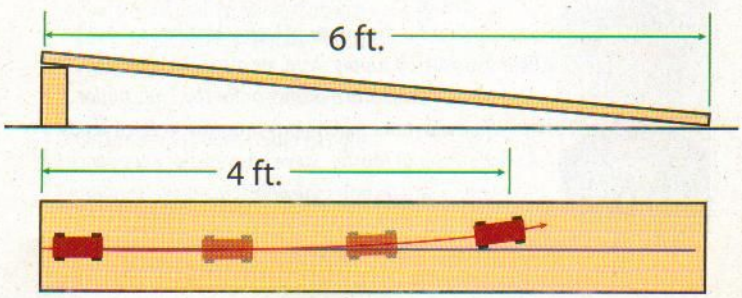
Here is the process. Draw a line at 12 o'clock on three axles and bend them, with the lines up, 2.5°. Install the two back axles with the marks up so the wheels cant outward. Install an unbent axle as far up in one front slot as possible to lift the wheel off the track. (If you're not comfortable installing the fourth wheel higher on the car body, or if your car's body is too thin for that to be possible, bend that axle at 2.5° as well, and orient the bent axle to lift the wheel off the track.) Install the bent front axle with the mark down, so the wheel turns inward. This encourages the car to turn in against the center rail instead of swerving back and forth. While this "Rail Riding" action does generate friction from the car rubbing against the center rail and the axle heads, you don't lose as much energy as if the wheels were rubbing against the wooden body or the car was swerving back and forth.

To bend axles, you can use a pair of pliers, a vise, and a hammer, or either of two Derby Worx tools. The Pro Rail Rider tool and Pro Axle tool set retails for around $30 and will bend to two predetermined angles. The system doesn't work as well for axles made from titanium and other harder metals. The Pro Axle Bender allows you to bend axles to a variety of angles and to bend axles made from any material. It retails for around $80.

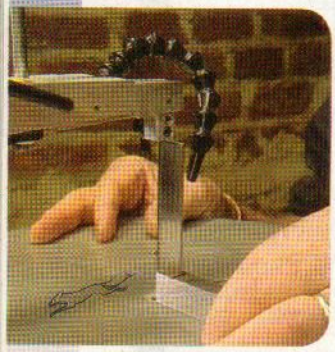
After installing the wheels and axles, draw a line on a 4' to 6' (1.2m to 1.8m)-long board, and let the car travel down the line. It should veer about 1" (25mm) to the left (or right) over that distance.



Testing the alignment

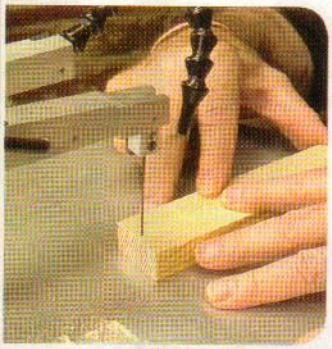


To avoid repetitive instructions, this page is included in each issue to assist novice scrollers with basic scrolling techniques.



Squaring Your Table

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



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

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

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

Attaching Patterns

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

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

Stack Cutting

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

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

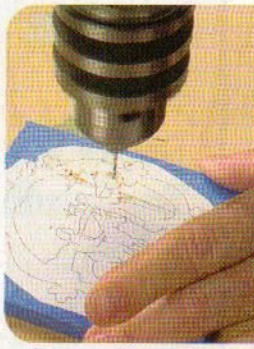
Hot-melt glue is another option. Glue the blanks together with a dot of hot-melt glue on each side.

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

Blade Tension

Before inserting a blade, completely remove the tension. Clamp both ends of the blade into the blade holders and adjust the tension. Push on the blade with your finger. It should flex no more than 1/8" (3mm) forward, backward, or side to side.

A blade that does not have enough tension will wander. It will also flex from side to side, making for irregular or angled cuts. If you press too hard on a loose blade, it will usually snap. A blade that has too much tension is more susceptible to breaking and tends to pull out of the blade holders. In general, it is better to make the blade too tight rather than too loose.



Blade-Entry Holes

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

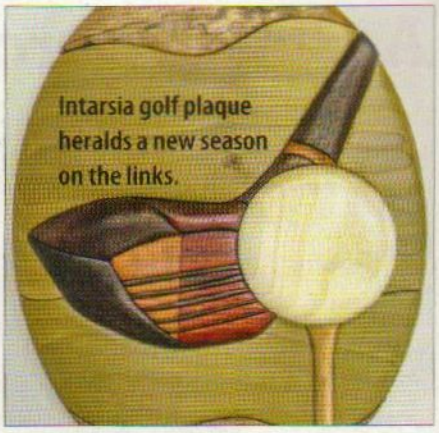
Removing Patterns

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

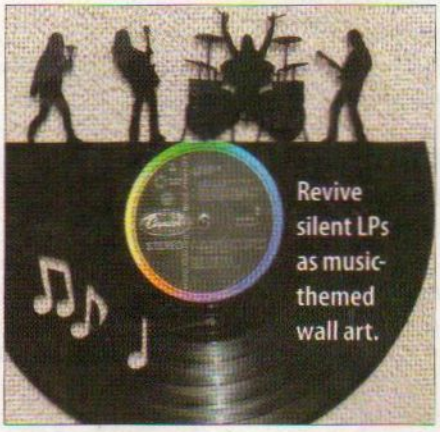
ADVERTISING DIRECTORY

IN OUR NEXT ISSUE

Welcome the birds back with a fluttering hummingbird pull toy.



Intarsia golf plaque heralds a new season on the links.

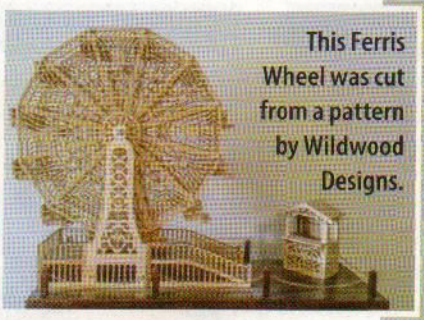


Revive silent LPs as music-themed wall art.

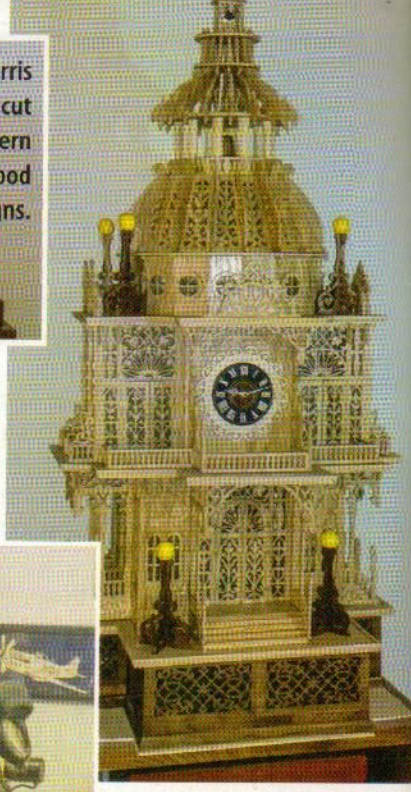
A Closet Scroller

One of the great things about a scroll saw is that it does not require a lot of space to do the job. Just ask 85-year-old Don Nettum of Fargo, N. D., who scrolls in a closet. After serving in the Navy Reserve, Army, and Central Intelligence Agency, Don worked as a lumber salesman for 30 years. In his spare time he crafted furniture for his family. When he retired, he and his wife, Julaine, sold their home and downsized to an apartment where space was at a premium. Although Don gave up his large workshop, he was not willing to give up woodworking entirely, so he set up his scroll saw in a walk-in closet. "I was ready to focus on more intricate work, and the closet suited me just fine," he said. Now Don spends much of his time scrolling, sanding, and gluing in the closet. "Once in a while I can get him to come out for a cup of coffee with me," said Julaine with a laugh. Don said, "My little workshop is just perfect for me, and I really enjoy working with the scroll saw. It's a great pastime and I love seeing the end results."

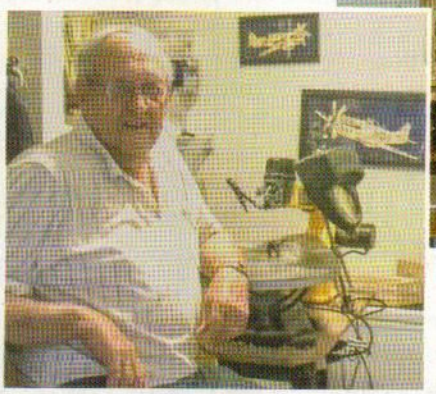
E-mail Don Nettum at roundlakers@yahoo.com.



This Ferris Wheel was cut from a pattern by Wildwood Designs.



Don's Dome Clock is 24" by 52", is made of approximately 478 Baltic birch pieces, and is wired for lighting.



Don Nettum at work in his closet woodworking shop.

Wildlife Toys in Motion

When Ohio resident David Wakefield decided to take up woodworking 38 years ago, he poured his efforts into designing and crafting irresistible animal toys for kids. His first design was a howling wolf. "Eventually I decided to put rockers under it to make it somewhat useful," David recalled. That motion became the hallmark of his animated toys. Whether it's a chomping crocodile, waddling duck, jumping frog, toddling turtle, or terrifying T-Rex, each creature features an ingenious design that allows it to walk, wiggle, or whirl.

In addition to his animals, David has designed patterns for some animated vehicles such as boats, a flying saucer, a front-end loader, a railroad handcar, etc. He cuts the toys from high-quality cherry or poplar wood and finishes them with a nontoxic food-grade mineral oil. His new pattern book, *Animated Animal Toys in Wood*, available through Fox Chapel Publishing, is filled with easy-to-make, clever designs for wild animal push and pull toys. "There is something about the raw guileless innocence of all animals, especially wild ones," he said. "I try to capture the character of each creature with line and movement, bringing out the inherent wildness and innocence that so clearly attracts, engages, and enlivens our children."

See more of David's toys at www.wildlife-toys.com and check out his book at www.FoxChapelPublishing.com.

The T-Rex dinosaur toy and the skunk pull toy are two of David's most popular designs.

David Wakefield in his workshop.

A1

Intarsia Flower

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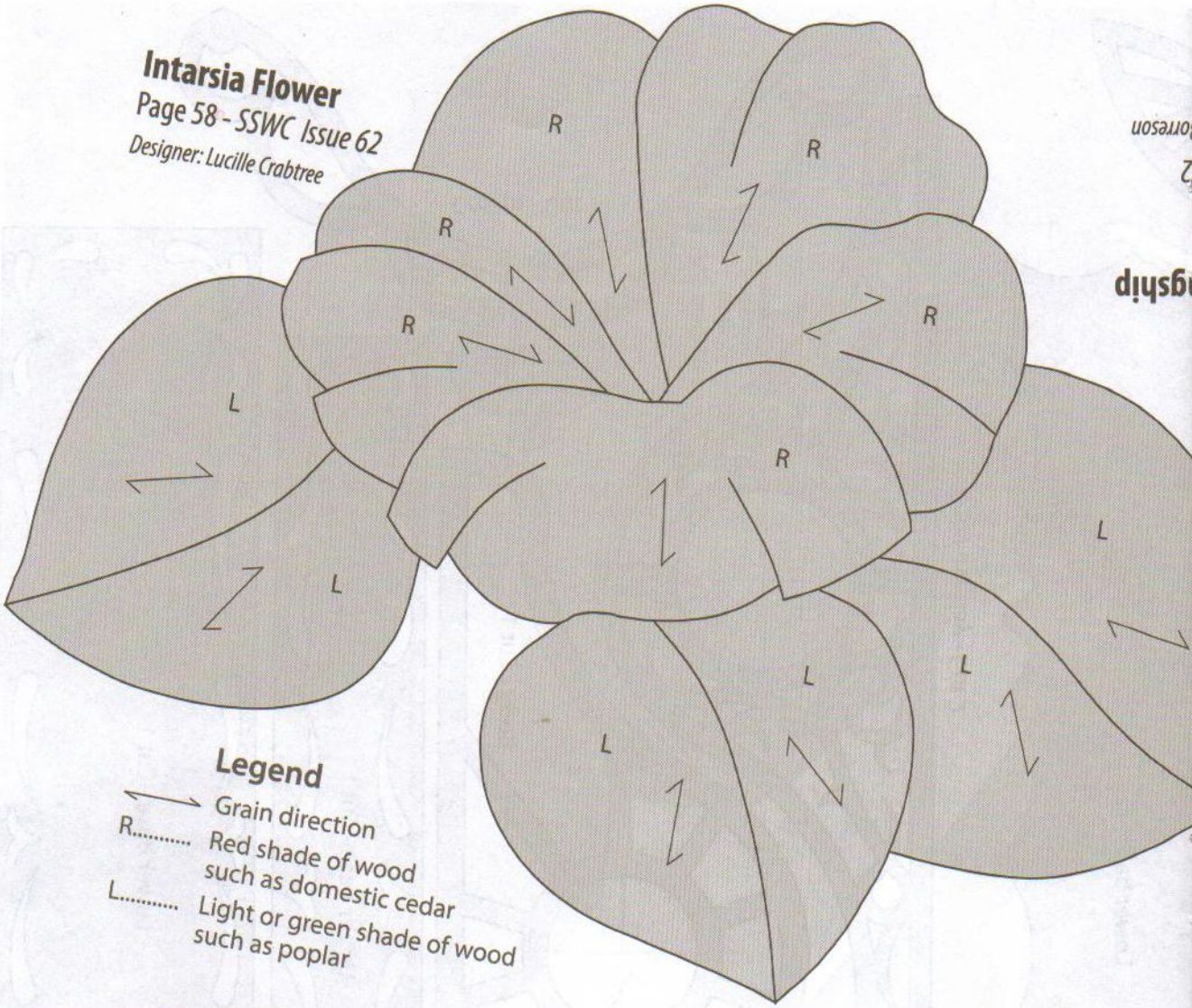
Designer: Lucille Crabtree

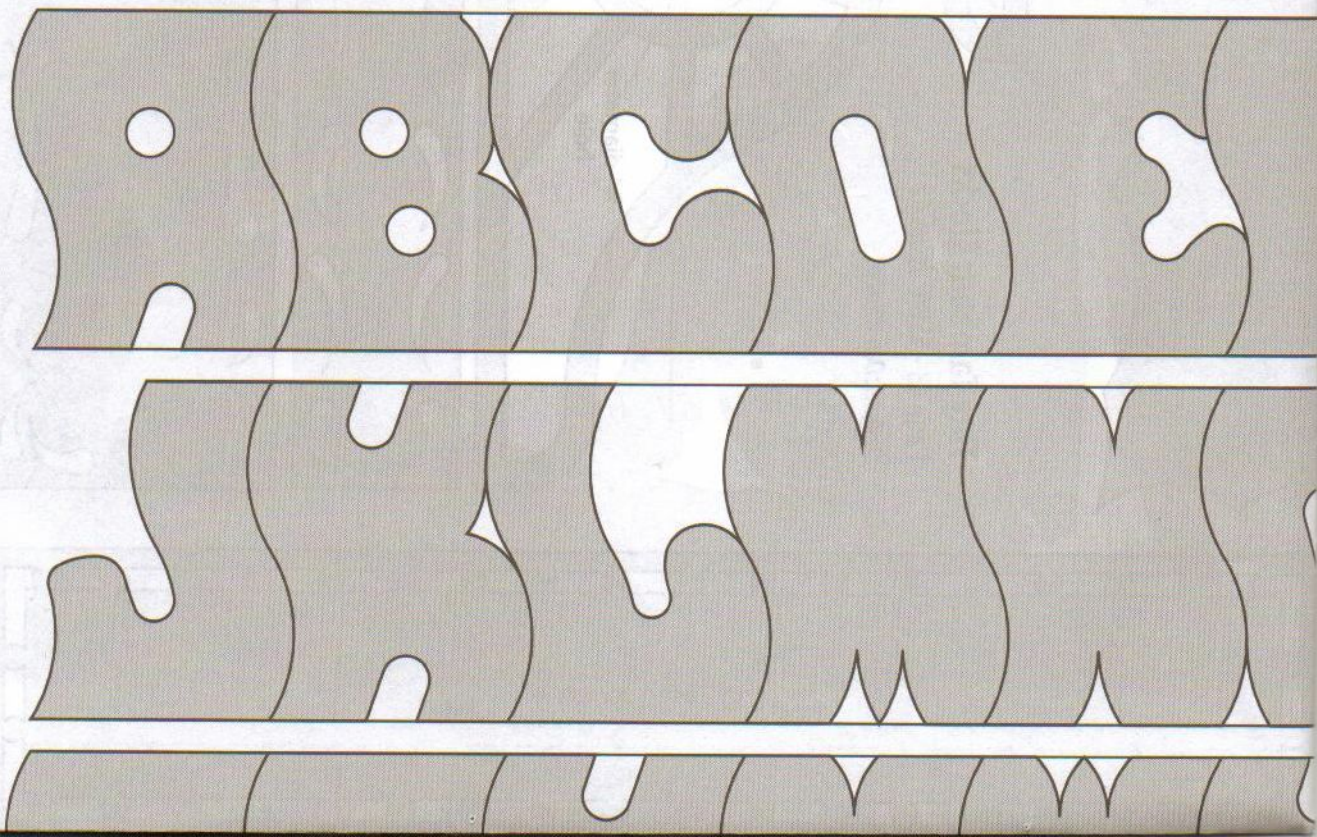


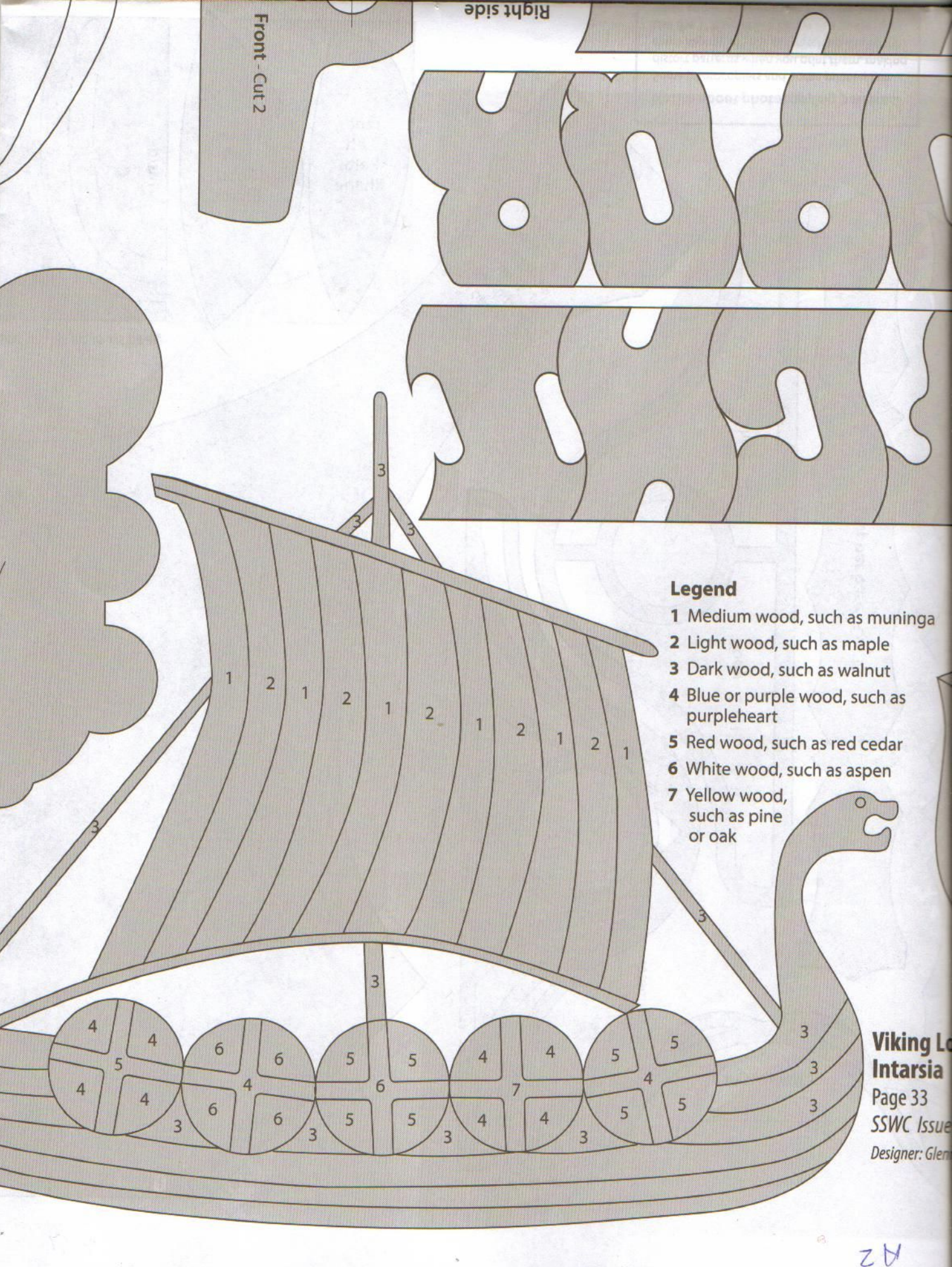
Legend

Grain direction

R..... Red shade of wood such as domestic cedar

L..... Light or green shade of wood such as poplar





Viking Lo
Intarsia
Page 33
SSWC Issue
Designer: Glen

A2

A3

Hardwood Baby Teethers
Page 48 - *SSWC Issue 62*
Designer: Tim Gilman

Pinewood Champ Speed Secrets
Page 63 - *SSWC Issue 62*
Designer: Steve Robbins of Derby Monkey

Axle line

Metal Head
Extended wheelbase

Weight pocket cover

Axle line

Axl

Axl

Atomic Wedgie

Three Ways to Add Texture to Intarsia
Page 50 - *SSWC Issue 62*
Designer: Kathy Wise

W

A4

SCROLLSAW woodworking & CRAFTS

Winter/Spring 2016 - Issue 62

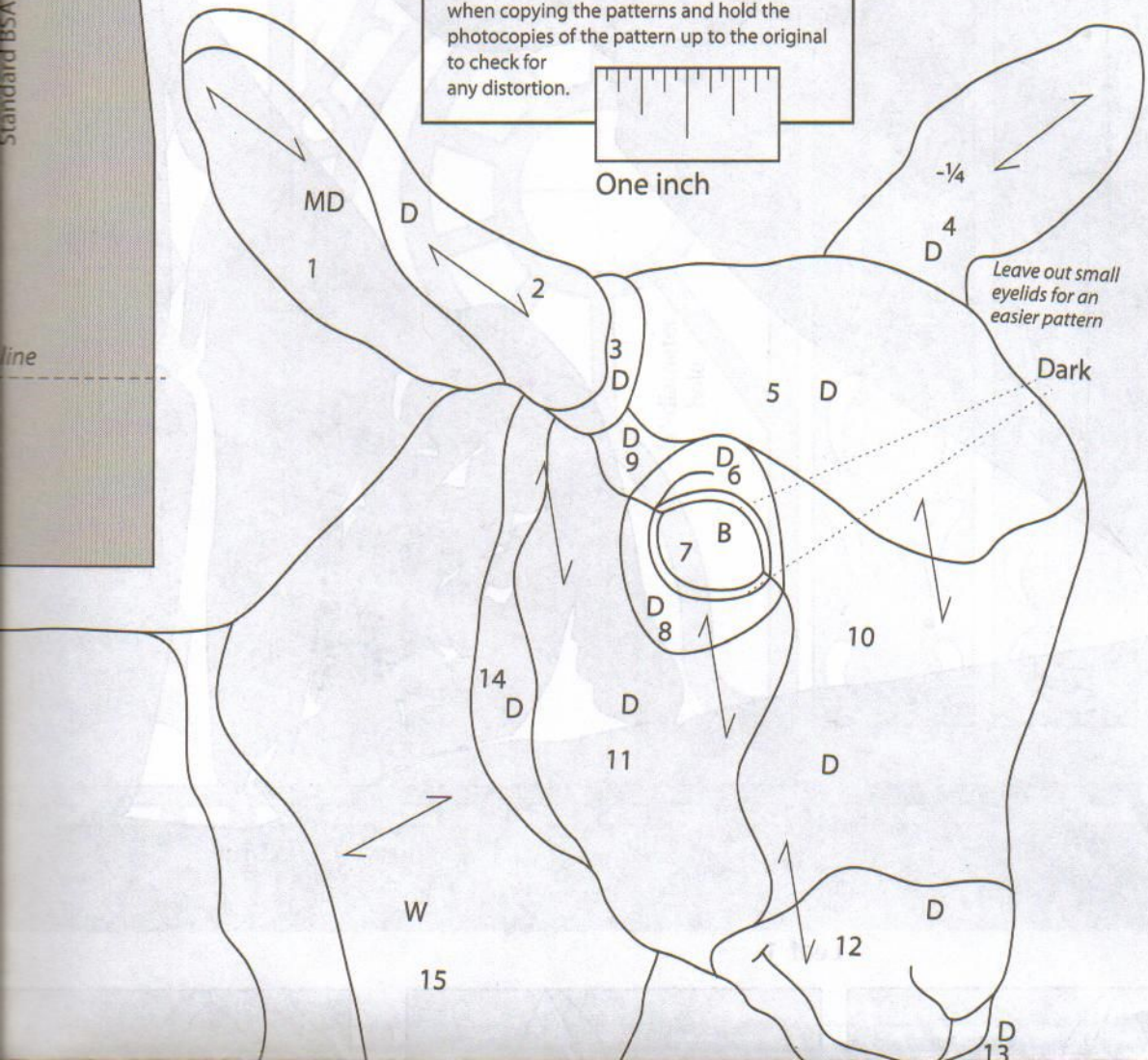
1970 Broad Street
East Petersburg, PA 17520

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

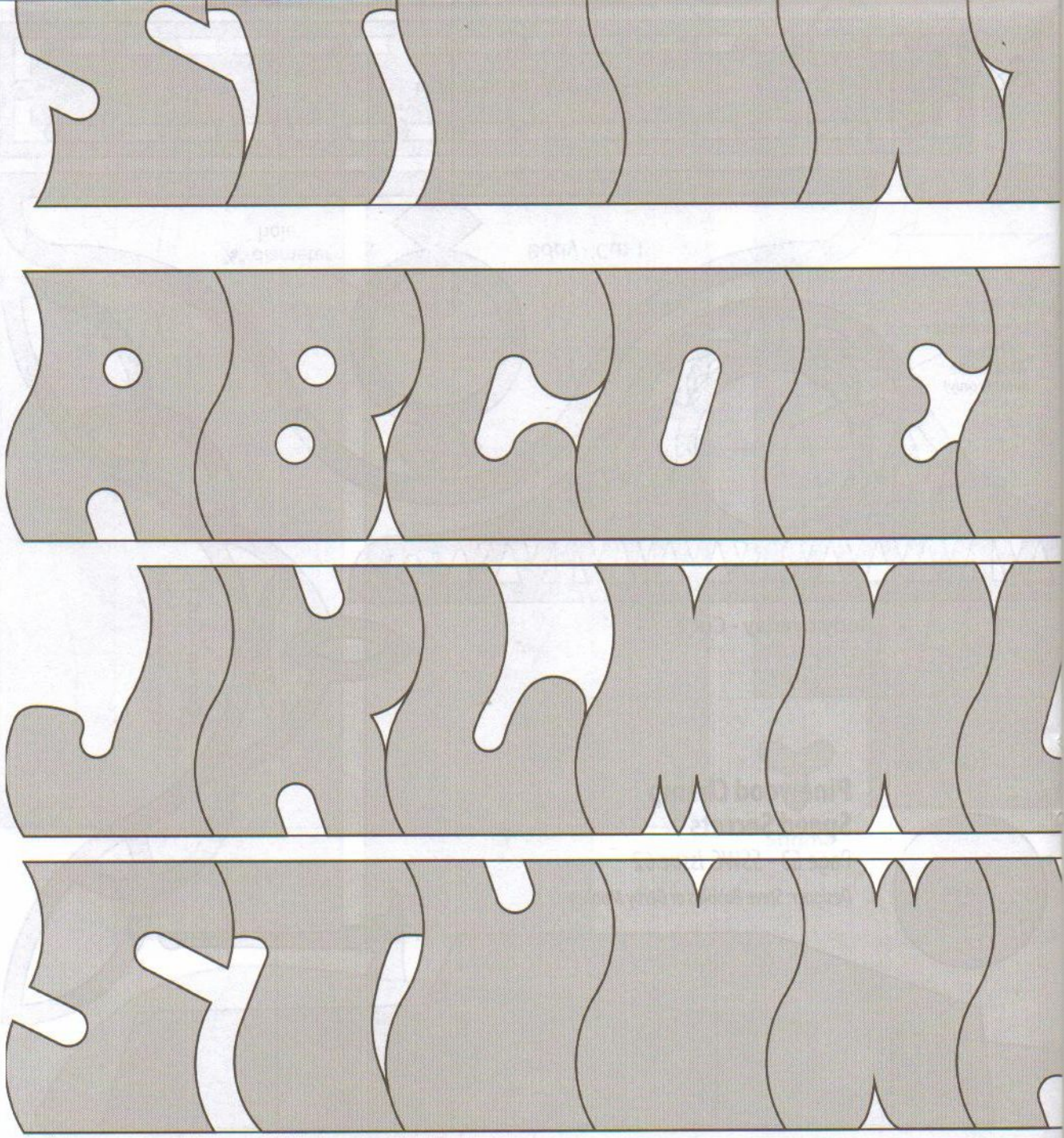
Notice about photocopying patterns

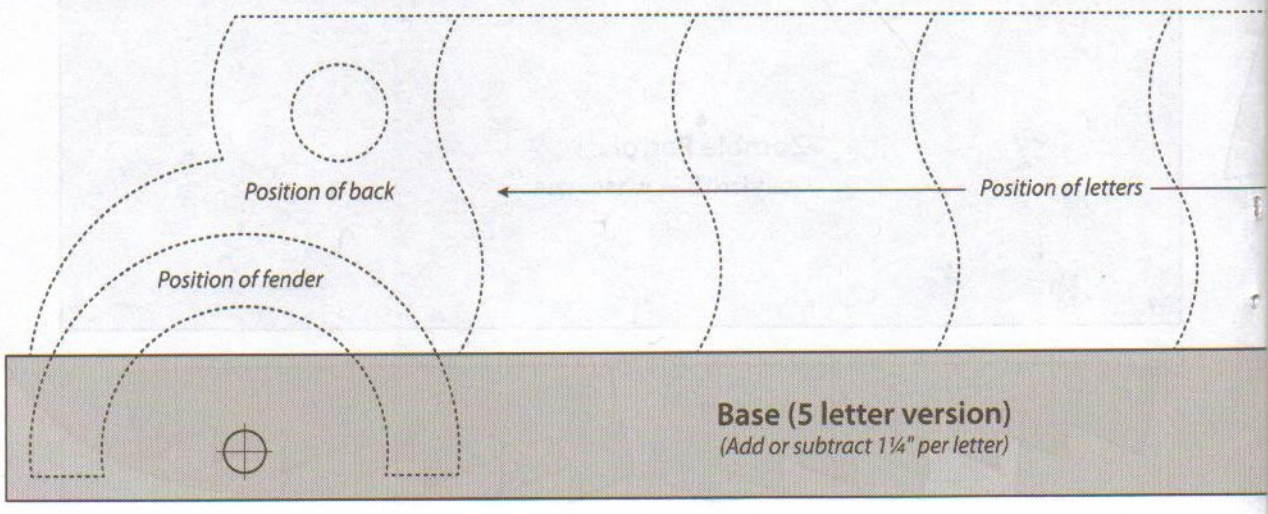
Some photocopiers and home printers can distort patterns when you print them, making them slightly off-size or stretching the image. Use the 1" bar printed below as a guide when copying the patterns and hold the photocopies of the pattern up to the original to check for any distortion.

One inch

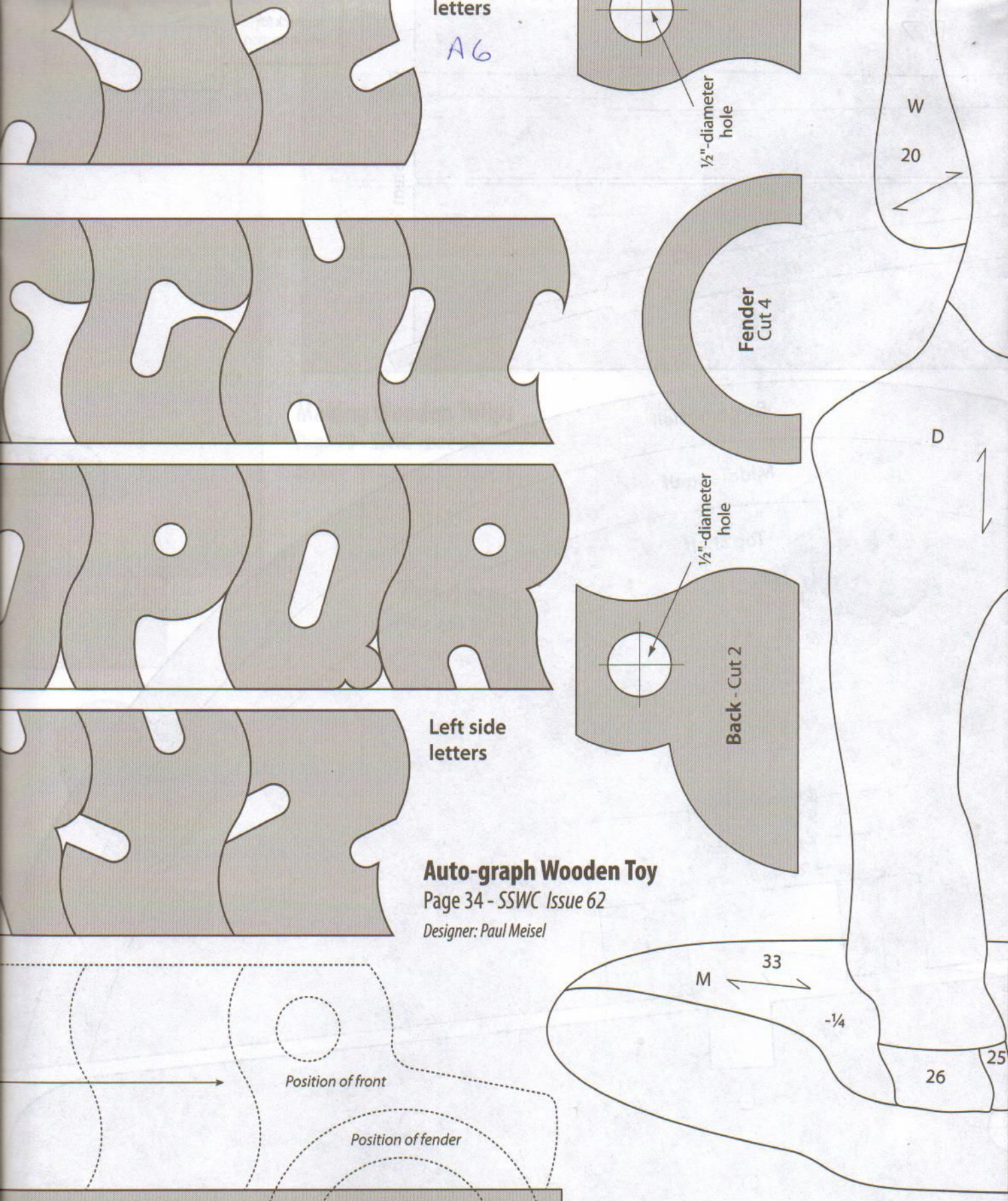


A5





Base (5 letter version)
(Add or subtract 1¼" per letter)



Auto-graph Wooden Toy

Page 34 - *SSWC Issue 62*

Designer: Paul Meisel

A7

W
19

W
18

21

22

-¼

D

23

D

-¼

34

M

27

28

-¼

M

35

Dark all hooves

-¼

-¼

37

M

29

Dark al

A8

W

16

Hardwood Baby Teethers

Page 48 - SSWC Issue 62

Designer: Tim Gilman

Pinewood Champ Speed Secrets

Page 63 - SSWC Issue 62

Designer: Steve Robbins of Derby Monkey

Weight pocket cover

Starfighter

Standard BSA wheelbase

Axle line

Axle line

Legend

Start with ¾" wood

- Grain direction
- B..... Black ebony / darkest shade
- D..... Dark shade of wood
- M..... Medium shade of wood
- MD..... Medium dark shade of wood
- L..... Light shade of wood
- W..... Any white wood
- -¼..... Sand or plane down ¼"
- +¼.....Use ¼" thicker wood
- -½ ..... Plane down ½", or use ¼" wood

D

24

36

M

-¼

32

oves

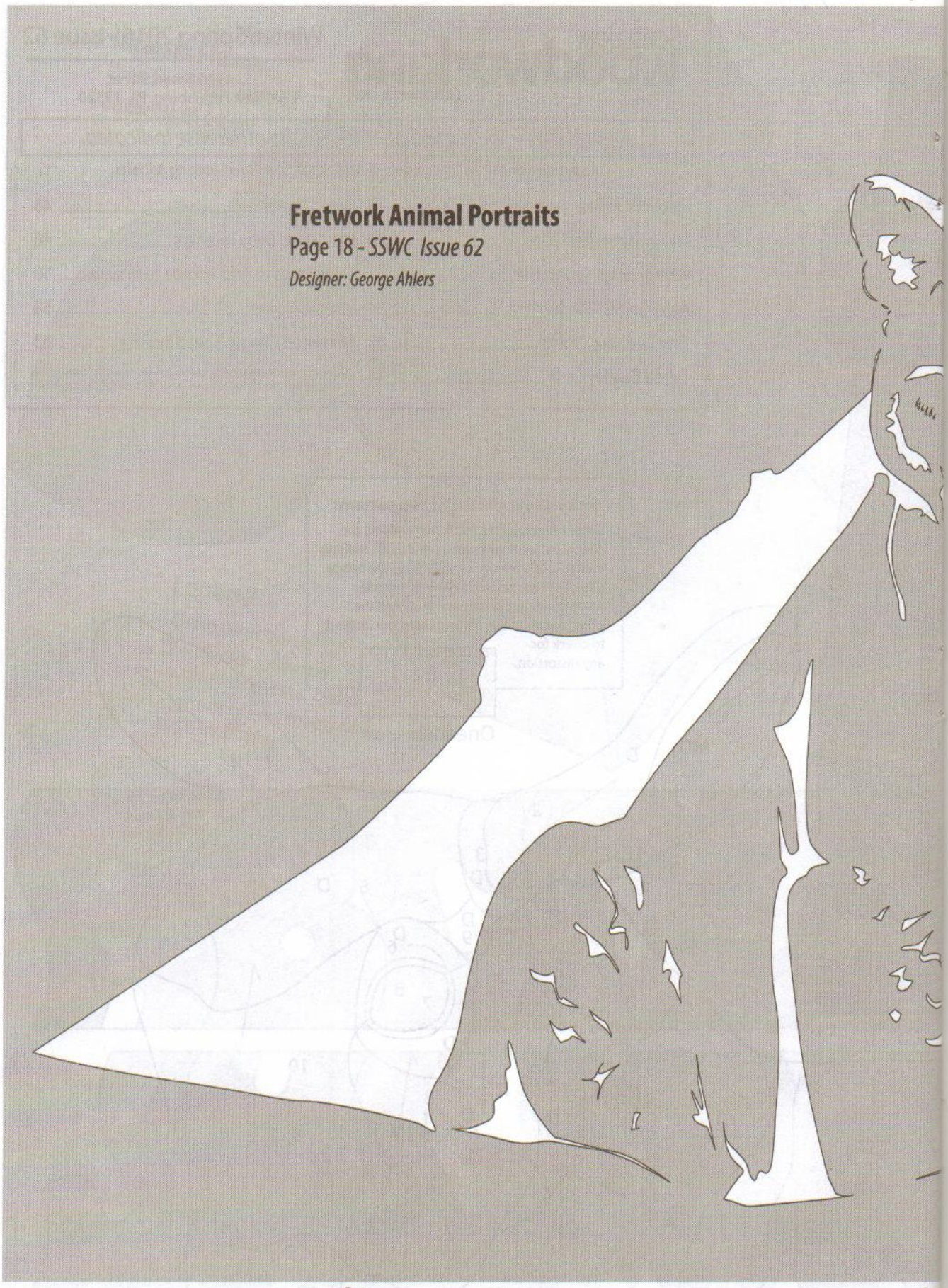
-¼

B1

Fretwork Animal Portraits

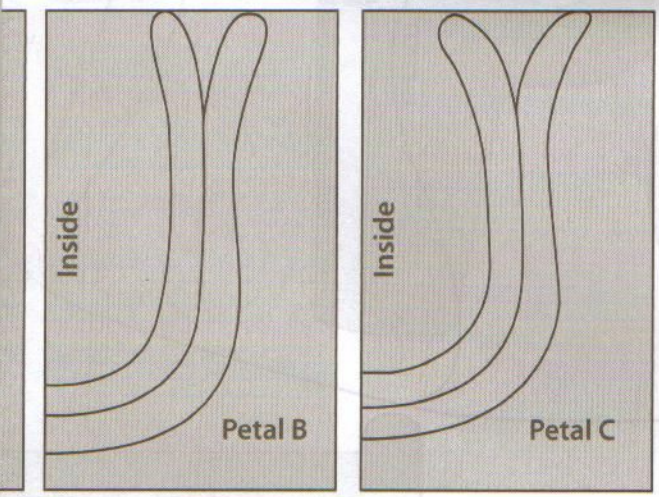
Page 18 - *SSWC Issue 62*

Designer: George Ahlers



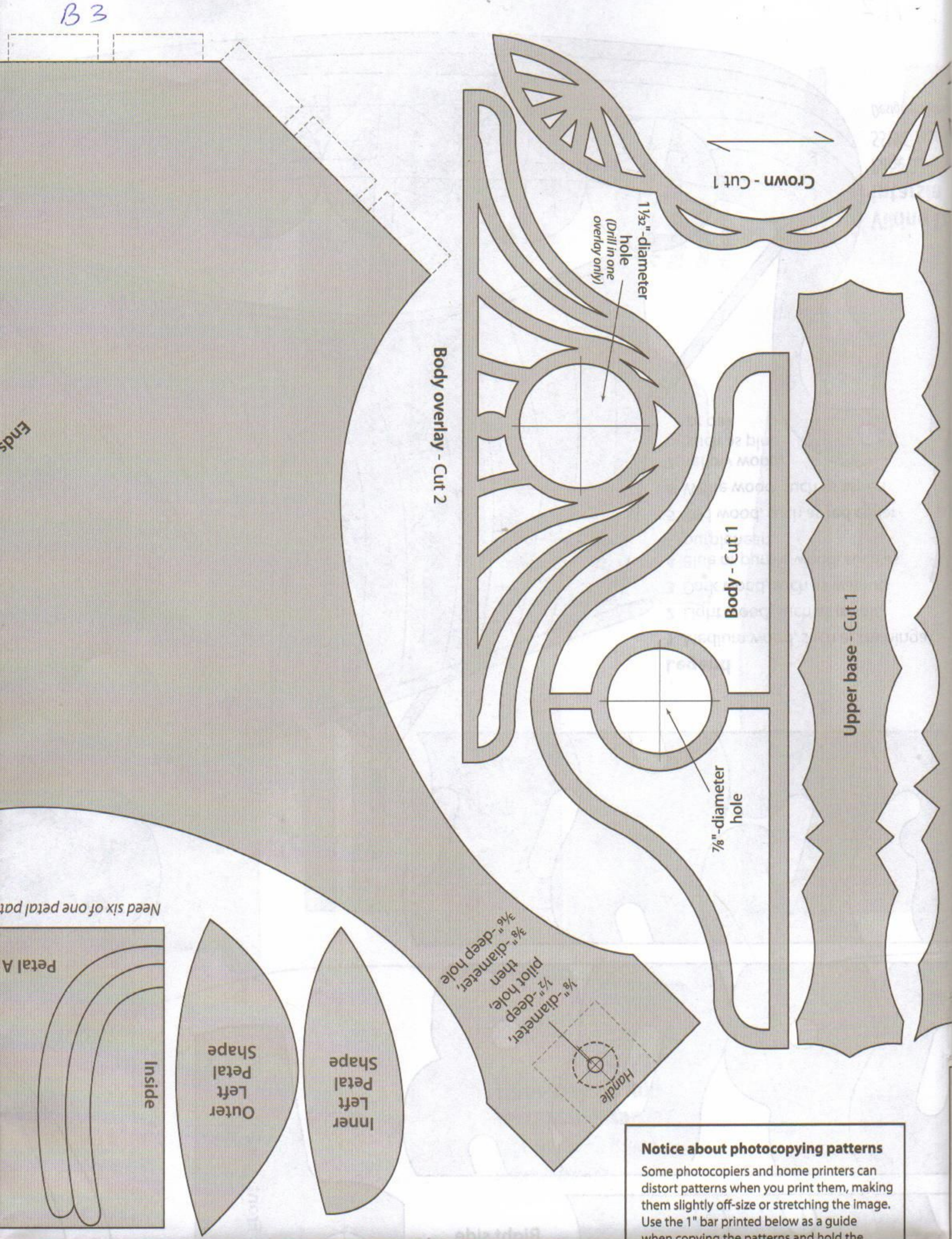
Leaf 1

Le



ern per tulip

Slated Basket
Page 46 - SSWC Issue 62
Designer: John A. Nelson



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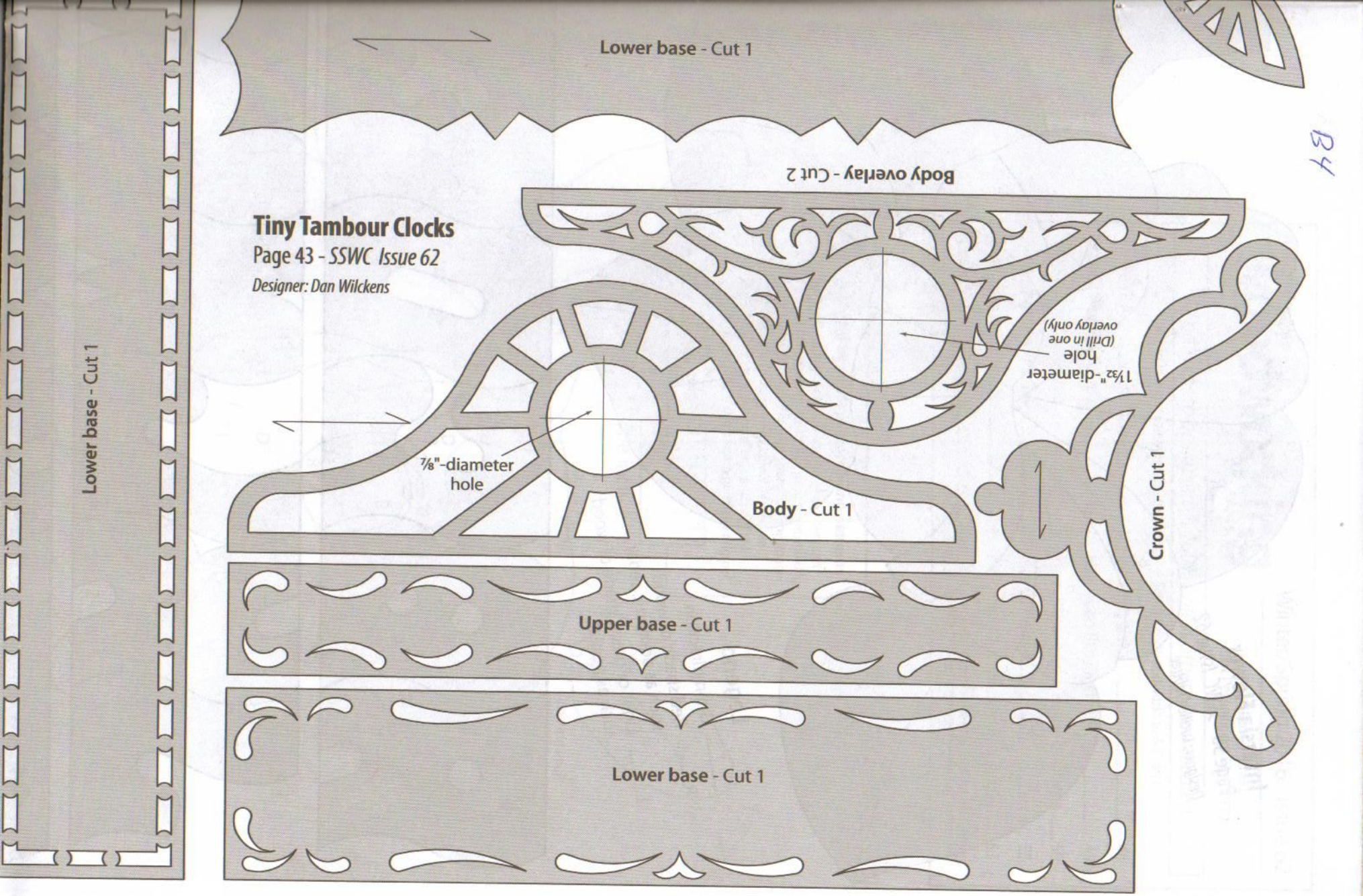
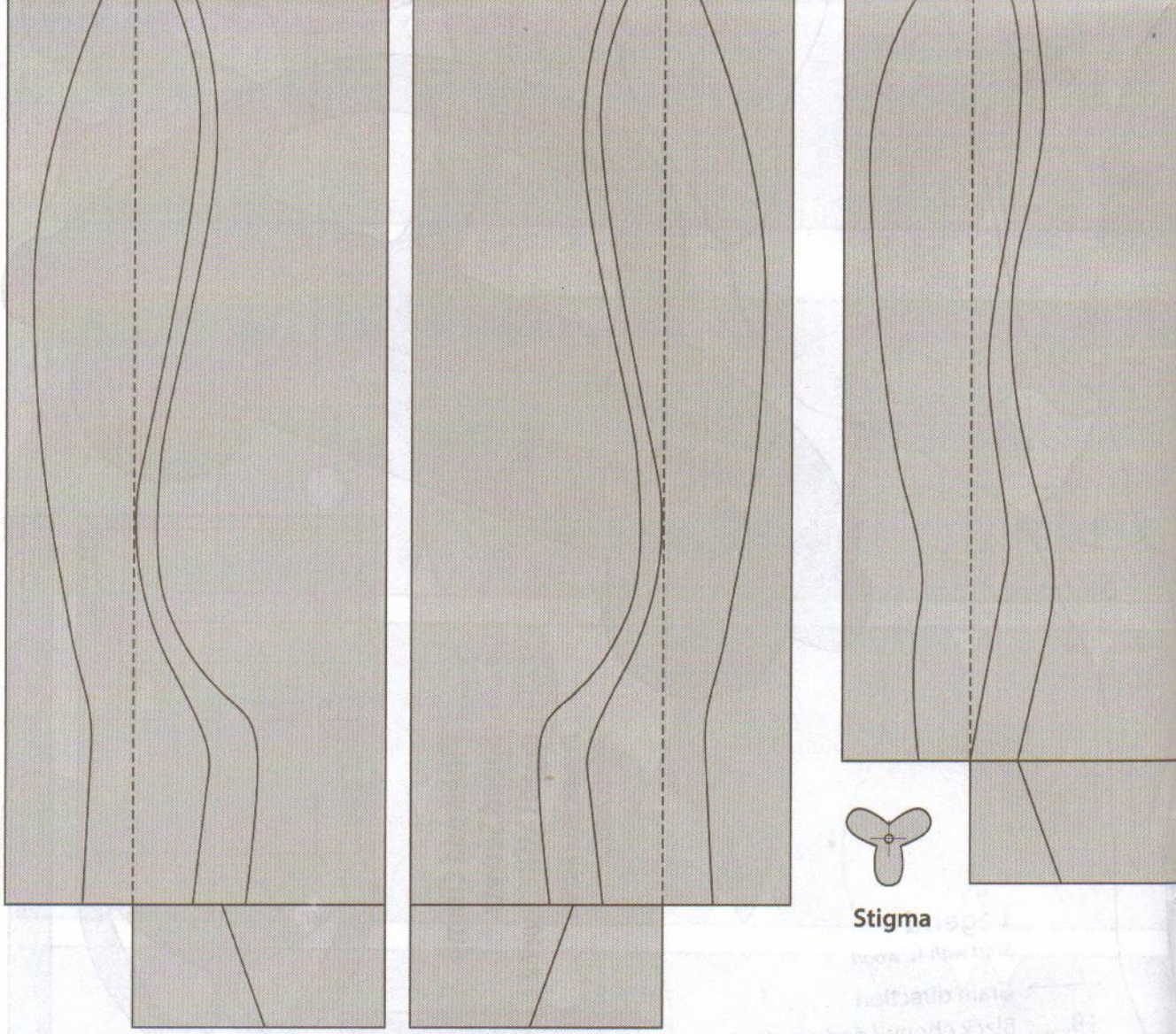
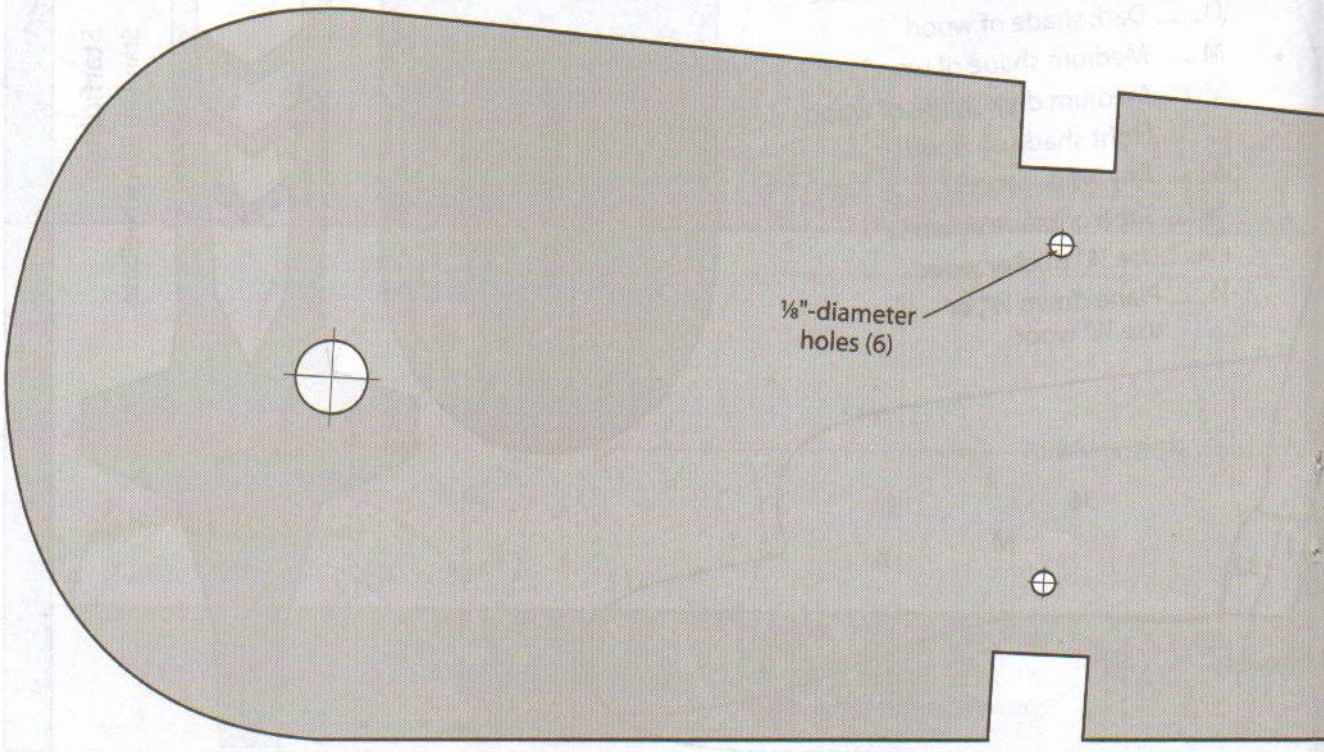
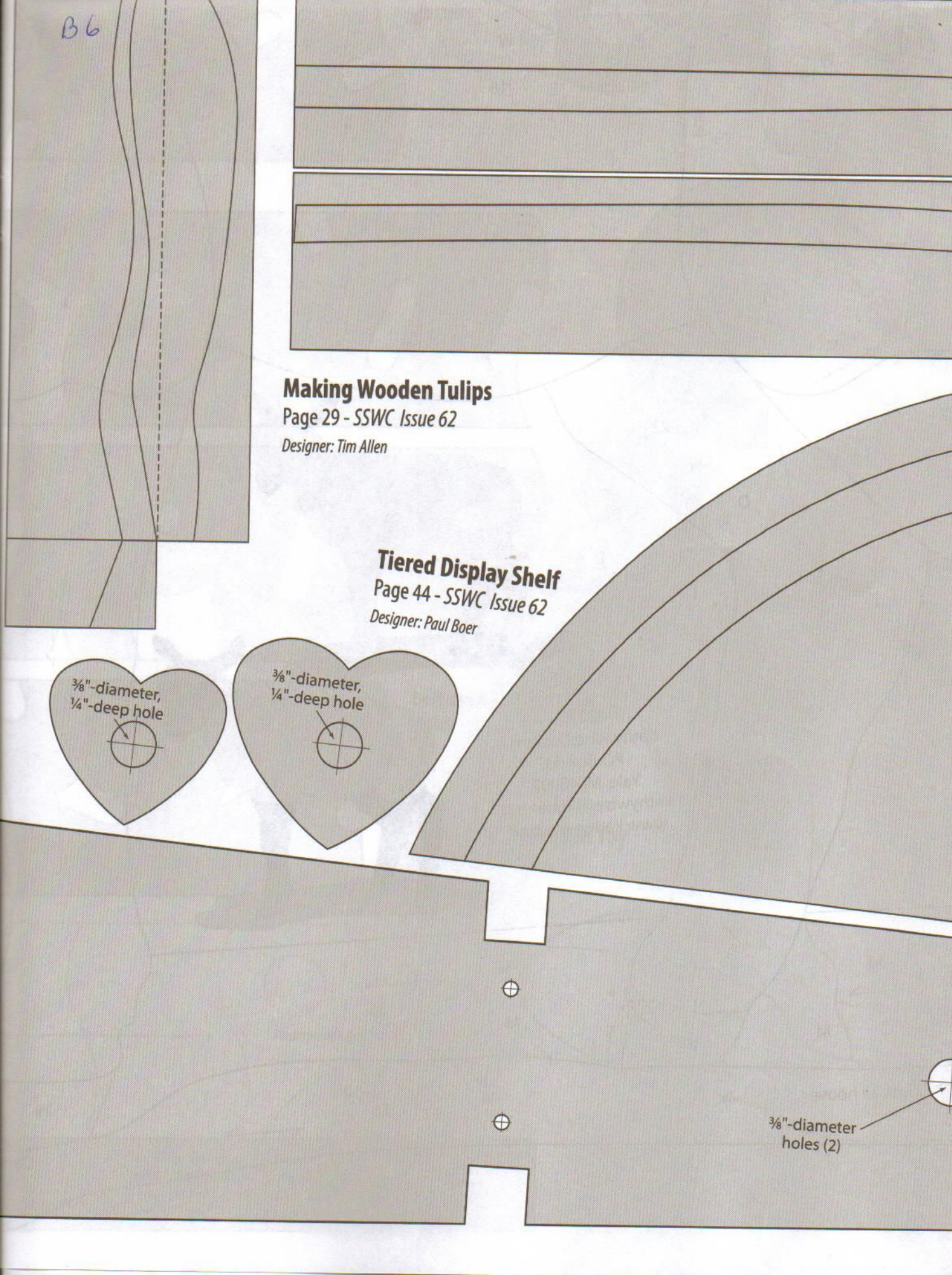

Lower base - Cut 1
Lower base - Cut 1
Body overlay - Cut 2
Tiny Tambour Clocks
Page 43 - SSWC Issue 62
Designer: Dan Wilckens
1½"-diameter hole (Drill in one overlay only)
⅞"-diameter hole
Body - Cut 1
Crown - Cut 1
Upper base - Cut 1
Lower base - Cut 1


Stigma


⅛"-diameter
holes (6)


B6
Making Wooden Tulips
Page 29 - SSWC Issue 62
Designer: Tim Allen
Tiered Display Shelf
Page 44 - SSWC Issue 62
Designer: Paul Boer
⅜"-diameter, ¼"-deep hole
⅜"-diameter, ¼"-deep hole
⅜"-diameter holes (2)

B7

photocopies of the pattern up to the original to check for any distortion.

One inch

Stem

Bottom shelf

Middle shelf

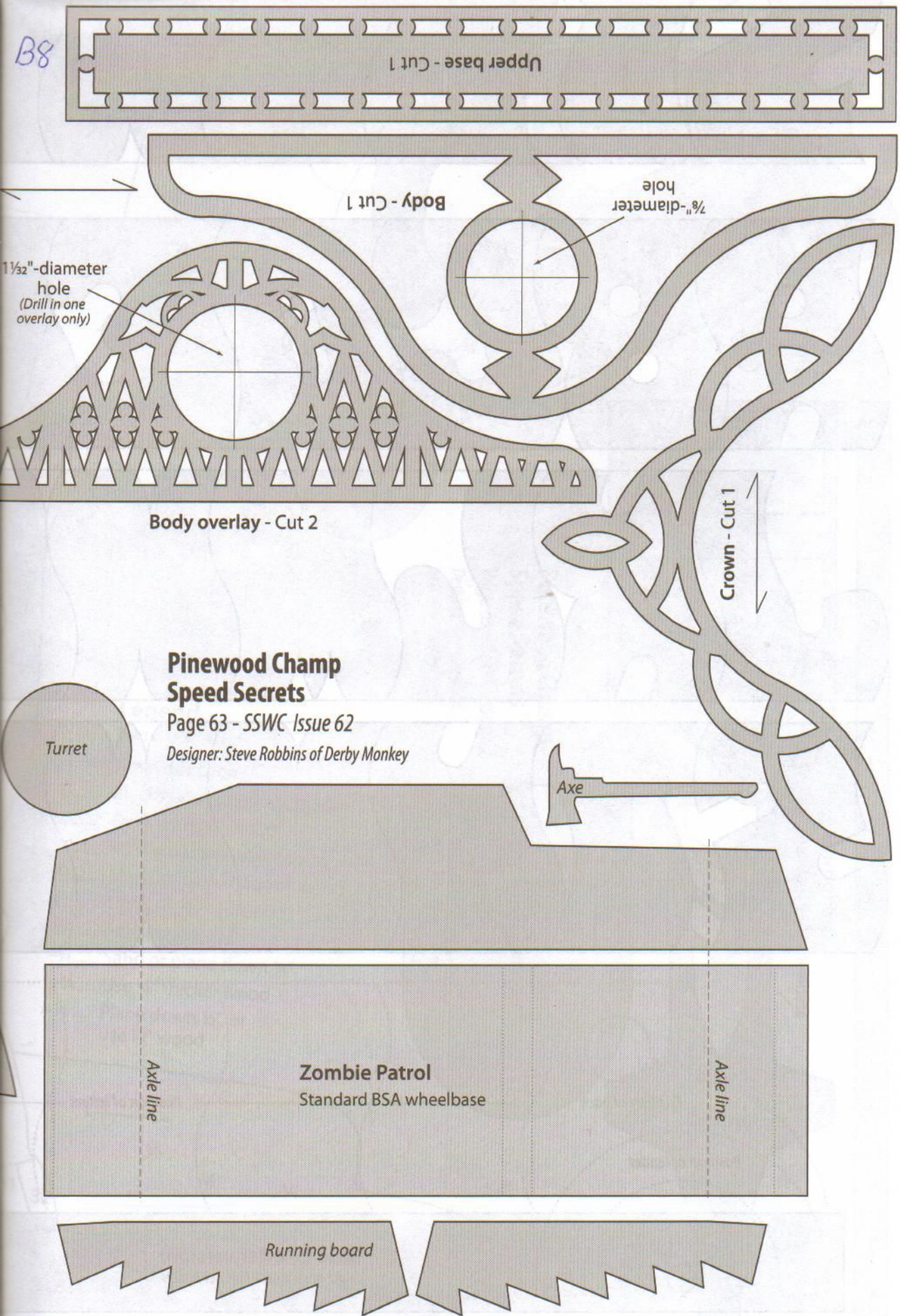
Top shelf

Bottom shelf notch

Middle shelf notch

Top shelf notch

B8



Pinewood Champ Speed Secrets

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Designer: Steve Robbins of Derby Monkey